ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
Tank Programs Division
Underground Storage Tank (UST) Program

DOCUMENT SUBMITTAL FORM

ADEQ use only

☑ use form as COVER SHEET when submitting the documents listed below.
☑ use only for the documents listed below.
☑ all requested information must be provided.

UST FACILITY INFORMATION:

Thomas O. Price Service Center — Facility Name
0-005160 — Facility ID
4004 South Park Avenue — Street Address
0767.01-05 — LUST Number(s)
Tucson — City
85714 — Zip Code
Pima — County

PERSON RESPONSIBLE FOR SUBMITTING DOCUMENT:

Nancy Petersen, Deputy Director — Name
PO Box 27210, — Street Address
Tucson, — City
85726-7210 — Zip Code
520-791-3175 — Telephone (daytime)

PERSON CATEGORY (check just one)	ADEQ ID #
✓ UST owner	932
☐ UST operator	
☐ UST volunteer/ Property owner	

RELEASE OR CORRECTIVE ACTION DOCUMENT: (check all that are attached) [A.A.C. = Arizona Administrative Code]

DOCUMENT	A.A.C. CITATION	DOCUMENT	A.A.C. CITATION
☐ 14 day report (suspected release)	R18-12-251(E)	☐ Site characterization report (SCR)	R18-12-262(D)
☐ 90 day report (suspected release)	R18-12-251(F)	✓ Periodic site status report	R18-12-263(G)
☐ 14 day report (confirmed release)	R18-12-260(C)	☐ Tier 2 risk evaluation	R18-12-263.01(B)(2)
☐ 90 day report (confirmed release)	R18-12-261(D)	☐ Tier 3 risk evaluation	R18-12-263.01(B)(3)
☐ LUST site classification form	R18-12-261.01(E)	☐ Corrective action plan (CAP)	R18-12-263.02(B)
☐ Free Product Report	R18-12-261.02(C)	☐ Corrective action completion report w/LUST case closure request	R18-12-263.03(D)

CERTIFICATION STATEMENT OF UST OWNER, OPERATOR OR VOLUNTEER:

"I hereby certify, under penalty of law, that this submittal and all attachments are, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are penalties for submitting false information, including the possibility of a fine and imprisonment for knowing violations."

Signature of UST owner, operator or volunteer — Date: 11/3/14

Nancy Petersen — Name of UST owner, operator or volunteer (printed)

Deputy Director, Environmental Services — Title

CITY OF TUCSON
ENVIRONMENTAL SERVICES

Do More Blue

November 3, 2014

VIA CERTIFIED US MAIL

Ms. Tara Rosie, Manager
UST Corrective Action Section, Waste Programs Division
Arizona Department of Environmental Quality
1110 West Washington Street
Phoenix, AZ 85007

Subject: Thomas O. Price Service Center (LUST File No. 0767.01-0767.05, ADEQ Facility No. 0-005160) Annual Status and Groundwater Monitoring Report (January 2013 through December 2013)

Dear Ms. Rosie:

Enclosed please find a copy of the Annual Status and Groundwater Monitoring Report for the above referenced facility. The monitoring and remediation were conducted in accordance with the Arizona Department of Environmental Quality (ADEQ) approved Corrective Action Plan (CAP) Addendum (IT Corporation, 2001) and the CAP Modification (SCS Engineers, 2002). This report describes the monitoring and remedial activities conducted during the time period of January 2013 through December 2013, including groundwater sampling, liquid phase hydrocarbon measurement and recovery, and soil vapor extraction.

During this monitoring period, free-product was discovered in a down-gradient monitor well WR-220A. As documented in the attached report, further investigation supports that the source of product in this well and one other (PCM-516A) are not from the historic release at Thomas O. Price Service Center; but from potentially different source(s) within the vicinity of these wells. The City of Tucson is requesting to meet with ADEQ to discuss the free-product present in these wells. Richard Byrd will be contacting you in approximately two weeks to schedule a meeting.

Please contact Richard Byrd, the Environmental Management Program Coordinator for this project, at (520) 837-3710 if you have any questions regarding this annual report. In addition to one full hardcopy, a CD of the report is enclosed in the back cover.

Sincerely,

Nancy Petersen
Deputy Director

NP/LE/je

Enclosures
ADEQ LUST Document Submittal Form
Annual Status and Groundwater Monitoring Report 2013 (1 hardcopy & CD)

4004 S. PARK AVE. • P.O. BOX 27210 • TUCSON, AZ 85726-7210
(520) 791-3175 • FAX (520) 791-4155
www.cityoftucson.org

cc: Bill Osteen, Golden Eagle Distributors (Report on CD)
Jeanne Nordstrom, SAVAHCS (Report on CD)
Jeff Langejans, City of Tucson, Fire Department (email)
Richard Byrd, City of Tucson, Environmental Services (email)
Mike Henrich, City of Tucson, Environmental Services (email)
File – Price Service Center (bound full hardcopy) & SIRE ETS

Cardno
Shaping the Future

October 29, 2014

Cardno

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www.cardno.com

Ms. Tara Rosie
Arizona Department of Environmental Quality
Waste Programs Division, UST Corrective Action Section
1110 West Washington Street
Phoenix, Arizona 85007

RE: Certification Letter
2013 Annual Remediation Status and Groundwater Monitoring Report
Thomas O. Price Service Center
4004 South Park Avenue
Tucson, Arizona
ADEQ LUST File Nos. 0767.01-.05; ADEQ Facility ID No. 0-005160
Cardno Project No. 034.39934.0001

Dear Ms. Rosie:

Cardno was retained by the City of Tucson Environmental Services (COT-ES) to review the technical merit of the referenced document and to provide the underlying Certification Statement.

Certification: The 2013 Annual Remediation Status and Groundwater Monitoring Report for the Thomas O. Price Service Center, located in Tucson, Arizona was prepared by COT-ES. Based on Cardno's review of the document, it is our opinion that the findings and conclusions presented have been developed in accordance with currently accepted geological and engineering standards and practices applicable to this location. Based on my inquiry of the COT-ES persons responsible for gathering the information presented in this report, the information is, to the best of my knowledge and belief, true accurate and complete to the extent practicable. I am aware that there are significant penalties for submitting false information.

Girard E. Morgan
Arizona Registered Geologist No. 32827
Principal Geologist

If you have any questions, feel free to contact the undersigned.

Sincerely,

REGISTERED GEOLOGIST
CERTIFICATE NO.
32827
GIRARD E.
MORGAN
Date Signed 10/29/14
ARIZONA U.S.A.

EXPIRES: 9/30/2016

Girard E. Morgan, R.G.
Principal Geologist
for Cardno
Direct Line +1 480 355 4613
Email: ric.morgan@cardno.com

2013 ANNUAL REMEDIATION STATUS AND GROUNDWATER MONITORING REPORT

NOVEMBER 3, 2014

THOMAS O. PRICE SERVICE CENTER
TUCSON, AZ
LUST File No. 0767.01 - 0767.05
ADEQ Facility ID No. 0-005160

Prepared by:
City of Tucson
Environmental Services
P.O. Box 27210
Tucson, Arizona 85726-7210

CITY OF TUCSON
ENVIRONMENTAL SERVICES

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List of Acronyms

2-Butanone	(MEK)
Arizona Department of Environmental Quality	(ADEQ)
Arizona Department of Health Services	(ADHS)
Arizona Aquifer Water Quality Standards	(AWQS)
Below Land Surface	(BLS)
Benzene, Toluene, Ethyl-benzene, Xylene	(BTEX)
City of Tucson Environmental Services	(COT-ES)
City of Tucson Fire Station Number 10	(TFS-10)
Corrective Action Plan	(CAP)
Cubic Feet Per Minute	(CFM)
Dissolved oxygen	(DO)
Gas Chromatography/Mass Spectrometer	(GC/MS)
Leaking Underground Storage Tank	(LUST)
Light Non-Aqueous Phase Liquid	(LNAPL)
Liquid Petroleum Hydrocarbon	(LPH)
Methyl Tert-butyl Ether	(MTBE)
Monitored Natural Attenuation	(MNA)
Oxidation-Reduction Potential	(ORP)
Parts per Million by Volume	(ppmv)
Quality Control/Quality Assurance	(QA/QC)
Soil Vapor Extraction	(SVE)
Specific Conductance	(SpC)
Thomas O. Price Service Center	(PSC)
Total Petroleum Hydrocarbon	(TPH)
Total Volatile Fuel Hydrocarbons	(TVFH)
Underground Storage Tanks	(USTs)
Vacuum Enhanced Liquid Phase Hydrocarbon Remediation	(VELPHR)
Volatile Organic Analysis	(VOA)
Volatile Organic Compounds	(VOCs)

EXECUTIVE SUMMARY

This report presents the results of monitoring and remediation activities conducted by the City of Tucson Environmental Services Department (COT-ES) for the period January 1, 2013 through December 31, 2013 at the Thomas O. Price Service Center (PSC) LUST site in Tucson, Arizona. Investigation and remediation activities began at the site when evidence of petroleum releases was reported to the Arizona Department of Environmental Quality (ADEQ) on June 14, 1989. Since the initial discovery, the site has been investigated and remediated under ADEQ's LUST program. The PSC appears to be the source of Liquid-Phase Hydrocarbon (LPH, also referred to as free product) and dissolved petroleum hydrocarbons in the shallow groundwater zone extending northward from the PSC to the City of Tucson Fire Station Number 10 (TFS-10), located north of Ajo Way with the exception of the product found in wells WR-220A and PCM-516A.

During the routine annual groundwater monitoring event that was conducted in March 2013, COT-ES measured depth to water and/or free phase product levels in 63 shallow screened and 13 deep screened wells, and collected groundwater samples from 38 shallow and 11 deep monitoring wells. During 2013, the measurable free product recorded in 23 shallow groundwater zone wells indicated the extent of free-product has decreased over the previous five years (Table 1, Figure 8, and Appendix B). Concentrations of benzene, toluene, ethylbenzene, and xylene (BTEX) and methyl tert-butyl ether (MTBE) in the shallow aquifer declined in 2013, except for concentrations of MTBE in three wells (Appendix G). Wells R-018A, PCM-508A and PCM-508B have increased in MTBE concentrations. Of the remaining VOCs detected, only naphthalene exceeded its respective Tier 1 Cleanup Standards in well WR-224A. Deep monitor well WR-227A has a concentration of 41 µg/L. The MTBE concentrations for WR-227A slightly increased from the previous year (37.6 µg/L), but has overall decreased compared to previous years (maximum concentration 140 µg/L in April 2010).

The City discovered 1.62 feet of product (gasoline) in shallow groundwater well WR-220A on March 20, 2013. A fuel forensics analysis comparison for WR-220A and other site wells, and a

file review of other nearby LUST sites were conducted. The fuel forensic report indicates the product present in monitor wells PCM-516A and WR-220A are relatively less weathered than expected for fuel released in the 1980's from PSC. There does not appear to have been adequate travel time for gasoline to reach these remote locations provided their respective distances from the release area at PSC and groundwater flow rate. In addition, product compound comparison for these two wells indicate the product was similar to each other, but yet substantially different from other product samples analyzed. Several other potential leak sources exist near WR-220A and PCM-516A including numerous closed LUST sites and the Kinder Morgan Energy Partners L.P. (KMEP) petroleum pipeline.

During 2013 free product recovery was accomplished by skimmer pumps, air sweep and SVE at TFS-10, and air injection and SVE at PSC. Air sweep technology replaced all free product recovery pumps by April 2013 at TFS-10. At TFS-10, approximately 25,338 pounds (equivalent of 4,224 gallons) of free product were removed and destroyed in the vapor phase through air sweep and SVE. South of Ajo Way at PSC, approximately 1,124 pounds (or 188 gallons equivalent) of petroleum hydrocarbons was removed through SVE in 2013. Free product thicknesses measured in April 2013 indicated that the volume of free product floating on the groundwater surface decreased from 2012 in the TFS-10 area, but increased in area on the PSC side (Figure 8).

On August 8, 13, and 14, 2013, Cardno ERI evaluated the feasibility and effectiveness of adding air sparge technology in combination with the existing SVE unit at PSC. COT-ES is evaluating this study, and determining the next remedial avenues that would provide a good recovery rate of free-product and be cost effective.

A total of 77 gallons of free-product was manually bailed from wells PCM-516A (62.75 gallons), WR-220A (12.25 gallons), R-037A (1.0 gallon), R-028A (0.5 gallon), R-035A (0.25 gallon), and R-050A (0.25 gallon) during 2013. Amounts recovered from PCM-516A declined from an average of 3 gallons a week at the beginning of the year to 1 gallon a week towards the end of the

year. Although COT-ES contends the free-product in WR-220A originated from a different source, COT-ES began bailing free-product in November 2013 on a weekly basis.

1.0 INTRODUCTION

This report summarizes monitoring and remediation activities at the Thomas O. Price Service Center (PSC) and City of Tucson Fire Station Number 10 (TFS-10), Arizona Department of Environmental Quality (ADEQ) Facility ID No. 0-005160 and Leaking Underground Storage Tank (LUST) File No. 0767.01 through .05 from January 1, 2013 through December 31, 2013. Monitoring periods are based on calendar years (January – December), and reported to ADEQ by the following April/May.

The PSC is the primary Operations and Communications Center for the City of Tucson, located at 4004 South Park Avenue, Tucson, Arizona, near the southwest corner of Park Avenue and Ajo Way (Figures 1 and 2). The PSC formerly contained 23 underground storage tanks (USTs) and associated equipment that were the sources of multiple petroleum releases. In June 1989, diesel fuel was observed seeping from concrete joints at the north end of the dispenser islands. All of the USTs were taken out of service by November 1992. Since the initial discovery, the site has been investigated and remediated under ADEQ's LUST program. The PSC appears to be the source of Liquid-Phase Hydrocarbon (LPH, also referred to as free product) and dissolved petroleum hydrocarbons in the shallow groundwater zone extending northward from the PSC to the TFS-10, located north of Ajo Way (Figure 2).

Monitor and remediation wells at the site are either screened across the shallow or deep zone perched aquifers. The shallow zone was defined in the original CAP (HydroGeoChem, 1994) as the upper most groundwater beneath the site with depth to water approximately 90 to 115 feet below ground surface (ft bgs). The deep zone was defined as the second groundwater bearing zone encountered beneath the site with depths to water approximately 114 to 145 ft bgs. The deep zone appears to be fairly well isolated from the regional aquifer which is 40 to 50 feet below the deep zone.

Remedial site goals are to remove free product that is floating on the groundwater table and to remove residual hydrocarbons in the vadose zone. Currently, the free product plume is primarily beneath the TFS-10. Remedial activities include direct product recovery by skimmer pumps, hand bailing, air sparging/sweep, and SVE. Skimmer pumps were phased out and replaced with air sweep and SVE technology during this calendar year with no skimmer pumps remaining by June 2013. Figure 2 presents the site layout showing the locations of the PSC and TFS-10 and the location of monitoring and recovery wells located in and around the project site. Detailed views of the PSC and TFS-10 layouts are shown in Figures 3 and 4, respectively.

1.1 Annual Monitoring and Remediation Activities Requirements

The monitoring and remedial requirements for the PSC and TFS-10 are outlined in the Corrective Action Plan (CAP) Addendum (IT Corporation, 2001), the CAP Modification (SCS Engineers, 2002), and the February 22, 2006, February 10, 2010, and May 12, 2011 letters from COT-ES to ADEQ requesting modifications to the Annual Groundwater Monitoring Analysis Matrix. Monitoring and remediation activities conducted during the annual 2013 reporting period were performed in accordance with these documents. The ADEQ approved site corrective action goals identified in the original CAP (HGC, 1994) are as follows:

Soil: Target cleanup levels in the vadose beneath the former underground fuel storage system are the ADEQ UST soil clean-up standards established in 1992 and are provided in the below table. However, if after extended SVE operation time these clean-up levels prove to not be realistically obtainable, the City of Tucson reserved the option to calculate risk-based, site-specific, soil remediation levels (IT Corporation, 2001).

Compound	ADEQ UST Soil Clean-up Levels (1992) (mg/kg)
TPH	100
Benzene	0.13
Toluene	200
Ethylbenzene	68
Xylenes	44

Groundwater: Target cleanup levels for groundwater are Aquifer Water Quality Standards (AWQS). The City of Tucson reserved the option to calculate risk-based, site-specific, groundwater remediation levels (IT Corporation, 2001). The table presented below indicates the site specific chemicals of concern.

Compound	AWQS (ug/L)
Benzene	5
Toluene	1,000
Ethylbenzene	700
Xylene	10,000
Naphthalene (no longer listed)	280
Ethylene dibromide (EDB)	0.05
1,2 dichloroethane	5

In addition to the above referenced AWQS standards, all detected compounds were compared to the ADEQ UST Program Tier 1 Cleanup Standards for Petroleum Products provided by ADEQ Project Manager Mike Harren on June 24, 2013. The standards are included in Appendix A.

2.0 ANNUAL GROUNDWATER MONITORING EVENT

The annual groundwater monitoring event was conducted in March and April 2013. Select wells were monitored in September 2013. The following tasks were completed during the monitoring period:

- Depths to groundwater and free product (if present) were measured in 63 shallow-zone wells and 13 deep-zone wells on April 19, 2013 (Table 1).

- Specific conductance (SpC), dissolved oxygen (DO), pH and oxidation-reduction potential (ORP), were measured in 44 shallow monitoring and multipurpose wells, and 11 deep-zone monitoring wells (Table 3) after sample collection.

- Between March 21, 2013 and April 24, 2013, initial groundwater samples were collected from a total of 38 shallow-zone monitoring wells and 11 deep-zone monitoring wells (Table 3). Groundwater samples were not collected from wells with free product. All samples were analyzed by EPA Method 8260B with the majority of samples reporting only dissolved concentrations of BTEX and MTBE. Seven downgradient perimeter (WR-219A, WR-222A, WR-223A, WR-224A, WR-227A, and WR-233A) and two "near-source" monitor wells (WR-217A and R-020A) were analyzed by EPA method 8260B with reporting the full list of sixty-four VOCs (full-list VOCs) available by this method. Due to free product being present in monitor wells WR-215A and WR-220A, COT-ES had to deviate from the approved analyte list (Appendix E) and sampled well R-020A for full-list VOCs as a replacement for WR-217A as a representative well near the original source area. Monitor wells WR-219A and WR-223A were already listed for full VOCs analysis and will serve as replacement wells for WR-220A.

- Between September 11 and 12, 2013, samples were obtained from the same nine wells noted above that were analyzed for full-list VOCs for to be analyzed by EPA Method

504.1 for ethylene dibromide (also known as: 1,2-dibromoethane or EDB) for detection limits below the AWQS (Table 4).

- Consulting firm Cardno ERI was hired in the last quarter of 2011 to assist in the monthly gaging of depth to water and free-product, and to maintain and improve remediation efforts at the TFS-10. In May 2013, Cardno's responsibilities were expanded to maintain and improve remedial efforts at the PSC SVE unit.

2.1 Water Level Monitoring

The April 2013 groundwater level measurements were used to construct potentiometric groundwater elevation contour maps that depict conditions consistent to historic reports.

The groundwater flow direction in the shallow zone system is to the north-northeast with a calculated hydraulic gradient of approximately 0.0086 ft/ft across the study area in April 2013 (Figure 5).

The groundwater flow direction and gradients are to the northwest in the deep groundwater zone (Figure 6). The flow directions and gradients in both groundwater zones are generally consistent with those of previous reporting periods.

2.2 Apparent Free Product Thickness

Free product is present at most of the TFS-10 property, and it extends eastward along the Ajo Way east of Park Ave. Free product is also present south across Ajo Way on the Price Service Center property (Figure 7). Depth to water and free product thicknesses were measured 7 days and 37 days on March 20, 2013 and April 19, 2013, respectively after remedial efforts had been ceased on March 13, 2013. The April 19, 2013 measurements were used for mapping and reporting purposes (Table 1 and Figure 7). The time which the remediation systems and efforts were ceased was extended an additional time (37 days) in 2013 to observe if significant rebound occurred. Between the two measurement events, the largest free-product thickness variations in remediation wells were observed in PCM-534A which decreased by 1.93 ft, and PCM-507A which increased by 0.85 ft. Since no significant rebound was observed, the next annual 2014 event will return to resting the remedial systems for only a week (7 days).

Table 1 and Figure 7 present the April 2013 depths to free product, free product thicknesses, and depths to groundwater. Measurable free product was recorded in 23 shallow groundwater zone

wells. Shallow groundwater well WR-220A was discovered to have 1.62 feet of product on March 20, 2013. This was the first time detecting product at this well; the well was installed in June 1993. Being this well is located approximately 1,500 feet down-gradient from the PSC former UST locations (the release area), other sources are suspected for the product present at this well.

The thickest LPH accumulations in April 2013 were measured in the TFS-10 vicinity in wells R-032A (2.91 feet) and PCM-507A (2.16 feet). The LPH thickness boundaries were contoured at intervals of 0.00, 0.10, 0.50, and >1 in feet and included as Figure 7. The April 2013 contours were compared to previous free product contours years 2012 thru 2009 on Figure 8. Figure 8 shows changes of free product at the site over a four year period with consistent scales (1:4,800 absolute), intervals (0.00, 0.10, 0.50, and >1 ft), and color scheme. The previous year contours were initially provided in their respective annual monitoring reports.

Free product thicknesses measured in April 2013 indicate that the volume of free product floating on the groundwater surface decreased from 2012 in the TFS-10 area, but increased in area on the PSC side.

In addition to the above yearly comparison with resting the systems, free product thicknesses are gaged in all wells with product monthly and charted (Appendix B). The list of wells measured monthly is adjusted based on the yearly comprehensive event. The charts are separated by remediation zones or area, and will be discussed in more details under the remediation portion of the report.

No deep-zone wells contained free product during the monitoring period, nor has LPH been detected in the deep-zone aquifer at any time since monitoring began at this site.

2.3 Free-Product Investigation at WR-220A

Due to the discovery of 1.62 feet of product in shallow groundwater well WR-220A on March 20, 2013; the COT-ES conducted an assessment of other potential sources for the free product. The COT-ES collected product samples from WR-220A and several on-site wells and performed a fuel forensics analysis comparison. Cardno ERI conducted a file review of other nearby LUST sites.

The COT-ES collected fuel samples PCM-510B, PCM-512A, PCM-516A, R-027A, R-031A, R-047A, and WR-220A that were analyzed for fuel forensics analysis and a written evaluation by

Accutest Laboratories (Appendix C). The samples were analyzed for hydrocarbon fingerprints, extended MAH/PAH, alkyl lead compounds, and for gasoline volatile compounds, including paraffins, isoparaffins, aromatics, naphthenics, and olefins (PIANO) with fuel oxygenates by using the following methods: EPA 3580, EPA 8100M, EPA 8270M, and EPA 8260M. Results indicated that fuel from monitor wells PCM-516A and WR-220A doesn't appear to be the same as fuel present in wells originated from PSC. The fuel forensic report indicates the product present in monitor wells PCM-516A and WR-220A are relatively less weathered than expected if released in the 1980's from PSC. There does not appear to have been adequate travel time for gasoline to reach these remote locations provided their respective distances from the release area at PSC and groundwater flow rate. In addition, product compound comparison for these two wells indicated the product was similar to each other, but yet substantially different from other product samples analyzed.

Several other potential sources exist near WR-220A and PCM-516A including numerous closed LUST sites and the Kinder Morgan Energy Partners L.P. (KMEP) petroleum pipeline. COT-ES tasked Cardno ERI to conduct a file review of adjacent LUST cases near monitor well WR-220A; the case file review report is included as Appendix D. The following four closed LUST sites were identified:

- Chevron Station, Facility ID #0-001052, Closed LUST Numbers 4234.01 and .02
- Texaco Station, Facility ID #0-004960, Closed LUST Number 5347.0
- Arco Station, Facility ID #0-008218, Closed LUST Number 5275.01
- Unocal Service Station, Facility ID #0-005278, Closed LUST Numbers 0632.01 through 0632.03

The Kinder Morgan Energy Partners L.P. (KMEP) delivers petroleum products by a 12" pipeline from El Paso to the Tucson Terminal located at 3841 E. Refinery Way. From the Tucson Terminal, the pipeline heads west on Ajo Way, and then proceeds diagonally northwest following Evans Blvd, traveling directly adjacent to monitor well WR-220A (see Figure 7).

2.4 Groundwater Sampling and Field Parameter Measurements

Between March 21, 2013 and April 24, 2013, groundwater samples were collected from a total of 38 shallow-zone monitor wells and 11 deep-zone monitor wells. Groundwater samples were not collected from wells with free product as indicated during the March and April site-wide gauging event (Table 1) or if product was present at time of sample collection. Following the annual monitoring event, monitor well R-020A was resampled in September 2013 for full VOCs as

representative sample of the PSC source area. In addition, on September 11 and 12, 2013, samples were obtained from nine wells for lower detection limits of ethylene dibromide (also known as: 1,2-dibromoethane or EDB) by EPA Method 504.1. The wells chosen for this analysis were the same wells sampled for full-list VOCs.

Groundwater sampling was conducted in general compliance with the State of Arizona Department of Environmental Quality Underground Storage Tank Program *Release Reporting and Corrective Action Guidance, Appendix H. Groundwater Sampling,* dated August 20, 2002. Groundwater samples were collected by a disposable single check valve bailer, as a grab method, with no well purging. Field parameters, including temperature, pH, SpC, temperature, DO, ORP, and turbidity were measured and recorded on the field sheets after sample vials were filled. The field parameter measurements are presented in Table 2.

Field QA protocol during the sampling event consisted of:

- One trip blank per day or per each cooler was collected.
- Collection of one duplicate sample for every ten primary samples.

Each well sample was analyzed in accordance with the groundwater monitoring analysis matrix detailed in a May 12, 2011 letter from COT-ES to ADEQ. A copy of the currently approved groundwater monitoring analysis matrix is provided in Appendix E with the field sampling sheets. Laboratory reports are provided in Appendix F. As mentioned, all samples were collected by a single grab, no purge method, but due to the software auto fill function in the field sheet software, well purge volumes are present on the field sampling forms.

2.4.1 Shallow-Zone Analytical Results

For 2013, COT-ES selected a different laboratory for analyses and the benzene detection limit for the new laboratory is higher (<1) compared to previous years (<0.5). Because of this change in detection limit, some benzene charts in Appendix H have an appearance of increased concentration from 2012.

Dissolved BTEX and MTBE concentrations in the shallow aquifer declined in 2013, except for MTBE in three wells (Appendix G and H). Wells R-018A, PCM-508A and PCM-508B have increased in MTBE concentrations; see below table for comparison to previous year concentrations. Twenty shallow screened and one deep screened monitor wells have elevated

MTBE concentrations (Table 3); maximum concentrations are observed near the PSC former UST location at monitor well R-018A at 13,000 µg/L.

Wells With Increasing MTBE Concentrations (µg/L)

Well	2012 MTBE	2013 MTBE
R-018A	9,550	13,000
PCM-508A	7,630	8,300
PCM-508B	5,660	6,500

Benzene was detected above the AWQS of 5 micrograms per liter (µg/L) in 6 of the 38 shallow-zone wells (Table 3, Figure 9). The 2013 benzene contours compared to previous years thru to 2009 indicate an overall decrease in areal extent (Figure 10). Concentrations of toluene, ethylbenzene, and total xylenes exceeded their respective AWQSs at well R-018A (Table 3).

Table 4 presents selected VOCs which were detected from the analysis of Method 8260B full-list and Method 504.1. Compounds detected were compared to their respective AWQS or ADEQ UST Program Tier 1 Cleanup Standard. VOCs including 1,2,4 trimethylbenzene, 1,2 dichloroethane, 1,3,5 trimethylbenzene, isopropylbenzene, naphthalene, n-propylbenzene, and sec-butylbenzene were detected in several shallow-zone monitoring wells. Of these, only naphthalene exceeded their respective Tier 1 Cleanup Standards in well WR-224A. The closest downgradient well WR-223A was also analyzed for full-list VOC, and that well is non-detect (<5) for naphthalene.

Historically the highest concentration of 1,2 dibromoethane (EDB) was observed in R-020A at 5,800 µg/L in March 2002 (Appendix G). All wells monitored for EDB by EPA Method 504.1, including R-020A were non-detect (<0.019 µg/L). At this time, the PSC site does not appear to be a significant source of EDB; therefore, COT-ES plans to discontinue analysis by EPA Method 504.1. Should future analysis through EPA Method 8260B indicate EDB is rebounding then the COT-ES will resume the additional analytical method for delineating this compound.

2.4.2 Deep Zone Analytical Results

In the 11 deep zone monitor wells, most analytical results were below laboratory detection levels (Tables 3 and 4). There were no AWQS exceedences in any of the deep zone monitor wells. No BTEX compounds were detected in any of the deep zone monitor wells. MTBE was detected in one deep zone monitor well, WR-227A, at a concentration of 41 µg/L. Concentrations of MTBE

for WR-227A slightly increased from the previous year (37.6 µg/L), but has overall decreased compared to previous years (maximum concentration 140 µg/L in April 2010).

2.5 QA\QC Results

Quality assurance/quality control (QA/QC) analyses for the 2013 sampling events included 7 duplicate sample analyses, and 6 trip blanks. Analytical results for QA/QC samples are presented in the laboratory reports in Appendix F, and summarized in tables in Appendix G.

No analytes were detected in any of the trip blanks. Trip blanks are summarized in tables included with Appendix F.

The laboratory recovery percentages were within laboratory quality assurance objectives for accuracy, except for the data qualifiers listed in the case narratives presented in Appendix F. All were within acceptable quality and would not affect data results, except for the analytical batch VR766 for sample R-020A collected on September 12, 2013. Matrix spike recovery for analytical batch VR766 was outside of control limits for the following compounds: 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, styrene, and total xylene due to matrix interference. These compounds were non-detect in the sample results. Although toluene was the only compound previously analyzed (well analytical matrix was historically BTEX and MTBE only), this compound was non-detect in the previous event, making the data consistent to historic. Remaining laboratory quality controls (method blank and laboratory blank spikes) met control criteria for this batch.

The six sample duplicate analyses were compared with the original sample analyses to evaluate the degree of laboratory precision; duplicate comparisons are summarized in tables included in Appendix F. The relative percent differences (RPD) between the sample and its duplicate for all detected analytes were within industry standards below 20% except for two compounds at well WR-210A on March 26, 2013. Benzene and ethylbenzene had relative percent difference of 40% and 44% between original and duplicate analytical results. For benzene, the original had a concentration of 1.5 µg/L and the duplicate was non-detect (<1 µg/L). The ethylbenzene concentrations were 6.1 µg/L and 3.9 µg/L between original and duplicate sample. Small deviations at low concentrations can create a large variability between original and duplicate comparisons. These variations are likely attributed from collecting the samples by two separate bailers (see field sheet for WR-210A in Appendix E). COT-ES believes there are no quality control issues with this data set, and can be used for its intended purpose.

3.0 REMEDIATION ACTIVITIES

Remedial activities during the monitoring period included direct recovery by pumping and hand bailing, air-sweeping, and vapor phase recovery by SVE. All remedial efforts were halted for the annual free-product measurement event (April) to allow the environment to stabilize and provide a check on site conditions; all other measurements are with the systems operating.

3.1 TFS-10 Remediation Activities

Free product recovery activities at TFS-10 included the operation of skimmer pumps in selected wells, and air sweep technology in combination with the VELPHR remedial system (SVE wells) (Figure 4). All skimmer pumps were replaced by April 2013 with air sweep technology. Air sweeping consists of pushing air across the top of the free-product. The system has seven zones (1-7) which represents remediation wells on the same trunk lines; the list of wells per zone is listed on Figure 4. As shown on Table 5, 16,497 gallons of free product has been removed since September 1997, when product recovery was initiated. The 2013 TFS-10 Annual System Performance Summary by Cardno ERI which is included as Appendix I summarizes the activities for the overall removal of 25,338 pounds (equivalent of 4,224 gallons) of total petroleum hydrocarbons with mostly operating Zones 5, 6, and 7 (excluding PCM-535A). During the 2nd Quarter, where the same zones operated, but two more remedial wells were off: Zone 5 (excluding R-051A), Zone 6 (excluding R-031), and Zone 7 (excluding PCM-535A). Appendix B contains apparent free product thickness charts per each TFS-10 remedial zone. These charts are based on the monthly free product measurements.

3.2 Price Service Center Remediation Activities

Remediation at Price Service Center consists of SVE. The system has three zones (A-C) which represents remediation wells on the same trunk lines; the list of wells per zone is listed on Figure 3. The Zones A-C were previously known as Legs 1-3; the numbers were converted to alphas to be specific to the PSC remedial system with TFS-10 remedial system zones being numeric. When in operation, only Zone A with soil vapor extraction wells R-017A, R-018A, and R-019A were open due to lack of significant presence of free-product in Zones B and C. Zone C has been off since June 2006. Zone B has been off since prior April 2004. The 2013 Paragon Annual System Performance Summary by Cardno ERI is provided in Appendix J. A total of 1,124

pounds (or 188 gallons) of petroleum hydrocarbons was removed through SVE in 2013. Vadose zone air injection was re-activated through existing lines and wells during the 4th Quarter 2013.

On August 8, 13, and 14, 2013, Cardno ERI evaluated the feasibility and effectiveness of adding air sparging technology in combination with the existing SVE unit on the Price Service Center side. The pilot was completed at two wells PCM-509A and PCM-510A which have dual completions within the same borehole. The report summarizing the air sparge pilot test results is included in Appendix J as an attachment to the 2013 Paragon annual report. COT-ES is evaluating this study, and will determine a future remedial avenue that would provide a good recovery rate of free-product recovery still existing in the subsurface and be cost effective.

3.3 Free Product Recovery by Hand Bailing

Manually bailed NAPL removal is documented in the 2013 TFS-10 Annual System Performance Summary report provided in Appendix I. In 2013, Cardno ERI manually bailed a total of 77 gallons of free-product from the following wells:

- PCM-516A – 62.75 gallons
- WR-220A – 12.25 gallons
- R-037A- 1.0 gallons
- R-028A – 0.5 gallons
- R-035A – 0.25 gallons
- R-050A – 0.25 gallons

Amounts recovered from PCM-516A declined from an average of 3 gallons a week at the beginning of the year to 1 gallon a week towards the end of the year. Once free-product was discovered in WR-220A, COT-ES moved this well to be measured monthly for depth to water and free-product. Due to the increasing trend of free-product accumulating in this well, COT-ES voluntarily initiated product removal beginning in November 2013 on a weekly basis. Free-product thickness charts are available in Appendix B. COT-ES will continue hand bailing efforts to lower free product levels in wells as necessary.

4.0 REFERENCES

Arizona Department of Environmental Quality, 2002, "Release Reporting and Corrective Action Guidance—Appendix H"

HydroGeoChem (HGC), 1994, "Corrective Action Plan"

IT Corporation, 2001. "Corrective Action Plan Addendum"

SCS Engineers, 2002. "Corrective Action Plan Modifications", February 11, 2002

Clear Creek Associates, 2004. "Remedial Action Effectiveness Evaluation, Thomas O. Price Service Center, Tucson, Arizona" dated January 8, 2004.

Clear Creek Associates, 2004. "Oxygen Release Compound (ORC) Installation Program, Thomas O. Price Service Center, Tucson, Arizona" dated July 30, 2004

Clear Creek Associates, 2006. "Annual Remediation Status and Groundwater Monitoring Report—September 2005 through August 2006" dated October 6, 2006.

Clear Creek Associates, 2011. "Annual Remediation Status and Groundwater Monitoring Report—September 2009 through August 2011" dated May 12, 2011.

TABLES

Table 1
LPH Thicknesses and Depths to Groundwater - April 2013
Thomas Price Service Center, City of Tucson

	Well ID	Measurement Date	GW Depth (feet below TOC) or Depth to GW/LPH Interface	Reference Point Correction Factor (ft)	Depth to Water[1] (ft bls)	Depth to LPH (feet below TOC)	LPH Thickness (feet)	Corrected Depth to Water[2] (feet below TOC)	Benchmark Elevation (ft amsl)	GW Elevation (ft amsl)
Shallow Zone Monitoring wells	PCM-506A	4/19/2013	102.73	0.86	103.59	NONE	0.00	103.59	2466.95	2363.36
	PCM-507A	4/19/2013	114.37	0.18	114.55	112.21	2.16	112.99	2477.20	2364.20
	PCM-508A	4/19/2013	106.61	0.47	107.08	NONE	0.00	107.08	2474.30	2367.22
	PCM-508B	4/19/2013	100.74	0.45	101.19	NONE	0.00	101.19	2474.30	2373.11
	PCM-509A	4/19/2013	102.55	0.48	103.03	NONE	0.00	103.03	2481.29	2378.26
	PCM-509B	4/19/2013	102.44	0.62	103.06	NONE	0.00	103.06	2481.29	2378.23
	PCM-510A	4/19/2013	102.46	0.34	102.80	NONE	0.00	102.80	2481.21	2378.41
	PCM-510B	4/19/2013	102.62	0.69	103.31	102.21	0.41	103.01	2481.21	2378.20
	PCM-511A	4/19/2013	102.76	0.41	103.17	102.65	0.11	103.09	2479.92	2376.83
	PCM-512A	4/19/2013	103.13	0.30	103.43	102.99	0.14	103.33	2480.53	2377.20
	PCM-516A	4/19/2013	116.27	0.54	116.81	114.70	1.57	115.68	2480.88	2365.20
	PCM-517A	4/19/2013	111.28	0.48	111.76	NONE	0.00	111.76	2479.28	2367.52
	PCM-534A	4/19/2013	112.41	0.31	112.72	112.02	0.39	112.44	2476.82	2364.38
	PCM-535A	4/19/2013	102.12	0.48	102.60	NONE	0.00	102.60	2475.30	2372.70
	R-012A	4/19/2013	102.15	0.72	102.87	NONE	0.00	102.87	2481.94	2379.07
	R-013A	4/19/2013	102.64	0.72	103.36	NONE	0.00	103.36	2482.28	2378.92
	R-016A	4/19/2013	101.98	0.49	102.47	NONE	0.00	102.47	2481.55	2379.08
	R-017A	4/19/2013	102.57	0.75	103.32	102.54	0.03	103.30	2482.22	2378.92
	R-018A	4/19/2013	102.09	0.65	102.74	NONE	0.00	102.74	2481.32	2378.58
	R-019A	4/19/2013	102.05	0.88	102.93	102.00	0.05	102.89	2481.35	2378.46
	R-020A	4/19/2013	101.75	0.68	102.43	NONE	0.00	102.43	2480.26	2377.83
	R-021A	4/19/2013	102.37	0.66	103.03	NONE	0.00	103.03	2482.58	2379.55
	R-022A	4/19/2013	101.94	0.88	102.82	NONE	0.00	102.82	2482.51	2379.69
	R-027A	4/19/2013	100.54	0.16	100.70	99.65	0.89	100.06	2474.92	2374.86
	R-028A	4/19/2013	98.98	0.30	99.28	98.29	0.69	98.78	2472.72	2373.93
	R-029A	4/19/2013	97.99	0.48	98.47	NONE	0.00	98.47	2472.57	2374.10
	R-030A	4/19/2013	101.91	0.70	102.61	100.80	1.11	101.81	2476.84	2375.02
	R-031A	4/19/2013	100.56	0.41	100.97	99.74	0.82	100.38	2475.04	2374.66
	R-032A	4/19/2013	102.33	0.77	103.10	99.42	2.91	101.00	2474.61	2373.61
	R-033A	4/19/2013	98.78	0.50	99.28	98.60	0.18	99.15	2472.61	2373.46
	R-034A	4/19/2013	108.31	0.54	108.85	108.30	0.01	108.84	2472.38	2363.54
	R-035A	4/19/2013	99.40	0.37	99.77	NONE	0.00	99.77	2473.79	2374.02
	R-036A	4/19/2013	100.58	0.67	101.25	NONE	0.00	101.25	2474.22	2372.97

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Thomas Price Service Center, City of Tucson

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Shallow Zone Monitoring wells	R-037A	4/19/2013	99.51	0.89	100.40	98.86	0.65	99.93	2473.96	2374.03
	R-044A	4/19/2013	103.85	0.02	103.87	NONE	0.00	103.87	2470.75	2366.88
	R-045A	4/19/2013	98.35	0.21	98.56	NONE	0.00	98.56	2471.91	2373.35
	R-046A	4/19/2013	104.17	0.41	104.58	104.14	0.03	104.56	2479.47	2374.91
	R-047A	4/19/2013	100.94	0.64	101.58	99.98	0.96	100.89	2474.61	2373.73
	R-048A	4/19/2013	98.84	1.17	100.01	NONE	0.00	100.01	2475.34	2375.33
	R-049A	4/19/2013	98.54	0.37	98.91	NONE	0.00	98.91	2473.55	2374.64
	R-050A	4/19/2013	98.89	0.39	99.28	98.83	0.06	99.24	2473.52	2374.28
	R-051A	4/19/2013	111.32	0.42	111.74	111.29	0.03	111.72	2476.18	2364.46
	R-098A	4/19/2013	107.49	0.25	107.74	107.22	0.27	107.55	2474.68	2367.13
	R-099A	4/19/2013	98.53	0.65	99.18	NONE	0.00	99.18	2474.31	2375.13
	WR-208A	4/19/2013	100.15	-0.32	99.83	NONE	0.00	99.83	2482.04	2382.21
	WR-209A	4/19/2013	103.75	-0.29	103.46	NONE	0.00	103.46	2482.27	2378.81
	WR-210A	4/19/2013	104.88	-0.74	104.14	NONE	0.00	104.14	2483.23	2379.09
	WR-211A	4/19/2013	103.34	-0.38	102.96	NONE	0.00	102.96	2481.47	2378.51
	WR-212A	4/19/2013	99.36	0.22	99.58	NONE	0.00	99.58	2473.63	2374.05
	WR-213A	4/19/2013	100.39	-0.13	100.26	NONE	0.00	100.26	2478.38	2378.12
	WR-214A	4/19/2013	108.99	-0.57	108.42	NONE	0.00	108.42	2483.28	2374.86
	WR-215A	4/19/2013	104.89	-0.87	104.02	104.80	0.09	103.96	2479.79	2375.83
	WR-219A	4/19/2013	103.81	0.66	104.47	NONE	0.00	104.47	2469.54	2365.07
	WR-220A	4/19/2013	112.04	0.60	112.64	110.89	1.15	111.81	2476.79	2364.98
	WR-221A	4/19/2013	115.84	0.41	116.25	NONE	0.00	116.25	2482.74	2366.49
	WR-222A	4/19/2013	95.13	0.39	95.52	NONE	0.00	95.52	2472.46	2376.94
	WR-223A	4/19/2013	107.94	0.41	108.35	NONE	0.00	108.35	2475.26	2366.91
	WR-224A	4/19/2013	99.35	0.12	99.47	NONE	0.00	99.47	2471.99	2372.52
	WR-225A	4/19/2013	121.73	1.07	122.80	NONE	0.00	122.80	2489.83	2367.03
	WR-295A	4/19/2013	103.04	0.61	103.65	NONE	0.00	103.65	2479.35	2375.70
	WR-296A	4/19/2013	102.37	0.99	103.36	NONE	0.00	103.36	2479.06	2375.70
	WR-297A	4/19/2013	102.95	0.41	103.36	NONE	0.00	103.36	2479.29	2375.93
	WR-298A	4/19/2013	102.95	0.39	103.34	NONE	0.00	103.34	2479.37	2376.03

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Thomas Price Service Center, City of Tucson

	Well ID	Measurement Date	GW Depth (feet below TOC) or Depth to GW/LPH Interface	Reference Point Correction Factor (ft)	Depth to Water[1] (ft bls)	Depth to LPH (feet below TOC)	LPH Thickness (feet)	Corrected Depth to Water[2] (feet below TOC)	Benchmark Elevation (ft amsl)	GW Elevation (ft amsl)
Deep Zone Monitoring Wells	WR-216A	4/19/2013	119.70	-0.62	119.08	NONE	0.00	119.08	2481.67	2362.59
	WR-217A	4/19/2013	118.86	-0.49	118.37	NONE	0.00	118.37	2479.91	2361.54
	WR-218A	4/19/2013	120.51	-0.40	120.11	NONE	0.00	120.11	2478.03	2357.92
	WR-227A	4/19/2013	161.47	0.69	162.16	NONE	0.00	162.16	2470.98	2308.82
	WR-228A	4/19/2013	119.14	-0.49	118.65	NONE	0.00	118.65	2483.04	2364.39
	WR-229A	4/19/2013	120.38	-0.33	120.05	NONE	0.00	120.05	2472.11	2352.06
	WR-230A	4/19/2013	121.95	0.81	122.76	NONE	0.00	122.76	2489.72	2366.96
	WR-231A	4/19/2013	129.41	0.91	130.32	NONE	0.00	130.32	2476.64	2346.32
	WR-232A	4/19/2013	124.11	-0.61	123.50	NONE	0.00	123.50	2480.01	2356.51
	WR-233A	4/19/2013	155.22	0.57	155.79	NONE	0.00	155.79	2457.62	2301.83
	WR-235A	4/19/2013	155.79	0.84	156.63	NONE	0.00	156.63	2468.75	2312.12
	WR-295B	4/19/2013	117.60	0.41	118.01	NONE	0.00	118.01	2479.35	2361.34
	WR-296B	4/19/2013	116.67	0.73	117.40	NONE	0.00	117.40	2479.06	2361.66

[1] *Depth to water corrected to account for reference elevation offset*

[2] *Water level corrected to account for specific gravity of gasoline (sg=0.72).*

NM = not measured, ND = not detected, NS = Not sampled

LPH = liquid petroleum hydrocarbon, GW - Groundwater elevation, TOC = top of casing

NA = Not available. Well elevation has not been surveyed yet.

Table 2
PSC and TFS #10 Summary of Field Parameters - 2013
Thomas Price Service Center, City of Tucson

Well ID	Groundwater Zone	Date Sampled	DO (mg/L)	ORP (mV)	pH	SpC (mhos/cm)	Temp (C)
WR-216A	Deep	3/25/2013	6.63	84.4	7.71	729	25.52
WR-217A	Deep	3/21/2013	5.68	189.7	6.85	825	25.49
WR-217A	Deep	9/12/2013	4.68	166.3	6.90	738	25.97
WR-218A	Deep	3/21/2013	4.89	205.8	7.80	839	25.68
WR-227A	Deep	3/21/2013	3.13	-18.7	9.97	1295	26.93
WR-227A	Deep	9/12/2013	3.30	-123.1	7.97	1309	26.32
WR-228A	Deep	3/25/2013	4.46	4.7	9.82	325	24.99
WR-229A	Deep	3/28/2013	-2.84	-91.6	10.37	370	26.07
WR-230A	Deep	3/25/2013	3.35	-2.9	8.89	478	25.39
WR-231A	Deep	3/25/2013	3.79	16.7	10.06	510	24.40
WR-232A	Deep	3/25/2013	3.91	15.1	9.14	187	25.77
WR-233A	Deep	3/28/2013	-8.65	-84.7	9.09	276	25.40
WR-233A	Deep	9/12/2013	5.13	-13.2	7.97	372	26.06
WR-235A	Deep	3/25/2013	5.27	43.1	7.76	646	25.35
PCM-506A	Shallow	3/25/2013	6.57	80.1	7.57	703	25.72
PCM-508A	Shallow	3/25/2013	2.78	-139.0	7.52	587	26.25
PCM-508B	Shallow	3/25/2013	2.60	-141.0	7.41	534	26.75
PCM-509A	Shallow	3/26/2013	3.95	50.7	7.41	862	27.18
PCM-509B	Shallow	3/26/2013	3.38	7.1	7.56	951	26.48
PCM-510A	Shallow	3/26/2013	4.03	82.5	7.91	720	26.79
PCM-511A	Shallow	FP	NM	NM	NM	NM	NM
PCM-512A	Shallow	FP	NM	NM	NM	NM	NM
PCM-517A	Shallow	3/25/2013	3.30	-85.5	7.32	484	24.60
PCM-535A	Shallow	4/24/2013	3.03	-101.4	8.03	881	26.96
R-012A	Shallow	4/23/2013	3.90	36.4	7.55	1088	26.86
R-013A	Shallow	4/23/2013	5.23	-235.8	7.02	1086	28.28
R-016A	Shallow	3/26/2013	4.04	98.3	7.75	782	27.66
R-017A	Shallow	FP	NM	NM	NM	NM	NM
R-018A	Shallow	4/24/2013	3.72	-96.1	7.01	1130	27.41
R-020A	Shallow	3/26/2013	5.01	-80.3	7.27	880	26.26
R-020A	Shallow	9/11/2013	3.02	-123.7	6.88	879	27.70
R-020A	Shallow	9/12/2013	3.39	-134.2	7.07	912	26.91
R-021A	Shallow	3/26/2013	3.99	45.9	7.77	967	25.75
R-022A	Shallow	3/26/2013	4.06	121.7	7.99	1020	26.55
R-028A	Shallow	FP	NM	NM	NM	NM	NM
R-029A	Shallow	3/27/2013	3.58	-167.8	8.01	749	26.56

Table 2
PSC and TFS #10 Summary of Field Parameters - 2013
Thomas Price Service Center, City of Tucson

R-035A	Shallow	NM	NM	NM	NM	NM	NM
R-036A	Shallow	4/24/2013	4.21	-132.1	7.41	613	27.71
R-037A	Shallow	FP	NM	NM	NM	NM	NM
R-044A	Shallow	3/28/2013	-3.74	82.4	7.25	835	23.37
R-045A	Shallow	3/28/2013	-2.69	11.0	7.42	770	24.24
R-046A	Shallow	3/25/2013	3.31	-129.6	7.38	656	24.59
R-048A	Shallow	3/28/2013	-7.73	59.5	8.05	766	26.20
R-049A	Shallow	3/27/2013	2.58	-85.4	7.97	1367	26.58
R-099A	Shallow	3/27/2013	0.66	-221.1	7.66	984	27.75
WR-208A	Shallow	3/27/2013	5.05	81.2	7.84	1022	26.31
WR-209A	Shallow	3/27/2013	3.47	-10.7	7.19	1067	26.40
WR-210A	Shallow	3/26/2013	3.40	-204.7	7.22	1022	26.71
WR-211A	Shallow	3/27/2013	2.93	-116.4	7.71	1002	27.41
WR-212A	Shallow	3/27/2013	0.94	-164.7	7.57	662	26.86
WR-213A	Shallow	3/21/2013	4.77	175.8	7.69	892	25.96
WR-214A	Shallow	3/25/2013	4.46	82.8	7.68	778	24.66
WR-215A	Shallow	FP	NM	NM	NM	NM	NM
WR-219A	Shallow	3/25/2013	3.29	-139.7	6.93	974	25.91
WR-219A	Shallow	9/11/2013	2.74	-97.5	7.15	1029	26.16
WR-220A	Shallow	FP	NM	NM	NM	NM	NM
WR-221A	Shallow	3/25/2013	4.43	99.5	7.56	634	24.33
WR-221A	Shallow	9/12/2013	5.01	101.3	7.27	549	26.09
WR-222A	Shallow	3/21/2013	4.29	117.4	7.59	949	25.11
WR-222A	Shallow	9/11/2013	5.01	85.8	7.52	994	25.60
WR-223A	Shallow	3/25/2013	4.28	37.4	7.55	691	26.78
WR-224A	Shallow	3/24/2013	1.19	-214.0	7.15	833	26.61
WR-224A	Shallow	9/11/2013	2.06	-217.2	7.18	858	27.18
WR-225A	Shallow	3/25/2013	5.16	75.1	7.52	957	25.48
WR-296A	Shallow	3/27/2013	3.31	12.1	7.21	846	26.84
WR-298A	Shallow	3/21/2013	4.71	187.6	7.34	781	25.94

NM = Not Monitored.

FP = free product present, not sampled.

Table 3
Water Quality Analyses - BTEX Summary for 2013
Thomas O. Price Service Center, City of Tucson

Sample ID	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)
AWQS		**5**	**1,000**	**700**	**10,000**	*11 (Tier 1)**
Shallow-Zone Monitoring Wells						
PCM-506A	3/25/13	<1	<2	<2	<3	<5
PCM-508A	3/25/13	2.5	<2	<2	<3	**8300**
PCM-508B	3/25/13	**10**	<20	130	220	**6500**
PCM-509A	3/26/13	<1	<2	<2	<3	<5
PCM-509B	3/26/13	<1	<2	<2	<3	**2000**
PCM-510A	3/26/13	<1	<2	<2	<3	**220**
PCM-517A	3/25/13	**11000**	22	520	<30	**430**
PCM-535A	4/24/13	<4	<4	<4	<20	**63**
R-012A	4/23/13	<2	<2	<2	<10	**8600**
R-013A	4/23/13	**25**	<20	20	140	**1400**
R-013A	4/23/13	**28**	<20	23	170	**1500**
R-016A	3/26/13	<1	<2	<2	<3	**2600**
R-018A	4/24/13	**1700**	**2600**	**1600**	**14000**	**13000**
R-020A	3/26/13	**72**	<4	18	<6	**7000**
R-021A	3/26/13	<1	<2	<2	<3	**1400**
R-022A	3/26/13	<1	<2	<2	<3	<5
R-029A	3/27/13	<1	<2	<2	<3	<5
R-036A	4/24/13	<20	<20	51	250	**870**
R-044A	3/28/13	<1	<2	<2	<3	<5
R-044A	3/28/13	<1	<2	<2	<3	<5
R-045A	3/28/13	<1	<2	<2	<3	<5
R-046A	3/25/13	**16**	<20	<20	250	**86**
R-048A	3/28/13	<1	<2	<2	<3	<5
R-049A	3/27/13	<1	<2	<2	<3	<5
R-099A	3/27/13	2.7	<2.8	21	130	<2.2
WR-208A	3/27/13	<1	<2	<2	<3	<5
WR-209A	3/27/13	<1	<2	<2	<3	**80**
WR-209A	3/27/13	<1	<2	<2	<3	**87**
WR-210A	3/26/13	1.5	<2	3.9	<3	**89**
WR-210A	3/26/13	<1	<2	6.1	<3	**90**
WR-211A	3/27/13	<1	<2	<2	<3	<5
WR-212A	3/27/13	<1.2	<2.8	71	8.7	**58**
WR-213A	3/21/13	<1	<2	<2	<3	<5

Table 3
Water Quality Analyses - BTEX Summary for 2013
Thomas O. Price Service Center, City of Tucson

Sample ID	Sample Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)
AWQS		**5**	**1,000**	**700**	**10,000**	*11 (Tier 1)**
WR-214A	3/25/13	<1	<2	<2	<3	<5
WR-219A	3/25/13	<1	<1	2.2	<2	<1
WR-221A	3/25/13	<1	<2	<2	<3	<5
WR-222A	3/21/13	<1	<1	<1	<2	<1
WR-223A	3/25/13	<1	<1	<1	<2	<1
WR-224A	3/28/13	<1	<1	28	7.6	<1
WR-225A	3/25/13	<1	<2	<2	<3	<5
WR-296A	3/27/13	<1	<2	<2	<3	**3000**
WR-298A	3/21/13	<1	<2	<2	<3	**7100**
Deep-Zone Monitoring Wells						
WR-216A	3/25/13	<1	<2	<2	<3	<5
WR-217A	3/21/13	<1	<1	<1	<2	<1
WR-217A	3/21/13	<1	<1	<1	<2	<1
WR-218A	3/21/13	<1	<2	<2	<3	<5
WR-227A	3/21/13	<1	<1	<1	<2	**41**
WR-228A	3/25/13	<1	<2	<2	<3	<5
WR-229A	3/28/13	<1	<2	<2	<3	<5
WR-230A	3/25/13	<1	<2	<2	<3	<5
WR-230A	3/25/13	<1	<2	<2	<3	<5
WR-231A	3/25/13	<1	<2	<2	<3	<5
WR-232A	3/25/13	<1	<2	<2	<3	<5
WR-233A	3/28/13	<1	<1	<1	<2	<1
WR-235A	3/25/13	<1	<2	<2	<3	<5

Notes:

µg/L = micrograms per liter, mg/L = milligrams per liter, NA = not analyzed, <0.5 = not detected above MDL, DUP = field duplicate,
AWQS = Arizona Aquifer Water Quality Standard
Results in **bold** equal or exceed AWQS
*ADEQ UST Program Tier 1 Cleanup Standards - Petroleum Products Table provided by Mike Harren on 6/24/2013.

Table 4
Summary of Select VOCs Analytical Results for 2013
Thomas Price Service Center, City of Tucson

Sample ID	Sample Date	1,2,4-Trimethylbenzene	1,2 Dibromoethane (EDB)	1,2-Dichloroethane	1,3,5-Trimethylbenzene	4-Methyl-2-pentanone (methyl Isobutyl ketone MIBK)	Isopropylbenzene (cumene)	Naphthalene	n-Butylbenzene	n-Propylbenzene	sec butylbenzene
AWQS		**NA**	**0.05**	**5**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Tier 1 Clean-up*		**12**	**NA**	**NA**	**12**	**560**	**660**	**6**	**240**	**240**	**240**
Shallow-Zone Monitoring Wells											
R-020A	9/12/2013	<200	<100	<50	<200	<1000	<100	<500	<200	<200	<200
R-020A	9/11/2013	NA	<0.019	NA	NA	NA	NA	NA	NA	NA	NA
WR-219A	9/11/2013	NA	<0.019	NA	NA	NA	NA	NA	NA	NA	NA
WR-219A	3/25/2013	8.9	<1	<1	7.9	<5	1.4	<5	<1	3.1	3.2
WR-221A	9/12/2013	NA	<0.019	NA	NA	NA	NA	NA	NA	NA	NA
WR-221A	3/25/2013	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1
WR-222A	9/11/2013	NA	<0.019	NA	NA	NA	NA	NA	NA	NA	NA
WR-222A	3/21/2013	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1
WR-223A	9/11/2013	NA	<0.019	NA	NA	NA	NA	NA	NA	NA	NA
WR-223A	3/25/2013	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1
WR-224A	9/11/2013	NA	<0.019	NA	NA	NA	NA	NA	NA	NA	NA
WR-224A	3/28/2013	<1	<1	1.5	5.8	<5	5.3	**7.6**	<1	16.0	9.3
Deep Zone Monitoring Wells											
WR-217A	9/12/2013	NA	<0.019	NA	NA	NA	NA	NA	NA	NA	NA
WR-217A	3/21/2013	<1	<1	<0.5	<1.5	<5	<2.5	<5	<2.5	<2	<1.5
WR-227A	9/12/2013	NA	<0.02	NA	NA	NA	NA	NA	NA	NA	NA
WR-227A	3/21/2013	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1
WR-233A	9/12/2013	NA	<0.019	NA	NA	NA	NA	NA	NA	NA	NA
WR-233A	3/28/2013	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1

NOTES:

All standards and results are in micrograms per liter

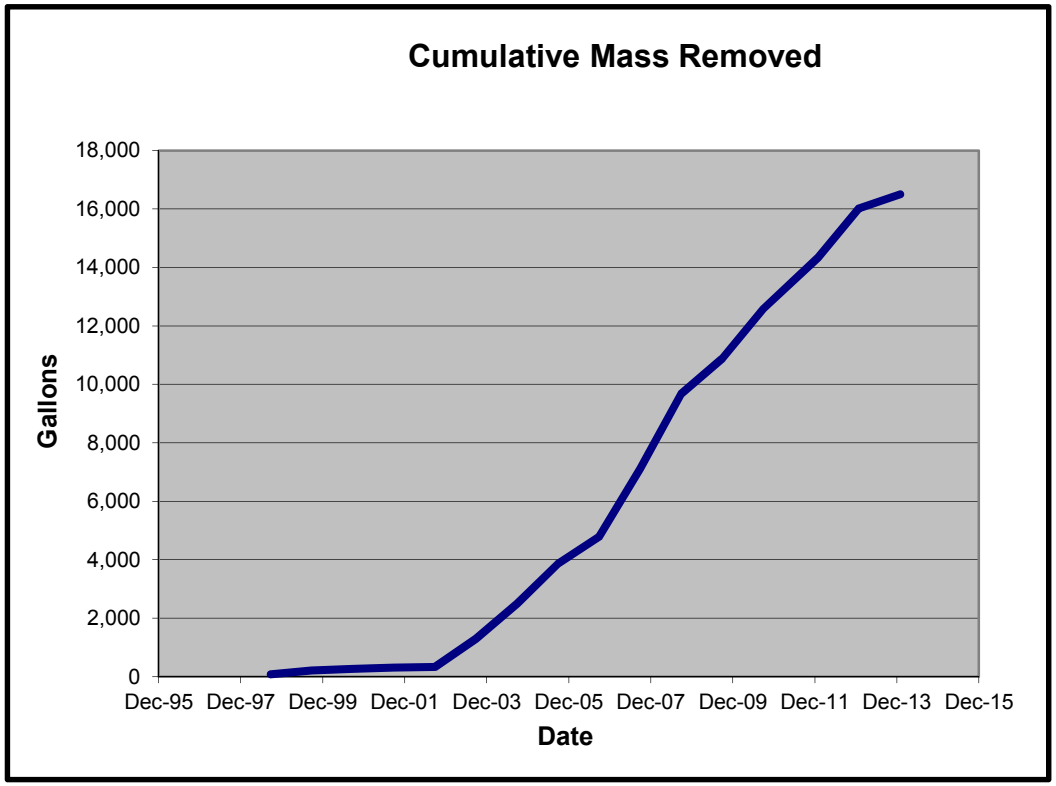
All analyses conducted according to EPA Method 8260B, except for sole results for 1,2 dibromoethane in September 2013 those were completed by Method 504.1.

Table 4
Summary of Select VOCs Analytical Results for 2013
Thomas Price Service Center, City of Tucson

NA = Not applicable NP - Not Provided.
<0.5 = not detected above the method detection limit (MDL)
AWQS = Arizona Aquifer Water Quality Standard
Results in bold equal or exceed AWQS
*ADEQ UST Program Tier 1 Cleanup Standards - Petroleum Products Table provided by Mike Harren on 6/24/2013.

TABLE 5
SUMMARY OF FREE PRODUCT REMOVED BY BAIL OR PUMP THROUGH DECEMBER 2013
CITY OF TUCSON FIRE STATION #10

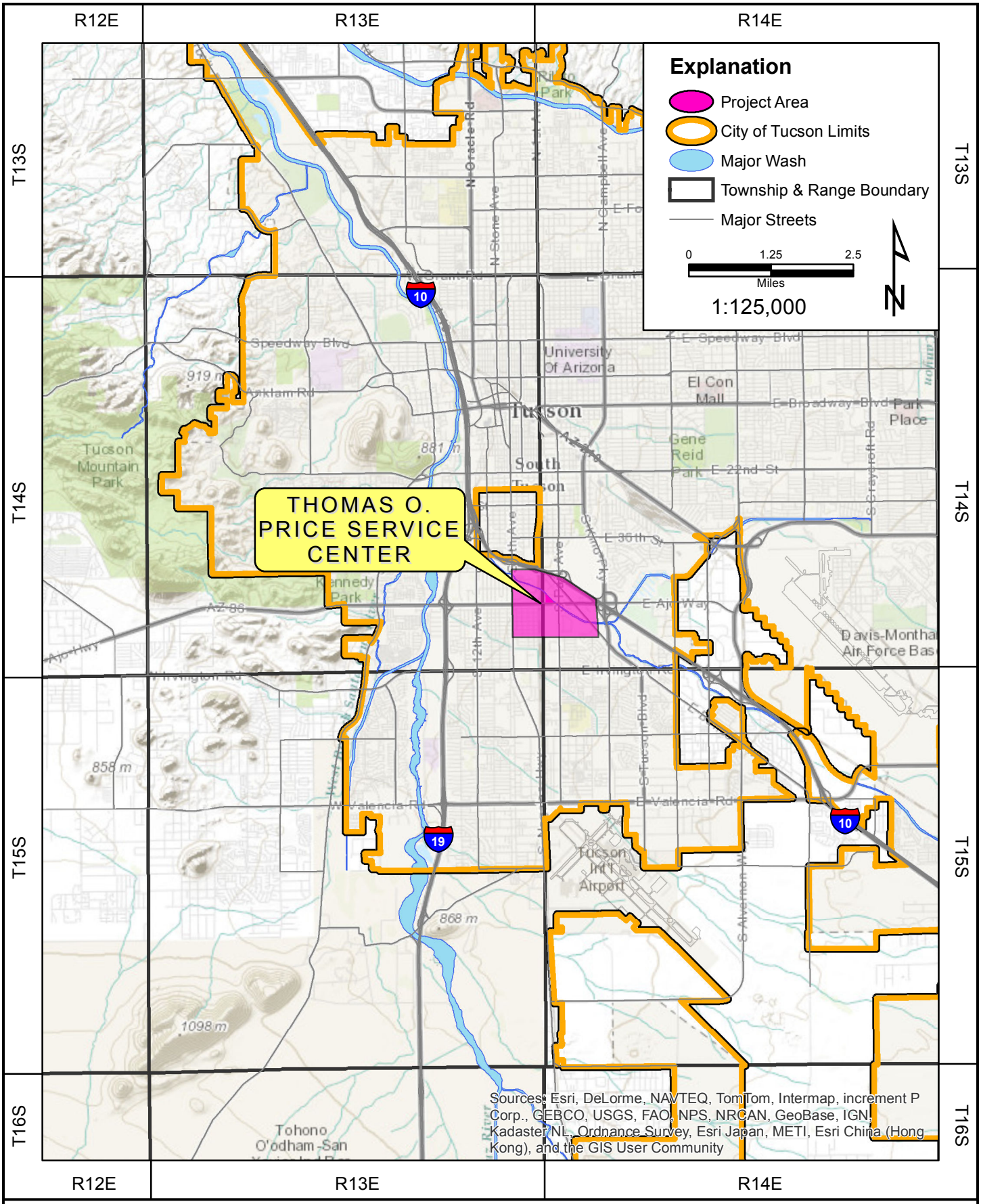
Time Period	Bailed/ Pumped
9/1/97-8/31/98*	86
9/1/98-8/31/99*	131
9/1/99-8/31/00*	45
9/1/00-8/31/01*	45
9/1/01-8/31/02	28
9/1/02-8/31/03	956
9/1/03-8/31/04	1,210
9/1/04-8/31/05	1,365
9/1/05-8/31/06	923
9/1/06-8/31/07	2,315
9/1/07-8/31/08	2,577
9/1/08-8/31/09	1,200
9/1/09-8/31/10	1,703
9/1/10-12/31/11	1,750
1/1/2012-12/31/2012	1,690
1/1/2013-12/31/2013	473
Total	**16,497**



** Estimated Quantities*

By mid-2013 all skimmer pump extraction wells were converted to air-sparge technology.

FIGURES



CITY OF TUCSON
ENVIRONMENTAL SERVICES

Figure 1
Location Map
Thomas O. Price Service Center

Drawn By:	LE
Checked:	RB
Approved:	NP
Date:	1/24/2014
File:	See Below

J://GIS/PRICE/2012/LocationMap.mxd

CITY OF TUCSON
ENVIRONMENTAL SERVICES

Figure 2
Site Map
Thomas O. Price Service Center, Tucson, AZ

Drawn By:	LE
Checked:	RB
Approved:	NP
Date:	1/24/2014
File:	See Below

J:\GIS\PRICE\2012\SITEMAPS_11.MXD

Explanation

- Soil Vapor Extraction (SVE) and Air Sweep Remedial Well
- SVE and Groundwater Monitoring Well
- Air Injection Remedial Well
- Inactive Remedial Well
- Soil Vapor Monitor Well
- Deep Groundwater Monitor Well
- Shallow Groundwater Monitor Well

SYSTEM PIPING

- Air Injection Line
- SVE Piping

SYSTEM ZONES

- ZONE A
- ZONE B
- ZONE C

0 50 100 150 200 Feet

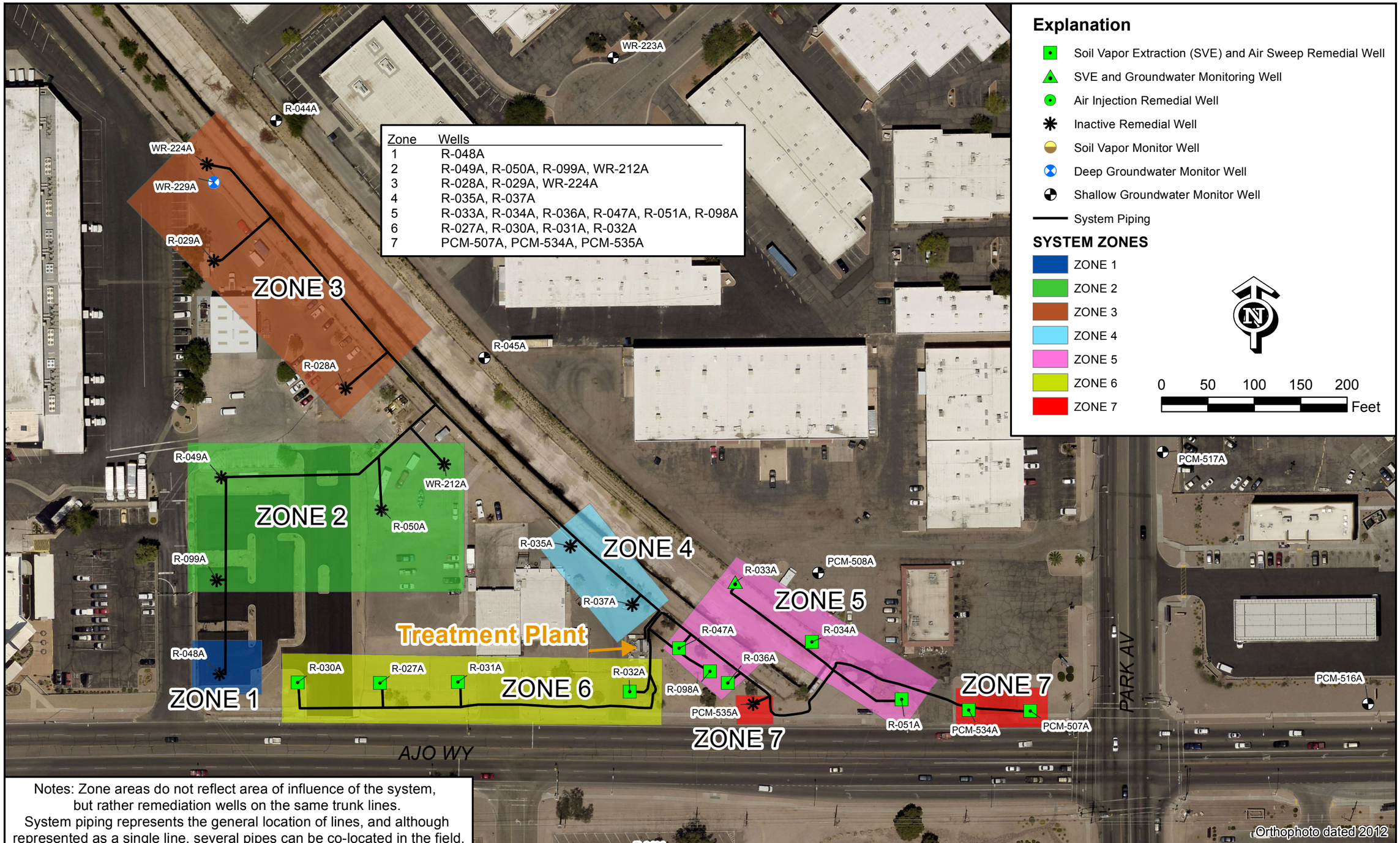
N

CITY OF TUCSON
ENVIRONMENTAL SERVICES

Figure 3
Thomas O. Price Service Center Facility Detail
Thomas O. Price Service Center, Tucson, AZ

Drawn By:	LE
Checked:	RB
Approved:	NP
Date:	1/24/2014
File:	See Below

J:GIS\PRICE\2012\PSCSYS.mxd



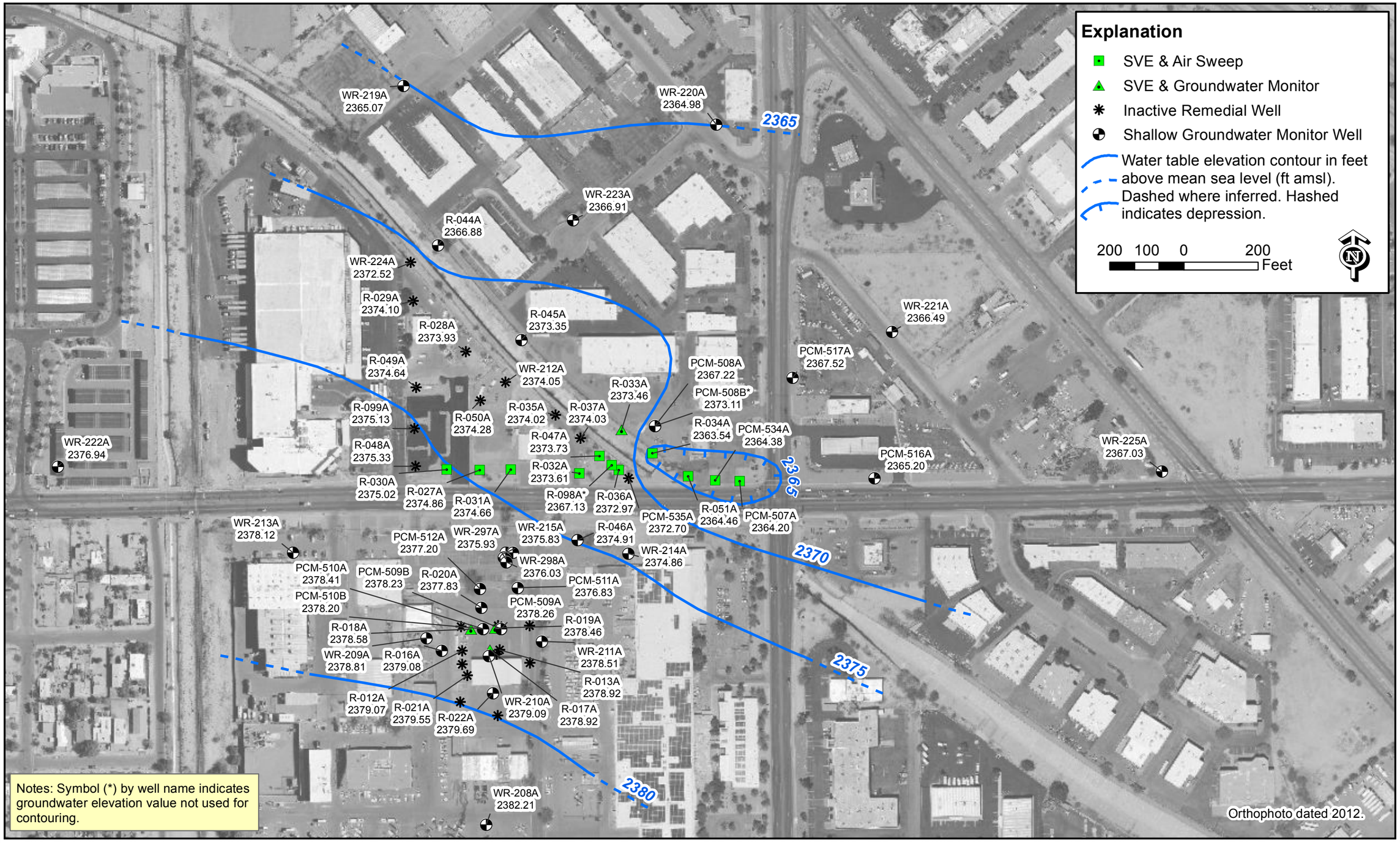
Notes: Zone areas do not reflect area of influence of the system, but rather remediation wells on the same trunk lines. System piping represents the general location of lines, and although represented as a single line, several pipes can be co-located in the field.

CITY OF TUCSON
ENVIRONMENTAL SERVICES

Figure 4
TFS #10 Site Layout and Well Location Map
Thomas O. Price Service Center, Tucson, AZ

Drawn By:	LE
Checked:	RB
Approved:	NP
Date:	1/24/2014
File:	See Below

J:GIS\PRICE\2012\TFSSYS.mxd

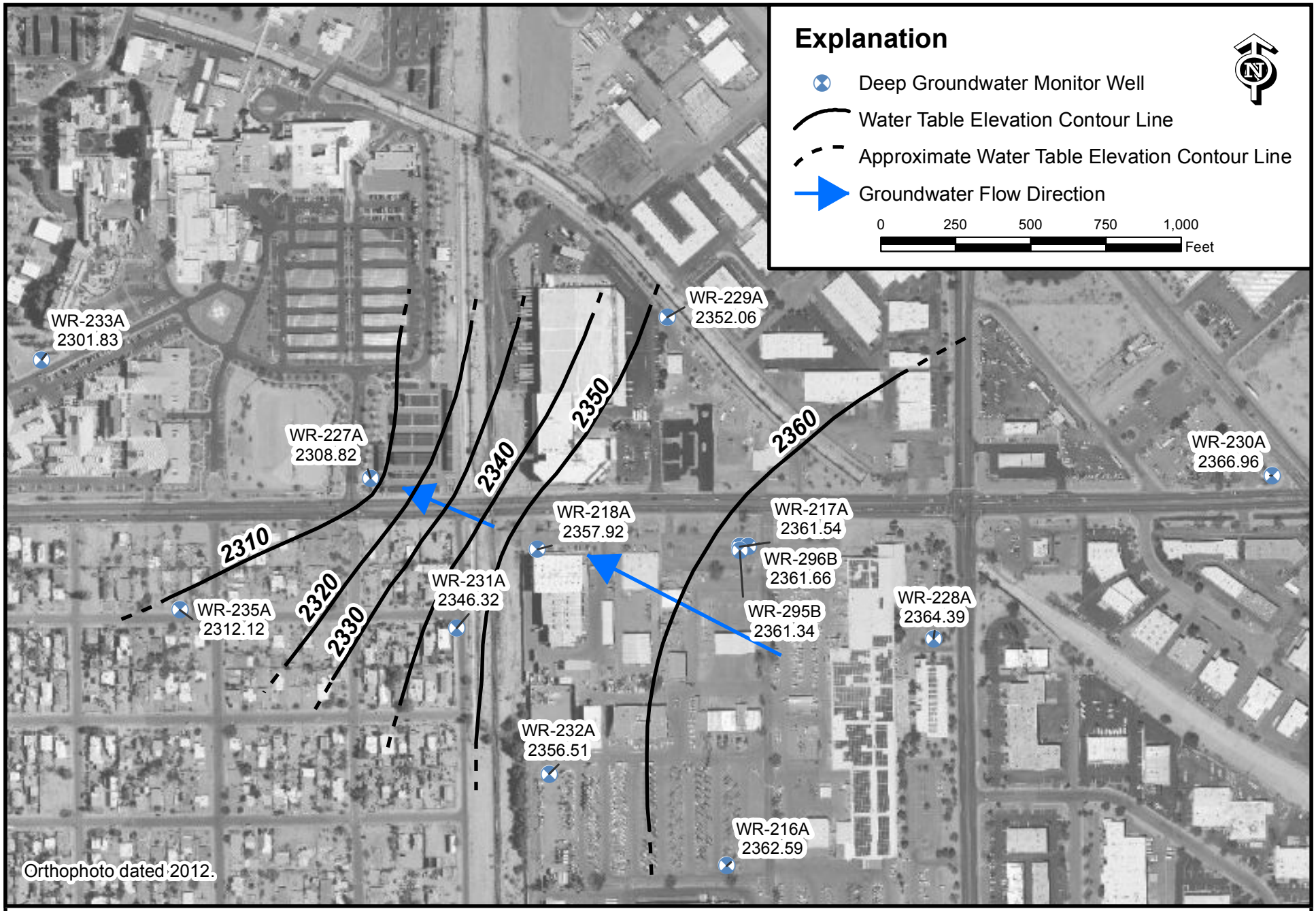


CITY OF TUCSON
ENVIRONMENTAL SERVICES

Figure 5
Shallow Zone Groundwater Elevation Contour Map - April 2013
Thomas O. Price Service Center, Tucson, AZ

Drawn By:	LE
Checked:	RB
Approved:	NP
Date:	1/22/2014
File:	See Below

J:\GIS\Price\2013\ShallowGWE2013_April.mxd

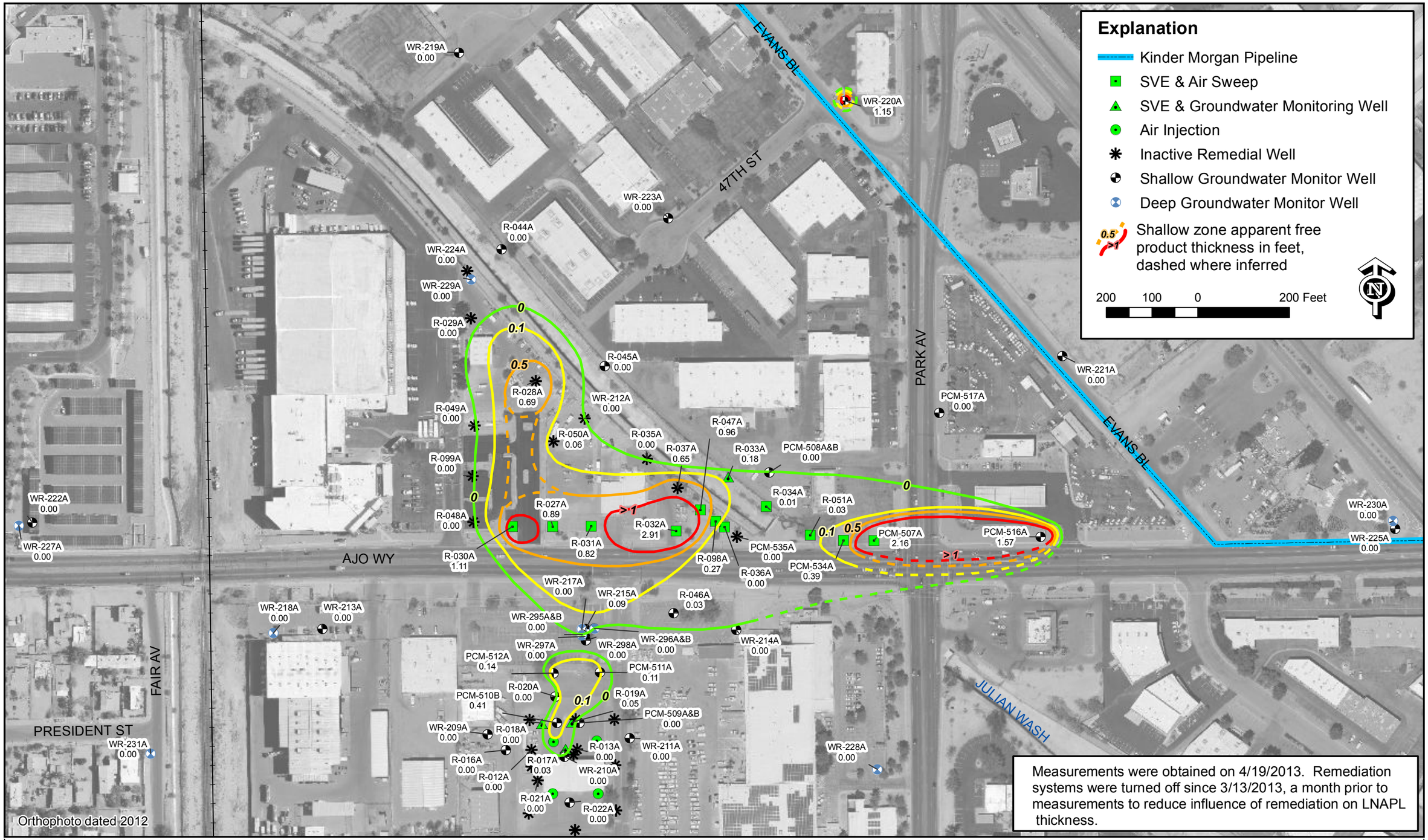


CITY OF TUCSON
ENVIRONMENTAL SERVICES

Figure 6
Deep Zone Groundwater Elevation Contour Map - April 2013
Thomas O. Price Service Center, Tucson, AZ

Drawn By:	LE
Checked:	RB
Approved:	NP
Date:	1/23/2014
File:	See Below

J:\GIS\Price\2013\DeepGWE2013.mxd



Measurements were obtained on 4/19/2013. Remediation systems were turned off since 3/13/2013, a month prior to measurements to reduce influence of remediation on LNAPL thickness.

CITY OF TUCSON
ENVIRONMENTAL SERVICES

Figure 7
Shallow Zone Apparent LPH Thickness Map, April 2013
Thomas O. Price Service Center, Tucson, AZ

Drawn By:	LE
Checked:	RB
Approved:	JD
Date:	7/9/2013
File:	See Below

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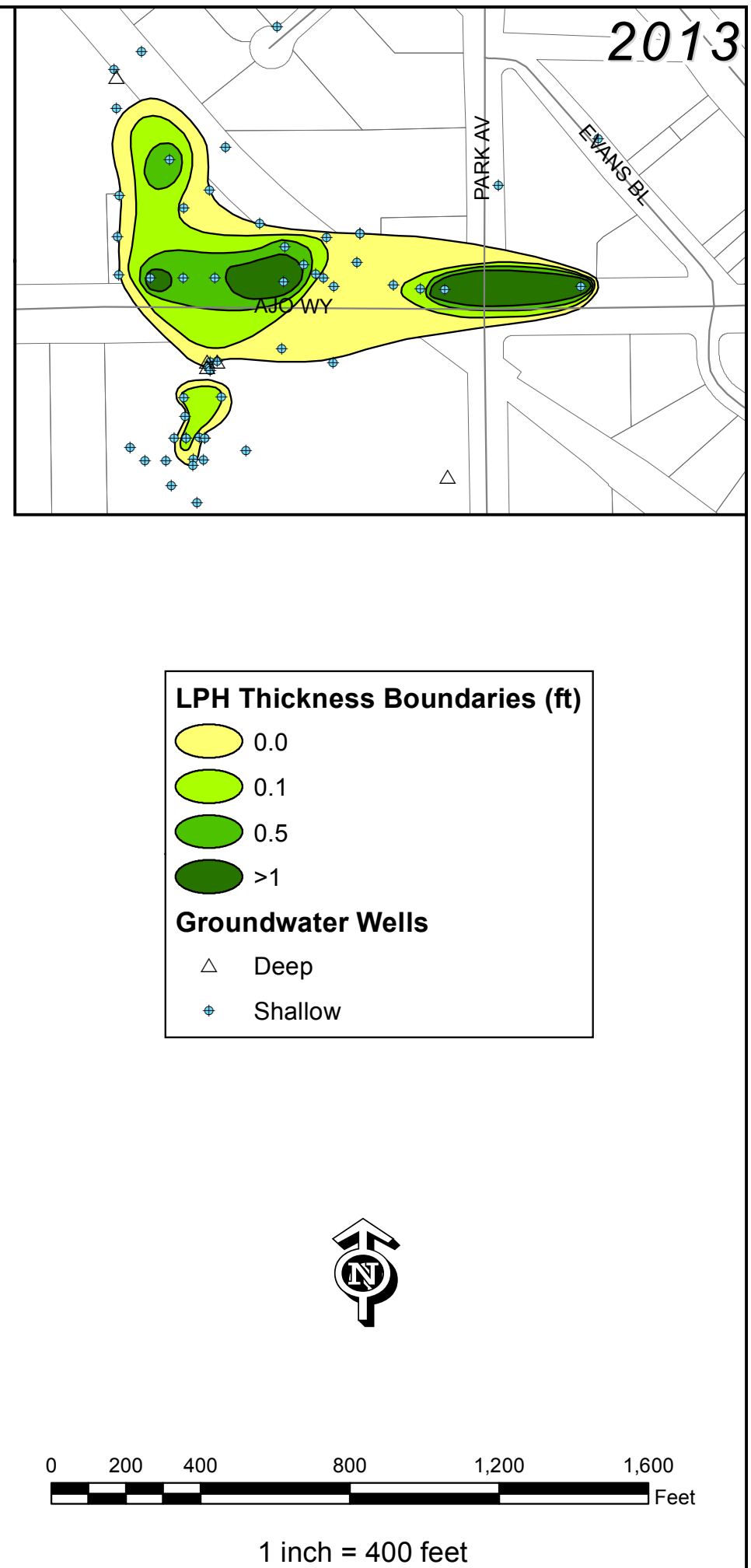

All maps contain the free product thickness boundaries for 0.0, 0.1, 0.5, and >1 in feet. All map frames are shown at the same scale: 1:4,800 absolute; 1" = 400'

CITY OF TUCSON
ENVIRONMENTAL SERVICES

Figure 8
LPH Thickness Maps, Years 2009 - 2013
Thomas O. Price Service Center, Tucson AZ

Drawn By:	LE
Checked:	RB
Approved:	NP
Date:	1/24/2014
File:	See Below

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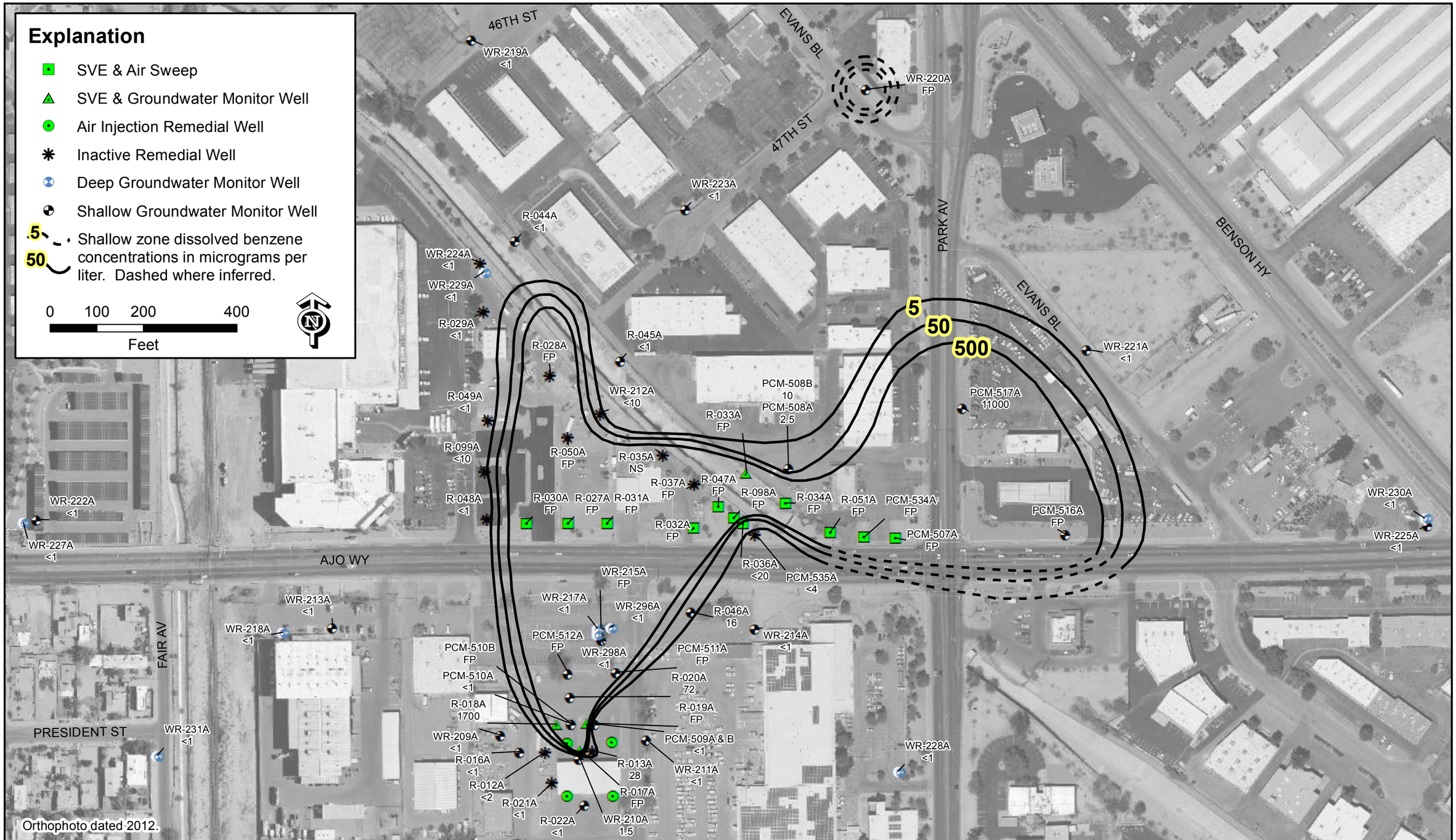
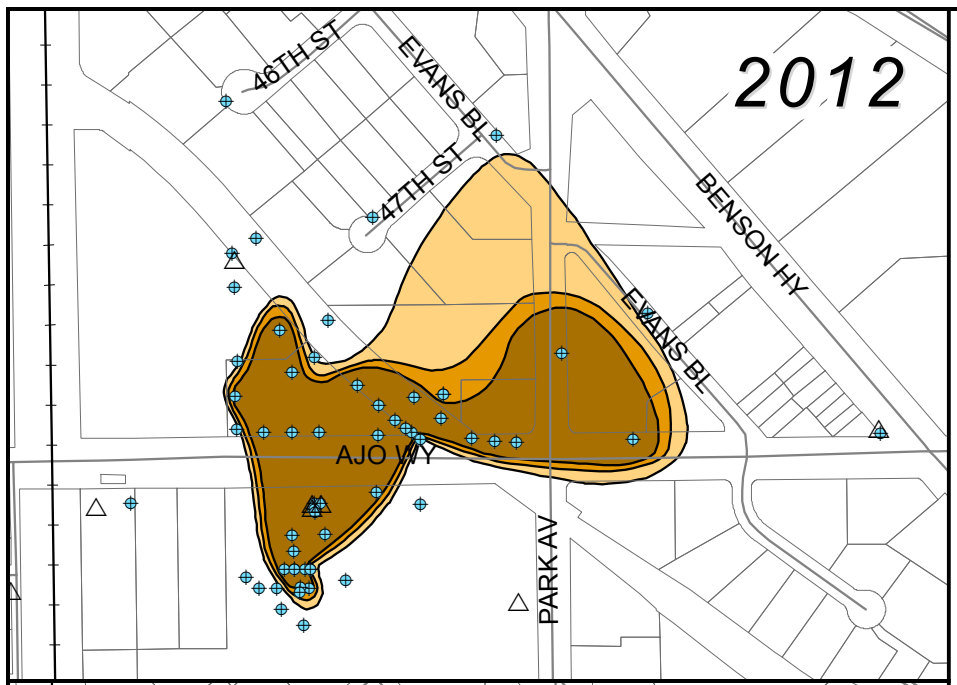


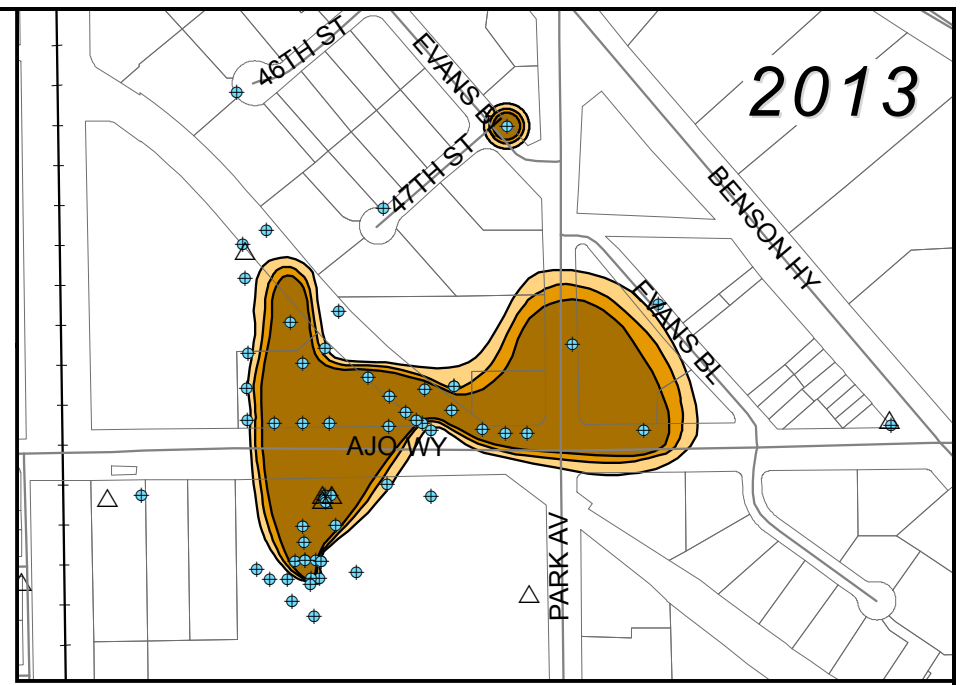
CITY OF TUCSON
ENVIRONMENTAL SERVICES

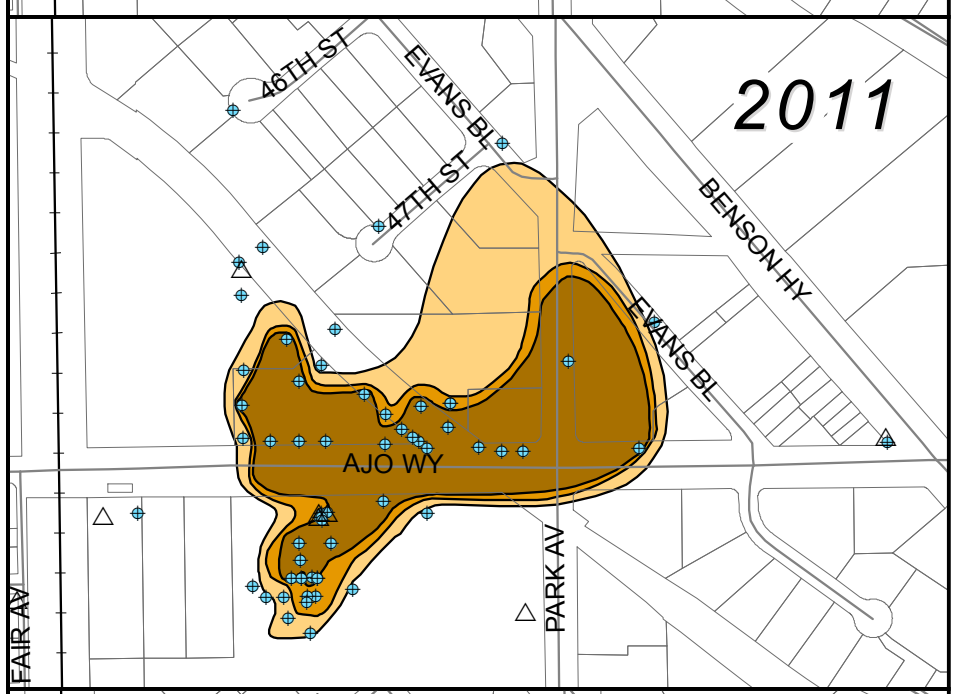
Figure 9
Shallow Groundwater Zone Dissolved Benzene Concentrations - March - April 2013
Thomas O. Price Service Center, Tucson AZ

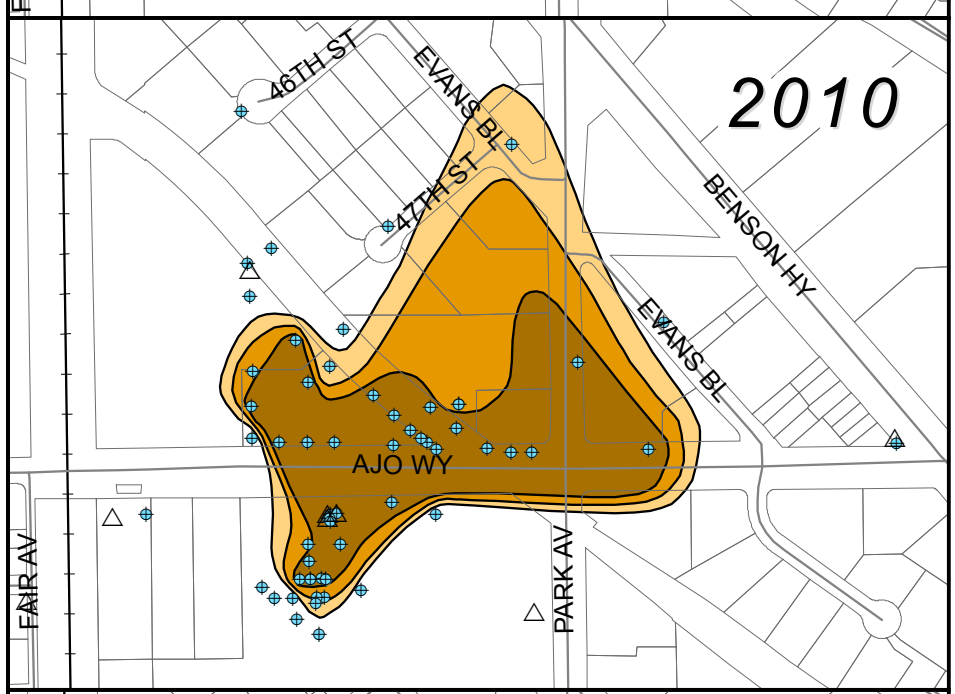
Drawn By:	LE
Checked:	RB
Approved:	NP
Date:	1/24/2014
File:	See Below

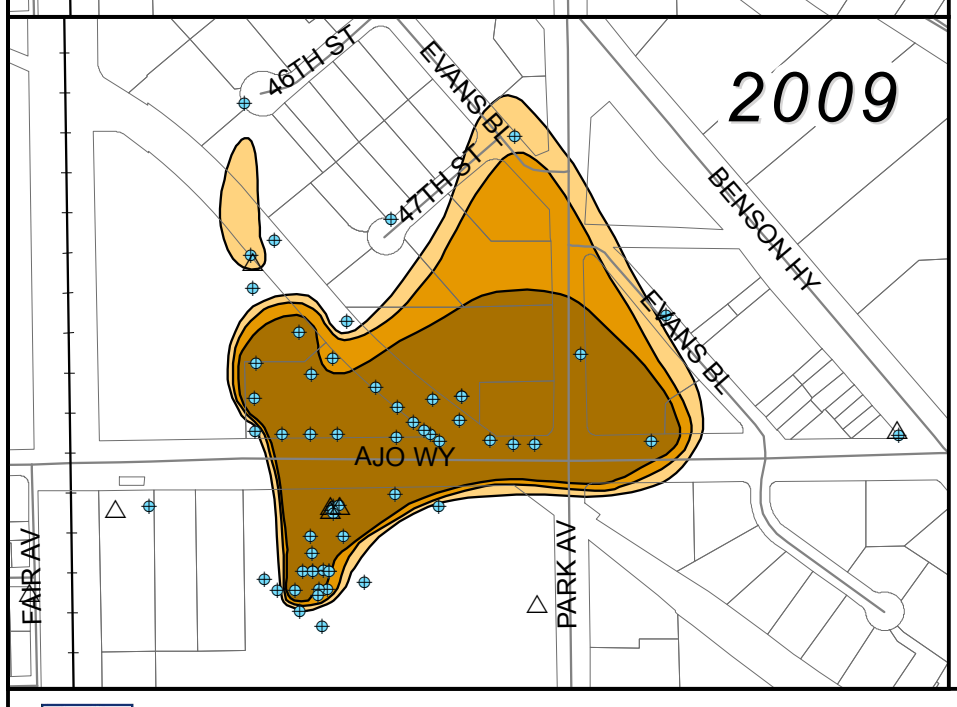
J:\GIS\Price\2013\BZ_2013.mxd











Plume Boundary (ug/L)

- 5
- 50
- 500

Groundwater Wells

- Deep
- Shallow

N

0 250 500 1,000 1,500 2,000 Feet

1 inch = 600 feet

All maps contain the benzene plume boundaries for concentrations of 5, 50, and 500 ug/L. All map frames shown at the same scale:
1:7,200 absolute or 1 inch = 600 feet.

CITY OF TUCSON
ENVIRONMENTAL SERVICES

FIGURE 10
BENZENE BOUNDARY MAPS, YEARS 2009 - 2013
PRICE SERVICE CENTER, TUCSON AZ

Drawn By:	LE
Checked:	RB
Approved:	NP
Date:	1/27/2014
File:	See Below

J:GIS\PRICE\2013\BZ_09_13.mxd

APPENDIX A

ADEQ UST Program Tier 1 Cleanup Standards

From: Jeffrey Drumm
To: Byrd, Richard; Harren, Michael R.
CC: Ehman, Lori; Petersen, Nancy
Date: 6/25/2013 11:16 AM
Subject: Re: risk based levels - L 0767

Mike,

Thanks for the table. We are finalizing the text in the report and will get it out shortly.

Jeff Drumm, P.E.
Environmental Manager
City of Tucson Environmental Services
520-837-3713

>>> Richard Byrd 6/25/2013 11:07 AM >>>
Thanks for the clarification Mike. We will continue to sample for naphthalene.

Sincerely,

Richard

>>> "Michael R. Harren" <Harren.Michael@azdeq.gov> 6/24/2013 4:45 PM >>>
Hi Richard,

While naphthalene does not have an aquifer water quality standard, it does have a risk-based level (please refer to the attached table). The risk based values are derived from the EPA regional screening levels (RSLs). Please continue to test for naphthalene.

This is some of the criteria we use when we consider closing sites with groundwater contamination. This is taken from language in our closure letter:

Please note that the Narrative Aquifer Water Quality Standards (A.A.C. R18-11-405) states that a discharge shall not cause a pollutant to be present in an aquifer classified for drinking water protected use in a concentration that endangers human health. Chemicals of concern (COCs) without an established AWQS must be considered during the [A.A.C. R18-12-263.03 OR A.A.C. R18-12-263.04] closure process.

It is my understanding that all aquifers in the state are classified for drinking water protected use (by default). Please remember that if you have concentrations exceeded the AQWS / risk-based level, you can propose your own site specific levels based on a risk assessment (this is typically done when trying to close the site). Any site specific level would also have to be approved by ADEQ. Please let me know if you have any more questions.

Thanks!

Mike Harren
(602) 771-4285
ADEQ WPD UST Corrective Action Section
1110 W. Washington

Phoenix, AZ 85007

****
NOTICE: This e-mail (and any attachments) may contain PRIVILEGED OR CONFIDENTIAL information and is intended only for the use of the specific individual(s) to whom it is addressed. It may contain information that is privileged and confidential under state and federal law. This information may be used or disclosed only in accordance with law, and you may be subject to penalties under law for improper use or further disclosure of the information in this e-mail and its attachments. If you have received this e-mail in error, please immediately notify the person named above by reply e-mail, and then delete the original e-mail. Thank you.

Tier 1 Cleanup Standards – Petroleum Products

COMPOUNDS OF CONCERN	SOIL (mg/Kg)				GROUNDWATER (µg/L)	
	CHILD CARE OR SCHOOL[1]	RESIDENTIAL[2]	NON-RESIDENTIAL[2]	SOIL LEACHING[3]	DRINKING WATER[2]	RISK-BASED LEVEL
Volatile Organic Compounds (VOCs)						
Benzene	0.65	0.65	1.4	0.44	5	NA
n-Butyl benzene	240*	240*	240*	*397 [159]*	NE	*240*
sec-Butyl benzene	220*	220*	220*	*305 [150]*	NE	*240*
tert-Butyl benzene	390*	390*	390*	*302 [264]*	NE	*240*
Carbon disulfide	360	360	720*	*85*	NE	*700*
Cumene (isopropyl benzene)	92*	92*	92*	*122 [65]*	NE	*660*
Cyclohexane	140*	140*	140*	*4,444 [125]*	NE	*10,300*
Cyclohexanone	310,000	310,000	1,000,000**	*952*	NE	*30,400*
1,2-Dichloroethane (DCA)	0.28	2.8	6.0	0.25	5	NA
Ethyl benzene	400*	400*	400*	176	700	NA
Ethylene dibromide (dibromoethane, EDB)	0.029	0.29	0.63	0.0027	0.05	NA
n-Hexane	110*	110*	110*	*1,075 [83]*	NE	
Methyl cyclohexane	230*	230*	230*	*9,976 [170]*	NE	*5200*
Methyl ethyl ketone (2-butanone, MEK)	23,000	23,000	34,000*	*122*	NE	*4200*
Methyl isobutyl ketone (4-methyl-2-pentanone,MIBK)	5300	5300	17,000*	*48*	NE	*560*
Methyl *tert*-butyl ether (MTBE)	32	320	710	*0.47*	NE	*11*
n-Propyl benzene	240*	240*	240*	*397 [159]*	NE	*240*
Toluene	650*	650*	650*	154	1000	NA
1,2,4-Trimethyl benzene	52	52	170	*26*	NE	*12*

[1] This enforceable Tier 1 cleanup standard applies to sites which are currently, or the currently intended future use is, where children below the age of 18 years are reasonably expected to be in frequent repeated contact with soil [A.A.C. R-18-7-205(E)].

[2] Enforceable Tier 1 cleanup standards are the Soil Remediation Levels (SRLs) taken from A.A.C. R-18-7-Appendix A, and the Aquifer Water Quality Standards (AWQSs) taken from R-18-11-406.

[3] The ADEQ minimum Groundwater Protection Levels (GPLs) are protective of soil contaminant leaching to groundwater, based on achieving the drinking water standards in groundwater. For those inorganics having no value shown, the model did not yield accurate results. For PAHs, values are not shown due to the relatively limited mobility in soils.

Tier 1 Cleanup Standards – Petroleum Products

COMPOUNDS OF CONCERN	SOIL (mg/Kg)				GROUNDWATER (µg/L)	
	CHILD CARE OR SCHOOL[1]	RESIDENTIAL[2]	NON-RESIDENTIAL[2]	SOIL LEACHING[3]	DRINKING WATER[2]	RISK-BASED LEVEL
1,3,5-Trimethyl benzene	21	21	70	*6.0*	NE	*12*
Xylenes, total	270	270	420*	2,611 [271]	10,000	NA
Polycyclic Aromatic Hydrocarbons (PAHs)						
Acenaphthene	3700	3700	29,000	*981*	NE	*370*
Acenaphthylene	NE	NE	NE	NE	NE	NE
Anthracene	22,000	22,000	240,000	*31,804*	NE	*1800*
Benz(a)anthracene	0.69	6.9	21	*1,000,000***	NE	*0.02*
Benzo(b)fluoranthene	0.69	6.9	21	*1,000,000***	NE	*0.02*
Benzo(k)fluoranthene	6.9	69	210	*1,000,000***	NE	*0.2*
Benzo(a)pyrene	0.069	0.69	2.1	1,000,000**	0.2	NA
Chrysene	68	680	2000	*258,549*	NE	*1.5*
Dibenz(a,h)anthracene	0.069	0.69	2.1	*1,000,000***	NE	*0.002*
Fluoranthene	2300	2300	22,000	*1,000,000***	NE	*240*
Fluorene	2700	2700	26,000	*2,091*	NE	*240*
Indeno(1,2,3-c,d)pyrene	0.69	6.9	21	*1,000,000***	NE	*0.02*
Methyl naphthalene	NE	NE	NE	NE	NE	NE
Naphthalene	56	56	190	*4*	NE	*6*
Phenanthrene	NE	NE	NE	NE	NE	NE
Pyrene	2300	2300	29,000	*56,244*	NE	*180*
Inorganic Compounds						
Antimony	31	31	410	35	6	NA
Arsenic	10	10	10	290	10	NA
Beryllium	150	150	1900	23	4	NA
Cadmium	39	39	510	29	5	NA
Lead	400	400	800	290	50	*2, TT*
Mercury	23	23	310	12	2	NA
Molybdenum	390	390	5100		NE	*35*
Selenium	390	390	5100	290	50	NA
Vanadium	78	78	1000		NE	*7*
Other Organic Compounds						
2-Methyl phenol (o-cresol)	3100	3100	31,000	*0.016*	NE	*300*

Tier 1 Cleanup Standards – Petroleum Products

COMPOUNDS OF CONCERN	SOIL (mg/Kg)				GROUNDWATER (μg/L)	
	CHILD CARE OR SCHOOL[1]	RESIDENTIAL[2]	NON-RESIDENTIAL[2]	SOIL LEACHING[3]	DRINKING WATER[2]	RISK-BASED LEVEL
3-Methyl phenol	3100	3100	31,000	*0.016*	NE	*350*
4-Methyl phenol	310	310	3100	*0.016*	NE	*35*
1,1-Biphenyl	350*	350*	350*		NE	*350*
Carbazole	27	270	860	*9.8*	NE	*0.6*

Legend:

"NA" denotes not applicable.

"NE" denotes non-existent.

"TT" denotes a US EPA mandated treatment technique that requires systems to control the corrosiveness of water so that leaching of lead and copper from the water distribution system is limited. If more than 10% of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1,300 μg/L, and for lead is 15 μg/L. Therefore, the allowable level in groundwater may be greater than the risk-based level.

* denotes this SRL is based on saturation in soil rather than a risk-based calculation. Saturation means that level at which free organic phase may form in soil.

** This SRL is based on a ceiling level of allowable contaminant in soil at 1 kilogram chemical per kilogram soil, which is physically not possible. The concentration resulting in a health risk is determined to be greater than this SRL. The applicable Tier 1 cleanup level is the lesser of the ADEQ minimum GPL or the concentration which constitutes free-phase or solid waste.

Italics indicates that these are screening values only to be used for purposes of risk assessment, only when a risk assessment for groundwater is required for groundwater closure. For VOCs, these screening values can not be applied to indoor air vapor intrusion.

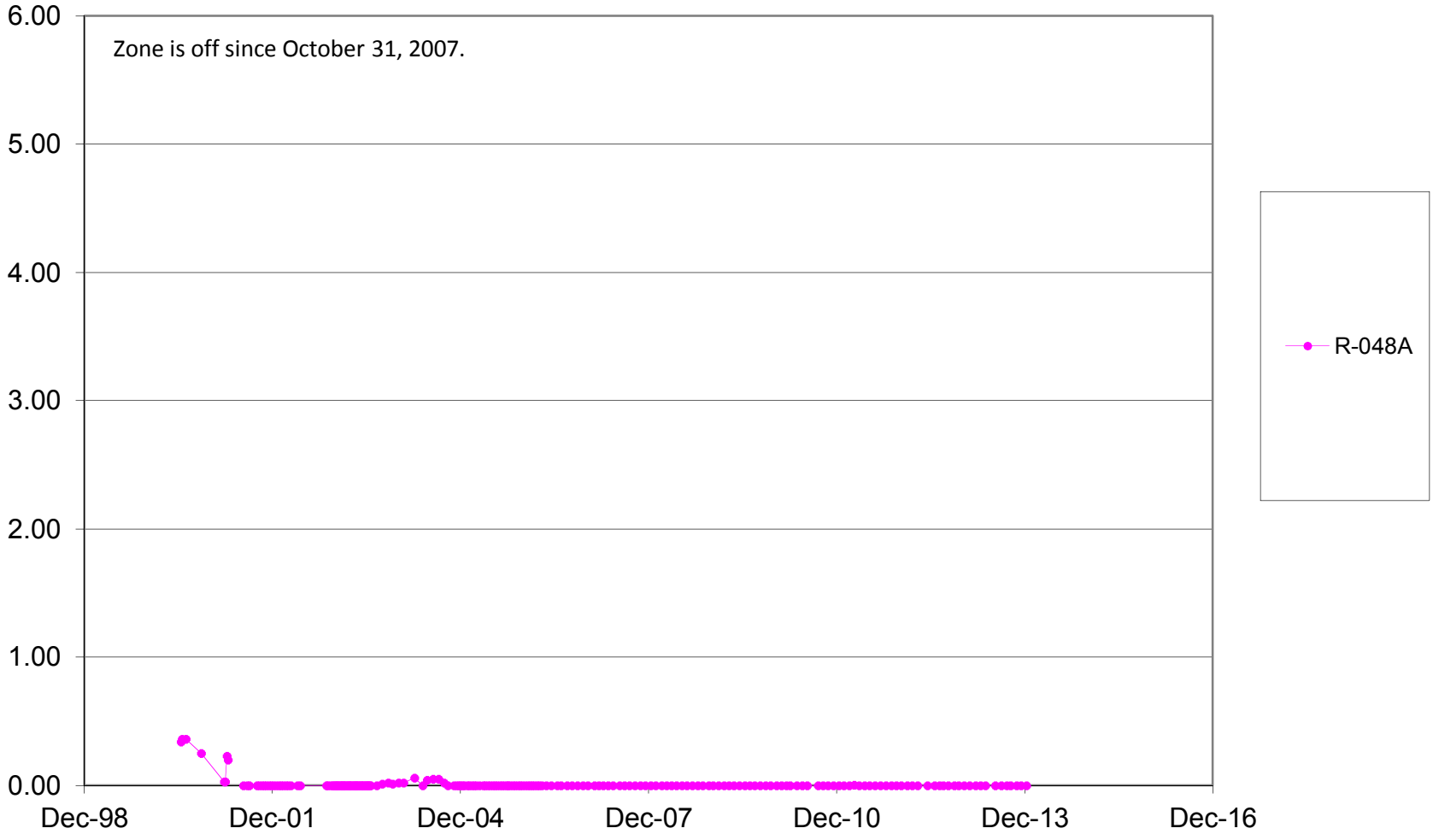
[Number] indicates that this compound may form free-phase at this concentration if the organic content of soils is 0.1 percent or less.

Analytical Methods for Chemicals Listed in Table: VOCs should be analyzed by 8260B with the following exceptions: EDB for groundwater must be analyzed by 504.1. PAHs should be analyzed by 8310, or 8270C if the practical quantitation limit is sufficiently low. Check with the laboratory. Inorganics should be analyzed by 6010B, typically for crude product, lubes/greases, and new or used/waste oils. Only mercury requires analysis by 7471A. Some metals (barium, chromium, copper, nickel, tin, titanium, and zinc) are also found in crudes, greases, and used/waste oils, but levels in environmental releases may be much lower than the residential SRL and minimum GPL. o-Cresol should be analyzed by 8270C or 8041. Carbazole can be analyzed by 1625. If soil gas samples are collected, TO-15 and Method 21 should be used for VOCs. Naphthalene should be analyzed by NIOSH 5506. Check with the laboratory for adequately low practical quantitation limits.

APPENDIX B

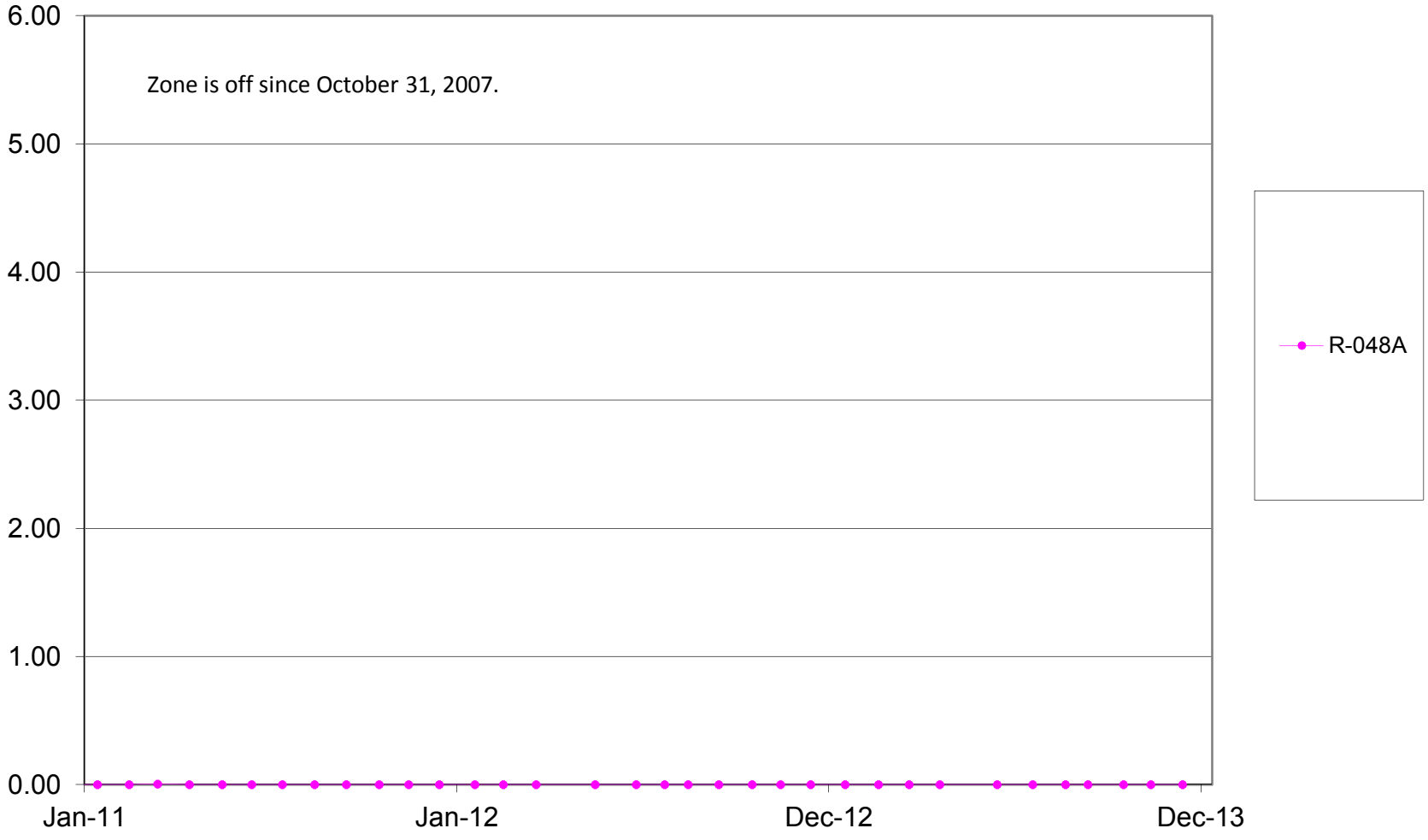
Apparent Product Thickness Charts

TFS Remediation Area
Zone 1 Apparent Product Thickness



S:\EMCOMMON\PSC_TFS10\Well_System_Info\Groundwater_Data\App A tables WL and FP Rec Dat.xls

TFS Remediation Area
Zone 1 Apparent Product Thickness (last 3 years)



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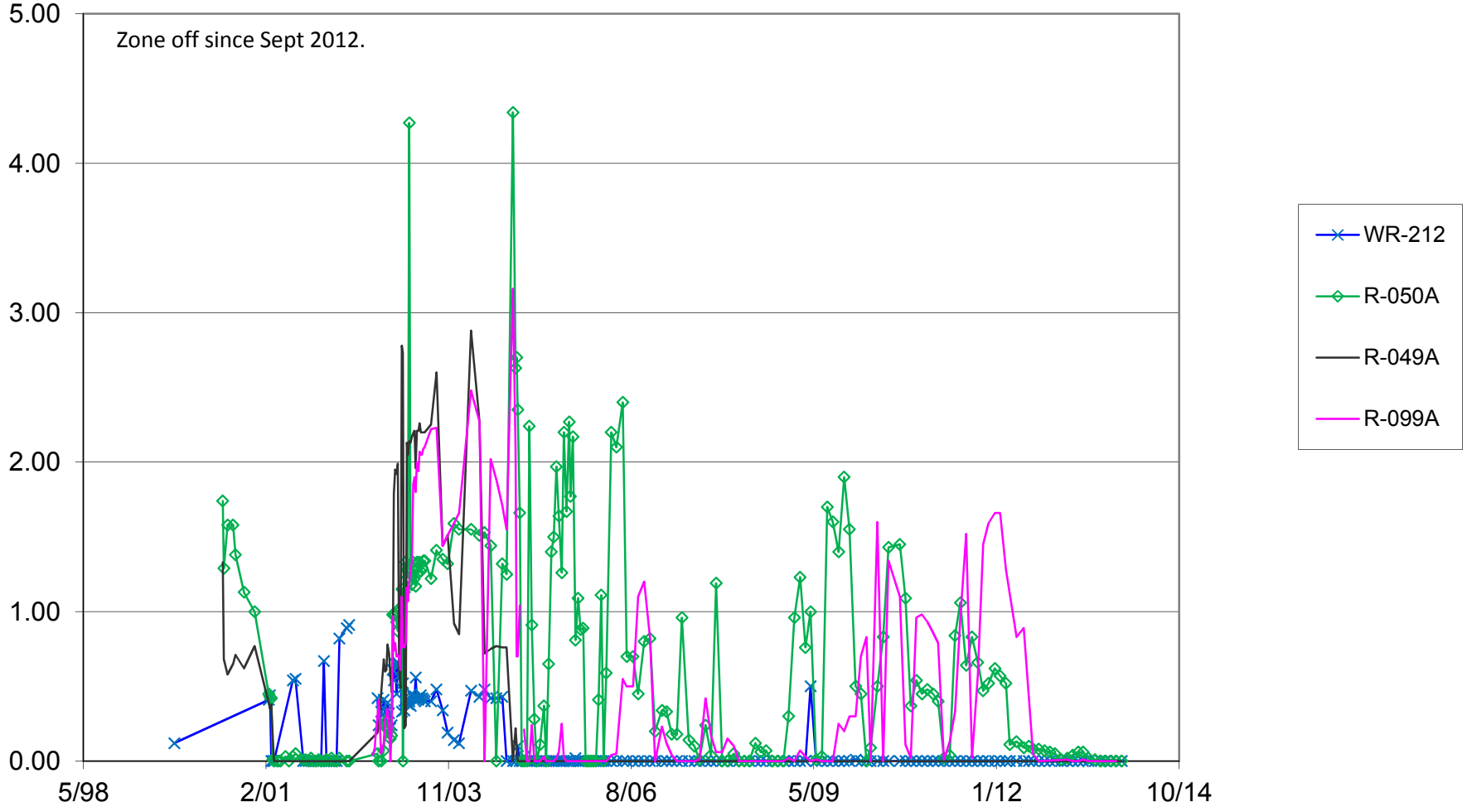
TFS Remediation Area
Zone 2 Apparent Product Thickness



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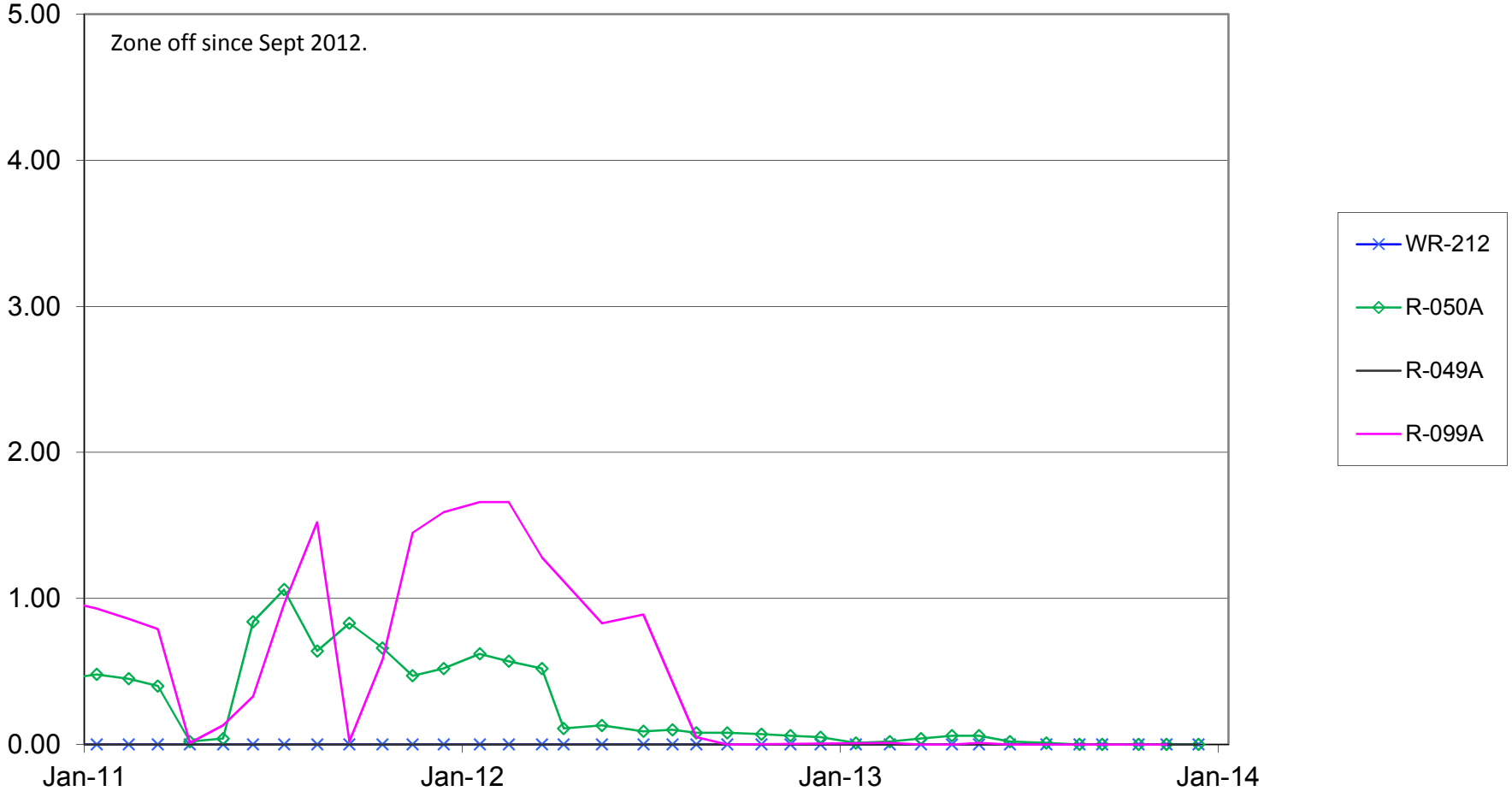
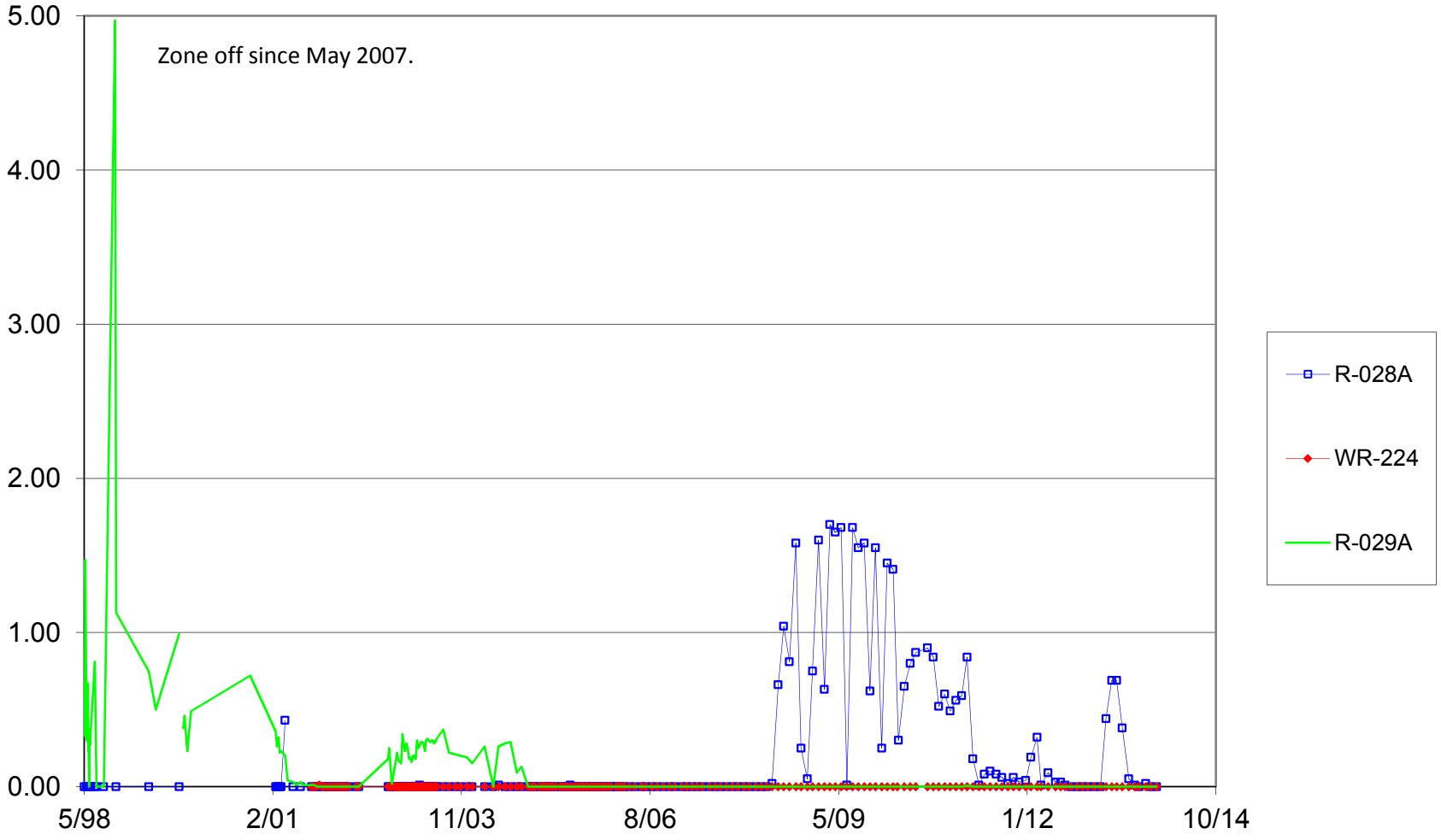
TFS Remediation Area
Zone 2 Apparent Product Thickness (last 3 years)



Free product has not been detected in R-049A since 2004, and in WR-212A since Dec 2009.

TFS Remediation Area
Zone 3 Apparent Product Thickness



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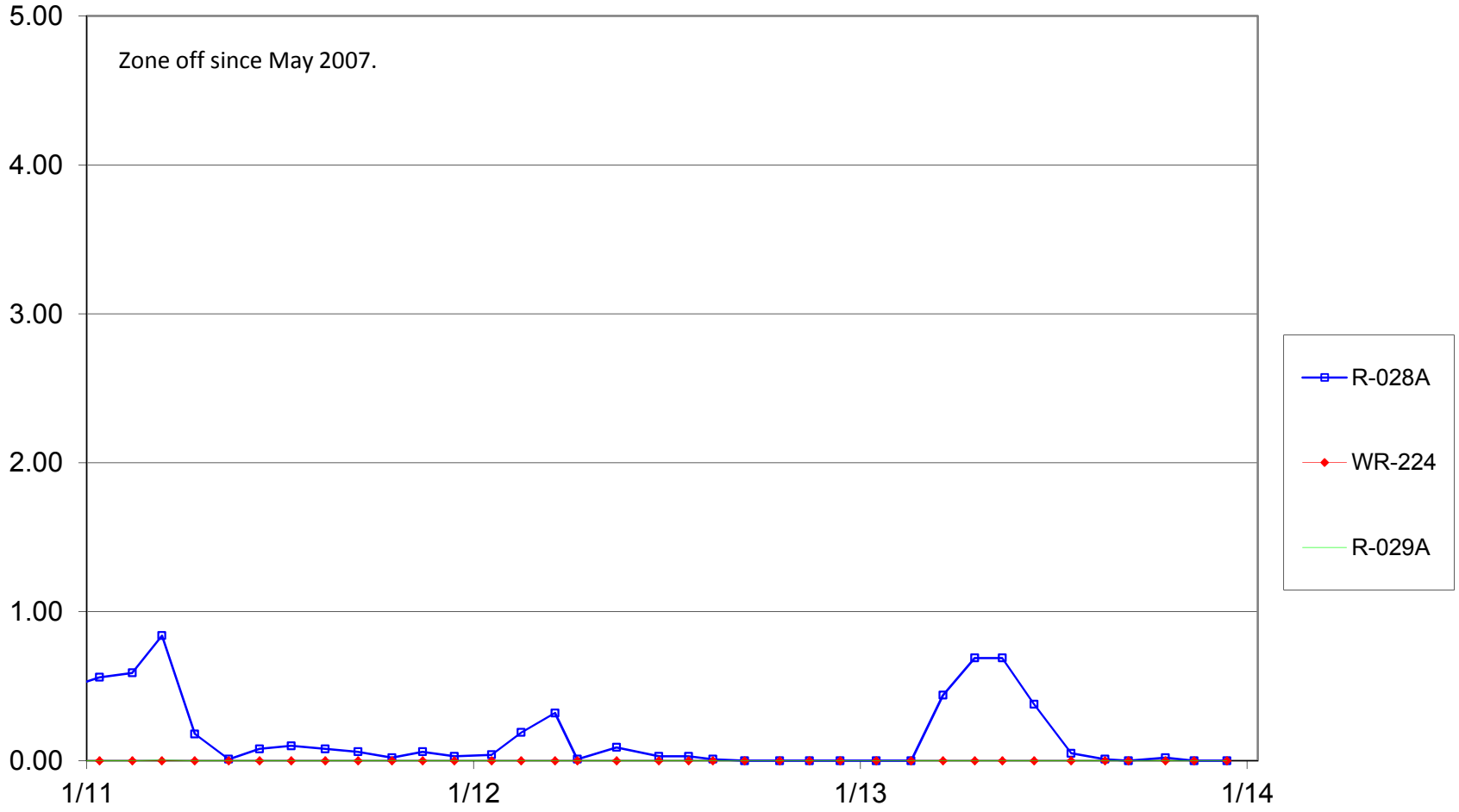
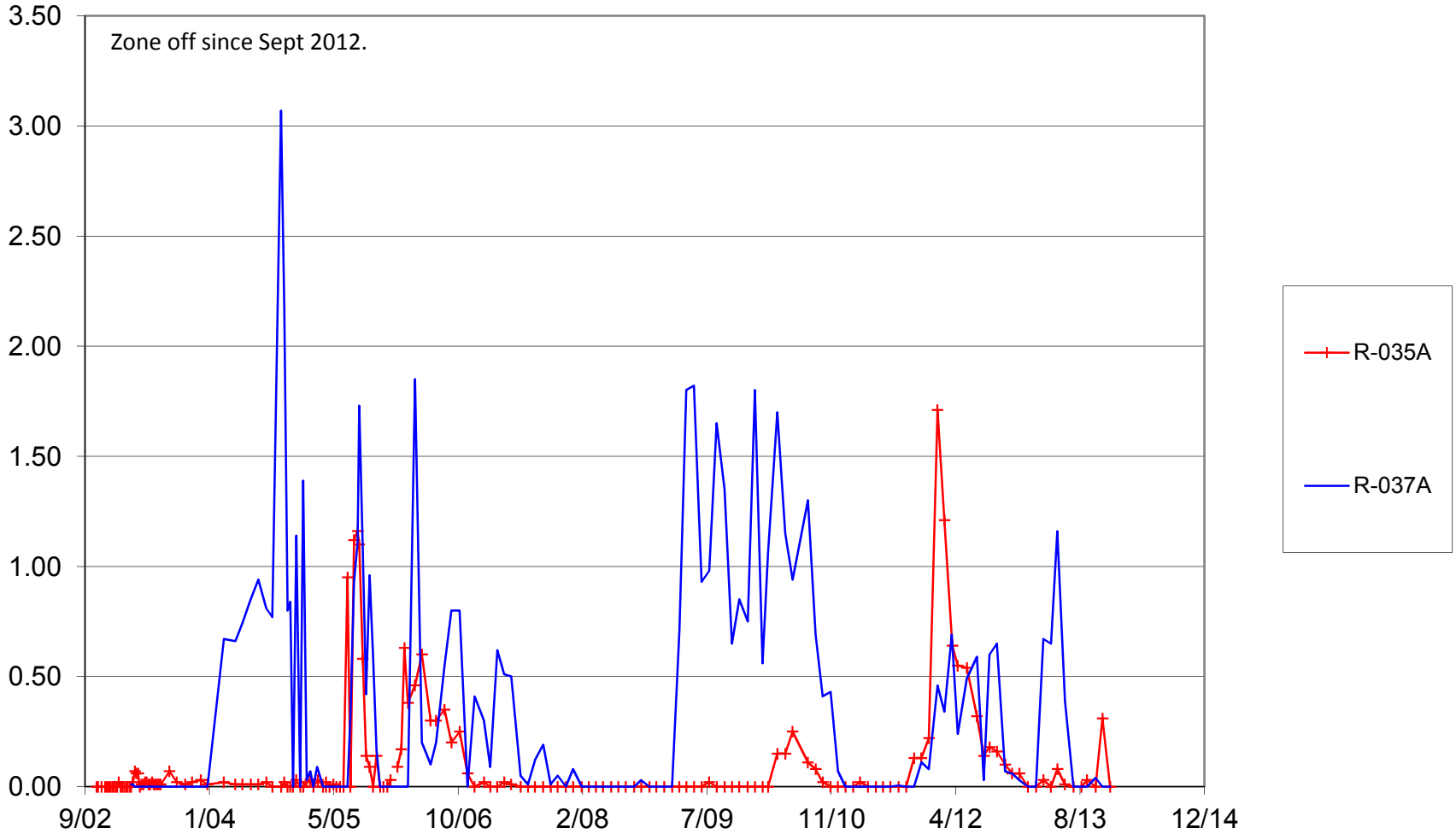
TFS Remediation Area
Zone 3 Apparent Product Thickness (last 3 years)



Free product has not been detected in WR-224A since 2001. Except for a minor detection of sheen in March 2011, free product has not been detected in R-029A since Sept 2004.

TFS Remediation Area
Zone 4 Apparent Product Thickness



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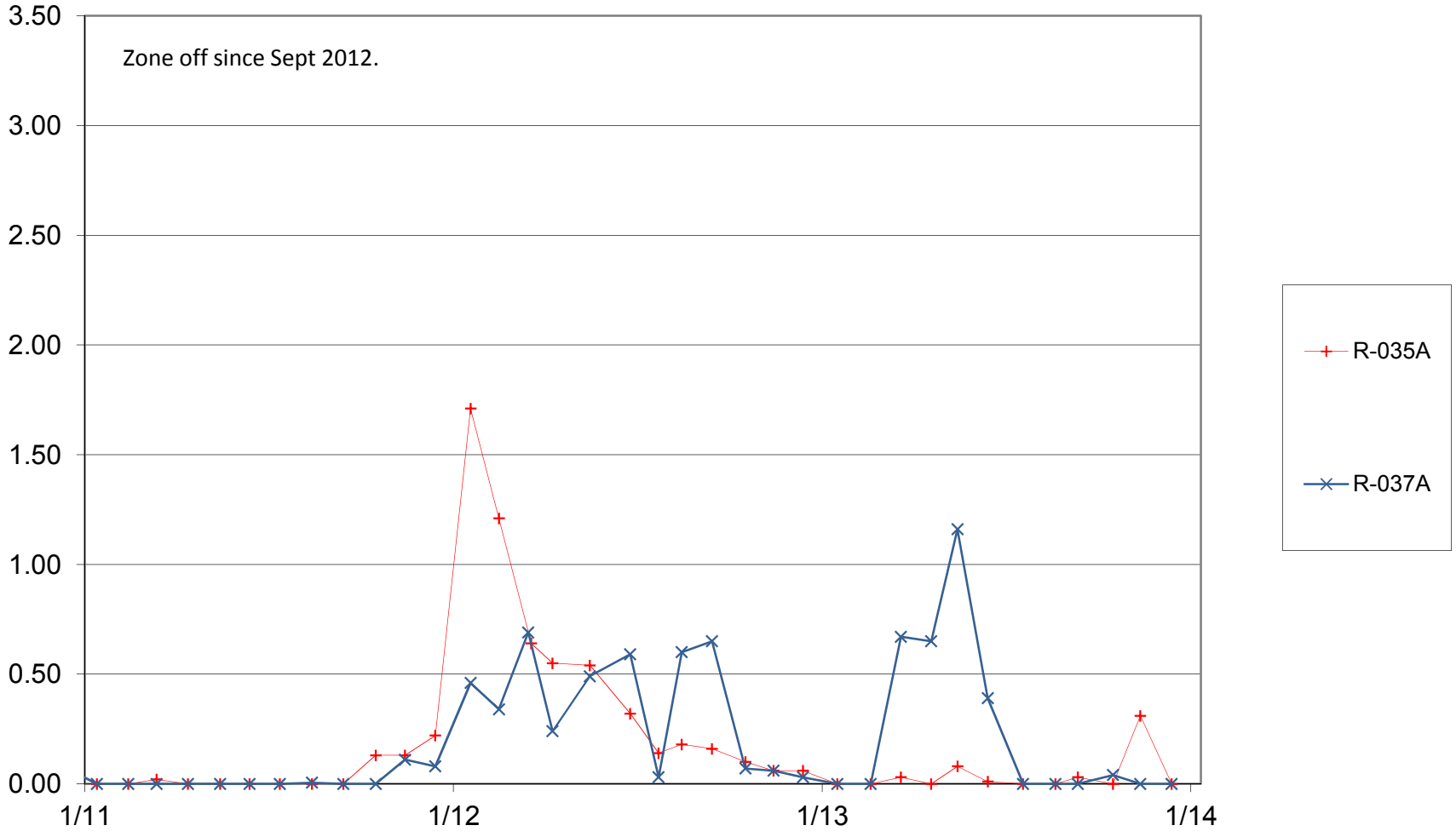
TFS Remediation Area
Zone 4 Apparent Product Thickness (last 3 years)



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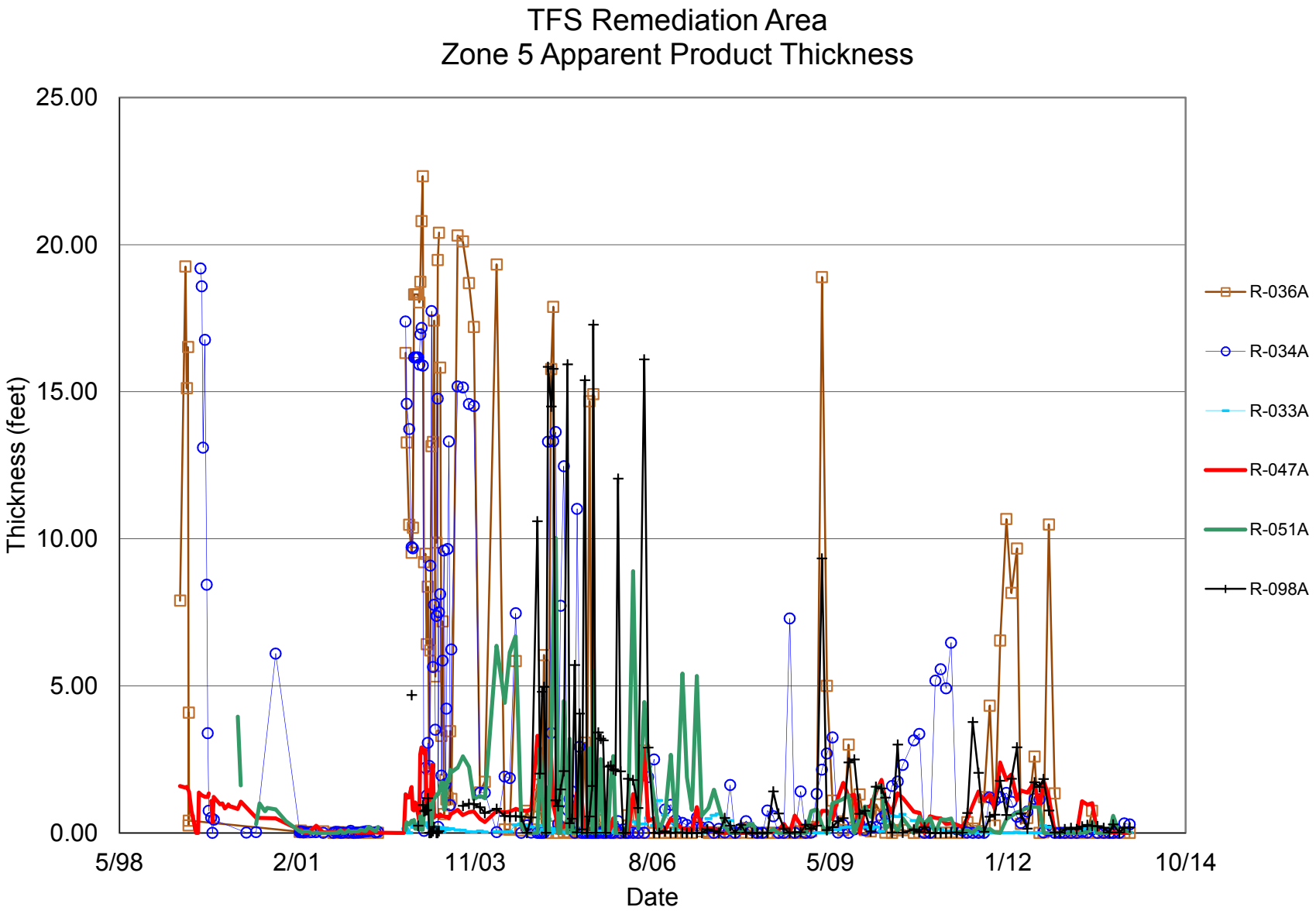

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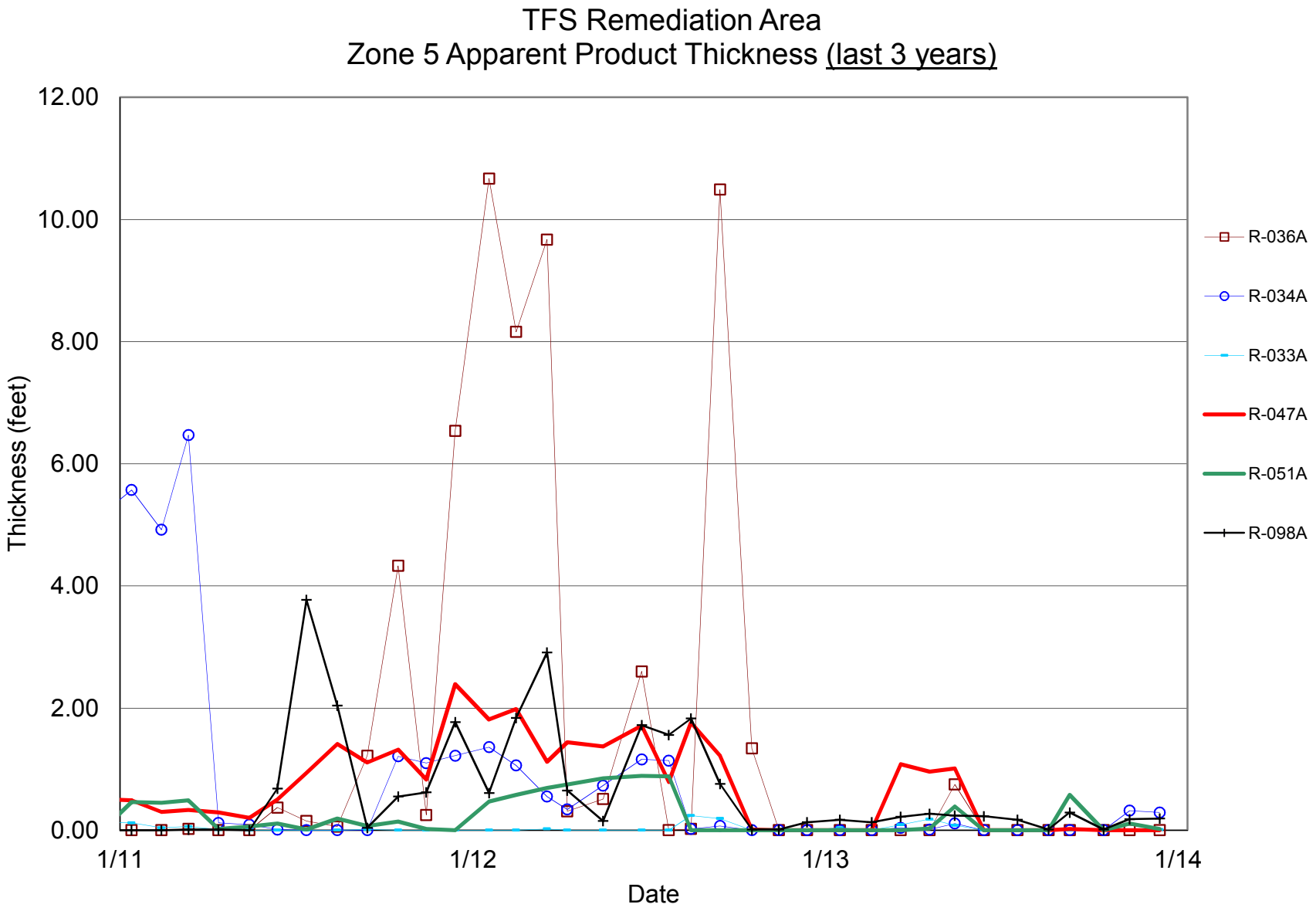

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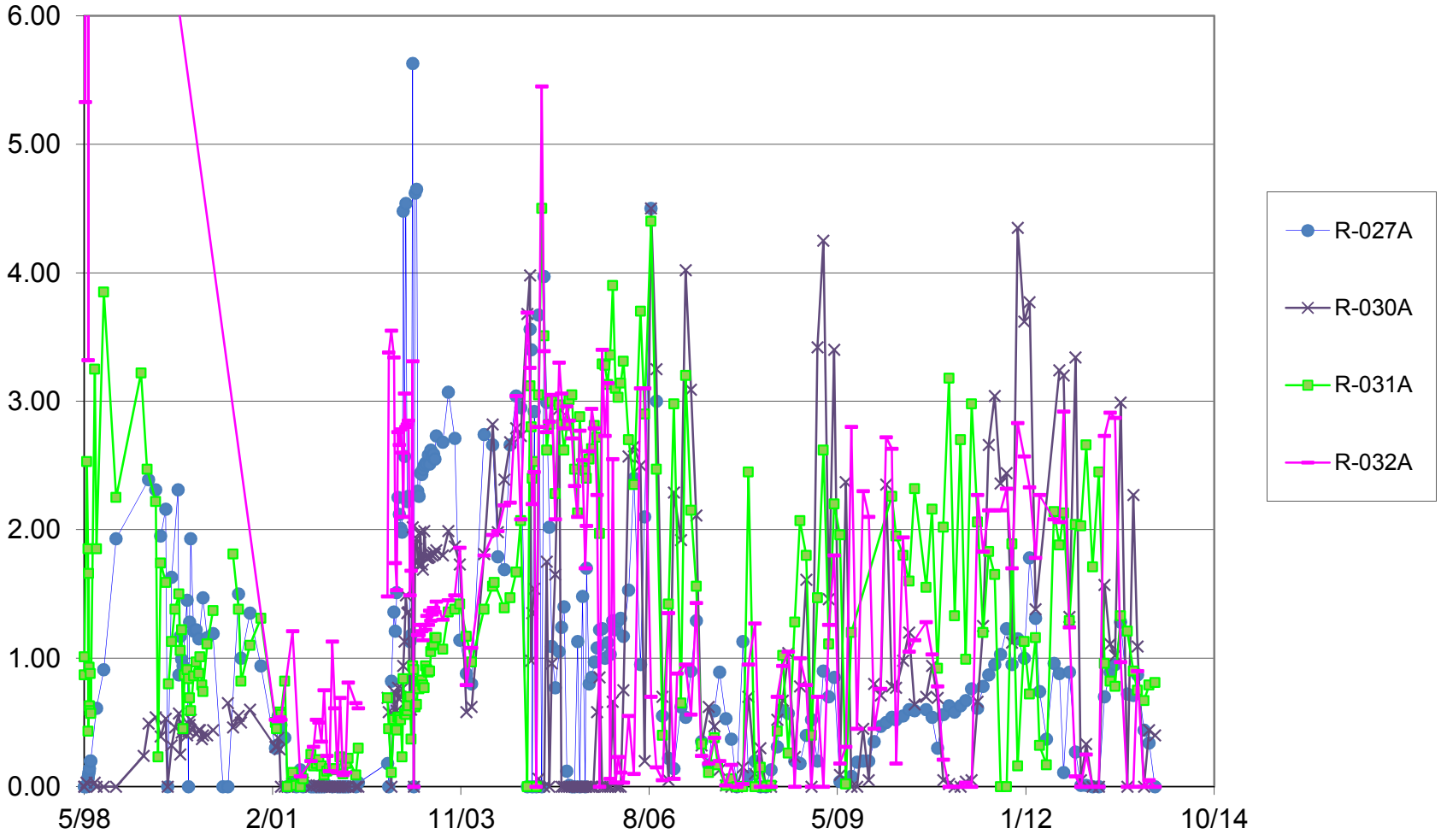
TFS Remediation Area
Zone 6 Apparent Product Thickness



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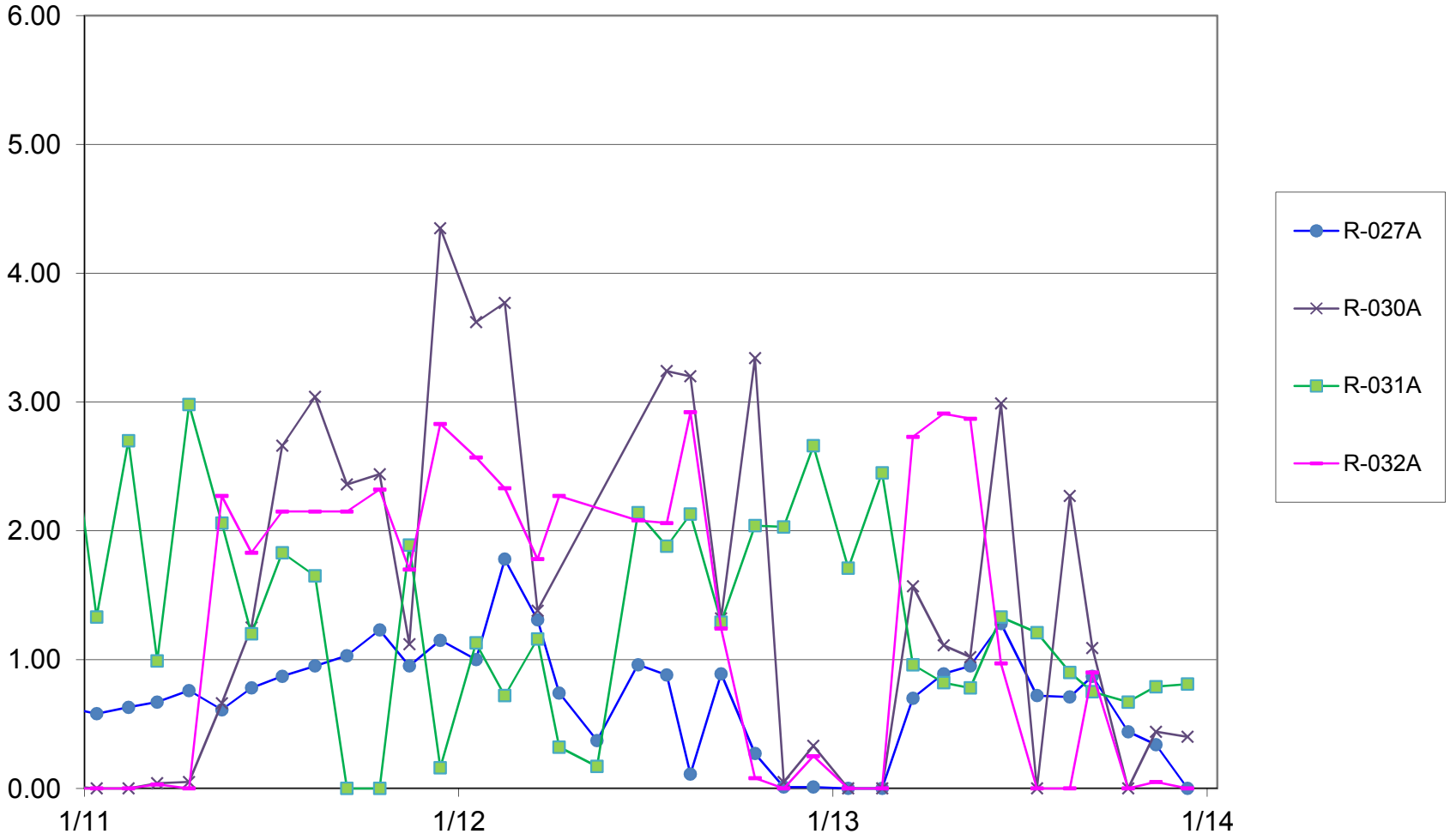
TFS Remediation Area
Zone 6 Apparent Product Thickness (last 3 years)



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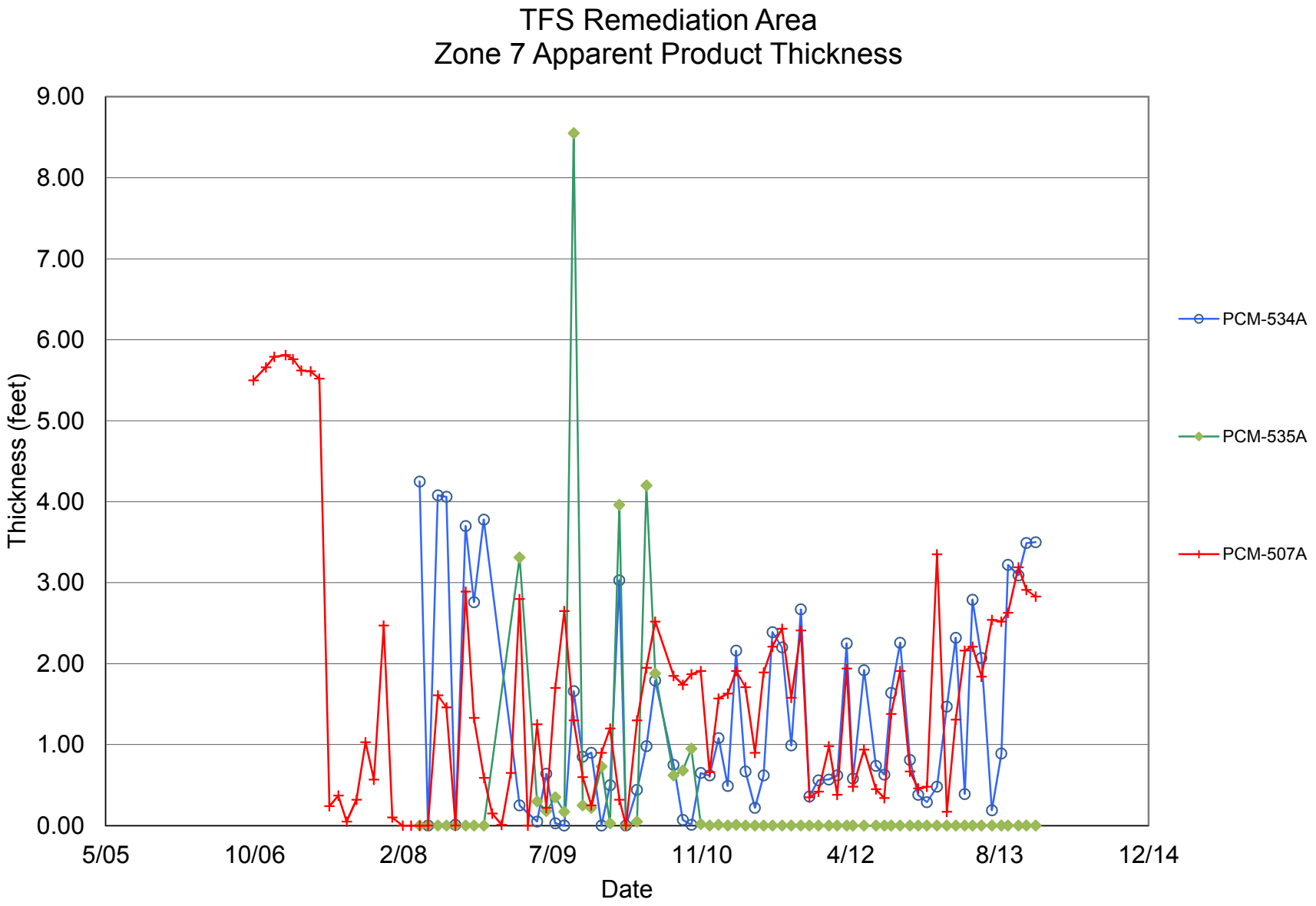

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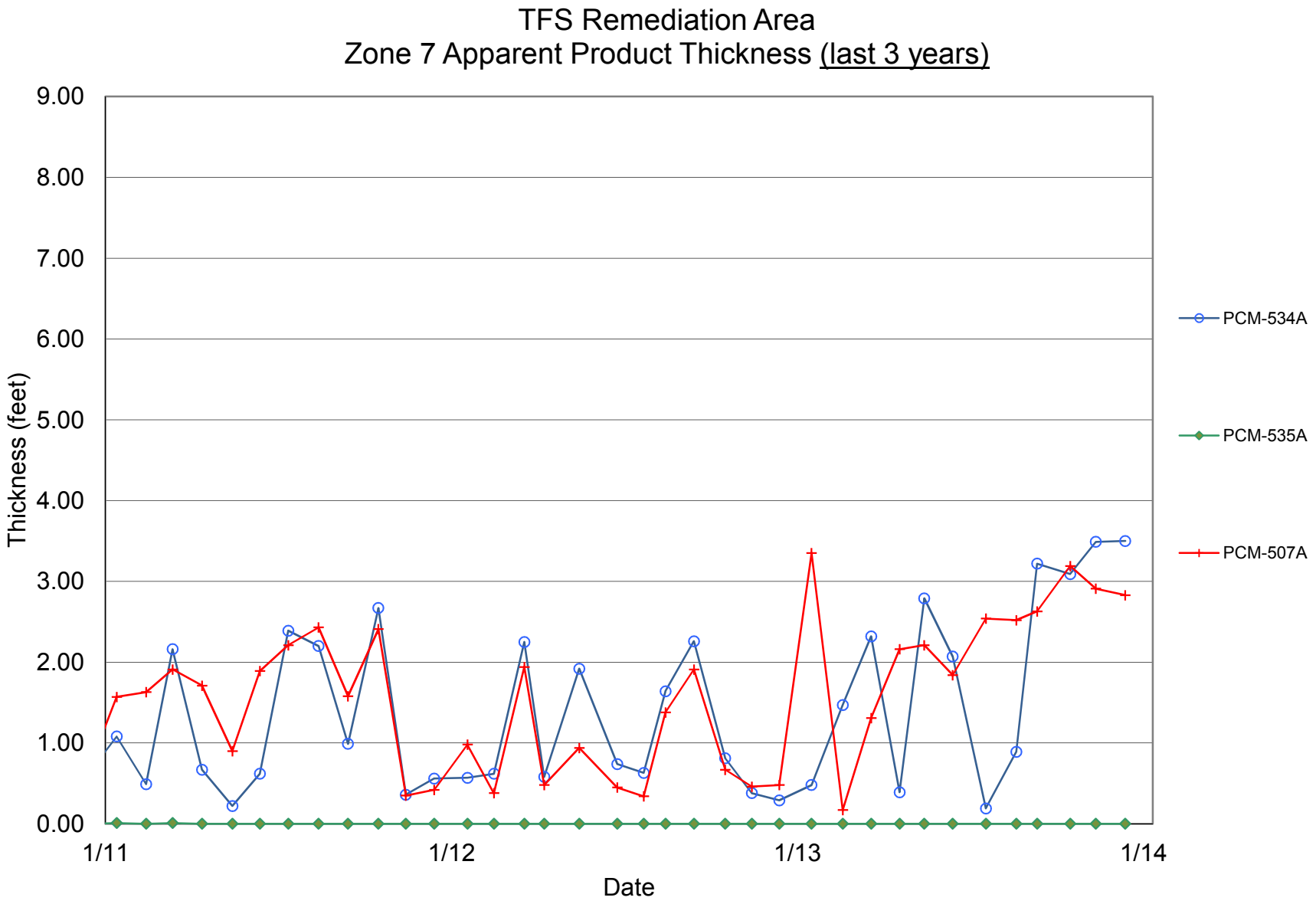

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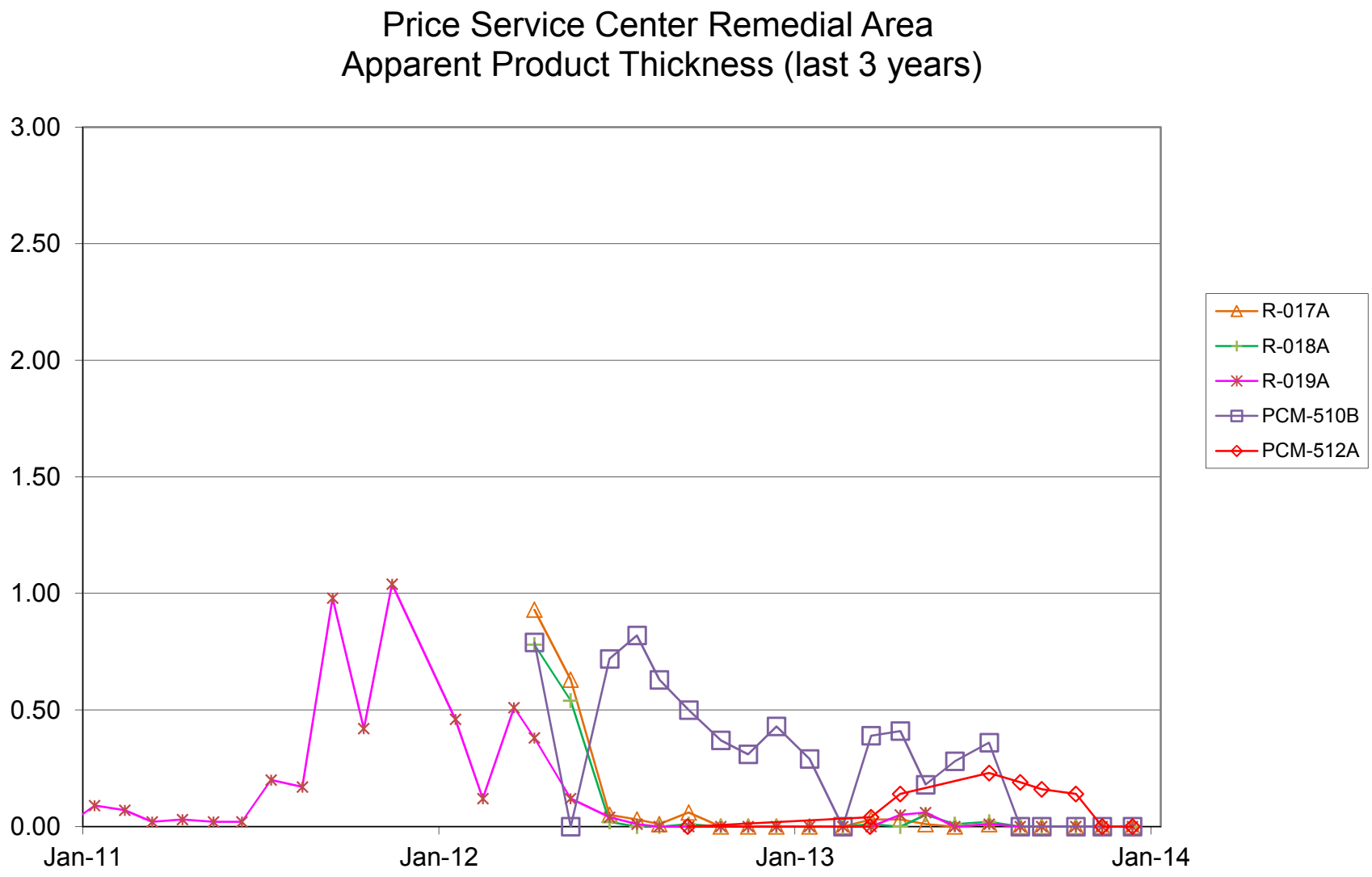
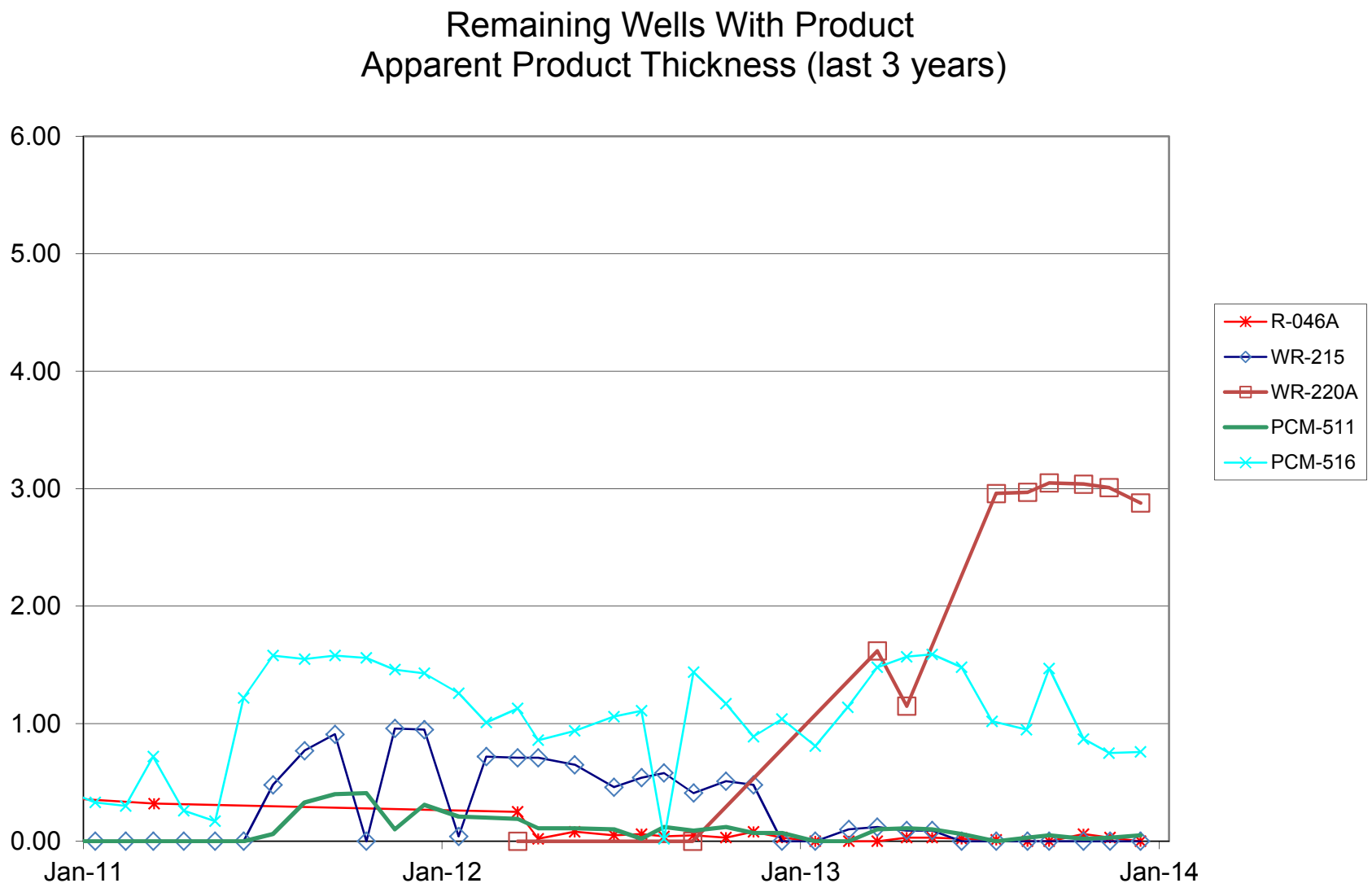


Note: All 'R' wells are connected to the Price Service Center Remediation System. PCM-510B and PCM-512A are monitor wells located within the vicinity of the system.



Note: These are all monitor wells currently not connected to any remediation system.

APPENDIX C

Environmental Forensic Report, Price Service Center 4004 South Park Avenue, Tucson, Az by Accutest Laboratories and META Environmental, Inc.

NOTE: Environmental Forensics hardcopy report excludes appendices. See electronic version of this report [Thomas O. Price Service Center (LUST File No. 0767.01-0767.05, ADEQ Facility No. 0-005160) Annual Status and Groundwater Monitoring Report (January 2013 through December 2013], for full appendices.

Environmental Forensic Report

Price Service Center
4004 South Park Avenue
Tucson, AZ

SDG: MC20162

Report To:

City of Tucson, AZ
P.O. Box 27210
Tucson, AZ 85726

Report By:

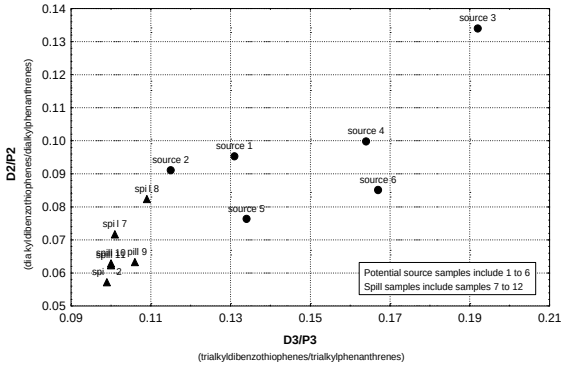
Accutest Laboratories
50 D'Angelo Drive
Marlborough, MA 01752

And

META Environmental, Inc.
115 Dean Avenue, Suite 300
Franklin, MA 02038

October 1, 2014

Figure 1. Double Ratio Plot



META

Sample Delivery Group Narrative

Project:	Price Service Center
Client	City of Tucson, AZ P.O. Box 27210 Tucson, AZ 85726
Report Contact:	Lori Ehman
Dates of Receipt:	April 24, 2013
Sample Summary:	The samples received for this project are summarized in the attached sample login forms in Appendix A.
META Project Number:	A31004
Accutest SDG No.:	MC20162

Chain of Custody

Chain of Custody documentation is provided in Appendices A, C, and E.

Methods

Accutest Laboratories

The non-aqueous phase liquid (NAPL) samples were prepared by waste dilution (EPA 3580) using dichloromethane (DCM). The extracts were spiked with internal standard and analyzed by gas chromatography with flame ionization detection (GC/FID) using EPA 8100M for fingerprinting; by gas chromatography with mass spectrometric detection in the selective ion monitoring mode (GC/MS/SIM) using EPA 8270M for monocyclic aromatic hydrocarbons (MAHs), polycyclic aromatic hydrocarbons (PAHs) their alkylated homologs, and alkylated lead compounds. A portion of each sample was analyzed by purge and trap GC/MS using EPA 8260 for methyl *tert*-butyl ether (MTBE).

Battelle

In addition, the samples were analyzed by purge and trap GC/MS using EPA 8260M for volatile gasoline compounds and fuel oxygenates; paraffins, isoparaffins, aromatics, naphthenes, and olefins (PIANO). The PIANO analysis was subcontracted to Battelle in Duxbury, MA.

Battelle
Attn: Kevin McInerney
Analytical Chemistry Services
397 Washington Street
Duxbury, MA. 02332

Results

Sample results are presented in several appendices which follow this narrative.

Appendix A: Chain of Custody
Appendix B: GC/FID Fingerprints
Appendix C: Accutest Laboratories Report (MC20162)
Appendix D: Extracted Ion Current Profiles
Appendix E: Battelle Duxbury Laboratory PIANO Report

Quality Control

GC/FID Fingerprinting, Extended PAH Profiles, and MTBE

The quality control measures and results are provided in the Accutest Laboratory report (Appendix C)

PIANO

The quality control measures and results are provided in the PIANO report (Appendix E).

Introduction

Nine samples of non-aqueous phase liquid (NAPL) were received by Accutest from the Price Service Center site (Site) on April 24, 2013. The samples were analyzed for hydrocarbon fingerprints, extended monocyclic aromatic hydrocarbon and polycyclic aromatic hydrocarbon (MAH/PAH) profiles, alkyl lead compounds, and MTBE.

After review of the fingerprints and PAH data, the samples were subsequently analyzed for gasoline volatile compounds, including paraffins, isoparaffins, aromatics, naphthenes, and olefins (PIANO) with fuel oxygenates. The PIANO analyses were conducted by the Battelle Memorial Institute laboratory in Duxbury MA.

This report summarizes the findings and compares the samples.

Summary of Site Background

Thomas O. Price Service Center (TOPSC) is a primary fueling center for the City of Tucson, AZ, located at the southwest corner of Ajo Way and Park Avenue. The site has operated since 1974 and historically maintained 23 underground storage tanks (USTs). Fuel releases were discovered during the late 1980s, and the tanks were drained by November 1989, except for temporary usage of six of the tanks during 1991.

Also in 1991, approximately 8,100 gallons of diesel fuel were reportedly released to the subsurface while emptying one of the tanks.

Fuel has migrated to groundwater and moved to the north and northeast in the uppermost groundwater system. The site is managed following the Arizona Department of Environmental Quality LUST program. The site is listed under File Number 4715.0767 and facility ID Number 0-005160. The City operates two soil vapor extraction systems and pumps free product from the uppermost groundwater zone. During 2012, air-sparging/sweeping remediation efforts were

introduced to the following wells: R-027A, R-030A, R-031A, R-032A, R-034A, R-036A, R-047A, R-051A, R-098A, and WR-215A.

The 23 USTs contained diesel fuel, leaded regular gasoline, and unleaded regular gasoline.

Figure 1 is a map of the area showing the NAPL plume as of April 2013.

As seen in Figure 1, NAPL has been observed in several wells, both on the site and off-site. For this forensic study, NAPL was collected and sent for analysis from PCM-516A, PCM-510B, PCM512A, WR-220A, R-047A, R-027A, and R-031A. Wells PCM-510B and PCM-512A were installed near the former location of the TOPSC USTs and are considered as 'source' samples. Field duplicate samples were collected from R-047A and R-027A at a later date.

Wells PCM-510B and PCM-512A are installed on the Site. Wells R-047A, R-027A, and R-031A are installed off-site in the down-gradient direction (A detailed discussion of the hydrogeology of the Site is not repeated in this Forensic report. The reader is referred to the Corrective Action Plan for the Site. Generally, the shallow groundwater flows toward the northeast). Well PCM-516A is installed off-site approximately 800 feet cross-gradient; and well WR-220A is installed off-site approximately 1,500 feet down-gradient of the Site.

Objectives

The objectives of the forensic study can be summarized as follows:

1. Characterize the NAPL samples and determine the type of petroleum product in each, and;
2. Compare the chemistry of the samples and determine whether they are the same material or product; and if not, identify the differences. Of particular interest is whether or not off-site samples PCM-516A and WR-220A contain the same material or product as the source or near-source samples.

Results and Discussion

Sample-Specific Observations

All nine NAPL samples were gasoline. No other petroleum product or other GC-detectable material was found in any of the samples. This is clearly seen in the GC/FID fingerprints (Appendix B) and when compared to petroleum product reference samples (Figure 8).

Also visible in the GC/FID fingerprints were the varying degrees of environmental weathering among the samples. For example, Sample PCM-516A exhibited a common gasoline fingerprint with toluene present at the highest concentration. In contrast, Sample R-047A also exhibited a gasoline fingerprint; however, toluene concentration was greatly reduced relative to more highly alkylated benzene compounds.

Gasoline weathering occurs by three main processes. First, when exposed to the atmosphere (or soil pore spaces), the more volatile chemicals will evaporate more quickly than less volatile compounds. For example, n-pentane (a 5-carbon alkane) evaporates more quickly than n-heptane (a 7-carbon alkane). If both compounds are present in a fresh gasoline at about the same amounts, the weathered gasoline will contain substantially less n-pentane than n-heptane. Second, when exposed to water (e.g., surface water, groundwater, rainwater infiltration), the more water soluble compounds will partition out of the gasoline more quickly than the less water

soluble compounds. For example, toluene is more soluble than methylcyclohexane and thus is lost from the gasoline more quickly as the gasoline weathers.

Third, the chemicals in gasoline are degraded by bacteria in the soil. The structure and chemical/physical properties of each chemical in gasoline have a strong influence on the rate of biological degradation. For example, normal alkanes (i.e., paraffins) degrade more quickly than cyclic alkanes (i.e., naphthenes) (all other factors being equal).

Under many subsurface conditions, all three processes are occurring simultaneously.

For sample R-047A, there was almost no detectable n-pentane, isopentane, benzene or toluene. In contrast, sample PCM-516A contained relatively high concentrations of those compounds (as compared to higher molecular weight, less volatile and soluble constituents). This indicates that some combination of evaporative and water dissolution weathering had impacted the gasoline at R-047A more so than at PCM-516A. This difference between R-047A and PCM-516A is not surprising given that a sparging/vapor recovery system has been active in R-047A.

MAHs, PAHs, and Alkylated Homologs

As described above, the NAPL samples were diluted in solvent and analyzed by GC/MS for MAHs, PAHs, and their alkylated homologs. The concentrations of monocyclic aromatic hydrocarbons (MAHs) and polycyclic aromatic hydrocarbons are summarized in Table 3. All nine samples contained mostly MAHs and 2-ring PAHs (i.e., naphthalene and methylnaphthalenes). Very low concentrations of some higher molecular weight PAHs were detected in some samples. Even though high molecular weight PAHs are not detectable in fresh gasoline, finding low levels in environmental samples is not unusual as the gasoline will absorb PAHs and other compounds from the general soil background.

Figure 3 shows the detected MAHs and PAHs as stacked bar charts. The MAH/PAH profiles of the samples were similar, but with some variability. Sample R-047A differed the most from the other samples. For example, R-047A contained lower relative amounts of ethylbenzene to m/p-xylenes and lower amounts of methylcyclohexane to m/p-xylenes than, for example sample WR-220A. Similarly, the relative amount of n-propylbenzene to 1,3,5-trimethylbenzene was lower in R-047A than in WR-220A and other samples. The differences are better seen in a comparison of individual bar plots of the samples. For example, Figure 4 compares R-047A to WR-220A.

Similarly, Figure 5 shows a double ratio plot comparing the ratio of methylcyclohexane/trans-decalin to the ratio of n-propylbenzene/n-butylbenzene. R-047A is clearly different from the other samples in both ratios (except for the difference between PCM-510B in the methylcyclohexane/trans-decalin ratio). In addition, samples WR-220A and PCM-516A were similar to each other, but different from all other samples. Those samples were far down-gradient and cross-gradient, respectively, from the source area.

Principal components analysis (PCA) is a method for visualizing multi-variable, complex data more simply. PCA is a statistical procedure that uses orthogonal transformation to convert a set of observations of possibly correlated variables into a set of values of uncorrelated variables called principal components. The number of principal components is less than or equal to the number of original variables.

When the MAH/PAH data were subjected to PCA, there were clear differences between R-047A and the other samples in the sample set [differences among samples are indicated by separation of the data points in the PCA plots; duplicate samples, which are by definition the same or

similar (within analytical variability) illustrate how closely samples of the same substance should plot; larger distances between points indicate either differences in the composition of the samples or differences caused by environmental alteration of the samples.] Similarly, there are clear differences between sample PCM-510B, in the source area, and samples collected down gradient (e.g., WR-220A) or cross-gradient (PCM-516A).

Alkyl Lead Compounds

The nine NAPL samples were analyzed for tetraethyl lead (TEL) and other alkyl lead compounds by GC/MS. As seen in Table 3, seven of the nine samples contained TEL at detectable concentrations. No alkyl lead compounds were detected in R-027A or R-031A. Samples PCM-510B, PCM-512A, PCM-516A, and R-047A contained total lead at 0.54, 0.74, 0.51, and 0.76 g Pb/gal respectively. Sample WR-220A contained total lead at 0.28 g Pb/gal.

The presence of TEL indicated that at least a portion of the gasoline was an older gasoline variant since lead additives were banned by the EPA from on-road use as of January 1997. No other alkylated lead isomers were detected in any of the samples.

TEL was the most common of the alkyl lead additive compounds. It was used exclusively in gasoline from about 1924 to about 1960 when other alkyl lead compounds came into use. Further, by 1985, about 90-95% of alkyl lead use was back to TEL-only additive packages. There is some uncertainty in these cut-off dates, but they are used as general indicators of gasoline age.

Between 1960 and the mid 1980's alkyl lead mixtures were being distributed for use in gasoline. Two types of mixtures existed; physical mixtures of TEL and tetramethyl lead (TML), and reacted mixtures of TEL and TML that would produce a distribution of TEL and TML, as well as trimethylethyl lead (TMEL), diethyldimethyl lead (DEDML), and methyltriethyl lead (MTEL). These reacted mixtures contained distributions that varied in the concentrations of each component depending on the starting percentages of TEL and TML.

The absence of TML, MTEL, DEDML, and TMEL indicates that the leaded gasoline variant was produced either before about 1960 or after the 1985 time frame. Again, it is important to note that there was substantial variation in the nature and use of alkyl lead additive packages over the years and these dates should be used with caution.

In addition to differences in the type of lead additives used, the period of about 1970 to about 1995 saw substantial reductions of the total amount of lead added to gasoline as refiners and distributors responded to new regulations. Therefore, changes in total lead content can help bracket production dates for leaded gasoline.

Converting the concentration of TEL in the samples to g Pb/gal gives the values at the bottom of Table 3. The amounts ranged from 0.28 in WR-220A to 0.76 in R-047A (average of two samples). According to Galperin and Kaplan (2007), the average quarterly production maximum levels of lead decreased from 4.23 g Pb/gal in 1959 to 1.0 g Pb/gal in 1981, to 0.5 g Pb/gal in 1985, and to 0.1 g Pb/gal in 1988, before complete phase out in 1996. Premium gasoline contained higher concentrations of lead than regular grades. These values are averages of the various products from the refiners in the survey; so, they are trends, not hard cut-offs.

Using the trend discussed above, all of the samples in this study that contained TEL (PCM-510B, PCM-512A, PCM-516A, WR-220A, and R-047A) likely were produced some time in the 1980s. Alternatively, some of the samples could be mixtures of older, higher lead gasoline and newer,

lower lead gasoline resulting from multiple releases and comingling in the subsurface. Recovery wells R-027A and R-031A were located next to each other (Figure 1); neither contained detectable TEL. As discussed above and illustrated in Figure 6, the MAH/PAH patterns of samples R-027A and R-031A also were different from other samples. This suggests that samples R-027A and R-031A were a different gasoline than found in the other wells. However, while the presence of TEL in some samples brackets the age of the gasoline, the absence of TEL in these samples does not necessarily indicate that they were produced after lead additives were banned.

Oxygenates (MTBE)

Common fuel oxygenates were measured in the samples by purge and trap GC/MS as part of the PIANO analyses conducted by Battelle (Appendix E). Those included ethanol, t-butanol, MTBE, di-isopropyl ether (DIPE), ethyl-*tert*-butyl ether (ETBE), and *tert*-amyl methyl ether (TAME). In addition, Accutest analyzed the samples for MTBE-only by EPA Method 8260 (Appendix C).

MTBE was detected at low concentrations by EPA Method 8260 in samples PCM-510B, PCM-512A, R-047A, R-027A, and R-031A (Table 3). The concentrations were 26.2, 173, 93.5, 37.4 and 111 mg/kg MTBE respectively. All of these concentrations are less than 0.02% on a wt/wt basis.

No MTBE or other fuel oxygenates were detected in the PIANO analyses. However, the reporting limits for the PIANO analyses averaged 380 mg/kg, which is above any of the MTBE detections reported by EPA Method 8260.

The detections of MTBE in the gasoline samples are difficult to interpret. Specifically, the concentrations detected (i.e., less than 0.02%) were well below the amounts present in fresh MTBE-containing gasoline. The low concentrations were not surprising because MTBE is relatively soluble in water and quickly partitions out of gasoline and into groundwater. The data suggest, but do not prove, that the gasoline collected from wells PCM-510B, PCM-512A, and R-047A were mixtures of leaded and unleaded gasoline. Those wells were located in the source area and immediately downgradient of the source area.

Two samples containing no detectable MTBE were PCM-516A and WR-220A, the cross-gradient and far down-gradient wells, respectively. The highest MTBE concentration was detected in PCM-512A in the potential source area. Since all of the samples in the potential source area and immediate down-gradient area contained MTBE, but the cross-gradient and far-down-gradient samples did not, it is likely that the gasoline in PCM-516A and WR-220A did not originate at the potential source area.

PIANO

The nine NAPL samples also were analyzed for paraffins, isoparaffins, aromatics, naphthenes, and olefins (PIANO) compounds, as well as common fuel oxygenates. This analysis included most of the compounds commonly found in automotive gasoline. The results are summarized in Table 1 and Appendix E; and shown graphically in the bar charts in Figure 9 through Figure 18.

Based on the PIANO data, the following was observed:

1. The compositions of all seven samples were similar, indicating that the gasoline in the samples was of a similar grade and production era.
2. The octane ratings (Table 2) were 1.88, 1.31, 1.61, 1.99, 1.91, 3.44, 3.33, 3.39, and 1.91, indicating that the gasoline was regular grade, or perhaps mid-grade (for those samples

with octane ratings greater than 3). The octane index (another measure of gasoline grade indicated that all samples were regular grade gasoline. The finding of regular grade leaded gasoline is consistent with the operational history of the Site (CAP, 1994).

3. The presence of olefins (Table 1 and Table 2) indicates that all of the gasoline samples contained a thermally-cracked or FCC-cracked component. The percent olefins content varied, with samples PCM-516A and WR-220A having the highest amounts. Additional discussion of the olefin contents is included in the comparison of the bulk hydrocarbon composition later in this report.

4. The weathering ratios (Table 2) suggest that all of the gasoline samples showed indications of evaporative and water washing weathering; but little indication of biodegradation. For samples R-027A, R-031A, and R-047A, a greater degree of weathering than other samples likely is due to the effects of the SVE remediation system (see below). The weathering assessment is based on comparison to general trends reported in the literature; however, the interpretation could not be confirmed by comparison to fresh samples from the site.

    a. The presence of substantial volatile compounds (e.g., isopentane and n-pentane) in samples WR-220A and PCM-516A indicates that while the gasoline in those wells shows evidence of evaporative weathering, the extent was not greater than wells existing up-gradient.

5. The bulk hydrocarbon composition as PIANO (Table 2) indicates that samples PCM-516A and WR-220A were similar to each other, having percent aromatic (%aro) to % isoparaffinic (%iso) ratios of 1.47 and 1.52, respectively. In contrast, samples PCM-510B, PCM-512A, R-027A, R-031A, and R-047A had %aro/%iso ratios of 8.44, 2.26, 2.43, 2.45, and 5.38 respectively. These differences also are visible in the PIANO bar charts (Appendix F). Other differences in bulk hydrocarbon composition also were evident. For example the %iso to %naphthenic (%nap) ratios varied substantially. Samples PCM-516A and WR-220A were very similar at 3.9 and 3.6 respectively. In contrast, the ratios of samples PCM-510B and PCM-512A were 9.9 and 4.6 respectively.

6. Several (i.e., 8) weathering resistant compound ratios were calculated (Table 4). These are ratios of alkylated benzenes with similar structures and environmental transport and fate properties. The ratios of all seven samples were similar, with some variability. The relative percent differences (RPDs) between each ratio in a sample and that ratio in other samples also were calculated (Table 4).

    a. When sample PCM-516A is compared to its laboratory duplicate, the RPDs of the eight ratios ranged from 0.4 to 11.4%. These values provide information on the variability within a sample and introduced by the sampling and analysis. It is generally assumed that when different types of gasoline are compared, the RPDs will be greater than when a sample is compared to its laboratory duplicate. Also, a general rule of thumb used by the US Coast Guard for determining whether two oil samples match says that comparative measures should agree to within 10% or less to be a match. The sample/sample duplicate comparisons generally agree to 10% or less.

    b. Similarly, when sample R-047A was compared to its field duplicate, the RPDs ranged from 0.2% to 3.6%; and when sample R-027A was compared to its field

duplicate, the RPDs ranged from 0.1% to 10.4%. These values support the 10% rule of thumb.

c. The RPDs shown in Table 4 indicate that, based solely on alkylated benzene ratios, the gasoline in sample R-047A did not match any of the other samples. RPDs as high as 27% were found when comparing R-047A to the other samples.

d. Similarly, sample PCM-516A did not match any of the other samples, with the possible exception of PCM-510B.

e. WR-220A did not match PCM-516A or R-047A, but was similar to PCM-512A, PCM-510B, R-031A, and R-027A.

f. A determination that compound ratios in samples are similar does not necessarily prove that the samples contained the same gasoline or that the gasoline came from the same release. However, compound ratios that do not match indicate that the samples contained different gasoline from separate releases.

Principal Components Analysis (PCA)

PCA was used to better visualize the patterns in the PIANO data. Several combinations of target compounds (all compounds, aromatics only, naphthenes only, without the more volatile and soluble compounds, with and without TEL) were subjected to simple PCA analysis. In all cases, the relationships among the samples, as indicated by the projection of sample points on the PCA coordinate system, were similar. PCM-516A and WR-220A were distinctly different from the other samples. Sample R-047A also was distinctly different from all other samples.

Figure 7 shows the 3-dimensional PCA plot of the samples using PIANO constituents plus TEL. All compounds were included in the data set except volatile compounds, including benzene, toluene, ethylbenzene, xylenes, isopentane, 2,2-dimethylbutane, 2-methylpentane, 3-methylpentane, cyclopentane, methylcyclopentane, 1-pentene, 2-methyl-1-butene, trans-2-pentene, cis-2-pentene, and all the normal alkanes. Figure 7 shows that the projections of samples WR-220A and PCM-516A onto the PCA coordinate system were close, indicating that the patterns of chemicals in those samples were similar. Larger distances between points on a PCA plot are indicative of less similarity in the chemical composition.

Figure 7 also shows that the on-site samples, PCM-510B and PCM-512A, were not similar to WR-220A and PCM-516A. The three principal factors are linear combinations of 61 variables (i.e., chemical concentrations). The correlations between the variables and the factors are termed "loadings" and provide information on which original variables provide discrimination in that direction on the PCA plot. For example, most alkylated benzenes and alkylated octanes exhibit a high positive correlation with Factor 1; in contrast, most other isoprenoid hydrocarbons and olefins are negatively correlated with Factor 1. Thus, separation along the Factor 1 axis in Figure 7 is in part determined by the relative amounts of aromatic to isoprenoid hydrocarbons, and the relative amount of aromatic or olefin compounds. Separation along the Factor 2 axis is determined mostly by the relative amounts of alkylated cyclohexanes and TEL as compared to other compounds. Similarly, isopropylbenzene, n-propylbenzene, and sec-butylbenzene are highly correlated to Factor 3; most other compounds correlate weakly to Factor 3. Therefore, separation in the Factor 3 direction in Figure 7 is determined in large measure by the relative amounts of those three compounds. The loadings are consistent with the discussion of bulk hydrocarbon composition in bullet point 5 in the previous section.

Lines of Evidence

Wells WR-220A and PCM-516A are farthest from the Site at about 1,500 ft. and 1,100 ft. away respectively. Travel time from the Site to those wells of a NAPL plume could be 136 and 100 years, respectively, assuming a groundwater flow rate of 0.03 ft/day (CAP, 1994). These are estimates because groundwater flow rate is an average rate and because LNAPL does not travel at the same rate as the underlying groundwater. However, there does not appear to have been enough time for gasoline to reach the remote locations from the TOPSC.

- No NAPL was detected in well WR-220A during installation or initial sampling during the 1989 – 1994 timeframe. No NAPL or benzene (a major gasoline constituent) was detected in WR-220A as recently as 2001 (CAP Addendum, 2001).
- Given the distance to wells WR-220A and PCM-516A, it is expected that the gasoline in those wells would have to have been released before the gasoline nearer to the site and therefore, should be more weathered. However, the gasoline in those wells exhibits less weathering than on-site wells.

The aromatics to isoparaffins ratio of samples WR-220A and PCM-516A were similar, but substantially different from on-site and near-site wells. A similar difference was observed for the aromatics/naphthenes ratios.

When the compound-specific compositions are compared using PCA, samples WR-220A and PCM-516A are somewhat to substantially different from other samples analyzed, depending upon which combination of compounds are used in the PCA (see prior section).

Qualifications

It is important to note that active soil vapor extraction (SVE) systems and/or free product recovery systems have been operating at wells R-027A, R-031A, and R-047A, but not at PCM-510B, PCM-512A, PCM-516A, or WR-220A. However, active SVE systems have been operating in close vicinity of PCM-510B and PCM-512A. For those locations where SVE systems have been operating either in the well or in close proximity, weathering data are likely biased because of the effects on the gasoline of the SVE systems. Those potential biases were taken into account during this forensic study when possible.

Summary

Nine samples of NAPL from seven monitoring wells on and in the vicinity of the TOPSC in Tucson AZ were collected and analyzed. All nine samples were gasoline at varying degrees of weathering. All nine samples were a similar grade and composition, with some variations.

- Based on a comparison of chemical composition using chemical ratios, bulk hydrocarbons compositions, and PCA, samples WR-220A and PCM-516A were the least weathered and were compositionally different from all other samples.
    - Wells WR-220A and PCM-516A were farthest from the potential source area (TOPSC), and therefore the concentrations of toluene should have been significantly lower than on-site samples (assuming long travel time and extensive degradation); however, their toluene concentrations were the highest. This strongly supports a separate source(s) for the gasoline in WR-220A and PCM-516A.
    - Samples WR-220A and PCM-516A also differed from samples in the potential

source area in the relative amounts of bulk hydrocarbon groups. Even when more volatile and soluble compounds are omitted from the comparison, those samples remain chemically different from the remaining samples.

- Six of the nine samples contained tetraethyl lead with between 0.28 and 0.83 g Pb/gal; placing the likely product dates of those samples during the 1980s and early 1990s. Sample WR-220A contained the least amount of TEL. Three samples contained no TEL and appeared to be a different type of gasoline.
- A simple estimation of the travel time for LNAPL from the TOPSC to location WR-220A indicates that it is unlikely that the LNAPL at WR-220A could have originated at the TOPSC given the installation dates of the USTs at the site.
- Historical records indicate that the TOPSC distributed two grades of gasoline: regular leaded and regular unleaded gasoline (CAP, 1994). Leaded regular gasoline was found at the potential source area (PCM-510B and PCM-512A) and downgradient of the potential source area (R-047A); while unleaded regular gasoline was found downgradient of the potential source area (R-027A and R-031A).
    - Given the variability in the chemical composition of gasoline of the same grade from different refiners and over time, the TOPSC could have been the source of several gasoline types with different chemical characteristics depending on when and by whom the gasoline was purchased. Some variability of this nature was observed among the samples collected on site and downgradient.
    - Given the hydrocarbon and PIANO chemical composition data discussed above, the nine LNAPL samples from seven locations on and around the TOPSC represented two different grades of gasoline with at least three different chemical compositions. Samples WR-220A and PCM-516A were compositionally similar to each other, but different from the samples collected at the TOPSC. Also, the gasoline at those locations was the least weathered; which was inconsistent with the TOPSC being the source.

Taken together, the data from this study support the conclusion that it is unlikely that the gasoline found at locations WR-220A and PCM-516A originated at the TOPSC.

References

Corrective Action Plan for Soil and Groundwater Thomas O. Price Service Center Tucson, Arizona. Prepared by Hydro Geo Chem, Inc., December 16, 1994.

Chemical Action Plan Addendum Thomas O. Price Service Center 4004 South Park Avenue Tucson, Arizona ADEQ LUST File Number 0767.01-05. Prepared by IT Corporation, February 14, 2001.

Final Technical Memorandum – Hydrogeologic Evaluation; Thomas O. Price Service Center, Tucson, Arizona; LUST site No. 0767.01-0767.05. Prepared by URS Corporation, April 27, 2012.

"Chemical Fingerprinting of Hydrocarbons," in: Introduction to Environmental Forensics. B.L. Murphy and R.D. Morrison editors, Academic Press, San Diego, CA 2002.

"Automotive Gasoline," In: Environmental Forensics Contaminant Specific Guide. B.L. Murphy and R.D. Morrison editors, Elsevier, Amsterdam, 2006.

Galperin, Y. and Kaplan, I.R., "Forensic Environmental Geochemistry in Dispute Resolution – Case History 1: Age-Dating a Gasoline Plume at a Service Station in Geneva, New York," Environmental Forensics, Vol 8, 2007.

"Forensic Techniques used in Environmental Litigation," In: Environmental Forensics Principles and Applications. CRC Press LLC Boca Raton FL, 2000.

Oudijk, G., "The Use of Alkyl Leads in Gasoline Age-Dating Investigations: New Insights, Common Investigative Techniques, Limitations, and Recommended Practices," Environmental Claims Journal, vol. 19, 2007.

Oudijk, G., "The Rise and Fall of Organometallic Additives in Automotive Gasoline," Environmental Forensics, Vol. 11, 2010.

Sauer, T.C. and Costa, H.J., "Fingerprinting of Gasoline and Coal Tar NAPL Volatile Hydrocarbons Dissolved in Groundwater," Environmental Forensics, 4:319-329, 2003.

Chemistry Branch, U. S. Coast Guard Research and Development Center Oil Spill Identification System, U. S. Department of Transportation, Research Report No. CG-D-52-77, 1977.

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February 19, 2014

David M. Mauro

Date

Senior Scientist, Quality Assurance Officer

Table 1. Data Summary Table for Gasoline Constituents (PIANO)

Laboratory ID			**MC20162-1**		**MC20162-2**		**MC20162-3**		**MC20162-4**		**MC20162-5**		**MC20162-6**		**MC20162-7**		**MC20162-8**		**MC20162-9**		**MC20162-1 (dup)**	
Field ID			**PCM-516A**		**PCM-510B**		**PCM-512A**		**WR-220A**		**R-047A**		**R-027A**		**R-027A**		**R-031A**		**R-047A**		**PCM-516A (dup)**	
Units		Abbreviation	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
Benzene	A	B	10400		141		1600		4340		150		8340		5940		9890		120		11000	
Toluene	A	T	72900	D	20200		18800		58500	D	3440		61200	D	59800	D	65400	D	3460		69600	D
Ethylbenzene	A	E	21100		28900		21700		22500		5410		27000		26500		27700		7030		21300	
p/m-Xylene	A	mpX	69400	D	102000	D	75100	D	63100	D	70400	D	75900	D	80400	D	79200	D	75300	D	64300	D
o-Xylene	A	oX	28000	D	43800	D	31000	D	28400	D	31600	D	31700	D	34100	D	31900	D	33100	D	25900	D
Isopropylbenzene	A	IP	1590		3180		2230		1850		982		2340		2360		2380		1160		1600	
n-Propylbenzene	A	NP	6580		14900		9740		7300		4410		9130		9080		9300		5180		6550	
1-Methyl-3-ethylbenzene	A	1M3E	23900	D	50100	D	34400	D	23900	D	44000	D	29400	D	32300	D	30200	D	44100	D	21800	D
1-Methyl-4-ethylbenzene	A	1M4E	9190		21800	D	15400	D	10300		18400	D	12400	D	13600	D	12900	D	18300	D	9080	
1,3,5-Trimethylbenzene	A	135M	11400	D	25100	D	17800	D	11600	D	26300	D	13400	D	14800	D	13900	D	25500	D	10400	D
1-Methyl-2-ethylbenzene	A	1M2E	7200		16300	D	11600		8380		17000	D	10100		10000		9860		16800	D	7220	
1,2,4-Trimethylbenzene	A	124M	38000	D	84500	D	54300	D	38100	D	70800	D	44400	D	48400	D	45400	D	71200	D	34300	D
sec-Butylbenzene	A	sB	708		1840		1190		826		1200		1140		1130		1130		1240		698	
1,2,3-Trimethylbenzene	A	123M	6590		15200		10500		7690		15800		9030		9050		8870		15500		6670	
Indan	A	INDAN	3570		7700		5380		4150		5960		4680		4710		4620		6180		3640	
1,3-Diethylbenzene	A	13E	2400		5860		4080		2660		6650		3580		3510		3480		6460		2400	
1-Methyl-4-propylbenzene	A	1M4P	4640		12000		7940		5030		11800		6690		6490		6520		11300		4560	
1,2-Diethylbenzene	A	12E	408		987		706		461		1130		632		590		624		1070		403	
1-Methyl-2-propylbenzene	A	1M2P	1920		4950		3360		2190		5440		2880		2870		2840		5260		1910	
1,4-Dimethyl-2-ethylbenzene	A	14M2E	4000		9480		6450		4490		10600		5670		5680		5570		10100		4010	
1,3-Dimethyl-5-ethylbenzene	A	13M5E	6060		14100	D	10100		6770		15600	D	8490		8400		8340		15200	D	6030	
1,3-Dimethyl-2-ethylbenzene	A	13M2E	387		895		616		446		1050		566		567		558		1030		389	
1,2,4,5-Tetramethylbenzene	A	1245M	3190	D	6510	D	4560	D	3110	D	7330	D	3930	D	4290	D	4170	D	7300	D	2910	D
1,2,3,5-Tetramethylbenzene	A	1235M	4270		10300		6840		4960		11400		6220		6300		6310		11100		4340	
Pentylbenzene	A	PEB	557		1000		783		641		1220		707		719		697		1220		512	
1,2-Dichloroethane	D	12DCE		U		U		U		U		U		U		U		U		U		U
1,2-Dibromoethane	D	12DBE		U		U		U		U		U		U		U		U		U		U
MMT	D	MMT		U		U		U		U		U		U		U		U		U		U
Isopentane	I	IP	21100	D	283		1930		19400	D		U	5270		1660		3000			U	18200	D
2,2-Dimethylbutane	I	22MB	2170		30.2	J	320	J	2130		21	J	590		259	J	517		21.6	J	2080	
2-Methylpentane	I	2MP	28100	D	283		2120		24300	D	254		10800	D	6850		11400	D	224		25300	D
3-Methylpentane	I	3MP	20200	D	222	J	5780		17600	D	254	J	10300		5580		10400		233	J	18300	D
2,2-Dimethylpentane	I	22MP	1260		27.9	J	505		1150		51.5	J	594		384		631		48.1	J	1240	
2,4-Dimethylpentane	I	24MP	10700		269		5350		9860		593		6490		4310		6930		552		10400	
2-Methylhexane	I	2MHX	18400	D	1640		11000	D	16600	D	2680		11400	D	9730	D	12700	D	2630		16900	D
2,3-Dimethylpentane	I	23MP	22200	D	1580		14200	D	17700	D	2850		10600	D	9330	D	12500	D	2730		20200	D
3-Methylhexane	I	3MHX	21200	D	2270		13600	D	18300	D	3560		12800	D	11100	D	14200	D	3510		19500	D
Isooctane	I	ISO	25400		3980		20500		25100		6980		26800		21000		27100		6970		24900	
2,4-Dimethylhexane	I	24MHX	5990	D	2630		5780	D	5620	D	3460		5720	D	5770	D	6240	D	3510		5640	D
2,2,3-Trimethylpentane	I	223MP	6080		2470		6540		6040		3070		6290		5220		6150		3140		6100	
2,3,4-Trimethylpentane	I	234MP	13200		6240		15900		12200		7950		13000		11200		12800		8090		13100	
2,3,3-Trimethylpentane	I	233MP	5860		6500		16000		6550		7410		6060		5400		6220		7510		5760	
2,3-Dimethylhexane	I	23MHX	5130	D	3180		5630	D	5250		4100		4810	D	4800	D	5040	D	4020		4620	D

Laboratory ID			MC20162-1		MC20162-2		MC20162-3		MC20162-4		MC20162-5		MC20162-6		MC20162-7		MC20162-8		MC20162-9		MC20162-1 (dup)	
Field ID			**PCM-516A**		**PCM-510B**		**PCM-512A**		**WR-220A**		**R-047A**		**R-027A**		**R-027A**		**R-031A**		**R-047A**		**PCM-516A (dup)**	
2-Methylheptane	I	2MHP	10100		7970		12500		9770		7570		9550		7470	D	9230		7680		10000	
4-Methylheptane	I	4MHP	4560		3650		5820		4530		3840		4400		2670	D	4130		3690		4510	
2,3-Dimethylheptane	I	23MHP		U		U		U		U		U		U		U		U		U		U
4-Methyloctane	I	4MO	3130		6010		5600		3420		6460		3840		3610		4040		6530		2980	
2-Methyloctane	I	2MO	3430		6620		5510		4170		7340		4430		4140		4290		7340		3700	
3,3-Dimethyloctane	I	33MO	339		756		603		444		842		536		477		516		935		361	
3-Methylnonane	I	3MNO	1180		2710		2100		1610		2980		1970		1850		1980		3410		1280	
Cyclopentane	N	CP	5990		108	J	2500		10800		81	J	4950		2390		4800		42.5	J	6080	
Methylcyclopentane	N	MCP	23500	D	320		8770		20300	D	713		10800	D	8360		11900	D	631		21600	D
Cyclohexane	N	CH	12400		270	J	5820		10600		617		5460		3870		5860		560		12300	
Methylcyclohexane	N	MCH	13500		3030		12700		12600		3660		7810		6320		8010		3640		13600	
Ethylcyclopentane	N	ECP	1880		812		2100		1840		946		1620		1350		1610		957		1910	
1,2,3-Trimethylcyclopentane (ctc)	N	123MCP	1380		640		1600		1280		687		893		765		920		675		1380	
1,4-Dimethylcyclohexane (trans)	N	t14MCH	309		284		385		311		375		347		312		330		345		297	
1,1,4-Trimethylcyclohexane	N	114MCH	170	J	183	J	237		161	J	254		162	J	148	J	155	J	234	J	172	J
Isopropylcyclohexane	N	IPCH	121	J	146	J	142	J	100	J	235	J	119	J	115	J	105	J	194	J	114	J
1-Pentene	O	1PE	846			U	40.1	J	816			U	333		99.9	J	168	J		U	784	
2-Methyl-1-butene	O	2M1BE	1020			U	54.2	J	956			U	508		182		286			U	969	
2-Pentene (trans)	O	t2PE	1810		17.2	J	124		1800			U	973		353		618			U	1740	
2-Pentene (cis)	O	c2PE	1050		9.94	J	59.3	J	1040			U	560		215		379			U	1020	
1-Hexene	O	1HXE	3740		40.2	J	930		3670		48.5	J	2420		1320		2430		38.8	J	3710	
2-Hexene (trans)	O	t2HX	2120		25	J	541		2160		40.8	J	1720		1010		1690		28.5	J	2000	
2-Methyl-2-pentene	O	2M2PE	2150		29.4	J	601		2330		43.8	J	1910		1150		1980		38.2	J	2160	
2-Hexene (cis)	O	c2HX	1200		16.2	J	296		1270		25	J	1040		626		1070		19.7	J	1200	
3-Heptene (trans)	O	t3HPE	1370		222		874		1440		289		1430		1100		1430		283		1370	
3-Heptene (cis)	O	c3HPE	14500		494		11400		12300		3180		8620		6380		8470		3200		14100	
2-Heptene (trans)	O	t2HPE	1250		272		868		1310		302		1300		1000		1290		293		1260	
2-Heptene (cis)	O	c2HPE	742		173	J	516		800		160	J	812		648		781		178	J	728	
1-Octene	O	1OE	1610		1220		1960		1490		1340		1280		1200		1310		1290		1580	
2-Octene (cis)	O	c2OE	362		373		434		357		386		402		328		340		346		338	
1-Nonene	O	1NE	261	J	420		407		306	J	487		215	J	213	J	200	J	418	J	271	J
3-Nonene (trans)	O	t3NE	514		772		672		460		950		521		463		508		939		506	
3-Nonene (cis)	O	c3NE	390		534		506		351		774		370		364		355		693		376	
2-Nonene	O	2NE	264		380		348		266		666		235		398		286		618		258	
1-Decene	O	1DE	315	J	459		423		267	J	594		271	J	240	J	254	J	577		303	J
Pentane	P	nP	24000		209	J	2350		21100		27.8	J	5080		1740		3440		26.4	J	22100	
Hexane	P	nHX	31500	D	367	J	10100		27600		619		13300		7700		13800		553		28800	D
Heptane	P	nHP	22100		4160		17800		19400		4950		13100		9840		13200		5040		22000	
Octane	P	nO	8930		10400		12600		8560		8920		7830		6660		7590		8900		8900	
Nonane	P	nN	3730		7970		6480		4150		7560		4560		4110		4340		8000		3770	
Decane	P	nD	1450		3070		2440		1810		3140		2170		2110		2260		3780		1490	
Undecane	P	nU	590		1180		1020		852		1470		1070		1030		1130		1880		684	
Dodecane	P	nDD	252	J	381	J	380	J	372	J	591	J	511	J	507	J	566	J	774	J	268	J
Thiophene	T	TP		U		U		U		U		U		U		U		U		U		U

Laboratory ID			MC20162-1		MC20162-2		MC20162-3		MC20162-4		MC20162-5		MC20162-6		MC20162-7		MC20162-8		MC20162-9		MC20162-1 (dup)	
Field ID			**PCM-516A**		**PCM-510B**		**PCM-512A**		**WR-220A**		**R-047A**		**R-027A**		**R-027A**		**R-031A**		**R-047A**		**PCM-516A (dup)**	
2-Methylthiophene	T	2MTP		U		U		U		U		U		U		U		U		U		U
3-Methylthiophene	T	3MTP		U		U		U		U		U		U		U		U		U		U
2-Ethylthiophene	T	2ETP		U		U		U		U		U		U		U		U		U		U
Benzothiophene	T	BTP	348	J	356	J	303	J	279	J	442		425		500		453		480		310	J
Tertiary butanol	X	tBOH		U		U		U		U		U		U		U		U		U		U
MTBE	X	MTBE		U		U		U		U		U		U		U		U		U		U
Diisopropyl Ether (DIPE)	X	DIPE		U		U		U		U		U		U		U		U		U		U
Ethyl Tertiary Butyl Ether (ETBE)	X	ETBE		U		U		U		U		U		U		U		U		U		U
TAME	X	TAME		U		U		U		U		U		U		U		U		U		U

U – not detected
D – value from a dilution run

Table 2. Selected Gasoline Source and Weathering Ratios

Field Sample ID	**PCM-516A**	**PCM-510B**	**PCM-512A**	**WR-220A**	**R-047A**	**R-027A**	**R-027A**	**R-031A**	**R-047A**	**PCM-516A (dup)**	**Typical**
Laboratory Sample ID	MC20162-1	MC20162-2	MC20162-3	MC20162-4	MC20162-5	MC20162-6	MC20162-7	MC20162-8	MC20162-9	MC20162-1 (dup)	**values**
Evaporation											
Gasoline in contact with air or soil gas generally will lose the more volatile compounds faster than less volatile compounds. Any number of compound ratios could be used to track this process. Several are shown below. These ratios will decrease over time as evaporative loss increases.											
Typical values for fresh gasoline are shown in parentheses (based on a limited sample set)											
n-pentane/n-heptane (2)	1.09	0.05	0.13	1.09	0.01	0.39	0.18	0.26	0.01	1.01	2
2-methylpentane/2-methylheptane (7)	2.79	0.04	0.17	2.49	0.03	1.13	0.92	1.24	0.03	2.52	7
	0.96	0.07	0.11	1.00	0.00	0.40	0.17	0.23	0.00	0.83	
Water Washing											
If gasoline contacts water, the more water soluble compounds will preferentially dissolve. Consequently, the gasoline will slowly lose those compounds relative to other less soluble compounds. Since aromatic compounds are substantially more soluble than aliphatic compounds of similar molecular weight, the ratios of selected aromatic to aliphatic compounds decreases as the effects of water washing increase.											
Typical values for fresh gasoline are shown in parentheses (based on a limited sample set)											
benzene/cyclohexane (5 – 10)	0.84	0.52	0.28	0.41	0.24	1.53	1.54	1.69	0.21	0.90	5 - 10
toluene/methylcyclohexane (10 – 20)	5.38	6.67	1.48	4.64	0.94	7.83	9.46	8.17	0.95	5.10	10-20
aromatics/total alkanes (n+iso+cyclo) (0.8)	0.89	5.41	1.46	0.91	3.62	1.61	2.17	1.63	3.62	0.89	0.8
aromatics/naphthenes (6 – 14)	5.71	86.66	10.39	5.55	51.28	11.80	16.57	11.64	54.16	5.59	6-14
Biodegradation											
There is a wide range of biodegradation susceptibilities among the dozens of compounds in gasoline. Generally, however, olefins and n-alkanes are more degradable as compared to other hydrocarbons of similar molecular weight. The following ratios will increase as a gasoline biodegrades.											
Typical values for fresh gasoline are shown in parentheses (based on a limited sample set)											
3-methylhexane/n-heptane (1.5)	0.96	0.55	0.76	0.94	0.72	0.97	1.13	1.08	0.70	0.89	1.5
methylcyclohexane/n-heptane (0.3)	0.61	0.73	0.71	0.65	0.74	0.60	0.64	0.61	0.72	0.62	0.3
isoparaffins + naphthenes/paraffins (3.8)	3.12	2.35	3.60	3.22	2.93	3.95	4.35	4.18	2.76	3.10	3.24
Octane Rating											
The ratio of isooctane (2,2,4-trimethylpentane) to methylcyclohexane has been correlated to gasoline grades. The general rule of thumb is: <3 = regular grade; 3 – 6 = mid-grade; >6 = premium grade.											
Note that environmental degradation (weathering) of the gasoline and/or and dissolution into groundwater can impact the octane ratio.											
2,2,4-trimethylpentane/methylcyclohexane	1.88	1.31	1.61	1.99	1.91	3.44	3.33	3.39	1.91	1.82	
Relative percentages - bulk hydrocarbon composition as PIANO											
% paraffinic	12.2%	4.6%	8.5%	11.8%	5.4%	7.4%	5.7%	7.1%	5.7%	12.3%	
% isoparaffinic	30.4%	9.9%	25.3%	29.9%	14.3%	24.4%	20.9%	24.4%	14.2%	30.0%	
% aromatic	44.8%	83.6%	57.3%	45.4%	76.9%	59.3%	66.5%	59.8%	77.0%	44.8%	
% naphthenic	7.8%	1.0%	5.5%	8.2%	1.5%	5.0%	4.0%	5.1%	1.4%	8.0%	
% olefinic	4.7%	0.9%	3.4%	4.7%	1.8%	3.9%	2.9%	3.6%	1.8%	4.8%	
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Table 3. Summary: Concentrations of MAHs and PAHs and Related Compounds (mg/kg)

Field ID	*PCM-516A*	*PCM-510B*	*PCM-512A*	*WR-220A*	*R-047A*	*R-027A*	*R-027A*	*R-031A*	*R-047A*
Lab ID	**MC20162-1**	**MC20162-2**	**MC20162-3**	**MC20162-4**	**MC20162-5**	**MC20162-6**	**MC20162-7**	**MC20162-8**	**MC20162-9**
Methyl Tert-Butyl Ether	*ND*	*26.2*	173	*ND*	93.5	*37.4*	*32.9*	111	*NA*
Benzene	12200	321	3220	5780	491	7860	7560	11300	449
C1-Benzene	33300	8940	8250	25600	1390	26600	26600	26400	1460
C2-Benzenes	40200	63800	46500	37700	37900	45900	48200	43500	39900
C3-Benzenes	33000	78500	52500	33900	66400	41900	44300	39400	65100
C4-Benzenes	14500	35200	23500	14800	36600	19800	20800	19000	35000
C5-Benzenes	4030	8820	6010	4150	10400	5840	6080	5660	9960
Methylcyclohexane	12100	2660	11300	10600	3220	6560	6140	6840	3460
Toluene	60700	16300	15000	46600	2510	48300	48500	48300	2670
Ethylbenzene	18200	24800	17900	17200	3930	21200	22700	21000	5200
m,p-Xylene	60600	96500	72500	55500	63500	68200	72000	65000	66800
Styrene	77.8	100	63.3	66	37.8	95	67.3	51	39.6
o-Xylene	22700	39600	26700	22600	26300	25800	27300	24200	26900
Isopropylbenzene	1360	2720	1850	1410	788	1850	1990	1800	926
n-Propylbenzene	5260	12500	7870	5360	3320	6910	7500	6940	3930
1,3,5-Trimethylbenzene	9200	23200	15800	9560	22800	11400	12100	10800	21700
1,2,3-Trimethylbenzene	5920	13700	9180	6060	13600	7400	7900	7050	13200
1,2,4-Trimethylbenzene	29200	69000	46100	30100	59000	35900	38200	34000	58300
t-Butylbenzene	3490	8240	5500	3590	7080	4300	4570	4080	6980
sec-Butylbenzene	550	1470	926	588	913	853	910	828	941
p-Isopropyltoluene	785	1800	1240	822	2010	1110	1170	1040	1920
n-Butylbenzene	1940	5300	3470	2040	3730	2720	2990	2770	3100
trans-Decalin	85.7	108	97	78.7	174	106	108	87.8	161
cis-Decalin	35.3	75.8	44.6	*ND*	86.4	*ND*	38.2	34.2	90.7
C1-Decalins	171	233	180	151	377	190	207	176	328
C2-Decalins	120	165	118	131	223	217	155	139	246
C3-Decalins	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
C4-Decalins	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Benzo(b)thiophene	363	432	308	235	540	369	521	489	543
C1-Benzo(b)thiophenes	297	425	303	269	650	484	544	491	639
C2-Benzo(b)thiophenes	67.9	66.2	60.2	52.1	120	103	135	104	127
C3-Benzo(b)thiophenes	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	37.4	*ND*	*ND*
C4-Benzo(b)thiophenes	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*	*ND*
Naphthalene	4370	8260	5270	4030	8130	5180	5670	5420	8000

Field ID	PCM-516A	PCM-510B	PCM-512A	WR-220A	R-047A	R-027A	R-027A	R-031A	R-047A
2-Methylnaphthalene	3720	6950	4420	3520	8230	5270	6170	5720	8280
1-Methylnaphthalene	1650	3200	2010	1650	3780	2520	2790	2580	3720
C1-Naphthalenes	3450	6500	4160	3380	7630	5110	5740	5250	7620
C2-Naphthalenes	867	1830	1150	845	2070	1360	1540	1380	2120
C3-Naphthalenes	196	456	279	183	479	302	392	306	530
C4-Naphthalenes	60.5	115	62.2	39.7	131	101	134	82.4	153
Biphenyl	61.2	215	124	61	174	109	96.1	113	161
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzofuran	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND	ND	34.8
C1-Fluorenes	ND	35.8	ND	ND	34.3	ND	42	28.8	46.2
C2-Fluorenes	ND	56.6	ND	ND	50.2	ND	68.2	39.5	66.4
C3-Fluorenes	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzothiophene	ND	ND	ND	ND	ND	ND	ND	ND	ND
C1-Dibenzothiophenes (unadj)	ND	ND	ND	ND	ND	ND	40.9	ND	32.9
C1-Dibenzothiophenes (OTP)	ND	ND	ND	ND	ND	ND	ND	ND	ND
C1-Dibenzothiophenes	ND	ND	ND	ND	ND	ND	ND	ND	ND
C2-Dibenzothiophenes	ND	ND	ND	ND	ND	ND	36.1	ND	ND
C3-Dibenzothiophenes	ND	ND	ND	ND	ND	ND	ND	ND	ND
C4-Dibenzothiophenes	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	59.7	41.6	ND	55	ND	49	33.6	61.9
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND
C1-Phenanthrenes/Anthracenes	37.1	84.9	50.4	ND	81.6	54.2	91.8	61.8	109
C2-Phenanthrenes/Anthracenes (unadj)	ND	64.5	43.4	ND	63.2	ND	75.3	53.1	93.3
C2-Phenanthrenes/Anthracenes (5aA)	ND	ND	ND	ND	ND	ND	ND	ND	ND
C2-Phenanthrenes/Anthracenes	ND	55.4	35.5	ND	54.4	ND	63.5	47.5	83.2
C3-Phenanthrenes/Anthracenes	ND	ND	ND	ND	ND	ND	ND	ND	ND
C4-Phenanthrenes/Anthracenes	ND	ND	ND	ND	ND	ND	ND	ND	ND
Retene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)naphtho(2,1-d)thiophene	38	ND	ND	ND	ND	ND	ND	ND	ND
C1-Benzonaphthothiophenes	ND	ND	ND	ND	ND	ND	ND	ND	ND
C2-Benzonaphthothiophenes	ND	ND	ND	ND	ND	ND	ND	ND	ND
C3-Benzonaphthothiophenes	ND	ND	ND	ND	ND	ND	ND	ND	ND
C4-Benzonaphthothiophenes	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND

Field ID	PCM-516A	PCM-510B	PCM-512A	WR-220A	R-047A	R-027A	R-027A	R-031A	R-047A
C1-Fluoranthenes/Pyrenes	ND	ND	ND	ND	ND	ND	35.2	ND	ND
C2-Fluoranthenes/Pyrenes	ND	ND	ND	ND	ND	ND	ND	ND	ND
C3-Fluoranthenes/Pyrenes	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluorene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(c)fluorene	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylpyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methylpyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-Methylpyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	35.5	ND	ND	ND	ND	ND	ND	ND	ND
C1-Benzo(a)anthracenes/Chrysenes	ND	ND	ND	ND	ND	ND	ND	ND	ND
C2-Benzo(a)anthracenes/Chrysenes	ND	ND	ND	ND	ND	ND	ND	ND	ND
C3-Benzo(a)anthracenes/Chrysenes	ND	ND	ND	ND	ND	ND	ND	ND	ND
C4-Benzo(a)anthracenes/Chrysenes	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	45	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(e)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	39.3	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	46.3	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(g,h,i)perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Coronene	41.7	ND	ND	ND	ND	ND	ND	ND	ND
2,6,10-trimethyldodecane (1380)	40.1	53	ND	ND	96.3	54.6	79.9	66.8	85.8
2,6,10-trimethyltridecane (1470)	36.2	47.6	ND	ND	77.2	55.7	97.5	61.9	93.8
2,6,10-trimethylpentadecane (1650)	ND	ND	ND	ND	32.3	ND	66.7	ND	33.8
C-17	46.8	45.4	37	ND	75.1	68.1	173	88.9	109
Pristane	54.9	45.3	32.1	ND	74.5	115	135	77.1	96.4
C-18	39.1	33.7	ND	ND	53.8	49.5	140	74.4	86.1
Phytane	34.5	ND	ND	ND	56.5	57.1	86.1	46.9	65.7
Tetramethyl lead	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trimethylethyl lead	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dimethyldiethyl lead	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methyltriethyl lead	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetraethyl lead	275	291	403	152	382	ND	ND	ND	449
Total alkyl lead (g Pb/gal)	0.51	0.54	0.74	0.28	0.70				0.83

ND denotes not detected above the reporting limit.

Table 4. Selected Weathering-Resistant Compound Ratios – Comparisons using Relative Percent Differences (RPDs)

Field ID	PCM-516A	PCM-510B	PCM-512A	WR-220A	R-047A	R-027A	R-027A	R-031A	R-047A	PCM-516A (dup)
135M/124M	0.301	0.298	0.328	0.304	0.371	0.303	0.305	0.306	0.358	0.302
1M3E/1M4E	2.601	2.293	2.240	2.321	2.383	2.367	2.370	2.347	2.406	2.403
1M2E/1M4E	0.784	0.745	0.758	0.813	0.922	0.814	0.736	0.766	0.916	0.795
1M2E/123M	1.094	1.070	1.107	1.090	1.078	1.120	1.109	1.112	1.080	1.081
1M2E/1M3E	0.301	0.325	0.338	0.350	0.387	0.344	0.310	0.327	0.381	0.331
123M/124M	0.173	0.180	0.194	0.202	0.223	0.203	0.187	0.195	0.218	0.194
1M2E/124M	0.190	0.193	0.214	0.220	0.240	0.228	0.207	0.217	0.236	0.210
13M5E/1M4E	0.660	0.644	0.658	0.657	0.847	0.683	0.616	0.648	0.830	0.664

	RPD v PCM-516ADUP	RPD v PCM-516A	RPD v PCM-516A	RPD v PCM-516A
135M/124M	0.4%	21.0%	0.7%	1.8%
1M3E/1M4E	7.9%	8.7%	9.4%	10.3%
1M2E/1M4E	1.4%	16.2%	3.8%	2.2%
1M2E/123M	1.1%	1.4%	2.4%	1.7%
1M2E/1M3E	9.3%	24.8%	13.3%	8.0%
123M/124M	11.4%	25.0%	16.0%	11.8%
1M2E/124M	10.3%	23.5%	18.3%	13.5%
13M5E/1M4E	0.6%	24.9%	3.5%	1.8%

	RPD v PCM-510B	RPD v PCM-510B	RPD v PCM-510B	RPD v PCM-510B	RPD v PCM-510B	RPD v PCM-510B
135M/124M	1.1%	9.6%	2.1%	22.1%	1.8%	2.9%
1M3E/1M4E	12.6%	2.4%	1.2%	3.9%	3.2%	2.3%
1M2E/1M4E	5.1%	1.8%	8.8%	21.3%	9.0%	2.9%
1M2E/123M	2.1%	3.4%	1.8%	0.7%	4.5%	3.8%
1M2E/1M3E	7.5%	4.1%	7.7%	17.4%	5.8%	0.6%
123M/124M	3.7%	7.3%	11.4%	21.3%	12.3%	8.1%
1M2E/124M	1.6%	10.7%	13.2%	22.0%	16.8%	11.9%
13M5E/1M4E	2.5%	2.2%	2.1%	27.3%	6.0%	0.7%

	RPD v PCM-512A	RPD v PCM-512A	RPD v PCM-512A	RPD v PCM-512A	RPD v PCM-512A
135M/124M	8.6%	7.6%	12.5%	7.9%	6.8%
1M3E/1M4E	14.9%	3.6%	6.2%	5.5%	4.7%
1M2E/1M4E	3.4%	7.1%	19.5%	7.2%	1.1%
1M2E/123M	1.2%	1.6%	2.7%	1.1%	0.4%
1M2E/1M3E	11.6%	3.5%	13.3%	1.7%	3.5%
123M/124M	11.0%	4.2%	14.1%	5.0%	0.8%
1M2E/124M	12.2%	2.6%	11.4%	6.1%	1.3%
13M5E/1M4E	0.2%	0.2%	25.1%	3.8%	1.5%

Field ID	PCM-516A	PCM-510B	PCM-512A	WR-220A	R-047A	R-027A	R-027A	R-031A	R-047A	PCM-516A (dup)
	RPD v WR-220A				RPD v WR-220A	RPD v WR-220A		RPD v WR-220A		
135M/124M	1.0%				20.0%	0.3%		0.8%		
1M3E/1M4E	11.4%				2.7%	2.0%		1.1%		
1M2E/1M4E	3.7%				12.5%	0.1%		6.0%		
1M2E/123M	0.4%				1.1%	2.7%		2.0%		
1M2E/1M3E	15.1%				9.8%	1.8%		7.1%		
123M/124M	15.1%				9.9%	0.8%		3.3%		
1M2E/124M	14.8%				8.8%	3.6%		1.3%		
13M5E/1M4E	0.4%				25.3%	3.9%		1.4%		
					RPD v R-047A	RPD v R-027A		RPD v R-047A		
135M/124M					3.6%	0.7%		19.2%		
1M3E/1M4E					1.0%	0.1%		1.6%		
1M2E/1M4E					0.6%	10.2%		18.4%		
1M2E/123M					0.2%	1.0%		3.1%		
1M2E/1M3E					1.5%	10.3%		16.9%		
123M/124M					2.2%	8.5%		13.2%		
1M2E/124M					1.9%	9.4%		10.1%		
13M5E/1M4E					2.0%	10.4%		26.6%		

Sauer, T.C. and Costa, H.J., Environmental Forensics, 4:319-329, 2003.

Figures

Figure 1. Site Map of the Price Service Center, Tucson AZ Showing the Apparent LNAPL Thickness as of April 2013

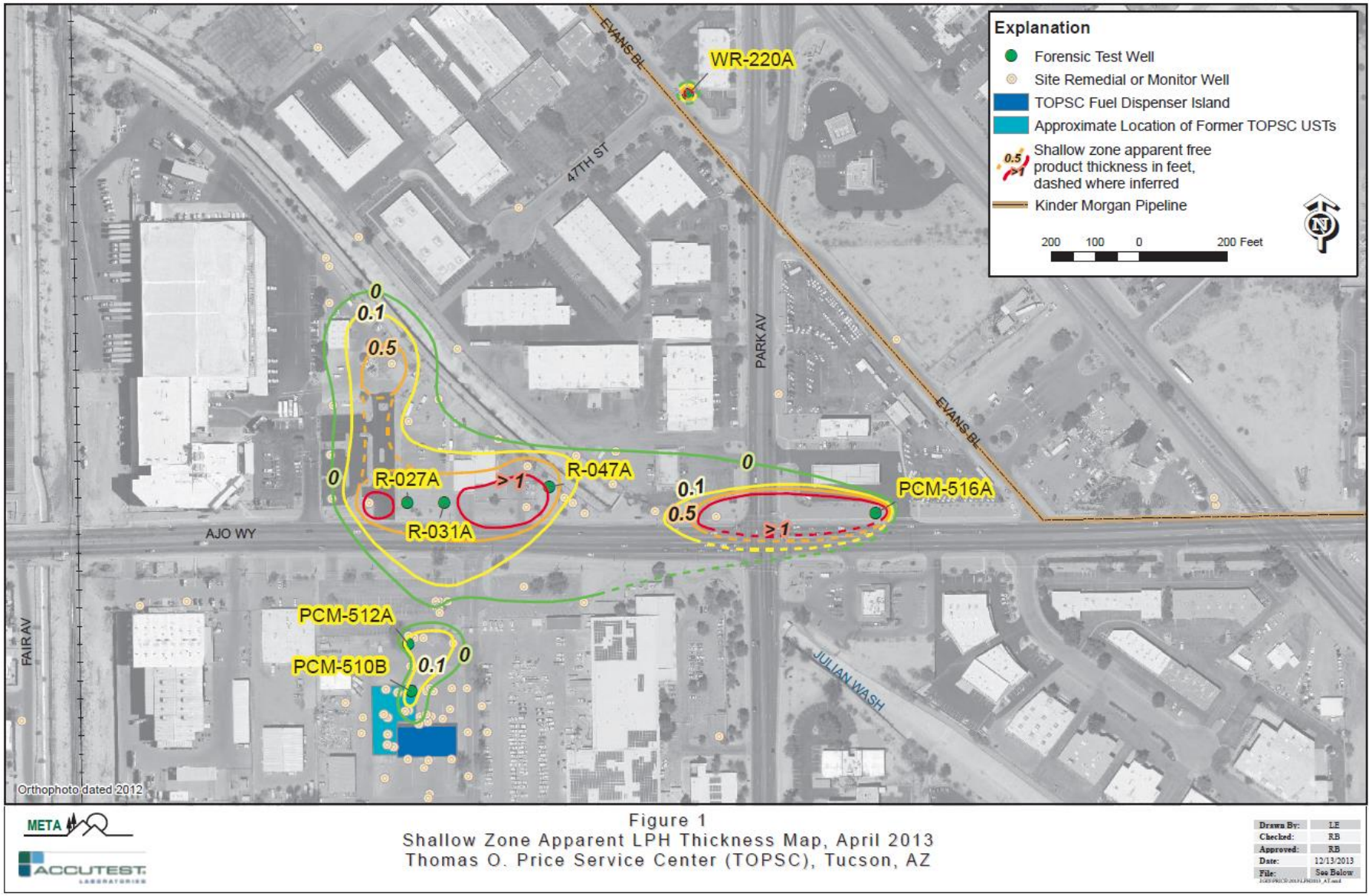


Figure 2. Potential Gasoline Sources in the Vicinity of the Price Service Center

Figure 3. Comparison of MAH/PAH Profiles (detects only)

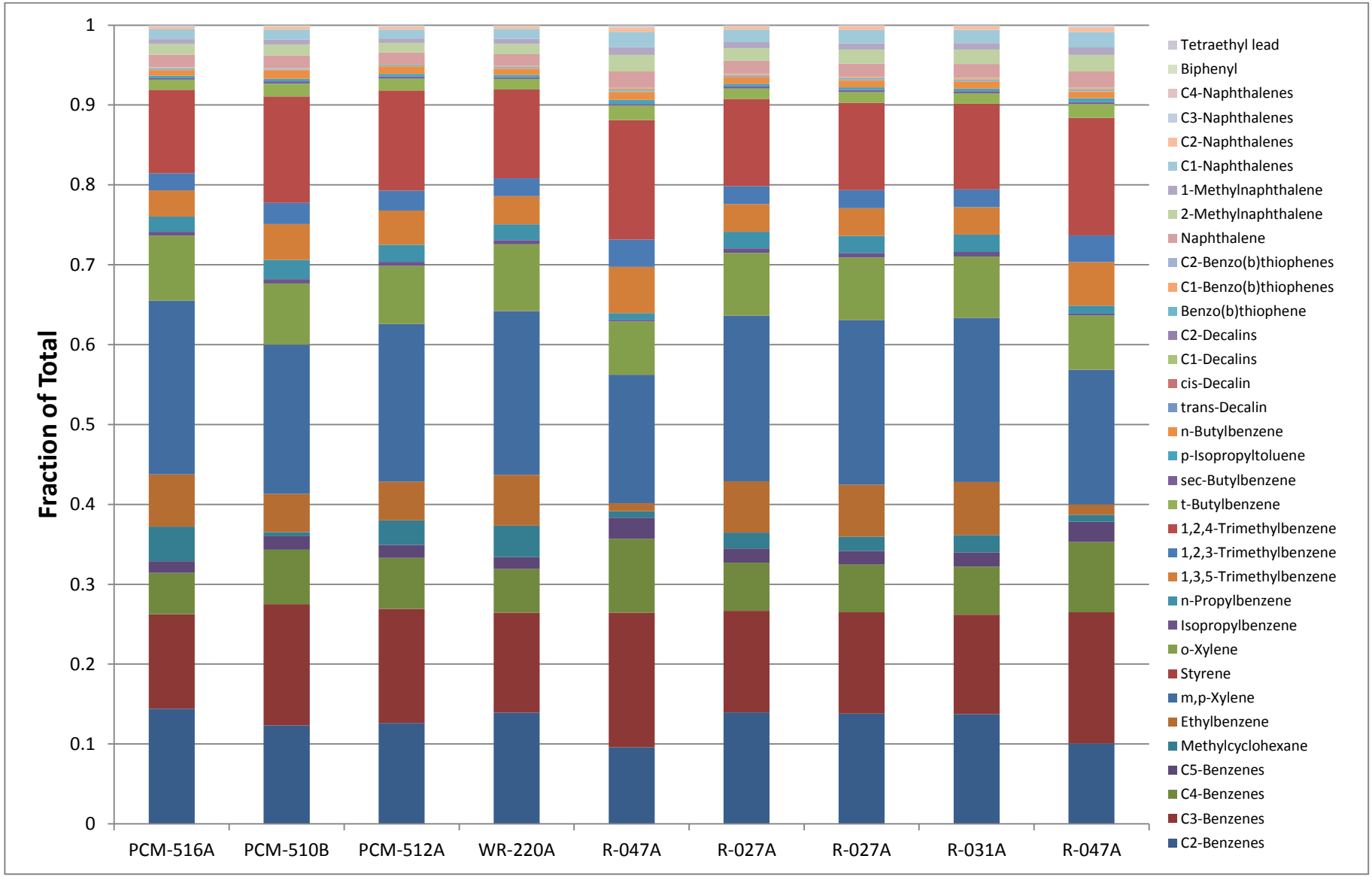
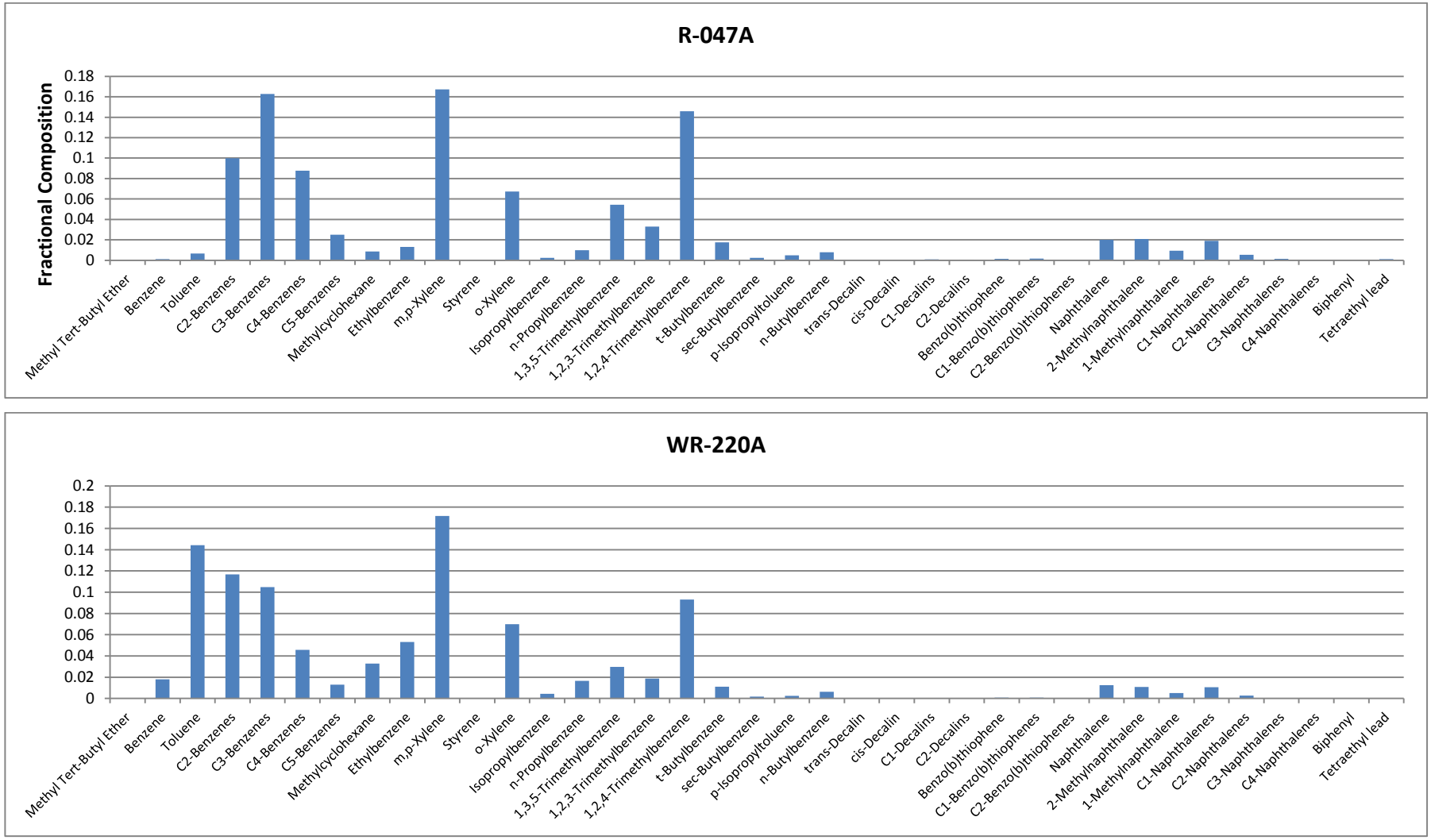


Figure 4. Comparison of MAH and PAH Patterns in Samples R-047A and WR-220A



Data are from modified EPA 8270 GC/MS analyses for extended PAH profiles.

Figure 5. Double Ratio Plot: MCH/t-decalin verses n-Propylbenzene/n-Butylbenzene

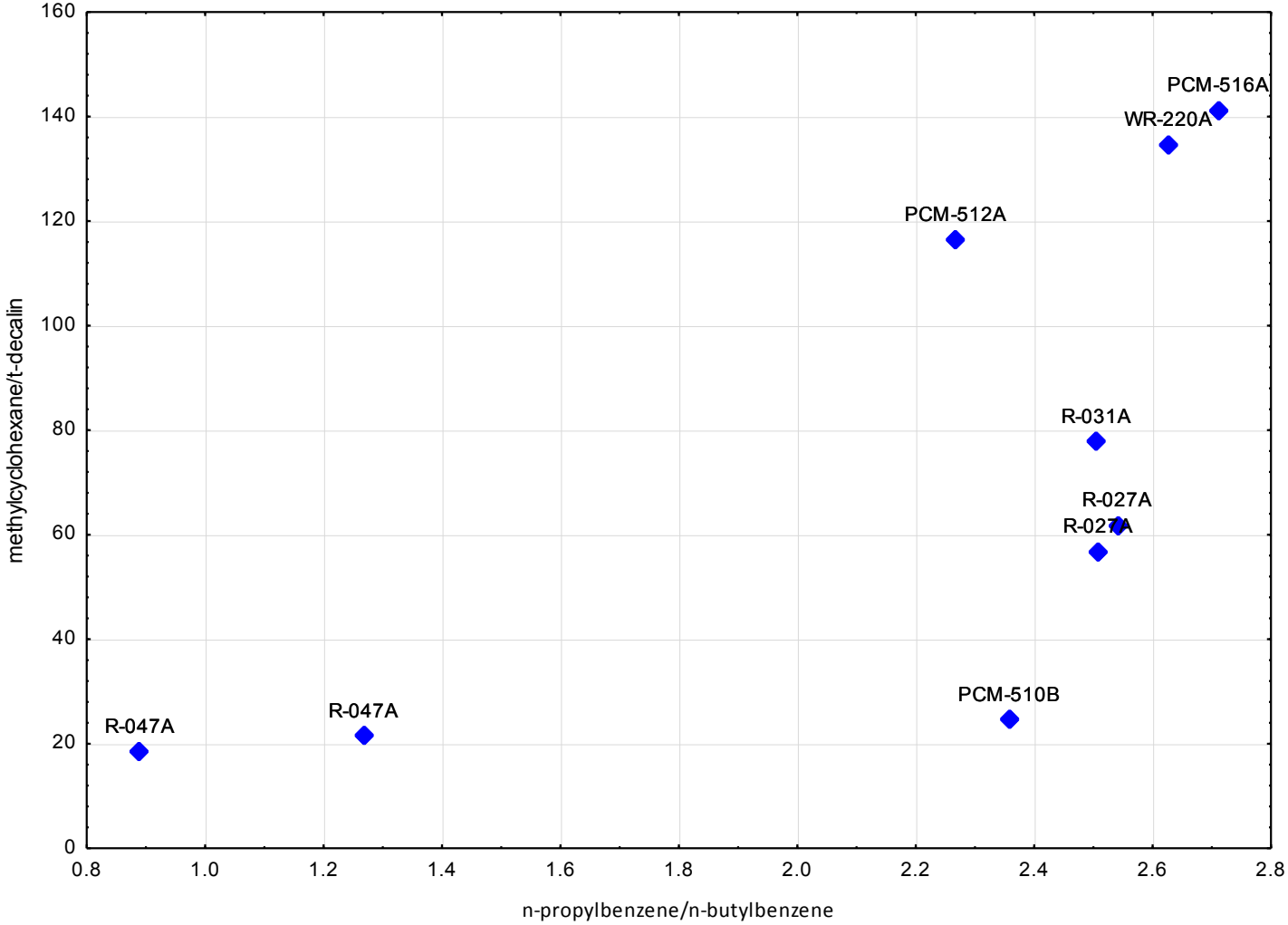
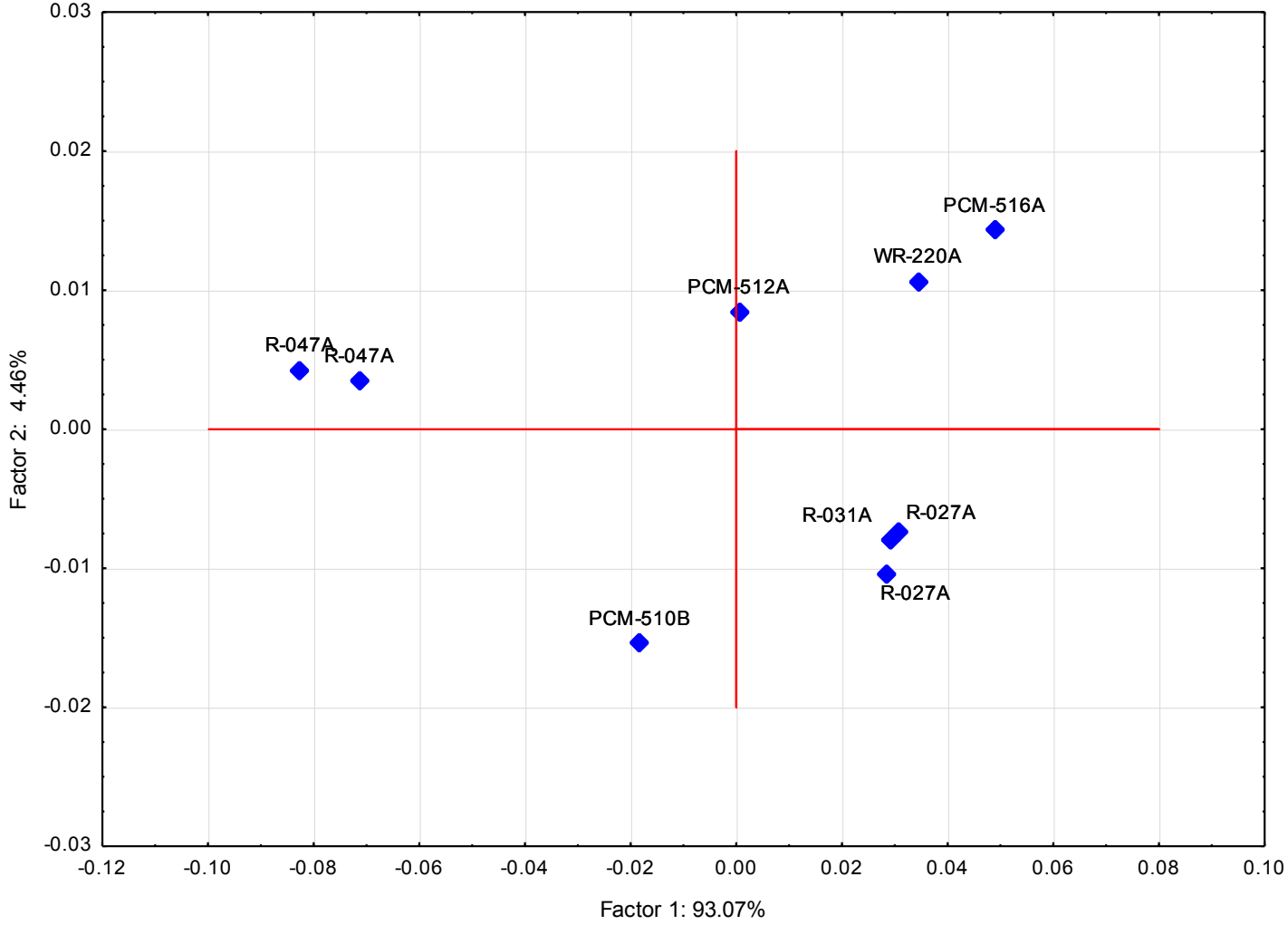


Figure 6. Projection of MAH/PAH Data for NAPL Samples on the First Two Principal Components



Data set included all detected MAHs and PAHs, unit normalized. Tetraethyl lead was not included in the data set. PCA was conducted using the Statistica software from Statsoft of Normal OK.

Figure 7. Principal Components Plot of First Three Component: All PIANO Groups minus Volatile and Soluble Compounds with TEL

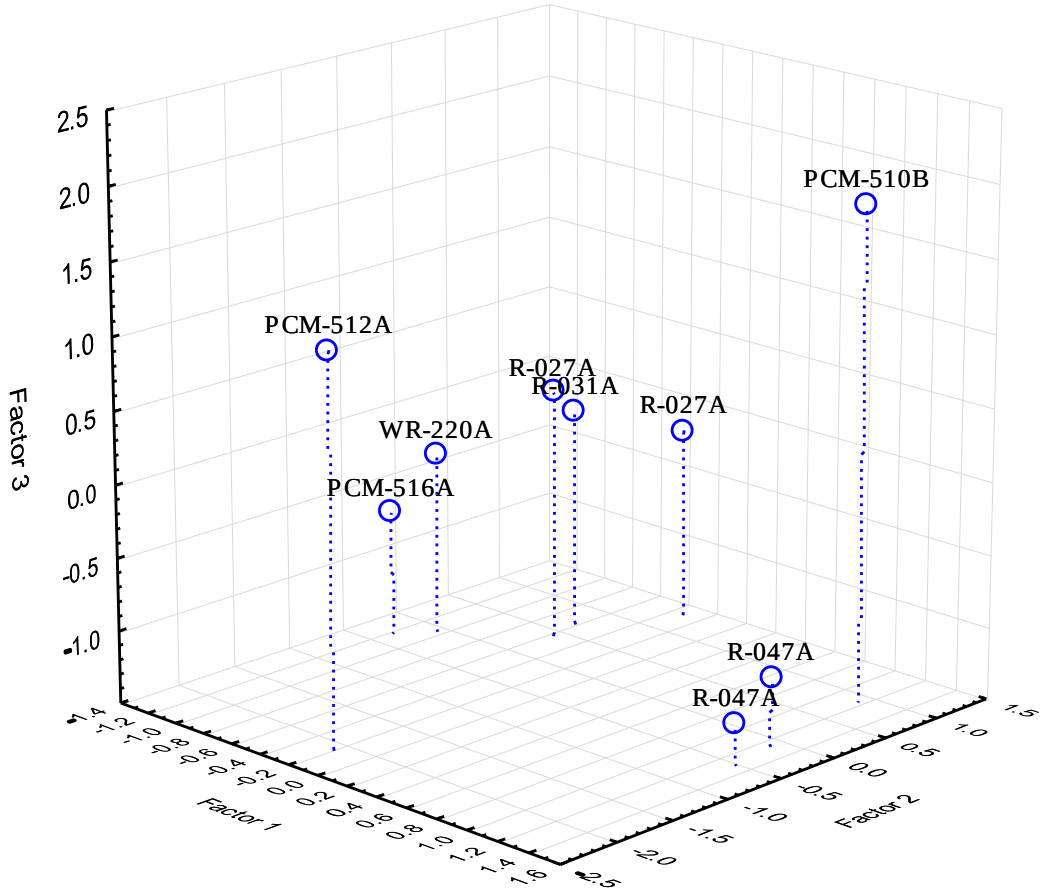


Figure 8. Petroleum Reference Chromatograms – Stacked

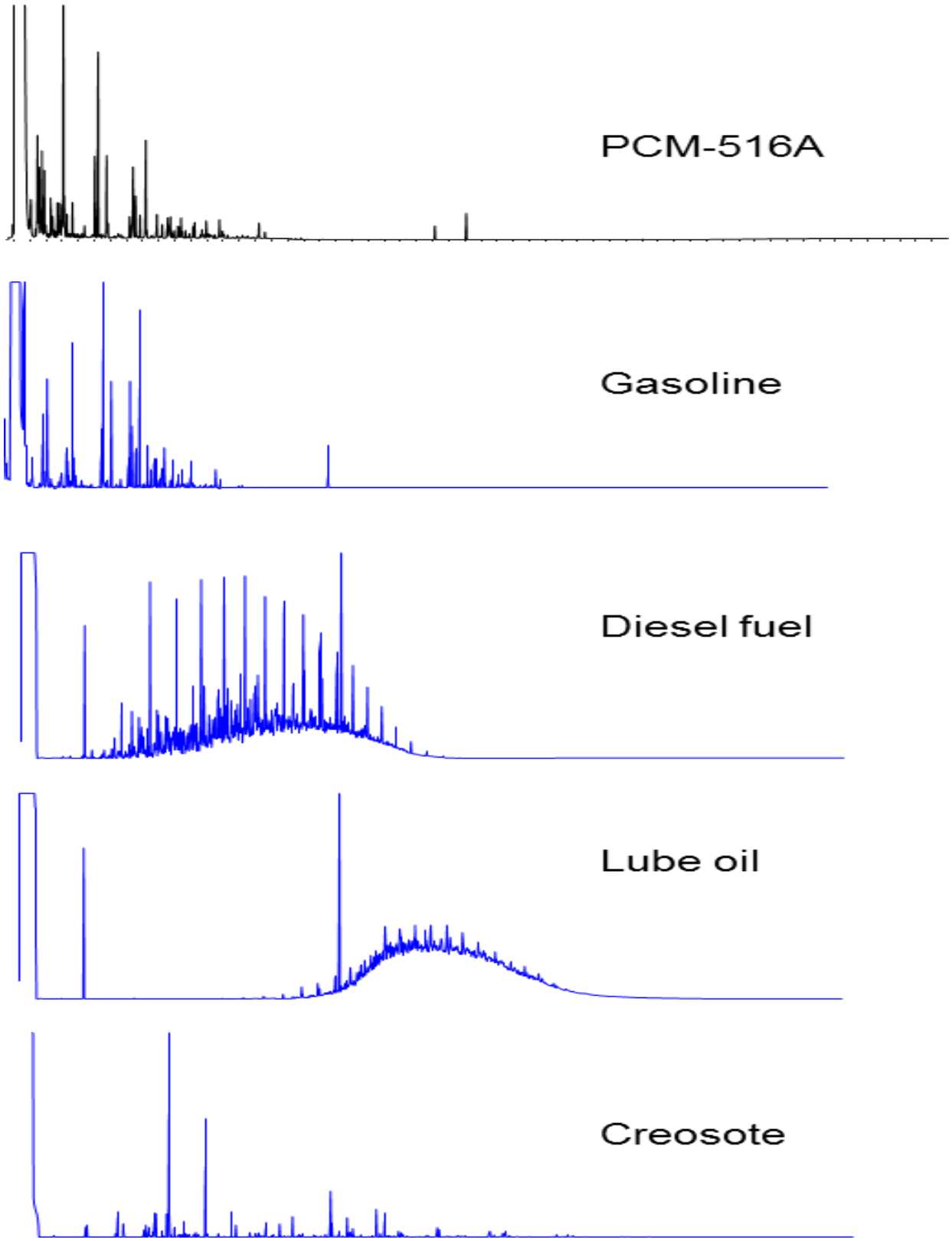


Figure 9. Bar Graph: PCM-516A

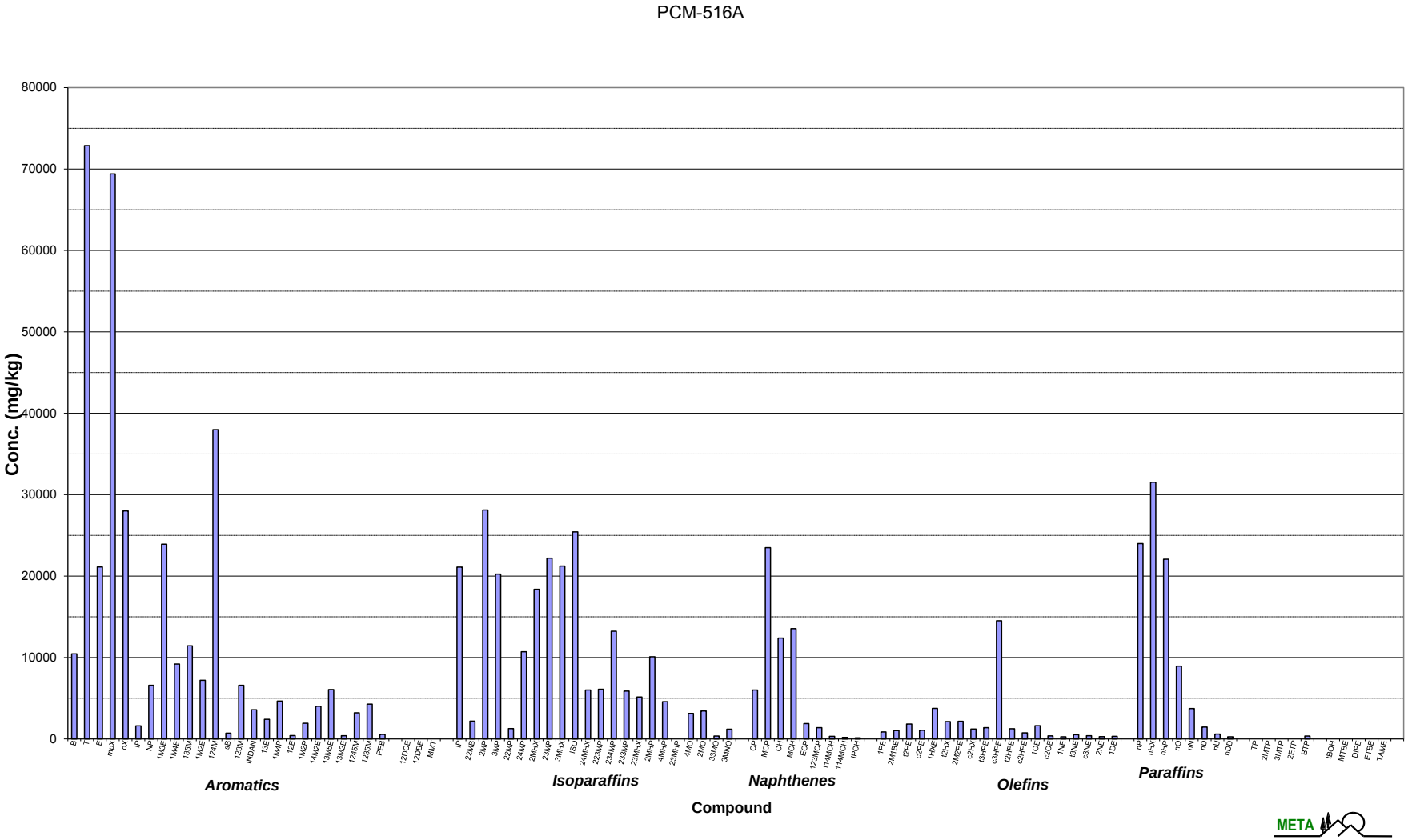


Figure 10. Bar Graph: PCM-510B

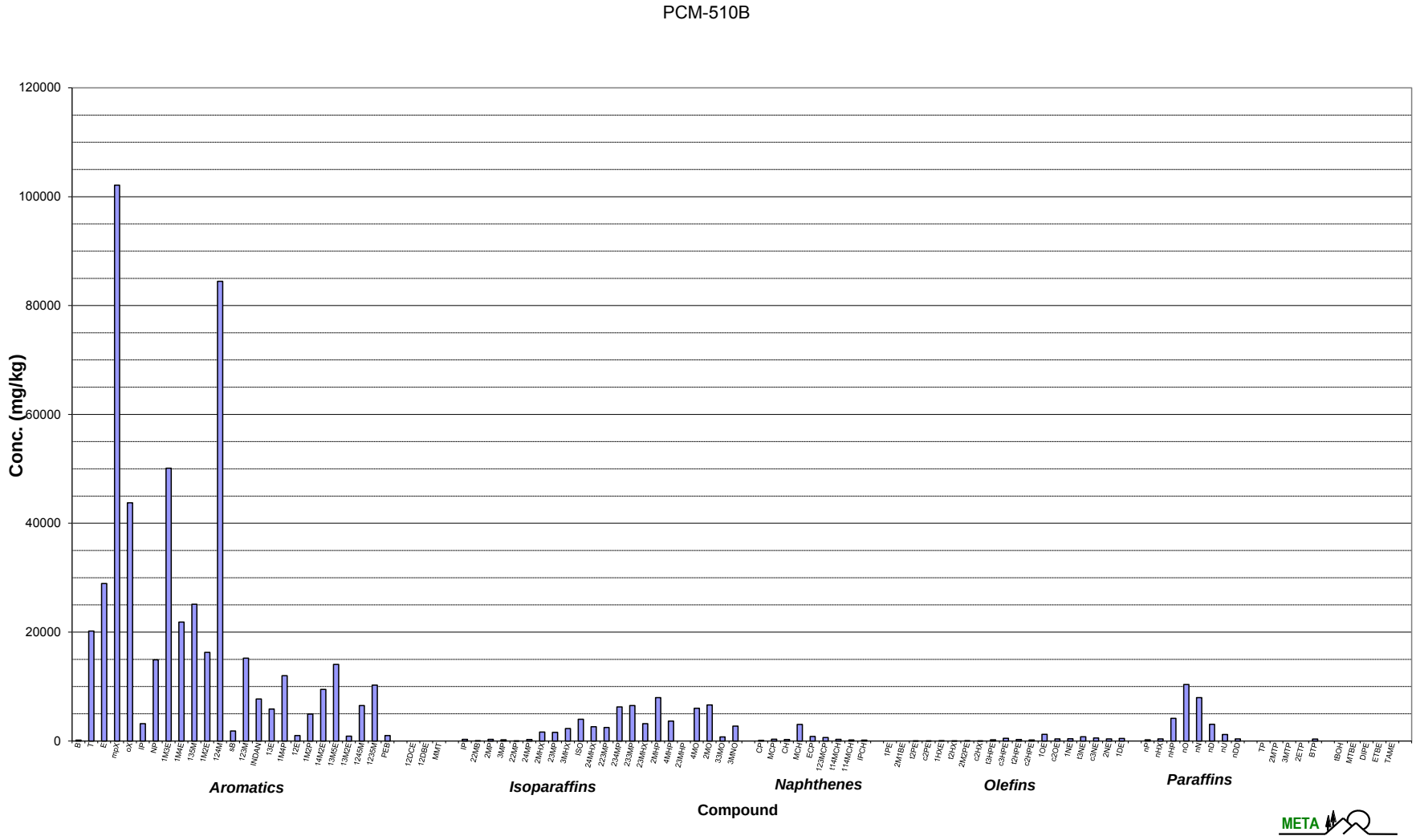


Figure 11. Bar Graph: PCM-512A

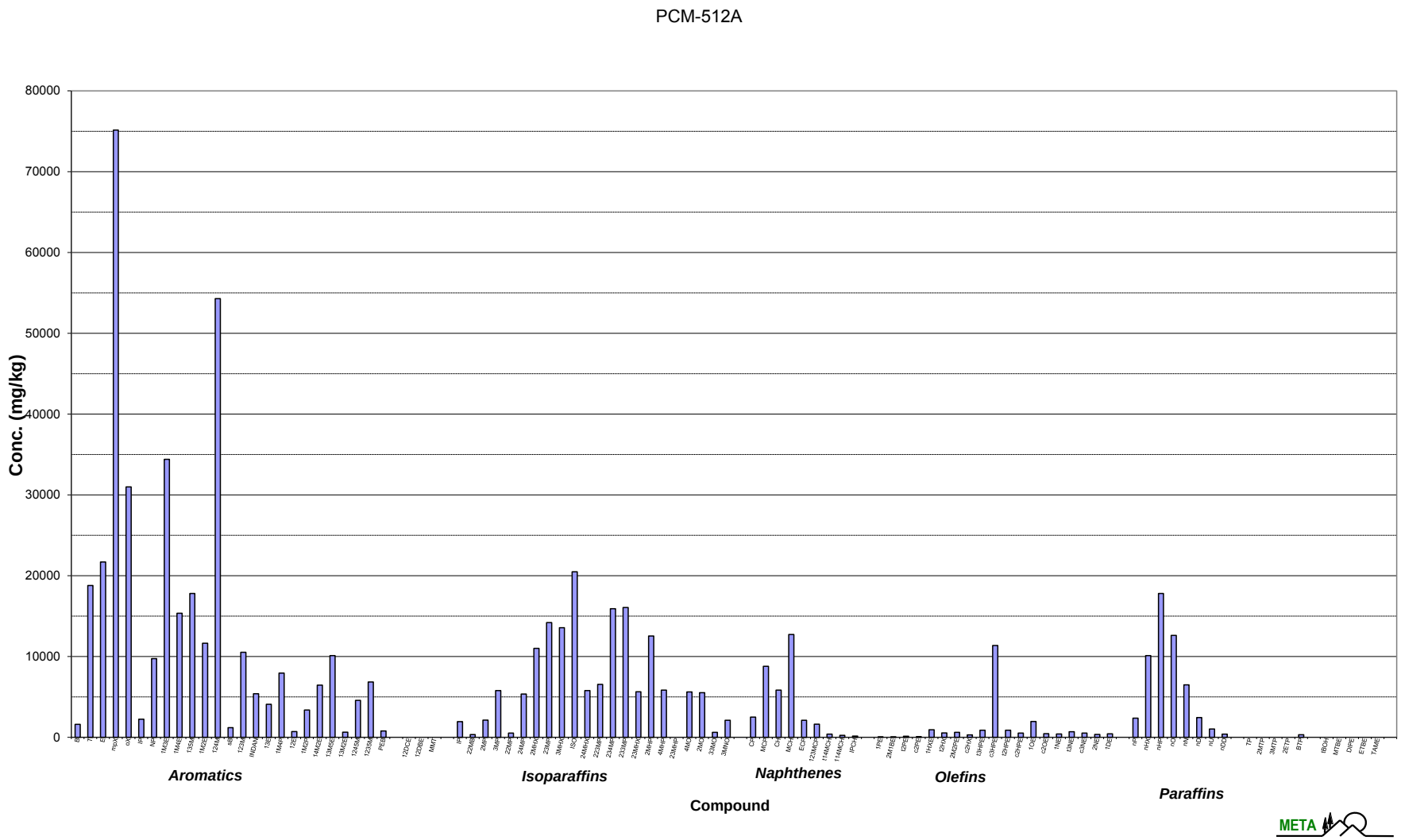


Figure 12. Bar Graph: WR-220A

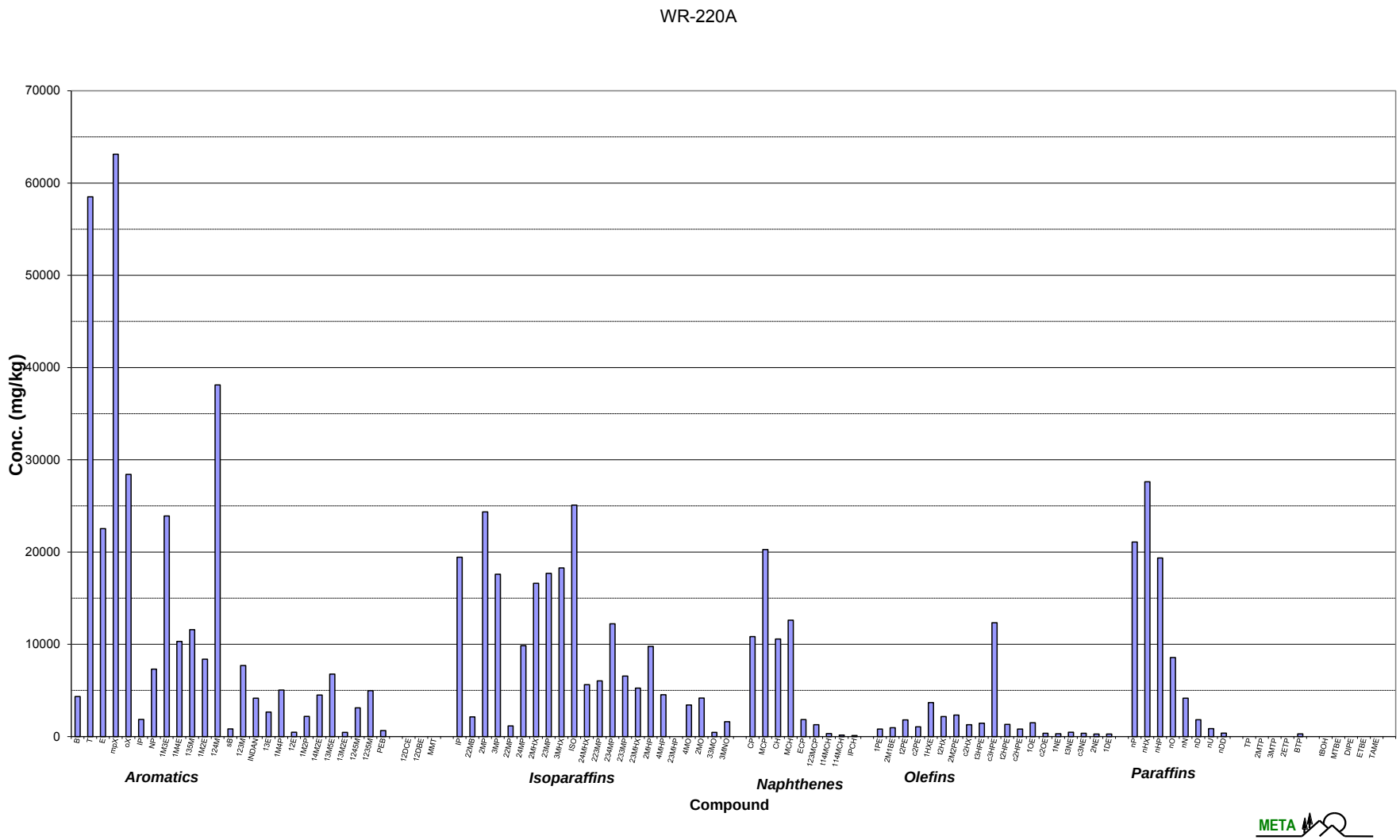


Figure 13. Bar Graph: R-047A

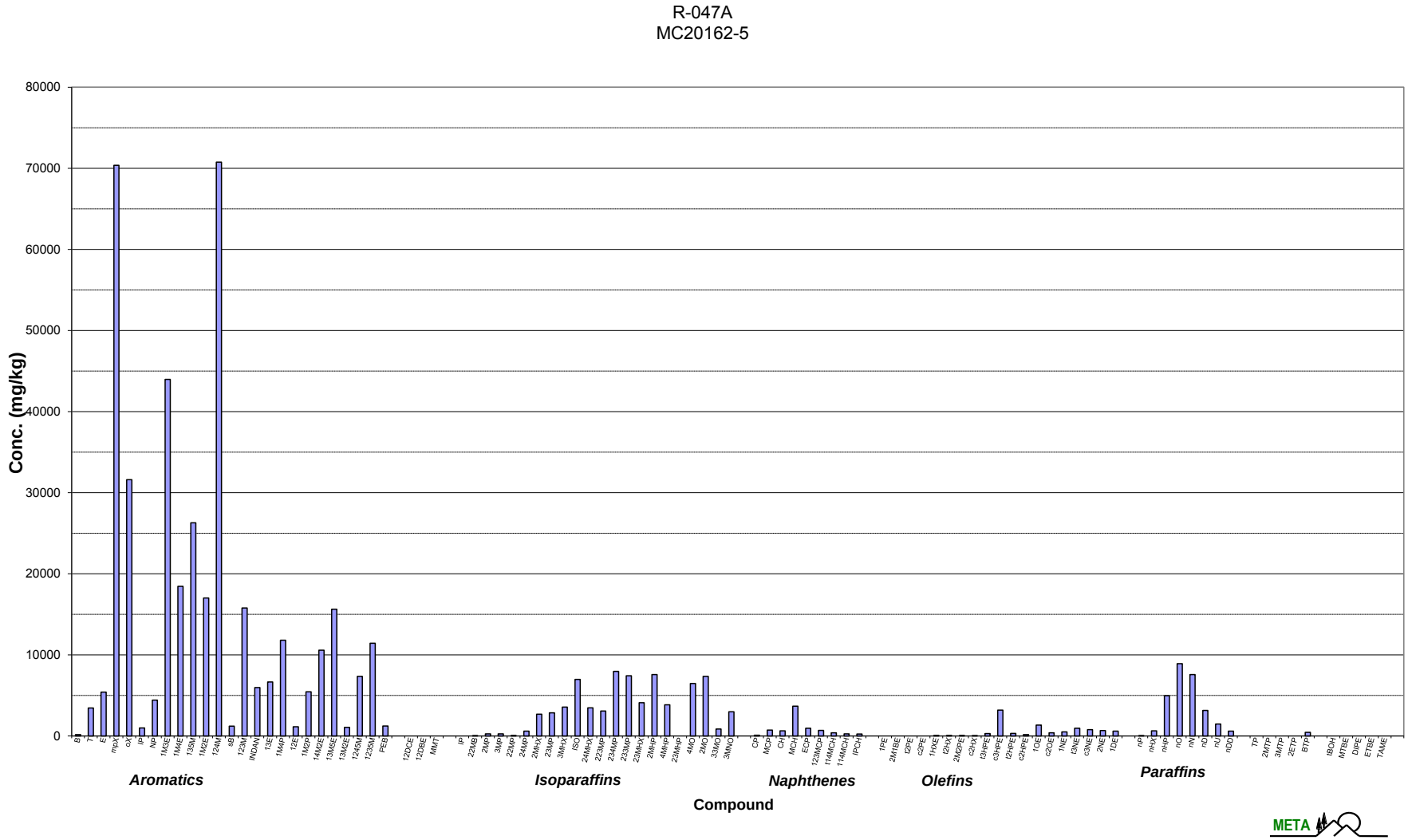


Figure 14. Bar Graph: R-027A

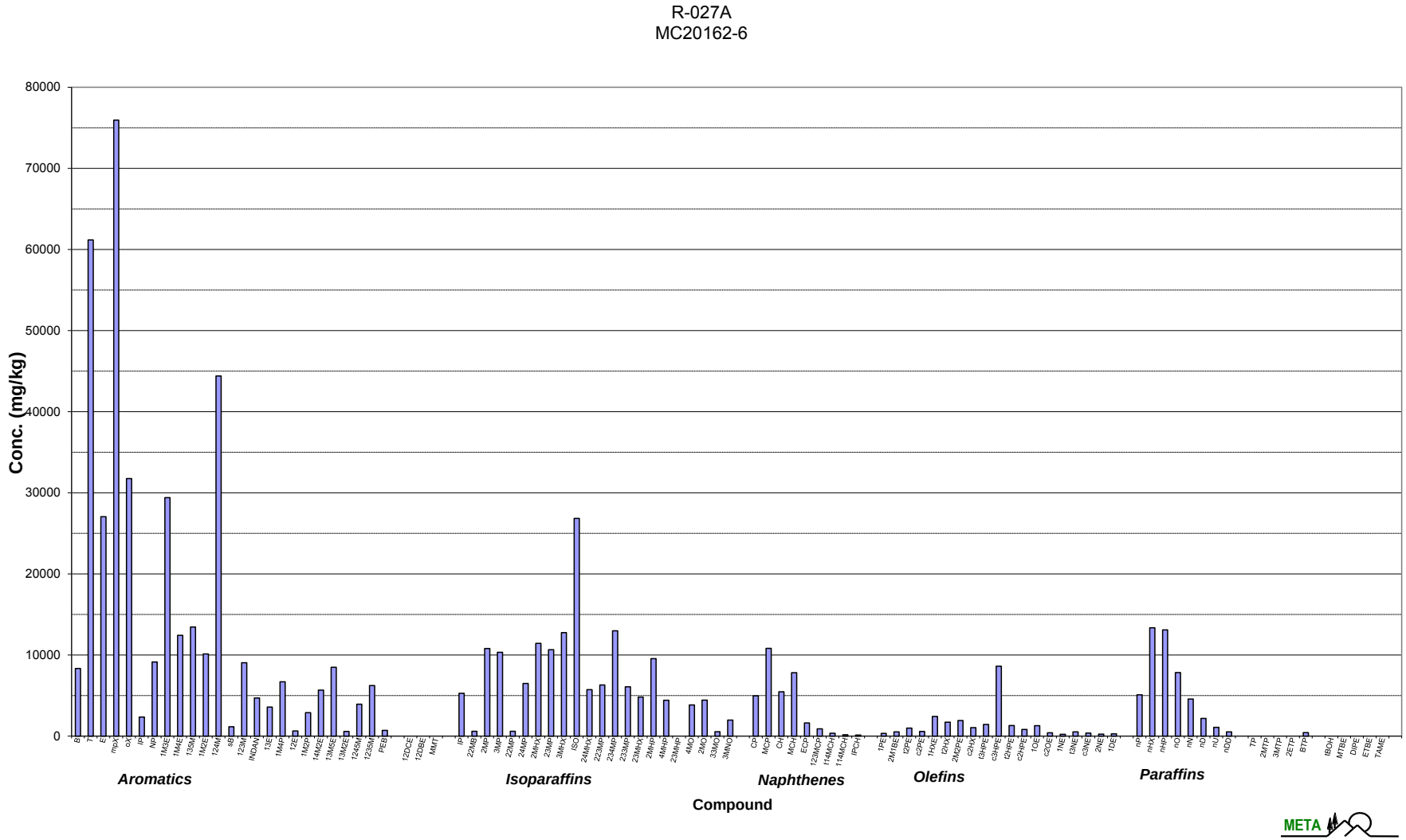


Figure 15. Bar Graph: R-027A

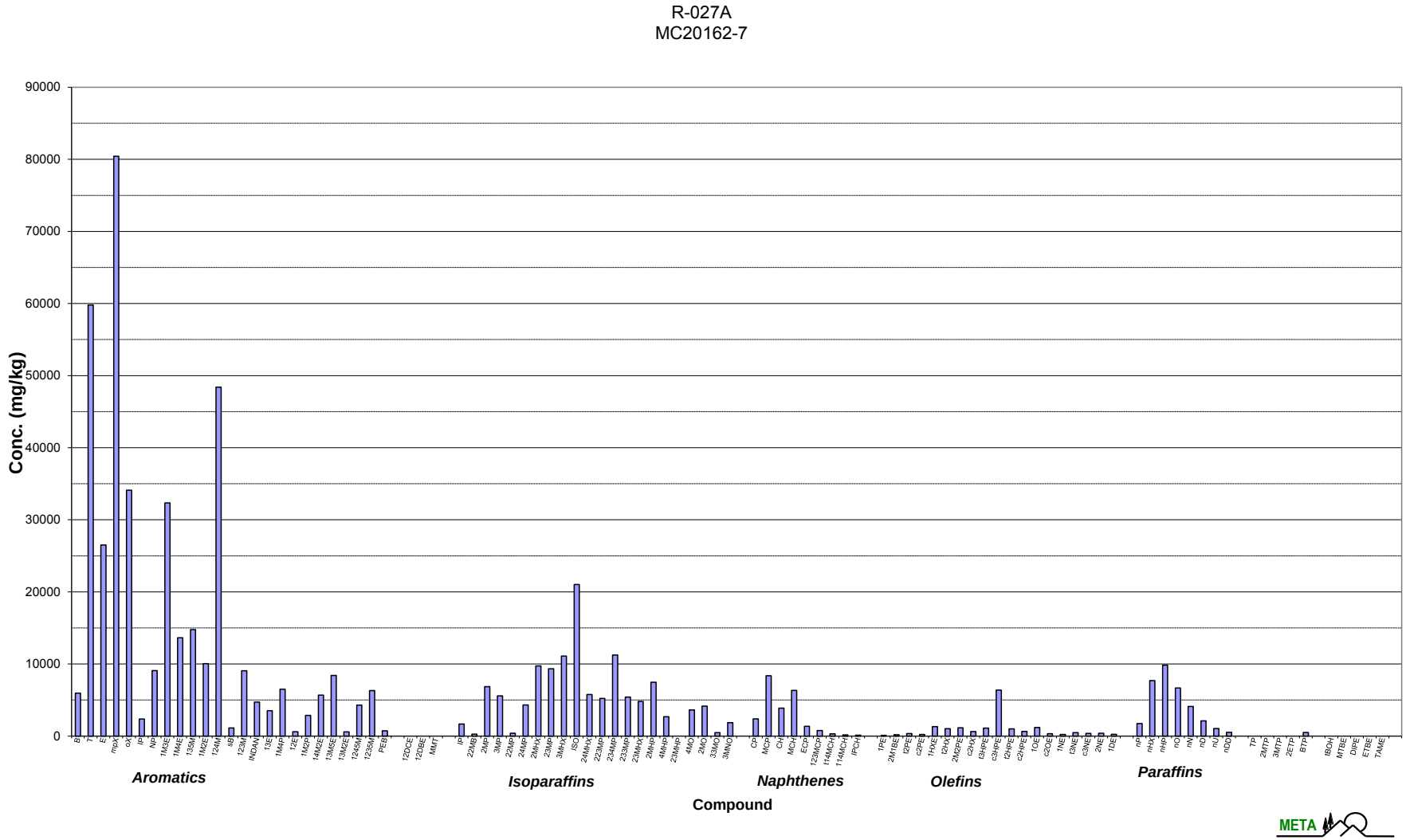


Figure 16. Bar Graph: R-031A

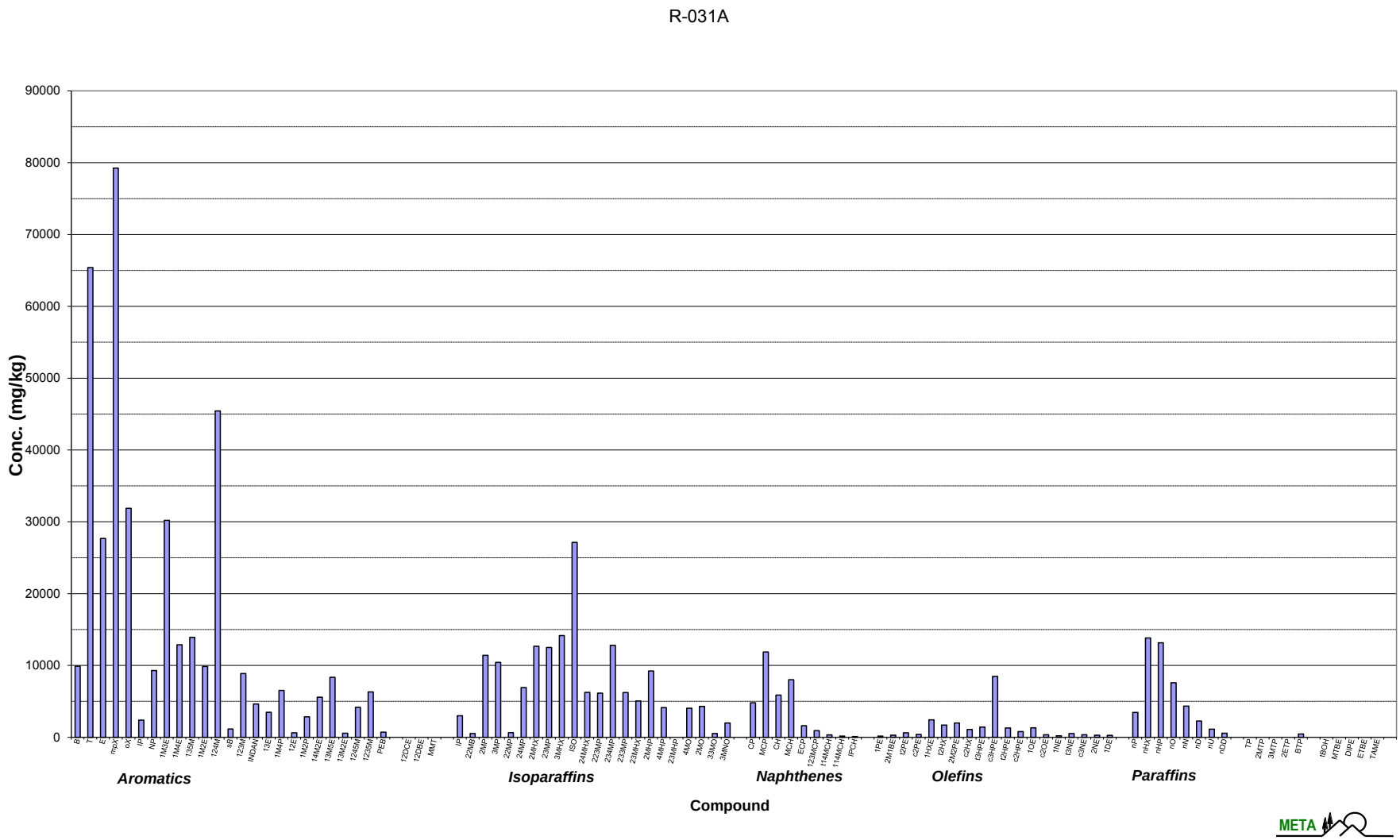


Figure 17. Bar Graph: R-047A

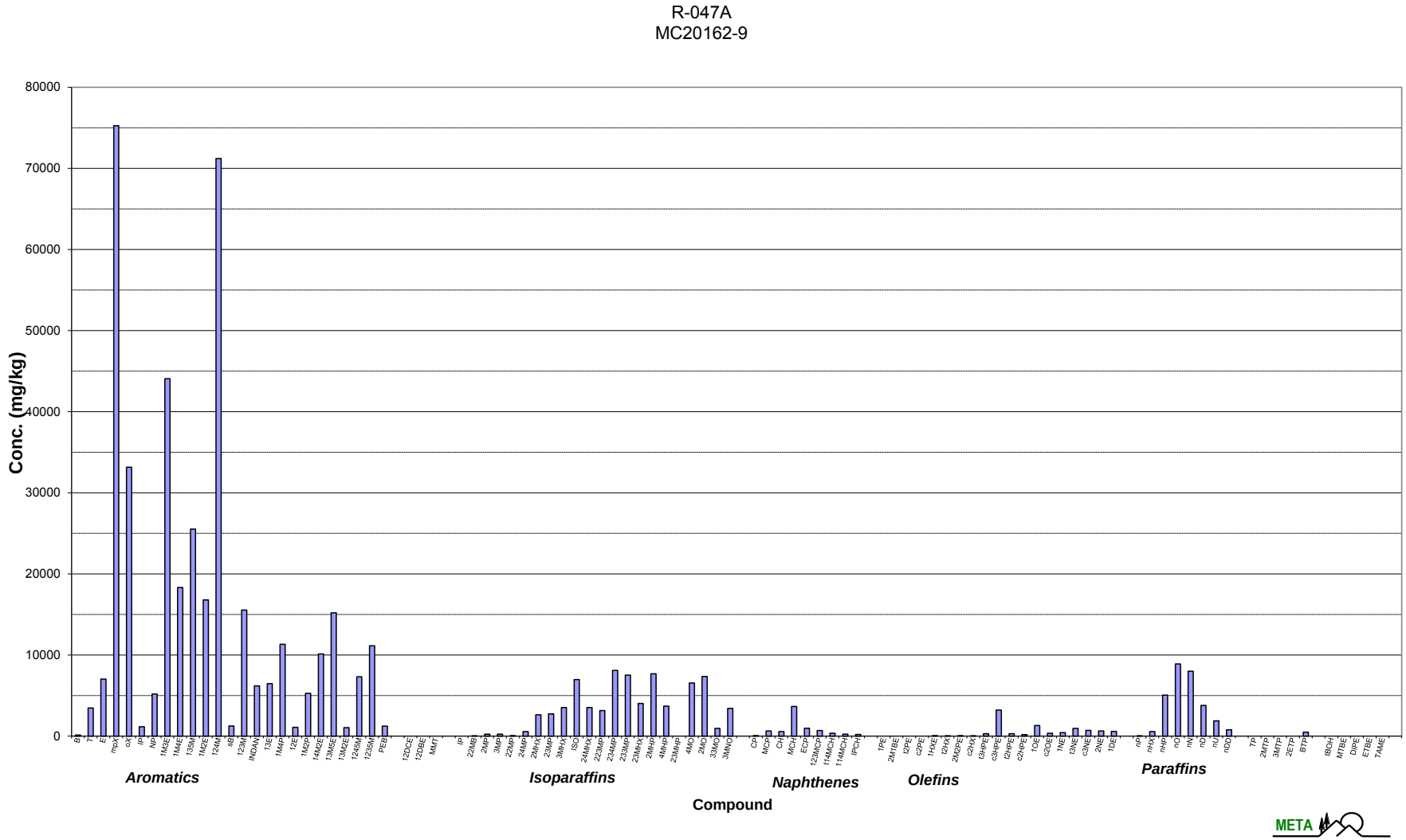
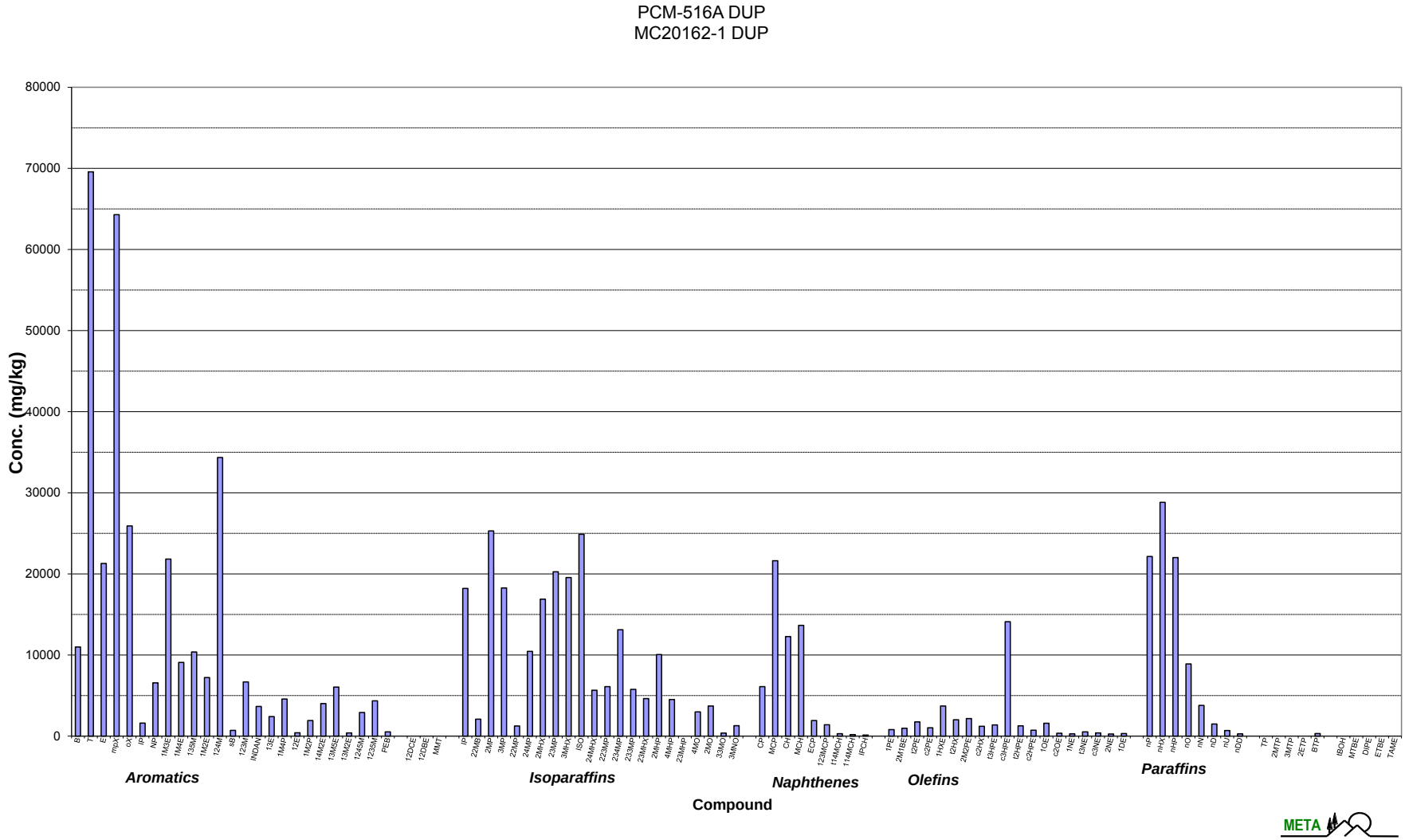


Figure 18. Bar Graph: PCM-516A DUP



Appendix A

Chains of Custody

PHOENIX

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking # 8015 5480 0997
Bottle Order Control #
Accutest Quote #
Accutest NC Job #: C MC20162

Client / Reporting Information

Company Name: City of Tucson
Address: P.O. Box 27210
City: Tucson State: AZ Zip: 85726
Project Contact: Lori Ehman
Phone #: 520-851-3702
Samplers's Name: Kristie Mendoza

Project Information

Project Name: Price Service Center
Street: 4004 S. Park Ave
City: Tucson State: AZ 85714
Project #: PO1064
EMAIL: Lori.Ehman@tucsonaz.gov
Client Purchase Order #

Requested Analysis: Fuel Forensics

Matrix Codes: WW- Wastewater; GW- Ground Water; SW- Surface Water; SO- Soil; OI-Oil; WP-Wipe; LIQ - Non-aqueous Liquid; AIR; DW- Drinking Water (Perchlorate Only)

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	None	NaHSO4	MeOH	Encore	Fuel Forensics	LAB USE ONLY
-1	PCM-516A	4/22/13	0941	Km	~~C~~ L	2					X				✓	
-2	PCM-510B	4/22/13	1035	Km	L	2					X				✓	
-3	PCM-512A	4/22/13	1051	Km	L	2					X				✓	
-4	WR-220A	4/22/13	1141	Km	L	2					X				✓	
-5	R-047A	4/23/13	0925	Km	L	2					X				✓	
	~~R-030A~~	~~4/23/13~~	~~0950~~	~~Km~~	~~L~~	~~2~~					~~X~~				~~✓~~ Km 4/23/13	
-6	R-027A	4/23/13	1011	Km	L	2					X				✓	
																13D

Turnaround Time (Business days)

Approved By:/ Date:

- 10 Day
- 5 Day
- 3 Day (125% markup)
- 2 Day (150% markup)
- 1 Day (200% markup)
- Same Day (300% markup)

Emergency T/A data available VIA Lablink

Data Deliverable Information

- Commercial "A" - Results only
- Commercial "B" - Results with QC summaries
- Commerical "B+" - Results, QC, and chromatograms
- FULT1 - Level 4 data package
- EDF for Geotracker
- EDD Format
- Provide EDF Global ID
- Provide EDF Logcode:

Comments / Remarks

L = Liquid

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 [signature]	4/23/13 1135	1 Jeri Collins	2 Jeri Collins	4/23/13 12:25	2 FedEx
Relinquished by: 3 FedEx	Date Time: 4/23/13 09:30	Received By: 3 [signature]	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Appropriate Bottle / Pres. Y / N; Labels match Coc? Y / N	Headspace Y / N; Separate Receiving Check List used: Y / N; On Ice Y / N; Cooler Temp. 1.5 °C

PHOENIX

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

~~AG21038~~

FED-EX Tracking # 801102707556
Bottle Order Control #
Accutest Quote #
Accutest NC Job #: MC20162

Client / Reporting Information

Company Name: City of Tucson - Environmental Services
Address: P.O. Box 27210
City: Tucson State: AZ Zip: 85726
Project Contact: Lori Ehman
Phone #: 520-837-3702
Samplers's Name: Kristie Mendoza / Lori Ehman

Project Information

Project Name: Price Service Center P01064
Street
City State
Project #: P01064
EMAIL: lori.ehman@TucsonAZ.gov
Client Purchase Order #

MC21038

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Requested Analysis: Fuel Forensics											Matrix Codes / LAB USE ONLY
7-1	R-027A	5/20/13	1040	KM	Fuel	2									X											
8-2	R-031A	5/20/13	1140	KM	Fuel	2									X											
9-3	R-047A	5/20/13	1157	KM	Fuel	2									X											

Matrix Codes: WW- Wastewater; GW- Ground Water; SW- Surface Water; SO- Soil; OI-Oil; WP-Wipe; LIQ - Non-aqueous Liquid; AIR; DW- Drinking Water (Perchlorate Only)

Turnaround Time (Business days)

Approved By:/ Date:

- [ ] 10 Day
- [ ] 5 Day
- [ ] 3 Day (125% markup)
- [ ] 2 Day (150% markup)
- [ ] 1 Day *(200% markup)*
- [ ] Same Day (300% markup)

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [ ] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker [ ] EDD Format
- Provide EDF Global ID
- Provide EDF Logcode:

Comments / Remarks

Lot 14D

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	5/20/13 12:35	1 Fed EX	2 Fedex	5/21/13 920	2
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Appropriate Bottle / Pres. Y / N; Labels match Coc? Y / N	Headspace Y / N; Separate Receiving Check List used: Y / N; On Ice Y / N; Cooler Temp 0.8

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: MC20162 **Client:** CITY OF TUCSON **Immediate Client Services Action Required:** No

Date / Time Received: 5/21/2013 **Delivery Method:** **Client Service Action Required at Login:** No

Project: PINE SERVICE CENTER **No. Coolers:** 1 **Airbill #'s:**

Cooler Security	Y	N
1. Custody Seals Present:	☑	☐
2. Custody Seals Intact:	☑	☐
3. COC Present:	☑	☐
4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	Infared gun	
3. Cooler media:	Ice (bag)	

Quality Control Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☐	☑
2. Trip Blank listed on COC:	☐	☐	☑
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments

Accutest Laboratories
V:508.481.6200

495 Technology Center West, Bldg One
F: 508.481.7753

Marlborough, MA
www/accutest.com

Job Number: MC20162 Client project: PO1064

Account: CTESAZT City of Tucson Environmental Services

Project: CTESAZT19471 Price Service Center, 4004 South Park Avenue, Tucson, AZ **NEW PROJECT 25-APR-13**

Report to: HC Date: 13-SEP-13 Deliv: COMMBN+ StateCode: AZ

CHECK
Client
Project
Deliverables
Matrix
TAT
Tests
Metals SW846

Sample Number	Client ID	Site	Matx	Receive Date	Collect Date/Time	TAT	Due Date	Samp By	Product List
MC20162-1	PCM-516A		OI	24-APR-13	22-APR-13 09:41	21	13-SEP-13	KM	B3328FINGHR,B5739ALKPAH,ENERGY,V8260MTBE
MC20162-2	PCM-510B		OI	24-APR-13	22-APR-13 10:35	21	13-SEP-13	KM	B3328FINGHR,B5739ALKPAH,V8260MTBE
MC20162-3	PCM-512A		OI	24-APR-13	22-APR-13 10:51	21	13-SEP-13	KM	B3328FINGHR,B5739ALKPAH,V8260MTBE
MC20162-4	WR-220A		OI	24-APR-13	22-APR-13 11:41	21	13-SEP-13	KM	B3328FINGHR,B5739ALKPAH,V8260MTBE
MC20162-5	R-047A		OI	24-APR-13	23-APR-13 09:25	21	13-SEP-13	KM	B3328FINGHR,B5739ALKPAH,V8260MTBE
MC20162-6	R-027A		OI	24-APR-13	23-APR-13 10:11	21	13-SEP-13	KM	B3328FINGHR,B5739ALKPAH,V8260MTBE
MC20162-7	R-027A		OI	21-MAY-13	20-MAY-13 10:40	14	13-SEP-13	KM	B3328FINGHR,B5739ALKPAH,V8260MTBE
MC20162-8	R-031A		OI	21-MAY-13	20-MAY-13 11:40	14	13-SEP-13	KM	B3328FINGHR,B5739ALKPAH,V8260MTBE
MC20162-9	R-047A		OI	21-MAY-13	20-MAY-13 11:57	14	13-SEP-13	KM	

Comments: MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6, MC20162-7, MC20162-8
6/12/13: V8260MTBE added; 7/22/13 PIANO added by JR. **7/30/13: V8260PIANO subbed to Battelle; 8/2: V8260PIANO moved to "X" job.
Comments: MC20162-9
7/22/13 PIANO added by JR. **7/30/13: V8260PIANO subbed to Battelle, moved to "X" job.

EMAIL Address:
Lori Ehman
City of Tucson Environmental Services
P.O. Box 27210
Tucson, AZ 85726 (520)837-3702

lori.ehman@tucsonaz.gov

CONTACT Address (account):
Lori Ehman
City of Tucson Environmental Services
P.O. Box 27210
Tucson, AZ 85726 (520)837-3702

lori.ehman@tucsonaz.gov

PO Number:

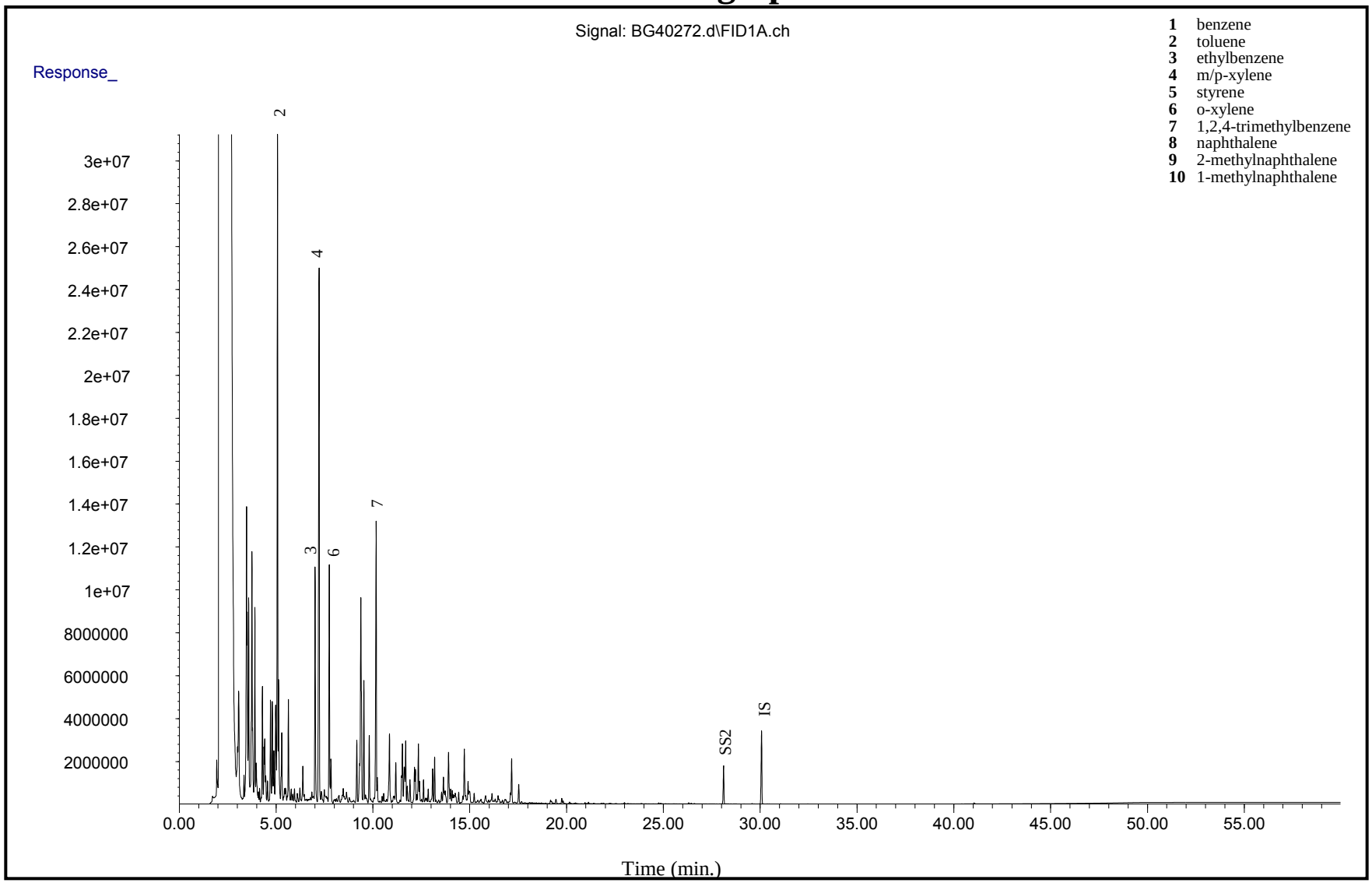
Project Comments: Quote: MCM3_2013_94

Login: _____ Date: _____
Login Review: _____ Date: _____
CS Review: _____ Date: _____
ID Review: _____ Date: _____

Appendix B

GC/FID Fingerprints

GC/FID Fingerprint

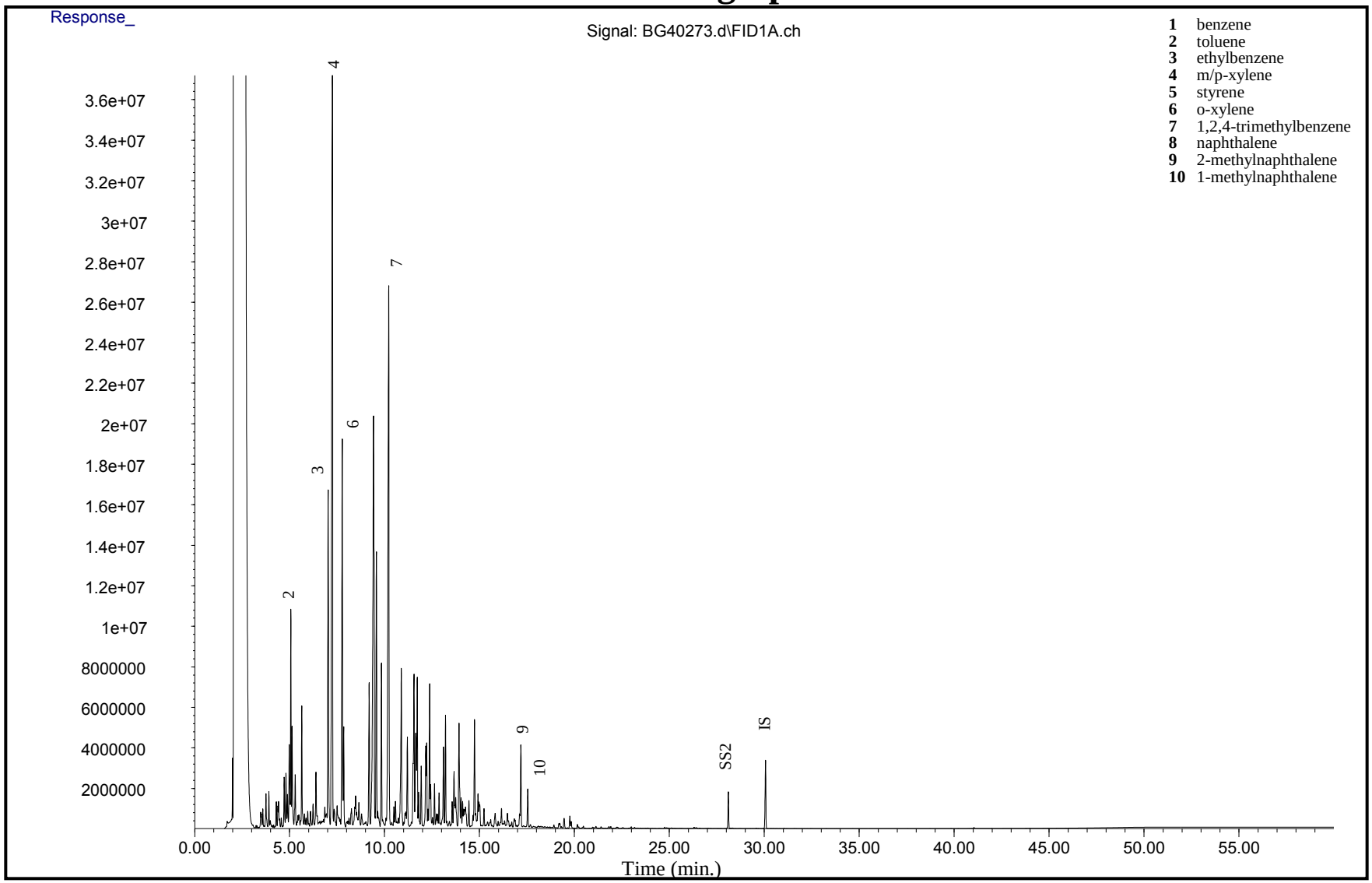


Analysis Date: 05/31/2013

Field ID:	**PCM-516A**
Laboratory ID:	mc20162-1
Method:	EPA 8015M

IS – 5a-androstane
SS2 – o-terphenyl

GC/FID Fingerprint

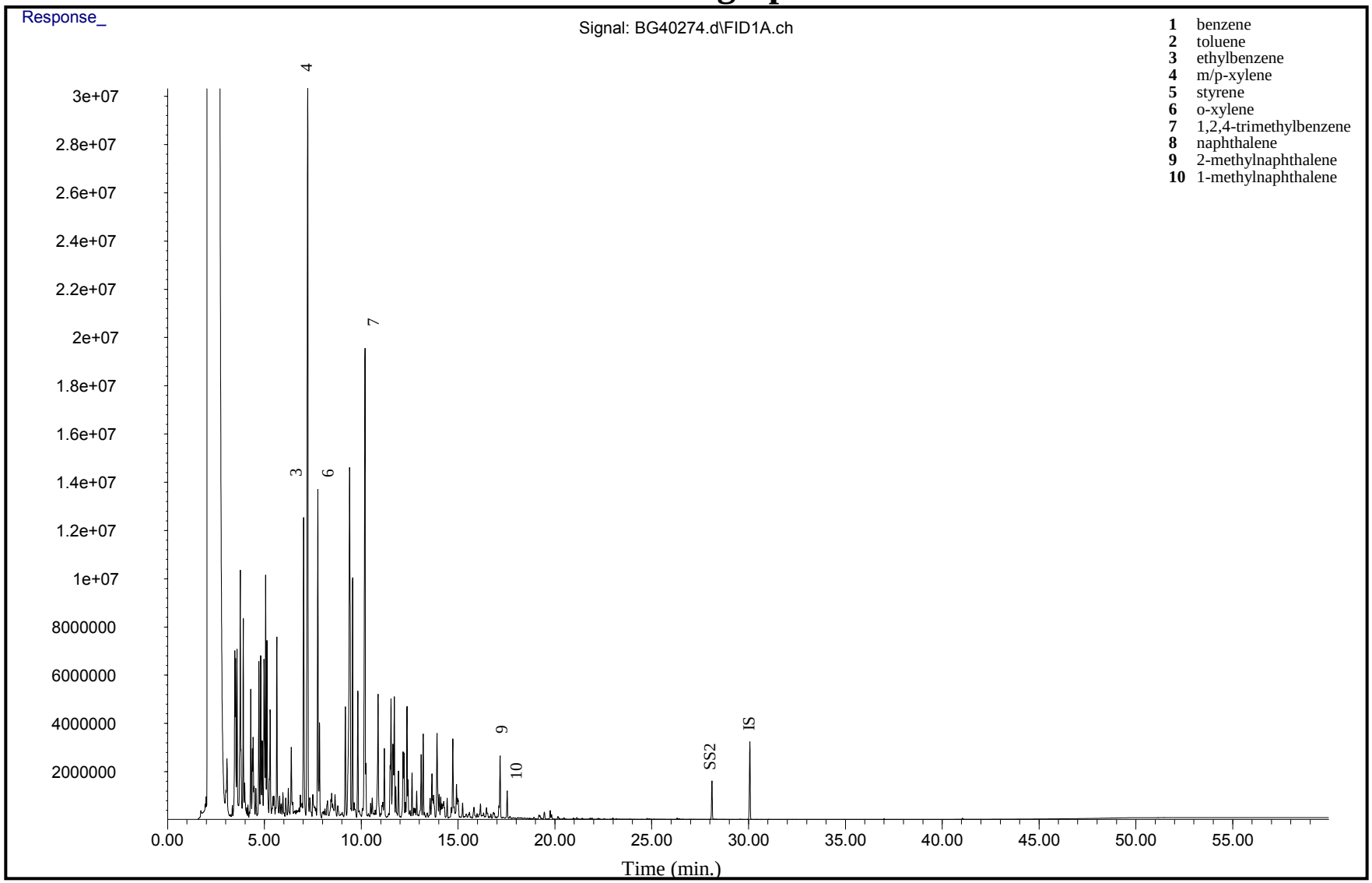


Analysis Date: 05/31/2013

IS – 5a-androstane
SS2 – o-terphenyl

Field ID: **PCM-510B**
Laboratory ID: mc20162-2
Method: EPA 8015M

GC/FID Fingerprint

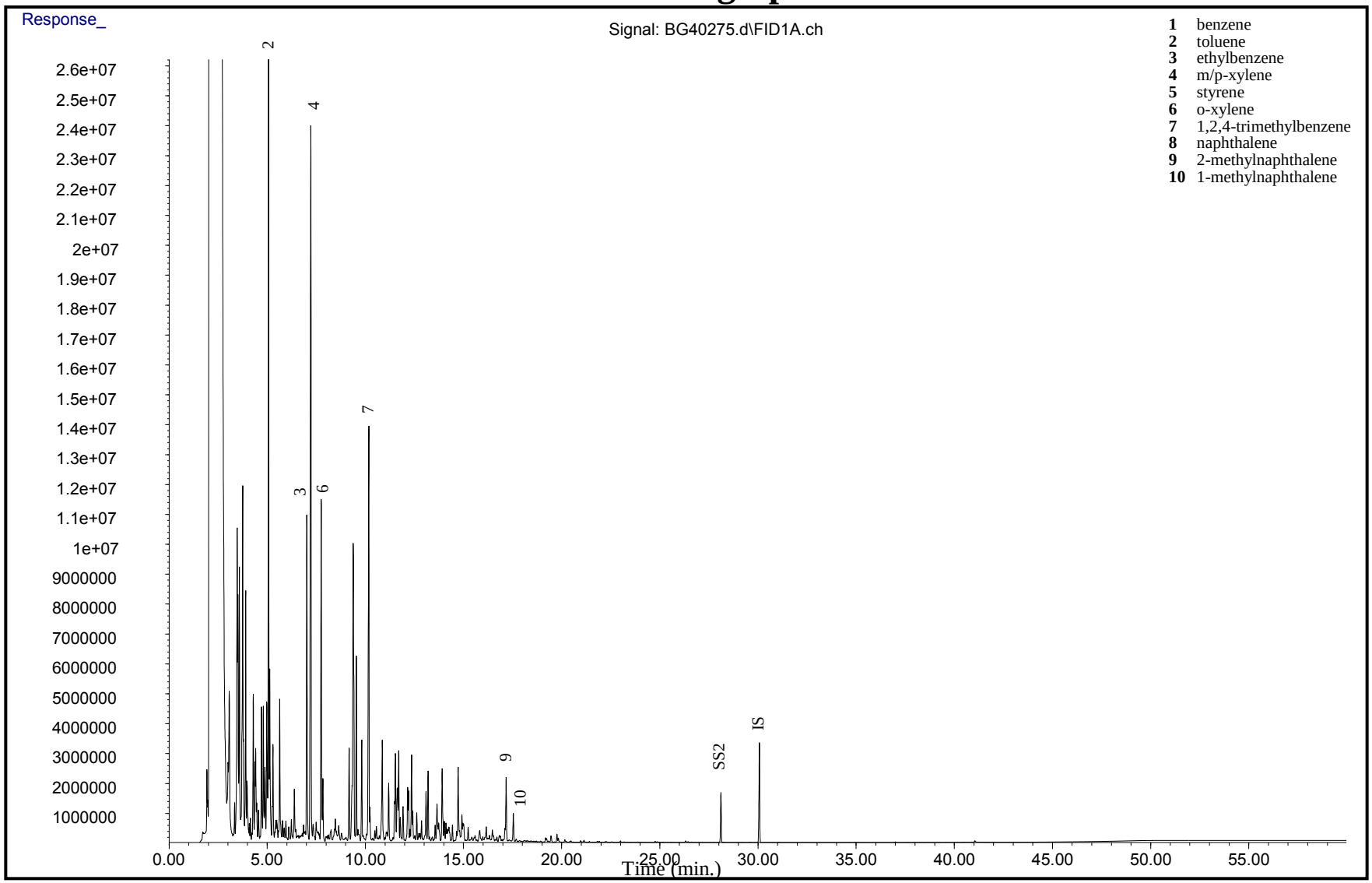


Analysis Date: 05/31/2013

IS – 5a-androstane
SS2 – o-terphenyl

Field ID: **PCM-512A**
Laboratory ID: mc20162-3
Method: EPA 8015M

GC/FID Fingerprint

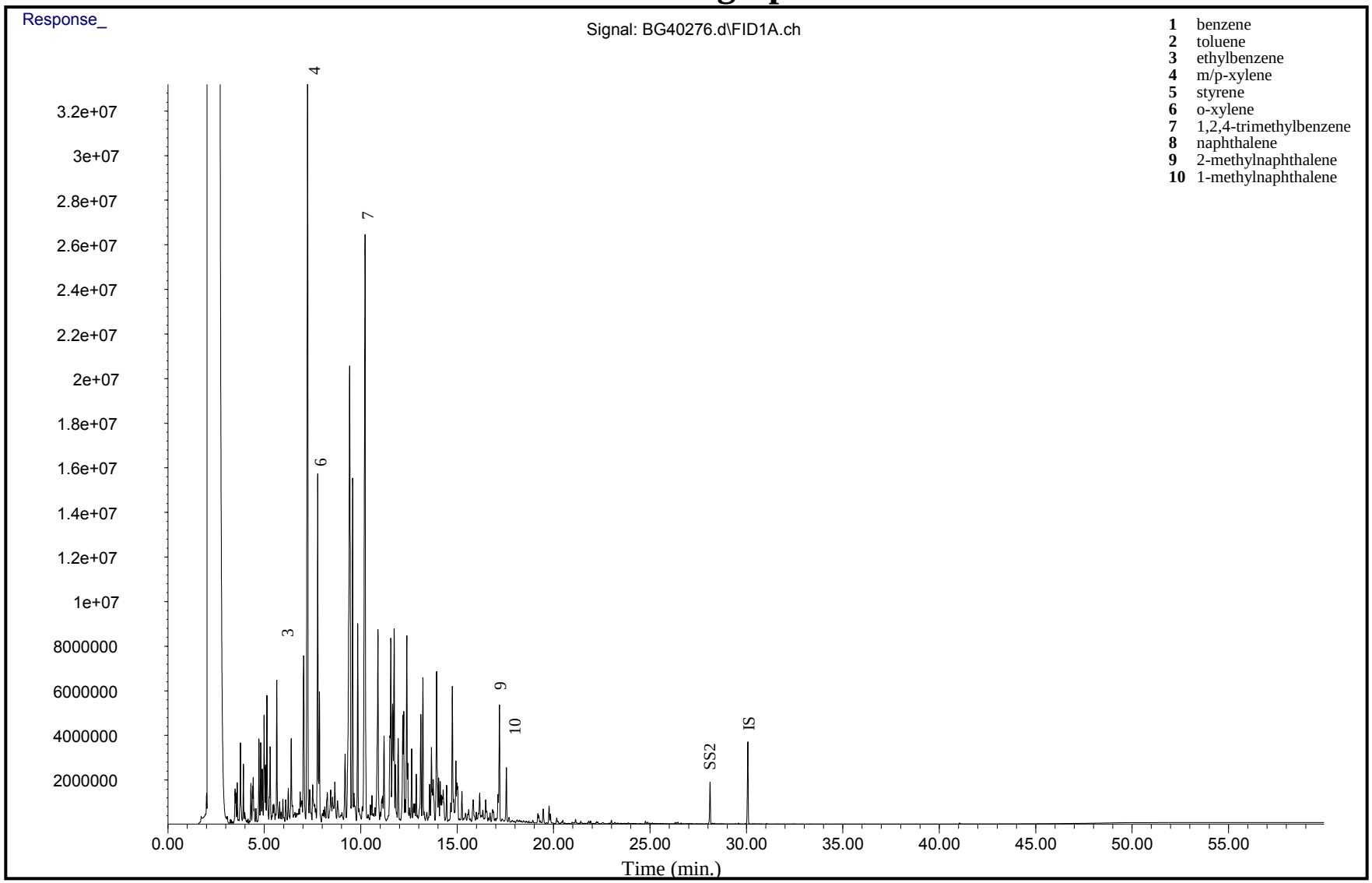


Analysis Date: 05/31/2013

IS – 5a-androstane
SS2 – o-terphenyl

Field ID: **WR-220A**
Laboratory ID: mc20162-4
Method: EPA 8015M

GC/FID Fingerprint

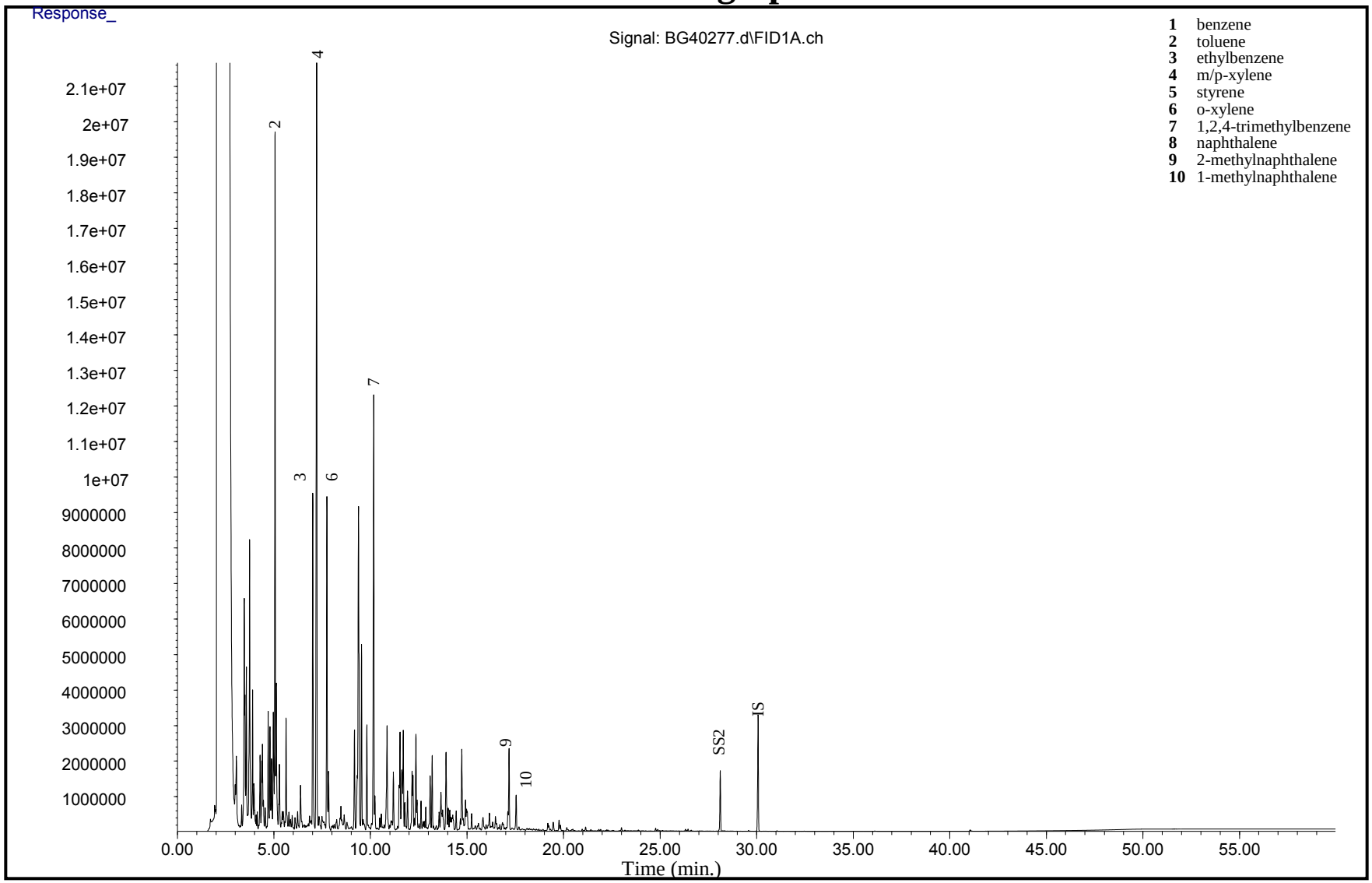


Analysis Date: 05/31/2013

IS – 5a-androstane
SS2 – o-terphenyl

Field ID: **R-047A**
Laboratory ID: mc20162-5
Method: EPA 8015M

GC/FID Fingerprint



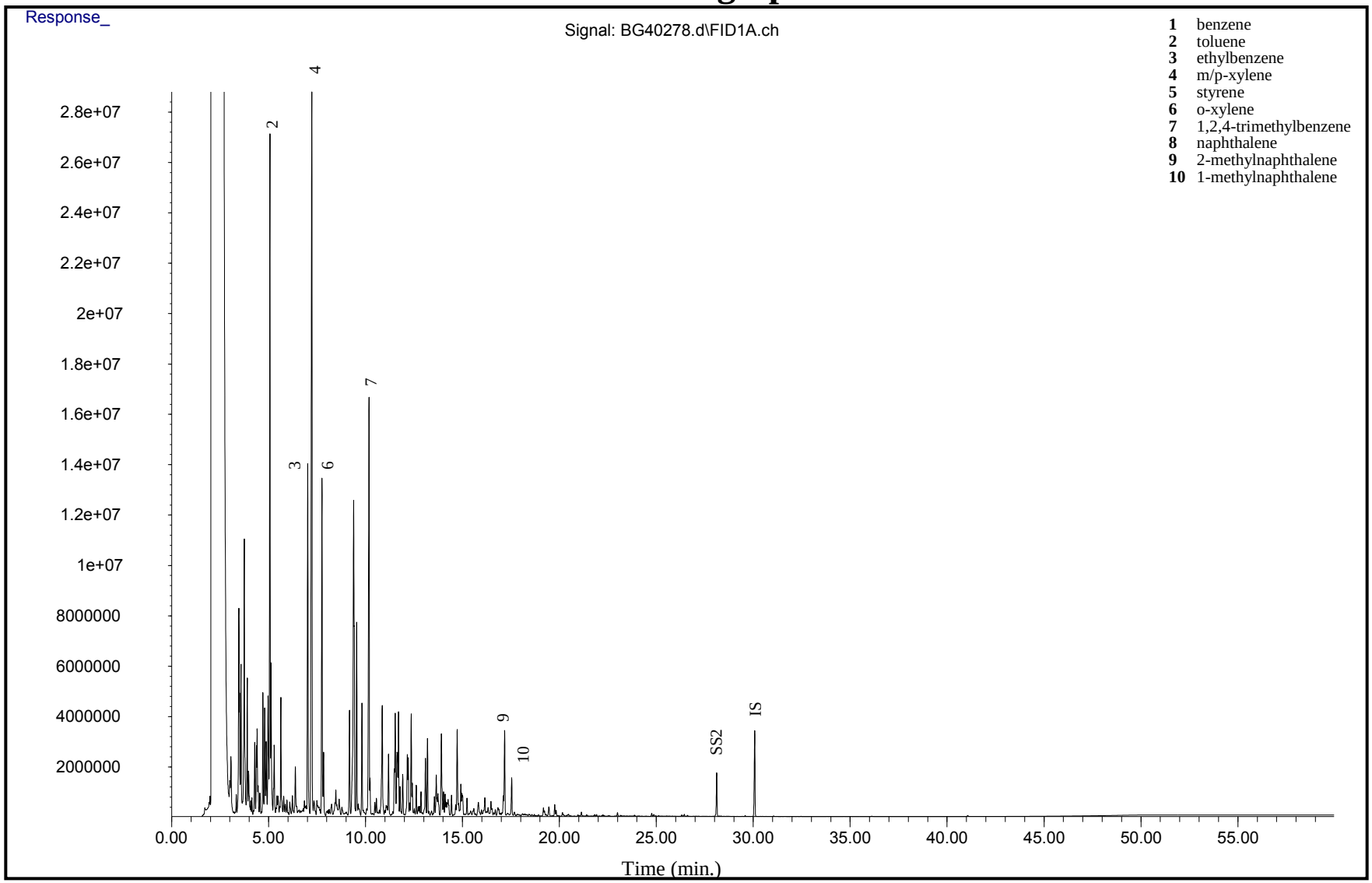
Analysis Date: 05/31/2013

IS – 5a-androstane
SS2 – o-terphenyl

Field ID: **R-027A**
Laboratory ID: mc20162-6
Method: EPA 8015M

META

GC/FID Fingerprint



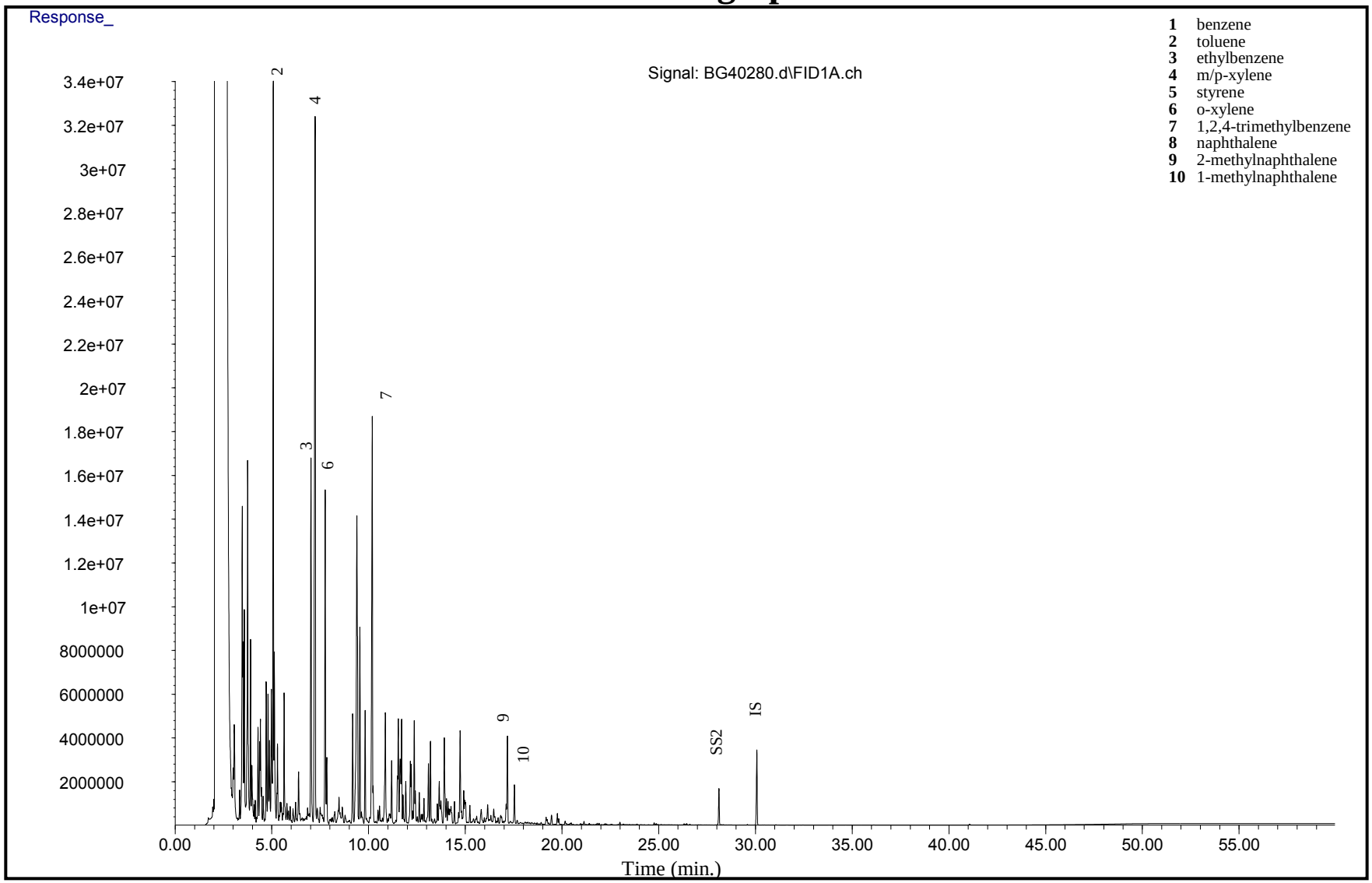
Analysis Date: 05/31/2013

IS – 5a-androstane
SS2 – o-terphenyl

Field ID: **R-027A**
Laboratory ID: mc20162-7
Method: EPA 8015M

META

GC/FID Fingerprint



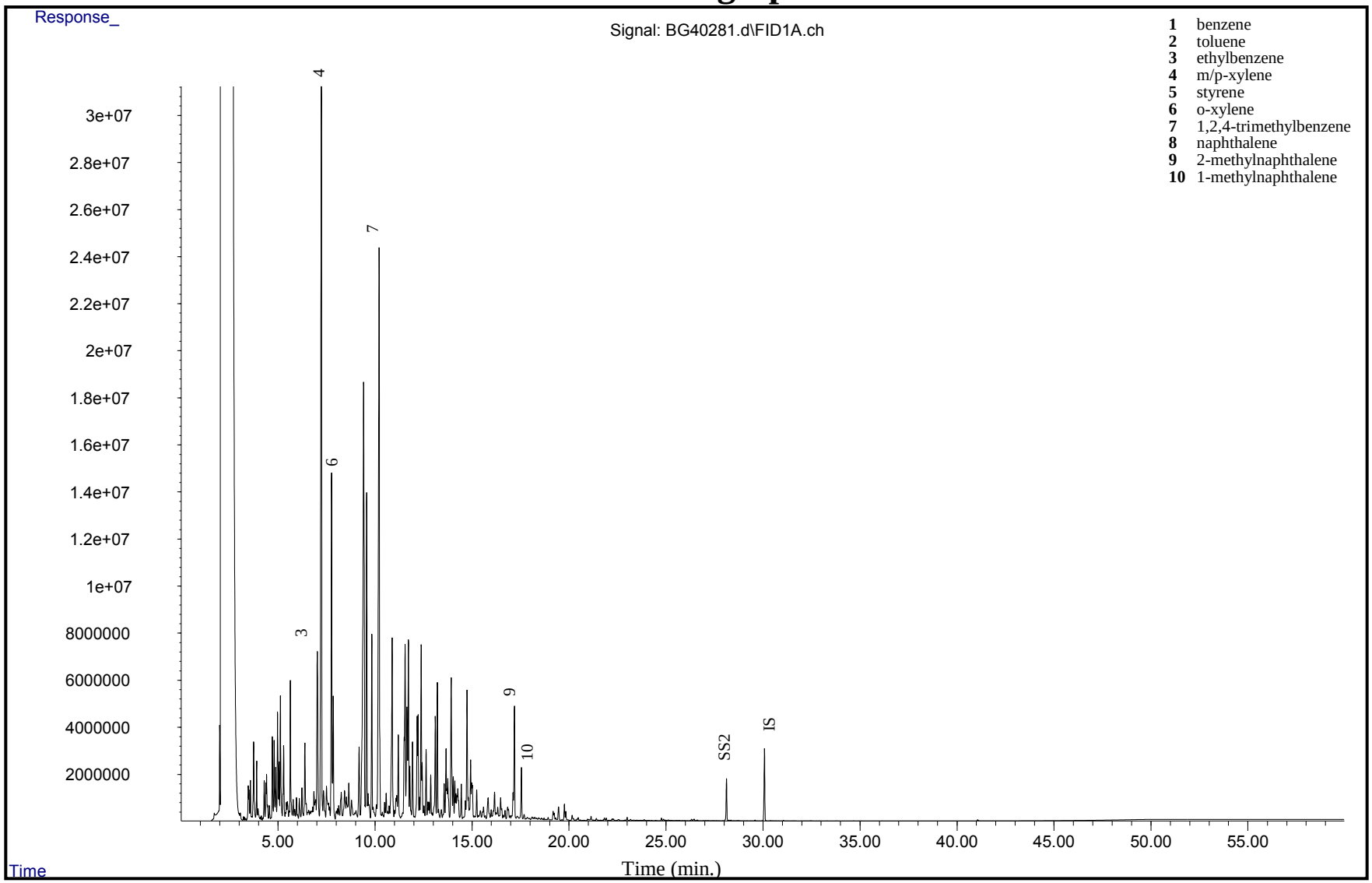
Analysis Date: 05/31/2013

IS – 5a-androstane
SS2 – o-terphenyl

Field ID: **R-031A**
Laboratory ID: mc20162-8
Method: EPA 8015M

META

GC/FID Fingerprint



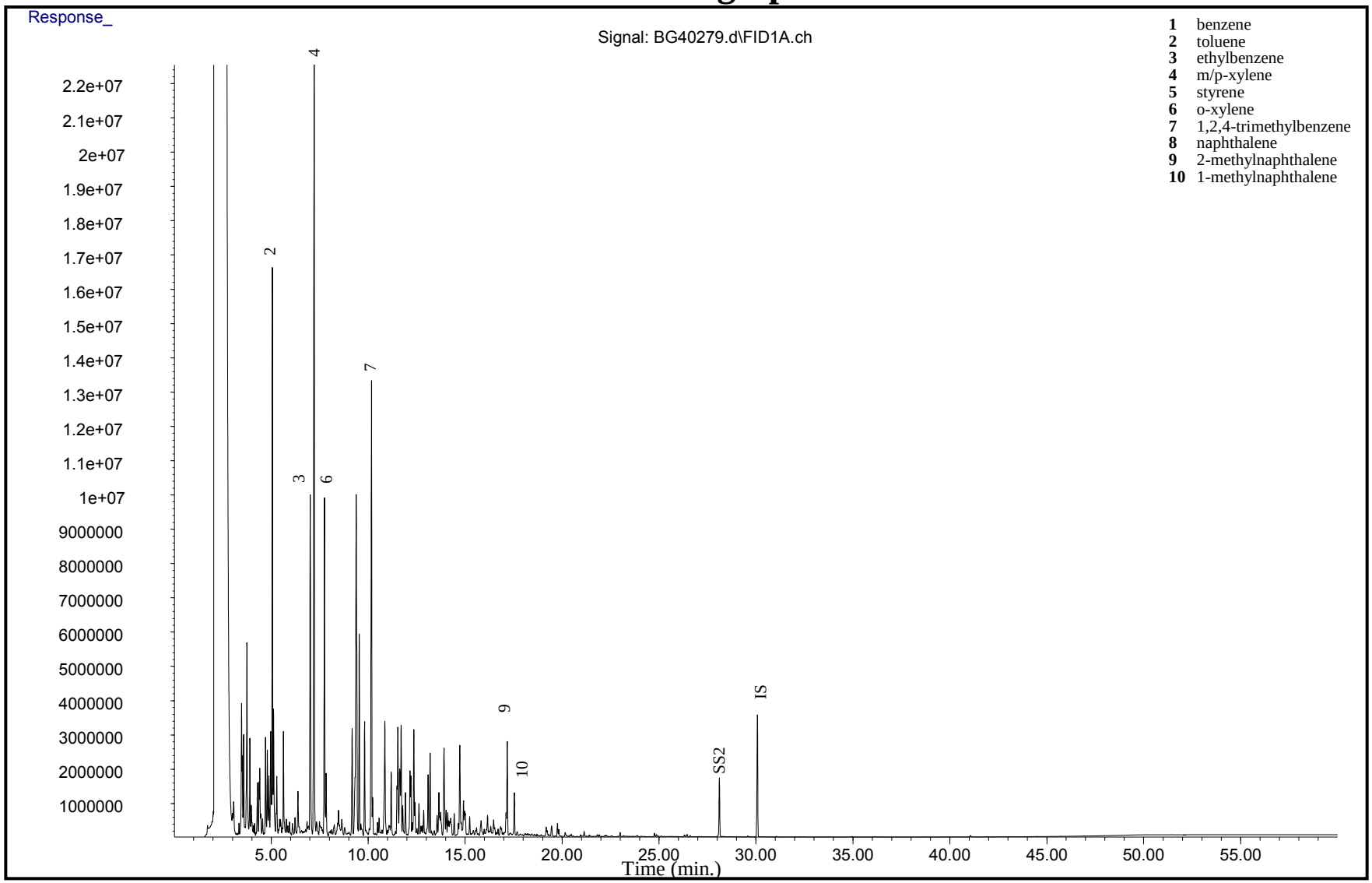
Analysis Date: 05/31/2013

IS – 5a-androstane
SS2 – o-terphenyl

Field ID: **R-047A**
Laboratory ID: mc20162-9
Method: EPA 8015M

META

GC/FID Fingerprint



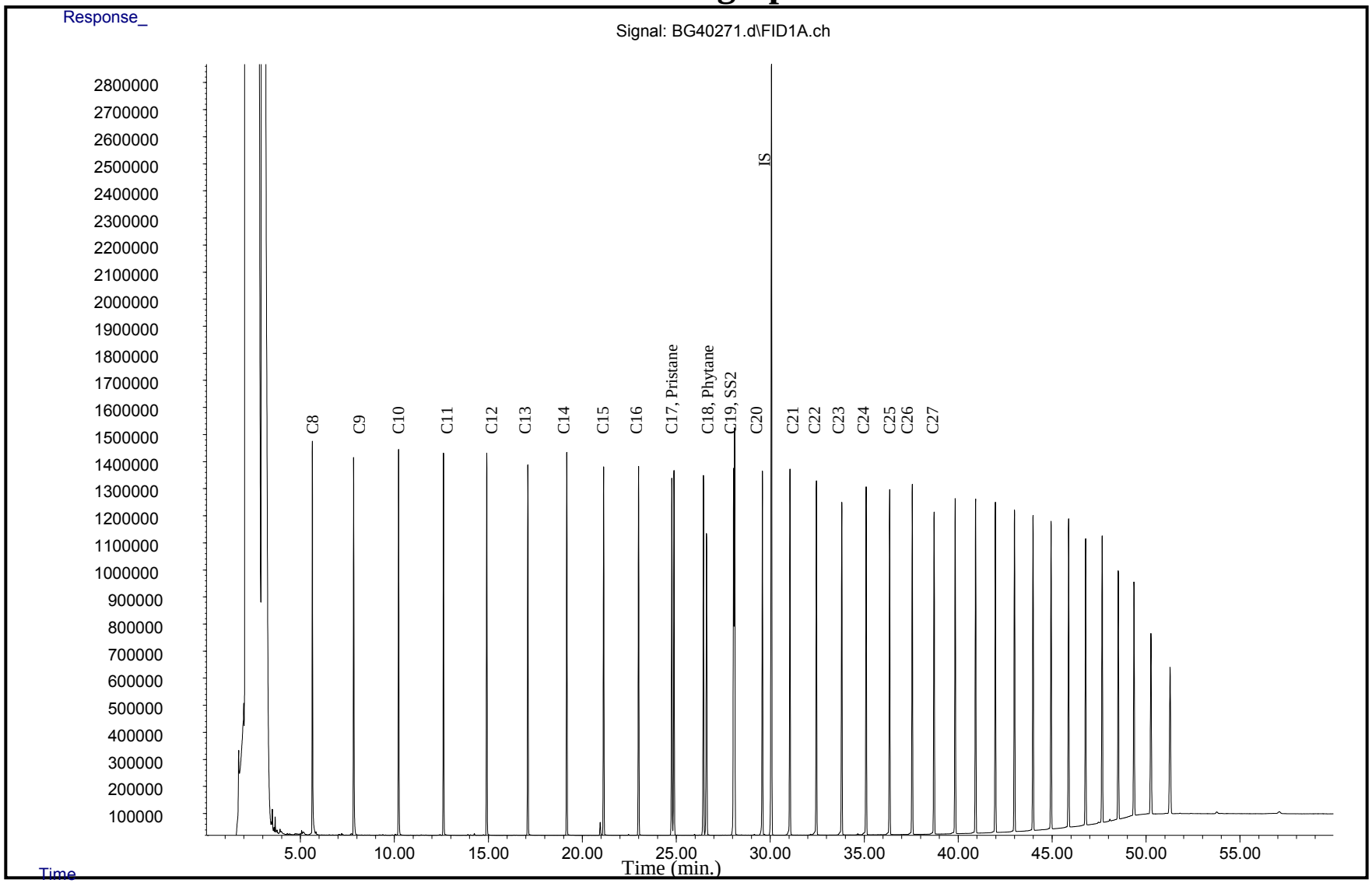
Analysis Date: 05/31/2013

IS – 5a-androstane
SS2 – o-terphenyl

Field ID: **R-027A**
Laboratory ID: op33310-dup
Method: EPA 8015M

META

GC/FID Fingerprint



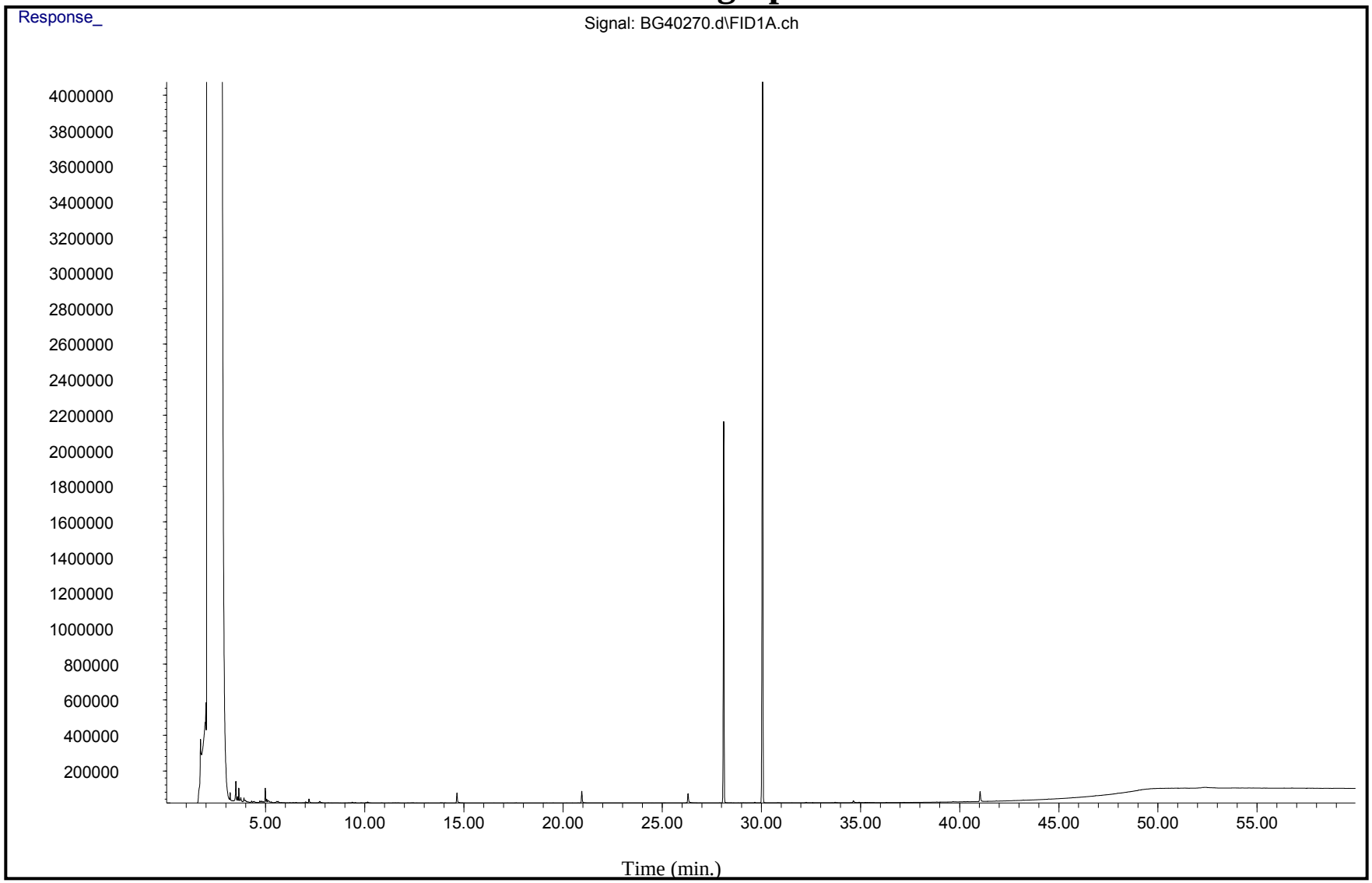
Analysis Date: 05/31/2013

Field ID:	**Method Blank Spike**
Laboratory ID:	op33310-bs
Method:	EPA 8015M

IS – 5a-androstane
SS2 – o-terphenyl

META

GC/FID Fingerprint



Analysis Date: 05/31/2013

Field ID:	**Method Blank**
Laboratory ID:	op33310-mb
Method:	EPA 8015M

IS – 5a-androstane
SS2 – o-terphenyl

META

Appendix C

Accutest Laboratories Report

(MC20162)

New England ACCUTEST LABORATORIES

09/11/13

Technical Report for

City of Tucson Environmental Services

Price Service Center, 4004 South Park Avenue, Tucson, AZ

PO1064

Accutest Job Number: MC20162

Sampling Dates: 04/22/13 - 05/20/13

Report to:

City of Tucson Environmental Services
P.O. Box 27210
Tucson, AZ 85726
lori.ehman@tucsonaz.gov

ATTN: Lori Ehman

Total number of pages in report: **538**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Reza Tand
Lab Director

Client Service contact: Matthew Morrell 508-481-6200

Certifications: MA (M-MA136,SW846 NELAC) CT (PH-0109) NH (250210) RI (00071) ME (MA00136) FL (E87579) NY (11791) NJ (MA926) PA (6801121) ND (R-188) CO MN (11546AA) NC (653) IL (002337) WI (399080220) ISO 17025:2005 (L2235)

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Test results relate only to samples analyzed.

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Sample Summary

City of Tucson Environmental Services

Job No: MC20162

Price Service Center, 4004 South Park Avenue, Tucson, AZ
Project No: PO1064

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
MC20162-1	04/22/13	09:41	KM	04/24/13	SO	Oil	PCM-516A
MC20162-2	04/22/13	10:35	KM	04/24/13	SO	Oil	PCM-510B
MC20162-3	04/22/13	10:51	KM	04/24/13	SO	Oil	PCM-512A
MC20162-4	04/22/13	11:41	KM	04/24/13	SO	Oil	WR-220A
MC20162-5	04/23/13	09:25	KM	04/24/13	SO	Oil	R-047A
MC20162-6	04/23/13	10:11	KM	04/24/13	SO	Oil	R-027A
MC20162-7	05/20/13	10:40	KM	05/21/13	SO	Oil	R-027A
MC20162-8	05/20/13	11:40	KM	05/21/13	SO	Oil	R-031A
MC20162-9	05/20/13	11:57	KM	05/21/13	SO	Oil	R-047A

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	City of Tucson Environmental Services	**Job No**	MC20162
Site:	Price Service Center, 4004 South Park Avenue, Tucson, AZ	**Report Date**	8/9/2013 9:29:58 AM

8 Sample(s) were collected on between 04/22/2013 and 05/20/2013 and were received at Accutest between 04/24/2013 and 05/21/2013 properly preserved, at 1.5 Deg. C and intact. These Samples received an Accutest job number of MC20162. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix SO **Batch ID:** MSK2323

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) MC21696-1MS, MC21696-1MSD were used as the QC samples indicated.
- Sample(s) MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6, MC20162-7, MC20162-8 for 4-Bromofluorobenzene: Outside control limits due to possible matrix interference.
- MC20162-2, 7 for Toluene-D8: Outside control limits due to possible matrix interference.

Extractables by GCMS By Method D5739-06/8270C SIM

Matrix SO **Batch ID:** OP33312

- All samples were analyzed within the recommended methodwe holding time.
- Sample(s) MC20162-7DUP were used as the QC samples indicated.
- OP33312-DUP for Benzene, C1-Benzene, Methylcyclohexane, Toluene: High RPD due to dilution.
- OP33312-DUP for cis-Decalin, C3-Benzo(b)thiophenes, C1-Fluorenes, C2-Dibenzothiophenes, C1-Fluoranthenes/Pyrenes: High RPD due to sample levels below reporting limit.
- MC20162-3,5,6 for Perylene-d12: Outside control limits due to dilution.
- MC20162-3 for Phenanthrene-d10: Outside control limits due to dilution.

Extractables by GC By Method ASTM D3328-06

Matrix SO	**Batch ID:** OP32967

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- Sample(s) MC20162-1DUP were used as the QC samples indicated.
- Sample(s) MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6 have compound(s) reported with a “B” qualifier, indicating analyte is found in the associated method blank.
- RPD(s) for Duplicate for 2,6,10-trimethyldodecane (1380), 2,6,10-trimethylpentadecane (1650), C-15, C-16, C-17, C-18, C-19, C-20, Phytane, Pristane are outside control limits for sample OP32967-DUP. High RPD due to possible matrix interference and/or sample non-homogeneity.

Matrix SO	**Batch ID:** OP33310

- All samples were extracted within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) MC20162-7DUP were used as the QC samples indicated.
- RPD(s) for Duplicate for C-20 are outside control limits for sample OP33310-DUP. High RPD due to sample levels below reporting limit.

The Accutest Laboratories of New England certifies that all analysis were performed within method specification. It is further recommended that this report to be used in its entirety.The Accutest Laboratories of NE, Laboratory Director or assignee as verified by the signature on the cover page has authorized the release of this report(MC20162).

Summary of Hits

Job Number: MC20162
Account: City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ
Collected: 04/22/13 thru 05/20/13

3

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
MC20162-1	**PCM-516A**					
Benzene		12200000	68000	34000	ug/kg	D5739-06/8270C SIM
C1-Benzene		33300000	68000	34000	ug/kg	D5739-06/8270C SIM
C2-Benzenes		40200000	68000	34000	ug/kg	D5739-06/8270C SIM
C3-Benzenes		33000000	68000	34000	ug/kg	D5739-06/8270C SIM
C4-Benzenes		14500000	68000	34000	ug/kg	D5739-06/8270C SIM
C5-Benzenes		4030000	68000	34000	ug/kg	D5739-06/8270C SIM
Methylcyclohexane		12100000	68000	34000	ug/kg	D5739-06/8270C SIM
Toluene		60700000	68000	34000	ug/kg	D5739-06/8270C SIM
Ethylbenzene		18200000	68000	34000	ug/kg	D5739-06/8270C SIM
m,p-Xylene		60600000	68000	34000	ug/kg	D5739-06/8270C SIM
o-Xylene		22700000	68000	34000	ug/kg	D5739-06/8270C SIM
Isopropylbenzene		1360000	68000	34000	ug/kg	D5739-06/8270C SIM
n-Propylbenzene		5260000	68000	34000	ug/kg	D5739-06/8270C SIM
1,3,5-Trimethylbenzene		9200000	68000	34000	ug/kg	D5739-06/8270C SIM
1,2,3-Trimethylbenzene		5920000	68000	34000	ug/kg	D5739-06/8270C SIM
1,2,4-Trimethylbenzene		29200000	68000	34000	ug/kg	D5739-06/8270C SIM
t-Butylbenzene		3490000	68000	34000	ug/kg	D5739-06/8270C SIM
sec-Butylbenzene		550000	68000	34000	ug/kg	D5739-06/8270C SIM
p-Isopropyltoluene		785000	68000	34000	ug/kg	D5739-06/8270C SIM
n-Butylbenzene		1940000	68000	34000	ug/kg	D5739-06/8270C SIM
trans-Decalin		85700	68000	34000	ug/kg	D5739-06/8270C SIM
cis-Decalin		35300 J	68000	34000	ug/kg	D5739-06/8270C SIM
C1-Decalins		171000	68000	34000	ug/kg	D5739-06/8270C SIM
C2-Decalins		120000	68000	34000	ug/kg	D5739-06/8270C SIM
Benzo(b)thiophene		363000	68000	34000	ug/kg	D5739-06/8270C SIM
C1-Benzo(b)thiophenes		297000	68000	34000	ug/kg	D5739-06/8270C SIM
C2-Benzo(b)thiophenes		67900 J	68000	34000	ug/kg	D5739-06/8270C SIM
Naphthalene		4370000	68000	34000	ug/kg	D5739-06/8270C SIM
2-Methylnaphthalene		3720000	68000	34000	ug/kg	D5739-06/8270C SIM
1-Methylnaphthalene		1650000	68000	34000	ug/kg	D5739-06/8270C SIM
C1-Naphthalenes		3450000	68000	34000	ug/kg	D5739-06/8270C SIM
C2-Naphthalenes		867000	68000	34000	ug/kg	D5739-06/8270C SIM
C3-Naphthalenes		196000	68000	34000	ug/kg	D5739-06/8270C SIM
C4-Naphthalenes		60500 J	68000	34000	ug/kg	D5739-06/8270C SIM
Biphenyl		61200 J	68000	34000	ug/kg	D5739-06/8270C SIM
C1-Phenanthrenes/Anthracenes		37100 J	68000	34000	ug/kg	D5739-06/8270C SIM
Benzo(b)naphtho(2,1-d)thiophene		38000 J	68000	34000	ug/kg	D5739-06/8270C SIM
Chrysene		35500 J	68000	34000	ug/kg	D5739-06/8270C SIM
Benzo(k)fluoranthene		45000 J	68000	34000	ug/kg	D5739-06/8270C SIM
Indeno(1,2,3-cd)pyrene		39300 J	68000	34000	ug/kg	D5739-06/8270C SIM
Dibenzo(a,h)anthracene		46300 J	68000	34000	ug/kg	D5739-06/8270C SIM
Coronene		41700 J	68000	34000	ug/kg	D5739-06/8270C SIM
2,6,10-trimethyldodecane (1380)		40100 J	68000	34000	ug/kg	D5739-06/8270C SIM

Summary of Hits

Job Number: MC20162
Account: City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ
Collected: 04/22/13 thru 05/20/13

3

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
2,6,10-trimethyltridecane (1470)	36200 J	68000	34000	ug/kg	D5739-06/8270C SIM
C-17	46800 J	68000	34000	ug/kg	D5739-06/8270C SIM
Pristane	54900 J	68000	34000	ug/kg	D5739-06/8270C SIM
C-18	39100 J	68000	34000	ug/kg	D5739-06/8270C SIM
Phytane	34500 J	68000	34000	ug/kg	D5739-06/8270C SIM
Tetraethyl lead	275000	68000	34000	ug/kg	D5739-06/8270C SIM
C-8	9960	120	61	mg/kg	ASTM D3328-06
C-9	4250	120	61	mg/kg	ASTM D3328-06
C-10	2170	120	61	mg/kg	ASTM D3328-06
C-11	2160	120	61	mg/kg	ASTM D3328-06
C-12	2270	120	61	mg/kg	ASTM D3328-06
C-13	1030	120	61	mg/kg	ASTM D3328-06
2,6,10-trimethyldodecane (1380)	80.7 J	120	61	mg/kg	ASTM D3328-06
C-14	341	120	61	mg/kg	ASTM D3328-06
2,6,10-trimethyltridecane (1470)	71.5 J	120	61	mg/kg	ASTM D3328-06
C-15	191	120	61	mg/kg	ASTM D3328-06
C-16	147 B	120	61	mg/kg	ASTM D3328-06
C-17	113 JB	120	61	mg/kg	ASTM D3328-06
Pristane	82.2 J	120	61	mg/kg	ASTM D3328-06
C-18	95.1 JB	120	61	mg/kg	ASTM D3328-06
TPH (C8-C40)	660000	12000	6100	mg/kg	ASTM D3328-06
MC20162-2 PCM-510B					
Methyl Tert Butyl Ether	26200	830	120	ug/kg	SW846 8260B
Benzene	321000	64000	32000	ug/kg	D5739-06/8270C SIM
C1-Benzene	8940000	64000	32000	ug/kg	D5739-06/8270C SIM
C2-Benzenes	63800000	64000	32000	ug/kg	D5739-06/8270C SIM
C3-Benzenes	78500000	64000	32000	ug/kg	D5739-06/8270C SIM
C4-Benzenes	35200000	64000	32000	ug/kg	D5739-06/8270C SIM
C5-Benzenes	8820000	64000	32000	ug/kg	D5739-06/8270C SIM
Methylcyclohexane	2660000	64000	32000	ug/kg	D5739-06/8270C SIM
Toluene	16300000	64000	32000	ug/kg	D5739-06/8270C SIM
Ethylbenzene	24800000	64000	32000	ug/kg	D5739-06/8270C SIM
m,p-Xylene	96500000	64000	32000	ug/kg	D5739-06/8270C SIM
o-Xylene	39600000	64000	32000	ug/kg	D5739-06/8270C SIM
Isopropylbenzene	2720000	64000	32000	ug/kg	D5739-06/8270C SIM
n-Propylbenzene	12500000	64000	32000	ug/kg	D5739-06/8270C SIM
1,3,5-Trimethylbenzene	23200000	64000	32000	ug/kg	D5739-06/8270C SIM
1,2,3-Trimethylbenzene	13700000	64000	32000	ug/kg	D5739-06/8270C SIM
1,2,4-Trimethylbenzene	69000000	64000	32000	ug/kg	D5739-06/8270C SIM
t-Butylbenzene	8240000	64000	32000	ug/kg	D5739-06/8270C SIM
sec-Butylbenzene	1470000	64000	32000	ug/kg	D5739-06/8270C SIM
p-Isopropyltoluene	1800000	64000	32000	ug/kg	D5739-06/8270C SIM
n-Butylbenzene	5300000	64000	32000	ug/kg	D5739-06/8270C SIM

Summary of Hits

Job Number: MC20162
Account: City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ
Collected: 04/22/13 thru 05/20/13

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
trans-Decalin	108000	64000	32000	ug/kg	D5739-06/8270C SIM
cis-Decalin	75800	64000	32000	ug/kg	D5739-06/8270C SIM
C1-Decalins	233000	64000	32000	ug/kg	D5739-06/8270C SIM
C2-Decalins	165000	64000	32000	ug/kg	D5739-06/8270C SIM
Benzo(b)thiophene	432000	64000	32000	ug/kg	D5739-06/8270C SIM
C1-Benzo(b)thiophenes	425000	64000	32000	ug/kg	D5739-06/8270C SIM
C2-Benzo(b)thiophenes	66200	64000	32000	ug/kg	D5739-06/8270C SIM
Naphthalene	8260000	64000	32000	ug/kg	D5739-06/8270C SIM
2-Methylnaphthalene	6950000	64000	32000	ug/kg	D5739-06/8270C SIM
1-Methylnaphthalene	3200000	64000	32000	ug/kg	D5739-06/8270C SIM
C1-Naphthalenes	6500000	64000	32000	ug/kg	D5739-06/8270C SIM
C2-Naphthalenes	1830000	64000	32000	ug/kg	D5739-06/8270C SIM
C3-Naphthalenes	456000	64000	32000	ug/kg	D5739-06/8270C SIM
C4-Naphthalenes	115000	64000	32000	ug/kg	D5739-06/8270C SIM
Biphenyl	215000	64000	32000	ug/kg	D5739-06/8270C SIM
C1-Fluorenes	35800 J	64000	32000	ug/kg	D5739-06/8270C SIM
C2-Fluorenes	56600 J	64000	32000	ug/kg	D5739-06/8270C SIM
Phenanthrene	59700 J	64000	32000	ug/kg	D5739-06/8270C SIM
C1-Phenanthrenes/Anthracenes	84900	64000	32000	ug/kg	D5739-06/8270C SIM
C2-Phenanthrenes/Anthracenes	55400 J	64000	32000	ug/kg	D5739-06/8270C SIM
2,6,10-trimethyldodecane (1380)	53000 J	64000	32000	ug/kg	D5739-06/8270C SIM
2,6,10-trimethyltridecane (1470)	47600 J	64000	32000	ug/kg	D5739-06/8270C SIM
C-17	45400 J	64000	32000	ug/kg	D5739-06/8270C SIM
Pristane	45300 J	64000	32000	ug/kg	D5739-06/8270C SIM
C-18	33700 J	64000	32000	ug/kg	D5739-06/8270C SIM
Tetraethyl lead	291000	64000	32000	ug/kg	D5739-06/8270C SIM
C-8	11900	130	67	mg/kg	ASTM D3328-06
C-9	9480	130	67	mg/kg	ASTM D3328-06
C-10	4130	130	67	mg/kg	ASTM D3328-06
C-11	4170	130	67	mg/kg	ASTM D3328-06
C-12	3490	130	67	mg/kg	ASTM D3328-06
C-13	1160	130	67	mg/kg	ASTM D3328-06
2,6,10-trimethyldodecane (1380)	81.4 J	130	67	mg/kg	ASTM D3328-06
C-14	441	130	67	mg/kg	ASTM D3328-06
2,6,10-trimethyltridecane (1470)	82.6 J	130	67	mg/kg	ASTM D3328-06
C-15	233	130	67	mg/kg	ASTM D3328-06
C-16	171 B	130	67	mg/kg	ASTM D3328-06
C-17	127 JB	130	67	mg/kg	ASTM D3328-06
Pristane	102 J	130	67	mg/kg	ASTM D3328-06
C-18	85.2 JB	130	67	mg/kg	ASTM D3328-06
TPH (C8-C40)	830000	13000	6700	mg/kg	ASTM D3328-06
MC20162-3 PCM-512A					
Methyl Tert Butyl Ether	173000	980	140	ug/kg	SW846 8260B

Summary of Hits

Job Number: MC20162
Account: City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ
Collected: 04/22/13 thru 05/20/13

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Benzene	3220000	65000	32000	ug/kg	D5739-06/8270C SIM
C1-Benzene	8250000	65000	32000	ug/kg	D5739-06/8270C SIM
C2-Benzenes	46500000	65000	32000	ug/kg	D5739-06/8270C SIM
C3-Benzenes	52500000	65000	32000	ug/kg	D5739-06/8270C SIM
C4-Benzenes	23500000	65000	32000	ug/kg	D5739-06/8270C SIM
C5-Benzenes	6010000	65000	32000	ug/kg	D5739-06/8270C SIM
Methylcyclohexane	11300000	65000	32000	ug/kg	D5739-06/8270C SIM
Toluene	15000000	65000	32000	ug/kg	D5739-06/8270C SIM
Ethylbenzene	17900000	65000	32000	ug/kg	D5739-06/8270C SIM
m,p-Xylene	72500000	65000	32000	ug/kg	D5739-06/8270C SIM
o-Xylene	26700000	65000	32000	ug/kg	D5739-06/8270C SIM
Isopropylbenzene	1850000	65000	32000	ug/kg	D5739-06/8270C SIM
n-Propylbenzene	7870000	65000	32000	ug/kg	D5739-06/8270C SIM
1,3,5-Trimethylbenzene	15800000	65000	32000	ug/kg	D5739-06/8270C SIM
1,2,3-Trimethylbenzene	9180000	65000	32000	ug/kg	D5739-06/8270C SIM
1,2,4-Trimethylbenzene	46100000	65000	32000	ug/kg	D5739-06/8270C SIM
t-Butylbenzene	5500000	65000	32000	ug/kg	D5739-06/8270C SIM
sec-Butylbenzene	926000	65000	32000	ug/kg	D5739-06/8270C SIM
p-Isopropyltoluene	1240000	65000	32000	ug/kg	D5739-06/8270C SIM
n-Butylbenzene	3470000	65000	32000	ug/kg	D5739-06/8270C SIM
trans-Decalin	97000	65000	32000	ug/kg	D5739-06/8270C SIM
cis-Decalin	44600 J	65000	32000	ug/kg	D5739-06/8270C SIM
C1-Decalins	180000	65000	32000	ug/kg	D5739-06/8270C SIM
C2-Decalins	118000	65000	32000	ug/kg	D5739-06/8270C SIM
Benzo(b)thiophene	308000	65000	32000	ug/kg	D5739-06/8270C SIM
C1-Benzo(b)thiophenes	303000	65000	32000	ug/kg	D5739-06/8270C SIM
C2-Benzo(b)thiophenes	60200 J	65000	32000	ug/kg	D5739-06/8270C SIM
Naphthalene	5270000	65000	32000	ug/kg	D5739-06/8270C SIM
2-Methylnaphthalene	4420000	65000	32000	ug/kg	D5739-06/8270C SIM
1-Methylnaphthalene	2010000	65000	32000	ug/kg	D5739-06/8270C SIM
C1-Naphthalenes	4160000	65000	32000	ug/kg	D5739-06/8270C SIM
C2-Naphthalenes	1150000	65000	32000	ug/kg	D5739-06/8270C SIM
C3-Naphthalenes	279000	65000	32000	ug/kg	D5739-06/8270C SIM
C4-Naphthalenes	62200 J	65000	32000	ug/kg	D5739-06/8270C SIM
Biphenyl	124000	65000	32000	ug/kg	D5739-06/8270C SIM
Phenanthrene	41600 J	65000	32000	ug/kg	D5739-06/8270C SIM
C1-Phenanthrenes/Anthracenes	50400 J	65000	32000	ug/kg	D5739-06/8270C SIM
C2-Phenanthrenes/Anthracenes	35500 J	65000	32000	ug/kg	D5739-06/8270C SIM
C-17	37000 J	65000	32000	ug/kg	D5739-06/8270C SIM
Pristane	32100 J	65000	32000	ug/kg	D5739-06/8270C SIM
Tetraethyl lead	403000	65000	32000	ug/kg	D5739-06/8270C SIM
C-8	15000	150	77	mg/kg	ASTM D3328-06
C-9	7880	150	77	mg/kg	ASTM D3328-06
C-10	3040	150	77	mg/kg	ASTM D3328-06
C-11	3770	150	77	mg/kg	ASTM D3328-06

Summary of Hits

Job Number: MC20162
Account: City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ
Collected: 04/22/13 thru 05/20/13

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
C-12		2960	150	77	mg/kg	ASTM D3328-06
C-13		989	150	77	mg/kg	ASTM D3328-06
C-14		348	150	77	mg/kg	ASTM D3328-06
C-15		180	150	77	mg/kg	ASTM D3328-06
C-16		129 JB	150	77	mg/kg	ASTM D3328-06
C-17		92.5 JB	150	77	mg/kg	ASTM D3328-06
TPH (C8-C40)		768000	15000	7700	mg/kg	ASTM D3328-06
MC20162-4	**WR-220A**					
Benzene		5780000	67000	33000	ug/kg	D5739-06/8270C SIM
C1-Benzene		25600000	67000	33000	ug/kg	D5739-06/8270C SIM
C2-Benzenes		37700000	67000	33000	ug/kg	D5739-06/8270C SIM
C3-Benzenes		33900000	67000	33000	ug/kg	D5739-06/8270C SIM
C4-Benzenes		14800000	67000	33000	ug/kg	D5739-06/8270C SIM
C5-Benzenes		4150000	67000	33000	ug/kg	D5739-06/8270C SIM
Methylcyclohexane		10600000	67000	33000	ug/kg	D5739-06/8270C SIM
Toluene		46600000	67000	33000	ug/kg	D5739-06/8270C SIM
Ethylbenzene		17200000	67000	33000	ug/kg	D5739-06/8270C SIM
m,p-Xylene		55500000	67000	33000	ug/kg	D5739-06/8270C SIM
o-Xylene		22600000	67000	33000	ug/kg	D5739-06/8270C SIM
Isopropylbenzene		1410000	67000	33000	ug/kg	D5739-06/8270C SIM
n-Propylbenzene		5360000	67000	33000	ug/kg	D5739-06/8270C SIM
1,3,5-Trimethylbenzene		9560000	67000	33000	ug/kg	D5739-06/8270C SIM
1,2,3-Trimethylbenzene		6060000	67000	33000	ug/kg	D5739-06/8270C SIM
1,2,4-Trimethylbenzene		30100000	67000	33000	ug/kg	D5739-06/8270C SIM
t-Butylbenzene		3590000	67000	33000	ug/kg	D5739-06/8270C SIM
sec-Butylbenzene		588000	67000	33000	ug/kg	D5739-06/8270C SIM
p-Isopropyltoluene		822000	67000	33000	ug/kg	D5739-06/8270C SIM
n-Butylbenzene		2040000	67000	33000	ug/kg	D5739-06/8270C SIM
trans-Decalin		78700	67000	33000	ug/kg	D5739-06/8270C SIM
C1-Decalins		151000	67000	33000	ug/kg	D5739-06/8270C SIM
C2-Decalins		131000	67000	33000	ug/kg	D5739-06/8270C SIM
Benzo(b)thiophene		235000	67000	33000	ug/kg	D5739-06/8270C SIM
C1-Benzo(b)thiophenes		269000	67000	33000	ug/kg	D5739-06/8270C SIM
C2-Benzo(b)thiophenes		52100 J	67000	33000	ug/kg	D5739-06/8270C SIM
Naphthalene		4030000	67000	33000	ug/kg	D5739-06/8270C SIM
2-Methylnaphthalene		3520000	67000	33000	ug/kg	D5739-06/8270C SIM
1-Methylnaphthalene		1650000	67000	33000	ug/kg	D5739-06/8270C SIM
C1-Naphthalenes		3380000	67000	33000	ug/kg	D5739-06/8270C SIM
C2-Naphthalenes		845000	67000	33000	ug/kg	D5739-06/8270C SIM
C3-Naphthalenes		183000	67000	33000	ug/kg	D5739-06/8270C SIM
C4-Naphthalenes		39700 J	67000	33000	ug/kg	D5739-06/8270C SIM
Biphenyl		61000 J	67000	33000	ug/kg	D5739-06/8270C SIM
Tetraethyl lead		152000	67000	33000	ug/kg	D5739-06/8270C SIM

Summary of Hits

Job Number: MC20162
Account: City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ
Collected: 04/22/13 thru 05/20/13

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Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
C-8	11200	170	86	mg/kg	ASTM D3328-06
C-9	4910	170	86	mg/kg	ASTM D3328-06
C-10	2440	170	86	mg/kg	ASTM D3328-06
C-11	2260	170	86	mg/kg	ASTM D3328-06
C-12	2180	170	86	mg/kg	ASTM D3328-06
C-13	1060	170	86	mg/kg	ASTM D3328-06
2,6,10-trimethyldodecane (1380)	91.7 J	170	86	mg/kg	ASTM D3328-06
C-14	339	170	86	mg/kg	ASTM D3328-06
C-15	179	170	86	mg/kg	ASTM D3328-06
C-16	127 JB	170	86	mg/kg	ASTM D3328-06
C-17	88.9 JB	170	86	mg/kg	ASTM D3328-06
TPH (C8-C40)	739000	17000	8600	mg/kg	ASTM D3328-06
MC20162-5 R-047A					
Methyl Tert Butyl Ether	93500	1100	150	ug/kg	SW846 8260B
Benzene	491000	60000	30000	ug/kg	D5739-06/8270C SIM
C1-Benzene	1390000	60000	30000	ug/kg	D5739-06/8270C SIM
C2-Benzenes	37900000	60000	30000	ug/kg	D5739-06/8270C SIM
C3-Benzenes	66400000	60000	30000	ug/kg	D5739-06/8270C SIM
C4-Benzenes	36600000	60000	30000	ug/kg	D5739-06/8270C SIM
C5-Benzenes	10400000	60000	30000	ug/kg	D5739-06/8270C SIM
Methylcyclohexane	3220000	60000	30000	ug/kg	D5739-06/8270C SIM
Toluene	2510000	60000	30000	ug/kg	D5739-06/8270C SIM
Ethylbenzene	3930000	60000	30000	ug/kg	D5739-06/8270C SIM
m,p-Xylene	63500000	60000	30000	ug/kg	D5739-06/8270C SIM
o-Xylene	26300000	60000	30000	ug/kg	D5739-06/8270C SIM
Isopropylbenzene	788000	60000	30000	ug/kg	D5739-06/8270C SIM
n-Propylbenzene	3320000	60000	30000	ug/kg	D5739-06/8270C SIM
1,3,5-Trimethylbenzene	22800000	60000	30000	ug/kg	D5739-06/8270C SIM
1,2,3-Trimethylbenzene	13600000	60000	30000	ug/kg	D5739-06/8270C SIM
1,2,4-Trimethylbenzene	59000000	60000	30000	ug/kg	D5739-06/8270C SIM
t-Butylbenzene	7080000	60000	30000	ug/kg	D5739-06/8270C SIM
sec-Butylbenzene	913000	60000	30000	ug/kg	D5739-06/8270C SIM
p-Isopropyltoluene	2010000	60000	30000	ug/kg	D5739-06/8270C SIM
n-Butylbenzene	3730000	60000	30000	ug/kg	D5739-06/8270C SIM
trans-Decalin	174000	60000	30000	ug/kg	D5739-06/8270C SIM
cis-Decalin	86400	60000	30000	ug/kg	D5739-06/8270C SIM
C1-Decalins	377000	60000	30000	ug/kg	D5739-06/8270C SIM
C2-Decalins	223000	60000	30000	ug/kg	D5739-06/8270C SIM
Benzo(b)thiophene	540000	60000	30000	ug/kg	D5739-06/8270C SIM
C1-Benzo(b)thiophenes	650000	60000	30000	ug/kg	D5739-06/8270C SIM
C2-Benzo(b)thiophenes	120000	60000	30000	ug/kg	D5739-06/8270C SIM
Naphthalene	8130000	60000	30000	ug/kg	D5739-06/8270C SIM
2-Methylnaphthalene	8230000	60000	30000	ug/kg	D5739-06/8270C SIM

Summary of Hits

Job Number: MC20162
Account: City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ
Collected: 04/22/13 thru 05/20/13

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Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
1-Methylnaphthalene	3780000	60000	30000	ug/kg	D5739-06/8270C SIM
C1-Naphthalenes	7630000	60000	30000	ug/kg	D5739-06/8270C SIM
C2-Naphthalenes	2070000	60000	30000	ug/kg	D5739-06/8270C SIM
C3-Naphthalenes	479000	60000	30000	ug/kg	D5739-06/8270C SIM
C4-Naphthalenes	131000	60000	30000	ug/kg	D5739-06/8270C SIM
Biphenyl	174000	60000	30000	ug/kg	D5739-06/8270C SIM
C1-Fluorenes	34300 J	60000	30000	ug/kg	D5739-06/8270C SIM
C2-Fluorenes	50200 J	60000	30000	ug/kg	D5739-06/8270C SIM
Phenanthrene	55000 J	60000	30000	ug/kg	D5739-06/8270C SIM
C1-Phenanthrenes/Anthracenes	81600	60000	30000	ug/kg	D5739-06/8270C SIM
C2-Phenanthrenes/Anthracenes	54400 J	60000	30000	ug/kg	D5739-06/8270C SIM
2,6,10-trimethyldodecane (1380)	96300	60000	30000	ug/kg	D5739-06/8270C SIM
2,6,10-trimethyltridecane (1470)	77200	60000	30000	ug/kg	D5739-06/8270C SIM
2,6,10-trimethylpentadecane (1650)	32300 J	60000	30000	ug/kg	D5739-06/8270C SIM
C-17	75100	60000	30000	ug/kg	D5739-06/8270C SIM
Pristane	74500	60000	30000	ug/kg	D5739-06/8270C SIM
C-18	53800 J	60000	30000	ug/kg	D5739-06/8270C SIM
Phytane	56500 J	60000	30000	ug/kg	D5739-06/8270C SIM
Tetraethyl lead	382000	60000	30000	ug/kg	D5739-06/8270C SIM
C-8	11100	130	65	mg/kg	ASTM D3328-06
C-9	10100	130	65	mg/kg	ASTM D3328-06
C-10	4730	130	65	mg/kg	ASTM D3328-06
C-11	5510	130	65	mg/kg	ASTM D3328-06
C-12	4910	130	65	mg/kg	ASTM D3328-06
C-13	2270	130	65	mg/kg	ASTM D3328-06
2,6,10-trimethyldodecane (1380)	142	130	65	mg/kg	ASTM D3328-06
C-14	725	130	65	mg/kg	ASTM D3328-06
2,6,10-trimethyltridecane (1470)	143	130	65	mg/kg	ASTM D3328-06
C-15	378	130	65	mg/kg	ASTM D3328-06
C-16	269 B	130	65	mg/kg	ASTM D3328-06
2,6,10-trimethylpentadecane (1650)	94.6 J	130	65	mg/kg	ASTM D3328-06
C-17	207 B	130	65	mg/kg	ASTM D3328-06
Pristane	157	130	65	mg/kg	ASTM D3328-06
C-18	128 JB	130	65	mg/kg	ASTM D3328-06
Phytane	70.9 J	130	65	mg/kg	ASTM D3328-06
C-19	98.3 J	130	65	mg/kg	ASTM D3328-06
C-20	65.1 J	130	65	mg/kg	ASTM D3328-06
TPH (C8-C40)	822000	13000	6500	mg/kg	ASTM D3328-06
MC20162-6 R-027A					
Methyl Tert Butyl Ether	37400	770	110	ug/kg	SW846 8260B
Benzene	7860000	96000	48000	ug/kg	D5739-06/8270C SIM
C1-Benzene	26600000	96000	48000	ug/kg	D5739-06/8270C SIM
C2-Benzenes	45900000	96000	48000	ug/kg	D5739-06/8270C SIM

Summary of Hits

Job Number: MC20162
Account: City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ
Collected: 04/22/13 thru 05/20/13

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Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
C3-Benzenes	41900000	96000	48000	ug/kg	D5739-06/8270C SIM
C4-Benzenes	19800000	96000	48000	ug/kg	D5739-06/8270C SIM
C5-Benzenes	5840000	96000	48000	ug/kg	D5739-06/8270C SIM
Methylcyclohexane	6560000	96000	48000	ug/kg	D5739-06/8270C SIM
Toluene	48300000	96000	48000	ug/kg	D5739-06/8270C SIM
Ethylbenzene	21200000	96000	48000	ug/kg	D5739-06/8270C SIM
m,p-Xylene	68200000	96000	48000	ug/kg	D5739-06/8270C SIM
o-Xylene	25800000	96000	48000	ug/kg	D5739-06/8270C SIM
Isopropylbenzene	1850000	96000	48000	ug/kg	D5739-06/8270C SIM
n-Propylbenzene	6910000	96000	48000	ug/kg	D5739-06/8270C SIM
1,3,5-Trimethylbenzene	11400000	96000	48000	ug/kg	D5739-06/8270C SIM
1,2,3-Trimethylbenzene	7400000	96000	48000	ug/kg	D5739-06/8270C SIM
1,2,4-Trimethylbenzene	35900000	96000	48000	ug/kg	D5739-06/8270C SIM
t-Butylbenzene	4300000	96000	48000	ug/kg	D5739-06/8270C SIM
sec-Butylbenzene	853000	96000	48000	ug/kg	D5739-06/8270C SIM
p-Isopropyltoluene	1110000	96000	48000	ug/kg	D5739-06/8270C SIM
n-Butylbenzene	2720000	96000	48000	ug/kg	D5739-06/8270C SIM
trans-Decalin	106000	96000	48000	ug/kg	D5739-06/8270C SIM
C1-Decalins	190000	96000	48000	ug/kg	D5739-06/8270C SIM
C2-Decalins	217000	96000	48000	ug/kg	D5739-06/8270C SIM
Benzo(b)thiophene	369000	96000	48000	ug/kg	D5739-06/8270C SIM
C1-Benzo(b)thiophenes	484000	96000	48000	ug/kg	D5739-06/8270C SIM
C2-Benzo(b)thiophenes	103000	96000	48000	ug/kg	D5739-06/8270C SIM
Naphthalene	5180000	96000	48000	ug/kg	D5739-06/8270C SIM
2-Methylnaphthalene	5270000	96000	48000	ug/kg	D5739-06/8270C SIM
1-Methylnaphthalene	2520000	96000	48000	ug/kg	D5739-06/8270C SIM
C1-Naphthalenes	5110000	96000	48000	ug/kg	D5739-06/8270C SIM
C2-Naphthalenes	1360000	96000	48000	ug/kg	D5739-06/8270C SIM
C3-Naphthalenes	302000	96000	48000	ug/kg	D5739-06/8270C SIM
C4-Naphthalenes	101000	96000	48000	ug/kg	D5739-06/8270C SIM
Biphenyl	109000	96000	48000	ug/kg	D5739-06/8270C SIM
C1-Phenanthrenes/Anthracenes	54200 J	96000	48000	ug/kg	D5739-06/8270C SIM
2,6,10-trimethyldodecane (1380)	54600 J	96000	48000	ug/kg	D5739-06/8270C SIM
2,6,10-trimethyltridecane (1470)	55700 J	96000	48000	ug/kg	D5739-06/8270C SIM
C-17	68100 J	96000	48000	ug/kg	D5739-06/8270C SIM
Pristane	115000	96000	48000	ug/kg	D5739-06/8270C SIM
C-18	49500 J	96000	48000	ug/kg	D5739-06/8270C SIM
Phytane	57100 J	96000	48000	ug/kg	D5739-06/8270C SIM
C-8	9650	140	69	mg/kg	ASTM D3328-06
C-9	5270	140	69	mg/kg	ASTM D3328-06
C-10	2540	140	69	mg/kg	ASTM D3328-06
C-11	2580	140	69	mg/kg	ASTM D3328-06
C-12	3060	140	69	mg/kg	ASTM D3328-06
C-13	1800	140	69	mg/kg	ASTM D3328-06
2,6,10-trimethyldodecane (1380)	143	140	69	mg/kg	ASTM D3328-06

Summary of Hits

Job Number: MC20162
Account: City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ
Collected: 04/22/13 thru 05/20/13

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
C-14	740	140	69	mg/kg	ASTM D3328-06
2,6,10-trimethyltridecane (1470)	150	140	69	mg/kg	ASTM D3328-06
C-15	434	140	69	mg/kg	ASTM D3328-06
C-16	334 B	140	69	mg/kg	ASTM D3328-06
2,6,10-trimethylpentadecane (1650)	138 J	140	69	mg/kg	ASTM D3328-06
C-17	272 B	140	69	mg/kg	ASTM D3328-06
Pristane	210	140	69	mg/kg	ASTM D3328-06
C-18	188 B	140	69	mg/kg	ASTM D3328-06
Phytane	103 J	140	69	mg/kg	ASTM D3328-06
C-19	3610	140	69	mg/kg	ASTM D3328-06
C-20	84.7 J	140	69	mg/kg	ASTM D3328-06
TPH (C8-C40)	743000	14000	6900	mg/kg	ASTM D3328-06
MC20162-7 R-027A					
Methyl Tert Butyl Ether	32900	890	130	ug/kg	SW846 8260B
Benzene	7560000	70000	35000	ug/kg	D5739-06/8270C SIM
C1-Benzene	26600000	70000	35000	ug/kg	D5739-06/8270C SIM
C2-Benzenes	48200000	70000	35000	ug/kg	D5739-06/8270C SIM
C3-Benzenes	44300000	70000	35000	ug/kg	D5739-06/8270C SIM
C4-Benzenes	20800000	70000	35000	ug/kg	D5739-06/8270C SIM
C5-Benzenes	6080000	70000	35000	ug/kg	D5739-06/8270C SIM
Methylcyclohexane	6140000	70000	35000	ug/kg	D5739-06/8270C SIM
Toluene	48500000	70000	35000	ug/kg	D5739-06/8270C SIM
Ethylbenzene	22700000	70000	35000	ug/kg	D5739-06/8270C SIM
m,p-Xylene	72000000	70000	35000	ug/kg	D5739-06/8270C SIM
o-Xylene	27300000	70000	35000	ug/kg	D5739-06/8270C SIM
Isopropylbenzene	1990000	70000	35000	ug/kg	D5739-06/8270C SIM
n-Propylbenzene	7500000	70000	35000	ug/kg	D5739-06/8270C SIM
1,3,5-Trimethylbenzene	12100000	70000	35000	ug/kg	D5739-06/8270C SIM
1,2,3-Trimethylbenzene	7900000	70000	35000	ug/kg	D5739-06/8270C SIM
1,2,4-Trimethylbenzene	38200000	70000	35000	ug/kg	D5739-06/8270C SIM
t-Butylbenzene	4570000	70000	35000	ug/kg	D5739-06/8270C SIM
sec-Butylbenzene	910000	70000	35000	ug/kg	D5739-06/8270C SIM
p-Isopropyltoluene	1170000	70000	35000	ug/kg	D5739-06/8270C SIM
n-Butylbenzene	2990000	70000	35000	ug/kg	D5739-06/8270C SIM
trans-Decalin	108000	70000	35000	ug/kg	D5739-06/8270C SIM
cis-Decalin	38200 J	70000	35000	ug/kg	D5739-06/8270C SIM
C1-Decalins	207000	70000	35000	ug/kg	D5739-06/8270C SIM
C2-Decalins	155000	70000	35000	ug/kg	D5739-06/8270C SIM
Benzo(b)thiophene	521000	70000	35000	ug/kg	D5739-06/8270C SIM
C1-Benzo(b)thiophenes	544000	70000	35000	ug/kg	D5739-06/8270C SIM
C2-Benzo(b)thiophenes	135000	70000	35000	ug/kg	D5739-06/8270C SIM
C3-Benzo(b)thiophenes	37400 J	70000	35000	ug/kg	D5739-06/8270C SIM
Naphthalene	5670000	70000	35000	ug/kg	D5739-06/8270C SIM

Summary of Hits

Job Number: MC20162
Account: City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ
Collected: 04/22/13 thru 05/20/13

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Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
2-Methylnaphthalene	6170000	70000	35000	ug/kg	D5739-06/8270C SIM
1-Methylnaphthalene	2790000	70000	35000	ug/kg	D5739-06/8270C SIM
C1-Naphthalenes	5740000	70000	35000	ug/kg	D5739-06/8270C SIM
C2-Naphthalenes	1540000	70000	35000	ug/kg	D5739-06/8270C SIM
C3-Naphthalenes	392000	70000	35000	ug/kg	D5739-06/8270C SIM
C4-Naphthalenes	134000	70000	35000	ug/kg	D5739-06/8270C SIM
Biphenyl	96100	70000	35000	ug/kg	D5739-06/8270C SIM
C1-Fluorenes	42000 J	70000	35000	ug/kg	D5739-06/8270C SIM
C2-Fluorenes	68200 J	70000	35000	ug/kg	D5739-06/8270C SIM
C2-Dibenzothiophenes	36100 J	70000	35000	ug/kg	D5739-06/8270C SIM
Phenanthrene	49000 J	70000	35000	ug/kg	D5739-06/8270C SIM
C1-Phenanthrenes/Anthracenes	91800	70000	35000	ug/kg	D5739-06/8270C SIM
C2-Phenanthrenes/Anthracenes	63500 J	70000	35000	ug/kg	D5739-06/8270C SIM
C1-Fluoranthenes/Pyrenes	35200 J	70000	35000	ug/kg	D5739-06/8270C SIM
2,6,10-trimethyldodecane (1380)	79900	70000	35000	ug/kg	D5739-06/8270C SIM
2,6,10-trimethyltridecane (1470)	97500	70000	35000	ug/kg	D5739-06/8270C SIM
2,6,10-trimethylpentadecane (1650)	66700 J	70000	35000	ug/kg	D5739-06/8270C SIM
C-17	173000	70000	35000	ug/kg	D5739-06/8270C SIM
Pristane	135000	70000	35000	ug/kg	D5739-06/8270C SIM
C-18	140000	70000	35000	ug/kg	D5739-06/8270C SIM
Phytane	86100	70000	35000	ug/kg	D5739-06/8270C SIM
C-8	9030	140	70	mg/kg	ASTM D3328-06
C-9	5150	140	70	mg/kg	ASTM D3328-06
C-10	2590	140	70	mg/kg	ASTM D3328-06
C-11	2510	140	70	mg/kg	ASTM D3328-06
C-12	2640	140	70	mg/kg	ASTM D3328-06
C-13	1640	140	70	mg/kg	ASTM D3328-06
2,6,10-trimethyldodecane (1380)	119 J	140	70	mg/kg	ASTM D3328-06
C-14	645	140	70	mg/kg	ASTM D3328-06
2,6,10-trimethyltridecane (1470)	137 J	140	70	mg/kg	ASTM D3328-06
C-15	371	140	70	mg/kg	ASTM D3328-06
C-16	286	140	70	mg/kg	ASTM D3328-06
2,6,10-trimethylpentadecane (1650)	112 J	140	70	mg/kg	ASTM D3328-06
C-17	230	140	70	mg/kg	ASTM D3328-06
Pristane	177	140	70	mg/kg	ASTM D3328-06
C-18	165	140	70	mg/kg	ASTM D3328-06
Phytane	86.0 J	140	70	mg/kg	ASTM D3328-06
C-20	71.9 J	140	70	mg/kg	ASTM D3328-06
TPH (C8-C40)	688000	14000	7000	mg/kg	ASTM D3328-06
MC20162-8 R-031A					
Methyl Tert Butyl Ether	111000	980	140	ug/kg	SW846 8260B
Benzene	11300000	54000	27000	ug/kg	D5739-06/8270C SIM
C1-Benzene	26400000	54000	27000	ug/kg	D5739-06/8270C SIM

Summary of Hits

Job Number: MC20162
Account: City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ
Collected: 04/22/13 thru 05/20/13

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
C2-Benzenes	43500000	54000	27000	ug/kg	D5739-06/8270C SIM
C3-Benzenes	39400000	54000	27000	ug/kg	D5739-06/8270C SIM
C4-Benzenes	19000000	54000	27000	ug/kg	D5739-06/8270C SIM
C5-Benzenes	5660000	54000	27000	ug/kg	D5739-06/8270C SIM
Methylcyclohexane	6840000	54000	27000	ug/kg	D5739-06/8270C SIM
Toluene	48300000	54000	27000	ug/kg	D5739-06/8270C SIM
Ethylbenzene	21000000	54000	27000	ug/kg	D5739-06/8270C SIM
m,p-Xylene	65000000	54000	27000	ug/kg	D5739-06/8270C SIM
o-Xylene	24200000	54000	27000	ug/kg	D5739-06/8270C SIM
Isopropylbenzene	1800000	54000	27000	ug/kg	D5739-06/8270C SIM
n-Propylbenzene	6940000	54000	27000	ug/kg	D5739-06/8270C SIM
1,3,5-Trimethylbenzene	10800000	54000	27000	ug/kg	D5739-06/8270C SIM
1,2,3-Trimethylbenzene	7050000	54000	27000	ug/kg	D5739-06/8270C SIM
1,2,4-Trimethylbenzene	34000000	54000	27000	ug/kg	D5739-06/8270C SIM
t-Butylbenzene	4080000	54000	27000	ug/kg	D5739-06/8270C SIM
sec-Butylbenzene	828000	54000	27000	ug/kg	D5739-06/8270C SIM
p-Isopropyltoluene	1040000	54000	27000	ug/kg	D5739-06/8270C SIM
n-Butylbenzene	2770000	54000	27000	ug/kg	D5739-06/8270C SIM
trans-Decalin	87800	54000	27000	ug/kg	D5739-06/8270C SIM
cis-Decalin	34200 J	54000	27000	ug/kg	D5739-06/8270C SIM
C1-Decalins	176000	54000	27000	ug/kg	D5739-06/8270C SIM
C2-Decalins	139000	54000	27000	ug/kg	D5739-06/8270C SIM
Benzo(b)thiophene	489000	54000	27000	ug/kg	D5739-06/8270C SIM
C1-Benzo(b)thiophenes	491000	54000	27000	ug/kg	D5739-06/8270C SIM
C2-Benzo(b)thiophenes	104000	54000	27000	ug/kg	D5739-06/8270C SIM
Naphthalene	5420000	54000	27000	ug/kg	D5739-06/8270C SIM
2-Methylnaphthalene	5720000	54000	27000	ug/kg	D5739-06/8270C SIM
1-Methylnaphthalene	2580000	54000	27000	ug/kg	D5739-06/8270C SIM
C1-Naphthalenes	5250000	54000	27000	ug/kg	D5739-06/8270C SIM
C2-Naphthalenes	1380000	54000	27000	ug/kg	D5739-06/8270C SIM
C3-Naphthalenes	306000	54000	27000	ug/kg	D5739-06/8270C SIM
C4-Naphthalenes	82400	54000	27000	ug/kg	D5739-06/8270C SIM
Biphenyl	113000	54000	27000	ug/kg	D5739-06/8270C SIM
C1-Fluorenes	28800 J	54000	27000	ug/kg	D5739-06/8270C SIM
C2-Fluorenes	39500 J	54000	27000	ug/kg	D5739-06/8270C SIM
Phenanthrene	33600 J	54000	27000	ug/kg	D5739-06/8270C SIM
C1-Phenanthrenes/Anthracenes	61800	54000	27000	ug/kg	D5739-06/8270C SIM
C2-Phenanthrenes/Anthracenes	47500 J	54000	27000	ug/kg	D5739-06/8270C SIM
2,6,10-trimethyldodecane (1380)	66800	54000	27000	ug/kg	D5739-06/8270C SIM
2,6,10-trimethyltridecane (1470)	61900	54000	27000	ug/kg	D5739-06/8270C SIM
C-17	88900	54000	27000	ug/kg	D5739-06/8270C SIM
Pristane	77100	54000	27000	ug/kg	D5739-06/8270C SIM
C-18	74400	54000	27000	ug/kg	D5739-06/8270C SIM
Phytane	46900 J	54000	27000	ug/kg	D5739-06/8270C SIM
C-8	8510	110	54	mg/kg	ASTM D3328-06

Summary of Hits

Job Number: MC20162
Account: City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ
Collected: 04/22/13 thru 05/20/13

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
C-9	4600	110	54	mg/kg	ASTM D3328-06
C-10	2070	110	54	mg/kg	ASTM D3328-06
C-11	2080	110	54	mg/kg	ASTM D3328-06
C-12	2450	110	54	mg/kg	ASTM D3328-06
C-13	1270	110	54	mg/kg	ASTM D3328-06
2,6,10-trimethyldodecane (1380)	104 J	110	54	mg/kg	ASTM D3328-06
C-14	526	110	54	mg/kg	ASTM D3328-06
2,6,10-trimethyltridecane (1470)	99.9 J	110	54	mg/kg	ASTM D3328-06
C-15	268	110	54	mg/kg	ASTM D3328-06
C-16	194	110	54	mg/kg	ASTM D3328-06
2,6,10-trimethylpentadecane (1650)	71.5 J	110	54	mg/kg	ASTM D3328-06
C-17	147	110	54	mg/kg	ASTM D3328-06
Pristane	116	110	54	mg/kg	ASTM D3328-06
C-18	100 J	110	54	mg/kg	ASTM D3328-06
TPH (C8-C40)	659000	11000	5400	mg/kg	ASTM D3328-06
MC20162-9 R-047A					
Benzene	449000	65000	32000	ug/kg	D5739-06/8270C SIM
C1-Benzene	1460000	65000	32000	ug/kg	D5739-06/8270C SIM
C2-Benzenes	39900000	65000	32000	ug/kg	D5739-06/8270C SIM
C3-Benzenes	65100000	65000	32000	ug/kg	D5739-06/8270C SIM
C4-Benzenes	35000000	65000	32000	ug/kg	D5739-06/8270C SIM
C5-Benzenes	9960000	65000	32000	ug/kg	D5739-06/8270C SIM
Methylcyclohexane	3460000	65000	32000	ug/kg	D5739-06/8270C SIM
Toluene	2670000	65000	32000	ug/kg	D5739-06/8270C SIM
Ethylbenzene	5200000	65000	32000	ug/kg	D5739-06/8270C SIM
m,p-Xylene	66800000	65000	32000	ug/kg	D5739-06/8270C SIM
o-Xylene	26900000	65000	32000	ug/kg	D5739-06/8270C SIM
Isopropylbenzene	926000	65000	32000	ug/kg	D5739-06/8270C SIM
n-Propylbenzene	3930000	65000	32000	ug/kg	D5739-06/8270C SIM
1,3,5-Trimethylbenzene	21700000	65000	32000	ug/kg	D5739-06/8270C SIM
1,2,3-Trimethylbenzene	13200000	65000	32000	ug/kg	D5739-06/8270C SIM
1,2,4-Trimethylbenzene	58300000	65000	32000	ug/kg	D5739-06/8270C SIM
t-Butylbenzene	6980000	65000	32000	ug/kg	D5739-06/8270C SIM
sec-Butylbenzene	941000	65000	32000	ug/kg	D5739-06/8270C SIM
p-Isopropyltoluene	1920000	65000	32000	ug/kg	D5739-06/8270C SIM
n-Butylbenzene	3100000	65000	32000	ug/kg	D5739-06/8270C SIM
trans-Decalin	161000	65000	32000	ug/kg	D5739-06/8270C SIM
cis-Decalin	90700	65000	32000	ug/kg	D5739-06/8270C SIM
C1-Decalins	328000	65000	32000	ug/kg	D5739-06/8270C SIM
C2-Decalins	246000	65000	32000	ug/kg	D5739-06/8270C SIM
Benzo(b)thiophene	543000	65000	32000	ug/kg	D5739-06/8270C SIM
C1-Benzo(b)thiophenes	639000	65000	32000	ug/kg	D5739-06/8270C SIM
C2-Benzo(b)thiophenes	127000	65000	32000	ug/kg	D5739-06/8270C SIM

Summary of Hits

Job Number: MC20162
Account: City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ
Collected: 04/22/13 thru 05/20/13

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Naphthalene	8000000	65000	32000	ug/kg	D5739-06/8270C SIM
2-Methylnaphthalene	8280000	65000	32000	ug/kg	D5739-06/8270C SIM
1-Methylnaphthalene	3720000	65000	32000	ug/kg	D5739-06/8270C SIM
C1-Naphthalenes	7620000	65000	32000	ug/kg	D5739-06/8270C SIM
C2-Naphthalenes	2120000	65000	32000	ug/kg	D5739-06/8270C SIM
C3-Naphthalenes	530000	65000	32000	ug/kg	D5739-06/8270C SIM
C4-Naphthalenes	153000	65000	32000	ug/kg	D5739-06/8270C SIM
Biphenyl	161000	65000	32000	ug/kg	D5739-06/8270C SIM
Fluorene	34800 J	65000	32000	ug/kg	D5739-06/8270C SIM
C1-Fluorenes	46200 J	65000	32000	ug/kg	D5739-06/8270C SIM
C2-Fluorenes	66400	65000	32000	ug/kg	D5739-06/8270C SIM
Phenanthrene	61900 J	65000	32000	ug/kg	D5739-06/8270C SIM
C1-Phenanthrenes/Anthracenes	109000	65000	32000	ug/kg	D5739-06/8270C SIM
C2-Phenanthrenes/Anthracenes	83200	65000	32000	ug/kg	D5739-06/8270C SIM
2,6,10-trimethyldodecane (1380)	85800	65000	32000	ug/kg	D5739-06/8270C SIM
2,6,10-trimethyltridecane (1470)	93800	65000	32000	ug/kg	D5739-06/8270C SIM
2,6,10-trimethylpentadecane (1650)	33800 J	65000	32000	ug/kg	D5739-06/8270C SIM
C-17	109000	65000	32000	ug/kg	D5739-06/8270C SIM
Pristane	96400	65000	32000	ug/kg	D5739-06/8270C SIM
C-18	86100	65000	32000	ug/kg	D5739-06/8270C SIM
Phytane	65700	65000	32000	ug/kg	D5739-06/8270C SIM
Tetraethyl lead	449000	65000	32000	ug/kg	D5739-06/8270C SIM

New England ACCUTEST LABORATORIES

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	PCM-516A		
Lab Sample ID:	MC20162-1	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K71063.D	1	06/13/13	GK	n/a	n/a	MSK2323
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	1.08 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
1634-04-4	Methyl Tert Butyl Ether	ND	930	130	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-130%
2037-26-5	Toluene-D8	93%		70-130%
460-00-4	4-Bromofluorobenzene	97%		70-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	PCM-516A		
Lab Sample ID:	MC20162-1	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	S32747.D	50	05/28/13	KR	05/24/13	OP33312	MSS1429
Run #2							

	Initial Weight	Final Volume
Run #1	0.0147 g	2.0 ml
Run #2		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	12200000	68000	34000	ug/kg	
	C1-Benzene	33300000	68000	34000	ug/kg	
	C2-Benzenes	40200000	68000	34000	ug/kg	
	C3-Benzenes	33000000	68000	34000	ug/kg	
	C4-Benzenes	14500000	68000	34000	ug/kg	
	C5-Benzenes	4030000	68000	34000	ug/kg	
108-87-2	Methylcyclohexane	12100000	68000	34000	ug/kg	
108-88-3	Toluene	60700000	68000	34000	ug/kg	
100-41-4	Ethylbenzene	18200000	68000	34000	ug/kg	
	m,p-Xylene	60600000	68000	34000	ug/kg	
95-47-6	o-Xylene	22700000	68000	34000	ug/kg	
98-82-8	Isopropylbenzene	1360000	68000	34000	ug/kg	
103-65-1	n-Propylbenzene	5260000	68000	34000	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	9200000	68000	34000	ug/kg	
526-73-8	1,2,3-Trimethylbenzene	5920000	68000	34000	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	29200000	68000	34000	ug/kg	
98-06-6	t-Butylbenzene	3490000	68000	34000	ug/kg	
135-98-8	sec-Butylbenzene	550000	68000	34000	ug/kg	
99-87-6	p-Isopropyltoluene	785000	68000	34000	ug/kg	
104-51-8	n-Butylbenzene	1940000	68000	34000	ug/kg	
493-02-7	trans-Decalin	85700	68000	34000	ug/kg	
493-01-6	cis-Decalin	35300	68000	34000	ug/kg	J
	C1-Decalins	171000	68000	34000	ug/kg	
	C2-Decalins	120000	68000	34000	ug/kg	
	C3-Decalins	ND	68000	34000	ug/kg	
	C4-Decalins	ND	68000	34000	ug/kg	
11095-43-5	Benzo(b)thiophene	363000	68000	34000	ug/kg	
	C1-Benzo(b)thiophenes	297000	68000	34000	ug/kg	
	C2-Benzo(b)thiophenes	67900	68000	34000	ug/kg	J
	C3-Benzo(b)thiophenes	ND	68000	34000	ug/kg	
	C4-Benzo(b)thiophenes	ND	68000	34000	ug/kg	
91-20-3	Naphthalene	4370000	68000	34000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCM-516A		
Lab Sample ID:	MC20162-1	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	3720000	68000	34000	ug/kg	
90-12-0	1-Methylnaphthalene	1650000	68000	34000	ug/kg	
	C1-Naphthalenes	3450000	68000	34000	ug/kg	
	C2-Naphthalenes	867000	68000	34000	ug/kg	
	C3-Naphthalenes	196000	68000	34000	ug/kg	
	C4-Naphthalenes	60500	68000	34000	ug/kg	J
92-52-4	Biphenyl	61200	68000	34000	ug/kg	J
208-96-8	Acenaphthylene	ND	68000	34000	ug/kg	
83-32-9	Acenaphthene	ND	68000	34000	ug/kg	
132-64-9	Dibenzofuran	ND	68000	34000	ug/kg	
86-73-7	Fluorene	ND	68000	34000	ug/kg	
	C1-Fluorenes	ND	68000	34000	ug/kg	
	C2-Fluorenes	ND	68000	34000	ug/kg	
	C3-Fluorenes	ND	68000	34000	ug/kg	
132-65-0	Dibenzothiophene	ND	68000	34000	ug/kg	
	C1-Dibenzothiophenes	ND	68000	34000	ug/kg	
	C2-Dibenzothiophenes	ND	68000	34000	ug/kg	
	C3-Dibenzothiophenes	ND	68000	34000	ug/kg	
	C4-Dibenzothiophenes	ND	68000	34000	ug/kg	
85-01-8	Phenanthrene	ND	68000	34000	ug/kg	
120-12-7	Anthracene	ND	68000	34000	ug/kg	
	C1-Phenanthrenes/Anthracene	37100	68000	34000	ug/kg	J
	C2-Phenanthrenes/Anthracene	ND	68000	34000	ug/kg	
	C3-Phenanthrenes/Anthracene	ND	68000	34000	ug/kg	
	C4-Phenanthrenes/Anthracene	ND	68000	34000	ug/kg	
483-65-8	Retene	ND	68000	34000	ug/kg	
239-35-0	Benzo(b)naphtho(2,1-d)thioph	38000	68000	34000	ug/kg	J
	C1-Benzonaphthothiophenes	ND	68000	34000	ug/kg	
	C2-Benzonaphthothiophenes	ND	68000	34000	ug/kg	
	C3-Benzonaphthothiophenes	ND	68000	34000	ug/kg	
	C4-Benzonaphthothiophenes	ND	68000	34000	ug/kg	
206-44-0	Fluoranthene	ND	68000	34000	ug/kg	
129-00-0	Pyrene	ND	68000	34000	ug/kg	
	C1-Fluoranthenes/Pyrenes	ND	68000	34000	ug/kg	
	C2-Fluoranthenes/Pyrenes	ND	68000	34000	ug/kg	
	C3-Fluoranthenes/Pyrenes	ND	68000	34000	ug/kg	
243-17-4	Benzo(b)fluorene	ND	68000	34000	ug/kg	
205-12-9	Benzo(c)fluorene	ND	68000	34000	ug/kg	
3442-78-2	2-Methylpyrene	ND	68000	34000	ug/kg	
3353-12-6	4-Methylpyrene	ND	68000	34000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCM-516A		
Lab Sample ID:	MC20162-1	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
2381-21-7	1-Methylpyrene	ND	68000	34000	ug/kg	
56-55-3	Benzo(a)anthracene	ND	68000	34000	ug/kg	
218-01-9	Chrysene	35500	68000	34000	ug/kg	J
	C1-Benzo(a)anthracenes/Chrys	ND	68000	34000	ug/kg	
	C2-Benzo(a)anthracenes/Chrys	ND	68000	34000	ug/kg	
	C3-Benzo(a)anthracenes/Chrys	ND	68000	34000	ug/kg	
	C4-Benzo(a)anthracenes/Chrys	ND	68000	34000	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	68000	34000	ug/kg	
207-08-9	Benzo(k)fluoranthene	45000	68000	34000	ug/kg	J
192-97-2	Benzo(e)pyrene	ND	68000	34000	ug/kg	
50-32-8	Benzo(a)pyrene	ND	68000	34000	ug/kg	
198-55-0	Perylene	ND	68000	34000	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	39300	68000	34000	ug/kg	J
53-70-3	Dibenzo(a,h)anthracene	46300	68000	34000	ug/kg	J
191-24-2	Benzo(g,h,i)perylene	ND	68000	34000	ug/kg	
191-07-1	Coronene	41700	68000	34000	ug/kg	J
3891-98-3	2,6,10-trimethyldodecane (138	40100	68000	34000	ug/kg	J
3891-99-4	2,6,10-trimethyltridecane (147	36200	68000	34000	ug/kg	J
3892-00-0	2,6,10-trimethylpentadecane (1	ND	68000	34000	ug/kg	
	C-17	46800	68000	34000	ug/kg	J
1921-70-6	Pristane	54900	68000	34000	ug/kg	J
	C-18	39100	68000	34000	ug/kg	J
638-36-8	Phytane	34500	68000	34000	ug/kg	J
78-00-2	Tetraethyl lead	275000	68000	34000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1146-65-2	Naphthalene-d8	102%		40-140%
1517-22-2	Phenanthrene-d10	85%		40-140%
	Perylene-d12	72%		40-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID: PCM-516A
Lab Sample ID: MC20162-1 **Date Sampled:** 04/22/13
Matrix: SO - Oil **Date Received:** 04/24/13
Method: ASTM D3328-06 SW846 3580A **Percent Solids:** n/a
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BG40174.D	1	05/09/13	KR	05/06/13	OP32967	GBG1516
Run #2							

	Initial Weight	Final Volume
Run #1	0.0165 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-8	9960	120	61	mg/kg	
	C-9	4250	120	61	mg/kg	
	C-10	2170	120	61	mg/kg	
	C-11	2160	120	61	mg/kg	
	C-12	2270	120	61	mg/kg	
	C-13	1030	120	61	mg/kg	
3891-98-3	2,6,10-trimethyldodecane (138	80.7	120	61	mg/kg	J
	C-14	341	120	61	mg/kg	
3891-99-4	2,6,10-trimethyltridecane (147	71.5	120	61	mg/kg	J
	C-15	191	120	61	mg/kg	
	C-16	147	120	61	mg/kg	B
3892-00-0	2,6,10-trimethylpentadecane (1	ND	120	61	mg/kg	
	C-17	113	120	61	mg/kg	JB
1921-70-6	Pristane	82.2	120	61	mg/kg	J
	C-18	95.1	120	61	mg/kg	JB
638-36-8	Phytane	ND	120	61	mg/kg	
	C-19	ND	120	61	mg/kg	
	C-20	ND	120	61	mg/kg	
	C-21	ND	120	61	mg/kg	
	C-22	ND	120	61	mg/kg	
	C-23	ND	120	61	mg/kg	
	C-24	ND	120	61	mg/kg	
	C-25	ND	120	61	mg/kg	
	C-26	ND	120	61	mg/kg	
	C-27	ND	120	61	mg/kg	
	C-28	ND	120	61	mg/kg	
	C-29	ND	120	61	mg/kg	
	C-30	ND	120	61	mg/kg	
	C-31	ND	120	61	mg/kg	
	C-32	ND	120	61	mg/kg	
	C-33	ND	120	61	mg/kg	
	C-34	ND	120	61	mg/kg	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCM-516A		
Lab Sample ID:	MC20162-1	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	ASTM D3328-06 SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-35	ND	120	61	mg/kg	
	C-36	ND	120	61	mg/kg	
	C-37	ND	120	61	mg/kg	
	C-38	ND	120	61	mg/kg	
	C-39	ND	120	61	mg/kg	
	C-40	ND	120	61	mg/kg	
	TPH (C8-C40)	660000	12000	6100	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	102%		40-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	PCM-510B		
Lab Sample ID:	MC20162-2	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K71064.D	1	06/13/13	GK	n/a	n/a	MSK2323
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	1.21 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
1634-04-4	Methyl Tert Butyl Ether	26200	830	120	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		70-130%
2037-26-5	Toluene-D8	66% [a]		70-130%
460-00-4	4-Bromofluorobenzene	146% [a]		70-130%

(a) Outside control limits due to possible matrix interference.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	PCM-510B		
Lab Sample ID:	MC20162-2	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	S32748.D	50	05/28/13	KR	05/24/13	OP33312	MSS1429
Run #2							

	Initial Weight	Final Volume
Run #1	0.0157 g	2.0 ml
Run #2		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	321000	64000	32000	ug/kg	
	C1-Benzene	8940000	64000	32000	ug/kg	
	C2-Benzenes	63800000	64000	32000	ug/kg	
	C3-Benzenes	78500000	64000	32000	ug/kg	
	C4-Benzenes	35200000	64000	32000	ug/kg	
	C5-Benzenes	8820000	64000	32000	ug/kg	
108-87-2	Methylcyclohexane	2660000	64000	32000	ug/kg	
108-88-3	Toluene	16300000	64000	32000	ug/kg	
100-41-4	Ethylbenzene	24800000	64000	32000	ug/kg	
	m,p-Xylene	96500000	64000	32000	ug/kg	
95-47-6	o-Xylene	39600000	64000	32000	ug/kg	
98-82-8	Isopropylbenzene	2720000	64000	32000	ug/kg	
103-65-1	n-Propylbenzene	12500000	64000	32000	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	23200000	64000	32000	ug/kg	
526-73-8	1,2,3-Trimethylbenzene	13700000	64000	32000	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	69000000	64000	32000	ug/kg	
98-06-6	t-Butylbenzene	8240000	64000	32000	ug/kg	
135-98-8	sec-Butylbenzene	1470000	64000	32000	ug/kg	
99-87-6	p-Isopropyltoluene	1800000	64000	32000	ug/kg	
104-51-8	n-Butylbenzene	5300000	64000	32000	ug/kg	
493-02-7	trans-Decalin	108000	64000	32000	ug/kg	
493-01-6	cis-Decalin	75800	64000	32000	ug/kg	
	C1-Decalins	233000	64000	32000	ug/kg	
	C2-Decalins	165000	64000	32000	ug/kg	
	C3-Decalins	ND	64000	32000	ug/kg	
	C4-Decalins	ND	64000	32000	ug/kg	
11095-43-5	Benzo(b)thiophene	432000	64000	32000	ug/kg	
	C1-Benzo(b)thiophenes	425000	64000	32000	ug/kg	
	C2-Benzo(b)thiophenes	66200	64000	32000	ug/kg	
	C3-Benzo(b)thiophenes	ND	64000	32000	ug/kg	
	C4-Benzo(b)thiophenes	ND	64000	32000	ug/kg	
91-20-3	Naphthalene	8260000	64000	32000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCM-510B		
Lab Sample ID:	MC20162-2	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	6950000	64000	32000	ug/kg	
90-12-0	1-Methylnaphthalene	3200000	64000	32000	ug/kg	
	C1-Naphthalenes	6500000	64000	32000	ug/kg	
	C2-Naphthalenes	1830000	64000	32000	ug/kg	
	C3-Naphthalenes	456000	64000	32000	ug/kg	
	C4-Naphthalenes	115000	64000	32000	ug/kg	
92-52-4	Biphenyl	215000	64000	32000	ug/kg	
208-96-8	Acenaphthylene	ND	64000	32000	ug/kg	
83-32-9	Acenaphthene	ND	64000	32000	ug/kg	
132-64-9	Dibenzofuran	ND	64000	32000	ug/kg	
86-73-7	Fluorene	ND	64000	32000	ug/kg	
	C1-Fluorenes	35800	64000	32000	ug/kg	J
	C2-Fluorenes	56600	64000	32000	ug/kg	J
	C3-Fluorenes	ND	64000	32000	ug/kg	
132-65-0	Dibenzothiophene	ND	64000	32000	ug/kg	
	C1-Dibenzothiophenes	ND	64000	32000	ug/kg	
	C2-Dibenzothiophenes	ND	64000	32000	ug/kg	
	C3-Dibenzothiophenes	ND	64000	32000	ug/kg	
	C4-Dibenzothiophenes	ND	64000	32000	ug/kg	
85-01-8	Phenanthrene	59700	64000	32000	ug/kg	J
120-12-7	Anthracene	ND	64000	32000	ug/kg	
	C1-Phenanthrenes/Anthracene	84900	64000	32000	ug/kg	
	C2-Phenanthrenes/Anthracene	55400	64000	32000	ug/kg	J
	C3-Phenanthrenes/Anthracene	ND	64000	32000	ug/kg	
	C4-Phenanthrenes/Anthracene	ND	64000	32000	ug/kg	
483-65-8	Retene	ND	64000	32000	ug/kg	
239-35-0	Benzo(b)naphtho(2,1-d)thioph	ND	64000	32000	ug/kg	
	C1-Benzonaphthothiophenes	ND	64000	32000	ug/kg	
	C2-Benzonaphthothiophenes	ND	64000	32000	ug/kg	
	C3-Benzonaphthothiophenes	ND	64000	32000	ug/kg	
	C4-Benzonaphthothiophenes	ND	64000	32000	ug/kg	
206-44-0	Fluoranthene	ND	64000	32000	ug/kg	
129-00-0	Pyrene	ND	64000	32000	ug/kg	
	C1-Fluoranthenes/Pyrenes	ND	64000	32000	ug/kg	
	C2-Fluoranthenes/Pyrenes	ND	64000	32000	ug/kg	
	C3-Fluoranthenes/Pyrenes	ND	64000	32000	ug/kg	
243-17-4	Benzo(b)fluorene	ND	64000	32000	ug/kg	
205-12-9	Benzo(c)fluorene	ND	64000	32000	ug/kg	
3442-78-2	2-Methylpyrene	ND	64000	32000	ug/kg	
3353-12-6	4-Methylpyrene	ND	64000	32000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCM-510B		
Lab Sample ID:	MC20162-2	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
2381-21-7	1-Methylpyrene	ND	64000	32000	ug/kg	
56-55-3	Benzo(a)anthracene	ND	64000	32000	ug/kg	
218-01-9	Chrysene	ND	64000	32000	ug/kg	
	C1-Benzo(a)anthracenes/Chrys	ND	64000	32000	ug/kg	
	C2-Benzo(a)anthracenes/Chrys	ND	64000	32000	ug/kg	
	C3-Benzo(a)anthracenes/Chrys	ND	64000	32000	ug/kg	
	C4-Benzo(a)anthracenes/Chrys	ND	64000	32000	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	64000	32000	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	64000	32000	ug/kg	
192-97-2	Benzo(e)pyrene	ND	64000	32000	ug/kg	
50-32-8	Benzo(a)pyrene	ND	64000	32000	ug/kg	
198-55-0	Perylene	ND	64000	32000	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	64000	32000	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	64000	32000	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	64000	32000	ug/kg	
191-07-1	Coronene	ND	64000	32000	ug/kg	
3891-98-3	2,6,10-trimethyldodecane (138	53000	64000	32000	ug/kg	J
3891-99-4	2,6,10-trimethyltridecane (147	47600	64000	32000	ug/kg	J
3892-00-0	2,6,10-trimethylpentadecane (1	ND	64000	32000	ug/kg	
	C-17	45400	64000	32000	ug/kg	J
1921-70-6	Pristane	45300	64000	32000	ug/kg	J
	C-18	33700	64000	32000	ug/kg	J
638-36-8	Phytane	ND	64000	32000	ug/kg	
78-00-2	Tetraethyl lead	291000	64000	32000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1146-65-2	Naphthalene-d8	102%		40-140%
1517-22-2	Phenanthrene-d10	71%		40-140%
	Perylene-d12	52%		40-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID: PCM-510B
Lab Sample ID: MC20162-2 **Date Sampled:** 04/22/13
Matrix: SO - Oil **Date Received:** 04/24/13
Method: ASTM D3328-06 SW846 3580A **Percent Solids:** n/a
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BG40175.D	1	05/09/13	KR	05/06/13	OP32967	GBG1516
Run #2							

	Initial Weight	Final Volume
Run #1	0.0149 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-8	11900	130	67	mg/kg	
	C-9	9480	130	67	mg/kg	
	C-10	4130	130	67	mg/kg	
	C-11	4170	130	67	mg/kg	
	C-12	3490	130	67	mg/kg	
	C-13	1160	130	67	mg/kg	
3891-98-3	2,6,10-trimethyldodecane (138	81.4	130	67	mg/kg	J
	C-14	441	130	67	mg/kg	
3891-99-4	2,6,10-trimethyltridecane (147	82.6	130	67	mg/kg	J
	C-15	233	130	67	mg/kg	
	C-16	171	130	67	mg/kg	B
3892-00-0	2,6,10-trimethylpentadecane (1	ND	130	67	mg/kg	
	C-17	127	130	67	mg/kg	JB
1921-70-6	Pristane	102	130	67	mg/kg	J
	C-18	85.2	130	67	mg/kg	JB
638-36-8	Phytane	ND	130	67	mg/kg	
	C-19	ND	130	67	mg/kg	
	C-20	ND	130	67	mg/kg	
	C-21	ND	130	67	mg/kg	
	C-22	ND	130	67	mg/kg	
	C-23	ND	130	67	mg/kg	
	C-24	ND	130	67	mg/kg	
	C-25	ND	130	67	mg/kg	
	C-26	ND	130	67	mg/kg	
	C-27	ND	130	67	mg/kg	
	C-28	ND	130	67	mg/kg	
	C-29	ND	130	67	mg/kg	
	C-30	ND	130	67	mg/kg	
	C-31	ND	130	67	mg/kg	
	C-32	ND	130	67	mg/kg	
	C-33	ND	130	67	mg/kg	
	C-34	ND	130	67	mg/kg	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCM-510B		
Lab Sample ID:	MC20162-2	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	ASTM D3328-06 SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-35	ND	130	67	mg/kg	
	C-36	ND	130	67	mg/kg	
	C-37	ND	130	67	mg/kg	
	C-38	ND	130	67	mg/kg	
	C-39	ND	130	67	mg/kg	
	C-40	ND	130	67	mg/kg	
	TPH (C8-C40)	830000	13000	6700	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	98%		40-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	PCM-512A		
Lab Sample ID:	MC20162-3	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K71065.D	1	06/13/13	GK	n/a	n/a	MSK2323
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	1.02 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
1634-04-4	Methyl Tert Butyl Ether	173000	980	140	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		70-130%
2037-26-5	Toluene-D8	83%		70-130%
460-00-4	4-Bromofluorobenzene	187% [a]		70-130%

(a) Outside control limits due to possible matrix interference.

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	PCM-512A		
Lab Sample ID:	MC20162-3	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	S32749.D	50	05/28/13	KR	05/24/13	OP33312	MSS1429
Run #2							

	Initial Weight	Final Volume
Run #1	0.0154 g	2.0 ml
Run #2		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	3220000	65000	32000	ug/kg	
	C1-Benzene	8250000	65000	32000	ug/kg	
	C2-Benzenes	46500000	65000	32000	ug/kg	
	C3-Benzenes	52500000	65000	32000	ug/kg	
	C4-Benzenes	23500000	65000	32000	ug/kg	
	C5-Benzenes	6010000	65000	32000	ug/kg	
108-87-2	Methylcyclohexane	11300000	65000	32000	ug/kg	
108-88-3	Toluene	15000000	65000	32000	ug/kg	
100-41-4	Ethylbenzene	17900000	65000	32000	ug/kg	
	m,p-Xylene	72500000	65000	32000	ug/kg	
95-47-6	o-Xylene	26700000	65000	32000	ug/kg	
98-82-8	Isopropylbenzene	1850000	65000	32000	ug/kg	
103-65-1	n-Propylbenzene	7870000	65000	32000	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	15800000	65000	32000	ug/kg	
526-73-8	1,2,3-Trimethylbenzene	9180000	65000	32000	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	46100000	65000	32000	ug/kg	
98-06-6	t-Butylbenzene	5500000	65000	32000	ug/kg	
135-98-8	sec-Butylbenzene	926000	65000	32000	ug/kg	
99-87-6	p-Isopropyltoluene	1240000	65000	32000	ug/kg	
104-51-8	n-Butylbenzene	3470000	65000	32000	ug/kg	
493-02-7	trans-Decalin	97000	65000	32000	ug/kg	
493-01-6	cis-Decalin	44600	65000	32000	ug/kg	J
	C1-Decalins	180000	65000	32000	ug/kg	
	C2-Decalins	118000	65000	32000	ug/kg	
	C3-Decalins	ND	65000	32000	ug/kg	
	C4-Decalins	ND	65000	32000	ug/kg	
11095-43-5	Benzo(b)thiophene	308000	65000	32000	ug/kg	
	C1-Benzo(b)thiophenes	303000	65000	32000	ug/kg	
	C2-Benzo(b)thiophenes	60200	65000	32000	ug/kg	J
	C3-Benzo(b)thiophenes	ND	65000	32000	ug/kg	
	C4-Benzo(b)thiophenes	ND	65000	32000	ug/kg	
91-20-3	Naphthalene	5270000	65000	32000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCM-512A		
Lab Sample ID:	MC20162-3	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	4420000	65000	32000	ug/kg	
90-12-0	1-Methylnaphthalene	2010000	65000	32000	ug/kg	
	C1-Naphthalenes	4160000	65000	32000	ug/kg	
	C2-Naphthalenes	1150000	65000	32000	ug/kg	
	C3-Naphthalenes	279000	65000	32000	ug/kg	
	C4-Naphthalenes	62200	65000	32000	ug/kg	J
92-52-4	Biphenyl	124000	65000	32000	ug/kg	
208-96-8	Acenaphthylene	ND	65000	32000	ug/kg	
83-32-9	Acenaphthene	ND	65000	32000	ug/kg	
132-64-9	Dibenzofuran	ND	65000	32000	ug/kg	
86-73-7	Fluorene	ND	65000	32000	ug/kg	
	C1-Fluorenes	ND	65000	32000	ug/kg	
	C2-Fluorenes	ND	65000	32000	ug/kg	
	C3-Fluorenes	ND	65000	32000	ug/kg	
132-65-0	Dibenzothiophene	ND	65000	32000	ug/kg	
	C1-Dibenzothiophenes	ND	65000	32000	ug/kg	
	C2-Dibenzothiophenes	ND	65000	32000	ug/kg	
	C3-Dibenzothiophenes	ND	65000	32000	ug/kg	
	C4-Dibenzothiophenes	ND	65000	32000	ug/kg	
85-01-8	Phenanthrene	41600	65000	32000	ug/kg	J
120-12-7	Anthracene	ND	65000	32000	ug/kg	
	C1-Phenanthrenes/Anthracene	50400	65000	32000	ug/kg	J
	C2-Phenanthrenes/Anthracene	35500	65000	32000	ug/kg	J
	C3-Phenanthrenes/Anthracene	ND	65000	32000	ug/kg	
	C4-Phenanthrenes/Anthracene	ND	65000	32000	ug/kg	
483-65-8	Retene	ND	65000	32000	ug/kg	
239-35-0	Benzo(b)naphtho(2,1-d)thioph	ND	65000	32000	ug/kg	
	C1-Benzonaphthothiophenes	ND	65000	32000	ug/kg	
	C2-Benzonaphthothiophenes	ND	65000	32000	ug/kg	
	C3-Benzonaphthothiophenes	ND	65000	32000	ug/kg	
	C4-Benzonaphthothiophenes	ND	65000	32000	ug/kg	
206-44-0	Fluoranthene	ND	65000	32000	ug/kg	
129-00-0	Pyrene	ND	65000	32000	ug/kg	
	C1-Fluoranthenes/Pyrenes	ND	65000	32000	ug/kg	
	C2-Fluoranthenes/Pyrenes	ND	65000	32000	ug/kg	
	C3-Fluoranthenes/Pyrenes	ND	65000	32000	ug/kg	
243-17-4	Benzo(b)fluorene	ND	65000	32000	ug/kg	
205-12-9	Benzo(c)fluorene	ND	65000	32000	ug/kg	
3442-78-2	2-Methylpyrene	ND	65000	32000	ug/kg	
3353-12-6	4-Methylpyrene	ND	65000	32000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCM-512A		
Lab Sample ID:	MC20162-3	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
2381-21-7	1-Methylpyrene	ND	65000	32000	ug/kg	
56-55-3	Benzo(a)anthracene	ND	65000	32000	ug/kg	
218-01-9	Chrysene	ND	65000	32000	ug/kg	
	C1-Benzo(a)anthracenes/Chrys	ND	65000	32000	ug/kg	
	C2-Benzo(a)anthracenes/Chrys	ND	65000	32000	ug/kg	
	C3-Benzo(a)anthracenes/Chrys	ND	65000	32000	ug/kg	
	C4-Benzo(a)anthracenes/Chrys	ND	65000	32000	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	65000	32000	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	65000	32000	ug/kg	
192-97-2	Benzo(e)pyrene	ND	65000	32000	ug/kg	
50-32-8	Benzo(a)pyrene	ND	65000	32000	ug/kg	
198-55-0	Perylene	ND	65000	32000	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	65000	32000	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	65000	32000	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	65000	32000	ug/kg	
191-07-1	Coronene	ND	65000	32000	ug/kg	
3891-98-3	2,6,10-trimethyldodecane (138	ND	65000	32000	ug/kg	
3891-99-4	2,6,10-trimethyltridecane (147	ND	65000	32000	ug/kg	
3892-00-0	2,6,10-trimethylpentadecane (1	ND	65000	32000	ug/kg	
	C-17	37000	65000	32000	ug/kg	J
1921-70-6	Pristane	32100	65000	32000	ug/kg	J
	C-18	ND	65000	32000	ug/kg	
638-36-8	Phytane	ND	65000	32000	ug/kg	
78-00-2	Tetraethyl lead	403000	65000	32000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1146-65-2	Naphthalene-d8	117%		40-140%
1517-22-2	Phenanthrene-d10	164% [a]		40-140%
	Perylene-d12	153% [a]		40-140%

(a) Outside control limits due to dilution.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID: PCM-512A
Lab Sample ID: MC20162-3 **Date Sampled:** 04/22/13
Matrix: SO - Oil **Date Received:** 04/24/13
Method: ASTM D3328-06 SW846 3580A **Percent Solids:** n/a
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BG40176.D	1	05/09/13	KR	05/06/13	OP32967	GBG1516
Run #2							

	Initial Weight	Final Volume
Run #1	0.0130 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-8	15000	150	77	mg/kg	
	C-9	7880	150	77	mg/kg	
	C-10	3040	150	77	mg/kg	
	C-11	3770	150	77	mg/kg	
	C-12	2960	150	77	mg/kg	
	C-13	989	150	77	mg/kg	
3891-98-3	2,6,10-trimethyldodecane (138	ND	150	77	mg/kg	
	C-14	348	150	77	mg/kg	
3891-99-4	2,6,10-trimethyltridecane (147	ND	150	77	mg/kg	
	C-15	180	150	77	mg/kg	
	C-16	129	150	77	mg/kg	JB
3892-00-0	2,6,10-trimethylpentadecane (1	ND	150	77	mg/kg	
	C-17	92.5	150	77	mg/kg	JB
1921-70-6	Pristane	ND	150	77	mg/kg	
	C-18	ND	150	77	mg/kg	
638-36-8	Phytane	ND	150	77	mg/kg	
	C-19	ND	150	77	mg/kg	
	C-20	ND	150	77	mg/kg	
	C-21	ND	150	77	mg/kg	
	C-22	ND	150	77	mg/kg	
	C-23	ND	150	77	mg/kg	
	C-24	ND	150	77	mg/kg	
	C-25	ND	150	77	mg/kg	
	C-26	ND	150	77	mg/kg	
	C-27	ND	150	77	mg/kg	
	C-28	ND	150	77	mg/kg	
	C-29	ND	150	77	mg/kg	
	C-30	ND	150	77	mg/kg	
	C-31	ND	150	77	mg/kg	
	C-32	ND	150	77	mg/kg	
	C-33	ND	150	77	mg/kg	
	C-34	ND	150	77	mg/kg	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	PCM-512A		
Lab Sample ID:	MC20162-3	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	ASTM D3328-06 SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-35	ND	150	77	mg/kg	
	C-36	ND	150	77	mg/kg	
	C-37	ND	150	77	mg/kg	
	C-38	ND	150	77	mg/kg	
	C-39	ND	150	77	mg/kg	
	C-40	ND	150	77	mg/kg	
	TPH (C8-C40)	768000	15000	7700	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	99%		40-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	WR-220A		
Lab Sample ID:	MC20162-4	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K71066.D	1	06/13/13	GK	n/a	n/a	MSK2323
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	1.09 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
1634-04-4	Methyl Tert Butyl Ether	ND	910	130	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	101%		70-130%
2037-26-5	Toluene-D8	109%		70-130%
460-00-4	4-Bromofluorobenzene	179% [a]		70-130%

(a) Outside control limits due to possible matrix interference.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	WR-220A		
Lab Sample ID:	MC20162-4	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	S32750.D	50	05/28/13	KR	05/24/13	OP33312	MSS1429
Run #2							

	Initial Weight	Final Volume
Run #1	0.0150 g	2.0 ml
Run #2		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	5780000	67000	33000	ug/kg	
	C1-Benzene	25600000	67000	33000	ug/kg	
	C2-Benzenes	37700000	67000	33000	ug/kg	
	C3-Benzenes	33900000	67000	33000	ug/kg	
	C4-Benzenes	14800000	67000	33000	ug/kg	
	C5-Benzenes	4150000	67000	33000	ug/kg	
108-87-2	Methylcyclohexane	10600000	67000	33000	ug/kg	
108-88-3	Toluene	46600000	67000	33000	ug/kg	
100-41-4	Ethylbenzene	17200000	67000	33000	ug/kg	
	m,p-Xylene	55500000	67000	33000	ug/kg	
95-47-6	o-Xylene	22600000	67000	33000	ug/kg	
98-82-8	Isopropylbenzene	1410000	67000	33000	ug/kg	
103-65-1	n-Propylbenzene	5360000	67000	33000	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	9560000	67000	33000	ug/kg	
526-73-8	1,2,3-Trimethylbenzene	6060000	67000	33000	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	30100000	67000	33000	ug/kg	
98-06-6	t-Butylbenzene	3590000	67000	33000	ug/kg	
135-98-8	sec-Butylbenzene	588000	67000	33000	ug/kg	
99-87-6	p-Isopropyltoluene	822000	67000	33000	ug/kg	
104-51-8	n-Butylbenzene	2040000	67000	33000	ug/kg	
493-02-7	trans-Decalin	78700	67000	33000	ug/kg	
493-01-6	cis-Decalin	ND	67000	33000	ug/kg	
	C1-Decalins	151000	67000	33000	ug/kg	
	C2-Decalins	131000	67000	33000	ug/kg	
	C3-Decalins	ND	67000	33000	ug/kg	
	C4-Decalins	ND	67000	33000	ug/kg	
11095-43-5	Benzo(b)thiophene	235000	67000	33000	ug/kg	
	C1-Benzo(b)thiophenes	269000	67000	33000	ug/kg	
	C2-Benzo(b)thiophenes	52100	67000	33000	ug/kg	J
	C3-Benzo(b)thiophenes	ND	67000	33000	ug/kg	
	C4-Benzo(b)thiophenes	ND	67000	33000	ug/kg	
91-20-3	Naphthalene	4030000	67000	33000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WR-220A		
Lab Sample ID:	MC20162-4	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	3520000	67000	33000	ug/kg	
90-12-0	1-Methylnaphthalene	1650000	67000	33000	ug/kg	
	C1-Naphthalenes	3380000	67000	33000	ug/kg	
	C2-Naphthalenes	845000	67000	33000	ug/kg	
	C3-Naphthalenes	183000	67000	33000	ug/kg	
	C4-Naphthalenes	39700	67000	33000	ug/kg	J
92-52-4	Biphenyl	61000	67000	33000	ug/kg	J
208-96-8	Acenaphthylene	ND	67000	33000	ug/kg	
83-32-9	Acenaphthene	ND	67000	33000	ug/kg	
132-64-9	Dibenzofuran	ND	67000	33000	ug/kg	
86-73-7	Fluorene	ND	67000	33000	ug/kg	
	C1-Fluorenes	ND	67000	33000	ug/kg	
	C2-Fluorenes	ND	67000	33000	ug/kg	
	C3-Fluorenes	ND	67000	33000	ug/kg	
132-65-0	Dibenzothiophene	ND	67000	33000	ug/kg	
	C1-Dibenzothiophenes	ND	67000	33000	ug/kg	
	C2-Dibenzothiophenes	ND	67000	33000	ug/kg	
	C3-Dibenzothiophenes	ND	67000	33000	ug/kg	
	C4-Dibenzothiophenes	ND	67000	33000	ug/kg	
85-01-8	Phenanthrene	ND	67000	33000	ug/kg	
120-12-7	Anthracene	ND	67000	33000	ug/kg	
	C1-Phenanthrenes/Anthracene	ND	67000	33000	ug/kg	
	C2-Phenanthrenes/Anthracene	ND	67000	33000	ug/kg	
	C3-Phenanthrenes/Anthracene	ND	67000	33000	ug/kg	
	C4-Phenanthrenes/Anthracene	ND	67000	33000	ug/kg	
483-65-8	Retene	ND	67000	33000	ug/kg	
239-35-0	Benzo(b)naphtho(2,1-d)thioph	ND	67000	33000	ug/kg	
	C1-Benzonaphthothiophenes	ND	67000	33000	ug/kg	
	C2-Benzonaphthothiophenes	ND	67000	33000	ug/kg	
	C3-Benzonaphthothiophenes	ND	67000	33000	ug/kg	
	C4-Benzonaphthothiophenes	ND	67000	33000	ug/kg	
206-44-0	Fluoranthene	ND	67000	33000	ug/kg	
129-00-0	Pyrene	ND	67000	33000	ug/kg	
	C1-Fluoranthenes/Pyrenes	ND	67000	33000	ug/kg	
	C2-Fluoranthenes/Pyrenes	ND	67000	33000	ug/kg	
	C3-Fluoranthenes/Pyrenes	ND	67000	33000	ug/kg	
243-17-4	Benzo(b)fluorene	ND	67000	33000	ug/kg	
205-12-9	Benzo(c)fluorene	ND	67000	33000	ug/kg	
3442-78-2	2-Methylpyrene	ND	67000	33000	ug/kg	
3353-12-6	4-Methylpyrene	ND	67000	33000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WR-220A		
Lab Sample ID:	MC20162-4	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
2381-21-7	1-Methylpyrene	ND	67000	33000	ug/kg	
56-55-3	Benzo(a)anthracene	ND	67000	33000	ug/kg	
218-01-9	Chrysene	ND	67000	33000	ug/kg	
	C1-Benzo(a)anthracenes/Chrys	ND	67000	33000	ug/kg	
	C2-Benzo(a)anthracenes/Chrys	ND	67000	33000	ug/kg	
	C3-Benzo(a)anthracenes/Chrys	ND	67000	33000	ug/kg	
	C4-Benzo(a)anthracenes/Chrys	ND	67000	33000	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	67000	33000	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	67000	33000	ug/kg	
192-97-2	Benzo(e)pyrene	ND	67000	33000	ug/kg	
50-32-8	Benzo(a)pyrene	ND	67000	33000	ug/kg	
198-55-0	Perylene	ND	67000	33000	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	67000	33000	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	67000	33000	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	67000	33000	ug/kg	
191-07-1	Coronene	ND	67000	33000	ug/kg	
3891-98-3	2,6,10-trimethyldodecane (138	ND	67000	33000	ug/kg	
3891-99-4	2,6,10-trimethyltridecane (147	ND	67000	33000	ug/kg	
3892-00-0	2,6,10-trimethylpentadecane (1	ND	67000	33000	ug/kg	
	C-17	ND	67000	33000	ug/kg	
1921-70-6	Pristane	ND	67000	33000	ug/kg	
	C-18	ND	67000	33000	ug/kg	
638-36-8	Phytane	ND	67000	33000	ug/kg	
78-00-2	Tetraethyl lead	152000	67000	33000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1146-65-2	Naphthalene-d8	101%		40-140%
1517-22-2	Phenanthrene-d10	72%		40-140%
	Perylene-d12	46%		40-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID: WR-220A
Lab Sample ID: MC20162-4 **Date Sampled:** 04/22/13
Matrix: SO - Oil **Date Received:** 04/24/13
Method: ASTM D3328-06 SW846 3580A **Percent Solids:** n/a
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BG40177.D	1	05/09/13	KR	05/06/13	OP32967	GBG1516
Run #2							

	Initial Weight	Final Volume
Run #1	0.0116 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-8	11200	170	86	mg/kg	
	C-9	4910	170	86	mg/kg	
	C-10	2440	170	86	mg/kg	
	C-11	2260	170	86	mg/kg	
	C-12	2180	170	86	mg/kg	
	C-13	1060	170	86	mg/kg	
3891-98-3	2,6,10-trimethyldodecane (138	91.7	170	86	mg/kg	J
	C-14	339	170	86	mg/kg	
3891-99-4	2,6,10-trimethyltridecane (147	ND	170	86	mg/kg	
	C-15	179	170	86	mg/kg	
	C-16	127	170	86	mg/kg	JB
3892-00-0	2,6,10-trimethylpentadecane (1	ND	170	86	mg/kg	
	C-17	88.9	170	86	mg/kg	JB
1921-70-6	Pristane	ND	170	86	mg/kg	
	C-18	ND	170	86	mg/kg	
638-36-8	Phytane	ND	170	86	mg/kg	
	C-19	ND	170	86	mg/kg	
	C-20	ND	170	86	mg/kg	
	C-21	ND	170	86	mg/kg	
	C-22	ND	170	86	mg/kg	
	C-23	ND	170	86	mg/kg	
	C-24	ND	170	86	mg/kg	
	C-25	ND	170	86	mg/kg	
	C-26	ND	170	86	mg/kg	
	C-27	ND	170	86	mg/kg	
	C-28	ND	170	86	mg/kg	
	C-29	ND	170	86	mg/kg	
	C-30	ND	170	86	mg/kg	
	C-31	ND	170	86	mg/kg	
	C-32	ND	170	86	mg/kg	
	C-33	ND	170	86	mg/kg	
	C-34	ND	170	86	mg/kg	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WR-220A		
Lab Sample ID:	MC20162-4	**Date Sampled:**	04/22/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	ASTM D3328-06 SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-35	ND	170	86	mg/kg	
	C-36	ND	170	86	mg/kg	
	C-37	ND	170	86	mg/kg	
	C-38	ND	170	86	mg/kg	
	C-39	ND	170	86	mg/kg	
	C-40	ND	170	86	mg/kg	
	TPH (C8-C40)	739000	17000	8600	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	101%		40-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	R-047A		
Lab Sample ID:	MC20162-5	**Date Sampled:**	04/23/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K71067.D	1	06/13/13	GK	n/a	n/a	MSK2323
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	0.940 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
1634-04-4	Methyl Tert Butyl Ether	93500	1100	150	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	107%		70-130%
2037-26-5	Toluene-D8	87%		70-130%
460-00-4	4-Bromofluorobenzene	682% [a]		70-130%

(a) Outside control limits due to possible matrix interference.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	R-047A		
Lab Sample ID:	MC20162-5	**Date Sampled:**	04/23/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	S32751.D	50	05/28/13	KR	05/24/13	OP33312	MSS1429
Run #2							

	Initial Weight	Final Volume
Run #1	0.0166 g	2.0 ml
Run #2		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	491000	60000	30000	ug/kg	
	C1-Benzene	1390000	60000	30000	ug/kg	
	C2-Benzenes	37900000	60000	30000	ug/kg	
	C3-Benzenes	66400000	60000	30000	ug/kg	
	C4-Benzenes	36600000	60000	30000	ug/kg	
	C5-Benzenes	10400000	60000	30000	ug/kg	
108-87-2	Methylcyclohexane	3220000	60000	30000	ug/kg	
108-88-3	Toluene	2510000	60000	30000	ug/kg	
100-41-4	Ethylbenzene	3930000	60000	30000	ug/kg	
	m,p-Xylene	63500000	60000	30000	ug/kg	
95-47-6	o-Xylene	26300000	60000	30000	ug/kg	
98-82-8	Isopropylbenzene	788000	60000	30000	ug/kg	
103-65-1	n-Propylbenzene	3320000	60000	30000	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	22800000	60000	30000	ug/kg	
526-73-8	1,2,3-Trimethylbenzene	13600000	60000	30000	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	59000000	60000	30000	ug/kg	
98-06-6	t-Butylbenzene	7080000	60000	30000	ug/kg	
135-98-8	sec-Butylbenzene	913000	60000	30000	ug/kg	
99-87-6	p-Isopropyltoluene	2010000	60000	30000	ug/kg	
104-51-8	n-Butylbenzene	3730000	60000	30000	ug/kg	
493-02-7	trans-Decalin	174000	60000	30000	ug/kg	
493-01-6	cis-Decalin	86400	60000	30000	ug/kg	
	C1-Decalins	377000	60000	30000	ug/kg	
	C2-Decalins	223000	60000	30000	ug/kg	
	C3-Decalins	ND	60000	30000	ug/kg	
	C4-Decalins	ND	60000	30000	ug/kg	
11095-43-5	Benzo(b)thiophene	540000	60000	30000	ug/kg	
	C1-Benzo(b)thiophenes	650000	60000	30000	ug/kg	
	C2-Benzo(b)thiophenes	120000	60000	30000	ug/kg	
	C3-Benzo(b)thiophenes	ND	60000	30000	ug/kg	
	C4-Benzo(b)thiophenes	ND	60000	30000	ug/kg	
91-20-3	Naphthalene	8130000	60000	30000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-047A		
Lab Sample ID:	MC20162-5	**Date Sampled:**	04/23/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	8230000	60000	30000	ug/kg	
90-12-0	1-Methylnaphthalene	3780000	60000	30000	ug/kg	
	C1-Naphthalenes	7630000	60000	30000	ug/kg	
	C2-Naphthalenes	2070000	60000	30000	ug/kg	
	C3-Naphthalenes	479000	60000	30000	ug/kg	
	C4-Naphthalenes	131000	60000	30000	ug/kg	
92-52-4	Biphenyl	174000	60000	30000	ug/kg	
208-96-8	Acenaphthylene	ND	60000	30000	ug/kg	
83-32-9	Acenaphthene	ND	60000	30000	ug/kg	
132-64-9	Dibenzofuran	ND	60000	30000	ug/kg	
86-73-7	Fluorene	ND	60000	30000	ug/kg	
	C1-Fluorenes	34300	60000	30000	ug/kg	J
	C2-Fluorenes	50200	60000	30000	ug/kg	J
	C3-Fluorenes	ND	60000	30000	ug/kg	
132-65-0	Dibenzothiophene	ND	60000	30000	ug/kg	
	C1-Dibenzothiophenes	ND	60000	30000	ug/kg	
	C2-Dibenzothiophenes	ND	60000	30000	ug/kg	
	C3-Dibenzothiophenes	ND	60000	30000	ug/kg	
	C4-Dibenzothiophenes	ND	60000	30000	ug/kg	
85-01-8	Phenanthrene	55000	60000	30000	ug/kg	J
120-12-7	Anthracene	ND	60000	30000	ug/kg	
	C1-Phenanthrenes/Anthracene	81600	60000	30000	ug/kg	
	C2-Phenanthrenes/Anthracene	54400	60000	30000	ug/kg	J
	C3-Phenanthrenes/Anthracene	ND	60000	30000	ug/kg	
	C4-Phenanthrenes/Anthracene	ND	60000	30000	ug/kg	
483-65-8	Retene	ND	60000	30000	ug/kg	
239-35-0	Benzo(b)naphtho(2,1-d)thioph	ND	60000	30000	ug/kg	
	C1-Benzonaphthothiophenes	ND	60000	30000	ug/kg	
	C2-Benzonaphthothiophenes	ND	60000	30000	ug/kg	
	C3-Benzonaphthothiophenes	ND	60000	30000	ug/kg	
	C4-Benzonaphthothiophenes	ND	60000	30000	ug/kg	
206-44-0	Fluoranthene	ND	60000	30000	ug/kg	
129-00-0	Pyrene	ND	60000	30000	ug/kg	
	C1-Fluoranthenes/Pyrenes	ND	60000	30000	ug/kg	
	C2-Fluoranthenes/Pyrenes	ND	60000	30000	ug/kg	
	C3-Fluoranthenes/Pyrenes	ND	60000	30000	ug/kg	
243-17-4	Benzo(b)fluorene	ND	60000	30000	ug/kg	
205-12-9	Benzo(c)fluorene	ND	60000	30000	ug/kg	
3442-78-2	2-Methylpyrene	ND	60000	30000	ug/kg	
3353-12-6	4-Methylpyrene	ND	60000	30000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-047A		
Lab Sample ID:	MC20162-5	**Date Sampled:**	04/23/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
2381-21-7	1-Methylpyrene	ND	60000	30000	ug/kg	
56-55-3	Benzo(a)anthracene	ND	60000	30000	ug/kg	
218-01-9	Chrysene	ND	60000	30000	ug/kg	
	C1-Benzo(a)anthracenes/Chrys	ND	60000	30000	ug/kg	
	C2-Benzo(a)anthracenes/Chrys	ND	60000	30000	ug/kg	
	C3-Benzo(a)anthracenes/Chrys	ND	60000	30000	ug/kg	
	C4-Benzo(a)anthracenes/Chrys	ND	60000	30000	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	60000	30000	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	60000	30000	ug/kg	
192-97-2	Benzo(e)pyrene	ND	60000	30000	ug/kg	
50-32-8	Benzo(a)pyrene	ND	60000	30000	ug/kg	
198-55-0	Perylene	ND	60000	30000	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	60000	30000	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	60000	30000	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	60000	30000	ug/kg	
191-07-1	Coronene	ND	60000	30000	ug/kg	
3891-98-3	2,6,10-trimethyldodecane (138	96300	60000	30000	ug/kg	
3891-99-4	2,6,10-trimethyltridecane (147	77200	60000	30000	ug/kg	
3892-00-0	2,6,10-trimethylpentadecane (1	32300	60000	30000	ug/kg	J
	C-17	75100	60000	30000	ug/kg	
1921-70-6	Pristane	74500	60000	30000	ug/kg	
	C-18	53800	60000	30000	ug/kg	J
638-36-8	Phytane	56500	60000	30000	ug/kg	J
78-00-2	Tetraethyl lead	382000	60000	30000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1146-65-2	Naphthalene-d8	102%		40-140%
1517-22-2	Phenanthrene-d10	92%		40-140%
	Perylene-d12	27% [a]		40-140%

(a) Outside control limits due to dilution.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID: R-047A
Lab Sample ID: MC20162-5 **Date Sampled:** 04/23/13
Matrix: SO - Oil **Date Received:** 04/24/13
Method: ASTM D3328-06 SW846 3580A **Percent Solids:** n/a
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BG40178.D	1	05/09/13	KR	05/06/13	OP32967	GBG1516
Run #2							

	Initial Weight	Final Volume
Run #1	0.0155 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-8	11100	130	65	mg/kg	
	C-9	10100	130	65	mg/kg	
	C-10	4730	130	65	mg/kg	
	C-11	5510	130	65	mg/kg	
	C-12	4910	130	65	mg/kg	
	C-13	2270	130	65	mg/kg	
3891-98-3	2,6,10-trimethyldodecane (138	142	130	65	mg/kg	
	C-14	725	130	65	mg/kg	
3891-99-4	2,6,10-trimethyltridecane (147	143	130	65	mg/kg	
	C-15	378	130	65	mg/kg	
	C-16	269	130	65	mg/kg	B
3892-00-0	2,6,10-trimethylpentadecane (1	94.6	130	65	mg/kg	J
	C-17	207	130	65	mg/kg	B
1921-70-6	Pristane	157	130	65	mg/kg	
	C-18	128	130	65	mg/kg	JB
638-36-8	Phytane	70.9	130	65	mg/kg	J
	C-19	98.3	130	65	mg/kg	J
	C-20	65.1	130	65	mg/kg	J
	C-21	ND	130	65	mg/kg	
	C-22	ND	130	65	mg/kg	
	C-23	ND	130	65	mg/kg	
	C-24	ND	130	65	mg/kg	
	C-25	ND	130	65	mg/kg	
	C-26	ND	130	65	mg/kg	
	C-27	ND	130	65	mg/kg	
	C-28	ND	130	65	mg/kg	
	C-29	ND	130	65	mg/kg	
	C-30	ND	130	65	mg/kg	
	C-31	ND	130	65	mg/kg	
	C-32	ND	130	65	mg/kg	
	C-33	ND	130	65	mg/kg	
	C-34	ND	130	65	mg/kg	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-047A		
Lab Sample ID:	MC20162-5	**Date Sampled:**	04/23/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	ASTM D3328-06 SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-35	ND	130	65	mg/kg	
	C-36	ND	130	65	mg/kg	
	C-37	ND	130	65	mg/kg	
	C-38	ND	130	65	mg/kg	
	C-39	ND	130	65	mg/kg	
	C-40	ND	130	65	mg/kg	
	TPH (C8-C40)	822000	13000	6500	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	103%		40-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	R-027A		
Lab Sample ID:	MC20162-6	**Date Sampled:**	04/23/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K71068.D	1	06/13/13	GK	n/a	n/a	MSK2323
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	1.31 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
1634-04-4	Methyl Tert Butyl Ether	37400	770	110	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		70-130%
2037-26-5	Toluene-D8	108%		70-130%
460-00-4	4-Bromofluorobenzene	307% [a]		70-130%

(a) Outside control limits due to possible matrix interference.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	R-027A		
Lab Sample ID:	MC20162-6	**Date Sampled:**	04/23/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	S32752.D	50	05/28/13	KR	05/24/13	OP33312	MSS1429
Run #2							

	Initial Weight	Final Volume
Run #1	0.0104 g	2.0 ml
Run #2		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	7860000	96000	48000	ug/kg	
	C1-Benzene	26600000	96000	48000	ug/kg	
	C2-Benzenes	45900000	96000	48000	ug/kg	
	C3-Benzenes	41900000	96000	48000	ug/kg	
	C4-Benzenes	19800000	96000	48000	ug/kg	
	C5-Benzenes	5840000	96000	48000	ug/kg	
108-87-2	Methylcyclohexane	6560000	96000	48000	ug/kg	
108-88-3	Toluene	48300000	96000	48000	ug/kg	
100-41-4	Ethylbenzene	21200000	96000	48000	ug/kg	
	m,p-Xylene	68200000	96000	48000	ug/kg	
95-47-6	o-Xylene	25800000	96000	48000	ug/kg	
98-82-8	Isopropylbenzene	1850000	96000	48000	ug/kg	
103-65-1	n-Propylbenzene	6910000	96000	48000	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	11400000	96000	48000	ug/kg	
526-73-8	1,2,3-Trimethylbenzene	7400000	96000	48000	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	35900000	96000	48000	ug/kg	
98-06-6	t-Butylbenzene	4300000	96000	48000	ug/kg	
135-98-8	sec-Butylbenzene	853000	96000	48000	ug/kg	
99-87-6	p-Isopropyltoluene	1110000	96000	48000	ug/kg	
104-51-8	n-Butylbenzene	2720000	96000	48000	ug/kg	
493-02-7	trans-Decalin	106000	96000	48000	ug/kg	
493-01-6	cis-Decalin	ND	96000	48000	ug/kg	
	C1-Decalins	190000	96000	48000	ug/kg	
	C2-Decalins	217000	96000	48000	ug/kg	
	C3-Decalins	ND	96000	48000	ug/kg	
	C4-Decalins	ND	96000	48000	ug/kg	
11095-43-5	Benzo(b)thiophene	369000	96000	48000	ug/kg	
	C1-Benzo(b)thiophenes	484000	96000	48000	ug/kg	
	C2-Benzo(b)thiophenes	103000	96000	48000	ug/kg	
	C3-Benzo(b)thiophenes	ND	96000	48000	ug/kg	
	C4-Benzo(b)thiophenes	ND	96000	48000	ug/kg	
91-20-3	Naphthalene	5180000	96000	48000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-027A		
Lab Sample ID:	MC20162-6	**Date Sampled:**	04/23/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	5270000	96000	48000	ug/kg	
90-12-0	1-Methylnaphthalene	2520000	96000	48000	ug/kg	
	C1-Naphthalenes	5110000	96000	48000	ug/kg	
	C2-Naphthalenes	1360000	96000	48000	ug/kg	
	C3-Naphthalenes	302000	96000	48000	ug/kg	
	C4-Naphthalenes	101000	96000	48000	ug/kg	
92-52-4	Biphenyl	109000	96000	48000	ug/kg	
208-96-8	Acenaphthylene	ND	96000	48000	ug/kg	
83-32-9	Acenaphthene	ND	96000	48000	ug/kg	
132-64-9	Dibenzofuran	ND	96000	48000	ug/kg	
86-73-7	Fluorene	ND	96000	48000	ug/kg	
	C1-Fluorenes	ND	96000	48000	ug/kg	
	C2-Fluorenes	ND	96000	48000	ug/kg	
	C3-Fluorenes	ND	96000	48000	ug/kg	
132-65-0	Dibenzothiophene	ND	96000	48000	ug/kg	
	C1-Dibenzothiophenes	ND	96000	48000	ug/kg	
	C2-Dibenzothiophenes	ND	96000	48000	ug/kg	
	C3-Dibenzothiophenes	ND	96000	48000	ug/kg	
	C4-Dibenzothiophenes	ND	96000	48000	ug/kg	
85-01-8	Phenanthrene	ND	96000	48000	ug/kg	
120-12-7	Anthracene	ND	96000	48000	ug/kg	
	C1-Phenanthrenes/Anthracene	54200	96000	48000	ug/kg	J
	C2-Phenanthrenes/Anthracene	ND	96000	48000	ug/kg	
	C3-Phenanthrenes/Anthracene	ND	96000	48000	ug/kg	
	C4-Phenanthrenes/Anthracene	ND	96000	48000	ug/kg	
483-65-8	Retene	ND	96000	48000	ug/kg	
239-35-0	Benzo(b)naphtho(2,1-d)thioph	ND	96000	48000	ug/kg	
	C1-Benzonaphthothiophenes	ND	96000	48000	ug/kg	
	C2-Benzonaphthothiophenes	ND	96000	48000	ug/kg	
	C3-Benzonaphthothiophenes	ND	96000	48000	ug/kg	
	C4-Benzonaphthothiophenes	ND	96000	48000	ug/kg	
206-44-0	Fluoranthene	ND	96000	48000	ug/kg	
129-00-0	Pyrene	ND	96000	48000	ug/kg	
	C1-Fluoranthenes/Pyrenes	ND	96000	48000	ug/kg	
	C2-Fluoranthenes/Pyrenes	ND	96000	48000	ug/kg	
	C3-Fluoranthenes/Pyrenes	ND	96000	48000	ug/kg	
243-17-4	Benzo(b)fluorene	ND	96000	48000	ug/kg	
205-12-9	Benzo(c)fluorene	ND	96000	48000	ug/kg	
3442-78-2	2-Methylpyrene	ND	96000	48000	ug/kg	
3353-12-6	4-Methylpyrene	ND	96000	48000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-027A		
Lab Sample ID:	MC20162-6	**Date Sampled:**	04/23/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
2381-21-7	1-Methylpyrene	ND	96000	48000	ug/kg	
56-55-3	Benzo(a)anthracene	ND	96000	48000	ug/kg	
218-01-9	Chrysene	ND	96000	48000	ug/kg	
	C1-Benzo(a)anthracenes/Chrys	ND	96000	48000	ug/kg	
	C2-Benzo(a)anthracenes/Chrys	ND	96000	48000	ug/kg	
	C3-Benzo(a)anthracenes/Chrys	ND	96000	48000	ug/kg	
	C4-Benzo(a)anthracenes/Chrys	ND	96000	48000	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	96000	48000	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	96000	48000	ug/kg	
192-97-2	Benzo(e)pyrene	ND	96000	48000	ug/kg	
50-32-8	Benzo(a)pyrene	ND	96000	48000	ug/kg	
198-55-0	Perylene	ND	96000	48000	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	96000	48000	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	96000	48000	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	96000	48000	ug/kg	
191-07-1	Coronene	ND	96000	48000	ug/kg	
3891-98-3	2,6,10-trimethyldodecane (138	54600	96000	48000	ug/kg	J
3891-99-4	2,6,10-trimethyltridecane (147	55700	96000	48000	ug/kg	J
3892-00-0	2,6,10-trimethylpentadecane (1	ND	96000	48000	ug/kg	
	C-17	68100	96000	48000	ug/kg	J
1921-70-6	Pristane	115000	96000	48000	ug/kg	
	C-18	49500	96000	48000	ug/kg	J
638-36-8	Phytane	57100	96000	48000	ug/kg	J
78-00-2	Tetraethyl lead	ND	96000	48000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1146-65-2	Naphthalene-d8	94%		40-140%
1517-22-2	Phenanthrene-d10	65%		40-140%
	Perylene-d12	25% [a]		40-140%

(a) Outside control limits due to dilution.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID: R-027A
Lab Sample ID: MC20162-6 **Date Sampled:** 04/23/13
Matrix: SO - Oil **Date Received:** 04/24/13
Method: ASTM D3328-06 SW846 3580A **Percent Solids:** n/a
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BG40179.D	1	05/09/13	KR	05/06/13	OP32967	GBG1516
Run #2							

	Initial Weight	Final Volume
Run #1	0.0145 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-8	9650	140	69	mg/kg	
	C-9	5270	140	69	mg/kg	
	C-10	2540	140	69	mg/kg	
	C-11	2580	140	69	mg/kg	
	C-12	3060	140	69	mg/kg	
	C-13	1800	140	69	mg/kg	
3891-98-3	2,6,10-trimethyldodecane (138	143	140	69	mg/kg	
	C-14	740	140	69	mg/kg	
3891-99-4	2,6,10-trimethyltridecane (147	150	140	69	mg/kg	
	C-15	434	140	69	mg/kg	
	C-16	334	140	69	mg/kg	B
3892-00-0	2,6,10-trimethylpentadecane (1	138	140	69	mg/kg	J
	C-17	272	140	69	mg/kg	B
1921-70-6	Pristane	210	140	69	mg/kg	
	C-18	188	140	69	mg/kg	B
638-36-8	Phytane	103	140	69	mg/kg	J
	C-19	3610	140	69	mg/kg	
	C-20	84.7	140	69	mg/kg	J
	C-21	ND	140	69	mg/kg	
	C-22	ND	140	69	mg/kg	
	C-23	ND	140	69	mg/kg	
	C-24	ND	140	69	mg/kg	
	C-25	ND	140	69	mg/kg	
	C-26	ND	140	69	mg/kg	
	C-27	ND	140	69	mg/kg	
	C-28	ND	140	69	mg/kg	
	C-29	ND	140	69	mg/kg	
	C-30	ND	140	69	mg/kg	
	C-31	ND	140	69	mg/kg	
	C-32	ND	140	69	mg/kg	
	C-33	ND	140	69	mg/kg	
	C-34	ND	140	69	mg/kg	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-027A		
Lab Sample ID:	MC20162-6	**Date Sampled:**	04/23/13
Matrix:	SO - Oil	**Date Received:**	04/24/13
Method:	ASTM D3328-06 SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-35	ND	140	69	mg/kg	
	C-36	ND	140	69	mg/kg	
	C-37	ND	140	69	mg/kg	
	C-38	ND	140	69	mg/kg	
	C-39	ND	140	69	mg/kg	
	C-40	ND	140	69	mg/kg	
	TPH (C8-C40)	743000	14000	6900	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	110%		40-140%

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E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	R-027A		
Lab Sample ID:	MC20162-7	**Date Sampled:**	05/20/13
Matrix:	SO - Oil	**Date Received:**	05/21/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K71069.D	1	06/13/13	GK	n/a	n/a	MSK2323
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	1.13 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
1634-04-4	Methyl Tert Butyl Ether	32900	890	130	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	104%		70-130%
2037-26-5	Toluene-D8	131% [a]		70-130%
460-00-4	4-Bromofluorobenzene	716% [a]		70-130%

(a) Outside control limits due to possible matrix interference.

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	R-027A		
Lab Sample ID:	MC20162-7	**Date Sampled:**	05/20/13
Matrix:	SO - Oil	**Date Received:**	05/21/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	S32764.D	50	05/29/13	KR	05/24/13	OP33312	MSS1429
Run #2							

	Initial Weight	Final Volume
Run #1	0.0142 g	2.0 ml
Run #2		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	7560000	70000	35000	ug/kg	
	C1-Benzene	26600000	70000	35000	ug/kg	
	C2-Benzenes	48200000	70000	35000	ug/kg	
	C3-Benzenes	44300000	70000	35000	ug/kg	
	C4-Benzenes	20800000	70000	35000	ug/kg	
	C5-Benzenes	6080000	70000	35000	ug/kg	
108-87-2	Methylcyclohexane	6140000	70000	35000	ug/kg	
108-88-3	Toluene	48500000	70000	35000	ug/kg	
100-41-4	Ethylbenzene	22700000	70000	35000	ug/kg	
	m,p-Xylene	72000000	70000	35000	ug/kg	
95-47-6	o-Xylene	27300000	70000	35000	ug/kg	
98-82-8	Isopropylbenzene	1990000	70000	35000	ug/kg	
103-65-1	n-Propylbenzene	7500000	70000	35000	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	12100000	70000	35000	ug/kg	
526-73-8	1,2,3-Trimethylbenzene	7900000	70000	35000	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	38200000	70000	35000	ug/kg	
98-06-6	t-Butylbenzene	4570000	70000	35000	ug/kg	
135-98-8	sec-Butylbenzene	910000	70000	35000	ug/kg	
99-87-6	p-Isopropyltoluene	1170000	70000	35000	ug/kg	
104-51-8	n-Butylbenzene	2990000	70000	35000	ug/kg	
493-02-7	trans-Decalin	108000	70000	35000	ug/kg	
493-01-6	cis-Decalin	38200	70000	35000	ug/kg	J
	C1-Decalins	207000	70000	35000	ug/kg	
	C2-Decalins	155000	70000	35000	ug/kg	
	C3-Decalins	ND	70000	35000	ug/kg	
	C4-Decalins	ND	70000	35000	ug/kg	
11095-43-5	Benzo(b)thiophene	521000	70000	35000	ug/kg	
	C1-Benzo(b)thiophenes	544000	70000	35000	ug/kg	
	C2-Benzo(b)thiophenes	135000	70000	35000	ug/kg	
	C3-Benzo(b)thiophenes	37400	70000	35000	ug/kg	J
	C4-Benzo(b)thiophenes	ND	70000	35000	ug/kg	
91-20-3	Naphthalene	5670000	70000	35000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-027A		
Lab Sample ID:	MC20162-7	**Date Sampled:**	05/20/13
Matrix:	SO - Oil	**Date Received:**	05/21/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	6170000	70000	35000	ug/kg	
90-12-0	1-Methylnaphthalene	2790000	70000	35000	ug/kg	
	C1-Naphthalenes	5740000	70000	35000	ug/kg	
	C2-Naphthalenes	1540000	70000	35000	ug/kg	
	C3-Naphthalenes	392000	70000	35000	ug/kg	
	C4-Naphthalenes	134000	70000	35000	ug/kg	
92-52-4	Biphenyl	96100	70000	35000	ug/kg	
208-96-8	Acenaphthylene	ND	70000	35000	ug/kg	
83-32-9	Acenaphthene	ND	70000	35000	ug/kg	
132-64-9	Dibenzofuran	ND	70000	35000	ug/kg	
86-73-7	Fluorene	ND	70000	35000	ug/kg	
	C1-Fluorenes	42000	70000	35000	ug/kg	J
	C2-Fluorenes	68200	70000	35000	ug/kg	J
	C3-Fluorenes	ND	70000	35000	ug/kg	
132-65-0	Dibenzothiophene	ND	70000	35000	ug/kg	
	C1-Dibenzothiophenes	ND	70000	35000	ug/kg	
	C2-Dibenzothiophenes	36100	70000	35000	ug/kg	J
	C3-Dibenzothiophenes	ND	70000	35000	ug/kg	
	C4-Dibenzothiophenes	ND	70000	35000	ug/kg	
85-01-8	Phenanthrene	49000	70000	35000	ug/kg	J
120-12-7	Anthracene	ND	70000	35000	ug/kg	
	C1-Phenanthrenes/Anthracene	91800	70000	35000	ug/kg	
	C2-Phenanthrenes/Anthracene	63500	70000	35000	ug/kg	J
	C3-Phenanthrenes/Anthracene	ND	70000	35000	ug/kg	
	C4-Phenanthrenes/Anthracene	ND	70000	35000	ug/kg	
483-65-8	Retene	ND	70000	35000	ug/kg	
239-35-0	Benzo(b)naphtho(2,1-d)thioph	ND	70000	35000	ug/kg	
	C1-Benzonaphthothiophenes	ND	70000	35000	ug/kg	
	C2-Benzonaphthothiophenes	ND	70000	35000	ug/kg	
	C3-Benzonaphthothiophenes	ND	70000	35000	ug/kg	
	C4-Benzonaphthothiophenes	ND	70000	35000	ug/kg	
206-44-0	Fluoranthene	ND	70000	35000	ug/kg	
129-00-0	Pyrene	ND	70000	35000	ug/kg	
	C1-Fluoranthenes/Pyrenes	35200	70000	35000	ug/kg	J
	C2-Fluoranthenes/Pyrenes	ND	70000	35000	ug/kg	
	C3-Fluoranthenes/Pyrenes	ND	70000	35000	ug/kg	
243-17-4	Benzo(b)fluorene	ND	70000	35000	ug/kg	
205-12-9	Benzo(c)fluorene	ND	70000	35000	ug/kg	
3442-78-2	2-Methylpyrene	ND	70000	35000	ug/kg	
3353-12-6	4-Methylpyrene	ND	70000	35000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-027A		
Lab Sample ID:	MC20162-7	**Date Sampled:**	05/20/13
Matrix:	SO - Oil	**Date Received:**	05/21/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
2381-21-7	1-Methylpyrene	ND	70000	35000	ug/kg	
56-55-3	Benzo(a)anthracene	ND	70000	35000	ug/kg	
218-01-9	Chrysene	ND	70000	35000	ug/kg	
	C1-Benzo(a)anthracenes/Chrys	ND	70000	35000	ug/kg	
	C2-Benzo(a)anthracenes/Chrys	ND	70000	35000	ug/kg	
	C3-Benzo(a)anthracenes/Chrys	ND	70000	35000	ug/kg	
	C4-Benzo(a)anthracenes/Chrys	ND	70000	35000	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	70000	35000	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	70000	35000	ug/kg	
192-97-2	Benzo(e)pyrene	ND	70000	35000	ug/kg	
50-32-8	Benzo(a)pyrene	ND	70000	35000	ug/kg	
198-55-0	Perylene	ND	70000	35000	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	70000	35000	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	70000	35000	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	70000	35000	ug/kg	
191-07-1	Coronene	ND	70000	35000	ug/kg	
3891-98-3	2,6,10-trimethyldodecane (138	79900	70000	35000	ug/kg	
3891-99-4	2,6,10-trimethyltridecane (147	97500	70000	35000	ug/kg	
3892-00-0	2,6,10-trimethylpentadecane (1	66700	70000	35000	ug/kg	J
	C-17	173000	70000	35000	ug/kg	
1921-70-6	Pristane	135000	70000	35000	ug/kg	
	C-18	140000	70000	35000	ug/kg	
638-36-8	Phytane	86100	70000	35000	ug/kg	
78-00-2	Tetraethyl lead	ND	70000	35000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1146-65-2	Naphthalene-d8	93%		40-140%
1517-22-2	Phenanthrene-d10	90%		40-140%
	Perylene-d12	98%		40-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID: R-027A
Lab Sample ID: MC20162-7 **Date Sampled:** 05/20/13
Matrix: SO - Oil **Date Received:** 05/21/13
Method: ASTM D3328-06 SW846 3580A **Percent Solids:** n/a
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BG40278.D	1	05/31/13	KR	05/24/13	OP33310	GBG1520
Run #2							

	Initial Weight	Final Volume
Run #1	0.0142 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-8	9030	140	70	mg/kg	
	C-9	5150	140	70	mg/kg	
	C-10	2590	140	70	mg/kg	
	C-11	2510	140	70	mg/kg	
	C-12	2640	140	70	mg/kg	
	C-13	1640	140	70	mg/kg	
3891-98-3	2,6,10-trimethyldodecane (138	119	140	70	mg/kg	J
	C-14	645	140	70	mg/kg	
3891-99-4	2,6,10-trimethyltridecane (147	137	140	70	mg/kg	J
	C-15	371	140	70	mg/kg	
	C-16	286	140	70	mg/kg	
3892-00-0	2,6,10-trimethylpentadecane (1	112	140	70	mg/kg	J
	C-17	230	140	70	mg/kg	
1921-70-6	Pristane	177	140	70	mg/kg	
	C-18	165	140	70	mg/kg	
638-36-8	Phytane	86.0	140	70	mg/kg	J
	C-19	ND	140	70	mg/kg	
	C-20	71.9	140	70	mg/kg	J
	C-21	ND	140	70	mg/kg	
	C-22	ND	140	70	mg/kg	
	C-23	ND	140	70	mg/kg	
	C-24	ND	140	70	mg/kg	
	C-25	ND	140	70	mg/kg	
	C-26	ND	140	70	mg/kg	
	C-27	ND	140	70	mg/kg	
	C-28	ND	140	70	mg/kg	
	C-29	ND	140	70	mg/kg	
	C-30	ND	140	70	mg/kg	
	C-31	ND	140	70	mg/kg	
	C-32	ND	140	70	mg/kg	
	C-33	ND	140	70	mg/kg	
	C-34	ND	140	70	mg/kg	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-027A		
Lab Sample ID:	MC20162-7	**Date Sampled:**	05/20/13
Matrix:	SO - Oil	**Date Received:**	05/21/13
Method:	ASTM D3328-06 SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-35	ND	140	70	mg/kg	
	C-36	ND	140	70	mg/kg	
	C-37	ND	140	70	mg/kg	
	C-38	ND	140	70	mg/kg	
	C-39	ND	140	70	mg/kg	
	C-40	ND	140	70	mg/kg	
	TPH (C8-C40)	688000	14000	7000	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	97%		40-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	R-031A		
Lab Sample ID:	MC20162-8	**Date Sampled:**	05/20/13
Matrix:	SO - Oil	**Date Received:**	05/21/13
Method:	SW846 8260B	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	K71070.D	1	06/13/13	GK	n/a	n/a	MSK2323
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	1.02 g	10.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
1634-04-4	Methyl Tert Butyl Ether	111000	980	140	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	92%		70-130%
2037-26-5	Toluene-D8	122%		70-130%
460-00-4	4-Bromofluorobenzene	485% [a]		70-130%

(a) Outside control limits due to possible matrix interference.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	R-031A		
Lab Sample ID:	MC20162-8	**Date Sampled:**	05/20/13
Matrix:	SO - Oil	**Date Received:**	05/21/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	S32766.D	50	05/29/13	KR	05/24/13	OP33312	MSS1429
Run #2							

	Initial Weight	Final Volume
Run #1	0.0185 g	2.0 ml
Run #2		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	11300000	54000	27000	ug/kg	
	C1-Benzene	26400000	54000	27000	ug/kg	
	C2-Benzenes	43500000	54000	27000	ug/kg	
	C3-Benzenes	39400000	54000	27000	ug/kg	
	C4-Benzenes	19000000	54000	27000	ug/kg	
	C5-Benzenes	5660000	54000	27000	ug/kg	
108-87-2	Methylcyclohexane	6840000	54000	27000	ug/kg	
108-88-3	Toluene	48300000	54000	27000	ug/kg	
100-41-4	Ethylbenzene	21000000	54000	27000	ug/kg	
	m,p-Xylene	65000000	54000	27000	ug/kg	
95-47-6	o-Xylene	24200000	54000	27000	ug/kg	
98-82-8	Isopropylbenzene	1800000	54000	27000	ug/kg	
103-65-1	n-Propylbenzene	6940000	54000	27000	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	10800000	54000	27000	ug/kg	
526-73-8	1,2,3-Trimethylbenzene	7050000	54000	27000	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	34000000	54000	27000	ug/kg	
98-06-6	t-Butylbenzene	4080000	54000	27000	ug/kg	
135-98-8	sec-Butylbenzene	828000	54000	27000	ug/kg	
99-87-6	p-Isopropyltoluene	1040000	54000	27000	ug/kg	
104-51-8	n-Butylbenzene	2770000	54000	27000	ug/kg	
493-02-7	trans-Decalin	87800	54000	27000	ug/kg	
493-01-6	cis-Decalin	34200	54000	27000	ug/kg	J
	C1-Decalins	176000	54000	27000	ug/kg	
	C2-Decalins	139000	54000	27000	ug/kg	
	C3-Decalins	ND	54000	27000	ug/kg	
	C4-Decalins	ND	54000	27000	ug/kg	
11095-43-5	Benzo(b)thiophene	489000	54000	27000	ug/kg	
	C1-Benzo(b)thiophenes	491000	54000	27000	ug/kg	
	C2-Benzo(b)thiophenes	104000	54000	27000	ug/kg	
	C3-Benzo(b)thiophenes	ND	54000	27000	ug/kg	
	C4-Benzo(b)thiophenes	ND	54000	27000	ug/kg	
91-20-3	Naphthalene	5420000	54000	27000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-031A		
Lab Sample ID:	MC20162-8	**Date Sampled:**	05/20/13
Matrix:	SO - Oil	**Date Received:**	05/21/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	5720000	54000	27000	ug/kg	
90-12-0	1-Methylnaphthalene	2580000	54000	27000	ug/kg	
	C1-Naphthalenes	5250000	54000	27000	ug/kg	
	C2-Naphthalenes	1380000	54000	27000	ug/kg	
	C3-Naphthalenes	306000	54000	27000	ug/kg	
	C4-Naphthalenes	82400	54000	27000	ug/kg	
92-52-4	Biphenyl	113000	54000	27000	ug/kg	
208-96-8	Acenaphthylene	ND	54000	27000	ug/kg	
83-32-9	Acenaphthene	ND	54000	27000	ug/kg	
132-64-9	Dibenzofuran	ND	54000	27000	ug/kg	
86-73-7	Fluorene	ND	54000	27000	ug/kg	
	C1-Fluorenes	28800	54000	27000	ug/kg	J
	C2-Fluorenes	39500	54000	27000	ug/kg	J
	C3-Fluorenes	ND	54000	27000	ug/kg	
132-65-0	Dibenzothiophene	ND	54000	27000	ug/kg	
	C1-Dibenzothiophenes	ND	54000	27000	ug/kg	
	C2-Dibenzothiophenes	ND	54000	27000	ug/kg	
	C3-Dibenzothiophenes	ND	54000	27000	ug/kg	
	C4-Dibenzothiophenes	ND	54000	27000	ug/kg	
85-01-8	Phenanthrene	33600	54000	27000	ug/kg	J
120-12-7	Anthracene	ND	54000	27000	ug/kg	
	C1-Phenanthrenes/Anthracene	61800	54000	27000	ug/kg	
	C2-Phenanthrenes/Anthracene	47500	54000	27000	ug/kg	J
	C3-Phenanthrenes/Anthracene	ND	54000	27000	ug/kg	
	C4-Phenanthrenes/Anthracene	ND	54000	27000	ug/kg	
483-65-8	Retene	ND	54000	27000	ug/kg	
239-35-0	Benzo(b)naphtho(2,1-d)thioph	ND	54000	27000	ug/kg	
	C1-Benzonaphthothiophenes	ND	54000	27000	ug/kg	
	C2-Benzonaphthothiophenes	ND	54000	27000	ug/kg	
	C3-Benzonaphthothiophenes	ND	54000	27000	ug/kg	
	C4-Benzonaphthothiophenes	ND	54000	27000	ug/kg	
206-44-0	Fluoranthene	ND	54000	27000	ug/kg	
129-00-0	Pyrene	ND	54000	27000	ug/kg	
	C1-Fluoranthenes/Pyrenes	ND	54000	27000	ug/kg	
	C2-Fluoranthenes/Pyrenes	ND	54000	27000	ug/kg	
	C3-Fluoranthenes/Pyrenes	ND	54000	27000	ug/kg	
243-17-4	Benzo(b)fluorene	ND	54000	27000	ug/kg	
205-12-9	Benzo(c)fluorene	ND	54000	27000	ug/kg	
3442-78-2	2-Methylpyrene	ND	54000	27000	ug/kg	
3353-12-6	4-Methylpyrene	ND	54000	27000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-031A		
Lab Sample ID:	MC20162-8	**Date Sampled:**	05/20/13
Matrix:	SO - Oil	**Date Received:**	05/21/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
2381-21-7	1-Methylpyrene	ND	54000	27000	ug/kg	
56-55-3	Benzo(a)anthracene	ND	54000	27000	ug/kg	
218-01-9	Chrysene	ND	54000	27000	ug/kg	
	C1-Benzo(a)anthracenes/Chrys	ND	54000	27000	ug/kg	
	C2-Benzo(a)anthracenes/Chrys	ND	54000	27000	ug/kg	
	C3-Benzo(a)anthracenes/Chrys	ND	54000	27000	ug/kg	
	C4-Benzo(a)anthracenes/Chrys	ND	54000	27000	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	54000	27000	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	54000	27000	ug/kg	
192-97-2	Benzo(e)pyrene	ND	54000	27000	ug/kg	
50-32-8	Benzo(a)pyrene	ND	54000	27000	ug/kg	
198-55-0	Perylene	ND	54000	27000	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	54000	27000	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	54000	27000	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	54000	27000	ug/kg	
191-07-1	Coronene	ND	54000	27000	ug/kg	
3891-98-3	2,6,10-trimethyldodecane (138	66800	54000	27000	ug/kg	
3891-99-4	2,6,10-trimethyltridecane (147	61900	54000	27000	ug/kg	
3892-00-0	2,6,10-trimethylpentadecane (1	ND	54000	27000	ug/kg	
	C-17	88900	54000	27000	ug/kg	
1921-70-6	Pristane	77100	54000	27000	ug/kg	
	C-18	74400	54000	27000	ug/kg	
638-36-8	Phytane	46900	54000	27000	ug/kg	J
78-00-2	Tetraethyl lead	ND	54000	27000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1146-65-2	Naphthalene-d8	93%		40-140%
1517-22-2	Phenanthrene-d10	71%		40-140%
	Perylene-d12	53%		40-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID: R-031A
Lab Sample ID: MC20162-8 **Date Sampled:** 05/20/13
Matrix: SO - Oil **Date Received:** 05/21/13
Method: ASTM D3328-06 SW846 3580A **Percent Solids:** n/a
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	BG40280.D	1	06/01/13	KR	05/24/13	OP33310	GBG1520
Run #2							

	Initial Weight	Final Volume
Run #1	0.0185 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-8	8510	110	54	mg/kg	
	C-9	4600	110	54	mg/kg	
	C-10	2070	110	54	mg/kg	
	C-11	2080	110	54	mg/kg	
	C-12	2450	110	54	mg/kg	
	C-13	1270	110	54	mg/kg	
3891-98-3	2,6,10-trimethyldodecane (138	104	110	54	mg/kg	J
	C-14	526	110	54	mg/kg	
3891-99-4	2,6,10-trimethyltridecane (147	99.9	110	54	mg/kg	J
	C-15	268	110	54	mg/kg	
	C-16	194	110	54	mg/kg	
3892-00-0	2,6,10-trimethylpentadecane (1	71.5	110	54	mg/kg	J
	C-17	147	110	54	mg/kg	
1921-70-6	Pristane	116	110	54	mg/kg	
	C-18	100	110	54	mg/kg	J
638-36-8	Phytane	ND	110	54	mg/kg	
	C-19	ND	110	54	mg/kg	
	C-20	ND	110	54	mg/kg	
	C-21	ND	110	54	mg/kg	
	C-22	ND	110	54	mg/kg	
	C-23	ND	110	54	mg/kg	
	C-24	ND	110	54	mg/kg	
	C-25	ND	110	54	mg/kg	
	C-26	ND	110	54	mg/kg	
	C-27	ND	110	54	mg/kg	
	C-28	ND	110	54	mg/kg	
	C-29	ND	110	54	mg/kg	
	C-30	ND	110	54	mg/kg	
	C-31	ND	110	54	mg/kg	
	C-32	ND	110	54	mg/kg	
	C-33	ND	110	54	mg/kg	
	C-34	ND	110	54	mg/kg	

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-031A		
Lab Sample ID:	MC20162-8	**Date Sampled:**	05/20/13
Matrix:	SO - Oil	**Date Received:**	05/21/13
Method:	ASTM D3328-06 SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-35	ND	110	54	mg/kg	
	C-36	ND	110	54	mg/kg	
	C-37	ND	110	54	mg/kg	
	C-38	ND	110	54	mg/kg	
	C-39	ND	110	54	mg/kg	
	C-40	ND	110	54	mg/kg	
	TPH (C8-C40)	659000	11000	5400	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	94%		40-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	R-047A		
Lab Sample ID:	MC20162-9	**Date Sampled:**	05/20/13
Matrix:	SO - Oil	**Date Received:**	05/21/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	S32767.D	50	05/29/13	KR	05/24/13	OP33312	MSS1429
Run #2							

	Initial Weight	Final Volume
Run #1	0.0154 g	2.0 ml
Run #2		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	449000	65000	32000	ug/kg	
	C1-Benzene	1460000	65000	32000	ug/kg	
	C2-Benzenes	39900000	65000	32000	ug/kg	
	C3-Benzenes	65100000	65000	32000	ug/kg	
	C4-Benzenes	35000000	65000	32000	ug/kg	
	C5-Benzenes	9960000	65000	32000	ug/kg	
108-87-2	Methylcyclohexane	3460000	65000	32000	ug/kg	
108-88-3	Toluene	2670000	65000	32000	ug/kg	
100-41-4	Ethylbenzene	5200000	65000	32000	ug/kg	
	m,p-Xylene	66800000	65000	32000	ug/kg	
95-47-6	o-Xylene	26900000	65000	32000	ug/kg	
98-82-8	Isopropylbenzene	926000	65000	32000	ug/kg	
103-65-1	n-Propylbenzene	3930000	65000	32000	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	21700000	65000	32000	ug/kg	
526-73-8	1,2,3-Trimethylbenzene	13200000	65000	32000	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	58300000	65000	32000	ug/kg	
98-06-6	t-Butylbenzene	6980000	65000	32000	ug/kg	
135-98-8	sec-Butylbenzene	941000	65000	32000	ug/kg	
99-87-6	p-Isopropyltoluene	1920000	65000	32000	ug/kg	
104-51-8	n-Butylbenzene	3100000	65000	32000	ug/kg	
493-02-7	trans-Decalin	161000	65000	32000	ug/kg	
493-01-6	cis-Decalin	90700	65000	32000	ug/kg	
	C1-Decalins	328000	65000	32000	ug/kg	
	C2-Decalins	246000	65000	32000	ug/kg	
	C3-Decalins	ND	65000	32000	ug/kg	
	C4-Decalins	ND	65000	32000	ug/kg	
11095-43-5	Benzo(b)thiophene	543000	65000	32000	ug/kg	
	C1-Benzo(b)thiophenes	639000	65000	32000	ug/kg	
	C2-Benzo(b)thiophenes	127000	65000	32000	ug/kg	
	C3-Benzo(b)thiophenes	ND	65000	32000	ug/kg	
	C4-Benzo(b)thiophenes	ND	65000	32000	ug/kg	
91-20-3	Naphthalene	8000000	65000	32000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-047A		
Lab Sample ID:	MC20162-9	**Date Sampled:**	05/20/13
Matrix:	SO - Oil	**Date Received:**	05/21/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
91-57-6	2-Methylnaphthalene	8280000	65000	32000	ug/kg	
90-12-0	1-Methylnaphthalene	3720000	65000	32000	ug/kg	
	C1-Naphthalenes	7620000	65000	32000	ug/kg	
	C2-Naphthalenes	2120000	65000	32000	ug/kg	
	C3-Naphthalenes	530000	65000	32000	ug/kg	
	C4-Naphthalenes	153000	65000	32000	ug/kg	
92-52-4	Biphenyl	161000	65000	32000	ug/kg	
208-96-8	Acenaphthylene	ND	65000	32000	ug/kg	
83-32-9	Acenaphthene	ND	65000	32000	ug/kg	
132-64-9	Dibenzofuran	ND	65000	32000	ug/kg	
86-73-7	Fluorene	34800	65000	32000	ug/kg	J
	C1-Fluorenes	46200	65000	32000	ug/kg	J
	C2-Fluorenes	66400	65000	32000	ug/kg	
	C3-Fluorenes	ND	65000	32000	ug/kg	
132-65-0	Dibenzothiophene	ND	65000	32000	ug/kg	
	C1-Dibenzothiophenes	ND	65000	32000	ug/kg	
	C2-Dibenzothiophenes	ND	65000	32000	ug/kg	
	C3-Dibenzothiophenes	ND	65000	32000	ug/kg	
	C4-Dibenzothiophenes	ND	65000	32000	ug/kg	
85-01-8	Phenanthrene	61900	65000	32000	ug/kg	J
120-12-7	Anthracene	ND	65000	32000	ug/kg	
	C1-Phenanthrenes/Anthracene	109000	65000	32000	ug/kg	
	C2-Phenanthrenes/Anthracene	83200	65000	32000	ug/kg	
	C3-Phenanthrenes/Anthracene	ND	65000	32000	ug/kg	
	C4-Phenanthrenes/Anthracene	ND	65000	32000	ug/kg	
483-65-8	Retene	ND	65000	32000	ug/kg	
239-35-0	Benzo(b)naphtho(2,1-d)thioph	ND	65000	32000	ug/kg	
	C1-Benzonaphthothiophenes	ND	65000	32000	ug/kg	
	C2-Benzonaphthothiophenes	ND	65000	32000	ug/kg	
	C3-Benzonaphthothiophenes	ND	65000	32000	ug/kg	
	C4-Benzonaphthothiophenes	ND	65000	32000	ug/kg	
206-44-0	Fluoranthene	ND	65000	32000	ug/kg	
129-00-0	Pyrene	ND	65000	32000	ug/kg	
	C1-Fluoranthenes/Pyrenes	ND	65000	32000	ug/kg	
	C2-Fluoranthenes/Pyrenes	ND	65000	32000	ug/kg	
	C3-Fluoranthenes/Pyrenes	ND	65000	32000	ug/kg	
243-17-4	Benzo(b)fluorene	ND	65000	32000	ug/kg	
205-12-9	Benzo(c)fluorene	ND	65000	32000	ug/kg	
3442-78-2	2-Methylpyrene	ND	65000	32000	ug/kg	
3353-12-6	4-Methylpyrene	ND	65000	32000	ug/kg	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-047A		
Lab Sample ID:	MC20162-9	**Date Sampled:**	05/20/13
Matrix:	SO - Oil	**Date Received:**	05/21/13
Method:	D5739-06/8270C SIM SW846 3580A	**Percent Solids:**	n/a
Project:	Price Service Center, 4004 South Park Avenue, Tucson, AZ		

Alkyl PAHs

CAS No.	Compound	Result	RL	MDL	Units	Q
2381-21-7	1-Methylpyrene	ND	65000	32000	ug/kg	
56-55-3	Benzo(a)anthracene	ND	65000	32000	ug/kg	
218-01-9	Chrysene	ND	65000	32000	ug/kg	
	C1-Benzo(a)anthracenes/Chrys	ND	65000	32000	ug/kg	
	C2-Benzo(a)anthracenes/Chrys	ND	65000	32000	ug/kg	
	C3-Benzo(a)anthracenes/Chrys	ND	65000	32000	ug/kg	
	C4-Benzo(a)anthracenes/Chrys	ND	65000	32000	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	65000	32000	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	65000	32000	ug/kg	
192-97-2	Benzo(e)pyrene	ND	65000	32000	ug/kg	
50-32-8	Benzo(a)pyrene	ND	65000	32000	ug/kg	
198-55-0	Perylene	ND	65000	32000	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	65000	32000	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	65000	32000	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	65000	32000	ug/kg	
191-07-1	Coronene	ND	65000	32000	ug/kg	
3891-98-3	2,6,10-trimethyldodecane (138	85800	65000	32000	ug/kg	
3891-99-4	2,6,10-trimethyltridecane (147	93800	65000	32000	ug/kg	
3892-00-0	2,6,10-trimethylpentadecane (1	33800	65000	32000	ug/kg	J
	C-17	109000	65000	32000	ug/kg	
1921-70-6	Pristane	96400	65000	32000	ug/kg	
	C-18	86100	65000	32000	ug/kg	
638-36-8	Phytane	65700	65000	32000	ug/kg	
78-00-2	Tetraethyl lead	449000	65000	32000	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1146-65-2	Naphthalene-d8	99%		40-140%
1517-22-2	Phenanthrene-d10	78%		40-140%
	Perylene-d12	59%		40-140%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

New England ACCUTEST LABORATORIES

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

PHOENIX

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking # 8015 5480 0997
Bottle Order Control #
Accutest Quote #
Accutest NC Job #: C MC20162

Client / Reporting Information

Company Name: City of Tucson
Address: P.O. Box 27210
City: Tucson State: AZ Zip: 85726
Project Contact: Lori Ehman
Phone #: 520-831-3702
Samplers's Name: Kristie Mendoza

Project Information

Project Name: Price Service Center
Street: 4004 S. Park Ave
City: Tucson State: AZ 85714
Project #: PO1064
EMAIL: Lori.Ehman@Tucsonaz.gov
Client Purchase Order #

Requested Analysis: Fuel Forensics

Matrix Codes: WW- Wastewater; GW- Ground Water; SW- Surface Water; SO- Soil; Ol-Oil; WP-Wipe; LIQ - Non-aqueous Liquid; AIR; DW- Drinking Water (Perchlorate Only)

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Fuel Forensics	LAB USE ONLY
-1	PCM-516A	4/22/13	0941	KM	~~GW~~ L	2					X				✓	
-2	PCM-510B	4/22/13	1035	KM	L	2					X				✓	
-3	PCM-512A	4/22/13	1051	KM	L	2					X				✓	
-4	WR-220A	4/22/13	1141	KM	L	2					X				✓	
-5	R-047A	4/23/13	0925	KM	L	2					X				✓	
	~~R-030A~~	~~4/23/13~~	~~0950~~	~~KM~~	~~L~~	~~2~~					~~X~~				~~✓~~ KM 4/23/13	
-6	R-027A	4/23/13	1011	KM	L	2					X				✓	
																13D

Turnaround Time (Business days)

Approved By:/ Date:

- 10 Day
- 5 Day
- 3 Day (125% markup)
- 2 Day (150% markup)
- 1 Day *(200% markup)*
- Same Day (300% markup)

Emergency T/A data available VIA Lablink

Data Deliverable Information

- Commercial "A" - Results only
- Commercial "B" - Results with QC summaries
- Commerical "B+" - Results, QC, and chromatograms
- FULT1 - Level 4 data package
- EDF for Geotracker — EDD Format
- Provide EDF Global ID
- Provide EDF Logcode:

Comments / Remarks

L = Liquid

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	[signature]	4/23/13 1135	1 Jerri Collins	2 Jerri Collins	4/23/13 12:25	2 FedEx
3	FedEx	4/23/13 09:30	3 [signature]	4		4
5			5			

Custody Seal #

Appropriate Bottle / Pres. Y / N Headspace Y / N On Ice Y / N Cooler Temp 1.5 °C

Labels match Coc? Y / N Separate Receiving Check List used: Y / N

MC20162: Chain of Custody
Page 1 of 3

PHOENIX ACCUTEST LABORATORIES

CHAIN OF CUSTODY

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

FED-EX Tracking # 801102707556
Bottle Order Control # MC21038
Accutest Quote #
Accutest NC Job #: MC20162

Client / Reporting Information

Company Name: City of Tucson - Environmental Services
Address: P.O. Box 27210
City: Tucson State: AZ Zip: 85726
Project Contact: Lori Ehman
Phone #: 520-837-3702
Samplers's Name: Kristie Mendoza / Lori Ehman

Project Information

Project Name: Price Service Center P01064
Street:
City: State:
Project #: P01064
EMAIL: lori.ehman@TucsonAz.gov
Client Purchase Order #:

MC21038

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	ENCORE	Fuel Forensics											Matrix Codes / LAB USE ONLY
7-1	R-027A	5/20/13	1040	KM	Fuel	2									X											
8-2	R-031A	5/20/13	1140	KM	Fuel	2									X											
9-3	R-047A	5/20/13	1157	KM	Fuel	2									X											

Matrix Codes: WW- Wastewater; GW- Ground Water; SW- Surface Water; SO- Soil; OI-Oil; WP-Wipe; LIQ - Non-aqueous Liquid; AIR; DW- Drinking Water (Perchlorate Only)

Turnaround Time (Business days)

Approved By:/ Date:

- 10 Day
- 5 Day
- 3 Day (125% markup)
- 2 Day (150% markup)
- 1 Day *(200% markup)*
- Same Day (300% markup)

Emergency T/A data available VIA Lablink

Data Deliverable Information

- Commercial "A" - Results only
- Commercial "B" - Results with QC summaries
- Commerical "B+" - Results, QC, and chromatograms
- FULT1 - Level 4 data package
- EDF for Geotracker EDD Format
- Provide EDF Global ID
- Provide EDF Logcode:

Comments / Remarks

Lic 14D

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	5/20/13 12:35	1 Fed EX	2 Fedex	5/21/13 920	2
3		3	4		4
5		5	Custody Seal #		

Appropriate Bottle / Pres. Y / N Headspace Y / N On Ice Y / N Cooler Temp 0.8
Labels match Coc? Y / N Separate Receiving Check List used: Y / N

MC20162: Chain of Custody
Page 2 of 3

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: MC20162 **Client:** CITY OF TUCSON **Immediate Client Services Action Required:** No

Date / Time Received: 5/21/2013 **Delivery Method:** **Client Service Action Required at Login:** No

Project: PINE SERVICE CENTER **No. Coolers:** 1 **Airbill #'s:**

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:	Infared gun	
3. Cooler media:	Ice (bag)	

Quality Control Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☐	☑
2. Trip Blank listed on COC:	☐	☐	☑
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments

Accutest Laboratories
V:508.481.6200
495 Technology Center West, Bldg One
F: 508.481.7753
Marlborough, MA
www/accutest.com

MC20162: Chain of Custody
Page 3 of 3

New England ACCUTEST LABORATORIES

GC/MS Volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2323-MB	K71049.D	1	06/13/13	GK	n/a	n/a	MSK2323

The QC reported here applies to the following samples: **Method:** SW846 8260B

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6, MC20162-7, MC20162-8

CAS No.	Compound	Result	RL	MDL	Units	Q
1634-04-4	Methyl Tert Butyl Ether	ND	100	14	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	124%	70-130%
2037-26-5	Toluene-D8	109%	70-130%
460-00-4	4-Bromofluorobenzene	113%	70-130%

Blank Spike Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MSK2323-BS	K71046.D	1	06/13/13	GK	n/a	n/a	MSK2323

The QC reported here applies to the following samples: **Method:** SW846 8260B

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6, MC20162-7, MC20162-8

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
1634-04-4	Methyl Tert Butyl Ether	2500	2630	105	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	109%	70-130%
2037-26-5	Toluene-D8	106%	70-130%
460-00-4	4-Bromofluorobenzene	114%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
MC21696-1MS	K71061.D	1	06/13/13	GK	n/a	n/a	MSK2323
MC21696-1MSD	K71062.D	1	06/13/13	GK	n/a	n/a	MSK2323
MC21696-1	K71050.D	1	06/13/13	GK	n/a	n/a	MSK2323

The QC reported here applies to the following samples: **Method:** SW846 8260B

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6, MC20162-7, MC20162-8

CAS No.	Compound	MC21696-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
1634-04-4	Methyl Tert Butyl Ether	ND		4380	4690	107	4560	104	3	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	MC21696-1	Limits
1868-53-7	Dibromofluoromethane	117%	112%	124%	70-130%
2037-26-5	Toluene-D8	112%	109%	106%	70-130%
460-00-4	4-Bromofluorobenzene	113%	115%	115%	70-130%

* = Outside of Control Limits.

Volatile Surrogate Recovery Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Method: SW846 8260B **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC20162-1	K71063.D	99.0	93.0	97.0
MC20162-2	K71064.D	102.0	66.0* [a]	146.0* [a]
MC20162-3	K71065.D	100.0	83.0	187.0* [a]
MC20162-4	K71066.D	101.0	109.0	179.0* [a]
MC20162-5	K71067.D	107.0	87.0	682.0* [a]
MC20162-6	K71068.D	96.0	108.0	307.0* [a]
MC20162-7	K71069.D	104.0	131.0* [a]	716.0* [a]
MC20162-8	K71070.D	92.0	122.0	485.0* [a]
MC21696-1MS	K71061.D	117.0	112.0	113.0
MC21696-1MSD	K71062.D	112.0	109.0	115.0
MSK2323-BS	K71046.D	109.0	106.0	114.0
MSK2323-MB	K71049.D	124.0	109.0	113.0

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	70-130%
S2 = Toluene-D8	70-130%
S3 = 4-Bromofluorobenzene	70-130%

(a) Outside control limits due to possible matrix interference.

New England ACCUTEST LABORATORIES

GC/MS Volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
Tomasz Torski
06/14/13 09:04

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71063.D
Acq On : 13 Jun 2013 4:52 pm
Operator : GaryK
Sample : mc20162-1
Misc : ms29103,msk2323,1.076,,100,10,1
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 14 09:07:26 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert butyl alcohol-d9	6.407	65	41706m	500.00	ug/kg	0.00
4) pentafluorobenzene	8.863	168	221902	50.00	ug/kg	0.04
45) 1,4-difluorobenzene	9.710	114	274177	50.00	ug/kg	0.04
69) chlorobenzene-d5	12.949	82	156143m	50.00	ug/kg	0.02
85) 1,4-dichlorobenzene-d4	15.511	152	140563m	50.00	ug/kg	0.02
System Monitoring Compounds						
41) dibromofluoromethane (s)	8.491	113	106383	49.70	ug/kg	0.04
Spiked Amount 50.000	Range 70 - 130		Recovery = 99.40%			
63) toluene-d8 (s)	11.503	98	340114	46.69	ug/kg	0.03
Spiked Amount 50.000	Range 70 - 130		Recovery = 93.38%			
87) bromofluorobenzene (s)	14.159	95	142425m	48.54	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 97.08%			
Target Compounds						Qvalue
6) chloromethane	4.523	50	5151	Below Cal		98

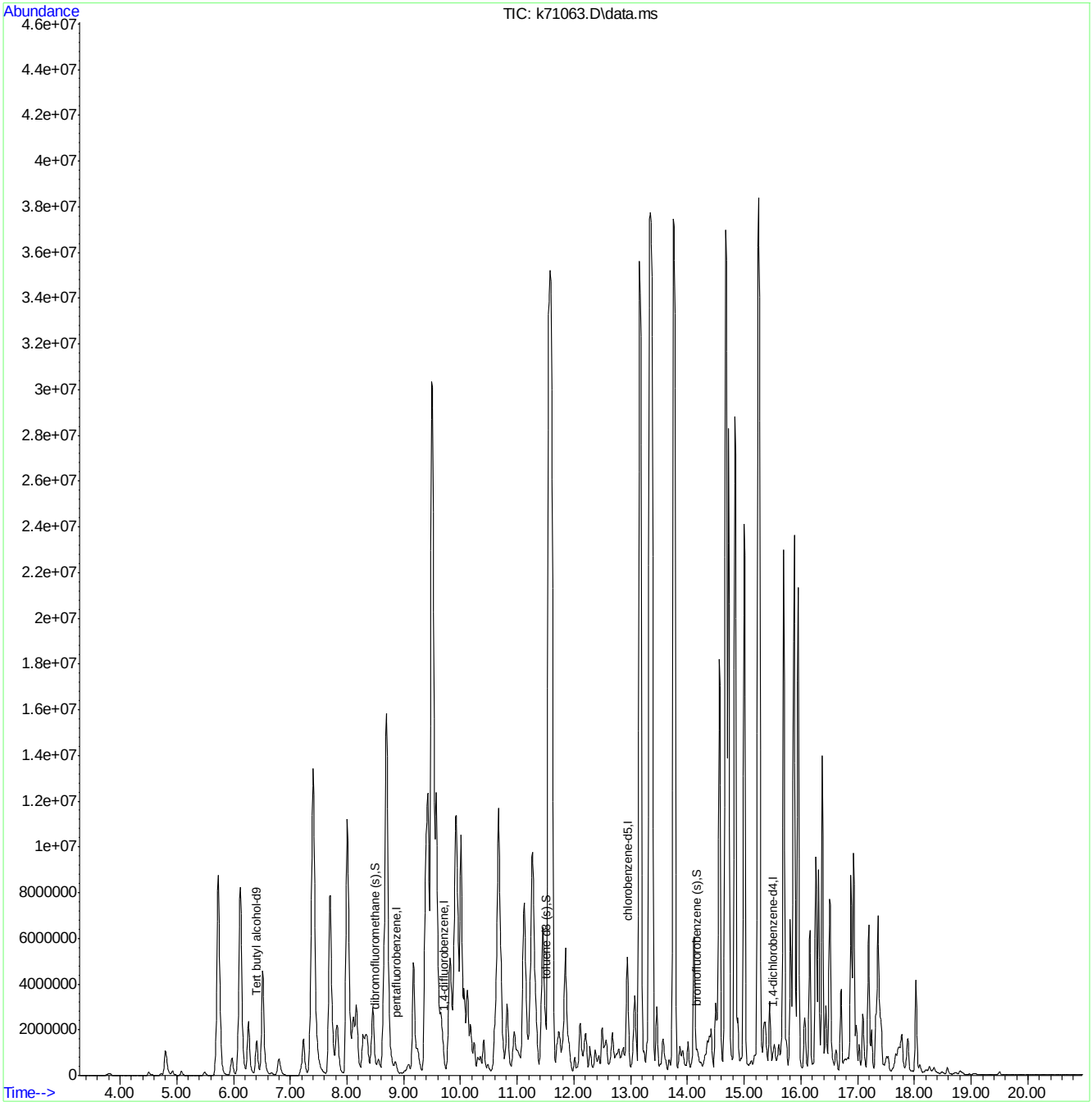
(#) = qualifier out of range (m) = manual integration (+) = signals summed

7.1.1
7

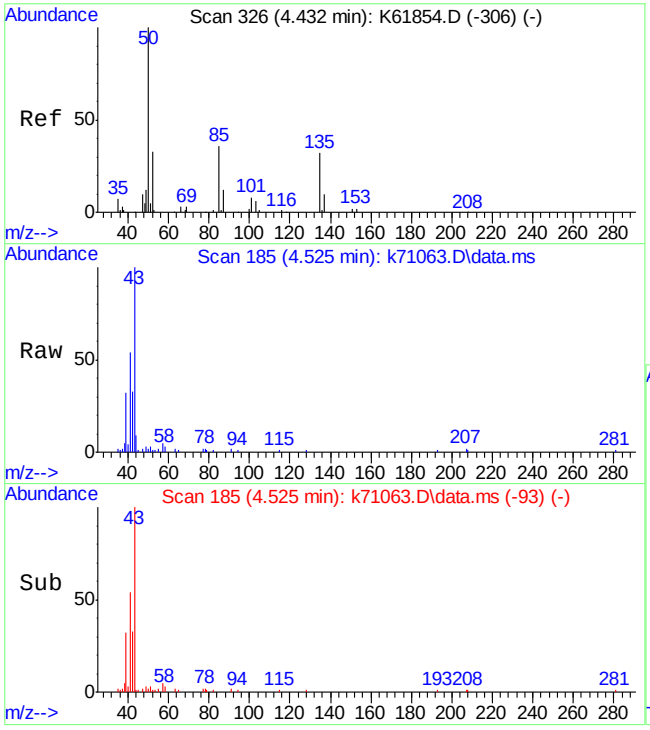
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71063.D
Acq On : 13 Jun 2013 4:52 pm
Operator : GaryK
Sample : mc20162-1
Misc : ms29103,msk2323,1.076,,100,10,1
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 14 09:07:26 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration



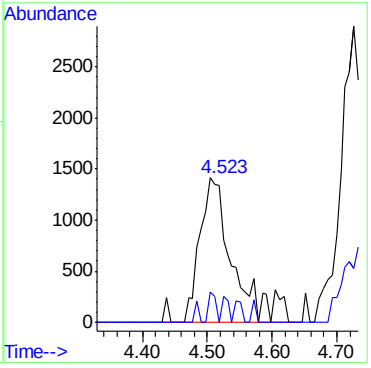
K13051313S.m Fri Jun 14 09:16:03 2013 Page: 2



#6
chloromethane
Concen: Below Cal
RT: 4.523 min Scan# 185
Delta R.T. 0.085 min
Lab File: k71063.D
Acq: 13 Jun 2013 4:52 pm

Tgt Ion: 50 Resp: 5151

Ion	Ratio	Lower	Upper
50	100		
52	30.8	1.8	61.8



Manual Integrations APPROVED (compounds with "m" flag)
Tomasz Torski
06/14/13 09:04

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71064.D
Acq On : 13 Jun 2013 5:19 pm
Operator : GaryK
Sample : mc20162-2
Misc : ms29103,msk2323,1.209,,100,10,1
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 14 07:57:24 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert butyl alcohol-d9	6.428	65	51396	500.00	ug/kg	0.01
4) pentafluorobenzene	8.862	168	240910	50.00	ug/kg	0.03
45) 1,4-difluorobenzene	9.707	114	304251	50.00	ug/kg	0.03
69) chlorobenzene-d5	12.956	82	165885m	50.00	ug/kg	0.02
85) 1,4-dichlorobenzene-d4	15.518	152	73840m	50.00	ug/kg	0.03
System Monitoring Compounds						
41) dibromofluoromethane (s)	8.491	113	118327	50.92	ug/kg	0.04
Spiked Amount 50.000	Range 70 - 130		Recovery = 101.84%			
63) toluene-d8 (s)	11.497	98	265478m	32.84	ug/kg	0.03
Spiked Amount 50.000	Range 70 - 130		Recovery = 65.68%#			
87) bromofluorobenzene (s)	14.159	95	112522m	73.00	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 146.00%#			
Target Compounds						Qvalue
20) methyl tert butyl ether	7.443	73	315683m	63.38	ug/kg	

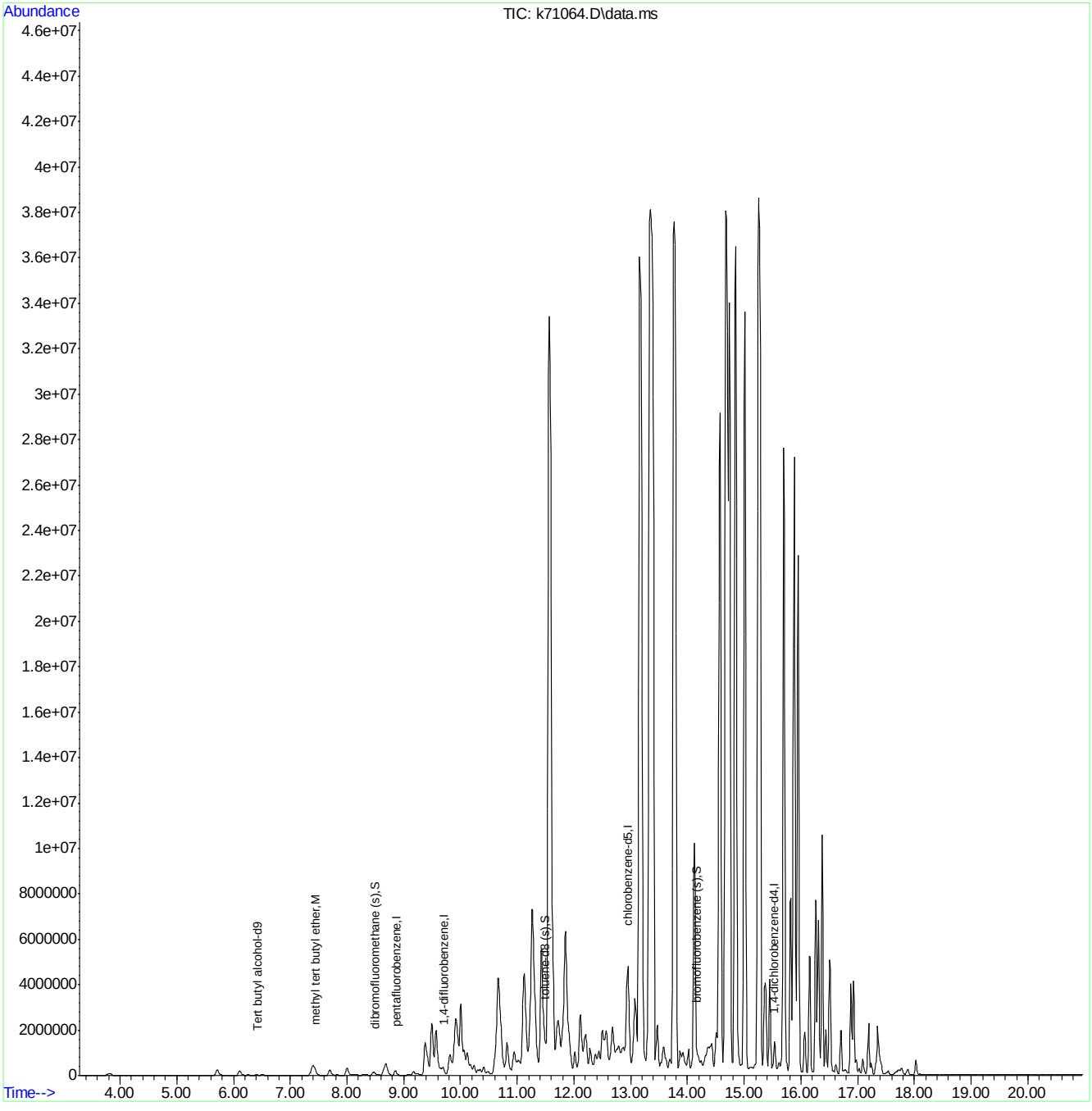
(#) = qualifier out of range (m) = manual integration (+) = signals summed

7.1.2
7

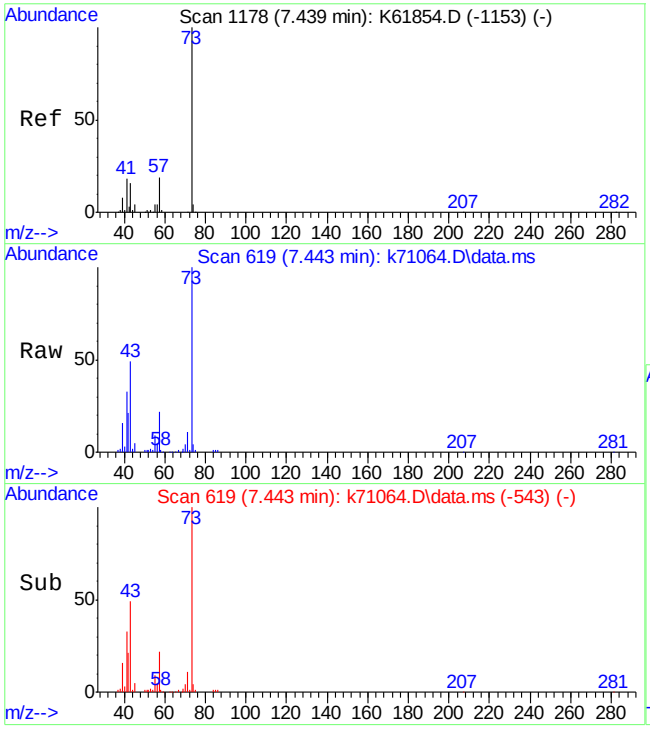
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71064.D
Acq On : 13 Jun 2013 5:19 pm
Operator : GaryK
Sample : mc20162-2
Misc : ms29103,msk2323,1.209,,100,10,1
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 14 07:57:24 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration



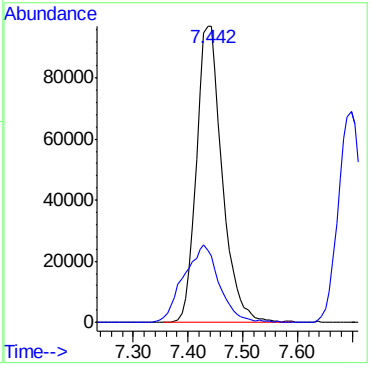
K13051313S.m Fri Jun 14 09:16:11 2013 Page: 2



#20
methyl tert butyl ether
Concen: 63.38 ug/kg m
RT: 7.443 min Scan# 619
Delta R.T. 0.011 min
Lab File: k71064.D
Acq: 13 Jun 2013 5:19 pm

Tgt Ion: 73 Resp: 315683

Ion	Ratio	Lower	Upper
73	100		
57	22.4	0.0	49.5



7.1.2

7

Manual Integrations APPROVED (compounds with "m" flag)
Tomasz Torski
06/14/13 09:04

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71065.D
Acq On : 13 Jun 2013 5:47 pm
Operator : GaryK
Sample : mc20162-3
Misc : ms29103,msk2323,1.019,,100,10,1
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jun 14 07:58:27 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert butyl alcohol-d9	6.420	65	50680m	500.00	ug/kg	0.00
4) pentafluorobenzene	8.860	168	244501	50.00	ug/kg	0.03
45) 1,4-difluorobenzene	9.707	114	294000	50.00	ug/kg	0.03
69) chlorobenzene-d5	12.956	82	178224m	50.00	ug/kg	0.02
85) 1,4-dichlorobenzene-d4	15.520	152	79859	50.00	ug/kg	0.03
System Monitoring Compounds						
41) dibromofluoromethane (s)	8.491	113	117681	49.90	ug/kg	0.03
Spiked Amount 50.000	Range 70 - 130		Recovery = 99.80%			
63) toluene-d8 (s)	11.497	98	323614m	41.43	ug/kg	0.03
Spiked Amount 50.000	Range 70 - 130		Recovery = 82.86%			
87) bromofluorobenzene (s)	14.159	95	155624m	93.35	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 186.70%#			
Target Compounds						Qvalue
20) methyl tert butyl ether	7.442	73	1781806	352.49	ug/kg	62

(#) = qualifier out of range (m) = manual integration (+) = signals summed

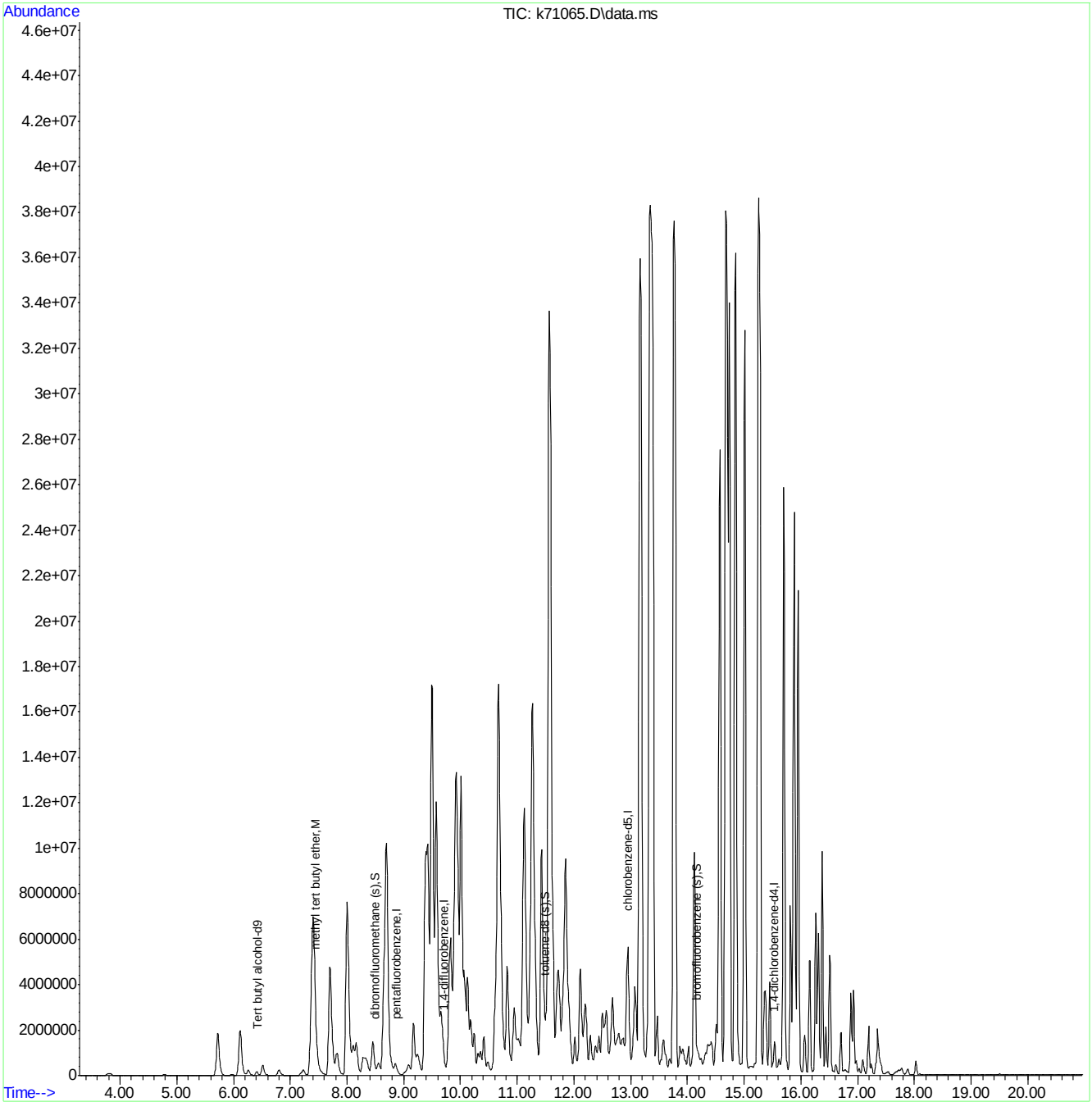
7.1.3

7

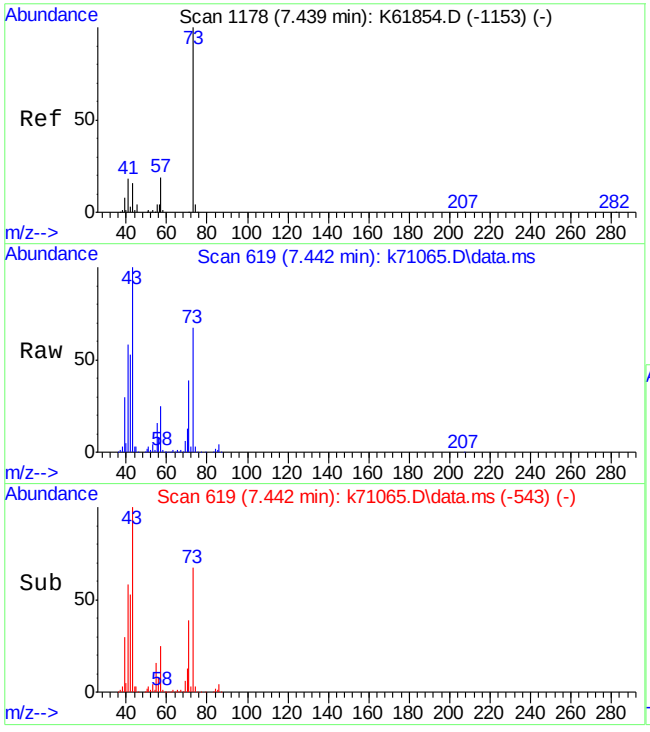
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71065.D
Acq On : 13 Jun 2013 5:47 pm
Operator : GaryK
Sample : mc20162-3
Misc : ms29103,msk2323,1.019,,100,10,1
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jun 14 07:58:27 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration



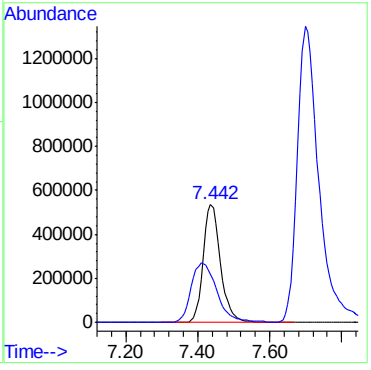
K13051313S.m Fri Jun 14 09:16:16 2013 Page: 2



#20
methyl tert butyl ether
Concen: 352.49 ug/kg
RT: 7.442 min Scan# 619
Delta R.T. 0.010 min
Lab File: k71065.D
Acq: 13 Jun 2013 5:47 pm

Tgt Ion: 73 Resp: 1781806

Ion	Ratio	Lower	Upper
73	100		
57	36.6	0.0	49.5



Manual Integrations APPROVED (compounds with "m" flag)
Tomasz Torski
06/14/13 09:04

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71066.D
Acq On : 13 Jun 2013 6:15 pm
Operator : GaryK
Sample : mc20162-4
Misc : ms29103,msk2323,1.094,,100,10,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jun 14 08:00:22 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert butyl alcohol-d9	6.414	65	63995m	500.00	ug/kg	0.00
4) pentafluorobenzene	8.865	168	232102	50.00	ug/kg	0.04
45) 1,4-difluorobenzene	9.712	114	273114	50.00	ug/kg	0.04
69) chlorobenzene-d5	12.956	82	173741m	50.00	ug/kg	0.02
85) 1,4-dichlorobenzene-d4	15.517	152	86294m	50.00	ug/kg	0.03
System Monitoring Compounds						
41) dibromofluoromethane (s)	8.494	113	113061	50.50	ug/kg	0.04
Spiked Amount 50.000	Range 70 - 130		Recovery = 101.00%			
63) toluene-d8 (s)	11.503	98	394167m	54.32	ug/kg	0.03
Spiked Amount 50.000	Range 70 - 130		Recovery = 108.64%			
87) bromofluorobenzene (s)	14.159	95	160863m	89.29	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 178.58%#			

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

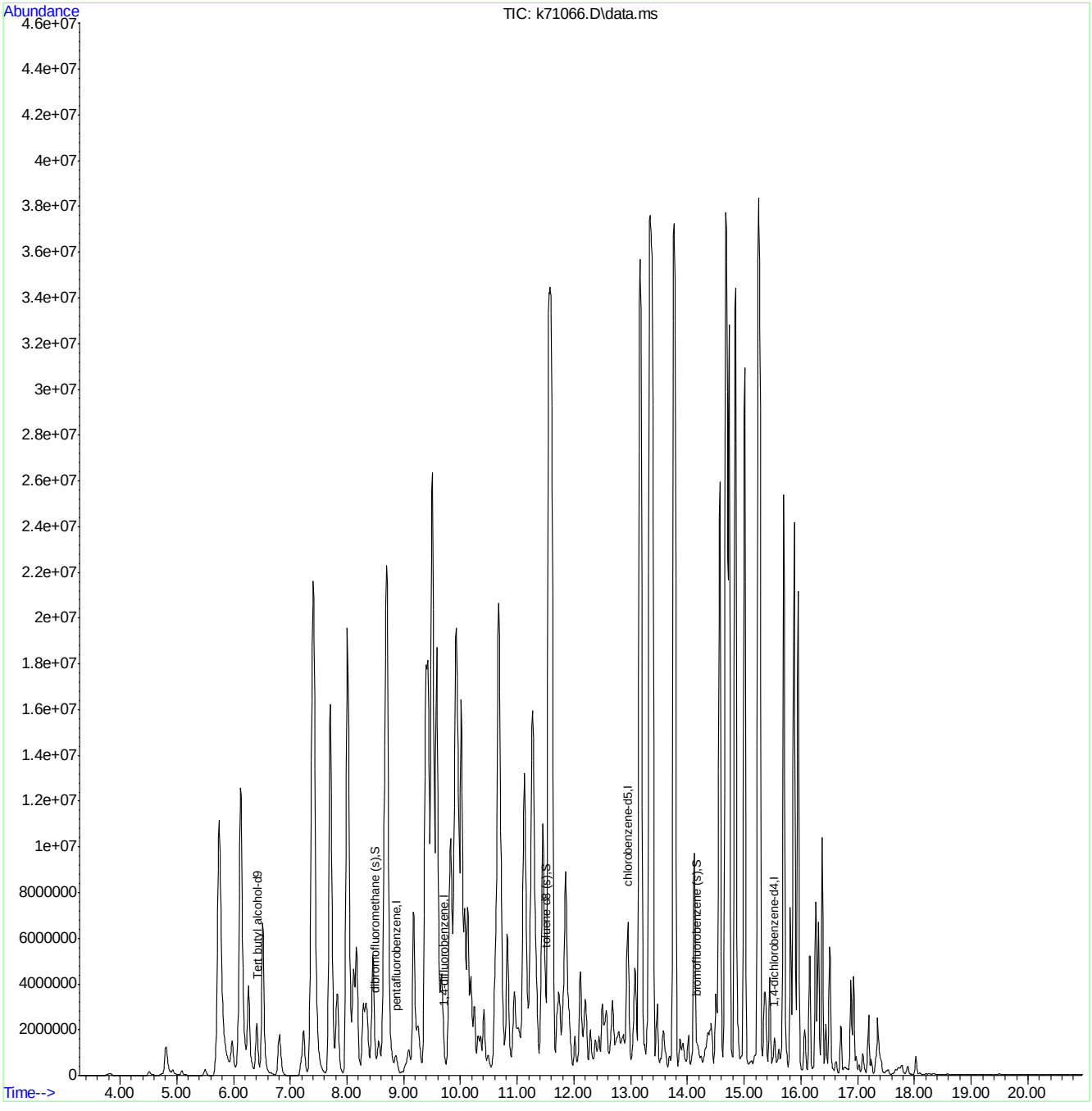
7.1.4

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71066.D
Acq On : 13 Jun 2013 6:15 pm
Operator : GaryK
Sample : mc20162-4
Misc : ms29103,msk2323,1.094,,100,10,1
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jun 14 08:00:22 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration



Manual Integrations APPROVED (compounds with "m" flag)
Tomasz Torski
06/14/13 09:04

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71067.D
Acq On : 13 Jun 2013 6:42 pm
Operator : GaryK
Sample : mc20162-5
Misc : ms29103,msk2323,0.940,,100,10,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 14 08:02:37 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert butyl alcohol-d9	6.424	65	60245	500.00	ug/kg	0.00
4) pentafluorobenzene	8.860	168	246680	50.00	ug/kg	0.03
45) 1,4-difluorobenzene	9.706	114	304595	50.00	ug/kg	0.03
69) chlorobenzene-d5	12.956	82	174251m	50.00	ug/kg	0.02
85) 1,4-dichlorobenzene-d4	15.519	152	28282	50.00	ug/kg	0.03
System Monitoring Compounds						
41) dibromofluoromethane (s)	8.490	113	126872	53.32	ug/kg	0.03
Spiked Amount 50.000	Range 70 - 130		Recovery = 106.64%			
63) toluene-d8 (s)	11.497	98	350895m	43.36	ug/kg	0.03
Spiked Amount 50.000	Range 70 - 130		Recovery = 86.72%			
87) bromofluorobenzene (s)	14.159	95	201455m	341.21	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 682.42%#			
Target Compounds						Qvalue
20) methyl tert butyl ether	7.443	73	896120	175.71	ug/kg	96

(#) = qualifier out of range (m) = manual integration (+) = signals summed

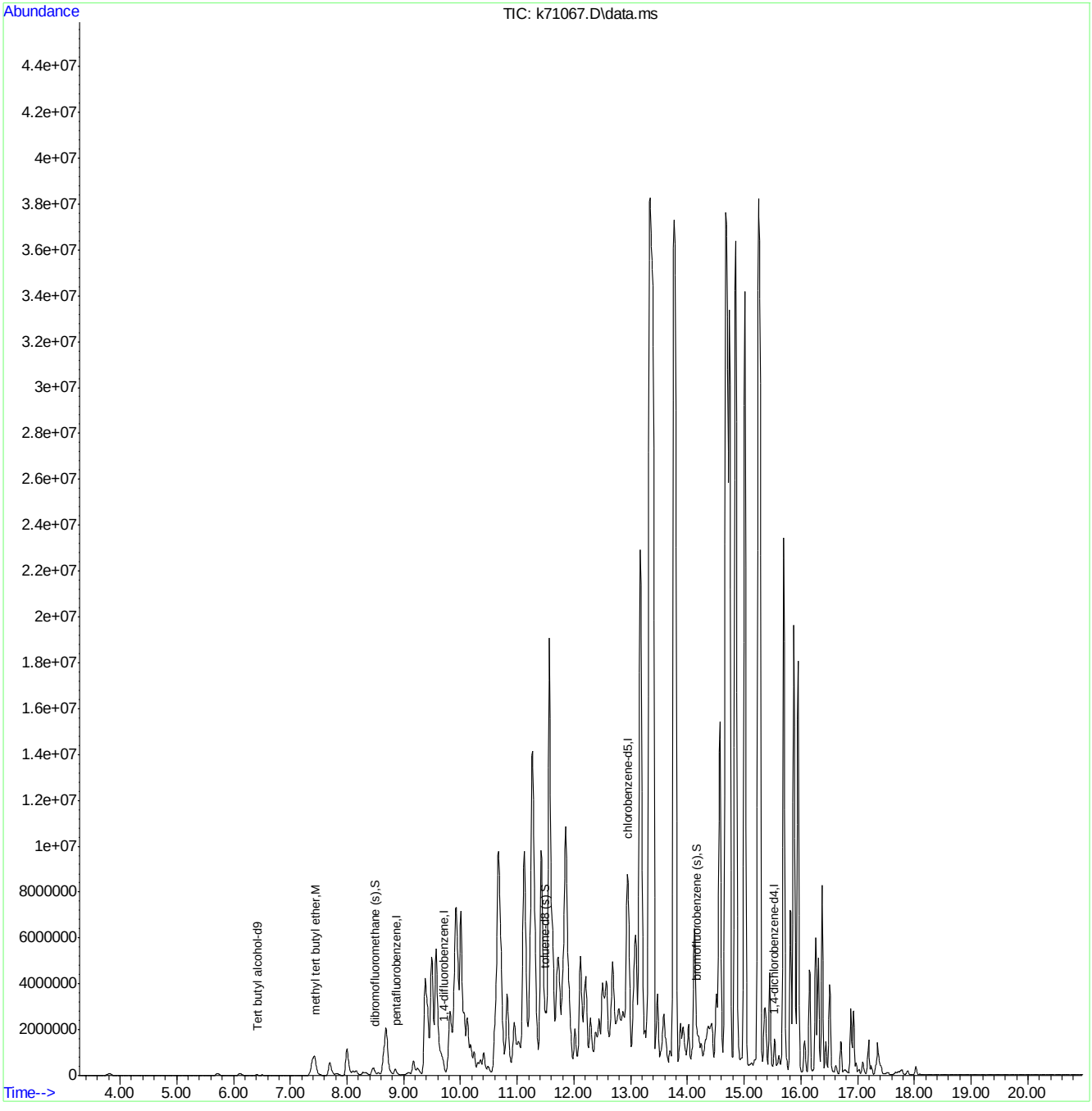
7.1.5

7

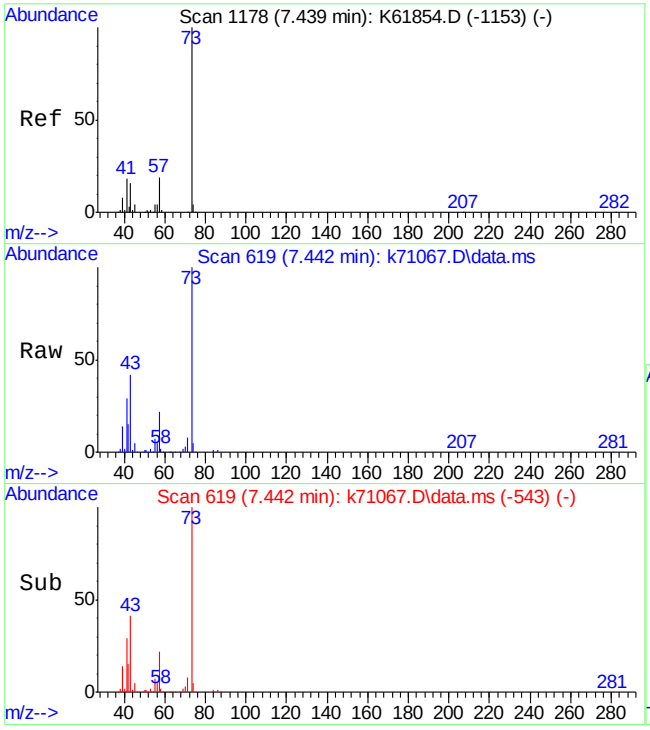
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71067.D
Acq On : 13 Jun 2013 6:42 pm
Operator : GaryK
Sample : mc20162-5
Misc : ms29103,msk2323,0.940,,100,10,1
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 14 08:02:37 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration



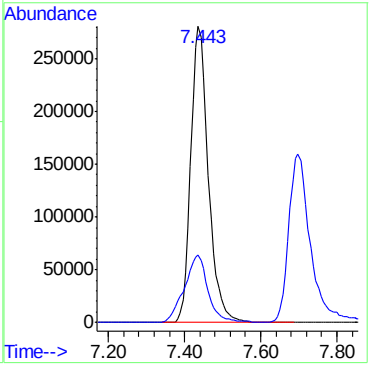
K13051313S.m Fri Jun 14 09:16:27 2013 Page: 2



#20
methyl tert butyl ether
Concen: 175.71 ug/kg
RT: 7.443 min Scan# 619
Delta R.T. 0.011 min
Lab File: k71067.D
Acq: 13 Jun 2013 6:42 pm

Tgt Ion: 73 Resp: 896120

Ion	Ratio	Lower	Upper
73	100		
57	21.4	0.0	49.5



Manual Integrations APPROVED (compounds with "m" flag)
Tomasz Torski
06/14/13 09:04

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71068.D
Acq On : 13 Jun 2013 7:09 pm
Operator : GaryK
Sample : mc20162-6
Misc : ms29103,msk2323,1.307,,100,10,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jun 14 09:10:12 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert butyl alcohol-d9	6.412	65	63839	500.00	ug/kg	# 0.00
4) pentafluorobenzene	8.868	168	235142	50.00	ug/kg	0.04
45) 1,4-difluorobenzene	9.714	114	277241	50.00	ug/kg	0.04
69) chlorobenzene-d5	12.968	82	188700	50.00	ug/kg	# 0.04
85) 1,4-dichlorobenzene-d4	15.517	152	45245m	50.00	ug/kg	0.03
System Monitoring Compounds						
41) dibromofluoromethane (s)	8.495	113	109281	48.18	ug/kg	0.04
Spiked Amount 50.000	Range 70 - 130		Recovery = 96.36%			
63) toluene-d8 (s)	11.504	98	397211	53.92	ug/kg	0.03
Spiked Amount 50.000	Range 70 - 130		Recovery = 107.84%			
87) bromofluorobenzene (s)	14.159	95	144953m	153.46	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 306.92%#			
Target Compounds						Qvalue
20) methyl tert butyl ether	7.442	73	475100m	97.73	ug/kg	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

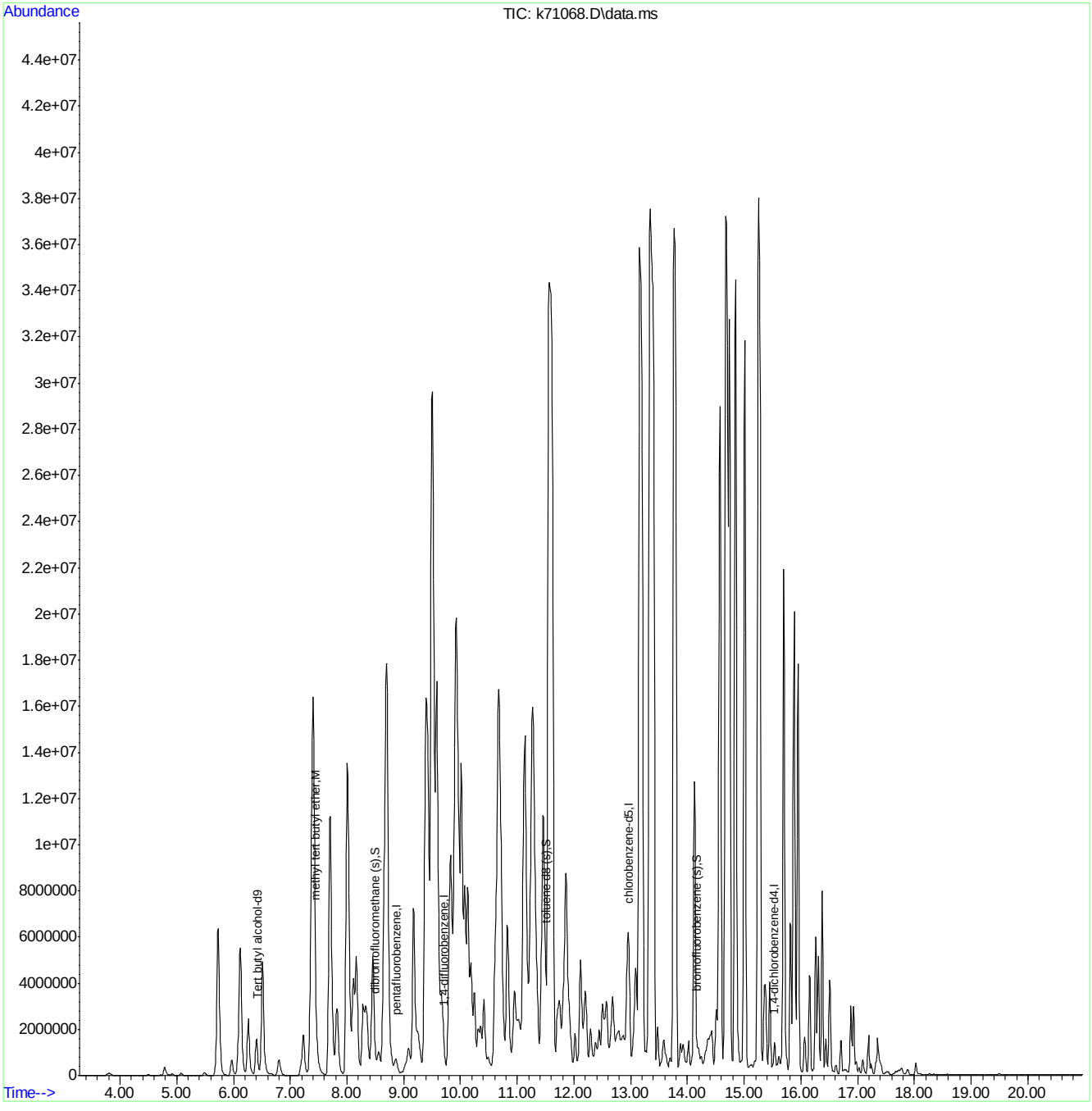
7.1.6

7

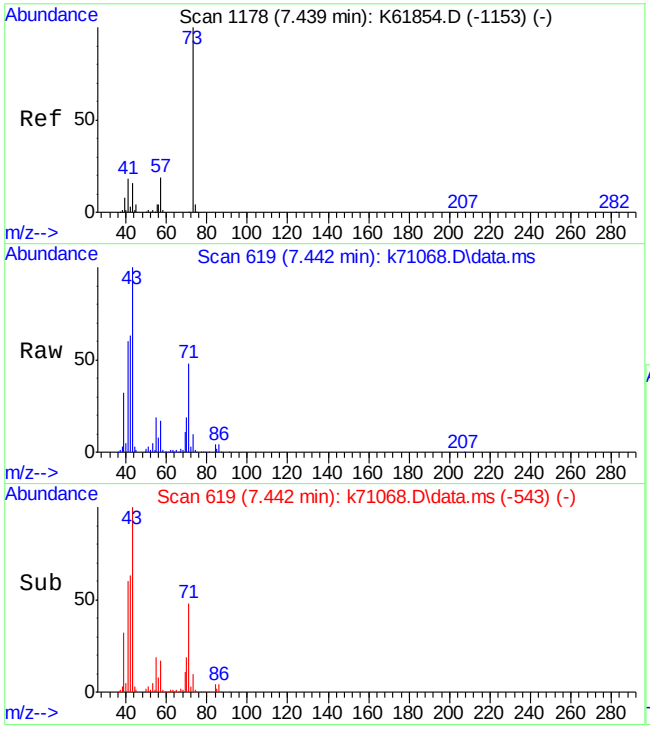
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71068.D
Acq On : 13 Jun 2013 7:09 pm
Operator : GaryK
Sample : mc20162-6
Misc : ms29103,msk2323,1.307,,100,10,1
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jun 14 09:10:12 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration



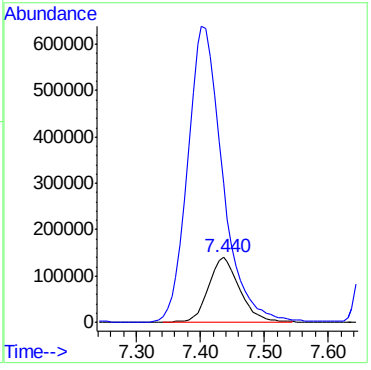
K13051313S.m Fri Jun 14 09:16:32 2013 Page: 2



#20
methyl tert butyl ether
Concen: 97.73 ug/kg m
RT: 7.442 min Scan# 619
Delta R.T. 0.010 min
Lab File: k71068.D
Acq: 13 Jun 2013 7:09 pm

Tgt Ion: 73 Resp: 475100

Ion	Ratio	Lower	Upper
73	100		
57	170.0	0.0	49.5#



7.1.6

7

Manual Integrations APPROVED (compounds with "m" flag)
Tomasz Torski
06/14/13 09:04

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71069.D
Acq On : 13 Jun 2013 7:37 pm
Operator : GaryK
Sample : mc20162-7
Misc : ms29103,msk2323,1.126,,100,10,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 14 08:04:31 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert butyl alcohol-d9	6.415	65	58061	500.00	ug/kg	# 0.00
4) pentafluorobenzene	8.880	168	220172	50.00	ug/kg	0.05
45) 1,4-difluorobenzene	9.724	114	249892	50.00	ug/kg	0.05
69) chlorobenzene-d5	12.974	82	169943	50.00	ug/kg	# 0.04
85) 1,4-dichlorobenzene-d4	15.523	152	15919	50.00	ug/kg	0.03
System Monitoring Compounds						
41) dibromofluoromethane (s)	8.505	113	110811	52.18	ug/kg	0.05
Spiked Amount 50.000	Range 70 - 130		Recovery = 104.36%			
63) toluene-d8 (s)	11.508	98	434327	65.41	ug/kg	0.04
Spiked Amount 50.000	Range 70 - 130		Recovery = 130.82%#			
87) bromofluorobenzene (s)	14.159	95	118904m	357.79	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 715.58%#			
Target Compounds						Qvalue
20) methyl tert butyl ether	7.442	73	337722m	74.19	ug/kg	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

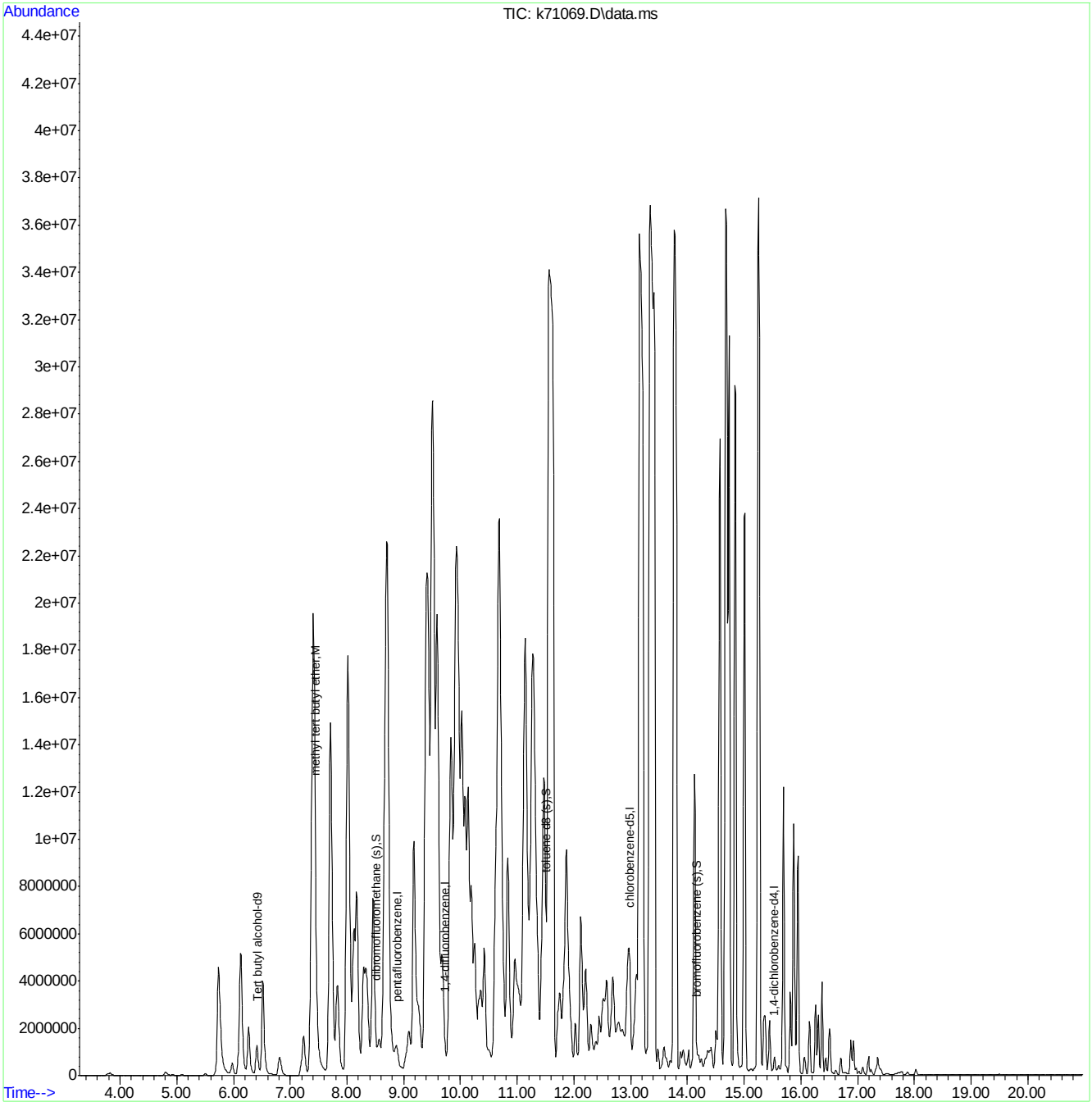
7.1.7

7

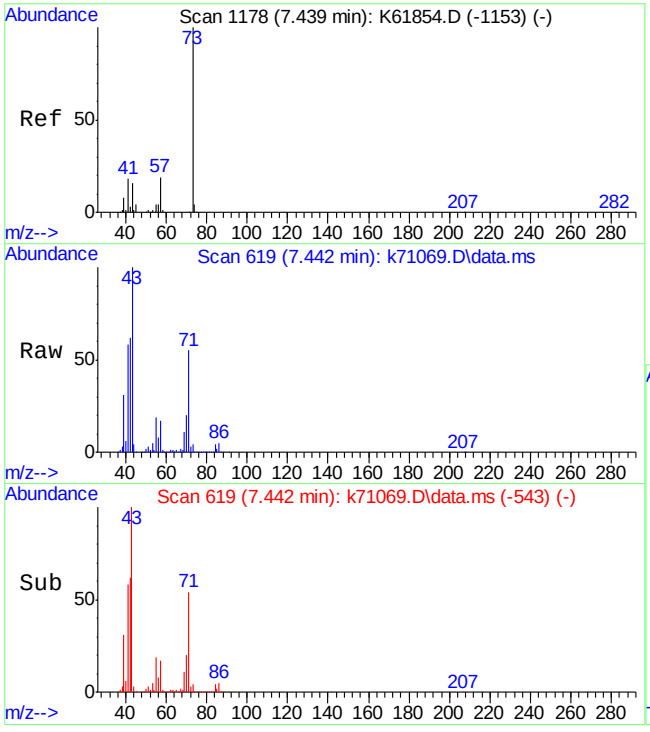
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71069.D
Acq On : 13 Jun 2013 7:37 pm
Operator : GaryK
Sample : mc20162-7
Misc : ms29103,msk2323,1.126,,100,10,1
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 14 08:04:31 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration



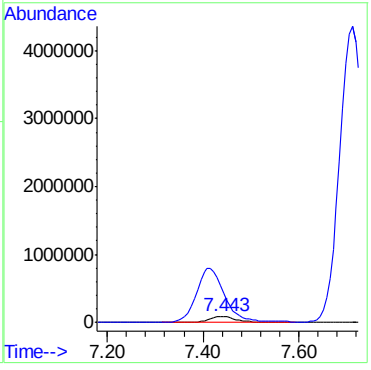
K13051313S.m Fri Jun 14 09:16:37 2013 Page: 2



#20
methyl tert butyl ether
Concen: 74.19 ug/kg m
RT: 7.442 min Scan# 619
Delta R.T. 0.010 min
Lab File: k71069.D
Acq: 13 Jun 2013 7:37 pm

Tgt Ion: 73 Resp: 337722

Ion	Ratio	Lower	Upper
73	100		
57	475.2	0.0	49.5#



7.1.7

7

Manual Integrations
APPROVED
(compounds with "m" flag)
Tomasz Torski
06/14/13 09:04

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71070.D
Acq On : 13 Jun 2013 8:04 pm
Operator : GaryK
Sample : mc20162-8
Misc : ms29103,msk2323,1.017,,100,10,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jun 14 08:05:23 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert butyl alcohol-d9	6.413	65	61440	500.00	ug/kg	# 0.00
4) pentafluorobenzene	8.873	168	218179	50.00	ug/kg	0.05
45) 1,4-difluorobenzene	9.718	114	247444	50.00	ug/kg	0.04
69) chlorobenzene-d5	12.969	82	177742	50.00	ug/kg	# 0.04
85) 1,4-dichlorobenzene-d4	15.515	152	24403	50.00	ug/kg	0.02
System Monitoring Compounds						
41) dibromofluoromethane (s)	8.499	113	97157	46.17	ug/kg	0.04
Spiked Amount 50.000	Range 70 - 130		Recovery = 92.34%			
63) toluene-d8 (s)	11.507	98	400225	60.87	ug/kg	0.04
Spiked Amount 50.000	Range 70 - 130		Recovery = 121.74%			
87) bromofluorobenzene (s)	14.159	95	123427m	242.28	ug/kg	0.00
Spiked Amount 50.000	Range 70 - 130		Recovery = 484.56%#			
Target Compounds						Qvalue
20) methyl tert butyl ether	7.443	73	1016817	225.42	ug/kg#	1

(#) = qualifier out of range (m) = manual integration (+) = signals summed

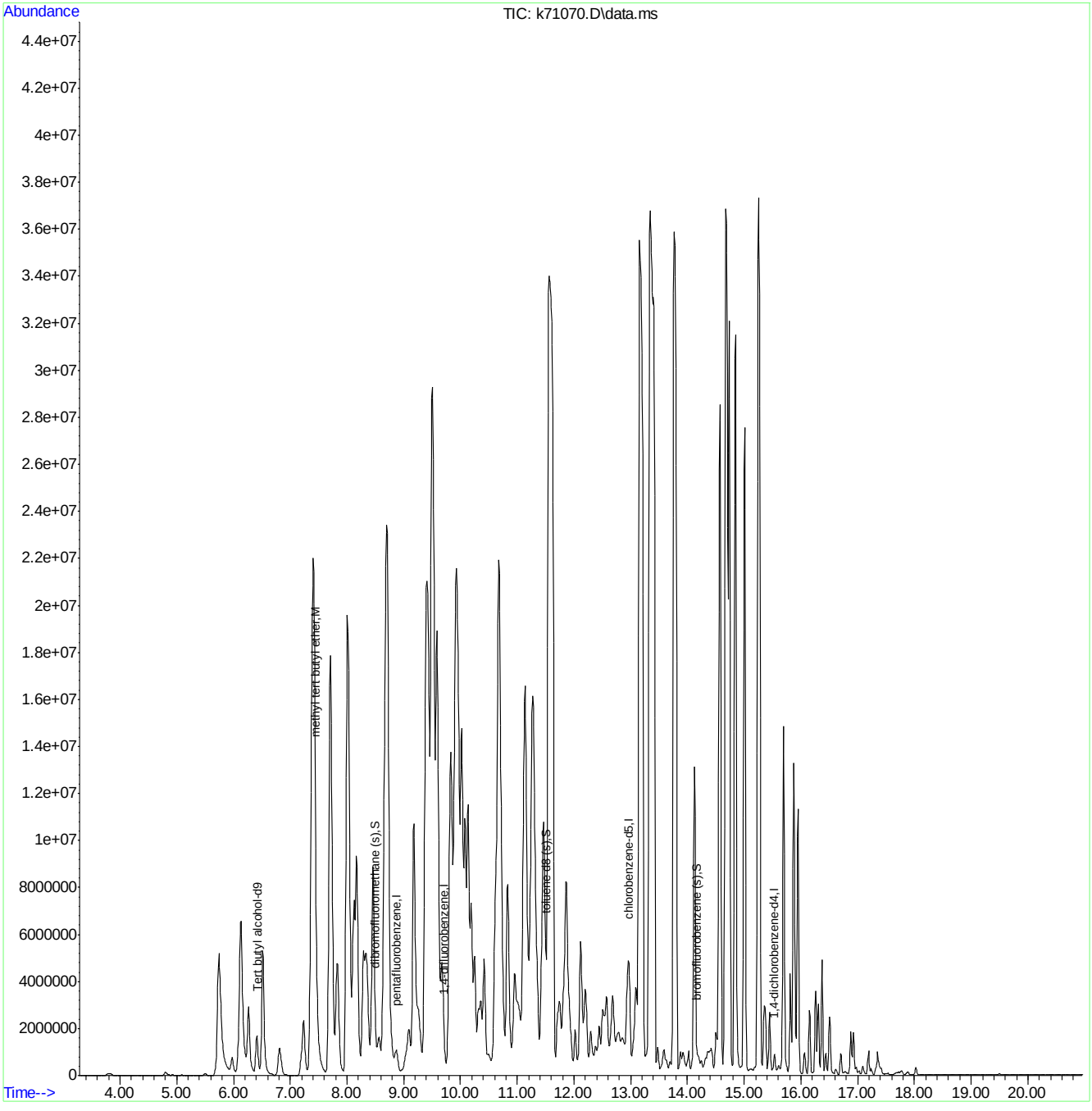
7.1.8

7

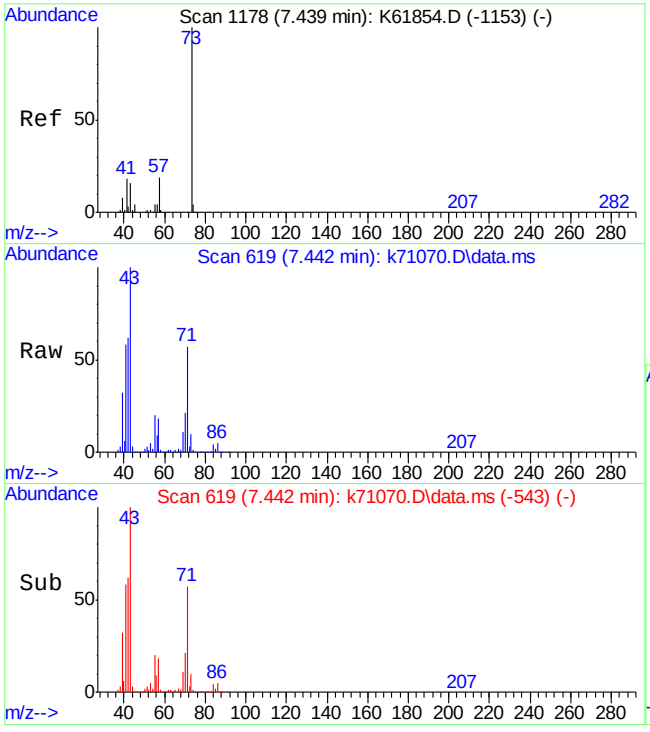
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71070.D
Acq On : 13 Jun 2013 8:04 pm
Operator : GaryK
Sample : mc20162-8
Misc : ms29103,msk2323,1.017,,100,10,1
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jun 14 08:05:23 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration



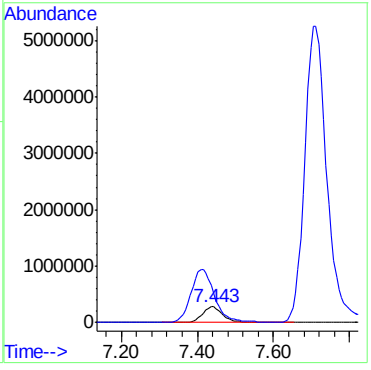
K13051313S.m Fri Jun 14 09:16:41 2013 Page: 2



#20
methyl tert butyl ether
Concen: 225.42 ug/kg
RT: 7.443 min Scan# 619
Delta R.T. 0.011 min
Lab File: k71070.D
Acq: 13 Jun 2013 8:04 pm

Tgt Ion: 73 Resp: 1016817

Ion	Ratio	Lower	Upper
73	100		
57	183.7	0.0	49.5#



7.18

7

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71049.D
Acq On : 13 Jun 2013 10:29 am
Operator : GaryK
Sample : mb
Misc : ms29090,msk2323,10,,100,10,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 13 11:10:36 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Tert butyl alcohol-d9	6.429	65	48489	500.00	ug/kg	# 0.01
4) pentafluorobenzene	8.839	168	211341	50.00	ug/kg	0.01
45) 1,4-difluorobenzene	9.687	114	264102	50.00	ug/kg	0.01
69) chlorobenzene-d5	12.945	82	150589	50.00	ug/kg	# 0.01
85) 1,4-dichlorobenzene-d4	15.504	152	133229	50.00	ug/kg	0.01
System Monitoring Compounds						
41) dibromofluoromethane (s)	8.468	113	126282	61.95	ug/kg	0.01
Spiked Amount 50.000	Range 70 - 130		Recovery = 123.90%			
63) toluene-d8 (s)	11.480	98	383527	54.66	ug/kg	0.01
Spiked Amount 50.000	Range 70 - 130		Recovery = 109.32%			
87) bromofluorobenzene (s)	14.163	95	156704	56.34	ug/kg	0.01
Spiked Amount 50.000	Range 70 - 130		Recovery = 112.68%			
Target Compounds						Qvalue
106) hexachlorobutadiene	18.078	225	2649	1.05	ug/kg	87

(#) = qualifier out of range (m) = manual integration (+) = signals summed

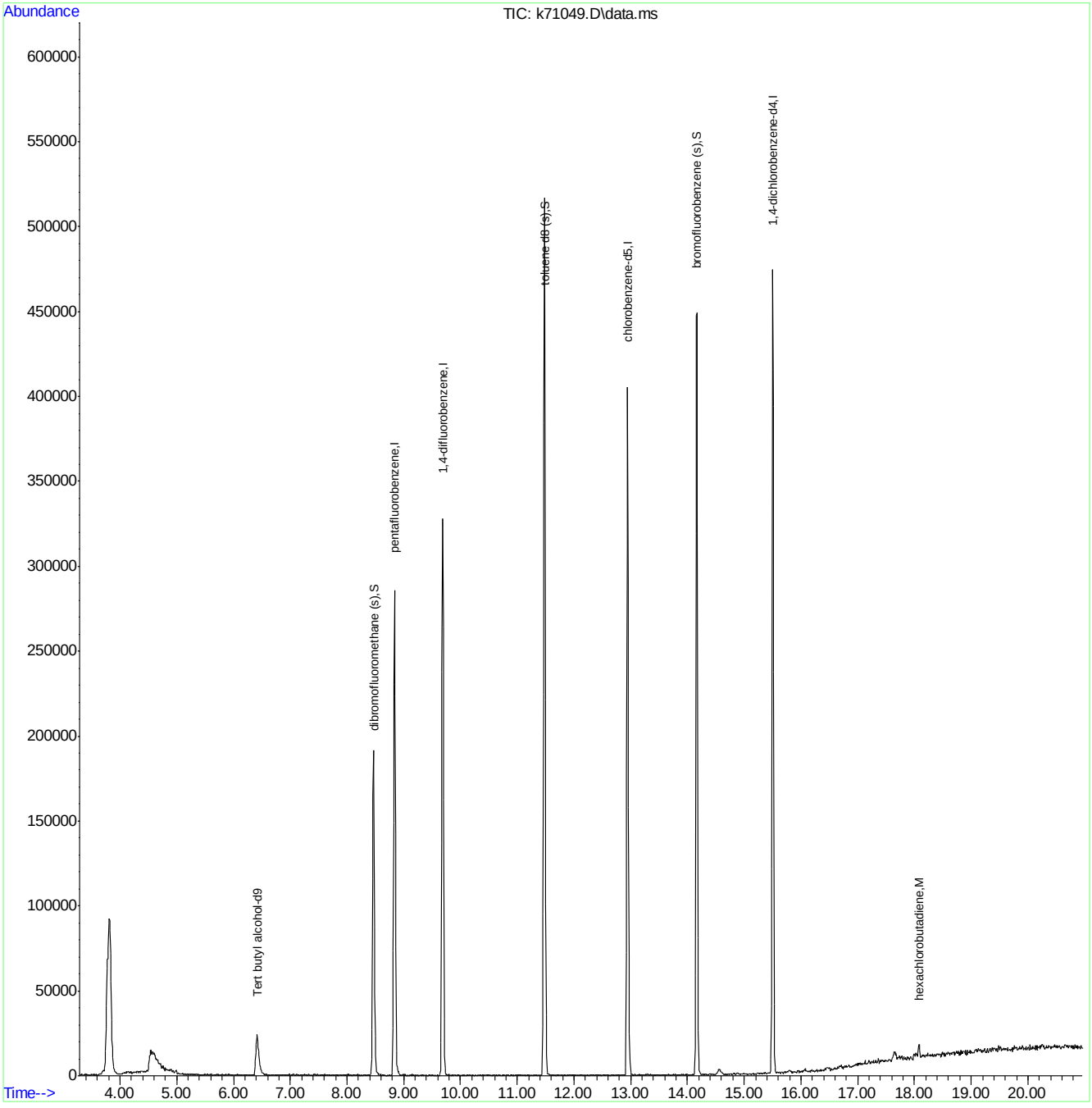
7.2.1

7

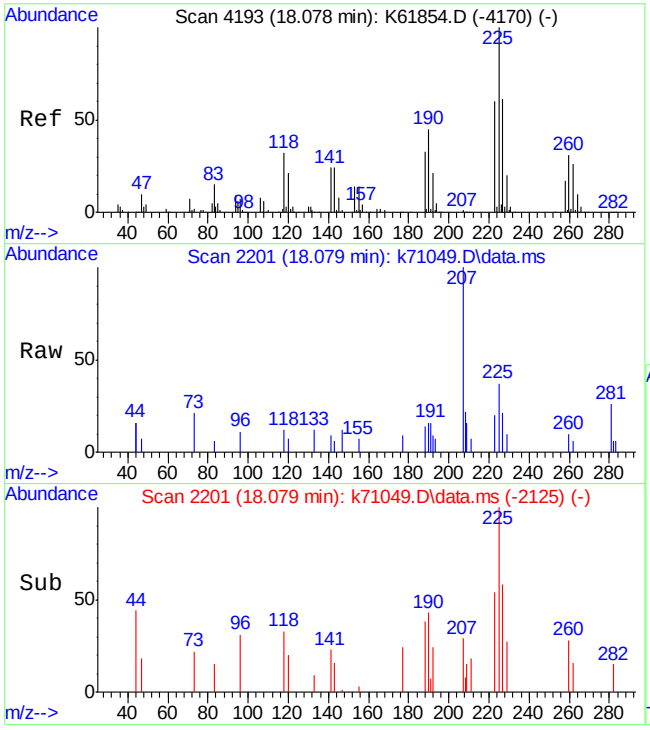
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\130613\
Data File : k71049.D
Acq On : 13 Jun 2013 10:29 am
Operator : GaryK
Sample : mb
Misc : ms29090,msk2323,10,,100,10,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 13 11:10:36 2013
Quant Method : C:\msdchem\1\methods\K13051313S.m
Quant Title : SW-846 Method 8260
QLast Update : Tue May 14 08:54:08 2013
Response via : Initial Calibration



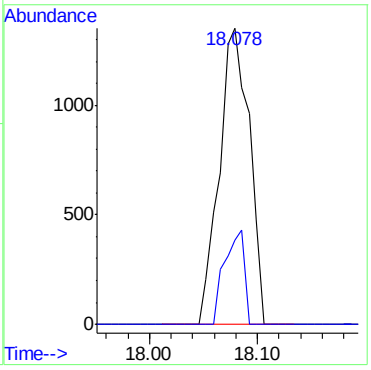
K13051313S.m Thu Jun 13 12:44:33 2013 Page: 2



#106
hexachlorobutadiene
Concen: 1.05 ug/kg
RT: 18.078 min Scan# 2201
Delta R.T. 0.009 min
Lab File: k71049.D
Acq: 13 Jun 2013 10:29 am

Tgt Ion:225 Resp: 2649

Ion	Ratio	Lower	Upper
225	100		
260	28.2	5.7	65.7



7.2.1

7

New England ACCUTEST LABORATORIES

GC/MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33312-MB	S32745.D	1	05/28/13	KR	05/24/13	OP33312	MSS1429

The QC reported here applies to the following samples: **Method:** D5739-06/8270C SIM

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6, MC20162-7, MC20162-8, MC20162-9

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	27.2	2.0	1.0	ug/kg	
	C1-Benzene	23.4	2.0	1.0	ug/kg	
	C2-Benzenes	38.9	2.0	1.0	ug/kg	
	C3-Benzenes	22.8	2.0	1.0	ug/kg	
	C4-Benzenes	9.4	2.0	1.0	ug/kg	
	C5-Benzenes	3.2	2.0	1.0	ug/kg	
108-87-2	Methylcyclohexane	26.8	2.0	1.0	ug/kg	
108-88-3	Toluene	42.8	2.0	1.0	ug/kg	
100-41-4	Ethylbenzene	9.9	2.0	1.0	ug/kg	
	m,p-Xylene	64.1	2.0	1.0	ug/kg	
95-47-6	o-Xylene	20.9	2.0	1.0	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	1.0	ug/kg	
103-65-1	n-Propylbenzene	2.5	2.0	1.0	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	6.7	2.0	1.0	ug/kg	
526-73-8	1,2,3-Trimethylbenzene	3.3	2.0	1.0	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	17.3	2.0	1.0	ug/kg	
98-06-6	t-Butylbenzene	2.1	2.0	1.0	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	1.0	ug/kg	
99-87-6	p-Isopropyltoluene	ND	2.0	1.0	ug/kg	
104-51-8	n-Butylbenzene	ND	2.0	1.0	ug/kg	
493-02-7	trans-Decalin	ND	2.0	1.0	ug/kg	
493-01-6	cis-Decalin	ND	2.0	1.0	ug/kg	
	C1-Decalins	ND	2.0	1.0	ug/kg	
	C2-Decalins	ND	2.0	1.0	ug/kg	
	C3-Decalins	ND	2.0	1.0	ug/kg	
	C4-Decalins	ND	2.0	1.0	ug/kg	
11095-43-5	Benzo(b)thiophene	ND	2.0	1.0	ug/kg	
	C1-Benzo(b)thiophenes	ND	2.0	1.0	ug/kg	
	C2-Benzo(b)thiophenes	ND	2.0	1.0	ug/kg	
	C3-Benzo(b)thiophenes	ND	2.0	1.0	ug/kg	
	C4-Benzo(b)thiophenes	ND	2.0	1.0	ug/kg	
91-20-3	Naphthalene	2.7	2.0	1.0	ug/kg	
91-57-6	2-Methylnaphthalene	2.0	2.0	1.0	ug/kg	
90-12-0	1-Methylnaphthalene	1.1	2.0	1.0	ug/kg	J
	C1-Naphthalenes	2.2	2.0	1.0	ug/kg	
	C2-Naphthalenes	1.2	2.0	1.0	ug/kg	J

Method Blank Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33312-MB	S32745.D	1	05/28/13	KR	05/24/13	OP33312	MSS1429

The QC reported here applies to the following samples: **Method:** D5739-06/8270C SIM

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6, MC20162-7, MC20162-8, MC20162-9

CAS No.	Compound	Result	RL	MDL	Units	Q
	C3-Naphthalenes	ND	2.0	1.0	ug/kg	
	C4-Naphthalenes	ND	2.0	1.0	ug/kg	
92-52-4	Biphenyl	ND	2.0	1.0	ug/kg	
208-96-8	Acenaphthylene	ND	2.0	1.0	ug/kg	
83-32-9	Acenaphthene	ND	2.0	1.0	ug/kg	
132-64-9	Dibenzofuran	ND	2.0	1.0	ug/kg	
86-73-7	Fluorene	ND	2.0	1.0	ug/kg	
	C1-Fluorenes	ND	2.0	1.0	ug/kg	
	C2-Fluorenes	ND	2.0	1.0	ug/kg	
	C3-Fluorenes	ND	2.0	1.0	ug/kg	
132-65-0	Dibenzothiophene	ND	2.0	1.0	ug/kg	
	C1-Dibenzothiophenes	ND	2.0	1.0	ug/kg	
	C2-Dibenzothiophenes	ND	2.0	1.0	ug/kg	
	C3-Dibenzothiophenes	ND	2.0	1.0	ug/kg	
	C4-Dibenzothiophenes	ND	2.0	1.0	ug/kg	
85-01-8	Phenanthrene	ND	2.0	1.0	ug/kg	
120-12-7	Anthracene	ND	2.0	1.0	ug/kg	
	C1-Phenanthrenes/Anthracene	ND	2.0	1.0	ug/kg	
	C2-Phenanthrenes/Anthracene	ND	2.0	1.0	ug/kg	
	C3-Phenanthrenes/Anthracene	ND	2.0	1.0	ug/kg	
	C4-Phenanthrenes/Anthracene	ND	2.0	1.0	ug/kg	
483-65-8	Retene	ND	2.0	1.0	ug/kg	
239-35-0	Benzo(b)naphtho(2,1-d)thioph	ND	2.0	1.0	ug/kg	
	C1-Benzonaphthothiophenes	ND	2.0	1.0	ug/kg	
	C2-Benzonaphthothiophenes	ND	2.0	1.0	ug/kg	
	C3-Benzonaphthothiophenes	ND	2.0	1.0	ug/kg	
	C4-Benzonaphthothiophenes	ND	2.0	1.0	ug/kg	
206-44-0	Fluoranthene	ND	2.0	1.0	ug/kg	
129-00-0	Pyrene	ND	2.0	1.0	ug/kg	
	C1-Fluoranthenes/Pyrenes	ND	2.0	1.0	ug/kg	
	C2-Fluoranthenes/Pyrenes	ND	2.0	1.0	ug/kg	
	C3-Fluoranthenes/Pyrenes	ND	2.0	1.0	ug/kg	
243-17-4	Benzo(b)fluorene	ND	2.0	1.0	ug/kg	
205-12-9	Benzo(c)fluorene	ND	2.0	1.0	ug/kg	
3442-78-2	2-Methylpyrene	ND	2.0	1.0	ug/kg	
3353-12-6	4-Methylpyrene	ND	2.0	1.0	ug/kg	

Method Blank Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33312-MB	S32745.D	1	05/28/13	KR	05/24/13	OP33312	MSS1429

The QC reported here applies to the following samples: **Method:** D5739-06/8270C SIM

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6, MC20162-7, MC20162-8, MC20162-9

CAS No.	Compound	Result	RL	MDL	Units	Q
2381-21-7	1-Methylpyrene	ND	2.0	1.0	ug/kg	
56-55-3	Benzo(a)anthracene	ND	2.0	1.0	ug/kg	
218-01-9	Chrysene	ND	2.0	1.0	ug/kg	
	C1-Benzo(a)anthracenes/Chrys	ND	2.0	1.0	ug/kg	
	C2-Benzo(a)anthracenes/Chrys	ND	2.0	1.0	ug/kg	
	C3-Benzo(a)anthracenes/Chrys	ND	2.0	1.0	ug/kg	
	C4-Benzo(a)anthracenes/Chrys	ND	2.0	1.0	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	2.0	1.0	ug/kg	
207-08-9	Benzo(k)fluoranthene	ND	2.0	1.0	ug/kg	
192-97-2	Benzo(e)pyrene	ND	2.0	1.0	ug/kg	
50-32-8	Benzo(a)pyrene	ND	2.0	1.0	ug/kg	
198-55-0	Perylene	ND	2.0	1.0	ug/kg	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	2.0	1.0	ug/kg	
53-70-3	Dibenzo(a,h)anthracene	ND	2.0	1.0	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	2.0	1.0	ug/kg	
191-07-1	Coronene	ND	2.0	1.0	ug/kg	
3891-98-3	2,6,10-trimethyldodecane (138	ND	2.0	1.0	ug/kg	
3891-99-4	2,6,10-trimethyltridecane (147	ND	2.0	1.0	ug/kg	
3892-00-0	2,6,10-trimethylpentadecane (1	ND	2.0	1.0	ug/kg	
	C-17	ND	2.0	1.0	ug/kg	
1921-70-6	Pristane	ND	2.0	1.0	ug/kg	
	C-18	ND	2.0	1.0	ug/kg	
638-36-8	Phytane	ND	2.0	1.0	ug/kg	
78-00-2	Tetraethyl lead	ND	2.0	1.0	ug/kg	

CAS No.	Surrogate Recoveries		Limits
1146-65-2	Naphthalene-d8	87%	40-140%
1517-22-2	Phenanthrene-d10	96%	40-140%
	Perylene-d12	104%	40-140%

Blank Spike Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33312-BS1	S32746.D	1	05/28/13	KR	05/24/13	OP33312	MSS1429

The QC reported here applies to the following samples: **Method:** D5739-06/8270C SIM

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6, MC20162-7, MC20162-8, MC20162-9

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	1000	1020	102	50-150 [a]
	C1-Benzene		ND		50-150 [a]
	C2-Benzenes		ND		50-150 [a]
	C3-Benzenes		ND		50-150 [a]
	C4-Benzenes		ND		50-150 [a]
	C5-Benzenes		ND		50-150 [a]
108-87-2	Methylcyclohexane	1000	1010	101	50-150 [a]
108-88-3	Toluene	1000	1020	102	50-150 [a]
100-41-4	Ethylbenzene	1000	977	98	50-150 [a]
	m,p-Xylene	1000	989	99	50-150 [a]
95-47-6	o-Xylene	1000	995	100	50-150 [a]
98-82-8	Isopropylbenzene	1000	941	94	50-150 [a]
103-65-1	n-Propylbenzene	1000	931	93	50-150 [a]
108-67-8	1,3,5-Trimethylbenzene	1000	943	94	50-150 [a]
526-73-8	1,2,3-Trimethylbenzene	1000	926	93	50-150 [a]
95-63-6	1,2,4-Trimethylbenzene	1000	931	93	50-150 [a]
98-06-6	t-Butylbenzene	1000	938	94	50-150 [a]
135-98-8	sec-Butylbenzene	1000	934	93	50-150 [a]
99-87-6	p-Isopropyltoluene	1000	935	94	50-150 [a]
104-51-8	n-Butylbenzene	1000	927	93	50-150 [a]
493-02-7	trans-Decalin	1000	911	91	50-150 [a]
493-01-6	cis-Decalin	1000	925	93	50-150 [a]
	C1-Decalins		ND		50-150 [a]
	C2-Decalins		ND		50-150 [a]
	C3-Decalins		ND		50-150 [a]
	C4-Decalins		ND		50-150 [a]
11095-43-5	Benzo(b)thiophene	1000	955	96	50-150 [a]
	C1-Benzo(b)thiophenes		ND		50-150 [a]
	C2-Benzo(b)thiophenes		ND		50-150 [a]
	C3-Benzo(b)thiophenes		ND		50-150 [a]
	C4-Benzo(b)thiophenes		ND		50-150 [a]
91-20-3	Naphthalene	1000	925	93	50-150
91-57-6	2-Methylnaphthalene	1000	919	92	50-150
90-12-0	1-Methylnaphthalene	1000	930	93	50-150
	C1-Naphthalenes		ND		50-150 [a]
	C2-Naphthalenes		ND		50-150 [a]

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33312-BS1	S32746.D	1	05/28/13	KR	05/24/13	OP33312	MSS1429

The QC reported here applies to the following samples: **Method:** D5739-06/8270C SIM

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6, MC20162-7, MC20162-8, MC20162-9

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
	C3-Naphthalenes		ND		50-150 [a]
	C4-Naphthalenes		ND		50-150 [a]
92-52-4	Biphenyl	1000	863	86	50-150 [a]
208-96-8	Acenaphthylene	1000	1040	104	50-150
83-32-9	Acenaphthene	1000	975	98	50-150
132-64-9	Dibenzofuran	1000	934	93	50-150
86-73-7	Fluorene	1000	914	91	50-150
	C1-Fluorenes		ND		50-150 [a]
	C2-Fluorenes		ND		50-150 [a]
	C3-Fluorenes		ND		50-150 [a]
132-65-0	Dibenzothiophene	1000	979	98	50-150 [a]
	C1-Dibenzothiophenes		ND		50-150 [a]
	C2-Dibenzothiophenes		ND		50-150 [a]
	C3-Dibenzothiophenes		ND		50-150 [a]
	C4-Dibenzothiophenes		ND		50-150 [a]
85-01-8	Phenanthrene	1000	976	98	50-150
120-12-7	Anthracene	1000	959	96	50-150
	C1-Phenanthrenes/Anthracene		ND		50-150 [a]
	C2-Phenanthrenes/Anthracene		ND		50-150 [a]
	C3-Phenanthrenes/Anthracene		ND		50-150 [a]
	C4-Phenanthrenes/Anthracene		ND		50-150 [a]
483-65-8	Retene	1000	1110	111	50-150 [a]
239-35-0	Benzo(b)naphtho(2,1-d)thioph	1000	1040	104	50-150 [a]
	C1-Benzonaphthothiophenes		ND		50-150 [a]
	C2-Benzonaphthothiophenes		ND		50-150 [a]
	C3-Benzonaphthothiophenes		ND		50-150 [a]
	C4-Benzonaphthothiophenes		ND		50-150 [a]
206-44-0	Fluoranthene	1000	1120	112	50-150
129-00-0	Pyrene	1000	1120	112	50-150
	C1-Fluoranthenes/Pyrenes		ND		50-150 [a]
	C2-Fluoranthenes/Pyrenes		ND		50-150 [a]
	C3-Fluoranthenes/Pyrenes		ND		50-150 [a]
243-17-4	Benzo(b)fluorene		ND		50-150 [a]
205-12-9	Benzo(c)fluorene		ND		50-150 [a]
3442-78-2	2-Methylpyrene		ND		50-150 [a]
3353-12-6	4-Methylpyrene		ND		50-150 [a]

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33312-BS1	S32746.D	1	05/28/13	KR	05/24/13	OP33312	MSS1429

The QC reported here applies to the following samples: **Method:** D5739-06/8270C SIM

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6, MC20162-7, MC20162-8, MC20162-9

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
2381-21-7	1-Methylpyrene		ND		50-150 [a]
56-55-3	Benzo(a)anthracene	1000	1020	102	50-150
218-01-9	Chrysene	1000	991	99	50-150
	C1-Benzo(a)anthracenes/Chrys		ND		50-150 [a]
	C2-Benzo(a)anthracenes/Chrys		ND		50-150 [a]
	C3-Benzo(a)anthracenes/Chrys		ND		50-150 [a]
	C4-Benzo(a)anthracenes/Chrys		ND		50-150 [a]
205-99-2	Benzo(b)fluoranthene	1000	1160	116	50-150
207-08-9	Benzo(k)fluoranthene	1000	1090	109	50-150
192-97-2	Benzo(e)pyrene	1000	1110	111	50-150 [a]
50-32-8	Benzo(a)pyrene	1000	1100	110	50-150
198-55-0	Perylene	1000	1110	111	50-150 [a]
193-39-5	Indeno(1,2,3-cd)pyrene	1000	1090	109	50-150
53-70-3	Dibenzo(a,h)anthracene	1000	920	92	50-150
191-24-2	Benzo(g,h,i)perylene	1000	1070	107	50-150
191-07-1	Coronene	1000	1020	102	50-150 [a]
3891-98-3	2,6,10-trimethyldodecane (138		ND		50-150 [a]
3891-99-4	2,6,10-trimethyltridecane (147		ND		50-150 [a]
3892-00-0	2,6,10-trimethylpentadecane (1		ND		50-150 [a]
	C-17		929		50-150 [a]
1921-70-6	Pristane		975		50-150 [a]
	C-18		936		50-150 [a]
638-36-8	Phytane		981		50-150 [a]
78-00-2	Tetraethyl lead		ND		50-150 [a]

CAS No.	Surrogate Recoveries	BSP	Limits
1146-65-2	Naphthalene-d8	103%	40-140%
1517-22-2	Phenanthrene-d10	110%	40-140%
	Perylene-d12	115%	40-140%

(a) Advisory control limits.

* = Outside of Control Limits.

Duplicate Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33312-DUP	S32765.D	50	05/29/13	KR	05/24/13	OP33312	MSS1429
MC20162-7	S32764.D	50	05/29/13	KR	05/24/13	OP33312	MSS1429

The QC reported here applies to the following samples: **Method:** D5739-06/8270C SIM

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6, MC20162-7, MC20162-8, MC20162-9

CAS No.	Compound	MC20162-7 ug/kg	Q	DUP ug/kg	Q	RPD	Limits
71-43-2	Benzene	7560000		3790000		66* [a]	30 [b]
	C1-Benzene	26600000		19400000		31* [a]	30 [b]
	C2-Benzenes	48200000		42600000		12	30 [b]
	C3-Benzenes	44300000		41800000		6	30 [b]
	C4-Benzenes	20800000		19900000		4	30 [b]
	C5-Benzenes	6080000		6070000		0	30 [b]
108-87-2	Methylcyclohexane	6140000		4000000		42* [a]	30 [b]
108-88-3	Toluene	48500000		35400000		31* [a]	30 [b]
100-41-4	Ethylbenzene	22700000		19600000		15	30 [b]
	m,p-Xylene	72000000		63600000		12	30 [b]
95-47-6	o-Xylene	27300000		24400000		11	30 [b]
98-82-8	Isopropylbenzene	1990000		1820000		9	30 [b]
103-65-1	n-Propylbenzene	7500000		6960000		7	30 [b]
108-67-8	1,3,5-Trimethylbenzene	12100000		11400000		6	30 [b]
526-73-8	1,2,3-Trimethylbenzene	7900000		7540000		5	30 [b]
95-63-6	1,2,4-Trimethylbenzene	38200000		36400000		5	30 [b]
98-06-6	t-Butylbenzene	4570000		4350000		5	30 [b]
135-98-8	sec-Butylbenzene	910000		858000		6	30 [b]
99-87-6	p-Isopropyltoluene	1170000		1120000		4	30 [b]
104-51-8	n-Butylbenzene	2990000		2850000		5	30 [b]
493-02-7	trans-Decalin	108000		102000		6	30 [b]
493-01-6	cis-Decalin	38200	J	ND		200* [c]	30 [b]
	C1-Decalins	207000		215000		4	30 [b]
	C2-Decalins	155000		164000		6	30 [b]
	C3-Decalins	ND		ND		nc	30 [b]
	C4-Decalins	ND		ND		nc	30 [b]
11095-43-5	Benzo(b)thiophene	521000		517000		1	30 [b]
	C1-Benzo(b)thiophenes	544000		566000		4	30 [b]
	C2-Benzo(b)thiophenes	135000		138000		2	30 [b]
	C3-Benzo(b)thiophenes	37400	J	ND		200* [c]	30 [b]
	C4-Benzo(b)thiophenes	ND		ND		nc	30 [b]
91-20-3	Naphthalene	5670000		5610000		1	30
91-57-6	2-Methylnaphthalene	6170000		6310000		2	30
90-12-0	1-Methylnaphthalene	2790000		2880000		3	30
	C1-Naphthalenes	5740000		5890000		3	30 [b]
	C2-Naphthalenes	1540000		1640000		6	30 [b]

* = Outside of Control Limits.

Duplicate Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33312-DUP	S32765.D	50	05/29/13	KR	05/24/13	OP33312	MSS1429
MC20162-7	S32764.D	50	05/29/13	KR	05/24/13	OP33312	MSS1429

The QC reported here applies to the following samples: **Method:** D5739-06/8270C SIM

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6, MC20162-7, MC20162-8, MC20162-9

CAS No.	Compound	MC20162-7 ug/kg	Q	DUP ug/kg	Q	RPD	Limits
	C3-Naphthalenes	392000		417000		6	30 [b]
	C4-Naphthalenes	134000		137000		2	30 [b]
92-52-4	Biphenyl	96100		99200		3	30 [b]
208-96-8	Acenaphthylene	ND		ND		nc	30
83-32-9	Acenaphthene	ND		ND		nc	30
132-64-9	Dibenzofuran	ND		ND		nc	30
86-73-7	Fluorene	ND		ND		nc	30
	C1-Fluorenes	42000	J	ND		200* [c]	30 [b]
	C2-Fluorenes	68200	J	69500	J	2	30 [b]
	C3-Fluorenes	ND		ND		nc	30 [b]
132-65-0	Dibenzothiophene	ND		ND		nc	30 [b]
	C1-Dibenzothiophenes	ND		ND		nc	30 [b]
	C2-Dibenzothiophenes	36100	J	ND		200* [c]	30 [b]
	C3-Dibenzothiophenes	ND		ND		nc	30 [b]
	C4-Dibenzothiophenes	ND		ND		nc	30 [b]
85-01-8	Phenanthrene	49000	J	51700	J	5	30
120-12-7	Anthracene	ND		ND		nc	30
	C1-Phenanthrenes/Anthracene	91800		97700		6	30 [b]
	C2-Phenanthrenes/Anthracene	63500	J	68800	J	8	30 [b]
	C3-Phenanthrenes/Anthracene	ND		ND		nc	30 [b]
	C4-Phenanthrenes/Anthracene	ND		ND		nc	30 [b]
483-65-8	Retene	ND		ND		nc	30 [b]
239-35-0	Benzo(b)naphtho(2,1-d)thioph	ND		ND		nc	30 [b]
	C1-Benzonaphthothiophenes	ND		ND		nc	30 [b]
	C2-Benzonaphthothiophenes	ND		ND		nc	30 [b]
	C3-Benzonaphthothiophenes	ND		ND		nc	30 [b]
	C4-Benzonaphthothiophenes	ND		ND		nc	30 [b]
206-44-0	Fluoranthene	ND		ND		nc	30
129-00-0	Pyrene	ND		ND		nc	30
	C1-Fluoranthenes/Pyrenes	35200	J	ND		200* [c]	30 [b]
	C2-Fluoranthenes/Pyrenes	ND		ND		nc	30 [b]
	C3-Fluoranthenes/Pyrenes	ND		ND		nc	30 [b]
243-17-4	Benzo(b)fluorene	ND		ND		nc	30 [b]
205-12-9	Benzo(c)fluorene	ND		ND		nc	30 [b]
3442-78-2	2-Methylpyrene	ND		ND		nc	30 [b]
3353-12-6	4-Methylpyrene	ND		ND		nc	30 [b]

* = Outside of Control Limits.

Duplicate Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33312-DUP	S32765.D	50	05/29/13	KR	05/24/13	OP33312	MSS1429
MC20162-7	S32764.D	50	05/29/13	KR	05/24/13	OP33312	MSS1429

The QC reported here applies to the following samples: **Method:** D5739-06/8270C SIM

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6, MC20162-7, MC20162-8, MC20162-9

CAS No.	Compound	MC20162-7 ug/kg	Q	DUP ug/kg	Q	RPD	Limits
2381-21-7	1-Methylpyrene	ND		ND		nc	30 b
56-55-3	Benzo(a)anthracene	ND		ND		nc	30
218-01-9	Chrysene	ND		ND		nc	30
	C1-Benzo(a)anthracenes/Chrys	ND		ND		nc	30 b
	C2-Benzo(a)anthracenes/Chrys	ND		ND		nc	30 b
	C3-Benzo(a)anthracenes/Chrys	ND		ND		nc	30 b
	C4-Benzo(a)anthracenes/Chrys	ND		ND		nc	30 b
205-99-2	Benzo(b)fluoranthene	ND		ND		nc	30
207-08-9	Benzo(k)fluoranthene	ND		ND		nc	30
192-97-2	Benzo(e)pyrene	ND		ND		nc	30 b
50-32-8	Benzo(a)pyrene	ND		ND		nc	30
198-55-0	Perylene	ND		ND		nc	30 b
193-39-5	Indeno(1,2,3-cd)pyrene	ND		ND		nc	30
53-70-3	Dibenzo(a,h)anthracene	ND		ND		nc	30
191-24-2	Benzo(g,h,i)perylene	ND		ND		nc	30
191-07-1	Coronene	ND		ND		nc	30 b
3891-98-3	2,6,10-trimethyldodecane (138	79900		80100	J	0	30 b
3891-99-4	2,6,10-trimethyltridecane (147	97500		94100		4	30 b
3892-00-0	2,6,10-trimethylpentadecane (1	66700	J	71500	J	7	30 b
	C-17	173000		173000		0	30 b
1921-70-6	Pristane	135000		137000		1	30 b
	C-18	140000		140000		0	30 b
638-36-8	Phytane	86100		85600	J	1	30 b
78-00-2	Tetraethyl lead	ND		ND		nc	30 b

CAS No.	Surrogate Recoveries	DUP	MC20162-7	Limits
1146-65-2	Naphthalene-d8	89%	93%	40-140%
1517-22-2	Phenanthrene-d10	74%	90%	40-140%
	Perylene-d12	63%	98%	40-140%

(a) High RPD due to dilution.
(b) Advisory control limits.
(c) High RPD due to sample levels below reporting limit.

* = Outside of Control Limits.

Semivolatile Surrogate Recovery Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Method: D5739-06/8270C SIM **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
MC20162-1	S32747.D	102.0	85.0	72.0
MC20162-2	S32748.D	102.0	71.0	52.0
MC20162-3	S32749.D	117.0	164.0* [a]	153.0* [a]
MC20162-4	S32750.D	101.0	72.0	46.0
MC20162-5	S32751.D	102.0	92.0	27.0* [a]
MC20162-6	S32752.D	94.0	65.0	25.0* [a]
MC20162-7	S32764.D	93.0	90.0	98.0
MC20162-8	S32766.D	93.0	71.0	53.0
MC20162-9	S32767.D	99.0	78.0	59.0
OP33312-BS1	S32746.D	103.0	110.0	115.0
OP33312-DUP	S32765.D	89.0	74.0	63.0
OP33312-MB	S32745.D	87.0	96.0	104.0

Surrogate Compounds	Recovery Limits
S1 = Naphthalene-d8	40-140%
S2 = Phenanthrene-d10	40-140%
S3 = Perylene-d12	40-140%

(a) Outside control limits due to dilution.

New England ACCUTEST LABORATORIES

GC/MS Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
James Roush
05/31/13 15:01

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32747.D
Acq On : 28 May 2013 4:28 pm
Operator : danielb
Sample : mc20162-1
Misc : op33312,mss1429,0.0147,,,2,50
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 29 09:45:20 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	28.180	164	48705	1000.00	ng/mL	-0.01
System Monitoring Compounds						
2) Toluene-d8	9.291	98	4099m	75.82	µg/mL	-0.02
Spiked Amount 1000.000			Recovery = 7.58%			
3) Naphthalene-d8	21.224	136	2015	20.40	ng/mL	0.00
Spiked Amount 1000.000	Range 1 - 0		Recovery = 2.04%#			
4) Phenanthrene-d10	34.065	188	1325m	17.04	ng/mL	0.03
Spiked Amount 1000.000			Recovery = 1.70%			
5) Perylene-d12	49.926	264	1068m	14.47	ng/mL	0.04
Spiked Amount 1000.000			Recovery = 1.45%			
Target Compounds						Qvalue
7) Benzene	6.864	TIC	138578m	1799.64	µg/mL	
8) C1-Benzene	9.399	92	376905	4894.68	µg/mL	99
9) C2-Benzenes	12.367	106	455468m	5914.94	µg/mL	
10) C3-Benzenes	16.019	120	373661m	4852.55	µg/mL	
11) C4-Benzenes	17.806	134	163632m	2125.01	µg/mL	
12) C5-Benzenes	20.103	148	45666m	593.04	µg/mL	
13) Methylcyclohexane	8.232	83	53376	1776.66	µg/mL	99
14) Toluene	9.399	91	642499	8916.81	µg/mL	100
15) Ethylbenzene	12.137	91	236129	2682.24	µg/mL	100
16) m,p-xylene	12.367	91	624779	8903.74	µg/mL	100
17) Styrene	13.008	104	596	11.44	µg/mL	94
18) o-Xylene	13.080	91	231689	3333.48	µg/mL	100
19) Isopropylbenzene	14.002	105	16336	199.38	µg/mL	99
20) n-Propylbenzene	14.859	91	85836	773.25	µg/mL	99
21) 1,3,5-Trimethylbenzene	15.284	105	102860	1352.93	µg/mL	100
22) t-Butylbenzene	16.019	119	38335	512.82	µg/mL#	54
23) 1,2,4-Trimethylbenzene	16.019	105	333204	4286.91	µg/mL	99
24) sec-Butylbenzene	16.509	105	8068	80.90	µg/mL	99
25) 1,2,3-Trimethylbenzene	16.862	105	70927	870.33	µg/mL	96
26) p-Isopropyltoluene	16.790	119	10151	115.42	µg/mL	92
27) n-Butylbenzene	17.755	91	24182	285.16	µg/mL#	53
28) trans-Decalin	17.834	96	201	12.60	µg/mL	91
29) cis-Decalin	19.073	96	108m	5.19	µg/mL	
30) C1-Decalins	19.347	152	401m	25.13	µg/mL	
31) C2-Decalins	20.788	166	282m	17.67	µg/mL	
34) Benzo(b)thiophene	21.521	134	4904	53.31	µg/mL#	85
35) C1-Benzo(b)thiophenes	23.582	148	4022m	43.72	µg/mL	
36) C2-Benzo(b)thiophenes	26.560	162	918m	9.98	µg/mL	
39) Tetraethyl lead	20.370	208	257	40.44	µg/mL	97
44) Naphthalene	21.298	128	75705	642.84	ng/mL	100
45) 2-Methylnaphthalene	24.003	142	39940m	547.06	ng/mL	
46) 1-Methylnaphthalene	24.424	142	17877	243.06	ng/mL	100
47) C1-Naphthalenes	24.003	142	59709m	507.02	ng/mL	
48) C2-Naphthalenes	26.849	156	15014m	127.49	ng/mL	
49) C3-Naphthalenes	29.208	170	3400m	28.87	ng/mL	
50) C4-Naphthalenes	31.972	184	1048m	8.90	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32747.D
Acq On : 28 May 2013 4:28 pm
Operator : danielb
Sample : mc20162-1
Misc : op33312,mss1429,0.0147,,,2,50
ALS Vial : 6 Sample Multiplier: 1

Quant Time: May 29 09:45:20 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

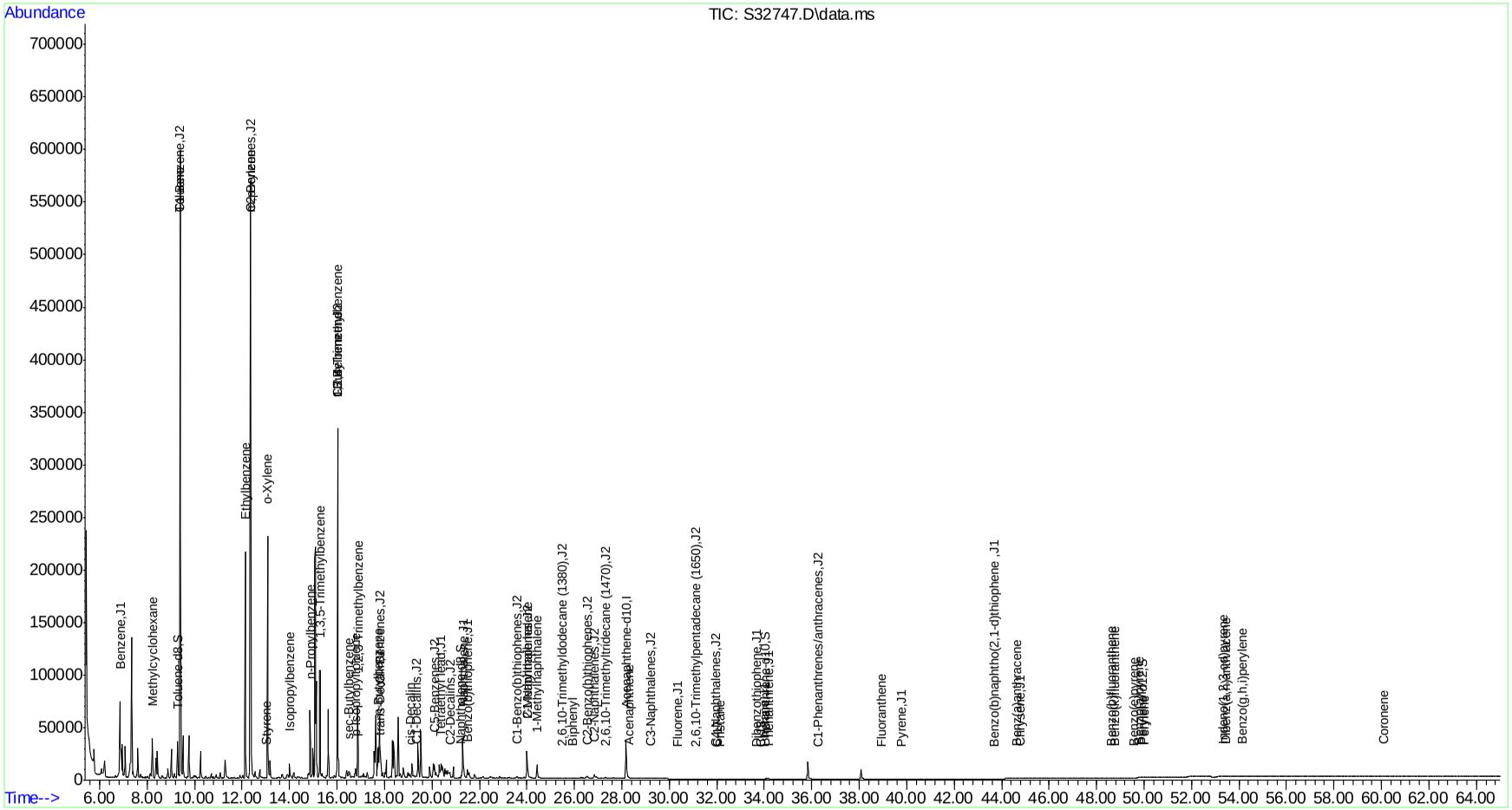
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) Biphenyl	25.917	154	891	8.99	µg/mL	98
53) Acenaphthene	28.302	154	70m	1.10	ng/mL	
55) Fluorene	30.352	166	122m	1.62	ng/mL	
59) Dibenzothiophene	33.668	184	122m	1.19	ng/mL	
65) Phenanthrene	34.155	178	435	4.04	ng/mL#	63
67) C1-Phenanthrenes/anthr...	36.245	192	587m	5.45	ng/mL	
73) Benzo(b)naphtho(2,1-d)...	43.676	234	539m	5.58	µg/mL	
78) Fluoranthene	38.930	202	118m	1.13	ng/mL	
79) Pyrene	39.777	202	155m	1.43	ng/mL	
88) Benz(a)anthracene	44.615	228	171m	1.90	ng/mL	
89) Chrysene	44.789	228	463m	5.22	ng/mL	
94) Benzo(b)fluoranthene	48.649	252	291	2.84	ng/mL#	65
95) Benzo(k)fluoranthene	48.733	252	710m	6.62	ng/mL	
96) Benzo(e)pyrene	49.566	252	120m	1.19	ng/mL	
97) Benzo(a)pyrene	49.768	252	361m	4.01	ng/mL	
98) Perylene	50.016	252	236m	2.59	ng/mL	
99) Indeno(1,2,3-cd)pyrene	53.344	276	605m	5.77	ng/mL	
100) Dibenz(a,h)anthracene	53.414	278	663m	6.80	ng/mL	
101) Benzo(g,h,i)perylene	54.111	276	299	2.56	ng/mL#	52
102) Coronene	60.098	300	694m	6.12	µg/mL	
103) C-17	32.042	85	157m	6.88	µg/mL	
104) Pristane	32.138	85	139m	8.07	µg/mL	
105) C-18	33.828	85	134m	5.74	µg/mL	
106) Phytane	34.001	85	116m	5.06	µg/mL	
107) 2,6,10-Trimethyldodeca...	25.496	85	135m	5.89	µg/mL	
108) 2,6,10-Trimethyltridec...	27.343	85	122m	5.33	µg/mL	
109) 2,6,10-Trimethylpentad...	31.075	85	74m	3.23	µg/mL	

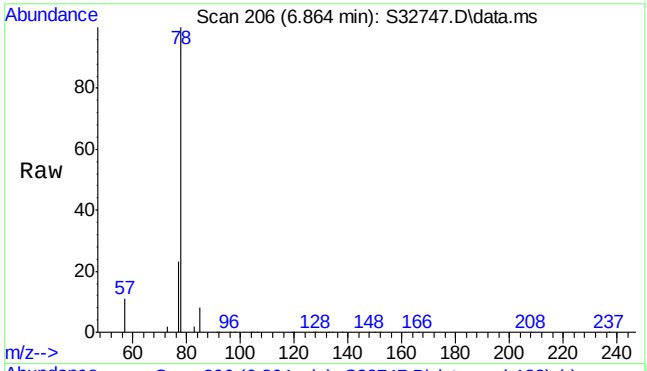
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32747.D
Acq On : 28 May 2013 4:28 pm
Operator : danielb
Sample : mc20162-1
Misc : op33312,mss1429,0.0147,,,2,50
ALS Vial : 6 Sample Multiplier: 1

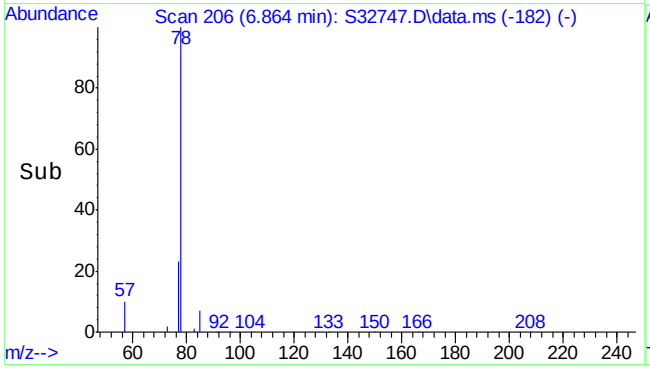
Quant Time: May 29 09:45:20 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

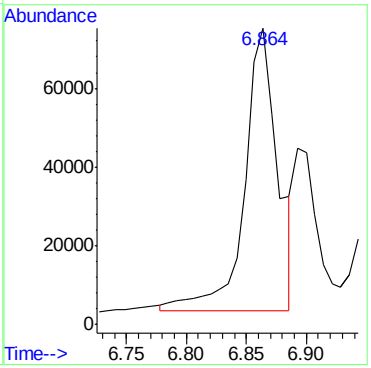


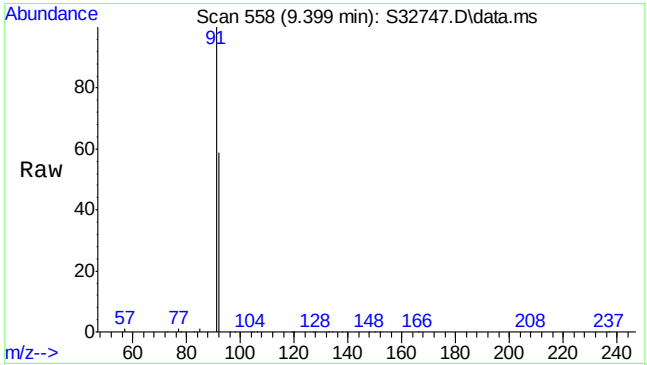


#7
Benzene
Concen: 1799.64 µg/mL m
RT: 6.864 min Scan# 206
Delta R.T. -0.029 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:TIC Resp: 138578



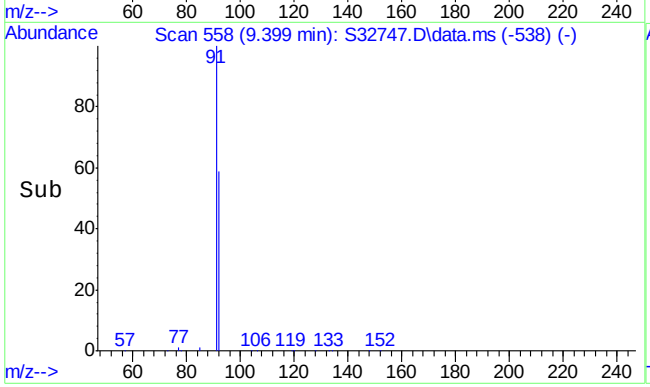


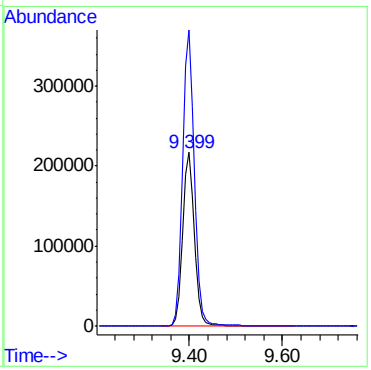


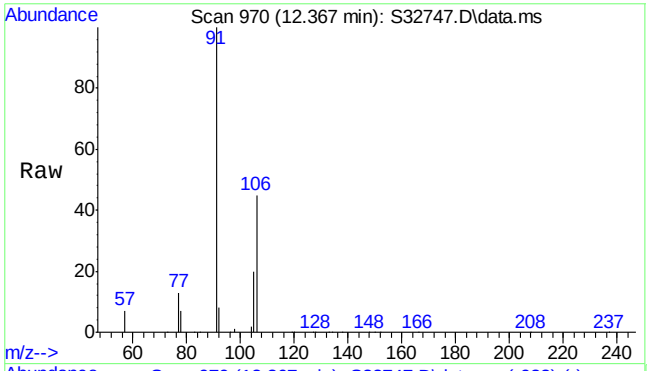
#8
C1-Benzene
Concen: 4894.68 µg/mL
RT: 9.399 min Scan# 558
Delta R.T. -0.058 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion: 92 Resp: 376905

Ion	Ratio	Lower	Upper
92	100		
91	170.6	135.6	203.4



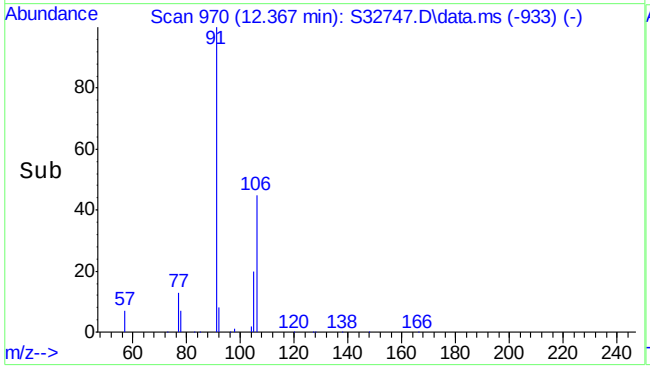


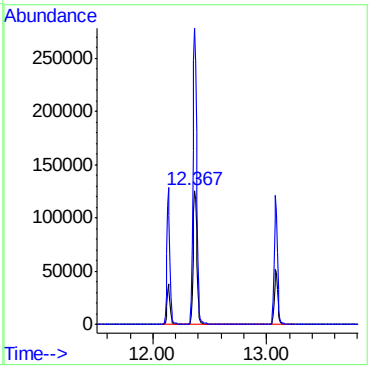


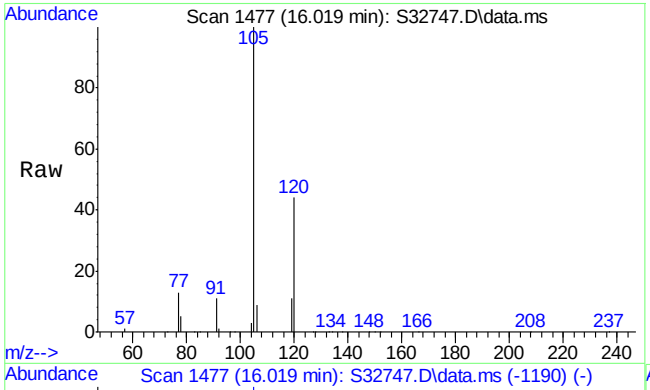
#9
C2-Benzenes
Concen: 5914.94 µg/mL m
RT: 12.367 min Scan# 970
Delta R.T. -0.022 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:106 Resp: 455468

Ion	Ratio	Lower	Upper
106	100		
91	137.2	174.9	262.3#



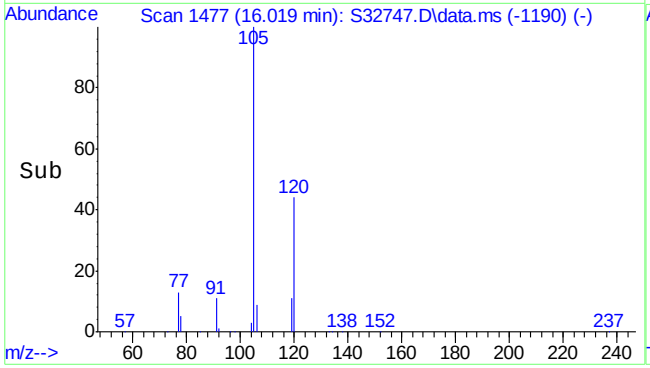


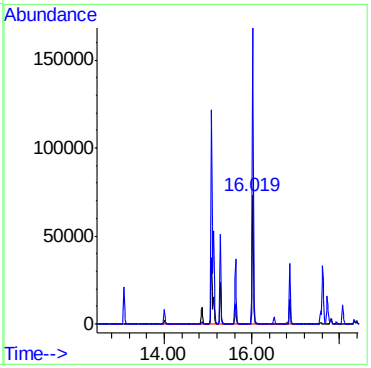


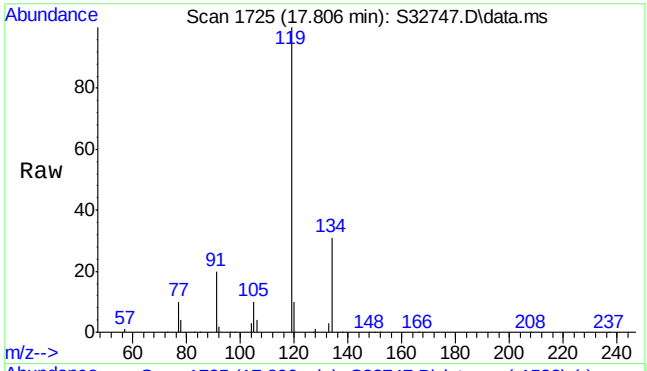
#10
C3-Benzenes
Concen: 4852.55 µg/mL m
RT: 16.019 min Scan# 1477
Delta R.T. -0.015 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:120 Resp: 373661

Ion	Ratio	Lower	Upper
120	100		
105	89.4	181.4	272.2#



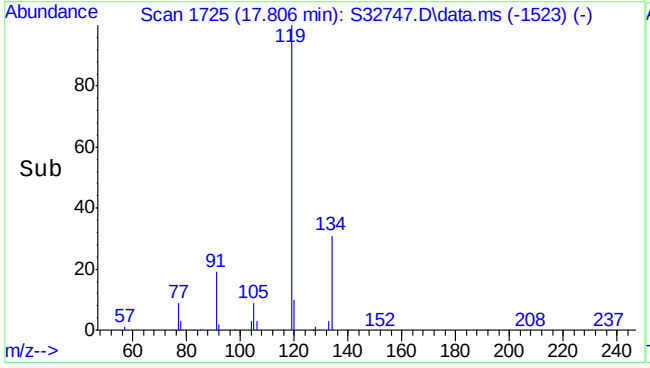


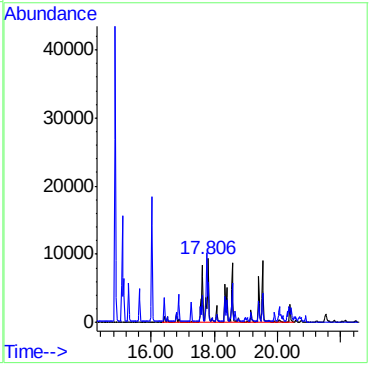


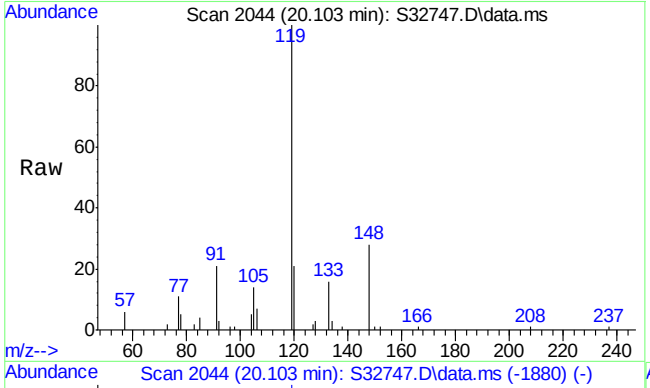
#11
C4-Benzenes
Concen: 2125.01 µg/mL m
RT: 17.806 min Scan# 1725
Delta R.T. -2.601 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:134 Resp: 163632

Ion	Ratio	Lower	Upper
134	100		
91	0.0	37.2	55.8#



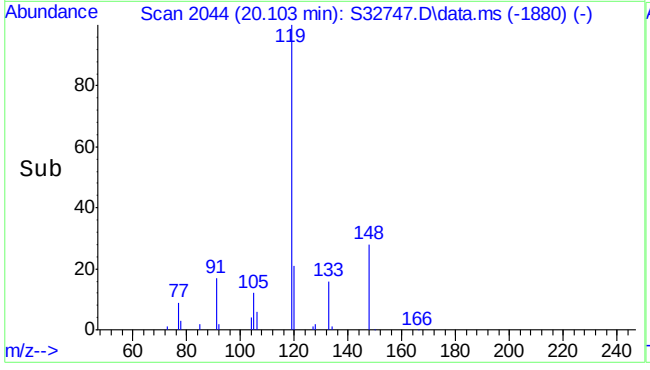


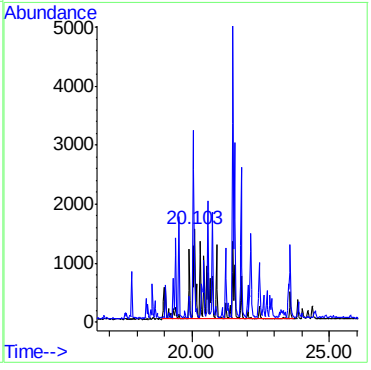


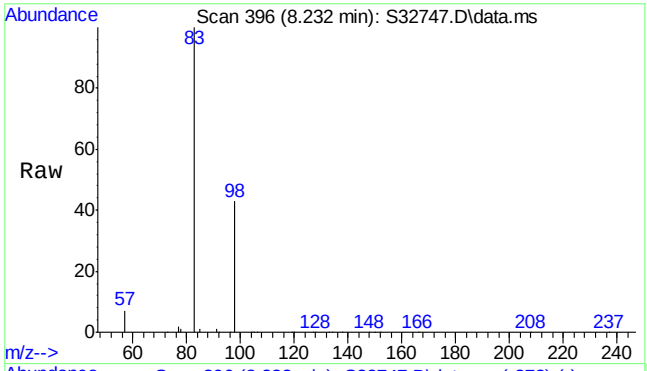
#12
C5-Benzenes
Concen: 593.04 µg/mL m
RT: 20.103 min Scan# 2044
Delta R.T. -0.007 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:148 Resp: 45666

Ion	Ratio	Lower	Upper
148	100		
133	0.0	134.0	201.0#



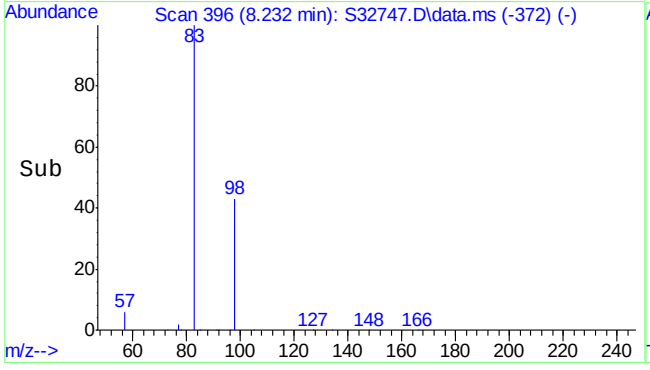


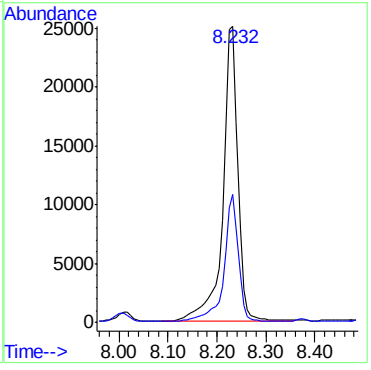


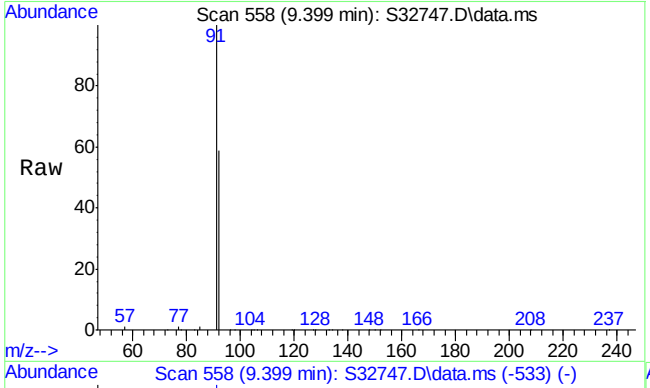
#13
Methylcyclohexane
Concen: 1776.66 µg/mL
RT: 8.232 min Scan# 396
Delta R.T. -0.029 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion: 83 Resp: 53376

Ion	Ratio	Lower	Upper
83	100		
98	41.7	34.0	51.0



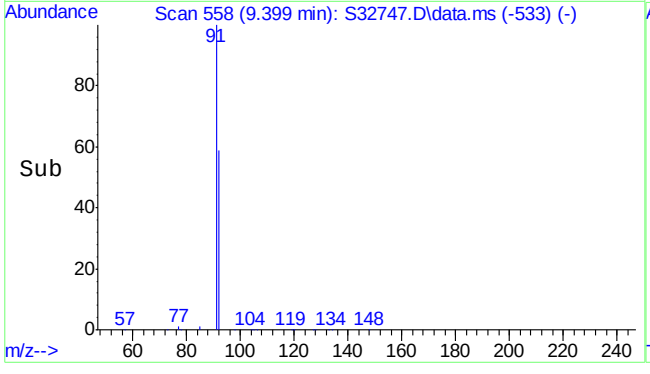


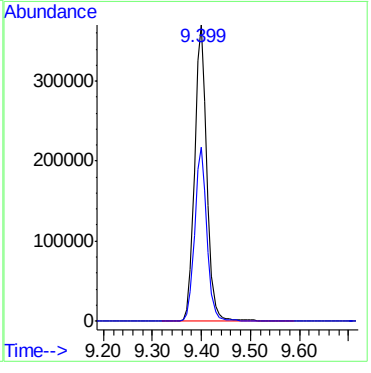


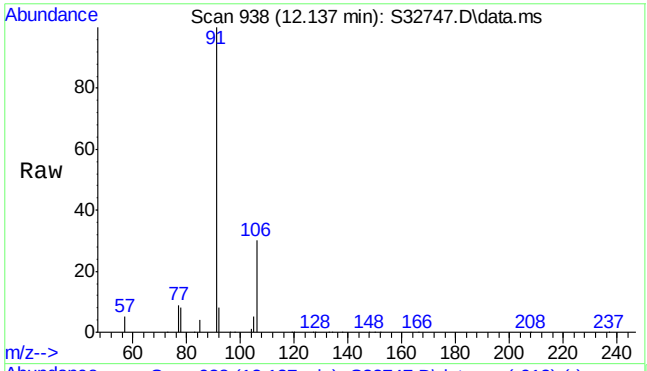
#14
Toluene
Concen: 8916.81 µg/mL
RT: 9.399 min Scan# 558
Delta R.T. -0.022 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion: 91 Resp: 642499

Ion	Ratio	Lower	Upper
91	100		
92	58.6	46.8	70.2



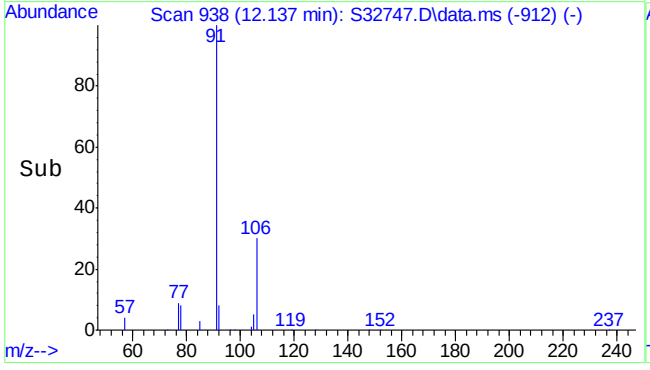


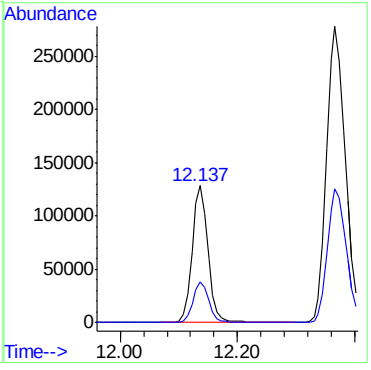


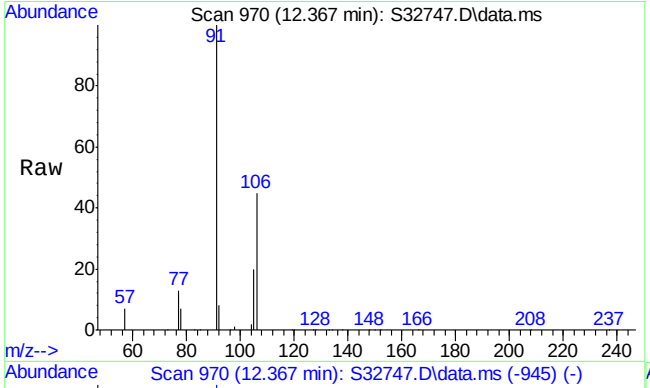
#15
Ethylbenzene
Concen: 2682.24 µg/mL
RT: 12.137 min Scan# 938
Delta R.T. -0.014 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion: 91 Resp: 236129

Ion	Ratio	Lower	Upper
91	100		
106	29.7	23.8	35.6



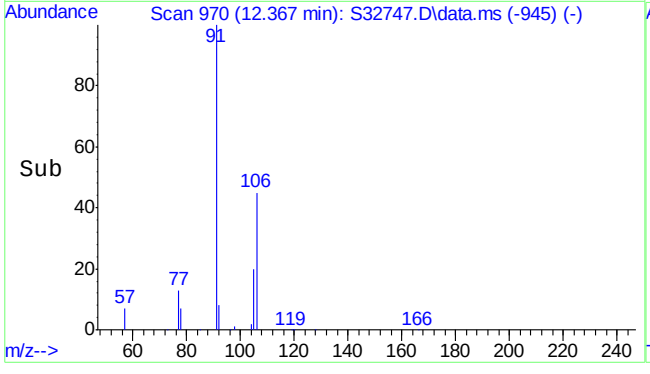


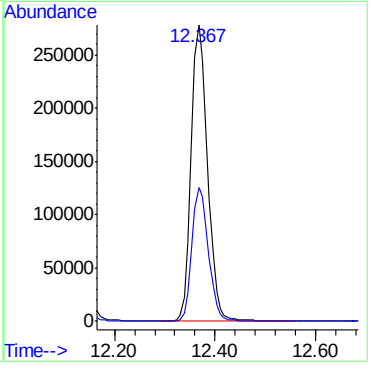


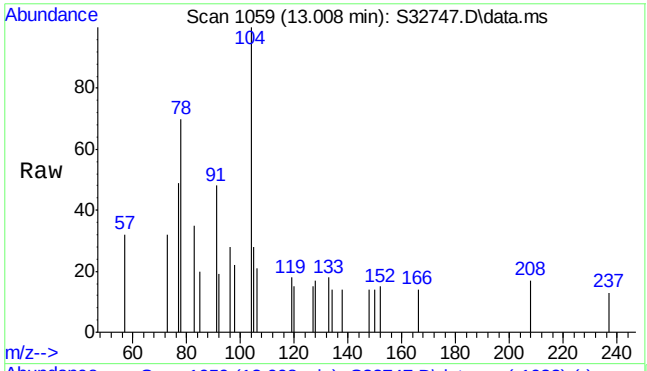
#16
m,p-xylene
Concen: 8903.74 µg/mL
RT: 12.367 min Scan# 970
Delta R.T. -0.022 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion: 91 Resp: 624779

Ion	Ratio	Lower	Upper
91	100		
106	45.5	36.6	55.0



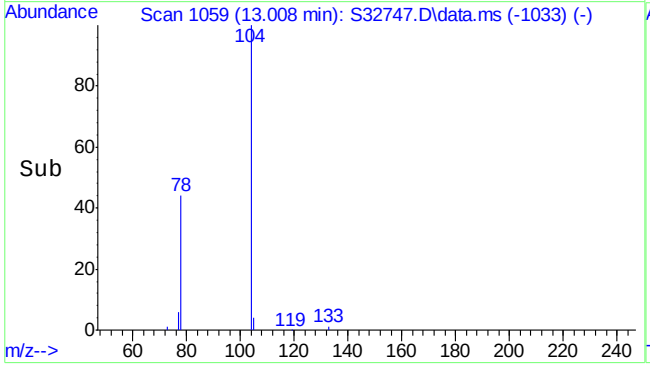


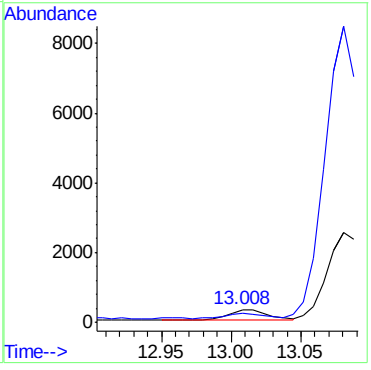


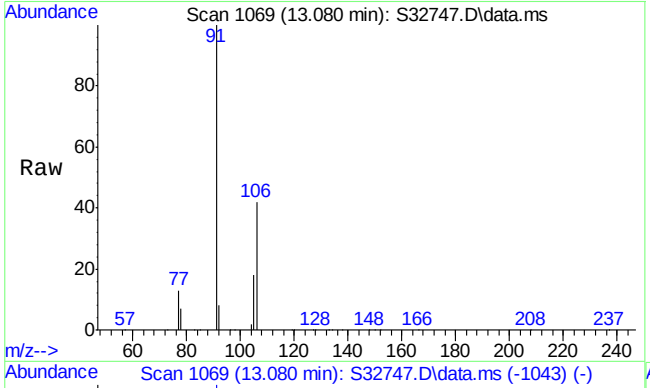
#17
Styrene
Concen: 11.44 µg/mL
RT: 13.008 min Scan# 1059
Delta R.T. -0.014 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:104 Resp: 596

Ion	Ratio	Lower	Upper
104	100		
78	43.3	37.7	56.5



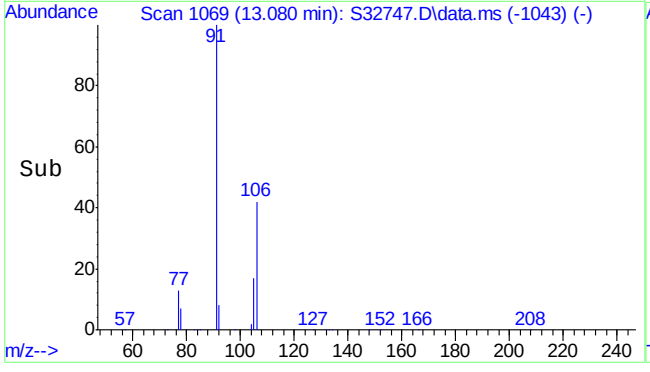


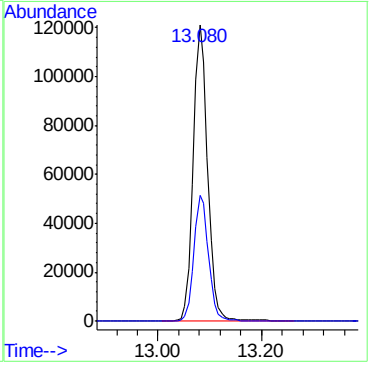


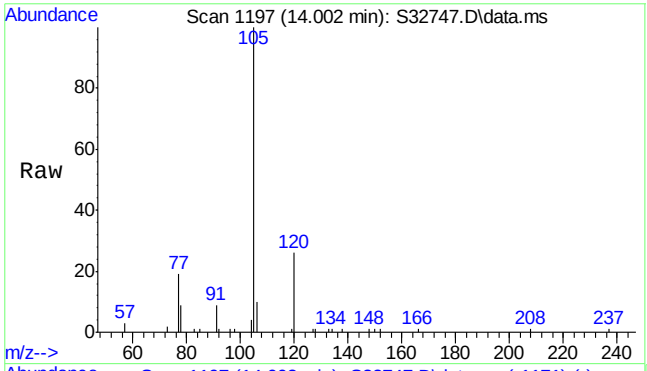
#18
o-Xylene
Concen: 3333.48 µg/mL
RT: 13.080 min Scan# 1069
Delta R.T. -0.014 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion: 91 Resp: 231689

Ion	Ratio	Lower	Upper
91	100		
106	43.0	34.5	51.7



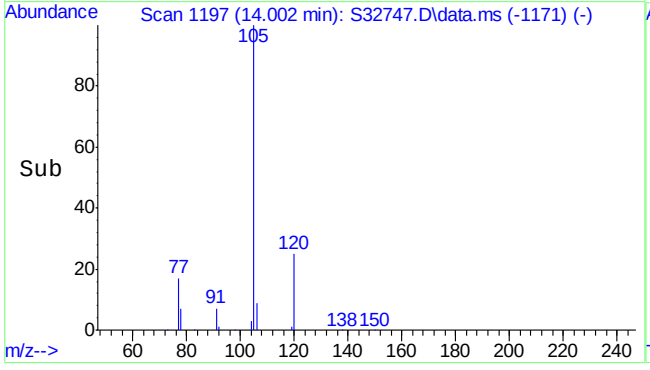


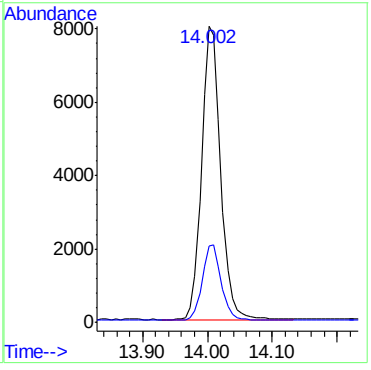


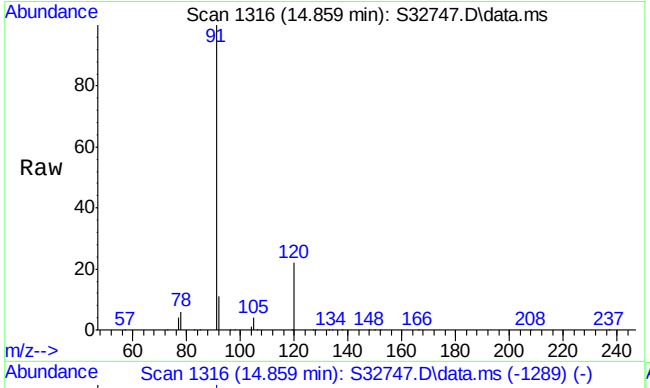
#19
Isopropylbenzene
Concen: 199.38 µg/mL
RT: 14.002 min Scan# 1197
Delta R.T. -0.014 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:105 Resp: 16336

Ion	Ratio	Lower	Upper
105	100		
120	25.7	21.1	31.7



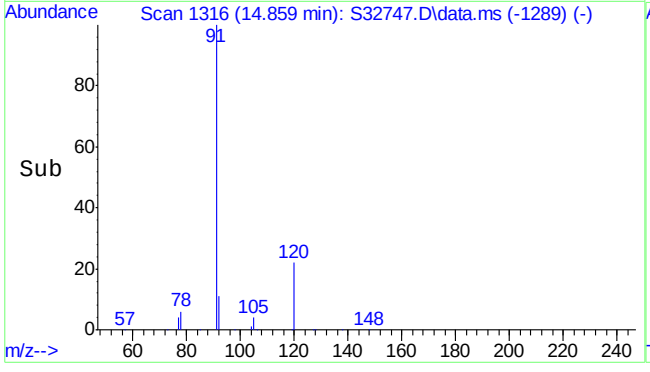


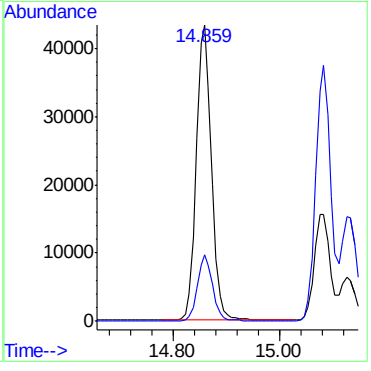


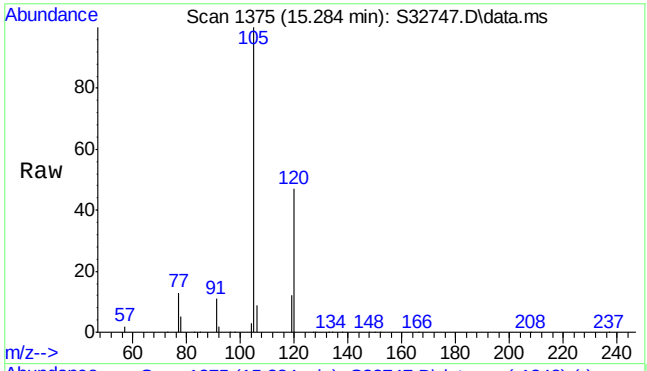
#20
n-Propylbenzene
Concen: 773.25 µg/mL
RT: 14.859 min Scan# 1316
Delta R.T. -0.007 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion: 91 Resp: 85836

Ion	Ratio	Lower	Upper
91	100		
120	21.8	17.0	25.4



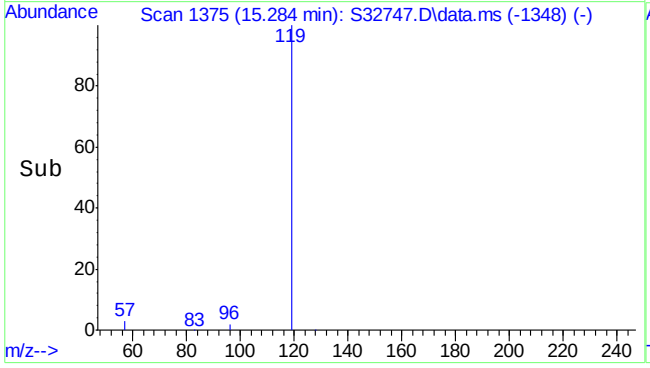


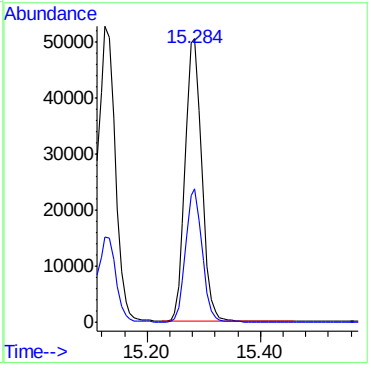


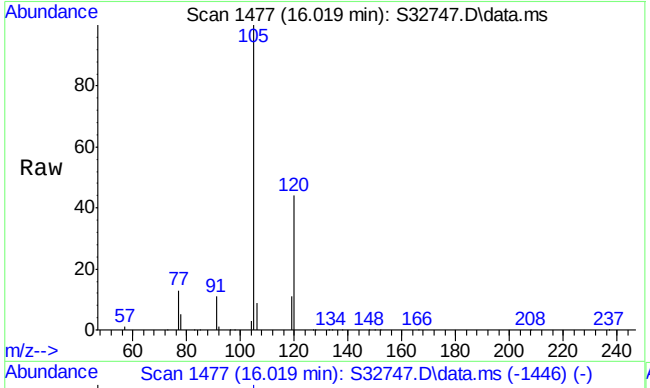
#21
1,3,5-Trimethylbenzene
Concen: 1352.93 µg/mL
RT: 15.284 min Scan# 1375
Delta R.T. -0.007 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:105 Resp: 102860

Ion	Ratio	Lower	Upper
105	100		
120	46.3	37.1	55.7



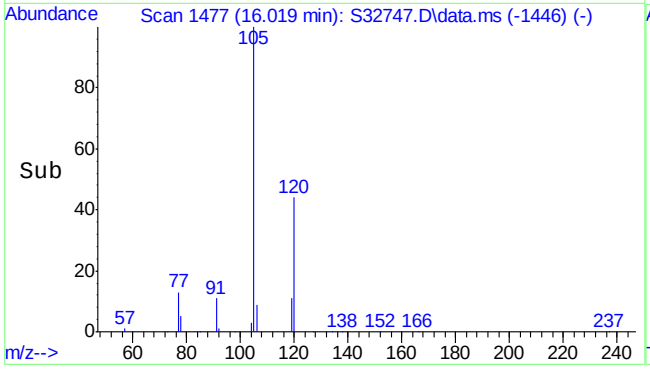


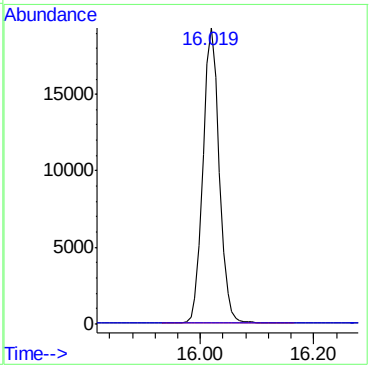


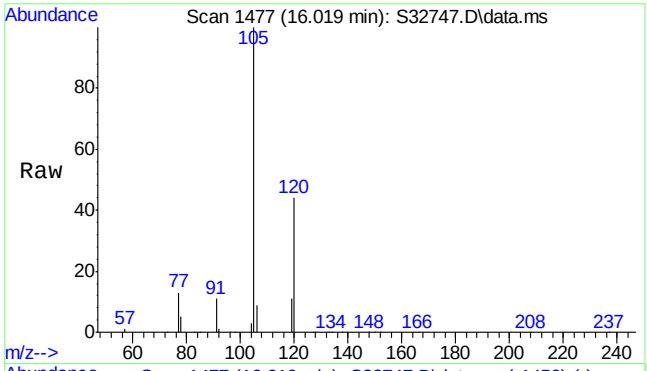
#22
t-Butylbenzene
Concen: 512.82 µg/mL
RT: 16.019 min Scan# 1477
Delta R.T. 0.022 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:119 Resp: 38335

Ion	Ratio	Lower	Upper
119	100		
134	0.0	17.6	26.4#



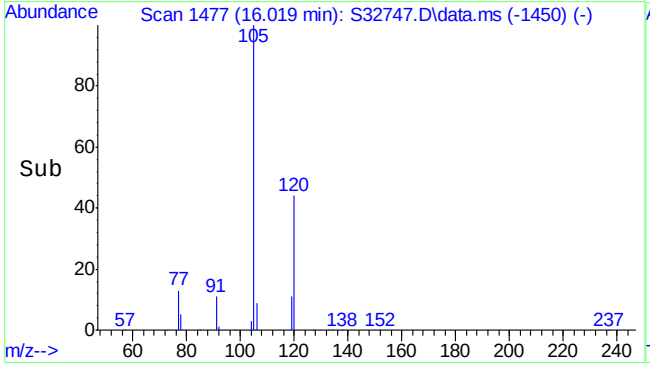


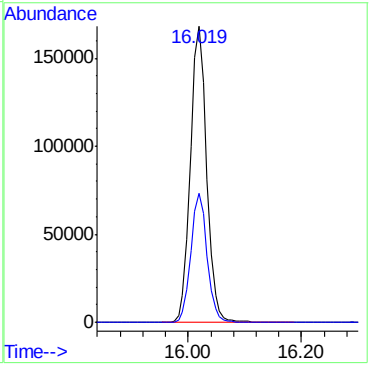


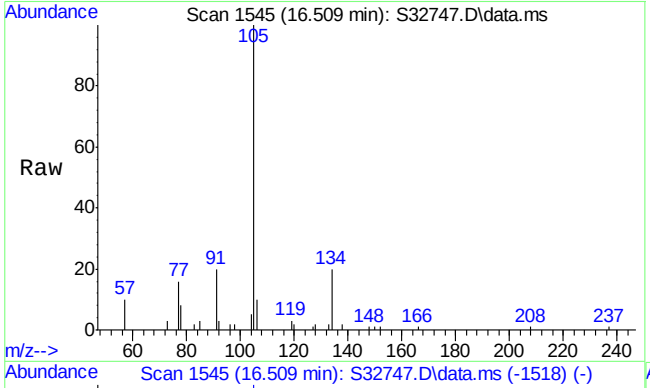
#23
1,2,4-Trimethylbenzene
Concen: 4286.91 µg/mL
RT: 16.019 min Scan# 1477
Delta R.T. -0.007 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:105 Resp: 333204

Ion	Ratio	Lower	Upper
105	100		
120	43.4	35.1	52.7



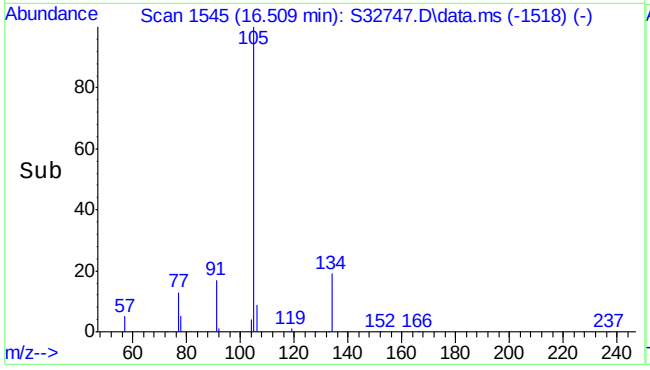


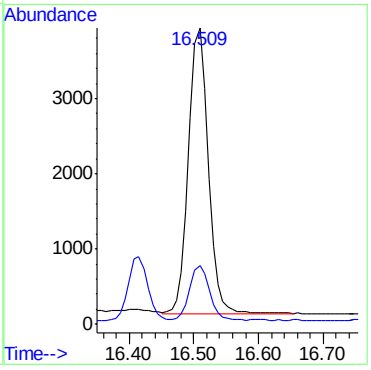


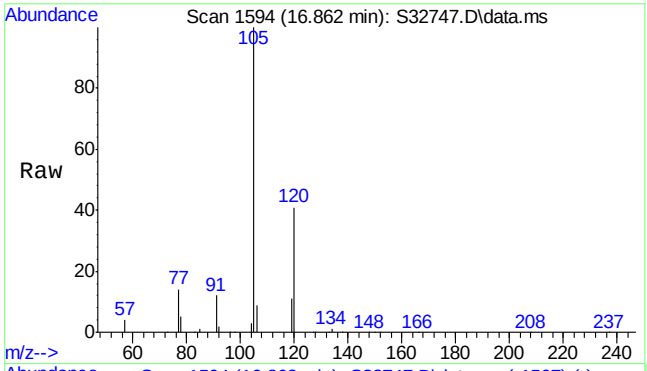
#24
sec-Butylbenzene
Concen: 80.90 µg/mL
RT: 16.509 min Scan# 1545
Delta R.T. -0.007 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:105 Resp: 8068

Ion	Ratio	Lower	Upper
105	100		
134	18.9	15.4	23.2



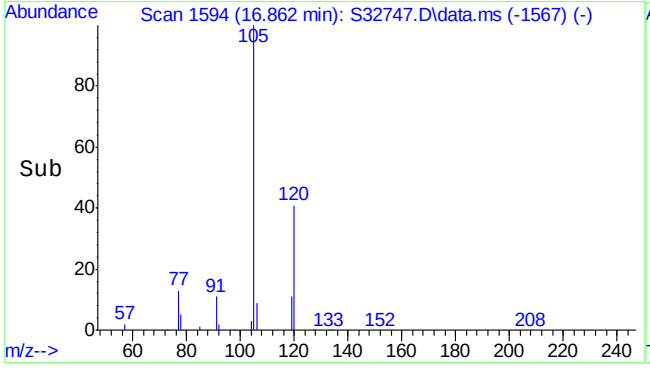


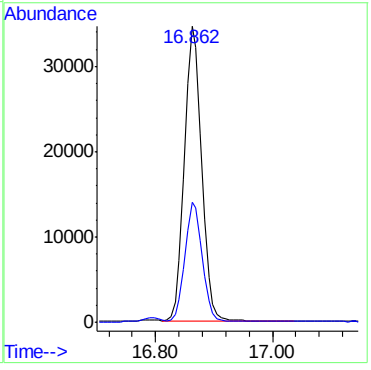


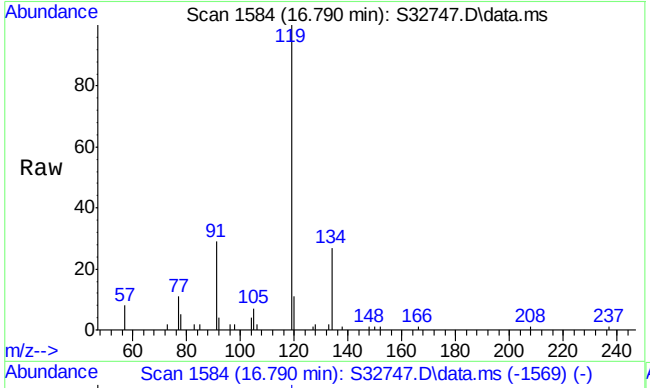
#25
1,2,3-Trimethylbenzene
Concen: 870.33 µg/mL
RT: 16.862 min Scan# 1594
Delta R.T. -0.007 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:105 Resp: 70927

Ion	Ratio	Lower	Upper
105	100		
120	40.9	34.6	52.0



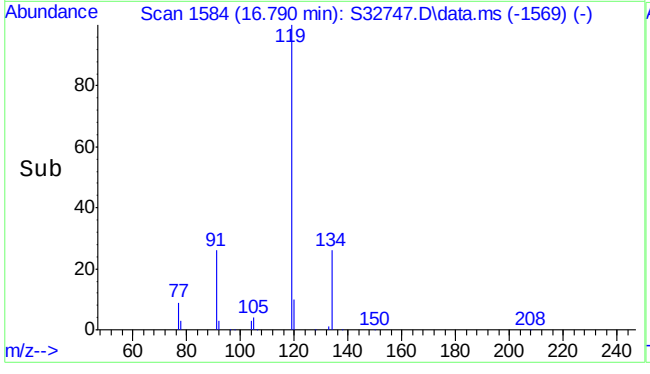


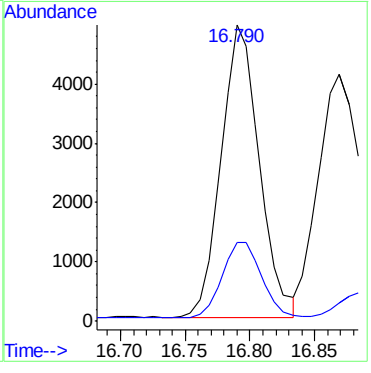


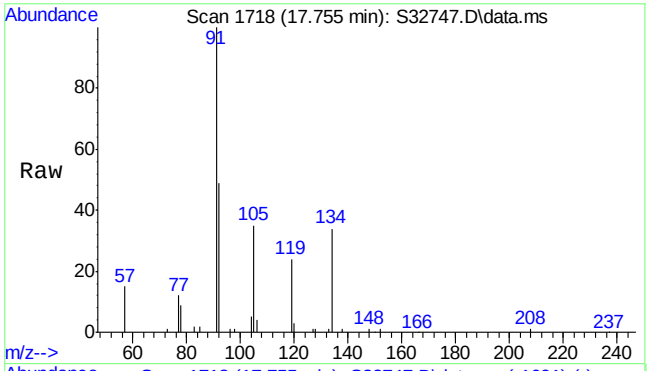
#26
p-Isopropyltoluene
Concen: 115.42 µg/mL
RT: 16.790 min Scan# 1584
Delta R.T. -0.094 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:119 Resp: 10151

Ion	Ratio	Lower	Upper
119	100		
134	27.0	18.4	27.6



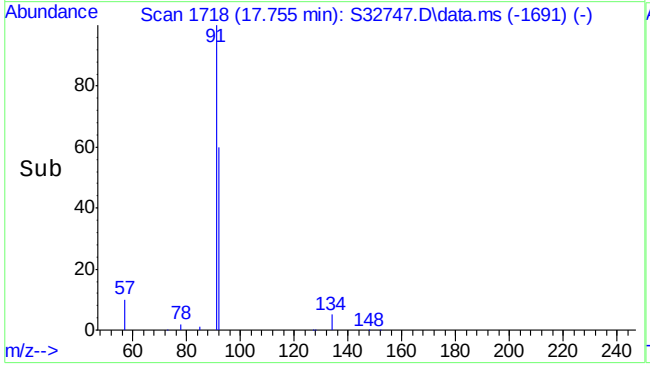


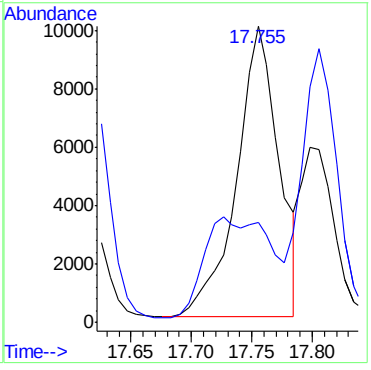


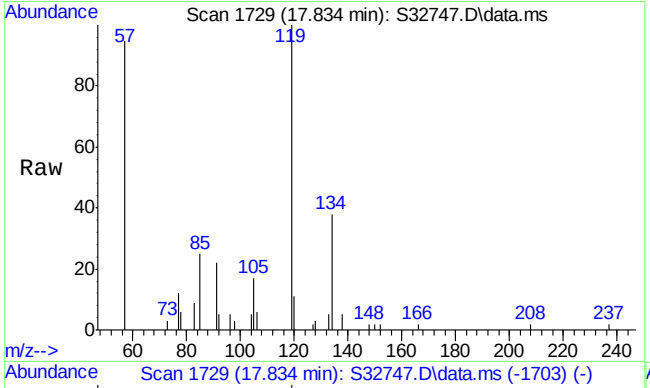
#27
n-Butylbenzene
Concen: 285.16 µg/mL
RT: 17.755 min Scan# 1718
Delta R.T. -0.007 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion: 91 Resp: 24182

Ion	Ratio	Lower	Upper
91	100		
134	0.0	18.2	27.2#



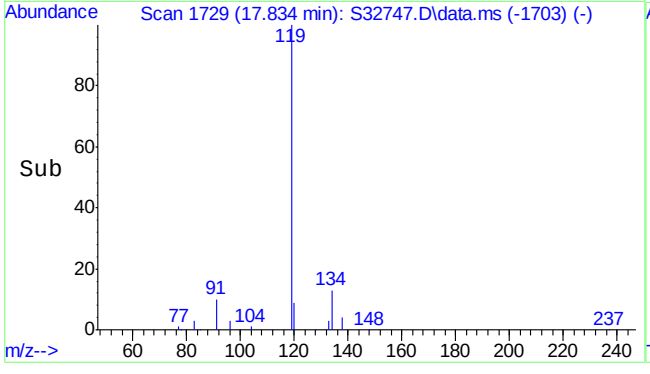


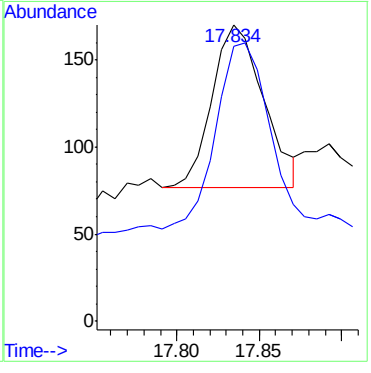


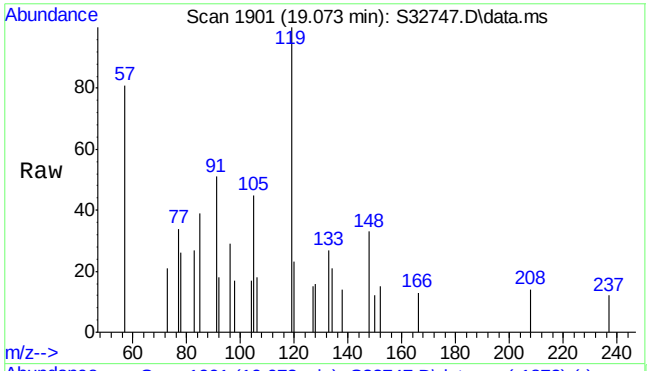
#28
trans-Decalin
Concen: 12.60 µg/mL
RT: 17.834 min Scan# 1729
Delta R.T. -0.014 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion: 96 Resp: 201

Ion	Ratio	Lower	Upper
96	100		
138	144.3	106.5	159.7



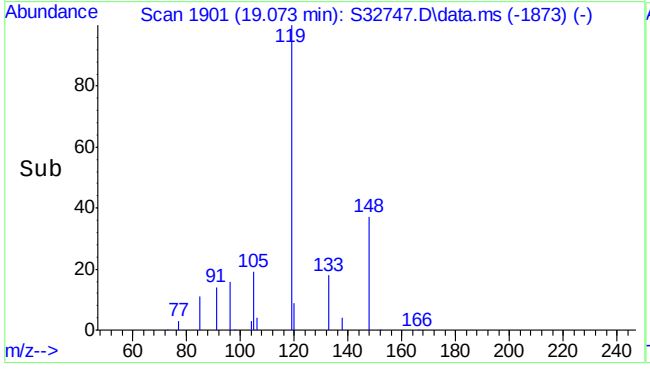


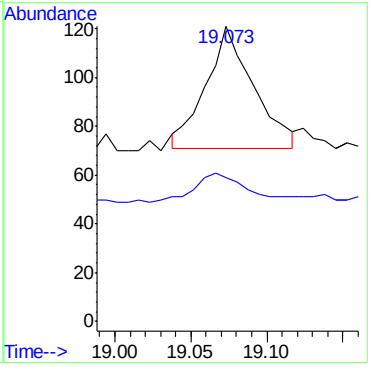


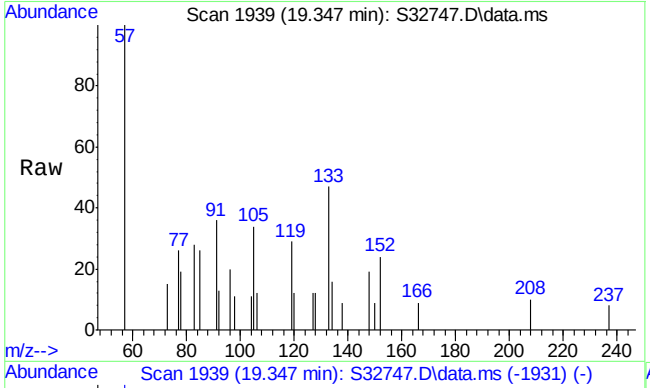
#29
cis-Decalin
Concen: 5.19 µg/mL m
RT: 19.073 min Scan# 1901
Delta R.T. 0.000 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion: 96 Resp: 108

Ion	Ratio	Lower	Upper
96	100		
138	0.0	56.6	85.0#

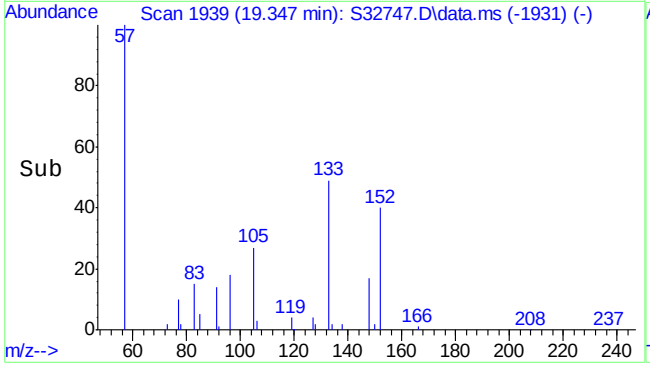


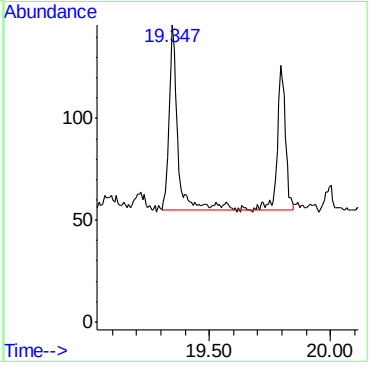


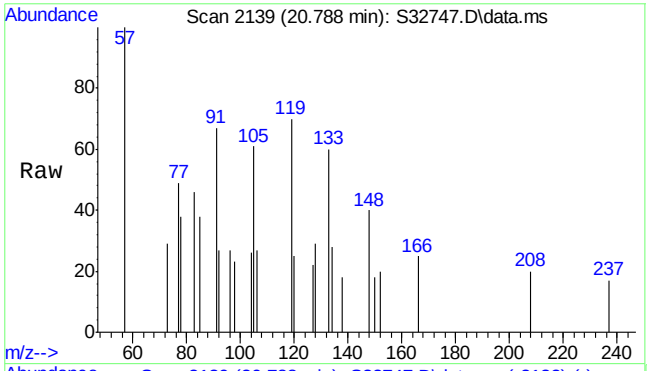


#30
C1-Decalins
Concen: 25.13 µg/mL m
RT: 19.347 min Scan# 1939
Delta R.T. -0.461 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:152 Resp: 401

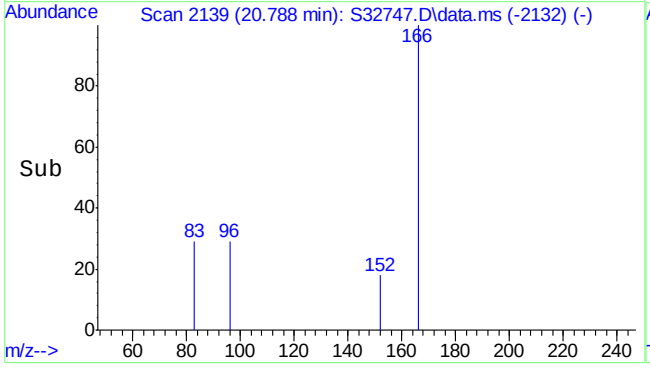


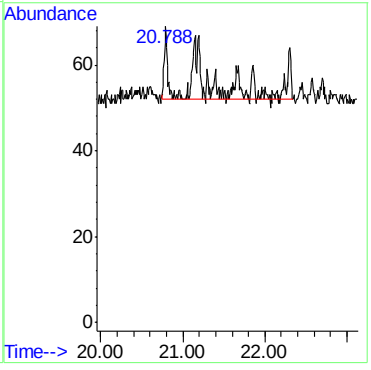


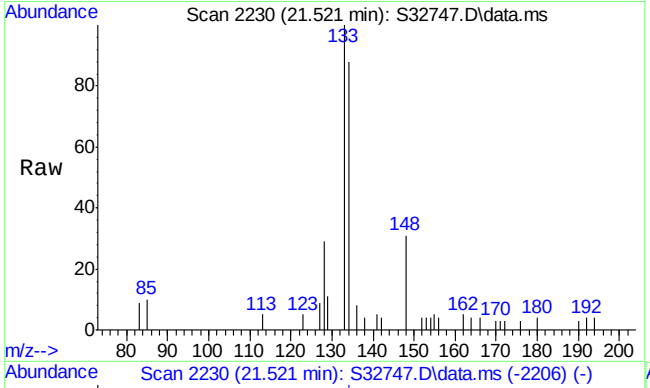


#31
C2-Decalins
Concen: 17.67 µg/mL m
RT: 20.788 min Scan# 2139
Delta R.T. -0.362 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:166 Resp: 282



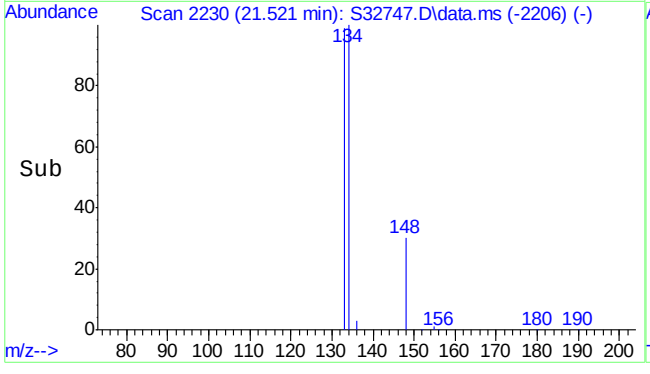


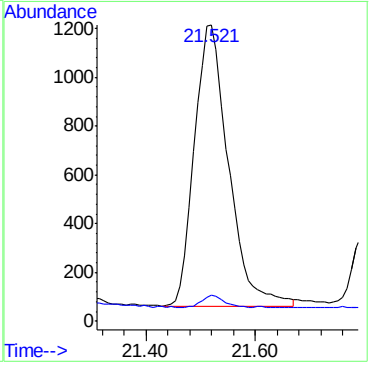


#34
Benzo(b)thiophene
Concen: 53.31 µg/mL
RT: 21.521 min Scan# 2230
Delta R.T. 0.000 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:134 Resp: 4904

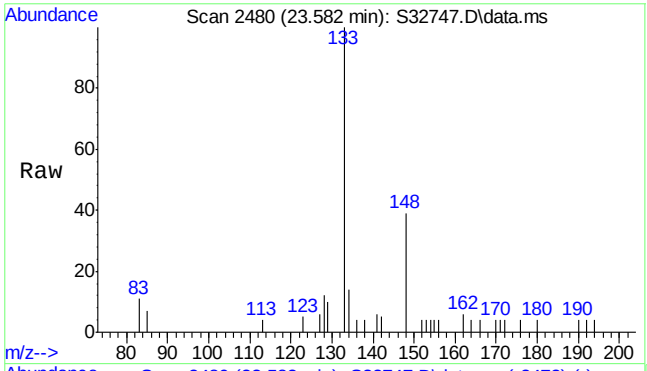
Ion	Ratio	Lower	Upper
134	100		
136	0.0	4.0	6.0#





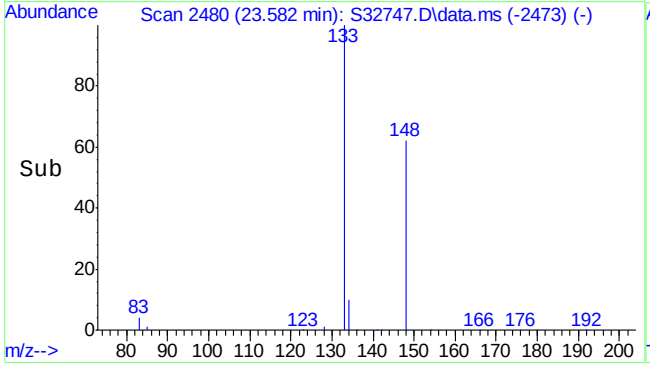
9.1.1

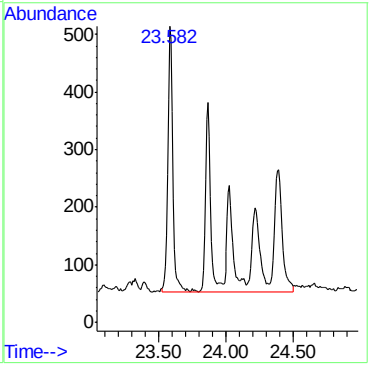
9

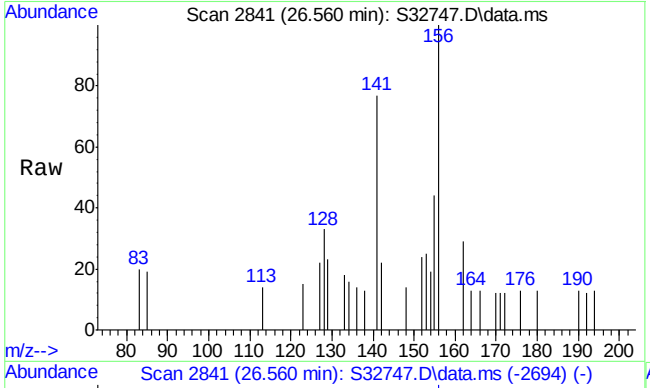


#35
C1-Benzo(b)thiophenes
Concen: 43.72 µg/mL m
RT: 23.582 min Scan# 2480
Delta R.T. -0.017 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:148 Resp: 4022

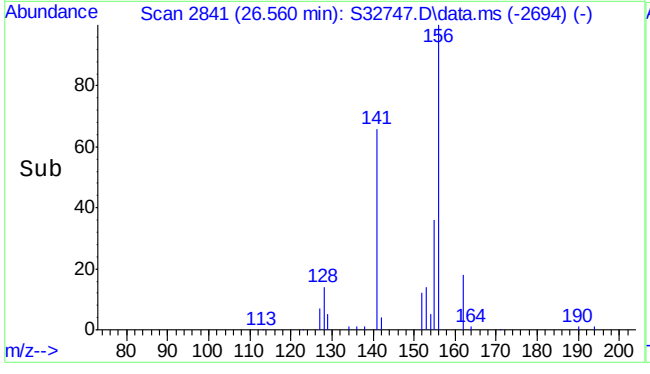


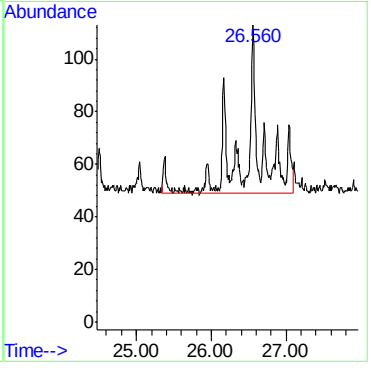


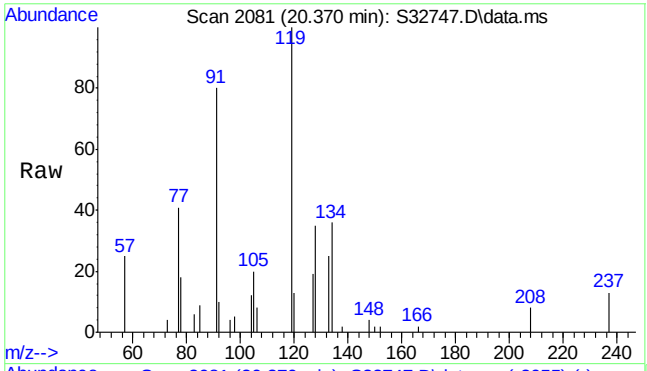


#36
C2-Benzo(b)thiophenes
Concen: 9.98 µg/mL m
RT: 26.560 min Scan# 2841
Delta R.T. -0.487 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:162 Resp: 918



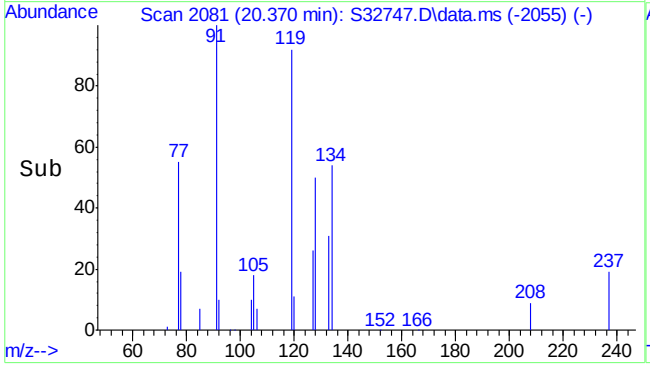


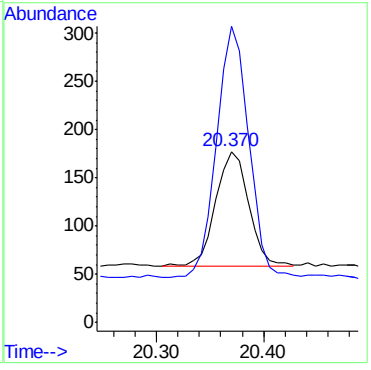


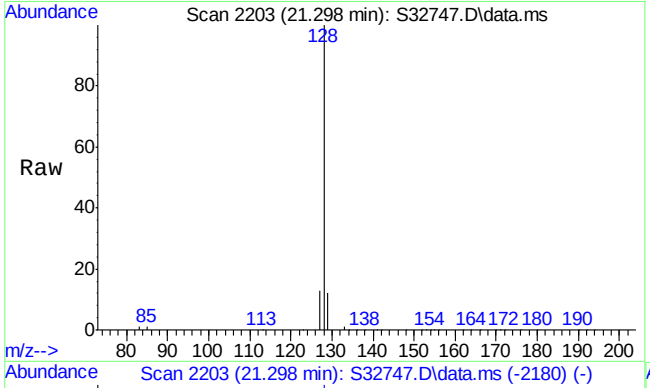
#39
Tetraethyl lead
Concen: 40.44 µg/mL
RT: 20.370 min Scan# 2081
Delta R.T. -0.014 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:208 Resp: 257

Ion	Ratio	Lower	Upper
208	100		
237	209.3	171.2	256.8



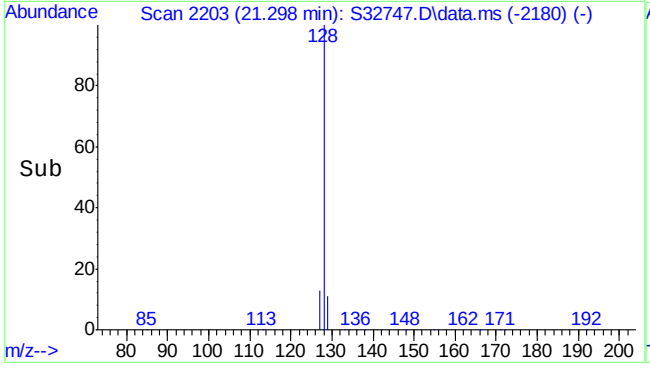


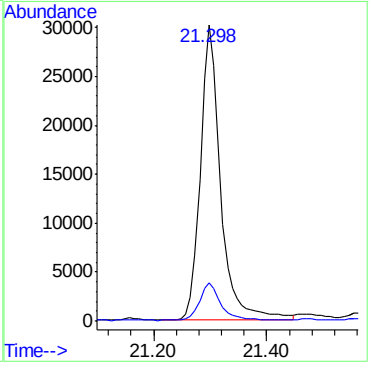


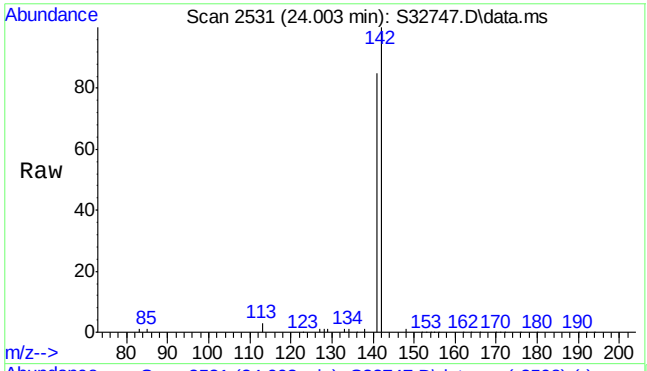
#44
Naphthalene
Concen: 642.84 ng/mL
RT: 21.298 min Scan# 2203
Delta R.T. -0.008 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:128 Resp: 75705

Ion	Ratio	Lower	Upper
128	100		
127	12.7	10.1	15.1



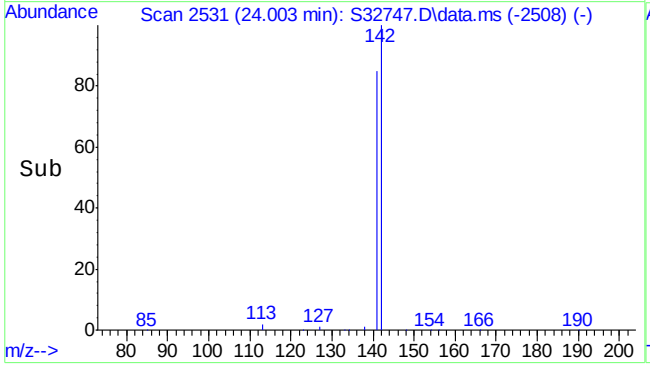


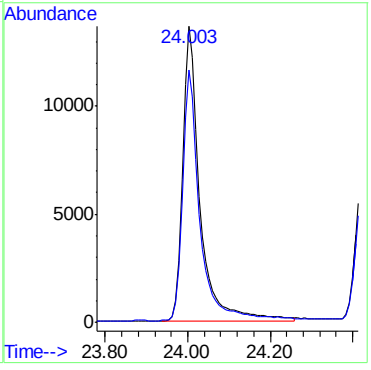


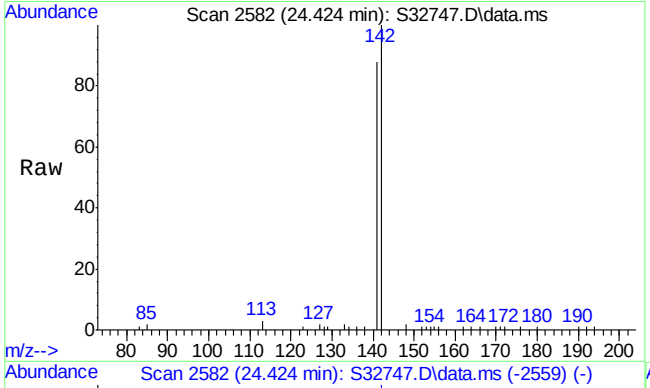
#45
2-Methylnaphthalene
Concen: 547.06 ng/mL m
RT: 24.003 min Scan# 2531
Delta R.T. -0.008 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:142 Resp: 39940

Ion	Ratio	Lower	Upper
142	100		
141	82.9	68.9	103.3



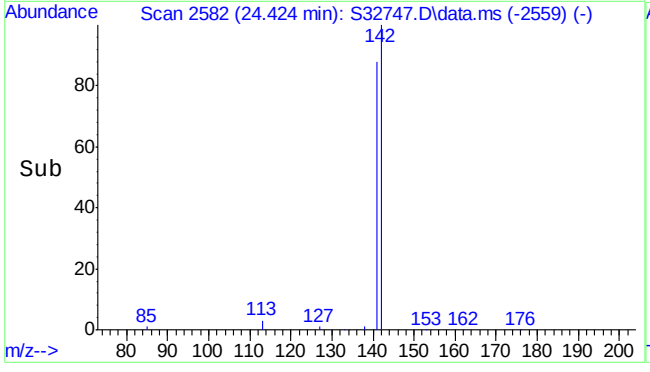


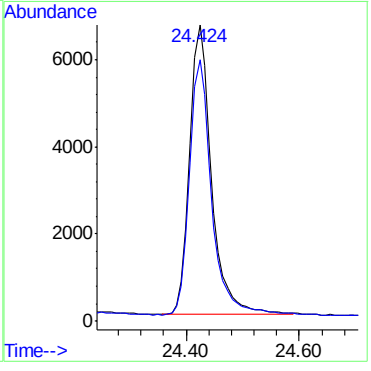


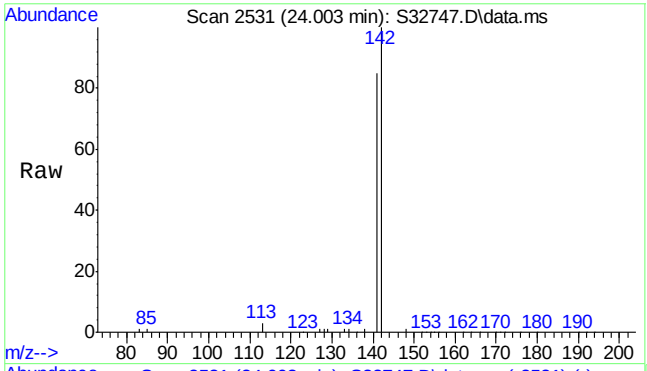
#46
1-Methylnaphthalene
Concen: 243.06 ng/mL
RT: 24.424 min Scan# 2582
Delta R.T. -0.008 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:142 Resp: 17877

Ion	Ratio	Lower	Upper
142	100		
141	88.7	71.1	106.7



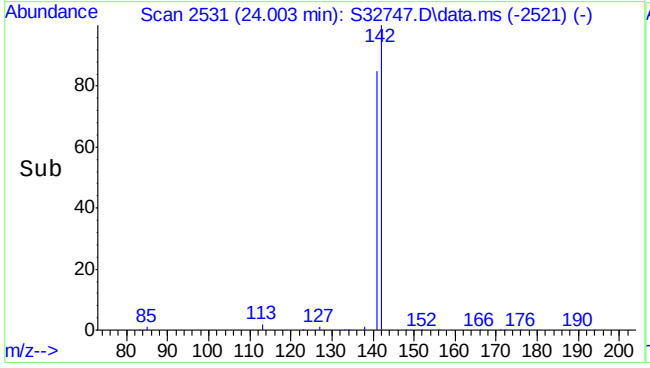


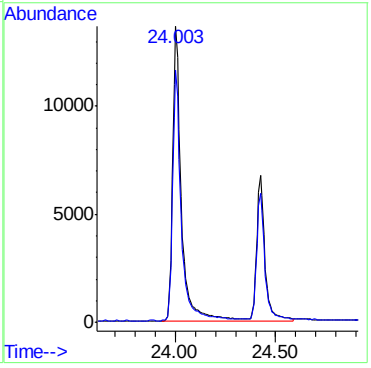


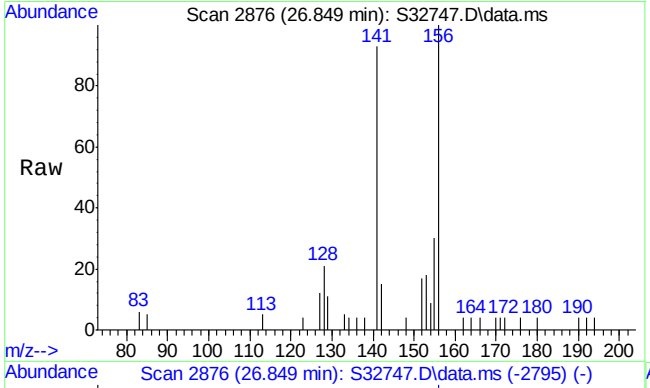
#47
C1-Naphthalenes
Concen: 507.02 ng/mL m
RT: 24.003 min Scan# 2531
Delta R.T. -0.008 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:142 Resp: 59709

Ion	Ratio	Lower	Upper
142	100		
141	57.6	68.9	103.3#



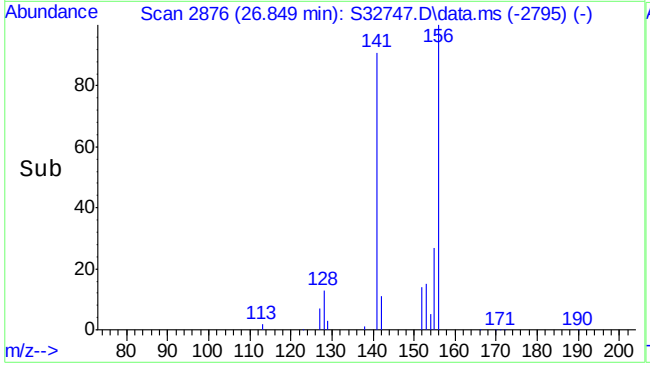


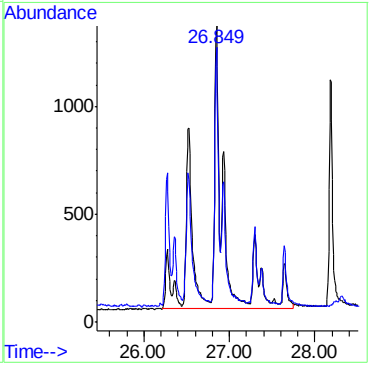


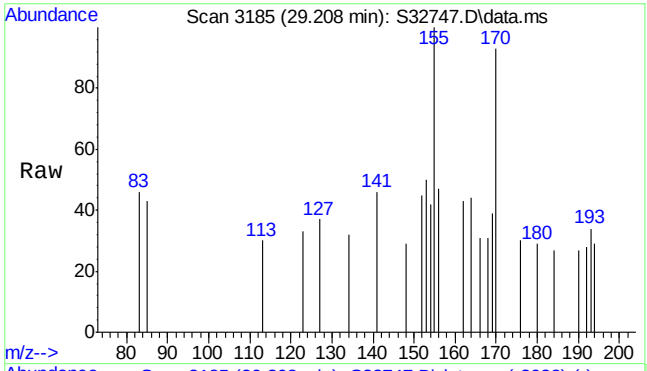
#48
C2-Naphthalenes
Concen: 127.49 ng/mL m
RT: 26.849 min Scan# 2876
Delta R.T. -0.091 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:156 Resp: 15014

Ion	Ratio	Lower	Upper
156	100		
141	12.4	60.6	90.8#



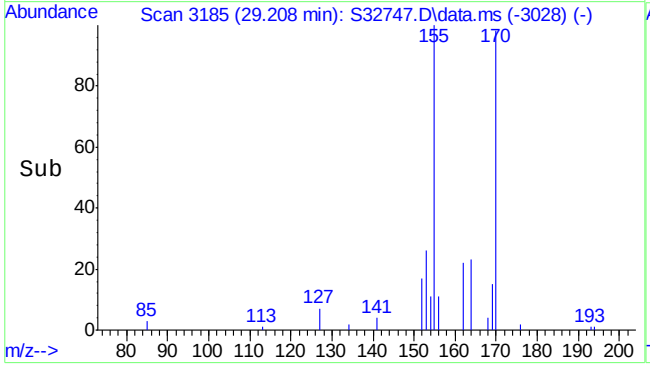


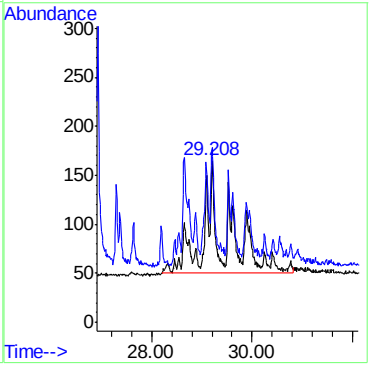


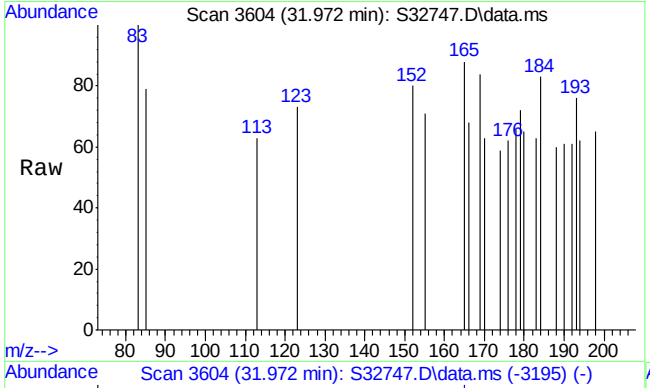
#49
C3-Naphthalenes
Concen: 28.87 ng/mL m
RT: 29.208 min Scan# 3185
Delta R.T. 0.014 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:170 Resp: 3400

Ion	Ratio	Lower	Upper
170	100		
155	14.1	81.7	122.5#



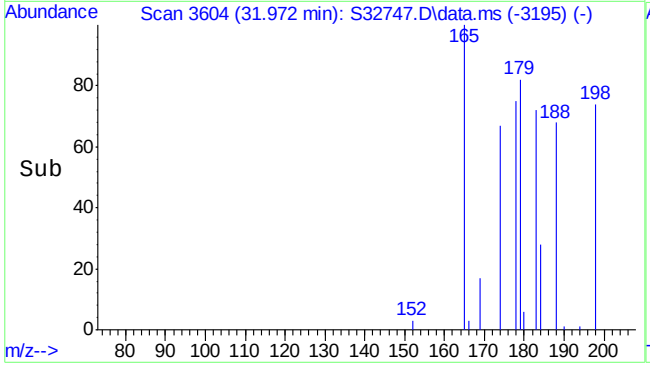


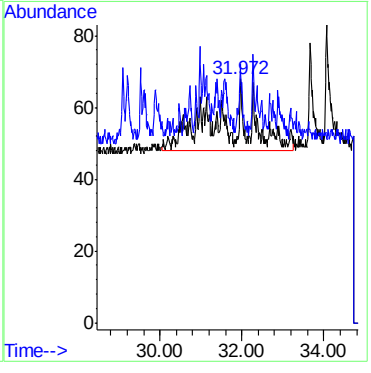


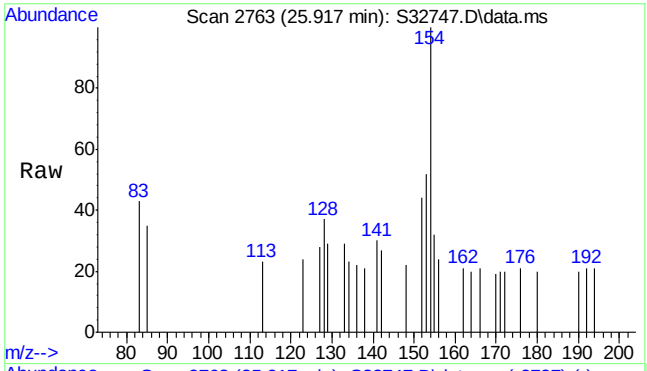
#50
C4-Naphthalenes
Concen: 8.90 ng/mL m
RT: 31.972 min Scan# 3604
Delta R.T. 0.019 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:184 Resp: 1048

Ion	Ratio	Lower	Upper
184	100		
169	0.0	76.8	115.2#



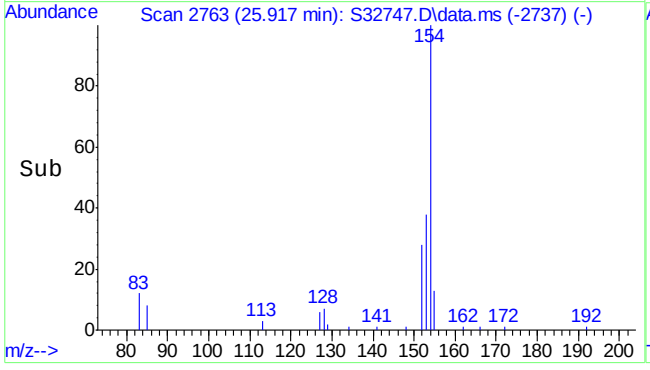


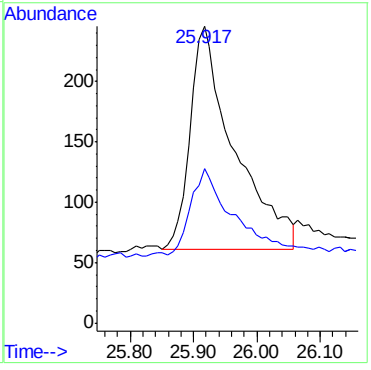


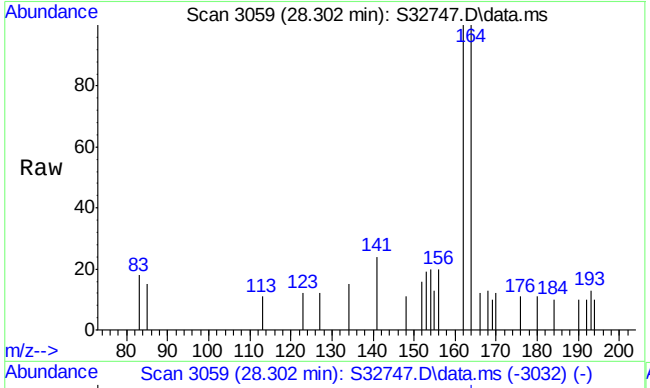
#51
Biphenyl
Concen: 8.99 µg/mL
RT: 25.917 min Scan# 2763
Delta R.T. 0.017 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:154 Resp: 891

Ion	Ratio	Lower	Upper
154	100		
153	37.5	31.2	46.8



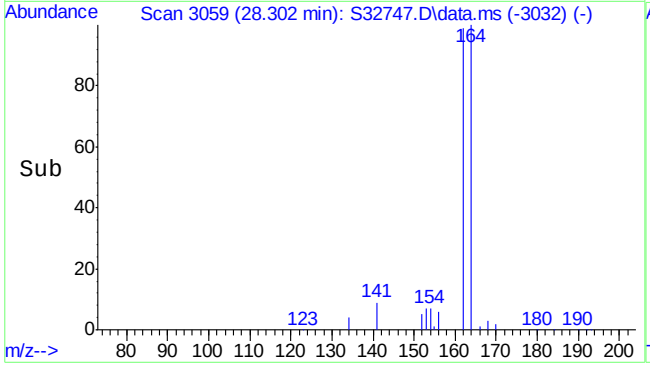


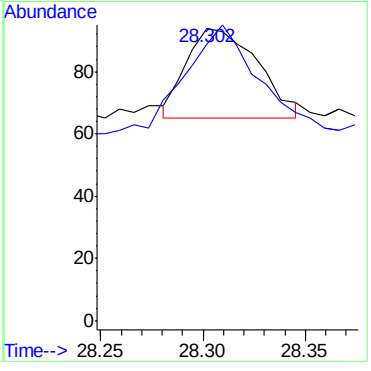


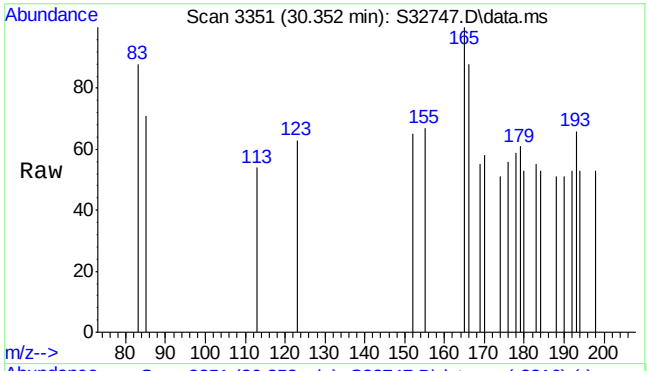
#53
Acenaphthene
Concen: 1.10 ng/mL m
RT: 28.302 min Scan# 3059
Delta R.T. -0.007 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:154 Resp: 70

Ion	Ratio	Lower	Upper
154	100		
153	0.0	86.4	129.6#



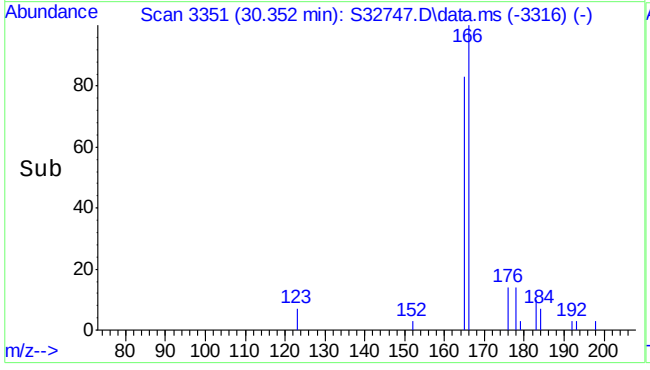


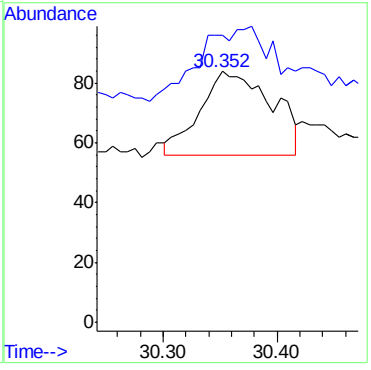


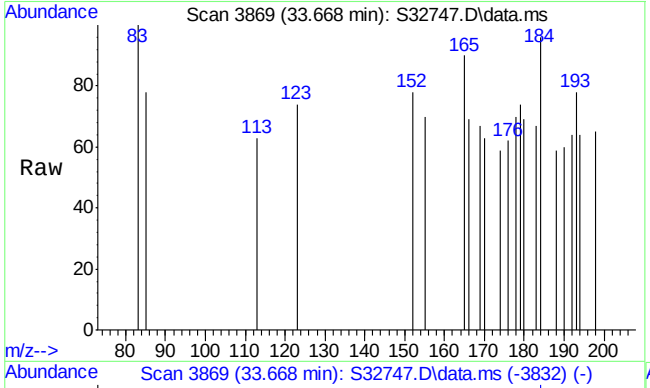
#55
Fluorene
Concen: 1.62 ng/mL m
RT: 30.352 min Scan# 3351
Delta R.T. 0.026 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:166 Resp: 122

Ion	Ratio	Lower	Upper
166	100		
165	0.0	75.1	112.7#



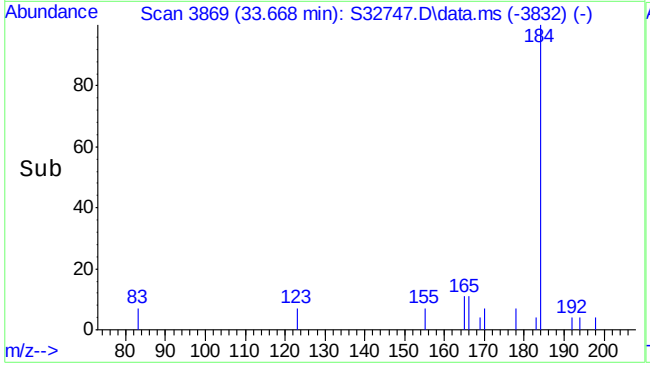


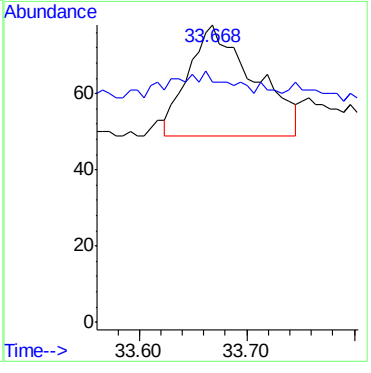


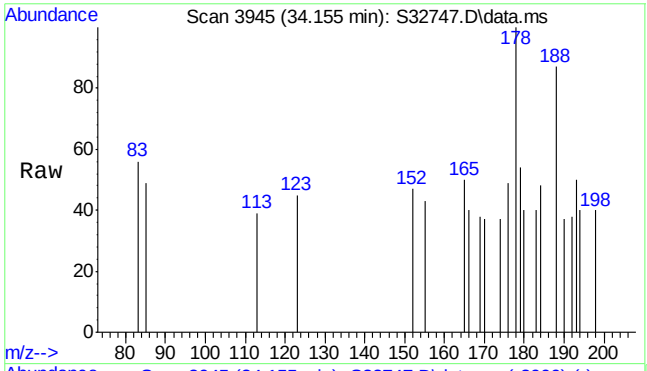
#59
Dibenzothiophene
Concen: 1.19 ng/mL m
RT: 33.668 min Scan# 3869
Delta R.T. 0.038 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:184 Resp: 122

Ion	Ratio	Lower	Upper
184	100		
152	0.0	7.1	10.7#



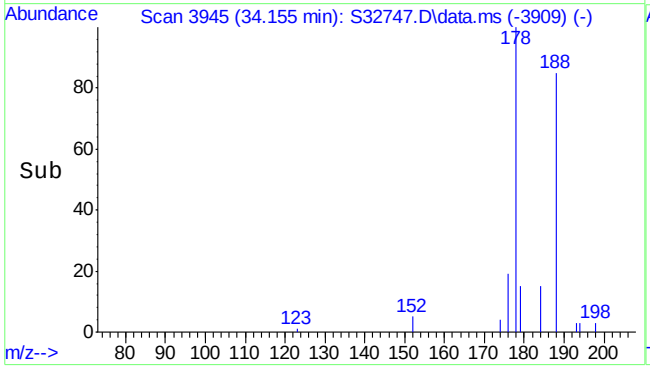


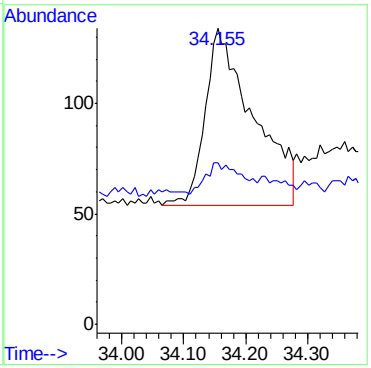


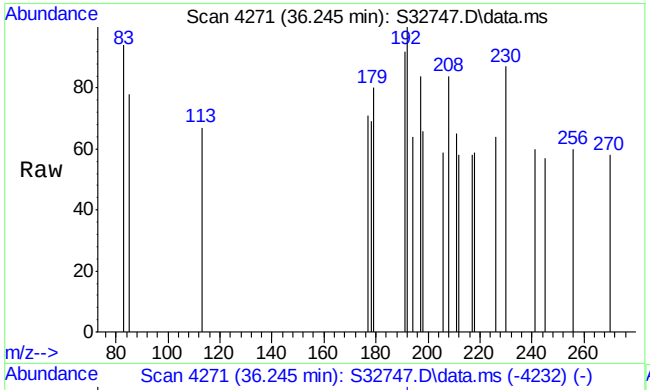
#65
Phenanthrene
Concen: 4.04 ng/mL
RT: 34.155 min Scan# 3945
Delta R.T. 0.032 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:178 Resp: 435

Ion	Ratio	Lower	Upper
178	100		
179	0.0	12.2	18.4#



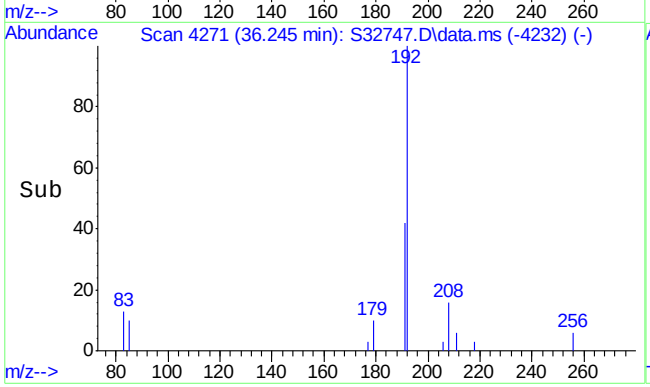


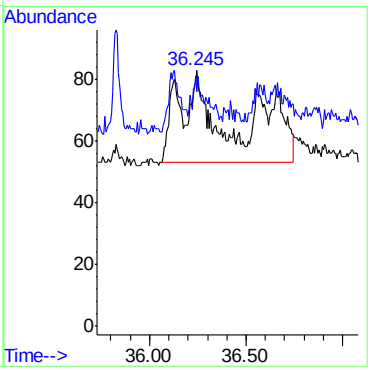


#67
C1-Phenanthrenes/anthracenes
Concen: 5.45 ng/mL m
RT: 36.245 min Scan# 4271
Delta R.T. -0.302 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:192 Resp: 587

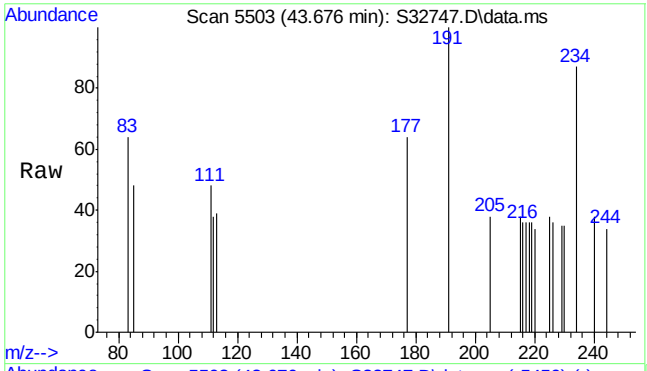
Ion	Ratio	Lower	Upper
192	100		
191	0.0	44.9	67.3#





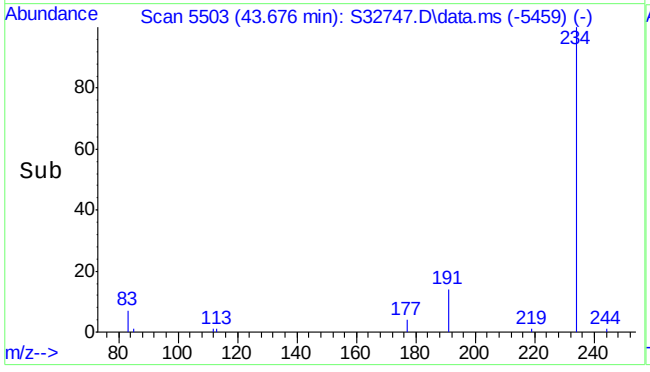
9.1.1

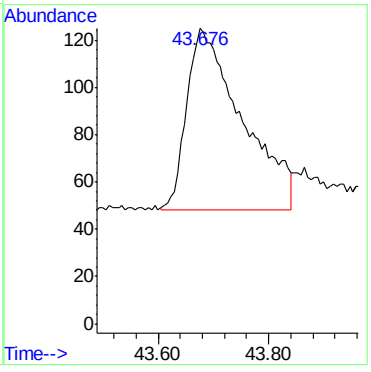
9

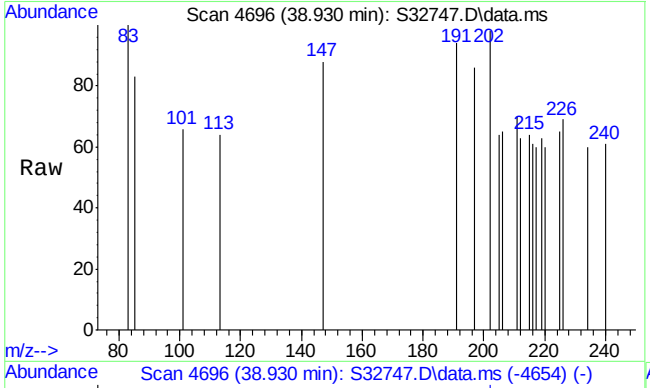


#73
Benzo(b)naphtho(2,1-d)thiophene
Concen: 5.58 µg/mL m
RT: 43.676 min Scan# 5503
Delta R.T. 0.059 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:234 Resp: 539



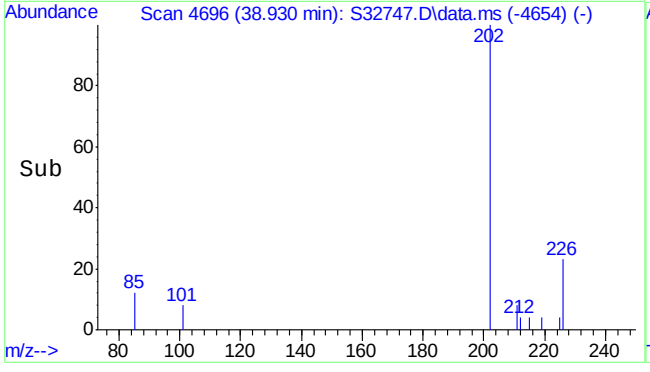


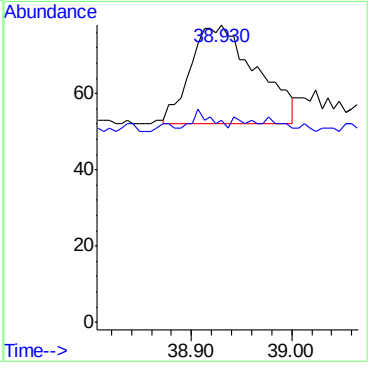


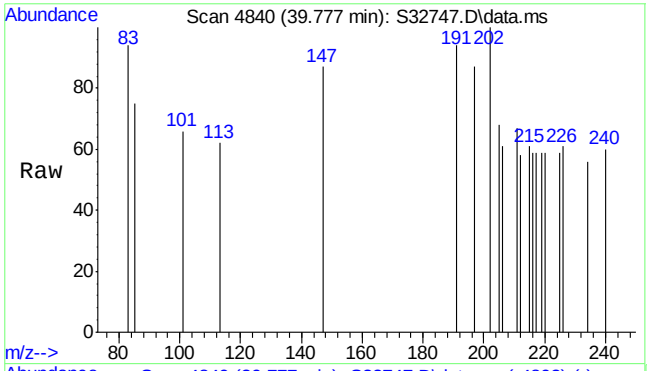
#78
Fluoranthene
Concen: 1.13 ng/mL m
RT: 38.930 min Scan# 4696
Delta R.T. 0.047 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:202 Resp: 118

Ion	Ratio	Lower	Upper
202	100		
101	0.0	10.0	15.0#



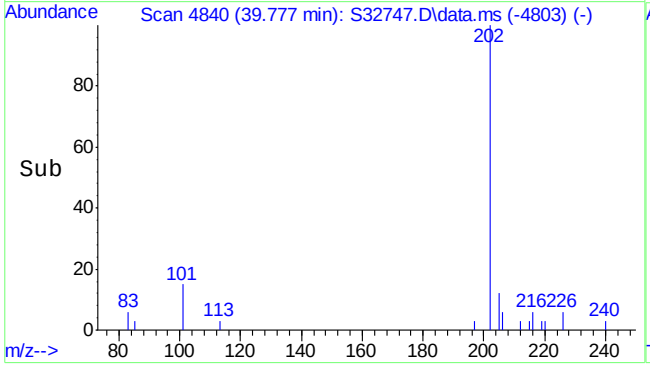


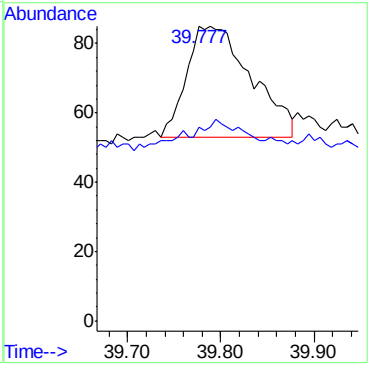


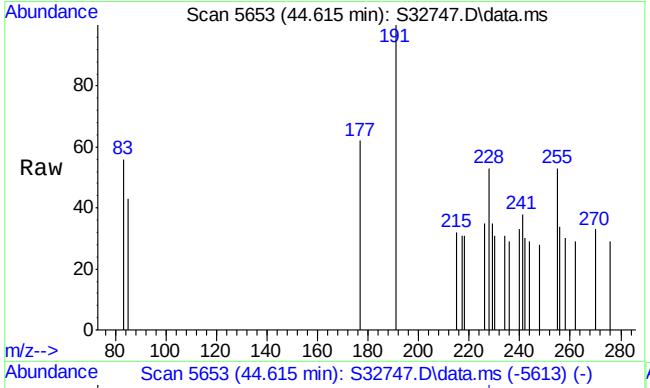
#79
Pyrene
Concen: 1.43 ng/mL m
RT: 39.777 min Scan# 4840
Delta R.T. 0.018 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:202 Resp: 155

Ion	Ratio	Lower	Upper
202	100		
101	0.0	11.4	17.0#



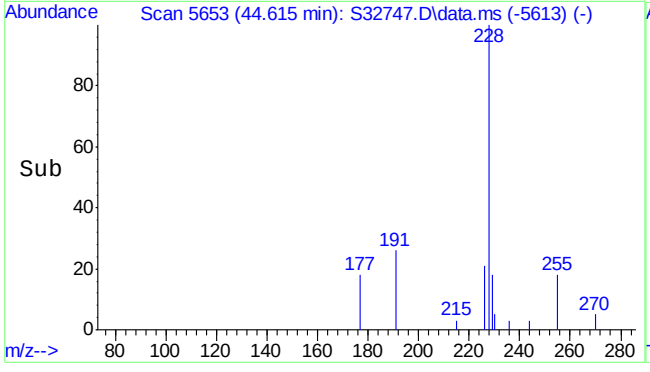


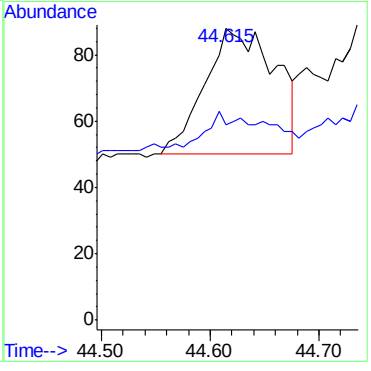


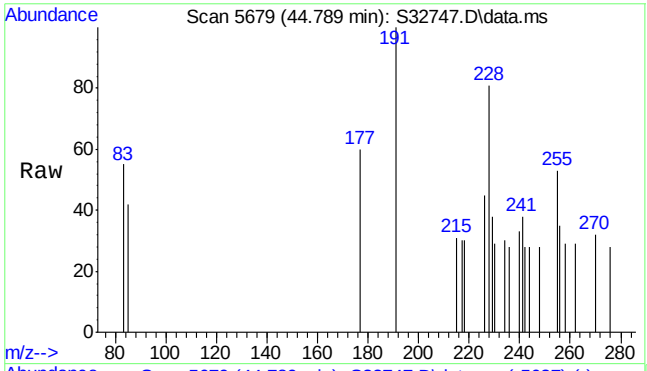
#88
Benz(a)anthracene
Concen: 1.90 ng/mL m
RT: 44.615 min Scan# 5653
Delta R.T. 0.067 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:228 Resp: 171

Ion	Ratio	Lower	Upper
228	100		
226	0.0	21.5	32.3#



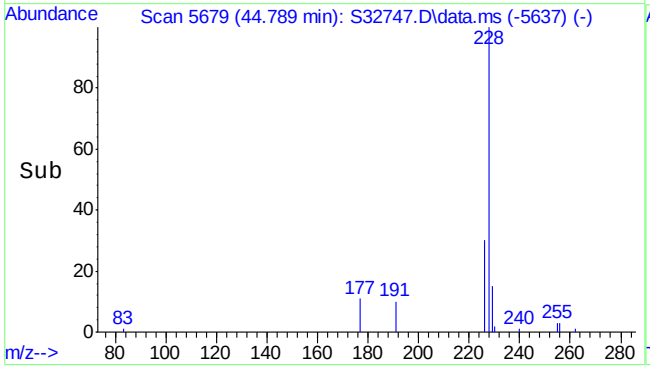


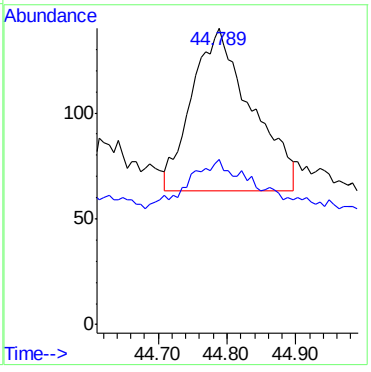


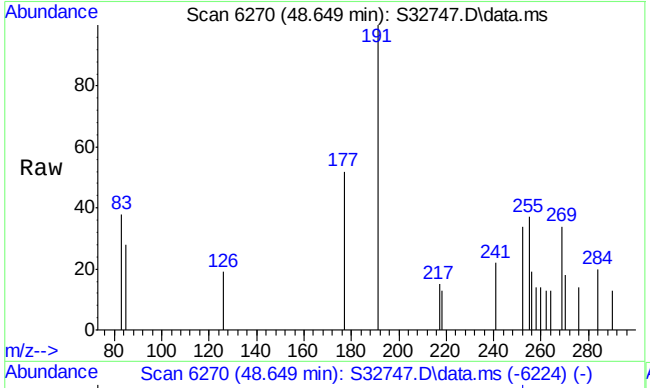
#89
Chrysene
Concen: 5.22 ng/mL m
RT: 44.789 min Scan# 5679
Delta R.T. 0.080 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:228 Resp: 463

Ion	Ratio	Lower	Upper
228	100		
226	0.0	23.8	35.6#



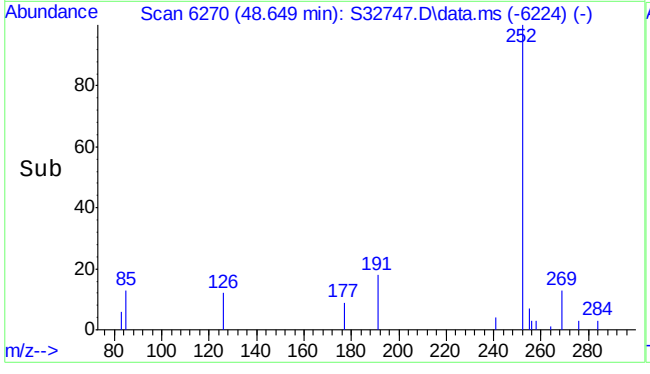


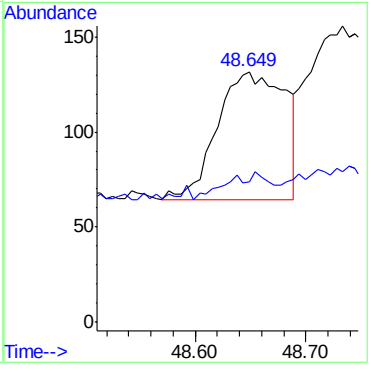


#94
Benzo(b)fluoranthene
Concen: 2.84 ng/mL
RT: 48.649 min Scan# 6270
Delta R.T. 0.056 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:252 Resp: 291

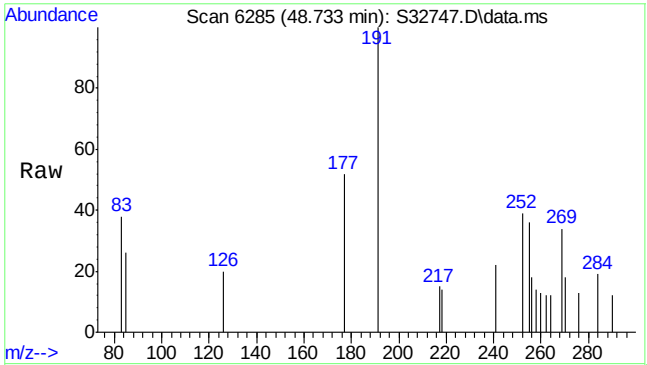
Ion	Ratio	Lower	Upper
252	100		
126	0.0	11.4	17.2#





9.1.1

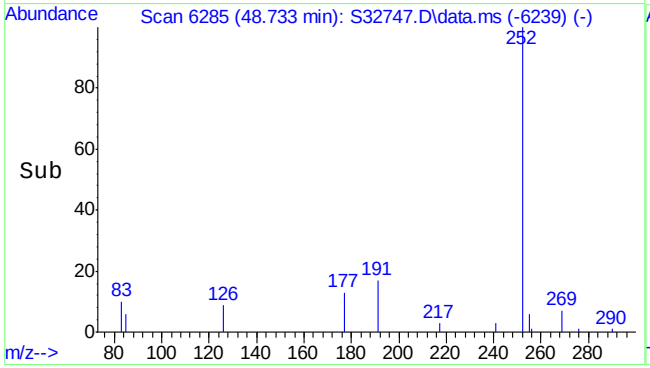
9

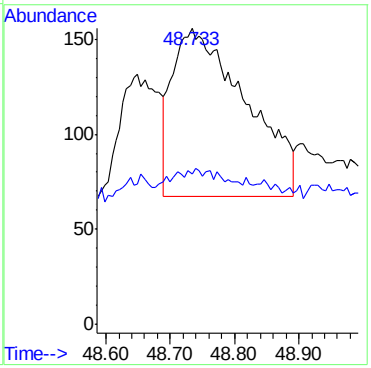


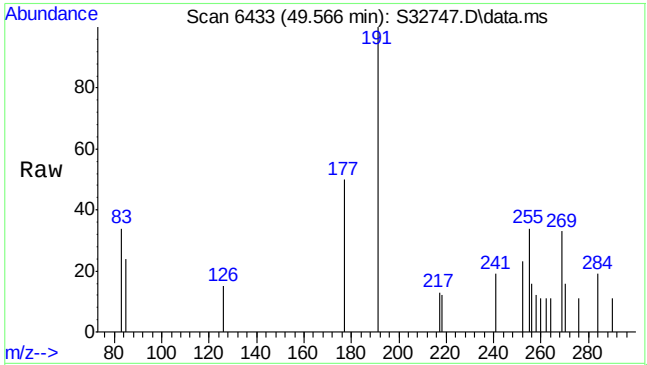
#95
Benzo(k)fluoranthene
Concen: 6.62 ng/mL m
RT: 48.733 min Scan# 6285
Delta R.T. 0.056 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:252 Resp: 710

Ion	Ratio	Lower	Upper
252	100		
126	0.0	12.3	18.5#



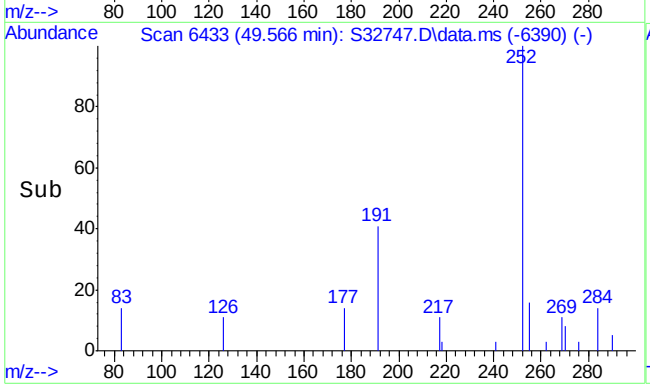


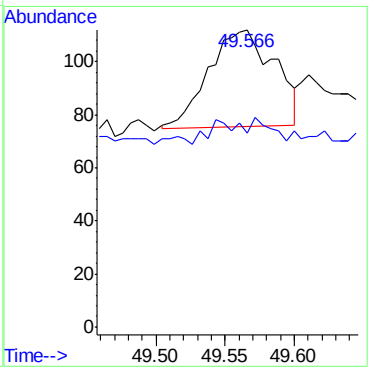


#96
Benzo(e)pyrene
Concen: 1.19 ng/mL m
RT: 49.566 min Scan# 6433
Delta R.T. 0.039 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:252 Resp: 120

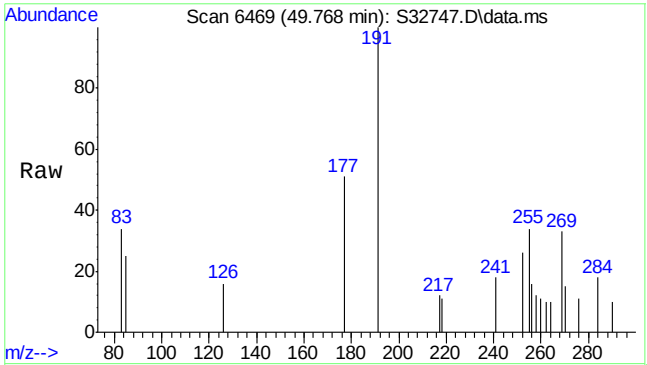
Ion	Ratio	Lower	Upper
252	100		
126	0.0	10.3	15.5#





9.1.1

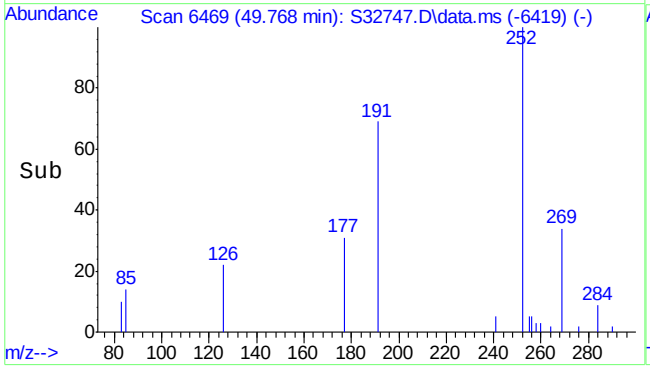
9

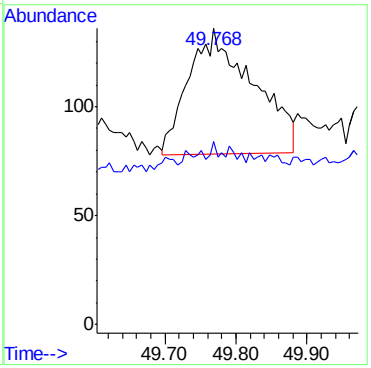


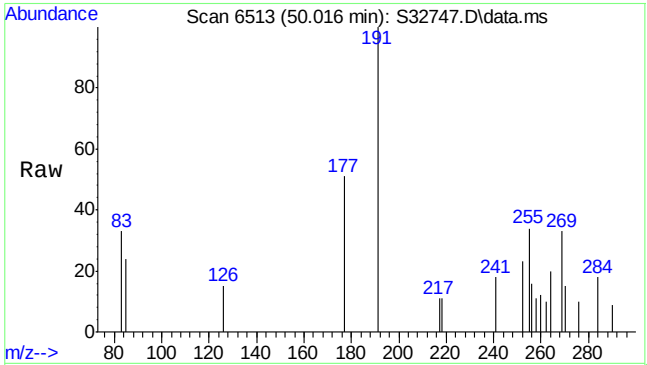
#97
Benzo(a)pyrene
Concen: 4.01 ng/mL m
RT: 49.768 min Scan# 6469
Delta R.T. 0.079 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:252 Resp: 361

Ion	Ratio	Lower	Upper
252	100		
126	0.0	12.4	18.6#



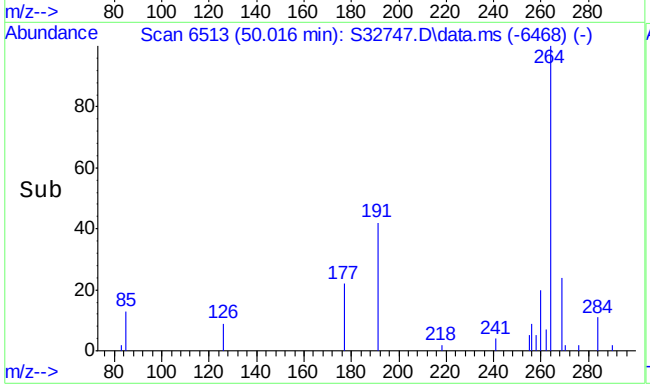


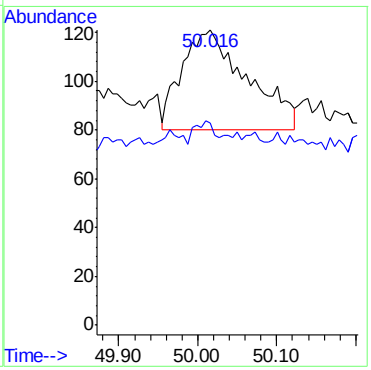


#98
Perylene
Concen: 2.59 ng/mL m
RT: 50.016 min Scan# 6513
Delta R.T. 0.051 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:252 Resp: 236

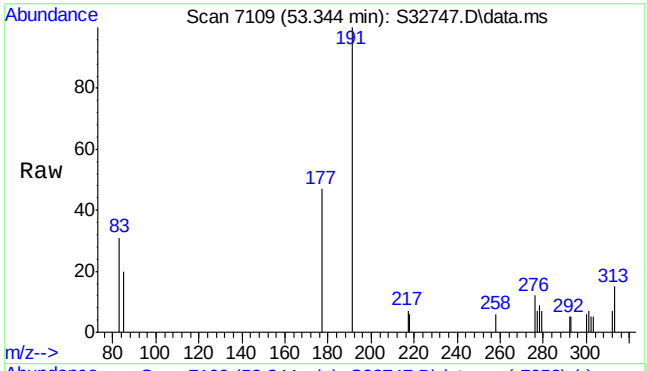
Ion	Ratio	Lower	Upper
252	100		
126	0.0	12.8	19.2#





9.1.1

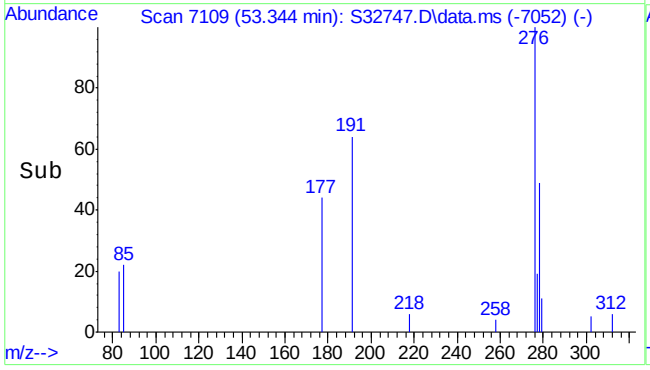
9

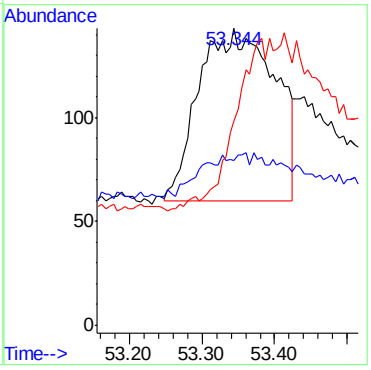


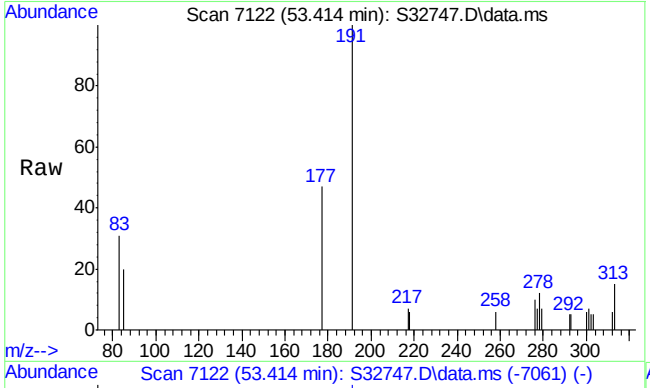
#99
Indeno(1,2,3-cd)pyrene
Concen: 5.77 ng/mL m
RT: 53.344 min Scan# 7109
Delta R.T. 0.107 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:276 Resp: 605

Ion	Ratio	Lower	Upper
276	100		
277	0.0	19.1	28.7#
278	0.0	4.1	6.1#



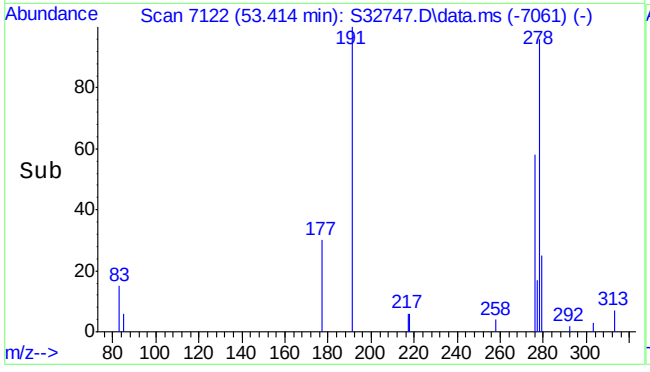


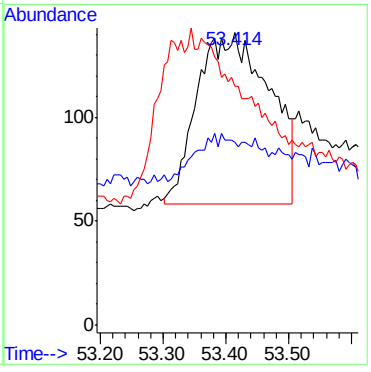


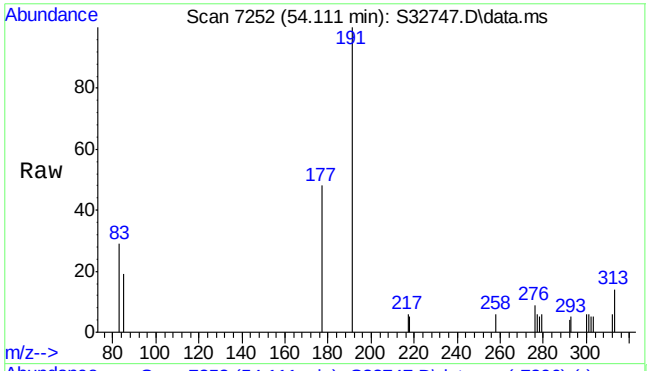
#100
Dibenz(a,h)anthracene
Concen: 6.80 ng/mL m
RT: 53.414 min Scan# 7122
Delta R.T. 0.129 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:278 Resp: 663

Ion	Ratio	Lower	Upper
278	100		
279	0.0	19.3	28.9#
276	0.0	23.8	35.6#



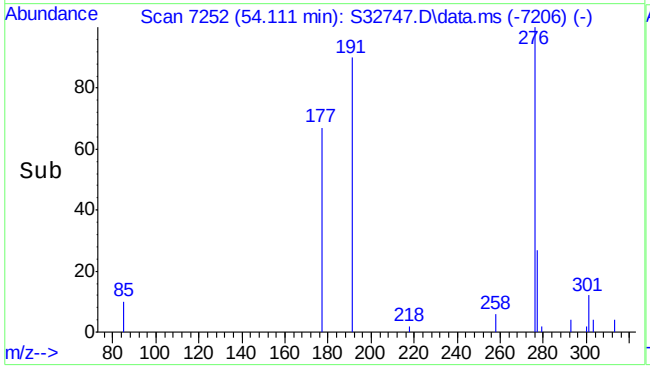


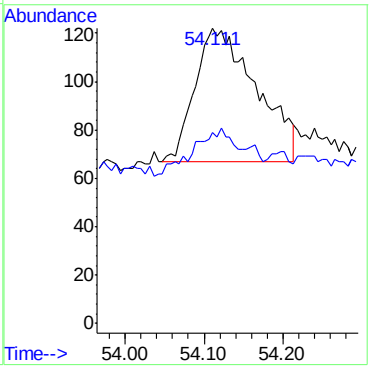


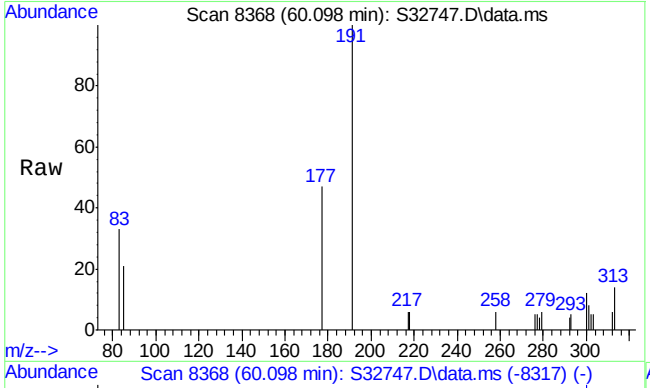
#101
Benzo(g,h,i)perylene
Concen: 2.56 ng/mL
RT: 54.111 min Scan# 7252
Delta R.T. 0.048 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:276 Resp: 299

Ion	Ratio	Lower	Upper
276	100		
277	0.0	19.0	28.6#



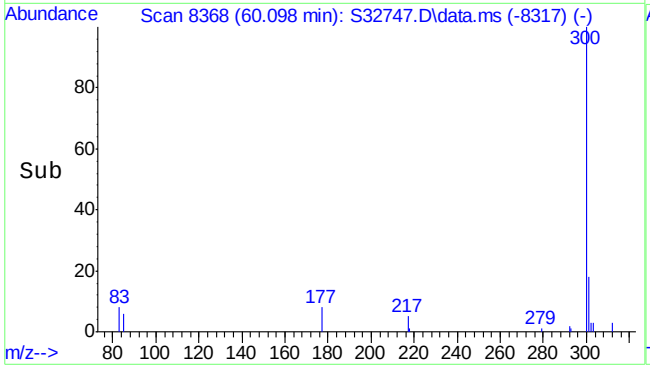


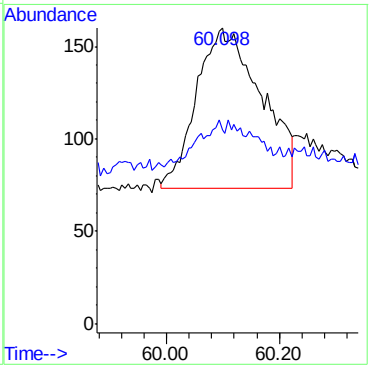


#102
Coronene
Concen: 6.12 µg/mL m
RT: 60.098 min Scan# 8368
Delta R.T. 0.075 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion:300 Resp: 694

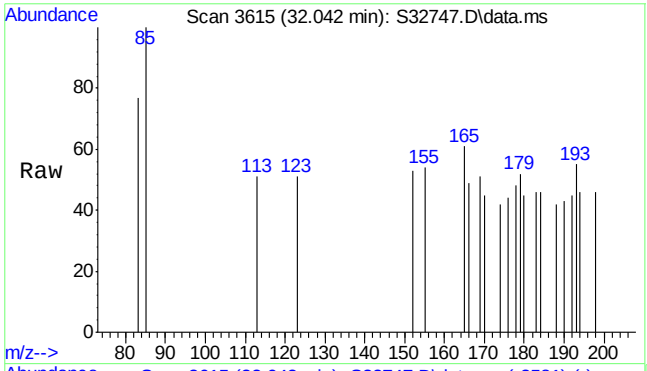
Ion	Ratio	Lower	Upper
300	100		
301	0.0	20.8	31.2#





9.1.1

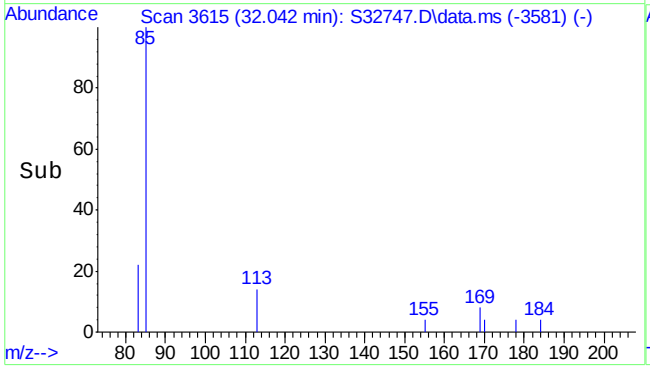
9

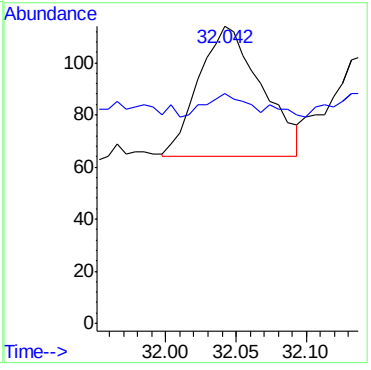


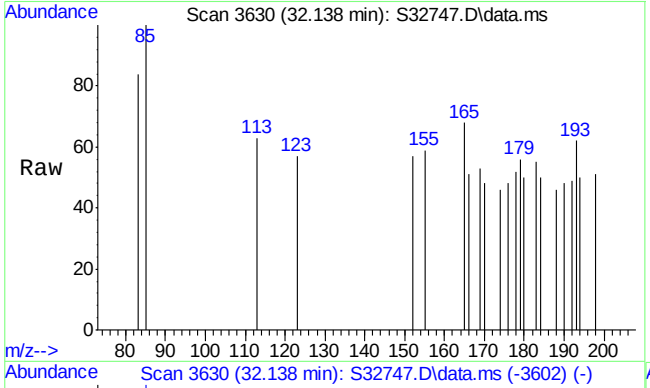
#103
C-17
Concen: 6.88 µg/mL m
RT: 32.042 min Scan# 3615
Delta R.T. 0.019 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion: 85 Resp: 157

Ion	Ratio	Lower	Upper
85	100		
83	0.0	12.3	18.5#



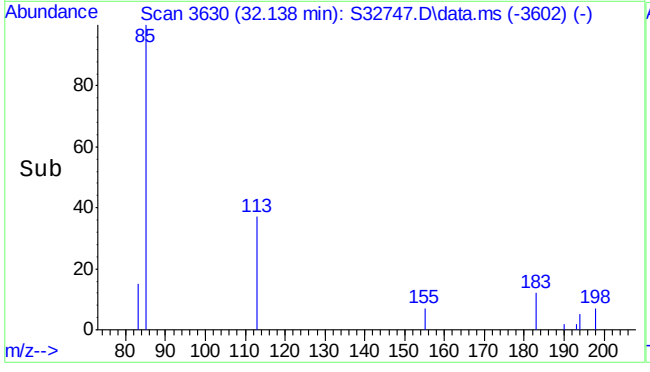


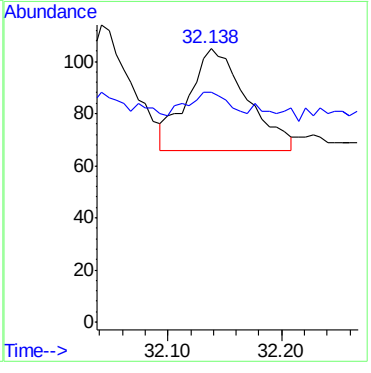


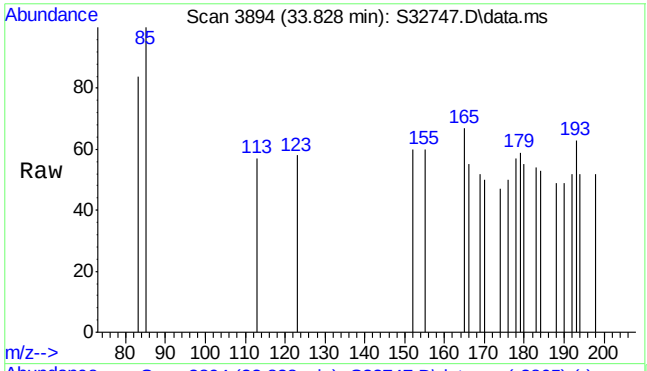
#104
Pristane
Concen: 8.07 µg/mL m
RT: 32.138 min Scan# 3630
Delta R.T. -0.019 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion: 85 Resp: 139

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#



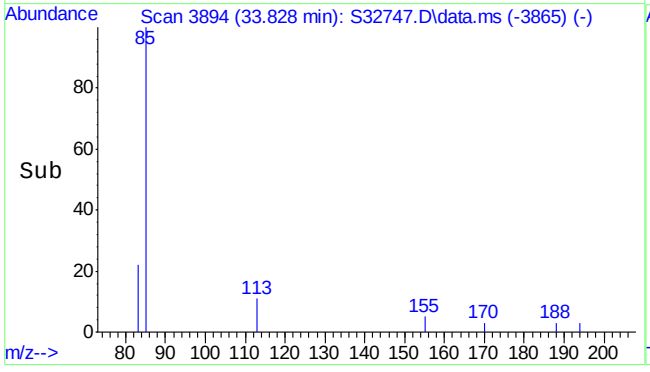


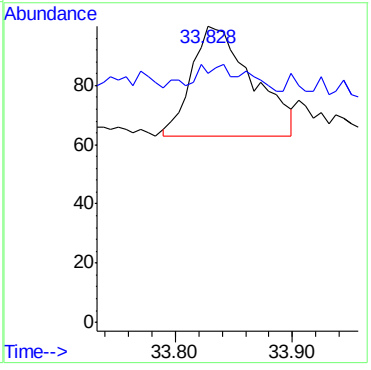


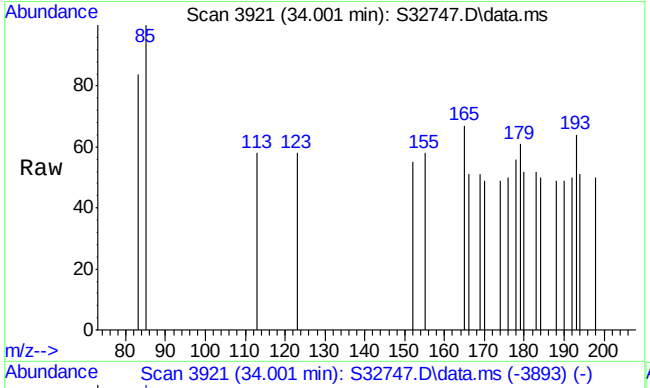
#105
C-18
Concen: 5.74 µg/mL m
RT: 33.828 min Scan# 3894
Delta R.T. -0.013 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion: 85 Resp: 134

Ion	Ratio	Lower	Upper
85	100		
83	0.0	17.8	26.6#



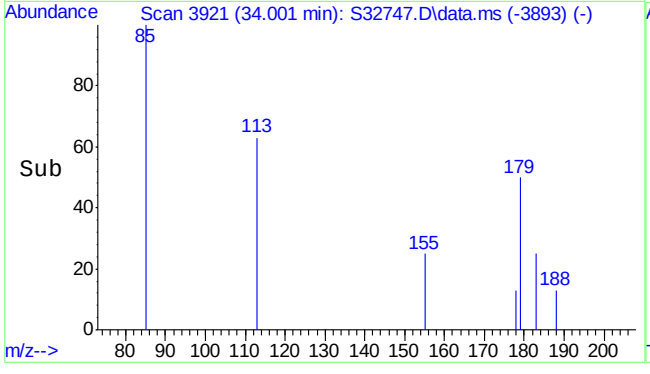


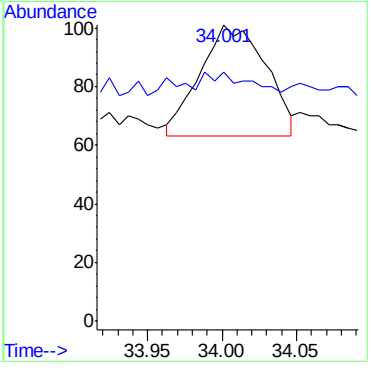


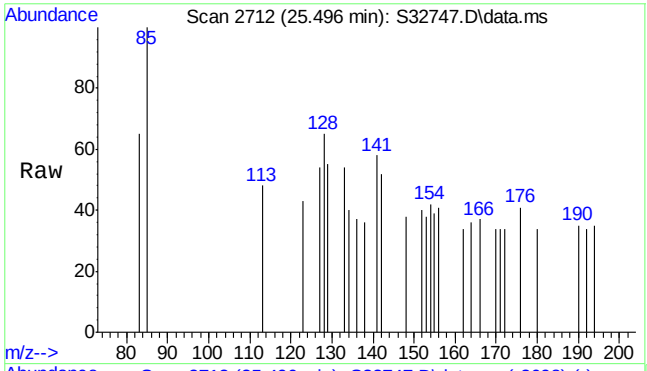
#106
Phytane
Concen: 5.06 µg/mL m
RT: 34.001 min Scan# 3921
Delta R.T. -0.019 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion: 85 Resp: 116

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#



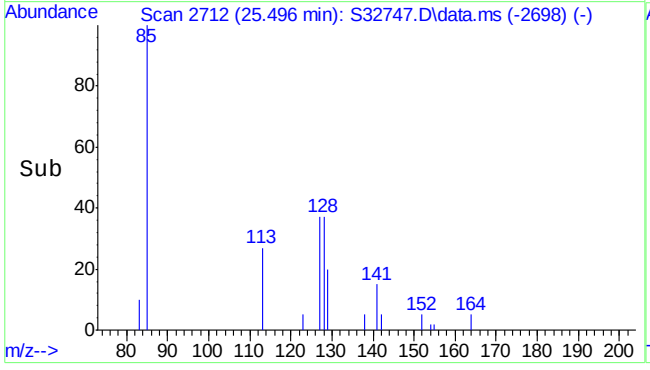


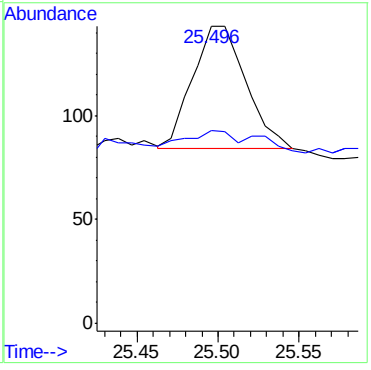


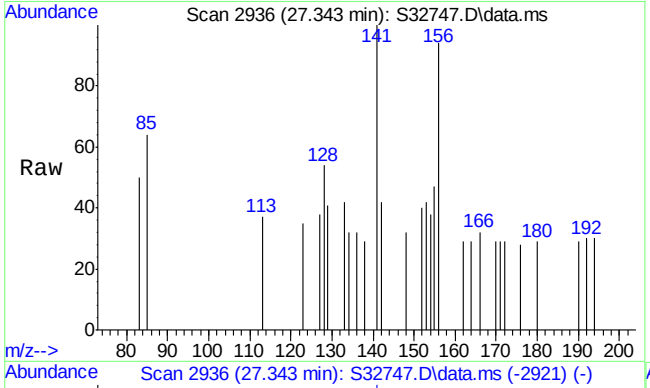
#107
2,6,10-Trimethyldodecane (1380)
Concen: 5.89 µg/mL m
RT: 25.496 min Scan# 2712
Delta R.T. -0.083 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion: 85 Resp: 135

Ion	Ratio	Lower	Upper
85	100		
83	0.0	13.0	19.6#



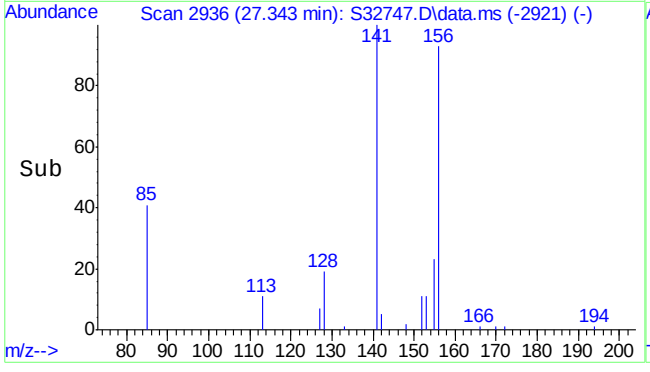


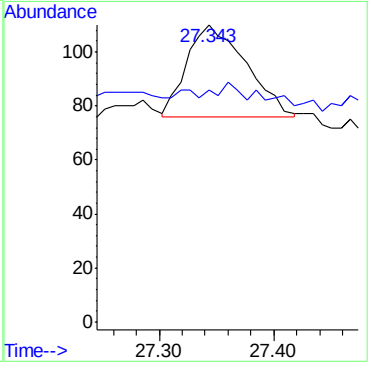


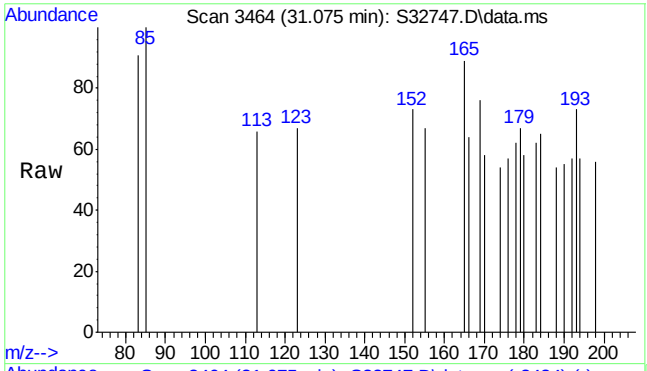
#108
2,6,10-Trimethyltridecane (1470)
Concen: 5.33 µg/mL m
RT: 27.343 min Scan# 2936
Delta R.T. -0.075 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion: 85 Resp: 122

Ion	Ratio	Lower	Upper
85	100		
83	0.0	13.0	19.6#



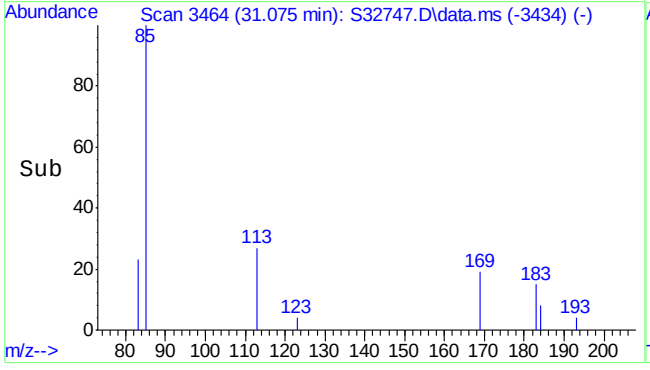


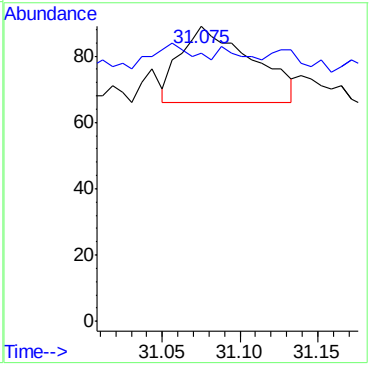


#109
2,6,10-Trimethylpentadecane (1650)
Concen: 3.23 µg/mL m
RT: 31.075 min Scan# 3464
Delta R.T. -0.007 min
Lab File: S32747.D
Acq: 28 May 2013 4:28 pm

Tgt Ion: 85 Resp: 74

Ion	Ratio	Lower	Upper
85	100		
83	0.0	21.2	31.8#





9.1.1

9

Manual Integrations APPROVED (compounds with "m" flag)
James Roush
05/31/13 15:01

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32748.D
Acq On : 28 May 2013 5:41 pm
Operator : danielb
Sample : mc20162-2
Misc : op33312,mss1429,0.0157,,,2,50
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 29 10:02:00 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	28.180	164	52094	1000.00	ng/mL	-0.01
System Monitoring Compounds						
2) Toluene-d8	9.306	98	3892m	67.31	µg/mL	0.00
Spiked Amount 1000.000			Recovery = 6.73%			
3) Naphthalene-d8	21.224	136	2150	20.35	ng/mL	0.00
Spiked Amount 1000.000	Range 1 - 0		Recovery = 2.04%#			
4) Phenanthrene-d10	34.065	188	1187	14.27	ng/mL	0.03
Spiked Amount 1000.000			Recovery = 1.43%			
5) Perylene-d12	49.943	264	818m	10.36	ng/mL	0.06
Spiked Amount 1000.000			Recovery = 1.04%			
Target Compounds						Qvalue
6) MTBE	5.474	73	133m	3.11	µg/mL	
7) Benzene	6.878	TIC	4146m	50.34	µg/mL	
8) C1-Benzene	9.407	92	115583	1403.37	µg/mL	99
9) C2-Benzenes	12.374	106	824411m	10009.72	µg/mL	
10) C3-Benzenes	16.019	120	1014672m	12319.81	µg/mL	
11) C4-Benzenes	17.806	134	455747m	5533.53	µg/mL	
12) C5-Benzenes	20.096	148	114089m	1385.23	µg/mL	
13) Methylcyclohexane	8.240	83	13411	417.35	µg/mL	98
14) Toluene	9.407	91	196893	2554.78	µg/mL	100
15) Ethylbenzene	12.137	91	366310	3890.30	µg/mL	100
16) m,p-xylene	12.367	91	1136855	15147.37	µg/mL	99
17) Styrene	13.008	104	876	15.72	µg/mL	91
18) o-Xylene	13.080	91	461852	6212.71	µg/mL	100
19) Isopropylbenzene	14.002	105	37370	426.43	µg/mL	99
20) n-Propylbenzene	14.860	91	232723	1960.08	µg/mL	98
21) 1,3,5-Trimethylbenzene	15.285	105	296126	3641.58	µg/mL	100
22) t-Butylbenzene	16.019	119	103448	1293.82	µg/mL#	54
23) 1,2,4-Trimethylbenzene	16.019	105	900632	10833.47	µg/mL	99
24) sec-Butylbenzene	16.502	105	24602	230.64	µg/mL	99
25) 1,2,3-Trimethylbenzene	16.862	105	187688	2153.25	µg/mL	96
26) p-Isopropyltoluene	16.790	119	26633	283.12	µg/mL	91
27) n-Butylbenzene	17.755	91	75491	832.30	µg/mL#	53
28) trans-Decalin	17.834	96	290	16.99	µg/mL	92
29) cis-Decalin	18.922	96	265m	11.90	µg/mL	
30) C1-Decalins	19.347	152	624m	36.56	µg/mL	
31) C2-Decalins	20.788	166	443m	25.96	µg/mL	
34) Benzo(b)thiophene	21.504	134	6680m	67.90	µg/mL	
35) C1-Benzo(b)thiophenes	23.583	148	6558m	66.66	µg/mL	
36) C2-Benzo(b)thiophenes	26.560	162	1023m	10.40	µg/mL	
37) C3-Benzo(b)thiophenes	28.662	176	228m	2.32	µg/mL	
39) Tetraethyl lead	20.370	208	310	45.61	µg/mL	99
44) Naphthalene	21.298	128	163401	1297.24	ng/mL	100
45) 2-Methylnaphthalene	24.003	142	85211	1091.22	ng/mL	99
46) 1-Methylnaphthalene	24.424	142	39518	502.34	ng/mL	100
47) C1-Naphthalenes	24.003	142	128488m	1020.07	ng/mL	
48) C2-Naphthalenes	26.840	156	36214m	287.50	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32748.D
Acq On : 28 May 2013 5:41 pm
Operator : danielb
Sample : mc20162-2
Misc : op33312,mss1429,0.0157,,,2,50
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 29 10:02:00 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
49)	C3-Naphthalenes	29.201	170	9022m	71.63	ng/mL	
50)	C4-Naphthalenes	31.965	184	2270m	18.02	ng/mL	
51)	Biphenyl	25.908	154	3573	33.71	µg/mL	100
53)	Acenaphthene	28.309	154	242	3.54	ng/mL	84
55)	Fluorene	30.358	166	385	4.77	ng/mL	98
56)	C1-Fluorenes	32.714	180	454m	5.62	ng/mL	
57)	C2-Fluorenes	34.654	194	718m	8.89	ng/mL	
59)	Dibenzothiophene	33.662	184	105m	0.96	ng/mL	
60)	C1-Dibenzothiophenes (...	35.828	198	308m	2.80	ng/mL	
61)	C1-Dibenzothiophenes (...	35.828	198	154m	1.40	µg/mL	
65)	Phenanthrene	34.149	178	1078	9.37	ng/mL#	63
67)	C1-Phenanthrenes/anthr...	36.116	192	1534m	13.33	ng/mL	
68)	C2-Phenanthrenes/anthr...	38.393	206	1166m	10.13	ng/mL	
69)	C2-Phenanthrenes/anthr...	38.066	206	165m	1.43	µg/mL	
70)	C3-Phenanthrenes/anthr...	40.259	220	313m	2.72	ng/mL	
78)	Fluoranthene	38.930	202	131m	1.17	ng/mL	
79)	Pyrene	39.789	202	306	2.63	ng/mL#	65
80)	C1-Fluoranthenes/pyrenes	41.153	216	482m	4.15	ng/mL	
103)	C-17	32.042	85	174m	7.12	µg/mL	
104)	Pristane	32.132	85	131m	7.11	µg/mL	
105)	C-18	33.828	85	132m	5.29	µg/mL	
106)	Phytane	34.008	85	109m	4.45	µg/mL	
107)	2,6,10-Trimethyldodeca...	25.504	85	204m	8.33	µg/mL	
108)	2,6,10-Trimethyltridec...	27.335	85	183m	7.47	µg/mL	
109)	2,6,10-Trimethylpentad...	31.088	85	57m	2.33	µg/mL	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

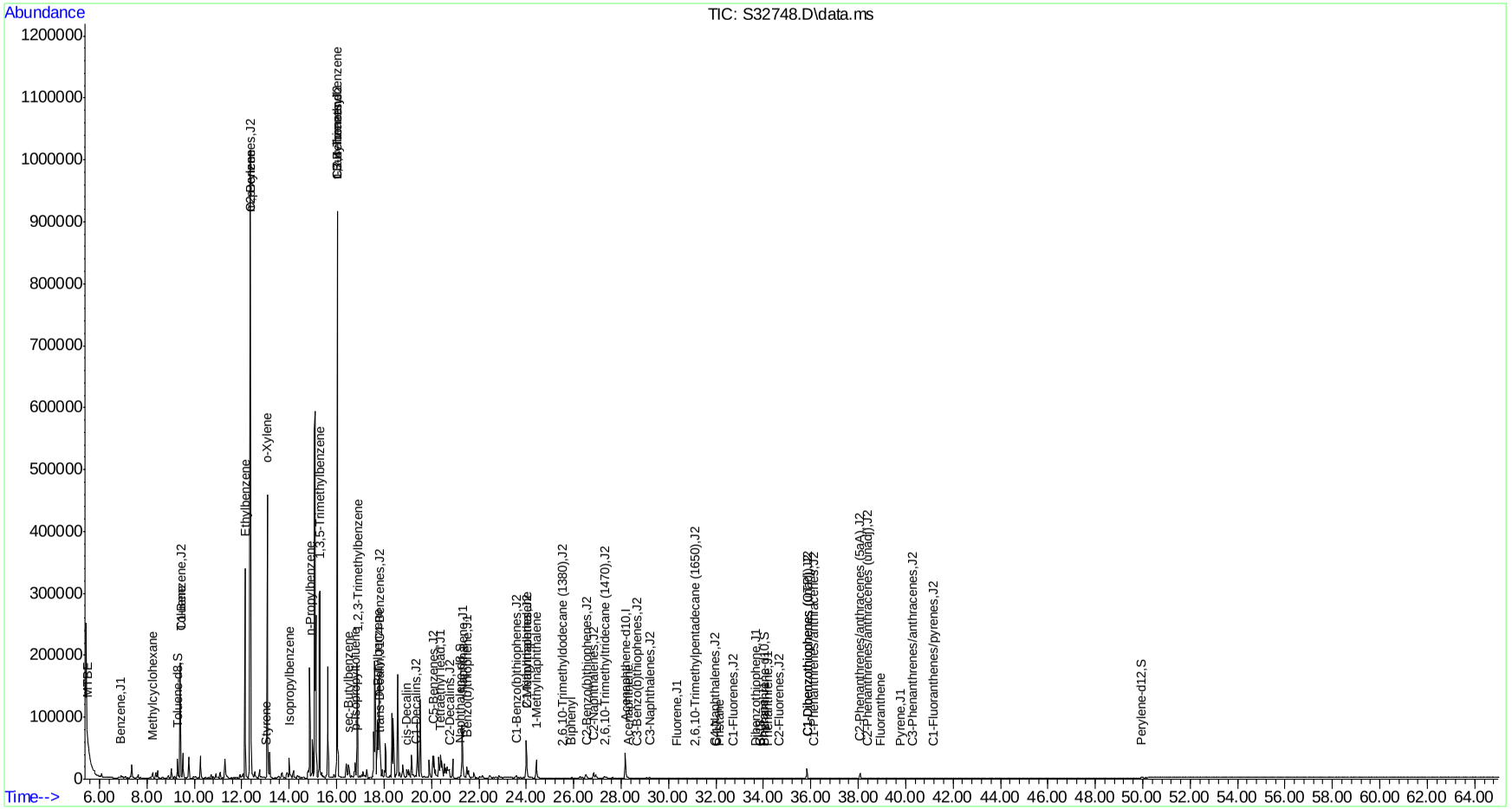
9.1.2

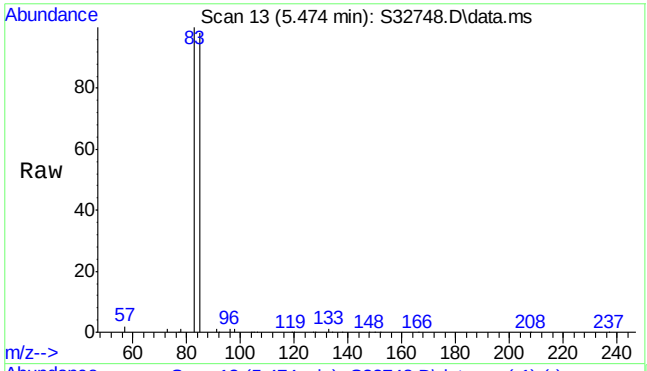
9

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32748.D
Acq On : 28 May 2013 5:41 pm
Operator : danielb
Sample : mc20162-2
Misc : op33312,mss1429,0.0157,,,2,50
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 29 10:02:00 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

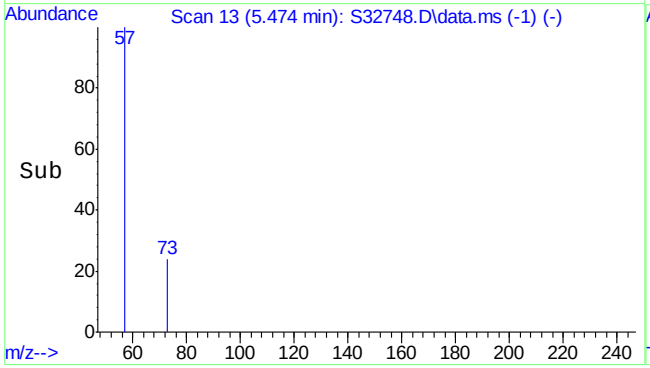


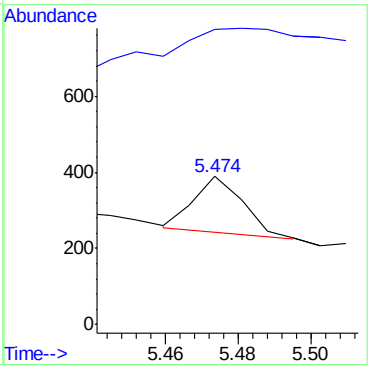


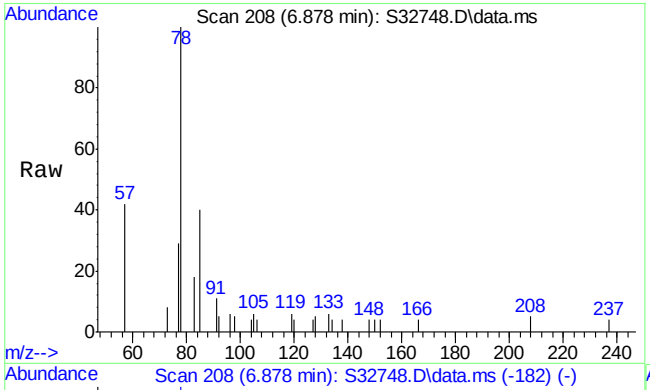
#6
MTBE
Concen: 3.11 µg/mL m
RT: 5.474 min Scan# 13
Delta R.T. -0.021 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 73 Resp: 133

Ion	Ratio	Lower	Upper
73	100		
57	256.4	18.5	27.7#

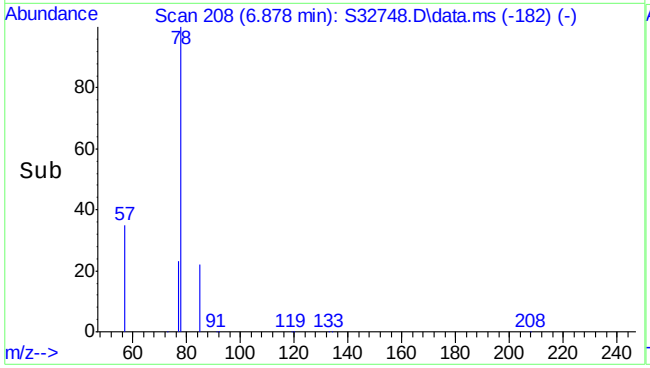


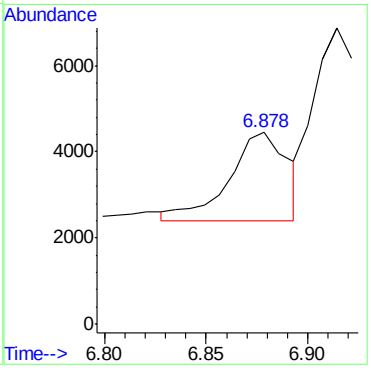


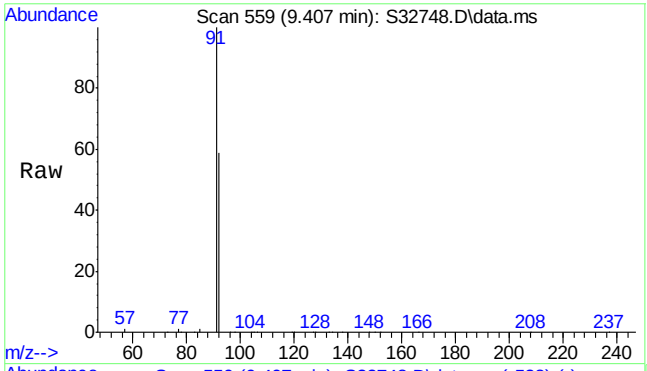


#7
Benzene
Concen: 50.34 µg/mL m
RT: 6.878 min Scan# 208
Delta R.T. -0.014 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:TIC Resp: 4146



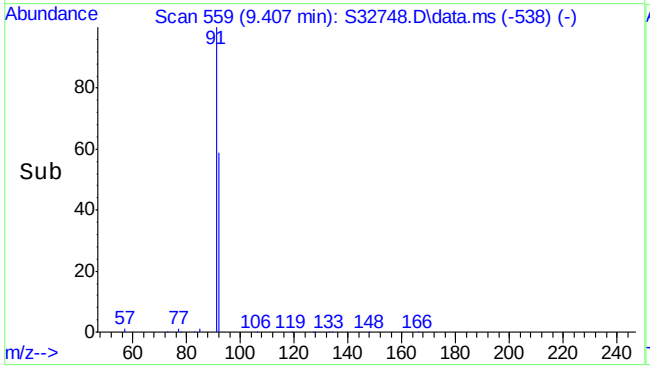


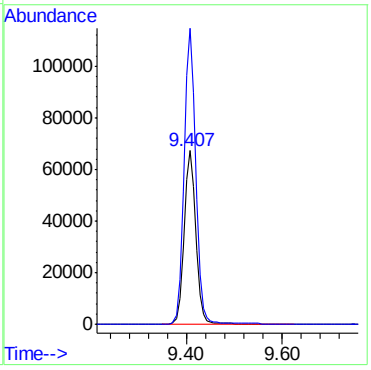


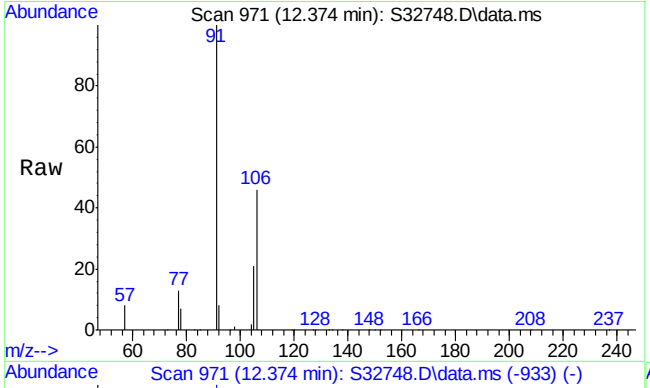
#8
C1-Benzene
Concen: 1403.37 µg/mL
RT: 9.407 min Scan# 559
Delta R.T. -0.050 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 92 Resp: 115583

Ion	Ratio	Lower	Upper
92	100		
91	170.5	135.6	203.4



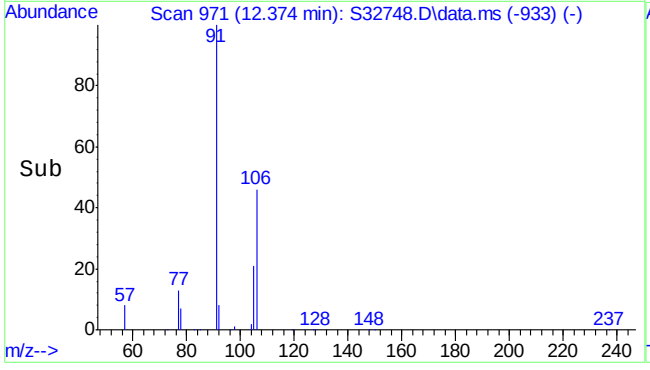


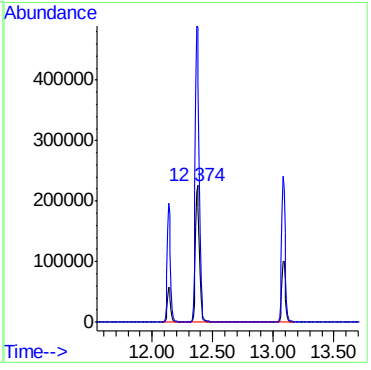


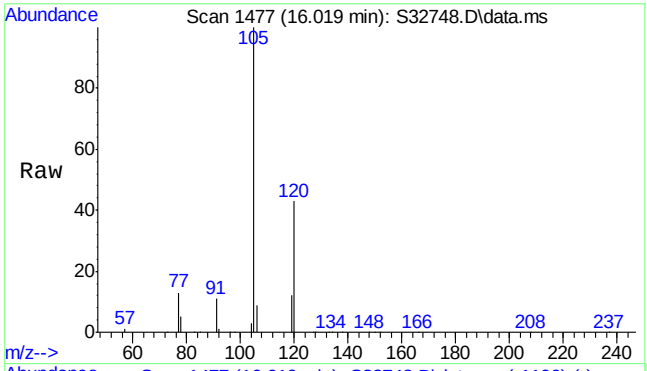
#9
C2-Benzenes
Concen: 10009.72 µg/mL m
RT: 12.374 min Scan# 971
Delta R.T. -0.015 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:106 Resp: 824411

Ion	Ratio	Lower	Upper
106	100		
91	137.9	174.9	262.3#



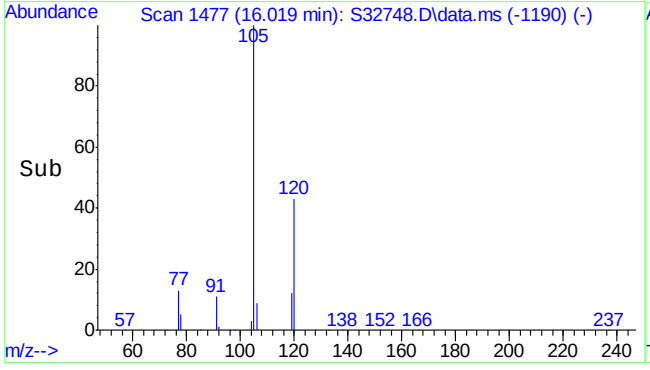


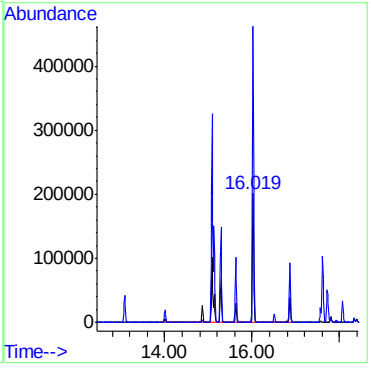


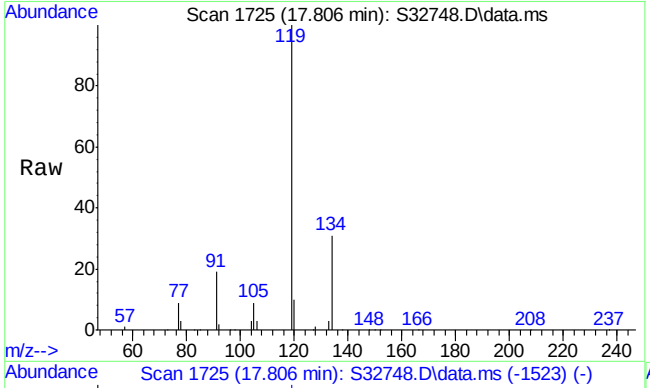
#10
C3-Benzenes
Concen: 12319.81 µg/mL m
RT: 16.019 min Scan# 1477
Delta R.T. -0.015 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:120 Resp: 1014672

Ion	Ratio	Lower	Upper
120	100		
105	88.9	181.4	272.2#



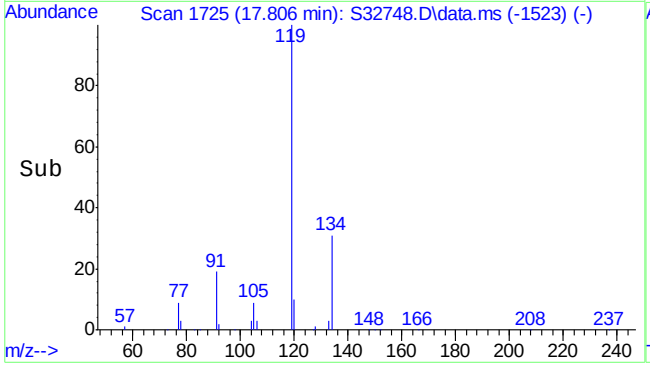


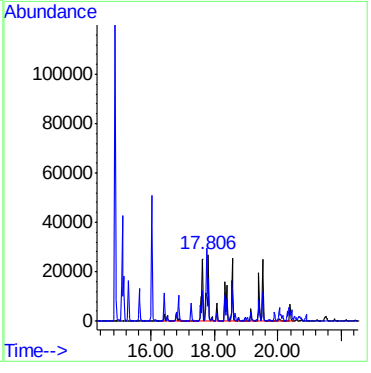


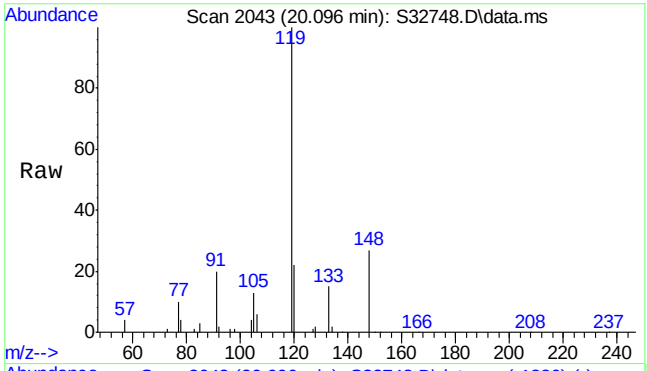
#11
C4-Benzenes
Concen: 5533.53 µg/mL m
RT: 17.806 min Scan# 1725
Delta R.T. -2.601 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:134 Resp: 455747

Ion	Ratio	Lower	Upper
134	100		
91	0.0	37.2	55.8#



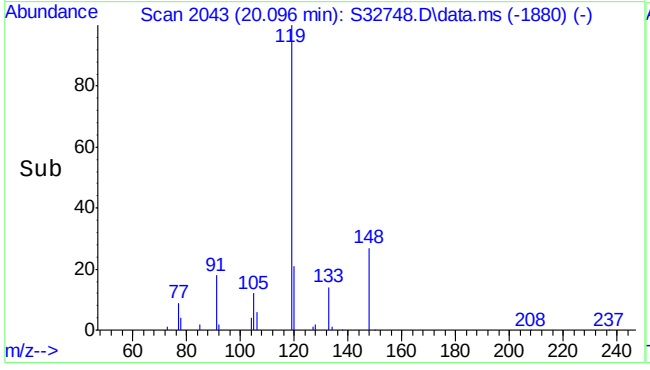


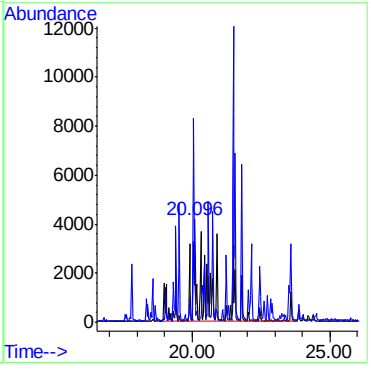


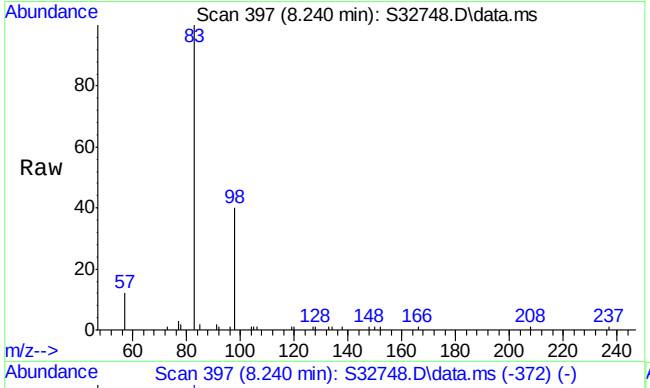
#12
C5-Benzenes
Concen: 1385.23 µg/mL m
RT: 20.096 min Scan# 2043
Delta R.T. -0.015 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:148 Resp: 114089

Ion	Ratio	Lower	Upper
148	100		
133	0.0	134.0	201.0#



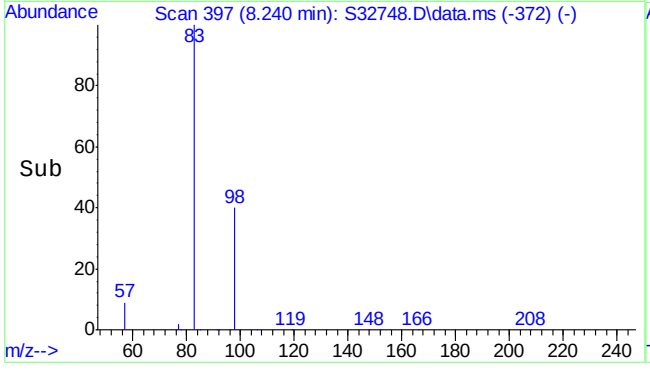


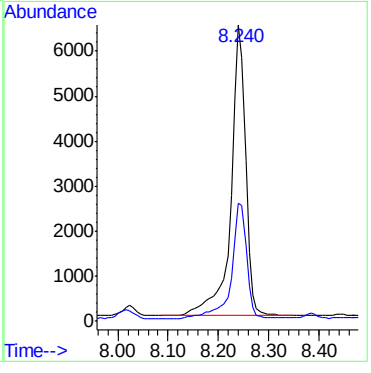


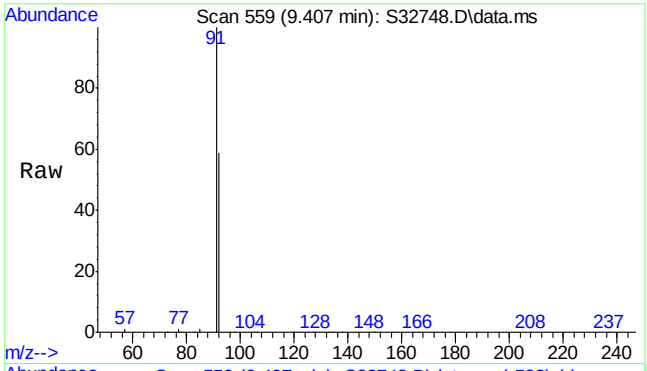
#13
Methylcyclohexane
Concen: 417.35 µg/mL
RT: 8.240 min Scan# 397
Delta R.T. -0.022 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 83 Resp: 13411

Ion	Ratio	Lower	Upper
83	100		
98	41.0	34.0	51.0



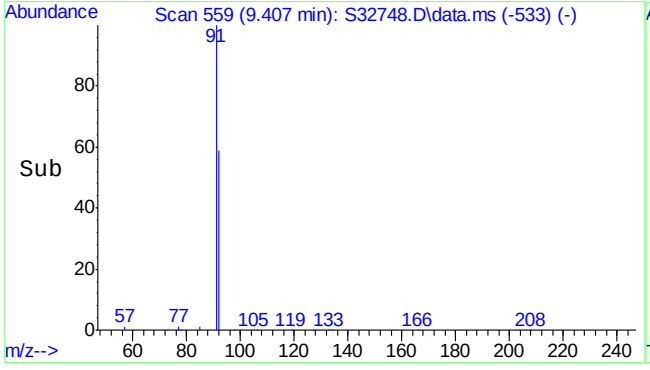


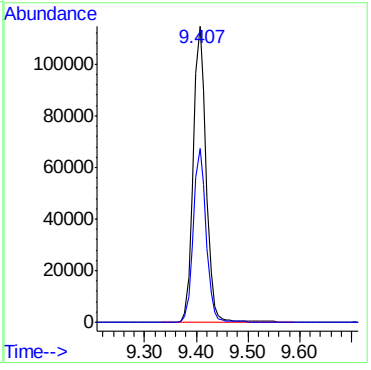


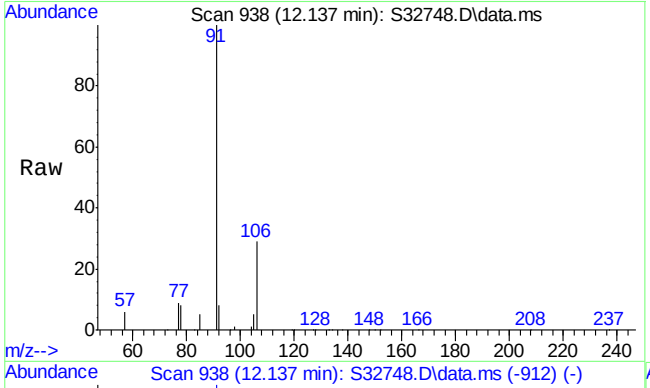
#14
Toluene
Concen: 2554.78 µg/mL
RT: 9.407 min Scan# 559
Delta R.T. -0.014 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 91 Resp: 196893

Ion	Ratio	Lower	Upper
91	100		
92	58.7	46.8	70.2



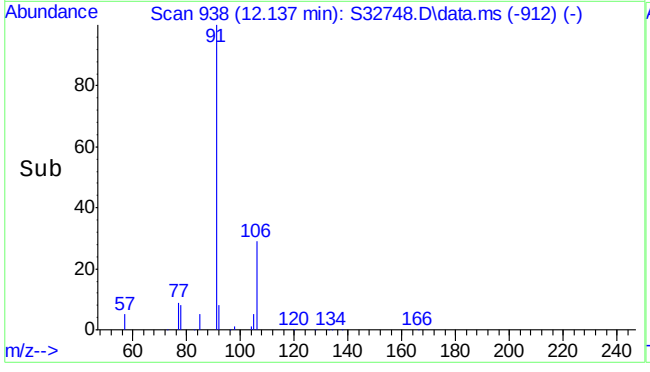


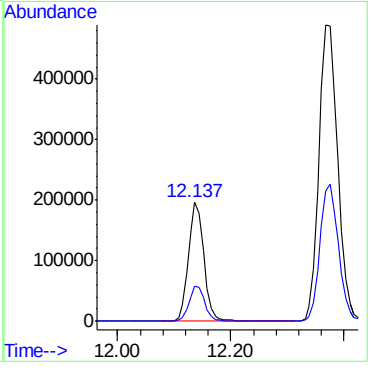


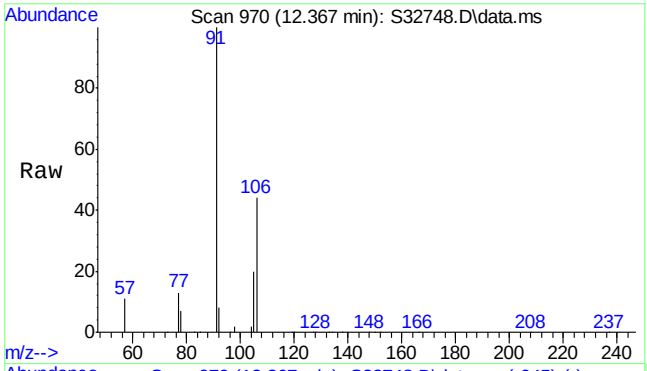
#15
Ethylbenzene
Concen: 3890.30 µg/mL
RT: 12.137 min Scan# 938
Delta R.T. -0.014 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 91 Resp: 366310

Ion	Ratio	Lower	Upper
91	100		
106	29.7	23.8	35.6



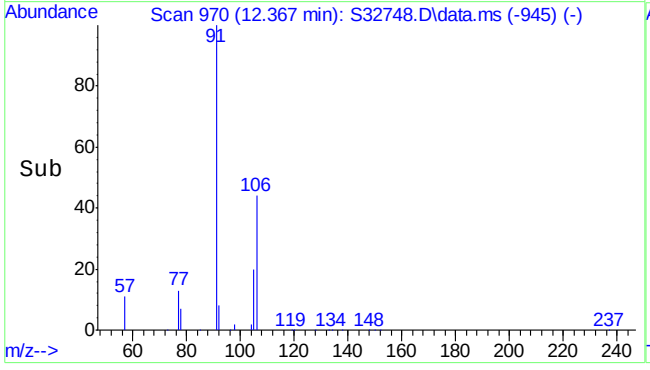


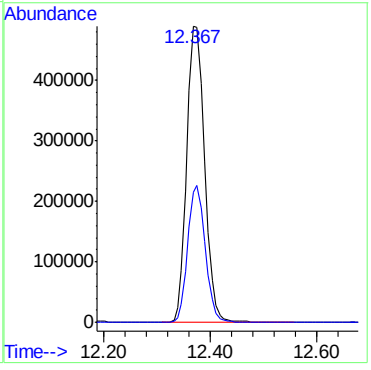


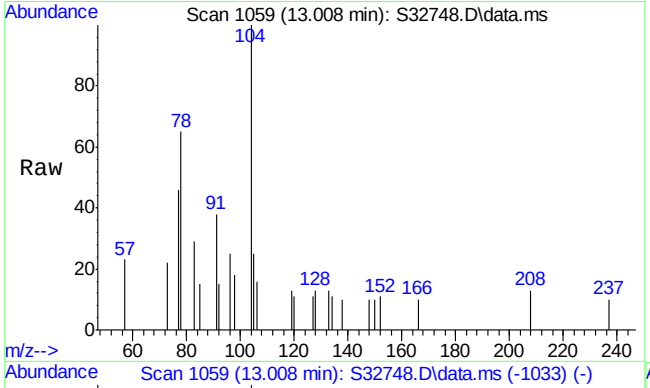
#16
m,p-xylene
Concen: 15147.37 µg/mL
RT: 12.367 min Scan# 970
Delta R.T. -0.021 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 91 Resp: 1136855

Ion	Ratio	Lower	Upper
91	100		
106	45.4	36.6	55.0



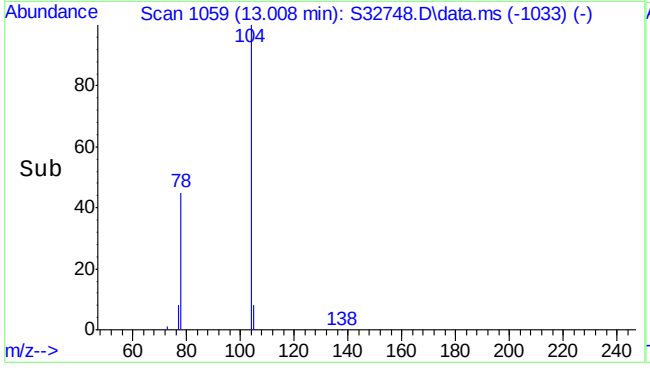


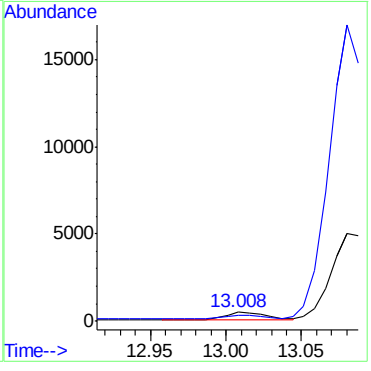


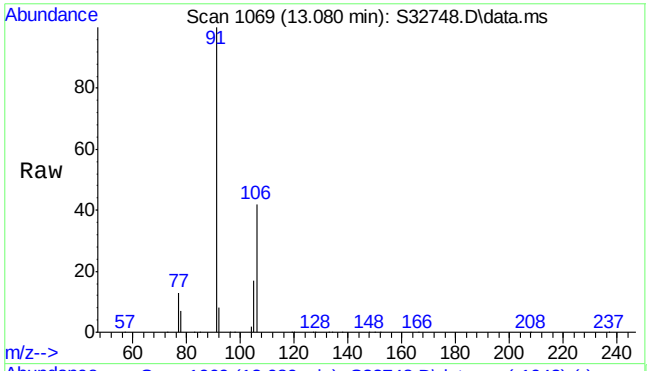
#17
Styrene
Concen: 15.72 µg/mL
RT: 13.008 min Scan# 1059
Delta R.T. -0.014 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:104 Resp: 876

Ion	Ratio	Lower	Upper
104	100		
78	41.3	37.7	56.5



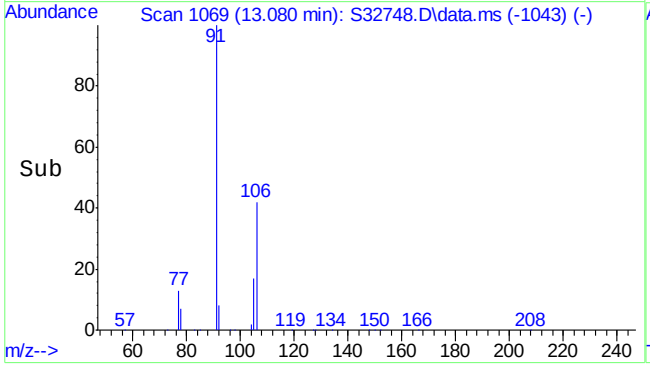


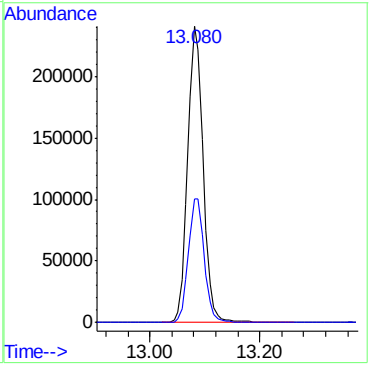


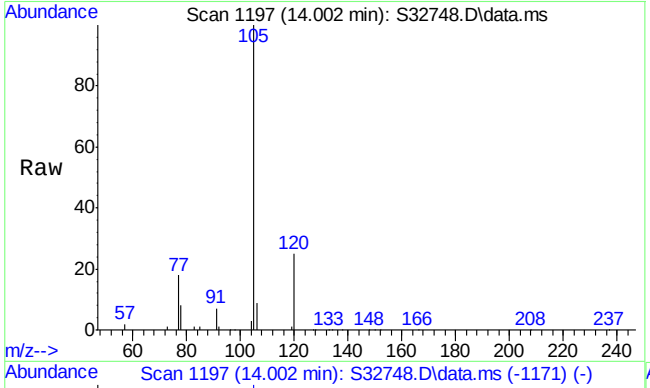
#18
o-Xylene
Concen: 6212.71 µg/mL
RT: 13.080 min Scan# 1069
Delta R.T. -0.014 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 91 Resp: 461852

Ion	Ratio	Lower	Upper
91	100		
106	43.0	34.5	51.7



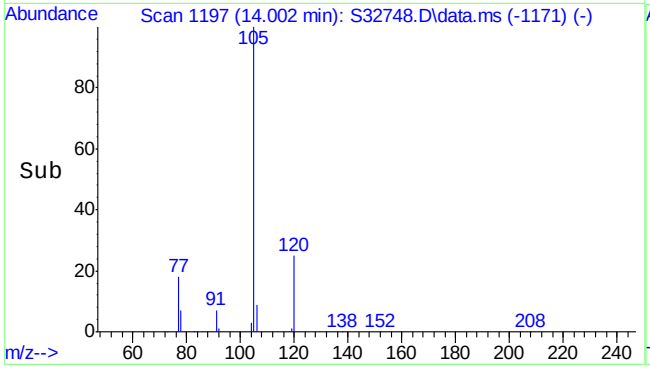


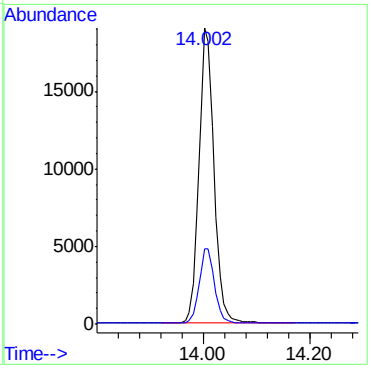


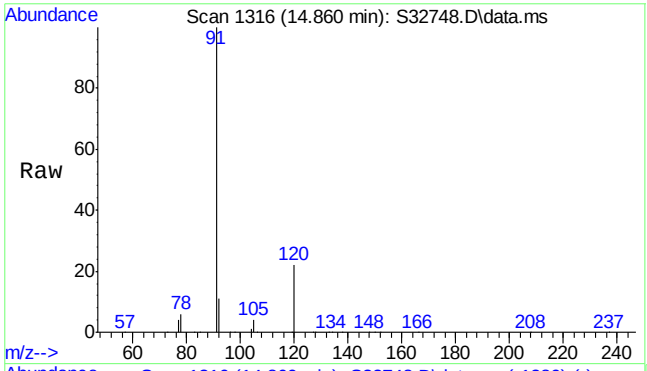
#19
Isopropylbenzene
Concen: 426.43 µg/mL
RT: 14.002 min Scan# 1197
Delta R.T. -0.014 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:105 Resp: 37370

Ion	Ratio	Lower	Upper
105	100		
120	25.9	21.1	31.7



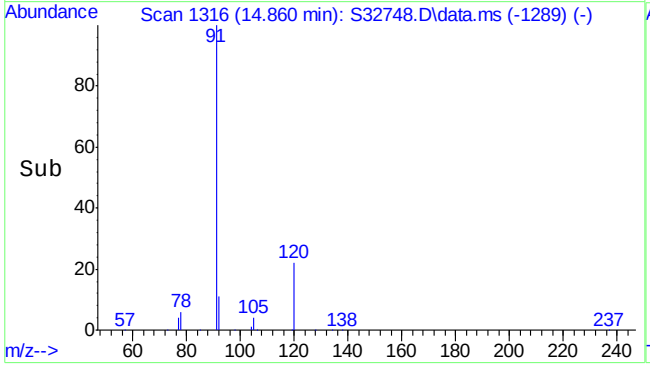


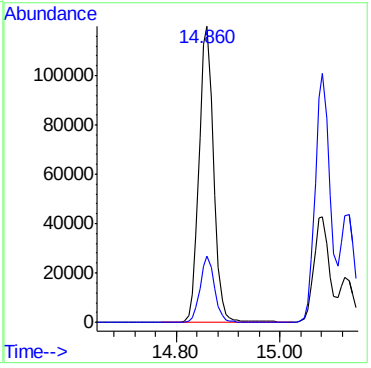


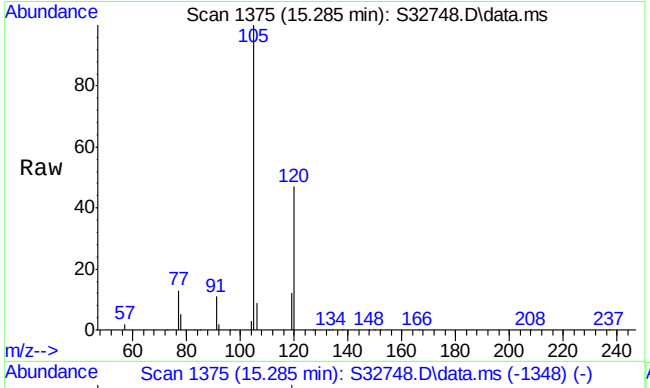
#20
n-Propylbenzene
Concen: 1960.08 µg/mL
RT: 14.860 min Scan# 1316
Delta R.T. -0.007 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 91 Resp: 232723

Ion	Ratio	Lower	Upper
91	100		
120	21.9	17.0	25.4



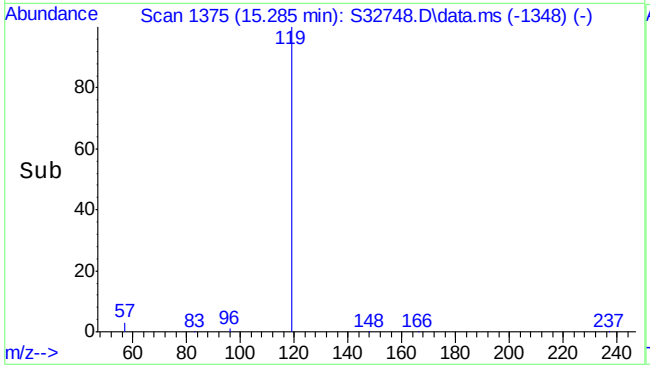


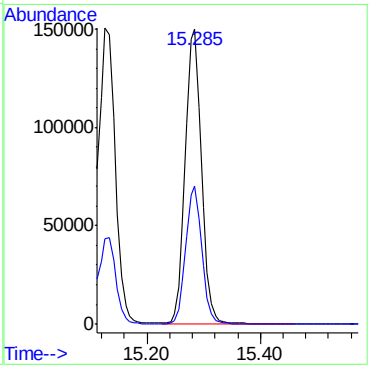


#21
1,3,5-Trimethylbenzene
Concen: 3641.58 µg/mL
RT: 15.285 min Scan# 1375
Delta R.T. -0.007 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:105 Resp: 296126

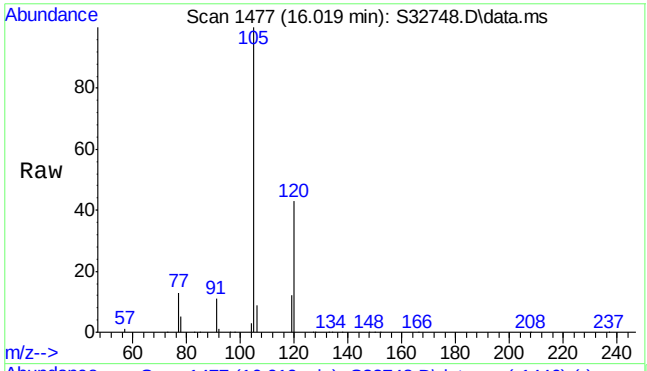
Ion	Ratio	Lower	Upper
105	100		
120	46.3	37.1	55.7





9.1.2

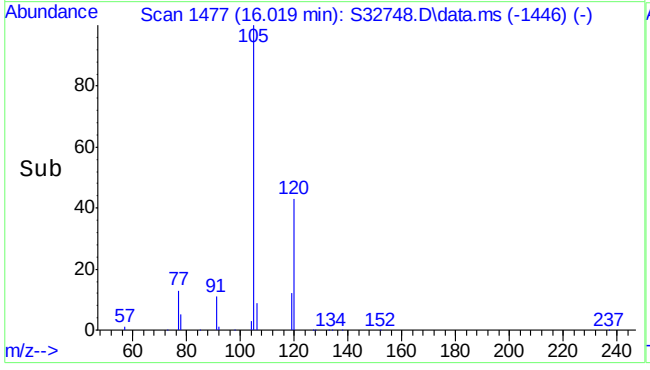
9

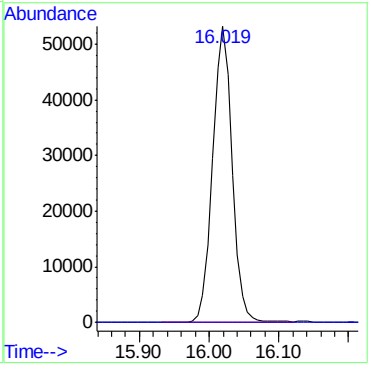


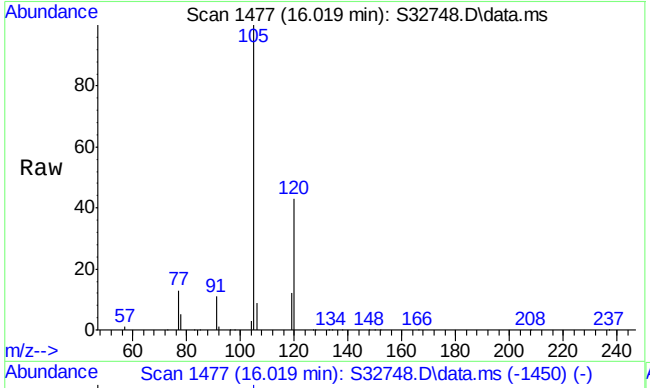
#22
t-Butylbenzene
Concen: 1293.82 µg/mL
RT: 16.019 min Scan# 1477
Delta R.T. 0.022 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:119 Resp: 103448

Ion	Ratio	Lower	Upper
119	100		
134	0.0	17.6	26.4#



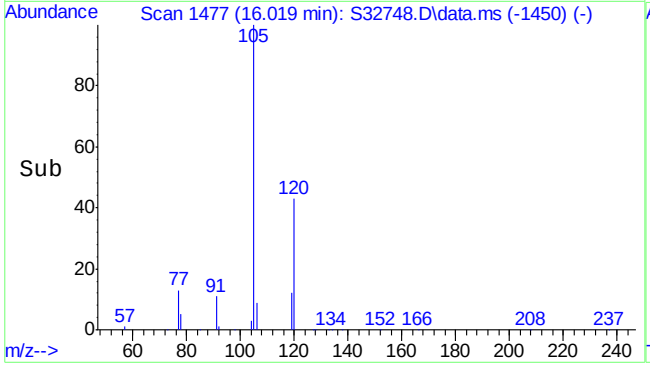


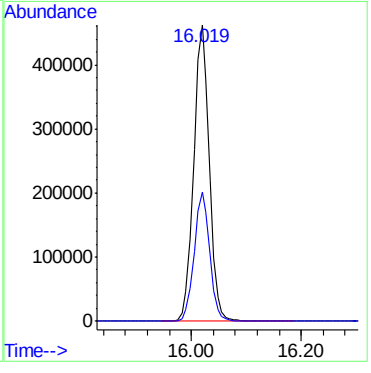


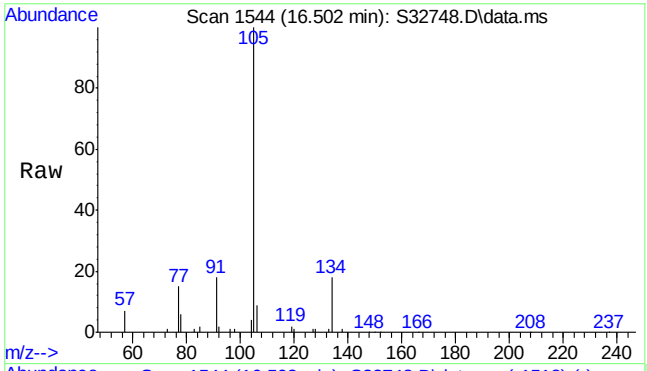
#23
1,2,4-Trimethylbenzene
Concen: 10833.47 µg/mL
RT: 16.019 min Scan# 1477
Delta R.T. -0.007 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:105 Resp: 900632

Ion	Ratio	Lower	Upper
105	100		
120	43.4	35.1	52.7



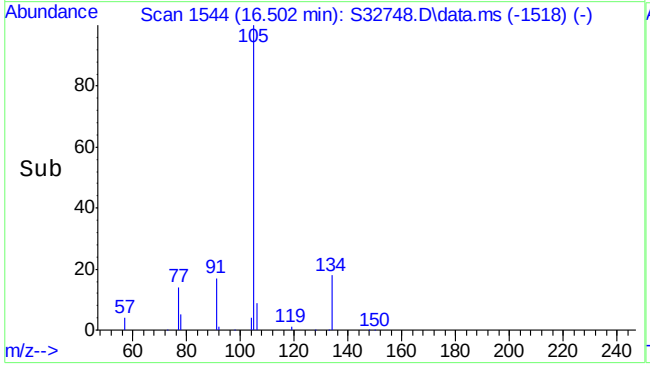


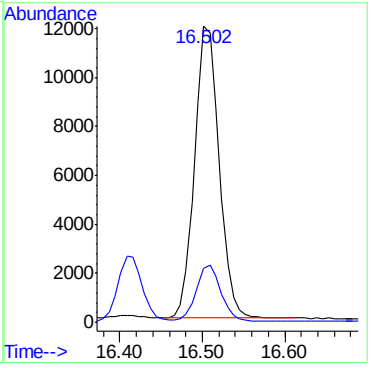


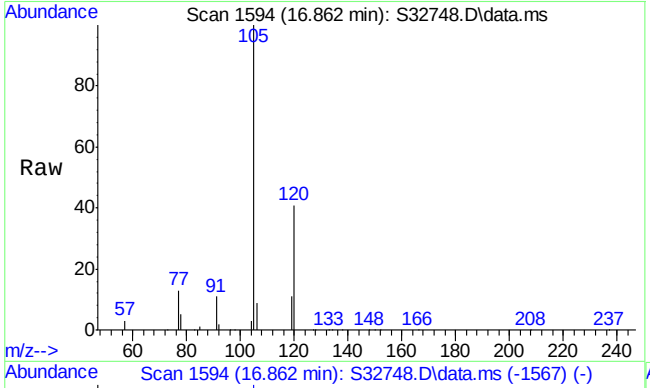
#24
sec-Butylbenzene
Concen: 230.64 µg/mL
RT: 16.502 min Scan# 1544
Delta R.T. -0.014 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:105 Resp: 24602

Ion	Ratio	Lower	Upper
105	100		
134	19.0	15.4	23.2



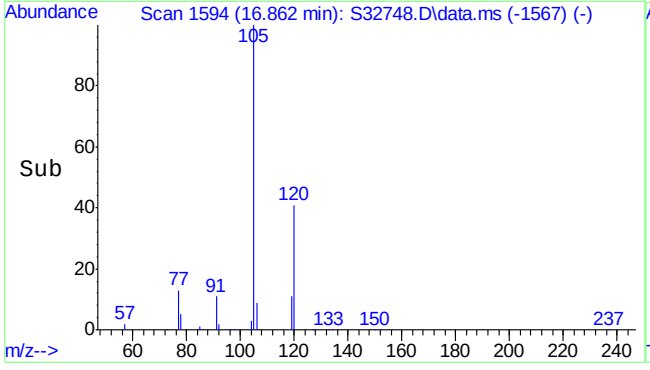


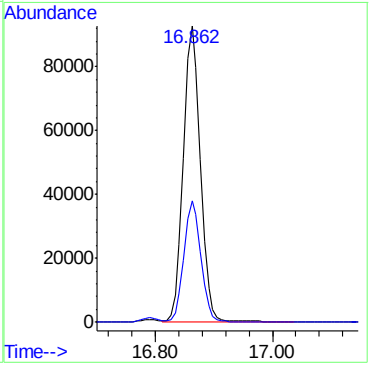


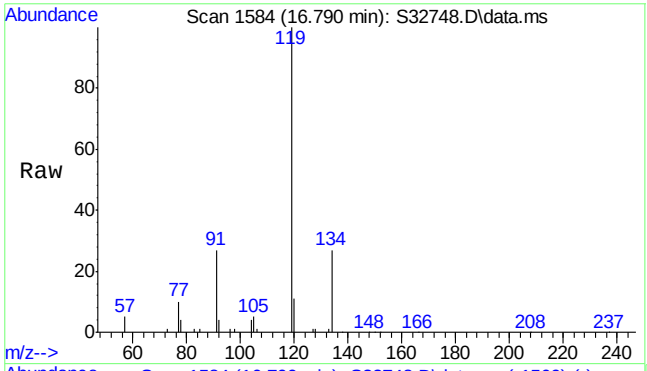
#25
1,2,3-Trimethylbenzene
Concen: 2153.25 µg/mL
RT: 16.862 min Scan# 1594
Delta R.T. -0.007 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:105 Resp: 187688

Ion	Ratio	Lower	Upper
105	100		
120	40.8	34.6	52.0



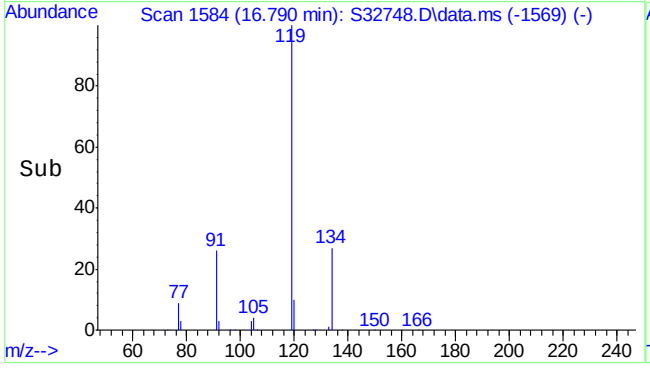


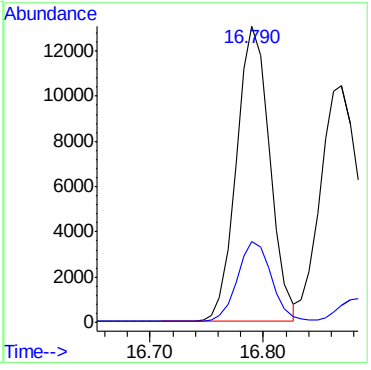


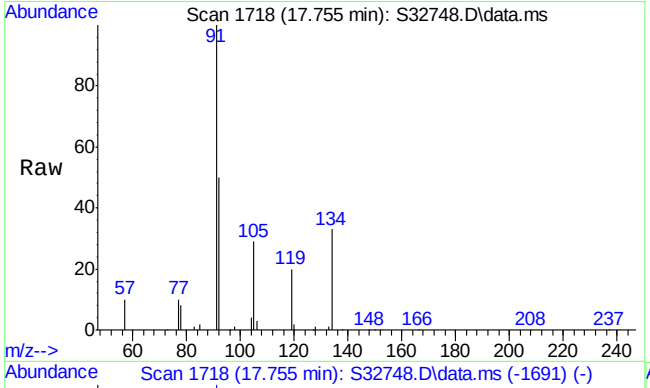
#26
p-Isopropyltoluene
Concen: 283.12 µg/mL
RT: 16.790 min Scan# 1584
Delta R.T. -0.094 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:119 Resp: 26633

Ion	Ratio	Lower	Upper
119	100		
134	27.4	18.4	27.6



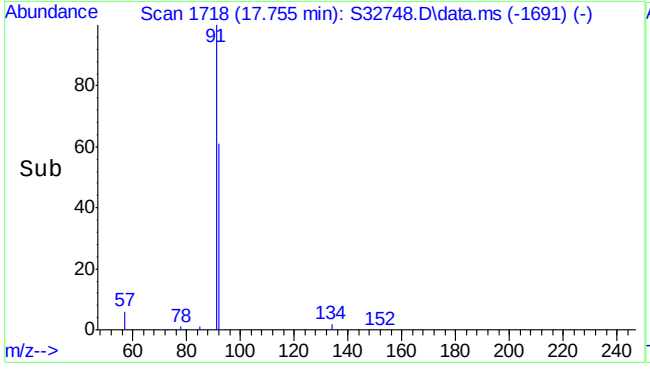


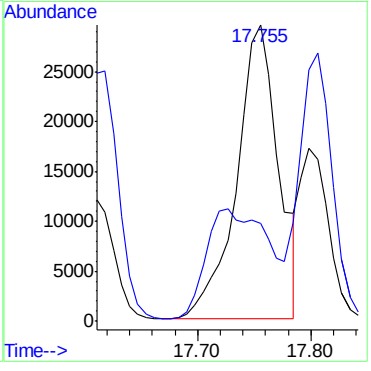


#27
n-Butylbenzene
Concen: 832.30 µg/mL
RT: 17.755 min Scan# 1718
Delta R.T. -0.007 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 91 Resp: 75491

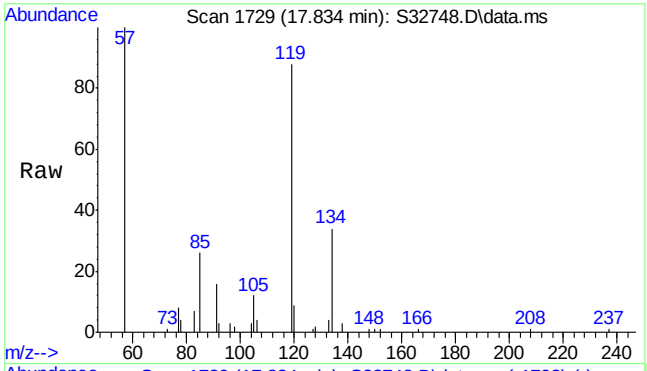
Ion	Ratio	Lower	Upper
91	100		
134	0.0	18.2	27.2#





9.1.2

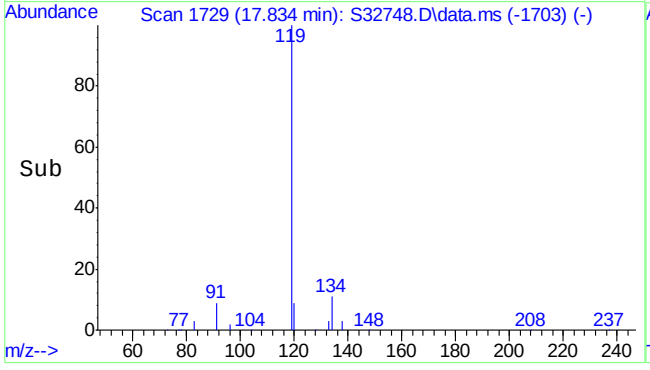
9

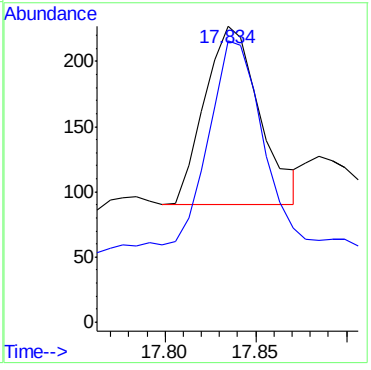


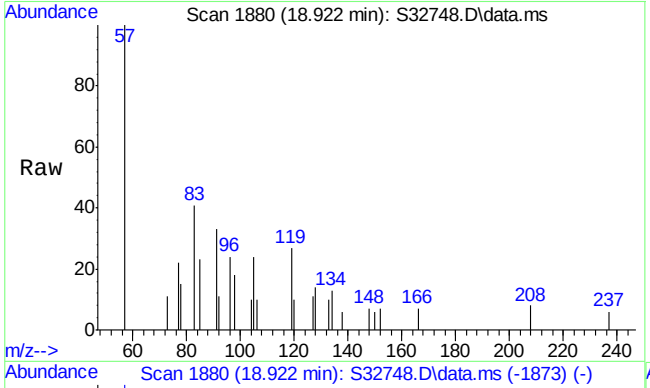
#28
trans-Decalin
Concen: 16.99 µg/mL
RT: 17.834 min Scan# 1729
Delta R.T. -0.014 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 96 Resp: 290

Ion	Ratio	Lower	Upper
96	100		
138	142.8	106.5	159.7



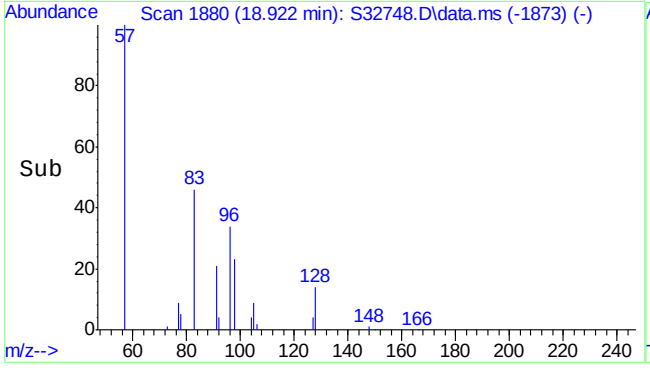


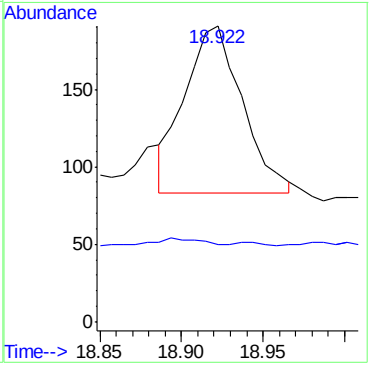


#29
cis-Decalin
Concen: 11.90 µg/mL m
RT: 18.922 min Scan# 1880
Delta R.T. -0.151 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 96 Resp: 265

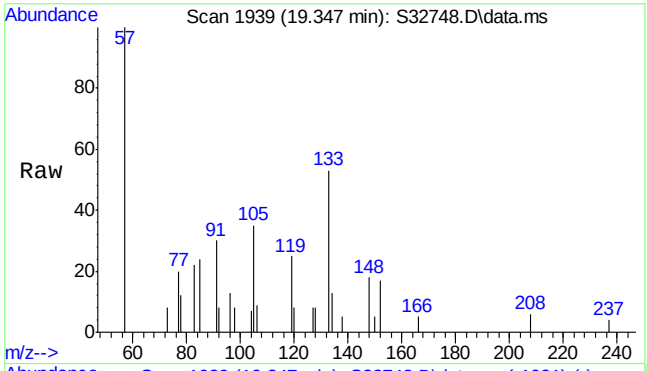
Ion	Ratio	Lower	Upper
96	100		
138	0.0	56.6	85.0#





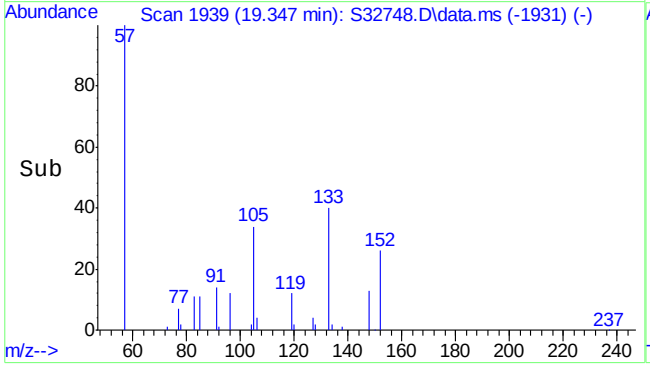
9.1.2

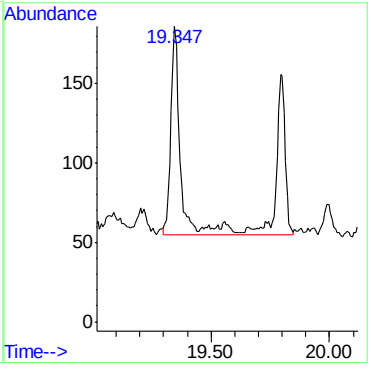
9

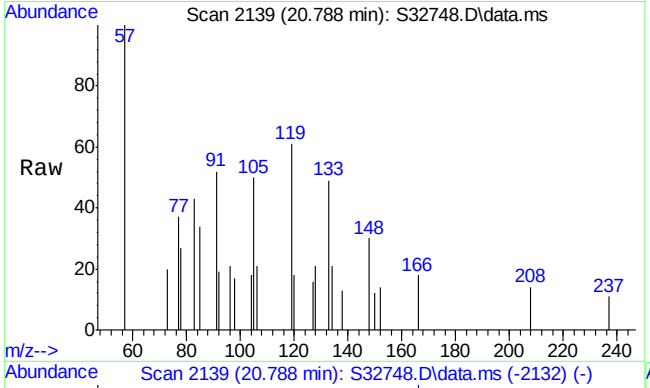


#30
C1-Decalins
Concen: 36.56 µg/mL m
RT: 19.347 min Scan# 1939
Delta R.T. -0.461 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:152 Resp: 624

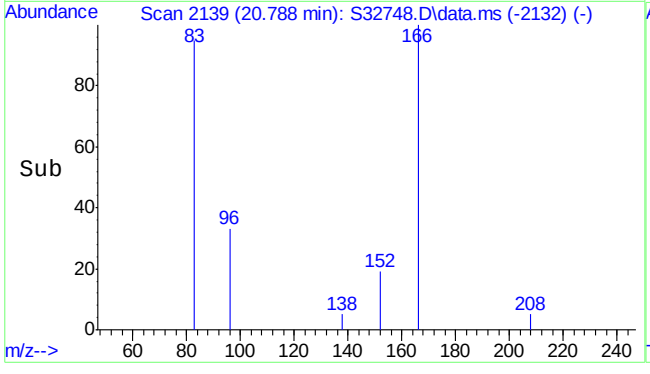


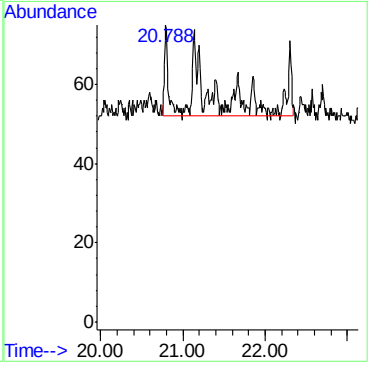


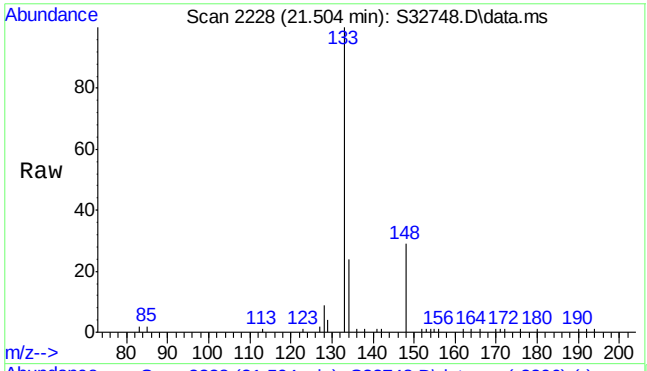


#31
C2-Decalins
Concen: 25.96 µg/mL m
RT: 20.788 min Scan# 2139
Delta R.T. -0.362 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:166 Resp: 443



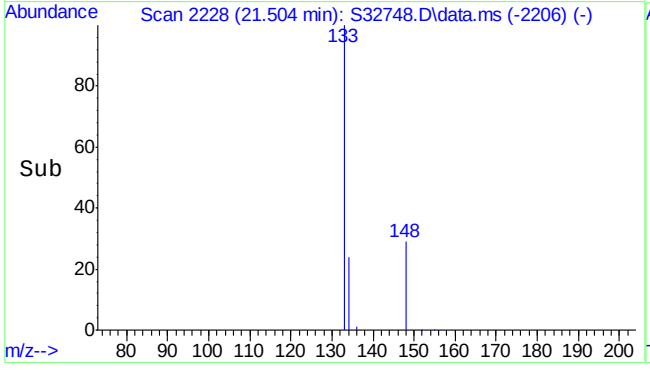


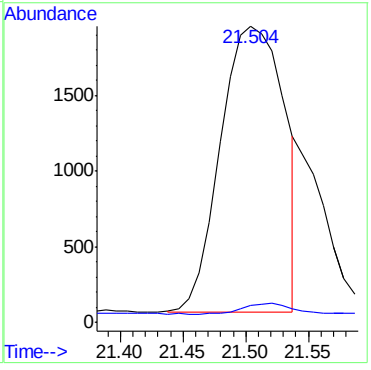


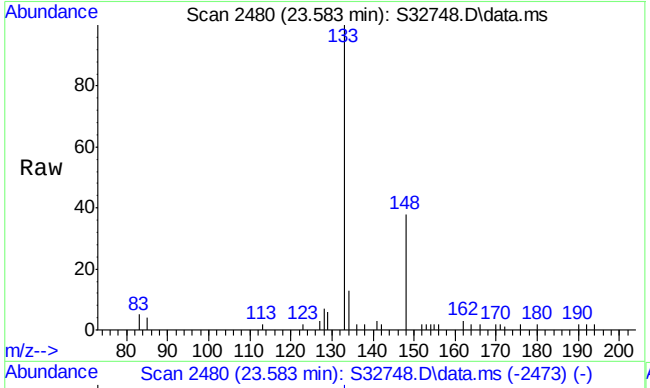
#34
Benzo(b)thiophene
Concen: 67.90 µg/mL m
RT: 21.504 min Scan# 2228
Delta R.T. -0.016 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:134 Resp: 6680

Ion	Ratio	Lower	Upper
134	100		
136	0.0	4.0	6.0#

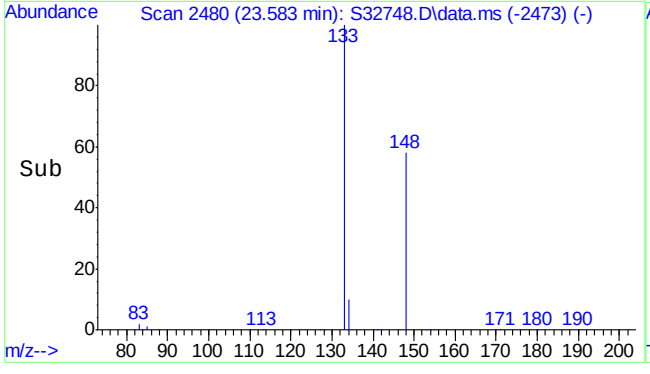


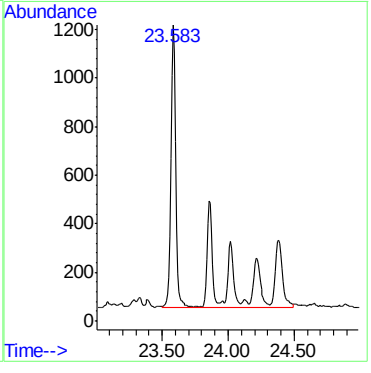


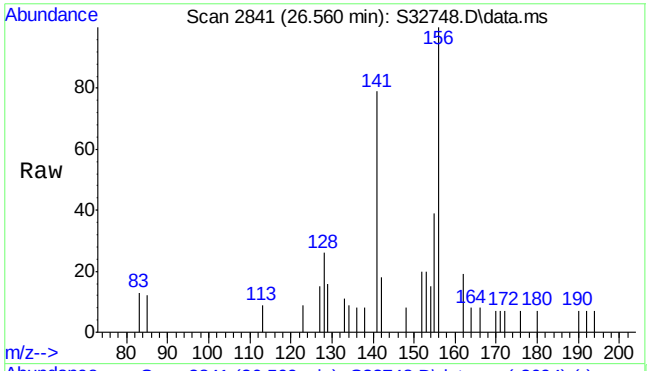


#35
C1-Benzo(b)thiophenes
Concen: 66.66 µg/mL m
RT: 23.583 min Scan# 2480
Delta R.T. -0.017 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:148 Resp: 6558

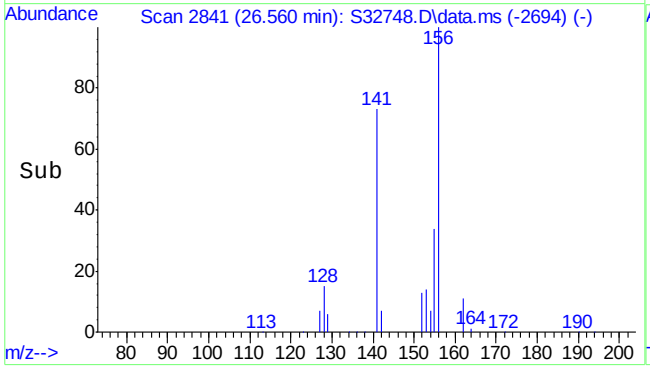


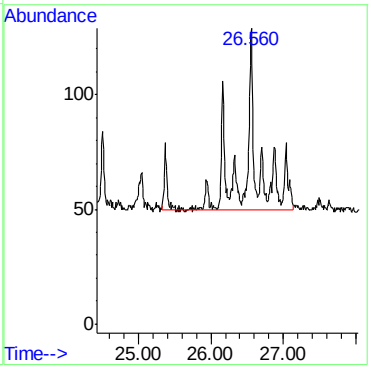


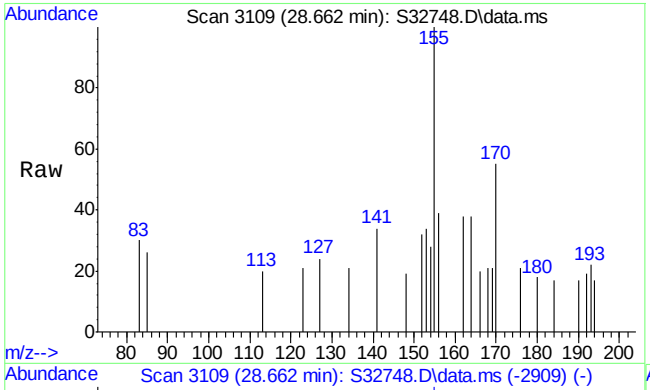


#36
C2-Benzo(b)thiophenes
Concen: 10.40 µg/mL m
RT: 26.560 min Scan# 2841
Delta R.T. -0.487 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:162 Resp: 1023

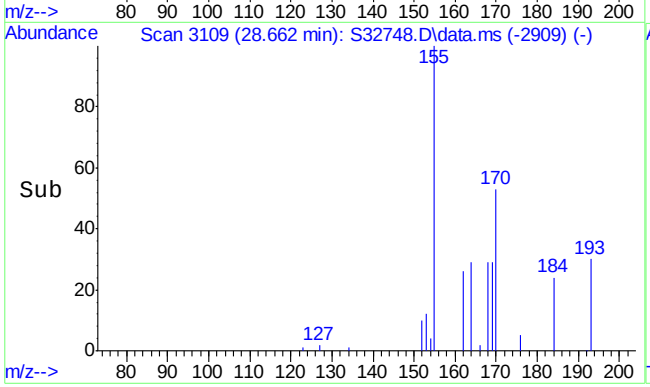


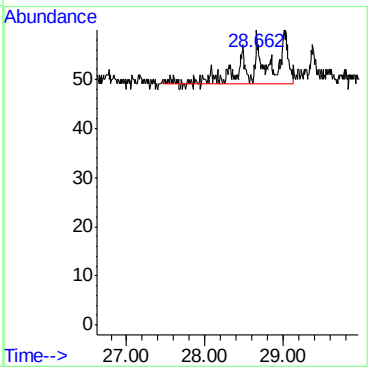


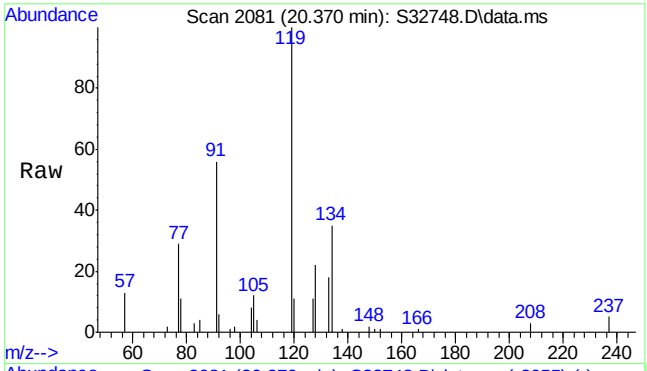


#37
C3-Benzo(b)thiophenes
Concen: 2.32 µg/mL m
RT: 28.662 min Scan# 3109
Delta R.T. -0.360 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:176 Resp: 228



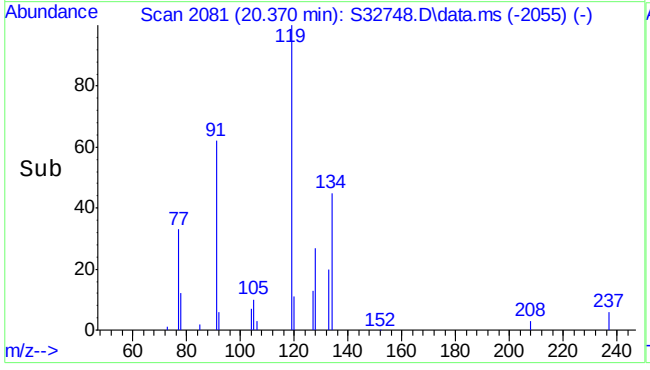


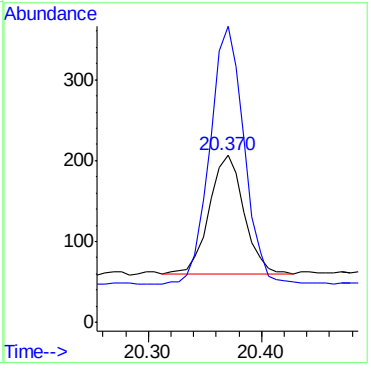


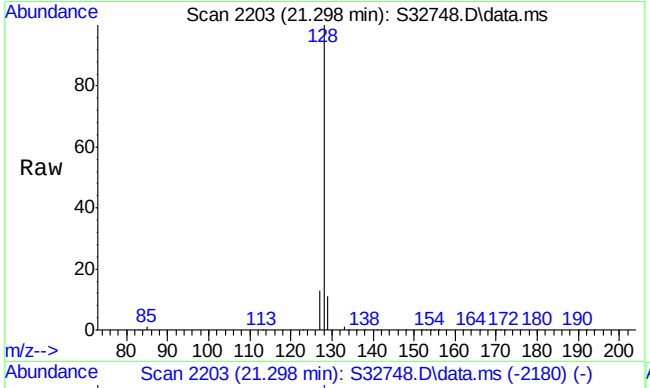
#39
Tetraethyl lead
Concen: 45.61 µg/mL
RT: 20.370 min Scan# 2081
Delta R.T. -0.014 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:208 Resp: 310

Ion	Ratio	Lower	Upper
208	100		
237	216.1	171.2	256.8



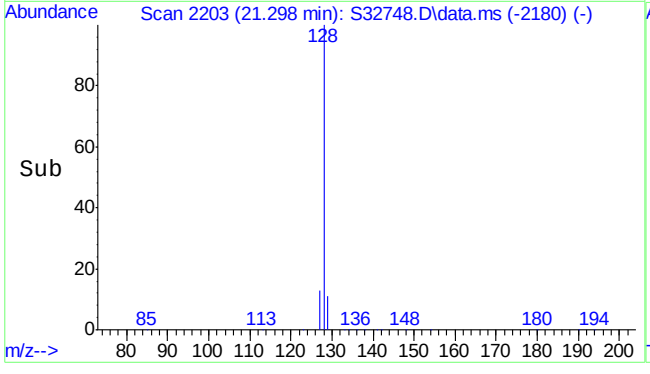


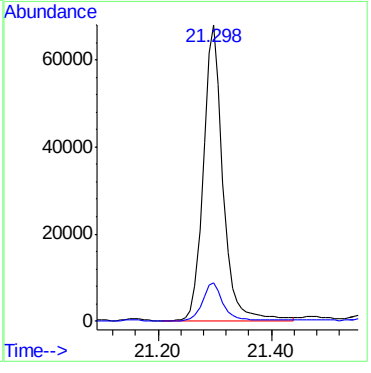


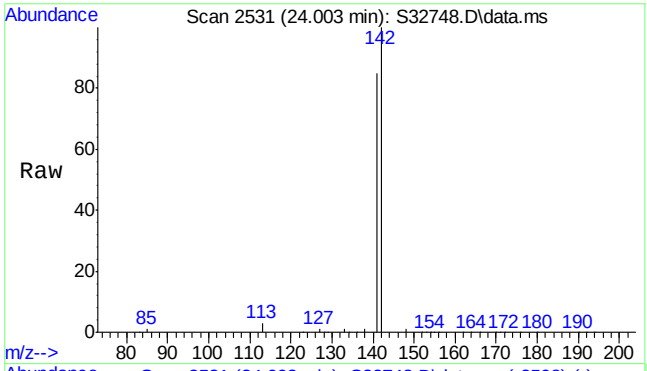
#44
Naphthalene
Concen: 1297.24 ng/mL
RT: 21.298 min Scan# 2203
Delta R.T. -0.008 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:128 Resp: 163401

Ion	Ratio	Lower	Upper
128	100		
127	12.7	10.1	15.1



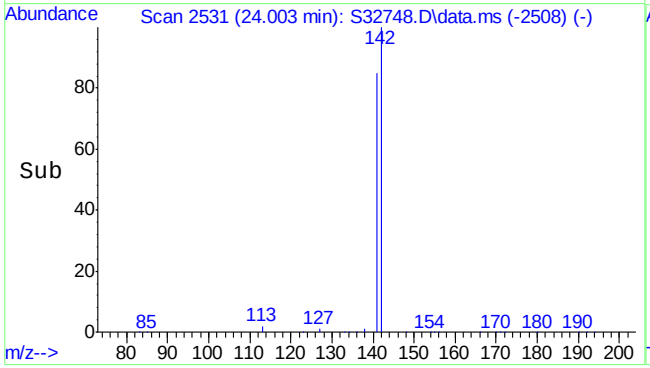


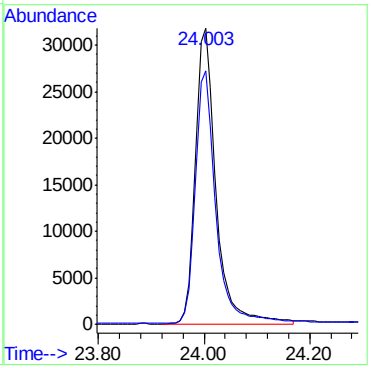


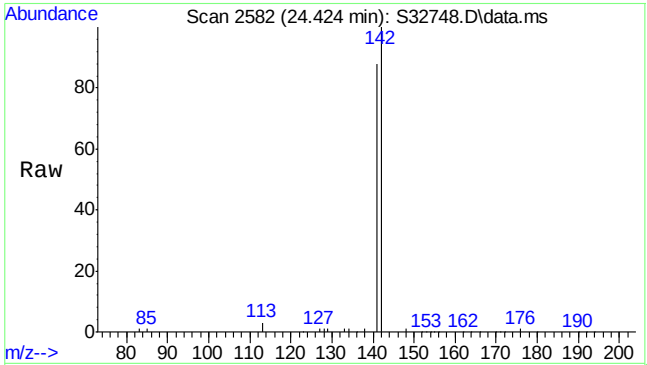
#45
2-Methylnaphthalene
Concen: 1091.22 ng/mL
RT: 24.003 min Scan# 2531
Delta R.T. -0.008 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:142 Resp: 85211

Ion	Ratio	Lower	Upper
142	100		
141	85.0	68.9	103.3



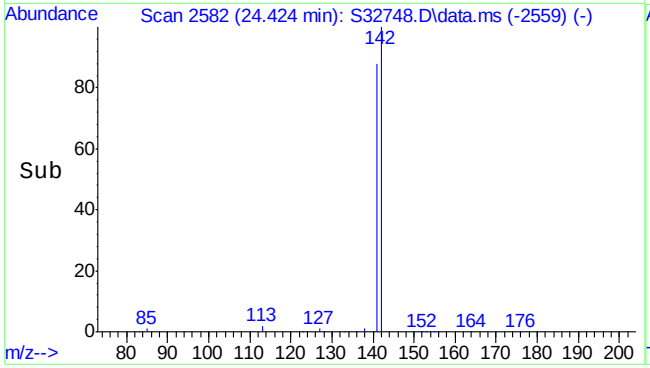


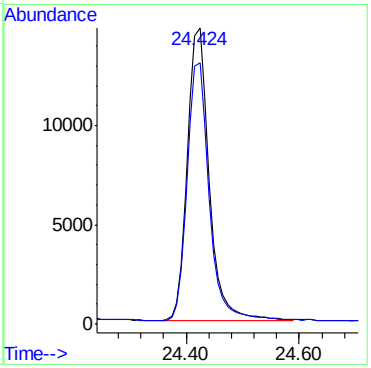


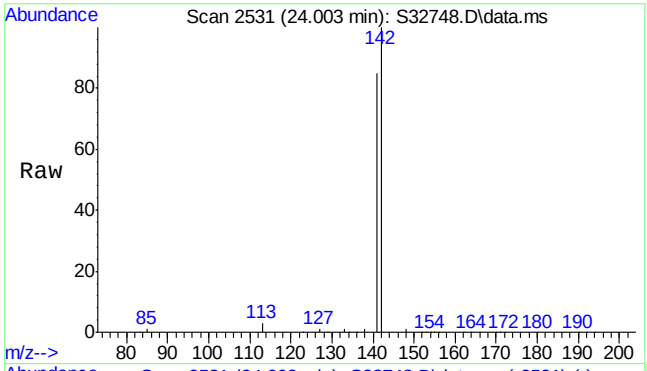
#46
1-Methylnaphthalene
Concen: 502.34 ng/mL
RT: 24.424 min Scan# 2582
Delta R.T. -0.008 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:142 Resp: 39518

Ion	Ratio	Lower	Upper
142	100		
141	89.1	71.1	106.7



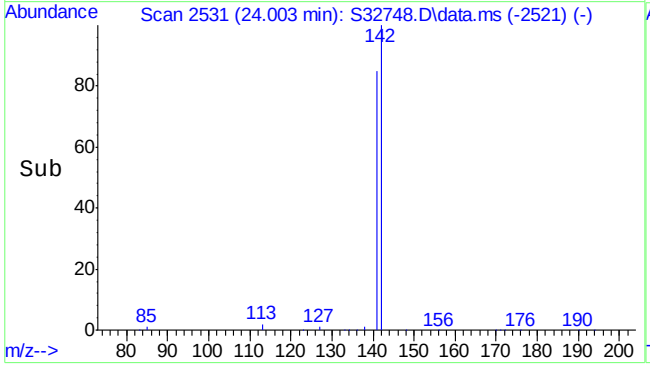


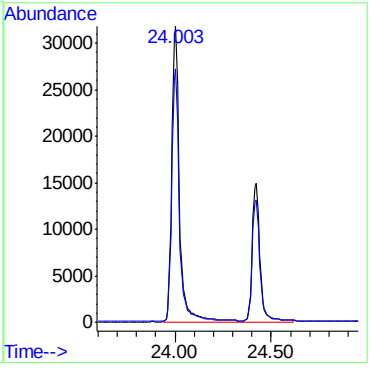


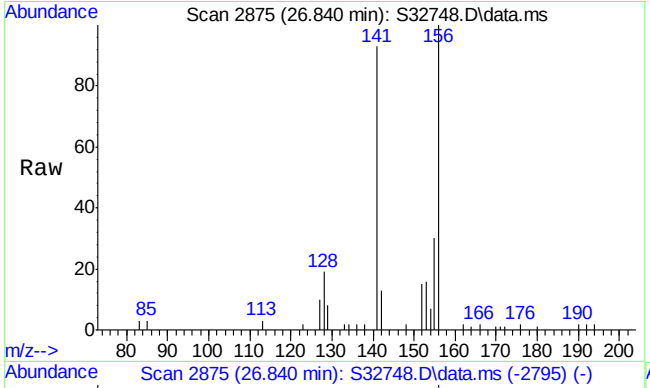
#47
C1-Naphthalenes
Concen: 1020.07 ng/mL m
RT: 24.003 min Scan# 2531
Delta R.T. -0.008 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:142 Resp: 128488

Ion	Ratio	Lower	Upper
142	100		
141	57.6	68.9	103.3#



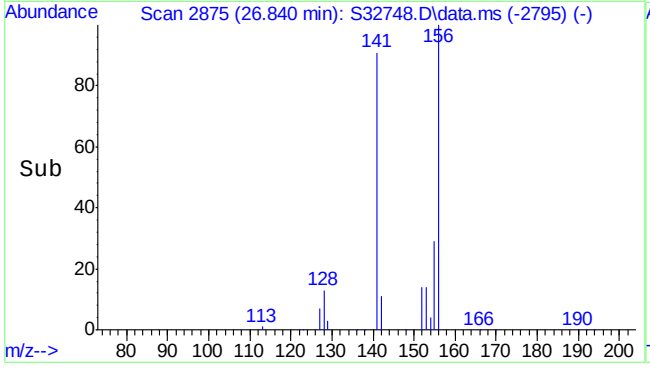


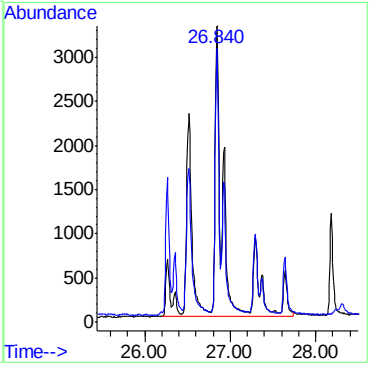


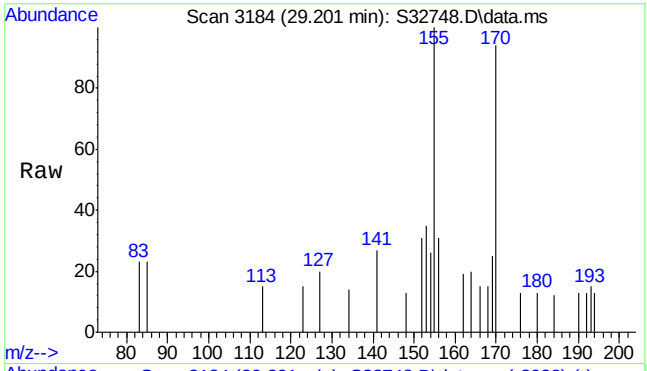
#48
C2-Naphthalenes
Concen: 287.50 ng/mL m
RT: 26.840 min Scan# 2875
Delta R.T. -0.099 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:156 Resp: 36214

Ion	Ratio	Lower	Upper
156	100		
141	12.9	60.6	90.8#



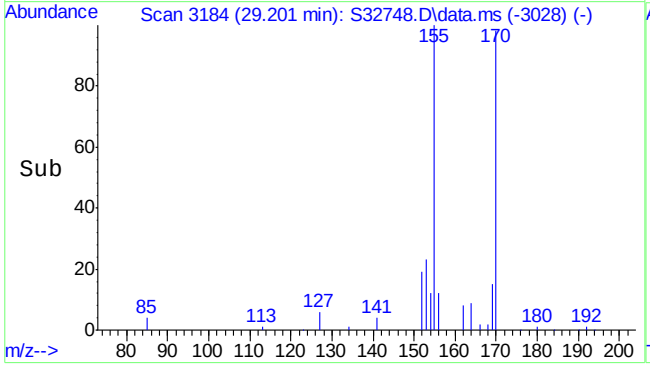


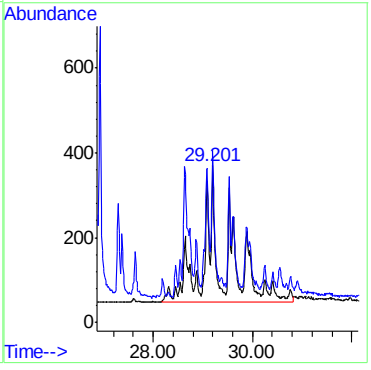


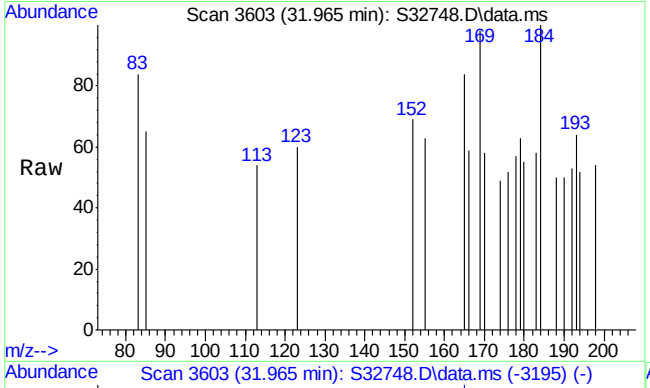
#49
C3-Naphthalenes
Concen: 71.63 ng/mL m
RT: 29.201 min Scan# 3184
Delta R.T. 0.007 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:170 Resp: 9022

Ion	Ratio	Lower	Upper
170	100		
155	13.7	81.7	122.5#



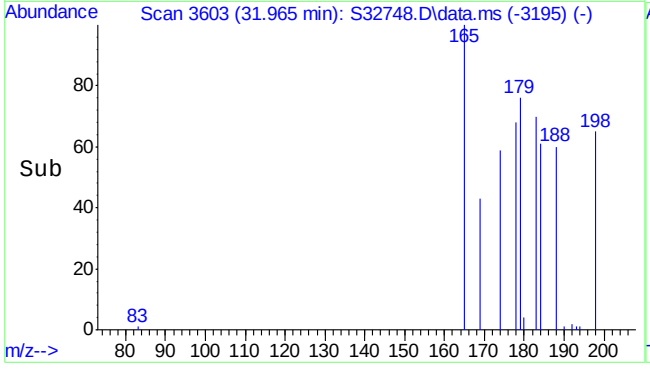


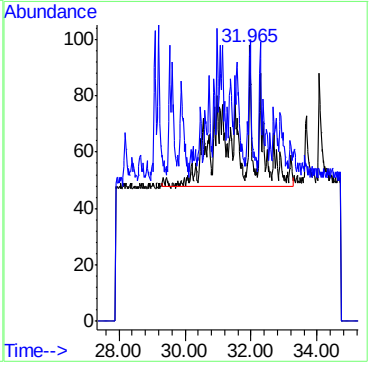


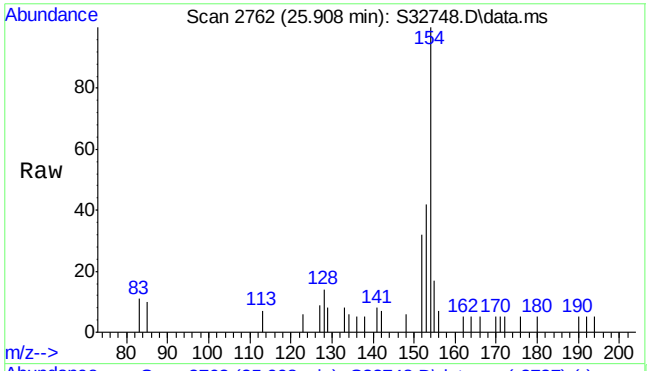
#50
C4-Naphthalenes
Concen: 18.02 ng/mL m
RT: 31.965 min Scan# 3603
Delta R.T. 0.013 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:184 Resp: 2270

Ion	Ratio	Lower	Upper
184	100		
169	0.0	76.8	115.2#



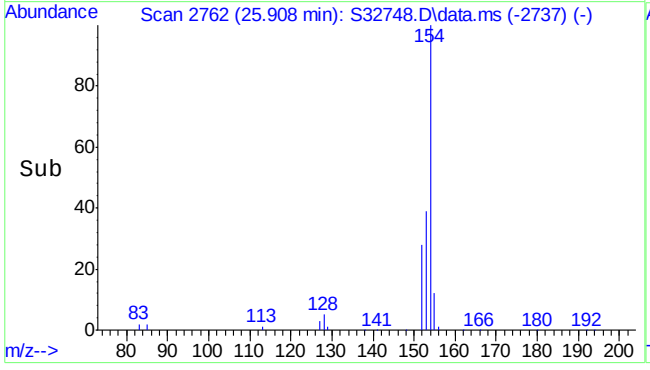


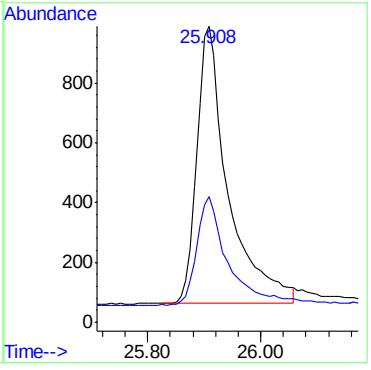


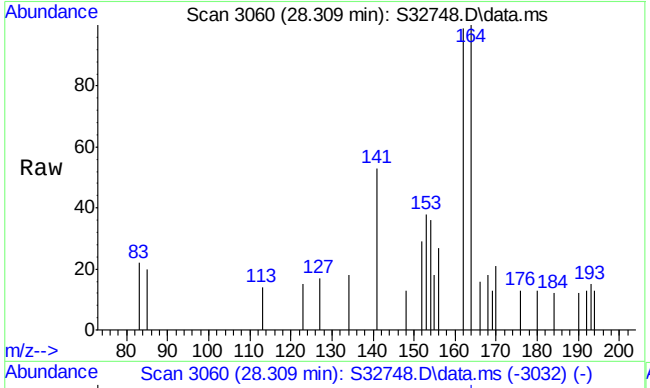
#51
Biphenyl
Concen: 33.71 µg/mL
RT: 25.908 min Scan# 2762
Delta R.T. 0.008 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:154 Resp: 3573

Ion	Ratio	Lower	Upper
154	100		
153	39.2	31.2	46.8



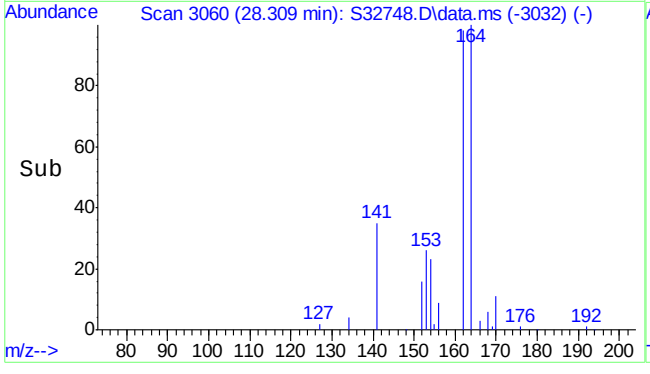


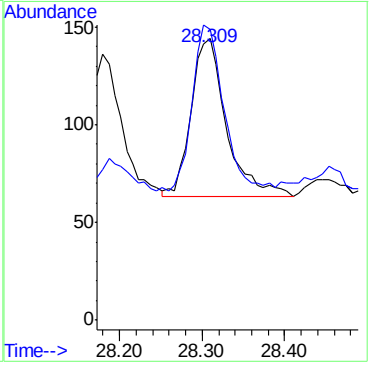


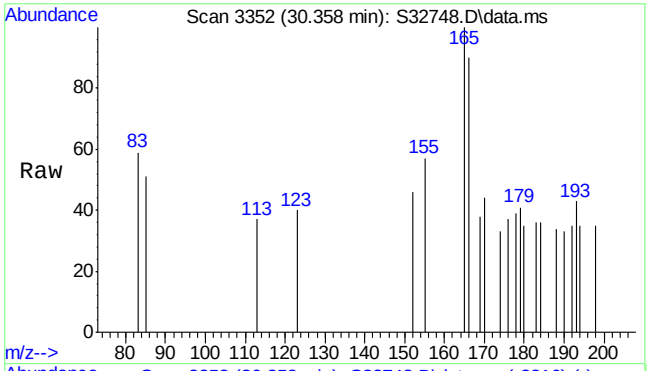
#53
Acenaphthene
Concen: 3.54 ng/mL
RT: 28.309 min Scan# 3060
Delta R.T. 0.000 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:154 Resp: 242

Ion	Ratio	Lower	Upper
154	100		
153	91.7	86.4	129.6



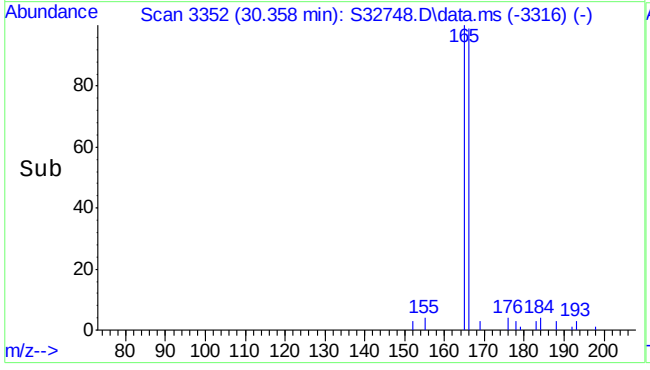


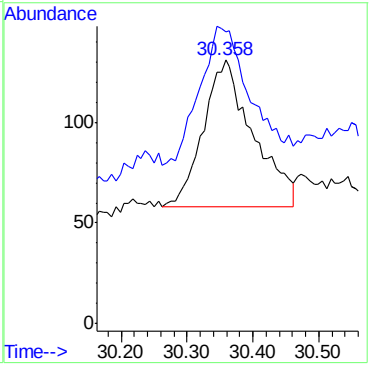


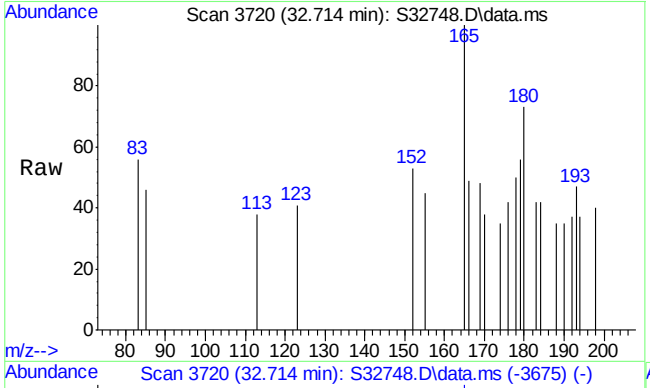
#55
Fluorene
Concen: 4.77 ng/mL
RT: 30.358 min Scan# 3352
Delta R.T. 0.032 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:166 Resp: 385

Ion	Ratio	Lower	Upper
166	100		
165	92.2	75.1	112.7



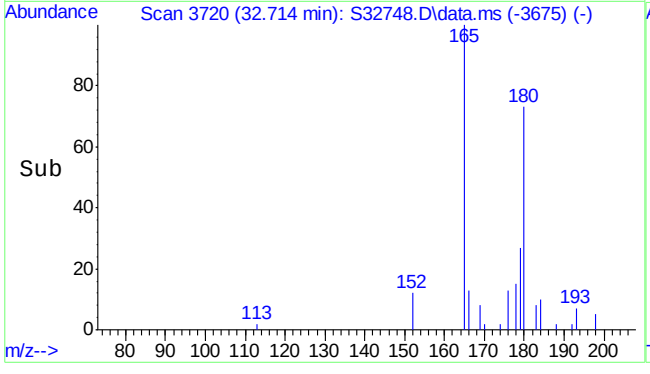


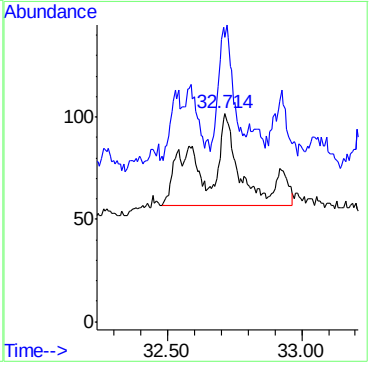


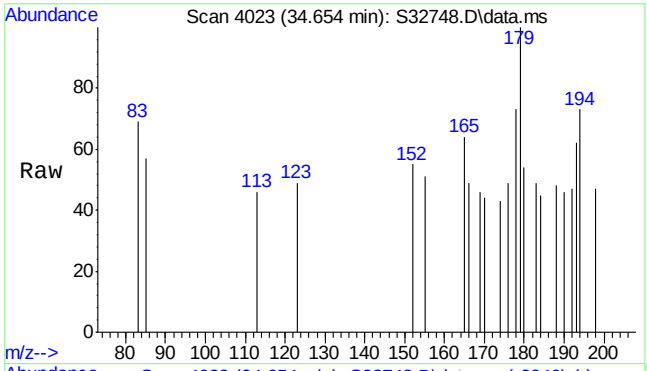
#56
C1-Fluorenes
Concen: 5.62 ng/mL m
RT: 32.714 min Scan# 3720
Delta R.T. 0.019 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:180 Resp: 454

Ion	Ratio	Lower	Upper
180	100		
165	0.0	128.1	192.1#



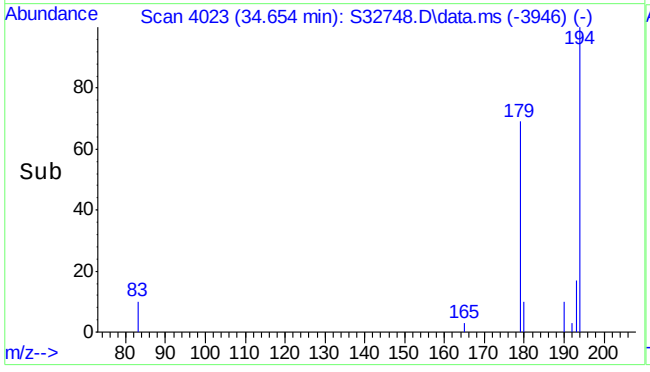


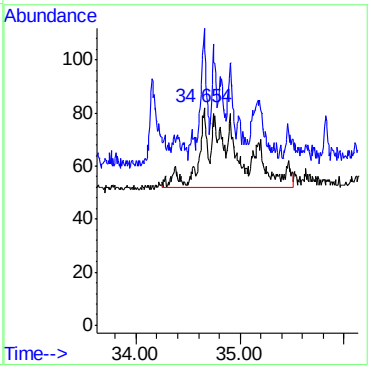


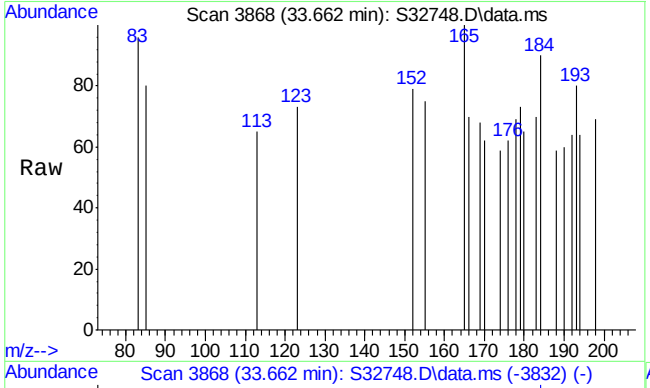
#57
C2-Fluorenes
Concen: 8.89 ng/mL m
RT: 34.654 min Scan# 4023
Delta R.T. -0.244 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:194 Resp: 718

Ion	Ratio	Lower	Upper
194	100		
179	0.0	122.6	183.8#



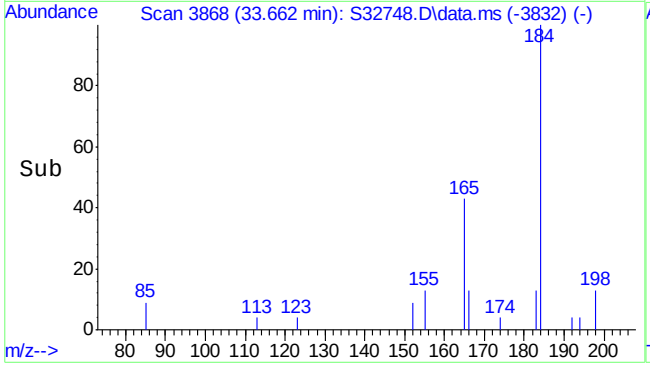


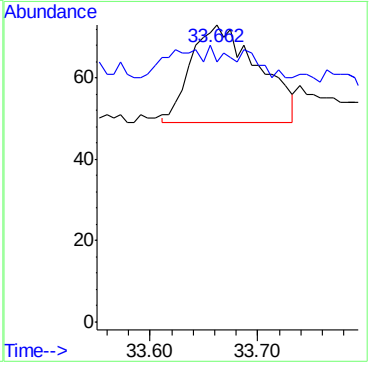


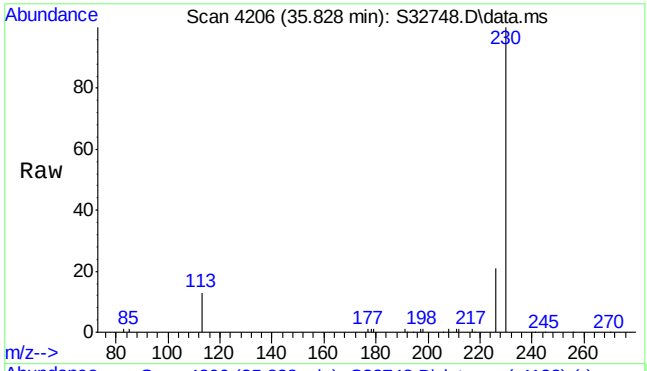
#59
Dibenzothiophene
Concen: 0.96 ng/mL m
RT: 33.662 min Scan# 3868
Delta R.T. 0.032 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:184 Resp: 105

Ion	Ratio	Lower	Upper
184	100		
152	0.0	7.1	10.7#



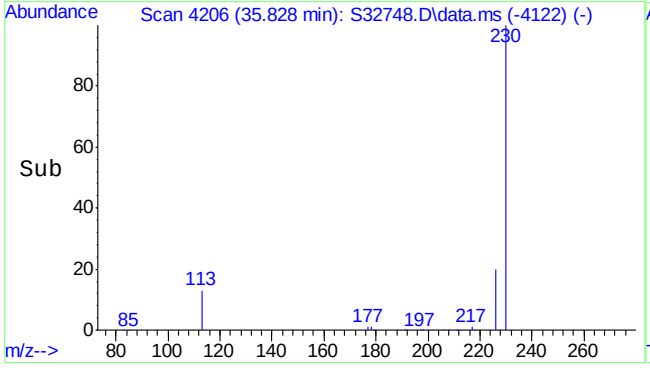


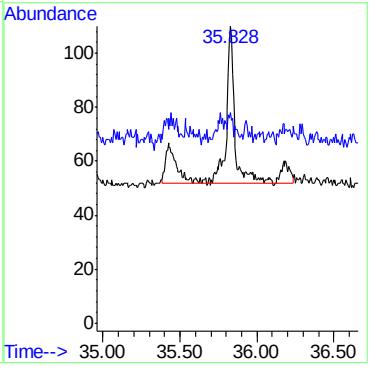


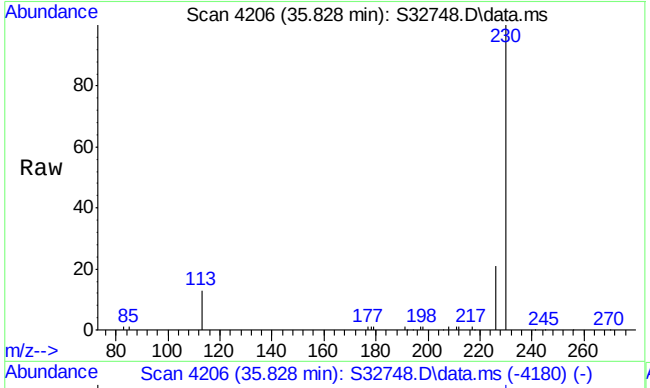
#60
C1-Dibenzothiophenes (unadj)
Concen: 2.80 ng/mL m
RT: 35.828 min Scan# 4206
Delta R.T. 0.417 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:198 Resp: 308

Ion	Ratio	Lower	Upper
198	100		
197	0.0	52.8	79.2#



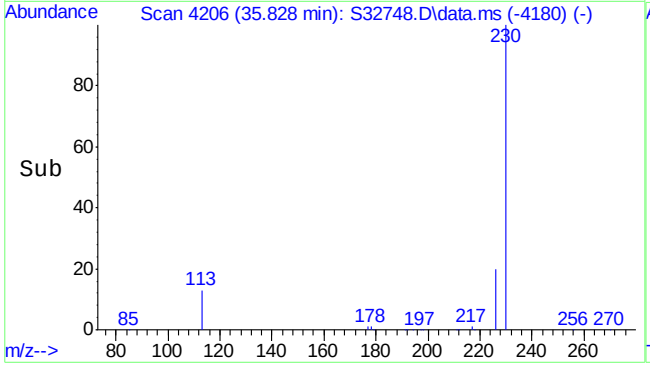


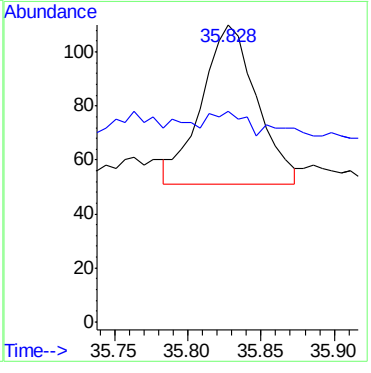


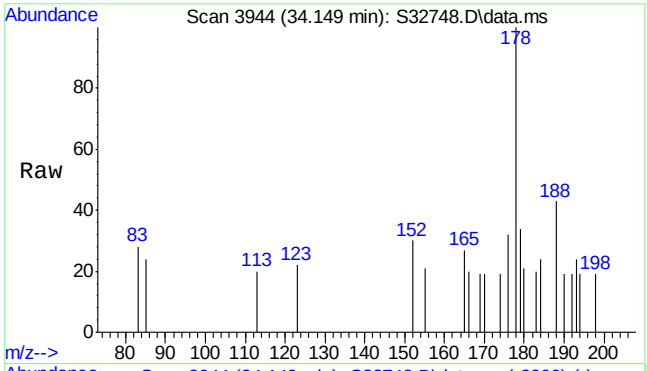
#61
C1-Dibenzothiophenes (OTP)
Concen: 1.40 µg/mL m
RT: 35.828 min Scan# 4206
Delta R.T. 0.064 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:198 Resp: 154

Ion	Ratio	Lower	Upper
198	100		
197	0.0	57.8	86.6#



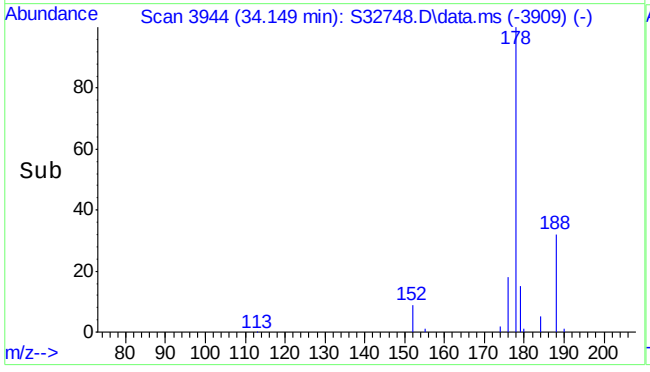


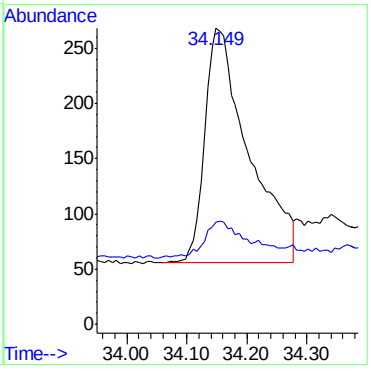


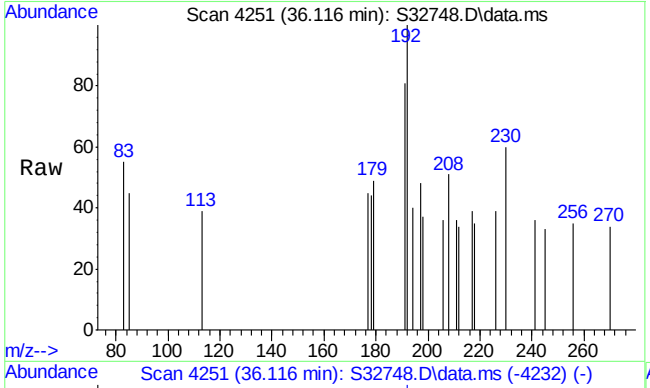
#65
Phenanthrene
Concen: 9.37 ng/mL
RT: 34.149 min Scan# 3944
Delta R.T. 0.026 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:178 Resp: 1078

Ion	Ratio	Lower	Upper
178	100		
179	0.0	12.2	18.4#



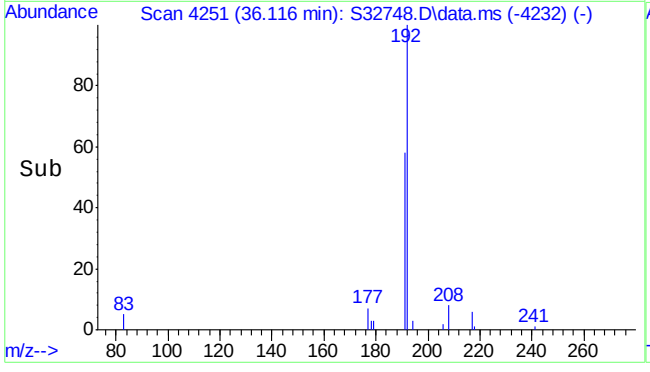


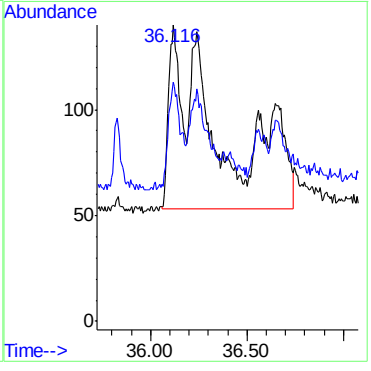


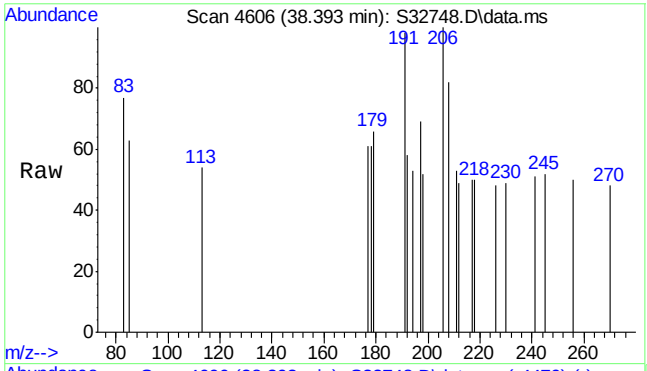
#67
C1-Phenanthrenes/anthracenes
Concen: 13.33 ng/mL m
RT: 36.116 min Scan# 4251
Delta R.T. -0.430 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:192 Resp: 1534

Ion	Ratio	Lower	Upper
192	100		
191	14.0	44.9	67.3#



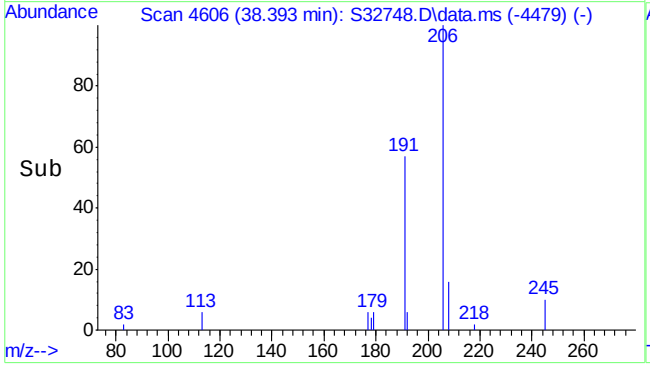


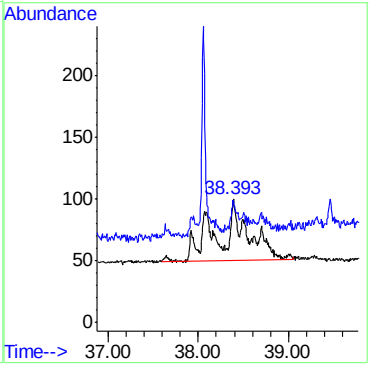


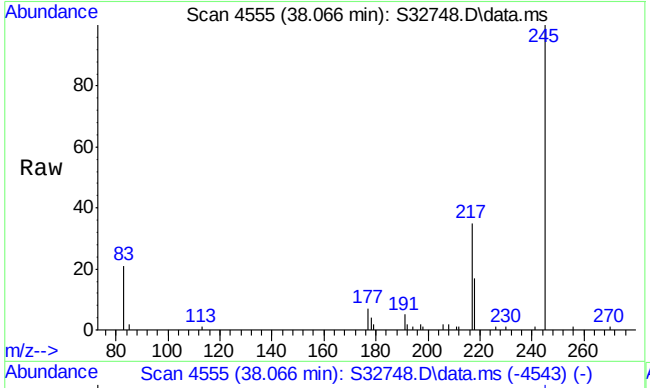
#68
C2-Phenanthrenes/anthracenes (unadj)
Concen: 10.13 ng/mL m
RT: 38.393 min Scan# 4606
Delta R.T. 0.019 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:206 Resp: 1166

Ion	Ratio	Lower	Upper
206	100		
191	0.0	44.7	67.1#



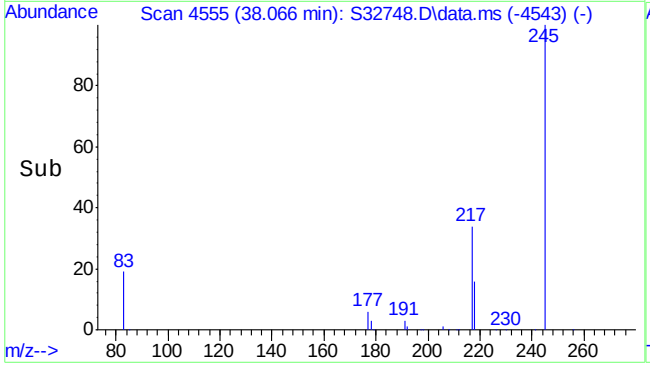


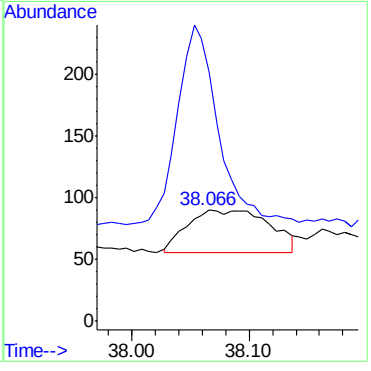


#69
C2-Phenanthrenes/anthracenes (5aA)
Concen: 1.43 µg/mL m
RT: 38.066 min Scan# 4555
Delta R.T. -0.122 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:206 Resp: 165

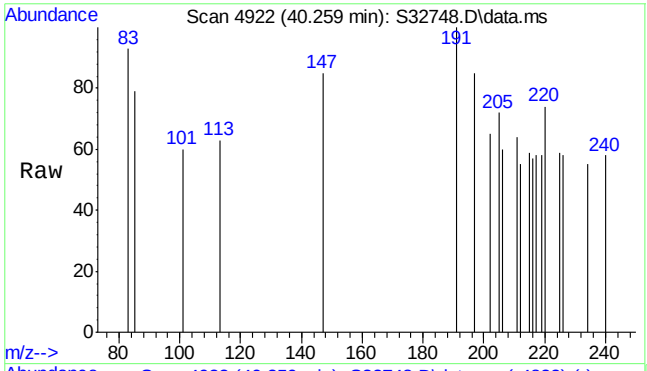
Ion	Ratio	Lower	Upper
206	100		
191	0.0	61.9	92.9#





9.1.2

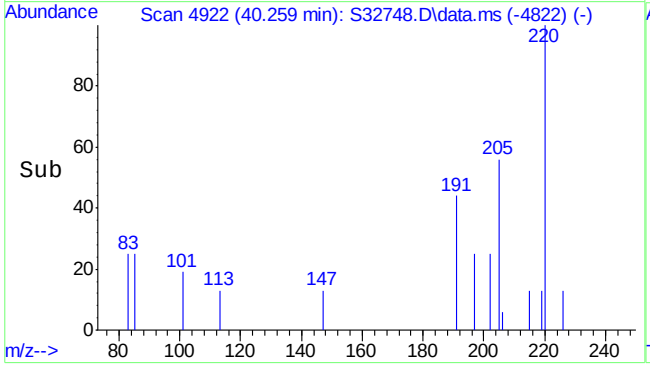
9

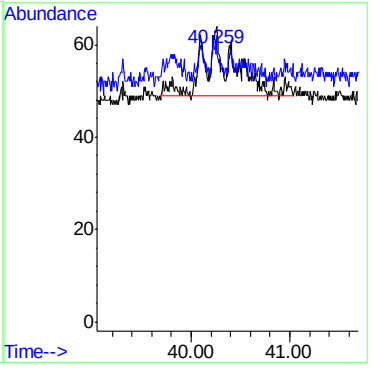


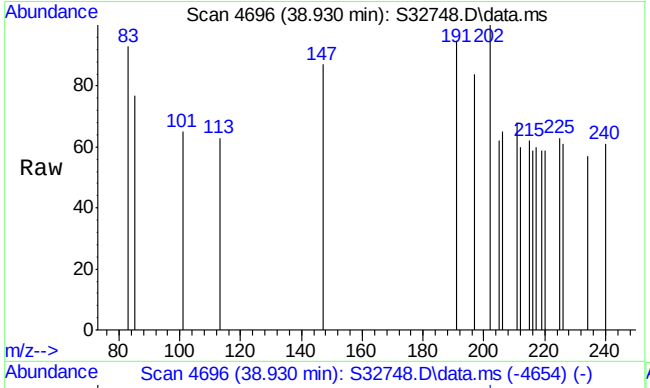
#70
C3-Phenanthrenes/anthracenes
Concen: 2.72 ng/mL m
RT: 40.259 min Scan# 4922
Delta R.T. 0.041 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:220 Resp: 313

Ion	Ratio	Lower	Upper
220	100		
205	0.0	42.1	63.1#



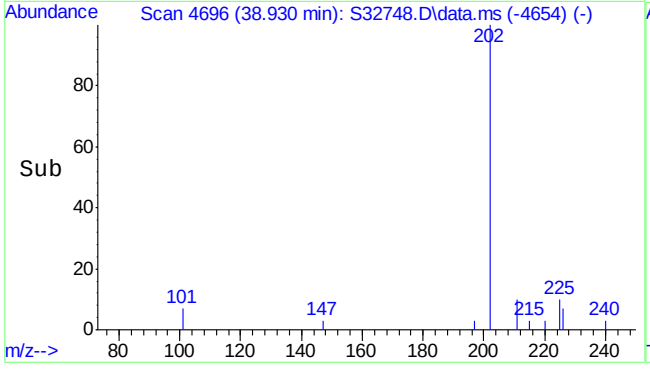


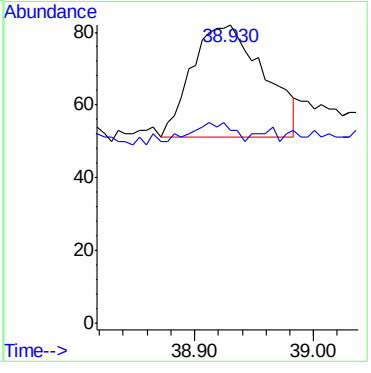


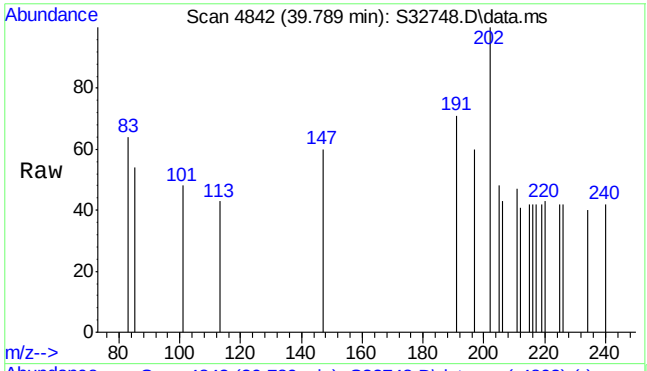
#78
Fluoranthene
Concen: 1.17 ng/mL m
RT: 38.930 min Scan# 4696
Delta R.T. 0.047 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:202 Resp: 131

Ion	Ratio	Lower	Upper
202	100		
101	0.0	10.0	15.0#



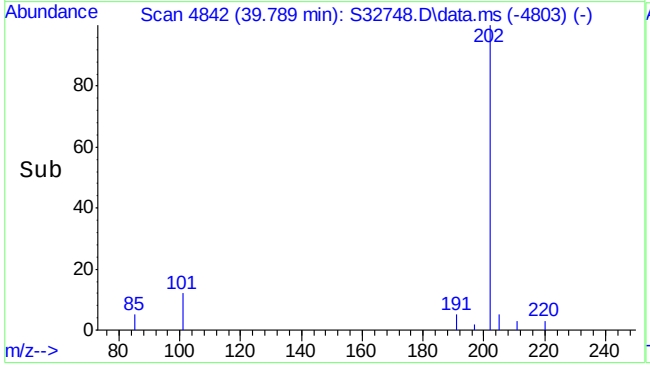


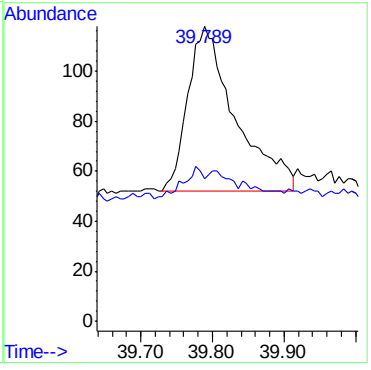


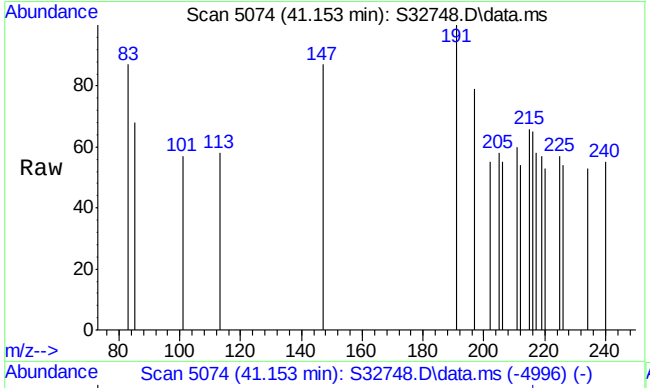
#79
Pyrene
Concen: 2.63 ng/mL
RT: 39.789 min Scan# 4842
Delta R.T. 0.030 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:202 Resp: 306

Ion	Ratio	Lower	Upper
202	100		
101	0.0	11.4	17.0#



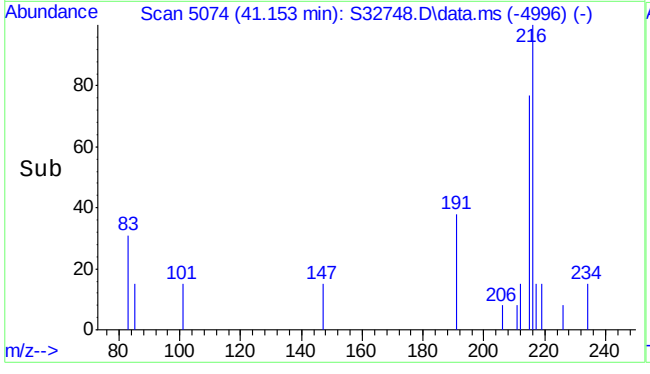


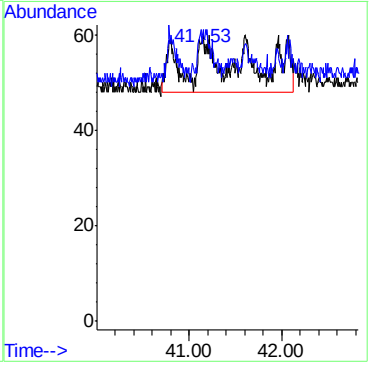


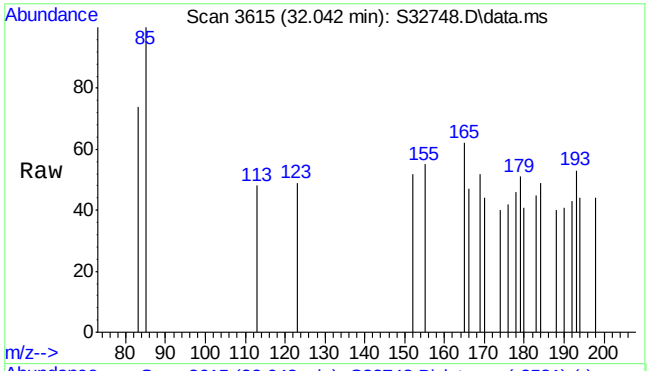
#80
C1-Fluoranthenes/pyrenes
Concen: 4.15 ng/mL m
RT: 41.153 min Scan# 5074
Delta R.T. -0.024 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion:216 Resp: 482

Ion	Ratio	Lower	Upper
216	100		
215	0.0	76.5	114.7#



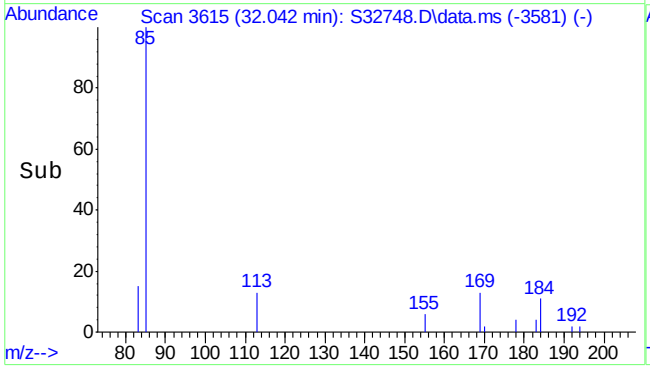


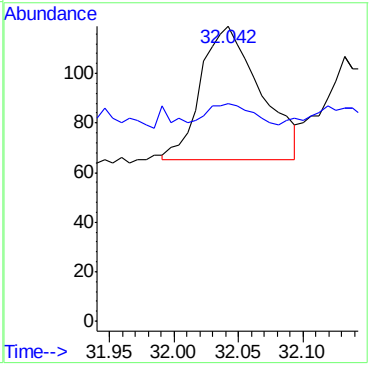


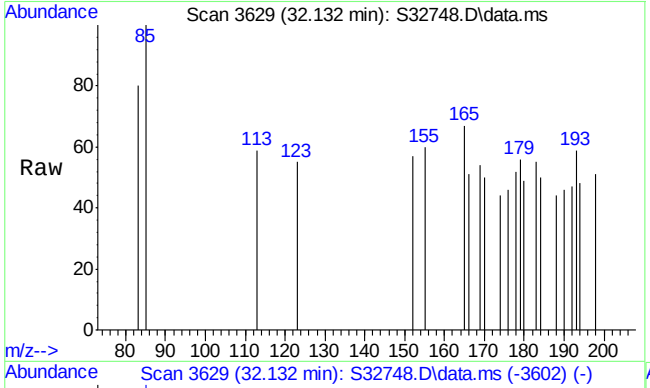
#103
C-17
Concen: 7.12 µg/mL m
RT: 32.042 min Scan# 3615
Delta R.T. 0.019 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 85 Resp: 174

Ion	Ratio	Lower	Upper
85	100		
83	0.0	12.3	18.5#



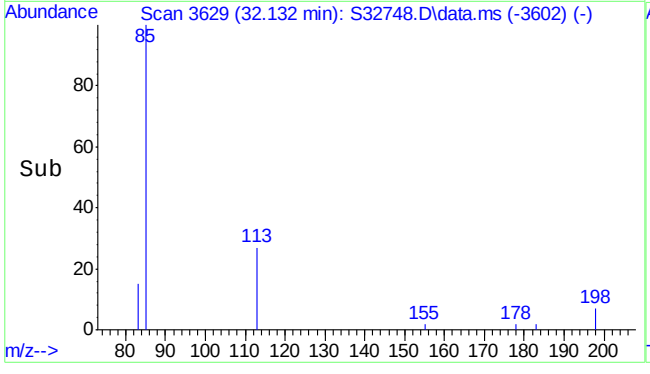


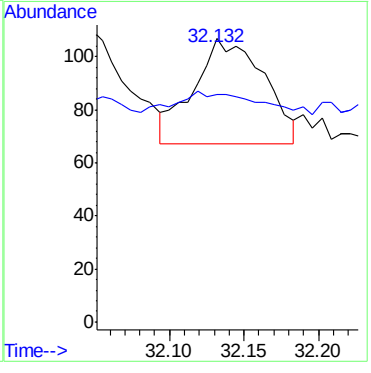


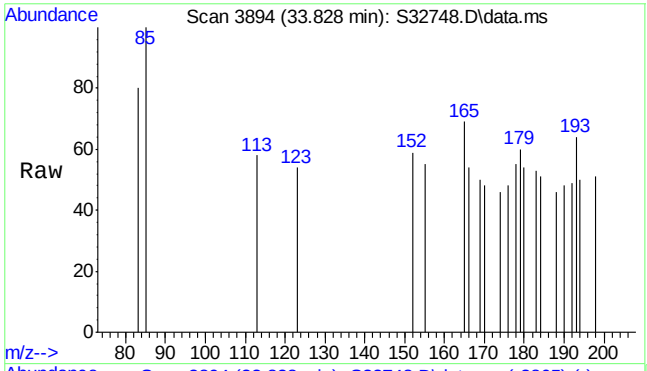
#104
Pristane
Concen: 7.11 µg/mL m
RT: 32.132 min Scan# 3629
Delta R.T. -0.026 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 85 Resp: 131

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#



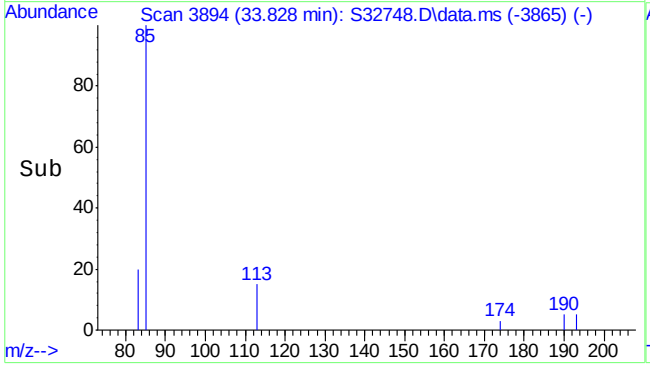


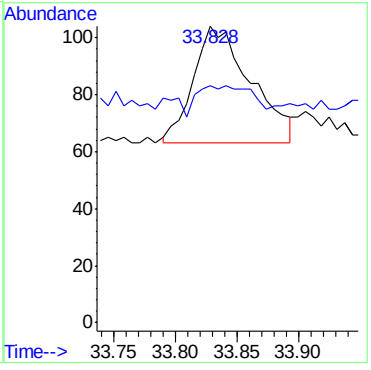


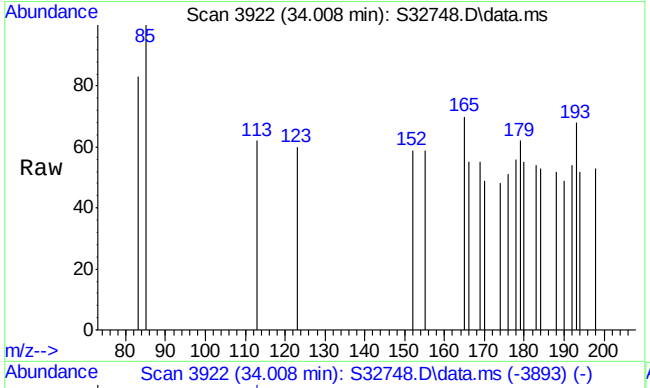
#105
C-18
Concen: 5.29 µg/mL m
RT: 33.828 min Scan# 3894
Delta R.T. -0.013 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 85 Resp: 132

Ion	Ratio	Lower	Upper
85	100		
83	0.0	17.8	26.6#



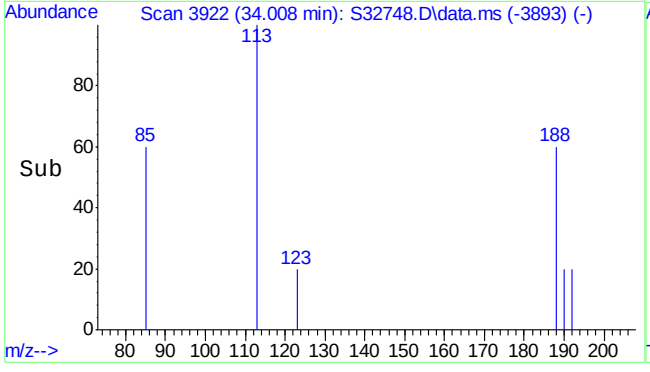


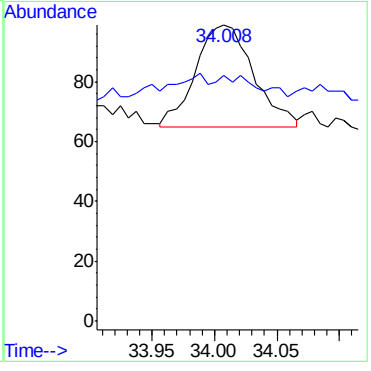


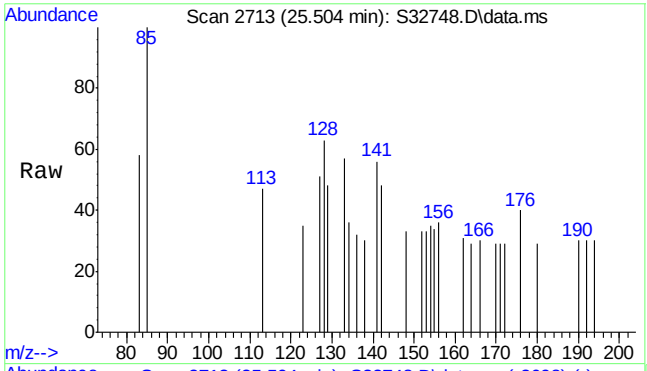
#106
Phytane
Concen: 4.45 µg/mL m
RT: 34.008 min Scan# 3922
Delta R.T. -0.013 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 85 Resp: 109

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#



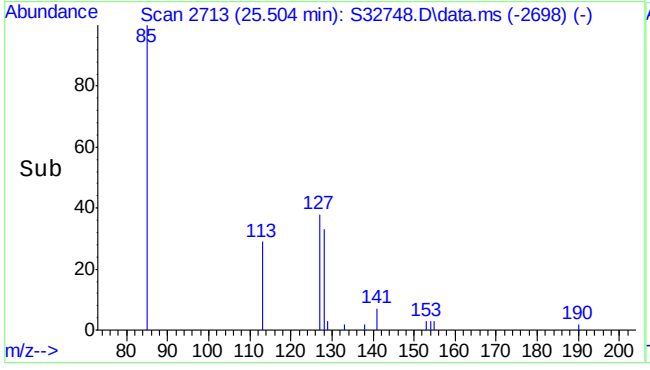


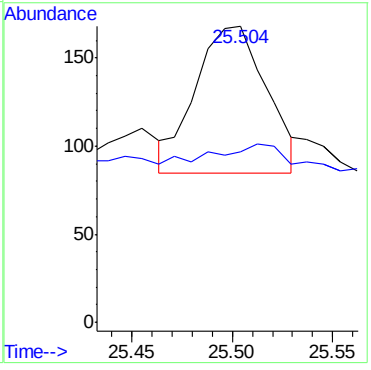


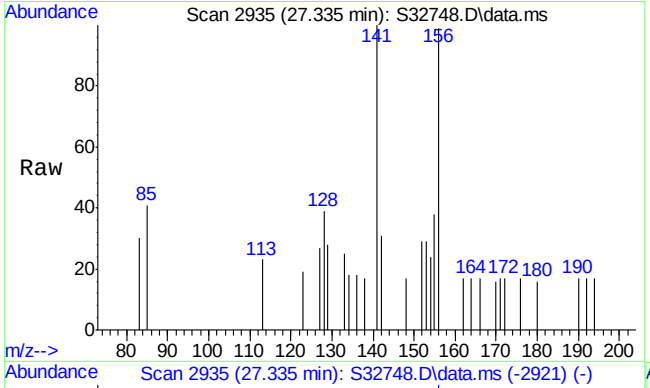
#107
2,6,10-Trimethyldodecane (1380)
Concen: 8.33 µg/mL m
RT: 25.504 min Scan# 2713
Delta R.T. -0.075 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 85 Resp: 204

Ion	Ratio	Lower	Upper
85	100		
83	0.0	13.0	19.6#



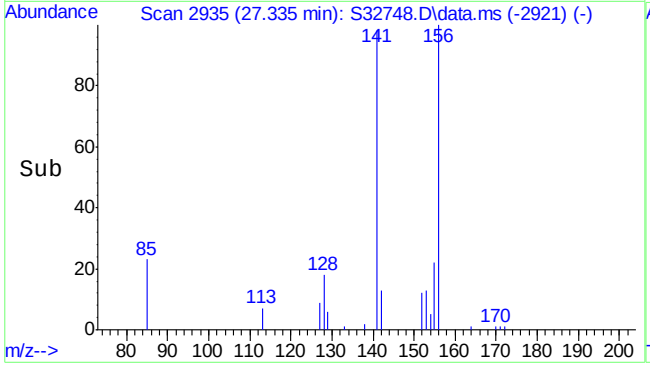


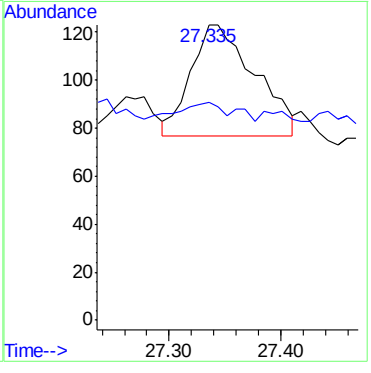


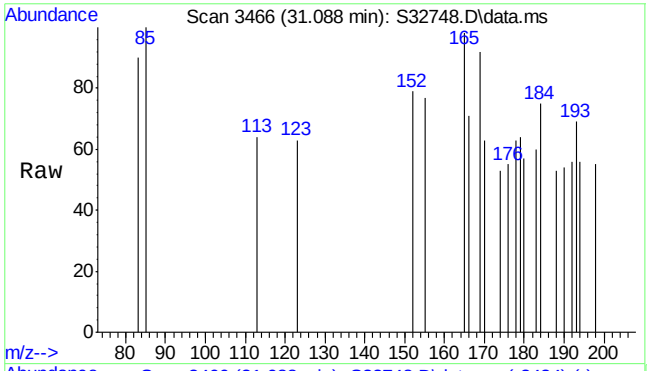
#108
2,6,10-Trimethyltridecane (1470)
Concen: 7.47 µg/mL m
RT: 27.335 min Scan# 2935
Delta R.T. -0.083 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 85 Resp: 183

Ion	Ratio	Lower	Upper
85	100		
83	0.0	13.0	19.6#



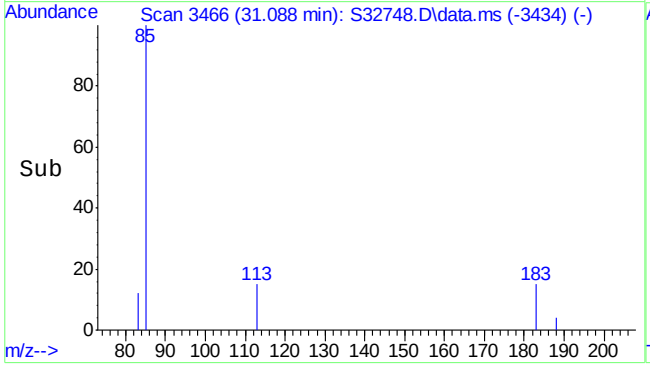


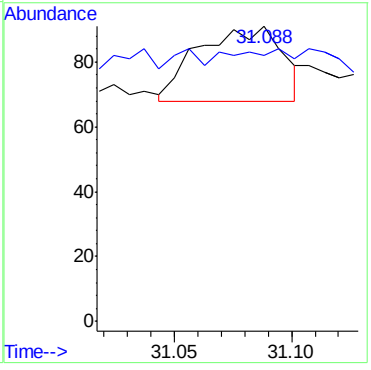


#109
2,6,10-Trimethylpentadecane (1650)
Concen: 2.33 µg/mL m
RT: 31.088 min Scan# 3466
Delta R.T. 0.006 min
Lab File: S32748.D
Acq: 28 May 2013 5:41 pm

Tgt Ion: 85 Resp: 57

Ion	Ratio	Lower	Upper
85	100		
83	0.0	21.2	31.8#





9.1.2

9

Manual Integrations APPROVED (compounds with "m" flag)
James Roush
05/31/13 15:01

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32749.D
Acq On : 28 May 2013 6:55 pm
Operator : danielb
Sample : mc20162-3
Misc : op33312,mss1429,0.0154,,,2,50
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 29 10:46:50 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	28.180	164	56573	1000.00	ng/mL	-0.01
System Monitoring Compounds						
2) Toluene-d8	9.313	98	6055	96.43	µg/mL	0.00
Spiked Amount 1000.000			Recovery = 9.64%			
3) Naphthalene-d8	21.224	136	2684	23.40	ng/mL	0.00
Spiked Amount 1000.000	Range 1 - 0		Recovery = 2.34%#			
4) Phenanthrene-d10	34.059	188	2961m	32.79	ng/mL	0.03
Spiked Amount 1000.000			Recovery = 3.28%			
5) Perylene-d12	49.920	264	2626m	30.63	ng/mL	0.03
Spiked Amount 1000.000			Recovery = 3.06%			
Target Compounds						Qvalue
6) MTBE	5.488	73	659m	14.21	µg/mL	
7) Benzene	6.885	TIC	44402m	496.43	µg/mL	
8) C1-Benzene	9.414	92	113581	1269.88	µg/mL	99
9) C2-Benzenes	12.374	106	640746m	7163.79	µg/mL	
10) C3-Benzenes	16.019	120	722518m	8078.03	µg/mL	
11) C4-Benzenes	17.806	134	324141m	3624.02	µg/mL	
12) C5-Benzenes	20.096	148	82731m	924.96	µg/mL	
13) Methylcyclohexane	8.254	83	60969	1747.15	µg/mL	99
14) Toluene	9.414	91	193535	2312.39	µg/mL	100
15) Ethylbenzene	12.144	91	281729	2755.15	µg/mL	100
16) m,p-xylene	12.374	91	909560	11159.43	µg/mL	99
17) Styrene	13.015	104	590	9.75	µg/mL	92
18) o-Xylene	13.080	91	331515	4106.39	µg/mL	100
19) Isopropylbenzene	14.009	105	27152	285.30	µg/mL	99
20) n-Propylbenzene	14.859	91	156246	1211.78	µg/mL	98
21) 1,3,5-Trimethylbenzene	15.284	105	214645	2430.60	µg/mL	100
22) t-Butylbenzene	16.019	119	73609	847.74	µg/mL#	54
23) 1,2,4-Trimethylbenzene	16.019	105	641291	7103.20	µg/mL	99
24) sec-Butylbenzene	16.509	105	16520	142.61	µg/mL	99
25) 1,2,3-Trimethylbenzene	16.862	105	133773	1413.20	µg/mL	96
26) p-Isopropyltoluene	16.790	119	19441	190.30	µg/mL	91
27) n-Butylbenzene	17.755	91	52581	533.82	µg/mL#	53
28) trans-Decalin	17.834	96	277m	14.95	µg/mL	
29) cis-Decalin	19.073	96	166m	6.86	µg/mL	
30) C1-Decalins	19.347	152	515m	27.79	µg/mL	
31) C2-Decalins	20.780	166	337m	18.18	µg/mL	
34) Benzo(b)thiophene	21.512	134	5067m	47.42	µg/mL	
35) C1-Benzo(b)thiophenes	23.582	148	4983m	46.64	µg/mL	
36) C2-Benzo(b)thiophenes	26.560	162	990m	9.27	µg/mL	
39) Tetraethyl lead	20.370	208	458	62.05	µg/mL	98
44) Naphthalene	21.298	128	111046	811.80	ng/mL	100
45) 2-Methylnaphthalene	24.003	142	57707	680.49	ng/mL	99
46) 1-Methylnaphthalene	24.424	142	26406	309.09	ng/mL	100
47) C1-Naphthalenes	24.003	142	87684m	641.01	ng/mL	
48) C2-Naphthalenes	26.849	156	24221m	177.07	ng/mL	
49) C3-Naphthalenes	29.201	170	5881m	42.99	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32749.D
Acq On : 28 May 2013 6:55 pm
Operator : danielb
Sample : mc20162-3
Misc : op33312,mss1429,0.0154,,,2,50
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 29 10:46:50 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

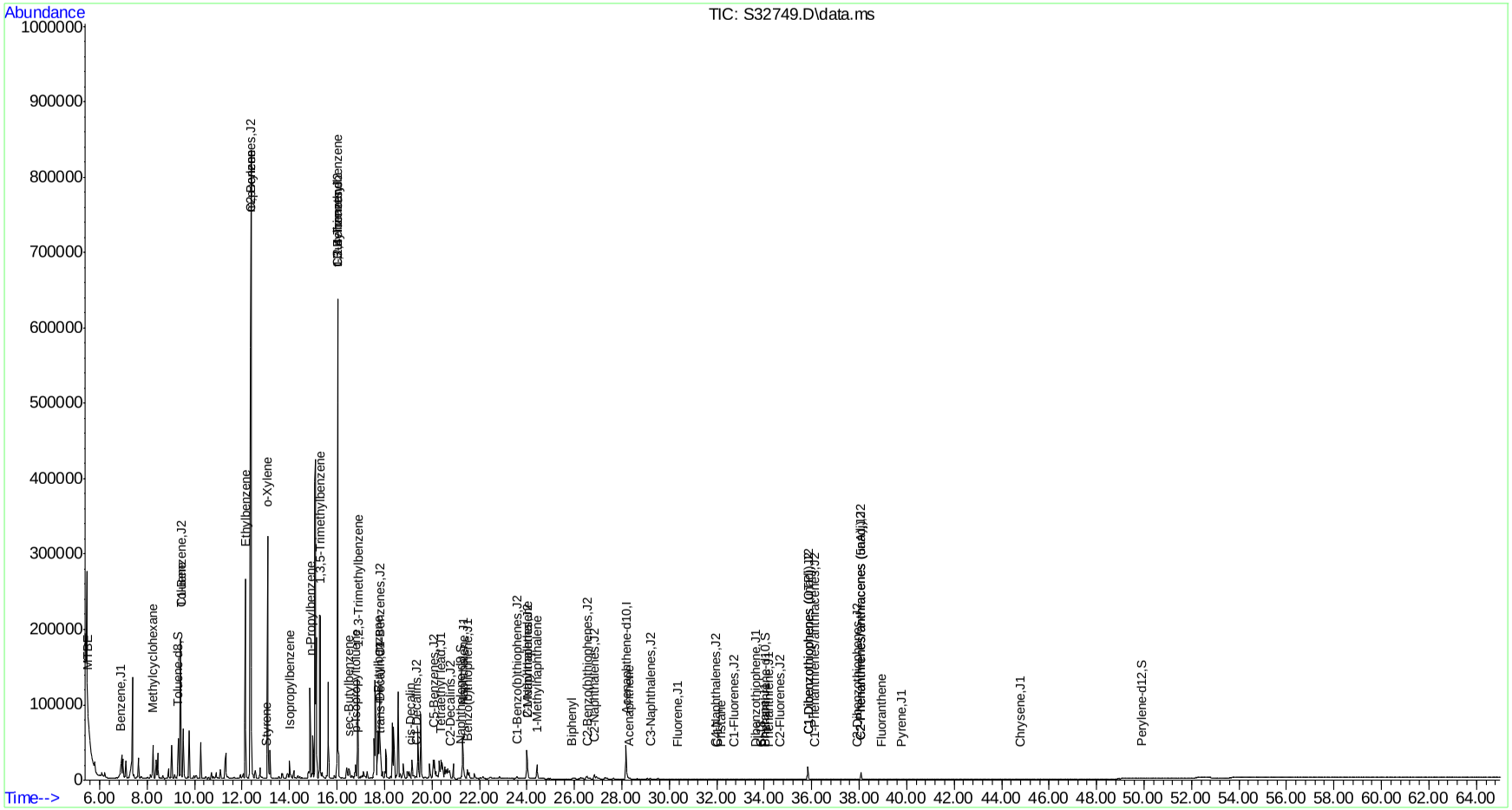
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
50)	C4-Naphthalenes	31.965	184	1311m	9.58	ng/mL	
51)	Biphenyl	25.908	154	2206	19.16	µg/mL	98
53)	Acenaphthene	28.309	154	201	2.71	ng/mL	93
55)	Fluorene	30.358	166	280	3.19	ng/mL	87
56)	C1-Fluorenes	32.721	180	327m	3.73	ng/mL	
57)	C2-Fluorenes	34.661	194	424m	4.84	ng/mL	
59)	Dibenzothiophene	33.655	184	71m	0.60	ng/mL	
60)	C1-Dibenzothiophenes (...	35.828	198	317m	2.66	ng/mL	
61)	C1-Dibenzothiophenes (...	35.828	198	142m	1.19	µg/mL	
62)	C2-Dibenzothiophenes	37.893	212	124m	1.04	ng/mL	
65)	Phenanthrene	34.155	178	800	6.40	ng/mL#	63
67)	C1-Phenanthrenes/anthr...	36.123	192	971m	7.77	ng/mL	
68)	C2-Phenanthrenes/anthr...	38.059	206	835m	6.68	ng/mL	
69)	C2-Phenanthrenes/anthr...	38.059	206	152m	1.22	µg/mL	
78)	Fluoranthene	38.912	202	207	1.71	ng/mL#	68
79)	Pyrene	39.783	202	331	2.62	ng/mL#	65
89)	Chrysene	44.768	228	106m	1.03	ng/mL	
103)	C-17	32.036	85	151m	5.69	µg/mL	
104)	Pristane	32.145	85	99m	4.95	µg/mL	
105)	C-18	33.828	85	116m	4.28	µg/mL	
106)	Phytane	34.001	85	87m	3.27	µg/mL	

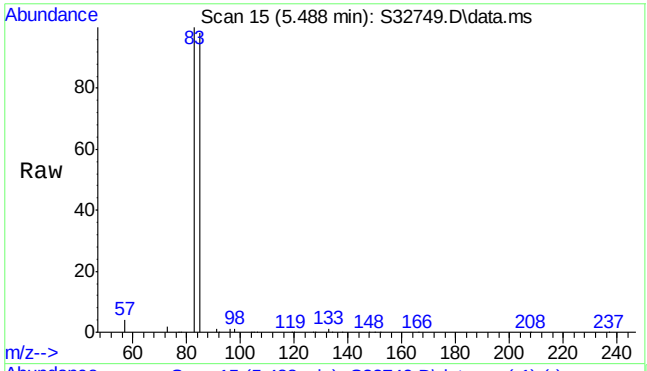
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32749.D
Acq On : 28 May 2013 6:55 pm
Operator : danielb
Sample : mc20162-3
Misc : op33312,mss1429,0.0154,,,2,50
ALS Vial : 8 Sample Multiplier: 1

Quant Time: May 29 10:46:50 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

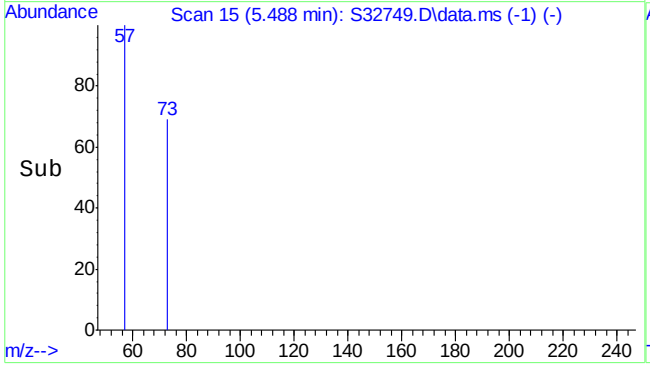


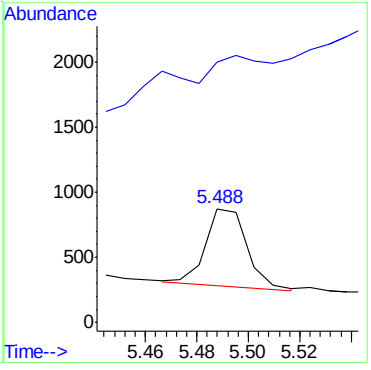


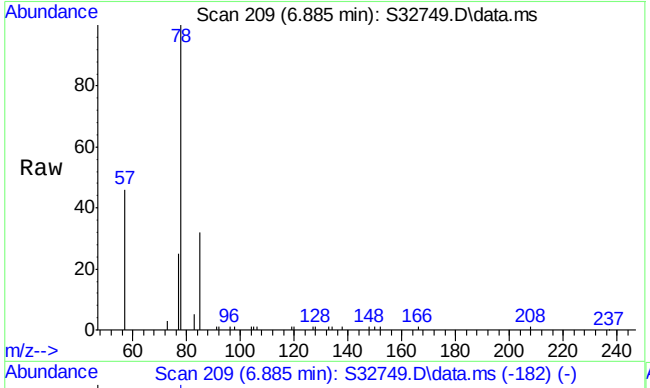
#6
MTBE
Concen: 14.21 µg/mL m
RT: 5.488 min Scan# 15
Delta R.T. -0.007 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion: 73 Resp: 659

Ion	Ratio	Lower	Upper
73	100		
57	337.6	18.5	27.7#

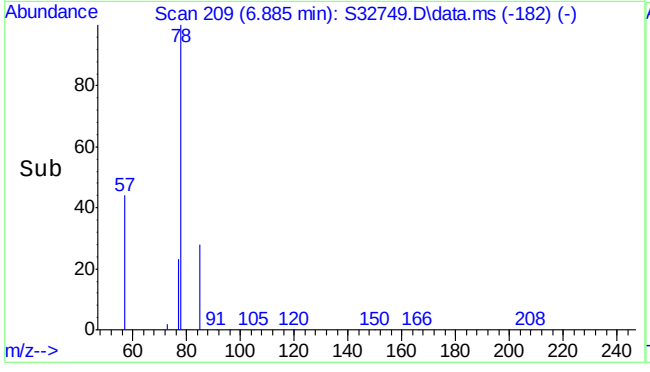


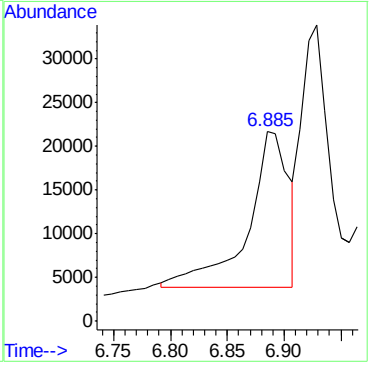


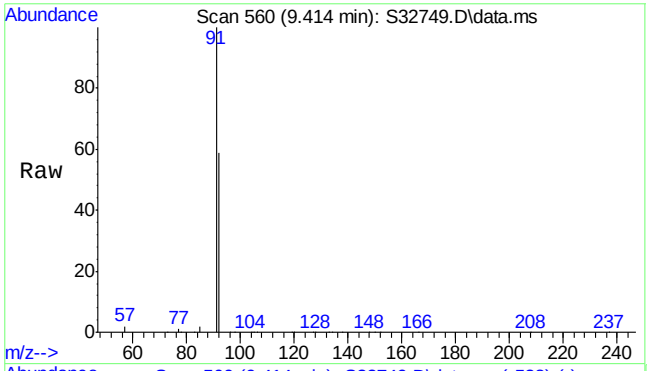


#7
Benzene
Concen: 496.43 µg/mL m
RT: 6.885 min Scan# 209
Delta R.T. -0.007 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:TIC Resp: 44402



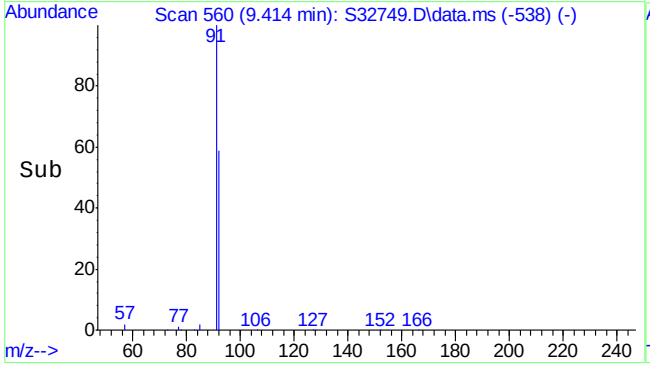


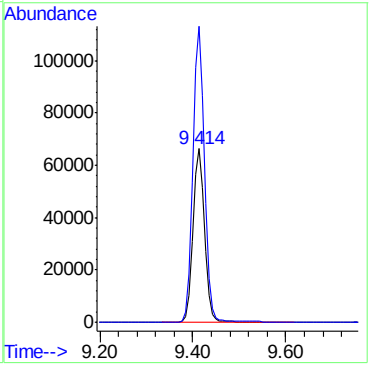


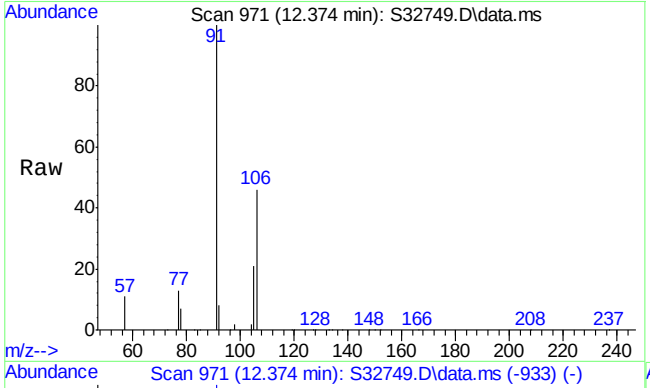
#8
C1-Benzene
Concen: 1269.88 µg/mL
RT: 9.414 min Scan# 560
Delta R.T. -0.043 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion: 92 Resp: 113581

Ion	Ratio	Lower	Upper
92	100		
91	170.5	135.6	203.4



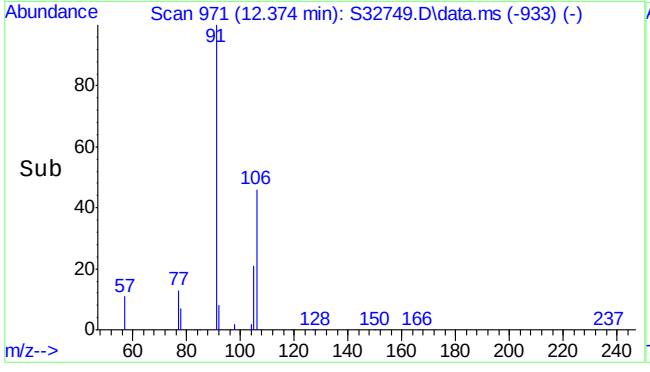


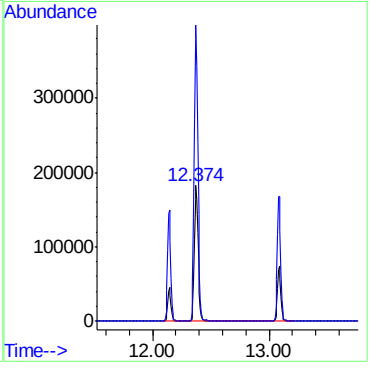


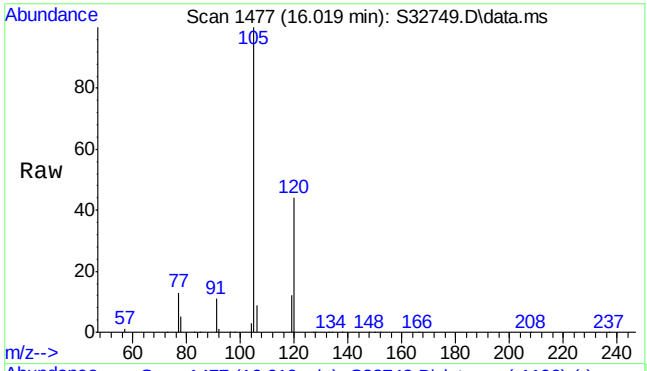
#9
C2-Benzenes
Concen: 7163.79 µg/mL m
RT: 12.374 min Scan# 971
Delta R.T. -0.015 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:106 Resp: 640746

Ion	Ratio	Lower	Upper
106	100		
91	142.0	174.9	262.3#



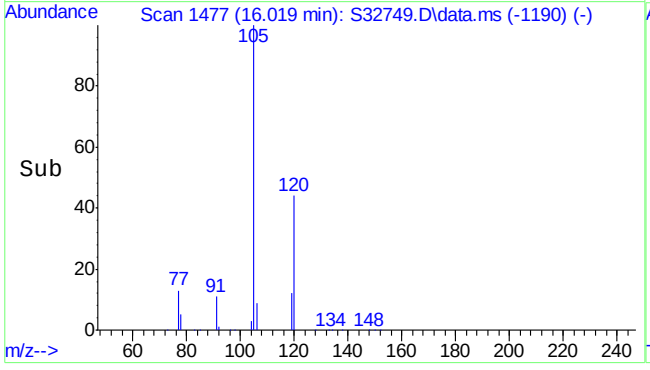


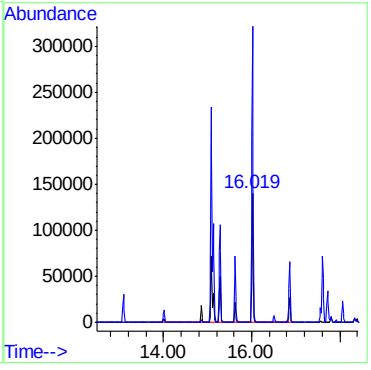


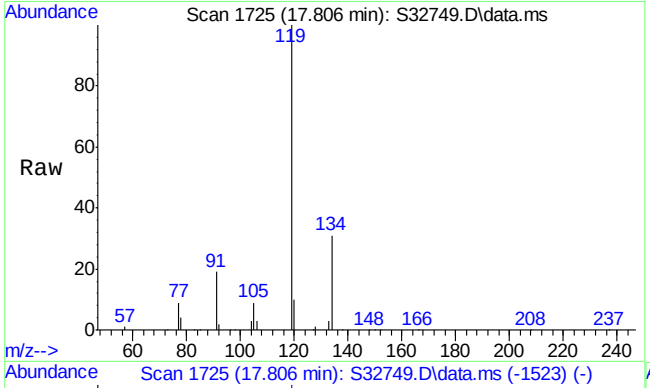
#10
C3-Benzenes
Concen: 8078.03 µg/mL m
RT: 16.019 min Scan# 1477
Delta R.T. -0.015 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:120 Resp: 722518

Ion	Ratio	Lower	Upper
120	100		
105	88.9	181.4	272.2#



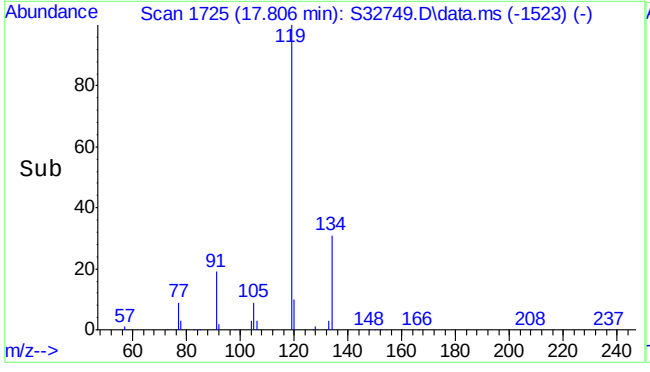


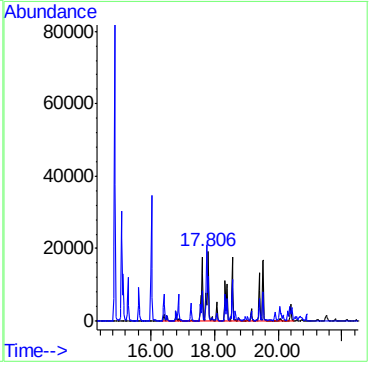


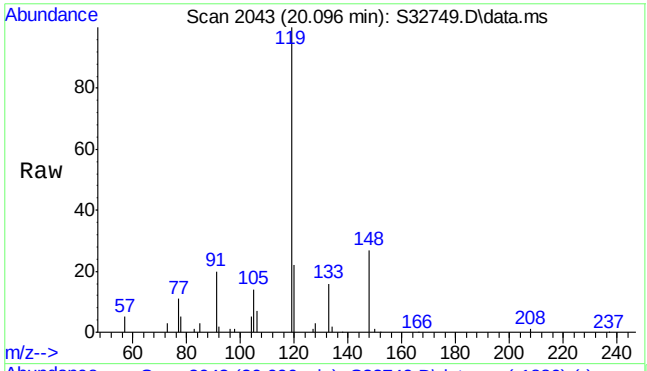
#11
C4-Benzenes
Concen: 3624.02 µg/mL m
RT: 17.806 min Scan# 1725
Delta R.T. -2.601 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:134 Resp: 324141

Ion	Ratio	Lower	Upper
134	100		
91	0.0	37.2	55.8#



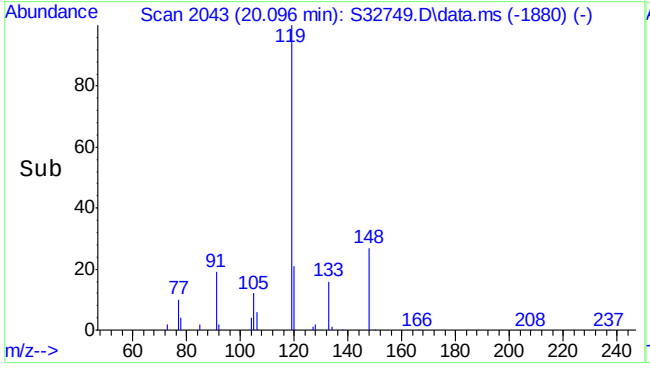


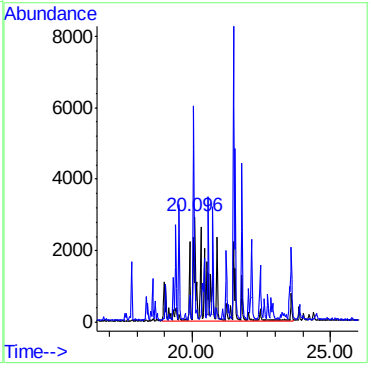


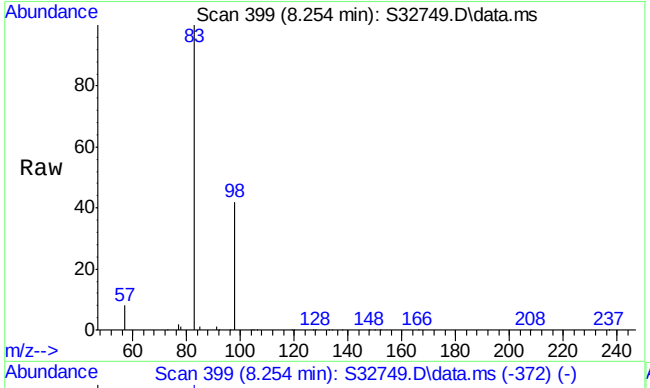
#12
C5-Benzenes
Concen: 924.96 µg/mL m
RT: 20.096 min Scan# 2043
Delta R.T. -0.015 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:148 Resp: 82731

Ion	Ratio	Lower	Upper
148	100		
133	0.0	134.0	201.0#



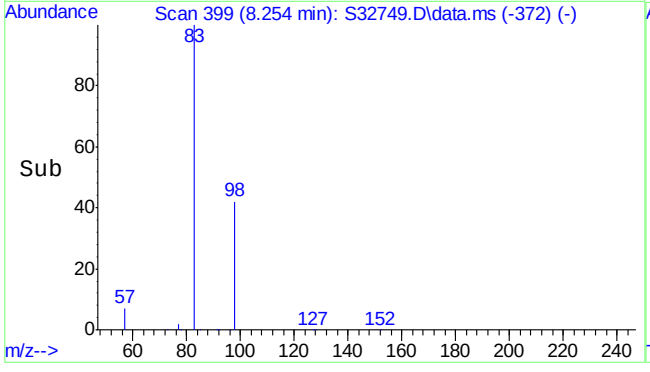


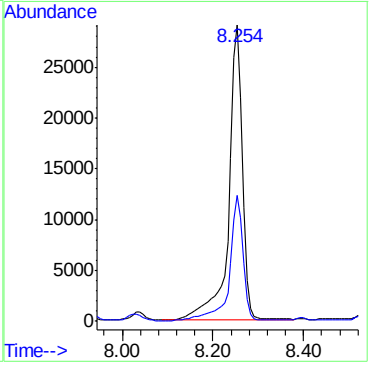


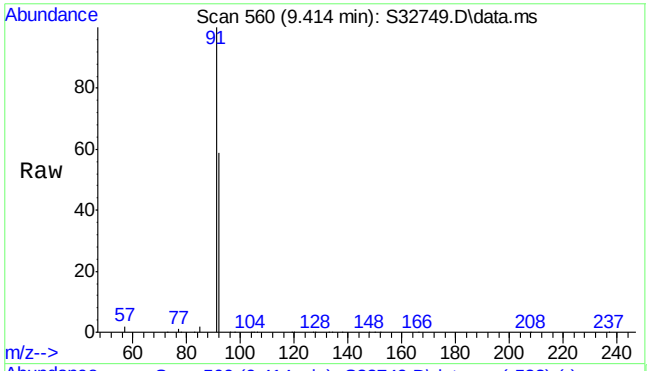
#13
Methylcyclohexane
Concen: 1747.15 µg/mL
RT: 8.254 min Scan# 399
Delta R.T. -0.007 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion: 83 Resp: 60969

Ion	Ratio	Lower	Upper
83	100		
98	41.8	34.0	51.0



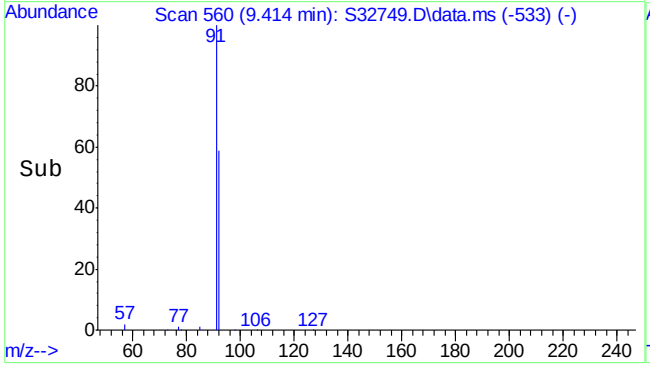


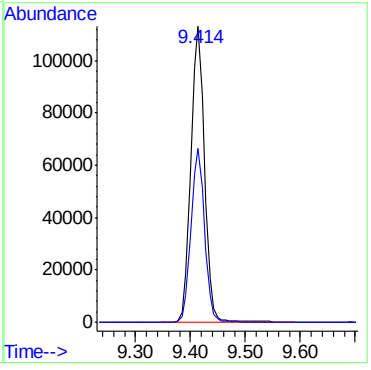


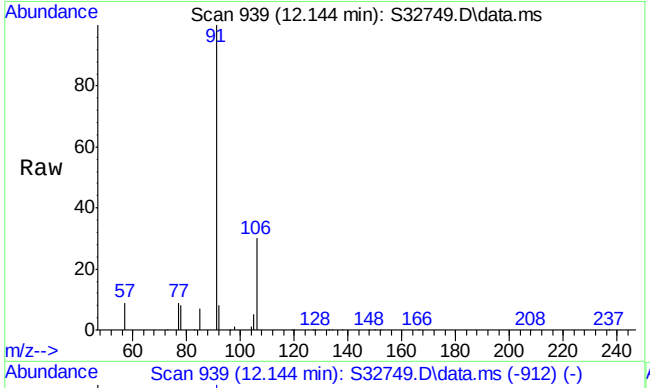
#14
Toluene
Concen: 2312.39 µg/mL
RT: 9.414 min Scan# 560
Delta R.T. -0.007 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion: 91 Resp: 193535

Ion	Ratio	Lower	Upper
91	100		
92	58.7	46.8	70.2



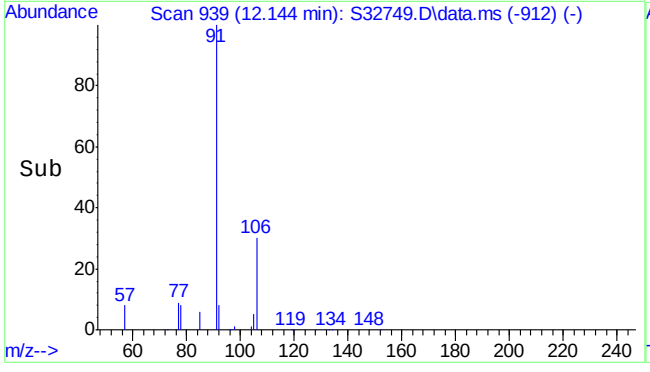


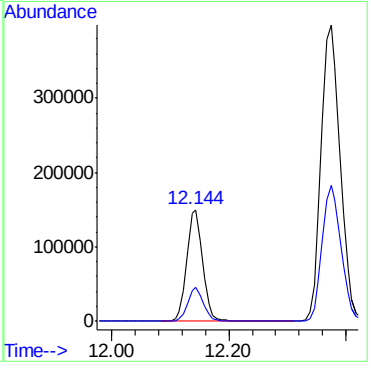


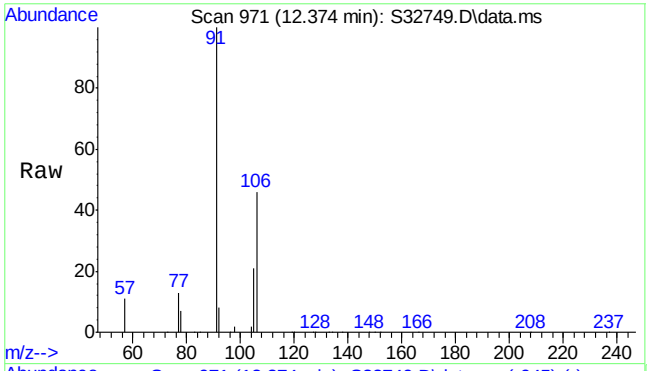
#15
Ethylbenzene
Concen: 2755.15 µg/mL
RT: 12.144 min Scan# 939
Delta R.T. -0.007 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion: 91 Resp: 281729

Ion	Ratio	Lower	Upper
91	100		
106	29.7	23.8	35.6



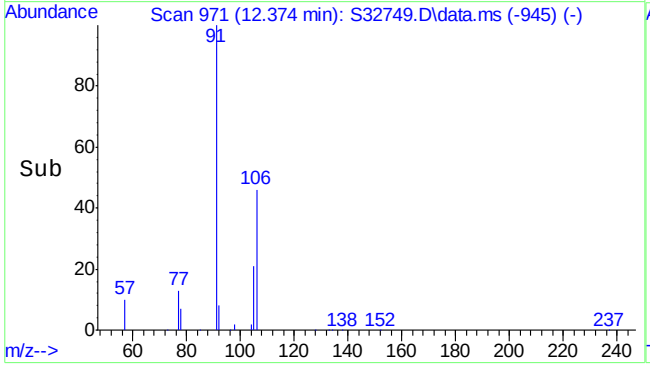


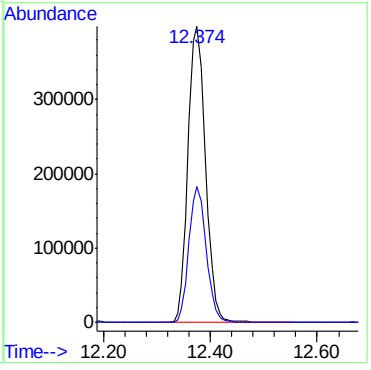


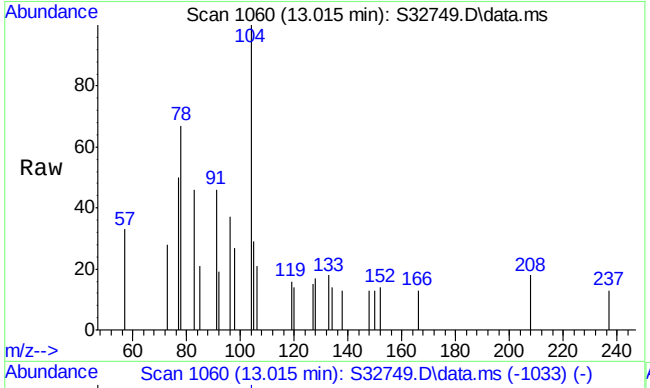
#16
m,p-xylene
Concen: 11159.43 µg/mL
RT: 12.374 min Scan# 971
Delta R.T. -0.014 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion: 91 Resp: 909560

Ion	Ratio	Lower	Upper
91	100		
106	45.4	36.6	55.0



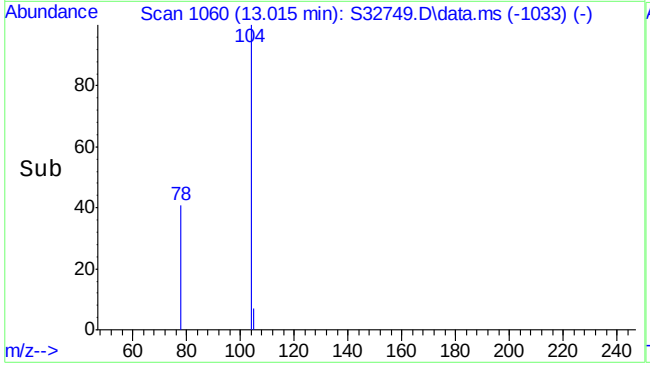


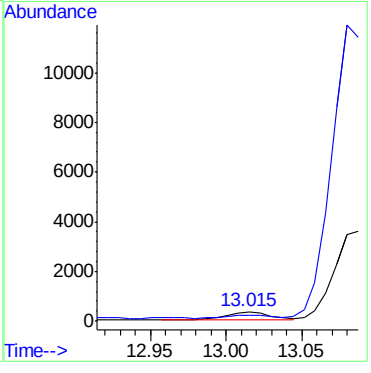


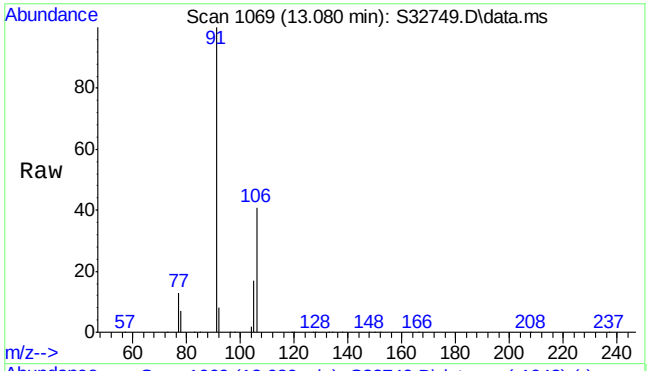
#17
Styrene
Concen: 9.75 µg/mL
RT: 13.015 min Scan# 1060
Delta R.T. -0.007 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:104 Resp: 590

Ion	Ratio	Lower	Upper
104	100		
78	41.9	37.7	56.5



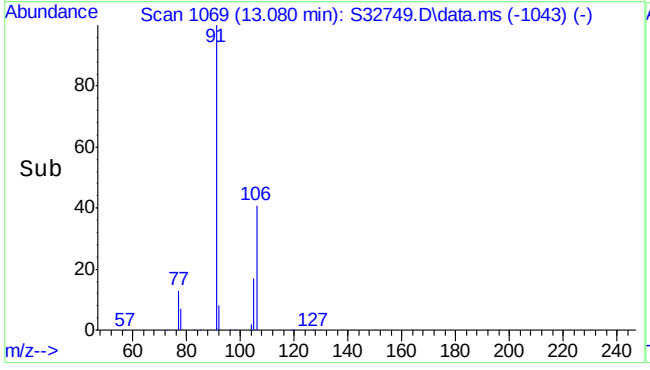


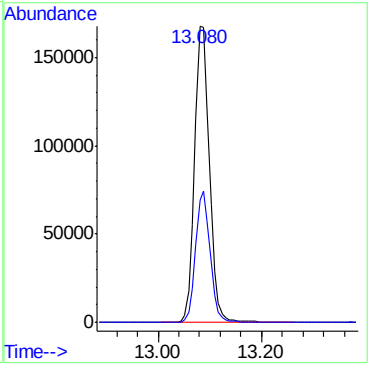


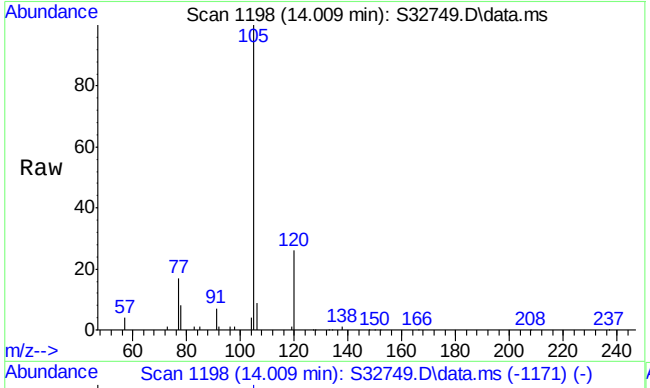
#18
o-Xylene
Concen: 4106.39 µg/mL
RT: 13.080 min Scan# 1069
Delta R.T. -0.014 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion: 91 Resp: 331515

Ion	Ratio	Lower	Upper
91	100		
106	43.1	34.5	51.7



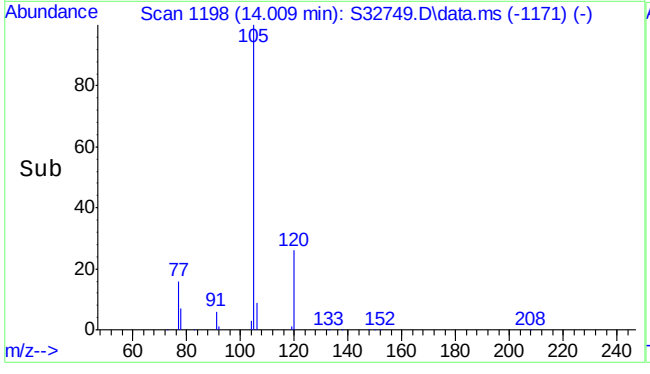


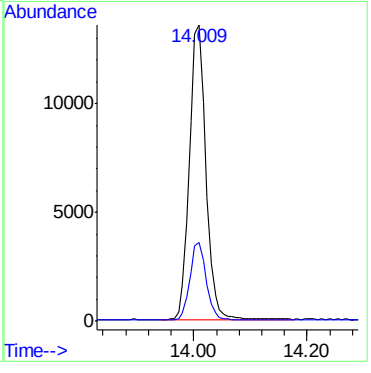


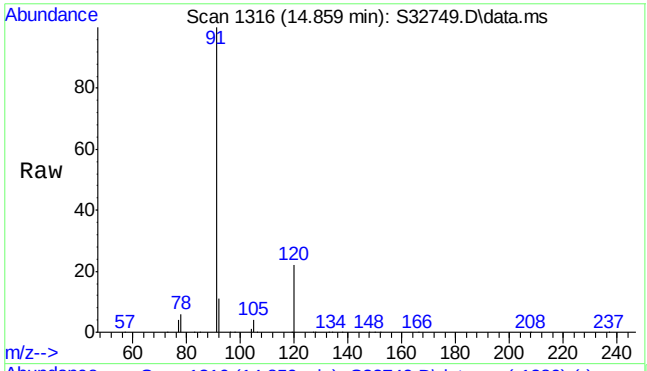
#19
Isopropylbenzene
Concen: 285.30 µg/mL
RT: 14.009 min Scan# 1198
Delta R.T. -0.007 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:105 Resp: 27152

Ion	Ratio	Lower	Upper
105	100		
120	26.0	21.1	31.7



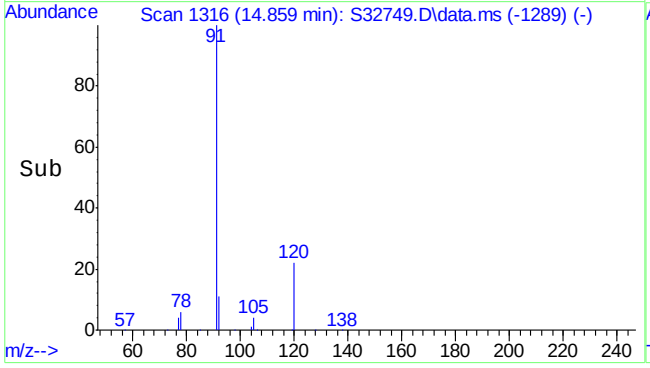


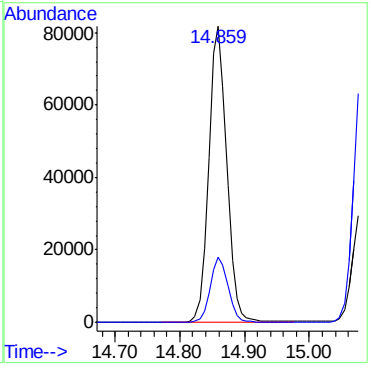


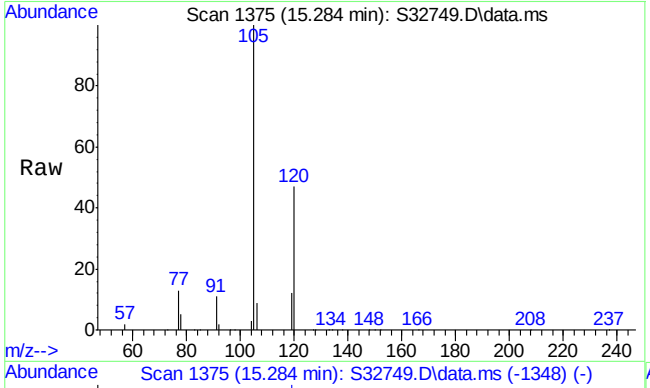
#20
n-Propylbenzene
Concen: 1211.78 µg/mL
RT: 14.859 min Scan# 1316
Delta R.T. -0.007 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion: 91 Resp: 156246

Ion	Ratio	Lower	Upper
91	100		
120	21.9	17.0	25.4



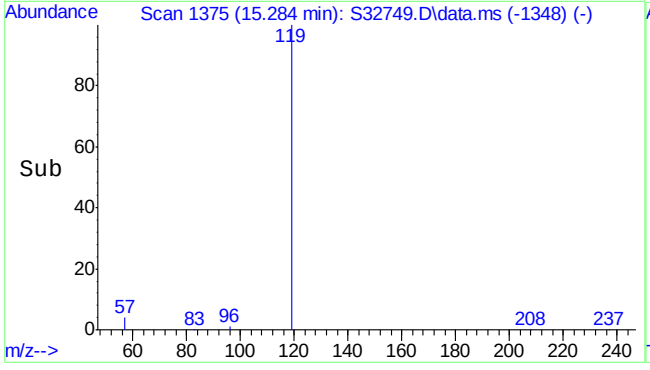


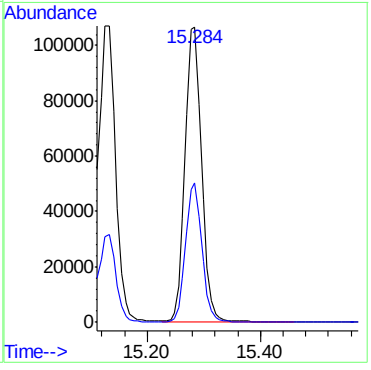


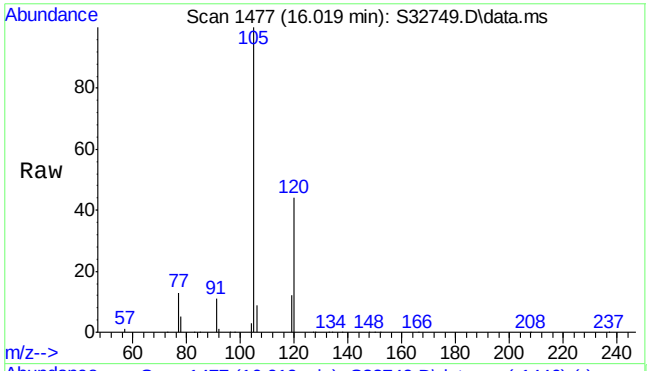
#21
1,3,5-Trimethylbenzene
Concen: 2430.60 µg/mL
RT: 15.284 min Scan# 1375
Delta R.T. -0.007 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:105 Resp: 214645

Ion	Ratio	Lower	Upper
105	100		
120	46.3	37.1	55.7



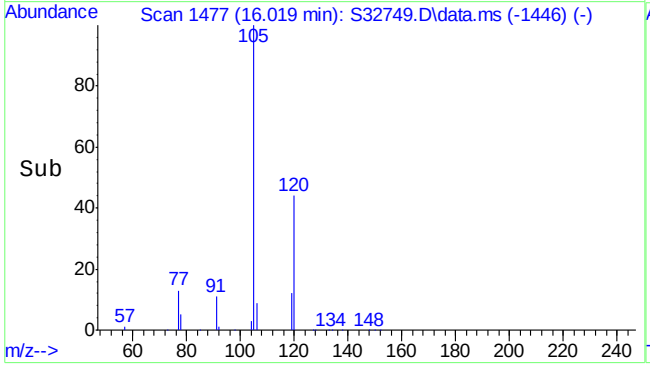


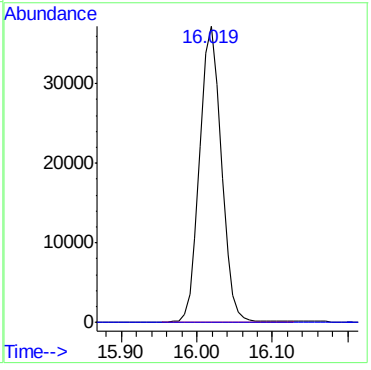


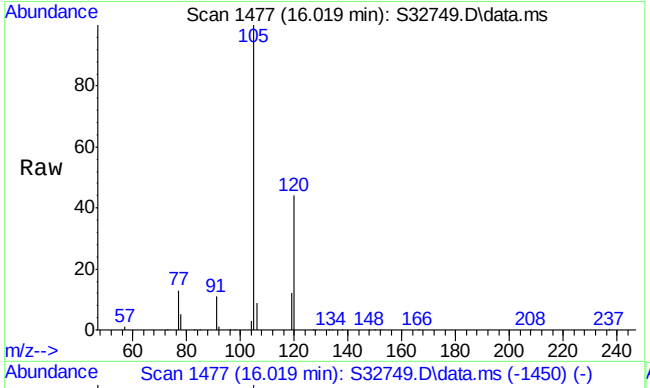
#22
t-Butylbenzene
Concen: 847.74 µg/mL
RT: 16.019 min Scan# 1477
Delta R.T. 0.022 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:119 Resp: 73609

Ion	Ratio	Lower	Upper
119	100		
134	0.0	17.6	26.4#



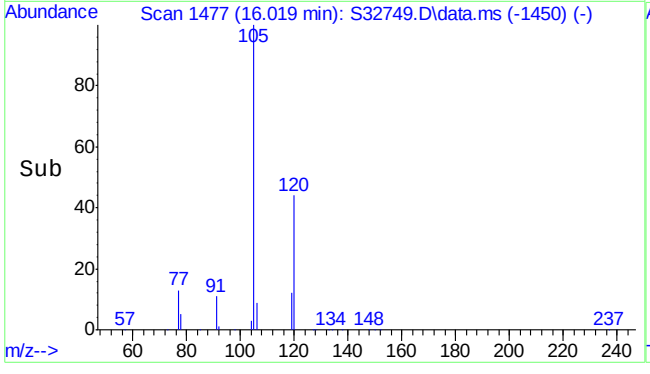


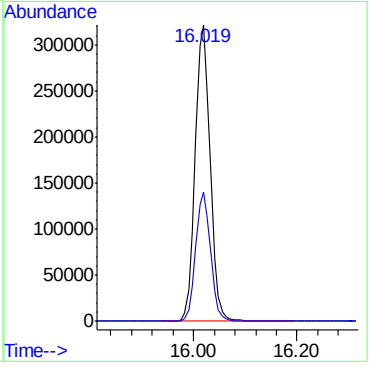


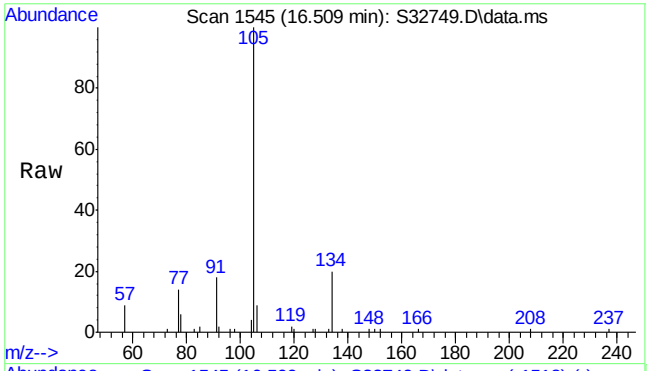
#23
1,2,4-Trimethylbenzene
Concen: 7103.20 µg/mL
RT: 16.019 min Scan# 1477
Delta R.T. -0.007 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:105 Resp: 641291

Ion	Ratio	Lower	Upper
105	100		
120	43.4	35.1	52.7



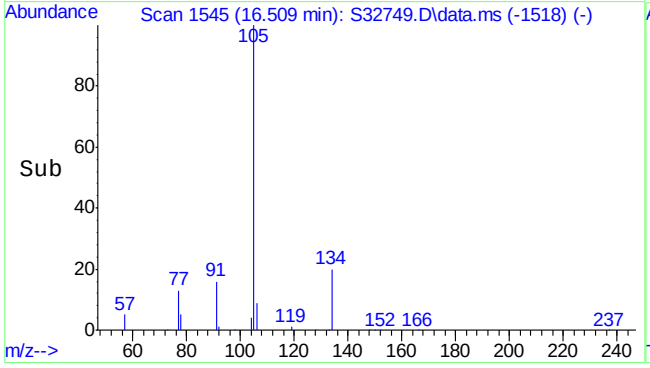


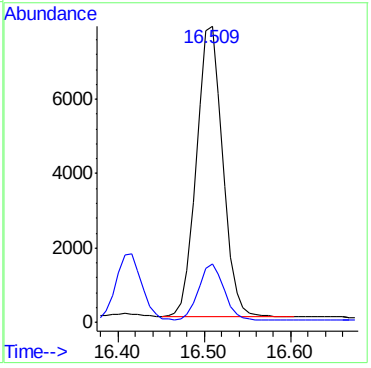


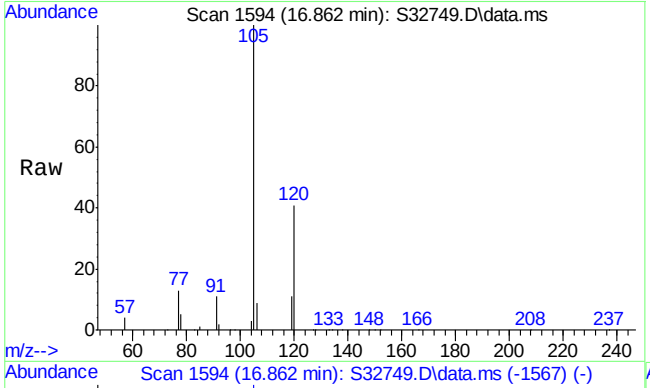
#24
sec-Butylbenzene
Concen: 142.61 µg/mL
RT: 16.509 min Scan# 1545
Delta R.T. -0.007 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:105 Resp: 16520

Ion	Ratio	Lower	Upper
105	100		
134	19.0	15.4	23.2



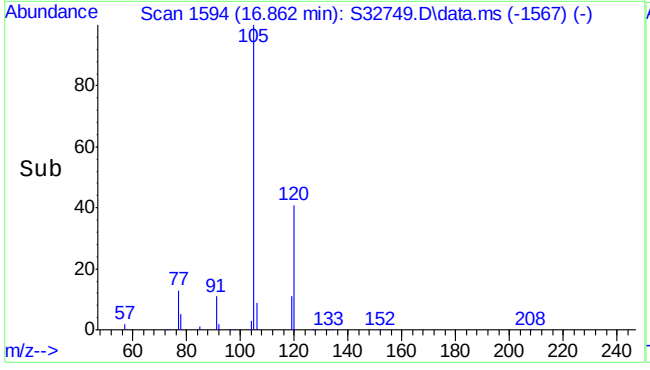


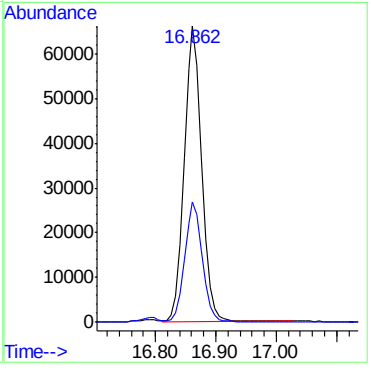


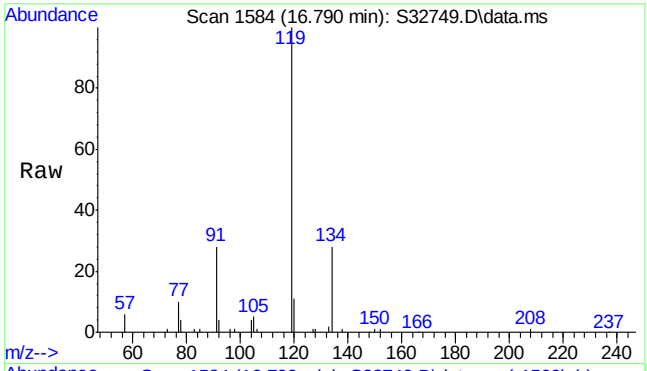
#25
1,2,3-Trimethylbenzene
Concen: 1413.20 µg/mL
RT: 16.862 min Scan# 1594
Delta R.T. -0.007 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:105 Resp: 133773

Ion	Ratio	Lower	Upper
105	100		
120	40.8	34.6	52.0



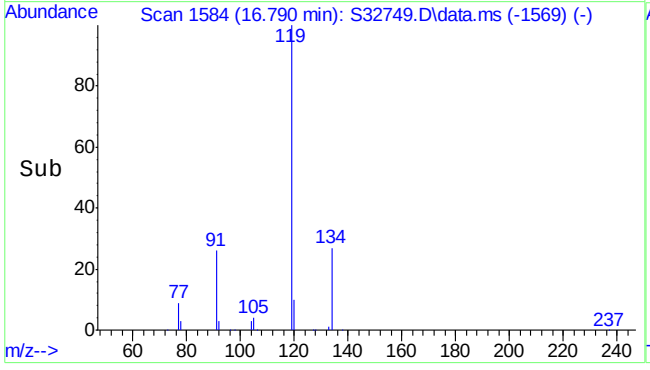


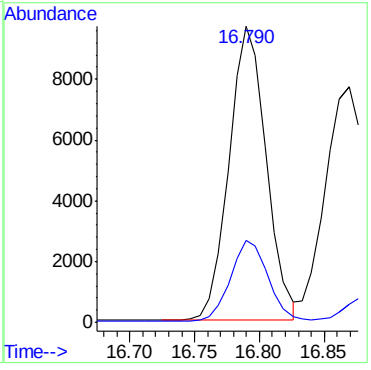


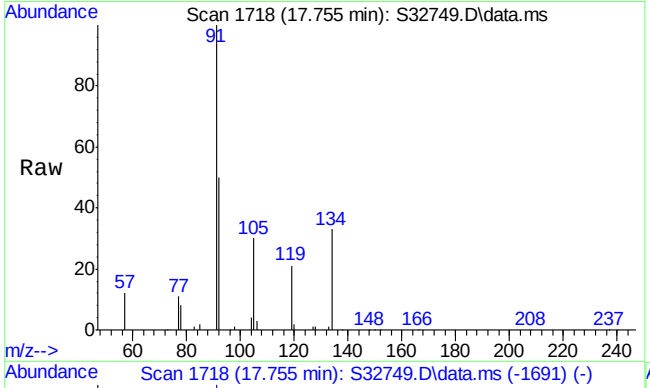
#26
p-Isopropyltoluene
Concen: 190.30 µg/mL
RT: 16.790 min Scan# 1584
Delta R.T. -0.094 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:119 Resp: 19441

Ion	Ratio	Lower	Upper
119	100		
134	27.5	18.4	27.6



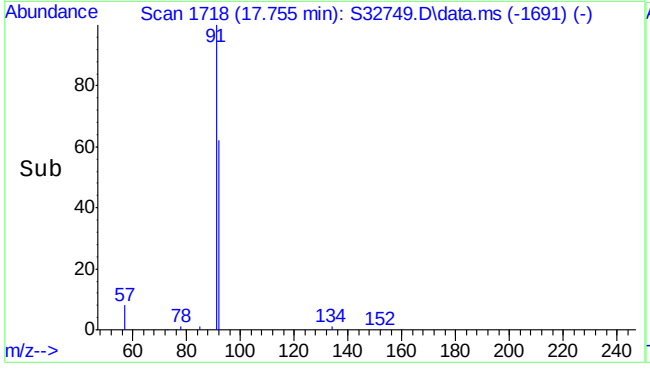


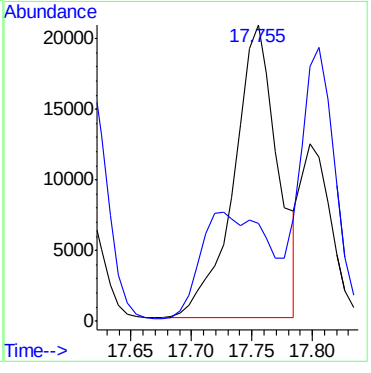


#27
n-Butylbenzene
Concen: 533.82 µg/mL
RT: 17.755 min Scan# 1718
Delta R.T. -0.007 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion: 91 Resp: 52581

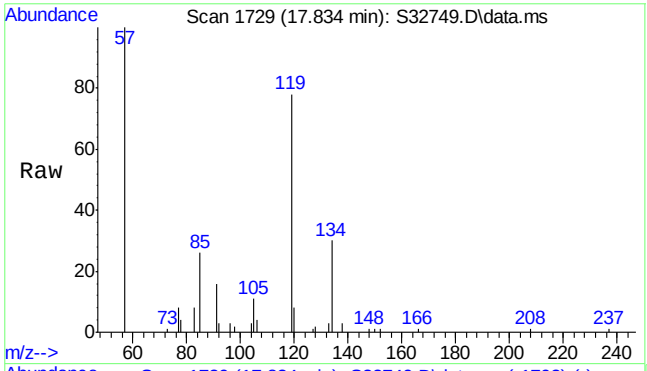
Ion	Ratio	Lower	Upper
91	100		
134	0.0	18.2	27.2#





9.1.3

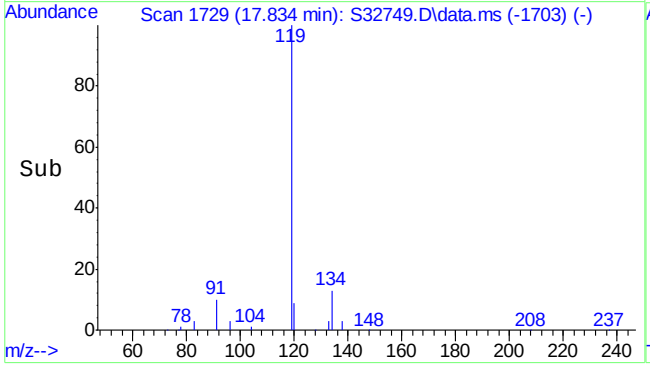
9

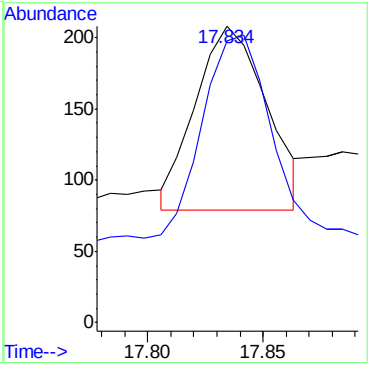


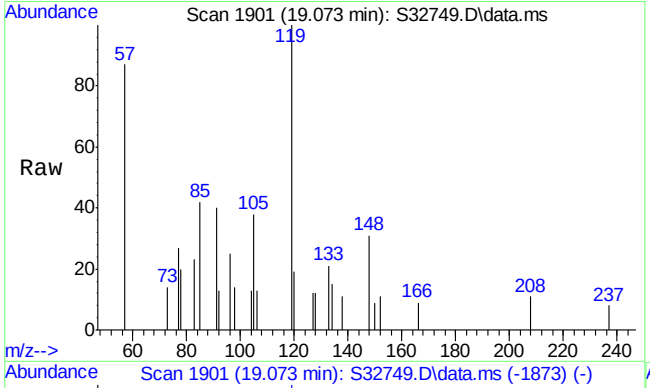
#28
trans-Decalin
Concen: 14.95 µg/mL m
RT: 17.834 min Scan# 1729
Delta R.T. -0.014 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion: 96 Resp: 277

Ion	Ratio	Lower	Upper
96	100		
138	138.6	106.5	159.7



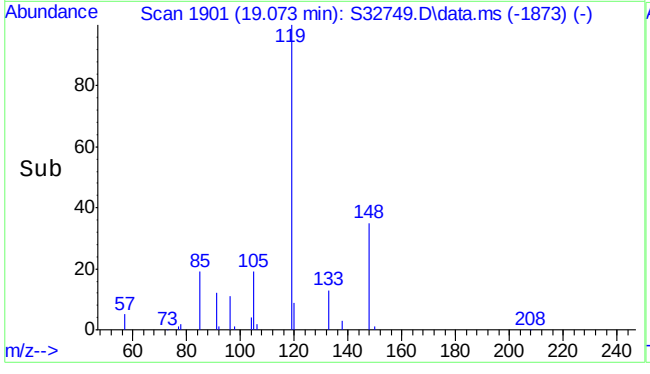


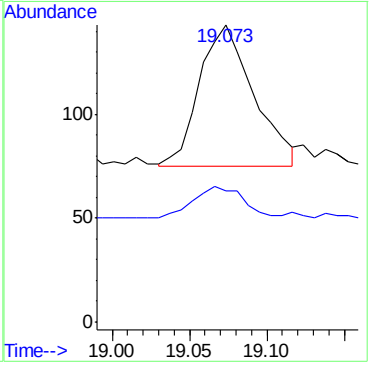


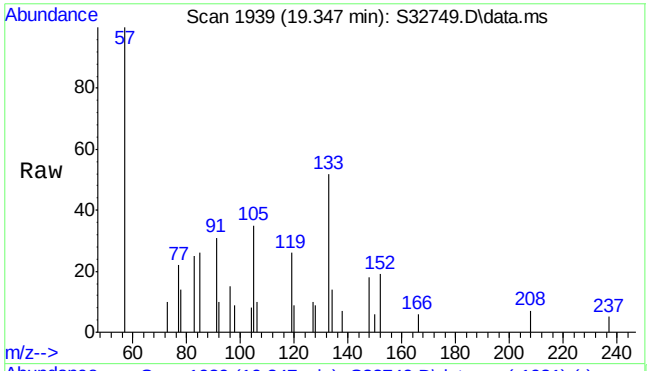
#29
cis-Decalin
Concen: 6.86 µg/mL m
RT: 19.073 min Scan# 1901
Delta R.T. -0.000 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion: 96 Resp: 166

Ion	Ratio	Lower	Upper
96	100		
138	0.0	56.6	85.0#

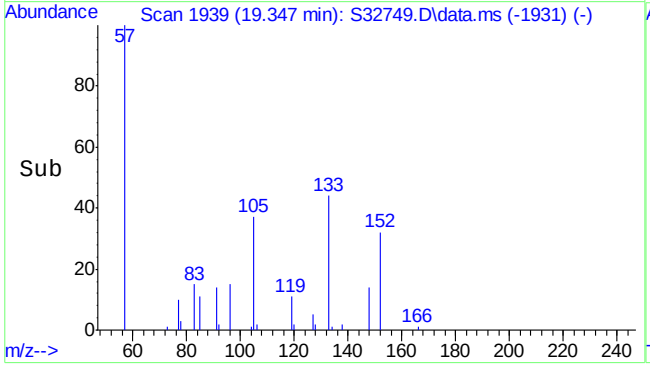


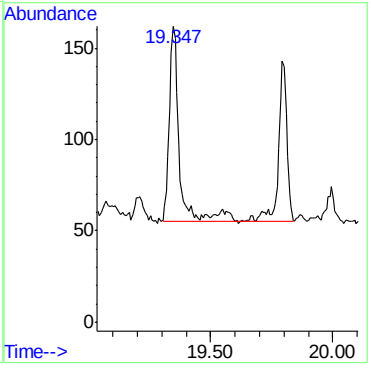


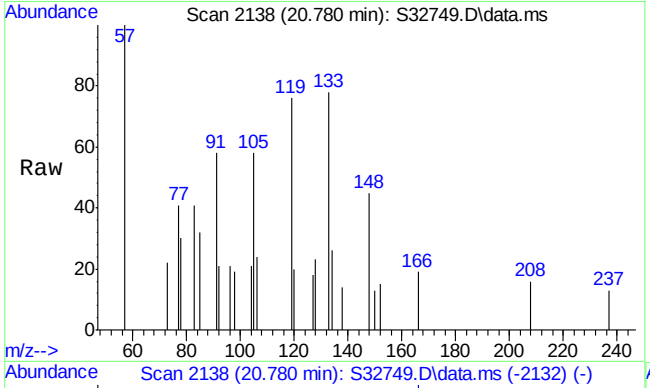


#30
C1-Decalins
Concen: 27.79 µg/mL m
RT: 19.347 min Scan# 1939
Delta R.T. -0.461 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:152 Resp: 515

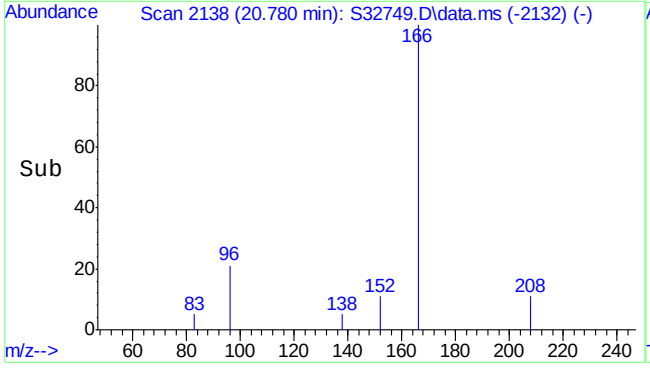


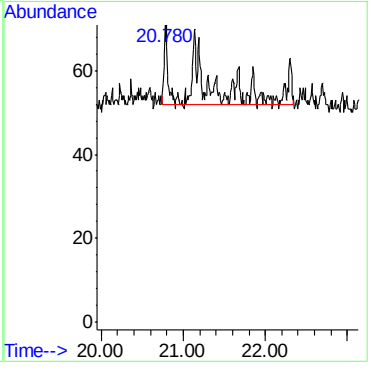


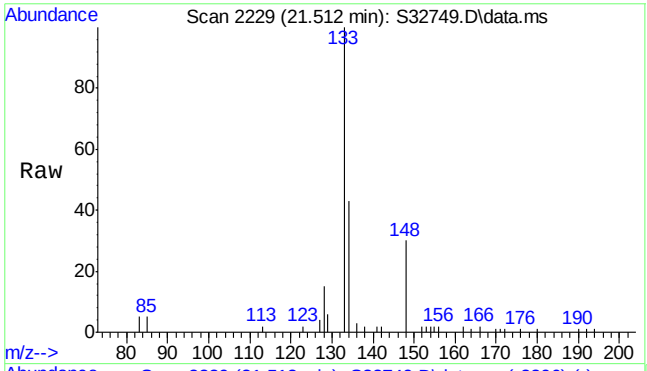


#31
C2-Decalins
Concen: 18.18 µg/mL m
RT: 20.780 min Scan# 2138
Delta R.T. -0.369 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:166 Resp: 337



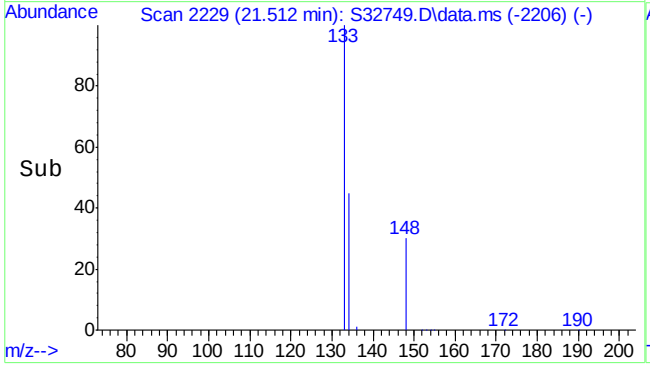


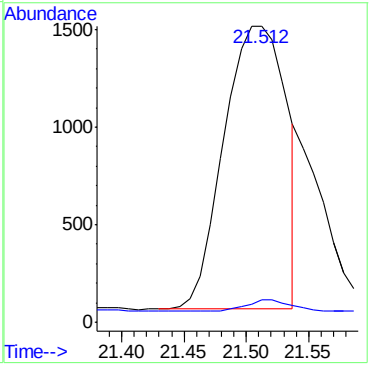


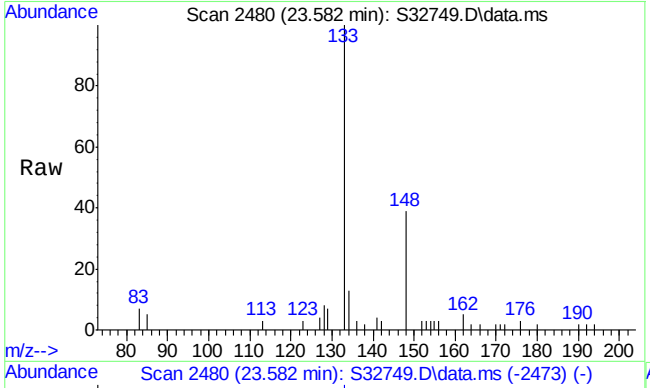
#34
Benzo(b)thiophene
Concen: 47.42 µg/mL m
RT: 21.512 min Scan# 2229
Delta R.T. -0.008 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:134 Resp: 5067

Ion	Ratio	Lower	Upper
134	100		
136	0.0	4.0	6.0#

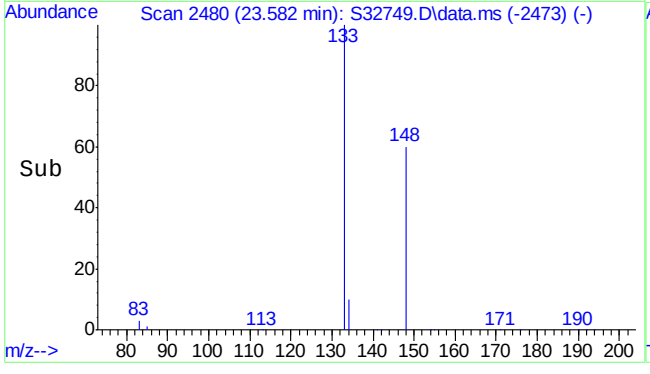


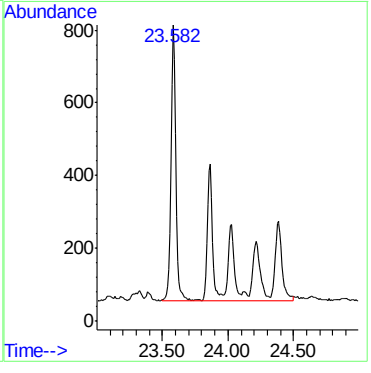




#35
C1-Benzo(b)thiophenes
Concen: 46.64 µg/mL m
RT: 23.582 min Scan# 2480
Delta R.T. -0.017 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

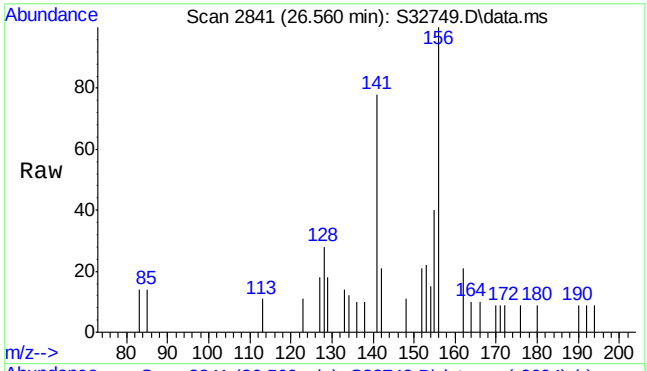
Tgt Ion:148 Resp: 4983





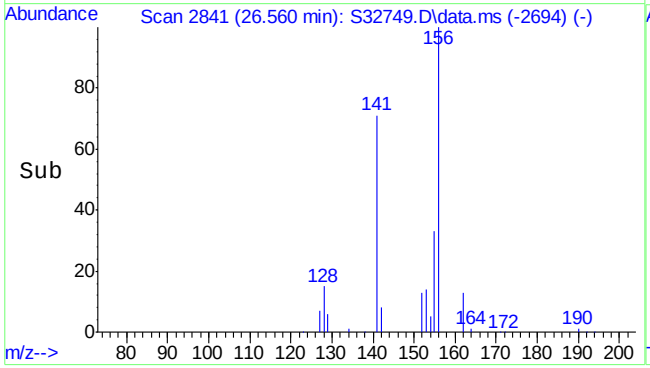
9.1.3

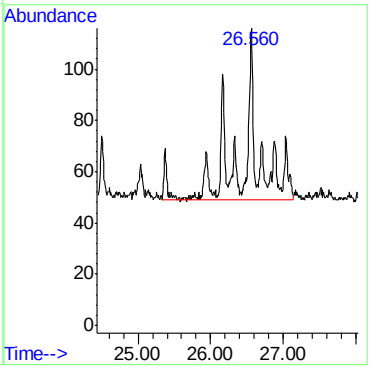
9

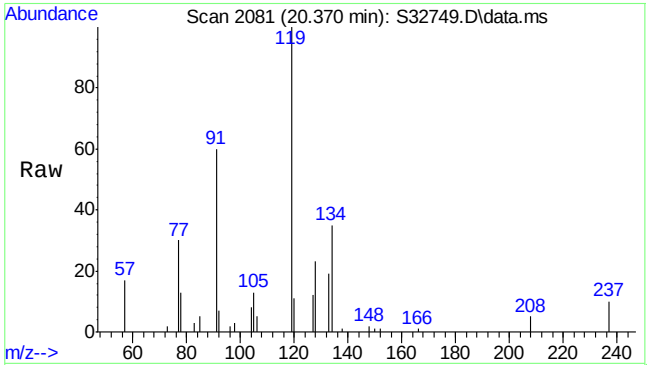


#36
C2-Benzo(b)thiophenes
Concen: 9.27 µg/mL m
RT: 26.560 min Scan# 2841
Delta R.T. -0.487 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:162 Resp: 990



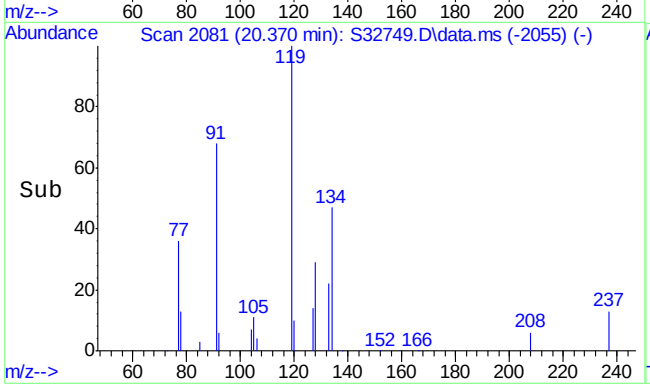


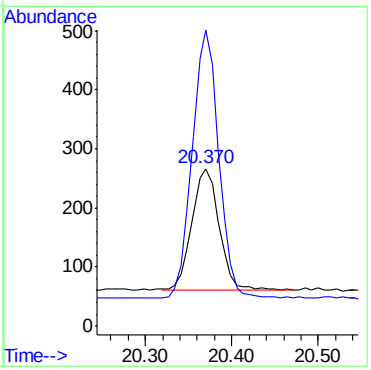


#39
Tetraethyl lead
Concen: 62.05 µg/mL
RT: 20.370 min Scan# 2081
Delta R.T. -0.014 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:208 Resp: 458

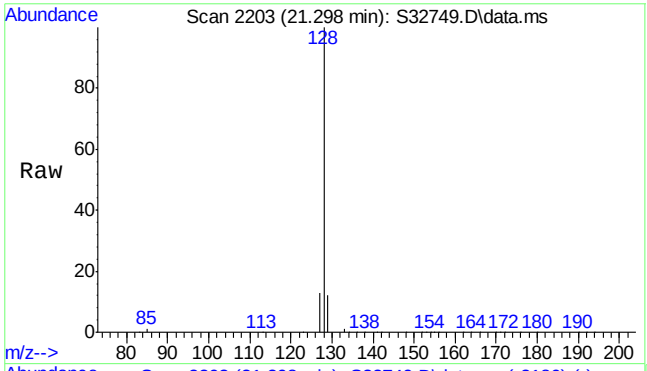
Ion	Ratio	Lower	Upper
208	100		
237	211.1	171.2	256.8





9.1.3

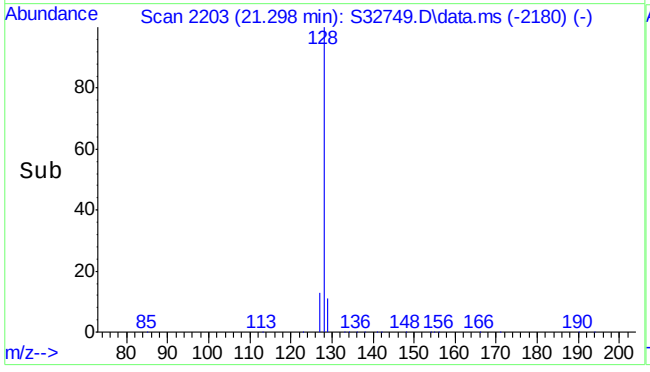
9

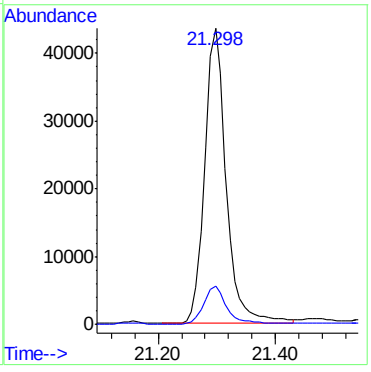


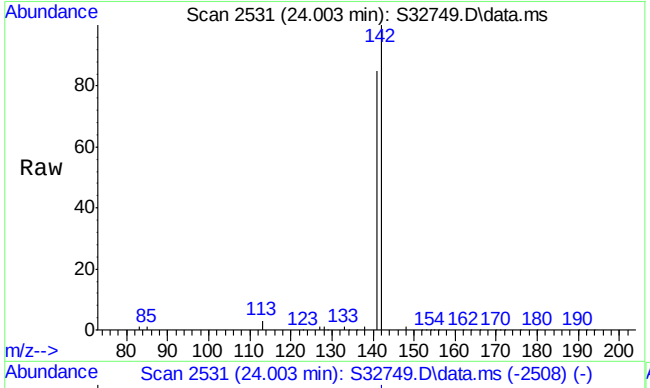
#44
Naphthalene
Concen: 811.80 ng/mL
RT: 21.298 min Scan# 2203
Delta R.T. -0.008 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:128 Resp: 111046

Ion	Ratio	Lower	Upper
128	100		
127	12.7	10.1	15.1



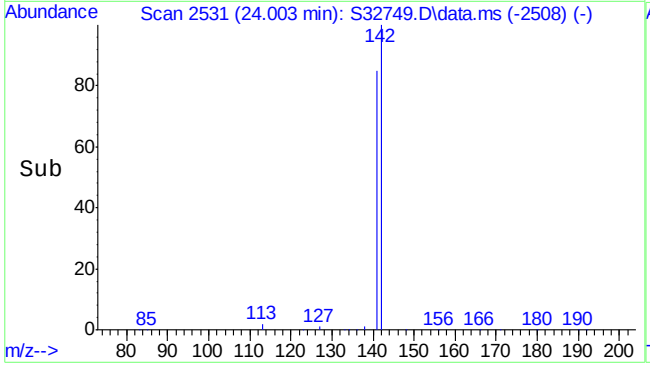


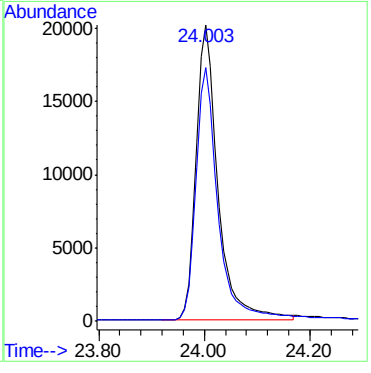


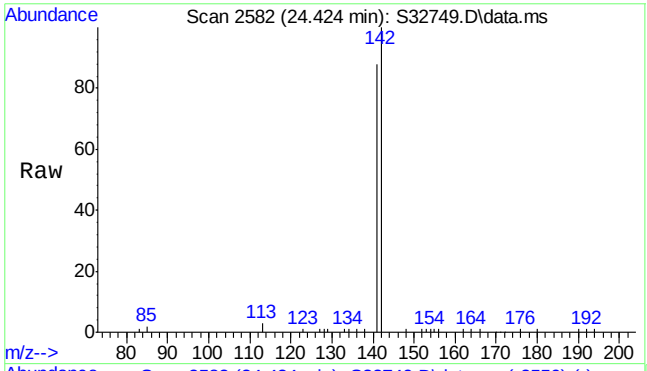
#45
2-Methylnaphthalene
Concen: 680.49 ng/mL
RT: 24.003 min Scan# 2531
Delta R.T. -0.008 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:142 Resp: 57707

Ion	Ratio	Lower	Upper
142	100		
141	85.3	68.9	103.3



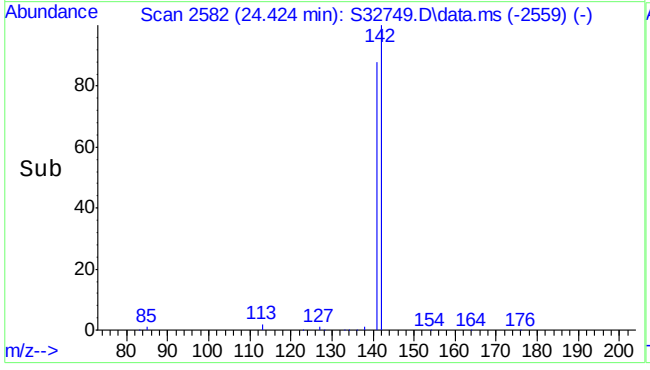


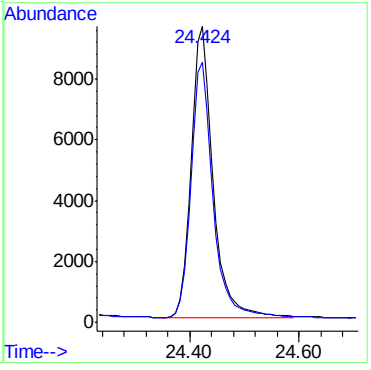


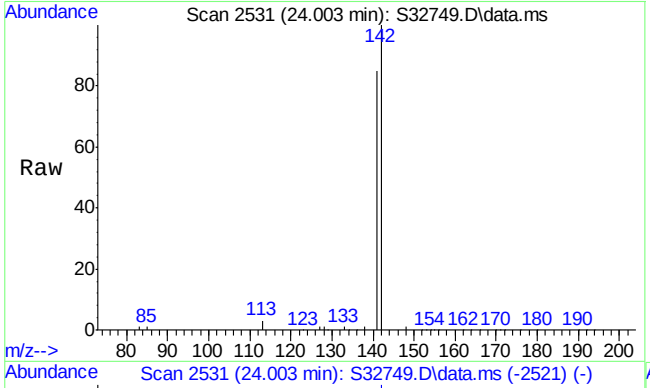
#46
1-Methylnaphthalene
Concen: 309.09 ng/mL
RT: 24.424 min Scan# 2582
Delta R.T. -0.008 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:142 Resp: 26406

Ion	Ratio	Lower	Upper
142	100		
141	88.8	71.1	106.7



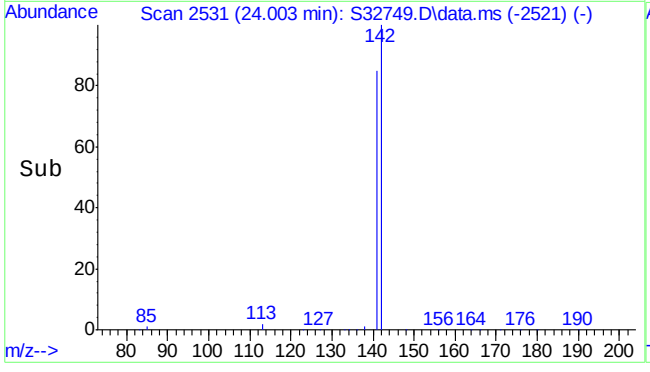


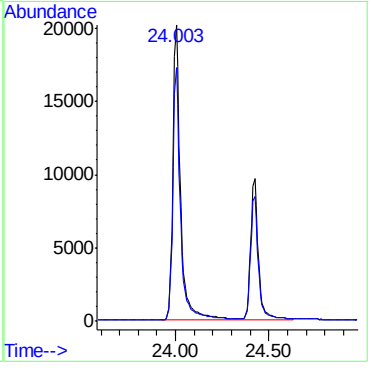


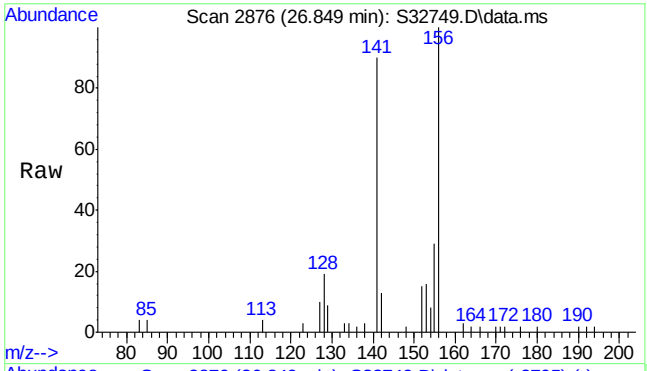
#47
C1-Naphthalenes
Concen: 641.01 ng/mL m
RT: 24.003 min Scan# 2531
Delta R.T. -0.008 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:142 Resp: 87684

Ion	Ratio	Lower	Upper
142	100		
141	57.7	68.9	103.3#



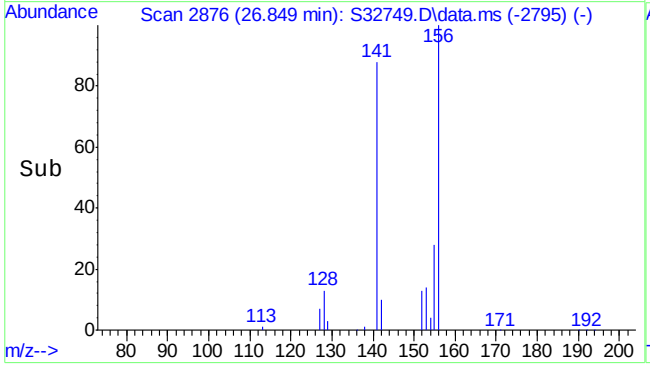


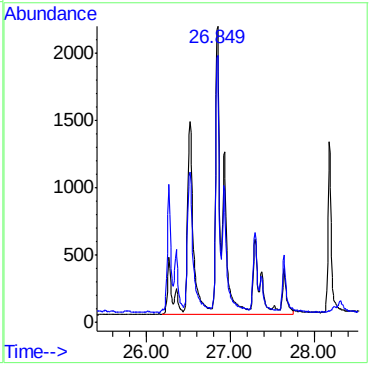


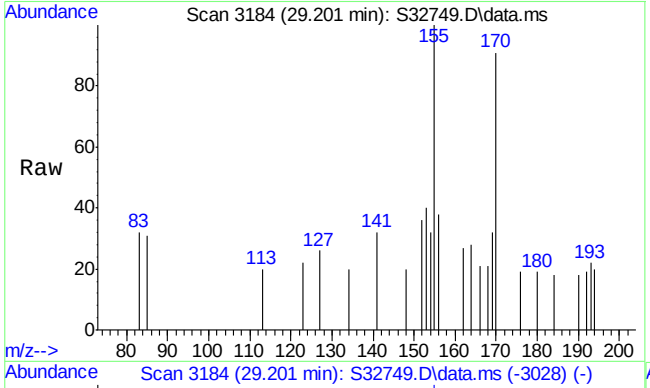
#48
C2-Naphthalenes
Concen: 177.07 ng/mL m
RT: 26.849 min Scan# 2876
Delta R.T. -0.091 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:156 Resp: 24221

Ion	Ratio	Lower	Upper
156	100		
141	13.2	60.6	90.8#



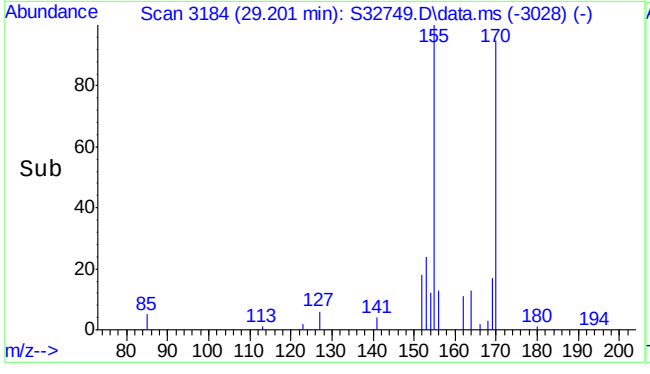


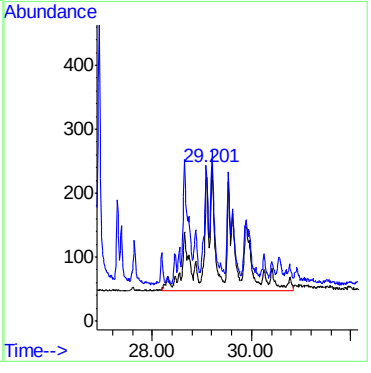


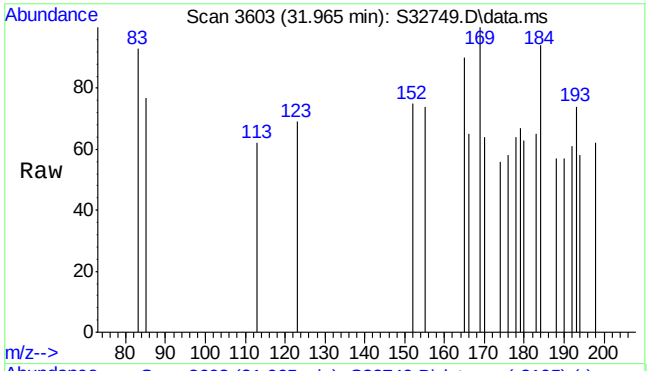
#49
C3-Naphthalenes
Concen: 42.99 ng/mL m
RT: 29.201 min Scan# 3184
Delta R.T. 0.007 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:170 Resp: 5881

Ion	Ratio	Lower	Upper
170	100		
155	13.8	81.7	122.5#



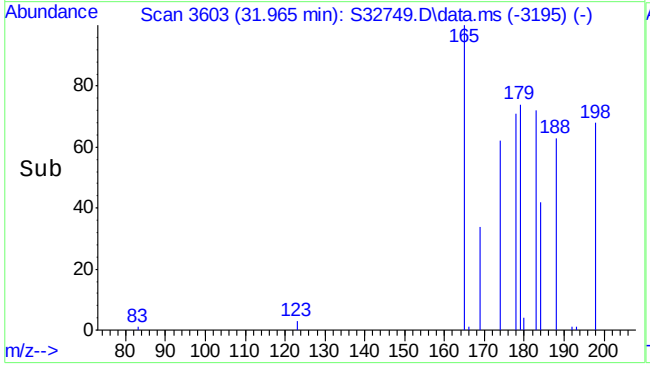


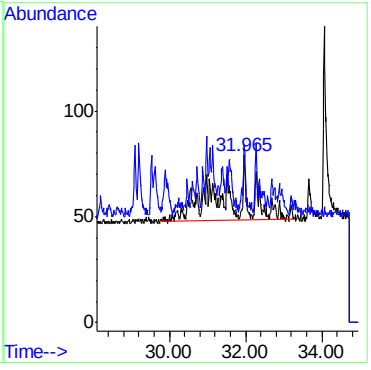


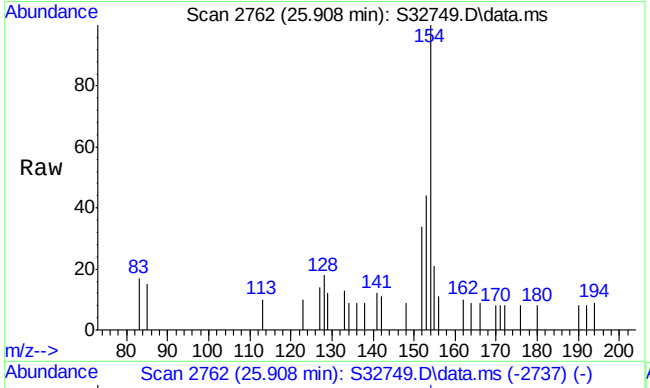
#50
C4-Naphthalenes
Concen: 9.58 ng/mL m
RT: 31.965 min Scan# 3603
Delta R.T. 0.013 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:184 Resp: 1311

Ion	Ratio	Lower	Upper
184	100		
169	0.0	76.8	115.2#



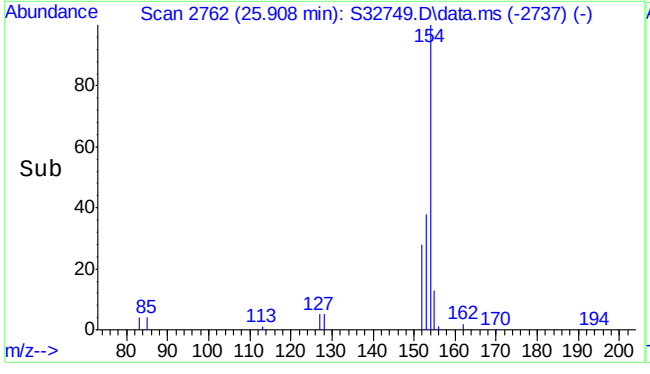


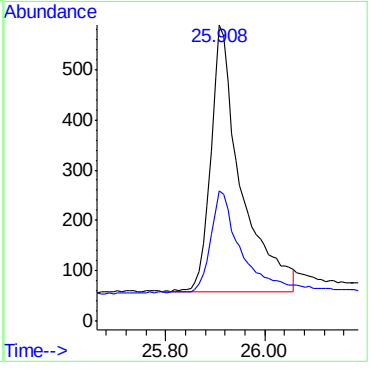


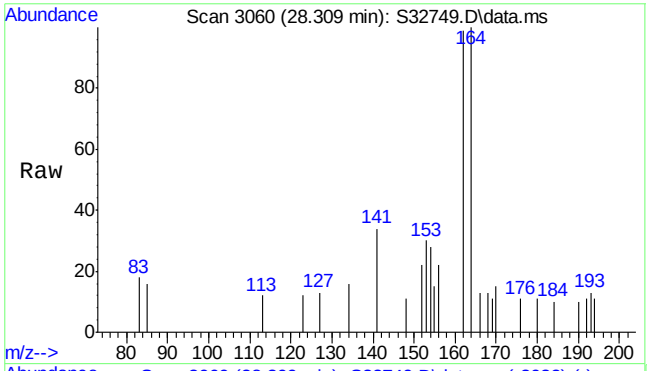
#51
Biphenyl
Concen: 19.16 µg/mL
RT: 25.908 min Scan# 2762
Delta R.T. 0.008 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:154 Resp: 2206

Ion	Ratio	Lower	Upper
154	100		
153	37.7	31.2	46.8



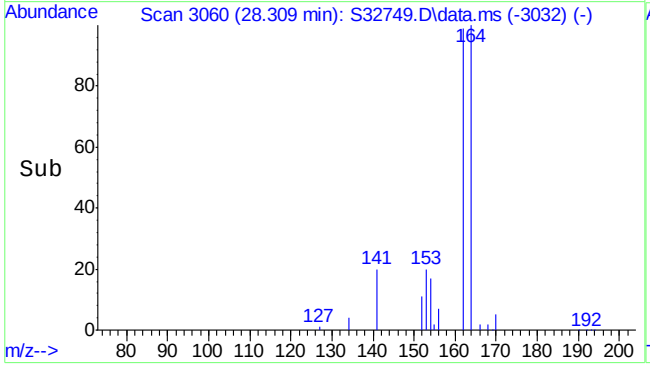


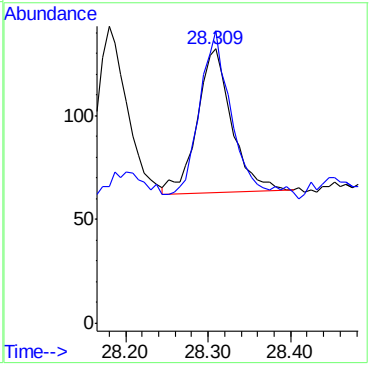


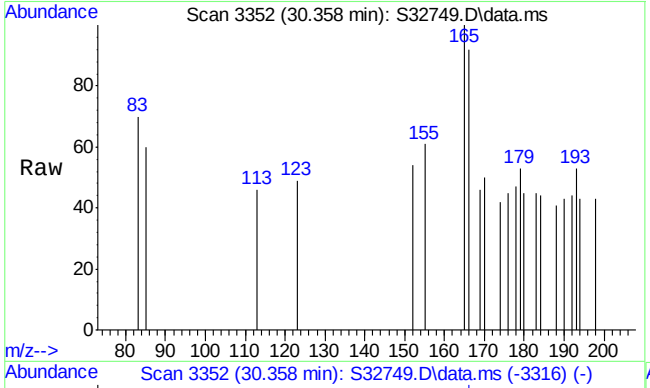
#53
Acenaphthene
Concen: 2.71 ng/mL
RT: 28.309 min Scan# 3060
Delta R.T. -0.000 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:154 Resp: 201

Ion	Ratio	Lower	Upper
154	100		
153	100.5	86.4	129.6



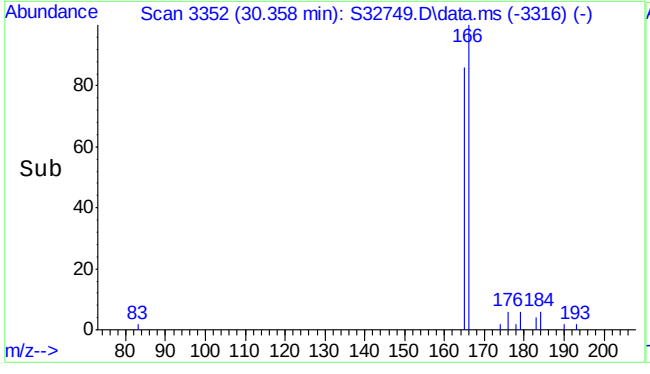


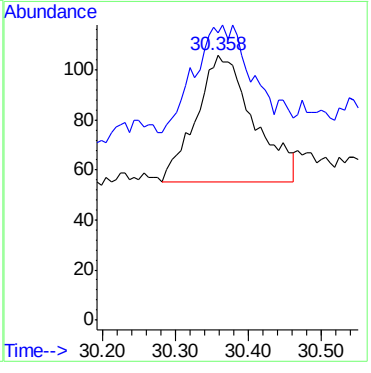


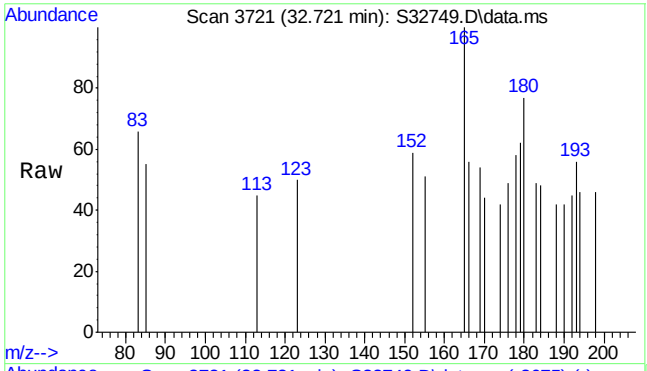
#55
Fluorene
Concen: 3.19 ng/mL
RT: 30.358 min Scan# 3352
Delta R.T. 0.032 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:166 Resp: 280

Ion	Ratio	Lower	Upper
166	100		
165	81.4	75.1	112.7



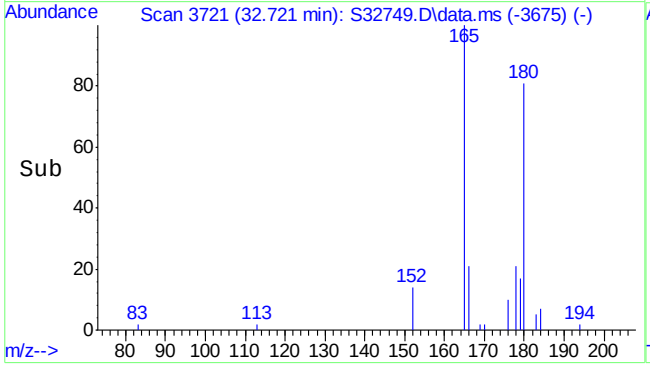


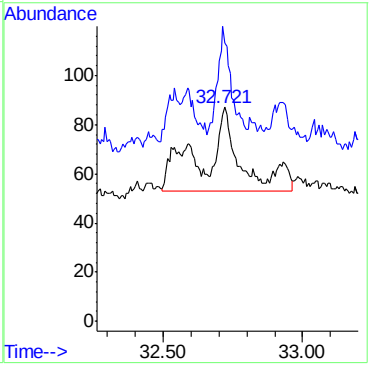


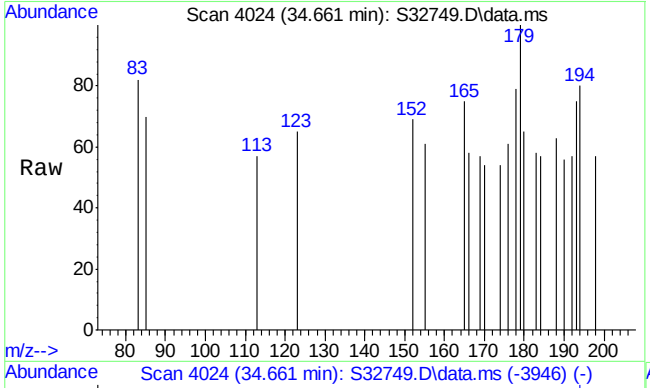
#56
C1-Fluorenes
Concen: 3.73 ng/mL m
RT: 32.721 min Scan# 3721
Delta R.T. 0.025 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:180 Resp: 327

Ion	Ratio	Lower	Upper
180	100		
165	0.0	128.1	192.1#



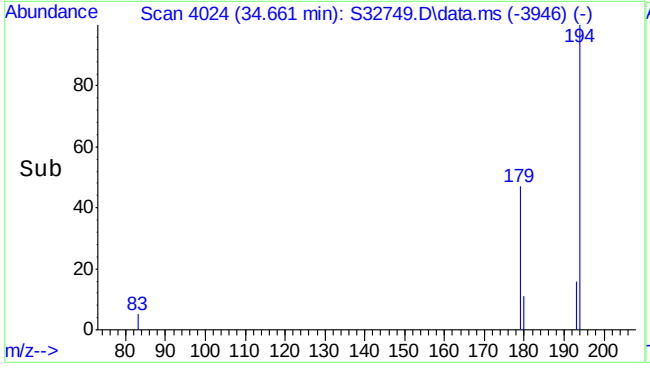


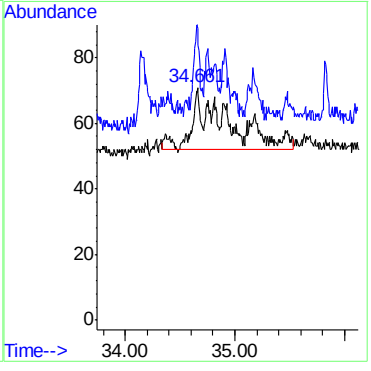


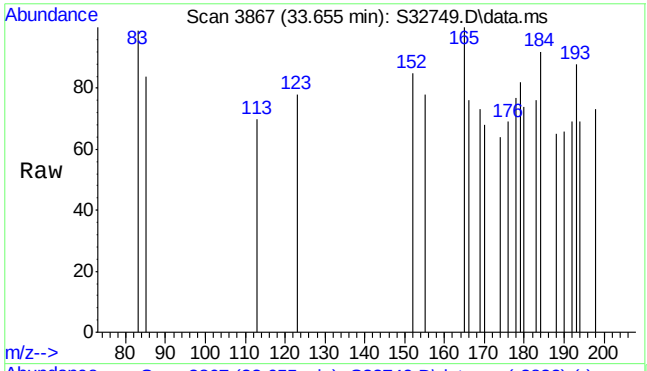
#57
C2-Fluorenes
Concen: 4.84 ng/mL m
RT: 34.661 min Scan# 4024
Delta R.T. -0.237 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:194 Resp: 424

Ion	Ratio	Lower	Upper
194	100		
179	0.0	122.6	183.8#



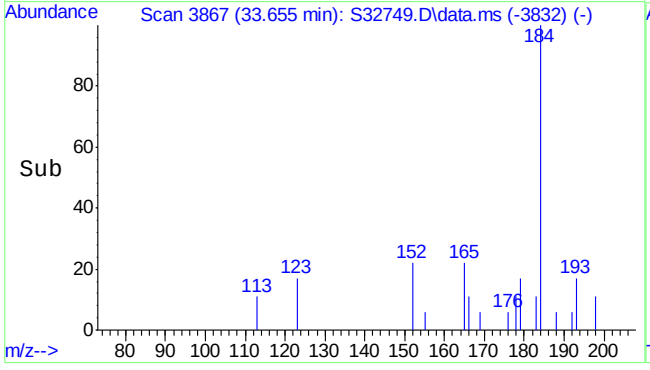


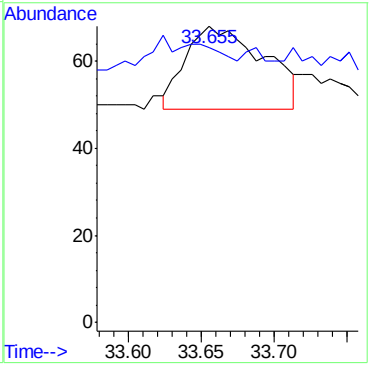


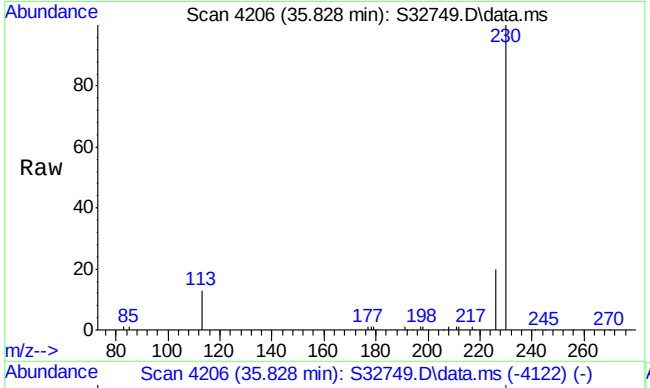
#59
Dibenzothiophene
Concen: 0.60 ng/mL m
RT: 33.655 min Scan# 3867
Delta R.T. 0.026 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:184 Resp: 71

Ion	Ratio	Lower	Upper
184	100		
152	0.0	7.1	10.7#



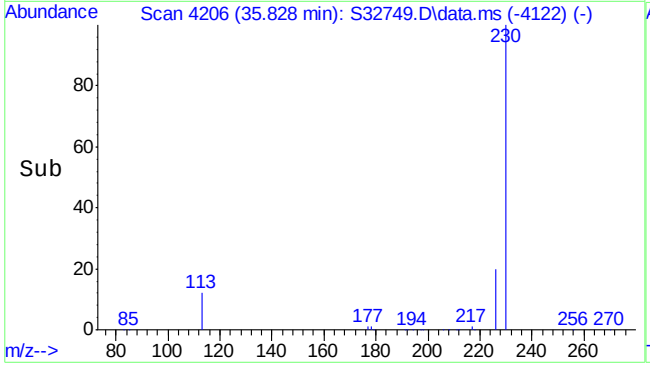


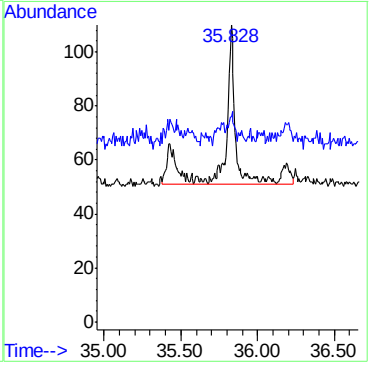


#60
C1-Dibenzothiophenes (unadj)
Concen: 2.66 ng/mL m
RT: 35.828 min Scan# 4206
Delta R.T. 0.417 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:198 Resp: 317

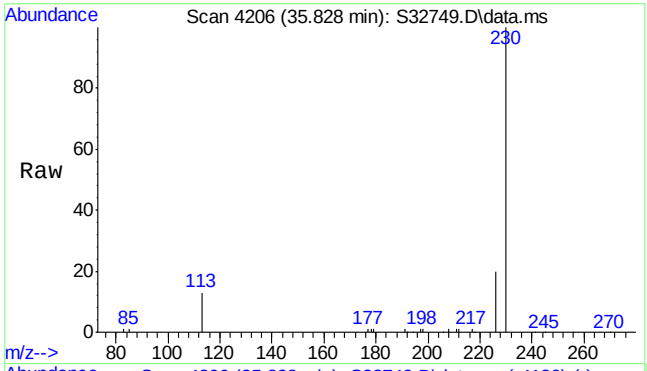
Ion	Ratio	Lower	Upper
198	100		
197	0.0	52.8	79.2#





9.1.3

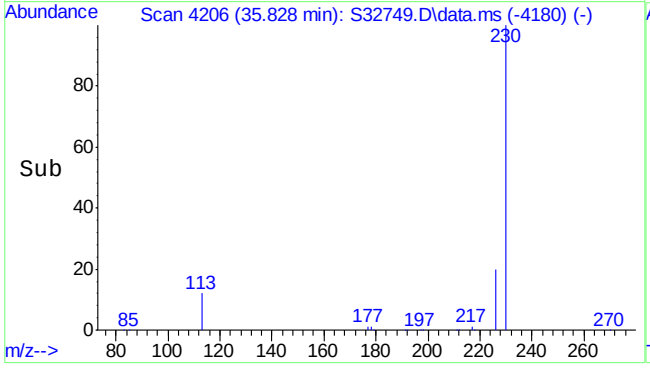
9

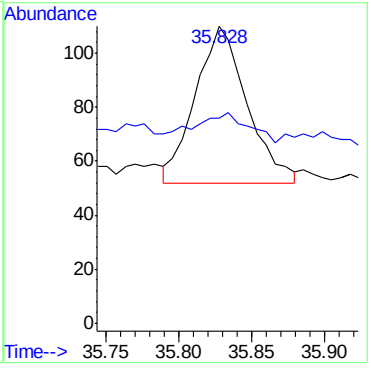


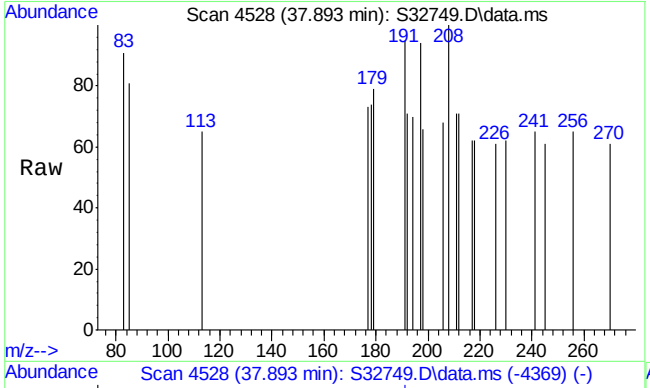
#61
C1-Dibenzothiophenes (OTP)
Concen: 1.19 µg/mL m
RT: 35.828 min Scan# 4206
Delta R.T. 0.064 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:198 Resp: 142

Ion	Ratio	Lower	Upper
198	100		
197	0.0	57.8	86.6#



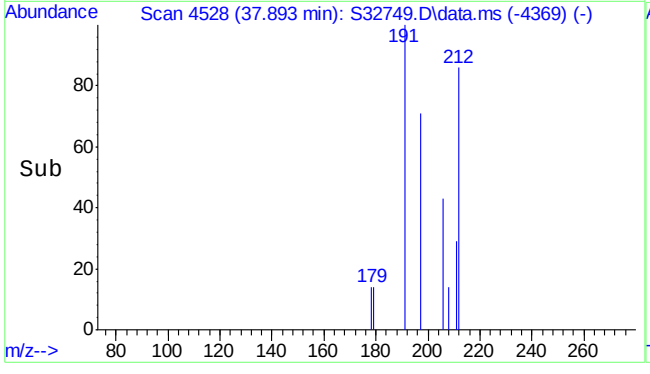


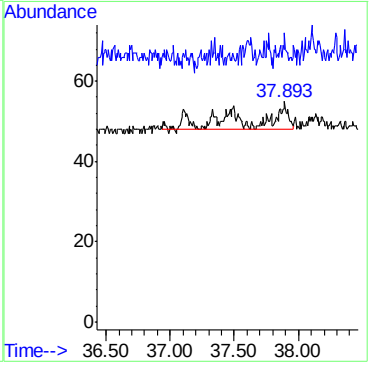


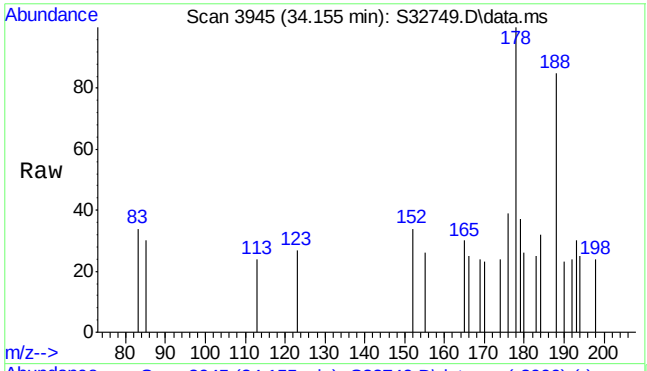
#62
C2-Dibenzothiophenes
Concen: 1.04 ng/mL m
RT: 37.893 min Scan# 4528
Delta R.T. 0.429 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:212 Resp: 124

Ion	Ratio	Lower	Upper
212	100		
197	0.0	18.9	28.3#



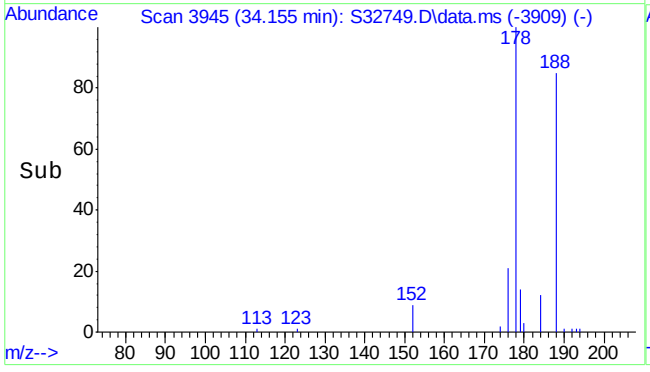


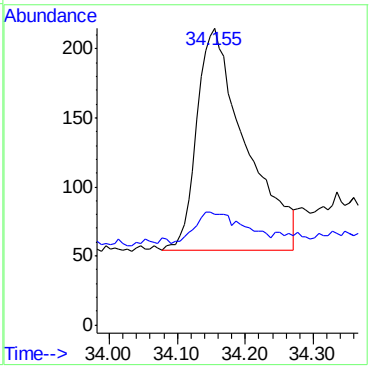


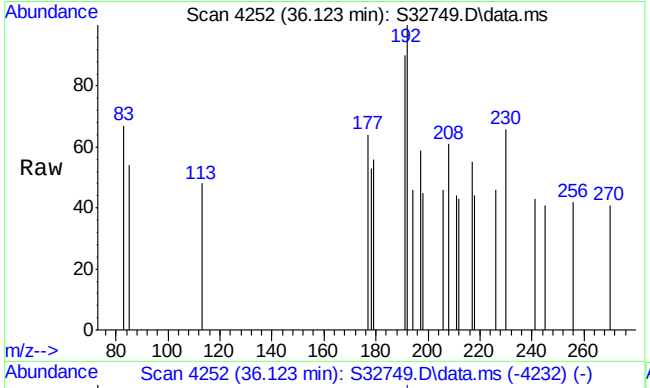
#65
Phenanthrene
Concen: 6.40 ng/mL
RT: 34.155 min Scan# 3945
Delta R.T. 0.032 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:178 Resp: 800

Ion	Ratio	Lower	Upper
178	100		
179	0.0	12.2	18.4#



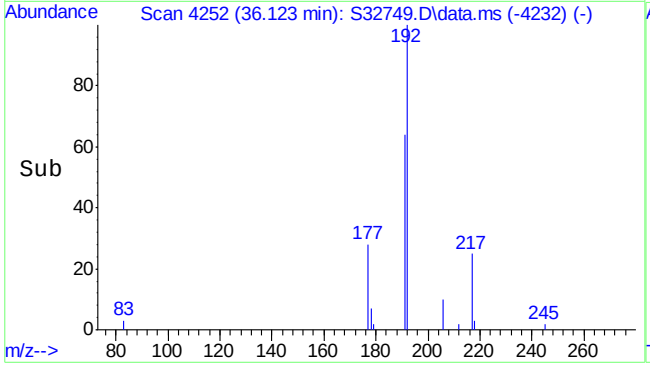


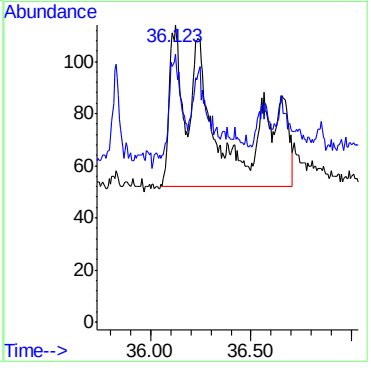


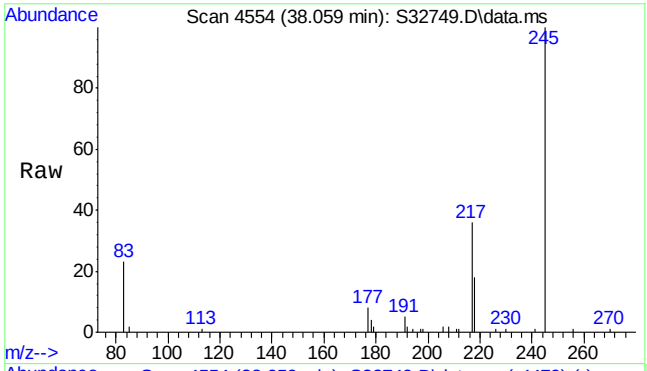
#67
C1-Phenanthrenes/anthracenes
Concen: 7.77 ng/mL m
RT: 36.123 min Scan# 4252
Delta R.T. -0.423 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:192 Resp: 971

Ion	Ratio	Lower	Upper
192	100		
191	0.0	44.9	67.3#



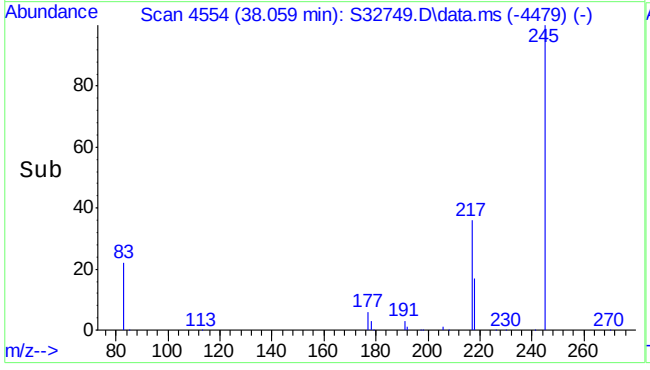


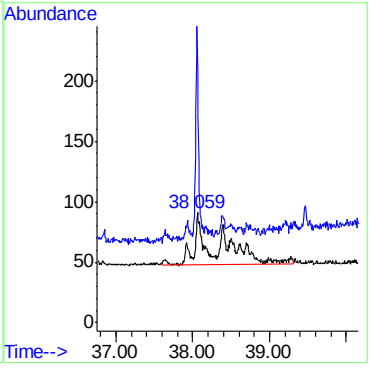


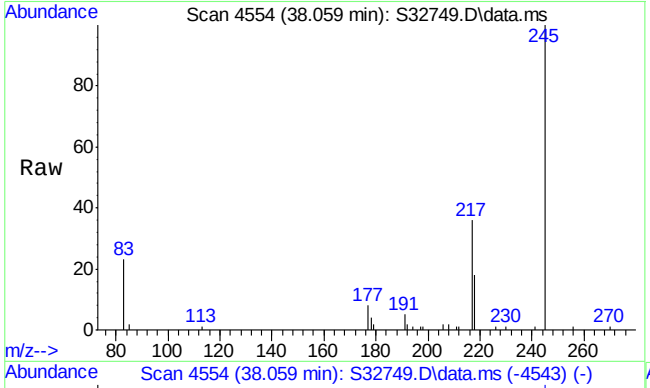
#68
C2-Phenanthrenes/anthracenes (unadj)
Concen: 6.68 ng/mL m
RT: 38.059 min Scan# 4554
Delta R.T. -0.314 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:206 Resp: 835

Ion	Ratio	Lower	Upper
206	100		
191	0.0	44.7	67.1#



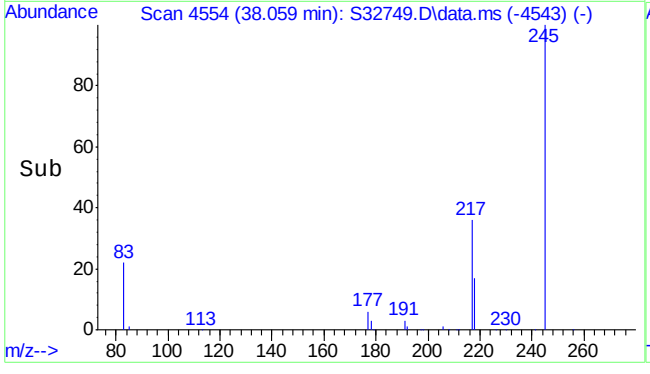


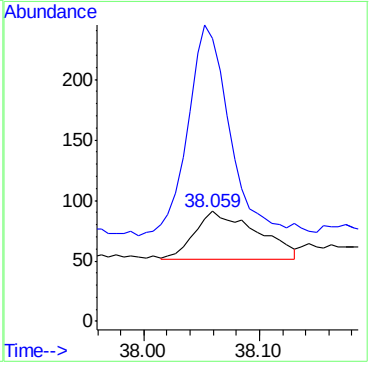


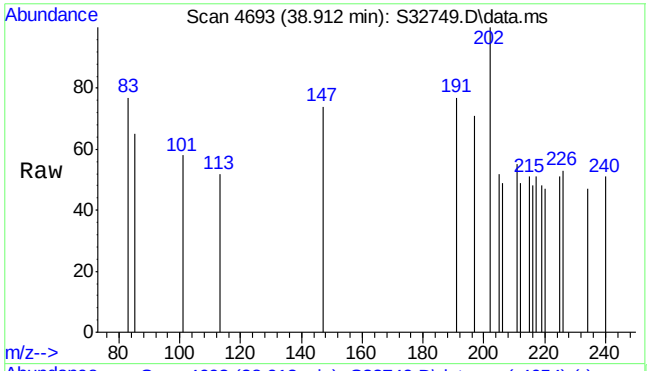
#69
C2-Phenanthrenes/anthracenes (5aA)
Concen: 1.22 µg/mL m
RT: 38.059 min Scan# 4554
Delta R.T. -0.129 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:206 Resp: 152

Ion	Ratio	Lower	Upper
206	100		
191	0.0	61.9	92.9#



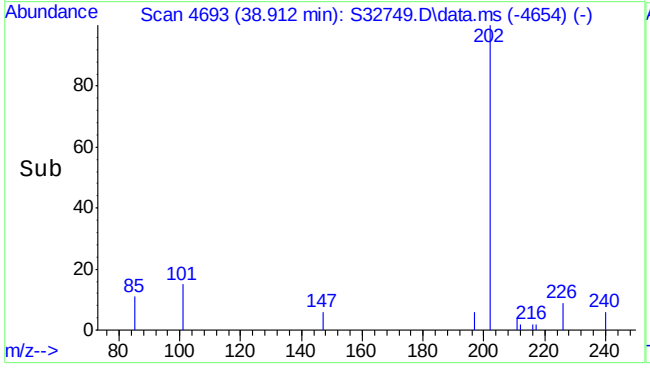


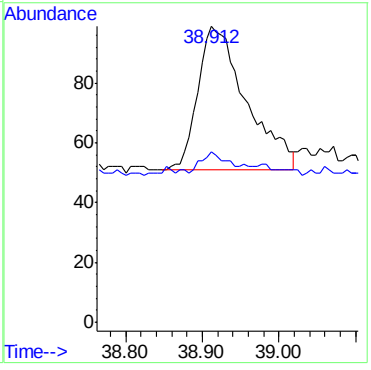


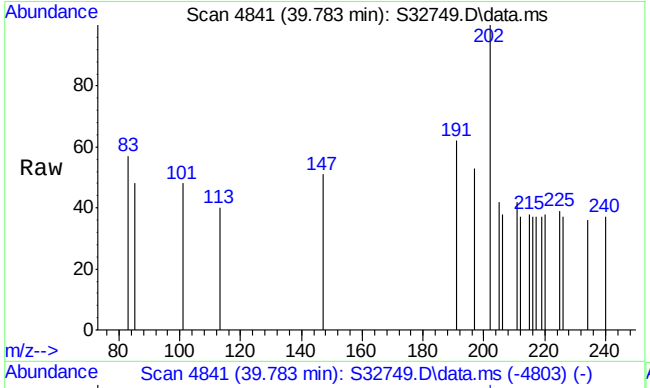
#78
Fluoranthene
Concen: 1.71 ng/mL
RT: 38.912 min Scan# 4693
Delta R.T. 0.029 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:202 Resp: 207

Ion	Ratio	Lower	Upper
202	100		
101	0.0	10.0	15.0#



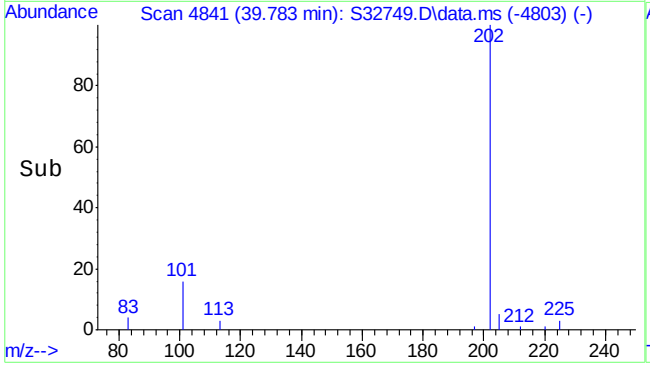


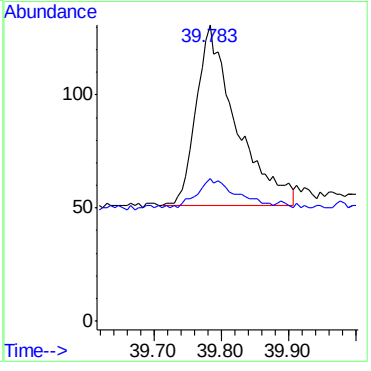


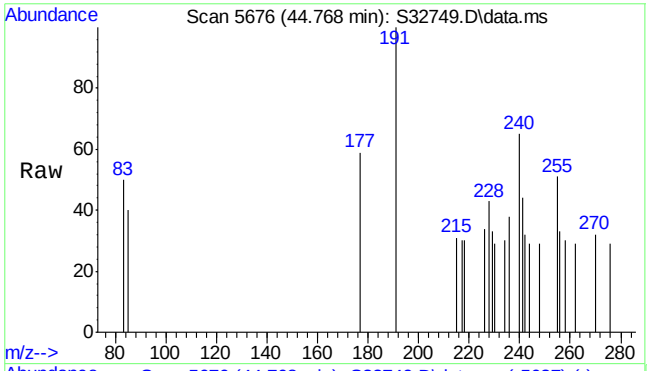
#79
Pyrene
Concen: 2.62 ng/mL
RT: 39.783 min Scan# 4841
Delta R.T. 0.024 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:202 Resp: 331

Ion	Ratio	Lower	Upper
202	100		
101	0.0	11.4	17.0#



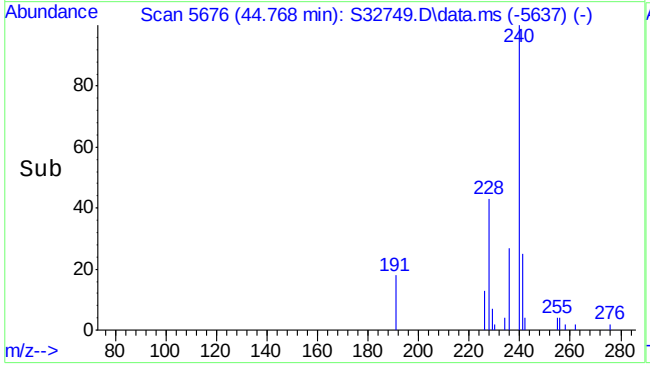


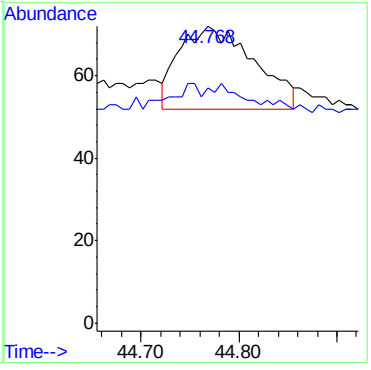


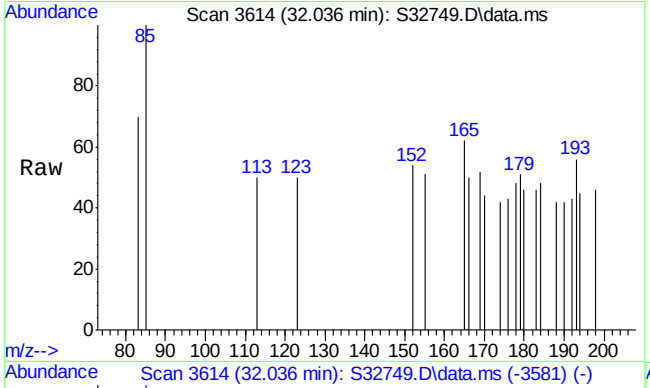
#89
Chrysene
Concen: 1.03 ng/mL m
RT: 44.768 min Scan# 5676
Delta R.T. 0.060 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion:228 Resp: 106

Ion	Ratio	Lower	Upper
228	100		
226	0.0	23.8	35.6#



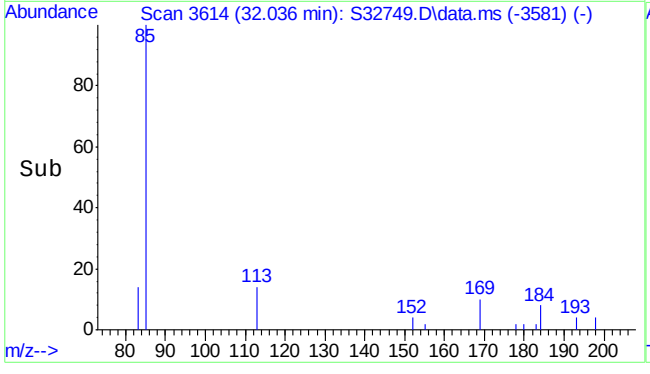


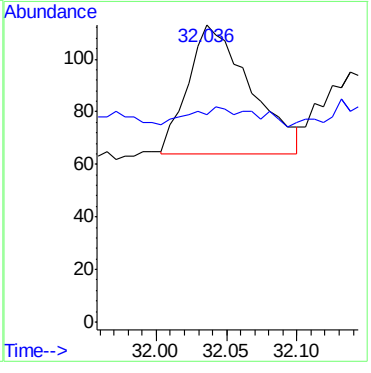


#103
C-17
Concen: 5.69 µg/mL m
RT: 32.036 min Scan# 3614
Delta R.T. 0.013 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion: 85 Resp: 151

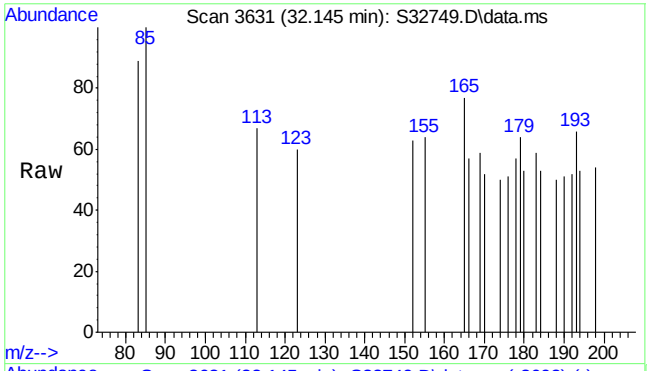
Ion	Ratio	Lower	Upper
85	100		
83	0.0	12.3	18.5#





9.1.3

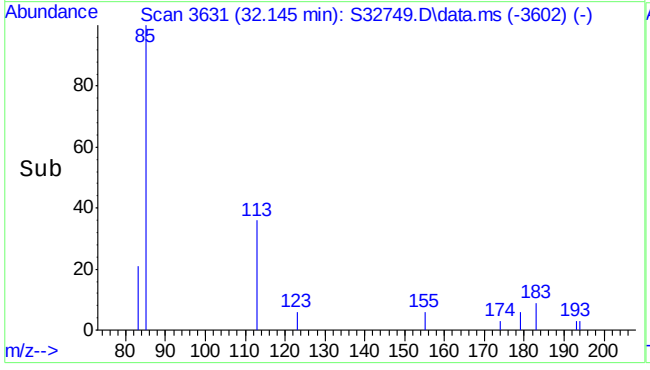
9

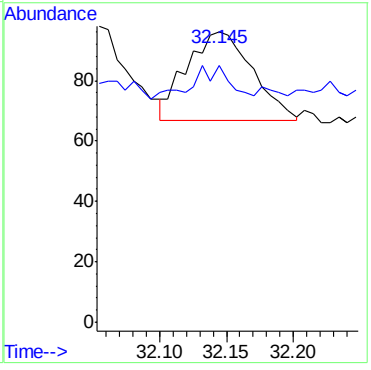


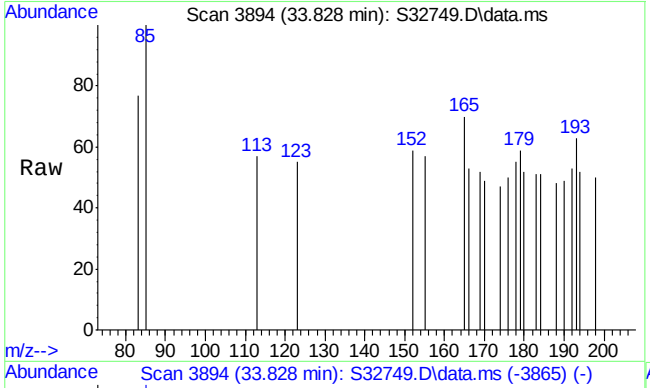
#104
Pristane
Concen: 4.95 µg/mL m
RT: 32.145 min Scan# 3631
Delta R.T. -0.013 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion: 85 Resp: 99

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#



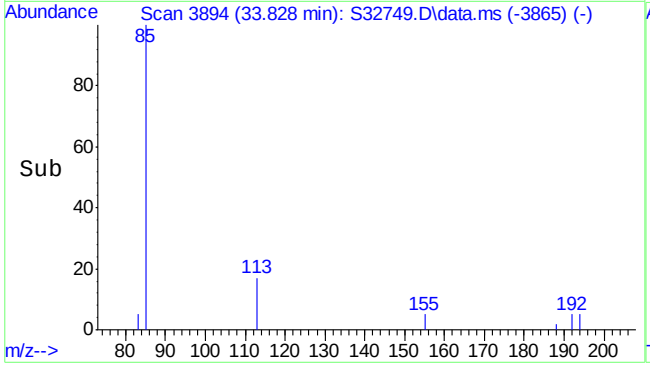


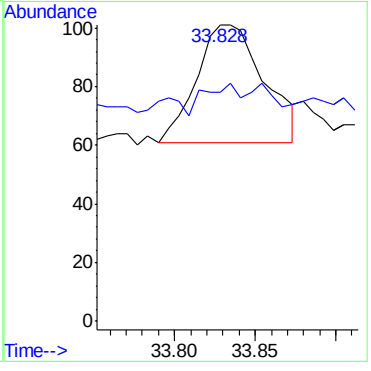


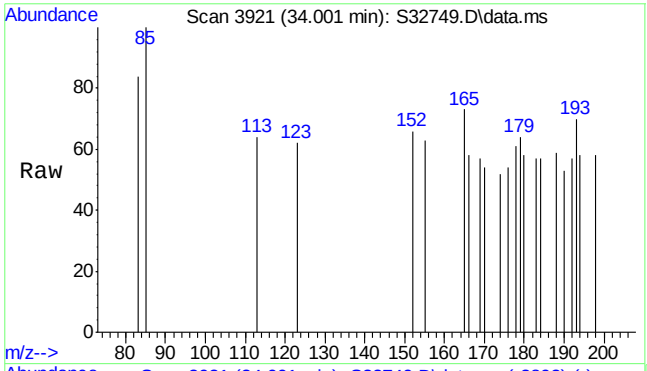
#105
C-18
Concen: 4.28 µg/mL m
RT: 33.828 min Scan# 3894
Delta R.T. -0.013 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion: 85 Resp: 116

Ion	Ratio	Lower	Upper
85	100		
83	0.0	17.8	26.6#



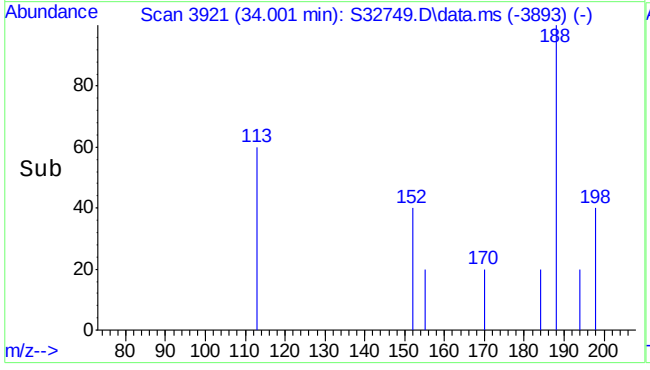


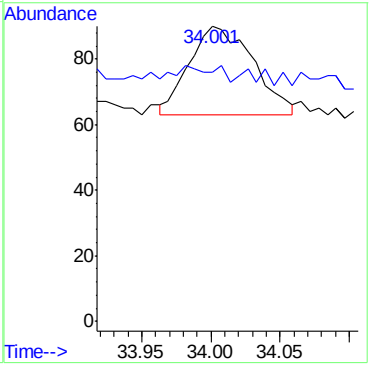


#106
Phytane
Concen: 3.27 µg/mL m
RT: 34.001 min Scan# 3921
Delta R.T. -0.019 min
Lab File: S32749.D
Acq: 28 May 2013 6:55 pm

Tgt Ion: 85 Resp: 87

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#





9.1.3

9

Manual Integrations APPROVED (compounds with "m" flag)
James Roush
05/31/13 15:01

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32750.D
Acq On : 28 May 2013 8:10 pm
Operator : danielb
Sample : mc20162-4
Misc : op33312,mss1429,0.0150,,,2,50
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 29 10:25:49 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	28.180	164	52990	1000.00	ng/mL	-0.01
System Monitoring Compounds						
2) Toluene-d8	9.306	98	4477	76.12	µg/mL	0.00
Spiked Amount 1000.000			Recovery = 7.61%			
3) Naphthalene-d8	21.224	136	2165	20.15	ng/mL	0.00
Spiked Amount 1000.000	Range 1 - 0		Recovery = 2.01%#			
4) Phenanthrene-d10	34.085	188	1226m	14.49	ng/mL	0.05
Spiked Amount 1000.000			Recovery = 1.45%			
5) Perylene-d12	49.954	264	731m	9.10	ng/mL	0.07
Spiked Amount 1000.000			Recovery = 0.91%			
Target Compounds						Qvalue
7) Benzene	6.878	TIC	72604m	866.63	µg/mL	
8) C1-Benzene	9.407	92	321873	3841.99	µg/mL	99
9) C2-Benzenes	12.374	106	473503m	5651.90	µg/mL	
10) C3-Benzenes	16.019	120	426572m	5091.72	µg/mL	
11) C4-Benzenes	17.806	134	186467m	2225.74	µg/mL	
12) C5-Benzenes	20.096	148	52095m	621.82	µg/mL	
13) Methylcyclohexane	8.247	83	52074	1593.15	µg/mL	99
14) Toluene	9.407	91	548066	6991.17	µg/mL	100
15) Ethylbenzene	12.137	91	246712	2575.84	µg/mL	100
16) m,p-xylene	12.367	91	635339	8322.07	µg/mL	99
17) Styrene	13.016	104	561	9.90	µg/mL	92
18) o-Xylene	13.080	91	256852	3396.68	µg/mL	100
19) Isopropylbenzene	14.010	105	18895	211.96	µg/mL	99
20) n-Propylbenzene	14.860	91	97187	804.71	µg/mL	99
21) 1,3,5-Trimethylbenzene	15.285	105	118581	1433.58	µg/mL	100
22) t-Butylbenzene	16.019	119	43824	538.84	µg/mL#	54
23) 1,2,4-Trimethylbenzene	16.019	105	381408	4510.28	µg/mL	99
24) sec-Butylbenzene	16.509	105	9577	88.27	µg/mL	100
25) 1,2,3-Trimethylbenzene	16.862	105	80559	908.58	µg/mL	97
26) p-Isopropyltoluene	16.790	119	11805	123.37	µg/mL	91
27) n-Butylbenzene	17.755	91	28237	306.05	µg/mL#	53
28) trans-Decalin	17.835	96	205m	11.81	µg/mL	
29) cis-Decalin	19.073	96	110m	4.85	µg/mL	
30) C1-Decalins	19.347	152	392m	22.58	µg/mL	
31) C2-Decalins	21.133	166	342m	19.70	µg/mL	
34) Benzo(b)thiophene	21.512	134	3531m	35.28	µg/mL	
35) C1-Benzo(b)thiophenes	23.583	148	4034m	40.31	µg/mL	
36) C2-Benzo(b)thiophenes	26.560	162	782m	7.81	µg/mL	
39) Tetraethyl lead	20.370	208	158m	22.85	µg/mL	
44) Naphthalene	21.298	128	77489	604.78	ng/mL	100
45) 2-Methylnaphthalene	24.003	142	41917	527.72	ng/mL	99
46) 1-Methylnaphthalene	24.424	142	19809	247.55	ng/mL	100
47) C1-Naphthalenes	24.003	142	64937m	506.82	ng/mL	
48) C2-Naphthalenes	26.849	156	16245m	126.79	ng/mL	
49) C3-Naphthalenes	29.223	170	3522m	27.49	ng/mL	
50) C4-Naphthalenes	31.991	184	763m	5.96	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32750.D
Acq On : 28 May 2013 8:10 pm
Operator : danielb
Sample : mc20162-4
Misc : op33312,mss1429,0.0150,,,2,50
ALS Vial : 9 Sample Multiplier: 1

Quant Time: May 29 10:25:49 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) Biphenyl	25.917	154	987	9.15	µg/mL	98
53) Acenaphthene	28.295	154	88m	1.27	ng/mL	
55) Fluorene	30.365	166	101m	1.23	ng/mL	
56) C1-Fluorenes	32.746	180	160m	1.95	ng/mL	
65) Phenanthrene	34.155	178	283	2.42	ng/mL#	63
67) C1-Phenanthrenes/anthr...	36.142	192	492m	4.20	ng/mL	
79) Pyrene	39.812	202	84m	0.71	ng/mL	
103) C-17	32.055	85	90m	3.62	µg/mL	
104) Pristane	32.151	85	84m	4.48	µg/mL	
105) C-18	33.848	85	69m	2.72	µg/mL	
106) Phytane	34.008	85	79m	3.17	µg/mL	
107) 2,6,10-Trimethyldodeca...	25.504	85	114m	4.57	µg/mL	
108) 2,6,10-Trimethyltridec...	27.352	85	76m	3.05	µg/mL	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

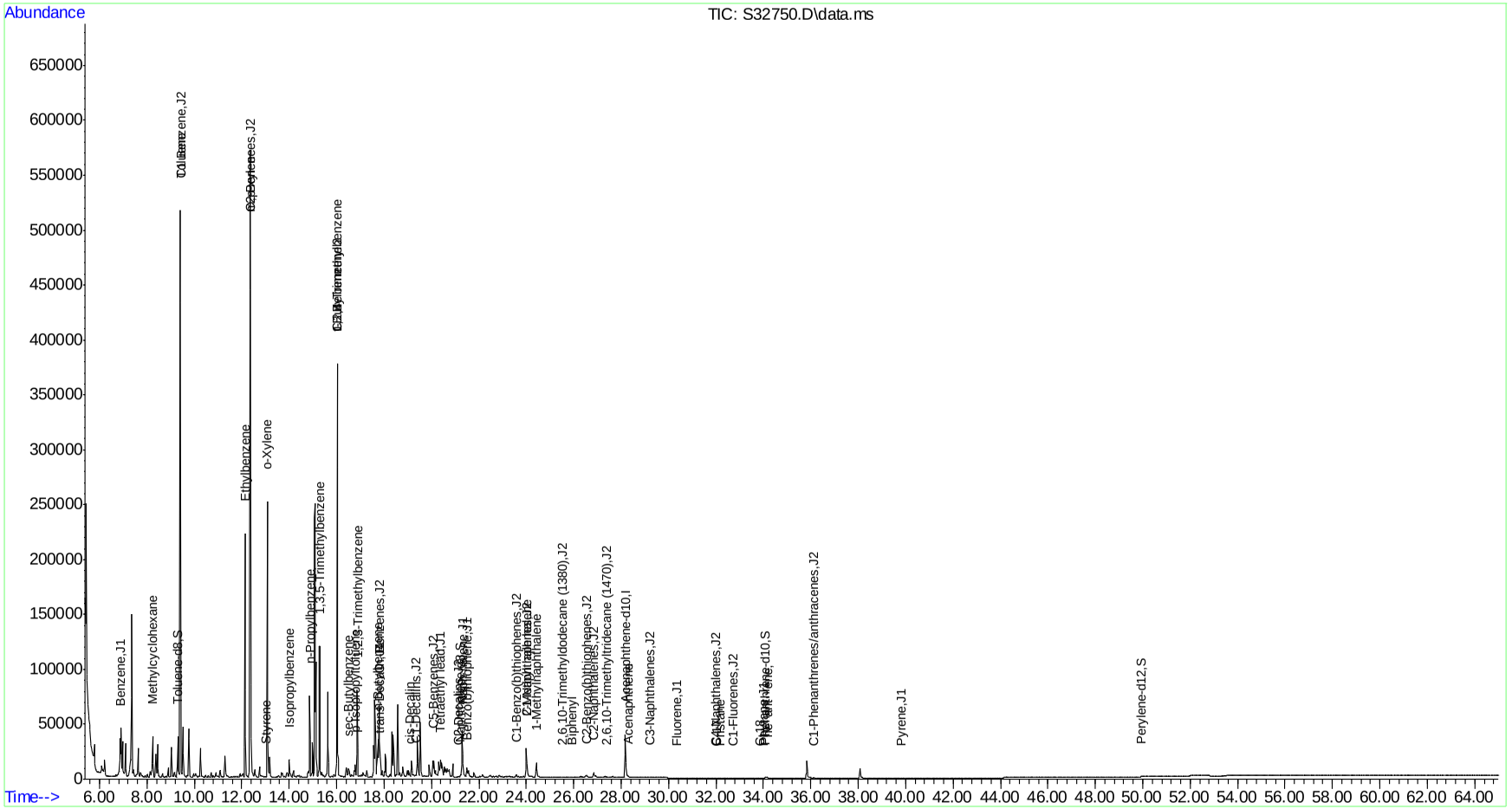
9.1.4

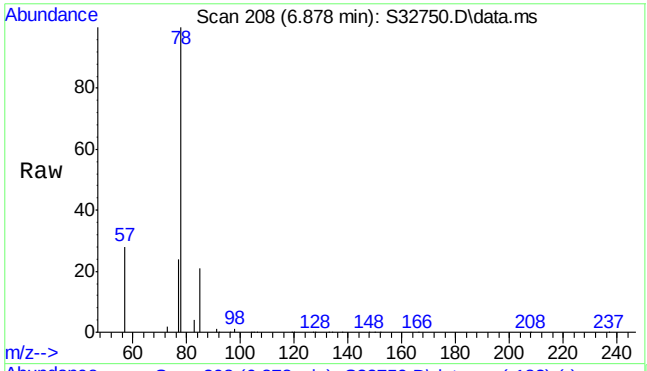
9

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32750.D
Acq On : 28 May 2013 8:10 pm
Operator : danielb
Sample : mc20162-4
Misc : op33312,mss1429,0.0150,,,2,50
ALS Vial : 9 Sample Multiplier: 1

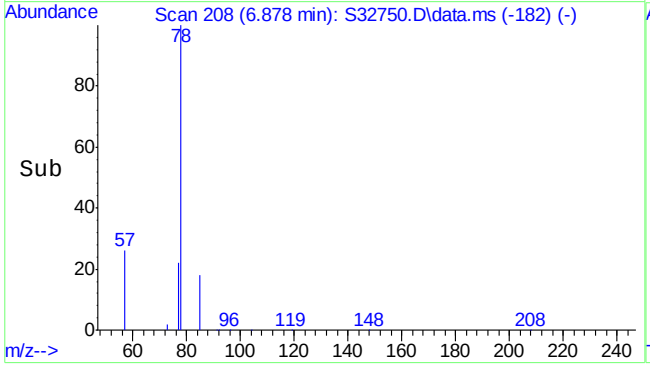
Quant Time: May 29 10:25:49 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

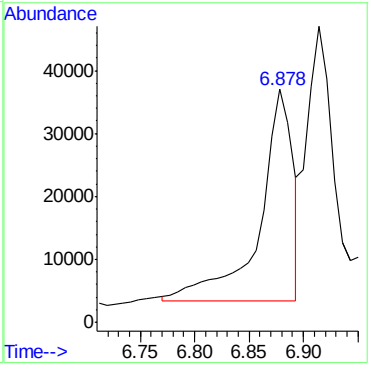


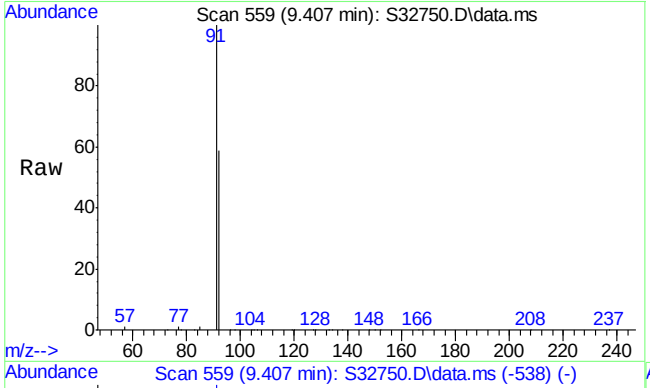


#7
Benzene
Concen: 866.63 µg/mL m
RT: 6.878 min Scan# 208
Delta R.T. -0.014 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:TIC Resp: 72604



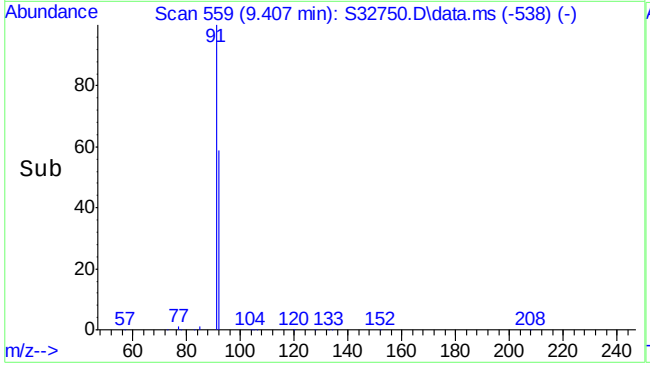


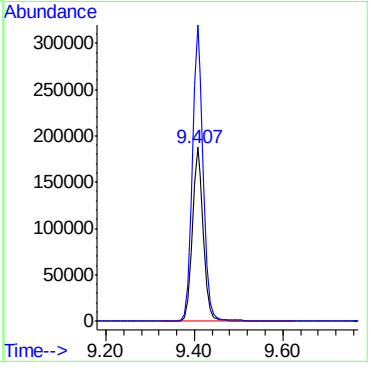


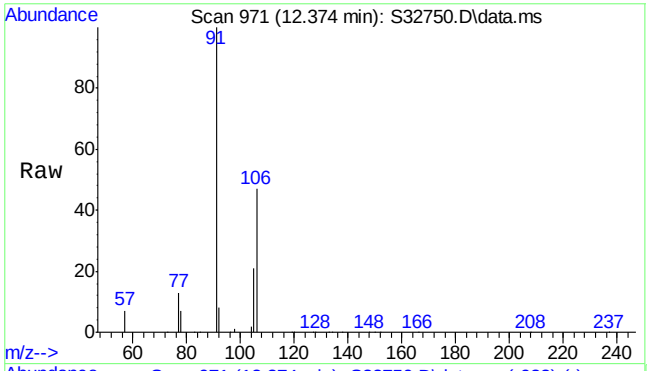
#8
C1-Benzene
Concen: 3841.99 µg/mL
RT: 9.407 min Scan# 559
Delta R.T. -0.050 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion: 92 Resp: 321873

Ion	Ratio	Lower	Upper
92	100		
91	170.4	135.6	203.4



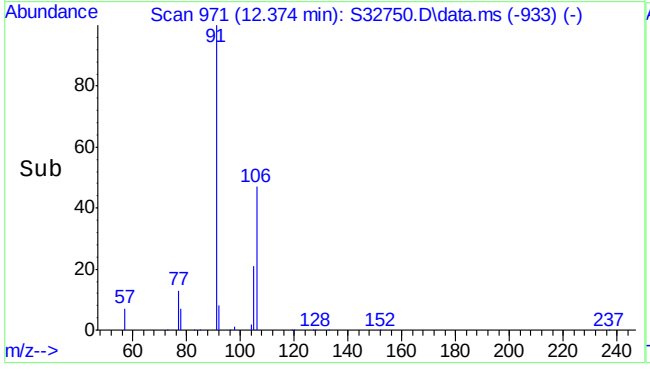


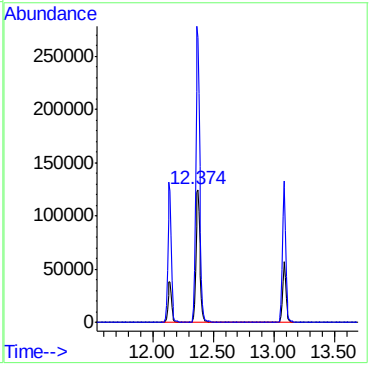


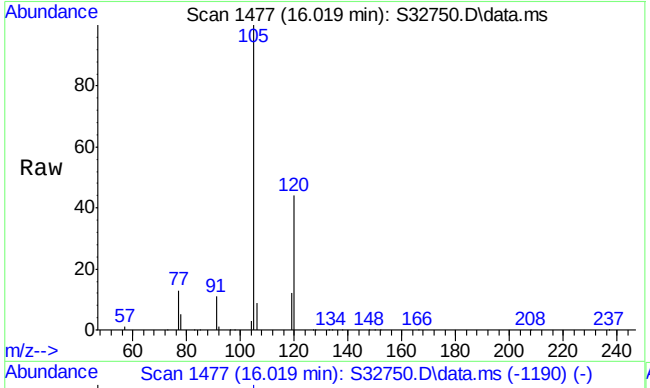
#9
C2-Benzenes
Concen: 5651.90 µg/mL m
RT: 12.374 min Scan# 971
Delta R.T. -0.014 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:106 Resp: 473503

Ion	Ratio	Lower	Upper
106	100		
91	134.2	174.9	262.3#



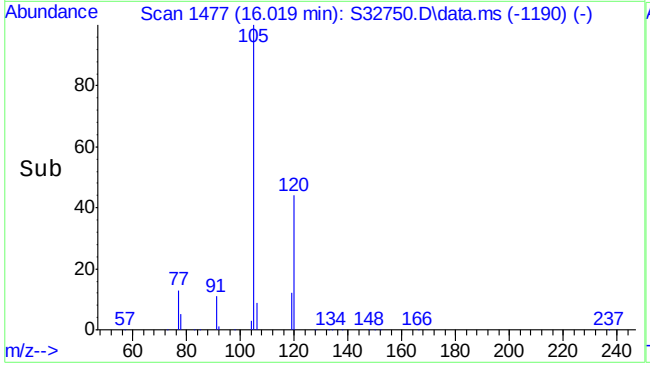


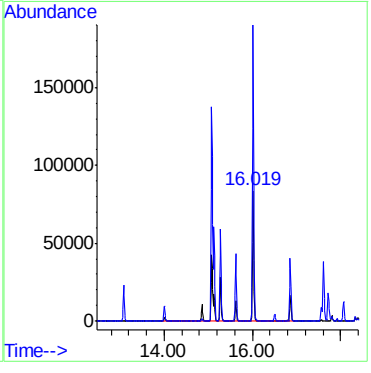


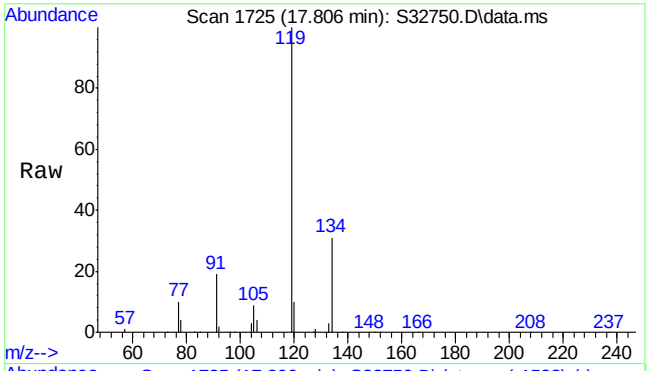
#10
C3-Benzenes
Concen: 5091.72 µg/mL m
RT: 16.019 min Scan# 1477
Delta R.T. -0.014 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:120 Resp: 426572

Ion	Ratio	Lower	Upper
120	100		
105	89.5	181.4	272.2#



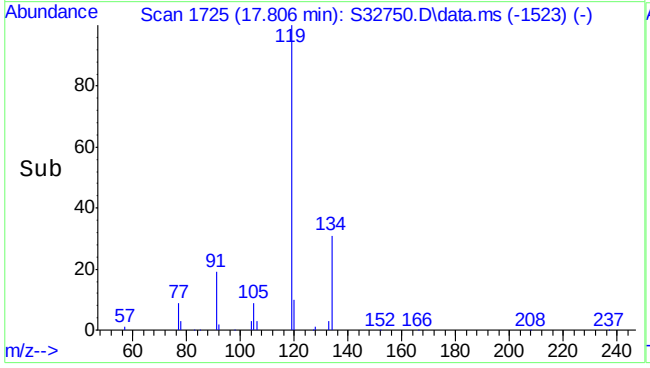


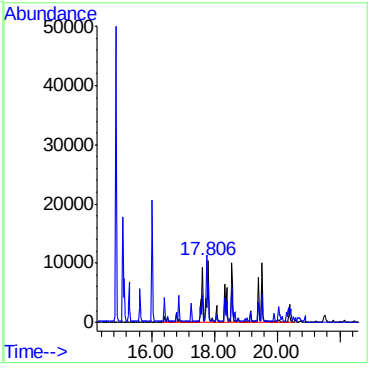


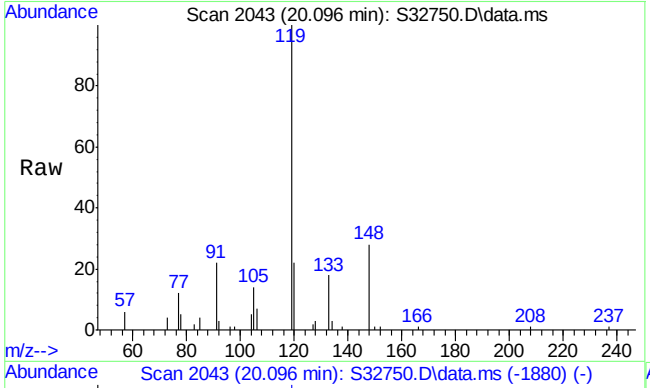
#11
C4-Benzenes
Concen: 2225.74 µg/mL m
RT: 17.806 min Scan# 1725
Delta R.T. -2.600 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:134 Resp: 186467

Ion	Ratio	Lower	Upper
134	100		
91	0.0	37.2	55.8#



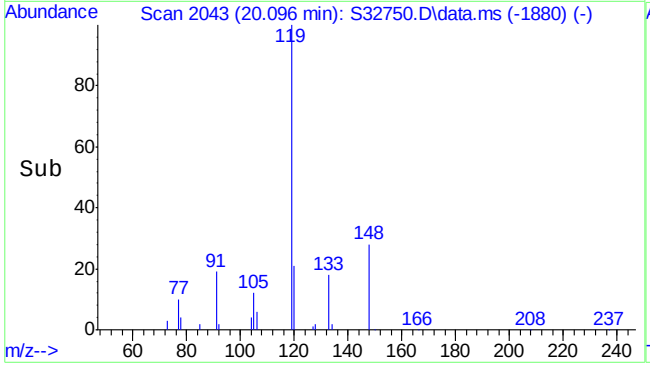


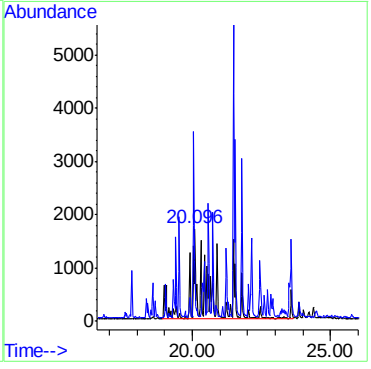


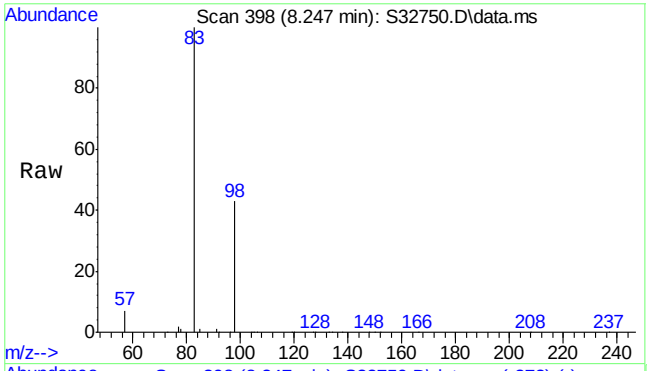
#12
C5-Benzenes
Concen: 621.82 µg/mL m
RT: 20.096 min Scan# 2043
Delta R.T. -0.014 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:148 Resp: 52095

Ion	Ratio	Lower	Upper
148	100		
133	0.0	134.0	201.0#



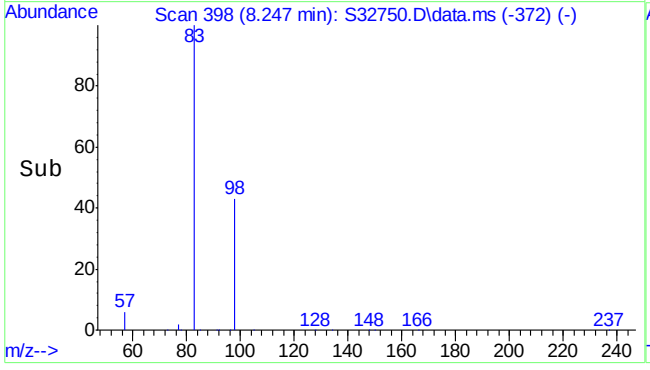


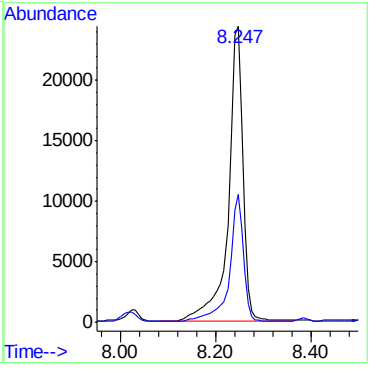


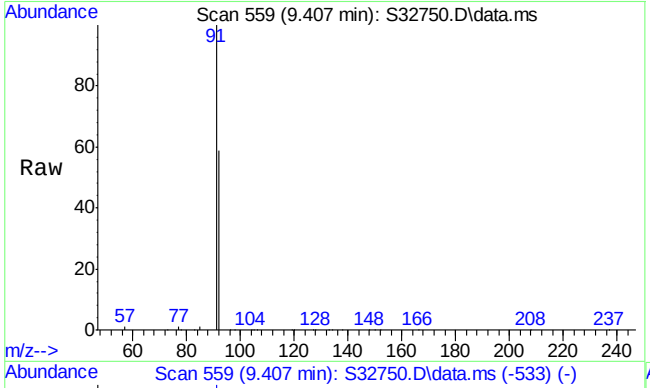
#13
Methylcyclohexane
Concen: 1593.15 µg/mL
RT: 8.247 min Scan# 398
Delta R.T. -0.014 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion: 83 Resp: 52074

Ion	Ratio	Lower	Upper
83	100		
98	41.8	34.0	51.0



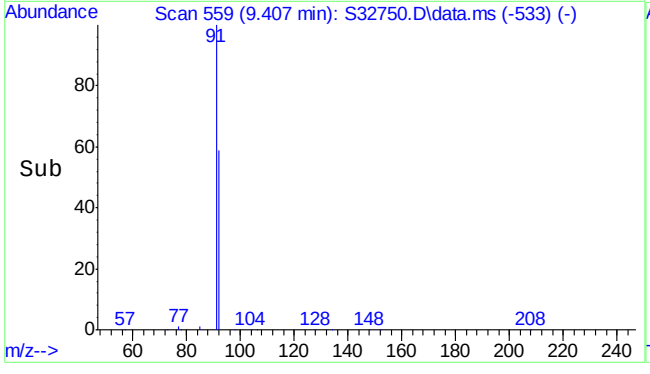


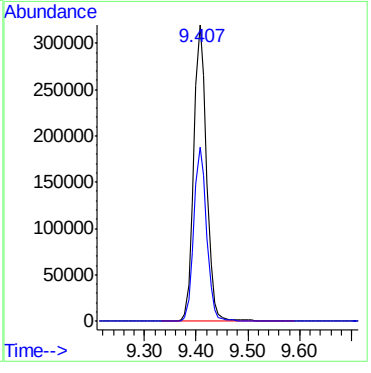


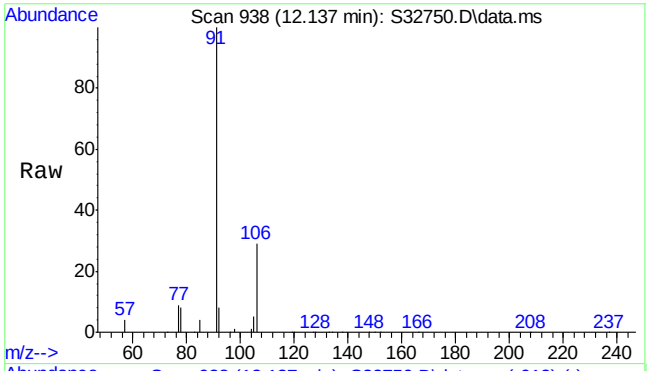
#14
Toluene
Concen: 6991.17 µg/mL
RT: 9.407 min Scan# 559
Delta R.T. -0.014 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion: 91 Resp: 548066

Ion	Ratio	Lower	Upper
91	100		
92	58.7	46.8	70.2



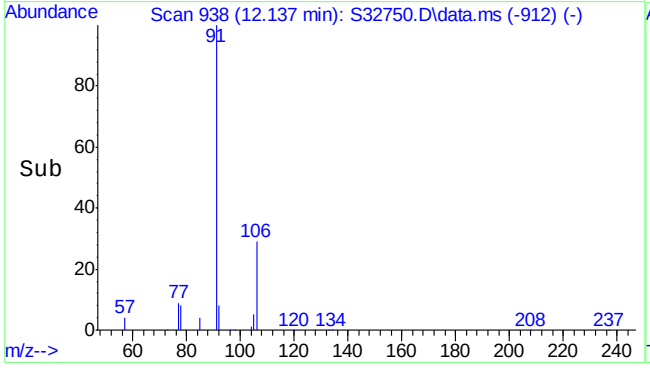


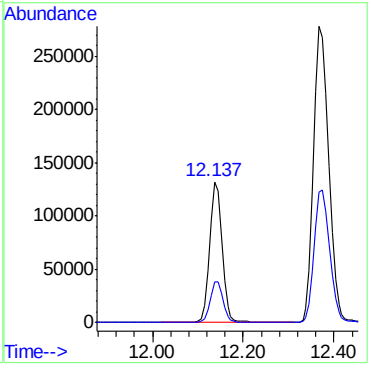


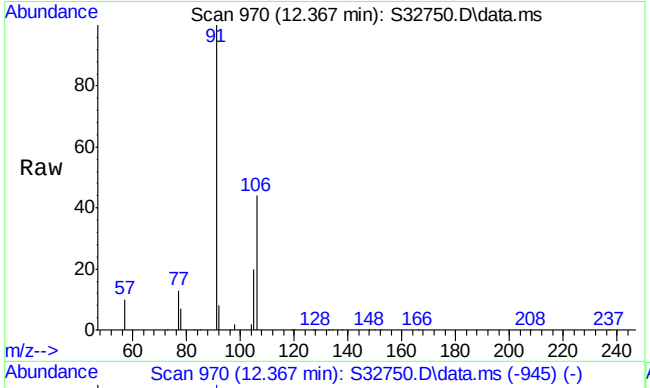
#15
Ethylbenzene
Concen: 2575.84 µg/mL
RT: 12.137 min Scan# 938
Delta R.T. -0.014 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion: 91 Resp: 246712

Ion	Ratio	Lower	Upper
91	100		
106	29.7	23.8	35.6



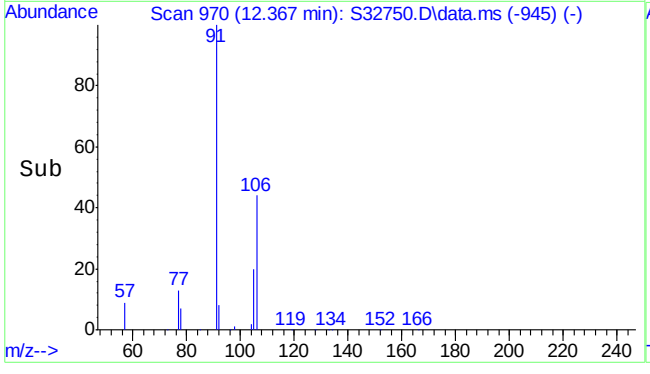


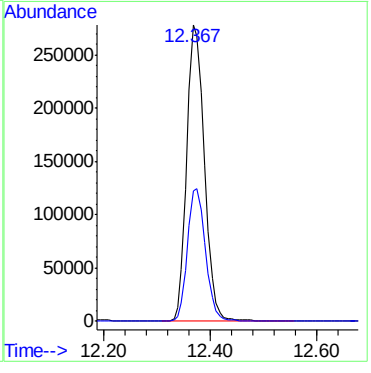


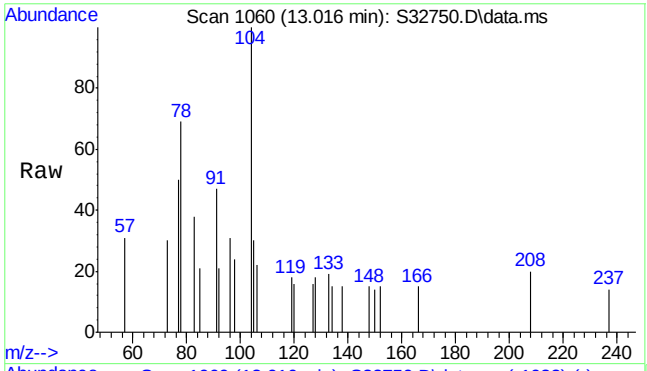
#16
m,p-xylene
Concen: 8322.07 µg/mL
RT: 12.367 min Scan# 970
Delta R.T. -0.021 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion: 91 Resp: 635339

Ion	Ratio	Lower	Upper
91	100		
106	45.5	36.6	55.0



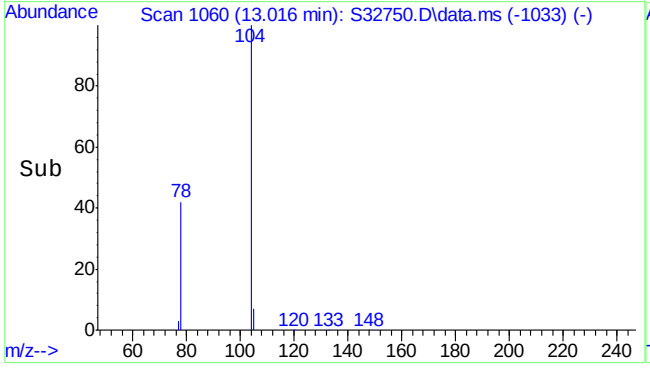


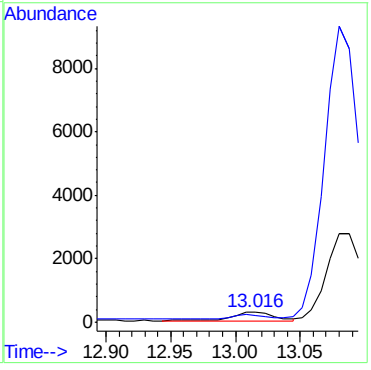


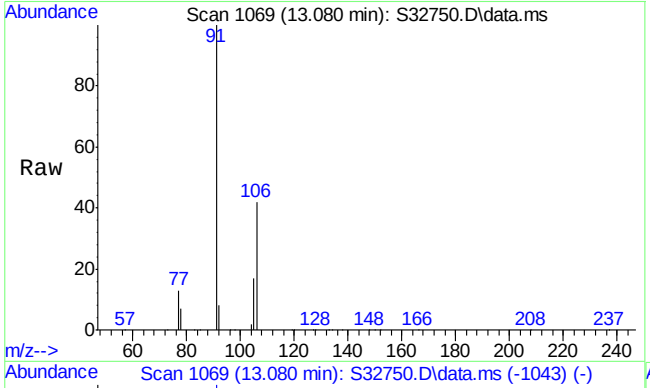
#17
Styrene
Concen: 9.90 µg/mL
RT: 13.016 min Scan# 1060
Delta R.T. -0.007 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:104 Resp: 561

Ion	Ratio	Lower	Upper
104	100		
78	42.1	37.7	56.5



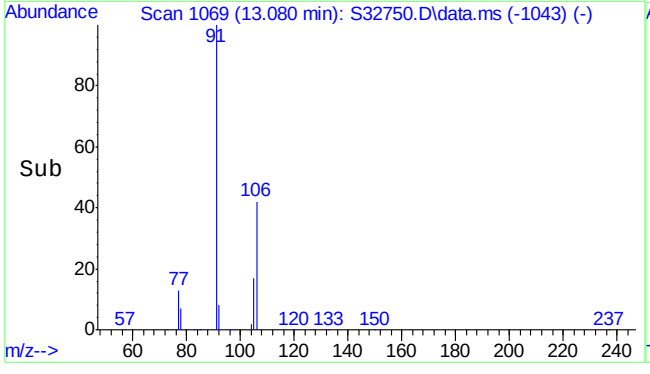


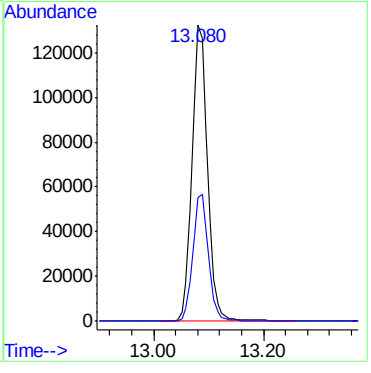


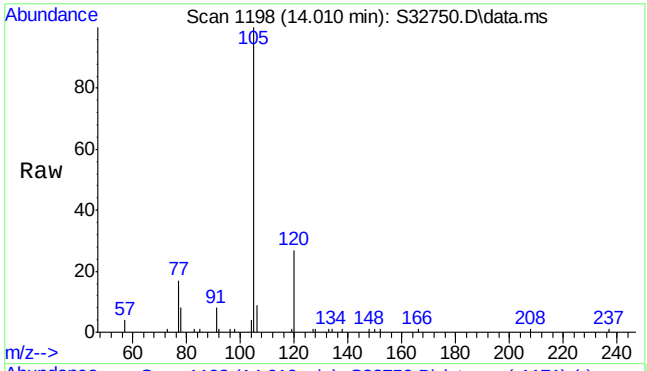
#18
o-Xylene
Concen: 3396.68 µg/mL
RT: 13.080 min Scan# 1069
Delta R.T. -0.014 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion: 91 Resp: 256852

Ion	Ratio	Lower	Upper
91	100		
106	43.1	34.5	51.7



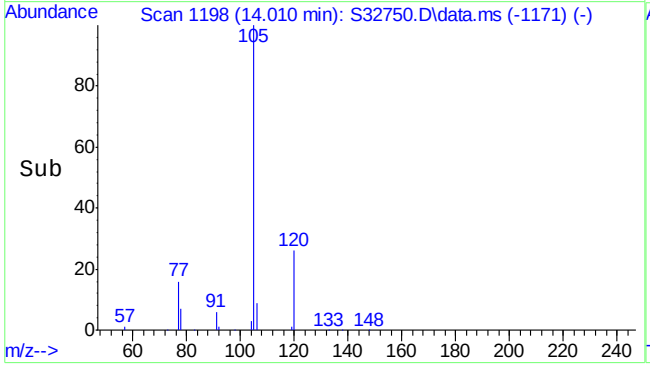


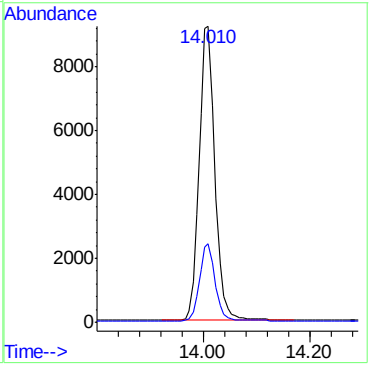


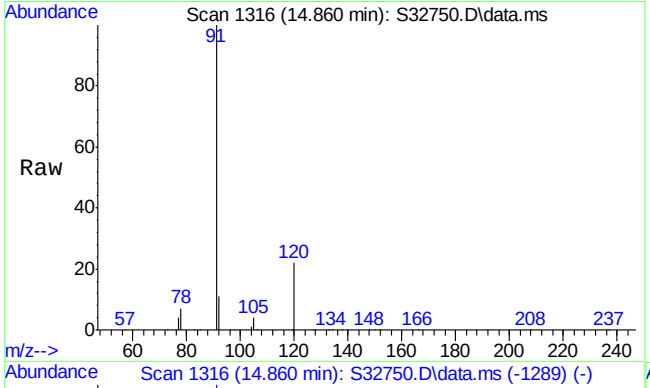
#19
Isopropylbenzene
Concen: 211.96 µg/mL
RT: 14.010 min Scan# 1198
Delta R.T. -0.007 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:105 Resp: 18895

Ion	Ratio	Lower	Upper
105	100		
120	25.8	21.1	31.7



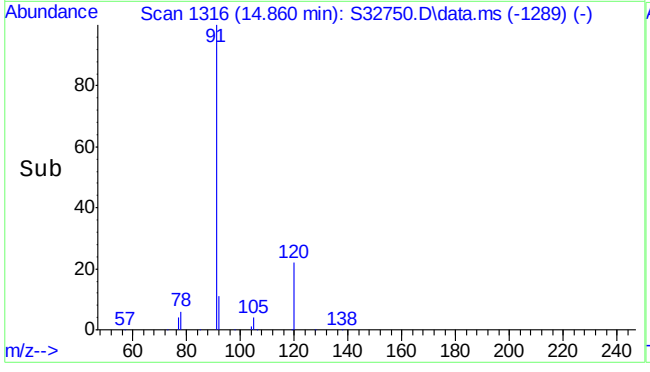


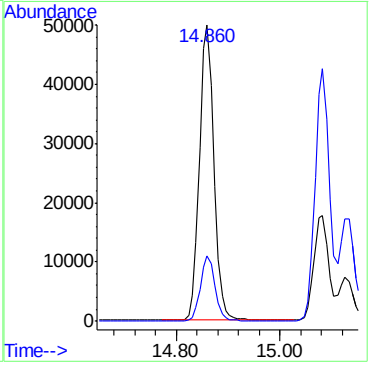


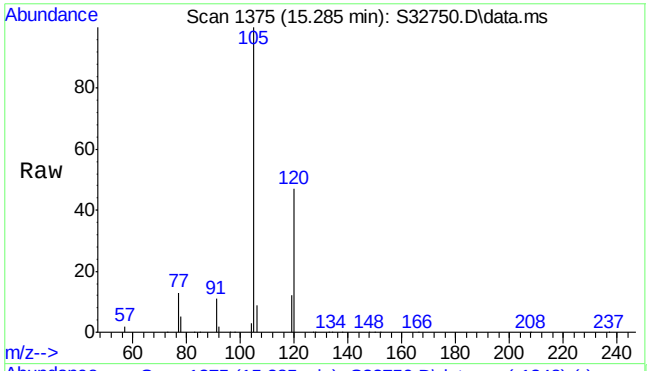
#20
n-Propylbenzene
Concen: 804.71 µg/mL
RT: 14.860 min Scan# 1316
Delta R.T. -0.007 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion: 91 Resp: 97187

Ion	Ratio	Lower	Upper
91	100		
120	21.9	17.0	25.4



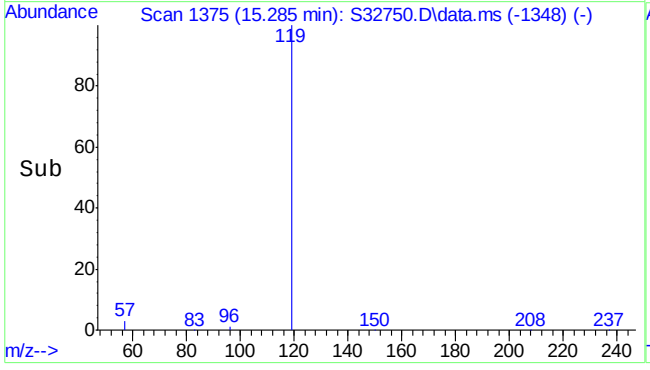


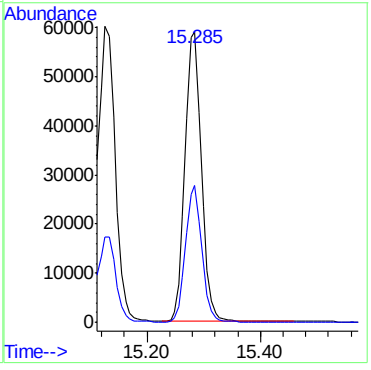


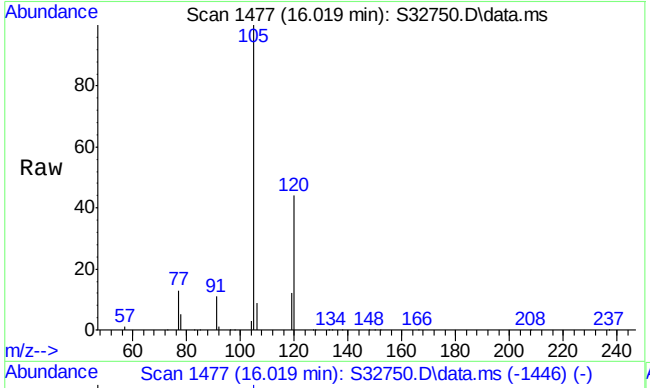
#21
1,3,5-Trimethylbenzene
Concen: 1433.58 µg/mL
RT: 15.285 min Scan# 1375
Delta R.T. -0.007 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:105 Resp: 118581

Ion	Ratio	Lower	Upper
105	100		
120	46.2	37.1	55.7



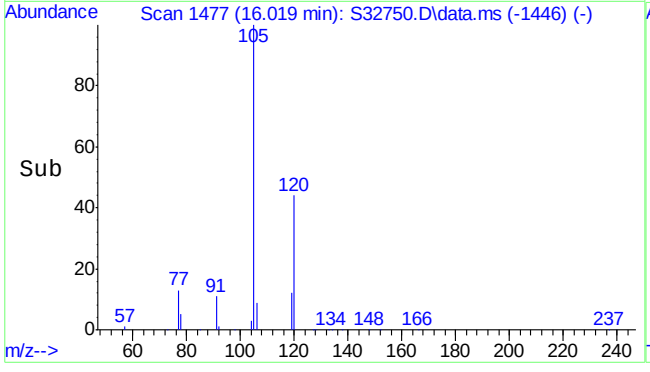


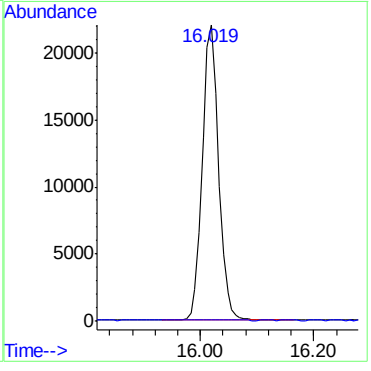


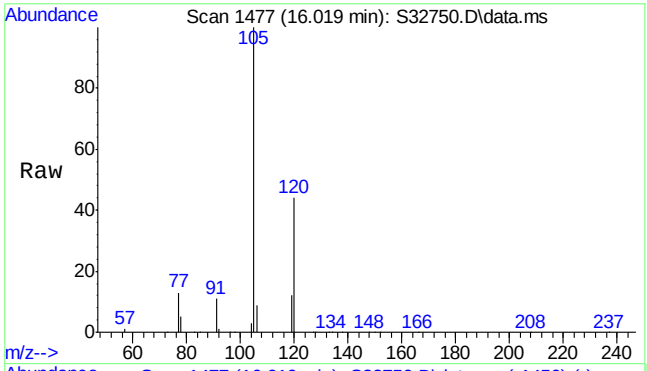
#22
t-Butylbenzene
Concen: 538.84 µg/mL
RT: 16.019 min Scan# 1477
Delta R.T. 0.022 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:119 Resp: 43824

Ion	Ratio	Lower	Upper
119	100		
134	0.0	17.6	26.4#



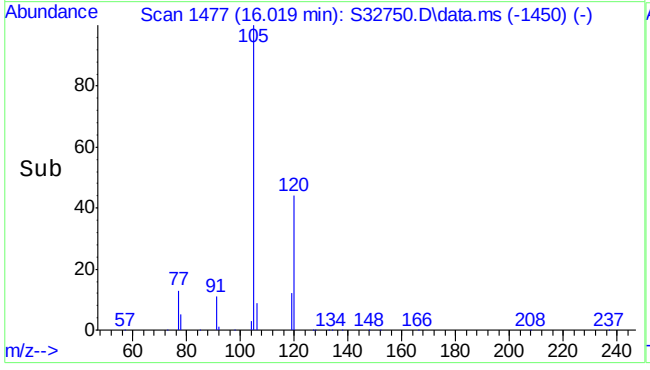


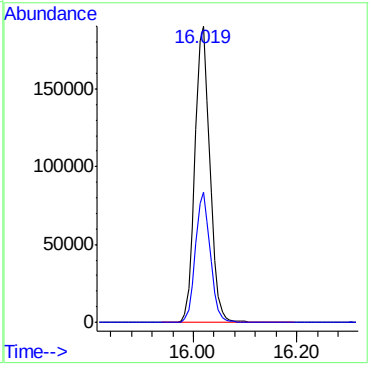


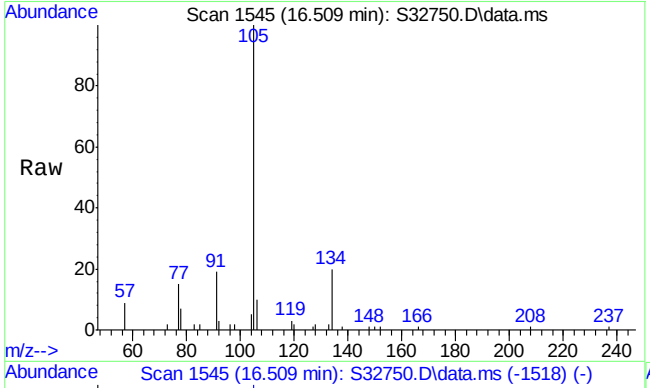
#23
1,2,4-Trimethylbenzene
Concen: 4510.28 µg/mL
RT: 16.019 min Scan# 1477
Delta R.T. -0.007 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:105 Resp: 381408

Ion	Ratio	Lower	Upper
105	100		
120	43.5	35.1	52.7



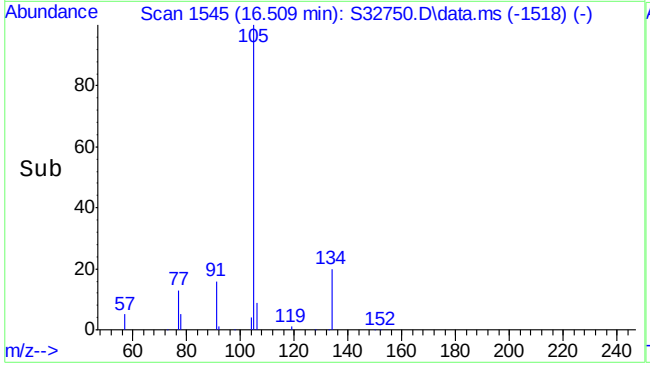


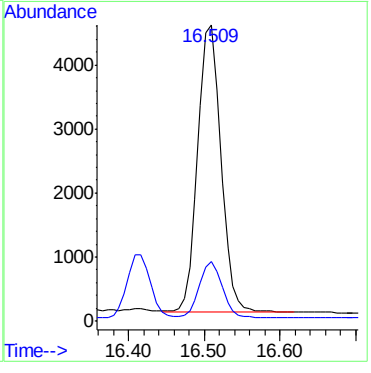


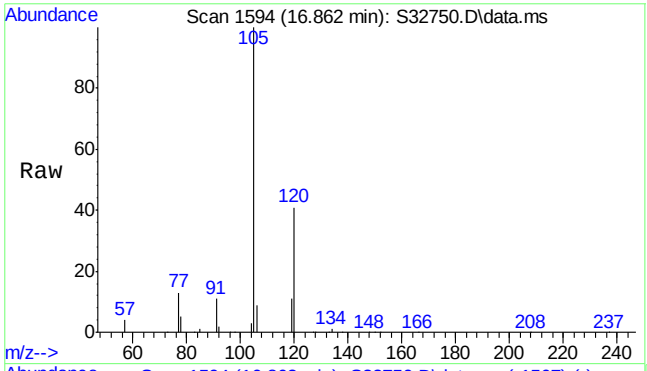
#24
sec-Butylbenzene
Concen: 88.27 µg/mL
RT: 16.509 min Scan# 1545
Delta R.T. -0.007 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:105 Resp: 9577

Ion	Ratio	Lower	Upper
105	100		
134	19.3	15.4	23.2



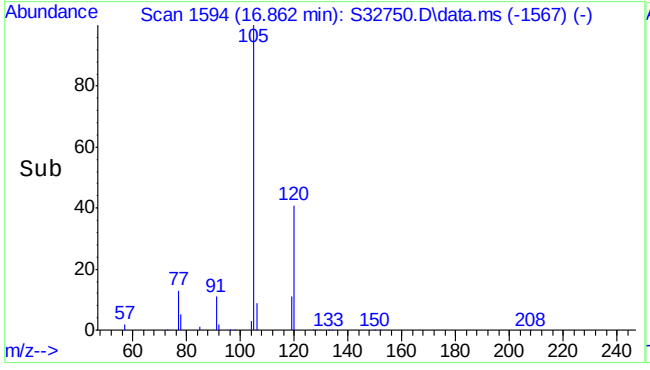


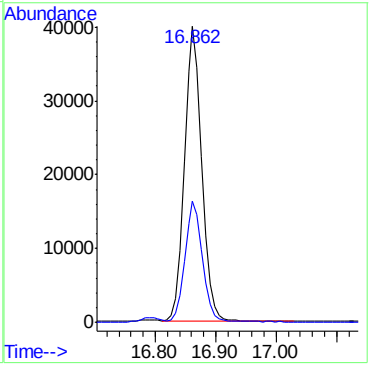


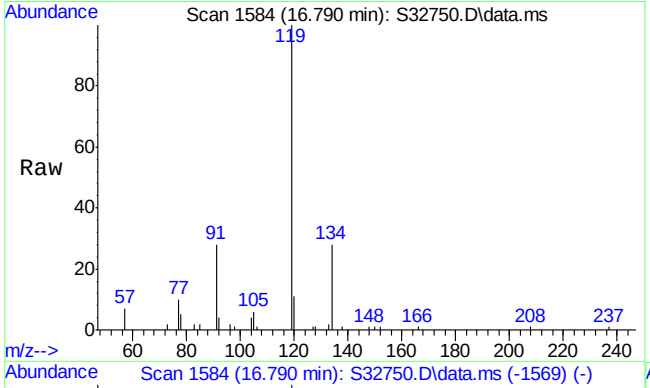
#25
1,2,3-Trimethylbenzene
Concen: 908.58 µg/mL
RT: 16.862 min Scan# 1594
Delta R.T. -0.007 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:105 Resp: 80559

Ion	Ratio	Lower	Upper
105	100		
120	41.2	34.6	52.0



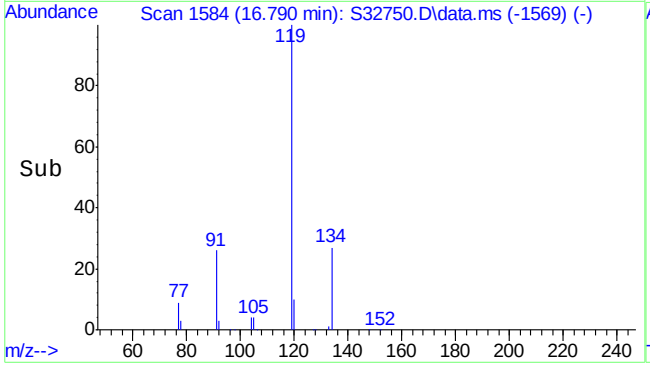


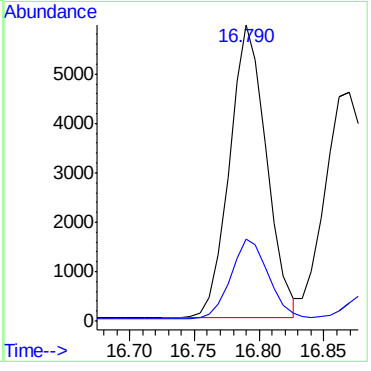


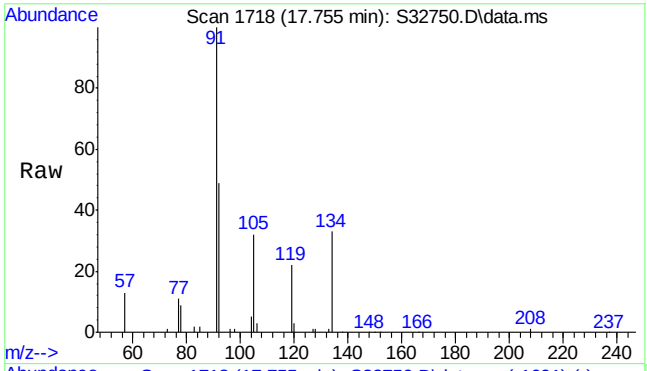
#26
p-Isopropyltoluene
Concen: 123.37 µg/mL
RT: 16.790 min Scan# 1584
Delta R.T. -0.093 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:119 Resp: 11805

Ion	Ratio	Lower	Upper
119	100		
134	27.5	18.4	27.6



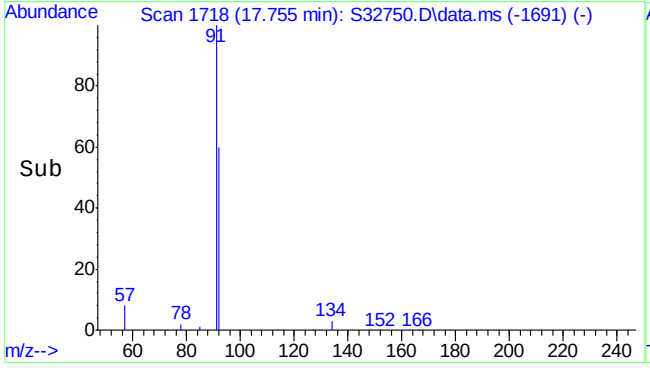


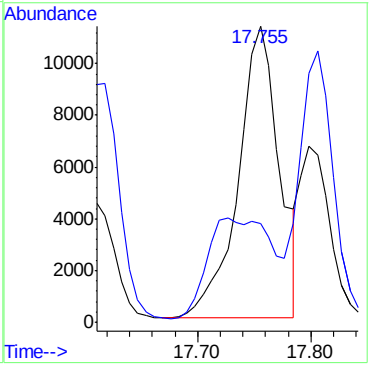


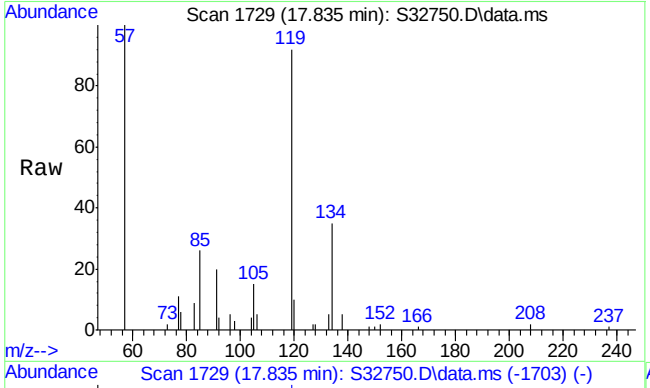
#27
n-Butylbenzene
Concen: 306.05 µg/mL
RT: 17.755 min Scan# 1718
Delta R.T. -0.007 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion: 91 Resp: 28237

Ion	Ratio	Lower	Upper
91	100		
134	0.0	18.2	27.2#



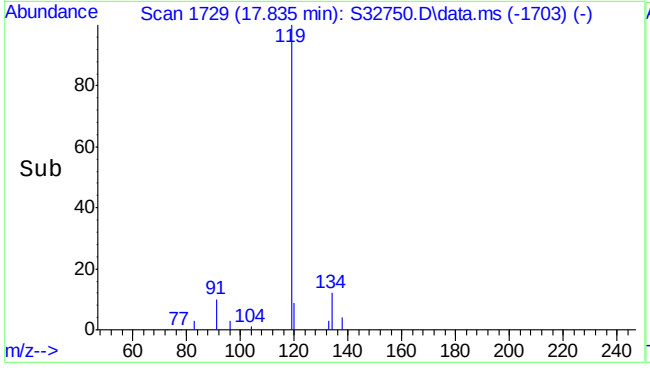


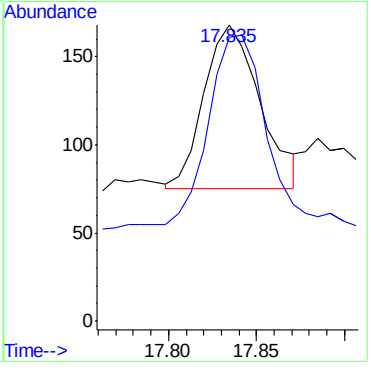


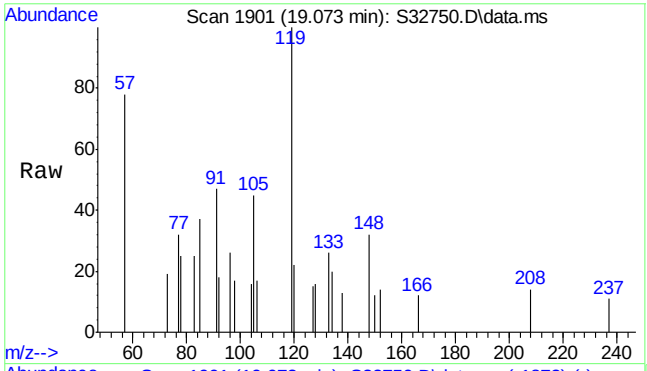
#28
trans-Decalin
Concen: 11.81 µg/mL m
RT: 17.835 min Scan# 1729
Delta R.T. -0.014 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion: 96 Resp: 205

Ion	Ratio	Lower	Upper
96	100		
138	0.0	106.5	159.7#



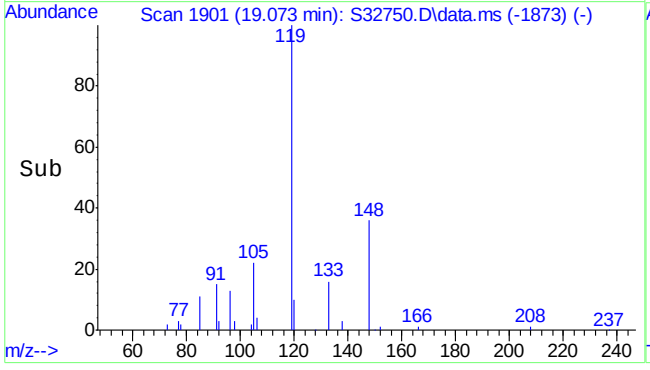


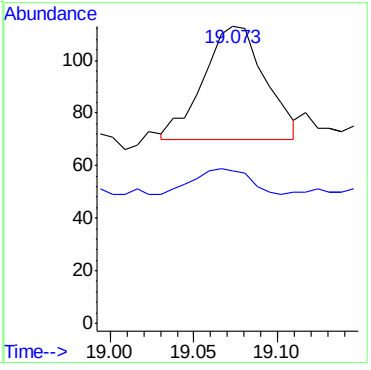


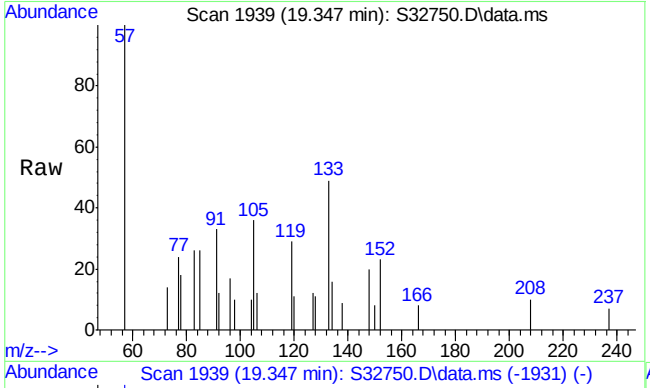
#29
cis-Decalin
Concen: 4.85 µg/mL m
RT: 19.073 min Scan# 1901
Delta R.T. 0.000 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion: 96 Resp: 110

Ion	Ratio	Lower	Upper
96	100		
138	0.0	56.6	85.0#

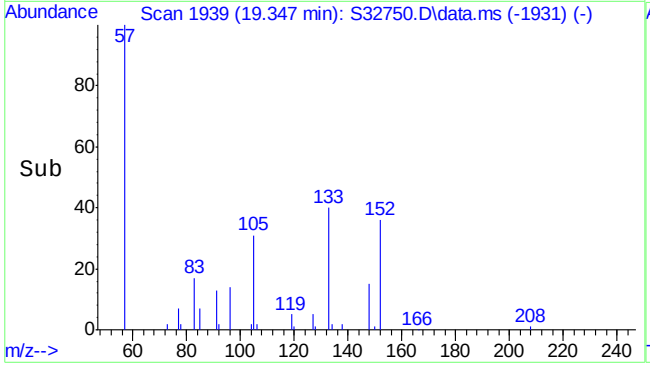


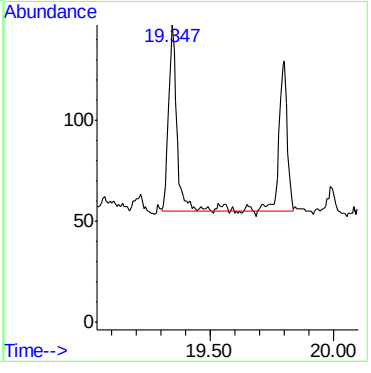


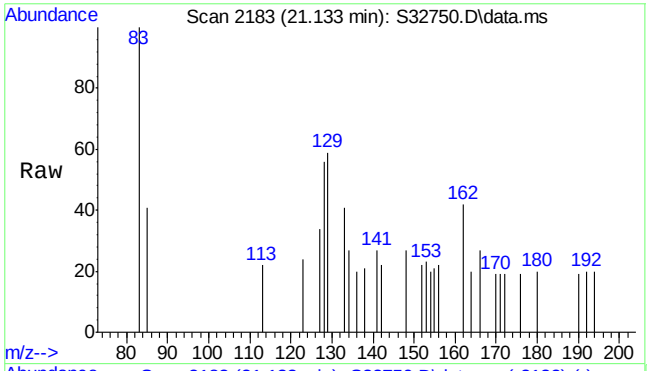


#30
C1-Decalins
Concen: 22.58 µg/mL m
RT: 19.347 min Scan# 1939
Delta R.T. -0.461 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:152 Resp: 392

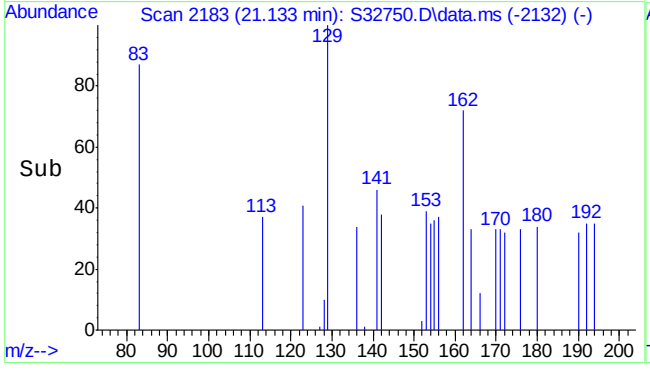


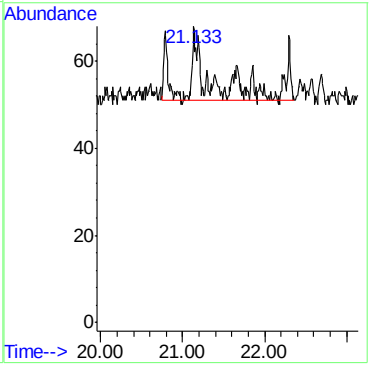


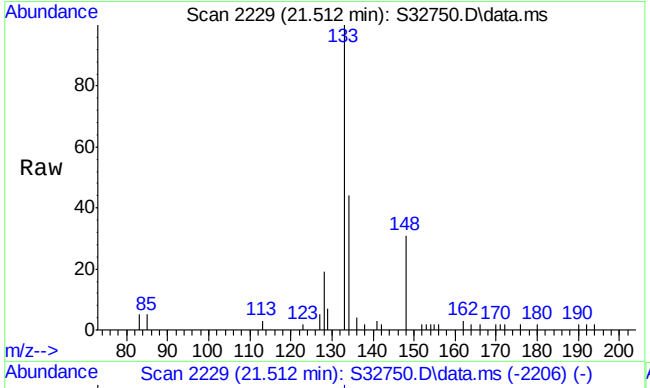


#31
C2-Decalins
Concen: 19.70 µg/mL m
RT: 21.133 min Scan# 2183
Delta R.T. -0.017 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:166 Resp: 342



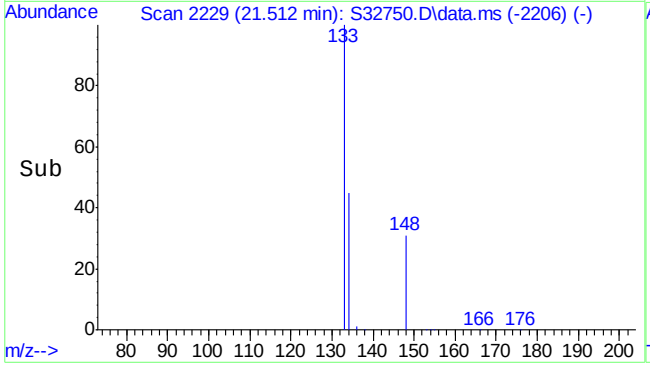


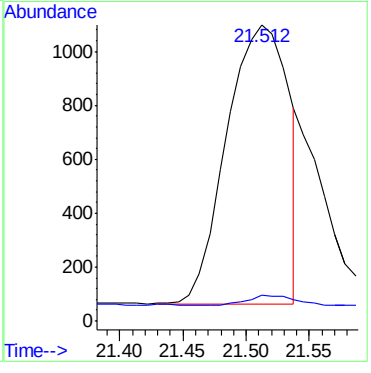


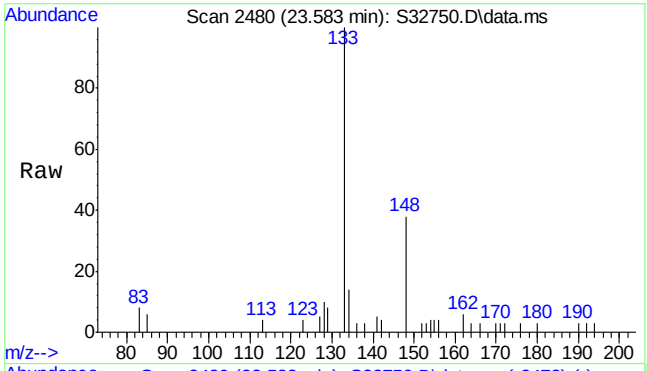
#34
Benzo(b)thiophene
Concen: 35.28 µg/mL m
RT: 21.512 min Scan# 2229
Delta R.T. -0.008 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:134 Resp: 3531

Ion	Ratio	Lower	Upper
134	100		
136	0.0	4.0	6.0#

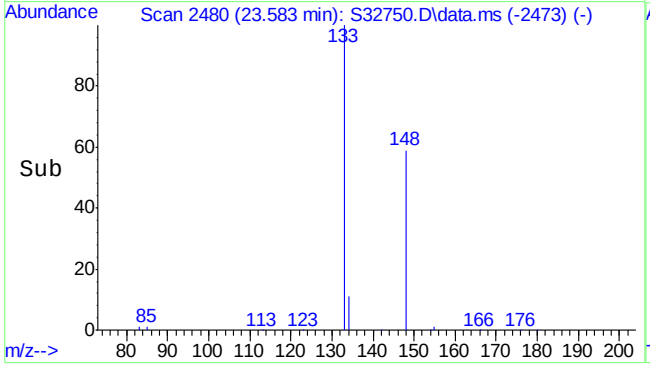


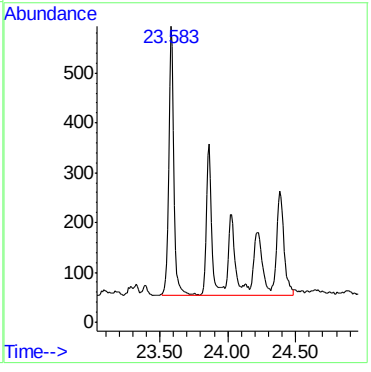


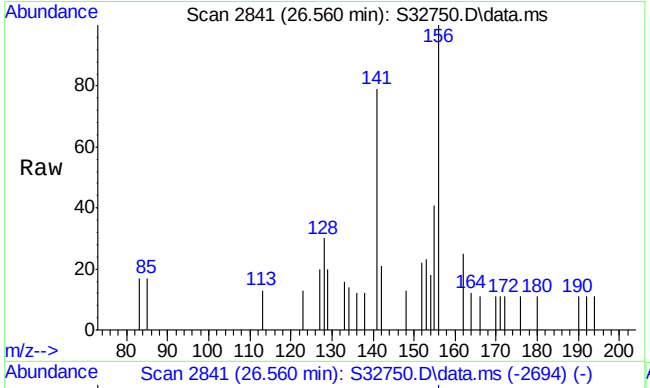


#35
C1-Benzo(b)thiophenes
Concen: 40.31 µg/mL m
RT: 23.583 min Scan# 2480
Delta R.T. -0.017 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:148 Resp: 4034

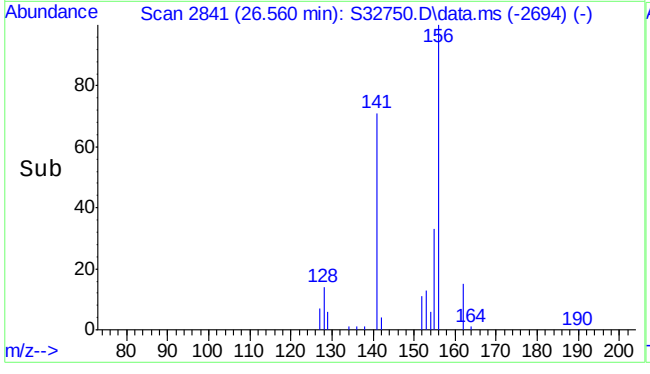


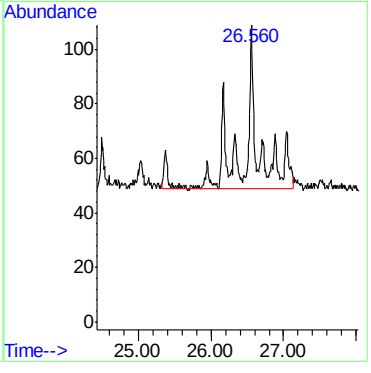


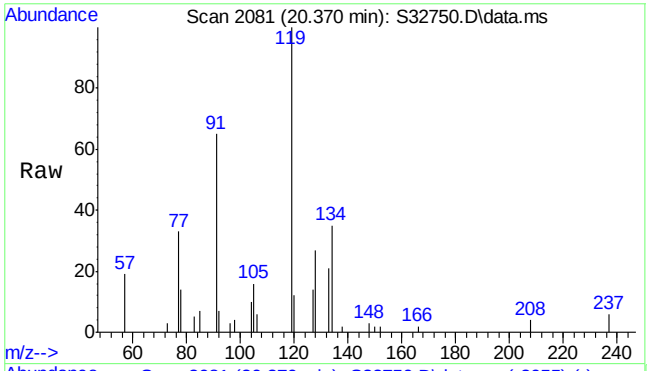


#36
C2-Benzo(b)thiophenes
Concen: 7.81 µg/mL m
RT: 26.560 min Scan# 2841
Delta R.T. -0.487 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:162 Resp: 782



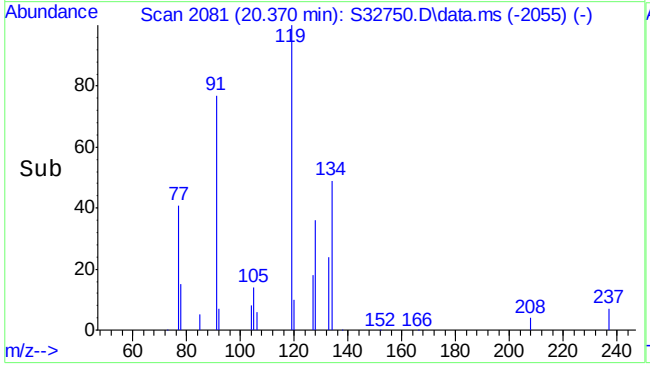


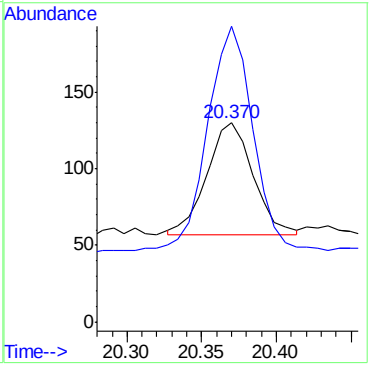


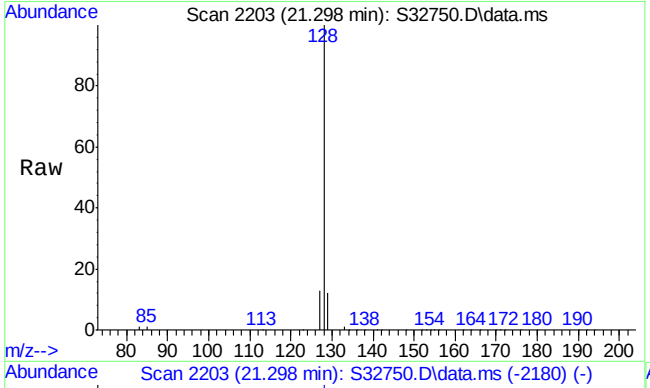
#39
Tetraethyl lead
Concen: 22.85 µg/mL m
RT: 20.370 min Scan# 2081
Delta R.T. -0.014 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:208 Resp: 158

Ion	Ratio	Lower	Upper
208	100		
237	0.0	171.2	256.8#



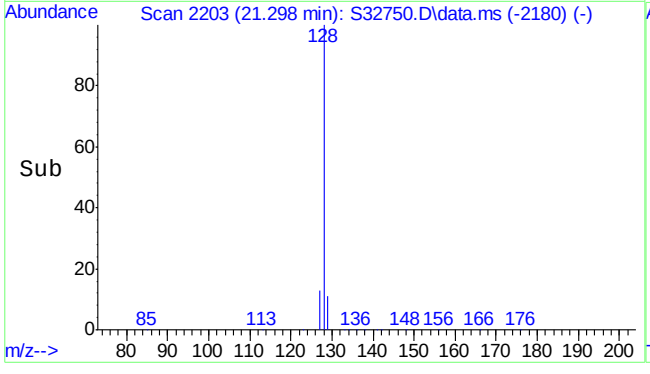


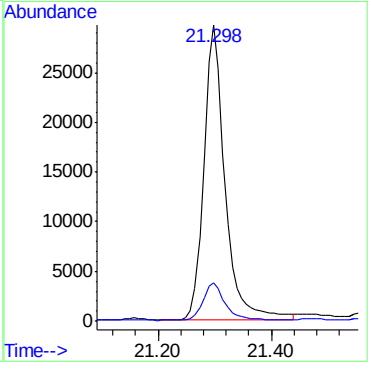


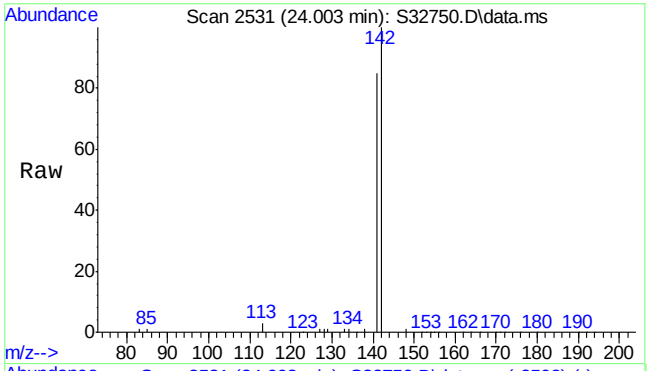
#44
Naphthalene
Concen: 604.78 ng/mL
RT: 21.298 min Scan# 2203
Delta R.T. -0.008 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:128 Resp: 77489

Ion	Ratio	Lower	Upper
128	100		
127	12.7	10.1	15.1



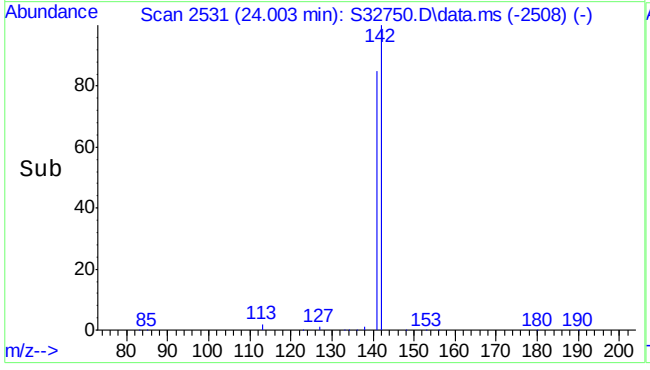


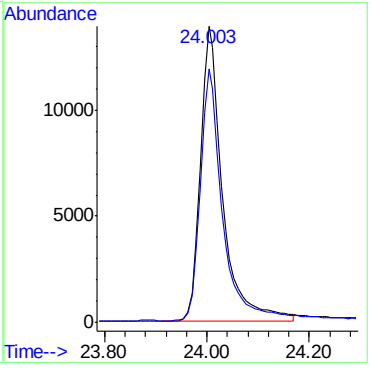


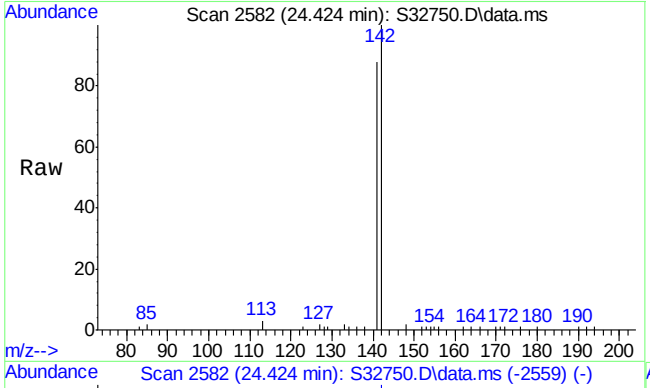
#45
2-Methylnaphthalene
Concen: 527.72 ng/mL
RT: 24.003 min Scan# 2531
Delta R.T. -0.008 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:142 Resp: 41917

Ion	Ratio	Lower	Upper
142	100		
141	85.0	68.9	103.3



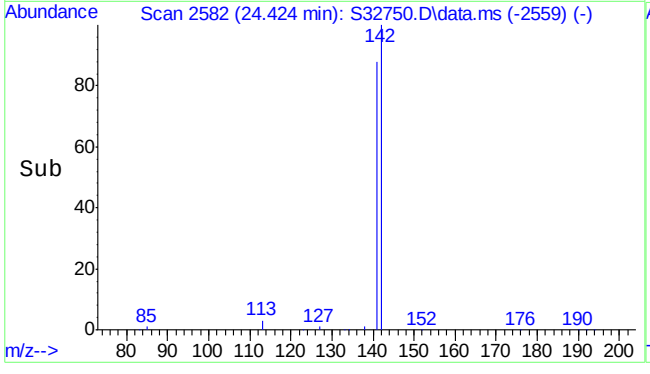


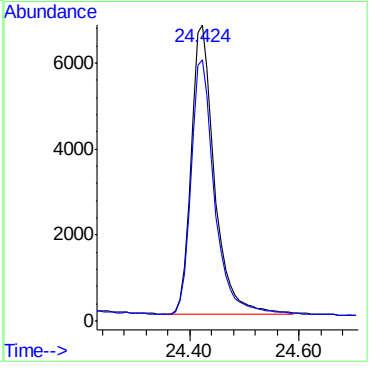


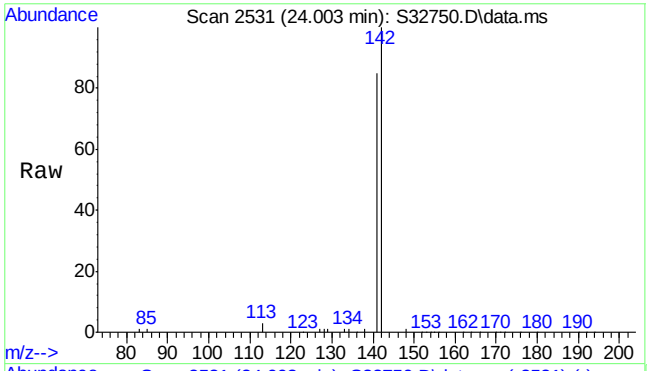
#46
1-Methylnaphthalene
Concen: 247.55 ng/mL
RT: 24.424 min Scan# 2582
Delta R.T. -0.008 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:142 Resp: 19809

Ion	Ratio	Lower	Upper
142	100		
141	88.6	71.1	106.7



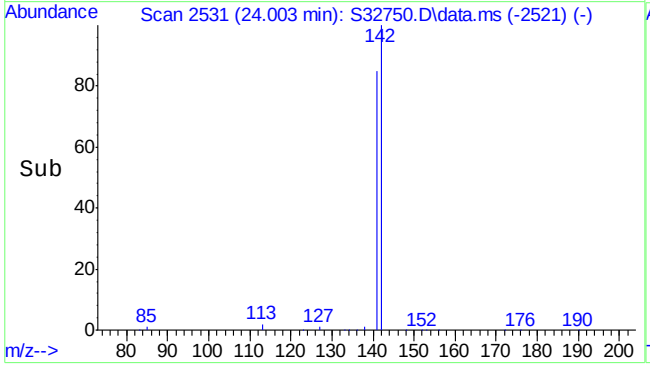


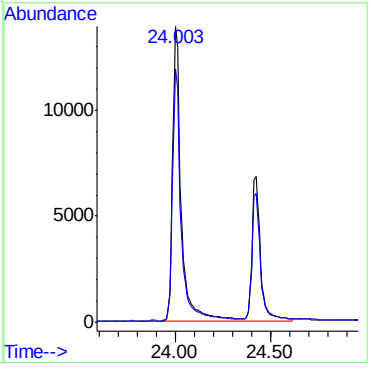


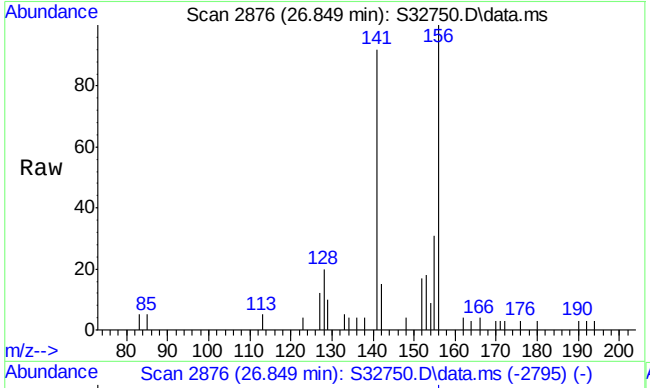
#47
C1-Naphthalenes
Concen: 506.82 ng/mL m
RT: 24.003 min Scan# 2531
Delta R.T. -0.008 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:142 Resp: 64937

Ion	Ratio	Lower	Upper
142	100		
141	56.4	68.9	103.3#



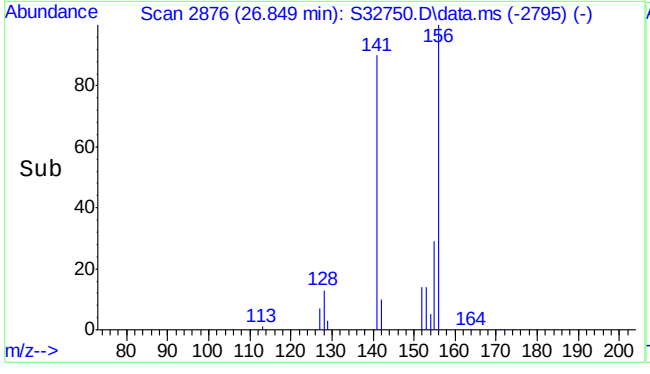


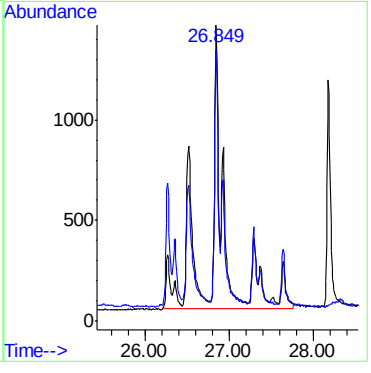


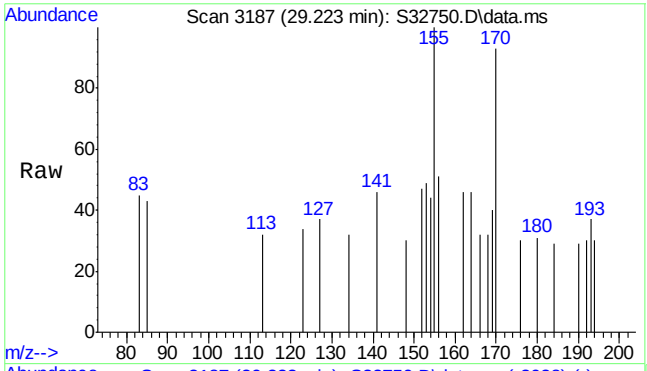
#48
C2-Naphthalenes
Concen: 126.79 ng/mL m
RT: 26.849 min Scan# 2876
Delta R.T. -0.091 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:156 Resp: 16245

Ion	Ratio	Lower	Upper
156	100		
141	13.5	60.6	90.8#



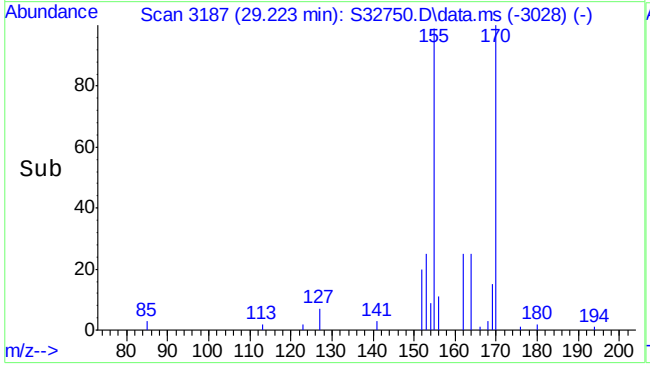


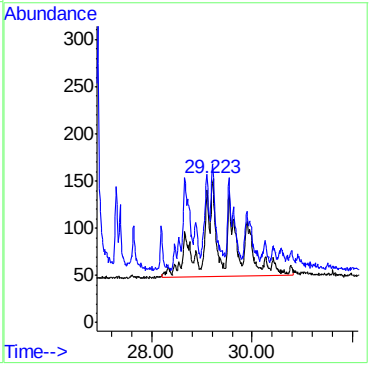


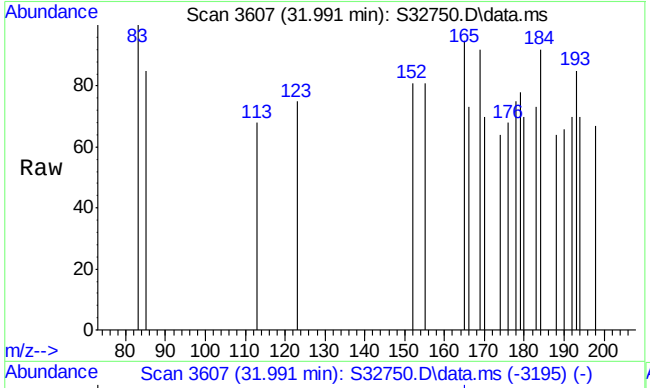
#49
C3-Naphthalenes
Concen: 27.49 ng/mL m
RT: 29.223 min Scan# 3187
Delta R.T. 0.029 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:170 Resp: 3522

Ion	Ratio	Lower	Upper
170	100		
155	8.6	81.7	122.5#



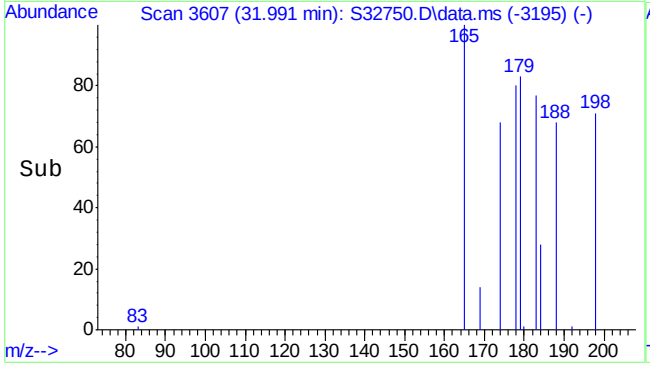


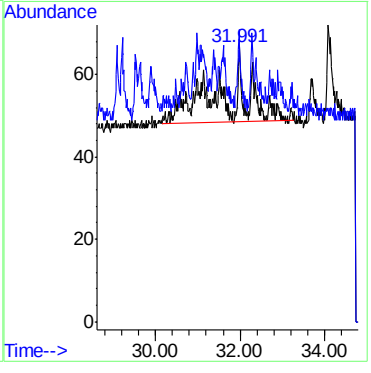


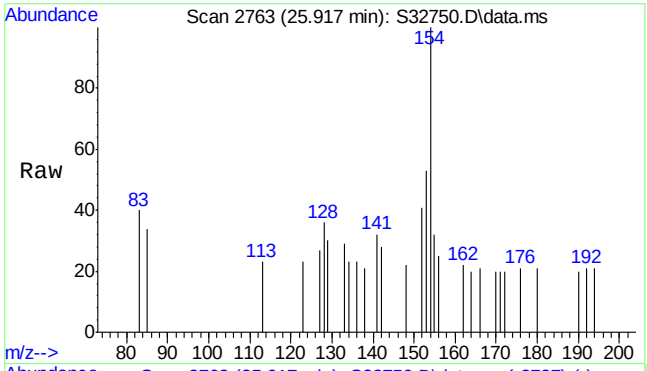
#50
C4-Naphthalenes
Concen: 5.96 ng/mL m
RT: 31.991 min Scan# 3607
Delta R.T. 0.038 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:184 Resp: 763

Ion	Ratio	Lower	Upper
184	100		
169	0.0	76.8	115.2#



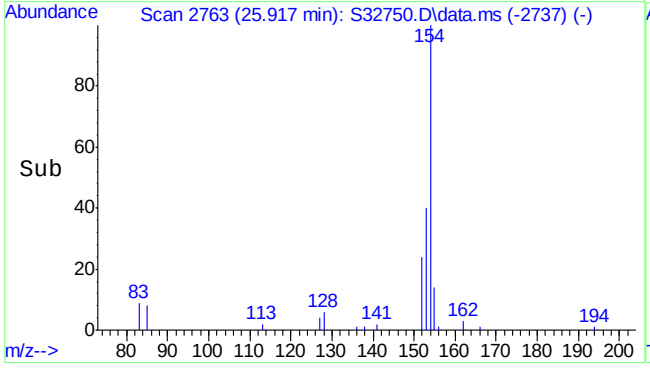


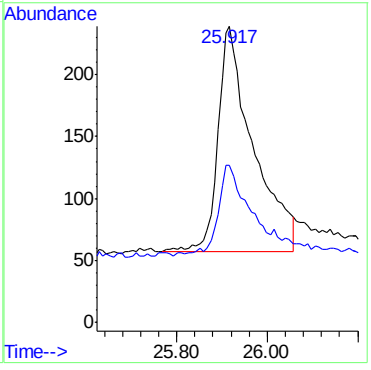


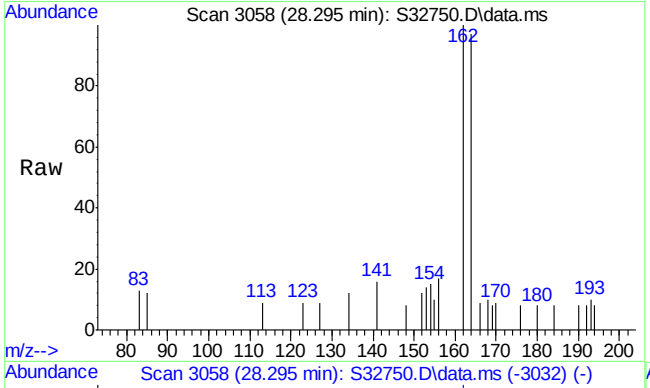
#51
Biphenyl
Concen: 9.15 µg/mL
RT: 25.917 min Scan# 2763
Delta R.T. 0.017 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:154 Resp: 987

Ion	Ratio	Lower	Upper
154	100		
153	37.7	31.2	46.8



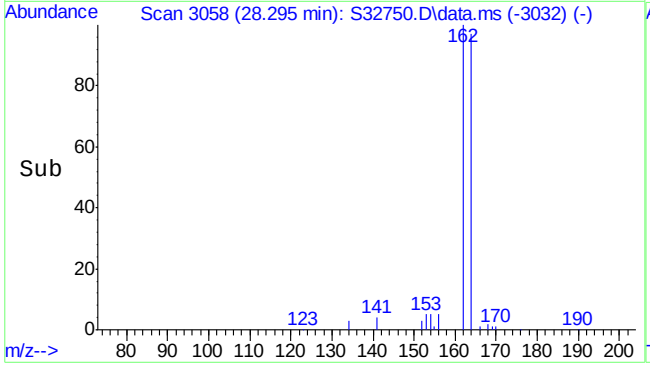


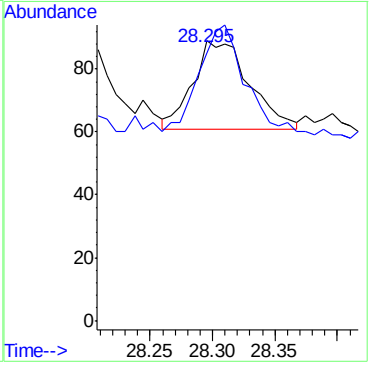


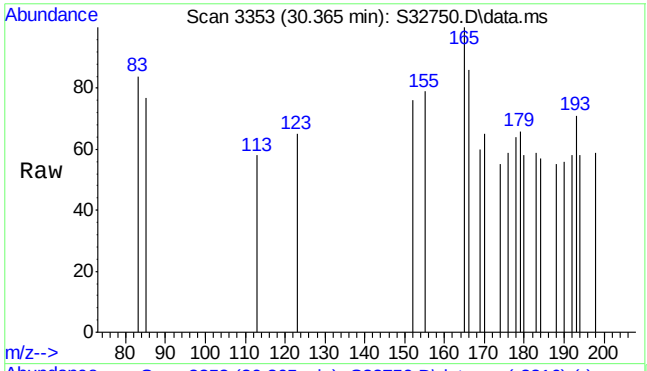
#53
Acenaphthene
Concen: 1.27 ng/mL m
RT: 28.295 min Scan# 3058
Delta R.T. -0.014 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:154 Resp: 88

Ion	Ratio	Lower	Upper
154	100		
153	0.0	86.4	129.6#



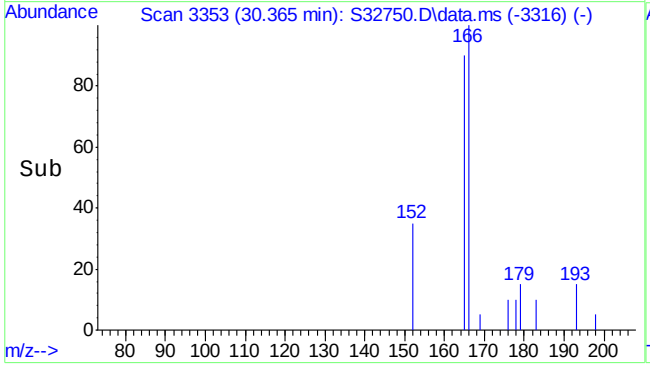


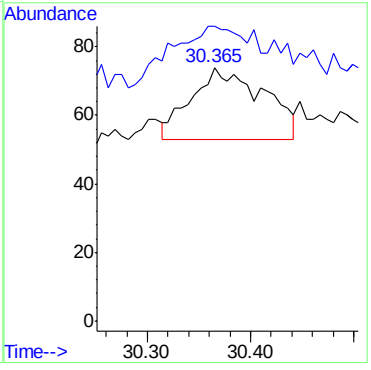


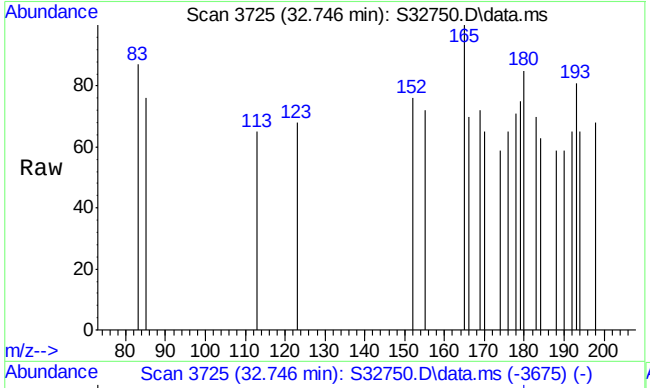
#55
Fluorene
Concen: 1.23 ng/mL m
RT: 30.365 min Scan# 3353
Delta R.T. 0.039 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:166 Resp: 101

Ion	Ratio	Lower	Upper
166	100		
165	0.0	75.1	112.7#



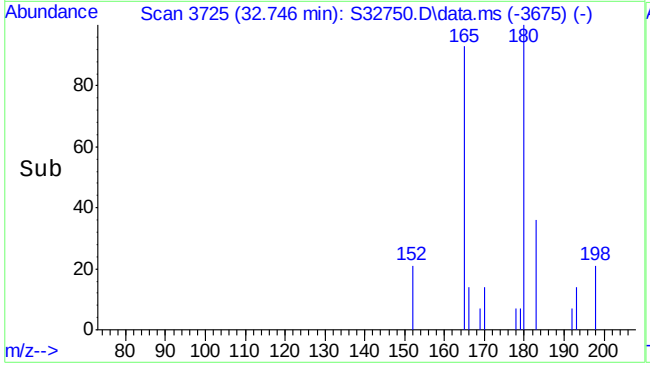


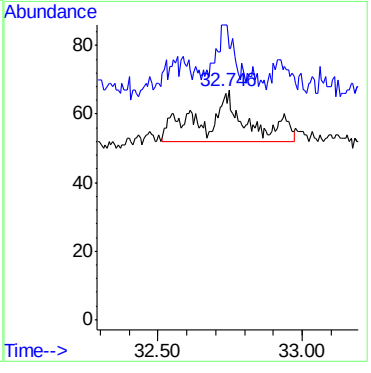


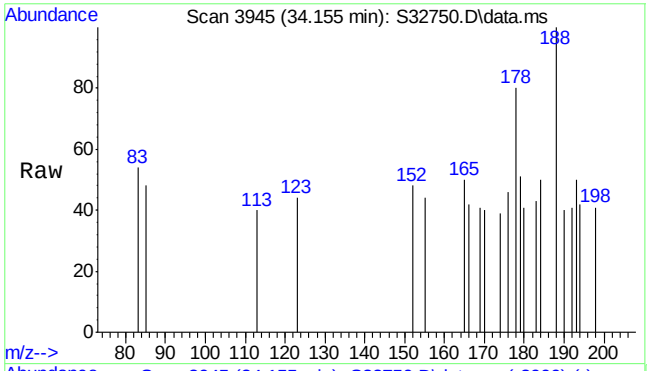
#56
C1-Fluorenes
Concen: 1.95 ng/mL m
RT: 32.746 min Scan# 3725
Delta R.T. 0.051 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:180 Resp: 160

Ion	Ratio	Lower	Upper
180	100		
165	0.0	128.1	192.1#



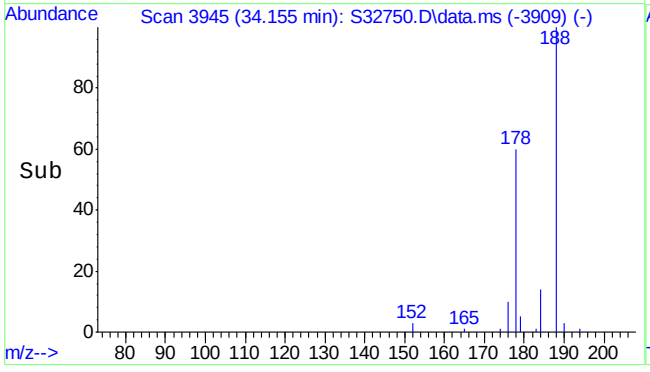


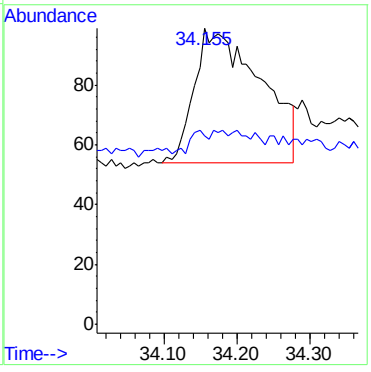


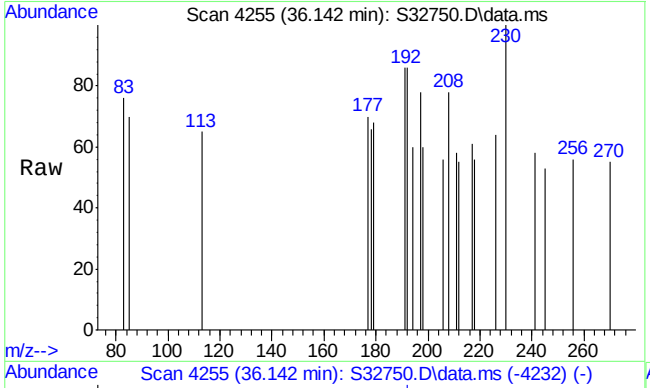
#65
Phenanthrene
Concen: 2.42 ng/mL
RT: 34.155 min Scan# 3945
Delta R.T. 0.032 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:178 Resp: 283

Ion	Ratio	Lower	Upper
178	100		
179	0.0	12.2	18.4#



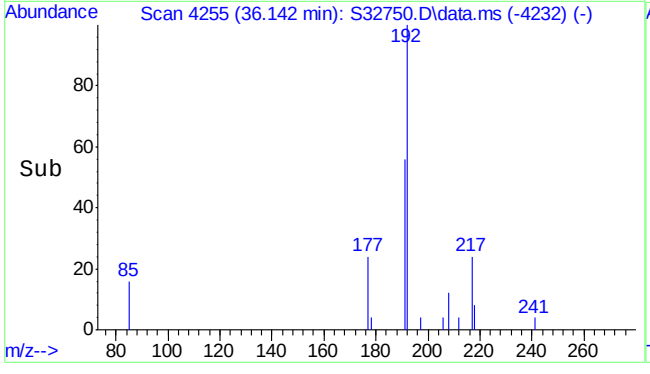


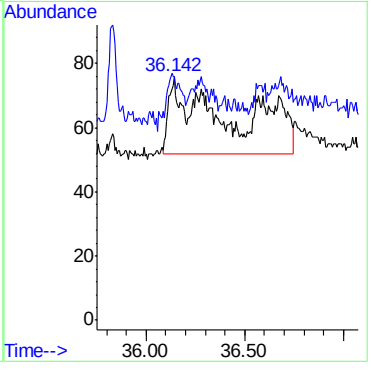


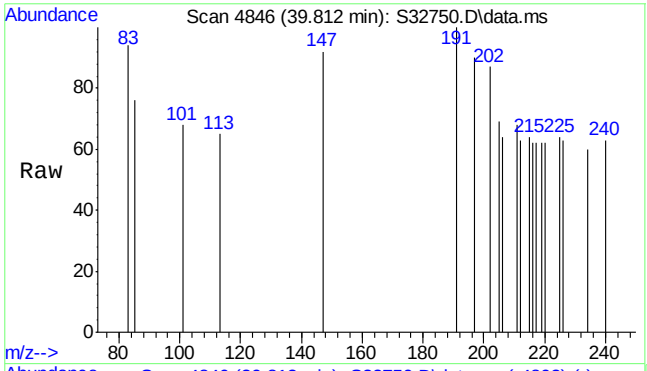
#67
C1-Phenanthrenes/anthracenes
Concen: 4.20 ng/mL m
RT: 36.142 min Scan# 4255
Delta R.T. -0.404 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:192 Resp: 492

Ion	Ratio	Lower	Upper
192	100		
191	0.0	44.9	67.3#



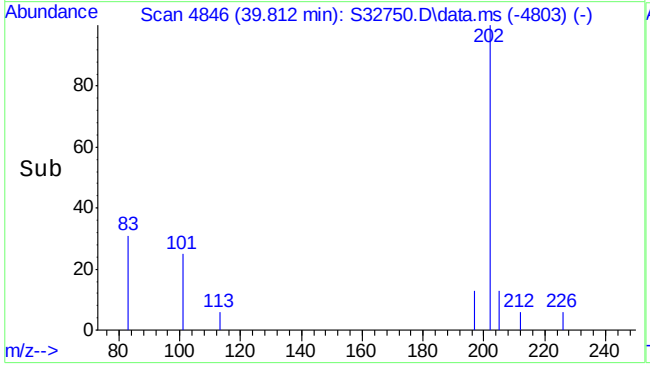


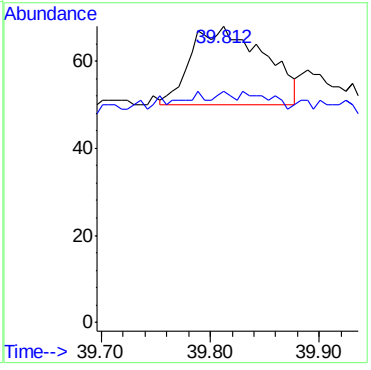


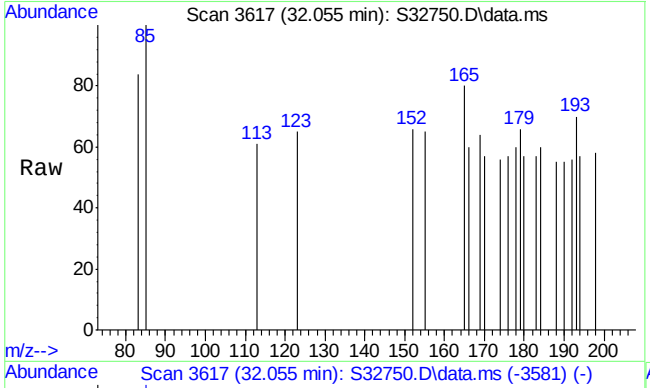
#79
Pyrene
Concen: 0.71 ng/mL m
RT: 39.812 min Scan# 4846
Delta R.T. 0.053 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion:202 Resp: 84

Ion	Ratio	Lower	Upper
202	100		
101	0.0	11.4	17.0#



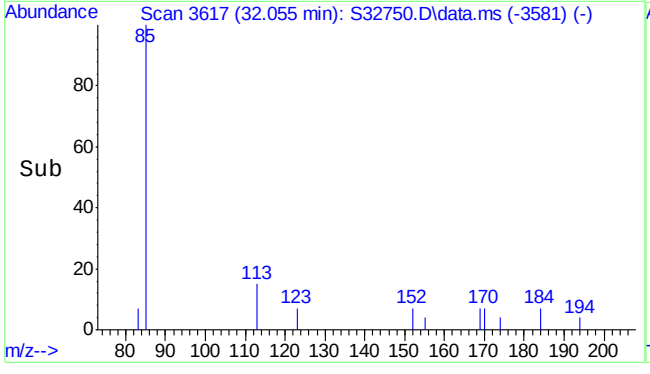


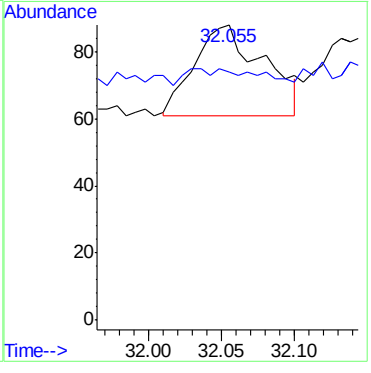


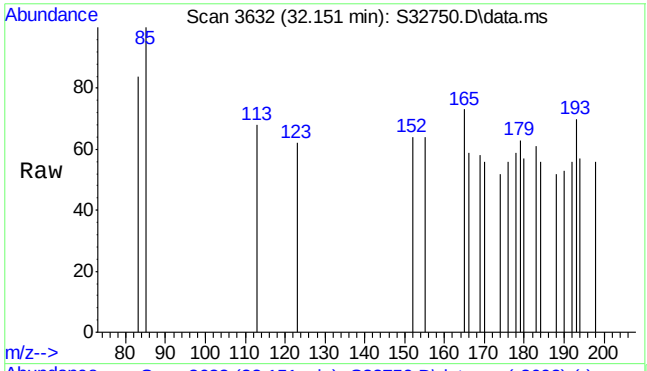
#103
C-17
Concen: 3.62 µg/mL m
RT: 32.055 min Scan# 3617
Delta R.T. 0.032 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion: 85 Resp: 90

Ion	Ratio	Lower	Upper
85	100		
83	0.0	12.3	18.5#



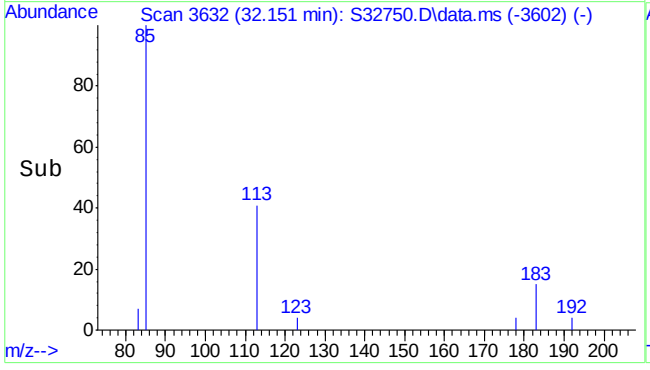


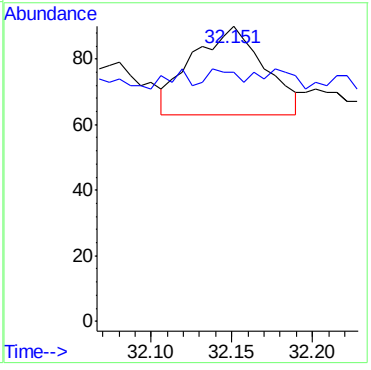


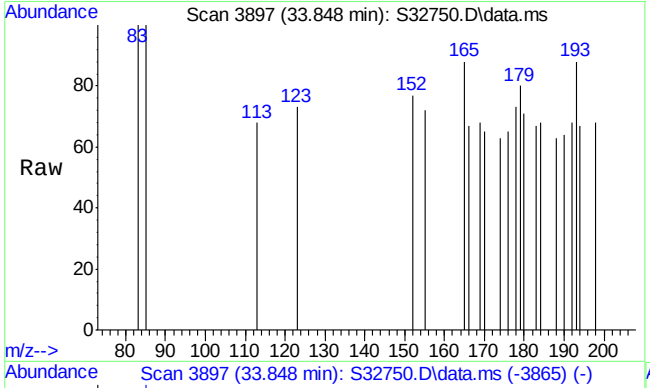
#104
Pristane
Concen: 4.48 µg/mL m
RT: 32.151 min Scan# 3632
Delta R.T. -0.006 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion: 85 Resp: 84

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#



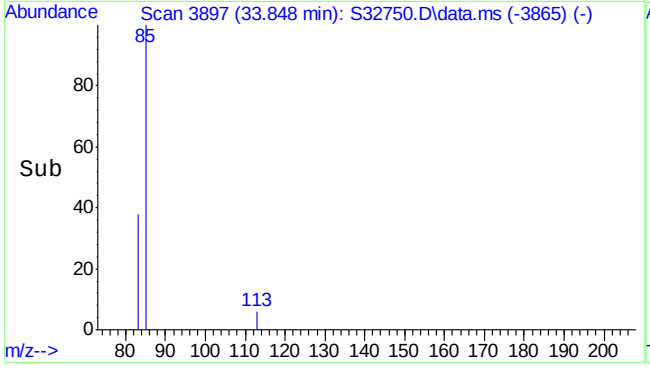


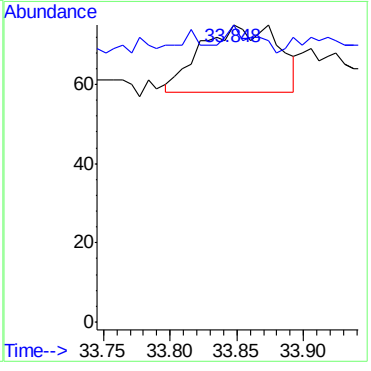


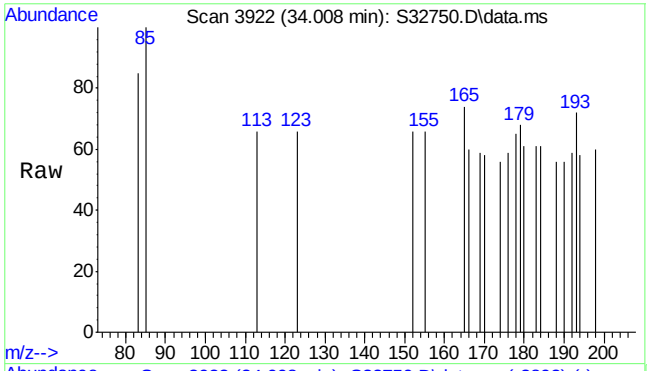
#105
C-18
Concen: 2.72 µg/mL m
RT: 33.848 min Scan# 3897
Delta R.T. 0.006 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion: 85 Resp: 69

Ion	Ratio	Lower	Upper
85	100		
83	0.0	17.8	26.6#



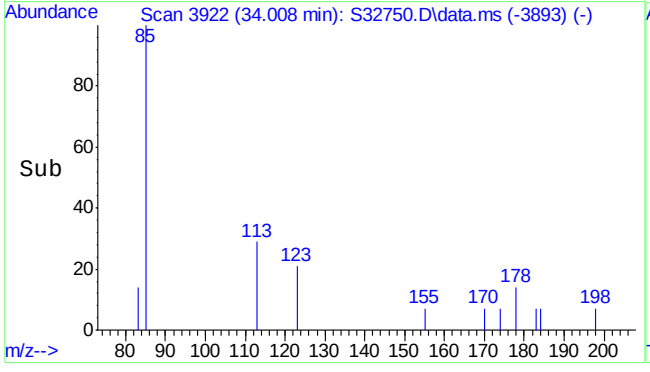


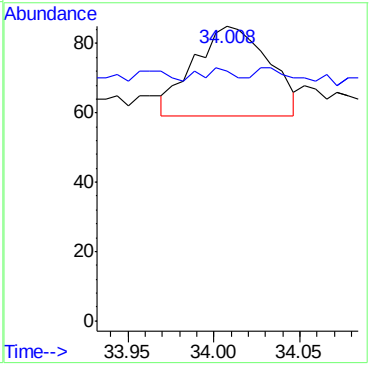


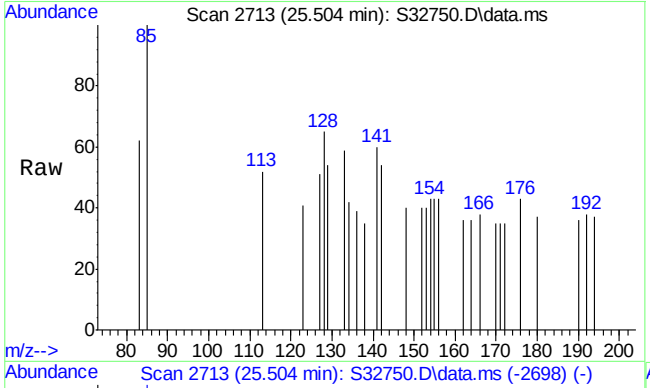
#106
Phytane
Concen: 3.17 µg/mL m
RT: 34.008 min Scan# 3922
Delta R.T. -0.013 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion: 85 Resp: 79

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#



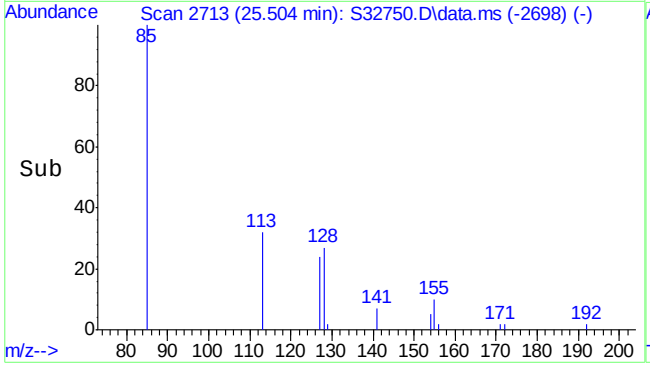


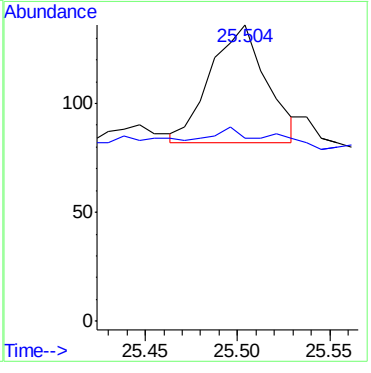


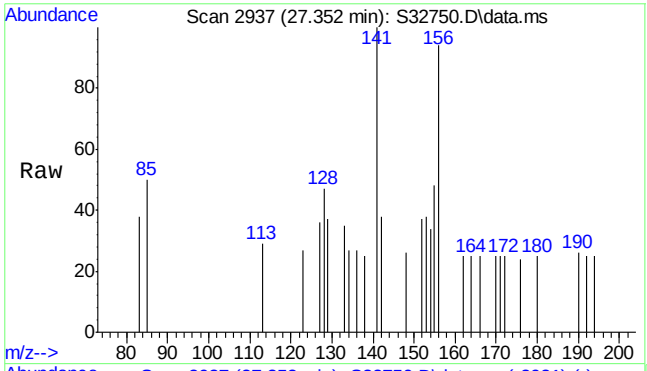
#107
2,6,10-Trimethyldodecane (1380)
Concen: 4.57 µg/mL m
RT: 25.504 min Scan# 2713
Delta R.T. -0.075 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion: 85 Resp: 114

Ion	Ratio	Lower	Upper
85	100		
83	0.0	13.0	19.6#



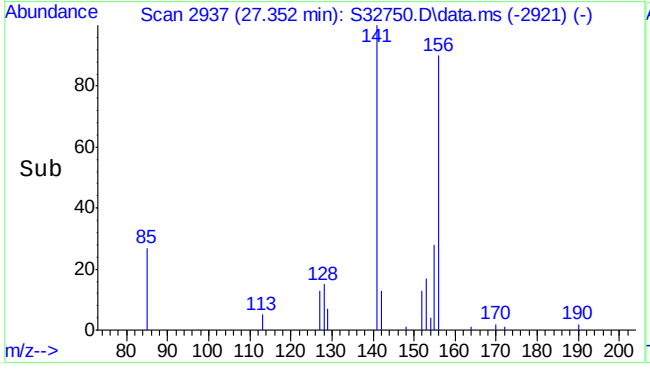


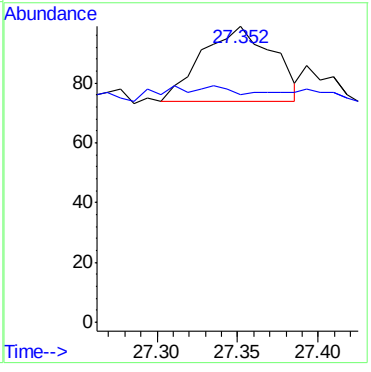


#108
2,6,10-Trimethyltridecane (1470)
Concen: 3.05 µg/mL m
RT: 27.352 min Scan# 2937
Delta R.T. -0.066 min
Lab File: S32750.D
Acq: 28 May 2013 8:10 pm

Tgt Ion: 85 Resp: 76

Ion	Ratio	Lower	Upper
85	100		
83	0.0	13.0	19.6#





9.1.4

9

Manual Integrations APPROVED (compounds with "m" flag)
James Roush
05/31/13 15:01

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32751.D
Acq On : 28 May 2013 9:33 pm
Operator : danielb
Sample : mc20162-5
Misc : op33312,mss1429,0.0166,,,2,50
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 29 10:35:09 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	28.180	164	59873	1000.00	ng/mL	-0.01
System Monitoring Compounds						
2) Toluene-d8	9.306	98	4751	71.49	µg/mL	0.00
Spiked Amount 1000.000			Recovery = 7.15%			
3) Naphthalene-d8	21.224	136	2477	20.40	ng/mL	0.00
Spiked Amount 1000.000	Range 1 - 0		Recovery = 2.04%#			
4) Phenanthrene-d10	34.059	188	1766m	18.48	ng/mL	0.03
Spiked Amount 1000.000			Recovery = 1.85%			
5) Perylene-d12	49.982	264	496m	5.47	ng/mL	0.10
Spiked Amount 1000.000			Recovery = 0.55%			
Target Compounds						Qvalue
6) MTBE	5.488	73	276m	5.62	µg/mL	
7) Benzene	6.885	TIC	7720m	81.56	µg/mL	
8) C1-Benzene	9.407	92	21835	230.67	µg/mL	100
9) C2-Benzenes	12.367	106	596135m	6297.67	µg/mL	
10) C3-Benzenes	16.019	120	1043936m	11028.31	µg/mL	
11) C4-Benzenes	17.806	134	575331m	6077.89	µg/mL	
12) C5-Benzenes	20.096	148	163911m	1731.58	µg/mL	
13) Methylcyclohexane	8.247	83	19727	534.15	µg/mL	99
14) Toluene	9.407	91	36909	416.69	µg/mL	99
15) Ethylbenzene	12.137	91	70660	652.93	µg/mL	99
16) m,p-xylene	12.367	91	909812	10547.28	µg/mL	100
17) Styrene	13.008	104	402	6.28	µg/mL#	30
18) o-Xylene	13.080	91	372379	4358.33	µg/mL	100
19) Isopropylbenzene	14.002	105	13171	130.77	µg/mL	99
20) n-Propylbenzene	14.852	91	75120	550.49	µg/mL	98
21) 1,3,5-Trimethylbenzene	15.277	105	353433	3781.62	µg/mL	100
22) t-Butylbenzene	16.019	119	107929	1174.49	µg/mL#	54
23) 1,2,4-Trimethylbenzene	16.019	105	935340	9789.18	µg/mL	100
24) sec-Butylbenzene	16.502	105	18570	151.48	µg/mL	99
25) 1,2,3-Trimethylbenzene	16.862	105	225479	2250.71	µg/mL	97
26) p-Isopropyltoluene	16.790	119	36073	333.64	µg/mL	91
27) n-Butylbenzene	17.748	91	64488	618.61	µg/mL#	53
28) trans-Decalin	17.834	96	568	28.96	µg/mL	84
29) cis-Decalin	19.073	96	367	14.34	µg/mL#	14
30) C1-Decalins	19.347	152	1226m	62.50	µg/mL	
31) C2-Decalins	20.788	166	726m	37.01	µg/mL	
34) Benzo(b)thiophene	21.496	134	10137m	89.65	µg/mL	
35) C1-Benzo(b)thiophenes	23.583	148	12203m	107.92	µg/mL	
36) C2-Benzo(b)thiophenes	26.552	162	2253m	19.92	µg/mL	
37) C3-Benzo(b)thiophenes	29.021	176	452m	4.00	µg/mL	
39) Tetraethyl lead	20.370	208	495	63.37	µg/mL	98
44) Naphthalene	21.298	128	195434	1349.97	ng/mL	100
45) 2-Methylnaphthalene	24.003	142	122618	1366.24	ng/mL	99
46) 1-Methylnaphthalene	24.416	142	56766	627.84	ng/mL	100
47) C1-Naphthalenes	24.003	142	183342m	1266.44	ng/mL	
48) C2-Naphthalenes	26.840	156	49816m	344.11	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32751.D
Acq On : 28 May 2013 9:33 pm
Operator : danielb
Sample : mc20162-5
Misc : op33312,mss1429,0.0166,,,2,50
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 29 10:35:09 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
49)	C3-Naphthalenes	29.194	170	11512m	79.52	ng/mL	
50)	C4-Naphthalenes	31.959	184	3142m	21.70	ng/mL	
51)	Biphenyl	25.900	154	3521	28.90	µg/mL	100
53)	Acenaphthene	28.309	154	273	3.48	ng/mL	97
54)	Dibenzofuran	28.978	168	222	1.90	ng/mL#	67
55)	Fluorene	30.346	166	379	4.08	ng/mL	90
56)	C1-Fluorenes	32.721	180	528m	5.69	ng/mL	
57)	C2-Fluorenes	34.654	194	774m	8.34	ng/mL	
59)	Dibenzothiophene	33.668	184	167m	1.32	ng/mL	
60)	C1-Dibenzothiophenes (...	35.828	198	451m	3.57	ng/mL	
61)	C1-Dibenzothiophenes (...	35.828	198	176m	1.39	µg/mL	
65)	Phenanthrene	34.155	178	1208	9.13	ng/mL#	63
67)	C1-Phenanthrenes/anthr...	36.116	192	1791m	13.54	ng/mL	
68)	C2-Phenanthrenes/anthr...	38.406	206	1387m	10.48	ng/mL	
69)	C2-Phenanthrenes/anthr...	38.085	206	192m	1.45	µg/mL	
78)	Fluoranthene	38.936	202	124m	0.97	ng/mL	
79)	Pyrene	39.795	202	282	2.11	ng/mL#	65
80)	C1-Fluoranthenes/pyrenes	41.165	216	396m	2.96	ng/mL	
103)	C-17	32.036	85	350	12.47	µg/mL#	63
104)	Pristane	32.151	85	262	12.37	µg/mL#	53
105)	C-18	33.835	85	256m	8.92	µg/mL	
106)	Phytane	34.008	85	264	9.38	µg/mL#	53
107)	2,6,10-Trimethyldodeca...	25.496	85	450m	15.98	µg/mL	
108)	2,6,10-Trimethyltridec...	27.344	85	361m	12.82	µg/mL	
109)	2,6,10-Trimethylpentad...	31.075	85	151m	5.36	µg/mL	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

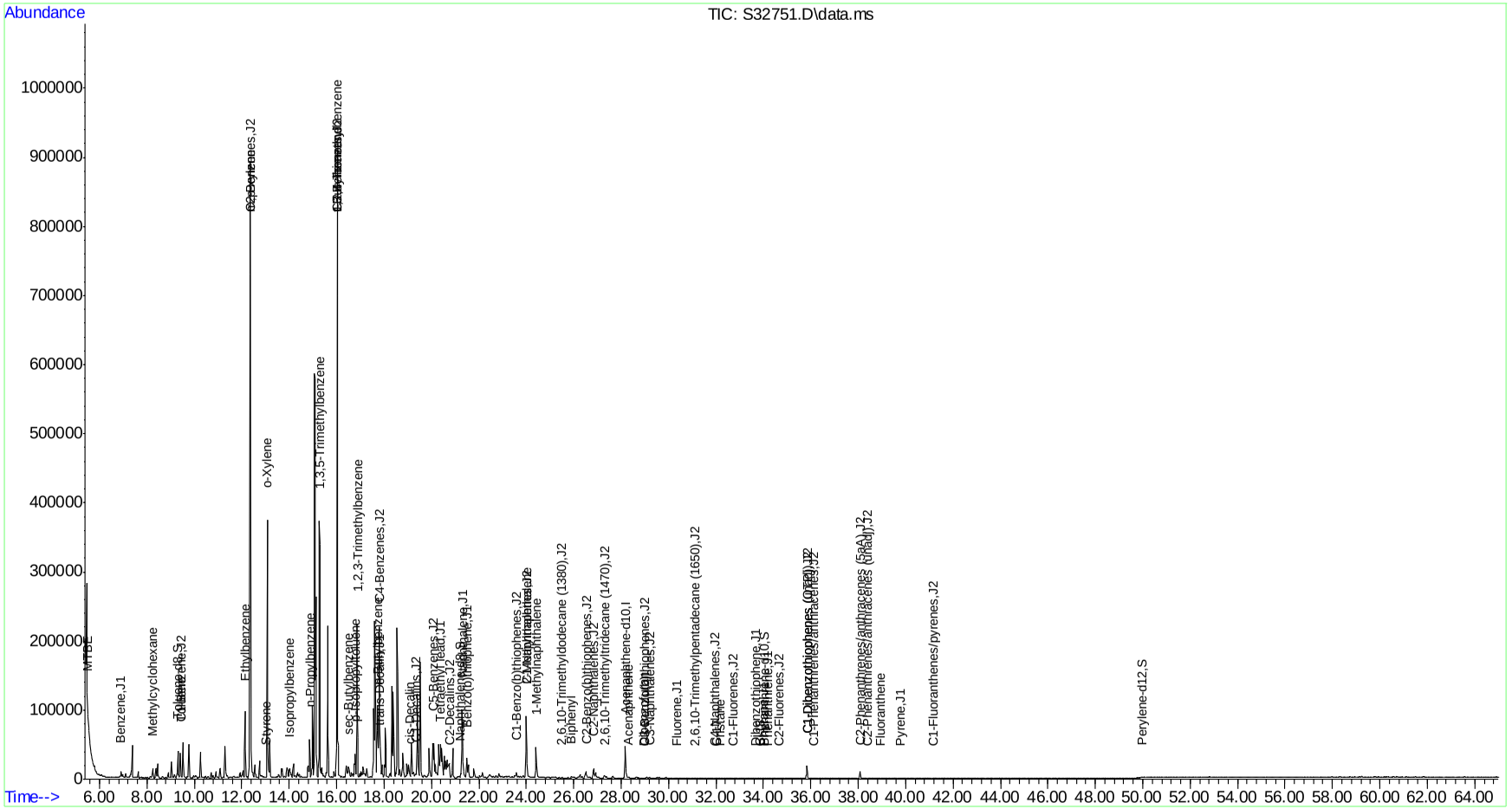
9.1.5

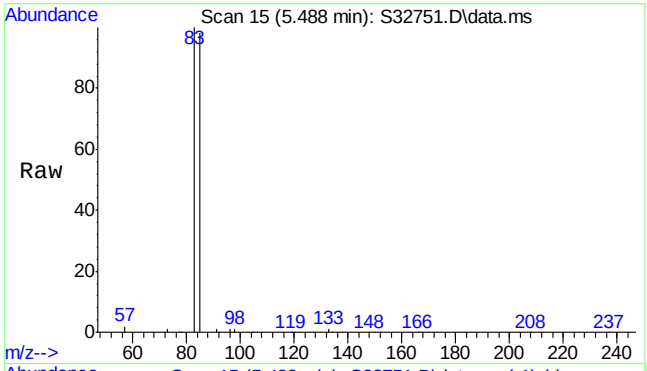
9

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32751.D
Acq On : 28 May 2013 9:33 pm
Operator : danielb
Sample : mc20162-5
Misc : op33312,mss1429,0.0166,,,2,50
ALS Vial : 10 Sample Multiplier: 1

Quant Time: May 29 10:35:09 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

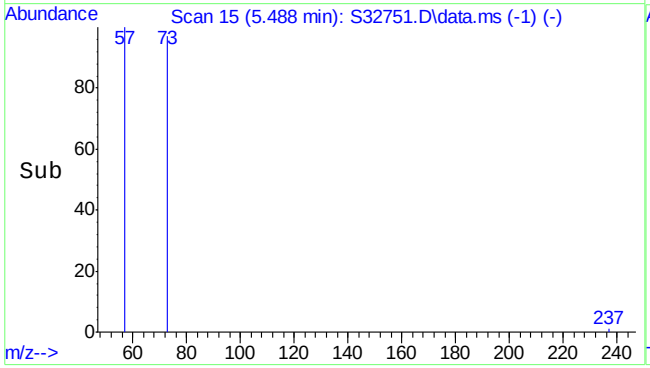


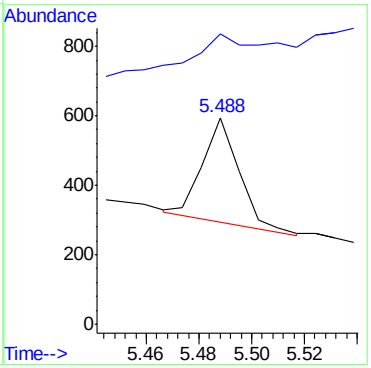


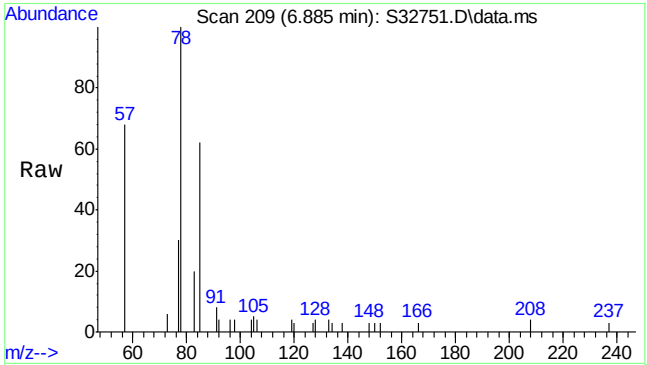
#6
MTBE
Concen: 5.62 µg/mL m
RT: 5.488 min Scan# 15
Delta R.T. -0.007 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 73 Resp: 276

Ion	Ratio	Lower	Upper
73	100		
57	157.2	18.5	27.7#

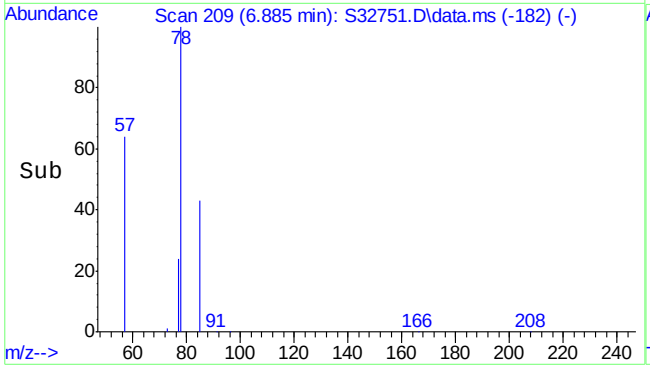


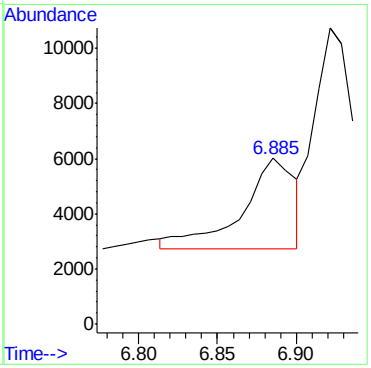


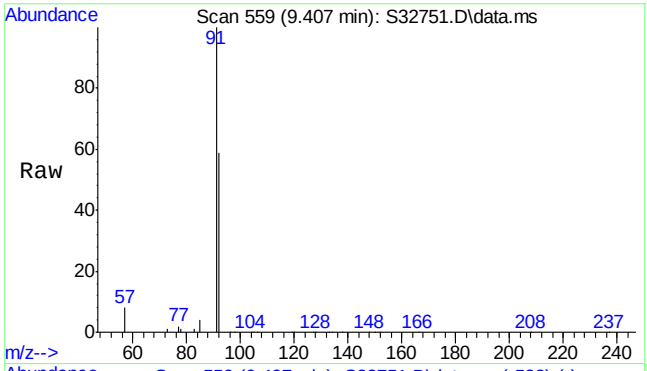


#7
Benzene
Concen: 81.56 µg/mL m
RT: 6.885 min Scan# 209
Delta R.T. -0.007 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:TIC Resp: 7720



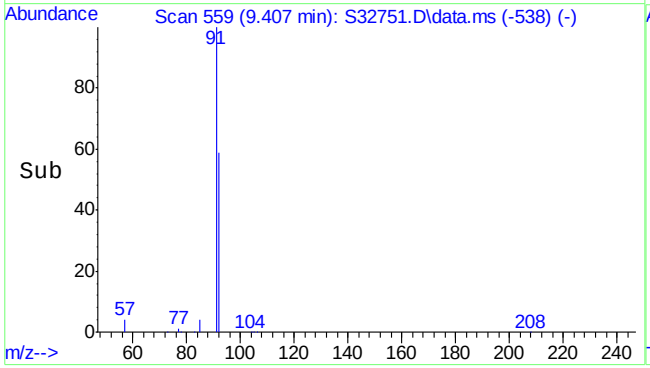


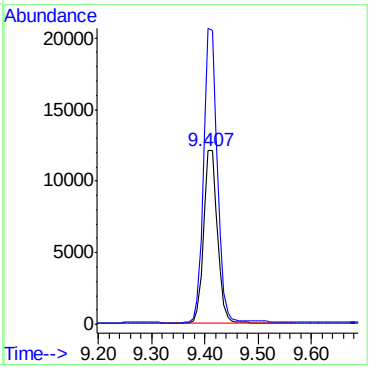


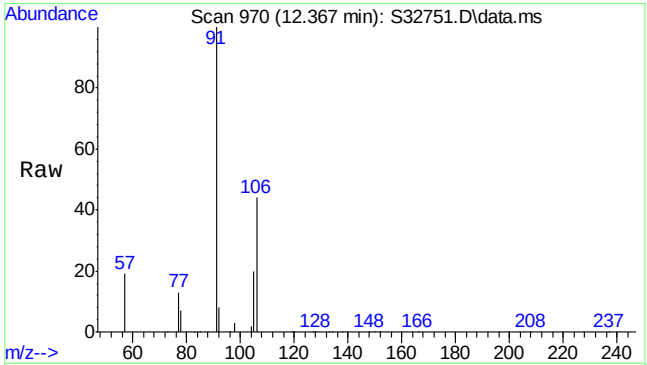
#8
C1-Benzene
Concen: 230.67 µg/mL
RT: 9.407 min Scan# 559
Delta R.T. -0.050 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 92 Resp: 21835

Ion	Ratio	Lower	Upper
92	100		
91	169.0	135.6	203.4



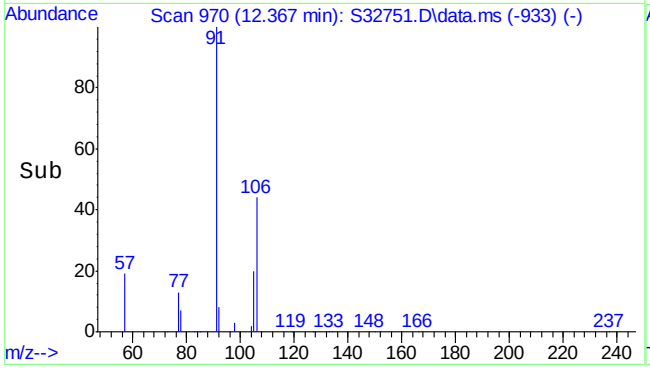


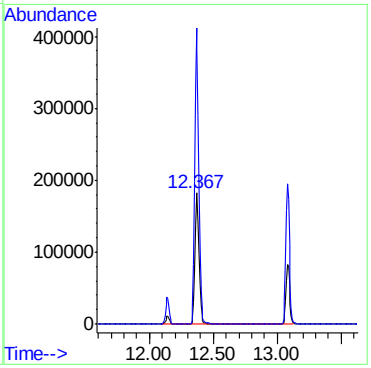


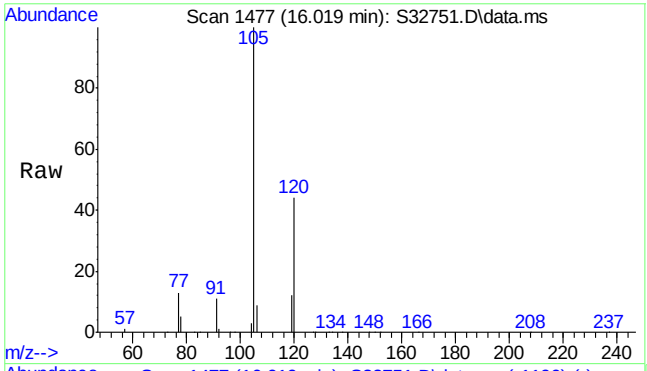
#9
C2-Benzenes
Concen: 6297.67 µg/mL m
RT: 12.367 min Scan# 970
Delta R.T. -0.022 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:106 Resp: 596135

Ion	Ratio	Lower	Upper
106	100		
91	152.7	174.9	262.3#



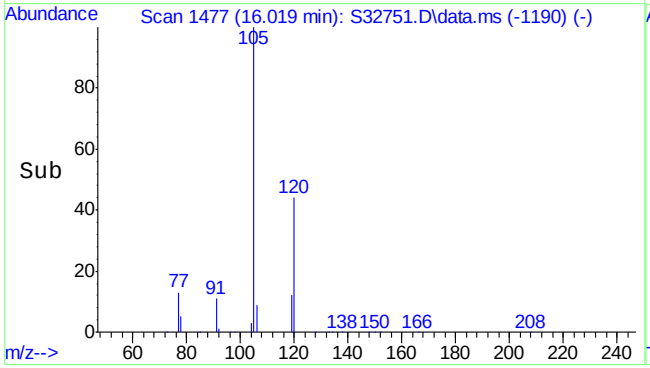


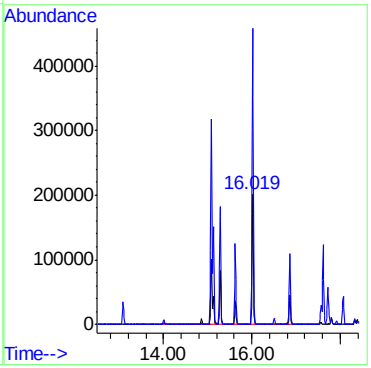


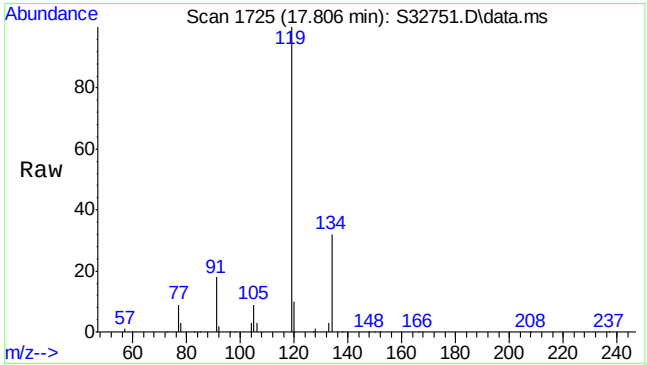
#10
C3-Benzenes
Concen: 11028.31 µg/mL m
RT: 16.019 min Scan# 1477
Delta R.T. -0.015 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:120 Resp: 1043936

Ion	Ratio	Lower	Upper
120	100		
105	89.7	181.4	272.2#



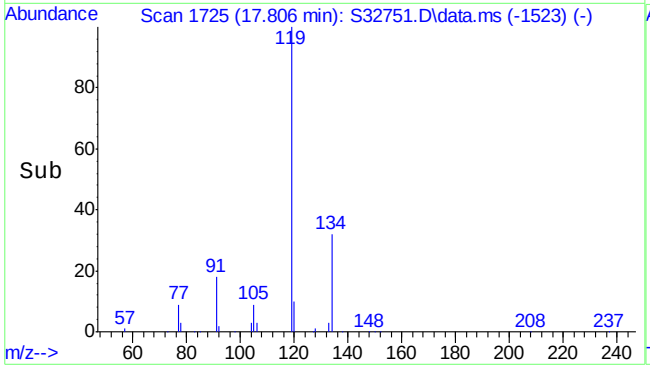


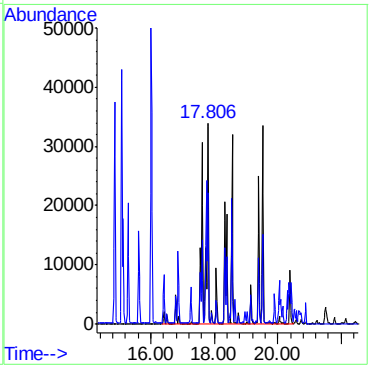


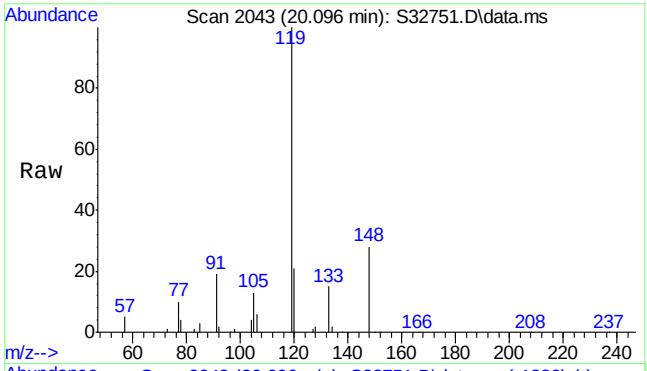
#11
C4-Benzenes
Concen: 6077.89 µg/mL m
RT: 17.806 min Scan# 1725
Delta R.T. -2.601 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:134 Resp: 575331

Ion	Ratio	Lower	Upper
134	100		
91	0.0	37.2	55.8#



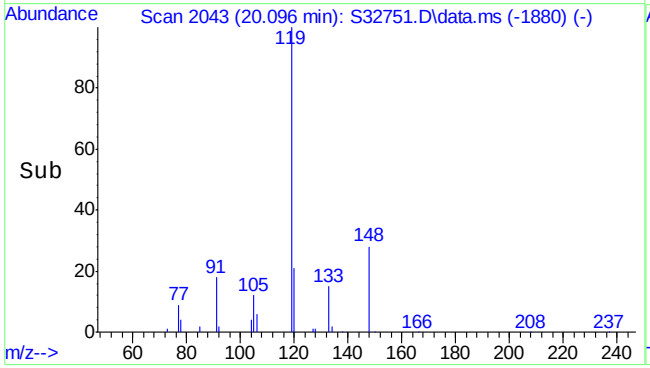


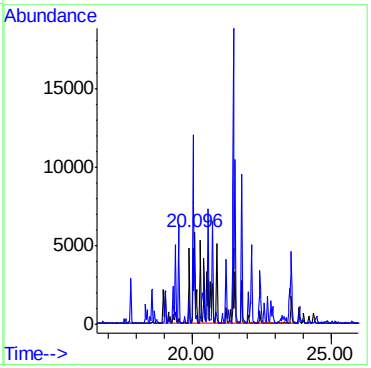


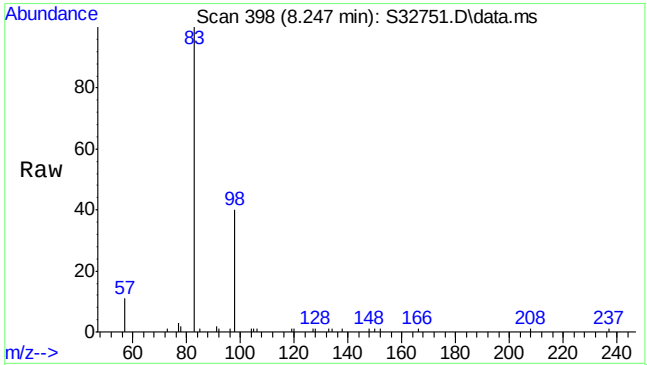
#12
C5-Benzenes
Concen: 1731.58 µg/mL m
RT: 20.096 min Scan# 2043
Delta R.T. -0.015 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:148 Resp: 163911

Ion	Ratio	Lower	Upper
148	100		
133	0.0	134.0	201.0#



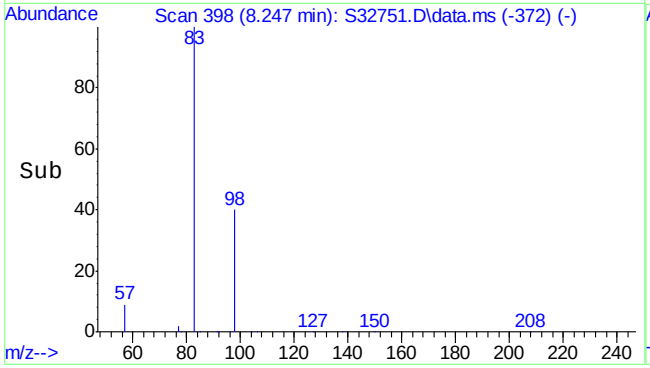


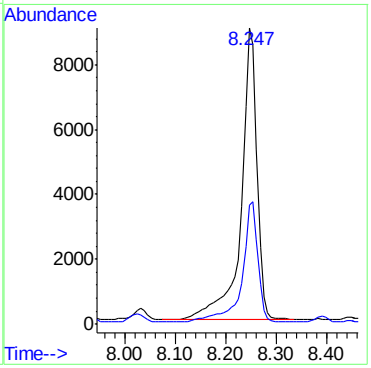


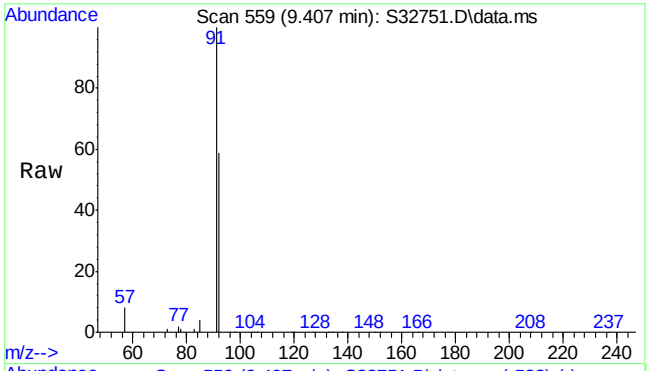
#13
Methylcyclohexane
Concen: 534.15 µg/mL
RT: 8.247 min Scan# 398
Delta R.T. -0.014 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 83 Resp: 19727

Ion	Ratio	Lower	Upper
83	100		
98	41.7	34.0	51.0



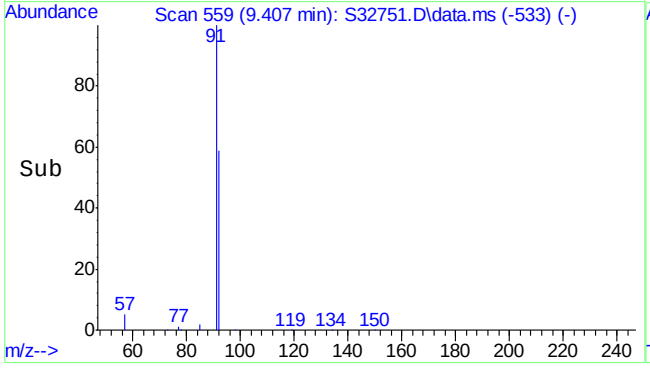


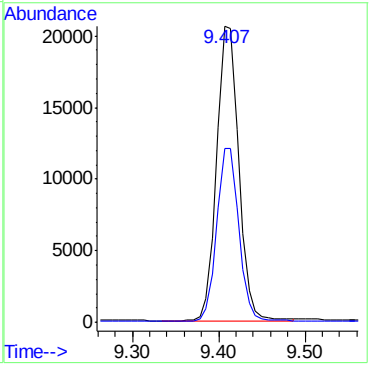


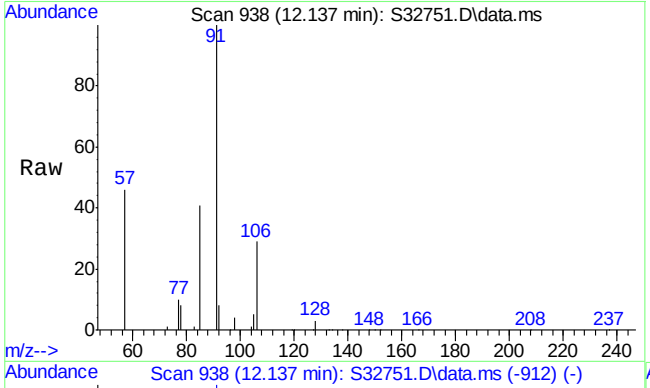
#14
Toluene
Concen: 416.69 µg/mL
RT: 9.407 min Scan# 559
Delta R.T. -0.014 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 91 Resp: 36909

Ion	Ratio	Lower	Upper
91	100		
92	59.2	46.8	70.2



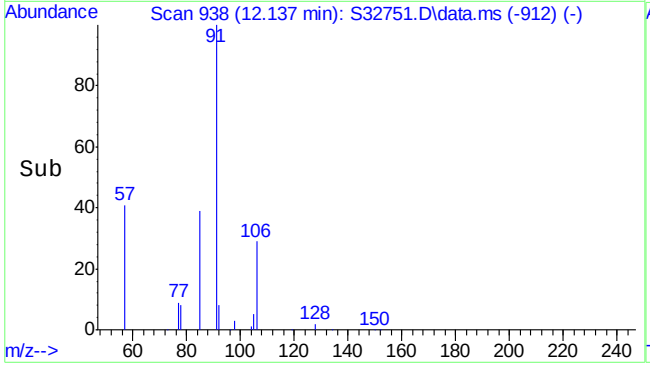


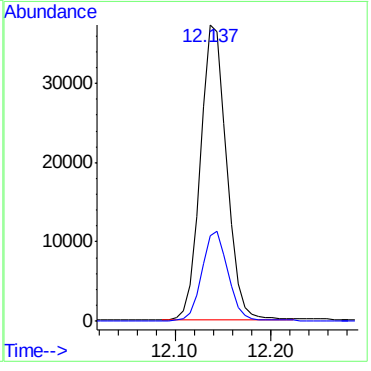


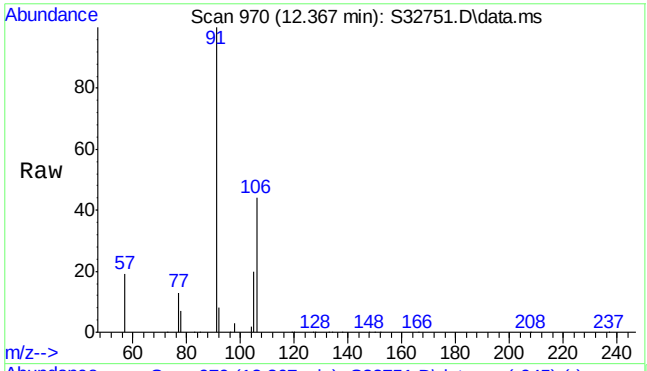
#15
Ethylbenzene
Concen: 652.93 µg/mL
RT: 12.137 min Scan# 938
Delta R.T. -0.014 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 91 Resp: 70660

Ion	Ratio	Lower	Upper
91	100		
106	30.3	23.8	35.6



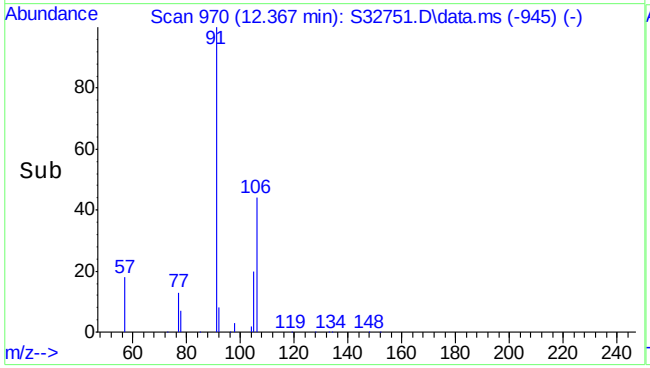


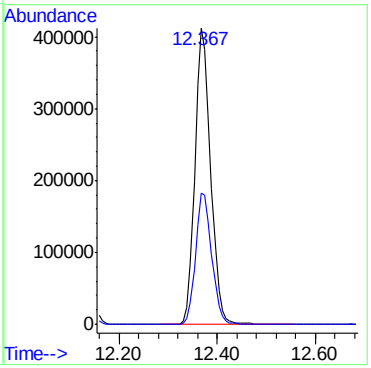


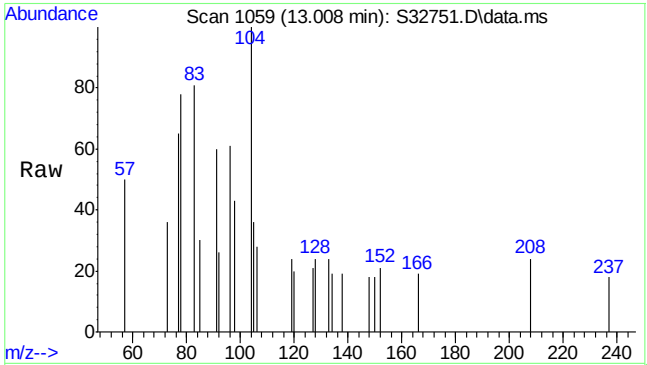
#16
m,p-xylene
Concen: 10547.28 µg/mL
RT: 12.367 min Scan# 970
Delta R.T. -0.021 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 91 Resp: 909812

Ion	Ratio	Lower	Upper
91	100		
106	45.6	36.6	55.0



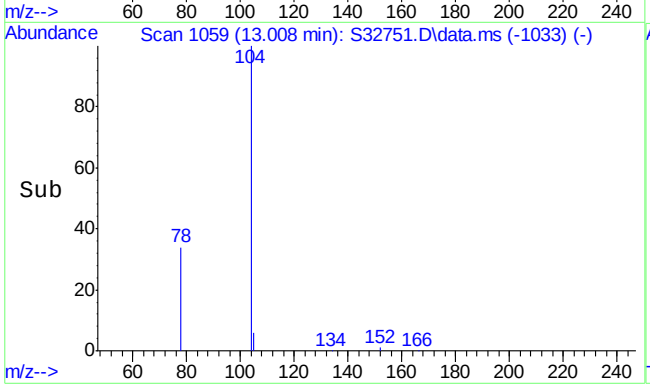


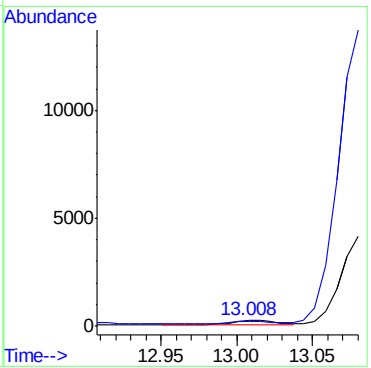


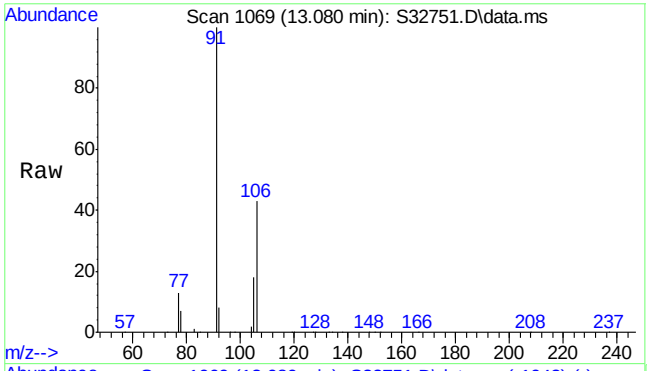
#17
Styrene
Concen: 6.28 µg/mL
RT: 13.008 min Scan# 1059
Delta R.T. -0.014 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:104 Resp: 402

Ion	Ratio	Lower	Upper
104	100		
78	0.0	37.7	56.5#



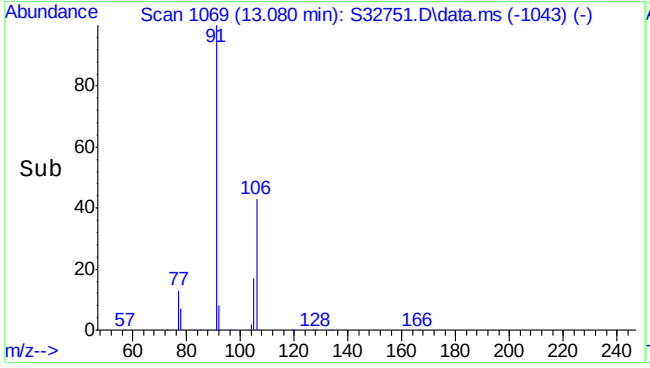


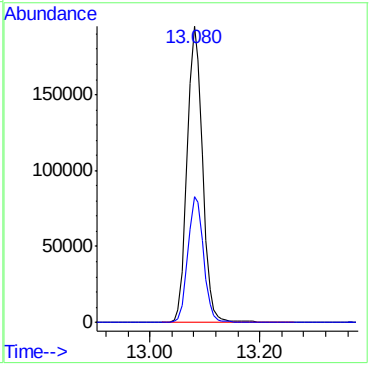


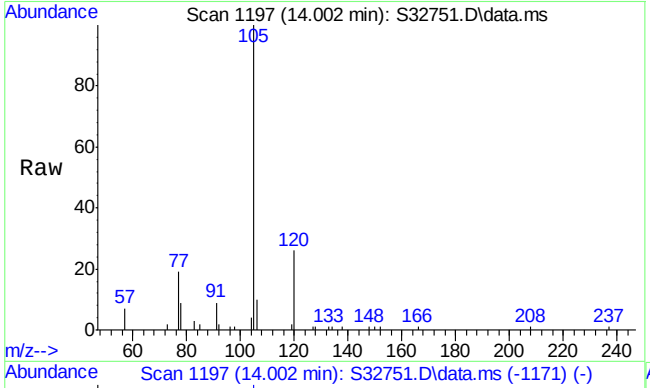
#18
o-Xylene
Concen: 4358.33 µg/mL
RT: 13.080 min Scan# 1069
Delta R.T. -0.014 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 91 Resp: 372379

Ion	Ratio	Lower	Upper
91	100		
106	43.2	34.5	51.7



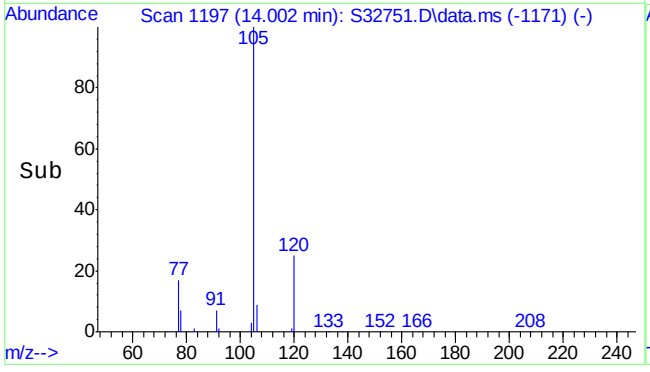


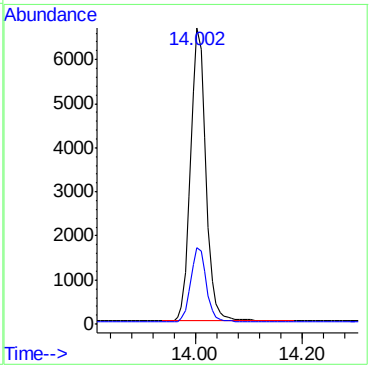


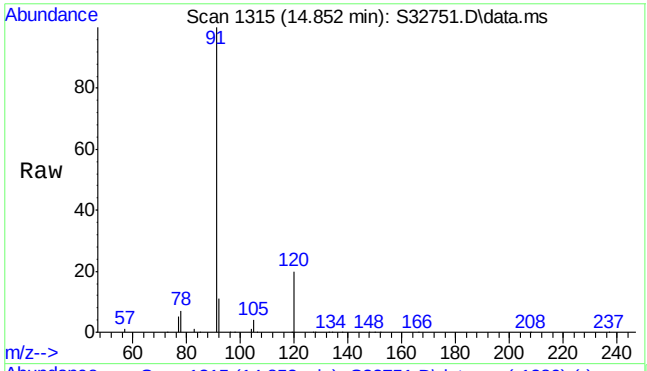
#19
Isopropylbenzene
Concen: 130.77 µg/mL
RT: 14.002 min Scan# 1197
Delta R.T. -0.014 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:105 Resp: 13171

Ion	Ratio	Lower	Upper
105	100		
120	25.9	21.1	31.7



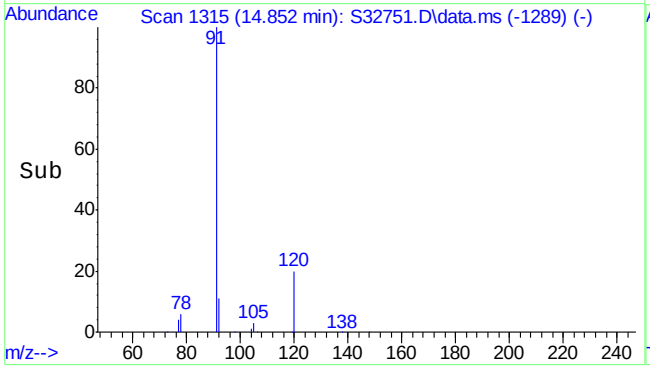


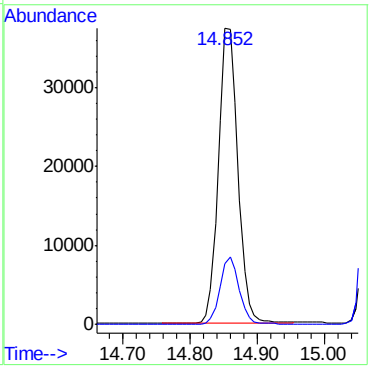


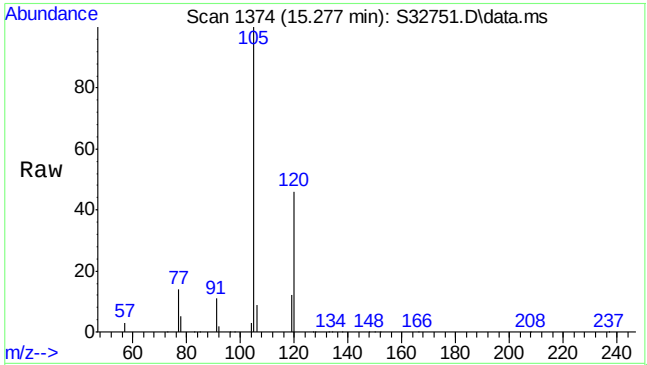
#20
n-Propylbenzene
Concen: 550.49 µg/mL
RT: 14.852 min Scan# 1315
Delta R.T. -0.014 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 91 Resp: 75120

Ion	Ratio	Lower	Upper
91	100		
120	22.0	17.0	25.4



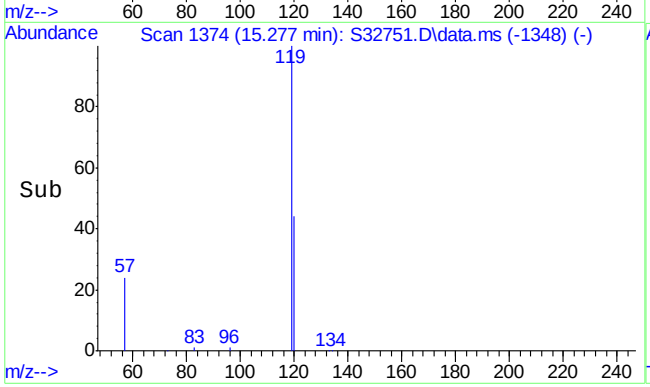


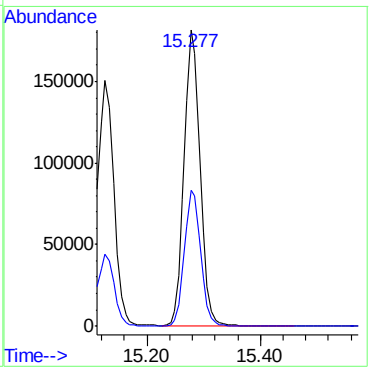


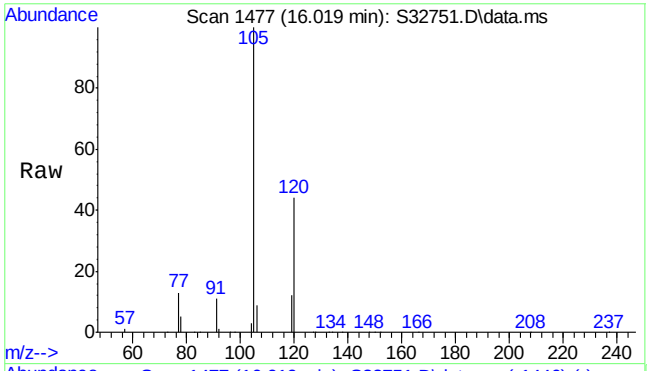
#21
1,3,5-Trimethylbenzene
Concen: 3781.62 µg/mL
RT: 15.277 min Scan# 1374
Delta R.T. -0.014 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:105 Resp: 353433

Ion	Ratio	Lower	Upper
105	100		
120	46.5	37.1	55.7



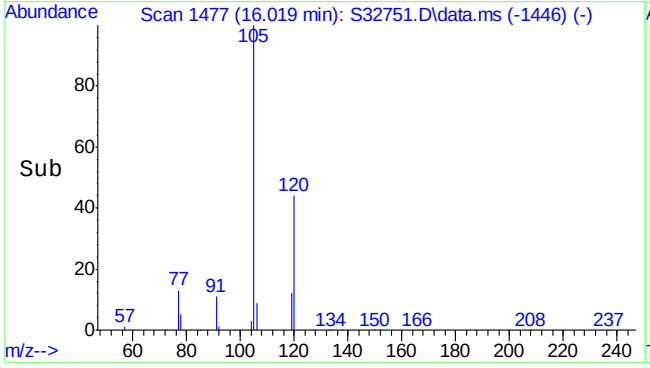


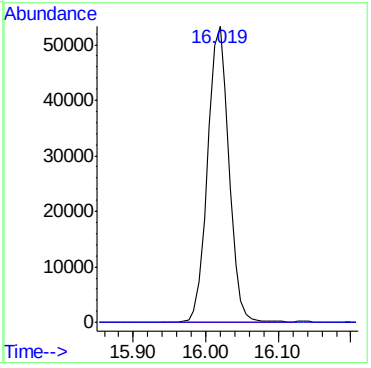


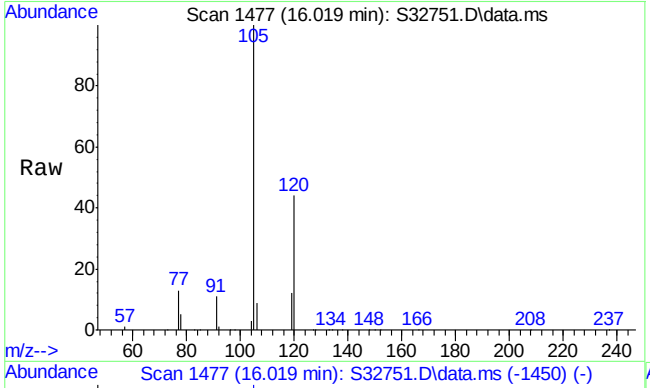
#22
t-Butylbenzene
Concen: 1174.49 µg/mL
RT: 16.019 min Scan# 1477
Delta R.T. 0.022 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:119 Resp: 107929

Ion	Ratio	Lower	Upper
119	100		
134	0.0	17.6	26.4#



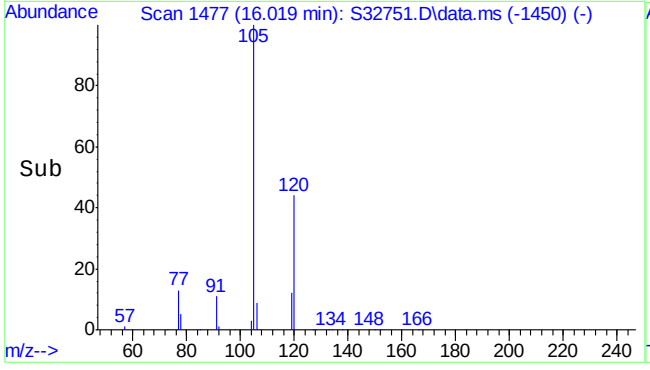


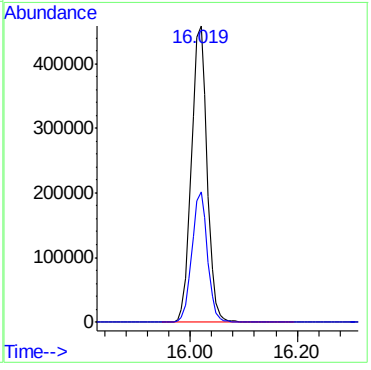


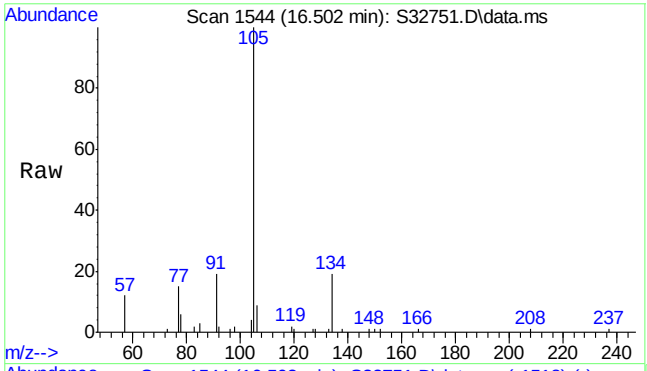
#23
1,2,4-Trimethylbenzene
Concen: 9789.18 µg/mL
RT: 16.019 min Scan# 1477
Delta R.T. -0.007 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:105 Resp: 935340

Ion	Ratio	Lower	Upper
105	100		
120	43.6	35.1	52.7



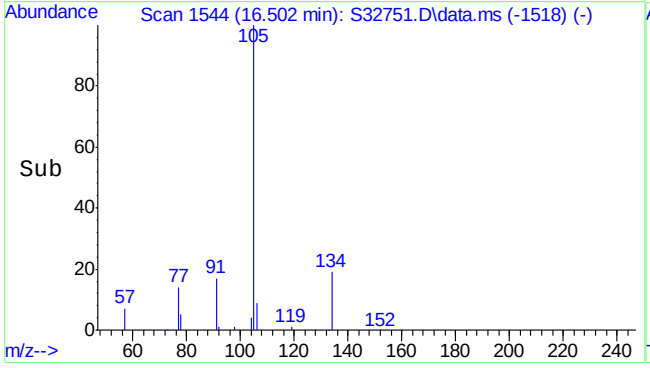


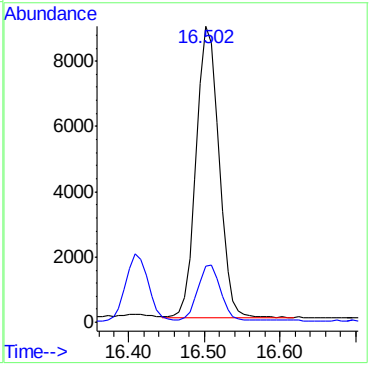


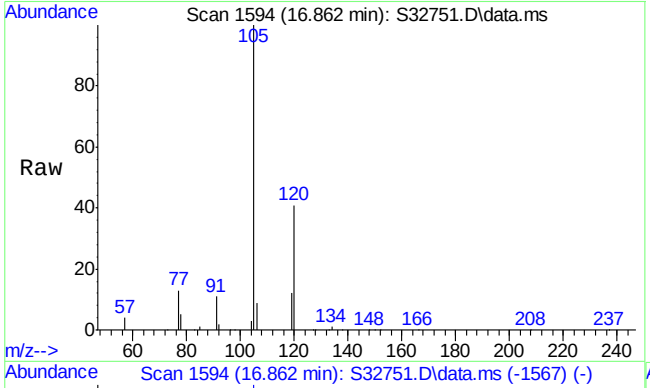
#24
sec-Butylbenzene
Concen: 151.48 µg/mL
RT: 16.502 min Scan# 1544
Delta R.T. -0.014 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:105 Resp: 18570

Ion	Ratio	Lower	Upper
105	100		
134	19.0	15.4	23.2



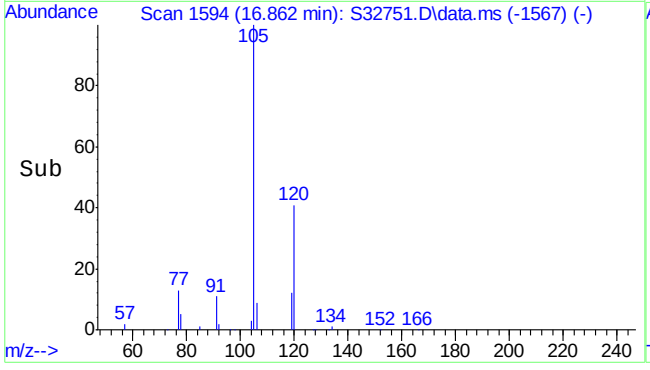


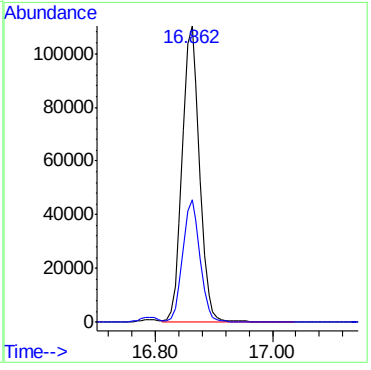


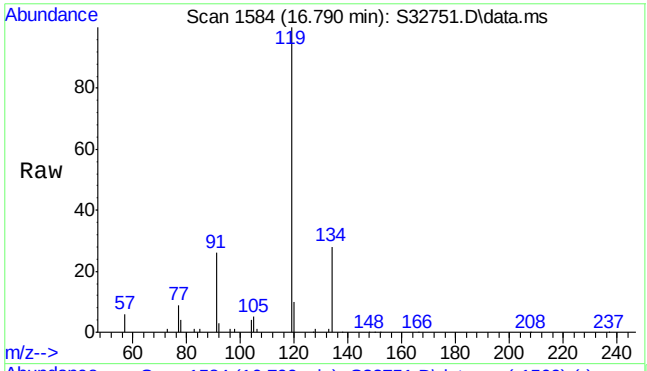
#25
1,2,3-Trimethylbenzene
Concen: 2250.71 µg/mL
RT: 16.862 min Scan# 1594
Delta R.T. -0.007 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:105 Resp: 225479

Ion	Ratio	Lower	Upper
105	100		
120	41.2	34.6	52.0



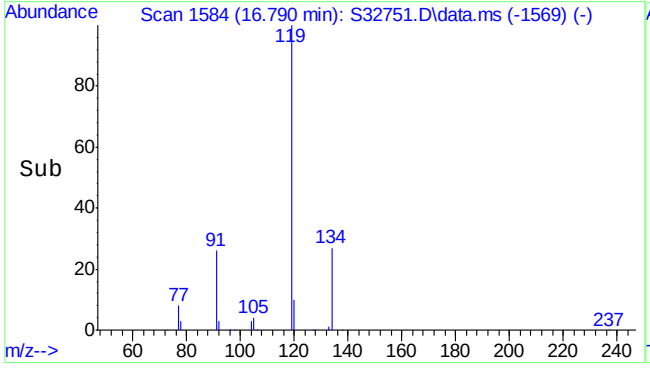


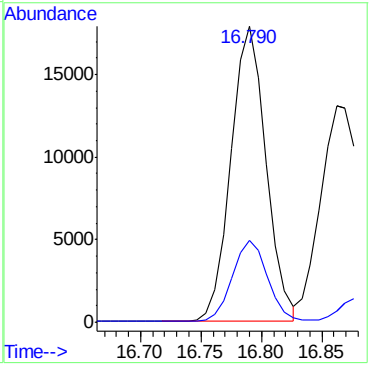


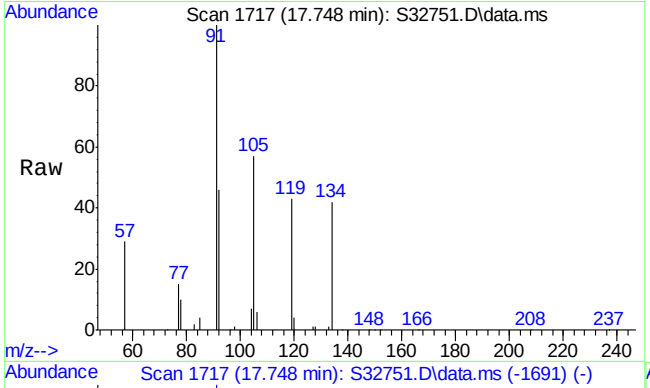
#26
p-Isopropyltoluene
Concen: 333.64 µg/mL
RT: 16.790 min Scan# 1584
Delta R.T. -0.094 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:119 Resp: 36073

Ion	Ratio	Lower	Upper
119	100		
134	27.5	18.4	27.6



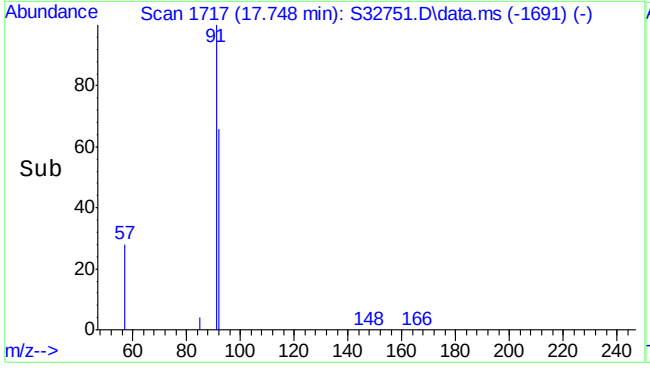


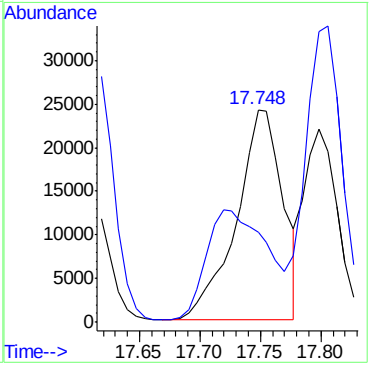


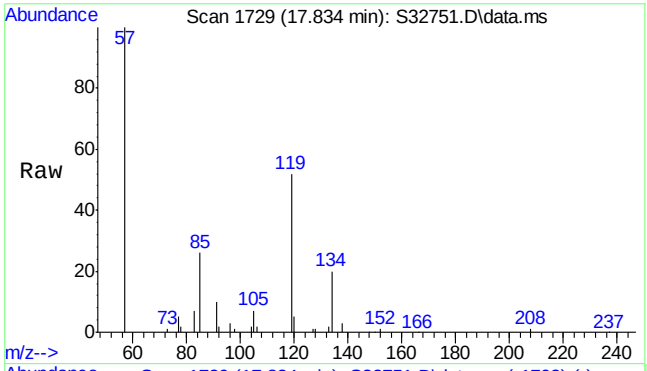
#27
n-Butylbenzene
Concen: 618.61 µg/mL
RT: 17.748 min Scan# 1717
Delta R.T. -0.014 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 91 Resp: 64488

Ion	Ratio	Lower	Upper
91	100		
134	0.0	18.2	27.2#



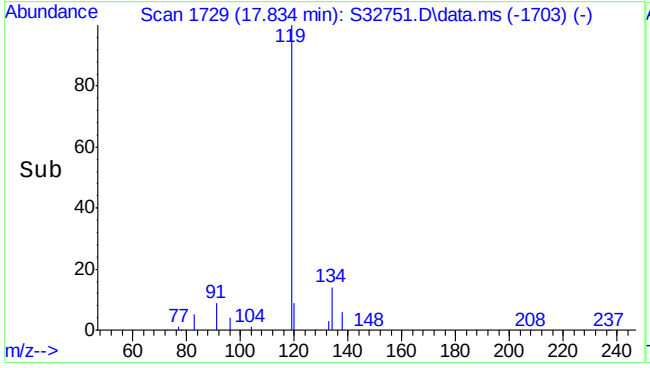


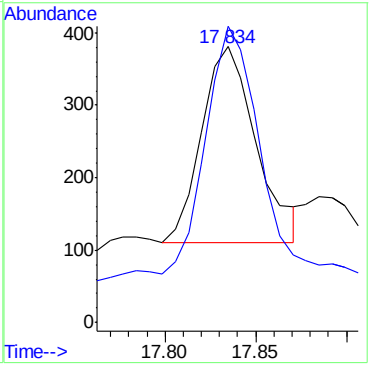


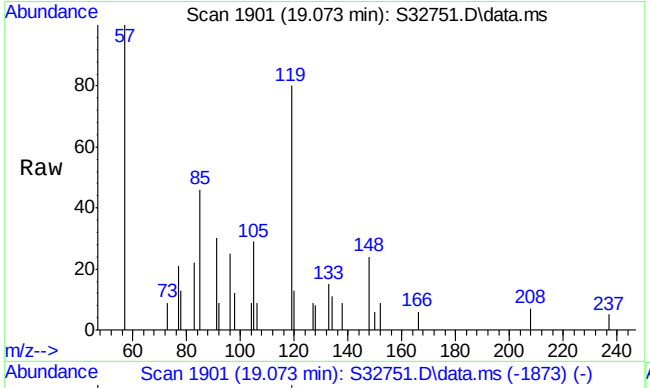
#28
trans-Decalin
Concen: 28.96 µg/mL
RT: 17.834 min Scan# 1729
Delta R.T. -0.014 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 96 Resp: 568

Ion	Ratio	Lower	Upper
96	100		
138	152.3	106.5	159.7



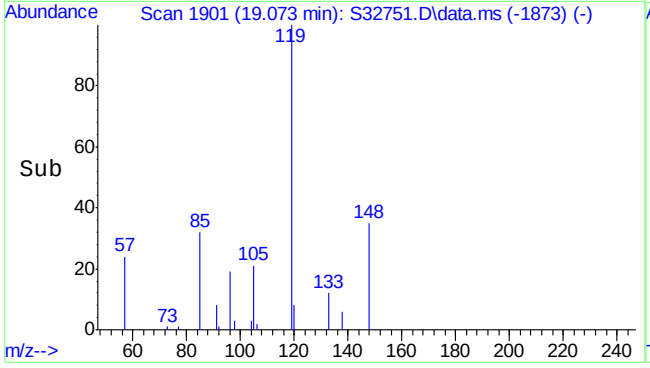


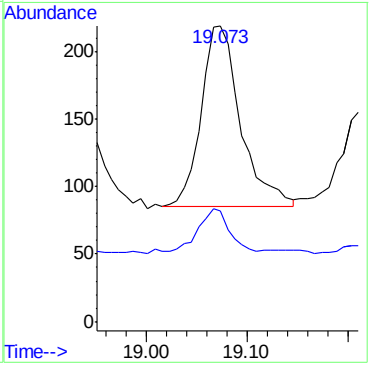


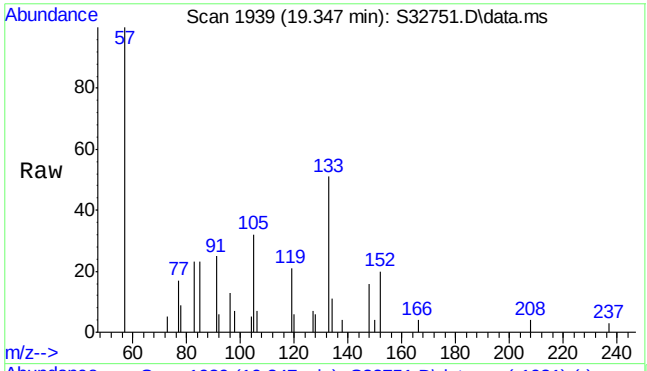
#29
cis-Decalin
Concen: 14.34 µg/mL
RT: 19.073 min Scan# 1901
Delta R.T. 0.000 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 96 Resp: 367

Ion	Ratio	Lower	Upper
96	100		
138	0.0	56.6	85.0#

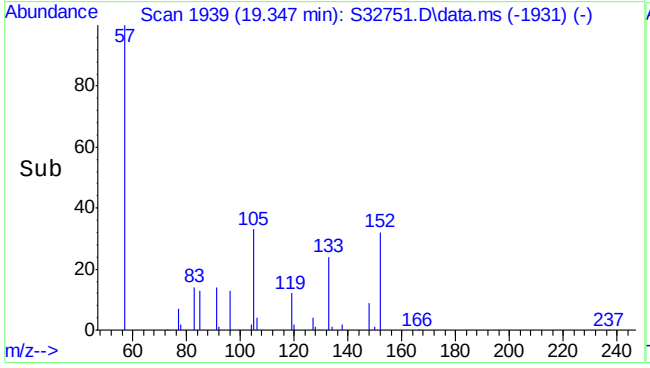


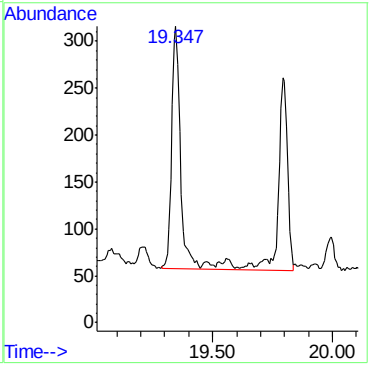


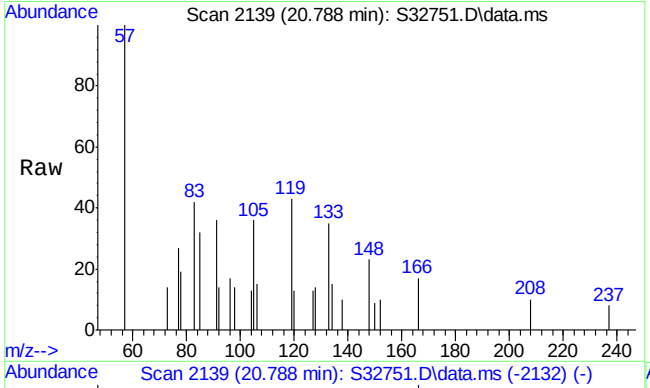


#30
C1-Decalins
Concen: 62.50 µg/mL m
RT: 19.347 min Scan# 1939
Delta R.T. -0.461 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:152 Resp: 1226

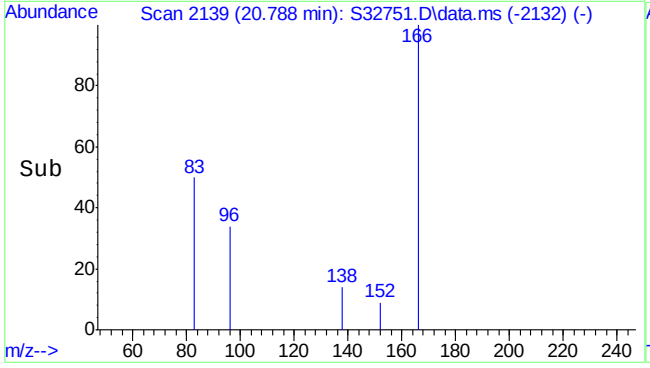


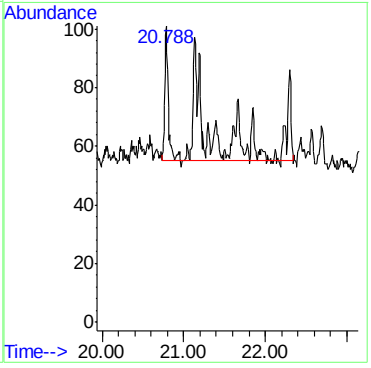


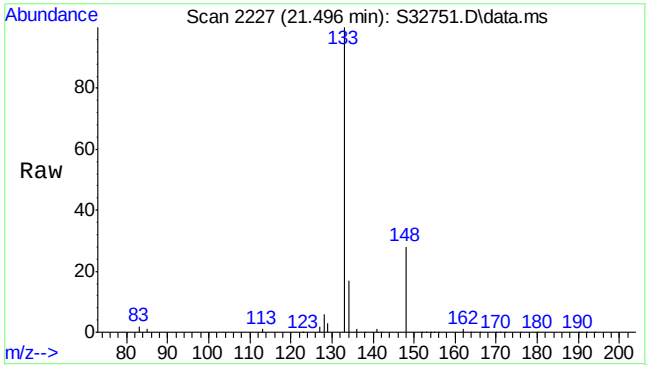


#31
C2-Decalins
Concen: 37.01 µg/mL m
RT: 20.788 min Scan# 2139
Delta R.T. -0.362 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:166 Resp: 726



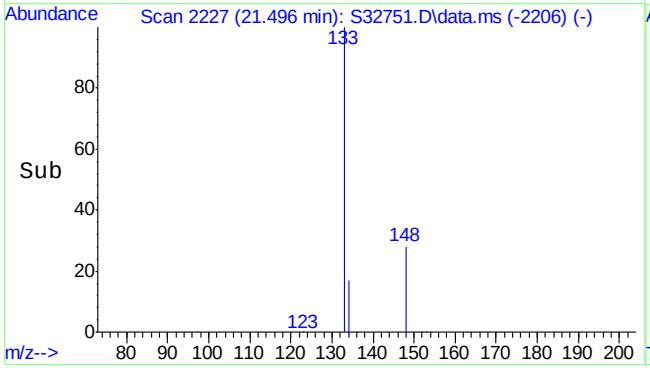


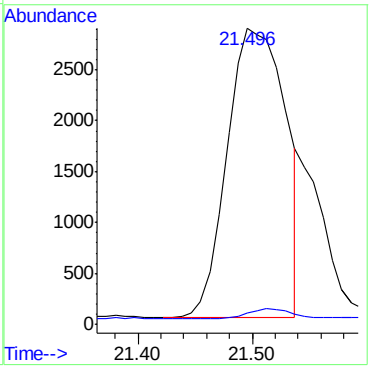


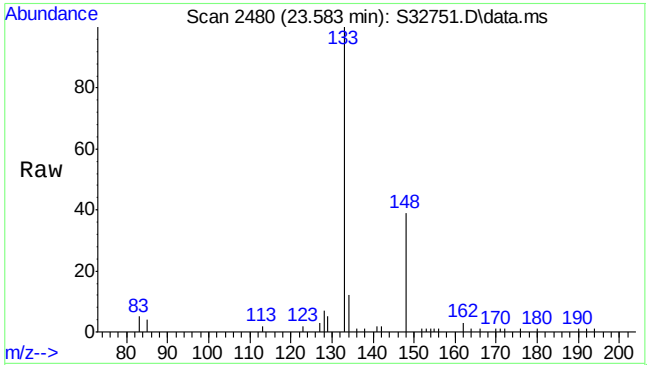
#34
Benzo(b)thiophene
Concen: 89.65 µg/mL m
RT: 21.496 min Scan# 2227
Delta R.T. -0.025 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:134 Resp: 10137

Ion	Ratio	Lower	Upper
134	100		
136	2.6	4.0	6.0#

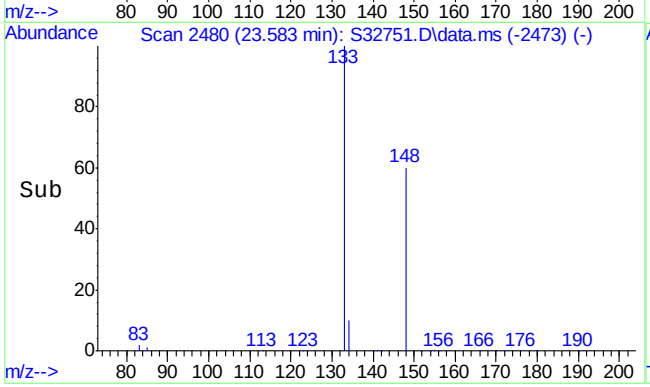


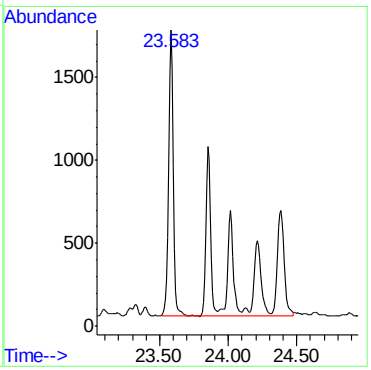


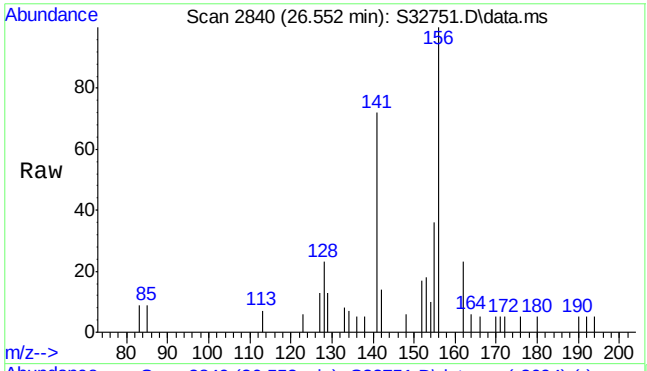


#35
C1-Benzo(b)thiophenes
Concen: 107.92 µg/mL m
RT: 23.583 min Scan# 2480
Delta R.T. -0.017 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:148 Resp: 12203

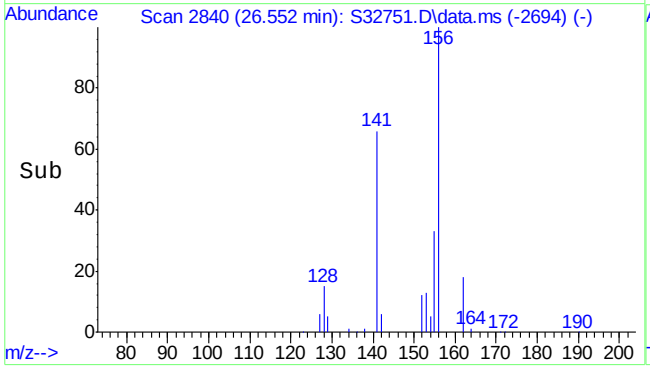


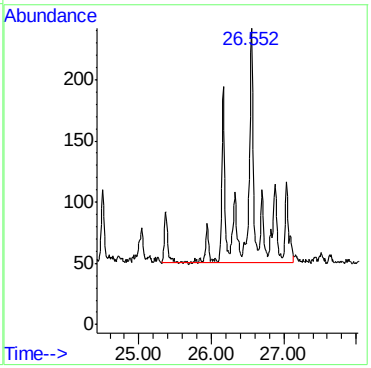


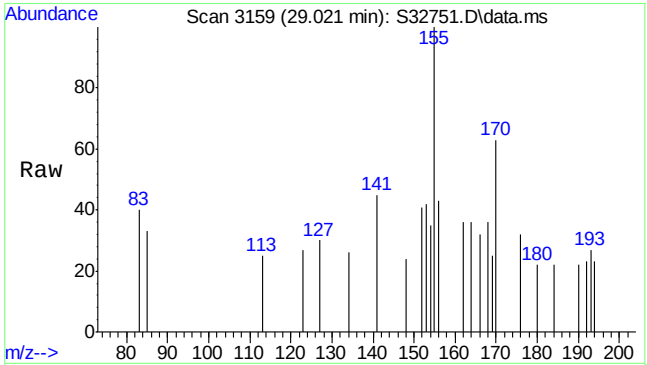


#36
C2-Benzo(b)thiophenes
Concen: 19.92 µg/mL m
RT: 26.552 min Scan# 2840
Delta R.T. -0.495 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:162 Resp: 2253

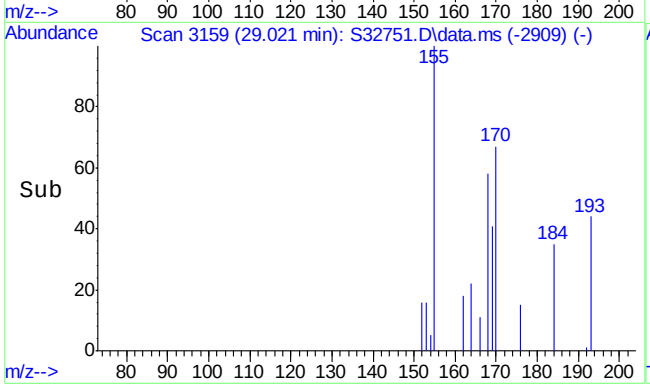


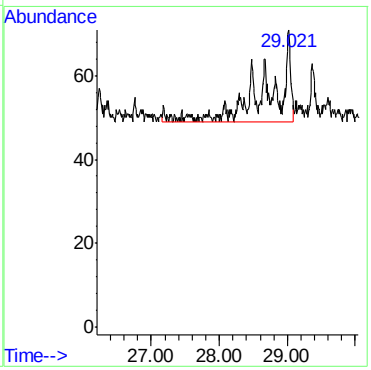


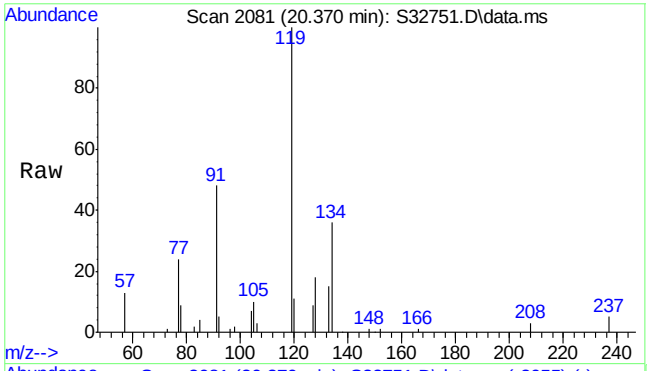


#37
C3-Benzo(b)thiophenes
Concen: 4.00 µg/mL m
RT: 29.021 min Scan# 3159
Delta R.T. -0.000 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:176 Resp: 452



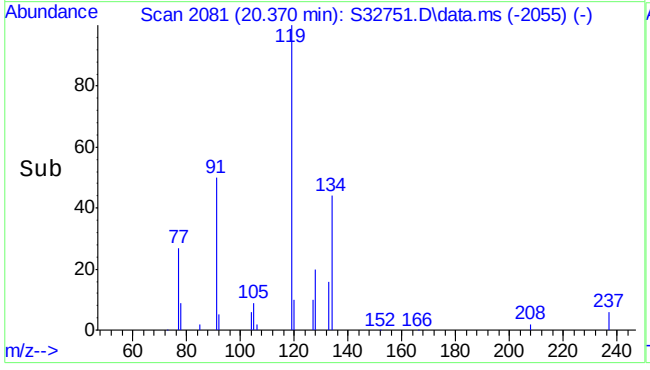


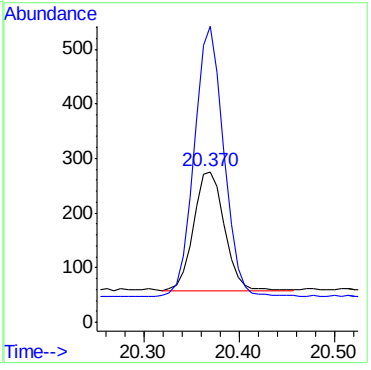


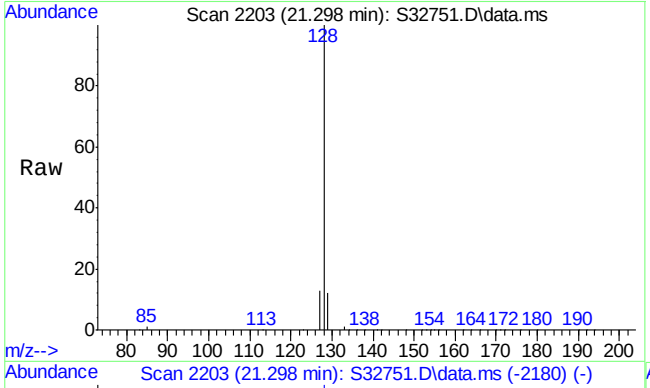
#39
Tetraethyl lead
Concen: 63.37 µg/mL
RT: 20.370 min Scan# 2081
Delta R.T. -0.014 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:208 Resp: 495

Ion	Ratio	Lower	Upper
208	100		
237	216.6	171.2	256.8



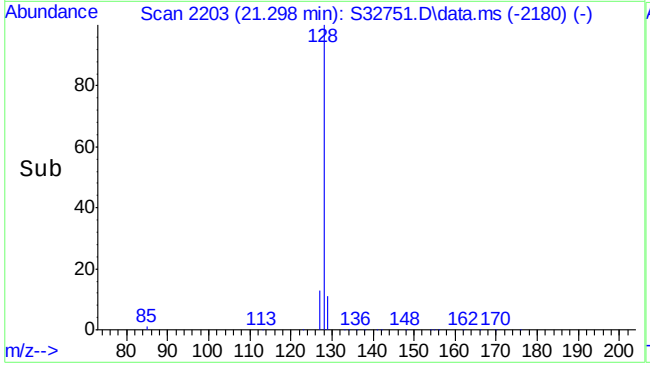


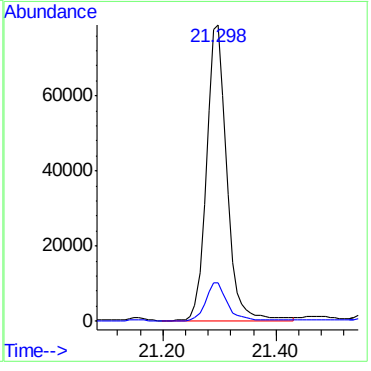


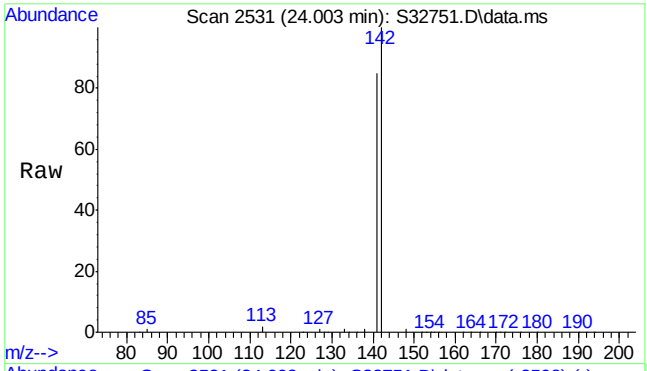
#44
Naphthalene
Concen: 1349.97 ng/mL
RT: 21.298 min Scan# 2203
Delta R.T. -0.008 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:128 Resp: 195434

Ion	Ratio	Lower	Upper
128	100		
127	12.7	10.1	15.1



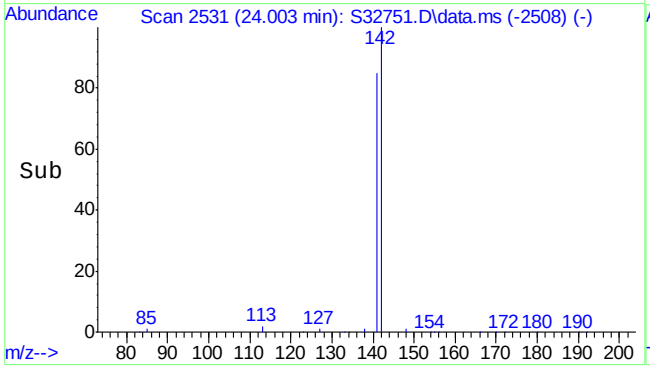


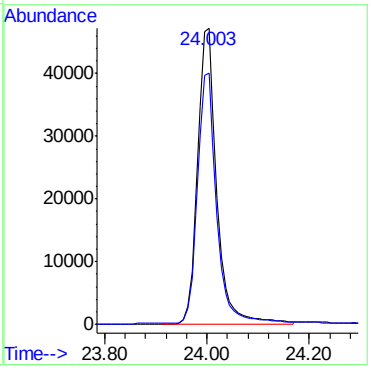


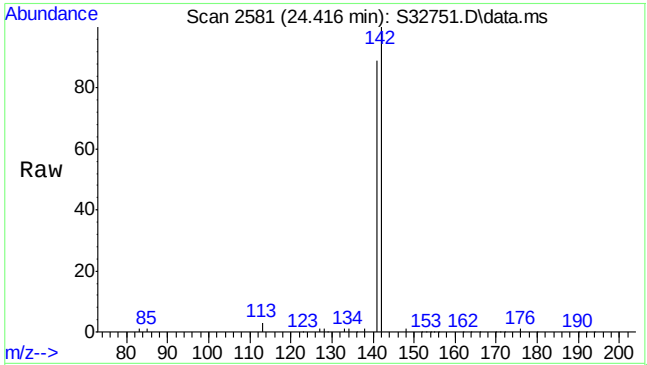
#45
2-Methylnaphthalene
Concen: 1366.24 ng/mL
RT: 24.003 min Scan# 2531
Delta R.T. -0.008 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:142 Resp: 122618

Ion	Ratio	Lower	Upper
142	100		
141	85.1	68.9	103.3



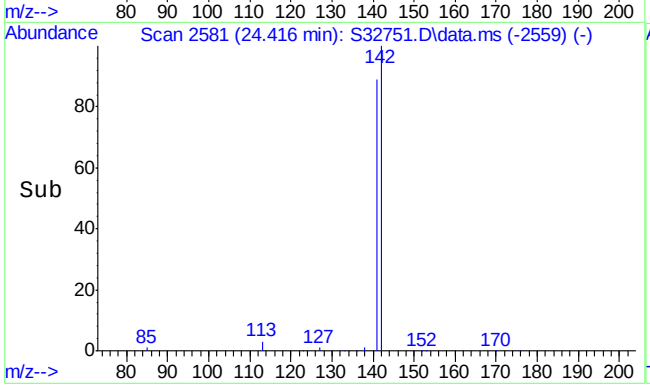


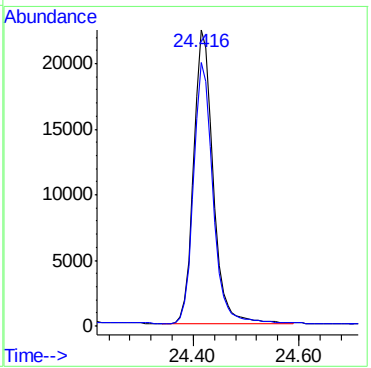


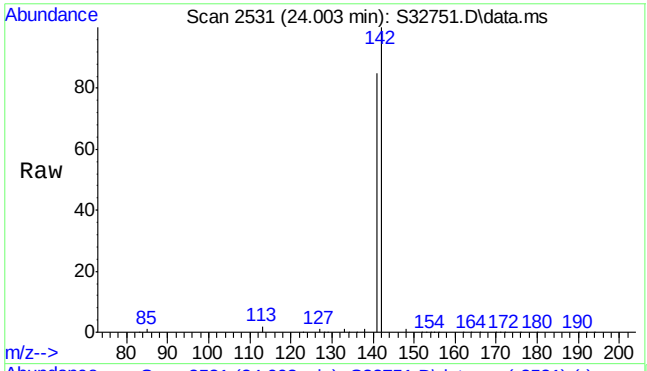
#46
1-Methylnaphthalene
Concen: 627.84 ng/mL
RT: 24.416 min Scan# 2581
Delta R.T. -0.017 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:142 Resp: 56766

Ion	Ratio	Lower	Upper
142	100		
141	88.9	71.1	106.7



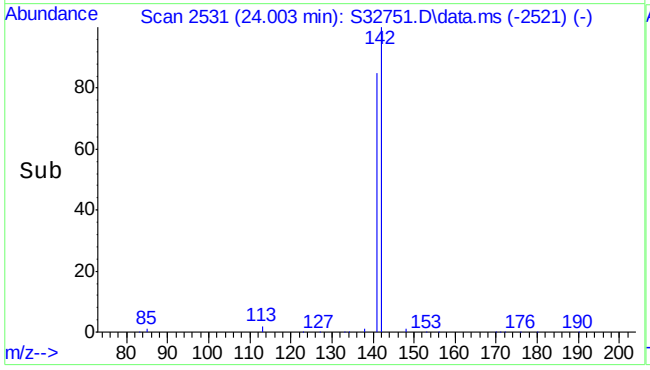


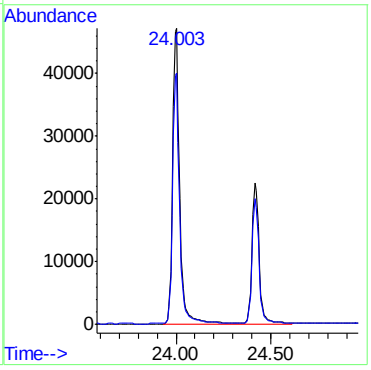


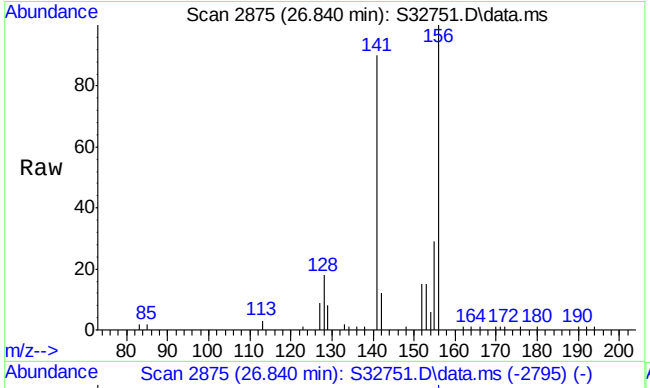
#47
C1-Naphthalenes
Concen: 1266.44 ng/mL m
RT: 24.003 min Scan# 2531
Delta R.T. -0.008 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:142 Resp: 183342

Ion	Ratio	Lower	Upper
142	100		
141	57.4	68.9	103.3#



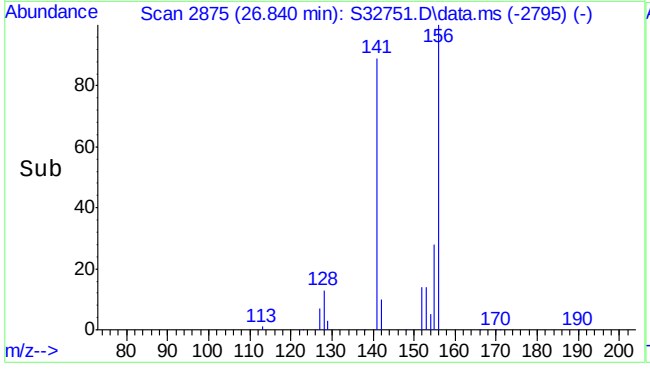


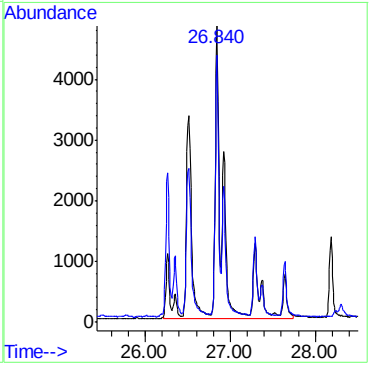


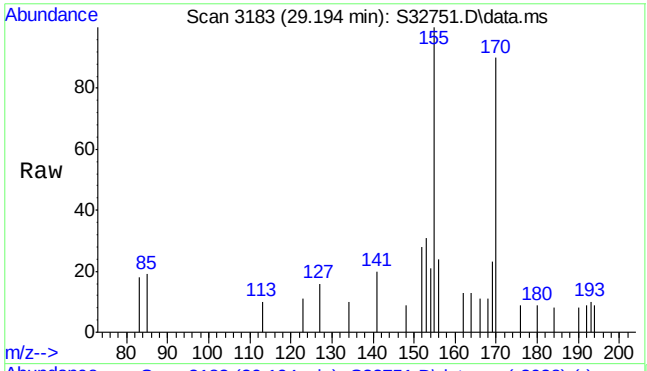
#48
C2-Naphthalenes
Concen: 344.11 ng/mL m
RT: 26.840 min Scan# 2875
Delta R.T. -0.099 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:156 Resp: 49816

Ion	Ratio	Lower	Upper
156	100		
141	12.4	60.6	90.8#



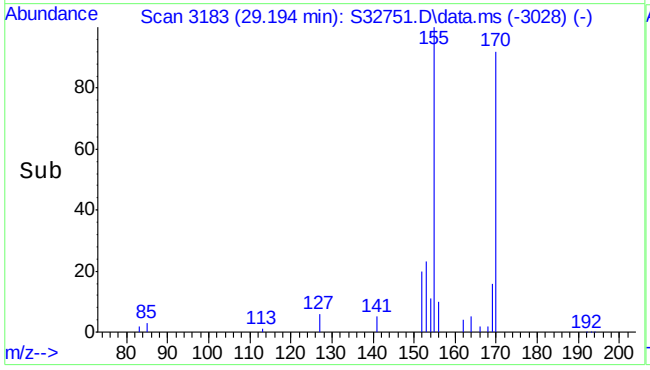


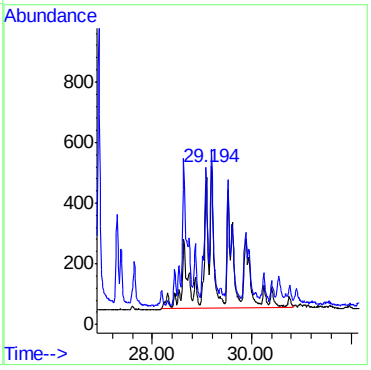


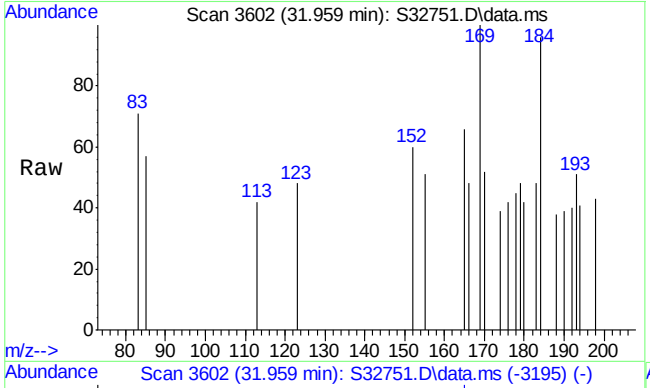
#49
C3-Naphthalenes
Concen: 79.52 ng/mL m
RT: 29.194 min Scan# 3183
Delta R.T. -0.000 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:170 Resp: 11512

Ion	Ratio	Lower	Upper
170	100		
155	15.9	81.7	122.5#



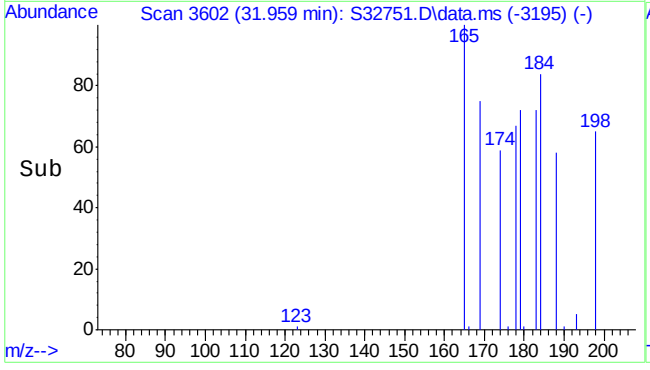


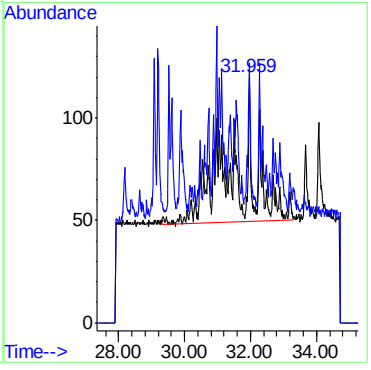


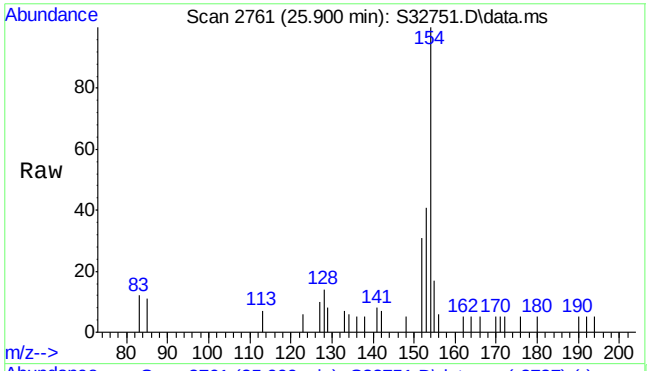
#50
C4-Naphthalenes
Concen: 21.70 ng/mL m
RT: 31.959 min Scan# 3602
Delta R.T. 0.006 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:184 Resp: 3142

Ion	Ratio	Lower	Upper
184	100		
169	8.1	76.8	115.2#



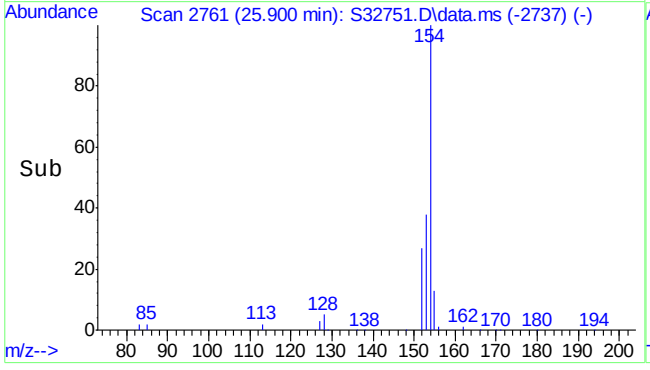


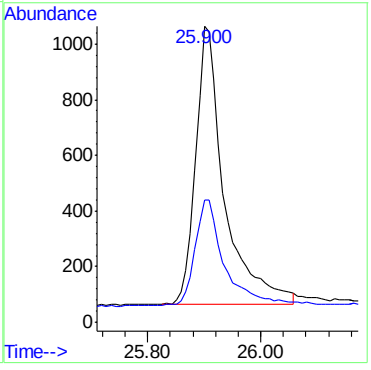


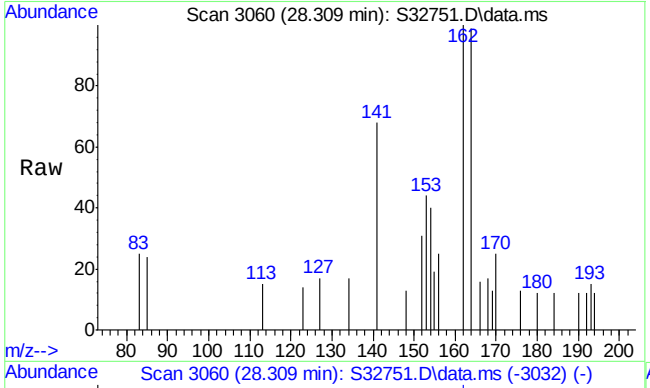
#51
Biphenyl
Concen: 28.90 µg/mL
RT: 25.900 min Scan# 2761
Delta R.T. 0.000 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:154 Resp: 3521

Ion	Ratio	Lower	Upper
154	100		
153	39.0	31.2	46.8



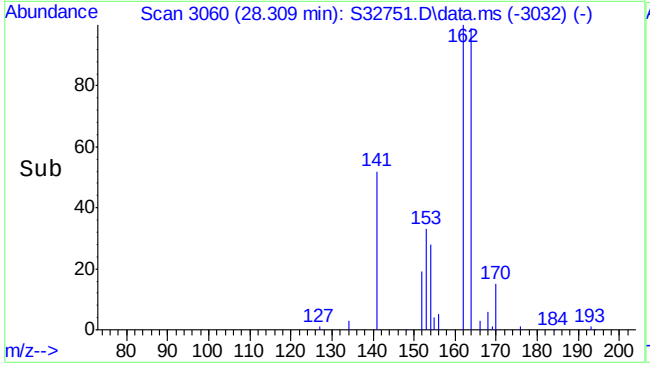


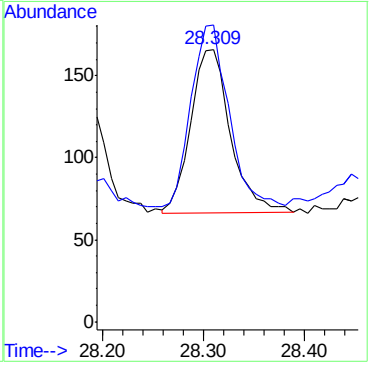


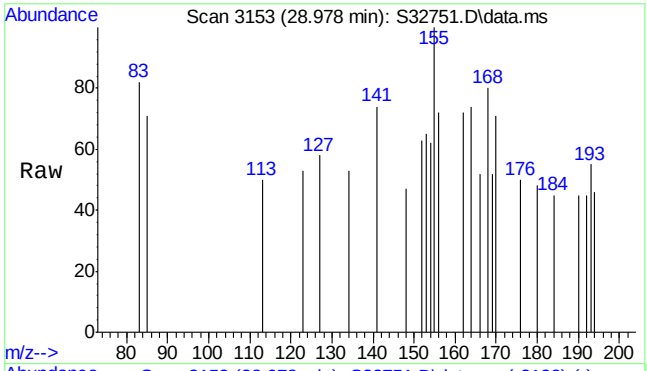
#53
Acenaphthene
Concen: 3.48 ng/mL
RT: 28.309 min Scan# 3060
Delta R.T. 0.000 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:154 Resp: 273

Ion	Ratio	Lower	Upper
154	100		
153	105.1	86.4	129.6



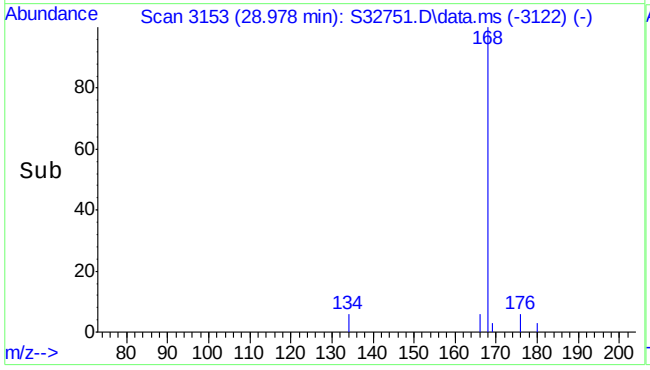


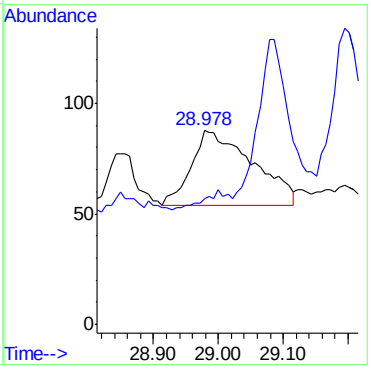


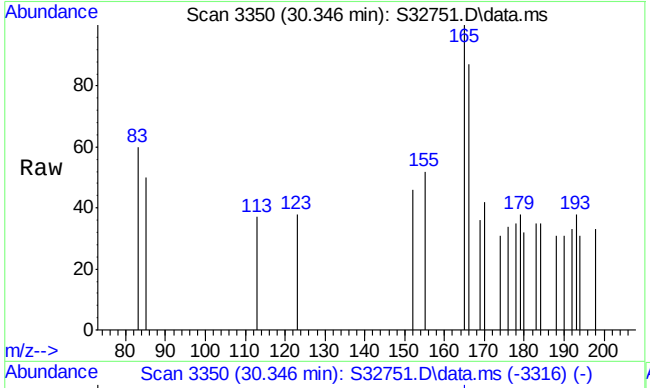
#54
Dibenzofuran
Concen: 1.90 ng/mL
RT: 28.978 min Scan# 3153
Delta R.T. 0.022 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:168 Resp: 222

Ion	Ratio	Lower	Upper
168	100		
169	0.0	10.5	15.7#



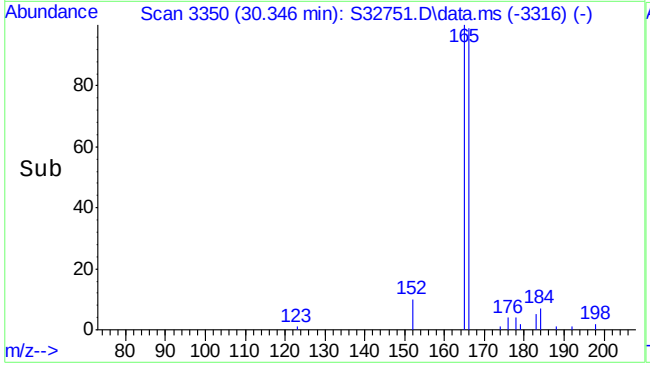


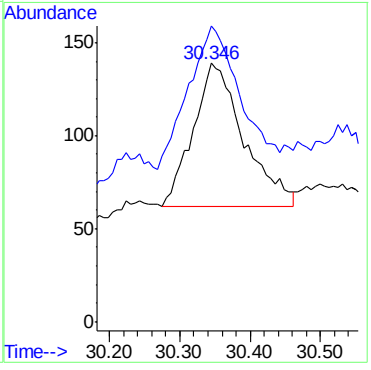


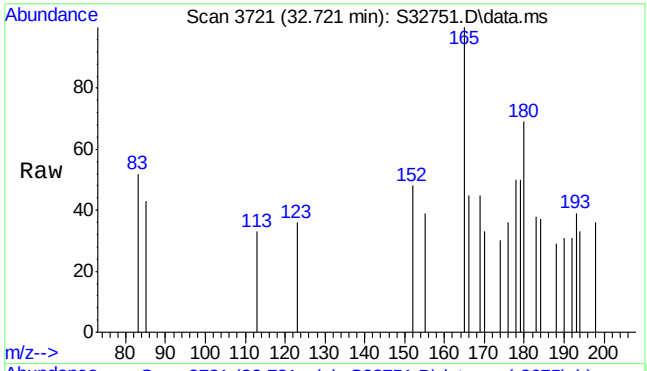
#55
Fluorene
Concen: 4.08 ng/mL
RT: 30.346 min Scan# 3350
Delta R.T. 0.019 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:166 Resp: 379

Ion	Ratio	Lower	Upper
166	100		
165	103.2	75.1	112.7



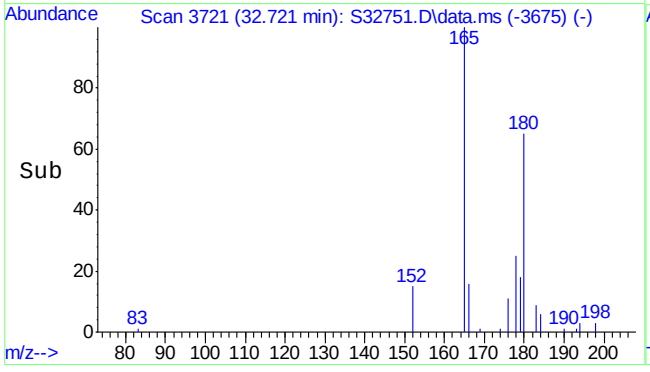


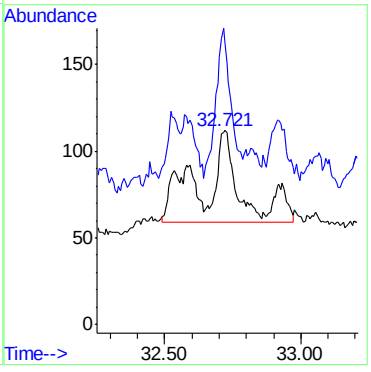


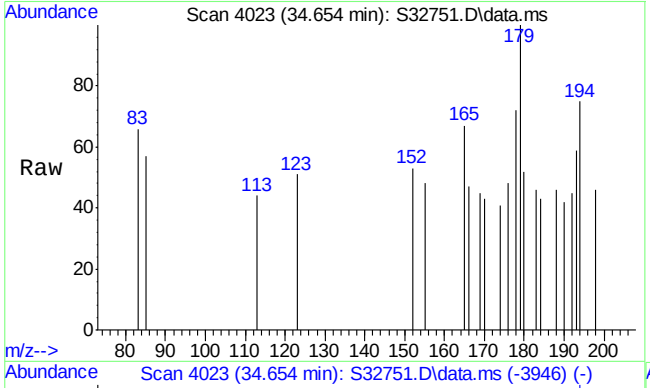
#56
C1-Fluorenes
Concen: 5.69 ng/mL m
RT: 32.721 min Scan# 3721
Delta R.T. 0.026 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:180 Resp: 528

Ion	Ratio	Lower	Upper
180	100		
165	0.0	128.1	192.1#



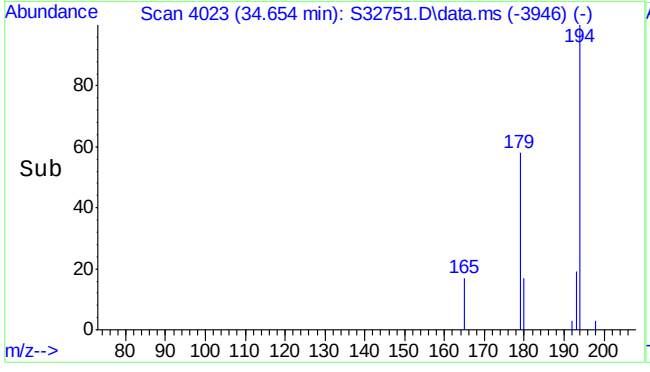


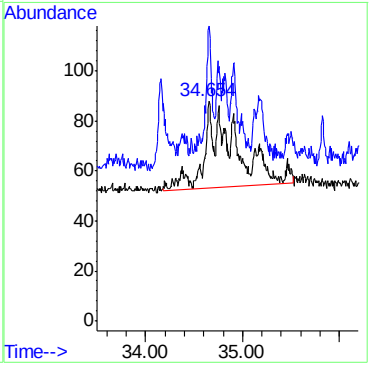


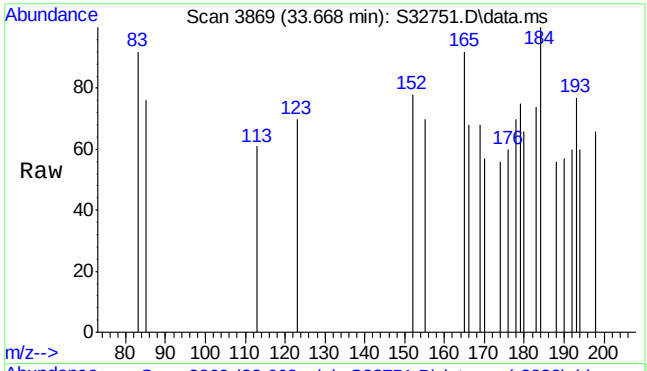
#57
C2-Fluorenes
Concen: 8.34 ng/mL m
RT: 34.654 min Scan# 4023
Delta R.T. -0.244 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:194 Resp: 774

Ion	Ratio	Lower	Upper
194	100		
179	0.0	122.6	183.8#



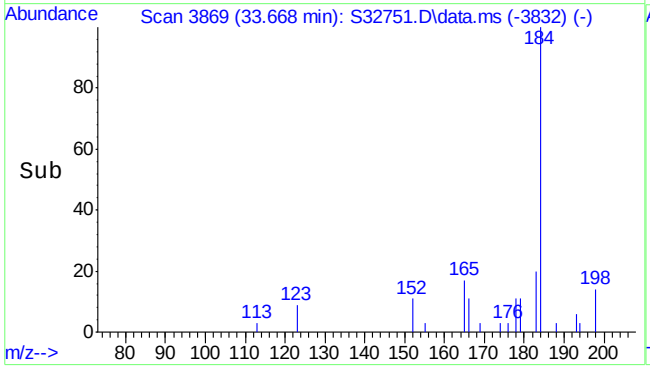


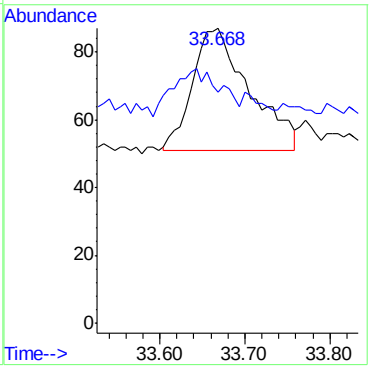


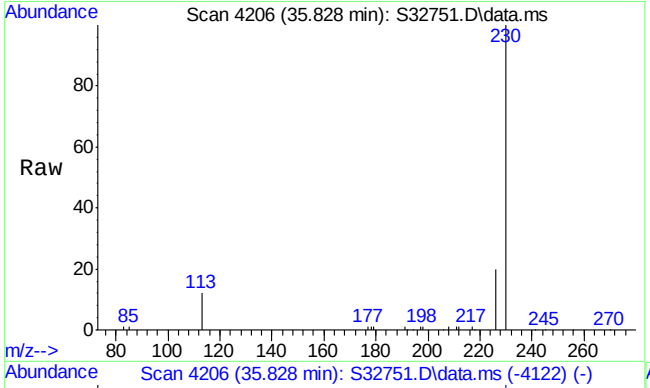
#59
Dibenzothiophene
Concen: 1.32 ng/mL m
RT: 33.668 min Scan# 3869
Delta R.T. 0.039 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:184 Resp: 167

Ion	Ratio	Lower	Upper
184	100		
152	0.0	7.1	10.7#



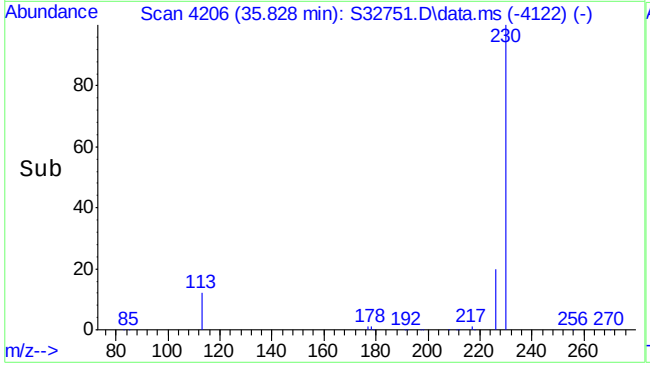


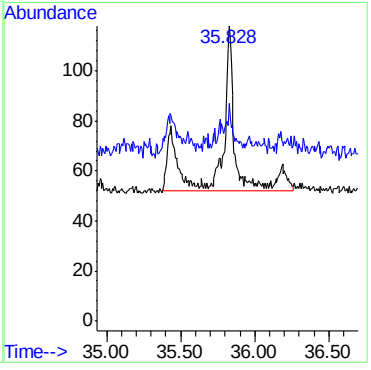


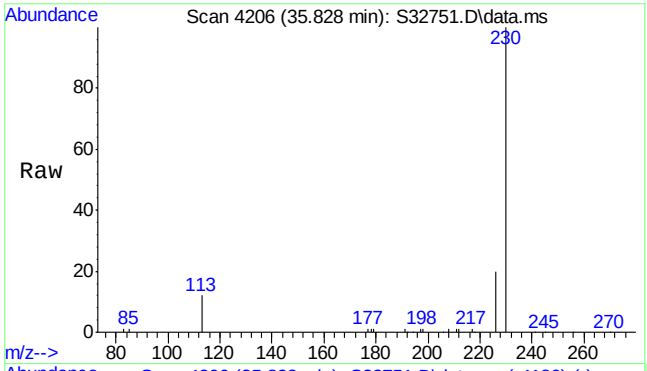
#60
C1-Dibenzothiophenes (unadj)
Concen: 3.57 ng/mL m
RT: 35.828 min Scan# 4206
Delta R.T. 0.417 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:198 Resp: 451

Ion	Ratio	Lower	Upper
198	100		
197	0.0	52.8	79.2#



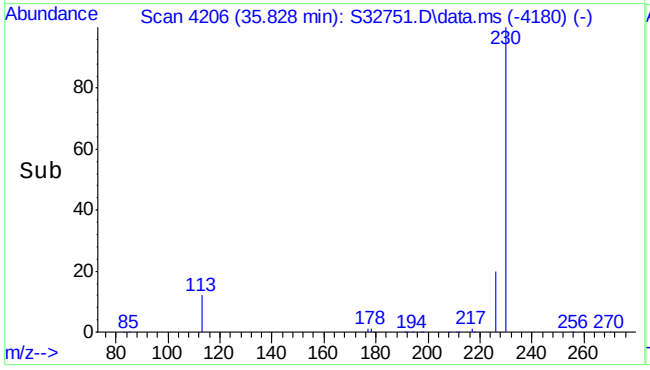


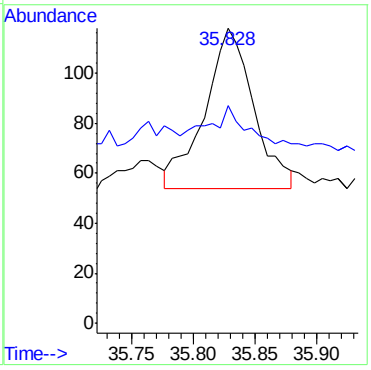


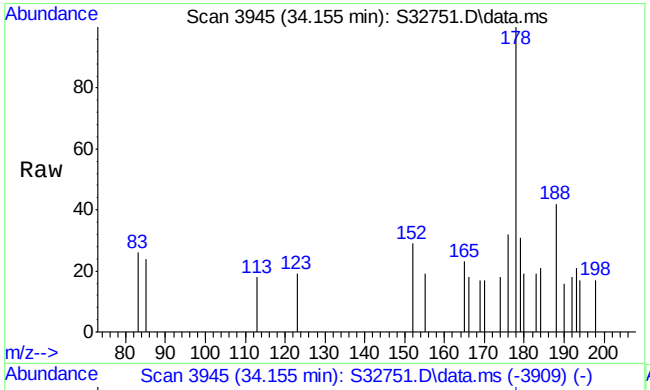
#61
C1-Dibenzothiophenes (OTP)
Concen: 1.39 µg/mL m
RT: 35.828 min Scan# 4206
Delta R.T. 0.064 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:198 Resp: 176

Ion	Ratio	Lower	Upper
198	100		
197	0.0	57.8	86.6#



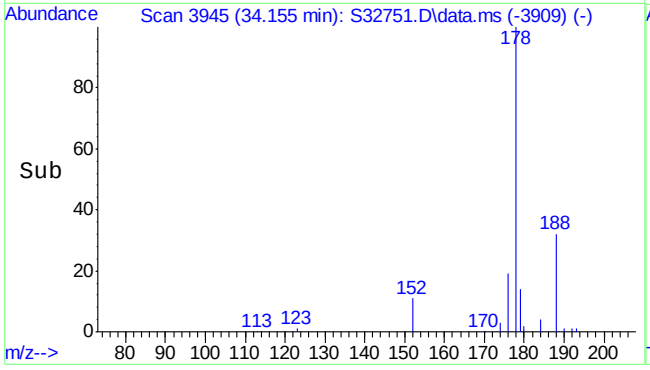


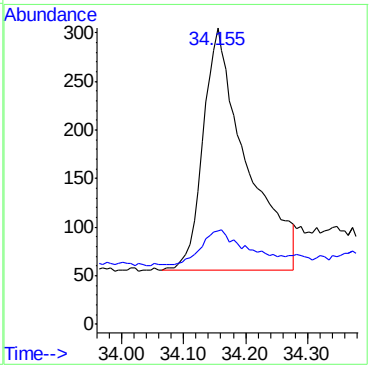


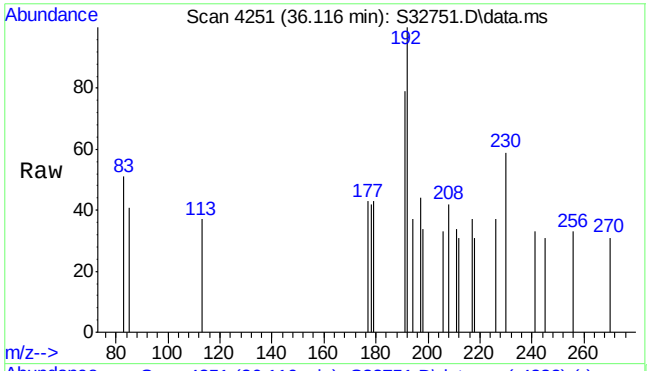
#65
Phenanthrene
Concen: 9.13 ng/mL
RT: 34.155 min Scan# 3945
Delta R.T. 0.032 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:178 Resp: 1208

Ion	Ratio	Lower	Upper
178	100		
179	0.0	12.2	18.4#



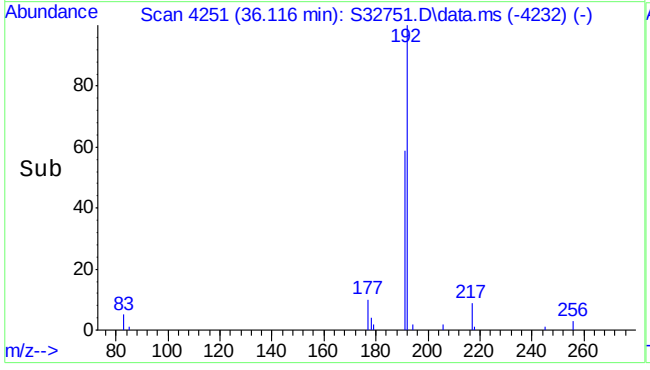


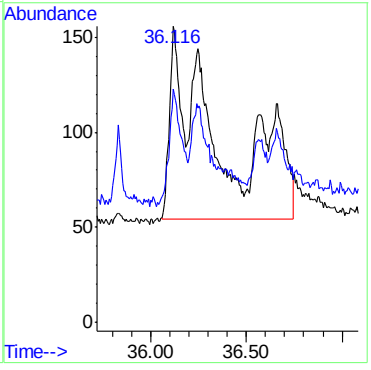


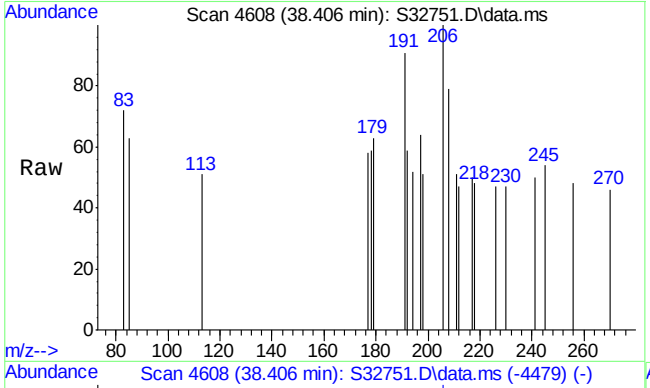
#67
C1-Phenanthrenes/anthracenes
Concen: 13.54 ng/mL m
RT: 36.116 min Scan# 4251
Delta R.T. -0.430 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:192 Resp: 1791

Ion	Ratio	Lower	Upper
192	100		
191	15.5	44.9	67.3#



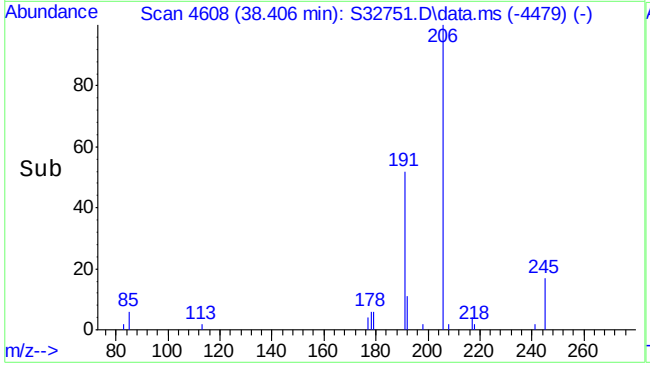


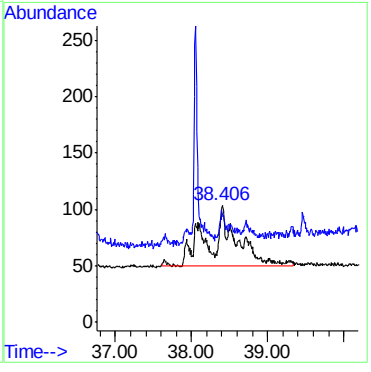


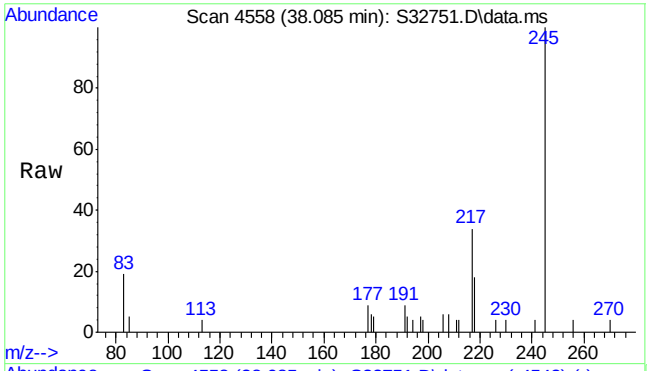
#68
C2-Phenanthrenes/anthracenes (unadj)
Concen: 10.48 ng/mL m
RT: 38.406 min Scan# 4608
Delta R.T. 0.032 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:206 Resp: 1387

Ion	Ratio	Lower	Upper
206	100		
191	0.0	44.7	67.1#



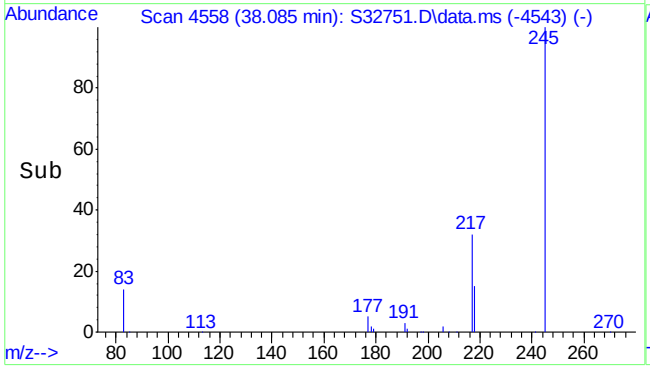


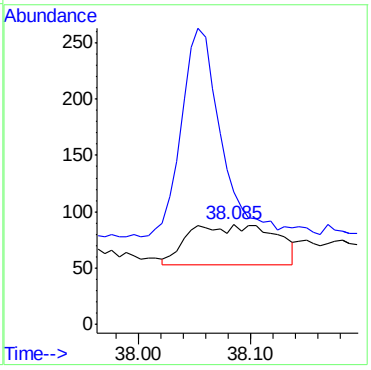


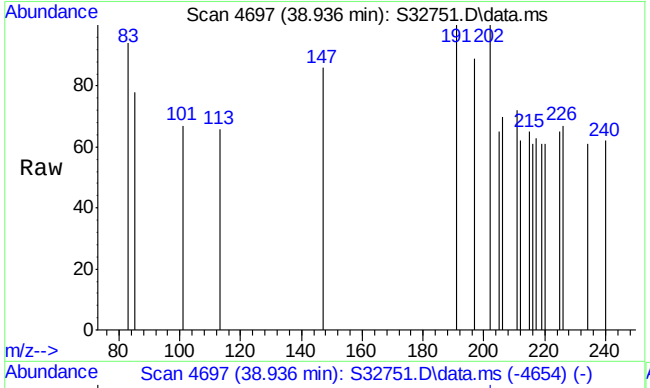
#69
C2-Phenanthrenes/anthracenes (5aA)
Concen: 1.45 µg/mL m
RT: 38.085 min Scan# 4558
Delta R.T. -0.103 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:206 Resp: 192

Ion	Ratio	Lower	Upper
206	100		
191	0.0	61.9	92.9#



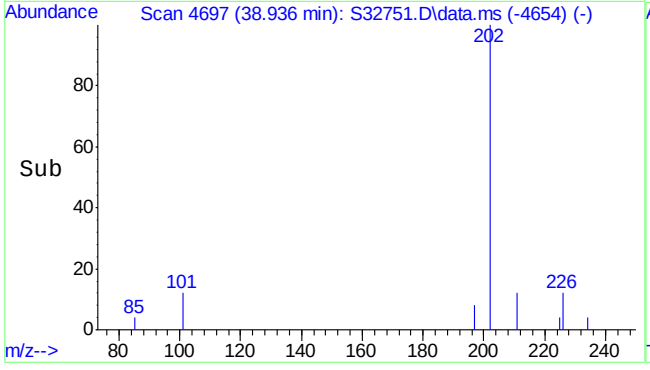


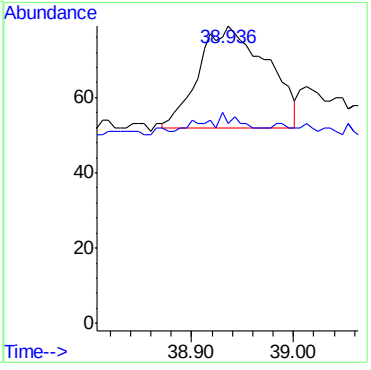


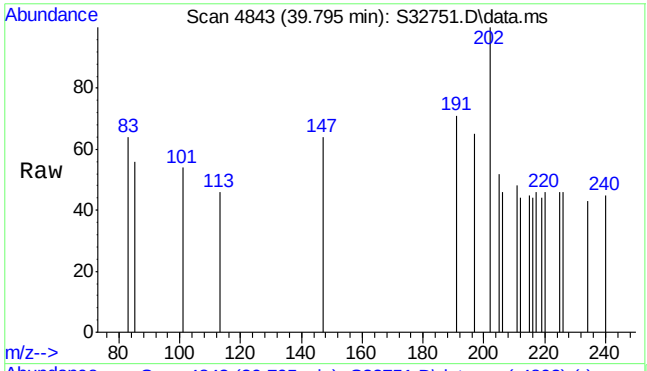
#78
Fluoranthene
Concen: 0.97 ng/mL m
RT: 38.936 min Scan# 4697
Delta R.T. 0.053 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:202 Resp: 124

Ion	Ratio	Lower	Upper
202	100		
101	0.0	10.0	15.0#



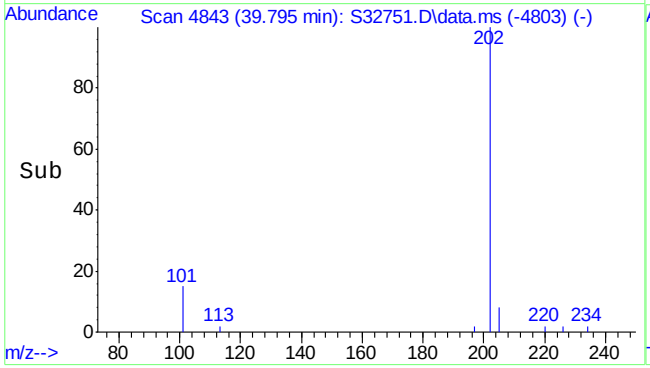


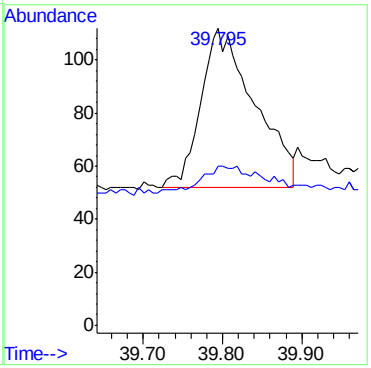


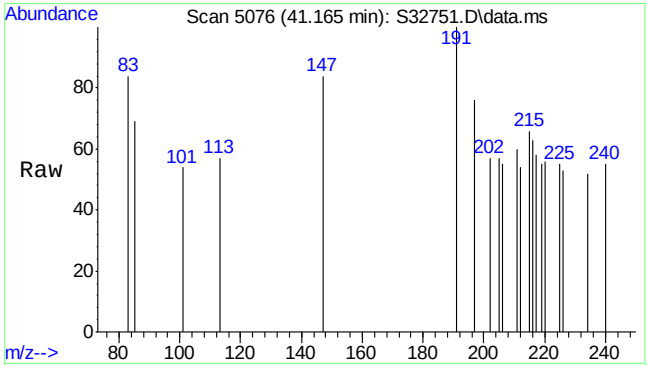
#79
Pyrene
Concen: 2.11 ng/mL
RT: 39.795 min Scan# 4843
Delta R.T. 0.035 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:202 Resp: 282

Ion	Ratio	Lower	Upper
202	100		
101	0.0	11.4	17.0#



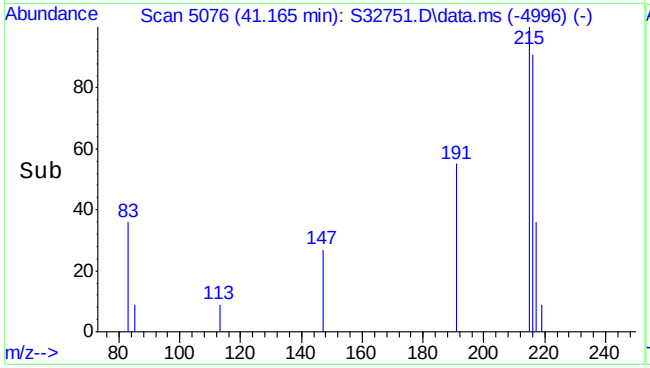


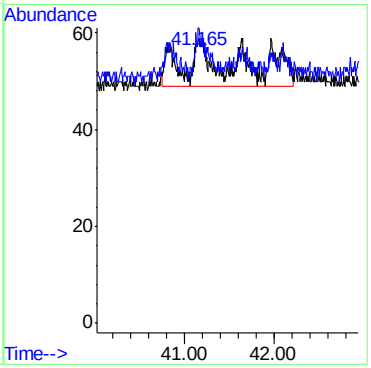


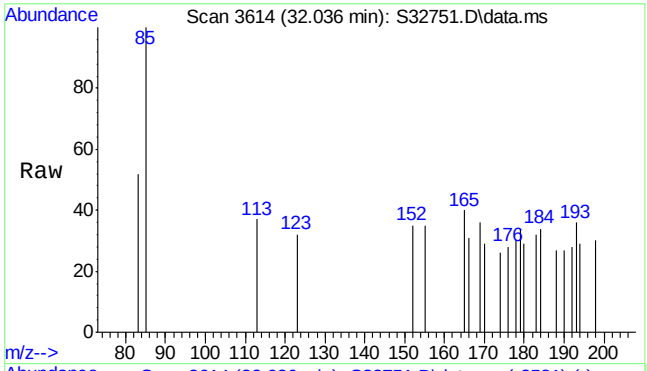
#80
C1-Fluoranthenes/pyrenes
Concen: 2.96 ng/mL m
RT: 41.165 min Scan# 5076
Delta R.T. -0.012 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion:216 Resp: 396

Ion	Ratio	Lower	Upper
216	100		
215	0.0	76.5	114.7#



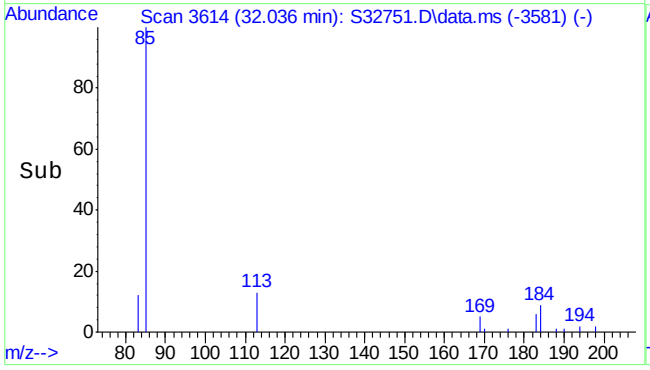


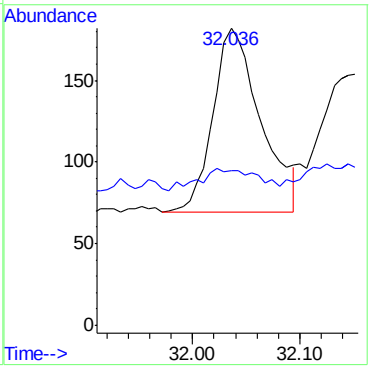


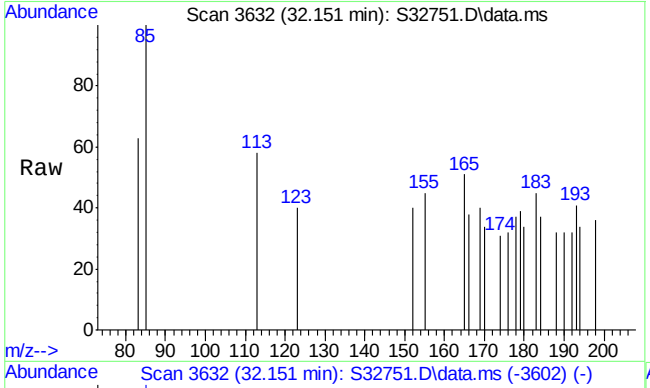
#103
C-17
Concen: 12.47 µg/mL
RT: 32.036 min Scan# 3614
Delta R.T. 0.013 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 85 Resp: 350

Ion	Ratio	Lower	Upper
85	100		
83	0.0	12.3	18.5#



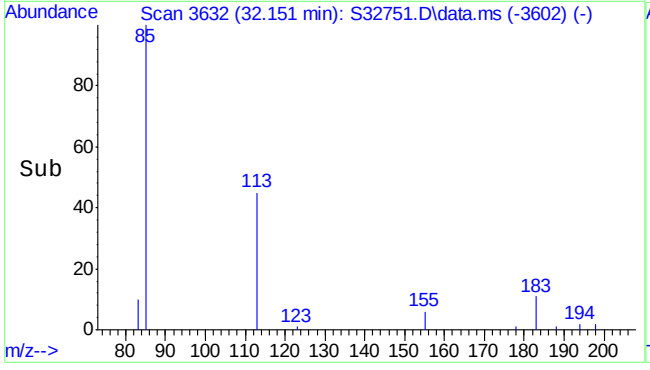


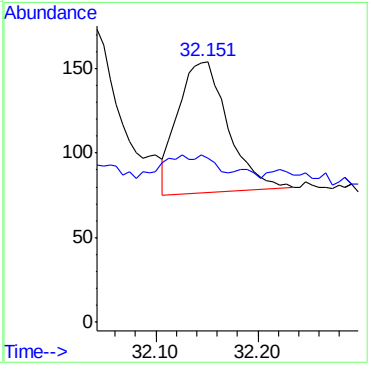


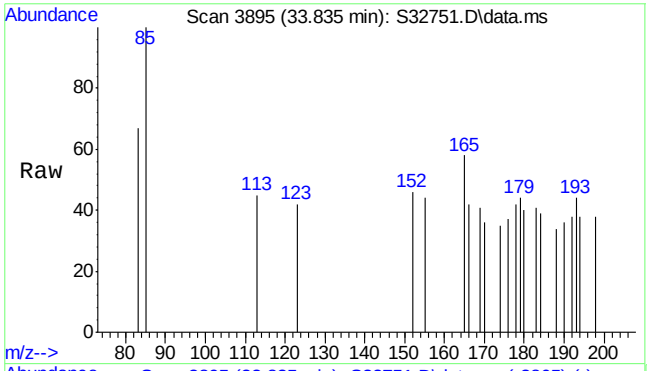
#104
Pristane
Concen: 12.37 µg/mL
RT: 32.151 min Scan# 3632
Delta R.T. -0.007 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 85 Resp: 262

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#



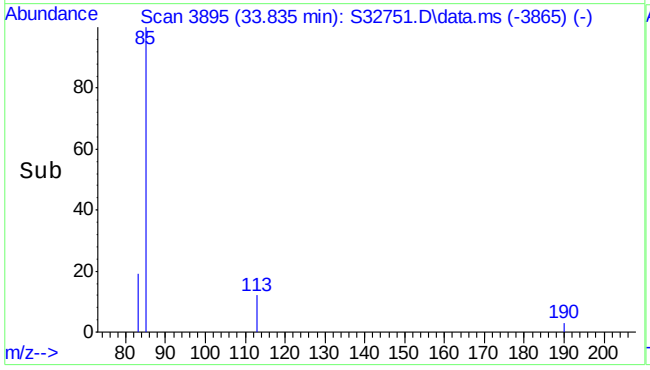


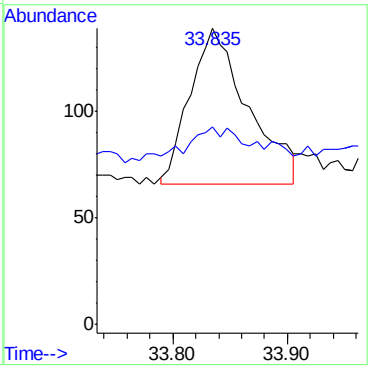


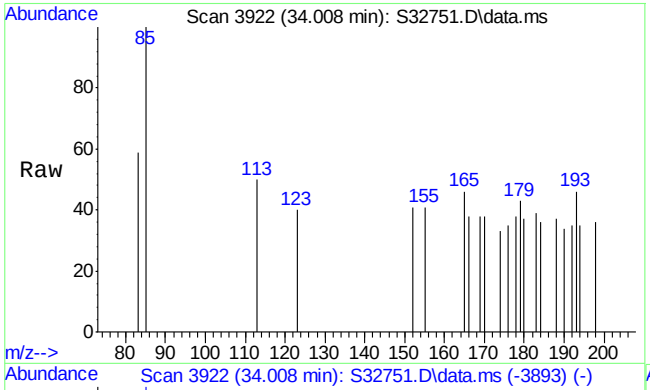
#105
C-18
Concen: 8.92 µg/mL m
RT: 33.835 min Scan# 3895
Delta R.T. -0.006 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 85 Resp: 256

Ion	Ratio	Lower	Upper
85	100		
83	0.0	17.8	26.6#



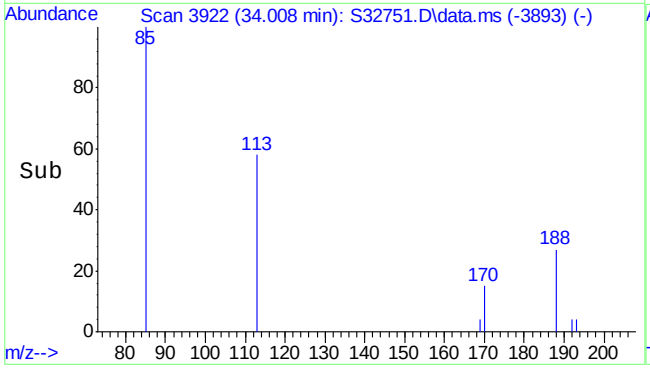


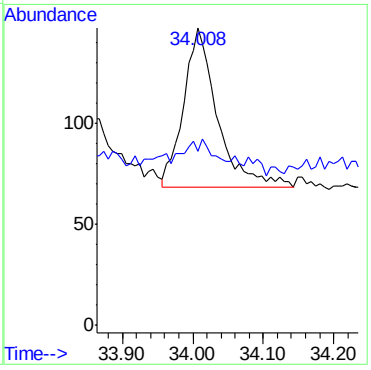


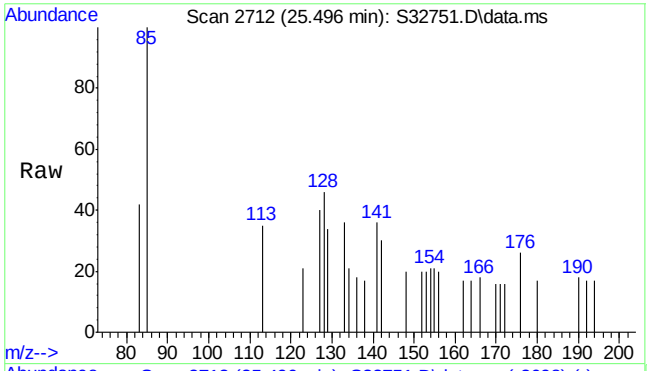
#106
Phytane
Concen: 9.38 µg/mL
RT: 34.008 min Scan# 3922
Delta R.T. -0.013 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 85 Resp: 264

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#



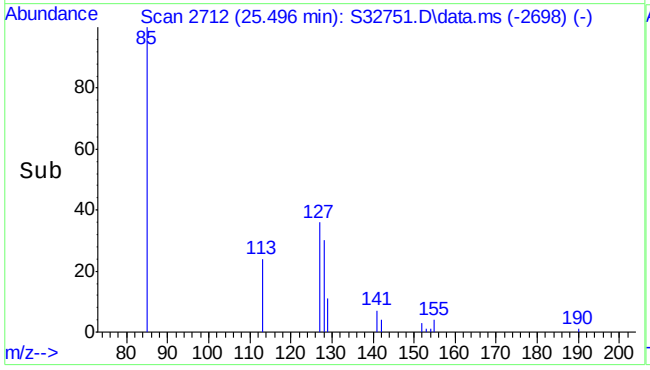


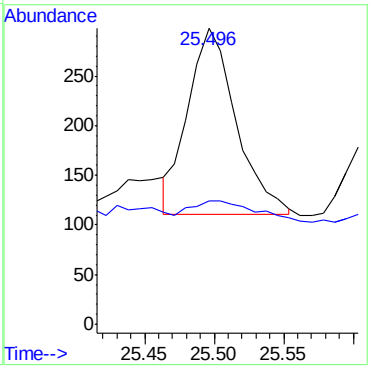


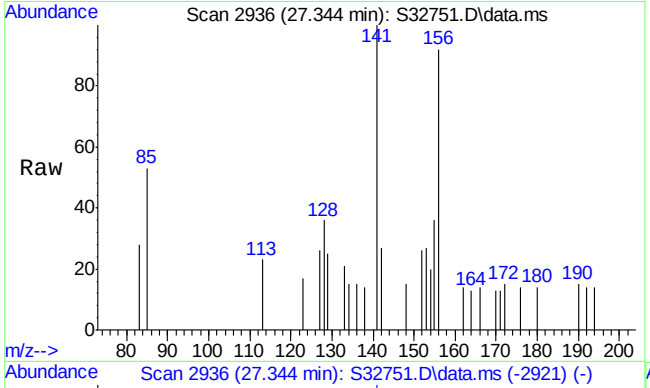
#107
2,6,10-Trimethyldodecane (1380)
Concen: 15.98 µg/mL m
RT: 25.496 min Scan# 2712
Delta R.T. -0.083 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 85 Resp: 450

Ion	Ratio	Lower	Upper
85	100		
83	0.0	13.0	19.6#



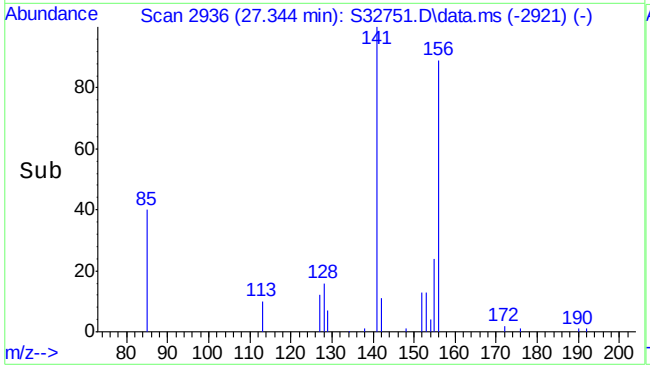


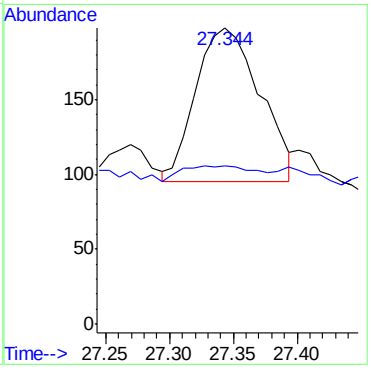


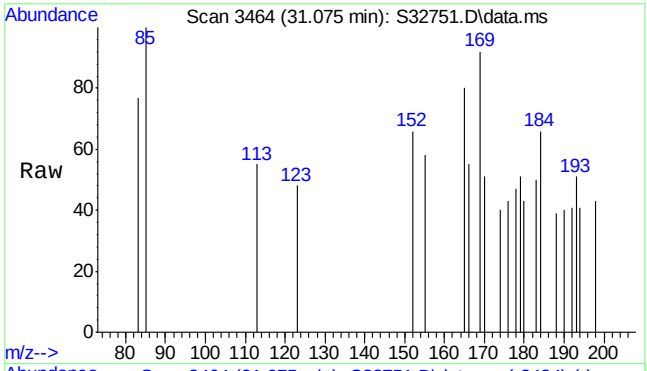
#108
2,6,10-Trimethyltridecane (1470)
Concen: 12.82 µg/mL m
RT: 27.344 min Scan# 2936
Delta R.T. -0.074 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 85 Resp: 361

Ion	Ratio	Lower	Upper
85	100		
83	0.0	13.0	19.6#



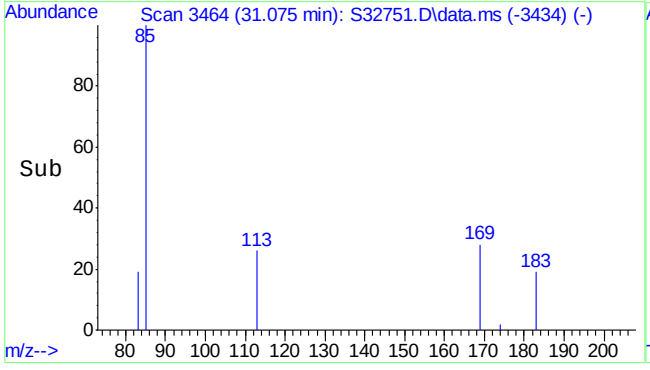


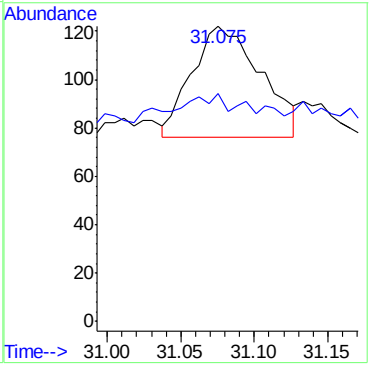


#109
2,6,10-Trimethylpentadecane (1650)
Concen: 5.36 µg/mL m
RT: 31.075 min Scan# 3464
Delta R.T. -0.006 min
Lab File: S32751.D
Acq: 28 May 2013 9:33 pm

Tgt Ion: 85 Resp: 151

Ion	Ratio	Lower	Upper
85	100		
83	0.0	21.2	31.8#





9.1.5

9

Manual Integrations APPROVED (compounds with "m" flag)
James Roush
05/31/13 15:01

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32752.D
Acq On : 28 May 2013 11:10 pm
Operator : danielb
Sample : mc20162-6
Misc : op33312,mss1429,0.0104,,,2,50
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 29 10:45:37 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	28.187	164	58392	1000.00	ng/mL	0.00
System Monitoring Compounds						
2) Toluene-d8	9.284	98	3758	57.98	µg/mL	-0.03
Spiked Amount 1000.000			Recovery = 5.80%			
3) Naphthalene-d8	21.224	136	2225	18.79	ng/mL	0.00
Spiked Amount 1000.000	Range 1 - 0		Recovery = 1.88%#			
4) Phenanthrene-d10	34.078	188	1218m	13.07	ng/mL	0.04
Spiked Amount 1000.000			Recovery = 1.31%			
5) Perylene-d12	49.988	264	449m	5.07	ng/mL	0.10
Spiked Amount 1000.000			Recovery = 0.51%			
Target Compounds						Qvalue
6) MTBE	5.459	73	124m	2.59	µg/mL	
7) Benzene	6.857	TIC	75495m	817.77	µg/mL	
8) C1-Benzene	9.385	92	255705	2769.82	µg/mL	100
9) C2-Benzenes	12.360	106	440331m	4769.71	µg/mL	
10) C3-Benzenes	16.012	120	402695m	4362.03	µg/mL	
11) C4-Benzenes	17.798	134	189991m	2058.00	µg/mL	
12) C5-Benzenes	20.096	148	56033m	606.96	µg/mL	
13) Methylcyclohexane	8.218	83	24567	682.07	µg/mL	100
14) Toluene	9.385	91	434177	5026.02	µg/mL	100
15) Ethylbenzene	12.122	91	232907	2206.74	µg/mL	100
16) m,p-xylene	12.353	91	596696	7092.83	µg/mL	100
17) Styrene	13.001	104	617	9.88	µg/mL	98
18) o-Xylene	13.073	91	223173	2678.27	µg/mL	99
19) Isopropylbenzene	13.995	105	18917	192.58	µg/mL	99
20) n-Propylbenzene	14.852	91	95603	718.36	µg/mL	98
21) 1,3,5-Trimethylbenzene	15.270	105	108523	1190.61	µg/mL	100
22) t-Butylbenzene	16.012	119	40054	446.92	µg/mL#	54
23) 1,2,4-Trimethylbenzene	16.012	105	347449	3728.60	µg/mL	100
24) sec-Butylbenzene	16.502	105	10601	88.67	µg/mL	100
25) 1,2,3-Trimethylbenzene	16.855	105	75175	769.42	µg/mL	97
26) p-Isopropyltoluene	16.783	119	12160	115.32	µg/mL	91
27) n-Butylbenzene	17.748	91	28793	283.21	µg/mL#	53
28) trans-Decalin	17.827	96	210	10.98	µg/mL	98
29) cis-Decalin	19.066	96	96m	3.85	µg/mL	
30) C1-Decalins	19.347	152	378m	19.76	µg/mL	
31) C2-Decalins	20.788	166	431m	22.53	µg/mL	
34) Benzo(b)thiophene	21.512	134	4234m	38.39	µg/mL	
35) C1-Benzo(b)thiophenes	23.583	148	5556m	50.38	µg/mL	
36) C2-Benzo(b)thiophenes	26.560	162	1177m	10.67	µg/mL	
37) C3-Benzo(b)thiophenes	29.029	176	184m	1.67	µg/mL	
44) Naphthalene	21.298	128	75995	538.25	ng/mL	99
45) 2-Methylnaphthalene	24.003	142	47985	548.22	ng/mL	99
46) 1-Methylnaphthalene	24.424	142	23125	262.25	ng/mL	99
47) C1-Naphthalenes	24.003	142	75005m	531.24	ng/mL	
48) C2-Naphthalenes	26.849	156	20030m	141.87	ng/mL	
49) C3-Naphthalenes	29.209	170	4429m	31.37	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32752.D
Acq On : 28 May 2013 11:10 pm
Operator : danielb
Sample : mc20162-6
Misc : op33312,mss1429,0.0104,,,2,50
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 29 10:45:37 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

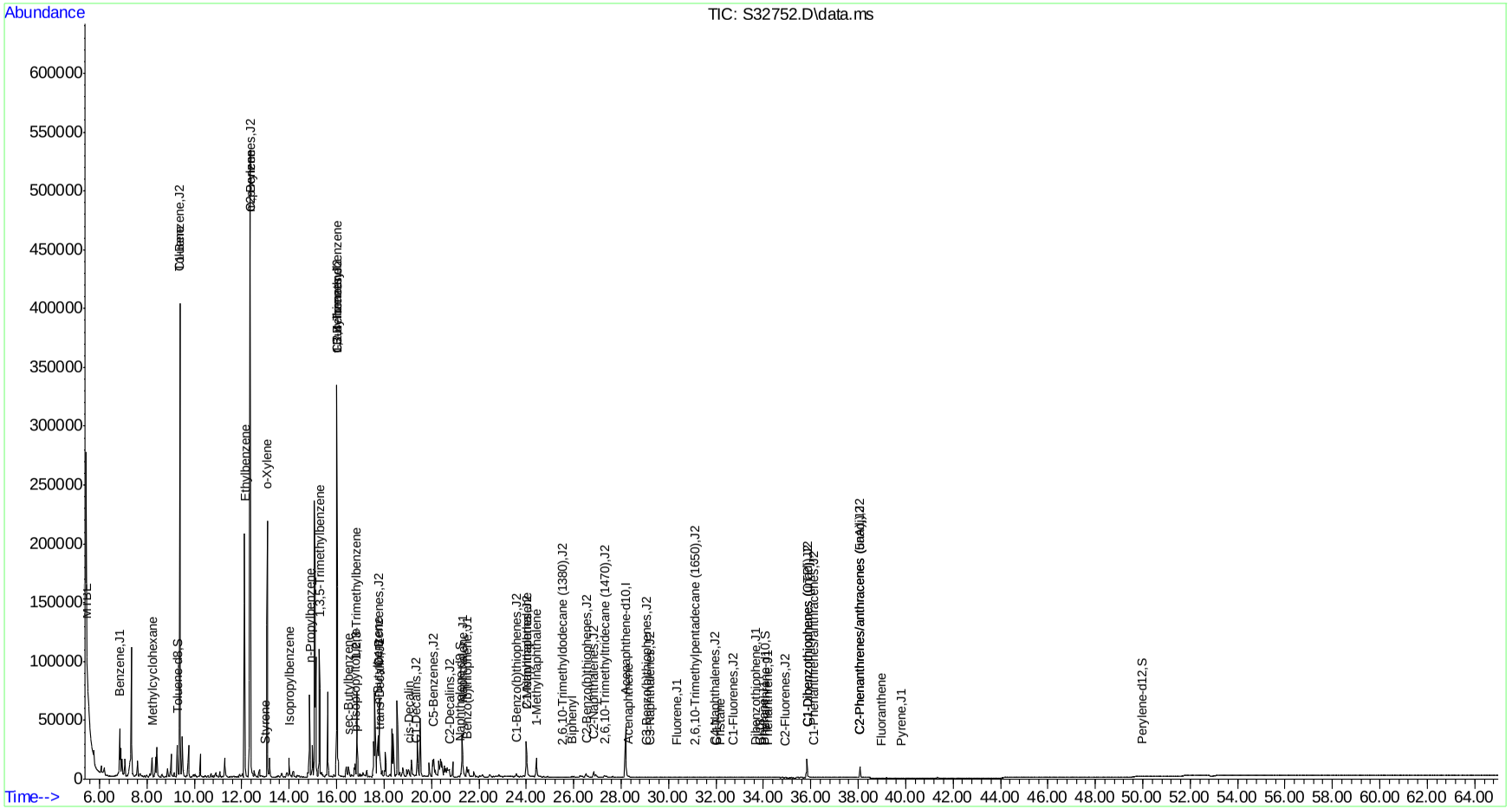
	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
50)	C4-Naphthalenes	31.965	184	1483m	10.50	ng/mL	
51)	Biphenyl	25.917	154	1351	11.37	µg/mL	94
53)	Acenaphthene	28.302	154	126m	1.65	ng/mL	
55)	Fluorene	30.365	166	108m	1.19	ng/mL	
56)	C1-Fluorenes	32.734	180	227m	2.51	ng/mL	
57)	C2-Fluorenes	34.904	194	322m	3.56	ng/mL	
59)	Dibenzothiophene	33.668	184	91m	0.74	ng/mL	
60)	C1-Dibenzothiophenes (...	35.834	198	310m	2.52	ng/mL	
61)	C1-Dibenzothiophenes (...	35.834	198	135m	1.10	µg/mL	
65)	Phenanthrene	34.168	178	454	3.52	ng/mL#	63
67)	C1-Phenanthrenes/anthr...	36.148	192	727m	5.63	ng/mL	
68)	C2-Phenanthrenes/anthr...	38.053	206	617m	4.78	ng/mL	
69)	C2-Phenanthrenes/anthr...	38.053	206	73m	0.57	µg/mL	
78)	Fluoranthene	38.960	202	68m	0.54	ng/mL	
79)	Pyrene	39.812	202	128m	0.98	ng/mL	
103)	C-17	32.042	85	194m	7.09	µg/mL	
104)	Pristane	32.151	85	247m	11.96	µg/mL	
105)	C-18	33.841	85	144m	5.15	µg/mL	
106)	Phytane	34.008	85	163m	5.94	µg/mL	
107)	2,6,10-Trimethyldodeca...	25.504	85	156m	5.68	µg/mL	
108)	2,6,10-Trimethyltridec...	27.344	85	159m	5.79	µg/mL	
109)	2,6,10-Trimethylpentad...	31.088	85	116m	4.22	µg/mL	

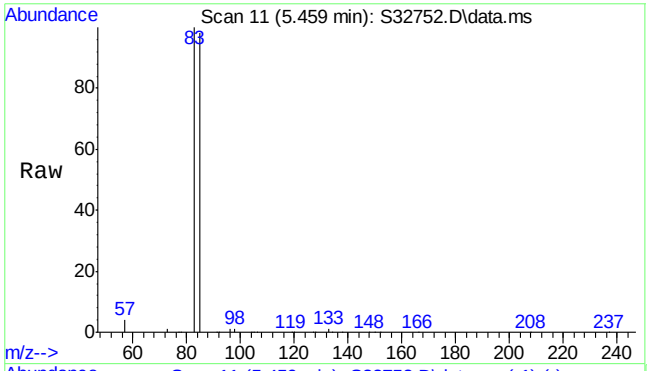
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32752.D
Acq On : 28 May 2013 11:10 pm
Operator : danielb
Sample : mc20162-6
Misc : op33312,mss1429,0.0104,,,2,50
ALS Vial : 11 Sample Multiplier: 1

Quant Time: May 29 10:45:37 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

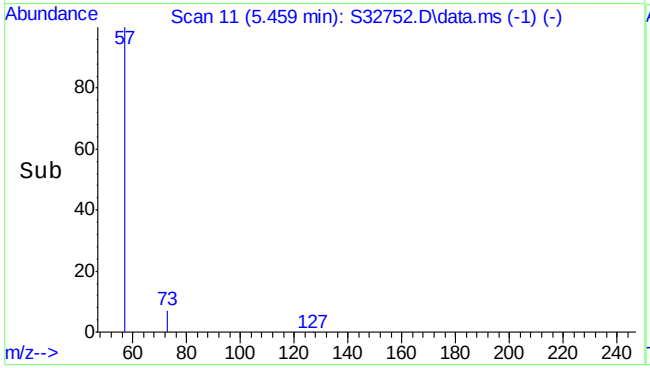


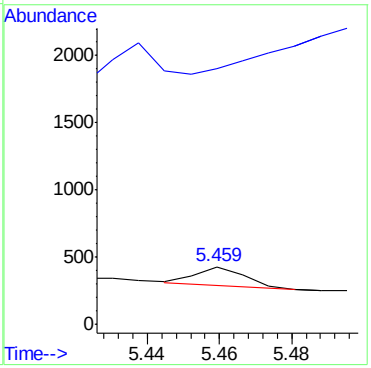


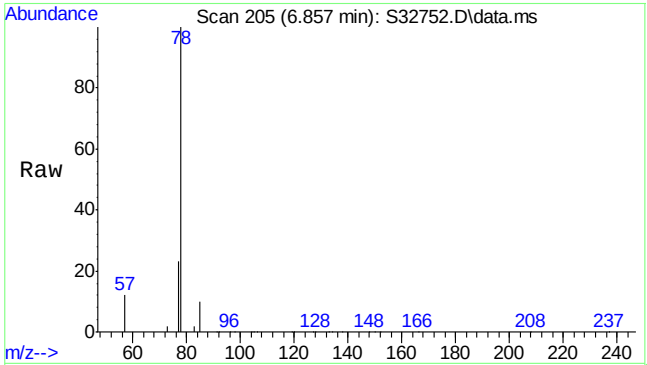
#6
MTBE
Concen: 2.59 µg/mL m
RT: 5.459 min Scan# 11
Delta R.T. -0.036 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 73 Resp: 124

Ion	Ratio	Lower	Upper
73	100		
57	0.0	18.5	27.7#

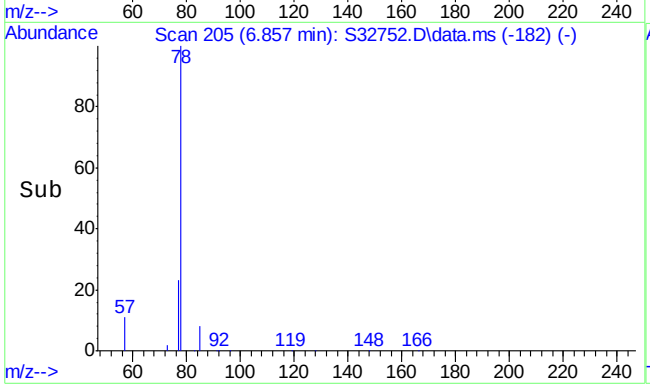


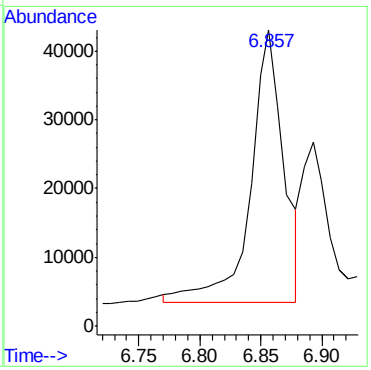


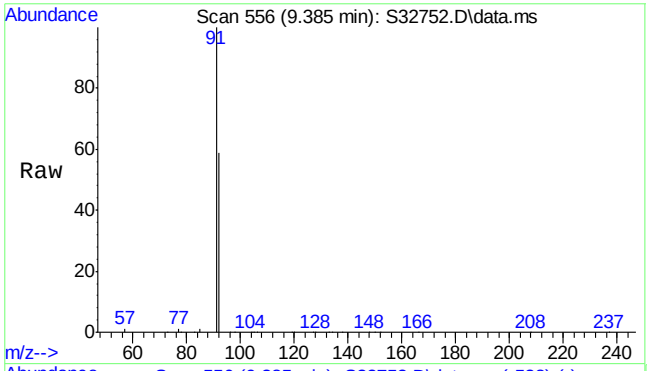


#7
Benzene
Concen: 817.77 µg/mL m
RT: 6.857 min Scan# 205
Delta R.T. -0.036 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:TIC Resp: 75495



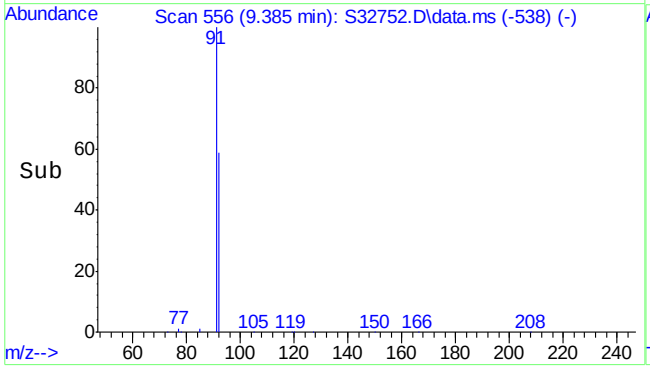


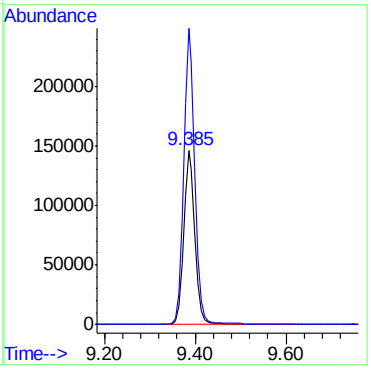


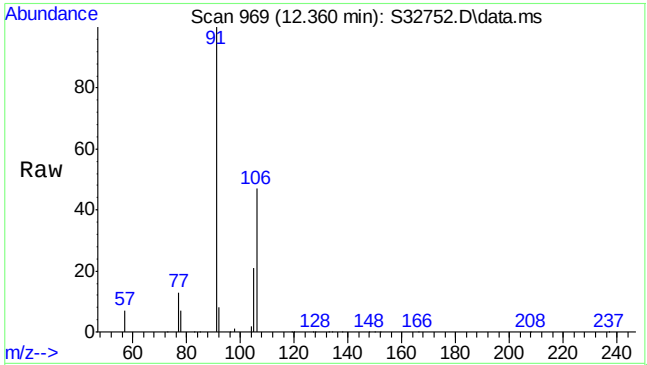
#8
C1-Benzene
Concen: 2769.82 µg/mL
RT: 9.385 min Scan# 556
Delta R.T. -0.072 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 92 Resp: 255705

Ion	Ratio	Lower	Upper
92	100		
91	169.9	135.6	203.4



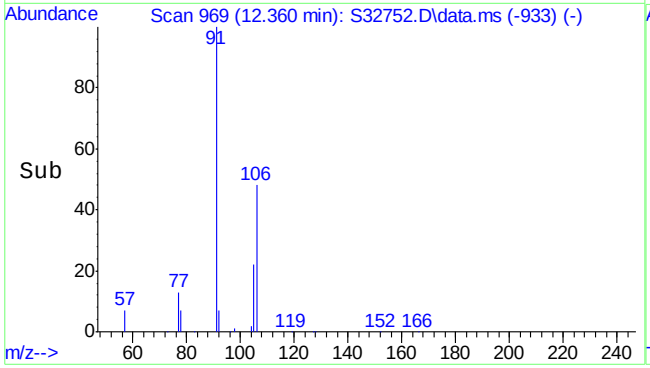


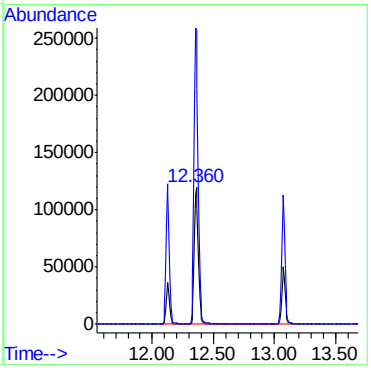


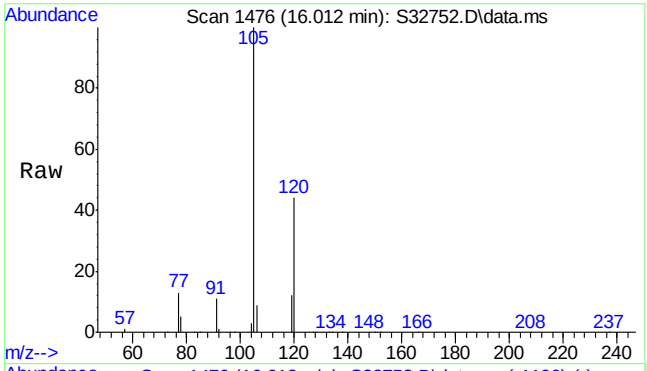
#9
C2-Benzenes
Concen: 4769.71 µg/mL m
RT: 12.360 min Scan# 969
Delta R.T. -0.029 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:106 Resp: 440331

Ion	Ratio	Lower	Upper
106	100		
91	135.6	174.9	262.3#



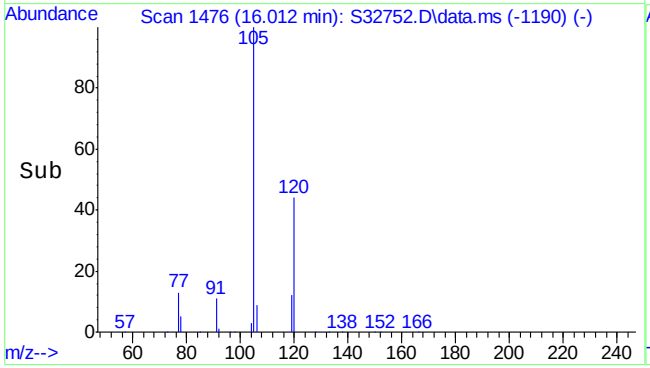


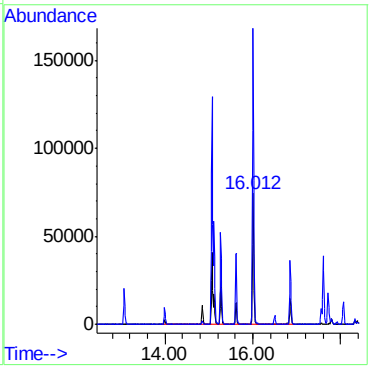


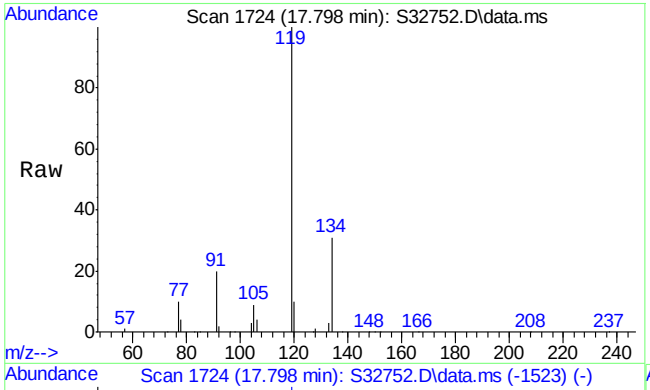
#10
C3-Benzenes
Concen: 4362.03 µg/mL m
RT: 16.012 min Scan# 1476
Delta R.T. -0.022 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:120 Resp: 402695

Ion	Ratio	Lower	Upper
120	100		
105	86.5	181.4	272.2#



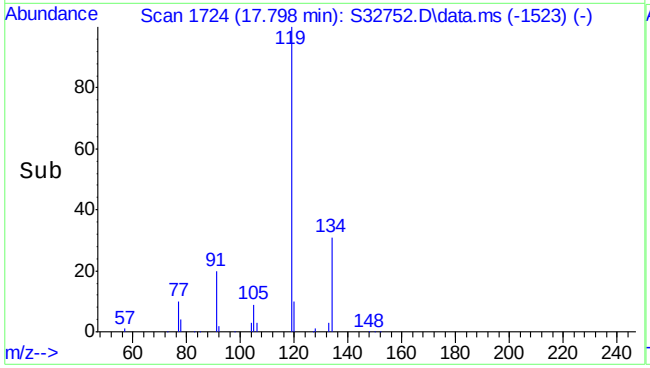


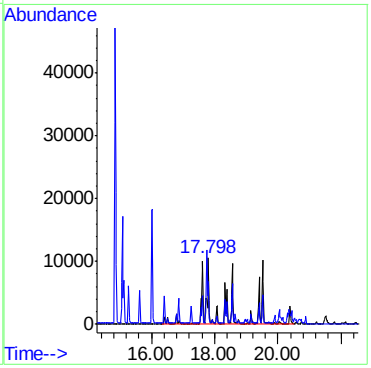


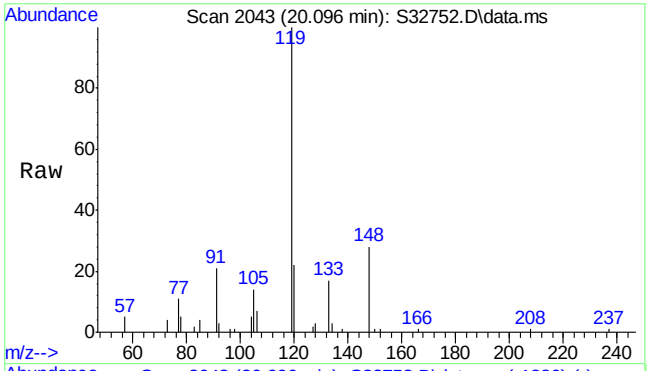
#11
C4-Benzenes
Concen: 2058.00 µg/mL m
RT: 17.798 min Scan# 1724
Delta R.T. -2.608 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:134 Resp: 189991

Ion	Ratio	Lower	Upper
134	100		
91	0.0	37.2	55.8#



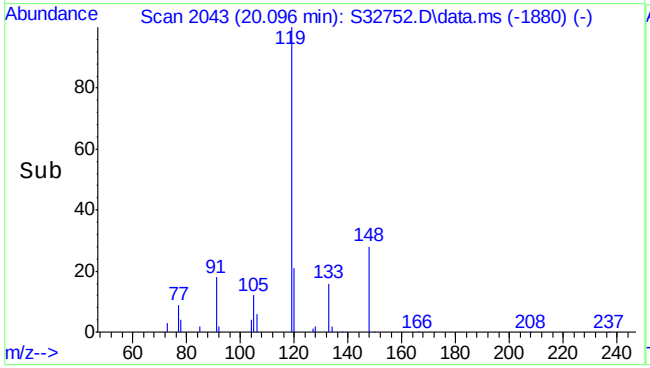


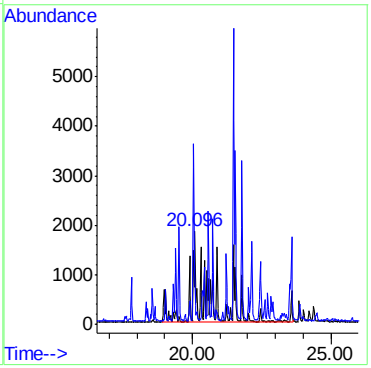


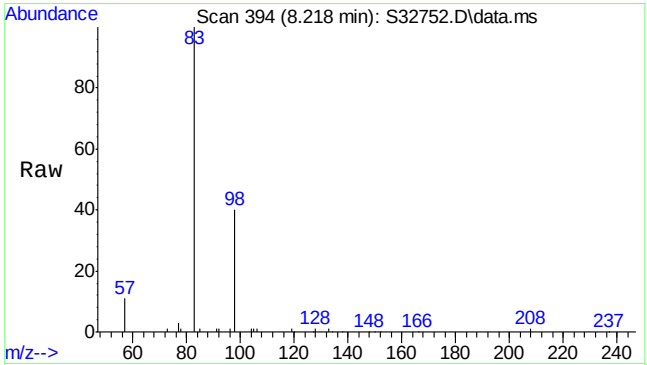
#12
C5-Benzenes
Concen: 606.96 µg/mL m
RT: 20.096 min Scan# 2043
Delta R.T. -0.015 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:148 Resp: 56033

Ion	Ratio	Lower	Upper
148	100		
133	0.0	134.0	201.0#



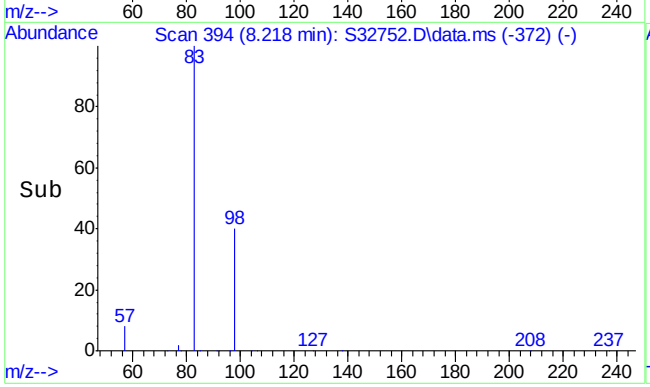


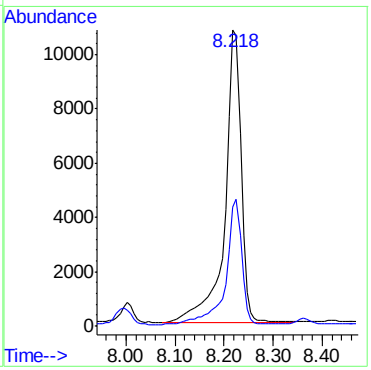


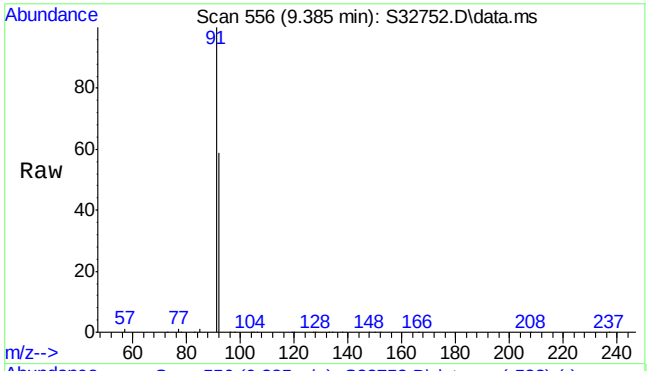
#13
Methylcyclohexane
Concen: 682.07 µg/mL
RT: 8.218 min Scan# 394
Delta R.T. -0.043 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 83 Resp: 24567

Ion	Ratio	Lower	Upper
83	100		
98	42.2	34.0	51.0



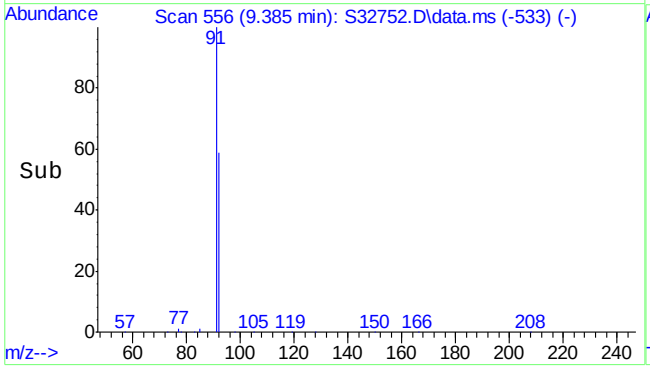


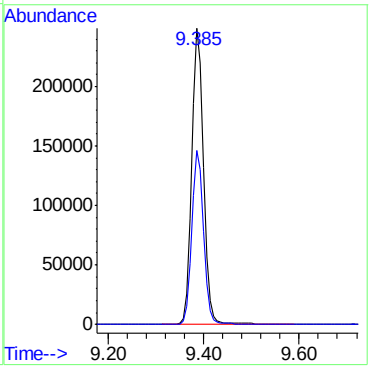


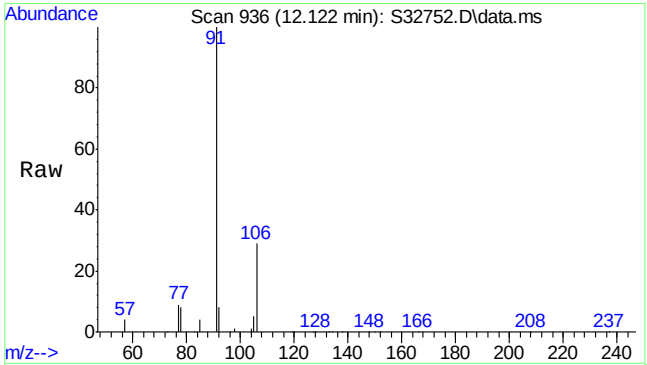
#14
Toluene
Concen: 5026.02 µg/mL
RT: 9.385 min Scan# 556
Delta R.T. -0.036 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 91 Resp: 434177

Ion	Ratio	Lower	Upper
91	100		
92	58.9	46.8	70.2



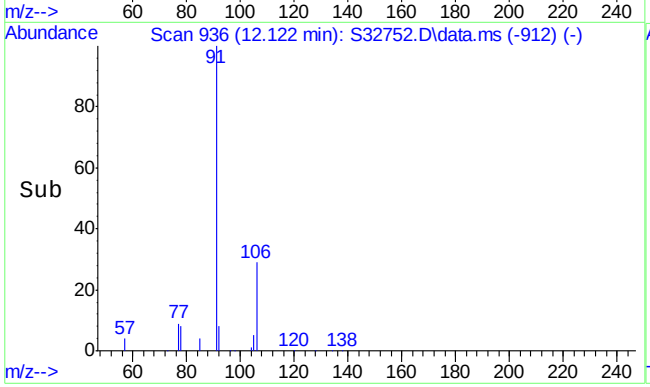


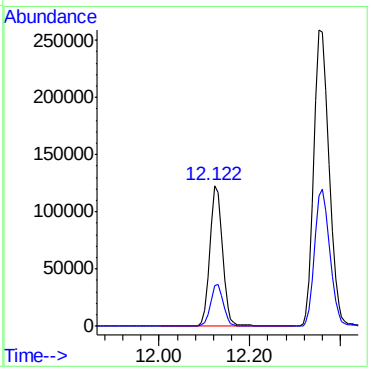


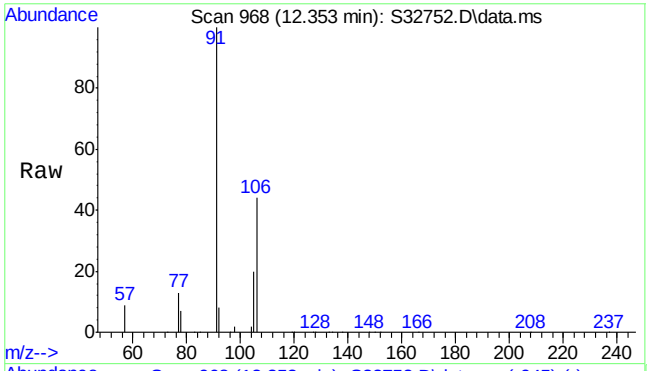
#15
Ethylbenzene
Concen: 2206.74 µg/mL
RT: 12.122 min Scan# 936
Delta R.T. -0.029 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 91 Resp: 232907

Ion	Ratio	Lower	Upper
91	100		
106	29.8	23.8	35.6



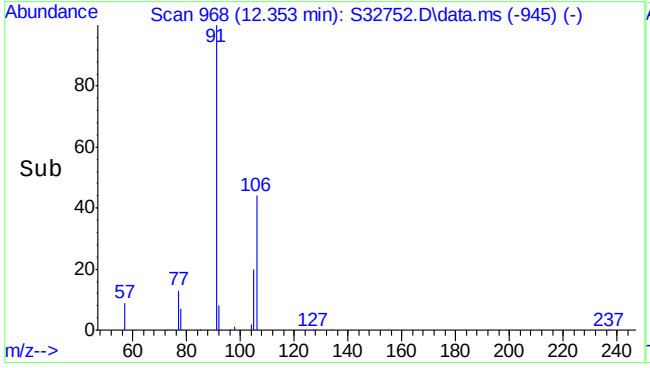


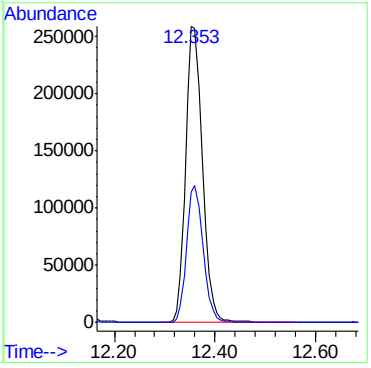


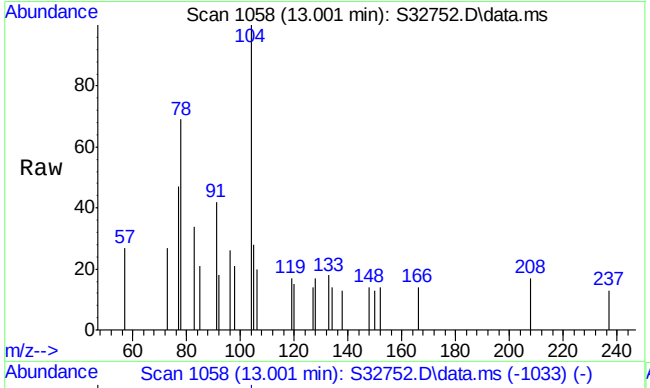
#16
m,p-xylene
Concen: 7092.83 µg/mL
RT: 12.353 min Scan# 968
Delta R.T. -0.036 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 91 Resp: 596696

Ion	Ratio	Lower	Upper
91	100		
106	45.8	36.6	55.0



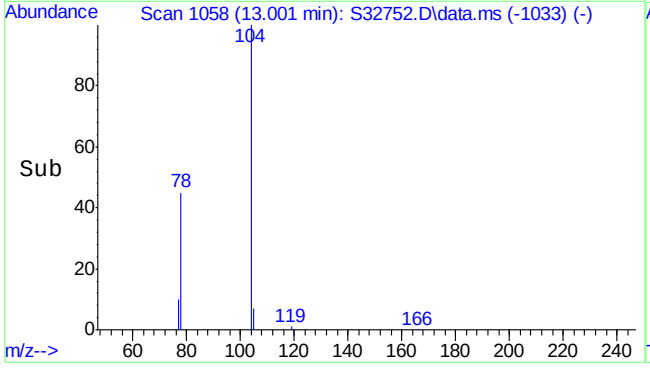


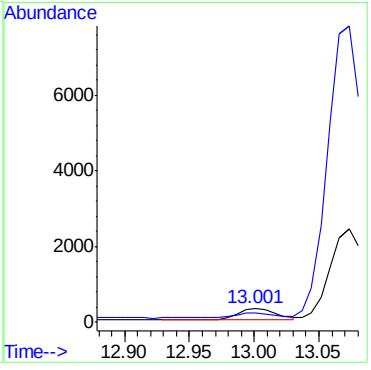


#17
Styrene
Concen: 9.88 µg/mL
RT: 13.001 min Scan# 1058
Delta R.T. -0.021 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:104 Resp: 617

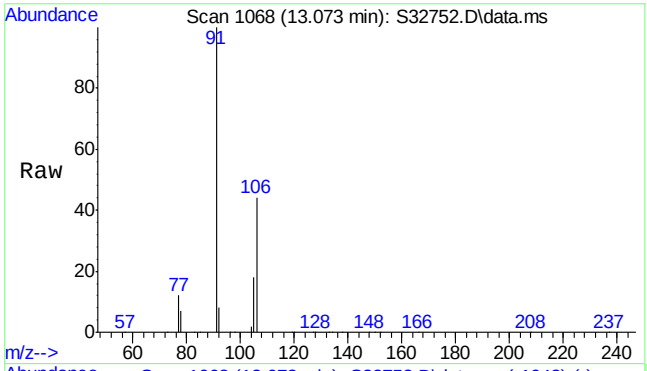
Ion	Ratio	Lower	Upper
104	100		
78	45.7	37.7	56.5





9.1.6

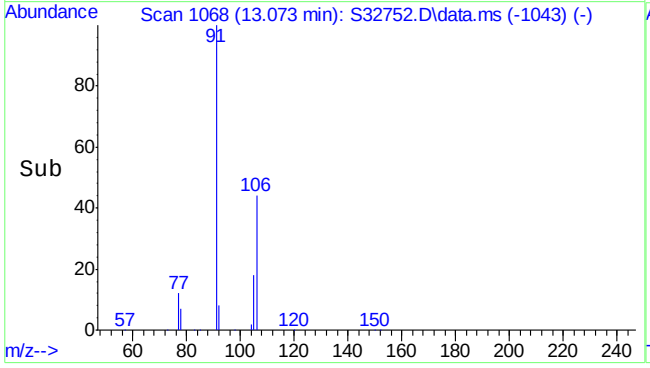
9

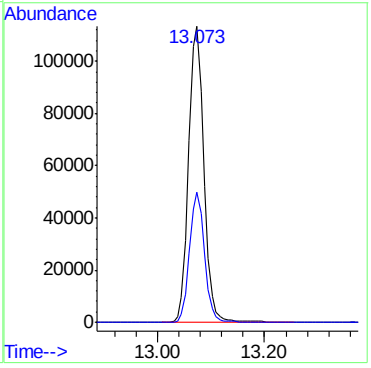


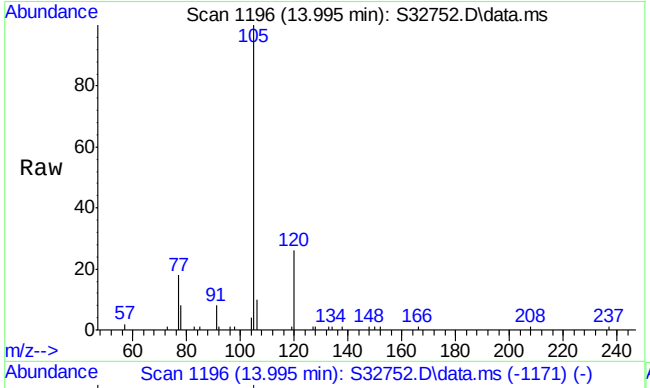
#18
o-Xylene
Concen: 2678.27 µg/mL
RT: 13.073 min Scan# 1068
Delta R.T. -0.021 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 91 Resp: 223173

Ion	Ratio	Lower	Upper
91	100		
106	43.4	34.5	51.7



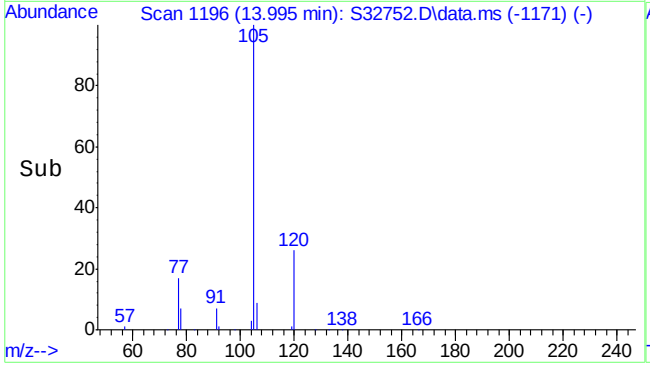


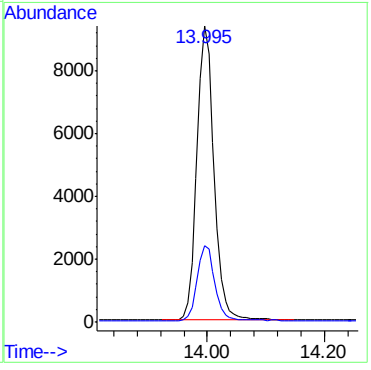


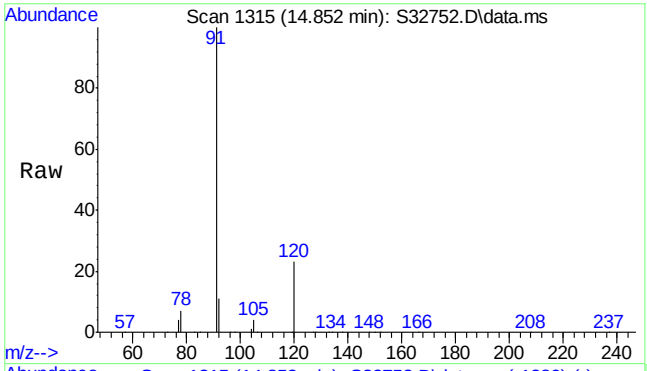
#19
Isopropylbenzene
Concen: 192.58 µg/mL
RT: 13.995 min Scan# 1196
Delta R.T. -0.021 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:105 Resp: 18917

Ion	Ratio	Lower	Upper
105	100		
120	26.0	21.1	31.7



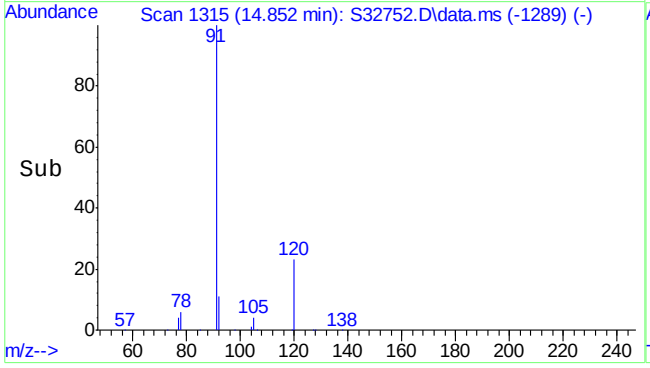


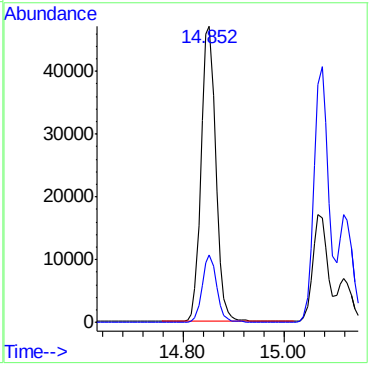


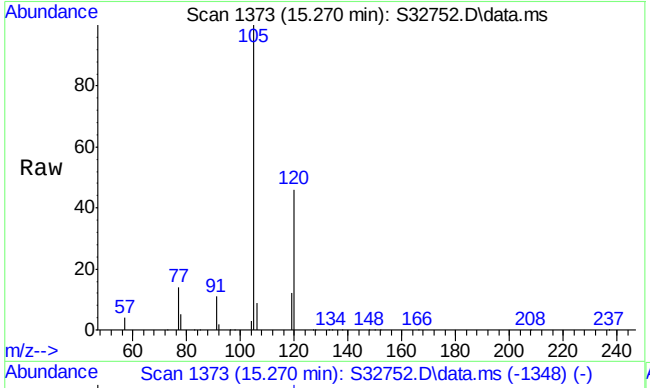
#20
n-Propylbenzene
Concen: 718.36 µg/mL
RT: 14.852 min Scan# 1315
Delta R.T. -0.014 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 91 Resp: 95603

Ion	Ratio	Lower	Upper
91	100		
120	22.1	17.0	25.4



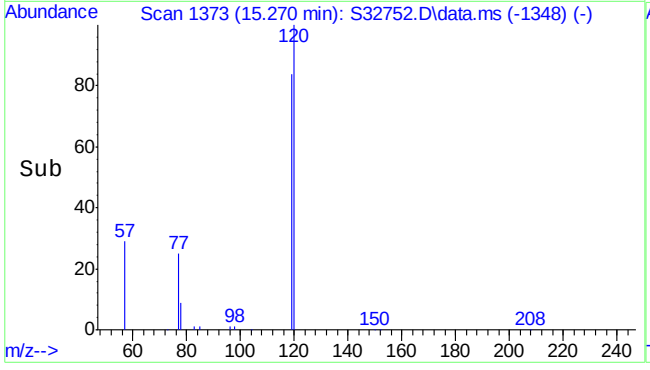


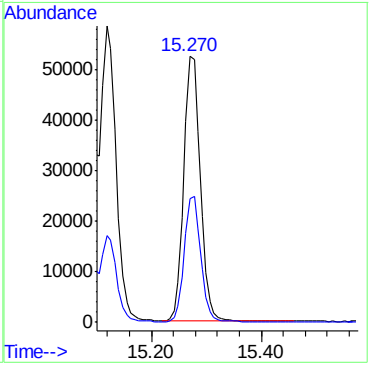


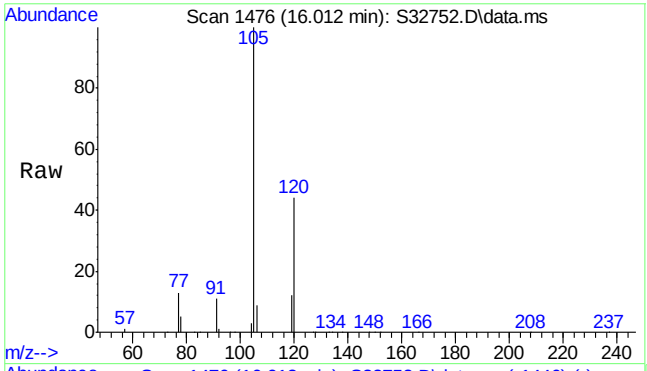
#21
1,3,5-Trimethylbenzene
Concen: 1190.61 µg/mL
RT: 15.270 min Scan# 1373
Delta R.T. -0.021 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:105 Resp: 108523

Ion	Ratio	Lower	Upper
105	100		
120	46.7	37.1	55.7



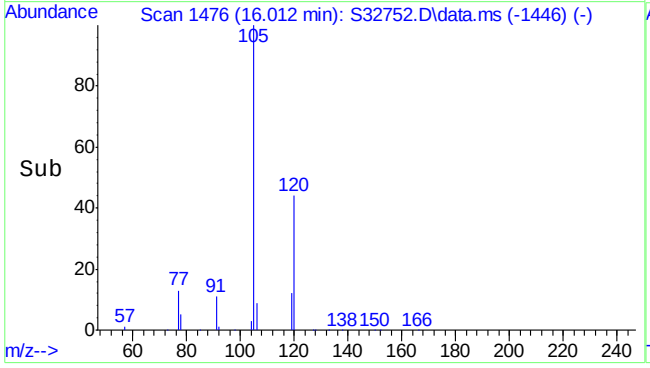


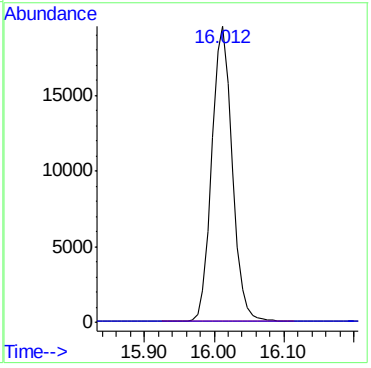


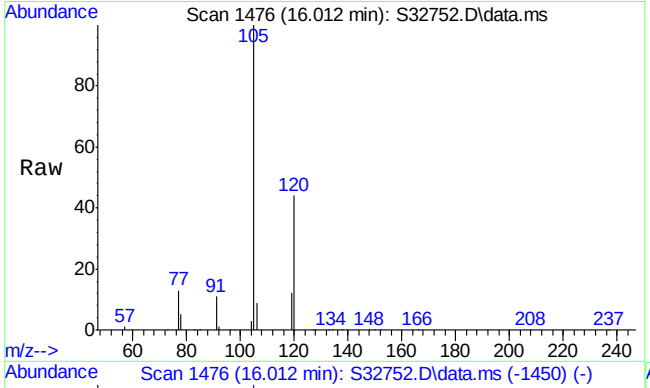
#22
t-Butylbenzene
Concen: 446.92 µg/mL
RT: 16.012 min Scan# 1476
Delta R.T. 0.015 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:119 Resp: 40054

Ion	Ratio	Lower	Upper
119	100		
134	0.0	17.6	26.4#



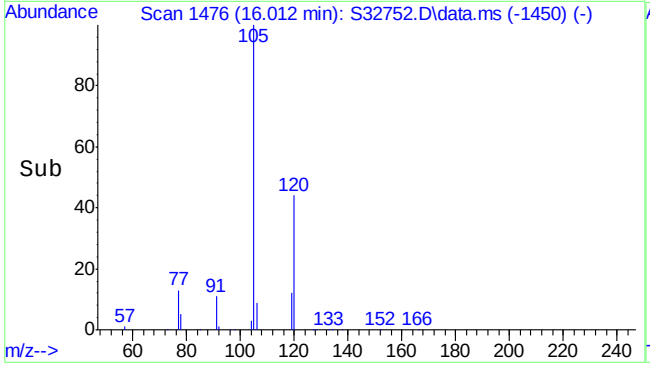


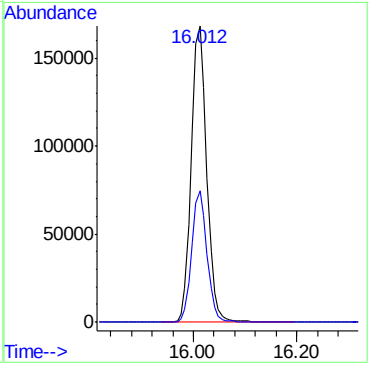


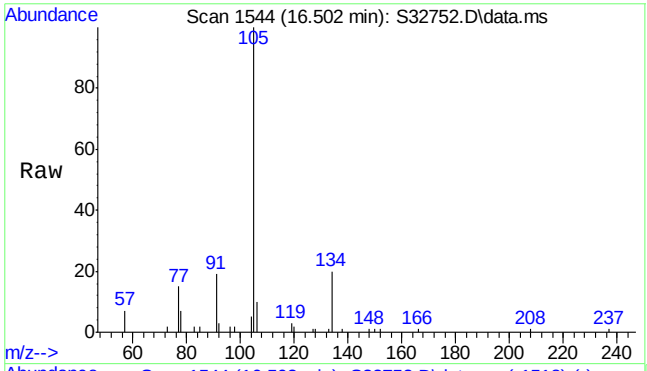
#23
1,2,4-Trimethylbenzene
Concen: 3728.60 µg/mL
RT: 16.012 min Scan# 1476
Delta R.T. -0.014 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:105 Resp: 347449

Ion	Ratio	Lower	Upper
105	100		
120	43.9	35.1	52.7



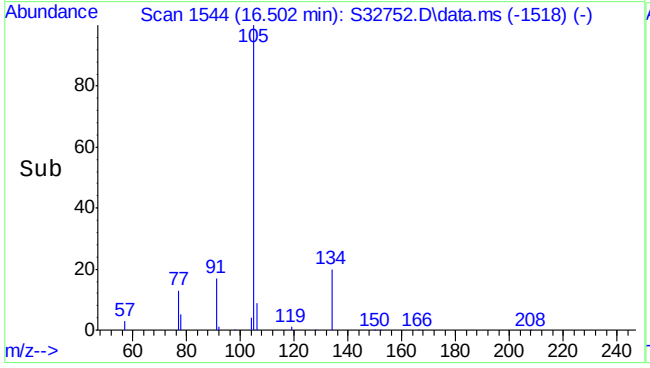


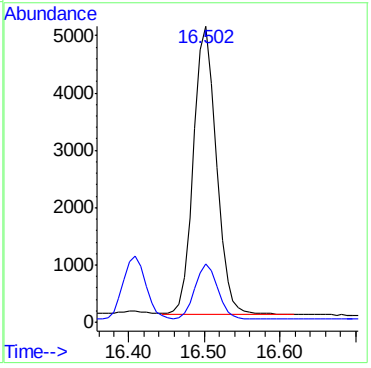


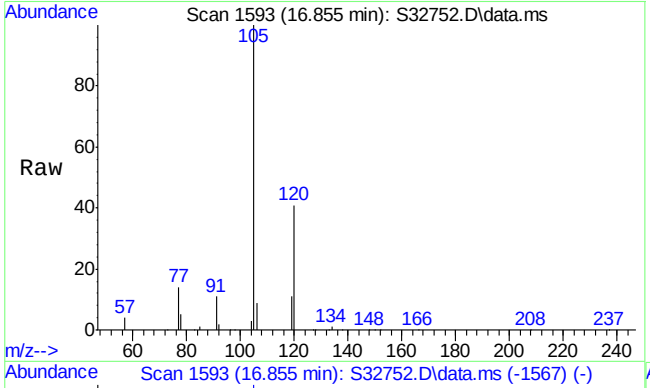
#24
sec-Butylbenzene
Concen: 88.67 µg/mL
RT: 16.502 min Scan# 1544
Delta R.T. -0.014 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:105 Resp: 10601

Ion	Ratio	Lower	Upper
105	100		
134	19.3	15.4	23.2



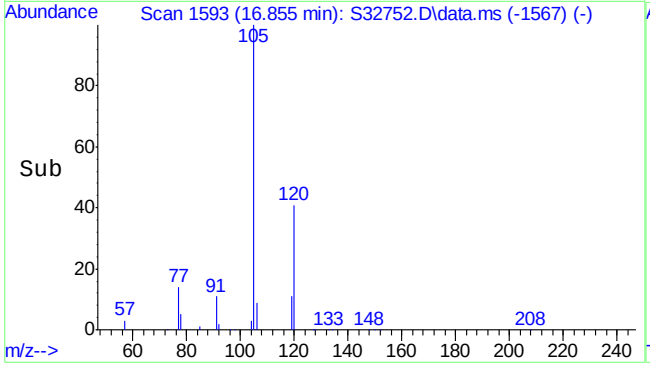


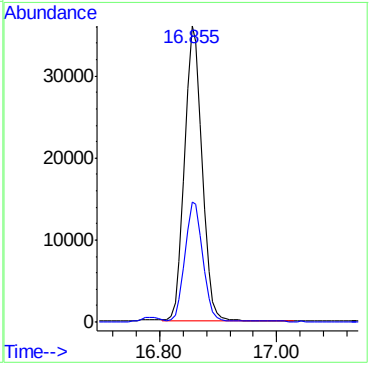


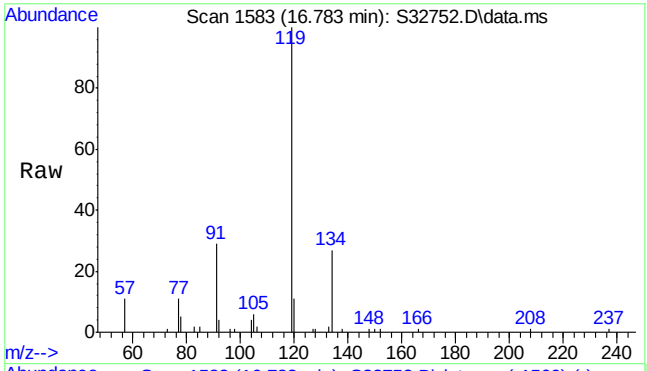
#25
1,2,3-Trimethylbenzene
Concen: 769.42 µg/mL
RT: 16.855 min Scan# 1593
Delta R.T. -0.014 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:105 Resp: 75175

Ion	Ratio	Lower	Upper
105	100		
120	41.3	34.6	52.0



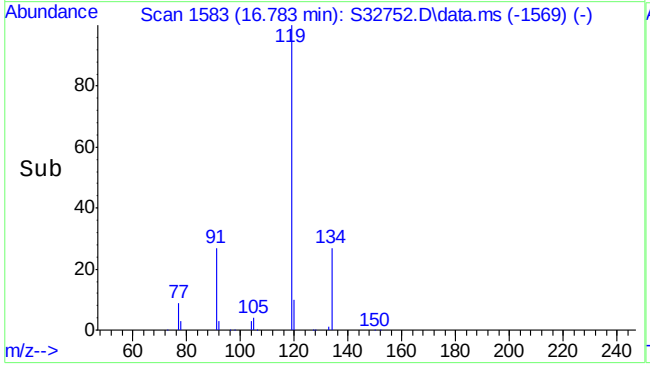


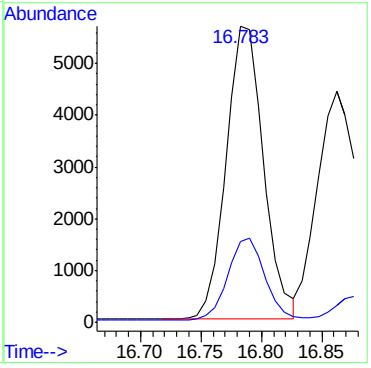


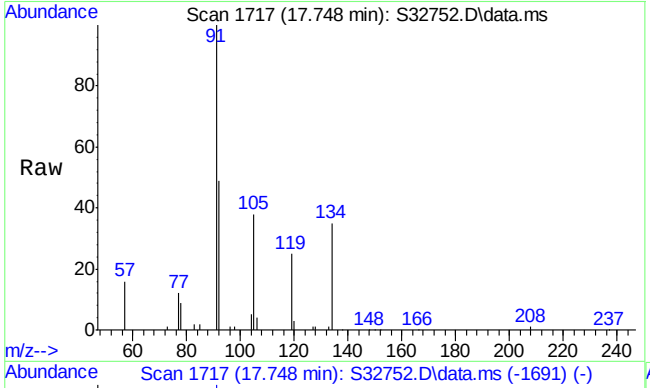
#26
p-Isopropyltoluene
Concen: 115.32 µg/mL
RT: 16.783 min Scan# 1583
Delta R.T. -0.101 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:119 Resp: 12160

Ion	Ratio	Lower	Upper
119	100		
134	27.5	18.4	27.6



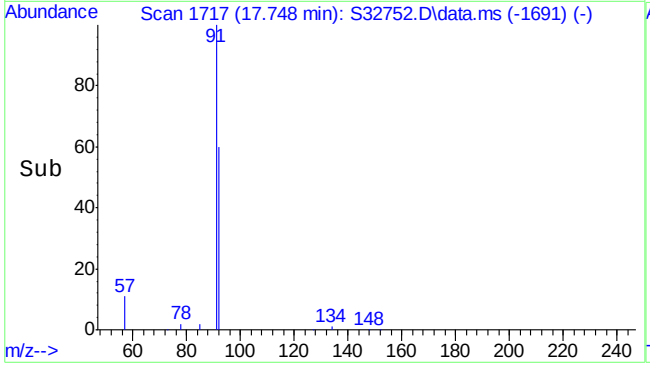


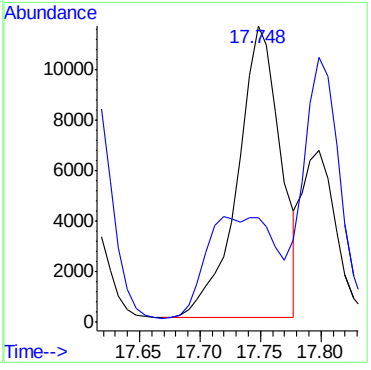


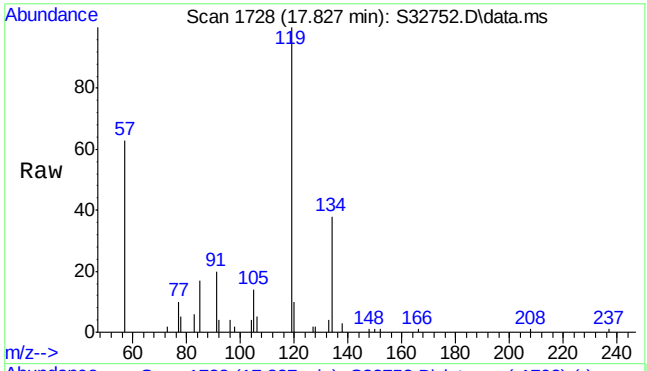
#27
n-Butylbenzene
Concen: 283.21 µg/mL
RT: 17.748 min Scan# 1717
Delta R.T. -0.014 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 91 Resp: 28793

Ion	Ratio	Lower	Upper
91	100		
134	0.0	18.2	27.2#



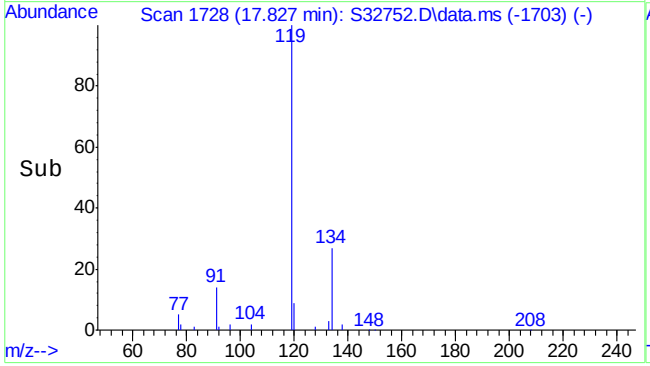


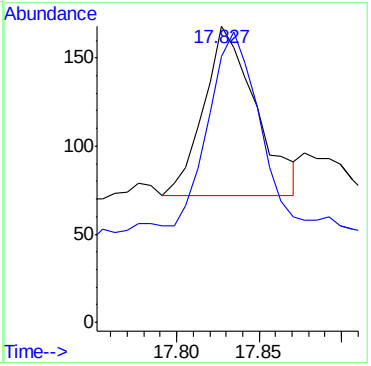


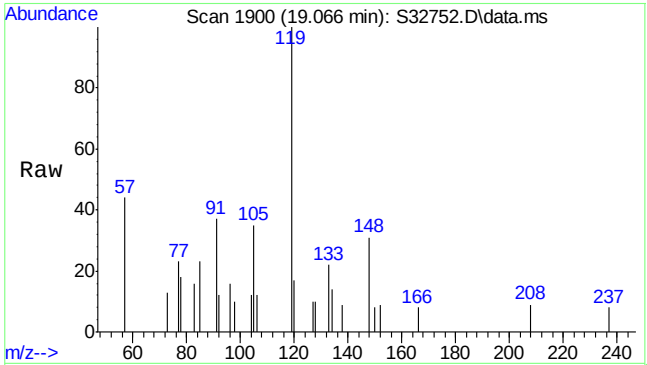
#28
trans-Decalin
Concen: 10.98 µg/mL
RT: 17.827 min Scan# 1728
Delta R.T. -0.021 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 96 Resp: 210

Ion	Ratio	Lower	Upper
96	100		
138	130.5	106.5	159.7



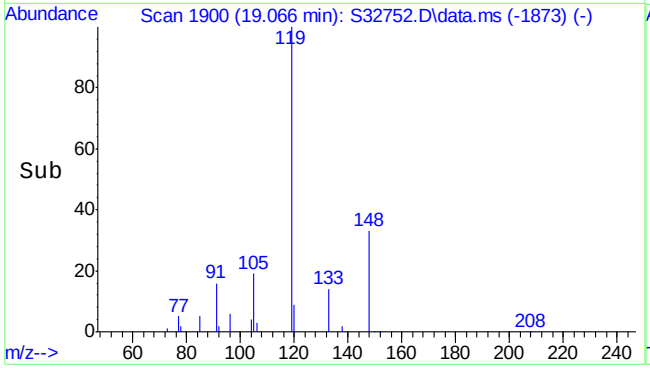


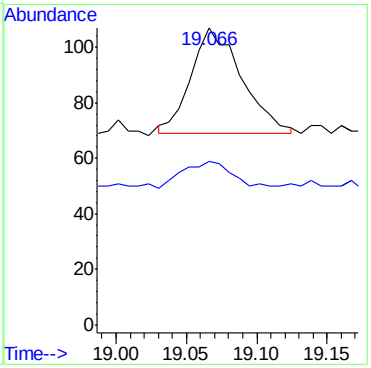


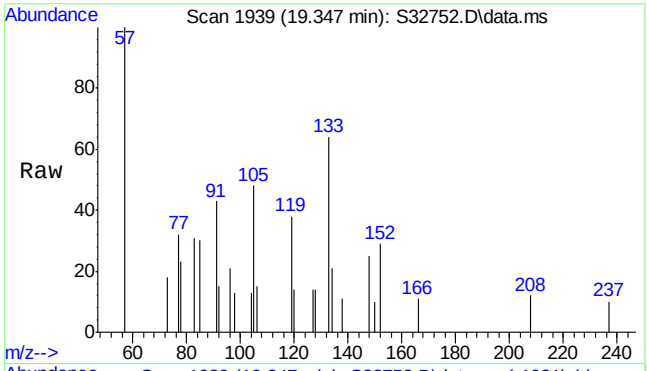
#29
cis-Decalin
Concen: 3.85 µg/mL m
RT: 19.066 min Scan# 1900
Delta R.T. -0.007 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 96 Resp: 96

Ion	Ratio	Lower	Upper
96	100		
138	0.0	56.6	85.0#

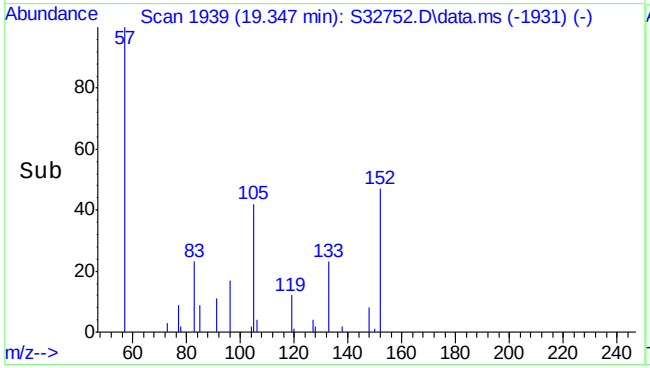


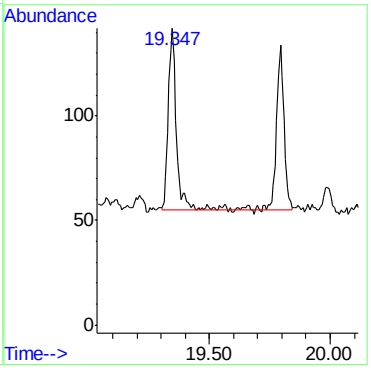


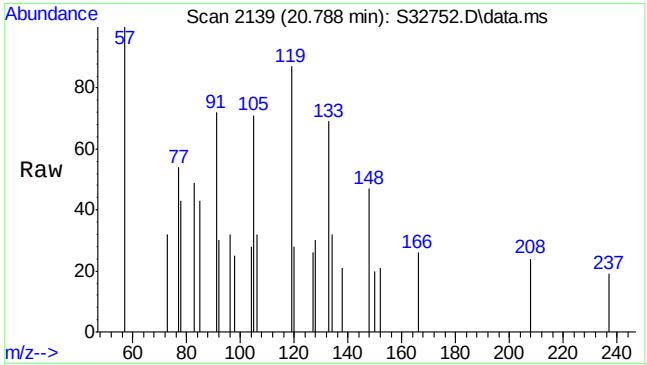


#30
C1-Decalins
Concen: 19.76 µg/mL m
RT: 19.347 min Scan# 1939
Delta R.T. -0.461 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:152 Resp: 378

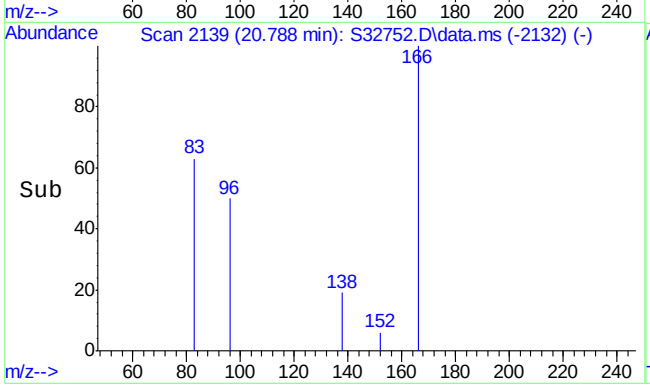


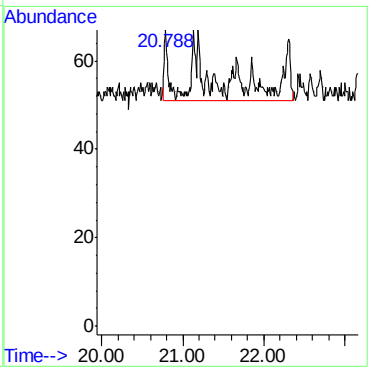


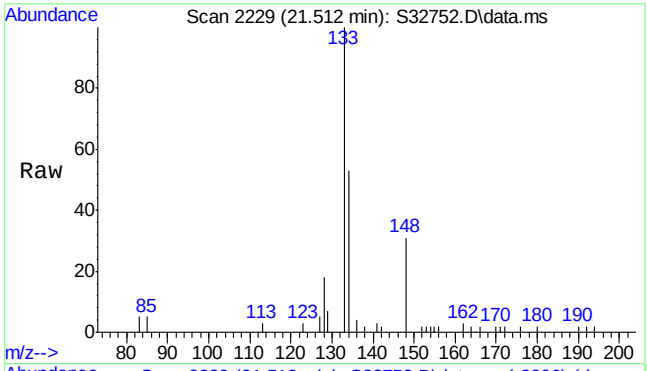


#31
C2-Decalins
Concen: 22.53 µg/mL m
RT: 20.788 min Scan# 2139
Delta R.T. -0.362 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:166 Resp: 431



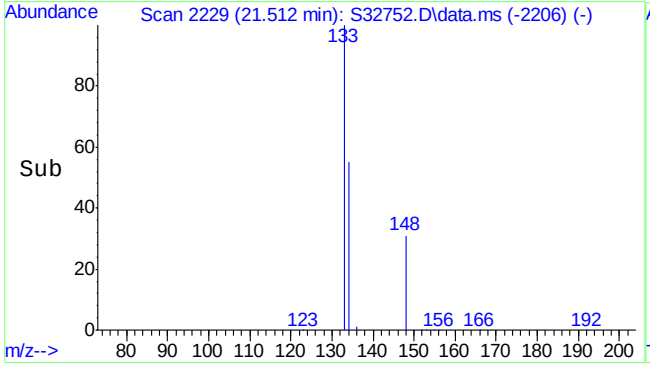


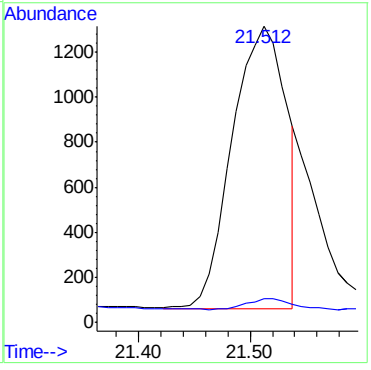


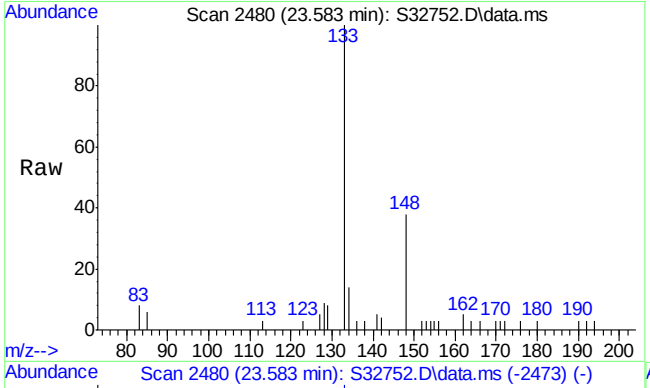
#34
Benzo(b)thiophene
Concen: 38.39 µg/mL m
RT: 21.512 min Scan# 2229
Delta R.T. -0.008 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:134 Resp: 4234

Ion	Ratio	Lower	Upper
134	100		
136	0.0	4.0	6.0#

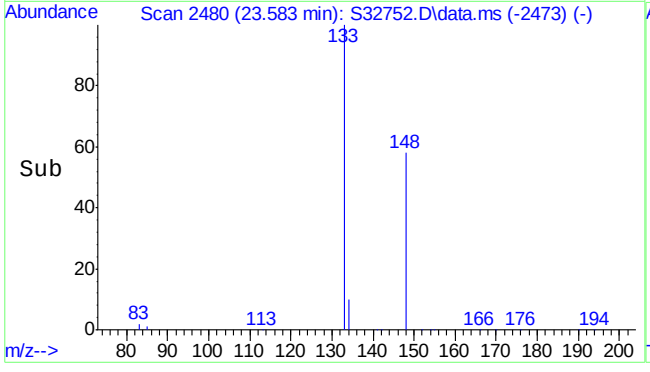


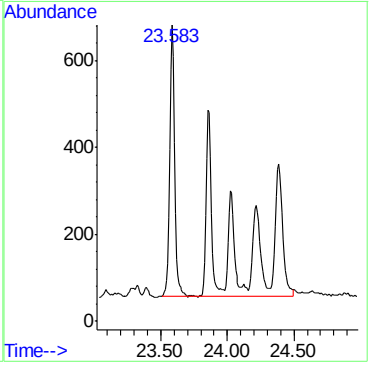


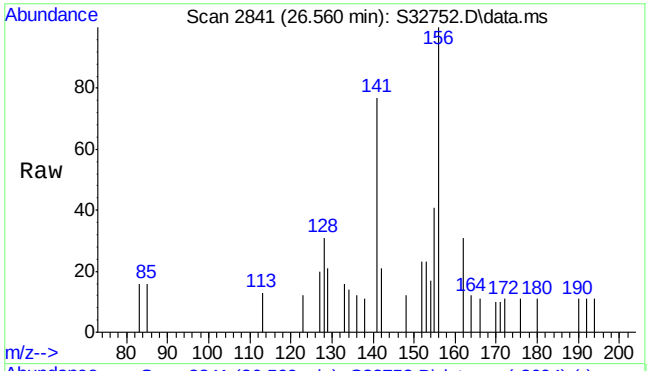


#35
C1-Benzo(b)thiophenes
Concen: 50.38 µg/mL m
RT: 23.583 min Scan# 2480
Delta R.T. -0.017 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:148 Resp: 5556

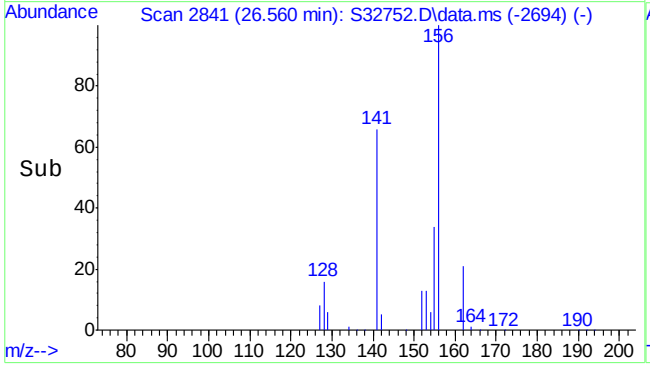


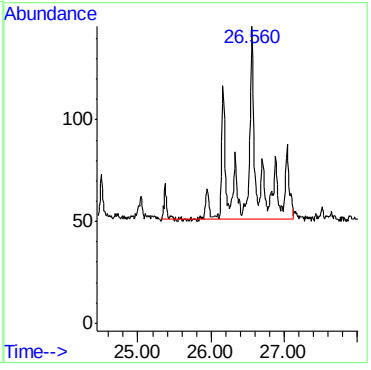


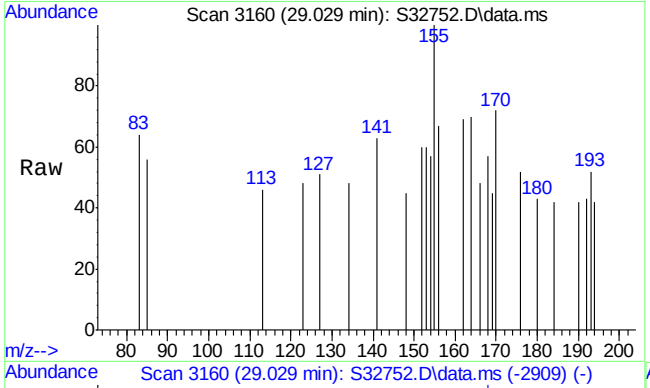


#36
C2-Benzo(b)thiophenes
Concen: 10.67 µg/mL m
RT: 26.560 min Scan# 2841
Delta R.T. -0.487 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:162 Resp: 1177

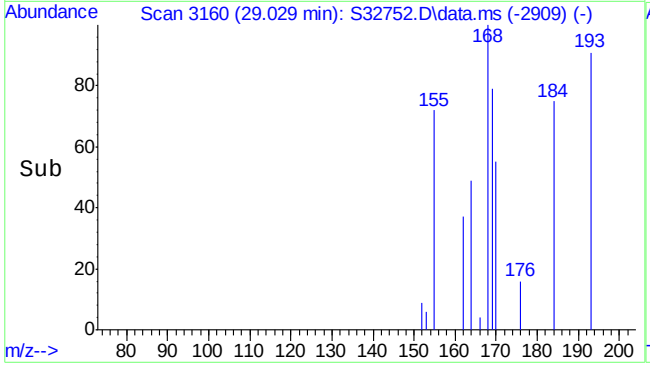


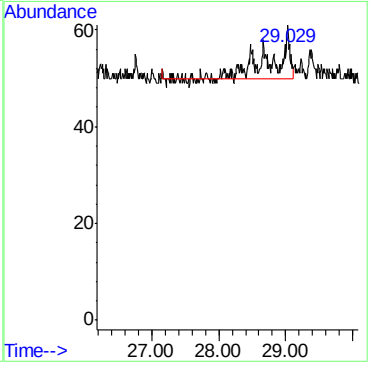


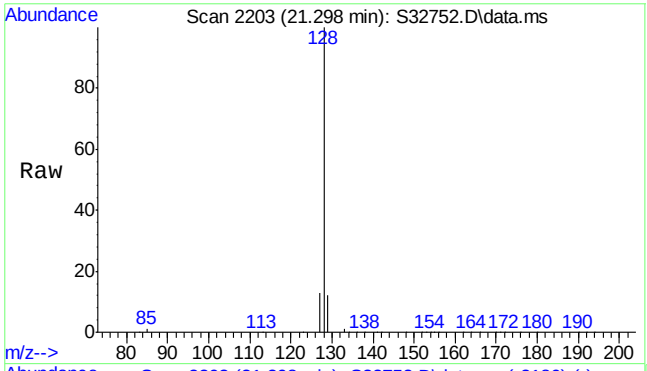


#37
C3-Benzo(b)thiophenes
Concen: 1.67 µg/mL m
RT: 29.029 min Scan# 3160
Delta R.T. 0.007 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:176 Resp: 184



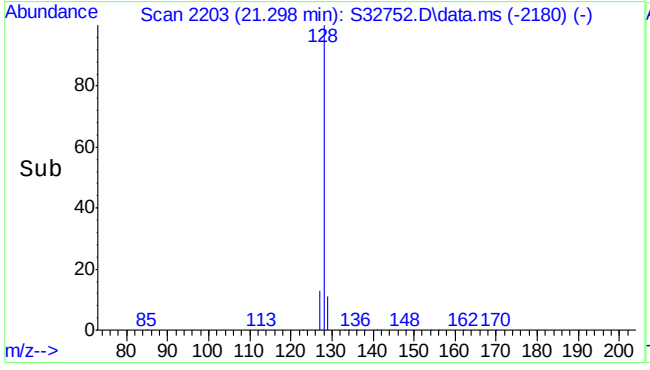


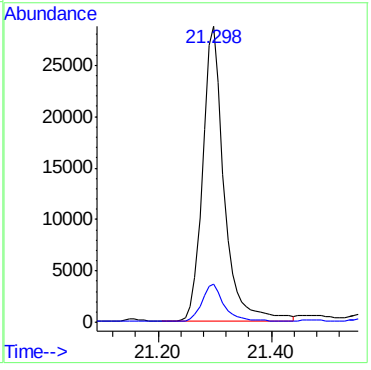


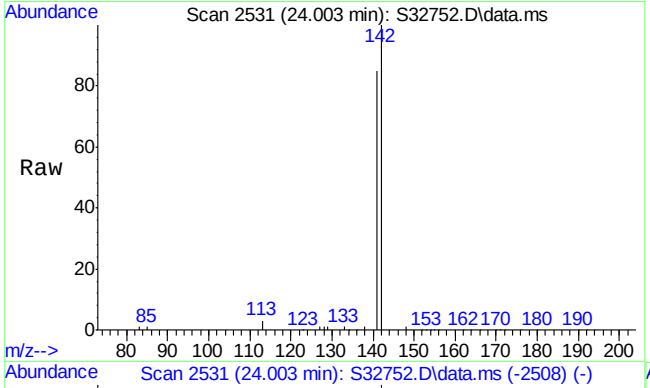
#44
Naphthalene
Concen: 538.25 ng/mL
RT: 21.298 min Scan# 2203
Delta R.T. -0.008 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:128 Resp: 75995

Ion	Ratio	Lower	Upper
128	100		
127	12.8	10.1	15.1



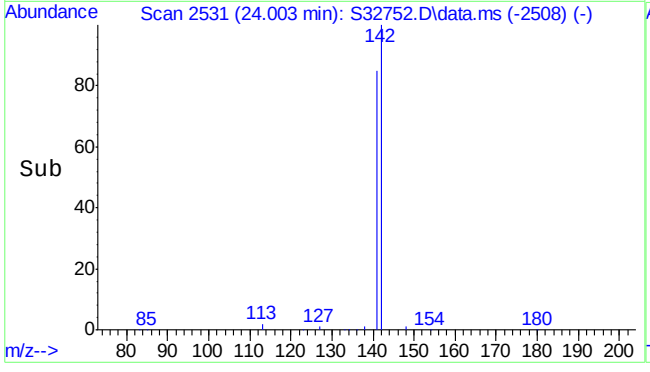


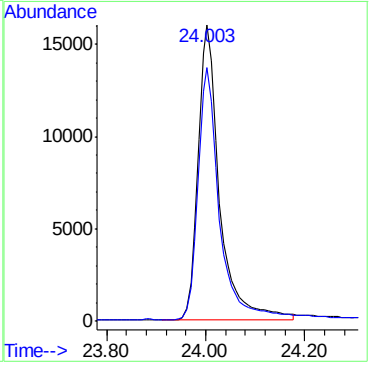


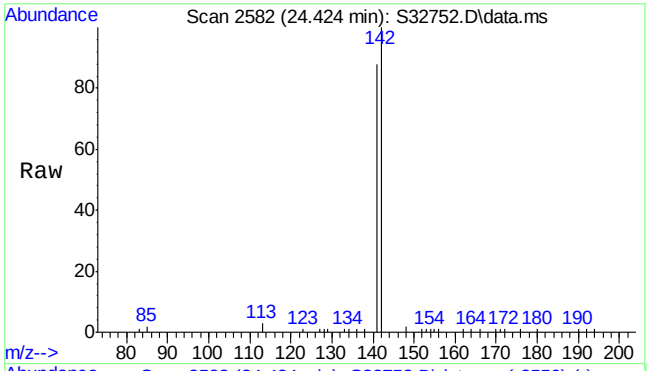
#45
2-Methylnaphthalene
Concen: 548.22 ng/mL
RT: 24.003 min Scan# 2531
Delta R.T. -0.008 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:142 Resp: 47985

Ion	Ratio	Lower	Upper
142	100		
141	84.9	68.9	103.3



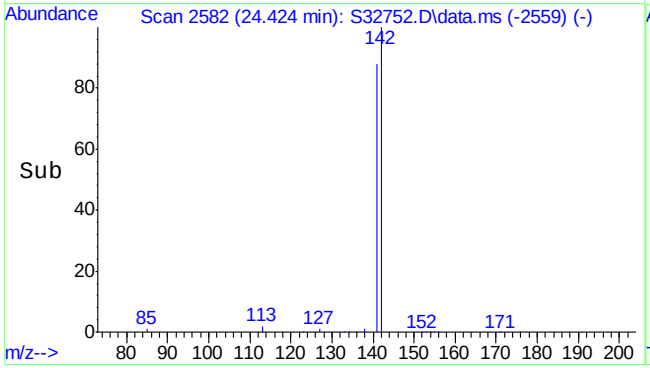


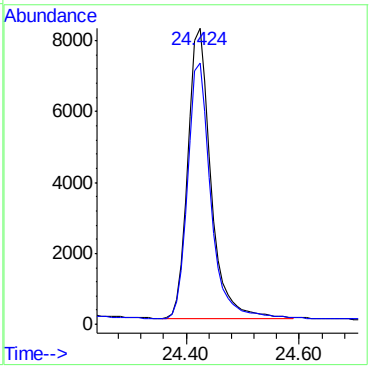


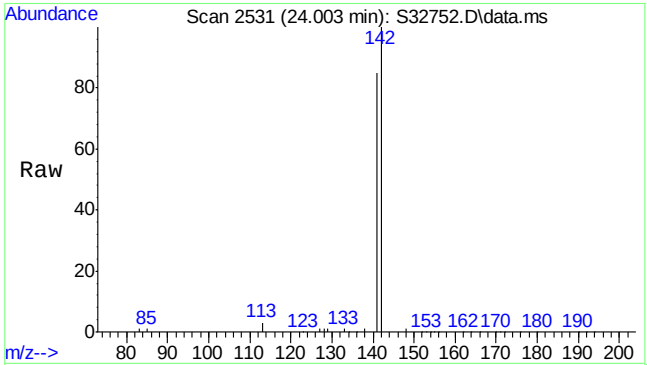
#46
1-Methylnaphthalene
Concen: 262.25 ng/mL
RT: 24.424 min Scan# 2582
Delta R.T. -0.008 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:142 Resp: 23125

Ion	Ratio	Lower	Upper
142	100		
141	88.3	71.1	106.7



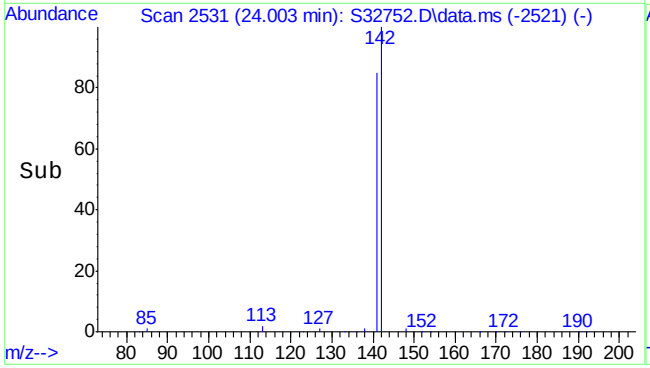


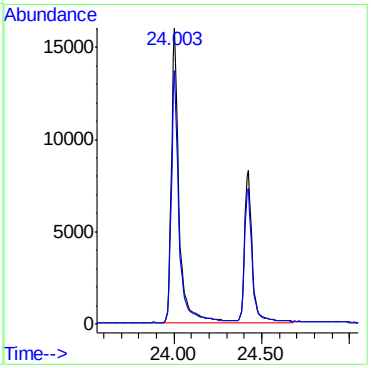


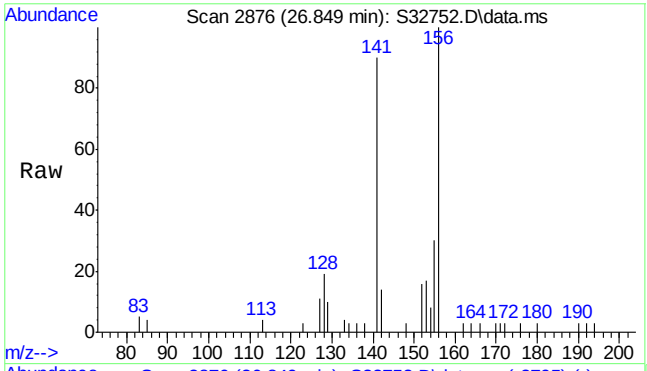
#47
C1-Naphthalenes
Concen: 531.24 ng/mL m
RT: 24.003 min Scan# 2531
Delta R.T. -0.008 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:142 Resp: 75005

Ion	Ratio	Lower	Upper
142	100		
141	55.4	68.9	103.3#



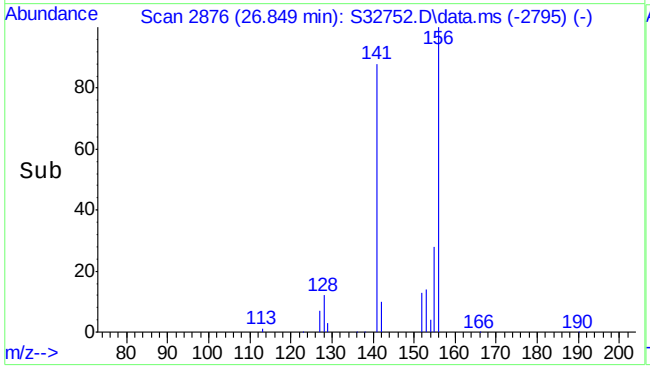


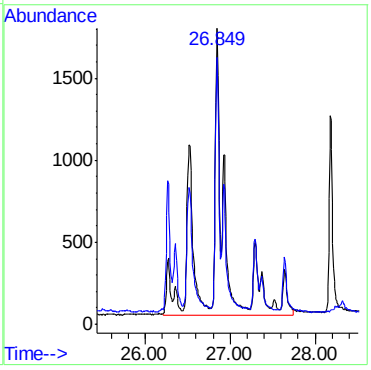


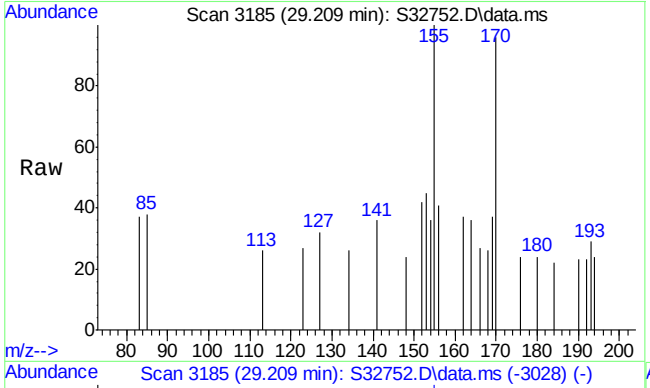
#48
C2-Naphthalenes
Concen: 141.87 ng/mL m
RT: 26.849 min Scan# 2876
Delta R.T. -0.091 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:156 Resp: 20030

Ion	Ratio	Lower	Upper
156	100		
141	13.4	60.6	90.8#



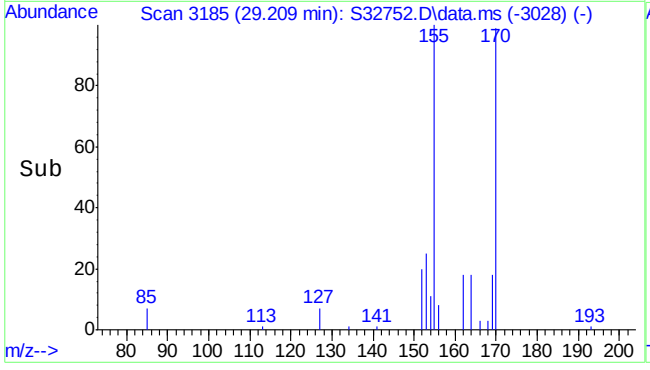


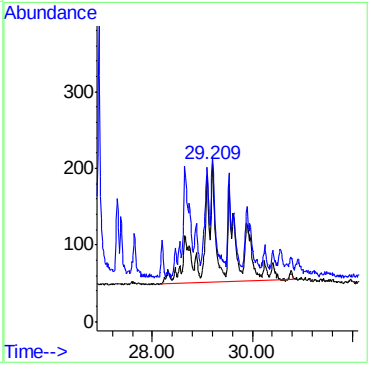


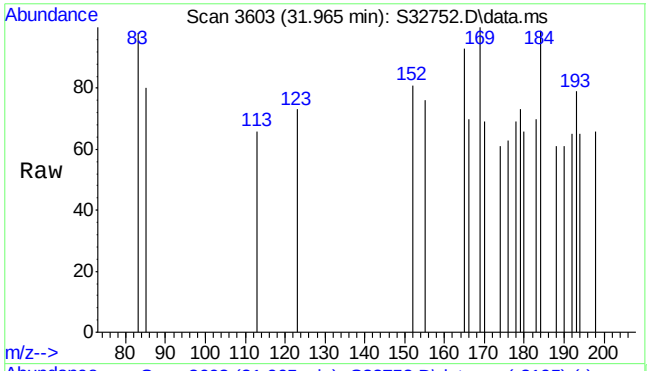
#49
C3-Naphthalenes
Concen: 31.37 ng/mL m
RT: 29.209 min Scan# 3185
Delta R.T. 0.014 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:170 Resp: 4429

Ion	Ratio	Lower	Upper
170	100		
155	13.9	81.7	122.5#



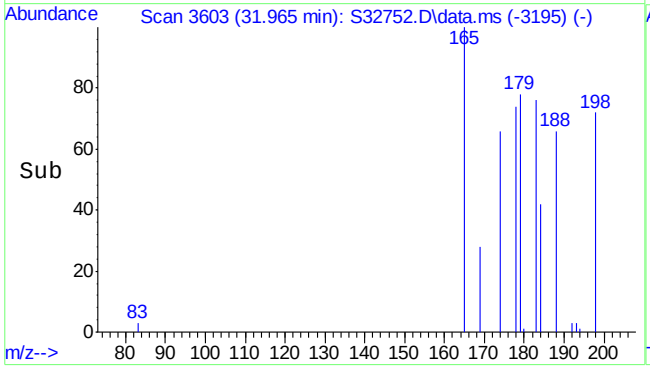


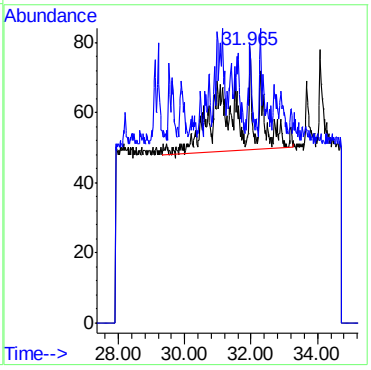


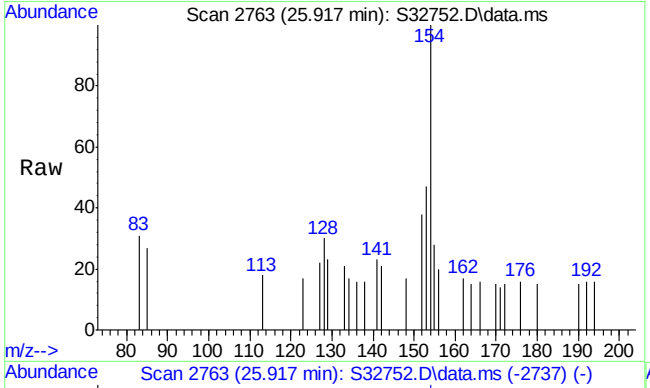
#50
C4-Naphthalenes
Concen: 10.50 ng/mL m
RT: 31.965 min Scan# 3603
Delta R.T. 0.013 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:184 Resp: 1483

Ion	Ratio	Lower	Upper
184	100		
169	0.0	76.8	115.2#



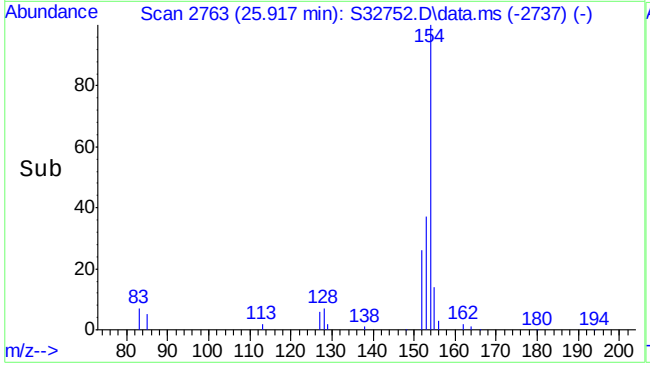


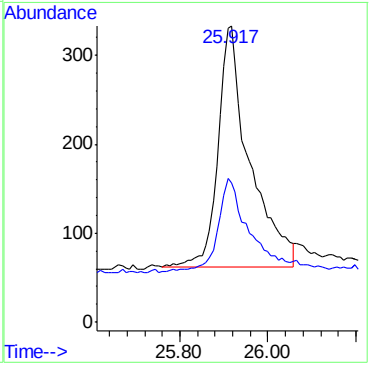


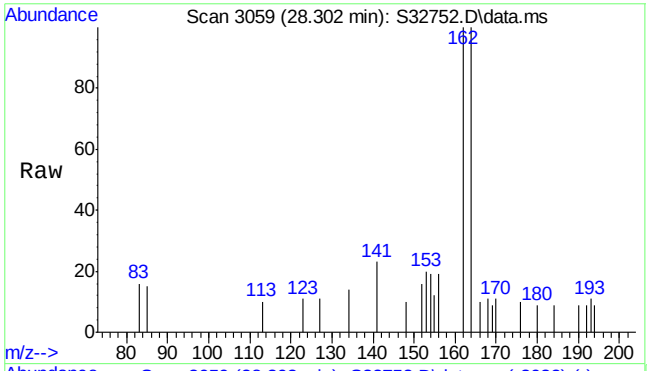
#51
Biphenyl
Concen: 11.37 µg/mL
RT: 25.917 min Scan# 2763
Delta R.T. 0.017 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:154 Resp: 1351

Ion	Ratio	Lower	Upper
154	100		
153	35.1	31.2	46.8



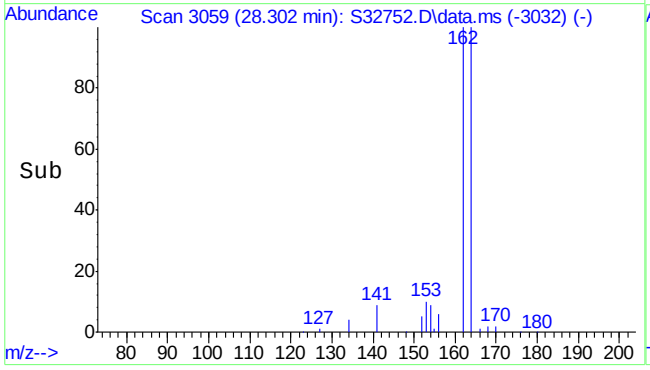


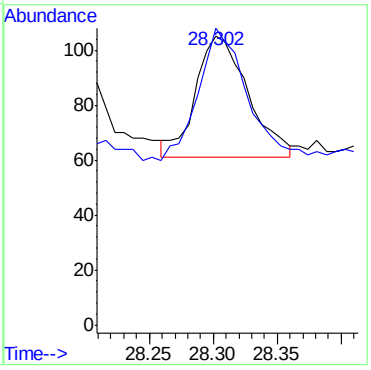


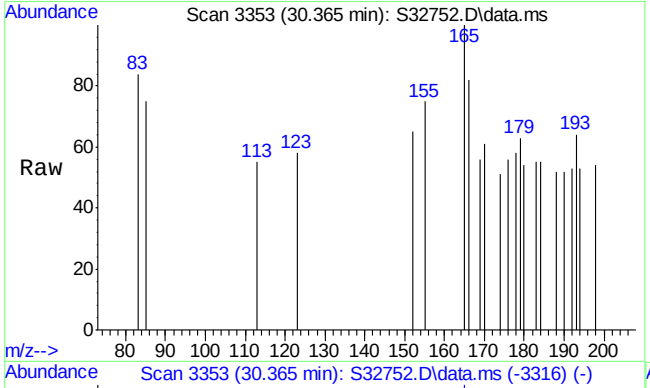
#53
Acenaphthene
Concen: 1.65 ng/mL m
RT: 28.302 min Scan# 3059
Delta R.T. -0.007 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:154 Resp: 126

Ion	Ratio	Lower	Upper
154	100		
153	0.0	86.4	129.6#



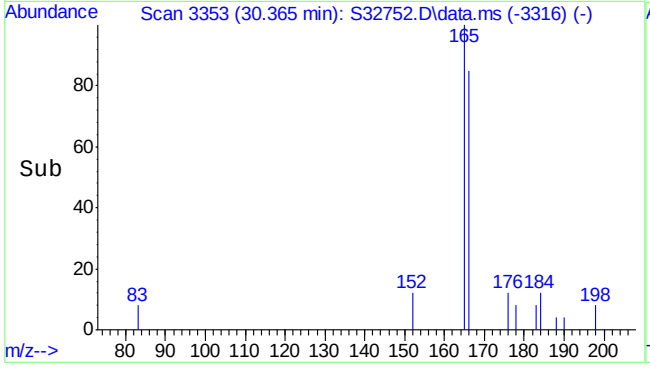


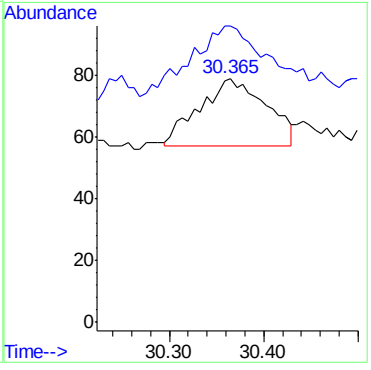


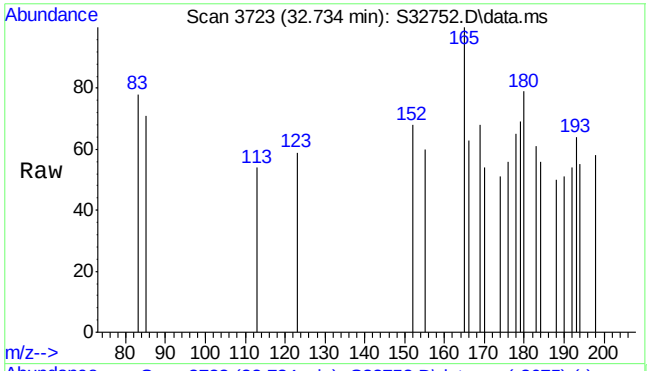
#55
Fluorene
Concen: 1.19 ng/mL m
RT: 30.365 min Scan# 3353
Delta R.T. 0.039 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:166 Resp: 108

Ion	Ratio	Lower	Upper
166	100		
165	0.0	75.1	112.7#



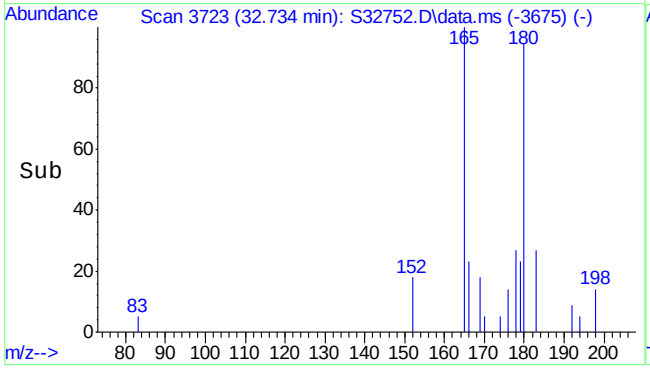


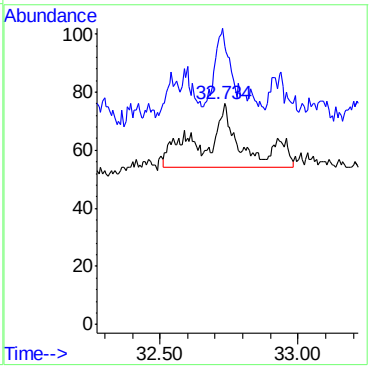


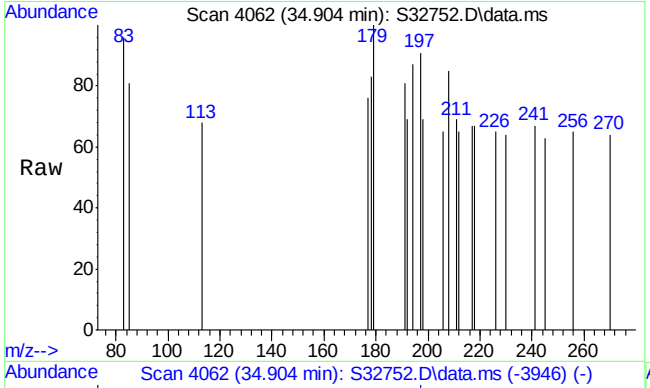
#56
C1-Fluorenes
Concen: 2.51 ng/mL m
RT: 32.734 min Scan# 3723
Delta R.T. 0.038 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:180 Resp: 227

Ion	Ratio	Lower	Upper
180	100		
165	0.0	128.1	192.1#



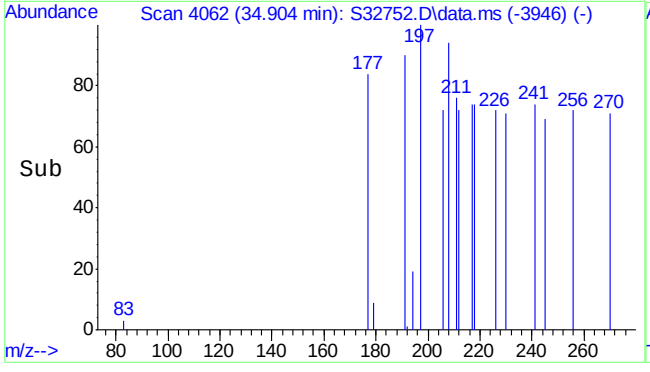


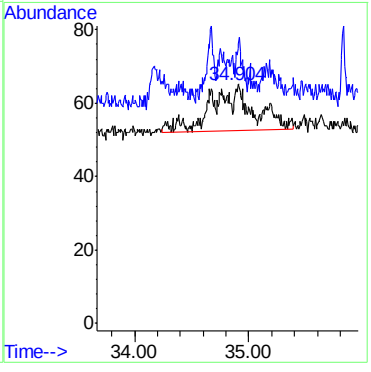


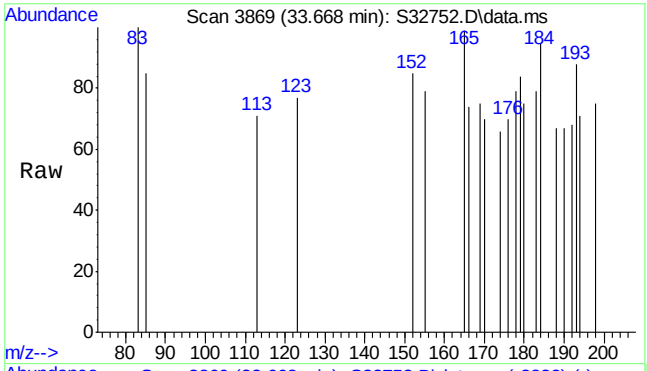
#57
C2-Fluorenes
Concen: 3.56 ng/mL m
RT: 34.904 min Scan# 4062
Delta R.T. 0.006 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:194 Resp: 322

Ion	Ratio	Lower	Upper
194	100		
179	0.0	122.6	183.8#



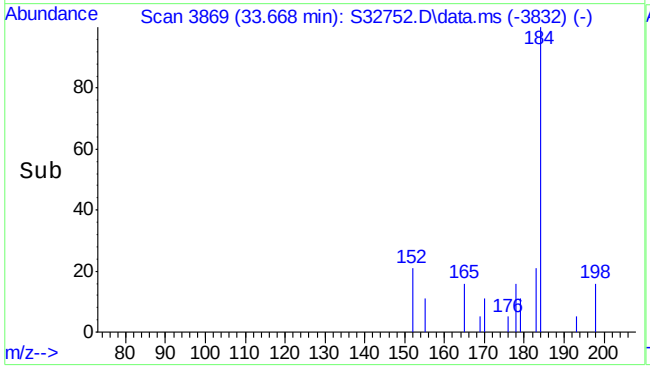


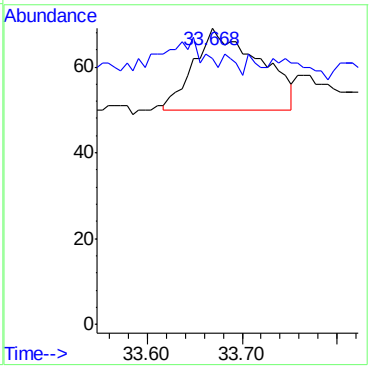


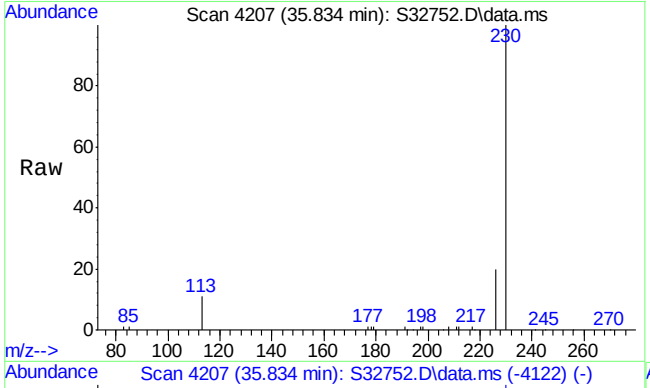
#59
Dibenzothiophene
Concen: 0.74 ng/mL m
RT: 33.668 min Scan# 3869
Delta R.T. 0.039 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:184 Resp: 91

Ion	Ratio	Lower	Upper
184	100		
152	0.0	7.1	10.7#



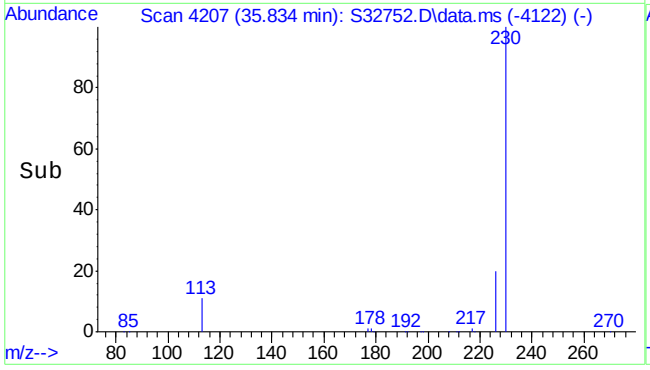


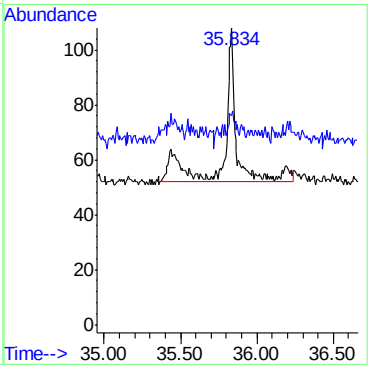


#60
C1-Dibenzothiophenes (unadj)
Concen: 2.52 ng/mL m
RT: 35.834 min Scan# 4207
Delta R.T. 0.423 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:198 Resp: 310

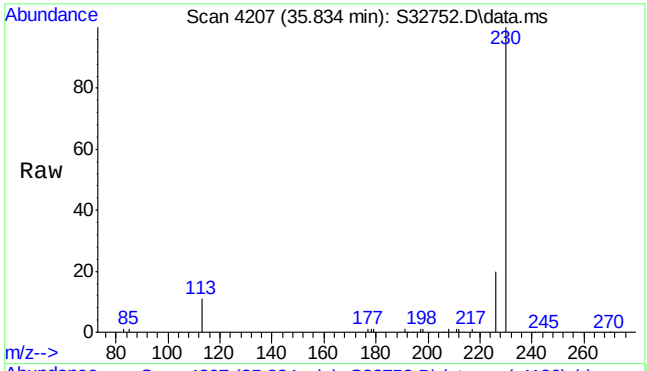
Ion	Ratio	Lower	Upper
198	100		
197	0.0	52.8	79.2#





9.1.6

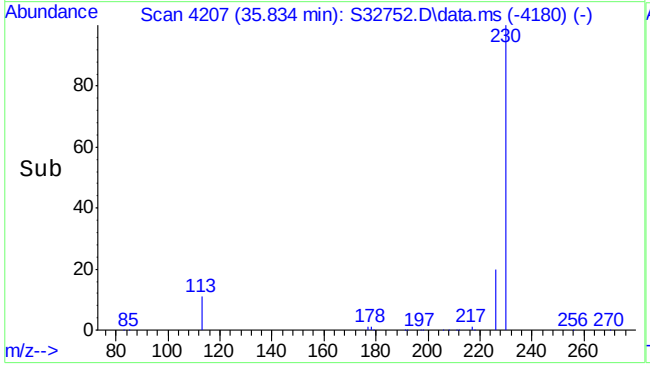
9

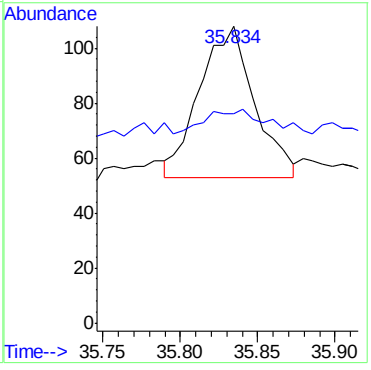


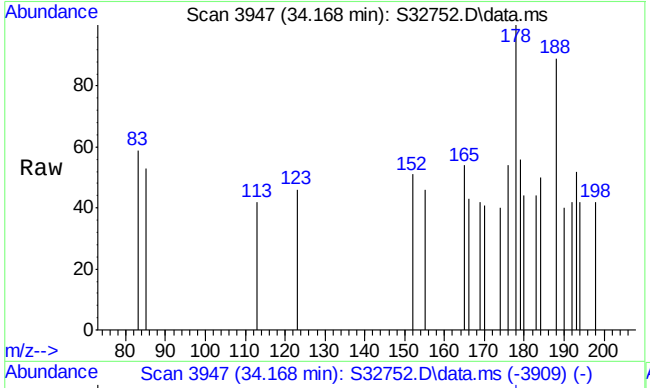
#61
C1-Dibenzothiophenes (OTP)
Concen: 1.10 µg/mL m
RT: 35.834 min Scan# 4207
Delta R.T. 0.070 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:198 Resp: 135

Ion	Ratio	Lower	Upper
198	100		
197	0.0	57.8	86.6#



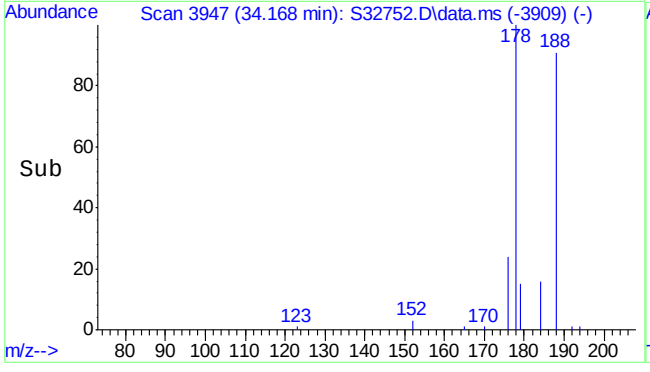


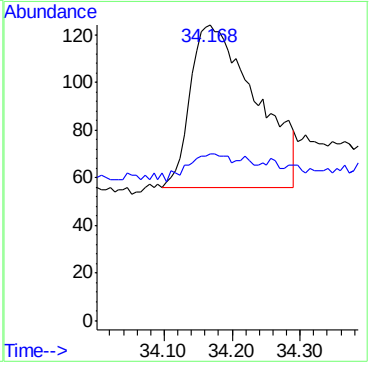


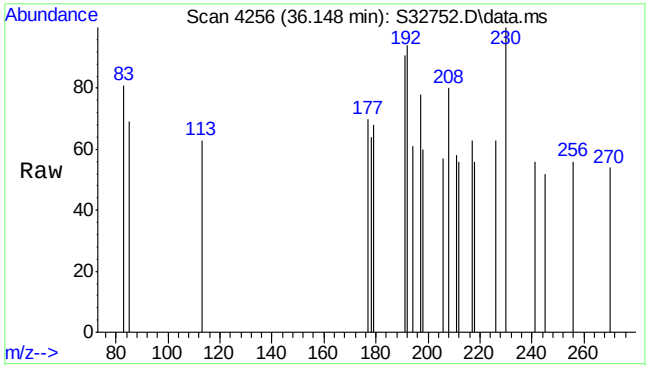
#65
Phenanthrene
Concen: 3.52 ng/mL
RT: 34.168 min Scan# 3947
Delta R.T. 0.045 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:178 Resp: 454

Ion	Ratio	Lower	Upper
178	100		
179	0.0	12.2	18.4#



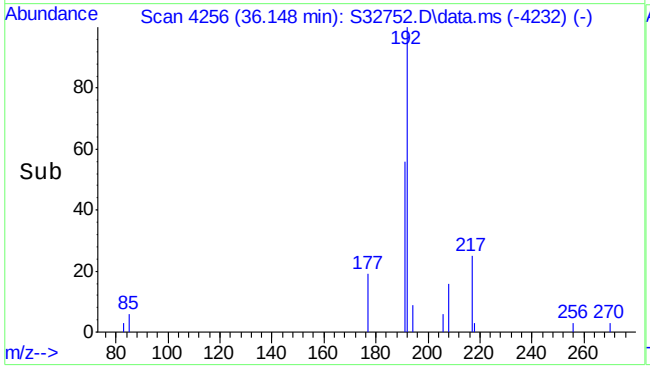


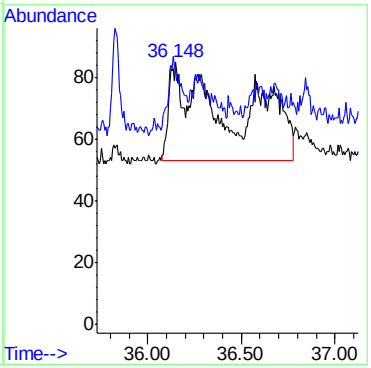


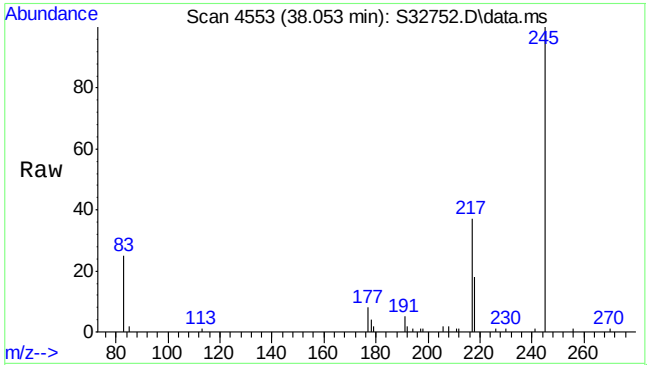
#67
C1-Phenanthrenes/anthracenes
Concen: 5.63 ng/mL m
RT: 36.148 min Scan# 4256
Delta R.T. -0.398 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:192 Resp: 727

Ion	Ratio	Lower	Upper
192	100		
191	0.0	44.9	67.3#



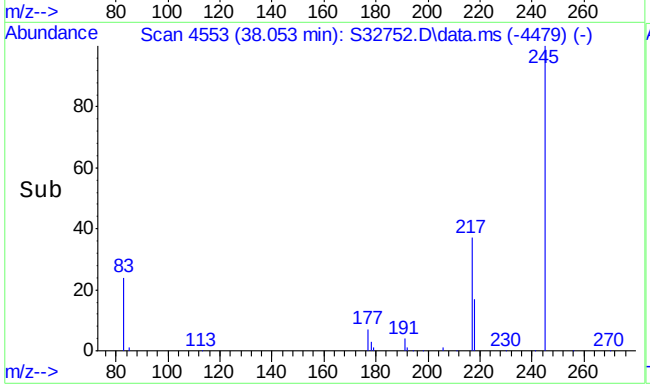


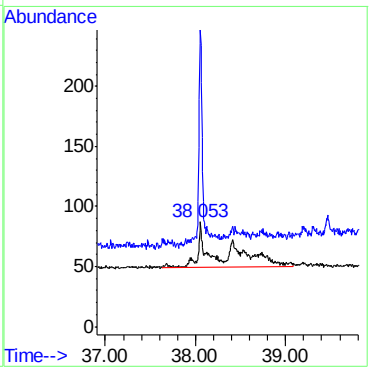


#68
C2-Phenanthrenes/anthracenes (unadj)
Concen: 4.78 ng/mL m
RT: 38.053 min Scan# 4553
Delta R.T. -0.321 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:206 Resp: 617

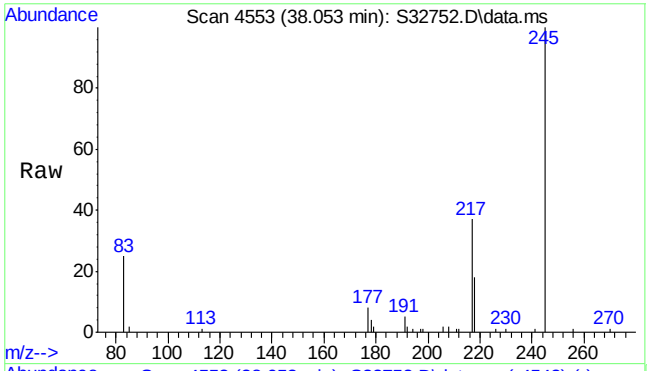
Ion	Ratio	Lower	Upper
206	100		
191	0.0	44.7	67.1#





9.1.6

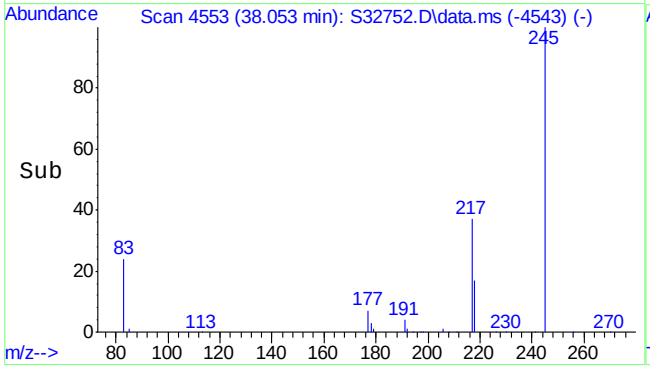
9

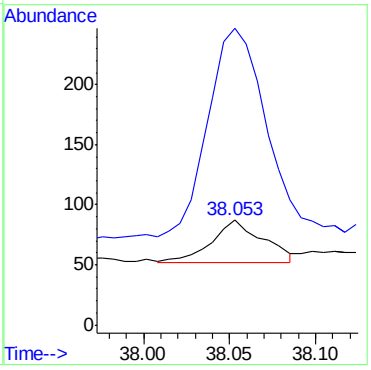


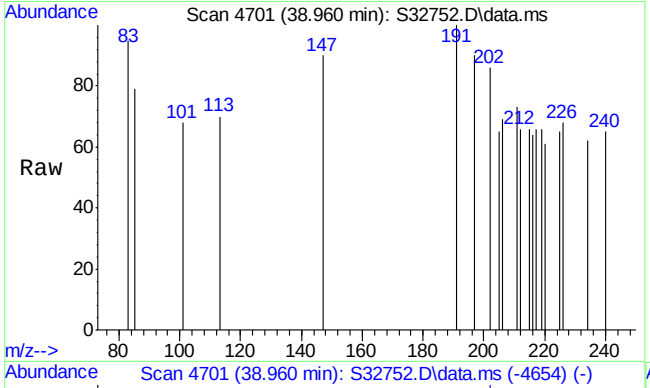
#69
C2-Phenanthrenes/anthracenes (5aA)
Concen: 0.57 µg/mL m
RT: 38.053 min Scan# 4553
Delta R.T. -0.135 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:206 Resp: 73

Ion	Ratio	Lower	Upper
206	100		
191	0.0	61.9	92.9#



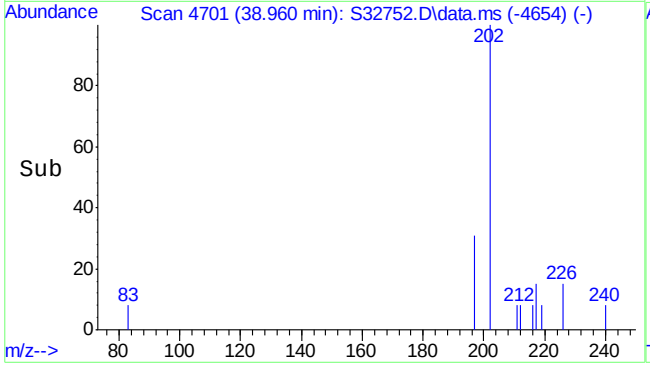


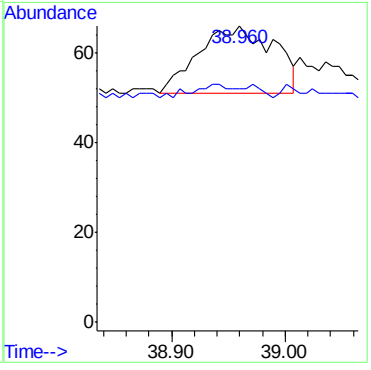


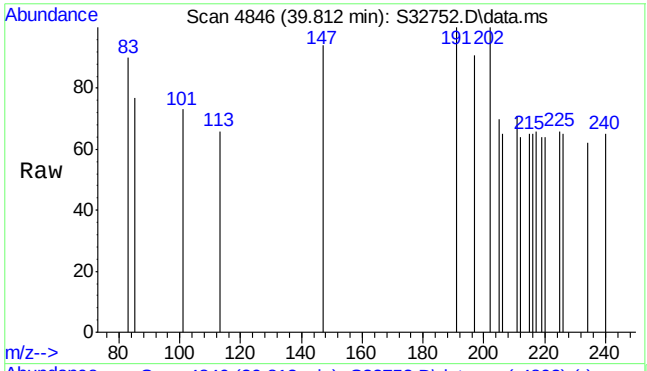
#78
Fluoranthene
Concen: 0.54 ng/mL m
RT: 38.960 min Scan# 4701
Delta R.T. 0.077 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:202 Resp: 68

Ion	Ratio	Lower	Upper
202	100		
101	0.0	10.0	15.0#



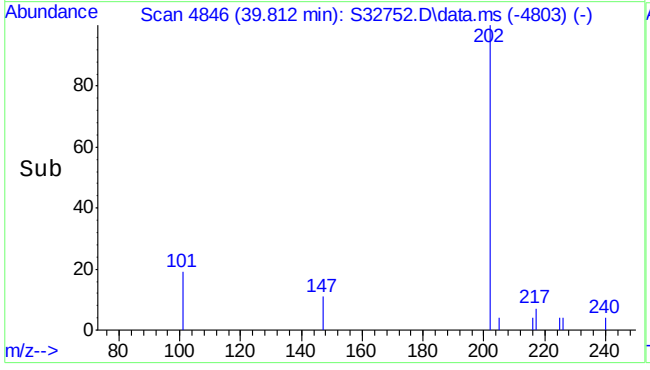


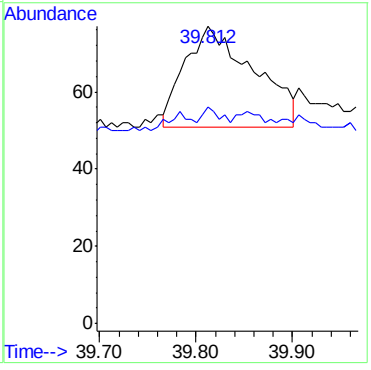


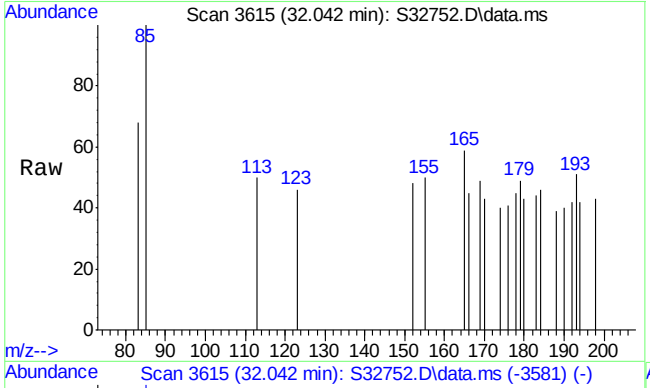
#79
Pyrene
Concen: 0.98 ng/mL m
RT: 39.812 min Scan# 4846
Delta R.T. 0.053 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion:202 Resp: 128

Ion	Ratio	Lower	Upper
202	100		
101	0.0	11.4	17.0#



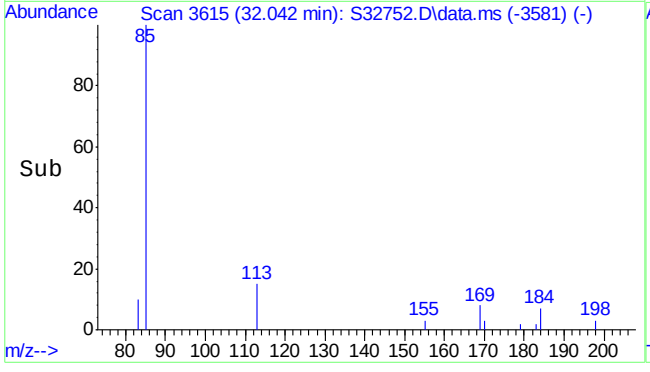


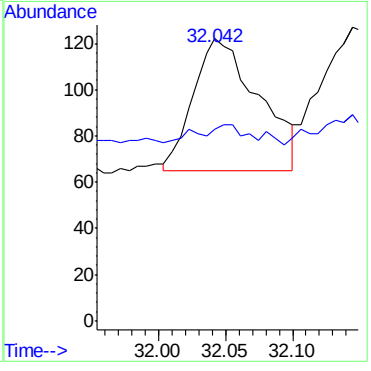


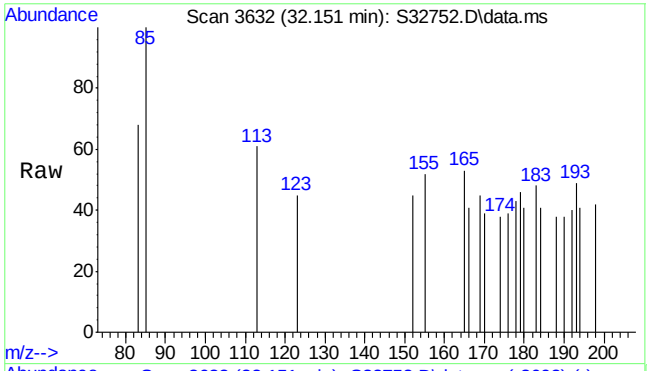
#103
C-17
Concen: 7.09 µg/mL m
RT: 32.042 min Scan# 3615
Delta R.T. 0.019 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 85 Resp: 194

Ion	Ratio	Lower	Upper
85	100		
83	0.0	12.3	18.5#



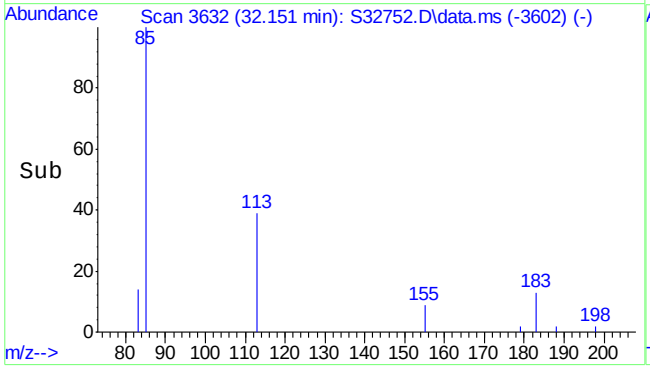


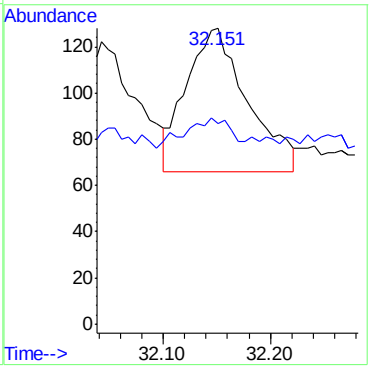


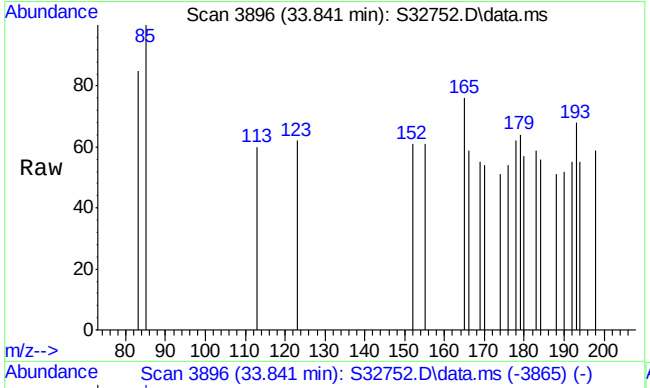
#104
Pristane
Concen: 11.96 µg/mL m
RT: 32.151 min Scan# 3632
Delta R.T. -0.007 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 85 Resp: 247

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#



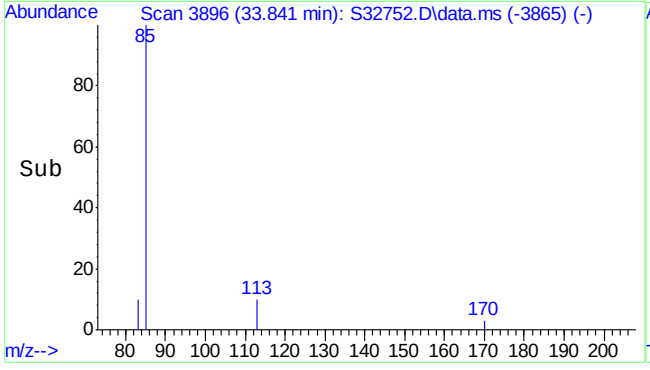


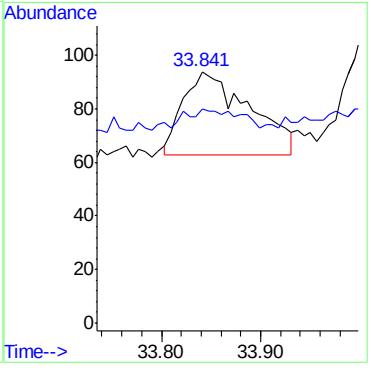


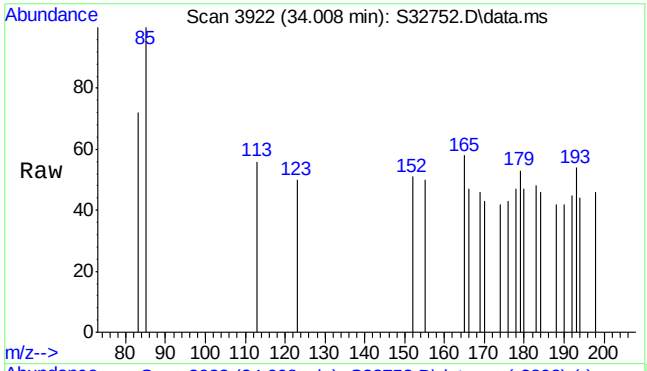
#105
C-18
Concen: 5.15 µg/mL m
RT: 33.841 min Scan# 3896
Delta R.T. -0.000 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 85 Resp: 144

Ion	Ratio	Lower	Upper
85	100		
83	0.0	17.8	26.6#



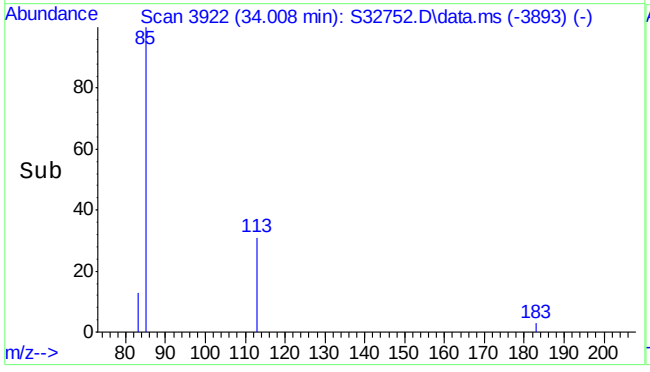


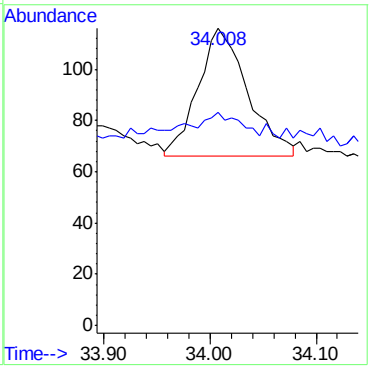


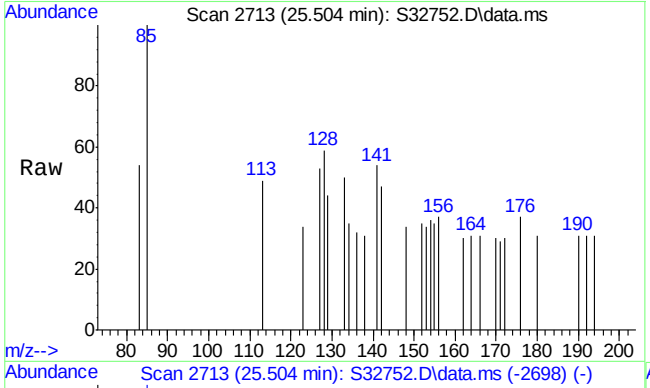
#106
Phytane
Concen: 5.94 µg/mL m
RT: 34.008 min Scan# 3922
Delta R.T. -0.013 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 85 Resp: 163

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#



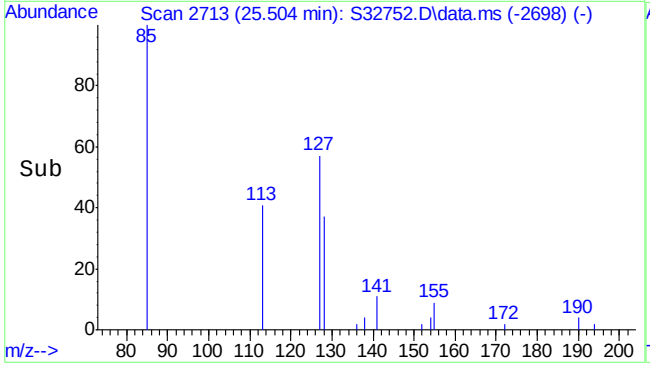


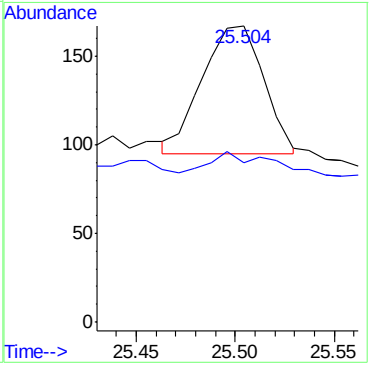


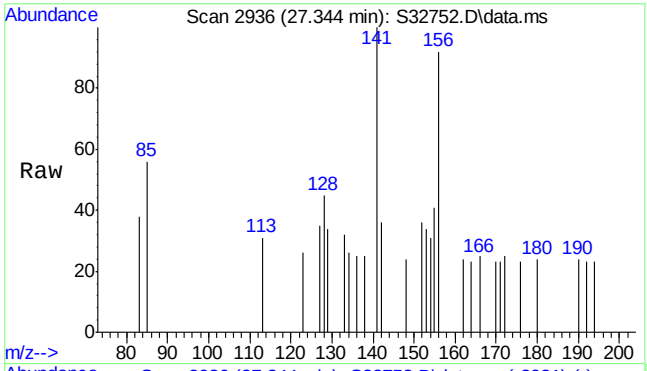
#107
2,6,10-Trimethyldodecane (1380)
Concen: 5.68 µg/mL m
RT: 25.504 min Scan# 2713
Delta R.T. -0.075 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 85 Resp: 156

Ion	Ratio	Lower	Upper
85	100		
83	0.0	13.0	19.6#



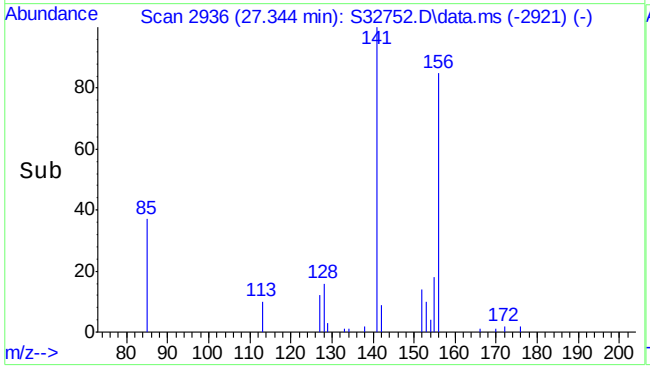


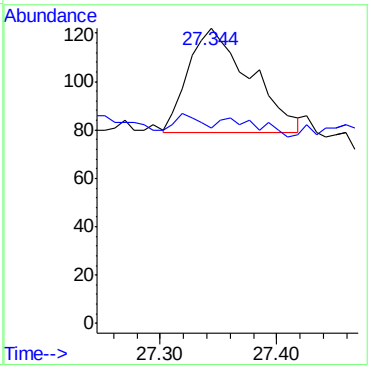


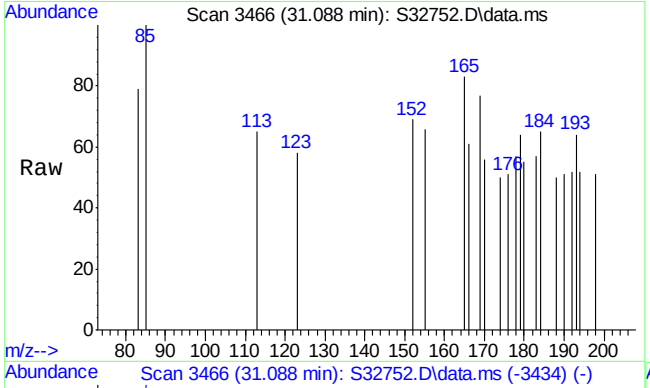
#108
2,6,10-Trimethyltridecane (1470)
Concen: 5.79 µg/mL m
RT: 27.344 min Scan# 2936
Delta R.T. -0.074 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 85 Resp: 159

Ion	Ratio	Lower	Upper
85	100		
83	0.0	13.0	19.6#



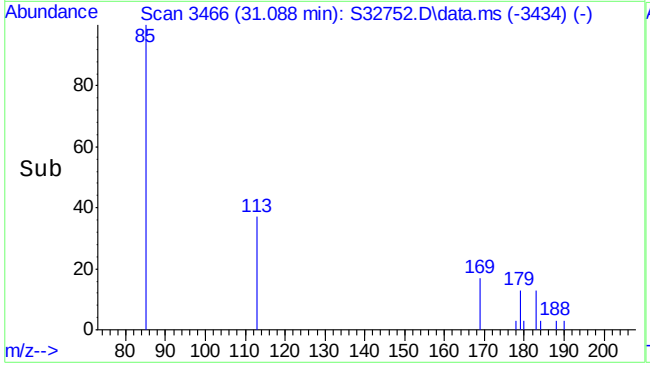


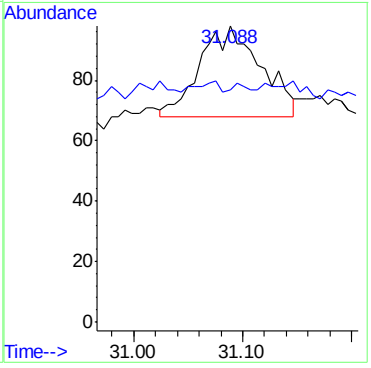


#109
2,6,10-Trimethylpentadecane (1650)
Concen: 4.22 µg/mL m
RT: 31.088 min Scan# 3466
Delta R.T. 0.006 min
Lab File: S32752.D
Acq: 28 May 2013 11:10 pm

Tgt Ion: 85 Resp: 116

Ion	Ratio	Lower	Upper
85	100		
83	0.0	21.2	31.8#





Manual Integrations APPROVED (compounds with "m" flag)
James Roush
05/31/13 15:01

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32764.D
Acq On : 29 May 2013 4:20 pm
Operator : danielb
Sample : mc20162-7
Misc : op33312,mss1429,0.0142,,,2,50
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 30 14:19:47 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	28.180	164	61255	1000.00	ng/mL	-0.01
System Monitoring Compounds						
2) Toluene-d8	9.328	98	4875	71.70	µg/mL	0.01
Spiked Amount 1000.000			Recovery = 7.17%			
3) Naphthalene-d8	21.216	136	2320	18.68	ng/mL	-0.02
Spiked Amount 1000.000	Range 1 - 0		Recovery = 1.87%#			
4) Phenanthrene-d10	34.053	188	1760	18.00	ng/mL	0.02
Spiked Amount 1000.000			Recovery = 1.80%			
5) Perylene-d12	49.904	264	1810	19.50	ng/mL	0.02
Spiked Amount 1000.000			Recovery = 1.95%			
Target Compounds						Qvalue
6) MTBE	5.517	73	71m	1.41	µg/mL	
7) Benzene	6.914	TIC	104008m	1073.97	µg/mL	
8) C1-Benzene	9.428	92	365660	3775.74	µg/mL	99
9) C2-Benzenes	12.382	106	662890m	6844.88	µg/mL	
10) C3-Benzenes	16.019	120	608550m	6283.78	µg/mL	
11) C4-Benzenes	17.799	134	285975m	2952.93	µg/mL	
12) C5-Benzenes	20.096	148	83581m	863.04	µg/mL	
13) Methylcyclohexane	8.276	83	32959	872.30	µg/mL	98
14) Toluene	9.428	91	623807	6883.66	µg/mL	100
15) Ethylbenzene	12.144	91	356334	3218.39	µg/mL	100
16) m,p-xylene	12.374	91	902655	10228.22	µg/mL	100
17) Styrene	13.016	104	626	9.55	µg/mL	92
18) o-Xylene	13.088	91	338533	3872.80	µg/mL	100
19) Isopropylbenzene	14.010	105	29082	282.22	µg/mL	99
20) n-Propylbenzene	14.860	91	148654	1064.78	µg/mL	99
21) 1,3,5-Trimethylbenzene	15.277	105	164561	1721.02	µg/mL	100
22) t-Butylbenzene	16.019	119	61022	649.06	µg/mL#	54
23) 1,2,4-Trimethylbenzene	16.019	105	530483	5426.73	µg/mL	99
24) sec-Butylbenzene	16.502	105	16203	129.19	µg/mL	99
25) 1,2,3-Trimethylbenzene	16.862	105	114919	1121.23	µg/mL	96
26) p-Isopropyltoluene	16.790	119	18430	166.62	µg/mL	91
27) n-Butylbenzene	17.755	91	45207	423.87	µg/mL#	53
28) trans-Decalin	17.835	96	309m	15.40	µg/mL	
29) cis-Decalin	19.074	96	142m	5.42	µg/mL	
30) C1-Decalins	19.347	152	589m	29.35	µg/mL	
31) C2-Decalins	20.781	166	443m	22.08	µg/mL	
34) Benzo(b)thiophene	21.512	134	8561	74.00	µg/mL#	93
35) C1-Benzo(b)thiophenes	23.583	148	8932m	77.21	µg/mL	
36) C2-Benzo(b)thiophenes	26.552	162	2218m	19.17	µg/mL	
37) C3-Benzo(b)thiophenes	29.014	176	614m	5.31	µg/mL	
39) Tetraethyl lead	20.370	208	19m	2.38	µg/mL	
44) Naphthalene	21.290	128	119337	805.73	ng/mL	99
45) 2-Methylnaphthalene	23.995	142	80473	876.42	ng/mL	99
46) 1-Methylnaphthalene	24.416	142	36630	395.99	ng/mL	100
47) C1-Naphthalenes	23.995	142	120733m	815.15	ng/mL	
48) C2-Naphthalenes	26.841	156	32450m	219.09	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32764.D
Acq On : 29 May 2013 4:20 pm
Operator : danielb
Sample : mc20162-7
Misc : op33312,mss1429,0.0142,,,2,50
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 30 14:19:47 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
49)	C3-Naphthalenes	29.194	170	8247m	55.68	ng/mL	
50)	C4-Naphthalenes	31.959	184	2818m	19.03	ng/mL	
51)	Biphenyl	25.909	154	1701	13.65	µg/mL	100
53)	Acenaphthene	28.302	154	177m	2.20	ng/mL	
55)	Fluorene	30.346	166	360	3.79	ng/mL	99
56)	C1-Fluorenes	32.708	180	566m	5.96	ng/mL	
57)	C2-Fluorenes	34.642	194	920m	9.69	ng/mL	
59)	Dibenzothiophene	33.643	184	250	1.94	ng/mL#	75
60)	C1-Dibenzothiophenes (...	35.821	198	750m	5.81	ng/mL	
61)	C1-Dibenzothiophenes (...	35.821	198	174m	1.35	µg/mL	
62)	C2-Dibenzothiophenes	37.886	212	662m	5.13	ng/mL	
65)	Phenanthrene	34.136	178	942	6.96	ng/mL#	63
66)	Anthracene	34.334	178	96m	0.77	ng/mL	
67)	C1-Phenanthrenes/anthr...	36.219	192	1765m	13.04	ng/mL	
68)	C2-Phenanthrenes/anthr...	38.060	206	1448m	10.70	ng/mL	
69)	C2-Phenanthrenes/anthr...	38.060	206	228	1.68	µg/mL#	1
70)	C3-Phenanthrenes/anthr...	40.230	220	668m	4.94	ng/mL	
73)	Benzo(b)naphtho(2,1-d)...	43.635	234	129m	1.06	µg/mL	
78)	Fluoranthene	38.907	202	170m	1.29	ng/mL	
79)	Pyrene	39.771	202	275	2.01	ng/mL#	65
80)	C1-Fluoranthenes/pyrenes	41.189	216	684m	5.01	ng/mL	
82)	Benzo(c)fluorene	41.189	216	79m	0.58	µg/mL	
83)	2-Methylpyrene	41.583	216	55m	0.40	ng/mL	
84)	4-Methylpyrene	41.935	216	47m	0.34	ng/mL	
85)	1-Methylpyrene	42.059	216	45m	0.33	ng/mL	
88)	Benz(a)anthracene	44.568	228	163m	1.44	ng/mL	
89)	Chrysene	44.735	228	169m	1.51	ng/mL	
94)	Benzo(b)fluoranthene	48.615	252	118m	0.92	ng/mL	
95)	Benzo(k)fluoranthene	48.705	252	137m	1.02	ng/mL	
96)	Benzo(e)pyrene	49.527	252	86m	0.68	ng/mL	
97)	Benzo(a)pyrene	49.735	252	118m	1.04	ng/mL	
99)	Indeno(1,2,3-cd)pyrene	53.285	276	184m	1.40	ng/mL	
100)	Dibenz(a,h)anthracene	53.344	278	221m	1.80	ng/mL	
101)	Benzo(g,h,i)perylene	54.085	276	158m	1.08	ng/mL	
102)	Coronene	60.066	300	184m	1.29	µg/mL	
103)	C-17	32.023	85	706m	24.58	µg/mL	
104)	Pristane	32.138	85	414m	19.10	µg/mL	
105)	C-18	33.822	85	585	19.93	µg/mL#	54
106)	Phytane	34.001	85	352	12.22	µg/mL#	53
107)	2,6,10-Trimethyldodeca...	25.496	85	327m	11.35	µg/mL	
108)	2,6,10-Trimethyltridec...	27.335	85	399m	13.85	µg/mL	
109)	2,6,10-Trimethylpentad...	31.076	85	273	9.48	µg/mL#	48

(#) = qualifier out of range (m) = manual integration (+) = signals summed

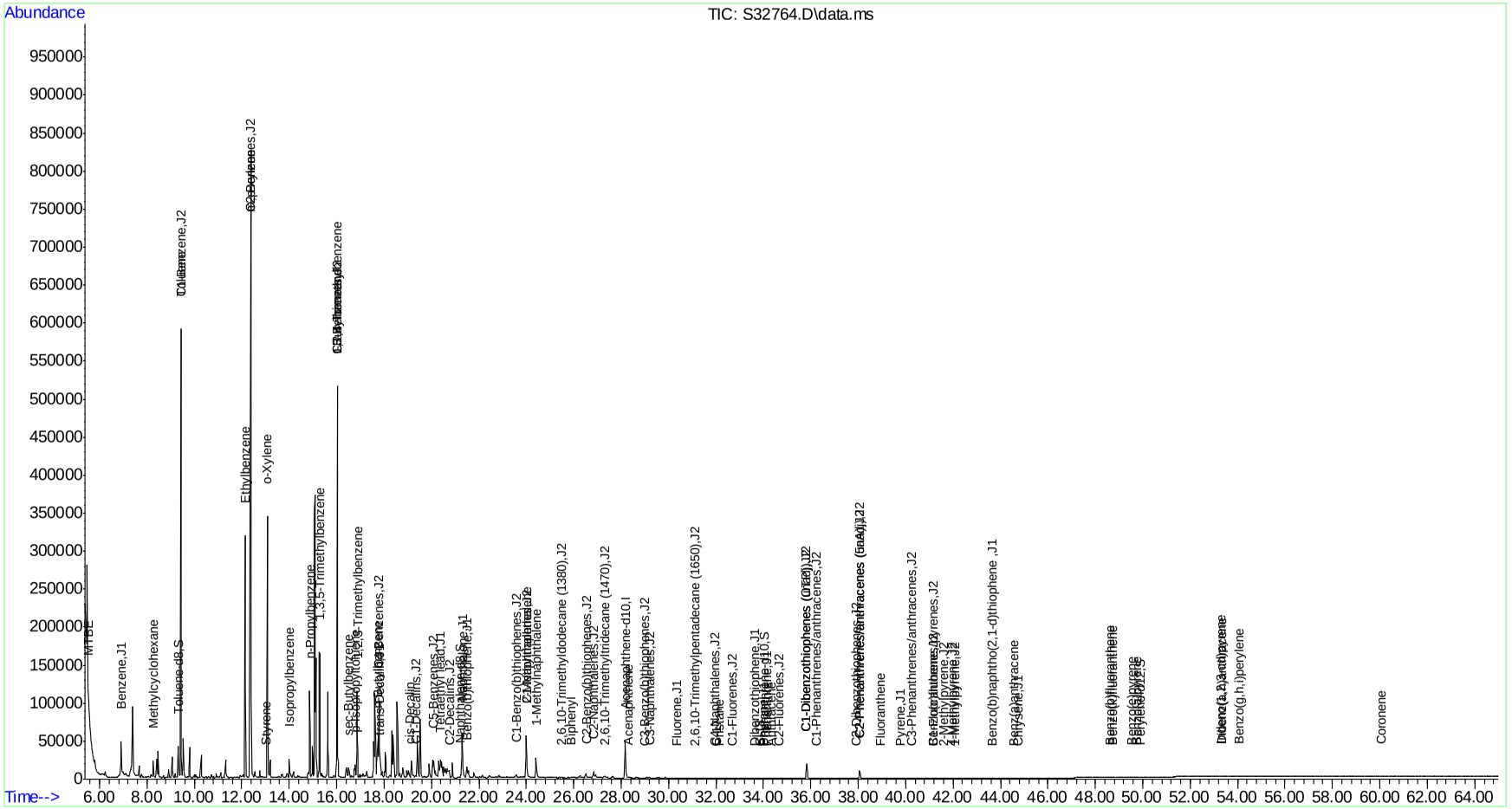
9.1.7

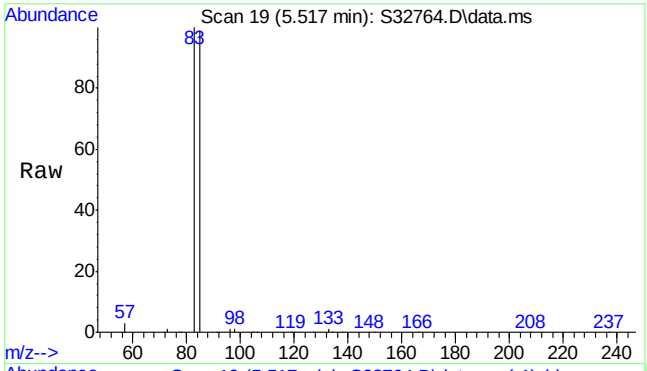
9

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32764.D
Acq On : 29 May 2013 4:20 pm
Operator : danielb
Sample : mc20162-7
Misc : op33312,mss1429,0.0142,,,2,50
ALS Vial : 21 Sample Multiplier: 1

Quant Time: May 30 14:19:47 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

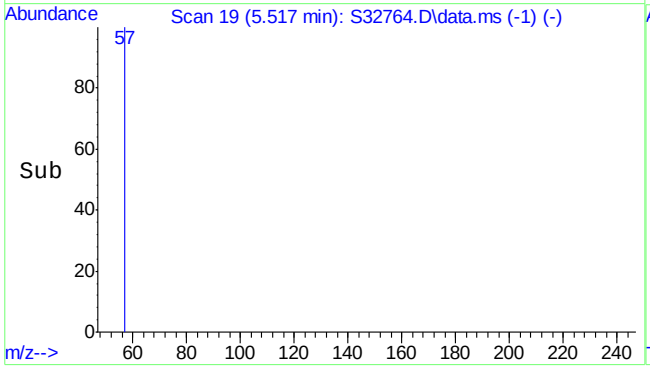


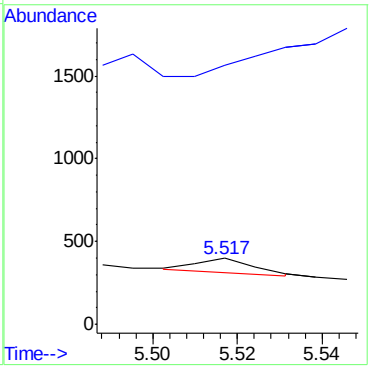


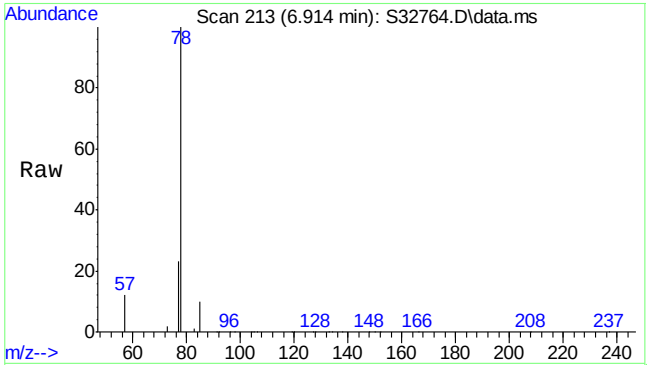
#6
MTBE
Concen: 1.41 µg/mL m
RT: 5.517 min Scan# 19
Delta R.T. 0.022 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 73 Resp: 71

Ion	Ratio	Lower	Upper
73	100		
57	0.0	18.5	27.7#

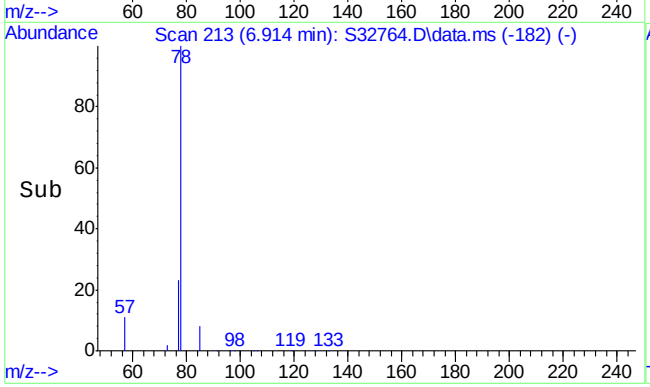


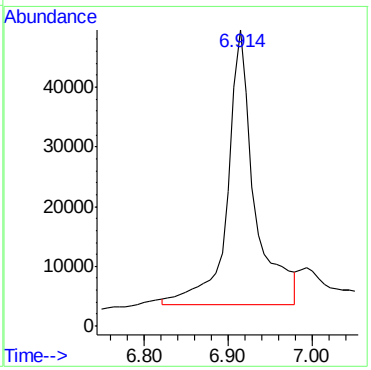


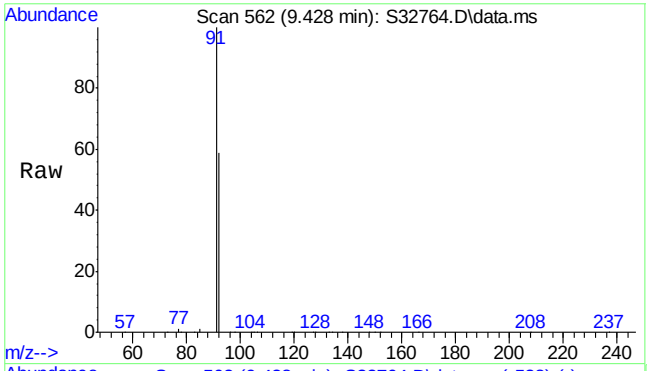


#7
Benzene
Concen: 1073.97 µg/mL m
RT: 6.914 min Scan# 213
Delta R.T. 0.022 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:TIC Resp: 104008



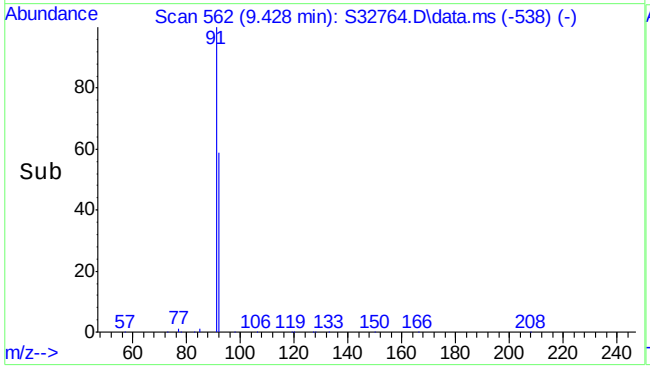


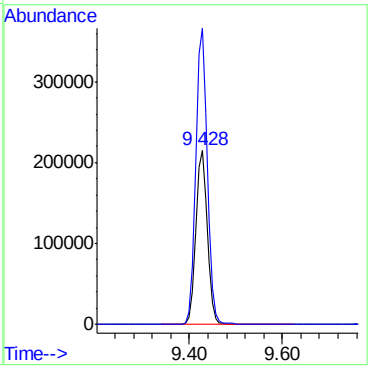


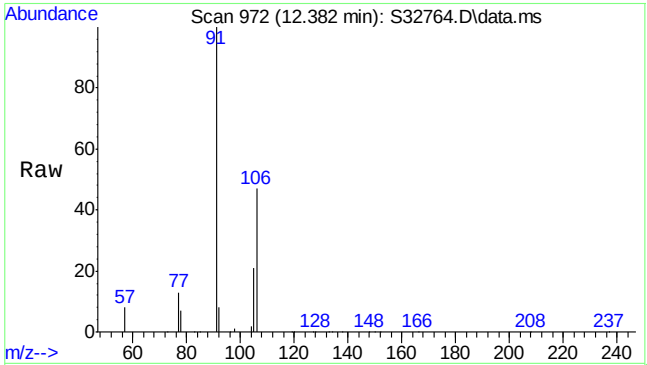
#8
C1-Benzene
Concen: 3775.74 µg/mL
RT: 9.428 min Scan# 562
Delta R.T. -0.029 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 92 Resp: 365660

Ion	Ratio	Lower	Upper
92	100		
91	170.7	135.6	203.4



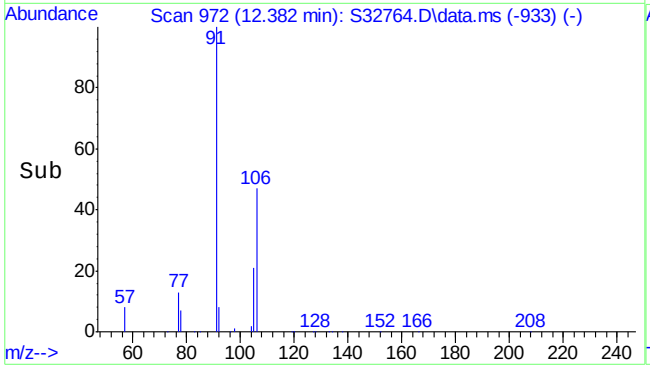


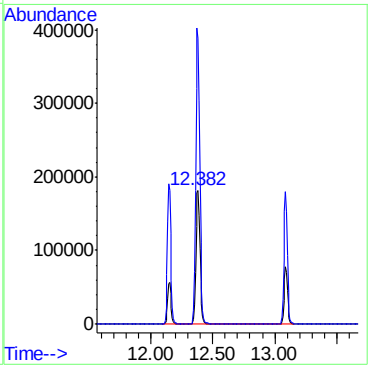


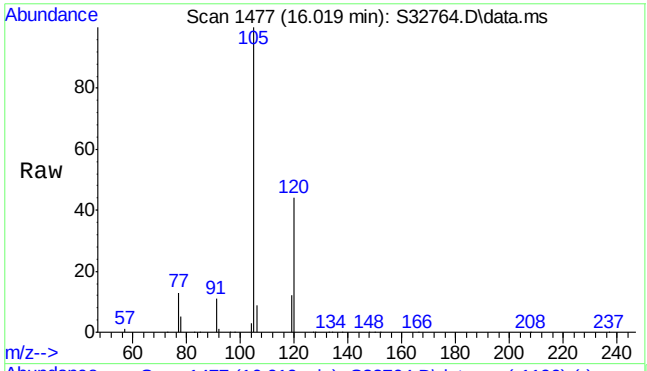
#9
C2-Benzenes
Concen: 6844.88 µg/mL m
RT: 12.382 min Scan# 972
Delta R.T. -0.007 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:106 Resp: 662890

Ion	Ratio	Lower	Upper
106	100		
91	136.2	174.9	262.3#



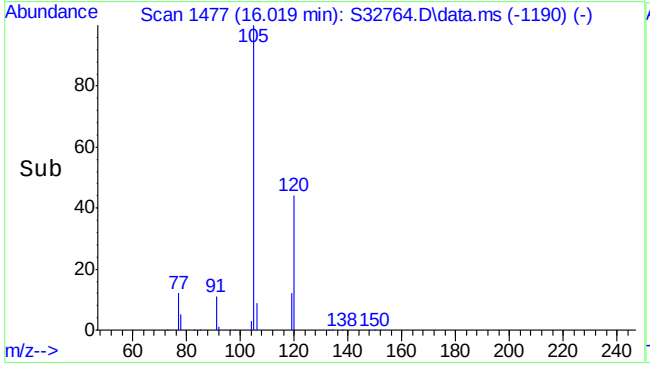


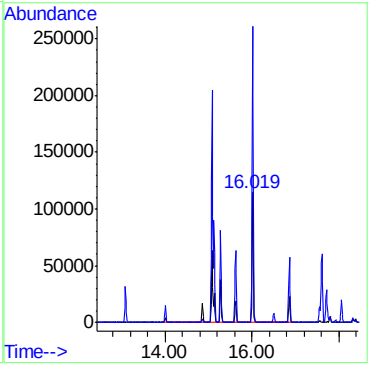


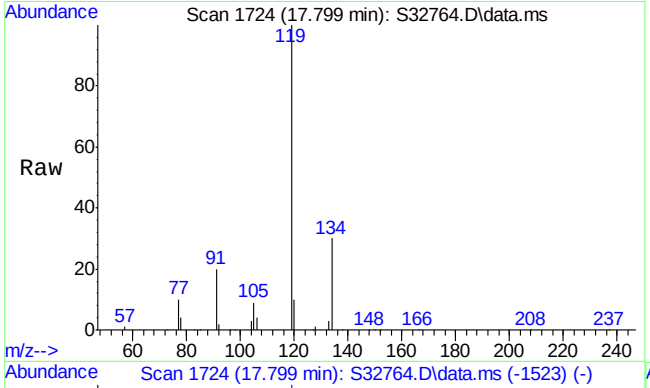
#10
C3-Benzenes
Concen: 6283.78 µg/mL m
RT: 16.019 min Scan# 1477
Delta R.T. -0.014 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:120 Resp: 608550

Ion	Ratio	Lower	Upper
120	100		
105	87.3	181.4	272.2#



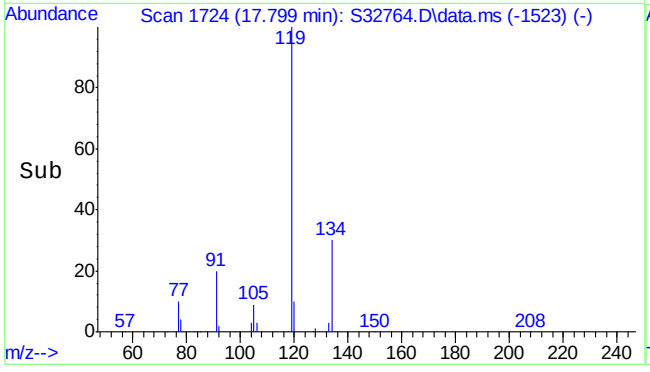


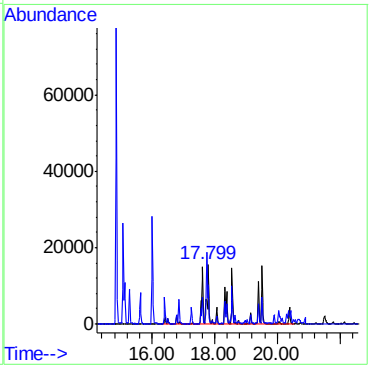


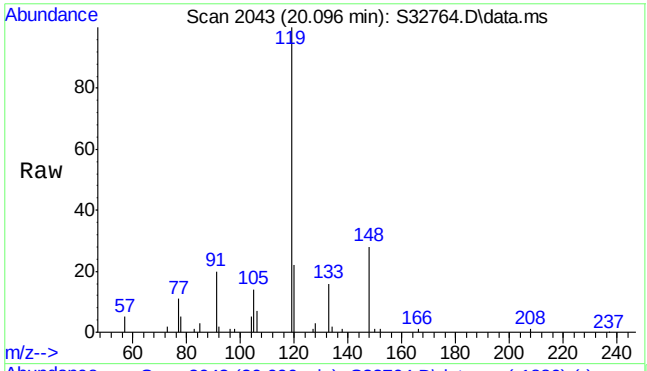
#11
C4-Benzenes
Concen: 2952.93 µg/mL m
RT: 17.799 min Scan# 1724
Delta R.T. -2.608 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:134 Resp: 285975

Ion	Ratio	Lower	Upper
134	100		
91	0.0	37.2	55.8#



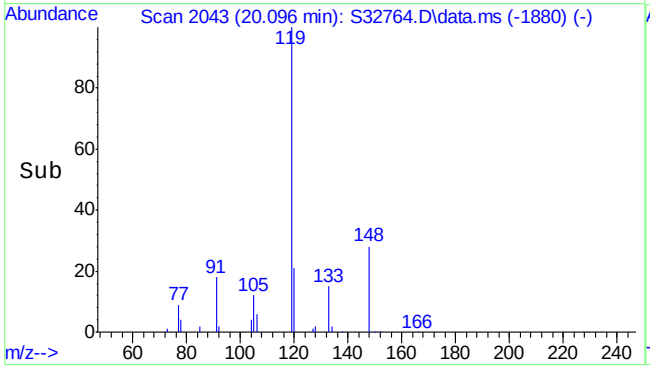


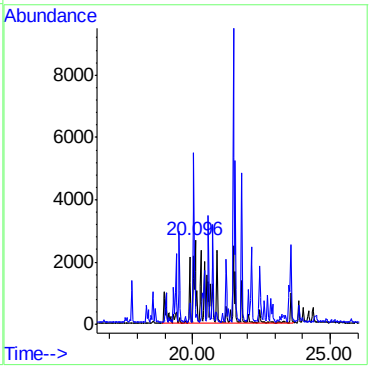


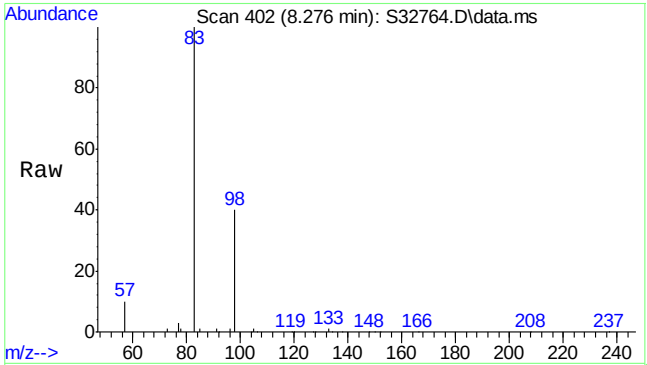
#12
C5-Benzenes
Concen: 863.04 µg/mL m
RT: 20.096 min Scan# 2043
Delta R.T. -0.014 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:148 Resp: 83581

Ion	Ratio	Lower	Upper
148	100		
133	0.0	134.0	201.0#



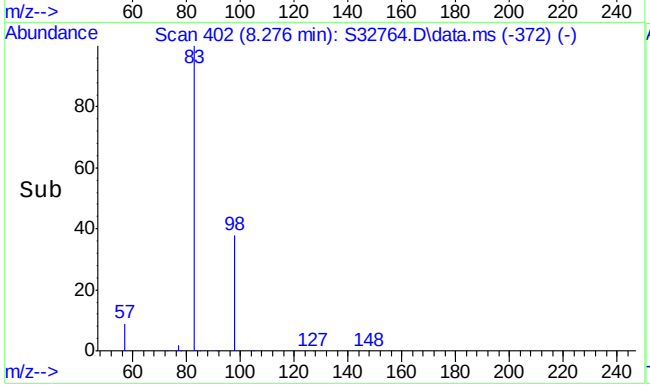


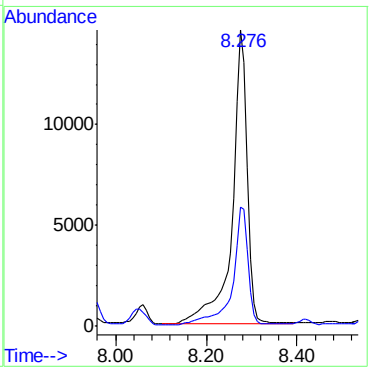


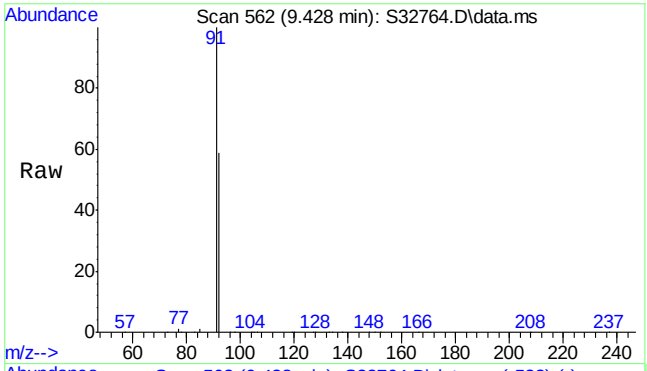
#13
Methylcyclohexane
Concen: 872.30 µg/mL
RT: 8.276 min Scan# 402
Delta R.T. 0.015 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 83 Resp: 32959

Ion	Ratio	Lower	Upper
83	100		
98	41.5	34.0	51.0



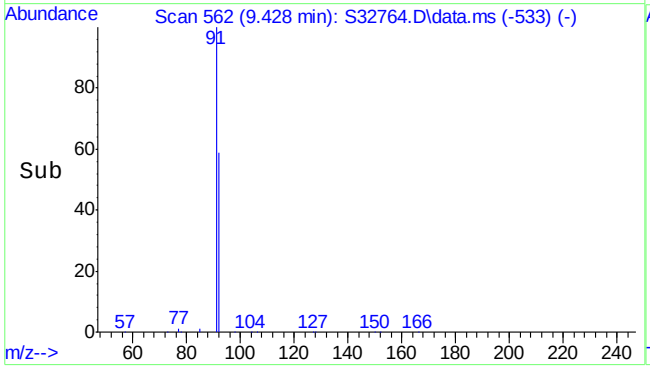


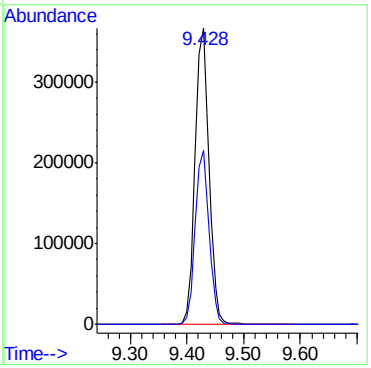


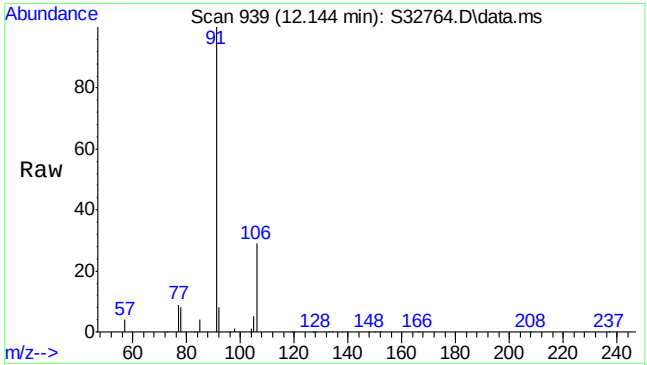
#14
Toluene
Concen: 6883.66 µg/mL
RT: 9.428 min Scan# 562
Delta R.T. 0.007 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 91 Resp: 623807

Ion	Ratio	Lower	Upper
91	100		
92	58.6	46.8	70.2



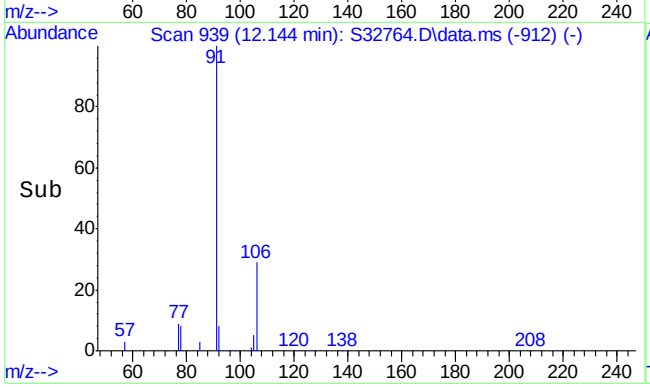


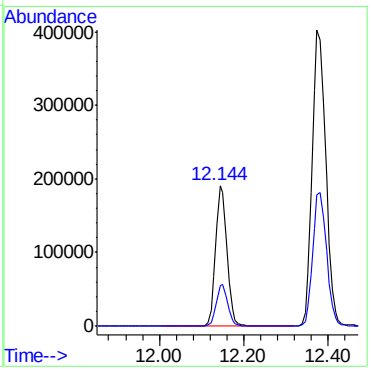


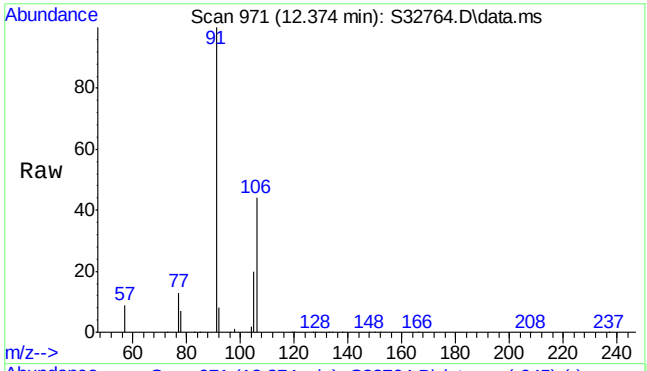
#15
Ethylbenzene
Concen: 3218.39 µg/mL
RT: 12.144 min Scan# 939
Delta R.T. -0.007 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 91 Resp: 356334

Ion	Ratio	Lower	Upper
91	100		
106	29.6	23.8	35.6



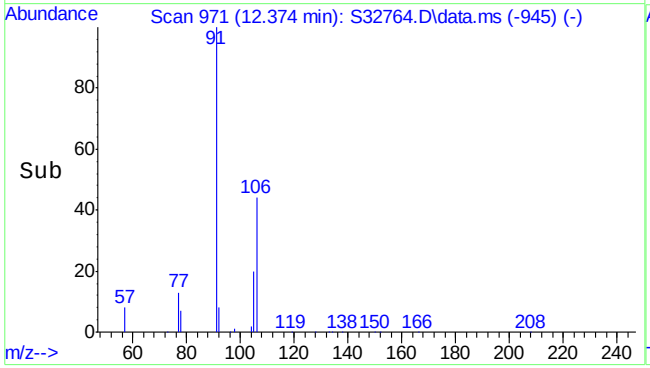


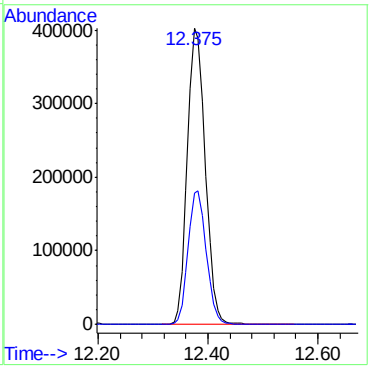


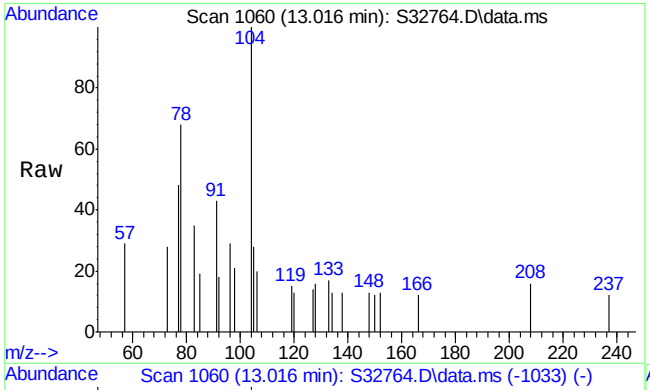
#16
m,p-xylene
Concen: 10228.22 µg/mL
RT: 12.374 min Scan# 971
Delta R.T. -0.014 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 91 Resp: 902655

Ion	Ratio	Lower	Upper
91	100		
106	45.5	36.6	55.0



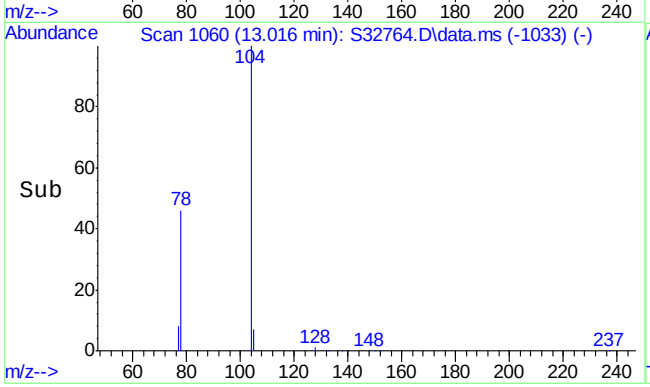


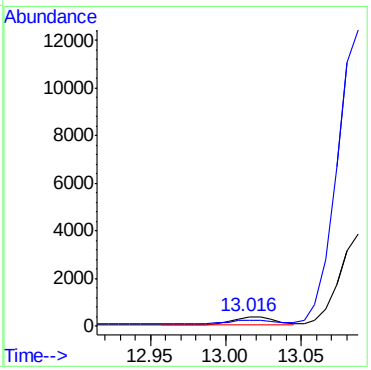


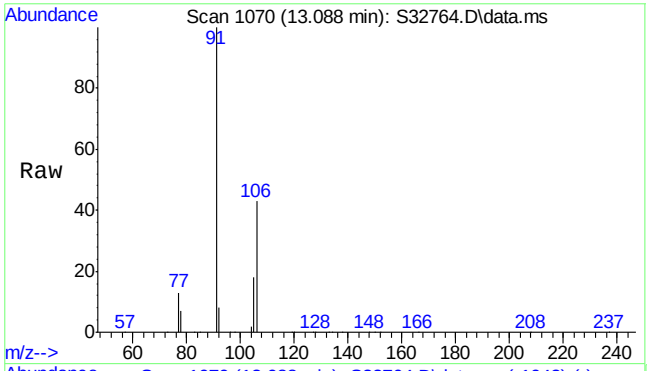
#17
Styrene
Concen: 9.55 µg/mL
RT: 13.016 min Scan# 1060
Delta R.T. -0.007 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:104 Resp: 626

Ion	Ratio	Lower	Upper
104	100		
78	41.7	37.7	56.5



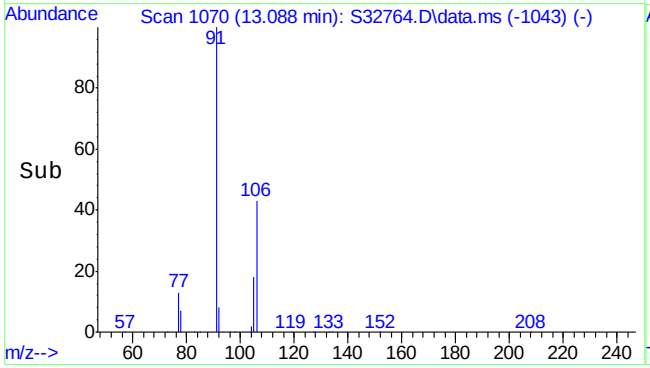


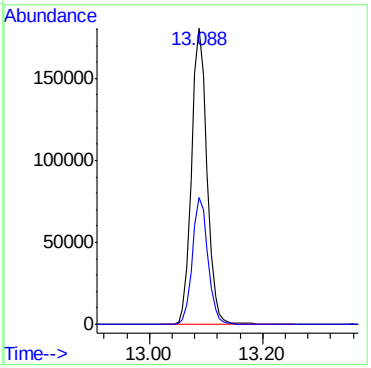


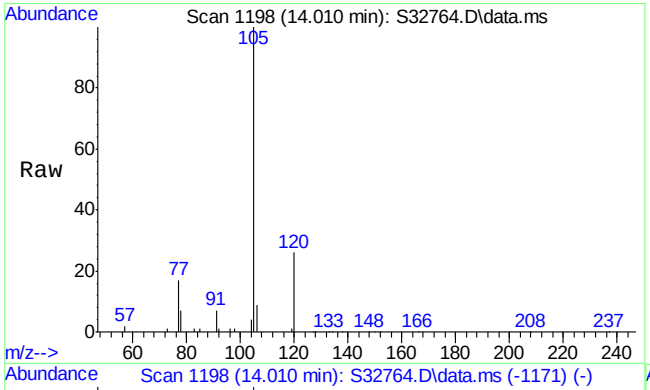
#18
o-Xylene
Concen: 3872.80 µg/mL
RT: 13.088 min Scan# 1070
Delta R.T. -0.007 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 91 Resp: 338533

Ion	Ratio	Lower	Upper
91	100		
106	43.0	34.5	51.7



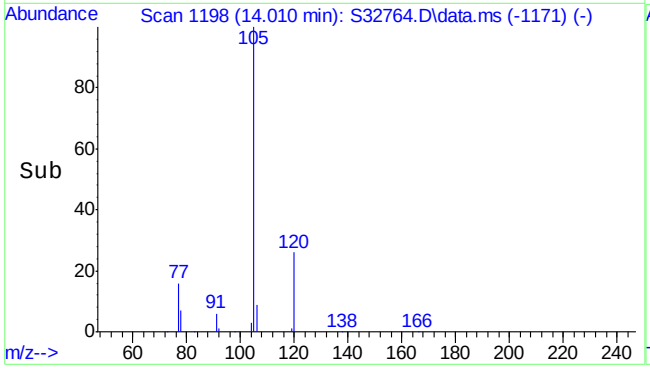


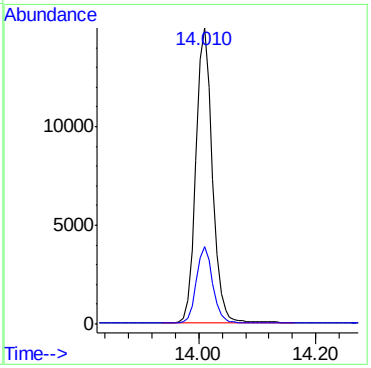


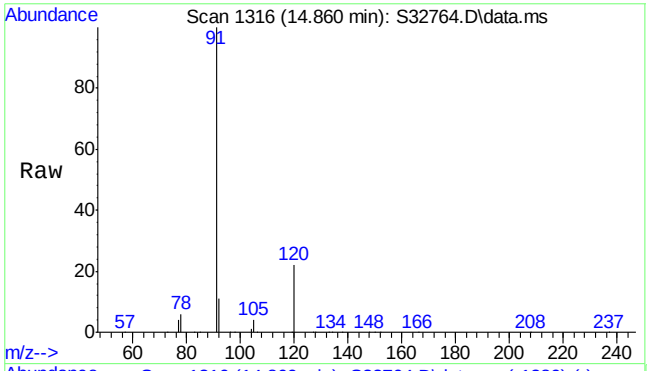
#19
Isopropylbenzene
Concen: 282.22 µg/mL
RT: 14.010 min Scan# 1198
Delta R.T. -0.007 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:105 Resp: 29082

Ion	Ratio	Lower	Upper
105	100		
120	25.7	21.1	31.7



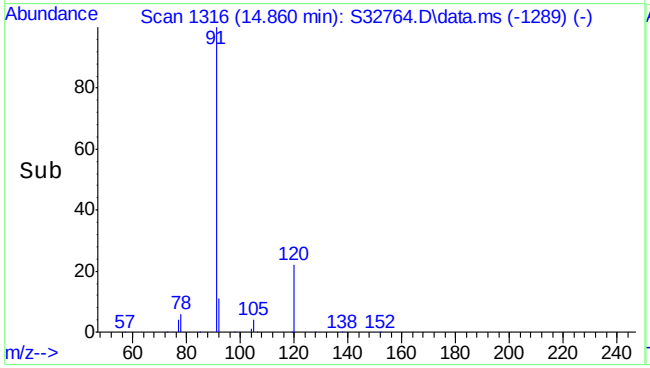


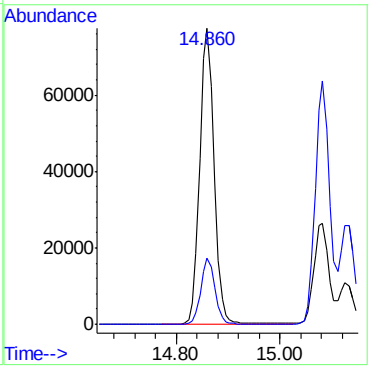


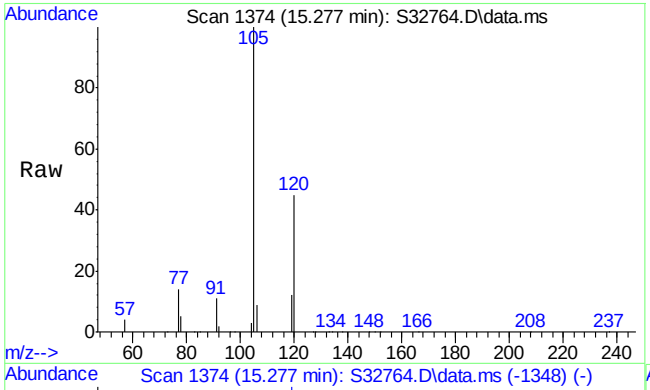
#20
n-Propylbenzene
Concen: 1064.78 µg/mL
RT: 14.860 min Scan# 1316
Delta R.T. -0.007 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 91 Resp: 148654

Ion	Ratio	Lower	Upper
91	100		
120	21.9	17.0	25.4



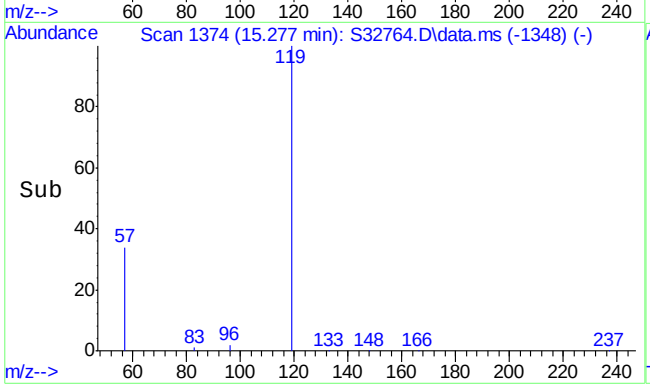


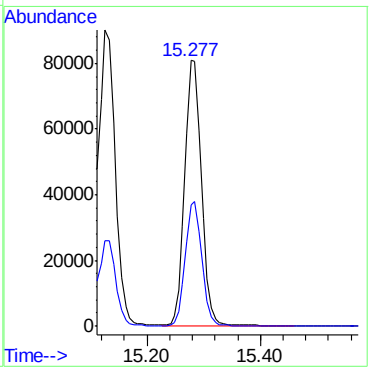


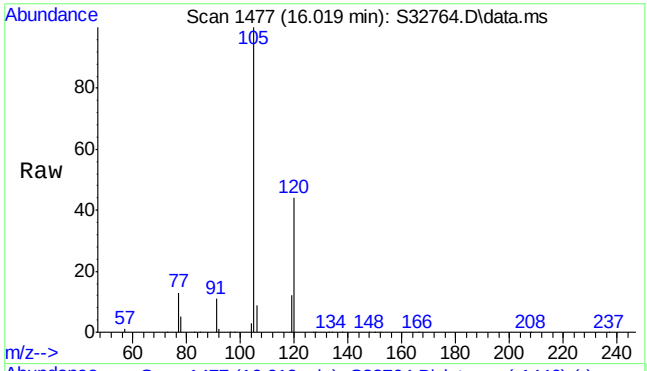
#21
1,3,5-Trimethylbenzene
Concen: 1721.02 µg/mL
RT: 15.277 min Scan# 1374
Delta R.T. -0.014 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:105 Resp: 164561

Ion	Ratio	Lower	Upper
105	100		
120	46.2	37.1	55.7



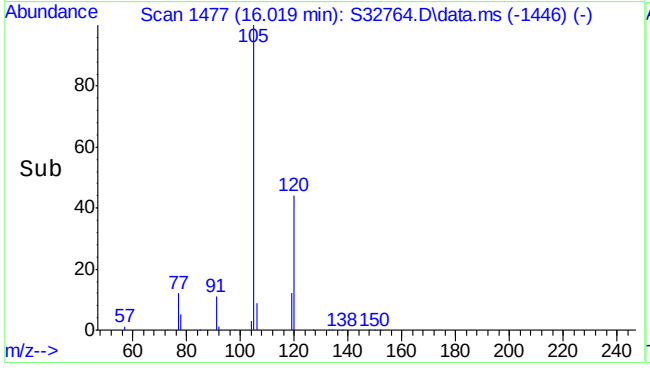


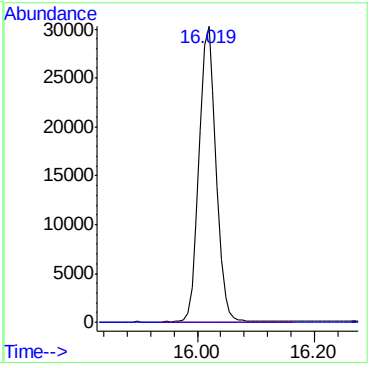


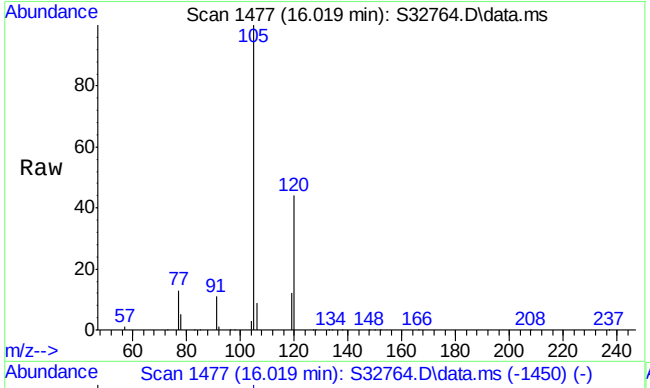
#22
t-Butylbenzene
Concen: 649.06 µg/mL
RT: 16.019 min Scan# 1477
Delta R.T. 0.022 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:119 Resp: 61022

Ion	Ratio	Lower	Upper
119	100		
134	0.0	17.6	26.4#



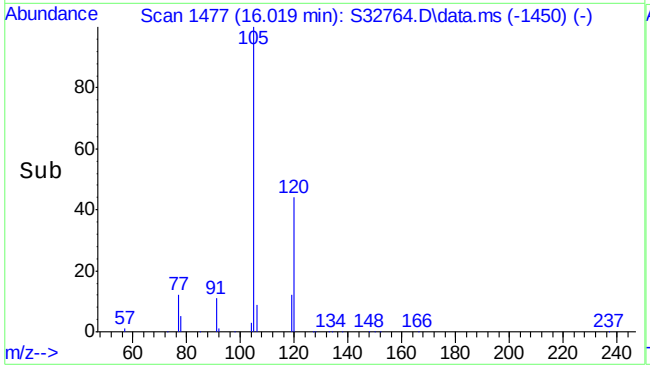


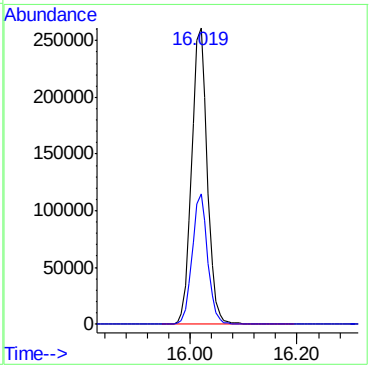


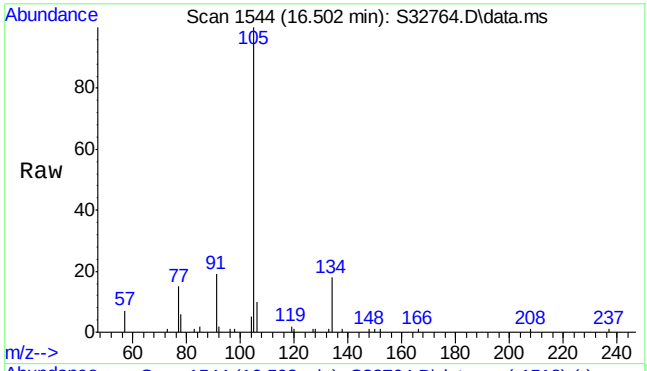
#23
1,2,4-Trimethylbenzene
Concen: 5426.73 µg/mL
RT: 16.019 min Scan# 1477
Delta R.T. -0.007 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:105 Resp: 530483

Ion	Ratio	Lower	Upper
105	100		
120	43.4	35.1	52.7



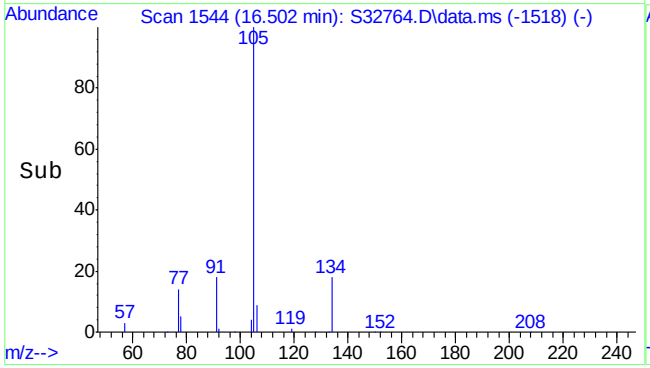


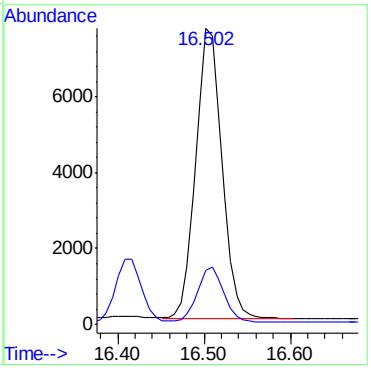


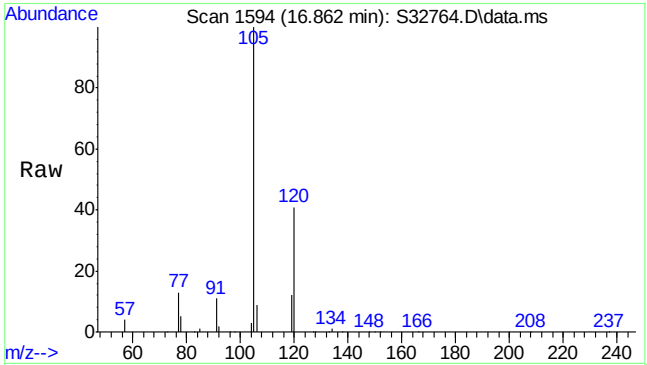
#24
sec-Butylbenzene
Concen: 129.19 µg/mL
RT: 16.502 min Scan# 1544
Delta R.T. -0.014 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:105 Resp: 16203

Ion	Ratio	Lower	Upper
105	100		
134	19.1	15.4	23.2



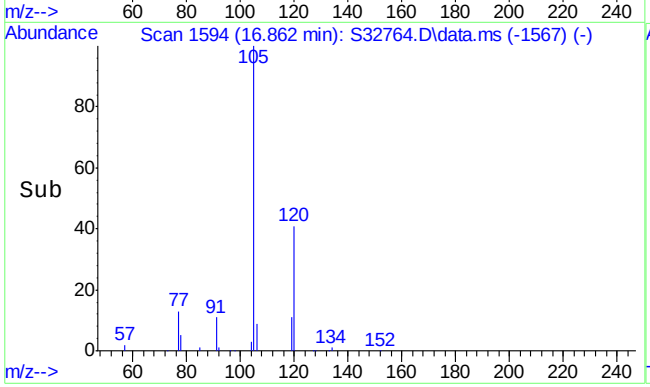


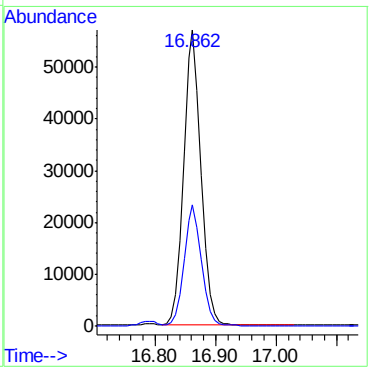


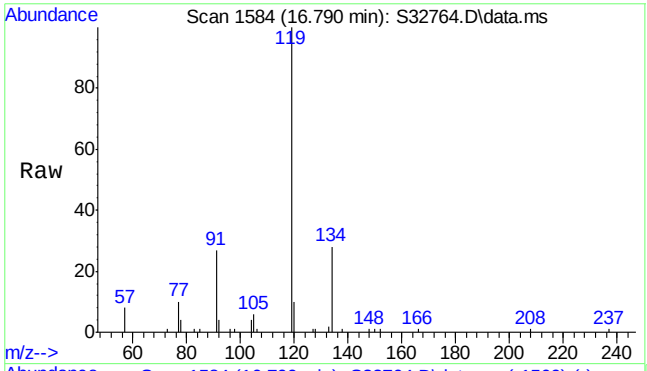
#25
1,2,3-Trimethylbenzene
Concen: 1121.23 µg/mL
RT: 16.862 min Scan# 1594
Delta R.T. -0.007 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:105 Resp: 114919

Ion	Ratio	Lower	Upper
105	100		
120	40.8	34.6	52.0



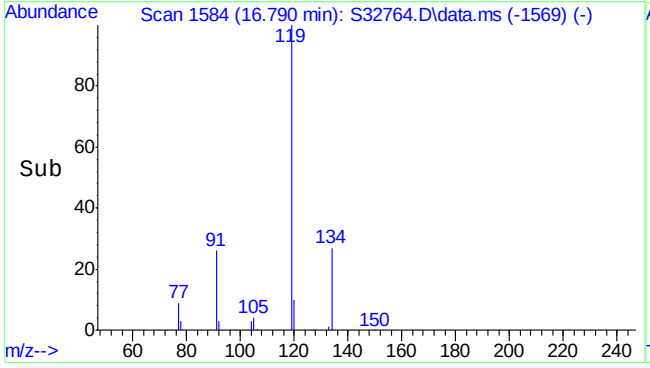


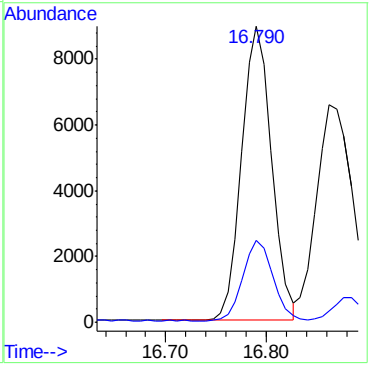


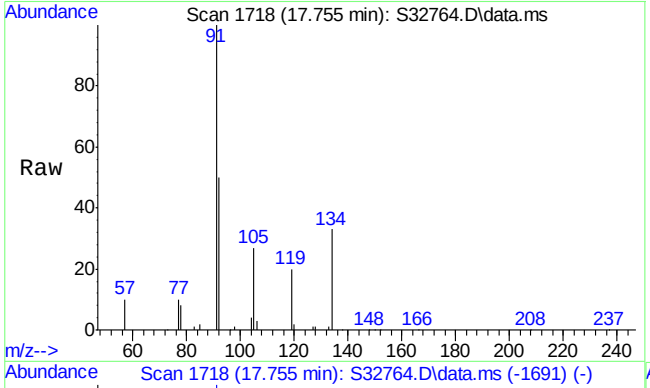
#26
p-Isopropyltoluene
Concen: 166.62 µg/mL
RT: 16.790 min Scan# 1584
Delta R.T. -0.093 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:119 Resp: 18430

Ion	Ratio	Lower	Upper
119	100		
134	27.2	18.4	27.6



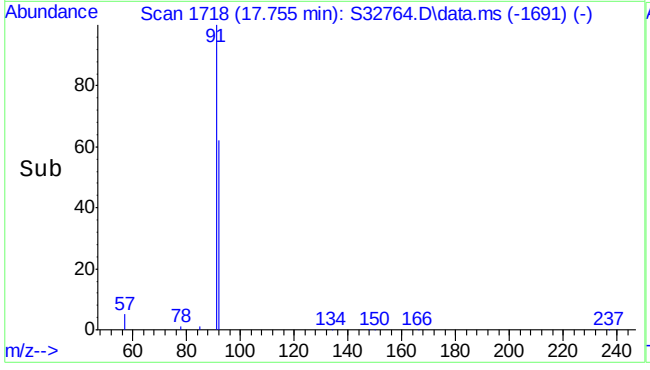


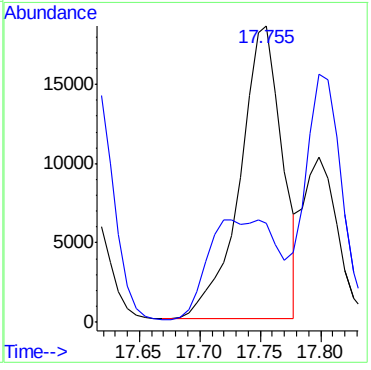


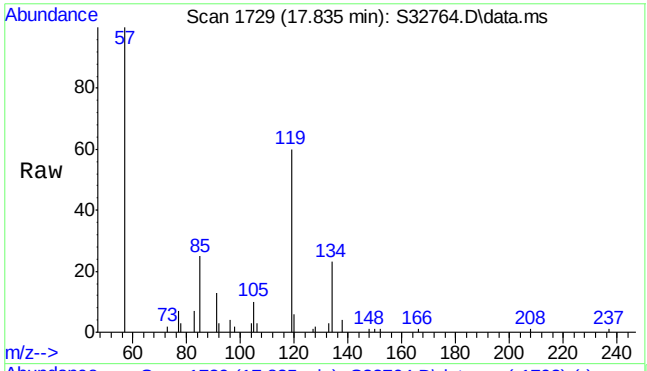
#27
n-Butylbenzene
Concen: 423.87 µg/mL
RT: 17.755 min Scan# 1718
Delta R.T. -0.007 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 91 Resp: 45207

Ion	Ratio	Lower	Upper
91	100		
134	0.0	18.2	27.2#



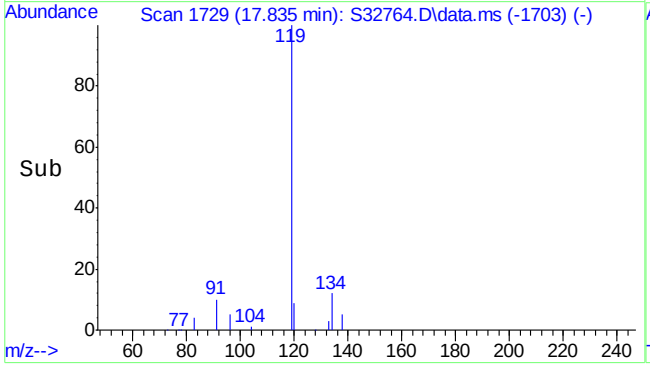


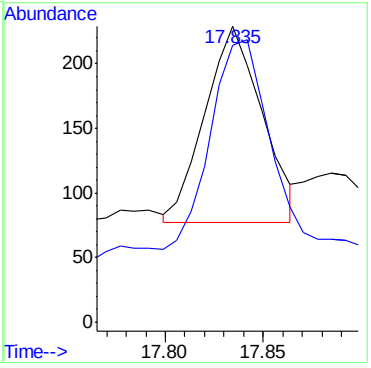


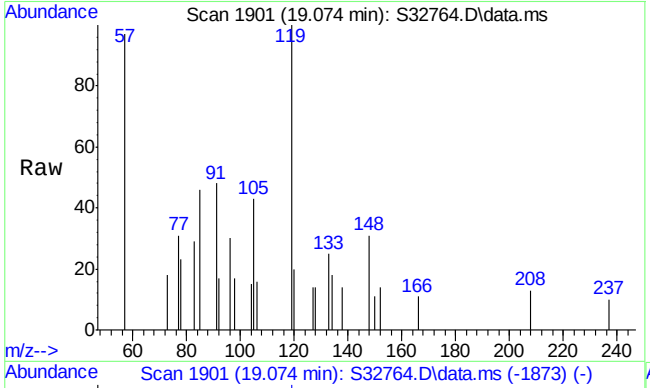
#28
trans-Decalin
Concen: 15.40 µg/mL m
RT: 17.835 min Scan# 1729
Delta R.T. -0.014 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 96 Resp: 309

Ion	Ratio	Lower	Upper
96	100		
138	128.8	106.5	159.7



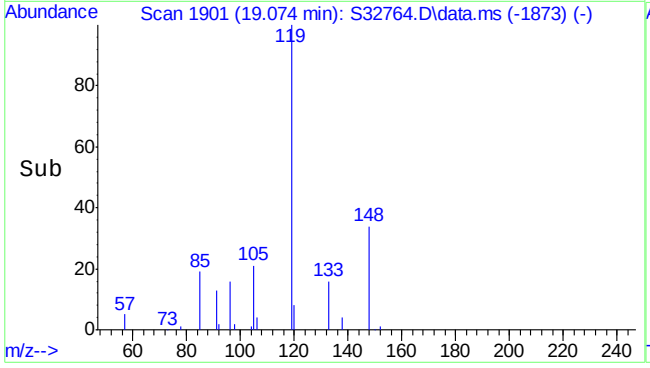


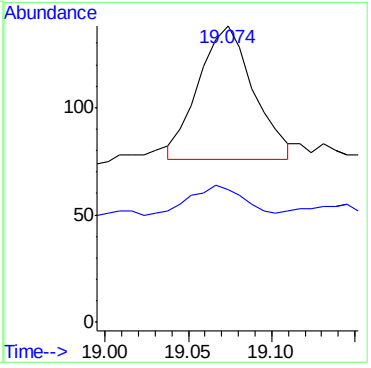


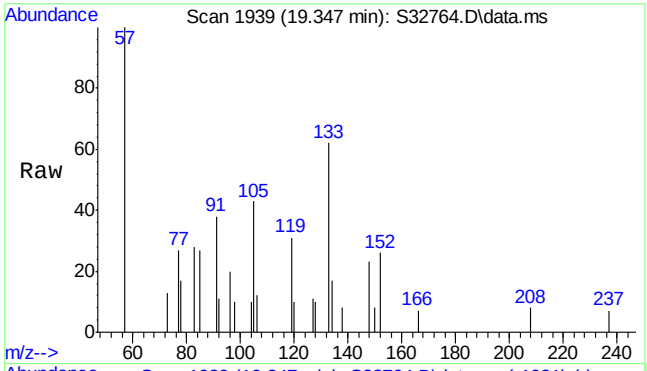
#29
cis-Decalin
Concen: 5.42 µg/mL m
RT: 19.074 min Scan# 1901
Delta R.T. 0.000 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 96 Resp: 142

Ion	Ratio	Lower	Upper
96	100		
138	0.0	56.6	85.0#

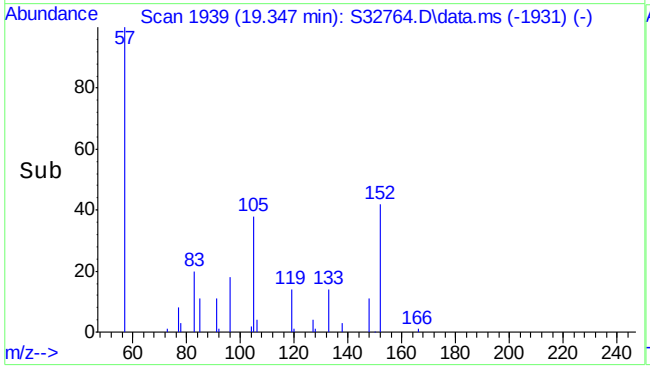


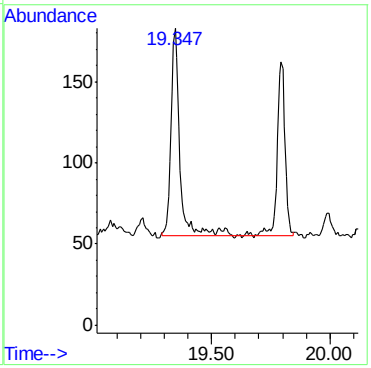


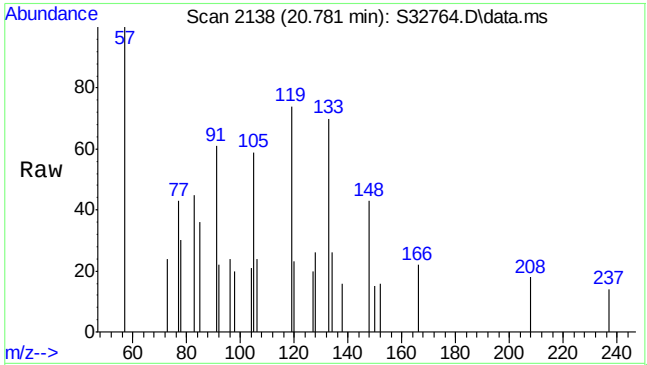


#30
C1-Decalins
Concen: 29.35 µg/mL m
RT: 19.347 min Scan# 1939
Delta R.T. -0.461 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:152 Resp: 589

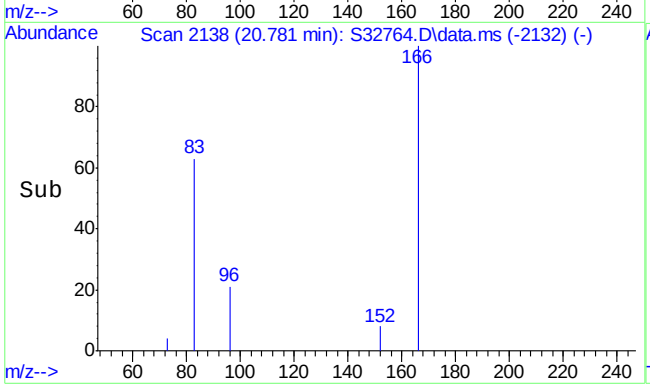


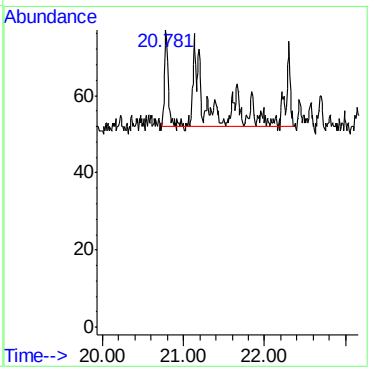




#31
C2-Decalins
Concen: 22.08 µg/mL m
RT: 20.781 min Scan# 2138
Delta R.T. -0.369 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

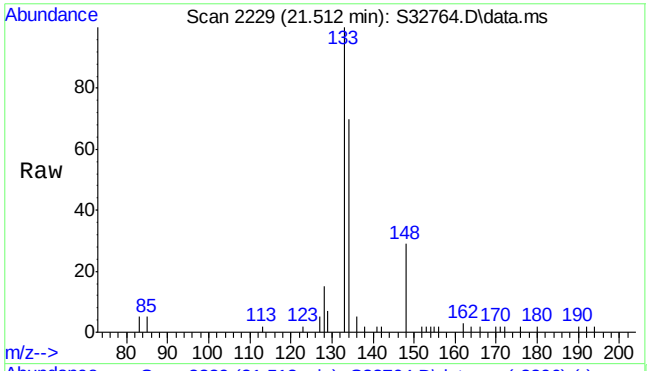
Tgt Ion:166 Resp: 443





9.1.7

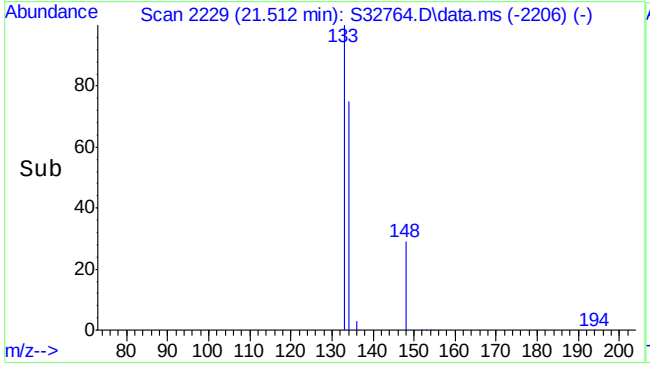
9

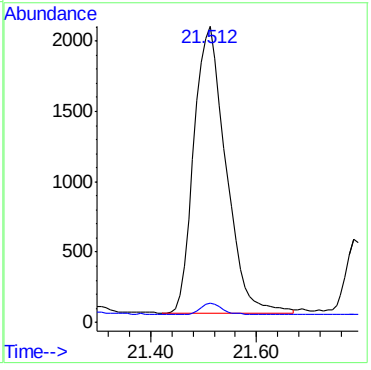


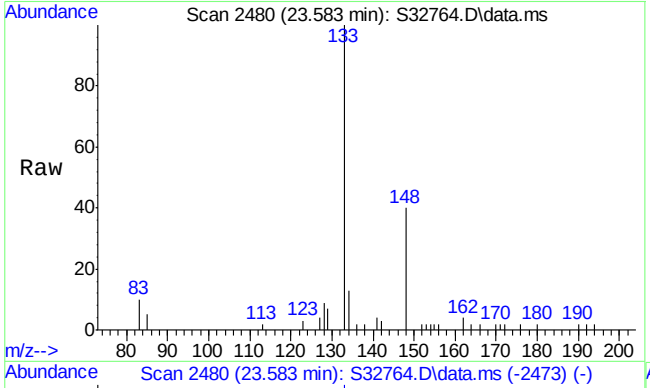
#34
Benzo(b)thiophene
Concen: 74.00 µg/mL
RT: 21.512 min Scan# 2229
Delta R.T. -0.008 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:134 Resp: 8561

Ion	Ratio	Lower	Upper
134	100		
136	2.6	4.0	6.0#

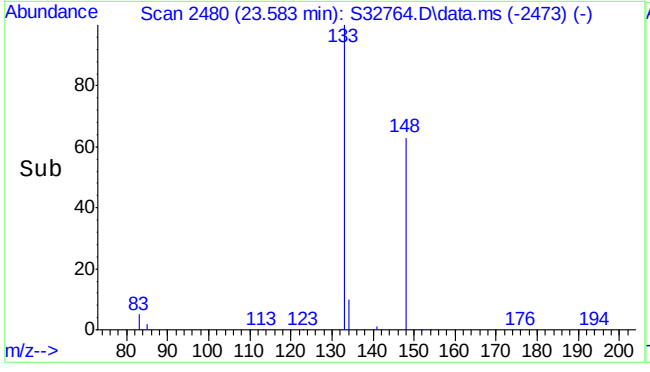


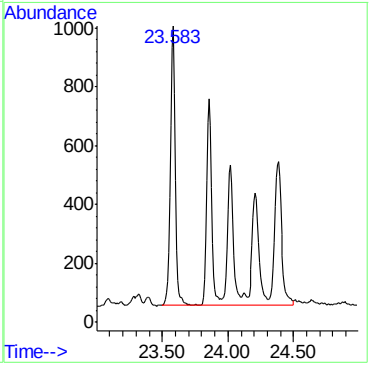


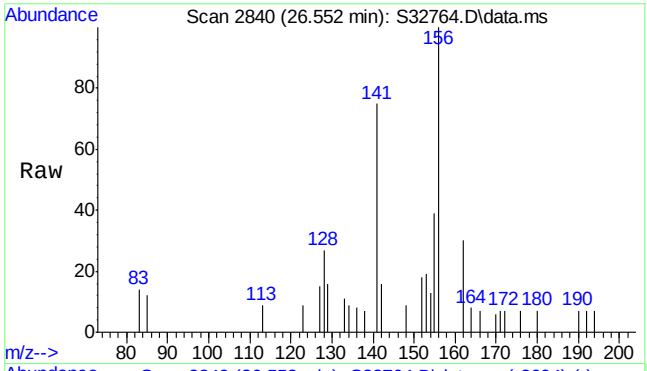


#35
C1-Benzo(b)thiophenes
Concen: 77.21 µg/mL m
RT: 23.583 min Scan# 2480
Delta R.T. -0.016 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:148 Resp: 8932

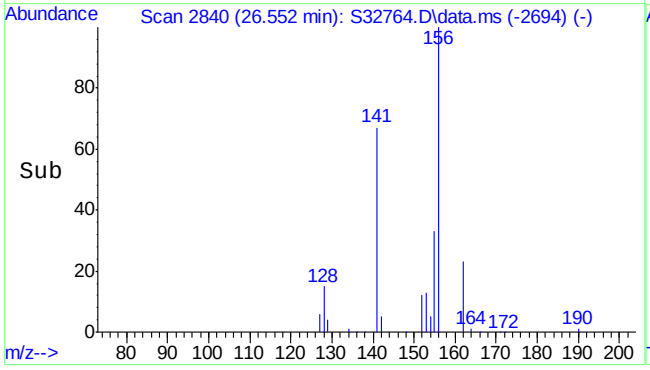


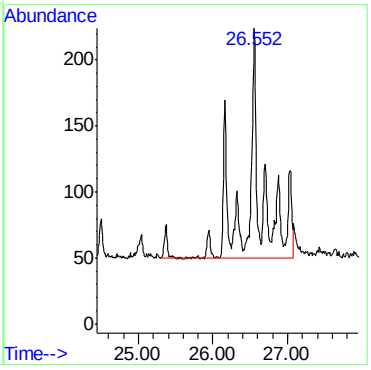


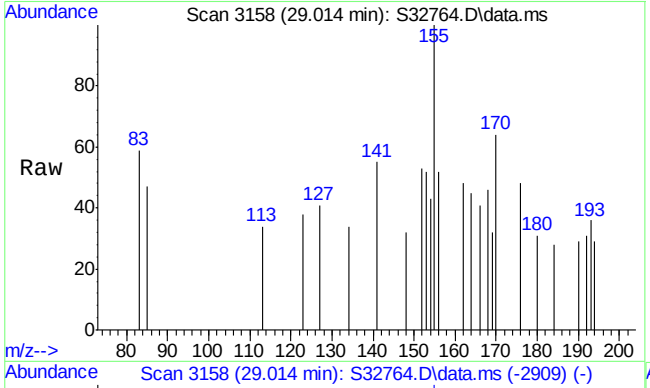


#36
C2-Benzo(b)thiophenes
Concen: 19.17 µg/mL m
RT: 26.552 min Scan# 2840
Delta R.T. -0.495 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:162 Resp: 2218

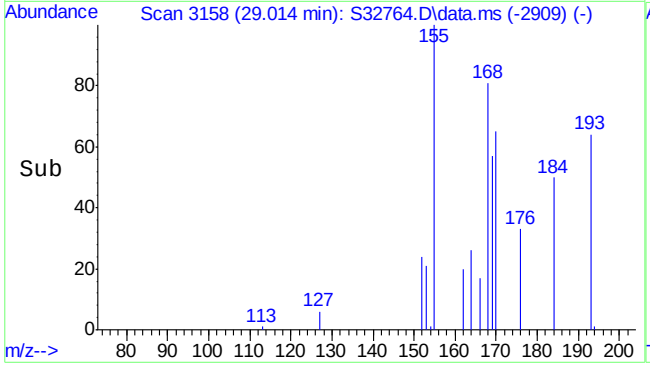


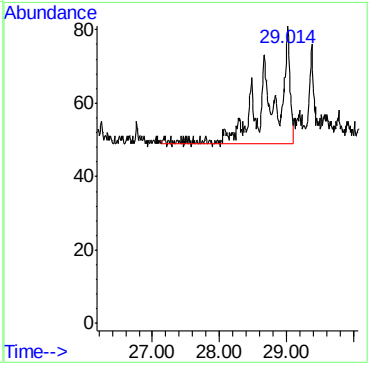


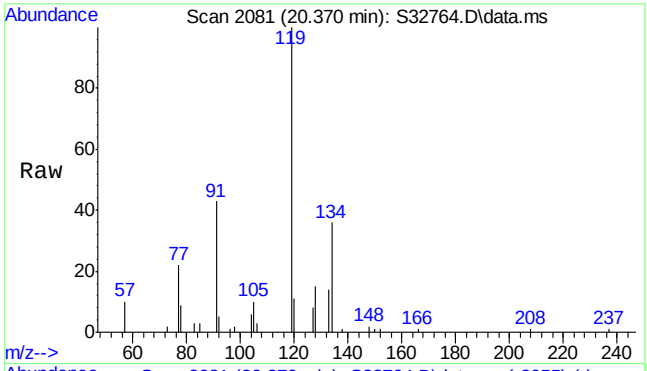


#37
C3-Benzo(b)thiophenes
Concen: 5.31 µg/mL m
RT: 29.014 min Scan# 3158
Delta R.T. -0.007 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:176 Resp: 614



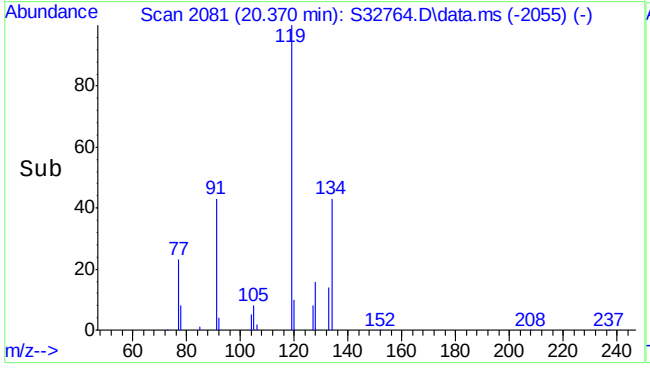


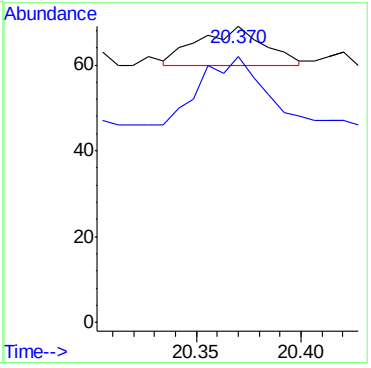


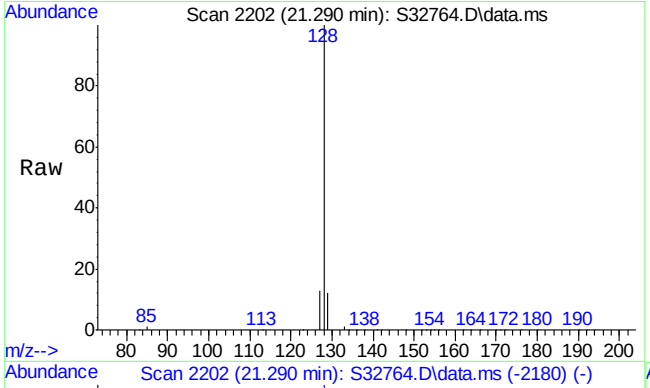
#39
Tetraethyl lead
Concen: 2.38 µg/mL m
RT: 20.370 min Scan# 2081
Delta R.T. -0.014 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:208 Resp: 19

Ion	Ratio	Lower	Upper
208	100		
237	0.0	171.2	256.8#



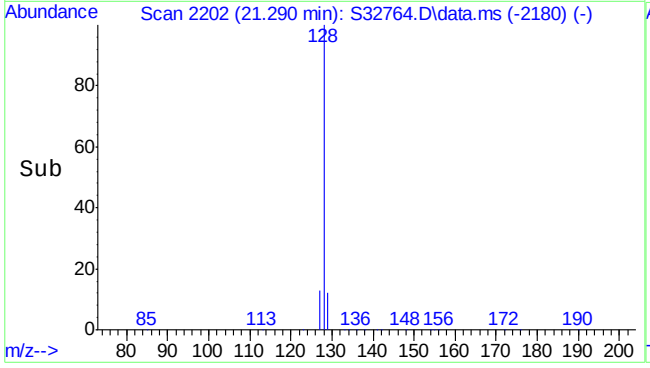


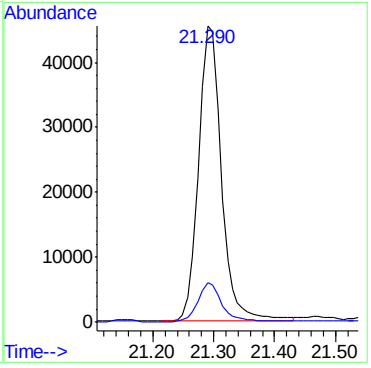


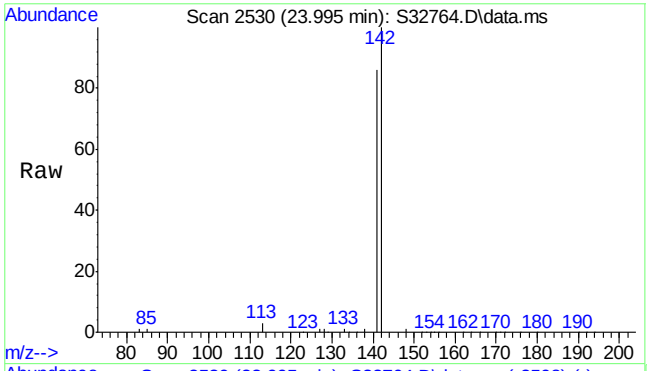
#44
Naphthalene
Concen: 805.73 ng/mL
RT: 21.290 min Scan# 2202
Delta R.T. -0.016 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:128 Resp: 119337

Ion	Ratio	Lower	Upper
128	100		
127	13.0	10.1	15.1



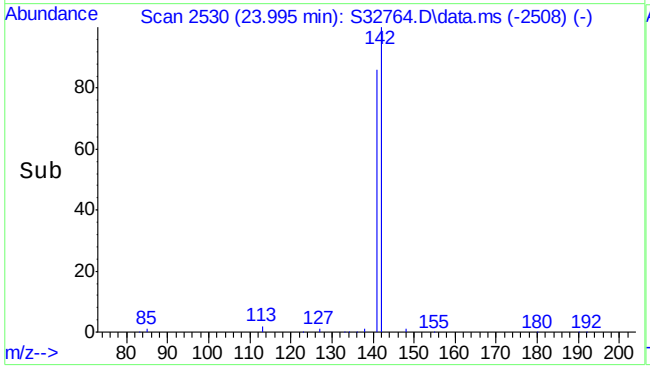


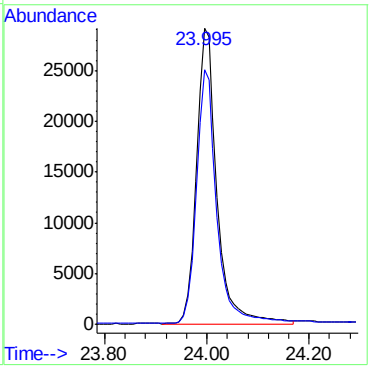


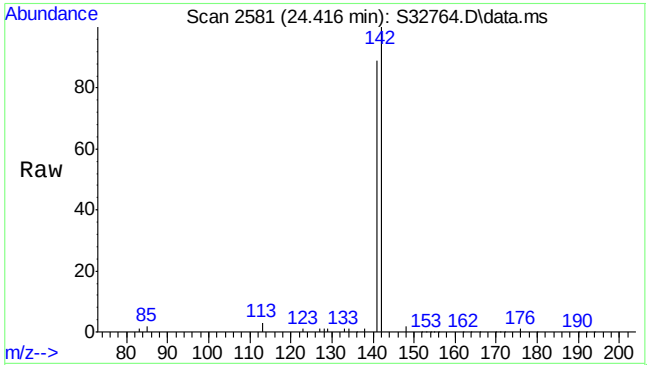
#45
2-Methylnaphthalene
Concen: 876.42 ng/mL
RT: 23.995 min Scan# 2530
Delta R.T. -0.016 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:142 Resp: 80473

Ion	Ratio	Lower	Upper
142	100		
141	85.5	68.9	103.3



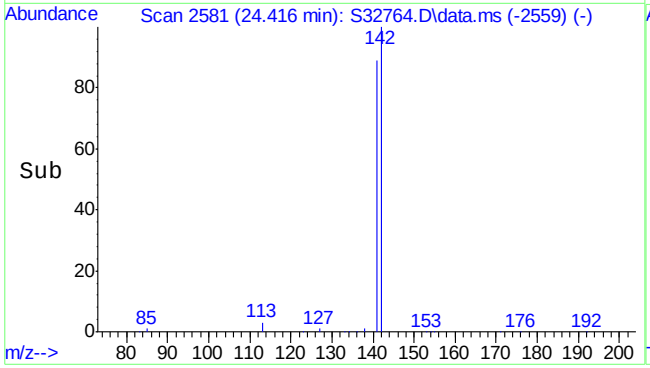


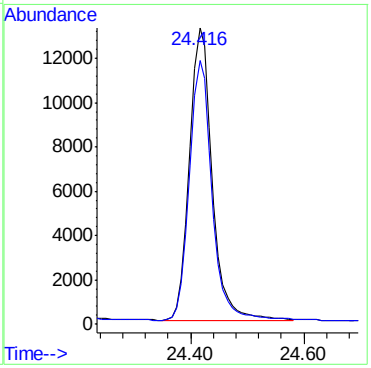


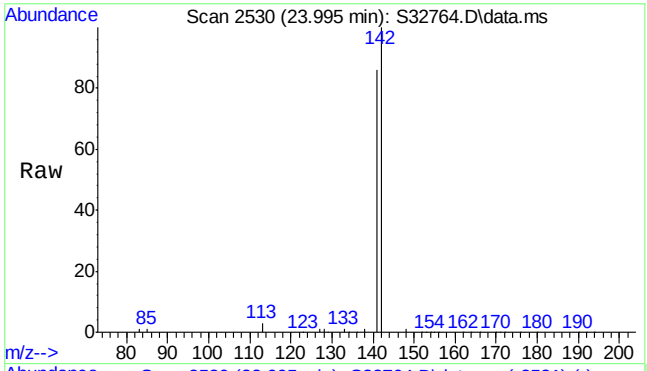
#46
1-Methylnaphthalene
Concen: 395.99 ng/mL
RT: 24.416 min Scan# 2581
Delta R.T. -0.016 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:142 Resp: 36630

Ion	Ratio	Lower	Upper
142	100		
141	88.6	71.1	106.7



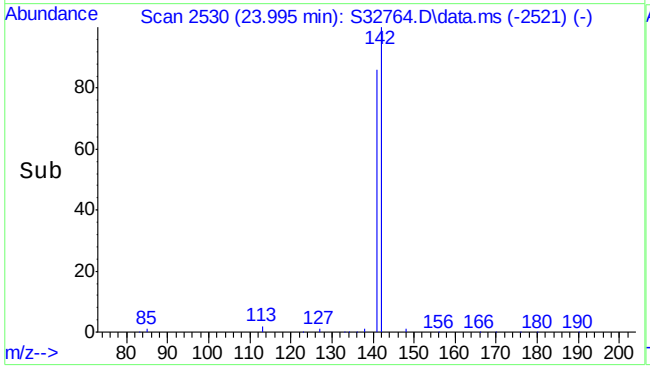


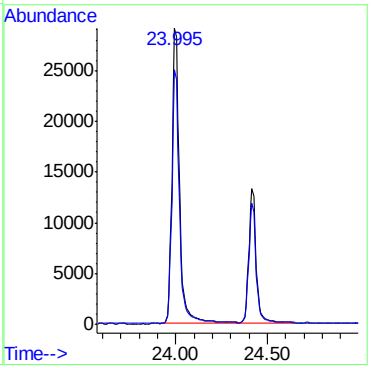


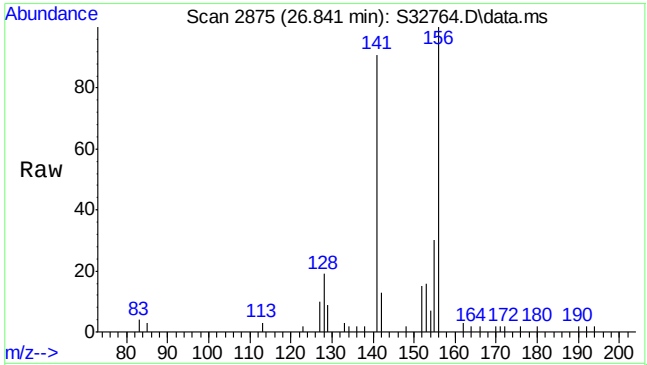
#47
C1-Naphthalenes
Concen: 815.15 ng/mL m
RT: 23.995 min Scan# 2530
Delta R.T. -0.016 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:142 Resp: 120733

Ion	Ratio	Lower	Upper
142	100		
141	57.9	68.9	103.3#



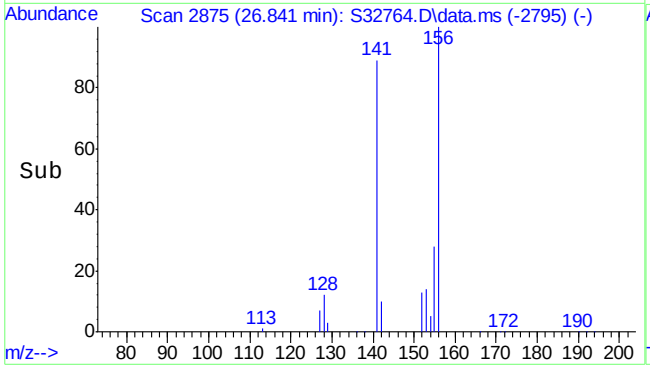


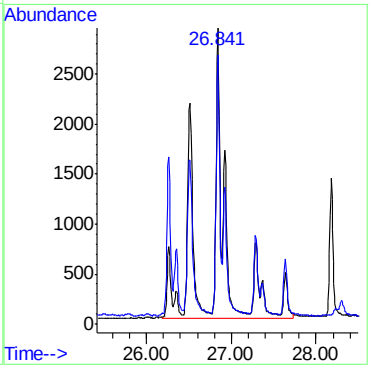


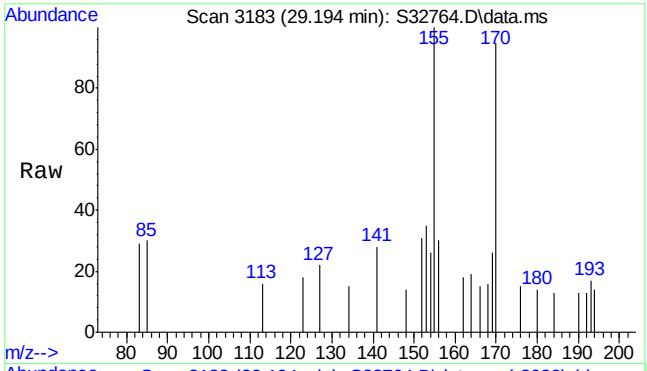
#48
C2-Naphthalenes
Concen: 219.09 ng/mL m
RT: 26.841 min Scan# 2875
Delta R.T. -0.099 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:156 Resp: 32450

Ion	Ratio	Lower	Upper
156	100		
141	12.3	60.6	90.8#



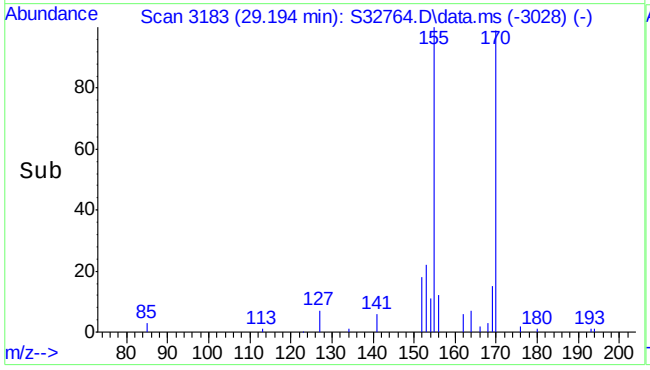


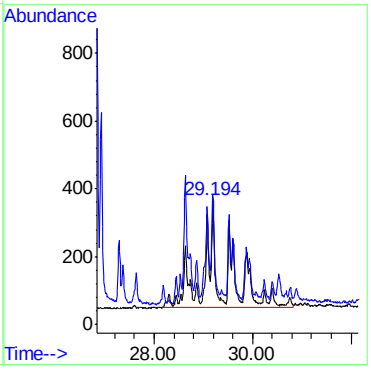


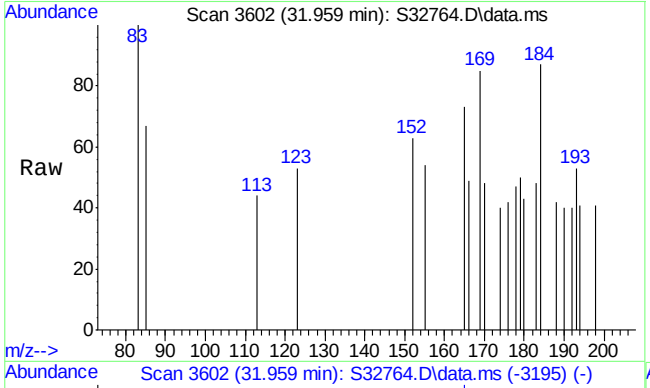
#49
C3-Naphthalenes
Concen: 55.68 ng/mL m
RT: 29.194 min Scan# 3183
Delta R.T. 0.000 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:170 Resp: 8247

Ion	Ratio	Lower	Upper
170	100		
155	14.0	81.7	122.5#



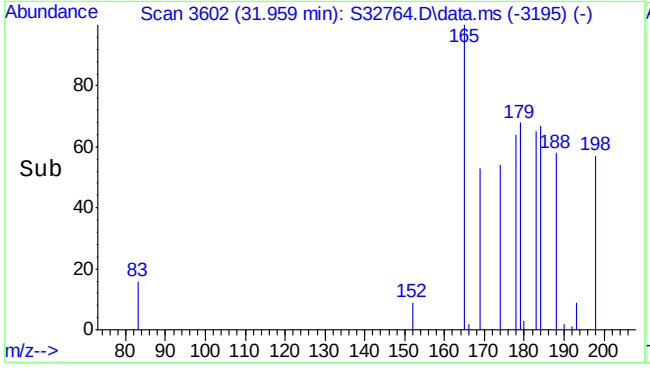


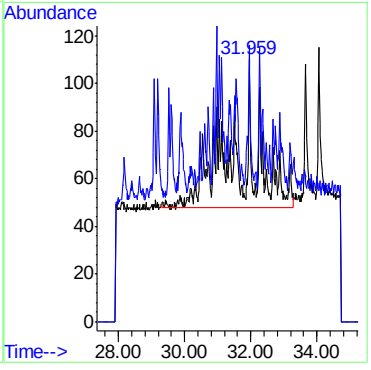


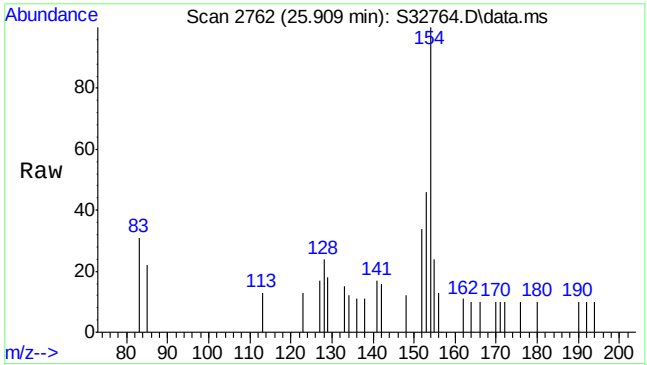
#50
C4-Naphthalenes
Concen: 19.03 ng/mL m
RT: 31.959 min Scan# 3602
Delta R.T. 0.006 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:184 Resp: 2818

Ion	Ratio	Lower	Upper
184	100		
169	0.0	76.8	115.2#



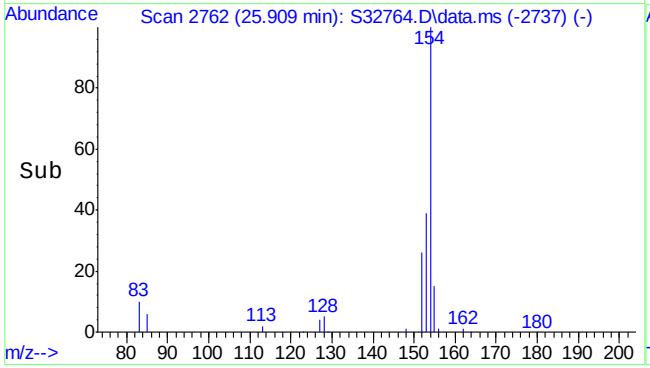


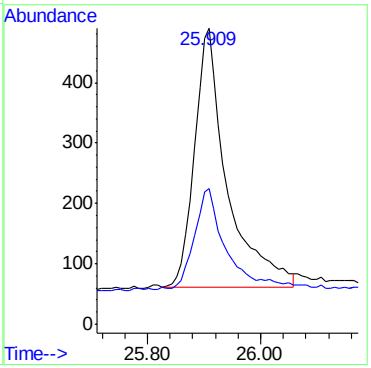


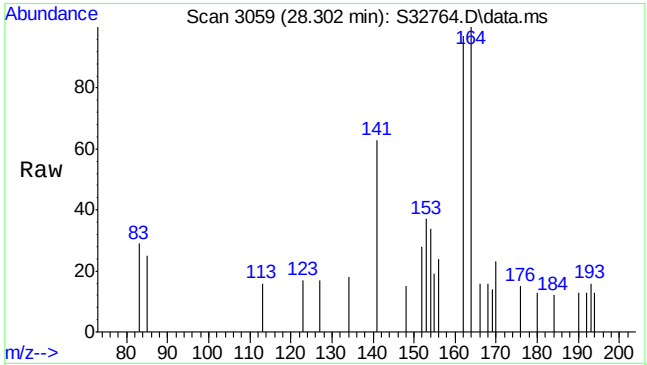
#51
Biphenyl
Concen: 13.65 µg/mL
RT: 25.909 min Scan# 2762
Delta R.T. 0.008 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:154 Resp: 1701

Ion	Ratio	Lower	Upper
154	100		
153	38.7	31.2	46.8



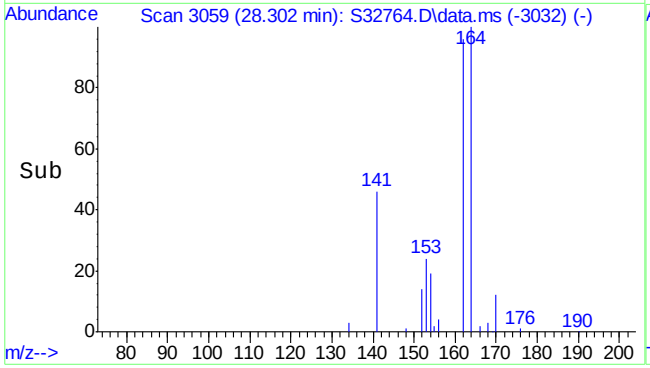


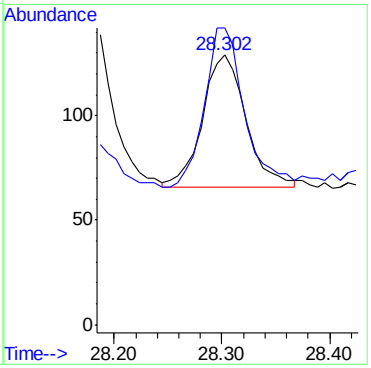


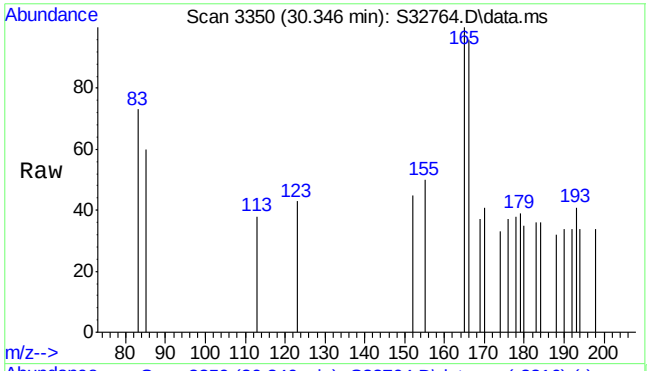
#53
Acenaphthene
Concen: 2.20 ng/mL m
RT: 28.302 min Scan# 3059
Delta R.T. -0.007 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:154 Resp: 177

Ion	Ratio	Lower	Upper
154	100		
153	0.0	86.4	129.6#



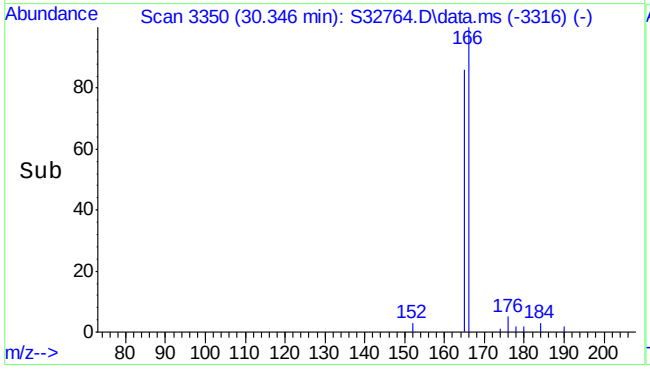


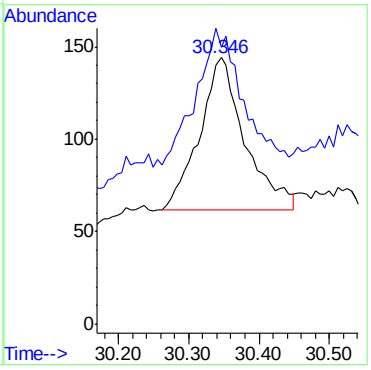


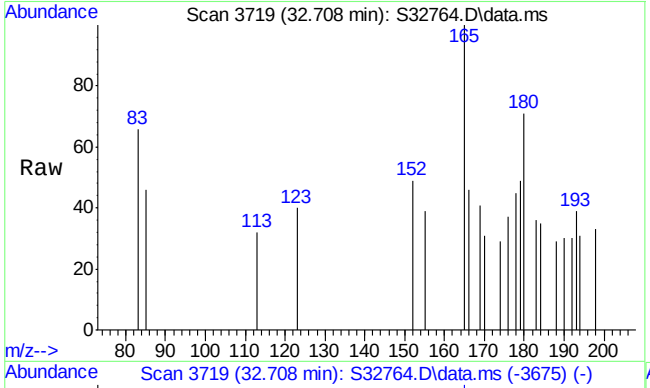
#55
Fluorene
Concen: 3.79 ng/mL
RT: 30.346 min Scan# 3350
Delta R.T. 0.019 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:166 Resp: 360

Ion	Ratio	Lower	Upper
166	100		
165	92.5	75.1	112.7



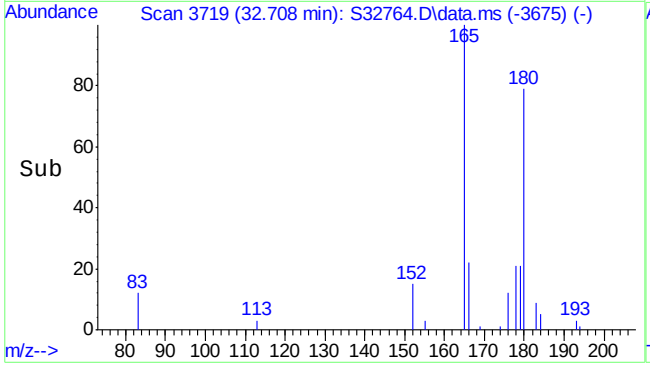


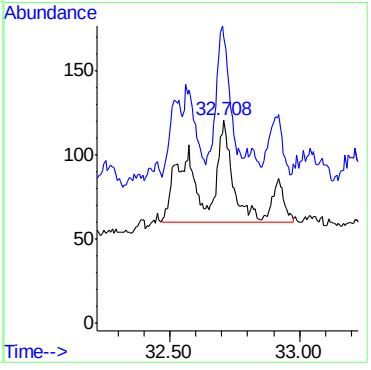


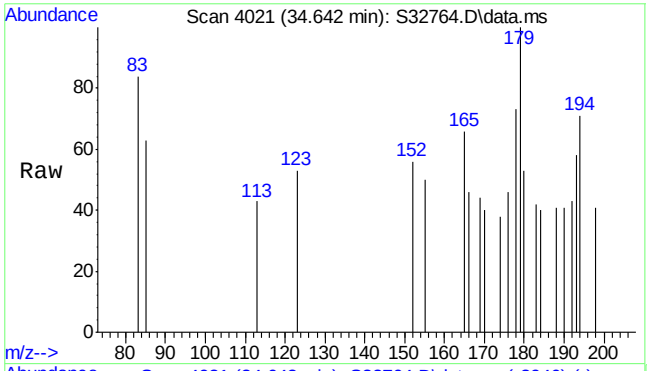
#56
C1-Fluorenes
Concen: 5.96 ng/mL m
RT: 32.708 min Scan# 3719
Delta R.T. 0.013 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:180 Resp: 566

Ion	Ratio	Lower	Upper
180	100		
165	0.0	128.1	192.1#



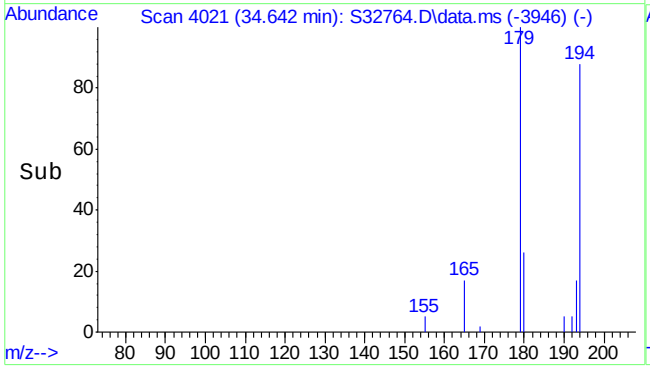


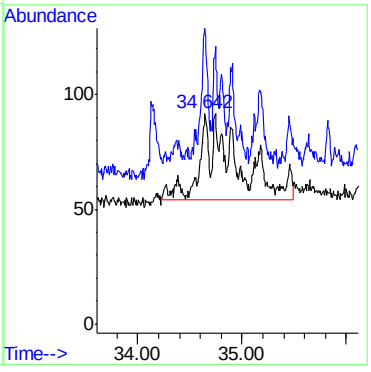


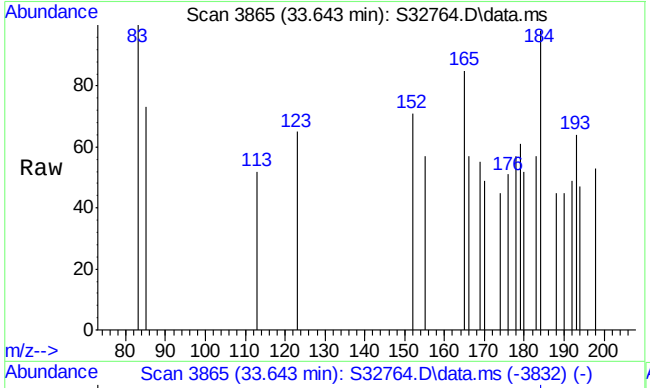
#57
C2-Fluorenes
Concen: 9.69 ng/mL m
RT: 34.642 min Scan# 4021
Delta R.T. -0.256 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:194 Resp: 920

Ion	Ratio	Lower	Upper
194	100		
179	0.0	122.6	183.8#



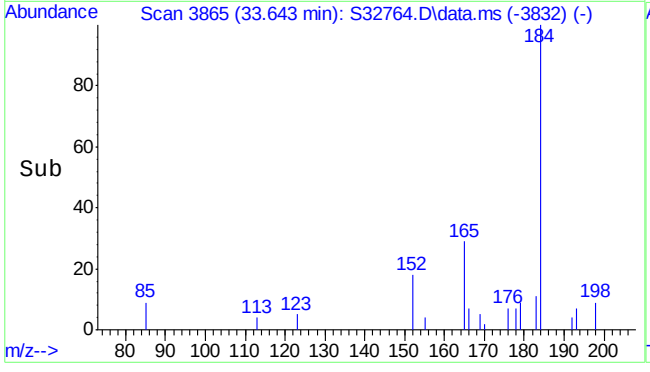


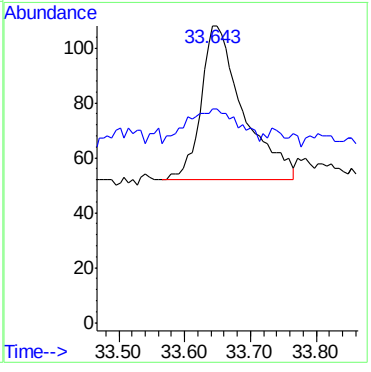


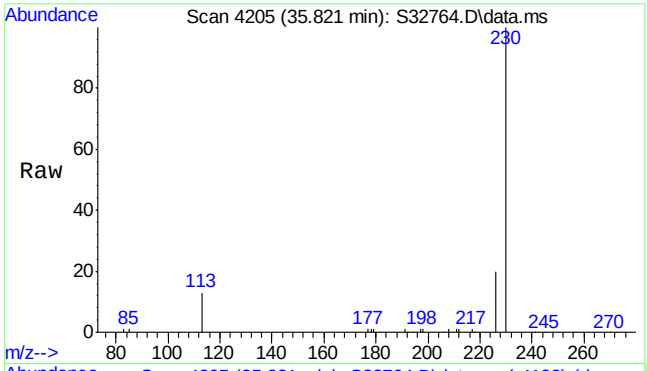
#59
Dibenzothiophene
Concen: 1.94 ng/mL
RT: 33.643 min Scan# 3865
Delta R.T. 0.013 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:184 Resp: 250

Ion	Ratio	Lower	Upper
184	100		
152	0.0	7.1	10.7#



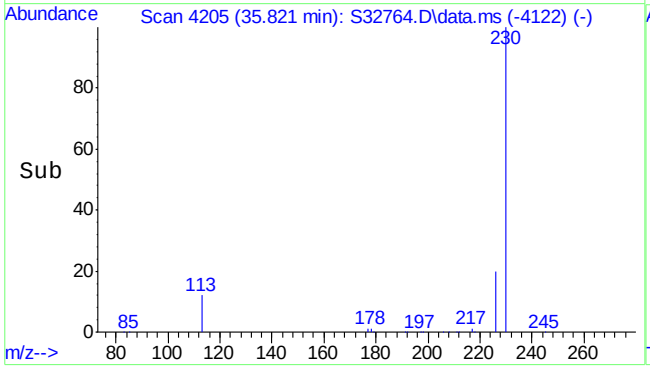


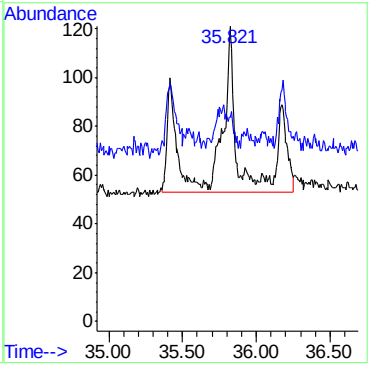


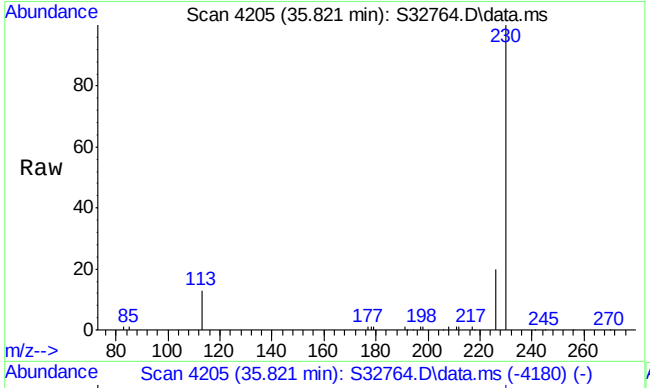
#60
C1-Dibenzothiophenes (unadj)
Concen: 5.81 ng/mL m
RT: 35.821 min Scan# 4205
Delta R.T. 0.410 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:198 Resp: 750

Ion	Ratio	Lower	Upper
198	100		
197	0.0	52.8	79.2#



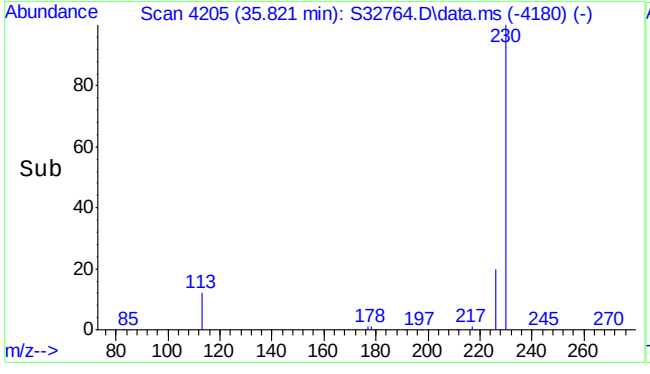


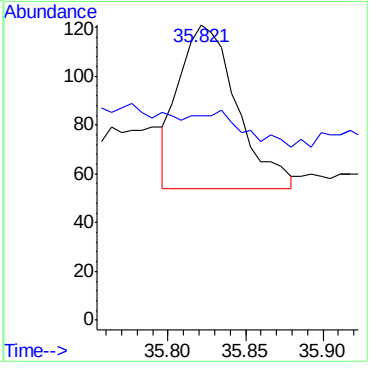


#61
C1-Dibenzothiophenes (OTP)
Concen: 1.35 µg/mL m
RT: 35.821 min Scan# 4205
Delta R.T. 0.058 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:198 Resp: 174

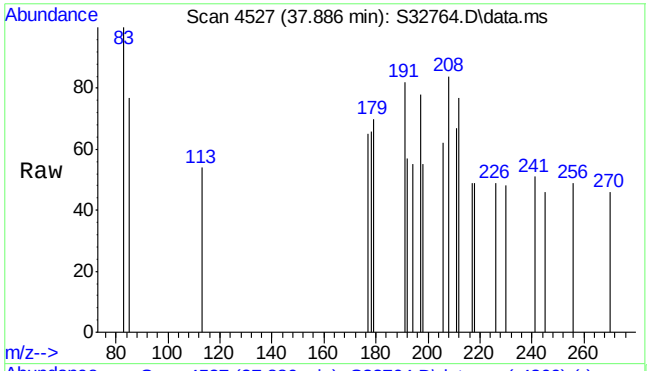
Ion	Ratio	Lower	Upper
198	100		
197	0.0	57.8	86.6#





9.1.7

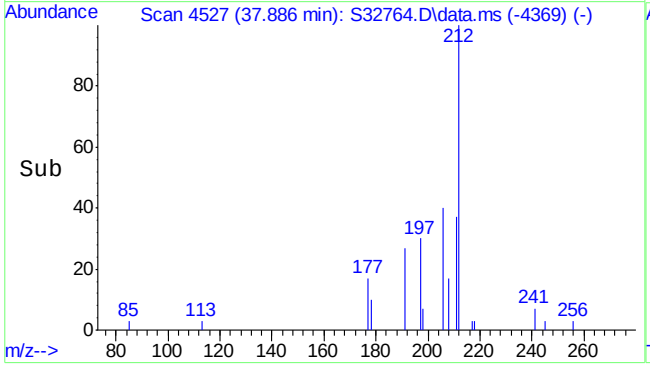
9

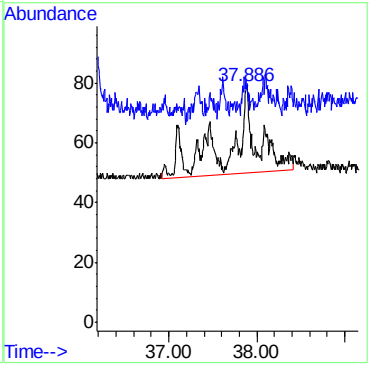


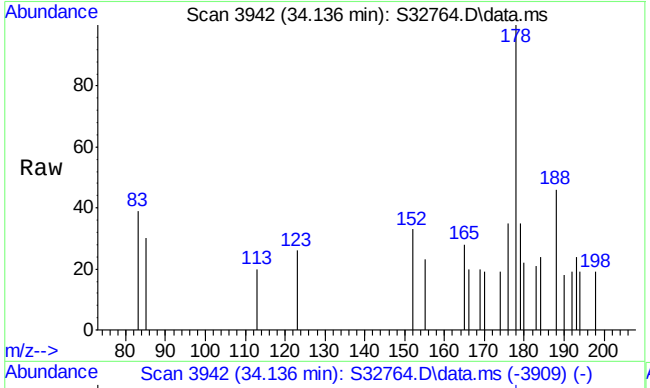
#62
C2-Dibenzothiophenes
Concen: 5.13 ng/mL m
RT: 37.886 min Scan# 4527
Delta R.T. 0.423 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:212 Resp: 662

Ion	Ratio	Lower	Upper
212	100		
197	0.0	18.9	28.3#



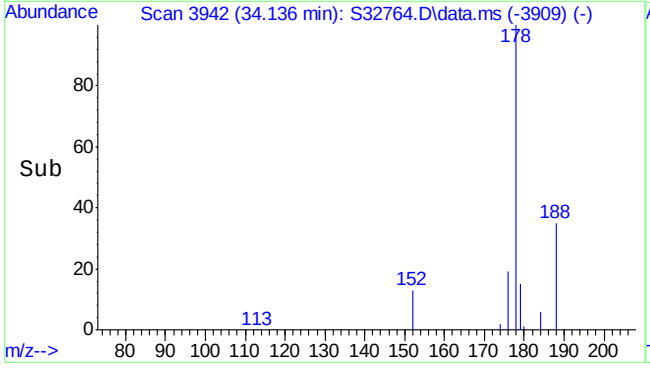


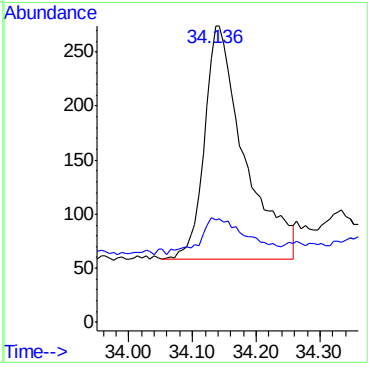


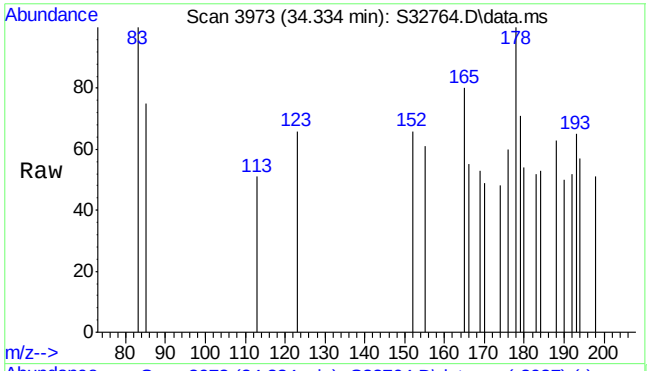
#65
Phenanthrene
Concen: 6.96 ng/mL
RT: 34.136 min Scan# 3942
Delta R.T. 0.013 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:178 Resp: 942

Ion	Ratio	Lower	Upper
178	100		
179	0.0	12.2	18.4#



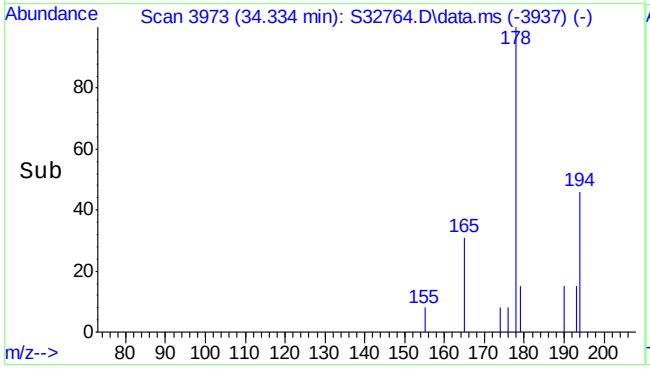


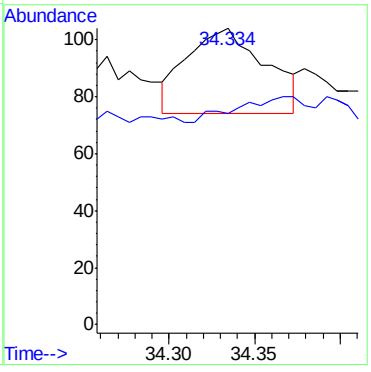


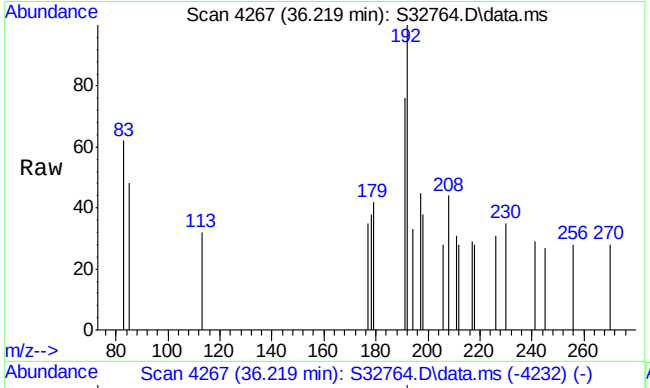
#66
Anthracene
Concen: 0.77 ng/mL m
RT: 34.334 min Scan# 3973
Delta R.T. 0.032 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:178 Resp: 96

Ion	Ratio	Lower	Upper
178	100		
179	0.0	12.1	18.1#



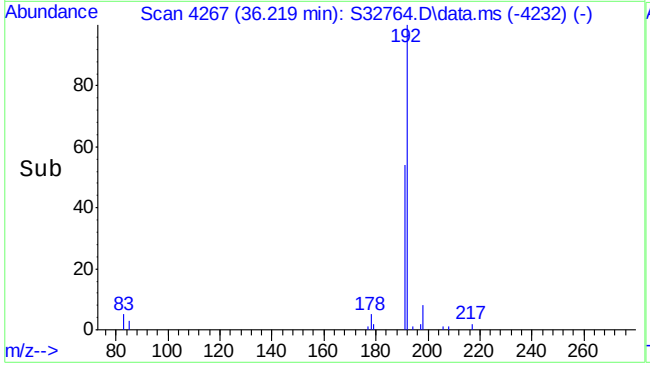


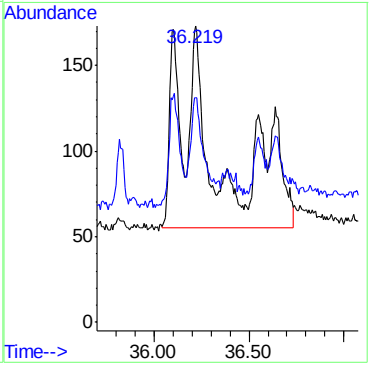


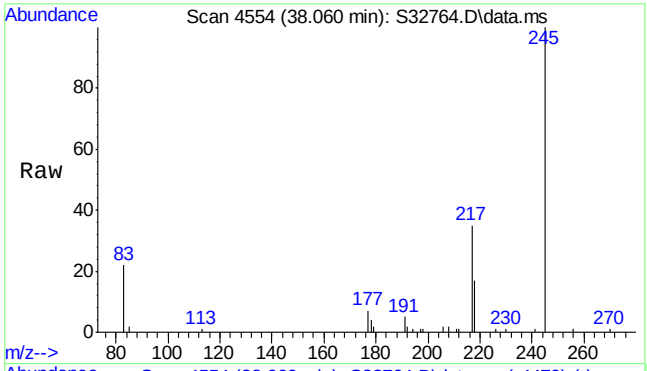
#67
C1-Phenanthrenes/anthracenes
Concen: 13.04 ng/mL m
RT: 36.219 min Scan# 4267
Delta R.T. -0.327 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:192 Resp: 1765

Ion	Ratio	Lower	Upper
192	100		
191	14.3	44.9	67.3#



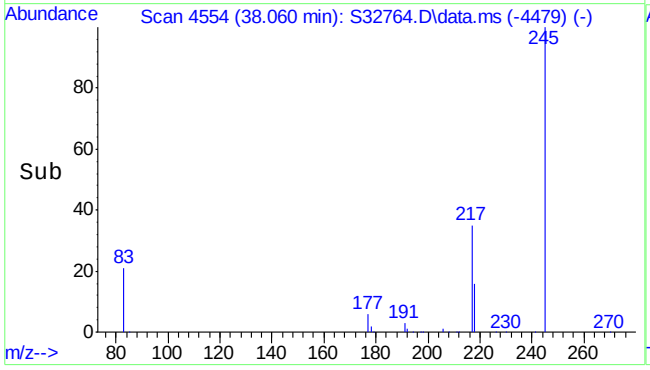


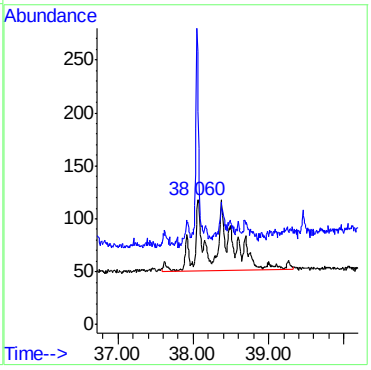


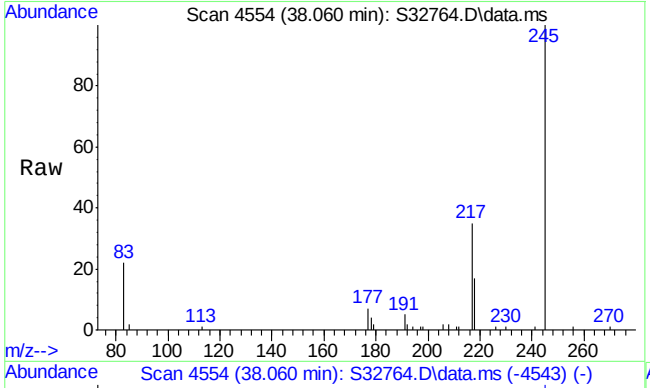
#68
C2-Phenanthrenes/anthracenes (unadj)
Concen: 10.70 ng/mL m
RT: 38.060 min Scan# 4554
Delta R.T. -0.314 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:206 Resp: 1448

Ion	Ratio	Lower	Upper
206	100		
191	35.5	44.7	67.1#



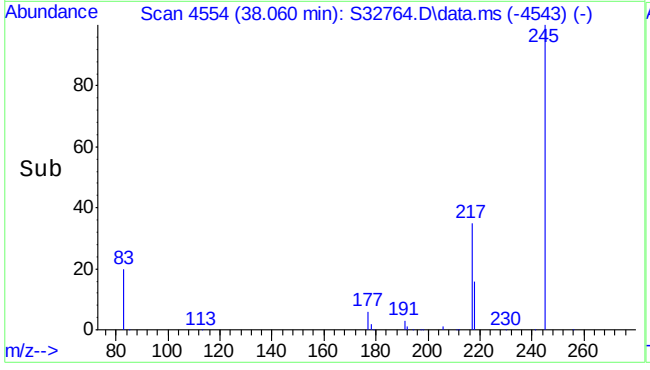


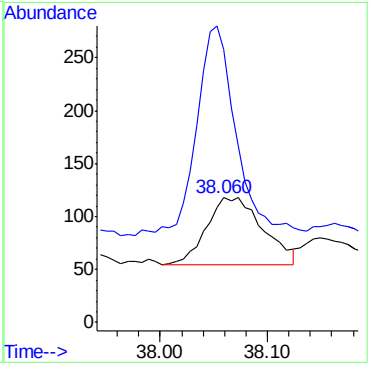


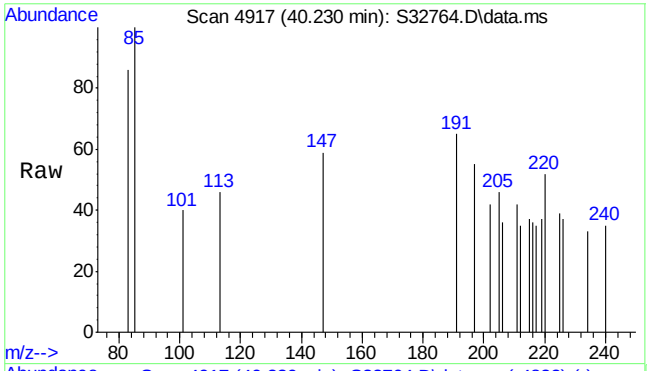
#69
C2-Phenanthrenes/anthracenes (5aA)
Concen: 1.68 µg/mL
RT: 38.060 min Scan# 4554
Delta R.T. -0.128 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:206 Resp: 228

Ion	Ratio	Lower	Upper
206	100		
191	208.3	61.9	92.9#



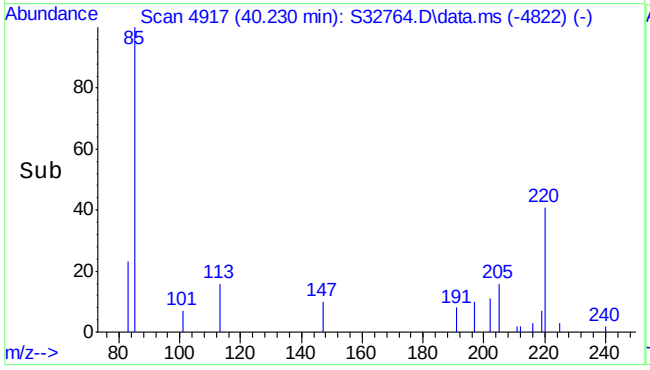


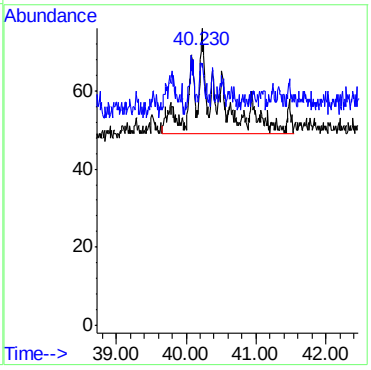


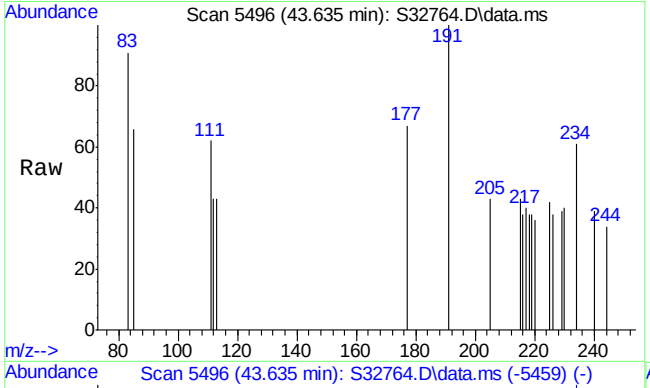
#70
C3-Phenanthrenes/anthracenes
Concen: 4.94 ng/mL m
RT: 40.230 min Scan# 4917
Delta R.T. 0.012 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:220 Resp: 668

Ion	Ratio	Lower	Upper
220	100		
205	0.0	42.1	63.1#

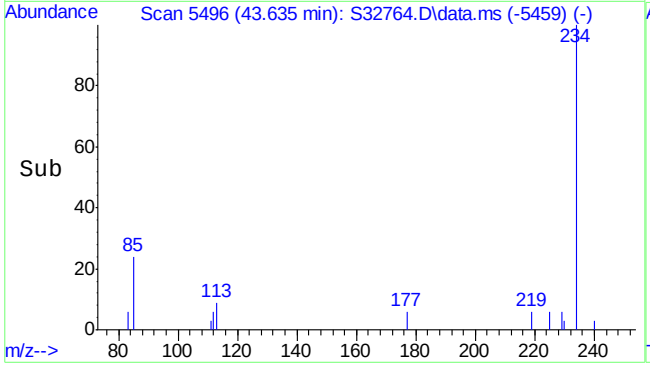


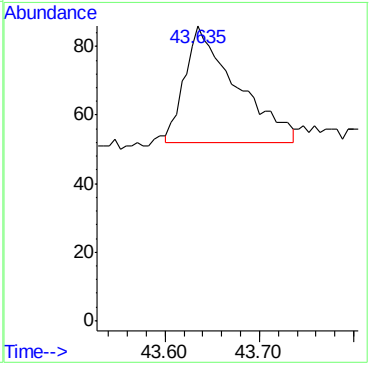


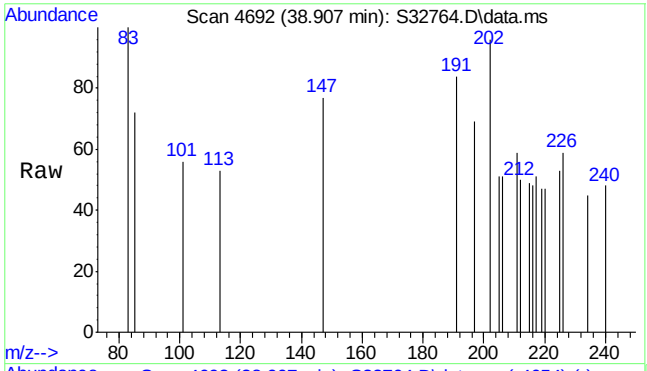


#73
Benzo(b)naphtho(2,1-d)thiophene
Concen: 1.06 µg/mL m
RT: 43.635 min Scan# 5496
Delta R.T. 0.018 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:234 Resp: 129



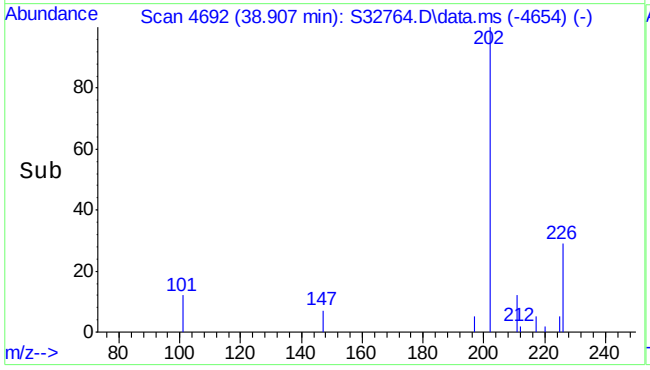


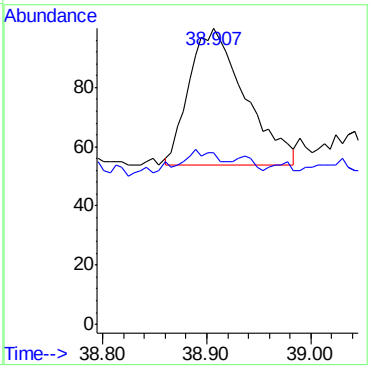


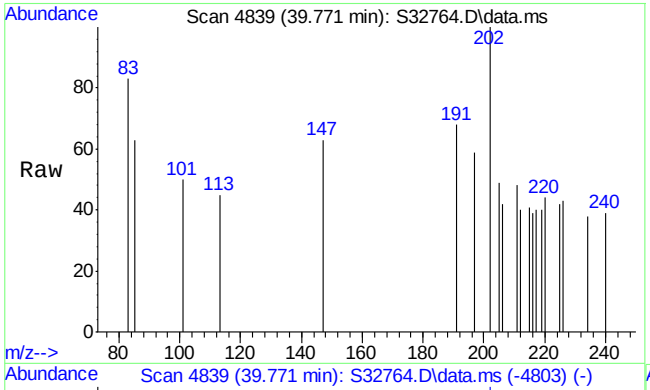
#78
Fluoranthene
Concen: 1.29 ng/mL m
RT: 38.907 min Scan# 4692
Delta R.T. 0.024 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:202 Resp: 170

Ion	Ratio	Lower	Upper
202	100		
101	0.0	10.0	15.0#



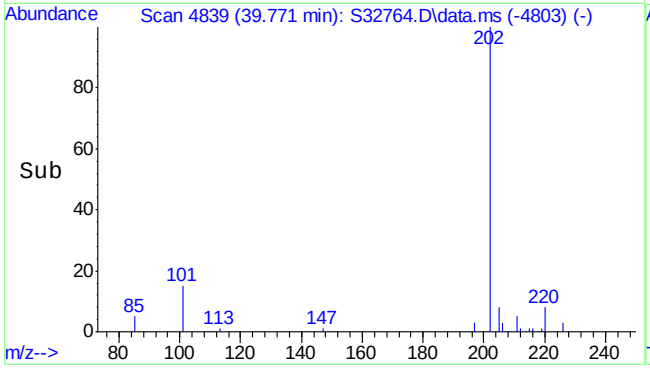


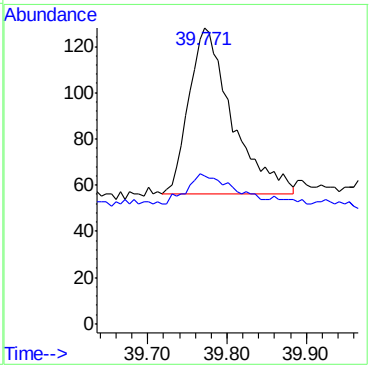


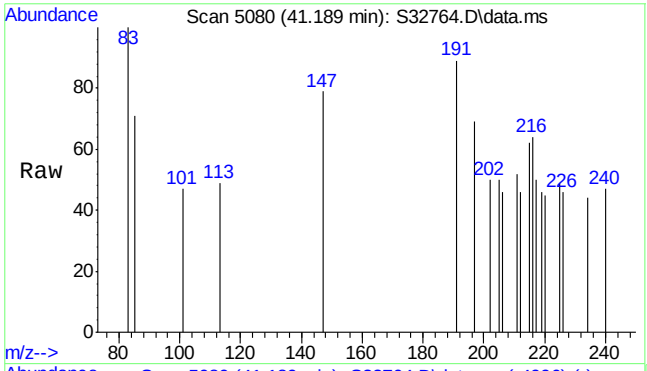
#79
Pyrene
Concen: 2.01 ng/mL
RT: 39.771 min Scan# 4839
Delta R.T. 0.012 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:202 Resp: 275

Ion	Ratio	Lower	Upper
202	100		
101	0.0	11.4	17.0#



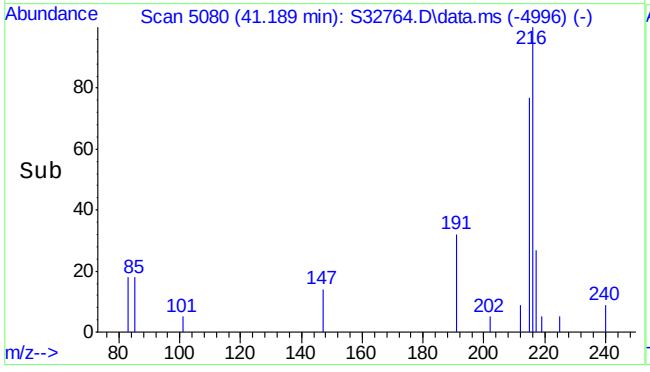


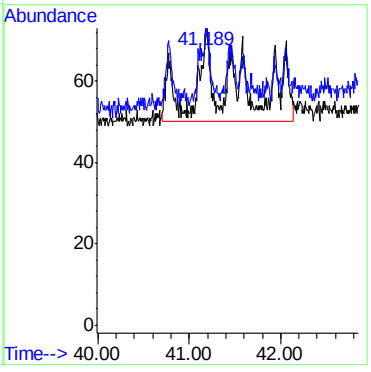


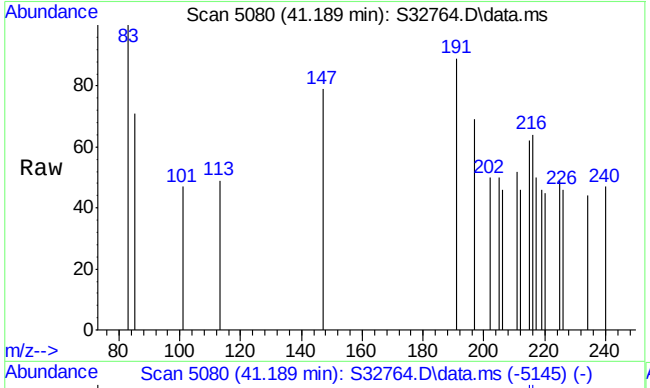
#80
C1-Fluoranthenes/pyrenes
Concen: 5.01 ng/mL m
RT: 41.189 min Scan# 5080
Delta R.T. 0.012 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:216 Resp: 684

Ion	Ratio	Lower	Upper
216	100		
215	0.0	76.5	114.7#



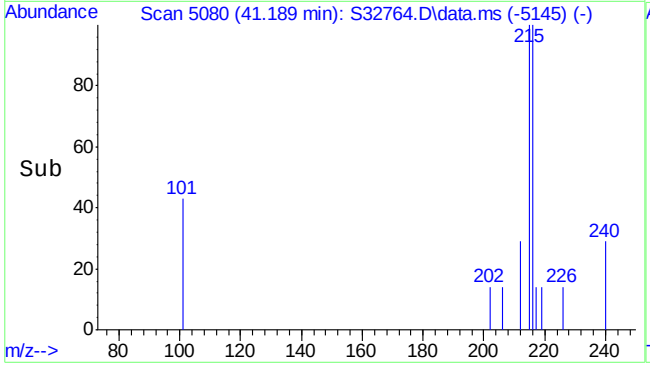


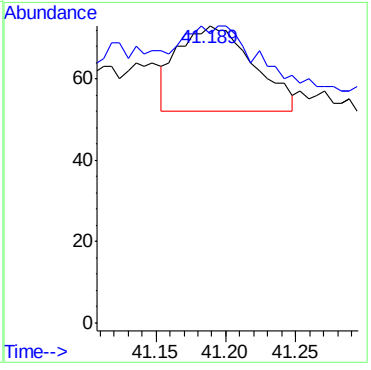


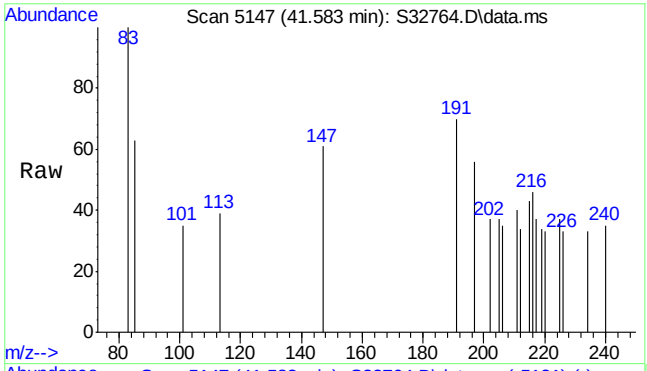
#82
Benzo(c)fluorene
Concen: 0.58 µg/mL m
RT: 41.189 min Scan# 5080
Delta R.T. -0.382 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:216 Resp: 79

Ion	Ratio	Lower	Upper
216	100		
215	0.0	76.7	115.1#



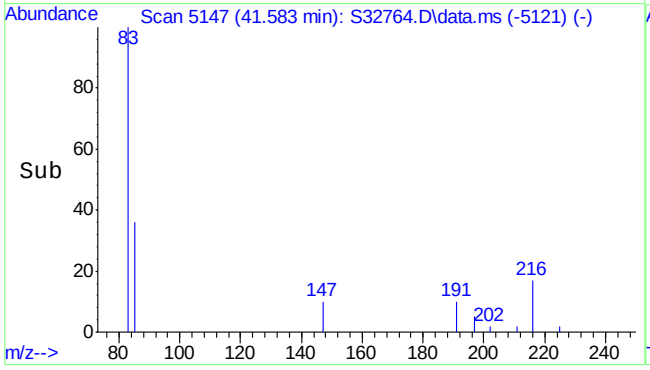


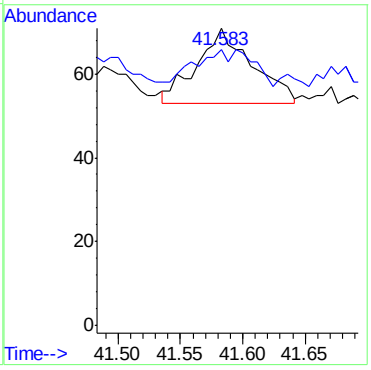


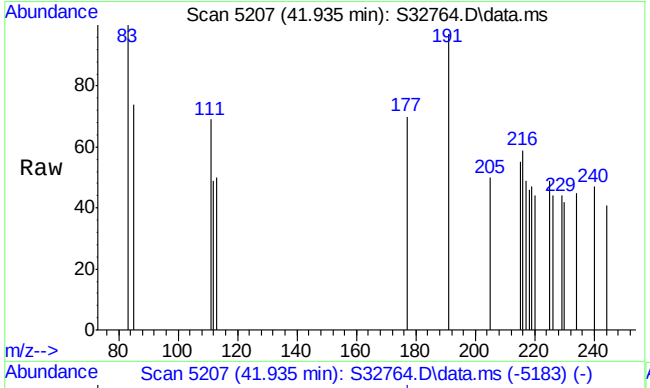
#83
2-Methylpyrene
Concen: 0.40 ng/mL m
RT: 41.583 min Scan# 5147
Delta R.T. -0.047 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:216 Resp: 55

Ion	Ratio	Lower	Upper
216	100		
215	0.0	76.3	114.5#



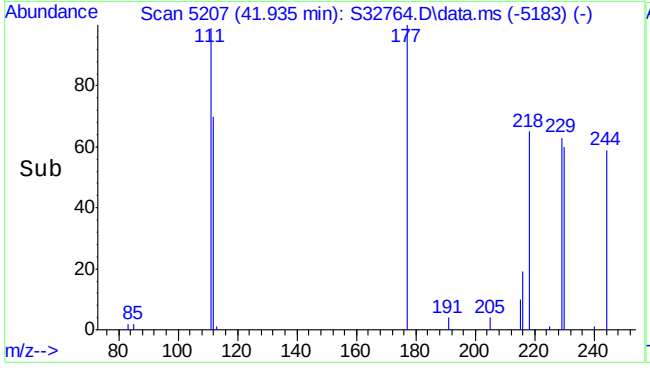


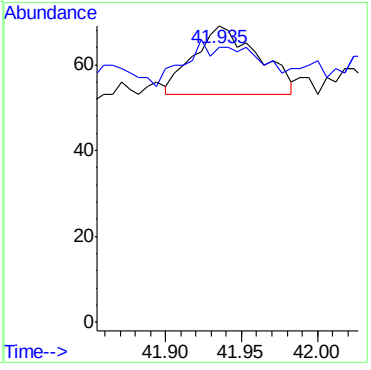


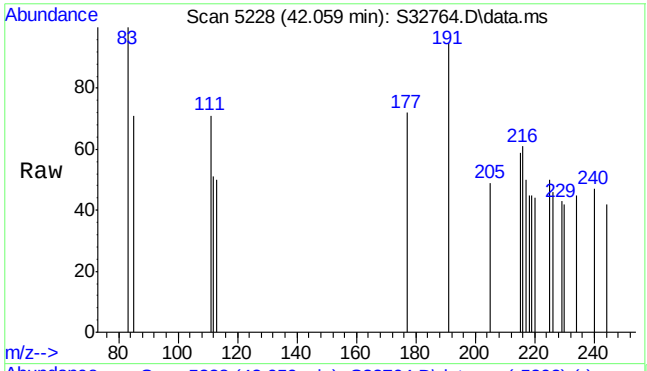
#84
4-Methylpyrene
Concen: 0.34 ng/mL m
RT: 41.935 min Scan# 5207
Delta R.T. -0.059 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:216 Resp: 47

Ion	Ratio	Lower	Upper
216	100		
215	0.0	56.5	84.7#



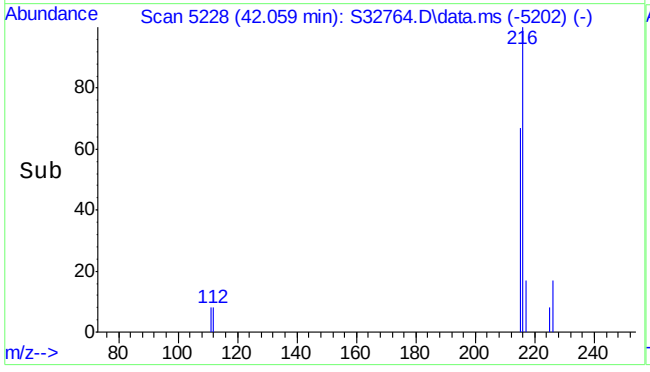


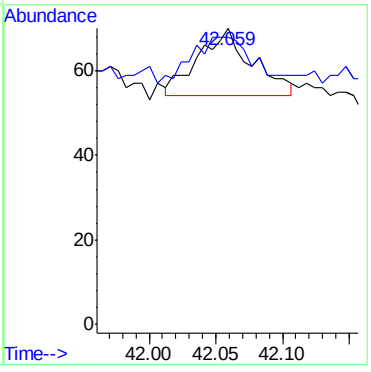


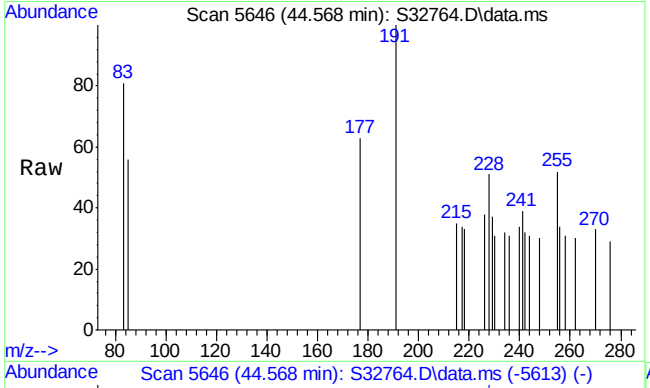
#85
1-Methylpyrene
Concen: 0.33 ng/mL m
RT: 42.059 min Scan# 5228
Delta R.T. -0.047 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:216 Resp: 45

Ion	Ratio	Lower	Upper
216	100		
215	0.0	77.0	115.4#



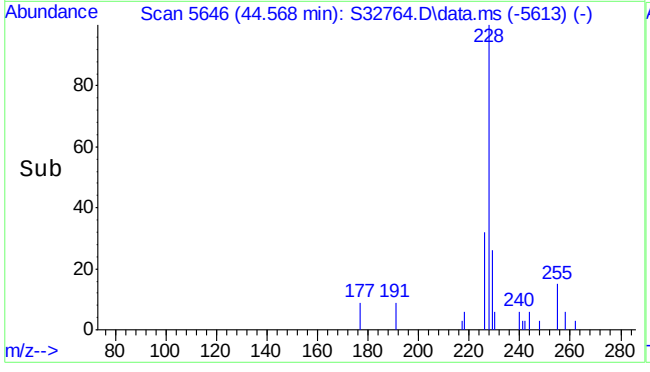


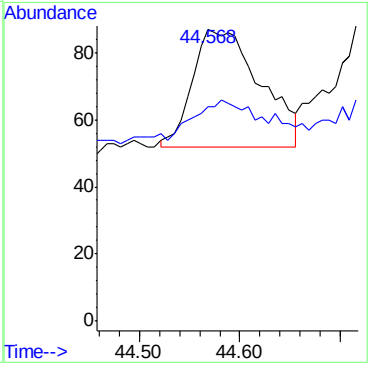


#88
Benz(a)anthracene
Concen: 1.44 ng/mL m
RT: 44.568 min Scan# 5646
Delta R.T. 0.020 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:228 Resp: 163

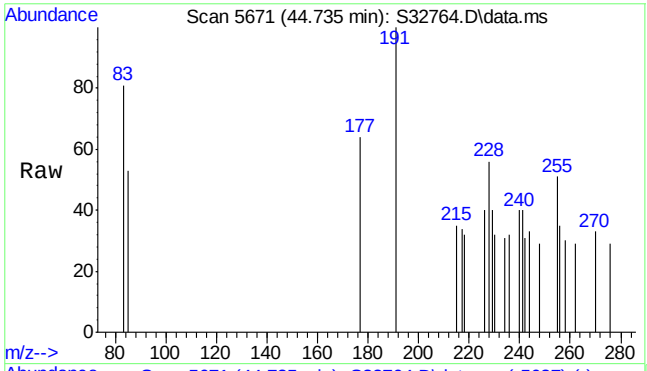
Ion	Ratio	Lower	Upper
228	100		
226	0.0	21.5	32.3#





9.1.7

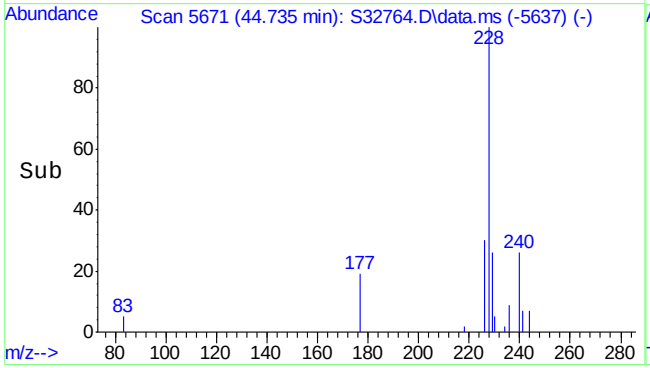
9

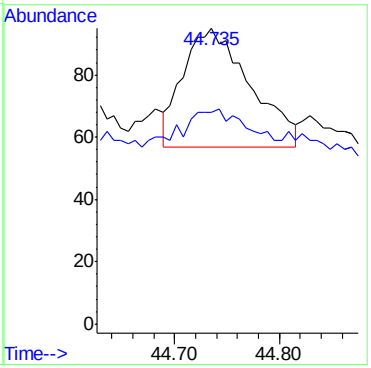


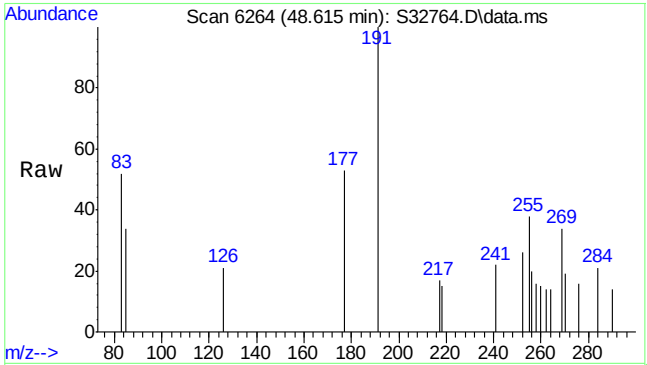
#89
Chrysene
Concen: 1.51 ng/mL m
RT: 44.735 min Scan# 5671
Delta R.T. 0.027 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:228 Resp: 169

Ion	Ratio	Lower	Upper
228	100		
226	0.0	23.8	35.6#



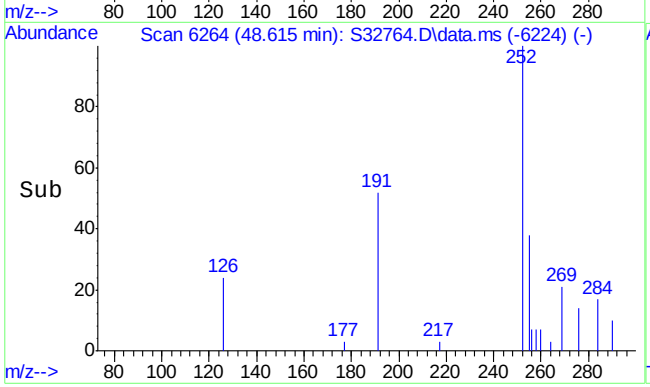


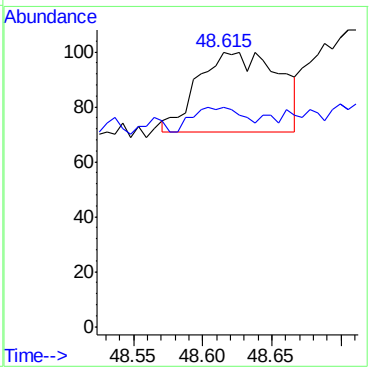


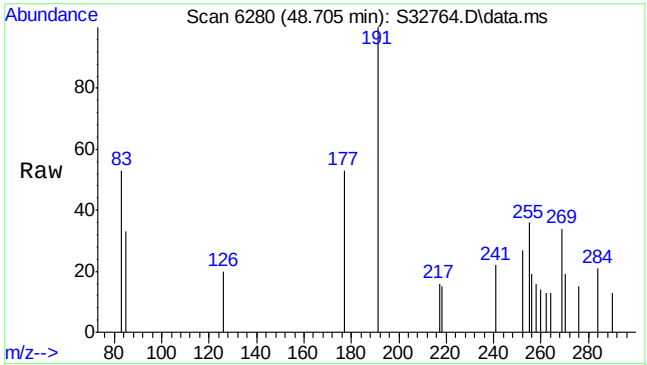
#94
Benzo(b)fluoranthene
Concen: 0.92 ng/mL m
RT: 48.615 min Scan# 6264
Delta R.T. 0.023 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:252 Resp: 118

Ion	Ratio	Lower	Upper
252	100		
126	0.0	11.4	17.2#



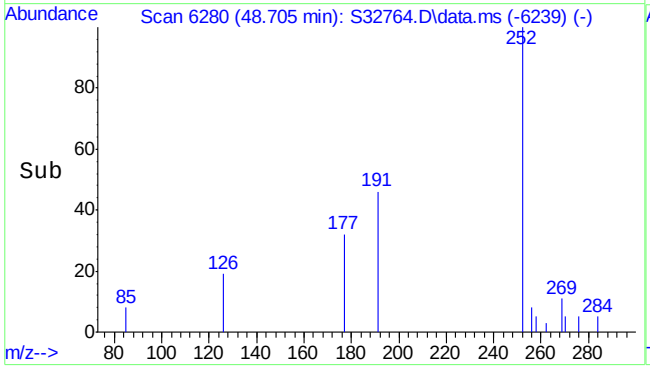


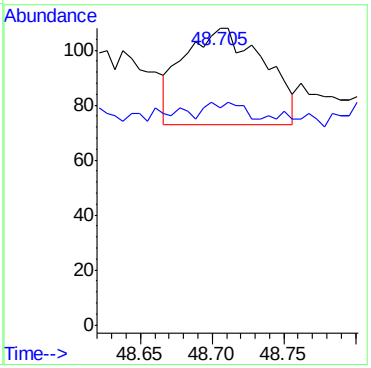


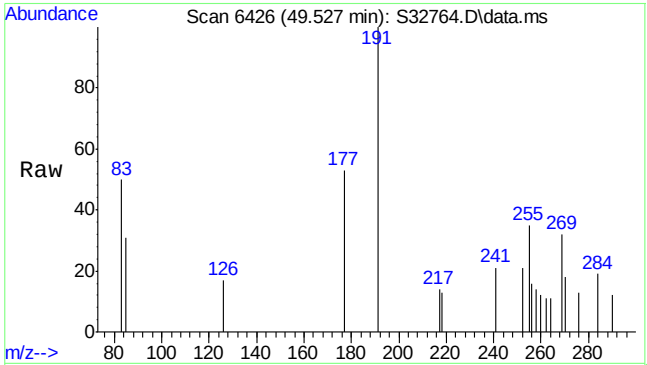
#95
Benzo(k)fluoranthene
Concen: 1.02 ng/mL m
RT: 48.705 min Scan# 6280
Delta R.T. 0.028 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:252 Resp: 137

Ion	Ratio	Lower	Upper
252	100		
126	0.0	12.3	18.5#



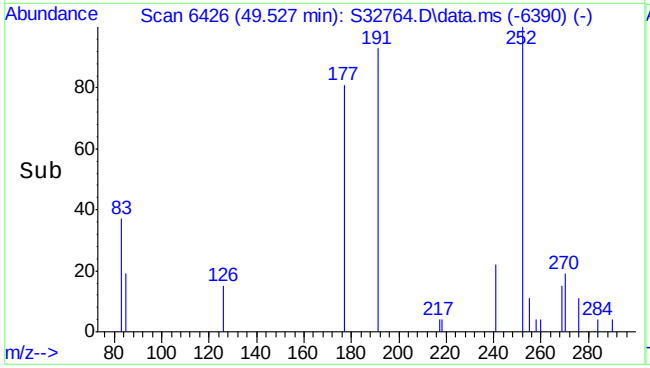


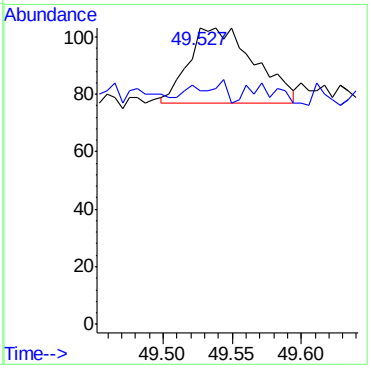


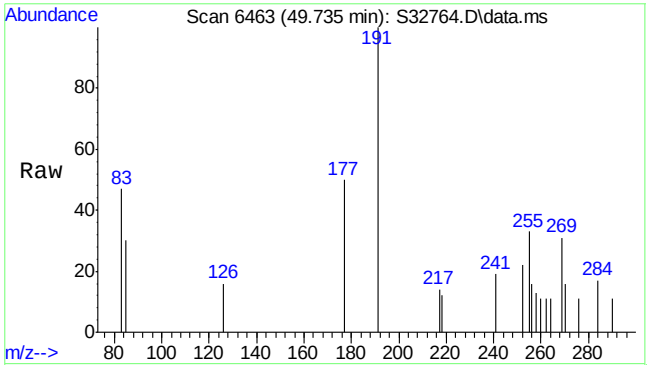
#96
Benzo(e)pyrene
Concen: 0.68 ng/mL m
RT: 49.527 min Scan# 6426
Delta R.T. 0.000 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:252 Resp: 86

Ion	Ratio	Lower	Upper
252	100		
126	0.0	10.3	15.5#



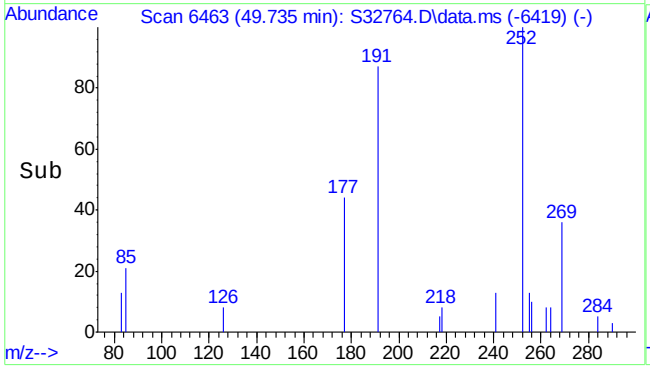


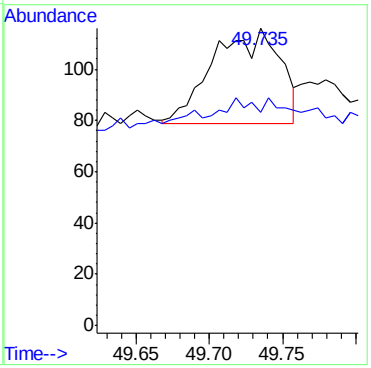


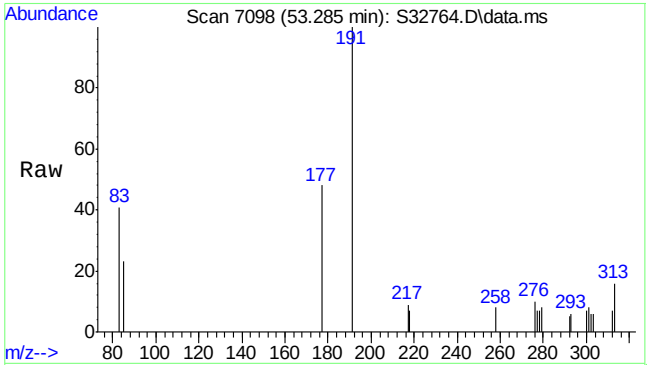
#97
Benzo(a)pyrene
Concen: 1.04 ng/mL m
RT: 49.735 min Scan# 6463
Delta R.T. 0.045 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:252 Resp: 118

Ion	Ratio	Lower	Upper
252	100		
126	0.0	12.4	18.6#



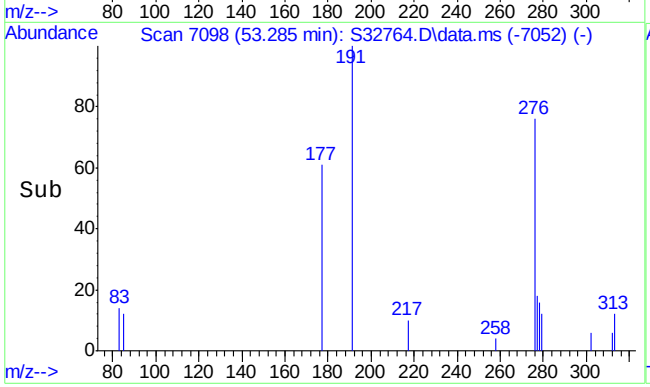


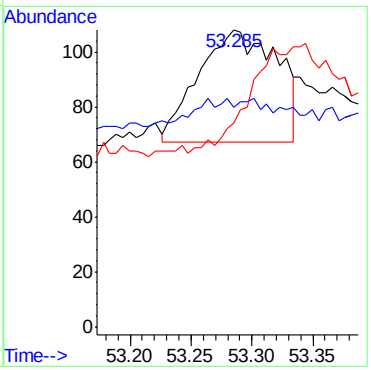


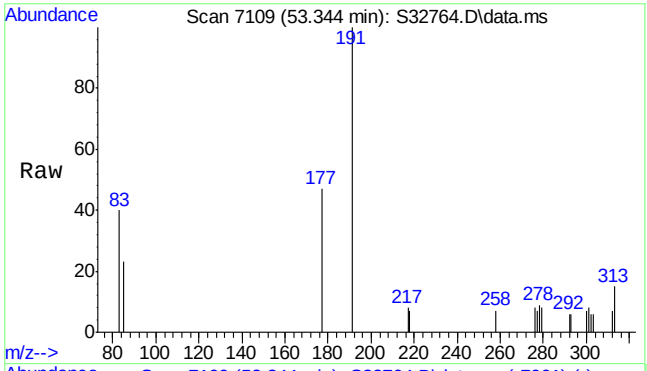
#99
Indeno(1,2,3-cd)pyrene
Concen: 1.40 ng/mL m
RT: 53.285 min Scan# 7098
Delta R.T. 0.049 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:276 Resp: 184

Ion	Ratio	Lower	Upper
276	100		
277	0.0	19.1	28.7#
278	0.0	4.1	6.1#



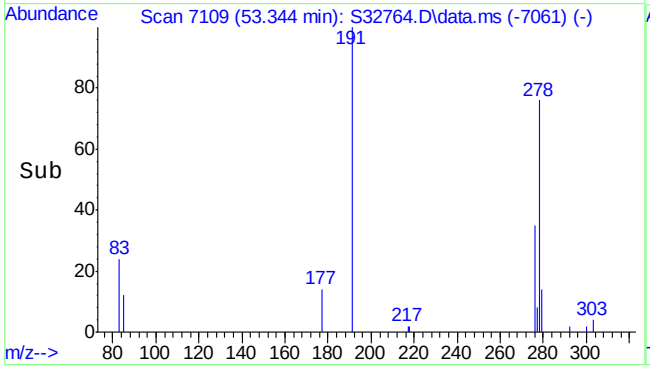


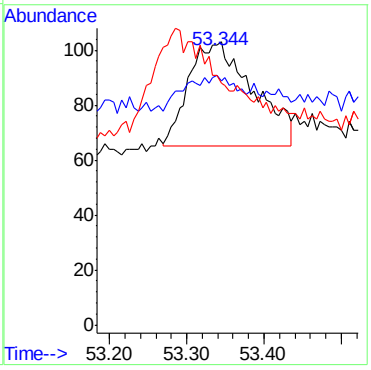


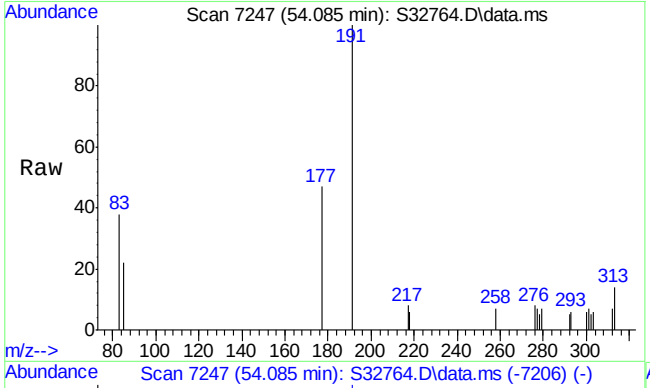
#100
Dibenz(a,h)anthracene
Concen: 1.80 ng/mL m
RT: 53.344 min Scan# 7109
Delta R.T. 0.059 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:278 Resp: 221

Ion	Ratio	Lower	Upper
278	100		
279	0.0	19.3	28.9#
276	0.0	23.8	35.6#



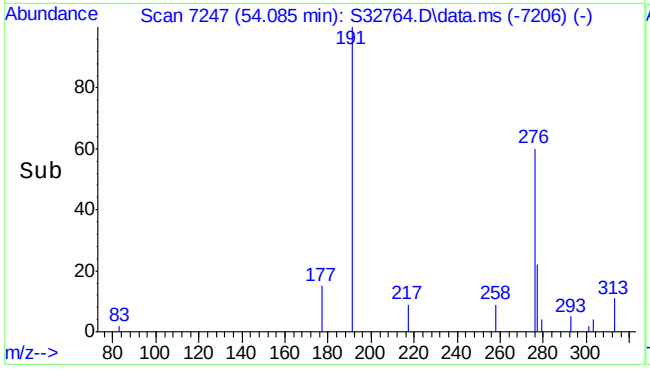


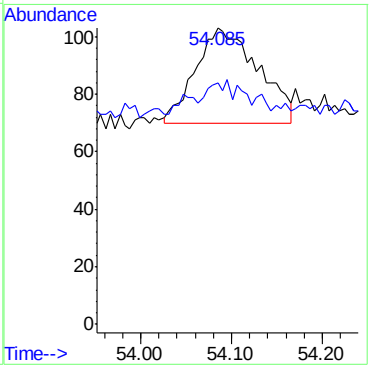


#101
Benzo(g,h,i)perylene
Concen: 1.08 ng/mL m
RT: 54.085 min Scan# 7247
Delta R.T. 0.022 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:276 Resp: 158

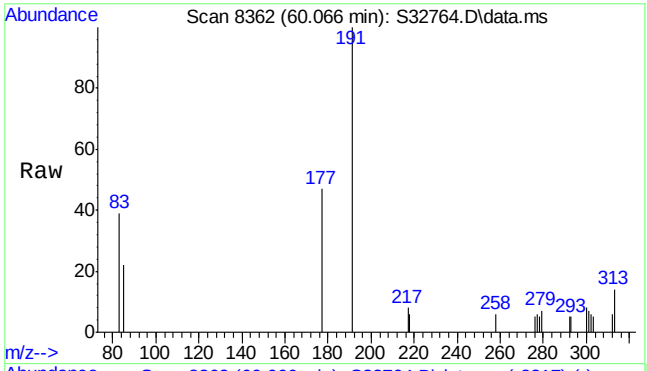
Ion	Ratio	Lower	Upper
276	100		
277	0.0	19.0	28.6#





9.1.7

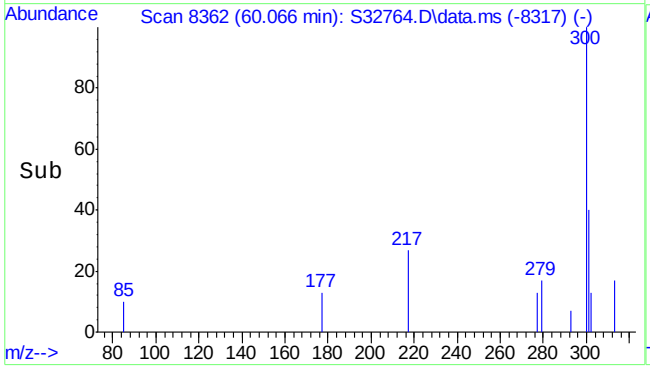
9

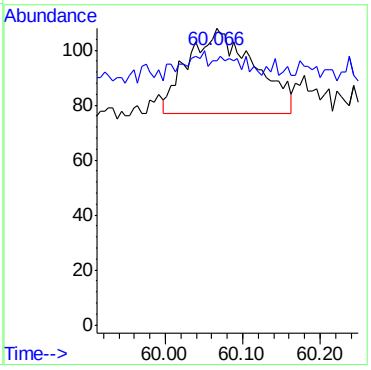


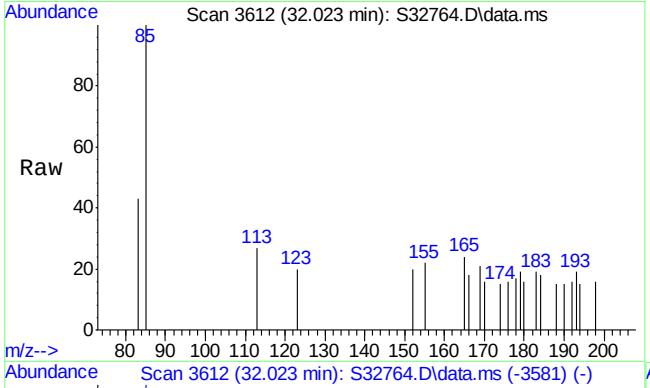
#102
Coronene
Concen: 1.29 µg/mL m
RT: 60.066 min Scan# 8362
Delta R.T. 0.043 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion:300 Resp: 184

Ion	Ratio	Lower	Upper
300	100		
301	0.0	20.8	31.2#



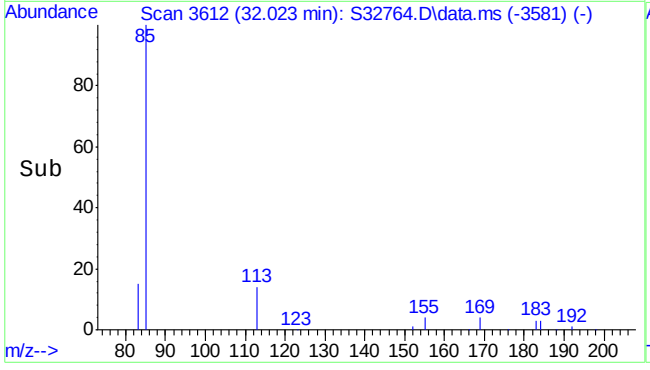


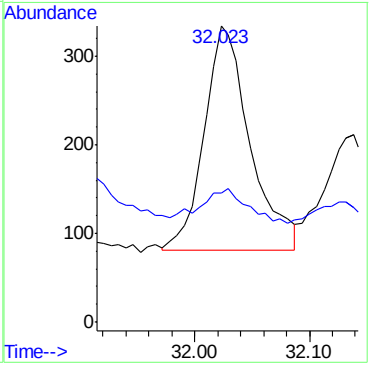


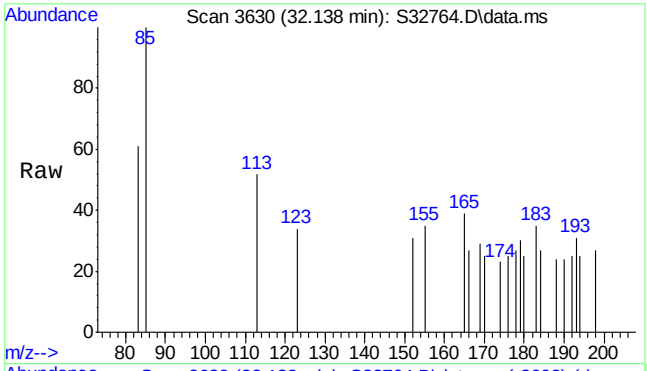
#103
C-17
Concen: 24.58 µg/mL m
RT: 32.023 min Scan# 3612
Delta R.T. 0.000 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 85 Resp: 706

Ion	Ratio	Lower	Upper
85	100		
83	0.0	12.3	18.5#



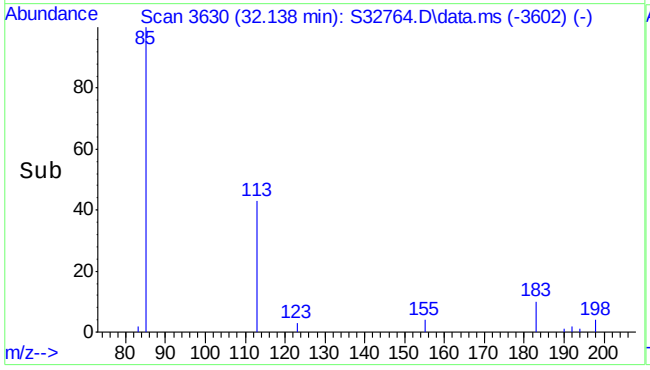


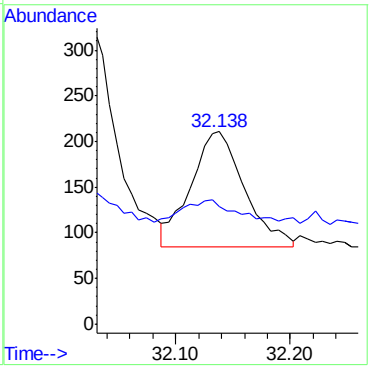


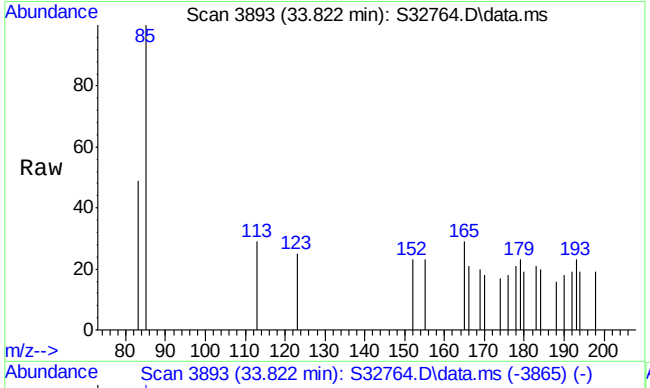
#104
Pristane
Concen: 19.10 µg/mL m
RT: 32.138 min Scan# 3630
Delta R.T. -0.019 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 85 Resp: 414

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#



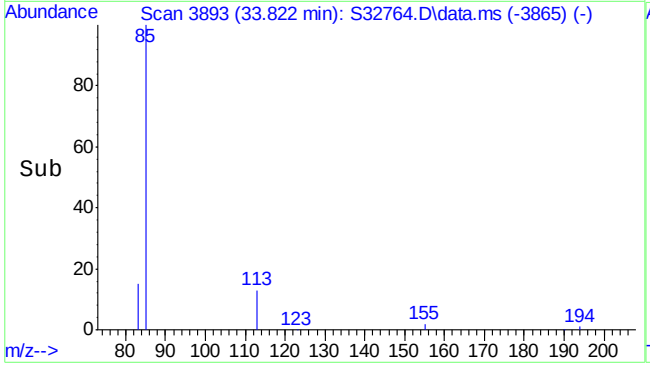


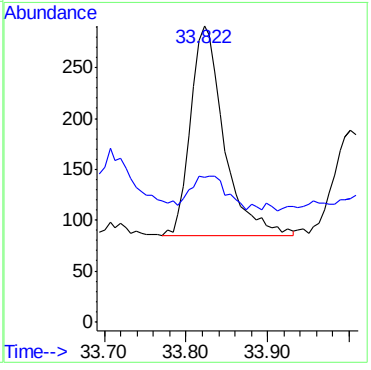


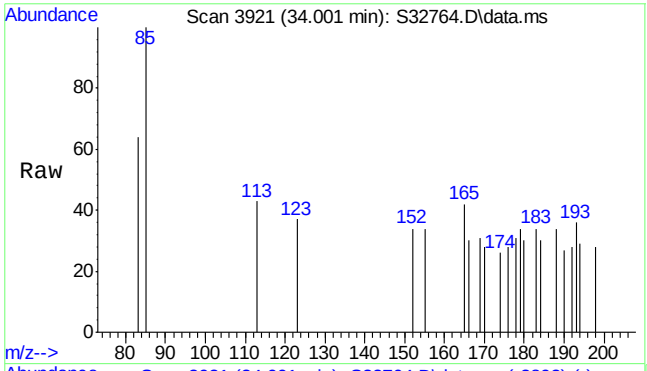
#105
C-18
Concen: 19.93 µg/mL
RT: 33.822 min Scan# 3893
Delta R.T. -0.019 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 85 Resp: 585

Ion	Ratio	Lower	Upper
85	100		
83	0.0	17.8	26.6#



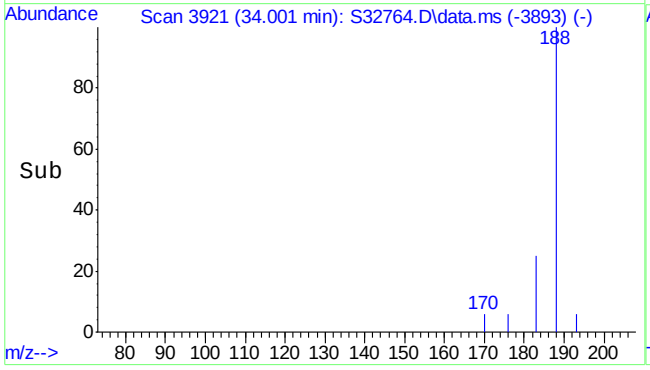


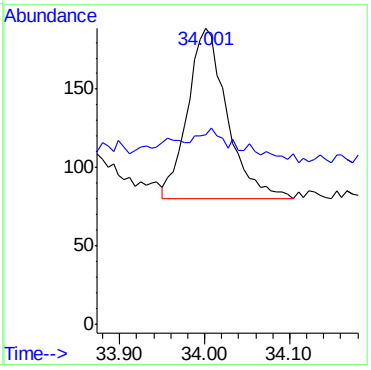


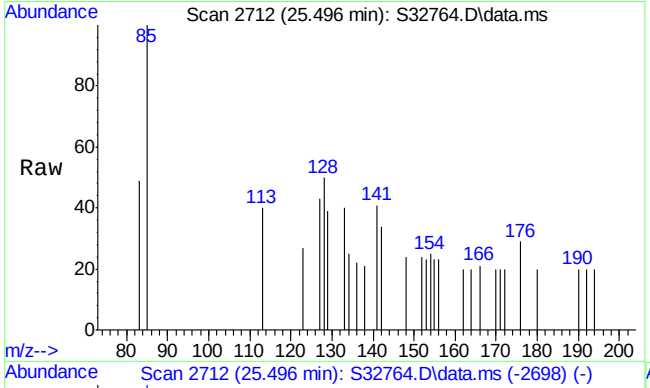
#106
Phytane
Concen: 12.22 µg/mL
RT: 34.001 min Scan# 3921
Delta R.T. -0.019 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 85 Resp: 352

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#



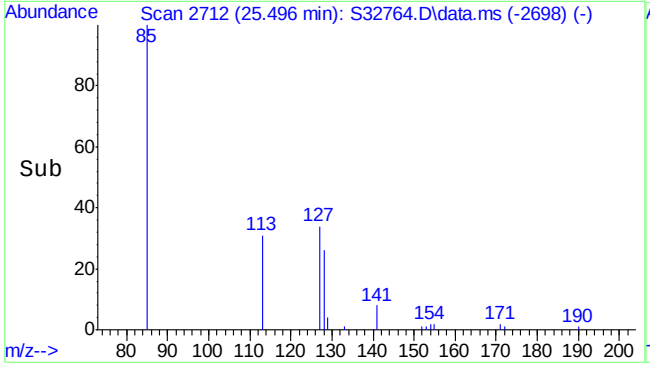


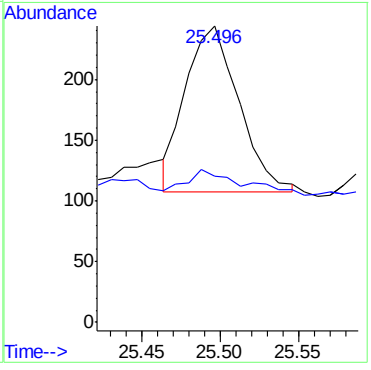


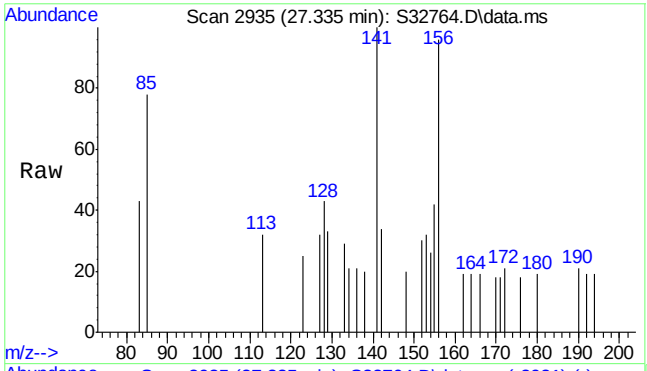
#107
2,6,10-Trimethyldodecane (1380)
Concen: 11.35 µg/mL m
RT: 25.496 min Scan# 2712
Delta R.T. -0.083 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 85 Resp: 327

Ion	Ratio	Lower	Upper
85	100		
83	0.0	13.0	19.6#



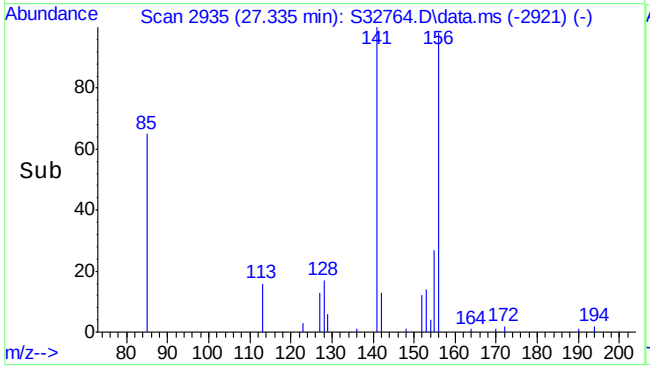


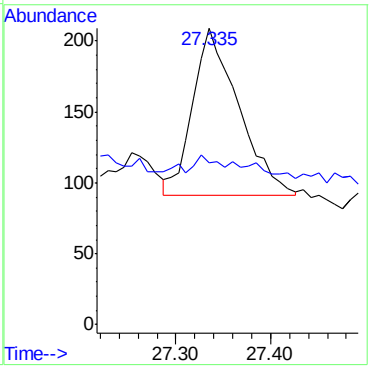


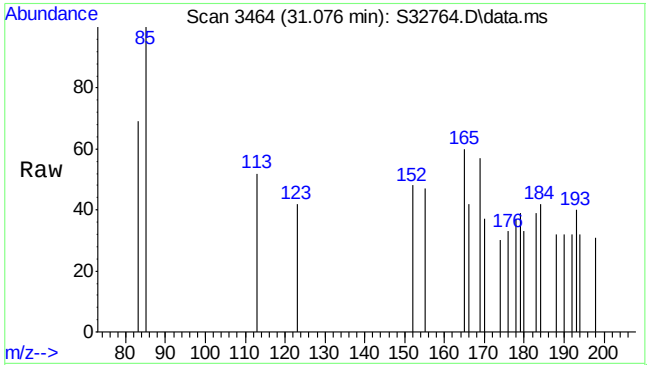
#108
2,6,10-Trimethyltridecane (1470)
Concen: 13.85 µg/mL m
RT: 27.335 min Scan# 2935
Delta R.T. -0.083 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 85 Resp: 399

Ion	Ratio	Lower	Upper
85	100		
83	0.0	13.0	19.6#



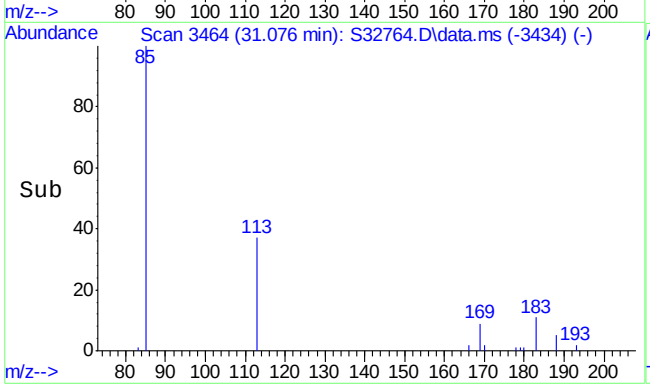


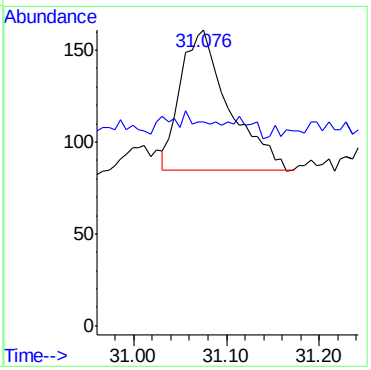


#109
2,6,10-Trimethylpentadecane (1650)
Concen: 9.48 µg/mL
RT: 31.076 min Scan# 3464
Delta R.T. -0.006 min
Lab File: S32764.D
Acq: 29 May 2013 4:20 pm

Tgt Ion: 85 Resp: 273

Ion	Ratio	Lower	Upper
85	100		
83	0.0	21.2	31.8#





Manual Integrations APPROVED (compounds with "m" flag)
James Roush
05/31/13 15:01

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32766.D
Acq On : 29 May 2013 6:45 pm
Operator : danielb
Sample : mc20162-8
Misc : op33312,mss1429,0.0185,,,2,50
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 31 11:17:13 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	28.180	164	62779	1000.00	ng/mL	-0.01
System Monitoring Compounds						
2) Toluene-d8	9.328	98	5927	85.06	µg/mL	0.01
Spiked Amount 1000.000			Recovery = 8.51%			
3) Naphthalene-d8	21.216	136	2378	18.68	ng/mL	-0.02
Spiked Amount 1000.000	Range 1 - 0		Recovery = 1.87%#			
4) Phenanthrene-d10	34.059	188	1420	14.17	ng/mL	0.03
Spiked Amount 1000.000			Recovery = 1.42%			
5) Perylene-d12	49.932	264	1002	10.53	ng/mL	0.05
Spiked Amount 1000.000			Recovery = 1.05%			
Target Compounds						Qvalue
6) MTBE	5.517	73	527m	10.24	µg/mL	
7) Benzene	6.914	TIC	207703	2092.64	µg/mL	100
8) C1-Benzene	9.421	92	485662	4893.12	µg/mL	99
9) C2-Benzenes	12.382	106	798297m	8042.96	µg/mL	
10) C3-Benzenes	16.019	120	722875m	7283.08	µg/mL	
11) C4-Benzenes	19.520	134	348611m	3512.31	µg/mL	
12) C5-Benzenes	20.096	148	103945m	1047.26	µg/mL	
13) Methylcyclohexane	8.276	83	48978	1264.79	µg/mL	99
14) Toluene	9.421	91	829693	8933.34	µg/mL	100
15) Ethylbenzene	12.144	91	441308	3889.11	µg/mL	100
16) m,p-xylene	12.374	91	1087652	12025.28	µg/mL	99
17) Styrene	13.016	104	634	9.44	µg/mL	90
18) o-Xylene	13.088	91	400813	4473.97	µg/mL	100
19) Isopropylbenzene	14.010	105	35095	332.31	µg/mL	99
20) n-Propylbenzene	14.860	91	183602	1283.18	µg/mL	99
21) 1,3,5-Trimethylbenzene	15.277	105	195163	1991.52	µg/mL	100
22) t-Butylbenzene	16.019	119	72661	754.10	µg/mL#	54
23) 1,2,4-Trimethylbenzene	16.019	105	630806	6296.36	µg/mL	99
24) sec-Butylbenzene	16.502	105	19699	153.25	µg/mL	99
25) 1,2,3-Trimethylbenzene	16.862	105	136973	1303.96	µg/mL	96
26) p-Isopropyltoluene	16.790	119	21806	192.35	µg/mL	91
27) n-Butylbenzene	17.755	91	56101	513.25	µg/mL#	53
28) trans-Decalin	17.835	96	334m	16.24	µg/mL	
29) cis-Decalin	19.066	96	170m	6.33	µg/mL	
30) C1-Decalins	19.340	152	671m	32.63	µg/mL	
31) C2-Decalins	20.781	166	528m	25.67	µg/mL	
34) Benzo(b)thiophene	21.512	134	10734	90.53	µg/mL#	93
35) C1-Benzo(b)thiophenes	23.583	148	10775m	90.88	µg/mL	
36) C2-Benzo(b)thiophenes	26.552	162	2276m	19.20	µg/mL	
44) Naphthalene	21.290	128	152094	1001.96	ng/mL	99
45) 2-Methylnaphthalene	23.995	142	99624	1058.65	ng/mL	99
46) 1-Methylnaphthalene	24.416	142	45196m	476.74	ng/mL	
47) C1-Naphthalenes	23.995	142	147434m	971.27	ng/mL	
48) C2-Naphthalenes	26.841	156	38859m	256.00	ng/mL	
49) C3-Naphthalenes	29.209	170	8594m	56.62	ng/mL	
50) C4-Naphthalenes	31.965	184	2315m	15.25	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32766.D
Acq On : 29 May 2013 6:45 pm
Operator : danielb
Sample : mc20162-8
Misc : op33312,mss1429,0.0185,,,2,50
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 31 11:17:13 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
51) Biphenyl	25.909	154	2677	20.96	µg/mL	99
53) Acenaphthene	28.302	154	198m	2.41	ng/mL	
55) Fluorene	30.358	166	382	3.93	ng/mL	94
56) C1-Fluorenes	32.727	180	519m	5.33	ng/mL	
57) C2-Fluorenes	34.654	194	711m	7.31	ng/mL	
59) Dibenzothiophene	33.656	184	161m	1.22	ng/mL	
60) C1-Dibenzothiophenes (...	35.828	198	608m	4.59	ng/mL	
61) C1-Dibenzothiophenes (...	35.828	198	177m	1.34	µg/mL	
62) C2-Dibenzothiophenes	37.899	212	461m	3.48	ng/mL	
65) Phenanthrene	34.155	178	862	6.21	ng/mL#	63
67) C1-Phenanthrenes/anthr...	36.232	192	1585m	11.43	ng/mL	
68) C2-Phenanthrenes/anthr...	38.393	206	1362m	9.82	ng/mL	
69) C2-Phenanthrenes/anthr...	38.085	206	142m	1.02	µg/mL	
70) C3-Phenanthrenes/anthr...	40.254	220	367m	2.65	ng/mL	
78) Fluoranthene	38.919	202	119m	0.88	ng/mL	
79) Pyrene	39.789	202	252	1.80	ng/mL#	65
80) C1-Fluoranthenes/pyrenes	41.206	216	459m	3.28	ng/mL	
103) C-17	32.036	85	484	16.44	µg/mL#	63
104) Pristane	32.145	85	317m	14.27	µg/mL	
105) C-18	33.829	85	414	13.76	µg/mL#	54
106) Phytane	34.008	85	256	8.67	µg/mL#	53
107) 2,6,10-Trimethyldodeca...	25.496	85	365m	12.36	µg/mL	
108) 2,6,10-Trimethyltridec...	27.344	85	338m	11.45	µg/mL	
109) 2,6,10-Trimethylpentad...	31.076	85	144m	4.88	µg/mL	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

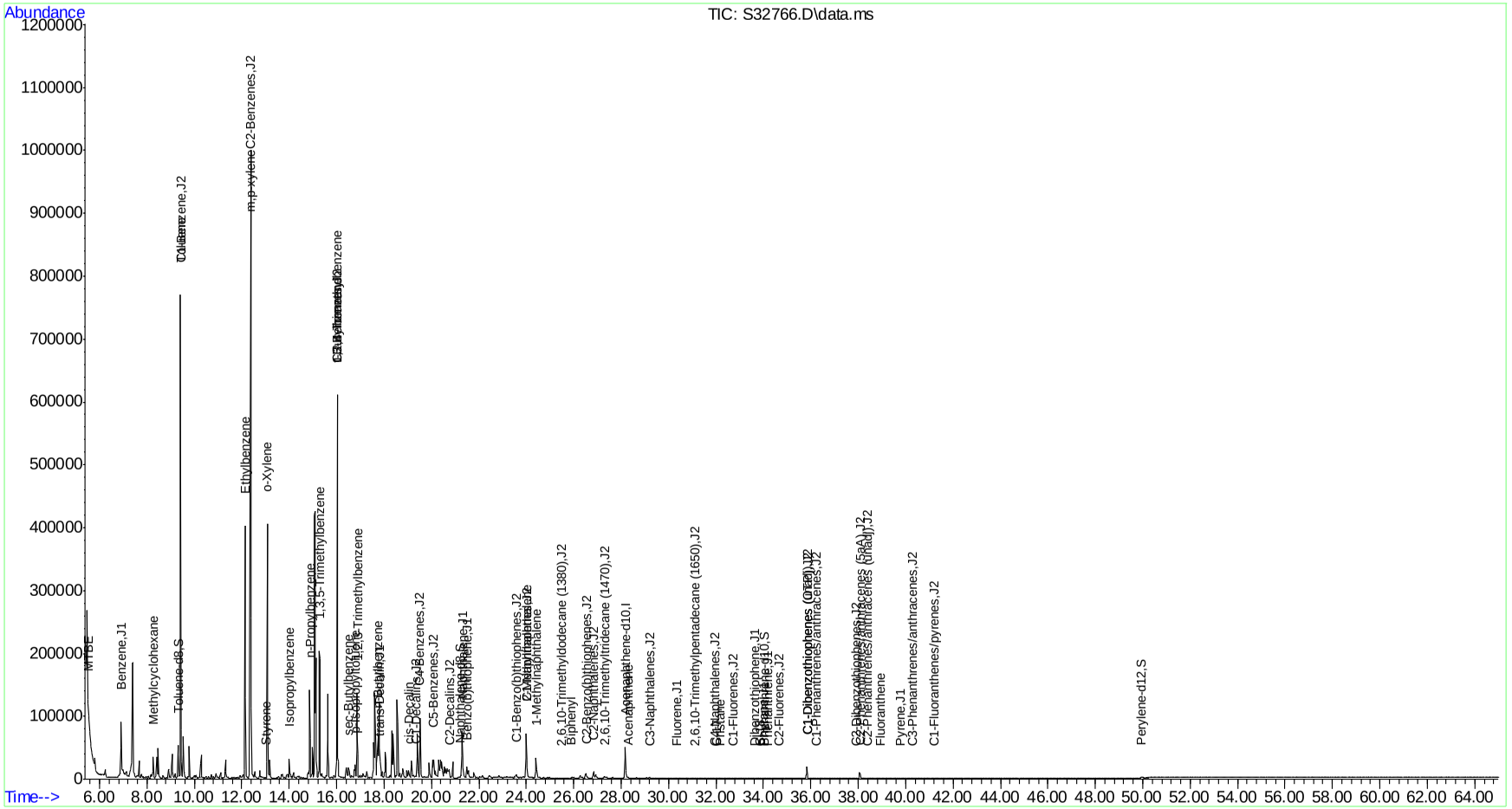
9.1.8

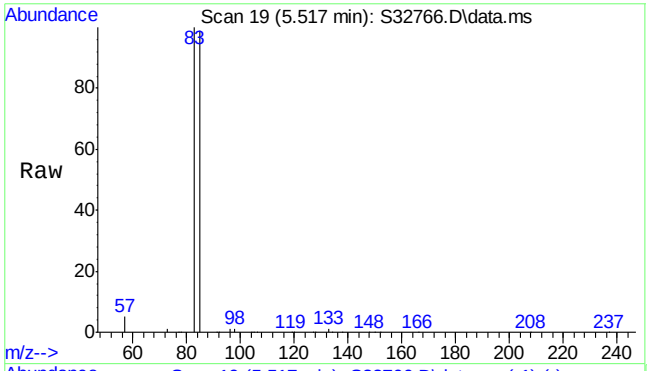
9

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32766.D
Acq On : 29 May 2013 6:45 pm
Operator : danielb
Sample : mc20162-8
Misc : op33312,mss1429,0.0185,,,2,50
ALS Vial : 23 Sample Multiplier: 1

Quant Time: May 31 11:17:13 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

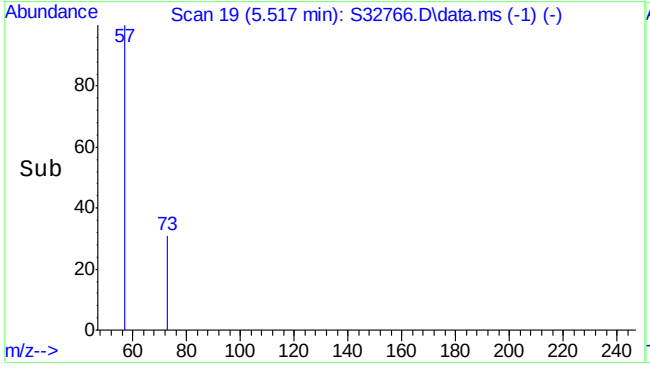


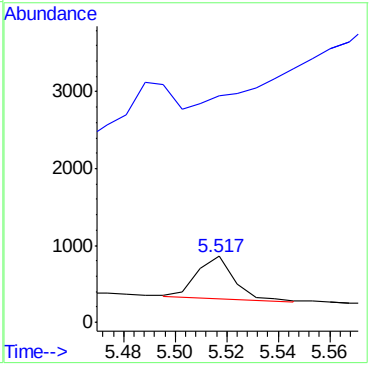


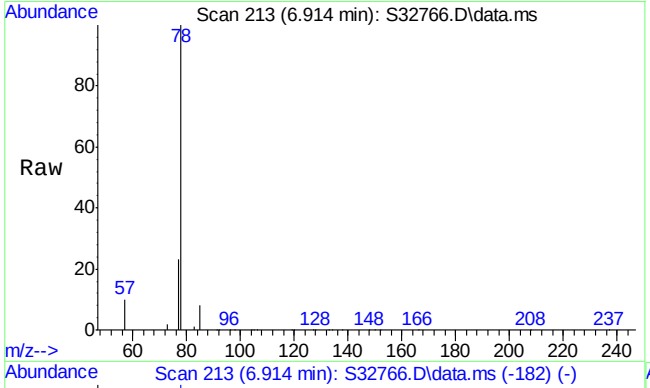
#6
MTBE
Concen: 10.24 µg/mL m
RT: 5.517 min Scan# 19
Delta R.T. 0.022 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 73 Resp: 527

Ion	Ratio	Lower	Upper
73	100		
57	0.0	18.5	27.7#

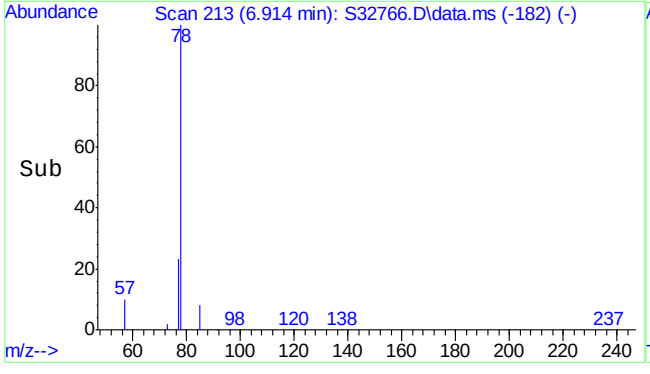


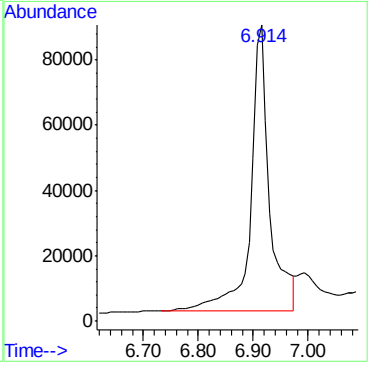


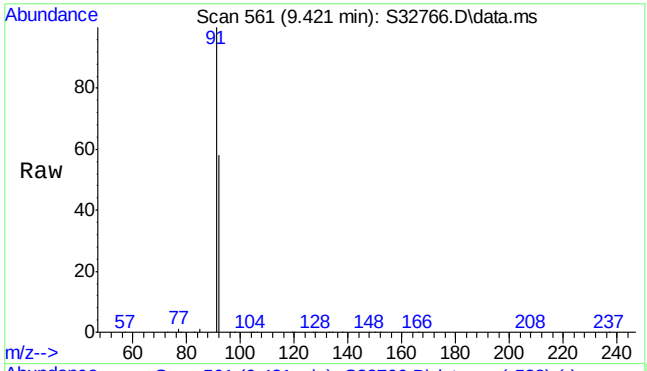


#7
Benzene
Concen: 2092.64 µg/mL
RT: 6.914 min Scan# 213
Delta R.T. 0.022 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:TIC Resp: 207703



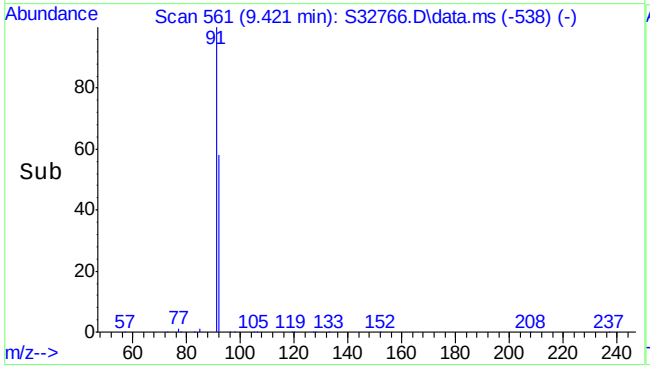


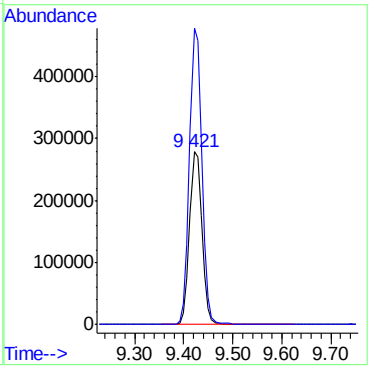


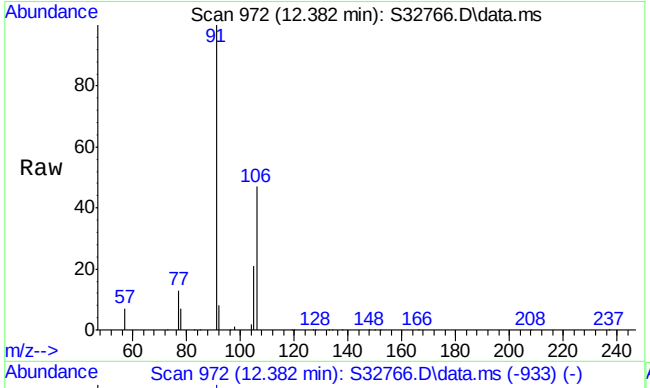
#8
C1-Benzene
Concen: 4893.12 µg/mL
RT: 9.421 min Scan# 561
Delta R.T. -0.036 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 92 Resp: 485662

Ion	Ratio	Lower	Upper
92	100		
91	170.9	135.6	203.4



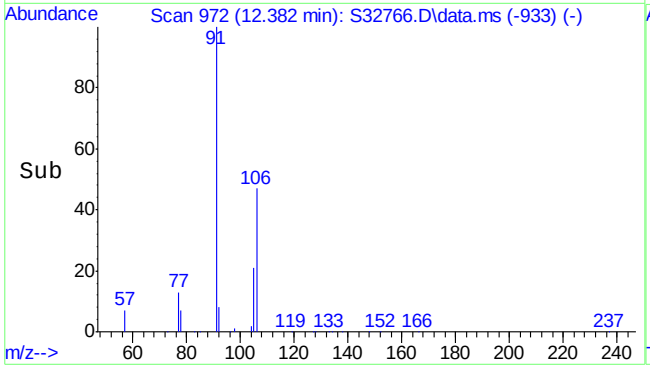


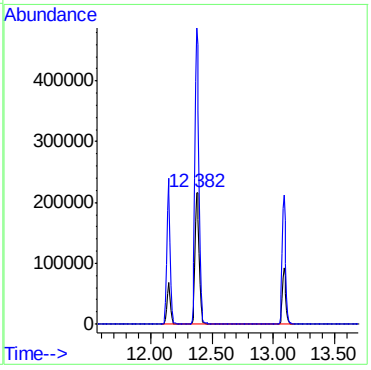


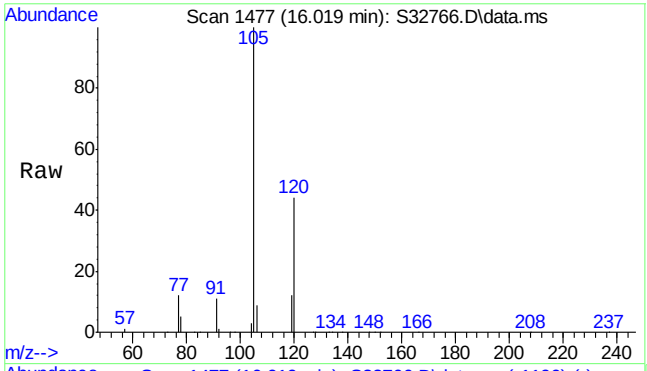
#9
C2-Benzenes
Concen: 8042.96 µg/mL m
RT: 12.382 min Scan# 972
Delta R.T. -0.007 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:106 Resp: 798297

Ion	Ratio	Lower	Upper
106	100		
91	136.3	174.9	262.3#



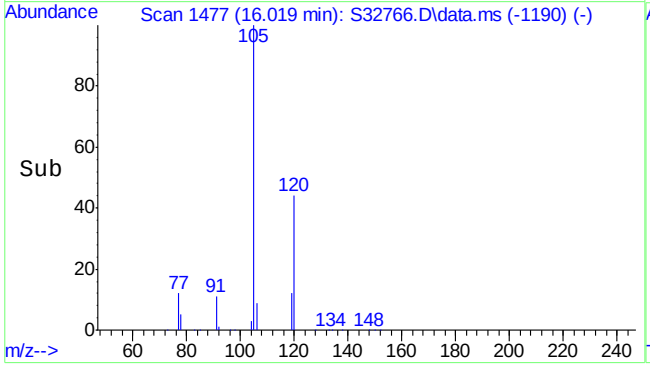


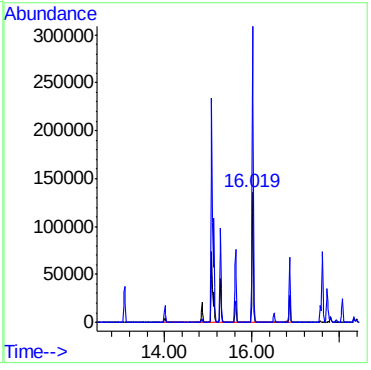


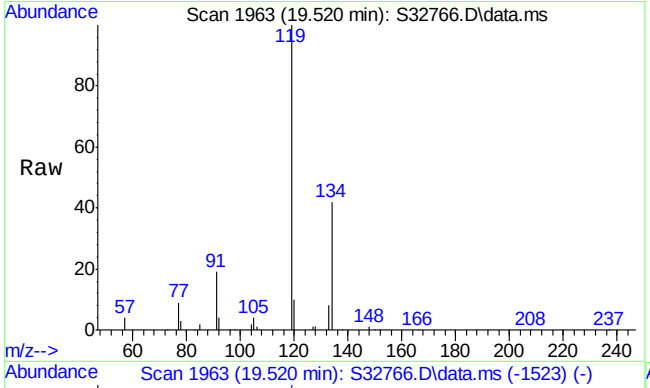
#10
C3-Benzenes
Concen: 7283.08 µg/mL m
RT: 16.019 min Scan# 1477
Delta R.T. -0.014 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:120 Resp: 722875

Ion	Ratio	Lower	Upper
120	100		
105	87.4	181.4	272.2#



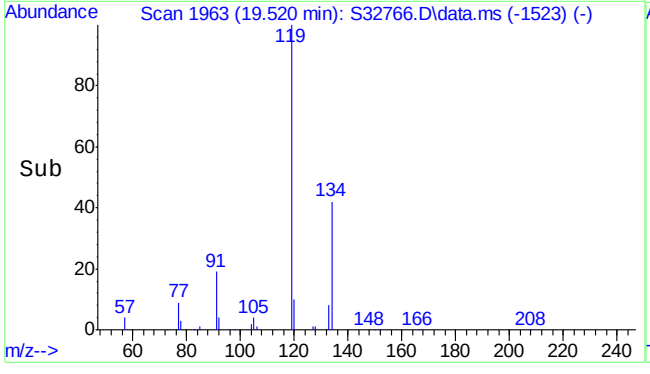


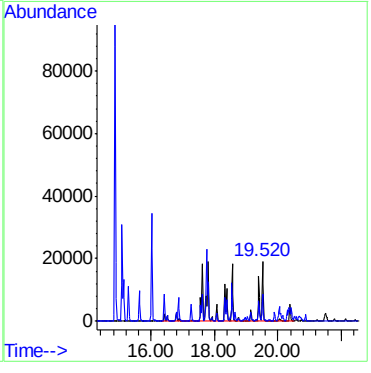


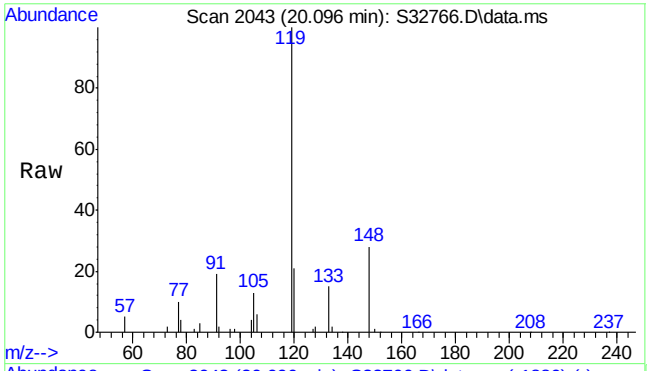
#11
C4-Benzenes
Concen: 3512.31 µg/mL m
RT: 19.520 min Scan# 1963
Delta R.T. -0.886 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:134 Resp: 348611

Ion	Ratio	Lower	Upper
134	100		
91	0.0	37.2	55.8#



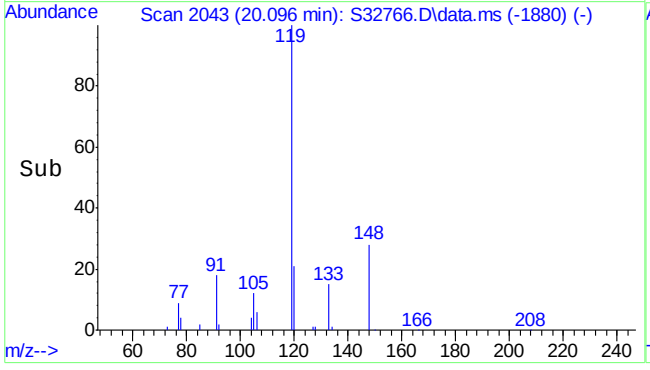


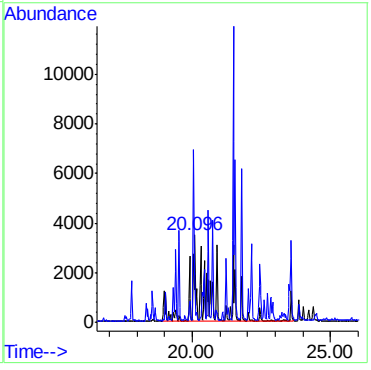


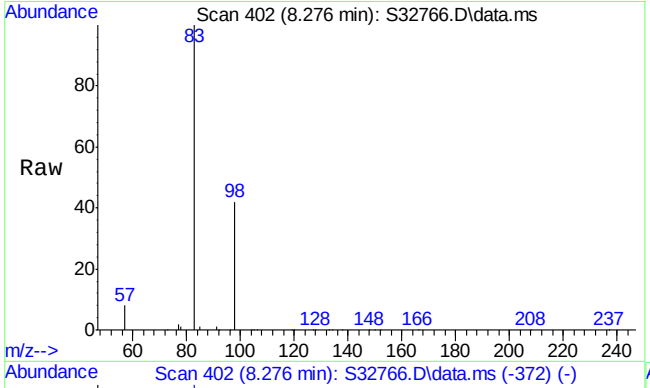
#12
C5-Benzenes
Concen: 1047.26 µg/mL m
RT: 20.096 min Scan# 2043
Delta R.T. -0.014 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:148 Resp: 103945

Ion	Ratio	Lower	Upper
148	100		
133	0.0	134.0	201.0#



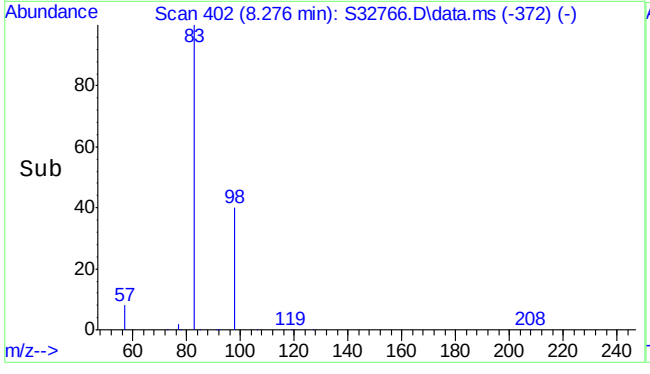


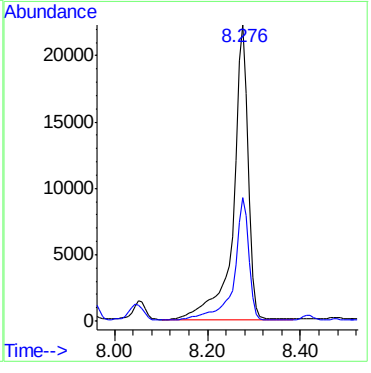


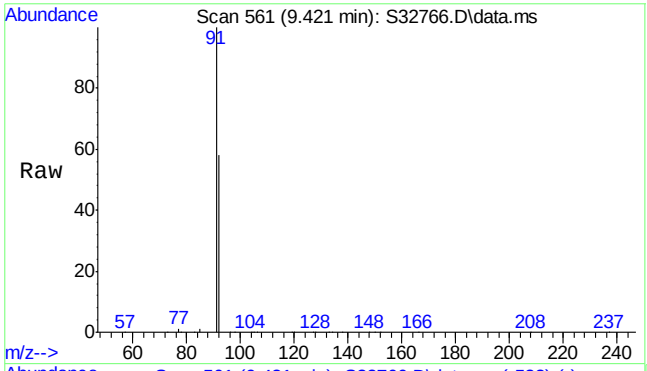
#13
Methylcyclohexane
Concen: 1264.79 µg/mL
RT: 8.276 min Scan# 402
Delta R.T. 0.015 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 83 Resp: 48978

Ion	Ratio	Lower	Upper
83	100		
98	41.7	34.0	51.0



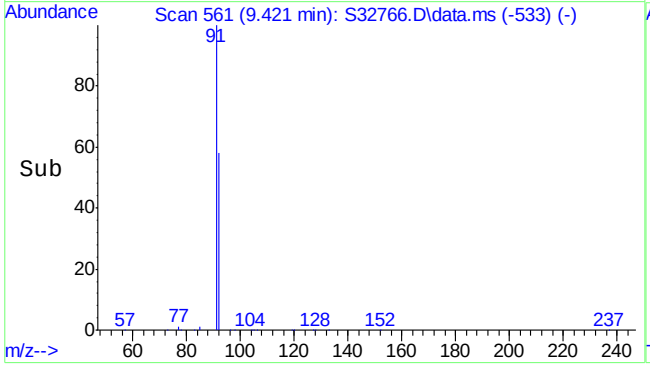


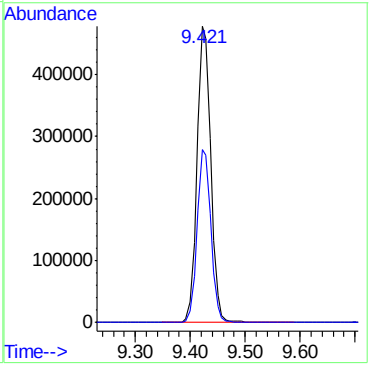


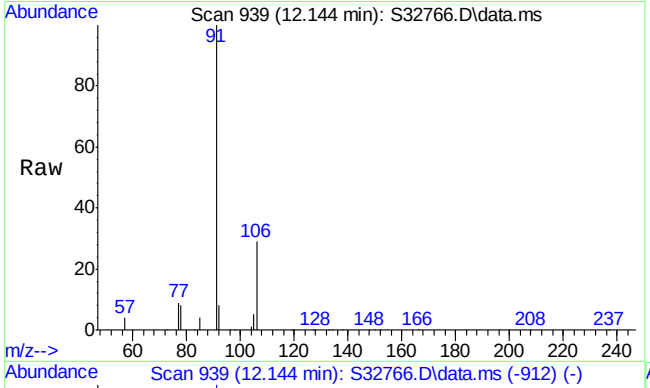
#14
Toluene
Concen: 8933.34 µg/mL
RT: 9.421 min Scan# 561
Delta R.T. 0.000 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 91 Resp: 829693

Ion	Ratio	Lower	Upper
91	100		
92	58.5	46.8	70.2



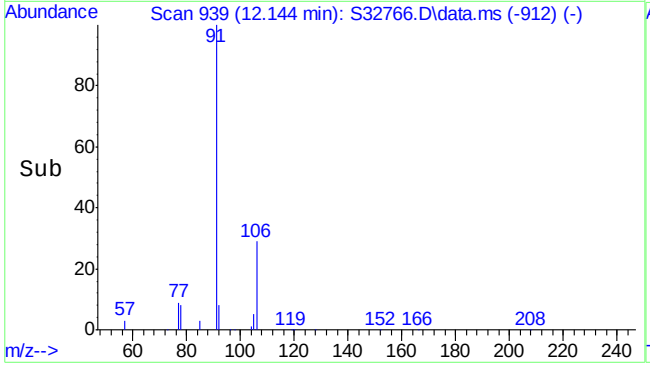


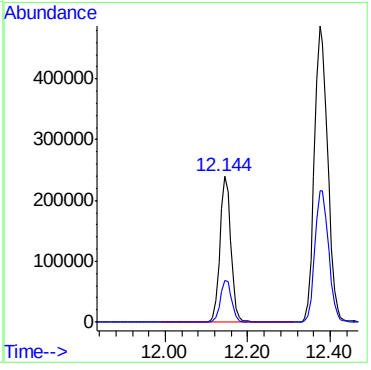


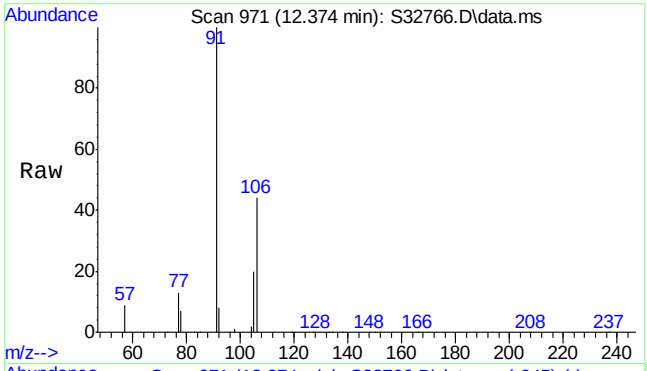
#15
Ethylbenzene
Concen: 3889.11 µg/mL
RT: 12.144 min Scan# 939
Delta R.T. -0.007 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 91 Resp: 441308

Ion	Ratio	Lower	Upper
91	100		
106	29.6	23.8	35.6



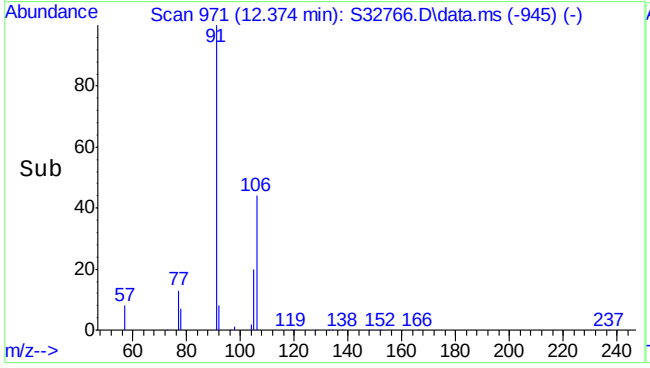


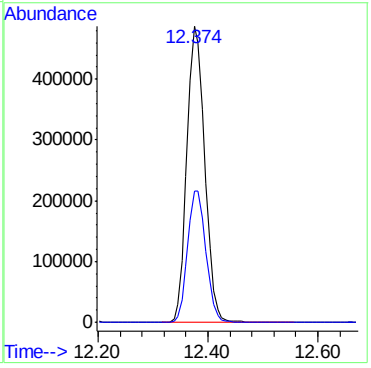


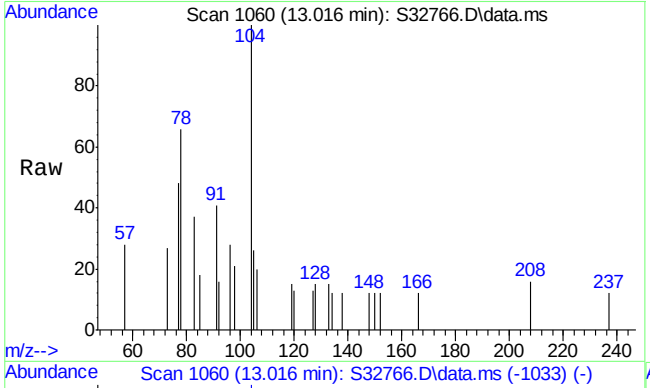
#16
m,p-xylene
Concen: 12025.28 µg/mL
RT: 12.374 min Scan# 971
Delta R.T. -0.014 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 91 Resp: 1087652

Ion	Ratio	Lower	Upper
91	100		
106	45.4	36.6	55.0



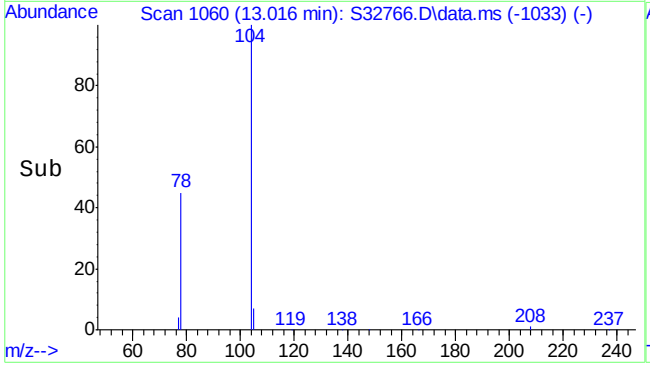


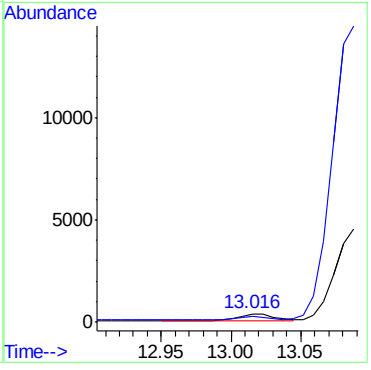


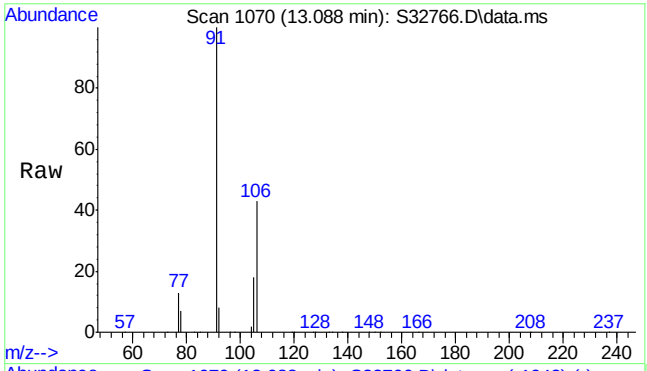
#17
Styrene
Concen: 9.44 µg/mL
RT: 13.016 min Scan# 1060
Delta R.T. -0.007 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:104 Resp: 634

Ion	Ratio	Lower	Upper
104	100		
78	40.7	37.7	56.5



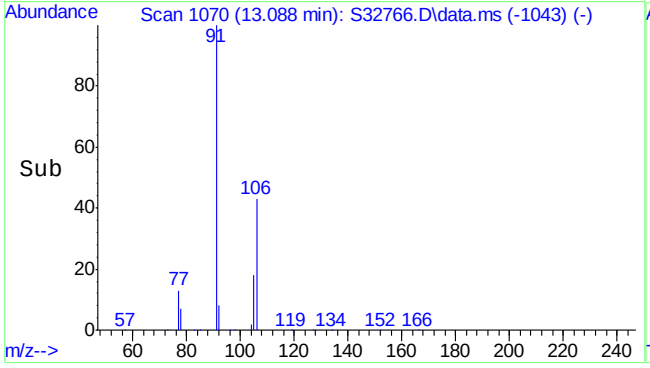


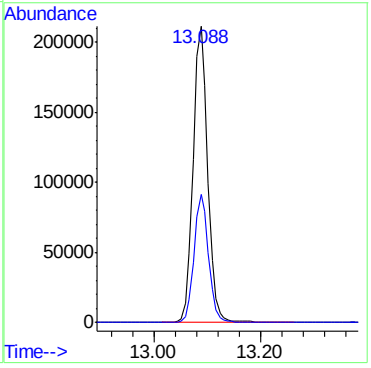


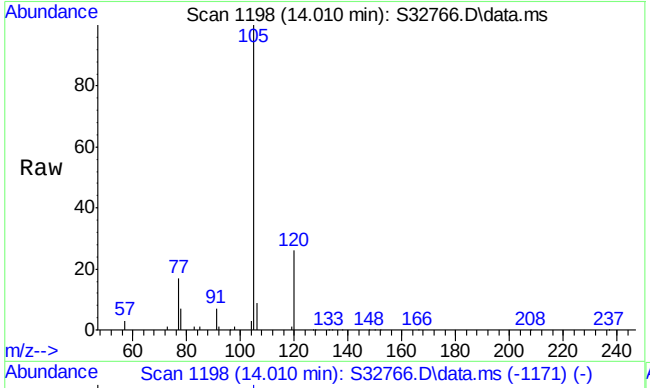
#18
o-Xylene
Concen: 4473.97 µg/mL
RT: 13.088 min Scan# 1070
Delta R.T. -0.007 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 91 Resp: 400813

Ion	Ratio	Lower	Upper
91	100		
106	43.0	34.5	51.7



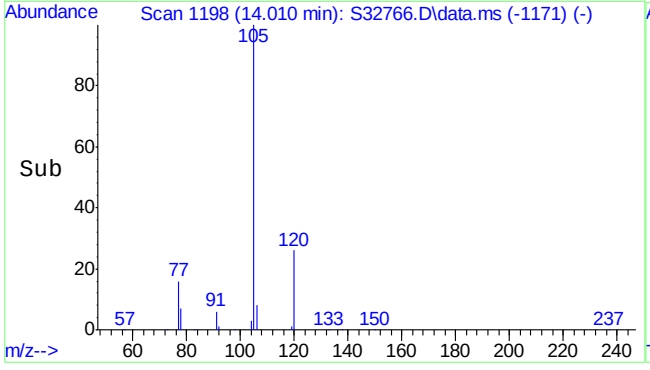


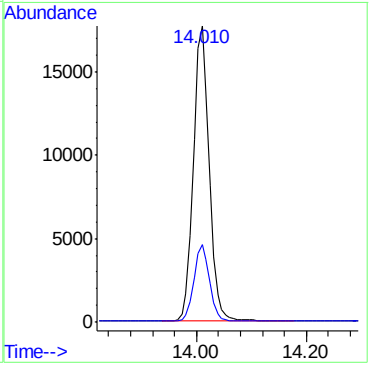


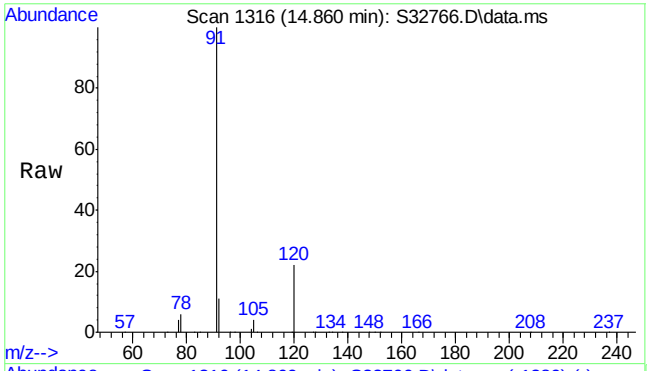
#19
Isopropylbenzene
Concen: 332.31 µg/mL
RT: 14.010 min Scan# 1198
Delta R.T. -0.007 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:105 Resp: 35095

Ion	Ratio	Lower	Upper
105	100		
120	25.8	21.1	31.7



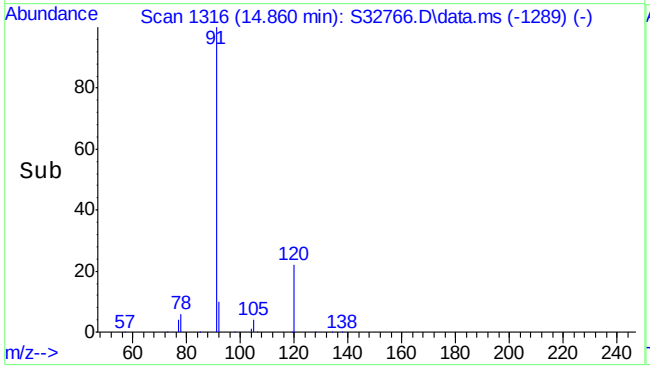


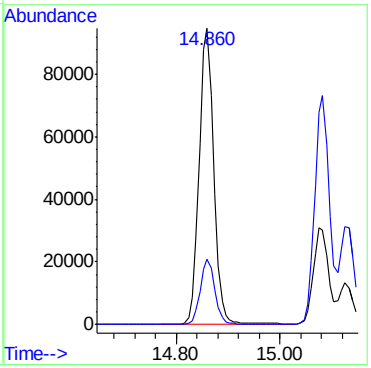


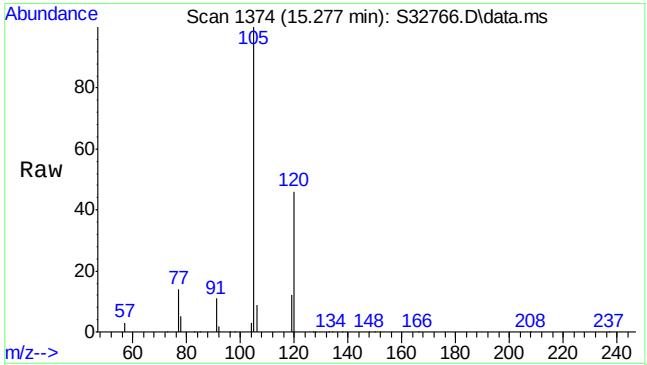
#20
n-Propylbenzene
Concen: 1283.18 µg/mL
RT: 14.860 min Scan# 1316
Delta R.T. -0.007 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 91 Resp: 183602

Ion	Ratio	Lower	Upper
91	100		
120	21.8	17.0	25.4



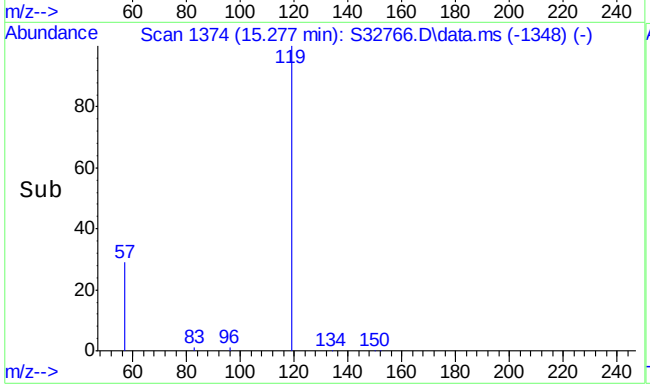


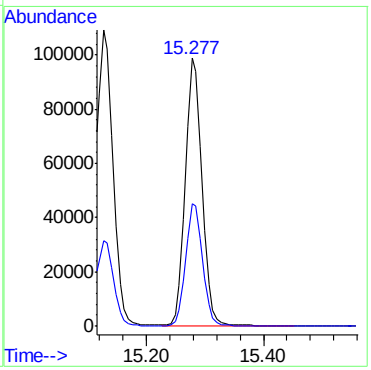


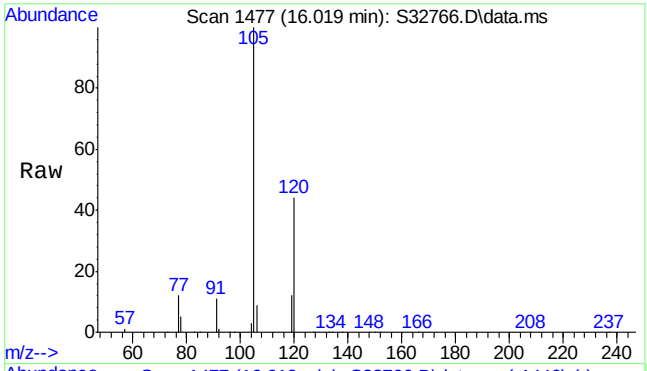
#21
1,3,5-Trimethylbenzene
Concen: 1991.52 µg/mL
RT: 15.277 min Scan# 1374
Delta R.T. -0.014 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:105 Resp: 195163

Ion	Ratio	Lower	Upper
105	100		
120	46.3	37.1	55.7



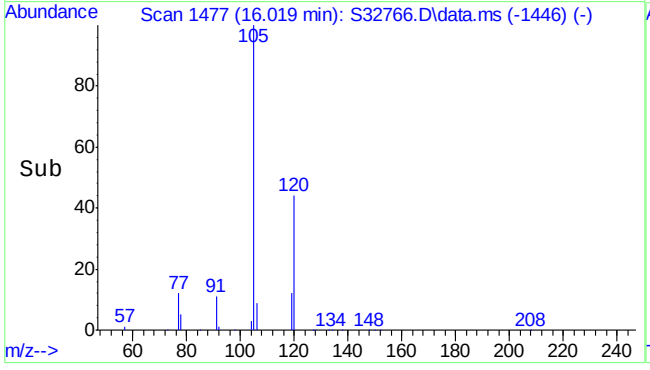


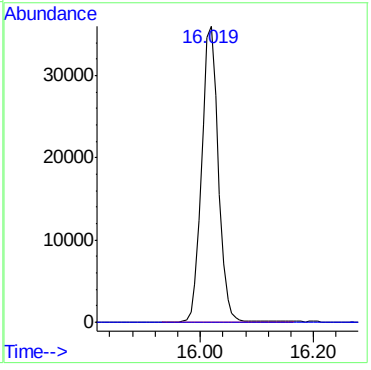


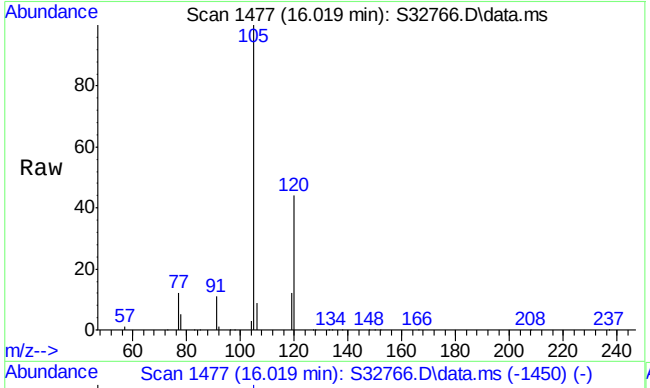
#22
t-Butylbenzene
Concen: 754.10 µg/mL
RT: 16.019 min Scan# 1477
Delta R.T. 0.022 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:119 Resp: 72661

Ion	Ratio	Lower	Upper
119	100		
134	0.0	17.6	26.4#



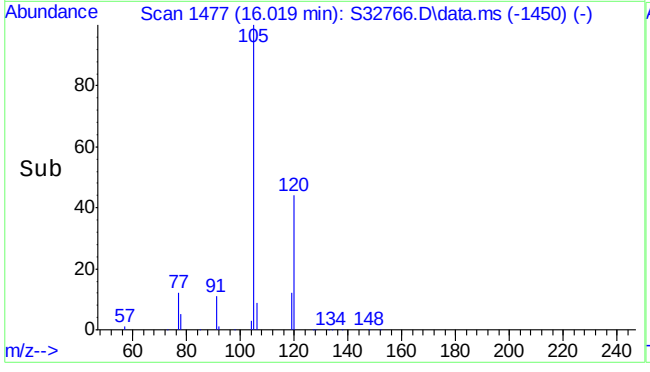


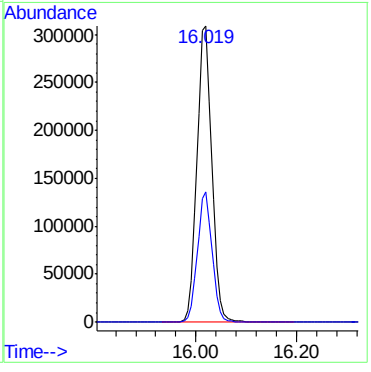


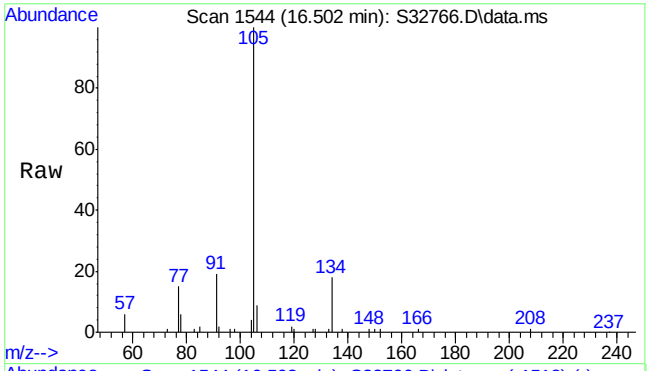
#23
1,2,4-Trimethylbenzene
Concen: 6296.36 µg/mL
RT: 16.019 min Scan# 1477
Delta R.T. -0.007 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:105 Resp: 630806

Ion	Ratio	Lower	Upper
105	100		
120	43.3	35.1	52.7



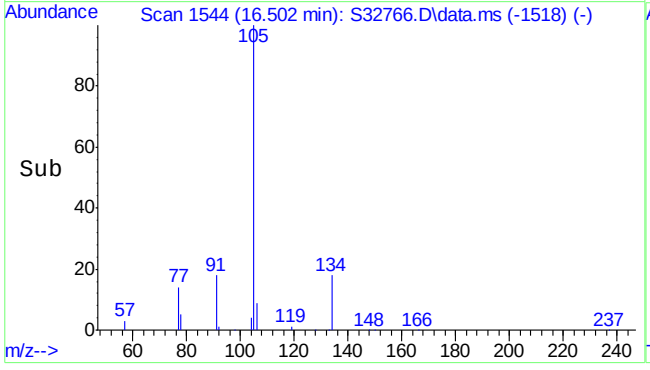


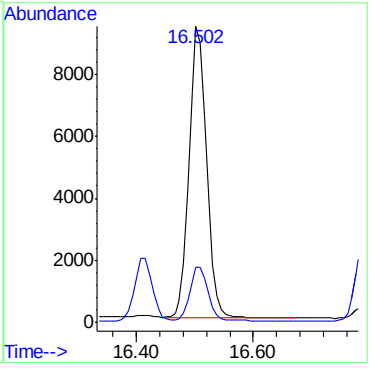


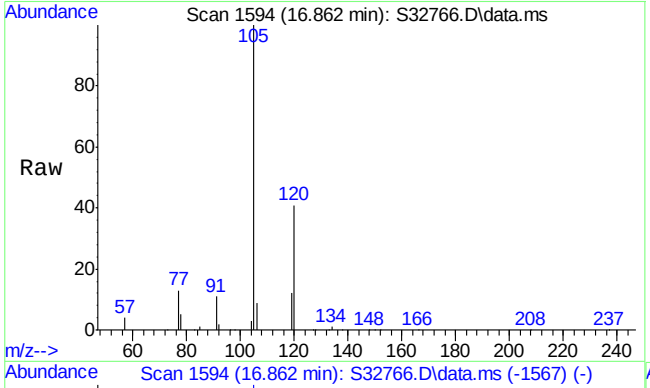
#24
sec-Butylbenzene
Concen: 153.25 µg/mL
RT: 16.502 min Scan# 1544
Delta R.T. -0.014 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:105 Resp: 19699

Ion	Ratio	Lower	Upper
105	100		
134	18.8	15.4	23.2



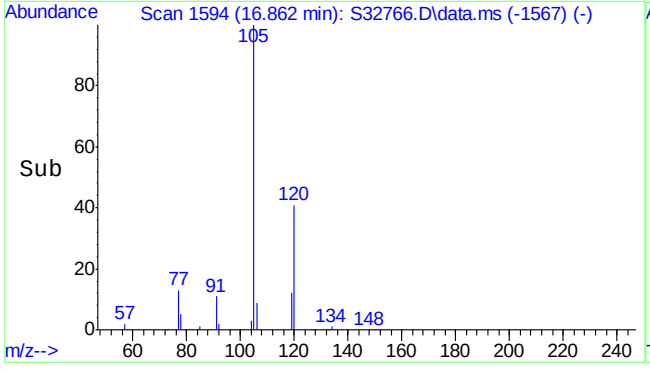


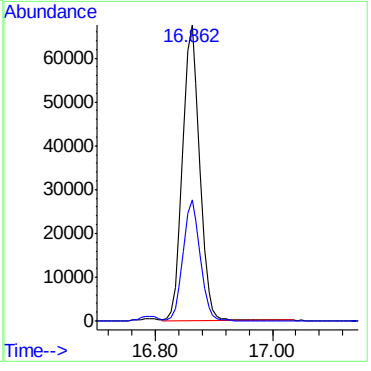


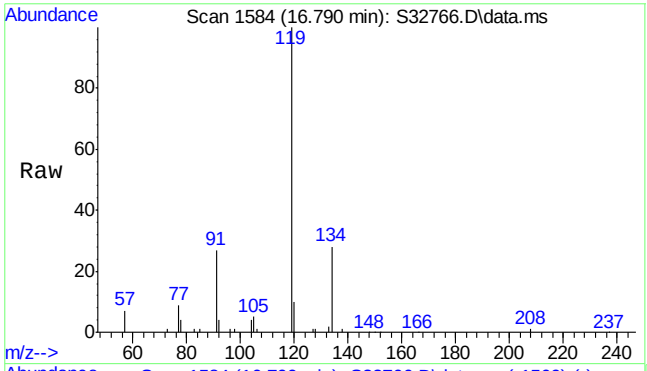
#25
1,2,3-Trimethylbenzene
Concen: 1303.96 µg/mL
RT: 16.862 min Scan# 1594
Delta R.T. -0.007 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:105 Resp: 136973

Ion	Ratio	Lower	Upper
105	100		
120	40.9	34.6	52.0



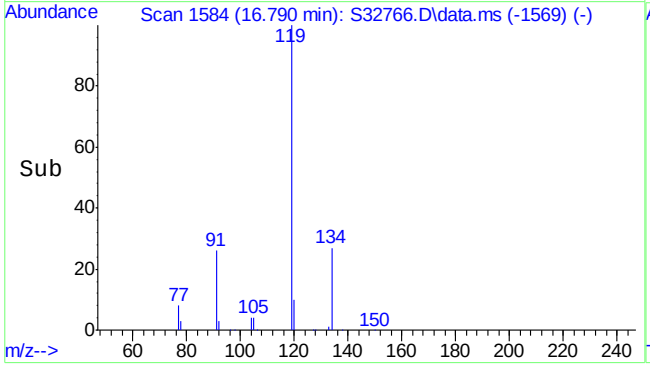


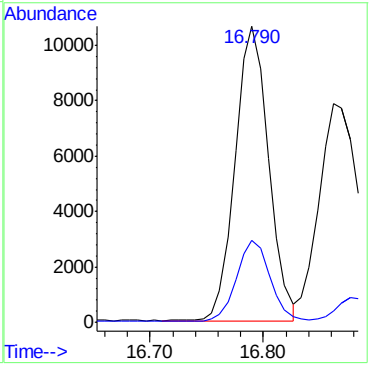


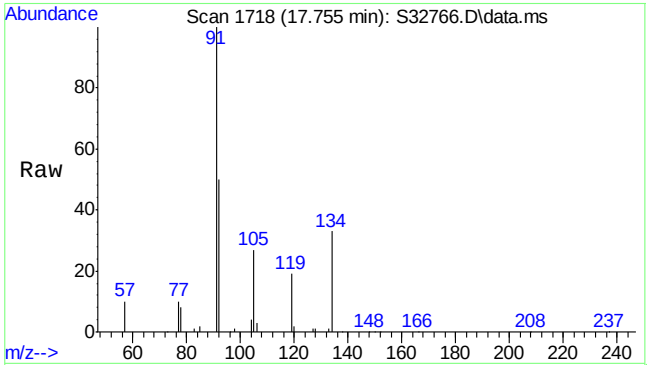
#26
p-Isopropyltoluene
Concen: 192.35 µg/mL
RT: 16.790 min Scan# 1584
Delta R.T. -0.093 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:119 Resp: 21806

Ion	Ratio	Lower	Upper
119	100		
134	27.2	18.4	27.6



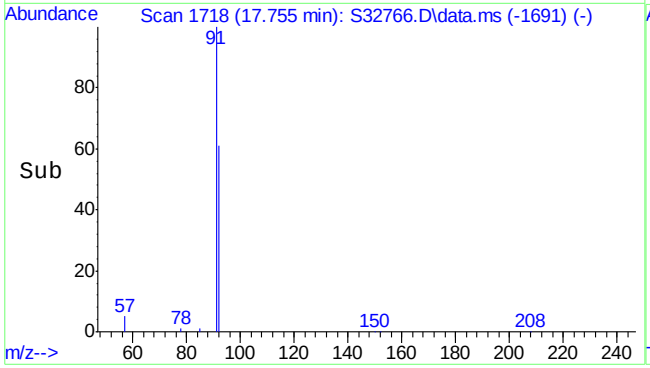


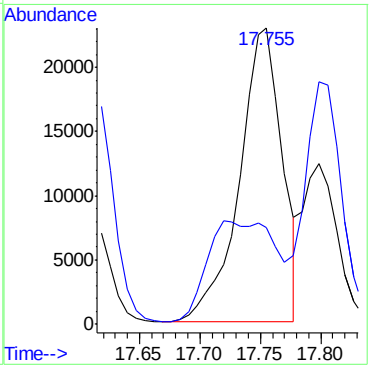


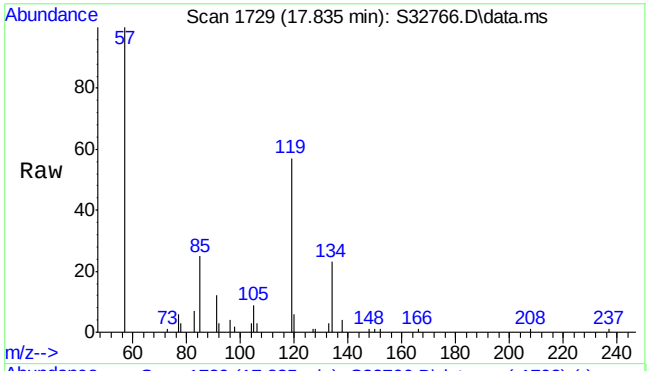
#27
n-Butylbenzene
Concen: 513.25 µg/mL
RT: 17.755 min Scan# 1718
Delta R.T. -0.007 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 91 Resp: 56101

Ion	Ratio	Lower	Upper
91	100		
134	0.0	18.2	27.2#



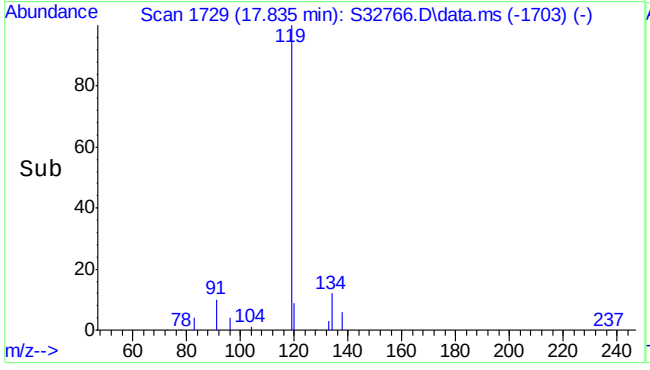


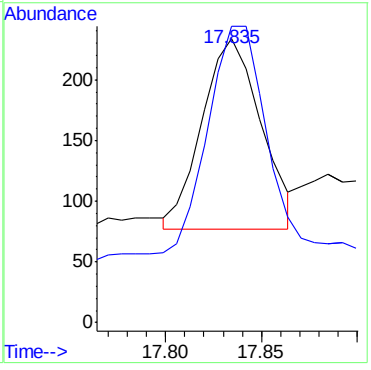


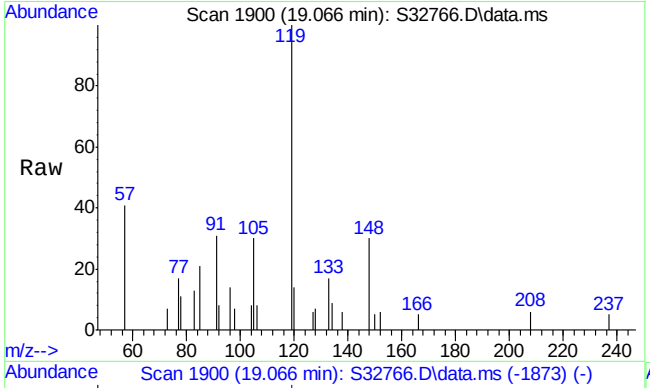
#28
trans-Decalin
Concen: 16.24 µg/mL m
RT: 17.835 min Scan# 1729
Delta R.T. -0.014 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 96 Resp: 334

Ion	Ratio	Lower	Upper
96	100		
138	143.1	106.5	159.7



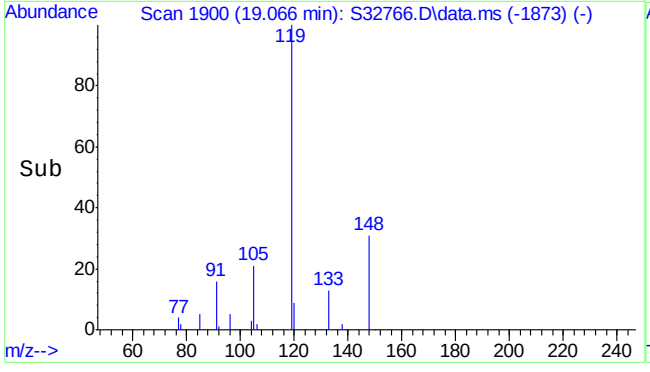


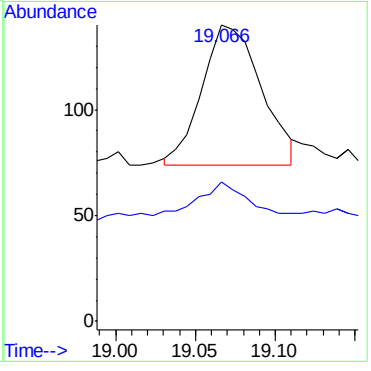


#29
cis-Decalin
Concen: 6.33 µg/mL m
RT: 19.066 min Scan# 1900
Delta R.T. -0.007 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 96 Resp: 170

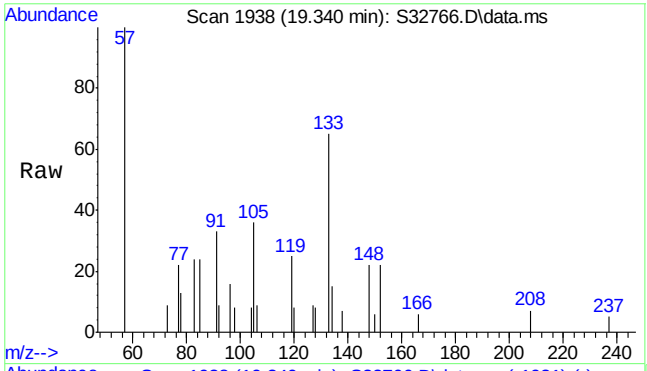
Ion	Ratio	Lower	Upper
96	100		
138	0.0	56.6	85.0#





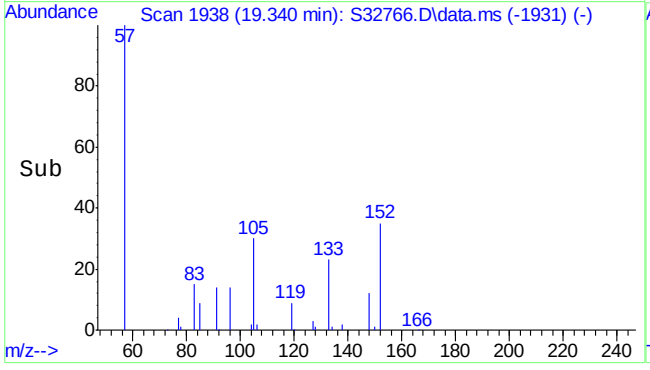
9.1.8

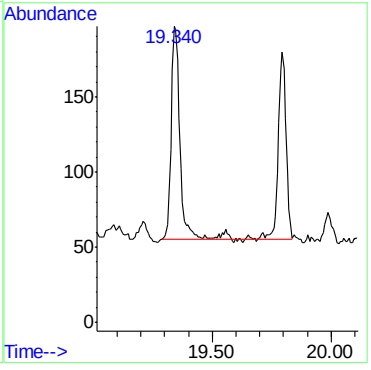
9

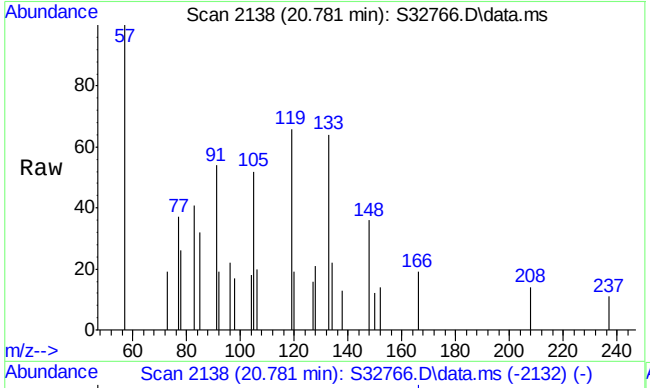


#30
C1-Decalins
Concen: 32.63 µg/mL m
RT: 19.340 min Scan# 1938
Delta R.T. -0.468 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:152 Resp: 671

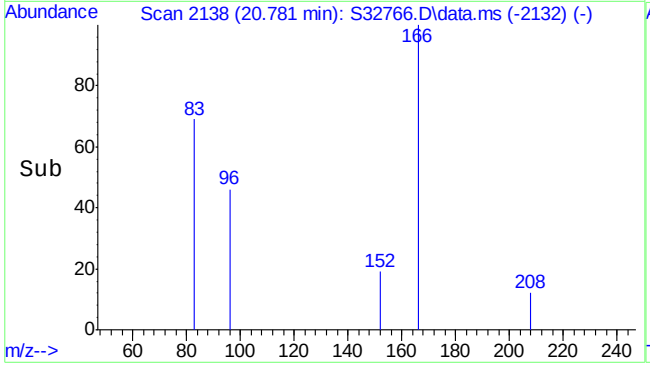


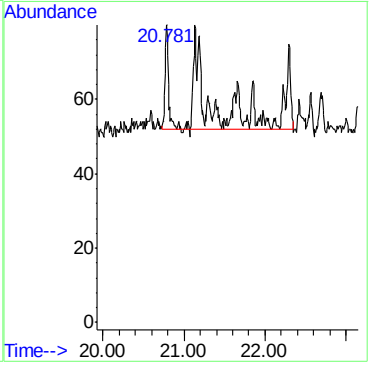


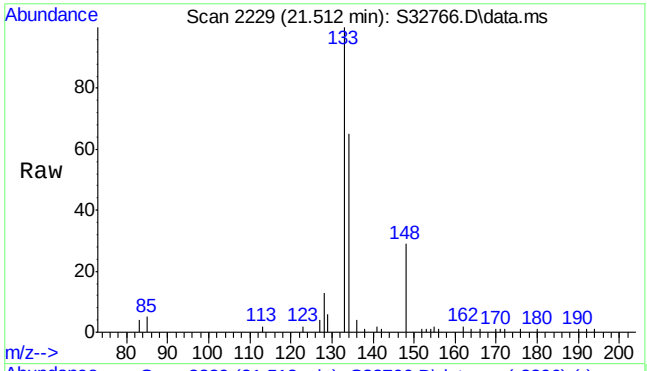


#31
C2-Decalins
Concen: 25.67 µg/mL m
RT: 20.781 min Scan# 2138
Delta R.T. -0.369 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:166 Resp: 528



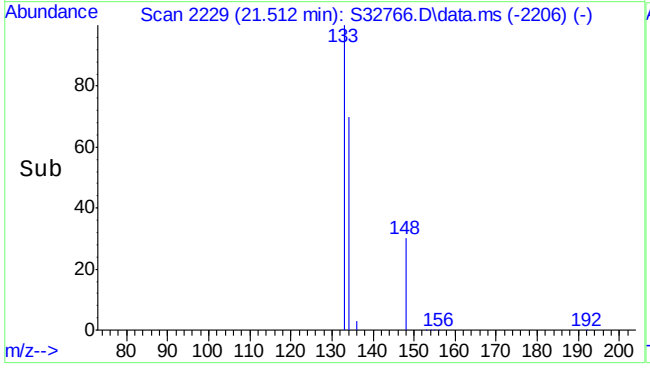


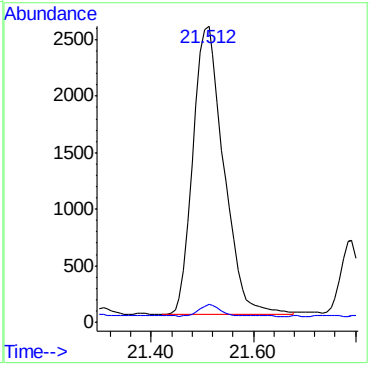


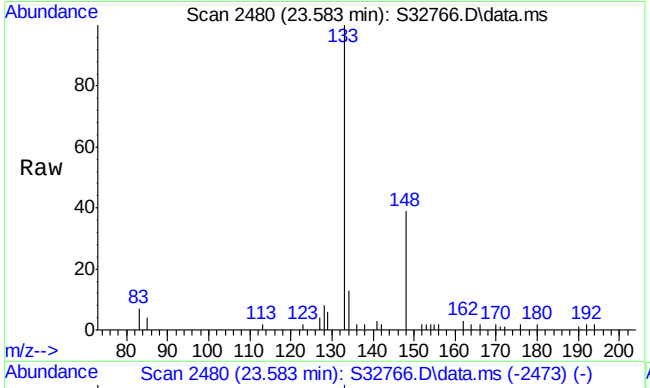
#34
Benzo(b)thiophene
Concen: 90.53 µg/mL
RT: 21.512 min Scan# 2229
Delta R.T. -0.008 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:134 Resp: 10734

Ion	Ratio	Lower	Upper
134	100		
136	2.7	4.0	6.0#

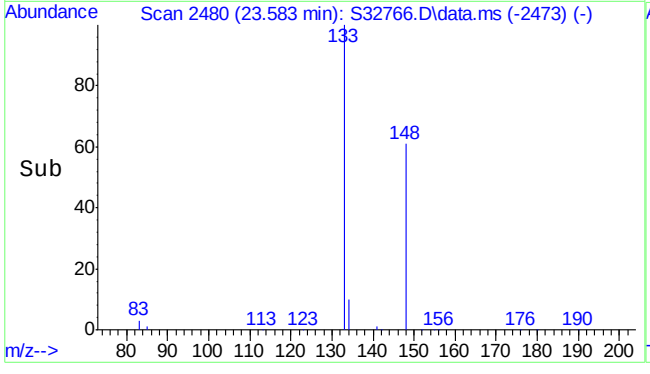


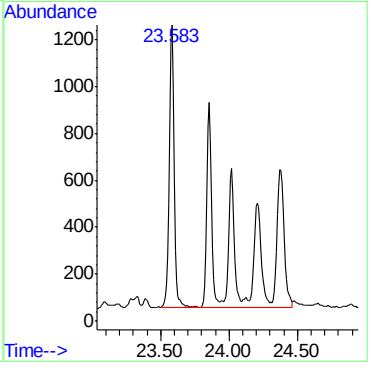


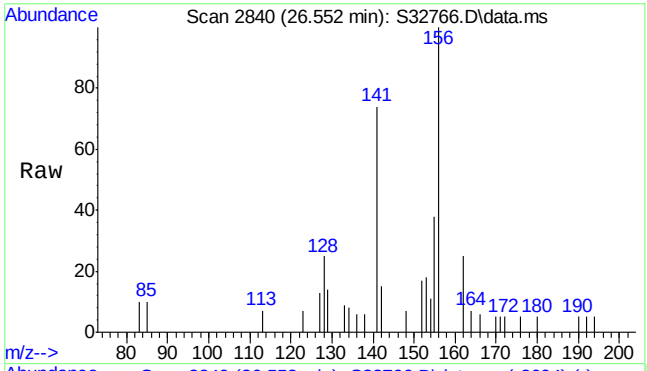


#35
C1-Benzo(b)thiophenes
Concen: 90.88 µg/mL m
RT: 23.583 min Scan# 2480
Delta R.T. -0.017 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:148 Resp: 10775

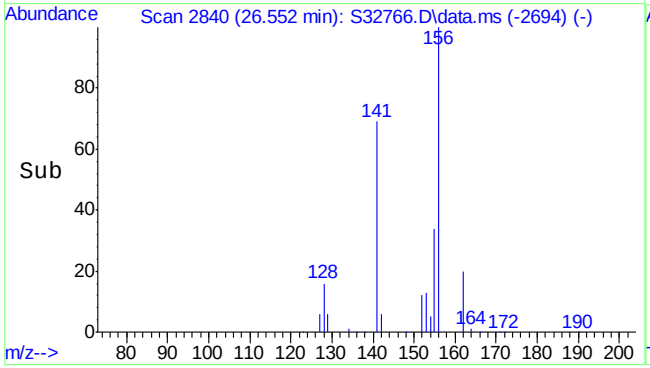


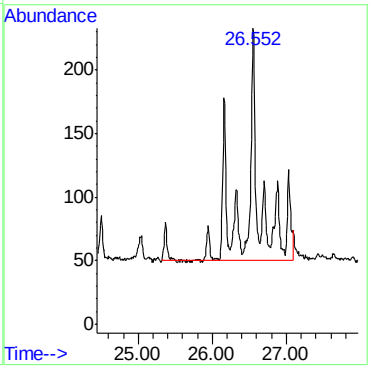


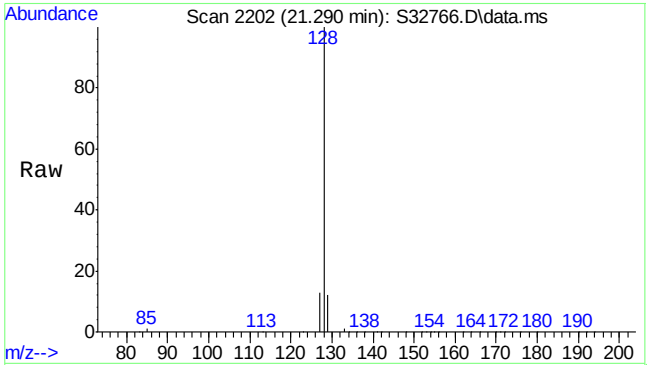


#36
C2-Benzo(b)thiophenes
Concen: 19.20 µg/mL m
RT: 26.552 min Scan# 2840
Delta R.T. -0.495 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:162 Resp: 2276



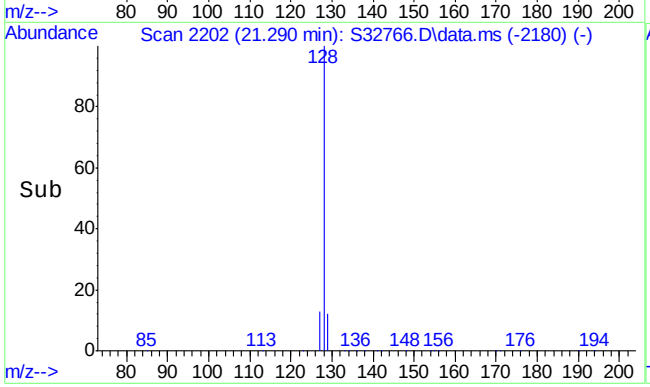


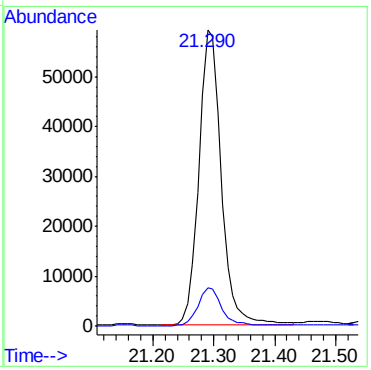


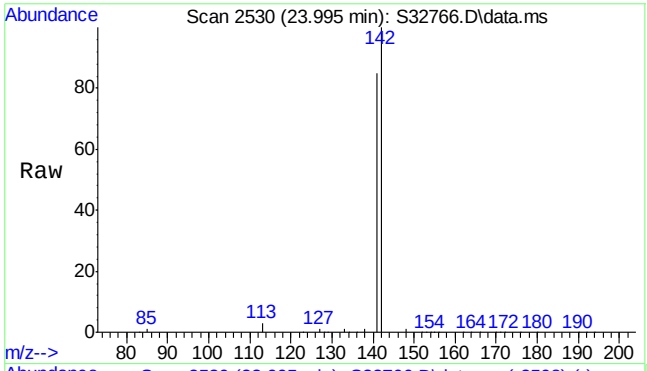
#44
Naphthalene
Concen: 1001.96 ng/mL
RT: 21.290 min Scan# 2202
Delta R.T. -0.016 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:128 Resp: 152094

Ion	Ratio	Lower	Upper
128	100		
127	13.0	10.1	15.1



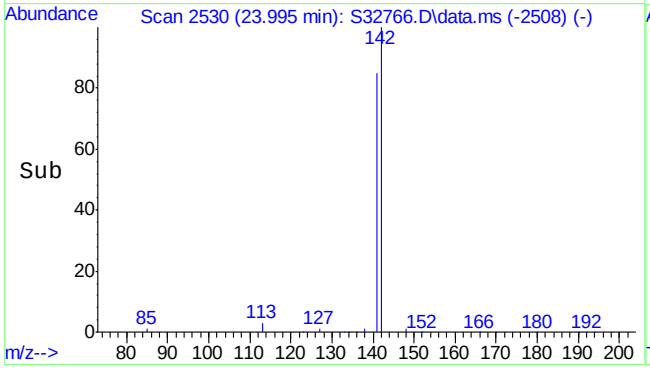


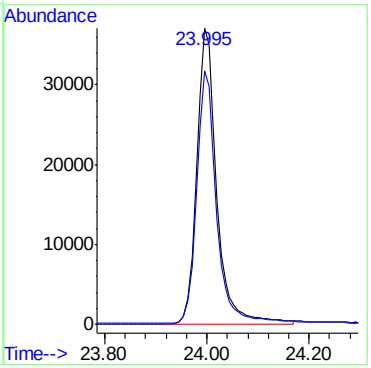


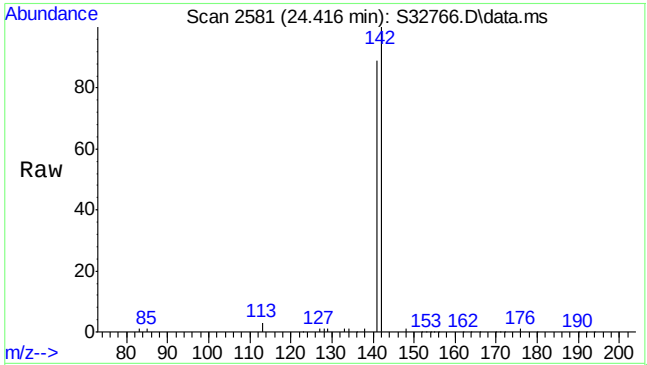
#45
2-Methylnaphthalene
Concen: 1058.65 ng/mL
RT: 23.995 min Scan# 2530
Delta R.T. -0.017 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:142 Resp: 99624

Ion	Ratio	Lower	Upper
142	100		
141	85.3	68.9	103.3



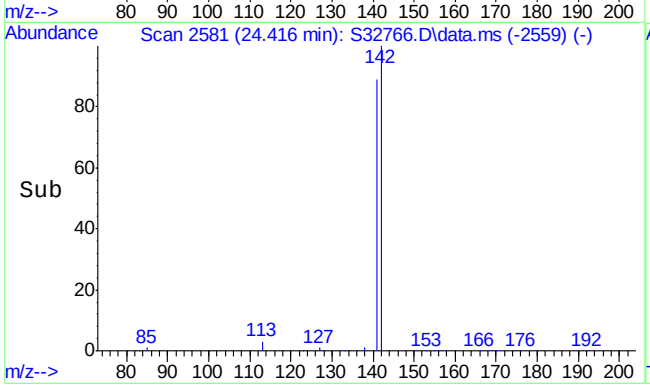


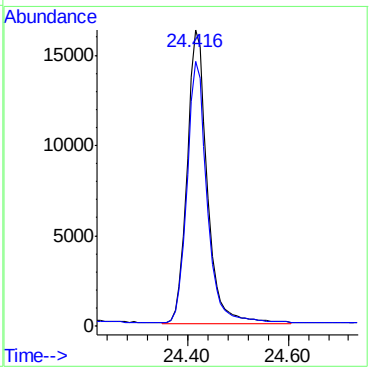


#46
1-Methylnaphthalene
Concen: 476.74 ng/mL m
RT: 24.416 min Scan# 2581
Delta R.T. -0.017 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:142 Resp: 45196

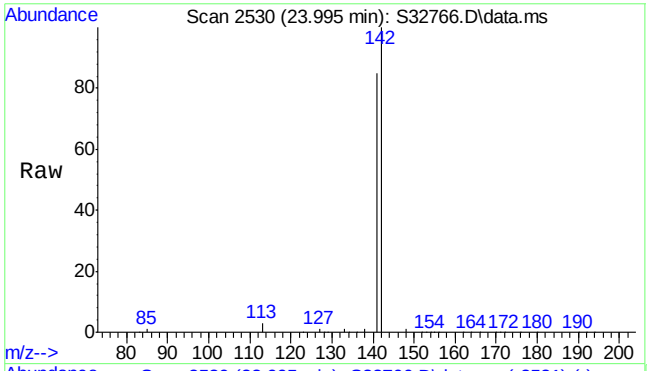
Ion	Ratio	Lower	Upper
142	100		
141	88.3	71.1	106.7





9.1.8

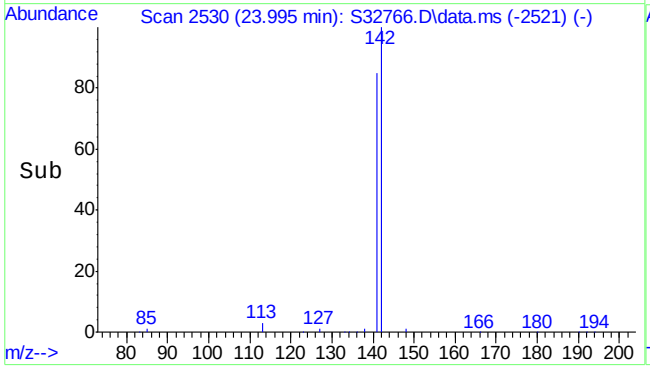
9

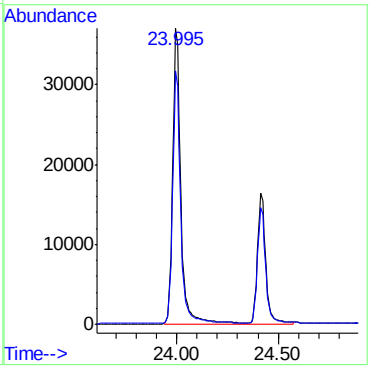


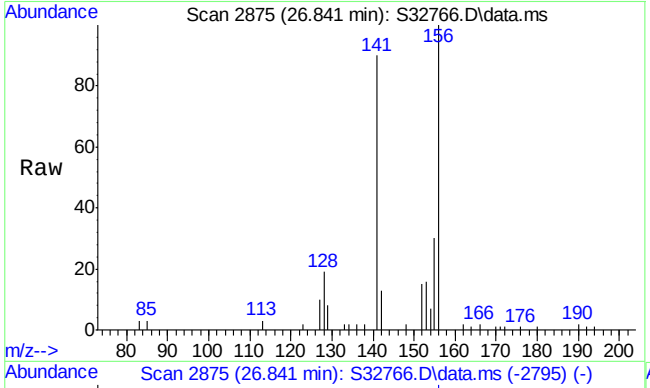
#47
C1-Naphthalenes
Concen: 971.27 ng/mL m
RT: 23.995 min Scan# 2530
Delta R.T. -0.017 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:142 Resp: 147434

Ion	Ratio	Lower	Upper
142	100		
141	58.5	68.9	103.3#



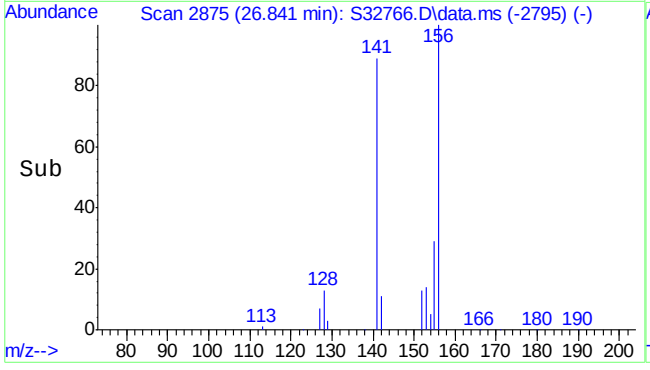


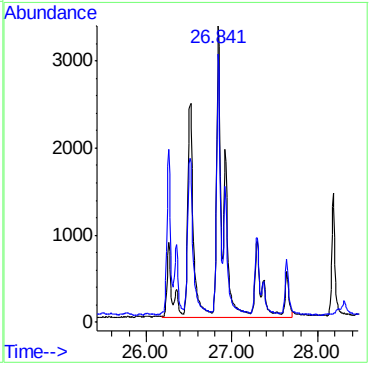


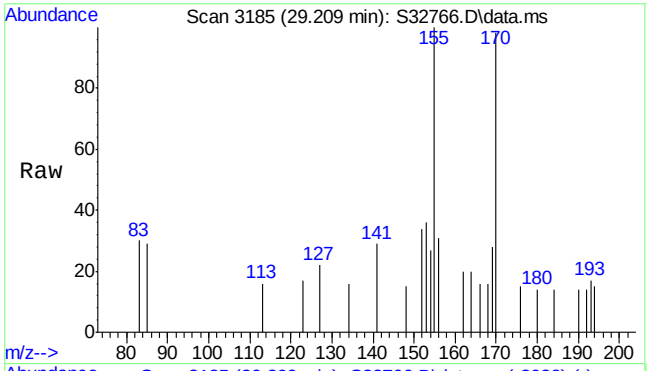
#48
C2-Naphthalenes
Concen: 256.00 ng/mL m
RT: 26.841 min Scan# 2875
Delta R.T. -0.099 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:156 Resp: 38859

Ion	Ratio	Lower	Upper
156	100		
141	11.7	60.6	90.8#



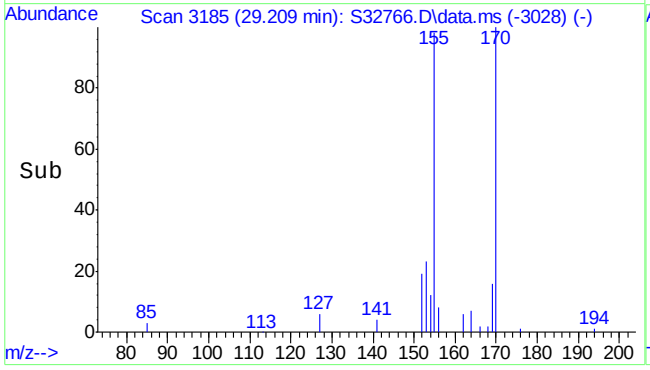


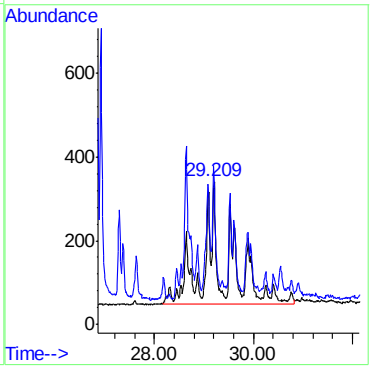


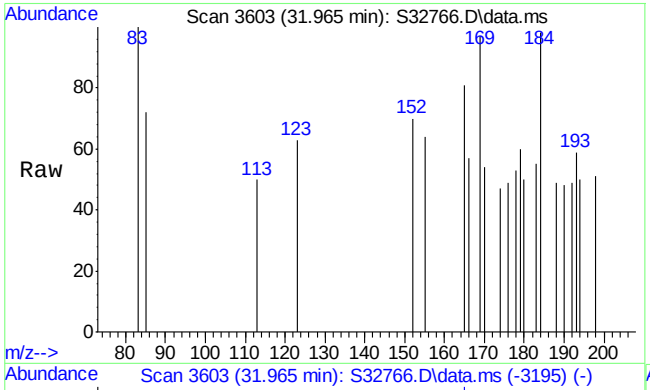
#49
C3-Naphthalenes
Concen: 56.62 ng/mL m
RT: 29.209 min Scan# 3185
Delta R.T. 0.014 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:170 Resp: 8594

Ion	Ratio	Lower	Upper
170	100		
155	13.2	81.7	122.5#



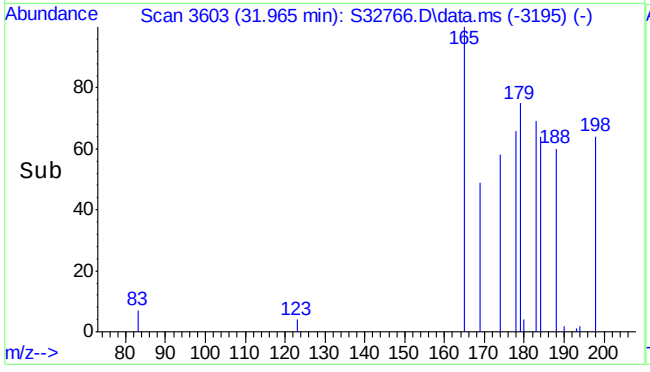


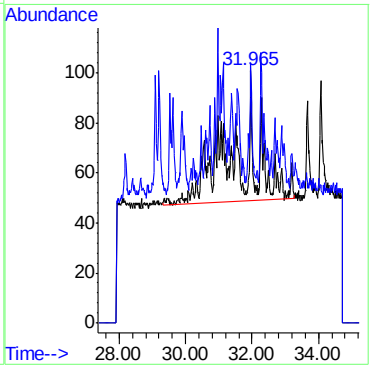


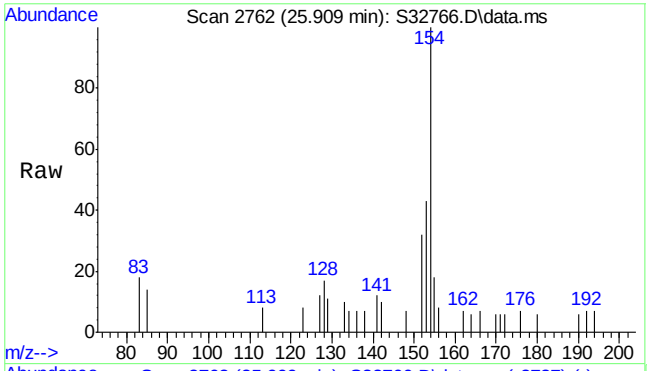
#50
C4-Naphthalenes
Concen: 15.25 ng/mL m
RT: 31.965 min Scan# 3603
Delta R.T. 0.013 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:184 Resp: 2315

Ion	Ratio	Lower	Upper
184	100		
169	0.0	76.8	115.2#



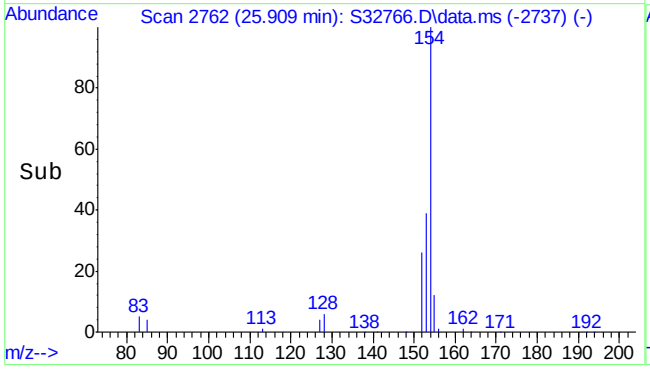


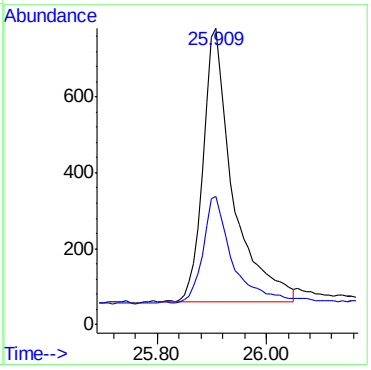


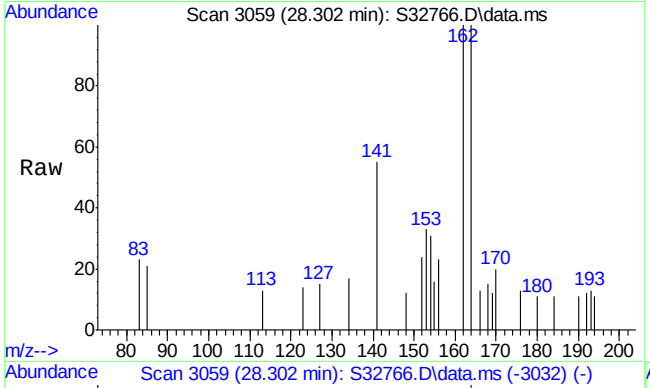
#51
Biphenyl
Concen: 20.96 µg/mL
RT: 25.909 min Scan# 2762
Delta R.T. 0.008 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:154 Resp: 2677

Ion	Ratio	Lower	Upper
154	100		
153	38.6	31.2	46.8



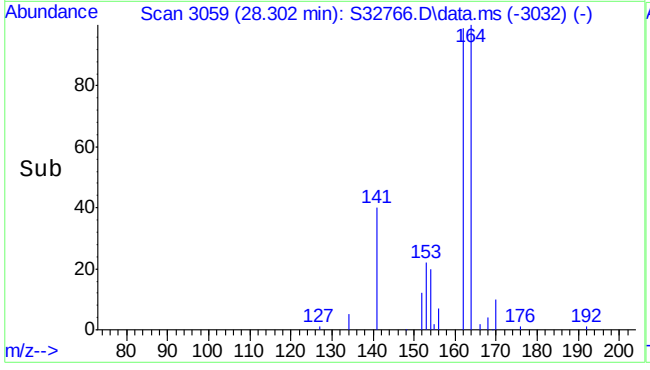


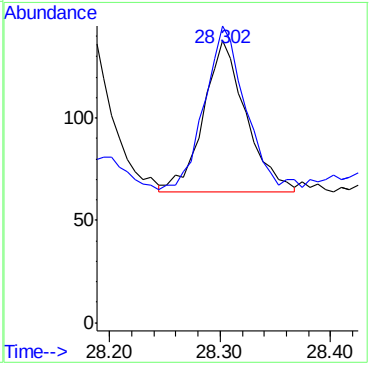


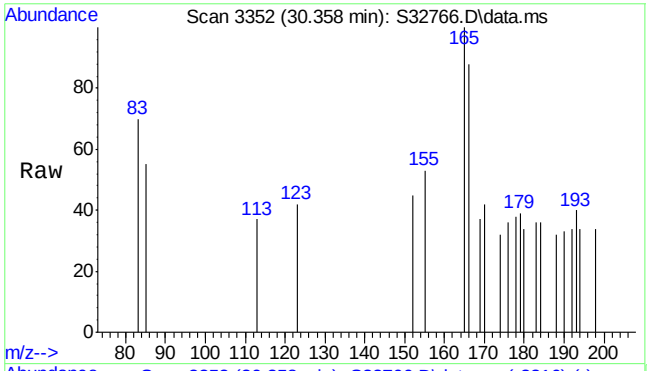
#53
Acenaphthene
Concen: 2.41 ng/mL m
RT: 28.302 min Scan# 3059
Delta R.T. -0.007 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:154 Resp: 198

Ion	Ratio	Lower	Upper
154	100		
153	0.0	86.4	129.6#



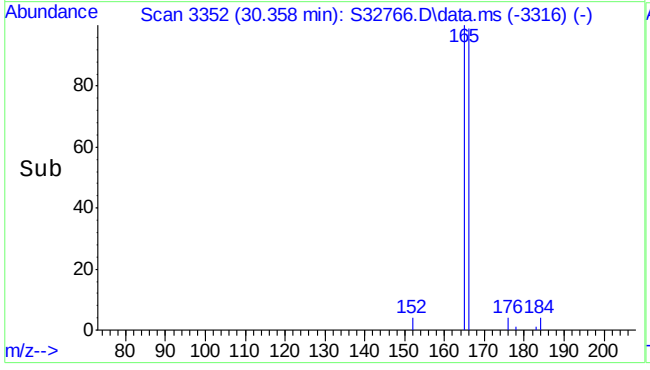


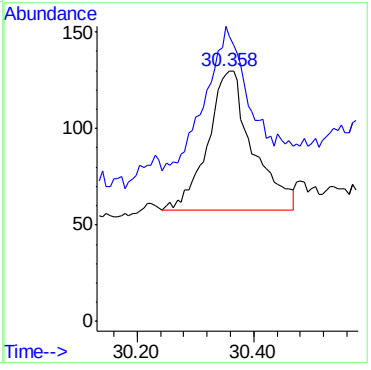


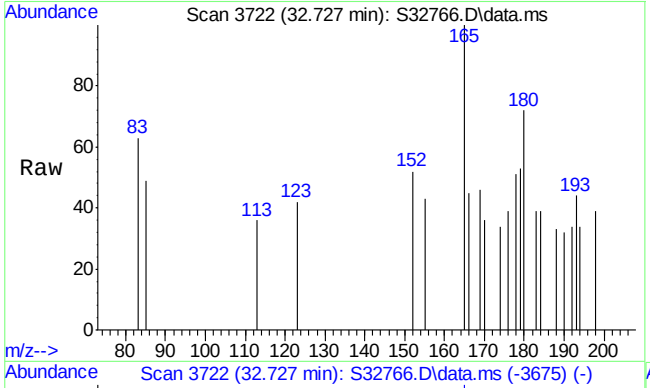
#55
Fluorene
Concen: 3.93 ng/mL
RT: 30.358 min Scan# 3352
Delta R.T. 0.032 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:166 Resp: 382

Ion	Ratio	Lower	Upper
166	100		
165	88.0	75.1	112.7



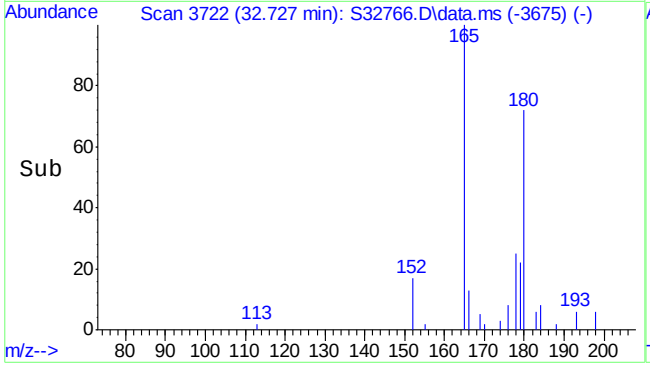


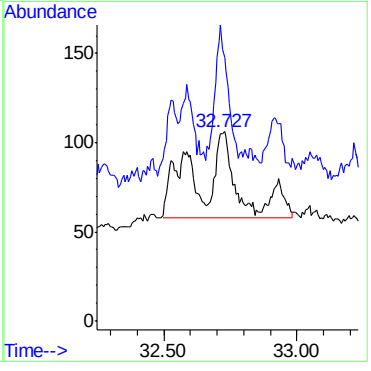


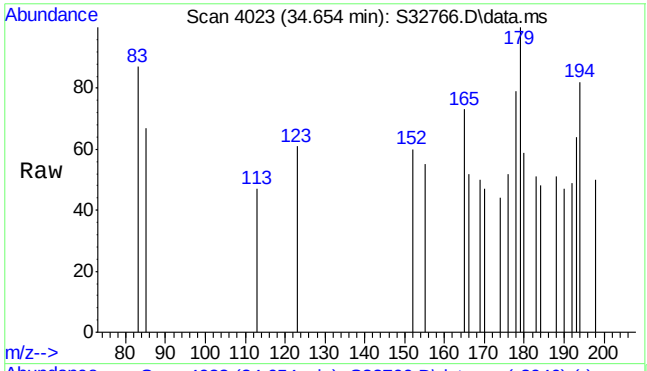
#56
C1-Fluorenes
Concen: 5.33 ng/mL m
RT: 32.727 min Scan# 3722
Delta R.T. 0.032 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:180 Resp: 519

Ion	Ratio	Lower	Upper
180	100		
165	0.0	128.1	192.1#



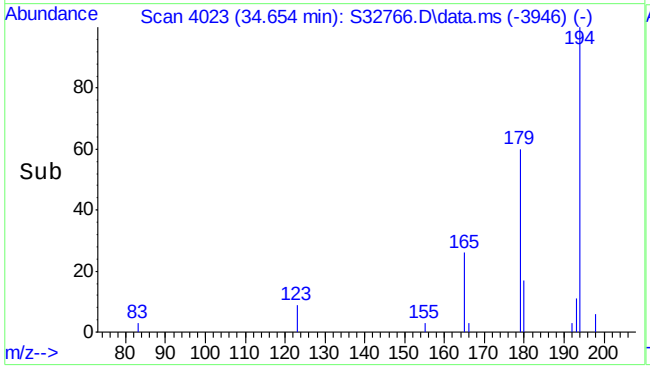


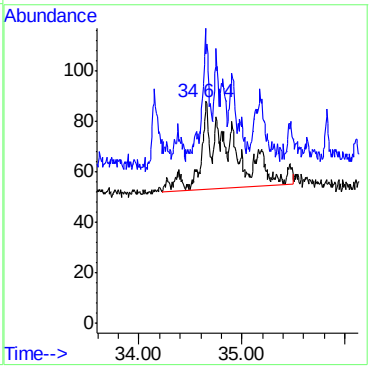


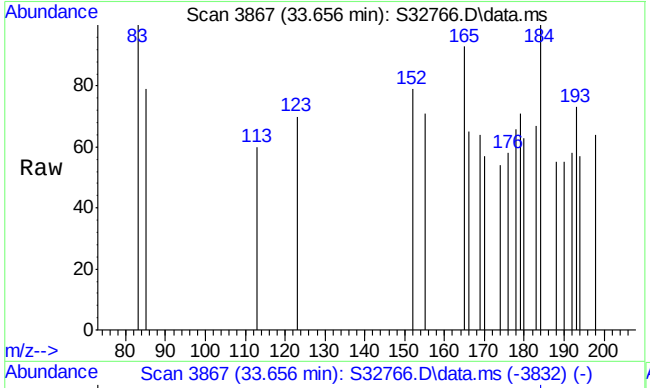
#57
C2-Fluorenes
Concen: 7.31 ng/mL m
RT: 34.654 min Scan# 4023
Delta R.T. -0.244 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:194 Resp: 711

Ion	Ratio	Lower	Upper
194	100		
179	0.0	122.6	183.8#



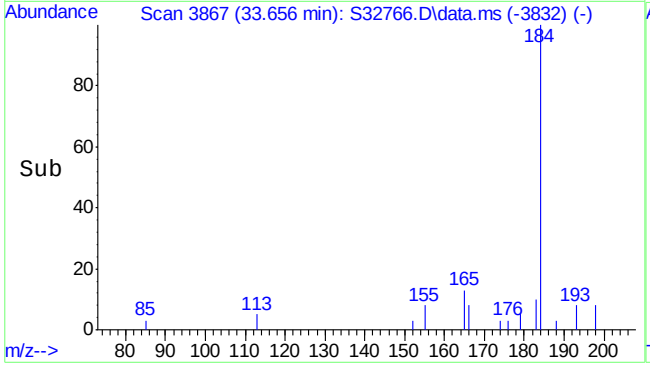


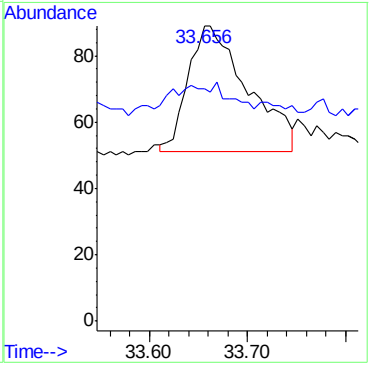


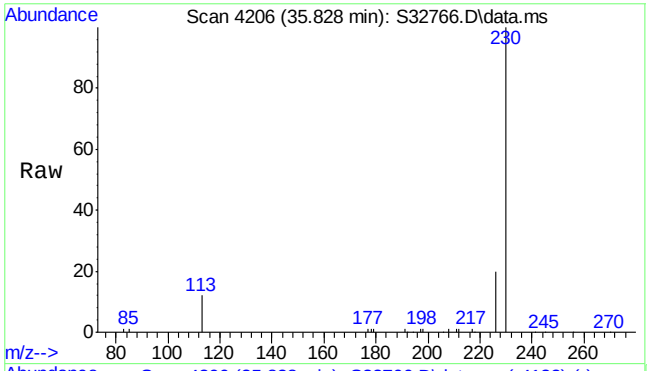
#59
Dibenzothiophene
Concen: 1.22 ng/mL m
RT: 33.656 min Scan# 3867
Delta R.T. 0.026 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:184 Resp: 161

Ion	Ratio	Lower	Upper
184	100		
152	0.0	7.1	10.7#



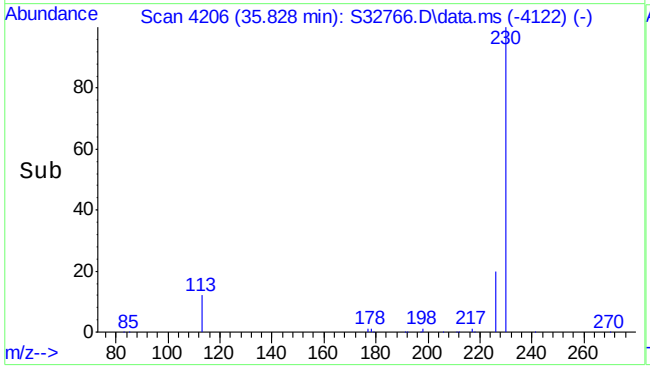


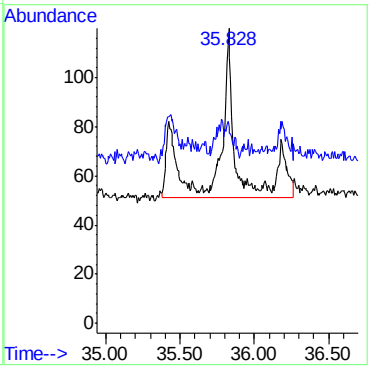


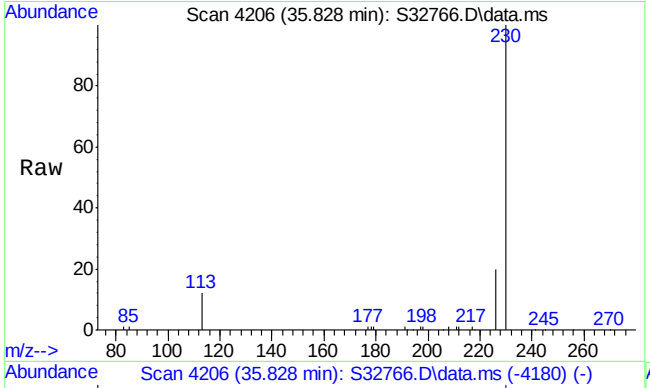
#60
C1-Dibenzothiophenes (unadj)
Concen: 4.59 ng/mL m
RT: 35.828 min Scan# 4206
Delta R.T. 0.417 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:198 Resp: 608

Ion	Ratio	Lower	Upper
198	100		
197	0.0	52.8	79.2#



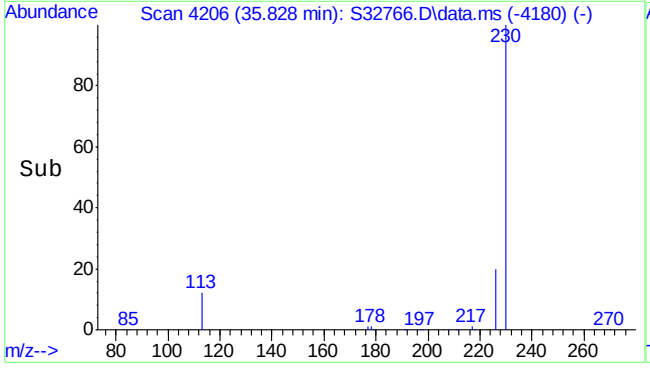


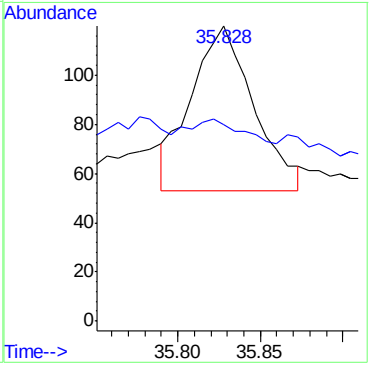


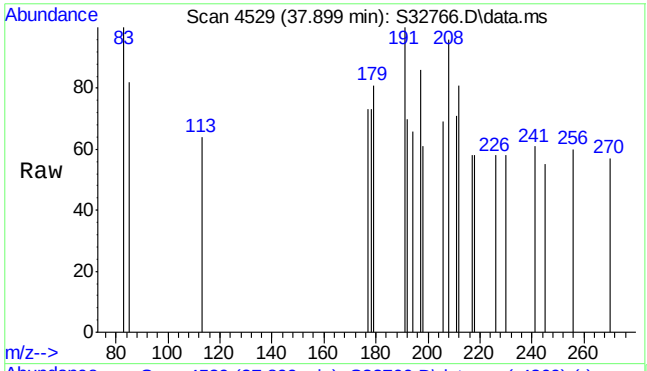
#61
C1-Dibenzothiophenes (OTP)
Concen: 1.34 µg/mL m
RT: 35.828 min Scan# 4206
Delta R.T. 0.064 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:198 Resp: 177

Ion	Ratio	Lower	Upper
198	100		
197	0.0	57.8	86.6#



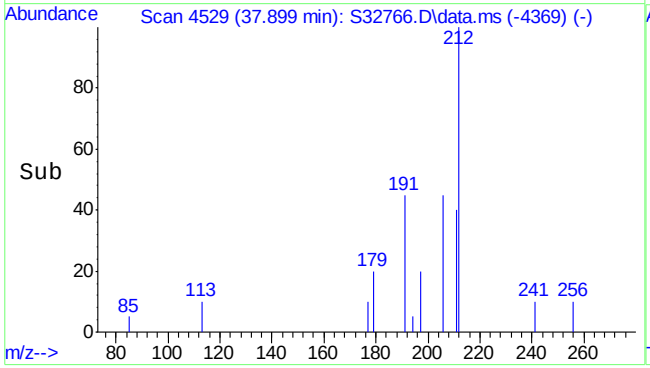


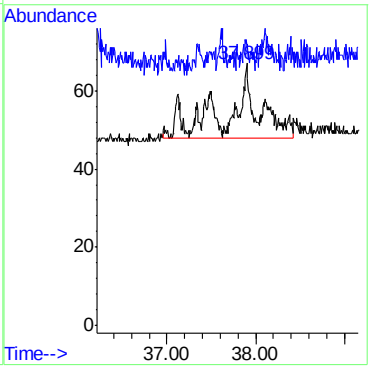


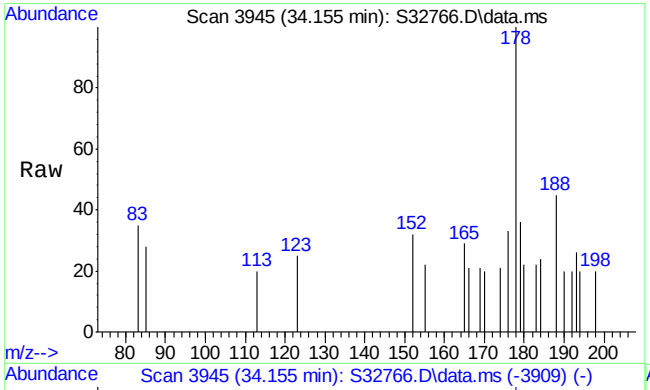
#62
C2-Dibenzothiophenes
Concen: 3.48 ng/mL m
RT: 37.899 min Scan# 4529
Delta R.T. 0.436 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:212 Resp: 461

Ion	Ratio	Lower	Upper
212	100		
197	0.0	18.9	28.3#



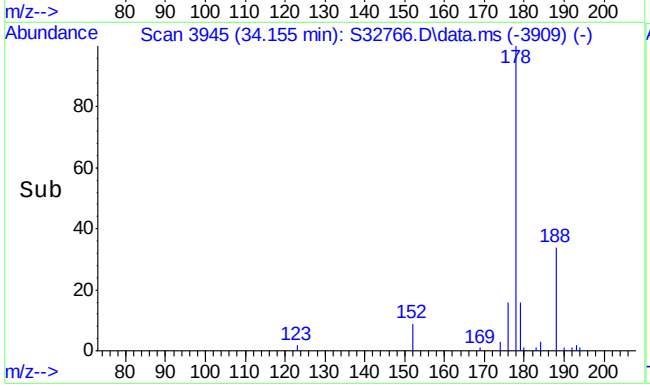


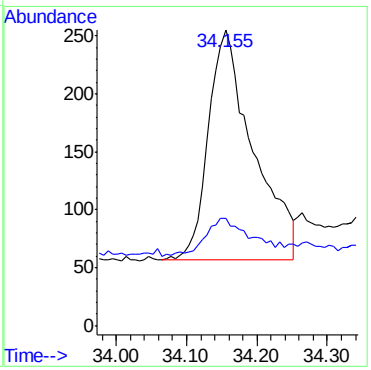


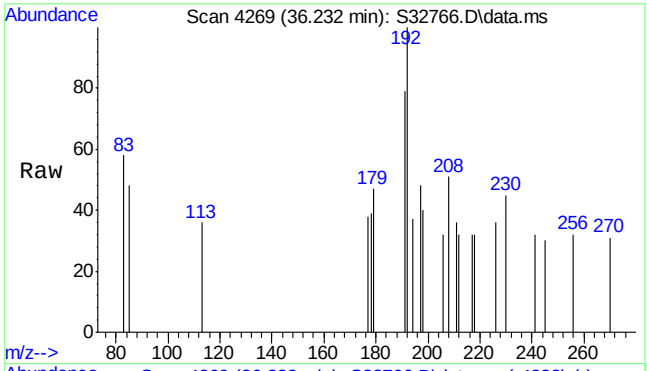
#65
Phenanthrene
Concen: 6.21 ng/mL
RT: 34.155 min Scan# 3945
Delta R.T. 0.032 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:178 Resp: 862

Ion	Ratio	Lower	Upper
178	100		
179	0.0	12.2	18.4#



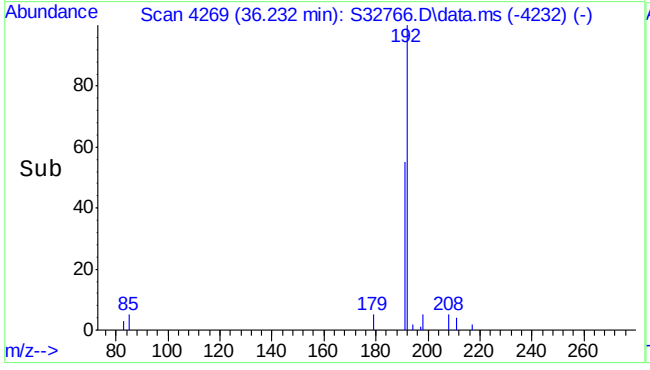


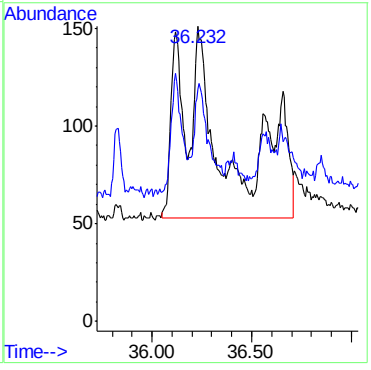


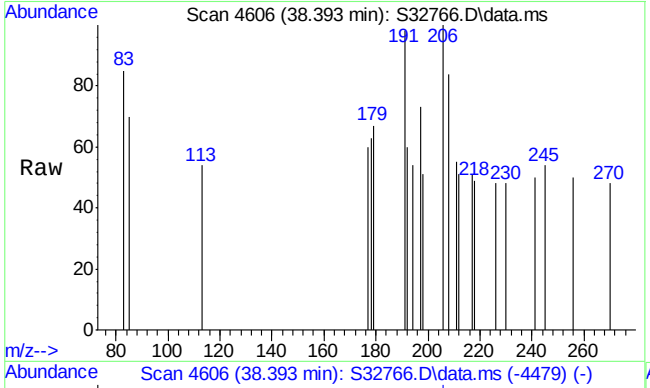
#67
C1-Phenanthrenes/anthracenes
Concen: 11.43 ng/mL m
RT: 36.232 min Scan# 4269
Delta R.T. -0.314 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:192 Resp: 1585

Ion	Ratio	Lower	Upper
192	100		
191	14.2	44.9	67.3#



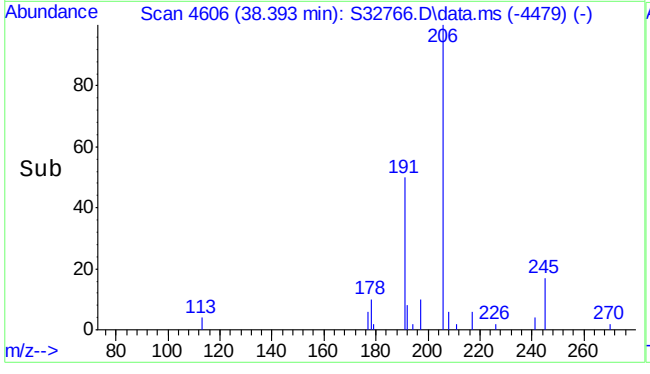


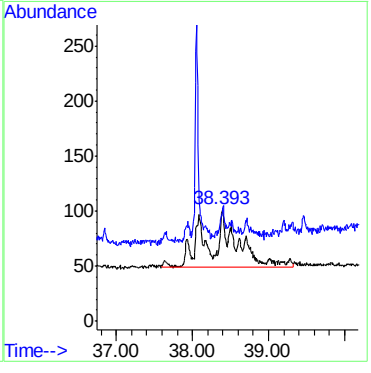


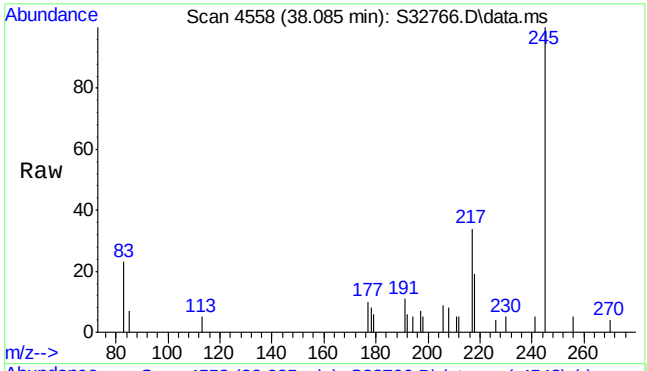
#68
C2-Phenanthrenes/anthracenes (unadj)
Concen: 9.82 ng/mL m
RT: 38.393 min Scan# 4606
Delta R.T. 0.019 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:206 Resp: 1362

Ion	Ratio	Lower	Upper
206	100		
191	0.0	44.7	67.1#



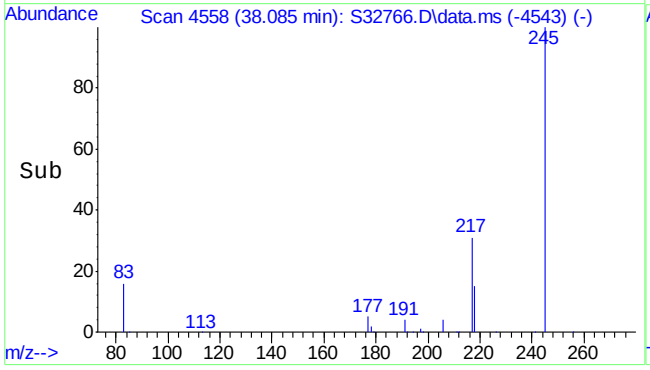


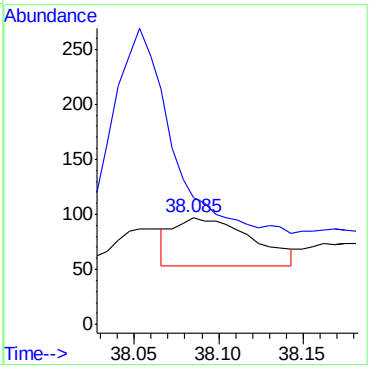


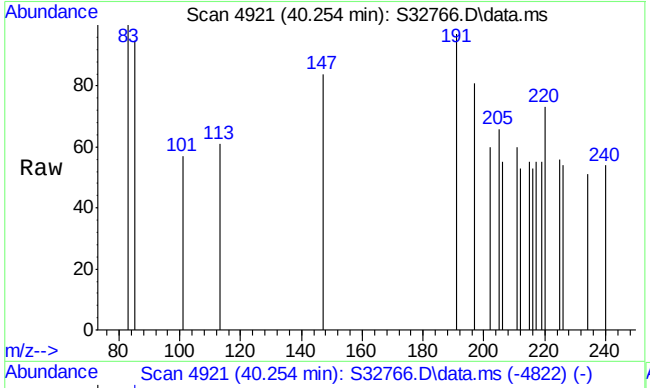
#69
C2-Phenanthrenes/anthracenes (5aA)
Concen: 1.02 µg/mL m
RT: 38.085 min Scan# 4558
Delta R.T. -0.103 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:206 Resp: 142

Ion	Ratio	Lower	Upper
206	100		
191	0.0	61.9	92.9#



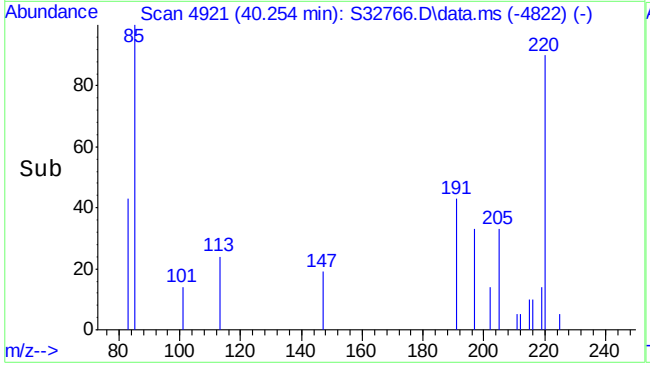


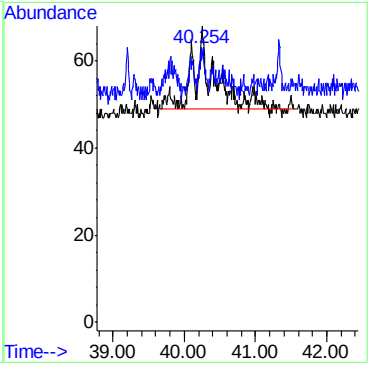


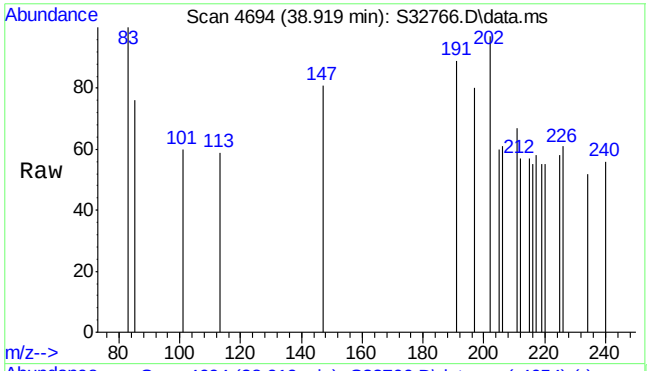
#70
C3-Phenanthrenes/anthracenes
Concen: 2.65 ng/mL m
RT: 40.254 min Scan# 4921
Delta R.T. 0.035 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:220 Resp: 367

Ion	Ratio	Lower	Upper
220	100		
205	0.0	42.1	63.1#



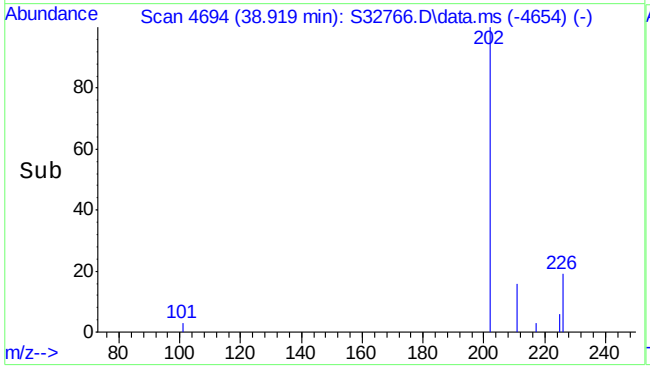


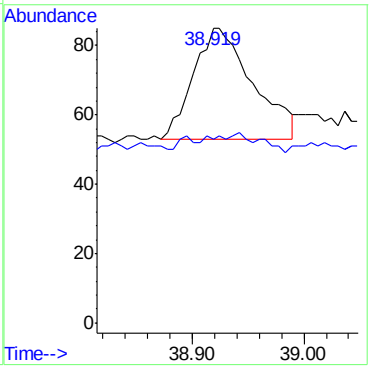


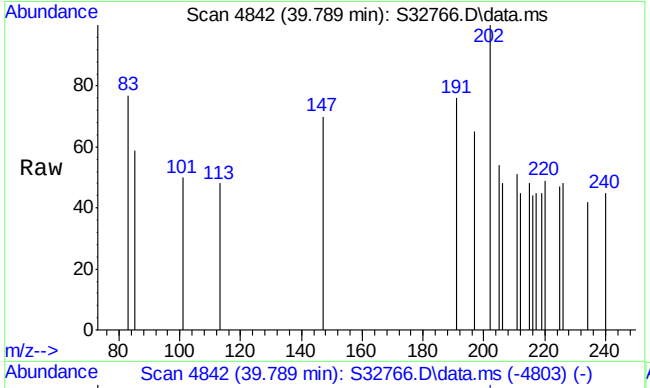
#78
Fluoranthene
Concen: 0.88 ng/mL m
RT: 38.919 min Scan# 4694
Delta R.T. 0.036 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:202 Resp: 119

Ion	Ratio	Lower	Upper
202	100		
101	0.0	10.0	15.0#



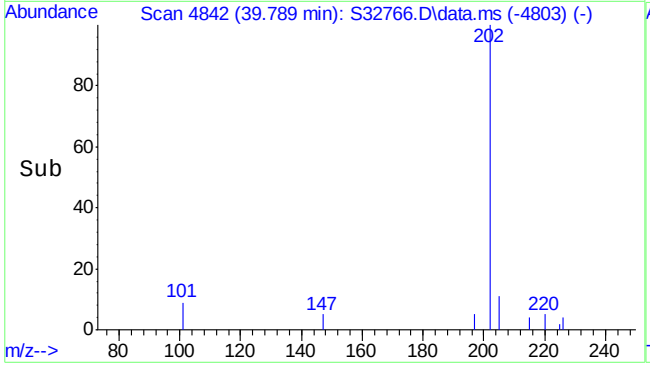


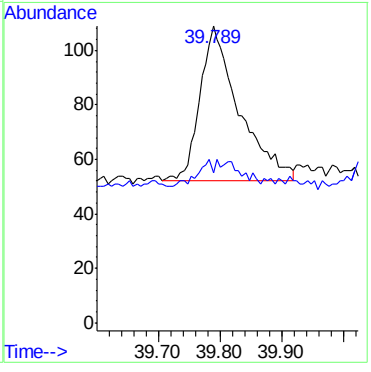


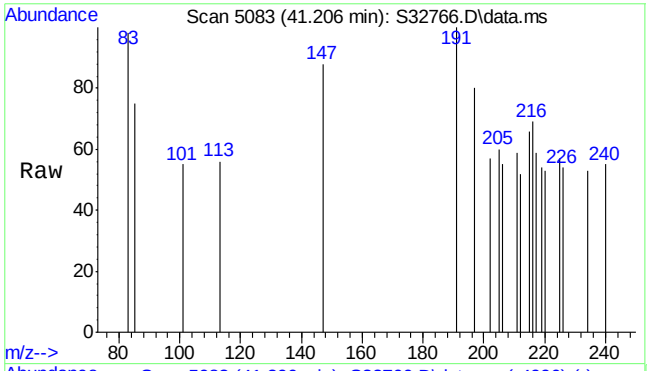
#79
Pyrene
Concen: 1.80 ng/mL
RT: 39.789 min Scan# 4842
Delta R.T. 0.030 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:202 Resp: 252

Ion	Ratio	Lower	Upper
202	100		
101	0.0	11.4	17.0#



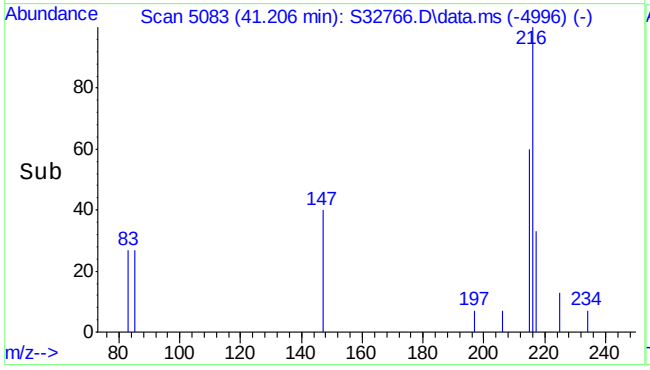


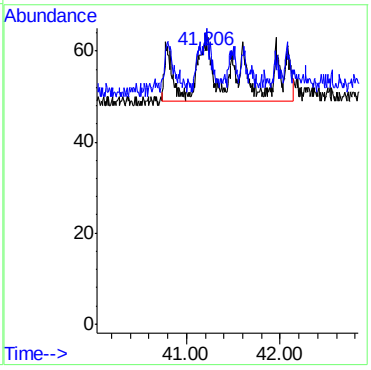


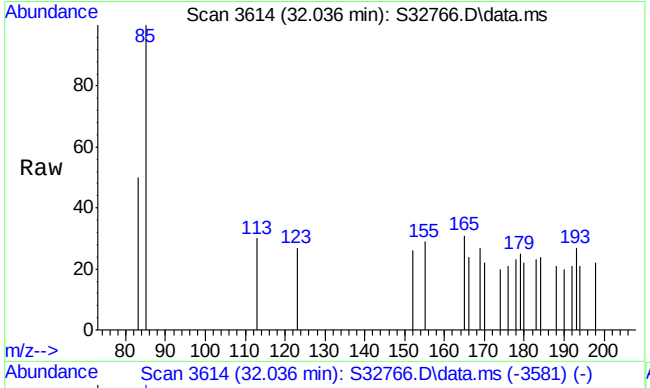
#80
C1-Fluoranthenes/pyrenes
Concen: 3.28 ng/mL m
RT: 41.206 min Scan# 5083
Delta R.T. 0.029 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion:216 Resp: 459

Ion	Ratio	Lower	Upper
216	100		
215	0.0	76.5	114.7#



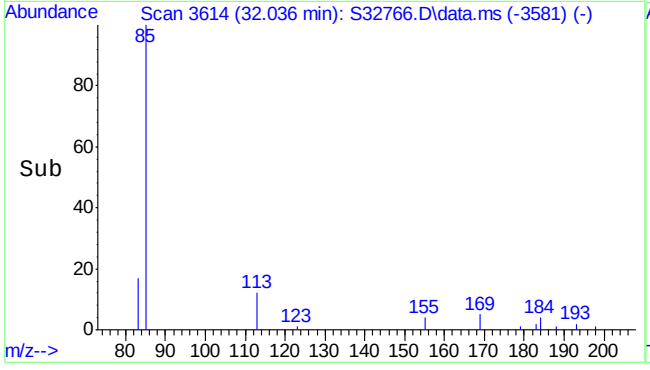


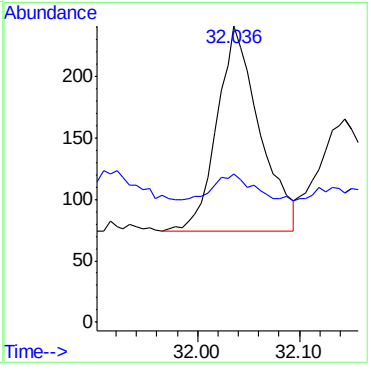


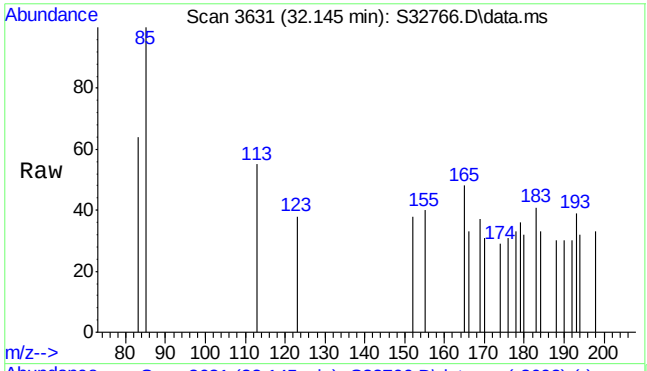
#103
C-17
Concen: 16.44 µg/mL
RT: 32.036 min Scan# 3614
Delta R.T. 0.013 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 85 Resp: 484

Ion	Ratio	Lower	Upper
85	100		
83	0.0	12.3	18.5#



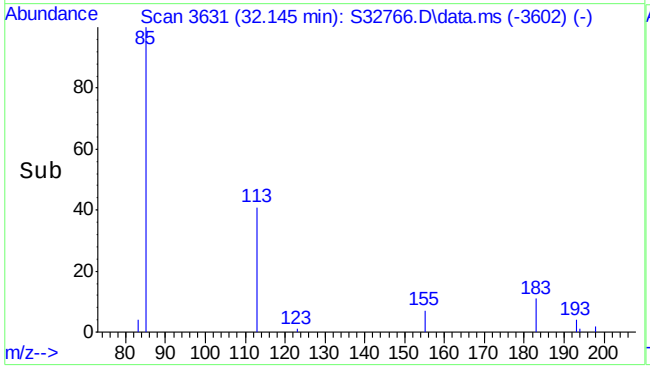


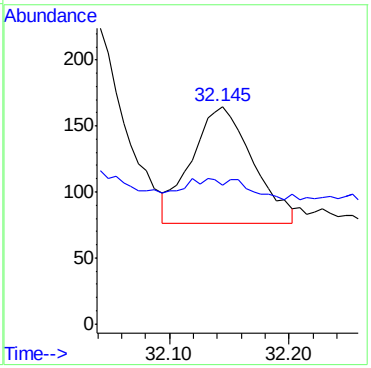


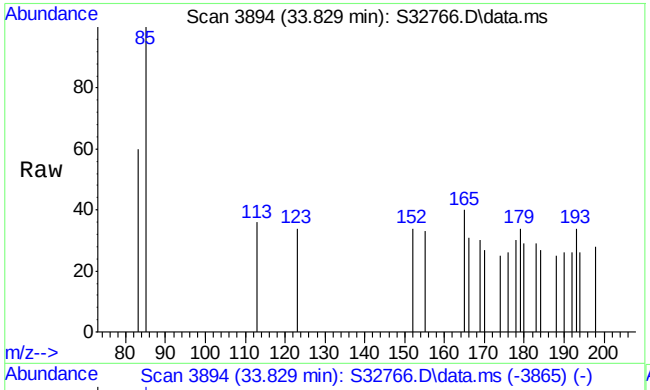
#104
Pristane
Concen: 14.27 µg/mL m
RT: 32.145 min Scan# 3631
Delta R.T. -0.013 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 85 Resp: 317

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#



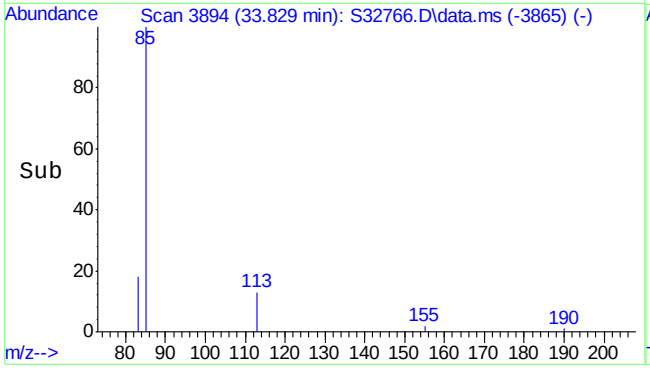


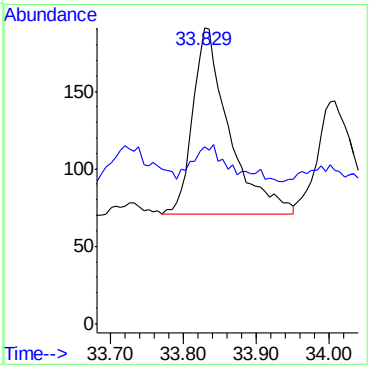


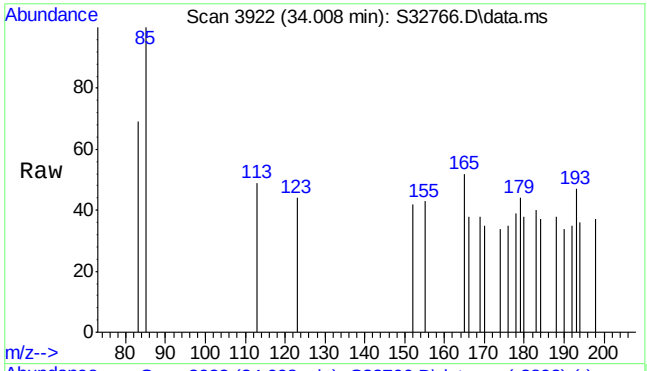
#105
C-18
Concen: 13.76 µg/mL
RT: 33.829 min Scan# 3894
Delta R.T. -0.013 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 85 Resp: 414

Ion	Ratio	Lower	Upper
85	100		
83	0.0	17.8	26.6#



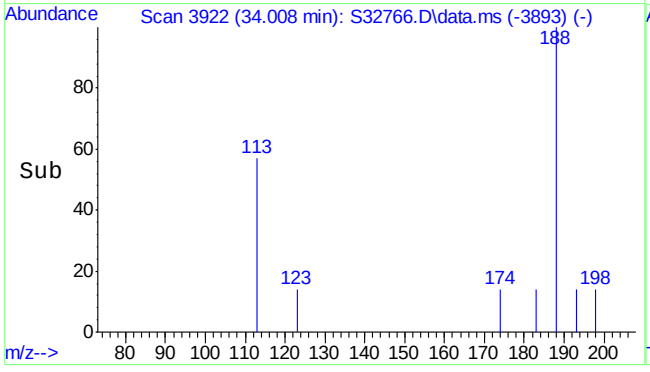


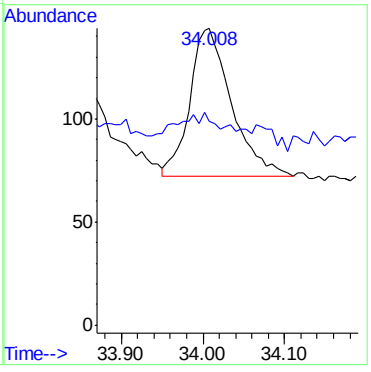


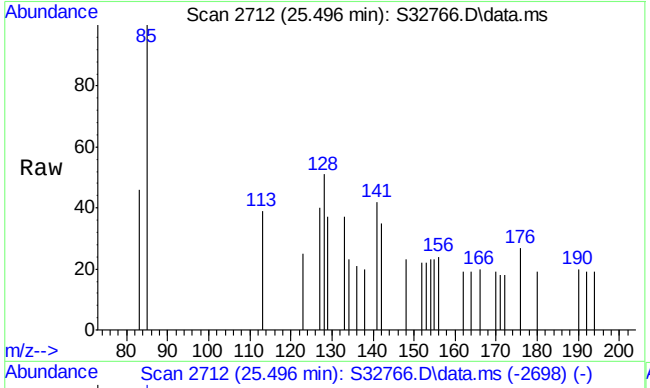
#106
Phytane
Concen: 8.67 µg/mL
RT: 34.008 min Scan# 3922
Delta R.T. -0.013 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 85 Resp: 256

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#



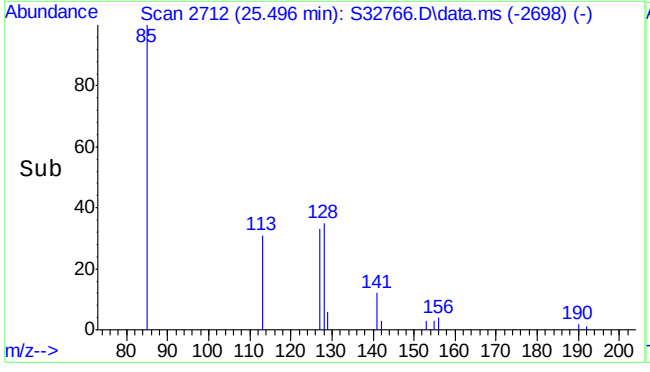


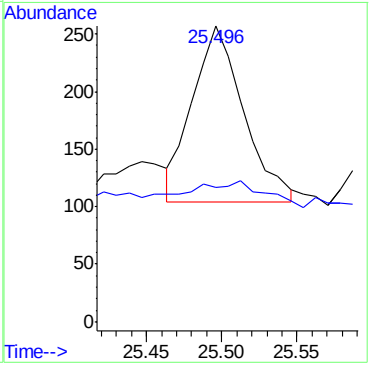


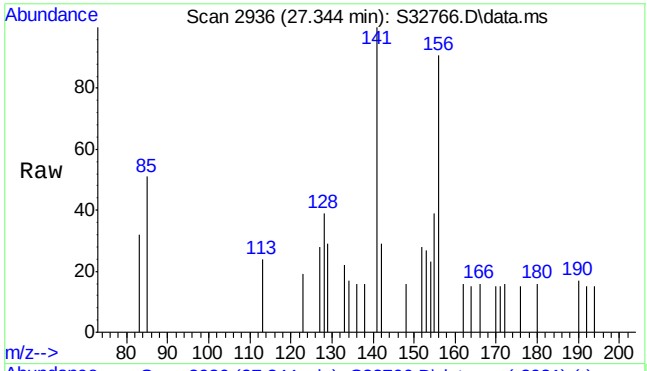
#107
2,6,10-Trimethyldodecane (1380)
Concen: 12.36 µg/mL m
RT: 25.496 min Scan# 2712
Delta R.T. -0.083 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 85 Resp: 365

Ion	Ratio	Lower	Upper
85	100		
83	0.0	13.0	19.6#



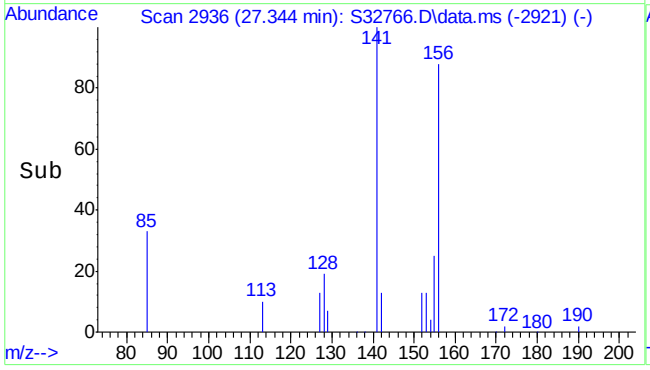


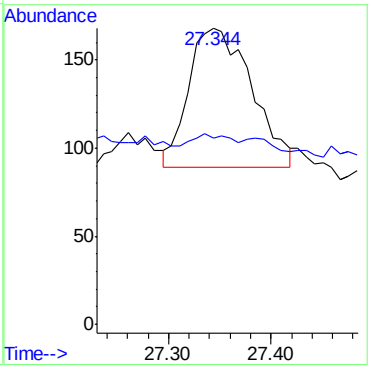


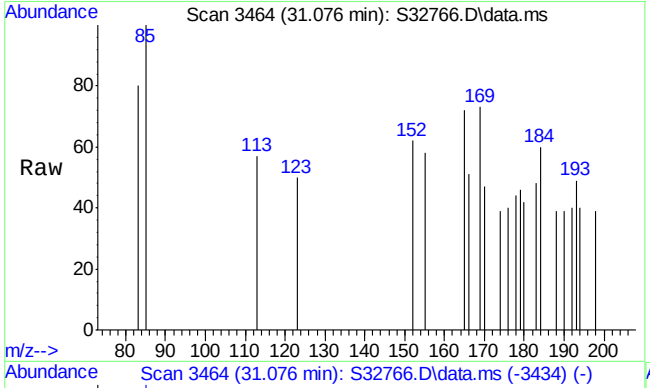
#108
2,6,10-Trimethyltridecane (1470)
Concen: 11.45 µg/mL m
RT: 27.344 min Scan# 2936
Delta R.T. -0.074 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 85 Resp: 338

Ion	Ratio	Lower	Upper
85	100		
83	0.0	13.0	19.6#



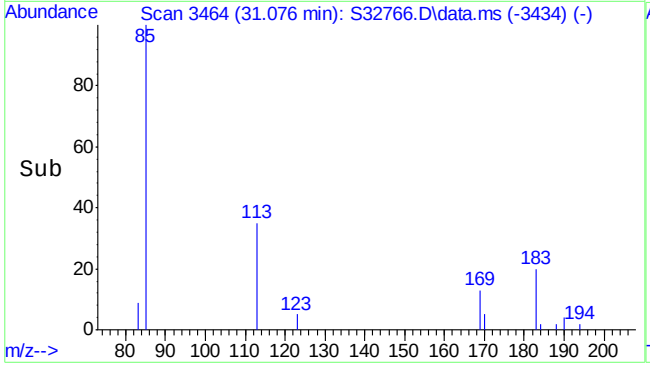


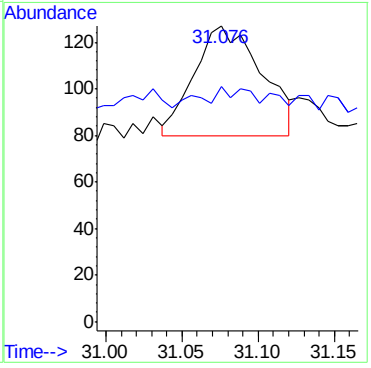


#109
2,6,10-Trimethylpentadecane (1650)
Concen: 4.88 µg/mL m
RT: 31.076 min Scan# 3464
Delta R.T. -0.006 min
Lab File: S32766.D
Acq: 29 May 2013 6:45 pm

Tgt Ion: 85 Resp: 144

Ion	Ratio	Lower	Upper
85	100		
83	0.0	21.2	31.8#





Manual Integrations APPROVED (compounds with "m" flag)
James Roush
05/31/13 15:01

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32767.D
Acq On : 29 May 2013 7:57 pm
Operator : danielb
Sample : mc20162-9
Misc : op33312,mss1429,0.0154,,,2,50
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 31 11:28:21 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	28.180	164	57126	1000.00	ng/mL	-0.01
System Monitoring Compounds						
2) Toluene-d8	9.313	98	4422	69.74	µg/mL	0.00
Spiked Amount 1000.000			Recovery = 6.97%			
3) Naphthalene-d8	21.216	136	2302	19.87	ng/mL	-0.02
Spiked Amount 1000.000	Range 1 - 0		Recovery = 1.99%#			
4) Phenanthrene-d10	34.059	188	1414	15.51	ng/mL	0.03
Spiked Amount 1000.000			Recovery = 1.55%			
5) Perylene-d12	49.943	264	1026m	11.85	ng/mL	0.06
Spiked Amount 1000.000			Recovery = 1.19%			
Target Compounds						Qvalue
6) MTBE	5.495	73	195m	4.16	µg/mL	
7) Benzene	6.893	TIC	6251m	69.21	µg/mL	
8) C1-Benzene	9.414	92	20345	225.26	µg/mL	99
9) C2-Benzenes	12.374	106	555467m	6150.22	µg/mL	
10) C3-Benzenes	16.019	120	905563m	10026.53	µg/mL	
11) C4-Benzenes	17.799	134	487426m	5396.86	µg/mL	
12) C5-Benzenes	20.096	148	138570m	1534.27	µg/mL	
13) Methylcyclohexane	8.254	83	18801	533.55	µg/mL	97
14) Toluene	9.414	91	34723	410.86	µg/mL	100
15) Ethylbenzene	12.144	91	82752	801.43	µg/mL	100
16) m,p-xylene	12.374	91	846275	10282.47	µg/mL	100
17) Styrene	13.016	104	373	6.10	µg/mL#	30
18) o-Xylene	13.080	91	337978	4145.92	µg/mL	100
19) Isopropylbenzene	14.010	105	13697	142.53	µg/mL	99
20) n-Propylbenzene	14.860	91	78702	604.47	µg/mL	99
21) 1,3,5-Trimethylbenzene	15.277	105	297477	3335.96	µg/mL	100
22) t-Butylbenzene	16.019	119	94205	1074.44	µg/mL#	54
23) 1,2,4-Trimethylbenzene	16.012	105	818765	8981.18	µg/mL	99
24) sec-Butylbenzene	16.502	105	16945	144.87	µg/mL	99
25) 1,2,3-Trimethylbenzene	16.862	105	193749	2026.99	µg/mL	96
26) p-Isopropyltoluene	16.790	119	30445	295.13	µg/mL	92
27) n-Butylbenzene	17.748	91	47466m	477.22	µg/mL	
28) trans-Decalin	17.835	96	464	24.79	µg/mL	82
29) cis-Decalin	19.074	96	341	13.96	µg/mL#	14
30) C1-Decalins	19.347	152	946m	50.55	µg/mL	
31) C2-Decalins	20.781	166	710m	37.94	µg/mL	
34) Benzo(b)thiophene	21.504	134	9022m	83.62	µg/mL	
35) C1-Benzo(b)thiophenes	23.583	148	10620m	98.43	µg/mL	
36) C2-Benzo(b)thiophenes	26.552	162	2114m	19.59	µg/mL	
37) C3-Benzo(b)thiophenes	29.029	176	387m	3.59	µg/mL	
39) Tetraethyl lead	20.363	208	515	69.10	µg/mL	97
44) Naphthalene	21.290	128	170141	1231.77	ng/mL	99
45) 2-Methylnaphthalene	23.995	142	109212	1275.38	ng/mL	99
46) 1-Methylnaphthalene	24.416	142	49415	572.82	ng/mL	100
47) C1-Naphthalenes	23.995	142	162077m	1173.39	ng/mL	
48) C2-Naphthalenes	26.841	156	45018m	325.92	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32767.D
Acq On : 29 May 2013 7:57 pm
Operator : danielb
Sample : mc20162-9
Misc : op33312,mss1429,0.0154,,,2,50
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 31 11:28:21 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
49)	C3-Naphthalenes	29.201	170	11269m	81.58	ng/mL	
50)	C4-Naphthalenes	31.959	184	3245m	23.49	ng/mL	
51)	Biphenyl	25.909	154	2876	24.74	µg/mL	97
53)	Acenaphthene	28.309	154	266	3.55	ng/mL	90
55)	Fluorene	30.346	166	474	5.35	ng/mL	94
56)	C1-Fluorenes	32.721	180	630m	7.12	ng/mL	
57)	C2-Fluorenes	34.648	194	906m	10.23	ng/mL	
59)	Dibenzothiophene	33.662	184	200	1.66	ng/mL#	75
60)	C1-Dibenzothiophenes (...	35.828	198	611m	5.07	ng/mL	
61)	C1-Dibenzothiophenes (...	35.828	198	183m	1.52	µg/mL	
62)	C2-Dibenzothiophenes	37.886	212	470m	3.90	ng/mL	
65)	Phenanthrene	34.155	178	1203	9.53	ng/mL#	63
67)	C1-Phenanthrenes/anthr...	36.232	192	2124m	16.83	ng/mL	
68)	C2-Phenanthrenes/anthr...	38.387	206	1813m	14.36	ng/mL	
69)	C2-Phenanthrenes/anthr...	38.098	206	196m	1.55	µg/mL	
70)	C3-Phenanthrenes/anthr...	40.259	220	619m	4.90	ng/mL	
78)	Fluoranthene	38.919	202	152m	1.24	ng/mL	
79)	Pyrene	39.795	202	336	2.64	ng/mL#	65
80)	C1-Fluoranthenes/pyrenes	41.224	216	559m	4.39	ng/mL	
103)	C-17	32.036	85	448m	16.73	µg/mL	
104)	Pristane	32.145	85	300m	14.84	µg/mL	
105)	C-18	33.829	85	363	13.26	µg/mL#	54
106)	Phytane	34.008	85	272	10.12	µg/mL#	53
107)	2,6,10-Trimethyldodeca...	25.496	85	355m	13.21	µg/mL	
108)	2,6,10-Trimethyltridec...	27.335	85	388	14.44	µg/mL#	62
109)	2,6,10-Trimethylpentad...	31.082	85	140m	5.21	µg/mL	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

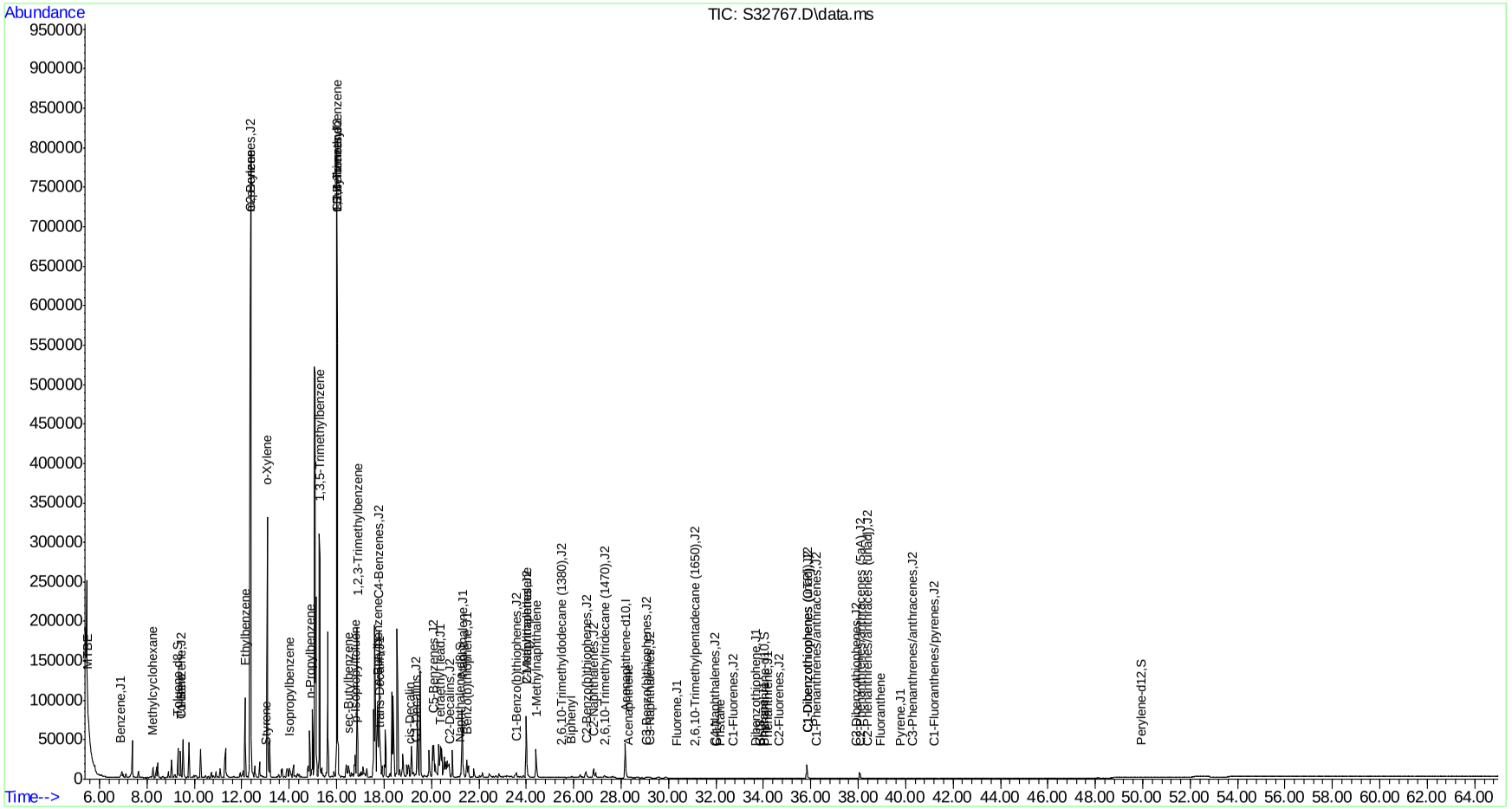
9.1.9

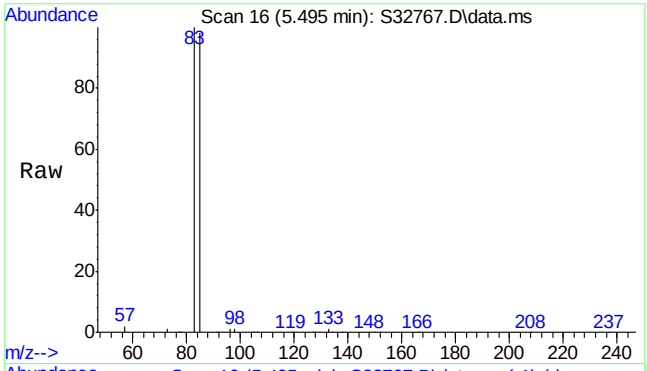
9

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32767.D
Acq On : 29 May 2013 7:57 pm
Operator : danielb
Sample : mc20162-9
Misc : op33312,mss1429,0.0154,,,2,50
ALS Vial : 24 Sample Multiplier: 1

Quant Time: May 31 11:28:21 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 10 12:42:05 2013
Response via : Initial Calibration

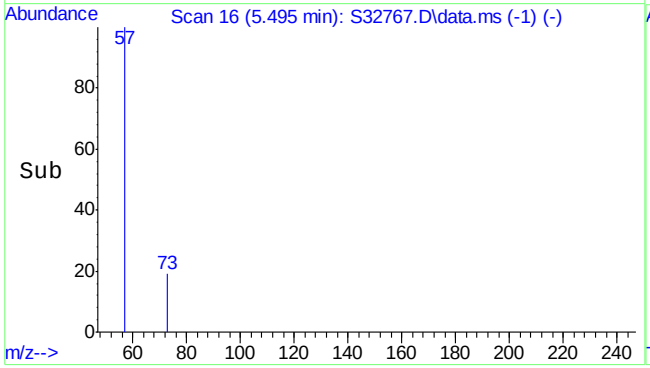


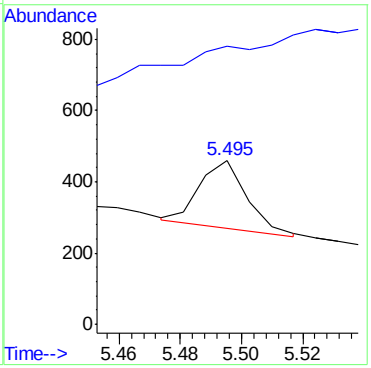


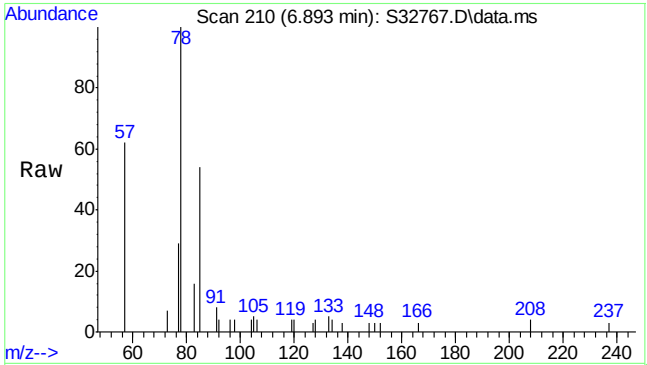
#6
MTBE
Concen: 4.16 µg/mL m
RT: 5.495 min Scan# 16
Delta R.T. 0.000 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 73 Resp: 195

Ion	Ratio	Lower	Upper
73	100		
57	0.0	18.5	27.7#

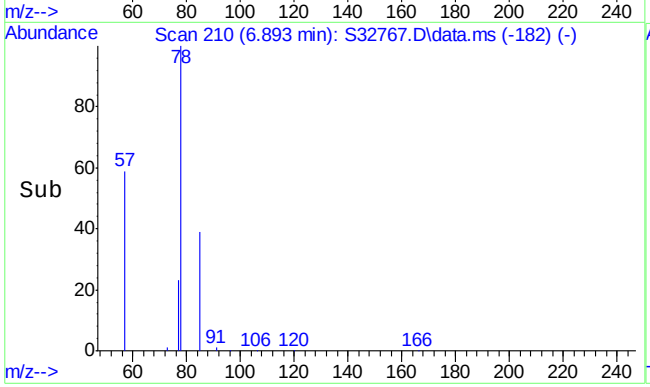


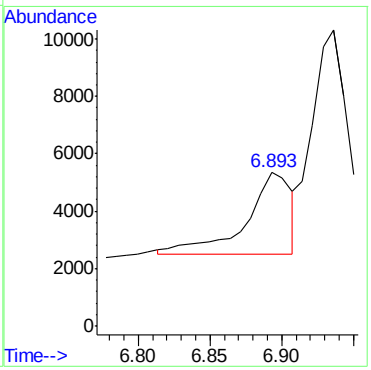


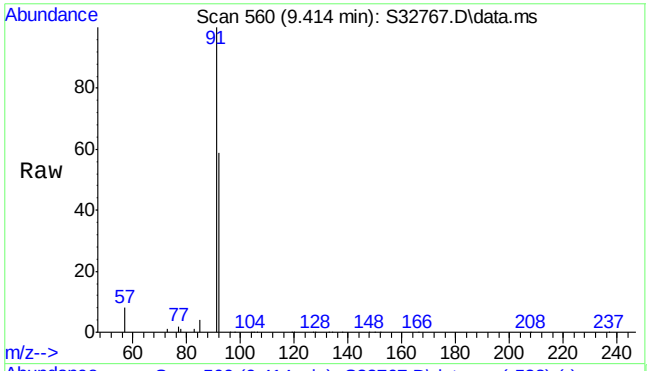


#7
Benzene
Concen: 69.21 µg/mL m
RT: 6.893 min Scan# 210
Delta R.T. 0.000 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:TIC Resp: 6251



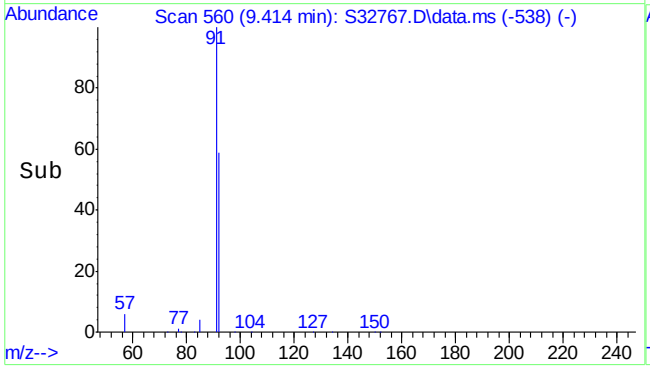


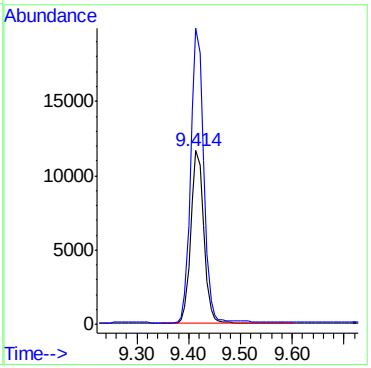


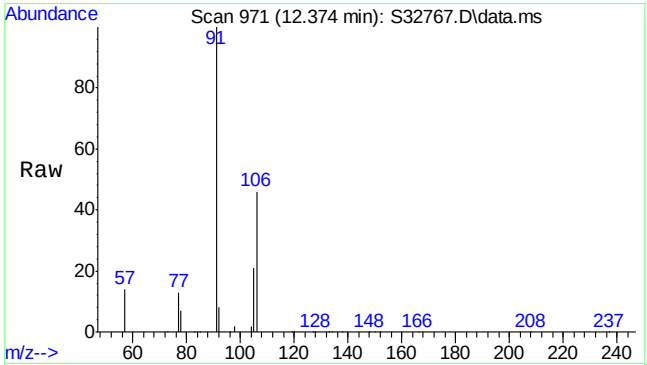
#8
C1-Benzene
Concen: 225.26 µg/mL
RT: 9.414 min Scan# 560
Delta R.T. -0.043 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 92 Resp: 20345

Ion	Ratio	Lower	Upper
92	100		
91	170.7	135.6	203.4



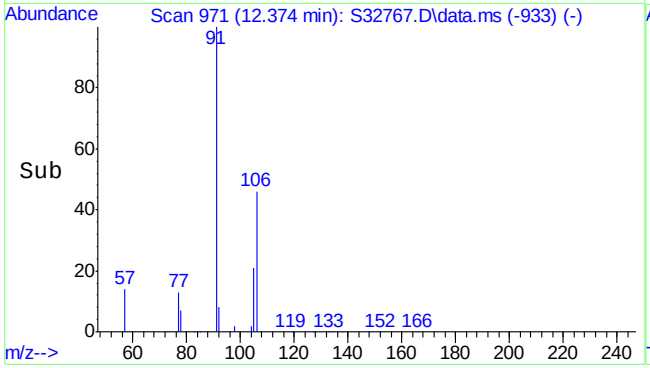


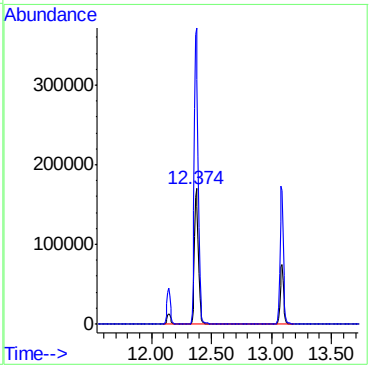


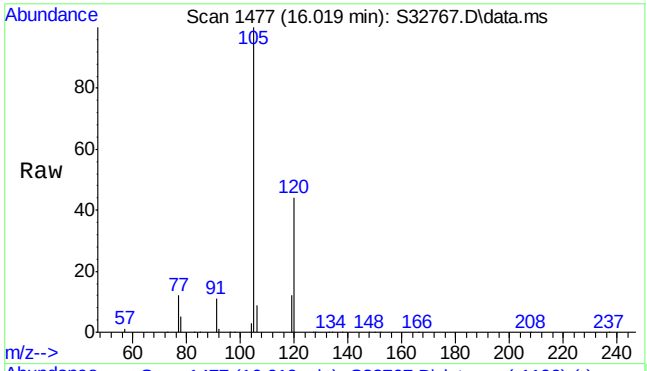
#9
C2-Benzenes
Concen: 6150.22 µg/mL m
RT: 12.374 min Scan# 971
Delta R.T. -0.014 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:106 Resp: 555467

Ion	Ratio	Lower	Upper
106	100		
91	152.4	174.9	262.3#



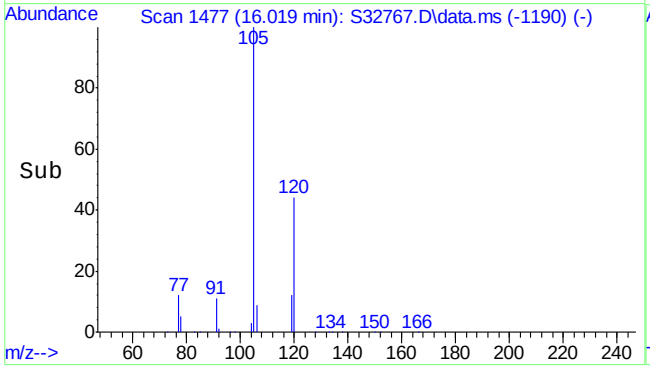


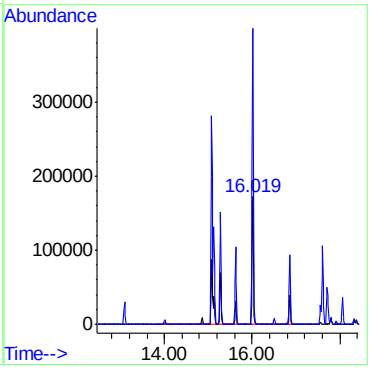


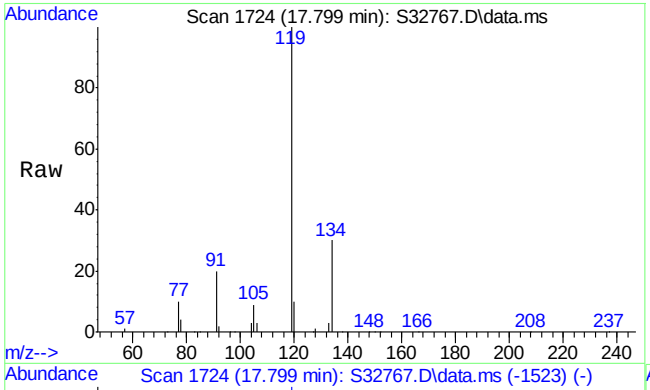
#10
C3-Benzenes
Concen: 10026.53 µg/mL m
RT: 16.019 min Scan# 1477
Delta R.T. -0.014 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:120 Resp: 905563

Ion	Ratio	Lower	Upper
120	100		
105	90.5	181.4	272.2#



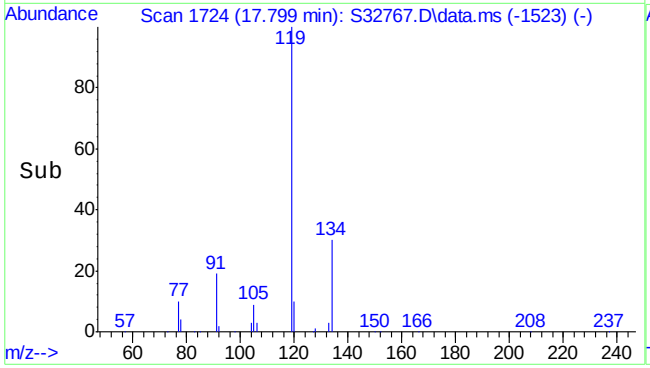


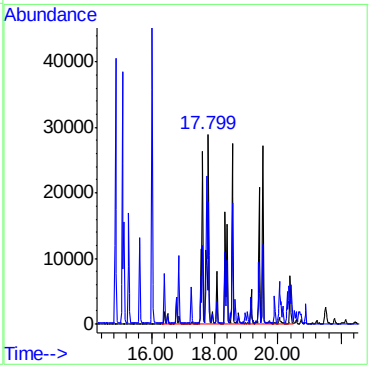


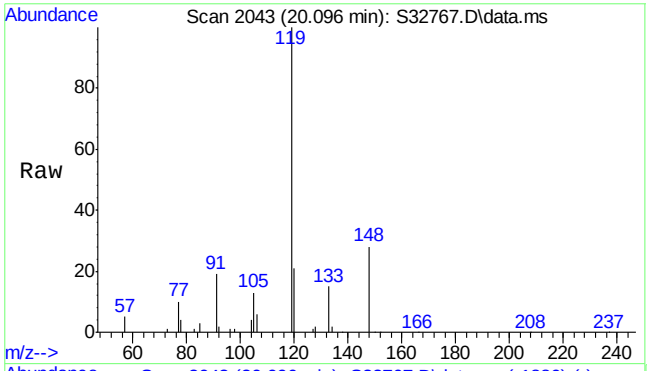
#11
C4-Benzenes
Concen: 5396.86 µg/mL m
RT: 17.799 min Scan# 1724
Delta R.T. -2.608 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:134 Resp: 487426

Ion	Ratio	Lower	Upper
134	100		
91	0.0	37.2	55.8#



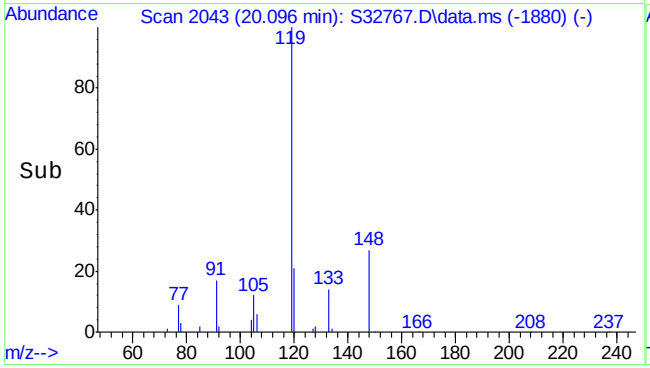


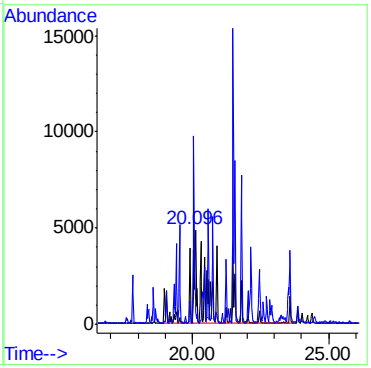


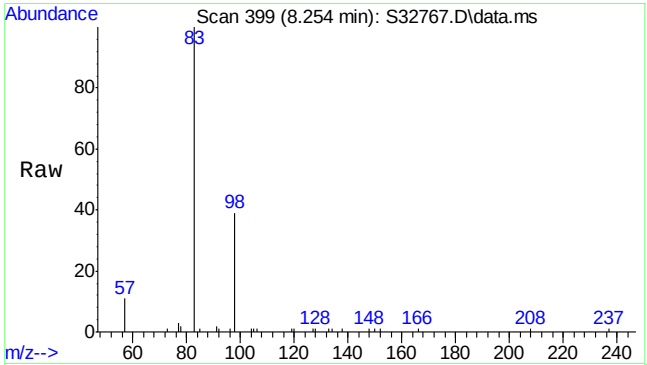
#12
C5-Benzenes
Concen: 1534.27 µg/mL m
RT: 20.096 min Scan# 2043
Delta R.T. -0.014 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:148 Resp: 138570

Ion	Ratio	Lower	Upper
148	100		
133	0.0	134.0	201.0#



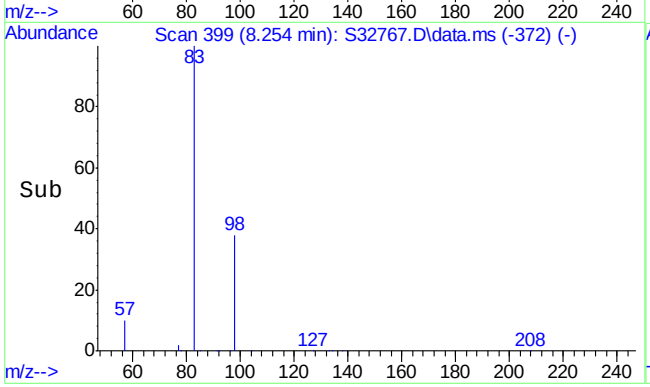


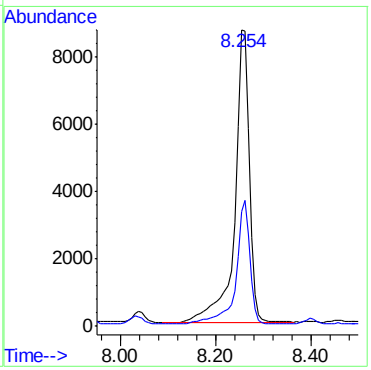


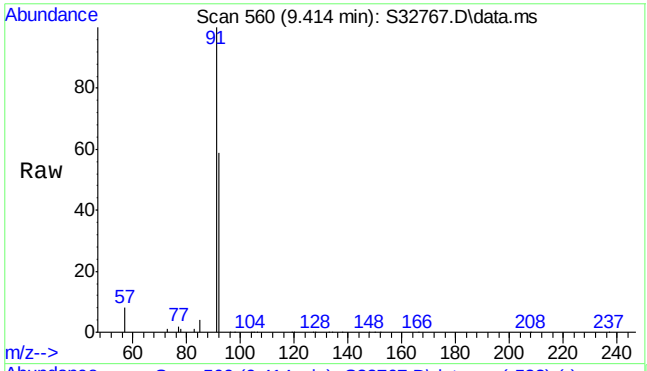
#13
Methylcyclohexane
Concen: 533.55 µg/mL
RT: 8.254 min Scan# 399
Delta R.T. -0.007 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 83 Resp: 18801

Ion	Ratio	Lower	Upper
83	100		
98	40.8	34.0	51.0



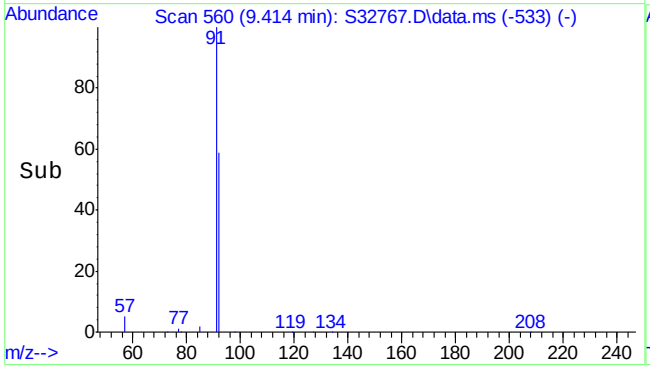


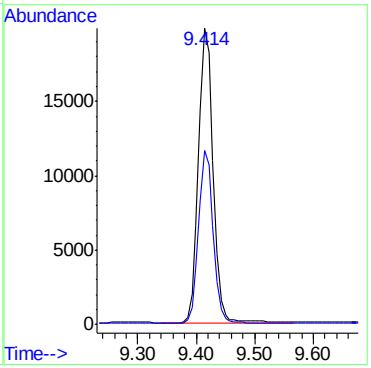


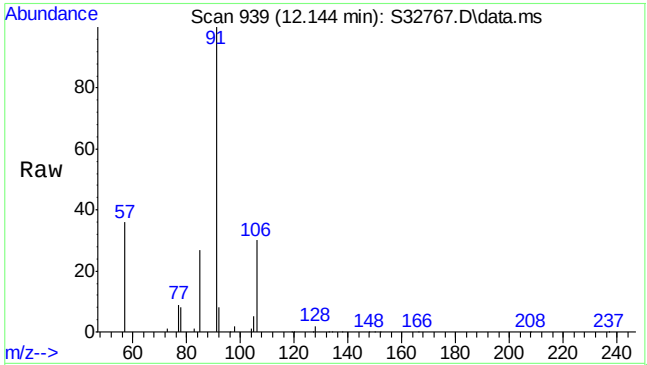
#14
Toluene
Concen: 410.86 µg/mL
RT: 9.414 min Scan# 560
Delta R.T. -0.007 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 91 Resp: 34723

Ion	Ratio	Lower	Upper
91	100		
92	58.5	46.8	70.2



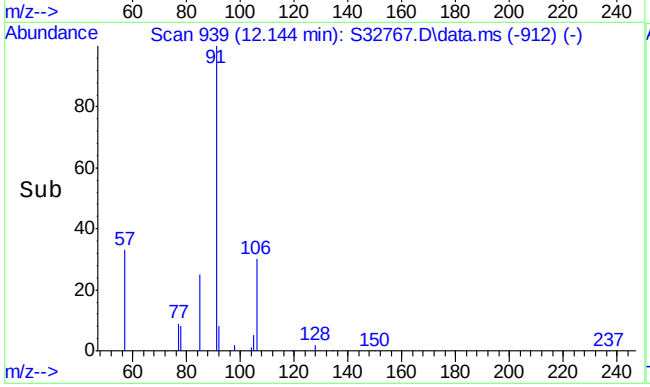


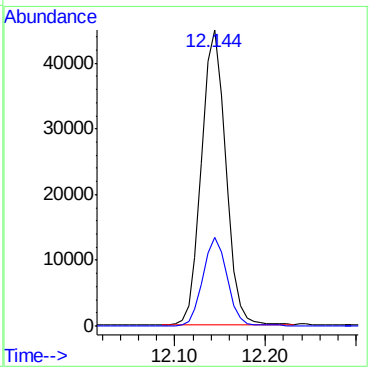


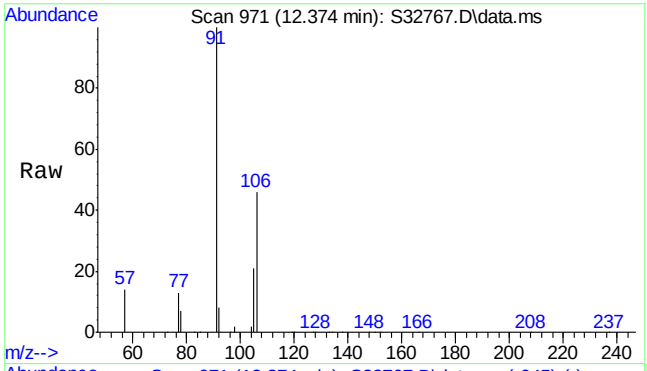
#15
Ethylbenzene
Concen: 801.43 µg/mL
RT: 12.144 min Scan# 939
Delta R.T. -0.007 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 91 Resp: 82752

Ion	Ratio	Lower	Upper
91	100		
106	29.9	23.8	35.6



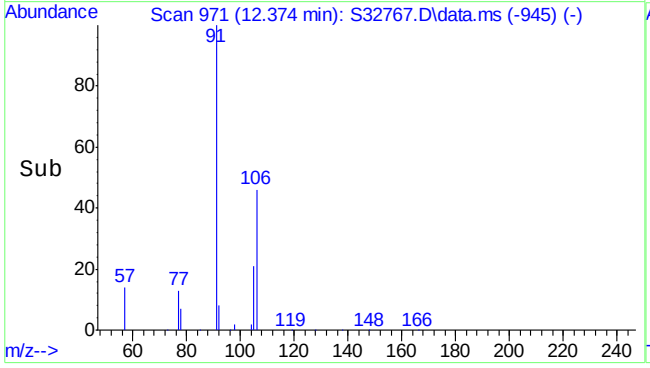


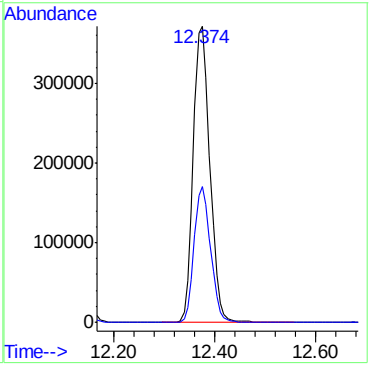


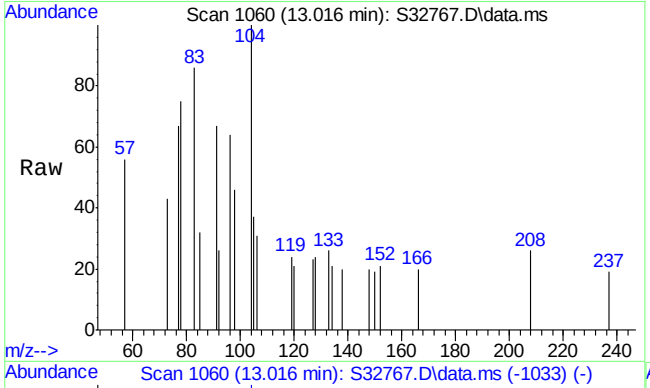
#16
m,p-xylene
Concen: 10282.47 µg/mL
RT: 12.374 min Scan# 971
Delta R.T. -0.014 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 91 Resp: 846275

Ion	Ratio	Lower	Upper
91	100		
106	45.5	36.6	55.0



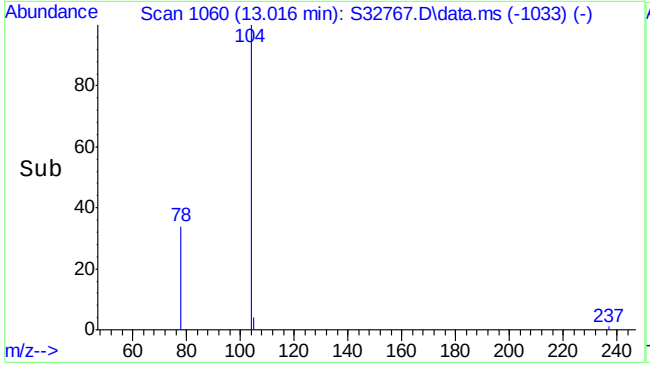


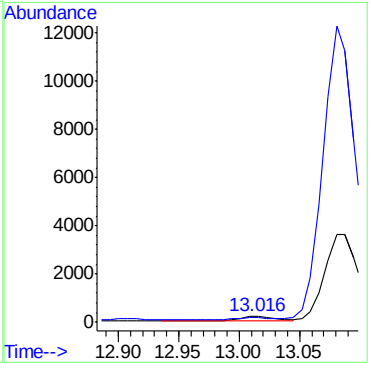


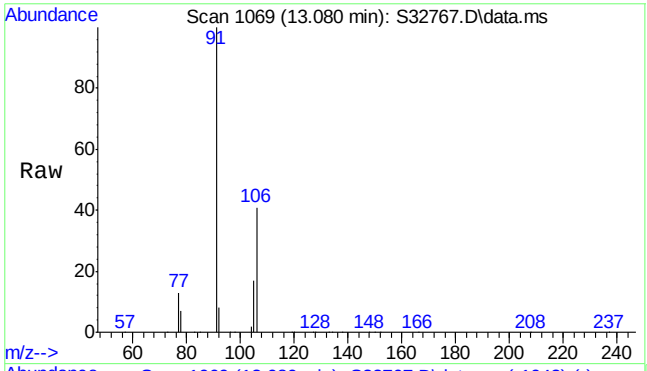
#17
Styrene
Concen: 6.10 µg/mL
RT: 13.016 min Scan# 1060
Delta R.T. -0.007 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:104 Resp: 373

Ion	Ratio	Lower	Upper
104	100		
78	0.0	37.7	56.5#



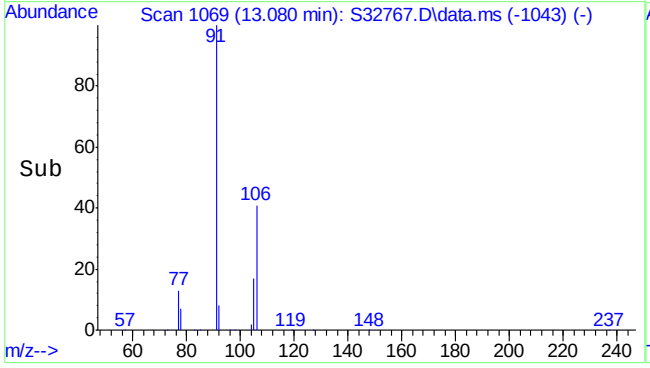


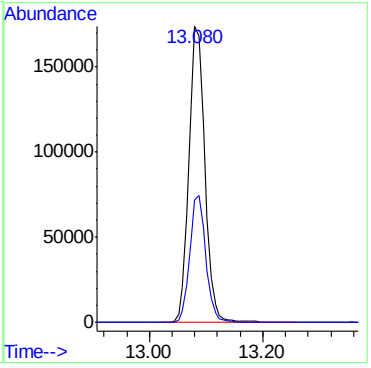


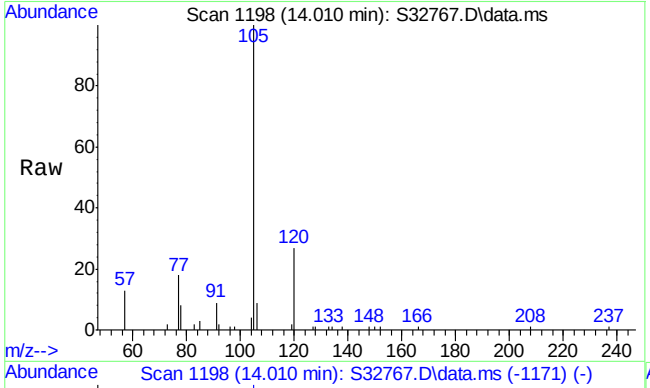
#18
o-Xylene
Concen: 4145.92 µg/mL
RT: 13.080 min Scan# 1069
Delta R.T. -0.014 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 91 Resp: 337978

Ion	Ratio	Lower	Upper
91	100		
106	42.9	34.5	51.7



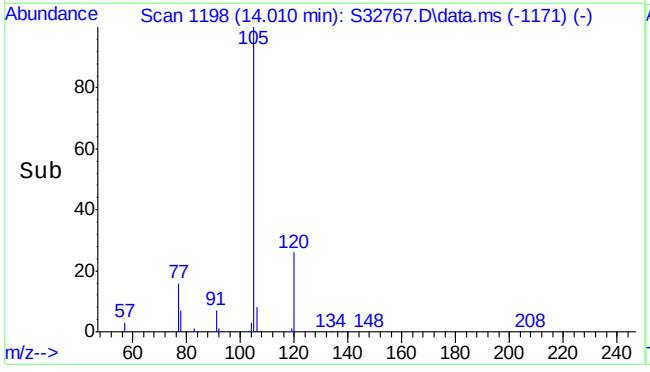


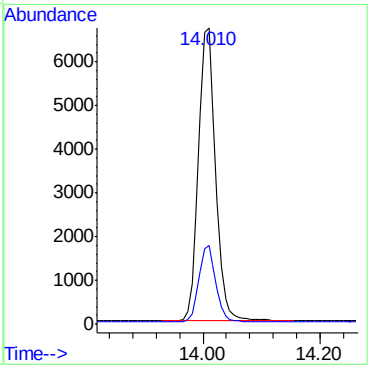


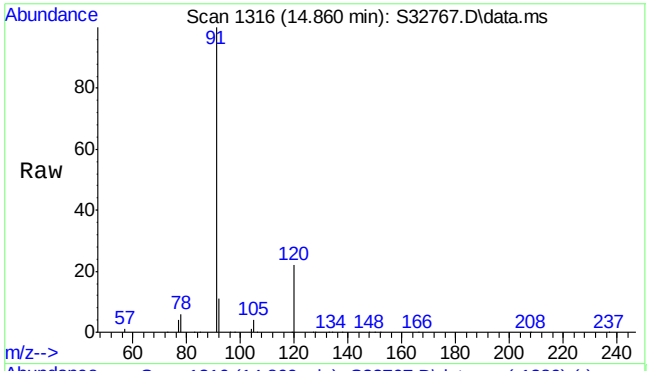
#19
Isopropylbenzene
Concen: 142.53 µg/mL
RT: 14.010 min Scan# 1198
Delta R.T. -0.007 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:105 Resp: 13697

Ion	Ratio	Lower	Upper
105	100		
120	25.7	21.1	31.7



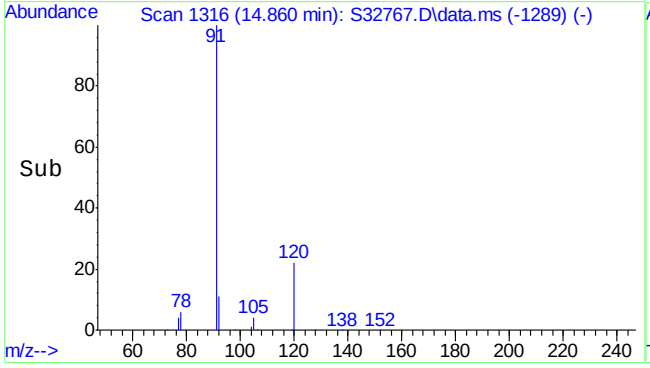


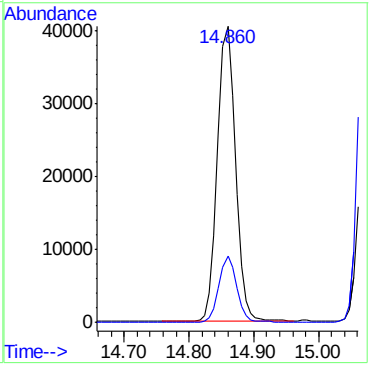


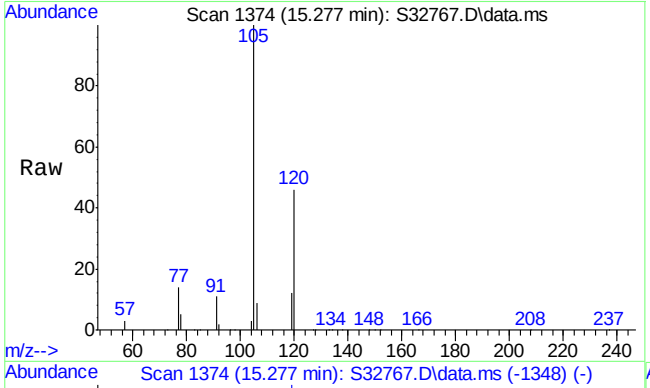
#20
n-Propylbenzene
Concen: 604.47 µg/mL
RT: 14.860 min Scan# 1316
Delta R.T. -0.007 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 91 Resp: 78702

Ion	Ratio	Lower	Upper
91	100		
120	21.8	17.0	25.4



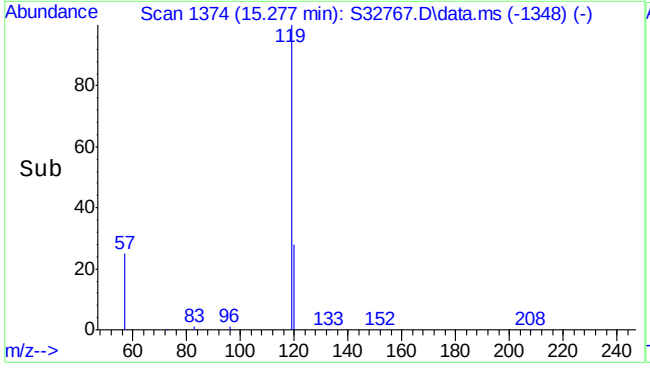


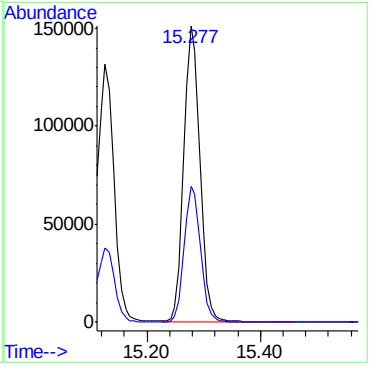


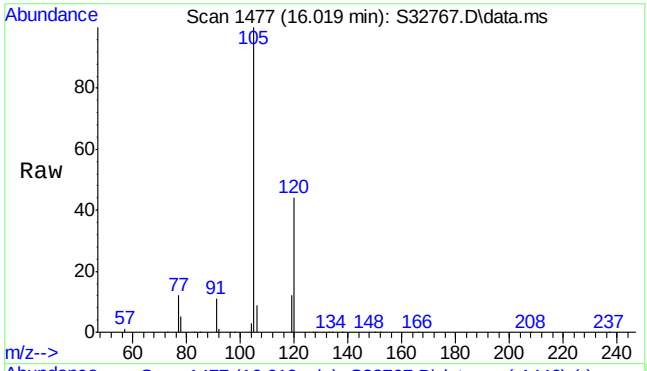
#21
1,3,5-Trimethylbenzene
Concen: 3335.96 µg/mL
RT: 15.277 min Scan# 1374
Delta R.T. -0.014 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:105 Resp: 297477

Ion	Ratio	Lower	Upper
105	100		
120	46.1	37.1	55.7



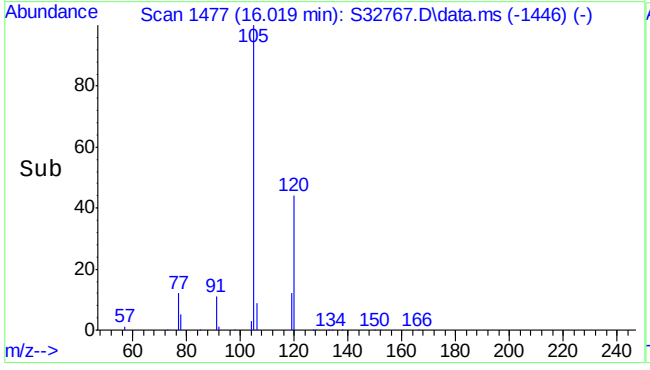


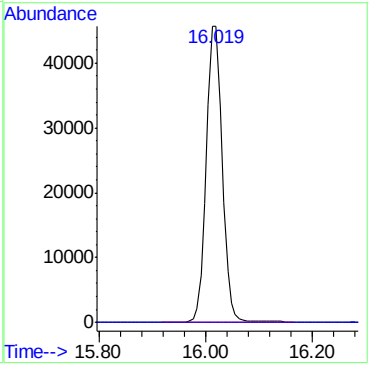


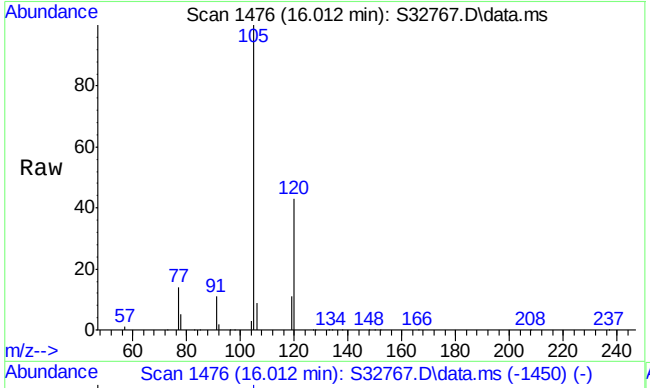
#22
t-Butylbenzene
Concen: 1074.44 µg/mL
RT: 16.019 min Scan# 1477
Delta R.T. 0.022 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:119 Resp: 94205

Ion	Ratio	Lower	Upper
119	100		
134	0.0	17.6	26.4#



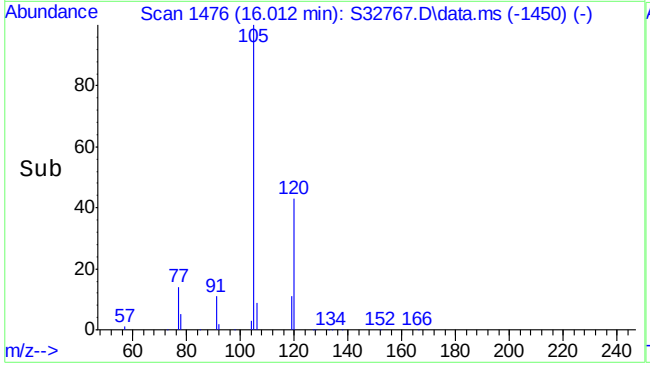


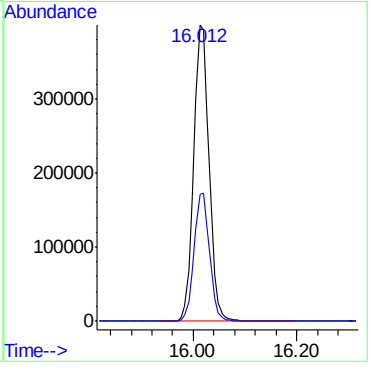


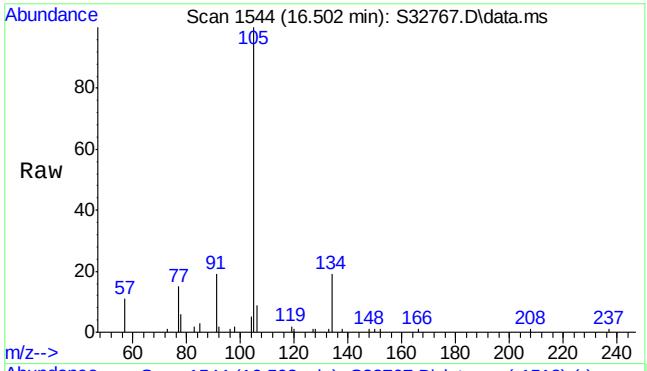
#23
1,2,4-Trimethylbenzene
Concen: 8981.18 µg/mL
RT: 16.012 min Scan# 1476
Delta R.T. -0.014 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:105 Resp: 818765

Ion	Ratio	Lower	Upper
105	100		
120	43.4	35.1	52.7



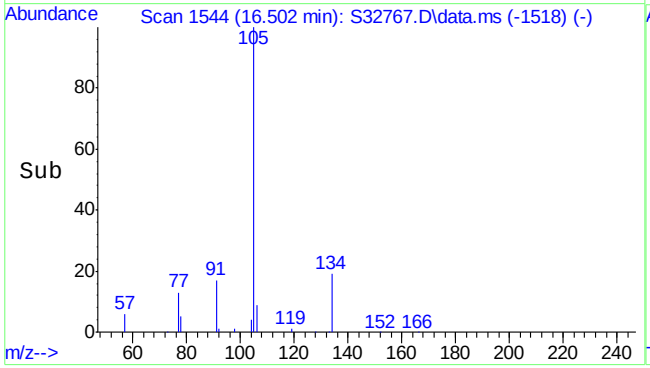


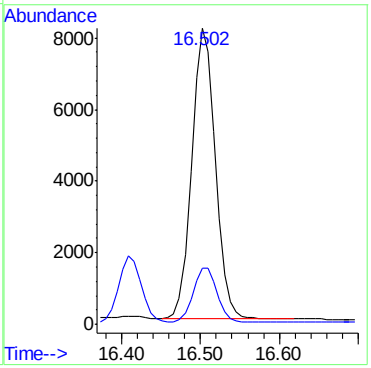


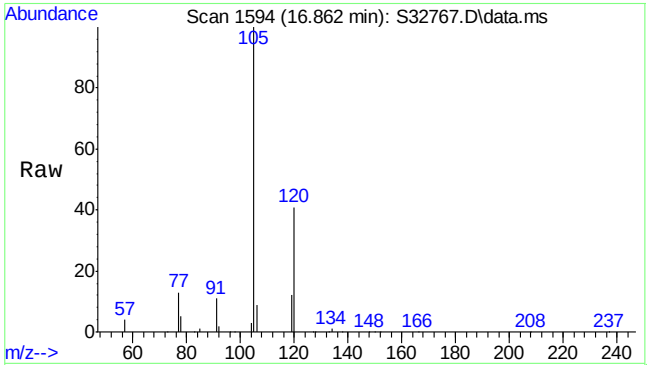
#24
sec-Butylbenzene
Concen: 144.87 µg/mL
RT: 16.502 min Scan# 1544
Delta R.T. -0.014 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:105 Resp: 16945

Ion	Ratio	Lower	Upper
105	100		
134	19.1	15.4	23.2



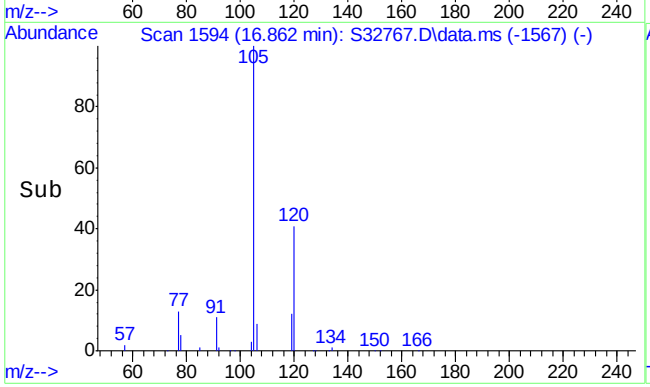


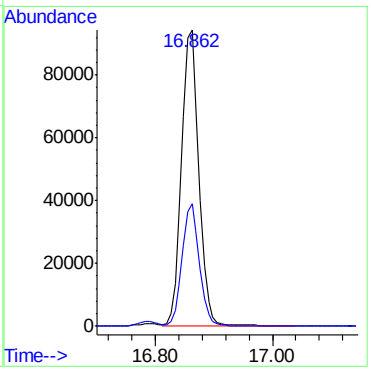


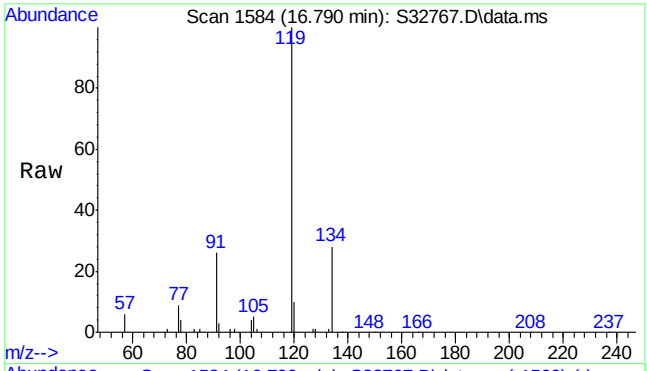
#25
1,2,3-Trimethylbenzene
Concen: 2026.99 µg/mL
RT: 16.862 min Scan# 1594
Delta R.T. -0.007 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:105 Resp: 193749

Ion	Ratio	Lower	Upper
105	100		
120	40.9	34.6	52.0



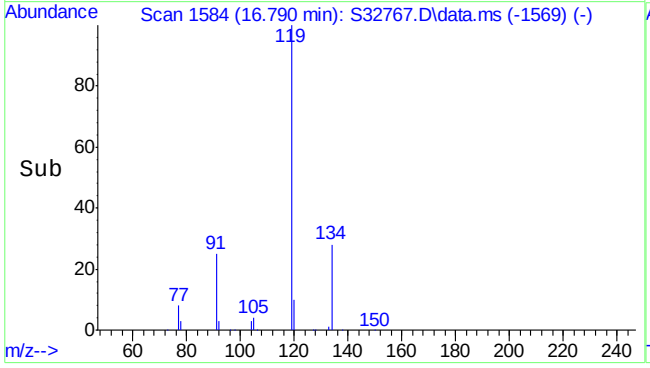


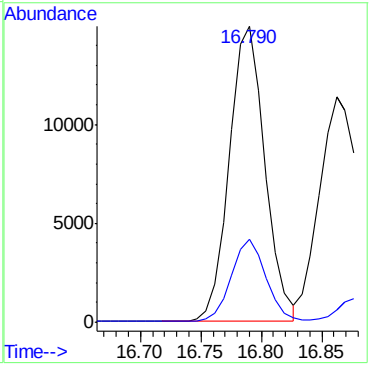


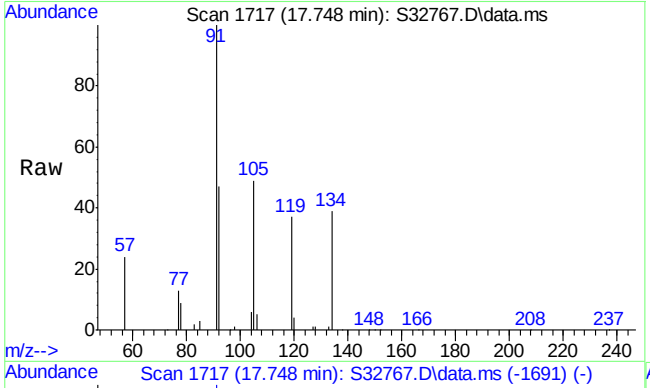
#26
p-Isopropyltoluene
Concen: 295.13 µg/mL
RT: 16.790 min Scan# 1584
Delta R.T. -0.093 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:119 Resp: 30445

Ion	Ratio	Lower	Upper
119	100		
134	27.1	18.4	27.6



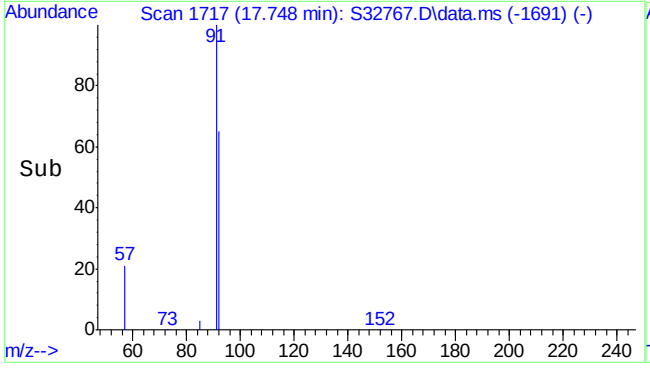


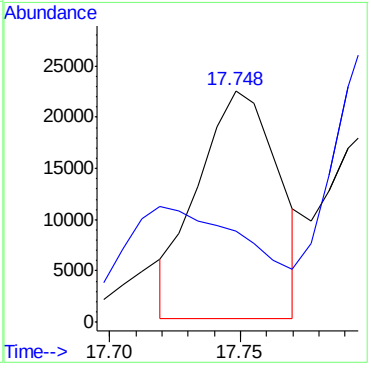


#27
n-Butylbenzene
Concen: 477.22 µg/mL m
RT: 17.748 min Scan# 1717
Delta R.T. -0.014 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 91 Resp: 47466

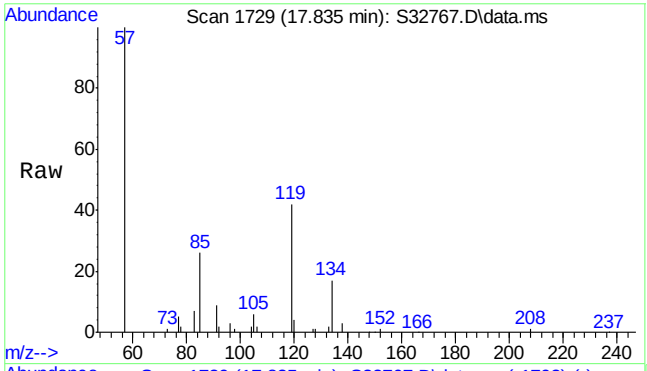
Ion	Ratio	Lower	Upper
91	100		
134	0.0	18.2	27.2#





9.1.9

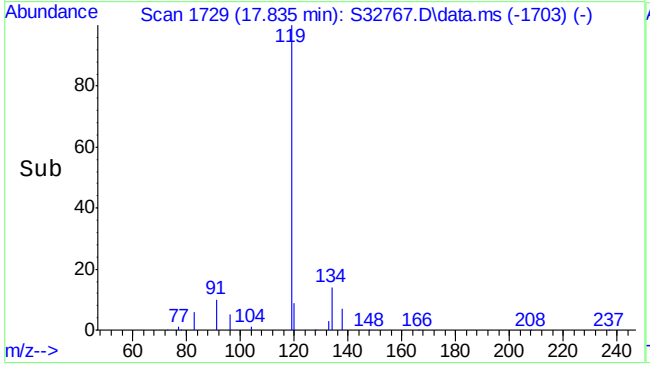
9

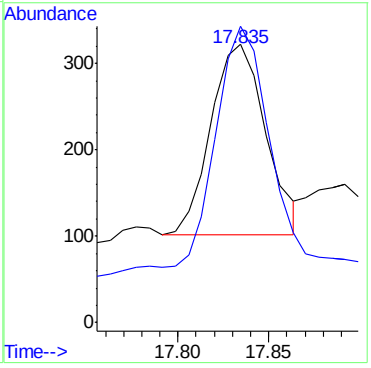


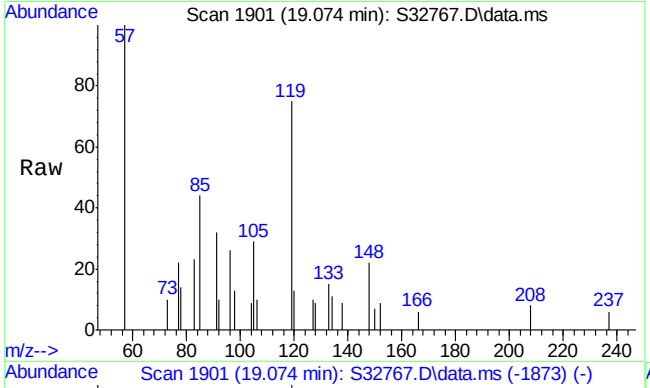
#28
trans-Decalin
Concen: 24.79 µg/mL
RT: 17.835 min Scan# 1729
Delta R.T. -0.014 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 96 Resp: 464

Ion	Ratio	Lower	Upper
96	100		
138	154.7	106.5	159.7



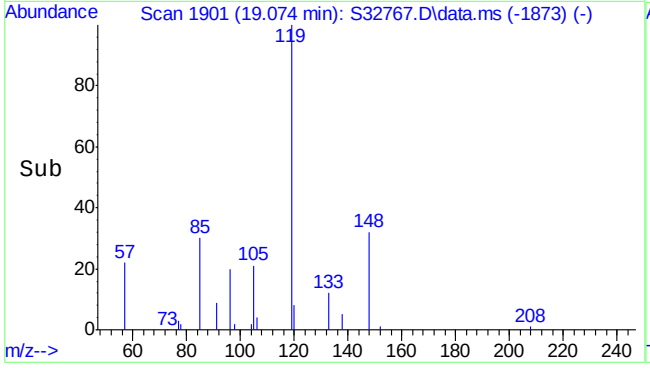


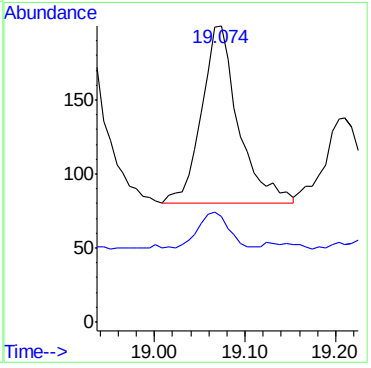


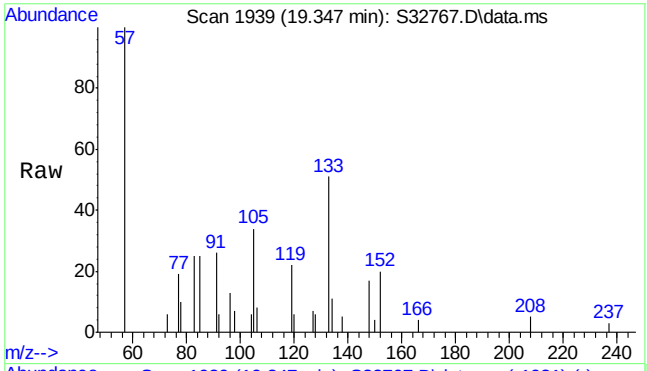
#29
cis-Decalin
Concen: 13.96 µg/mL
RT: 19.074 min Scan# 1901
Delta R.T. 0.000 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 96 Resp: 341

Ion	Ratio	Lower	Upper
96	100		
138	0.0	56.6	85.0#

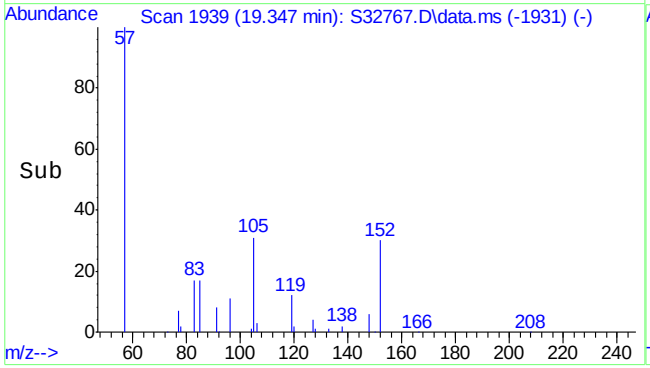


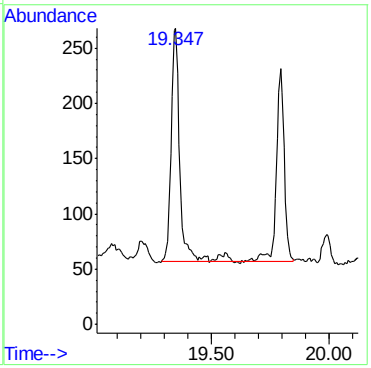


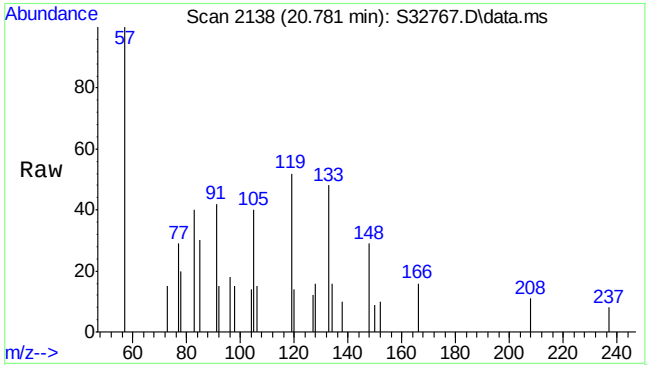


#30
C1-Decalins
Concen: 50.55 µg/mL m
RT: 19.347 min Scan# 1939
Delta R.T. -0.461 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:152 Resp: 946

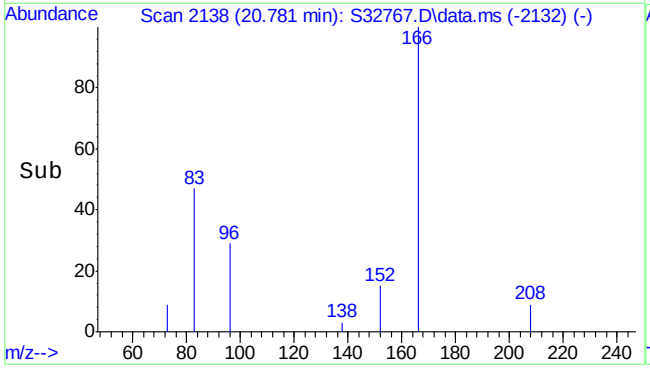


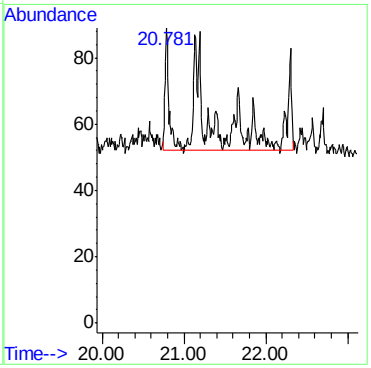


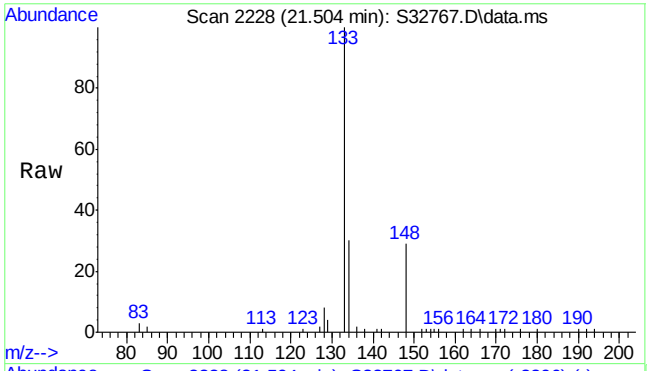


#31
C2-Decalins
Concen: 37.94 µg/mL m
RT: 20.781 min Scan# 2138
Delta R.T. -0.369 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:166 Resp: 710



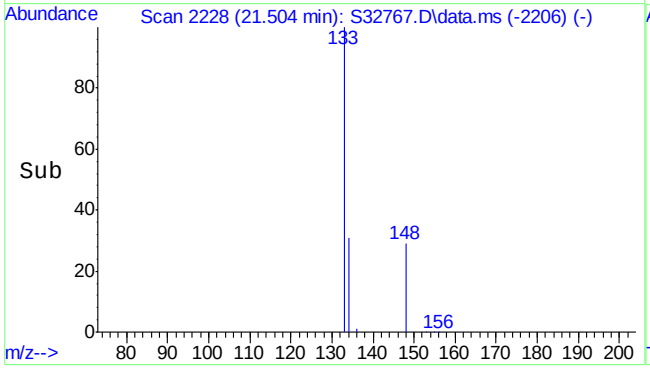


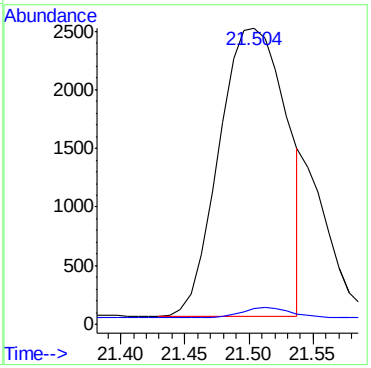


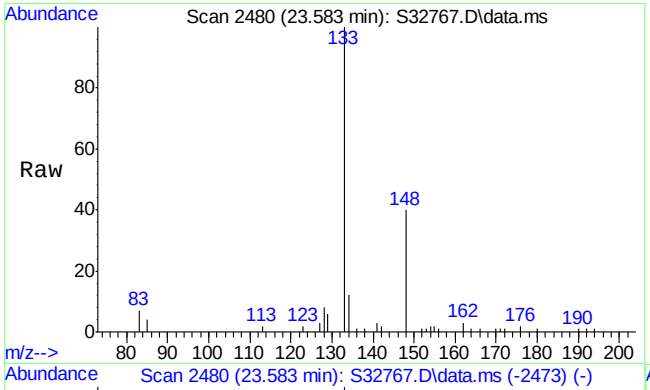
#34
Benzo(b)thiophene
Concen: 83.62 µg/mL m
RT: 21.504 min Scan# 2228
Delta R.T. -0.016 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:134 Resp: 9022

Ion	Ratio	Lower	Upper
134	100		
136	2.8	4.0	6.0#

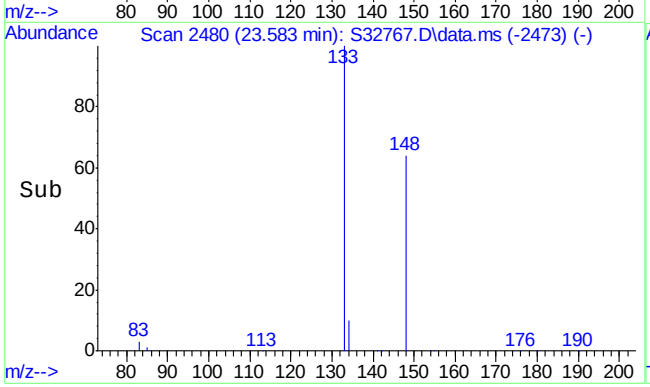


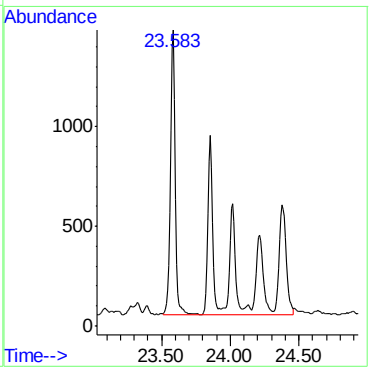


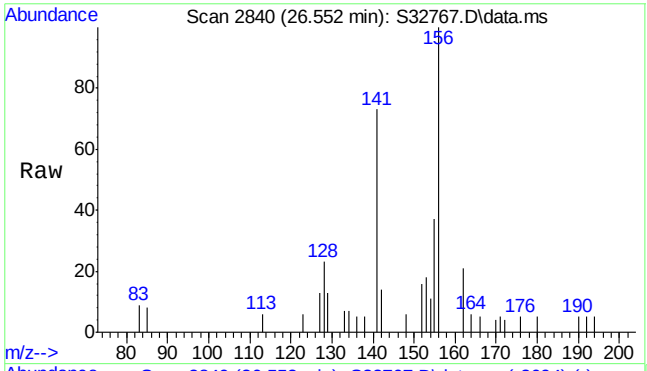


#35
C1-Benzo(b)thiophenes
Concen: 98.43 µg/mL m
RT: 23.583 min Scan# 2480
Delta R.T. -0.017 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:148 Resp: 10620

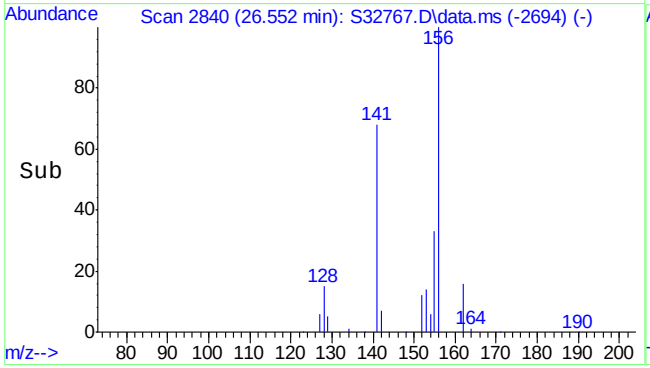


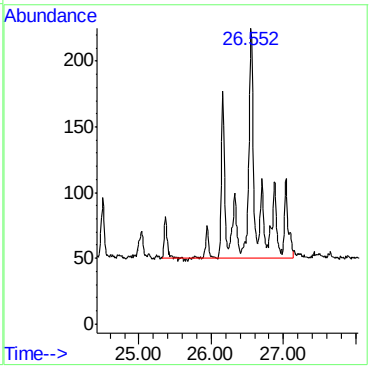


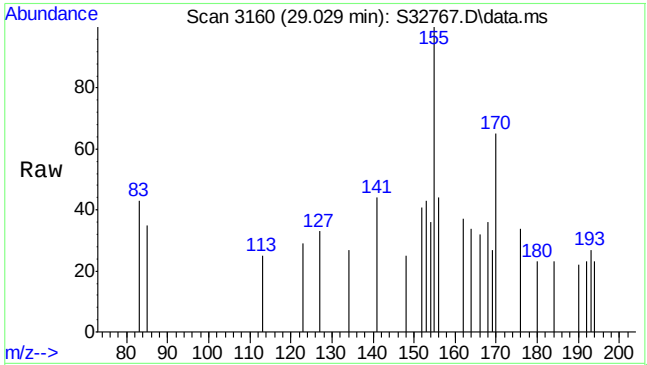


#36
C2-Benzo(b)thiophenes
Concen: 19.59 µg/mL m
RT: 26.552 min Scan# 2840
Delta R.T. -0.495 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:162 Resp: 2114

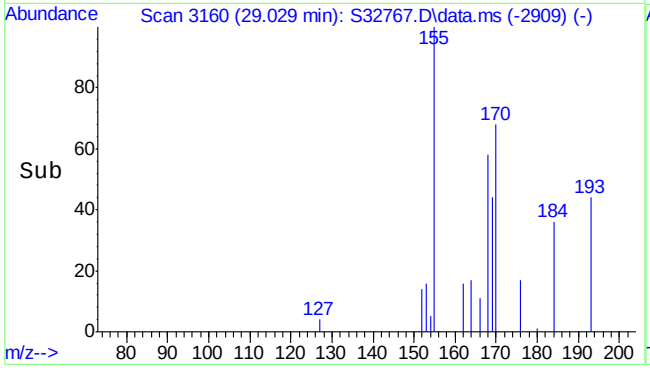


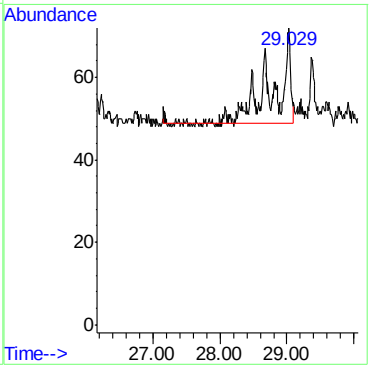


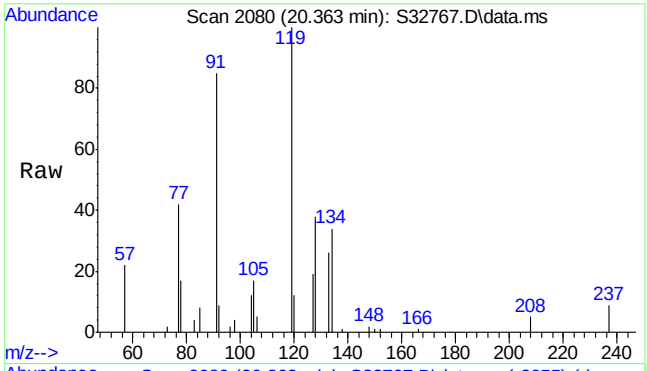


#37
C3-Benzo(b)thiophenes
Concen: 3.59 µg/mL m
RT: 29.029 min Scan# 3160
Delta R.T. 0.007 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:176 Resp: 387



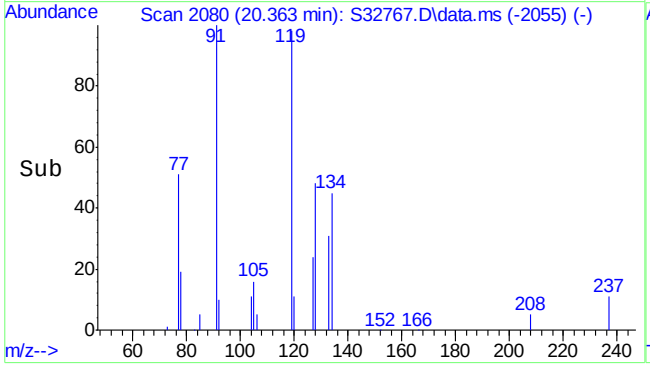


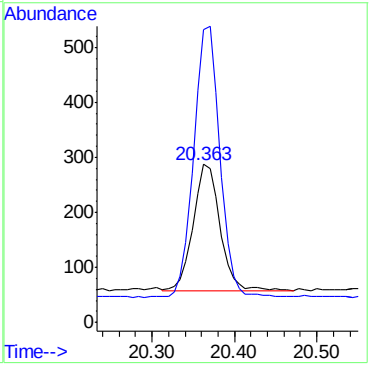


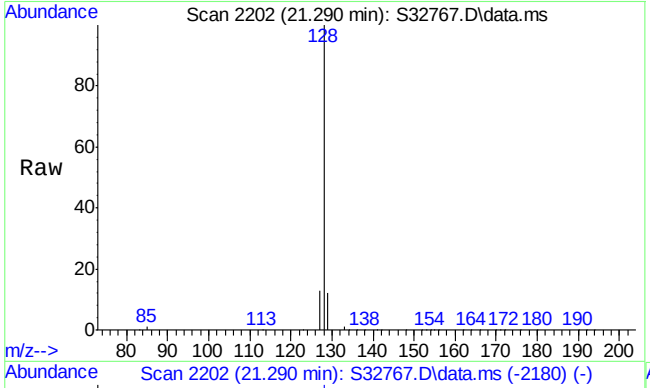
#39
Tetraethyl lead
Concen: 69.10 µg/mL
RT: 20.363 min Scan# 2080
Delta R.T. -0.021 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:208 Resp: 515

Ion	Ratio	Lower	Upper
208	100		
237	209.9	171.2	256.8



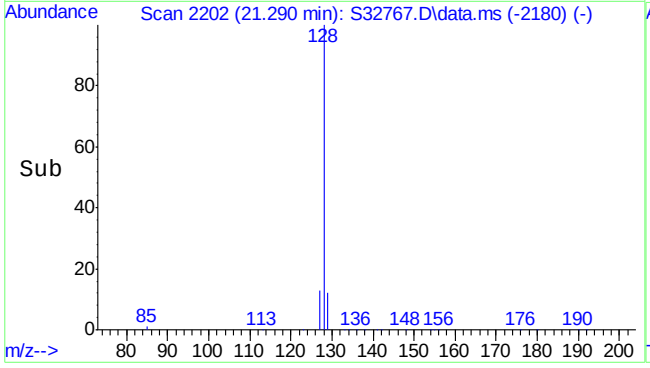


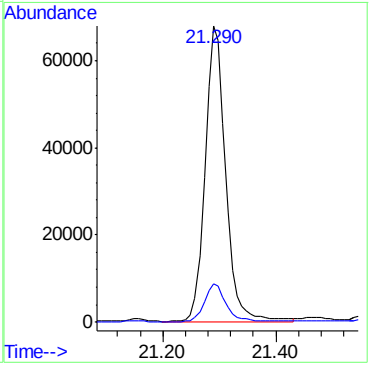


#44
Naphthalene
Concen: 1231.77 ng/mL
RT: 21.290 min Scan# 2202
Delta R.T. -0.016 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:128 Resp: 170141

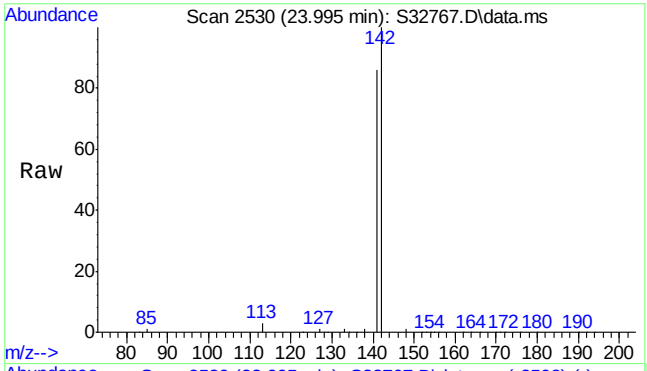
Ion	Ratio	Lower	Upper
128	100		
127	12.9	10.1	15.1





9.1.9

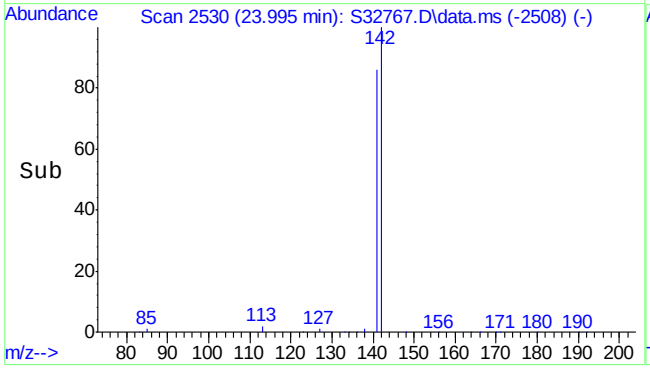
9

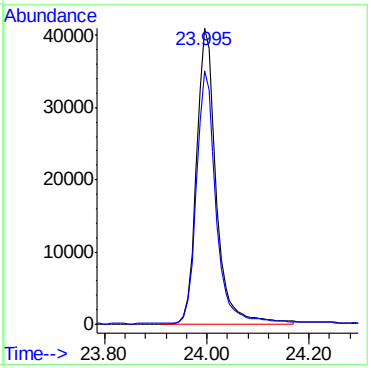


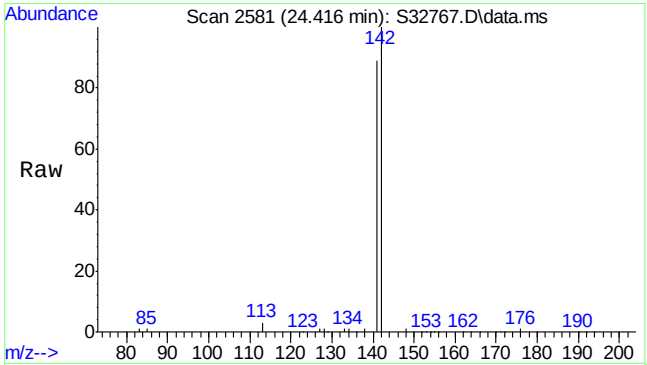
#45
2-Methylnaphthalene
Concen: 1275.38 ng/mL
RT: 23.995 min Scan# 2530
Delta R.T. -0.017 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:142 Resp: 109212

Ion	Ratio	Lower	Upper
142	100		
141	85.4	68.9	103.3



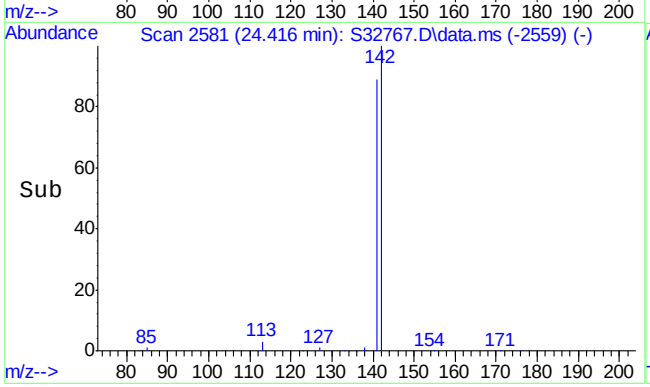


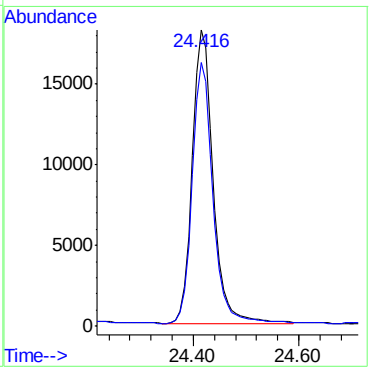


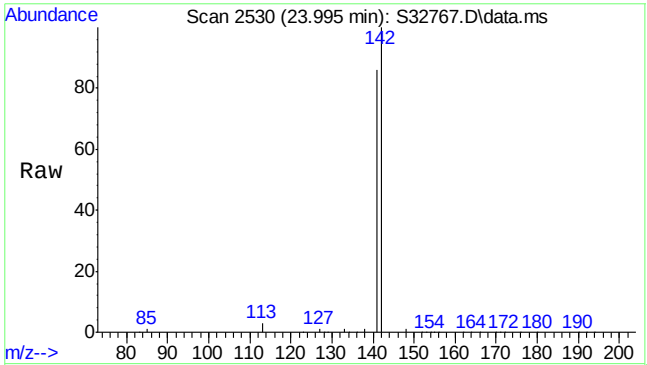
#46
1-Methylnaphthalene
Concen: 572.82 ng/mL
RT: 24.416 min Scan# 2581
Delta R.T. -0.017 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:142 Resp: 49415

Ion	Ratio	Lower	Upper
142	100		
141	88.6	71.1	106.7



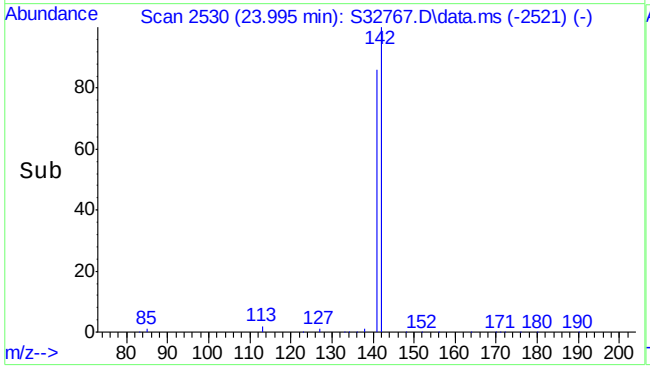


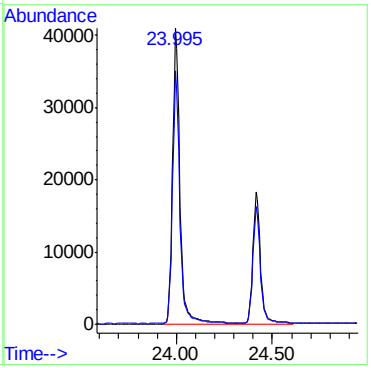


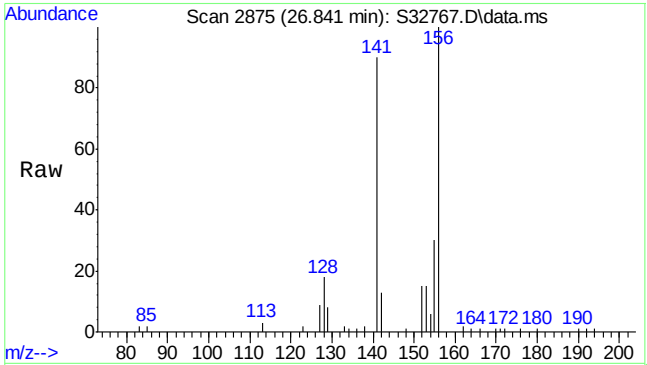
#47
C1-Naphthalenes
Concen: 1173.39 ng/mL m
RT: 23.995 min Scan# 2530
Delta R.T. -0.017 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:142 Resp: 162077

Ion	Ratio	Lower	Upper
142	100		
141	58.0	68.9	103.3#



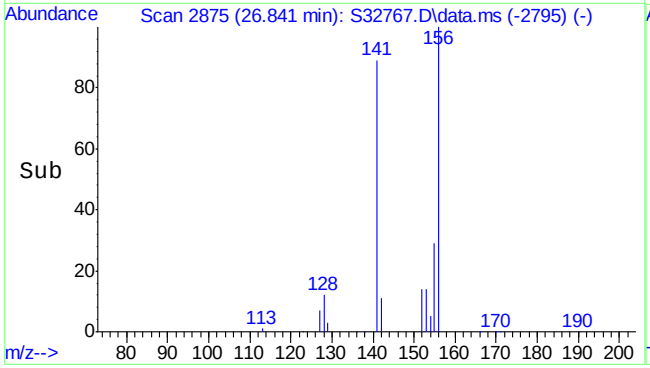


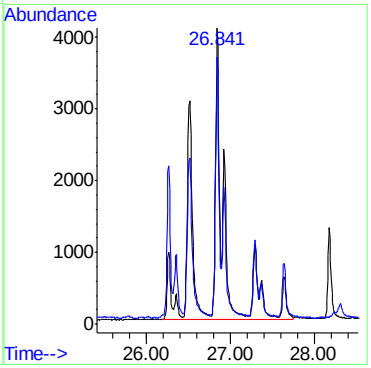


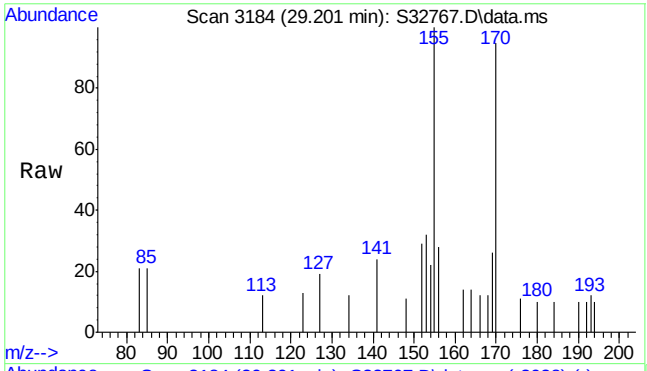
#48
C2-Naphthalenes
Concen: 325.92 ng/mL m
RT: 26.841 min Scan# 2875
Delta R.T. -0.099 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:156 Resp: 45018

Ion	Ratio	Lower	Upper
156	100		
141	12.6	60.6	90.8#



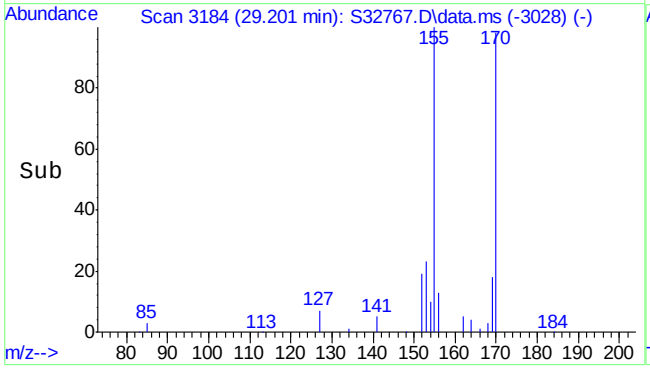


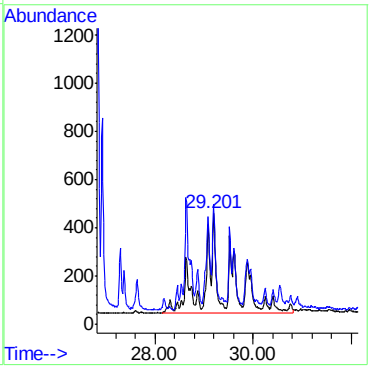


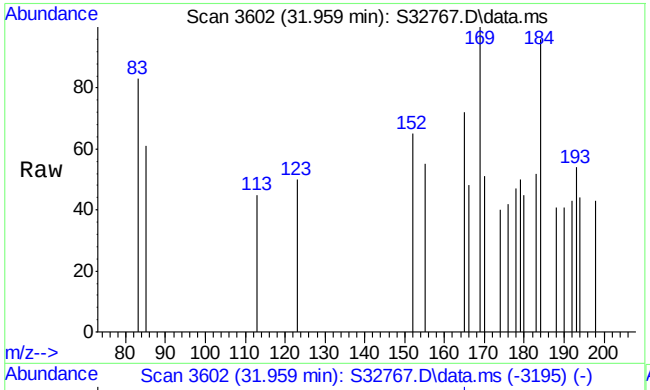
#49
C3-Naphthalenes
Concen: 81.58 ng/mL m
RT: 29.201 min Scan# 3184
Delta R.T. 0.007 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:170 Resp: 11269

Ion	Ratio	Lower	Upper
170	100		
155	13.7	81.7	122.5#



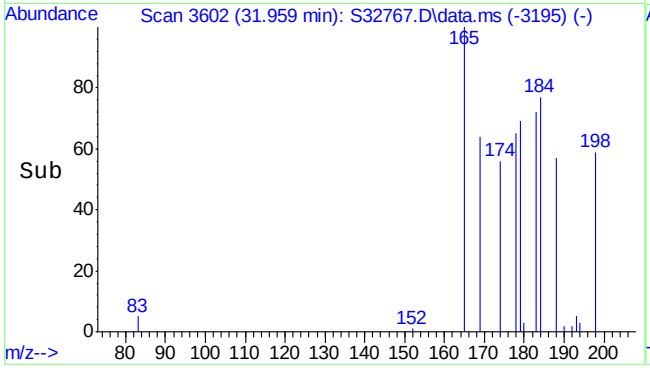


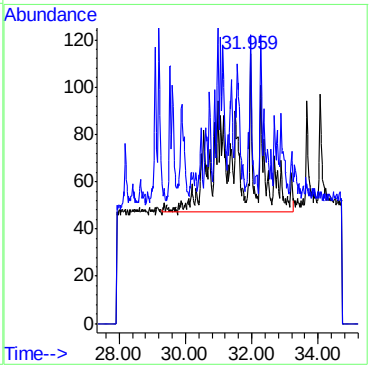


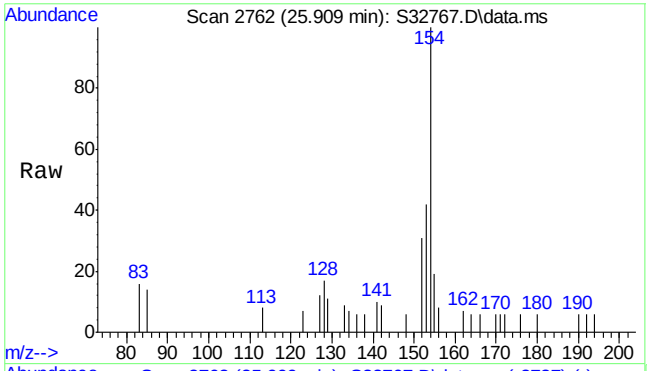
#50
C4-Naphthalenes
Concen: 23.49 ng/mL m
RT: 31.959 min Scan# 3602
Delta R.T. 0.006 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:184 Resp: 3245

Ion	Ratio	Lower	Upper
184	100		
169	7.5	76.8	115.2#



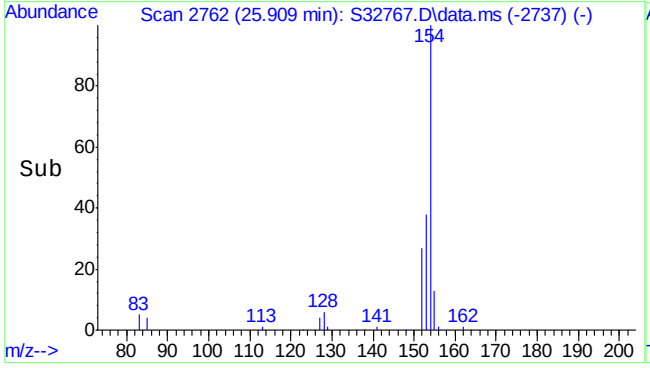


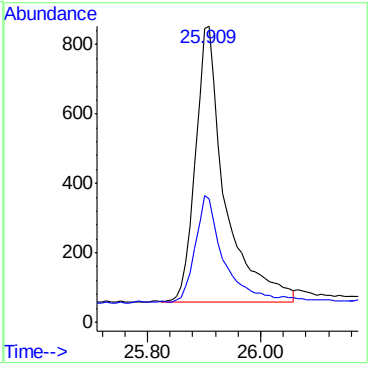


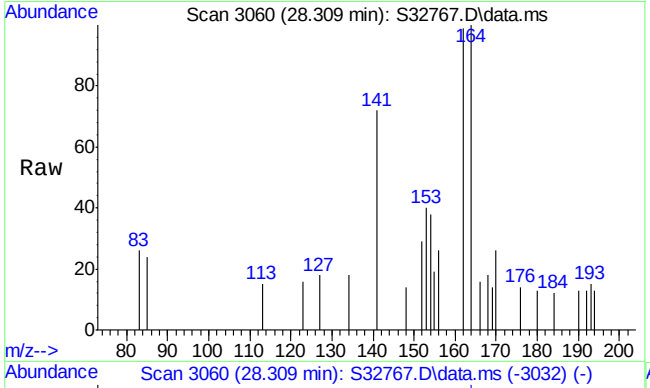
#51
Biphenyl
Concen: 24.74 µg/mL
RT: 25.909 min Scan# 2762
Delta R.T. 0.008 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:154 Resp: 2876

Ion	Ratio	Lower	Upper
154	100		
153	37.4	31.2	46.8



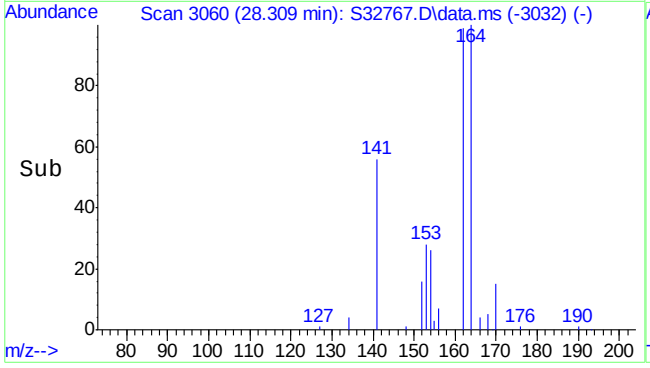


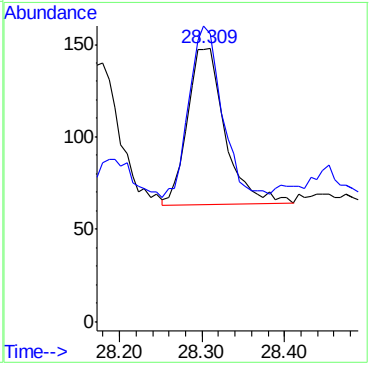


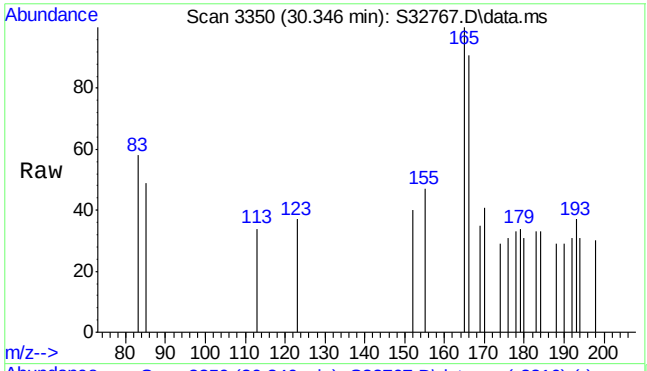
#53
Acenaphthene
Concen: 3.55 ng/mL
RT: 28.309 min Scan# 3060
Delta R.T. 0.000 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:154 Resp: 266

Ion	Ratio	Lower	Upper
154	100		
153	97.4	86.4	129.6



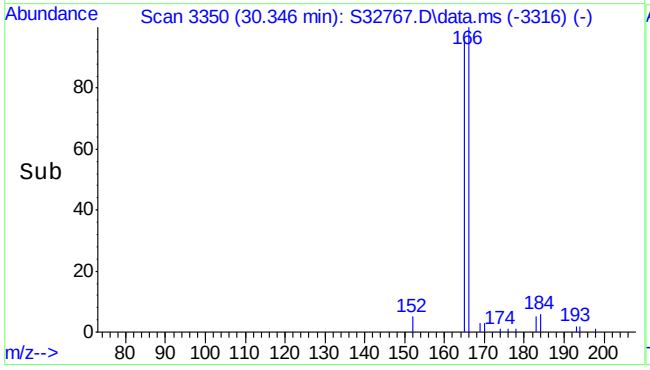


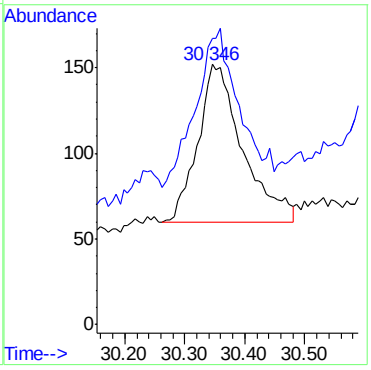


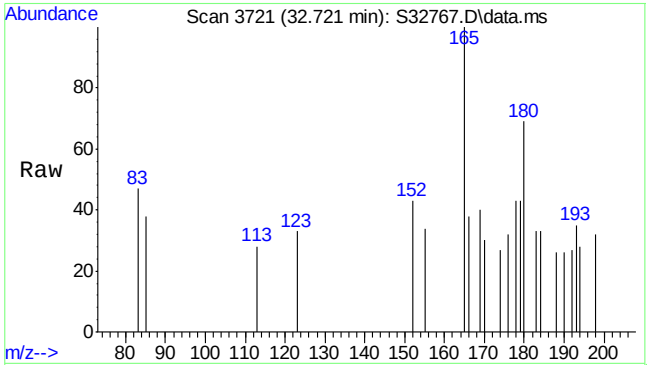
#55
Fluorene
Concen: 5.35 ng/mL
RT: 30.346 min Scan# 3350
Delta R.T. 0.019 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:166 Resp: 474

Ion	Ratio	Lower	Upper
166	100		
165	100.0	75.1	112.7



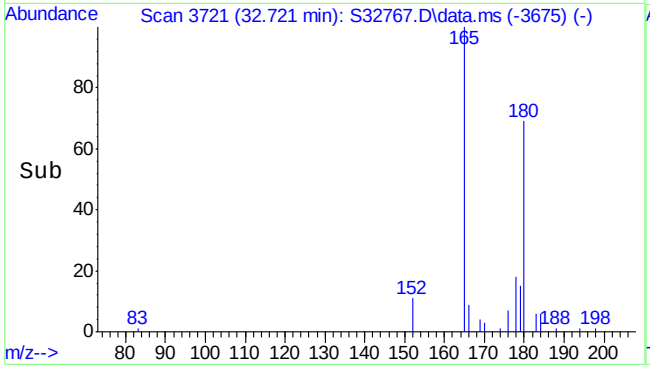


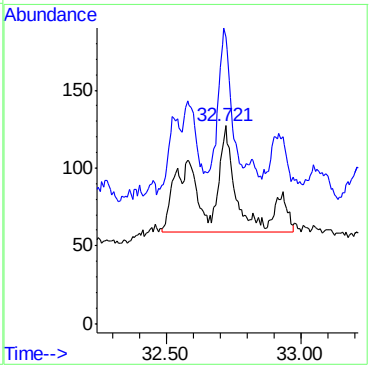


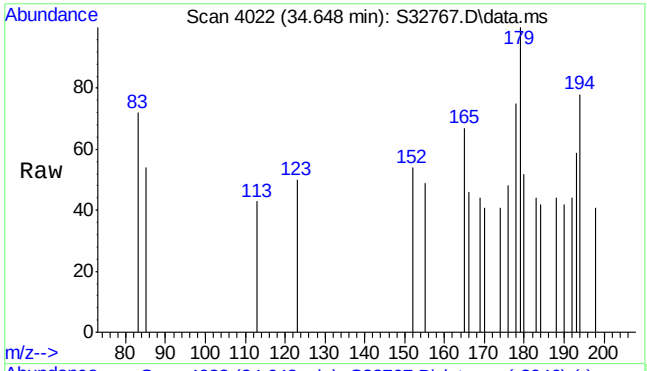
#56
C1-Fluorenes
Concen: 7.12 ng/mL m
RT: 32.721 min Scan# 3721
Delta R.T. 0.026 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:180 Resp: 630

Ion	Ratio	Lower	Upper
180	100		
165	0.0	128.1	192.1#



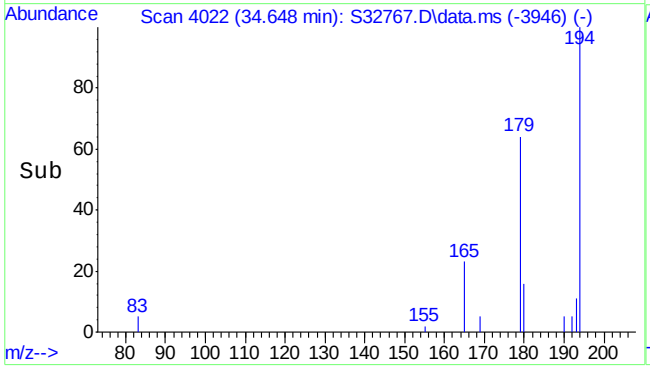


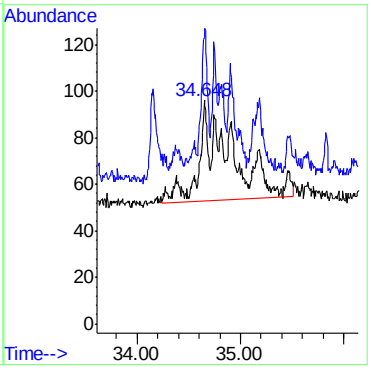


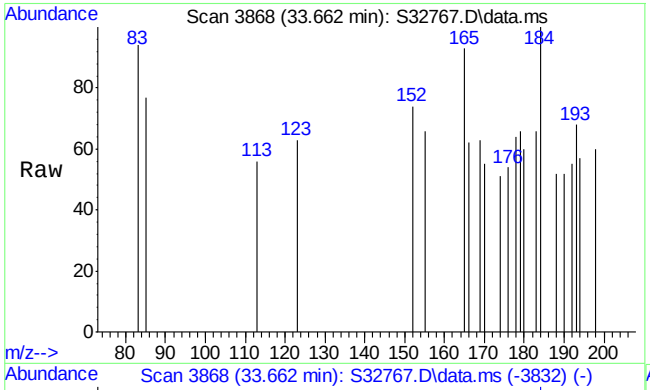
#57
C2-Fluorenes
Concen: 10.23 ng/mL m
RT: 34.648 min Scan# 4022
Delta R.T. -0.250 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:194 Resp: 906

Ion	Ratio	Lower	Upper
194	100		
179	0.0	122.6	183.8#



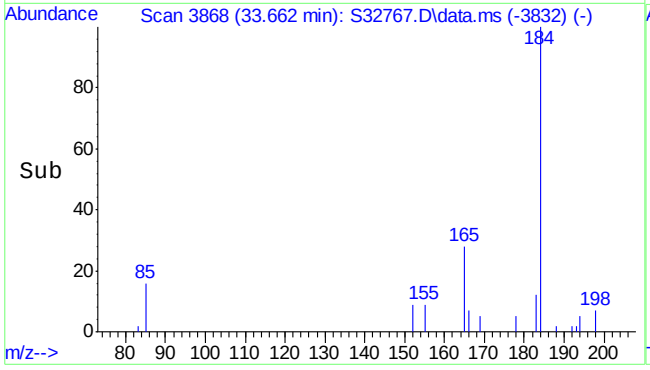


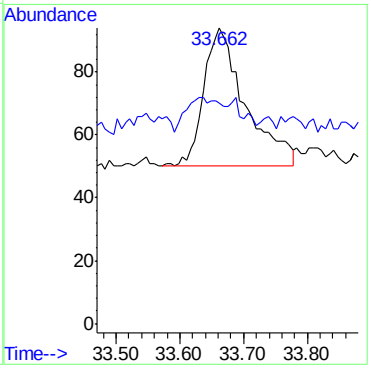


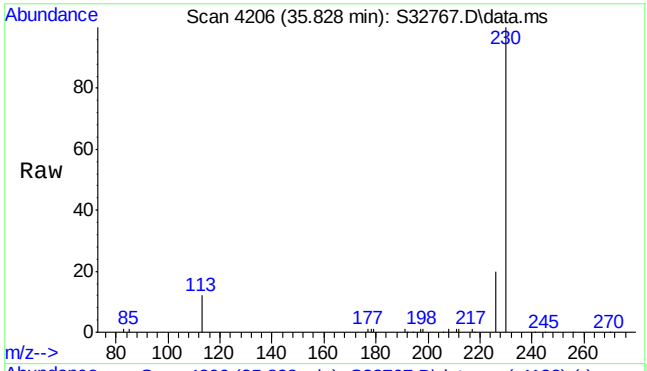
#59
Dibenzothiophene
Concen: 1.66 ng/mL
RT: 33.662 min Scan# 3868
Delta R.T. 0.032 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:184 Resp: 200

Ion	Ratio	Lower	Upper
184	100		
152	0.0	7.1	10.7#



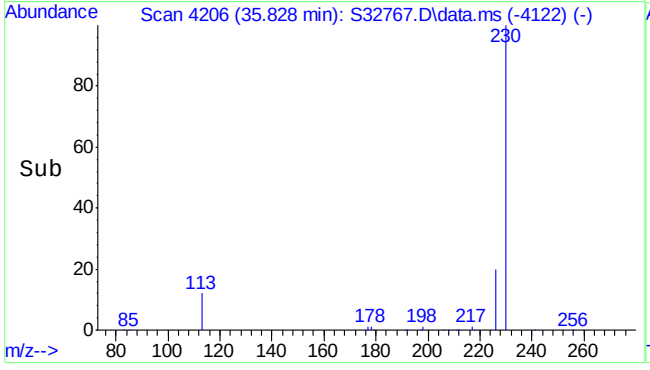


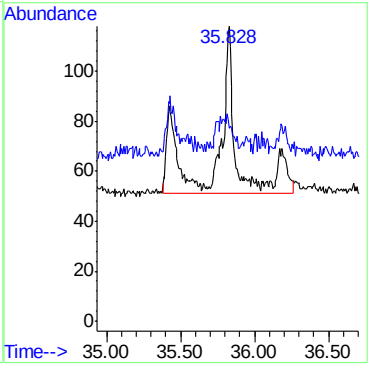


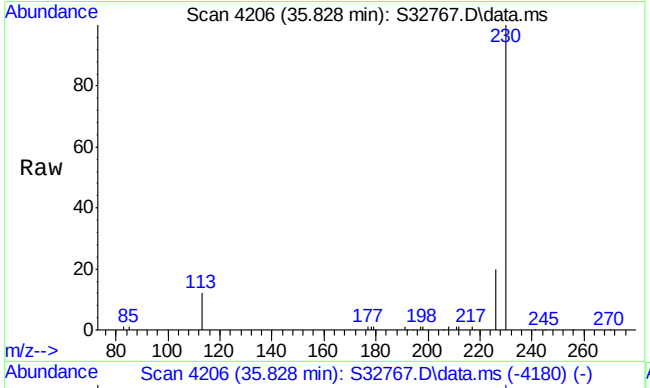
#60
C1-Dibenzothiophenes (unadj)
Concen: 5.07 ng/mL m
RT: 35.828 min Scan# 4206
Delta R.T. 0.417 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:198 Resp: 611

Ion	Ratio	Lower	Upper
198	100		
197	0.0	52.8	79.2#



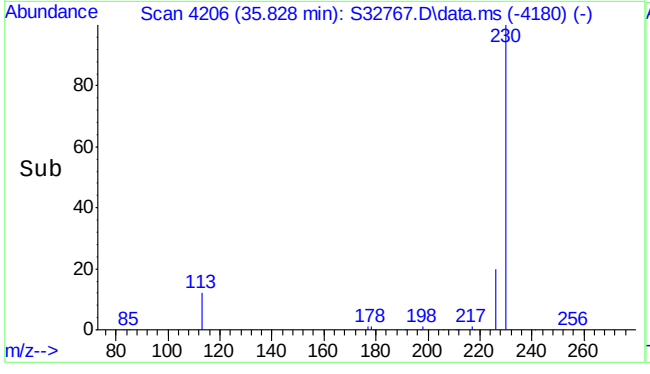


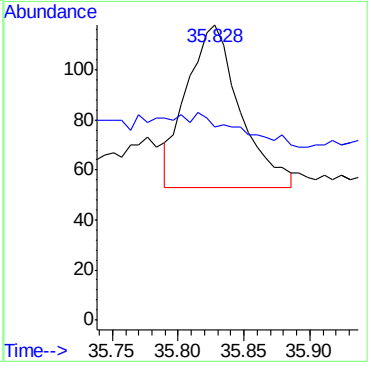


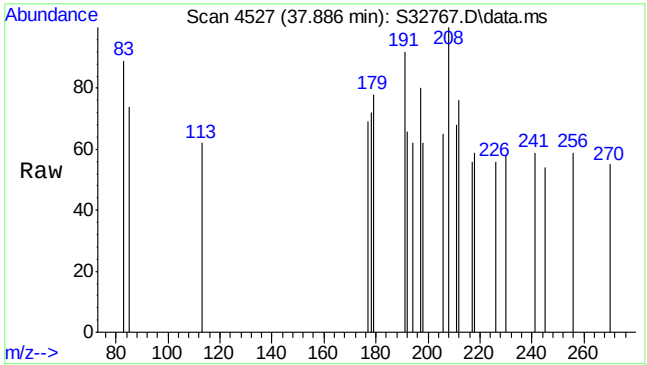
#61
C1-Dibenzothiophenes (OTP)
Concen: 1.52 µg/mL m
RT: 35.828 min Scan# 4206
Delta R.T. 0.064 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:198 Resp: 183

Ion	Ratio	Lower	Upper
198	100		
197	0.0	57.8	86.6#



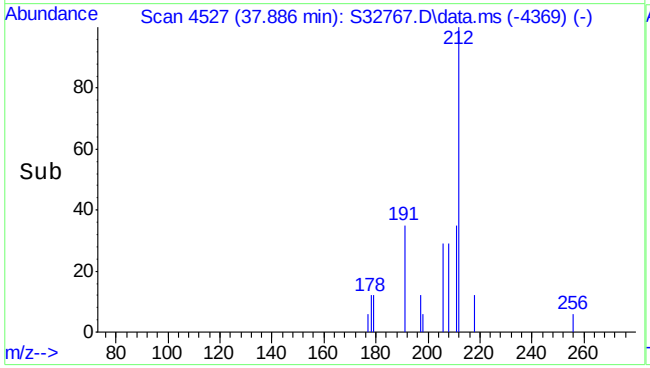


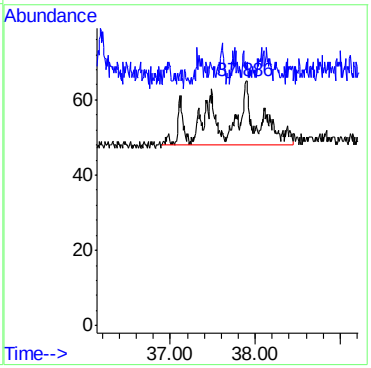


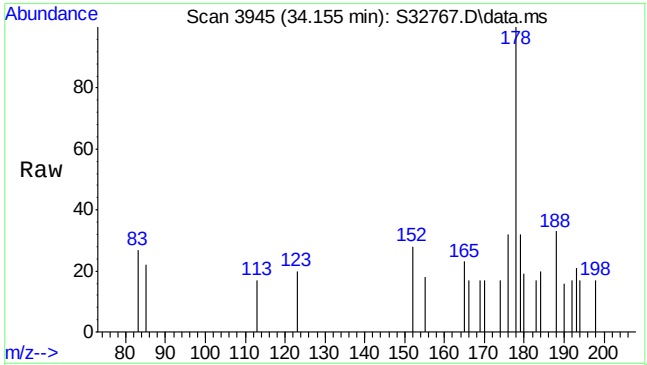
#62
C2-Dibenzothiophenes
Concen: 3.90 ng/mL m
RT: 37.886 min Scan# 4527
Delta R.T. 0.423 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:212 Resp: 470

Ion	Ratio	Lower	Upper
212	100		
197	0.0	18.9	28.3#



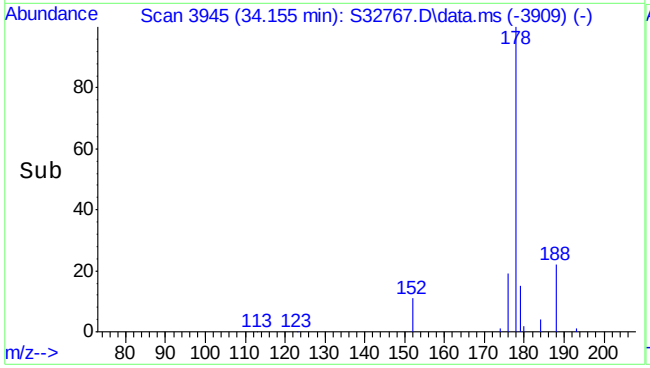


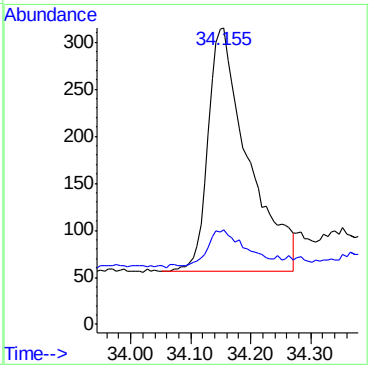


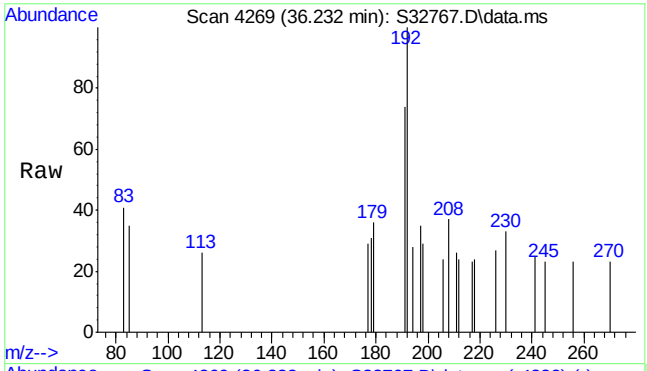
#65
Phenanthrene
Concen: 9.53 ng/mL
RT: 34.155 min Scan# 3945
Delta R.T. 0.032 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:178 Resp: 1203

Ion	Ratio	Lower	Upper
178	100		
179	0.0	12.2	18.4#



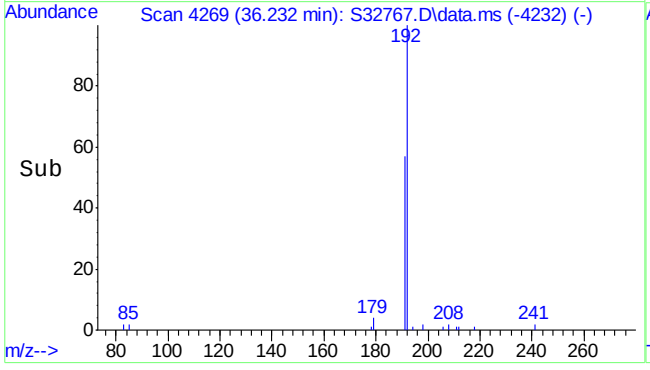


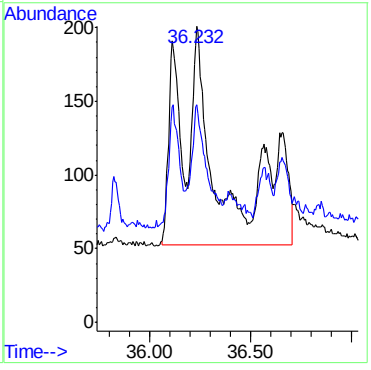


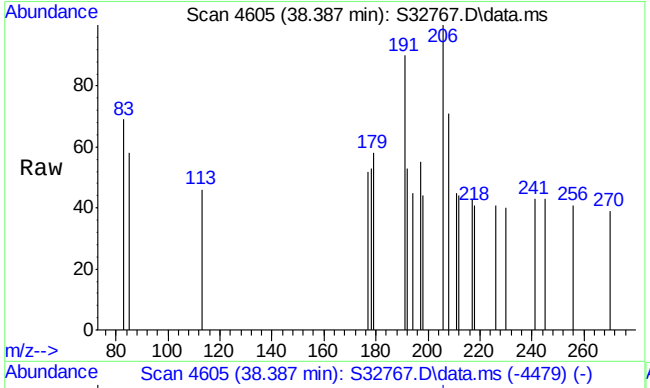
#67
C1-Phenanthrenes/anthracenes
Concen: 16.83 ng/mL m
RT: 36.232 min Scan# 4269
Delta R.T. -0.314 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:192 Resp: 2124

Ion	Ratio	Lower	Upper
192	100		
191	14.5	44.9	67.3#



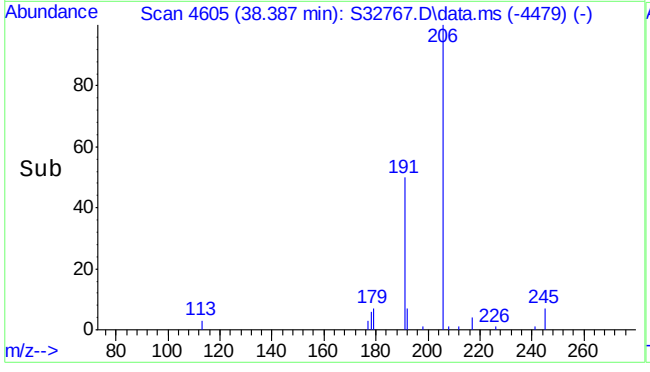


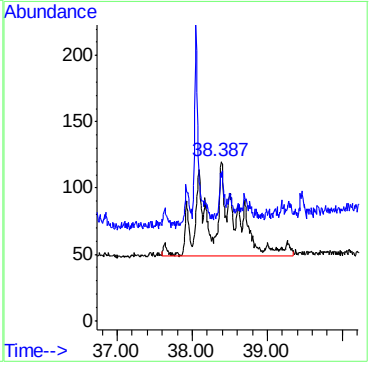


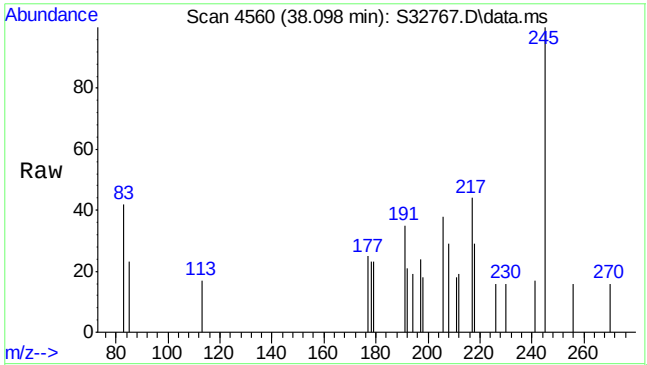
#68
C2-Phenanthrenes/anthracenes (unadj)
Concen: 14.36 ng/mL m
RT: 38.387 min Scan# 4605
Delta R.T. 0.013 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:206 Resp: 1813

Ion	Ratio	Lower	Upper
206	100		
191	0.0	44.7	67.1#



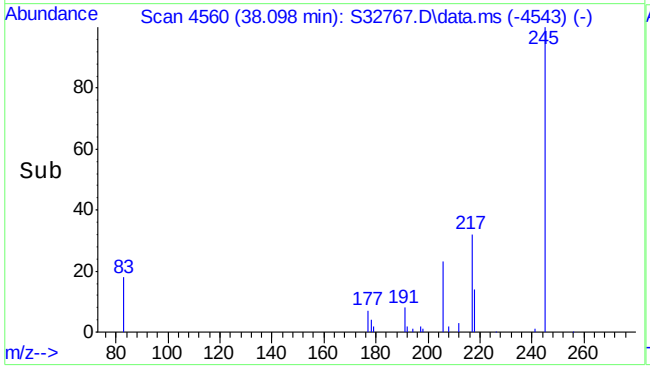


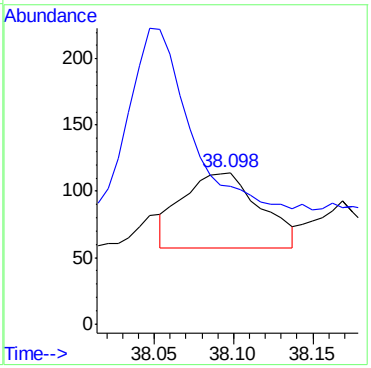


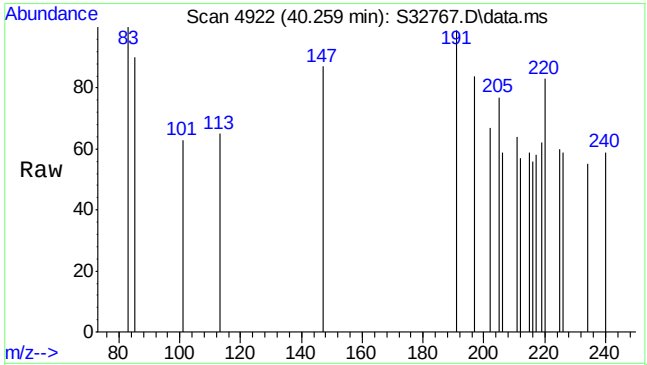
#69
C2-Phenanthrenes/anthracenes (5aA)
Concen: 1.55 µg/mL m
RT: 38.098 min Scan# 4560
Delta R.T. -0.090 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:206 Resp: 196

Ion	Ratio	Lower	Upper
206	100		
191	0.0	61.9	92.9#



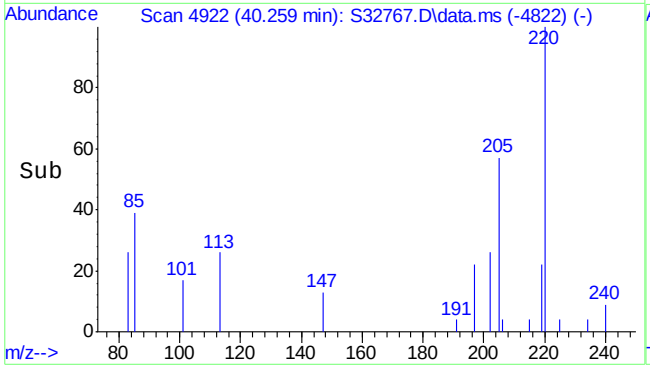


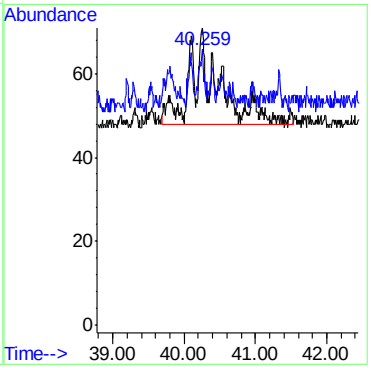


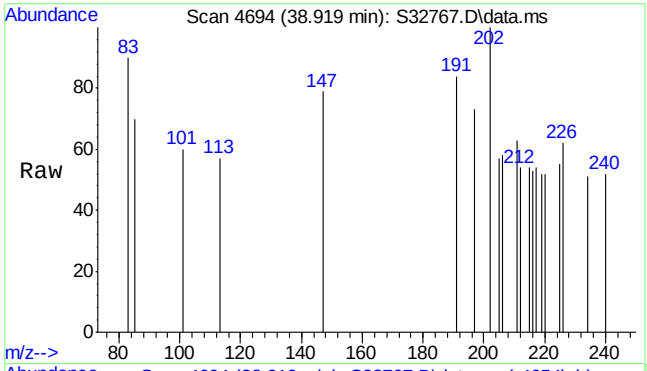
#70
C3-Phenanthrenes/anthracenes
Concen: 4.90 ng/mL m
RT: 40.259 min Scan# 4922
Delta R.T. 0.041 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:220 Resp: 619

Ion	Ratio	Lower	Upper
220	100		
205	0.0	42.1	63.1#



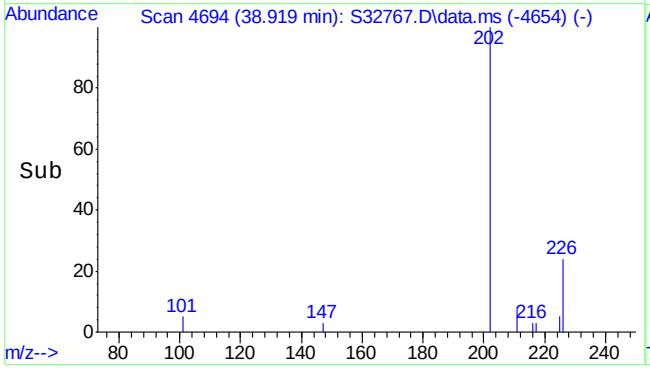


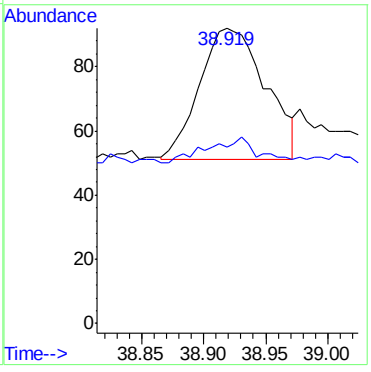


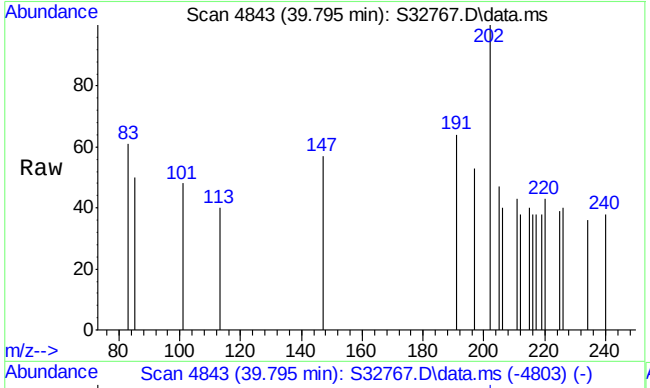
#78
Fluoranthene
Concen: 1.24 ng/mL m
RT: 38.919 min Scan# 4694
Delta R.T. 0.035 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:202 Resp: 152

Ion	Ratio	Lower	Upper
202	100		
101	0.0	10.0	15.0#



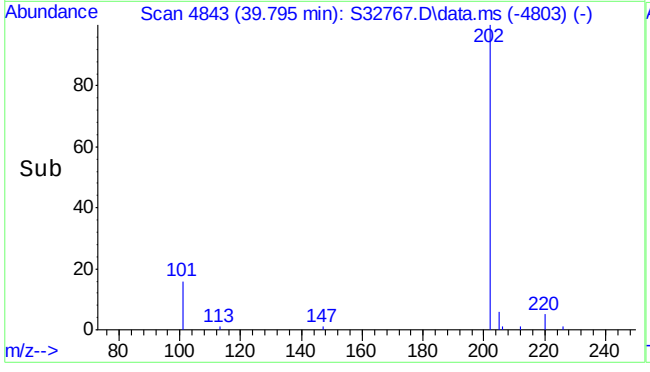


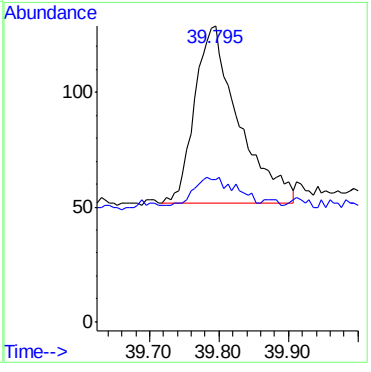


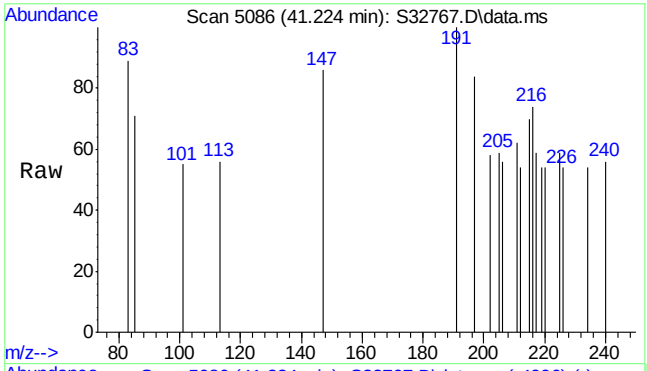
#79
Pyrene
Concen: 2.64 ng/mL
RT: 39.795 min Scan# 4843
Delta R.T. 0.035 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:202 Resp: 336

Ion	Ratio	Lower	Upper
202	100		
101	0.0	11.4	17.0#



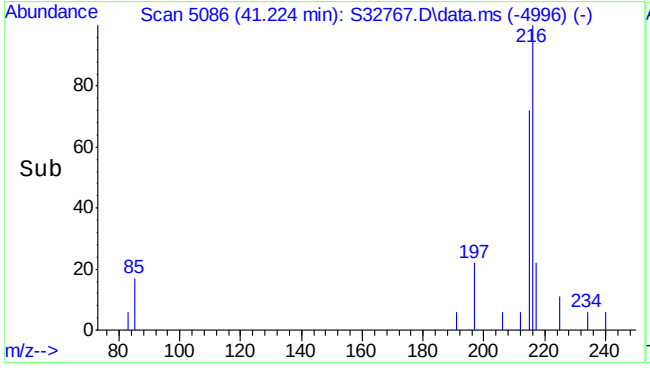


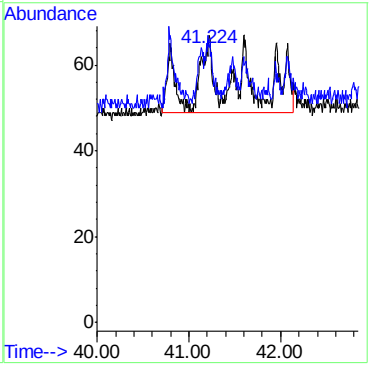


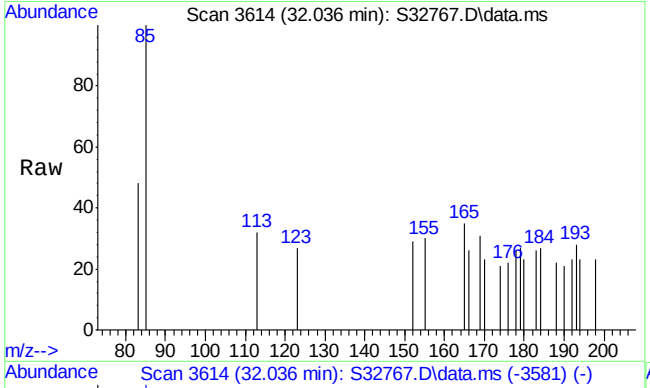
#80
C1-Fluoranthenes/pyrenes
Concen: 4.39 ng/mL m
RT: 41.224 min Scan# 5086
Delta R.T. 0.047 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion:216 Resp: 559

Ion	Ratio	Lower	Upper
216	100		
215	0.0	76.5	114.7#



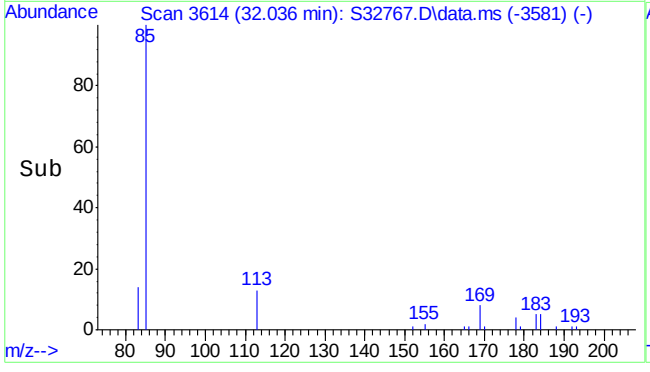


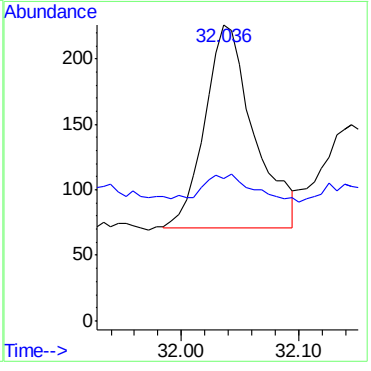


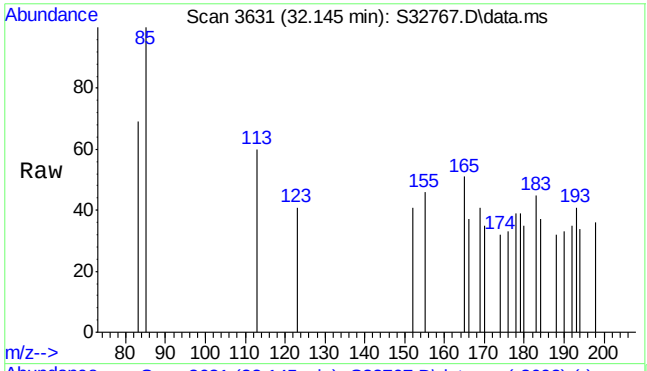
#103
C-17
Concen: 16.73 µg/mL m
RT: 32.036 min Scan# 3614
Delta R.T. 0.013 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 85 Resp: 448

Ion	Ratio	Lower	Upper
85	100		
83	0.0	12.3	18.5#



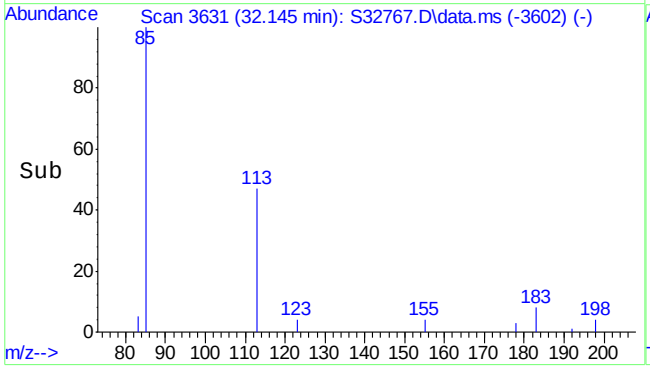


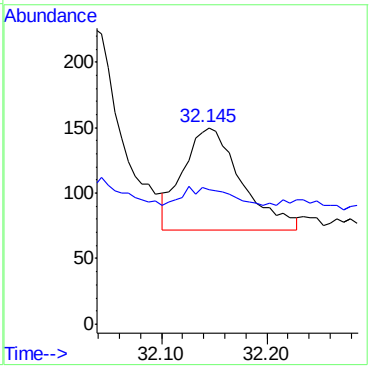


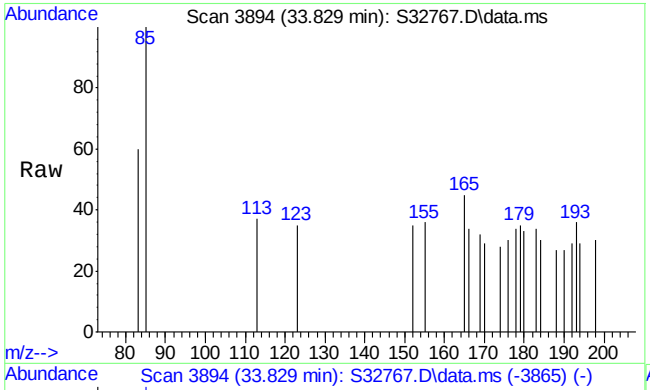
#104
Pristane
Concen: 14.84 µg/mL m
RT: 32.145 min Scan# 3631
Delta R.T. -0.013 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 85 Resp: 300

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#



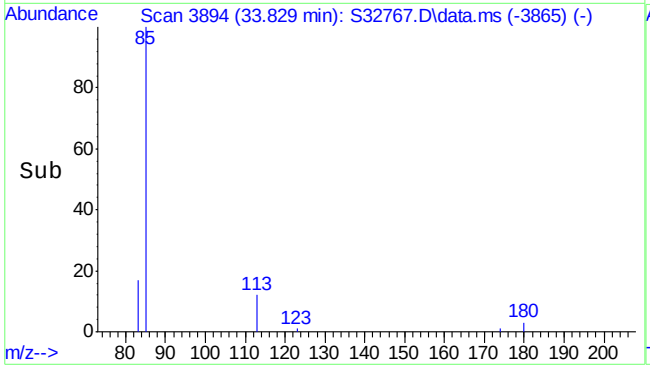


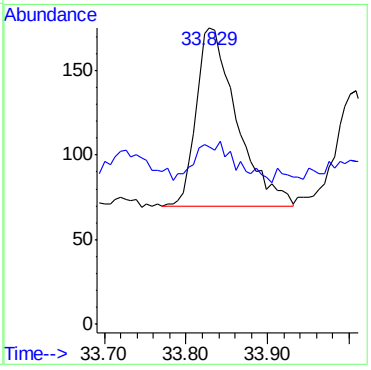


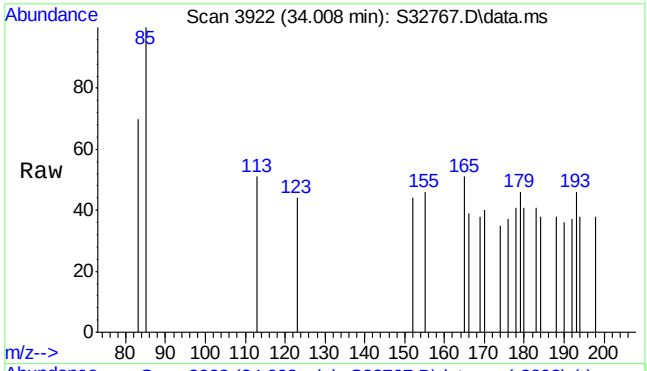
#105
C-18
Concen: 13.26 µg/mL
RT: 33.829 min Scan# 3894
Delta R.T. -0.013 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 85 Resp: 363

Ion	Ratio	Lower	Upper
85	100		
83	0.0	17.8	26.6#



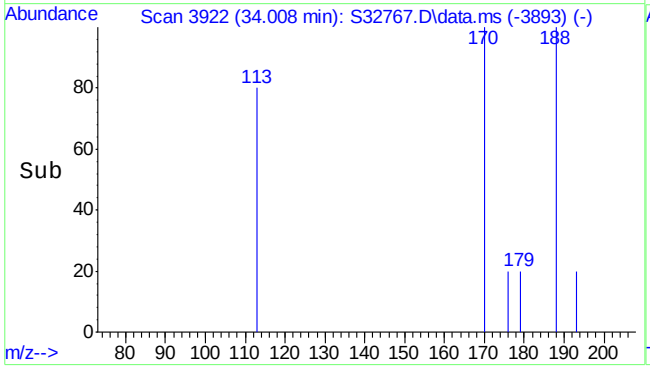


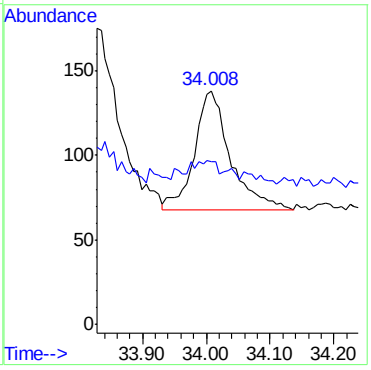


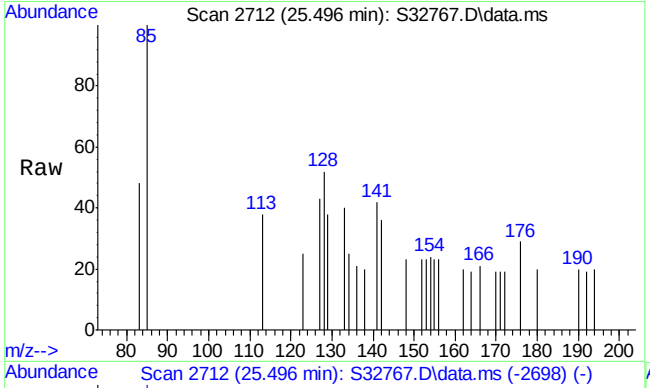
#106
Phytane
Concen: 10.12 µg/mL
RT: 34.008 min Scan# 3922
Delta R.T. -0.013 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 85 Resp: 272

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#



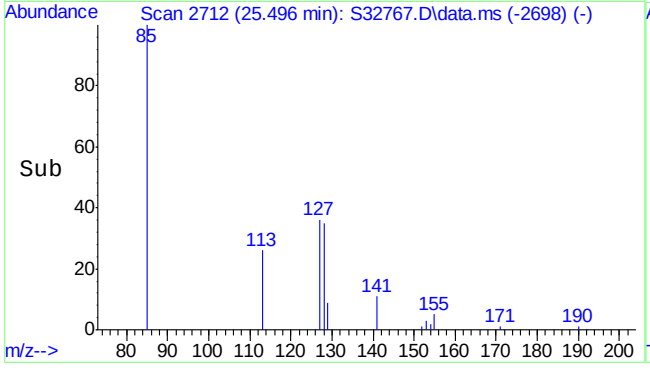


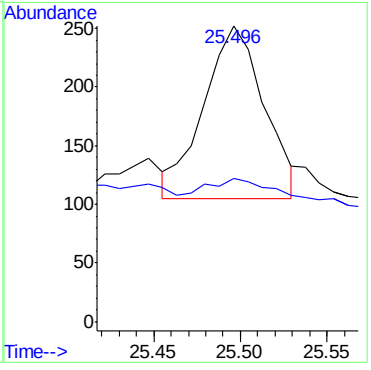


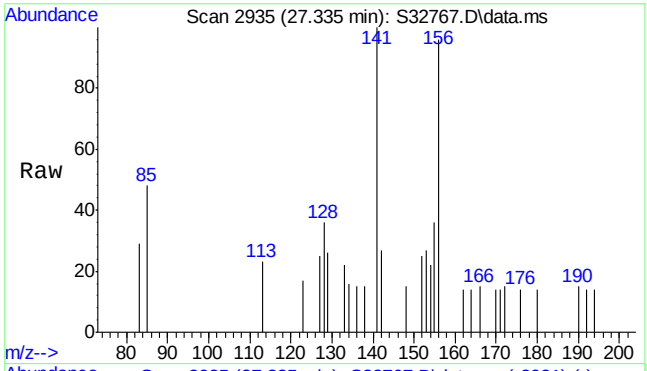
#107
2,6,10-Trimethyldodecane (1380)
Concen: 13.21 µg/mL m
RT: 25.496 min Scan# 2712
Delta R.T. -0.083 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 85 Resp: 355

Ion	Ratio	Lower	Upper
85	100		
83	0.0	13.0	19.6#



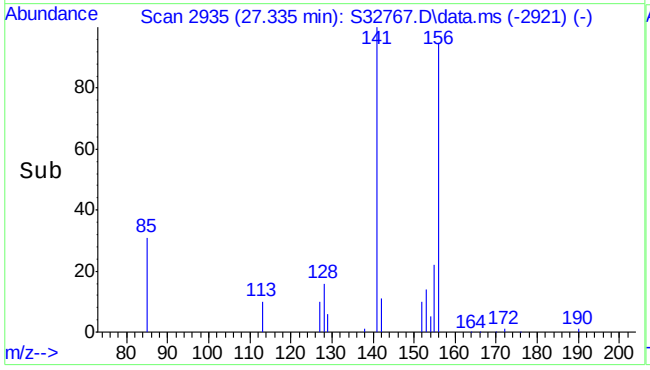


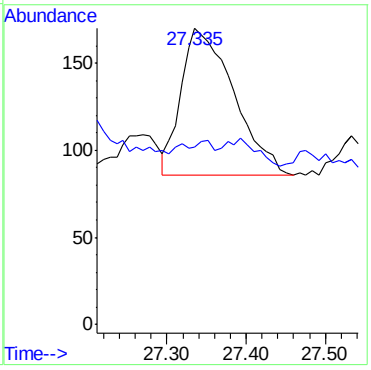


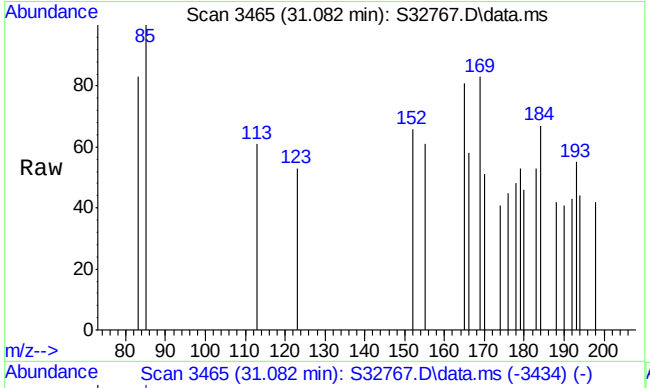
#108
2,6,10-Trimethyltridecane (1470)
Concen: 14.44 µg/mL
RT: 27.335 min Scan# 2935
Delta R.T. -0.083 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 85 Resp: 388

Ion	Ratio	Lower	Upper
85	100		
83	0.0	13.0	19.6#



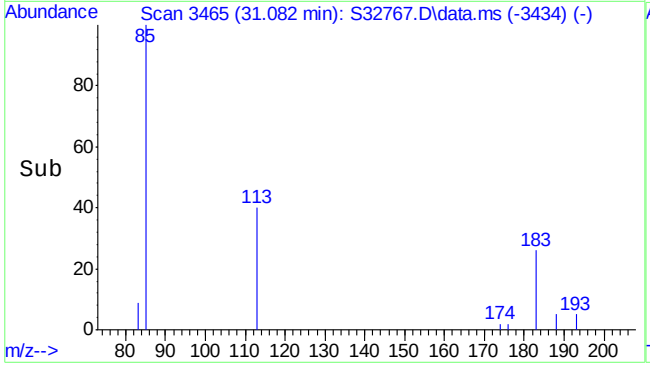


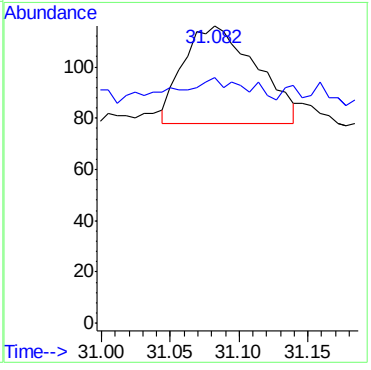


#109
2,6,10-Trimethylpentadecane (1650)
Concen: 5.21 µg/mL m
RT: 31.082 min Scan# 3465
Delta R.T. -0.000 min
Lab File: S32767.D
Acq: 29 May 2013 7:57 pm

Tgt Ion: 85 Resp: 140

Ion	Ratio	Lower	Upper
85	100		
83	0.0	21.2	31.8#





Manual Integrations APPROVED (compounds with "m" flag)
James Roush
05/31/13 15:01

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32745.D
Acq On : 28 May 2013 1:59 pm
Operator : danielb
Sample : op33312-mb
Misc : op33312,mss1429,,,,2,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 29 09:20:32 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 24 10:57:54 2013
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Acenaphthene-d10	28.180	164	46939	1000.00	ng/mL	-0.01
System Monitoring Compounds						
2) Toluene-d8	9.299	98	56513	1084.73	µg/mL	-0.01
Spiked Amount 1000.000			Recovery = 108.47%			
3) Naphthalene-d8	21.232	136	83040	872.41	ng/mL	0.00
Spiked Amount 1000.000	Range 1 - 0		Recovery = 87.24%#			
4) Phenanthrene-d10	34.033	188	72208	963.69	ng/mL	0.00
Spiked Amount 1000.000			Recovery = 96.37%			
5) Perylene-d12	49.881	264	73918	1039.24	ng/mL	0.00
Spiked Amount 1000.000			Recovery = 103.92%			
Target Compounds						Qvalue
6) MTBE	5.466	73	350m	9.10	µg/mL	
7) Benzene	6.871	TIC	10107m	136.19	µg/mL	
8) C1-Benzene	9.407	92	8667	116.79	µg/mL	98
9) C2-Benzenes	12.374	106	14452m	194.74	µg/mL	
10) C3-Benzenes	16.026	120	8477m	114.23	µg/mL	
11) C4-Benzenes	17.813	134	3499m	47.15	µg/mL	
12) C5-Benzenes	20.103	148	1196m	16.12	µg/mL	
13) Methylcyclohexane	8.240	83	3886	134.21	µg/mL	100
14) Toluene	9.407	91	14844	213.76	µg/mL	100
15) Ethylbenzene	12.144	91	4210	49.62	µg/mL	99
16) m,p-xylene	12.374	91	21685	320.66	µg/mL	100
17) Styrene	13.015	104	95m	1.89	µg/mL	
18) o-Xylene	13.087	91	7012	104.68	µg/mL	100
19) Isopropylbenzene	14.009	105	286	3.62	µg/mL#	49
20) n-Propylbenzene	14.867	91	1315	12.29	µg/mL	100
21) 1,3,5-Trimethylbenzene	15.284	105	2438	33.27	µg/mL	99
22) t-Butylbenzene	16.026	119	762	10.58	µg/mL#	54
23) 1,2,4-Trimethylbenzene	16.026	105	6476	86.45	µg/mL	99
24) sec-Butylbenzene	16.509	105	153m	1.59	µg/mL	
25) 1,2,3-Trimethylbenzene	16.869	105	1308	16.65	µg/mL	94
26) p-Isopropyltoluene	16.876	119	207	2.44	µg/mL#	53
27) n-Butylbenzene	17.762	91	310	3.79	µg/mL#	53
44) Naphthalene	21.306	128	1545	13.61	ng/mL	100
45) 2-Methylnaphthalene	24.036	142	707	10.05	ng/mL	95
46) 1-Methylnaphthalene	24.440	142	375	5.29	ng/mL	98
47) C1-Naphthalenes	24.036	142	1260m	11.10	ng/mL	
48) C2-Naphthalenes	26.849	156	709m	6.25	ng/mL	
49) C3-Naphthalenes	29.187	170	405m	3.57	ng/mL	
51) Biphenyl	25.925	154	421	4.41	µg/mL#	36
55) Fluorene	30.358	166	59m	0.81	ng/mL	
59) Dibenzothiophene	33.623	184	70m	0.71	ng/mL	
60) C1-Dibenzothiophenes (...	35.847	198	6552m	66.20	ng/mL	
61) C1-Dibenzothiophenes (...	35.847	198	6356	64.22	µg/mL#	24
65) Phenanthrene	34.123	178	277	2.67	ng/mL#	63
67) C1-Phenanthrenes/anthr...	36.540	192	163m	1.57	ng/mL	
78) Fluoranthene	38.907	202	47m	0.47	ng/mL	

Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32745.D
Acq On : 28 May 2013 1:59 pm
Operator : danielb
Sample : op33312-mb
Misc : op33312,mss1429,,,,2,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 29 09:20:32 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 24 10:57:54 2013
Response via : Initial Calibration

	Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
79)	Pyrene	39.777	202	54m	0.52	ng/mL	
94)	Benzo(b)fluoranthene	48.604	252	48m	0.49	ng/mL	
103)	C-17	32.017	85	77m	3.50	µg/mL	
105)	C-18	33.822	85	68m	3.02	µg/mL	
106)	Phytane	34.020	85	94m	4.26	µg/mL	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

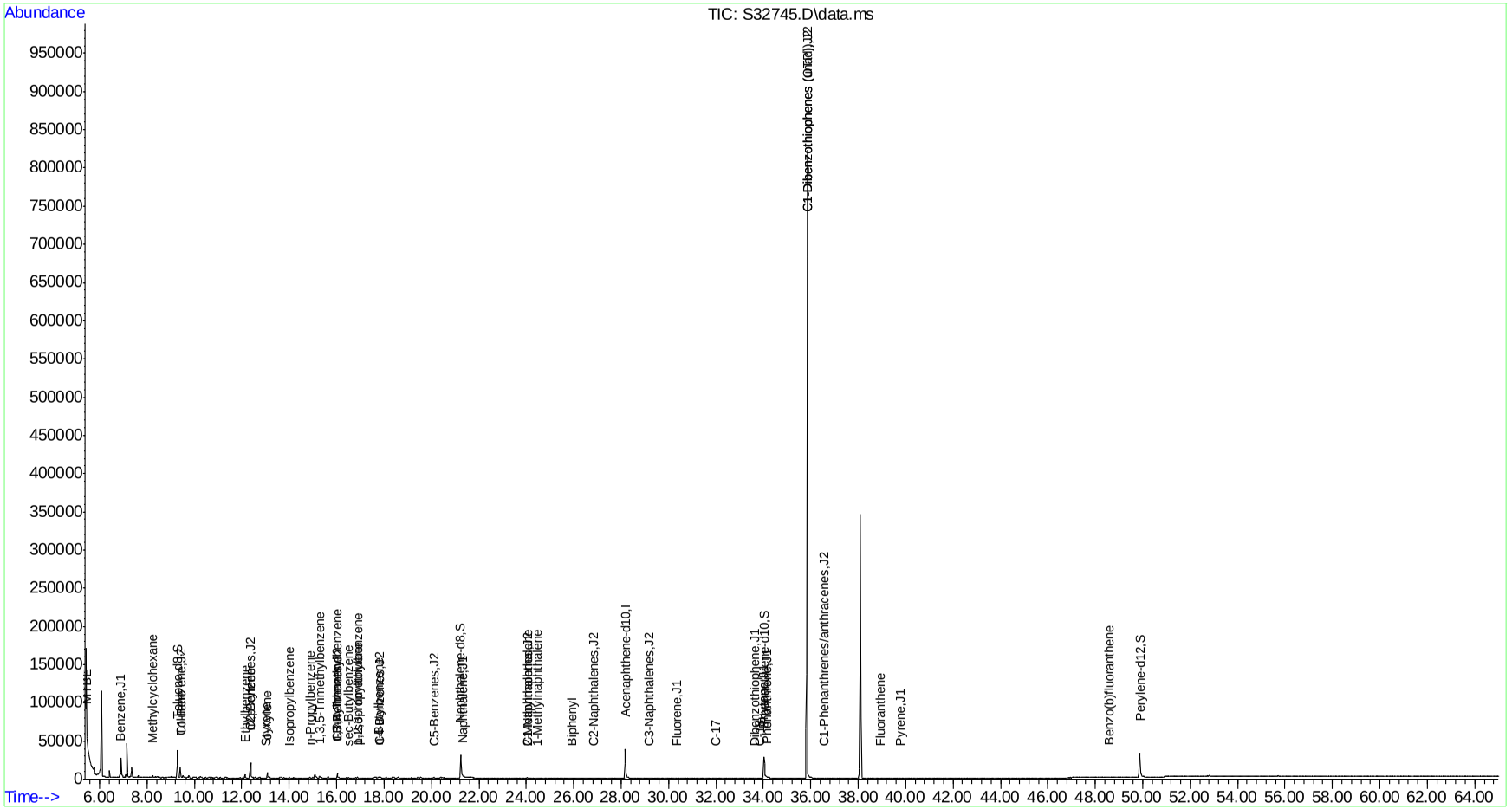
9.2.1

9

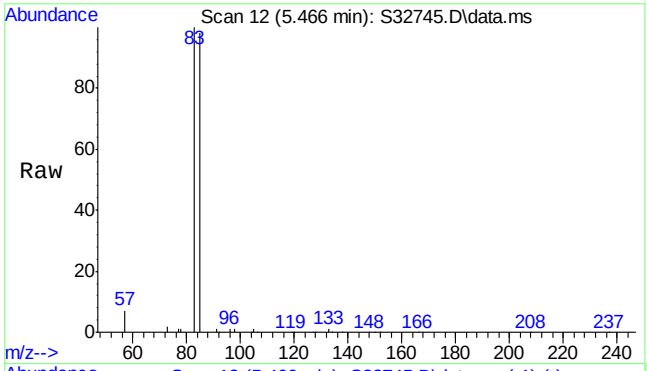
Quantitation Report (QT Reviewed)

Data Path : S:\1\data\S130528\
Data File : S32745.D
Acq On : 28 May 2013 1:59 pm
Operator : danielb
Sample : op33312-mb
Misc : op33312,mss1429,,,,2,1
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 29 09:20:32 2013
Quant Method : S:\1\methods\S130508-MAHPAHEXT.M
Quant Title : PAHs & Alkylated PAHs by GC/MS/SIM
QLast Update : Fri May 24 10:57:54 2013
Response via : Initial Calibration



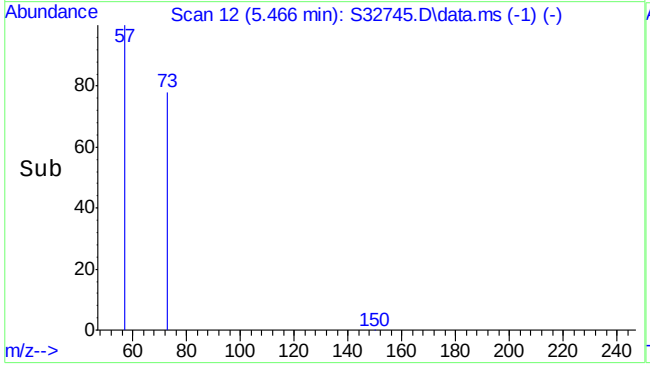
S130508-MAHPAHEXT.M Wed May 29 11:37:51 2013 Page: 3

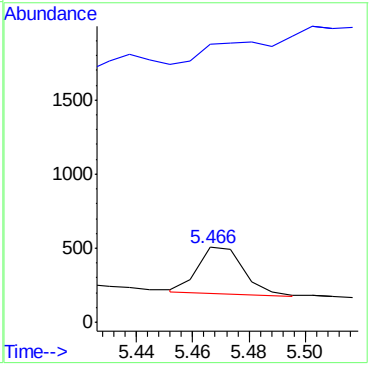


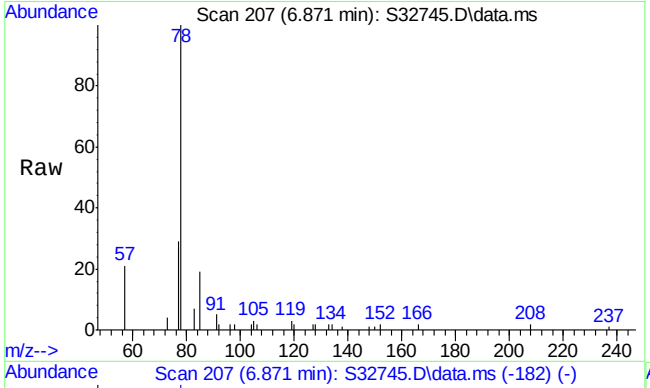
#6
MTBE
Concen: 9.10 µg/mL m
RT: 5.466 min Scan# 12
Delta R.T. -0.029 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion: 73 Resp: 350

Ion	Ratio	Lower	Upper
73	100		
57	0.0	18.5	27.7#

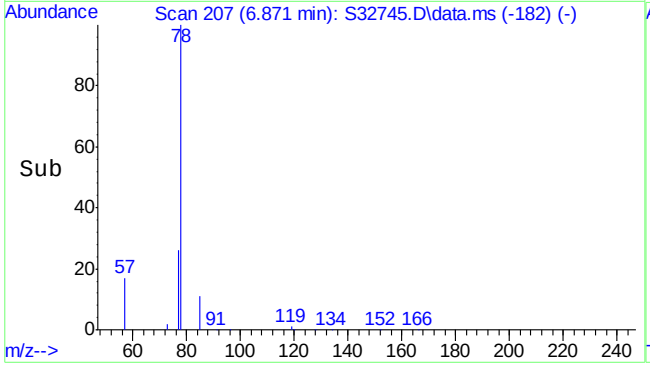


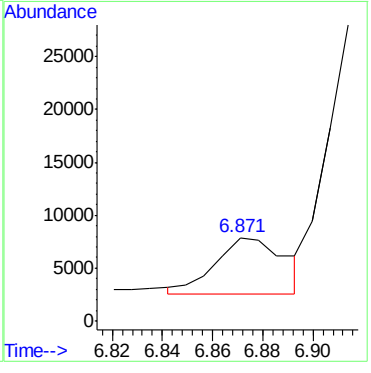


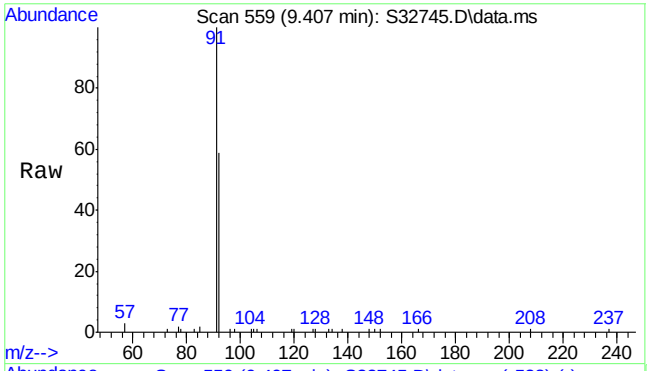


#7
Benzene
Concen: 136.19 µg/mL m
RT: 6.871 min Scan# 207
Delta R.T. -0.022 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:TIC Resp: 10107



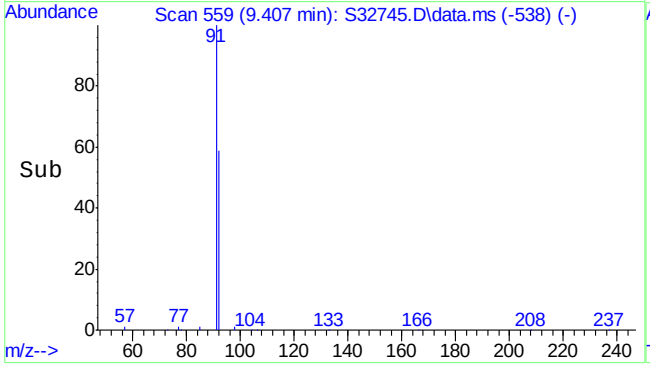


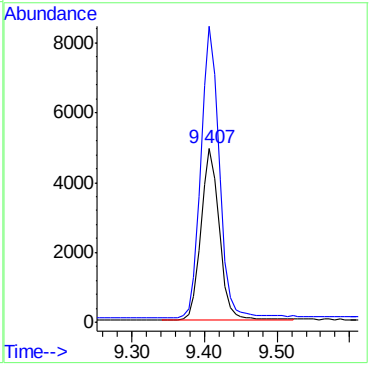


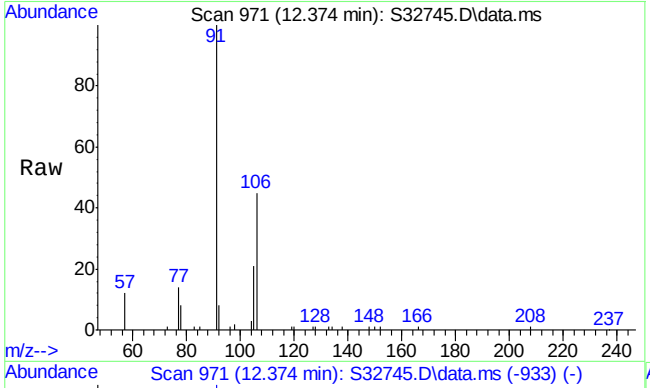
#8
C1-Benzene
Concen: 116.79 µg/mL
RT: 9.407 min Scan# 559
Delta R.T. -0.050 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion: 92 Resp: 8667

Ion	Ratio	Lower	Upper
92	100		
91	171.8	135.6	203.4



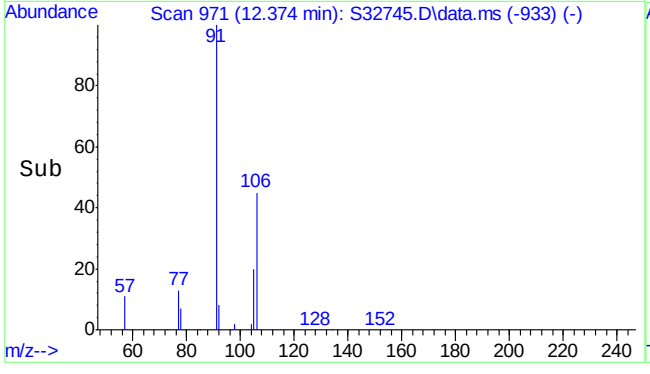


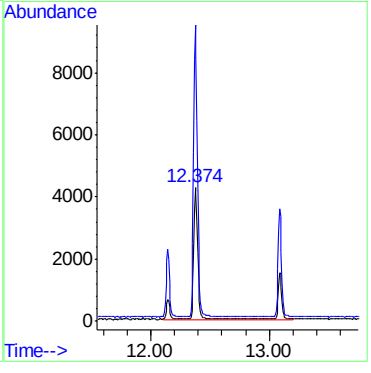


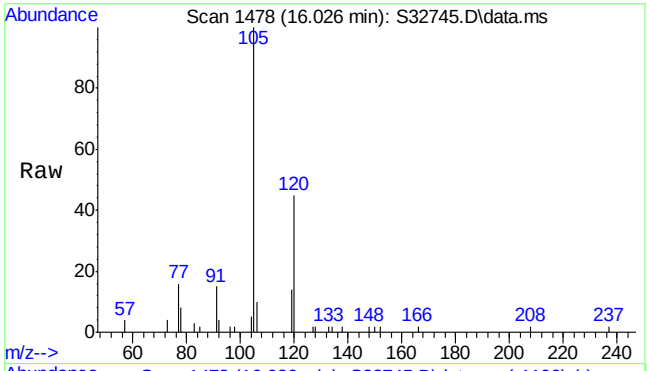
#9
C2-Benzenes
Concen: 194.74 µg/mL m
RT: 12.374 min Scan# 971
Delta R.T. -0.015 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:106 Resp: 14452

Ion	Ratio	Lower	Upper
106	100		
91	150.0	174.9	262.3#



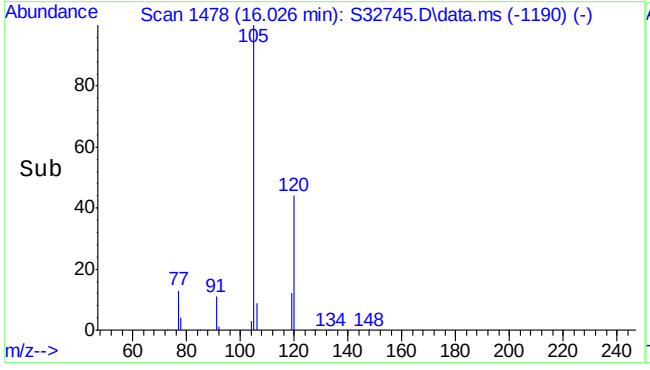


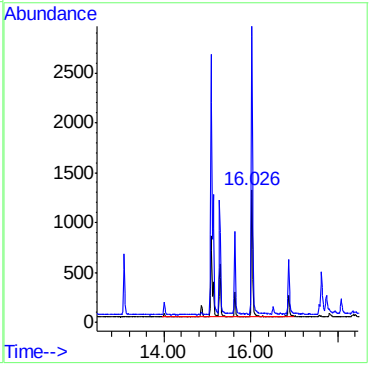


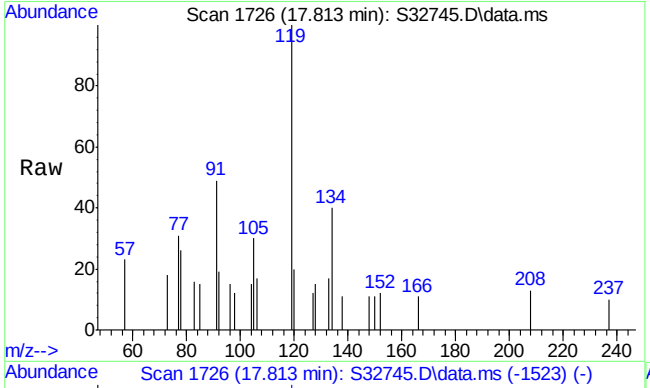
#10
C3-Benzenes
Concen: 114.23 µg/mL m
RT: 16.026 min Scan# 1478
Delta R.T. -0.007 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:120 Resp: 8477

Ion	Ratio	Lower	Upper
120	100		
105	76.3	181.4	272.2#



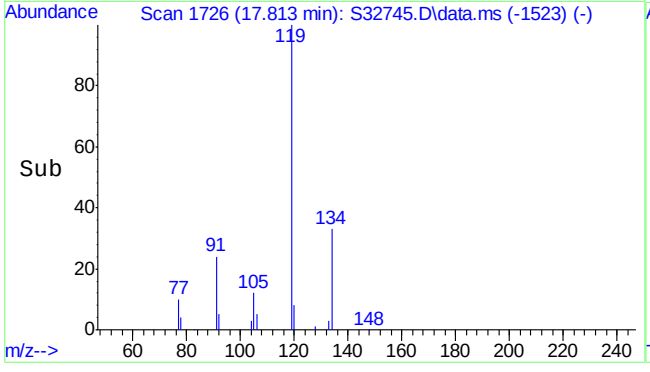


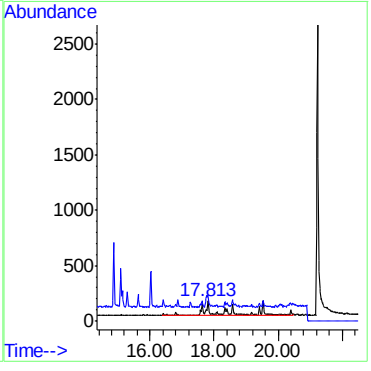


#11
C4-Benzenes
Concen: 47.15 µg/mL m
RT: 17.813 min Scan# 1726
Delta R.T. -2.593 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:134 Resp: 3499

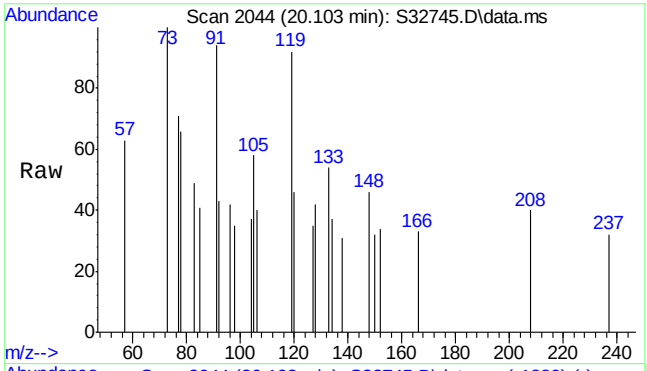
Ion	Ratio	Lower	Upper
134	100		
91	0.0	37.2	55.8#





9.2.1

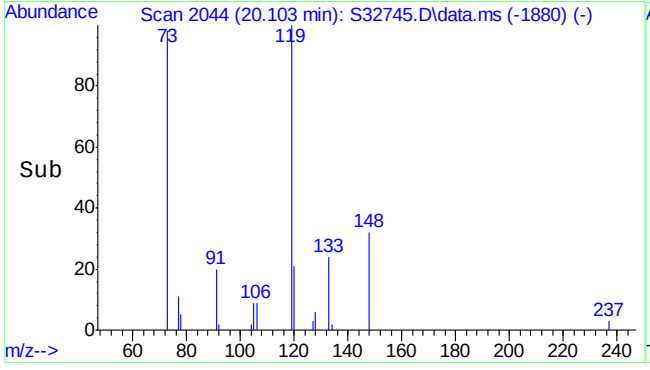
9

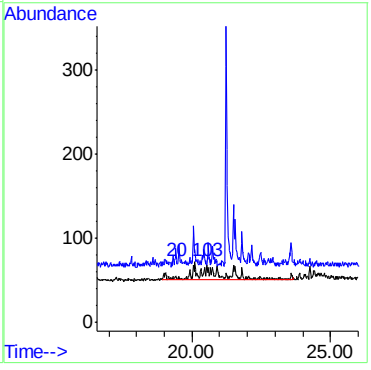


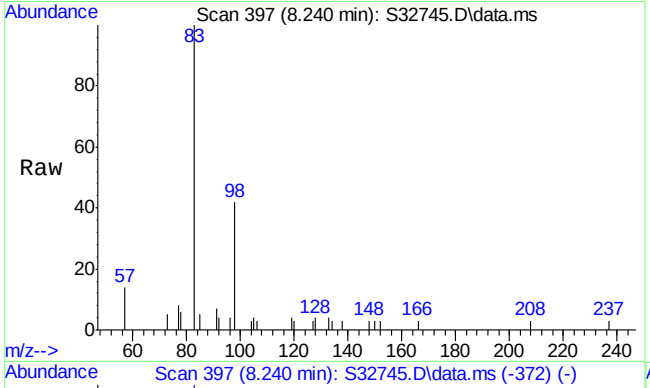
#12
C5-Benzenes
Concen: 16.12 µg/mL m
RT: 20.103 min Scan# 2044
Delta R.T. -0.007 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:148 Resp: 1196

Ion	Ratio	Lower	Upper
148	100		
133	0.0	134.0	201.0#



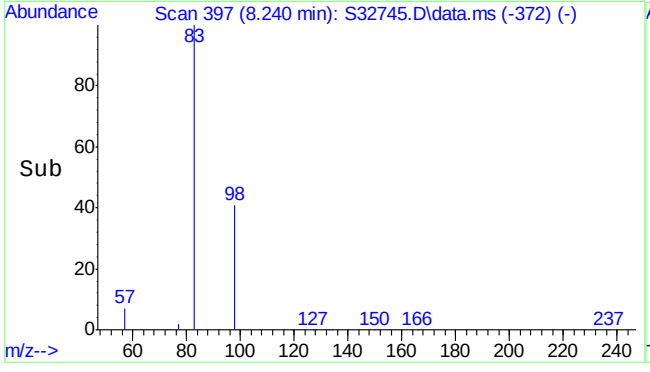


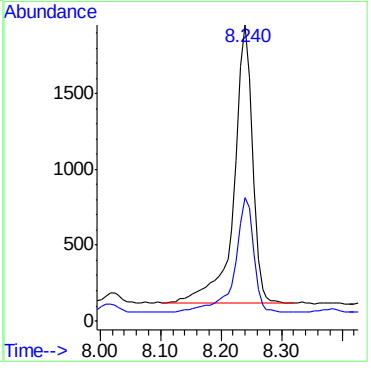


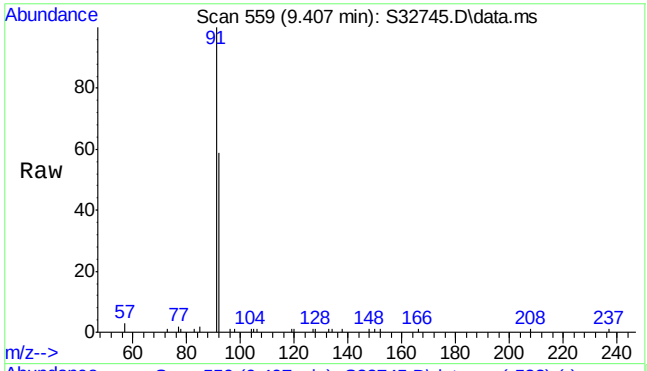
#13
Methylcyclohexane
Concen: 134.21 µg/mL
RT: 8.240 min Scan# 397
Delta R.T. -0.022 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion: 83 Resp: 3886

Ion	Ratio	Lower	Upper
83	100		
98	42.3	34.0	51.0



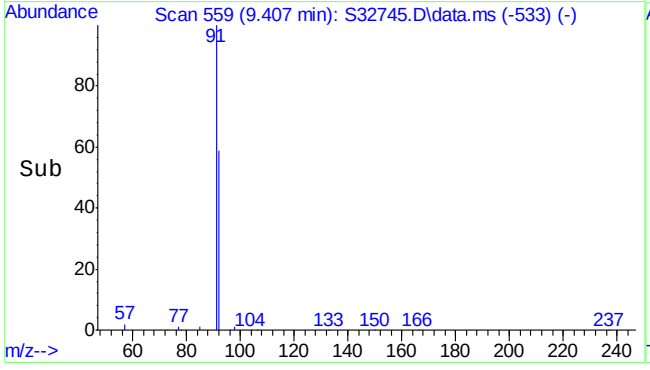


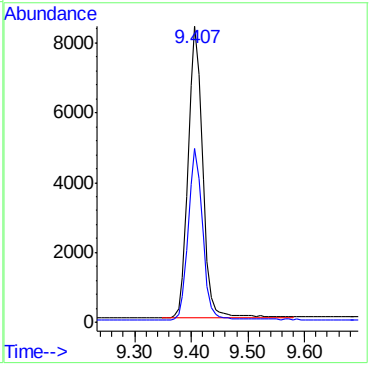


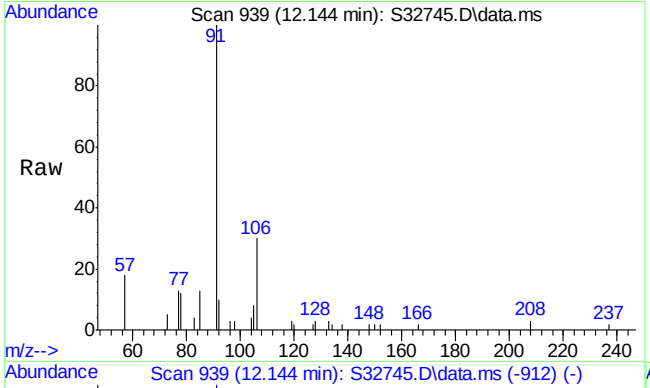
#14
Toluene
Concen: 213.76 µg/mL
RT: 9.407 min Scan# 559
Delta R.T. -0.014 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion: 91 Resp: 14844

Ion	Ratio	Lower	Upper
91	100		
92	58.4	46.8	70.2



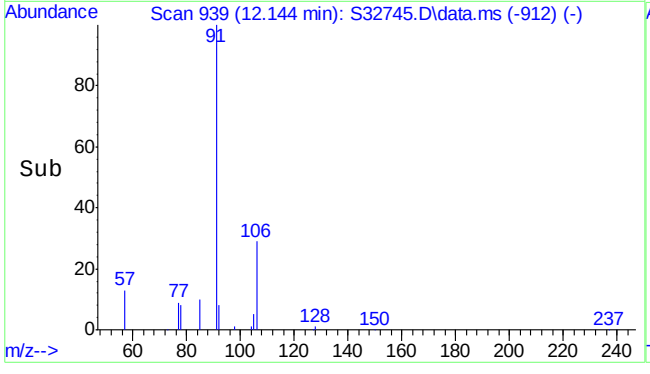


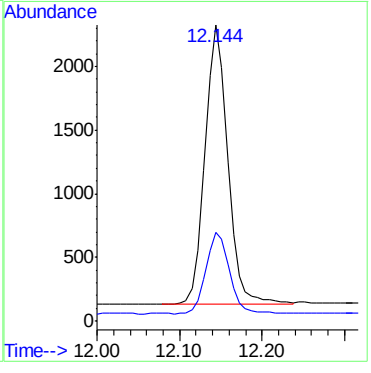


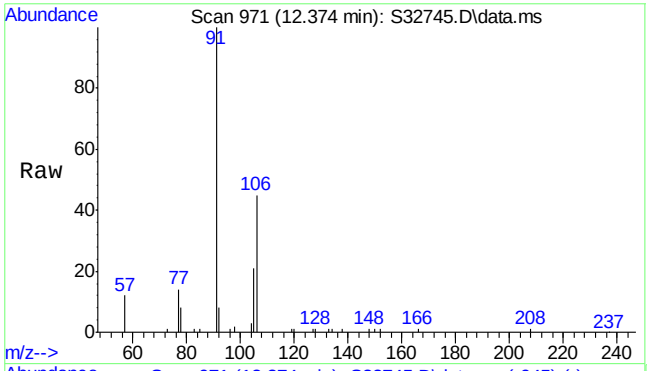
#15
Ethylbenzene
Concen: 49.62 µg/mL
RT: 12.144 min Scan# 939
Delta R.T. -0.007 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion: 91 Resp: 4210

Ion	Ratio	Lower	Upper
91	100		
106	30.1	23.8	35.6



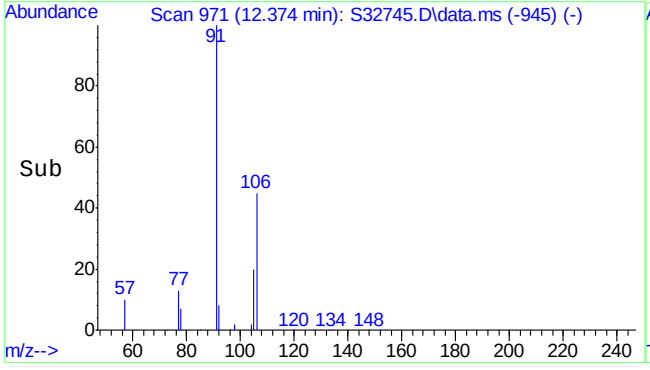


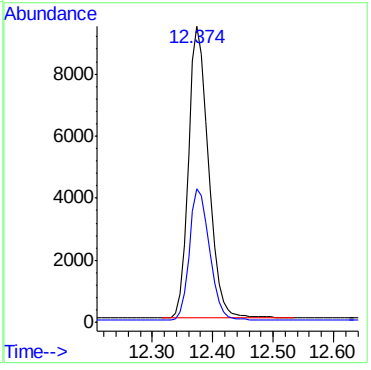


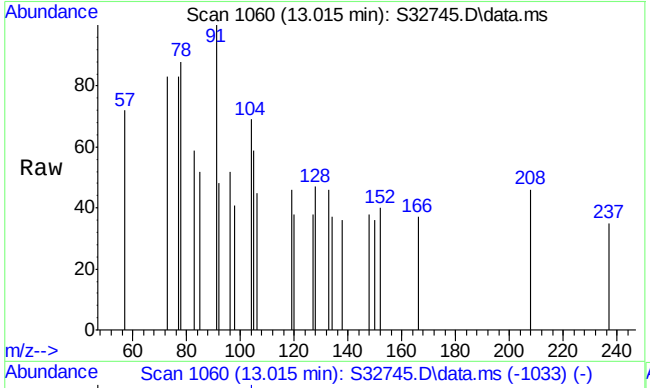
#16
m,p-xylene
Concen: 320.66 µg/mL
RT: 12.374 min Scan# 971
Delta R.T. -0.014 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion: 91 Resp: 21685

Ion	Ratio	Lower	Upper
91	100		
106	45.9	36.6	55.0



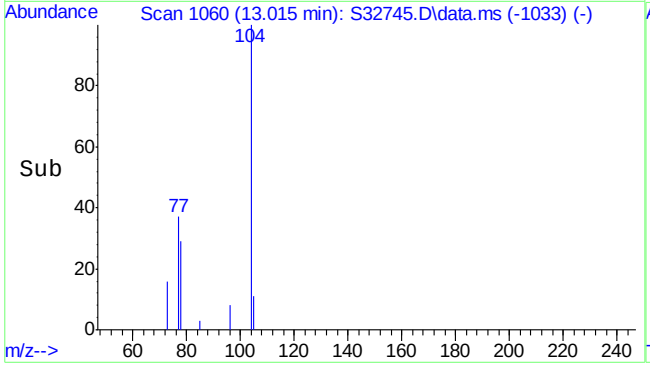


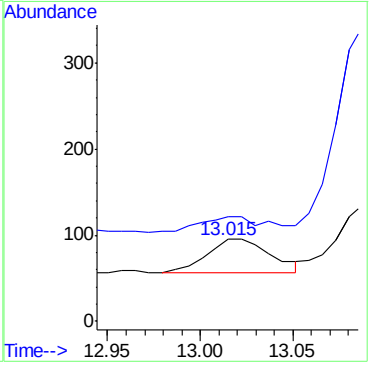


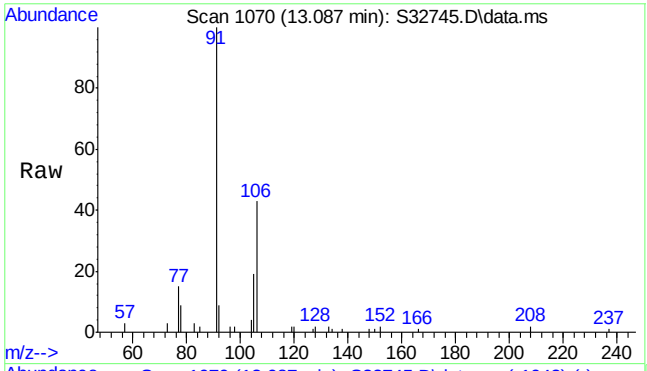
#17
Styrene
Concen: 1.89 µg/mL m
RT: 13.015 min Scan# 1060
Delta R.T. -0.007 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:104 Resp: 95

Ion	Ratio	Lower	Upper
104	100		
78	0.0	37.7	56.5#



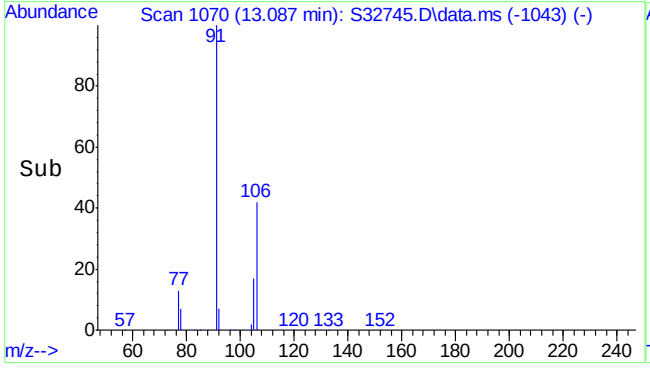


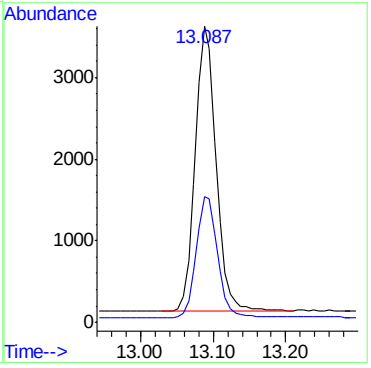


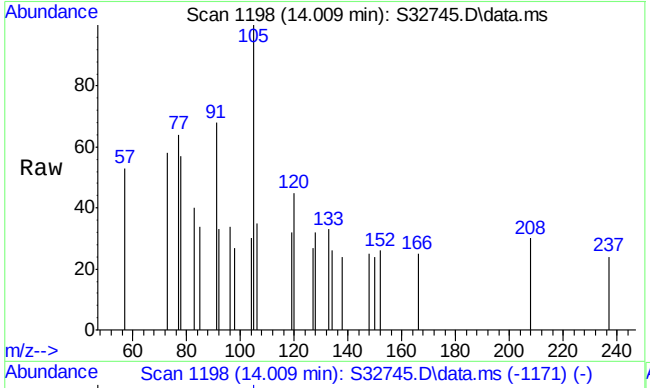
#18
o-Xylene
Concen: 104.68 µg/mL
RT: 13.087 min Scan# 1070
Delta R.T. -0.007 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion: 91 Resp: 7012

Ion	Ratio	Lower	Upper
91	100		
106	43.4	34.5	51.7



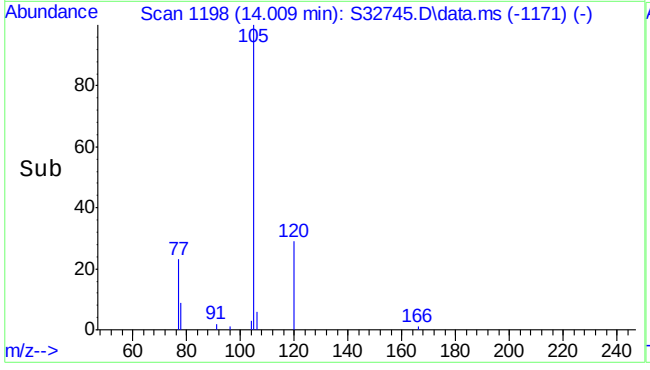


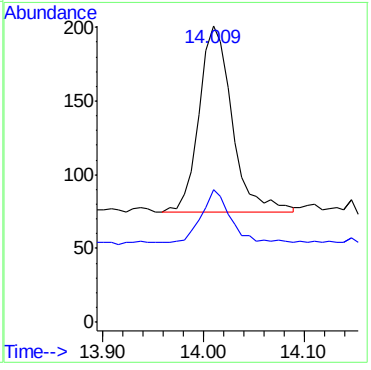


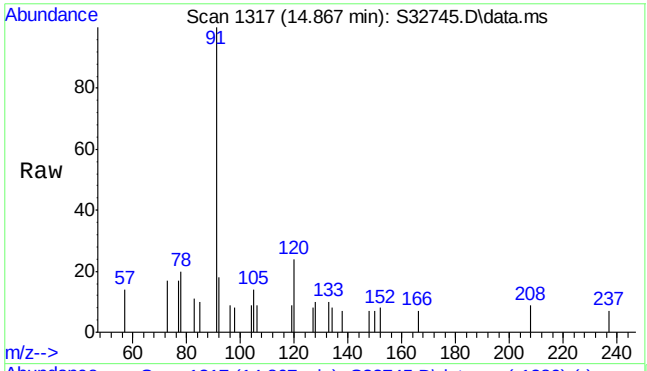
#19
Isopropylbenzene
Concen: 3.62 µg/mL
RT: 14.009 min Scan# 1198
Delta R.T. -0.007 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:105 Resp: 286

Ion	Ratio	Lower	Upper
105	100		
120	0.0	21.1	31.7#



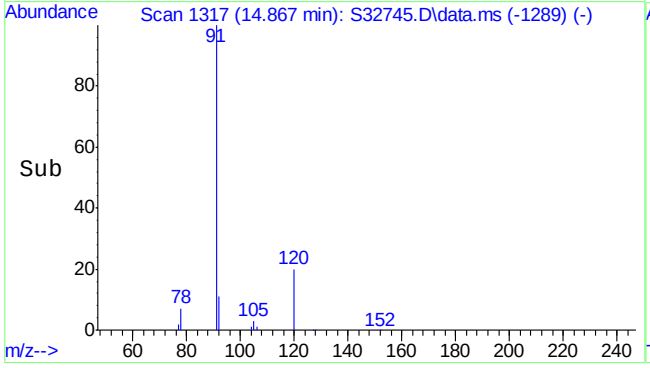


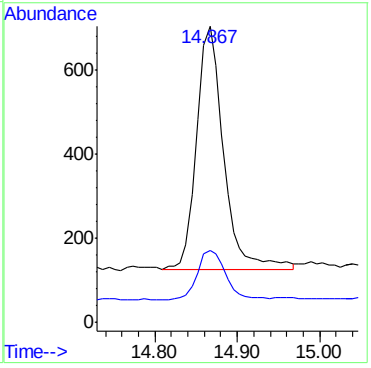


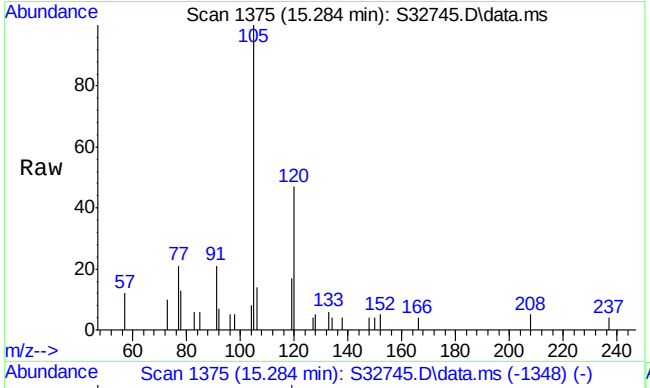
#20
n-Propylbenzene
Concen: 12.29 µg/mL
RT: 14.867 min Scan# 1317
Delta R.T. 0.000 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion: 91 Resp: 1315

Ion	Ratio	Lower	Upper
91	100		
120	21.1	17.0	25.4



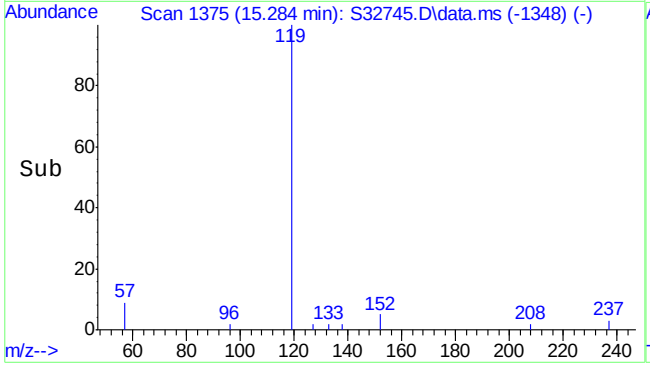


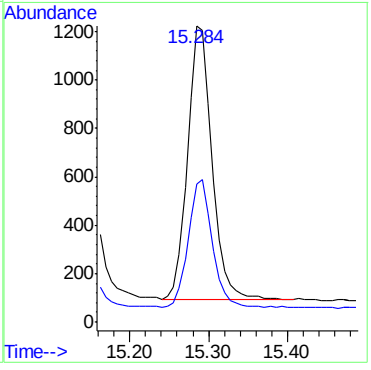


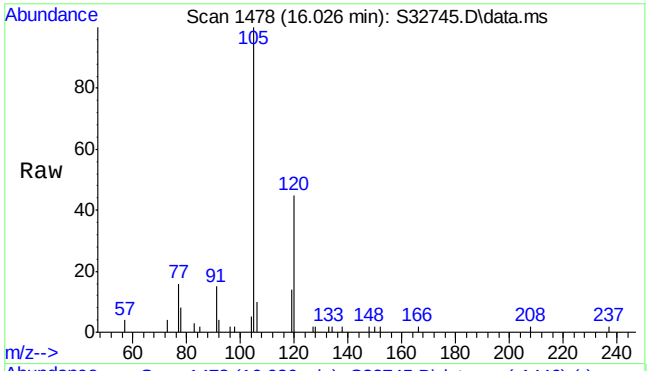
#21
1,3,5-Trimethylbenzene
Concen: 33.27 µg/mL
RT: 15.284 min Scan# 1375
Delta R.T. -0.007 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:105 Resp: 2438

Ion	Ratio	Lower	Upper
105	100		
120	45.5	37.1	55.7



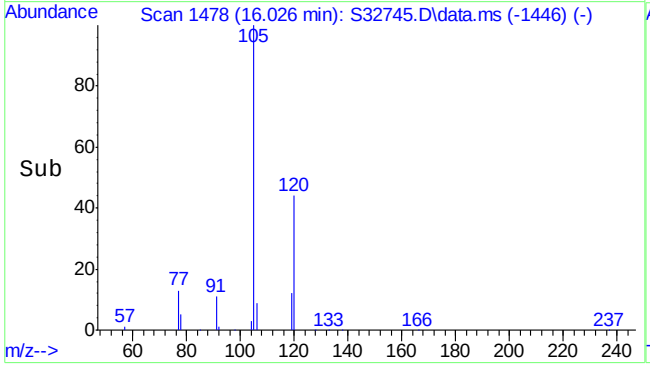


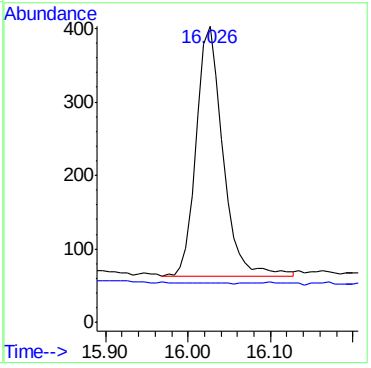


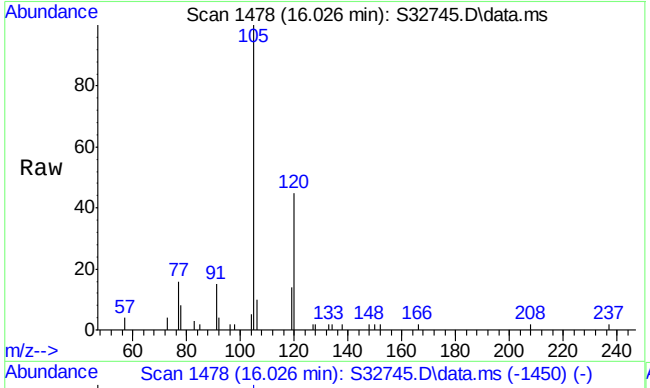
#22
t-Butylbenzene
Concen: 10.58 µg/mL
RT: 16.026 min Scan# 1478
Delta R.T. 0.029 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:119 Resp: 762

Ion	Ratio	Lower	Upper
119	100		
134	0.0	17.6	26.4#



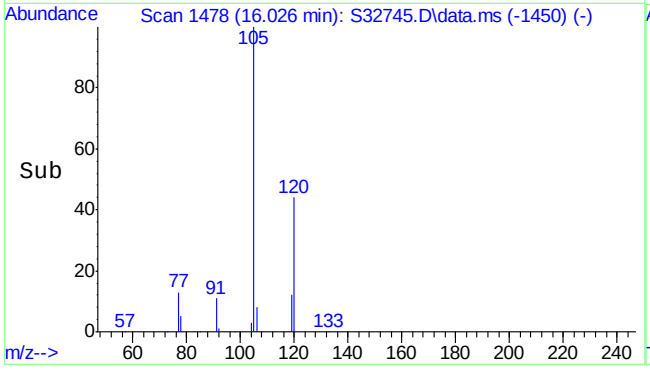


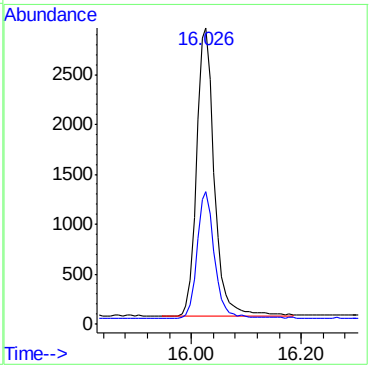


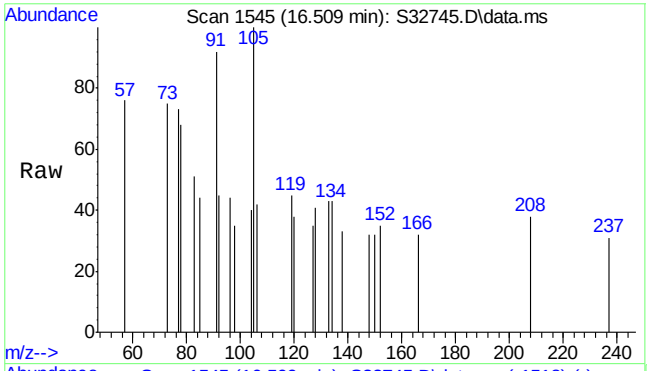
#23
1,2,4-Trimethylbenzene
Concen: 86.45 µg/mL
RT: 16.026 min Scan# 1478
Delta R.T. 0.000 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:105 Resp: 6476

Ion	Ratio	Lower	Upper
105	100		
120	43.1	35.1	52.7



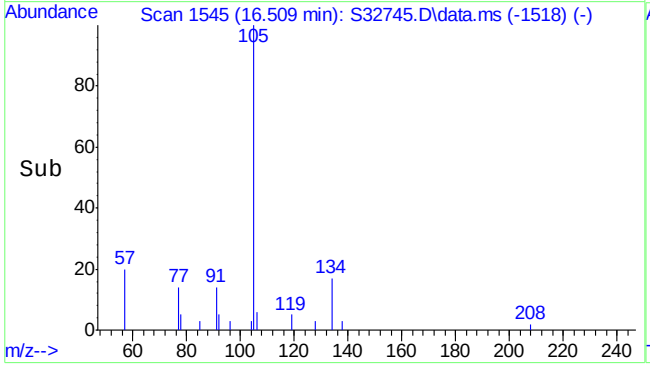


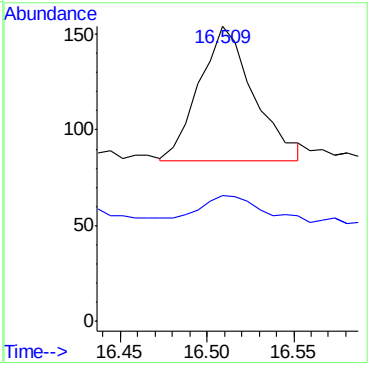


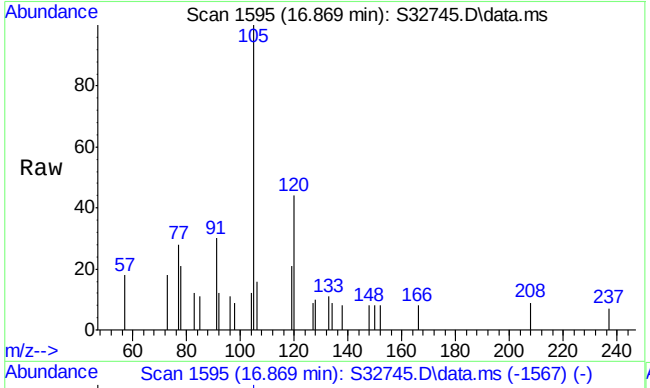
#24
sec-Butylbenzene
Concen: 1.59 µg/mL m
RT: 16.509 min Scan# 1545
Delta R.T. -0.007 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:105 Resp: 153

Ion	Ratio	Lower	Upper
105	100		
134	0.0	15.4	23.2#



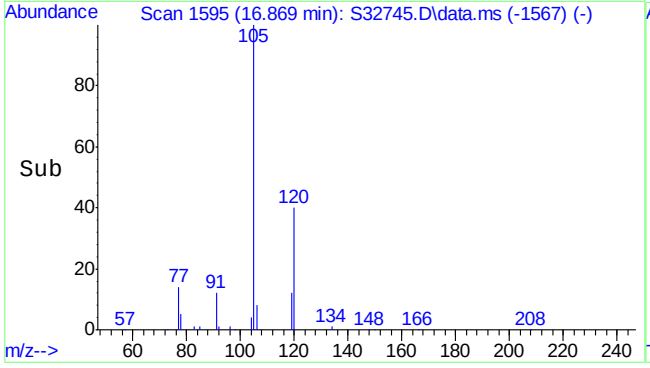


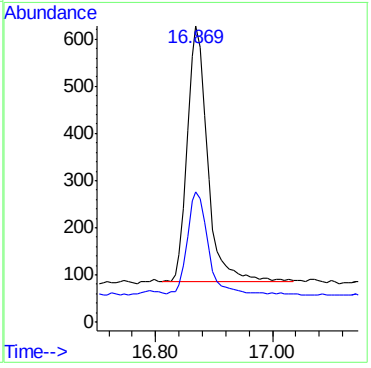


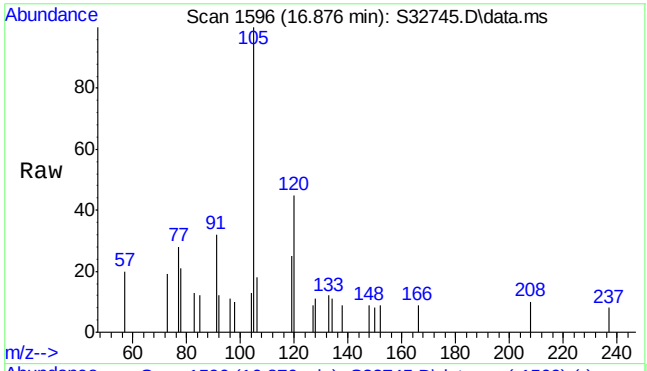
#25
1,2,3-Trimethylbenzene
Concen: 16.65 µg/mL
RT: 16.869 min Scan# 1595
Delta R.T. 0.000 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:105 Resp: 1308

Ion	Ratio	Lower	Upper
105	100		
120	39.8	34.6	52.0



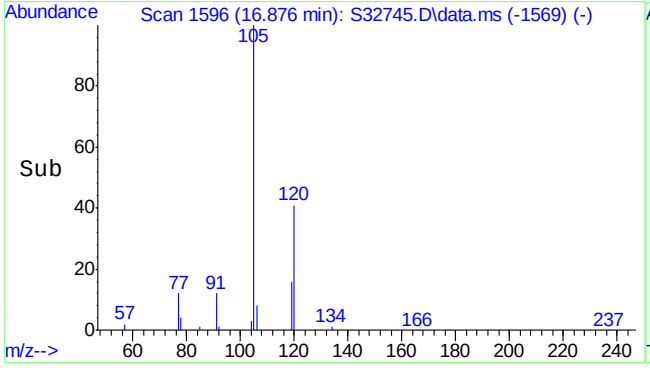


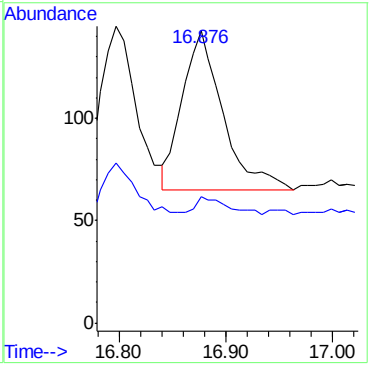


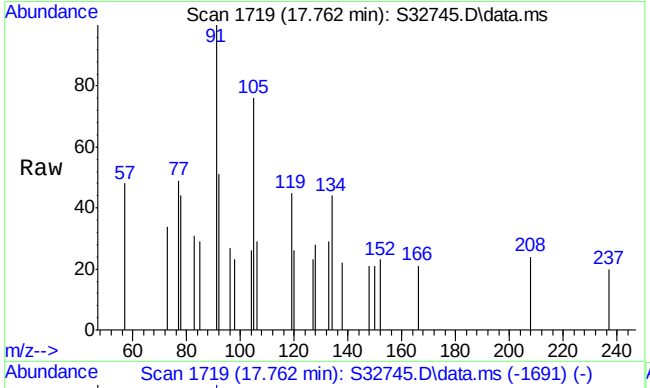
#26
p-Isopropyltoluene
Concen: 2.44 µg/mL
RT: 16.876 min Scan# 1596
Delta R.T. -0.007 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:119 Resp: 207

Ion	Ratio	Lower	Upper
119	100		
134	0.0	18.4	27.6#



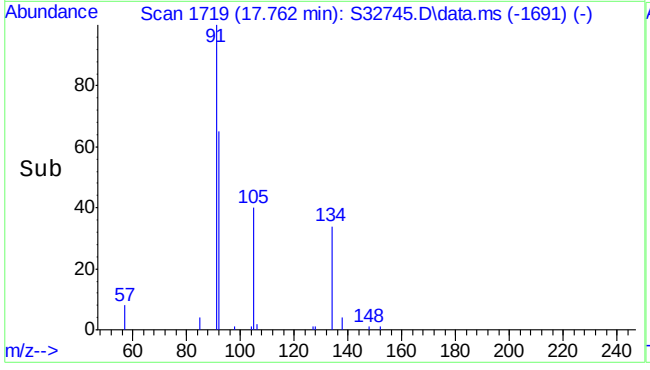


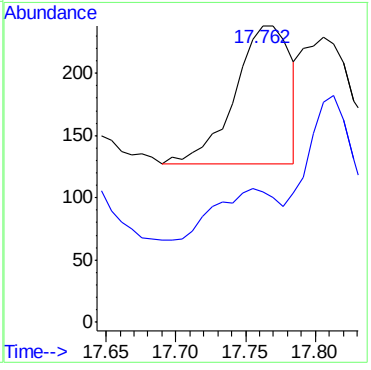


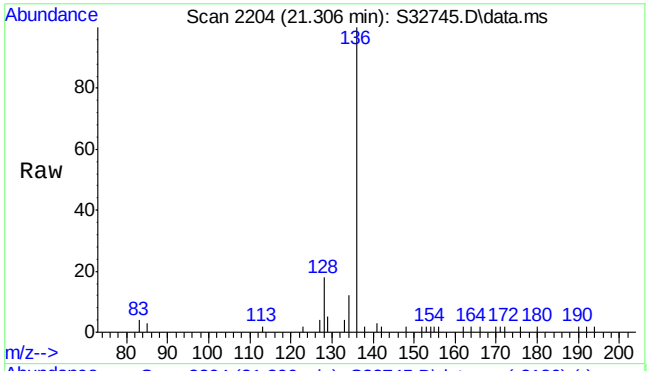
#27
n-Butylbenzene
Concen: 3.79 µg/mL
RT: 17.762 min Scan# 1719
Delta R.T. 0.000 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion: 91 Resp: 310

Ion	Ratio	Lower	Upper
91	100		
134	0.0	18.2	27.2#



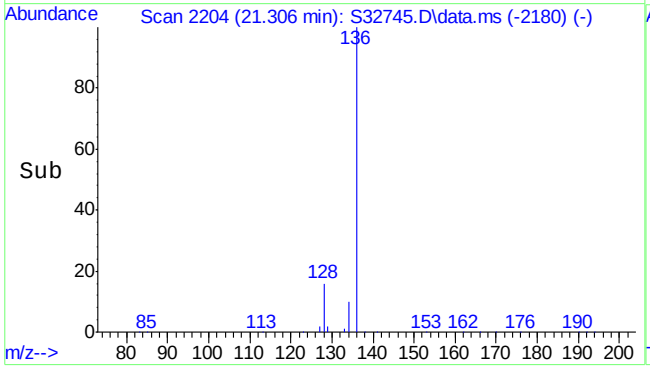


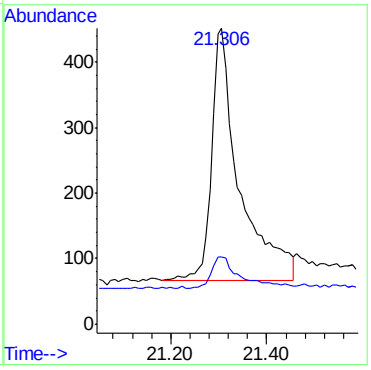


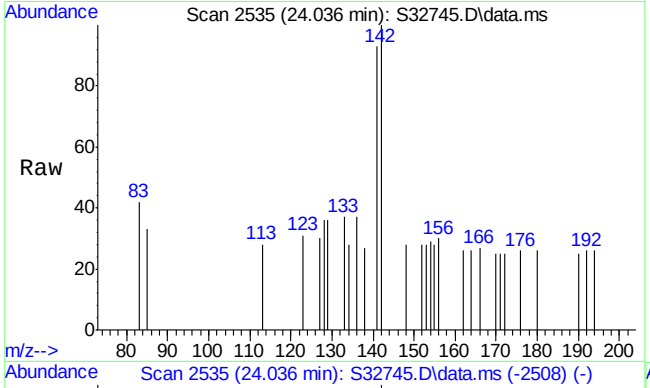
#44
Naphthalene
Concen: 13.61 ng/mL
RT: 21.306 min Scan# 2204
Delta R.T. 0.000 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:128 Resp: 1545

Ion	Ratio	Lower	Upper
128	100		
127	12.5	10.1	15.1



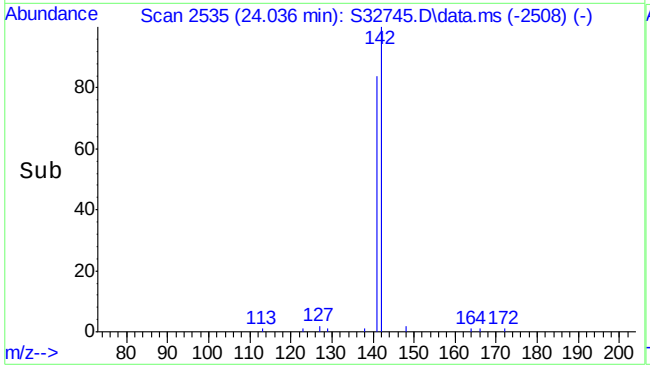


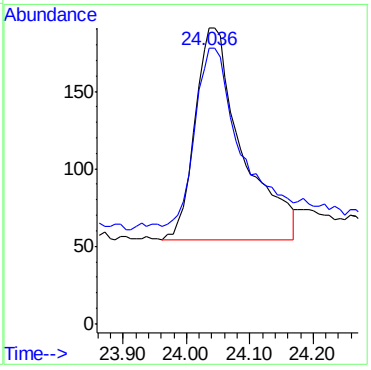


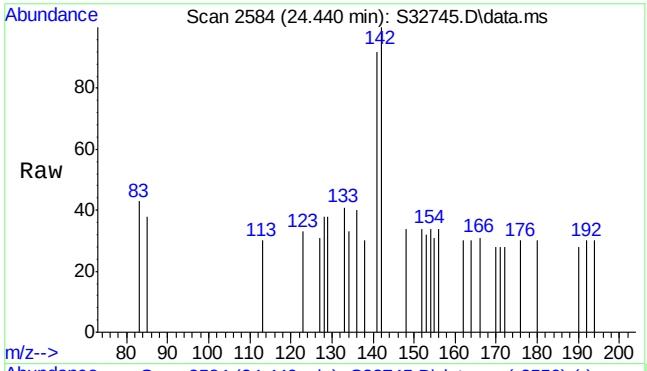
#45
2-Methylnaphthalene
Concen: 10.05 ng/mL
RT: 24.036 min Scan# 2535
Delta R.T. 0.025 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:142 Resp: 707

Ion	Ratio	Lower	Upper
142	100		
141	81.9	68.9	103.3



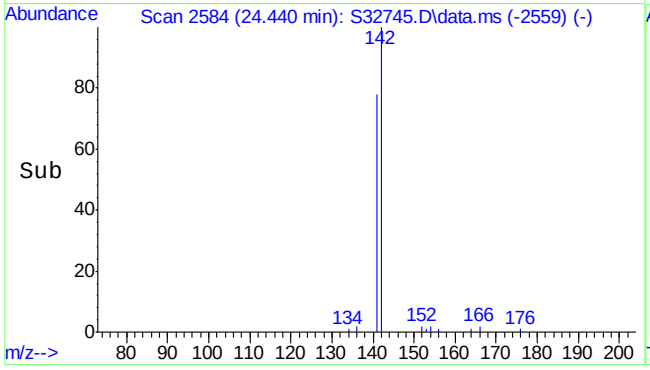


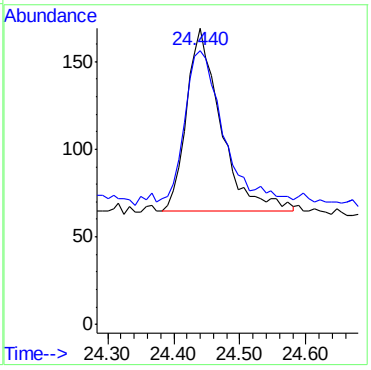


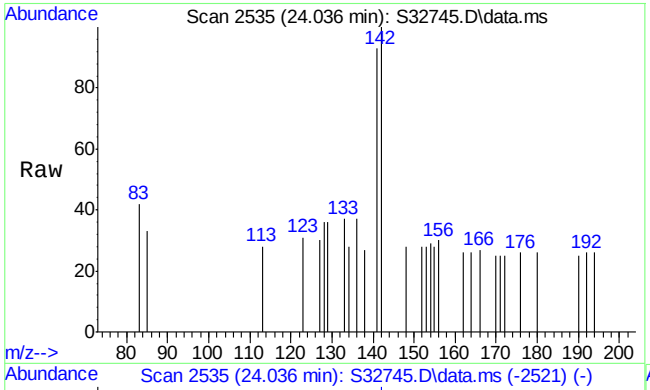
#46
1-Methylnaphthalene
Concen: 5.29 ng/mL
RT: 24.440 min Scan# 2584
Delta R.T. 0.008 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:142 Resp: 375

Ion	Ratio	Lower	Upper
142	100		
141	87.5	71.1	106.7



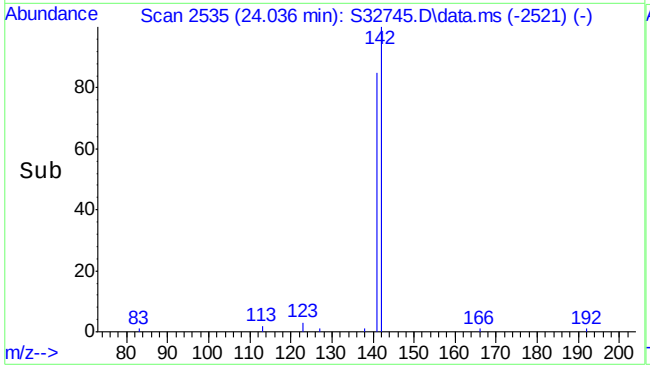


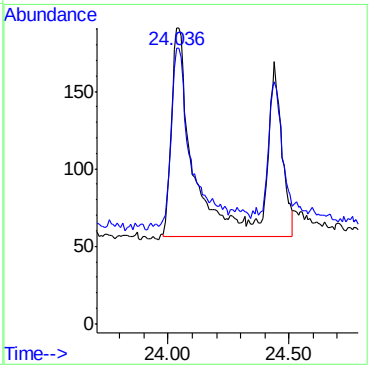


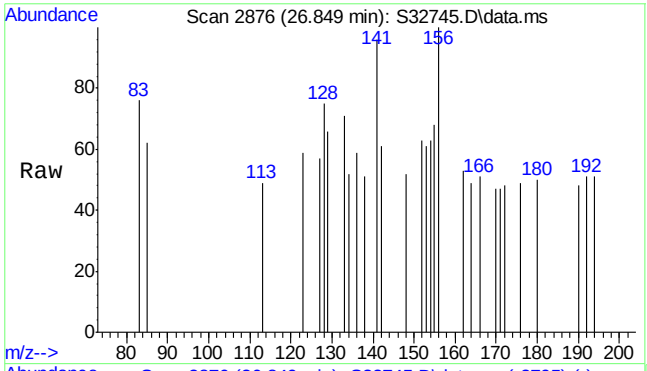
#47
C1-Naphthalenes
Concen: 11.10 ng/mL m
RT: 24.036 min Scan# 2535
Delta R.T. 0.025 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:142 Resp: 1260

Ion	Ratio	Lower	Upper
142	100		
141	51.0	68.9	103.3#



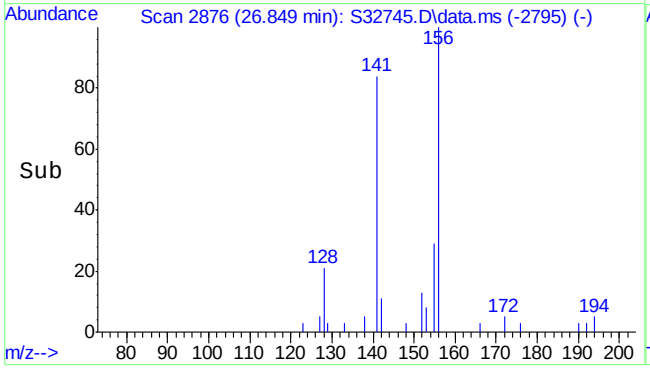


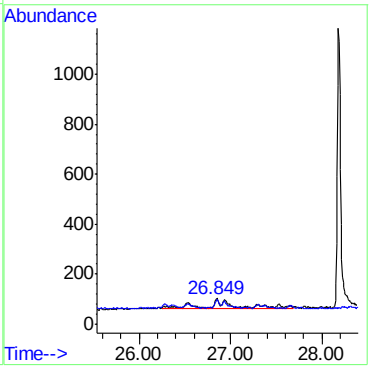


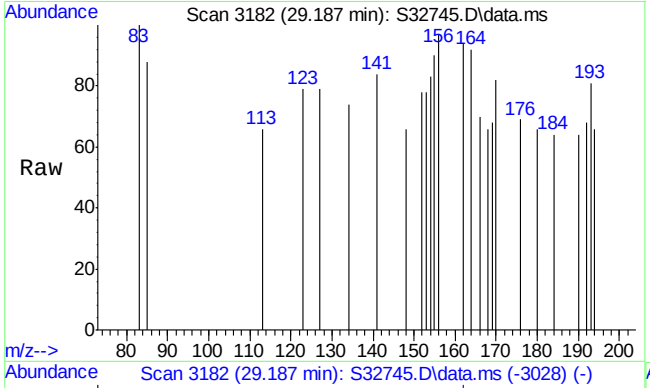
#48
C2-Naphthalenes
Concen: 6.25 ng/mL m
RT: 26.849 min Scan# 2876
Delta R.T. -0.091 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:156 Resp: 709

Ion	Ratio	Lower	Upper
156	100		
141	0.0	60.6	90.8#



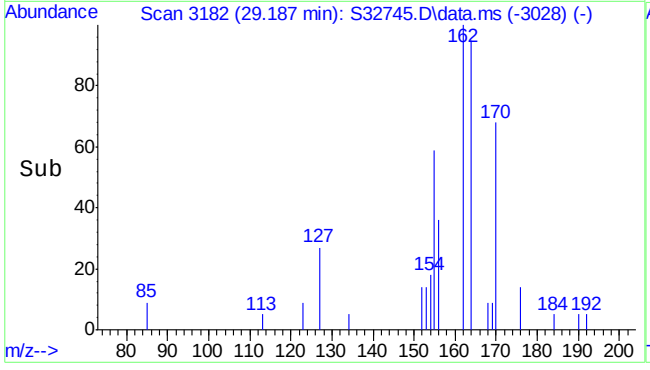


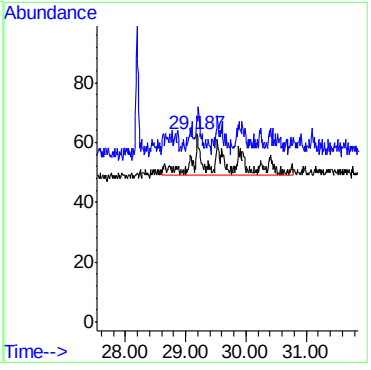


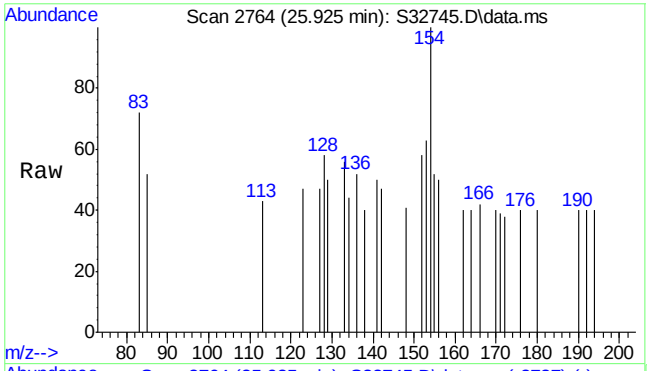
#49
C3-Naphthalenes
Concen: 3.57 ng/mL m
RT: 29.187 min Scan# 3182
Delta R.T. -0.007 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:170 Resp: 405

Ion	Ratio	Lower	Upper
170	100		
155	0.0	81.7	122.5#



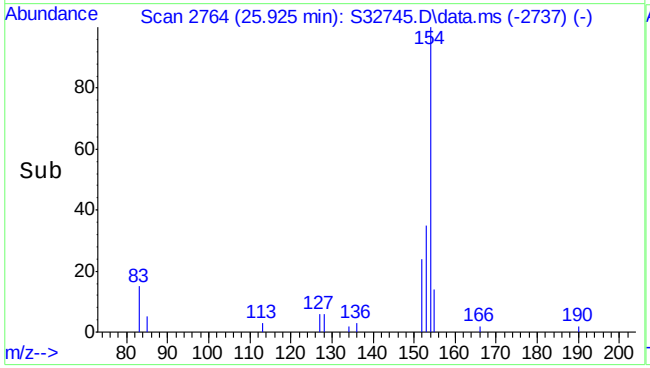


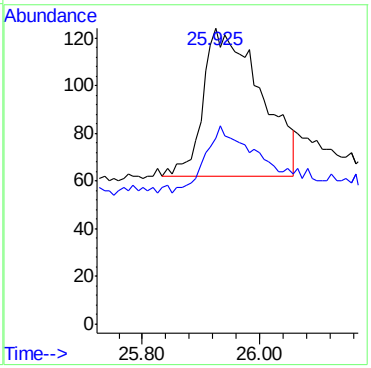


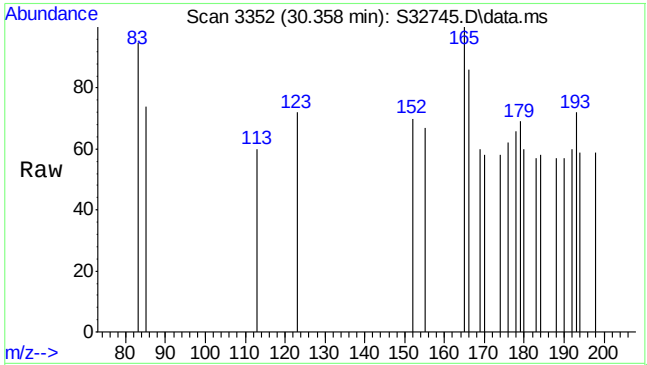
#51
Biphenyl
Concen: 4.41 µg/mL
RT: 25.925 min Scan# 2764
Delta R.T. 0.025 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:154 Resp: 421

Ion	Ratio	Lower	Upper
154	100		
153	0.0	31.2	46.8#



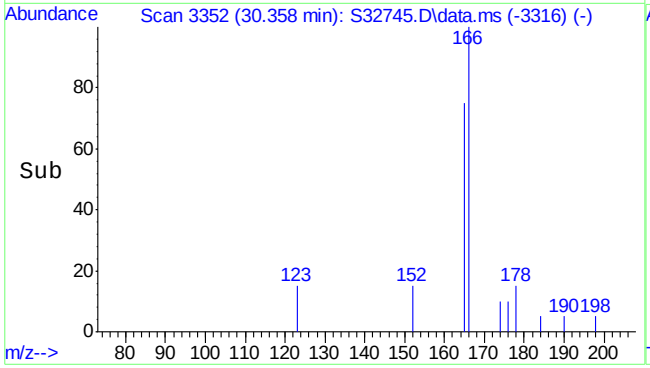


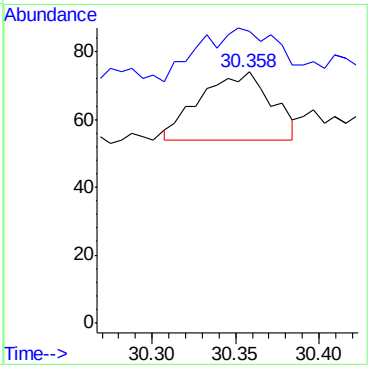


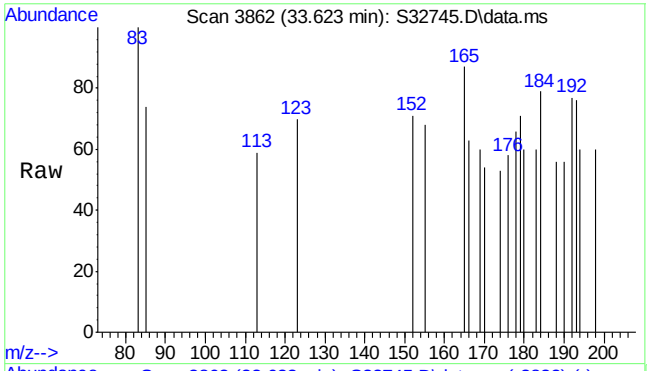
#55
Fluorene
Concen: 0.81 ng/mL m
RT: 30.358 min Scan# 3352
Delta R.T. 0.032 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:166 Resp: 59

Ion	Ratio	Lower	Upper
166	100		
165	0.0	75.1	112.7#



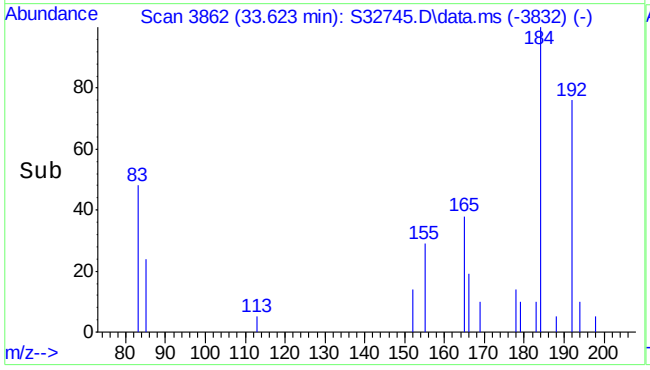


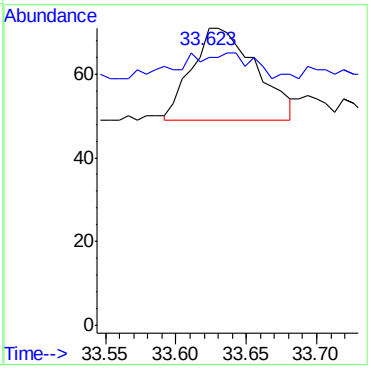


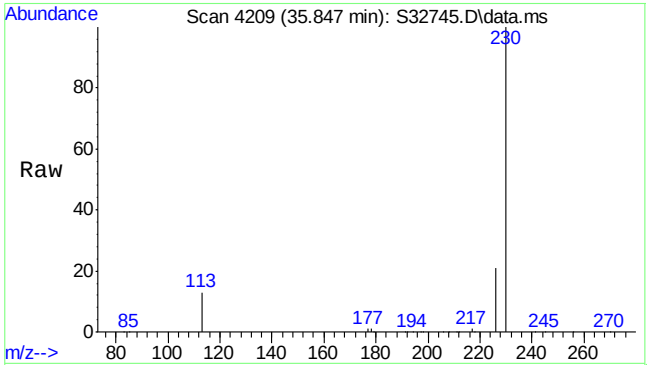
#59
Dibenzothiophene
Concen: 0.71 ng/mL m
RT: 33.623 min Scan# 3862
Delta R.T. -0.006 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:184 Resp: 70

Ion	Ratio	Lower	Upper
184	100		
152	0.0	7.1	10.7#



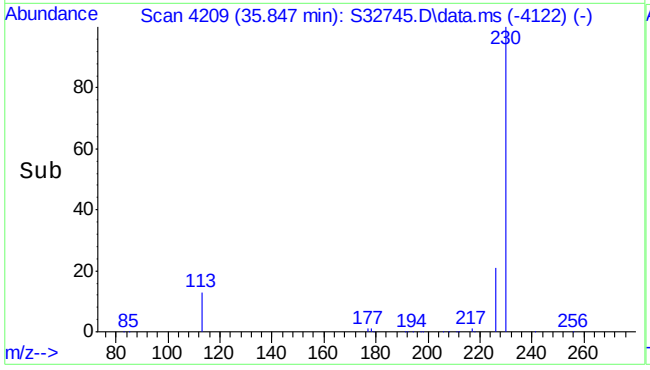


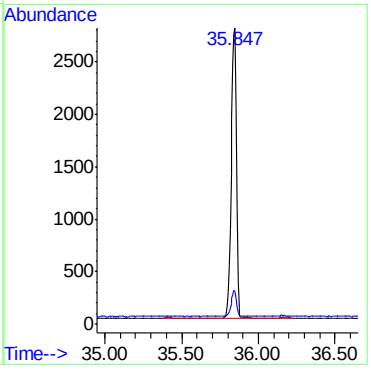


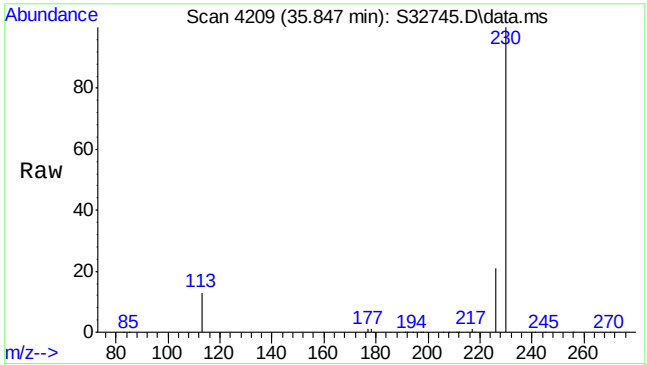
#60
C1-Dibenzothiophenes (unadj)
Concen: 66.20 ng/mL m
RT: 35.847 min Scan# 4209
Delta R.T. 0.436 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:198 Resp: 6552

Ion	Ratio	Lower	Upper
198	100		
197	8.7	52.8	79.2#



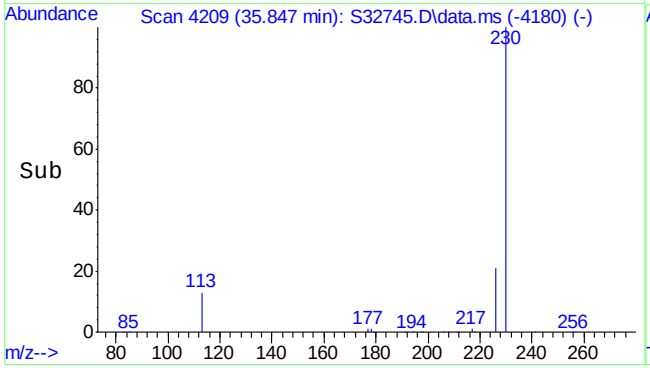


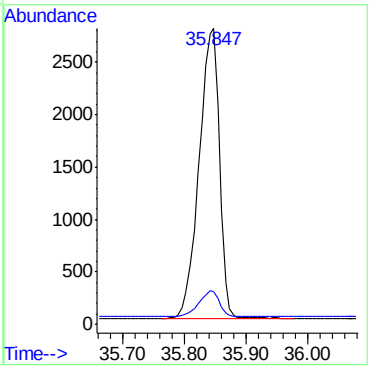


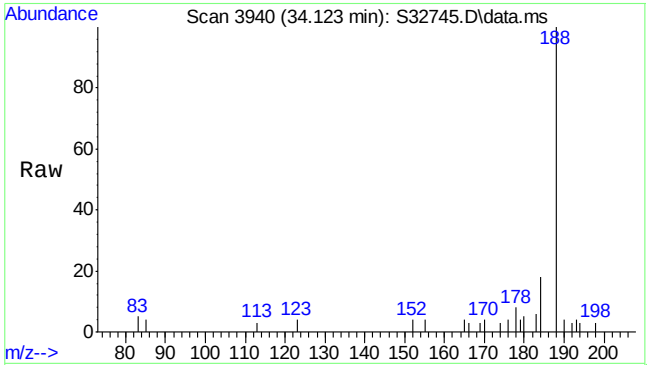
#61
C1-Dibenzothiophenes (OTP)
Concen: 64.22 µg/mL
RT: 35.847 min Scan# 4209
Delta R.T. 0.083 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:198 Resp: 6356

Ion	Ratio	Lower	Upper
198	100		
197	9.0	57.8	86.6#



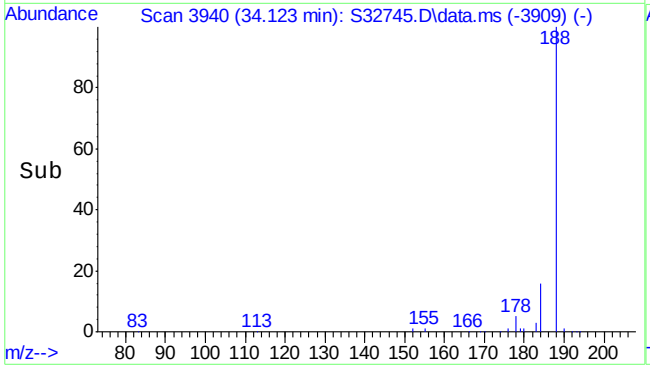


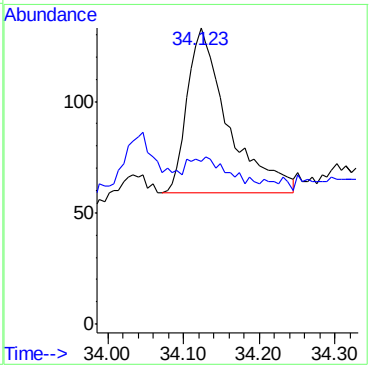


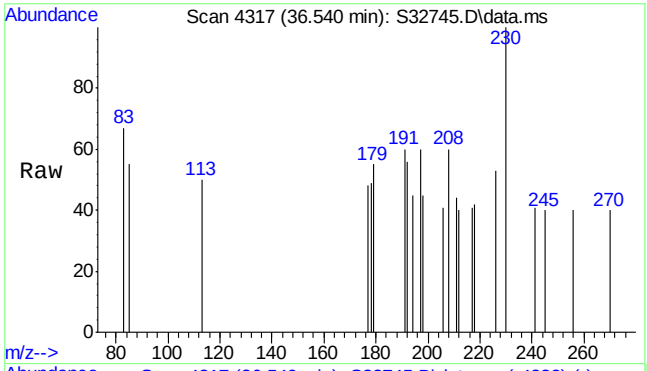
#65
Phenanthrene
Concen: 2.67 ng/mL
RT: 34.123 min Scan# 3940
Delta R.T. 0.000 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:178 Resp: 277

Ion	Ratio	Lower	Upper
178	100		
179	0.0	12.2	18.4#



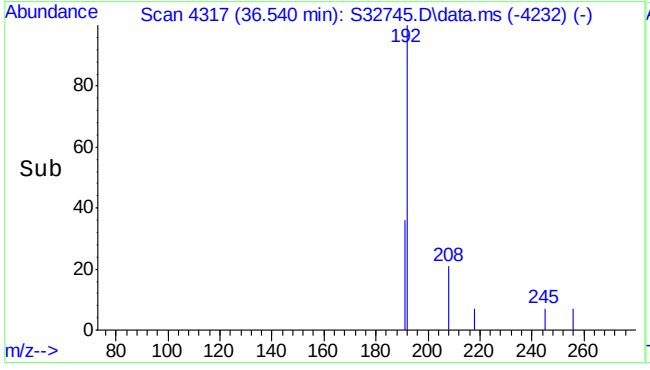


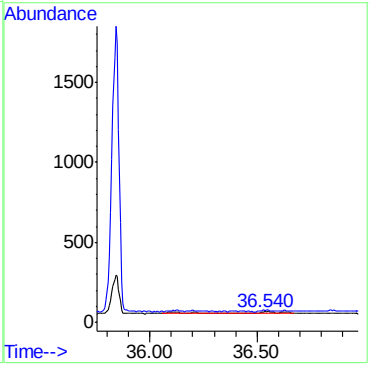


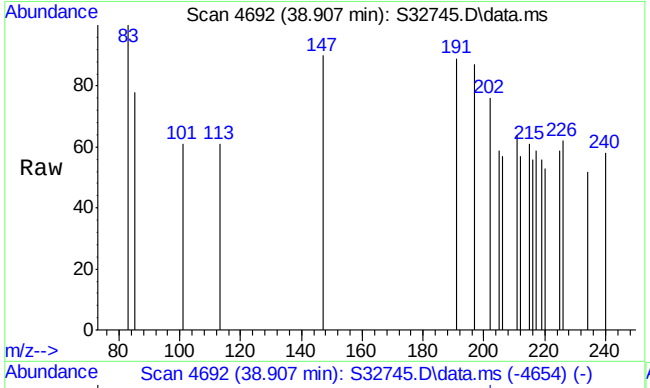
#67
C1-Phenanthrenes/anthracenes
Concen: 1.57 ng/mL m
RT: 36.540 min Scan# 4317
Delta R.T. -0.007 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:192 Resp: 163

Ion	Ratio	Lower	Upper
192	100		
191	0.0	44.9	67.3#



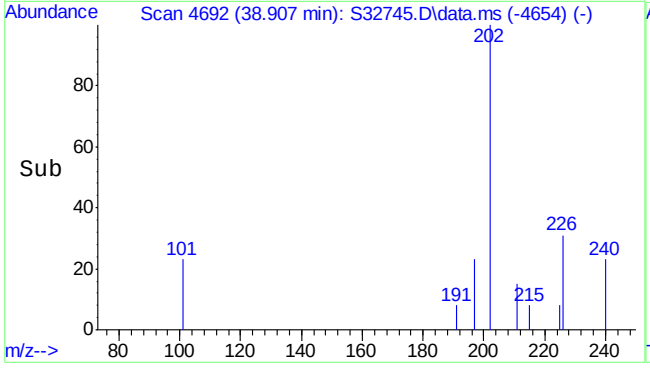


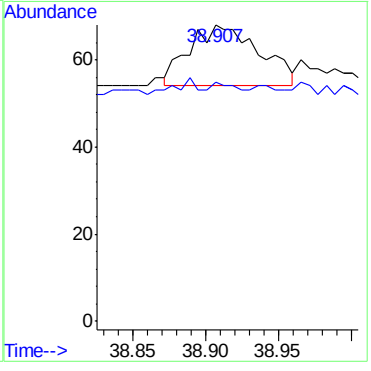


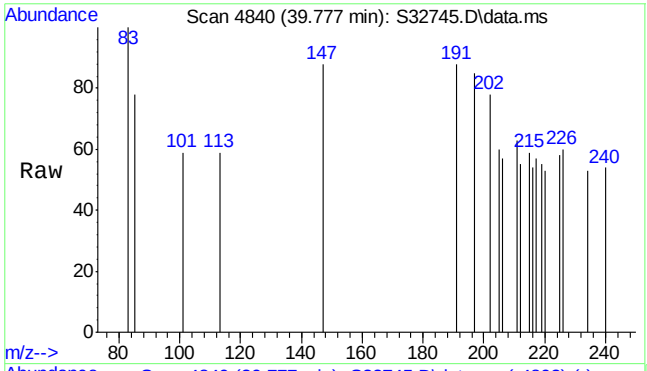
#78
Fluoranthene
Concen: 0.47 ng/mL m
RT: 38.907 min Scan# 4692
Delta R.T. 0.024 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:202 Resp: 47

Ion	Ratio	Lower	Upper
202	100		
101	0.0	10.0	15.0#



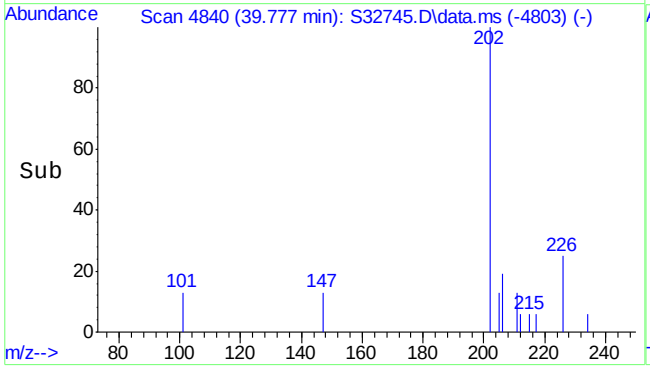


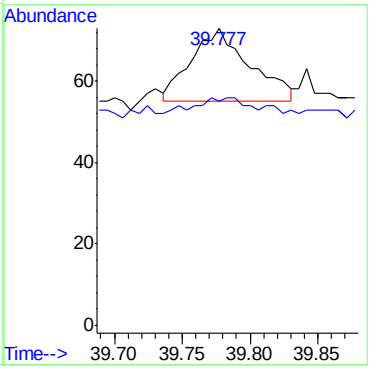


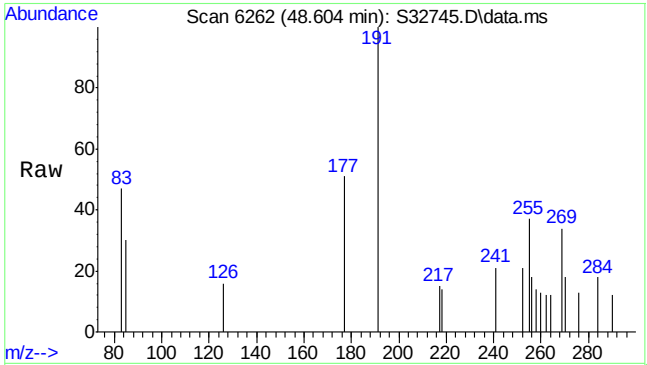
#79
Pyrene
Concen: 0.52 ng/mL m
RT: 39.777 min Scan# 4840
Delta R.T. 0.018 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:202 Resp: 54

Ion	Ratio	Lower	Upper
202	100		
101	0.0	11.4	17.0#



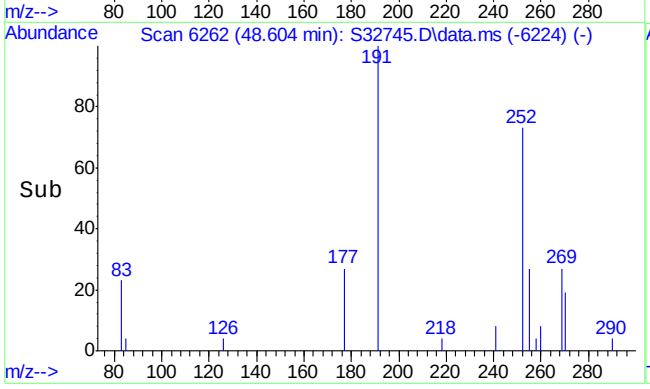


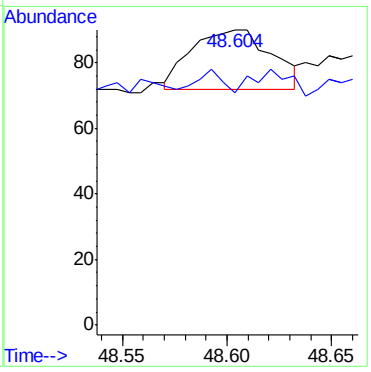


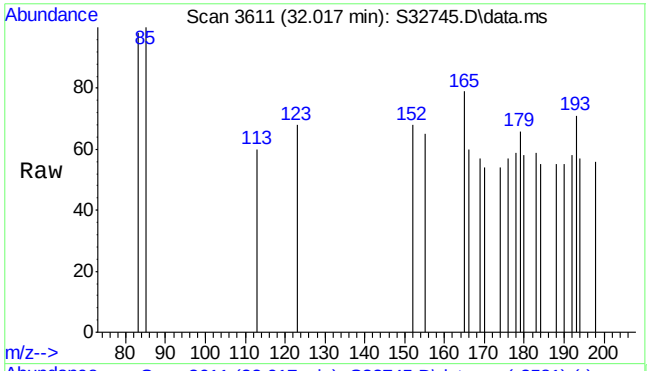
#94
Benzo(b)fluoranthene
Concen: 0.49 ng/mL m
RT: 48.604 min Scan# 6262
Delta R.T. 0.011 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion:252 Resp: 48

Ion	Ratio	Lower	Upper
252	100		
126	0.0	11.4	17.2#



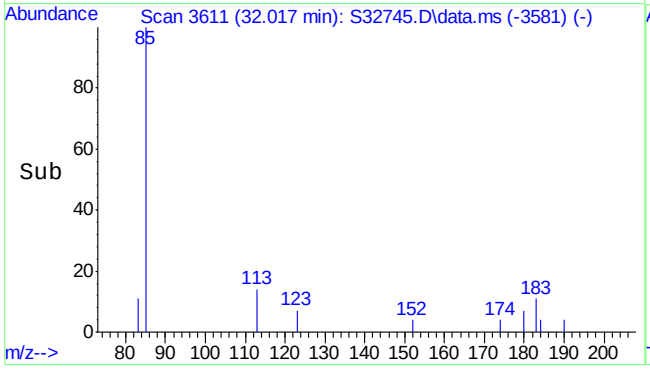


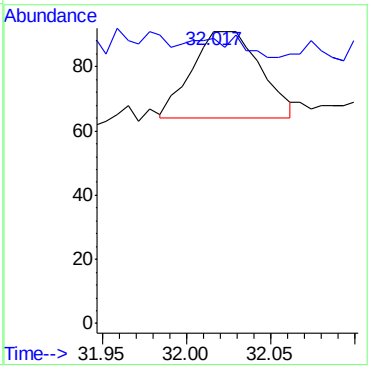


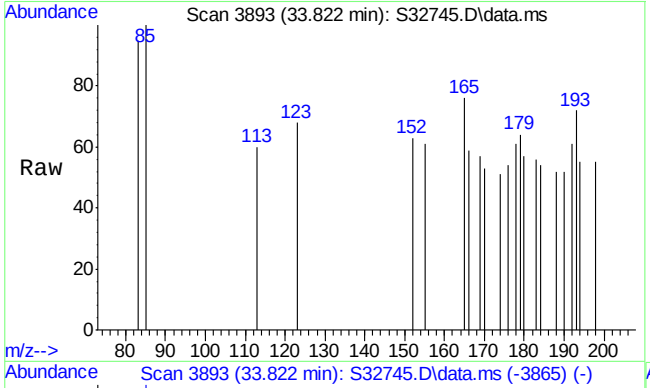
#103
C-17
Concen: 3.50 µg/mL m
RT: 32.017 min Scan# 3611
Delta R.T. -0.006 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion: 85 Resp: 77

Ion	Ratio	Lower	Upper
85	100		
83	0.0	12.3	18.5#



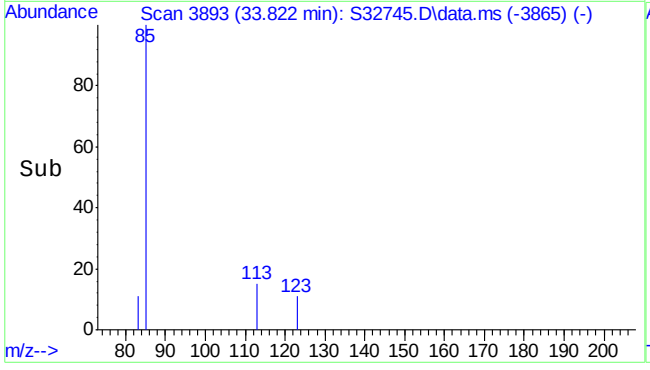


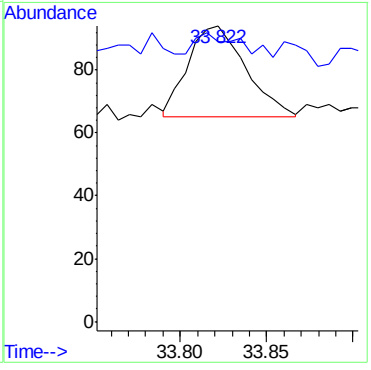


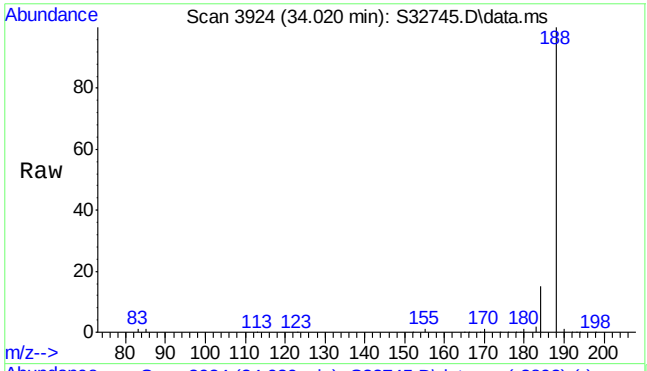
#105
C-18
Concen: 3.02 µg/mL m
RT: 33.822 min Scan# 3893
Delta R.T. -0.019 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion: 85 Resp: 68

Ion	Ratio	Lower	Upper
85	100		
83	0.0	17.8	26.6#



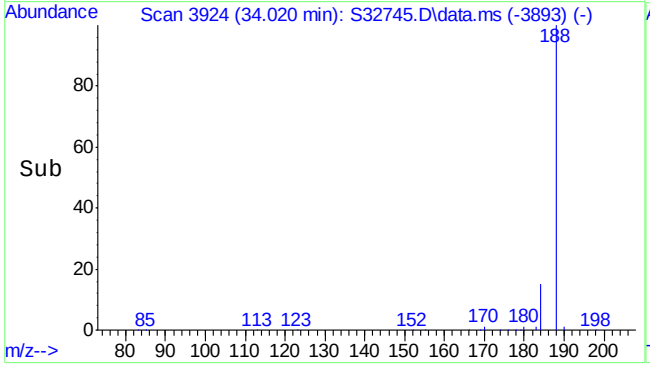


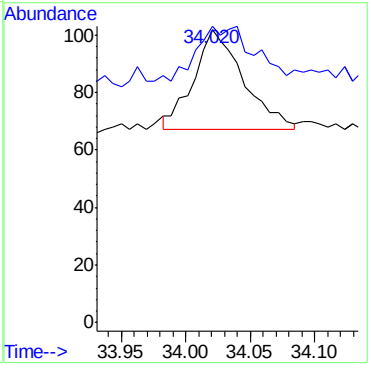


#106
Phytane
Concen: 4.26 µg/mL m
RT: 34.020 min Scan# 3924
Delta R.T. -0.000 min
Lab File: S32745.D
Acq: 28 May 2013 1:59 pm

Tgt Ion: 85 Resp: 94

Ion	Ratio	Lower	Upper
85	100		
83	0.0	18.4	27.6#





9.2.1

9

New England ACCUTEST LABORATORIES

GC Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries

Method Blank Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP32967-MB	BG40171.D	1	05/09/13	KR	05/06/13	OP32967	GBG1516

The QC reported here applies to the following samples: **Method:** ASTM D3328-06

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-8	ND	200	100	mg/kg	
	C-9	ND	200	100	mg/kg	
	C-10	ND	200	100	mg/kg	
	C-11	ND	200	100	mg/kg	
	C-12	ND	200	100	mg/kg	
	C-13	ND	200	100	mg/kg	
3891-98-3	2,6,10-trimethyldodecane (138	ND	200	100	mg/kg	
	C-14	ND	200	100	mg/kg	
3891-99-4	2,6,10-trimethyltridecane (147	ND	200	100	mg/kg	
	C-15	ND	200	100	mg/kg	
	C-16	138	200	100	mg/kg	J
3892-00-0	2,6,10-trimethylpentadecane (1	ND	200	100	mg/kg	
	C-17	137	200	100	mg/kg	J
1921-70-6	Pristane	ND	200	100	mg/kg	
	C-18	115	200	100	mg/kg	J
638-36-8	Phytane	ND	200	100	mg/kg	
	C-19	ND	200	100	mg/kg	
	C-20	ND	200	100	mg/kg	
	C-21	ND	200	100	mg/kg	
	C-22	ND	200	100	mg/kg	
	C-23	ND	200	100	mg/kg	
	C-24	ND	200	100	mg/kg	
	C-25	ND	200	100	mg/kg	
	C-26	ND	200	100	mg/kg	
	C-27	ND	200	100	mg/kg	
	C-28	ND	200	100	mg/kg	
	C-29	ND	200	100	mg/kg	
	C-30	ND	200	100	mg/kg	
	C-31	ND	200	100	mg/kg	
	C-32	ND	200	100	mg/kg	
	C-33	ND	200	100	mg/kg	
	C-34	ND	200	100	mg/kg	
	C-35	ND	200	100	mg/kg	
	C-36	ND	200	100	mg/kg	
	C-37	ND	200	100	mg/kg	
	C-38	ND	200	100	mg/kg	

Method Blank Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP32967-MB	BG40171.D	1	05/09/13	KR	05/06/13	OP32967	GBG1516

The QC reported here applies to the following samples: **Method:** ASTM D3328-06

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-39	ND	200	100	mg/kg	
	C-40	ND	200	100	mg/kg	
	TPH (C8-C40)	ND	20000	10000	mg/kg	

CAS No.	Surrogate Recoveries		Limits
84-15-1	o-Terphenyl	104%	40-140%

10.1.1

10

Method Blank Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33310-MB	BG40270.D	1	05/31/13	KR	05/24/13	OP33310	GBG1520

The QC reported here applies to the following samples: **Method:** ASTM D3328-06

MC20162-7, MC20162-8

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-8	ND	200	100	mg/kg	
	C-9	ND	200	100	mg/kg	
	C-10	ND	200	100	mg/kg	
	C-11	ND	200	100	mg/kg	
	C-12	ND	200	100	mg/kg	
	C-13	ND	200	100	mg/kg	
3891-98-3	2,6,10-trimethyldodecane (138	ND	200	100	mg/kg	
	C-14	ND	200	100	mg/kg	
3891-99-4	2,6,10-trimethyltridecane (147	ND	200	100	mg/kg	
	C-15	ND	200	100	mg/kg	
	C-16	ND	200	100	mg/kg	
3892-00-0	2,6,10-trimethylpentadecane (1	ND	200	100	mg/kg	
	C-17	ND	200	100	mg/kg	
1921-70-6	Pristane	ND	200	100	mg/kg	
	C-18	ND	200	100	mg/kg	
638-36-8	Phytane	ND	200	100	mg/kg	
	C-19	ND	200	100	mg/kg	
	C-20	ND	200	100	mg/kg	
	C-21	ND	200	100	mg/kg	
	C-22	ND	200	100	mg/kg	
	C-23	ND	200	100	mg/kg	
	C-24	ND	200	100	mg/kg	
	C-25	ND	200	100	mg/kg	
	C-26	ND	200	100	mg/kg	
	C-27	ND	200	100	mg/kg	
	C-28	ND	200	100	mg/kg	
	C-29	ND	200	100	mg/kg	
	C-30	ND	200	100	mg/kg	
	C-31	ND	200	100	mg/kg	
	C-32	ND	200	100	mg/kg	
	C-33	ND	200	100	mg/kg	
	C-34	ND	200	100	mg/kg	
	C-35	ND	200	100	mg/kg	
	C-36	ND	200	100	mg/kg	
	C-37	ND	200	100	mg/kg	
	C-38	ND	200	100	mg/kg	

Method Blank Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33310-MB	BG40270.D	1	05/31/13	KR	05/24/13	OP33310	GBG1520

The QC reported here applies to the following samples: **Method:** ASTM D3328-06

MC20162-7, MC20162-8

CAS No.	Compound	Result	RL	MDL	Units	Q
	C-39	ND	200	100	mg/kg	
	C-40	ND	200	100	mg/kg	
	TPH (C8-C40)	ND	20000	10000	mg/kg	

CAS No.	Surrogate Recoveries		Limits
84-15-1	o-Terphenyl	101%	40-140%

10.1.2

10

Blank Spike Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP32967-BS	BG40172.D	1	05/09/13	KR	05/06/13	OP32967	GBG1516

The QC reported here applies to the following samples: **Method:** ASTM D3328-06

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	C-8	5000	5100	102	40-140
	C-9	5000	4830	97	40-140
	C-10	5000	4660	93	40-140
	C-11	5000	4660	93	40-140
	C-12	5000	4620	92	40-140
	C-13	5000	4580	92	40-140
3891-98-3	2,6,10-trimethyldodecane (138		ND		40-140
	C-14	5000	4530	91	40-140
3891-99-4	2,6,10-trimethyltridecane (147		ND		40-140
	C-15	5000	4510	90	40-140
	C-16	5000	4530	91	40-140
3892-00-0	2,6,10-trimethylpentadecane (1		ND		40-140
	C-17	5000	4430	89	40-140
1921-70-6	Pristane	5000	4540	91	40-140
	C-18	5000	4410	88	40-140
638-36-8	Phytane	5000	4440	89	40-140
	C-19	5000	4610	92	40-140
	C-20	5000	4370	87	40-140
	C-21	5000	4340	87	40-140
	C-22	5000	4320	86	40-140
	C-23	5000	4260	85	40-140
	C-24	5000	4290	86	40-140
	C-25	5000	4240	85	40-140
	C-26	5000	4240	85	40-140
	C-27	5000	4200	84	40-140
	C-28	5000	4200	84	40-140
	C-29	5000	4190	84	40-140
	C-30	5000	4170	83	40-140
	C-31	5000	4160	83	40-140
	C-32	5000	4260	85	40-140
	C-33	5000	4200	84	40-140
	C-34	5000	4160	83	40-140
	C-35	5000	4160	83	40-140
	C-36	5000	4190	84	40-140
	C-37	5000	4200	84	40-140
	C-38	5000	4180	84	40-140

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP32967-BS	BG40172.D	1	05/09/13	KR	05/06/13	OP32967	GBG1516

The QC reported here applies to the following samples: **Method:** ASTM D3328-06

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	C-39	5000	4210	84	40-140
	C-40	5000	4130	83	40-140
	TPH (C8-C40)		ND		40-140

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	94%	40-140%

10.2.1

10

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33310-BS	BG40271.D	1	05/31/13	KR	05/24/13	OP33310	GBG1520

The QC reported here applies to the following samples: **Method:** ASTM D3328-06

MC20162-7, MC20162-8

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	C-8	5000	4620	92	40-140
	C-9	5000	4440	89	40-140
	C-10	5000	4340	87	40-140
	C-11	5000	4370	87	40-140
	C-12	5000	4340	87	40-140
	C-13	5000	4310	86	40-140
3891-98-3	2,6,10-trimethyldodecane (138		ND		40-140
	C-14	5000	4280	86	40-140
3891-99-4	2,6,10-trimethyltridecane (147		ND		40-140
	C-15	5000	4240	85	40-140
	C-16	5000	4220	84	40-140
3892-00-0	2,6,10-trimethylpentadecane (1		ND		40-140
	C-17	5000	4110	82	40-140
1921-70-6	Pristane	5000	4330	87	40-140
	C-18	5000	4150	83	40-140
638-36-8	Phytane	5000	4240	85	40-140
	C-19	5000	4180	84	40-140
	C-20	5000	4160	83	40-140
	C-21	5000	4150	83	40-140
	C-22	5000	4140	83	40-140
	C-23	5000	4070	81	40-140
	C-24	5000	4100	82	40-140
	C-25	5000	4070	81	40-140
	C-26	5000	4060	81	40-140
	C-27	5000	4040	81	40-140
	C-28	5000	4050	81	40-140
	C-29	5000	4030	81	40-140
	C-30	5000	3990	80	40-140
	C-31	5000	3980	80	40-140
	C-32	5000	3940	79	40-140
	C-33	5000	3870	77	40-140
	C-34	5000	3760	75	40-140
	C-35	5000	3590	72	40-140
	C-36	5000	3430	69	40-140
	C-37	5000	3260	65	40-140
	C-38	5000	3050	61	40-140

* = Outside of Control Limits.

Blank Spike Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33310-BS	BG40271.D	1	05/31/13	KR	05/24/13	OP33310	GBG1520

The QC reported here applies to the following samples: **Method:** ASTM D3328-06

MC20162-7, MC20162-8

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	C-39	5000	2900	58	40-140
	C-40	5000	2730	55	40-140
	TPH (C8-C40)		ND		40-140

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	95%	40-140%

10.2.2

10

* = Outside of Control Limits.

Duplicate Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP32967-DUP	BG40173.D	1	05/09/13	KR	05/06/13	OP32967	GBG1516
MC20162-1	BG40174.D	1	05/09/13	KR	05/06/13	OP32967	GBG1516

The QC reported here applies to the following samples: **Method:** ASTM D3328-06

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6

CAS No.	Compound	MC20162-1 mg/kg	Q	DUP mg/kg	Q	RPD	Limits
	C-8	9960		10700		7	30
	C-9	4250		4530		6	30
	C-10	2170		2460		13	30
	C-11	2160		2320		7	30
	C-12	2270		2420		6	30
	C-13	1030		1020		1	30
3891-98-3	2,6,10-trimethyldodecane (138	80.7	J	ND		200* [a]	30
	C-14	341		404		17	30
3891-99-4	2,6,10-trimethyltridecane (147	71.5	J	87.8	J	20	30
	C-15	191		294		42* [a]	30
	C-16	147	B	345	B	80* [a]	30
3892-00-0	2,6,10-trimethylpentadecane (1	ND		92.1	J	200* [a]	30
	C-17	113	JB	306	B	92* [a]	30
1921-70-6	Pristane	82.2	J	157	J	63* [a]	30
	C-18	95.1	JB	253	B	91* [a]	30
638-36-8	Phytane	ND		98.2	J	200* [a]	30
	C-19	ND		209		200* [a]	30
	C-20	ND		95.2	J	200* [a]	30
	C-21	ND		ND		nc	30
	C-22	ND		ND		nc	30
	C-23	ND		ND		nc	30
	C-24	ND		ND		nc	30
	C-25	ND		ND		nc	30
	C-26	ND		ND		nc	30
	C-27	ND		ND		nc	30
	C-28	ND		ND		nc	30
	C-29	ND		ND		nc	30
	C-30	ND		ND		nc	30
	C-31	ND		ND		nc	30
	C-32	ND		ND		nc	30
	C-33	ND		ND		nc	30
	C-34	ND		ND		nc	30
	C-35	ND		ND		nc	30
	C-36	ND		ND		nc	30
	C-37	ND		ND		nc	30
	C-38	ND		ND		nc	30

* = Outside of Control Limits.

Duplicate Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP32967-DUP	BG40173.D	1	05/09/13	KR	05/06/13	OP32967	GBG1516
MC20162-1	BG40174.D	1	05/09/13	KR	05/06/13	OP32967	GBG1516

The QC reported here applies to the following samples: **Method:** ASTM D3328-06

MC20162-1, MC20162-2, MC20162-3, MC20162-4, MC20162-5, MC20162-6

CAS No.	Compound	MC20162-1 mg/kg	Q	DUP mg/kg	Q	RPD	Limits
	C-39	ND		ND		nc	30
	C-40	ND		ND		nc	30
	TPH (C8-C40)	660000		710000		7	30

CAS No.	Surrogate Recoveries	DUP	MC20162-1	Limits
84-15-1	o-Terphenyl	98%	102%	40-140%

(a) High RPD due to possible matrix interference and/or sample non-homogeneity.

10.3.1

10

* = Outside of Control Limits.

Duplicate Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33310-DUP	BG40279.D	1	05/31/13	KR	05/24/13	OP33310	GBG1520
MC20162-7	BG40278.D	1	05/31/13	KR	05/24/13	OP33310	GBG1520

The QC reported here applies to the following samples: **Method:** ASTM D3328-06

MC20162-7, MC20162-8

CAS No.	Compound	MC20162-7 mg/kg	Q	DUP mg/kg	Q	RPD	Limits
	C-8	9030		7130		24	30
	C-9	5150		4700		9	30
	C-10	2590		2570		1	30
	C-11	2510		2390		5	30
	C-12	2640		2660		1	30
	C-13	1640		1590		3	30
3891-98-3	2,6,10-trimethyldodecane (138	119	J	137	J	14	30
	C-14	645		689		7	30
3891-99-4	2,6,10-trimethyltridecane (147	137	J	142	J	4	30
	C-15	371		400		8	30
	C-16	286		320		11	30
3892-00-0	2,6,10-trimethylpentadecane (1	112	J	129	J	14	30
	C-17	230		249		8	30
1921-70-6	Pristane	177		196		10	30
	C-18	165		188		13	30
638-36-8	Phytane	86.0	J	96.0	J	11	30
	C-19	ND		ND		nc	30
	C-20	71.9	J	ND		200* [a]	30
	C-21	ND		ND		nc	30
	C-22	ND		ND		nc	30
	C-23	ND		ND		nc	30
	C-24	ND		ND		nc	30
	C-25	ND		ND		nc	30
	C-26	ND		ND		nc	30
	C-27	ND		ND		nc	30
	C-28	ND		ND		nc	30
	C-29	ND		ND		nc	30
	C-30	ND		ND		nc	30
	C-31	ND		ND		nc	30
	C-32	ND		ND		nc	30
	C-33	ND		ND		nc	30
	C-34	ND		ND		nc	30
	C-35	ND		ND		nc	30
	C-36	ND		ND		nc	30
	C-37	ND		ND		nc	30
	C-38	ND		ND		nc	30

* = Outside of Control Limits.

Duplicate Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP33310-DUP	BG40279.D	1	05/31/13	KR	05/24/13	OP33310	GBG1520
MC20162-7	BG40278.D	1	05/31/13	KR	05/24/13	OP33310	GBG1520

The QC reported here applies to the following samples: **Method:** ASTM D3328-06

MC20162-7, MC20162-8

CAS No.	Compound	MC20162-7 mg/kg	Q	DUP mg/kg	Q	RPD	Limits
	C-39	ND		ND		nc	30
	C-40	ND		ND		nc	30
	TPH (C8-C40)	688000		595000		14	30

CAS No.	Surrogate Recoveries	DUP	MC20162-7	Limits
84-15-1	o-Terphenyl	95%	97%	40-140%

(a) High RPD due to sample levels below reporting limit.

10.3.2

10

* = Outside of Control Limits.

Semivolatile Surrogate Recovery Summary

Job Number: MC20162
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center, 4004 South Park Avenue, Tucson, AZ

Method: ASTM D3328-06 **Matrix:** SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 [a]
MC20162-1	BG40174.D	102.0
MC20162-2	BG40175.D	98.0
MC20162-3	BG40176.D	99.0
MC20162-4	BG40177.D	101.0
MC20162-5	BG40178.D	103.0
MC20162-6	BG40179.D	110.0
MC20162-7	BG40278.D	97.0
MC20162-8	BG40280.D	94.0
OP32967-BS	BG40172.D	94.0
OP32967-DUP	BG40173.D	98.0
OP32967-MB	BG40171.D	104.0
OP33310-BS	BG40271.D	95.0
OP33310-DUP	BG40279.D	95.0
OP33310-MB	BG40270.D	101.0

Surrogate Compounds	Recovery Limits
S1 = o-Terphenyl	40-140%

(a) Recovery from GC signal #1

New England ACCUTEST LABORATORIES

GC Semi-volatiles

Raw Data

Manual Integrations APPROVED (compounds with "m" flag)
James Roush
07/01/13 11:56

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130509\
Data File : BG40174.d
Signal(s) : FID1A.ch
Acq On : 9 May 2013 3:09 pm
Operator : kristinr
Sample : mc20162-1
Misc : op32967,gbg1516,0.0165,,,2,1
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 01 11:53:54 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration

	Compound	R.T.	Response	Conc	Units
Internal Standards					
1) I	5a-Androstane	30.147	84277310	50.000	µg/mL
System Monitoring Compounds					
2) S	o-Terphenyl	28.184	41478513	25.477	µg/mLm
Target Compounds					
3)	C-8	5.675	109449766	82.204	µg/mLm
4)	C-9	7.885	49807768	35.053	µg/mLm
5)	C-10	10.286	27132910	17.898	µg/mLm
6)	C-11	12.680	26530535	17.843	µg/mLm
7)	C-12	14.982	28285353	18.706	µg/mLm
8)	C-13	17.174	13032935	8.535	µg/mLm
9)	2,6,10-trimethyldodec...	18.774	1027954	0.666	µg/mLm
10)	C-14	19.243	4388183	2.813	µg/mLm
11)	2,6,10-trimethyltride...	20.479	926904	0.590	µg/mLm
12)	C-15	21.201	2495495	1.578	µg/mLm
13)	C-16	23.062	1919771	1.213	µg/mLm
14)	2,6,10-trimethylpenta...	23.939	711931	0.441	µg/mLm
15)	C-17	24.828	1539182	0.933	µg/mLm
16)	Pristane	24.936	1067937	0.678	µg/mLm
17)	C-18	26.508	1279272	0.785	µg/mLm
18)	Phytane	26.677	615797	0.379	µg/mLm
19)	C-19	28.123	597132	0.351	µg/mLm
20)	C-20	29.649	646605	0.395	µg/mL
21)	C-21	31.116	360195	0.219	µg/mL
41) H	TPH (C8-C40)	30.429	8954794531	5445.298	µg/mLm

SemiQuant Compounds - Not Calibrated on this Instrument

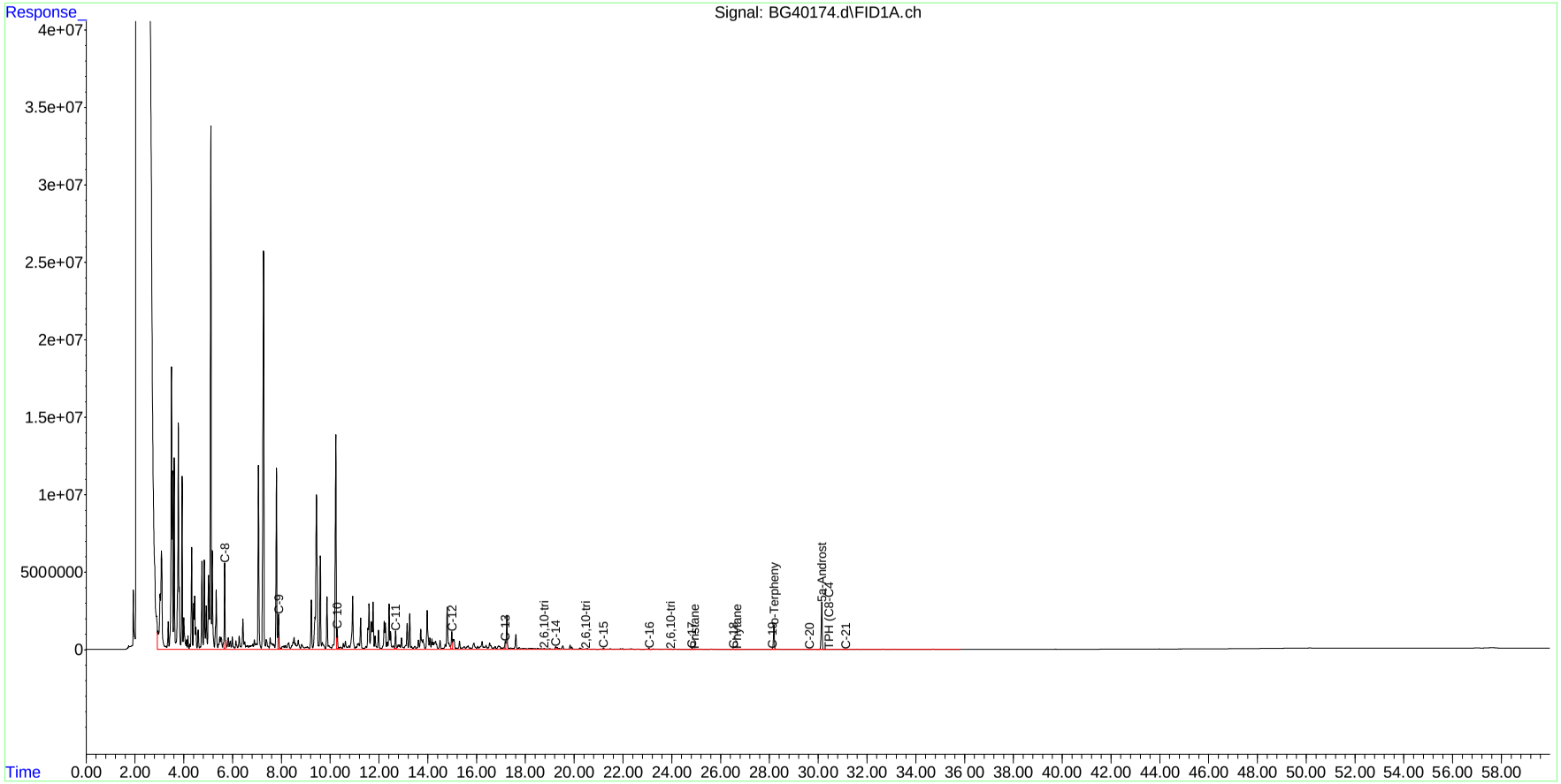
(f)=RT Delta > 1/2 Window (m)=manual int.

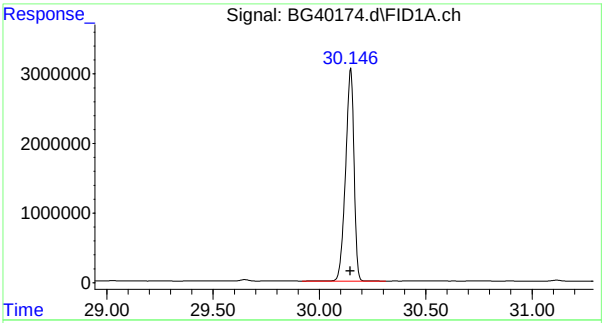
11.1.1
11

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130509\
Data File : BG40174.d
Signal(s) : FID1A.ch
Acq On : 9 May 2013 3:09 pm
Operator : kristinr
Sample : mc20162-1
Misc : op32967,gbg1516,0.0165,,,2,1
ALS Vial : 5 Sample Multiplier: 1

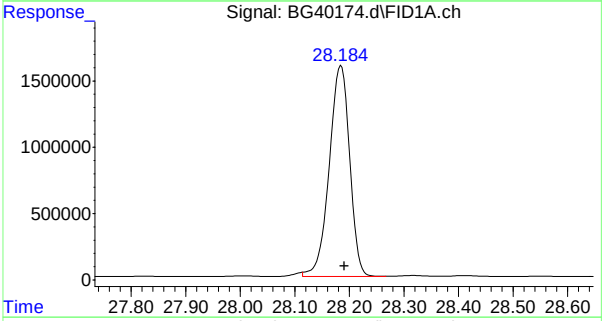
Quant Time: Jul 01 11:53:54 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration





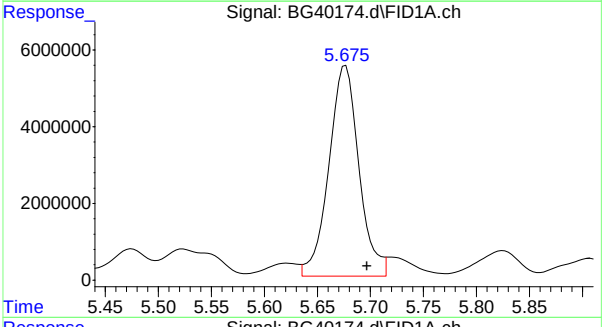
#1 5a-Androstane

R.T.: 30.147 min
Delta R.T.: 0.002 min
Response: 84277310
Conc: 50.00 µg/mL



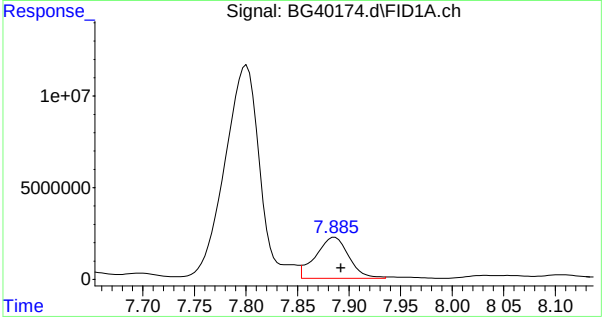
#2 o-Terphenyl

R.T.: 28.184 min
Delta R.T.: -0.007 min
Response: 41478513
Conc: 25.48 µg/mL m



#3 C-8

R.T.: 5.675 min
Delta R.T.: -0.022 min
Response: 109449766
Conc: 82.20 µg/mL m

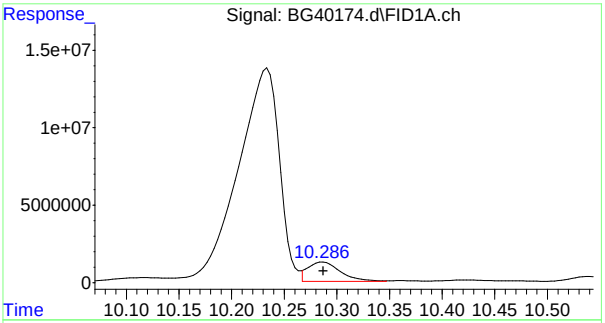


#4 C-9

R.T.: 7.885 min
Delta R.T.: -0.007 min
Response: 49807768
Conc: 35.05 µg/mL m

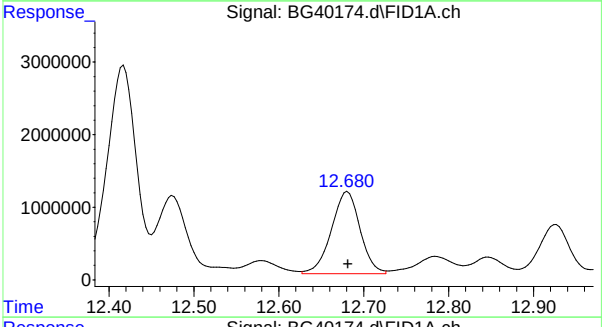
11.1.1

11



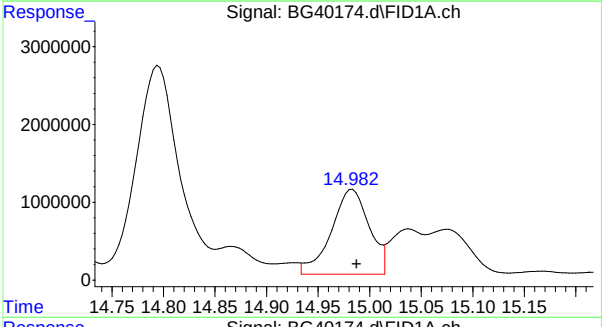
#5 C-10

R.T.: 10.286 min
Delta R.T.: -0.001 min
Response: 27132910
Conc: 17.90 µg/mL m



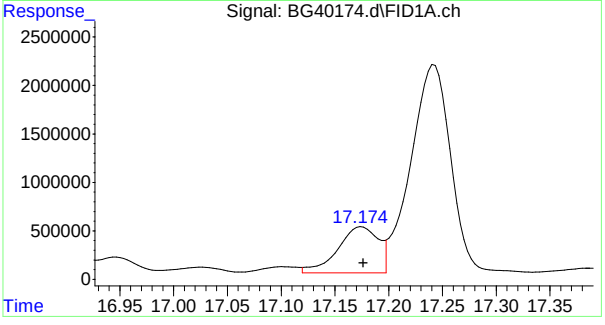
#6 C-11

R.T.: 12.680 min
Delta R.T.: -0.002 min
Response: 26530535
Conc: 17.84 µg/mL m



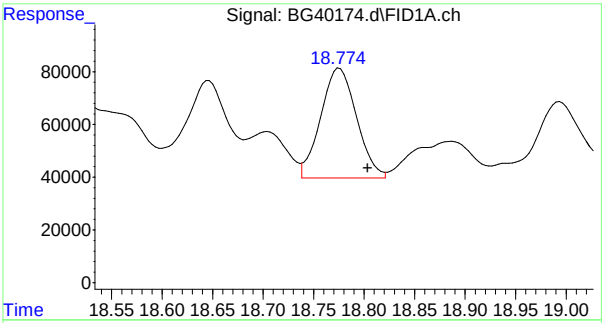
#7 C-12

R.T.: 14.982 min
Delta R.T.: -0.005 min
Response: 28285353
Conc: 18.71 µg/mL m



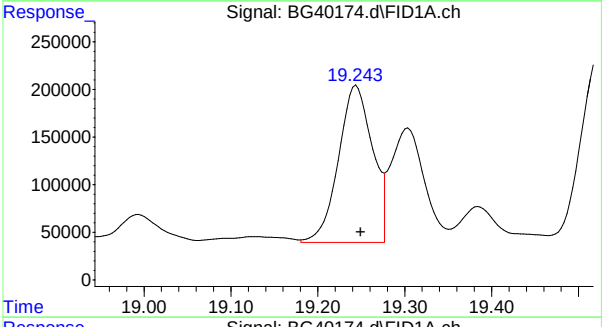
#8 C-13

R.T.: 17.174 min
Delta R.T.: -0.003 min
Response: 13032935
Conc: 8.53 µg/mL m



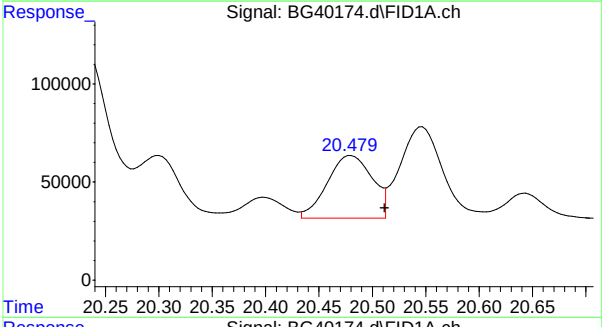
#9 2,6,10-trimethyldodecane (1380)

R.T.: 18.774 min
Delta R.T.: -0.029 min
Response: 1027954
Conc: 0.67 µg/mL m



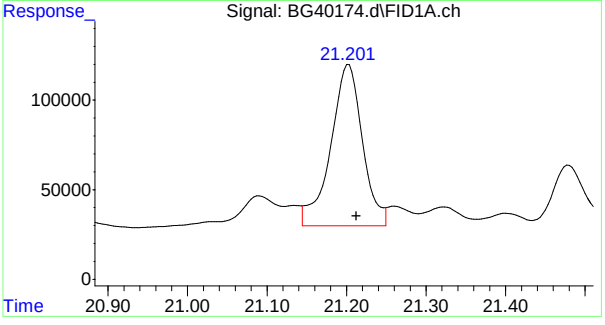
#10 C-14

R.T.: 19.243 min
Delta R.T.: -0.006 min
Response: 4388183
Conc: 2.81 µg/mL m



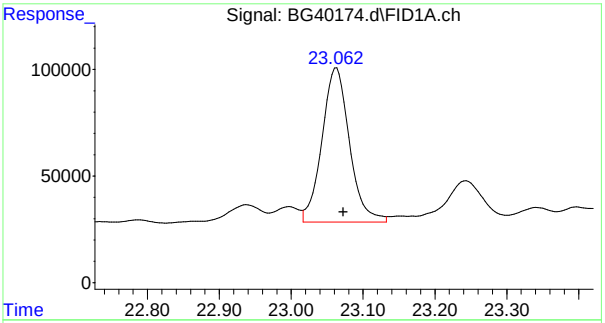
#11 2,6,10-trimethyltridecane (1470)

R.T.: 20.479 min
Delta R.T.: -0.033 min
Response: 926904
Conc: 0.59 µg/mL m



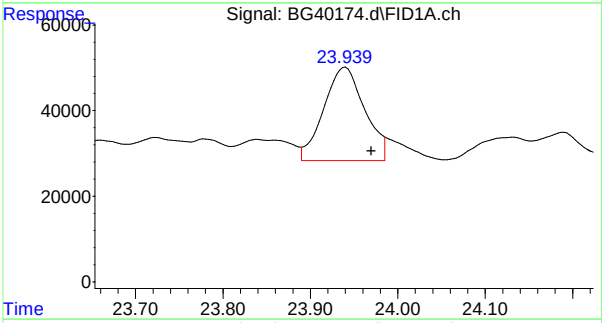
#12 C-15

R.T.: 21.201 min
Delta R.T.: -0.011 min
Response: 2495495
Conc: 1.58 µg/mL m



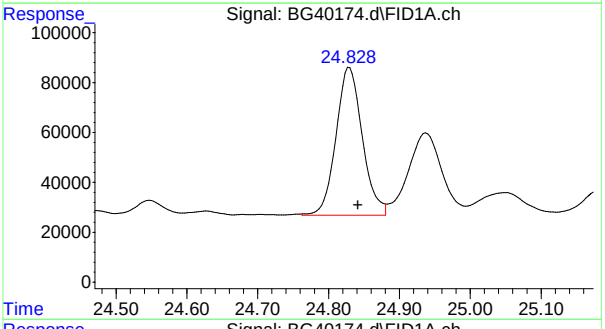
#13 C-16

R.T.: 23.062 min
Delta R.T.: -0.010 min
Response: 1919771
Conc: 1.21 µg/mL m



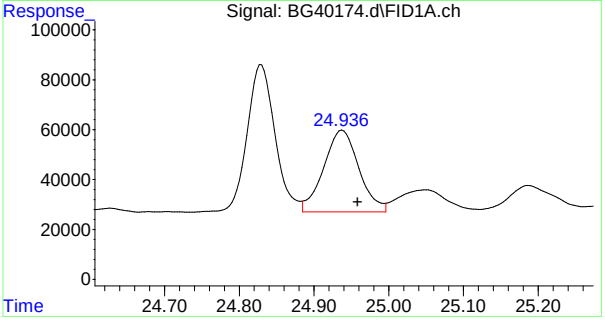
#14 2,6,10-trimethylpentadecane (1650)

R.T.: 23.939 min
Delta R.T.: -0.031 min
Response: 711931
Conc: 0.44 µg/mL m



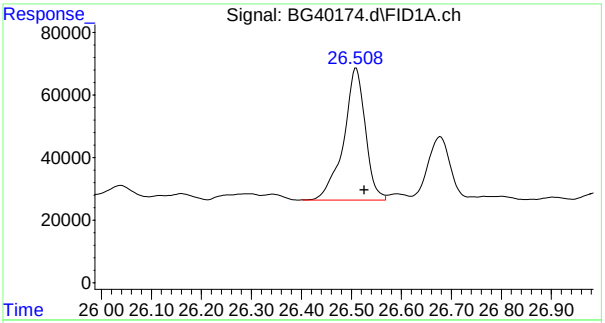
#15 C-17

R.T.: 24.828 min
Delta R.T.: -0.014 min
Response: 1539182
Conc: 0.93 µg/mL m



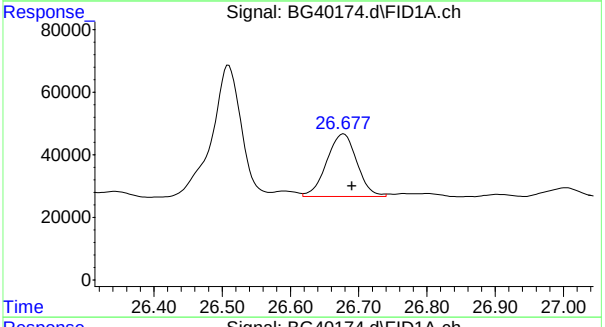
#16 Pristane

R.T.: 24.936 min
Delta R.T.: -0.022 min
Response: 1067937
Conc: 0.68 µg/mL m



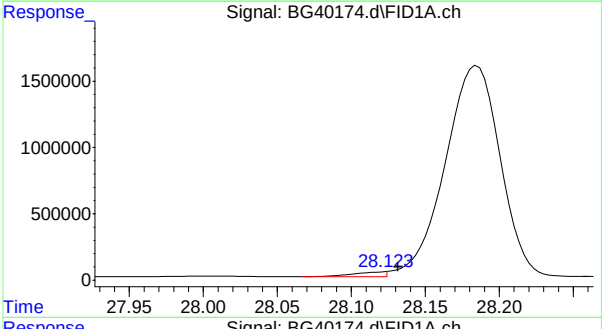
#17 C-18

R.T.: 26.508 min
Delta R.T.: -0.018 min
Response: 1279272
Conc: 0.78 µg/mL m



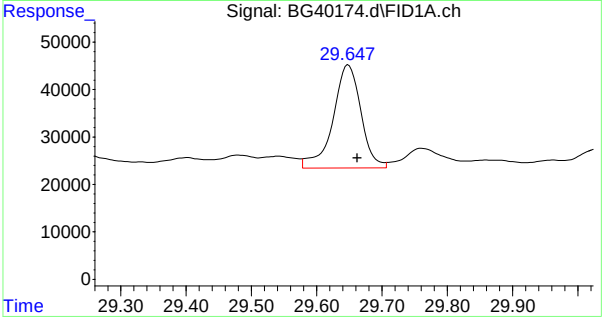
#18 Phytane

R.T.: 26.677 min
Delta R.T.: -0.013 min
Response: 615797
Conc: 0.38 µg/mL m



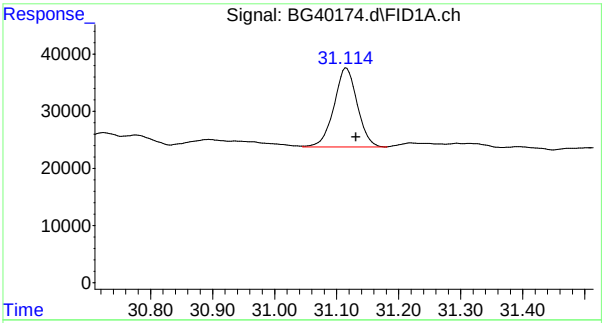
#19 C-19

R.T.: 28.123 min
Delta R.T.: -0.008 min
Response: 597132
Conc: 0.35 µg/mL m



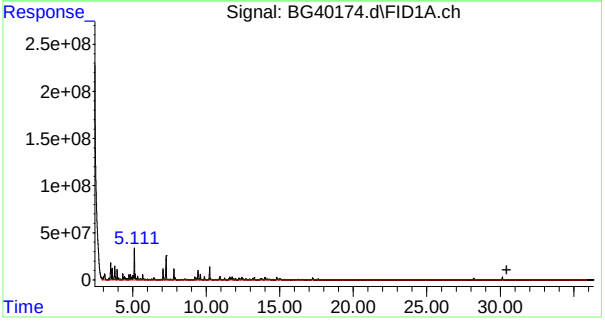
#20 C-20

R.T.: 29.649 min
Delta R.T.: -0.013 min
Response: 646605
Conc: 0.40 µg/mL



#21 C-21

```
      R.T.:   31.116 min
Delta R.T.:   -0.015 min
  Response:    360195
      Conc:   0.22 µg/mL
```



#41 TPH (C8-C40)

```
      R.T.:   30.429 min
Delta R.T.:    0.000 min
  Response: 8954794531
      Conc: 5445.30 µg/mL m
```

11.1.1

11

Manual Integrations APPROVED (compounds with "m" flag)
James Roush
07/01/13 11:56

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130509\
Data File : BG40175.d
Signal(s) : FID1A.ch
Acq On : 9 May 2013 4:15 pm
Operator : kristinr
Sample : mc20162-2
Misc : op32967,gbg1516,0.0149,,,2,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jul 01 12:00:34 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration

	Compound	R.T.	Response	Conc	Units
	Internal Standards				
1) I	5a-Androstane	30.145	85787309	50.000	µg/mL
	System Monitoring Compounds				
2) S	o-Terphenyl	28.181	40777075	24.605	µg/mLm
	Target Compounds				
3)	C-8	5.672	119897471	88.466	µg/mLm
4)	C-9	7.891	102118720	70.604	µg/mLm
5)	C-10	10.288	47475020	30.765	µg/mLm
6)	C-11	12.685	46963638	31.030	µg/mLm
7)	C-12	14.984	40076788	26.038	µg/mLm
8)	C-13	17.175	13462380	8.661	µg/mLm
9)	2,6,10-trimethyldodec...	18.774	952744	0.606	µg/mLm
10)	C-14	19.244	5216510	3.285	µg/mLm
11)	2,6,10-trimethyltride...	20.477	984408	0.616	µg/mLm
12)	C-15	21.200	2796093	1.737	µg/mLm
13)	C-16	23.060	2055030	1.276	µg/mLm
14)	2,6,10-trimethylpenta...	23.932	707755	0.430	µg/mLm
15)	C-17	24.827	1584880	0.944	µg/mLm
16)	Pristane	24.937	1223405	0.763	µg/mLm
17)	C-18	26.507	1053163	0.635	µg/mLm
18)	Phytane	26.673	555453	0.336	µg/mLm
19)	C-19	28.123	790747	0.456	µg/mLm
20)	C-20	29.648	557968	0.335	µg/mL
21)	C-21	31.113	373281	0.223	µg/mL
41) H	TPH (C8-C40)	30.429	10344840086	6179.843	µg/mLm

SemiQuant Compounds - Not Calibrated on this Instrument

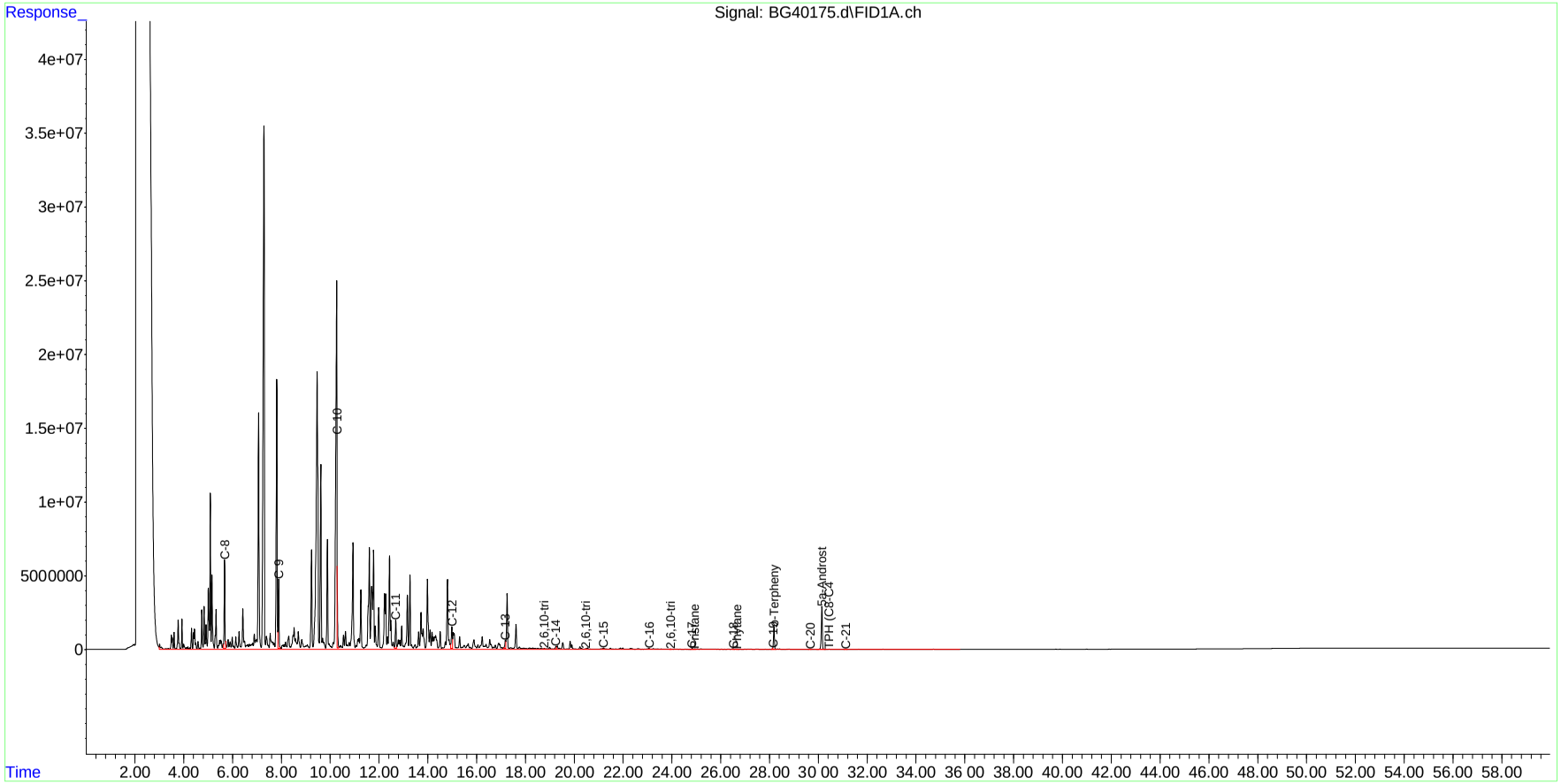
(f)=RT Delta > 1/2 Window (m)=manual int.

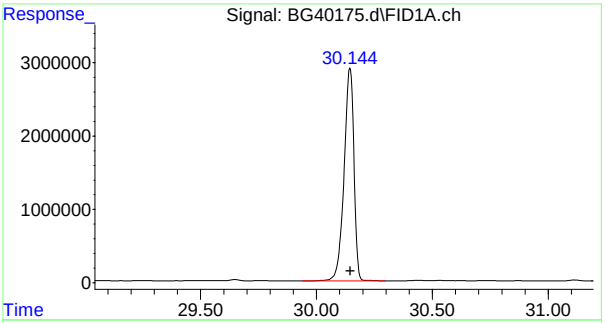
11.1.2 11

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130509\
Data File : BG40175.d
Signal(s) : FID1A.ch
Acq On : 9 May 2013 4:15 pm
Operator : kristinr
Sample : mc20162-2
Misc : op32967,gbg1516,0.0149,,,2,1
ALS Vial : 6 Sample Multiplier: 1

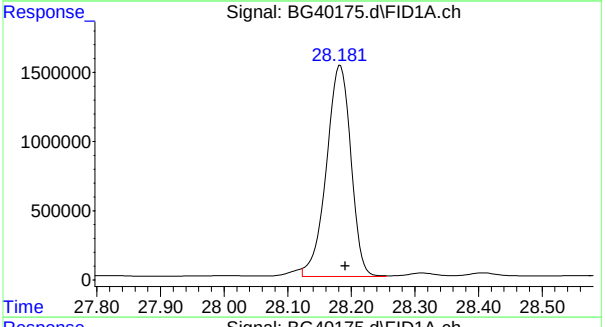
Quant Time: Jul 01 12:00:34 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration





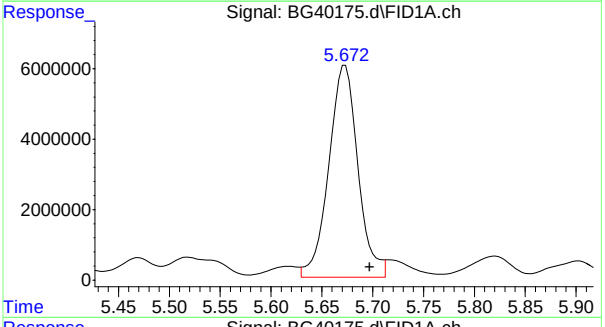
#1 5a-Androstane

R.T.: 30.145 min
Delta R.T.: 0.000 min
Response: 85787309
Conc: 50.00 µg/mL



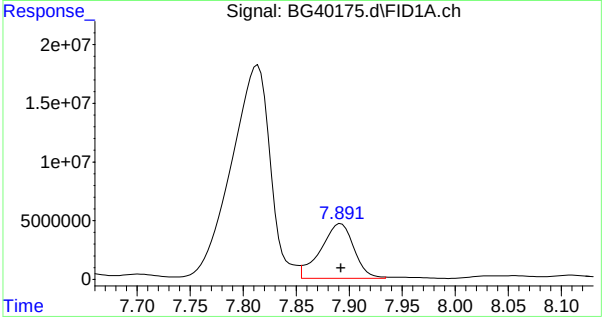
#2 o-Terphenyl

R.T.: 28.181 min
Delta R.T.: -0.009 min
Response: 40777075
Conc: 24.60 µg/mL m



#3 C-8

R.T.: 5.672 min
Delta R.T.: -0.025 min
Response: 119897471
Conc: 88.47 µg/mL m

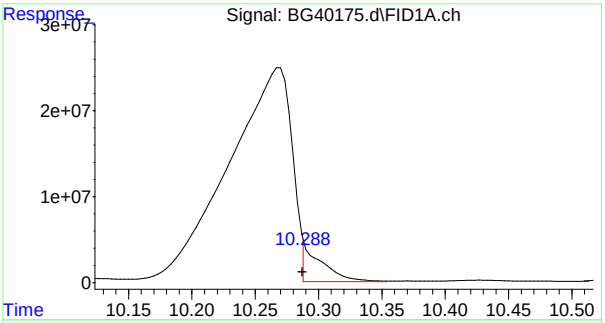


#4 C-9

R.T.: 7.891 min
Delta R.T.: -0.002 min
Response: 102118720
Conc: 70.60 µg/mL m

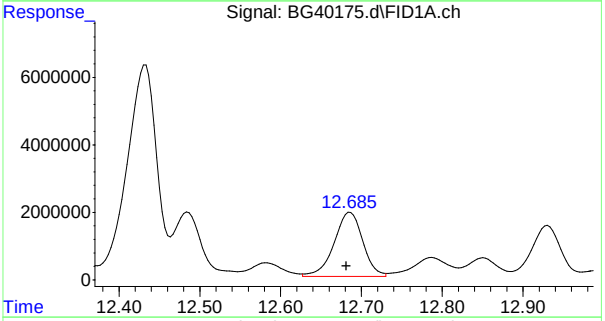
11.1.2

11



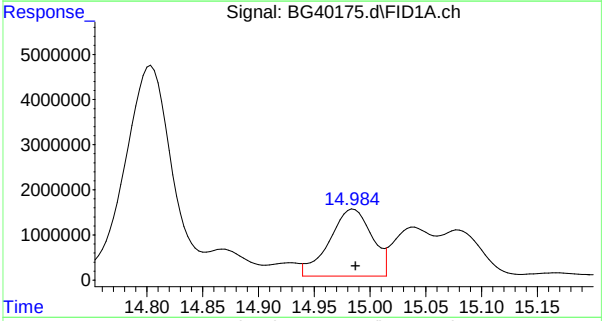
#5 C-10

R.T.: 10.288 min
Delta R.T.: 0.000 min
Response: 47475020
Conc: 30.77 µg/mL m



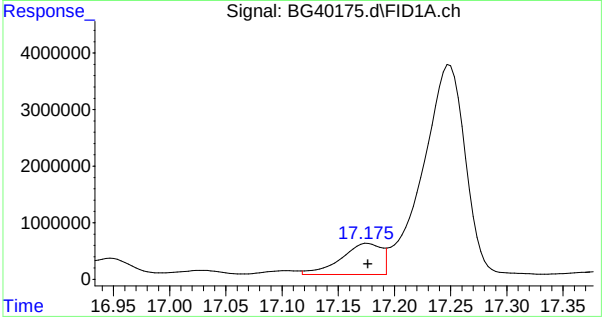
#6 C-11

R.T.: 12.685 min
Delta R.T.: 0.003 min
Response: 46963638
Conc: 31.03 µg/mL m



#7 C-12

R.T.: 14.984 min
Delta R.T.: -0.003 min
Response: 40076788
Conc: 26.04 µg/mL m

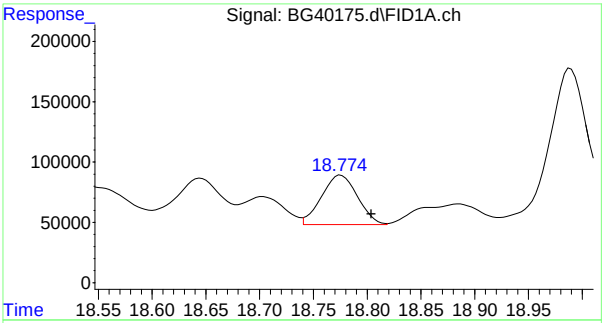


#8 C-13

R.T.: 17.175 min
Delta R.T.: -0.002 min
Response: 13462380
Conc: 8.66 µg/mL m

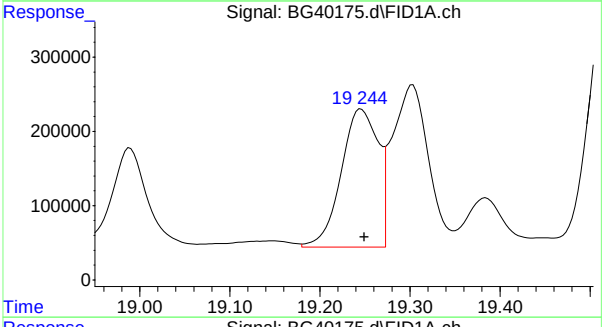
11.1.2

11



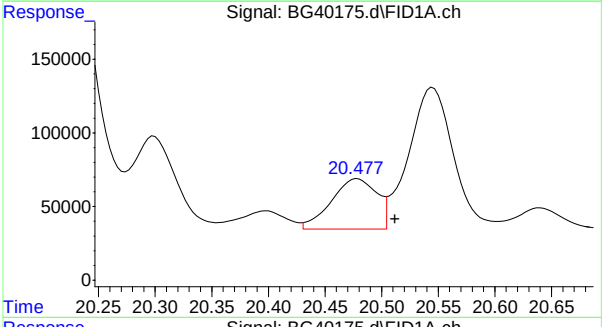
#9 2,6,10-trimethyldodecane (1380)

R.T.: 18.774 min
Delta R.T.: -0.029 min
Response: 952744
Conc: 0.61 µg/mL m



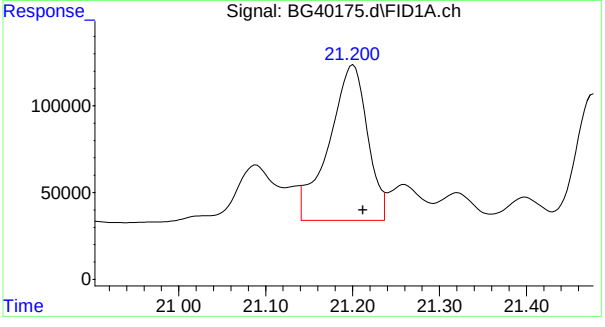
#10 C-14

R.T.: 19.244 min
Delta R.T.: -0.005 min
Response: 5216510
Conc: 3.29 µg/mL m



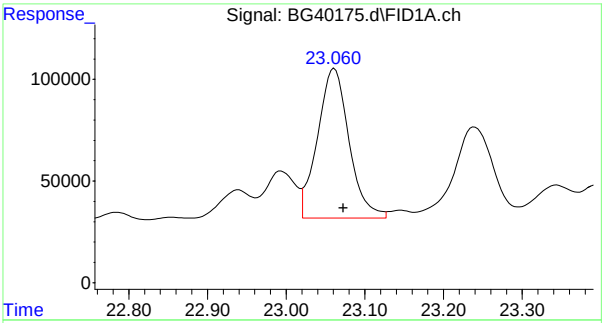
#11 2,6,10-trimethyltridecane (1470)

R.T.: 20.477 min
Delta R.T.: -0.034 min
Response: 984408
Conc: 0.62 µg/mL m



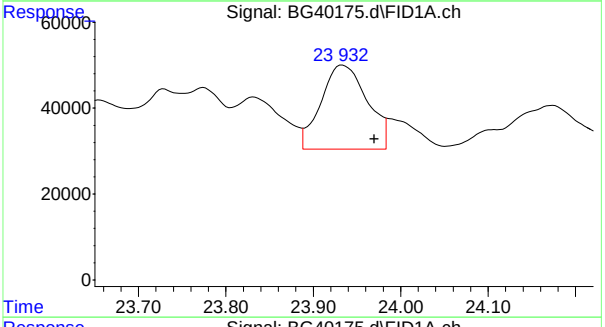
#12 C-15

R.T.: 21.200 min
Delta R.T.: -0.012 min
Response: 2796093
Conc: 1.74 µg/mL m



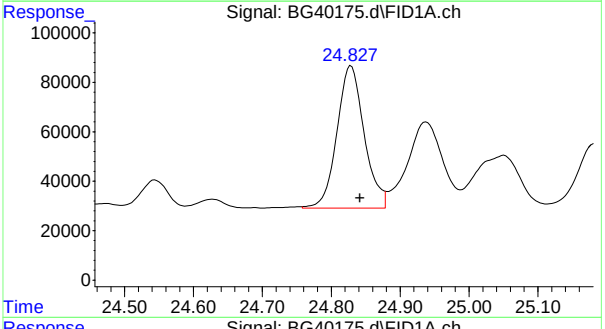
#13 C-16

```
      R.T.:   23.060 min
Delta R.T.:   -0.012 min
  Response:   2055030
      Conc:   1.28 µg/mL m
```



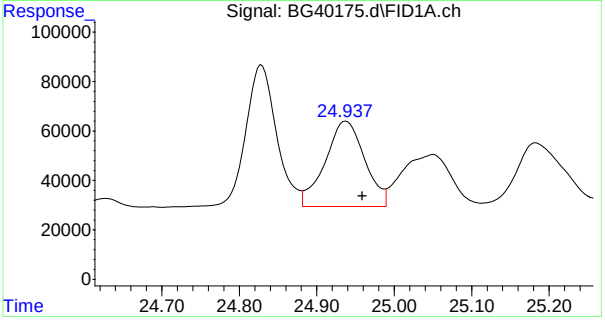
#14 2,6,10-trimethylpentadecane (1650)

```
      R.T.:   23.932 min
Delta R.T.:   -0.038 min
  Response:    707755
      Conc:   0.43 µg/mL m
```



#15 C-17

```
      R.T.:   24.827 min
Delta R.T.:   -0.014 min
  Response:   1584880
      Conc:   0.94 µg/mL m
```

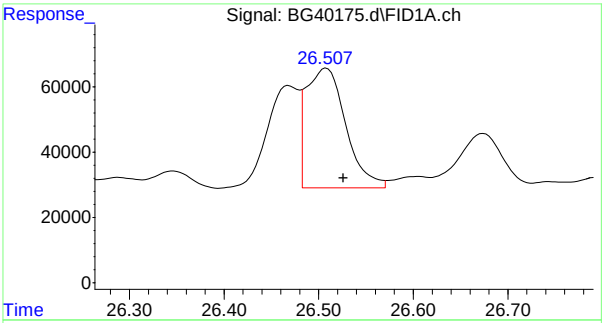


#16 Pristane

```
      R.T.:   24.937 min
Delta R.T.:   -0.022 min
  Response:   1223405
      Conc:   0.76 µg/mL m
```

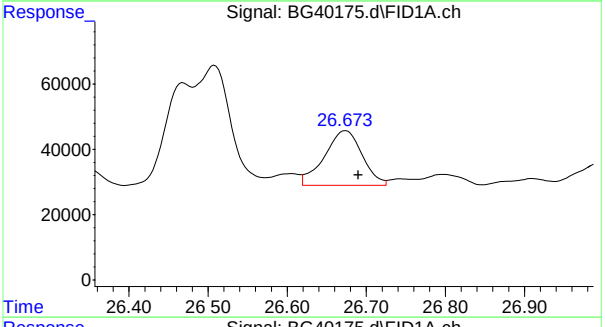
11.1.2

11



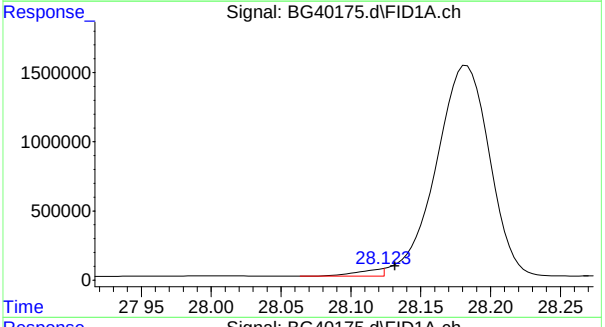
#17 C-18

R.T.: 26.507 min
Delta R.T.: -0.019 min
Response: 1053163
Conc: 0.63 µg/mL m



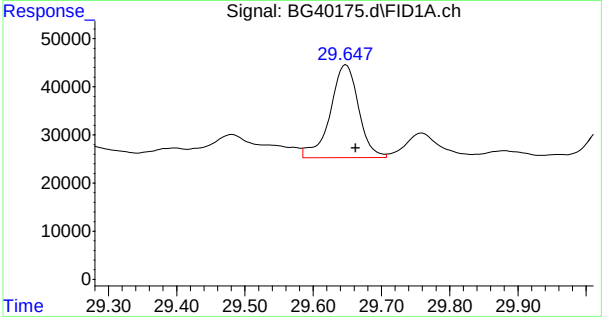
#18 Phytane

R.T.: 26.673 min
Delta R.T.: -0.017 min
Response: 555453
Conc: 0.34 µg/mL m



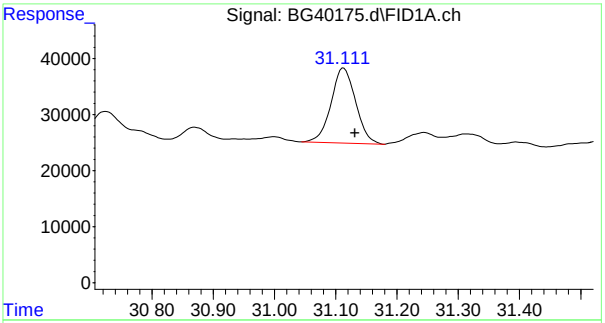
#19 C-19

R.T.: 28.123 min
Delta R.T.: -0.008 min
Response: 790747
Conc: 0.46 µg/mL m



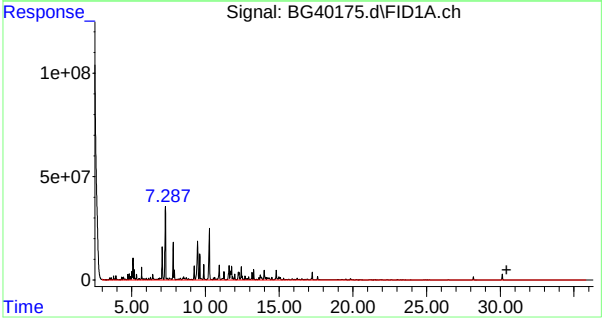
#20 C-20

R.T.: 29.648 min
Delta R.T.: -0.014 min
Response: 557968
Conc: 0.34 µg/mL



#21 C-21

```
      R.T.:   31.113 min
Delta R.T.:   -0.018 min
  Response:    373281
      Conc:   0.22 µg/mL
```



#41 TPH (C8-C40)

```
      R.T.:   30.429 min
Delta R.T.:    0.000 min
  Response: 10344840086
      Conc: 6179.84 µg/mL m
```

11.1.2

11

Manual Integrations APPROVED (compounds with "m" flag)
James Roush
07/01/13 11:56

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130509\
Data File : BG40176.d
Signal(s) : FID1A.ch
Acq On : 9 May 2013 5:24 pm
Operator : kristinr
Sample : mc20162-3
Misc : op32967,gbg1516,0.0130,,,2,1
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 01 12:06:28 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration

	Compound	R.T.	Response	Conc	Units
	Internal Standards				
1) I	5a-Androstane	30.147	110252198	50.000	µg/mL
	System Monitoring Compounds				
2) S	o-Terphenyl	28.182	52723270	24.754	µg/mLm
	Target Compounds				
3)	C-8	5.683	169499659	97.313	µg/mLm
4)	C-9	7.891	95246583	51.240	µg/mLm
5)	C-10	10.291	39199181	19.765	µg/mLm
6)	C-11	12.682	47657157	24.501	µg/mLm
7)	C-12	14.980	38087257	19.254	µg/mLm
8)	C-13	17.170	12840079	6.427	µg/mLm
9)	2,6,10-trimethyldodec...	18.770	889046	0.440	µg/mLm
10)	C-14	19.239	4616888	2.262	µg/mLm
11)	2,6,10-trimethyltride...	20.474	873460	0.425	µg/mLm
12)	C-15	21.196	2415802	1.168	µg/mLm
13)	C-16	23.057	1740007	0.840	µg/mLm
14)	2,6,10-trimethylpenta...	23.932	643572	0.304	µg/mLm
15)	C-17	24.825	1297446	0.601	µg/mLm
16)	Pristane	24.933	910283	0.442	µg/mLm
17)	C-18	26.506	892163	0.418	µg/mLm
18)	Phytane	26.668	440378	0.207	µg/mLm
19)	C-19	28.113	415594	0.187	µg/mLm
20)	C-20	29.646	442496	0.207	µg/mL
21)	C-21	31.112	316155	0.147	µg/mL
41) H	TPH (C8-C40)	30.429	10744507285	4994.315	µg/mLm

SemiQuant Compounds - Not Calibrated on this Instrument

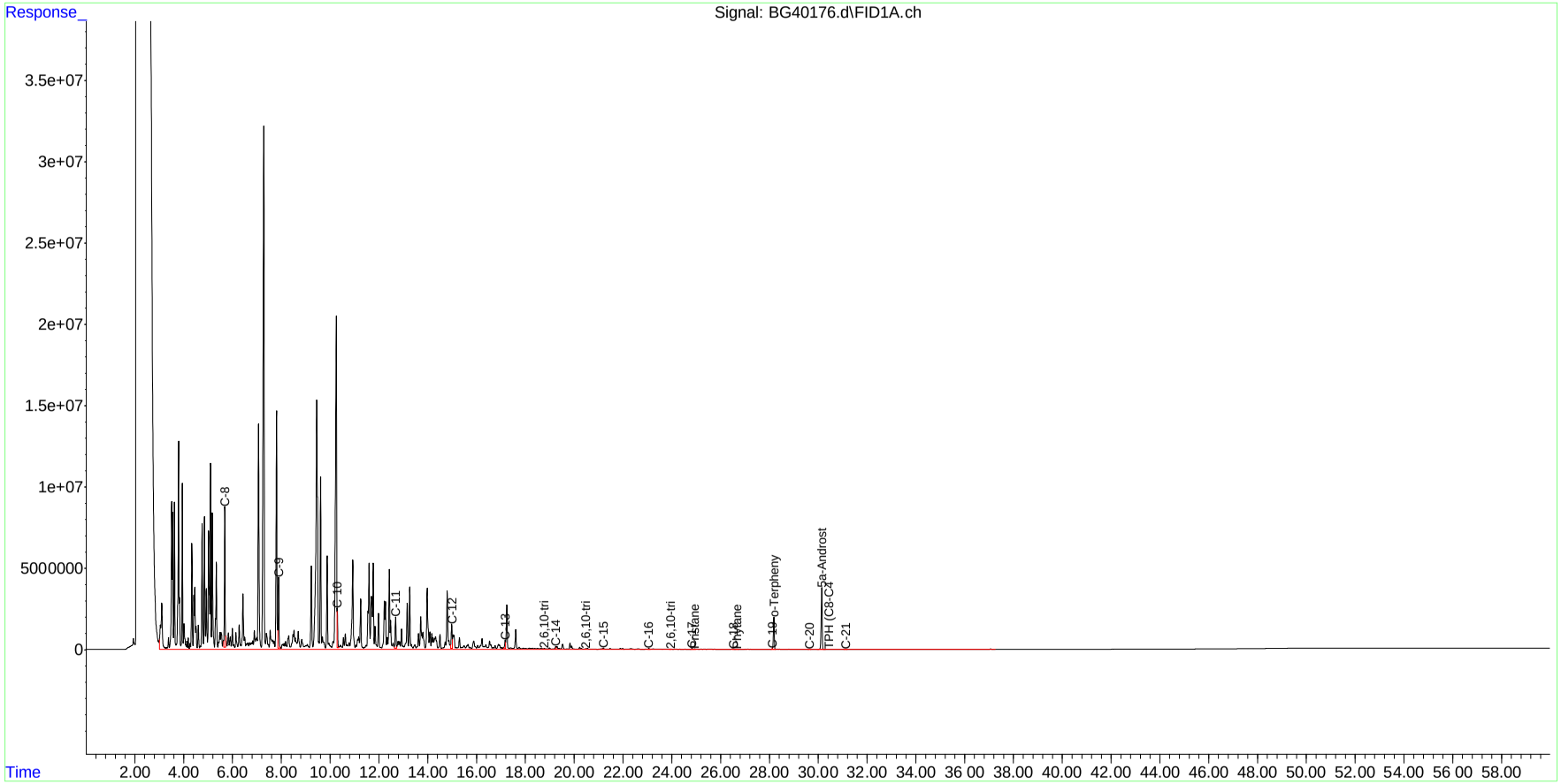
(f)=RT Delta > 1/2 Window (m)=manual int.

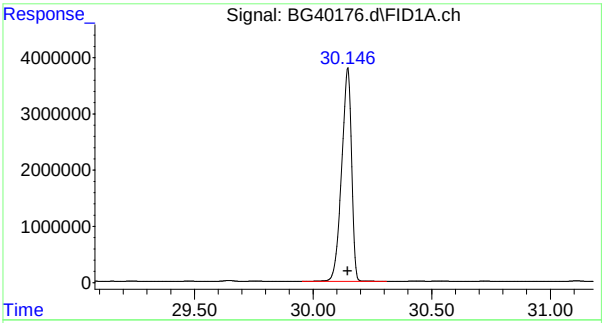
11.1.3 11

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130509\
Data File : BG40176.d
Signal(s) : FID1A.ch
Acq On : 9 May 2013 5:24 pm
Operator : kristinr
Sample : mc20162-3
Misc : op32967,gbg1516,0.0130,,,2,1
ALS Vial : 7 Sample Multiplier: 1

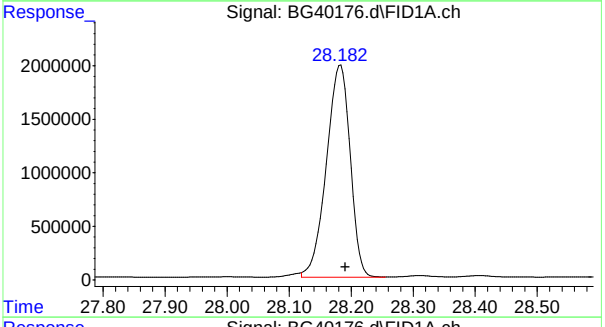
Quant Time: Jul 01 12:06:28 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration





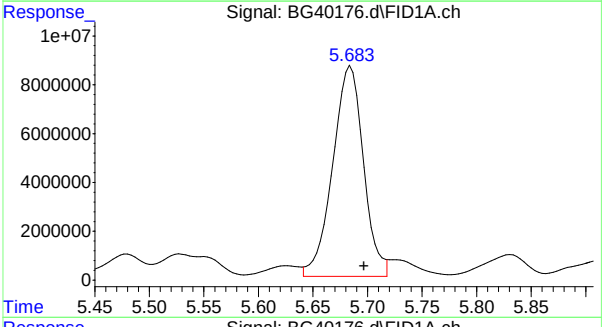
#1 5a-Androstane

R.T.: 30.147 min
Delta R.T.: 0.002 min
Response: 110252198
Conc: 50.00 µg/mL



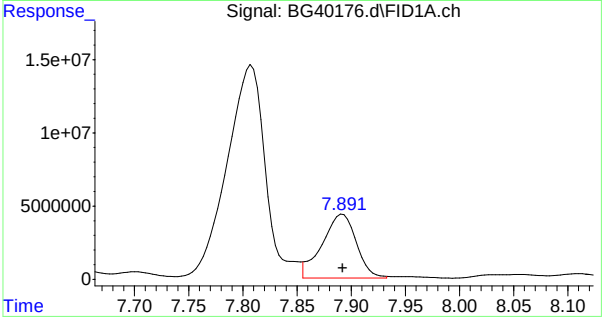
#2 o-Terphenyl

R.T.: 28.182 min
Delta R.T.: -0.009 min
Response: 52723270
Conc: 24.75 µg/mL m



#3 C-8

R.T.: 5.683 min
Delta R.T.: -0.013 min
Response: 169499659
Conc: 97.31 µg/mL m

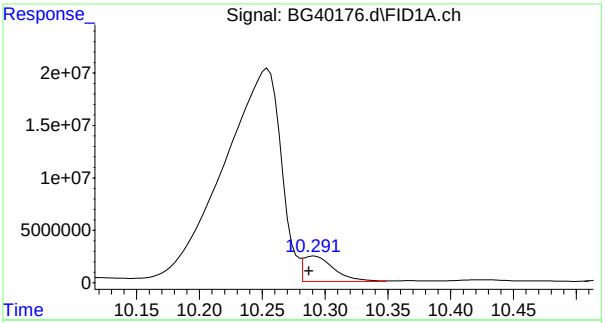


#4 C-9

R.T.: 7.891 min
Delta R.T.: -0.001 min
Response: 95246583
Conc: 51.24 µg/mL m

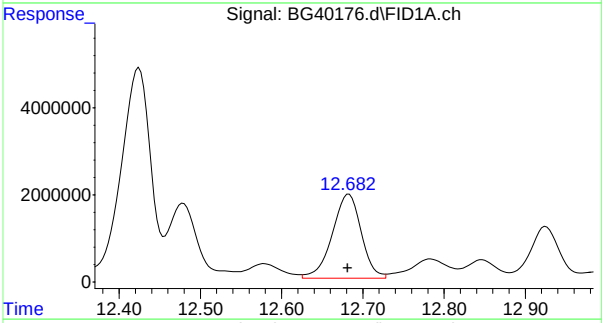
11.1.3

11



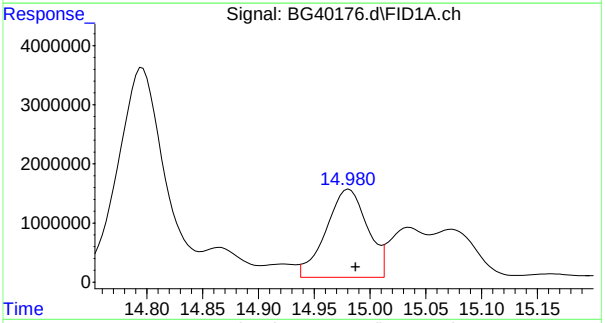
#5 C-10

R.T.: 10.291 min
Delta R.T.: 0.003 min
Response: 39199181
Conc: 19.77 µg/mL m



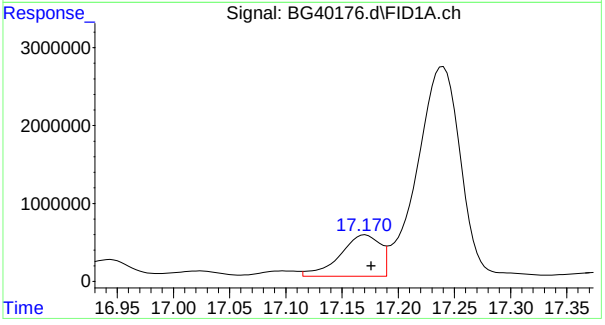
#6 C-11

R.T.: 12.682 min
Delta R.T.: 0.000 min
Response: 47657157
Conc: 24.50 µg/mL m



#7 C-12

R.T.: 14.980 min
Delta R.T.: -0.007 min
Response: 38087257
Conc: 19.25 µg/mL m

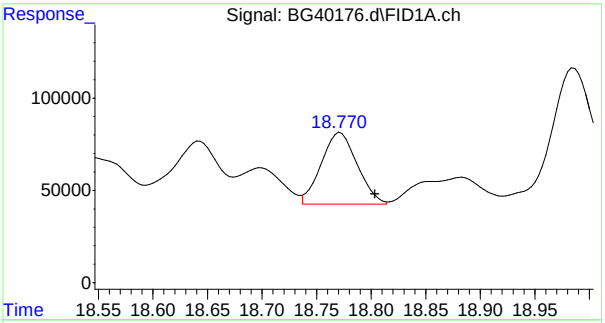


#8 C-13

R.T.: 17.170 min
Delta R.T.: -0.007 min
Response: 12840079
Conc: 6.43 µg/mL m

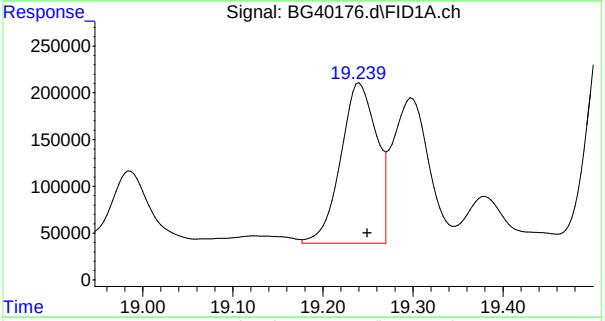
11.1.3

11



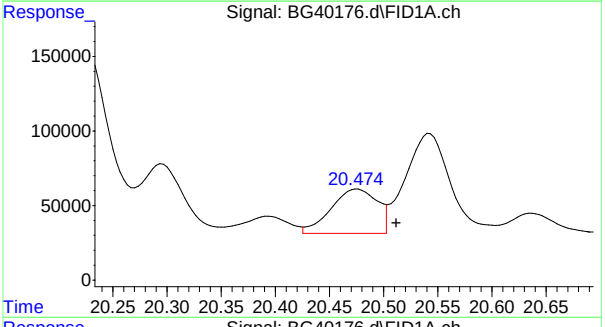
#9 2,6,10-trimethyldodecane (1380)

R.T.: 18.770 min
Delta R.T.: -0.033 min
Response: 889046
Conc: 0.44 µg/mL m



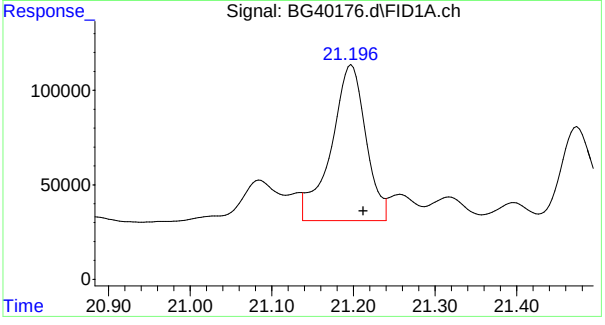
#10 C-14

R.T.: 19.239 min
Delta R.T.: -0.010 min
Response: 4616888
Conc: 2.26 µg/mL m



#11 2,6,10-trimethyltridecane (1470)

R.T.: 20.474 min
Delta R.T.: -0.037 min
Response: 873460
Conc: 0.43 µg/mL m

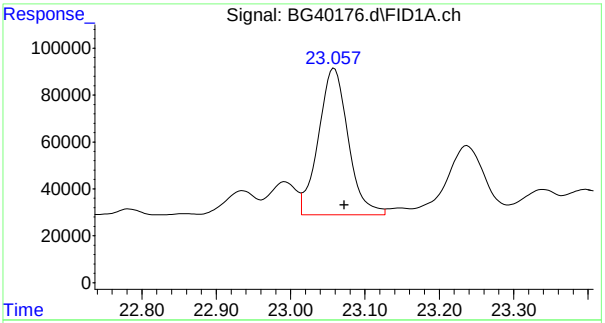


#12 C-15

R.T.: 21.196 min
Delta R.T.: -0.016 min
Response: 2415802
Conc: 1.17 µg/mL m

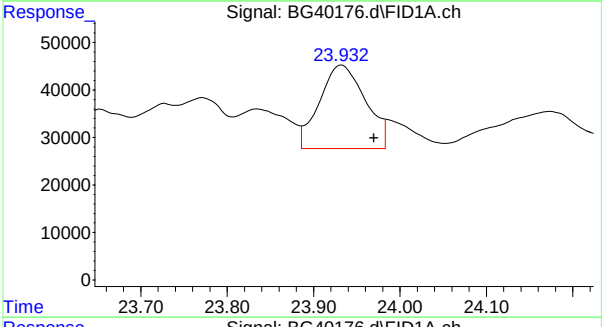
11.1.3

11



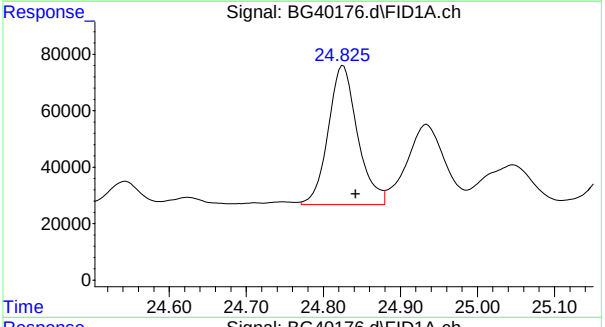
#13 C-16

R.T.: 23.057 min
Delta R.T.: -0.015 min
Response: 1740007
Conc: 0.84 µg/mL m



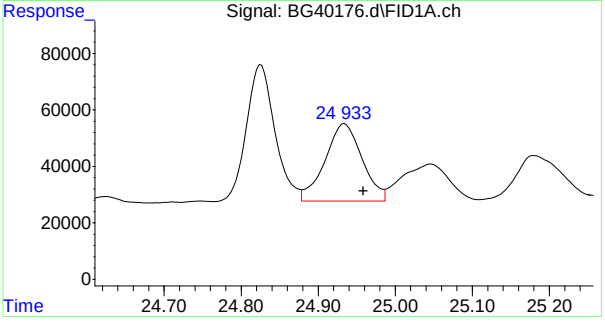
#14 2,6,10-trimethylpentadecane (1650)

R.T.: 23.932 min
Delta R.T.: -0.038 min
Response: 643572
Conc: 0.30 µg/mL m



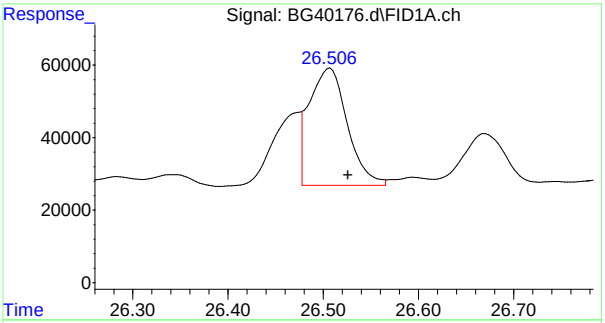
#15 C-17

R.T.: 24.825 min
Delta R.T.: -0.017 min
Response: 1297446
Conc: 0.60 µg/mL m



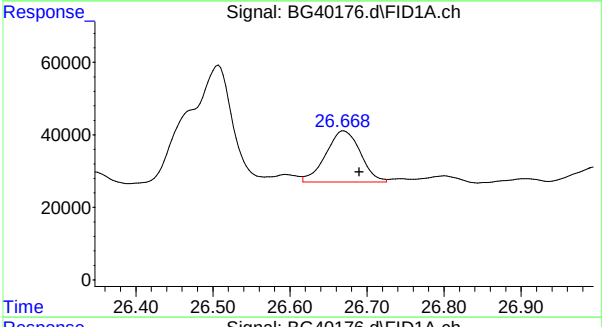
#16 Pristane

R.T.: 24.933 min
Delta R.T.: -0.025 min
Response: 910283
Conc: 0.44 µg/mL m



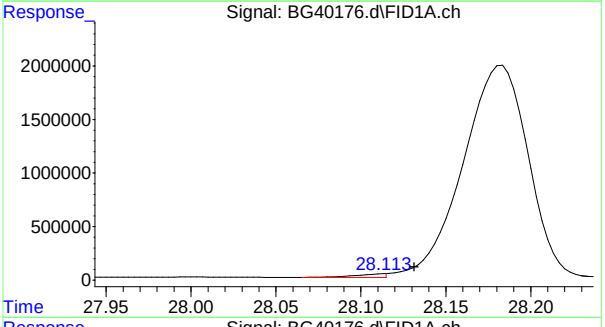
#17 C-18

R.T.: 26.506 min
Delta R.T.: -0.020 min
Response: 892163
Conc: 0.42 µg/mL m



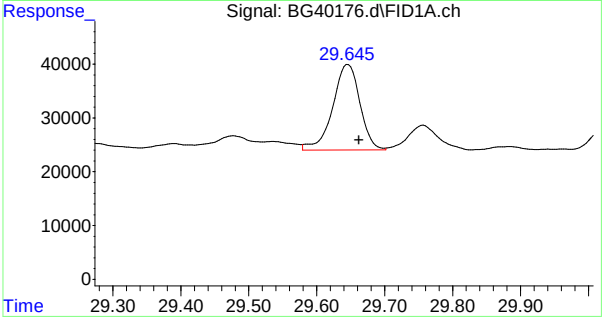
#18 Phytane

R.T.: 26.668 min
Delta R.T.: -0.022 min
Response: 440378
Conc: 0.21 µg/mL m



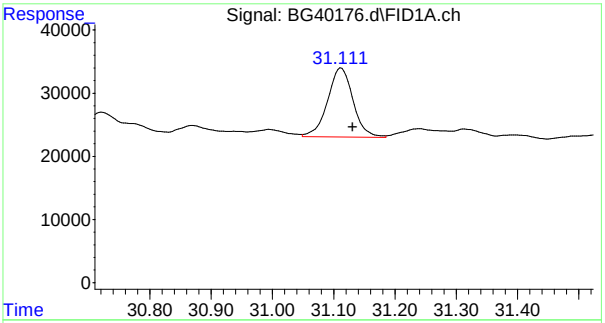
#19 C-19

R.T.: 28.113 min
Delta R.T.: -0.018 min
Response: 415594
Conc: 0.19 µg/mL m



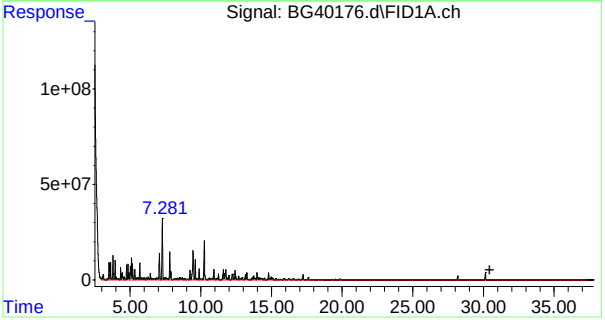
#20 C-20

R.T.: 29.646 min
Delta R.T.: -0.016 min
Response: 442496
Conc: 0.21 µg/mL



#21 C-21

R.T.: 31.112 min
Delta R.T.: -0.019 min
Response: 316155
Conc: 0.15 µg/mL



#41 TPH (C8-C40)

R.T.: 30.429 min
Delta R.T.: 0.000 min
Response: 10744507285
Conc: 4994.32 µg/mL m

11.1.3

11

Manual Integrations APPROVED (compounds with "m" flag)
James Roush
07/01/13 11:56

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130509\
Data File : BG40177.d
Signal(s) : FID1A.ch
Acq On : 9 May 2013 6:32 pm
Operator : kristinr
Sample : mc20162-4
Misc : op32967,gbg1516,0.0116,,,2,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 01 12:06:05 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration

	Compound	R.T.	Response	Conc	Units
	Internal Standards				
1) I	5a-Androstane	30.142	90414543	50.000	µg/mL
	System Monitoring Compounds				
2) S	o-Terphenyl	28.177	43981756	25.180	µg/mLm
	Target Compounds				
3)	C-8	5.673	92434259	64.712	µg/mLm
4)	C-9	7.880	43383887	28.460	µg/mLm
5)	C-10	10.280	22981292	14.130	µg/mLm
6)	C-11	12.673	20889221	13.095	µg/mLm
7)	C-12	14.975	20476442	12.623	µg/mLm
8)	C-13	17.167	10031491	6.123	µg/mLm
9)	2,6,10-trimethyldodec...	18.769	880554	0.532	µg/mLm
10)	C-14	19.237	3292487	1.967	µg/mLm
11)	2,6,10-trimethyltride...	20.473	702117	0.417	µg/mLm
12)	C-15	21.195	1759184	1.037	µg/mLm
13)	C-16	23.055	1251303	0.737	µg/mLm
14)	2,6,10-trimethylpenta...	23.931	475285	0.274	µg/mLm
15)	C-17	24.823	912428	0.516	µg/mLm
16)	Pristane	24.931	693120	0.410	µg/mLm
17)	C-18	26.503	660589	0.378	µg/mLm
18)	Phytane	26.668	354611	0.203	µg/mLm
19)	C-19	28.113	398908	0.218	µg/mLm
20)	C-20	29.643	335737	0.191	µg/mLm
21)	C-21	31.109	227313	0.129	µg/mLm
41) H	TPH (C8-C40)	30.429	7566514853	4288.785	µg/mLm

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

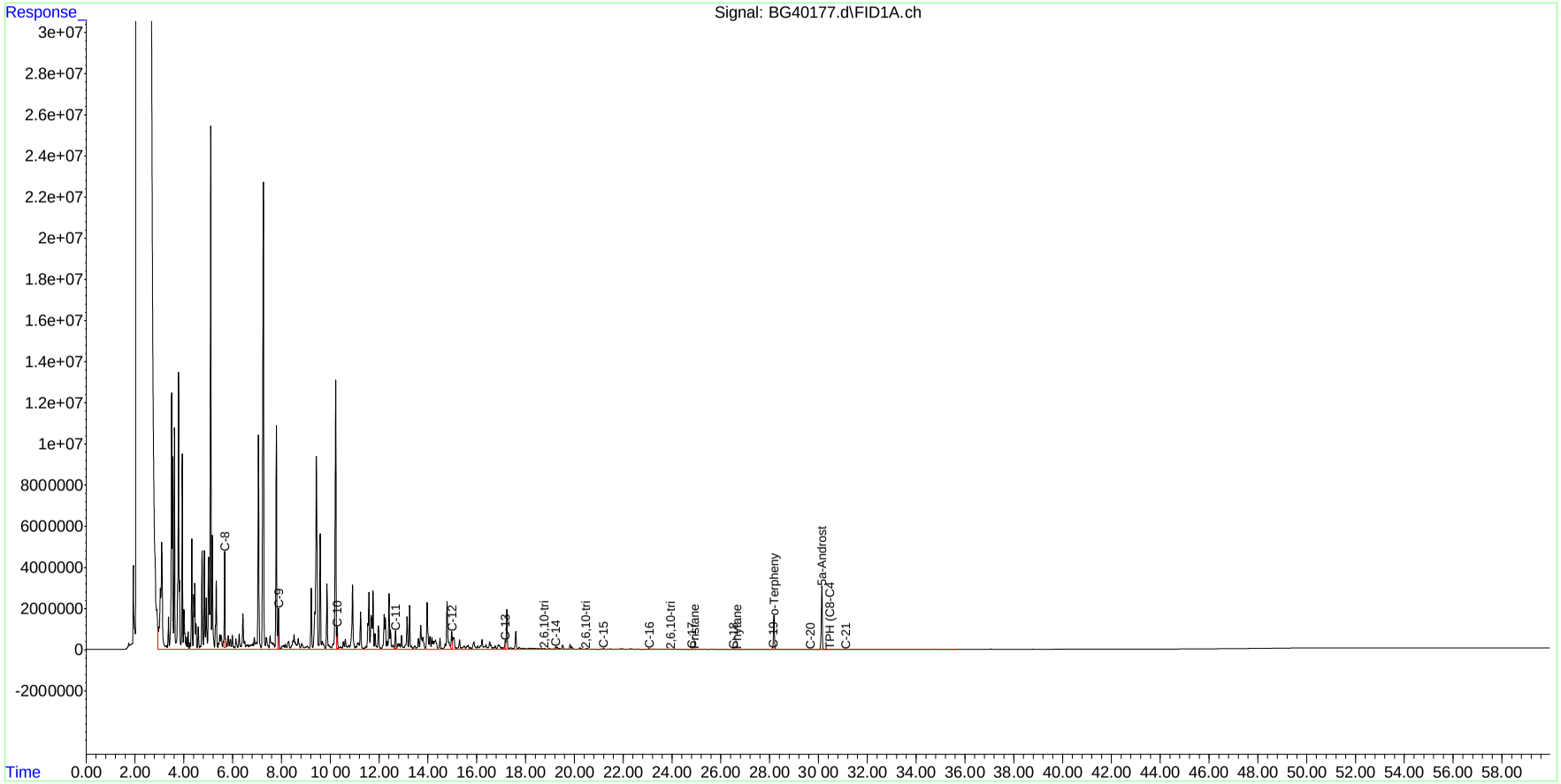
11.1.4

11

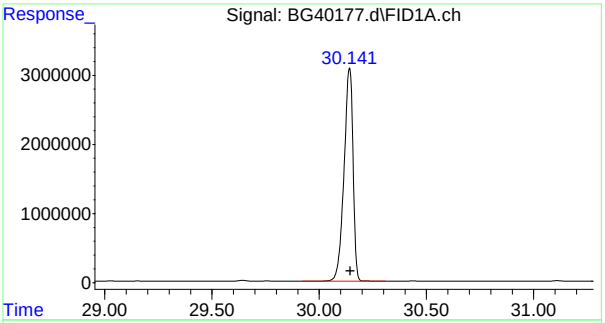
Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130509\
Data File : BG40177.d
Signal(s) : FID1A.ch
Acq On : 9 May 2013 6:32 pm
Operator : kristinr
Sample : mc20162-4
Misc : op32967,gbg1516,0.0116,,,2,1
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 01 12:06:05 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration

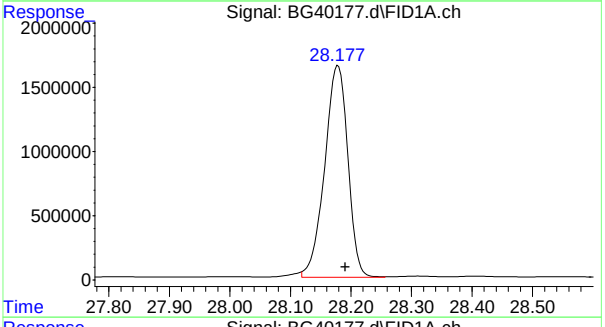


G120629ALK.m Mon Jul 01 14:34:53 2013 Page: 2



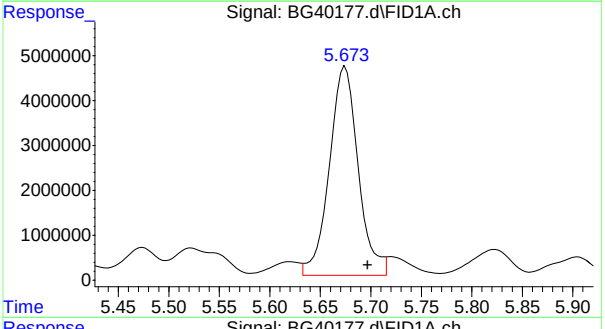
#1 5a-Androstane

R.T.: 30.142 min
Delta R.T.: -0.003 min
Response: 90414543
Conc: 50.00 µg/mL



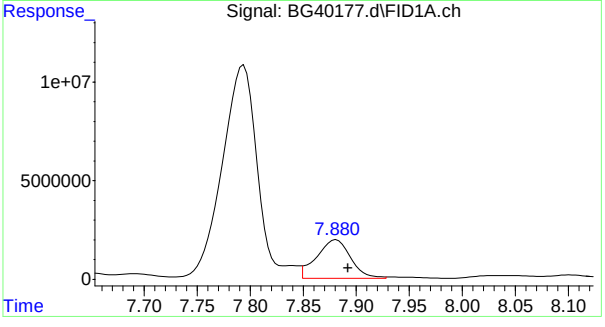
#2 o-Terphenyl

R.T.: 28.177 min
Delta R.T.: -0.013 min
Response: 43981756
Conc: 25.18 µg/mL m



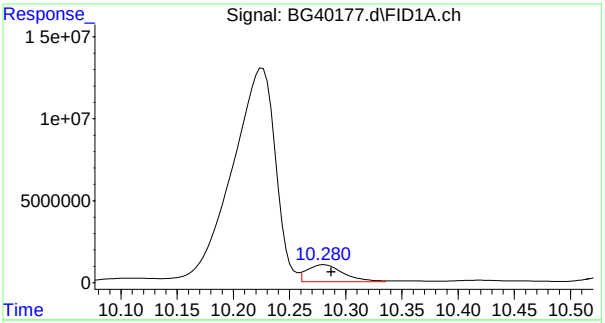
#3 C-8

R.T.: 5.673 min
Delta R.T.: -0.023 min
Response: 92434259
Conc: 64.71 µg/mL m



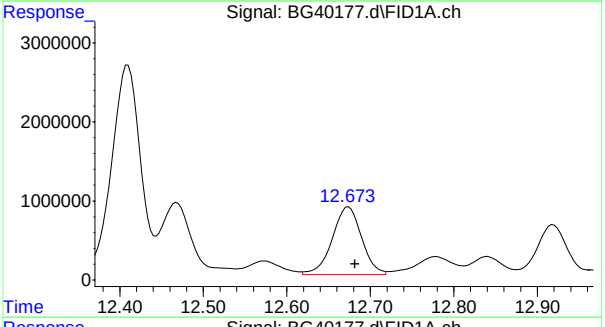
#4 C-9

R.T.: 7.880 min
Delta R.T.: -0.013 min
Response: 43383887
Conc: 28.46 µg/mL m



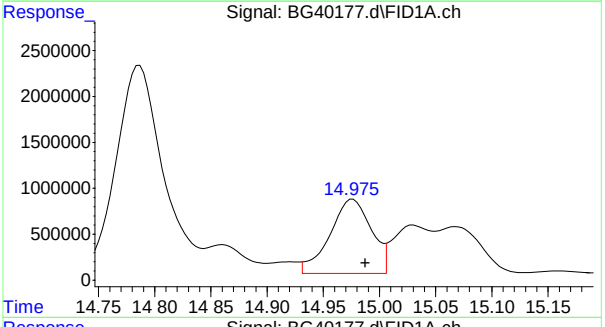
#5 C-10

R.T.: 10.280 min
Delta R.T.: -0.007 min
Response: 22981292
Conc: 14.13 µg/mL m



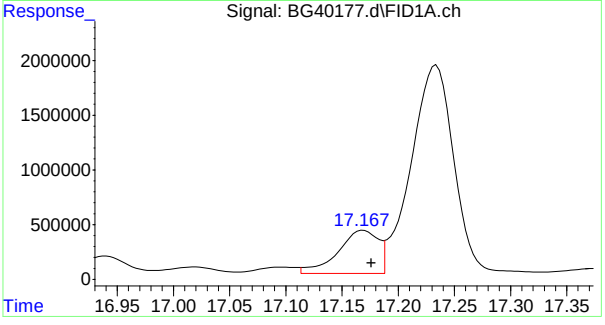
#6 C-11

R.T.: 12.673 min
Delta R.T.: -0.009 min
Response: 20889221
Conc: 13.10 µg/mL m



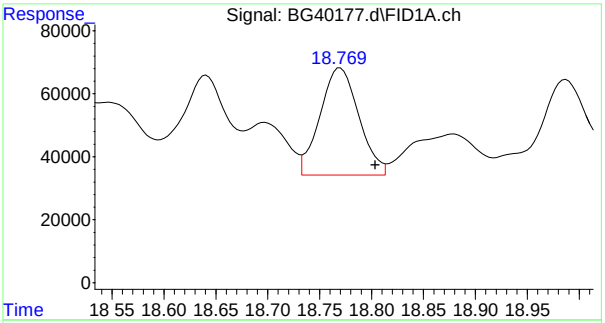
#7 C-12

R.T.: 14.975 min
Delta R.T.: -0.012 min
Response: 20476442
Conc: 12.62 µg/mL m



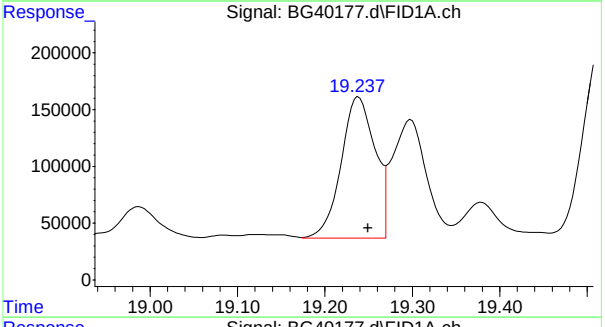
#8 C-13

R.T.: 17.167 min
Delta R.T.: -0.009 min
Response: 10031491
Conc: 6.12 µg/mL m



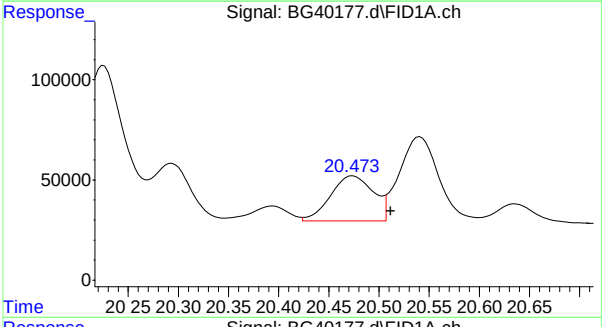
#9 2,6,10-trimethyldodecane (1380)

```
      R.T.:   18.769 min
Delta R.T.:   -0.035 min
  Response:    880554
      Conc:   0.53 µg/mL m
```



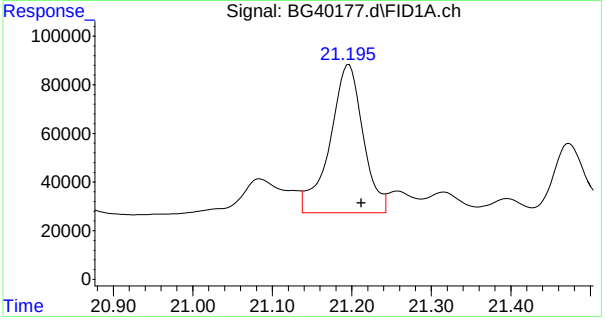
#10 C-14

```
      R.T.:   19.237 min
Delta R.T.:   -0.012 min
  Response:   3292487
      Conc:   1.97 µg/mL m
```



#11 2,6,10-trimethyltridecane (1470)

```
      R.T.:   20.473 min
Delta R.T.:   -0.039 min
  Response:    702117
      Conc:   0.42 µg/mL m
```

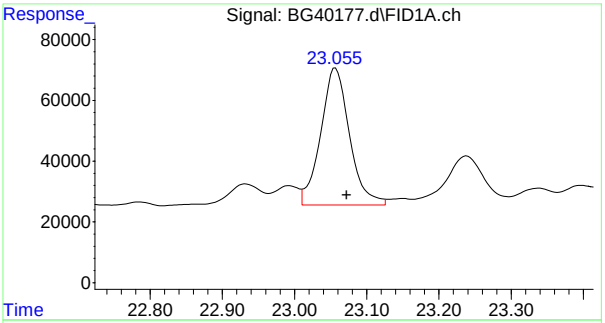


#12 C-15

```
      R.T.:   21.195 min
Delta R.T.:   -0.017 min
  Response:   1759184
      Conc:   1.04 µg/mL m
```

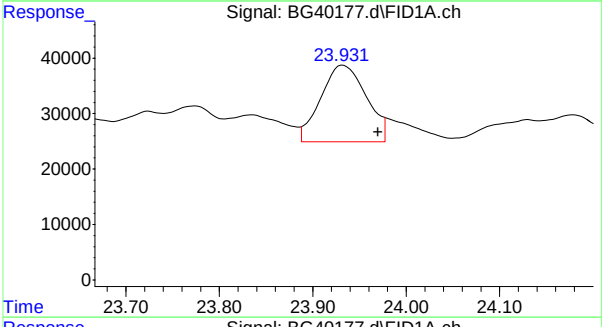
11.1.4

11



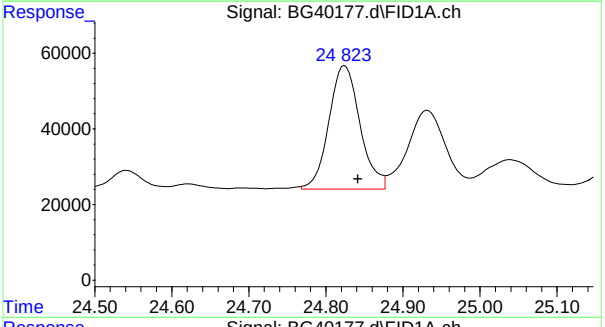
#13 C-16

R.T.: 23.055 min
Delta R.T.: -0.017 min
Response: 1251303
Conc: 0.74 µg/mL m



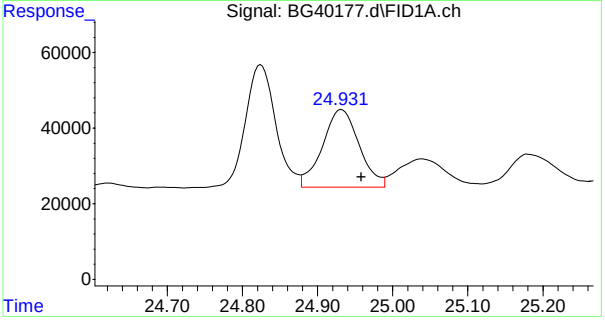
#14 2,6,10-trimethylpentadecane (1650)

R.T.: 23.931 min
Delta R.T.: -0.039 min
Response: 475285
Conc: 0.27 µg/mL m



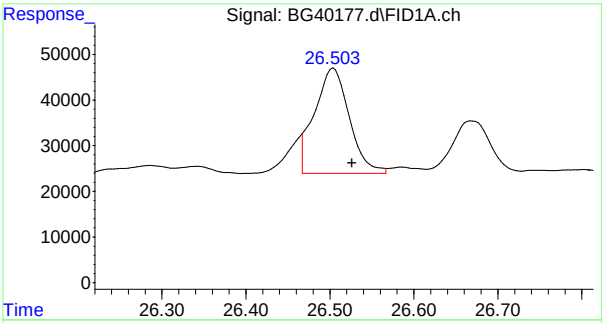
#15 C-17

R.T.: 24.823 min
Delta R.T.: -0.019 min
Response: 912428
Conc: 0.52 µg/mL m



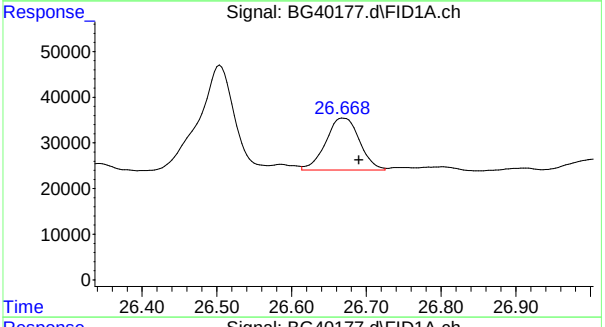
#16 Pristane

R.T.: 24.931 min
Delta R.T.: -0.028 min
Response: 693120
Conc: 0.41 µg/mL m



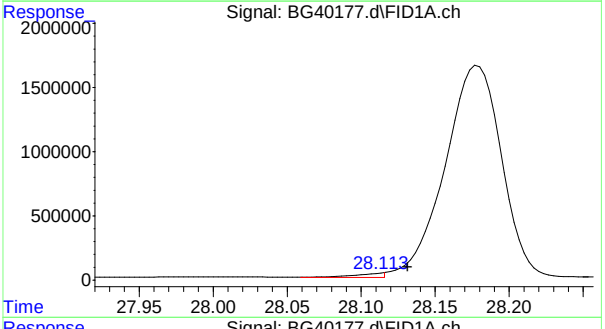
#17 C-18

R.T.: 26.503 min
Delta R.T.: -0.023 min
Response: 660589
Conc: 0.38 µg/mL m



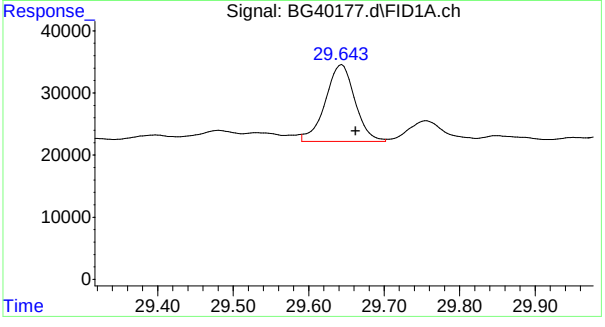
#18 Phytane

R.T.: 26.668 min
Delta R.T.: -0.022 min
Response: 354611
Conc: 0.20 µg/mL m



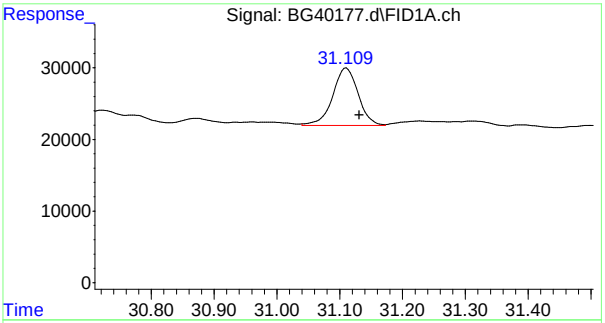
#19 C-19

R.T.: 28.113 min
Delta R.T.: -0.018 min
Response: 398908
Conc: 0.22 µg/mL m



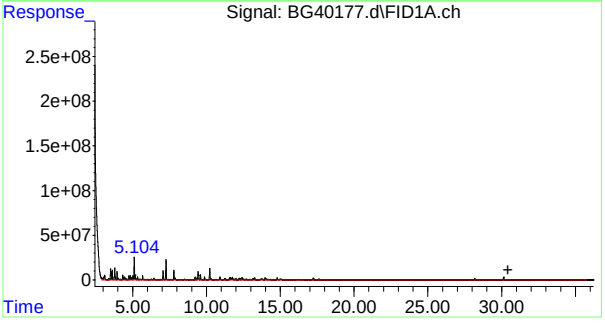
#20 C-20

R.T.: 29.643 min
Delta R.T.: -0.019 min
Response: 335737
Conc: 0.19 µg/mL m



#21 C-21

```
      R.T.:   31.109 min
Delta R.T.:   -0.022 min
  Response:    227313
      Conc:   0.13 µg/mL m
```



#41 TPH (C8-C40)

```
      R.T.:   30.429 min
Delta R.T.:    0.000 min
  Response: 7566514853
      Conc: 4288.79 µg/mL m
```

11.1.4

11

Manual Integrations APPROVED (compounds with "m" flag)
James Roush
07/01/13 11:56

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130509\
Data File : BG40178.d
Signal(s) : FID1A.ch
Acq On : 9 May 2013 7:40 pm
Operator : kristinr
Sample : mc20162-5
Misc : op32967,gbg1516,0.0155,,,2,1
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 01 12:09:12 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration

	Compound	R.T.	Response	Conc	Units
Internal Standards					
1) I	5a-Androstane	30.141	94751843	50.000	µg/mLm
System Monitoring Compounds					
2) S	o-Terphenyl	28.177	47012474	25.684	µg/mLm
Target Compounds					
3)	C-8	5.672	128966153	86.155	µg/mLm
4)	C-9	7.890	125592922	78.618	µg/mLm
5)	C-10	10.286	62418911	36.622	µg/mLm
6)	C-11	12.688	71396825	42.710	µg/mLm
7)	C-12	14.985	64696279	38.056	µg/mLm
8)	C-13	17.173	30164376	17.570	µg/mLm
9)	2,6,10-trimethyldodec...	18.770	1914047	1.103	µg/mLm
10)	C-14	19.239	9855847	5.620	µg/mLm
11)	2,6,10-trimethyltride...	20.474	1963887	1.112	µg/mLm
12)	C-15	21.195	5213182	2.932	µg/mLm
13)	C-16	23.055	3713017	2.087	µg/mLm
14)	2,6,10-trimethylpenta...	23.931	1332779	0.734	µg/mLm
15)	C-17	24.823	2980031	1.607	µg/mLm
16)	Pristane	24.931	2149307	1.213	µg/mLm
17)	C-18	26.503	1825275	0.996	µg/mLm
18)	Phytane	26.669	1003848	0.550	µg/mLm
19)	C-19	28.120	1458606	0.762	µg/mLm
20)	C-20	29.642	928368	0.505	µg/mLm
21)	C-21	31.109	662713	0.359	µg/mLm
41) H	TPH (C8-C40)	30.429	11774521547	6368.429	µg/mLm

SemiQuant Compounds - Not Calibrated on this Instrument

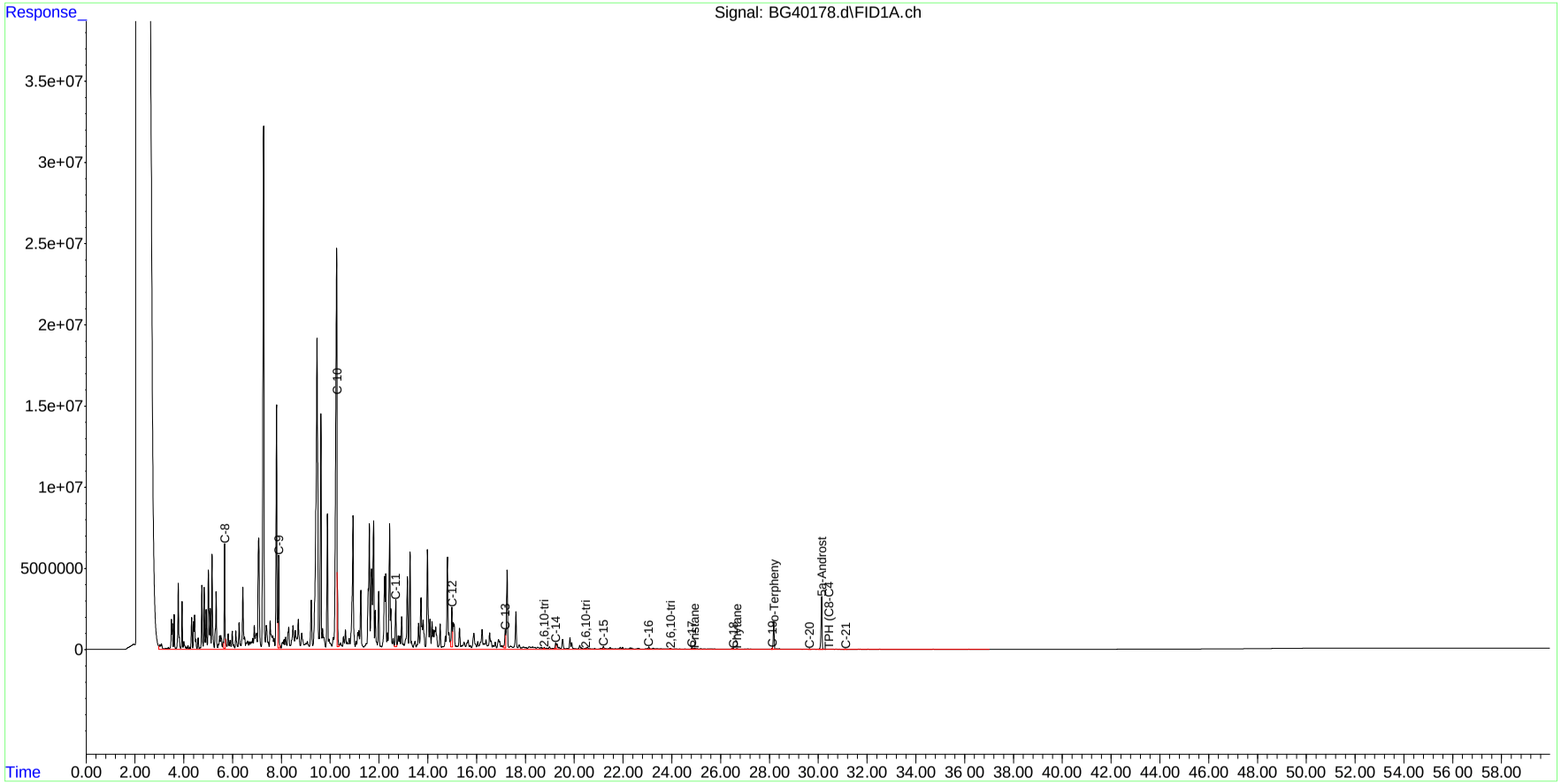
(f)=RT Delta > 1/2 Window (m)=manual int.

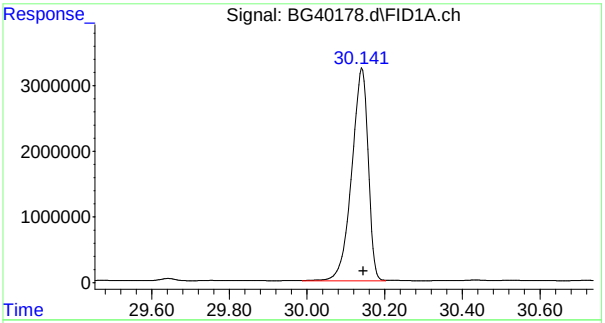
11.1.5 11

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130509\
Data File : BG40178.d
Signal(s) : FID1A.ch
Acq On : 9 May 2013 7:40 pm
Operator : kristinr
Sample : mc20162-5
Misc : op32967,gbg1516,0.0155,,,2,1
ALS Vial : 9 Sample Multiplier: 1

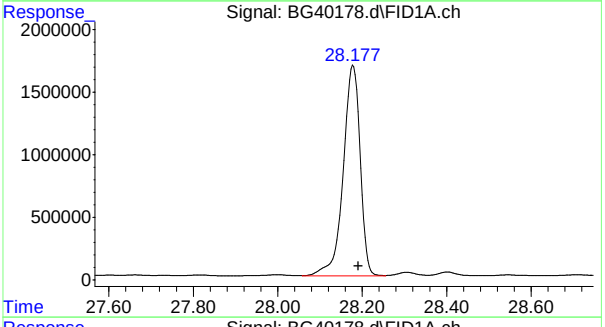
Quant Time: Jul 01 12:09:12 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration





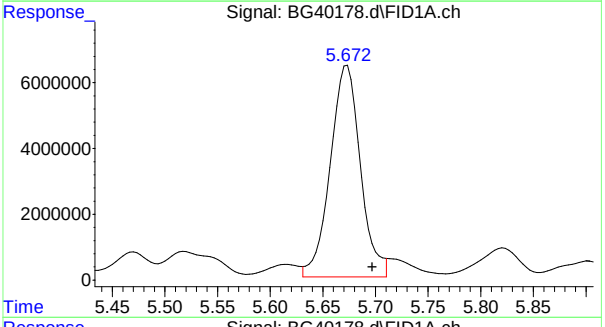
#1 5a-Androstane

```
      R.T.:   30.141 min
Delta R.T.:   -0.004 min
  Response:  94751843
      Conc:  50.00 µg/mL m
```



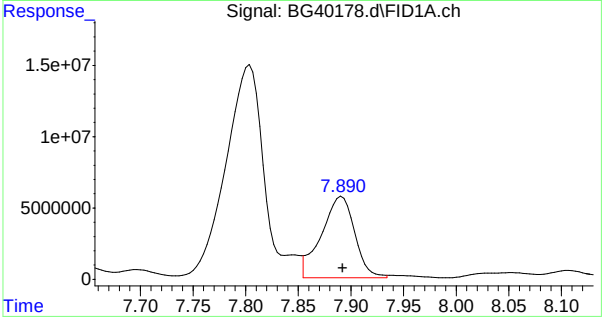
#2 o-Terphenyl

```
      R.T.:   28.177 min
Delta R.T.:   -0.013 min
  Response:  47012474
      Conc:  25.68 µg/mL m
```



#3 C-8

```
      R.T.:    5.672 min
Delta R.T.:   -0.025 min
  Response: 128966153
      Conc:  86.15 µg/mL m
```

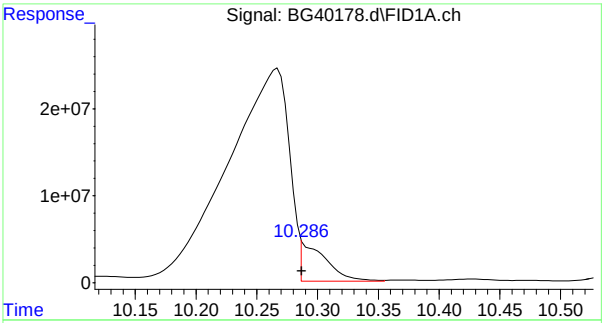


#4 C-9

```
      R.T.:    7.890 min
Delta R.T.:   -0.002 min
  Response: 125592922
      Conc:  78.62 µg/mL m
```

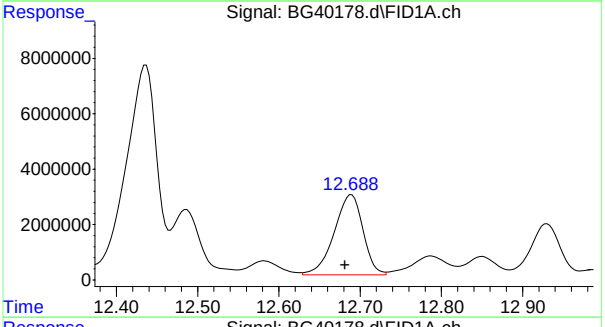
11.1.5

11



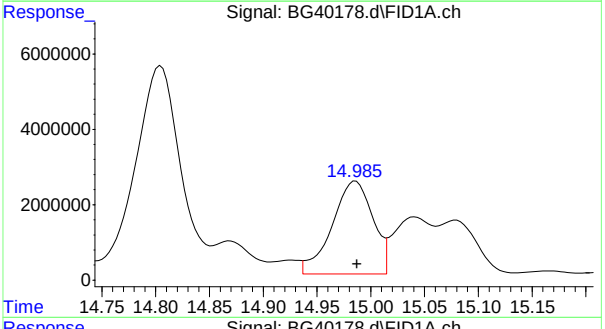
#5 C-10

R.T.: 10.286 min
Delta R.T.: 0.000 min
Response: 62418911
Conc: 36.62 µg/mL m



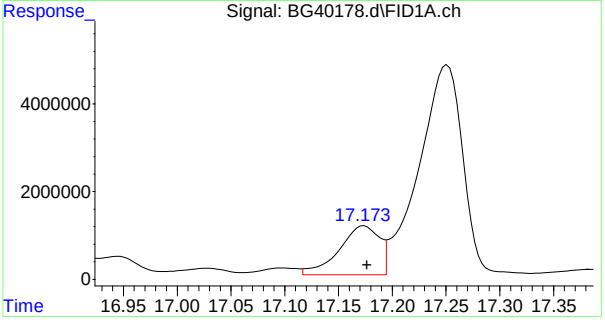
#6 C-11

R.T.: 12.688 min
Delta R.T.: 0.007 min
Response: 71396825
Conc: 42.71 µg/mL m



#7 C-12

R.T.: 14.985 min
Delta R.T.: -0.002 min
Response: 64696279
Conc: 38.06 µg/mL m

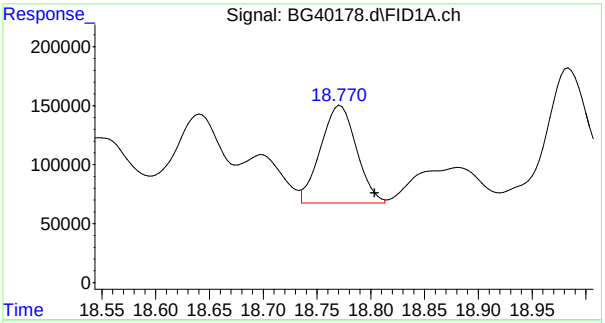


#8 C-13

R.T.: 17.173 min
Delta R.T.: -0.004 min
Response: 30164376
Conc: 17.57 µg/mL m

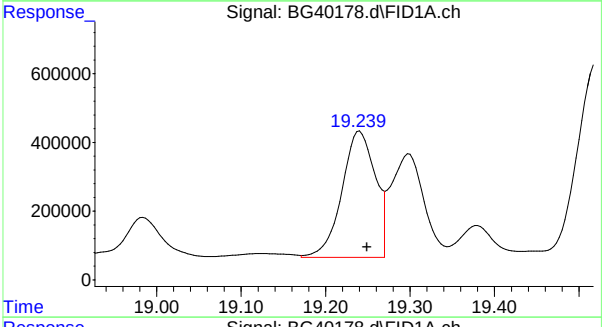
11.1.5

11



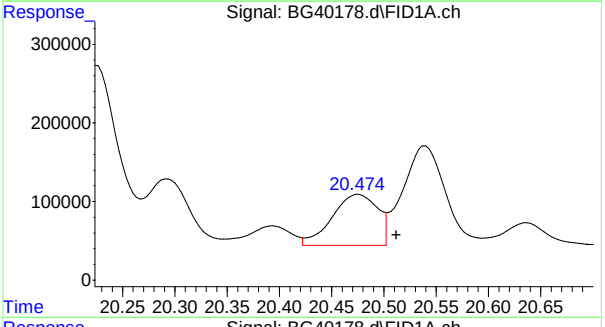
#9 2,6,10-trimethyldodecane (1380)

```
      R.T.:   18.770 min
Delta R.T.:   -0.033 min
  Response:   1914047
      Conc:   1.10 µg/mL m
```



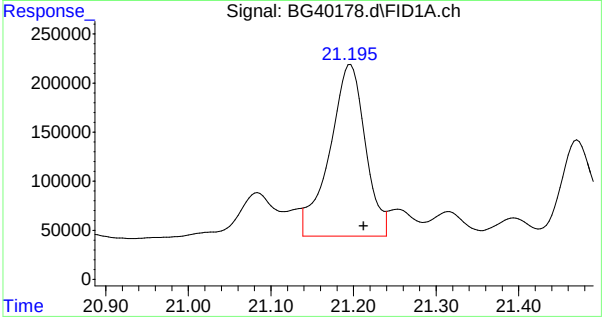
#10 C-14

```
      R.T.:   19.239 min
Delta R.T.:   -0.010 min
  Response:   9855847
      Conc:   5.62 µg/mL m
```



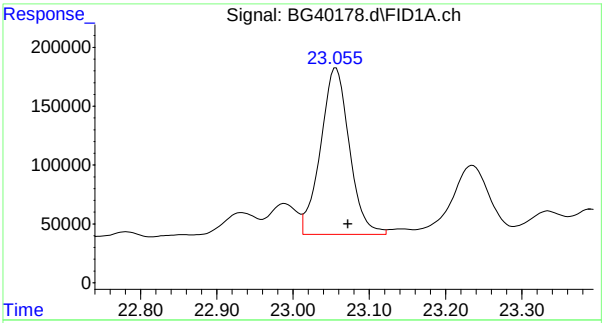
#11 2,6,10-trimethyltridecane (1470)

```
      R.T.:   20.474 min
Delta R.T.:   -0.037 min
  Response:   1963887
      Conc:   1.11 µg/mL m
```



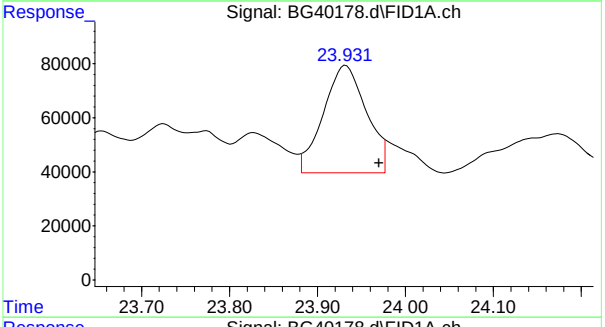
#12 C-15

```
      R.T.:   21.195 min
Delta R.T.:   -0.017 min
  Response:   5213182
      Conc:   2.93 µg/mL m
```



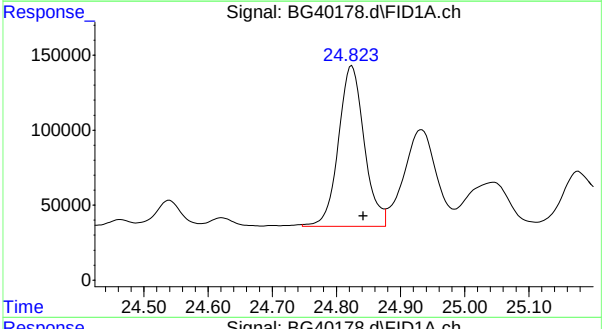
#13 C-16

R.T.: 23.055 min
Delta R.T.: -0.017 min
Response: 3713017
Conc: 2.09 µg/mL m



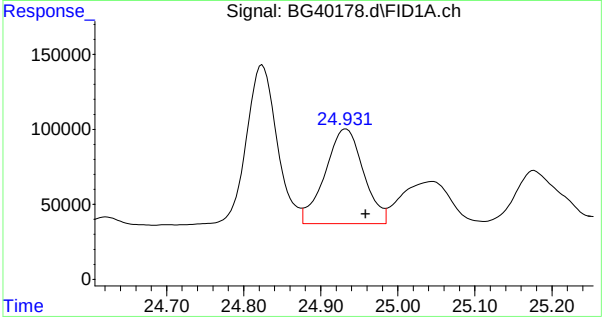
#14 2,6,10-trimethylpentadecane (1650)

R.T.: 23.931 min
Delta R.T.: -0.039 min
Response: 1332779
Conc: 0.73 µg/mL m



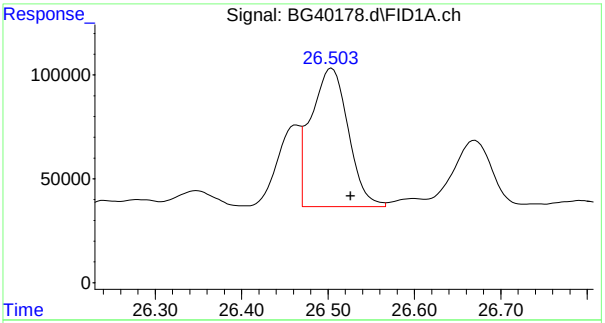
#15 C-17

R.T.: 24.823 min
Delta R.T.: -0.019 min
Response: 2980031
Conc: 1.61 µg/mL m



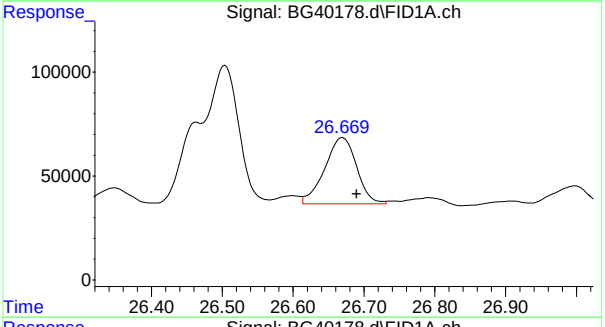
#16 Pristane

R.T.: 24.931 min
Delta R.T.: -0.027 min
Response: 2149307
Conc: 1.21 µg/mL m



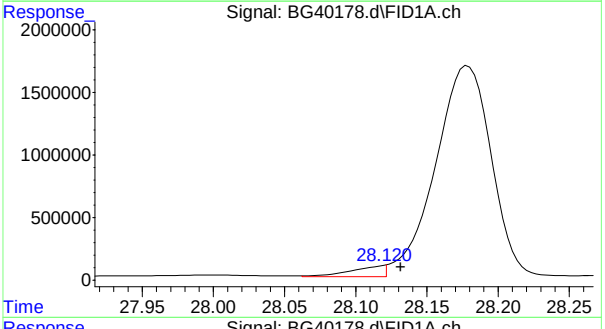
#17 C-18

R.T.: 26.503 min
Delta R.T.: -0.023 min
Response: 1825275
Conc: 1.00 µg/mL m



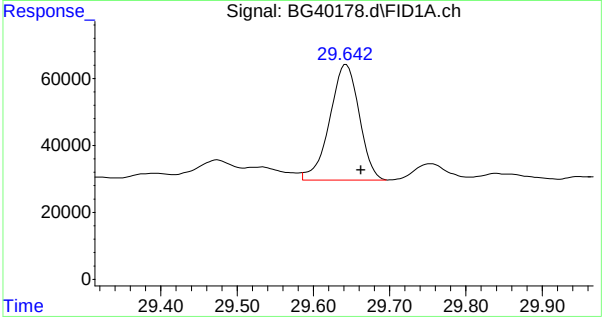
#18 Phytane

R.T.: 26.669 min
Delta R.T.: -0.021 min
Response: 1003848
Conc: 0.55 µg/mL m



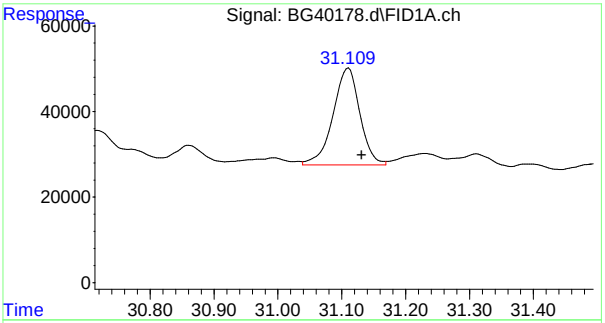
#19 C-19

R.T.: 28.120 min
Delta R.T.: -0.011 min
Response: 1458606
Conc: 0.76 µg/mL m



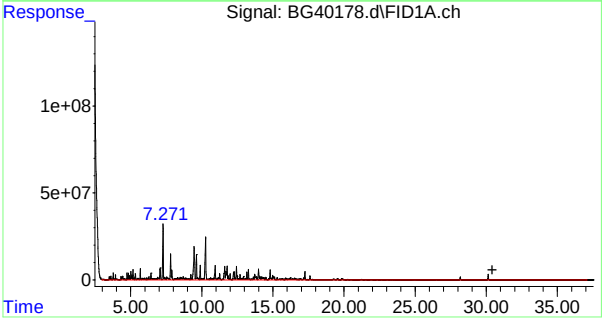
#20 C-20

R.T.: 29.642 min
Delta R.T.: -0.021 min
Response: 928368
Conc: 0.50 µg/mL m



#21 C-21

R.T.: 31.109 min
Delta R.T.: -0.022 min
Response: 662713
Conc: 0.36 µg/mL m



#41 TPH (C8-C40)

R.T.: 30.429 min
Delta R.T.: 0.000 min
Response: 11774521547
Conc: 6368.43 µg/mL m

11.1.5

11

Manual Integrations APPROVED (compounds with "m" flag)
James Roush
07/01/13 11:56

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130509\
Data File : BG40179.d
Signal(s) : FID1A.ch
Acq On : 9 May 2013 8:48 pm
Operator : kristinr
Sample : mc20162-6
Misc : op32967,gbg1516,0.0145,,,2,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 01 12:12:05 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration

	Compound	R.T.	Response	Conc Units
Internal Standards				
1) I	5a-Androstane	30.139	88980663	50.000 µg/mLm
System Monitoring Compounds				
2) S	o-Terphenyl	28.178	47110030	27.406 µg/mLm
Target Compounds				
3)	C-8	5.678	98301470	69.929 µg/mLm
4)	C-9	7.884	57361679	38.236 µg/mLm
5)	C-10	10.284	29456571	18.404 µg/mLm
6)	C-11	12.677	29416381	18.738 µg/mLm
7)	C-12	14.979	35475618	22.221 µg/mLm
8)	C-13	17.170	20984969	13.016 µg/mLm
9)	2,6,10-trimethyldodec...	18.769	1688848	1.036 µg/mLm
10)	C-14	19.237	8835066	5.364 µg/mLm
11)	2,6,10-trimethyltride...	20.473	1808138	1.090 µg/mLm
12)	C-15	21.195	5251882	3.145 µg/mLm
13)	C-16	23.056	4047905	2.422 µg/mLm
14)	2,6,10-trimethylpenta...	23.933	1704925	0.999 µg/mLm
15)	C-17	24.822	3433916	1.972 µg/mLm
16)	Pristane	24.930	2528502	1.520 µg/mLm
17)	C-18	26.503	2342951	1.361 µg/mLm
18)	Phytane	26.667	1275320	0.744 µg/mLm
19)	C-19	28.178	47102473	26.191 µg/mLm
20)	C-20	29.642	1061318	0.614 µg/mLm
21)	C-21	31.107	664070	0.383 µg/mLm
41) H	TPH (C8-C40)	30.429	9350832293	5385.566 µg/mLm

SemiQuant Compounds - Not Calibrated on this Instrument

(f)=RT Delta > 1/2 Window (m)=manual int.

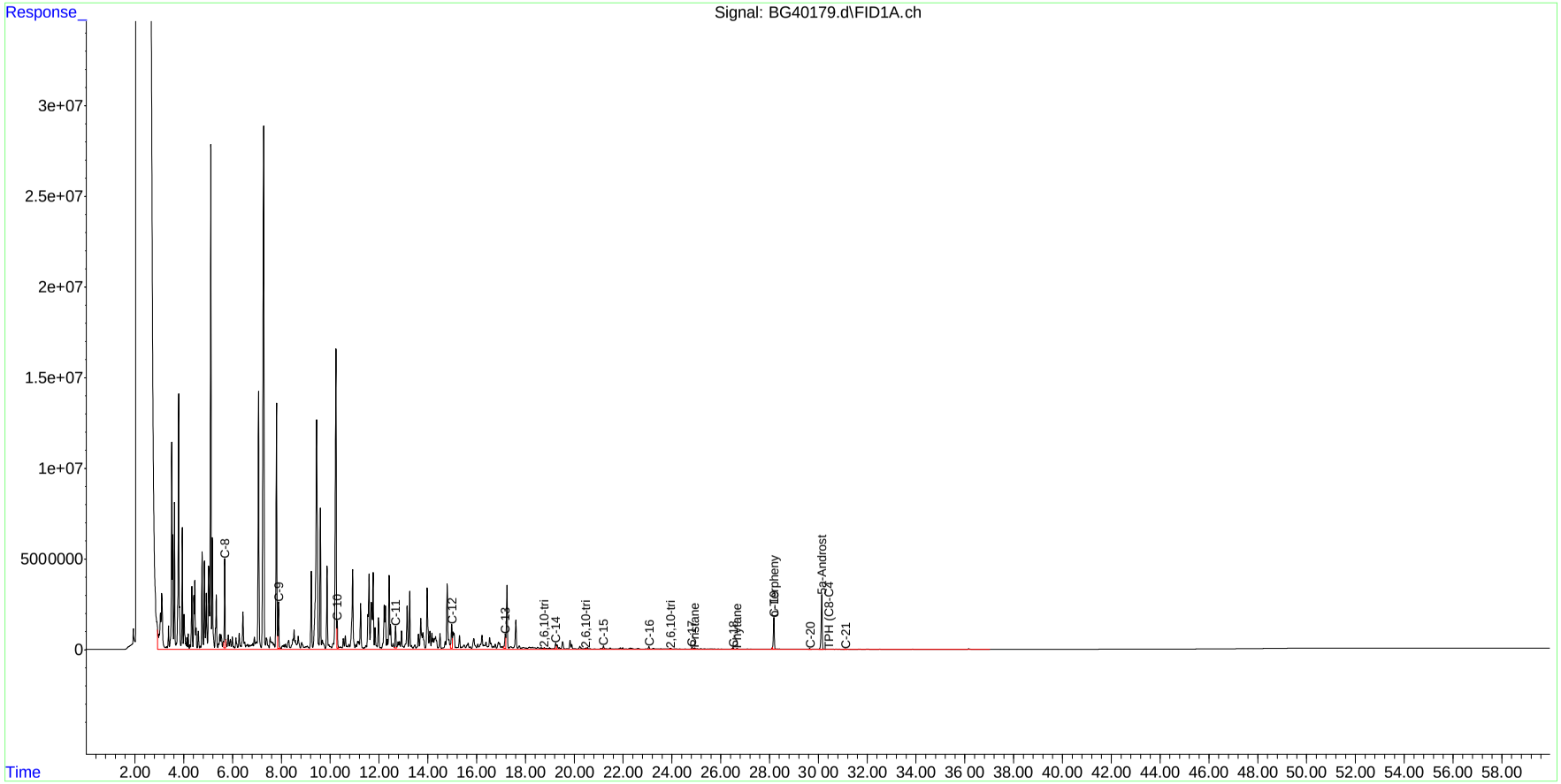
11.1.6

11

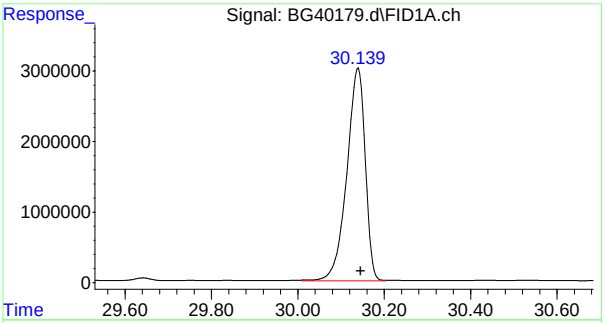
Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130509\
Data File : BG40179.d
Signal(s) : FID1A.ch
Acq On : 9 May 2013 8:48 pm
Operator : kristinr
Sample : mc20162-6
Misc : op32967,gbg1516,0.0145,,,2,1
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 01 12:12:05 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration

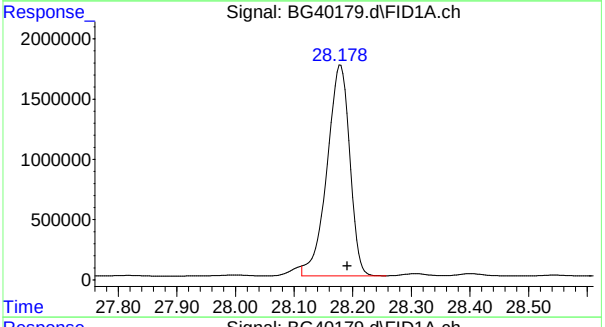


G120629ALK.m Mon Jul 01 14:36:49 2013 Page: 2



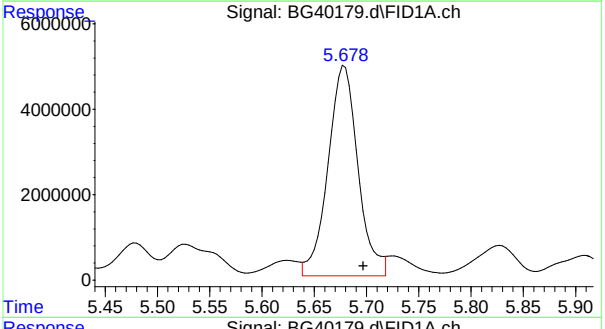
#1 5a-Androstane

```
      R.T.:   30.139 min
Delta R.T.:   -0.006 min
  Response:  88980663
      Conc:  50.00 µg/mL m
```



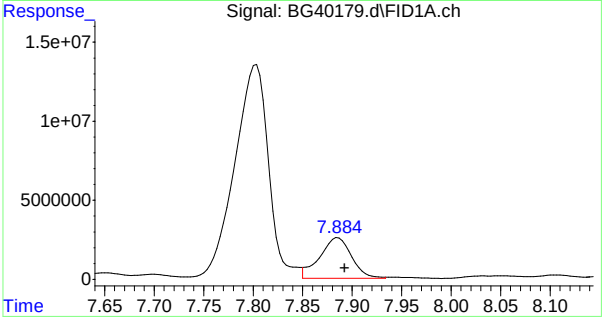
#2 o-Terphenyl

```
      R.T.:   28.178 min
Delta R.T.:   -0.012 min
  Response:  47110030
      Conc:  27.41 µg/mL m
```



#3 C-8

```
      R.T.:    5.678 min
Delta R.T.:   -0.019 min
  Response:  98301470
      Conc:  69.93 µg/mL m
```

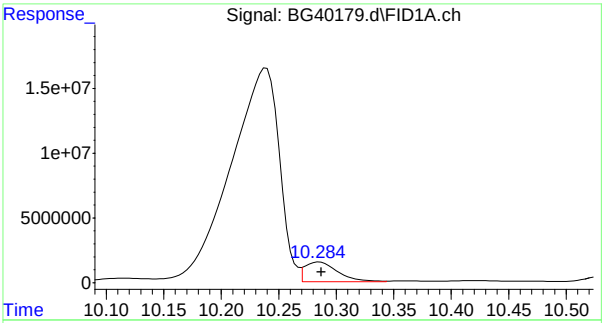


#4 C-9

```
      R.T.:    7.884 min
Delta R.T.:   -0.008 min
  Response:  57361679
      Conc:  38.24 µg/mL m
```

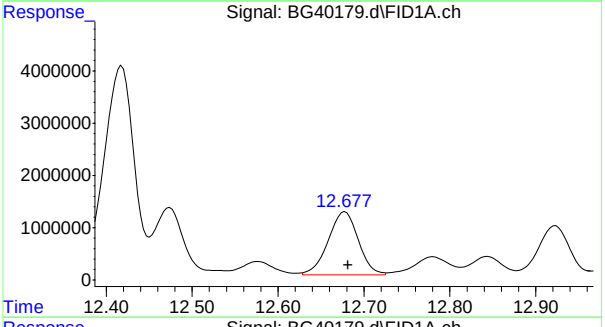
11.1.6

11



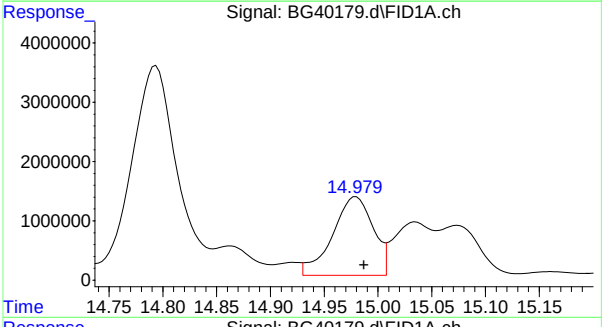
#5 C-10

R.T.: 10.284 min
Delta R.T.: -0.003 min
Response: 29456571
Conc: 18.40 µg/mL m



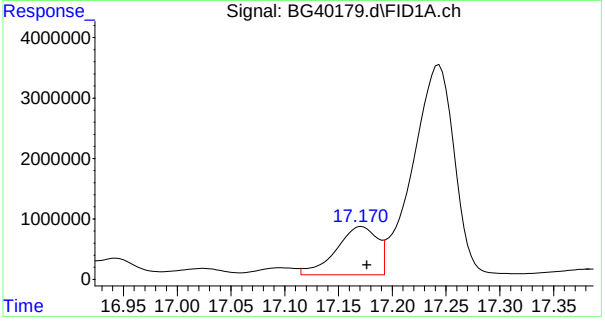
#6 C-11

R.T.: 12.677 min
Delta R.T.: -0.005 min
Response: 29416381
Conc: 18.74 µg/mL m



#7 C-12

R.T.: 14.979 min
Delta R.T.: -0.009 min
Response: 35475618
Conc: 22.22 µg/mL m

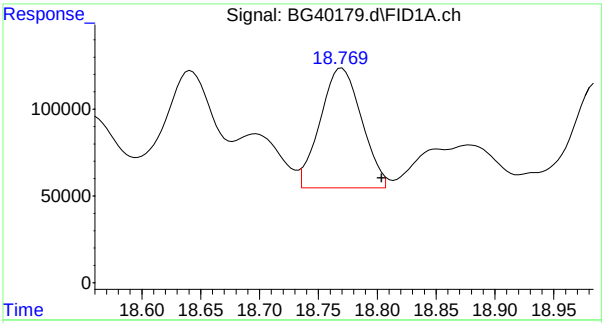


#8 C-13

R.T.: 17.170 min
Delta R.T.: -0.006 min
Response: 20984969
Conc: 13.02 µg/mL m

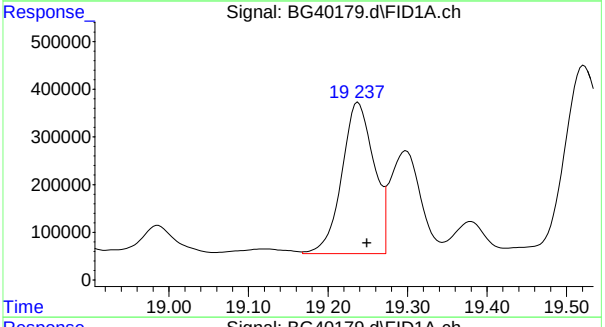
11.1.6

11



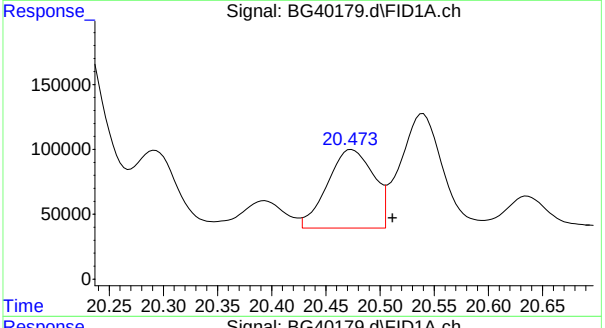
#9 2,6,10-trimethyldodecane (1380)

```
      R.T.:   18.769 min
Delta R.T.:   -0.035 min
  Response:   1688848
      Conc:   1.04 µg/mL m
```



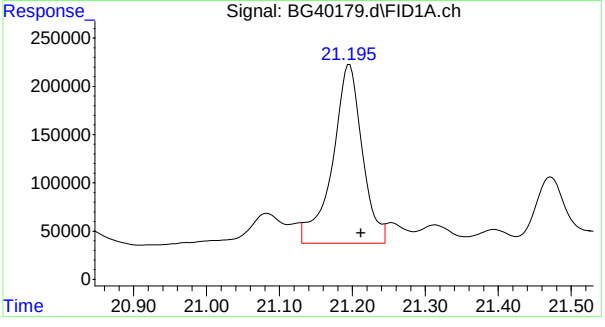
#10 C-14

```
      R.T.:   19.237 min
Delta R.T.:   -0.013 min
  Response:   8835066
      Conc:   5.36 µg/mL m
```



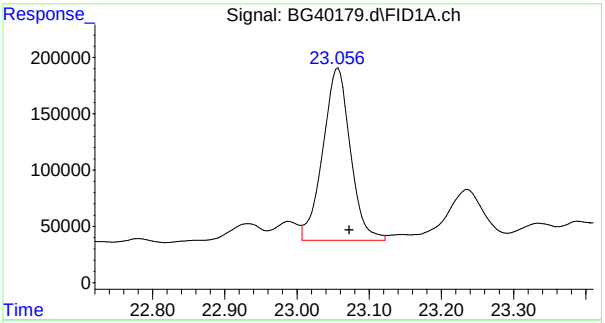
#11 2,6,10-trimethyltridecane (1470)

```
      R.T.:   20.473 min
Delta R.T.:   -0.039 min
  Response:   1808138
      Conc:   1.09 µg/mL m
```



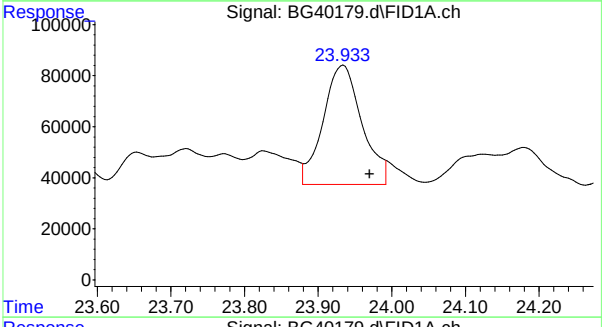
#12 C-15

```
      R.T.:   21.195 min
Delta R.T.:   -0.017 min
  Response:   5251882
      Conc:   3.15 µg/mL m
```



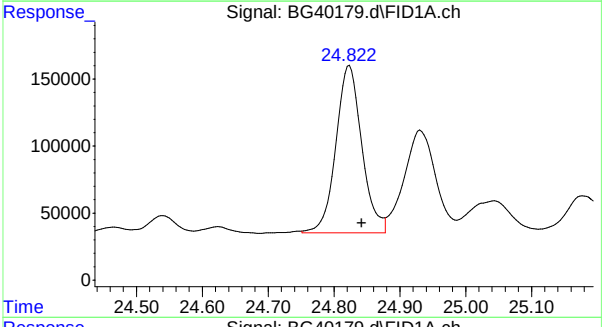
#13 C-16

```
      R.T.:   23.056 min
Delta R.T.:   -0.016 min
  Response:   4047905
      Conc:   2.42 µg/mL m
```



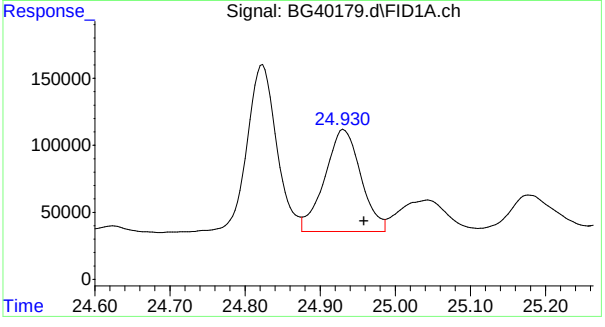
#14 2,6,10-trimethylpentadecane (1650)

```
      R.T.:   23.933 min
Delta R.T.:   -0.037 min
  Response:   1704925
      Conc:   1.00 µg/mL m
```



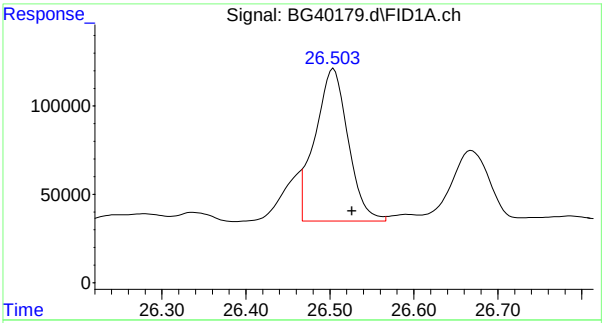
#15 C-17

```
      R.T.:   24.822 min
Delta R.T.:   -0.020 min
  Response:   3433916
      Conc:   1.97 µg/mL m
```



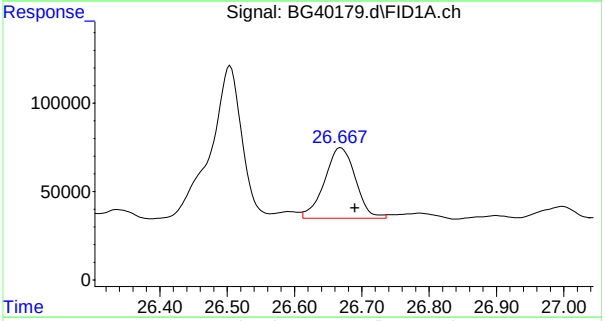
#16 Pristane

```
      R.T.:   24.930 min
Delta R.T.:   -0.028 min
  Response:   2528502
      Conc:   1.52 µg/mL m
```



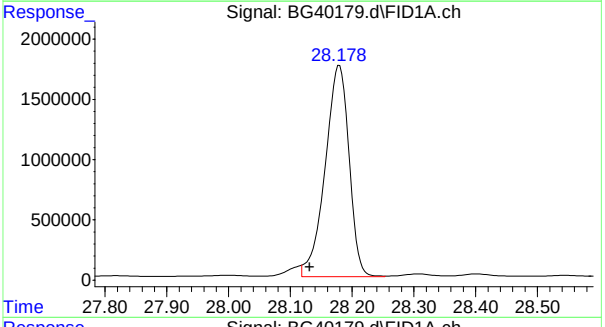
#17 C-18

R.T.: 26.503 min
Delta R.T.: -0.023 min
Response: 2342951
Conc: 1.36 µg/mL m



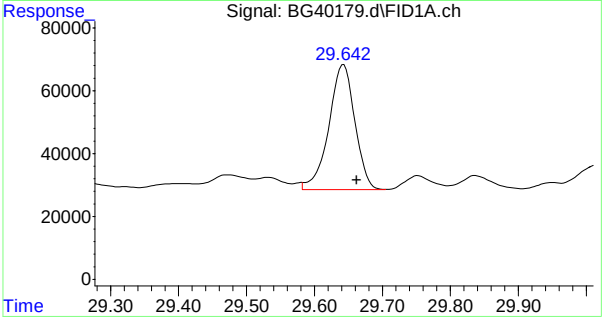
#18 Phytane

R.T.: 26.667 min
Delta R.T.: -0.023 min
Response: 1275320
Conc: 0.74 µg/mL m



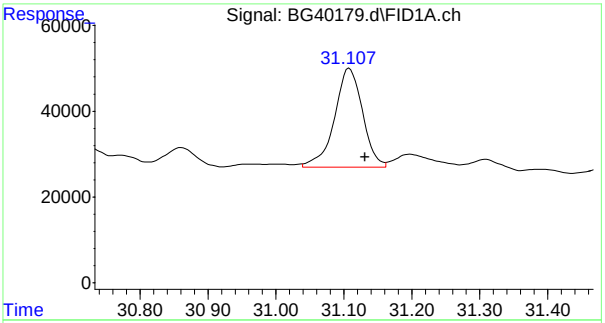
#19 C-19

R.T.: 28.178 min
Delta R.T.: 0.047 min
Response: 47102473
Conc: 26.19 µg/mL m



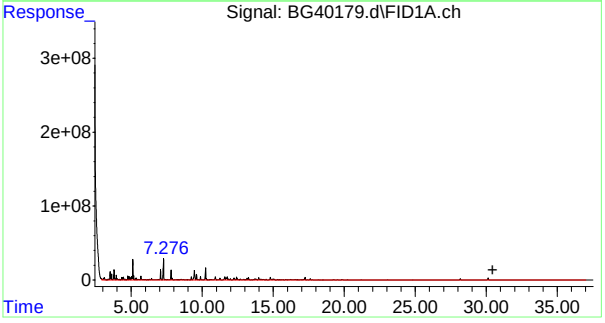
#20 C-20

R.T.: 29.642 min
Delta R.T.: -0.020 min
Response: 1061318
Conc: 0.61 µg/mL m



#21 C-21

R.T.: 31.107 min
Delta R.T.: -0.024 min
Response: 664070
Conc: 0.38 µg/mL m



#41 TPH (C8-C40)

R.T.: 30.429 min
Delta R.T.: 0.000 min
Response: 9350832293
Conc: 5385.57 µg/mL m

11.1.6

11

Manual Integrations APPROVED (compounds with "m" flag)
James Roush
07/01/13 14:13

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130531\
Data File : BG40278.d
Signal(s) : FID1A.ch
Acq On : 31 May 2013 10:50 pm
Operator : kristinr
Sample : mc20162-7
Misc : op33310,gbg1520,0.0142,,,2,1
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 01 12:44:18 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration

	Compound	R.T.	Response	Conc	Units
	Internal Standards				
1) I	5a-Androstane	30.075	96399848	50.000	µg/mL
	System Monitoring Compounds				
2) S	o-Terphenyl	28.115	45321604	24.337	µg/mLm
	Target Compounds				
3)	C-8	5.633	97679409	64.138	µg/mLm
4)	C-9	7.839	59469141	36.590	µg/mLm
5)	C-10	10.232	31862847	18.375	µg/mLm
6)	C-11	12.622	30297643	17.814	µg/mLm
7)	C-12	14.919	32382921	18.723	µg/mLm
8)	C-13	17.111	20370007	11.662	µg/mLm
9)	2,6,10-trimethyldodec...	18.710	1494934	0.847	µg/mLm
10)	C-14	19.178	8165286	4.576	µg/mLm
11)	2,6,10-trimethyltride...	20.415	1745558	0.972	µg/mLm
12)	C-15	21.137	4766898	2.635	µg/mLm
13)	C-16	22.996	3675747	2.030	µg/mLm
14)	2,6,10-trimethylpenta...	23.875	1473408	0.797	µg/mLm
15)	C-17	24.763	3083597	1.634	µg/mLm
16)	Pristane	24.873	2260365	1.254	µg/mLm
17)	C-18	26.445	2180676	1.169	µg/mLm
18)	Phytane	26.612	1134779	0.611	µg/mLm
19)	C-19	28.057	966519	0.496	µg/mLm
20)	C-20	29.584	955895	0.511	µg/mLm
21)	C-21	31.050	587536	0.313	µg/mLm
41) H	TPH (C8-C40)	30.429	9182930910	4881.819	µg/mLm

SemiQuant Compounds - Not Calibrated on this Instrument

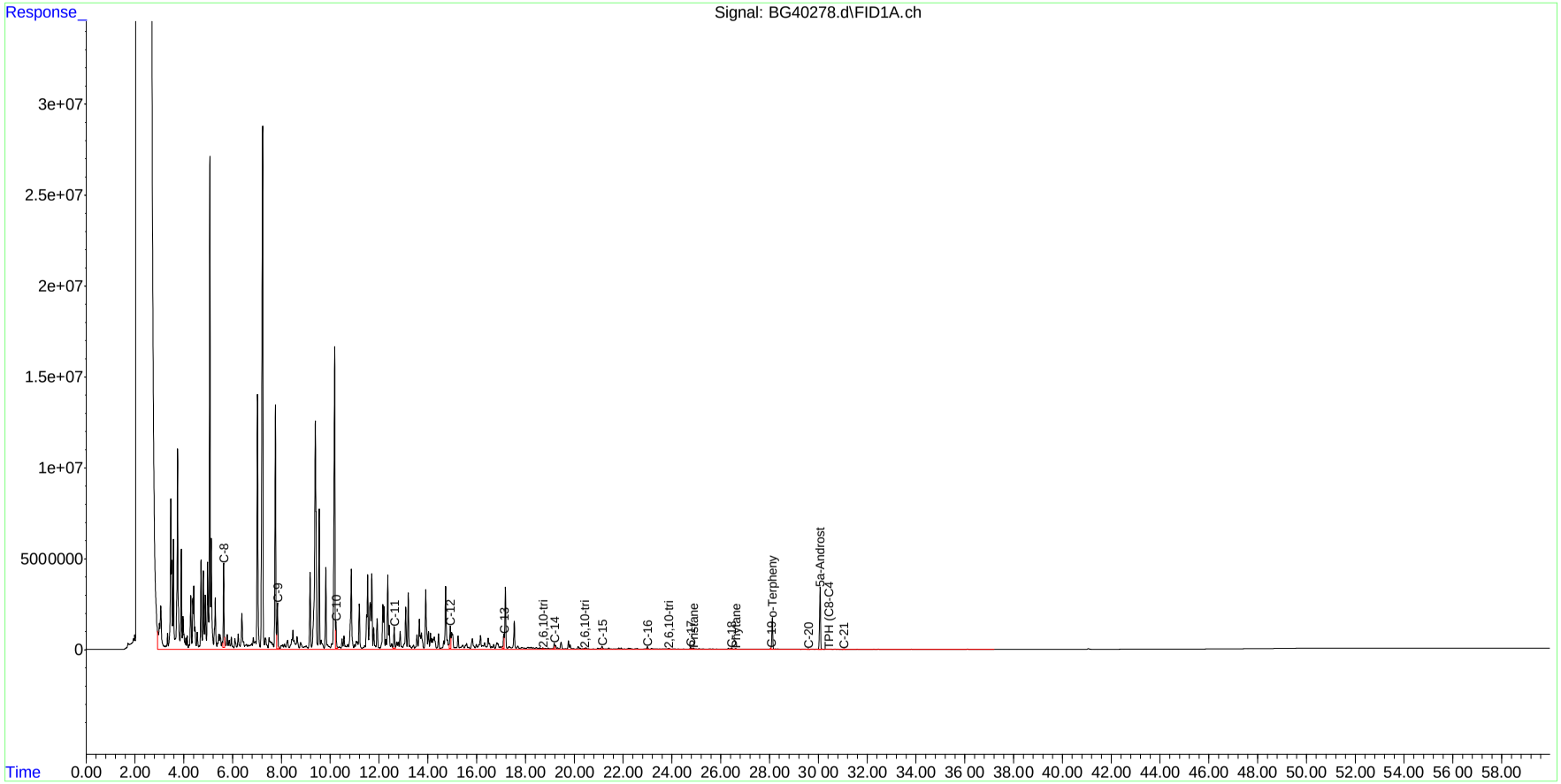
(f)=RT Delta > 1/2 Window (m)=manual int.

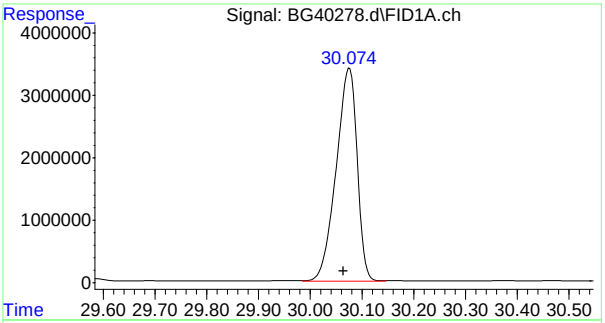
11.1.7 11

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130531\
Data File : BG40278.d
Signal(s) : FID1A.ch
Acq On : 31 May 2013 10:50 pm
Operator : kristinr
Sample : mc20162-7
Misc : op33310,gbg1520,0.0142,,,2,1
ALS Vial : 11 Sample Multiplier: 1

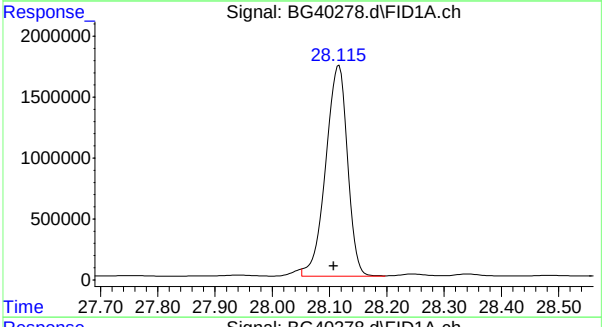
Quant Time: Jul 01 12:44:18 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration





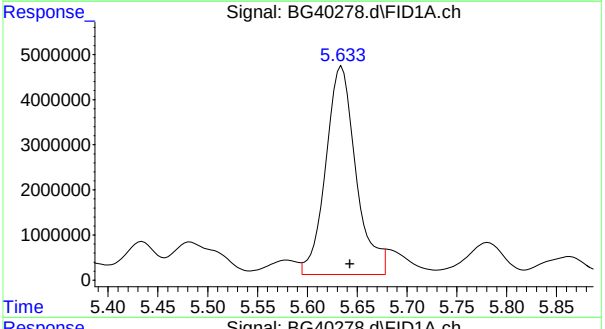
#1 5a-Androstane

R.T.: 30.075 min
Delta R.T.: 0.012 min
Response: 96399848
Conc: 50.00 µg/mL



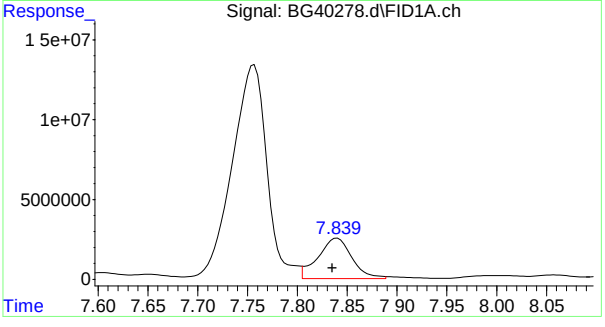
#2 o-Terphenyl

R.T.: 28.115 min
Delta R.T.: 0.008 min
Response: 45321604
Conc: 24.34 µg/mL m



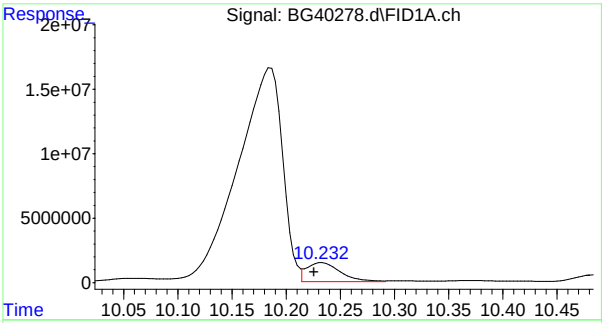
#3 C-8

R.T.: 5.633 min
Delta R.T.: -0.009 min
Response: 97679409
Conc: 64.14 µg/mL m



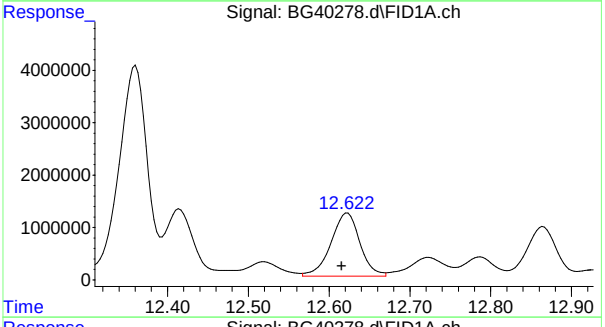
#4 C-9

R.T.: 7.839 min
Delta R.T.: 0.004 min
Response: 59469141
Conc: 36.59 µg/mL m



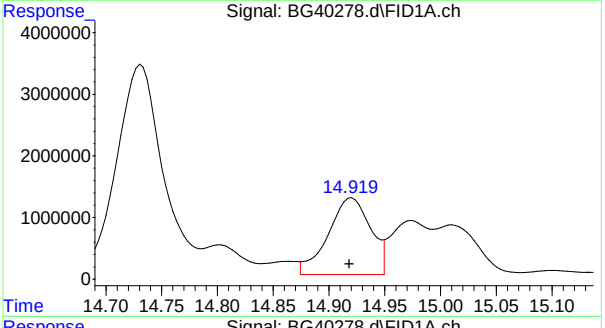
#5 C-10

R.T.: 10.232 min
Delta R.T.: 0.007 min
Response: 31862847
Conc: 18.37 µg/mL m



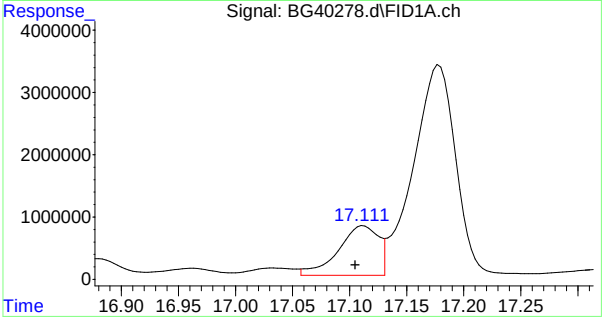
#6 C-11

R.T.: 12.622 min
Delta R.T.: 0.006 min
Response: 30297643
Conc: 17.81 µg/mL m



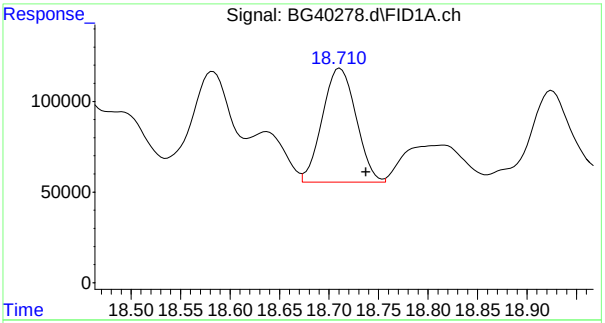
#7 C-12

R.T.: 14.919 min
Delta R.T.: 0.001 min
Response: 32382921
Conc: 18.72 µg/mL m



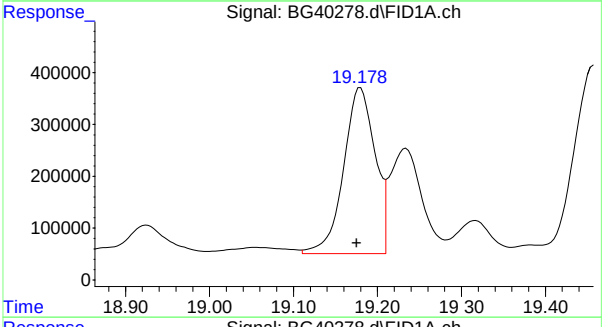
#8 C-13

R.T.: 17.111 min
Delta R.T.: 0.006 min
Response: 20370007
Conc: 11.66 µg/mL m



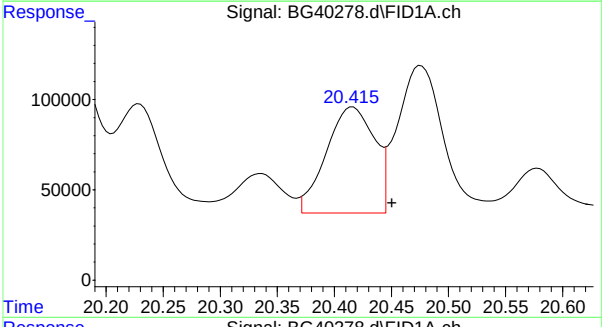
#9 2,6,10-trimethyldodecane (1380)

```
      R.T.:   18.710 min
Delta R.T.:   -0.028 min
  Response:   1494934
      Conc:   0.85 µg/mL m
```



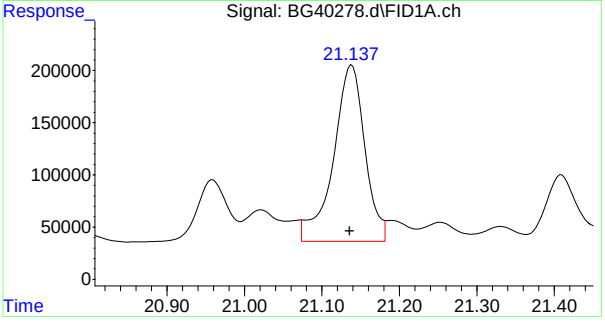
#10 C-14

```
      R.T.:   19.178 min
Delta R.T.:    0.003 min
  Response:   8165286
      Conc:   4.58 µg/mL m
```



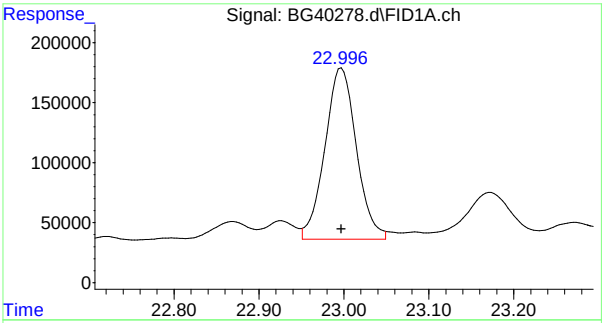
#11 2,6,10-trimethyltridecane (1470)

```
      R.T.:   20.415 min
Delta R.T.:   -0.035 min
  Response:   1745558
      Conc:   0.97 µg/mL m
```



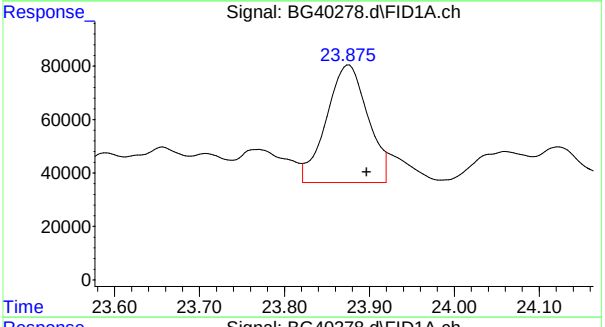
#12 C-15

```
      R.T.:   21.137 min
Delta R.T.:    0.002 min
  Response:   4766898
      Conc:   2.64 µg/mL m
```



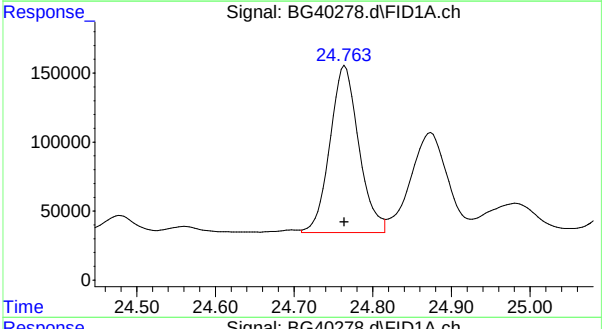
#13 C-16

R.T.: 22.996 min
Delta R.T.: -0.001 min
Response: 3675747
Conc: 2.03 µg/mL m



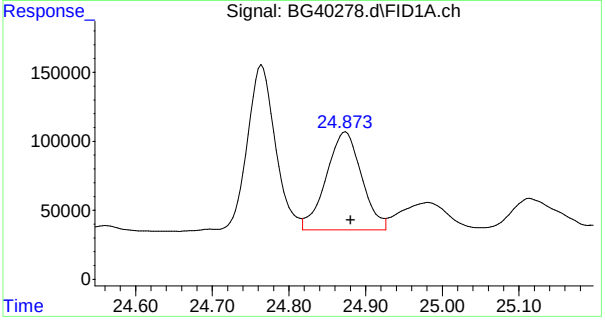
#14 2,6,10-trimethylpentadecane (1650)

R.T.: 23.875 min
Delta R.T.: -0.022 min
Response: 1473408
Conc: 0.80 µg/mL m



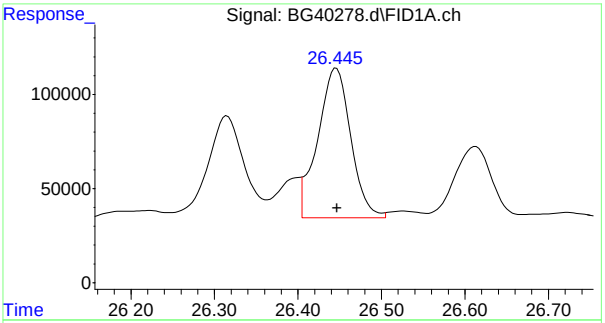
#15 C-17

R.T.: 24.763 min
Delta R.T.: 0.000 min
Response: 3083597
Conc: 1.63 µg/mL m



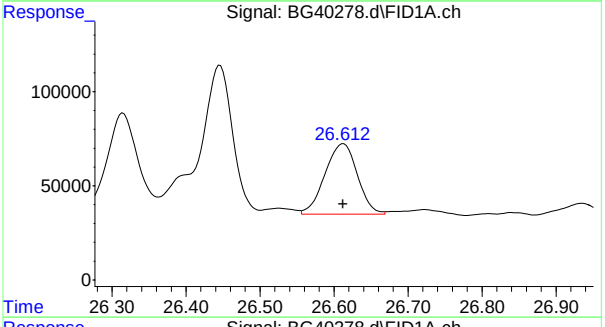
#16 Pristane

R.T.: 24.873 min
Delta R.T.: -0.007 min
Response: 2260365
Conc: 1.25 µg/mL m



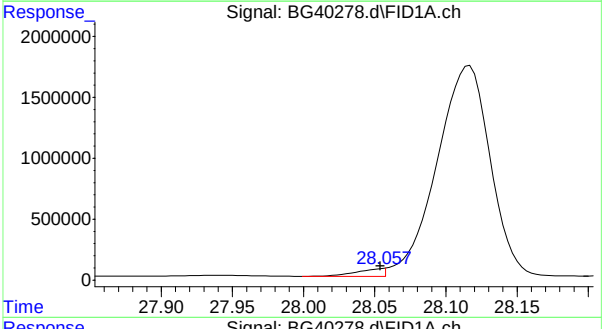
#17 C-18

R.T.: 26.445 min
Delta R.T.: -0.002 min
Response: 2180676
Conc: 1.17 µg/mL m



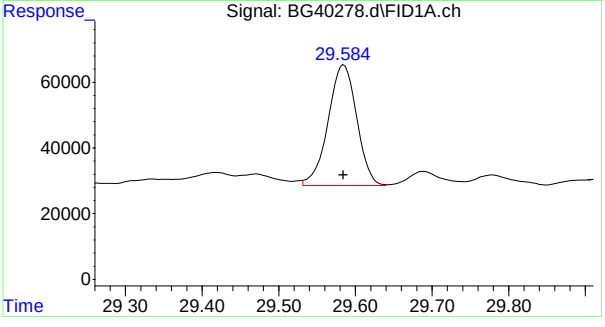
#18 Phytane

R.T.: 26.612 min
Delta R.T.: 0.000 min
Response: 1134779
Conc: 0.61 µg/mL m



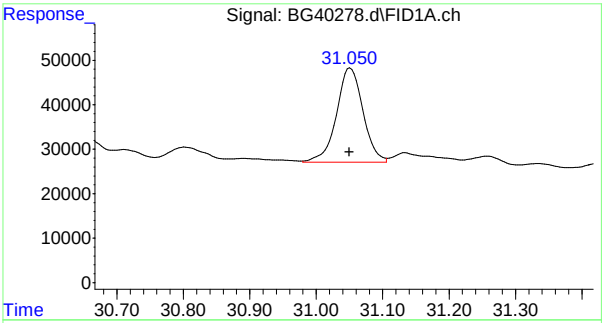
#19 C-19

R.T.: 28.057 min
Delta R.T.: 0.003 min
Response: 966519
Conc: 0.50 µg/mL m



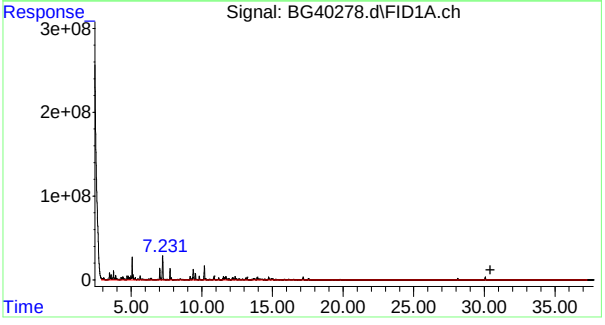
#20 C-20

R.T.: 29.584 min
Delta R.T.: 0.000 min
Response: 955895
Conc: 0.51 µg/mL m



#21 C-21

R.T.: 31.050 min
Delta R.T.: 0.000 min
Response: 587536
Conc: 0.31 µg/mL m



#41 TPH (C8-C40)

R.T.: 30.429 min
Delta R.T.: 0.000 min
Response: 9182930910
Conc: 4881.82 µg/mL m

11.1.7

11

Manual Integrations APPROVED (compounds with "m" flag)
James Roush
07/01/13 14:13

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130531\
Data File : BG40280.d
Signal(s) : FID1A.ch
Acq On : 1 Jun 2013 1:02 am
Operator : kristinr
Sample : mc20162-8
Misc : op33310,gbg1520,0.0185,,,2,1
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 01 12:49:41 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration

	Compound	R.T.	Response	Conc	Units
Internal Standards					
1) I	5a-Androstane	30.074	97167300	50.000	µg/mLm
System Monitoring Compounds					
2) S	o-Terphenyl	28.115	43884065	23.378	µg/mLm
Target Compounds					
3)	C-8	5.638	120898373	78.757	µg/mLm
4)	C-9	7.843	69729483	42.564	µg/mLm
5)	C-10	10.237	33441143	19.133	µg/mLm
6)	C-11	12.625	33015595	19.259	µg/mLm
7)	C-12	14.922	39560403	22.692	µg/mLm
8)	C-13	17.114	20715078	11.766	µg/mLm
9)	2,6,10-trimethyldodec...	18.713	1707591	0.960	µg/mLm
10)	C-14	19.181	8748451	4.864	µg/mLm
11)	2,6,10-trimethyltride...	20.415	1674134	0.924	µg/mLm
12)	C-15	21.139	4512687	2.475	µg/mLm
13)	C-16	22.998	3278972	1.797	µg/mLm
14)	2,6,10-trimethylpenta...	23.876	1232248	0.661	µg/mLm
15)	C-17	24.764	2581681	1.357	µg/mLm
16)	Pristane	24.874	1941124	1.069	µg/mLm
17)	C-18	26.447	1744054	0.928	µg/mLm
18)	Phytane	26.612	932040	0.498	µg/mLm
19)	C-19	28.057	737700	0.376	µg/mLm
20)	C-20	29.585	764228	0.405	µg/mLm
21)	C-21	31.052	465785	0.246	µg/mLm
41) H	TPH (C8-C40)	30.429	11551231942	6092.350	µg/mLm

SemiQuant Compounds - Not Calibrated on this Instrument

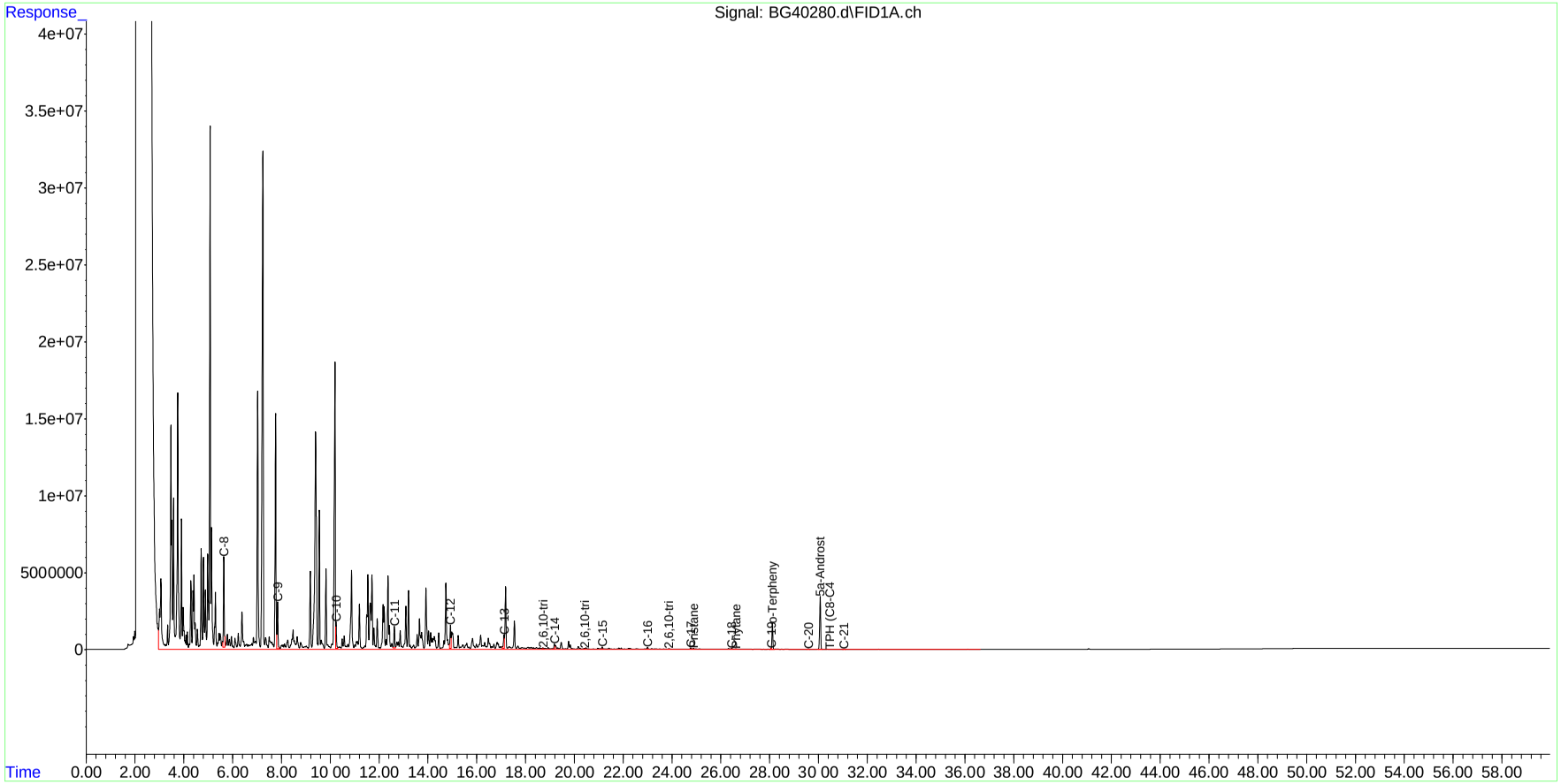
(f)=RT Delta > 1/2 Window (m)=manual int.

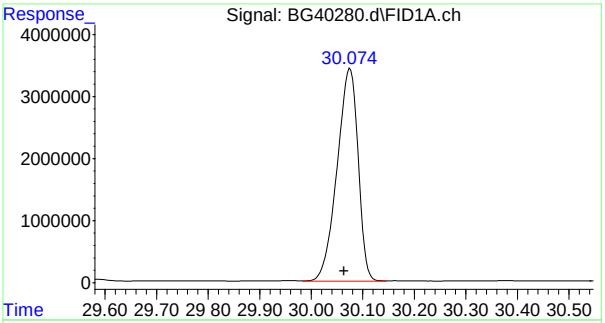
11.1.8 11

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130531\
Data File : BG40280.d
Signal(s) : FID1A.ch
Acq On : 1 Jun 2013 1:02 am
Operator : kristinr
Sample : mc20162-8
Misc : op33310,gbg1520,0.0185,,,2,1
ALS Vial : 13 Sample Multiplier: 1

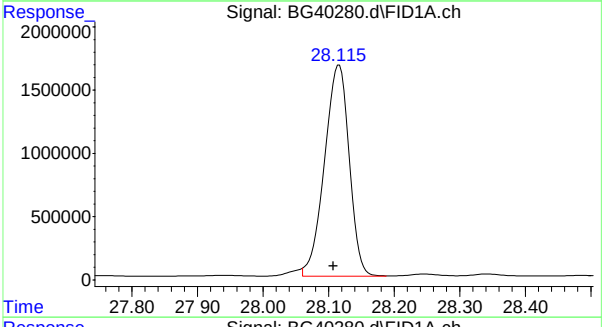
Quant Time: Jul 01 12:49:41 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration





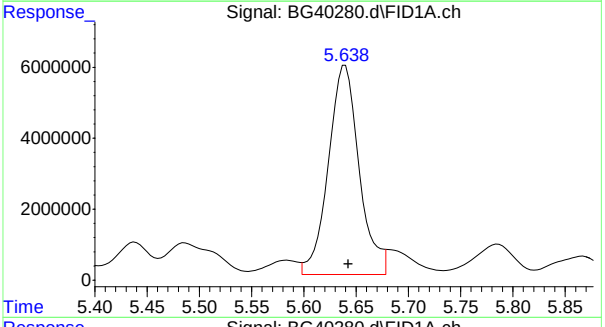
#1 5a-Androstane

R.T.: 30.074 min
Delta R.T.: 0.011 min
Response: 97167300
Conc: 50.00 µg/mL m



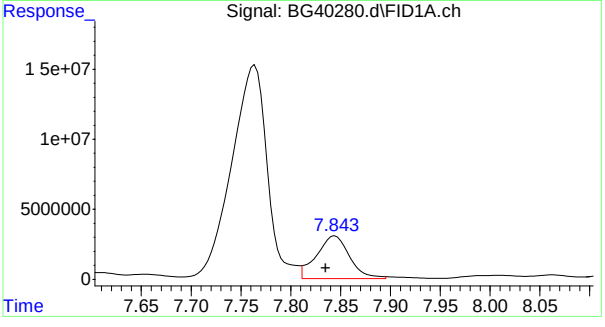
#2 o-Terphenyl

R.T.: 28.115 min
Delta R.T.: 0.008 min
Response: 43884065
Conc: 23.38 µg/mL m



#3 C-8

R.T.: 5.638 min
Delta R.T.: -0.004 min
Response: 120898373
Conc: 78.76 µg/mL m

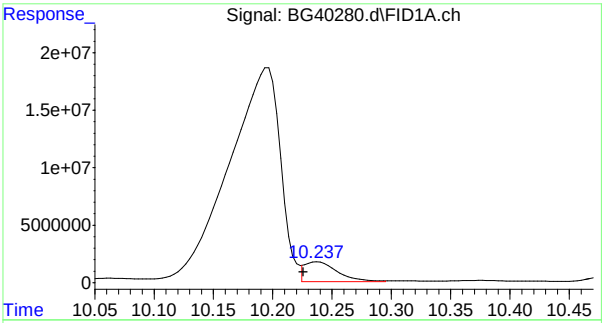


#4 C-9

R.T.: 7.843 min
Delta R.T.: 0.008 min
Response: 69729483
Conc: 42.56 µg/mL m

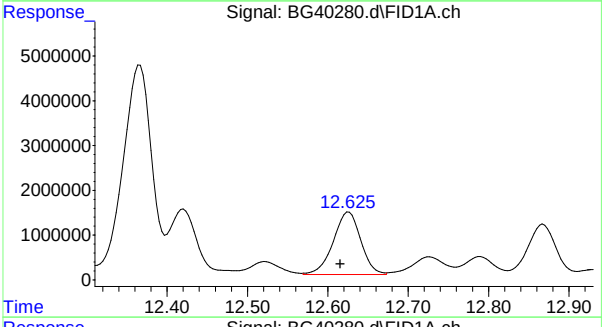
11.1.8

11



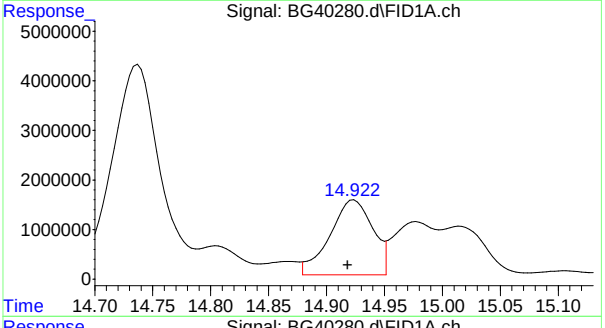
#5 C-10

R.T.: 10.237 min
Delta R.T.: 0.011 min
Response: 33441143
Conc: 19.13 µg/mL m



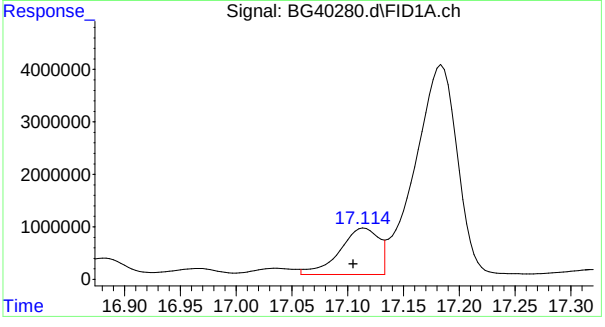
#6 C-11

R.T.: 12.625 min
Delta R.T.: 0.009 min
Response: 33015595
Conc: 19.26 µg/mL m



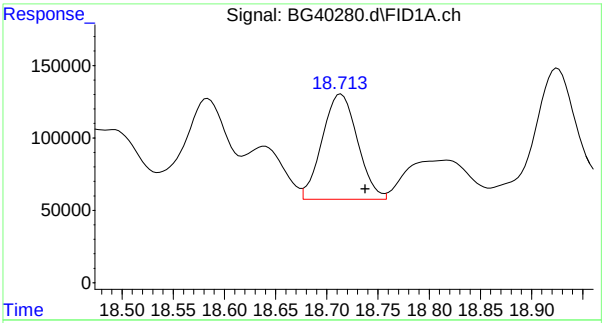
#7 C-12

R.T.: 14.922 min
Delta R.T.: 0.004 min
Response: 39560403
Conc: 22.69 µg/mL m



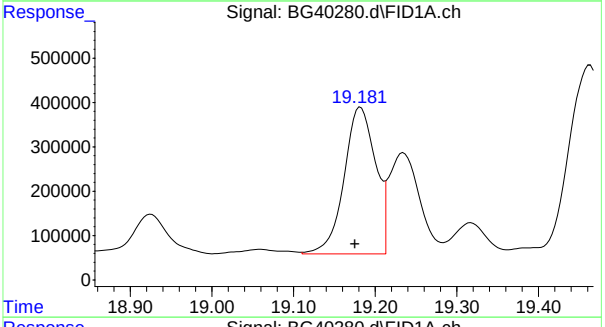
#8 C-13

R.T.: 17.114 min
Delta R.T.: 0.009 min
Response: 20715078
Conc: 11.77 µg/mL m



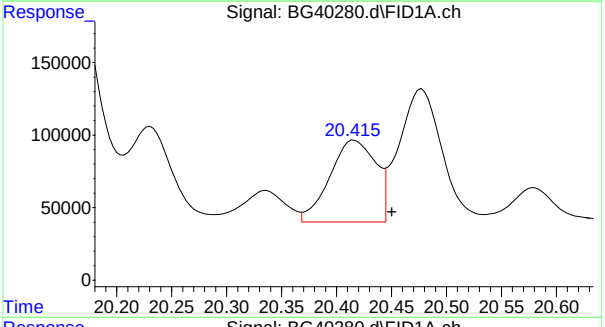
#9 2,6,10-trimethyldodecane (1380)

```
      R.T.:   18.713 min
Delta R.T.:   -0.025 min
  Response:   1707591
      Conc:   0.96 µg/mL m
```



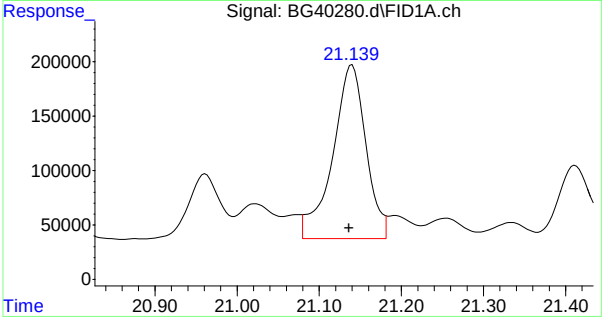
#10 C-14

```
      R.T.:   19.181 min
Delta R.T.:    0.005 min
  Response:   8748451
      Conc:   4.86 µg/mL m
```



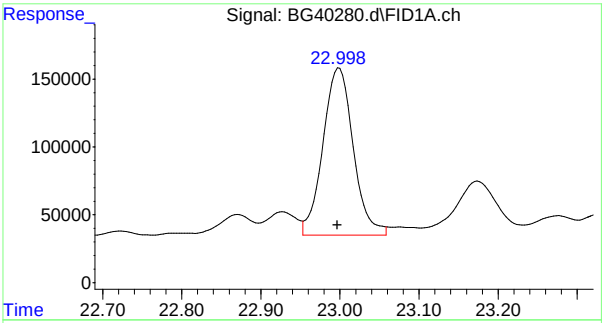
#11 2,6,10-trimethyltridecane (1470)

```
      R.T.:   20.415 min
Delta R.T.:   -0.036 min
  Response:   1674134
      Conc:   0.92 µg/mL m
```



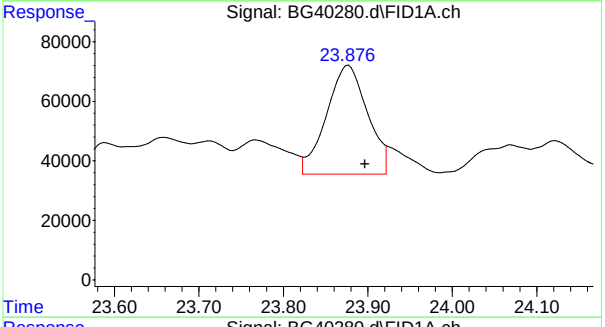
#12 C-15

```
      R.T.:   21.139 min
Delta R.T.:    0.003 min
  Response:   4512687
      Conc:   2.47 µg/mL m
```



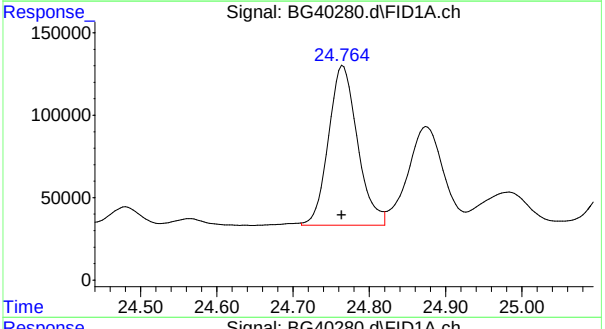
#13 C-16

R.T.: 22.998 min
Delta R.T.: 0.001 min
Response: 3278972
Conc: 1.80 µg/mL m



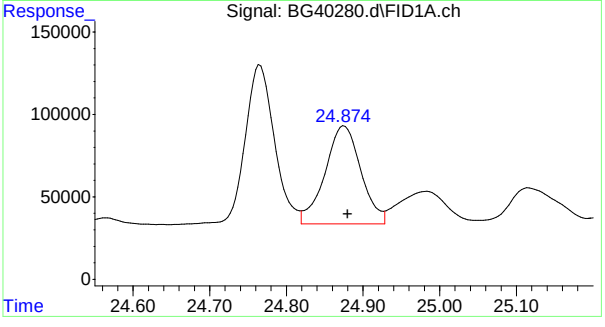
#14 2,6,10-trimethylpentadecane (1650)

R.T.: 23.876 min
Delta R.T.: -0.021 min
Response: 1232248
Conc: 0.66 µg/mL m



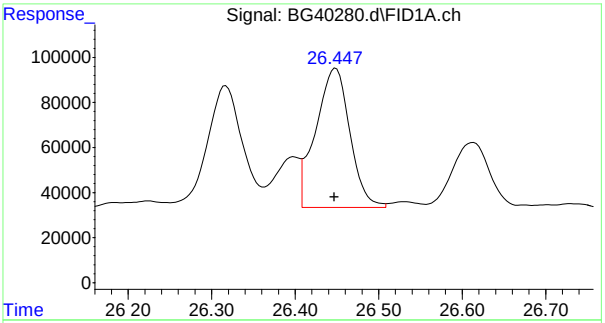
#15 C-17

R.T.: 24.764 min
Delta R.T.: 0.000 min
Response: 2581681
Conc: 1.36 µg/mL m



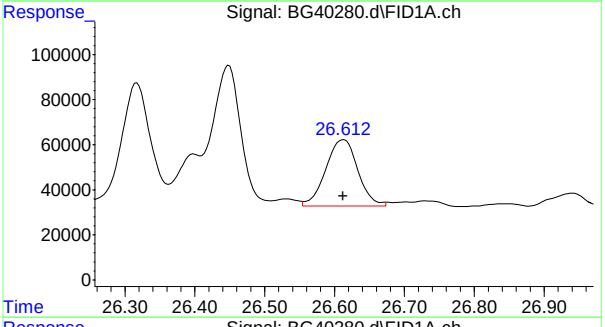
#16 Pristane

R.T.: 24.874 min
Delta R.T.: -0.006 min
Response: 1941124
Conc: 1.07 µg/mL m



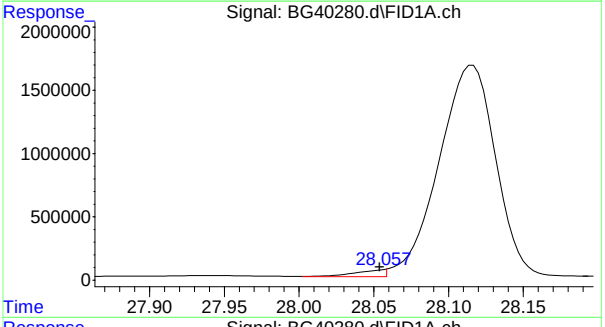
#17 C-18

R.T.: 26.447 min
Delta R.T.: 0.000 min
Response: 1744054
Conc: 0.93 µg/mL m



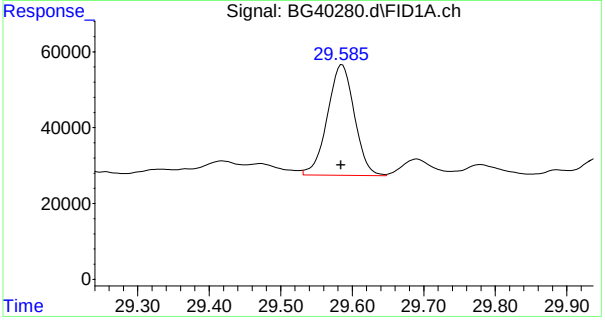
#18 Phytane

R.T.: 26.612 min
Delta R.T.: 0.000 min
Response: 932040
Conc: 0.50 µg/mL m



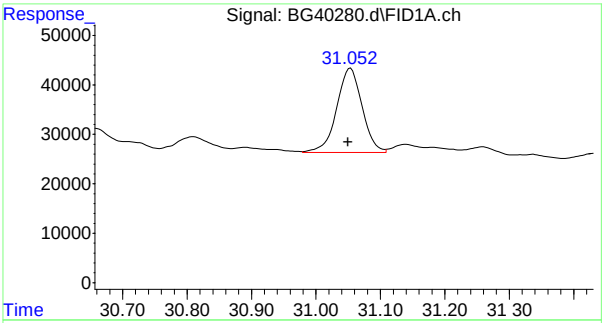
#19 C-19

R.T.: 28.057 min
Delta R.T.: 0.003 min
Response: 737700
Conc: 0.38 µg/mL m



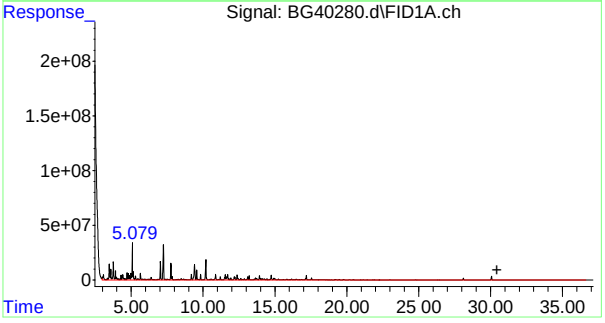
#20 C-20

R.T.: 29.585 min
Delta R.T.: 0.000 min
Response: 764228
Conc: 0.41 µg/mL m



#21 C-21

R.T.: 31.052 min
Delta R.T.: 0.003 min
Response: 465785
Conc: 0.25 µg/mL m



#41 TPH (C8-C40)

R.T.: 30.429 min
Delta R.T.: 0.000 min
Response: 11551231942
Conc: 6092.35 µg/mL m

11.1.8

11

Manual Integrations APPROVED (compounds with "m" flag)
James Roush
07/02/13 09:17

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130509\
Data File : BG40171.d
Signal(s) : FID1A.ch
Acq On : 9 May 2013 11:47 am
Operator : kristinr
Sample : op32967-mb, -67
Misc : op32967,gbg1516,0.01,,,2,1
ALS Vial : 2 Sample Multiplier: 1

Quant Time: Jul 01 11:41:41 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration

	Compound	R.T.	Response	Conc	Units
Internal Standards					
1) I	5a-Androstane	30.141	77028566	50.000	µg/mL
System Monitoring Compounds					
2) S	o-Terphenyl	28.181	38820129	26.088	µg/mL
Target Compounds					
3)	C-8	5.670	331681	0.273	µg/mLm
4)	C-9	7.881	184735	0.142	µg/mL
5)	C-10	10.286	141637	0.102	µg/mL
6)	C-11	12.680	92997	0.068	µg/mL
7)	C-12	14.983	88482	0.064	µg/mLm
8)	C-13	17.170	132099	0.095	µg/mL
10)	C-14	19.239	169126	0.119	µg/mLm
11)	2,6,10-trimethyltride...	20.482	48679	0.034	µg/mL
12)	C-15	21.199	468718	0.324	µg/mLm
13)	C-16	23.059	998600	0.690	µg/mLm
14)	2,6,10-trimethylpenta...	23.936	206204	0.140	µg/mLm
15)	C-17	24.825	1035831	0.687	µg/mLm
16)	Pristane	24.936	397391	0.276	µg/mLm
17)	C-18	26.507	853254	0.573	µg/mLm
18)	Phytane	26.674	263932	0.178	µg/mL
19)	C-19	28.120	625951	0.402	µg/mLm
20)	C-20	29.647	295091	0.197	µg/mL
21)	C-21	31.112	131475	0.088	µg/mL
22)	C-22	32.520	107968	0.071	µg/mL
23)	C-23	33.866	95093	0.062	µg/mL
24)	C-24	35.166	102941	0.067	µg/mLm
25)	C-25	36.412	99218	0.064	µg/mLm
26)	C-26	37.615	115603	0.073	µg/mLm
27)	C-27	38.778	87292	0.057	µg/mLm
28)	C-28	39.902	86866	0.055	µg/mL
29)	C-29	40.989	85266	0.054	µg/mLm
30)	C-30	42.038	77980	0.049	µg/mLm
31)	C-31	43.057	76782	0.048	µg/mL
32)	C-32	44.025	117629	0.075	µg/mLm
41) H	TPH (C8-C40)	30.429	69086468	45.964	µg/mLm

SemiQuant Compounds - Not Calibrated on this Instrument

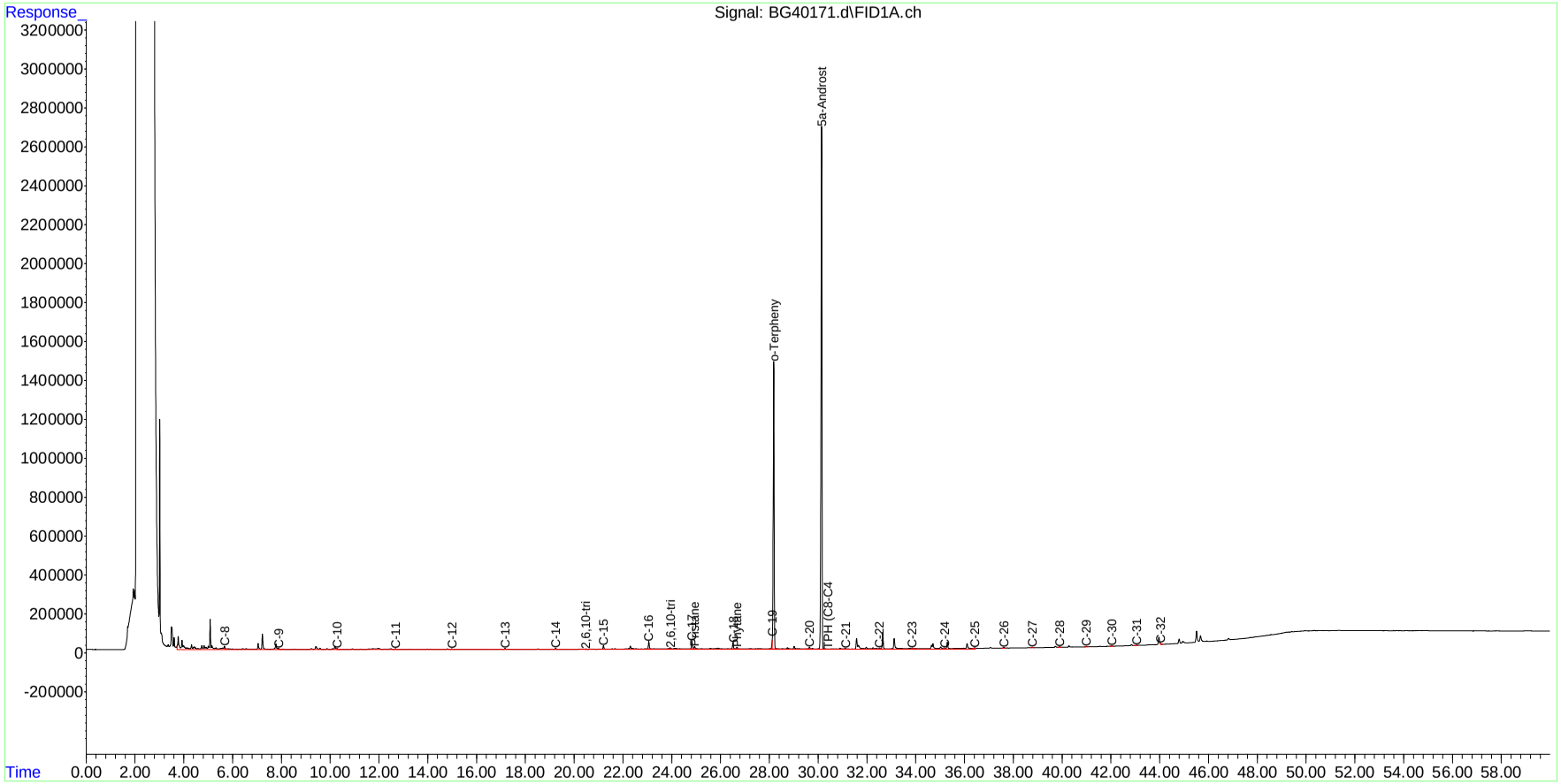
(f)=RT Delta > 1/2 Window (m)=manual int.

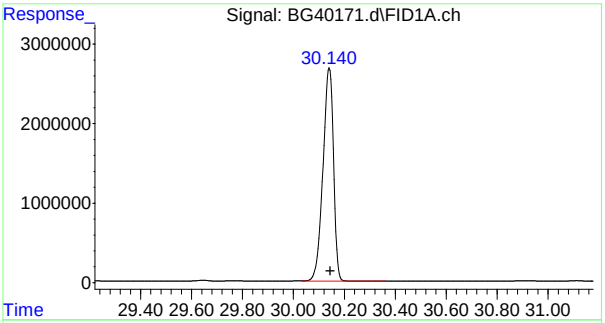
11.2.1 11

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130509\
Data File : BG40171.d
Signal(s) : FID1A.ch
Acq On : 9 May 2013 11:47 am
Operator : kristinr
Sample : op32967-mb, -67
Misc : op32967,gbg1516,0.01,,,2,1
ALS Vial : 2 Sample Multiplier: 1

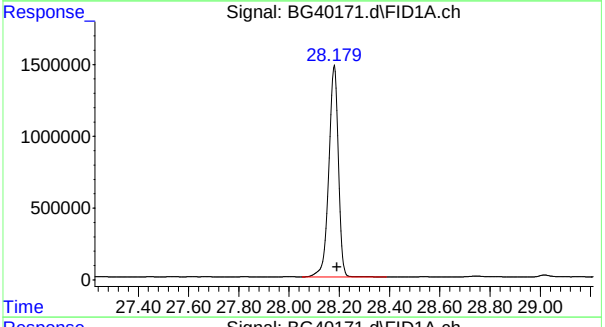
Quant Time: Jul 01 11:41:41 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration





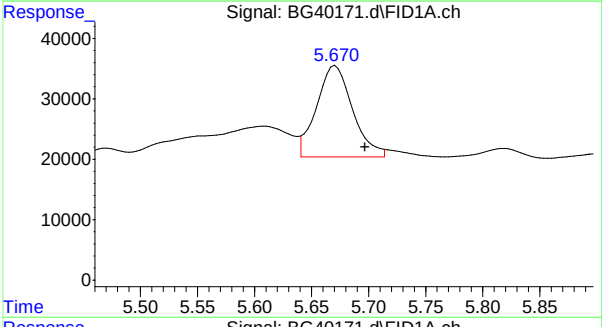
#1 5a-Androstane

R.T.: 30.141 min
Delta R.T.: -0.004 min
Response: 77028566
Conc: 50.00 µg/mL



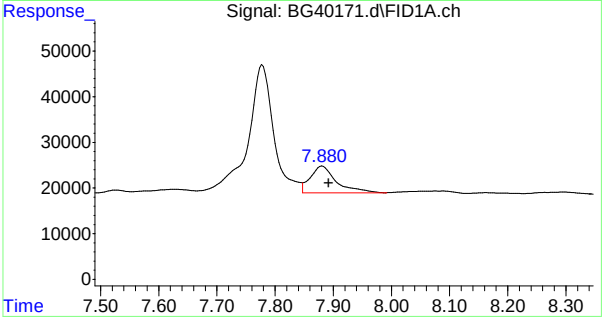
#2 o-Terphenyl

R.T.: 28.181 min
Delta R.T.: -0.010 min
Response: 38820129
Conc: 26.09 µg/mL



#3 C-8

R.T.: 5.670 min
Delta R.T.: -0.027 min
Response: 331681
Conc: 0.27 µg/mL m

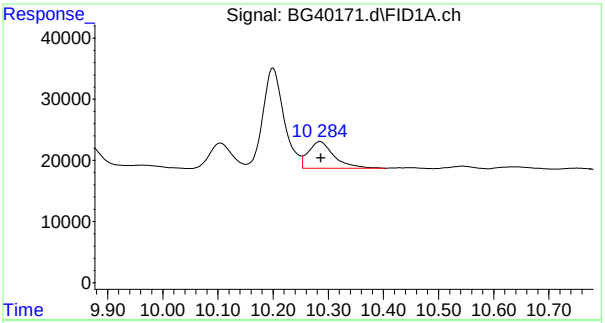


#4 C-9

R.T.: 7.881 min
Delta R.T.: -0.011 min
Response: 184735
Conc: 0.14 µg/mL

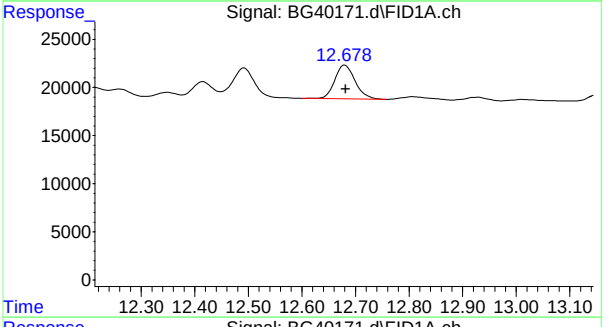
11.2.1

11



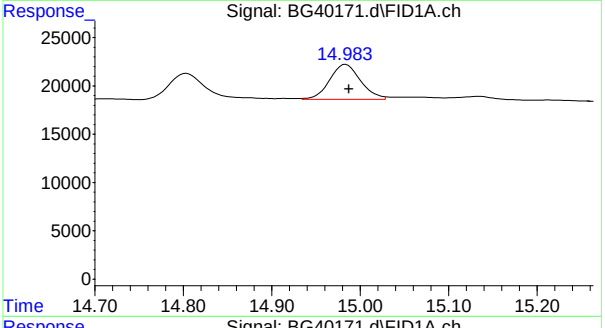
#5 C-10

R.T.: 10.286 min
Delta R.T.: -0.001 min
Response: 141637
Conc: 0.10 µg/mL



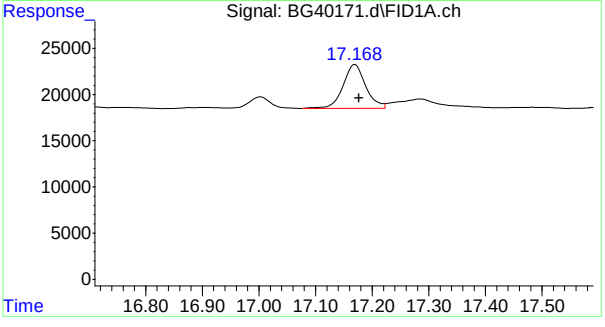
#6 C-11

R.T.: 12.680 min
Delta R.T.: -0.001 min
Response: 92997
Conc: 0.07 µg/mL



#7 C-12

R.T.: 14.983 min
Delta R.T.: -0.005 min
Response: 88482
Conc: 0.06 µg/mL m

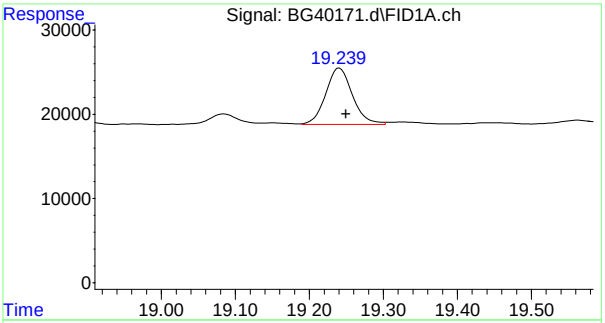


#8 C-13

R.T.: 17.170 min
Delta R.T.: -0.007 min
Response: 132099
Conc: 0.09 µg/mL

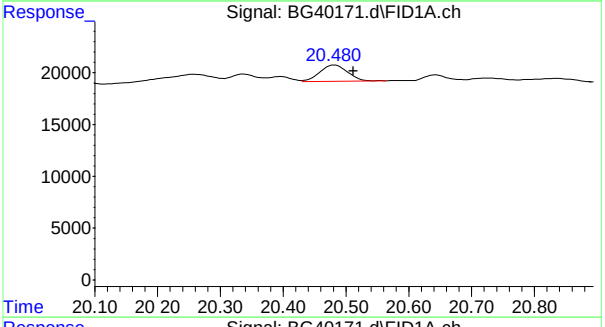
11.2.1

11



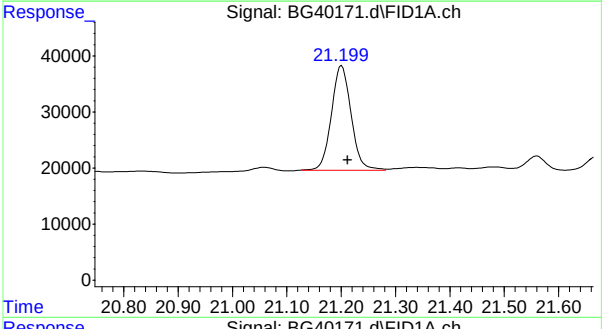
#10 C-14

R.T.: 19.239 min
Delta R.T.: -0.010 min
Response: 169126
Conc: 0.12 µg/mL m



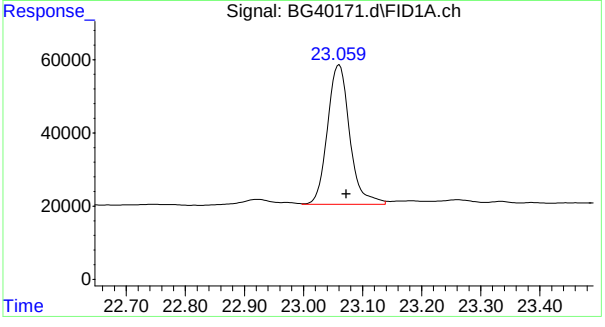
#11 2,6,10-trimethyltridecane (1470)

R.T.: 20.482 min
Delta R.T.: -0.030 min
Response: 48679
Conc: 0.03 µg/mL



#12 C-15

R.T.: 21.199 min
Delta R.T.: -0.013 min
Response: 468718
Conc: 0.32 µg/mL m

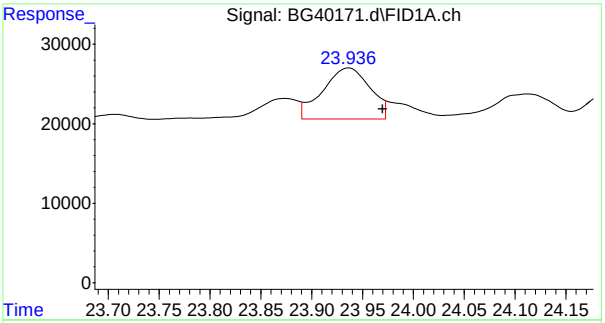


#13 C-16

R.T.: 23.059 min
Delta R.T.: -0.013 min
Response: 998600
Conc: 0.69 µg/mL m

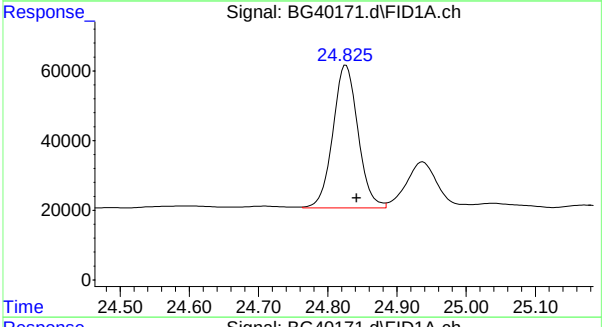
11.2.1

11



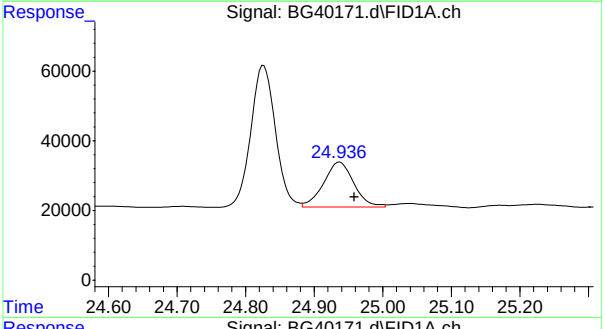
#14 2,6,10-trimethylpentadecane (1650)

R.T.: 23.936 min
Delta R.T.: -0.034 min
Response: 206204
Conc: 0.14 µg/mL m



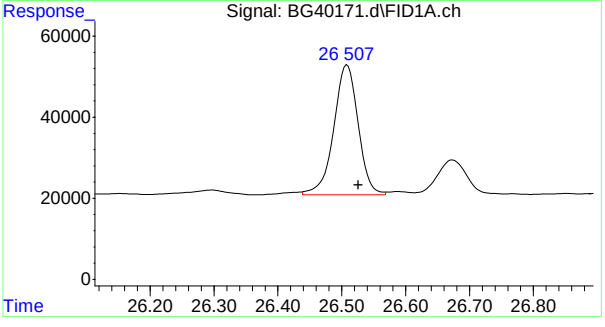
#15 C-17

R.T.: 24.825 min
Delta R.T.: -0.017 min
Response: 1035831
Conc: 0.69 µg/mL m



#16 Pristane

R.T.: 24.936 min
Delta R.T.: -0.023 min
Response: 397391
Conc: 0.28 µg/mL m



#17 C-18

R.T.: 26.507 min
Delta R.T.: -0.019 min
Response: 853254
Conc: 0.57 µg/mL m

11.2.1

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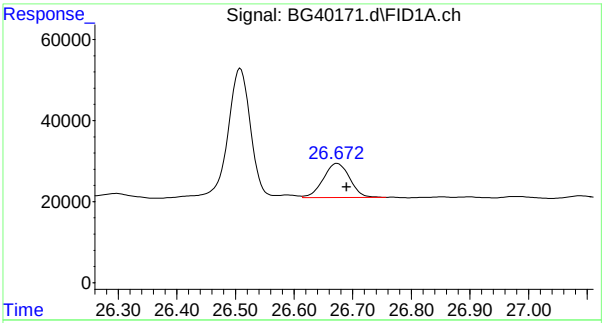
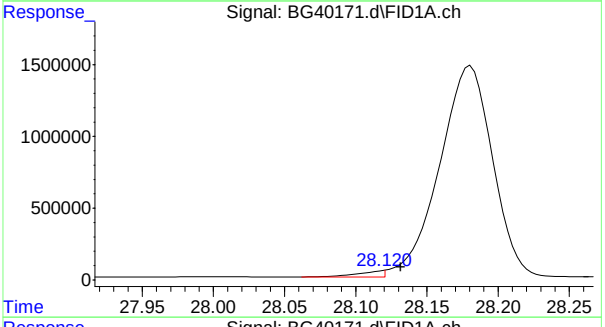


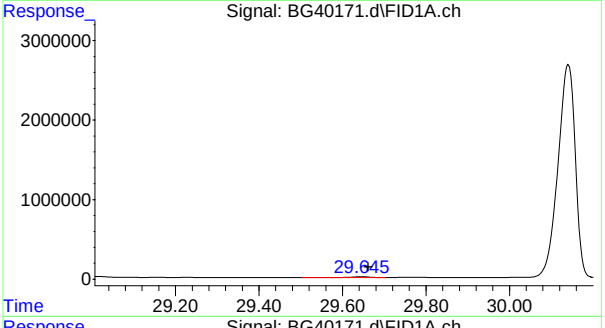
#18 Phytane

R.T.: 26.674 min
Delta R.T.: -0.016 min
Response: 263932
Conc: 0.18 µg/mL



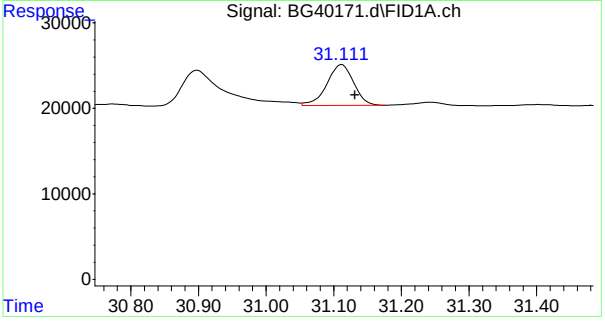
#19 C-19

R.T.: 28.120 min
Delta R.T.: -0.011 min
Response: 625951
Conc: 0.40 µg/mL m



#20 C-20

R.T.: 29.647 min
Delta R.T.: -0.015 min
Response: 295091
Conc: 0.20 µg/mL



#21 C-21

R.T.: 31.112 min
Delta R.T.: -0.019 min
Response: 131475
Conc: 0.09 µg/mL

11.2.1

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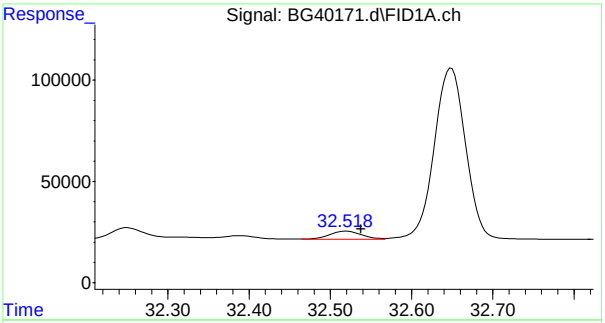
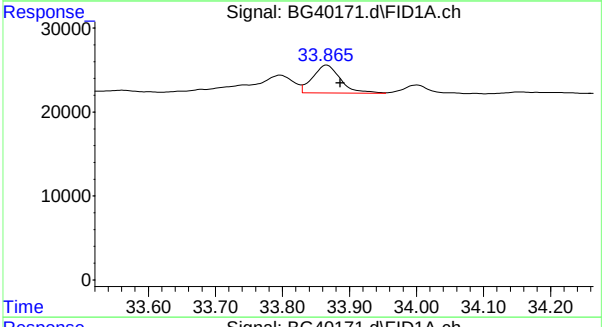


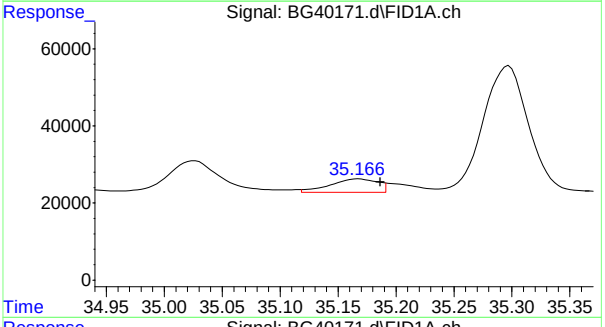
#22 C-22

R.T.: 32.520 min
Delta R.T.: -0.018 min
Response: 107968
Conc: 0.07 µg/mL



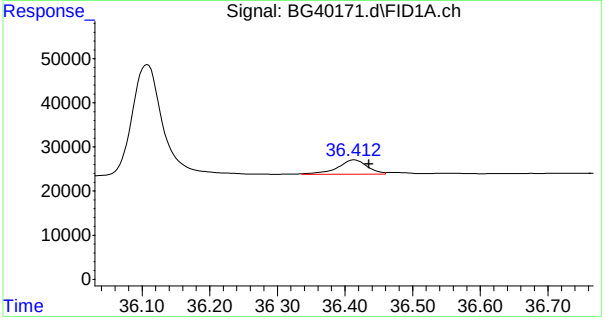
#23 C-23

R.T.: 33.866 min
Delta R.T.: -0.020 min
Response: 95093
Conc: 0.06 µg/mL



#24 C-24

R.T.: 35.166 min
Delta R.T.: -0.020 min
Response: 102941
Conc: 0.07 µg/mL m



#25 C-25

R.T.: 36.412 min
Delta R.T.: -0.023 min
Response: 99218
Conc: 0.06 µg/mL m

11.2.1

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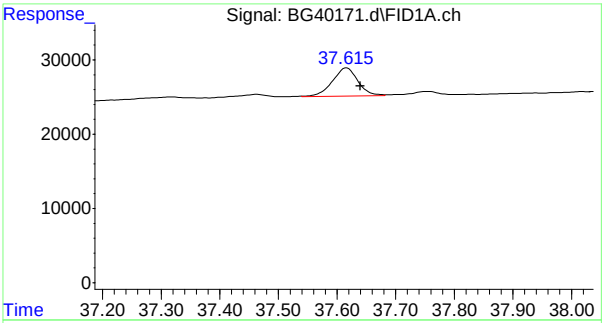
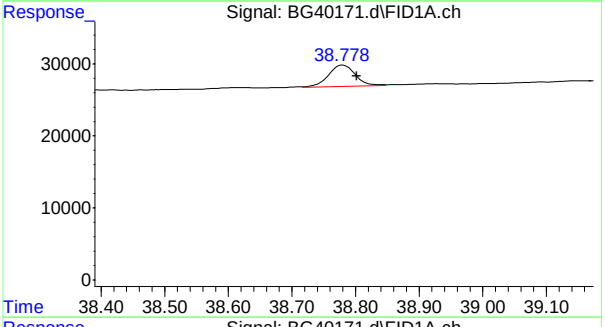


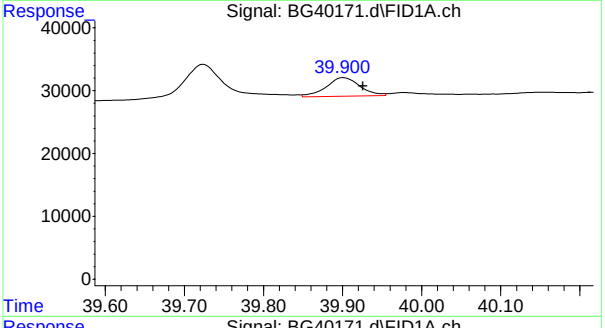
#26 C-26

R.T.: 37.615 min
Delta R.T.: -0.025 min
Response: 115603
Conc: 0.07 µg/mL m



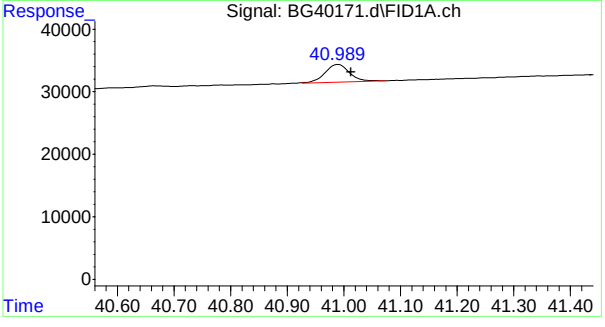
#27 C-27

R.T.: 38.778 min
Delta R.T.: -0.023 min
Response: 87292
Conc: 0.06 µg/mL m



#28 C-28

R.T.: 39.902 min
Delta R.T.: -0.024 min
Response: 86866
Conc: 0.06 µg/mL



#29 C-29

R.T.: 40.989 min
Delta R.T.: -0.024 min
Response: 85266
Conc: 0.05 µg/mL m

11.2.1

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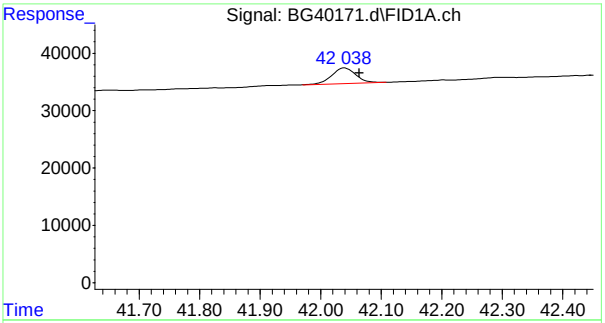
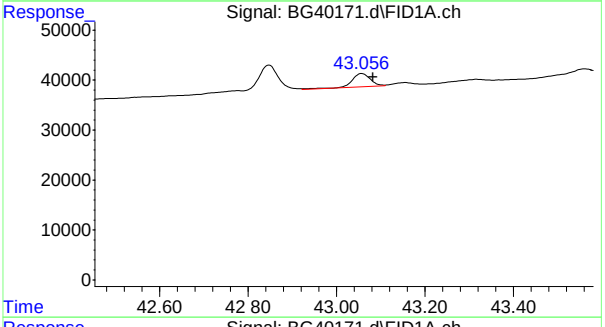


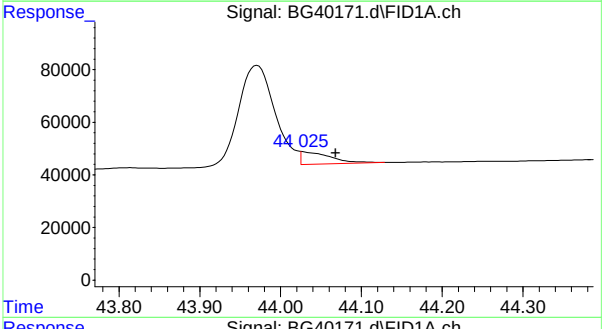
#30 C-30

R.T.: 42.038 min
Delta R.T.: -0.026 min
Response: 77980
Conc: 0.05 µg/mL m



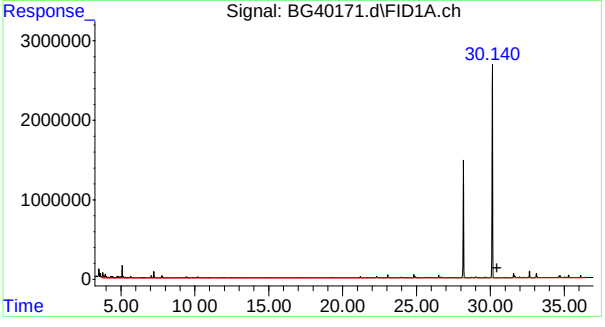
#31 C-31

R.T.: 43.057 min
Delta R.T.: -0.025 min
Response: 76782
Conc: 0.05 µg/mL



#32 C-32

R.T.: 44.025 min
Delta R.T.: -0.043 min
Response: 117629
Conc: 0.08 µg/mL m



#41 TPH (C8-C40)

R.T.: 30.429 min
Delta R.T.: 0.000 min
Response: 69086468
Conc: 45.96 µg/mL m

11.2.1

11

Manual Integrations APPROVED (compounds with "m" flag)
James Roush
07/01/13 14:13

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130531\
Data File : BG40270.d
Signal(s) : FID1A.ch
Acq On : 31 May 2013 1:57 pm
Operator : kristinr
Sample : op33310-mb
Misc : op33310,gbg1520,0.01,,,2,1
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jul 01 12:40:09 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration

	Compound	R.T.	Response	Conc Units
Internal Standards				
1) I	5a-Androstane	30.072	113059696	50.000 µg/mL
System Monitoring Compounds				
2) S	o-Terphenyl	28.111	55419378	25.374 µg/mL
Target Compounds				
3)	C-8	5.634	182258	0.102 µg/mLm
41) H	TPH (C8-C40)	30.429	33914844	15.373 µg/mLm
SemiQuant Compounds - Not Calibrated on this Instrument				

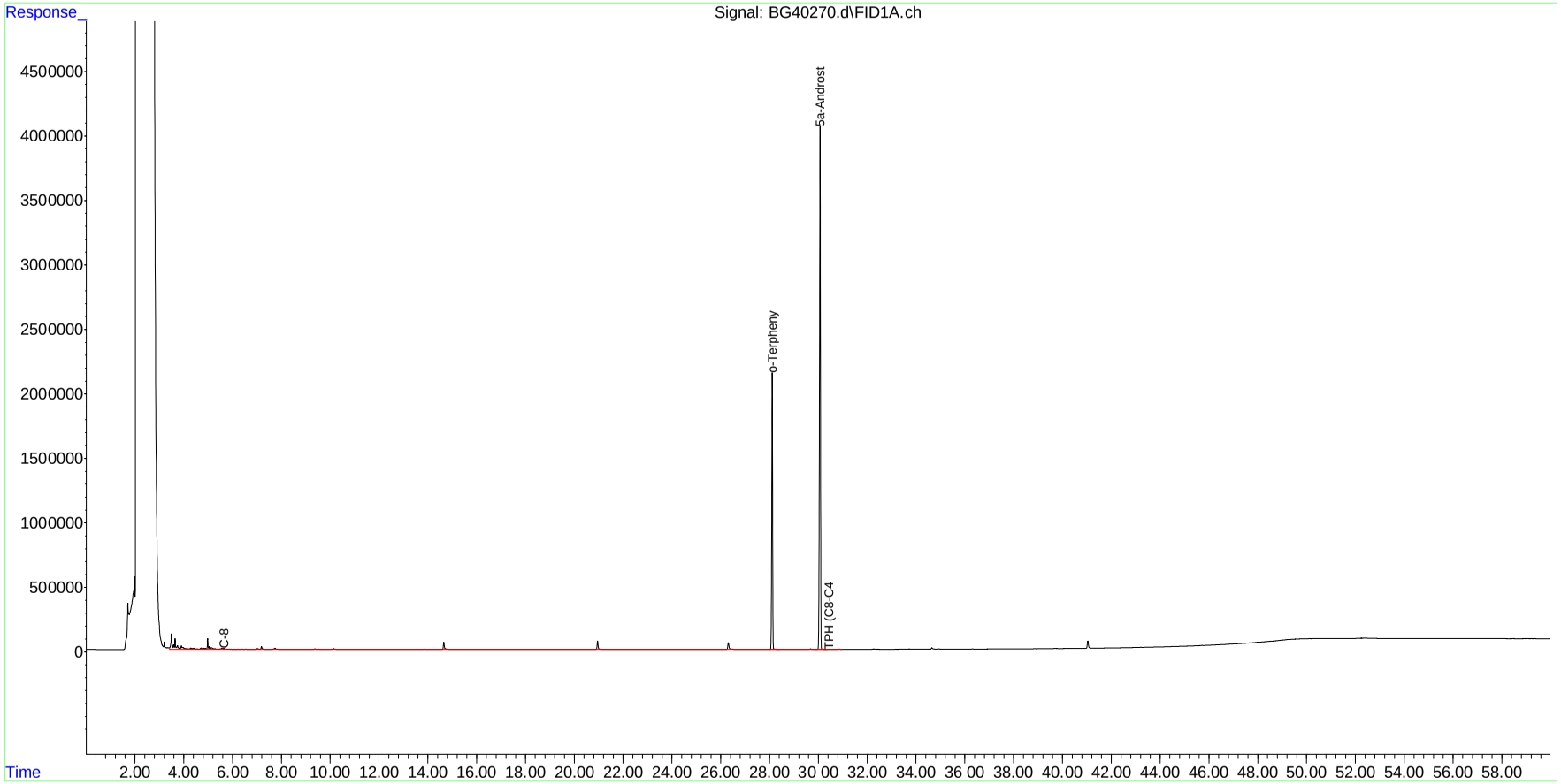
(f)=RT Delta > 1/2 Window (m)=manual int.

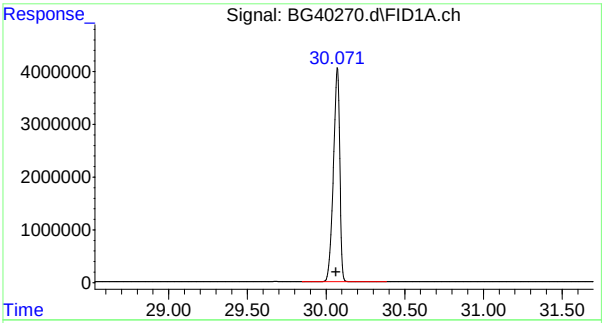
11.2.2
11

Quantitation Report (QT Reviewed)

Data Path : G:\1\DATA\BG130531\
Data File : BG40270.d
Signal(s) : FID1A.ch
Acq On : 31 May 2013 1:57 pm
Operator : kristinr
Sample : op33310-mb
Misc : op33310,gbg1520,0.01,,,2,1
ALS Vial : 3 Sample Multiplier: 1

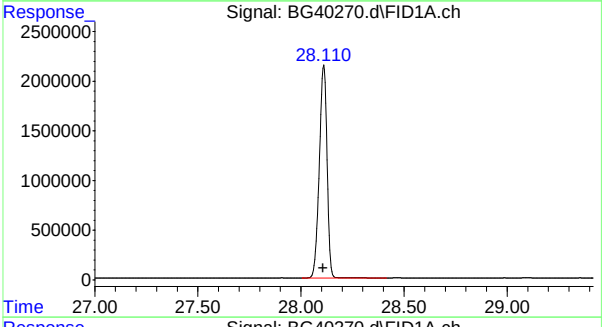
Quant Time: Jul 01 12:40:09 2013
Quant Method : G:\1\METHODS\BG120629ALK.m
Quant Title : n-C8 - n-C40 normal alkanes w/ isoprenoids
Response via : Initial Calibration





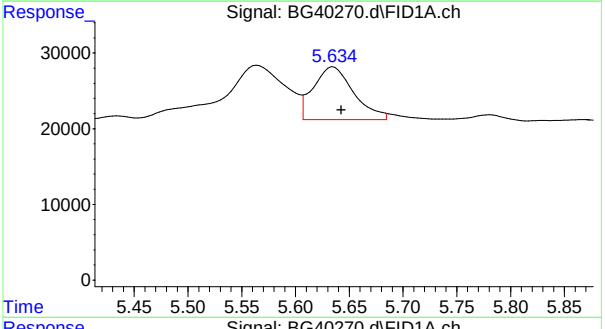
#1 5a-Androstane

R.T.: 30.072 min
Delta R.T.: 0.009 min
Response: 113059696
Conc: 50.00 µg/mL



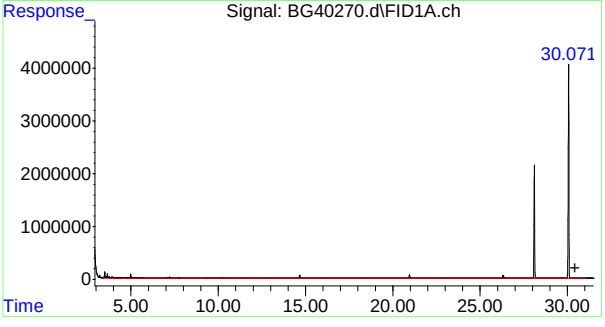
#2 o-Terphenyl

R.T.: 28.111 min
Delta R.T.: 0.004 min
Response: 55419378
Conc: 25.37 µg/mL



#3 C-8

R.T.: 5.634 min
Delta R.T.: -0.009 min
Response: 182258
Conc: 0.10 µg/mL m



#41 TPH (C8-C40)

R.T.: 30.429 min
Delta R.T.: 0.000 min
Response: 33914844
Conc: 15.37 µg/mL m

11.2.2

11

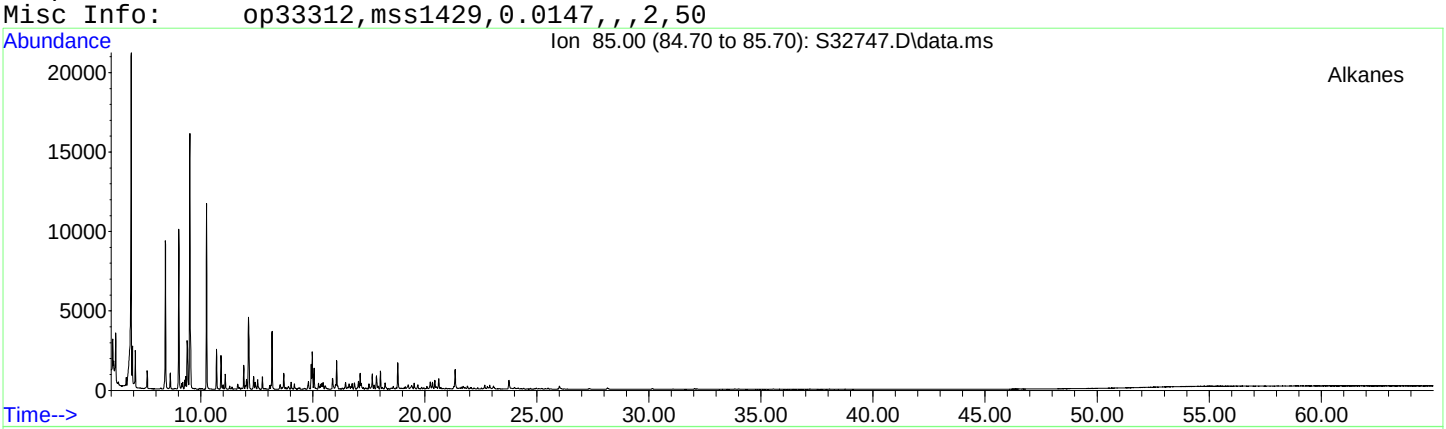
Appendix D

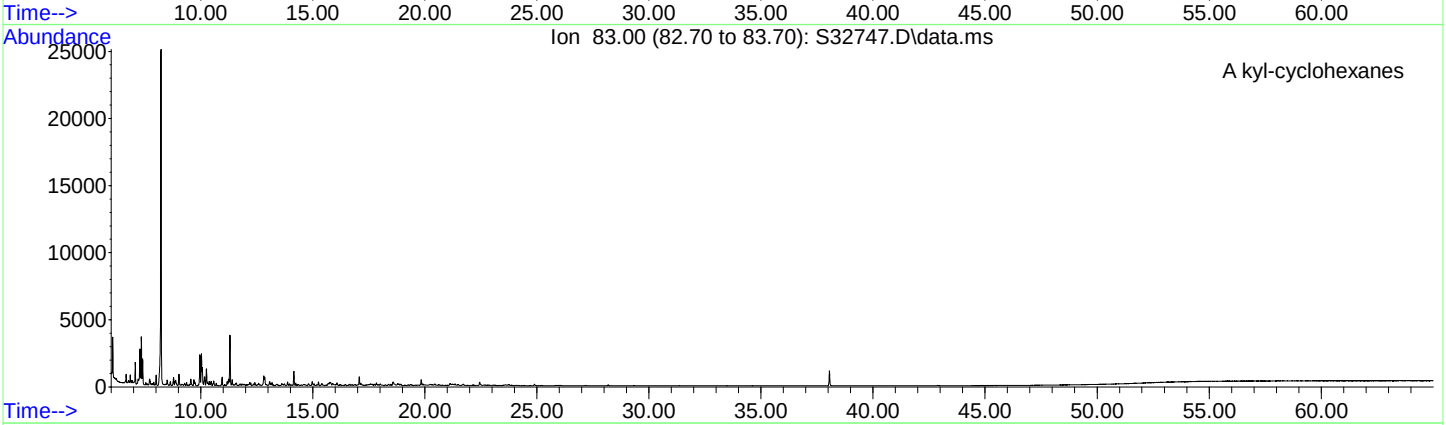
Extracted Ion Current Profiles

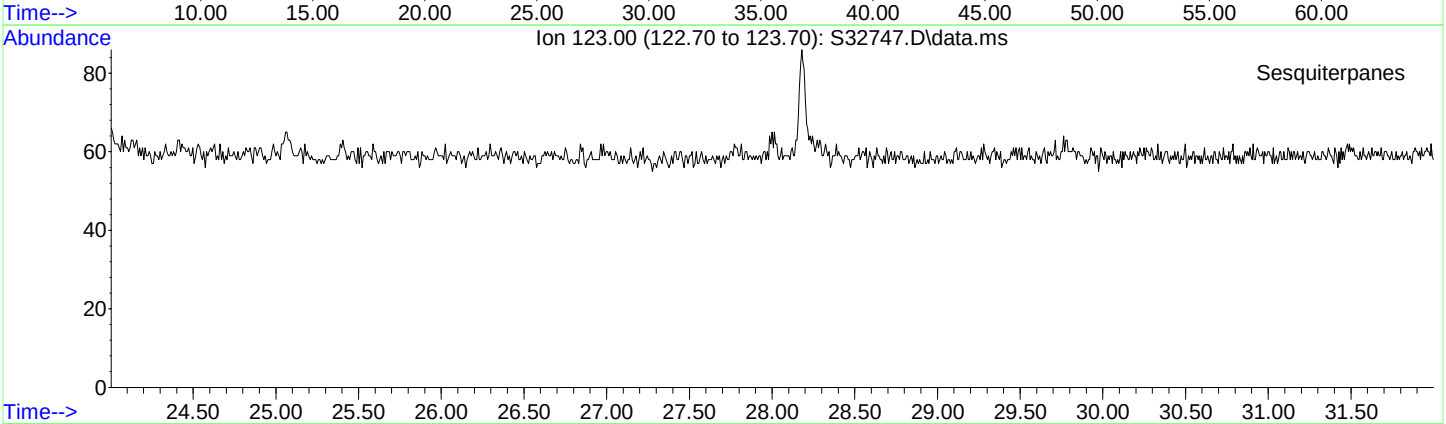
ACCUTEST

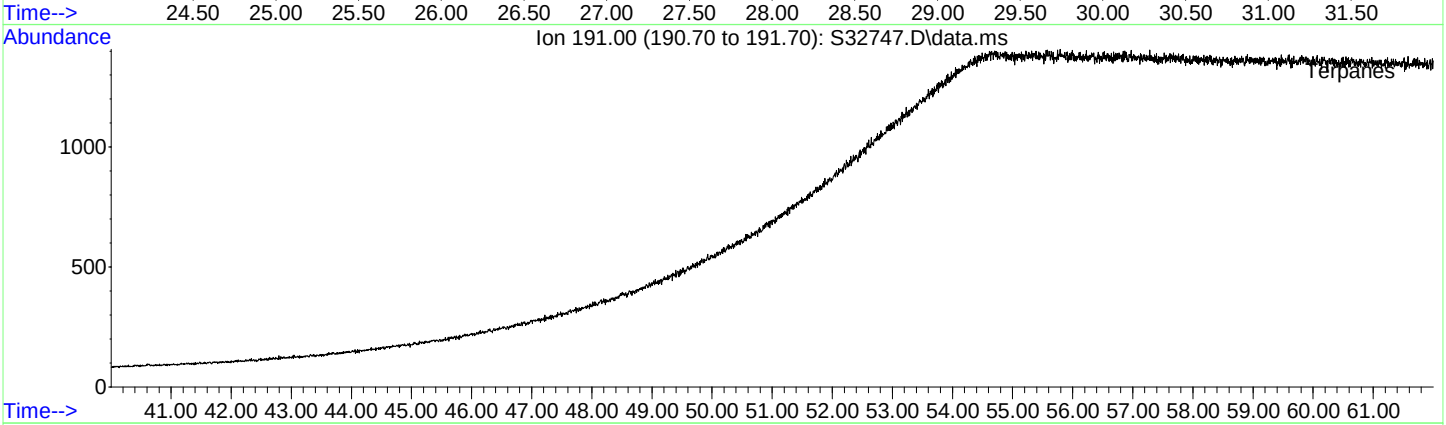
GC/MS EXTRACTED ION CHROMATOGRAM

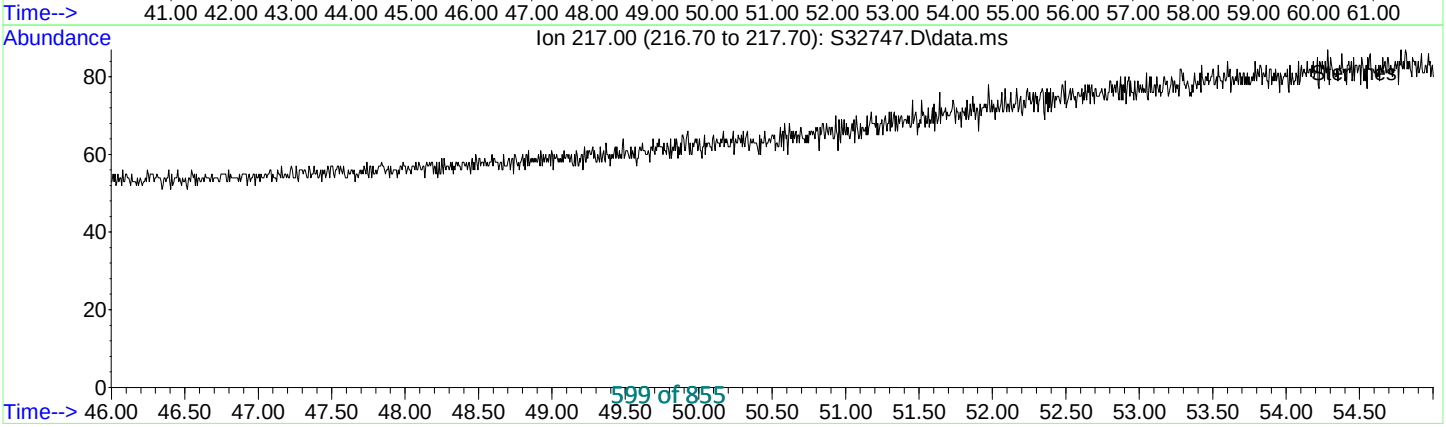
File: S:\1\data\S130528\S32747.D
Date Acquired: 28 May 2013 4:28 pm
Sample Name: mc20162-1
Misc Info: op33312,mss1429,0.0147,,,2,50







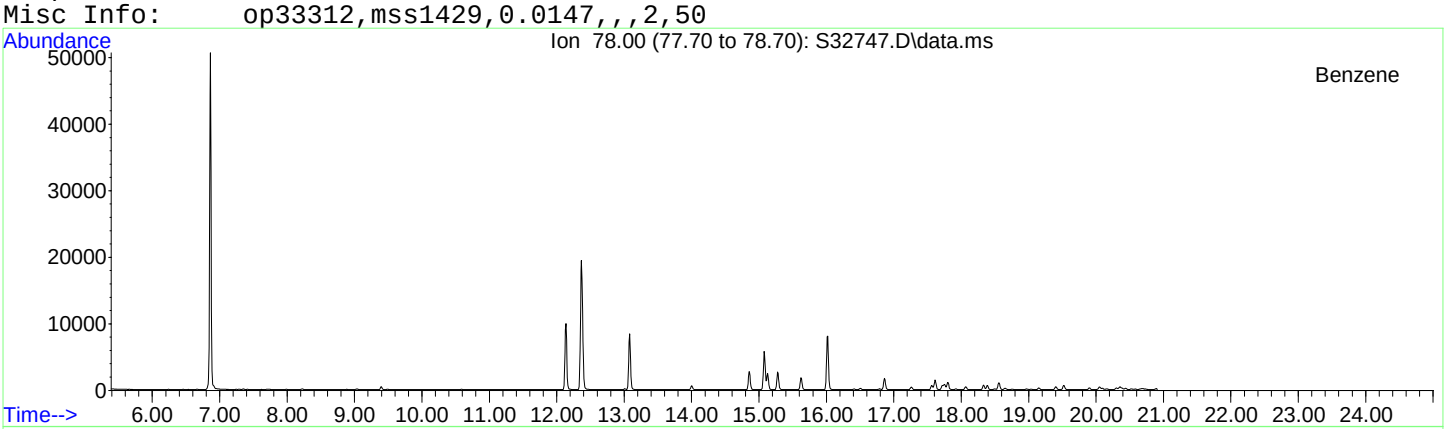


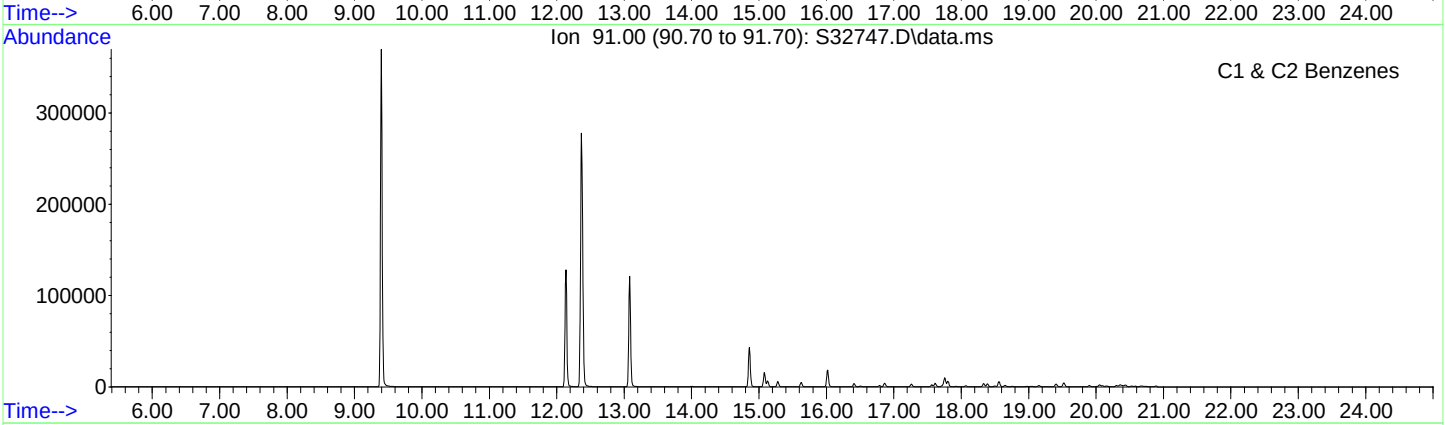


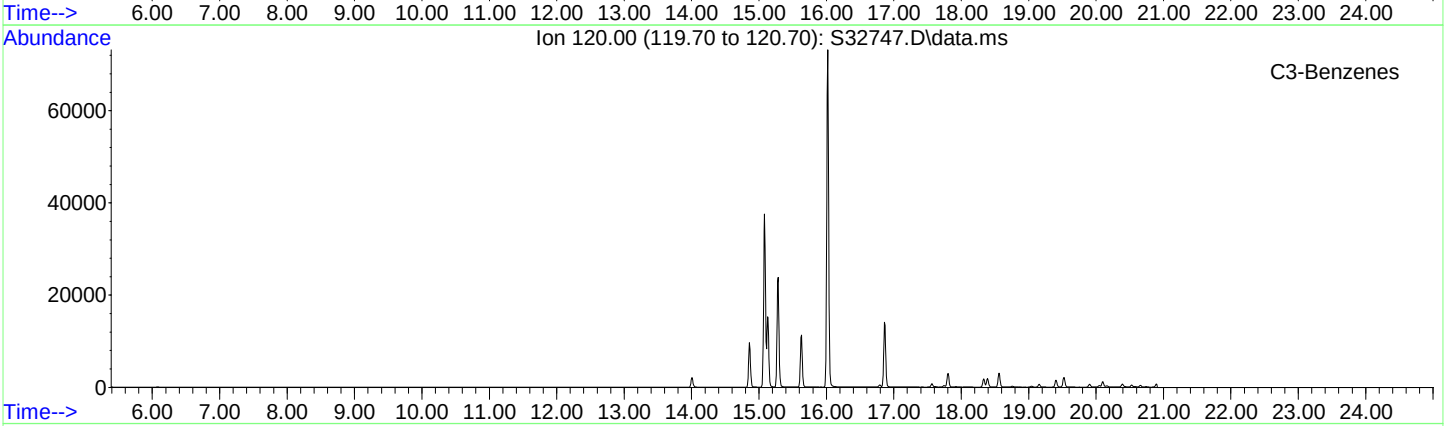
ACCUTEST

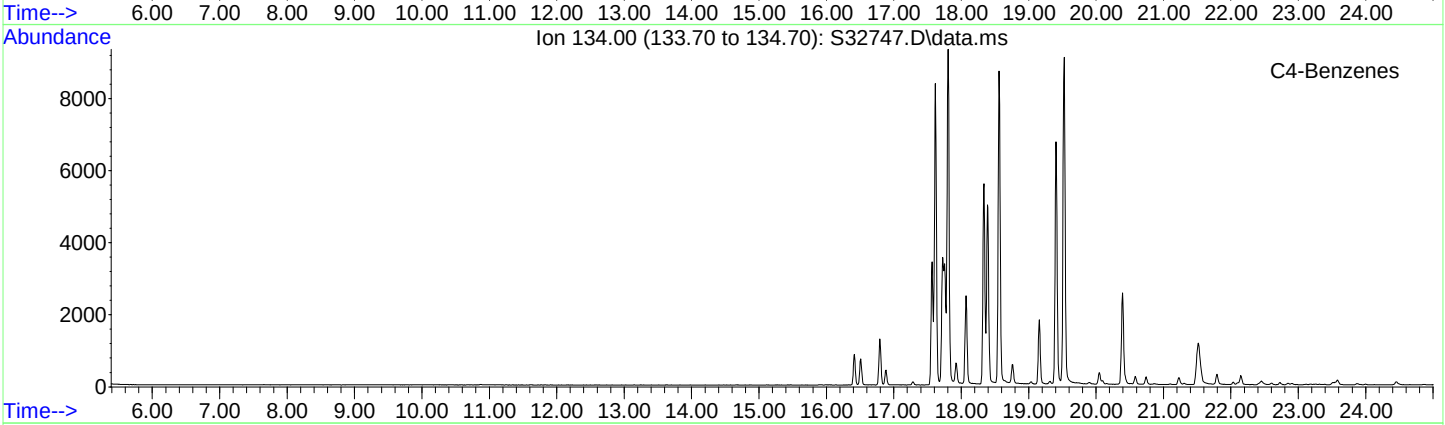
GC/MS EXTRACTED ION CHROMATOGRAM

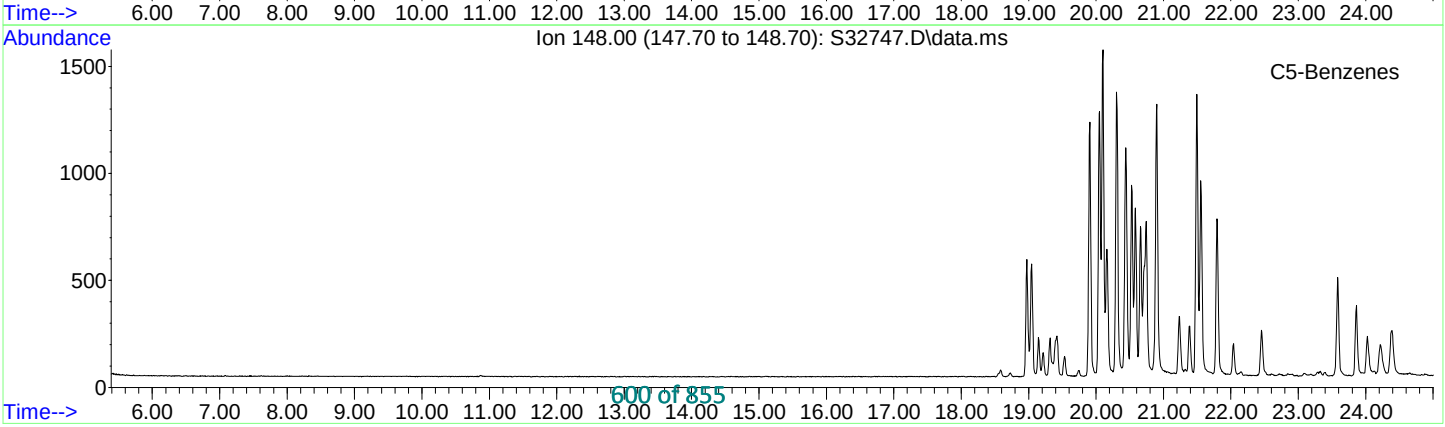
File: S:\1\data\S130528\S32747.D
Date Acquired: 28 May 2013 4:28 pm
Sample Name: mc20162-1
Misc Info: op33312,mss1429,0.0147,,,2,50







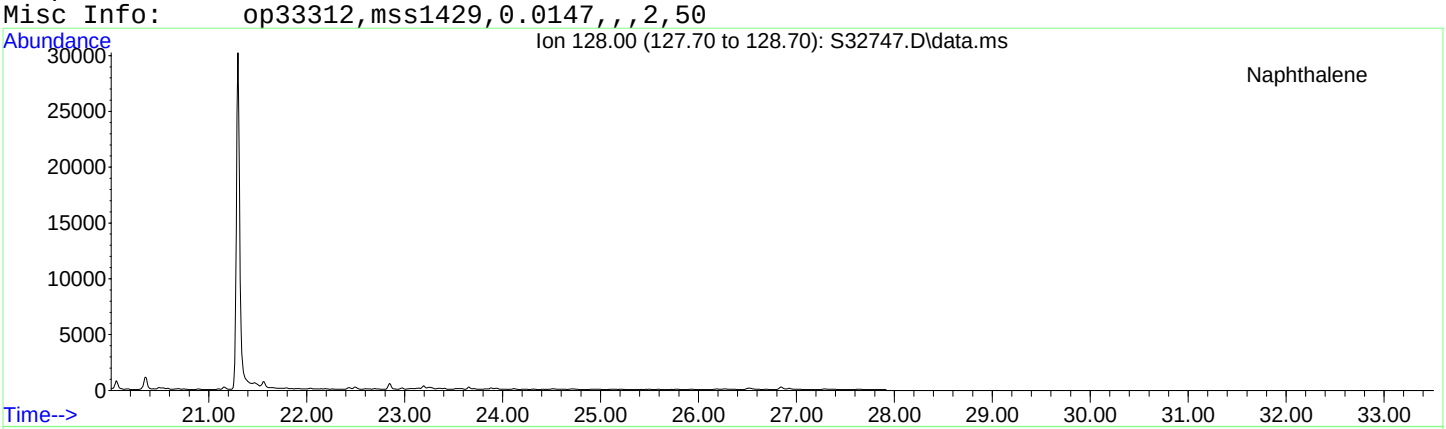


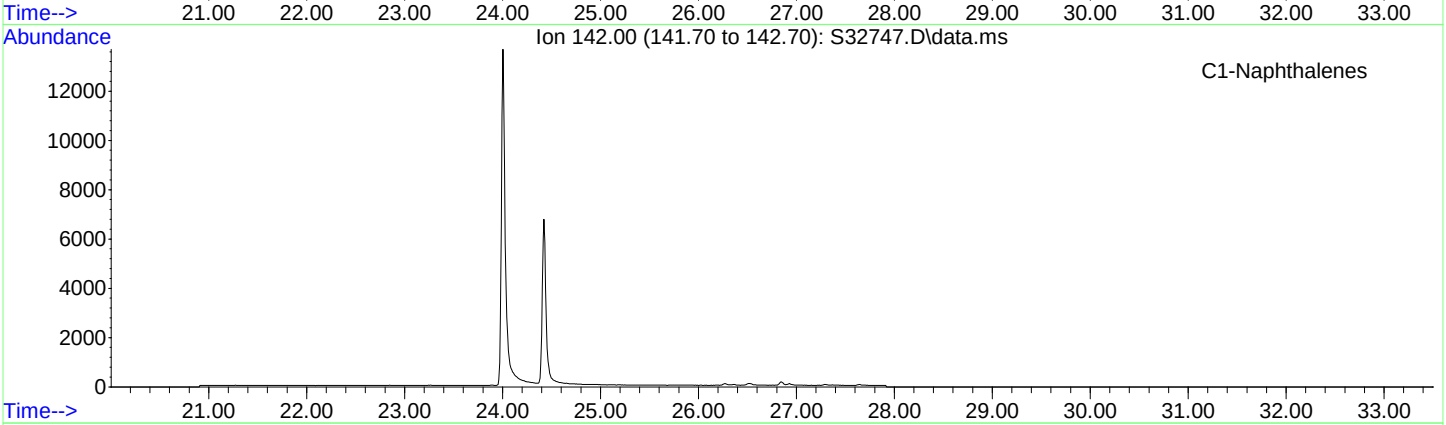


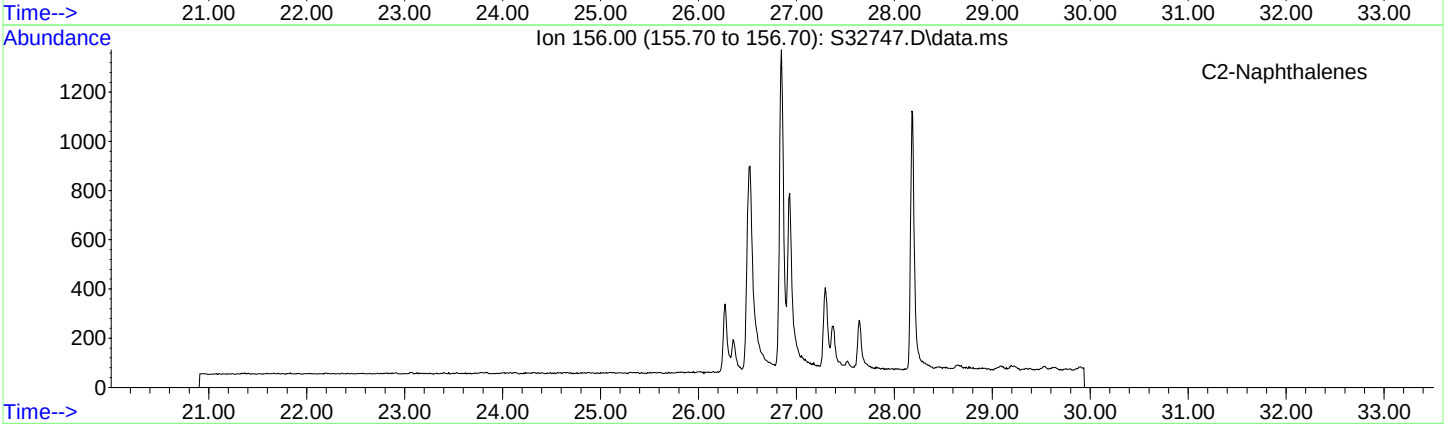
ACCUTEST

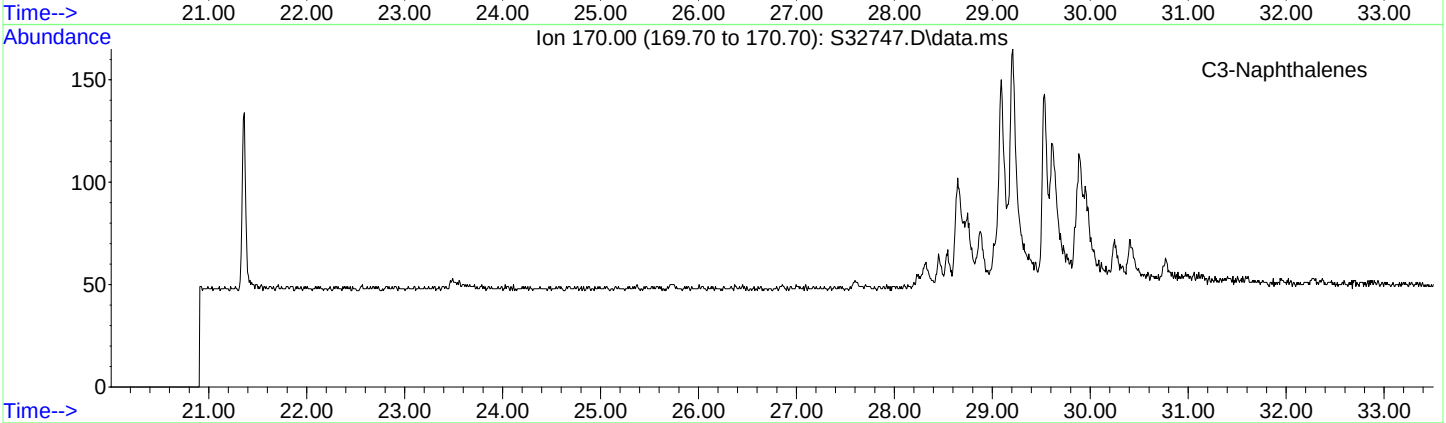
GC/MS EXTRACTED ION CHROMATOGRAM

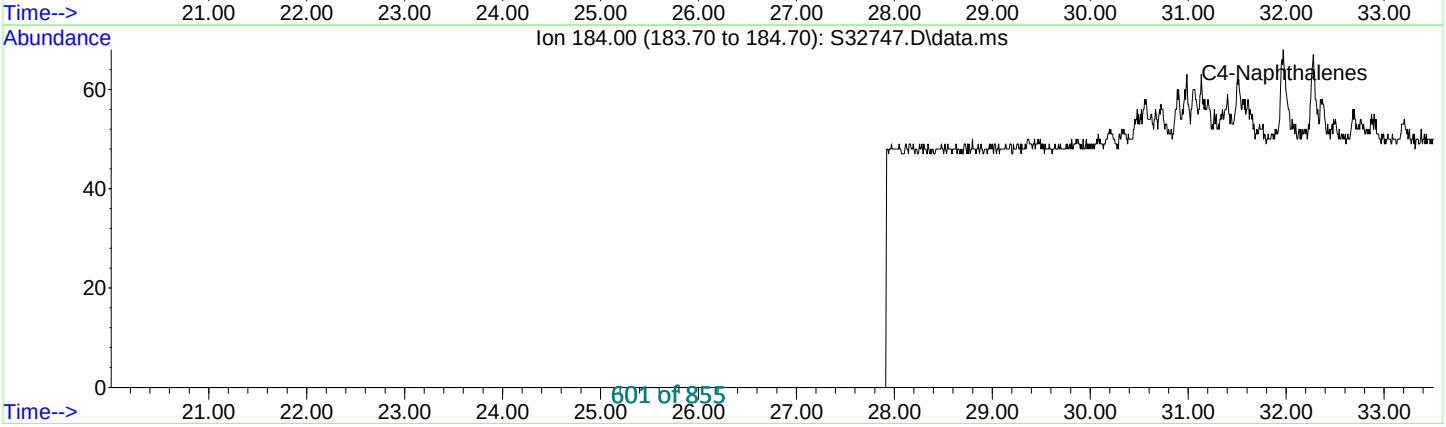
File: S:\1\data\S130528\S32747.D
Date Acquired: 28 May 2013 4:28 pm
Sample Name: mc20162-1
Misc Info: op33312,mss1429,0.0147,,,2,50







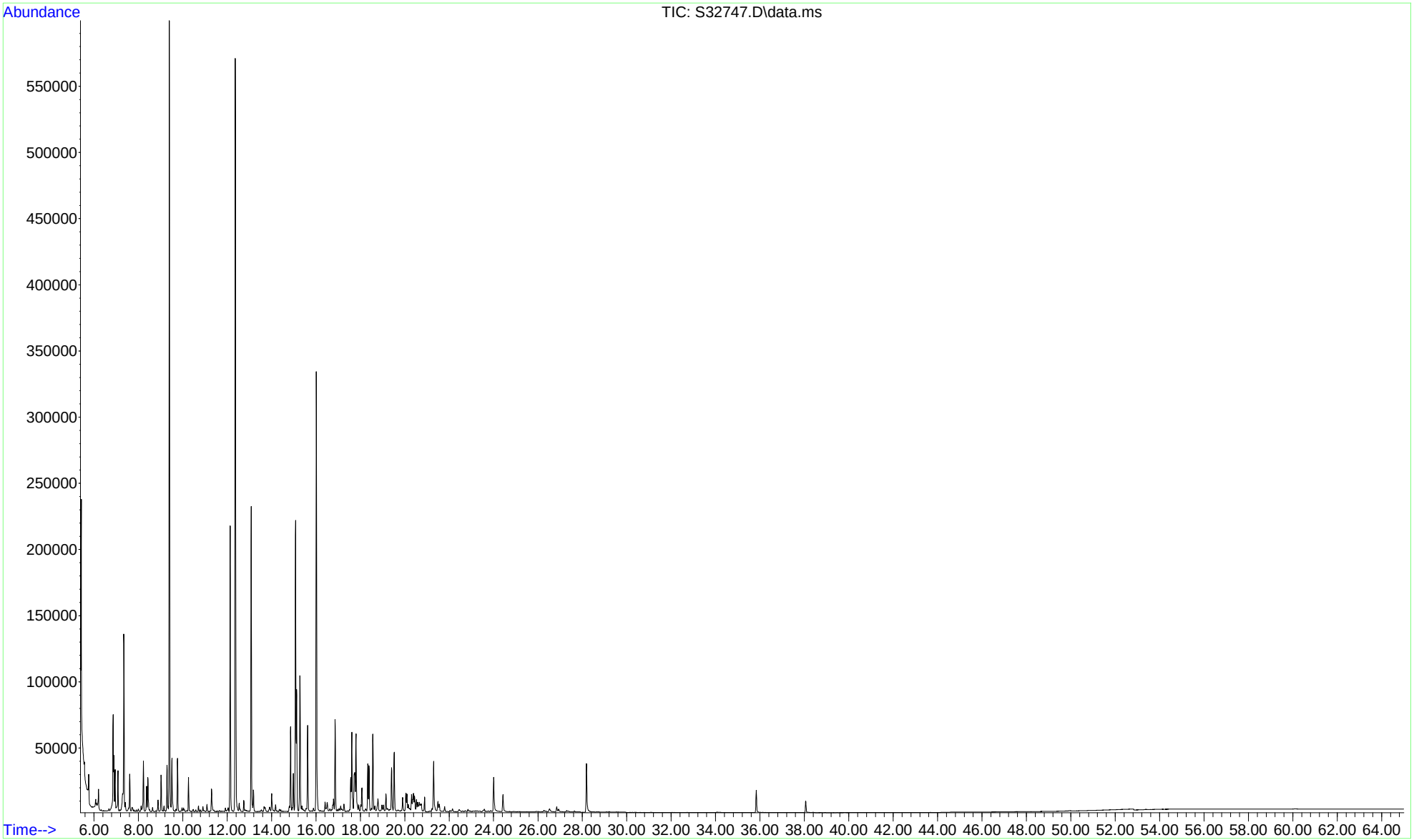




ACCUTEST

GC/MS TOTAL ION CHROMATOGRAM

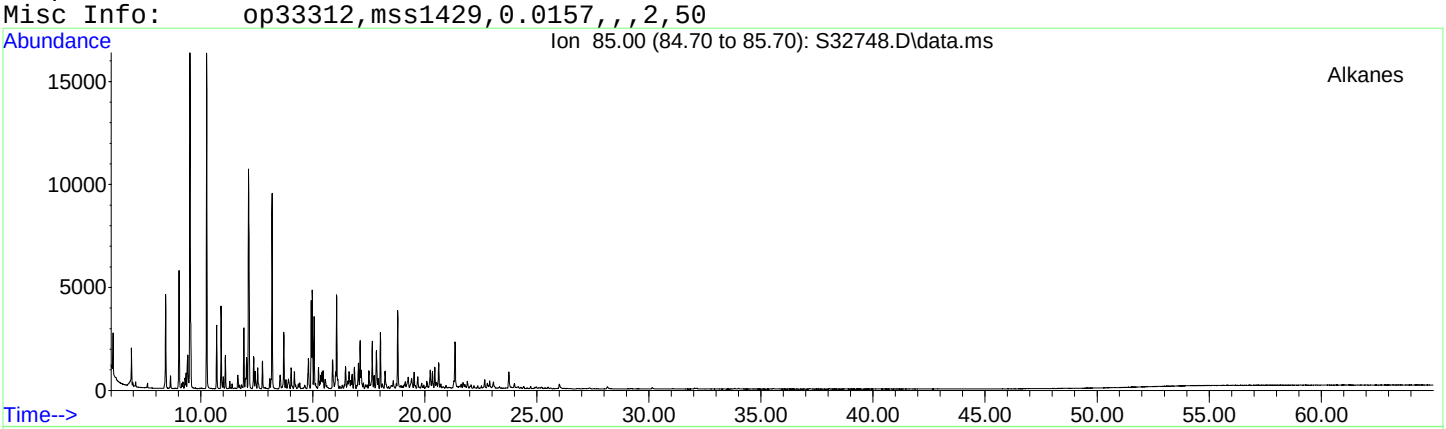
File: S:\1\data\S130528\S32747.D
Date Acquired: 28 May 2013 4:28 pm
Method File: SAPAHSIM-MTBE.M
Sample Name: mc20162-1
Misc Info: op33312,mss1429,0.0147,,,2,50

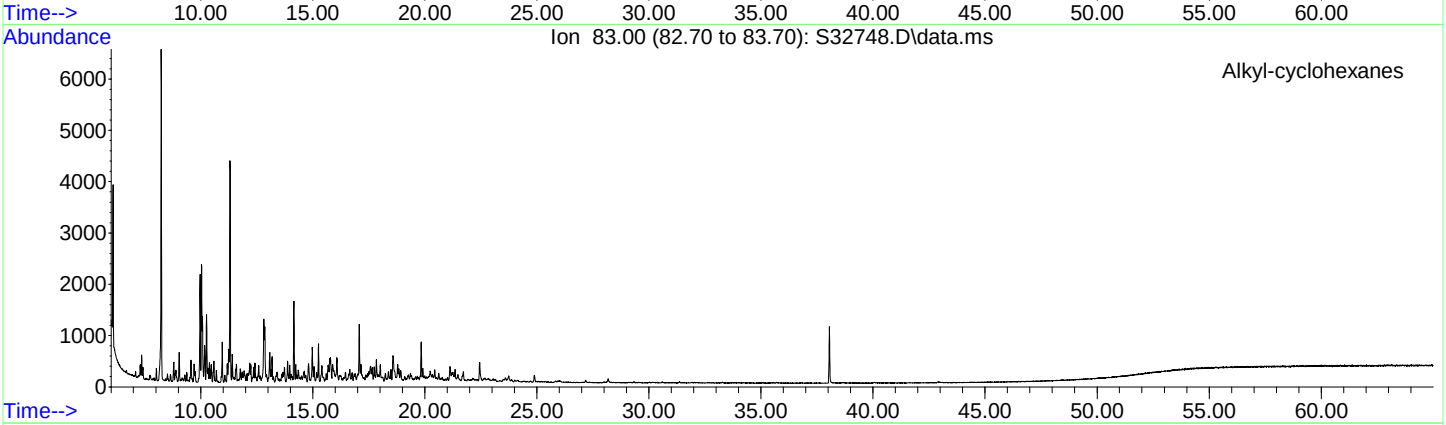


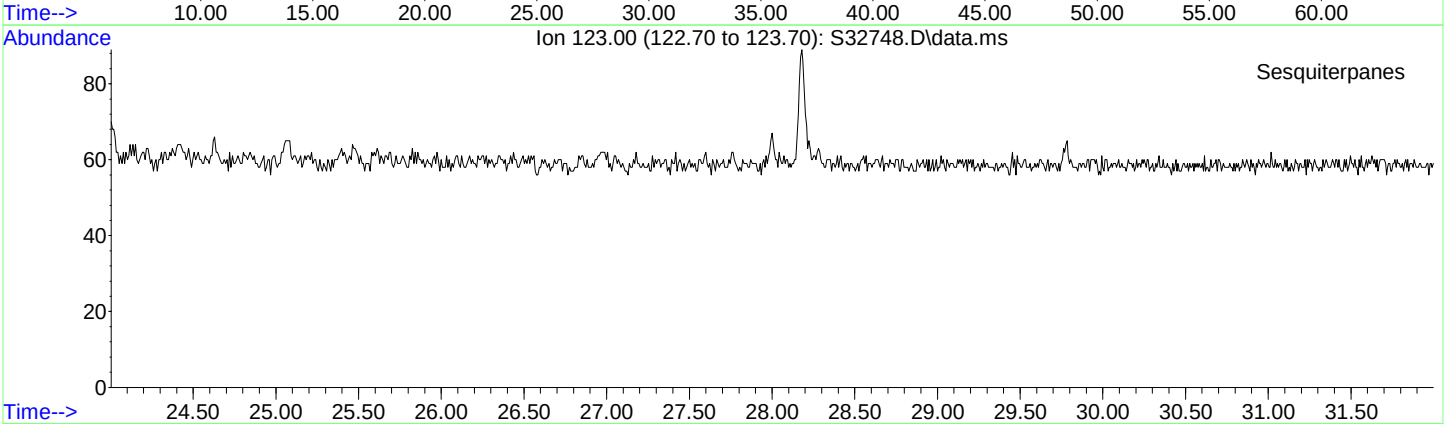
ACCUTEST

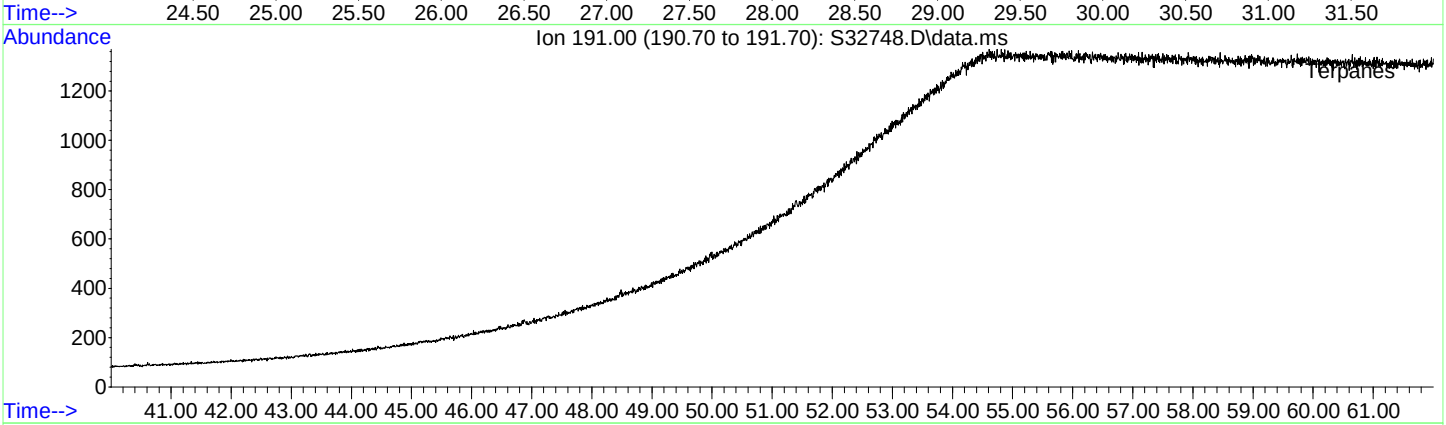
GC/MS EXTRACTED ION CHROMATOGRAM

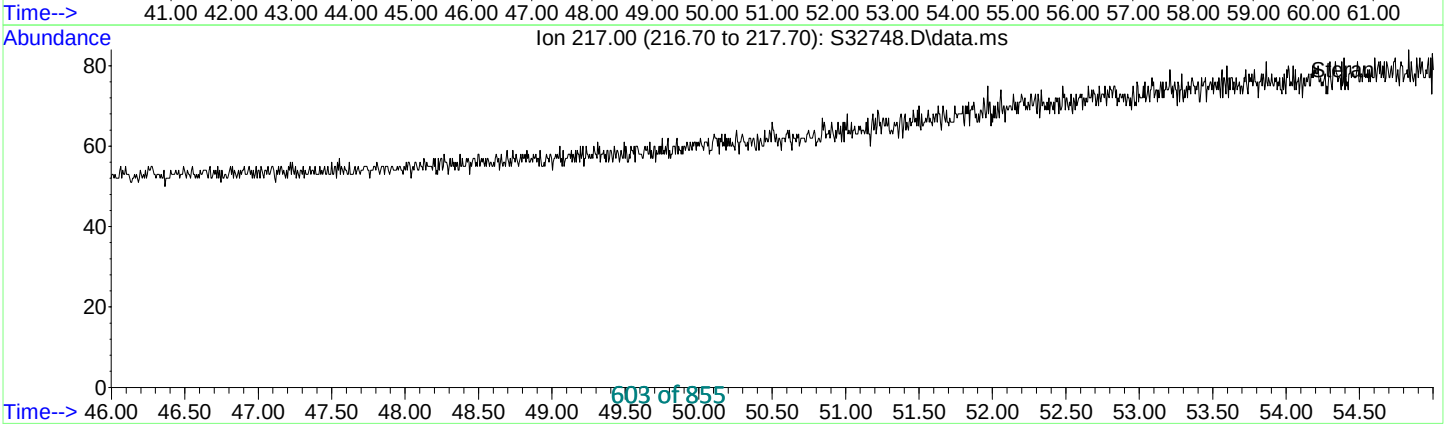
File: S:\1\data\S130528\S32748.D
Date Acquired: 28 May 2013 5:41 pm
Sample Name: mc20162-2
Misc Info: op33312,mss1429,0.0157,,,2,50







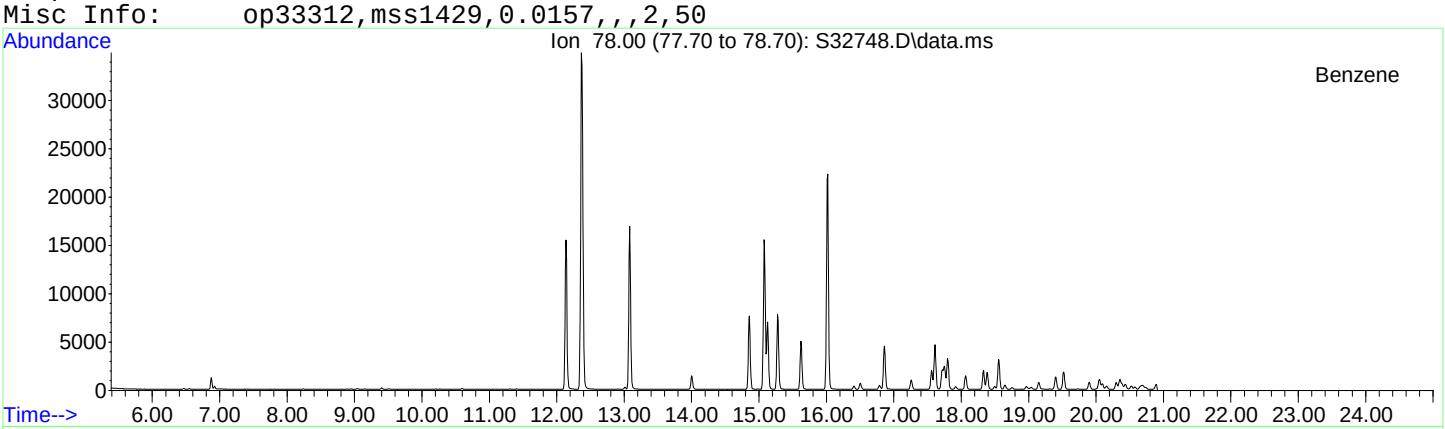




ACCUTEST

GC/MS EXTRACTED ION CHROMATOGRAM

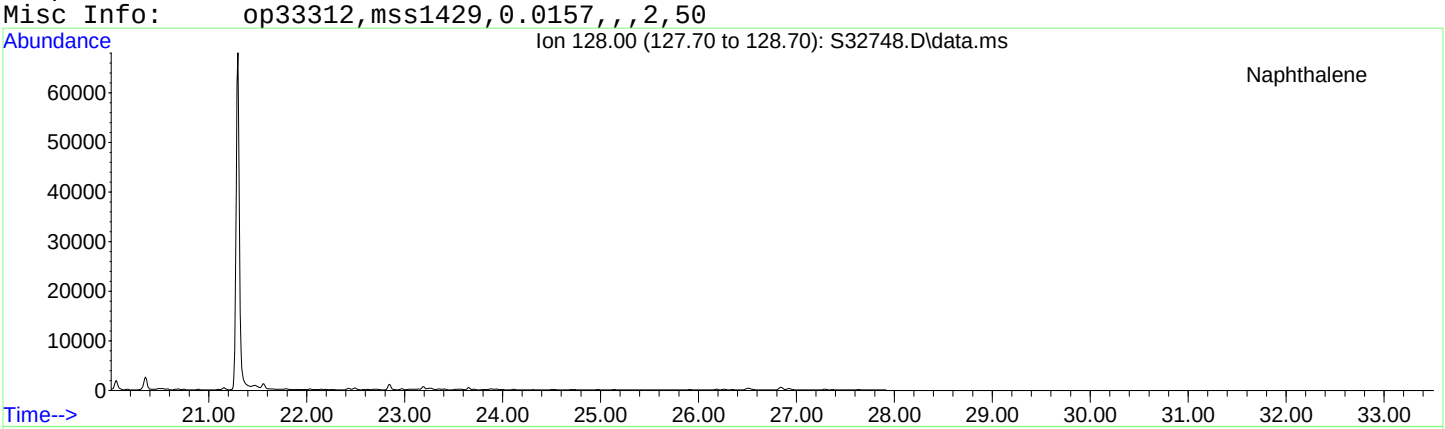
File: S:\1\data\S130528\S32748.D
Date Acquired: 28 May 2013 5:41 pm
Sample Name: mc20162-2
Misc Info: op33312,mss1429,0.0157,,,2,50

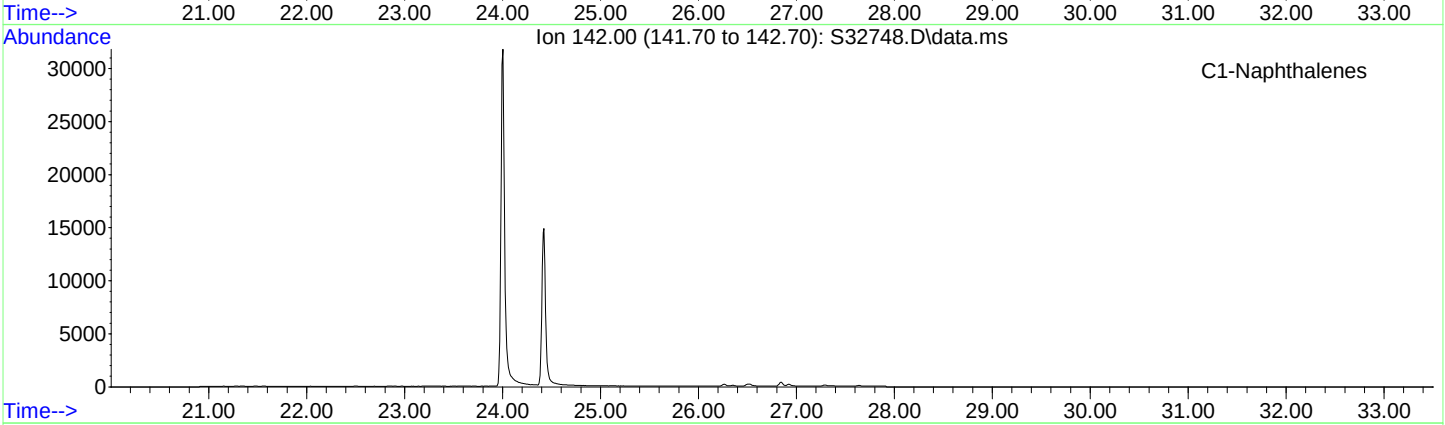


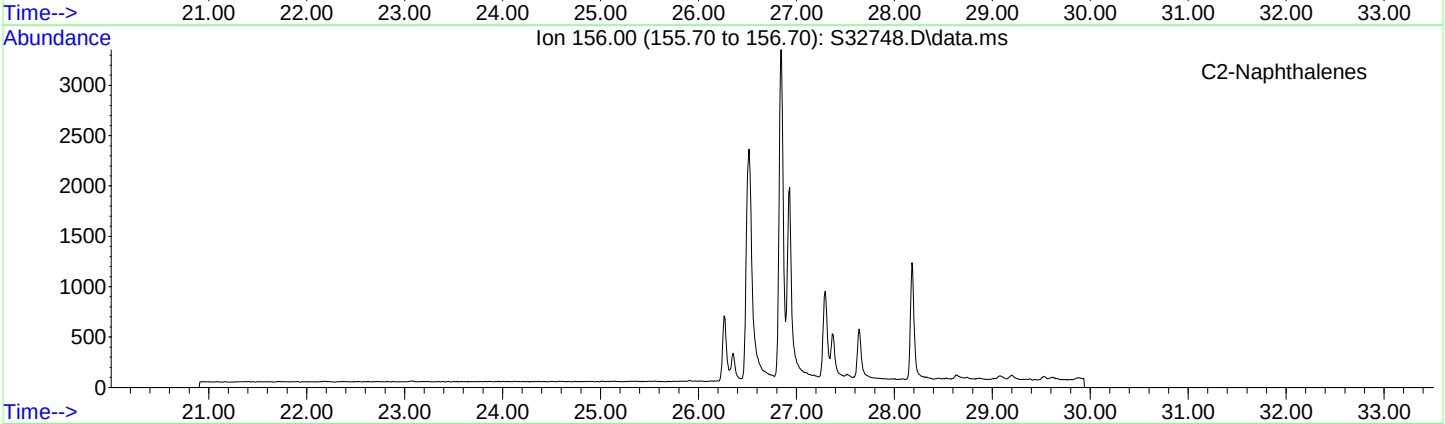
ACCUTEST

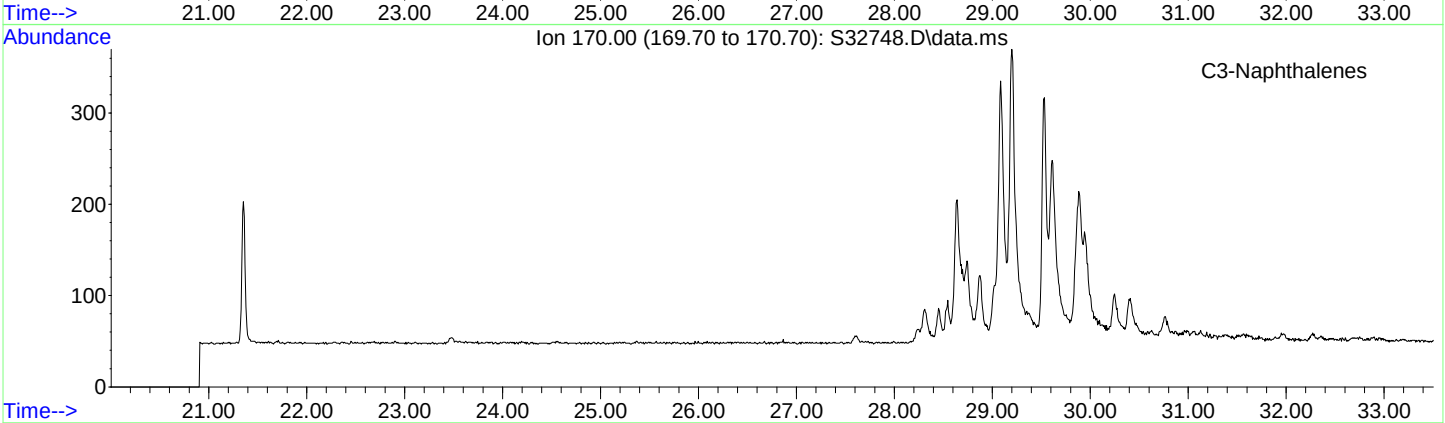
GC/MS EXTRACTED ION CHROMATOGRAM

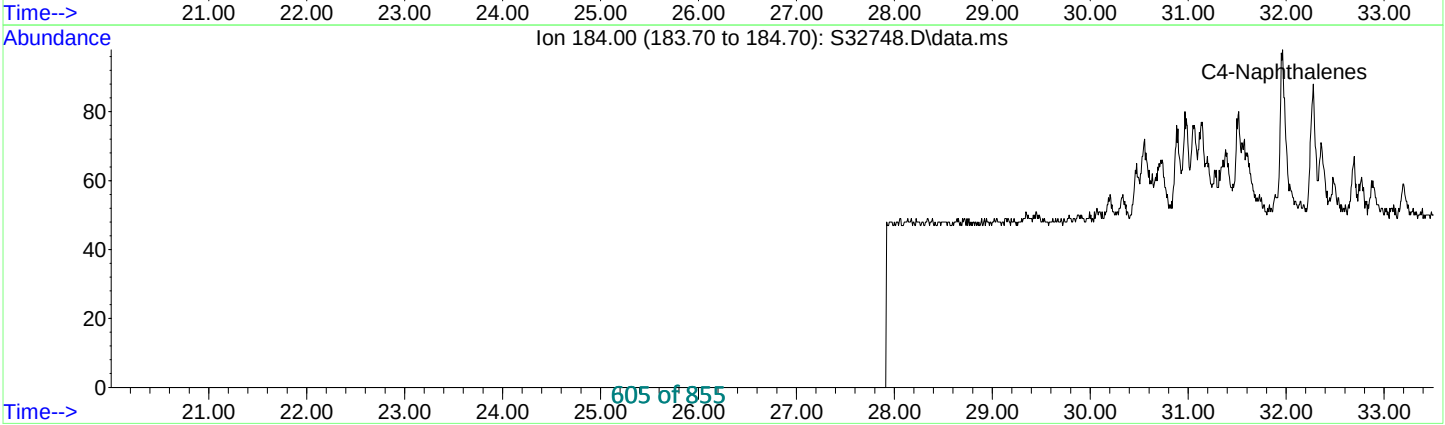
File: S:\1\data\S130528\S32748.D
Date Acquired: 28 May 2013 5:41 pm
Sample Name: mc20162-2
Misc Info: op33312,mss1429,0.0157,,,2,50







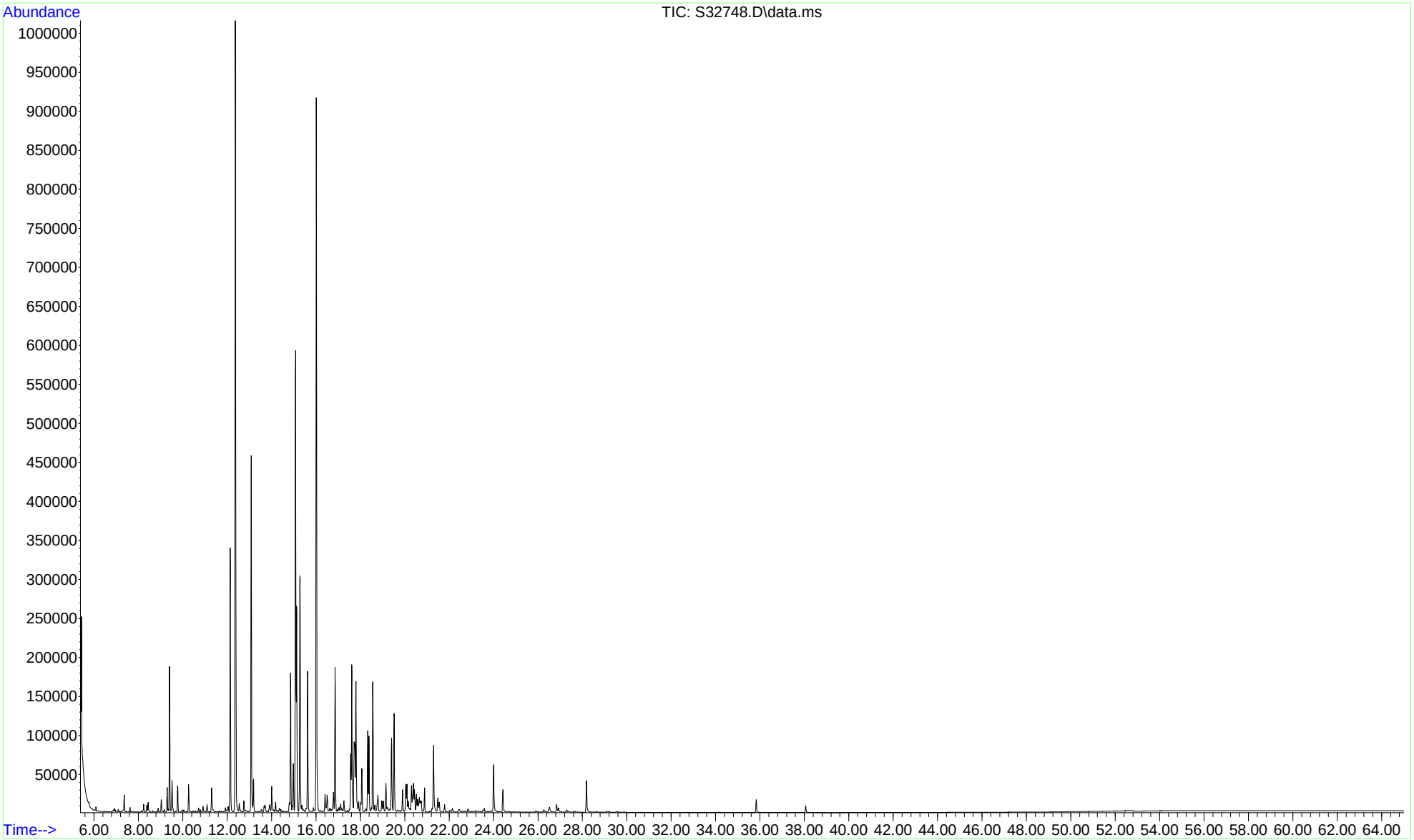




ACCUTEST

GC/MS TOTAL ION CHROMATOGRAM

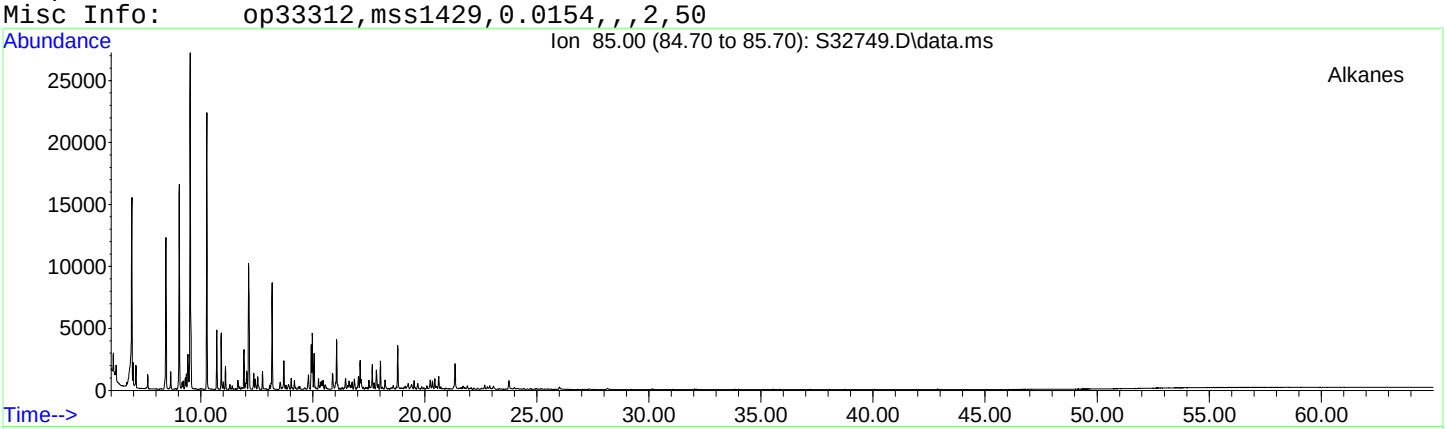
File: S:\1\data\S130528\S32748.D
Date Acquired: 28 May 2013 5:41 pm
Method File: SAPAHSIM-MTBE.M
Sample Name: mc20162-2
Misc Info: op33312,mss1429,0.0157,,,2,50



ACCUTEST

GC/MS EXTRACTED ION CHROMATOGRAM

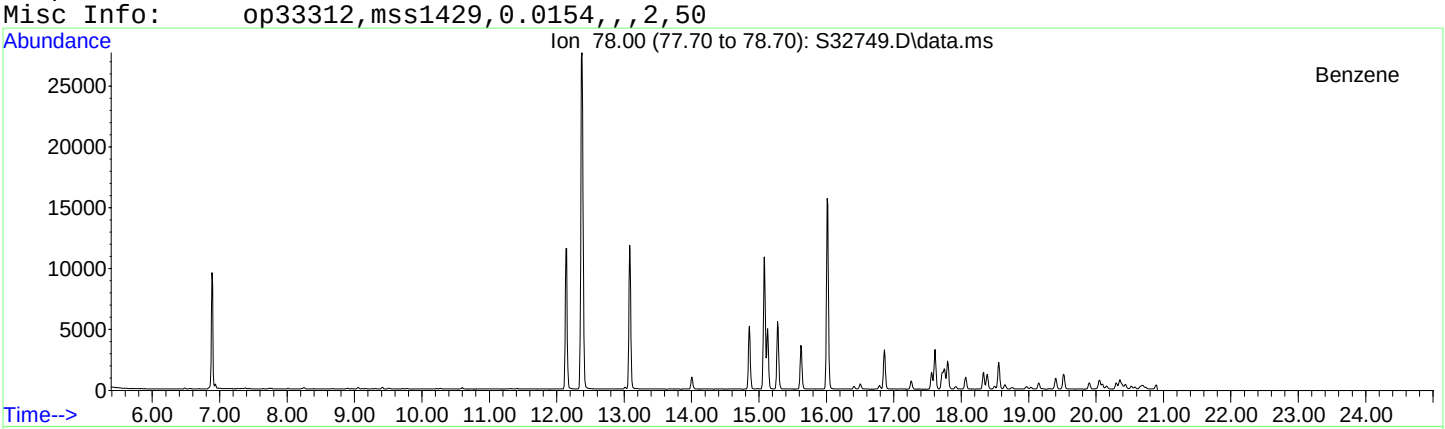
File: S:\1\data\S130528\S32749.D
Date Acquired: 28 May 2013 6:55 pm
Sample Name: mc20162-3
Misc Info: op33312,mss1429,0.0154,,,2,50



ACCUTEST

GC/MS EXTRACTED ION CHROMATOGRAM

File: S:\1\data\S130528\S32749.D
Date Acquired: 28 May 2013 6:55 pm
Sample Name: mc20162-3
Misc Info: op33312,mss1429,0.0154,,,2,50



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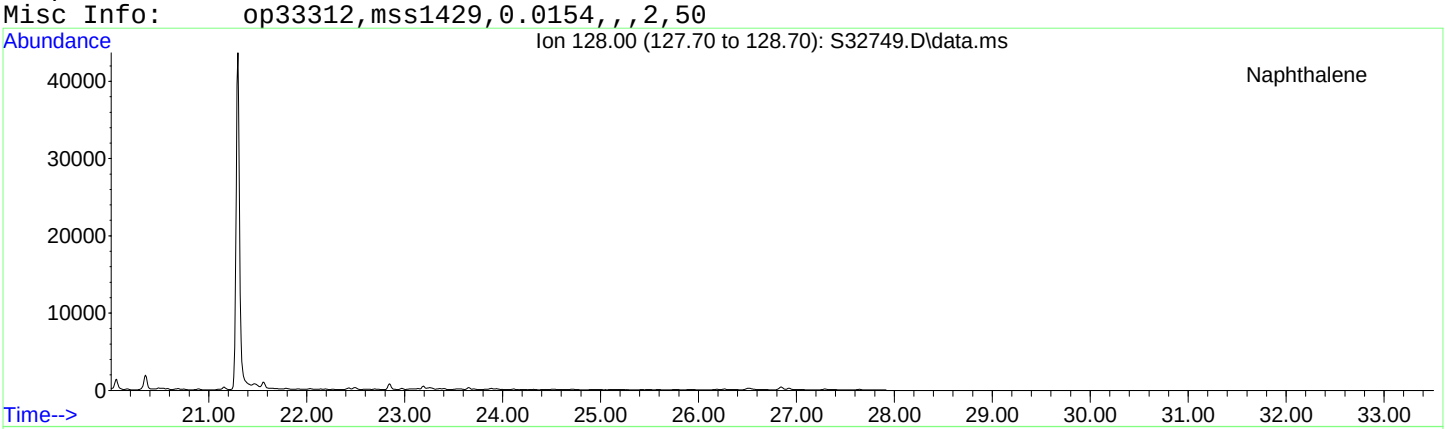
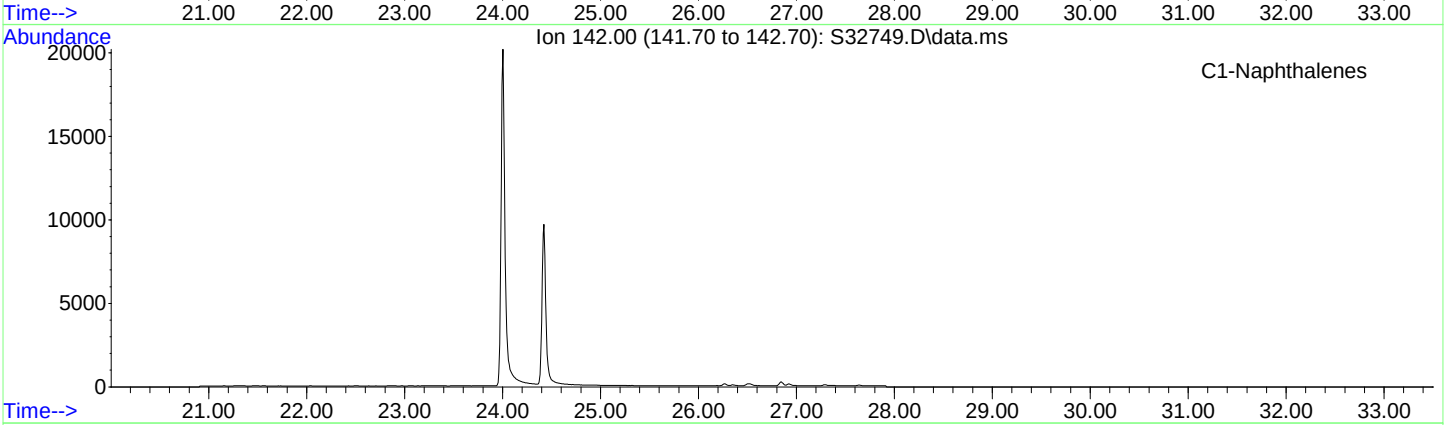
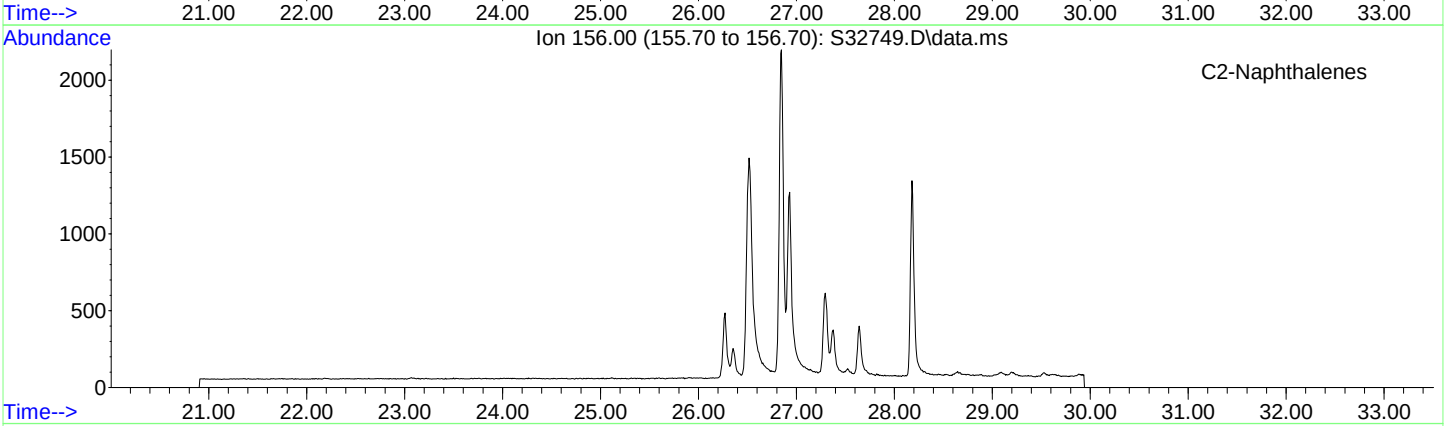
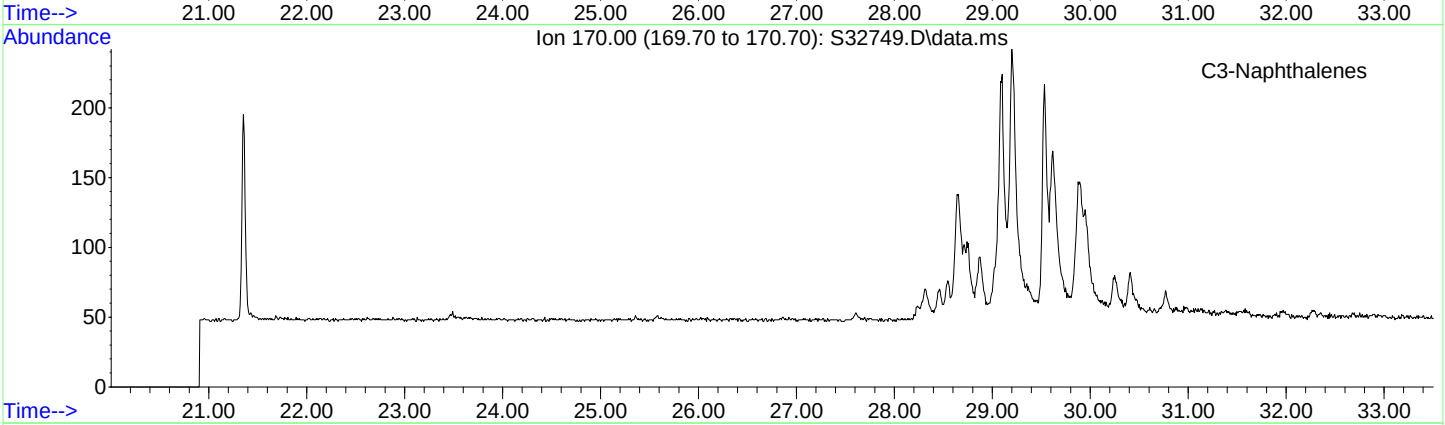
GC/MS EXTRACTED ION CHROMATOGRAM

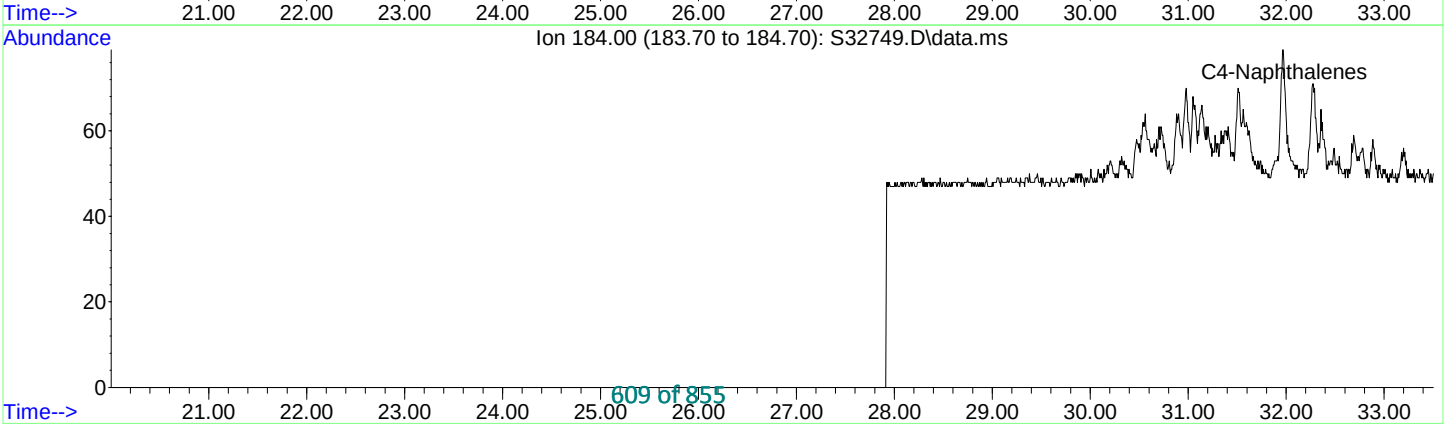
File: S:\1\data\S130528\S32749.D
Date Acquired: 28 May 2013 6:55 pm
Sample Name: mc20162-3
Misc Info: op33312,mss1429,0.0154,,,2,50







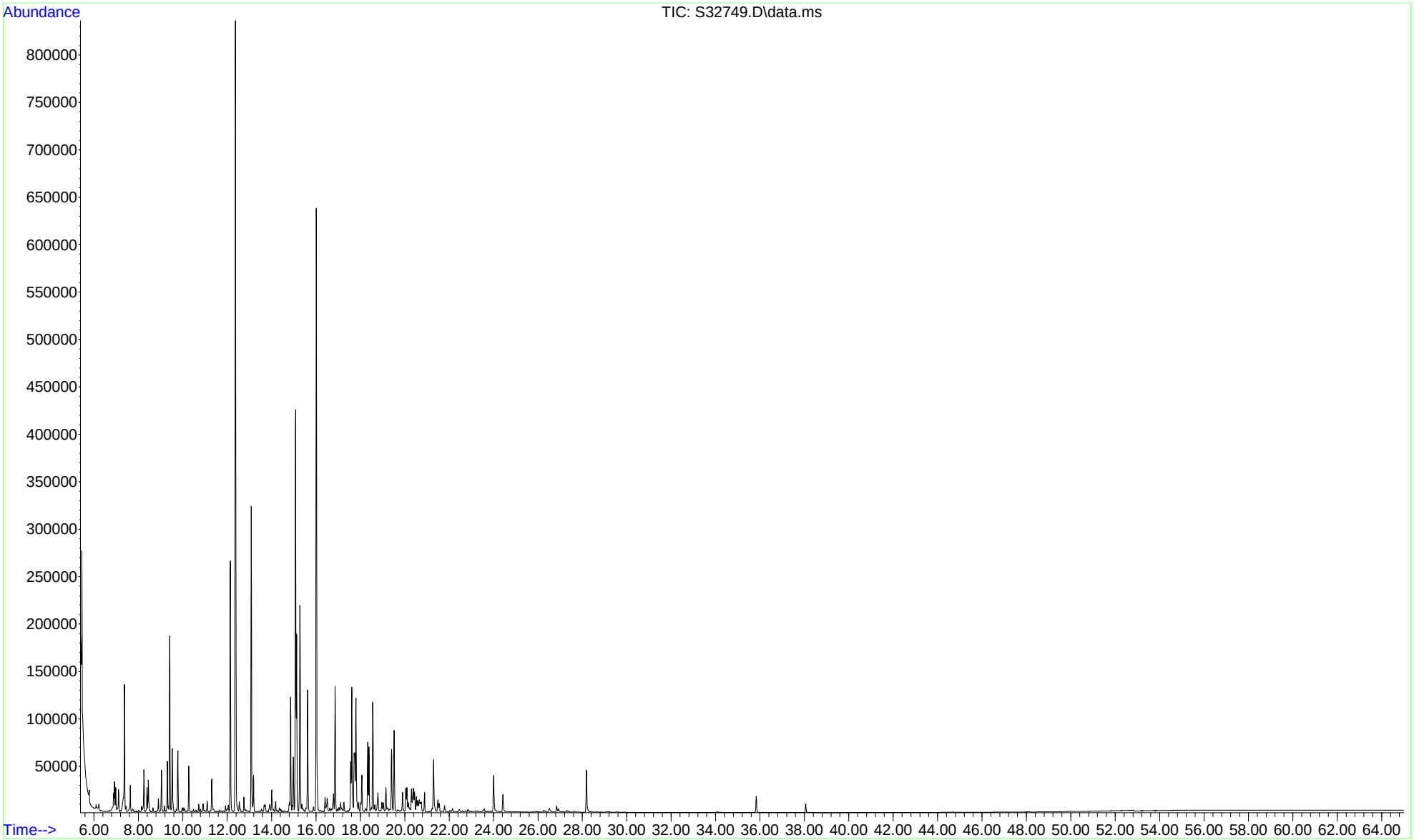




ACCUTEST

GC/MS TOTAL ION CHROMATOGRAM

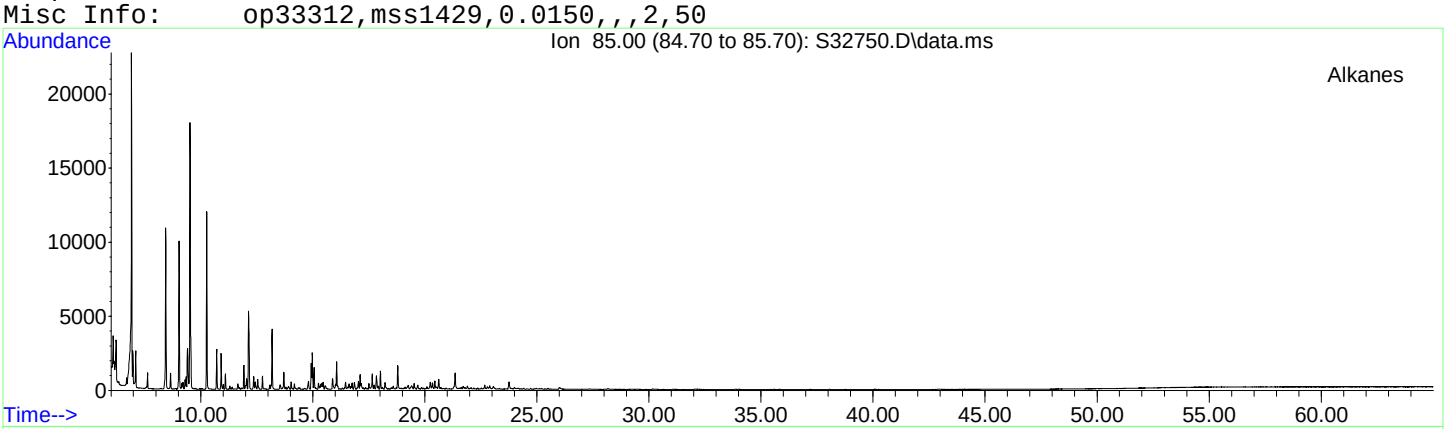
File: S:\1\data\S130528\S32749.D
Date Acquired: 28 May 2013 6:55 pm
Method File: SAPAHSIM-MTBE.M
Sample Name: mc20162-3
Misc Info: op33312,mss1429,0.0154,,,2,50

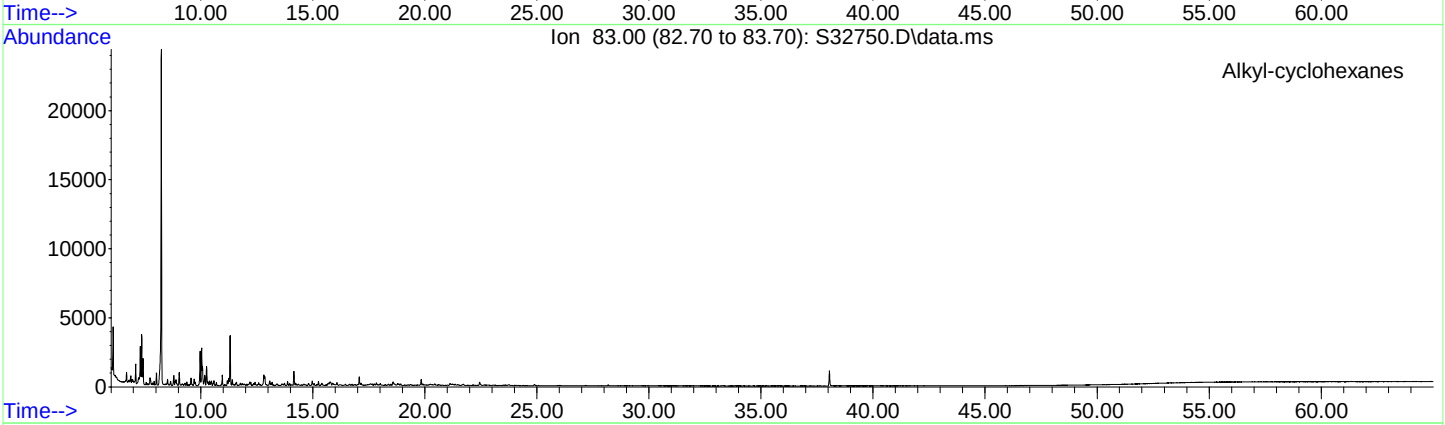


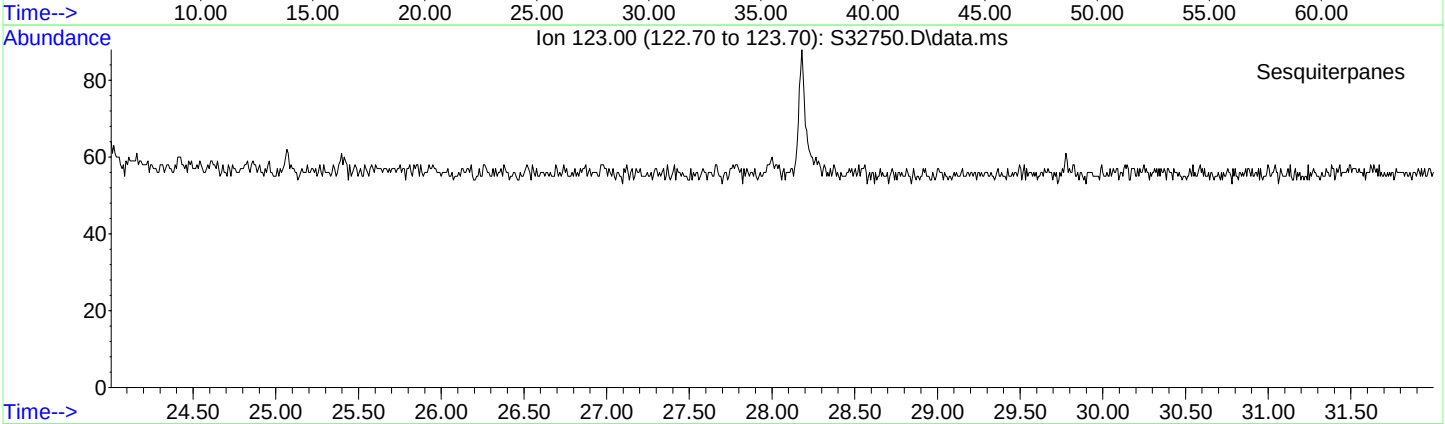
ACCUTEST

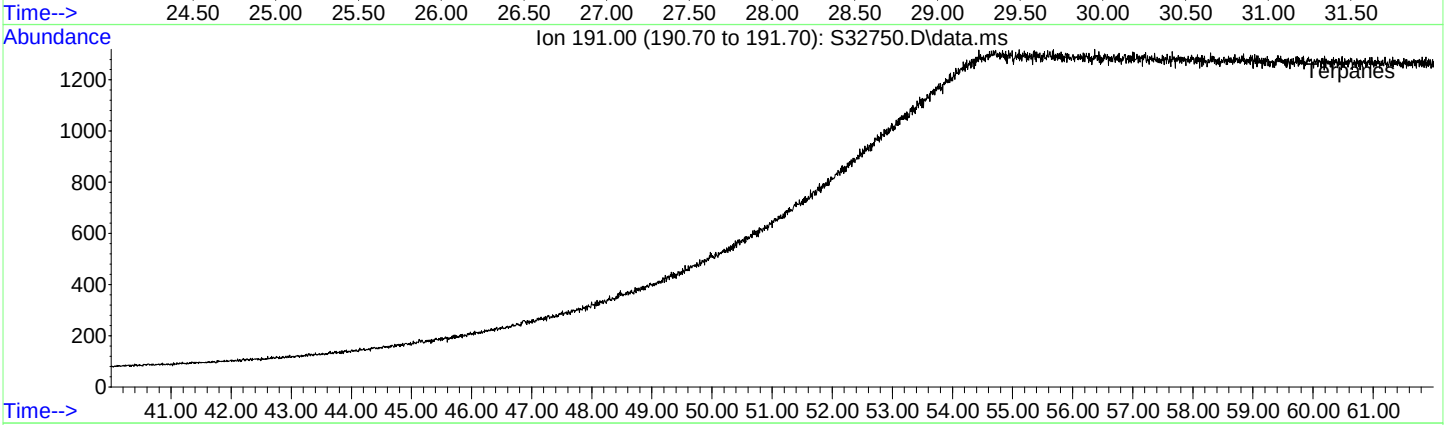
GC/MS EXTRACTED ION CHROMATOGRAM

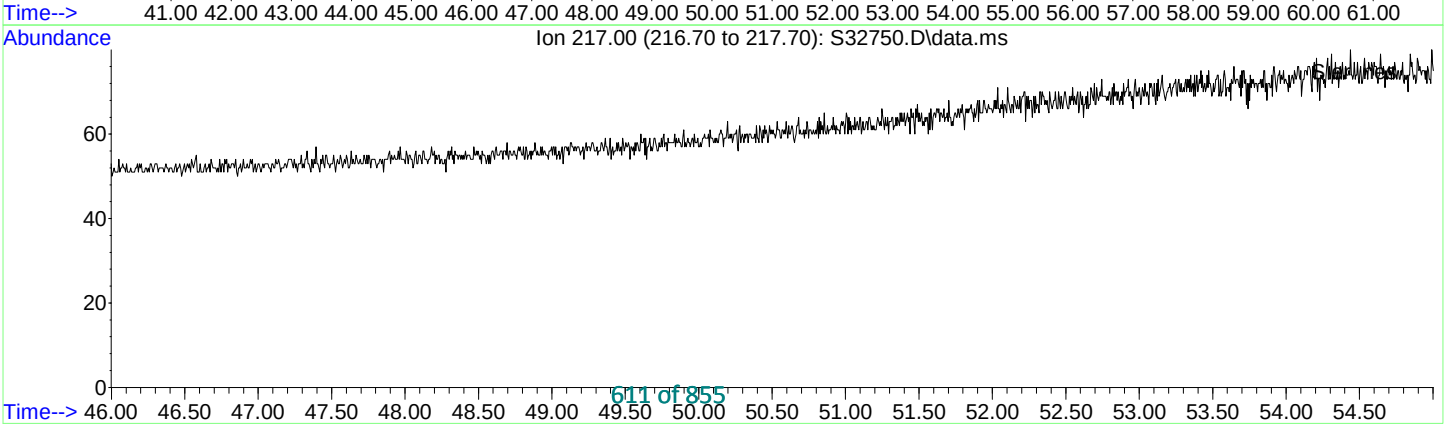
File: S:\1\data\S130528\S32750.D
Date Acquired: 28 May 2013 8:10 pm
Sample Name: mc20162-4
Misc Info: op33312,mss1429,0.0150,,,2,50







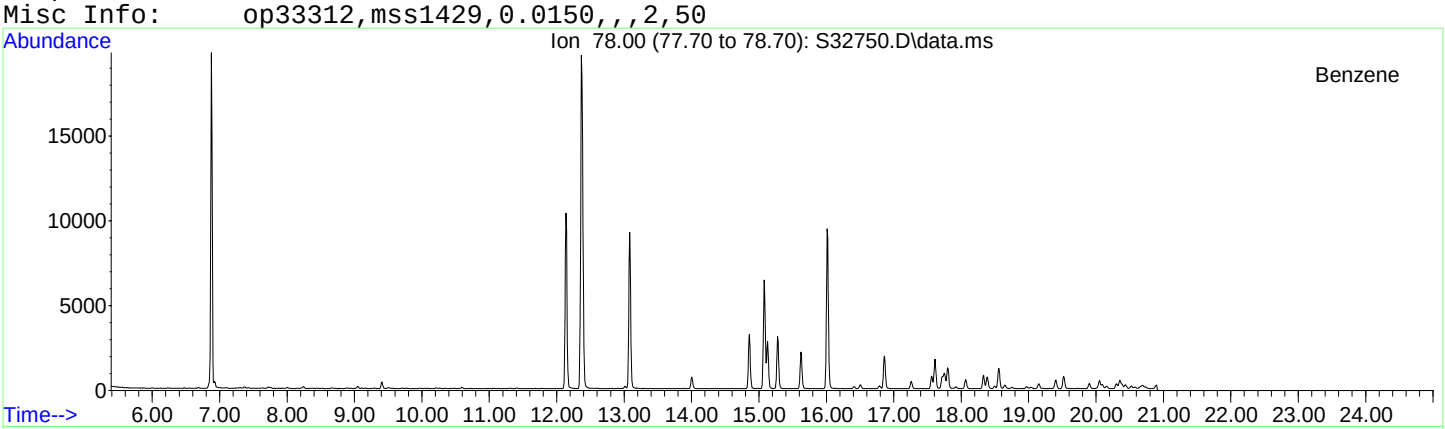


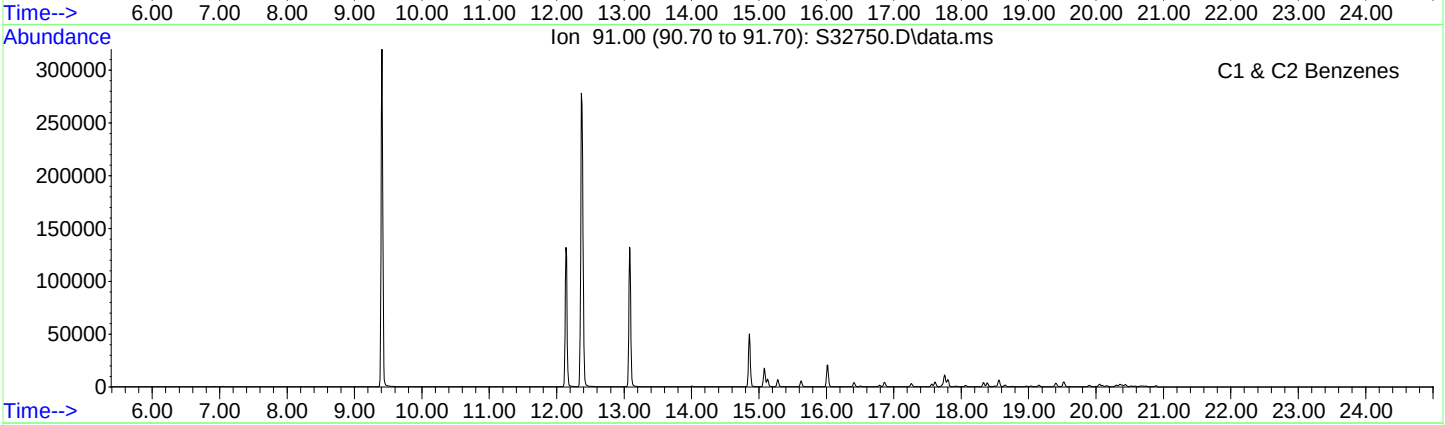


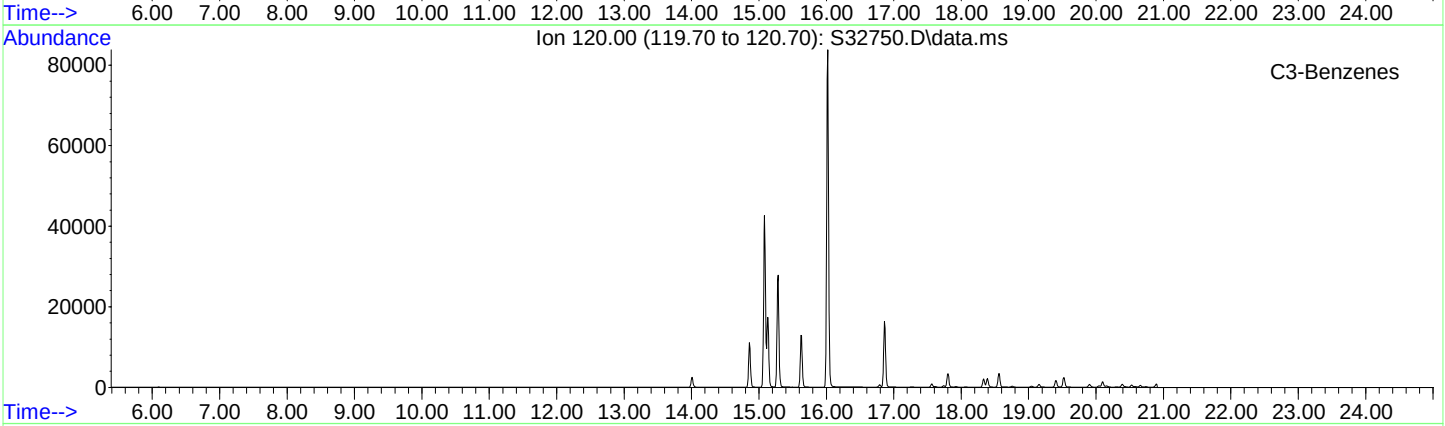
ACCUTEST

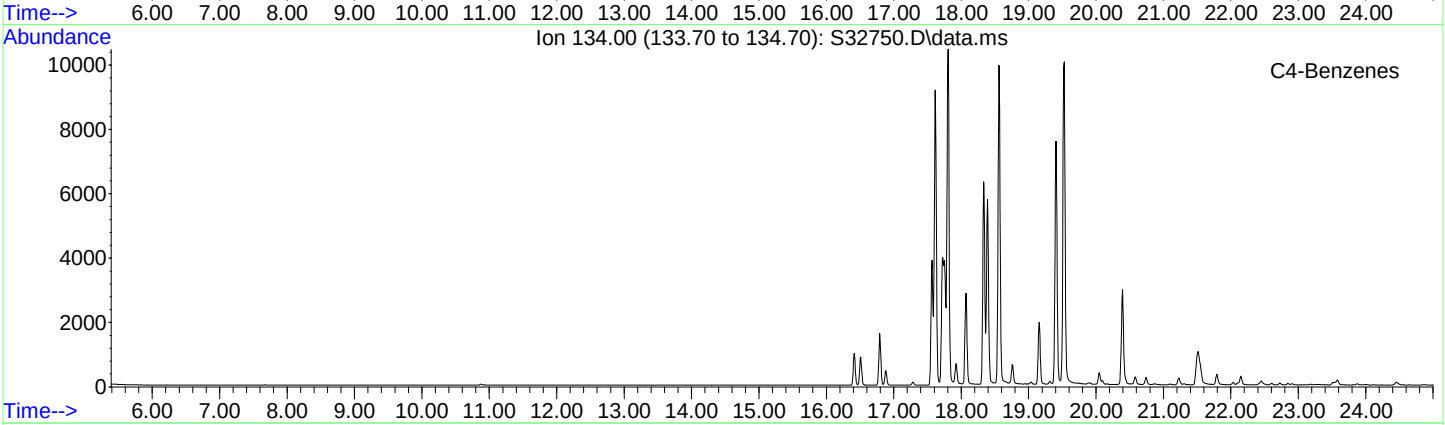
GC/MS EXTRACTED ION CHROMATOGRAM

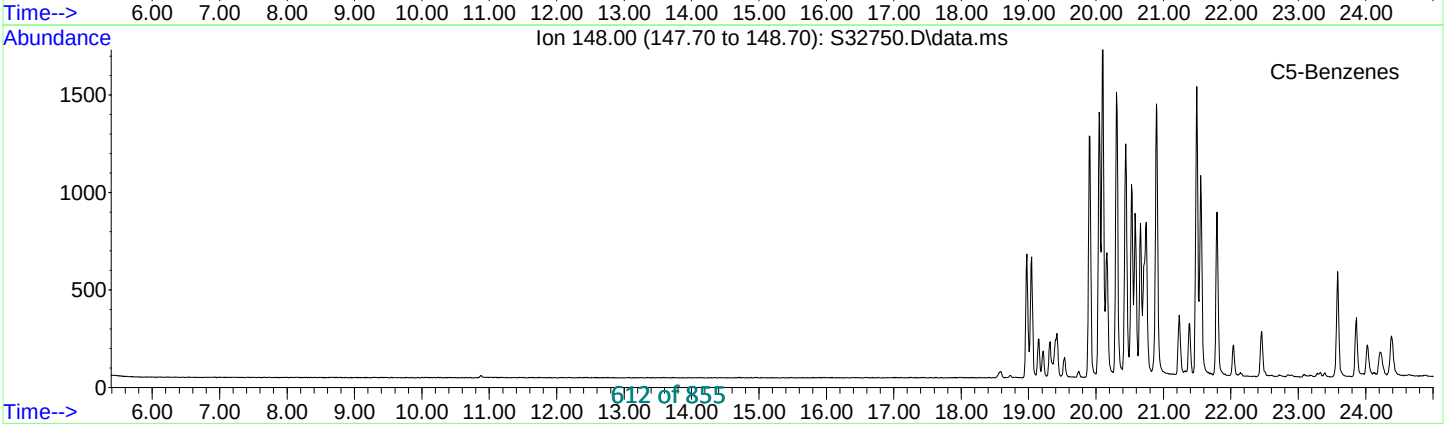
File: S:\1\data\S130528\S32750.D
Date Acquired: 28 May 2013 8:10 pm
Sample Name: mc20162-4
Misc Info: op33312,mss1429,0.0150,,,2,50







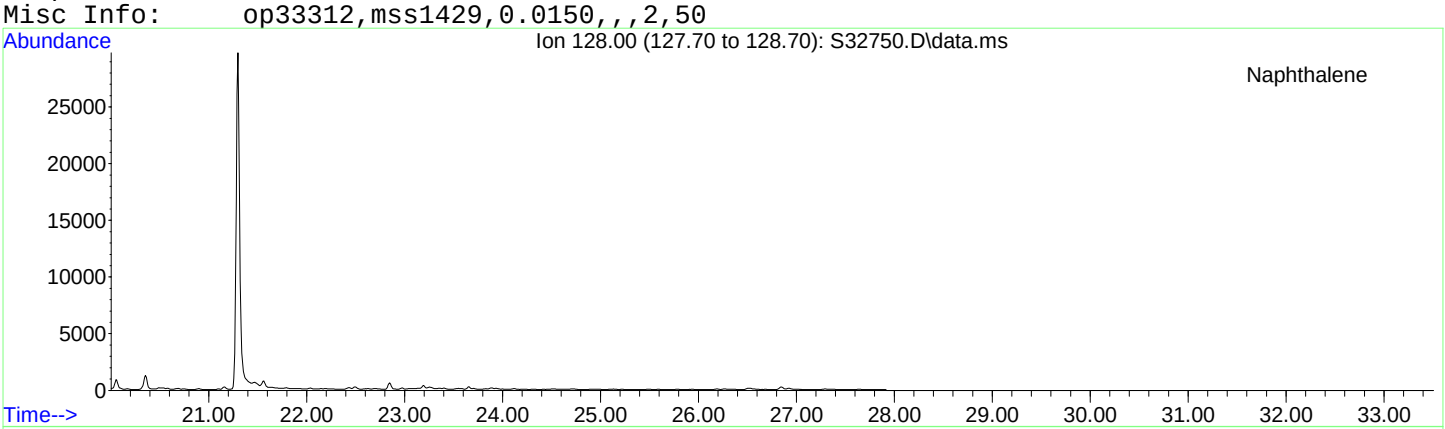


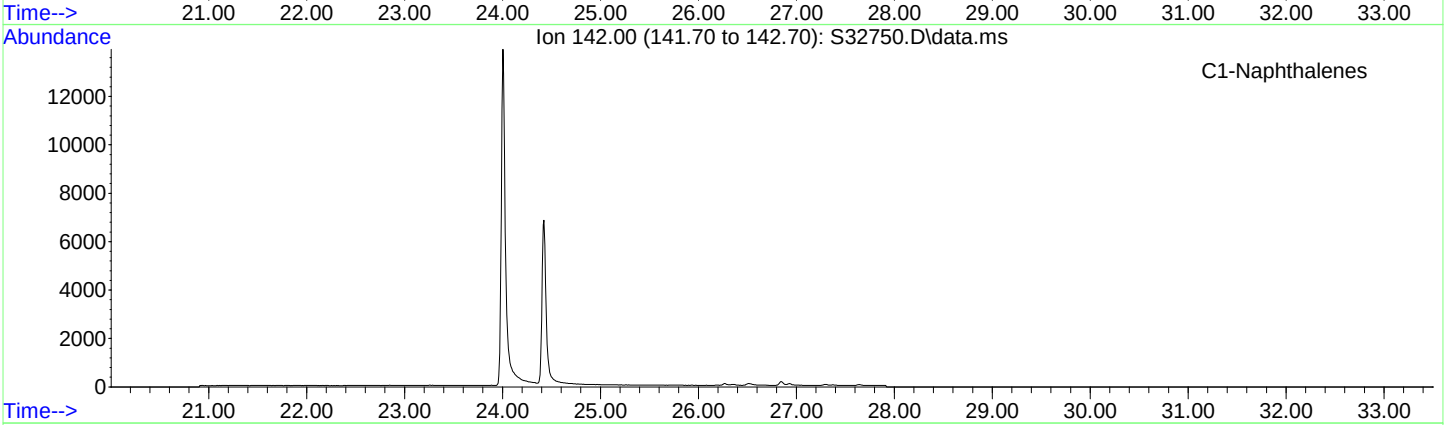


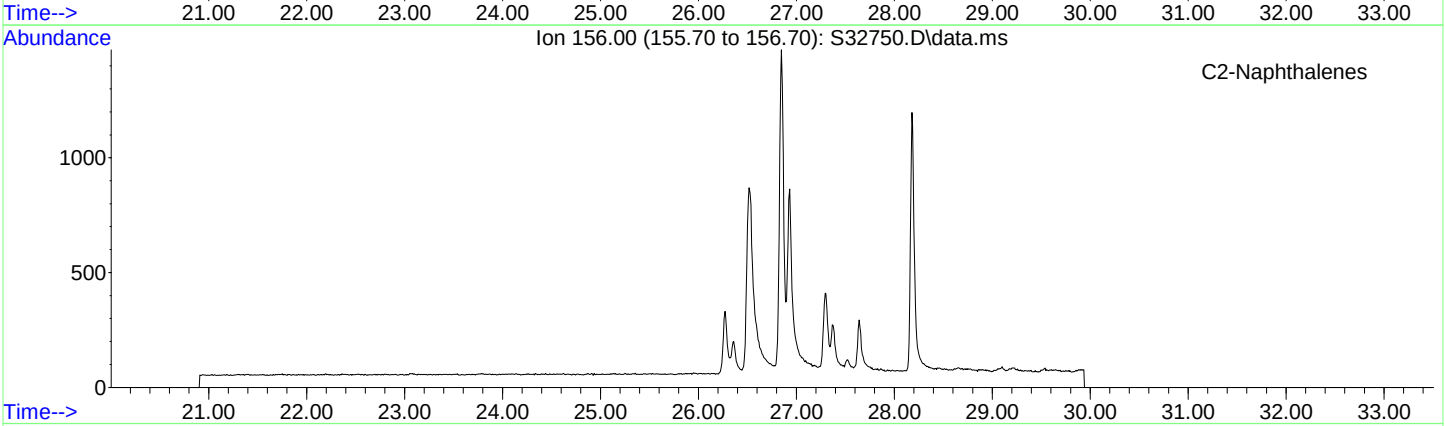
ACCUTEST

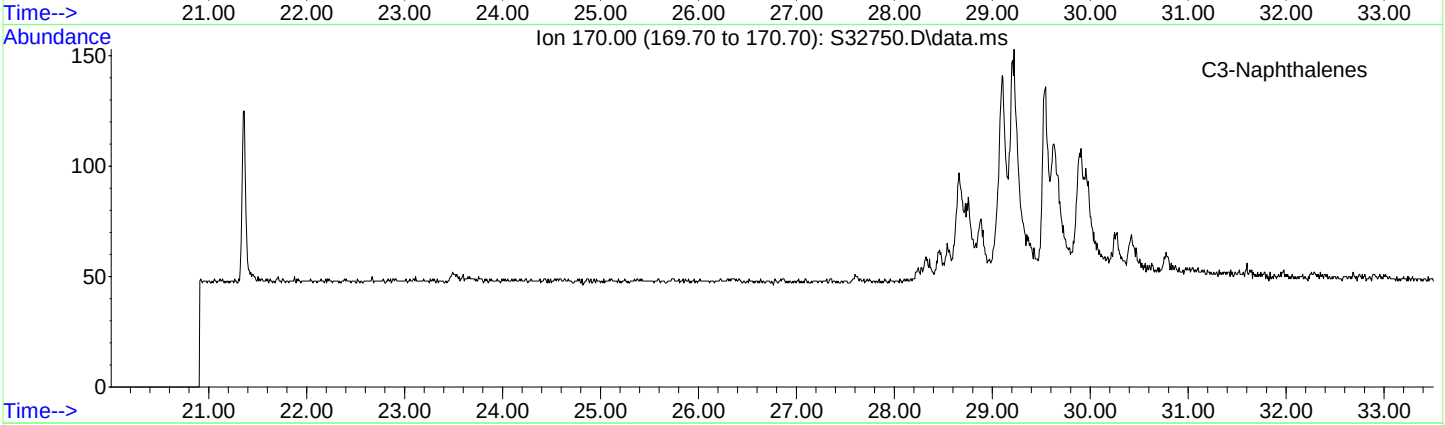
GC/MS EXTRACTED ION CHROMATOGRAM

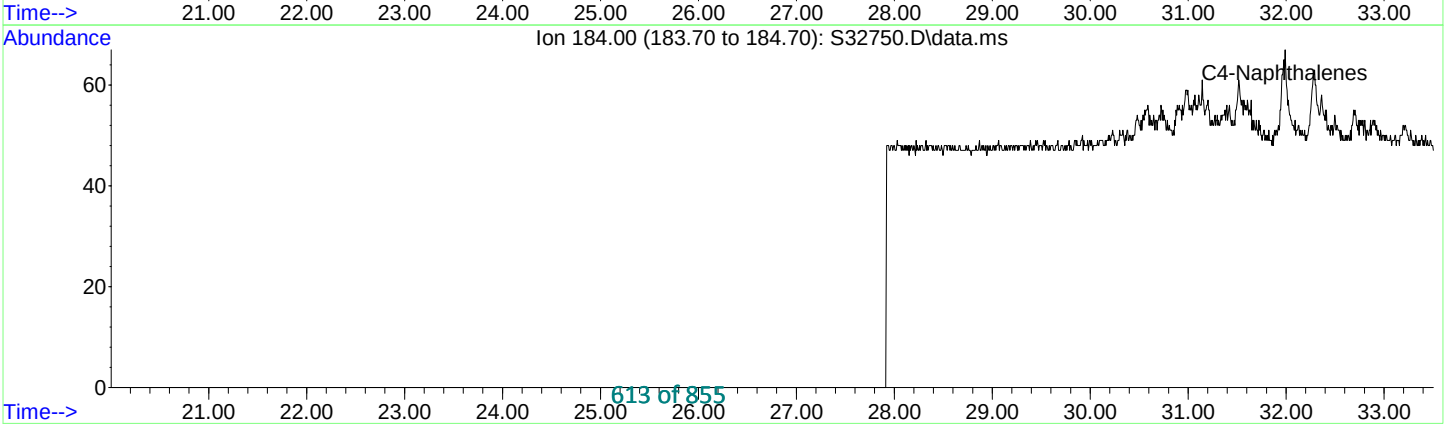
File: S:\1\data\S130528\S32750.D
Date Acquired: 28 May 2013 8:10 pm
Sample Name: mc20162-4
Misc Info: op33312,mss1429,0.0150,,,2,50







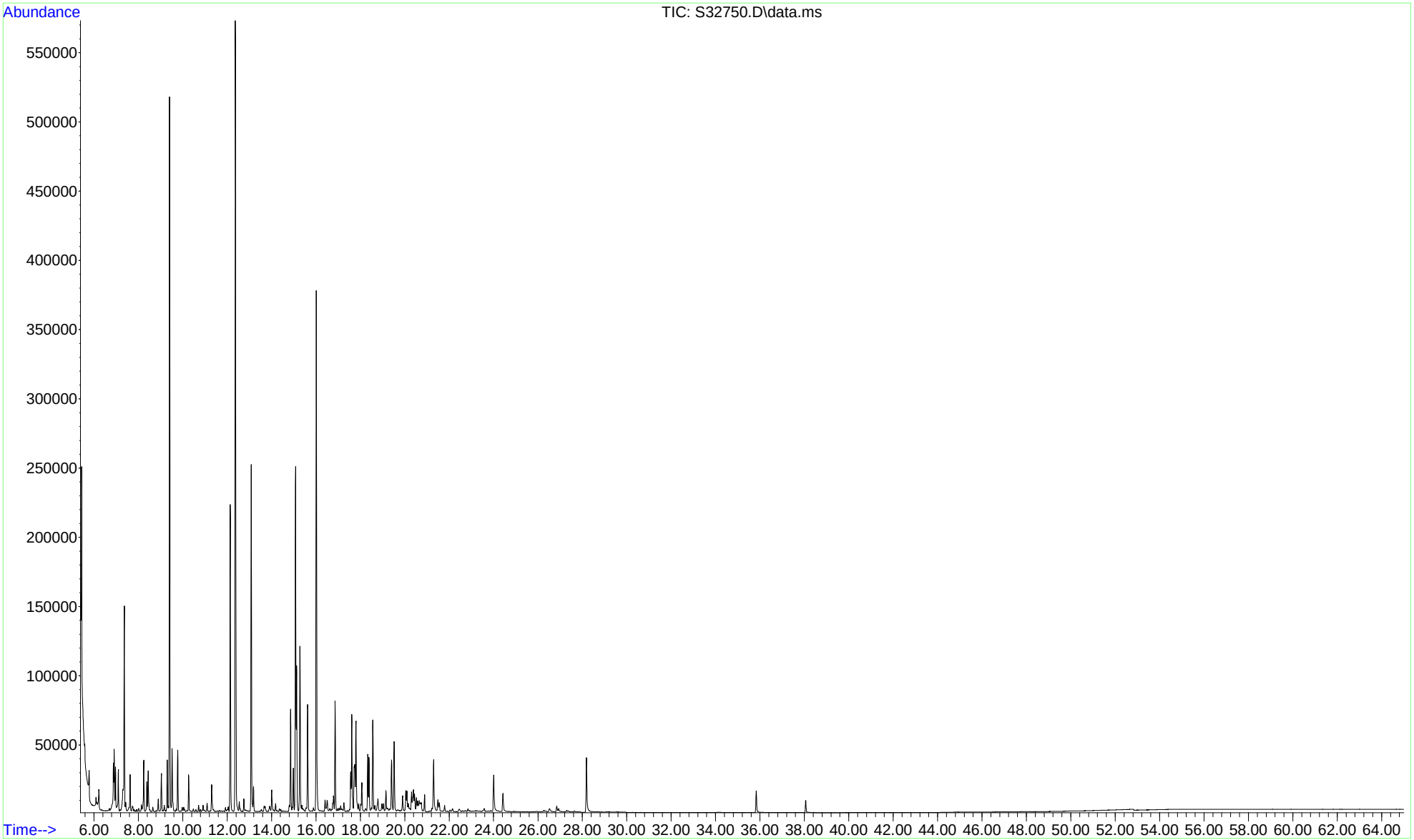




ACCUTEST

GC/MS TOTAL ION CHROMATOGRAM

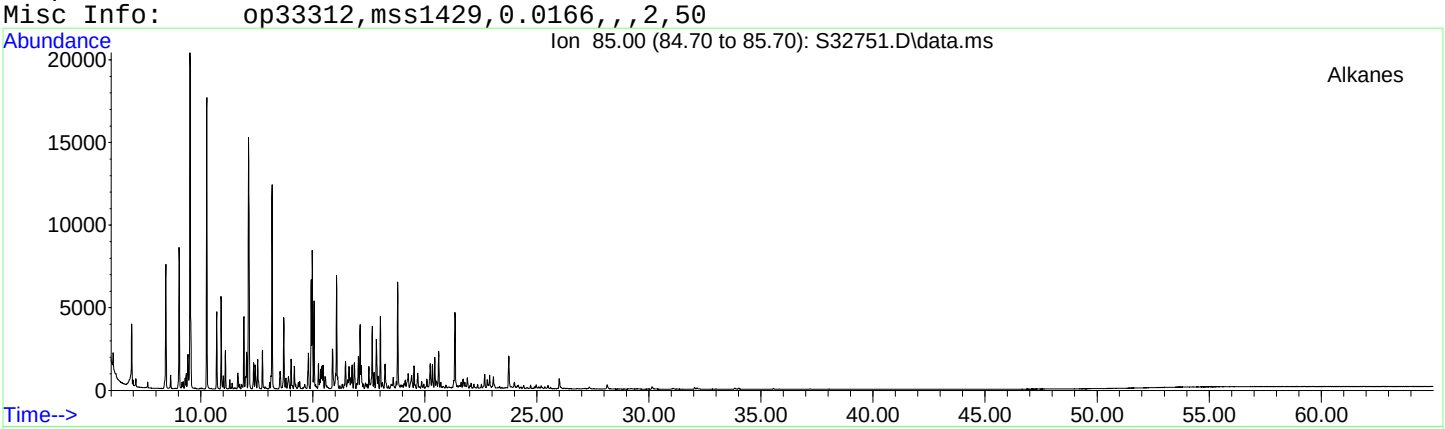
File: S:\1\data\S130528\S32750.D
Date Acquired: 28 May 2013 8:10 pm
Method File: SAPAHSIM-MTBE.M
Sample Name: mc20162-4
Misc Info: op33312,mss1429,0.0150,,,2,50



ACCUTEST

GC/MS EXTRACTED ION CHROMATOGRAM

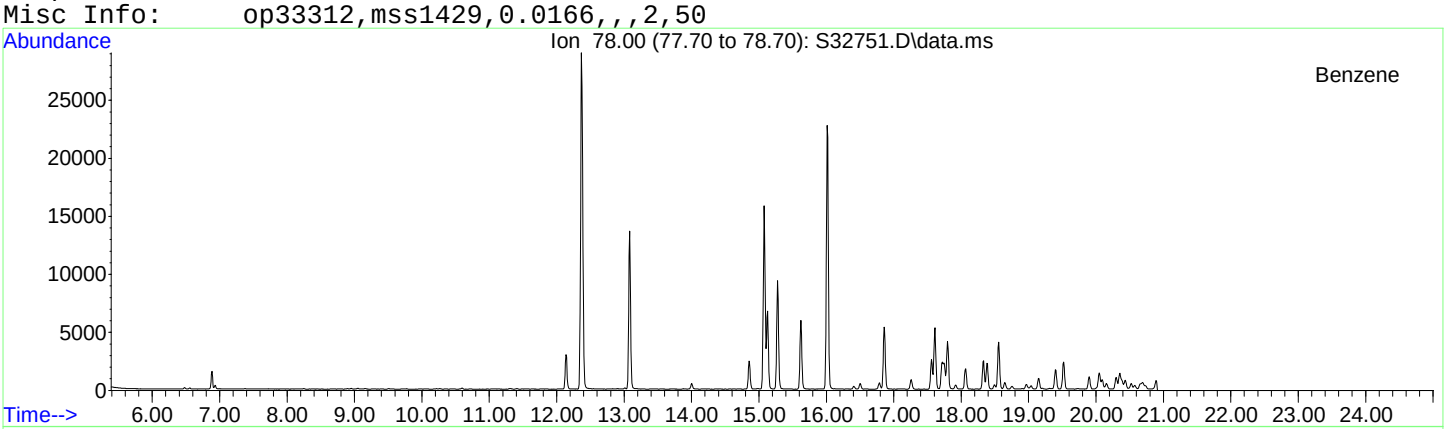
File: S:\1\data\S130528\S32751.D
Date Acquired: 28 May 2013 9:33 pm
Sample Name: mc20162-5
Misc Info: op33312,mss1429,0.0166,,,2,50

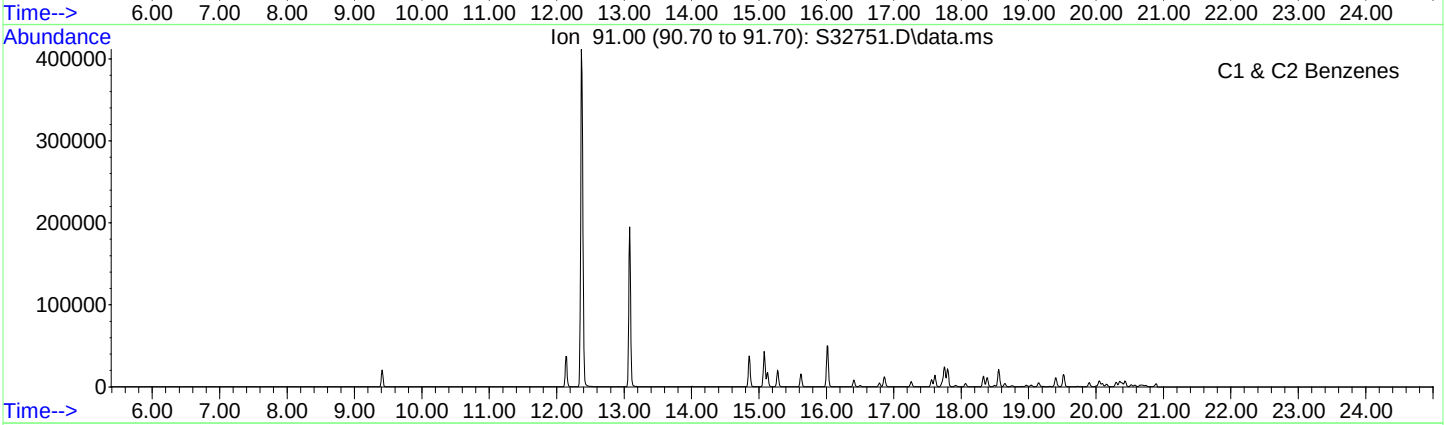


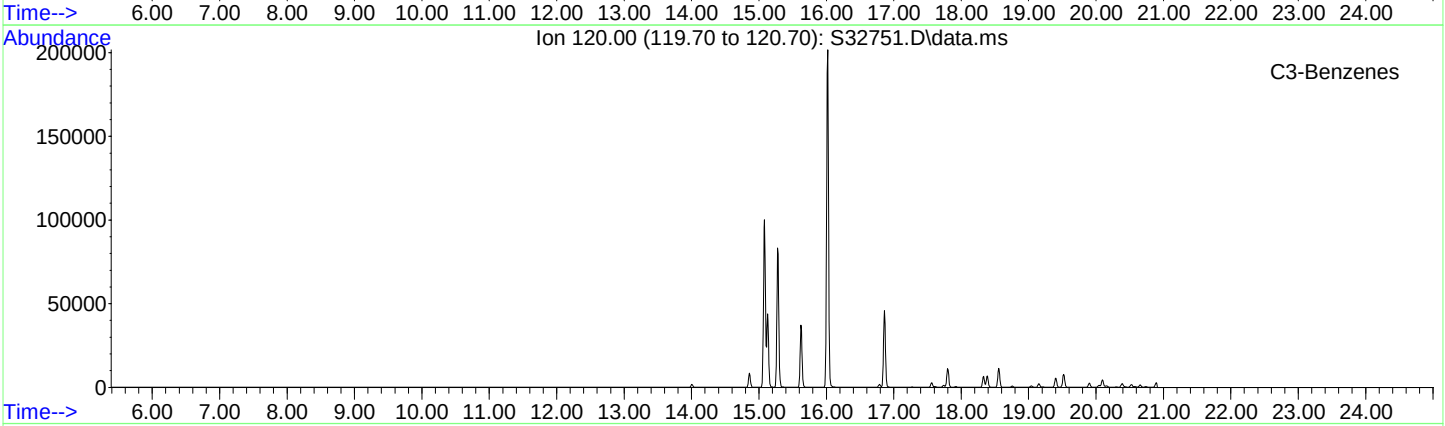
ACCUTEST

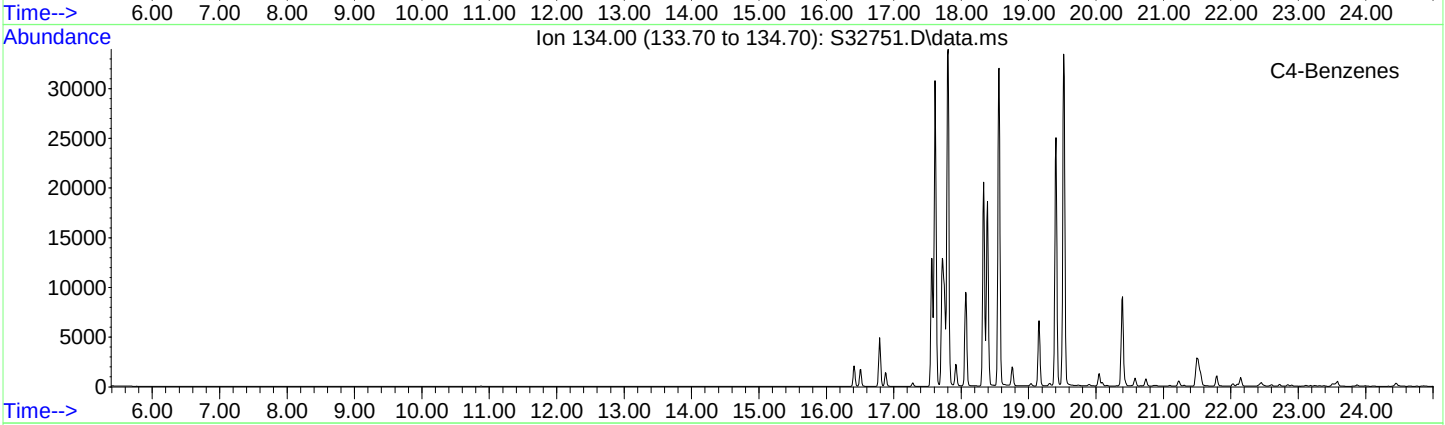
GC/MS EXTRACTED ION CHROMATOGRAM

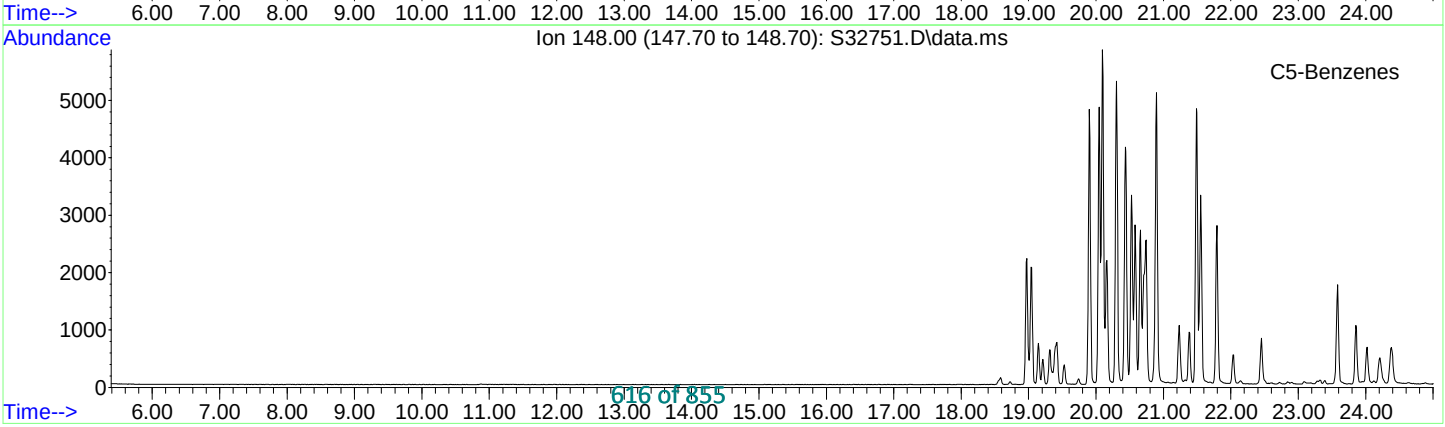
File: S:\1\data\S130528\S32751.D
Date Acquired: 28 May 2013 9:33 pm
Sample Name: mc20162-5
Misc Info: op33312,mss1429,0.0166,,,2,50







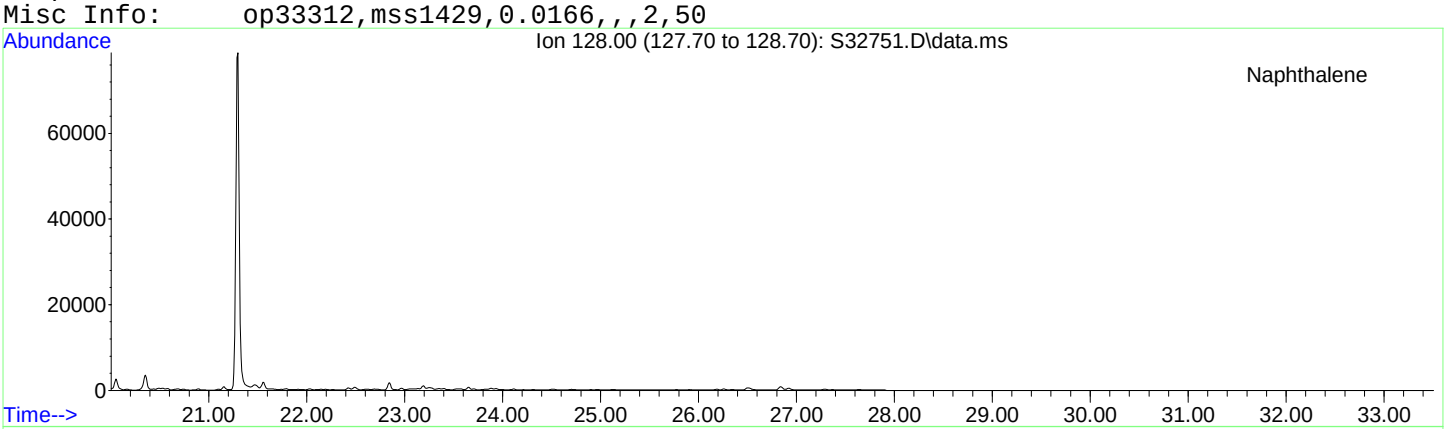


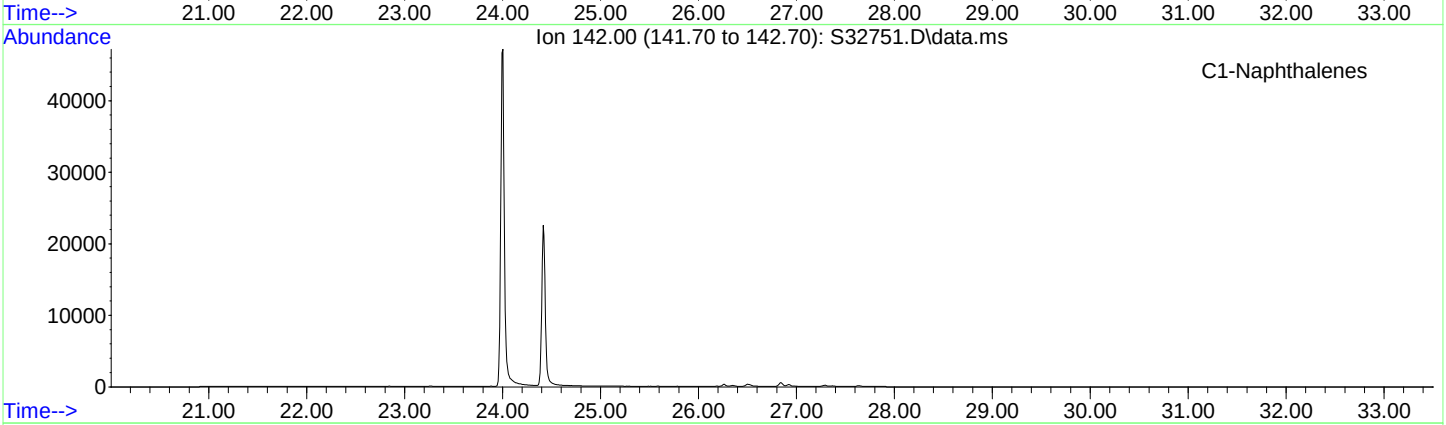


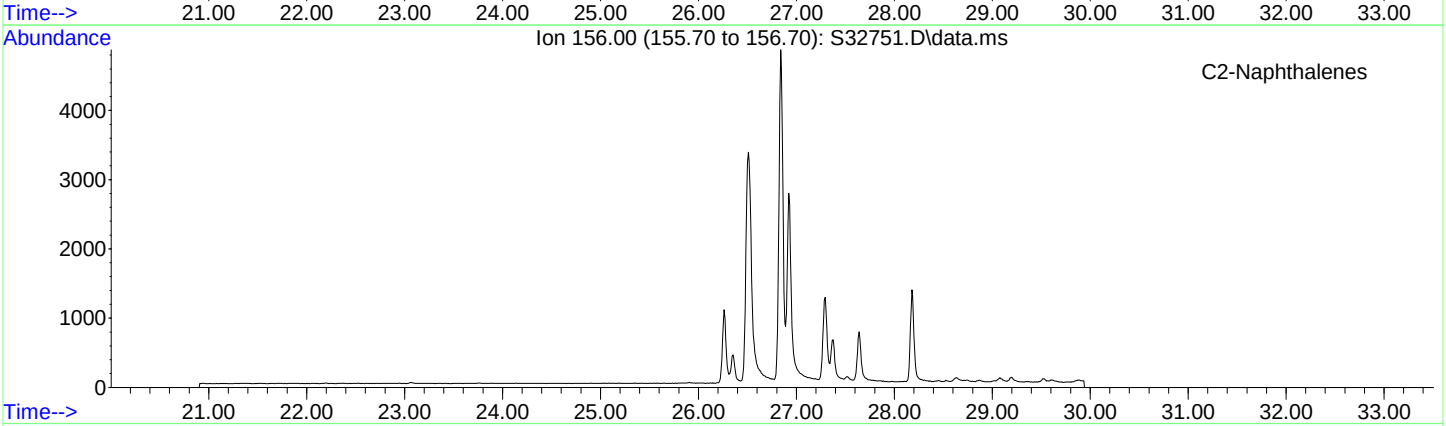
ACCUTEST

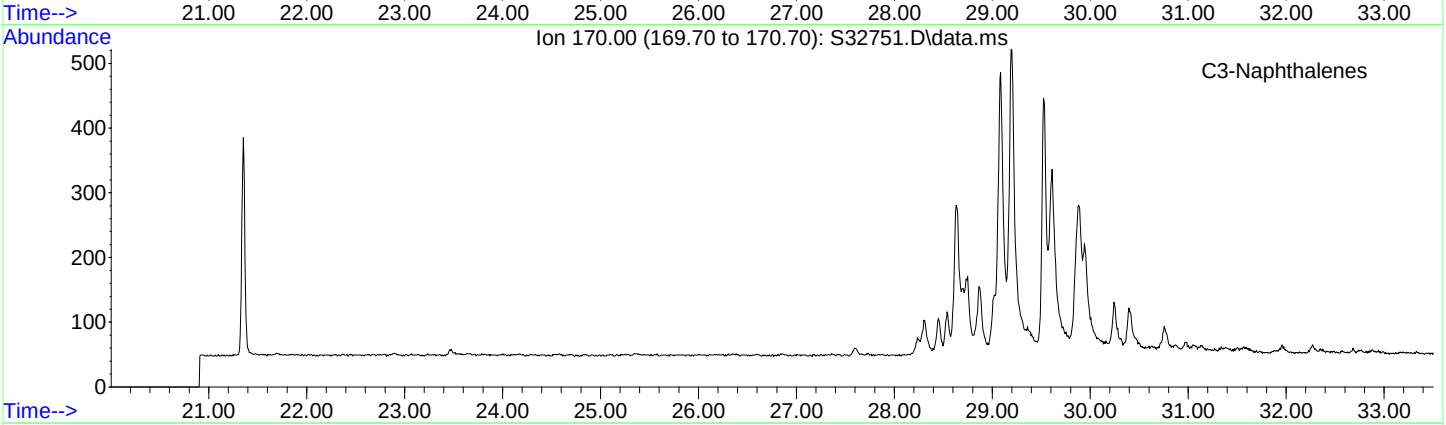
GC/MS EXTRACTED ION CHROMATOGRAM

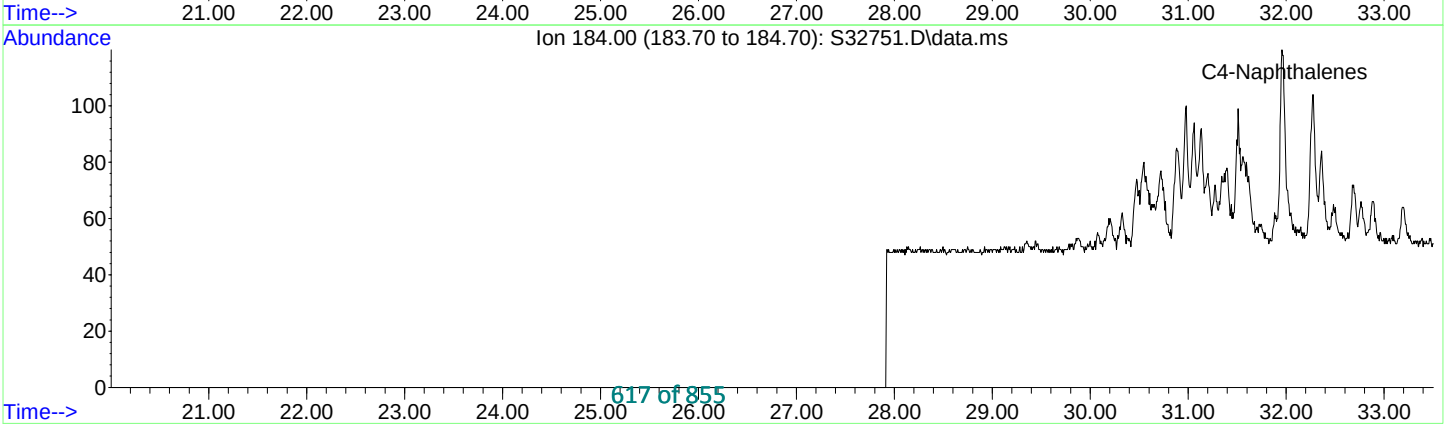
File: S:\1\data\S130528\S32751.D
Date Acquired: 28 May 2013 9:33 pm
Sample Name: mc20162-5
Misc Info: op33312,mss1429,0.0166,,,2,50







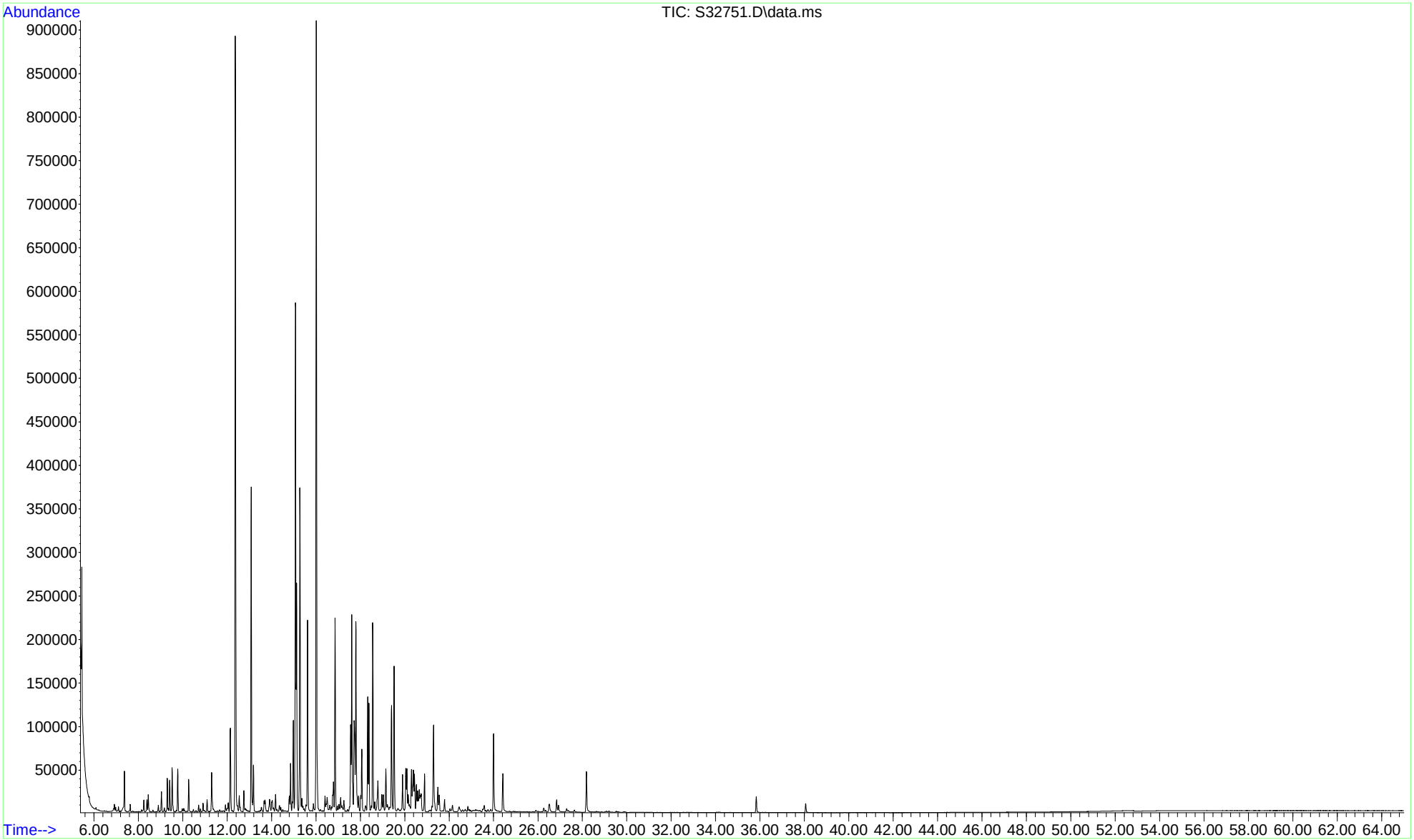




ACCUTEST

GC/MS TOTAL ION CHROMATOGRAM

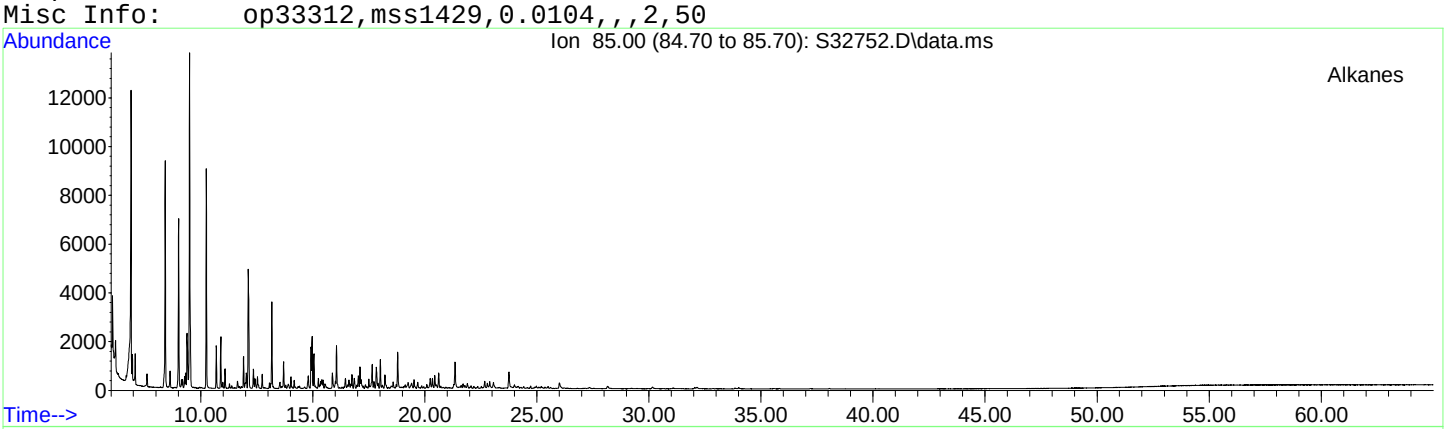
File: S:\1\data\S130528\S32751.D
Date Acquired: 28 May 2013 9:33 pm
Method File: SAPAHSIM-MTBE.M
Sample Name: mc20162-5
Misc Info: op33312,mss1429,0.0166,,,2,50

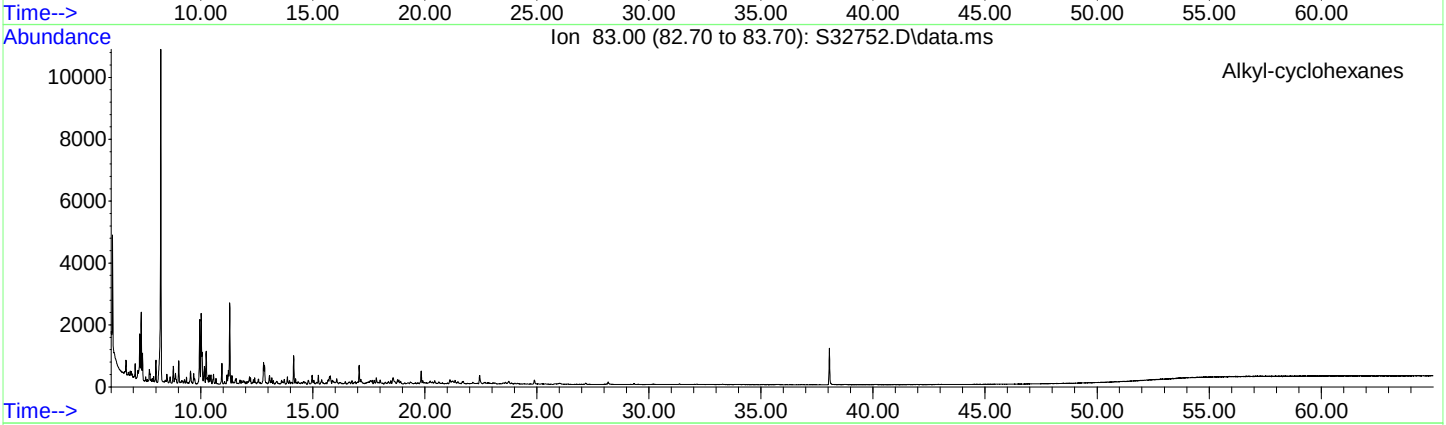


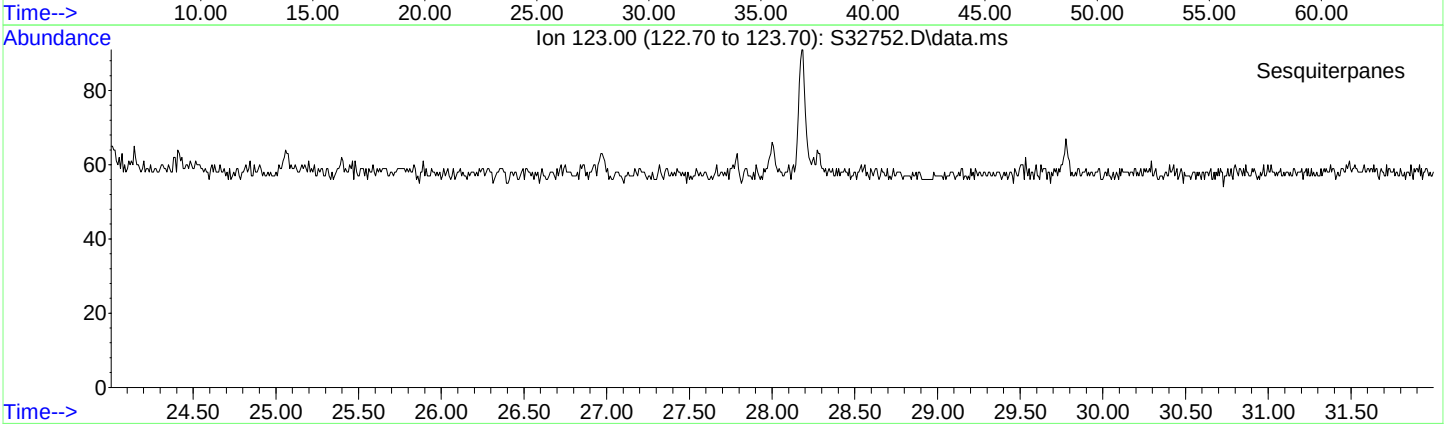
ACCUTEST

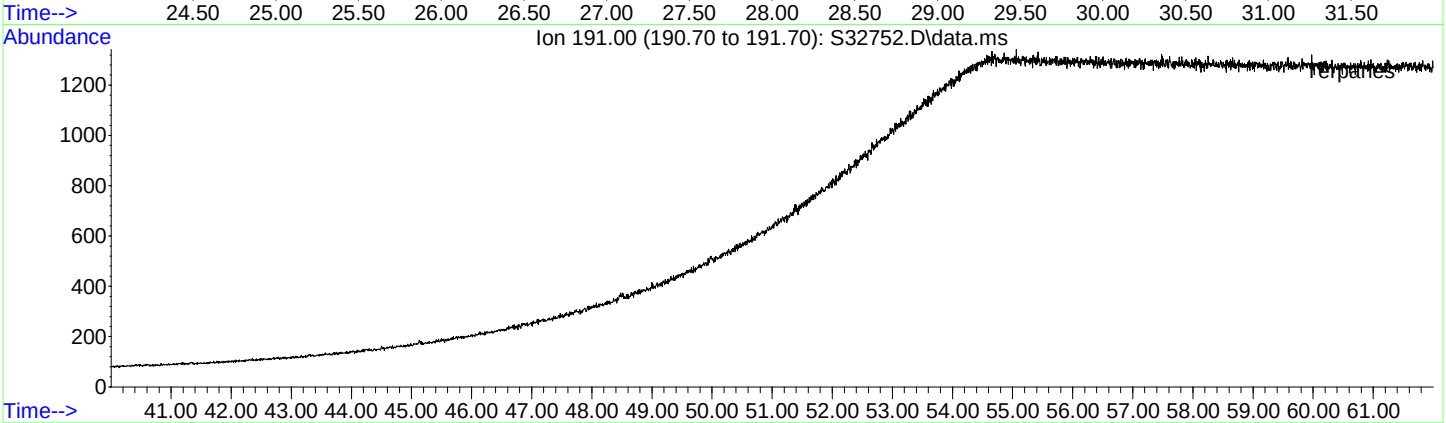
GC/MS EXTRACTED ION CHROMATOGRAM

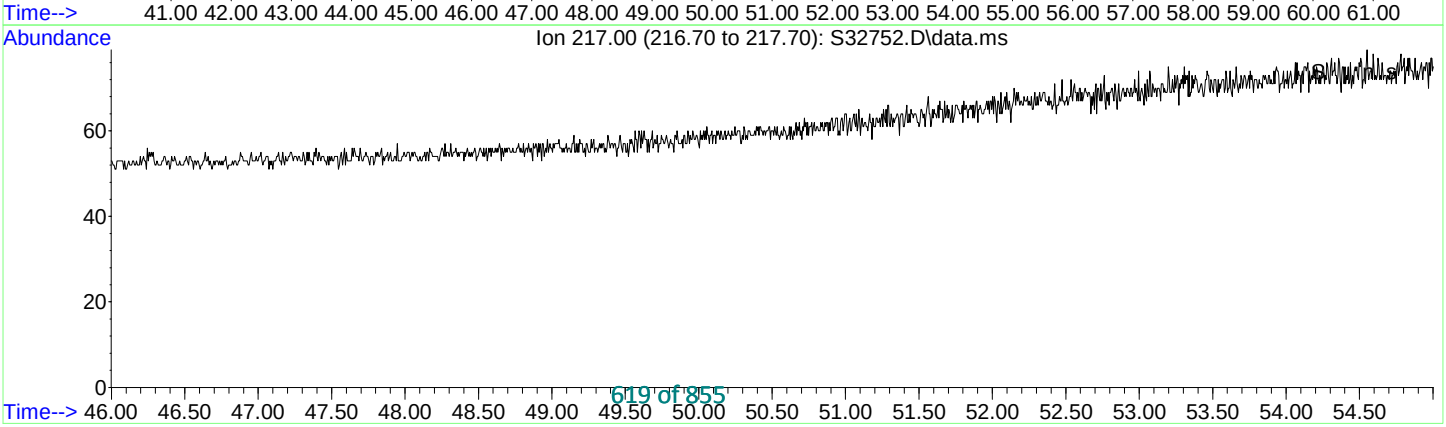
File: S:\1\data\S130528\S32752.D
Date Acquired: 28 May 2013 11:10 pm
Sample Name: mc20162-6
Misc Info: op33312,mss1429,0.0104,,,2,50







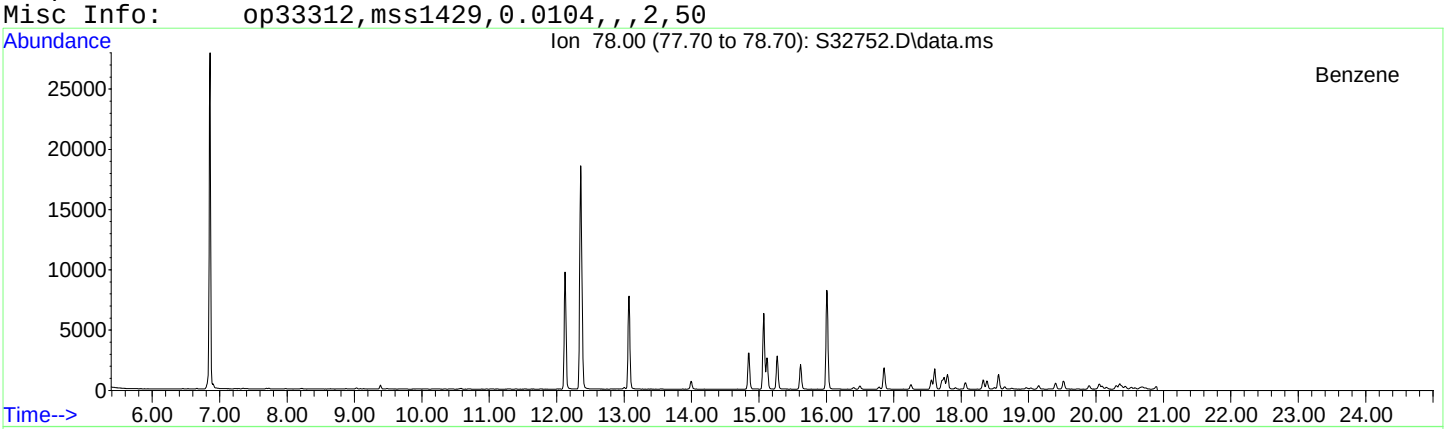




ACCUTEST

GC/MS EXTRACTED ION CHROMATOGRAM

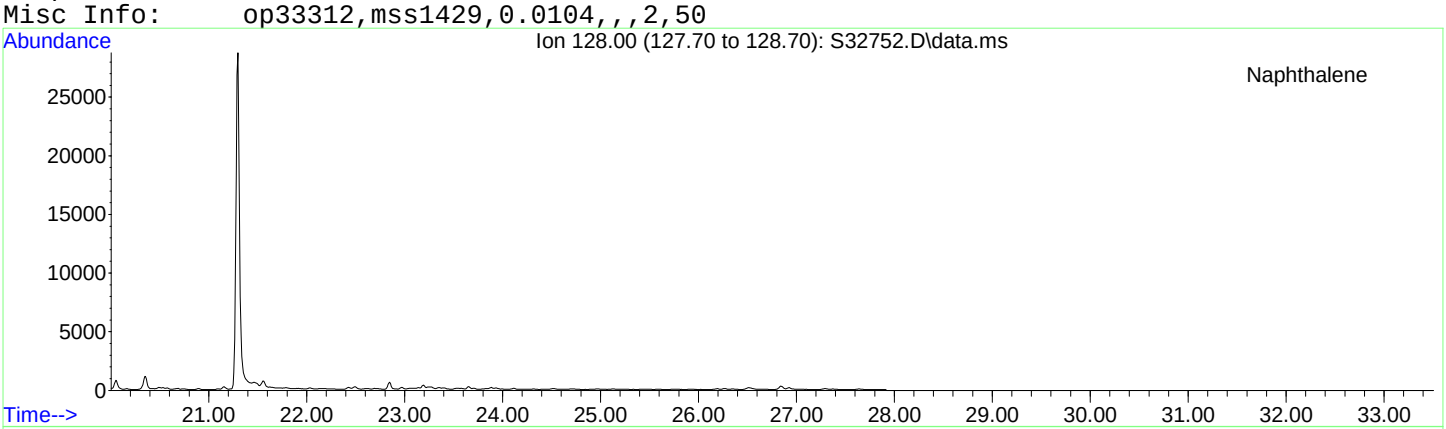
File: S:\1\data\S130528\S32752.D
Date Acquired: 28 May 2013 11:10 pm
Sample Name: mc20162-6
Misc Info: op33312,mss1429,0.0104,,,2,50

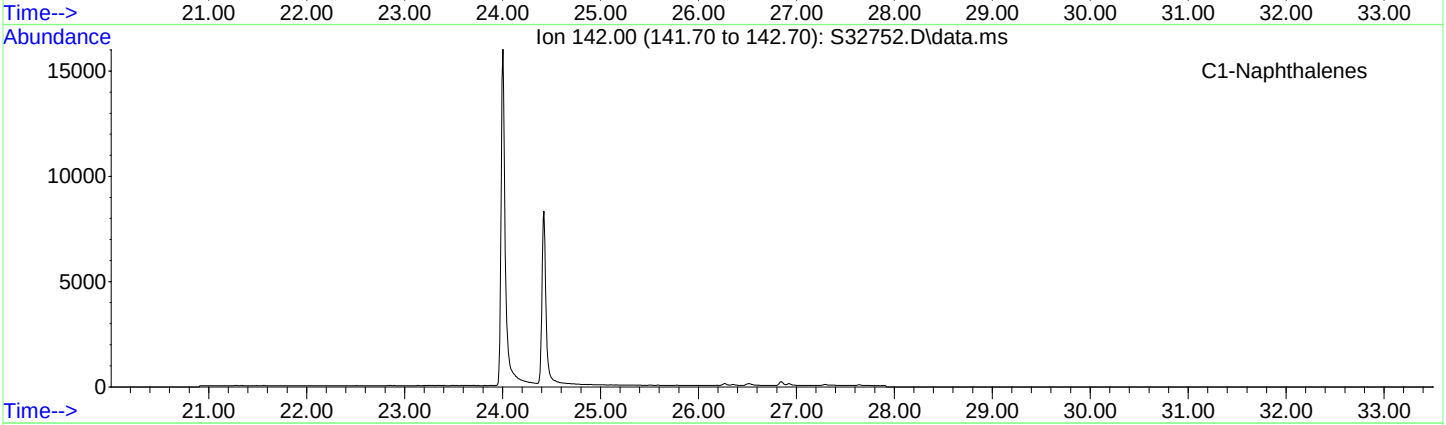


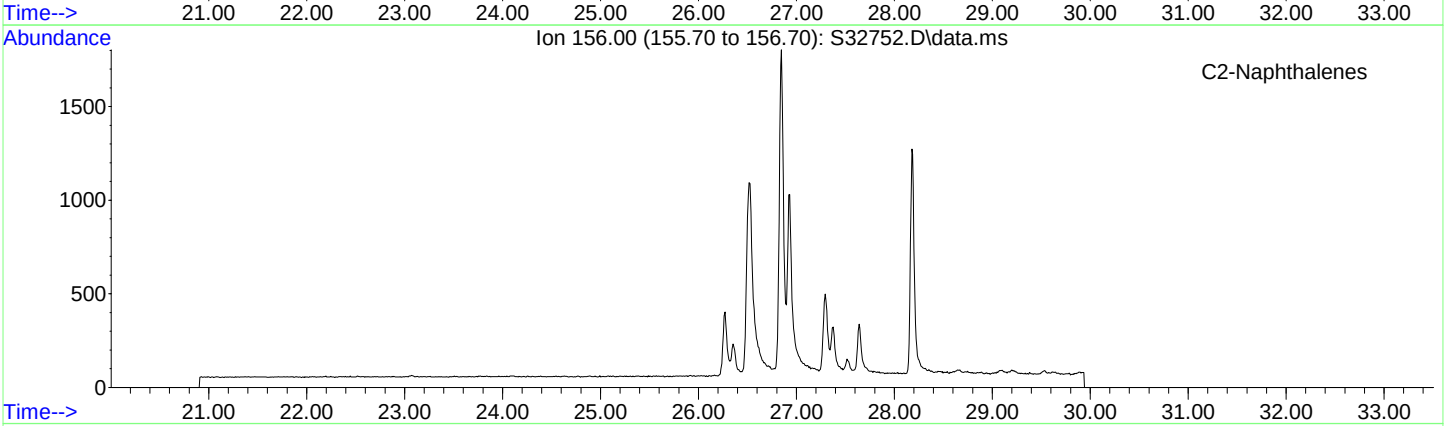
ACCUTEST

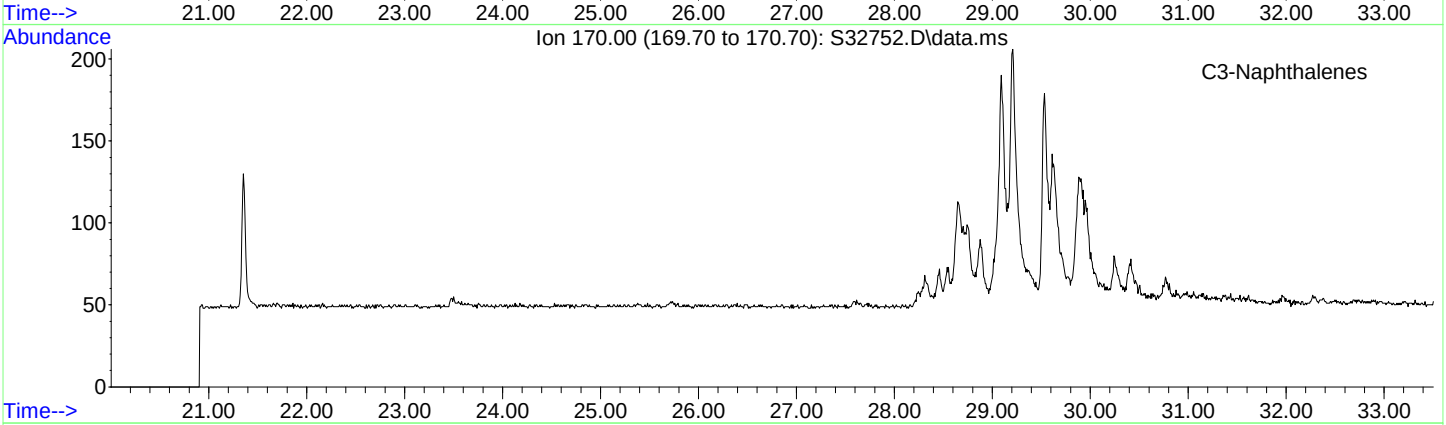
GC/MS EXTRACTED ION CHROMATOGRAM

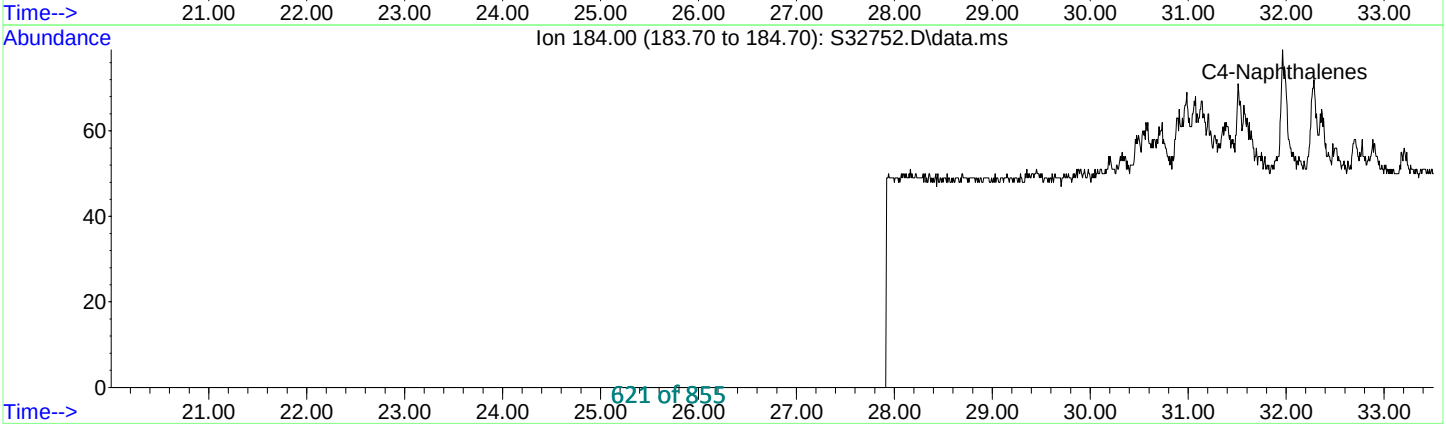
File: S:\1\data\S130528\S32752.D
Date Acquired: 28 May 2013 11:10 pm
Sample Name: mc20162-6
Misc Info: op33312,mss1429,0.0104,,,2,50







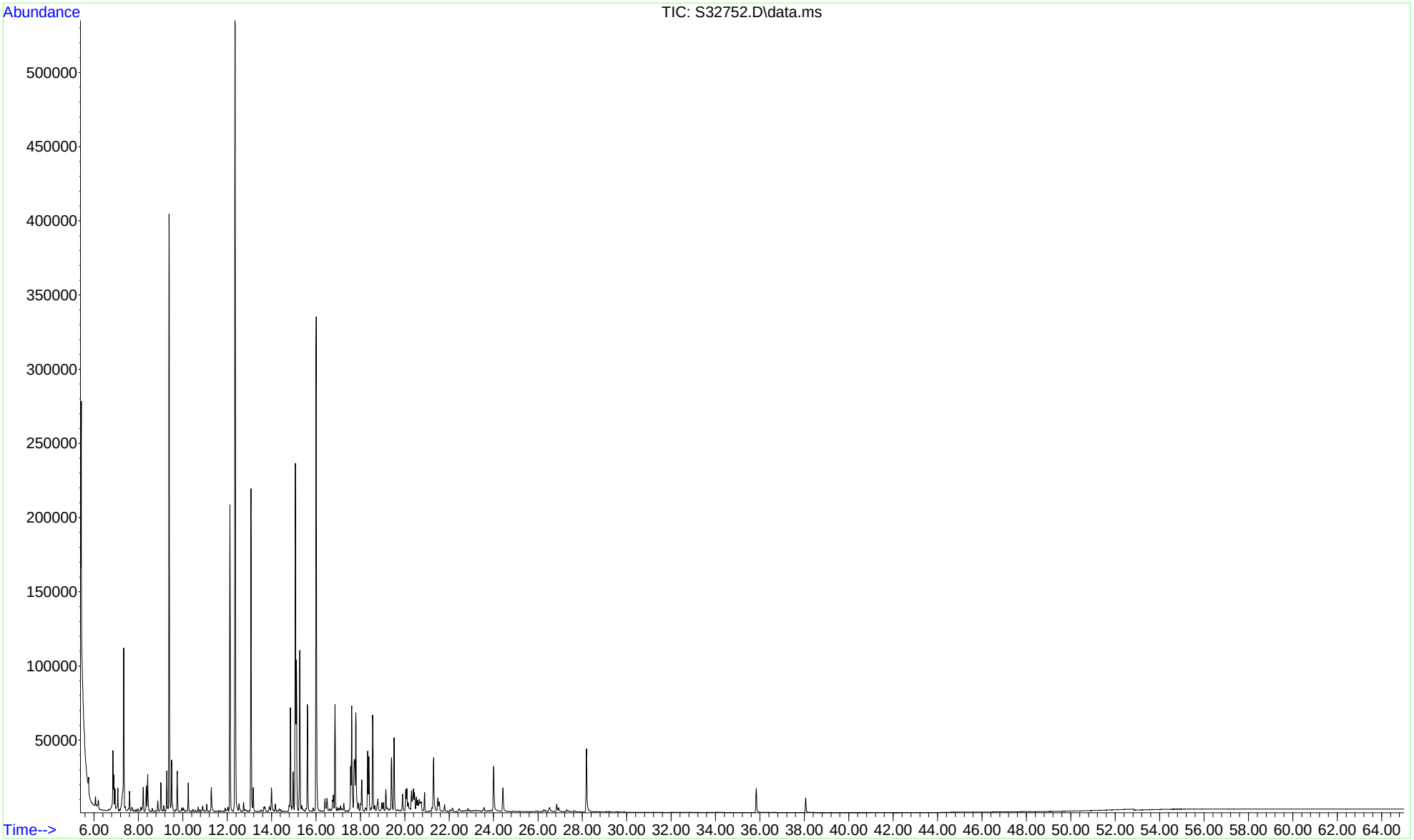




ACCUTEST

GC/MS TOTAL ION CHROMATOGRAM

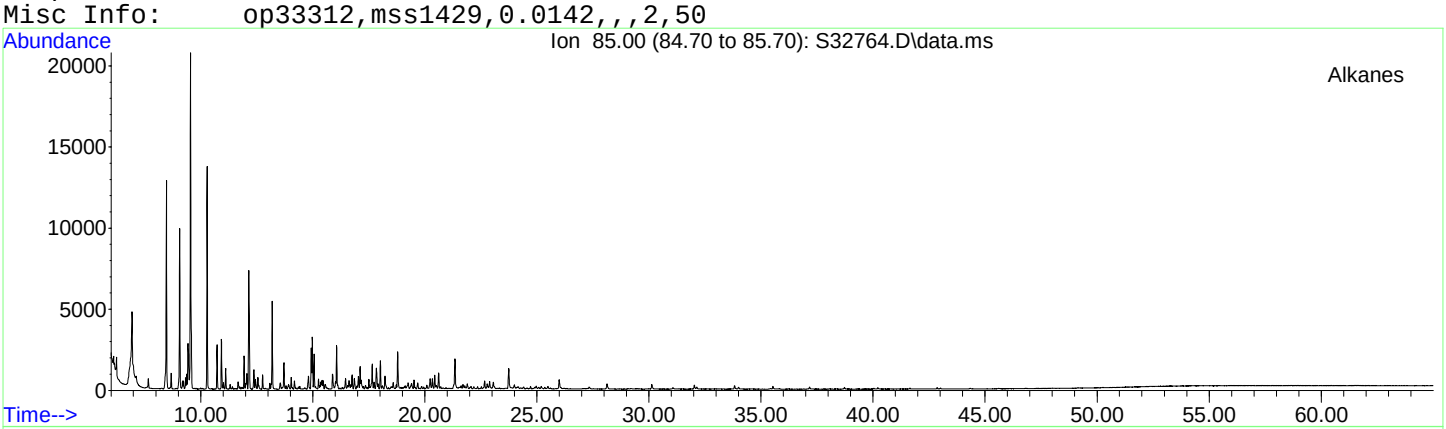
File: S:\1\data\S130528\S32752.D
Date Acquired: 28 May 2013 11:10 pm
Method File: SAPAHSIM-MTBE.M
Sample Name: mc20162-6
Misc Info: op33312,mss1429,0.0104,,,2,50



ACCUTEST

GC/MS EXTRACTED ION CHROMATOGRAM

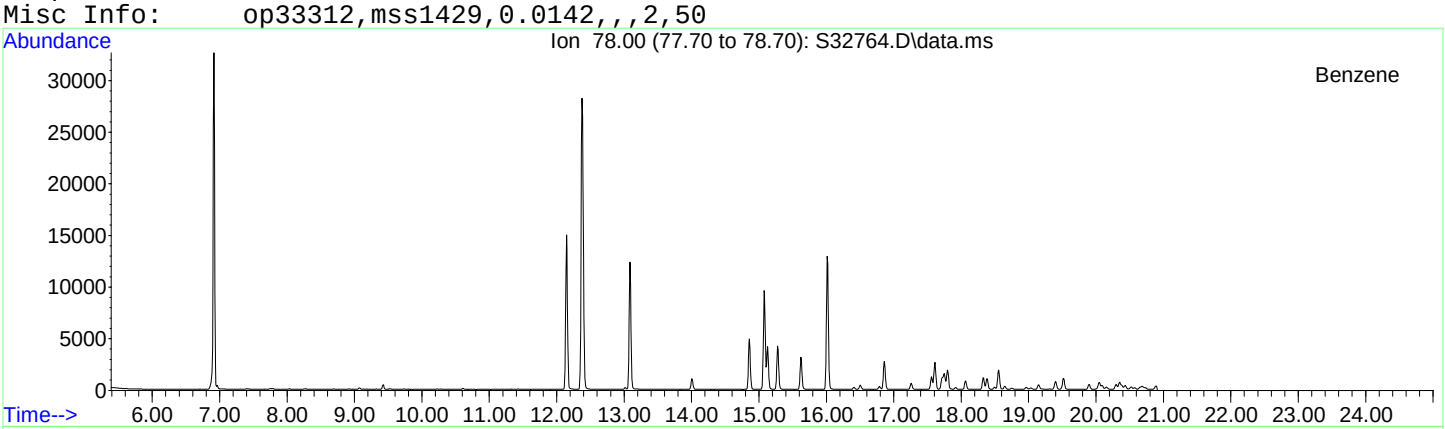
File: S:\1\data\S130528\S32764.D
Date Acquired: 29 May 2013 4:20 pm
Sample Name: mc20162-7
Misc Info: op33312,mss1429,0.0142,,,2,50



ACCUTEST

GC/MS EXTRACTED ION CHROMATOGRAM

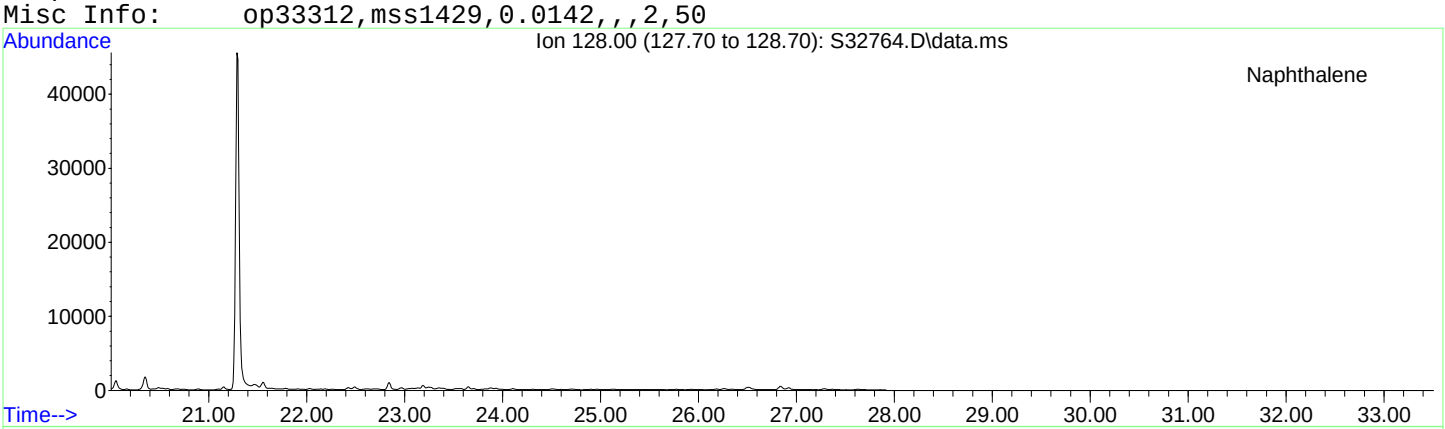
File: S:\1\data\S130528\S32764.D
Date Acquired: 29 May 2013 4:20 pm
Sample Name: mc20162-7
Misc Info: op33312,mss1429,0.0142,,,2,50

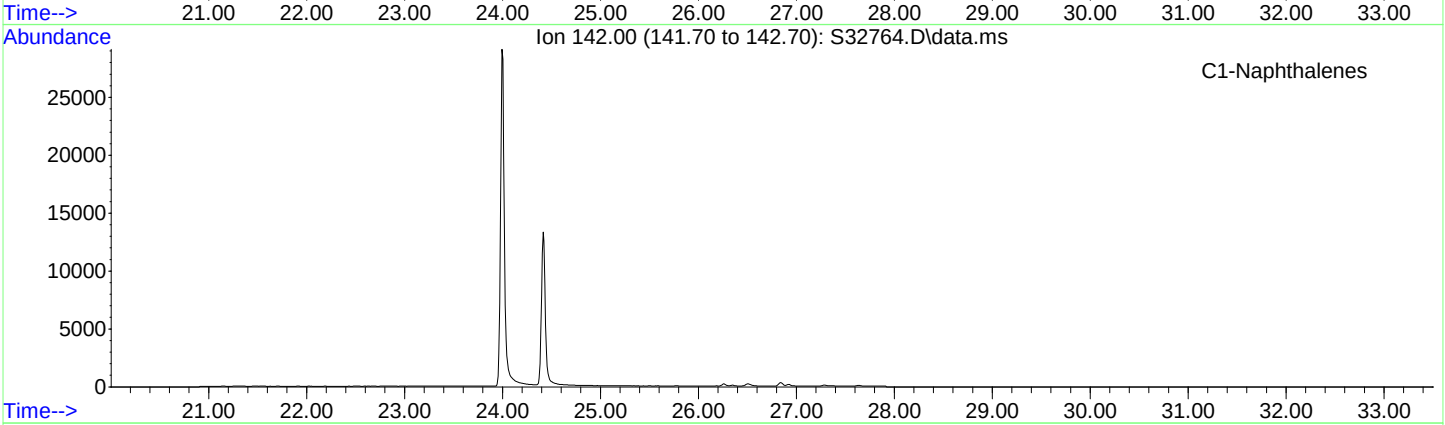


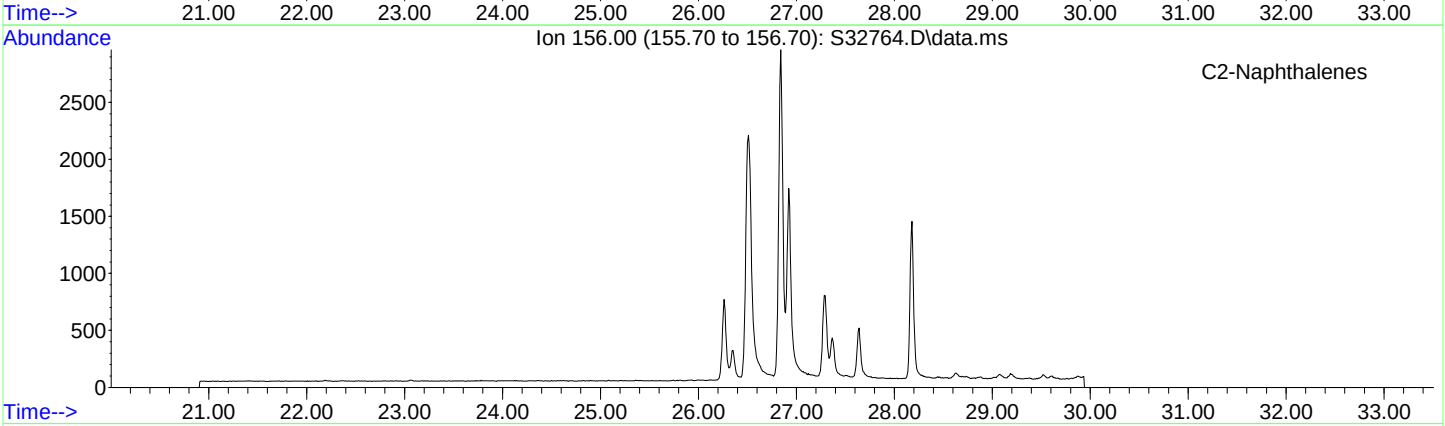
ACCUTEST

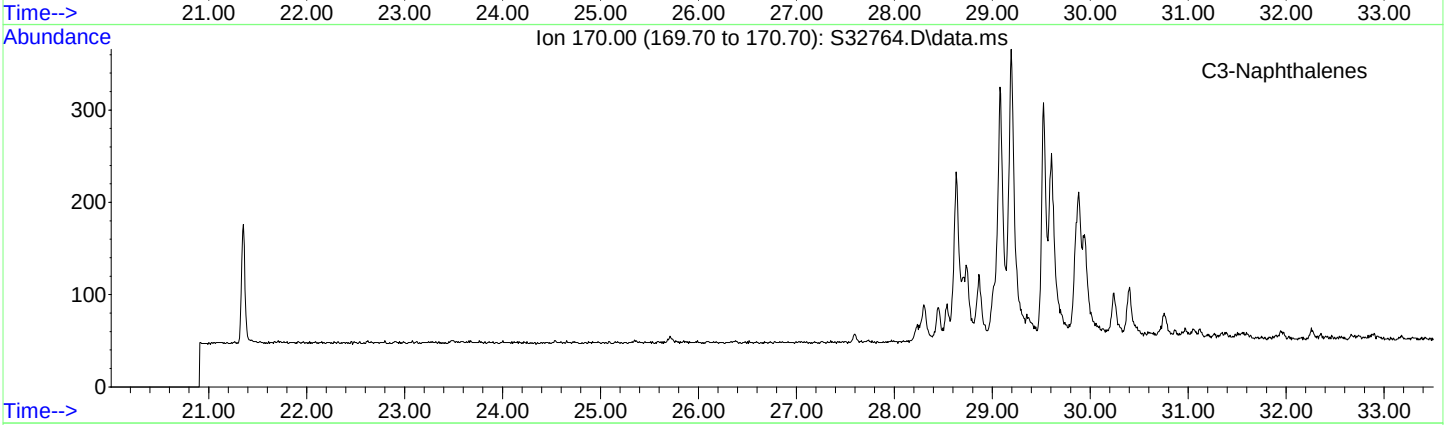
GC/MS EXTRACTED ION CHROMATOGRAM

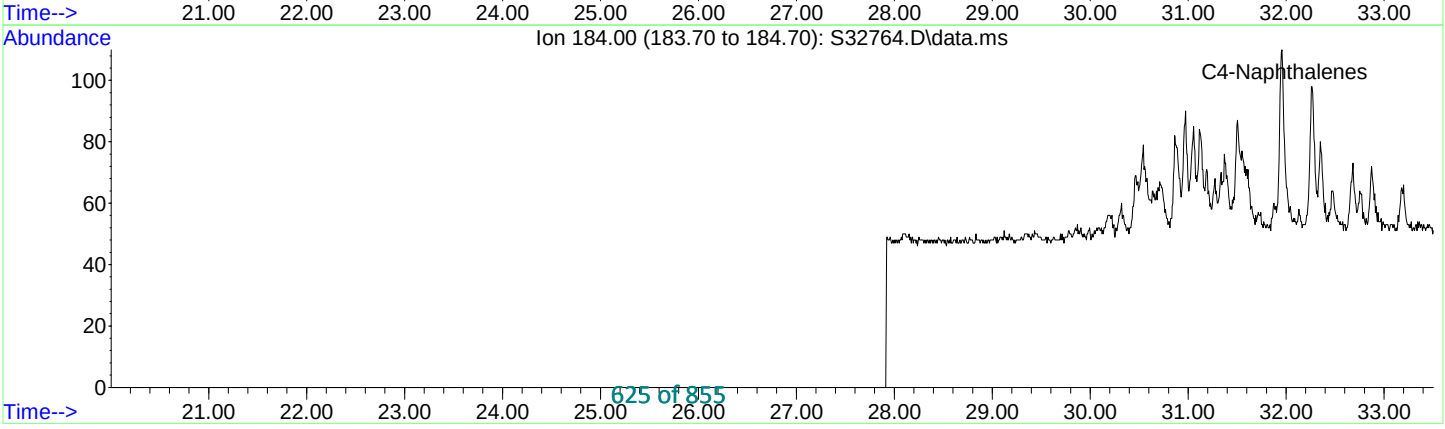
File: S:\1\data\S130528\S32764.D
Date Acquired: 29 May 2013 4:20 pm
Sample Name: mc20162-7
Misc Info: op33312,mss1429,0.0142,,,2,50







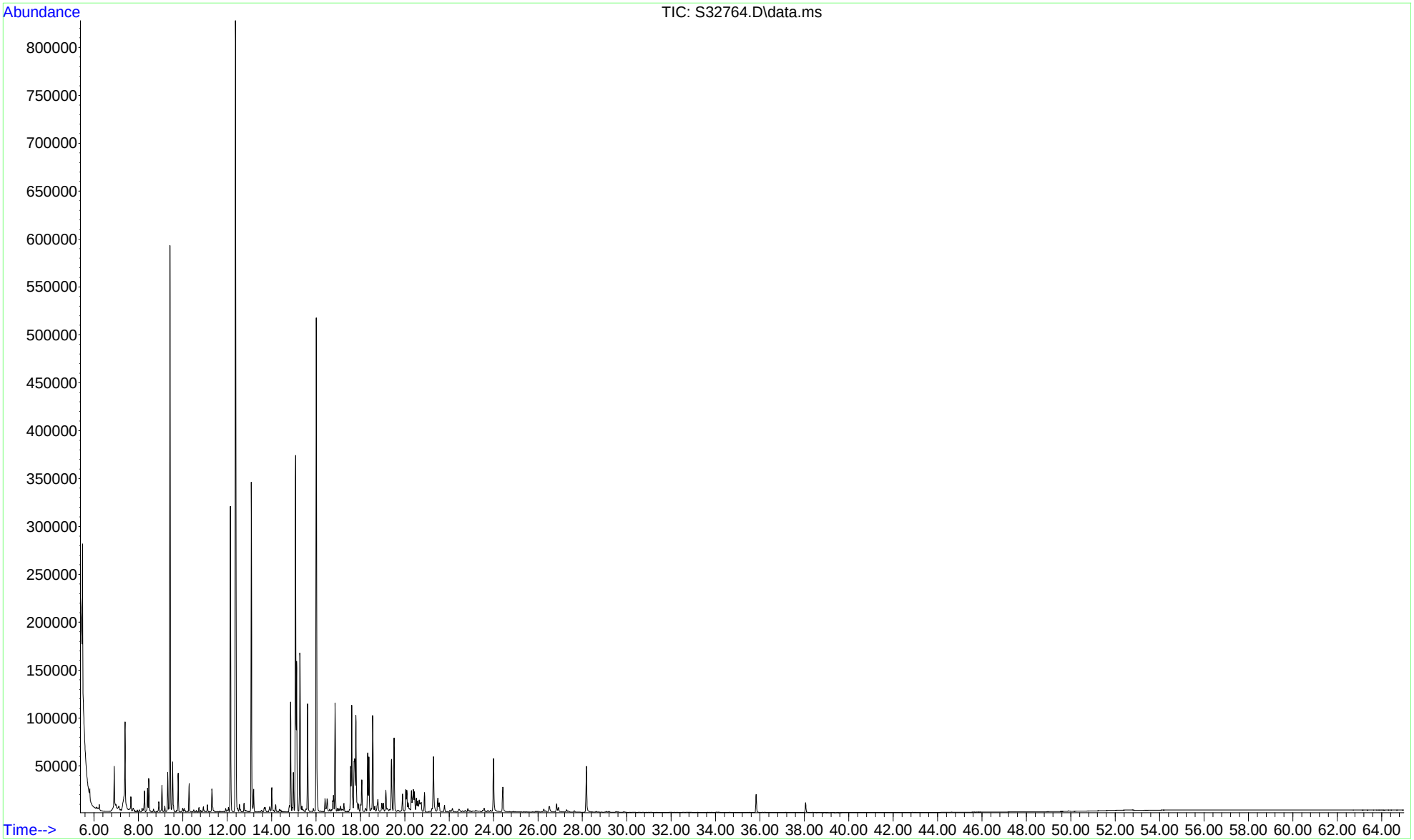




ACCUTEST

GC/MS TOTAL ION CHROMATOGRAM

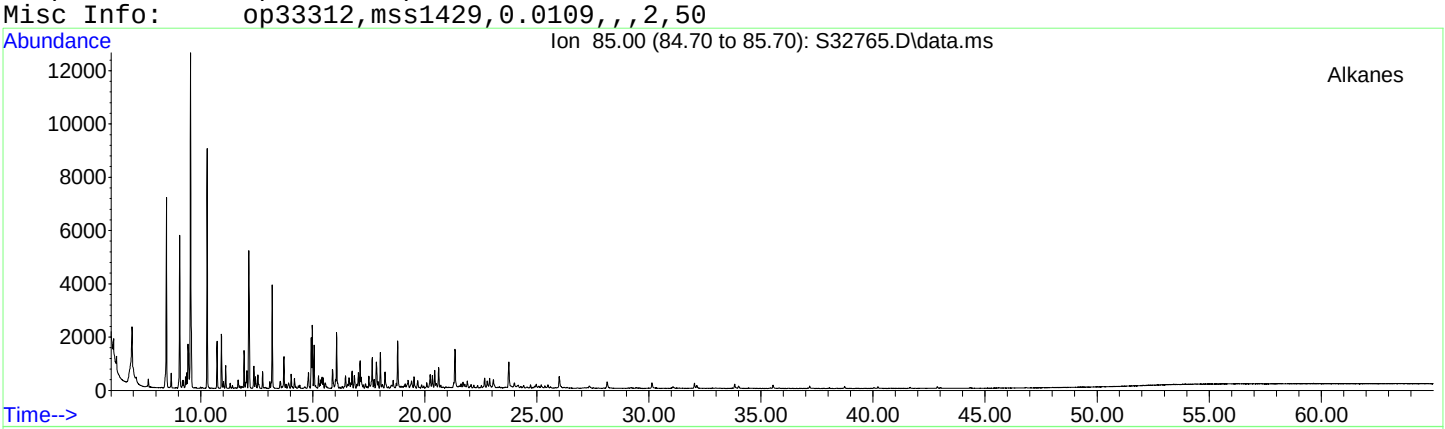
File: S:\1\data\S130528\S32764.D
Date Acquired: 29 May 2013 4:20 pm
Method File: SAPAHSIM-MTBE.M
Sample Name: mc20162-7
Misc Info: op33312,mss1429,0.0142,,,2,50

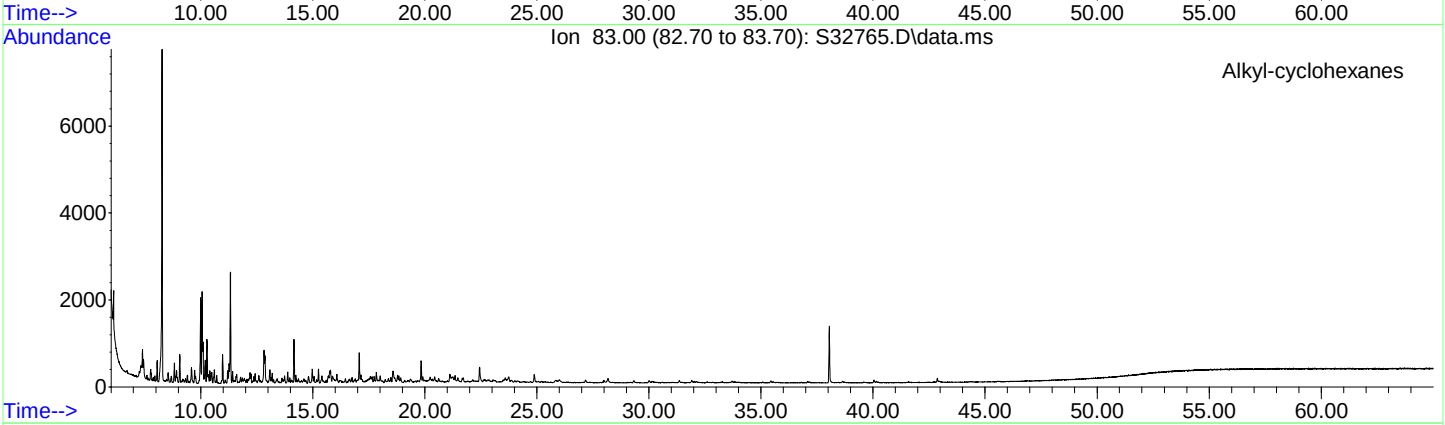


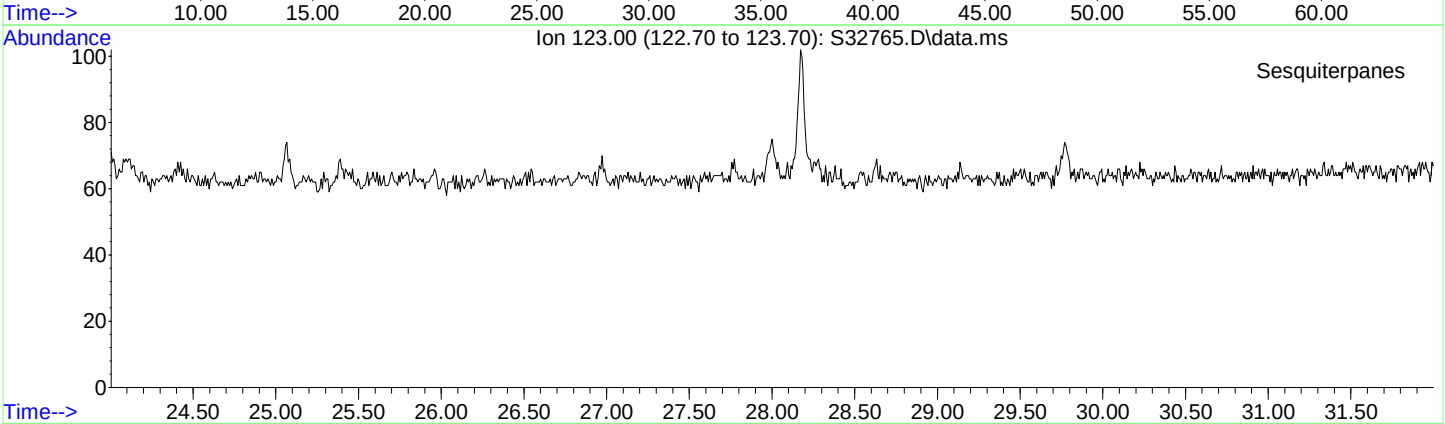
ACCUTEST

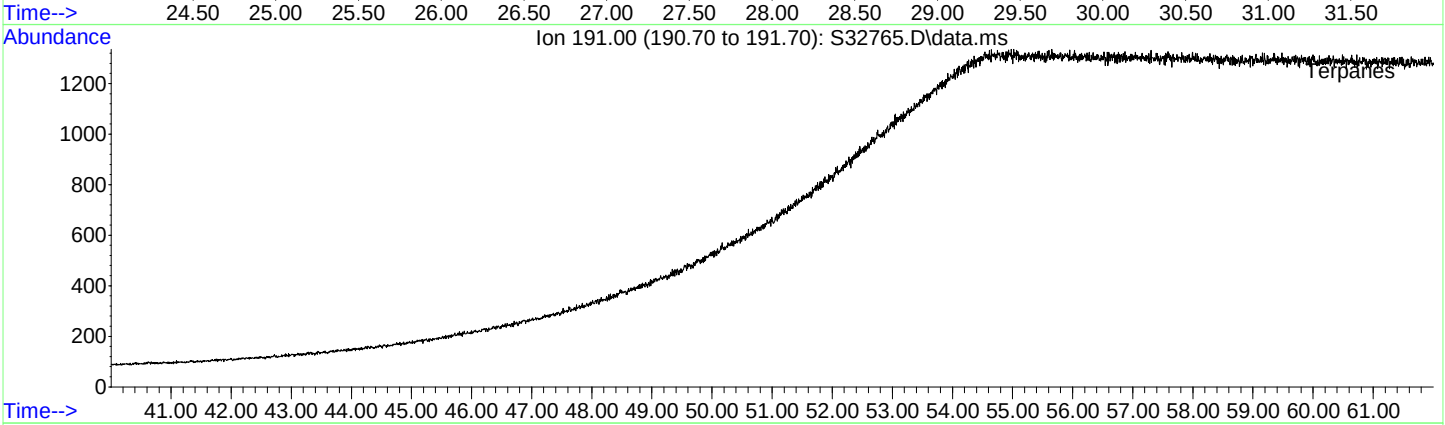
GC/MS EXTRACTED ION CHROMATOGRAM

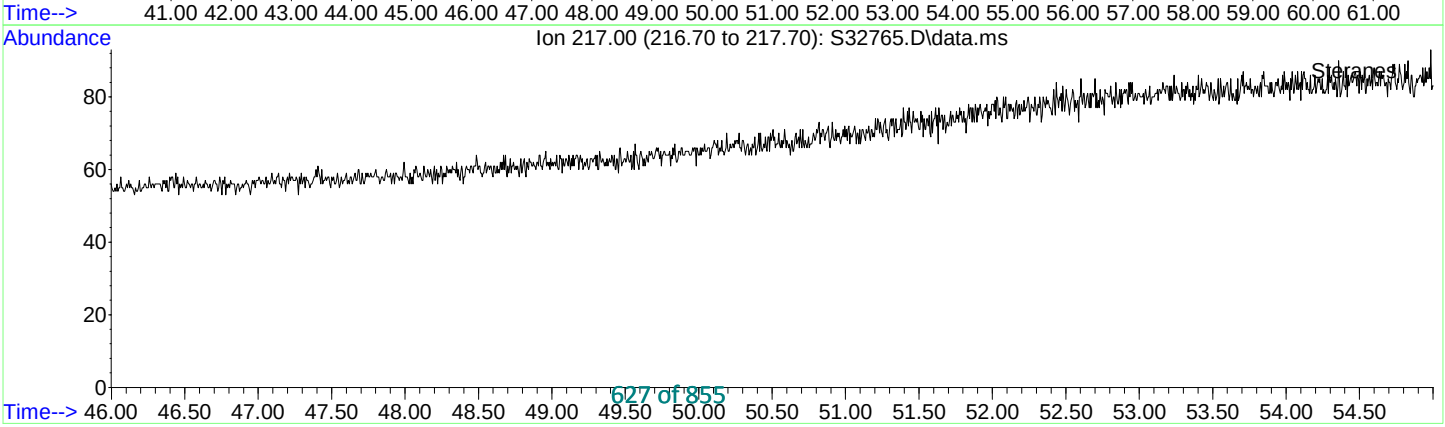
File: S:\1\data\S130528\S32765.D
Date Acquired: 29 May 2013 5:32 pm
Sample Name: op33312-dup
Misc Info: op33312,mss1429,0.0109,,,2,50







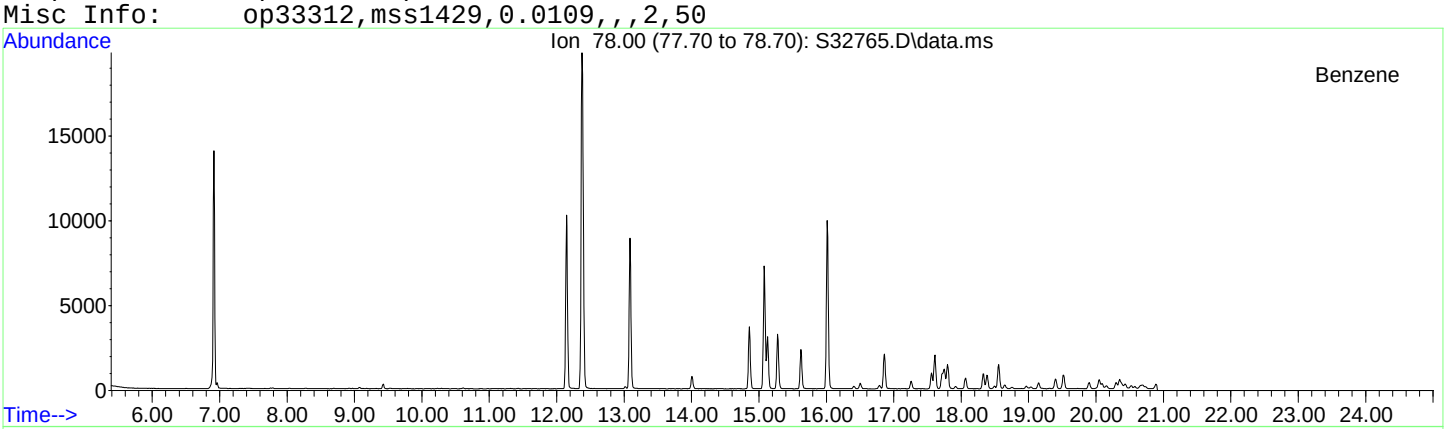




ACCUTEST

GC/MS EXTRACTED ION CHROMATOGRAM

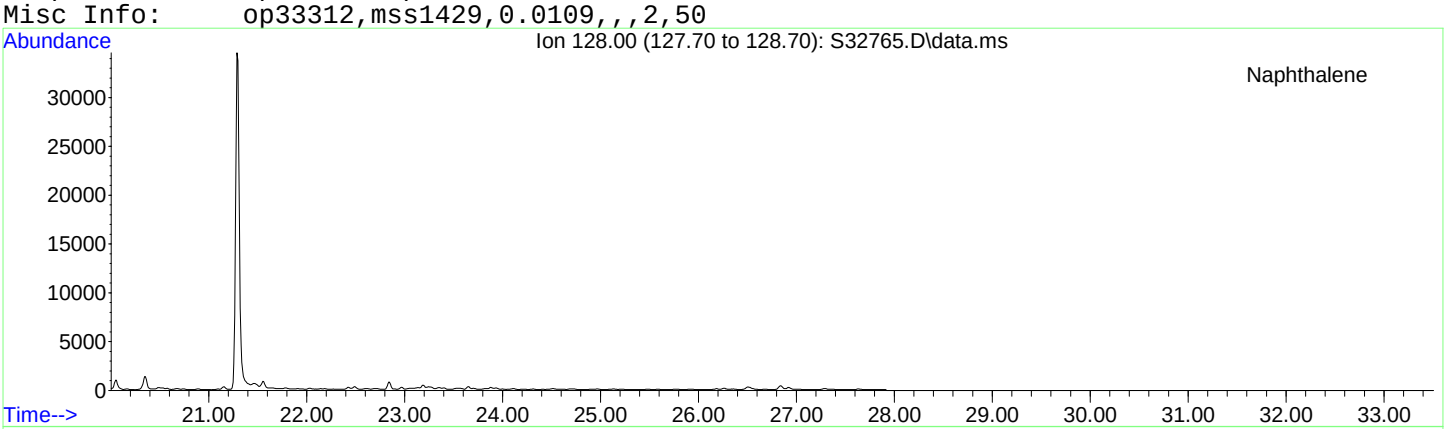
File: S:\1\data\S130528\S32765.D
Date Acquired: 29 May 2013 5:32 pm
Sample Name: op33312-dup
Misc Info: op33312,mss1429,0.0109,,,2,50

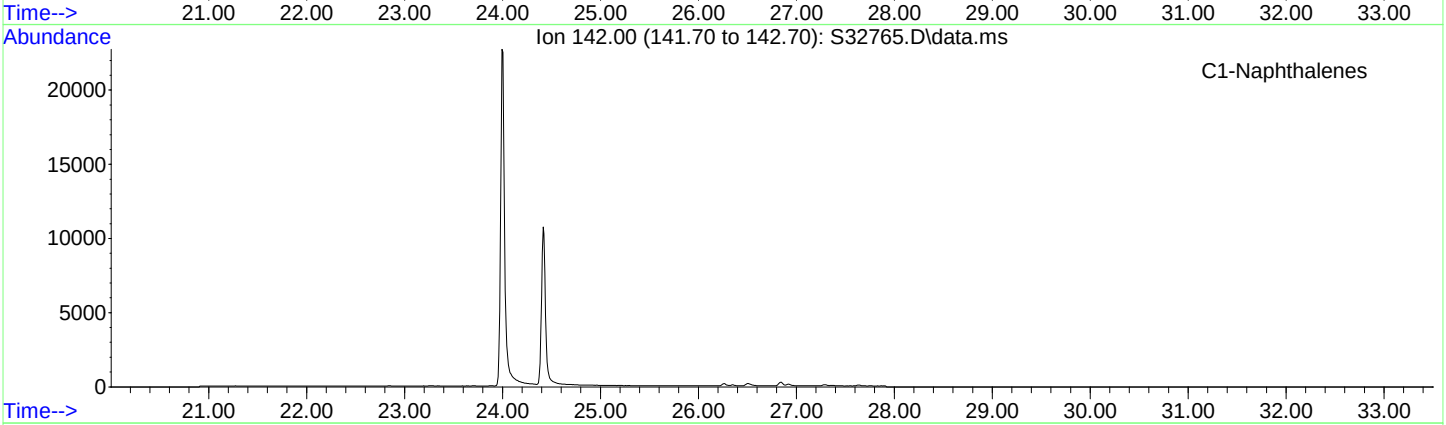


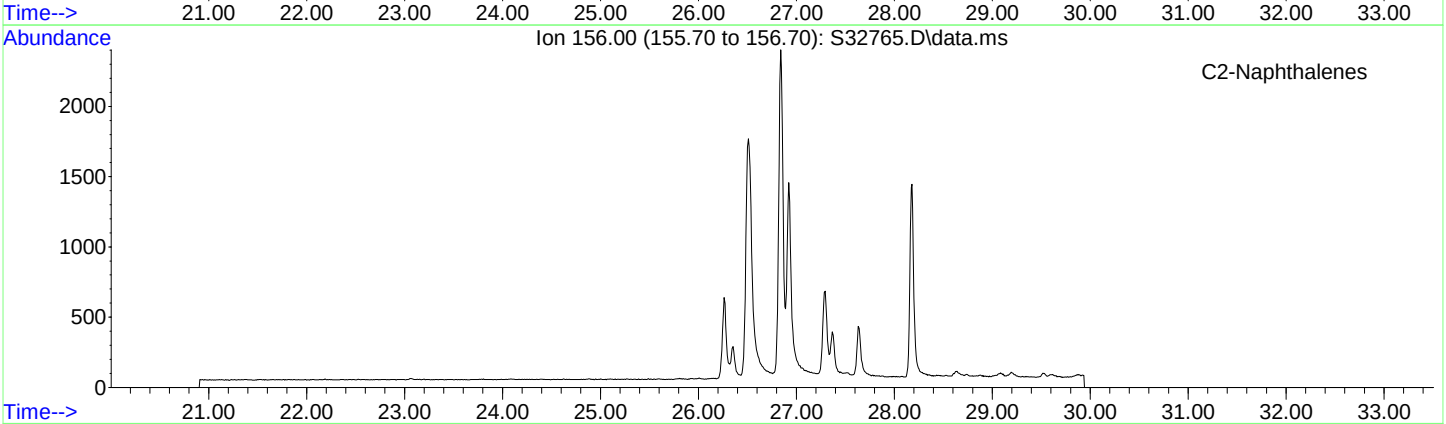
ACCUTEST

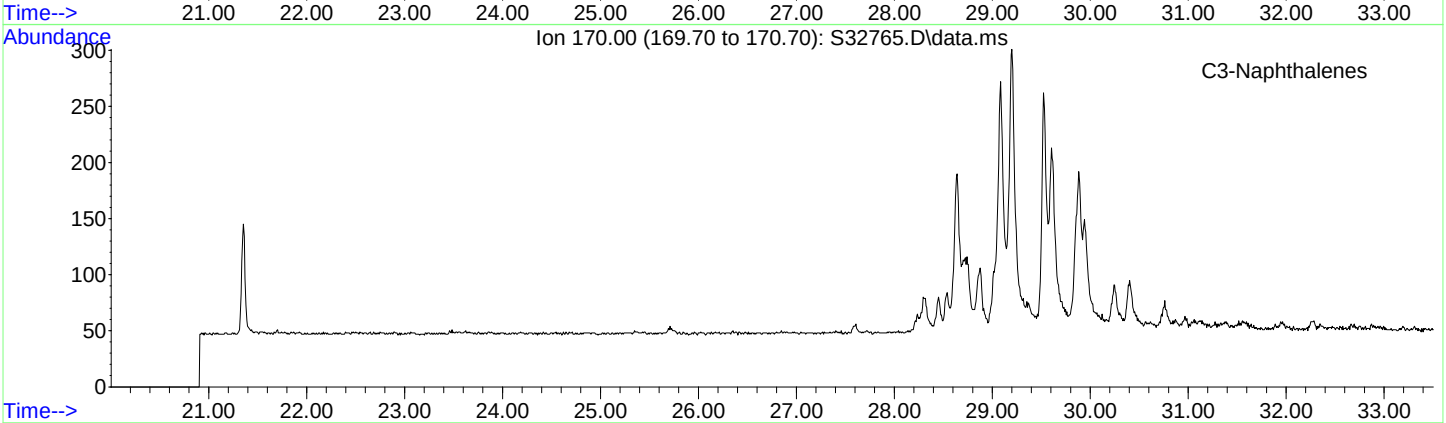
GC/MS EXTRACTED ION CHROMATOGRAM

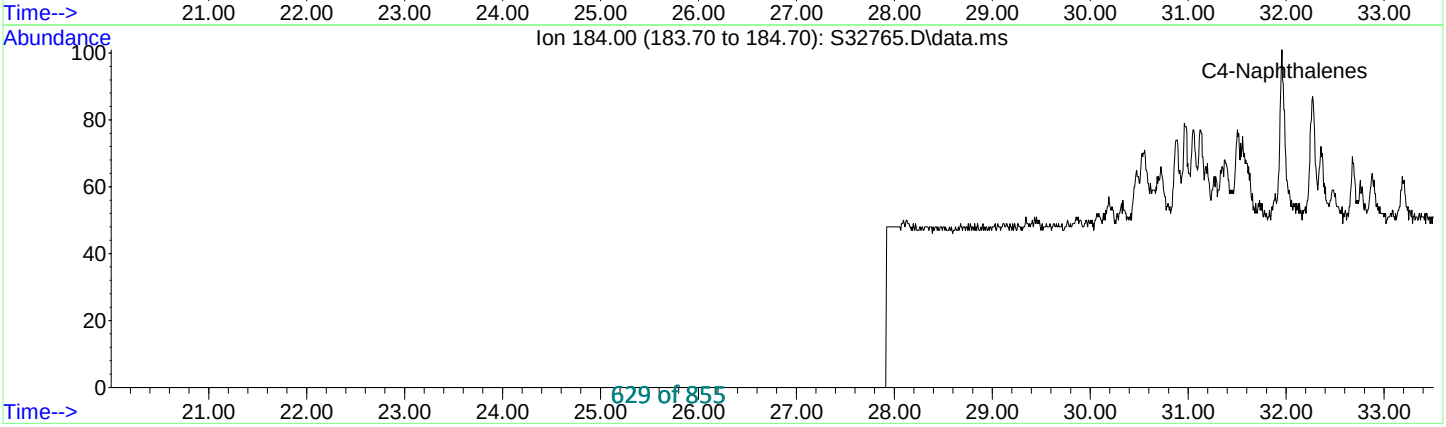
File: S:\1\data\S130528\S32765.D
Date Acquired: 29 May 2013 5:32 pm
Sample Name: op33312-dup
Misc Info: op33312,mss1429,0.0109,,,2,50







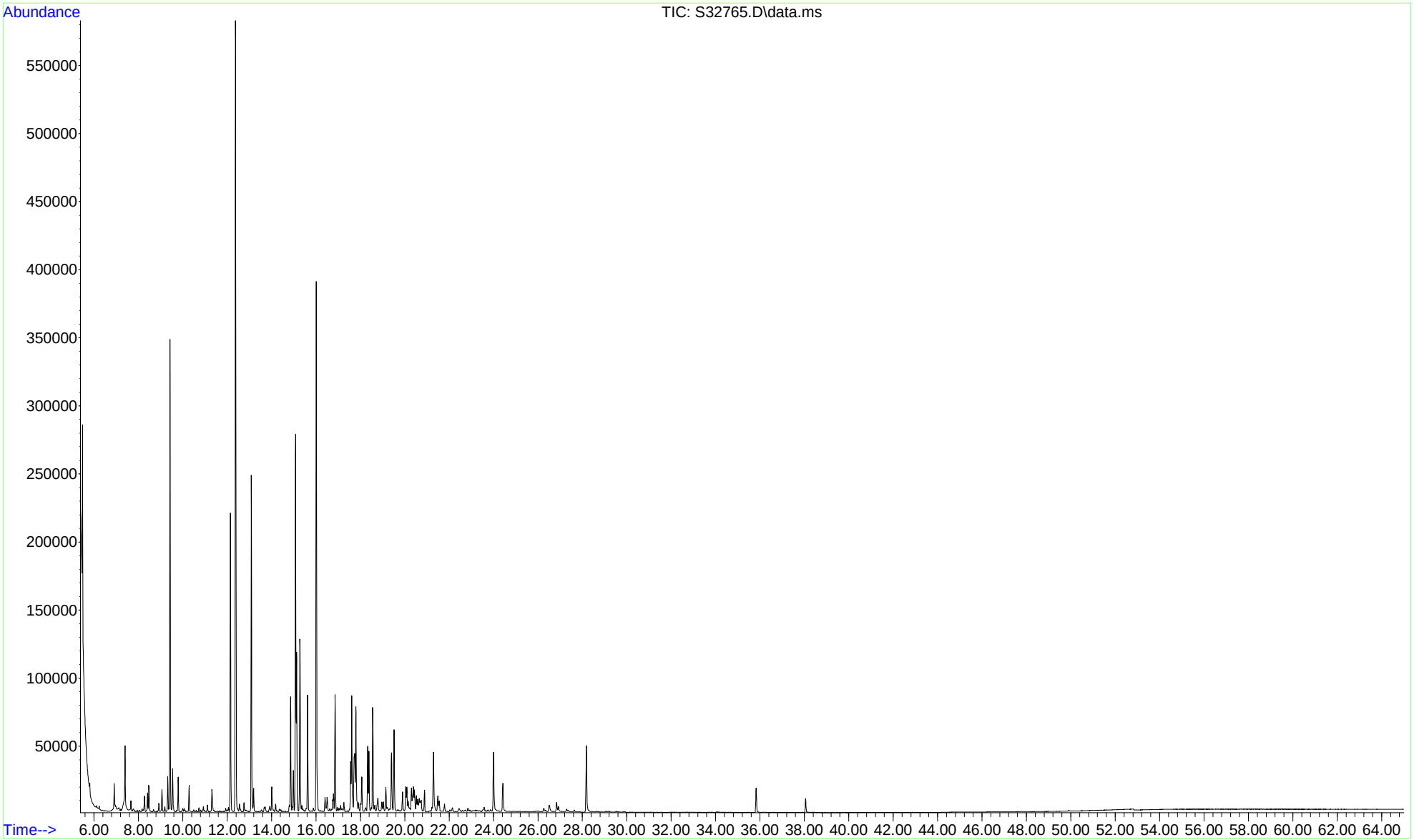




ACCUTEST

GC/MS TOTAL ION CHROMATOGRAM

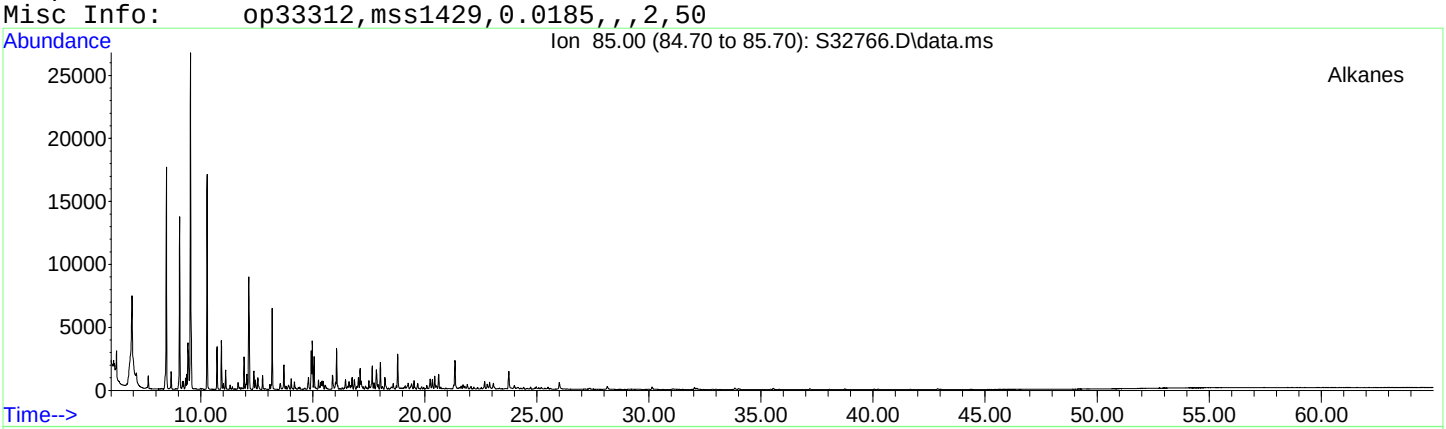
File: S:\1\data\S130528\S32765.D
Date Acquired: 29 May 2013 5:32 pm
Method File: SAPAHSIM-MTBE.M
Sample Name: op33312-dup
Misc Info: op33312,mss1429,0.0109,,,2,50

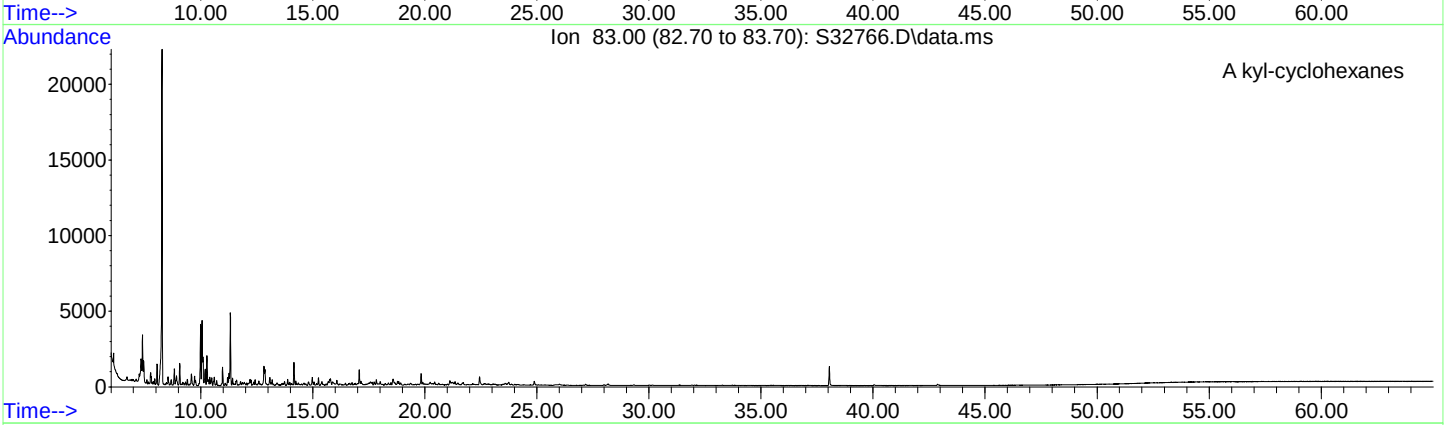


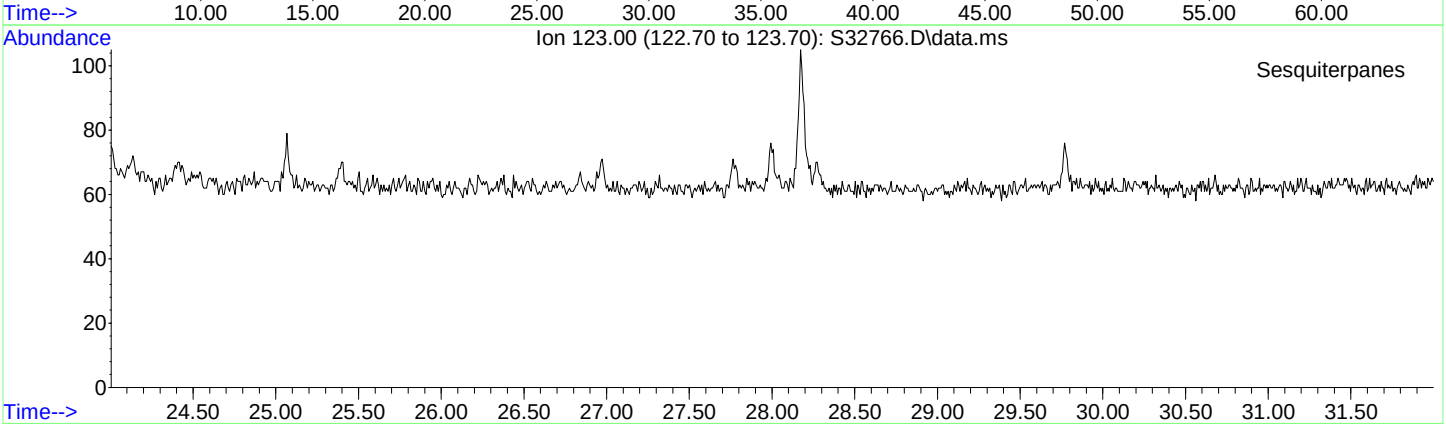
ACCUTEST

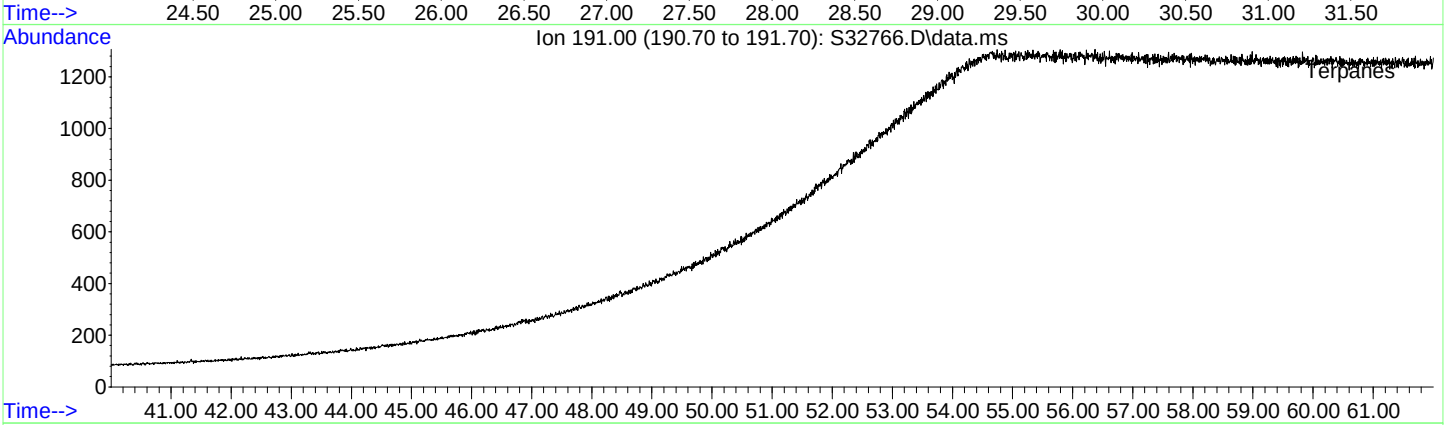
GC/MS EXTRACTED ION CHROMATOGRAM

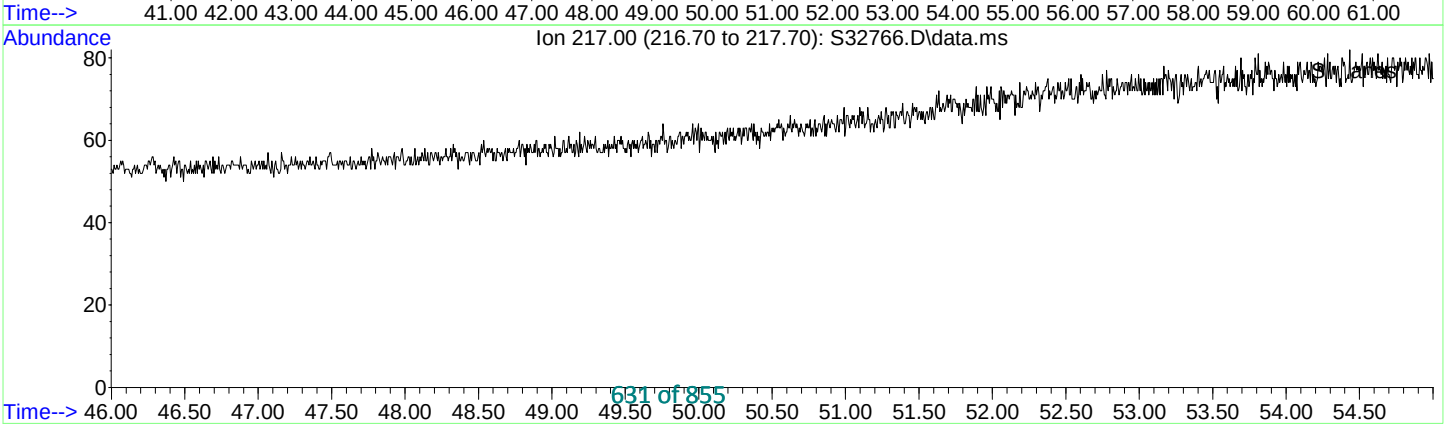
File: S:\1\data\S130528\S32766.D
Date Acquired: 29 May 2013 6:45 pm
Sample Name: mc20162-8
Misc Info: op33312,mss1429,0.0185,,,2,50







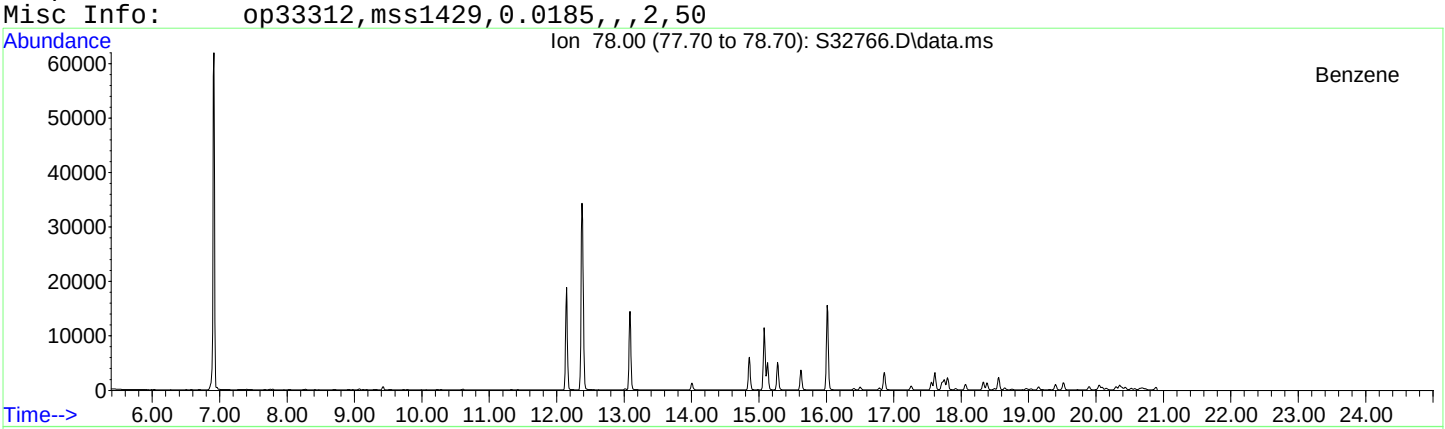




ACCUTEST

GC/MS EXTRACTED ION CHROMATOGRAM

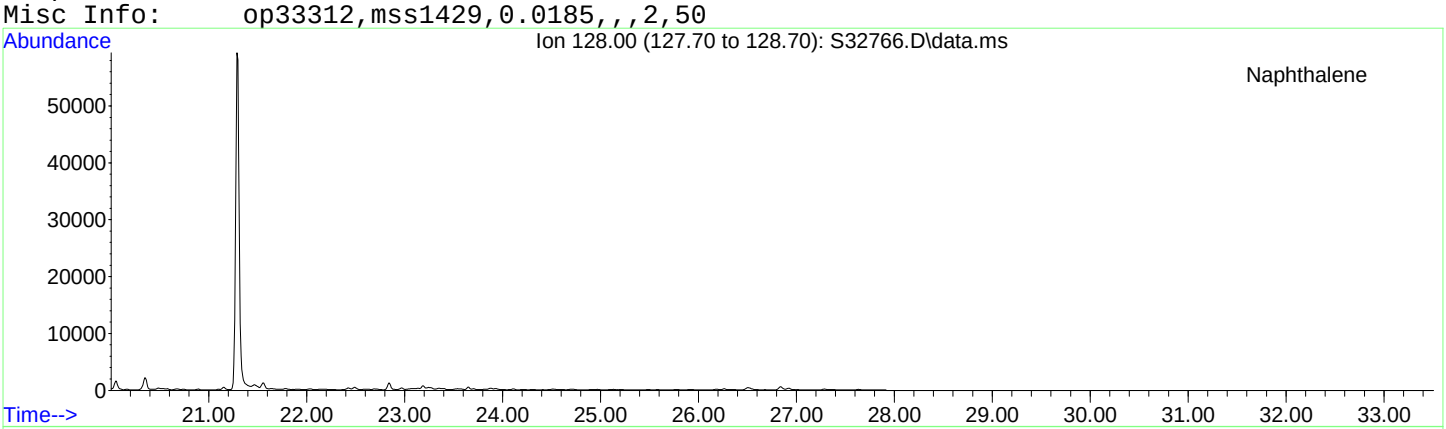
File: S:\1\data\S130528\S32766.D
Date Acquired: 29 May 2013 6:45 pm
Sample Name: mc20162-8
Misc Info: op33312,mss1429,0.0185,,,2,50

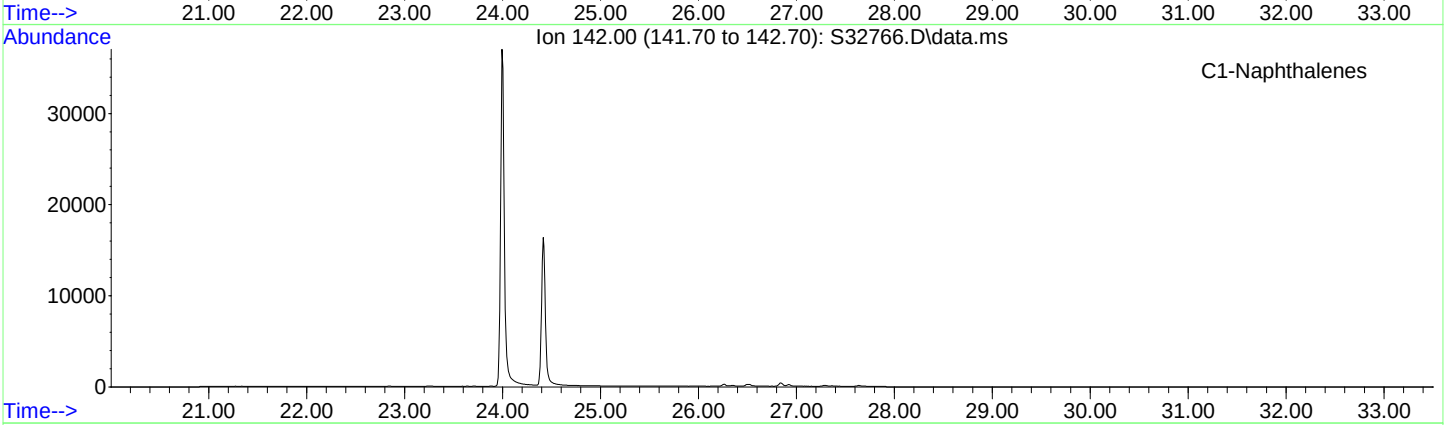


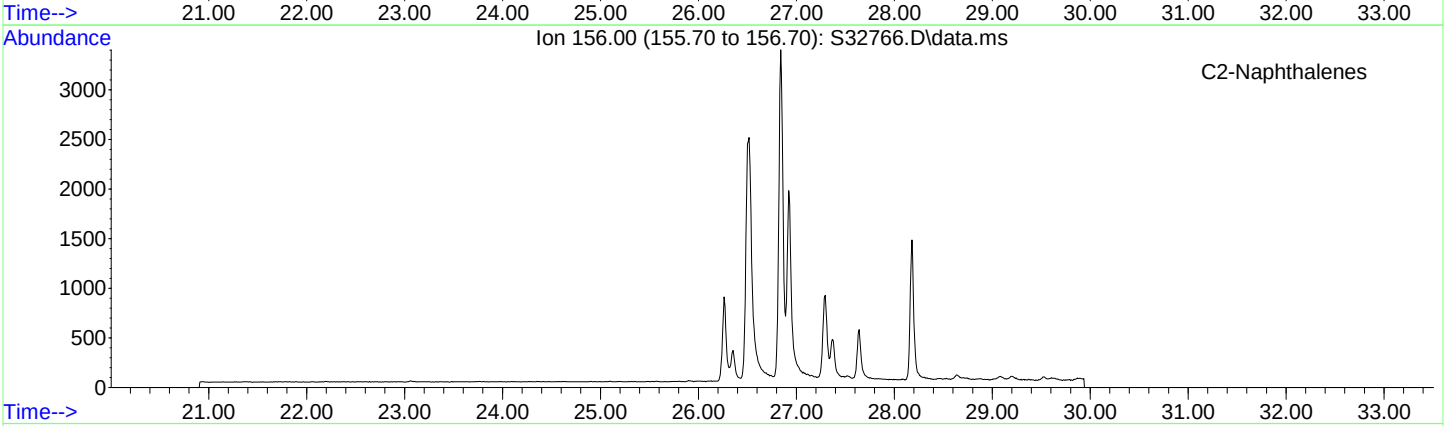
ACCUTEST

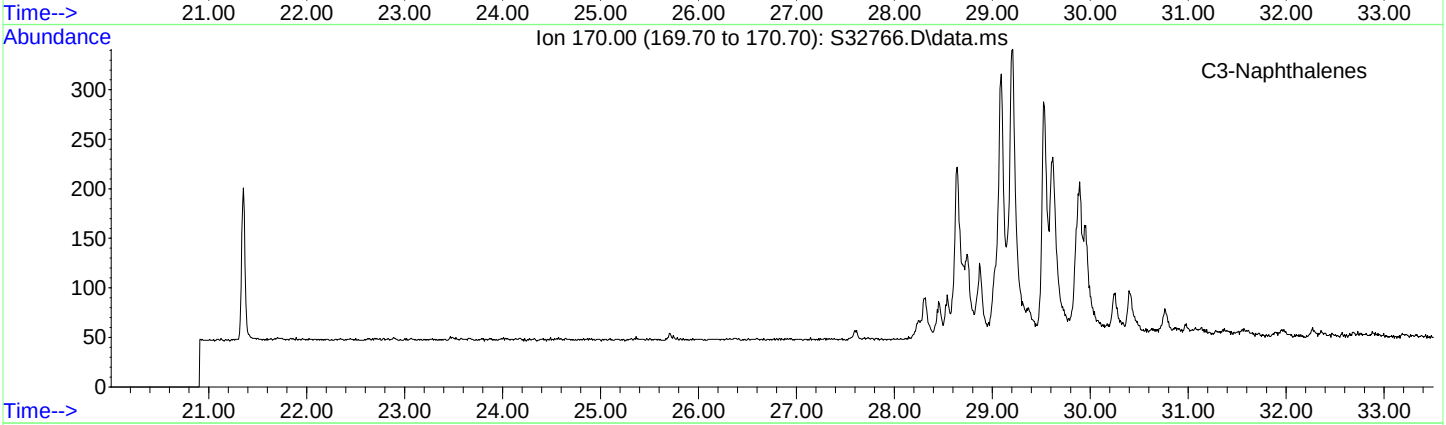
GC/MS EXTRACTED ION CHROMATOGRAM

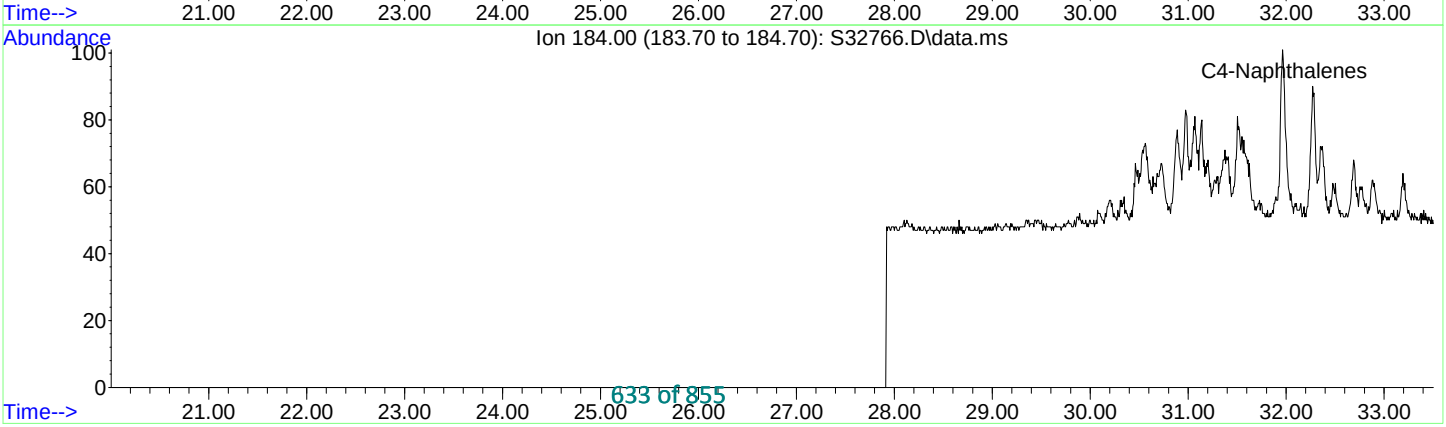
File: S:\1\data\S130528\S32766.D
Date Acquired: 29 May 2013 6:45 pm
Sample Name: mc20162-8
Misc Info: op33312,mss1429,0.0185,,,2,50











ACCUTEST

GC/MS TOTAL ION CHROMATOGRAM

File: S:\1\data\S130528\S32766.D
Date Acquired: 29 May 2013 6:45 pm
Method File: SAPAHSIM-MTBE.M
Sample Name: mc20162-8
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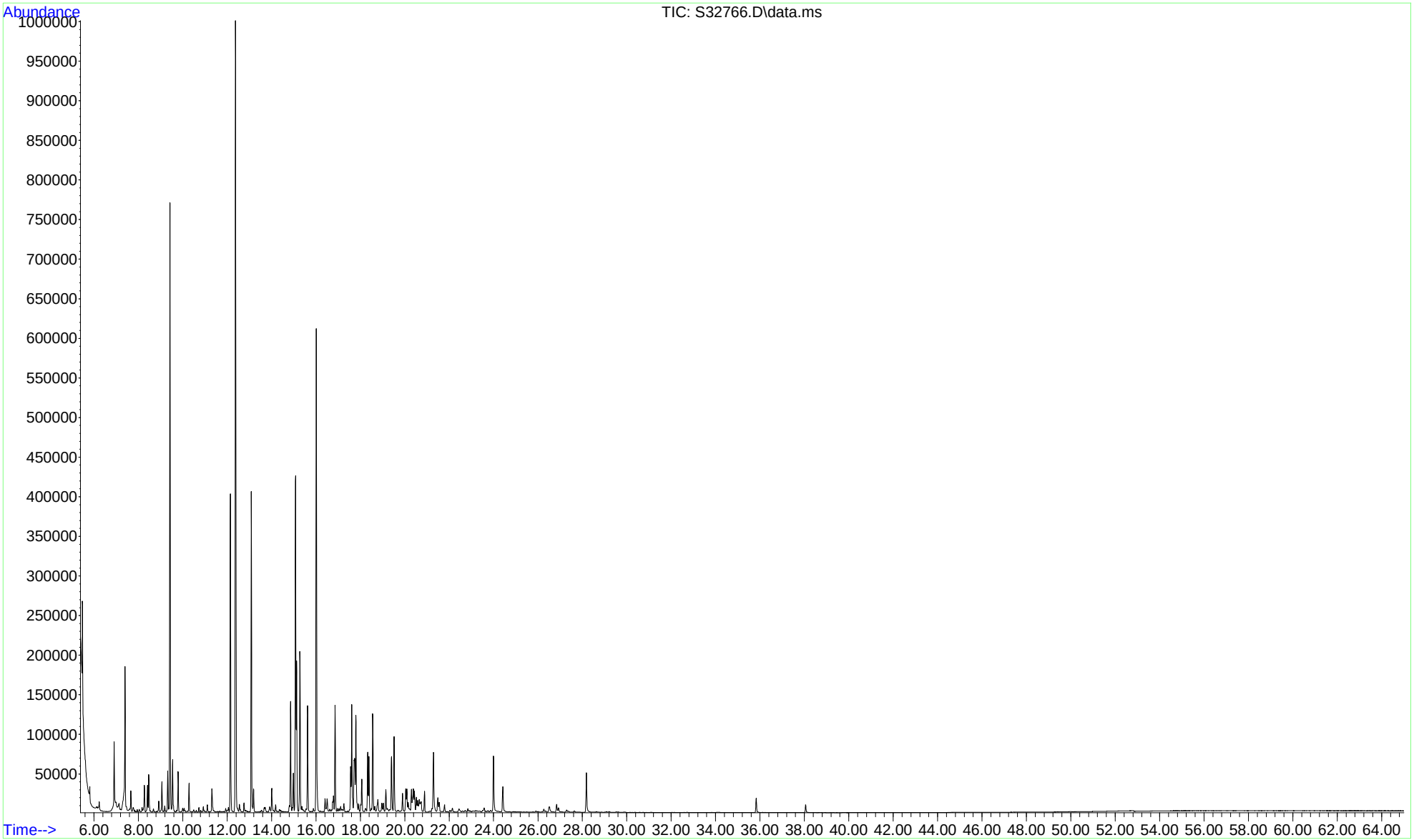

ACCUTEST

GC/MS EXTRACTED ION CHROMATOGRAM

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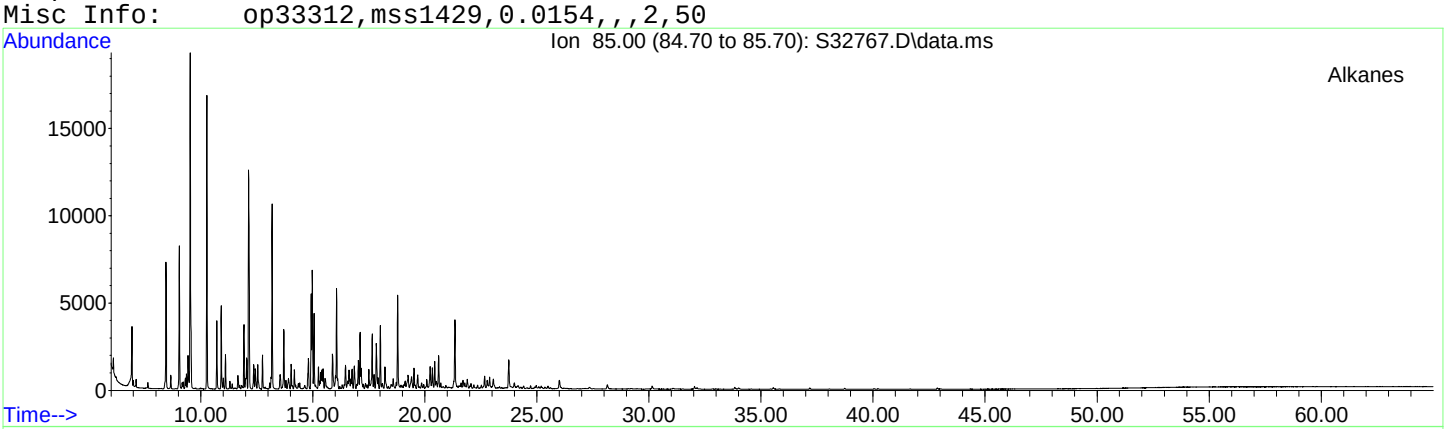
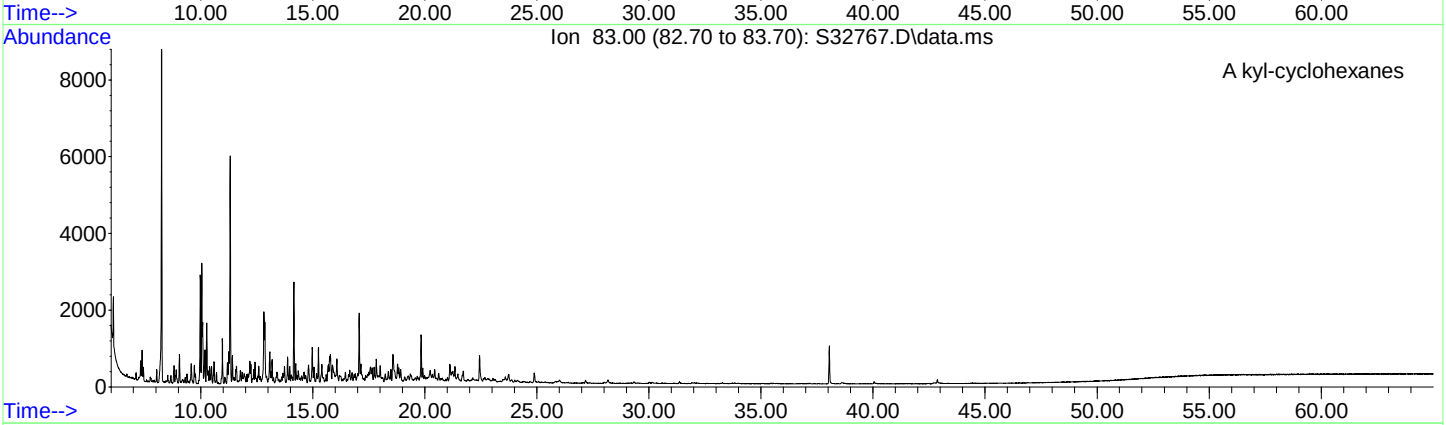
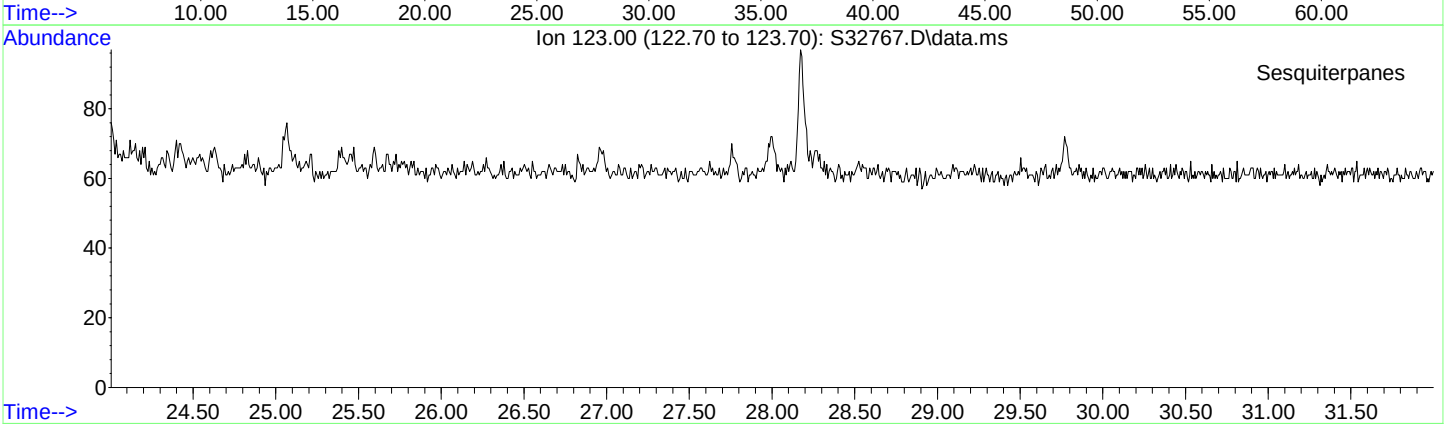
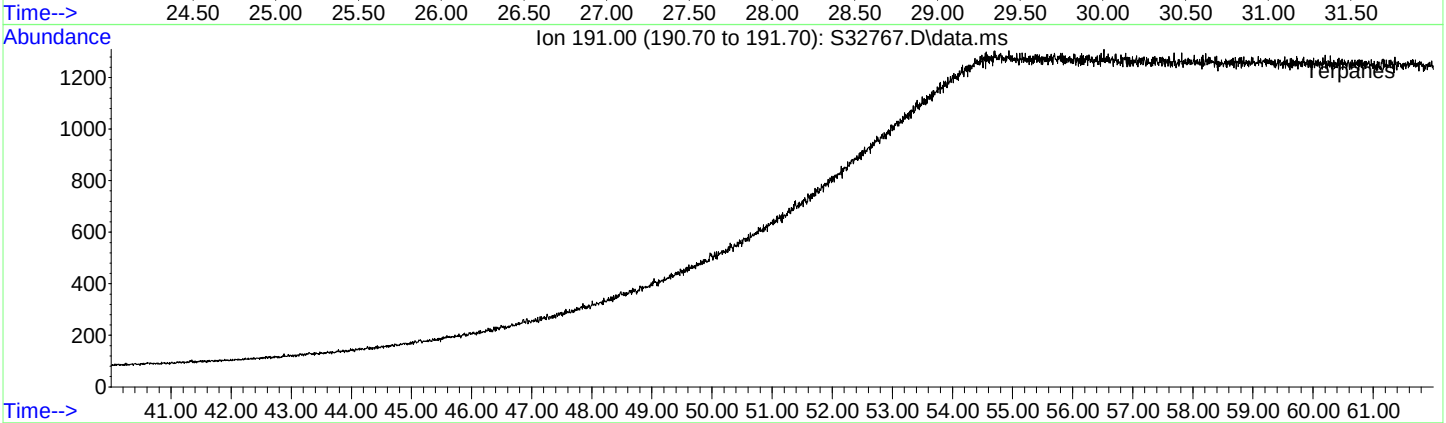
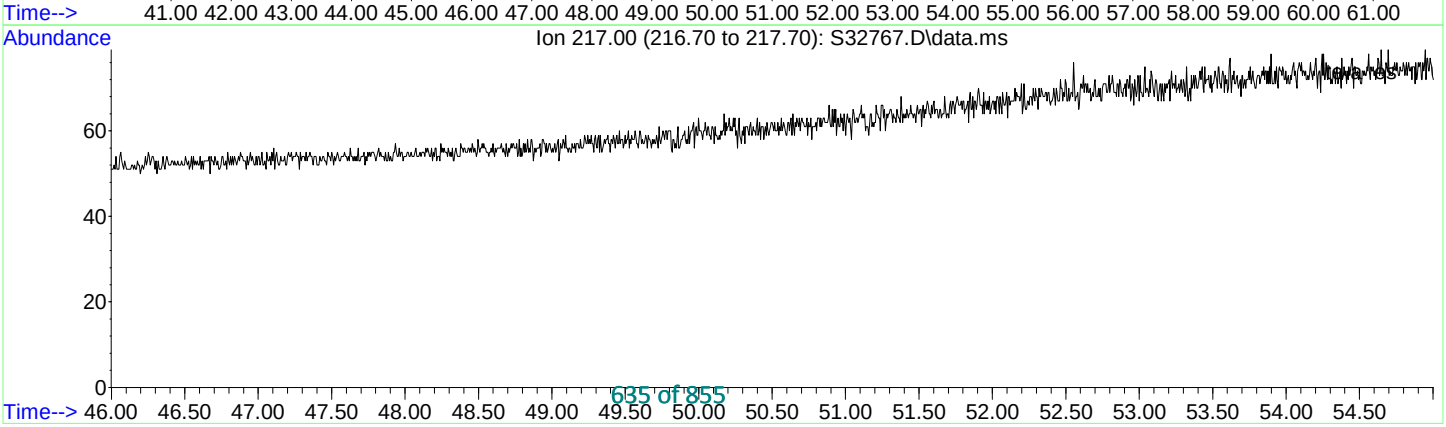
Sample Name: mc20162-9
Misc Info: op33312,mss1429,0.0154,,,2,50











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Date Acquired: 29 May 2013 7:57 pm
Sample Name: mc20162-9
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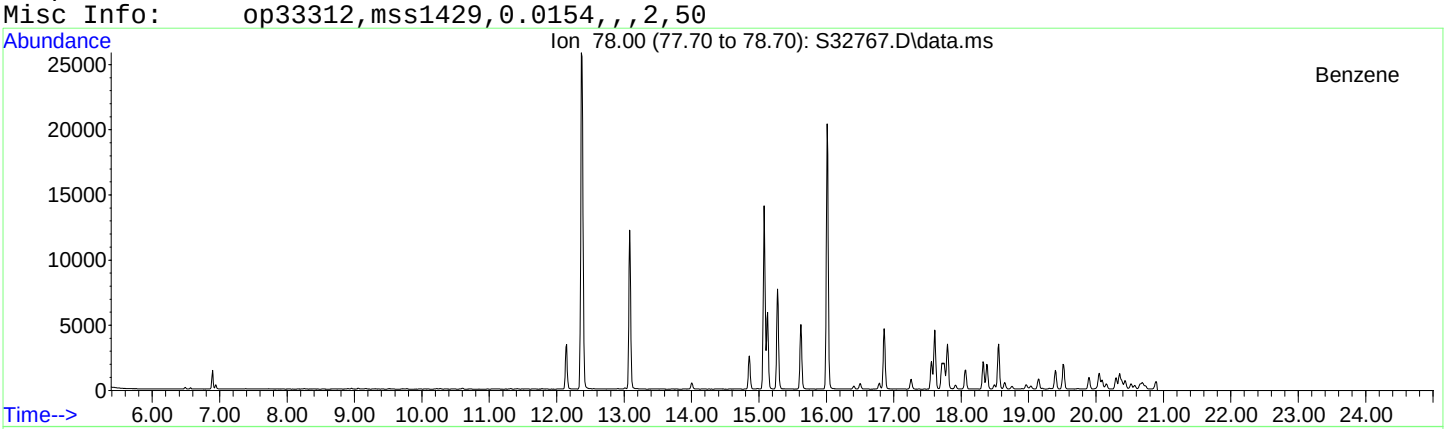

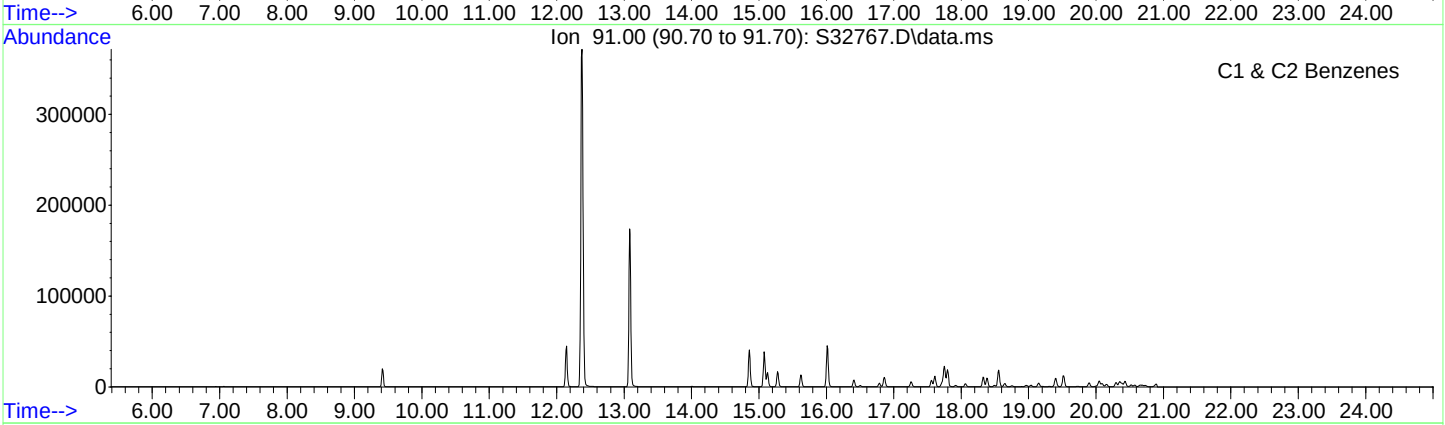

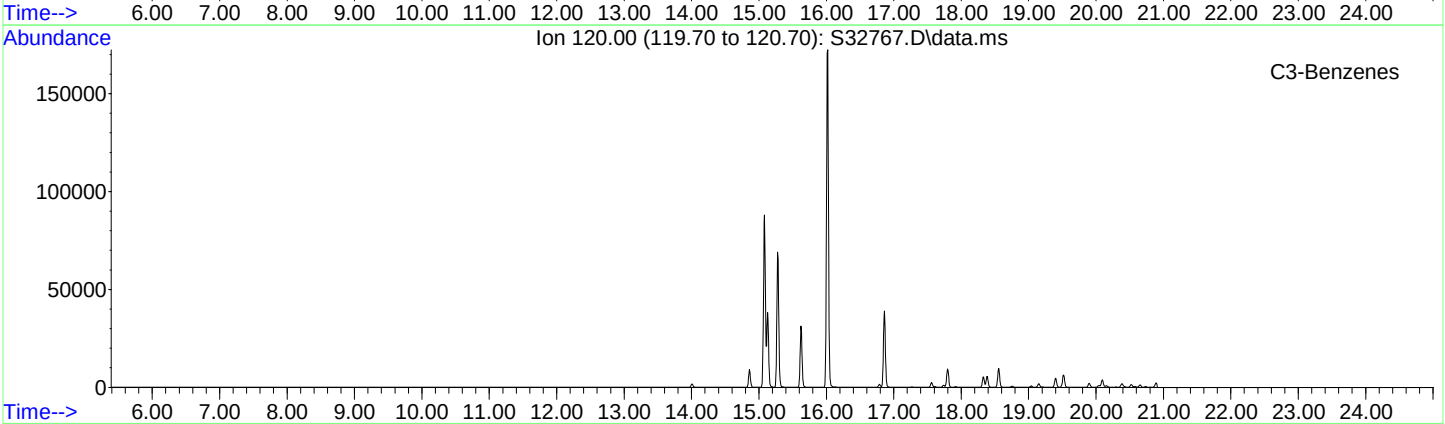

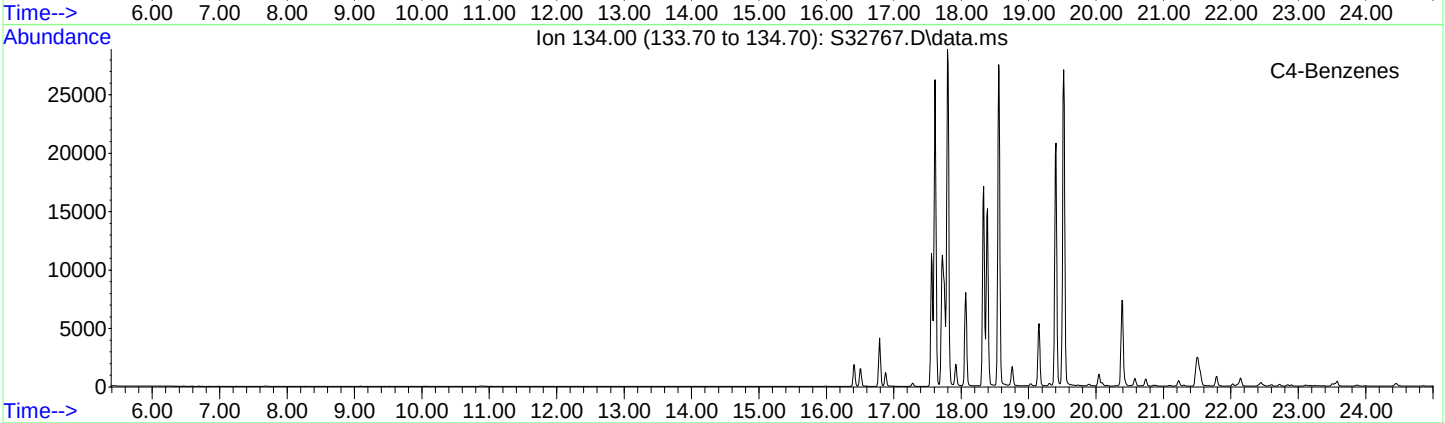

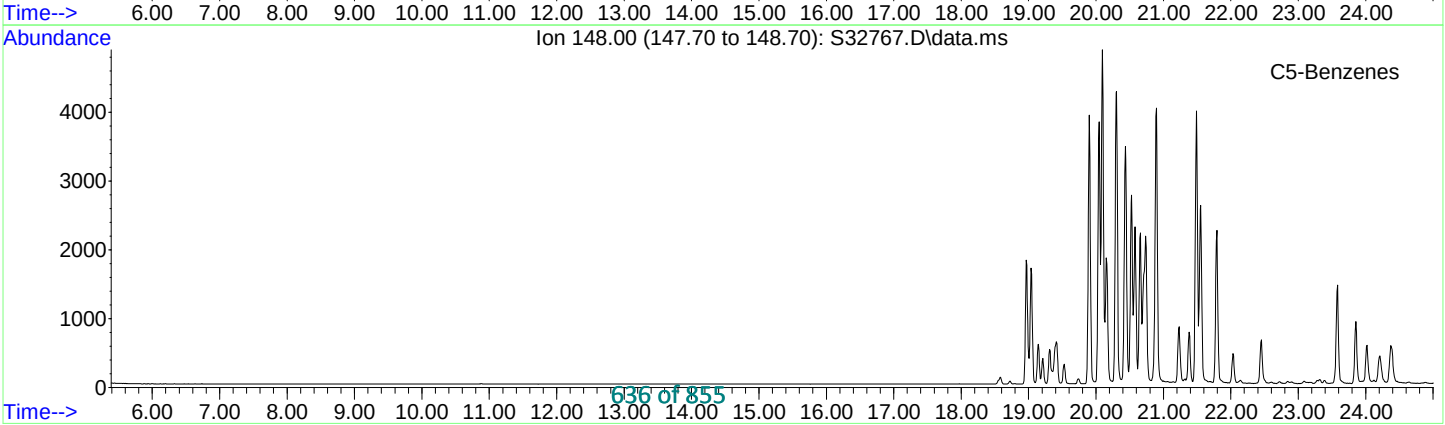

ACCUTEST

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Date Acquired: 29 May 2013 7:57 pm
Sample Name: mc20162-9
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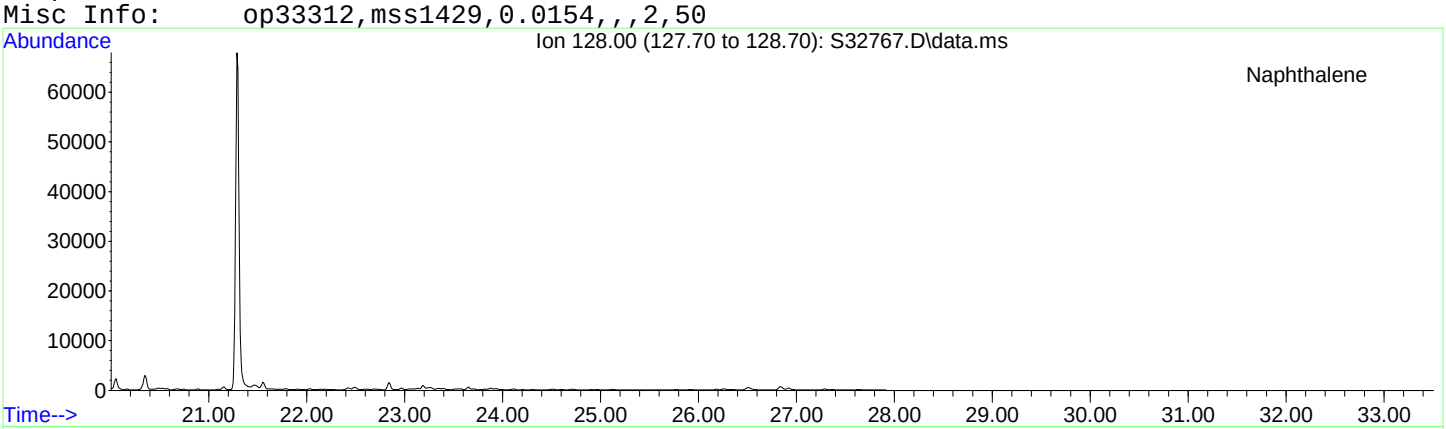

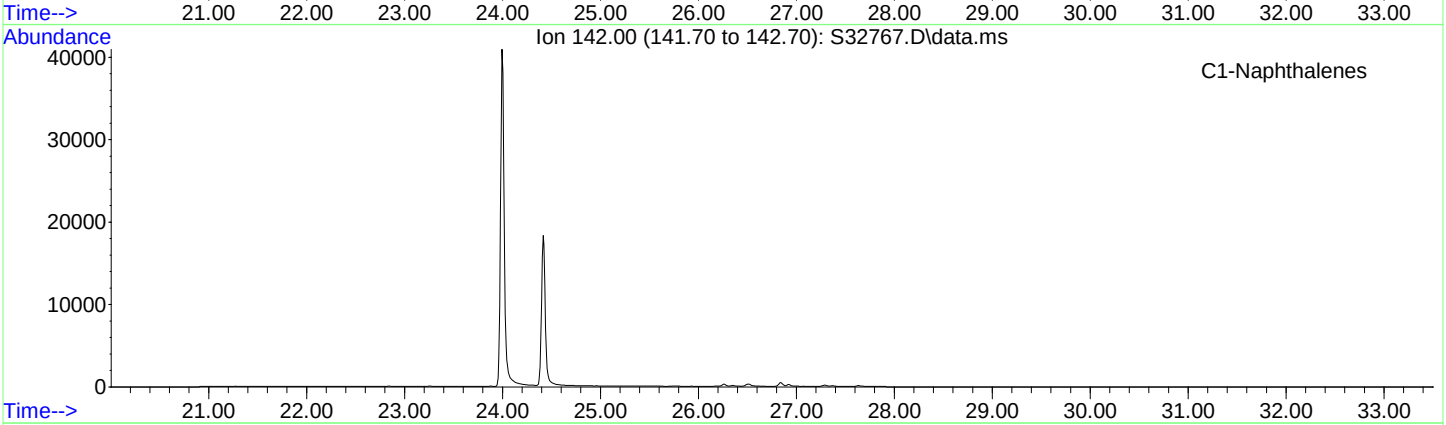

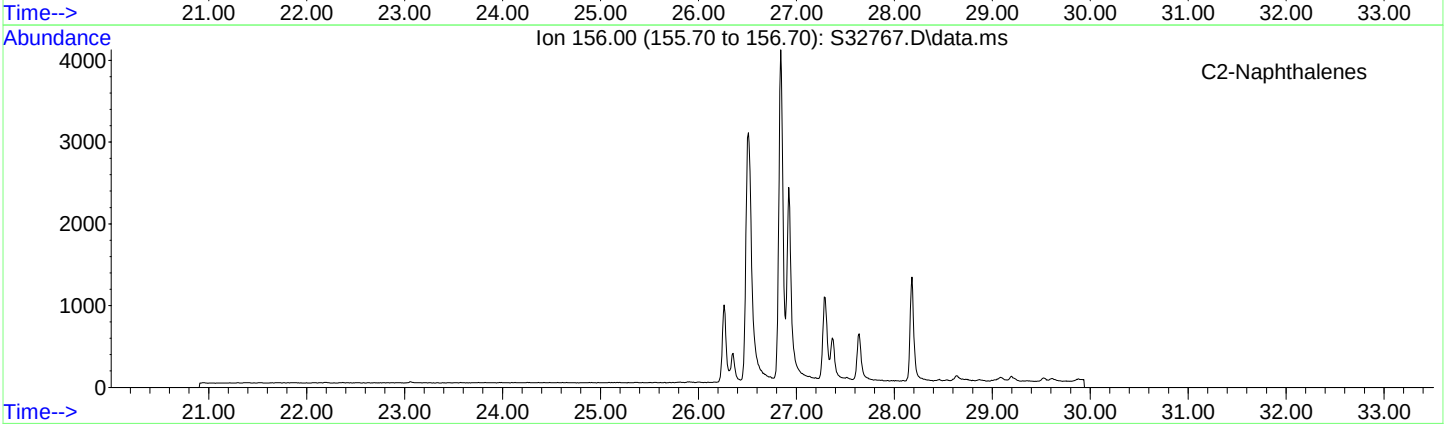

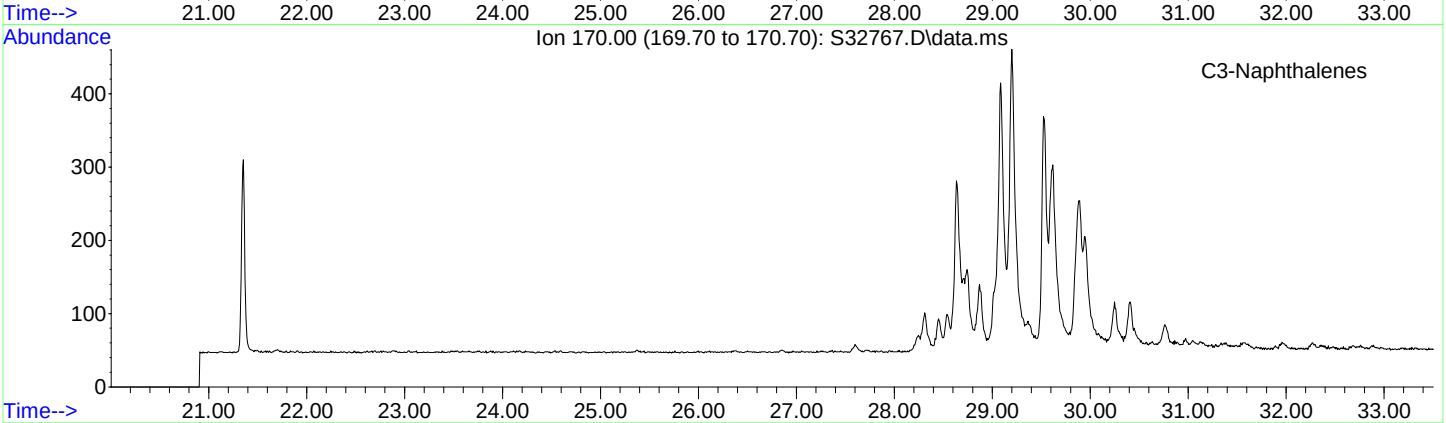

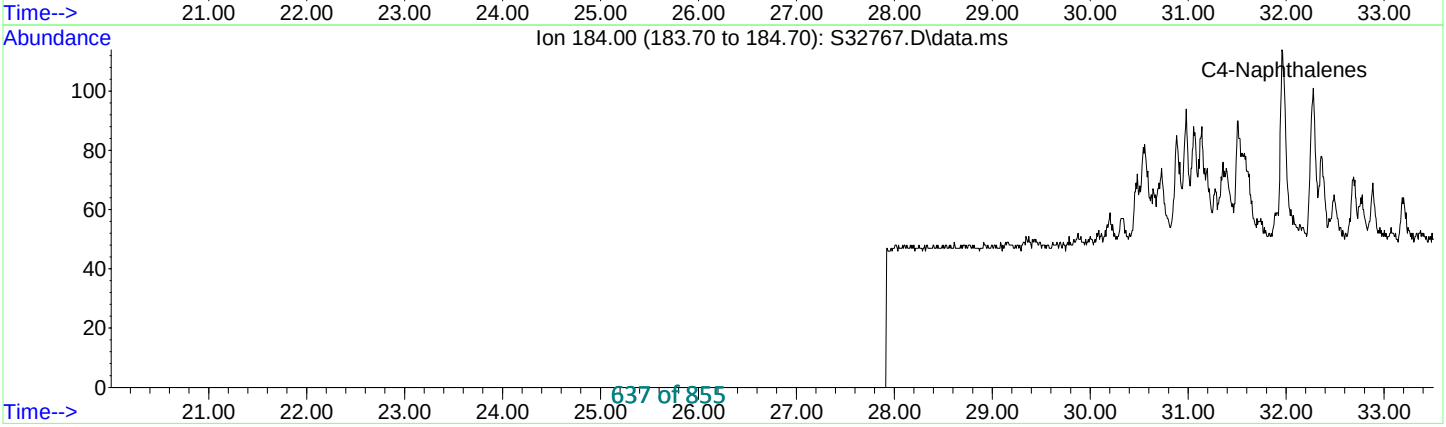

ACCUTEST

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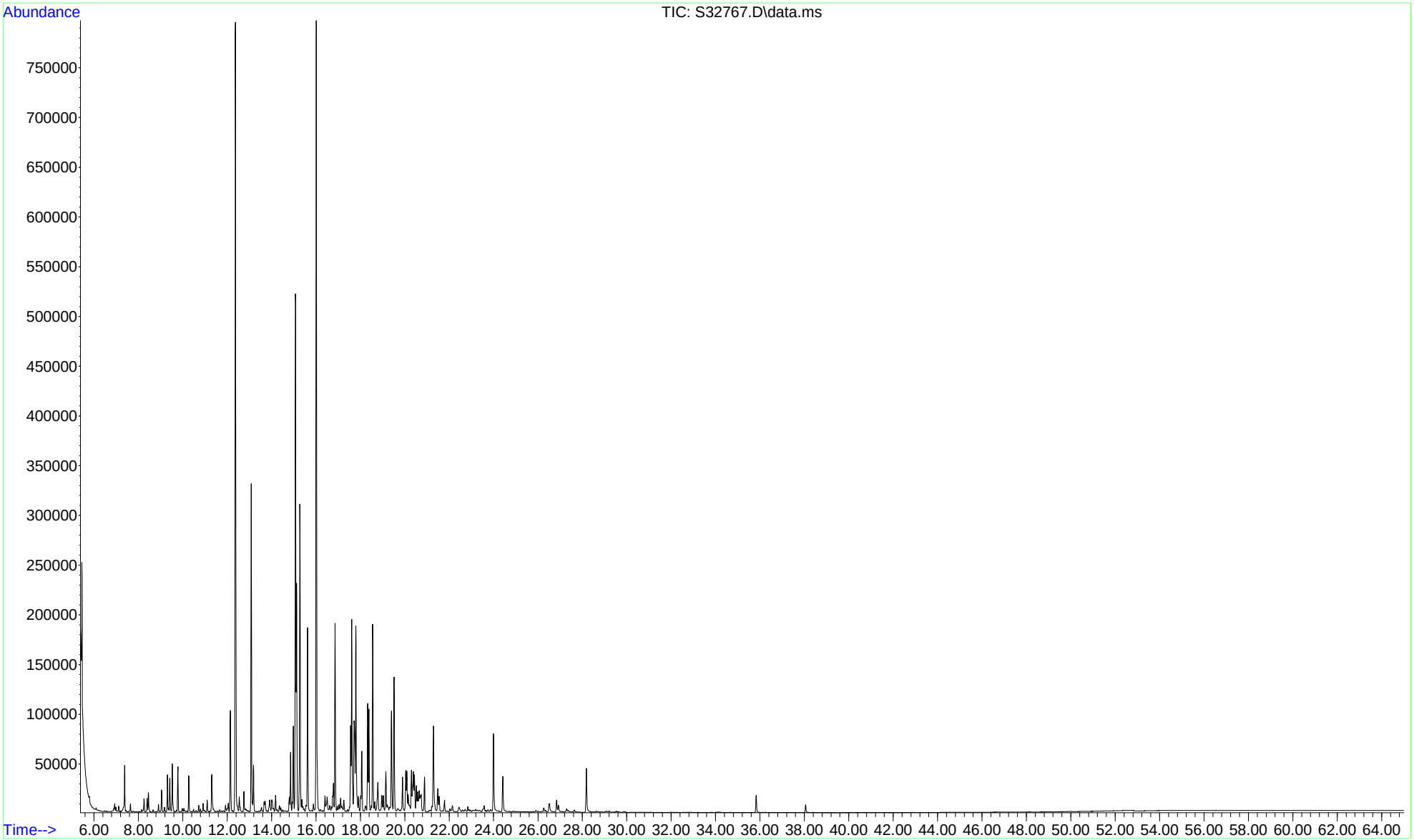
Method File: SAPAHSIM-MTBE.M
Sample Name: mc20162-9
Misc Info: op33312,mss1429,0.0154,,,2,50



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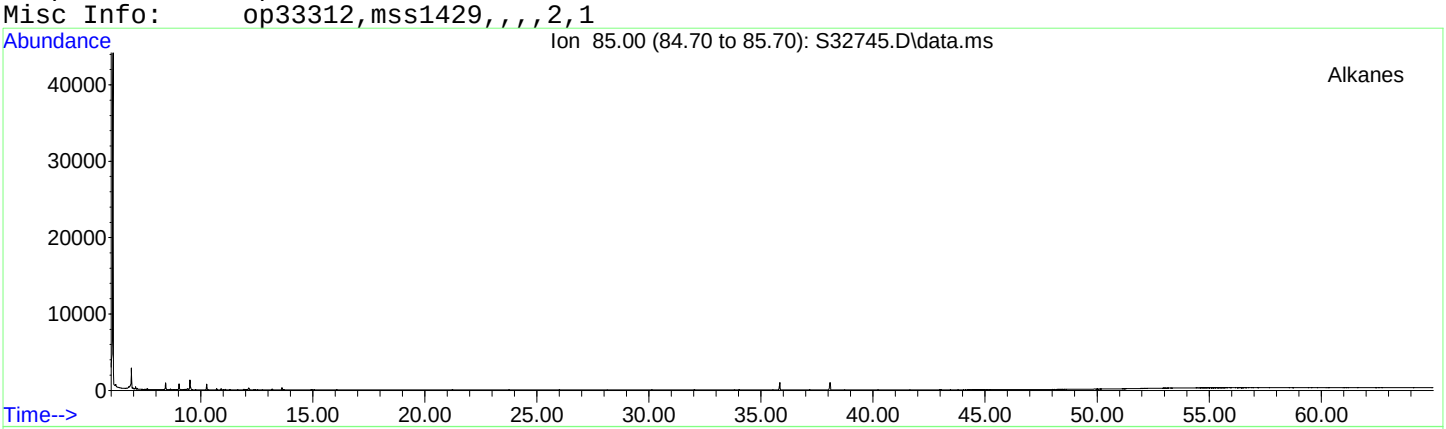

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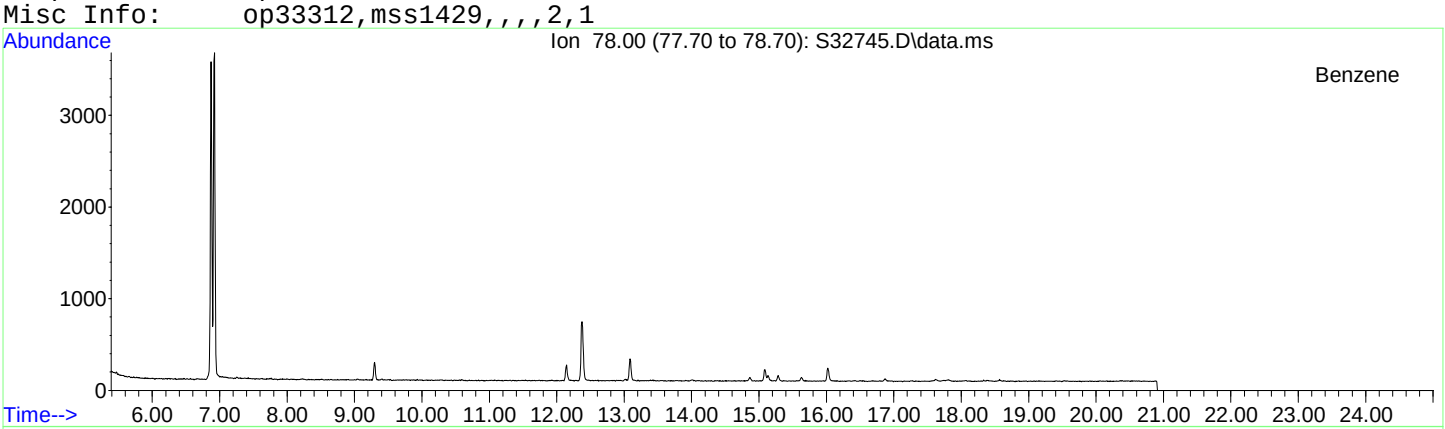

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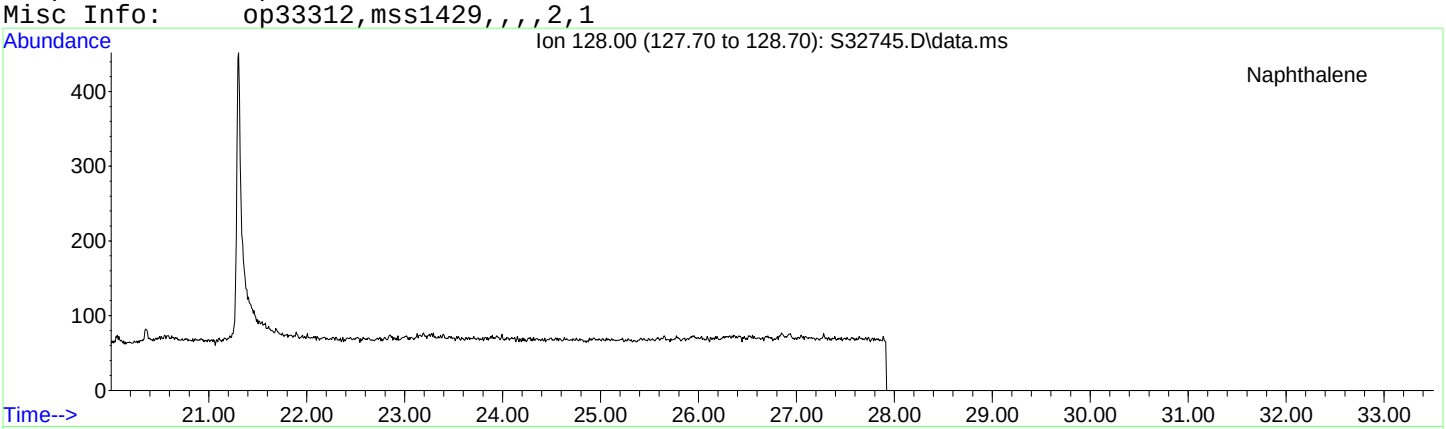

ACCUTEST

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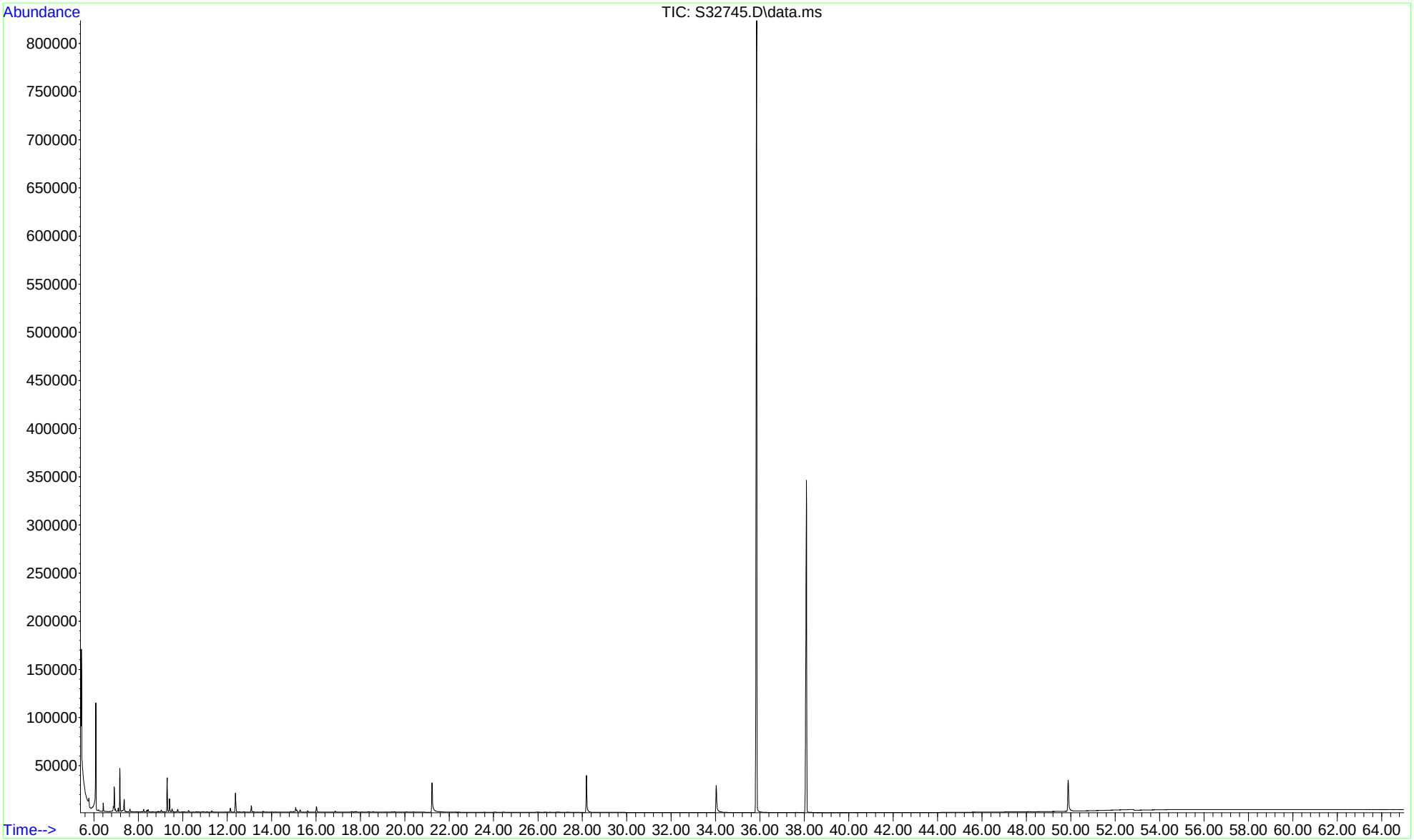

Appendix E

Battelle Duxbury Laboratory PIANO Report

PIANO Analysis
Project No 100012044-9
Volatile organics by purge and trap GC/MS

NAPL

Batch 13-0320

Package DP-13-0544

Submitted to:
Accutest Laboratories New England
50 D'Angelo Drive
Marlborough, MA 01752 USA

Submitted by:
Battelle Duxbury Operations
397 Washington Street
Duxbury, MA 02332

Battelle
The Business *of* Innovation

PIANO Analysis
Project No 100012044-9
Volatile organics by purge and trap GC/MS

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Submitted to:
Accutest Laboratories New England
50 D'Angelo Drive
Marlborough, MA 01752 USA

Submitted by:
Battelle Duxbury Operations
397 Washington Street
Duxbury, MA 02332

Analyst Approval:	Kerry Davis	Kerry Davis 2013.08.12 14:52:20 -04'00'
QC Chemist Approval:	Ellyn M Webb	Ellyn Webb 2013.08.14 16:29:42 -04'00'
Project Manager Approval:		Kevin McInerney 2013.08.14 16:35:13 -04'00'

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PIANO Analysis
Project No 100012044-9
Volatile organics by purge and trap GC/MS

NAPL

Batch 13-0320

Package DP-13-0544

1	***Work Plan*** Laboratory Work Plan, Addendums To Work Plan, Memos From Project Manager, Special Instructions, Chain-of-Custody Reports.	1
2	***Tables*** Analytical Data Tables, Qualifier Definitions.	18
3	***Miscellaneous Documentation*** Case Narrative, Miscellaneous Documentation Form, Quality Control Summary, Example Calculations, Internal Standard Recovery Report, Retention Time Window Report.	43
4	***Sample Preparation Records*** Sample Preparation Records, Dilution Worksheets, Standard Preparation Records, Certificates Of Analysis, GPC Check Report.	57
5	***Analytical Calibrations*** Analytical Sequence, Analytical Method, Tune Report, Initial Calibration, Pesticide Degradation Report, RF Summary, Calibration Verifications, Independent Calibration Verification Check.	82
6	***Analytical Data*** Raw Data Quantification Reports.	118
7	***Chromatograms*** Sample And Standard Chromatograms.	187
8	***Unused Data***	NA

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WORK/QUALITY ASSURANCE PROJECT PLAN

1.0 GENERAL PROJECT INFORMATION

Project Title:	Accutest - PIANO Analysis
Project Number:	100012044-9
Client:	Accutest Laboratories New England 50 D'Angelo Drive 495 Technology Center W. Marlborough, MA 01752 USA
Client Contact Information:	James Roush Technical Manager (508) 481-6200(V) NA jamesr1@accutest.com
Effective Date of QAPP:	7/31/2013
Version Number:	100012044-9(O)-01
Project Manager:	McInerney, Kevin
Laboratory Task Manager:	McInerney, Kevin
Deliverable Due Date:	8/13/2013

2.0 SCOPE OF WORK

Overview:	Analysis of nine gasoline samples for PIANO range hydrocarbons.
Matrix:	Petroleum

2.1 TECHNICAL APPROACH

2.1.1 Sample Receipt, Storage, and Handling

The list of samples for this project plan are presented in Attachment 1.

Storage Directions:	Standard Battelle Procedure
Sub_Sampling:	None
Procedures:	NA
Contact:	NA
Comment:	NA
Archiving:	Standard Battelle Procedure
Disposal:	Standard Battelle Procedure

2.1.2 Sample Preparation

nine samples, one duplicate

Samples Expected:	Samples Per Batch:	Batches Expected:
10	20	1

Batch quality control samples are defined in Table 1.

Target samples are presented in Attachment 1.

Table 1: Quality Control Samples

Type:	*Description:*	*Count:*	*Rgt:*	*Reference:*	*Comment:*
PB	Laboratory control reagent blank.	1 per batch	--	NA	
LCS	Laboratory Control Sample	1 per batch	No	NA	
QADU	Duplicate extraction and anlysis of a field sample.	1 per batch	--	NA	

2.1.3 Extraction/Preparation

2.1.3.1 Extraction

SOP No.-Rev:	**5-245-11**
SOP Title:	*Preparation and Analysis of Volatile Hydrocarbons in Environmental Samples by Purge and Trap Gas Chromatography/ Mass Spectrometry*
Sample Size:	20 mg
SIS and LCS/MS Compounds:	Defined in Table 2.
Deviations:	NA
Comments:	Oil sample preparation.

Table 2: SIS and LCS/MS Spiking Level

Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
VOA PIANO LCS Solution	HQ54 LCS/MS	~ 400 ng	50 uL	NA

2.1.3.2 Cleanup

None.

RIS spiking levels are presented in Table 3.

Extract PIV (uL): NA

Table 3: RIS Spiking Level

Standard Type	Standard Contents	Spike Amount (ng)	Volume (uL)	Comment
VOA IS/SIS Solution	HP80 RIS/SIS	~ 500 ng	25 uL	NA

2.1.4 Instrumental Analysis

The list of analytes along with data quality criteria are presented in Attachment 2.

1) SOP_No-Rev: **5-245-11**

SOP_Title: *Preparation and Analysis of Volatile Hydrocarbons in Environmental Samples by Purge and Trap Gas Chromatography/ Mass Spectrometry*

Deviations: NA

Comments: Oil sample preparation.

2.2. DELIVERABLES

Deliverables Due:	8/13/2013
LIMS Reports:	*Yes*
Histograms:	*No*
Excel Tables:	*Yes*
EICs:	*No*
Chromatograms:	*No*
EDDs:	*No*
Comments:	14 day TAT!

3.0 QUALITY

The Method Quality Objectives are defined in Attachment 3.

4.0 ORGANIZATION AND COMMUNICATION

4.1 ORGANIZATION

The project team is defined in Table 4. Supervisors may make substitutions with Project Manager concurrence.

Table 4: Project Team and Roles

Staff Member	Role	Comment
Kevin M. McInerney	Project Manager	NA
Lauren M. Griffith	Sample Preparation	NA
Lauren M. Griffith	GC/MS Analysis	NA
Matt D. Schumitz	Sample Custody	NA
Ellyn Webb	Quality Control Officer	NA

4.2 COMMUNICATION

A kick-off meeting will be held to discuss project scope and goals.

5.0 SCHEDULE

The project schedule is presented in Table 5.

Table 5. Schedule of Laboratory Activities

Activity:	Start Date:	End Date:	TAT (days):	Comment:
Sample Receipt	07/31/2013	08/01/2013	1	NA
Sample Preparation	08/02/2013	08/03/2013	1	NA
Instrument Analysis	08/05/2013	08/09/2013	4	NA
Quality Control Review	08/12/2013	08/13/2013	1	NA
Final Data Reporting	08/13/2013	08/13/2013	0	NA

6.0 BUDGET

The labor budget for the analytical task is presented in Table 6.

Table 6. Labor Budget (Laboratory Analytical Task)

Labor Activity:	Hours/ Batch:	Batches:	Total Hours:	Comment:
Sample Receipt	1	1	1	NA
Sample Preparation	2	1	2	NA
Instrument Analysis	8	1	8	NA

Labor Activity:	Hours/ Batch:	Batches:	Total Hours:	Comment:
Quality Control Review	3	1	3	NA
Final Data Reporting	1	1	1	NA

7.0 STAFF DEVELOPMENT

None anticipated

WORK/QUALITY ASSURANCE PROJECT PLAN

Attachment 1: Target Samples

Shipment: **SHP-130731-03**

Status: Approved

Description: Accutest

Range: N9109-N9117

Comment: NA

No:	BDO Id:	Client Sample ID:	Collection Date:	Matrix:	Storage Facility:	Location:	No:	Comments:
1	N9109	MC20162-1	04/22/2013 12:00 am	NAPL	R0003 (Upper Cold Room)			
2	N9110	MC20162-2	04/22/2013 12:00 am	NAPL	R0003 (Upper Cold Room)			
3	N9111	MC20162-3	04/22/2013 12:00 am	NAPL	R0003 (Upper Cold Room)			
4	N9112	MC20162-4	04/22/2013 12:00 am	NAPL	R0003 (Upper Cold Room)			
5	N9113	MC20162-5	04/23/2013 12:00 am	NAPL	R0003 (Upper Cold Room)			
6	N9114	MC20162-6	04/23/2013 12:00 am	NAPL	R0003 (Upper Cold Room)			
7	N9115	MC20162-7	05/20/2013 12:00 am	NAPL	R0003 (Upper Cold Room)			
8	N9116	MC20162-8	05/20/2013 12:00 am	NAPL	R0003 (Upper Cold Room)			
9	N9117	MC20162-9	05/20/2013 12:00 am	NAPL	R0003 (Upper Cold Room)			

Attachment 2: Test Codes

Project Test Code Name:	Master_245
SOP Reference:	5-245 - Preparation and Analysis of Volatile Hydrocarbons in Environmental Samples by Purge and Trap Gas Chromatography/ Mass Spectrometry
Description:	Volatile organics by purge and trap GC/MS
Matrix:	O - Oils, Tarballs and NAPLs
Detection Limit Study:	5-245-2012-ssMDL
Instrument:	VOC
MQO Criteria	Universal VOA
Standard Report:	Standard VOA Result Report

Method Specific Reporting				Holding Times (days)		Data Flags	
Result Units:	mg/Kg	***Unit Conversion:***	(none)	***Sample:***	365	***DL_Flag:***	U
Weight Basis:	LIQUID	***Result Format:***	Fixed Digits	***Frozen:***	365	***RL_Flag:***	J
Standard Basis:	RIS	***# of Figures/Digits:***	2	***Extract:***	40	***PB_Flag:***	B
Oil Weight Basis:	Yes	***Oil Weight Source:***	Oil Weight			***DIL_Flag:***	D
U-Value Substition:	ND=Null	***Histograms:***	No			***HT_Flag:***	T
ECD_Reporting:	No						

No:	Analyte:	Report Name:	Type	RIS	SIS	Hidden:	Graph:
1	n-Pentane	n-Pentane	T	Benzene-d6	1,4-Difluorobenzene	No	No
2	n-Hexane	n-Hexane	T	Benzene-d6	1,4-Difluorobenzene	No	No
3	n-Heptane	n-Heptane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
4	n-Octane	n-Octane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
5	n-Nonane	n-Nonane	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
6	n-Decane	n-Decane	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
7	n-Undecane	n-Undecane	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
8	n-Dodecane	n-Dodecane	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
9	Isopentane	Isopentane	T	Benzene-d6	1,4-Difluorobenzene	No	No
10	2,2-Dimethylbutane	2,2-Dimethylbutane	T	Benzene-d6	1,4-Difluorobenzene	No	No
11	2-Methylpentane	2-Methylpentane	T	Benzene-d6	1,4-Difluorobenzene	No	No
12	3-Methylpentane	3-Methylpentane	T	Benzene-d6	1,4-Difluorobenzene	No	No
13	2,2-Dimethylpentane	2,2-Dimethylpentane	T	Benzene-d6	1,4-Difluorobenzene	No	No
14	2,4-Dimethylpentane	2,4-Dimethylpentane	T	Benzene-d6	1,4-Difluorobenzene	No	No
15	2-Methylhexane	2-Methylhexane	T	Benzene-d6	1,4-Difluorobenzene	No	No
16	2,3-Dimethylpentane	2,3-Dimethylpentane	T	Benzene-d6	1,4-Difluorobenzene	No	No
17	3-Methylhexane	3-Methylhexane	T	Benzene-d6	1,4-Difluorobenzene	No	No
18	2,2,4-Trimethylpentane	2,2,4-Trimethylpentane/1-Heptene	T	Benzene-d6	1,4-Difluorobenzene	No	No
19	2,5-Dimethylhexane	2,5-Dimethylhexane/2,2,3-Trimethylpentane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
20	2,4-Dimethylhexane	2,4-Dimethylhexane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No

Attachment 2: Test Codes

Project Test Code Name: Master_245

No:	Analyte:	Report Name:	Type	RIS	SIS	Hidden:	Graph:
21	2,3,4-Trimethylpentane	2,3,4-Trimethylpentane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
22	2,3,3-Trimethylpentane	2,3,3-Trimethylpentane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
23	2,3-Dimethylhexane	2,3-Dimethylhexane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
24	2-Methylheptane	2-Methylheptane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
25	4-Methylheptane	4-Methylheptane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
26	2,2-Dimethylheptane	2,2-Dimethylheptane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
27	2,2,4-Trimethylhexane	2,2,4-Trimethylhexane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
28	2,4-Dimethylheptane	2,4-Dimethylheptane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
29	2,6-Dimethylheptane	2,6-Dimethylheptane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
30	2,3-Dimethylheptane	2,3-Dimethylheptane	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
31	4-Methyloctane	4-Methyloctane	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
32	2-Methyloctane	2-Methyloctane	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
33	2,2-Dimethyloctane	2,2-Dimethyloctane	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
34	3,3-Dimethyloctane	3,3-Dimethyloctane	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
35	3-Methylnonane	3-Methylnonane	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
36	Benzene	Benzene	T	Benzene-d6	1,4-Difluorobenzene	No	No
37	Toluene	Toluene	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
38	Ethylbenzene	Ethylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
39	m-Xylene	m-Xylene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
40	p-Xylene	p-Xylene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
41	o-Xylene	o-Xylene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
42	Isopropylbenzene	Isopropylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
43	Propylbenzene	Propylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
44	1-Methyl-3-Ethylbenzene	1-Methyl-3-Ethylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
45	1-Methyl-4-Ethylbenzene	1-Methyl-4-Ethylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
46	1,3,5-Trimethylbenzene	1,3,5-Trimethylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
47	1-Methyl-2-Ethylbenzene	1-Methyl-2-Ethylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
48	1,2,4-Trimethylbenzene	1,2,4-Trimethylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
49	sec-Butylbenzene	sec-Butylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
50	1,2,3-Trimethylbenzene	1,2,3-Trimethylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
51	Indane	Indane	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
52	1,3-Diethylbenzene	1,3-Diethylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
53	1-methyl-4-n-propylbenzene	1-methyl-4-n-propylbenzene/1,4-Diethylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
54	1,3-Dimethyl-5-Ethylbenzene	1,3-Dimethyl-5-Ethylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
55	1,2-Diethylbenzene	1,2-Diethylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
56	1-Methyl-2-n-Propylbenzene	1-Methyl-2-n-Propylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
57	1,4-dimethyl-2-ethylbenzene	1,4-dimethyl-2-ethylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
58	1,2-Dimethyl-4-Ethylbenzene	1,2-Dimethyl-4-Ethylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
59	1,3-Dimethyl-2-Ethylbenzene	1,3-Dimethyl-2-Ethylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
60	1,2,4,5-Tetramethylbenzene	1,2,4,5-Tetramethylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
61	1,2,3,5-Tetramethylbenzene	1,2,3,5-Tetramethylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
62	1,2,3,4-Tetramethylbenzene	1,2,3,4-Tetramethylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
63	n-Pentylbenzene	n-Pentylbenzene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
64	Cyclopentane	Cyclopentane	T	Benzene-d6	1,4-Difluorobenzene	No	No

Attachment 2: Test Codes

Project Test Code Name: Master_245

No:	Analyte:	Report Name:	Type	RIS	SIS	Hidden:	Graph:
65	Methylcyclopentane	Methylcyclopentane	T	Benzene-d6	1,4-Difluorobenzene	No	No
66	Cyclohexane	Cyclohexane	T	Benzene-d6	1,4-Difluorobenzene	No	No
67	Methylcyclohexane	Methylcyclohexane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
68	ctc-1,2,4-Trimethylcyclopentane	ctc-1,2,4-Trimethylcyclopentane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
69	ctc-1,2,3-Trimethylcyclopentane	ctc-1,2,3-Trimethylcyclopentane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
70	Isopropylcyclopentane	Isopropylcyclopentane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
71	Ethylcyclohexane	Ethylcyclohexane/n-propylcyclobenzene	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
72	1,1,4-Trimethylcyclohexane	1,1,4-Trimethylcyclohexane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
73	ctt-1,2,4-Trimethylcyclohexane	ctt-1,2,4-Trimethylcyclohexane	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
74	ctc-1,2,4-Trimethylcyclohexane	ctc-1,2,4-Trimethylcyclohexane	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
75	1,1,2-Trimethylcyclohexane	1,1,2-Trimethylcyclohexane	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
76	Isopropylcyclohexane	Isopropylcyclohexane	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
77	n-Butylcyclopentane	n-Butylcyclopentane	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
78	1-Pentene	1-Pentene	T	Benzene-d6	1,4-Difluorobenzene	No	No
79	2-Methyl-1-Butene	2-Methyl-1-Butene	T	Benzene-d6	1,4-Difluorobenzene	No	No
80	trans-2-Pentene	trans-2-Pentene	T	Benzene-d6	1,4-Difluorobenzene	No	No
81	cis-2-Pentene	cis-2-Pentene	T	Benzene-d6	1,4-Difluorobenzene	No	No
82	1-Hexene	1-Hexene	T	Benzene-d6	1,4-Difluorobenzene	No	No
83	trans-2-Hexene	trans-2-Hexene	T	Benzene-d6	1,4-Difluorobenzene	No	No
84	2-Methylpentene-2	2-Methylpentene-2	T	Benzene-d6	1,4-Difluorobenzene	No	No
85	cis-2-Hexene	cis-2-Hexene	T	Benzene-d6	1,4-Difluorobenzene	No	No
86	2-Methyl-1-Hexene	2-Methyl-1-Hexene/trans-1,2-Dimethylcyclopentane	T	Benzene-d6	1,4-Difluorobenzene	No	No
87	trans-3-Heptene	trans-3-Heptene	T	Benzene-d6	1,4-Difluorobenzene	No	No
88	cis-3-Heptene	cis-3-Heptene	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
89	trans-2-Heptene	trans-2-Heptene	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
90	cis-2-Heptene	cis-2-Heptene	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
91	1-Octene	1-Octene	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
92	trans-2-Octene	trans-2-Octene	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
93	Cis-2-octene	Cis-2-octene	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
94	1-Nonene	1-Nonene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
95	trans-3-Nonene	trans-3-Nonene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
96	cis-3-Nonene	cis-3-Nonene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
97	trans-2-Nonene	trans-2-Nonene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
98	cis-2-Nonene	cis-2-Nonene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
99	1-Decene	1-Decene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
100	1,2-Dichloroethane	1,2-Dichloroethane	T	Benzene-d6	1,4-Difluorobenzene	No	No
101	1,2-Dibromoethane	1,2 Dibromoethane	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
102	MMT	MMT	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
103	ethanol	ethanol	T	Benzene-d6	1,4-Difluorobenzene	No	No
104	t-Butanol	t-Butanol	T	Benzene-d6	1,4-Difluorobenzene	No	No
105	Methyltertbutylether	Methyl tert butyl ether	T	Benzene-d6	1,4-Difluorobenzene	No	No
106	Di-isopropylether	Di-isopropyl ether	T	Benzene-d6	1,4-Difluorobenzene	No	No
107	Ethyltertbutylether	Ethyl tert butyl ether	T	Benzene-d6	1,4-Difluorobenzene	No	No

Attachment 2: Test Codes

Project Test Code Name: Master_245

No:	Analyte:	Report Name:	Type	RIS	SIS	Hidden:	Graph:
108	Tertamylmethylether	Tert amyl methyl ether	T	Benzene-d6	1,4-Difluorobenzene	No	No
109	Trichloroethylene	Trichloroethylene	T	Benzene-d6	1,4-Difluorobenzene	No	No
110	Tetrachloroethylene	Tetrachloroethylene	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
111	Thiophene	Thiophene	T	Benzene-d6	1,4-Difluorobenzene	No	No
112	2-Methylthiophene	2-Methylthiophene	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
113	3-Methylthiophene	3-Methylthiophene	T	Toluene-d8	1,4-dichlorobenzene-d4	No	No
114	2-Ethylthiophene	2-Ethylthiophene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
115	Benzo(b)thiophene	Benzo(b)thiophene	T	Ethylbenzene-d10	Chlorobenzene-d5	No	No
1	1,4-Difluorobenzene	1,4 difluorobenzene	SIS	Benzene-d6		No	No
2	Chlorobenzene-d5	Chlorobenzene-d5	SIS	Ethylbenzene-d10		No	No
3	1,4-dichlorobenzene-d4	1,4-dichlorobenzene-d4	SIS	Toluene-d8		No	No

Total Analytes: 118

Subtract Peaks:

None

Sum Peaks:

None

Attachment 2: Test Codes

Project Test Code Name: Master_245

ICAL Acceptance Criteria:

Curve Fit:	Limit Mean(%):	Mean Qual:	Limit Ind.:	Ind. Qual:	Min Points:	Points Qual:	Comments:
Linear	NA	NA	0.995	N	5	N	y = Bx + C
Average RF	15	N	30	N	5	N	y = Bx
Linear (0,0)	NA	NA	0.995	N	5	N	y = Bx + 0
Quadratic	NA	NA	0.995	N	6	N	y = Ax^2 + Bx + C
Quadratic (0,0)	NA	NA	0.995	N	6	N	y = Ax^2 + Bx + 0

Continuing Calibration Verification Criteria:

CCV Name: 5-245

Frequency Hrs:		Mean PD(%):		Individual PD(%):		RIS/SIS RT Window (min):		Area Limit Low(%):	Area Limit High(%):		Comment:
12	(N)	25	(N)	30	(N)	0.5	(N)	-50	100	(N)	40% - 60% for oxygenates 10% of analytes allowed to exceed if < 40%

Independent Calibration Verification:

ICC Name: 5-245

Mean PD Limit(%):		Ind. PD Limit(%):		RIS/SIS Window Limit (Secs):		Area Limit High(%):	Area Limit Low(%):		Comment:
25	(N)	30	(N)	0.04	(N)	-50	100	(N)	Same as the CCV. See CCV for details

Mass Discrimination Criteria:

None

Degredation Check Criteria:

None

Attachment 3: Method Quality Objectives

MQO Application:	***Universal VOA***		
MQO:	**Acceptance Criteria:**	**Qual:**	**Corrective Action:**
Procedural Blank	Samples must be greater than five times the blank concentration (>5xPB).	B	Review with Project Manager; re-analyze or justify results in project records.
PB Measurement Quality Objective	Organic results in the Procedural Blank are less than 5 times the MDL (<5xMDL)	N	Review with Project Manager; re-analyze or justify results in project records.
Laboratory Control Sample	Recovery values 50-130%.	N	Review with project manager; re-analyze or justify reporting the results in project records.
Matrix Spike Recovery	Organics 50-130%. Analyte concentration in MS must be greater than five times reported background concentration.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Target is less than 5 times the Original	n	
Matrix Spike/Spike Duplicate Precision	Organics results less than 30% Relative Percent Difference (RPD). Analyte concentration in MS must be greater than five times reported background concentration.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Target is less than 5 times the Original	n	
Standard Reference Material Accuracy	Organics Percent Difference less than 30% from a range of certified values on average. Analyte concentration must be greater than five times the Method Detection Limit (>5xMDL).	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Target is less than 5 times the MDL	n	
Analytical Duplicate Precision	Organics results less than 30% Relative Percent Difference (RPD). Analyte concentration in Original must be greater than five times MDL.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Original is less than 5 times the MDL	n	
Analytical Triplicate Precision	Organics results less than 30% Relative Standard Deviation (RSD). Analyte concentration in Original must be greater than five times MDL.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
	Organics Results in the Original is less than 5 times the MDL	n	

Attachment 3: Method Quality Objectives

MQO Application:	***Universal VOA***		
MQO:	**Acceptance Criteria:**	**Qual:**	**Corrective Action:**
Surrogate Compound Recovery	Recovery results between 50% and 130%.	N	Review with Project Manager; re-analyze or justify reporting results in the project records.
Control Oil	RPD < 30% for at least 90% of analytes	N	Results examined by project manager, task leader, or subcontractor lab manager. Reextraction, reanalysis, or justification documented.
Instrument Calibration	5-245-11: R-squared greater than or equal to 0.995 Mean RSD less than or equal to 15%, Individual RSD less than or equal to 30%	N	Results examined by project manager, task leader, or subcontractor lab manager. Reextraction, reanalysis, or justification documented.
Independent Calibration Check Solution	5-245-11: Individual PD less than or equal to 30%. Mean Percent Difference less than or equal to 25%.	N	Review with Project Manager; re-analyze or justify in project records.
Continuing Calibration Verification	5-245-11: Individual PD less than or equal to 30%. Mean Percent Difference less than or equal to 25%.	N	Review with Project Manager; re-analyze or justify in project records.

Battelle
The Business of Innovation

ShpNo SHP-130731-03

Battelle Project No: 00012044-9

Sample Receipt Form

Approved: ☐ **Authorized** ☐

Project Number: Accutest **Client:**

Received by: Schumitz, Matt **Date/Time Received:** Wednesday, July 31, 2013 12:00 AM

No. of Shipping Containers: 1

SHIPMENT

Method of Delivery: Commercial Carrier **Tracking Number:** Not Recorded

COC Forms: ✔ **Shipped with samples** ☐ **No Forms**

Cooler(s)/Box(es)

Cntr	Type	Tracking No.	Seal	Seal Condition	Container Condition	Temp C	Smps
1 of 1	Cooler	5445 5670 9017	Tape	Intact	Intact	2.1	9

Samples

Sample Labels:
✔ Sample labels agree with COC forms
☐ Discrepancies (see Sample Custody Corrective Action Form)

Container Seals:
☐ Tape ☐ Custody Seals ☐ Other Seals (See sample Log)
✔ Seals intact for each shipping container
☐ Seals broken (See sample log for impacted samples)

Condition of Samples:
✔ Sample containers intact
☐ Sample containers broken/leaking (See Custody Corrective Action Form)

Temperature upon receipt (°C): 2.1 Temperature Blank used ☐ Yes ✔ No
(Note: If temperature upon receipt differs from required conditions, see sample log comment field)

Samples Acidified: ☐ Yes ☐ No ✔ Unknown

Initial pH 5-9?: ☐ Yes ☐ No ✔ NA
If no, individual sample adjustments on the Auxiliary Sample Receipt Form

Total Residual Chlorine Present?: ☐ Yes ☐ No ✔ NA
If yes, individual sample adjustments on the Auxiliary Sample Receipt Form

Head Space <1% in samples for water VOC analysis: ☐ Yes ☐ No ✔ NA
Individual sample deviations noted on sample log

Samples Containers:
Samples returned in PC-grade jars: ☐ Yes ☐ No ✔ Unknown /Lot No.: Unknown

Storage Location: Chem South: Refrigerator - R0003 (Upper Cold **BDO IDs Assigned:** N9109 - N9117

Samples logged in by: Schumitz, Matt **Date/Time:** 07/31/2013 12:00 AM

Approved By: **Approved On:**

Authorized By: **Authorized On:**

Battelle

The Business of Innovation

ShpNo SHP-130731-03

Battelle Project No: 00012044-9

Sample Receipt Form Details

Approved: ☐ Authorized ☐

Project Number: Accutest **Client:**

Received by: Schumitz, Matt **Date/Time Received:** Wednesday, July 31, 2013 12:00 AM

No. of Shipping Containers: 1

BDO Id:	Client Sample ID:	Collection Date:	Login Date:	Ctrs:	Matrix:	Temp:	pH:	TRC:	VOC:	Stored In:	Loc:	No:	Comments:
N9109	MC20162-1	04/22/13 0:00	07/31/13 15:25	1	NAPL	2.1	NA	NA	NA	R0003 (Upper C			
N9110	MC20162-2	04/22/13 0:00	07/31/13 15:25	1	NAPL	2.1	NA	NA	NA	R0003 (Upper C			
N9111	MC20162-3	04/22/13 0:00	07/31/13 15:25	1	NAPL	2.1	NA	NA	NA	R0003 (Upper C			
N9112	MC20162-4	04/22/13 0:00	07/31/13 15:25	1	NAPL	2.1	NA	NA	NA	R0003 (Upper C			
N9113	MC20162-5	04/23/13 0:00	07/31/13 15:25	1	NAPL	2.1	NA	NA	NA	R0003 (Upper C			
N9114	MC20162-6	04/23/13 0:00	07/31/13 15:25	1	NAPL	2.1	NA	NA	NA	R0003 (Upper C			
N9115	MC20162-7	05/20/13 0:00	07/31/13 15:25	1	NAPL	2.1	NA	NA	NA	R0003 (Upper C			
N9116	MC20162-8	05/20/13 0:00	07/31/13 15:25	1	NAPL	2.1	NA	NA	NA	R0003 (Upper C			
N9117	MC20162-9	05/20/13 0:00	07/31/13 15:25	1	NAPL	2.1	NA	NA	NA	R0003 (Upper C			

Total Samples: 9

ACCUTEST LABORATORIES

CHAIN OF CUSTODY

495 Technology Center West
Building One, Marlbourough, MA 01752
508-481-6200 FAX: 508-481-7753

Accutest Job #:

Accutest Control #:

Client Information		Facility Information	
Client Name: Accutest Laboratories		Project Name: MC20162	
Address (street): 495 technology Center W. Bldg. 1		Location: Arizona	
City: Marlborough		Project No.	
State: MA	Zip: 01752		
Contact Name: James Roush			
Phone #: 508-481-6200		Email: jamesr1@accutest.com	

Analytical Information

Field ID / Point of Collection	Collection Date	Collection Time	Sampled By	Matrix	# of bottles	Preservation: VOC	NaOH	HNO3	H2SO4	None	PIANO by EPA 8260M
MC20162-1 N9109	4/22/13			NAPL	1					X	X
MC20162-2 N9110	4/22/13			NAPL	1					X	X
MC20162-3 N9111	4/22/13			NAPL	1					X	X
MC20162-4 N9112	4/22/13			NAPL	1					X	X
MC20162-5 N9113	4/23/13			NAPL	1					X	X
MC20162-6 N9114	4/23/13			NAPL	1					X	X
MC20162-7 N9115	5/20/13			NAPL	1					X	X
MC20162-8 N9116	5/20/13			NAPL	1					X	X
MC20162-9 N9117	5/20/13			NAPL	1					X	X

Turnaround Information

- [x] 10 Day STD
- [ ] 5 Day STD (By Contract only)
- [ ] 5 Day Rush
- [ ] 3 Day Rush
- [ ] 2 Day Rush
- [ ] 1 Day Rush

Approved By: J. Thorn

Data Deliverable Information

- [ ] Comm A
- [ ] Comm B
- [x] Full T1
- [ ] Other
- [ ] CT RCP
- [ ] MA MCP
- [ ] NYASP CAT A
- [ ] NYASP CATB

EDD Format: Excel tabular

Comments / Remarks

Sample Custody must be documented below each time samples change possesion, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1	7/30/13	1 Fedex	2 MOS 7-31-13		2
Relinquished by Sampler: 3	Date Time:	Received By: 3 7-31-13	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by Sampler: 5	Date Time:	Received By: 5	Seal #	Preserved ☐	On Ice: ☐

FedEx

ORIGIN ID: BBFA (508) 481-6200
SAMPLE MANAGEMENT
ACCUTEST LABORATORIES
50 D'ANGELO DR.
495 TECH CENTER W., BUILDING 1
MARLBOROUGH, MA 01752
UNITED STATES US

SHIP DATE: 30JUL13
ACTWGT: 10.0 LB MAN
CAD: 0990801/CAFE2608

BILL SENDER

TO SAMPLE RECEIVING
BATTELLE
397 WASHINGTON ST

DUXBURY MA 023324546
(508) 481-6200
INV:
PO:
REF:
DEPT:

2.1
NO TB
Ca1754

512C1/A804/CF60

FedEx

RT 256 3 D
9017
07.31

RT 0
ST 12
FZ 0

TRK# 5445 5670 901
01

31 JUL 3:00P
STANDARD OVERNIGHT

01 XPUA

02332
MA-US BOS

Battelle
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Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	Procedural Blank
Battelle ID	BZ513PB-V
Sample Type	PB
Collection Date	08/05/2013
Extraction Date	08/05/2013
Analysis Date	08/05/2013
Analytical Instrument	VOC
% Moisture	NA
% Lipid	NA
Matrix	OIL
Sample Size	21.08000
Sample Size 2	NA
Sample Size 3	NA
Size Unit-Basis	MG_OIL
Units	MG/KG_OIL

n-Pentane	U	
n-Hexane	22.79	J
n-Heptane	U	
n-Octane	U	
n-Nonane	U	
n-Decane	U	
n-Undecane	U	
n-Dodecane	14.82	J
Isopentane	U	
2,2-Dimethylbutane	U	
2-Methylpentane	U	
3-Methylpentane	U	
2,2-Dimethylpentane	U	
2,4-Dimethylpentane	U	
2-Methylhexane	U	
2,3-Dimethylpentane	U	
3-Methylhexane	U	
2,2,4-Trimethylpentane/1-Heptene	U	
2,5-Dimethylhexane/2,2,3-Trimethylpentan	U	
2,4-Dimethylhexane	U	
2,3,4-Trimethylpentane	U	
2,3,3-Trimethylpentane	U	
2,3-Dimethylhexane	U	
2-Methylheptane	U	
4-Methylheptane	U	
2,2-Dimethylheptane	U	
2,2,4-Trimethylhexane	U	
2,4-Dimethylheptane	U	
2,6-Dimethylheptane	U	
2,3-Dimethylheptane	U	
4-Methyloctane	U	
2-Methyloctane	U	
2,2-Dimethyloctane	U	
3,3-Dimethyloctane	U	
3-Methylnonane	U	

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Battelle
The Business of Innovation

Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	Procedural Blank
Battelle ID	BZ513PB-V
Sample Type	PB
Collection Date	08/05/2013
Extraction Date	08/05/2013
Analysis Date	08/05/2013
Analytical Instrument	VOC
% Moisture	NA
% Lipid	NA
Matrix	OIL
Sample Size	21.08000
Sample Size 2	NA
Sample Size 3	NA
Size Unit-Basis	MG_OIL
Units	MG/KG_OIL

Benzene		U
Toluene	9.43	J
Ethylbenzene		U
m-Xylene		U
p-Xylene		U
o-Xylene		U
Isopropylbenzene		U
Propy benzene		U
1-Methyl-3-Ethylbenzene		U
1-Methyl-4-Ethylbenzene		U
1,3,5-Trimethylbenzene		U
1-Methyl-2-Ethylbenzene		U
1,2,4-Trimethylbenzene		U
sec-Butylbenzene		U
1,2,3-Trimethylbenzene		U
Indane		U
1,3-Diethylbenzene		U
1-methyl-4-n-propylbenzene/1,4-Diethylben		U
1,3-Dimethyl-5-Ethylbenzene		U
1,2-Diethylbenzene		U
1-Methyl-2-n-Propylbenzene		U
1,4-dimethyl-2-ethylbenzene		U
1,2-Dimethyl-4-Ethylbenzene		U
1,3-Dimethyl-2-Ethylbenzene		U
1,2,4,5-Tetramethylbenzene		U
1,2,3,5-Tetramethylbenzene		U
1,2,3,4-Tetramethylbenzene	2.80	J
n-Pentylbenzene	5.28	J
Cyclopentane		U
Methylcyclopentane		U
Cyclohexane		U
Methylcyclohexane		U
ctc-1,2,4-Trimethylcyclopentane		U
ctc-1,2,3-Trimethylcyclopentane		U
Isopropylcyclopentane		U

Analyzed By Davis, Kerry

Not Surrogate Corrected 8/28/2013 O13-0320VOC-Master_245:FINAL

Battelle
The Business of Innovation

Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	Procedural Blank
Battelle ID	BZ513PB-V
Sample Type	PB
Collection Date	08/05/2013
Extraction Date	08/05/2013
Analysis Date	08/05/2013
Analytical Instrument	VOC
% Moisture	NA
% Lipid	NA
Matrix	OIL
Sample Size	21.08000
Sample Size 2	NA
Sample Size 3	NA
Size Unit-Basis	MG_OIL
Units	MG/KG_OIL

Ethylcyclohexane/n-propylcyclobenzene	U
1,1,4-Trimethylcyclohexane	U
ctt-1,2,4-Trimethylcyclohexane	U
ctc-1,2,4-Trimethylcyclohexane	U
1,1,2-Trimethylcyclohexane	U
Isopropylcyclohexane	U
n-Butylcyclopentane	U
1-Pentene	U
2-Methyl-1-Butene	U
trans-2-Pentene	U
cis-2-Pentene	U
1-Hexene	U
trans-2-Hexene	U
2-Methylpentene-2	U
cis-2-Hexene	U
2-Methyl-1-Hexene/trans-1,2-Dimethylcyclo	U
trans-3-Heptene	U
cis-3-Heptene	U
trans-2-Heptene	U
cis-2-Heptene	U
1-Octene	U
trans-2-Octene	U
Cis-2-octene	U
1-Nonene	U
trans-3-Nonene	U
cis-3-Nonene	U
trans-2-Nonene	U
cis-2-Nonene	U
1-Decene	U
1,2-Dichloroethane	U
1,2 Dibromoethane	U
MMT	U
ethanol	U
t-Butanol	U
Methyl tert butyl ether	U

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Battelle
The Business of Innovation

Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	Procedural Blank
Battelle ID	BZ513PB-V
Sample Type	PB
Collection Date	08/05/2013
Extraction Date	08/05/2013
Analysis Date	08/05/2013
Analytical Instrument	VOC
% Moisture	NA
% Lipid	NA
Matrix	OIL
Sample Size	21.08000
Sample Size 2	NA
Sample Size 3	NA
Size Unit-Basis	MG_OIL
Units	MG/KG_OIL

Di-isopropyl ether	U
Ethyl tert butyl ether	U
Tert amyl methyl ether	U
Trichloroethylene	U
Tetrachloroethylene	U
Thiophene	U
2-Methylthiophene	U
3-Methylthiophene	U
2-Ethylthiophene	U
Benzo(b)thiophene	U

Surrogate Recoveries (%)	
1,4 difluorobenzene	96
Chlorobenzene-d5	98
1,4-dichlorobenzene-d4	94

Battelle
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Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	Laboratory Control Sample			
Battelle ID	BZ514LCS-V			
Sample Type	LCS			
Collection Date	08/05/2013			
Extraction Date	08/05/2013			
Analysis Date	08/05/2013			
Analytical Instrument	VOC			
% Moisture	NA			
% Lipid	NA			
Matrix	OIL			
Sample Size	21.08000			
Sample Size 2	NA			
Sample Size 3	NA			
Size Unit-Basis	MG_OIL			
Units	MG/KG_OIL	**Target**	**% REC**	**Qual**
n-Pentane	2296.82	3772.30	61	
n-Hexane	3344.43	3783.68	88	
n-Heptane	U			
n-Octane	3513.71	3810.25	92	
n-Nonane	4031.93	3810.25	106	
n-Decane	4257.29	3783.68	113	
n-Undecane	U			
n-Dodecane	5297.47	3817.84	139	N
Isopentane	U			
2,2-Dimethylbutane	U			
2-Methylpentane	4233.38	3798.86	111	
3-Methylpentane	U			
2,2-Dimethylpentane	U			
2,4-Dimethylpentane	U			
2-Methylhexane	U			
2,3-Dimethylpentane	U			
3-Methylhexane	U			
2,2,4-Trimethylpentane/1-Heptene	3492.32	3810.25	92	
2,5-Dimethylhexane/2,2,3-Trimethylpentane	U			
2,4-Dimethylhexane	U			
2,3,4-Trimethylpentane	U			
2,3,3-Trimethylpentane	U			
2,3-Dimethylhexane	U			
2-Methylheptane	U			
4-Methylheptane	U			
2,2-Dimethylheptane	U			
2,2,4-Trimethylhexane	U			
2,4-Dimethylheptane	U			
2,6-Dimethylheptane	U			
2,3-Dimethylheptane	U			
4-Methyloctane	U			
2-Methyloctane	U			
2,2-Dimethyloctane	U			
3,3-Dimethyloctane	U			
3-Methylnonane	U			

Analyzed By Davis, Kerry

Not Surrogate Corrected 8/28/2013 O13-0320VOC-Master_245:FINAL

Battelle
The Business of Innovation

Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	Laboratory Control Sample			
Battelle ID	BZ514LCS-V			
Sample Type	LCS			
Collection Date	08/05/2013			
Extraction Date	08/05/2013			
Analysis Date	08/05/2013			
Analytical Instrument	VOC			
% Moisture	NA			
% Lipid	NA			
Matrix	OIL			
Sample Size	21.08000			
Sample Size 2	NA			
Sample Size 3	NA			
Size Unit-Basis	MG_OIL			
Units	MG/KG_OIL	**Target**	**% REC**	**Qual**
Benzene	4168.06	3798.86	110	
Toluene	4188.07	3795.07	110	
Ethylbenzene	4296.92	3798.86	113	
m-Xylene	4053.39	3798.86	107	
p-Xylene	4188.76	3795.07	110	
o-Xylene	4195.85	3757.12	112	
Isopropylbenzene	U			
Propy benzene	U			
1-Methyl-3-Ethylbenzene	U			
1-Methyl-4-Ethylbenzene	U			
1,3,5-Trimethylbenzene	U			
1-Methyl-2-Ethylbenzene	U			
1,2,4-Trimethylbenzene	U			
sec-Butylbenzene	U			
1,2,3-Trimethylbenzene	3531.20	3795.07	93	
Indane	U			
1,3-Diethylbenzene	U			
1-methyl-4-n-propylbenzene/1,4-Diethylbenz	U			
1,3-Dimethyl-5-Ethylbenzene	U			
1,2-Diethylbenzene	U			
1-Methyl-2-n-Propylbenzene	U			
1,4-dimethyl-2-ethylbenzene	U			
1,2-Dimethyl-4-Ethylbenzene	U			
1,3-Dimethyl-2-Ethylbenzene	U			
1,2,4,5-Tetramethylbenzene	U			
1,2,3,5-Tetramethylbenzene	U			
1,2,3,4-Tetramethylbenzene	U			
n-Pentylbenzene	U			
Cyclopentane	U			
Methylcyclopentane	U			
Cyclohexane	U			
Methylcyclohexane	U			
ctc-1,2,4-Trimethylcyclopentane	U			
ctc-1,2,3-Trimethylcyclopentane	U			
Isopropylcyclopentane	U			

Analyzed By Davis, Kerry

Not Surrogate Corrected 8/28/2013 O13-0320VOC-Master_245:FINAL

Battelle
The Business of Innovation

Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	Laboratory Control Sample			
Battelle ID	BZ514LCS-V			
Sample Type	LCS			
Collection Date	08/05/2013			
Extraction Date	08/05/2013			
Analysis Date	08/05/2013			
Analytical Instrument	VOC			
% Moisture	NA			
% Lipid	NA			
Matrix	OIL			
Sample Size	21.08000			
Sample Size 2	NA			
Sample Size 3	NA			
Size Unit-Basis	MG_OIL			
Units	MG/KG_OIL	**Target**	**% REC**	**Qual**
Ethylcyclohexane/n-propylcyclobenzene	U			
1,1,4-Trimethylcyclohexane	U			
ctt-1,2,4-Trimethylcyclohexane	U			
ctc-1,2,4-Trimethylcyclohexane	U			
1,1,2-Trimethylcyclohexane	U			
Isopropylcyclohexane	U			
n-Butylcyclopentane	U			
1-Pentene	U			
2-Methyl-1-Butene	U			
trans-2-Pentene	U			
cis-2-Pentene	U			
1-Hexene	U			
trans-2-Hexene	U			
2-Methylpentene-2	U			
cis-2-Hexene	U			
2-Methyl-1-Hexene/trans-1,2-Dimethylcyclop	U			
trans-3-Heptene	U			
cis-3-Heptene	U			
trans-2-Heptene	U			
cis-2-Heptene	U			
1-Octene	U			
trans-2-Octene	U			
Cis-2-octene	U			
1-Nonene	U			
trans-3-Nonene	U			
cis-3-Nonene	U			
trans-2-Nonene	U			
cis-2-Nonene	U			
1-Decene	U			
1,2-Dichloroethane	3864.89	3810.25	101	
1,2 Dibromoethane	3638.56	3760.91	97	
MMT	U			
ethanol	U			
t-Butanol	U			
Methyl tert butyl ether	3582.51	3795.07	94	

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Not Surrogate Corrected 8/28/2013 O13-0320VOC-Master_245:FINAL

Battelle
The Business of Innovation

Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	Laboratory Control Sample			
Battelle ID	BZ514LCS-V			
Sample Type	LCS			
Collection Date	08/05/2013			
Extraction Date	08/05/2013			
Analysis Date	08/05/2013			
Analytical Instrument	VOC			
% Moisture	NA			
% Lipid	NA			
Matrix	OIL			
Sample Size	21.08000			
Sample Size 2	NA			
Sample Size 3	NA			
Size Unit-Basis	MG_OIL			
Units	MG/KG_OIL	**Target**	**% REC**	**Qual**
Di-isopropyl ether	U			
Ethyl tert butyl ether	U			
Tert amyl methyl ether	U			
Trichloroethylene	U			
Tetrachloroethylene	3696.01	3798.86	97	
Thiophene	U			
2-Methylthiophene	U			
3-Methylthiophene	U			
2-Ethylthiophene	U			
Benzo(b)thiophene	U			
Surrogate Recoveries (%)				
1,4 difluorobenzene	97			
Chlorobenzene-d5	98			
1,4-dichlorobenzene-d4	98			

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Not Surrogate Corrected 8/28/2013 O13-0320VOC-Master_245:FINAL

Battelle
The Business of Innovation

Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	MC20162-1		MC20162-2		MC20162-3		MC20162-4	
Battelle ID	N9109-V		N9110-V		N9111-V		N9112-V	
Sample Type	SA		SA		SA		SA	
Collection Date	04/22/2013		04/22/2013		04/22/2013		04/22/2013	
Extraction Date	08/05/2013		08/05/2013		08/05/2013		08/05/2013	
Analysis Date	08/07/2013		08/07/2013		08/07/2013		08/07/2013	
Analytical Instrument	VOC		VOC		VOC		VOC	
% Moisture	NA		NA		NA		NA	
% Lipid	NA		NA		NA		NA	
Matrix	NAPL		NAPL		NAPL		NAPL	
Sample Size	22.48000		20.28000		21.52000		21.74000	
Sample Size 2	22.48000		NA		21.52000		21.74000	
Sample Size 3	NA		20.28000		NA		NA	
Size Unit-Basis	MG_OIL		MG_OIL		MG_OIL		MG_OIL	
Units	MG/KG_OIL		MG/KG_OIL		MG/KG_OIL		MG/KG_OIL	
n-Pentane	23977.43		209.38	J	2354.69		21086.98	
n-Hexane	31531.27	D	366.66	J	10099.50		27608.21	
n-Heptane	22060.39		4162.89		17785.86		19355.42	
n-Octane	8931.37		10358.57		12601.49		8561.71	
n-Nonane	3727.17		7970.71		6477.20		4151.97	
n-Decane	1454.01		3072.83		2437.95		1813.54	
n-Undecane	589.93		1179.92		1024.02		852.41	
n-Dodecane	251.96	J	380.97	J	379.90	J	372.22	J
Isopentane	21084.92	D	282.62		1930.52		19443.60	D
2,2-Dimethylbutane	2169.52		30.21	J	320.16	J	2132.83	
2-Methylpentane	28101.76	D	283.20		2119.77		24345.46	D
3-Methylpentane	20230.75	D	222.01	J	5783.61		17588.39	D
2,2-Dimethylpentane	1259.53		27.92	J	505.23		1150.77	
2,4-Dimethylpentane	10708.78		269.14		5353.24		9855.93	
2-Methylhexane	18363.40	D	1640.31		10994.67	D	16612.25	D
2,3-Dimethylpentane	22198.03	D	1579.50		14197.46	D	17686.51	D
3-Methylhexane	21229.48	D	2271.57		13557.56	D	18275.05	D
2,2,4-Trimethylpentane/1-Heptene	25415.30		3975.60		20478.55		25086.34	
2,5-Dimethylhexane/2,2,3-Trimethylpentane	6084.58		2474.18		6537.80		6038.00	
2,4-Dimethylhexane	5991.19	D	2627.35		5778.23	D	5623.11	D
2,3,4-Trimethylpentane	13226.29		6244.59		15905.18		12228.04	
2,3,3-Trimethylpentane	5863.66		6499.33		16056.36		6547.94	
2,3-Dimethylhexane	5132.14	D	3182.67		5626.53	D	5250.94	
2-Methylheptane	10086.63		7970.17		12524.16		9771.55	
4-Methylheptane	4560.23		3652.99		5825.30		4527.57	
2,2-Dimethylheptane		U		U		U		U
2,2,4-Trimethylhexane	318.50	J	529.84		555.93		357.43	J
2,4-Dimethylheptane	1229.55		1804.20		1912.50		1336.09	
2,6-Dimethylheptane	1338.93		1906.91		2169.12		1463.83	
2,3-Dimethylheptane		U		U		U		U
4-Methyloctane	3132.19		6007.66		5602.85		3418.20	
2-Methyloctane	3429.05		6624.95		5510.65		4166.80	
2,2-Dimethyloctane	334.55		728.99		607.84		423.82	
3,3-Dimethyloctane	338.64		755.54		602.94		444.12	

Battelle
The Business of Innovation

Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	MC20162-1		MC20162-2		MC20162-3		MC20162-4	
Battelle ID	N9109-V		N9110-V		N9111-V		N9112-V	
Sample Type	SA		SA		SA		SA	
Collection Date	04/22/2013		04/22/2013		04/22/2013		04/22/2013	
Extraction Date	08/05/2013		08/05/2013		08/05/2013		08/05/2013	
Analysis Date	08/07/2013		08/07/2013		08/07/2013		08/07/2013	
Analytical Instrument	VOC		VOC		VOC		VOC	
% Moisture	NA		NA		NA		NA	
% Lipid	NA		NA		NA		NA	
Matrix	NAPL		NAPL		NAPL		NAPL	
Sample Size	22.48000		20.28000		21.52000		21.74000	
Sample Size 2	22.48000		NA		21.52000		21.74000	
Sample Size 3	NA		20.28000		NA		NA	
Size Unit-Basis	MG_OIL		MG_OIL		MG_OIL		MG_OIL	
Units	MG/KG_OIL		MG/KG_OIL		MG/KG_OIL		MG/KG_OIL	
3-Methylnonane	1182.92		2714.91		2105.55		1610.42	
Benzene	10439.60		141.18	J	1602.00		4338.12	
Toluene	72870.94	D	20203.37		18772.61		58513.32	D
Ethylbenzene	21119.89		28935.35		21689.71		22539.06	
m-Xylene	54634.93	D	81756.44	D	59372.40	D	47012.58	D
p-Xylene	14761.75		20367.83		15769.12		16113.99	
o-Xylene	27989.45	D	43768.13	D	30987.86	D	28410.86	D
Isopropylbenzene	1592.95		3178.25		2229.53		1846.29	
Propy benzene	6575.03		14913.36		9736.38		7305.53	
1-Methyl-3-Ethylbenzene	23903.03	D	50118.09	D	34392.58	D	23912.86	D
1-Methyl-4-Ethylbenzene	9188.72		21852.80	D	15354.33	D	10303.22	
1,3,5-Trimethylbenzene	11423.81	D	25130.38	D	17789.63	D	11580.79	D
1-Methyl-2-Ethylbenzene	7202.02		16269.43	D	11634.59		8380.36	
1,2,4-Trimethylbenzene	37983.94	D	84468.73	D	54295.40	D	38118.95	D
sec-Butylbenzene	708.00		1836.88		1186.75		826.21	
1,2,3-Trimethylbenzene	6586.17		15199.62		10509.01		7691.32	
Indane	3568.12		7705.65		5376.36		4148.03	
1,3-Diethylbenzene	2402.44		5857.36		4079.38		2659.34	
1-methyl-4-n-propylbenzene/1,4-Diethylbenz	4642.23		11996.81		7942.29		5030.02	
1,3-Dimethyl-5-Ethylbenzene	6061.60		14064.41	D	10104.33		6769.11	
1,2-Diethylbenzene	407.69		987.38		706.33		461.35	
1-Methyl-2-n-Propylbenzene	1920.63		4950.34		3364.00		2187.58	
1,4-dimethyl-2-ethylbenzene	4003.01		9480.31		6447.13		4492.08	
1,2-Dimethyl-4-Ethylbenzene	6226.92		14076.24	D	10052.74		6952.48	
1,3-Dimethyl-2-Ethylbenzene	387.34		894.80		616.21		446.01	
1,2,4,5-Tetramethylbenzene	3190.88	D	6509.07	D	4557.33	D	3113.56	D
1,2,3,5-Tetramethylbenzene	4272.71		10268.70		6845.47		4964.56	
1,2,3,4-Tetramethylbenzene	1267.54		3078.44		2022.79		1503.61	
n-Pentylbenzene	557.19		1002.97		783.18		641.30	
Cyclopentane	5991.48		107.57	J	2495.45		10840.08	
Methylcyclopentane	23480.49	D	320.02		8771.28		20273.18	D
Cyclohexane	12377.28		270.43	J	5822.87		10570.91	
Methylcyclohexane	13544.25		3027.80		12716.29		12618.86	
ctc-1,2,4-Trimethylcyclopentane	1879.62		811.94		2097.82		1838.05	

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Not Surrogate Corrected 8/28/2013 O13-0320VOC-Master_245:FINAL

Battelle
The Business of Innovation

Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	MC20162-1		MC20162-2		MC20162-3		MC20162-4	
Battelle ID	N9109-V		N9110-V		N9111-V		N9112-V	
Sample Type	SA		SA		SA		SA	
Collection Date	04/22/2013		04/22/2013		04/22/2013		04/22/2013	
Extraction Date	08/05/2013		08/05/2013		08/05/2013		08/05/2013	
Analysis Date	08/07/2013		08/07/2013		08/07/2013		08/07/2013	
Analytical Instrument	VOC		VOC		VOC		VOC	
% Moisture	NA		NA		NA		NA	
% Lipid	NA		NA		NA		NA	
Matrix	NAPL		NAPL		NAPL		NAPL	
Sample Size	22.48000		20.28000		21.52000		21.74000	
Sample Size 2	22.48000		NA		21.52000		21.74000	
Sample Size 3	NA		20.28000		NA		NA	
Size Unit-Basis	MG_OIL		MG_OIL		MG_OIL		MG_OIL	
Units	MG/KG_OIL		MG/KG_OIL		MG/KG_OIL		MG/KG_OIL	
ctc-1,2,3-Trimethylcyclopentane	1380.03		640.19		1604.80		1284.24	
Isopropylcyclopentane	308.74		283.70		385.32		311.24	
Ethylcyclohexane/n-propylcyclobenzene	2119.67		2026.82		2783.82		1920.88	
1,1,4-Trimethylcyclohexane	170.53	J	183.35	J	237.06		161.26	J
ctt-1,2,4-Trimethylcyclohexane	508.66		607.96		698.34		501.33	
ctc-1,2,4-Trimethylcyclohexane		U		U		U		U
1,1,2-Trimethylcyclohexane		U		U		U		U
Isopropylcyclohexane	121.12	J	146.23	J	142.24	J	100.20	J
n-Butylcyclopentane	290.28		536.51		448.88		345.97	
1-Pentene	845.79			U	40.12	J	816.13	
2-Methyl-1-Butene	1023.74			U	54.19	J	955.64	
trans-2-Pentene	1813.11		17.23	J	123.75		1803.54	
cis-2-Pentene	1049.82		9.94	J	59.27	J	1045.01	
1-Hexene	3745.30		40.25	J	930.57		3674.29	
trans-2-Hexene	2120.97		25.04	J	540.81		2163.38	
2-Methylpentene-2	2152.29		29.36	J	601.15		2332.64	
cis-2-Hexene	1204.26		16.19	J	296.13		1274.27	
2-Methyl-1-Hexene/trans-1,2-Dimethylcyclop	3931.91		429.26		2838.12		3738.50	
trans-3-Heptene	1371.09		222.24		874.18		1443.12	
cis-3-Heptene	14509.40		493.80		11358.09		12332.80	
trans-2-Heptene	1246.56		272.20		867.69		1312.20	
cis-2-Heptene	742.54		172.84	J	515.62		800.20	
1-Octene	1614.89		1225.01		1957.02		1492.64	
trans-2-Octene	559.81		537.44		644.29		529.34	
Cis-2-octene	362.42		372.81		433.95		356.99	
1-Nonene	260.68	J	419.82		407.08		305.67	J
trans-3-Nonene	514.27		772.12		672.50		459.57	
cis-3-Nonene	389.68		533.68		505.89		351.48	
trans-2-Nonene	263.84		379.69		347.89		266.44	
cis-2-Nonene	182.34		290.26		293.44		182.01	
1-Decene	315.29	J	459.08		422.79		266.89	J
1,2-Dichloroethane		U		U		U		U
1,2 Dibromoethane		U		U		U		U
MMT		U		U		U		U

Analyzed By Davis, Kerry

Not Surrogate Corrected 8/28/2013 O13-0320VOC-Master_245:FINAL

Battelle
The Business of Innovation

Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	MC20162-1		MC20162-2		MC20162-3		MC20162-4	
Battelle ID	N9109-V		N9110-V		N9111-V		N9112-V	
Sample Type	SA		SA		SA		SA	
Collection Date	04/22/2013		04/22/2013		04/22/2013		04/22/2013	
Extraction Date	08/05/2013		08/05/2013		08/05/2013		08/05/2013	
Analysis Date	08/07/2013		08/07/2013		08/07/2013		08/07/2013	
Analytical Instrument	VOC		VOC		VOC		VOC	
% Moisture	NA		NA		NA		NA	
% Lipid	NA		NA		NA		NA	
Matrix	NAPL		NAPL		NAPL		NAPL	
Sample Size	22.48000		20.28000		21.52000		21.74000	
Sample Size 2	22.48000		NA		21.52000		21.74000	
Sample Size 3	NA		20.28000		NA		NA	
Size Unit-Basis	MG_OIL		MG_OIL		MG_OIL		MG_OIL	
Units	MG/KG_OIL		MG/KG_OIL		MG/KG_OIL		MG/KG_OIL	
ethanol		U		U		U		U
t-Butanol		U		U		U		U
Methyl tert butyl ether		U		U		U		U
Di-isopropyl ether		U		U		U		U
Ethyl tert butyl ether		U		U		U		U
Tert amyl methyl ether		U		U		U		U
Trichloroethylene		U		U		U		U
Tetrachloroethylene		U		U		U		U
Thiophene		U		U		U		U
2-Methylthiophene		U		U		U		U
3-Methylthiophene		U		U		U		U
2-Ethylthiophene		U		U		U		U
Benzo(b)thiophene	347.58	J	356.25	J	302.81	J	278.80	J
Surrogate Recoveries (%)								
1,4 difluorobenzene	97		97		97		98	
Chlorobenzene-d5	99		99		100		102	
1,4-dichlorobenzene-d4	98		98		100		99	

Battelle
The Business of Innovation

Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	MC20162-5		MC20162-6		MC20162-7		MC20162-8	
Battelle ID	N9113-V		N9114-V		N9115-V		N9116-V	
Sample Type	SA		SA		SA		SA	
Collection Date	04/23/2013		04/23/2013		05/20/2013		05/20/2013	
Extraction Date	08/05/2013		08/05/2013		08/05/2013		08/05/2013	
Analysis Date	08/07/2013		08/07/2013		08/08/2013		08/08/2013	
Analytical Instrument	VOC		VOC		VOC		VOC	
% Moisture	NA		NA		NA		NA	
% Lipid	NA		NA		NA		NA	
Matrix	NAPL		NAPL		NAPL		NAPL	
Sample Size	20.17000		20.75000		22.55000		20.57000	
Sample Size 2	20.17000		20.75000		22.55000		20.57000	
Sample Size 3	NA		NA		NA		NA	
Size Unit-Basis	MG_OIL		MG_OIL		MG_OIL		MG_OIL	
Units	MG/KG_OIL		MG/KG_OIL		MG/KG_OIL		MG/KG_OIL	
n-Pentane	27.78	J	5083.31		1738.63		3443.52	
n-Hexane	619.39		13347.28		7697.96		13821.61	
n-Heptane	4946.56		13093.73		9837.53		13160.60	
n-Octane	8915.87		7829.97		6662.57		7590.51	
n-Nonane	7562.93		4560.62		4111.82		4335.67	
n-Decane	3137.97		2167.24		2107.37		2261.21	
n-Undecane	1467.04		1071.98		1031.29		1133.43	
n-Dodecane	591.15	J	510.74	J	506.63	J	566.00	J
Isopentane		U	5268.50		1661.69		2998.65	
2,2-Dimethylbutane	21.04	J	589.52		259.19	J	517.49	
2-Methylpentane	253.99		10794.78	D	6852.23		11416.56	D
3-Methylpentane	253.91	J	10318.89		5575.38		10421.80	
2,2-Dimethylpentane	51.50	J	594.05		384.31		630.83	
2,4-Dimethylpentane	593.32		6492.62		4309.60		6927.02	
2-Methylhexane	2675.10		11437.39	D	9727.34	D	12663.66	D
2,3-Dimethylpentane	2847.50		10638.17	D	9333.48	D	12506.04	D
3-Methylhexane	3557.68		12752.96	D	11102.00	D	14164.27	D
2,2,4-Trimethylpentane/1-Heptene	6975.74		26846.84		21018.31		27134.94	
2,5-Dimethylhexane/2,2,3-Trimethylpentane	3067.41		6289.76		5216.69		6147.65	
2,4-Dimethylhexane	3463.40		5724.91	D	5768.09	D	6236.56	D
2,3,4-Trimethylpentane	7953.97		12969.28		11249.30		12790.58	
2,3,3-Trimethylpentane	7413.86		6065.17		5400.41		6215.57	
2,3-Dimethylhexane	4099.18		4811.24	D	4800.74	D	5041.43	D
2-Methylheptane	7571.69		9551.58		7467.91	D	9227.44	
4-Methylheptane	3843.32		4404.20		2668.73	D	4128.59	
2,2-Dimethylheptane		U		U		U		U
2,2,4-Trimethylhexane	525.33		350.60	J	322.27	J	359.22	J
2,4-Dimethylheptane	1971.76		1420.95		1248.64		1412.39	
2,6-Dimethylheptane	2067.85		1473.99		1244.40		1424.32	
2,3-Dimethylheptane		U		U		U		U
4-Methyloctane	6460.05		3836.31		3613.93		4036.60	
2-Methyloctane	7344.91		4434.97		4144.48		4292.40	
2,2-Dimethyloctane	858.41		463.01		426.21		471.00	
3,3-Dimethyloctane	841.73		535.51		477.02		515.76	

Battelle
The Business of Innovation

Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	MC20162-5		MC20162-6		MC20162-7		MC20162-8	
Battelle ID	N9113-V		N9114-V		N9115-V		N9116-V	
Sample Type	SA		SA		SA		SA	
Collection Date	04/23/2013		04/23/2013		05/20/2013		05/20/2013	
Extraction Date	08/05/2013		08/05/2013		08/05/2013		08/05/2013	
Analysis Date	08/07/2013		08/07/2013		08/08/2013		08/08/2013	
Analytical Instrument	VOC		VOC		VOC		VOC	
% Moisture	NA		NA		NA		NA	
% Lipid	NA		NA		NA		NA	
Matrix	NAPL		NAPL		NAPL		NAPL	
Sample Size	20.17000		20.75000		22.55000		20.57000	
Sample Size 2	20.17000		20.75000		22.55000		20.57000	
Sample Size 3	NA		NA		NA		NA	
Size Unit-Basis	MG_OIL		MG_OIL		MG_OIL		MG_OIL	
Units	MG/KG_OIL		MG/KG_OIL		MG/KG_OIL		MG/KG_OIL	
3-Methylnonane	2979.40		1970.35		1853.56		1977.65	
Benzene	149.82	J	8337.24		5945.04		9888.52	
Toluene	3440.00		61165.97	D	59798.67	D	65399.73	D
Ethylbenzene	5406.63		27049.36		26501.50		27677.64	
m-Xylene	56796.04	D	59868.86	D	64257.54	D	63332.52	D
p-Xylene	13573.18		16078.01		16166.33		15915.32	
o-Xylene	31593.94	D	31740.30	D	34099.59	D	31880.67	D
Isopropylbenzene	982.12		2337.60		2363.31		2377.31	
Propy benzene	4408.41		9127.26		9078.67		9298.88	
1-Methyl-3-Ethylbenzene	43963.58	D	29401.68	D	32329.60	D	30203.68	D
1-Methyl-4-Ethylbenzene	18445.04	D	12420.75	D	13640.85	D	12870.03	D
1,3,5-Trimethylbenzene	26285.74	D	13442.60	D	14760.35	D	13915.14	D
1-Methyl-2-Ethylbenzene	16998.77	D	10116.15		10035.10		9863.15	
1,2,4-Trimethylbenzene	70770.16	D	44395.88	D	48401.05	D	45441.59	D
sec-Butylbenzene	1197.03		1140.94		1133.02		1134.54	
1,2,3-Trimethylbenzene	15770.09		9033.49		9048.42		8869.12	
Indane	5957.77		4685.36		4710.71		4623.57	
1,3-Diethylbenzene	6649.63		3579.35		3510.62		3484.25	
1-methyl-4-n-propylbenzene/1,4-Diethylbenz	11804.87		6688.98		6487.94		6524.64	
1,3-Dimethyl-5-Ethylbenzene	15622.79	D	8488.22		8401.01		8340.61	
1,2-Diethylbenzene	1130.88		631.92		589.95		623.83	
1-Methyl-2-n-Propylbenzene	5436.71		2884.46		2868.39		2835.71	
1,4-dimethyl-2-ethylbenzene	10578.49		5668.43		5675.77		5573.49	
1,2-Dimethyl-4-Ethylbenzene	15967.51	D	8843.69		8829.11		8813.39	
1,3-Dimethyl-2-Ethylbenzene	1048.45		566.33		567.23		558.40	
1,2,4,5-Tetramethylbenzene	7334.32	D	3929.09	D	4287.77	D	4171.44	D
1,2,3,5-Tetramethylbenzene	11428.59		6224.31		6300.02		6306.15	
1,2,3,4-Tetramethylbenzene	3522.59		1913.04		1982.90		1977.66	
n-Pentylbenzene	1225.61		707.23		718.79		696.62	
Cyclopentane	81.05	J	4954.56		2386.45		4801.14	
Methylcyclopentane	713.19		10813.41	D	8359.10		11866.21	D
Cyclohexane	616.60		5457.20		3872.52		5859.59	
Methylcyclohexane	3657.59		7807.60		6320.58		8007.21	
ctc-1,2,4-Trimethylcyclopentane	946.11		1615.17		1354.28		1606.04	

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Battelle
The Business of Innovation

Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	MC20162-5		MC20162-6		MC20162-7		MC20162-8	
Battelle ID	N9113-V		N9114-V		N9115-V		N9116-V	
Sample Type	SA		SA		SA		SA	
Collection Date	04/23/2013		04/23/2013		05/20/2013		05/20/2013	
Extraction Date	08/05/2013		08/05/2013		08/05/2013		08/05/2013	
Analysis Date	08/07/2013		08/07/2013		08/08/2013		08/08/2013	
Analytical Instrument	VOC		VOC		VOC		VOC	
% Moisture	NA		NA		NA		NA	
% Lipid	NA		NA		NA		NA	
Matrix	NAPL		NAPL		NAPL		NAPL	
Sample Size	20.17000		20.75000		22.55000		20.57000	
Sample Size 2	20.17000		20.75000		22.55000		20.57000	
Sample Size 3	NA		NA		NA		NA	
Size Unit-Basis	MG_OIL		MG_OIL		MG_OIL		MG_OIL	
Units	MG/KG_OIL		MG/KG_OIL		MG/KG_OIL		MG/KG_OIL	
ctc-1,2,3-Trimethylcyclopentane	686.98		893.11		764.76		919.68	
Isopropylcyclopentane	375.28		347.06		312.30		329.79	
Ethylcyclohexane/n-propylcyclobenzene	2514.40		1810.13		1626.11		1709.65	
1,1,4-Trimethylcyclohexane	254.39		161.58	J	148.33	J	154.69	J
ctt-1,2,4-Trimethylcyclohexane	871.73		488.06		445.25		443.98	
ctc-1,2,4-Trimethylcyclohexane		U		U		U		U
1,1,2-Trimethylcyclohexane		U		U		U		U
Isopropylcyclohexane	235.16	J	119.47	J	114.70	J	104.85	J
n-Butylcyclopentane	783.18		370.76		326.64		373.04	
1-Pentene		U	333.17		99.86	J	167.70	J
2-Methyl-1-Butene		U	508.09		181.72		285.99	
trans-2-Pentene		U	972.65		353.42		618.49	
cis-2-Pentene		U	560.31		215.30		378.83	
1-Hexene	48.50	J	2419.95		1322.44		2432.39	
trans-2-Hexene	40.83	J	1715.61		1007.64		1688.16	
2-Methylpentene-2	43.77	J	1913.15		1146.54		1978.22	
cis-2-Hexene	24.97	J	1036.24		626.08		1073.17	
2-Methyl-1-Hexene/trans-1,2-Dimethylcyclop	617.52		2547.15		1898.76		2537.81	
trans-3-Heptene	288.96		1427.60		1096.91		1427.36	
cis-3-Heptene	3178.71		8618.36		6379.13		8472.99	
trans-2-Heptene	301.57		1297.53		1001.62		1290.18	
cis-2-Heptene	160.56	J	812.09		648.08		780.80	
1-Octene	1342.47		1279.97		1196.14		1313.52	
trans-2-Octene	542.68		518.61		475.33		552.48	
Cis-2-octene	385.51		402.53		328.38		340.02	
1-Nonene	487.47		215.00	J	212.68	J	200.44	J
trans-3-Nonene	949.55		521.42		463.08		507.80	
cis-3-Nonene	774.15		369.69		363.85		355.38	
trans-2-Nonene	665.68		235.34		398.04		286.29	
cis-2-Nonene	310.55		191.58		162.35		152.90	
1-Decene	594.27		271.08	J	239.65	J	253.51	J
1,2-Dichloroethane		U		U		U		U
1,2 Dibromoethane		U		U		U		U
MMT		U		U		U		U

Analyzed By Davis, Kerry

Not Surrogate Corrected 8/28/2013 O13-0320VOC-Master_245:FINAL

Battelle
The Business of Innovation

Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	MC20162-5	MC20162-6	MC20162-7	MC20162-8
Battelle ID	N9113-V	N9114-V	N9115-V	N9116-V
Sample Type	SA	SA	SA	SA
Collection Date	04/23/2013	04/23/2013	05/20/2013	05/20/2013
Extraction Date	08/05/2013	08/05/2013	08/05/2013	08/05/2013
Analysis Date	08/07/2013	08/07/2013	08/08/2013	08/08/2013
Analytical Instrument	VOC	VOC	VOC	VOC
% Moisture	NA	NA	NA	NA
% Lipid	NA	NA	NA	NA
Matrix	NAPL	NAPL	NAPL	NAPL
Sample Size	20.17000	20.75000	22.55000	20.57000
Sample Size 2	20.17000	20.75000	22.55000	20.57000
Sample Size 3	NA	NA	NA	NA
Size Unit-Basis	MG_OIL	MG_OIL	MG_OIL	MG_OIL
Units	MG/KG_OIL	MG/KG_OIL	MG/KG_OIL	MG/KG_OIL
ethanol	U	U	U	U
t-Butanol	U	U	U	U
Methyl tert butyl ether	U	U	U	U
Di-isopropyl ether	U	U	U	U
Ethyl tert butyl ether	U	U	U	U
Tert amyl methyl ether	U	U	U	U
Trichloroethylene	U	U	U	U
Tetrachloroethylene	U	U	U	U
Thiophene	U	U	U	U
2-Methylthiophene	U	U	U	U
3-Methylthiophene	U	U	U	U
2-Ethylthiophene	U	U	U	U
Benzo(b)thiophene	442.53	424.98	499.85	453.41
Surrogate Recoveries (%)				
1,4 difluorobenzene	98	96	97	97
Chlorobenzene-d5	100	102	101	102
1,4-dichlorobenzene-d4	100	101	100	98

Battelle
The Business of Innovation

Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	MC20162-9
Battelle ID	N9117-V
Sample Type	SA
Collection Date	05/20/2013
Extraction Date	08/05/2013
Analysis Date	08/08/2013
Analytical Instrument	VOC
% Moisture	NA
% Lipid	NA
Matrix	NAPL
Sample Size	19.69000
Sample Size 2	19.69000
Sample Size 3	NA
Size Unit-Basis	MG_OIL
Units	MG/KG_OIL

n-Pentane	26.39	J
n-Hexane	553.34	
n-Heptane	5040.30	
n-Octane	8898.59	
n-Nonane	8001.56	
n-Decane	3779.77	
n-Undecane	1884.31	
n-Dodecane	774.47	J
Isopentane		U
2,2-Dimethylbutane	21.63	J
2-Methylpentane	224.35	
3-Methylpentane	233.41	J
2,2-Dimethylpentane	48.14	J
2,4-Dimethylpentane	552.38	
2-Methylhexane	2629.23	
2,3-Dimethylpentane	2729.86	
3-Methylhexane	3508.53	
2,2,4-Trimethylpentane/1-Heptene	6967.96	
2,5-Dimethylhexane/2,2,3-Trimethylpentane	3143.76	
2,4-Dimethylhexane	3510.38	
2,3,4-Trimethylpentane	8092.56	
2,3,3-Trimethylpentane	7512.32	
2,3-Dimethylhexane	4018.19	
2-Methylheptane	7679.25	
4-Methylheptane	3694.00	
2,2-Dimethylheptane		U
2,2,4-Trimethylhexane	524.45	
2,4-Dimethylheptane	1939.34	
2,6-Dimethylheptane	2104.43	
2,3-Dimethylheptane		U
4-Methyloctane	6531.09	
2-Methyloctane	7343.16	
2,2-Dimethyloctane	887.01	
3,3-Dimethyloctane	934.78	

Battelle
The Business of Innovation

Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	MC20162-9
Battelle ID	N9117-V
Sample Type	SA
Collection Date	05/20/2013
Extraction Date	08/05/2013
Analysis Date	08/08/2013
Analytical Instrument	VOC
% Moisture	NA
% Lipid	NA
Matrix	NAPL
Sample Size	19.69000
Sample Size 2	19.69000
Sample Size 3	NA
Size Unit-Basis	MG_OIL
Units	MG/KG_OIL

3-Methylnonane	3409.37	
Benzene	119.50	J
Toluene	3459.08	
Ethylbenzene	7030.51	
m-Xylene	60666.17	D
p-Xylene	14596.29	
o-Xylene	33147.33	D
Isopropylbenzene	1156.18	
Propy benzene	5176.03	
1-Methyl-3-Ethylbenzene	44060.24	D
1-Methyl-4-Ethylbenzene	18310.69	D
1,3,5-Trimethylbenzene	25509.48	D
1-Methyl-2-Ethylbenzene	16776.82	D
1,2,4-Trimethylbenzene	71202.54	D
sec-Butylbenzene	1240.92	
1,2,3-Trimethylbenzene	15526.96	
Indane	6184.92	
1,3-Diethylbenzene	6458.41	
1-methyl-4-n-propylbenzene/1,4-Diethylbenz	11313.19	
1,3-Dimethyl-5-Ethylbenzene	15203.54	D
1,2-Diethylbenzene	1069.70	
1-Methyl-2-n-Propylbenzene	5264.98	
1,4-dimethyl-2-ethylbenzene	10116.36	
1,2-Dimethyl-4-Ethylbenzene	15378.05	D
1,3-Dimethyl-2-Ethylbenzene	1026.60	
1,2,4,5-Tetramethylbenzene	7297.48	D
1,2,3,5-Tetramethylbenzene	11136.74	
1,2,3,4-Tetramethylbenzene	3473.02	
n-Pentylbenzene	1216.99	
Cyclopentane	42.50	J
Methylcyclopentane	630.81	
Cyclohexane	559.62	
Methylcyclohexane	3641.76	
ctc-1,2,4-Trimethylcyclopentane	956.77	

Analyzed By Davis, Kerry

Not Surrogate Corrected 8/28/2013 O13-0320VOC-Master_245:FINAL

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Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	MC20162-9
Battelle ID	N9117-V
Sample Type	SA
Collection Date	05/20/2013
Extraction Date	08/05/2013
Analysis Date	08/08/2013
Analytical Instrument	VOC
% Moisture	NA
% Lipid	NA
Matrix	NAPL
Sample Size	19.69000
Sample Size 2	19.69000
Sample Size 3	NA
Size Unit-Basis	MG_OIL
Units	MG/KG_OIL

ctc-1,2,3-Trimethylcyclopentane	675.25	
Isopropylcyclopentane	344.82	
Ethylcyclohexane/n-propylcyclobenzene	2372.84	
1,1,4-Trimethylcyclohexane	234.08	J
ctt-1,2,4-Trimethylcyclohexane	788.62	
ctc-1,2,4-Trimethylcyclohexane		U
1,1,2-Trimethylcyclohexane		U
Isopropylcyclohexane	194.56	J
n-Butylcyclopentane	652.46	
1-Pentene		U
2-Methyl-1-Butene		U
trans-2-Pentene		U
cis-2-Pentene		U
1-Hexene	38.79	J
trans-2-Hexene	28.49	J
2-Methylpentene-2	38.22	J
cis-2-Hexene	19.70	J
2-Methyl-1-Hexene/trans-1,2-Dimethylcyclop	607.29	
trans-3-Heptene	283.18	
cis-3-Heptene	3203.78	
trans-2-Heptene	293.14	
cis-2-Heptene	177.94	J
1-Octene	1294.04	
trans-2-Octene	490.81	
Cis-2-octene	345.52	
1-Nonene	418.38	J
trans-3-Nonene	939.46	
cis-3-Nonene	693.31	
trans-2-Nonene	618.05	
cis-2-Nonene	333.33	
1-Decene	576.85	
1,2-Dichloroethane		U
1,2 Dibromoethane		U
MMT		U

Analyzed By Davis, Kerry

Not Surrogate Corrected 8/28/2013 O13-0320VOC-Master_245:FINAL

Battelle
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Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	MC20162-9
Battelle ID	N9117-V
Sample Type	SA
Collection Date	05/20/2013
Extraction Date	08/05/2013
Analysis Date	08/08/2013
Analytical Instrument	VOC
% Moisture	NA
% Lipid	NA
Matrix	NAPL
Sample Size	19.69000
Sample Size 2	19.69000
Sample Size 3	NA
Size Unit-Basis	MG_OIL
Units	MG/KG_OIL

ethanol		U
t-Butanol		U
Methyl tert butyl ether		U
Di-isopropyl ether		U
Ethyl tert butyl ether		U
Tert amyl methyl ether		U
Trichloroethylene		U
Tetrachloroethylene		U
Thiophene		U
2-Methylthiophene		U
3-Methylthiophene		U
2-Ethylthiophene		U
Benzo(b)thiophene	480.39	

Surrogate Recoveries (%)	
1,4 difluorobenzene	97
Chlorobenzene-d5	101
1,4-dichlorobenzene-d4	99

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Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	MC20162-1	MC20162-1		
Battelle ID	N9109-V	N9109DUP-V		
Sample Type	SA	QADU		
Collection Date	04/22/2013	04/22/2013		
Extraction Date	08/05/2013	08/05/2013		
Analysis Date	08/07/2013	08/07/2013		
Analytical Instrument	VOC	VOC		
% Moisture	NA	NA		
% Lipid	NA	NA		
Matrix	NAPL	NAPL		
Sample Size	22.48000	22.97000		
Sample Size 2	22.48000	22.97000		
Sample Size 3	NA	NA		
Size Unit-Basis	MG_OIL	MG_OIL		
Units	MG/KG_OIL	MG/KG_OIL	**RPD**	**Qual**
n-Pentane	23977.43	22138.63	8.0	
n-Hexane	31531.27 D	28820.00 D	9.0	
n-Heptane	22060.39	21999.75	0.3	
n-Octane	8931.37	8897.10	0.4	
n-Nonane	3727.17	3769.78	1.1	
n-Decane	1454.01	1487.56	2.3	
n-Undecane	589.93	683.77	14.7	
n-Dodecane	251.96 J	268.59 J		
Isopentane	21084.92 D	18210.82 D	14.6	
2,2-Dimethylbutane	2169.52	2081.61	4.1	
2-Methylpentane	28101.76 D	25284.80 D	10.6	
3-Methylpentane	20230.75 D	18261.96 D	10.2	
2,2-Dimethylpentane	1259.53	1241.58	1.4	
2,4-Dimethylpentane	10708.78	10432.57	2.6	
2-Methylhexane	18363.40 D	16868.71 D	8.5	
2,3-Dimethylpentane	22198.03 D	20259.75 D	9.1	
3-Methylhexane	21229.48 D	19543.77 D	8.3	
2,2,4-Trimethylpentane/1-Heptene	25415.30	24880.19	2.1	
2,5-Dimethylhexane/2,2,3-Trimethylpentane	6084.58	6096.00	0.2	
2,4-Dimethylhexane	5991.19 D	5639.56 D	6.0	
2,3,4-Trimethylpentane	13226.29	13110.87	0.9	
2,3,3-Trimethylpentane	5863.66	5757.46	1.8	
2,3-Dimethylhexane	5132.14 D	4616.87 D	10.6	
2-Methylheptane	10086.63	10047.84	0.4	
4-Methylheptane	4560.23	4510.57	1.1	
2,2-Dimethylheptane	U	U		
2,2,4-Trimethylhexane	318.50 J	322.18 J		
2,4-Dimethylheptane	1229.55	1196.55	2.7	
2,6-Dimethylheptane	1338.93	1331.55	0.6	
2,3-Dimethylheptane	U	U		
4-Methyloctane	3132.19	2980.09	5.0	
2-Methyloctane	3429.05	3698.66	7.6	
2,2-Dimethyloctane	334.55	336.11	0.5	
3,3-Dimethyloctane	338.64	361.04	6.4	

Analyzed By Davis, Kerry

Not Surrogate Corrected 8/28/2013 O13-0320VOC-Master_245:FINAL

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Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	MC20162-1	MC20162-1		
Battelle ID	N9109-V	N9109DUP-V		
Sample Type	SA	QADU		
Collection Date	04/22/2013	04/22/2013		
Extraction Date	08/05/2013	08/05/2013		
Analysis Date	08/07/2013	08/07/2013		
Analytical Instrument	VOC	VOC		
% Moisture	NA	NA		
% Lipid	NA	NA		
Matrix	NAPL	NAPL		
Sample Size	22.48000	22.97000		
Sample Size 2	22.48000	22.97000		
Sample Size 3	NA	NA		
Size Unit-Basis	MG_OIL	MG_OIL		
Units	MG/KG_OIL	MG/KG_OIL	**RPD**	**Qual**
3-Methylnonane	1182.92	1279.07	7.8	
Benzene	10439.60	10979.17	5.0	
Toluene	72870.94 D	69574.15 D	4.6	
Ethylbenzene	21119.89	21280.96	0.8	
m-Xylene	54634.93 D	49979.62 D	8.9	
p-Xylene	14761.75	14306.97	3.1	
o-Xylene	27989.45 D	25912.26 D	7.7	
Isopropylbenzene	1592.95	1600.82	0.5	
Propy benzene	6575.03	6554.13	0.3	
1-Methyl-3-Ethylbenzene	23903.03 D	21819.46 D	9.1	
1-Methyl-4-Ethylbenzene	9188.72	9079.17	1.2	
1,3,5-Trimethylbenzene	11423.81 D	10363.87 D	9.7	
1-Methyl-2-Ethylbenzene	7202.02	7216.95	0.2	
1,2,4-Trimethylbenzene	37983.94 D	34337.76 D	10.1	
sec-Butylbenzene	708.00	698.43	1.4	
1,2,3-Trimethylbenzene	6586.17	6674.11	1.3	
Indane	3568.12	3640.59	2.0	
1,3-Diethylbenzene	2402.44	2396.89	0.2	
1-methyl-4-n-propylbenzene/1,4-Diethylbenz	4642.23	4559.05	1.8	
1,3-Dimethyl-5-Ethylbenzene	6061.60	6027.03	0.6	
1,2-Diethylbenzene	407.69	402.94	1.2	
1-Methyl-2-n-Propylbenzene	1920.63	1908.20	0.6	
1,4-dimethyl-2-ethylbenzene	4003.01	4009.74	0.2	
1,2-Dimethyl-4-Ethylbenzene	6226.92	6222.75	0.1	
1,3-Dimethyl-2-Ethylbenzene	387.34	389.22	0.5	
1,2,4,5-Tetramethylbenzene	3190.88 D	2907.61 D	9.3	
1,2,3,5-Tetramethylbenzene	4272.71	4335.47	1.5	
1,2,3,4-Tetramethylbenzene	1267.54	1302.10	2.7	
n-Pentylbenzene	557.19	511.95	8.5	
Cyclopentane	5991.48	6085.80	1.6	
Methylcyclopentane	23480.49 D	21610.29 D	8.3	
Cyclohexane	12377.28	12264.76	0.9	
Methylcyclohexane	13544.25	13647.24	0.8	
ctc-1,2,4-Trimethylcyclopentane	1879.62	1912.71	1.7	

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Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	MC20162-1	MC20162-1		
Battelle ID	N9109-V	N9109DUP-V		
Sample Type	SA	QADU		
Collection Date	04/22/2013	04/22/2013		
Extraction Date	08/05/2013	08/05/2013		
Analysis Date	08/07/2013	08/07/2013		
Analytical Instrument	VOC	VOC		
% Moisture	NA	NA		
% Lipid	NA	NA		
Matrix	NAPL	NAPL		
Sample Size	22.48000	22.97000		
Sample Size 2	22.48000	22.97000		
Sample Size 3	NA	NA		
Size Unit-Basis	MG_OIL	MG_OIL		
Units	MG/KG_OIL	MG/KG_OIL	**RPD**	**Qual**
ctc-1,2,3-Trimethylcyclopentane	1380.03	1380.82	0.1	
Isopropylcyclopentane	308.74	296.72	4.0	
Ethylcyclohexane/n-propylcyclobenzene	2119.67	2081.68	1.8	
1,1,4-Trimethylcyclohexane	170.53 J	171.52 J		
ctt-1,2,4-Trimethylcyclohexane	508.66	508.59	0.0	
ctc-1,2,4-Trimethylcyclohexane	U	U		
1,1,2-Trimethylcyclohexane	U	U		
Isopropylcyclohexane	121.12 J	114.10 J		
n-Butylcyclopentane	290.28	321.87	10.3	
1-Pentene	845.79	784.45	7.5	
2-Methyl-1-Butene	1023.74	969.45	5.4	
trans-2-Pentene	1813.11	1745.21	3.8	
cis-2-Pentene	1049.82	1024.14	2.5	
1-Hexene	3745.30	3712.89	0.9	
trans-2-Hexene	2120.97	2001.15	5.8	
2-Methylpentene-2	2152.29	2155.25	0.1	
cis-2-Hexene	1204.26	1199.30	0.4	
2-Methyl-1-Hexene/trans-1,2-Dimethylcyclop	3931.91	3901.97	0.8	
trans-3-Heptene	1371.09	1373.78	0.2	
cis-3-Heptene	14509.40	14089.59	2.9	
trans-2-Heptene	1246.56	1255.19	0.7	
cis-2-Heptene	742.54	727.58	2.0	
1-Octene	1614.89	1583.18	2.0	
trans-2-Octene	559.81	555.83	0.7	
Cis-2-octene	362.42	337.62	7.1	
1-Nonene	260.68 J	270.83 J		
trans-3-Nonene	514.27	505.81	1.7	
cis-3-Nonene	389.68	376.59	3.4	
trans-2-Nonene	263.84	258.14	2.2	
cis-2-Nonene	182.34	184.58	1.2	
1-Decene	315.29 J	303.46 J		
1,2-Dichloroethane	U	U		
1,2 Dibromoethane	U	U		
MMT	U	U		

Analyzed By Davis, Kerry

Not Surrogate Corrected 8/28/2013 O13-0320VOC-Master_245:FINAL

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Project Client: Accutest Laboratories New England
Project Name: Accutest - PIANO Analysis
Project Number: 100012044-9

Client ID	MC20162-1	MC20162-1		
Battelle ID	N9109-V	N9109DUP-V		
Sample Type	SA	QADU		
Collection Date	04/22/2013	04/22/2013		
Extraction Date	08/05/2013	08/05/2013		
Analysis Date	08/07/2013	08/07/2013		
Analytical Instrument	VOC	VOC		
% Moisture	NA	NA		
% Lipid	NA	NA		
Matrix	NAPL	NAPL		
Sample Size	22.48000	22.97000		
Sample Size 2	22.48000	22.97000		
Sample Size 3	NA	NA		
Size Unit-Basis	MG_OIL	MG_OIL		
Units	MG/KG_OIL	MG/KG_OIL	**RPD**	**Qual**
ethanol	U	U		
t-Butanol	U	U		
Methyl tert butyl ether	U	U		
Di-isopropyl ether	U	U		
Ethyl tert butyl ether	U	U		
Tert amyl methyl ether	U	U		
Trichloroethylene	U	U		
Tetrachloroethylene	U	U		
Thiophene	U	U		
2-Methylthiophene	U	U		
3-Methylthiophene	U	U		
2-Ethylthiophene	U	U		
Benzo(b)thiophene	347.58 J	309.74 J		
Surrogate Recoveries (%)				
1,4 difluorobenzene	97	98		
Chlorobenzene-d5	99	101		
1,4-dichlorobenzene-d4	98	98		

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Glossary of Data Qualifiers

Flag:	Application:
B	Analyte concentration found in the sample at a concentration <5x the level found in the procedural blank.
D	Dilution Run. Initial run outside linear range of instrument.
E	Estimate, result is greater than the highest concentration level in the calibration.
H	Surrogate diluted out. Used when surrogate recovery is affected by excessive dilution of the sample extract.
J	Analyte detected below the sample-specific Reporting Limit (RL).
ME	Significant Matrix Interference - Estimated value.
MI	Significant Matrix Interference - value could not be determined or estimated.
n	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO), but meets the contingency criteria.
N	Quality Control (QC) value is outside the accuracy or precision Data Quality Objective (DQO)
NA	Not applicable
T	Holding Time (HT) exceeded.
U	Analyte not detected at 3:1 signal:noise ratio.

13-0320 VOC-PIANO QA/QC Summary

Project:	Accutest Laboratories - PIANO Analysis	
Parameters:	VOC - PIANO	
Laboratory:	Battelle, Duxbury, MA	
Matrix:	NAPL	
Data Set:	DP-13-0544	
Analytical SOP:	5-245	
Method Reference:	EPA Method 8260B modified	
Sample Custody	Receipt Date	Temp (°C)
	7/31/2013	2.1
Corrective Actions	None.	
Sample Storage	The samples were stored in an access-limited refrigerator until sample preparation could begin.	
Related samples	NA	

METHOD SUMMARIES	
Sample Preparation	Oil samples are prepared by weighing approximately 20 mg of sample into a tared 10 mL volumetric using an analytical balance. The weight is recorded in LIMS to the nearest 0.01 mg. The sample volume is adjusted to 10 mL with methanol. The volumetric is capped and inverted three times to dissolve product in methanol. The methanol extract is transferred into 4-mL vials with no headspace for storage. The methanol extract is stored at 4°C and analyzed within 7 days. For analysis, 25 µL of IS/SIS solution followed by 50 µL of the methanol extract is added to a 40-mL VOA vial containing 10 mL of reagent water and a magnetic stir bar. The extraction date is the date the sample is first weighed out and methanol is introduced.
Prep comments	None.
Analysis	Volatile hydrocarbons were measured in the samples using a gas chromatograph –mass spectrometer (GC/MS) equipped with a purge-and-trap autosampler and concentrator unit. This method is a modification of EPA Method 8260B and can be summarized as follows. An inert gas is bubbled through water at elevated temperature, with the volatile hydrocarbon components being purged from the aqueous phase to the gas phase. The gas is swept through a sorbent trap where the volatile components are trapped. After purging is complete, the sorbent trap is heated and back flushed with inert gas to desorb the components onto a non-polar fused silica capillary chromatographic column. The components are then separated by gas chromatography, and the eluting compounds detected with a mass spectrometer in the full scan mode. An initial calibration consisting of target analytes was analyzed prior to analysis to demonstrate the linear range of analysis. Calibration verification was

	performed at the beginning and end of each 12-hour period (or 10 samples) in which samples were analyzed. Concentrations of PIANO compounds were calculated versus the internal standards. The target analyte concentrations were quantified using average response factors (RF) generated from the initial calibration. Samples containing analytes at concentrations above the highest calibration solution were diluted and re-analyzed until all compounds were within the calibration range. The following analytes are not considered volatile and are reported semi-quantitatively for this method; they are not evaluated against any QC parameters: 1-Decene, Decane, Undecane, Pentylbenzene, MMT (Methylcyclopentadienyl manganese tricarbonyl), Benzothiophene and Dodecane. Values reported are estimated. QC criteria do not apply to semi-quantitative analytes.	
Holding Times	Extraction Date(s)	Analysis Date(s)
	8/5/2013	8/7/2013-8/10/2013

LAB-BASED QC RESULTS	
Procedural Blank (PB)	A PB was prepared with this analytical batch to ensure the sample extraction and analysis methods are free of contamination.
Samples >5XPB; PB <5X the MDL	No exceedences noted.
	Comments: None.

Laboratory Control Spike (LCS)	A LCS was prepared with this analytical batch. The percent recoveries of target analytes were calculated to measure accuracy.
50-130% recovery	None.
	Comments: The LCS was integrated for those target analytes included in the LCS spiking solution. Dodecane was over-recovered in the LCS; QC criteria do not apply because this is a semi-quantitative analyte.

Sample Duplicate	A sample was prepared in duplicate with this analytical batch. The relative percent difference (RPD) between the concentrations was calculated to measure data quality in terms of precision.
≤ 30% RPD	No exceedences noted.
	Comments: None.

Surrogate Recovery	Surrogate compounds were added prior to extraction. The surrogate recoveries are calculated to measure extraction efficiency.
50-130% recovery	No exceedences noted.
	Comments: None.

Initial Calibration (ICAL)	The GC/MS is calibrated with a minimum 5-level curve for all compounds.
≤30% RSD for individual analytes ≤15% mean difference R^2 ≥to 0.995	No exceedences noted. Comments: None.

Independent Calibration Check (ICC)	The independent check was run after each initial calibration to verify the calibration. This standard is from a different source than the ICAL.
≤30% PD, individual and mean difference ≤25%	No exceedences noted. Comments: Dodecane exhibits a % difference above MQO limits. This analyte is considered semi-quantitative and will not be evaluated under MQO criteria.

Continuing Calibration Verification (CCV)	Continuing calibration standards were run every 12 hours (or 10 samples) to ensure that initial calibration is still valid.
≤30% PD, individual and mean difference ≤25%	No exceedences noted. Comments: In CCV files D7681, D7716 and D7722 Dodecane exhibits a % difference outside MQO limits. This analyte is considered semi-quantitative and will not be evaluated under MQO criteria. In CCV file D7722 Undecane exhibits a % difference outside MQO limits. This analyte is considered semi-quantitative and will not be evaluated under MQO criteria.

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Report Project Data Set MQOs

Project Title: PIANO Analysis

Data Set Number: DP-13-0544

Project Number: 100012044-9

Prep Batch Number: 13-0320

Test Code (Matrix Type): Master_245(O)

QC_PARAMETER:	Exceed:	Contg.:	JUSTIFICATION:
Procedural Blank	0	0	None
PB Measurement Quality Objective	0	0	None
Laboratory Control Sample	~~1~~ 0*	0	All exceedences for semi-quantitative analytes KPD 08/12/2013
Matrix Spike Recovery	NA	NA	NA
Matrix Spike/Sp ke Duplicate Precision	NA	NA	NA
Standard Reference Material Accuracy	NA	NA	NA
Analytical Duplicate Precision	0	0	None
Analytical Triplicate Precision	NA	NA	NA
Surrogate Compound Recovery	0	0	None
Control Oil	NA	NA	NA
Instrument Calibration	~~3~~ 0*	0	All exceedences for semi-quantitative analytes KPD 08/12/2013
Independent Cal bration Check Solution	~~88~~ 0*	0	All exceedences for semi-quantitative analytes KPD 08/12/2013
Continuing Cal bration Verification	~~4~~ 0*	0	All exceedences for semi-quantitative analytes KPD 08/12/2013

*All changes to MQO exceedences by Kerry Davis. KPD 08/14/13

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BATTELLE - DUXBURY OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM

Project Title:	PIANO Analysis	**Data Set Number:**	DP 13 0544
Project Number:	100012044 9	**Prep Batch Number:**	13 0320
Entered By:	Kerry Davis	**Entered On:**	08/12/2013
Test Code (Matrix Type):	Master_245(O)		

All manual integrations by Kerry Davis
Methods: MD0944D uses quants from MD0944
KPD 08/12/13

The following compounds are not considered volatile and are reported semi quantitatively: 1 Decene, n decane, n undecane, n pentylbenzene, Methylcyclopentadienyl manganese tricarbonyl (MMT),benzo(b)thiophene, and n dodecane. Values reported are estimated. Exceedences for these analytes will not be documented or counted towards the MQO exceedences.
KPC 01/30/13

The ICC cannot be reported from LIMS. The ICC can be verified using the quant report included in the calibration folder.
KPD 08/12/13

There are asterisks for the IS amounts even though the ISs were loaded correctly.
KPD 08/12/13

Upon further examination of the mass spectras it has been determined that for all samples (N9109, N9109DUP, N9110, N9111, N9112, N9113, N9114, N9115, N9116 and N9117) the major contributor to the coleution of 2,2,4 trimethylpentane and 1 Heptene is 2,2,4 trimethylpentane.
KPD 08/13/13

Task Leader Approval:		Kevin McInerney 2013.08.13 08:43:01 -04'00'
SupervisorApproval:		
PM Approval:		Kevin McInerney 2013.08.13 08:43:18 -04'00'

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Internal Standard Area Report

PROJECT NAME: Accutest Laboratories - PIANO Analysis

PROJECT NO: 100012044-9

BATCH: 13-0320

METHOD: MD0944D.M

SIGNAL: 1

SEQUENCE:	FILE:	LEVEL:	TYPE:	PEAK:		AREA:
SD0944.S	D7417.D	HT02	CS	Benzene-d6		1937149
SD0944.S	D7418.D	HT03	CS	Benzene-d6		1914518
SD0944.S	D7419.D	HT04	CS	Benzene-d6		2022368
SD0944.S	D7420.D	HT05	CS	Benzene-d6		1948822
SD0944.S	D7421.D	HT06	CS	Benzene-d6		1952126
SD0944.S	D7422.D	HT07	CS	Benzene-d6		1929017
SD0944.S	D7423.D	HT08	CS	Benzene-d6		1957597
					L3	2022368
					(+)	4044736
					(-)	1011184

SEQUENCE:	FILE:	LEVEL:	TYPE:	PEAK:	AREA:	FLAG:
SD0944.S	D7425.D	HP65 ICC	ICC	Benzene-d6	2097439	
SD0958.S	D7640.D	HT04	CCV	Benzene-d6	2218077	
SD0958.S	D7642.D	BZ513PB-V(0)	PB	Benzene-d6	2145086	
SD0958.S	D7643.D	BZ514LCS-V(0)	LCS	Benzene-d6	1999280	
SD0958.S	D7648.D	HT05	CCV	Benzene-d6	1592967	
SD0958.S	D7673.D	HT04	CCV	Benzene-d6	1719563	
SD0958.S	D7674.D	N9109-V-1(3)	SA	Benzene-d6	1786050	
SD0958.S	D7675.D	N9109DUP-V-1(3)	QADU	Benzene-d6	1843201	
SD0958.S	D7676.D	N9110-V-1(3)	SA	Benzene-d6	1897316	
SD0958.S	D7677.D	N9111-V-1(3)	SA	Benzene-d6	1931066	
SD0958.S	D7678.D	N9112-V-1(3)	SA	Benzene-d6	1801687	
SD0958.S	D7679.D	N9113-V-1(3)	SA	Benzene-d6	1834265	
SD0958.S	D7680.D	N9114-V-1(3)	SA	Benzene-d6	1875938	
SD0958.S	D7681.D	HT05	CCV	Benzene-d6	1889272	
SD0958.S	D7682.D	N9115-V-1(3)	SA	Benzene-d6	1946106	
SD0958.S	D7683.D	N9116-V-1(3)	SA	Benzene-d6	1822489	
SD0958.S	D7684.D	N9117-V-1(3)	SA	Benzene-d6	1817837	
SD0958.S	D7688.D	N9110-V-D3(4)	SA	Benzene-d6	1810601	
SD0958.S	D7689.D	HT04	CCV	Benzene-d6	1886571	
SD0959.S	D7709.D	HT04	CCV	Benzene-d6	1571289	
SD0959.S	D7711.D	N9109-V-D2(5)	SA	Benzene-d6	1528575	
SD0959.S	D7712.D	N9109DUP-V-D2(5)	QADU	Benzene-d6	1787971	
SD0959.S	D7713.D	N9110-V-D2(5)	SA	Benzene-d6	1842274	
SD0959.S	D7714.D	N9111-V-D2(5)	SA	Benzene-d6	1874397	
SD0959.S	D7715.D	N9112-V-D2(5)	SA	Benzene-d6	1814426	
SD0959.S	D7716.D	HT05	CCV	Benzene-d6	1823209	
SD0959.S	D7717.D	N9113-V-D2(5)	SA	Benzene-d6	1804206	
SD0959.S	D7718.D	N9114-V-D2(5)	SA	Benzene-d6	1848761	
SD0959.S	D7719.D	N9115-V-D2(5)	SA	Benzene-d6	1770655	
SD0959.S	D7720.D	N9116-V-D2(5)	SA	Benzene-d6	1855192	
SD0959.S	D7721.D	N9117-V-D2(5)	SA	Benzene-d6	1777415	

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Internal Standard Area Report

PROJECT NAME: Accutest Laboratories - PIANO Analysis
PROJECT NO: 100012044-9
BATCH: 13-0320
METHOD: MD0944D.M
SIGNAL: 1

SEQUENCE:	FILE:	LEVEL:	TYPE:	PEAK:	AREA:	FLAG:
SD0959.S	D7722.D	HT06	CCV	Benzene-d6	1797045	

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Internal Standard Area Report

PROJECT NAME: Accutest Laboratories - PIANO Analysis

PROJECT NO: 100012044-9

BATCH: 13-0320

METHOD: MD0944D.M

SIGNAL: 1

SEQUENCE:	FILE:	LEVEL:	TYPE:	PEAK:		AREA:
SD0944.S	D7417.D	HT02	CS	Ethylbenzene-d10		2814663
SD0944.S	D7418.D	HT03	CS	Ethylbenzene-d10		2716796
SD0944.S	D7419.D	HT04	CS	Ethylbenzene-d10		2844783
SD0944.S	D7420.D	HT05	CS	Ethylbenzene-d10		2743247
SD0944.S	D7421.D	HT06	CS	Ethylbenzene-d10		2693042
SD0944.S	D7422.D	HT07	CS	Ethylbenzene-d10		2655042
SD0944.S	D7423.D	HT08	CS	Ethylbenzene-d10		2659810
					L3	2844783
					(+)	5689566
					(-)	1422392

SEQUENCE:	FILE:	LEVEL:	TYPE:	PEAK:	AREA:	FLAG:
SD0944.S	D7425.D	HP65 ICC	ICC	Ethylbenzene-d10	2807098	
SD0958.S	D7640.D	HT04	CCV	Ethylbenzene-d10	2929113	
SD0958.S	D7642.D	BZ513PB-V(0)	PB	Ethylbenzene-d10	2852344	
SD0958.S	D7643.D	BZ514LCS-V(0)	LCS	Ethylbenzene-d10	2709336	
SD0958.S	D7648.D	HT05	CCV	Ethylbenzene-d10	2265234	
SD0958.S	D7673.D	HT04	CCV	Ethylbenzene-d10	2365995	
SD0958.S	D7674.D	N9109-V-1(3)	SA	Ethylbenzene-d10	2460362	
SD0958.S	D7675.D	N9109DUP-V-1(3)	QADU	Ethylbenzene-d10	2481534	
SD0958.S	D7676.D	N9110-V-1(3)	SA	Ethylbenzene-d10	2514428	
SD0958.S	D7677.D	N9111-V-1(3)	SA	Ethylbenzene-d10	2541778	
SD0958.S	D7678.D	N9112-V-1(3)	SA	Ethylbenzene-d10	2362609	
SD0958.S	D7679.D	N9113-V-1(3)	SA	Ethylbenzene-d10	2425297	
SD0958.S	D7680.D	N9114-V-1(3)	SA	Ethylbenzene-d10	2483327	
SD0958.S	D7681.D	HT05	CCV	Ethylbenzene-d10	2484946	
SD0958.S	D7682.D	N9115-V-1(3)	SA	Ethylbenzene-d10	2539228	
SD0958.S	D7683.D	N9116-V-1(3)	SA	Ethylbenzene-d10	2435637	
SD0958.S	D7684.D	N9117-V-1(3)	SA	Ethylbenzene-d10	2411459	
SD0958.S	D7688.D	N9110-V-D3(4)	SA	Ethylbenzene-d10	2395860	
SD0958.S	D7689.D	HT04	CCV	Ethylbenzene-d10	2579932	
SD0959.S	D7709.D	HT04	CCV	Ethylbenzene-d10	2104768	
SD0959.S	D7711.D	N9109-V-D2(5)	SA	Ethylbenzene-d10	2059029	
SD0959.S	D7712.D	N9109DUP-V-D2(5)	QADU	Ethylbenzene-d10	2345504	
SD0959.S	D7713.D	N9110-V-D2(5)	SA	Ethylbenzene-d10	2399497	
SD0959.S	D7714.D	N9111-V-D2(5)	SA	Ethylbenzene-d10	2447840	
SD0959.S	D7715.D	N9112-V-D2(5)	SA	Ethylbenzene-d10	2317400	
SD0959.S	D7716.D	HT05	CCV	Ethylbenzene-d10	2329204	
SD0959.S	D7717.D	N9113-V-D2(5)	SA	Ethylbenzene-d10	2280231	
SD0959.S	D7718.D	N9114-V-D2(5)	SA	Ethylbenzene-d10	2360793	
SD0959.S	D7719.D	N9115-V-D2(5)	SA	Ethylbenzene-d10	2240039	
SD0959.S	D7720.D	N9116-V-D2(5)	SA	Ethylbenzene-d10	2331058	
SD0959.S	D7721.D	N9117-V-D2(5)	SA	Ethylbenzene-d10	2262659	

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Internal Standard Area Report

PROJECT NAME: Accutest Laboratories - PIANO Analysis
PROJECT NO: 100012044-9
BATCH: 13-0320
METHOD: MD0944D.M
SIGNAL: 1

SEQUENCE:	FILE:	LEVEL:	TYPE:	PEAK:	AREA:	FLAG:
SD0959.S	D7722.D	HT06	CCV	Ethylbenzene-d10	2277561	

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Internal Standard Area Report

PROJECT NAME: Accutest Laboratories - PIANO Analysis
PROJECT NO: 100012044-9
BATCH: 13-0320
METHOD: MD0944D.M
SIGNAL: 1

SEQUENCE:	FILE:	LEVEL:	TYPE:	PEAK:		AREA:
SD0944.S	D7417.D	HT02	CS	Toluene-d8		1894821
SD0944.S	D7418.D	HT03	CS	Toluene-d8		1827520
SD0944.S	D7419.D	HT04	CS	Toluene-d8		1949070
SD0944.S	D7420.D	HT05	CS	Toluene-d8		1855742
SD0944.S	D7421.D	HT06	CS	Toluene-d8		1830882
SD0944.S	D7422.D	HT07	CS	Toluene-d8		1790431
SD0944.S	D7423.D	HT08	CS	Toluene-d8		1807724
					L3	1949070
					(+)	3898140
					(-)	974535

SEQUENCE:	FILE:	LEVEL:	TYPE:	PEAK:	AREA:	FLAG:
SD0944.S	D7425.D	HP65 ICC	ICC	Toluene-d8	1972535	
SD0958.S	D7640.D	HT04	CCV	Toluene-d8	2023317	
SD0958.S	D7642.D	BZ513PB-V(0)	PB	Toluene-d8	1941063	
SD0958.S	D7643.D	BZ514LCS-V(0)	LCS	Toluene-d8	1837692	
SD0958.S	D7648.D	HT05	CCV	Toluene-d8	1486487	
SD0958.S	D7673.D	HT04	CCV	Toluene-d8	1619395	
SD0958.S	D7674.D	N9109-V-1(3)	SA	Toluene-d8	1647890	
SD0958.S	D7675.D	N9109DUP-V-1(3)	QADU	Toluene-d8	1671079	
SD0958.S	D7676.D	N9110-V-1(3)	SA	Toluene-d8	1725137	
SD0958.S	D7677.D	N9111-V-1(3)	SA	Toluene-d8	1718594	
SD0958.S	D7678.D	N9112-V-1(3)	SA	Toluene-d8	1622033	
SD0958.S	D7679.D	N9113-V-1(3)	SA	Toluene-d8	1704934	
SD0958.S	D7680.D	N9114-V-1(3)	SA	Toluene-d8	1695069	
SD0958.S	D7681.D	HT05	CCV	Toluene-d8	1753655	
SD0958.S	D7682.D	N9115-V-1(3)	SA	Toluene-d8	1767601	
SD0958.S	D7683.D	N9116-V-1(3)	SA	Toluene-d8	1666152	
SD0958.S	D7684.D	N9117-V-1(3)	SA	Toluene-d8	1678033	
SD0958.S	D7688.D	N9110-V-D3(4)	SA	Toluene-d8	1673586	
SD0958.S	D7689.D	HT04	CCV	Toluene-d8	1768397	
SD0959.S	D7709.D	HT04	CCV	Toluene-d8	1437065	
SD0959.S	D7711.D	N9109-V-D2(5)	SA	Toluene-d8	1412495	
SD0959.S	D7712.D	N9109DUP-V-D2(5)	QADU	Toluene-d8	1626985	
SD0959.S	D7713.D	N9110-V-D2(5)	SA	Toluene-d8	1669046	
SD0959.S	D7714.D	N9111-V-D2(5)	SA	Toluene-d8	1687602	
SD0959.S	D7715.D	N9112-V-D2(5)	SA	Toluene-d8	1638244	
SD0959.S	D7716.D	HT05	CCV	Toluene-d8	1651080	
SD0959.S	D7717.D	N9113-V-D2(5)	SA	Toluene-d8	1620435	
SD0959.S	D7718.D	N9114-V-D2(5)	SA	Toluene-d8	1663822	
SD0959.S	D7719.D	N9115-V-D2(5)	SA	Toluene-d8	1591396	
SD0959.S	D7720.D	N9116-V-D2(5)	SA	Toluene-d8	1645165	
SD0959.S	D7721.D	N9117-V-D2(5)	SA	Toluene-d8	1582713	

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Internal Standard Area Report

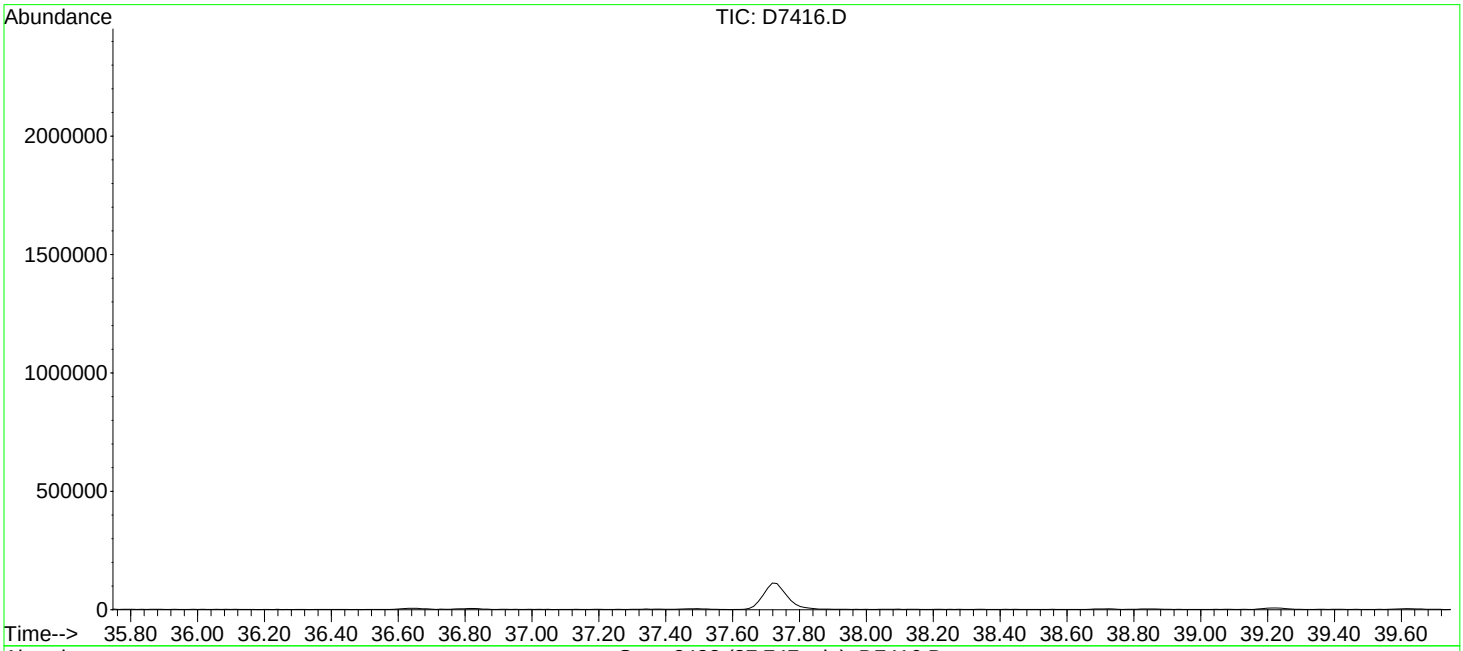
PROJECT NAME: Accutest Laboratories - PIANO Analysis
PROJECT NO: 100012044-9
BATCH: 13-0320
METHOD: MD0944D.M
SIGNAL: 1

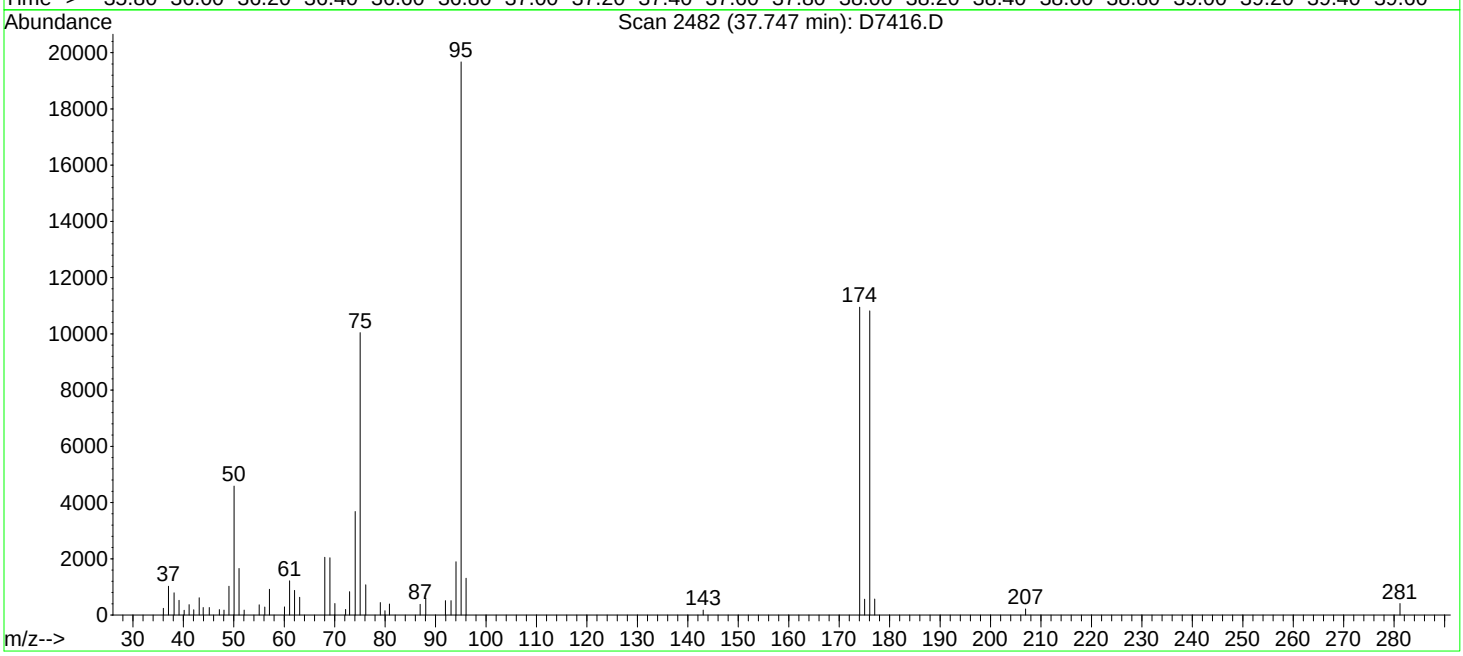
SEQUENCE:	FILE:	LEVEL:	TYPE:	PEAK:	AREA:	FLAG:
SD0959.S	D7722.D	HT06	CCV	Toluene-d8	1600476	

BFB

Data File : J:\D\DATA\SD0944\D7416.D
Acq On : 14 Jun 2013 10:47 am
Sample : HP78
Misc : BFB
MS Integration Params: RTEINT.P
Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Standard Mult: NA

Vial: 1
Operator: KPC
Inst : Inst D
Multiplr: 1.00



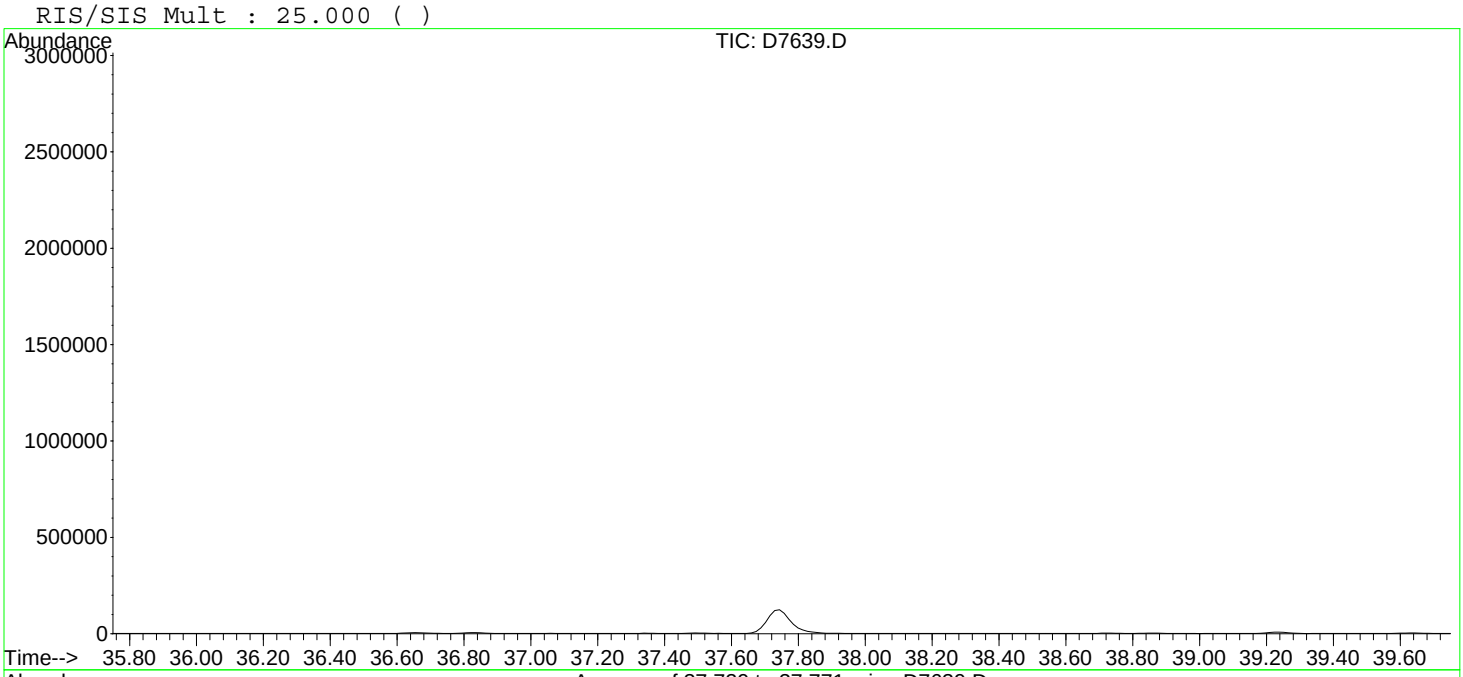


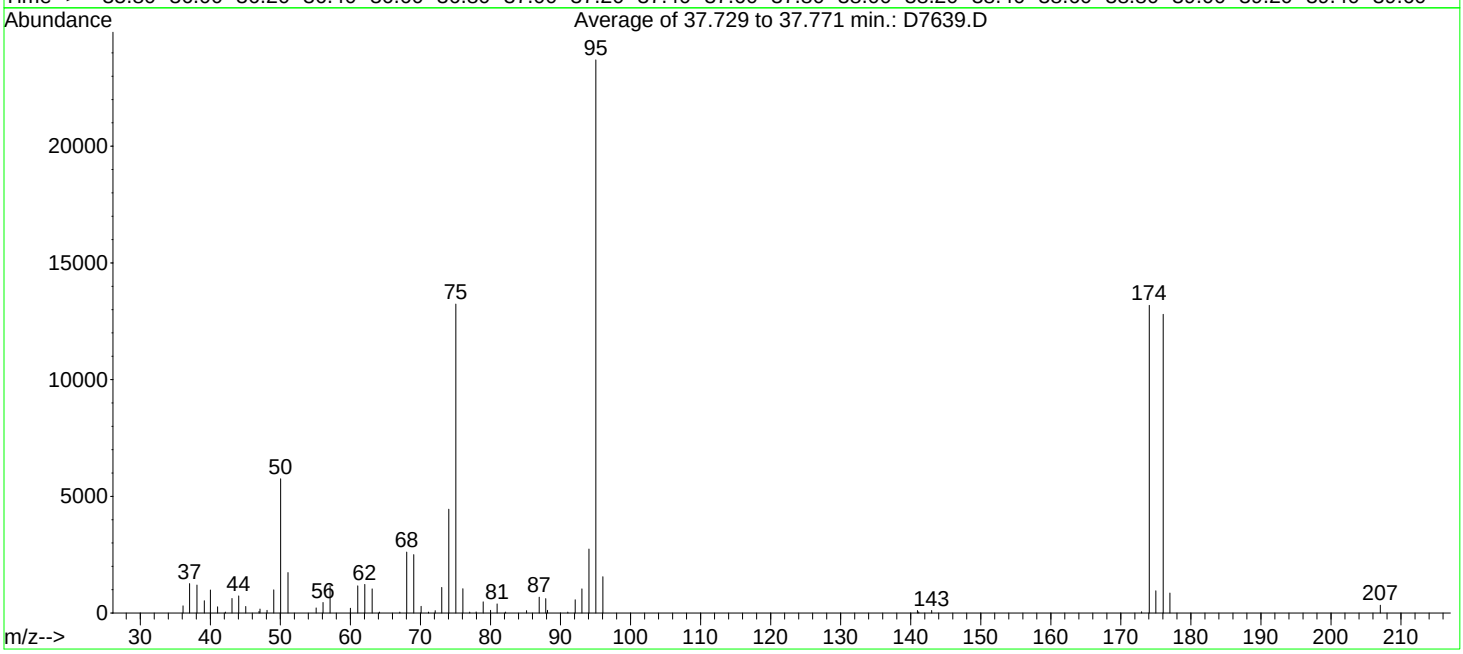
Spectrum Information: Scan 2482

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	23.3	4585	PASS
75	95	30	60	51.1	10045	PASS
95	95	100	100	100.0	19672	PASS
96	95	5	9	6.6	1308	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	55.6	10947	PASS
175	174	5	9	5.2	565	PASS
176	174	95	101	98.8	10818	PASS
177	176	5	9	5.3	569	PASS

Data File : J:\D\DATA\SD0958\D7639.D
Acq On : 5 Aug 2013 9:04 am
Sample : HP78
Misc : BFB TUNE
MS Integration Params: RTEINT.P
Method : J:\D\DATA\MD0944.M (RTE Integrator)
Title : 2013 PIANO
Standard Mult: 100.000 ( )
RIS/SIS Mult : 25.000 ( )

Vial: 2
Operator: LMG
Inst : Inst D
Multiplr: 1.00





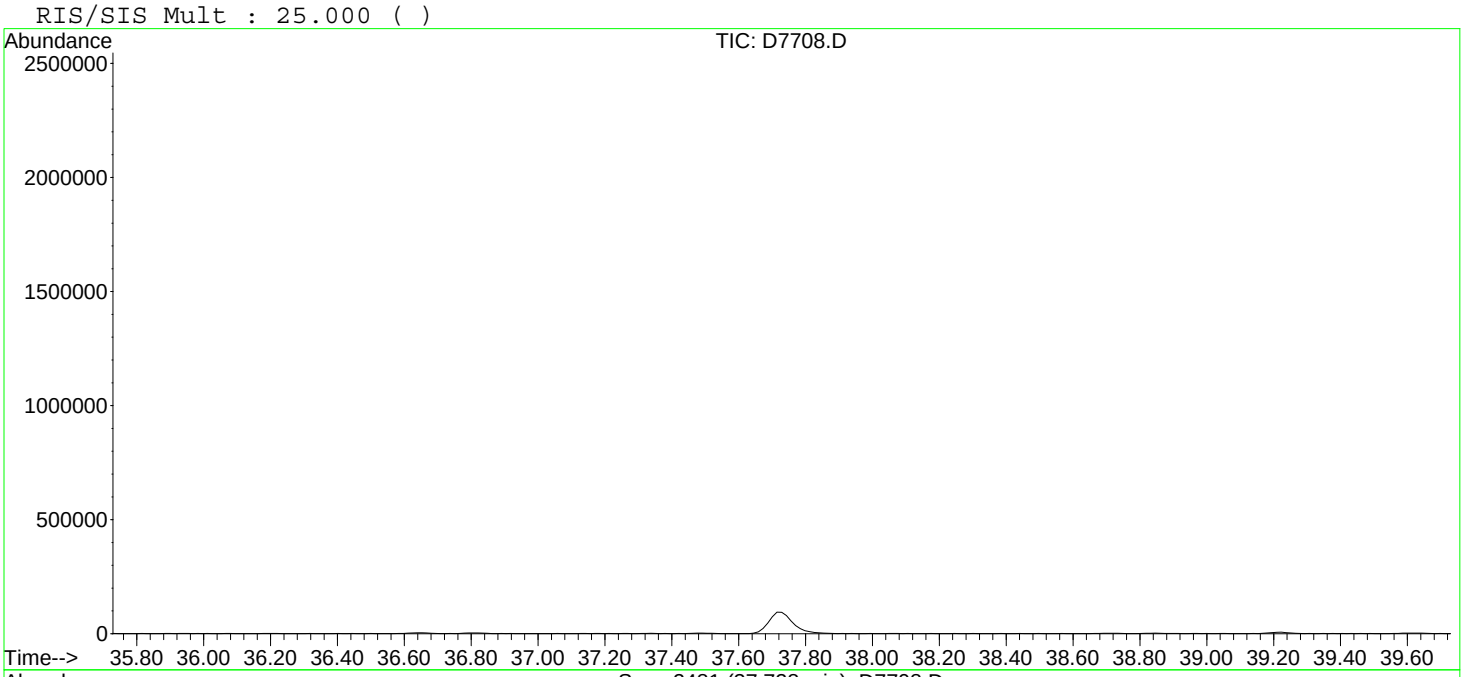
Spectrum Information: Average of 37.729 to 37.771 min.

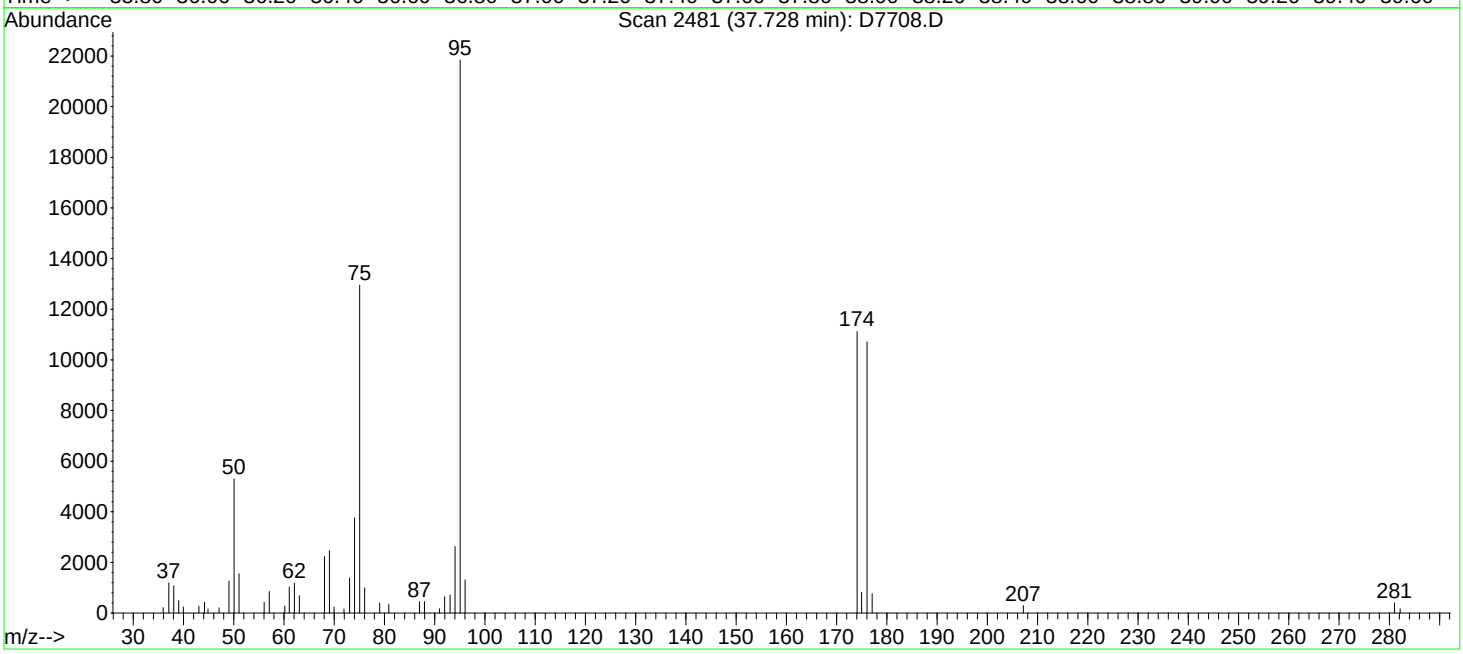
Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	24.3	5749	PASS
75	95	30	60	55.9	13236	PASS
95	95	100	100	100.0	23698	PASS
96	95	5	9	6.6	1559	PASS
173	174	0.00	2	0.4	53	PASS
174	95	50	100	55.6	13183	PASS
175	174	5	9	7.2	952	PASS
176	174	95	101	97.1	12798	PASS
177	176	5	9	6.7	854	PASS

BFB

Data File : J:\D\DATA\SD0959\D7708.D
Acq On : 9 Aug 2013 3:57 pm
Sample : HP78
Misc : BFB
MS Integration Params: RTEINT.P
Method : J:\D\DATA\MD0944.M (RTE Integrator)
Title : 2013 PIANO
Standard Mult: 100.000 ( )
RIS/SIS Mult : 25.000 ( )

Vial: 1
Operator: KPD
Inst : Inst D
Multiplr: 1.00





Spectrum Information: Scan 2481

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	24.2	5297	PASS
75	95	30	60	59.3	12952	PASS
95	95	100	100	100.0	21848	PASS
96	95	5	9	6.0	1306	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	50.9	11124	PASS
175	174	5	9	7.4	819	PASS
176	174	95	101	96.3	10710	PASS
177	176	5	9	7.2	767	PASS

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BATTELLE - DUXBURY OPERATIONS
SAMPLE PREPARATION RECORDS

Project Title(s)	**Project No.(s)**
PIANO Analysis	100012044-9

13-0320

Accutest - PIANO Analysis

NAPL

SOP Numbers (see workplan for modifications)

VOASOP No. 5-245

This Batch Contains The Following Samples:	
BZ513PB-V	N9112-V
BZ514LCS-V	N9113-V
N9109-V	N9114-V
N9109DUP-V	N9115-V
N9110-V	N9116-V
N9111-V	N9117-V

Laboratory Preparation Records

COMPLETE AND VALIDATED

Prep Task Leader: Kerry Davis

Approved By:	Date	Initials
Kevin McInerney	08/13/2013	KM

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BATTELLE - DUXBURY OPERATIONS
SAMPLE IDENTIFICATION PAGE

Project Title(s)
PIANO Analysis

Project No.(s)
100012044-9

13-0320
Accutest - PIANO Analysis
NAPL

Sample ID	Description
BZ513PB-V	Procedural Blank
BZ514LCS-V	Laboratory Control Sample
N9109-V	MC20162-1
N9109DUP-V	Lab Duplicate of MC20162-1
N9110-V	MC20162-2
N9111-V	MC20162-3
N9112-V	MC20162-4
N9113-V	MC20162-5
N9114-V	MC20162-6
N9115-V	MC20162-7
N9116-V	MC20162-8
N9117-V	MC20162-9

Samples Assigned By Kerry Davis Date : August 5, 2013

Comments:

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BATTELLE - DUXBURY OPERATIONS
SAMPLE CUSTODY LOG

Project Title(s)
PIANO Analysis

Project No.(s)
100012044-9

13-0320
Accutest - PIANO Analysis
NAPL

Requested On/By:	08/05/2013 KPD	**Purpose:**	Sample Preparation
Relinquished On/By:	08/05/2013 MDS	**Last Activity:**	Return

Accepted On/By:	08/05/2013 KPD	**Returned On/To:**	08/05/2013 MDS
Stored In Facility:	VOA Room	**Returned To Facility:**	Chem South: Upper Cold Room
Stored Until	08/05/2013		
Stored Comment:	NA	**Returned Comment:**	NA

No.	BDO-ID:	Ctrs	*	Condition:	Custody Comment:
1	N9109	1	--	Intact	NA
2	N9110	1	--	Intact	NA
3	N9111	1	--	Intact	NA
4	N9112	1	--	Intact	NA
5	N9113	1	--	Intact	NA
6	N9114	1	--	Intact	NA
7	N9115	1	--	Intact	NA
8	N9116	1	--	Intact	NA
9	N9117	1	--	Intact	NA
Total Samples		9	* "C" = Consumed Container		

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BATTELLE - DUXBURY OPERATIONS
PRODUCT SOIL WEIGHT PAGE

Project Title(s)
PIANO Analysis

Project No.(s)
100012044-9

13-0320
Accutest - PIANO Analysis
NAPL

Sample ID	Ctrs	*	Sample Wt Product** (mg)	Methanol Vol (mL)	Sample Aliquot Analyzed	Precept Module Soil/Water ***	Dilution Factor	Date Initials
BZ513PB-V-1	0	No	21.08	10 mL		Soil	-0.25	NA
N9109DUP-V-1	0	No	22.97	10 mL	50 uL	Soil	200	08/05/13 KPD
N9109-V-1	0	No	22.48	10 mL	50 uL	Soil	200	08/05/13 KPD
N9110-V-1	0	No	20.28	10 mL	50 uL	Soil	200	08/05/13 KPD
N9110-V-D3	0	No	NA	10 mL	1000 uL	Soil	2000	08/05/13 KPD
N9112-V-1	0	No	21.74	10 mL	50 uL	Soil	200	08/05/13 KPD
N9111-V-1	0	No	21.52	10 mL	50 uL	Soil	200	08/05/13 KPD
N9113-V-1	0	No	20.17	10 mL	50 uL	Soil	200	08/05/13 KPD
N9114-V-1	0	No	20.75	10 mL	50 uL	Soil	200	08/05/13 KPD
N9115-V-1	0	No	22.55	10 mL	50 uL	Soil	200	08/05/13 KPD
N9116-V-1	0	No	20.57	10 mL	50 uL	Soil	200	08/05/13 KPD
N9117-V-1	0	No	19.69	10 mL	50 uL	Soil	200	08/05/13 KPD
BZ513PB-V	0	No	21.08	10 mL	50 uL	Soil	200	08/05/13 KPD
BZ514LCS-V	0	No	21.08	10 mL	50 uL	Soil	200	08/05/13 KPD
N9109DUP-V	0	No	22.97	10 mL	50 uL	Soil	200	08/05/13 KPD
N9109-V	0	No	22.48	10 mL	50 uL	Soil	200	08/05/13 KPD
N9112-V	0	No	21.74	10 mL	50 uL	Soil	200	08/05/13 KPD
N9110-V	0	No	20.28	10 mL	50 uL	Soil	200	08/05/13 KPD
N9115-V	0	No	22.55	10 mL	50 uL	Soil	200	08/05/13 KPD
N9114-V	0	No	20.75	10 mL	50 uL	Soil	200	08/05/13 KPD
N9113-V	0	No	20.17	10 mL	50 uL	Soil	200	08/05/13 KPD
N9111-V	0	No	21.52	10 mL	50 uL	Soil	200	08/05/13 KPD

* - "C" = Sample is Consumed

** - 1:10 Dilutions made of all samples. -V-D suffix added t o ID's of dilutions.

*** - Samples prepared on water module side for analysis brought to final PIV of 40 mL prior to analysis. Precept removes 20 mL of sample for analysis.
Sample aliquot added to 10 mL H2O on soil module.

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Project Title(s)
PIANO Analysis

Project No.(s)
100012044-9

13-0320
Accutest - PIANO Analysis
NAPL

Sample ID	Ctrs	*	Sample Wt Product** (mg)	Methanol Vol (mL)	Sample Aliquot Analyzed	Precept Module Soil/Water ***	Dilution Factor	Date Initials
N9117-V	0	No	19.69	10 mL	50 uL	Soil	200	08/05/13 KPD
N9116-V	0	No	20.57	10 mL	50 uL	Soil	200	08/05/13 KPD
N9109-V-D	0	No	NA	10 mL	10 uL	Soil	1000	08/05/13 KPD
N9109DUP-V-D	0	No	NA	10 mL	10 uL	Soil	1000	08/05/13 KPD
N9110-V-D	0	No	NA	10 mL	10 uL	Soil	1000	08/05/13 KPD
N9112-V-D	0	No	NA	10 mL	10 uL	Soil	1000	08/05/13 KPD
N9111-V-D	0	No	NA	10 mL	10 uL	Soil	1000	08/05/13 KPD
N9113-V-D	0	No	NA	10 mL	10 uL	Soil	1000	08/05/13 KPD
N9114-V-D	0	No	NA	10 mL	10 uL	Soil	1000	08/05/13 KPD
N9115-V-D	0	No	NA	10 mL	10 uL	Soil	1000	08/05/13 KPD
N9116-V-D	0	No	NA	10 mL	10 uL	Soil	1000	08/05/13 KPD
N9117-V-D	0	No	NA	10 mL	10 uL	Soil	1000	08/05/13 KPD
N9109-V-D3	0	No	NA	10 mL	1000 uL	Soil	10	08/07/13 KPD
N9109DUP-V-D	0	No	NA	10 mL	1000 uL	Soil	10	08/07/13 KPD
N9114-V-D3	0	No	NA	10 mL	1000 uL	Soil	10	08/07/13 KPD
N9113-V-D3	0	No	NA	10 mL	1000 uL	Soil	10	08/07/13 KPD
N9111-V-D3	0	No	NA	10 mL	1000 uL	Soil	10	08/07/13 KPD
N9112-V-D3	0	No	NA	10 mL	1000 uL	Soil	10	08/07/13 KPD
N9115-V-D3	0	No	NA	10 mL	1000 uL	Soil	10	08/07/13 KPD
N9116-V-D3	0	No	NA	10 mL	1000 uL	Soil	10	08/07/13 KPD
N9117-V-D3	0	No	NA	10 mL	1000 uL	Soil	10	08/07/13 KPD
N9109-V-D2	0	No	22.48	10 mL	50 uL	Soil	1000	08/09/13 KPD

* - "C" = Sample is Consumed

** - 1:10 Dilutions made of all samples. -V-D suffix added t o ID's of dilutions.

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Sample aliquot added to 10 mL H2O on soil module.

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PIANO Analysis

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Accutest - PIANO Analysis
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Sample ID	Ctrs	*	Sample Wt Product** (mg)	Methanol Vol (mL)	Sample Aliquot Analyzed	Precept Module Soil/Water ***	Dilution Factor	Date Initials
N9117-V-D2	0	No	19.69	10 mL	50 uL	Soil	1000	08/09/13 KPD
N9110-V-D2	0	No	20.28	10 mL	50 uL	Soil	1000	08/09/13 KPD
N9109DUP-V-D	0	No	22.97	10 mL	50 uL	Soil	1000	08/09/13 KPD
N9112-V-D2	0	No	21.74	10 mL	50 uL	Soil	1000	08/09/13 KPD
N9111-V-D2	0	No	21.52	10 mL	50 uL	Soil	1000	08/09/13 KPD
N9113-V-D2	0	No	20.17	10 mL	50 uL	Soil	1000	08/09/13 KPD
N9114-V-D2	0	No	20.75	10 mL	50 uL	Soil	1000	08/09/13 KPD
N9116-V-D2	0	No	20.57	10 mL	50 uL	Soil	1000	08/09/13 KPD
N9115-V-D2	0	No	22.55	10 mL	50 uL	Soil	1000	08/09/13 KPD

Solvents:
K08E01: Methanol Purge and Trap Grade

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Sample ID	Ctrs	*	Sample Wt Product** (mg)	Methanol Vol (mL)	Sample Aliquot Analyzed	Precept Module Soil/Water ***	Dilution Factor	Date Initials

Comments:

Sample ID:	Comments:
BZ513PB-V-1	NA
N9109DUP-V-1	NA
N9109-V-1	NA
N9110-V-1	NA
N9110-V-D3	NA
N9112-V-1	NA
N9111-V-1	NA
N9113-V-1	NA
N9114-V-1	NA
N9115-V-1	NA
N9116-V-1	NA
N9117-V-1	NA
BZ513PB-V	NA
BZ514LCS-V	NA
N9109DUP-V	NA
N9109-V	NA
N9112-V	NA
N9110-V	NA
N9115-V	NA
N9114-V	NA
N9113-V	NA
N9111-V	NA
N9117-V	NA

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Sample ID	Ctrs	*	Sample Wt Product** (mg)	Methanol Vol (mL)	Sample Aliquot Analyzed	Precept Module Soil/Water ***	Dilution Factor	Date Initials
N9116-V	NA							
N9109-V-D	NA							
N9109DUP-V-D	NA							
N9110-V-D	NA							
N9112-V-D	NA							
N9111-V-D	NA							
N9113-V-D	NA							
N9114-V-D	NA							
N9115-V-D	NA							
N9116-V-D	NA							
N9117-V-D	NA							
N9109-V-D3	NA							
N9109DUP-V-D3	NA							
N9114-V-D3	NA							
N9113-V-D3	NA							
N9111-V-D3	NA							
N9112-V-D3	NA							
N9115-V-D3	NA							
N9116-V-D3	NA							
N9117-V-D3	NA							
N9109-V-D2	NA							
N9117-V-D2	NA							
N9110-V-D2	NA							
N9109DUP-V-D2	NA							
N9112-V-D2	NA							
N9111-V-D2	NA							

* - "C" = Sample is Consumed

** - 1:10 Dilutions made of all samples. -V-D suffix added t o ID's of dilutions.

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Sample ID	Ctrs	*	Sample Wt Product** (mg)	Methanol Vol (mL)	Sample Aliquot Analyzed	Precept Module Soil/Water ***	Dilution Factor	Date Initials
N9113-V-D2	NA							
N9114-V-D2	NA							
N9116-V-D2	NA							
N9115-V-D2	NA							

* - "C" = Sample is Consumed

** - 1:10 Dilutions made of all samples. -V-D suffix added t o ID's of dilutions.

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Sample aliquot added to 10 mL H2O on soil module.

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EXTRACT SPIKE FORM

Project Title(s)
PIANO Analysis

Project No.(s)
100012044-9

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Accutest - PIANO Analysis
NAPL

Extract Id	DF	Std. ID	Type	Vial No.	Vol. Added (uL)	Conc (ug/mL)	Added (ng)	Date Spiked/ Spiked By	Witn'd By
BZ513PB-V(0)	200	HR99	RIS/SIS	7	25	1	25	08/05/13 KPD	NA
BZ513PB-V-1(2)	-0.25	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
BZ514LCS-V(0)	200	HQ54	LCS/MS	4	50	1	50	08/05/13 KPD	NA
BZ514LCS-V(0)	200	HR99	RIS/SIS	7	25	1	25	08/05/13 KPD	NA
N9109-V(0)	200	HR99	RIS/SIS	6	25	1	25	08/06/13 KPD	NA
N9109-V-D(2)	1000	HR99	RIS/SIS	7	25	1	25	08/05/13 KPD	NA
N9109-V-1(3)	200	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9109-V-D3(4)	10	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9109-V-D2(5)	1000	HR99	RIS/SIS	7	25	1	25	08/09/13 KPD	NA
N9109DUP-V(0)	200	HR99	RIS/SIS	6	25	1	25	08/07/13 KPD	NA
N9109DUP-V-D(2)	1000	HR99	RIS/SIS	7	25	1	25	08/05/13 KPD	NA
N9109DUP-V-1(3)	200	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9109DUP-V-D3(4)	10	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9109DUP-V-D2(5)	1000	HR99	RIS/SIS	7	25	1	25	08/09/13 KPD	NA
N9110-V(0)	200	HR99	RIS/SIS	6	25	1	25	08/07/13 KPD	NA
N9110-V-D(2)	1000	HR99	RIS/SIS	7	25	1	25	08/05/13 KPD	NA
N9110-V-1(3)	200	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9110-V-D3(4)	2000	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9110-V-D2(5)	1000	HR99	RIS/SIS	7	25	1	25	08/09/13 KPD	NA
N9111-V(0)	200	HR99	RIS/SIS	6	25	1	25	08/07/13 KPD	NA
N9111-V-D(2)	1000	HR99	RIS/SIS	7	25	1	25	08/05/13 KPD	NA
N9111-V-1(3)	200	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9111-V-D3(4)	10	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9111-V-D2(5)	1000	HR99	RIS/SIS	7	25	1	25	08/09/13 KPD	NA
N9112-V(0)	200	HR99	RIS/SIS	6	25	1	25	08/07/13 KPD	NA

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Extract Id	DF	Std. ID	Type	Vial No.	Vol. Added (uL)	Conc (ug/mL)	Added (ng)	Date Spiked/ Spiked By	Witn'd By
N9112-V-D(2)	1000	HR99	RIS/SIS	7	25	1	25	08/05/13 KPD	NA
N9112-V-1(3)	200	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9112-V-D3(4)	10	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9112-V-D2(5)	1000	HR99	RIS/SIS	7	25	1	25	08/09/13 KPD	NA
N9113-V(0)	200	HR99	RIS/SIS	6	25	1	25	08/07/13 KPD	NA
N9113-V-D(2)	1000	HR99	RIS/SIS	7	25	1	25	08/05/13 KPD	NA
N9113-V-1(3)	200	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9113-V-D3(4)	10	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9113-V-D2(5)	1000	HR99	RIS/SIS	7	25	1	25	08/09/13 KPD	NA
N9114-V(0)	200	HR99	RIS/SIS	6	25	1	25	08/07/13 KPD	NA
N9114-V-D(2)	1000	HR99	RIS/SIS	7	25	1	25	08/05/13 KPD	NA
N9114-V-1(3)	200	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9114-V-D3(4)	10	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9114-V-D2(5)	1000	HR99	RIS/SIS	7	25	1	25	08/09/13 KPD	NA
N9115-V(0)	200	HR99	RIS/SIS	6	25	1	25	08/07/13 KPD	NA
N9115-V-D(2)	1000	HR99	RIS/SIS	7	25	1	25	08/05/13 KPD	NA
N9115-V-1(3)	200	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9115-V-D3(4)	10	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9115-V-D2(5)	1000	HR99	RIS/SIS	7	25	1	25	08/09/13 KPD	NA
N9116-V(0)	200	HR99	RIS/SIS	6	25	1	25	08/07/13 KPD	NA
N9116-V-D(2)	1000	HR99	RIS/SIS	7	25	1	25	08/05/13 KPD	NA
N9116-V-1(3)	200	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9116-V-D3(4)	10	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9116-V-D2(5)	1000	HR99	RIS/SIS	7	25	1	25	08/09/13 KPD	NA
N9117-V(0)	200	HR99	RIS/SIS	6	25	1	25	08/07/13 KPD	NA

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Extract Id	DF	Std. ID	Type	Vial No.	Vol. Added (uL)	Conc (ug/mL)	Added (ng)	Date Spiked/ Spiked By	Witn'd By
N9117-V-D(2)	1000	HR99	RIS/SIS	7	25	1	25	08/05/13 KPD	NA
N9117-V-1(3)	200	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9117-V-D3(4)	10	HR99	RIS/SIS	7	25	1	25	08/07/13 KPD	NA
N9117-V-D2(5)	1000	HR99	RIS/SIS	7	25	1	25	08/09/13 KPD	NA

Syringes/Pipettes Used:

Std ID	Type	Syr/Pip	Vol (uL) Added
HQ54	Syringe	S-00050-11	50
HR99	Syringe	S-00050-11	25

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(N/A Fraction)

Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm. (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution *	Date Spiked/ Spiked By	Witn'd By
BZ513PB-V(0)	NA	25	HR99	25	7	NA	200.000	08/05/13 KPD	NA
BZ513PB-V-1(2)	NA	25	HR99	25	7	NA	0.250	08/07/13 KPD	NA
BZ514LCS-V(0)	NA	25	HR99	25	7	NA	200.000	08/05/13 KPD	NA
N9109-V(0)	NA	25	HR99	25	6	NA	200.000	08/06/13 KPD	NA
N9109-V-D(2)	NA	25	HR99	25	7	NA	1000.000	08/05/13 KPD	NA
N9109-V-1(3)	NA	25	HR99	25	7	NA	200.000	08/07/13 KPD	NA
N9109-V-D3(4)	NA	25	HR99	25	7	NA	10.000	08/07/13 KPD	NA
N9109-V-D2(5)	NA	25	HR99	25	7	NA	1000.000	08/09/13 KPD	NA
N9109DUP-V(0)	NA	25	HR99	25	6	NA	200.000	08/07/13 KPD	NA
N9109DUP-V-D(2)	NA	25	HR99	25	7	NA	1000.000	08/05/13 KPD	NA
N9109DUP-V-1(3)	NA	25	HR99	25	7	NA	200.000	08/07/13 KPD	NA
N9109DUP-V-D3(4)	NA	25	HR99	25	7	NA	10.000	08/07/13 KPD	NA
N9109DUP-V-D2(5)	NA	25	HR99	25	7	NA	1000.000	08/09/13 KPD	NA
N9110-V(0)	NA	25	HR99	25	6	NA	200.000	08/07/13 KPD	NA
N9110-V-D(2)	NA	25	HR99	25	7	NA	1000.000	08/05/13 KPD	NA
N9110-V-1(3)	NA	25	HR99	25	7	NA	200.000	08/07/13 KPD	NA
N9110-V-D3(4)	NA	25	HR99	25	7	NA	2000.000	08/07/13 KPD	NA
N9110-V-D2(5)	NA	25	HR99	25	7	NA	1000.000	08/09/13 KPD	NA
N9111-V(0)	NA	25	HR99	25	6	NA	200.000	08/07/13 KPD	NA

* - Final Dilution is any HPLC, dilutions, or other manipulation

^ - Pre Injection Volume (PIV) includes any RIS spikes.

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Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm. (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution *	Date Spiked/ Spiked By	Witn'd By
N9111-V-D(2)	NA	25	HR99	25	7	NA	1000.000	08/05/13 KPD	NA
N9111-V-1(3)	NA	25	HR99	25	7	NA	200.000	08/07/13 KPD	NA
N9111-V-D3(4)	NA	25	HR99	25	7	NA	10.000	08/07/13 KPD	NA
N9111-V-D2(5)	NA	25	HR99	25	7	NA	1000.000	08/09/13 KPD	NA
N9112-V(0)	NA	25	HR99	25	6	NA	200.000	08/07/13 KPD	NA
N9112-V-D(2)	NA	25	HR99	25	7	NA	1000.000	08/05/13 KPD	NA
N9112-V-1(3)	NA	25	HR99	25	7	NA	200.000	08/07/13 KPD	NA
N9112-V-D3(4)	NA	25	HR99	25	7	NA	10.000	08/07/13 KPD	NA
N9112-V-D2(5)	NA	25	HR99	25	7	NA	1000.000	08/09/13 KPD	NA
N9113-V(0)	NA	25	HR99	25	6	NA	200.000	08/07/13 KPD	NA
N9113-V-D(2)	NA	25	HR99	25	7	NA	1000.000	08/05/13 KPD	NA
N9113-V-1(3)	NA	25	HR99	25	7	NA	200.000	08/07/13 KPD	NA
N9113-V-D3(4)	NA	25	HR99	25	7	NA	10.000	08/07/13 KPD	NA
N9113-V-D2(5)	NA	25	HR99	25	7	NA	1000.000	08/09/13 KPD	NA
N9114-V(0)	NA	25	HR99	25	6	NA	200.000	08/07/13 KPD	NA
N9114-V-D(2)	NA	25	HR99	25	7	NA	1000.000	08/05/13 KPD	NA
N9114-V-1(3)	NA	25	HR99	25	7	NA	200.000	08/07/13 KPD	NA
N9114-V-D3(4)	NA	25	HR99	25	7	NA	10.000	08/07/13 KPD	NA
N9114-V-D2(5)	NA	25	HR99	25	7	NA	1000.000	08/09/13 KPD	NA

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Accutest - PIANO Analysis
NAPL

(N/A Fraction)

Extract Id	Extr. Vol. (uL)	Added (uL)	Std. Id	Accm. (uL)	Vial No.	Pre Inj. Vol. (uL)^	Final Dilution *	Date Spiked/ Spiked By	Witn'd By
N9115-V(0)	NA	25	HR99	25	6	NA	200.000	08/07/13 KPD	NA
N9115-V-D(2)	NA	25	HR99	25	7	NA	1000.000	08/05/13 KPD	NA
N9115-V-1(3)	NA	25	HR99	25	7	NA	200.000	08/07/13 KPD	NA
N9115-V-D3(4)	NA	25	HR99	25	7	NA	10.000	08/07/13 KPD	NA
N9115-V-D2(5)	NA	25	HR99	25	7	NA	1000.000	08/09/13 KPD	NA
N9116-V(0)	NA	25	HR99	25	6	NA	200.000	08/07/13 KPD	NA
N9116-V-D(2)	NA	25	HR99	25	7	NA	1000.000	08/05/13 KPD	NA
N9116-V-1(3)	NA	25	HR99	25	7	NA	200.000	08/07/13 KPD	NA
N9116-V-D3(4)	NA	25	HR99	25	7	NA	10.000	08/07/13 KPD	NA
N9116-V-D2(5)	NA	25	HR99	25	7	NA	1000.000	08/09/13 KPD	NA
N9117-V(0)	NA	25	HR99	25	6	NA	200.000	08/07/13 KPD	NA
N9117-V-D(2)	NA	25	HR99	25	7	NA	1000.000	08/05/13 KPD	NA
N9117-V-1(3)	NA	25	HR99	25	7	NA	200.000	08/07/13 KPD	NA
N9117-V-D3(4)	NA	25	HR99	25	7	NA	10.000	08/07/13 KPD	NA
N9117-V-D2(5)	NA	25	HR99	25	7	NA	1000.000	08/09/13 KPD	NA

* - Final Dilution is any HPLC, dilutions, or other manipulation
^ - Pre Injection Volume (PIV) includes any RIS spikes.

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BATTELLE - DUXBURY OPERATIONS
PREPARATION EXTRACT SPLIT FORM

Project Title(s)
PIANO Analysis

Project No.(s)
100012044-9

13-0320

Accutest - PIANO Analysis

NAPL

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
BZ513PB-V	0	--	8/5/2013 9:29:00 AM	NA		10000	50	200.000	200.000	08/05/13 KPD
BZ513PB-V-1	2	--	8/7/2013 11:39:00 AM	NA		10	-40	0.250	0.250	08/07/13 KPD
BZ514LCS-V	0	--	8/5/2013 9:30:00 AM	NA		10000	50	200.000	200.000	08/05/13 KPD
N9109-V	0	--	8/5/2013 9:30:00 AM	NA		10000	50	200.000	200.000	08/05/13 KPD
N9109-V-D	2	--	8/5/2013 11:32:00 AM	NA		10000	10	1000.000	1000.000	08/05/13 KPD
N9109-V-1	3	--	8/7/2013 11:39:00 AM	NA		10000	50	200.000	200.000	08/07/13 KPD
N9109-V-D3	4	--	8/7/2013 11:47:00 AM	NA		10000	1000	10.000	10.000	08/07/13 KPD
N9109-V-D2	5	--	8/9/2013 4:58:00 PM	N9109-V-D2X6	6	10000	10	1000.000	1000.000	08/09/13 KPD
N9109-V-D2X6	6	--	8/9/2013 4:58:00 PM	NA		10000	10000	1.000	1.000	08/09/13 KPD
N9109DUP-V	0	--	8/5/2013 10:40:00 AM	NA		10000	50	200.000	200.000	08/05/13 KPD
N9109DUP-V-D	2	--	8/5/2013 11:32:00 AM	NA		10000	10	1000.000	1000.000	08/05/13 KPD
N9109DUP-V-1	3	--	8/7/2013 11:39:00 AM	NA		10000	50	200.000	200.000	08/07/13 KPD
N9109DUP-V-D3	4	--	8/7/2013 1:02:00 PM	NA		10000	1000	10.000	10.000	08/07/13 KPD
N9109DUP-V-D2	5	--	8/9/2013 4:59:00 PM	N9109DUP-V-D2X6	6	10000	10	1000.000	1000.000	08/09/13 KPD

Total Oil = [Sample Volume (uL) / Aliquot Volume (uL)] * [Aliquot Weight (mg)]
Dilution Factor = [Sample Volume (uL) / Aliqot Volume (uL))] * Prior Dilution Factor
* - "C" = Extract is Consumed

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BATTELLE - DUXBURY OPERATIONS
PREPARATION EXTRACT SPLIT FORM

Project Title(s)
PIANO Analysis

Project No.(s)
100012044-9

13-0320

Accutest - PIANO Analysis

NAPL

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
N9109DUP-V-D2X6	6	--	8/9/2013 4:59:00 PM	NA		10000	10000	1.000	1.000	08/09/13 KPD
N9110-V	0	--	8/5/2013 9:30:00 AM	NA		10000	50	200.000	200.000	08/05/13 KPD
N9110-V-D	2	--	8/5/2013 11:33:00 AM	NA		10000	10	1000.000	1000.000	08/05/13 KPD
N9110-V-1	3	--	8/7/2013 11:40:00 AM	NA		10000	50	200.000	200.000	08/07/13 KPD
N9110-V-D3	4	--	8/7/2013 1:02:00 PM	NA		10000	5	2000.000	2000.000	08/07/13 KPD
N9110-V-D2	5	--	8/9/2013 4:59:00 PM	N9110-V-D2X6	6	10000	10	1000.000	1000.000	08/09/13 KPD
N9110-V-D2X6	6	--	8/9/2013 4:59:00 PM	NA		10000	10000	1.000	1.000	08/09/13 KPD
N9111-V	0	--	8/5/2013 9:30:00 AM	NA		10000	50	200.000	200.000	08/05/13 KPD
N9111-V-D	2	--	8/5/2013 11:33:00 AM	NA		10000	10	1000.000	1000.000	08/05/13 KPD
N9111-V-1	3	--	8/7/2013 11:40:00 AM	NA		10000	50	200.000	200.000	08/07/13 KPD
N9111-V-D3	4	--	8/7/2013 1:03:00 PM	NA		10000	1000	10.000	10.000	08/07/13 KPD
N9111-V-D2	5	--	8/9/2013 4:59:00 PM	N9111-V-D2X6	6	10000	10	1000.000	1000.000	08/09/13 KPD
N9111-V-D2X6	6	--	8/9/2013 4:59:00 PM	NA		10000	10000	1.000	1.000	08/09/13 KPD
N9112-V	0	--	8/5/2013 9:30:00 AM	NA		10000	50	200.000	200.000	08/05/13 KPD

Total Oil = [Sample Volume (uL) / Aliquot Volume (uL)] * [Aliquot Weight (mg)]
Dilution Factor = [Sample Volume (uL) / Aliqot Volume (uL))] * Prior Dilution Factor
* - "C" = Extract is Consumed

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BATTELLE - DUXBURY OPERATIONS
PREPARATION EXTRACT SPLIT FORM

Project Title(s)
PIANO Analysis

Project No.(s)
100012044-9

13-0320

Accutest - PIANO Analysis

NAPL

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
N9112-V-D	2	--	8/5/2013 11:33:00 AM	NA		10000	10	1000.000	1000.000	08/05/13 KPD
N9112-V-1	3	--	8/7/2013 11:40:00 AM	NA		10000	50	200.000	200.000	08/07/13 KPD
N9112-V-D3	4	--	8/7/2013 1:03:00 PM	NA		10000	1000	10.000	10.000	08/07/13 KPD
N9112-V-D2	5	--	8/9/2013 4:59:00 PM	N9112-V-D2X6	6	10000	10	1000.000	1000.000	08/09/13 KPD
N9112-V-D2X6	6	--	8/9/2013 4:59:00 PM	NA		10000	10000	1.000	1.000	08/09/13 KPD
N9113-V	0	--	8/5/2013 9:30:00 AM	NA		10000	50	200.000	200.000	08/05/13 KPD
N9113-V-D	2	--	8/5/2013 11:33:00 AM	NA		10000	10	1000.000	1000.000	08/05/13 KPD
N9113-V-1	3	--	8/7/2013 11:40:00 AM	NA		10000	50	200.000	200.000	08/07/13 KPD
N9113-V-D3	4	--	8/7/2013 1:03:00 PM	NA		10000	1000	10.000	10.000	08/07/13 KPD
N9113-V-D2	5	--	8/9/2013 4:59:00 PM	N9113-V-D2X6	6	10000	10	1000.000	1000.000	08/09/13 KPD
N9113-V-D2X6	6	--	8/9/2013 4:59:00 PM	NA		10000	10000	1.000	1.000	08/09/13 KPD
N9114-V	0	--	8/5/2013 9:30:00 AM	NA		10000	50	200.000	200.000	08/05/13 KPD
N9114-V-D	2	--	8/5/2013 11:33:00 AM	NA		10000	10	1000.000	1000.000	08/05/13 KPD
N9114-V-1	3	--	8/7/2013 11:40:00 AM	NA		10000	50	200.000	200.000	08/07/13 KPD

Total Oil = [Sample Volume (uL) / Aliquot Volume (uL)] * [Aliquot Weight (mg)]
Dilution Factor = [Sample Volume (uL) / Aliqot Volume (uL))] * Prior Dilution Factor
* - "C" = Extract is Consumed

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BATTELLE - DUXBURY OPERATIONS
PREPARATION EXTRACT SPLIT FORM

Project Title(s)
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13-0320

Accutest - PIANO Analysis

NAPL

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
N9114-V-D3	4	--	8/7/2013 1:03:00 PM	NA		10000	1000	10.000	10.000	08/07/13 KPD
N9114-V-D2	5	--	8/9/2013 4:59:00 PM	N9114-V-D2X6	6	10000	10	1000.000	1000.000	08/09/13 KPD
N9114-V-D2X6	6	--	8/9/2013 4:59:00 PM	NA		10000	10000	1.000	1.000	08/09/13 KPD
N9115-V	0	--	8/5/2013 9:30:00 AM	NA		10000	50	200.000	200.000	08/05/13 KPD
N9115-V-D	2	--	8/5/2013 11:34:00 AM	NA		10000	10	1000.000	1000.000	08/05/13 KPD
N9115-V-1	3	--	8/7/2013 11:40:00 AM	NA		10000	50	200.000	200.000	08/07/13 KPD
N9115-V-D3	4	--	8/7/2013 1:03:00 PM	NA		10000	1000	10.000	10.000	08/07/13 KPD
N9115-V-D2	5	--	8/9/2013 4:59:00 PM	N9115-V-D2X6	6	10000	10	1000.000	1000.000	08/09/13 KPD
N9115-V-D2X6	6	--	8/9/2013 4:59:00 PM	NA		10000	10000	1.000	1.000	08/09/13 KPD
N9116-V	0	--	8/5/2013 9:30:00 AM	NA		10000	50	200.000	200.000	08/05/13 KPD
N9116-V-D	2	--	8/5/2013 11:34:00 AM	NA		10000	10	1000.000	1000.000	08/05/13 KPD
N9116-V-1	3	--	8/7/2013 11:40:00 AM	NA		10000	50	200.000	200.000	08/07/13 KPD
N9116-V-D3	4	--	8/7/2013 1:03:00 PM	NA		10000	1000	10.000	10.000	08/07/13 KPD
N9116-V-D2	5	--	8/9/2013 5:00:00 PM	N9116-V-D2X6	6	10000	10	1000.000	1000.000	08/09/13 KPD

Total Oil = [Sample Volume (uL) / Aliquot Volume (uL)] * [Aliquot Weight (mg)]
Dilution Factor = [Sample Volume (uL) / Aliqot Volume (uL))] * Prior Dilution Factor
* - "C" = Extract is Consumed

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BATTELLE - DUXBURY OPERATIONS
PREPARATION EXTRACT SPLIT FORM

Project Title(s)
PIANO Analysis

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13-0320

Accutest - PIANO Analysis

NAPL

Extract		*	Extract Date	Source		Initial Extract Vol (uL)	Extract Split	Extract Split	Total Dilution	Date/Initials
Name	#			Name	#					
N9116-V-D2X6	6	--	8/9/2013 5:00:00 PM	NA		10000	10000	1.000	1.000	08/09/13 KPD
N9117-V	0	--	8/5/2013 9:30:00 AM	NA		10000	50	200.000	200.000	08/05/13 KPD
N9117-V-D	2	--	8/5/2013 11:34:00 AM	NA		10000	10	1000.000	1000.000	08/05/13 KPD
N9117-V-1	3	--	8/7/2013 11:41:00 AM	NA		10000	50	200.000	200.000	08/07/13 KPD
N9117-V-D3	4	--	8/7/2013 1:04:00 PM	NA		10000	1000	10.000	10.000	08/07/13 KPD
N9117-V-D2	5	--	8/9/2013 5:00:00 PM	N9117-V-D2X6	6	10000	10	1000.000	1000.000	08/09/13 KPD
N9117-V-D2X6	6	--	8/9/2013 5:00:00 PM	NA		10000	10000	1.000	1.000	08/09/13 KPD

Total Oil = [Sample Volume (uL) / Aliquot Volume (uL)] * [Aliquot Weight (mg)]
Dilution Factor = [Sample Volume (uL) / Aliqot Volume (uL))] * Prior Dilution Factor
* - "C" = Extract is Consumed

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BATTELLE - DUXBURY OPERATIONS
EXTRACT - INSTRUMENT FACILITY CUSTODY PAGE

Project Title(s)
PIANO Analysis

Project No.(s)
100012044-9

13-0320
Accutest - PIANO Analysis
NAPL

Purpose:	GC/VOC TRANSFER	**Last Activity:**	Prep->Inst
Relinquished On/By:	Aug 5 2013 10:23AM KPD	**Received On/By:**	Aug 5 2013 10:23AM KPD
Relinquished From:	Detergent II: NA	**Received Location:**	Detergent II: NA
Relinquish Comment:	NA	**Received Comment:**	NA

No.	BDO-ID:	PIV:	DF:	Condition:	Custody Comment:
1	BZ513PB-V(0)	NA	200	Intact	NA
2	BZ514LCS-V(0)	NA	200	Intact	NA
3	N9109-V(0)	NA	200	Intact	NA
4	N9109-V-D(2)	NA	1000	Intact	NA
5	N9109DUP-V(0)	NA	200	Intact	NA
6	N9109DUP-V-D(2)	NA	1000	Intact	NA
7	N9110-V(0)	NA	200	Intact	NA
8	N9110-V-D(2)	NA	1000	Intact	NA
9	N9111-V(0)	NA	200	Intact	NA
10	N9111-V-D(2)	NA	1000	Intact	NA
11	N9112-V(0)	NA	200	Intact	NA
12	N9112-V-D(2)	NA	1000	Intact	NA
13	N9113-V(0)	NA	200	Intact	NA
14	N9113-V-D(2)	NA	1000	Intact	NA
15	N9114-V(0)	NA	200	Intact	NA
16	N9114-V-D(2)	NA	1000	Intact	NA
17	N9115-V(0)	NA	200	Intact	NA
18	N9115-V-D(2)	NA	1000	Intact	NA
19	N9116-V(0)	NA	200	Intact	NA
20	N9116-V-D(2)	NA	1000	Intact	NA
21	N9117-V(0)	NA	200	Intact	NA
22	N9117-V-D(2)	NA	1000	Intact	NA

Total Extracts: 22

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BATTELLE - DUXBURY OPERATIONS
EXTRACT - INSTRUMENT FACILITY CUSTODY PAGE

Project Title(s)
PIANO Analysis

Project No.(s)
100012044-9

13-0320
Accutest - PIANO Analysis
NAPL

Purpose:	GC/VOC TRANSFER	**Last Activity:**	Prep->Inst
Relinquished On/By:	Aug 7 2013 11:43AM KPD	**Received On/By:**	Aug 7 2013 11:43AM KPD
Relinquished From:	Detergent II: NA	**Received Location:**	Detergent II: NA
Relinquish Comment:	NA	**Received Comment:**	NA

No.	BDO-ID:	PIV:	DF:	Condition:	Custody Comment:
1	N9109-V-1(3)	NA	200	Intact	NA
2	N9109-V-D3(4)	NA	10	Intact	NA
3	N9109DUP-V-1(3)	NA	200	Intact	NA
4	N9109DUP-V-D3(4)	NA	10	Intact	NA
5	N9110-V-1(3)	NA	200	Intact	NA
6	N9110-V-D3(4)	NA	2000	Intact	NA
7	N9111-V-1(3)	NA	200	Intact	NA
8	N9111-V-D3(4)	NA	10	Intact	NA
9	N9112-V-1(3)	NA	200	Intact	NA
10	N9112-V-D3(4)	NA	10	Intact	NA
11	N9113-V-1(3)	NA	200	Intact	NA
12	N9113-V-D3(4)	NA	10	Intact	NA
13	N9114-V-1(3)	NA	200	Intact	NA
14	N9114-V-D3(4)	NA	10	Intact	NA
15	N9115-V-1(3)	NA	200	Intact	NA
16	N9115-V-D3(4)	NA	10	Intact	NA
17	N9116-V-1(3)	NA	200	Intact	NA
18	N9116-V-D3(4)	NA	10	Intact	NA
19	N9117-V-1(3)	NA	200	Intact	NA
20	N9117-V-D3(4)	NA	10	Intact	NA

Total Extracts: 20

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BATTELLE - DUXBURY OPERATIONS
EXTRACT - INSTRUMENT FACILITY CUSTODY PAGE

Project Title(s)
PIANO Analysis

Project No.(s)
100012044-9

13-0320
Accutest - PIANO Analysis
NAPL

Purpose:	GC/VOC TRANSFER	**Last Activity:**	Prep->Inst
Relinquished On/By:	Aug 9 2013 4:58PM KPD	**Received On/By:**	Aug 9 2013 4:58PM KPD
Relinquished From:	Detergent II: NA	**Received Location:**	Detergent II: NA
Relinquish Comment:	NA	**Received Comment:**	NA

No.	BDO-ID:	PIV:	DF:	Condition:	Custody Comment:
1	N9109-V-D2(5)	NA	1000	Intact	NA
2	N9109DUP-V-D2(5)	NA	1000	Intact	NA
3	N9110-V-D2(5)	NA	1000	Intact	NA
4	N9111-V-D2(5)	NA	1000	Intact	NA
5	N9112-V-D2(5)	NA	1000	Intact	NA
6	N9113-V-D2(5)	NA	1000	Intact	NA
7	N9114-V-D2(5)	NA	1000	Intact	NA
8	N9115-V-D2(5)	NA	1000	Intact	NA
9	N9116-V-D2(5)	NA	1000	Intact	NA
10	N9117-V-D2(5)	NA	1000	Intact	NA

Total Extracts: 10

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BATTELLE - DUXBURY OPERATIONS
SAMPLE SPECIFIC COMMENTS

Project Title(s)
PIANO Analysis

Project No.(s)
100012044-9

13-0320

Accutest - PIANO Analysis

NAPL

Sample ID:	Comment:	Date/Initials:
BZ513PB-V	BZ513PB-V-1(2) was inadvertently added to batch; no sample was prepped.	09/13/13 KPD
BZ514LCS-V	NA	NA
N9109-V	NA	NA
N9109DUP-V	NA	NA
N9110-V	NA	NA
N9111-V	NA	NA
N9112-V	NA	NA
N9113-V	NA	NA
N9114-V	NA	NA
N9115-V	NA	NA
N9116-V	NA	NA
N9117-V	NA	NA

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BATTELLE - DUXBURY OPERATIONS
MISCELLANEOUS DOCUMENTATION FORM

Project Title(s)	Project No.(s)
PIANO Analysis	100012044-9

13-0320

Accutest - PIANO Analysis

NAPL

Entered By:	Kerry Davis	**On:**	08/28/2013

The volume analyzed (uL) for all authentic samples was manipulated to achieve the correct dilution factor.

Task Leader Approval:	Kerry Davis	**On:**	08/28/2013
SupervisorApproval:	Kevin McInerney	**On:**	08/28/2013
PM Approval:	Kevin McInerney	**On:**	08/28/2013

INJECTION LOG

Directory J:\D\DATA\SD0944\

Lin	BTL	File	Sample Id	Miscellaneous	Injected
1	1	D7416.D	HP78	BFB	6-14-2013 10:47 AM
2	2	D7417.D	HT02	ICAL	6-14-2013 12:04 PM
3	3	D7418.D	HT03	ICAL	6-14-2013 1:21 PM
4	4	D7419.D	HT04	ICAL	6-14-2013 2:38 PM
5	5	D7420.D	HT05	ICAL	6-14-2013 3:56 PM
6	6	D7421.D	HT06	ICAL	6-14-2013 5:13 PM
7	7	D7422.D	HT07	ICAL	6-14-2013 6:30 PM
8	8	D7423.D	HT08	ICAL	6-14-2013 7:47 PM
9	9	D7424.D	BLANK	BLANK	6-14-2013 9:03 PM
10	10	D7425.D	HP65 ICC	ICC	6-14-2013 10:20 PM

INJECTION LOG

Directory J:\D\DATA\SD0958\

Lin	BTL	File	Sample Id	Miscellaneous	Injected	
1	1	D7638.D	BLANK	BLANK	8-5-2013 7:46 AM	
2	2	D7639.D	HP78	BFB TUNE	8-5-2013 9:04 AM	
3	3	D7640.D	HT04 MID	CCV	8-5-2013 10:38 AM	
4	4	D7641.D	BLANK	BLK	8-5-2013 11:56 AM	
5	5	D7642.D	BZ513PB-V(0)	13-320	8-5-2013 1:13 PM	
6	6	D7643.D	BZ514LCS-V(0)	13-320	8-5-2013 2:31 PM	
~~7~~	~~7~~	~~D7644.D~~	~~N9109-V-D(2)~~	~~13-320~~	~~8-5-2013 3:50 PM~~	
~~8~~	~~8~~	~~D7645.D~~	~~N9109DUP-V-D(2)~~	~~13-320~~	~~8-5-2013 5:08 PM~~	
~~9~~	~~9~~	~~D7646.D~~	~~N9110-V-D(2)~~	~~13-320~~	~~8-5-2013 6:26 PM~~	
~~10~~	~~10~~	~~D7647.D~~	~~N9111-V-D(2)~~	~~13-320~~	~~8-5-2013 7:43 PM~~	
11	11	D7648.D	HT05 MID	CCV	8-5-2013 9:01 PM	
~~12~~	~~12~~	~~D7649.D~~	~~N9112-V-D(2)~~	~~13-320~~	~~8-5-2013 10:18 PM~~	
~~13~~	~~13~~	~~D7650.D~~	~~N9113-V-D(2)~~	~~13-320~~	~~8-5-2013 11:36 PM~~	1
~~14~~	~~14~~	~~D7651.D~~	~~N9114-V-D(2)~~	~~13-320~~	~~8-6-2013 12:53 AM~~	
~~15~~	~~15~~	~~D7652.D~~	~~N9115-V-D(2)~~	~~13-320~~	~~8-6-2013 2:11 AM~~	
~~16~~	~~16~~	~~D7653.D~~	~~N9116-V-D(2)~~	~~13-320~~	~~8-6-2013 3:29 AM~~	
~~17~~	~~17~~	~~D7654.D~~	~~N9117-V-D(2)~~	~~13-320~~	~~8-6-2013 4:47 AM~~	
~~18~~	~~18~~	~~D7655.D~~	~~HT04 MID~~	~~13-320~~	~~8-6-2013 6:05 AM~~	
~~19~~	~~19~~	~~D7656.D~~	~~BLANK~~	~~BLANK~~	~~8-6-2013 2:09 PM~~	
~~20~~	~~20~~	~~D7657.D~~	~~HT05 MID~~	~~CCV~~	~~8-6-2013 3:27 PM~~	
~~21~~	~~21~~	~~D7658.D~~	~~N9109-V(0)~~	~~13-320~~	~~8-6-2013 4:45 PM~~	
~~22~~	~~22~~	~~D7659.D~~	~~N9109DUP-V(0)~~	~~13-320~~	~~8-6-2013 6:03 PM~~	
~~23~~	~~23~~	~~D7660.D~~	~~N9110-V(0)~~	~~13-320~~	~~8-6-2013 7:21 PM~~	
~~24~~	~~24~~	~~D7661.D~~	~~N9111-V(0)~~	~~13-320~~	~~8-6-2013 8:38 PM~~	
~~25~~	~~25~~	~~D7662.D~~	~~N9112-V(0)~~	~~13-320~~	~~8-6-2013 9:56 PM~~	
~~26~~	~~26~~	~~D7663.D~~	~~BLANK~~	~~13-320~~	~~8-6-2013 11:13 PM~~	2
~~27~~	~~27~~	~~D7664.D~~	~~HT04 MID~~	~~CCV~~	~~8-7-2013 12:31 AM~~	
~~28~~	~~28~~	~~D7665.D~~	~~N9113-V(0)~~	~~13-320~~	~~8-7-2013 1:48 AM~~	
~~29~~	~~29~~	~~D7666.D~~	~~N9114-V(0)~~	~~13-320~~	~~8-7-2013 3:05 AM~~	
~~30~~	~~30~~	~~D7667.D~~	~~N9115-V(0)~~	~~13-320~~	~~8-7-2013 4:23 AM~~	
~~31~~	~~31~~	~~D7668.D~~	~~N9116-V(0)~~	~~13-320~~	~~8-7-2013 5:41 AM~~	
~~32~~	~~32~~	~~D7669.D~~	~~N9117-V(0)~~	~~13-320~~	~~8-7-2013 6:59 AM~~	
~~33~~	~~33~~	~~D7670.D~~	~~BLANK~~	~~BLANK~~	~~8-7-2013 8:16 AM~~	
~~34~~	~~34~~	~~D7671.D~~	~~HT05 MID~~	~~CCV~~	~~8-7-2013 9:34 AM~~	
~~35~~	~~1~~	~~D7672.D~~	~~BLANK~~	~~BLANK~~	~~8-7-2013 1:12 PM~~	
36	2	D7673.D	HT04 MID	CCV	8-7-2013 2:30 PM	
37	3	D7674.D	N9109-V-1(3)	13-0320	8-7-2013 3:48 PM	
38	4	D7675.D	N9109DUP-V-1(3)	13-0320	8-7-2013 5:07 PM	
39	5	D7676.D	N9110-V-1(3)	13-0320	8-7-2013 6:25 PM	
40	6	D7677.D	N9111-V-1(3)	13-0320	8-7-2013 7:42 PM	
41	7	D7678.D	N9112-V-1(3)	13-0320	8-7-2013 9:00 PM	
42	8	D7679.D	N9113-V-1(3)	13-0320	8-7-2013 10:17 PM	
43	9	D7680.D	N9114-V-1(3)	13-0320	8-7-2013 11:35 PM	
44	10	D7681.D	HT05 MID	CCV	8-8-2013 12:52 AM	
45	11	D7682.D	N9115-V-1(3)	13-0320	8-8-2013 2:09 AM	
46	12	D7683.D	N9116-V-1(3)	13-0320	8-8-2013 3:27 AM	
47	13	D7684.D	N9117-V-1(3)	13-0320	8-8-2013 4:44 AM	
48	14	D7685.D	BLANK	BLANK	8-8-2013 6:02 AM	
~~49~~	~~15~~	~~D7686.D~~	~~N9109-V-D3(4)~~	~~13-0320~~	~~8-8-2013 7:20 AM~~	
~~50~~	~~16~~	~~D7687.D~~	~~N9109DUP-V-D3(4)~~	~~13-0320~~	~~8-8-2013 8:38 AM~~	
51	17	D7688.D	N9110-V-D3(4)	13-0320	8-8-2013 9:56 AM	
52	18	D7689.D	HT04 MID	13-0320	8-8-2013 11:13 AM	
~~53~~	~~19~~	~~D7690.D~~	~~N9111-V-D3(4)~~	~~13-0320~~	~~8-8-2013 12:32 PM~~	3
~~54~~	~~20~~	~~D7691.D~~	~~N9112-V-D3(4)~~	~~13-0320~~	~~8-8-2013 1:50 PM~~	
~~55~~	~~21~~	~~D7692.D~~	~~N9113-V-D3(4)~~	~~13-0320~~	~~8-8-2013 3:09 PM~~	
~~56~~	~~22~~	~~D7693.D~~	~~N9114-V-D3(4)~~	~~13-0320~~	~~8-8-2013 4:27 PM~~	
~~57~~	~~23~~	~~D7694.D~~	~~N9115-V-D3(4)~~	~~13-0320~~	~~8-8-2013 5:45 PM~~	
~~58~~	~~24~~	~~D7695.D~~	~~N9116-V-D3(4)~~	~~13-0320~~	~~8-8-2013 7:03 PM~~	
~~59~~	~~25~~	~~D7696.D~~	~~N9117-V-D3(4)~~	~~13-0320~~	~~8-8-2013 8:21 PM~~	
~~60~~	~~26~~	~~D7697.D~~	~~HT05 MID~~	~~CCV~~	~~8-8-2013 9:39 PM~~	
61	27	D7698.D	BLANK	BLANK	8-8-2013 10:56 PM	

1. All samples with the suffix" V-D(2) were run as 100x pre-dilutions. The dilution factor was too large and all the samples were run as the original extracts. KPD 08/12/13
2. All authentic samples with the suffix "V(0)" were re-analyzed due to failures in CCV, D7664. KPD 08/12/13
3. All authentic samples (with the exception of N9110-v-D3(4)) with the suffix "V-D3(4)" were run as 10x dilutions of the orginal extracts. The dilution factor was too large and the samples were run and reported as 5x dilutions on sequence SD0959. KPD 08/12/13

INJECTION LOG

Directory J:\D\DATA\SD0959\

Lin	BTL	File	Sample Id	Miscellaneous	Injected
1	1	D7708.D	HP78	BFB	8-9-2013 3:57 PM
2	2	D7709.D	HT04 MID	BLANK	8-9-2013 5:14 PM
3	3	D7710.D	BLANK	CCV	8-9-2013 6:32 PM
4	4	D7711.D	N9109-V-D2(5)	13-0320	8-9-2013 7:50 PM
5	5	D7712.D	N9109DUP-V-D2(5)	13-0320	8-9-2013 9:07 PM
6	6	D7713.D	N9110-V-D2(5)	13-0320	8-9-2013 10:25 PM
7	7	D7714.D	N9111-V-D2(5)	13-0320	8-9-2013 11:43 PM
8	8	D7715.D	N9112-V-D2(5)	13-0320	8-10-2013 1:01 AM
9	9	D7716.D	HT05 MID	CCV	8-10-2013 2:20 AM
10	10	D7717.D	N9113-V-D2(5)	13-0320	8-10-2013 3:38 AM
11	11	D7718.D	N9114-V-D2(5)	13-0320	8-10-2013 4:56 AM
12	12	D7719.D	N9115-V-D2(5)	13-0320	8-10-2013 6:14 AM
13	13	D7720.D	N9116-V-D2(5)	13-0320	8-10-2013 7:31 AM
14	14	D7721.D	N9117-V-D2(5)	13-0320	8-10-2013 8:49 AM
15	15	D7722.D	HT06 MID	CCV	8-10-2013 10:07 AM

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Calibration Response Factor Report

Batch: 13-0320 **Project Test Code:** Master_245(O)
Data Set: DP-13-0544 **SOP_NO:** 5-245-11
Project Number: 100012044-9 **Project Name:** PIANO Analysis

File: MD0944D.M **Responses Via** Initial Cal bration **Last Updated** 8/7/2013 10:09:00 AM **Title:** 2013 PIANO
Instrument: Inst. D **Operator:** KPC **Path:** J:\D\DATA\MD0944D.M

No:	Analyte:	Type:	Column:	MQO:	1 HT02 D7417.D	2 HT03 D7418.D	3 HT04 D7419.D	4 HT05 D7420.D	5 HT06 D7421.D	6 HT07 D7422.D	7 HT08 D7423.D	8 - -	Levels:	Curve Fit:	(A)	(B)	(C)	Stat (r^2/RSD):	Qual:
1	Benzene-d6	I	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2	1,4-Difluorobenzene	S	1	-	0.70122	0.69252	0.69199	0.68787	0.68954	0.69446	0.69895	-	7	RF	-	0.69379	-	0.70	
3	Ethanol		1	Y	0.00470	0.00402	0.00305	0.00278	0.00279	0.00263	0.00252	-	7	RF	-	0.00321	-	25.65	
4	Isopentane		1	Y	0.30351	0.29849	0.30546	0.35208	0.38145	0.35159	0.32539	-	7	RF	-	0.33114	-	9.48	
5	1-Pentene		1	Y	0.43213	0.39747	0.43140	0.45842	0.48004	0.44515	0.40511	-	7	RF	-	0.43568	-	6.63	
6	2-Methyl-1-Butene		1	Y	0.62286	0.60469	0.63477	0.69948	0.69604	0.64761	0.60349	-	7	RF	-	0.64413	-	6.18	
7	n-Pentane		1	Y	0.47338	0.45795	0.50588	0.53197	0.54971	0.49636	0.44101	-	7	RF	-	0.49375	-	7.94	
8	trans-2-Pentene		1	Y	0.65855	0.63922	0.65967	0.69403	0.70665	0.65310	0.62245	-	7	RF	-	0.66195	-	4.45	
9	cis-2-Pentene		1	Y	0.64405	0.63324	0.64371	0.67518	0.68770	0.65807	0.61060	-	7	RF	-	0.65036	-	3.98	
10	t-Butanol		1	Y	0.03621	0.03228	0.03222	0.03219	0.03373	0.03450	0.03388	-	7	RF	-	0.03357	-	4.44	
11	2,2-Dimethylbutane		1	Y	0.33082	0.32092	0.33576	0.35503	0.36730	0.34271	0.32806	-	7	RF	-	0.34008	-	4.78	
12	Cyclopentane		1	Y	0.75680	0.78013	0.70032	0.72383	0.72062	0.70468	0.65287	-	7	RF	-	0.71989	-	5.70	
13	2-Methylpentane		1	Y	0.62518	0.78155	0.81694	0.86101	0.91547	0.84210	0.74436	-	7	RF	-	0.79809	-	11.79	
14	Methyltertbutylether		1	Y	0.86464	0.84228	0.83749	0.86450	0.88443	0.86585	0.82200	-	7	RF	-	0.85445	-	2.49	
15	3-Methylpentane		1	Y	0.63769	0.65109	0.64984	0.66481	0.68344	0.63573	0.61338	-	7	RF	-	0.64800	-	3.45	
16	1-Hexene		1	Y	0.41788	0.39983	0.39236	0.39381	0.39743	0.37566	0.37195	-	7	RF	-	0.39270	-	3.93	
17	n-Hexane		1	Y	0.55179	0.53109	0.52093	0.53806	0.53496	0.49494	0.48489	-	7	RF	-	0.52238	-	4.63	
18	Di-isopropylether		1	Y	1.26025	1.24414	1.19157	1.23465	1.24853	1.20761	1.10750	-	7	RF	-	1.21346	-	4.33	
19	trans-2-Hexene		1	Y	0.77783	0.76440	0.68726	0.70936	0.73725	0.68808	0.68620	-	7	RF	-	0.72148	-	5.35	
20	2-Methylpentene-2		1	Y	0.73057	0.70844	0.69435	0.69277	0.71544	0.69191	0.67303	-	7	RF	-	0.70093	-	2.68	
21	cis-2-Hexene		1	Y	0.64404	0.63246	0.61742	0.61454	0.62609	0.59409	0.58235	-	7	RF	-	0.61586	-	3.49	
22	Ethyltertbutylether		1	Y	1.11485	1.10512	1.08464	1.11442	1.12540	1.10696	1.03739	-	7	RF	-	1.09840	-	2.70	
23	2,2-Dimethylpentane		1	Y	0.93402	0.91018	0.87184	0.90557	0.91413	0.87105	0.86325	-	7	RF	-	0.89572	-	3.00	
24	Methylcyclopentane		1	Y	0.69129	0.65442	0.65959	0.68546	0.68722	0.64645	0.62779	-	7	RF	-	0.66460	-	3.62	
25	1,2-Dichloroethane		1	Y	0.48431	0.48366	0.46934	0.47901	0.48190	0.47825	0.44705	-	7	RF	-	0.47479	-	2.78	
26	2,4-Dimethylpentane		1	Y	0.64021	0.61233	0.62001	0.63021	0.64295	0.61070	0.60425	-	7	RF	-	0.62295	-	2.43	
27	Benzene		1	Y	1.00381	0.98536	0.96693	0.99637	1.00100	0.99018	0.93067	-	7	RF	-	0.98205	-	2.62	
28	Thiophene		1	Y	0.75971	0.75516	0.68994	0.69987	0.70290	0.70000	0.66965	-	7	RF	-	0.71103	-	4.73	
29	Cyclohexane		1	Y	0.59633	0.58078	0.56725	0.57704	0.57704	0.55199	0.53968	-	7	RF	-	0.57002	-	3.33	
30	2-Methylhexane		1	Y	0.79718	0.79764	0.79139	0.80662	0.79247	0.77383	0.79129	-	7	RF	-	0.79292	-	1.26	

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Calibration Response Factor Report

Batch: 13-0320 **Project Test Code:** Master_245(O)
Data Set: DP-13-0544 **SOP_NO:** 5-245-11
Project Number: 100012044-9 **Project Name:** PIANO Analysis

File: MD0944D.M **Responses Via** Initial Cal bration **Last Updated** 8/7/2013 10:09:00 AM **Title:** 2013 PIANO
Instrument: Inst. D **Operator:** KPC **Path:** J:\D\DATA\MD0944D.M

No:	Analyte:	Type:	Column:	MQO:	1 HT02 D7417.D	2 HT03 D7418.D	3 HT04 D7419.D	4 HT05 D7420.D	5 HT06 D7421.D	6 HT07 D7422.D	7 HT08 D7423.D	8 - -	Levels:	Curve Fit:	(A)	(B)	(C)	Stat (r^2/RSD):	Qual:
31	2,3-Dimethylpentane		1	Y	0.62553	0.61803	0.60829	0.60501	0.62305	0.59844	0.58928	-	7	RF	-	0.60966	-	2.19	
32	Tertamylmethylether		1	Y	0.89509	0.88514	0.84789	0.88414	0.90877	0.90617	0.86339	-	7	RF	-	0.88437	-	2.51	
33	3-Methylhexane		1	Y	0.33803	0.32403	0.30072	0.31624	0.31291	0.29773	0.29664	-	7	RF	-	0.31233	-	4.90	
34	Trichloroethylene		1	Y	0.21900	0.21672	0.20729	0.21176	0.21431	0.21329	0.20639	-	7	RF	-	0.21268	-	2.18	
35	2-Methyl-1-Hexene		1	Y	1.07583	1.04444	0.99564	1.01055	0.99819	0.94396	0.94735	-	7	RF	-	1.00228	-	4.77	
36	2,2,4-Trimethylpentane/1-Hepten		1	Y	0.46229	0.45730	0.43084	0.43444	0.42401	0.40436	0.39964	-	7	RF	-	0.43041	-	5.55	
37	trans-3-Heptene		1	Y	0.68027	0.64606	0.62195	0.63100	0.61966	0.58618	0.61006	-	7	RF	-	0.62788	-	4.71	
38	Toluene-d8	I	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
39	Chlorobenzene-d5	S	1	-	0.65470	0.65189	0.64393	0.64753	0.64483	0.65645	0.64477	-	7	RF	-	0.64916	-	0.79	
40	n-Heptane		1	Y	0.62263	0.64797	0.60357	0.62988	0.62545	0.60176	0.63231	-	7	RF	-	0.62337	-	2.61	
41	cis-3-Heptene		1	Y	0.67388	0.67658	0.67682	0.64028	0.63688	0.56808	0.48292	-	7	RF	-	0.62221	-	11.64	
42	trans-2-Heptene		1	Y	0.54099	0.56274	0.50686	0.52249	0.54219	0.51747	0.52020	-	7	RF	-	0.53042	-	3.60	
43	cis-2-Heptene		1	Y	0.49538	0.48896	0.45972	0.46427	0.47130	0.45446	0.45528	-	7	RF	-	0.46991	-	3.48	
44	Methylcyclohexane		1	Y	0.54282	0.56372	0.52012	0.53080	0.53175	0.51333	0.52630	-	7	RF	-	0.53269	-	3.11	
45	2,5-Dimethylhexane/2,2,3-Trimeth		1	Y	1.02258	1.02598	0.95426	0.98100	1.00040	0.96786	0.95912	-	7	RF	-	0.98731	-	2.99	
46	2,4-Dimethylhexane		1	Y	0.78448	0.77979	0.72328	0.74143	0.76880	0.73796	0.73390	-	7	RF	-	0.75280	-	3.24	
47	ctc-1,2,4-Trimethylcyclopentane		1	Y	0.84443	0.84912	0.80860	0.83393	0.84269	0.82257	0.85351	-	7	RF	-	0.83641	-	1.91	
48	ctc-1,2,3-Trimethylcyclopentane		1	Y	0.47022	0.47662	0.46615	0.49136	0.49049	0.48545	0.49797	-	7	RF	-	0.48261	-	2.46	
49	2,3,4-Trimethylpentane		1	Y	0.96673	0.93128	0.85859	0.87137	0.87114	0.84745	0.84843	-	7	RF	-	0.88500	-	5.19	
50	Toluene		1	Y	1.08496	1.07174	1.02354	1.04818	1.06302	1.07717	1.04013	-	7	RF	-	1.05839	-	2.08	
51	2,3,3-Trimethylpentane		1	Y	0.78937	0.78912	0.72885	0.74902	0.75055	0.72934	0.72856	-	7	RF	-	0.75212	-	3.59	
52	2-Methylthiophene		1	Y	0.96098	0.98036	0.94750	0.97219	0.98812	1.00382	0.96355	-	7	RF	-	0.97379	-	1.93	
53	2,3-Dimethylhexane		1	Y	1.05821	1.00473	0.90094	0.92315	0.92854	0.90589	0.91125	-	7	RF	-	0.94753	-	6.35	
54	3-Methylthiophene		1	Y	1.02695	1.04538	0.98227	1.02645	1.04385	1.05686	1.01980	-	7	RF	-	1.02879	-	2.36	
55	2-Methylheptane		1	Y	0.74143	0.72436	0.68613	0.72612	0.74471	0.72164	0.70840	-	7	RF	-	0.72183	-	2.76	
56	4-Methylheptane		1	Y	1.06962	1.07962	0.98528	0.98478	0.97087	0.94219	0.92251	-	7	RF	-	0.99355	-	6.03	
57	1,2-D bromoethane		1	Y	0.20368	0.19730	0.19023	0.19597	0.20226	0.20582	0.20189	-	7	RF	-	0.19959	-	2.70	
58	1-Octene		1	Y	0.40288	0.38771	0.36681	0.36871	0.37452	0.36795	0.40991	-	7	RF	-	0.38264	-	4.66	
59	2,2-Dimethylheptane		1	Y	1.74534	1.73789	1.61315	1.66069	1.67636	1.61066	1.39321	-	7	RF	-	1.63390	-	7.27	
60	2,2,4-Trimethylhexane		1	Y	1.14484	1.15646	1.06646	1.12345	1.13011	1.06042	0.83515	-	7	RF	-	1.07384	-	10.39	

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Calibration Response Factor Report

Batch: 13-0320 **Project Test Code:** Master_245(O)
Data Set: DP-13-0544 **SOP_NO:** 5-245-11
Project Number: 100012044-9 **Project Name:** PIANO Analysis

File: MD0944D.M **Responses Via** Initial Cal bration **Last Updated** 8/7/2013 10:09:00 AM **Title:** 2013 PIANO
Instrument: Inst. D **Operator:** KPC **Path:** J:\D\DATA\MD0944D.M

No:	Analyte:	Type:	Column:	MQO:	1 HT02 D7417.D	2 HT03 D7418.D	3 HT04 D7419.D	4 HT05 D7420.D	5 HT06 D7421.D	6 HT07 D7422.D	7 HT08 D7423.D	8 - -	Levels:	Curve Fit:	(A)	(B)	(C)	Stat (r^2/RSD):	Qual:
61	Tetrachloroethylene		1	Y	0.24111	0.23900	0.22821	0.23391	0.23324	0.23402	0.23222	-	7	RF	-	0.23453	-	1.83	
62	n-Octane		1	Y	0.83479	0.83105	0.76813	0.79504	0.80190	0.76694	0.72534	-	7	RF	-	0.78903	-	4.92	
63	trans-2-Octene		1	Y	0.65795	0.66777	0.60357	0.61930	0.61474	0.59695	0.62725	-	7	RF	-	0.62679	-	4.26	
64	Isopropylcyclopentane		1	Y	0.67697	0.66634	0.61129	0.62004	0.61514	0.60295	0.61780	-	7	RF	-	0.63008	-	4.62	
65	cis-2-Octene		1	Y	0.57605	0.56045	0.52238	0.52656	0.52665	0.50989	0.52492	-	7	RF	-	0.53527	-	4.42	
66	2,4-Dimethylheptane		1	Y	0.95625	0.94109	0.88076	0.90148	0.92107	0.86381	0.68965	-	7	RF	-	0.87916	-	10.19	
67	Ethylcyclohexane/n-propylcyclope		1	Y	0.55047	0.54556	0.50432	0.51517	0.50664	0.49282	0.50396	-	7	RF	-	0.51699	-	4.30	
68	2,6-Dimethylheptane		1	Y	0.84311	0.85302	0.78321	0.83126	0.83048	0.76797	0.57119	-	7	RF	-	0.78289	-	12.58	
69	1,1,4-Trimethylcyclohexane		1	Y	0.61507	0.60259	0.55974	0.57578	0.57577	0.56685	0.56411	-	7	RF	-	0.57999	-	3.60	
70	Ethylbenzene-d10	I	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
71	1,4-Dichlorobenzene-d4	S	1	-	0.32531	0.32500	0.32588	0.32299	0.32820	0.34039	0.33038	-	7	RF	-	0.32831	-	1.78	
72	Ethylbenzene		1	Y	0.88345	0.88239	0.85661	0.86506	0.87279	0.87391	0.84309	-	7	RF	-	0.86819	-	1.67	
73	ctt-1,2,4-Trimethylcyclohexane		1	Y	0.35946	0.35444	0.32526	0.33287	0.33291	0.32407	0.31575	-	7	RF	-	0.33497	-	4.83	
74	2-Ethylthiophene		1	Y	0.78997	0.79886	0.78013	0.78779	0.80524	0.80426	0.76461	-	7	RF	-	0.79012	-	1.83	
75	m-Xylene		1	Y	0.71633	0.65453	0.69647	0.73487	0.75834	0.79937	0.79078	-	7	RF	-	0.73581	-	7.04	
76	p-Xylene		1	Y	0.74728	0.78036	0.71541	0.70965	0.75139	0.70424	0.66141	-	7	RF	-	0.72425	-	5.36	
77	2,3-Dimethylheptane		1	Y	0.71583	0.70595	0.66417	0.68829	0.70061	0.66575	0.53956	-	7	RF	-	0.66859	-	9.00	
78	4-Methyloctane		1	Y	0.67259	0.62503	0.60512	0.63078	0.63612	0.61403	0.48824	-	7	RF	-	0.61027	-	9.49	
79	2-Methyloctane		1	Y	0.56443	0.64620	0.54990	0.57262	0.57605	0.45306	0.30704	-	7	RF	-	0.52419	-	21.25	
80	ctc-1,2,4-Trimethylcyclohexane		1	Y	0.43414	0.41527	0.39617	0.39217	0.39307	0.38599	0.37598	-	7	RF	-	0.39897	-	4.90	
81	1,1,2-Trimethylcyclohexane		1	Y	0.40354	0.39647	0.37335	0.37143	0.37329	0.36821	0.37007	-	7	RF	-	0.37948	-	3.76	
82	o-Xylene		1	Y	0.72823	0.73924	0.70240	0.72210	0.73094	0.73667	0.70626	-	7	RF	-	0.72369	-	1.99	
83	1-Nonene		1	Y	0.28115	0.27815	0.25677	0.26517	0.26852	0.26343	0.26440	-	7	RF	-	0.26823	-	3.21	
84	trans-3-Nonene		1	Y	0.38097	0.36418	0.32935	0.34357	0.36090	0.35083	0.34791	-	7	RF	-	0.35396	-	4.67	
85	cis-3-Nonene		1	Y	0.40257	0.39450	0.36887	0.36606	0.36641	0.35350	0.34853	-	7	RF	-	0.37149	-	5.39	
86	n-Nonane		1	Y	0.51723	0.50297	0.47048	0.48993	0.48818	0.42712	0.29047	-	7	RF	-	0.45520	-	17.15	
87	trans-2-Nonene		1	Y	0.43600	0.42833	0.39288	0.39556	0.41909	0.39445	0.38584	-	7	RF	-	0.40745	-	4.88	
88	Isopropylbenzene		1	Y	0.87716	0.84906	0.81744	0.82774	0.83761	0.84593	0.82604	-	7	RF	-	0.84014	-	2.36	
89	cis-2-Nonene		1	Y	0.37027	0.38498	0.34903	0.35678	0.35990	0.34545	0.34476	-	7	RF	-	0.35874	-	4.09	
90	Isopropylcyclohexane		1	Y	0.39092	0.39485	0.35842	0.36435	0.36309	0.35752	0.34520	-	7	RF	-	0.36776	-	4.97	

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Calibration Response Factor Report

Batch: 13-0320 **Project Test Code:** Master_245(O)
Data Set: DP-13-0544 **SOP_NO:** 5-245-11
Project Number: 100012044-9 **Project Name:** PIANO Analysis

File: MD0944D.M **Responses Via** Initial Cal bration **Last Updated** 8/7/2013 10:09:00 AM **Title:** 2013 PIANO
Instrument: Inst. D **Operator:** KPC **Path:** J:\D\DATA\MD0944D.M

No:	Analyte:	Type:	Column:	MQO:	1 HT02 D7417.D	2 HT03 D7418.D	3 HT04 D7419.D	4 HT05 D7420.D	5 HT06 D7421.D	6 HT07 D7422.D	7 HT08 D7423.D	8 - -	Levels:	Curve Fit:	(A)	(B)	(C)	Stat (r^2/RSD):	Qual:
91	2,2-Dimethyloctane		1	Y	0.94647	0.94894	0.89573	0.92294	0.87181	0.65357	0.36511	-	7	RF	-	0.80065	-	27.16	
92	n-Butylcyclopentane		1	Y	0.26462	0.26900	0.25075	0.25881	0.25804	0.25084	0.23129	-	7	RF	-	0.25476	-	4.83	
93	3,3-Dimethyloctane		1	Y	0.98970	0.97184	0.92427	0.96591	0.92737	0.73458	0.43395	-	7	RF	-	0.84966	-	23.82	
94	Propylbenzene		1	Y	1.09492	1.08920	1.03955	1.04542	1.04427	1.04700	1.00442	-	7	RF	-	1.05211	-	2.95	
95	1-Methyl-3-Ethylbenzene		1	Y	0.82402	0.82686	0.78412	0.81512	0.82854	0.84587	0.82868	-	7	RF	-	0.82189	-	2.31	
96	1-Methyl-4-Ethylbenzene		1	Y	0.91547	0.92560	0.87043	0.87473	0.87300	0.88983	0.86292	-	7	RF	-	0.88743	-	2.72	
97	1,3,5-Trimethylbenzene		1	Y	0.76513	0.77841	0.74138	0.76115	0.77067	0.78476	0.76959	-	7	RF	-	0.76730	-	1.81	
98	1-Methyl-2-Ethylbenzene		1	Y	0.80993	0.82725	0.79506	0.81104	0.82708	0.83947	0.80906	-	7	RF	-	0.81698	-	1.83	
99	3-Methylnonane		1	Y	0.59939	0.58831	0.55127	0.56177	0.50732	0.35816	-	-	6	RF	-	0.52770	-	- 16.88*	
100	1,2,4-Trimethylbenzene		1	Y	0.74377	0.75631	0.70436	0.73684	0.74068	0.74499	0.70555	-	7	RF	-	0.73321	-	2.76	
101	1-Decene		1	Y	0.30404	0.28906	0.27533	0.28759	0.29005	0.25755	0.17969	-	7	RF	-	0.26904	-	15.60	
102	sec-Butylbenzene		1	Y	0.95891	0.95696	0.89296	0.89952	0.90124	0.91708	0.89070	-	7	RF	-	0.91677	-	3.20	
103	n-Decane		1	Y	0.48519	0.46340	0.43562	0.44156	0.37262	0.24732	0.12610	-	7	RF	-	0.36740	-	36.16	N
104	1,2,3-Trimethylbenzene		1	Y	0.81848	0.82644	0.78620	0.81515	0.82559	0.83136	0.77779	-	7	RF	-	0.81157	-	2.59	
105	Indane		1	Y	0.61582	0.61709	0.59831	0.61794	0.62697	0.64212	0.60782	-	7	RF	-	0.61801	-	2.25	
106	1,3-Diethylbenzene		1	Y	0.54461	0.54150	0.51266	0.52642	0.53203	0.53366	0.50380	-	7	RF	-	0.52781	-	2.82	
107	1-methyl-4-n-propylbenzene/1,4-		1	Y	0.70078	0.68688	0.63582	0.64772	0.65331	0.65522	0.61702	-	7	RF	-	0.65668	-	4.38	
108	1,3-Dimethyl-5-Ethylbenzene		1	Y	0.73636	0.72568	0.70119	0.71538	0.73035	0.74226	0.70994	-	7	RF	-	0.72303	-	2.05	
109	1,2-Diethylbenzene		1	Y	0.50481	0.49770	0.47234	0.47079	0.47831	0.49312	0.46992	-	7	RF	-	0.48385	-	2.98	
110	1-Methyl-2-n-Propylbenzene		1	Y	0.98307	0.95476	0.90901	0.92865	0.95244	0.96978	0.92012	-	7	RF	-	0.94540	-	2.86	
111	1,4-Dimethyl-2-Ethylbenzene		1	Y	0.68024	0.67861	0.63586	0.64934	0.67866	0.69866	0.70107	-	7	RF	-	0.67463	-	3.57	
112	1,2-Dimethyl-4-Ethylbenzene		1	Y	0.71929	0.73953	0.69851	0.72502	0.74683	0.76560	0.72182	-	7	RF	-	0.73094	-	2.97	
113	1,3-Dimethyl-2-Ethylbenzene		1	Y	0.76795	0.74085	0.71873	0.74373	0.77989	0.79517	0.76646	-	7	RF	-	0.75897	-	3.43	
114	n-Undecane		1	Y	0.46281	0.44028	0.36785	0.29266	0.18334	0.10113	0.05287	-	7	RF	-	0.27156	-	60.02	N
115	1,2,4,5-Tetramethylbenzene		1	Y	0.76210	0.73471	0.69874	0.70590	0.76812	0.75747	0.78179	-	7	RF	-	0.74412	-	4.29	
116	1,2,3,5-Tetramethylbenzene		1	Y	0.70340	0.71695	0.68723	0.70417	0.72702	0.73823	0.70369	-	7	RF	-	0.71153	-	2.40	
117	1,2,3,4-Tetramethylbenzene		1	Y	0.66892	0.65646	0.63797	0.64094	0.66915	0.68551	0.66328	-	7	RF	-	0.66032	-	2.54	
118	n-Pentylbenzene		1	Y	0.70905	0.68541	0.64266	0.64462	0.64639	0.63940	0.61644	-	7	RF	-	0.65485	-	4.79	
119	Benzo(b)thiophene		1	Y	0.18900	0.18009	0.18307	0.18814	0.20458	0.21111	0.20696	-	7	RF	-	0.19471	-	6.43	
120	MMT		1	Y	0.00436	0.00444	0.00500	0.00502	0.00532	0.00541	0.00527	-	7	RF	-	0.00497	-	8.46	

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Calibration Response Factor Report

Batch:	13-0320	**Project Test Code:**	Master_245(O)
Data Set:	DP-13-0544	**SOP_NO:**	5-245-11
Project Number:	100012044-9	**Project Name:**	PIANO Analysis

File:	MD0944D.M	**Responses Via**	Initial Cal bration	**Last Updated**	8/7/2013 10:09:00 AM	**Title:**	2013 PIANO
Instrument:	Inst. D	**Operator:**	KPC	**Path:**	J:\D\DATA\MD0944D.M		

No:	Analyte:	Type:	Column:	MQO:	1 HT02 D7417.D	2 HT03 D7418.D	3 HT04 D7419.D	4 HT05 D7420.D	5 HT06 D7421.D	6 HT07 D7422.D	7 HT08 D7423.D	8 - -	Levels:	Curve Fit:	(A)	(B)	(C)	Stat (r^2/RSD):	Qual:
121	n-Dodecane		1	Y	0.43530	0.34935	0.21993	0.12875	0.06703	0.03776	0.02239	-	7	RF	-	0.18007	-	89.52	N

MQO: Only compounds flagged with "Y" will be counted towards MQO exceedences.

Mean RSD: 6.58
Count RSD: 117

Calibration Curve Definitions:

Curve Fit:	Name:	Description:	Evaluate:
L	Linear	y = Bx + C	r-squared
RF	Average RF	y = Bx	RSD
L0	Linear (0,0)	y = Bx + 0	r-squared
Q	Quadratic	y = Ax^2 + Bx + C	r-squared
Q0	Quadratic (0,0)	y = Ax^2 + Bx + 0	r-squared

Calibration Curve Accpetance Criteria:

Curve Fit:	Limit Mean(%):	Mean Qual:	Limit Ind.:	Ind. Qual:	Min Points:	Points Qual:	Comments:
Linear	NA	NA	0.995	N	5	N	y = Bx + C
Average RF	15	N	30	N	5	N	y = Bx
Linear (0,0)	NA	NA	0.995	N	5	N	y = Bx + 0
Quadratic	NA	NA	0.995	N	6	N	y = Ax^2 + Bx + C
Quadratic (0,0)	NA	NA	0.995	N	6	N	y = Ax^2 + Bx + 0

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Calibration Response Factor Report

Batch:	13-0320	**Project Test Code:**	Master_245(O)
Data Set:	DP-13-0544	**SOP_NO:**	5-245-11
Project Number:	100012044-9	**Project Name:**	PIANO Analysis

Method: J:\D\DATA\MD0944D.M
Title: 2013 PIANO
Last Update: Wed Aug 07 10:09 2013
Response via: Initial Calibration
Instrument: Inst. D
Operator: KPC

No:	ID:	Path\File:	Update Time:	Quant Time:	Acquisition Time:
1	HT02	J:\D\DATA\SD0944\D7417.D	Jun 17 10:57 2013	Jun 14 15:00 2013	14 Jun 2013 12:04 PM
2	HT03	J:\D\DATA\SD0944\D7418.D	Jun 17 10:58 2013	Jun 14 15:49 2013	14 Jun 2013 1:21 PM
3	HT04	J:\D\DATA\SD0944\D7419.D	Jun 17 9:58 2013	Jun 17 9:09 2013	14 Jun 2013 2:38 PM
4	HT05	J:\D\DATA\SD0944\D7420.D	Jun 17 10:11 2013	Jun 17 9:09 2013	14 Jun 2013 3:56 PM
5	HT06	J:\D\DATA\SD0944\D7421.D	Jun 17 10:24 2013	Jun 17 9:09 2013	14 Jun 2013 5:13 PM
6	HT07	J:\D\DATA\SD0944\D7422.D	Jun 17 10:40 2013	Jun 17 9:10 2013	14 Jun 2013 6:30 PM
7	HT08	J:\D\DATA\SD0944\D7423.D	Jun 17 11:41 2013	Jun 17 9:10 2013	14 Jun 2013 7:47 PM

Calibration Amounts List Report Inst D

Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Jun 17 11:41:28 2013
Response via : Initial Calibration
Standard Mult: NA
Total Cpnds : 121

HT02 =D7417.D HT03 =D7418.D HT04 =D7419.D HT05 =D7420.D
HT06 =D7421.D HT07 =D7422.D HT08 =D7423.D

		Compound	HT02/HR99	HT03/HR99	HT04/HR99	HT05/HR99	HT06/HR99	HT07/HR99	HT08/HR99
1	I	Benzene-d6	402.04000	402.04000	402.04000	402.04000	402.04000	402.04000	402.04000
2	S	1,4-Difluorobenz	401.08000	401.08000	401.08000	401.08000	401.08000	401.08000	401.08000
3		Ethanol	400.05600	800.11200	1600.22000	3200.45000	6400.90000	12801.80000	25603.60000
4		Isopentane	9.97000	19.94000	39.88100	79.76200	159.52300	319.04700	638.09400
5		1-Pentene	19.60300	39.20700	78.41400	156.82800	313.65500	627.31000	1254.62000
6		2-Methyl-1-Buten	6.97700	13.95300	27.90700	55.81300	111.62600	223.25300	446.50500
7		n-Pentane	71.37900	142.75700	285.51500	571.03000	1142.06000	2284.12000	4568.24000
8		trans-2-Pentene	9.14600	18.29200	36.58500	73.17000	146.33900	292.67800	585.35700
9		cis-2-Pentene	9.62100	19.24300	38.48500	76.97000	153.94000	307.88000	615.76000
10		t-Butanol	511.12000	1022.24000	2044.48000	4088.96000	8177.92000	16355.80000	32711.70000
11		2,2-Dimethylbuta	39.85600	79.71200	159.42400	318.84800	637.69600	1275.39000	2550.78000
12		Cyclopentane	29.84000	59.68000	119.36000	238.71900	477.43800	954.87600	1909.75000
13		2-Methylpentane	16.31600	32.63200	65.26400	130.52700	261.05500	522.10900	1044.22000
14		Methyltertbutyle	39.96000	79.92000	159.84000	319.68000	639.36000	1278.72000	2557.44000
15		3-Methylpentane	27.00100	54.00200	108.00300	216.00700	432.01300	864.02700	1728.05000
16		1-Hexene	36.42200	72.84400	145.68900	291.37700	582.75500	1165.51000	2331.02000
17		n-Hexane	47.67500	95.35000	190.70100	381.40200	762.80300	1525.61000	3051.21000
18		Di-isopropylethe	39.84000	79.68000	159.36000	318.72000	637.44000	1274.88000	2549.76000
19		trans-2-Hexene	8.95700	17.91400	35.82800	71.65600	143.31200	286.62500	573.25000
20		2-Methylpentene-	16.58900	33.17800	66.35500	132.71000	265.42100	530.84200	1061.68000
21		cis-2-Hexene	19.45900	38.91800	77.83600	155.67200	311.34500	622.68900	1245.38000
22		Ethyltertbutylet	40.04000	80.08000	160.16000	320.32000	640.64000	1281.28000	2562.56000
23		2,2-Dimethylpent	9.06100	18.12200	36.24300	72.48600	144.97200	289.94400	579.88800
24		Methylcyclopenta	20.19600	40.39300	80.78600	161.57200	323.14400	646.28700	1292.58000
25		1,2-Dichloroetha	39.62400	79.24800	158.49600	316.99200	633.98400	1267.97000	2535.94000
26		2,4-Dimethylpent	18.42000	36.84000	73.67900	147.35900	294.71700	589.43500	1178.87000
27		Benzene	58.93600	117.87300	235.74600	471.49100	942.98300	1885.96000	3771.93000
28		Thiophene	40.00000	80.00000	160.00000	320.00000	640.00000	1280.00000	2560.00000
29		Cyclohexane	34.21900	68.43800	136.87600	273.75100	547.50300	1095.00000	2190.01000
30		2-Methylhexane	12.51300	25.02500	50.05000	100.10000	200.20100	400.40200	800.80400
31		2,3-Dimethylpent	9.65400	19.30900	38.61800	77.23600	154.47200	308.94300	617.88700
32		Tertamylmethylet	39.90400	79.80800	159.61600	319.23200	638.46400	1276.93000	2553.86000
33		3-Methylhexane	8.82600	17.65200	35.30400	70.60900	141.21700	282.43500	564.87000
34		Trichloroethylen	40.02400	80.04800	160.09600	320.19200	640.38400	1280.77000	2561.54000
35		2-Methyl-1-Hexen	40.12000	80.24000	160.48000	320.96000	641.92000	1283.84000	2567.68000
36		2,2,4-Trimethylp	71.59100	143.18200	286.36400	572.72800	1145.46000	2290.91000	4581.83000
37		trans-3-Heptene	20.12200	40.24500	80.49000	160.98000	321.95900	643.91900	1287.84000
38	I	Toluene-d8	402.16000	402.16000	402.16000	402.16000	402.16000	402.16000	402.16000
39	S	Chlorobenzene-d5	401.64000	401.64000	401.64000	401.64000	401.64000	401.64000	401.64000
40		n-Heptane	50.73400	101.46800	202.93600	405.87300	811.74600	1623.49000	3246.98000
41		cis-3-Heptene	30.18800	60.37500	120.75000	241.50100	483.00100	966.00200	1932.00000
42		trans-2-Heptene	20.29600	40.59200	81.18400	162.36700	324.73500	649.47000	1298.94000
43		cis-2-Heptene	31.02600	62.05200	124.10300	248.20600	496.41200	992.82400	1985.65000
44		Methylcyclohexan	36.84200	73.68500	147.37000	294.73900	589.47800	1178.96000	2357.91000
45		2,5-Dimethylhexa	38.03800	76.07700	152.15400	304.30800	608.61500	1217.23000	2434.46000
46		2,4-Dimethylhexa	9.18900	18.37900	36.75700	73.51400	147.02900	294.05700	588.11400
47		ctc-1,2,4-Trimet	10.43500	20.87000	41.74000	83.48000	166.96000	333.91900	667.83900
48		ctc-1,2,3-Trimet	10.09700	20.19300	40.38600	80.77200	161.54500	323.09000	646.18000
49		2,3,4-Trimethylp	40.00000	80.00000	160.00000	320.00000	640.00000	1280.00000	2560.00000
50		Toluene	38.50300	77.00600	154.01200	308.02500	616.05000	1232.10000	2464.20000
51		2,3,3-Trimethylp	40.07200	80.14400	160.28800	320.57600	641.15200	1282.30000	2564.61000
52		2-Methylthiophen	39.72800	79.45600	158.91200	317.82400	635.64800	1271.30000	2542.59000
53		2,3-Dimethylhexa	8.48300	16.96700	33.93300	67.86700	135.73400	271.46800	542.93500
54		3-Methylthiophen	39.94400	79.88800	159.77600	319.55200	639.10400	1278.21000	2556.42000
55		2-Methylheptane	24.12400	48.24800	96.49700	192.99300	385.98700	771.97300	1543.95000
56		4-Methylheptane	17.89500	35.79000	71.58100	143.16100	286.32300	572.64500	1145.29000
57		1,2-Dibromoethan	39.62400	79.24800	158.49600	316.99200	633.98400	1267.97000	2535.94000
58		1-Octene	41.48900	82.97800	165.95700	331.91400	663.82800	1327.66000	2655.31000
59		2,2-Dimethylhept	32.02600	64.05100	128.10200	256.20500	512.41000	1024.82000	2049.64000
60		2,2,4-Trimethylh	39.91200	79.82400	159.64800	319.29600	638.59200	1277.18000	2554.37000
61		Tetrachloroethyl	40.02400	80.04800	160.09600	320.19200	640.38400	1280.77000	2561.54000
62		n-Octane	47.75100	95.50300	191.00600	382.01100	764.02300	1528.05000	3056.09000
63		trans-2-Octene	11.00900	22.01900	44.03800	88.07500	176.15000	352.30000	704.59900
64		Isopropylcyclope	22.61200	45.22400	90.44800	180.89600	361.79100	723.58300	1447.17000

65		cis-2-Octene	20.81200	41.62300	83.24700	166.49300	332.98700	665.97400	1331.95000
66		2,4-Dimethylhept	40.03200	80.06400	160.12800	320.25600	640.51200	1281.02000	2562.05000
67		Ethylcyclohexane	63.75400	127.50800	255.01500	510.03100	1020.06000	2040.12000	4080.25000
68		2,6-Dimethylhept	32.04900	64.09700	128.19500	256.38900	512.77800	1025.56000	2051.11000
69		1,1,4-Trimethylc	23.40400	46.80800	93.61700	187.23300	374.46700	748.93300	1497.87000
70	I	Ethylbenzene-d10	402.48000	402.48000	402.48000	402.48000	402.48000	402.48000	402.48000
71	S	1,4-Dichlorobenz	400.48000	400.48000	400.48000	400.48000	400.48000	400.48000	400.48000
72		Ethylbenzene	57.22500	114.45000	228.90000	457.80000	915.59900	1831.20000	3662.40000
73		ctt-1,2,4-Trimet	24.13200	48.26300	96.52600	193.05200	386.10400	772.20900	1544.42000
74		2-Ethylthiophene	39.57600	79.15200	158.30400	316.60800	633.21600	1266.43000	2532.86000
75		m-Xylene	18.55800	37.11500	74.23000	148.46100	296.92100	593.84200	1187.68000
76		p-Xylene	39.79200	79.58400	159.16900	318.33700	636.67500	1273.35000	2546.70000
77		2,3-Dimethylhept	8.32400	16.64900	33.29700	66.59400	133.18800	266.37700	532.75400
78		4-Methyloctane	39.50400	79.00800	158.01600	316.03200	632.06400	1264.13000	2528.26000
79		2-Methyloctane	20.72100	41.44300	82.88600	165.77100	331.54200	663.08500	1326.17000
80		ctc-1,2,4-Trimet	23.00000	45.99900	91.99900	183.99700	367.99500	735.99000	1471.98000
81		1,1,2-Trimethylc	22.58000	45.16100	90.32100	180.64300	361.28600	722.57200	1445.14000
82		o-Xylene	19.14700	38.29400	76.58800	153.17700	306.35300	612.70600	1225.41000
83		1-Nonene	42.00900	84.01800	168.03700	336.07300	672.14600	1344.29000	2688.59000
84		trans-3-Nonene	10.99900	21.99900	43.99700	87.99500	175.99000	351.97900	703.95900
85		cis-3-Nonene	21.64900	43.29700	86.59400	173.18900	346.37700	692.75500	1385.51000
86		n-Nonane	52.39500	104.79100	209.58200	419.16300	838.32700	1676.65000	3353.31000
87		trans-2-Nonene	5.78600	11.57200	23.14400	46.28700	92.57500	185.14900	370.29900
88		Isopropylbenzene	18.68400	37.36800	74.73600	149.47100	298.94200	597.88500	1195.77000
89		cis-2-Nonene	15.32100	30.64200	61.28400	122.56700	245.13400	490.26800	980.53600
90		Isopropylcyclohe	38.72000	77.44000	154.88100	309.76200	619.52400	1239.05000	2478.10000
91		2,2-Dimethylocta	18.56200	37.12400	74.24900	148.49700	296.99500	593.99000	1187.98000
92		n-Butylcyclopent	24.29500	48.59000	97.18000	194.36000	388.72100	777.44100	1554.88000
93		3,3-Dimethylocta	12.69400	25.38800	50.77500	101.55100	203.10200	406.20300	812.40700
94		Propylbenzene	36.43200	72.86400	145.72700	291.45500	582.91000	1165.82000	2331.64000
95		1-Methyl-3-Ethyl	18.52700	37.05400	74.10800	148.21700	296.43300	592.86700	1185.73000
96		1-Methyl-4-Ethyl	16.37900	32.75800	65.51600	131.03200	262.06500	524.12900	1048.26000
97		1,3,5-Trimethylb	9.14800	18.29600	36.59300	73.18600	146.37100	292.74200	585.48400
98		1-Methyl-2-Ethyl	19.08500	38.17000	76.34000	152.67900	305.35900	610.71700	1221.43000
99		3-Methylnonane	31.68300	63.36600	126.73200	253.46400	506.92800	1013.86000	---------
100		1,2,4-Trimethylb	21.09000	42.17900	84.35800	168.71700	337.43300	674.86700	1349.73000
101		1-Decene	44.07400	88.14800	176.29700	352.59400	705.18700	1410.37000	2820.75000
102		sec-Butylbenzene	18.50800	37.01700	74.03400	148.06800	296.13500	592.27000	1184.54000
103		n-Decane	48.59700	97.19500	194.39000	388.77900	777.55900	1555.12000	3110.24000
104		1,2,3-Trimethylb	40.00000	80.00000	160.00000	320.00000	640.00000	1280.00000	2560.00000
105		Indane	40.11200	80.22400	160.44800	320.89600	641.79200	1283.58000	2567.17000
106		1,3-Diethylbenze	40.04800	80.09600	160.19200	320.38400	640.76800	1281.54000	2563.07000
107		1-methyl-4-n-pro	56.90300	113.80600	227.61200	455.22300	910.44600	1820.89000	3641.78000
108		1,3-Dimethyl-5-E	18.10700	36.21400	72.42900	144.85800	289.71500	579.43000	1158.86000
109		1,2-Diethylbenze	8.80800	17.61500	35.23100	70.46100	140.92200	281.84400	563.68800
110		1-Methyl-2-n-Pro	18.08500	36.16900	72.33900	144.67800	289.35600	578.71200	1157.42000
111		1,4-Dimethyl-2-E	18.30200	36.60400	73.20800	146.41600	292.83200	585.66500	1171.33000
112		1,2-Dimethyl-4-E	17.75200	35.50400	71.00700	142.01400	284.02800	568.05600	1136.11000
113		1,3-Dimethyl-2-E	9.16300	18.32600	36.65100	73.30200	146.60400	293.20800	586.41600
114		n-Undecane	47.01000	94.02000	188.04000	376.08000	752.16000	1504.32000	3008.64000
115		1,2,4,5-Tetramet	2.05400	4.11000	8.21900	16.43700	32.87400	65.75000	131.49900
116		1,2,3,5-Tetramet	41.61600	83.23200	166.46400	332.92800	665.85600	1331.71000	2663.42000
117		1,2,3,4-Tetramet	40.06400	80.12800	160.25600	320.51200	641.02400	1282.05000	2564.10000
118		n-Pentylbenzene	34.75400	69.50700	139.01400	278.02900	556.05700	1112.12000	2224.23000
119		Benzo(b)thiophen	39.63200	79.26400	158.52800	317.05600	634.11200	1268.22000	2536.45000
120		MMT	32.08300	64.16600	128.33300	256.66600	513.33100	1026.66000	2053.32000
121		n-Dodecane	77.50100	155.00300	310.00500	620.01000	1240.02000	2480.04000	4960.08000

Standards Loaded From LIMS

Solution ID : HT02 - PIANO ICAL Level 1
Last Updated : 6/7/2013 3:36:01 PM
Create Date : Jun 4 2013 12:00AM KM
Expire Date : 11/1/2013
Approval Date: Not Approved
Override Date: No Override

HT02 SIS/RIS : HR99 - VOA IS/SIS Solution
Last Updated : 4/4/2013 2:24:01 PM
Create Date : Apr 4 2013 12:00AM KPC
Expire Date : 4/4/2014
Approval Date: Not Approved
Override Date: No Override

Solution ID : HT03 - PIANO ICAL Level 2

Last Updated : 6/7/2013 3:36:01 PM
Create Date : Jun 4 2013 12:00AM KM
Expire Date : 11/1/2013
Approval Date: Not Approved
Override Date: No Override

HT03 SIS/RIS : HR99 - VOA IS/SIS Solution
Last Updated : 4/4/2013 2:24:01 PM
Create Date : Apr 4 2013 12:00AM KPC
Expire Date : 4/4/2014
Approval Date: Not Approved
Override Date: No Override

Solution ID : HT04 - PIANO ICAL Level 3
Last Updated : 6/7/2013 3:36:01 PM
Create Date : Jun 4 2013 12:00AM KM
Expire Date : 11/1/2013
Approval Date: Not Approved
Override Date: No Override

HT04 SIS/RIS : HR99 - VOA IS/SIS Solution
Last Updated : 4/4/2013 2:24:01 PM
Create Date : Apr 4 2013 12:00AM KPC
Expire Date : 4/4/2014
Approval Date: Not Approved
Override Date: No Override

Solution ID : HT05 - PIANO ICAL Level 4
Last Updated : 6/7/2013 3:36:02 PM
Create Date : Jun 4 2013 12:00AM KM
Expire Date : 11/1/2013
Approval Date: Not Approved
Override Date: No Override

HT05 SIS/RIS : HR99 - VOA IS/SIS Solution
Last Updated : 4/4/2013 2:24:01 PM
Create Date : Apr 4 2013 12:00AM KPC
Expire Date : 4/4/2014
Approval Date: Not Approved
Override Date: No Override

Solution ID : HT06 - PIANO ICAL Level 5
Last Updated : 6/7/2013 3:36:02 PM
Create Date : Jun 4 2013 12:00AM KM
Expire Date : 11/1/2013
Approval Date: Not Approved
Override Date: No Override

HT06 SIS/RIS : HR99 - VOA IS/SIS Solution
Last Updated : 4/4/2013 2:24:01 PM
Create Date : Apr 4 2013 12:00AM KPC
Expire Date : 4/4/2014
Approval Date: Not Approved
Override Date: No Override

Solution ID : HT07 - PIANO ICAL Level 6
Last Updated : 6/7/2013 3:36:02 PM
Create Date : Jun 4 2013 12:00AM KM
Expire Date : 11/1/2013
Approval Date: Not Approved
Override Date: No Override

HT07 SIS/RIS : HR99 - VOA IS/SIS Solution
Last Updated : 4/4/2013 2:24:01 PM
Create Date : Apr 4 2013 12:00AM KPC
Expire Date : 4/4/2014
Approval Date: Not Approved
Override Date: No Override

Solution ID : HT08 - PIANO ICAL Level 7
Last Updated : 6/7/2013 3:36:02 PM
Create Date : Jun 4 2013 12:00AM KM
Expire Date : 11/1/2013
Approval Date: Not Approved

Override Date: No Override

HT08 SIS/RIS : HR99 - VOA IS/SIS Solution
Last Updated : 4/4/2013 2:24:01 PM
Create Date : Apr 4 2013 12:00AM KPC
Expire Date : 4/4/2014
Approval Date: Not Approved
Override Date: No Override

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CCV Summary Report

Batch: 13-0320 **Data Set:** DP-13-0544
Project Test Code: Master_245(O) **SOP_NO:** 5-245-11
Project Name: PIANO Analysis **Project Number:** 100012044-9

Matrix: NAPL
Calibration File: MD0944D.M **Last Updated:** 8/7/2013 10:09:00 AM

						D7640.D		D7673.D		D7689.D	
						HT04 MID		HT04 MID		HT04 MID	
						08/05/2013 10:38		08/07/2013 14:30		08/08/2013 11:13	
No:	**Analyte:**	**Type:**	**Col:**	**MQO:**	**CAL**	**MID**	**% Diff**	**MID**	**% Diff**	**MID**	**% Diff**
1	Benzene-d6	I	1	-							
2	1,4-Difluorobenzene	S	1	-	401.08000	390.86716		396.09015		391.82822	
3	Ethanol		1	Y	1600.22000	1658.51745	3.6	1992.16239	24.5	1592.27915	-0.5
4	Isopentane		1	Y	39.88100	34.91647	-12.4	44.33225	11.2	34.04425	-14.6
5	1-Pentene		1	Y	78.41400	70.33532	-10.3	85.11325	8.5	67.76697	-13.6
6	2-Methyl-1-Butene		1	Y	27.90700	26.48973	-5.1	30.38638	8.9	26.09285	-6.5
7	n-Pentane		1	Y	285.51500	252.87047	-11.4	308.67472	8.1	252.68821	-11.5
8	trans-2-Pentene		1	Y	36.58500	32.87388	-10.1	37.89491	3.6	32.29799	-11.7
9	cis-2-Pentene		1	Y	38.48500	35.22009	-8.5	41.17278	7.0	33.96257	-11.8
10	t-Butanol		1	Y	2044.48000	1999.26193	-2.2	2324.68761	13.7	2101.80144	2.8
11	2,2-Dimethylbutane		1	Y	159.42400	144.29482	-9.5	167.72772	5.2	142.75463	-10.5
12	Cyclopentane		1	Y	119.36000	112.79137	-5.5	133.59129	11.9	115.64426	-3.1
13	2-Methylpentane		1	Y	65.26400	58.00626	-11.1	66.28600	1.6	71.04817	8.9
14	Methyltertbutylether		1	Y	159.84000	144.43578	-9.6	154.02493	-3.6	148.86450	-6.9
15	3-Methylpentane		1	Y	108.00300	98.71859	-8.6	114.31403	5.8	100.31212	-7.1
16	1-Hexene		1	Y	145.68900	135.82930	-6.8	156.20718	7.2	136.73637	-6.1
17	n-Hexane		1	Y	190.70100	175.66422	-7.9	207.35075	8.7	181.36844	-4.9
18	Di-isopropylether		1	Y	159.36000	142.70503	-10.5	148.25032	-7.0	149.51896	-6.2
19	trans-2-Hexene		1	Y	35.82800	33.98684	-5.1	38.63319	7.8	33.92154	-5.3
20	2-Methylpentene-2		1	Y	66.35500	62.45458	-5.9	71.17218	7.3	63.52026	-4.3
21	cis-2-Hexene		1	Y	77.83600	73.29738	-5.8	84.87777	9.0	75.05249	-3.6
22	Ethyltertbutylether		1	Y	160.16000	141.57940	-11.6	148.73868	-7.1	148.12038	-7.5
23	2,2-Dimethylpentane		1	Y	36.24300	32.55721	-10.2	37.95227	4.7	34.09198	-5.9
24	Methylcyclopentane		1	Y	80.78600	73.62843	-8.9	86.90792	7.6	78.29801	-3.1
25	1,2-Dichloroethane		1	Y	158.49600	148.42047	-6.4	153.09127	-3.4	143.38596	-9.5
26	2,4-Dimethylpentane		1	Y	73.67900	68.28500	-7.3	77.98459	5.8	69.76603	-5.3
27	Benzene		1	Y	235.74600	211.43226	-10.3	232.47925	-1.4	223.16631	-5.3
28	Thiophene		1	Y	160.00000	142.49888	-10.9	149.17551	-6.8	149.42274	-6.6
29	Cyclohexane		1	Y	136.87600	124.31765	-9.2	144.35832	5.5	131.67588	-3.8
30	2-Methylhexane		1	Y	50.05000	47.25746	-5.6	51.81427	3.5	46.46979	-7.2
31	2,3-Dimethylpentane		1	Y	38.61800	36.10543	-6.5	41.28002	6.9	36.95249	-4.3
32	Tertamylmethylether		1	Y	159.61600	139.89599	-12.4	151.01493	-5.4	148.57845	-6.9
33	3-Methylhexane		1	Y	35.30400	32.35866	-8.3	37.48322	6.2	34.47548	-2.3
34	Trichloroethylene		1	Y	160.09600	148.30446	-7.4	165.37834	3.3	155.51580	-2.9
35	2-Methyl-1-Hexene		1	Y	160.48000	151.10400	-5.8	173.20444	7.9	157.10550	-2.1
36	2,2,4-Trimethylpentane/1-Heptene		1	Y	286.36400	269.47642	-5.9	314.09127	9.7	282.70475	-1.3
37	trans-3-Heptene		1	Y	80.49000	74.19294	-7.8	85.61870	6.4	76.76182	-4.6
38	Toluene-d8	I	1	-							
39	Chlorobenzene-d5	S	1	-	401.64000	390.36461		390.58673		405.04375	
40	n-Heptane		1	Y	202.93600	191.85430	-5.5	238.08267	17.3	197.65123	-2.6
41	cis-3-Heptene		1	Y	120.75000	123.33966	2.1	145.53432	20.5	120.76635	0.0
42	trans-2-Heptene		1	Y	81.18400	79.22142	-2.4	91.77499	13.0	80.90207	-0.3
43	cis-2-Heptene		1	Y	124.10300	122.13056	-1.6	135.93609	9.5	124.07293	0.0

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CCV Summary Report

Batch: 13-0320 **Data Set:** DP-13-0544
Project Test Code: Master_245(O) **SOP_NO:** 5-245-11
Project Name: PIANO Analysis **Project Number:** 100012044-9

Matrix: NAPL
Calibration File: MD0944D.M **Last Updated:** 8/7/2013 10:09:00 AM

						D7640.D		D7673.D		D7689.D	
						HT04 MID		HT04 MID		HT04 MID	
						08/05/2013 10:38		08/07/2013 14:30		08/08/2013 11:13	
No:	**Analyte:**	**Type:**	**Col:**	**MQO:**	**CAL**	**MID**	**% Diff**	**MID**	**% Diff**	**MID**	**% Diff**
44	Methylcyclohexane		1	Y	147.37000	145.15390	-1.5	160.22511	8.7	147.84976	0.3
45	2,5-Dimethylhexane/2,2,3-Trimethylpenta		1	Y	152.15400	148.21118	-2.6	161.00429	5.8	149.23913	-1.9
46	2,4-Dimethylhexane		1	Y	36.75700	36.25418	-1.4	39.11920	6.4	37.05773	0.8
47	ctc-1,2,4-Trimethylcyclopentane		1	Y	41.74000	40.19419	-3.7	44.29307	6.1	41.10073	-1.5
48	ctc-1,2,3-Trimethylcyclopentane		1	Y	40.38600	38.89311	-3.7	42.67855	5.7	39.71632	-1.7
49	2,3,4-Trimethylpentane		1	Y	160.00000	157.11063	-1.8	171.94397	7.5	158.66196	-0.8
50	Toluene		1	Y	154.01200	147.17215	-4.4	154.96433	0.6	152.67114	-0.9
51	2,3,3-Trimethylpentane		1	Y	160.28800	155.23049	-3.2	171.87822	7.2	157.99112	-1.4
52	2-Methylthiophene		1	Y	158.91200	150.86157	-5.1	157.13868	-1.1	156.89103	-1.3
53	2,3-Dimethylhexane		1	Y	33.93300	32.27048	-4.9	36.05697	6.3	32.74455	-3.5
54	3-Methylthiophene		1	Y	159.77600	151.32772	-5.3	154.29878	-3.4	156.18998	-2.2
55	2-Methylheptane		1	Y	96.49700	88.89707	-7.9	99.36062	3.0	92.19438	-4.5
56	4-Methylheptane		1	Y	71.58100	72.31832	1.0	77.99490	9.0	71.21192	-0.5
57	1,2-D bromoethane		1	Y	158.49600	159.24234	0.5	159.32446	0.5	153.92365	-2.9
58	1-Octene		1	Y	165.95700	155.53224	-6.3	173.56818	4.6	163.54197	-1.5
59	2,2-Dimethylheptane		1	Y	128.10200	126.86681	-1.0	136.70130	6.7	130.32891	1.7
60	2,2,4-Trimethylhexane		1	Y	159.64800	161.10986	0.9	171.02645	7.1	164.34933	2.9
61	Tetrachloroethylene		1	Y	160.09600	157.69079	-1.5	167.73861	4.8	158.38184	-1.1
62	n-Octane		1	Y	191.00600	186.03615	-2.6	203.17753	6.4	191.47355	0.2
63	trans-2-Octene		1	Y	44.03700	42.24284	-4.1	47.00740	6.7	43.53791	-1.1
64	Isopropylcyclopentane		1	Y	90.44800	89.51371	-1.0	97.79802	8.1	89.55196	-1.0
65	cis-2-Octene		1	Y	83.24700	81.70071	-1.9	89.51717	7.5	82.05916	-1.4
66	2,4-Dimethylheptane		1	Y	160.12800	161.66549	1.0	174.26701	8.8	163.76814	2.3
67	Ethylcyclohexane/n-propylcyclopentane		1	Y	255.01500	254.71457	-0.1	278.06866	9.0	257.89772	1.1
68	2,6-Dimethylheptane		1	Y	128.19500	129.21946	0.8	139.35112	8.7	133.47096	4.1
69	1,1,4-Trimethylcyclohexane		1	Y	93.61700	93.86493	0.3	100.77744	7.6	93.49300	-0.1
70	Ethylbenzene-d10	I	1	-							
71	1,4-Dichlorobenzene-d4	S	1	-	400.48000	391.24421		403.52367		401.47740	
72	Ethylbenzene		1	Y	228.90000	226.01446	-1.3	233.15971	1.9	230.39646	0.7
73	ctt-1,2,4-Trimethylcyclohexane		1	Y	96.52600	98.21037	1.7	109.80349	13.8	100.98788	4.6
74	2-Ethylthiophene		1	Y	158.30400	155.02702	-2.1	158.03873	-0.2	155.70293	-1.6
75	m-Xylene		1	Y	74.23000	72.30116	-2.6	69.18372	-6.8	68.61316	-7.6
76	p-Xylene		1	Y	159.16900	154.51797	-2.9	172.40032	8.3	166.53877	4.6
77	2,3-Dimethylheptane		1	Y	33.29700	33.97443	2.0	36.90576	10.8	34.84243	4.6
78	4-Methyloctane		1	Y	158.01600	164.58888	4.2	163.27242	3.3	167.70771	6.1
79	2-Methyloctane		1	Y	82.88600	86.32858	4.2	90.29660	8.9	95.52826	15.3
80	ctc-1,2,4-Trimethylcyclohexane		1	Y	91.99900	93.67169	1.8	101.19720	10.0	93.01047	1.1
81	1,1,2-Trimethylcyclohexane		1	Y	90.32100	89.85885	-0.5	97.14441	7.6	91.34333	1.1
82	o-Xylene		1	Y	76.58800	75.18117	-1.8	78.14813	2.0	76.14666	-0.6
83	1-Nonene		1	Y	168.03700	163.65654	-2.6	179.47755	6.8	170.17231	1.3
84	trans-3-Nonene		1	Y	43.99700	40.14541	-8.8	46.23368	5.1	43.54796	-1.0
85	cis-3-Nonene		1	Y	86.59400	89.71897	3.6	94.64354	9.3	88.03209	1.7

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CCV Summary Report

Batch: 13-0320 **Data Set:** DP-13-0544
Project Test Code: Master_245(O) **SOP_NO:** 5-245-11
Project Name: PIANO Analysis **Project Number:** 100012044-9

Matrix: NAPL
Calibration File: MD0944D.M **Last Updated:** 8/7/2013 10:09:00 AM

						D7640.D		D7673.D		D7689.D	
						HT04 MID		HT04 MID		HT04 MID	
						08/05/2013 10:38		08/07/2013 14:30		08/08/2013 11:13	
No:	**Analyte:**	**Type:**	**Col:**	**MQO:**	**CAL**	**MID**	**% Diff**	**MID**	**% Diff**	**MID**	**% Diff**
86	n-Nonane		1	Y	209.58200	224.18925	7.0	235.30425	12.3	224.91961	7.3
87	trans-2-Nonene		1	Y	23.14400	22.18605	-4.1	24.25962	4.8	22.55959	-2.5
88	Isopropy benzene		1	Y	74.73600	73.13254	-2.1	77.43584	3.6	73.77708	-1.3
89	cis-2-Nonene		1	Y	61.28400	60.48227	-1.3	66.75590	8.9	62.23307	1.5
90	Isopropylcyclohexane		1	Y	154.88100	160.41070	3.6	170.75046	10.2	158.24772	2.2
91	2,2-Dimethyloctane		1	Y	74.24900	84.53576	13.9	84.87397	14.3	85.55046	15.2
92	n-Butylcyclopentane		1	Y	97.18000	98.83498	1.7	106.90858	10.0	100.55457	3.5
93	3,3-Dimethyloctane		1	Y	50.77500	56.65362	11.6	57.86961	14.0	57.50792	13.3
94	Propylbenzene		1	Y	145.72700	146.87157	0.8	156.23047	7.2	146.05727	0.2
95	1-Methyl-3-Ethylbenzene		1	Y	74.10800	72.72067	-1.9	77.92071	5.1	76.69938	3.5
96	1-Methyl-4-Ethylbenzene		1	Y	65.51600	65.60712	0.1	68.75558	4.9	67.45917	3.0
97	1,3,5-Trimethylbenzene		1	Y	36.59300	35.65078	-2.6	37.83556	3.4	37.38920	2.2
98	1-Methyl-2-Ethylbenzene		1	Y	76.34000	74.83585	-2.0	76.97833	0.8	76.47767	0.2
99	3-Methylnonane		1	Y	126.73200	136.34200	7.6	134.24637	5.9	135.52497	6.9
100	1,2,4-Trimethylbenzene		1	Y	84.35800	83.00320	-1.6	90.60494	7.4	89.69107	6.3
101	1-Decene		1	Y	176.29700	185.59919	5.3	193.35036	9.7	180.28936	2.3
102	sec-Butylbenzene		1	Y	74.03400	74.59147	0.8	78.06623	5.4	75.31987	1.7
103	n-Decane		1	Y	194.39000	231.74389	19.2	229.77319	18.2	233.82367	20.3
104	1,2,3-Trimethylbenzene		1	Y	160.00000	155.12940	-3.0	160.66245	0.4	159.93258	0.0
105	Indane		1	Y	160.44800	157.90647	-1.6	163.10298	1.7	162.24662	1.1
106	1,3-Diethylbenzene		1	Y	160.19200	159.89375	-0.2	169.10495	5.6	161.67362	0.9
107	1-methyl-4-n-propylbenzene/1,4-Diethy b		1	Y	227.61200	226.77476	-0.4	243.51808	7.0	230.22575	1.1
108	1,3-Dimethyl-5-Ethy benzene		1	Y	72.42900	71.18749	-1.7	77.25813	6.7	73.22353	1.1
109	1,2-Diethylbenzene		1	Y	35.23100	35.03053	-0.6	36.94753	4.9	34.49535	-2.1
110	1-Methyl-2-n-Propylbenzene		1	Y	72.33900	70.55211	-2.5	75.79479	4.8	73.06417	1.0
111	1,4-Dimethyl-2-Ethy benzene		1	Y	73.20800	69.59321	-4.9	75.99047	3.8	74.28201	1.5
112	1,2-Dimethyl-4-Ethy benzene		1	Y	71.00700	69.66045	-1.9	73.55818	3.6	72.42732	2.0
113	1,3-Dimethyl-2-Ethy benzene		1	Y	36.65100	34.92578	-4.7	36.60146	-0.1	35.82243	-2.3
114	n-Undecane		1	Y	188.04000	231.13840	22.9	207.38517	10.3	238.62808	26.9
115	1,2,4,5-Tetramethylbenzene		1	Y	8.21900	7.54786	-8.2	8.25292	0.4	8.19331	-0.3
116	1,2,3,5-Tetramethylbenzene		1	Y	166.46400	156.69610	-5.9	167.75983	0.8	163.53211	-1.8
117	1,2,3,4-Tetramethylbenzene		1	Y	160.25600	147.36139	-8.0	155.97104	-2.7	156.19138	-2.5
118	n-Penty benzene		1	Y	139.01400	135.19255	-2.7	151.91223	9.3	140.38741	1.0
119	Benzo(b)thiophene		1	Y	158.52800	157.10730	-0.9	184.37036	16.3	165.49228	4.4
120	MMT		1	Y	128.33300	137.25769	7.0	136.68604	6.5	128.39361	0.0
121	n-Dodecane		1	Y	310.00500	303.97780	-1.9	251.66931	-18.8	322.71786	4.1

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CCV Summary Report

Batch:	13-0320	**Data Set:**	DP-13-0544
Project Test Code:	Master_245(O)	**SOP_NO:**	5-245-11
Project Name:	PIANO Analysis	**Project Number:**	100012044-9

Matrix: NAPL

Calibration File: MD0944D.M **Last Updated:** 8/7/2013 10:09:00 AM

						D7640.D		D7673.D		D7689.D	
						HT04 MID		HT04 MID		HT04 MID	
						08/05/2013 10:38		08/07/2013 14:30		08/08/2013 11:13	
No:	**Analyte:**	**Type:**	**Col:**	**MQO:**	**CAL**	**MID**	**% Diff**	**MID**	**% Diff**	**MID**	**% Diff**
						Mean PD:	**5.0**		**7.1**		**4.0**
						Time Check:	**< 12**		**< 12**		**< 12**

MQO: Only compounds flagged with "Y" will be counted towards MQO exceedences.

CCV Acceptance Criteria:

Frequency Hours:	12	**Qual:**	N
Mean PD(%):	25	**Qual:**	N
Individual PD(%):	30	**Qual:**	N

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CCV Summary Report

Batch:	13-0320	**Data Set:**	DP-13-0544
Project Test Code:	Master_245(O)	**SOP_NO:**	5-245-11
Project Name:	PIANO Analysis	**Project Number:**	100012044-9

Matrix: NAPL

Calibration File: MD0944D.M **Last Updated:** 8/7/2013 10:09:00 AM

D7709.D
HT04 MID
08/09/2013 17:14

No:	Analyte:	Type:	Col:	MQO:	CAL	MID	% Diff
1	Benzene-d6	I	1	-			
2	1,4-Difluorobenzene	S	1	-	401.08000	387.49617	
3	Ethanol		1	Y	1600.22000	1685.03197	5.3
4	Isopentane		1	Y	39.88100	36.01275	-9.7
5	1-Pentene		1	Y	78.41400	73.21592	-6.6
6	2-Methyl-1-Butene		1	Y	27.90700	27.71685	-0.7
7	n-Pentane		1	Y	285.51500	263.27504	-7.8
8	trans-2-Pentene		1	Y	36.58500	34.72235	-5.1
9	cis-2-Pentene		1	Y	38.48500	36.44921	-5.3
10	t-Butanol		1	Y	2044.48000	2210.68720	8.1
11	2,2-Dimethylbutane		1	Y	159.42400	143.17600	-10.2
12	Cyclopentane		1	Y	119.36000	113.60280	-4.8
13	2-Methylpentane		1	Y	65.26400	64.65752	-0.9
14	Methyltertbutylether		1	Y	159.84000	146.05248	-8.6
15	3-Methylpentane		1	Y	108.00300	99.49588	-7.9
16	1-Hexene		1	Y	145.68900	136.73528	-6.1
17	n-Hexane		1	Y	190.70100	183.83673	-3.6
18	Di-isopropylether		1	Y	159.36000	140.29712	-12.0
19	trans-2-Hexene		1	Y	35.82800	34.44834	-3.9
20	2-Methylpentene-2		1	Y	66.35500	62.79981	-5.4
21	cis-2-Hexene		1	Y	77.83600	75.86270	-2.5
22	Ethyltertbutylether		1	Y	160.16000	140.33637	-12.4
23	2,2-Dimethylpentane		1	Y	36.24300	33.06025	-8.8
24	Methylcyclopentane		1	Y	80.78600	74.47536	-7.8
25	1,2-Dichloroethane		1	Y	158.49600	157.90311	-0.4
26	2,4-Dimethylpentane		1	Y	73.67900	68.60993	-6.9
27	Benzene		1	Y	235.74600	207.99510	-11.8
28	Thiophene		1	Y	160.00000	136.59207	-14.6
29	Cyclohexane		1	Y	136.87600	127.72189	-6.7
30	2-Methylhexane		1	Y	50.05000	46.47863	-7.1
31	2,3-Dimethylpentane		1	Y	38.61800	37.41120	-3.1
32	Tertamylmethylether		1	Y	159.61600	141.26075	-11.5
33	3-Methylhexane		1	Y	35.30400	33.20243	-6.0
34	Trichloroethylene		1	Y	160.09600	150.92001	-5.7
35	2-Methyl-1-Hexene		1	Y	160.48000	153.05944	-4.6
36	2,2,4-Trimethylpentane/1-Heptene		1	Y	286.36400	279.98733	-2.2
37	trans-3-Heptene		1	Y	80.49000	78.67295	-2.3
38	Toluene-d8	I	1	-			
39	Chlorobenzene-d5	S	1	-	401.64000	384.27458	
40	n-Heptane		1	Y	202.93600	198.68056	-2.1
41	cis-3-Heptene		1	Y	120.75000	133.45236	10.5
42	trans-2-Heptene		1	Y	81.18400	85.80368	5.7
43	cis-2-Heptene		1	Y	124.10300	126.61585	2.0

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CCV Summary Report

Batch:	13-0320	**Data Set:**	DP-13-0544
Project Test Code:	Master_245(O)	**SOP_NO:**	5-245-11
Project Name:	PIANO Analysis	**Project Number:**	100012044-9

Matrix: NAPL

Calibration File: MD0944D.M **Last Updated:** 8/7/2013 10:09:00 AM

D7709.D
HT04 MID
08/09/2013 17:14

No:	Analyte:	Type:	Col:	MQO:	CAL	MID	% Diff
44	Methylcyclohexane		1	Y	147.37000	149.13861	1.2
45	2,5-Dimethylhexane/2,2,3-Trimethylpenta		1	Y	152.15400	153.00396	0.6
46	2,4-Dimethylhexane		1	Y	36.75700	37.13170	1.0
47	ctc-1,2,4-Trimethylcyclopentane		1	Y	41.74000	41.04369	-1.7
48	ctc-1,2,3-Trimethylcyclopentane		1	Y	40.38600	39.76775	-1.5
49	2,3,4-Trimethylpentane		1	Y	160.00000	161.90912	1.2
50	Toluene		1	Y	154.01200	146.24245	-5.0
51	2,3,3-Trimethylpentane		1	Y	160.28800	160.35046	0.0
52	2-Methylthiophene		1	Y	158.91200	148.70909	-6.4
53	2,3-Dimethylhexane		1	Y	33.93300	34.03996	0.3
54	3-Methylthiophene		1	Y	159.77600	149.76204	-6.3
55	2-Methylheptane		1	Y	96.49700	96.45475	0.0
56	4-Methylheptane		1	Y	71.58100	72.90889	1.9
57	1,2-D bromoethane		1	Y	158.49600	157.41965	-0.7
58	1-Octene		1	Y	165.95700	165.75261	-0.1
59	2,2-Dimethylheptane		1	Y	128.10200	131.96494	3.0
60	2,2,4-Trimethylhexane		1	Y	159.64800	164.32130	2.9
61	Tetrachloroethylene		1	Y	160.09600	161.45097	0.8
62	n-Octane		1	Y	191.00600	194.01169	1.6
63	trans-2-Octene		1	Y	44.03700	43.66827	-0.8
64	Isopropylcyclopentane		1	Y	90.44800	93.33619	3.2
65	cis-2-Octene		1	Y	83.24700	86.19726	3.5
66	2,4-Dimethylheptane		1	Y	160.12800	165.91383	3.6
67	Ethylcyclohexane/n-propylcyclopentane		1	Y	255.01500	263.41195	3.3
68	2,6-Dimethylheptane		1	Y	128.19500	133.53891	4.2
69	1,1,4-Trimethylcyclohexane		1	Y	93.61700	96.71260	3.3
70	Ethylbenzene-d10	I	1	-			
71	1,4-Dichlorobenzene-d4	S	1	-	400.48000	384.03737	
72	Ethylbenzene		1	Y	228.90000	230.79244	0.8
73	ctt-1,2,4-Trimethylcyclohexane		1	Y	96.52600	102.07000	5.7
74	2-Ethylthiophene		1	Y	158.30400	159.96349	1.0
75	m-Xylene		1	Y	74.23000	68.24775	-8.1
76	p-Xylene		1	Y	159.16900	163.48557	2.7
77	2,3-Dimethylheptane		1	Y	33.29700	35.26155	5.9
78	4-Methyloctane		1	Y	158.01600	161.05743	1.9
79	2-Methyloctane		1	Y	82.88600	95.67071	15.4
80	ctc-1,2,4-Trimethylcyclohexane		1	Y	91.99900	98.20583	6.7
81	1,1,2-Trimethylcyclohexane		1	Y	90.32100	94.74461	4.9
82	o-Xylene		1	Y	76.58800	76.57691	0.0
83	1-Nonene		1	Y	168.03700	171.93092	2.3
84	trans-3-Nonene		1	Y	43.99700	43.55702	-1.0
85	cis-3-Nonene		1	Y	86.59400	94.00107	8.6

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CCV Summary Report

Batch:	13-0320	**Data Set:**	DP-13-0544
Project Test Code:	Master_245(O)	**SOP_NO:**	5-245-11
Project Name:	PIANO Analysis	**Project Number:**	100012044-9

Matrix: NAPL

Calibration File: MD0944D.M **Last Updated:** 8/7/2013 10:09:00 AM

D7709.D
HT04 MID
08/09/2013 17:14

No:	Analyte:	Type:	Col:	MQO:	CAL	MID	% Diff
86	n-Nonane		1	Y	209.58200	228.31687	8.9
87	trans-2-Nonene		1	Y	23.14400	24.34247	5.2
88	Isopropy benzene		1	Y	74.73600	76.62847	2.5
89	cis-2-Nonene		1	Y	61.28400	65.81735	7.4
90	Isopropylcyclohexane		1	Y	154.88100	167.37344	8.1
91	2,2-Dimethyloctane		1	Y	74.24900	83.92951	13.0
92	n-Butylcyclopentane		1	Y	97.18000	102.94524	5.9
93	3,3-Dimethyloctane		1	Y	50.77500	56.92935	12.1
94	Propylbenzene		1	Y	145.72700	152.32893	4.5
95	1-Methyl-3-Ethylbenzene		1	Y	74.10800	75.21346	1.5
96	1-Methyl-4-Ethylbenzene		1	Y	65.51600	67.09438	2.4
97	1,3,5-Trimethylbenzene		1	Y	36.59300	37.60766	2.8
98	1-Methyl-2-Ethylbenzene		1	Y	76.34000	77.09730	1.0
99	3-Methylnonane		1	Y	126.73200	133.33055	5.2
100	1,2,4-Trimethylbenzene		1	Y	84.35800	85.12624	0.9
101	1-Decene		1	Y	176.29700	201.77207	14.5
102	sec-Butylbenzene		1	Y	74.03400	79.15049	6.9
103	n-Decane		1	Y	194.39000	230.15718	18.4
104	1,2,3-Trimethylbenzene		1	Y	160.00000	160.70515	0.4
105	Indane		1	Y	160.44800	158.75197	-1.1
106	1,3-Diethylbenzene		1	Y	160.19200	167.25319	4.4
107	1-methyl-4-n-propylbenzene/1,4-Diethy b		1	Y	227.61200	243.82576	7.1
108	1,3-Dimethyl-5-Ethy benzene		1	Y	72.42900	74.94061	3.5
109	1,2-Diethylbenzene		1	Y	35.23100	35.18890	-0.1
110	1-Methyl-2-n-Propylbenzene		1	Y	72.33900	75.01128	3.7
111	1,4-Dimethyl-2-Ethy benzene		1	Y	73.20800	76.56720	4.6
112	1,2-Dimethyl-4-Ethy benzene		1	Y	71.00700	71.20340	0.3
113	1,3-Dimethyl-2-Ethy benzene		1	Y	36.65100	37.10436	1.2
114	n-Undecane		1	Y	188.04000	221.69363	17.9
115	1,2,4,5-Tetramethylbenzene		1	Y	8.21900	8.31482	1.2
116	1,2,3,5-Tetramethylbenzene		1	Y	166.46400	170.10908	2.2
117	1,2,3,4-Tetramethylbenzene		1	Y	160.25600	160.43464	0.1
118	n-Penty benzene		1	Y	139.01400	156.04091	12.2
119	Benzo(b)thiophene		1	Y	158.52800	179.35660	13.1
120	MMT		1	Y	128.33300	160.37767	25.0
121	n-Dodecane		1	Y	310.00500	276.68694	-10.7

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CCV Summary Report

Batch:	13-0320	**Data Set:**	DP-13-0544
Project Test Code:	Master_245(O)	**SOP_NO:**	5-245-11
Project Name:	PIANO Analysis	**Project Number:**	100012044-9

Matrix: NAPL

Calibration File: MD0944D.M **Last Updated:** 8/7/2013 10:09:00 AM

D7709.D
HT04 MID
08/09/2013 17:14

No:	Analyte:	Type:	Col:	MQO:	CAL	MID	% Diff

MQO: Only compounds flagged with "Y" will be counted towards MQO exceedences.

Mean PD: **5.2**
Time Check: **< 12**

CCV Acceptance Criteria:

Frequency Hours:	12	**Qual:**	N
Mean PD(%):	25	**Qual:**	N
Individual PD(%):	30	**Qual:**	N

Battelle
The Business of Innovation

CCV Summary Report

Batch: 13-0320 **Data Set:** DP-13-0544
Project Test Code: Master_245(O) **SOP_NO:** 5-245-11
Project Name: PIANO Analysis **Project Number:** 100012044-9

Matrix: NAPL
Calibration File: MD0944D.M **Last Updated:** 8/7/2013 10:09:00 AM

						D7648.D		D7681.D		D7716.D	
						HT05 MID		HT05 MID		HT05 MID	
						08/05/2013 21:01		08/08/2013 00:52		08/10/2013 02:20	
No:	**Analyte:**	**Type:**	**Col:**	**MQO:**	**CAL**	**MID**	**% Diff**	**MID**	**% Diff**	**MID**	**% Diff**
1	Benzene-d6	I	1	-							
2	1,4-Difluorobenzene	S	1	-	401.08000	383.60379		389.72431		378.73323	
3	Ethanol		1	Y	3200.45000	2894.56103	-9.6	2746.50081	-14.2	2829.27710	-11.6
4	Isopentane		1	Y	79.76200	69.11322	-13.4	71.76408	-10.0	70.82303	-11.2
5	1-Pentene		1	Y	156.82800	138.30381	-11.8	133.93786	-14.6	139.85594	-10.8
6	2-Methyl-1-Butene		1	Y	55.81300	51.46012	-7.8	50.11929	-10.2	53.71859	-3.8
7	n-Pentane		1	Y	571.03000	475.24004	-16.8	503.99707	-11.7	517.58541	-9.4
8	trans-2-Pentene		1	Y	73.17000	64.94999	-11.2	62.96697	-13.9	65.60898	-10.3
9	cis-2-Pentene		1	Y	76.97000	68.52049	-11.0	68.11073	-11.5	67.68922	-12.1
10	t-Butanol		1	Y	4088.96000	4415.85076	8.0	3836.43091	-6.2	4264.69180	4.3
11	2,2-Dimethylbutane		1	Y	318.84800	255.13166	-20.0	282.02185	-11.5	282.81165	-11.3
12	Cyclopentane		1	Y	238.71900	206.47495	-13.5	228.64921	-4.2	222.57578	-6.8
13	2-Methylpentane		1	Y	130.52700	120.81086	-7.4	127.09764	-2.6	115.78581	-11.3
14	Methyltertbutylether		1	Y	319.68000	333.64206	4.4	275.60566	-13.8	294.67783	-7.8
15	3-Methylpentane		1	Y	216.00700	176.47731	-18.3	191.25651	-11.5	190.40940	-11.9
16	1-Hexene		1	Y	291.37700	239.74527	-17.7	255.35007	-12.4	249.87376	-14.2
17	n-Hexane		1	Y	381.40200	315.66888	-17.2	333.35990	-12.6	322.51275	-15.4
18	Di-isopropylether		1	Y	318.72000	300.57426	-5.7	277.30346	-13.0	282.97155	-11.2
19	trans-2-Hexene		1	Y	71.65600	61.18319	-14.6	61.92051	-13.6	61.90091	-13.6
20	2-Methylpentene-2		1	Y	132.71000	115.91661	-12.7	118.17748	-11.0	118.00642	-11.1
21	cis-2-Hexene		1	Y	155.67200	133.86938	-14.0	136.40161	-12.4	137.51676	-11.7
22	Ethyltertbutylether		1	Y	320.32000	320.37167	0.0	273.78475	-14.5	282.45828	-11.8
23	2,2-Dimethylpentane		1	Y	72.48600	59.99390	-17.2	62.73081	-13.5	62.09195	-14.3
24	Methylcyclopentane		1	Y	161.57200	137.31333	-15.0	148.78196	-7.9	143.80970	-11.0
25	1,2-Dichloroethane		1	Y	316.99200	382.74980	20.7	260.82606	-17.7	283.96640	-10.4
26	2,4-Dimethylpentane		1	Y	147.35900	123.44413	-16.2	127.66004	-13.4	125.64048	-14.7
27	Benzene		1	Y	471.49100	430.58118	-8.7	447.73056	-5.0	432.66455	-8.2
28	Thiophene		1	Y	320.00000	288.46969	-9.9	289.52019	-9.5	283.60526	-11.4
29	Cyclohexane		1	Y	273.75100	233.98188	-14.5	243.95730	-10.9	240.65905	-12.1
30	2-Methylhexane		1	Y	100.10000	86.18409	-13.9	86.59108	-13.5	83.58510	-16.5
31	2,3-Dimethylpentane		1	Y	77.23600	64.58456	-16.4	66.39426	-14.0	65.23550	-15.5
32	Tertamylmethylether		1	Y	319.23200	312.95389	-2.0	277.83531	-13.0	287.45869	-10.0
33	3-Methylhexane		1	Y	70.60900	61.07291	-13.5	61.56271	-12.8	59.40824	-15.9
34	Trichloroethylene		1	Y	320.19200	298.42187	-6.8	310.88109	-2.9	293.40302	-8.4
35	2-Methyl-1-Hexene		1	Y	320.96000	280.80323	-12.5	278.89201	-13.1	275.61755	-14.1
36	2,2,4-Trimethylpentane/1-Heptene		1	Y	572.72800	488.24489	-14.8	500.33140	-12.6	491.64334	-14.2
37	trans-3-Heptene		1	Y	160.98000	152.56417	-5.2	132.92196	-17.4	138.07161	-14.2
38	Toluene-d8	I	1	-							
39	Chlorobenzene-d5	S	1	-	401.64000	404.74553		401.53068		393.85048	
40	n-Heptane		1	Y	405.87300	361.05000	-11.0	333.80923	-17.8	347.19258	-14.5
41	cis-3-Heptene		1	Y	241.50100	229.73920	-4.9	228.20627	-5.5	233.16591	-3.5
42	trans-2-Heptene		1	Y	162.36700	153.43811	-5.5	143.84047	-11.4	145.90372	-10.1
43	cis-2-Heptene		1	Y	248.20600	224.16944	-9.7	223.15501	-10.1	225.66761	-9.1

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CCV Summary Report

Batch: 13-0320 **Data Set:** DP-13-0544
Project Test Code: Master_245(O) **SOP_NO:** 5-245-11
Project Name: PIANO Analysis **Project Number:** 100012044-9

Matrix: NAPL
Calibration File: MD0944D.M **Last Updated:** 8/7/2013 10:09:00 AM

						D7648.D		D7681.D		D7716.D	
						HT05 MID		HT05 MID		HT05 MID	
						08/05/2013 21:01		08/08/2013 00:52		08/10/2013 02:20	
No:	**Analyte:**	**Type:**	**Col:**	**MQO:**	**CAL**	**MID**	**% Diff**	**MID**	**% Diff**	**MID**	**% Diff**
44	Methylcyclohexane		1	Y	294.73900	264.55785	-10.2	269.65088	-8.5	272.11957	-7.7
45	2,5-Dimethylhexane/2,2,3-Trimethylpenta		1	Y	304.30800	273.85310	-10.0	262.98050	-13.6	269.53046	-11.4
46	2,4-Dimethylhexane		1	Y	73.51400	64.70518	-12.0	62.24320	-15.3	63.42914	-13.7
47	ctc-1,2,4-Trimethylcyclopentane		1	Y	83.48000	72.94948	-12.6	73.88784	-11.5	75.46471	-9.6
48	ctc-1,2,3-Trimethylcyclopentane		1	Y	80.77200	70.98312	-12.1	71.97431	-10.9	71.12319	-11.9
49	2,3,4-Trimethylpentane		1	Y	320.00000	292.47944	-8.6	277.98063	-13.1	279.01494	-12.8
50	Toluene		1	Y	308.02500	295.01405	-4.2	303.58257	-1.4	300.16556	-2.6
51	2,3,3-Trimethylpentane		1	Y	320.57600	292.78060	-8.7	284.54792	-11.2	287.83089	-10.2
52	2-Methylthiophene		1	Y	317.82400	308.22701	-3.0	307.51065	-3.2	310.69050	-2.2
53	2,3-Dimethylhexane		1	Y	67.86700	62.82099	-7.4	58.05253	-14.5	57.32581	-15.5
54	3-Methylthiophene		1	Y	319.55200	315.31691	-1.3	305.83195	-4.3	307.76972	-3.7
55	2-Methylheptane		1	Y	192.99300	178.12674	-7.7	158.97060	-17.6	163.59083	-15.2
56	4-Methylheptane		1	Y	143.16100	131.65623	-8.0	121.40123	-15.2	122.65150	-14.3
57	1,2-D bromoethane		1	Y	316.99200	336.57502	6.2	308.80137	-2.6	317.91931	0.3
58	1-Octene		1	Y	331.91400	311.57757	-6.1	272.45938	-17.9	282.09821	-15.0
59	2,2-Dimethylheptane		1	Y	256.20500	240.19871	-6.2	224.74774	-12.3	225.16830	-12.1
60	2,2,4-Trimethylhexane		1	Y	319.29600	310.22433	-2.8	278.80703	-12.7	281.72002	-11.8
61	Tetrachloroethylene		1	Y	320.19200	305.43290	-4.6	307.59100	-3.9	302.66273	-5.5
62	n-Octane		1	Y	382.01100	360.32957	-5.7	312.65296	-18.2	319.56641	-16.3
63	trans-2-Octene		1	Y	88.07500	82.60701	-6.2	72.41106	-17.8	73.58165	-16.5
64	Isopropylcyclopentane		1	Y	180.89600	170.83623	-5.6	156.77922	-13.3	159.78819	-11.7
65	cis-2-Octene		1	Y	166.49300	158.74976	-4.7	140.18495	-15.8	144.07967	-13.5
66	2,4-Dimethylheptane		1	Y	320.25600	317.41417	-0.9	272.97821	-14.8	277.95607	-13.2
67	Ethylcyclohexane/n-propylcyclopentane		1	Y	510.03100	479.88033	-5.9	456.46992	-10.5	458.95424	-10.0
68	2,6-Dimethylheptane		1	Y	256.38900	261.97453	2.2	218.23822	-14.9	222.66136	-13.2
69	1,1,4-Trimethylcyclohexane		1	Y	187.23300	177.21017	-5.4	169.01482	-9.7	169.16121	-9.7
70	Ethylbenzene-d10	I	1	-							
71	1,4-Dichlorobenzene-d4	S	1	-	400.48000	423.60205		402.26426		393.91194	
72	Ethylbenzene		1	Y	457.80000	469.20600	2.5	456.29806	-0.3	465.97286	1.8
73	ctt-1,2,4-Trimethylcyclohexane		1	Y	193.05200	178.66885	-7.5	182.11457	-5.7	180.97721	-6.3
74	2-Ethylthiophene		1	Y	316.60800	329.92568	4.2	308.88038	-2.4	319.04537	0.8
75	m-Xylene		1	Y	148.46100	156.50712	5.4	145.80744	-1.8	147.29429	-0.8
76	p-Xylene		1	Y	318.33700	322.39588	1.3	323.57814	1.6	322.30296	1.2
77	2,3-Dimethylheptane		1	Y	66.59400	65.05378	-2.3	60.44218	-9.2	61.22099	-8.1
78	4-Methyloctane		1	Y	316.03200	296.47114	-6.2	270.14970	-14.5	287.11292	-9.2
79	2-Methyloctane		1	Y	165.77100	195.24578	17.8	160.16981	-3.4	155.66591	-6.1
80	ctc-1,2,4-Trimethylcyclohexane		1	Y	183.99700	180.94567	-1.7	167.35393	-9.0	173.98512	-5.4
81	1,1,2-Trimethylcyclohexane		1	Y	180.64300	174.18059	-3.6	168.39783	-6.8	170.47921	-5.6
82	o-Xylene		1	Y	153.17700	162.03399	5.8	155.82691	1.7	156.38783	2.1
83	1-Nonene		1	Y	336.07300	317.28008	-5.6	283.77072	-15.6	294.84881	-12.3
84	trans-3-Nonene		1	Y	87.99500	85.57772	-2.7	71.66350	-18.6	75.99784	-13.6
85	cis-3-Nonene		1	Y	173.18900	170.31620	-1.7	150.30096	-13.2	152.80617	-11.8

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CCV Summary Report

Batch: 13-0320 **Data Set:** DP-13-0544
Project Test Code: Master_245(O) **SOP_NO:** 5-245-11
Project Name: PIANO Analysis **Project Number:** 100012044-9

Matrix: NAPL
Calibration File: MD0944D.M **Last Updated:** 8/7/2013 10:09:00 AM

						D7648.D		D7681.D			D7716.D		
						HT05 MID		HT05 MID			HT05 MID		
						08/05/2013 21:01		08/08/2013 00:52			08/10/2013 02:20		
No:	**Analyte:**	**Type:**	**Col:**	**MQO:**	**CAL**	**MID**	**% Diff**	**MID**	**% Diff**		**MID**	**% Diff**	
86	n-Nonane		1	Y	419.16300	441.53669	5.3	373.38171	-10.9		387.29550	-7.6	
87	trans-2-Nonene		1	Y	46.28700	46.06470	-0.5	39.68701	-14.3		39.63708	-14.4	
88	Isopropy benzene		1	Y	149.47100	155.58821	4.1	145.85537	-2.4		149.50966	0.0	
89	cis-2-Nonene		1	Y	122.56700	123.58969	0.8	103.08928	-15.9		106.73244	-12.9	
90	Isopropylcyclohexane		1	Y	309.76200	304.94404	-1.6	282.96059	-8.7		290.76385	-6.1	
91	2,2-Dimethyloctane		1	Y	148.49700	165.98669	11.8	145.23835	-2.2		147.83605	-0.4	
92	n-Butylcyclopentane		1	Y	194.36000	192.99463	-0.7	171.32773	-11.9		174.92181	-10.0	
93	3,3-Dimethyloctane		1	Y	101.55100	112.11634	10.4	99.62511	-1.9		100.92727	-0.6	
94	Propylbenzene		1	Y	291.45500	310.17423	6.4	285.64072	-2.0		293.74562	0.8	
95	1-Methyl-3-Ethylbenzene		1	Y	148.21700	157.22106	6.1	155.62865	5.0		149.03271	0.6	
96	1-Methyl-4-Ethylbenzene		1	Y	131.03200	139.05393	6.1	131.48207	0.3		131.74966	0.5	
97	1,3,5-Trimethylbenzene		1	Y	73.18600	78.45448	7.2	76.34259	4.3		73.22938	0.1	
98	1-Methyl-2-Ethylbenzene		1	Y	152.67900	164.30783	7.6	152.29322	-0.3		153.88193	0.8	
99	3-Methylnonane		1	Y	253.46400	272.52698	7.5	223.94351	-11.6		232.86420	-8.1	
100	1,2,4-Trimethylbenzene		1	Y	168.71700	184.00147	9.1	178.83901	6.0		172.91907	2.5	
101	1-Decene		1	Y	352.59400	410.17159	16.3	288.04416	-18.3		316.78788	-10.2	
102	sec-Butylbenzene		1	Y	148.06800	158.62298	7.1	143.09291	-3.4		148.24254	0.1	
103	n-Decane		1	Y	388.77900	471.62910	21.3	363.89755	-6.4		390.15267	0.4	
104	1,2,3-Trimethylbenzene		1	Y	320.00000	358.03388	11.9	309.45938	-3.3		321.99047	0.6	
105	Indane		1	Y	320.89600	354.07301	10.3	319.84835	-0.3		327.98431	2.2	
106	1,3-Diethylbenzene		1	Y	320.38400	355.75749	11.0	305.36819	-4.7		321.64651	0.4	
107	1-methyl-4-n-propylbenzene/1,4-Diethy b		1	Y	455.22300	502.32322	10.3	429.63369	-5.6		446.40989	-1.9	
108	1,3-Dimethyl-5-Ethy benzene		1	Y	144.85800	160.31328	10.7	144.82924	0.0		146.73835	1.3	
109	1,2-Diethylbenzene		1	Y	70.46100	76.60881	8.7	67.89142	-3.6		70.78462	0.5	
110	1-Methyl-2-n-Propylbenzene		1	Y	144.67800	161.86818	11.9	141.00101	-2.5		146.16614	1.0	
111	1,4-Dimethyl-2-Ethy benzene		1	Y	146.41600	161.29726	10.2	146.25938	-0.1		145.85381	-0.4	
112	1,2-Dimethyl-4-Ethy benzene		1	Y	142.01400	160.69431	13.2	140.76390	-0.9		143.83573	1.3	
113	1,3-Dimethyl-2-Ethy benzene		1	Y	73.30200	82.85457	13.0	70.91179	-3.3		74.63491	1.8	
114	n-Undecane		1	Y	376.08000	410.56903	9.2	309.21754	-17.8		340.85175	-9.4	
115	1,2,4,5-Tetramethylbenzene		1	Y	16.43700	18.43033	12.1	18.58888	13.1		17.33038	5.4	
116	1,2,3,5-Tetramethylbenzene		1	Y	332.92800	384.06087	15.4	315.86263	-5.1		335.24173	0.7	
117	1,2,3,4-Tetramethylbenzene		1	Y	320.51200	364.96177	13.9	298.67435	-6.8		320.81980	0.1	
118	n-Penty benzene		1	Y	278.02900	311.15122	11.9	236.90008	-14.8		264.15234	-5.0	
119	Benzo(b)thiophene		1	Y	317.05600	384.21482	21.2	355.16561	12.0		369.89002	16.7	
120	MMT		1	Y	256.66600	322.07189	25.5	262.89094	2.4		305.75788	19.1	
121	n-Dodecane		1	Y	620.01000	457.52048	-26.2	351.36794	-43.3	N	380.48057	-38.6	N

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CCV Summary Report

Batch:	13-0320	**Data Set:**	DP-13-0544
Project Test Code:	Master_245(O)	**SOP_NO:**	5-245-11
Project Name:	PIANO Analysis	**Project Number:**	100012044-9

Matrix: NAPL

Calibration File: MD0944D.M **Last Updated:** 8/7/2013 10:09:00 AM

						D7648.D		D7681.D		D7716.D	
						HT05 MID		HT05 MID		HT05 MID	
						08/05/2013 21:01		08/08/2013 00:52		08/10/2013 02:20	
No:	**Analyte:**	**Type:**	**Col:**	**MQO:**	**CAL**	**MID**	**% Diff**	**MID**	**% Diff**	**MID**	**% Diff**
					Mean PD:		**9.3**		**9.8**		**8.6**
					Time Check:		**< 12**		**< 12**		**< 12**

MQO: Only compounds flagged with "Y" will be counted towards MQO exceedences.

CCV Acceptance Criteria:

Frequency Hours:	12	**Qual:**	N
Mean PD(%):	25	**Qual:**	N
Individual PD(%):	30	**Qual:**	N

Battelle
The Business of Innovation

CCV Summary Report

Batch:	13-0320	**Data Set:**	DP-13-0544
Project Test Code:	Master_245(O)	**SOP_NO:**	5-245-11
Project Name:	PIANO Analysis	**Project Number:**	100012044-9

Matrix: NAPL

Calibration File: MD0944D.M **Last Updated:** 8/7/2013 10:09:00 AM

D7722.D
HT06 MID
08/10/2013 10:07

No:	Analyte:	Type:	Col:	MQO:	CAL	MID	% Diff
1	Benzene-d6	I	1	-			
2	1,4-Difluorobenzene	S	1	-	401.08000	375.31773	
3	Ethanol		1	Y	6400.90000	5275.30193	-17.6
4	Isopentane		1	Y	159.52300	134.23954	-15.8
5	1-Pentene		1	Y	313.65500	266.83085	-14.9
6	2-Methyl-1-Butene		1	Y	111.62600	100.75002	-9.7
7	n-Pentane		1	Y	1142.06000	955.81975	-16.3
8	trans-2-Pentene		1	Y	146.33900	122.39061	-16.4
9	cis-2-Pentene		1	Y	153.94000	130.38872	-15.3
10	t-Butanol		1	Y	8177.92000	8363.18428	2.3
11	2,2-Dimethylbutane		1	Y	637.69600	530.40909	-16.8
12	Cyclopentane		1	Y	477.43800	426.87129	-10.6
13	2-Methylpentane		1	Y	261.05500	215.56890	-17.4
14	Methyltertbutylether		1	Y	639.36000	589.09982	-7.9
15	3-Methylpentane		1	Y	432.01300	352.43976	-18.4
16	1-Hexene		1	Y	582.75500	476.65346	-18.2
17	n-Hexane		1	Y	762.80300	609.06407	-20.2
18	Di-isopropylether		1	Y	637.44000	567.28999	-11.0
19	trans-2-Hexene		1	Y	143.31200	114.51711	-20.1
20	2-Methylpentene-2		1	Y	265.42100	218.66308	-17.6
21	cis-2-Hexene		1	Y	311.34500	257.15436	-17.4
22	Ethyltertbutylether		1	Y	640.64000	574.46537	-10.3
23	2,2-Dimethylpentane		1	Y	144.97200	117.77081	-18.8
24	Methylcyclopentane		1	Y	323.14400	271.95042	-15.8
25	1,2-Dichloroethane		1	Y	633.98400	569.71075	-10.1
26	2,4-Dimethylpentane		1	Y	294.71700	229.99406	-22.0
27	Benzene		1	Y	942.98300	881.37600	-6.5
28	Thiophene		1	Y	640.00000	575.74632	-10.0
29	Cyclohexane		1	Y	547.50300	462.20160	-15.6
30	2-Methylhexane		1	Y	200.20100	153.15044	-23.5
31	2,3-Dimethylpentane		1	Y	154.47200	123.34149	-20.2
32	Tertamylmethylether		1	Y	638.46400	585.65469	-8.3
33	3-Methylhexane		1	Y	141.21700	111.42776	-21.1
34	Trichloroethylene		1	Y	640.38400	589.29901	-8.0
35	2-Methyl-1-Hexene		1	Y	641.92000	516.30256	-19.6
36	2,2,4-Trimethylpentane/1-Heptene		1	Y	1145.46000	907.69830	-20.8
37	trans-3-Heptene		1	Y	321.95900	253.46741	-21.3
38	Toluene-d8	I	1	-			
39	Chlorobenzene-d5	S	1	-	401.64000	392.26239	
40	n-Heptane		1	Y	811.74600	653.61213	-19.5
41	cis-3-Heptene		1	Y	483.00100	409.41110	-15.2
42	trans-2-Heptene		1	Y	324.73500	280.07322	-13.8
43	cis-2-Heptene		1	Y	496.41200	429.87072	-13.4

Battelle
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CCV Summary Report

Batch:	13-0320	**Data Set:**	DP-13-0544
Project Test Code:	Master_245(O)	**SOP_NO:**	5-245-11
Project Name:	PIANO Analysis	**Project Number:**	100012044-9

Matrix: NAPL

Calibration File: MD0944D.M **Last Updated:** 8/7/2013 10:09:00 AM

D7722.D
HT06 MID
08/10/2013 10:07

No:	Analyte:	Type:	Col:	MQO:	CAL	MID	% Diff
44	Methylcyclohexane		1	Y	589.47800	522.01860	-11.4
45	2,5-Dimethylhexane/2,2,3-Trimethylpenta		1	Y	608.61500	506.64290	-16.8
46	2,4-Dimethylhexane		1	Y	147.02900	123.79304	-15.8
47	ctc-1,2,4-Trimethylcyclopentane		1	Y	166.96000	141.35726	-15.3
48	ctc-1,2,3-Trimethylcyclopentane		1	Y	161.54500	138.09317	-14.5
49	2,3,4-Trimethylpentane		1	Y	640.00000	530.85132	-17.1
50	Toluene		1	Y	616.05000	601.93884	-2.3
51	2,3,3-Trimethylpentane		1	Y	641.15200	541.55417	-15.5
52	2-Methylthiophene		1	Y	635.64800	628.70059	-1.1
53	2,3-Dimethylhexane		1	Y	135.73400	109.88344	-19.0
54	3-Methylthiophene		1	Y	639.10400	632.32106	-1.1
55	2-Methylheptane		1	Y	385.98700	313.42028	-18.8
56	4-Methylheptane		1	Y	286.32300	227.13233	-20.7
57	1,2-D bromoethane		1	Y	633.98400	658.38621	3.8
58	1-Octene		1	Y	663.82800	524.83579	-20.9
59	2,2-Dimethylheptane		1	Y	512.41000	432.38467	-15.6
60	2,2,4-Trimethylhexane		1	Y	638.59200	533.64449	-16.4
61	Tetrachloroethylene		1	Y	640.38400	592.04931	-7.5
62	n-Octane		1	Y	764.02300	593.68560	-22.3
63	trans-2-Octene		1	Y	176.15000	139.66287	-20.7
64	Isopropylcyclopentane		1	Y	361.79100	307.15410	-15.1
65	cis-2-Octene		1	Y	332.98700	270.68294	-18.7
66	2,4-Dimethylheptane		1	Y	640.51200	528.50739	-17.5
67	Ethylcyclohexane/n-propylcyclopentane		1	Y	1020.06000	865.19873	-15.2
68	2,6-Dimethylheptane		1	Y	512.77800	419.95404	-18.1
69	1,1,4-Trimethylcyclohexane		1	Y	374.46700	319.88085	-14.6
70	Ethylbenzene-d10	I	1	-			
71	1,4-Dichlorobenzene-d4	S	1	-	400.48000	387.45758	
72	Ethylbenzene		1	Y	915.59900	925.58827	1.1
73	ctt-1,2,4-Trimethylcyclohexane		1	Y	386.10400	337.39486	-12.6
74	2-Ethylthiophene		1	Y	633.21600	642.95079	1.5
75	m-Xylene		1	Y	296.92100	296.89685	0.0
76	p-Xylene		1	Y	636.67500	636.90603	0.0
77	2,3-Dimethylheptane		1	Y	133.18800	117.36042	-11.9
78	4-Methyloctane		1	Y	632.06400	517.75998	-18.1
79	2-Methyloctane		1	Y	331.54200	293.42851	-11.5
80	ctc-1,2,4-Trimethylcyclohexane		1	Y	367.99500	323.04715	-12.2
81	1,1,2-Trimethylcyclohexane		1	Y	361.28600	323.26638	-10.5
82	o-Xylene		1	Y	306.35300	310.64311	1.4
83	1-Nonene		1	Y	672.14600	536.65172	-20.2
84	trans-3-Nonene		1	Y	175.99000	140.23533	-20.3
85	cis-3-Nonene		1	Y	346.37700	277.25850	-20.0

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CCV Summary Report

Batch:	13-0320	**Data Set:**	DP-13-0544
Project Test Code:	Master_245(O)	**SOP_NO:**	5-245-11
Project Name:	PIANO Analysis	**Project Number:**	100012044-9

Matrix: NAPL

Calibration File: MD0944D.M **Last Updated:** 8/7/2013 10:09:00 AM

D7722.D
HT06 MID
08/10/2013 10:07

No:	Analyte:	Type:	Col:	MQO:	CAL	MID	% Diff	
86	n-Nonane		1	Y	838.32700	696.53899	-16.9	
87	trans-2-Nonene		1	Y	92.57500	72.14635	-22.1	
88	Isopropy benzene		1	Y	298.94200	298.61258	-0.1	
89	cis-2-Nonene		1	Y	245.13400	194.17112	-20.8	
90	Isopropylcyclohexane		1	Y	619.52400	543.47465	-12.3	
91	2,2-Dimethyloctane		1	Y	296.99500	271.23871	-8.7	
92	n-Butylcyclopentane		1	Y	388.72100	324.92881	-16.4	
93	3,3-Dimethyloctane		1	Y	203.10200	186.94264	-8.0	
94	Propylbenzene		1	Y	582.91000	571.25206	-2.0	
95	1-Methyl-3-Ethylbenzene		1	Y	296.43300	295.34388	-0.4	
96	1-Methyl-4-Ethylbenzene		1	Y	262.06500	252.43452	-3.7	
97	1,3,5-Trimethylbenzene		1	Y	146.37100	144.39552	-1.3	
98	1-Methyl-2-Ethylbenzene		1	Y	305.35900	305.92019	0.2	
99	3-Methylnonane		1	Y	506.92800	408.43969	-19.4	
100	1,2,4-Trimethylbenzene		1	Y	337.43300	332.38577	-1.5	
101	1-Decene		1	Y	705.18700	549.76721	-22.0	
102	sec-Butylbenzene		1	Y	296.13500	289.05024	-2.4	
103	n-Decane		1	Y	777.55900	650.64905	-16.3	
104	1,2,3-Trimethylbenzene		1	Y	640.00000	634.88305	-0.8	
105	Indane		1	Y	641.79200	656.51249	2.3	
106	1,3-Diethylbenzene		1	Y	640.76800	613.86540	-4.2	
107	1-methyl-4-n-propylbenzene/1,4-Diethy b		1	Y	910.44600	839.75093	-7.8	
108	1,3-Dimethyl-5-Ethy benzene		1	Y	289.71500	283.73881	-2.1	
109	1,2-Diethylbenzene		1	Y	140.92200	138.70888	-1.6	
110	1-Methyl-2-n-Propylbenzene		1	Y	289.35600	281.33349	-2.8	
111	1,4-Dimethyl-2-Ethy benzene		1	Y	292.83200	292.03983	-0.3	
112	1,2-Dimethyl-4-Ethy benzene		1	Y	284.02800	274.51038	-3.4	
113	1,3-Dimethyl-2-Ethy benzene		1	Y	146.60400	145.83400	-0.5	
114	n-Undecane		1	Y	752.16000	479.42820	-36.3	N
115	1,2,4,5-Tetramethylbenzene		1	Y	32.87400	32.36890	-1.5	
116	1,2,3,5-Tetramethylbenzene		1	Y	665.85600	641.25121	-3.7	
117	1,2,3,4-Tetramethylbenzene		1	Y	641.02400	619.91657	-3.3	
118	n-Pentylbenzene		1	Y	556.05700	449.63366	-19.1	
119	Benzo(b)thiophene		1	Y	634.11200	746.40664	17.7	
120	MMT		1	Y	513.33100	604.10224	17.7	
121	n-Dodecane		1	Y	1240.02000	491.11593	-60.4	N

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CCV Summary Report

Batch:	13-0320	**Data Set:**	DP-13-0544
Project Test Code:	Master_245(O)	**SOP_NO:**	5-245-11
Project Name:	PIANO Analysis	**Project Number:**	100012044-9

Matrix: NAPL

Calibration File: MD0944D.M **Last Updated:** 8/7/2013 10:09:00 AM

D7722.D
HT06 MID
08/10/2013 10:07

No:	Analyte:	Type:	Col:	MQO:	CAL	MID	% Diff

MQO: Only compounds flagged with "Y" will be counted towards MQO exceedences.

Mean PD: **12.8**
Time Check: **< 12**

CCV Acceptance Criteria:

Frequency Hours:	12	**Qual:**	N
Mean PD(%):	25	**Qual:**	N
Individual PD(%):	30	**Qual:**	N

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0944\D7425.D Vial: 10
Acq On : 14 Jun 2013 10:20 pm Operator: KPC
Sample : HP65 ICC Inst : Inst D
Misc : ICC Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Aug 07 10:12:07 2013 Quant Results File: MD0944D.RES

Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Wed Aug 07 10:10:24 2013
Response via : Initial Calibration
DataAcq Meth : PIANO
Target Mult : 30.000
RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.03	84	2097439m	402.0400	ng
38) Toluene-d8	21.46	98	1972535m	402.1600	ng
70) Ethylbenzene-d10	31.73	98	2807098m	402.4800	ng
System Monitoring Compounds					
2) 1,4-Difluorobenzene	12.33	114	1446005m	399.5028	ng
Spiked Amount 401.0800				Recovery = 99.61%	
39) Chlorobenzene-d5	29.90tw	117	1295519m	406.8810	ng
Spiked Amount 401.6400				Recovery = 101.30%	
71) 1,4-Dichlorobenzene-d4	45.90	150	933941m	407.8729	ng
Spiked Amount 400.4800				Recovery = 101.85%	

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units	%DIF
3) Ethanol	4.56	45	38937m	2322.3041	ng	-12.1
4) Isopentane	4.85	43	37554m	21.7384	ng	25.0N
5) 1-Pentene	5.08	42	197486m	86.8868	ng	-14.0
6) 2-Methyl-1-Butene	5.19	55	76893m	22.8819	ng	-9.1
7) n-Pentane	5.26	43	246762m	95.7964	ng	-9.1
8) trans-2-Pentene	5.40	55	67283m	19.4832	ng	-13.7
9) cis-2-Pentene	5.55	55	72799m	21.4560	ng	-8.6
10) t-Butanol	5.65	59	517866m	2956.7194	ng	-8.8
11) 2,2-Dimethylbutane	6.03	57	454777m	256.3257	ng	6.7
12) Cyclopentane	6.85	42	479030m	127.5484	ng	-2.2
13) 2-Methylpentane	7.02	43	269004m	64.6083	ng	-11.0
14) Methyltertbutylether	6.92	73	1102996m	247.4371	ng	3.0
15) 3-Methylpentane	7.55	57	366211m	108.3275	ng	-11.7
16) 1-Hexene	7.77	56	239651m	116.9755	ng	-14.4
17) n-Hexane	8.26	57	275934m	101.2507	ng	-9.2
18) Di-isopropylether	8.32	45	1541500m	243.4990	ng	1.4
19) trans-2-Hexene	8.49	55	89291m	23.7226	ng	-13.8
20) 2-Methylpentene-2	8.60	69	141190m	38.6109	ng	-9.1
21) cis-2-Hexene	0.00	55	0	N.D. d		
22) Ethyltertbutylether	9.25	59	1433464m	250.1538	ng	4.1
23) 2,2-Dimethylpentane	9.52	57	115052m	24.6208	ng	-14.1
24) Methylcyclopentane	9.66t	56	265700m	76.6318	ng	-6.3
25) 1,2-Dichloroethane	9.66t	62	581083m	234.5944	ng	-2.3
26) 2,4-Dimethylpentane	9.88	57	189280m	58.2412	ng	-17.0
27) Benzene	11.18	78	887212m	173.1712	ng	8.5
28) Thiophene	11.46	84	909614m	245.2151	ng	2.2
29) Cyclohexane	11.87	56	180050m	60.5461	ng	-11.5
30) 2-Methylhexane	12.65	43	195876m	47.3514	ng	-15.0
31) 2,3-Dimethylpentane	12.77	56	156641m	49.2489	ng	-13.7
32) Tertamylmethylether	13.08	73	1141576m	247.4291	ng	3.1
33) 3-Methylhexane	13.42	70	37844m	23.2256	ng	-18.7
34) Trichloroethylene	14.38	130	280493m	252.7970	ng	5.2
35) 2-Methyl-1-Hexene	0.00	56	0	N.D. d		
36) 2,2,4-Trimethylpentane/	0.00	56	0	N.D. d		
37) trans-3-Heptene	0.00	41	0	N.D. d		
40) n-Heptane	15.96	43	319204m	104.3995	ng	-9.2
41) cis-3-Heptene	0.00	41	0	N.D. d		
42) trans-2-Heptene	0.00	55	0	N.D. d		
43) cis-2-Heptene	0.00	56	0	N.D. d		
44) Methylcyclohexane	0.00	83	0	N.D. d		
45) 2,5-Dimethylhexane/2,2,	0.00	57	0	N.D. d		
46) 2,4-Dimethylhexane	19.81	43	58256m	15.7773	ng	-10.3
47) ctc-1,2,4-Trimethylcycl	0.00	70	0	N.D.		
48) ctc-1,2,3-Trimethylcycl	21.17	70	107360m	45.3546	ng	-13.4
49) 2,3,4-Trimethylpentane	21.50	43	901588m	207.7013	ng	-13.5
50) Toluene	21.88	91	1748206m	259.3220	ng	9.5
51) 2,3,3-Trimethylpentane	21.92	43	883200m	239.4132	ng	-0.6

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52)	2-Methylthiophene	22.08	97	1220653m	255.5655 ng	6.4
53)	2,3-Dimethylhexane	22.79	43	155534m	33.4662 ng	-21.5N
54)	3-Methylthiophene	22.87	97	1262757m	250.2450 ng	4.2
55)	2-Methylheptane	23.53	43	158853m	44.8679 ng	-21.7N
56)	4-Methylheptane	0.00	43	0	N.D. d	
57)	1,2-Dibromoethane	24.55	107	245796m	251.0744 ng	4.4
58)	1-Octene	26.03	55	214896m	114.5016 ng	-21.4N
59)	2,2-Dimethylheptane	26.25	57	1362195m	169.9760 ng	-29.9N
60)	2,2,4-Trimethylhexane	29.48	57	1293413	245.5682 ng	2.1
61)	Tetrachloroethylene	26.88	166	277032	240.8288 ng	0.0
62)	n-Octane	27.33	43	356096m	92.0130 ng	-22.5N
63)	trans-2-Octene	27.73	55	107852m	35.0817 ng	-19.9
64)	Isopropylcyclopentane	0.00	68	0	N.D. d	
65)	cis-2-Octene	28.60	55	62196m	23.6899 ng	-21.2N
66)	2,4-Dimethylheptane	29.91tw	43	859148m	199.2395 ng	-17.1
67)	Ethylcyclohexane/n-prop	30.36	83	750426m	295.9361 ng	-2.4
68)	2,6-Dimethylheptane	30.61	43	739248m	192.5141 ng	-19.8
69)	1,1,4-Trimethylcyclohex	31.17	111	211740m	74.4320 ng	-16.7
72)	Ethylbenzene	32.24	91	1062915m	175.5386 ng	12.2
73)	ctt-1,2,4-Trimethylcycl	0.00	111	0	N.D. d	
74)	2-Ethylthiophene	32.38	97	1436202m	260.6201 ng	8.5
75)	m-Xylene	33.15	91	315516m	61.4809 ng	5.3
76)	p-Xylene	0.00	91	0	N.D. d	
77)	2,3-Dimethylheptane	33.40	43	58045m	12.4477 ng	-15.4
78)	4-Methyloctane	34.24	43	775396m	182.1743 ng	-24.1N
79)	2-Methyloctane	0.00	43	0	N.D. d	
80)	ctc-1,2,4-Trimethylcycl	0.00	69	0	N.D. d	
81)	1,1,2-Trimethylcyclohex	0.00	69	0	N.D. d	
82)	o-Xylene	35.41	91	343110m	67.9779 ng	12.7
83)	1-Nonene	36.66	56	129776m	69.3712 ng	-23.6N
84)	trans-3-Nonene	37.33	55	75413m	30.5479 ng	1.5
85)	cis-3-Nonene	37.49	55	89597m	34.5805 ng	-11.8
86)	n-Nonane	37.80	43	321260m	101.1915 ng	-16.1
87)	trans-2-Nonene	38.09	55	60738m	21.3733 ng	-29.8N
88)	Isopropylbenzene	38.72	105	245766m	41.9427 ng	7.3
89)	cis-2-Nonene	0.00	55	0	N.D. d	
90)	Isopropylcyclohexane	39.24	82	161132m	62.8202 ng	-9.8
91)	2,2-Dimethyloctane	39.63	57	132144m	23.6641 ng	-11.0
92)	n-Butylcyclopentane	0.00	69	0	N.D. d	
93)	3,3-Dimethyloctane	0.00	71	0	N.D. d	
94)	Propylbenzene	41.53	91	461365m	62.8737 ng	8.0
95)	1-Methyl-3-Ethylbenzene	42.27	105	291680m	50.8839 ng	-3.2
96)	1-Methyl-4-Ethylbenzene	42.44	105	291899m	47.1615 ng	20.7N
97)	1,3,5-Trimethylbenzene	0.00	105	0	N.D. d	
98)	1-Methyl-2-Ethylbenzene	43.83	105	191201m	33.5555 ng	12.8
99)	3-Methylnonane	44.56	57	202362m	54.9827 ng	-18.3
100)	1,2,4-Trimethylbenzene	45.22	105	222517m	43.5130 ng	9.6
101)	1-Decene	0.00	41	0	N.D. d	
102)	sec-Butylbenzene	46.84	105	385129	60.2327 ng	3.4
103)	n-Decane	47.10	43	291549	113.7774 ng	-7.7
104)	1,2,3-Trimethylbenzene	47.61	105	1494868	264.0964 ng	9.9
105)	Indane	48.53	117	1124551	260.8981 ng	8.6
106)	1,3-Diethylbenzene	50.11	105	955430	259.5411 ng	7.9
107)	1-methyl-4-n-propylbenz	50.64	105	1026196m	224.0599 ng	-19.7
108)	1,3-Dimethyl-5-Ethylben	0.00	119	0	N.D. d	
109)	1,2-Diethylbenzene	51.07	105	66089m	19.5840 ng	21.4N
110)	1-Methyl-2-n-Propylbenz	51.59	105	276779m	41.9761 ng	1.6
111)	1,4-Dimethyl-2-Ethylben	52.47	119	180699m	38.4038 ng	-3.5
112)	1,2-Dimethyl-4-Ethylben	0.00	119	0	N.D. d	
113)	1,3-Dimethyl-2-Ethylben	53.57	119	86334m	16.3097 ng	5.5
114)	n-Undecane	55.48	57	282617m	149.2150 ng	20.0N
115)	1,2,4,5-Tetramethylbenz	0.00	119	0	N.D. d	
116)	1,2,3,5-Tetramethylbenz	55.97	119	1262122m	254.3298 ng	6.0
117)	1,2,3,4-Tetramethylbenz	58.29	119	1160600m	252.0085 ng	4.9
118)	n-Pentylbenzene	0.00	91	0	N.D. d	
119)	Benzo(b)thiophene	59.70	134	371962m	273.9035 ng	14.1
120)	MMT	0.00	120	0	N.D.	
121)	n-Dodecane	60.87	57	691768m	550.8073 ng	40.0N

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

Sample Spike Amounts List Report Inst D MD0944D.M

Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Jun 17 11:41:28 2013
Response via : Initial Calibration
Standard Mult: NA
Total Cpnds : 121

LIMS Smp Id : HP65 ICC
Sample Name : HP65 ICC
Miscellaneous: ICC
Data File : J:\D\DATA\SD0944\D7425.D
Load Std Amts: Mon Aug 12 12:48:06 2013

Values Stored in Quant Results File: \MD0944D.RES

	Compound	RIS	
1)	I Benzene-d6	402.04	-------
2)	S 1,4-Difluorobenzene	-------	401.08
3)	Ethanol	-------	2642.83
4)	Isopentane	-------	17.3916
5)	1-Pentene	-------	101.039
6)	2-Methyl-1-Butene	-------	25.179
7)	n-Pentane	-------	105.402
8)	trans-2-Pentene	-------	22.578
9)	cis-2-Pentene	-------	23.4717
10)	t-Butanol	-------	3240.59
11)	2,2-Dimethylbutane	-------	240.307
12)	Cyclopentane	-------	130.407
13)	2-Methylpentane	-------	72.6321
14)	Methyltertbutylether	-------	240.178
15)	3-Methylpentane	-------	122.668
16)	1-Hexene	-------	136.685
17)	n-Hexane	-------	111.552
18)	Di-isopropylether	-------	240.082
19)	trans-2-Hexene	-------	27.5265
20)	2-Methylpentene-2	-------	42.4674
22)	Ethyltertbutylether	-------	240.346
23)	2,2-Dimethylpentane	-------	28.6473
24)	Methylcyclopentane	-------	81.7506
25)	1,2-Dichloroethane	-------	240.192
26)	2,4-Dimethylpentane	-------	70.212
27)	Benzene	-------	159.617
28)	Thiophene	-------	240
29)	Cyclohexane	-------	68.4378

30)	2-Methylhexane	-------	55.7328
31)	2,3-Dimethylpentane	-------	57.0873
32)	Tertamylmethylether	-------	240.062
33)	3-Methylhexane	-------	28.5534
34)	Trichloroethylene	-------	240.283
38)	I Toluene-d8	402.16	-------
39)	S Chlorobenzene-d5	-------	401.64
40)	n-Heptane	-------	114.957
46)	2,4-Dimethylhexane	-------	17.5893
48)	ctc-1,2,3-Trimethylcyclopentane	-------	52.3929
49)	2,3,4-Trimethylpentane	-------	240.187
50)	Toluene	-------	236.878
51)	2,3,3-Trimethylpentane	-------	240.782
52)	2-Methylthiophene	-------	240.211
53)	2,3-Dimethylhexane	-------	42.6462
54)	3-Methylthiophene	-------	240.082
55)	2-Methylheptane	-------	57.2913
57)	1,2-Dibromoethane	-------	240.451
58)	1-Octene	-------	145.701
59)	2,2-Dimethylheptane	-------	242.621
60)	2,2,4-Trimethylhexane	-------	240.514
61)	Tetrachloroethylene	-------	240.71
62)	n-Octane	-------	118.742
63)	trans-2-Octene	-------	43.8057
65)	cis-2-Octene	-------	30.0807
66)	2,4-Dimethylheptane	-------	240.47
67)	Ethylcyclohexane/n-propylcyclopen	ta -------	303.276
68)	2,6-Dimethylheptane	-------	240
69)	1,1,4-Trimethylcyclohexane	-------	89.3952
70)	I Ethylbenzene-d10	402.48	-------
71)	S 1,4-Dichlorobenzene-d4	-------	400.48
72)	Ethylbenzene	-------	156.506
74)	2-Ethylthiophene	-------	240.235
75)	m-Xylene	-------	58.3833
77)	2,3-Dimethylheptane	-------	14.7207
78)	4-Methyloctane	-------	240.12
82)	o-Xylene	-------	60.3081
83)	1-Nonene	-------	90.8244
84)	trans-3-Nonene	-------	30.1095
85)	cis-3-Nonene	-------	39.2124
86)	n-Nonane	-------	120.553
87)	trans-2-Nonene	-------	30.4647
88)	Isopropylbenzene	-------	39.1011
90)	Isopropylcyclohexane	-------	69.6384
91)	2,2-Dimethyloctane	-------	26.5758
94)	Propylbenzene	-------	58.2354
95)	1-Methyl-3-Ethylbenzene	-------	52.557

96)	1-Methyl-4-Ethylbenzene	-------	39.0603
98)	1-Methyl-2-Ethylbenzene	-------	29.7426
99)	3-Methylnonane	-------	67.26
100)	1,2,4-Trimethylbenzene	-------	39.7146
102)	sec-Butylbenzene	-------	58.2288
103)	n-Decane	-------	123.329
104)	1,2,3-Trimethylbenzene	-------	240.394
105)	Indane	-------	240.302
106)	1,3-Diethylbenzene	-------	240.61
107)	1-methyl-4-n-propylbenzene/1,4-Di	et -------	279.045
109)	1,2-Diethylbenzene	-------	16.1295
110)	1-Methyl-2-n-Propylbenzene	-------	41.2965
111)	1,4-Dimethyl-2-Ethylbenzene	-------	39.7779
113)	1,3-Dimethyl-2-Ethylbenzene	-------	15.462
114)	n-Undecane	-------	124.328
116)	1,2,3,5-Tetramethylbenzene	-------	240.024
117)	1,2,3,4-Tetramethylbenzene	-------	240.221
119)	Benzo(b)thiophene	-------	240.077
121)	n-Dodecane	-------	393.382

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7642.D Vial: 5
Acq On : 5 Aug 2013 1:13 pm Operator: KPD
Sample : BZ513PB-V(0) Inst : Inst D
Misc : Procedural Blank 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 07 10:34:38 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Wed Aug 07 10:10:24 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : NA RIS/SIS Mult : NA

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.02	84	2145086m	402.0400	ng
38) Toluene-d8	21.45	98	1941063m	402.1600	ng
70) Ethylbenzene-d10	31.73	98	2852344m	402.4800	ng

System Monitoring Compounds

2) 1,4-Difluorobenzene	12.31	114	1429102m	386.0627	ng
Spiked Amount 401.0800				Recovery =	96.26%
39) Chlorobenzene-d5	29.88	117	1236987m	394.7970	ng
Spiked Amount 401.6400				Recovery =	98.30%
71) 1,4-Dichlorobenzene-d4	45.90	150	880203	378.3066	ng
Spiked Amount 400.4800				Recovery =	94.46%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	d
4) Isopentane	0.00	43	0	N.D.	
5) 1-Pentene	0.00	42	0	N.D.	d
6) 2-Methyl-1-Butene	0.00	55	0	N.D.	d
7) n-Pentane	0.00	43	0	N.D.	d
8) trans-2-Pentene	0.00	55	0	N.D.	
9) cis-2-Pentene	0.00	55	0	N.D.	
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	0.00	57	0	N.D.	d
12) Cyclopentane	0.00	42	0	N.D.	d
13) 2-Methylpentane	0.00	43	0	N.D.	d
14) Methyltertbutylether	0.00	73	0	N.D.	
15) 3-Methylpentane	0.00	57	0	N.D.	d
16) 1-Hexene	0.00	56	0	N.D.	
17) n-Hexane	8.25	57	6695m	2.4021	ng
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	0.00	55	0	N.D.	
20) 2-Methylpentene-2	0.00	69	0	N.D.	
21) cis-2-Hexene	0.00	55	0	N.D.	
22) Ethyltertbutylether	0.00	59	0	N.D.	d
23) 2,2-Dimethylpentane	0.00	57	0	N.D.	d
24) Methylcyclopentane	0.00	56	0	N.D.	
25) 1,2-Dichloroethane	0.00	62	0	N.D.	
26) 2,4-Dimethylpentane	0.00	57	0	N.D.	
27) Benzene	0.00	78	0	N.D.	d
28) Thiophene	0.00	84	0	N.D.	
29) Cyclohexane	0.00	56	0	N.D.	d
30) 2-Methylhexane	0.00	43	0	N.D.	
31) 2,3-Dimethylpentane	0.00	56	0	N.D.	
32) Tertamylmethylether	0.00	73	0	N.D.	
33) 3-Methylhexane	0.00	70	0	N.D.	
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	0.00	56	0	N.D.	
36) 2,2,4-Trimethylpentane/	0.00	56	0	N.D.	
37) trans-3-Heptene	0.00	41	0	N.D.	
40) n-Heptane	0.00	43	0	N.D.	
41) cis-3-Heptene	0.00	41	0	N.D.	
42) trans-2-Heptene	0.00	55	0	N.D.	

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

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Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8
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Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7642.D Vial: 5
Acq On : 5 Aug 2013 1:13 pm Operator: KPD
Sample : BZ513PB-V(0) Inst : Inst D
Misc : Procedural Blank 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 07 10:34:38 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Wed Aug 07 10:10:24 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : NA RIS/SIS Mult : NA

Target Compounds (Ratio)	R.T.	QIon	Response	Conc Units
43) cis-2-Heptene	0.00	56	0	N.D.
44) Methylcyclohexane	0.00	83	0	N.D.
45) 2,5-Dimethylhexane/2,2,	0.00	57	0	N.D.
46) 2,4-Dimethylhexane	0.00	43	0	N.D.
47) ctc-1,2,4-Trimethylcycl	0.00	70	0	N.D.
48) ctc-1,2,3-Trimethylcycl	0.00	70	0	N.D.
49) 2,3,4-Trimethylpentane	0.00	43	0	N.D. d
50) Toluene	21.87	91	5078m	0.9940 ng
51) 2,3,3-Trimethylpentane	0.00	43	0	N.D.
52) 2-Methylthiophene	0.00	97	0	N.D.
53) 2,3-Dimethylhexane	0.00	43	0	N.D. d
54) 3-Methylthiophene	0.00	97	0	N.D.
55) 2-Methylheptane	0.00	43	0	N.D.
56) 4-Methylheptane	0.00	43	0	N.D.
57) 1,2-Dibromoethane	0.00	107	0	N.D.
58) 1-Octene	0.00	55	0	N.D.
59) 2,2-Dimethylheptane	0.00	57	0	N.D.
60) 2,2,4-Trimethylhexane	0.00	57	0	N.D.
61) Tetrachloroethylene	0.00	166	0	N.D.
62) n-Octane	0.00	43	0	N.D.
63) trans-2-Octene	0.00	55	0	N.D.
64) Isopropylcyclopentane	0.00	68	0	N.D.
65) cis-2-Octene	0.00	55	0	N.D.
66) 2,4-Dimethylheptane	0.00	43	0	N.D. d
67) Ethylcyclohexane/n-prop	0.00	83	0	N.D.
68) 2,6-Dimethylheptane	0.00	43	0	N.D.
69) 1,1,4-Trimethylcyclohex	0.00	111	0	N.D.
72) Ethylbenzene	0.00	91	0	N.D. d
73) ctt-1,2,4-Trimethylcycl	0.00	111	0	N.D.
74) 2-Ethylthiophene	0.00	97	0	N.D.
75) m-Xylene	0.00	91	0	N.D. d
76) p-Xylene	0.00	91	0	N.D. d
77) 2,3-Dimethylheptane	0.00	43	0	N.D.
78) 4-Methyloctane	0.00	43	0	N.D. d
79) 2-Methyloctane	0.00	43	0	N.D. d
80) ctc-1,2,4-Trimethylcycl	0.00	69	0	N.D.
81) 1,1,2-Trimethylcyclohex	0.00	69	0	N.D.
82) o-Xylene	0.00	91	0	N.D. d
83) 1-Nonene	0.00	56	0	N.D.
84) trans-3-Nonene	0.00	55	0	N.D.
85) cis-3-Nonene	0.00	55	0	N.D.
86) n-Nonane	0.00	43	0	N.D.
87) trans-2-Nonene	0.00	55	0	N.D.
88) Isopropylbenzene	0.00	105	0	N.D.
89) cis-2-Nonene	0.00	55	0	N.D.
90) Isopropylcyclohexane	0.00	82	0	N.D.
91) 2,2-Dimethyloctane	0.00	57	0	N.D.
92) n-Butylcyclopentane	0.00	69	0	N.D.
93) 3,3-Dimethyloctane	0.00	71	0	N.D.
94) Propylbenzene	0.00	91	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7642.D Vial: 5
Acq On : 5 Aug 2013 1:13 pm Operator: KPD
Sample : BZ513PB-V(0) Inst : Inst D
Misc : Procedural Blank 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 07 10:34:38 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Wed Aug 07 10:10:24 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : NA RIS/SIS Mult : NA

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units	
95) 1-Methyl-3-Ethylbenzene		0.00	105	0	N.D. d	
96) 1-Methyl-4-Ethylbenzene		0.00	105	0	N.D. d	
97) 1,3,5-Trimethylbenzene		0.00	105	0	N.D.	
98) 1-Methyl-2-Ethylbenzene		0.00	105	0	N.D.	
99) 3-Methylnonane		0.00	57	0	N.D. d	
100) 1,2,4-Trimethylbenzene		0.00	105	0	N.D. d	
101) 1-Decene		0.00	41	0	N.D.	
102) sec-Butylbenzene		0.00	105	0	N.D. d	
103) n-Decane		0.00	43	0	N.D. d	
104) 1,2,3-Trimethylbenzene		0.00	105	0	N.D. d	
105) Indane		0.00	117	0	N.D.	
106) 1,3-Diethylbenzene		0.00	105	0	N.D. d	
107) 1-methyl-4-n-propylbenz		0.00	105	0	N.D. d	
108) 1,3-Dimethyl-5-Ethylben		0.00	119	0	N.D.	
109) 1,2-Diethylbenzene		0.00	105	0	N.D.	
110) 1-Methyl-2-n-Propylbenz		0.00	105	0	N.D. d	
111) 1,4-Dimethyl-2-Ethylben		0.00	119	0	N.D. d	
112) 1,2-Dimethyl-4-Ethylben		0.00	119	0	N.D. d	
113) 1,3-Dimethyl-2-Ethylben		0.00	119	0	N.D.	
114) n-Undecane		0.00	57	0	N.D. d	
115) 1,2,4,5-Tetramethylbenz		0.00	119	0	N.D.	
116) 1,2,3,5-Tetramethylbenz		0.00	119	0	N.D. d	
117) 1,2,3,4-Tetramethylbenz		58.29	119	1380	0.2949 ng	#
118) n-Pentylbenzene		58.65	91	2581m	0.5561 ng	
119) Benzo(b)thiophene		0.00	134	0	N.D. d	
120) MMT		0.00	120	0	N.D.	
121) n-Dodecane		60.87	57	1993	1.5617 ng	#

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7643.D Vial: 6
Acq On : 5 Aug 2013 2:31 pm Operator: KPD
Sample : BZ514LCS-V(0) Inst : Inst D
Misc : Laboratory Control Sample 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 07 10:35:05 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Wed Aug 07 10:34:38 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.01	84	1999280m	402.0400*	ng
38) Toluene-d8	21.44	98	1837692m	402.1600*	ng
70) Ethylbenzene-d10	31.72	98	2709336m	402.4800*	ng

System Monitoring Compounds

2) 1,4-Difluorobenzene	12.31	114	1348128m	390.7481	ng
Spiked Amount 401.0800*				Recovery =	97.42%
39) Chlorobenzene-d5	29.88	117	1169442m	394.2342	ng
Spiked Amount 401.6400*				Recovery =	98.16%
71) 1,4-Dichlorobenzene-d4	45.90	150	864675	391.2488	ng
Spiked Amount 400.4800*				Recovery =	97.69%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units	%REC
3) Ethanol	0.00	45	0	N.D.	d	
4) Isopentane	0.00	43	0	N.D.	d	
5) 1-Pentene	0.00	42	0	N.D.	d	
6) 2-Methyl-1-Butene	0.00	55	0	N.D.	d	
7) n-Pentane	5.22	43	594403m	242.0848	ng	61
8) trans-2-Pentene	0.00	55	0	N.D.	d	
9) cis-2-Pentene	0.00	55	0	N.D.		
10) t-Butanol	0.00	59	0	N.D.	d	
11) 2,2-Dimethylbutane	0.00	57	0	N.D.	d	
12) Cyclopentane	0.00	42	0	N.D.	d	
13) 2-Methylpentane	6.99	43	1770853m	446.1980	ng	111
14) Methyltertbutylether	6.93	73	1604431m	377.5962	ng	94
15) 3-Methylpentane	0.00	57	0	N.D.	d	
16) 1-Hexene	0.00	56	0	N.D.		
17) n-Hexane	8.23	57	915703m	352.5032	ng	88
18) Di-isopropylether	0.00	45	0	N.D.	d	
19) trans-2-Hexene	0.00	55	0	N.D.	d	
20) 2-Methylpentene-2	0.00	69	0	N.D.		
21) cis-2-Hexene	0.00	55	0	N.D.		
22) Ethyltertbutylether	0.00	59	0	N.D.	d	
23) 2,2-Dimethylpentane	0.00	57	0	N.D.	d	
24) Methylcyclopentane	0.00	56	0	N.D.	d	
25) 1,2-Dichloroethane	9.66	62	961795m	407.3593	ng	101
26) 2,4-Dimethylpentane	0.00	57	0	N.D.		
27) Benzene	11.15	78	2145412m	439.3136	ng	110
28) Thiophene	0.00	84	0	N.D.	d	
29) Cyclohexane	0.00	56	0	N.D.	d	
30) 2-Methylhexane	0.00	43	0	N.D.	d	
31) 2,3-Dimethylpentane	0.00	56	0	N.D.	d	
32) Tertamylmethylether	0.00	73	0	N.D.		
33) 3-Methylhexane	0.00	70	0	N.D.		
34) Trichloroethylene	0.00	130	0	N.D.		
35) 2-Methyl-1-Hexene	0.00	56	0	N.D.	d	
36) 2,2,4-Trimethylpentane/	14.69	56	787851m	368.0909	ng	92
37) trans-3-Heptene	0.00	41	0	N.D.	d	
40) n-Heptane	0.00	43	0	N.D.	d	
41) cis-3-Heptene	0.00	41	0	N.D.	d	
42) trans-2-Heptene	0.00	55	0	N.D.		

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7643.D Vial: 6
Acq On : 5 Aug 2013 2:31 pm Operator: KPD
Sample : BZ514LCS-V(0) Inst : Inst D
Misc : Laboratory Control Sample 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 07 10:35:05 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Wed Aug 07 10:34:38 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds (Ratio)	R.T.	QIon	Response	Conc Units	%REC
43) cis-2-Heptene	0.00	56	0	N.D.	
44) Methylcyclohexane	0.00	83	0	N.D.	
45) 2,5-Dimethylhexane/2,2,	0.00	57	0	N.D.	
46) 2,4-Dimethylhexane	0.00	43	0	N.D.	
47) ctc-1,2,4-Trimethylcycl	0.00	70	0	N.D.	
48) ctc-1,2,3-Trimethylcycl	0.00	70	0	N.D.	
49) 2,3,4-Trimethylpentane	0.00	43	0	N.D. d	
50) Toluene	21.86	91	2134889m	441.4231 ng	110
51) 2,3,3-Trimethylpentane	0.00	43	0	N.D. d	
52) 2-Methylthiophene	0.00	97	0	N.D.	
53) 2,3-Dimethylhexane	0.00	43	0	N.D. d	
54) 3-Methylthiophene	0.00	97	0	N.D.	
55) 2-Methylheptane	0.00	43	0	N.D.	
56) 4-Methylheptane	0.00	43	0	N.D.	
57) 1,2-Dibromoethane	24.55	107	349776m	383.5037 ng	97
58) 1-Octene	0.00	55	0	N.D.	
59) 2,2-Dimethylheptane	0.00	57	0	N.D.	
60) 2,2,4-Trimethylhexane	0.00	57	0	N.D.	
61) Tetrachloroethylene	26.88	166	417487m	389.5592 ng	97
62) n-Octane	27.32	43	1335281m	370.3451 ng	92
63) trans-2-Octene	0.00	55	0	N.D.	
64) Isopropylcyclopentane	0.00	68	0	N.D.	
65) cis-2-Octene	0.00	55	0	N.D.	
66) 2,4-Dimethylheptane	0.00	43	0	N.D. d	
67) Ethylcyclohexane/n-prop	0.00	83	0	N.D.	
68) 2,6-Dimethylheptane	0.00	43	0	N.D.	
69) 1,1,4-Trimethylcyclohex	0.00	111	0	N.D.	
72) Ethylbenzene	32.24	91	2646846	452.8950 ng	113
73) ctt-1,2,4-Trimethylcycl	0.00	111	0	N.D.	
74) 2-Ethylthiophene	0.00	97	0	N.D.	
75) m-Xylene	33.16	91	2116148m	427.2278 ng	107
76) p-Xylene	33.27	91	2152440m	441.4950 ng	110
77) 2,3-Dimethylheptane	0.00	43	0	N.D.	
78) 4-Methyloctane	0.00	43	0	N.D. d	
79) 2-Methyloctane	0.00	43	0	N.D. d	
80) ctc-1,2,4-Trimethylcycl	0.00	69	0	N.D.	
81) 1,1,2-Trimethylcyclohex	0.00	69	0	N.D.	
82) o-Xylene	35.41	91	2154425m	442.2422 ng	112
83) 1-Nonene	0.00	56	0	N.D.	
84) trans-3-Nonene	0.00	55	0	N.D.	
85) cis-3-Nonene	0.00	55	0	N.D.	
86) n-Nonane	37.81	43	1302182	424.9657 ng	106
87) trans-2-Nonene	0.00	55	0	N.D.	
88) Isopropylbenzene	0.00	105	0	N.D. d	
89) cis-2-Nonene	0.00	55	0	N.D.	
90) Isopropylcyclohexane	0.00	82	0	N.D.	
91) 2,2-Dimethyloctane	0.00	57	0	N.D. d	
92) n-Butylcyclopentane	0.00	69	0	N.D.	
93) 3,3-Dimethyloctane	0.00	71	0	N.D. d	
94) Propylbenzene	0.00	91	0	N.D. d	

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7643.D Vial: 6
Acq On : 5 Aug 2013 2:31 pm Operator: KPD
Sample : BZ514LCS-V(0) Inst : Inst D
Misc : Laboratory Control Sample 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 07 10:35:05 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Wed Aug 07 10:34:38 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units	%REC
95) 1-Methyl-3-Ethylbenzene		0.00	105	0	N.D. d	
96) 1-Methyl-4-Ethylbenzene		0.00	105	0	N.D. d	
97) 1,3,5-Trimethylbenzene		0.00	105	0	N.D.	
98) 1-Methyl-2-Ethylbenzene		0.00	105	0	N.D.	
99) 3-Methylnonane		0.00	57	0	N.D. d	
100) 1,2,4-Trimethylbenzene		0.00	105	0	N.D. d	
101) 1-Decene		0.00	41	0	N.D.	
102) sec-Butylbenzene		0.00	105	0	N.D. d	
103) n-Decane		47.11	43	1109775m	448.7188 ng	113
104) 1,2,3-Trimethylbenzene		47.60	105	2033332	372.1882 ng	93
105) Indane		0.00	117	0	N.D. d	
106) 1,3-Diethylbenzene		0.00	105	0	N.D. d	
107) 1-methyl-4-n-propylbenz		0.00	105	0	N.D. d	
108) 1,3-Dimethyl-5-Ethylben		0.00	119	0	N.D.	
109) 1,2-Diethylbenzene		0.00	105	0	N.D.	
110) 1-Methyl-2-n-Propylbenz		0.00	105	0	N.D. d	
111) 1,4-Dimethyl-2-Ethylben		0.00	119	0	N.D. d	
112) 1,2-Dimethyl-4-Ethylben		0.00	119	0	N.D. d	
113) 1,3-Dimethyl-2-Ethylben		0.00	119	0	N.D.	
114) n-Undecane		0.00	57	0	N.D. d	
115) 1,2,4,5-Tetramethylbenz		0.00	119	0	N.D.	
116) 1,2,3,5-Tetramethylbenz		0.00	119	0	N.D.	
117) 1,2,3,4-Tetramethylbenz		0.00	119	0	N.D. d	
118) n-Pentylbenzene		0.00	91	0	N.D. d	
119) Benzo(b)thiophene		0.00	134	0	N.D. d	
120) MMT		0.00	120	0	N.D.	
121) n-Dodecane		60.89	57	676823m	558.3533 ng	139

(#) = qualifier out of range (m) = manual integration (+) = signals summed
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(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7674.D Vial: 3
Acq On : 7 Aug 2013 3:48 pm Operator: KPD
Sample : N9109-V-1(3) Inst : Inst D
Misc : MC20162-1 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:05:46 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 08:52:56 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.03	84	1786050m	402.0400*	ng
38) Toluene-d8	21.49	98	1647890m	402.1600*	ng
70) Ethylbenzene-d10	31.74	98	2460362m	402.4800*	ng

System Monitoring Compounds					
2) 1,4-Difluorobenzene	12.34	114	1203260m	390.3959	ng
Spiked Amount 401.0800*				Recovery =	97.34%
39) Chlorobenzene-d5	29.89	117	1055256m	396.7144	ng
Spiked Amount 401.6400*				Recovery =	98.77%
71) 1,4-Dichlorobenzene-d4	45.93	150	783818m	390.5523	ng
Spiked Amount 400.4800*				Recovery =	97.52%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	d
4) Isopentane	4.84	43E	3731041m	2536.2824	ng
5) 1-Pentene	5.06	42	184000m	95.0672	ng
6) 2-Methyl-1-Butene	5.17	55	329274m	115.0688	ng
7) n-Pentane	5.24	43	5911565m	2695.0636	ng
8) trans-2-Pentene	5.38	55	599296m	203.7941	ng
9) cis-2-Pentene	5.54	55	340929m	118.0003	ng
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	6.03	57	368417m	243.8535	ng
12) Cyclopentane	6.86	42	2153734m	673.4418	ng
13) 2-Methylpentane	7.02	43E	10983049m	3097.7618	ng
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	7.53	57e	6811142m	2366.0457	ng
16) 1-Hexene	7.73	56	734416m	420.9722	ng
17) n-Hexane	8.27	57e	8447038m	3639.9285	ng
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	8.48	55	764102m	238.3976	ng
20) 2-Methylpentene-2	8.60	69	753295m	241.9171	ng
21) cis-2-Hexene	8.95	55	370331m	135.3590	ng
22) Ethyltertbutylether	0.00	59	0	N.D.	
23) 2,2-Dimethylpentane	9.52	57	563339m	141.5708	ng
24) Methylcyclopentane	9.66	56e	7892887m	2673.3077	ng
25) 1,2-Dichloroethane	0.00	62	0	N.D.	d
26) 2,4-Dimethylpentane	9.89	57	3331082m	1203.6673	ng
27) Benzene	11.18	78	5119247m	1173.4108	ng
28) Thiophene	0.00	84	0	N.D.	d
29) Cyclohexane	11.85	56	3522918m	1391.2064	ng
30) 2-Methylhexane	12.69	43E	8090622m	2296.8343	ng
31) 2,3-Dimethylpentane	12.81	56E	6760501m	2496.1202	ng
32) Tertamylmethylether	0.00	73	0	N.D.	
33) 3-Methylhexane	13.46	70E	3499041m	2521.8278	ng
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	14.53	56	1967809m	441.9468	ng
36) 2,2,4-Trimethylpentane/	14.77	56	5462237m	2856.6796	ng
37) trans-3-Heptene	15.76	41	429870m	154.1107	ng
40) n-Heptane	16.01t	43	6333635m	2479.5881	ng
41) cis-3-Heptene	16.01t	41	4157951m	1630.8566	ng
42) trans-2-Heptene	16.50	55	304528m	140.1129	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
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G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7674.D Vial: 3
Acq On : 7 Aug 2013 3:48 pm Operator: KPD
Sample : N9109-V-1(3) Inst : Inst D
Misc : MC20162-1 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:05:46 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 08:52:56 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units
43) cis-2-Heptene		17.39	56	160705m	83.4611	ng
44) Methylcyclohexane		18.02	83	3322963m	1522.3740	ng
45) 2,5-Dimethylhexane/2,2,		19.62	57	2766825m	683.9073	ng
46) 2,4-Dimethylhexane		19.81	43e	2173117m	704.4847	ng
47) ctc-1,2,4-Trimethylcycl		20.36	70	724076m	211.2695	ng
48) ctc-1,2,3-Trimethylcycl		21.17	70	306747m	155.1157	ng
49) 2,3,4-Trimethylpentane		21.54	43	5391092m	1486.6346	ng
50) Toluene		22.05	91E	31962304	7369.9126	ng
51) 2,3,3-Trimethylpentane		22.07	43	2031187m	659.0758	ng
52) 2-Methylthiophene		0.00	97	0	N.D.	d
53) 2,3-Dimethylhexane		22.83	43e	2354259m	606.3616	ng
54) 3-Methylthiophene		0.00	97	0	N.D.	d
55) 2-Methylheptane		23.57	43	3353323m	1133.7376	ng
56) 4-Methylheptane		23.72	43	2086761m	512.5701	ng
57) 1,2-Dibromoethane		0.00	107	0	N.D.	d
58) 1-Octene		26.01	55	284597m	181.5139	ng
59) 2,2-Dimethylheptane		0.00	57	0	N.D.	d
60) 2,2,4-Trimethylhexane		29.48	57	157521m	35.7989	ng
61) Tetrachloroethylene		0.00	166	0	N.D.	
62) n-Octane		27.37	43	3245682m	1003.8860	ng
63) trans-2-Octene		27.74	55	161605m	62.9221	ng
64) Isopropylcyclopentane		28.04	68	89596m	34.7029	ng
65) cis-2-Octene		28.60	55	89348m	40.7364	ng
66) 2,4-Dimethylheptane		29.91	43	497861m	138.2013	ng
67) Ethylcyclohexane/n-prop		30.34	83	504716m	238.2504	ng
68) 2,6-Dimethylheptane		30.62	43	482788m	150.4961	ng
69) 1,1,4-Trimethylcyclohex		31.17	111	45553m	19.1677	ng
72) Ethylbenzene		32.31	91	12598685m	2373.8752	ng
73) ctt-1,2,4-Trimethylcycl		32.55	111	117071m	57.1732	ng
74) 2-Ethylthiophene		0.00	97	0	N.D.	d
75) m-Xylene		33.33	91E	25292538m	5623.0212	ng
76) p-Xylene		33.41	91	7345908m	1659.2204	ng
77) 2,3-Dimethylheptane		0.00	43	0	N.D.	d
78) 4-Methyloctane		34.27	43	1313385m	352.0579	ng
79) 2-Methyloctane		34.38	43	1235037m	385.4255	ng
80) ctc-1,2,4-Trimethylcycl		0.00	69	0	N.D.	d
81) 1,1,2-Trimethylcyclohex		0.00	69	0	N.D.	d
82) o-Xylene		35.52	91E	12165854m	2750.0165	ng
83) 1-Nonene		36.67	56	48043m	29.3004	ng
84) trans-3-Nonene		37.35	55	125072m	57.8035	ng
85) cis-3-Nonene		37.53	55	99466m	43.7997	ng
86) n-Nonane		37.81	43	1165734m	418.9339	ng
87) trans-2-Nonene		38.06	55	73866m	29.6562	ng
88) Isopropylbenzene		38.74	105	919550m	179.0478	ng
89) cis-2-Nonene		38.86	55	44946m	20.4955	ng
90) Isopropylcyclohexane		39.24	82	30606m	13.6139	ng
91) 2,2-Dimethyloctane		39.61	57	184045m	37.6032	ng
92) n-Butylcyclopentane		40.69	69	50813m	32.6273	ng
93) 3,3-Dimethyloctane		41.19	71	197702m	38.0637	ng
94) Propylbenzene		41.56	91	4753148m	739.0338	ng

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(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7674.D Vial: 3
Acq On : 7 Aug 2013 3:48 pm Operator: KPD
Sample : N9109-V-1(3) Inst : Inst D
Misc : MC20162-1 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:05:46 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 08:52:56 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units
95) 1-Methyl-3-Ethylbenzene		42.35	105e	12185134m	2425.2863	ng
96) 1-Methyl-4-Ethylbenzene		42.52	105	5602837m	1032.8118	ng
97) 1,3,5-Trimethylbenzene		43.05	105e	5452227m	1162.3975	ng
98) 1-Methyl-2-Ethylbenzene		43.87	105	4042852m	809.5069	ng
99) 3-Methylnonane		44.63	57	428909m	132.9599	ng
100) 1,2,4-Trimethylbenzene		45.35	105E	16540276m	3690.2627	ng
101) 1-Decene		46.07	41	58285m	35.4388	ng
102) sec-Butylbenzene		46.85	105	445979m	79.5791	ng
103) n-Decane		47.11	43	367054m	163.4305	ng
104) 1,2,3-Trimethylbenzene		47.63	105	3672661m	740.2851	ng
105) Indane		48.54	117	1515150m	401.0568	ng
106) 1,3-Diethylbenzene		50.12	105	871269m	270.0338	ng
107) 1-methyl-4-n-propylbenz		50.66	105	2094600m	521.7872	ng
108) 1,3-Dimethyl-5-Ethylben		50.94	119	3011356m	681.3240	ng
109) 1,2-Diethylbenzene		51.08	105	135538	45.8239	ng
110) 1-Methyl-2-n-Propylbenz		51.60	105	1247621m	215.8790	ng
111) 1,4-Dimethyl-2-Ethylben		52.48	119	1855564m	449.9381	ng
112) 1,2-Dimethyl-4-Ethylben		53.12	119	3127352m	699.9053	ng
113) 1,3-Dimethyl-2-Ethylben		53.57	119	201993m	43.5370	ng
114) n-Undecane		55.48	57	110076	66.3079	ng
115) 1,2,4,5-Tetramethylbenz		55.72	119E	1485714m	326.6166	ng
116) 1,2,3,5-Tetramethylbenz		56.00	119	2088887m	480.2522	ng
117) 1,2,3,4-Tetramethylbenz		58.29	119	575092m	142.4717	ng
118) n-Pentylbenzene		58.66	91	250709m	62.6285	ng
119) Benzo(b)thiophene		59.70	134	46501m	39.0679	ng
120) MMT		0.00	120	0	N.D.	d
121) n-Dodecane		60.87	57	31175m	28.3207	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7675.D Vial: 4
Acq On : 7 Aug 2013 5:07 pm Operator: KPD
Sample : N9109DUP-V-1(3) Inst : Inst D
Misc : Lab Duplicate of MC20162-1 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:05:49 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:05:46 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.03	84	1843201m	402.0400*	ng
38) Toluene-d8	21.50	98	1671079m	402.1600*	ng
70) Ethylbenzene-d10	31.74	98	2481534m	402.4800*	ng

System Monitoring Compounds					
2) 1,4-Difluorobenzene	12.34	114	1255892m	394.8380	ng
Spiked Amount 401.0800*				Recovery =	98.44%
39) Chlorobenzene-d5	29.88	117	1090546	404.2922	ng
Spiked Amount 401.6400*				Recovery =	100.66%
71) 1,4-Dichlorobenzene-d4	45.93	150	797382m	393.9211	ng
Spiked Amount 400.4800*				Recovery =	98.36%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	d
4) Isopentane	4.84	43E	3644302m	2400.5064	ng
5) 1-Pentene	5.07	42	179955m	90.0944	ng
6) 2-Methyl-1-Butene	5.18	55	328804m	111.3418	ng
7) n-Pentane	5.25	43	5755650m	2542.6222	ng
8) trans-2-Pentene	5.39	55	608287m	200.4378	ng
9) cis-2-Pentene	5.54	55	350713m	117.6229	ng
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	6.03	57	372752m	239.0728	ng
12) Cyclopentane	6.87	42	2306853m	698.9544	ng
13) 2-Methylpentane	7.02	43E	11380175m	3110.2475	ng
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	7.54	57e	7045536m	2371.5820	ng
16) 1-Hexene	7.73	56	767735m	426.4259	ng
17) n-Hexane	8.28	57e	8622805m	3600.4592	ng
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	8.49	55	760220m	229.8321	ng
20) 2-Methylpentene-2	8.60	69	795438m	247.5305	ng
21) cis-2-Hexene	8.95	55	388902m	137.7394	ng
22) Ethyltertbutylether	0.00	59	0	N.D.	
23) 2,2-Dimethylpentane	9.52	57	585571m	142.5950	ng
24) Methylcyclopentane	9.66	56E	8318225m	2730.0125	ng
25) 1,2-Dichloroethane	0.00	62	0	N.D.	d
26) 2,4-Dimethylpentane	9.90	57	3422003m	1198.1811	ng
27) Benzene	11.18	78	5677217m	1260.9574	ng
28) Thiophene	0.00	84	0	N.D.	d
29) Cyclohexane	11.87	56	3681122m	1408.6080	ng
30) 2-Methylhexane	12.69	43E	8444541	2322.9759	ng #
31) 2,3-Dimethylpentane	12.82	56E	6621366m	2368.9458	ng
32) Tertamylmethylether	0.00	73	0	N.D.	
33) 3-Methylhexane	13.46	70E	3614332m	2524.1511	ng
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	14.53	56	2059239m	448.1410	ng
36) 2,2,4-Trimethylpentane/	14.77	56	5638620m	2857.4901	ng
37) trans-3-Heptene	15.76	41	454183m	157.7783	ng
40) n-Heptane	16.01t	43	6544720m	2526.6717	ng
41) cis-3-Heptene	16.01t	41	4183712m	1618.1897	ng
42) trans-2-Heptene	16.50	55	317730m	144.1585	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7675.D Vial: 4
Acq On : 7 Aug 2013 5:07 pm Operator: KPD
Sample : N9109DUP-V-1(3) Inst : Inst D
Misc : Lab Duplicate of MC20162-1 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:05:49 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:05:46 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units
43) cis-2-Heptene		17.40	56	163165m	83.5628	ng
44) Methylcyclohexane		18.03	83	3469355m	1567.3855	ng
45) 2,5-Dimethylhexane/2,2,		19.62	57	2872296m	700.1257	ng
46) 2,4-Dimethylhexane		19.81	43e	2263445m	723.5851	ng
47) ctc-1,2,4-Trimethylcycl		20.36	70	763478m	219.6749	ng
48) ctc-1,2,3-Trimethylcycl		21.18	70	318026m	158.5876	ng
49) 2,3,4-Trimethylpentane		21.55	43	5537375m	1505.7840	ng
50) Toluene		22.05	91E	33934027m	7715.9765	ng
51) 2,3,3-Trimethylpentane		22.08	43	2066547m	661.2444	ng
52) 2-Methylthiophene		0.00	97	0	N.D.	d
53) 2,3-Dimethylhexane		22.83	43e	2421066m	614.9154	ng
54) 3-Methylthiophene		0.00	97	0	N.D.	d
55) 2-Methylheptane		23.57	43	3461269m	1153.9945	ng
56) 4-Methylheptane		23.71	43	2138705m	518.0392	ng
57) 1,2-Dibromoethane		0.00	107	0	N.D.	d
58) 1-Octene		26.01	55	289102m	181.8285	ng
59) 2,2-Dimethylheptane		0.00	57	0	N.D.	d
60) 2,2,4-Trimethylhexane		29.46	57	165107m	37.0023	ng
61) Tetrachloroethylene		0.00	166	0	N.D.	
62) n-Octane		27.37	43	3350194m	1021.8323	ng
63) trans-2-Octene		27.75	55	166263m	63.8375	ng
64) Isopropylcyclopentane		28.04	68	89220m	34.0777	ng
65) cis-2-Octene		28.60	55	86245m	38.7760	ng
66) 2,4-Dimethylheptane		29.91	43	502026m	137.4236	ng
67) Ethylcyclohexane/n-prop		30.34	83	513602m	239.0807	ng
68) 2,6-Dimethylheptane		30.61	43	497494m	152.9283	ng
69) 1,1,4-Trimethylcyclohex		31.18	111	47474m	19.6988	ng
72) Ethylbenzene		32.31	91	13083104m	2444.1184	ng
73) ctt-1,2,4-Trimethylcycl		32.55	111	120637m	58.4120	ng
74) 2-Ethylthiophene		0.00	97	0	N.D.	d
75) m-Xylene		33.33	91E	26288538m	5794.5875	ng
76) p-Xylene		33.42	91	7337387m	1643.1561	ng
77) 2,3-Dimethylheptane		0.00	43	0	N.D.	d
78) 4-Methyloctane		34.27	43	1287834m	342.2636	ng
79) 2-Methyloctane		34.38	43	1372891m	424.7910	ng
80) ctc-1,2,4-Trimethylcycl		0.00	69	0	N.D.	d
81) 1,1,2-Trimethylcyclohex		0.00	69	0	N.D.	d
82) o-Xylene		35.53	91E	12706587m	2847.7404	ng
83) 1-Nonene		36.66	56	51441m	31.1051	ng
84) trans-3-Nonene		37.36	55	126779m	58.0925	ng
85) cis-3-Nonene		37.52	55	99065m	43.2510	ng
86) n-Nonane		37.82	43	1215128m	432.9591	ng
87) trans-2-Nonene		38.07	55	74480m	29.6476	ng
88) Isopropylbenzene		38.72	105	952363m	183.8547	ng
89) cis-2-Nonene		38.86	55	46888m	21.1986	ng
90) Isopropylcyclohexane		39.23	82	29715m	13.1048	ng
91) 2,2-Dimethyloctane		39.63	57	190559m	38.6019	ng
92) n-Butylcyclopentane		40.69	69	58066m	36.9664	ng
93) 3,3-Dimethyloctane		41.20	71	217225m	41.4656	ng
94) Propylbenzene		41.56	91	4882973m	752.7419	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7675.D Vial: 4
Acq On : 7 Aug 2013 5:07 pm Operator: KPD
Sample : N9109DUP-V-1(3) Inst : Inst D
Misc : Lab Duplicate of MC20162-1 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:05:49 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:05:46 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units
95) 1-Methyl-3-Ethylbenzene		42.35	105e	12498907m	2466.5136	ng
96) 1-Methyl-4-Ethylbenzene		42.52	105	5705386m	1042.7423	ng
97) 1,3,5-Trimethylbenzene		43.05	105e	5639176m	1191.9970	ng
98) 1-Methyl-2-Ethylbenzene		43.88	105	4175162m	828.8669	ng
99) 3-Methylnonane		44.63	57	477960m	146.9014	ng
100) 1,2,4-Trimethylbenzene		45.36	105E	16916079m	3741.9072	ng
101) 1-Decene		46.07	41	57814m	34.8525	ng
102) sec-Butylbenzene		46.85	105	453407m	80.2143	ng
103) n-Decane		47.12	43	387011	170.8462	ng
104) 1,2,3-Trimethylbenzene		47.63	105	3835545m	766.5210	ng
105) Indane		48.54	117	1593213m	418.1219	ng
106) 1,3-Diethylbenzene		50.12	105	895848m	275.2827	ng
107) 1-methyl-4-n-propylbenz		50.66	105	2119992m	523.6068	ng
108) 1,3-Dimethyl-5-Ethylben		50.94	119	3085774m	692.2046	ng
109) 1,2-Diethylbenzene		51.08	105	138058	46.2776	ng
110) 1-Methyl-2-n-Propylbenz		51.60	105	1277466m	219.1572	ng
111) 1,4-Dimethyl-2-Ethylben		52.48	119	1915542	460.5187	ng
112) 1,2-Dimethyl-4-Ethylben		53.12	119	3220862m	714.6830	ng
113) 1,3-Dimethyl-2-Ethylben		53.57	119	209182m	44.7018	ng
114) n-Undecane		55.48	57	131489m	78.5310	ng
115) 1,2,4,5-Tetramethylbenz		55.72	119E	1549415m	337.7144	ng
116) 1,2,3,5-Tetramethylbenz		55.99	119	2184408m	497.9285	ng
117) 1,2,3,4-Tetramethylbenz		58.29	119	608844m	149.5464	ng
118) n-Pentylbenzene		58.67	91	237399m	58.7977	ng
119) Benzo(b)thiophene		59.70	134	42706m	35.5734	ng
120) MMT		0.00	120	0	N.D.	d
121) n-Dodecane		60.87	57	34249m	30.8478	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
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(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7676.D Vial: 5
Acq On : 7 Aug 2013 6:25 pm Operator: KPD
Sample : N9110-V-1(3) Inst : Inst D
Misc : MC20162-2 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:05:52 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:05:49 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.01	84	1897316m	402.0400*	ng
38) Toluene-d8	21.46	98	1725137m	402.1600*	ng
70) Ethylbenzene-d10	31.74	98	2514428m	402.4800*	ng

System Monitoring Compounds

2) 1,4-Difluorobenzene	12.32	114	1274511m	389.2632	ng
Spiked Amount 401.0800*				Recovery =	97.05%
39) Chlorobenzene-d5	29.88	117	1109445m	398.4103	ng
Spiked Amount 401.6400*				Recovery =	99.20%
71) 1,4-Dichlorobenzene-d4	45.97	150	805062m	392.5122	ng
Spiked Amount 400.4800*				Recovery =	98.01%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units	
3) Ethanol	0.00	45	0	N.D.		
4) Isopentane	4.84	43	44784m	28.6579	ng	
5) 1-Pentene	0.00	42	0	N.D.	d	
6) 2-Methyl-1-Butene	0.00	55	0	N.D.	d	
7) n-Pentane	5.24	43	49471m	21.2310	ng	
8) trans-2-Pentene	5.38	55	5458m	1.7472	ng	
9) cis-2-Pentene	5.54	55	3093m	1.0078	ng	
10) t-Butanol	0.00	59	0	N.D.	d	
11) 2,2-Dimethylbutane	6.03	57	4917m	3.0637	ng	
12) Cyclopentane	6.88	42	37057m	10.9077	ng	
13) 2-Methylpentane	7.00	43	108155m	28.7161	ng	
14) Methyltertbutylether	0.00	73	0	N.D.	d	
15) 3-Methylpentane	7.53	57	68842m	22.5118	ng	
16) 1-Hexene	7.73	56	7564m	4.0815	ng	
17) n-Hexane	8.25	57	91655m	37.1791	ng	
18) Di-isopropylether	0.00	45	0	N.D.	d	
19) trans-2-Hexene	8.48	55	8646m	2.5393	ng	
20) 2-Methylpentene-2	8.58	69	9849m	2.9775	ng	
21) cis-2-Hexene	8.94	55	4772	1.6419	ng	#
22) Ethyltertbutylether	0.00	59	0	N.D.	d	
23) 2,2-Dimethylpentane	9.52	57	11968m	2.8313	ng	
24) Methylcyclopentane	9.64	56	101776m	32.4498	ng	
25) 1,2-Dichloroethane	0.00	62	0	N.D.		
26) 2,4-Dimethylpentane	9.87	57	80231m	27.2909	ng	
27) Benzene	11.16	78	66344m	14.3153	ng	
28) Thiophene	0.00	84	0	N.D.		
29) Cyclohexane	11.85	56	73764m	27.4213	ng	
30) 2-Methylhexane	12.63	43	622391m	166.3279	ng	
31) 2,3-Dimethylpentane	12.76	56	460805m	160.1614	ng	
32) Tertamylmethylether	0.00	73	0	N.D.		
33) 3-Methylhexane	13.40	70	339503m	230.3371	ng	
34) Trichloroethylene	0.00	130	0	N.D.		
35) 2-Methyl-1-Hexene	14.52	56	205881m	43.5269	ng	
36) 2,2,4-Trimethylpentane/	14.70	56	818833m	403.1255	ng	
37) trans-3-Heptene	15.75	41	66776m	22.5356	ng	
40) n-Heptane	15.96	43	1128761m	422.1173	ng	
41) cis-3-Heptene	16.18	41	133643m	50.0711	ng	
42) trans-2-Heptene	16.49	55	62802m	27.6013	ng	

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7676.D Vial: 5
Acq On : 7 Aug 2013 6:25 pm Operator: KPD
Sample : N9110-V-1(3) Inst : Inst D
Misc : MC20162-2 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:05:52 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:05:49 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units
43) cis-2-Heptene		17.38	56	35328m	17.5258	ng
44) Methylcyclohexane		17.99	83	701560m	307.0190	ng
45) 2,5-Dimethylhexane/2,2,		19.60	57	1062551m	250.8823	ng
46) 2,4-Dimethylhexane		19.80	43	860327m	266.4137	ng
47) ctc-1,2,4-Trimethylcycl		20.34	70	295397m	82.3310	ng
48) ctc-1,2,3-Trimethylcycl		21.15	70	134390m	64.9153	ng
49) 2,3,4-Trimethylpentane		21.50	43	2403862m	633.2011	ng
50) Toluene		21.92	91	9301068m	2048.6214	ng
51) 2,3,3-Trimethylpentane		21.96	43	2126260m	659.0319	ng
52) 2-Methylthiophene		0.00	97	0	N.D.	d
53) 2,3-Dimethylhexane		22.80	43	1311740m	322.7230	ng
54) 3-Methylthiophene		0.00	97	0	N.D.	d
55) 2-Methylheptane		23.54	43	2502439m	808.1748	ng
56) 4-Methylheptane		23.69	43	1578705m	370.4129	ng
57) 1,2-Dibromoethane		0.00	107	0	N.D.	
58) 1-Octene		26.00	55	203889m	124.2162	ng
59) 2,2-Dimethylheptane		0.00	57	0	N.D.	d
60) 2,2,4-Trimethylhexane		29.47	57	247486m	53.7263	ng
61) Tetrachloroethylene		0.00	166	0	N.D.	
62) n-Octane		27.37	43	3555122m	1050.3586	ng
63) trans-2-Octene		27.74	55	146526m	54.4964	ng
64) Isopropylcyclopentane		28.04	68	77754m	28.7677	ng
65) cis-2-Octene		28.59	55	86801m	37.8030	ng
66) 2,4-Dimethylheptane		29.91	43	689943m	182.9455	ng
67) Ethylcyclohexane/n-prop		30.34	83	455786m	205.5191	ng
68) 2,6-Dimethylheptane		30.62	43	649375m	193.3611	ng
69) 1,1,4-Trimethylcyclohex		31.18	111	46256m	18.5920	ng
72) Ethylbenzene		32.32	91	15913814m	2934.0448	ng
73) ctt-1,2,4-Trimethylcycl		32.55	111	129006m	61.6471	ng
74) 2-Ethylthiophene		0.00	97	0	N.D.	d
75) m-Xylene		33.38	91E	37908023m	8246.4733	ng
76) p-Xylene		33.47	91	9344679m	2065.2984	ng
77) 2,3-Dimethylheptane		0.00	43	0	N.D.	d
78) 4-Methyloctane		34.28	43	2322531m	609.1768	ng
79) 2-Methyloctane		34.39	43	2199888m	671.7703	ng
80) ctc-1,2,4-Trimethylcycl		0.00	69	0	N.D.	d
81) 1,1,2-Trimethylcyclohex		0.00	69	0	N.D.	d
82) o-Xylene		35.58	91E	19613856m	4338.2592	ng
83) 1-Nonene		36.67	56	71335m	42.5702	ng
84) trans-3-Nonene		37.37	55	173128m	78.2926	ng
85) cis-3-Nonene		37.52	55	125593m	54.1156	ng
86) n-Nonane		37.84	43	2298418m	808.2299	ng
87) trans-2-Nonene		38.08	55	98002m	38.5004	ng
88) Isopropylbenzene		38.73	105	1691504m	322.2748	ng
89) cis-2-Nonene		38.87	55	65963m	29.4325	ng
90) Isopropylcyclohexane		39.24	82	34067m	14.8276	ng
91) 2,2-Dimethyloctane		39.64	57	369744m	73.9200	ng
92) n-Butylcyclopentane		40.69	69	86586m	54.4019	ng
93) 3,3-Dimethyloctane		41.22	71	406662m	76.6114	ng
94) Propylbenzene		41.60	91	9939639m	1512.2144	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7676.D Vial: 5
Acq On : 7 Aug 2013 6:25 pm Operator: KPD
Sample : N9110-V-1(3) Inst : Inst D
Misc : MC20162-2 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:05:52 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:05:49 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units
95) 1-Methyl-3-Ethylbenzene		42.43	105E	25788902m	5022.5626	ng
96) 1-Methyl-4-Ethylbenzene		42.59	105e	11782261m	2125.2090	ng
97) 1,3,5-Trimethylbenzene		43.13	105E	12206363m	2546.4012	ng
98) 1-Methyl-2-Ethylbenzene		43.93	105e	8564620m	1678.0334	ng
99) 3-Methylnonane		44.70	57	907564m	275.2914	ng
100) 1,2,4-Trimethylbenzene		45.45	105E	34281667m	7484.0429	ng
101) 1-Decene		46.08	41	78243m	46.5508	ng
102) sec-Butylbenzene		46.86	105	1066779	186.2598	ng
103) n-Decane		47.14	43	715177m	311.5850	ng
104) 1,2,3-Trimethylbenzene		47.69	105	7814347m	1541.2414	ng
105) Indane		48.58	117	3016737m	781.3534	ng
106) 1,3-Diethylbenzene		50.14	105	1958457m	593.9361	ng
107) 1-methyl-4-n-propylbenz		50.70	105	4990585m	1216.4761	ng
108) 1,3-Dimethyl-5-Ethylben		51.00	119e	6666624m	1475.9014	ng
109) 1,2-Diethylbenzene		51.12	105	302645m	100.1207	ng
110) 1-Methyl-2-n-Propylbenz		51.62	105	2964730m	501.9641	ng
111) 1,4-Dimethyl-2-Ethylben		52.52	119	4051575m	961.3034	ng
112) 1,2-Dimethyl-4-Ethylben		53.17	119e	6811912m	1491.7339	ng
113) 1,3-Dimethyl-2-Ethylben		53.59	119	430214m	90.7332	ng
114) n-Undecane		55.49	57	202983m	119.6443	ng
115) 1,2,4,5-Tetramethylbenz		55.74	119E	3327020m	715.6790	ng
116) 1,2,3,5-Tetramethylbenz		56.04	119	4628487m	1041.2458	ng
117) 1,2,3,4-Tetramethylbenz		58.31	119	1287709m	312.1539	ng
118) n-Pentylbenzene		58.68	91	416068m	101.7013	ng
119) Benzo(b)thiophene		59.71	134	43941m	36.1233	ng
120) MMT		0.00	120	0	N.D.	d
121) n-Dodecane		60.87	57	43458m	38.6302	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7677.D Vial: 6
Acq On : 7 Aug 2013 7:42 pm Operator: KPD
Sample : N9111-V-1(3) Inst : Inst D
Misc : MC20162-3 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:05:55 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:05:52 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.01	84	1931066m	402.0400*	ng
38) Toluene-d8	21.47	98	1718594m	402.1600*	ng
70) Ethylbenzene-d10	31.74	98	2541778m	402.4800*	ng

System Monitoring Compounds

2) 1,4-Difluorobenzene	12.33	114	1295069m	388.6290	ng
Spiked Amount 401.0800*				Recovery =	96.90%
39) Chlorobenzene-d5	29.88	117	1115038m	401.9433	ng
Spiked Amount 401.6400*				Recovery =	100.08%
71) 1,4-Dichlorobenzene-d4	45.94	150	830887m	400.7443	ng
Spiked Amount 400.4800*				Recovery =	100.07%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	d
4) Isopentane	4.83	43	330387m	207.7242	ng
5) 1-Pentene	5.05	42	9033m	4.3166	ng
6) 2-Methyl-1-Butene	5.16	55	18040m	5.8309	ng
7) n-Pentane	5.24	43	600874m	253.3649	ng
8) trans-2-Pentene	5.37	55	42337m	13.3158	ng
9) cis-2-Pentene	5.54	55	19922m	6.3775	ng
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	6.01	57	56273m	34.4497	ng
12) Cyclopentane	6.86t	42	928445m	268.5101	ng
13) 2-Methylpentane	6.86t	43	874340m	228.0877	ng
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	7.52	57	1936918m	622.3159	ng
16) 1-Hexene	7.72	56	188865m	100.1289	ng
17) n-Hexane	8.25	57	2726637m	1086.7064	ng
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	8.47	55	201654m	58.1907	ng
20) 2-Methylpentene-2	8.58	69	217769m	64.6836	ng
21) cis-2-Hexene	8.93	55	94255m	31.8638	ng
22) Ethyltertbutylether	0.00	59	0	N.D.	
23) 2,2-Dimethylpentane	9.50	57	233883m	54.3624	ng
24) Methylcyclopentane	9.63	56	3012769m	943.7900	ng
25) 1,2-Dichloroethane	0.00	62	0	N.D.	d
26) 2,4-Dimethylpentane	9.87	57	1723499m	576.0082	ng
27) Benzene	11.17	78	813083m	172.3754	ng
28) Thiophene	0.00	84	0	N.D.	d
29) Cyclohexane	11.84	56	1715395m	626.5412	ng
30) 2-Methylhexane	12.65	43e	5131788m	1347.4509	ng
31) 2,3-Dimethylpentane	12.79	56E	4778097m	1631.6916	ng
32) Tertamylmethylether	0.00	73	0	N.D.	d
33) 3-Methylhexane	13.43	70E	2352539m	1568.1937	ng
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	14.52	56	1470143m	305.3818	ng
36) 2,2,4-Trimethylpentane/	14.74	56	4555374m	2203.4923	ng
37) trans-3-Heptene	15.73	41	283676m	94.0621	ng
40) n-Heptane	15.98t	43	5098070m	1913.7589	ng
41) cis-3-Heptene	15.98t	41	3249573m	1222.1307	ng
42) trans-2-Heptene	16.49	55	211627m	93.3634	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7677.D Vial: 6
Acq On : 7 Aug 2013 7:42 pm Operator: KPD
Sample : N9111-V-1(3) Inst : Inst D
Misc : MC20162-3 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:05:55 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:05:52 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units
43) cis-2-Heptene		17.38	56	111413m	55.4811	ng
44) Methylcyclohexane		18.01	83	3114742m	1368.2733	ng
45) 2,5-Dimethylhexane/2,2,		19.62	57	2968067m	703.4678	ng
46) 2,4-Dimethylhexane		19.80	43e	2204824m	685.3577	ng
47) ctc-1,2,4-Trimethylcycl		20.34	70	806812m	225.7252	ng
48) ctc-1,2,3-Trimethylcycl		21.17	70	356125m	172.6763	ng
49) 2,3,4-Trimethylpentane		21.53	43	6472446m	1711.3974	ng
50) Toluene		21.92	91	9136037m	2019.9333	ng
51) 2,3,3-Trimethylpentane		21.99	43	5552890m	1727.6647	ng
52) 2-Methylthiophene		0.00	97	0	N.D.	d
53) 2,3-Dimethylhexane		22.80	43e	2736058m	675.7059	ng
54) 3-Methylthiophene		0.00	97	0	N.D.	d
55) 2-Methylheptane		23.55	43	4156891m	1347.5991	ng
56) 4-Methylheptane		23.71	43	2661307m	626.8021	ng
57) 1,2-Dibromoethane		0.00	107	0	N.D.	
58) 1-Octene		26.00	55	344329m	210.5757	ng
59) 2,2-Dimethylheptane		0.00	57	0	N.D.	d
60) 2,2,4-Trimethylhexane		29.46	57	274501m	59.8178	ng
61) Tetrachloroethylene		0.00	166	0	N.D.	
62) n-Octane		27.37	43	4571944m	1355.9206	ng
63) trans-2-Octene		27.74	55	185691m	69.3257	ng
64) Isopropylcyclopentane		28.04	68	111634m	41.4599	ng
65) cis-2-Octene		28.60	55	106806m	46.6926	ng
66) 2,4-Dimethylheptane		29.91	43	773133m	205.7847	ng
67) Ethylcyclohexane/n-prop		30.34	83	661778m	299.5393	ng
68) 2,6-Dimethylheptane		30.62	43	780859m	233.3976	ng
69) 1,1,4-Trimethylcyclohex		31.17	111	63220m	25.5072	ng
72) Ethylbenzene		32.31	91	12795932m	2333.8126	ng
73) ctt-1,2,4-Trimethylcycl		32.53	111	158956m	75.1418	ng
74) 2-Ethylthiophene		0.00	97	0	N.D.	d
75) m-Xylene		33.34	91E	31699862m	6821.7544	ng
76) p-Xylene		33.44	91	7760678m	1696.7571	ng
77) 2,3-Dimethylheptane		0.00	43	0	N.D.	d
78) 4-Methyloctane		34.27	43	2323475m	602.8669	ng
79) 2-Methyloctane		34.39	43	1962878m	592.9460	ng
80) ctc-1,2,4-Trimethylcycl		0.00	69	0	N.D.	d
81) 1,1,2-Trimethylcyclohex		0.00	69	0	N.D.	d
82) o-Xylene		35.54	91E	14752300m	3227.8537	ng
83) 1-Nonene		36.67	56	74198m	43.8023	ng
84) trans-3-Nonene		37.37	55	161752m	72.3610	ng
85) cis-3-Nonene		37.53	55	127706m	54.4339	ng
86) n-Nonane		37.83	43	2003514m	696.9472	ng
87) trans-2-Nonene		38.07	55	96322m	37.4332	ng
88) Isopropylbenzene		38.74	105	1272832m	239.8977	ng
89) cis-2-Nonene		38.86	55	71532m	31.5739	ng
90) Isopropylcyclohexane		39.22	82	35546m	15.3048	ng
91) 2,2-Dimethyloctane		39.64	57	330704m	65.4036	ng
92) n-Butylcyclopentane		40.69	69	77709m	48.2991	ng
93) 3,3-Dimethyloctane		41.21	71	348119m	64.8767	ng
94) Propylbenzene		41.57	91	6960897m	1047.6340	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7677.D Vial: 6
Acq On : 7 Aug 2013 7:42 pm Operator: KPD
Sample : N9111-V-1(3) Inst : Inst D
Misc : MC20162-3 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:05:55 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:05:52 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units
95) 1-Methyl-3-Ethylbenzene		42.39	105E	18892609m	3639.8713	ng
96) 1-Methyl-4-Ethylbenzene		42.56	105e	9017752m	1609.0624	ng
97) 1,3,5-Trimethylbenzene		43.09	105E	9244996m	1907.8703	ng
98) 1-Methyl-2-Ethylbenzene		43.90	105	6459062m	1251.8824	ng
99) 3-Methylnonane		44.66	57	755025m	226.5574	ng
100) 1,2,4-Trimethylbenzene		45.41	105E	25575663m	5523.3533	ng
101) 1-Decene		46.08	41	77295m	45.4920	ng
102) sec-Butylbenzene		46.85	105	739305m	127.6938	ng
103) n-Decane		47.13	43	608656m	262.3231	ng
104) 1,2,3-Trimethylbenzene		47.66	105	5795549m	1130.7697	ng
105) Indane		48.55	117	2257819m	578.4965	ng
106) 1,3-Diethylbenzene		50.13	105	1463119m	438.9418	ng
107) 1-methyl-4-n-propylbenz		50.69	105	3544087m	854.5905	ng
108) 1,3-Dimethyl-5-Ethylben		50.97	119	4964399m	1087.2255	ng
109) 1,2-Diethylbenzene		51.10	105	232234m	76.0007	ng
110) 1-Methyl-2-n-Propylbenz		51.61	105	2161122m	361.9665	ng
111) 1,4-Dimethyl-2-Ethylben		52.51	119	2955567m	693.7117	ng
112) 1,2-Dimethyl-4-Ethylben		53.15	119	4993127m	1081.6744	ng
113) 1,3-Dimethyl-2-Ethylben		53.58	119	317805m	66.3046	ng
114) n-Undecane		55.49	57	188967	110.1844	ng
115) 1,2,4,5-Tetramethylbenz		55.72	119E	2399907m	510.6918	ng
116) 1,2,3,5-Tetramethylbenz		56.01	119	3309786m	736.5729	ng
117) 1,2,3,4-Tetramethylbenz		58.30	119	907634m	217.6524	ng
118) n-Pentylbenzene		58.67	91	348508m	84.2707	ng
119) Benzo(b)thiophene		59.70	134	40065m	32.5825	ng
120) MMT		0.00	120	0	N.D.	d
121) n-Dodecane		60.87	57	46486m	40.8772	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7678.D Vial: 7
Acq On : 7 Aug 2013 9:00 pm Operator: KPD
Sample : N9112-V-1(3) Inst : Inst D
Misc : MC20162-4 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:05:58 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:05:55 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.01	84	1801687m	402.0400*	ng
38) Toluene-d8	21.49	98	1622033m	402.1600*	ng
70) Ethylbenzene-d10	31.74	98	2362609m	402.4800*	ng

System Monitoring Compounds					
2) 1,4-Difluorobenzene	12.32	114	1224394m	393.8050	ng
Spiked Amount 401.0800*				Recovery =	98.19%
39) Chlorobenzene-d5	29.88	117	1074656m	410.4480	ng
Spiked Amount 401.6400*				Recovery =	102.19%
71) 1,4-Dichlorobenzene-d4	45.93	150	767729m	398.3631	ng
Spiked Amount 400.4800*				Recovery =	99.47%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	d
4) Isopentane	4.84	43E	3560877m	2399.5999	ng
5) 1-Pentene	5.05	42	173205m	88.7131	ng
6) 2-Methyl-1-Butene	5.16	55	299854m	103.8782	ng
7) n-Pentane	5.24	43	5071811m	2292.1544	ng
8) trans-2-Pentene	5.38	55	581554m	196.0444	ng
9) cis-2-Pentene	5.54	55	331069m	113.5931	ng
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	6.01	57	353331m	231.8384	ng
12) Cyclopentane	6.88	42	3801367m	1178.3168	ng
13) 2-Methylpentane	7.02	43E	10248054m	2865.3704	ng
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	7.53	57e	6268428m	2158.6196	ng
16) 1-Hexene	7.73	56	702874m	399.3954	ng
17) n-Hexane	8.26	57	7025305m	3001.0129	ng
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	8.47	55	760321m	235.1591	ng
20) 2-Methylpentene-2	8.58	69	796457m	253.5584	ng
21) cis-2-Hexene	8.94	55	382277m	138.5127	ng
22) Ethyltertbutylether	0.00	59	0	N.D.	
23) 2,2-Dimethylpentane	9.52	57	502110m	125.0884	ng
24) Methylcyclopentane	9.64	56e	7263535m	2438.7954	ng
25) 1,2-Dichloroethane	0.00	62	0	N.D.	d
26) 2,4-Dimethylpentane	9.88	57	2990830m	1071.3396	ng
27) Benzene	11.17	78	2075262m	471.5537	ng
28) Thiophene	0.00	84	0	N.D.	d
29) Cyclohexane	11.85	56	2935206m	1149.0578	ng
30) 2-Methylhexane	12.66	43E	7384371	2078.1435	ng #
31) 2,3-Dimethylpentane	12.80	56E	5851238m	2141.6507	ng
32) Tertamylmethylether	0.00	73	0	N.D.	
33) 3-Methylhexane	13.44	70E	3165720m	2261.7946	ng
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	14.52	56	1825264m	406.3750	ng
36) 2,2,4-Trimethylpentane/	14.75	56	5259708m	2726.8855	ng
37) trans-3-Heptene	15.75	41	441391m	156.8676	ng
40) n-Heptane	16.00t	43	5289773m	2103.9338	ng
41) cis-3-Heptene	16.00t	41	3364235m	1340.5755	ng
42) trans-2-Heptene	16.49	55	305148m	142.6362	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7678.D Vial: 7
Acq On : 7 Aug 2013 9:00 pm Operator: KPD
Sample : N9112-V-1(3) Inst : Inst D
Misc : MC20162-4 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:05:58 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:05:55 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units	
43) cis-2-Heptene		17.38	56	164857m	86.9822	ng	
44) Methylcyclohexane		18.01	83	2947036m	1371.6706	ng	
45) 2,5-Dimethylhexane/2,2,		19.61	57	2613595m	656.3302	ng	
46) 2,4-Dimethylhexane		19.81	43e	2139938m	704.7875	ng	
47) ctc-1,2,4-Trimethylcycl		20.34	70	674010m	199.7963	ng	
48) ctc-1,2,3-Trimethylcycl		21.17	70	271727m	139.5972	ng	
49) 2,3,4-Trimethylpentane		21.53	43	4744499m	1329.1879	ng	
50) Toluene		22.02	91E	27354702m	6408.0336	ng	
51) 2,3,3-Trimethylpentane		22.05	43	2159137m	711.7610	ng	
52) 2-Methylthiophene		0.00	97	0	N.D.	d	
53) 2,3-Dimethylhexane		22.81	43	2181324m	570.7766	ng	
54) 3-Methylthiophene		0.00	97	0	N.D.	d	
55) 2-Methylheptane		23.55	43	3092342m	1062.1680	ng	
56) 4-Methylheptane		23.71	43	1972176m	492.1469	ng	
57) 1,2-Dibromoethane		0.00	107	0	N.D.		
58) 1-Octene		26.00	55	250401m	162.2498	ng	
59) 2,2-Dimethylheptane		0.00	57	0	N.D.	d	
60) 2,2,4-Trimethylhexane		29.46	57	168274m	38.8523	ng	
61) Tetrachloroethylene		0.00	166	0	N.D.		
62) n-Octane		27.35	43	2961715m	930.6583	ng	
63) trans-2-Octene		27.74	55	145460m	57.5388	ng	
64) Isopropylcyclopentane		28.02	68	85976m	33.8316	ng	
65) cis-2-Octene		28.60	55	83777m	38.8053	ng	
66) 2,4-Dimethylheptane		29.91	43	514983m	145.2330	ng	
67) Ethylcyclohexane/n-prop		30.34	83	435386m	208.7996	ng	
68) 2,6-Dimethylheptane		30.61	43	502439m	159.1185	ng	
69) 1,1,4-Trimethylcyclohex		31.16	111	41004m	17.5286	ng	
72) Ethylbenzene		32.31	91	12486061m	2449.9954	ng	
73) ctt-1,2,4-Trimethylcycl		32.55	111	107153m	54.4947	ng	
74) 2-Ethylthiophene		0.00	97	0	N.D.	d	
75) m-Xylene		33.32	91E	23752531m	5499.1348	ng	
76) p-Xylene		33.40	91	7446750m	1751.5903	ng	
77) 2,3-Dimethylheptane		0.00	43	0	N.D.	d	
78) 4-Methyloctane		34.25	43	1331062m	371.5587	ng	
79) 2-Methyloctane		34.38	43	1393685m	452.9312	ng	
80) ctc-1,2,4-Trimethylcycl		0.00	69	0	N.D.	d	
81) 1,1,2-Trimethylcyclohex		0.00	69	0	N.D.	d	
82) o-Xylene		35.52	91E	12843409m	3023.2926	ng	
83) 1-Nonene		36.65	56	52316m	33.2265	ng	
84) trans-3-Nonene		37.35	55	103796m	49.9553	ng	
85) cis-3-Nonene		37.52	55	83315m	38.2056	ng	
86) n-Nonane		37.81	43	1205953m	451.3190	ng	
87) trans-2-Nonene		38.06	55	69272m	28.9624	ng	
88) Isopropylbenzene		38.72	105	989759m	200.6920	ng	
89) cis-2-Nonene		38.85	55	41663m	19.7845	ng	
90) Isopropylcyclohexane		39.24	82	23513	10.8916	ng	#
91) 2,2-Dimethyloctane		39.61	57	216522m	46.0691	ng	
92) n-Butylcyclopentane		40.69	69	56242m	37.6075	ng	
93) 3,3-Dimethyloctane		41.19	71	240780	48.2756	ng	#
94) Propylbenzene		41.56	91	4904457m	794.1107	ng	

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7678.D Vial: 7
Acq On : 7 Aug 2013 9:00 pm Operator: KPD
Sample : N9112-V-1(3) Inst : Inst D
Misc : MC20162-4 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:05:58 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:05:55 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units	
95) 1-Methyl-3-Ethylbenzene		42.35	105e	12655047m	2623.0322	ng	
96) 1-Methyl-4-Ethylbenzene		42.52	105	5834213m	1119.9603	ng	
97) 1,3,5-Trimethylbenzene		43.05	105e	5792378m	1286.0113	ng	
98) 1-Methyl-2-Ethylbenzene		43.87	105	4368702m	910.9452	ng	
99) 3-Methylnonane		44.63	57	542258m	175.0526	ng	
100) 1,2,4-Trimethylbenzene		45.35	105E	17398892m	4042.4372	ng	
101) 1-Decene		46.07	41	45817	29.0106	ng	#
102) sec-Butylbenzene		46.85	105	483314m	89.8093	ng	
103) n-Decane		47.11	43	425153m	197.1313	ng	
104) 1,2,3-Trimethylbenzene		47.63	105	3982954	836.0469	ng	
105) Indane		48.54	117	1635740m	450.8911	ng	
106) 1,3-Diethylbenzene		50.12	105	895632	289.0697	ng	
107) 1-methyl-4-n-propylbenz		50.66	105	2107658m	546.7636	ng	
108) 1,3-Dimethyl-5-Ethylben		50.94	119	3122931m	735.8022	ng	
109) 1,2-Diethylbenzene		51.08	105	142438	50.1492	ng	
110) 1-Methyl-2-n-Propylbenz		51.60	105	1319651m	237.7902	ng	
111) 1,4-Dimethyl-2-Ethylben		52.48	119	1933718m	488.2892	ng	
112) 1,2-Dimethyl-4-Ethylben		53.12	119	3242647m	755.7347	ng	
113) 1,3-Dimethyl-2-Ethylben		53.57	119	215994	48.4809	ng	
114) n-Undecane		55.48	57	147706m	92.6569	ng	
115) 1,2,4,5-Tetramethylbenz		55.72	119E	1577584m	361.1626	ng	
116) 1,2,3,5-Tetramethylbenz		56.00	119	2253974m	539.6479	ng	
117) 1,2,3,4-Tetramethylbenz		58.29	119	633528m	163.4422	ng	
118) n-Pentylbenzene		58.66	91	267968	69.7096	ng	#
119) Benzo(b)thiophene		59.70	134	34638m	30.3052	ng	
120) MMT		0.00	120	0	N.D.	d	
121) n-Dodecane		60.87	57	42768m	40.4598	ng	

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7679.D Vial: 8
Acq On : 7 Aug 2013 10:17 pm Operator: KPD
Sample : N9113-V-1(3) Inst : Inst D
Misc : MC20162-5 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:06:02 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:05:58 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.01	84	1834265m	402.0400*	ng
38) Toluene-d8	21.46	98	1704934m	402.1600*	ng
70) Ethylbenzene-d10	31.74	98	2425297m	402.4800*	ng

System Monitoring Compounds

2) 1,4-Difluorobenzene	12.31	114	1245566m	393.4994	ng
Spiked Amount 401.0800*				Recovery =	98.11%
39) Chlorobenzene-d5	29.88	117	1101140m	400.1136	ng
Spiked Amount 401.6400*				Recovery =	99.62%
71) 1,4-Dichlorobenzene-d4	45.96	150	792072m	400.3711	ng
Spiked Amount 400.4800*				Recovery =	99.97%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	d
4) Isopentane	0.00	43	0	N.D.	d
5) 1-Pentene	0.00	42	0	N.D.	d
6) 2-Methyl-1-Butene	0.00	55	0	N.D.	d
7) n-Pentane	5.24	43	6311m	2.8015	ng
8) trans-2-Pentene	0.00	55	0	N.D.	d
9) cis-2-Pentene	0.00	55	0	N.D.	d
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	6.01	57	3293m	2.1223	ng
12) Cyclopentane	6.88	42	26845m	8.1734	ng
13) 2-Methylpentane	7.00	43	93270m	25.6153	ng
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	7.53	57	75703m	25.6064	ng
16) 1-Hexene	7.73	56	8764m	4.8915	ng
17) n-Hexane	8.25	57	148875m	62.4657	ng
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	8.46	55	13553m	4.1173	ng
20) 2-Methylpentene-2	8.58	69	14116m	4.4141	ng
21) cis-2-Hexene	8.93	55	7075m	2.5180	ng
22) Ethyltertbutylether	0.00	59	0	N.D.	
23) 2,2-Dimethylpentane	9.50	57	21223m	5.1933	ng
24) Methylcyclopentane	9.64	56	218090m	71.9251	ng
25) 1,2-Dichloroethane	0.00	62	0	N.D.	
26) 2,4-Dimethylpentane	9.87	57	170063m	59.8360	ng
27) Benzene	11.17	78	67698m	15.1095	ng
28) Thiophene	0.00	84	0	N.D.	
29) Cyclohexane	11.84	56	161719m	62.1844	ng
30) 2-Methylhexane	12.62	43	975972m	269.7843	ng
31) 2,3-Dimethylpentane	12.76	56	798770m	287.1705	ng
32) Tertamylmethylether	0.00	73	0	N.D.	
33) 3-Methylhexane	13.40	70	511263m	358.7916	ng
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	14.50	56	284777m	62.2764	ng
36) 2,2,4-Trimethylpentane/	14.70	56	1381477m	703.5034	ng
37) trans-3-Heptene	15.73	41	83481m	29.1417	ng
40) n-Heptane	15.94t	43	1318353m	498.8602	ng
41) cis-3-Heptene	15.94t	41	845608m	320.5724	ng
42) trans-2-Heptene	16.49	55	68389m	30.4129	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
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(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7679.D Vial: 8
Acq On : 7 Aug 2013 10:17 pm Operator: KPD
Sample : N9113-V-1(3) Inst : Inst D
Misc : MC20162-5 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:06:02 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:05:58 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units	
43) cis-2-Heptene		17.38	56	32258m	16.1925	ng	
44) Methylcyclohexane		17.98	83	833017m	368.8675	ng	
45) 2,5-Dimethylhexane/2,2,		19.59	57	1294825m	309.3480	ng	
46) 2,4-Dimethylhexane		19.78	43	1114730m	349.2841	ng	
47) ctc-1,2,4-Trimethylcycl		20.34	70	338334m	95.4155	ng	
48) ctc-1,2,3-Trimethylcycl		21.17	70	141750m	69.2818	ng	
49) 2,3,4-Trimethylpentane		21.50	43	3009621m	802.1581	ng	
50) Toluene		21.86	91	1556645m	346.9241	ng	
51) 2,3,3-Trimethylpentane		21.92	43	2384045m	747.6883	ng	
52) 2-Methylthiophene		0.00	97	0	N.D.	d	
53) 2,3-Dimethylhexane		22.79	43	1660636m	413.4020	ng	
54) 3-Methylthiophene		0.00	97	0	N.D.	d	
55) 2-Methylheptane		23.53	43	2336742m	763.6046	ng	
56) 4-Methylheptane		23.69	43	1632605m	387.5987	ng	
57) 1,2-Dibromoethane		0.00	107	0	N.D.		
58) 1-Octene		26.00	55	219624m	135.3880	ng	
59) 2,2-Dimethylheptane		0.00	57	0	N.D.	d	
60) 2,2,4-Trimethylhexane		29.46	57	241188m	52.9795	ng	
61) Tetrachloroethylene		0.00	166	0	N.D.		
62) n-Octane		27.35	43	3007743m	899.1659	ng	
63) trans-2-Octene		27.74	55	145429m	54.7294	ng	
64) Isopropylcyclopentane		28.02	68	101095m	37.8467	ng	
65) cis-2-Octene		28.60	55	88225m	38.8785	ng	
66) 2,4-Dimethylheptane		29.91	43	741148m	198.8518	ng	
67) Ethylcyclohexane/n-prop		30.34	83	555781m	253.5776	ng	
68) 2,6-Dimethylheptane		30.61	43	692158m	208.5426	ng	
69) 1,1,4-Trimethylcyclohex		31.17	111	63081m	25.6550	ng	
72) Ethylbenzene		32.25	91	2852565m	545.2583	ng	
73) ctt-1,2,4-Trimethylcycl		32.53	111	177451m	87.9135	ng	
74) 2-Ethylthiophene		0.00	97	0	N.D.	d	
75) m-Xylene		33.32	91E	26876598m	6061.5779	ng	
76) p-Xylene		33.40	91	5973995m	1368.8553	ng	
77) 2,3-Dimethylheptane		0.00	43	0	N.D.	d	
78) 4-Methyloctane		34.27	43	2395827m	651.4957	ng	
79) 2-Methyloctane		34.39	43	2339740m	740.7337	ng	
80) ctc-1,2,4-Trimethylcycl		0.00	69	0	N.D.	d	
81) 1,1,2-Trimethylcyclohex		0.00	69	0	N.D.	d	
82) o-Xylene		35.54	91E	13638300m	3127.4259	ng	
83) 1-Nonene		36.67	56	79459m	49.1610	ng	
84) trans-3-Nonene		37.35	55	204252m	95.7622	ng	
85) cis-3-Nonene		37.53	55	174772m	78.0733	ng	
86) n-Nonane		37.83	43	2092117m	762.7217	ng	
87) trans-2-Nonene		38.05	55	164830m	67.1337	ng	
88) Isopropylbenzene		38.73	105	501432m	99.0466	ng	
89) cis-2-Nonene		38.86	55	67702m	31.3186	ng	
90) Isopropylcyclohexane		39.24	82	52557m	23.7160	ng	
91) 2,2-Dimethyloctane		39.63	57	417674m	86.5710	ng	
92) n-Butylcyclopentane		40.69	69	121254m	78.9835	ng	
93) 3,3-Dimethyloctane		41.21	71	434626	84.8887	ng	#
94) Propylbenzene		41.56	91	2818650m	444.5885	ng	

(#) = qualifier out of range (m) = manual integration (+) = signals summed
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(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

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Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7679.D Vial: 8
Acq On : 7 Aug 2013 10:17 pm Operator: KPD
Sample : N9113-V-1(3) Inst : Inst D
Misc : MC20162-5 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:06:02 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:05:58 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units
95) 1-Methyl-3-Ethylbenzene		42.41	105E	21754517m	4392.5450	ng
96) 1-Methyl-4-Ethylbenzene		42.56	105e	9818933m	1836.1645	ng
97) 1,3,5-Trimethylbenzene		43.12	105E	12135757m	2624.7122	ng
98) 1-Methyl-2-Ethylbenzene		43.92	105e	8565437m	1739.8680	ng
99) 3-Methylnonane		44.68	57	955467m	300.4729	ng
100) 1,2,4-Trimethylbenzene		45.42	105E	29860425m	6758.4109	ng
101) 1-Decene		46.08	41	97164m	59.9324	ng
102) sec-Butylbenzene		46.86	105	666901m	120.7203	ng
103) n-Decane		47.14	43	700628m	316.4643	ng
104) 1,2,3-Trimethylbenzene		47.67	105	7777817m	1590.4132	ng
105) Indane		48.55	117	2237562m	600.8408	ng
106) 1,3-Diethylbenzene		50.15	105	2132915m	670.6153	ng
107) 1-methyl-4-n-propylbenz		50.70	105	4710975m	1190.5213	ng
108) 1,3-Dimethyl-5-Ethylben		51.00	119e	7102312m	1630.1418	ng
109) 1,2-Diethylbenzene		51.11	105	332529m	114.0497	ng
110) 1-Methyl-2-n-Propylbenz		51.63	105	3123564m	548.2923	ng
111) 1,4-Dimethyl-2-Ethylben		52.52	119	4336991	1066.8402	ng
112) 1,2-Dimethyl-4-Ethylben		53.18	119e	7297367m	1656.7722	ng
113) 1,3-Dimethyl-2-Ethylben		53.59	119	483578m	105.7359	ng
114) n-Undecane		55.49	57	242109m	147.9509	ng
115) 1,2,4,5-Tetramethylbenz		55.75	119E	3564914m	795.0349	ng
116) 1,2,3,5-Tetramethylbenz		56.04	119	4941740m	1152.5728	ng
117) 1,2,3,4-Tetramethylbenz		58.32	119	1413553m	355.2527	ng
118) n-Pentylbenzene		58.68	91	487743m	123.6026	ng
119) Benzo(b)thiophene		59.71	134	52363m	44.6289	ng
120) MMT		0.00	120	0	N.D.	d
121) n-Dodecane		60.87	57	64691m	59.6178	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8
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Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7680.D Vial: 9
Acq On : 7 Aug 2013 11:35 pm Operator: KPD
Sample : N9114-V-1(3) Inst : Inst D
Misc : MC20162-6 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:06:06 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:06:01 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.02	84	1875938m	402.0400*	ng
38) Toluene-d8	21.48	98	1695069m	402.1600*	ng
70) Ethylbenzene-d10	31.74	98	2483327m	402.4800*	ng

System Monitoring Compounds					
2) 1,4-Difluorobenzene	12.33	114	1244198m	384.3354	ng
Spiked Amount 401.0800*				Recovery =	95.83%
39) Chlorobenzene-d5	29.88	117	1122526m	410.2583	ng
Spiked Amount 401.6400*				Recovery =	102.15%
71) 1,4-Dichlorobenzene-d4	45.93	150	820079m	404.8413	ng
Spiked Amount 400.4800*				Recovery =	101.09%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	d
4) Isopentane	4.84	43	844563m	546.6065	ng
5) 1-Pentene	5.05	42	70270m	34.5667	ng
6) 2-Methyl-1-Butene	5.16	55	158437m	52.7147	ng
7) n-Pentane	5.25	43	1215048m	527.3939	ng
8) trans-2-Pentene	5.39	55	311686m	100.9119	ng
9) cis-2-Pentene	5.54	55	176411m	58.1326	ng
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	6.02	57	97056m	61.1627	ng
12) Cyclopentane	6.88	42	1726673m	514.0357	ng
13) 2-Methylpentane	7.01	43e	5186144m	1392.6590	ng
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	7.54	57	3237001m	1070.5850	ng
16) 1-Hexene	7.72	56	460053m	251.0697	ng
17) n-Hexane	8.25	57	3375339m	1384.7805	ng
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	8.47	55	599214m	177.9949	ng
20) 2-Methylpentene-2	8.59	69	649173m	198.4893	ng
21) cis-2-Hexene	8.93	55	308940m	107.5094	ng
22) Ethyltertbutylether	0.00	59	0	N.D.	
23) 2,2-Dimethylpentane	9.51	57	257591m	61.6325	ng
24) Methylcyclopentane	9.65	56e	4235802m	1365.9155	ng
25) 1,2-Dichloroethane	0.00	62	0	N.D.	d
26) 2,4-Dimethylpentane	9.87	57	1957997m	673.6097	ng
27) Benzene	11.17	78	3963613m	864.9886	ng
28) Thiophene	0.00	84	0	N.D.	d
29) Cyclohexane	11.84	56	1505892m	566.1845	ng
30) 2-Methylhexane	12.65	43e	5583948m	1509.2606	ng
31) 2,3-Dimethylpentane	12.78	56E	3828654m	1345.8847	ng
32) Tertamylmethylether	0.00	73	0	N.D.	
33) 3-Methylhexane	13.43	70E	2421201m	1661.3930	ng
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	14.51	56	1235892m	264.2669	ng
36) 2,2,4-Trimethylpentane/	14.76	56	5593906m	2785.3597	ng
37) trans-3-Heptene	15.75	41	433935m	148.1138	ng
40) n-Heptane	15.99	43	3569309m	1358.4745	ng
41) cis-3-Heptene	15.97	41	2344959m	894.1544	ng
42) trans-2-Heptene	16.49	55	300964m	134.6189	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7680.D Vial: 9
Acq On : 7 Aug 2013 11:35 pm Operator: KPD
Sample : N9114-V-1(3) Inst : Inst D
Misc : MC20162-6 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:06:06 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:06:01 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units
43) cis-2-Heptene		17.38	56	166877m	84.2543	ng
44) Methylcyclohexane		18.00	83	1818732m	810.0380	ng
45) 2,5-Dimethylhexane/2,2,		19.62	57	2715600m	652.5626	ng
46) 2,4-Dimethylhexane		19.81	43e	2382950m	751.0074	ng
47) ctc-1,2,4-Trimethylcycl		20.34	70	590762m	167.5738	ng
48) ctc-1,2,3-Trimethylcycl		21.17	70	188484m	92.6597	ng
49) 2,3,4-Trimethylpentane		21.53	43	5019212m	1345.5625	ng
50) Toluene		22.02	91E	28156183m	6311.5914	ng
51) 2,3,3-Trimethylpentane		22.05	43	1994824m	629.2611	ng
52) 2-Methylthiophene		0.00	97	0	N.D.	d
53) 2,3-Dimethylhexane		22.82	43e	2528375m	633.0818	ng
54) 3-Methylthiophene		0.00	97	0	N.D.	d
55) 2-Methylheptane		23.56	43	3014985m	990.9760	ng
56) 4-Methylheptane		23.71	43	1913523m	456.9357	ng
57) 1,2-Dibromoethane		0.00	107	0	N.D.	
58) 1-Octene		26.00	55	214175m	132.7973	ng
59) 2,2-Dimethylheptane		0.00	57	0	N.D.	d
60) 2,2,4-Trimethylhexane		29.46	57	164638m	36.3749	ng
61) Tetrachloroethylene		0.00	166	0	N.D.	
62) n-Octane		27.36	43	2701649m	812.3594	ng
63) trans-2-Octene		27.73	55	142148m	53.8059	ng
64) Isopropylcyclopentane		28.03	68	95627m	36.0080	ng
65) cis-2-Octene		28.60	55	94221m	41.7624	ng
66) 2,4-Dimethylheptane		29.91	43	546287m	147.4231	ng
67) Ethylcyclohexane/n-prop		30.34	83	409232m	187.8006	ng
68) 2,6-Dimethylheptane		30.61	43	504630m	152.9265	ng
69) 1,1,4-Trimethylcyclohex		31.15	111	40982m	16.7644	ng
72) Ethylbenzene		32.33	91	15033057m	2806.3709	ng
73) ctt-1,2,4-Trimethylcycl		32.54	111	104654m	50.6365	ng
74) 2-Ethylthiophene		0.00	97	0	N.D.	d
75) m-Xylene		33.35	91E	29686815m	6538.9199	ng
76) p-Xylene		33.43	91	7454124m	1668.0932	ng
77) 2,3-Dimethylheptane		0.00	43	0	N.D.	d
78) 4-Methyloctane		34.27	43	1498698m	398.0167	ng
79) 2-Methyloctane		34.38	43	1488172m	460.1280	ng
80) ctc-1,2,4-Trimethylcycl		0.00	69	0	N.D.	d
81) 1,1,2-Trimethylcyclohex		0.00	69	0	N.D.	d
82) o-Xylene		35.53	91E	14360381m	3216.0572	ng
83) 1-Nonene		36.66	56	36917m	22.3067	ng
84) trans-3-Nonene		37.36	55	118145m	54.0971	ng
85) cis-3-Nonene		37.54	55	87916m	38.3557	ng
86) n-Nonane		37.82	43	1328925m	473.1639	ng
87) trans-2-Nonene		38.07	55	61384m	24.4169	ng
88) Isopropylbenzene		38.72	105	1257189m	242.5265	ng
89) cis-2-Nonene		38.85	55	43995m	19.8763	ng
90) Isopropylcyclohexane		39.23	82	28125m	12.3946	ng
91) 2,2-Dimethyloctane		39.63	57	237306m	48.0369	ng
92) n-Butylcyclopentane		40.69	69	60465m	38.4659	ng
93) 3,3-Dimethyloctane		41.20	71	291269m	55.5596	ng
94) Propylbenzene		41.56	91	6147241m	946.9527	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7680.D Vial: 9
Acq On : 7 Aug 2013 11:35 pm Operator: KPD
Sample : N9114-V-1(3) Inst : Inst D
Misc : MC20162-6 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 08 09:06:06 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Thu Aug 08 09:06:01 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units
95) 1-Methyl-3-Ethylbenzene		42.37	105E	15614941m	3079.2018	ng
96) 1-Methyl-4-Ethylbenzene		42.54	105e	7084868m	1293.9279	ng
97) 1,3,5-Trimethylbenzene		43.07	105E	6770071m	1430.0099	ng
98) 1-Methyl-2-Ethylbenzene		43.88	105	5290610m	1049.5510	ng
99) 3-Methylnonane		44.65	57	665595m	204.4234	ng
100) 1,2,4-Trimethylbenzene		45.37	105E	20007610m	4422.5713	ng
101) 1-Decene		46.07	41	46687m	28.1244	ng
102) sec-Butylbenzene		46.85	105	669578m	118.3726	ng
103) n-Decane		47.12	43	509714	224.8510	ng
104) 1,2,3-Trimethylbenzene		47.63	105	4693107m	937.2247	ng
105) Indane		48.54	117	1853597m	486.1056	ng
106) 1,3-Diethylbenzene		50.12	105	1209376	371.3576	ng
107) 1-methyl-4-n-propylbenz		50.67	105	2811838m	693.9812	ng
108) 1,3-Dimethyl-5-Ethylben		50.96	119	3928695m	880.6533	ng
109) 1,2-Diethylbenzene		51.08	105	195728m	65.5615	ng
110) 1-Methyl-2-n-Propylbenz		51.60	105	1745659m	299.2624	ng
111) 1,4-Dimethyl-2-Ethylben		52.49	119	2447988m	588.1000	ng
112) 1,2-Dimethyl-4-Ethylben		53.14	119	4138032m	917.5325	ng
113) 1,3-Dimethyl-2-Ethylben		53.57	119	275152m	58.7570	ng
114) n-Undecane		55.48	57	186353m	111.2178	ng
115) 1,2,4,5-Tetramethylbenz		55.72	119E	2011443m	438.1027	ng
116) 1,2,3,5-Tetramethylbenz		56.00	119	2835044m	645.7721	ng
117) 1,2,3,4-Tetramethylbenz		58.29	119	808643m	198.4784	ng
118) n-Pentylbenzene		58.67	91	296472m	73.3755	ng
119) Benzo(b)thiophene		59.70	134	52970m	44.0913	ng
120) MMT		0.00	120	0	N.D.	d
121) n-Dodecane		60.87	57	58874m	52.9891	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7682.D Vial: 11
Acq On : 8 Aug 2013 2:09 am Operator: KPD
Sample : N9115-V-1(3) Inst : Inst D
Misc : MC20162-7 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 09 08:38:03 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Jun 17 11:41:28 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.01	84	1946106m	402.0400*	ng
38) Toluene-d8	21.49	98	1767601m	402.1600*	ng
70) Ethylbenzene-d10	31.74	98	2539228m	402.4800*	ng

System Monitoring Compounds

2) 1,4-Difluorobenzene	12.31	114	1306392m	388.9971	ng
Spiked Amount 401.0800*				Recovery =	96.99%
39) Chlorobenzene-d5	29.88	117	1157592m	405.7137	ng
Spiked Amount 401.6400*				Recovery =	101.01%
71) 1,4-Dichlorobenzene-d4	45.94	150	826705m	399.1277	ng
Spiked Amount 400.4800*				Recovery =	99.66%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units	
3) Ethanol	0.00	45	0	N.D.		
4) Isopentane	4.84	43	300311m	187.3553	ng	
5) 1-Pentene	5.05	42	23744m	11.2588	ng	
6) 2-Methyl-1-Butene	5.16	55	63885m	20.4893	ng	
7) n-Pentane	5.24	43	468522m	196.0305	ng	
8) trans-2-Pentene	5.38	55	127684m	39.8487	ng	
9) cis-2-Pentene	5.54	55	76421m	24.2750	ng	
10) t-Butanol	0.00	59	0	N.D.	d	
11) 2,2-Dimethylbutane	6.01	57	48109m	29.2242	ng	
12) Cyclopentane	6.88	42	937635m	269.0723	ng	
13) 2-Methylpentane	7.00	43	2984668m	772.5885	ng	
14) Methyltertbutylether	0.00	73	0	N.D.	d	
15) 3-Methylpentane	7.53	57	1971790m	628.6240	ng	
16) 1-Hexene	7.72	56	283436m	149.1054	ng	
17) n-Hexane	8.25	57	2194709m	867.9455	ng	
18) Di-isopropylether	0.00	45	0	N.D.	d	
19) trans-2-Hexene	8.47	55	396775m	113.6114	ng	
20) 2-Methylpentene-2	8.58	69	438609m	129.2725	ng	
21) cis-2-Hexene	8.95	55	210436m	70.5902	ng	
22) Ethyltertbutylether	0.00	59	0	N.D.	d	
23) 2,2-Dimethylpentane	9.50	57	187875m	43.3311	ng	
24) Methylcyclopentane	9.64	56	3032045m	942.4880	ng	
25) 1,2-Dichloroethane	0.00	62	0	N.D.	d	
26) 2,4-Dimethylpentane	9.87	57	1465227m	485.9070	ng	
27) Benzene	11.17	78	3186398m	670.3030	ng	
28) Thiophene	0.00	84	0	N.D.	d	
29) Cyclohexane	11.84	56	1204741m	436.6263	ng	
30) 2-Methylhexane	12.65	43e	4609899	1201.0644	ng	#
31) 2,3-Dimethylpentane	12.77	56e	3303825m	1119.5172	ng	
32) Tertamylmethylether	0.00	73	0	N.D.	d	
33) 3-Methylhexane	13.43	70E	2018657	1335.2299	ng	
34) Trichloroethylene	0.00	130	0	N.D.		
35) 2-Methyl-1-Hexene	14.52	56	1038657m	214.0850	ng	
36) 2,2,4-Trimethylpentane/	14.76	56	4937377m	2369.8148	ng	
37) trans-3-Heptene	15.75	41	375895m	123.6771	ng	
40) n-Heptane	15.97t	43	3039010m	1109.1815	ng	
41) cis-3-Heptene	15.97t	41	1966969m	719.2468	ng	
42) trans-2-Heptene	16.50	55	263283m	112.9321	ng	

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7682.D Vial: 11
Acq On : 8 Aug 2013 2:09 am Operator: KPD
Sample : N9115-V-1(3) Inst : Inst D
Misc : MC20162-7 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 09 08:38:03 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Jun 17 11:41:28 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units	
43) cis-2-Heptene		17.38	56	150919m	73.0706	ng	
44) Methylcyclohexane		18.00	83	1668529m	712.6456	ng	
45) 2,5-Dimethylhexane/2,2,		19.60	57	2552421m	588.1822	ng	
46) 2,4-Dimethylhexane		19.80	43e	2244874m	678.4602	ng	
47) ctc-1,2,4-Trimethylcycl		20.34	70	561343m	152.6951	ng	
48) ctc-1,2,3-Trimethylcycl		21.17	70	182904m	86.2269	ng	
49) 2,3,4-Trimethylpentane		21.53	43	4933675m	1268.3585	ng	
50) Toluene		22.02	91E	28520639m	6130.9460	ng	
51) 2,3,3-Trimethylpentane		22.05	43	2012861m	608.8962	ng	
52) 2-Methylthiophene		0.00	97	0	N.D.	d	
53) 2,3-Dimethylhexane		22.81	43e	2521826m	605.5313	ng	
54) 3-Methylthiophene		0.00	97	0	N.D.	d	
55) 2-Methylheptane		23.55	43	2854805m	899.8240	ng	
56) 4-Methylheptane		23.71	43	1837808m	420.8474	ng	
57) 1,2-Dibromoethane		0.00	107	0	N.D.		
58) 1-Octene		26.00	55	226817m	134.8650	ng	
59) 2,2-Dimethylheptane		0.00	57	0	N.D.	d	
60) 2,2,4-Trimethylhexane		29.46	57	171501m	36.3364	ng	
61) Tetrachloroethylene		0.00	166	0	N.D.		
62) n-Octane		27.35	43	2605171m	751.2053	ng	
63) trans-2-Octene		27.74	55	147645m	53.5934	ng	
64) Isopropylcyclopentane		28.02	68	97513m	35.2114	ng	
65) cis-2-Octene		28.60	55	87107m	37.0249	ng	
66) 2,4-Dimethylheptane		29.91	43	544007m	140.7837	ng	
67) Ethylcyclohexane/n-prop		30.34	83	416616m	183.3439	ng	
68) 2,6-Dimethylheptane		30.61	43	482795m	140.3058	ng	
69) 1,1,4-Trimethylcyclohex		31.17	111	42632m	16.7237	ng	
72) Ethylbenzene		32.32	91	16366543m	2988.0436	ng	
73) ctt-1,2,4-Trimethylcycl		32.55	111	106092m	50.2022	ng	
74) 2-Ethylthiophene		0.00	97	0	N.D.	d	
75) m-Xylene		33.36	91E	31991432m	6891.4134	ng	
76) p-Xylene		33.44	91	8328600m	1822.7534	ng	
77) 2,3-Dimethylheptane		0.00	43	0	N.D.	d	
78) 4-Methyloctane		34.27	43	1568833m	407.4704	ng	
79) 2-Methyloctane		34.38	43	1545356m	467.2898	ng	
80) ctc-1,2,4-Trimethylcycl		0.00	69	0	N.D.	d	
81) 1,1,2-Trimethylcyclohex		0.00	69	0	N.D.	d	
82) o-Xylene		35.55	91E	15648597m	3427.4050	ng	
83) 1-Nonene		36.65	56	40579m	23.9796	ng	
84) trans-3-Nonene		37.35	55	116595m	52.2121	ng	
85) cis-3-Nonene		37.52	55	96148m	41.0237	ng	
86) n-Nonane		37.81	43	1331397m	463.6080	ng	
87) trans-2-Nonene		38.04	55	115364m	44.8785	ng	
88) Isopropylbenzene		38.74	105	1412366m	266.4637	ng	
89) cis-2-Nonene		38.86	55	41428m	18.3045	ng	
90) Isopropylcyclohexane		39.22	82	30005m	12.9320	ng	
91) 2,2-Dimethyloctane		39.63	57	242739m	48.0549	ng	
92) n-Butylcyclopentane		40.69	69	59195m	36.8289	ng	
93) 3,3-Dimethyloctane		41.21	71	288310	53.7845	ng	#
94) Propylbenzene		41.57	91	6794517m	1023.6202	ng	

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7682.D Vial: 11
Acq On : 8 Aug 2013 2:09 am Operator: KPD
Sample : N9115-V-1(3) Inst : Inst D
Misc : MC20162-7 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 09 08:38:03 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Jun 17 11:41:28 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units
95) 1-Methyl-3-Ethylbenzene		42.38	105E	17125062m	3302.6470	ng
96) 1-Methyl-4-Ethylbenzene		42.55	105e	7735177m	1381.5950	ng
97) 1,3,5-Trimethylbenzene		43.08	105E	7436310m	1536.1568	ng
98) 1-Methyl-2-Ethylbenzene		43.89	105	5831875m	1131.4574	ng
99) 3-Methylnonane		44.66	57	695778m	208.9891	ng
100) 1,2,4-Trimethylbenzene		45.38	105E	22077071m	4772.5809	ng
101) 1-Decene		46.08	41	45864m	27.0204	ng
102) sec-Butylbenzene		46.85	105	738878	127.7482	ng
103) n-Decane		47.13	43	550752m	237.6055	ng
104) 1,2,3-Trimethylbenzene		47.65	105	5223647m	1020.2094	ng
105) Indane		48.55	117	2070880m	531.1320	ng
106) 1,3-Diethylbenzene		50.12	105	1318067m	395.8227	ng
107) 1-methyl-4-n-propylbenz		50.68	105	3030635m	731.5150	ng
108) 1,3-Dimethyl-5-Ethylben		50.97	119	4320749m	947.2136	ng
109) 1,2-Diethylbenzene		51.10	105	203052	66.5174	ng
110) 1-Methyl-2-n-Propylbenz		51.60	105	1928991m	323.4113	ng
111) 1,4-Dimethyl-2-Ethylben		52.49	119	2723750m	639.9431	ng
112) 1,2-Dimethyl-4-Ethylben		53.15	119	4590642m	995.4817	ng
113) 1,3-Dimethyl-2-Ethylben		53.57	119	306236m	63.9551	ng
114) n-Undecane		55.48	57	199218m	116.2783	ng
115) 1,2,4,5-Tetramethylbenz		55.72	119E	2235542m	476.1932	ng
116) 1,2,3,5-Tetramethylbenz		56.01	119	3188650m	710.3274	ng
117) 1,2,3,4-Tetramethylbenz		58.30	119	931383m	223.5717	ng
118) n-Pentylbenzene		58.66	91	334825m	81.0434	ng
119) Benzo(b)thiophene		59.70	134	69231m	56.3580	ng
120) MMT		0.00	120	0	N.D.	d
121) n-Dodecane		60.87	57	64895m	57.1224	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7683.D Vial: 12
Acq On : 8 Aug 2013 3:27 am Operator: KPD
Sample : N9116-V-1(3) Inst : Inst D
Misc : MC20162-8 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 09 08:38:06 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Fri Aug 09 08:38:03 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.01	84	1822489m	402.0400*	ng
38) Toluene-d8	21.47	98	1666152m	402.1600*	ng
70) Ethylbenzene-d10	31.74	98	2435637m	402.4800*	ng

System Monitoring Compounds

2) 1,4-Difluorobenzene	12.33	114	1222969m	388.8570	ng
Spiked Amount 401.0800*				Recovery =	96.95%
39) Chlorobenzene-d5	29.88	117	1098313m	408.3757	ng
Spiked Amount 401.6400*				Recovery =	101.68%
71) 1,4-Dichlorobenzene-d4	45.93	150	780407m	392.8001	ng
Spiked Amount 400.4800*				Recovery =	98.08%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	d
4) Isopentane	4.84	43	462949m	308.4107	ng
5) 1-Pentene	5.06	42	34064m	17.2479	ng
6) 2-Methyl-1-Butene	5.18	55	85888m	29.4145	ng
7) n-Pentane	5.25	43	792705m	354.1660	ng
8) trans-2-Pentene	5.39	55	190880m	63.6120	ng
9) cis-2-Pentene	5.54	55	114868m	38.9625	ng
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	6.03	57	82052m	53.2240	ng
12) Cyclopentane	6.88	42	1611431m	493.7970	ng
13) 2-Methylpentane	7.01	43e	4925368m	1361.4211	ng
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	7.54	57	3148583m	1071.8822	ng
16) 1-Hexene	7.73	56	445346m	250.1713	ng
17) n-Hexane	8.26	57	3366246m	1421.5527	ng
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	8.47	55	567858m	173.6277	ng
20) 2-Methylpentene-2	8.58	69	646469m	203.4594	ng
21) cis-2-Hexene	8.93	55	308140m	110.3758	ng
22) Ethyltertbutylether	0.00	59	0	N.D.	
23) 2,2-Dimethylpentane	9.51	57	263440m	64.8805	ng
24) Methylcyclopentane	9.65	56e	4210899m	1397.7084	ng
25) 1,2-Dichloroethane	0.00	62	0	N.D.	d
26) 2,4-Dimethylpentane	9.88	57	2011875m	712.4442	ng
27) Benzene	11.17	78	4527547m	1017.0344	ng
28) Thiophene	0.00	84	0	N.D.	d
29) Cyclohexane	11.84	56	1557235m	602.6593	ng
30) 2-Methylhexane	12.66	43e	5510668	1533.1360	ng #
31) 2,3-Dimethylpentane	12.79	56E	3978163m	1439.4543	ng
32) Tertamylmethylether	0.00	73	0	N.D.	d
33) 3-Methylhexane	13.43	70E	2384487m	1684.1860	ng
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	14.52	56	1185901m	261.0142	ng
36) 2,2,4-Trimethylpentane/	14.76	56	5445196m	2790.8289	ng
37) trans-3-Heptene	15.75	41	417844m	146.8042	ng
40) n-Heptane	15.99	43	3495745m	1353.5673	ng
41) cis-3-Heptene	15.97	41	2246421m	871.4474	ng
42) trans-2-Heptene	16.49	55	291602m	132.6951	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7683.D Vial: 12
Acq On : 8 Aug 2013 3:27 am Operator: KPD
Sample : N9116-V-1(3) Inst : Inst D
Misc : MC20162-8 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 09 08:38:06 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Fri Aug 09 08:38:03 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units	
43) cis-2-Heptene		17.38	56	156342m	80.3052	ng	
44) Methylcyclohexane		18.00	83	1817508m	823.5421	ng	
45) 2,5-Dimethylhexane/2,2,		19.62	57	2586333m	632.2861	ng	
46) 2,4-Dimethylhexane		19.81	43e	2244035m	719.5015	ng	
47) ctc-1,2,4-Trimethylcycl		20.34	70	572394m	165.1815	ng	
48) ctc-1,2,3-Trimethylcycl		21.17	70	189126m	94.5889	ng	
49) 2,3,4-Trimethylpentane		21.53	43	4823401m	1315.5109	ng	
50) Toluene		22.02	91E	28022314m	6390.6032	ng	
51) 2,3,3-Trimethylpentane		22.05	43	1991987m	639.2718	ng	
52) 2-Methylthiophene		0.00	97	0	N.D.	d	
53) 2,3-Dimethylhexane		22.82	43e	2409020m	613.6652	ng	
54) 3-Methylthiophene		0.00	97	0	N.D.	d	
55) 2-Methylheptane		23.56	43	2838146m	949.0421	ng	
56) 4-Methylheptane		23.70	43	1747880m	424.6252	ng	
57) 1,2-Dibromoethane		0.00	107	0	N.D.		
58) 1-Octene		26.00	55	214165m	135.0958	ng	
59) 2,2-Dimethylheptane		0.00	57	0	N.D.	d	
60) 2,2,4-Trimethylhexane		29.46	57	164370m	36.9460	ng	
61) Tetrachloroethylene		0.00	166	0	N.D.		
62) n-Octane		27.35	43	2552014m	780.6837	ng	
63) trans-2-Octene		27.75	55	147556m	56.8223	ng	
64) Isopropylcyclopentane		28.02	68	88543m	33.9192	ng	
65) cis-2-Octene		28.60	55	77552m	34.9707	ng	
66) 2,4-Dimethylheptane		29.91	43	529103m	145.2639	ng	
67) Ethylcyclohexane/n-prop		30.34	83	376626m	175.8371	ng	
68) 2,6-Dimethylheptane		30.61	43	475149m	146.4915	ng	
69) 1,1,4-Trimethylcyclohex		31.17	111	38229m	15.9096	ng	
72) Ethylbenzene		32.33	91	14955960m	2846.6456	ng	
73) ctt-1,2,4-Trimethylcycl		32.55	111	92564m	45.6638	ng	
74) 2-Ethylthiophene		0.00	97	0	N.D.	d	
75) m-Xylene		33.35	91E	28719988m	6449.8262	ng	
76) p-Xylene		33.43	91	7174219m	1636.8907	ng	
77) 2,3-Dimethylheptane		0.00	43	0	N.D.	d	
78) 4-Methyloctane		34.27	43	1533244m	415.1640	ng	
79) 2-Methyloctane		34.38	43	1400418m	441.4734	ng	
80) ctc-1,2,4-Trimethylcycl		0.00	69	0	N.D.	d	
81) 1,1,2-Trimethylcyclohex		0.00	69	0	N.D.	d	
82) o-Xylene		35.52	91E	13560429m	3096.3681	ng	
83) 1-Nonene		36.66	56	33462m	20.6149	ng	
84) trans-3-Nonene		37.35	55	111871m	52.2273	ng	
85) cis-3-Nonene		37.52	55	82170m	36.5508	ng	
86) n-Nonane		37.82	43	1228366m	445.9234	ng	
87) trans-2-Nonene		38.05	55	72604m	29.4454	ng	
88) Isopropylbenzene		38.72	105	1243114m	244.5068	ng	
89) cis-2-Nonene		38.86	55	34140m	15.7259	ng	
90) Isopropylcyclohexane		39.24	82	24000m	10.7839	ng	
91) 2,2-Dimethyloctane		39.63	57	234714m	48.4425	ng	
92) n-Butylcyclopentane		40.69	69	59152m	38.3674	ng	
93) 3,3-Dimethyloctane		41.19	71	272753	53.0464	ng	#
94) Propylbenzene		41.57	91	6089273m	956.3896	ng	

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7683.D Vial: 12
Acq On : 8 Aug 2013 3:27 am Operator: KPD
Sample : N9116-V-1(3) Inst : Inst D
Misc : MC20162-8 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 09 08:38:06 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Fri Aug 09 08:38:03 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units
95) 1-Methyl-3-Ethylbenzene		42.37	105E	14752514m	2966.0958	ng
96) 1-Methyl-4-Ethylbenzene		42.54	105e	6770535m	1260.7316	ng
97) 1,3,5-Trimethylbenzene		43.07	105E	6392927m	1376.7875	ng
98) 1-Methyl-2-Ethylbenzene		43.88	105	5015343m	1014.4246	ng
99) 3-Methylnonane		44.64	57	649548m	203.4011	ng
100) 1,2,4-Trimethylbenzene		45.37	105E	19053801m	4294.2033	ng
101) 1-Decene		46.08	41	42451m	26.0733	ng
102) sec-Butylbenzene		46.85	105	647372m	116.6877	ng
103) n-Decane		47.12	43	517078m	232.5657	ng
104) 1,2,3-Trimethylbenzene		47.63	105	4480025m	912.1895	ng
105) Indane		48.54	117	1778464m	475.5342	ng
106) 1,3-Diethylbenzene		50.12	105	1144619m	358.3548	ng
107) 1-methyl-4-n-propylbenz		50.68	105	2666748m	671.0590	ng
108) 1,3-Dimethyl-5-Ethylben		50.96	119	3753392m	857.8314	ng
109) 1,2-Diethylbenzene		51.10	105	187869m	64.1612	ng
110) 1-Methyl-2-n-Propylbenz		51.60	105	1668597m	291.6524	ng
111) 1,4-Dimethyl-2-Ethylben		52.49	119	2340282m	573.2333	ng
112) 1,2-Dimethyl-4-Ethylben		53.14	119	4009577m	906.4577	ng
113) 1,3-Dimethyl-2-Ethylben		53.57	119	263781m	57.4317	ng
114) n-Undecane		55.48	57	191576m	116.5736	ng
115) 1,2,4,5-Tetramethylbenz		55.72	119E	1984620m	440.7242	ng
116) 1,2,3,5-Tetramethylbenz		56.00	119	2792721m	648.5872	ng
117) 1,2,3,4-Tetramethylbenz		58.29	119	812791m	203.4026	ng
118) n-Pentylbenzene		58.67	91	283930m	71.6474	ng
119) Benzo(b)thiophene		59.70	134	54948m	46.6333	ng
120) MMT		0.00	120	0	N.D.	d
121) n-Dodecane		60.87	57	63436m	58.2130	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7684.D Vial: 13
Acq On : 8 Aug 2013 4:44 am Operator: KPD
Sample : N9117-V-1(3) Inst : Inst D
Misc : MC20162-9 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 09 08:38:09 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Fri Aug 09 08:38:06 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.02	84	1817837m	402.0400*	ng
38) Toluene-d8	21.46	98	1678033m	402.1600*	ng
70) Ethylbenzene-d10	31.74	98	2411459m	402.4800*	ng

System Monitoring Compounds					
2) 1,4-Difluorobenzene	12.31	114	1224881m	390.4616	ng
Spiked Amount 401.0800*				Recovery =	97.35%
39) Chlorobenzene-d5	29.88	117	1096874m	404.9530	ng
Spiked Amount 401.6400*				Recovery =	100.82%
71) 1,4-Dichlorobenzene-d4	45.96	150	782689m	397.8986	ng
Spiked Amount 400.4800*				Recovery =	99.36%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	d
4) Isopentane	0.00	43	0	N.D.	
5) 1-Pentene	0.00	42	0	N.D.	d
6) 2-Methyl-1-Butene	0.00	55	0	N.D.	d
7) n-Pentane	5.25	43	5801m	2.5984	ng
8) trans-2-Pentene	0.00	55	0	N.D.	d
9) cis-2-Pentene	0.00	55	0	N.D.	d
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	6.02	57	3274m	2.1292	ng
12) Cyclopentane	6.87	42	13618m	4.1837	ng
13) 2-Methylpentane	7.01	43	79704m	22.0874	ng
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	7.52	57	67327m	22.9790	ng
16) 1-Hexene	7.72	56	6781m	3.8189	ng
17) n-Hexane	8.25	57	128672m	54.4767	ng
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	8.47	55	9151m	2.8052	ng
20) 2-Methylpentene-2	8.59	69	11926m	3.7630	ng
21) cis-2-Hexene	8.95	55	5400m	1.9392	ng
22) Ethyltertbutylether	0.00	59	0	N.D.	d
23) 2,2-Dimethylpentane	9.51	57	19194m	4.7392	ng
24) Methylcyclopentane	9.65	56	186623m	62.1036	ng
25) 1,2-Dichloroethane	0.00	62	0	N.D.	
26) 2,4-Dimethylpentane	9.87	57	153176m	54.3814	ng
27) Benzene	11.17	78	52239m	11.7646	ng
28) Thiophene	0.00	84	0	N.D.	d
29) Cyclohexane	11.84	56	141997m	55.0943	ng
30) 2-Methylhexane	12.62	43	928022m	258.8479	ng
31) 2,3-Dimethylpentane	12.75	56	740852m	268.7551	ng
32) Tertamylmethylether	0.00	73	0	N.D.	
33) 3-Methylhexane	13.40	70	487793m	345.4146	ng
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	14.51	56	270947m	59.7875	ng
36) 2,2,4-Trimethylpentane/	14.70	56	1335032m	685.9956	ng
37) trans-3-Heptene	15.74	41	79150m	27.8795	ng
40) n-Heptane	15.95t	43	1290677m	496.2172	ng
41) cis-3-Heptene	15.95t	41	818868m	315.4119	ng
42) trans-2-Heptene	16.48	55	63872m	28.8595	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8
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Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7684.D Vial: 13
Acq On : 8 Aug 2013 4:44 am Operator: KPD
Sample : N9117-V-1(3) Inst : Inst D
Misc : MC20162-9 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 09 08:38:09 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Fri Aug 09 08:38:06 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units	
43) cis-2-Heptene		17.37	56	34348m	17.5180	ng	
44) Methylcyclohexane		17.98	83	796899m	358.5311	ng	
45) 2,5-Dimethylhexane/2,2,		19.59	57	1275034m	309.5031	ng	
46) 2,4-Dimethylhexane		19.79	43	1085560m	345.5970	ng	
47) ctc-1,2,4-Trimethylcycl		20.33	70	328731m	94.1935	ng	
48) ctc-1,2,3-Trimethylcycl		21.15	70	133869m	66.4788	ng	
49) 2,3,4-Trimethylpentane		21.50	43	2942024m	796.7121	ng	
50) Toluene		21.87	91	1503918m	340.5463	ng	
51) 2,3,3-Trimethylpentane		21.92	43	2321007m	739.5876	ng	
52) 2-Methylthiophene		0.00	97	0	N.D.	d	
53) 2,3-Dimethylhexane		22.79	43	1564017m	395.5912	ng	
54) 3-Methylthiophene		0.00	97	0	N.D.	d	
55) 2-Methylheptane		23.53	43	2277035m	756.0222	ng	
56) 4-Methylheptane		23.68	43	1507663m	363.6742	ng	
57) 1,2-Dibromoethane		0.00	107	0	N.D.		
58) 1-Octene		25.99	55	203403m	127.3986	ng	
59) 2,2-Dimethylheptane		0.00	57	0	N.D.	d	
60) 2,2,4-Trimethylhexane		29.46	57	231344m	51.6318	ng	
61) Tetrachloroethylene		0.00	166	0	N.D.		
62) n-Octane		27.34	43	2884237m	876.0666	ng	
63) trans-2-Octene		27.73	55	126373m	48.3204	ng	
64) Isopropylcyclopentane		28.03	68	89250m	33.9479	ng	
65) cis-2-Octene		28.60	55	75973m	34.0161	ng	
66) 2,4-Dimethylheptane		29.91	43	700387m	190.9280	ng	
67) Ethylcyclohexane/n-prop		30.34	83	503930m	233.6063	ng	
68) 2,6-Dimethylheptane		30.61	43	676788m	207.1807	ng	
69) 1,1,4-Trimethylcyclohex		31.17	111	55770m	23.0453	ng	
72) Ethylbenzene		32.26	91	3600398m	692.1533	ng	
73) ctt-1,2,4-Trimethylcycl		32.54	111	155820m	77.6400	ng	
74) 2-Ethylthiophene		0.00	97	0	N.D.	d	
75) m-Xylene		33.33	91E	27172396m	6163.4571	ng	
76) p-Xylene		33.40	91	6235632m	1437.0048	ng	
77) 2,3-Dimethylheptane		0.00	43	0	N.D.	d	
78) 4-Methyloctane		34.27	43	2351042m	642.9860	ng	
79) 2-Methyloctane		34.38	43	2270488m	722.9342	ng	
80) ctc-1,2,4-Trimethylcycl		0.00	69	0	N.D.	d	
81) 1,1,2-Trimethylcyclohex		0.00	69	0	N.D.	d	
82) o-Xylene		35.53	91E	13585409m	3133.1743	ng	
83) 1-Nonene		36.67	56	66195m	41.1896	ng	
84) trans-3-Nonene		37.36	55	196147m	92.4899	ng	
85) cis-3-Nonene		37.52	55	151925m	68.2567	ng	
86) n-Nonane		37.83	43	2148451m	787.7541	ng	
87) trans-2-Nonene		38.05	55	148541m	60.8465	ng	
88) Isopropylbenzene		38.72	105	572967m	113.8262	ng	
89) cis-2-Nonene		38.86	55	70535m	32.8164	ng	
90) Isopropylcyclohexane		39.23	82	42207m	19.1549	ng	
91) 2,2-Dimethyloctane		39.65	57	418912m	87.3258	ng	
92) n-Butylcyclopentane		40.71	69	98049m	64.2345	ng	
93) 3,3-Dimethyloctane		41.21	71	468496	92.0290	ng	#
94) Propylbenzene		41.56	91	3212255m	509.5797	ng	

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7684.D Vial: 13
Acq On : 8 Aug 2013 4:44 am Operator: KPD
Sample : N9117-V-1(3) Inst : Inst D
Misc : MC20162-9 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 09 08:38:09 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Fri Aug 09 08:38:06 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc	Units
95) 1-Methyl-3-Ethylbenzene		42.41	105E	20990707m	4262.6423	ng
96) 1-Methyl-4-Ethylbenzene		42.56	105e	9414034m	1770.5496	ng
97) 1,3,5-Trimethylbenzene		43.11	105E	11348295m	2468.4849	ng
98) 1-Methyl-2-Ethylbenzene		43.92	105e	8031902m	1640.8551	ng
99) 3-Methylnonane		44.69	57	1061244m	335.6525	ng
100) 1,2,4-Trimethylbenzene		45.43	105E	28912718m	6581.4650	ng
101) 1-Decene		46.08	41	91546m	56.7912	ng
102) sec-Butylbenzene		46.87	105	671049m	122.1682	ng
103) n-Decane		47.15	43	819141m	372.1182	ng
104) 1,2,3-Trimethylbenzene		47.68	105	7433013m	1528.6294	ng
105) Indane		48.56	117	2254657m	608.9054	ng
106) 1,3-Diethylbenzene		50.13	105	2010743	635.8308	ng
107) 1-methyl-4-n-propylbenz		50.69	105	4382173m	1113.7839	ng
108) 1,3-Dimethyl-5-Ethylben		51.00	119e	6633395m	1531.2516	ng
109) 1,2-Diethylbenzene		51.11	105	305301m	105.3120	ng
110) 1-Methyl-2-n-Propylbenz		51.63	105	2936064m	518.3371	ng
111) 1,4-Dimethyl-2-Ethylben		52.52	119	4025726	995.9560	ng
112) 1,2-Dimethyl-4-Ethylben		53.18	119e	6867763m	1568.1838	ng
113) 1,3-Dimethyl-2-Ethylben		53.58	119	459594m	101.0684	ng
114) n-Undecane		55.50	57	301839m	185.5099	ng
115) 1,2,4,5-Tetramethylbenz		55.75	119E	3396033	761.7178	ng
116) 1,2,3,5-Tetramethylbenz		56.04	119	4674123m	1096.4117	ng
117) 1,2,3,4-Tetramethylbenz		58.30	119	1352733m	341.9184	ng
118) n-Pentylbenzene		58.68	91	470092m	119.8131	ng
119) Benzo(b)thiophene		59.72	134	55174m	47.2946	ng
120) MMT		0.00	120	0	N.D.	d
121) n-Dodecane		60.87	57	82263m	76.2468	ng

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7688.D Vial: 17
Acq On : 8 Aug 2013 9:56 am Operator: KPD
Sample : N9110-V-D3(4) Inst : Inst D
Misc : MC20162-2 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 09 08:38:18 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Fri Aug 09 08:38:15 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.01	84	1810601m	402.0400*	ng
38) Toluene-d8	21.45	98	1673586m	402.1600*	ng
70) Ethylbenzene-d10	31.72	98	2395860m	402.4800*	ng

System Monitoring Compounds

2) 1,4-Difluorobenzene	12.31	114	1209224m	387.0111	ng
Spiked Amount 401.0800*				Recovery =	96.49%
39) Chlorobenzene-d5	29.88	117	1092054	404.2448	ng
Spiked Amount 401.6400*				Recovery =	100.65%
71) 1,4-Dichlorobenzene-d4	45.90	150	765289m	391.5859	ng
Spiked Amount 400.4800*				Recovery =	97.78%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc Units
3) Ethanol	0.00	45	0	N.D.
4) Isopentane	0.00	43	0	N.D.
5) 1-Pentene	0.00	42	0	N.D. d
6) 2-Methyl-1-Butene	0.00	55	0	N.D. d
7) n-Pentane	0.00	43	0	N.D. d
8) trans-2-Pentene	0.00	55	0	N.D. d
9) cis-2-Pentene	0.00	55	0	N.D. d
10) t-Butanol	0.00	59	0	N.D. d
11) 2,2-Dimethylbutane	0.00	57	0	N.D. d
12) Cyclopentane	0.00	42	0	N.D. d
13) 2-Methylpentane	0.00	43	0	N.D. d
14) Methyltertbutylether	0.00	73	0	N.D. d
15) 3-Methylpentane	0.00	57	0	N.D. d
16) 1-Hexene	0.00	56	0	N.D.
17) n-Hexane	0.00	57	0	N.D. d
18) Di-isopropylether	0.00	45	0	N.D. d
19) trans-2-Hexene	0.00	55	0	N.D. d
20) 2-Methylpentene-2	0.00	69	0	N.D. d
21) cis-2-Hexene	0.00	55	0	N.D.
22) Ethyltertbutylether	0.00	59	0	N.D.
23) 2,2-Dimethylpentane	0.00	57	0	N.D. d
24) Methylcyclopentane	0.00	56	0	N.D. d
25) 1,2-Dichloroethane	0.00	62	0	N.D.
26) 2,4-Dimethylpentane	0.00	57	0	N.D. d
27) Benzene	0.00	78	0	N.D. d
28) Thiophene	0.00	84	0	N.D.
29) Cyclohexane	0.00	56	0	N.D. d
30) 2-Methylhexane	0.00	43	0	N.D. d
31) 2,3-Dimethylpentane	0.00	56	0	N.D. d
32) Tertamylmethylether	0.00	73	0	N.D.
33) 3-Methylhexane	0.00	70	0	N.D. d
34) Trichloroethylene	0.00	130	0	N.D.
35) 2-Methyl-1-Hexene	0.00	56	0	N.D. d
36) 2,2,4-Trimethylpentane/	0.00	56	0	N.D. d
37) trans-3-Heptene	0.00	41	0	N.D. d
40) n-Heptane	0.00	43	0	N.D. d
41) cis-3-Heptene	0.00	41	0	N.D. d
42) trans-2-Heptene	0.00	55	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7688.D Vial: 17
Acq On : 8 Aug 2013 9:56 am Operator: KPD
Sample : N9110-V-D3(4) Inst : Inst D
Misc : MC20162-2 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 09 08:38:18 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Fri Aug 09 08:38:15 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds (Ratio)	R.T.	QIon	Response	Conc Units
43) cis-2-Heptene	0.00	56	0	N.D. d
44) Methylcyclohexane	0.00	83	0	N.D. d
45) 2,5-Dimethylhexane/2,2,	0.00	57	0	N.D. d
46) 2,4-Dimethylhexane	0.00	43	0	N.D. d
47) ctc-1,2,4-Trimethylcycl	0.00	70	0	N.D. d
48) ctc-1,2,3-Trimethylcycl	0.00	70	0	N.D. d
49) 2,3,4-Trimethylpentane	0.00	43	0	N.D. d
50) Toluene	0.00	91	0	N.D. d
51) 2,3,3-Trimethylpentane	0.00	43	0	N.D. d
52) 2-Methylthiophene	0.00	97	0	N.D.
53) 2,3-Dimethylhexane	0.00	43	0	N.D. d
54) 3-Methylthiophene	0.00	97	0	N.D. d
55) 2-Methylheptane	0.00	43	0	N.D. d
56) 4-Methylheptane	0.00	43	0	N.D. d
57) 1,2-Dibromoethane	0.00	107	0	N.D.
58) 1-Octene	0.00	55	0	N.D. d
59) 2,2-Dimethylheptane	0.00	57	0	N.D. d
60) 2,2,4-Trimethylhexane	0.00	57	0	N.D. d
61) Tetrachloroethylene	0.00	166	0	N.D.
62) n-Octane	0.00	43	0	N.D. d
63) trans-2-Octene	0.00	55	0	N.D. d
64) Isopropylcyclopentane	0.00	68	0	N.D. d
65) cis-2-Octene	0.00	55	0	N.D. d
66) 2,4-Dimethylheptane	0.00	43	0	N.D. d
67) Ethylcyclohexane/n-prop	0.00	83	0	N.D. d
68) 2,6-Dimethylheptane	0.00	43	0	N.D. d
69) 1,1,4-Trimethylcyclohex	0.00	111	0	N.D. d
72) Ethylbenzene	0.00	91	0	N.D. d
73) ctt-1,2,4-Trimethylcycl	0.00	111	0	N.D. d
74) 2-Ethylthiophene	0.00	97	0	N.D. d
75) m-Xylene	33.16	91	3631157	829.0103 ng
76) p-Xylene	0.00	91	0	N.D. d
77) 2,3-Dimethylheptane	0.00	43	0	N.D. d
78) 4-Methyloctane	0.00	43	0	N.D. d
79) 2-Methyloctane	0.00	43	0	N.D. d
80) ctc-1,2,4-Trimethylcycl	0.00	69	0	N.D. d
81) 1,1,2-Trimethylcyclohex	0.00	69	0	N.D. d
82) o-Xylene	0.00	91	0	N.D. d
83) 1-Nonene	0.00	56	0	N.D. d
84) trans-3-Nonene	0.00	55	0	N.D. d
85) cis-3-Nonene	0.00	55	0	N.D. d
86) n-Nonane	0.00	43	0	N.D. d
87) trans-2-Nonene	0.00	55	0	N.D. d
88) Isopropylbenzene	0.00	105	0	N.D. d
89) cis-2-Nonene	0.00	55	0	N.D. d
90) Isopropylcyclohexane	0.00	82	0	N.D. d
91) 2,2-Dimethyloctane	0.00	57	0	N.D. d
92) n-Butylcyclopentane	0.00	69	0	N.D. d
93) 3,3-Dimethyloctane	0.00	71	0	N.D. d
94) Propylbenzene	0.00	91	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
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(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2010 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0958\D7688.D Vial: 17
Acq On : 8 Aug 2013 9:56 am Operator: KPD
Sample : N9110-V-D3(4) Inst : Inst D
Misc : MC20162-2 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 09 08:38:18 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Fri Aug 09 08:38:15 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units
95) 1-Methyl-3-Ethylbenzene		0.00	105	0	N.D. d
96) 1-Methyl-4-Ethylbenzene		0.00	105	0	N.D. d
97) 1,3,5-Trimethylbenzene		0.00	105	0	N.D. d
98) 1-Methyl-2-Ethylbenzene		0.00	105	0	N.D. d
99) 3-Methylnonane		0.00	57	0	N.D. d
100) 1,2,4-Trimethylbenzene		45.23	105	3738366m	856.5129 ng
101) 1-Decene		0.00	41	0	N.D. d
102) sec-Butylbenzene		0.00	105	0	N.D. d
103) n-Decane		0.00	43	0	N.D. d
104) 1,2,3-Trimethylbenzene		0.00	105	0	N.D. d
105) Indane		0.00	117	0	N.D. d
106) 1,3-Diethylbenzene		0.00	105	0	N.D. d
107) 1-methyl-4-n-propylbenz		0.00	105	0	N.D. d
108) 1,3-Dimethyl-5-Ethylben		0.00	119	0	N.D. d
109) 1,2-Diethylbenzene		0.00	105	0	N.D. d
110) 1-Methyl-2-n-Propylbenz		0.00	105	0	N.D. d
111) 1,4-Dimethyl-2-Ethylben		0.00	119	0	N.D. d
112) 1,2-Dimethyl-4-Ethylben		0.00	119	0	N.D. d
113) 1,3-Dimethyl-2-Ethylben		0.00	119	0	N.D. d
114) n-Undecane		0.00	57	0	N.D. d
115) 1,2,4,5-Tetramethylbenz		0.00	119	0	N.D. d
116) 1,2,3,5-Tetramethylbenz		0.00	119	0	N.D. d
117) 1,2,3,4-Tetramethylbenz		0.00	119	0	N.D. d
118) n-Pentylbenzene		0.00	91	0	N.D. d
119) Benzo(b)thiophene		0.00	134	0	N.D. d
120) MMT		0.00	120	0	N.D. d
121) n-Dodecane		0.00	57	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7711.D Vial: 4
Acq On : 9 Aug 2013 7:50 pm Operator: KPD
Sample : N9109-V-D2(5) Inst : Inst D
Misc : MC20162-1 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:09 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Jun 17 11:41:28 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.01	84	1528575m	402.0400*	ng
38) Toluene-d8	21.44	98	1412495	402.1600*	ng
70) Ethylbenzene-d10	31.72	98	2059029m	402.4800*	ng

System Monitoring Compounds					
2) 1,4-Difluorobenzene	12.31	114	1003156m	380.2954	ng
Spiked Amount 401.0800*				Recovery =	94.82%
39) Chlorobenzene-d5	29.88	117	893771m	392.0015	ng
Spiked Amount 401.6400*				Recovery =	97.60%
71) 1,4-Dichlorobenzene-d4	45.90	150	644005m	383.4333	ng
Spiked Amount 400.4800*				Recovery =	95.74%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	d
4) Isopentane	4.84	43	596752m	473.9891	ng
5) 1-Pentene	0.00	42	0	N.D.	d
6) 2-Methyl-1-Butene	0.00	55	0	N.D.	d
7) n-Pentane	0.00	43	0	N.D.	d
8) trans-2-Pentene	0.00	55	0	N.D.	d
9) cis-2-Pentene	0.00	55	0	N.D.	d
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	0.00	57	0	N.D.	d
12) Cyclopentane	0.00	42	0	N.D.	d
13) 2-Methylpentane	7.00	43	1916893m	631.7276	ng
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	7.52	57	1120465m	454.7873	ng
16) 1-Hexene	0.00	56	0	N.D.	d
17) n-Hexane	8.25	57	1407805m	708.8230	ng
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	0.00	55	0	N.D.	d
20) 2-Methylpentene-2	0.00	69	0	N.D.	d
21) cis-2-Hexene	0.00	55	0	N.D.	d
22) Ethyltertbutylether	0.00	59	0	N.D.	
23) 2,2-Dimethylpentane	0.00	57	0	N.D.	d
24) Methylcyclopentane	9.64	56	1333778m	527.8414	ng
25) 1,2-Dichloroethane	0.00	62	0	N.D.	d
26) 2,4-Dimethylpentane	0.00	57	0	N.D.	d
27) Benzene	0.00	78	0	N.D.	d
28) Thiophene	0.00	84	0	N.D.	d
29) Cyclohexane	0.00	56	0	N.D.	d
30) 2-Methylhexane	12.63	43	1244500m	412.8093	ng
31) 2,3-Dimethylpentane	12.76	56	1156691m	499.0118	ng
32) Tertamylmethylether	0.00	73	0	N.D.	
33) 3-Methylhexane	13.40	70	566712m	477.2387	ng
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	0.00	56	0	N.D.	d
36) 2,2,4-Trimethylpentane/	0.00	56	0	N.D.	d
37) trans-3-Heptene	0.00	41	0	N.D.	d
40) n-Heptane	0.00	43	0	N.D.	d
41) cis-3-Heptene	0.00	41	0	N.D.	d
42) trans-2-Heptene	0.00	55	0	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7711.D Vial: 4
Acq On : 9 Aug 2013 7:50 pm Operator: KPD
Sample : N9109-V-D2(5) Inst : Inst D
Misc : MC20162-1 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:09 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Jun 17 11:41:28 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units
43) cis-2-Heptene		0.00	56	0	N.D. d
44) Methylcyclohexane		0.00	83	0	N.D. d
45) 2,5-Dimethylhexane/2,2,		0.00	57	0	N.D. d
46) 2,4-Dimethylhexane		19.78	43	356106m	134.6818 ng
47) ctc-1,2,4-Trimethylcycl		0.00	70	0	N.D. d
48) ctc-1,2,3-Trimethylcycl		0.00	70	0	N.D. d
49) 2,3,4-Trimethylpentane		0.00	43	0	N.D. d
50) Toluene		21.89	91	6089549m	1638.1388 ng
51) 2,3,3-Trimethylpentane		0.00	43	0	N.D. d
52) 2-Methylthiophene		0.00	97	0	N.D. d
53) 2,3-Dimethylhexane		22.79	43	383951m	115.3704 ng
54) 3-Methylthiophene		0.00	97	0	N.D. d
55) 2-Methylheptane		0.00	43	0	N.D. d
56) 4-Methylheptane		0.00	43	0	N.D. d
57) 1,2-Dibromoethane		0.00	107	0	N.D.
58) 1-Octene		0.00	55	0	N.D. d
59) 2,2-Dimethylheptane		0.00	57	0	N.D. d
60) 2,2,4-Trimethylhexane		0.00	57	0	N.D. d
61) Tetrachloroethylene		0.00	166	0	N.D.
62) n-Octane		0.00	43	0	N.D. d
63) trans-2-Octene		0.00	55	0	N.D. d
64) Isopropylcyclopentane		0.00	68	0	N.D. d
65) cis-2-Octene		0.00	55	0	N.D. d
66) 2,4-Dimethylheptane		0.00	43	0	N.D. d
67) Ethylcyclohexane/n-prop		0.00	83	0	N.D. d
68) 2,6-Dimethylheptane		0.00	43	0	N.D. d
69) 1,1,4-Trimethylcyclohex		0.00	111	0	N.D. d
72) Ethylbenzene		0.00	91	0	N.D. d
73) ctt-1,2,4-Trimethylcycl		0.00	111	0	N.D. d
74) 2-Ethylthiophene		0.00	97	0	N.D. d
75) m-Xylene		33.19	91	4623308	1228.1932 ng
76) p-Xylene		0.00	91	0	N.D. d
77) 2,3-Dimethylheptane		0.00	43	0	N.D. d
78) 4-Methyloctane		0.00	43	0	N.D. d
79) 2-Methyloctane		0.00	43	0	N.D. d
80) ctc-1,2,4-Trimethylcycl		0.00	69	0	N.D. d
81) 1,1,2-Trimethylcyclohex		0.00	69	0	N.D. d
82) o-Xylene		35.42	91	2329493m	629.2028 ng
83) 1-Nonene		0.00	56	0	N.D. d
84) trans-3-Nonene		0.00	55	0	N.D. d
85) cis-3-Nonene		0.00	55	0	N.D. d
86) n-Nonane		0.00	43	0	N.D. d
87) trans-2-Nonene		0.00	55	0	N.D. d
88) Isopropylbenzene		0.00	105	0	N.D. d
89) cis-2-Nonene		0.00	55	0	N.D. d
90) Isopropylcyclohexane		0.00	82	0	N.D. d
91) 2,2-Dimethyloctane		0.00	57	0	N.D. d
92) n-Butylcyclopentane		0.00	69	0	N.D. d
93) 3,3-Dimethyloctane		0.00	71	0	N.D. d
94) Propylbenzene		0.00	91	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
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Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7711.D Vial: 4
Acq On : 9 Aug 2013 7:50 pm Operator: KPD
Sample : N9109-V-D2(5) Inst : Inst D
Misc : MC20162-1 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:09 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Jun 17 11:41:28 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units
95) 1-Methyl-3-Ethylbenzene	42.28	105	2259332m		537.3402 ng
96) 1-Methyl-4-Ethylbenzene	0.00	105	0		N.D. d
97) 1,3,5-Trimethylbenzene	42.99	105	1008068m		256.8072 ng
98) 1-Methyl-2-Ethylbenzene	0.00	105	0		N.D. d
99) 3-Methylnonane	0.00	57	0		N.D. d
100) 1,2,4-Trimethylbenzene	45.24	105	3202914m		853.8790 ng
101) 1-Decene	0.00	41	0		N.D. d
102) sec-Butylbenzene	0.00	105	0		N.D. d
103) n-Decane	0.00	43	0		N.D. d
104) 1,2,3-Trimethylbenzene	0.00	105	0		N.D. d
105) Indane	0.00	117	0		N.D. d
106) 1,3-Diethylbenzene	0.00	105	0		N.D. d
107) 1-methyl-4-n-propylbenz	0.00	105	0		N.D. d
108) 1,3-Dimethyl-5-Ethylben	0.00	119	0		N.D. d
109) 1,2-Diethylbenzene	0.00	105	0		N.D. d
110) 1-Methyl-2-n-Propylbenz	0.00	105	0		N.D. d
111) 1,4-Dimethyl-2-Ethylben	0.00	119	0		N.D. d
112) 1,2-Dimethyl-4-Ethylben	0.00	119	0		N.D. d
113) 1,3-Dimethyl-2-Ethylben	0.00	119	0		N.D. d
114) n-Undecane	0.00	57	0		N.D. d
115) 1,2,4,5-Tetramethylbenz	55.69	119	273066m		71.7311 ng
116) 1,2,3,5-Tetramethylbenz	0.00	119	0		N.D. d
117) 1,2,3,4-Tetramethylbenz	0.00	119	0		N.D. d
118) n-Pentylbenzene	0.00	91	0		N.D. d
119) Benzo(b)thiophene	0.00	134	0		N.D. d
120) MMT	0.00	120	0		N.D. d
121) n-Dodecane	0.00	57	0		N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7712.D Vial: 5
Acq On : 9 Aug 2013 9:07 pm Operator: KPD
Sample : N9109DUP-V-D2(5) Inst : Inst D
Misc : Lab Duplicate of MC20162-1 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:12 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:09 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.01	84	1787971m	402.0400*	ng
38) Toluene-d8	21.45	98	1626985m	402.1600*	ng
70) Ethylbenzene-d10	31.72	98	2345504m	402.4800*	ng

System Monitoring Compounds

2) 1,4-Difluorobenzene	12.31	114	1183306m	383.5094	ng
Spiked Amount 401.0800*				Recovery =	95.62%
39) Chlorobenzene-d5	29.88	117	1022803m	389.4546	ng
Spiked Amount 401.6400*				Recovery =	96.97%
71) 1,4-Dichlorobenzene-d4	45.90	150	720206m	376.4294	ng
Spiked Amount 400.4800*				Recovery =	93.99%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	d
4) Isopentane	4.84	43	616013m	418.3026	ng
5) 1-Pentene	0.00	42	0	N.D.	d
6) 2-Methyl-1-Butene	0.00	55	0	N.D.	d
7) n-Pentane	0.00	43	0	N.D.	d
8) trans-2-Pentene	0.00	55	0	N.D.	d
9) cis-2-Pentene	0.00	55	0	N.D.	d
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	0.00	57	0	N.D.	d
12) Cyclopentane	0.00	42	0	N.D.	d
13) 2-Methylpentane	7.00	43	2061400m	580.7918	ng
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	7.54	57	1208849m	419.4772	ng
16) 1-Hexene	0.00	56	0	N.D.	d
17) n-Hexane	8.25	57	1537919m	661.9955	ng
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	0.00	55	0	N.D.	d
20) 2-Methylpentene-2	0.00	69	0	N.D.	d
21) cis-2-Hexene	0.00	55	0	N.D.	d
22) Ethyltertbutylether	0.00	59	0	N.D.	
23) 2,2-Dimethylpentane	0.00	57	0	N.D.	d
24) Methylcyclopentane	9.64	56	1467153m	496.3884	ng
25) 1,2-Dichloroethane	0.00	62	0	N.D.	d
26) 2,4-Dimethylpentane	0.00	57	0	N.D.	d
27) Benzene	0.00	78	0	N.D.	d
28) Thiophene	0.00	84	0	N.D.	d
29) Cyclohexane	0.00	56	0	N.D.	d
30) 2-Methylhexane	12.63	43	1366350m	387.4743	ng
31) 2,3-Dimethylpentane	12.76	56	1261756m	465.3665	ng
32) Tertamylmethylether	0.00	73	0	N.D.	
33) 3-Methylhexane	13.40	70	623548m	448.9205	ng
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	0.00	56	0	N.D.	d
36) 2,2,4-Trimethylpentane/	0.00	56	0	N.D.	d
37) trans-3-Heptene	0.00	41	0	N.D.	d
40) n-Heptane	0.00	43	0	N.D.	d
41) cis-3-Heptene	0.00	41	0	N.D.	d
42) trans-2-Heptene	0.00	55	0	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7712.D Vial: 5
Acq On : 9 Aug 2013 9:07 pm Operator: KPD
Sample : N9109DUP-V-D2(5) Inst : Inst D
Misc : Lab Duplicate of MC20162-1 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:12 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:09 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds (Ratio)	R.T.	QIon	Response	Conc Units
43) cis-2-Heptene	0.00	56	0	N.D. d
44) Methylcyclohexane	0.00	83	0	N.D. d
45) 2,5-Dimethylhexane/2,2,	0.00	57	0	N.D. d
46) 2,4-Dimethylhexane	19.78	43	394524m	129.5408 ng
47) ctc-1,2,4-Trimethylcycl	0.00	70	0	N.D. d
48) ctc-1,2,3-Trimethylcycl	0.00	70	0	N.D. d
49) 2,3,4-Trimethylpentane	0.00	43	0	N.D. d
50) Toluene	21.89	91	6842897m	1598.1183 ng
51) 2,3,3-Trimethylpentane	0.00	43	0	N.D. d
52) 2-Methylthiophene	0.00	97	0	N.D. d
53) 2,3-Dimethylhexane	22.77	43	406524m	106.0494 ng
54) 3-Methylthiophene	0.00	97	0	N.D. d
55) 2-Methylheptane	0.00	43	0	N.D. d
56) 4-Methylheptane	0.00	43	0	N.D. d
57) 1,2-Dibromoethane	0.00	107	0	N.D.
58) 1-Octene	0.00	55	0	N.D. d
59) 2,2-Dimethylheptane	0.00	57	0	N.D. d
60) 2,2,4-Trimethylhexane	0.00	57	0	N.D. d
61) Tetrachloroethylene	0.00	166	0	N.D.
62) n-Octane	0.00	43	0	N.D. d
63) trans-2-Octene	0.00	55	0	N.D. d
64) Isopropylcyclopentane	0.00	68	0	N.D. d
65) cis-2-Octene	0.00	55	0	N.D. d
66) 2,4-Dimethylheptane	0.00	43	0	N.D. d
67) Ethylcyclohexane/n-prop	0.00	83	0	N.D. d
68) 2,6-Dimethylheptane	0.00	43	0	N.D. d
69) 1,1,4-Trimethylcyclohex	0.00	111	0	N.D. d
72) Ethylbenzene	0.00	91	0	N.D. d
73) ctt-1,2,4-Trimethylcycl	0.00	111	0	N.D. d
74) 2-Ethylthiophene	0.00	97	0	N.D. d
75) m-Xylene	33.19	91	4922818m	1148.0318 ng
76) p-Xylene	0.00	91	0	N.D. d
77) 2,3-Dimethylheptane	0.00	43	0	N.D. d
78) 4-Methyloctane	0.00	43	0	N.D. d
79) 2-Methyloctane	0.00	43	0	N.D. d
80) ctc-1,2,4-Trimethylcycl	0.00	69	0	N.D. d
81) 1,1,2-Trimethylcyclohex	0.00	69	0	N.D. d
82) o-Xylene	35.43	91	2510214m	595.2046 ng
83) 1-Nonene	0.00	56	0	N.D. d
84) trans-3-Nonene	0.00	55	0	N.D. d
85) cis-3-Nonene	0.00	55	0	N.D. d
86) n-Nonane	0.00	43	0	N.D. d
87) trans-2-Nonene	0.00	55	0	N.D. d
88) Isopropylbenzene	0.00	105	0	N.D. d
89) cis-2-Nonene	0.00	55	0	N.D. d
90) Isopropylcyclohexane	0.00	82	0	N.D. d
91) 2,2-Dimethyloctane	0.00	57	0	N.D. d
92) n-Butylcyclopentane	0.00	69	0	N.D. d
93) 3,3-Dimethyloctane	0.00	71	0	N.D. d
94) Propylbenzene	0.00	91	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7712.D Vial: 5
Acq On : 9 Aug 2013 9:07 pm Operator: KPD
Sample : N9109DUP-V-D2(5) Inst : Inst D
Misc : Lab Duplicate of MC20162-1 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:12 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:09 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units
95) 1-Methyl-3-Ethylbenzene	42.28	105	2400543m	501.1930	ng
96) 1-Methyl-4-Ethylbenzene	0.00	105	0	N.D.	d
97) 1,3,5-Trimethylbenzene	43.00	105	1064485m	238.0582	ng
98) 1-Methyl-2-Ethylbenzene	0.00	105	0	N.D.	d
99) 3-Methylnonane	0.00	57	0	N.D.	d
100) 1,2,4-Trimethylbenzene	45.24	105	3370199m	788.7383	ng
101) 1-Decene	0.00	41	0	N.D.	d
102) sec-Butylbenzene	0.00	105	0	N.D.	d
103) n-Decane	0.00	43	0	N.D.	d
104) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d
105) Indane	0.00	117	0	N.D.	d
106) 1,3-Diethylbenzene	0.00	105	0	N.D.	d
107) 1-methyl-4-n-propylbenz	0.00	105	0	N.D.	d
108) 1,3-Dimethyl-5-Ethylben	0.00	119	0	N.D.	d
109) 1,2-Diethylbenzene	0.00	105	0	N.D.	d
110) 1-Methyl-2-n-Propylbenz	0.00	105	0	N.D.	d
111) 1,4-Dimethyl-2-Ethylben	0.00	119	0	N.D.	d
112) 1,2-Dimethyl-4-Ethylben	0.00	119	0	N.D.	d
113) 1,3-Dimethyl-2-Ethylben	0.00	119	0	N.D.	d
114) n-Undecane	0.00	57	0	N.D.	d
115) 1,2,4,5-Tetramethylbenz	55.69	119	289622m	66.7878	ng
116) 1,2,3,5-Tetramethylbenz	0.00	119	0	N.D.	d
117) 1,2,3,4-Tetramethylbenz	0.00	119	0	N.D.	d
118) n-Pentylbenzene	0.00	91	0	N.D.	d
119) Benzo(b)thiophene	0.00	134	0	N.D.	d
120) MMT	0.00	120	0	N.D.	d
121) n-Dodecane	0.00	57	0	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

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Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7713.D Vial: 6
Acq On : 9 Aug 2013 10:25 pm Operator: KPD
Sample : N9110-V-D2(5) Inst : Inst D
Misc : MC20162-2 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:15 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:12 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.01	84	1842274m	402.0400*	ng
38) Toluene-d8	21.45	98	1669046m	402.1600*	ng
70) Ethylbenzene-d10	31.73	98	2399497m	402.4800*	ng

System Monitoring Compounds

2) 1,4-Difluorobenzene	12.31	114	1216960m	382.7908	ng
Spiked Amount 401.0800*				Recovery =	95.44%
39) Chlorobenzene-d5	29.88	117	1057064m	392.3569	ng
Spiked Amount 401.6400*				Recovery =	97.69%
71) 1,4-Dichlorobenzene-d4	45.90	150	734569m	375.2973	ng
Spiked Amount 400.4800*				Recovery =	93.71%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	d
4) Isopentane	0.00	43	0	N.D.	d
5) 1-Pentene	0.00	42	0	N.D.	d
6) 2-Methyl-1-Butene	0.00	55	0	N.D.	d
7) n-Pentane	0.00	43	0	N.D.	d
8) trans-2-Pentene	0.00	55	0	N.D.	d
9) cis-2-Pentene	0.00	55	0	N.D.	d
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	0.00	57	0	N.D.	d
12) Cyclopentane	0.00	42	0	N.D.	
13) 2-Methylpentane	0.00	43	0	N.D.	d
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	0.00	57	0	N.D.	d
16) 1-Hexene	0.00	56	0	N.D.	d
17) n-Hexane	0.00	57	0	N.D.	d
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	0.00	55	0	N.D.	d
20) 2-Methylpentene-2	0.00	69	0	N.D.	d
21) cis-2-Hexene	0.00	55	0	N.D.	
22) Ethyltertbutylether	0.00	59	0	N.D.	
23) 2,2-Dimethylpentane	0.00	57	0	N.D.	d
24) Methylcyclopentane	0.00	56	0	N.D.	d
25) 1,2-Dichloroethane	0.00	62	0	N.D.	
26) 2,4-Dimethylpentane	0.00	57	0	N.D.	d
27) Benzene	0.00	78	0	N.D.	d
28) Thiophene	0.00	84	0	N.D.	
29) Cyclohexane	0.00	56	0	N.D.	d
30) 2-Methylhexane	0.00	43	0	N.D.	d
31) 2,3-Dimethylpentane	0.00	56	0	N.D.	d
32) Tertamylmethylether	0.00	73	0	N.D.	
33) 3-Methylhexane	0.00	70	0	N.D.	d
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	0.00	56	0	N.D.	d
36) 2,2,4-Trimethylpentane/	0.00	56	0	N.D.	d
37) trans-3-Heptene	0.00	41	0	N.D.	d
40) n-Heptane	0.00	43	0	N.D.	d
41) cis-3-Heptene	0.00	41	0	N.D.	d
42) trans-2-Heptene	0.00	55	0	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
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(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
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G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7713.D Vial: 6
Acq On : 9 Aug 2013 10:25 pm Operator: KPD
Sample : N9110-V-D2(5) Inst : Inst D
Misc : MC20162-2 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:15 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:12 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds (Ratio)	R.T.	QIon	Response	Conc Units
43) cis-2-Heptene	0.00	56	0	N.D. d
44) Methylcyclohexane	0.00	83	0	N.D. d
45) 2,5-Dimethylhexane/2,2,	0.00	57	0	N.D. d
46) 2,4-Dimethylhexane	0.00	43	0	N.D. d
47) ctc-1,2,4-Trimethylcycl	0.00	70	0	N.D. d
48) ctc-1,2,3-Trimethylcycl	0.00	70	0	N.D. d
49) 2,3,4-Trimethylpentane	0.00	43	0	N.D. d
50) Toluene	0.00	91	0	N.D. d
51) 2,3,3-Trimethylpentane	0.00	43	0	N.D. d
52) 2-Methylthiophene	0.00	97	0	N.D. d
53) 2,3-Dimethylhexane	0.00	43	0	N.D. d
54) 3-Methylthiophene	0.00	97	0	N.D. d
55) 2-Methylheptane	0.00	43	0	N.D. d
56) 4-Methylheptane	0.00	43	0	N.D. d
57) 1,2-Dibromoethane	0.00	107	0	N.D.
58) 1-Octene	0.00	55	0	N.D. d
59) 2,2-Dimethylheptane	0.00	57	0	N.D. d
60) 2,2,4-Trimethylhexane	0.00	57	0	N.D. d
61) Tetrachloroethylene	0.00	166	0	N.D.
62) n-Octane	0.00	43	0	N.D. d
63) trans-2-Octene	0.00	55	0	N.D. d
64) Isopropylcyclopentane	0.00	68	0	N.D. d
65) cis-2-Octene	0.00	55	0	N.D. d
66) 2,4-Dimethylheptane	0.00	43	0	N.D. d
67) Ethylcyclohexane/n-prop	0.00	83	0	N.D. d
68) 2,6-Dimethylheptane	0.00	43	0	N.D. d
69) 1,1,4-Trimethylcyclohex	0.00	111	0	N.D. d
72) Ethylbenzene	0.00	91	0	N.D. d
73) ctt-1,2,4-Trimethylcycl	0.00	111	0	N.D. d
74) 2-Ethylthiophene	0.00	97	0	N.D. d
75) m-Xylene	33.21	91e	6985729	1592.4575 ng
76) p-Xylene	0.00	91	0	N.D. d
77) 2,3-Dimethylheptane	0.00	43	0	N.D. d
78) 4-Methyloctane	0.00	43	0	N.D. d
79) 2-Methyloctane	0.00	43	0	N.D. d
80) ctc-1,2,4-Trimethylcycl	0.00	69	0	N.D. d
81) 1,1,2-Trimethylcyclohex	0.00	69	0	N.D. d
82) o-Xylene	35.44	91	3829609m	887.6177 ng
83) 1-Nonene	0.00	56	0	N.D. d
84) trans-3-Nonene	0.00	55	0	N.D. d
85) cis-3-Nonene	0.00	55	0	N.D. d
86) n-Nonane	0.00	43	0	N.D. d
87) trans-2-Nonene	0.00	55	0	N.D. d
88) Isopropylbenzene	0.00	105	0	N.D. d
89) cis-2-Nonene	0.00	55	0	N.D. d
90) Isopropylcyclohexane	0.00	82	0	N.D. d
91) 2,2-Dimethyloctane	0.00	57	0	N.D. d
92) n-Butylcyclopentane	0.00	69	0	N.D. d
93) 3,3-Dimethyloctane	0.00	71	0	N.D. d
94) Propylbenzene	0.00	91	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

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Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7713.D Vial: 6
Acq On : 9 Aug 2013 10:25 pm Operator: KPD
Sample : N9110-V-D2(5) Inst : Inst D
Misc : MC20162-2 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:15 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:12 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units
95) 1-Methyl-3-Ethylbenzene		42.30	105	4980248m	1016.3949 ng
96) 1-Methyl-4-Ethylbenzene		42.47	105	2344677m	443.1748 ng
97) 1,3,5-Trimethylbenzene		43.01	105	2331350m	509.6441 ng
98) 1-Methyl-2-Ethylbenzene		43.85	105	1607048m	329.9441 ng
99) 3-Methylnonane		0.00	57	0	N.D. d
100) 1,2,4-Trimethylbenzene		45.27	105e	6930968m	1585.5766 ng
101) 1-Decene		0.00	41	0	N.D. d
102) sec-Butylbenzene		0.00	105	0	N.D. d
103) n-Decane		0.00	43	0	N.D. d
104) 1,2,3-Trimethylbenzene		0.00	105	0	N.D. d
105) Indane		0.00	117	0	N.D. d
106) 1,3-Diethylbenzene		0.00	105	0	N.D. d
107) 1-methyl-4-n-propylbenz		0.00	105	0	N.D. d
108) 1,3-Dimethyl-5-Ethylben		50.92	119	1229473m	285.2262 ng
109) 1,2-Diethylbenzene		0.00	105	0	N.D. d
110) 1-Methyl-2-n-Propylbenz		0.00	105	0	N.D. d
111) 1,4-Dimethyl-2-Ethylben		0.00	119	0	N.D. d
112) 1,2-Dimethyl-4-Ethylben		53.09	119	1243980m	285.4662 ng
113) 1,3-Dimethyl-2-Ethylben		0.00	119	0	N.D. d
114) n-Undecane		0.00	57	0	N.D. d
115) 1,2,4,5-Tetramethylbenz		55.71	119	585605m	132.0039 ng
116) 1,2,3,5-Tetramethylbenz		0.00	119	0	N.D. d
117) 1,2,3,4-Tetramethylbenz		0.00	119	0	N.D. d
118) n-Pentylbenzene		0.00	91	0	N.D. d
119) Benzo(b)thiophene		0.00	134	0	N.D. d
120) MMT		0.00	120	0	N.D. d
121) n-Dodecane		0.00	57	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8
8106855

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7714.D Vial: 7
Acq On : 9 Aug 2013 11:43 pm Operator: KPD
Sample : N9111-V-D2(5) Inst : Inst D
Misc : MC20162-3 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:18 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:15 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.02	84	1874397m	402.0400*	ng
38) Toluene-d8	21.45	98	1687602m	402.1600*	ng
70) Ethylbenzene-d10	31.73	98	2447840m	402.4800*	ng

System Monitoring Compounds					
2) 1,4-Difluorobenzene	12.31	114	1236786m	382.3599	ng
Spiked Amount 401.0800*				Recovery =	95.33%
39) Chlorobenzene-d5	29.88	117	1081750m	397.1049	ng
Spiked Amount 401.6400*				Recovery =	98.87%
71) 1,4-Dichlorobenzene-d4	45.90	150	757183m	379.2109	ng
Spiked Amount 400.4800*				Recovery =	94.69%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	d
4) Isopentane	0.00	43	0	N.D.	d
5) 1-Pentene	0.00	42	0	N.D.	d
6) 2-Methyl-1-Butene	0.00	55	0	N.D.	d
7) n-Pentane	0.00	43	0	N.D.	d
8) trans-2-Pentene	0.00	55	0	N.D.	d
9) cis-2-Pentene	0.00	55	0	N.D.	d
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	0.00	57	0	N.D.	d
12) Cyclopentane	0.00	42	0	N.D.	
13) 2-Methylpentane	0.00	43	0	N.D.	d
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	0.00	57	0	N.D.	d
16) 1-Hexene	0.00	56	0	N.D.	d
17) n-Hexane	0.00	57	0	N.D.	d
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	0.00	55	0	N.D.	d
20) 2-Methylpentene-2	0.00	69	0	N.D.	d
21) cis-2-Hexene	0.00	55	0	N.D.	d
22) Ethyltertbutylether	0.00	59	0	N.D.	
23) 2,2-Dimethylpentane	0.00	57	0	N.D.	d
24) Methylcyclopentane	0.00	56	0	N.D.	d
25) 1,2-Dichloroethane	0.00	62	0	N.D.	d
26) 2,4-Dimethylpentane	0.00	57	0	N.D.	d
27) Benzene	0.00	78	0	N.D.	d
28) Thiophene	0.00	84	0	N.D.	d
29) Cyclohexane	0.00	56	0	N.D.	d
30) 2-Methylhexane	12.64	43	874671m	236.6053	ng
31) 2,3-Dimethylpentane	12.76	56	868429m	305.5294	ng
32) Tertamylmethylether	0.00	73	0	N.D.	
33) 3-Methylhexane	13.40	70	424840m	291.7587	ng
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	0.00	56	0	N.D.	d
36) 2,2,4-Trimethylpentane/	0.00	56	0	N.D.	d
37) trans-3-Heptene	0.00	41	0	N.D.	d
40) n-Heptane	0.00	43	0	N.D.	d
41) cis-3-Heptene	0.00	41	0	N.D.	d
42) trans-2-Heptene	0.00	55	0	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

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Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7714.D Vial: 7
Acq On : 9 Aug 2013 11:43 pm Operator: KPD
Sample : N9111-V-D2(5) Inst : Inst D
Misc : MC20162-3 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:18 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:15 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds (Ratio)	R.T.	QIon	Response	Conc Units
43) cis-2-Heptene	0.00	56	0	N.D. d
44) Methylcyclohexane	0.00	83	0	N.D. d
45) 2,5-Dimethylhexane/2,2,	0.00	57	0	N.D. d
46) 2,4-Dimethylhexane	19.79	43	392817m	124.3475 ng
47) ctc-1,2,4-Trimethylcycl	0.00	70	0	N.D. d
48) ctc-1,2,3-Trimethylcycl	0.00	70	0	N.D. d
49) 2,3,4-Trimethylpentane	0.00	43	0	N.D. d
50) Toluene	0.00	91	0	N.D. d
51) 2,3,3-Trimethylpentane	0.00	43	0	N.D. d
52) 2-Methylthiophene	0.00	97	0	N.D. d
53) 2,3-Dimethylhexane	22.79	43	481446m	121.0830 ng
54) 3-Methylthiophene	0.00	97	0	N.D. d
55) 2-Methylheptane	0.00	43	0	N.D. d
56) 4-Methylheptane	0.00	43	0	N.D. d
57) 1,2-Dibromoethane	0.00	107	0	N.D.
58) 1-Octene	0.00	55	0	N.D. d
59) 2,2-Dimethylheptane	0.00	57	0	N.D. d
60) 2,2,4-Trimethylhexane	0.00	57	0	N.D. d
61) Tetrachloroethylene	0.00	166	0	N.D.
62) n-Octane	0.00	43	0	N.D. d
63) trans-2-Octene	0.00	55	0	N.D. d
64) Isopropylcyclopentane	0.00	68	0	N.D. d
65) cis-2-Octene	0.00	55	0	N.D. d
66) 2,4-Dimethylheptane	0.00	43	0	N.D. d
67) Ethylcyclohexane/n-prop	0.00	83	0	N.D. d
68) 2,6-Dimethylheptane	0.00	43	0	N.D. d
69) 1,1,4-Trimethylcyclohex	0.00	111	0	N.D. d
72) Ethylbenzene	0.00	91	0	N.D. d
73) ctt-1,2,4-Trimethylcycl	0.00	111	0	N.D. d
74) 2-Ethylthiophene	0.00	97	0	N.D. d
75) m-Xylene	33.19	91	5717861m	1277.6941 ng
76) p-Xylene	0.00	91	0	N.D. d
77) 2,3-Dimethylheptane	0.00	43	0	N.D. d
78) 4-Methyloctane	0.00	43	0	N.D. d
79) 2-Methyloctane	0.00	43	0	N.D. d
80) ctc-1,2,4-Trimethylcycl	0.00	69	0	N.D. d
81) 1,1,2-Trimethylcyclohex	0.00	69	0	N.D. d
82) o-Xylene	35.43	91	2935115m	666.8587 ng
83) 1-Nonene	0.00	56	0	N.D. d
84) trans-3-Nonene	0.00	55	0	N.D. d
85) cis-3-Nonene	0.00	55	0	N.D. d
86) n-Nonane	0.00	43	0	N.D. d
87) trans-2-Nonene	0.00	55	0	N.D. d
88) Isopropylbenzene	0.00	105	0	N.D. d
89) cis-2-Nonene	0.00	55	0	N.D. d
90) Isopropylcyclohexane	0.00	82	0	N.D. d
91) 2,2-Dimethyloctane	0.00	57	0	N.D. d
92) n-Butylcyclopentane	0.00	69	0	N.D. d
93) 3,3-Dimethyloctane	0.00	71	0	N.D. d
94) Propylbenzene	0.00	91	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

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Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7714.D Vial: 7
Acq On : 9 Aug 2013 11:43 pm Operator: KPD
Sample : N9111-V-D2(5) Inst : Inst D
Misc : MC20162-3 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:18 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:15 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units
95) 1-Methyl-3-Ethylbenzene		42.29	105	3699630m	740.1282 ng
96) 1-Methyl-4-Ethylbenzene		42.45	105	1783380m	330.4251 ng
97) 1,3,5-Trimethylbenzene		43.01	105	1786539m	382.8329 ng
98) 1-Methyl-2-Ethylbenzene		0.00	105	0	N.D. d
99) 3-Methylnonane		0.00	57	0	N.D. d
100) 1,2,4-Trimethylbenzene		45.26	105	5210445m	1168.4371 ng
101) 1-Decene		0.00	41	0	N.D. d
102) sec-Butylbenzene		0.00	105	0	N.D. d
103) n-Decane		0.00	43	0	N.D. d
104) 1,2,3-Trimethylbenzene		0.00	105	0	N.D. d
105) Indane		0.00	117	0	N.D. d
106) 1,3-Diethylbenzene		0.00	105	0	N.D. d
107) 1-methyl-4-n-propylbenz		0.00	105	0	N.D. d
108) 1,3-Dimethyl-5-Ethylben		0.00	119	0	N.D. d
109) 1,2-Diethylbenzene		0.00	105	0	N.D. d
110) 1-Methyl-2-n-Propylbenz		0.00	105	0	N.D. d
111) 1,4-Dimethyl-2-Ethylben		0.00	119	0	N.D. d
112) 1,2-Dimethyl-4-Ethylben		0.00	119	0	N.D. d
113) 1,3-Dimethyl-2-Ethylben		0.00	119	0	N.D. d
114) n-Undecane		0.00	57	0	N.D. d
115) 1,2,4,5-Tetramethylbenz		55.69	119	443847m	98.0737 ng
116) 1,2,3,5-Tetramethylbenz		0.00	119	0	N.D. d
117) 1,2,3,4-Tetramethylbenz		0.00	119	0	N.D. d
118) n-Pentylbenzene		0.00	91	0	N.D. d
119) Benzo(b)thiophene		0.00	134	0	N.D. d
120) MMT		0.00	120	0	N.D. d
121) n-Dodecane		0.00	57	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

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Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8
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Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7715.D Vial: 8
Acq On : 10 Aug 2013 1:01 am Operator: KPD
Sample : N9112-V-D2(5) Inst : Inst D
Misc : MC20162-4 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:21 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:18 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.01	84	1814426m	402.0400*	ng
38) Toluene-d8	21.44	98	1638244m	402.1600*	ng
70) Ethylbenzene-d10	31.72	98	2317400m	402.4800*	ng

System Monitoring Compounds

2) 1,4-Difluorobenzene	12.32	114	1178307m	376.3211	ng
Spiked Amount 401.0800*				Recovery =	93.83%
39) Chlorobenzene-d5	29.88	117	1036678m	392.0249	ng
Spiked Amount 401.6400*				Recovery =	97.61%
71) 1,4-Dichlorobenzene-d4	45.90	150	723763m	382.8762	ng
Spiked Amount 400.4800*				Recovery =	95.60%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	
4) Isopentane	4.84	43	631705m	422.7039	ng
5) 1-Pentene	0.00	42	0	N.D.	d
6) 2-Methyl-1-Butene	0.00	55	0	N.D.	d
7) n-Pentane	0.00	43	0	N.D.	d
8) trans-2-Pentene	0.00	55	0	N.D.	d
9) cis-2-Pentene	0.00	55	0	N.D.	d
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	0.00	57	0	N.D.	d
12) Cyclopentane	0.00	42	0	N.D.	d
13) 2-Methylpentane	7.00	43	1906330m	529.2703	ng
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	7.53	57	1118222m	382.3716	ng
16) 1-Hexene	0.00	56	0	N.D.	d
17) n-Hexane	0.00	57	0	N.D.	d
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	0.00	55	0	N.D.	d
20) 2-Methylpentene-2	0.00	69	0	N.D.	d
21) cis-2-Hexene	0.00	55	0	N.D.	d
22) Ethyltertbutylether	0.00	59	0	N.D.	
23) 2,2-Dimethylpentane	0.00	57	0	N.D.	d
24) Methylcyclopentane	9.64	56	1321947m	440.7390	ng
25) 1,2-Dichloroethane	0.00	62	0	N.D.	d
26) 2,4-Dimethylpentane	0.00	57	0	N.D.	d
27) Benzene	0.00	78	0	N.D.	d
28) Thiophene	0.00	84	0	N.D.	d
29) Cyclohexane	0.00	56	0	N.D.	d
30) 2-Methylhexane	12.63	43	1292367m	361.1503	ng
31) 2,3-Dimethylpentane	12.76	56	1057939m	384.5047	ng
32) Tertamylmethylether	0.00	73	0	N.D.	
33) 3-Methylhexane	13.40	70	560012m	397.2996	ng
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	0.00	56	0	N.D.	d
36) 2,2,4-Trimethylpentane/	0.00	56	0	N.D.	d
37) trans-3-Heptene	0.00	41	0	N.D.	d
40) n-Heptane	0.00	43	0	N.D.	d
41) cis-3-Heptene	0.00	41	0	N.D.	d
42) trans-2-Heptene	0.00	55	0	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7715.D Vial: 8
Acq On : 10 Aug 2013 1:01 am Operator: KPD
Sample : N9112-V-D2(5) Inst : Inst D
Misc : MC20162-4 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:21 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:18 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units
43) cis-2-Heptene		0.00	56	0	N.D. d
44) Methylcyclohexane		0.00	83	0	N.D. d
45) 2,5-Dimethylhexane/2,2,		0.00	57	0	N.D. d
46) 2,4-Dimethylhexane		19.78	43	374885m	122.2464 ng
47) ctc-1,2,4-Trimethylcycl		0.00	70	0	N.D. d
48) ctc-1,2,3-Trimethylcycl		0.00	70	0	N.D. d
49) 2,3,4-Trimethylpentane		0.00	43	0	N.D. d
50) Toluene		21.89	91	5484542m	1272.0795 ng
51) 2,3,3-Trimethylpentane		0.00	43	0	N.D. d
52) 2-Methylthiophene		0.00	97	0	N.D. d
53) 2,3-Dimethylhexane		0.00	43	0	N.D. d
54) 3-Methylthiophene		0.00	97	0	N.D. d
55) 2-Methylheptane		0.00	43	0	N.D. d
56) 4-Methylheptane		0.00	43	0	N.D. d
57) 1,2-Dibromoethane		0.00	107	0	N.D.
58) 1-Octene		0.00	55	0	N.D. d
59) 2,2-Dimethylheptane		0.00	57	0	N.D. d
60) 2,2,4-Trimethylhexane		0.00	57	0	N.D. d
61) Tetrachloroethylene		0.00	166	0	N.D.
62) n-Octane		0.00	43	0	N.D. d
63) trans-2-Octene		0.00	55	0	N.D. d
64) Isopropylcyclopentane		0.00	68	0	N.D. d
65) cis-2-Octene		0.00	55	0	N.D. d
66) 2,4-Dimethylheptane		0.00	43	0	N.D. d
67) Ethylcyclohexane/n-prop		0.00	83	0	N.D. d
68) 2,6-Dimethylheptane		0.00	43	0	N.D. d
69) 1,1,4-Trimethylcyclohex		0.00	111	0	N.D. d
72) Ethylbenzene		0.00	91	0	N.D. d
73) ctt-1,2,4-Trimethylcycl		0.00	111	0	N.D. d
74) 2-Ethylthiophene		0.00	97	0	N.D. d
75) m-Xylene		33.18	91	4330104m	1022.0535 ng
76) p-Xylene		0.00	91	0	N.D. d
77) 2,3-Dimethylheptane		0.00	43	0	N.D. d
78) 4-Methyloctane		0.00	43	0	N.D. d
79) 2-Methyloctane		0.00	43	0	N.D. d
80) ctc-1,2,4-Trimethylcycl		0.00	69	0	N.D. d
81) 1,1,2-Trimethylcyclohex		0.00	69	0	N.D. d
82) o-Xylene		35.42	91	2573672m	617.6521 ng
83) 1-Nonene		0.00	56	0	N.D. d
84) trans-3-Nonene		0.00	55	0	N.D. d
85) cis-3-Nonene		0.00	55	0	N.D. d
86) n-Nonane		0.00	43	0	N.D. d
87) trans-2-Nonene		0.00	55	0	N.D. d
88) Isopropylbenzene		0.00	105	0	N.D. d
89) cis-2-Nonene		0.00	55	0	N.D. d
90) Isopropylcyclohexane		0.00	82	0	N.D. d
91) 2,2-Dimethyloctane		0.00	57	0	N.D. d
92) n-Butylcyclopentane		0.00	69	0	N.D. d
93) 3,3-Dimethyloctane		0.00	71	0	N.D. d
94) Propylbenzene		0.00	91	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7715.D Vial: 8
Acq On : 10 Aug 2013 1:01 am Operator: KPD
Sample : N9112-V-D2(5) Inst : Inst D
Misc : MC20162-4 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:21 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:18 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units
95) 1-Methyl-3-Ethylbenzene	42.28	105	2460143m	519.8656	ng
96) 1-Methyl-4-Ethylbenzene	0.00	105	0	N.D.	d
97) 1,3,5-Trimethylbenzene	42.99	105	1112292m	251.7663	ng
98) 1-Methyl-2-Ethylbenzene	0.00	105	0	N.D.	d
99) 3-Methylnonane	0.00	57	0	N.D.	d
100) 1,2,4-Trimethylbenzene	45.24	105	3498549m	828.7060	ng
101) 1-Decene	0.00	41	0	N.D.	d
102) sec-Butylbenzene	0.00	105	0	N.D.	d
103) n-Decane	0.00	43	0	N.D.	d
104) 1,2,3-Trimethylbenzene	0.00	105	0	N.D.	d
105) Indane	0.00	117	0	N.D.	d
106) 1,3-Diethylbenzene	0.00	105	0	N.D.	d
107) 1-methyl-4-n-propylbenz	0.00	105	0	N.D.	d
108) 1,3-Dimethyl-5-Ethylben	0.00	119	0	N.D.	d
109) 1,2-Diethylbenzene	0.00	105	0	N.D.	d
110) 1-Methyl-2-n-Propylbenz	0.00	105	0	N.D.	d
111) 1,4-Dimethyl-2-Ethylben	0.00	119	0	N.D.	d
112) 1,2-Dimethyl-4-Ethylben	0.00	119	0	N.D.	d
113) 1,3-Dimethyl-2-Ethylben	0.00	119	0	N.D.	d
114) n-Undecane	0.00	57	0	N.D.	d
115) 1,2,4,5-Tetramethylbenz	55.69	119	290012m	67.6888	ng
116) 1,2,3,5-Tetramethylbenz	0.00	119	0	N.D.	d
117) 1,2,3,4-Tetramethylbenz	0.00	119	0	N.D.	d
118) n-Pentylbenzene	0.00	91	0	N.D.	d
119) Benzo(b)thiophene	0.00	134	0	N.D.	d
120) MMT	0.00	120	0	N.D.	d
121) n-Dodecane	0.00	57	0	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8
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Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7717.D Vial: 10
Acq On : 10 Aug 2013 3:38 am Operator: KPD
Sample : N9113-V-D2(5) Inst : Inst D
Misc : MC20162-5 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:24 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:21 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.01	84	1804206m	402.0400*	ng
38) Toluene-d8	21.44	98	1620435m	402.1600*	ng
70) Ethylbenzene-d10	31.72	98	2280231m	402.4800*	ng

System Monitoring Compounds

2) 1,4-Difluorobenzene	12.32	114	1187543m	381.4192	ng
Spiked Amount 401.0800*				Recovery =	95.10%
39) Chlorobenzene-d5	29.88	117	1034450m	395.4816	ng
Spiked Amount 401.6400*				Recovery =	98.47%
71) 1,4-Dichlorobenzene-d4	45.91	150	718139m	386.0937	ng
Spiked Amount 400.4800*				Recovery =	96.41%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	d
4) Isopentane	0.00	43	0	N.D.	
5) 1-Pentene	0.00	42	0	N.D.	d
6) 2-Methyl-1-Butene	0.00	55	0	N.D.	d
7) n-Pentane	0.00	43	0	N.D.	d
8) trans-2-Pentene	0.00	55	0	N.D.	d
9) cis-2-Pentene	0.00	55	0	N.D.	d
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	0.00	57	0	N.D.	d
12) Cyclopentane	0.00	42	0	N.D.	d
13) 2-Methylpentane	0.00	43	0	N.D.	d
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	0.00	57	0	N.D.	d
16) 1-Hexene	0.00	56	0	N.D.	d
17) n-Hexane	0.00	57	0	N.D.	d
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	0.00	55	0	N.D.	d
20) 2-Methylpentene-2	0.00	69	0	N.D.	d
21) cis-2-Hexene	0.00	55	0	N.D.	d
22) Ethyltertbutylether	0.00	59	0	N.D.	
23) 2,2-Dimethylpentane	0.00	57	0	N.D.	d
24) Methylcyclopentane	0.00	56	0	N.D.	d
25) 1,2-Dichloroethane	0.00	62	0	N.D.	d
26) 2,4-Dimethylpentane	0.00	57	0	N.D.	d
27) Benzene	0.00	78	0	N.D.	d
28) Thiophene	0.00	84	0	N.D.	
29) Cyclohexane	0.00	56	0	N.D.	d
30) 2-Methylhexane	0.00	43	0	N.D.	d
31) 2,3-Dimethylpentane	0.00	56	0	N.D.	d
32) Tertamylmethylether	0.00	73	0	N.D.	
33) 3-Methylhexane	0.00	70	0	N.D.	d
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	0.00	56	0	N.D.	d
36) 2,2,4-Trimethylpentane/	0.00	56	0	N.D.	d
37) trans-3-Heptene	0.00	41	0	N.D.	d
40) n-Heptane	0.00	43	0	N.D.	d
41) cis-3-Heptene	0.00	41	0	N.D.	d
42) trans-2-Heptene	0.00	55	0	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7717.D Vial: 10
Acq On : 10 Aug 2013 3:38 am Operator: KPD
Sample : N9113-V-D2(5) Inst : Inst D
Misc : MC20162-5 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:24 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:21 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds (Ratio)	R.T.	QIon	Response	Conc Units
43) cis-2-Heptene	0.00	56	0	N.D. d
44) Methylcyclohexane	0.00	83	0	N.D. d
45) 2,5-Dimethylhexane/2,2,	0.00	57	0	N.D. d
46) 2,4-Dimethylhexane	0.00	43	0	N.D. d
47) ctc-1,2,4-Trimethylcycl	0.00	70	0	N.D. d
48) ctc-1,2,3-Trimethylcycl	0.00	70	0	N.D. d
49) 2,3,4-Trimethylpentane	0.00	43	0	N.D. d
50) Toluene	0.00	91	0	N.D. d
51) 2,3,3-Trimethylpentane	0.00	43	0	N.D. d
52) 2-Methylthiophene	0.00	97	0	N.D. d
53) 2,3-Dimethylhexane	0.00	43	0	N.D. d
54) 3-Methylthiophene	0.00	97	0	N.D. d
55) 2-Methylheptane	0.00	43	0	N.D. d
56) 4-Methylheptane	0.00	43	0	N.D. d
57) 1,2-Dibromoethane	0.00	107	0	N.D.
58) 1-Octene	0.00	55	0	N.D. d
59) 2,2-Dimethylheptane	0.00	57	0	N.D. d
60) 2,2,4-Trimethylhexane	0.00	57	0	N.D. d
61) Tetrachloroethylene	0.00	166	0	N.D.
62) n-Octane	0.00	43	0	N.D. d
63) trans-2-Octene	0.00	55	0	N.D. d
64) Isopropylcyclopentane	0.00	68	0	N.D. d
65) cis-2-Octene	0.00	55	0	N.D. d
66) 2,4-Dimethylheptane	0.00	43	0	N.D. d
67) Ethylcyclohexane/n-prop	0.00	83	0	N.D. d
68) 2,6-Dimethylheptane	0.00	43	0	N.D. d
69) 1,1,4-Trimethylcyclohex	0.00	111	0	N.D. d
72) Ethylbenzene	0.00	91	0	N.D. d
73) ctt-1,2,4-Trimethylcycl	0.00	111	0	N.D. d
74) 2-Ethylthiophene	0.00	97	0	N.D. d
75) m-Xylene	33.18	91	4775584	1145.5762 ng
76) p-Xylene	0.00	91	0	N.D. d
77) 2,3-Dimethylheptane	0.00	43	0	N.D. d
78) 4-Methyloctane	0.00	43	0	N.D. d
79) 2-Methyloctane	0.00	43	0	N.D. d
80) ctc-1,2,4-Trimethylcycl	0.00	69	0	N.D. d
81) 1,1,2-Trimethylcyclohex	0.00	69	0	N.D. d
82) o-Xylene	35.42	91	2612744m	637.2498 ng
83) 1-Nonene	0.00	56	0	N.D. d
84) trans-3-Nonene	0.00	55	0	N.D. d
85) cis-3-Nonene	0.00	55	0	N.D. d
86) n-Nonane	0.00	43	0	N.D. d
87) trans-2-Nonene	0.00	55	0	N.D. d
88) Isopropylbenzene	0.00	105	0	N.D. d
89) cis-2-Nonene	0.00	55	0	N.D. d
90) Isopropylcyclohexane	0.00	82	0	N.D. d
91) 2,2-Dimethyloctane	0.00	57	0	N.D. d
92) n-Butylcyclopentane	0.00	69	0	N.D. d
93) 3,3-Dimethyloctane	0.00	71	0	N.D. d
94) Propylbenzene	0.00	91	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7717.D Vial: 10
Acq On : 10 Aug 2013 3:38 am Operator: KPD
Sample : N9113-V-D2(5) Inst : Inst D
Misc : MC20162-5 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:24 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:21 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units
95) 1-Methyl-3-Ethylbenzene		42.30	105	4129011m	886.7453 ng
96) 1-Methyl-4-Ethylbenzene		42.46	105	1870476m	372.0365 ng
97) 1,3,5-Trimethylbenzene		43.01	105	2304757m	530.1833 ng
98) 1-Methyl-2-Ethylbenzene		43.85	105	1586977m	342.8653 ng
99) 3-Methylnonane		0.00	57	0	N.D. d
100) 1,2,4-Trimethylbenzene		45.27	105	5929545m	1427.4341 ng
101) 1-Decene		0.00	41	0	N.D. d
102) sec-Butylbenzene		0.00	105	0	N.D. d
103) n-Decane		0.00	43	0	N.D. d
104) 1,2,3-Trimethylbenzene		0.00	105	0	N.D. d
105) Indane		0.00	117	0	N.D. d
106) 1,3-Diethylbenzene		0.00	105	0	N.D. d
107) 1-methyl-4-n-propylbenz		0.00	105	0	N.D. d
108) 1,3-Dimethyl-5-Ethylben		50.93	119	1290782m	315.1118 ng
109) 1,2-Diethylbenzene		0.00	105	0	N.D. d
110) 1-Methyl-2-n-Propylbenz		0.00	105	0	N.D. d
111) 1,4-Dimethyl-2-Ethylben		0.00	119	0	N.D. d
112) 1,2-Dimethyl-4-Ethylben		53.11	119	1333707m	322.0647 ng
113) 1,3-Dimethyl-2-Ethylben		0.00	119	0	N.D. d
114) n-Undecane		0.00	57	0	N.D. d
115) 1,2,4,5-Tetramethylbenz		55.70	119	623652m	147.9332 ng
116) 1,2,3,5-Tetramethylbenz		0.00	119	0	N.D. d
117) 1,2,3,4-Tetramethylbenz		0.00	119	0	N.D. d
118) n-Pentylbenzene		0.00	91	0	N.D. d
119) Benzo(b)thiophene		0.00	134	0	N.D. d
120) MMT		0.00	120	0	N.D. d
121) n-Dodecane		0.00	57	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7718.D Vial: 11
Acq On : 10 Aug 2013 4:56 am Operator: KPD
Sample : N9114-V-D2(5) Inst : Inst D
Misc : MC20162-6 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:27 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:24 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.01	84	1848761m	402.0400*	ng
38) Toluene-d8	21.46	98	1663822m	402.1600*	ng
70) Ethylbenzene-d10	31.72	98	2360793m	402.4800*	ng

System Monitoring Compounds

2) 1,4-Difluorobenzene	12.32	114	1206749m	378.2471	ng
Spiked Amount 401.0800*				Recovery =	94.31%
39) Chlorobenzene-d5	29.88	117	1064532m	396.3695	ng
Spiked Amount 401.6400*				Recovery =	98.69%
71) 1,4-Dichlorobenzene-d4	45.90	150	741279m	384.9345	ng
Spiked Amount 400.4800*				Recovery =	96.12%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	d
4) Isopentane	0.00	43	0	N.D.	d
5) 1-Pentene	0.00	42	0	N.D.	d
6) 2-Methyl-1-Butene	0.00	55	0	N.D.	d
7) n-Pentane	0.00	43	0	N.D.	d
8) trans-2-Pentene	0.00	55	0	N.D.	d
9) cis-2-Pentene	0.00	55	0	N.D.	d
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	0.00	57	0	N.D.	d
12) Cyclopentane	0.00	42	0	N.D.	
13) 2-Methylpentane	7.00	43	822042m	223.9917	ng
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	0.00	57	0	N.D.	d
16) 1-Hexene	0.00	56	0	N.D.	d
17) n-Hexane	0.00	57	0	N.D.	d
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	0.00	55	0	N.D.	d
20) 2-Methylpentene-2	0.00	69	0	N.D.	d
21) cis-2-Hexene	0.00	55	0	N.D.	d
22) Ethyltertbutylether	0.00	59	0	N.D.	
23) 2,2-Dimethylpentane	0.00	57	0	N.D.	d
24) Methylcyclopentane	9.64	56	685733m	224.3783	ng
25) 1,2-Dichloroethane	0.00	62	0	N.D.	d
26) 2,4-Dimethylpentane	0.00	57	0	N.D.	d
27) Benzene	0.00	78	0	N.D.	d
28) Thiophene	0.00	84	0	N.D.	d
29) Cyclohexane	0.00	56	0	N.D.	d
30) 2-Methylhexane	12.63	43	865335m	237.3257	ng
31) 2,3-Dimethylpentane	12.76	56	618850m	220.7419	ng
32) Tertamylmethylether	0.00	73	0	N.D.	
33) 3-Methylhexane	13.40	70	380058m	264.6239	ng
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	0.00	56	0	N.D.	d
36) 2,2,4-Trimethylpentane/	0.00	56	0	N.D.	d
37) trans-3-Heptene	0.00	41	0	N.D.	d
40) n-Heptane	0.00	43	0	N.D.	d
41) cis-3-Heptene	0.00	41	0	N.D.	d
42) trans-2-Heptene	0.00	55	0	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7718.D Vial: 11
Acq On : 10 Aug 2013 4:56 am Operator: KPD
Sample : N9114-V-D2(5) Inst : Inst D
Misc : MC20162-6 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:27 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:24 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units
43) cis-2-Heptene		0.00	56	0	N.D. d
44) Methylcyclohexane		0.00	83	0	N.D. d
45) 2,5-Dimethylhexane/2,2,		0.00	57	0	N.D. d
46) 2,4-Dimethylhexane		19.78	43	369979m	118.7919 ng
47) ctc-1,2,4-Trimethylcycl		0.00	70	0	N.D. d
48) ctc-1,2,3-Trimethylcycl		0.00	70	0	N.D. d
49) 2,3,4-Trimethylpentane		0.00	43	0	N.D. d
50) Toluene		21.89	91	5557537m	1269.1939 ng
51) 2,3,3-Trimethylpentane		0.00	43	0	N.D. d
52) 2-Methylthiophene		0.00	97	0	N.D. d
53) 2,3-Dimethylhexane		22.79	43	391360m	99.8333 ng
54) 3-Methylthiophene		0.00	97	0	N.D. d
55) 2-Methylheptane		0.00	43	0	N.D. d
56) 4-Methylheptane		0.00	43	0	N.D. d
57) 1,2-Dibromoethane		0.00	107	0	N.D.
58) 1-Octene		0.00	55	0	N.D. d
59) 2,2-Dimethylheptane		0.00	57	0	N.D. d
60) 2,2,4-Trimethylhexane		0.00	57	0	N.D. d
61) Tetrachloroethylene		0.00	166	0	N.D.
62) n-Octane		0.00	43	0	N.D. d
63) trans-2-Octene		0.00	55	0	N.D. d
64) Isopropylcyclopentane		0.00	68	0	N.D. d
65) cis-2-Octene		0.00	55	0	N.D. d
66) 2,4-Dimethylheptane		0.00	43	0	N.D. d
67) Ethylcyclohexane/n-prop		0.00	83	0	N.D. d
68) 2,6-Dimethylheptane		0.00	43	0	N.D. d
69) 1,1,4-Trimethylcyclohex		0.00	111	0	N.D. d
72) Ethylbenzene		0.00	91	0	N.D. d
73) ctt-1,2,4-Trimethylcycl		0.00	111	0	N.D. d
74) 2-Ethylthiophene		0.00	97	0	N.D. d
75) m-Xylene		33.19	91	5361677	1242.2788 ng
76) p-Xylene		0.00	91	0	N.D. d
77) 2,3-Dimethylheptane		0.00	43	0	N.D. d
78) 4-Methyloctane		0.00	43	0	N.D. d
79) 2-Methyloctane		0.00	43	0	N.D. d
80) ctc-1,2,4-Trimethylcycl		0.00	69	0	N.D. d
81) 1,1,2-Trimethylcyclohex		0.00	69	0	N.D. d
82) o-Xylene		35.42	91	2795731m	658.6113 ng
83) 1-Nonene		0.00	56	0	N.D. d
84) trans-3-Nonene		0.00	55	0	N.D. d
85) cis-3-Nonene		0.00	55	0	N.D. d
86) n-Nonane		0.00	43	0	N.D. d
87) trans-2-Nonene		0.00	55	0	N.D. d
88) Isopropylbenzene		0.00	105	0	N.D. d
89) cis-2-Nonene		0.00	55	0	N.D. d
90) Isopropylcyclohexane		0.00	82	0	N.D. d
91) 2,2-Dimethyloctane		0.00	57	0	N.D. d
92) n-Butylcyclopentane		0.00	69	0	N.D. d
93) 3,3-Dimethyloctane		0.00	71	0	N.D. d
94) Propylbenzene		0.00	91	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7718.D Vial: 11
Acq On : 10 Aug 2013 4:56 am Operator: KPD
Sample : N9114-V-D2(5) Inst : Inst D
Misc : MC20162-6 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:27 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:24 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units
95) 1-Methyl-3-Ethylbenzene		42.28	105	2941145m	610.0848 ng
96) 1-Methyl-4-Ethylbenzene		42.45	105	1341565m	257.7306 ng
97) 1,3,5-Trimethylbenzene		42.99	105	1255393m	278.9341 ng
98) 1-Methyl-2-Ethylbenzene		0.00	105	0	N.D. d
99) 3-Methylnonane		0.00	57	0	N.D. d
100) 1,2,4-Trimethylbenzene		45.24	105	3961915m	921.2145 ng
101) 1-Decene		0.00	41	0	N.D. d
102) sec-Butylbenzene		0.00	105	0	N.D. d
103) n-Decane		0.00	43	0	N.D. d
104) 1,2,3-Trimethylbenzene		0.00	105	0	N.D. d
105) Indane		0.00	117	0	N.D. d
106) 1,3-Diethylbenzene		0.00	105	0	N.D. d
107) 1-methyl-4-n-propylbenz		0.00	105	0	N.D. d
108) 1,3-Dimethyl-5-Ethylben		0.00	119	0	N.D. d
109) 1,2-Diethylbenzene		0.00	105	0	N.D. d
110) 1-Methyl-2-n-Propylbenz		0.00	105	0	N.D. d
111) 1,4-Dimethyl-2-Ethylben		0.00	119	0	N.D. d
112) 1,2-Dimethyl-4-Ethylben		0.00	119	0	N.D. d
113) 1,3-Dimethyl-2-Ethylben		0.00	119	0	N.D. d
114) n-Undecane		0.00	57	0	N.D. d
115) 1,2,4,5-Tetramethylbenz		55.69	119	355849m	81.5286 ng
116) 1,2,3,5-Tetramethylbenz		0.00	119	0	N.D. d
117) 1,2,3,4-Tetramethylbenz		0.00	119	0	N.D. d
118) n-Pentylbenzene		0.00	91	0	N.D. d
119) Benzo(b)thiophene		0.00	134	0	N.D. d
120) MMT		0.00	120	0	N.D. d
121) n-Dodecane		0.00	57	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7719.D Vial: 12
Acq On : 10 Aug 2013 6:14 am Operator: KPD
Sample : N9115-V-D2(5) Inst : Inst D
Misc : MC20162-7 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:30 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:27 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.02	84	1770655m	402.0400*	ng
38) Toluene-d8	21.45	98	1591396m	402.1600*	ng
70) Ethylbenzene-d10	31.73	98	2240039m	402.4800*	ng

System Monitoring Compounds

2) 1,4-Difluorobenzene	12.31	114	1142069m	373.7643	ng
Spiked Amount 401.0800*				Recovery =	93.19%
39) Chlorobenzene-d5	29.88	117	1019968m	397.0605	ng
Spiked Amount 401.6400*				Recovery =	98.86%
71) 1,4-Dichlorobenzene-d4	45.90	150	707719m	387.3186	ng
Spiked Amount 400.4800*				Recovery =	96.71%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	d
4) Isopentane	0.00	43	0	N.D.	d
5) 1-Pentene	0.00	42	0	N.D.	d
6) 2-Methyl-1-Butene	0.00	55	0	N.D.	d
7) n-Pentane	0.00	43	0	N.D.	d
8) trans-2-Pentene	0.00	55	0	N.D.	d
9) cis-2-Pentene	0.00	55	0	N.D.	d
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	0.00	57	0	N.D.	d
12) Cyclopentane	0.00	42	0	N.D.	d
13) 2-Methylpentane	0.00	43	0	N.D.	d
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	0.00	57	0	N.D.	d
16) 1-Hexene	0.00	56	0	N.D.	d
17) n-Hexane	0.00	57	0	N.D.	d
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	0.00	55	0	N.D.	d
20) 2-Methylpentene-2	0.00	69	0	N.D.	d
21) cis-2-Hexene	0.00	55	0	N.D.	d
22) Ethyltertbutylether	0.00	59	0	N.D.	
23) 2,2-Dimethylpentane	0.00	57	0	N.D.	d
24) Methylcyclopentane	0.00	56	0	N.D.	d
25) 1,2-Dichloroethane	0.00	62	0	N.D.	d
26) 2,4-Dimethylpentane	0.00	57	0	N.D.	d
27) Benzene	0.00	78	0	N.D.	d
28) Thiophene	0.00	84	0	N.D.	
29) Cyclohexane	0.00	56	0	N.D.	d
30) 2-Methylhexane	12.62	43	766008	219.3516	ng #
31) 2,3-Dimethylpentane	12.75	56	565124m	210.4699	ng
32) Tertamylmethylether	0.00	73	0	N.D.	
33) 3-Methylhexane	13.40	70	344367m	250.3500	ng
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	0.00	56	0	N.D.	d
36) 2,2,4-Trimethylpentane/	0.00	56	0	N.D.	d
37) trans-3-Heptene	0.00	41	0	N.D.	d
40) n-Heptane	0.00	43	0	N.D.	d
41) cis-3-Heptene	0.00	41	0	N.D.	d
42) trans-2-Heptene	0.00	55	0	N.D.	d

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G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8
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Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7719.D Vial: 12
Acq On : 10 Aug 2013 6:14 am Operator: KPD
Sample : N9115-V-D2(5) Inst : Inst D
Misc : MC20162-7 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:30 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:27 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units
43) cis-2-Heptene		0.00	56	0	N.D. d
44) Methylcyclohexane		0.00	83	0	N.D. d
45) 2,5-Dimethylhexane/2,2,		0.00	57	0	N.D. d
46) 2,4-Dimethylhexane		19.79	43	387472m	130.0705 ng
47) ctc-1,2,4-Trimethylcycl		0.00	70	0	N.D. d
48) ctc-1,2,3-Trimethylcycl		0.00	70	0	N.D. d
49) 2,3,4-Trimethylpentane		0.00	43	0	N.D. d
50) Toluene		21.88	91	5647599m	1348.4600 ng
51) 2,3,3-Trimethylpentane		0.00	43	0	N.D. d
52) 2-Methylthiophene		0.00	97	0	N.D. d
53) 2,3-Dimethylhexane		22.77	43	405908m	108.2568 ng
54) 3-Methylthiophene		0.00	97	0	N.D. d
55) 2-Methylheptane		23.51	43	481015	168.4014 ng
56) 4-Methylheptane		23.67	43	236603	60.1798 ng
57) 1,2-Dibromoethane		0.00	107	0	N.D.
58) 1-Octene		0.00	55	0	N.D. d
59) 2,2-Dimethylheptane		0.00	57	0	N.D. d
60) 2,2,4-Trimethylhexane		0.00	57	0	N.D. d
61) Tetrachloroethylene		0.00	166	0	N.D.
62) n-Octane		0.00	43	0	N.D. d
63) trans-2-Octene		0.00	55	0	N.D. d
64) Isopropylcyclopentane		0.00	68	0	N.D. d
65) cis-2-Octene		0.00	55	0	N.D. d
66) 2,4-Dimethylheptane		0.00	43	0	N.D. d
67) Ethylcyclohexane/n-prop		0.00	83	0	N.D. d
68) 2,6-Dimethylheptane		0.00	43	0	N.D. d
69) 1,1,4-Trimethylcyclohex		0.00	111	0	N.D. d
72) Ethylbenzene		0.00	91	0	N.D. d
73) ctt-1,2,4-Trimethylcycl		0.00	111	0	N.D. d
74) 2-Ethylthiophene		0.00	97	0	N.D. d
75) m-Xylene		33.19	91	5934032m	1449.0075 ng
76) p-Xylene		0.00	91	0	N.D. d
77) 2,3-Dimethylheptane		0.00	43	0	N.D. d
78) 4-Methyloctane		0.00	43	0	N.D. d
79) 2-Methyloctane		0.00	43	0	N.D. d
80) ctc-1,2,4-Trimethylcycl		0.00	69	0	N.D. d
81) 1,1,2-Trimethylcyclohex		0.00	69	0	N.D. d
82) o-Xylene		35.43	91	3097131m	768.9458 ng
83) 1-Nonene		0.00	56	0	N.D. d
84) trans-3-Nonene		0.00	55	0	N.D. d
85) cis-3-Nonene		0.00	55	0	N.D. d
86) n-Nonane		0.00	43	0	N.D. d
87) trans-2-Nonene		0.00	55	0	N.D. d
88) Isopropylbenzene		0.00	105	0	N.D. d
89) cis-2-Nonene		0.00	55	0	N.D. d
90) Isopropylcyclohexane		0.00	82	0	N.D. d
91) 2,2-Dimethyloctane		0.00	57	0	N.D. d
92) n-Butylcyclopentane		0.00	69	0	N.D. d
93) 3,3-Dimethyloctane		0.00	71	0	N.D. d
94) Propylbenzene		0.00	91	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
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(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7719.D Vial: 12
Acq On : 10 Aug 2013 6:14 am Operator: KPD
Sample : N9115-V-D2(5) Inst : Inst D
Misc : MC20162-7 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:30 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:27 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units
95) 1-Methyl-3-Ethylbenzene		42.29	105	3334807m	729.0324 ng
96) 1-Methyl-4-Ethylbenzene		42.45	105	1519257m	307.6011 ng
97) 1,3,5-Trimethylbenzene		43.00	105	1421409m	332.8459 ng
98) 1-Methyl-2-Ethylbenzene		0.00	105	0	N.D. d
99) 3-Methylnonane		0.00	57	0	N.D. d
100) 1,2,4-Trimethylbenzene		45.25	105	4453930m	1091.4437 ng
101) 1-Decene		0.00	41	0	N.D. d
102) sec-Butylbenzene		0.00	105	0	N.D. d
103) n-Decane		0.00	43	0	N.D. d
104) 1,2,3-Trimethylbenzene		0.00	105	0	N.D. d
105) Indane		0.00	117	0	N.D. d
106) 1,3-Diethylbenzene		0.00	105	0	N.D. d
107) 1-methyl-4-n-propylbenz		0.00	105	0	N.D. d
108) 1,3-Dimethyl-5-Ethylben		0.00	119	0	N.D. d
109) 1,2-Diethylbenzene		0.00	105	0	N.D. d
110) 1-Methyl-2-n-Propylbenz		0.00	105	0	N.D. d
111) 1,4-Dimethyl-2-Ethylben		0.00	119	0	N.D. d
112) 1,2-Dimethyl-4-Ethylben		0.00	119	0	N.D. d
113) 1,3-Dimethyl-2-Ethylben		0.00	119	0	N.D. d
114) n-Undecane		0.00	57	0	N.D. d
115) 1,2,4,5-Tetramethylbenz		55.69	119	400435m	96.6893 ng
116) 1,2,3,5-Tetramethylbenz		0.00	119	0	N.D. d
117) 1,2,3,4-Tetramethylbenz		0.00	119	0	N.D. d
118) n-Pentylbenzene		0.00	91	0	N.D. d
119) Benzo(b)thiophene		0.00	134	0	N.D. d
120) MMT		0.00	120	0	N.D. d
121) n-Dodecane		0.00	57	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7720.D Vial: 13
Acq On : 10 Aug 2013 7:31 am Operator: KPD
Sample : N9116-V-D2(5) Inst : Inst D
Misc : MC20162-8 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:33 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:30 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.02	84	1855192m	402.0400*	ng
38) Toluene-d8	21.45	98	1645165m	402.1600*	ng
70) Ethylbenzene-d10	31.73	98	2331058m	402.4800*	ng

System Monitoring Compounds

2) 1,4-Difluorobenzene	12.31	114	1192710m	372.5507	ng
Spiked Amount 401.0800*				Recovery =	92.89%
39) Chlorobenzene-d5	29.88	117	1049990m	395.3885	ng
Spiked Amount 401.6400*				Recovery =	98.44%
71) 1,4-Dichlorobenzene-d4	45.90	150	733009m	385.4954	ng
Spiked Amount 400.4800*				Recovery =	96.26%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	
4) Isopentane	0.00	43	0	N.D.	d
5) 1-Pentene	0.00	42	0	N.D.	d
6) 2-Methyl-1-Butene	0.00	55	0	N.D.	d
7) n-Pentane	0.00	43	0	N.D.	d
8) trans-2-Pentene	0.00	55	0	N.D.	d
9) cis-2-Pentene	0.00	55	0	N.D.	d
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	0.00	57	0	N.D.	d
12) Cyclopentane	0.00	42	0	N.D.	d
13) 2-Methylpentane	7.01	43	864848m	234.8387	ng
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	0.00	57	0	N.D.	d
16) 1-Hexene	0.00	56	0	N.D.	d
17) n-Hexane	0.00	57	0	N.D.	d
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	0.00	55	0	N.D.	d
20) 2-Methylpentene-2	0.00	69	0	N.D.	d
21) cis-2-Hexene	0.00	55	0	N.D.	d
22) Ethyltertbutylether	0.00	59	0	N.D.	
23) 2,2-Dimethylpentane	0.00	57	0	N.D.	d
24) Methylcyclopentane	9.63	56	748563m	244.0879	ng
25) 1,2-Dichloroethane	0.00	62	0	N.D.	d
26) 2,4-Dimethylpentane	0.00	57	0	N.D.	d
27) Benzene	0.00	78	0	N.D.	d
28) Thiophene	0.00	84	0	N.D.	d
29) Cyclohexane	0.00	56	0	N.D.	d
30) 2-Methylhexane	12.62	43	953106	260.4916	ng #
31) 2,3-Dimethylpentane	12.75	56	723707m	257.2493	ng
32) Tertamylmethylether	0.00	73	0	N.D.	
33) 3-Methylhexane	13.40	70	419911m	291.3590	ng
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	0.00	56	0	N.D.	d
36) 2,2,4-Trimethylpentane/	0.00	56	0	N.D.	d
37) trans-3-Heptene	0.00	41	0	N.D.	d
40) n-Heptane	0.00	43	0	N.D.	d
41) cis-3-Heptene	0.00	41	0	N.D.	d
42) trans-2-Heptene	0.00	55	0	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7720.D Vial: 13
Acq On : 10 Aug 2013 7:31 am Operator: KPD
Sample : N9116-V-D2(5) Inst : Inst D
Misc : MC20162-8 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:33 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:30 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units
43) cis-2-Heptene		0.00	56	0	N.D. d
44) Methylcyclohexane		0.00	83	0	N.D. d
45) 2,5-Dimethylhexane/2,2,		0.00	57	0	N.D. d
46) 2,4-Dimethylhexane		19.79	43	395068m	128.2859 ng
47) ctc-1,2,4-Trimethylcycl		0.00	70	0	N.D. d
48) ctc-1,2,3-Trimethylcycl		0.00	70	0	N.D. d
49) 2,3,4-Trimethylpentane		0.00	43	0	N.D. d
50) Toluene		21.88	91	5824615m	1345.2724 ng
51) 2,3,3-Trimethylpentane		0.00	43	0	N.D. d
52) 2-Methylthiophene		0.00	97	0	N.D. d
53) 2,3-Dimethylhexane		22.77	43	401968m	103.7021 ng
54) 3-Methylthiophene		0.00	97	0	N.D. d
55) 2-Methylheptane		0.00	43	0	N.D. d
56) 4-Methylheptane		0.00	43	0	N.D. d
57) 1,2-Dibromoethane		0.00	107	0	N.D.
58) 1-Octene		0.00	55	0	N.D. d
59) 2,2-Dimethylheptane		0.00	57	0	N.D. d
60) 2,2,4-Trimethylhexane		0.00	57	0	N.D. d
61) Tetrachloroethylene		0.00	166	0	N.D.
62) n-Octane		0.00	43	0	N.D. d
63) trans-2-Octene		0.00	55	0	N.D. d
64) Isopropylcyclopentane		0.00	68	0	N.D. d
65) cis-2-Octene		0.00	55	0	N.D. d
66) 2,4-Dimethylheptane		0.00	43	0	N.D. d
67) Ethylcyclohexane/n-prop		0.00	83	0	N.D. d
68) 2,6-Dimethylheptane		0.00	43	0	N.D. d
69) 1,1,4-Trimethylcyclohex		0.00	111	0	N.D. d
72) Ethylbenzene		0.00	91	0	N.D. d
73) ctt-1,2,4-Trimethylcycl		0.00	111	0	N.D. d
74) 2-Ethylthiophene		0.00	97	0	N.D. d
75) m-Xylene		33.18	91	5551851m	1302.7499 ng
76) p-Xylene		0.00	91	0	N.D. d
77) 2,3-Dimethylheptane		0.00	43	0	N.D. d
78) 4-Methyloctane		0.00	43	0	N.D. d
79) 2-Methyloctane		0.00	43	0	N.D. d
80) ctc-1,2,4-Trimethylcycl		0.00	69	0	N.D. d
81) 1,1,2-Trimethylcyclohex		0.00	69	0	N.D. d
82) o-Xylene		35.43	91	2748673m	655.7854 ng
83) 1-Nonene		0.00	56	0	N.D. d
84) trans-3-Nonene		0.00	55	0	N.D. d
85) cis-3-Nonene		0.00	55	0	N.D. d
86) n-Nonane		0.00	43	0	N.D. d
87) trans-2-Nonene		0.00	55	0	N.D. d
88) Isopropylbenzene		0.00	105	0	N.D. d
89) cis-2-Nonene		0.00	55	0	N.D. d
90) Isopropylcyclohexane		0.00	82	0	N.D. d
91) 2,2-Dimethyloctane		0.00	57	0	N.D. d
92) n-Butylcyclopentane		0.00	69	0	N.D. d
93) 3,3-Dimethyloctane		0.00	71	0	N.D. d
94) Propylbenzene		0.00	91	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7720.D Vial: 13
Acq On : 10 Aug 2013 7:31 am Operator: KPD
Sample : N9116-V-D2(5) Inst : Inst D
Misc : MC20162-8 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:33 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:30 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units
95) 1-Methyl-3-Ethylbenzene		42.29	105	2957437m	621.2897 ng
96) 1-Methyl-4-Ethylbenzene		42.45	105	1360676m	264.7365 ng
97) 1,3,5-Trimethylbenzene		43.00	105	1272024m	286.2345 ng
98) 1-Methyl-2-Ethylbenzene		0.00	105	0	N.D. d
99) 3-Methylnonane		0.00	57	0	N.D. d
100) 1,2,4-Trimethylbenzene		45.25	105	3969423m	934.7336 ng
101) 1-Decene		0.00	41	0	N.D. d
102) sec-Butylbenzene		0.00	105	0	N.D. d
103) n-Decane		0.00	43	0	N.D. d
104) 1,2,3-Trimethylbenzene		0.00	105	0	N.D. d
105) Indane		0.00	117	0	N.D. d
106) 1,3-Diethylbenzene		0.00	105	0	N.D. d
107) 1-methyl-4-n-propylbenz		0.00	105	0	N.D. d
108) 1,3-Dimethyl-5-Ethylben		0.00	119	0	N.D. d
109) 1,2-Diethylbenzene		0.00	105	0	N.D. d
110) 1-Methyl-2-n-Propylbenz		0.00	105	0	N.D. d
111) 1,4-Dimethyl-2-Ethylben		0.00	119	0	N.D. d
112) 1,2-Dimethyl-4-Ethylben		0.00	119	0	N.D. d
113) 1,3-Dimethyl-2-Ethylben		0.00	119	0	N.D. d
114) n-Undecane		0.00	57	0	N.D. d
115) 1,2,4,5-Tetramethylbenz		55.69	119	369804m	85.8066 ng
116) 1,2,3,5-Tetramethylbenz		0.00	119	0	N.D. d
117) 1,2,3,4-Tetramethylbenz		0.00	119	0	N.D. d
118) n-Pentylbenzene		0.00	91	0	N.D. d
119) Benzo(b)thiophene		0.00	134	0	N.D. d
120) MMT		0.00	120	0	N.D. d
121) n-Dodecane		0.00	57	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7721.D Vial: 14
Acq On : 10 Aug 2013 8:49 am Operator: KPD
Sample : N9117-V-D2(5) Inst : Inst D
Misc : MC20162-9 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:36 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:33 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Internal Standards	R.T.	QIon	Response	Conc	Units
1) Benzene-d6	11.01	84	1777415m	402.0400*	ng
38) Toluene-d8	21.44	98	1582713m	402.1600*	ng
70) Ethylbenzene-d10	31.72	98	2262659m	402.4800*	ng

System Monitoring Compounds

2) 1,4-Difluorobenzene	12.31	114	1146610m	373.8232	ng
Spiked Amount 401.0800*				Recovery =	93.20%
39) Chlorobenzene-d5	29.88	117	1016014m	397.6911	ng
Spiked Amount 401.6400*				Recovery =	99.02%
71) 1,4-Dichlorobenzene-d4	45.91	150	689356m	373.4973	ng
Spiked Amount 400.4800*				Recovery =	93.26%

Target Compounds (Ratio)	R.T.	QIon	Response	Conc	Units
3) Ethanol	0.00	45	0	N.D.	d
4) Isopentane	0.00	43	0	N.D.	
5) 1-Pentene	0.00	42	0	N.D.	d
6) 2-Methyl-1-Butene	0.00	55	0	N.D.	d
7) n-Pentane	0.00	43	0	N.D.	d
8) trans-2-Pentene	0.00	55	0	N.D.	d
9) cis-2-Pentene	0.00	55	0	N.D.	d
10) t-Butanol	0.00	59	0	N.D.	d
11) 2,2-Dimethylbutane	0.00	57	0	N.D.	d
12) Cyclopentane	0.00	42	0	N.D.	d
13) 2-Methylpentane	0.00	43	0	N.D.	d
14) Methyltertbutylether	0.00	73	0	N.D.	d
15) 3-Methylpentane	0.00	57	0	N.D.	d
16) 1-Hexene	0.00	56	0	N.D.	d
17) n-Hexane	0.00	57	0	N.D.	d
18) Di-isopropylether	0.00	45	0	N.D.	d
19) trans-2-Hexene	0.00	55	0	N.D.	d
20) 2-Methylpentene-2	0.00	69	0	N.D.	d
21) cis-2-Hexene	0.00	55	0	N.D.	d
22) Ethyltertbutylether	0.00	59	0	N.D.	
23) 2,2-Dimethylpentane	0.00	57	0	N.D.	d
24) Methylcyclopentane	0.00	56	0	N.D.	d
25) 1,2-Dichloroethane	0.00	62	0	N.D.	
26) 2,4-Dimethylpentane	0.00	57	0	N.D.	d
27) Benzene	0.00	78	0	N.D.	d
28) Thiophene	0.00	84	0	N.D.	d
29) Cyclohexane	0.00	56	0	N.D.	d
30) 2-Methylhexane	0.00	43	0	N.D.	d
31) 2,3-Dimethylpentane	0.00	56	0	N.D.	d
32) Tertamylmethylether	0.00	73	0	N.D.	
33) 3-Methylhexane	0.00	70	0	N.D.	d
34) Trichloroethylene	0.00	130	0	N.D.	
35) 2-Methyl-1-Hexene	0.00	56	0	N.D.	d
36) 2,2,4-Trimethylpentane/	0.00	56	0	N.D.	d
37) trans-3-Heptene	0.00	41	0	N.D.	d
40) n-Heptane	0.00	43	0	N.D.	d
41) cis-3-Heptene	0.00	41	0	N.D.	d
42) trans-2-Heptene	0.00	55	0	N.D.	d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
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(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7721.D Vial: 14
Acq On : 10 Aug 2013 8:49 am Operator: KPD
Sample : N9117-V-D2(5) Inst : Inst D
Misc : MC20162-9 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:36 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:33 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds (Ratio)	R.T.	QIon	Response	Conc Units
43) cis-2-Heptene	0.00	56	0	N.D. d
44) Methylcyclohexane	0.00	83	0	N.D. d
45) 2,5-Dimethylhexane/2,2,	0.00	57	0	N.D. d
46) 2,4-Dimethylhexane	0.00	43	0	N.D. d
47) ctc-1,2,4-Trimethylcycl	0.00	70	0	N.D. d
48) ctc-1,2,3-Trimethylcycl	0.00	70	0	N.D. d
49) 2,3,4-Trimethylpentane	0.00	43	0	N.D. d
50) Toluene	0.00	91	0	N.D. d
51) 2,3,3-Trimethylpentane	0.00	43	0	N.D. d
52) 2-Methylthiophene	0.00	97	0	N.D.
53) 2,3-Dimethylhexane	0.00	43	0	N.D. d
54) 3-Methylthiophene	0.00	97	0	N.D. d
55) 2-Methylheptane	0.00	43	0	N.D. d
56) 4-Methylheptane	0.00	43	0	N.D. d
57) 1,2-Dibromoethane	0.00	107	0	N.D.
58) 1-Octene	0.00	55	0	N.D. d
59) 2,2-Dimethylheptane	0.00	57	0	N.D. d
60) 2,2,4-Trimethylhexane	0.00	57	0	N.D. d
61) Tetrachloroethylene	0.00	166	0	N.D.
62) n-Octane	0.00	43	0	N.D. d
63) trans-2-Octene	0.00	55	0	N.D. d
64) Isopropylcyclopentane	0.00	68	0	N.D. d
65) cis-2-Octene	0.00	55	0	N.D. d
66) 2,4-Dimethylheptane	0.00	43	0	N.D. d
67) Ethylcyclohexane/n-prop	0.00	83	0	N.D. d
68) 2,6-Dimethylheptane	0.00	43	0	N.D. d
69) 1,1,4-Trimethylcyclohex	0.00	111	0	N.D. d
72) Ethylbenzene	0.00	91	0	N.D. d
73) ctt-1,2,4-Trimethylcycl	0.00	111	0	N.D. d
74) 2-Ethylthiophene	0.00	97	0	N.D. d
75) m-Xylene	33.18	91	4941230m	1194.5169 ng
76) p-Xylene	0.00	91	0	N.D. d
77) 2,3-Dimethylheptane	0.00	43	0	N.D. d
78) 4-Methyloctane	0.00	43	0	N.D. d
79) 2-Methyloctane	0.00	43	0	N.D. d
80) ctc-1,2,4-Trimethylcycl	0.00	69	0	N.D. d
81) 1,1,2-Trimethylcyclohex	0.00	69	0	N.D. d
82) o-Xylene	35.42	91	2655349m	652.6709 ng
83) 1-Nonene	0.00	56	0	N.D. d
84) trans-3-Nonene	0.00	55	0	N.D. d
85) cis-3-Nonene	0.00	55	0	N.D. d
86) n-Nonane	0.00	43	0	N.D. d
87) trans-2-Nonene	0.00	55	0	N.D. d
88) Isopropylbenzene	0.00	105	0	N.D. d
89) cis-2-Nonene	0.00	55	0	N.D. d
90) Isopropylcyclohexane	0.00	82	0	N.D. d
91) 2,2-Dimethyloctane	0.00	57	0	N.D. d
92) n-Butylcyclopentane	0.00	69	0	N.D. d
93) 3,3-Dimethyloctane	0.00	71	0	N.D. d
94) Propylbenzene	0.00	91	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

Quantitation Report (QT Reviewed)

Data File : J:\D\DATA\SD0959\D7721.D Vial: 14
Acq On : 10 Aug 2013 8:49 am Operator: KPD
Sample : N9117-V-D2(5) Inst : Inst D
Misc : MC20162-9 13-0320 Multiplr: 1.00
MS Integration Params: RTEINT.P

Quant Time: Aug 12 08:32:36 2013 Quant Results File: MD0944D.RES
Quant Method : J:\D\DATA\MD0944D.M (RTE Integrator)
Title : 2013 PIANO
Last Update : Mon Aug 12 08:32:33 2013
Response via : Initial Calibration
DataAcq Meth : PIANO TARGET Mult : 1.000 RIS/SIS Mult : 25.000 (HR99)

Target Compounds	(Ratio)	R.T.	QIon	Response	Conc Units
95) 1-Methyl-3-Ethylbenzene		42.30	105	4008482m	867.5461 ng
96) 1-Methyl-4-Ethylbenzene		42.46	105	1798694m	360.5375 ng
97) 1,3,5-Trimethylbenzene		43.01	105	2166640m	502.2817 ng
98) 1-Methyl-2-Ethylbenzene		43.85	105	1517200m	330.3356 ng
99) 3-Methylnonane		0.00	57	0	N.D. d
100) 1,2,4-Trimethylbenzene		45.26	105	5778921m	1401.9780 ng
101) 1-Decene		0.00	41	0	N.D. d
102) sec-Butylbenzene		0.00	105	0	N.D. d
103) n-Decane		0.00	43	0	N.D. d
104) 1,2,3-Trimethylbenzene		0.00	105	0	N.D. d
105) Indane		0.00	117	0	N.D. d
106) 1,3-Diethylbenzene		0.00	105	0	N.D. d
107) 1-methyl-4-n-propylbenz		0.00	105	0	N.D. d
108) 1,3-Dimethyl-5-Ethylben		50.93	119	1216799m	299.3576 ng
109) 1,2-Diethylbenzene		0.00	105	0	N.D. d
110) 1-Methyl-2-n-Propylbenz		0.00	105	0	N.D. d
111) 1,4-Dimethyl-2-Ethylben		0.00	119	0	N.D. d
112) 1,2-Dimethyl-4-Ethylben		53.11	119	1244241m	302.7938 ng
113) 1,3-Dimethyl-2-Ethylben		0.00	119	0	N.D. d
114) n-Undecane		0.00	57	0	N.D. d
115) 1,2,4,5-Tetramethylbenz		55.70	119	601085m	143.6875 ng
116) 1,2,3,5-Tetramethylbenz		0.00	119	0	N.D. d
117) 1,2,3,4-Tetramethylbenz		0.00	119	0	N.D. d
118) n-Pentylbenzene		0.00	91	0	N.D. d
119) Benzo(b)thiophene		0.00	134	0	N.D. d
120) MMT		0.00	120	0	N.D. d
121) n-Dodecane		0.00	57	0	N.D. d

(#) = qualifier out of range (m) = manual integration (+) = signals summed
(E) = > 2 * high standard response (e) = > 1 * high standard response
(T) = Match R.T. Same Ion (t) = Match R.T. Different Ion
(Tw) = Close Match R.T. Same Ion (tw) = Close Match R.T. Different Ion
(*) = Not Verified to LIMS

G1701DA Version D.00.00.38 19-Nov-2001
Battelle Duxbury Enviroquant Macros 23-August-2008 Version: 5.0.4.8

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File        : J:\D\DATA\SD0958\D7642.D
Operator    : KPD
Acquired    :  5 Aug 2013   1:13 pm using AcqMethod PIANO
Instrument  :   Inst D
Sample Name: BZ513PB-V(0)
Misc Info   : Procedural Blank  13-0320
Vial Number: 5
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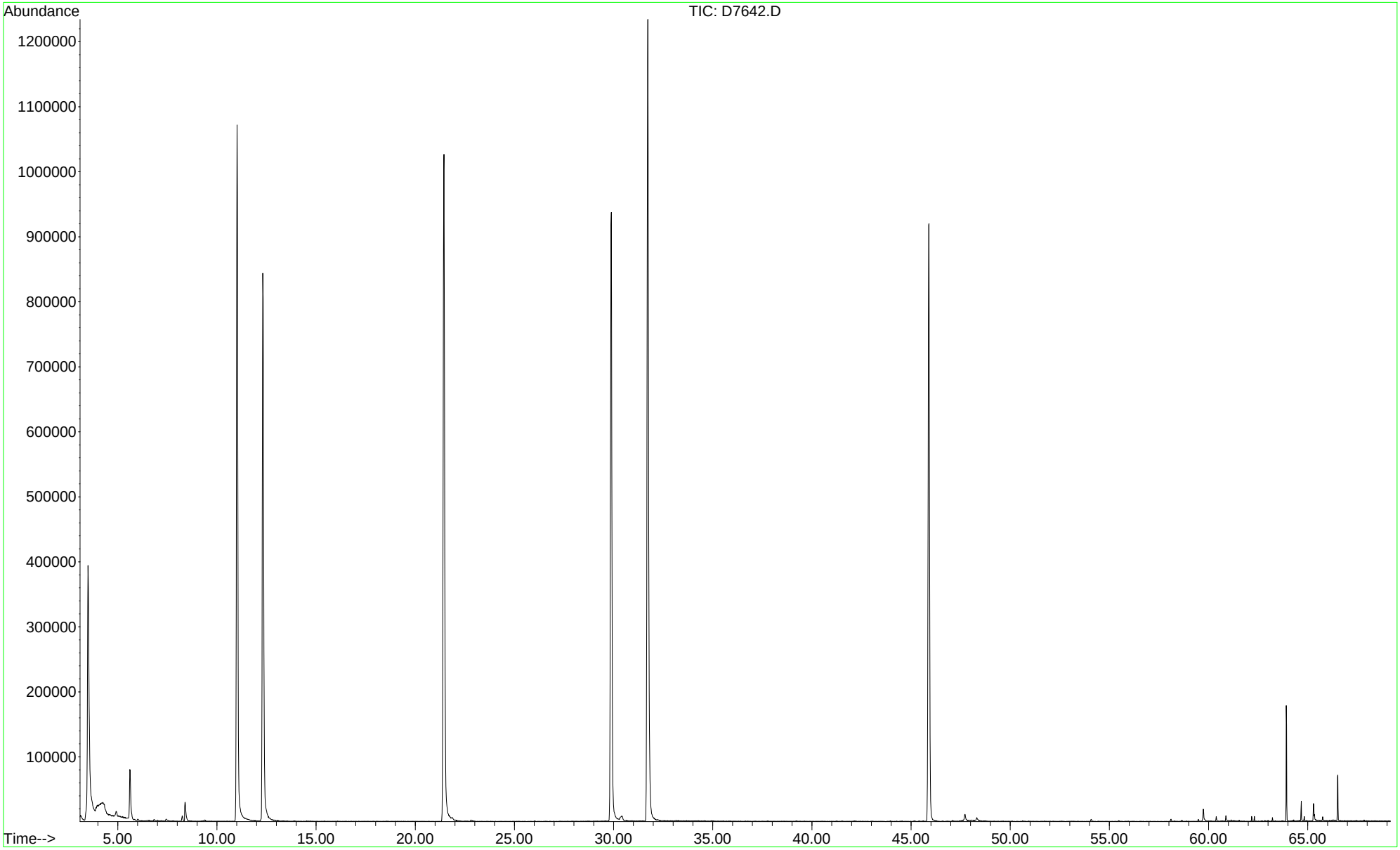

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Acquired    :  5 Aug 2013   2:31 pm using AcqMethod PIANO
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Sample Name: BZ514LCS-V(0)
Misc Info   : Laboratory Control Sample  13-0320
Vial Number: 6
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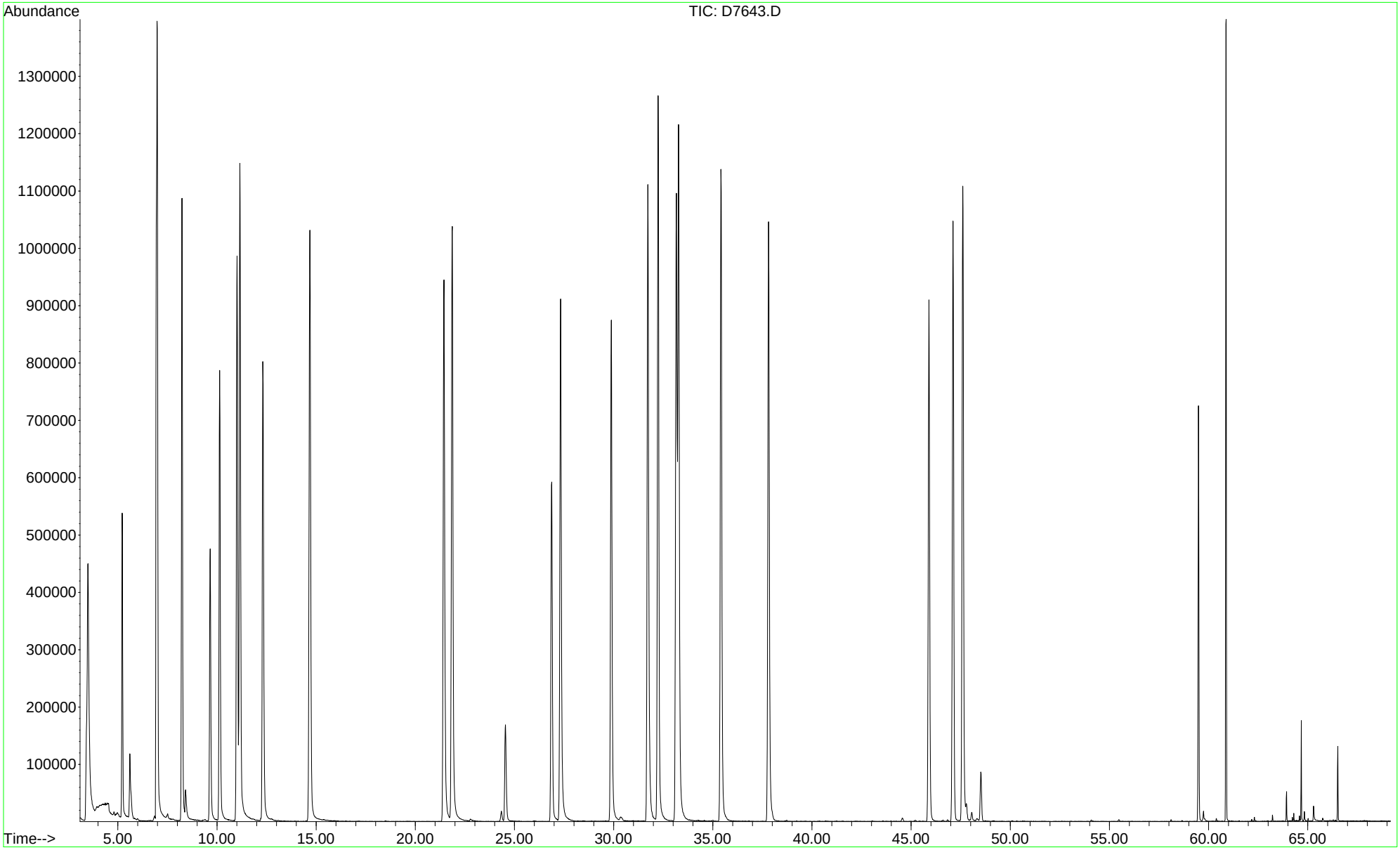

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Sample Name: N9109-V-1(3)
Misc Info   : MC20162-1  13-0320
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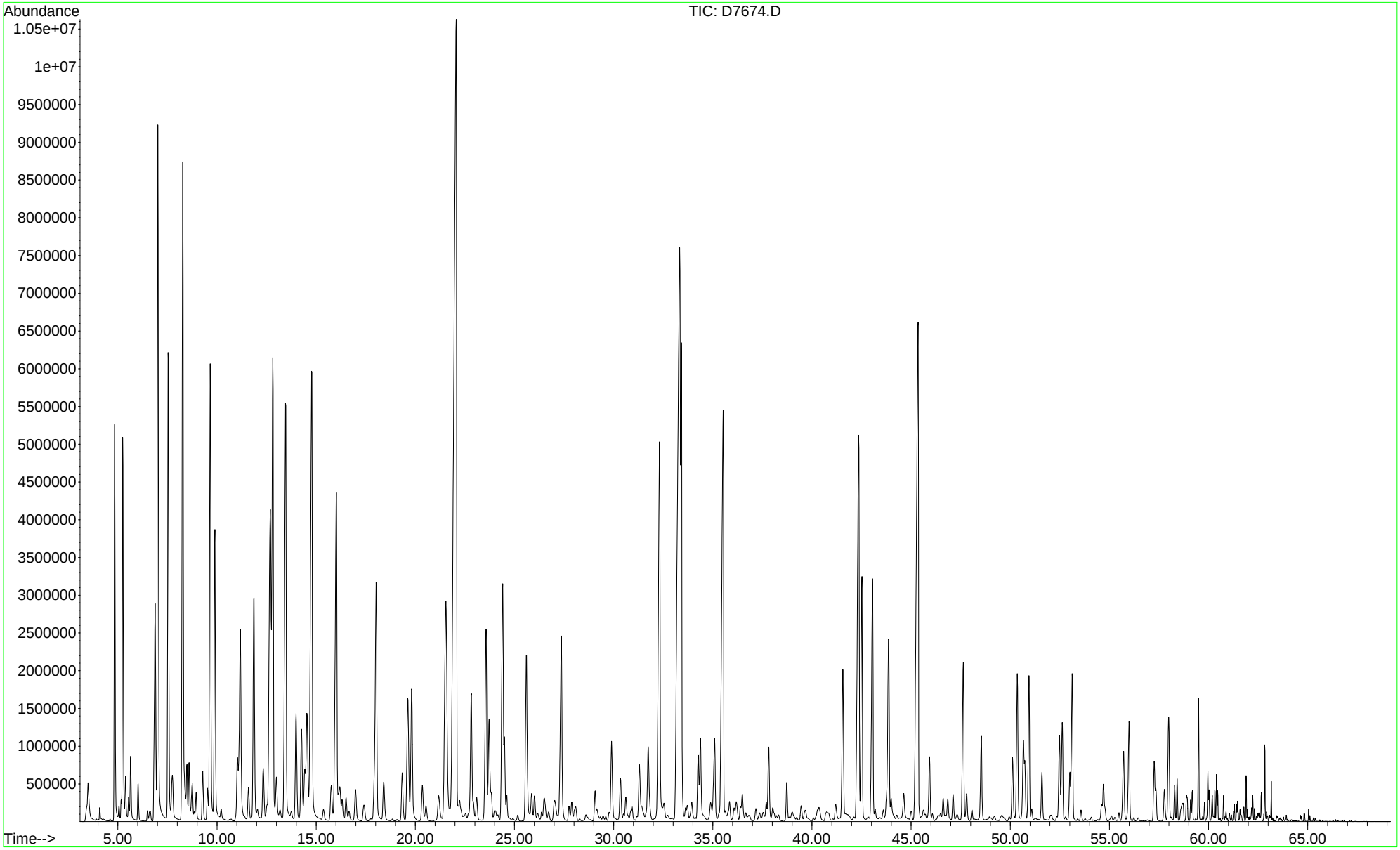

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Instrument : Inst D
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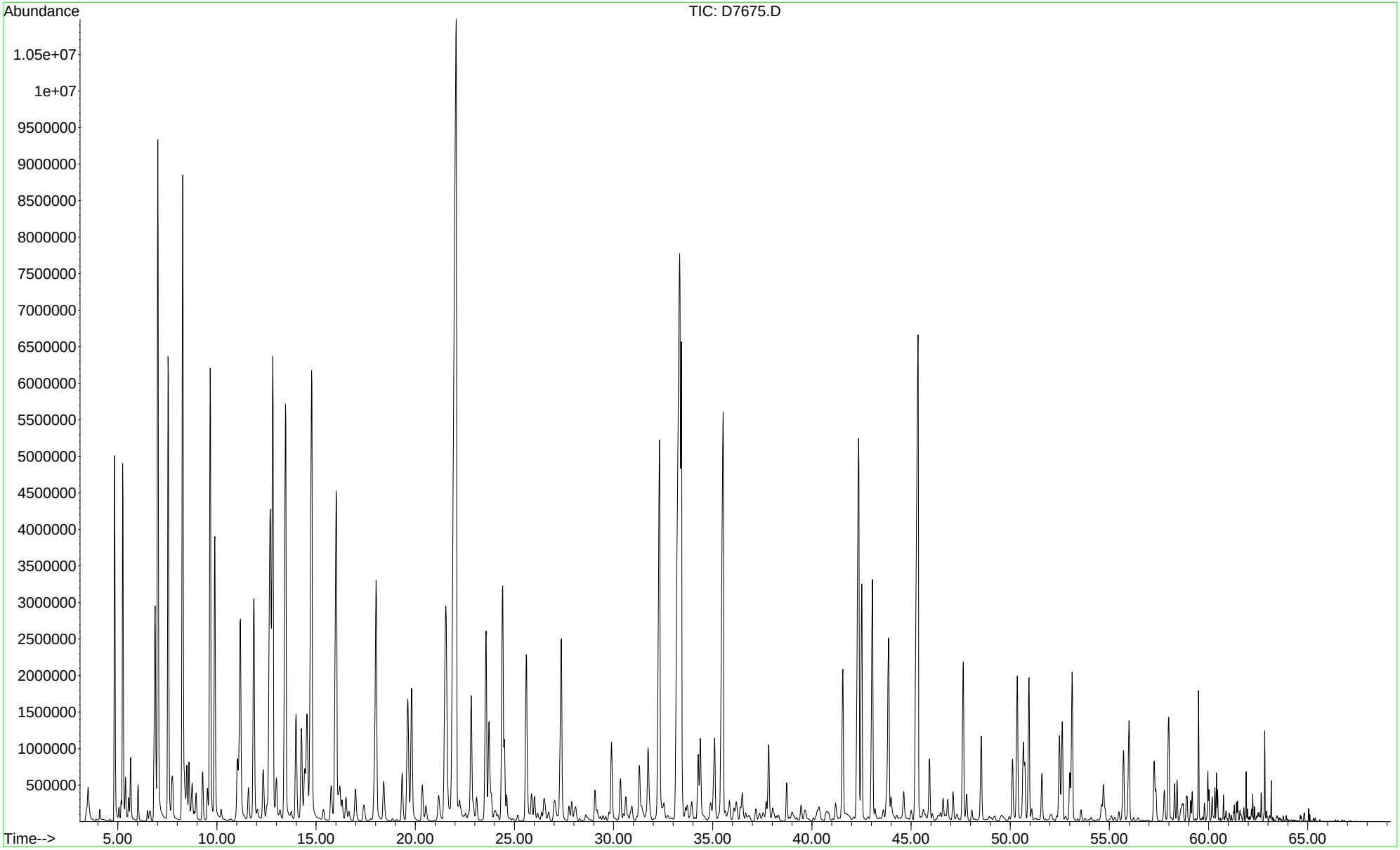
Misc Info : Lab Duplicate of MC20162-1 13-0320
Vial Number: 4



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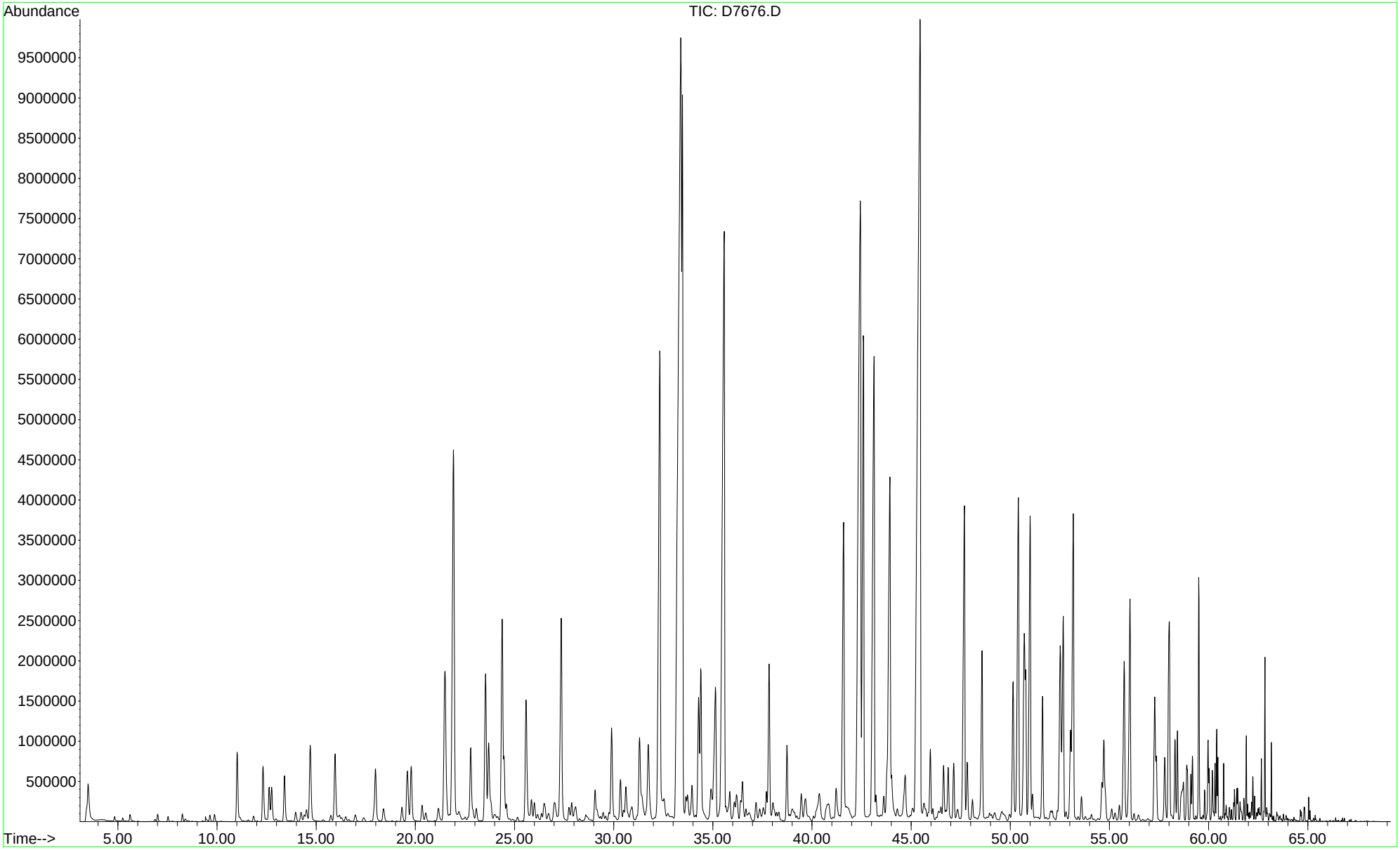
Instrument : Inst D
Sample Name: N9110-V-1(3)
Misc Info : MC20162-2 13-0320
Vial Number: 5



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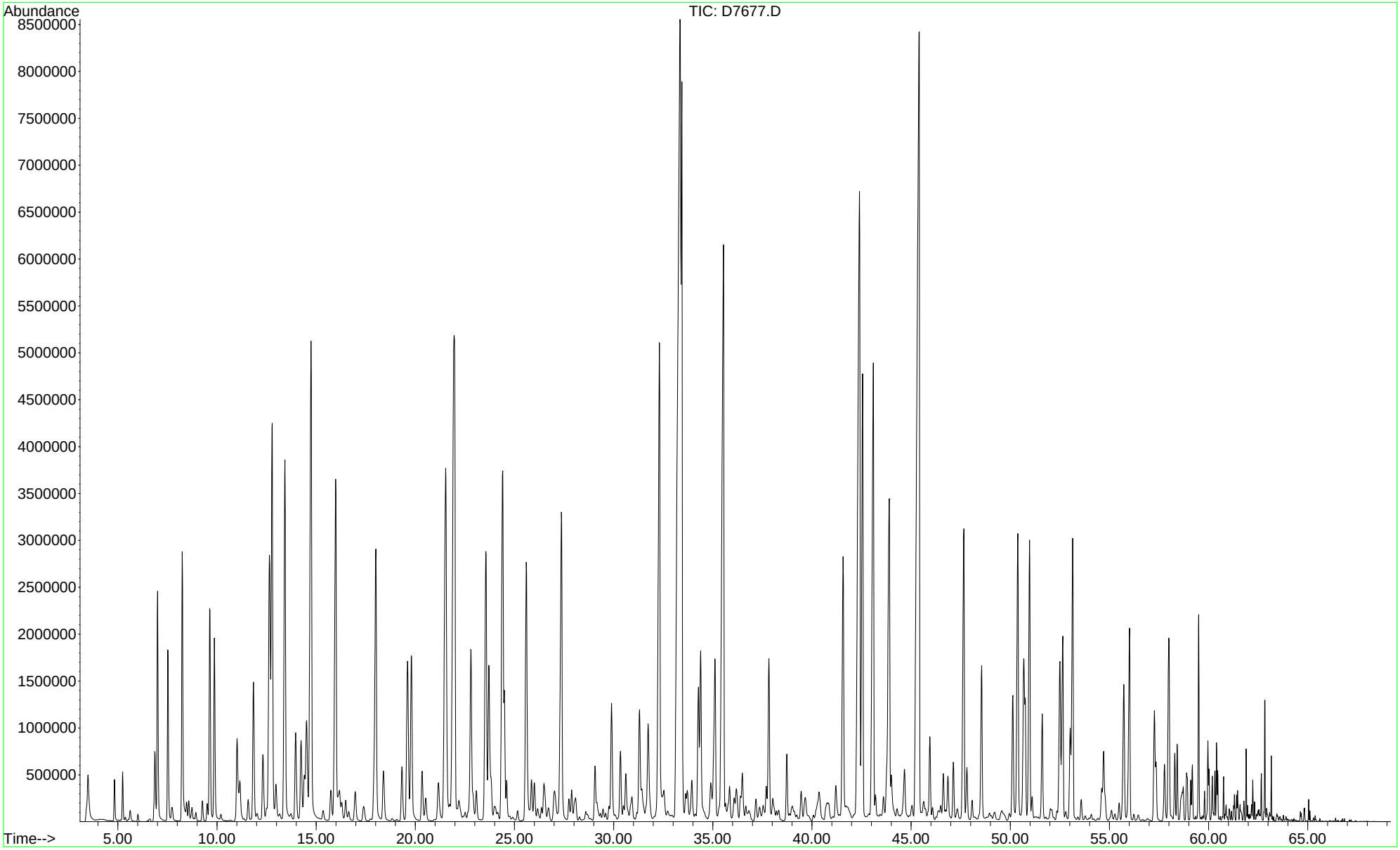
Operator : KPD
Acquired : 7 Aug 2013 7:42 pm using AcqMethod PIANO
Instrument : Inst D
Sample Name: N9111-V-1(3)
Misc Info : MC20162-3 13-0320
Vial Number: 6



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Sample Name: N9112-V-1(3)
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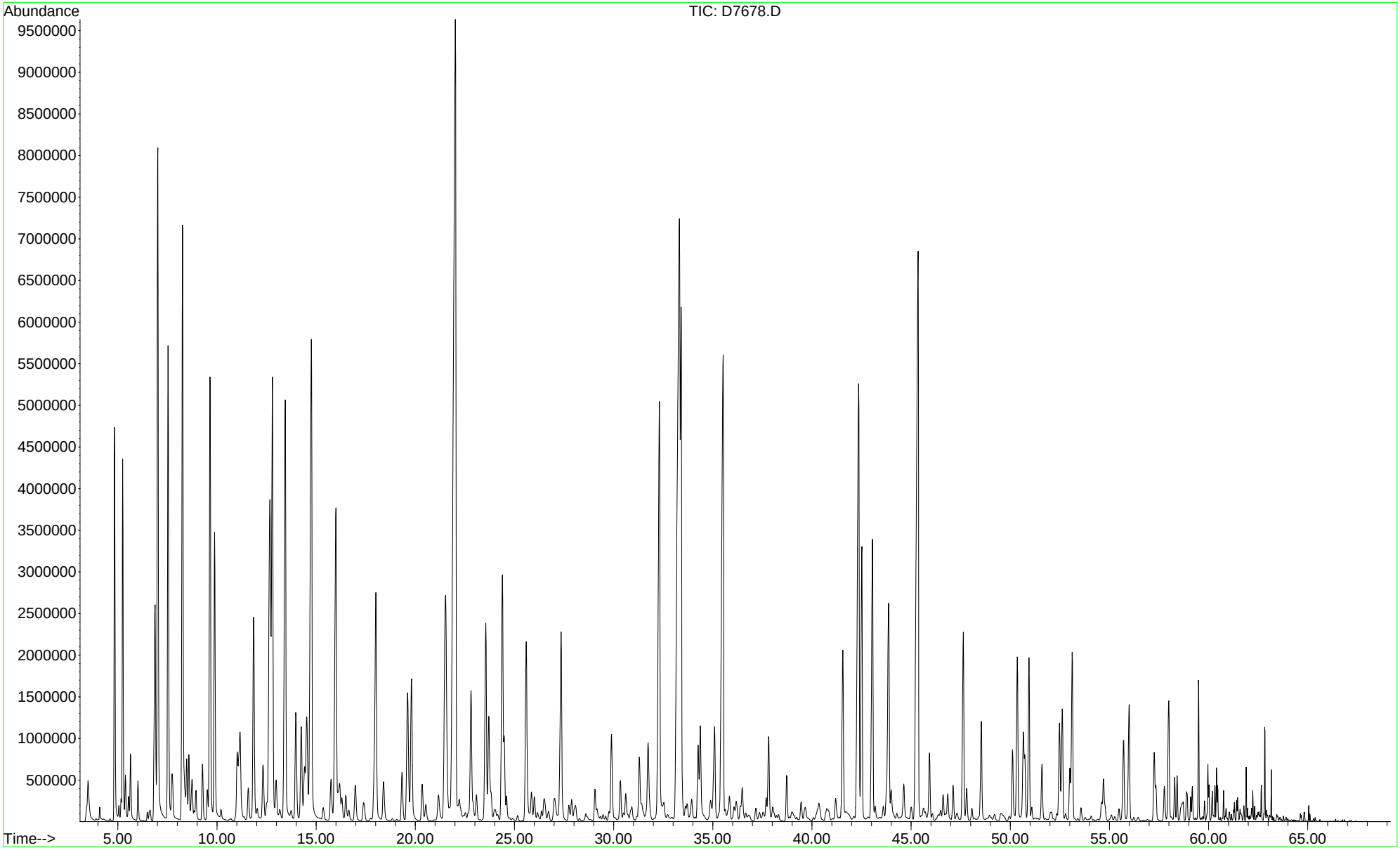
Vial Number: 7



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Sample Name: N9113-V-1(3)
Misc Info   : MC20162-5  13-0320
Vial Number: 8
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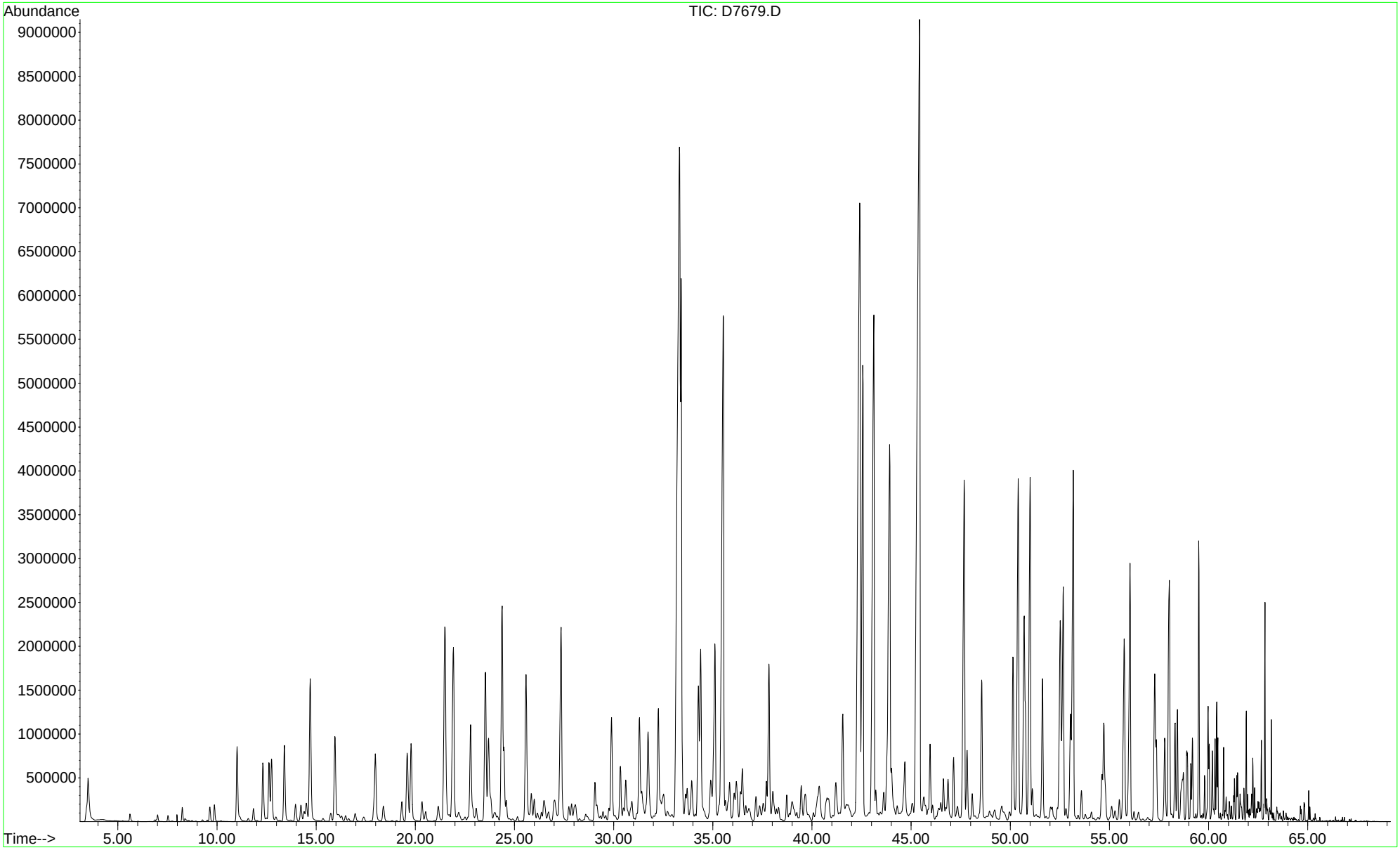

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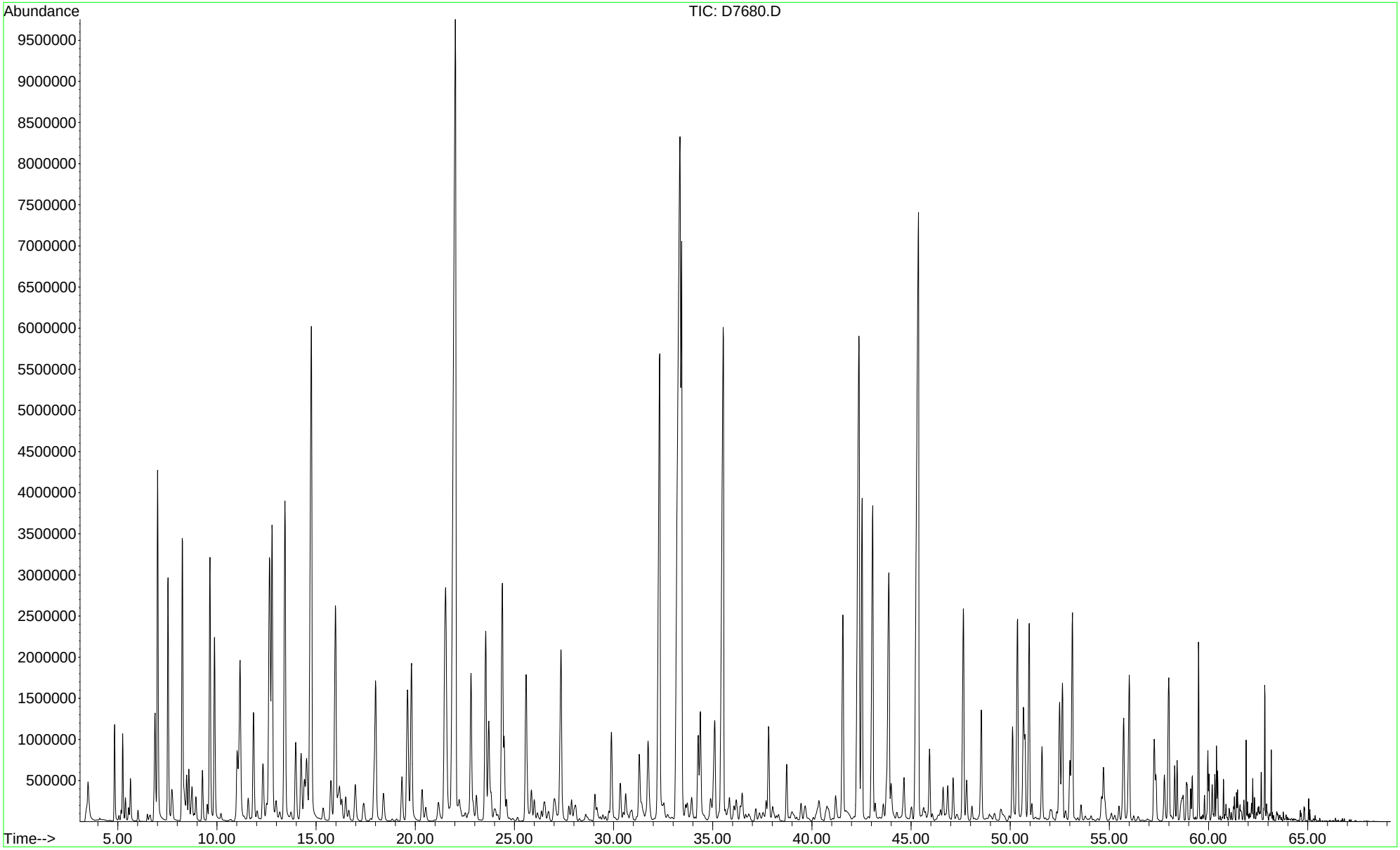

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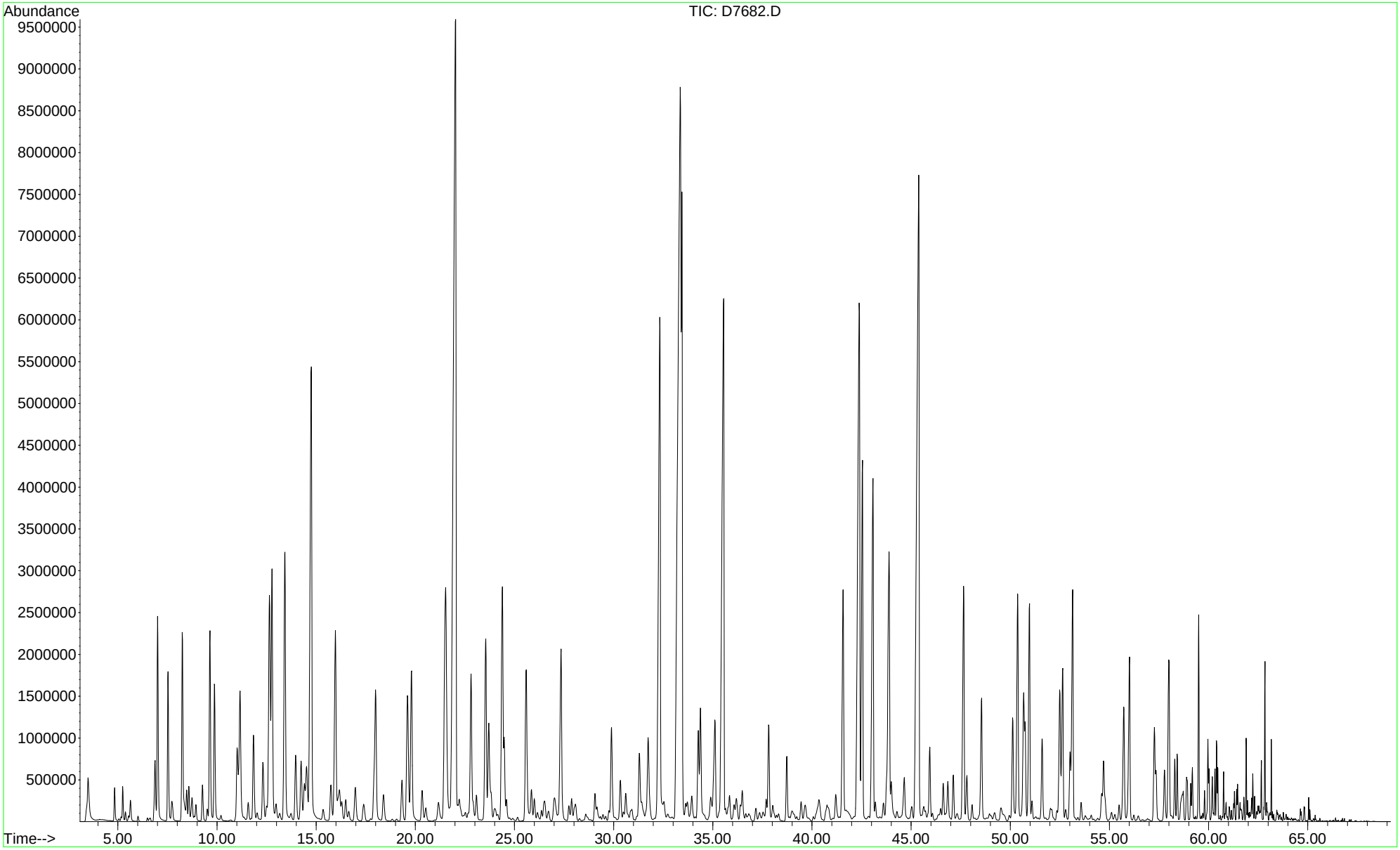

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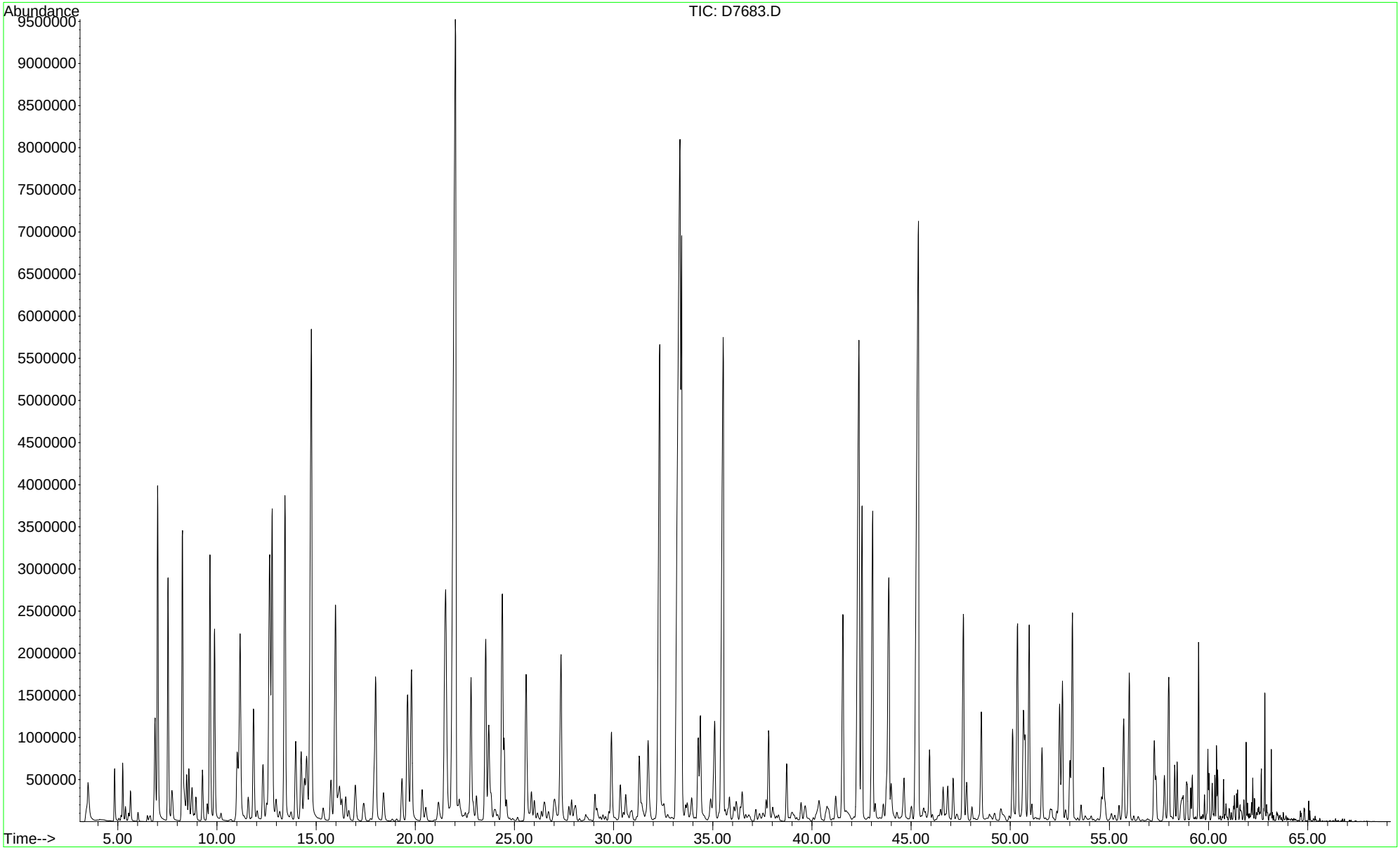

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Vial Number: 13
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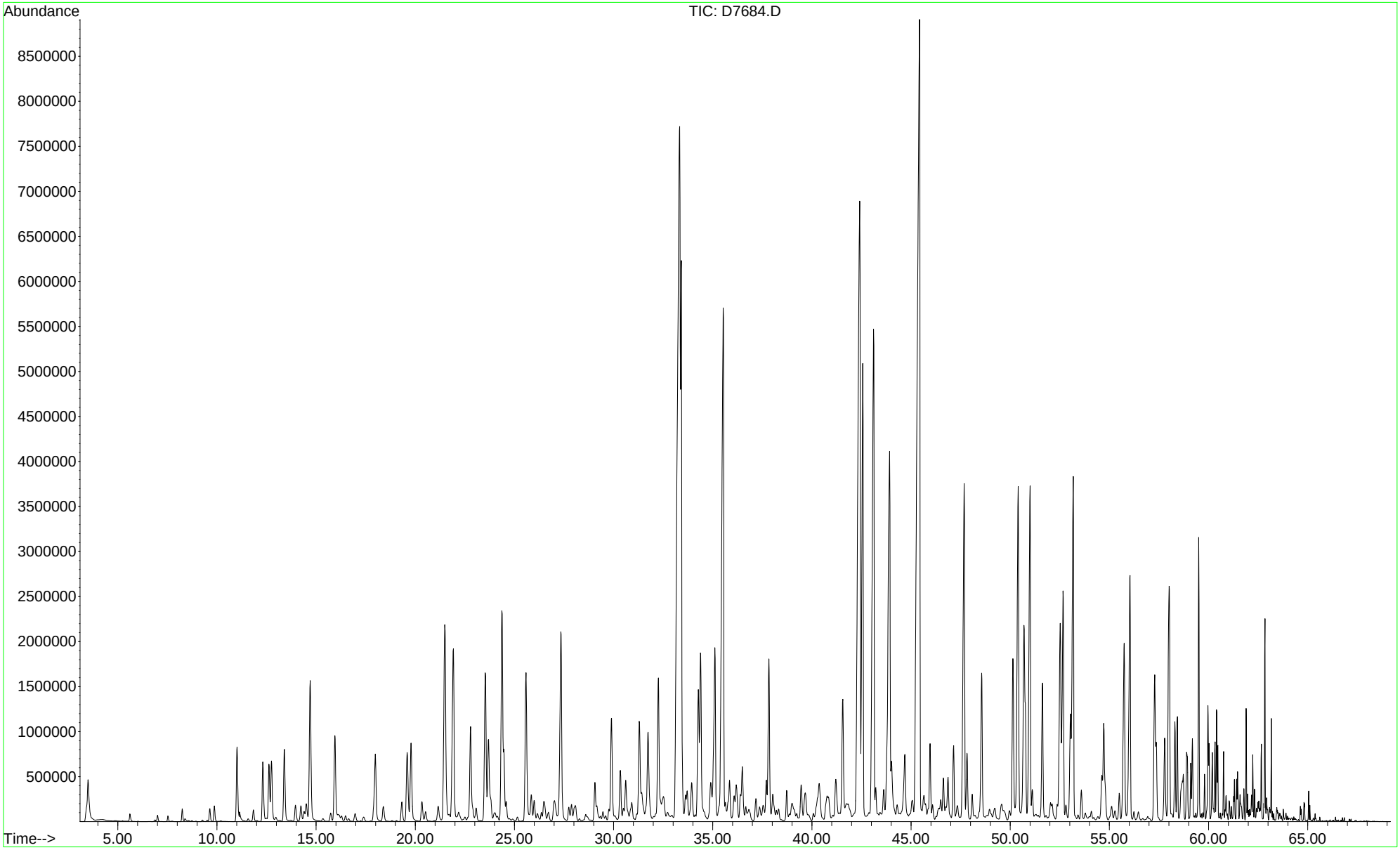
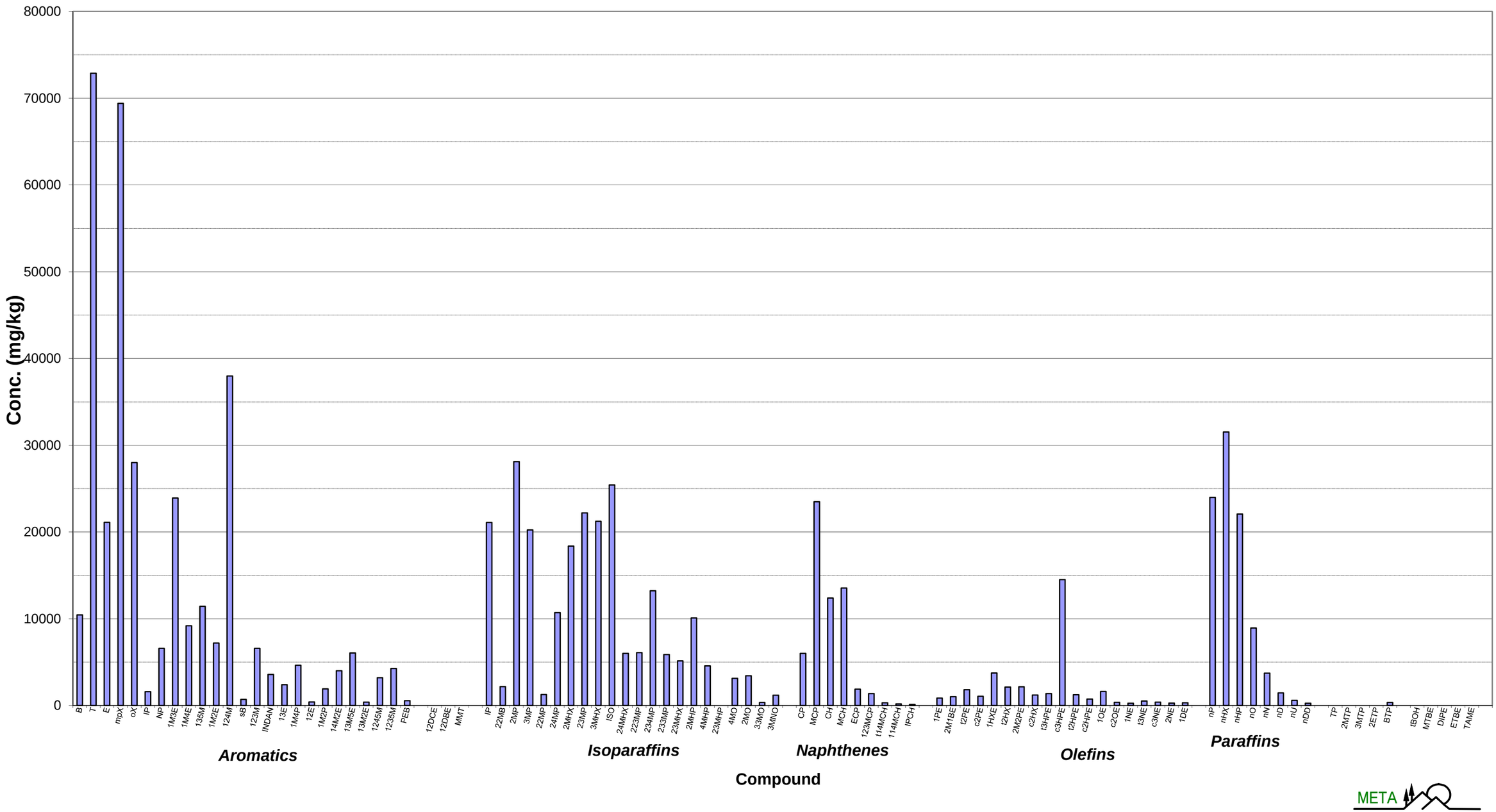


Appendix F

PIANO Bar Charts

PCM-516A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NP
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1M2E
124M
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INDAN
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1M4P
12E
1M2P
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12DBE
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MCH
ECP
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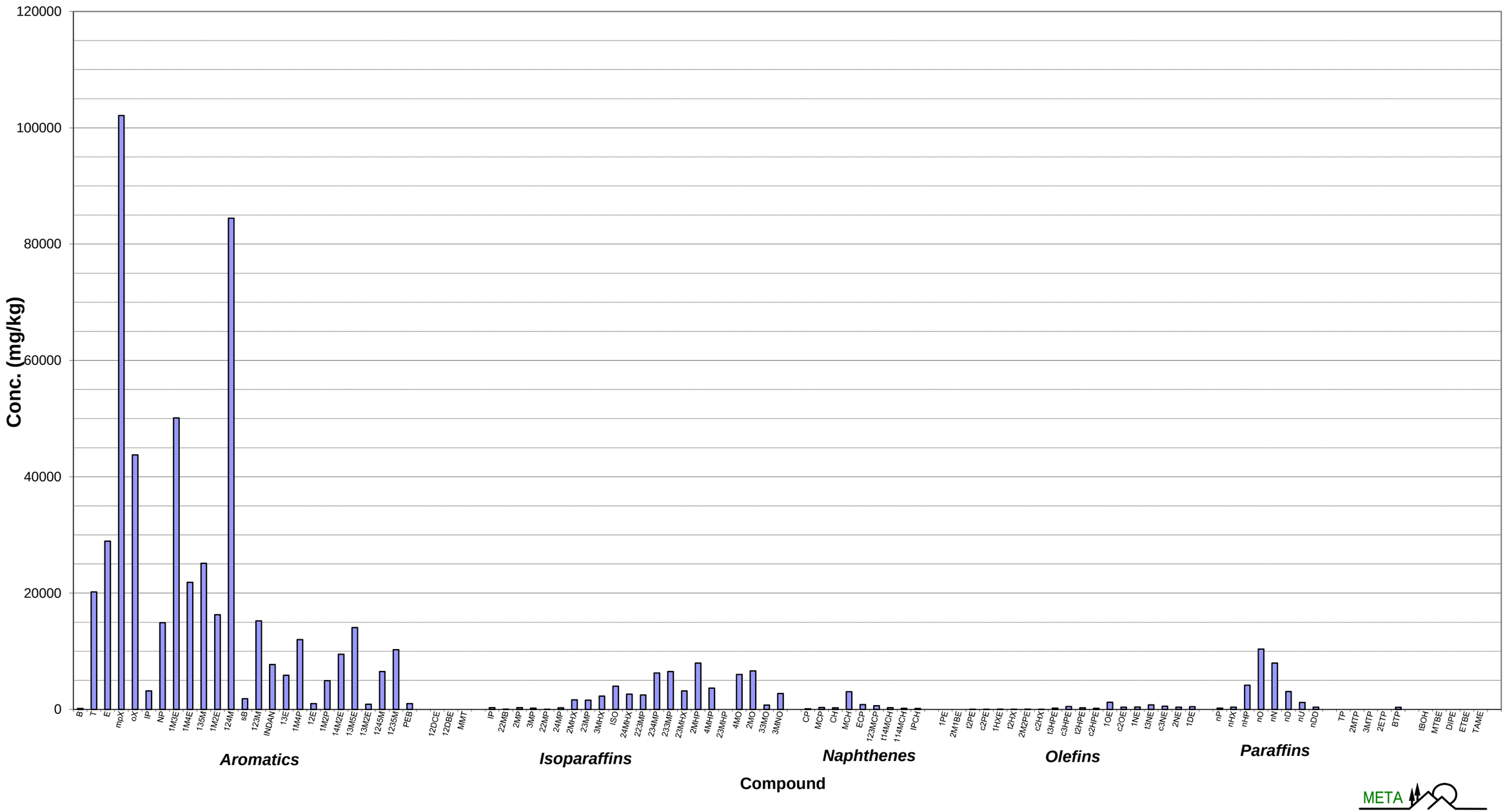
Isoparaffins
Naphthenes
Olefins
Paraffins
Compound

PCM-510B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sB
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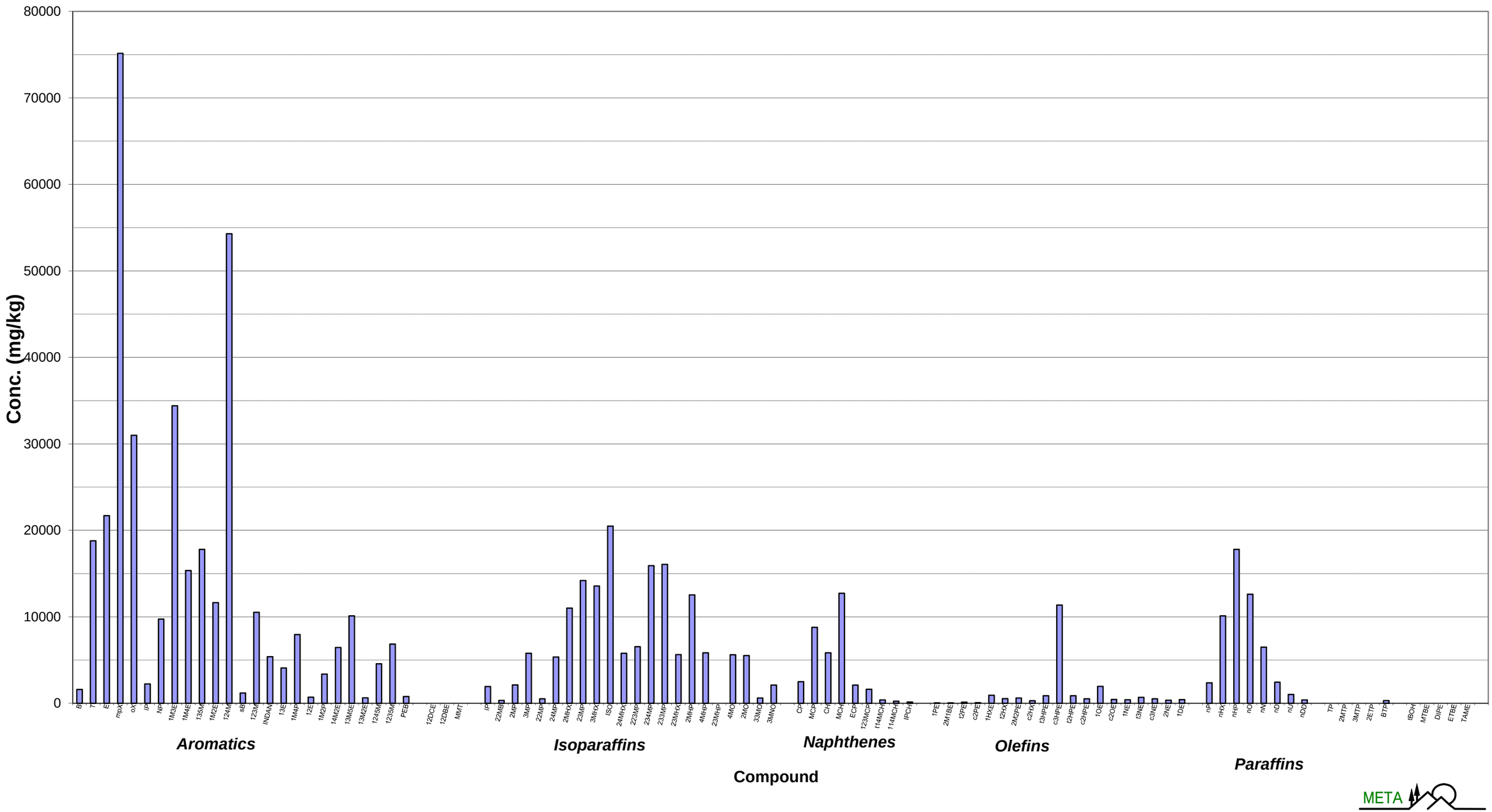
Compound
META

PCM-512A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sB
123M
INDAN
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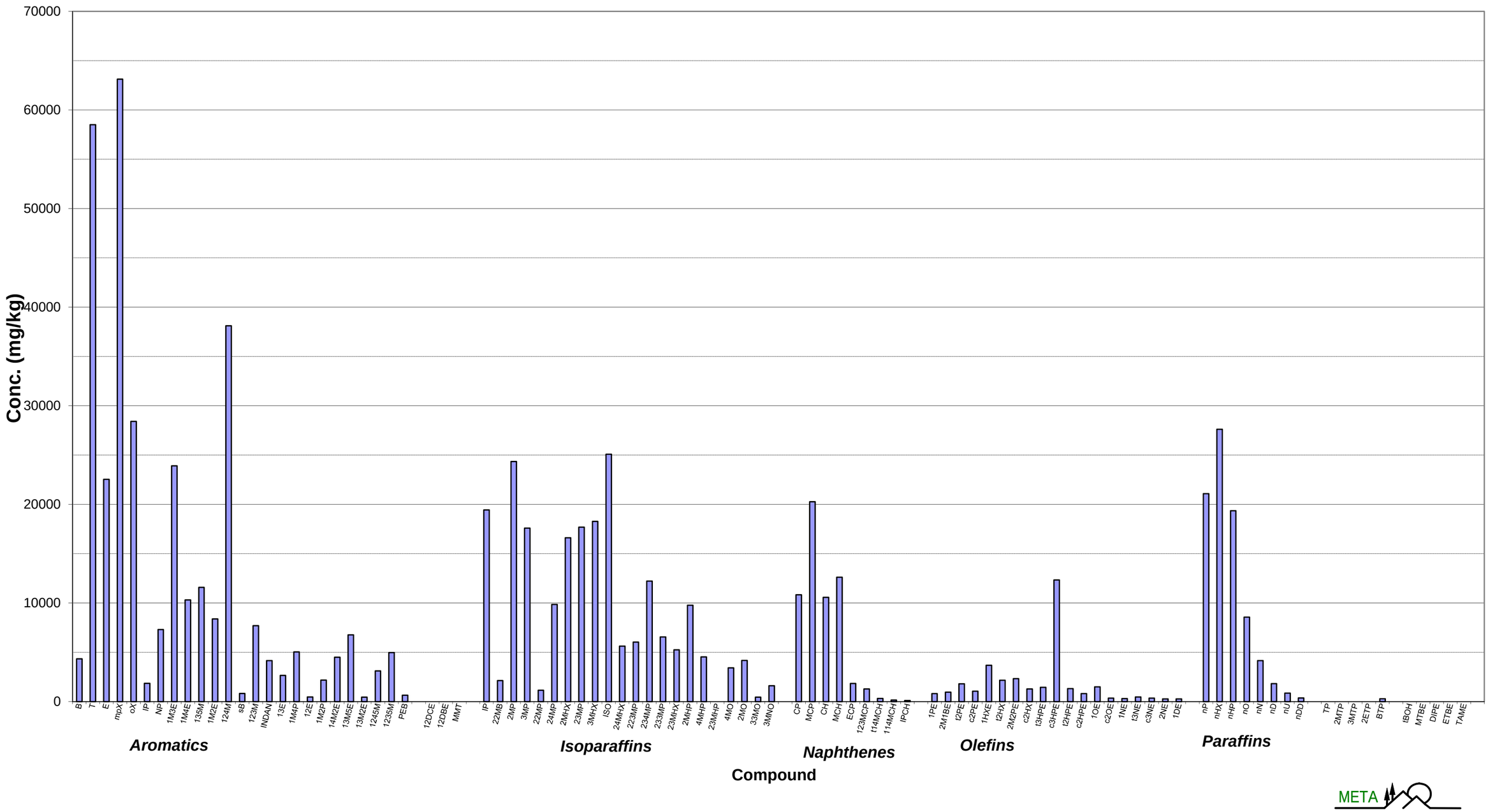
Paraffins
Compound
META

WR-220A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135M
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124M
sB
123M
INDAN
13E
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12E
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13M5E
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1235M
PEB
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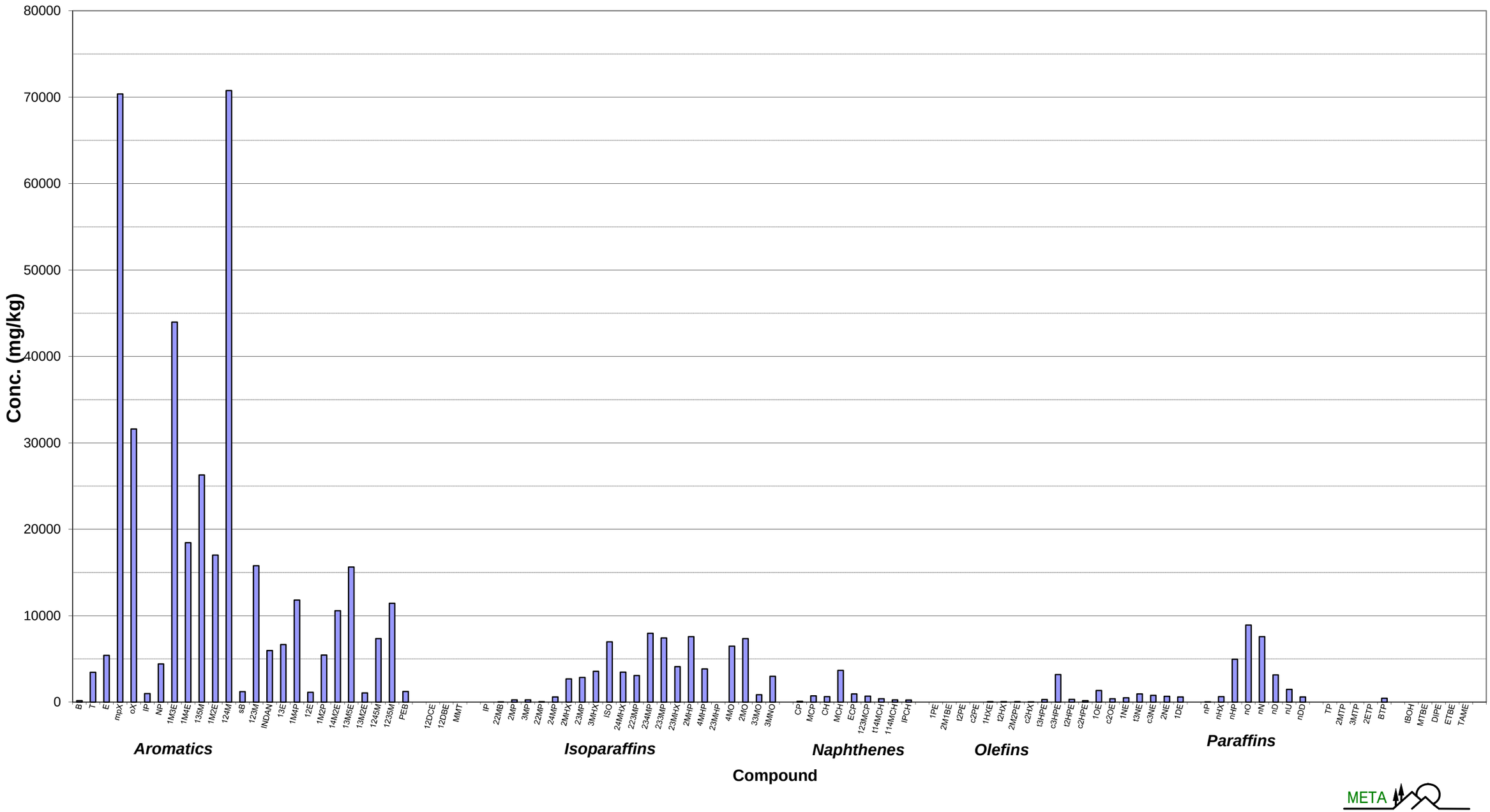
R-047A
MC20162-5



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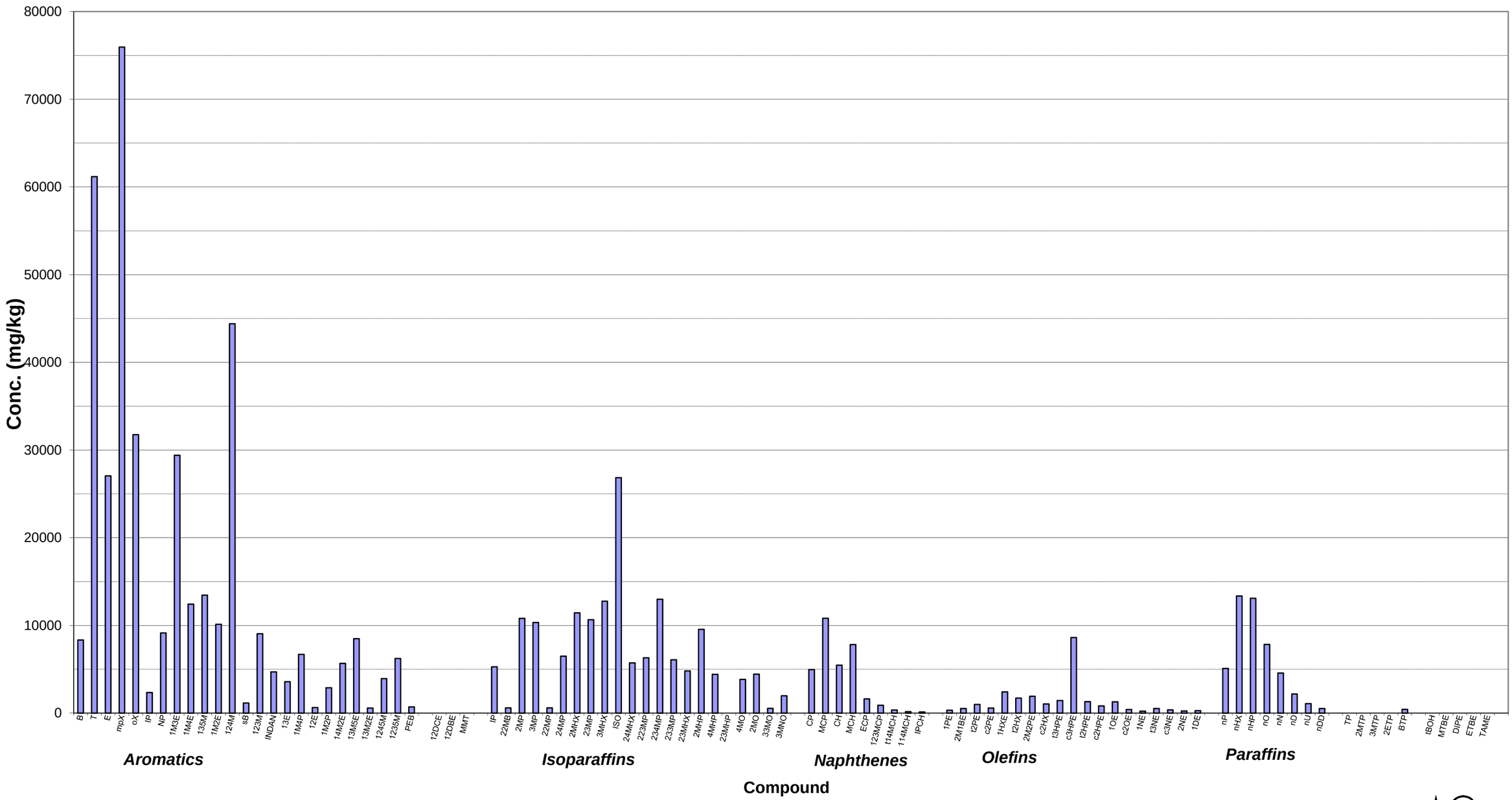

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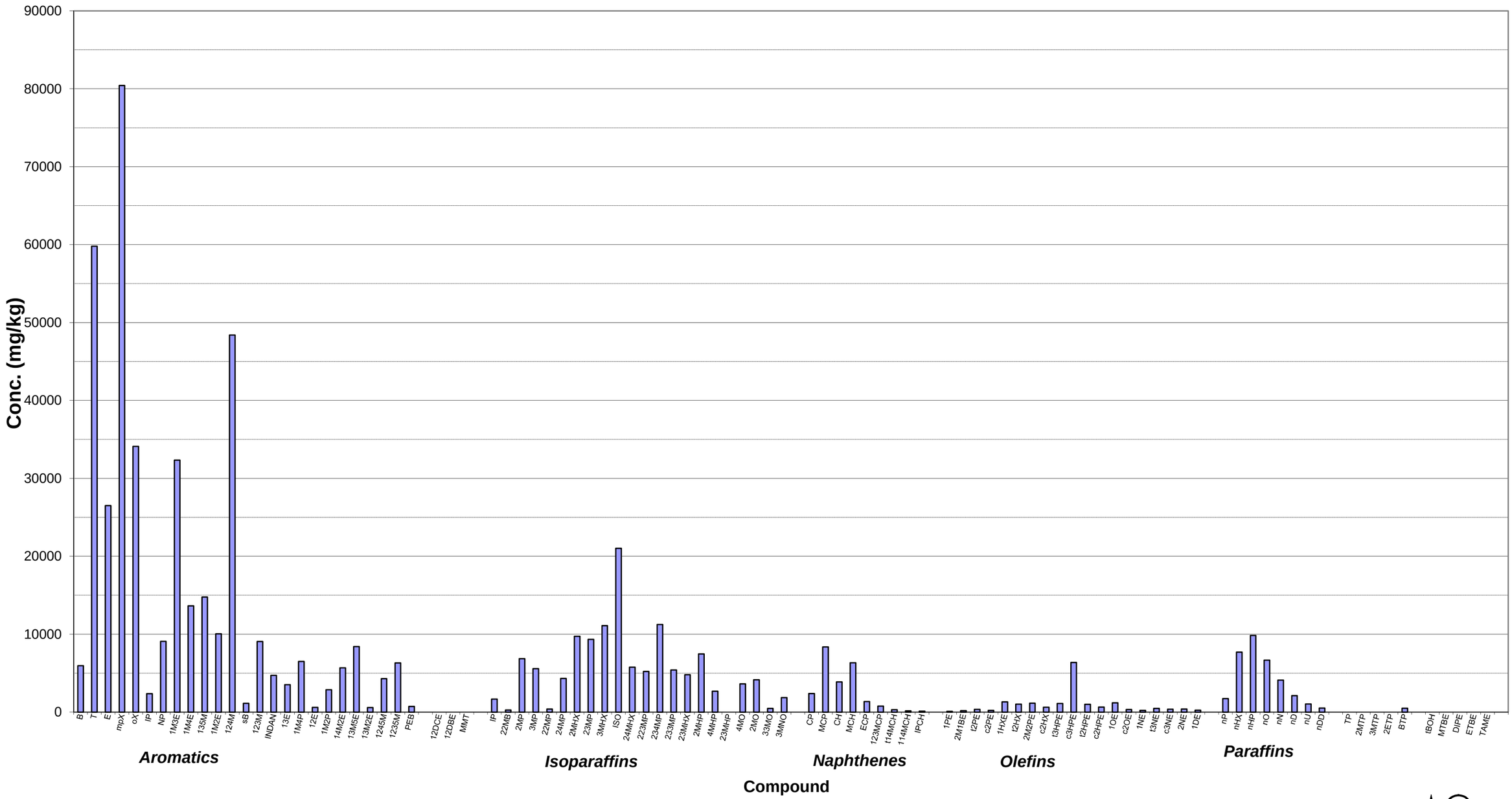
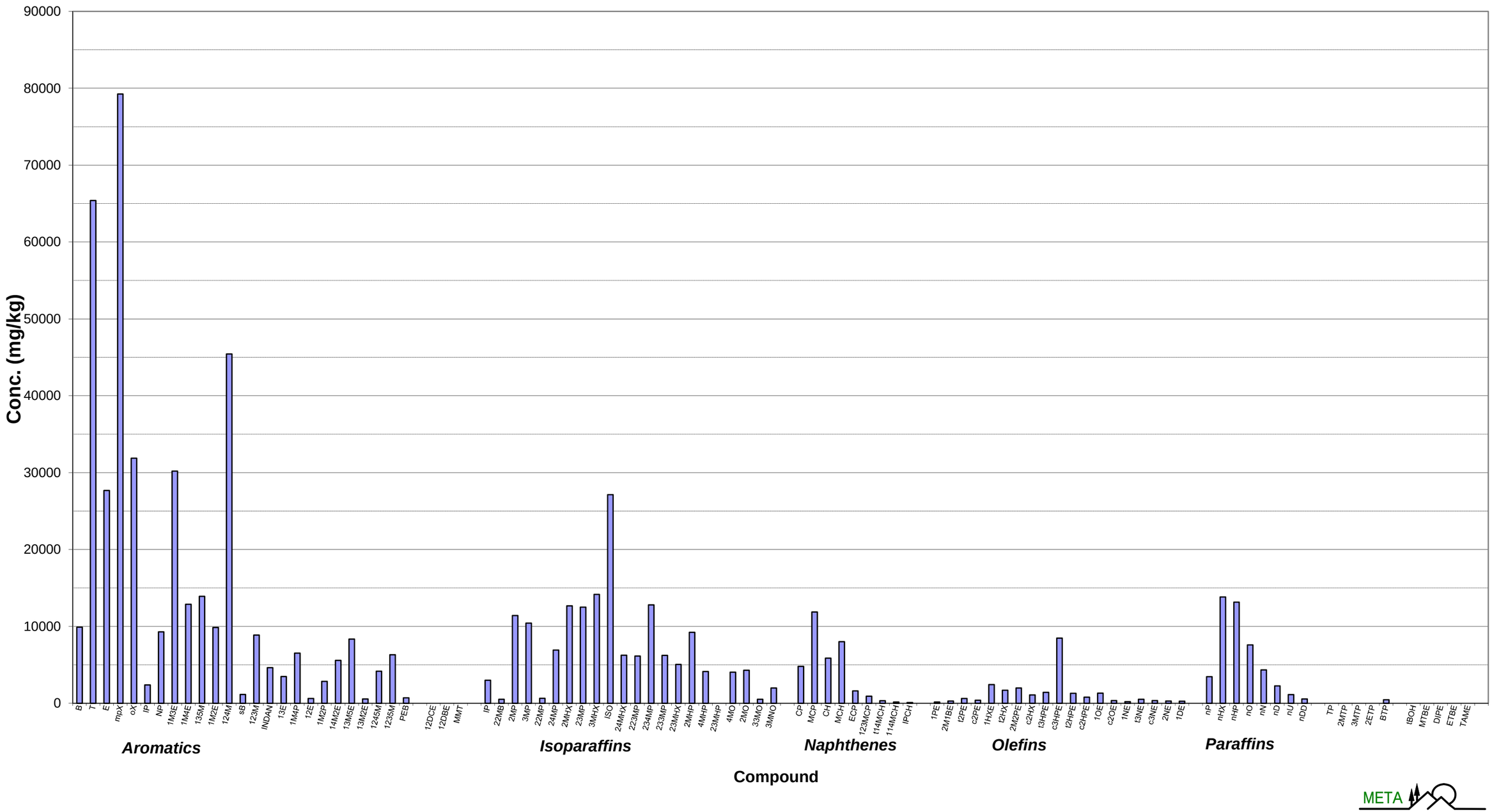


R-031A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Compound
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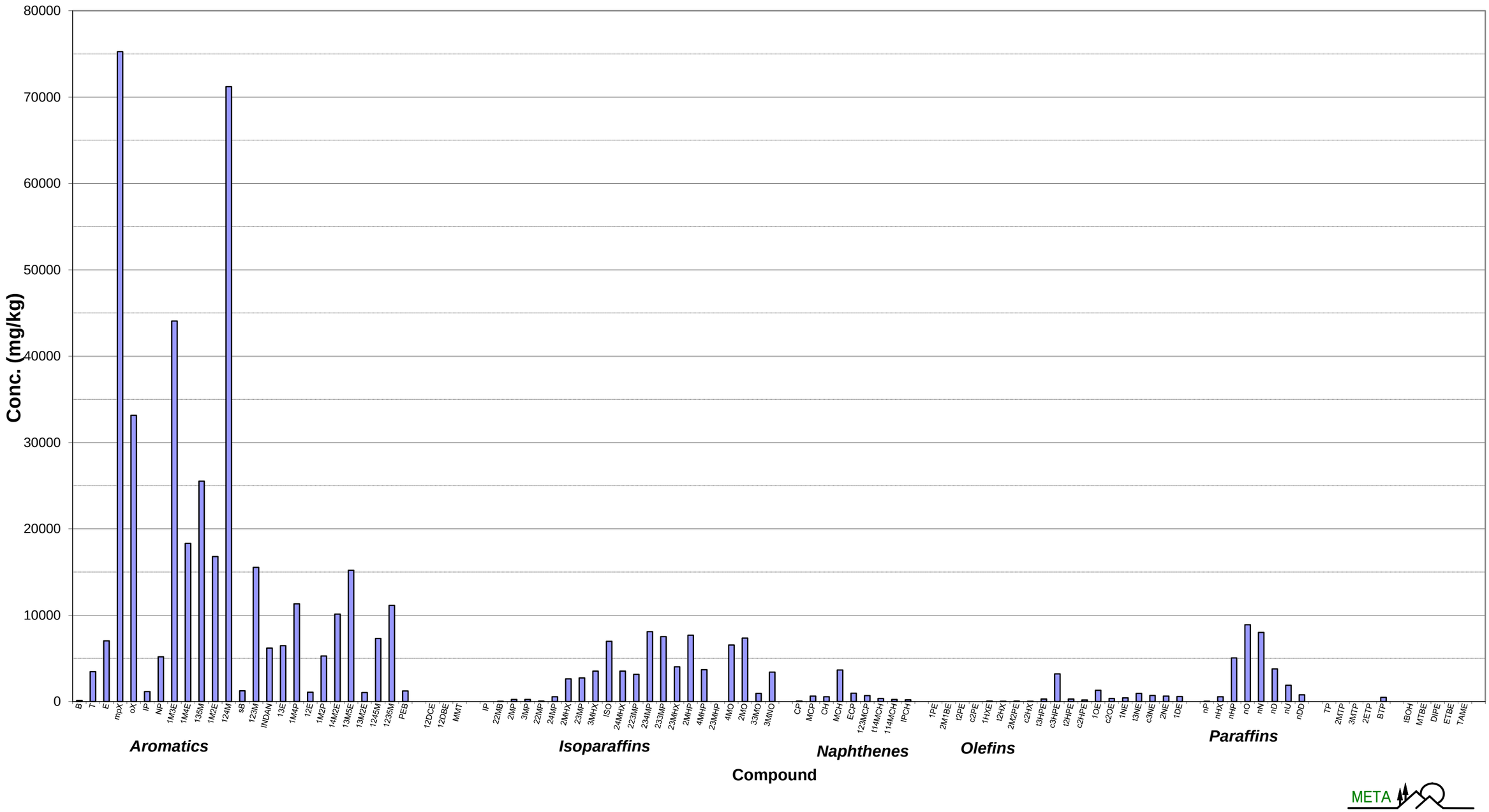
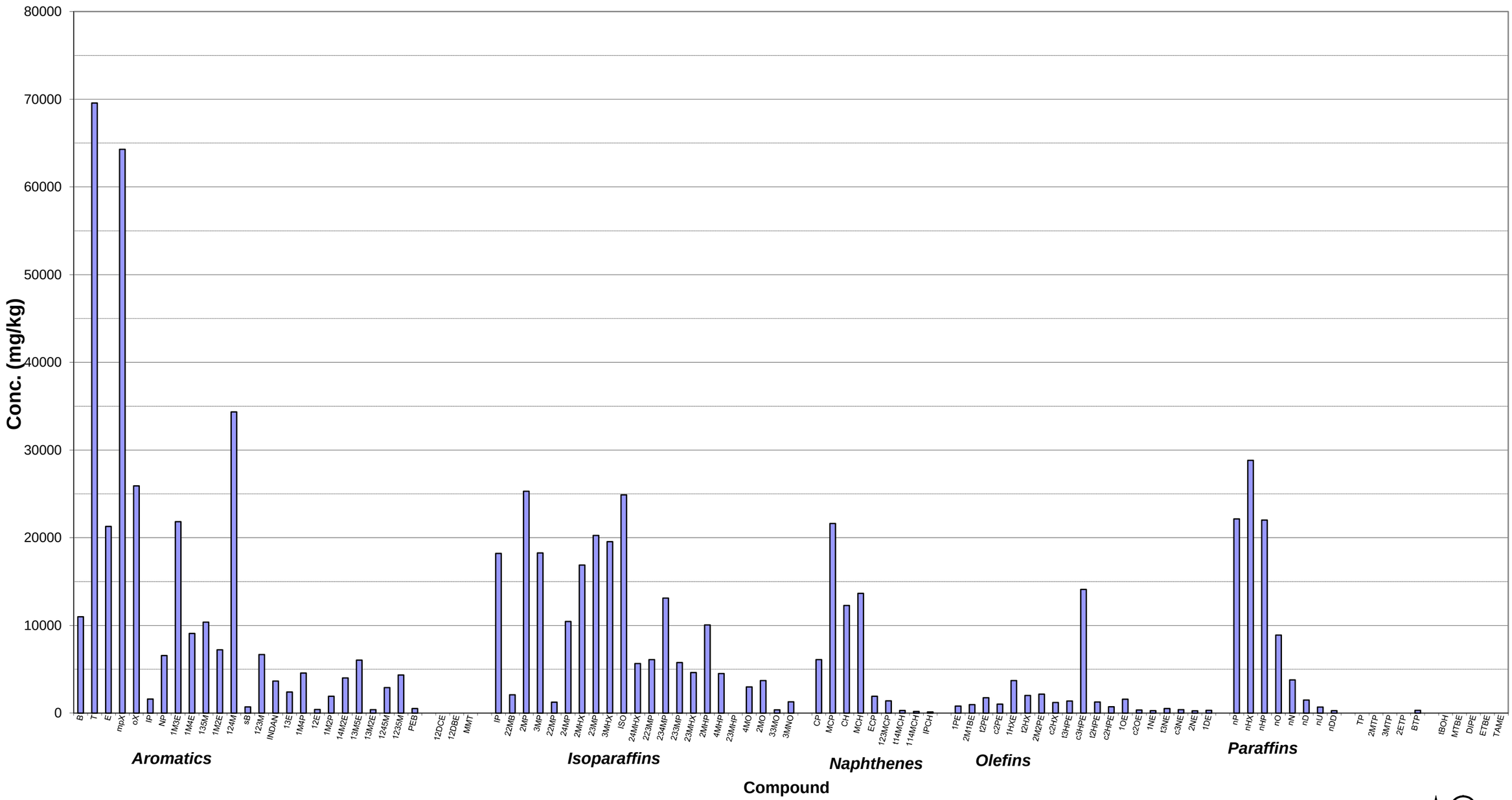
R-047A
MC20162-9



PCM-516A DUP
MC20162-1 DUP



APPENDIX D

Adjacent LUST Case File Review, Thomas O. Price Service Center,

by Cardno ERI

Cardno ERI
114698/114699

9185 S. Farmer Avenue
Suite 111
Tempe, AZ 85284
USA

Phone 480 813 4526
Fax 480 355 4694
www.cardno.com

www.cardnoeri.com

March 13, 2014
Cardno ERI 041300.R06

Mr. Richard Byrd
City of Tucson – Environmental Services
P.O. Box 27210
Tucson, Arizona 85726-7210

SUBJECT **Adjacent LUST Case File Review**
Thomas O. Price Service Center
4004 South Park Avenue, Tucson, Arizona 85714
Facility ID: 0-005160, LUST No. 0767.01-.05

INTRODUCTION

At the request of City of Tucson – Environmental Services (COT-ES), Cardno ERI conducted a file review on four leaking underground storage tank (LUST) sites adjacent to Price Service Center (PSC) monitoring well WR-220A. The purpose of the file review was to identify potential sources that could contribute to the liquid phase hydrocarbon (LPH) observed in groundwater monitoring well WR-220A. An adjacent LUST case area map is provided on Figure 2.

LUST CASE SUMMARY

CHEVRON STATION #9-8175
1001 East Benson Highway
Tucson, Arizona 85713
Facility ID #0-001052, Closed LUST Numbers 4234.01 and .02

On December 11 and 12, 2013 Cardno ERI reviewed available reports, letters, and documentation for Chevron Station #9-8175, located at 1001 East Benson Highway, Tucson, Arizona, UST Facility ID #0-001052, closed LUST case numbers 4234.01 and 4234.02. A site map is provided on Figure 3.

- On October 25, 1995, during a station upgrade, Delta Environmental Consultants, Inc. (Delta) conducted soil sampling activities.
    - 35 soil samples were collected from beneath the dispensers, joints in the product piping, and at approximately 15 to 20 foot intervals at the product piping.
    - Sample depths ranged between 4 to 11 feet below ground surface (fbgs), and were analyzed for total recoverable petroleum hydrocarbons (TRPH), benzene, toluene, ethylbenzene, and total xylenes (BTEX).

  - Eight soil samples collected beneath the dispenser islands and product piping contained reportable concentrations of TRPH, with a maximum concentration of 250 milligrams per kilogram (mg/kg). One sample collected from the west corner of the UST field reported concentrations of toluene (0.084mg/kg), ethylbenzene (0.052mg/kg), and total xylenes (0.330mg/kg).
- On October 31, 1995, as a result of the excavation assessment, Delta reported a gasoline release to the Arizona Department of Environmental Quality (ADEQ).
- On November 1, 1995, ADEQ assigned LUST numbers 4234.01 (unleaded gasoline line – north area) and 4234.02 (unleaded gasoline line – south area), and requested additional information regarding the release within a site characterization report (SCR).
- On November 7, 1995, Delta conducted SCR soil sampling activities.
  - Four samples were collected from a horizontal distance of 5 to 10 feet from the release locations.
  - Sample depths ranged between 8 to 11 fbgs, and were analyzed for TRPH and BTEX.
  - TRPH and BTEX were not reported above laboratory reporting limits from the four samples collected.
- Based on the SCR Delta field activities, ADEQ closed the LUST case files on July 22, 1996.
- In June 1999, ATC Associates Inc. (ATC) removed the facility's waste oil UST, clarifier, hydraulic hoist, dispensers, and product piping.
  - 39 soil samples were collected during removal activities.
  - Sample depths ranged between 3 to 16 fbgs, and were analyzed for TRPH, total petroleum hydrocarbons (TPH), BTEX, volatile organic compounds (VOCs), and polynuclear aromatic hydrocarbons (PAHs).
  - Analytical results from the samples collected from below the waste oil UST and clarifier did not report TRPH, TPH, BTEX, VOCs, and PAHs above laboratory reporting limits.
  - Analytical results from the samples collected from below the clarifier did not report TRPH, TPH, BTEX, VOCs, and PAHs above laboratory reporting limits.
  - TRPH were detected above the laboratory reporting limits in some of the soil samples collected from beneath the hydraulic hoists; however TRPH were not reported above ADEQ's residential soil remediation levels (SRLs).
  - BTEX constituents were not reported above laboratory reporting limits in the soil samples collected beneath the dispensers. PAH constituents were reported in some of the soil samples collected beneath the dispenser; however they did not exceed their respective ADEQ SRLs.
- On June 3 through the 6, 2003, Secor International, Inc. (Secor) advanced 10 soil borings between 5 to 75 fbgs.
  - Two soil samples were selected from each soil boring, and were analyzed for TPH gasoline range organics (GRO) and BTEX.

  - Analytical results from the soil samples collected from the soil borings did not report TPH-GRO or BTEX above the laboratory reporting limits.
- On August 27, 2003, Secor conducted a baseline site assessment; which included, reviewing readily available reports, letters, documents, federal and state environmental databases, historical aerial photos, city directories, and conducting exploratory soil borings.
- On February 9, 2004, ADEQ sent a letter in reference to Secor's Baseline Site Assessment. ADEQ stated that, based on the information provided, it appears that soil and/or groundwater has not been impacted by UST regulated substances and ADEQ is not requesting any further action.

TEXACO STATION #60-351-0015
880 East Benson Highway
Tucson, Arizona 85713
Facility ID #0-004960, Closed LUST Number 5347.01

On December 11 and 12, 2013 Cardno ERI reviewed available reports, letters, and documentation for Texaco Station #60-351-0015, located at 880 East Benson Highway, Tucson, Arizona, UST Facility ID #0-004960, closed LUST case number 5347.01. A site map is provided on Figure 4.

- On October 21, 22, and 23, 2003, NorthShore Engineering, Inc. (NorthShore) advanced nine soil borings between 20 and 40 fbgs.
  - 51 soil samples were collected from the 9 soil borings (NS-1 through NS-9) and were analyzed for TPH, BTEX, PAHs, and hydrocarbons C10 to C32 diesel and oil range (HC10-32).
  - Analytical results from the soil samples collected from the soil boring (NS-8) below the southernmost dispenser reported benzene and TPH above ADEQ SRLs between 25 and 40 fbgs.
  - BTEX, TPH, and HC10-32 were not reported above the laboratory reporting limits in the 8 remaining soil borings.
  - On November 11, 2003, NorthShore submitted a release reporting form to ADEQ confirming a release.
- On December 5, 2003, ADEQ assigned LUST number 5347.01 related to a gasoline release from a fuel dispenser, and requested additional information regarding the release within a SCR.
- On April 28, 29, and 30, 2004, NorthShore drilled and sampled five additional soil borings (NS-10 through NS-14) to determine the vertical and horizontal extent of the release.
  - Soil borings were drilled approximately 18-inches to 10-feet away from the reported release location, to establish the horizontal extent of the release; and soil borings were advanced to approximately 60 fbgs, to establish the vertical extent of the release.
  - 24 soil samples were collected from the 5 soil borings and were analyzed for BTEX, TPH, and HC10-32.

  - BTEX was reported above laboratory reporting limits in soil boring NS-10; located approximately 18-inches from the initial soil boring NS-8.
  - Soil boring NS-10 reported, BTEX and HC10-32 at 40 fbgs; total xylenes at 45 fbgs; BTEX at 50 fbgs; benzene at 55 fbgs; and no BTEX analytes were detected above laboratory reporting limits at 60 fbgs.
  - BTEX, TPH, and HC10-32 were not reported above laboratory reporting limits in the remaining 4 soil borings.
- On December 22, 2004, ADEQ approved the SCR and determined that the full extent and degree of contamination has been adequately characterized.
- On September 21 and 30, 2005, NorthShore conducted a soil vapor extraction (SVE) pilot test, to evaluate the effectiveness of SVE as a remedial strategy. Based on the vacuum and flow rates measured during the pilot test, NorthShore determined SVE would be an effective soil remediation.
- In 2009 and the first quarter of 2010, URS Corporation (URS) supervised the installation and startup of the SVE remediation equipment.
  - On April 28, 2010, URS started the SVE system and collected vapor samples. Initial samples reported petroleum hydrocarbons at 4,190 parts per million (ppmv).
  - On July 29, 2011, URS collected vapor samples to remain in compliance with the air permit; the petroleum hydrocarbons were reported at 67 ppmv.
  - Approximately 1,882 pounds of petroleum hydrocarbons were removed from April, 2010 to July, 2011.
- Based on the reduced levels of petroleum hydrocarbons, URS conducted soil closure boring and sampling activities on August 29, 2011.
  - The confirmation boring (CB-1) was drilled approximately 5-feet south of boring NS-10.
  - CB-1 was advanced to 75 fbgs and samples were collected at 5 foot intervals, and were ananlyzed for VOCs and PAHs.
  - Analytical results indicated concentrations above ADEQ SRLs, at depths of 20, 25, and 30 fbgs, for the following VOC constituents: ethylbenzene, naphthalene, n-propylbenzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and total xylenes.
- Based on the results from the soil confirmation boring, URS used the Johnson & Ettinger (J&E) model, and evaluated the human health risk resulting from potential vapor intrusion to indoor air. The J&E model predicted an unacceptable health risk.
- On November 22, 2011, URS met with ADEQ to discuss the results of the confirmation soil boring and pathways toward closure in lieu of active remediation. The results of the meeting established that soil vapor sampling could be used to evaluate the risk of human health associated with vapor intrusion to indoor air.
- On September 14, 2012, URS supervised the advancement of two soil borings, and completed the borings as nested vapor monitoring wells (VP-1 and VP-2).

  - Soil samples were collected at 5, 10, 15, 17.5, and 20 fbgs, and were analyzed for VOCs. VOCs were not reported above laboratory reporting limits.
  - Upon completion of the nested vapor monitoring well VP-1, four soil vapor sampling probes were installed at 5, 10, 15, an 20 fbgs; three soil vapor sampling probes were installed at 7.5, 12.5, and 17.5 fbgs in nested vapor monitoring well VP-2.
- On September 18, 2012, URS conducted soil vapor sampling and collected nine soil vapor samples for VOCs.
  - VOCs were detected above laboratory reporting limits at 5 fbgs in nested vapor monitoring well VP-1.
- Based on the results from the soil confirmation boring (CB-1) and the soil vapor monitoring results, URS used the J&E model and re-evaluated the human health risk resulting from potential vapor intrusion to indoor air.
  - The J&E model indicated:
    - The conservative maximum cancer risk associated with the VOCs detected, including petroleum hydrocarbons and chlorinated solvents, do not pose a threat to human health.
    - Indoor air does not pose a threat to human health at the Site.
  - Based on the results of the J&E evaluation, URS recommended risk-based LUST case closure.
- On April 30, 2013, ADEQ sent a letter to Shell Oil Products US, in reference to URS's *Tier III Risk Assessment.* ADEQ indicated that the evaluation was deficient and the Site specific conditions related to the UST release have not been fully met.
- On August 27, 2013, URS submitted a response to ADEQ's *LUST Case Closure Request Disapproval* letter. Per ADEQ's request, URS addressed ADEQ's concerns and presented additional information and evidence related to the potential risks associated with the UST release.
- On September 17, 2013, ADEQ sent a letter to Shell Oil Products US, in reference to URS's *Response to Tier III Disapproval Letter, dated April 30, 2013.* ADEQ indicated that the UST corrective action requirements had been satisfied and the LUST case has been closed.

ARCO STATION #5904
3601 South Park Avenue
Tucson, Arizona 85713
Facility ID #0-008218, Closed LUST Number 5275.01

On February 13 and 14, 2014 Cardno ERI reviewed available reports, letters, and documentation for Arco Station #5904, located at 3601 South Park Avenue, Tucson, Arizona, UST Facility ID #0-008218, closed LUST case number 5275.01. A site map is provided on Figure 4.

- On June 20, 21, and 22, 2001, Secor International Incorporated (Secor) advanced ten 35-degree angled soil borings between 23 and 45 fbgs.

  - 18 soil samples were collected from the 10 borings (SB1 through SB10) and were analyzed for TPH, BTEX, and MTBE.
  - Analytical results from the soil samples collected from the borings (SB5 through SB8) below the UST field reported MTBE above the laboratory reporting limits. MTBE was not reported above the laboratory reporting limits in the remaining five soil borings.
  - BTEX and TPH were not reported above the laboratory reporting limits in the 10 borings.
- On July 27, 2001, ADEQ sent a letter to ARCO Products Company requesting a release confirmation report
- On August 7, 2001, Secor submitted a *Release Confirmation and 14-Day* reporting form to ADEQ confirming a release.
- On February 25, 2002, ADEQ assigned LUST number 5275.01 (gasoline UST basin) and requested additional information regarding the release.
- On March 12, 2002, ADEQ sent a letter to ARCO Products closing the LUST case. ADEQ closed the LUST case file for the following reasons:
  - The lateral extent of soil contamination was adequately defined to a radius of approximately 25-feet and less than 40-feet bgs around the release location.
  - Depth of groundwater beneath the facility was estimated or measured to be 105-feet bgs.
  - Soil sampling data indicate that remaining contaminant concentrations are at or below the residential soil remediation levels.

UNOCAL SERVICE STATION #3888
821 East Benson Highway
Tucson, Arizona 85713
Facility ID #0-005278, Closed LUST Numbers 0632.01 through 0632.03

On February 13 and 14, 2014 Cardno ERI reviewed available reports, letters, and documentation for Arco Station #5904, located at 821 East Benson Highway, Tucson, Arizona, UST Facility ID #0-005278, closed LUST case numbers 0632.01 through 0632.03. A site map is provided on Figure 3.

- On August 10 through 12, 1988, Harding Lawson Associates (HLA) conducted a “Phase I investigation” advancing five soil borings (B-1 through B-5) between 20 and 100 fbgs.
  - 10 soil samples were selected for analysis based on PID readings and sample depth from borings B-2, B-3, B-4, and B-5. The soil samples were analyzed for TPH, BTEX, and 8 RCRA metals.
  - Analytical results from the soil samples collected from borings B-3 and B-4, located adjacent to the USTs reported BTEX and TPH above the laboratory reporting limits. The highest concentration of BTEX and TPH were reported at approximately 30 and 50 fbgs.
  - Benzene was reported above ADEQ’s SRLs in the six samples collected from borings B-3 and B-4, at depths ranging 30 to 100 fbgs.

- Toluene, ethylbenzene, and total xylenes were reported above ADEQ's SRLs from borings B-3 and B-4 at depths of 30 and 50 fbgs.
- BTEX and TPH were not reported above the laboratory reporting limits in the samples collected from borings B-2 and B-5.
- One boring (B-1) was advanced near the waste oil UST, to approximately 30 fbgs. Arsenic, cadmium, lead, and mercury were detected above the laboratory reporting limits at 15 and 30 fbgs.

- On December 1 through 17, 1988, HLA conducted a "Phase II investigation" advancing five soil borings (B-6, B-7, B-8, B-10, and B-11) between 20 and 110 fbgs, to further delineate the lateral and vertical extent of the release near the UST area.
  - 10 soil samples and one groundwater sample were analyzed for TPH and BTEX.
  - Soil boring B-6 did not report BTEX and TPH above the laboratory reporting limits in the soil sample collected at 20 fbgs.
  - Soil boring B-7 was used to evaluate the vertical extent of the soil contamination in the UST area, and was advanced to 110 fbgs. Groundwater was encountered at approximately 103 fbgs and a sample was collected.
    - BTEX and TPH were detected above the laboratory reporting limits in the soil samples collected at 80 and 100 fbgs.
    - Benzene was detected above the ADEQ's SRLs in the soil samples collected at 80, 100, and 110 fbgs. Toluene, ethylbenzene, total xylenes, and TPH were not reported above the laboratory reporting limits in the sample collected at 110 fbgs.
    - BTEX and TPH were detected above the laboratory reporting limits in the groundwater sample collected. Benzene, toluene, and total xylenes were reported above the Aquifer Water Quality Standards (AWQS) in the groundwater sample collected.
    - The boring was converted into a vapor recovery well for remediation activities.
  - Benzene was reported above ADEQ's SRLs in the soil samples collected from soil boring B-11 at 75 and 100 fbgs.
- On February 28, 1991, HLA submitted a report to ADEQ documenting the "Phase III investigation". The following activities were conducted during the investigation:
  - On February 5 through 9, 1990, three groundwater monitoring wells (MW-1, MW-2, and MW-3) were installed to approximately 147 fbgs.
  - On February 9, 1990, one vapor recovery well (B-12) was installed to 100 fbgs.
  - Borings MW-1, MW-2, and MW-3 were converted to groundwater monitoring wells, and boring B-12 was converted into a vapor recovery well.
  - Monthly water level measurement and free product thickness were made from February 1990 through January 1991; free product was not observed in the three monitoring wells.

  - The average groundwater gradient from February 1990 through January 1991 is 0.004, and the groundwater flow direction varied approximately 180 degrees from northwest to southeast.
  - Quarterly groundwater monitoring and sampling events were conducted on February 20, May 25, August 30, and November 27, 1990. Groundwater samples were collected from the three monitoring wells and were analyzed for BTEX and TPH; laboratory analysis did not report BTEX and TPH above the laboratory detection limits.
- On April 29 through May 8, 1991, HLA removed the facility's two USTs, three dispensers, product piping, and waste oil UST.
  - Seven soil samples were collected during removal activities; three samples from the USTs (UST-1, UST-2, and UST-3); one sample from the waste oil UST (WO-1); and three samples from the dispenser islands (1-so. Disp. Island, 2-ea. Disp. Island, and 3-no. disp. Island).
  - Sample depths ranged between 2 to 15 fbgs, and were analyzed for TPH and BTEX.
  - Analytical results from the samples collected from below UST-1, UST-2, WO-1, and the three dispensers did not report TPH and BTEX above the laboratory reporting limits.
  - Analytical results from the sample collected from UST-2 reported TPH and BTEX above ADEQ's SRLs.
- On February 12, 1992, HLA conducted a SVE pilot test, to evaluate the effectiveness of SVE as a remedial strategy. Based on the vacuum and flow rates measured during the pilot test, HLA determined SVE would be an effective soil remediation.
- On October 4, 1995, HLA removed the facility's clarifier and two hydraulic hoists, in conjunction with the removal of surface structures.
  - Three soil samples were collected during removal activities and were analyzed for VOCs, TRPH, RCRA metals, and polychlorinated biphenyls (PCBs).
  - Analytical results collected from the clarifier and hoists were not reported above the laboratory detection limits.
- On July 26, 1996, HLA submitted a SCR to ADEQ documenting the "Phase I, II, and III investigations" and additional soil boring activities conducted from February 12 through 14, 1996. The following activities were conducted during the SCR investigation:
  - Five soil borings (B-13 through B-17) were advanced to approximately 116 fbgs, samples were collected in 5-feet intervals, and were analyzed for TRPH and BTEX.
  - Analytical results from the soil samples collected at approximately 90 to 105 fbgs reported benzene above ADEQ's SRLs, in borings B-14, B-15, and B-17.
- On August 9, 1996, ADEQ assigned new LUST numbers 0632.01 through .03 to the gasoline USTs area, the east gasoline fuel line area, and the 280-gallon used oil UST.
- On August 13, 1996, ADEQ approved the SCR and determined that the full extent and degree of contamination has been adequately characterized.

- In December 1998, Basin and Range Hydrogeologists, Inc. (B&R) prepared and submitted an application for an Air Quality Control Permit to ADEQ. In 1999 B&R supervised the installation and startup of mobile SVE remediation equipment.
    - On October 20, 1999, B&R started the mobile SVE system.
    - On October 21, 1999, B&R collected initial vapor samples. Samples reported petroleum hydrocarbons at 2,700 ppmv in the process stream.
    - On October 29, 1999 and November 2, 1999, additional compliance samples were collected. Samples reported petroleum hydrocarbons at 1,300 ppmv in the process stream for both sampling events.
    - To improve the efficiency of Site remediation, B&R introduced oxygen into MW-1 with two different remediation strategies:
        - B&R injected approximately 27 gallons of hydrogen peroxide from October 2001 to April 2002.
        - B&R also introduced oxygen to MW-1 through the in-situ Submerged Oxygen Curtain (iSOC) device. The iSOC device transferred approximately 12 pounds of oxygen to the groundwater from April 2002 to June 2002.
    - The SVE system removed approximately 4,020 pounds of gasoline (670 gallons), from October 1999 through April 2002.
    - The SVE system was shut down on June 19, 2002
- On April 12, 2001, B&R submitted a remediation progress report for the third and fourth quarter of 2000 to ADEQ documenting air/groundwater sampling activities, and additional soil boring activities conducted from September 18 through 20, 2000. The following activities were conducted during the additional soil investigation:
    - Four soil borings (C1 through C4) were advanced to approximately 110 fbgs, samples were collected in 10-feet intervals, and were analyzed for BTEX.
    - Analytical results reported benzene above ADEQ's SRLs in boring C1 at approximately 110 fbgs, and in boring C2 at approximately 100 fbgs.
    - Two additional SVE wells (VW-3 and VW-4) were installed in the vicinity of soil borings C1 and C2 on December 18 through 20, 2000.
- On March 20 through 21, 2002, B&R assessed the performance of SVE remediation activities by collecting additional soil borings in the vicinity of borings C1 and C2. The following activities were conducted during the additional soil investigation:
    - Two soil borings (C5 and C6) were advanced to approximately 110 fbgs, samples were collected in 5-feet intervals starting at 95 fbgs, and were analyzed for BTEX.
    - The two borings did not report BTEX above the laboratory detection limits in the samples collected from 95 to 110 fbgs.
    - Two additional SVE wells (VW-3 and VW-4) were installed in the vicinity of soil borings C1 and C2 on December 18 through 20, 2000.

- In June and July, 2002 B&R conducted two consecutive purge groundwater sampling events. Based on the laboratory test results, samples did not contain target analytes at concentrations above ADEQ's AWQS.
- Based on analytical results from soil, air, and groundwater sampling activities conducted in 2002, B&R submitted a remediation progress report and case closure request to ADEQ on August 20, 2002.
- On September 30, 2002, ADEQ sent a letter to Unocal Corporation. ADEQ stated that, based on the information provided, investigative and remedial requirements have been satisfied and the LUST case file has been closed.

LIMITATIONS

For documents cited that were not generated by Cardno ERI, the data taken from those documents is used "as is" and is assumed to be accurate. Cardno ERI does not guarantee the accuracy of this data and makes no warranties for the referenced work performed nor the inferences or conclusions stated in these documents.

This document and the work performed have been undertaken in good faith, with due diligence and with the expertise, experience, capability, and specialized knowledge necessary to perform the work in a good and workmanlike manner and within all accepted standards pertaining to providers of environmental services in Arizona at the time of investigation. No soil engineering or geotechnical references are implied or should be inferred. The evaluation of the geologic conditions at the site for this investigation is made from a limited number of data points. Subsurface conditions may vary away from these data points.

Please call Mr. Matt Tomanek, Cardno's Senior Consultant for this site, at (602) 502-7625 with any questions regarding this report.

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Enclosures:

References

Figure 1	Site Vicinity Map
Figure 2	Adjacent LUST Case Area Map
Figure 3	UST Site Map, Facilities 0-005278 and 0-001052
Figure 4	UST Site Map, Facilities 0-004960 and 0-008218

REFERENCES

Delta. February 23, 1996. *Site Characterization Report Form, Chevron Products Company, Chevron Station 9-8175, 1001 East Benson Highway, Tucson, Arizona, ADEQ Facility ID 0-001052, ADEQ LUST No. 4234.01 and .02; UST Facility 0-001052.* Delta No. H095-808.

ADEQ. July 22, 1996. *Case Closures, Facility ID 0-001052, Pima County; Chevron Station 9-8175, 1001 East Benson Highway, Tucson, Arizona 85713; LUST No. 4234.01 and .02.*

Secor. August 27, 2003. *Baseline Site Assessment, Chevron Service Station No. 9-8175, 1001 East Benson Highway, Tucson, Arizona.* Secor job no. 04CH.98175.00.

ADEQ. February 9, 2004. *Baseline Site Assessment, Facility ID 0-001052, Pima County; Chevron Station 9-8175, 1001 East Benson Highway, Tucson, Arizona 85713.*

NorthShore. December 2, 2003. *Phase II Environmental Site Assessment, Texaco Station 60-351-0015, 880 East Benson Highway, Tucson, Arizona 85713; ADEQ Facility ID #0-004960.* Shell SAP # 121629.

ADEQ. December 5, 2003. *Notification of Case File Number Information and Request for Submission of the Release Status Report (14-Day Report) and Site Characterization Report ; LUST File #5347.01, Facility ID #0-004960, Pima County ; South gasoline fuel dispenser, Texaco Station #60-351-0015, 880 East Benson Highway, Tucson, Arizona 85713.*

NorthShore. August 31, 2004. *Site Characterization Report, Former Texaco Station #60-351-0015, 880 East Benson Highway, Tucson, Arizona 85713; ADEQ Facility ID #0-004960, ADEQ LUST #5347.01.* Shell SAP # 121629.

ADEQ. December 22, 2004. *Site Characterization Report (SCR) Approval and Remedial Response Request ; LUST File #5347.01, Facility ID #0-004960, Pima County ; South gasoline fuel dispenser, Texaco Station #60-351-0015, 880 East Benson Highway, Tucson, Arizona 85713.*

NorthShore. April 25, 2006. *Vapor Extraction Pilot Test Report, Former Texaco Station #60-351-0015, 880 East Benson Highway, Tucson, Arizona 85713; ADEQ Facility ID #0-004960, ADEQ LUST #5347.01.* Shell SAP # 121629.

ADEQ. May 10, 2006. *Option to Achieve LUST Closure; LUST File #5347.01, Facility ID #0-004960, Pima County ; South gasoline fuel dispenser, Texaco Station #60-351-0015, 880 East Benson Highway, Tucson, Arizona 85713.*

URS. May 7, 2010. *Summary of Soil Vapor Extraction (SVE) Installation and Start-Up Operation, Former Texaco Station #60-351-0015, 880 East Benson Highway, Tucson, Arizona 85713; ADEQ Facility ID #0-004960, ADEQ LUST #5347.01.* Shell SAP # 121629.

URS. December 21, 2011. *Third Quarter 2011 Periodic Site Status Report, Former Texaco Station #60-351-0015, 880 East Benson Highway, Tucson, Arizona 85713; ADEQ Facility ID #0-004960, ADEQ LUST #5347.01.* URS job no. 49194494.

URS. March 4, 2013. *Tier 3 Risk Assessment, Former Texaco Station #60-351-0015, 880 East Benson Highway, Tucson, Arizona 85713; ADEQ Facility ID #0-004960, ADEQ LUST #5347.01.* URS job no. 49233400.

ADEQ. April 30, 2013. *LUST Case Closure Request Disapproval; LUST File #5347.01, Facility ID #0-004960, Pima County ; South gasoline fuel dispenser, Texaco Station #60-351-0015, 880 East Benson Highway, Tucson, Arizona 85713.*

URS. August 27, 2013. *Response to Tier 3 Disapproval Letter Dated April 30, 2013, Former Texaco Station #60-351-0015, 880 East Benson Highway, Tucson, Arizona 85713; ADEQ Facility ID #0-004960, ADEQ LUST #5347.01.* URS job no. 49194432.

ADEQ. September 17, 2013. *LUST Case Closure Approval; LUST File #5347.01, Facility ID #0-004960, Pima County ; South gasoline fuel dispenser, Texaco Station #60-351-0015, 880 East Benson Highway, Tucson, Arizona 85713.*

Secor. August 7, 2001. *Release Confirmation and 14-Day Report, ARCO Facility No. 5409, 3601 South Park Avenue, Tucson, Arizona 85713; ADEQ Facility ID #0-008218.* Secor Project No. 018.68410.

ADEQ. July 27, 2001. *Request for Submission of 14-Day and Release Confirmation Reports; LUST File #Not Applicable, Facility ID #0-008218, Pima County; Diligence sampling indicating elevated levels of MTBE, ARCO AM/PM 5904, 3601 South Park Avenue, Tucson, Arizona 85713.*

ADEQ. February 25, 2002. *Notification of Case File Number Information and Request for Additional Information; LUST File #5275.01, Facility ID #0-008218, Pima County; Gasoline UST basin, ARCO 5904, 3601 South Park Avenue, Tucson, Arizona 85713.*

ADEQ. May 12, 2002. *Case Closure; LUST File #5275.01, Facility ID #0-008218, Pima County; Gasoline UST basin, ARCO 5904, 3601 South Park Avenue, Tucson, Arizona 85713.*

HLA. September 28, 1988. *Site Investigation, Unocal Service Station 3888, Tucson, Arizona.* HLA Job No. 00382,140.14.

HLA. July 7, 1989. *Phase II – Site Investigation, Unocal Service Station No. 3888, Benson Highway and Park Avenue, Tucson, Arizona.* HLA Job No. 00382,165.14.

HLA. February 28, 1991. *Phase III – Site Investigation, Unocal Service Station No. 3888, Benson Highway and Park Avenue, Tucson, Arizona.* HLA Job No. 00382,325.14.

HLA. March 4, 1991. *Quarterly Ground-Water Report / Phase III Site Investigation, Unocal Service Station No. 3888, Park Avenue/Benson Highway, Tucson, Arizona.* ADEQ File No. 4715.632.

HLA. September 26, 1991. *Underground Storage Tank System Removal Monitoring, Unocal Service Station No. 3888, Benson Highway and Park Avenue, Tucson, Arizona.* HLA Job No. 00382,542.14.

HLA. May 27, 1992. *Soil Venting Pilot Test, Unocal Service Station No. 3888, Benson Highway and Park Avenue, Tucson, Arizona.* HLA Job No. 00382,591.14.

ADEQ. April 13, 1995. *Review of Site Investigation and Remedial Activities; LUST File #4715.0632, Facility ID #0-005278, Pima County; Unocal Station #3888, 821 E. Benson Hwy, Tucson, Arizona 85713.*

HLA. July 26, 1996. *Site Characterization Report, Unocal Service Station Number 3888, 821 Benson Highway, Tucson, Arizona 85713; ADEQ Facility ID #0-005278, ADEQ LUST #0632.01.* HLA Project No. 34403-1.

ADEQ. August 9, 1996. *Case File Number Assignments for Facility's Multiple UST Releases; New LUST Numbers; 0632.01 – Gasoline USTs area, 0632.02 – East gasoline fuel line area, and 0632.03 – 280 gallon used oil UST; Facility ID #0-005278, Pima County; Unocal Station #3888, 821 East Benson Highway, Tucson, Arizona 85713.*

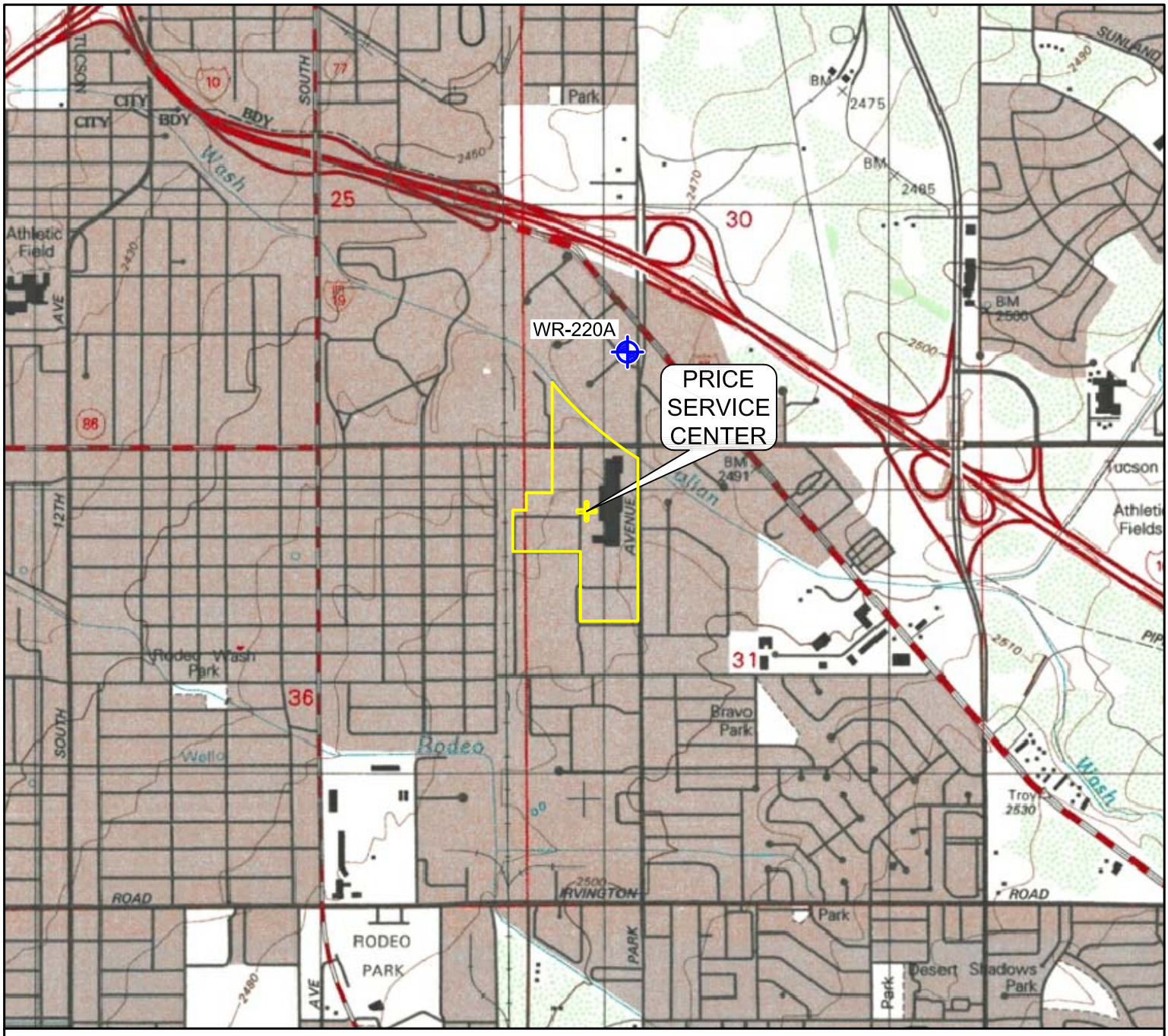
ADEQ. August 13, 1996. *Site Characterization Report Evaluation; LUST File No 0632.01, Facility ID #0-005278; Unocal Station No 3888, 821 Benson Highway, Tucson, Arizona.*

B&R. December 1, 1999. *Initial Compliance Testing Report; ADEQ Permit Number #1000973 ; Former Unocal Service Station No 3888, 821 East Benson Highway, Tucson, Arizona; Facility ID #0-005278, LUST File ID #0632.01.*

B&R. March 29, 2002. *Remediation Progress Report Third and Fourth Quarters 2001, Former Unocal Service Station 3888, 821 East Benson Highway, Tucson, Arizona; Facility ID #0-005278, LUST File No 0632.01 through 0632.03.*

B&R. August 20, 2002. *Remediation Progress Report and Case Closure Request January through July 2002, Former Unocal Service Station 3888, 821 East Benson Highway, Tucson, Arizona; Facility ID #0-005278, LUST File No 0632.01 through 0632.03.*

ADEQ. September 30, 2002. *LUST Case Closure; LUST File #0632.01 through 0632.03, Facility ID #0-005278, Pima County; Unocal #3888, 821 Benson Highway, Tucson, Arizona 85713*



LEGEND

City of Tucson groundwater monitoring well

SOURCE: Modified from a map provided by USGS 7.5 minute series

N

APPROXIMATE SCALE

0 1,700 3,400 FEET

FN 041300TOPO

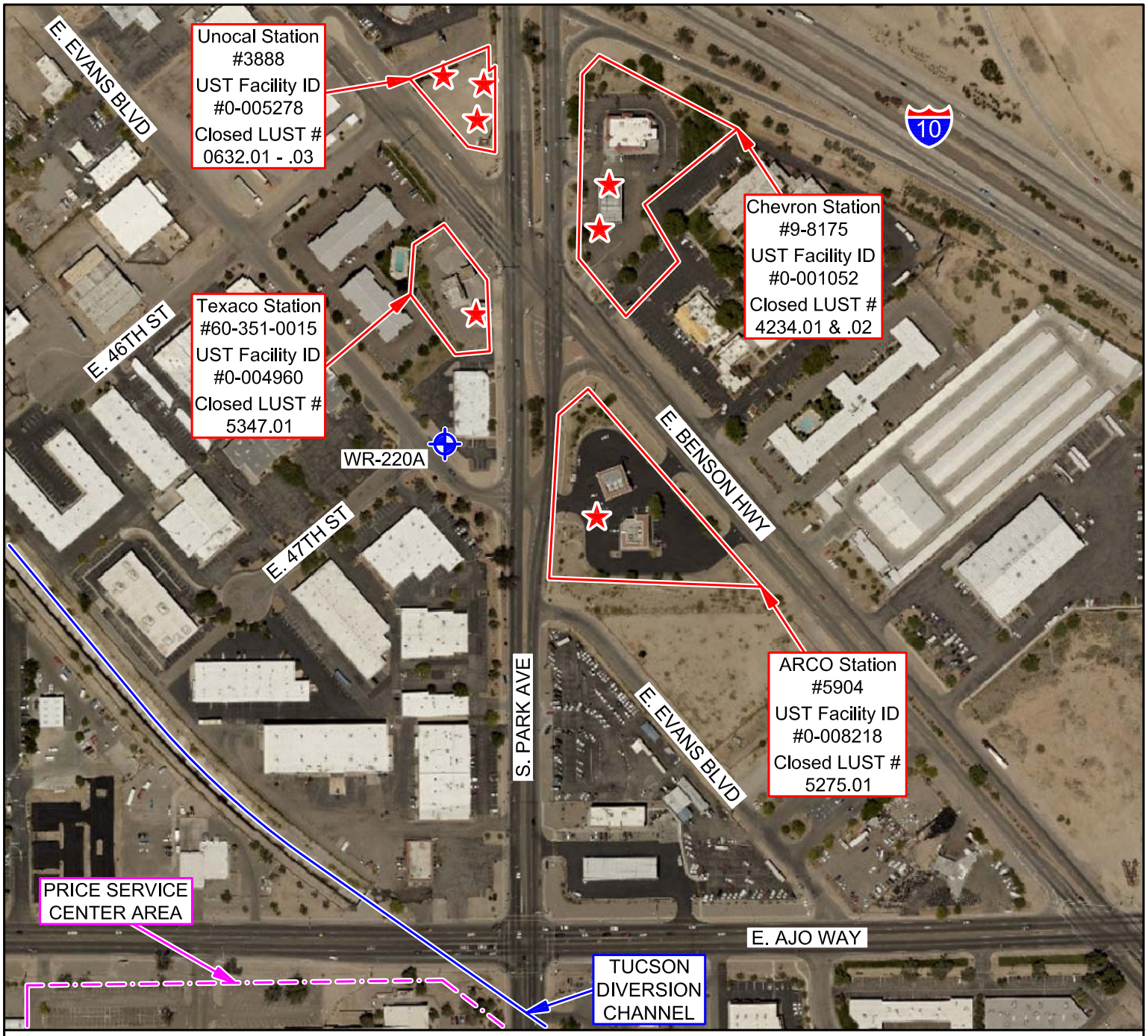
Cardno ERI
Shaping the Future

SITE VICINITY MAP

THOMAS O. PRICE SERVICE CENTER
4004 South Park Avenue
Tucson, Arizona

PROJECT NO.
041300

FIGURE
1



LEGEND

- City of Tucson groundwater monitoring well
- Approximate LUST case area

N

APPROXIMATE SCALE

0 300 600 FEET

SOURCE: Modified from a map provided by Pima County

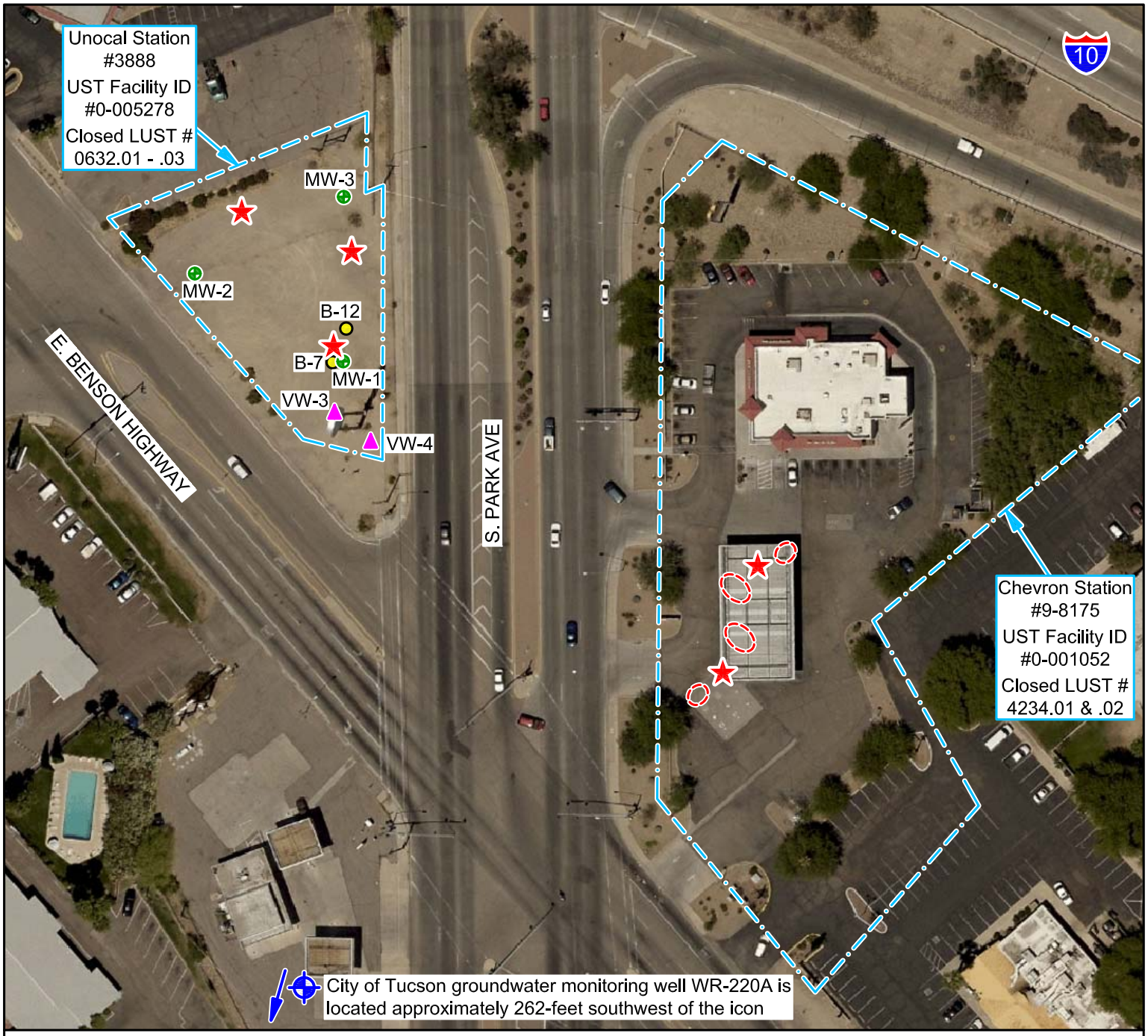
Cardno ERI
Shaping the Future

ADJACENT LUST CASE AREA MAP

THOMAS O. PRICE SERVICE CENTER
4004 South Park Avenue
Tucson, Arizona

PROJECT NO.
041300

FIGURE
2



LEGEND

- City of Tucson groundwater monitoring well
- Approximate LUST case area
- Approximate areas of concern
- Approximate off-site groundwater monitoring locations
- Approximate boring locations
- Approximate vapor monitoring well

N

APPROXIMATE SCALE

0 90 180 FEET

SOURCE: Modified from a map provided by Pima County

Cardno ERI
Shaping the Future

UST SITE MAP
FACILITIES 0-005278 and 0-001052

THOMAS O. PRICE SERVICE CENTER
4004 South Park Avenue
Tucson, Arizona

PROJECT NO.
041300

FIGURE
3

LEGEND

- City of Tucson groundwater monitoring well
- Approximate LUST case area
- Approximate boring locations
- Approximate vapor monitoring well

N

APPROXIMATE SCALE

0 90 180 FEET

SOURCE: Modified from a map provided by Pima County

Cardno ERI
Shaping the Future

UST SITE MAP
FACILITIES 0-004960 and 0-008218

THOMAS O. PRICE SERVICE CENTER
4004 South Park Avenue
Tucson, Arizona

PROJECT NO.
041300

FIGURE
4

APPENDIX E

Groundwater Monitoring Analysis Matrix and

Groundwater Field Sampling Sheets

APPENDIX E
MARCH 2013 ANNUAL GROUNDWATER ANALYTE SAMPLING LIST
CITY OF TUCSON, THOMAS O. PRICE SERVICE CENTER
LUST FILE NO. 0767.01-0767.05, ADEQ FACILITY ID NO. 0-005160

	Field Parameter Measurements					Laboratory Analyses		
Well ID	DTW/ DTP	Dissolved Oxygen	ORP	Turbidity	pH	BTEX	MTBE	Full VOC List
Shallow-Zone Monitoring Wells:								
R-012A	X	X	X	X	X	X	X	NA
R-013A	X	X	X	X	X	X	X	NA
R-016A	X	X	X	X	X	X	X	NA
R-017A	X	X	X	X	X	X	X	NA
R-018A	X	X	X	X	X	X	X	NA
R-019A	X	X	X	X	X	X	X	NA
R-020A	X	X	X	X	X	X	X	NA
R-021A	X	X	X	X	X	X	X	NA
R-022A	X	X	X	X	X	X	X	NA
R-027A	X	X	X	X	X	X	X	NA
R-028A	X	X	X	X	X	X	X	NA
R-029A	X	X	X	X	X	X	X	NA
R-030A	X	X	X	X	X	X	X	NA
R-031A	X	X	X	X	X	X	X	NA
R-032A	X	X	X	X	X	X	X	NA
R-033A	X	X	X	X	X	X	X	NA
R-034A	X	X	X	X	X	X	X	NA
R-035A	X	X	X	X	X	X	X	NA
R-036A	X	X	X	X	X	X	X	NA
R-037A	X	X	X	X	X	X	X	NA
R-044A	X	X	X	X	X	X	X	NA
R-045A	X	X	X	X	X	X	X	NA
R-046A	X	X	X	X	X	X	X	NA
R-047A	X	X	X	X	X	X	X	NA
R-048A	X	X	X	X	X	X	X	NA
R-049A	X	X	X	X	X	X	X	NA
R-050A	X	X	X	X	X	X	X	NA
R-051A	X	X	X	X	X	X	X	NA
R-098A	X	X	X	X	X	X	X	NA
R-099A	X	X	X	X	X	X	X	NA
WR-208A	X	X	X	X	X	X	X	NA
WR-209A	X	X	X	X	X	X	X	NA
WR-210A	X	X	X	X	X	X	X	NA
WR-211A	X	X	X	X	X	X	X	NA
WR-212A	X	X	X	X	X	X	X	NA
WR-213A	X	X	X	X	X	X	X	NA
WR-214A	X	X	X	X	X	X	X	NA
WR-215A	X	X	X	X	X	NA	NA	X
WR-219A	X	X	X	X	X	NA	NA	X
WR-220A	X	X	X	X	X	NA	NA	X
WR-221A	X	X	X	X	X	X	X	NA
WR-222A	X	X	X	X	X	NA	NA	X
WR-223A	X	X	X	X	X	NA	NA	X
WR-224A	X	X	X	X	X	NA	NA	X
WR-225A	X	X	X	X	X	X	X	NA
WR-296A	X	X	X	X	X	X	X	NA
WR-298A	X	X	X	X	X	X	X	NA
PCM-506A	X	X	X	X	X	X	X	NA
PCM-507A	X	X	X	X	X	X	X	NA
PCM-508A	X	X	X	X	X	X	X	NA
PCM-508B	X	X	X	X	X	X	X	NA
PCM-509A	X	X	X	X	X	X	X	NA
PCM-509B	X	X	X	X	X	X	X	NA
PCM-510A	X	X	X	X	X	X	X	NA
PCM-510B	X	X	X	X	X	X	X	NA
PCM-511A	X	X	X	X	X	X	X	NA
PCM-512A	X	X	X	X	X	X	X	NA
PCM-516A	X	X	X	X	X	X	X	NA
PCM-517A	X	X	X	X	X	X	X	NA
PCM-534A	X	X	X	X	X	X	X	NA
PCM-535A	X	X	X	X	X	X	X	NA

Deep-Zone Monitoring Wells:								
WR-216A	X	X	X	X	X	X	X	NA
WR-217A	X	X	X	X	X	NA	NA	X
WR-218A	X	X	X	X	X	X	X	NA
WR-227A	X	X	X	X	X	NA	NA	X
WR-228A	X	X	X	X	X	X	X	NA
WR-229A	X	X	X	X	X	X	X	NA
WR-230A	X	X	X	X	X	X	X	NA
WR-231A	X	X	X	X	X	X	X	NA
WR-232A	X	X	X	X	X	X	X	NA
WR-233A	X	X	X	X	X	NA	NA	X
WR-235A	X	X	X	X	X	X	X	NA
Water Level Measurements Only:								
WR-295A	X	NA	NA	NA	NA	NA	NA	NA
WR-295B	X	NA	NA	NA	NA	NA	NA	NA
WR-296B	X	NA	NA	NA	NA	NA	NA	NA
WR-297A	X	NA	NA	NA	NA	NA	NA	NA

Notes:

Full VOC List = All reportable VOCs by EPA Method 8260B (over 60 compounds).
Where measurable product, no sample will be collected for water quality analyses.
DTP/DTW= Depth to Product/Depth to Water
ORP = Oxidation/Reduction Potential
BTEX = Benzene, Toluene, Ethylbenzene, Xylene
MTBE = Methyl tert-butyl ether
NA = Not Analyzed.
B wells =The deeper depth casing

= **No Sample.** Measureable product as of March 2013.
= **Wait to sample.** Return to sample 23-38 days from system being turn off on March 13, 2013.

Correction factor +0.72

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 140
D (diameter) 4
d factor 1.96

Well Name R-012A
Project Price Service Center
Date Apr 23, 2013
Field Personnel GB/JM
Weather SUNNY/WARM

Static Water Level 102.10 Time 12:40:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 25 1.5 38 2 51 2.5 64 3 74 3.5 87 4 100 4.5 113 5 126

Pump Time: Start
End
Total (min)

Meters and Type: ☒ YSI #1 ☐ YSI #2 ☐ YSI QS

Calibration Date: Apr 23, 2013

Parameters: *(Stable within)* +/-0.1 +/-3% +/-3% +/-10% +/-20 mv

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	25	1253	7.55	1088	26.86	3.90	36.4	-	42.2
1.5	38								
2	51								
2.5	64								
3	74								
3.5	87								
4	100								
4.5	113								
5	126								

Sampling:

Samples Collected by: George Bejarano Time Started: 12:50:00 Dup Time: Time Ended: 12:52:00

Transferred to: Relinquished by: George Bejarano Date Apr 23, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☒ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: SMPS TO TEST AMERICA.

Correction factor .72

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 140
D (diameter) 4
d factor

Well Name R-012A
Project Price Service Center
Date Mar 26, 2013
Field Personnel GB/JB
Weather sunny/warm

Static Water Level 102.08
Time 08:04:00
Totalizer: End
Start 0
Total (gal) 0
Sounder ID INT A

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 26, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	0831	6.99	1231	26.71	4.14	136.8		15.8
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker
Time Started:
Dup Time:
Time Ended:

Transferred to:
Relinquished by: Jerry Barker
Date

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: NO SAMPLE. Event voided by L. Ehman. Will resample after SVE has sat static for 28 days.

3/26/13

Correction factor +0.73

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 120
D (diameter) 4
d factor 1.96

Well Name R-013A

Project Price Service Center

Date Apr 23, 2013

Field Personnel GB/JM

Weather SUNNY/WARM

Static Water Level 102.64 Time 12:55:00

Totalizer: End
Start 0
Total (gal) 0

Sounder ID INT A

Discharge Rate(GPM)

Well Volumes (gallons):

1 11 1.5 17 2 23 2.5 29 3 34 3.5 40 4 46 4.5 52 5 58

Pump Time: Start
End
Total (min)

Meters and Type: [X] YSI #1 [ ] YSI #2 [ ] YSI QS

Calibration Date: Apr 23, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	11	1303	7.02	1086	28.28	5.23	-235.8	-	33.6
1.5	17								
2	23								
2.5	29								
3	34								
3.5	40								
4	46								
4.5	52								
5	58								

Sampling:

Samples Collected by: George Bejarano Time Started: 13:00:00 Dup Time: 13:02:00 Time Ended: 13:02:00

Transferred to: Relinquished by: George Bejarano Date Apr 23, 2013

Reason for Sampling: [ ] Monthly [ ] Quarterly [ ] Semi-Annual [X] Annual [X] Investigation

[X] **Duplicate** [ ] **GAC Treatment** [ ] **Grab Sample** [X] **Bail Sample**

Comments: SMPS TO TEST AMERICA. DUP TAKEN 1302.

Correction factor .49

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 120
D (diameter) 4
d factor

Well Name R-016A
Project Price Service Center
Date Mar 26, 2013
Field Personnel GB/JB
Weather sunny/warm

Static Water Level 101.86
Time 10:49:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 26, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	1104	7.75	782	27.66	4.04	98.3		2.11
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker
Time Started: 11:01:00
Dup Time:
Time Ended: 11:04:00

Transferred to:
Relinquished by: Jerry Barker
Date Mar 27, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Sample sent to TestAmerica.

3/26/13

Correction factor +0.64

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 110
D (diameter) 4
d factor 1.96

Well Name R-018A

Project Price Service Center

Date Apr 24, 2013

Field Personnel GB/JB

Weather SUNNY/BREEZY

Static Water Level 101.74

Time 10:17:00

Totalizer: End

Start 0

Sounder ID INT A

Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM)

1 5 1.5 8 2 11 2.5 14 3 16 3.5 19 4 22 4.5 25 5 28

Pump Time: Start

End

Total (min)

Meters and Type: ☒ YSI #1 ☐ YSI #2 ☐ YSI QS

Calibration Date: Apr 24, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	5	1024	7.01	1130	27.41	3.72	-96.1	-	28.8
1.5	8								
2	11								
2.5	14								
3	16								
3.5	19								
4	22								
4.5	25								
5	28								

Sampling:

Samples Collected by: Jerry Barker

Time Started: 10:21:00

Dup Time:

Time Ended: 10:24:00

Transferred to:

Relinquished by: George Bejarano

Date Apr 24, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☒ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: SMPS TO TEST AMERICA. HEAVY PETROLEUM ODOR.

Correction factor .68

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 120
D (diameter) 4
d factor

Well Name R-020A
Project Price Service Center
Date Mar 26, 2013
Field Personnel GB/JB
Weather sunny/warm

Static Water Level 101.65
Time 09:59:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS
Calibration Date: Mar 26, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	1009	7.27	880	26.26	5.01	-80.3		17.8
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker
Time Started: 10:06:00
Dup Time:
Time Ended: 10:09:00

Transferred to:
Relinquished by: Jerry Barker
Date Mar 27, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Sample sent to TestAmerica.

ID 3/26/13

Correction factor +0.68

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 120
D (diameter) 4
d factor 1.96

Well Name R-020A
Project Price Service Center
Date Sep 11, 2013
Field Personnel GB/JM
Weather SUNNY/WARM

Static Water Level 101.65 Time 11:35:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 12 1.5 18 2 24 2.5 30 3 36 3.5 42 4 48 4.5 54 5 60

Pump Time: Start
End
Total (min)

Meters and Type: ☒ YSI #1 ☐ YSI #2 ☐ YSI QS

Calibration Date: Sep 11, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	12	1145	6.88	879	27.70	3.02	-123.7	-	60.6
1.5	18								
2	24								
2.5	30								
3	36								
3.5	42								
4	48								
4.5	54								
5	60								

Sampling:

Samples Collected by: George Bejarano Time Started: 11:40:00 Dup Time: Time Ended: 11:43:00

Transferred to: Relinquished by: George Bejarano Date Sep 11, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☐ Annual ☒ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: SAMPLE TO ACCUTEST. 504.1 ANALYSIS. GAS ODOR -BLACK SPECKS IN SAMPLES.

Correction factor .68

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 120
D (diameter) 4
d factor

Well Name R-020A

Project Price Service Center

Date Sep 12, 2013

Field Personnel HV/JB

Weather sunny/warm

Static Water Level 101.75 Time 08:51:00

Totalizer: End
Start 0
Total (gal) 0

Sounder ID INT A

Well Volumes (gallons):

Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☒ YSI #1 ☐ YSI #2 ☐ YSI QS

Calibration Date: Sep 12, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	0903	7.07	912	26.91	3.39	-134.2		5.44
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker Time Started: 08:59:00 Dup Time: Time Ended: 09:03:00

Transferred to: Relinquished by: Hank Vimislik Date Sep 12, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☐ Annual ☒ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: Single bail sample. Sample sent to Accutest (Method 8260B). Water has strong petroleum odor.

HJV.
9-13-13

Correction factor .66

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 120
D (diameter) 4
d factor

Well Name R-021A
Project Price Service Center
Date Mar 26, 2013
Field Personnel GB/JB
Weather sunny/warm

Static Water Level 102.26
Time 10:16:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 26, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	1021	7.77	967	25.75	3.99	45.9		18.3
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker
Time Started: 10:19:00
Dup Time:
Time Ended: 10:21:00

Transferred to:
Relinquished by: Jerry Barker
Date Mar 27, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Sample sent to TestAmerica. Sample has suspended particles.

KS 3/26/13

Correction factor .86

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 110
D (diameter) 4
d factor

Well Name R-022A
Project Price Service Center
Date Mar 26, 2013
Field Personnel GB/JB
Weather sunny/warm

Static Water Level 101.85
Time 10:31:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 26, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	1038	7.99	1020	26.55	4.06	121.7		11.9
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker
Time Started: 10:35:00
Dup Time:
Time Ended: 10:37:00

Transferred to:
Relinquished by: Jerry Barker
Date Mar 27, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. 2 bail sample with small bailer. 1 liter bailer will not capture sample. Sample sent to TestAmerica

GB 3/26/13

Correction factor .46

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD ?
D (diameter) 4
d factor

Well Name R-029A
Project Price Service Center
Date Mar 27, 2013
Field Personnel HV/JB
Weather sunny/warm

Static Water Level 97.75
Time 11:28:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 27, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	1138	8.01	749	26.56	3.58	-167.8		3.90
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker
Time Started: 11:34:00
Dup Time:
Time Ended: 11:38:00

Transferred to:
Relinquished by: Jerry Barker
Date Mar 28, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Sample sent to TestAmerica. Sample has petroleum odor.

Correction factor +0.69

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD
D (diameter)
d factor

Well Name R-036A

Project Price Service Center

Date Apr 24, 2013

Field Personnel GB/JB

Weather SUNNY/BREEZY

Static Water Level 100.61 Time 10:40:00

Totalizer: End
Start 0
Total (gal) 0

Sounder ID INT A

Discharge Rate(GPM)

Well Volumes (gallons):

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☒ YSI #1 ☐ YSI #2 ☐ YSI QS

Calibration Date: Apr 24, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	1045	7.41	613	27.71	4.21	-132.1	-	174.7
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker Time Started: 10:43:00 Dup Time: Time Ended: 10:45:00

Transferred to: Relinquished by: George Bejarano Date Apr 24, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☒ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: SMPS TO TEST AMERICA. HEAVY PETROLEUM ODOR. BLACK PARTICLES SUSPENDED IN SAMPLE.

Correction factor 0.02

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 115
D (diameter) 4
d factor 1.96

Well Name R-044A
Project Price Service Center
Date Mar 28, 2013
Field Personnel GB/JM
Weather SUNNY/COOL

Static Water Level 103.72 Time 07:45:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 7 1.5 11 2 15 2.5 19 3 22 3.5 26 4 30 4.5 34 5 38

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 28, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	7	0800	7.25	835	23.37	-3.74	82.4	-	28.7
1.5	11								
2	15								
2.5	19								
3	22								
3.5	26								
4	30								
4.5	34								
5	38								

Sampling:

Samples Collected by: George Bejarano Time Started: 07:55:00 Dup Time: 07:58:00 Time Ended: 08:00:00

Transferred to: Relinquished by: George Bejarano Date Mar 28, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☒ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. BROWN SPECKS IN SAMPLE.

JM 3-28-13

Correction factor 0.21

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD
D (diameter) 4
d factor 1.96

Well Name R-045A
Project Price Service Center
Date Mar 28, 2013
Field Personnel GB/JM
Weather SUNNY/COOL

Static Water Level 98.36
Time 08:14:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 28, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	0822	7.42	770	24.24	-2.69	11.0	-	6.62
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: George Bejarano
Time Started: 08:20:00
Dup Time:
Time Ended: 08:22:00

Transferred to:
Relinquished by: George Bejarano
Date Mar 28, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. WATER CLEAR-NO SPECKS

JWL 3-28-13

Correction factor +0.41

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 120
D (diameter) 4
d factor 1.96

Well Name R-046A

Project Price Service Center

Date Mar 25, 2013

Field Personnel GB/JM

Weather SUNNY/WARM

Static Water Level 104.17

Time 10:25:00

Totalizer: End

Start 0

Sounder ID INT A

Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM)

1 10 1.5 15 2 20 2.5 25 3 31 3.5 36 4 41 4.5 46 5 51

Pump Time: Start

End

Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 25, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
10	1032	7.38	656	24.59	3.31	-129.6	-	7.06
15								
20								
25								
31								
36								
41								
46								
51								

Sampling:

Samples Collected by: George Bejarano Time Started: 10:30:00 Dup Time: Time Ended: 10:32:00

Transferred to: Relinquished by: George Bejarano Date Mar 25, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☐ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. BLACK SPECKS/FLOATERS IN SMP. SLIGHT GAS ODOR.

JM 3/25/13

Correction factor +1.17

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD
D (diameter) 4
d factor 1.96

Well Name R-048A
Project Price Service Center
Date Mar 28, 2013
Field Personnel GB/JM
Weather SUNNY/COOL

Static Water Level 98.85
Time 09:15:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 28, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	0922	8.05	766	26.20	-7.73	59.5	-	4.09
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: George Bejarano
Time Started: 09:20:00
Dup Time:
Time Ended: 09:22:00

Transferred to:
Relinquished by: George Bejarano
Date Mar 28, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. CLEAR WATER IN SAMPLE.

Jw 3-28-13

Correction factor .37

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 115
D (diameter) 4
d factor

Well Name R-049A
Project Price Service Center
Date Mar 27, 2013
Field Personnel HV/JB
Weather sunny/warm

Static Water Level 98.46
Time 10:47:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS
Calibration Date: Mar 27, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	1054	7.97	1367	26.58	2.58	-85.4		2.91
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker
Time Started: 10:51:00
Dup Time:
Time Ended: 10:54:00

Transferred to:
Relinquished by: Jerry Barker
Date Mar 28, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Sample sent to TestAmerica.

Correction factor .63

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 121
D (diameter) 4
d factor

Well Name R-099A
Project Price Service Center
Date Mar 27, 2013
Field Personnel HV/JB
Weather sunny/warm

Static Water Level 98.46
Time 11:07:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 27, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	1114	7.66	984	27.75	.66	-221.1		303
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker
Time Started: 11:11:00
Dup Time:
Time Ended: 11:14:00

Transferred to:
Relinquished by: Jerry Barker
Date Mar 28, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Sample sent to TestAmerica. Sample has black debris.

Correction factor -.32

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 120
D (diameter) 4
d factor

Well Name WR-208A
Project Price Service Center
Date Mar 27, 2013
Field Personnel HV/JB
Weather sunny/warm

Static Water Level 100.05
Time 09:20:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 27, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	0930	7.84	1022	26.31	5.05	81.2		3.16
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker
Time Started: 09:27:00
Dup Time:
Time Ended: 09:30:00

Transferred to:
Relinquished by: Jerry Barker
Date Mar 28, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Sample sent to TestAmerica.

Correction factor -.29

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 120
D (diameter) 4
d factor

Well Name **WR-209A**
Project Los Reales Landfill
Date Mar 27, 2013
Field Personnel HV/JB
Weather sunny/warm

Static Water Level 103.67 Time 08:26:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Discharge Rate(GPM)

Well Volumes (gallons):

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 27, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	0840	7.19	1067	26.40	3.47	-10.7		992
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker Time Started: 08:35:00 Dup Time: 08:38:00 Time Ended: 08:40:00

Transferred to: Relinquished by: Jerry Barker Date Mar 28, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☒ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Sample sent to TestAmerica. Water brown/muddy.

Correction factor -.74

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 120
D (diameter) 4
d factor

Well Name WR-210A
Project Price Service Center
Date Mar 26, 2013
Field Personnel GB/JB
Weather sunny/warm

Static Water Level 104.78
Time 08:40:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS
Calibration Date: Mar 26, 2013

Parameters: *(Stable within)* +/-0.1 +/-3% +/-3% +/-10% +/-20 mv

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	0852	7.22	1022	26.71	3.40	-204.7		7.09
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker
Time Started: 08:48:00
Dup Time: 08:51:00
Time Ended: 08:52:00

Transferred to:
Relinquished by: Jerry Barker
Date Mar 27, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☒ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Two bail sample. Samples sent to TestAmerica. Water has strong odor.

BA 3/26/13

Correction factor -.38

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 120
D (diameter) 4
d factor

Well Name WR-211A
Project Price Service Center
Date Mar 27, 2013
Field Personnel HV/JB
Weather sunny/warm

Static Water Level 103.26
Time 08:54:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 27, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	0904	7.71	1002	27.41	2.93	-116.4		39.9
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker
Time Started: 09:01:00
Dup Time:
Time Ended: 09:04:00

Transferred to:
Relinquished by: Jerry Barker
Date Mar 28, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Samples have debris. Sample sent to TestAmerica.

Correction factor .22

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 120
D (diameter) 4
d factor

Well Name **WR-212A**

Project Price Service Center

Date Mar 27, 2013

Field Personnel HV/JB

Weather sunny/warm

Static Water Level 99.29

Time 10:24:00

Totalizer: End

Start 0

Sounder ID INT A

Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start

End

Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 27, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	1031	7.57	662	26.86	.94	-164.7		551
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker

Time Started: 10:29:00

Dup Time:

Time Ended: 10:31:00

Transferred to:

Relinquished by: Jerry Barker

Date Mar 28, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Sample sent to TestAmerica. Samples black w/debris

Correction factor -.13

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 120
D (diameter) 4
d factor

Well Name WR-213A
Project Price Service Center
Date Mar 21, 2013
Field Personnel GB/JB
Weather cloudy/warm

Static Water Level 100.30 Time 10:55:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS
Calibration Date: Mar 21, 2013

Parameters: *(Stable within)* +/-0.1 +/-3% +/-3% +/-10% +/-20 mv

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	1101	7.69	892	25.96	4.77	175.8		5.28
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker Time Started: 10:58:00 Dup Time: Time Ended: 11:01:00

Transferred to: Relinquished by: Jerry Barker Date Mar 21, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Samples sent to TestAmerica

gb 3/21/13

Correction factor -0.57

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 120
D (diameter) 4
d factor 1.96

Well Name WR-214A

Project Price Service Center

Date Mar 25, 2013

Field Personnel GB/JM

Weather SUNNY/WARM

Static Water Level 108.90

Time 11:35:00

Totalizer: End

Start 0

Sounder ID INT A

Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM)

1 7 1.5 11 2 15 2.5 19 3 22 3.5 26 4 30 4.5 34 5 38

Pump Time: Start

End

Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 25, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
7	1142	7.68	778	24.66	4.46	82.8	-	16.7
11								
15								
19								
22								
26								
30								
34								
38								

Sampling:

Samples Collected by: George Bejarano Time Started: 11:40:00 Dup Time: Time Ended: 11:42:00

Transferred to: Relinquished by: George Bejarano Date Mar 25, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☐ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. BROWN SPECKS IN WATER.

Jm 3/25/13

Correction factor -0.63

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 194
D (diameter) 4
d factor 1.96

Well Name WR-216A
Project Price Service Center
Date Mar 25, 2013
Field Personnel GB/JM
Weather SUNNY/WARM

Static Water Level 119.65 Time 12:32:00
Totalizer: End
Sounder ID INT A
Start 0
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 49 1.5 74 2 99 2.5 124 3 146 3.5 171 4 196 4.5 221 5 246

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 25, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
49	1237	7.71	729	25.52	6.63	84.4	-	1.28
74								
99								
124								
146								
171								
196								
221								
246								

Sampling:

Samples Collected by: George Bejarano Time Started: 12:35:00 Dup Time: Time Ended: 12:37:00

Transferred to: Relinquished by: George Bejarano Date Mar 25, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☐ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA.

JM 3/25/13

Correction factor -.49

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 190
D (diameter) 4
d factor

Well Name WR-217A
Project Price Service Center
Date Mar 21, 2013
Field Personnel GB/JB
Weather cloudy/warm

Static Water Level 118.55 Time 10:10:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS
Calibration Date: Mar 21, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	1025	6.85	825	25.49	5.68	189.7		.61
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker Time Started: 10:19:00 Dup Time: 10:23:00 Time Ended: 10:25:00

Transferred to: Relinquished by: Jerry Barker Date Mar 21, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☒ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: Single bail sample. New C/F. Samples sent to TestAmerica

GB 3/21/13

Correction factor -.49

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 190
D (diameter) 4
d factor

Well Name **WR-217A**
Project Price Service Center
Date Sep 12, 2013
Field Personnel HV/JB
Weather sunny/warm

Static Water Level 118.55 Time 08:17:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☒ YSI #1 ☐ YSI #2 ☐ YSI QS

Calibration Date: Sep 12, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	0832	6.90	738	25.97	4.68	166.3		.63
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker Time Started: 08:29:00 Dup Time: Time Ended: 08:32:00

Transferred to: Relinquished by: Hank Vimislik Date Sep 12, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☐ Annual ☒ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: Single bail sample. Samples sent to Accutest .

NJS 9-13-13

Correction factor -.40

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 194
D (diameter) 4
d factor

Well Name WR-218A
Project Price Service Center
Date Mar 21, 2013
Field Personnel GB/JB
Weather cloudy/warm

Static Water Level 120.19
Time 11:09:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 21, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	1114	7.80	839	25.68	4.89	205.8		8.44
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker
Time Started: 11:11:00
Dup Time:
Time Ended: 11:14:00

Transferred to:
Relinquished by: Jerry Barker
Date Mar 21, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Samples sent to TestAmerica. Black particles suspended in samples.

GB 3/21/13

Correction factor +0.66

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 122
D (diameter) 4
d factor 1.96

Well Name WR-219A

Project Price Service Center

Date Mar 25, 2013

Field Personnel GB/JM

Weather SUNNY/WARM

Static Water Level 103.53

Time 10:05:00

Totalizer: End

Start 0

Sounder ID INT A

Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM)

1 12 1.5 18 2 24 2.5 30 3 36 3.5 42 4 48 4.5 54 5 60

Pump Time: Start

End

Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 25, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
12	1012	6.93	974	25.91	3.29	-139.7	-	16.1
18								
24								
30								
36								
42								
48								
54								
60								

Sampling:

Samples Collected by: George Bejarano Time Started: 10:10:00 Dup Time: Time Ended: 10:12:00

Transferred to: Relinquished by: George Bejarano Date Mar 25, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☐ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. BLACK SPECKS IN SMP. LIGHT GRAY COLOR IN SMPS. SLIGHT GAS ODOR.

JM 3/25/13

Correction factor +0.66

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 122
D (diameter) 4
d factor 1.96

Well Name WR-219A
Project Price Service Center
Date Sep 11, 2013
Field Personnel GB/JM
Weather SUNNY/WARM

Static Water Level 104.32 Time 10:00:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 12 1.5 18 2 24 2.5 30 3 35 3.5 41 4 47 4.5 53 5 59

Pump Time: Start
End
Total (min)

Meters and Type: ☒ YSI #1 ☐ YSI #2 ☐ YSI QS

Calibration Date: Sep 11, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	12	1010	7.15	1029	26.16	2.74	-97.5	-	3.90
1.5	18								
2	24								
2.5	30								
3	35								
3.5	41								
4	47								
4.5	53								
5	59								

Sampling:

Samples Collected by: George Bejarano Time Started: 10:05:00 Dup Time: Time Ended: 10:08:00

Transferred to: Relinquished by: George Bejarano Date Sep 11, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☐ Annual ☒ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: SAMPLE TO ACCUTEST. 504.1 ANALYSIS.

Correction factor +0.41

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 120
D (diameter) 4
d factor 1.96

Well Name WR-221A
Project Price Service Center
Date Mar 25, 2013
Field Personnel GB/JM
Weather SUNNY/COOL

Static Water Level 115.84 Time 08:15:00
Totalizer: End
Sounder ID INT A
Start 0
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 3 1.5 5 2 7 2.5 9 3 8 3.5 10 4 12 4.5 14 5 16

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS
Calibration Date: Mar 25, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
3	0822	7.56	634	24.33	4.43	99.5	-	28.0
5								
7								
9								
8								
10								
12								
14								
16								

Sampling:

Samples Collected by: George Bejarano Time Started: 08:20:00 Dup Time: Time Ended: 08:22:00

Transferred to: Relinquished by: George Bejarano Date Mar 25, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☐ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. BROWN SPECKS IN SMPS.

JM 3/25/13

Correction factor .41

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 120
D (diameter) 4
d factor

Well Name WR-221A
Project Price Service Center
Date Sep 12, 2013
Field Personnel HV/JB
Weather sunny/warm

Static Water Level 116.09 Time 09:11:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☒ YSI #1 ☐ YSI #2 ☐ YSI QS

Calibration Date: Sep 12, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	0925	7.27	549	26.09	5.01	101.3		2.12
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker Time Started: 09:23:00 Dup Time: Time Ended: 09:25:00

Transferred to: Relinquished by: Hank Vimislik Date Sep 12, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☐ Annual ☒ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: Single bail sample. Sample sent to Accutest

HJV. 9-13-13

Correction factor .39

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 111.5
D (diameter) 4
d factor

Well Name WR-222A
Project Price Service Center
Date Mar 21, 2013
Field Personnel GB/JB
Weather cloudy/warm

Static Water Level 95.07 Time 11:40:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS
Calibration Date: Mar 21, 2013

Parameters: *(Stable within)* +/-0.1 +/-3% +/-3% +/-10% +/-20 mv

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	1150	7.59	949	25.11	4.29	117.4		4.49
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker Time Started: 11:48:00 Dup Time: Time Ended: 11:50:00

Transferred to: Relinquished by: Jerry Barker Date Mar 21, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Samples sent to TestAmerica

GS 3/21/13

Correction factor 0.39

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 111.5
D (diameter) 4
d factor 1.96

Well Name WR-222A
Project Price Service Center
Date Sep 11, 2013
Field Personnel GB/JM
Weather SUNNY/WARM

Static Water Level 94.66 Time 10:20:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 11 1.5 17 2 23 2.5 29 3 33 3.5 39 4 45 4.5 51 5 57

Pump Time: Start
End
Total (min)

Meters and Type: ☒ YSI #1 ☐ YSI #2 ☐ YSI QS

Calibration Date: Sep 11, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	11	1030	7.52	994	25.60	5.01	85.8	-	5.89
1.5	17								
2	23								
2.5	29								
3	33								
3.5	39								
4	45								
4.5	51								
5	57								

Sampling:

Samples Collected by: George Bejarano Time Started: 10:25:00 Dup Time: Time Ended: 10:28:00

Transferred to: Relinquished by: George Bejarano Date Sep 11, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☐ Annual ☒ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: SAMPLE TO ACCUTEST. 504.1 ANALYSIS.

Correction factor +0.41

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 120
D (diameter) 4
d factor 1.96

Well Name WR-223A
Project Price Service Center
Date Mar 25, 2013
Field Personnel GB/JM
Weather SUNNY/WARM

Static Water Level 107.86 Time 09:35:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 8 1.5 12 2 16 2.5 20 3 24 3.5 28 4 32 4.5 36 5 40

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 25, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
8	0942	7.55	691	26.78	4.28	37.4	-	11.1
12								
16								
20								
24								
28								
32								
36								
40								

Sampling:

Samples Collected by: George Bejarano Time Started: 09:40:00 Dup Time: Time Ended: 09:42:00

Transferred to: Relinquished by: George Bejarano Date Mar 25, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☐ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. BROWN SPECKS IN SMP.

JM 3/25/13

Correction factor +0.12

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 115
D (diameter) 4
d factor 1.96

Well Name WR-224A
Project Price Service Center
Date Mar 28, 2013
Field Personnel GB/JM
Weather SUNNY/WARM

Static Water Level 99.37 Time 09:35:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 10 1.5 15 2 20 2.5 25 3 31 3.5 36 4 41 4.5 46 5 51

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS
Calibration Date: Mar 28, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	10	0953	7.15	833	26.61	1.19	-214.0	-	8.79
1.5	15								
2	20								
2.5	25								
3	31								
3.5	36								
4	41								
4.5	46								
5	51								

Sampling:

Samples Collected by: George Bejarano Time Started: 09:50:00 Dup Time: Time Ended: 09:53:00

Transferred to: Relinquished by: George Bejarano Date Mar 28, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. BROWN SPECKS IN SAMPLE. NEED ACCESS-NEED GATE IN ANHEUSER BUSCH AREA.

JM 3-28-13

Correction factor +0.12

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 115
D (diameter) 4
d factor 1.96

Well Name WR-224A
Project Price Service Center
Date Sep 11, 2013
Field Personnel GB/JM
Weather SUNNY/WARM

Static Water Level 99.99
Time 11:05:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 10 1.5 15 2 20 2.5 25 3 29 3.5 34 4 39 4.5 44 5 49

Pump Time: Start
End
Total (min)

Meters and Type: ☒ YSI #1 ☐ YSI #2 ☐ YSI QS

Calibration Date: Sep 11, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	10	1115	7.18	858	27.18	2.06	-217.2	-	11.8
1.5	15								
2	20								
2.5	25								
3	29								
3.5	34								
4	39								
4.5	44								
5	49								

Sampling:

Samples Collected by: George Bejarano
Time Started: 11:10:00
Dup Time:
Time Ended: 11:13:00

Transferred to:
Relinquished by: George Bejarano
Date Sep 11, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☐ Annual ☒ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: SAMPLE TO ACCUTEST. 504.1 ANALYSIS. GAS ODOR IN SAMPLE.

Correction factor +1.07

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 125
D (diameter) 4
d factor 1.96

Well Name **WR-225A**

Project Price Service Center

Date Mar 25, 2013

Field Personnel GB/JM

Weather SUNNY/COOL

Static Water Level 121.75 Time 07:40:00

Totalizer: End

Start 0

Sounder ID INT A

Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM)

1 2 1.5 3 2 4 2.5 5 3 6 3.5 7 4 8 4.5 9 5 10

Pump Time: Start

End

Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 25, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
2	0802	7.52	957	25.48	5.16	75.1	-	38.1
3								
4								
5								
6								
7								
8								
9								
10								

Sampling:

Samples Collected by: George Bejarano Time Started: 08:00:00 Dup Time: Time Ended: 08:02:00

Transferred to: Relinquished by: George Bejarano Date Mar 25, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☐ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. BROWN SPECKS IN SMPS.

JM 3/25/13

Correction factor .69

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 191
D (diameter) 4
d factor

Well Name WR-227A
Project Price Service Center
Date Mar 21, 2013
Field Personnel GB/JB
Weather cloudy/warm

Static Water Level 161.25
Time 11:26:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Discharge Rate(GPM)

Well Volumes (gallons):

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 21, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	1133	9.97	1295	26.93	3.13	-18.7		9.79
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker
Time Started: 11:30:00
Dup Time:
Time Ended: 11:33:00

Transferred to:
Relinquished by: Jerry Barker
Date Mar 21, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Samples sent to TestAmerica

CB 3/21/13

Correction factor .69

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 191
D (diameter) 4
d factor

Well Name WR-227A
Project Price Service Center
Date Sep 12, 2013
Field Personnel HV/JB
Weather sunny/warm

Static Water Level 160.84 Time 09:39:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☒ YSI #1 ☐ YSI #2 ☐ YSI QS

Calibration Date: Sep 12, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	0949	7.97	1309	26.32	3.30	-123.07		10.1
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker Time Started: 09:47:00 Dup Time: Time Ended: 09:49:00

Transferred to: Relinquished by: Hank Vimislik Date Sep 12, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☐ Annual ☒ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: Single bail sample. Sample sent to Acculab. Sample has black particles and petroleum odor.

HGB
9-13-13

Correction factor -0.49

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 189
D (diameter) 4
d factor 1.96

Well Name WR-228A

Project Price Service Center

Date Mar 25, 2013

Field Personnel GB/JM

Weather SUNNY/WARM

Static Water Level 118.98

Time 11:55:00

Totalizer: End

Start 0

Sounder ID INT A

Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM)

1 46 1.5 69 2 92 2.5 115 3 137 3.5 160 4 183 4.5 206 5 229

Pump Time: Start

End

Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 25, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
46	1207	9.82	325	24.99	4.46	4.70	-	120
69								
92								
115								
137								
160								
183								
206								
229								

Sampling:

Samples Collected by: George Bejarano Time Started: 12:05:00 Dup Time: Time Ended: 12:07:00

Transferred to: Relinquished by: George Bejarano Date Mar 25, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☐ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. GRAY WATER AND BROWN SPECKS IN SMPS.

Jm 3/25/13

Correction factor -0.33

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 190
D (diameter) 4
d factor 1.96

Well Name **WR-229A**

Project Price Service Center

Date Mar 28, 2013

Field Personnel GB/JM

Weather SUNNY/COOL

Static Water Level 120.38 Time 08:40:00

Totalizer: End

Sounder ID INT A

Start 0

Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM)

1 45 1.5 68 2 91 2.5 114 3 136 3.5 159 4 182 4.5 205 5 228

Pump Time: Start

End

Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 28, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	45	0847	10.37	370	26.07	-2.84	-91.6	-	42.8
1.5	68								
2	91								
2.5	114								
3	136								
3.5	159								
4	182								
4.5	205								
5	228								

Sampling:

Samples Collected by: George Bejarano Time Started: 08:45:00 Dup Time: Time Ended: 08:47:00

Transferred to: Relinquished by: George Bejarano Date Mar 28, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. BROWN SPECKS IN SAMPLE. NEED ACCESS-NEED GATE IN ANHEUSER BUSCH AREA.

3-28-13

Correction factor +0.81

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 192
D (diameter) 4
d factor 1.96

Well Name WR-230A
Project Price Service Center
Date Mar 25, 2013
Field Personnel GB/JM
Weather SUNNY/COOL

Static Water Level 121.88 Time 07:35:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 46 1.5 69 2 92 2.5 115 3 137 3.5 160 4 183 4.5 206 5 229

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS
Calibration Date: Mar 25, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
46	0754	8.89	478	25.39	3.35	-2.9	-	34.0
69								
92								
115								
137								
160								
183								
206								
229								

Sampling:

Samples Collected by: George Bejarano Time Started: 07:50:00 Dup Time: 07:52:00 Time Ended: 07:54:00

Transferred to: Relinquished by: George Bejarano Date Mar 25, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☒ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☐ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. SLIGHT GRAY COLOR IN SMPS.

SM 3/25/13

Correction factor +0.92

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 192
D (diameter) 4
d factor 1.96

Well Name WR-231A
Project Price Service Center
Date Mar 25, 2013
Field Personnel GB/JM
Weather SUNNY/WARM

Static Water Level 129.35
Time 11:17:00
Totalizer: End
Start 0
Total (gal) 0
Sounder ID INT A

Well Volumes (gallons):
Discharge Rate(GPM)

1 41 1.5 62 2 83 2.5 104 3 123 3.5 144 4 165 4.5 186 5 207

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 25, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
41	1122	10.06	533	25.90	3.79	16.7	-	172
62								
83								
104								
123								
144								
165								
186								
207								

Sampling:

Samples Collected by: George Bejarano
Time Started: 11:20:00
Dup Time:
Time Ended: 11:22:00

Transferred to:
Relinquished by: George Bejarano
Date Mar 25, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☐ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. BROWN COLORED WATER.

SM 3/25/13

Correction factor -0.61

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 192
D (diameter) 4
d factor 1.96

Well Name WR-232A
Project Price Service Center
Date Mar 25, 2013
Field Personnel GB/JM
Weather SUNNY/WARM

Static Water Level 123.99 Time 12:15:00
Totalizer: End
Sounder ID INT A
Start 0
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 44 1.5 66 2 88 2.5 110 3 133 3.5 155 4 177 4.5 199 5 221

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 25, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
44	1222	9.14	187	25.77	3.91	15.1	-	34.1
66								
88								
110								
133								
155								
177								
199								
221								

Sampling:

Samples Collected by: George Bejarano Time Started: 12:20:00 Dup Time: Time Ended: 12:22:00

Transferred to: Relinquished by: George Bejarano Date Mar 25, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☐ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. BROWN WATER AND BROWN SPECKS IN SMPS.

JM 3/25/13

Correction factor +0.57

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 191
D (diameter) 4
d factor 1.96

Well Name WR-233A
Project Price Service Center
Date Mar 28, 2013
Field Personnel GB/JM
Weather SUNNY/WARM

Static Water Level 154.21
Time 10:25:00
Totalizer: End
Start 0
Sounder ID SOL 4
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 24 1.5 36 2 48 2.5 60 3 72 3.5 84 4 96 4.5 108 5 120

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 28, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	24	1043	9.09	276	25.40	-8.65	-84.7	-	30.6
1.5	36								
2	48								
2.5	60								
3	72								
3.5	84								
4	96								
4.5	108								
5	120								

Sampling:

Samples Collected by: George Bejarano
Time Started: 10:40:00
Dup Time:
Time Ended: 10:43:00

Transferred to:
Relinquished by: George Bejarano
Date Mar 28, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. SLIGHT GRAY COLOR WATER-NO SPECKS.

Jm 3-28-13

Correction factor .57

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 191
D (diameter) 4
d factor

Well Name WR-233A
Project Price Service Center
Date Sep 12, 2013
Field Personnel HV/JB
Weather sunny/warm

Static Water Level 154.19 Time 10:19:00
Totalizer: End
Start 0
Sounder ID
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☒ YSI #1 ☐ YSI #2 ☐ YSI QS

Calibration Date: Sep 12, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	1025	7.97	372	26.06	5.13	-13.2		12.1
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker Time Started: 10:21:00 Dup Time: Time Ended: 10:25:00

Transferred to: Relinquished by: Hank Vimislik Date Sep 12, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☐ Annual ☒ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: Single bail sample. Sample sent to Acculab. Well dirty. Interface covered in dirt and would not read. Used HER 1

HJV
9-13-13

Correction factor +0.84

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 192
D (diameter) 4
d factor 1.96

Well Name **WR-235A**
Project Price Service Center
Date Mar 25, 2013
Field Personnel GB/JM
Weather SUNNY/WARM

Static Water Level 155.62 Time 10:55:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Discharge Rate(GPM)

Well Volumes (gallons):

1 24 1.5 36 2 48 2.5 60 3 71 3.5 83 4 95 4.5 107 5 119

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 25, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
24	1107	7.76	646	25.35	5.27	43.1	-	132
36								
48								
60								
71								
83								
95								
107								
119								

Sampling:

Samples Collected by: George Bejarano Time Started: 11:05:00 Dup Time: Time Ended: 11:07:00

Transferred to: Relinquished by: George Bejarano Date Mar 25, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☐ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. BROWN COLORED WATER.

JM 3/25/13

Correction factor 1.02

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD ?
D (diameter) 3
d factor

Well Name **WR-296A**
Project Price Service Center
Date Mar 27, 2013
Field Personnel HV/JB
Weather sunny/warm

Static Water Level 102.22
Time 09:50:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 27, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	0959	7.21	846	26.84	3.31	12.1		3.76
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker
Time Started: 09:56:00
Dup Time:
Time Ended: 09:59:00

Transferred to:
Relinquished by: Jerry Barker
Date Mar 28, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Sample sent to TestAmerica. Need well data sheet.

Correction factor .39

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD ?
D (diameter)
d factor

Well Name WR-298A
Project Price Service Center
Date Mar 21, 2013
Field Personnel GB/JB
Weather cloudy/warm

Static Water Level 102.70
Time 10:35:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 21, 2013

Parameters: *(Stable within)* +/-0.1 +/-3% +/-3% +/-10% +/-20 mv

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	1042	7.34	781	25.94	4.71	187.6		11.4
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker
Time Started: 10:40:00
Dup Time:
Time Ended: 10:42:00

Transferred to:
Relinquished by: Jerry Barker
Date Mar 21, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Samples sent to TestAmerica

ms 3/21/13

Correction factor +0.86

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 121
D (diameter) 4
d factor 1.96

Well Name PCM-506A

Project Price Service Center

Date Mar 25, 2013

Field Personnel GB/JM

Weather SUNNY/WARM

Static Water Level 102.69

Time 09:50:00

Totalizer: End

Start 0

Sounder ID INT A

Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM)

1	12	1.5	18	2	24	2.5	30	3	36	3.5	42	4	48	4.5	54	5	60

Pump Time: Start

End

Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 25, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
12	0957	7.57	703	25.72	6.57	80.1	-	9.66
18								
24								
30								
36								
42								
48								
54								
60								

Sampling:

Samples Collected by: George Bejarano Time Started: 09:55:00 Dup Time: Time Ended: 09:57:00

Transferred to: Relinquished by: George Bejarano Date Mar 25, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☐ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. BROWN SPECKS IN SMP.

JM 3/25/13

Correction factor +0.47

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 110
D (diameter) 4
d factor 1.96

Well Name PCM-508A
Project Price Service Center
Date Mar 25, 2013
Field Personnel GB/JM
Weather SUNNY/WARM

Static Water Level 106.55
Time 09:00:00
Totalizer: End
Start 0
Total (gal) 0
Sounder ID INT A

Well Volumes (gallons):
Discharge Rate(GPM)

1 2 1.5 3 2 4 2.5 5 3 7 3.5 8 4 9 4.5 10 5 11

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 25, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
2	0912	7.52	587	26.25	2.78	-139.0	-	3.07
3								
4								
5								
7								
8								
9								
10								
11								

Sampling:

Samples Collected by: George Bejarano
Time Started: 09:10:00
Dup Time:
Time Ended: 09:12:00

Transferred to:
Relinquished by: George Bejarano
Date Mar 25, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☐ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. OK ON SMPS.

JM 3/25/13

Correction factor +0.45

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 110
D (diameter) 4
d factor 1.96

Well Name PCM-508B

Project Price Service Center

Date Mar 25, 2013

Field Personnel GB/JM

Weather SUNNY/WARM

Static Water Level 100.72

Time 09:02:00

Totalizer: End

Start 0

Sounder ID INT A

Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM)

1 6 1.5 9 2 12 2.5 15 3 18 3.5 21 4 24 4.5 27 5 30

Pump Time: Start

End

Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 25, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
6	0917	7.41	534	26.75	2.60	-141.0	-	36.5
9								
12								
15								
18								
21								
24								
27								
30								

Sampling:

Samples Collected by: George Bejarano Time Started: 09:15:00 Dup Time: Time Ended: 09:17:00

Transferred to: Relinquished by: George Bejarano Date Mar 25, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☐ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. GRAY WATER IN SMPS.

JM 3/25/13

Correction factor .57

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 121
D (diameter) 2
d factor

Well Name PCM-509A
Project Price Service Center
Date Mar 26, 2013
Field Personnel GB/JB
Weather sunny/warm

Static Water Level 102.48 Time 09:14:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS
Calibration Date: Mar 26, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	0923	7.41	862	27.18	3.95	50.71		1.01
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker Time Started: 09:21:00 Dup Time: Time Ended: 09:23:00

Transferred to: Relinquished by: Jerry Barker Date Mar 27, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Sample sent to TestAmerica.

CG 3/26/13

Correction factor .48

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 108
D (diameter) 2
d factor

Well Name PCM-509B
Project Price Service Center
Date Mar 26, 2013
Field Personnel GB/JB
Weather sunny/warm

Static Water Level 102.38
Time 09:29:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 26, 2013

Parameters: *(Stable within)* +/-0.1 +/-3% +/-3% +/-10% +/-20 mv

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	0938	7.56	951	26.48	3.38	7.1		338
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker
Time Started: 09:34:00
Dup Time:
Time Ended: 09:38:00

Transferred to:
Relinquished by: Jerry Barker
Date Mar 27, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Sample sent to TestAmerica. Water grey.

GB 3/26/13

Correction factor .45

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP bail
TD 121
D (diameter) 2
d factor

Well Name PCM-510A
Project Price Service Center
Date Mar 26, 2013
Field Personnel GB/JB
Weather sunny/warm

Static Water Level 102.38 Time 09:44:00
Totalizer: End
Start 0
Sounder ID INT A
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 0 1.5 0 2 0 2.5 0 3 0 3.5 0 4 0 4.5 0 5 0

Pump Time: Start
End
Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 26, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	0	0950	7.91	720	26.79	4.03	82.5		31.5
1.5	0								
2	0								
2.5	0								
3	0								
3.5	0								
4	0								
4.5	0								
5	0								

Sampling:

Samples Collected by: Jerry Barker Time Started: 09:47:00 Dup Time: Time Ended: 09:50:00

Transferred to: Relinquished by: Jerry Barker Date Mar 27, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: New C/F. Single bail sample. Sample sent to TestAmerica.

DS 3/26/13

Correction factor +0.51

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 122.5
D (diameter) 4
d factor 1.96

Well Name **PCM-517A**

Project Price Service Center

Date Mar 25, 2013

Field Personnel GB/JM

Weather SUNNY/WARM

Static Water Level 111.18 Time 08:35:00

Totalizer: End

Start 0

Sounder ID INT A

Total (gal) 0

Well Volumes (gallons):

Discharge Rate(GPM)

1 7 1.5 11 2 15 2.5 19 3 22 3.5 26 4 30 4.5 34 5 38

Pump Time: Start

End

Total (min)

Meters and Type: ☐ YSI #1 ☐ YSI #2 ☒ YSI QS

Calibration Date: Mar 25, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
7	0842	7.32	484	24.60	3.30	-85.5	-	3.19
11								
15								
19								
22								
26								
30								
34								
38								

Sampling:

Samples Collected by: George Bejarano Time Started: 08:40:00 Dup Time: Time Ended: 08:42:00

Transferred to: Relinquished by: George Bejarano Date Mar 25, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☐ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☐ **Bail Sample**

Comments: NEW C/F. SMPS TO TEST AMERICA. BROWN SPECKS IN SMPS.

JM 3/25/13

Correction factor +0.31

CITY OF TUCSON
Environmental Services
Sampling Data Form

HP BAIL
TD 120
D (diameter) 4
d factor 1.96

Well Name **PCM-535A**
Project Price Service Center
Date Apr 24, 2013
Field Personnel GB/JB
Weather SUNNY/BREEZY

Static Water Level 101.16 Time 10:55:00
Totalizer: End
Sounder ID INT A
Start 0
Total (gal) 0

Well Volumes (gallons):
Discharge Rate(GPM)

1 12 1.5 18 2 24 2.5 30 3 37 3.5 43 4 49 4.5 55 5 61

Pump Time: Start
End
Total (min)

Meters and Type: ☒ YSI #1 ☐ YSI #2 ☐ YSI QS

Calibration Date: Apr 24, 2013

Parameters: *(Stable within)* *+/-0.1* *+/-3%* *+/-3%* *+/-10%* *+/-20 mv*

	Gallons	Time (hrs)	pH	SpC (µS/cm)	Temp (C)	DO (mg/l)	ORP	PWL (feet)	Turbidity (ntu)
1	12	1105	8.03	881	26.96	3.03	-101.4	-	5.11
1.5	18								
2	24								
2.5	30								
3	37								
3.5	43								
4	49								
4.5	55								
5	61								

Sampling:

Samples Collected by: Jerry Barker Time Started: 11:01:00 Dup Time: Time Ended: 11:05:00

Transferred to: Relinquished by: George Bejarano Date Apr 24, 2013

Reason for Sampling: ☐ Monthly ☐ Quarterly ☐ Semi-Annual ☒ Annual ☒ Investigation

☐ **Duplicate** ☐ **GAC Treatment** ☐ **Grab Sample** ☒ **Bail Sample**

Comments: SMPS TO TEST AMERICA. HEAVY PETROLEUM ODOR. BLACK PARTICLES SUSPENDED IN SAMPLE.

APPENDIX F

Duplicate Samples Comparison and Trip Blanks Summary Tables for 2013, and Laboratory Reports and Chain of Custody Information

Appendix F

Duplicate Sample Comparison for 2013

Thomas O. Price Service Center LUST No 0767.01-0767.05, ADEQ Facility ID No. 0-005160

Login	Sample Date	Well	Parameter	Prefix	Result (mg/L)	Login	Sample Date	Well	Parameter	Prefix	Result (mg/L)	%RPD
550-1519-2	4/23/2013 13:00	R-013A	Benzene		0.028	550-1519-3	4/23/2013 13:02	R-013A	Benzene		0.025	11%
550-1519-2	4/23/2013 13:00	R-013A	Ethylbenzene		0.023	550-1519-3	4/23/2013 13:02	R-013A	Ethylbenzene		0.02	14%
550-1519-2	4/23/2013 13:00	R-013A	m,p-Xylenes		0.17	550-1519-3	4/23/2013 13:02	R-013A	m,p-Xylenes		0.14	19%
550-1519-2	4/23/2013 13:00	R-013A	Methyl-tert-butyl Ether (MTBE)		1.5	550-1519-3	4/23/2013 13:02	R-013A	Methyl-tert-butyl Ether (MTBE)		1.4	7%
550-1519-2	4/23/2013 13:00	R-013A	o-Xylene	<	0.05	550-1519-3	4/23/2013 13:02	R-013A	o-Xylene	<	0.05	0%
550-1519-2	4/23/2013 13:00	R-013A	Toluene	<	0.02	550-1519-3	4/23/2013 13:02	R-013A	Toluene	<	0.02	0%
550-1519-2	4/23/2013 13:00	R-013A	Xylenes, Total		0.17	550-1519-3	4/23/2013 13:02	R-013A	Xylenes, Total		0.14	19%
PWC1966-01	3/28/2013 7:55	R-044A	Benzene	<	0.001	PWC1966-02	3/28/2013 7:58	R-044A	Benzene	<	0.001	0%
PWC1966-01	3/28/2013 7:55	R-044A	Ethylbenzene	<	0.002	PWC1966-02	3/28/2013 7:58	R-044A	Ethylbenzene	<	0.002	0%
PWC1966-01	3/28/2013 7:55	R-044A	Methyl-tert-butyl Ether (MTBE)	<	0.005	PWC1966-02	3/28/2013 7:58	R-044A	Methyl-tert-butyl Ether (MTBE)	<	0.005	0%
PWC1966-01	3/28/2013 7:55	R-044A	Toluene	<	0.002	PWC1966-02	3/28/2013 7:58	R-044A	Toluene	<	0.002	0%
PWC1966-01	3/28/2013 7:55	R-044A	Xylenes, Total	<	0.003	PWC1966-02	3/28/2013 7:58	R-044A	Xylenes, Total	<	0.003	0%
PWC1964-01	3/27/2013 8:35	WR-209A	Benzene	<	0.001	PWC1964-02	3/27/2013 8:38	WR-209A	Benzene	<	0.001	0%
PWC1964-01	3/27/2013 8:35	WR-209A	Ethylbenzene	<	0.002	PWC1964-02	3/27/2013 8:38	WR-209A	Ethylbenzene	<	0.002	0%
PWC1964-01	3/27/2013 8:35	WR-209A	Methyl-tert-butyl Ether (MTBE)		0.087	PWC1964-02	3/27/2013 8:38	WR-209A	Methyl-tert-butyl Ether (MTBE)		0.08	8%
PWC1964-01	3/27/2013 8:35	WR-209A	Toluene	<	0.002	PWC1964-02	3/27/2013 8:38	WR-209A	Toluene	<	0.002	0%
PWC1964-01	3/27/2013 8:35	WR-209A	Xylenes, Total	<	0.003	PWC1964-02	3/27/2013 8:38	WR-209A	Xylenes, Total	<	0.003	0%
PWC1837-01	3/26/2013 8:48	WR-210A	Benzene		0.0015	PWC1837-02	3/26/2013 8:51	WR-210A	Benzene	<	0.001	**40%**
PWC1837-01	3/26/2013 8:48	WR-210A	Ethylbenzene		0.0061	PWC1837-02	3/26/2013 8:51	WR-210A	Ethylbenzene		0.0039	**44%**
PWC1837-01	3/26/2013 8:48	WR-210A	Methyl-tert-butyl Ether (MTBE)		0.089	PWC1837-02	3/26/2013 8:51	WR-210A	Methyl-tert-butyl Ether (MTBE)		0.09	1%
PWC1837-01	3/26/2013 8:48	WR-210A	Toluene	<	0.002	PWC1837-02	3/26/2013 8:51	WR-210A	Toluene	<	0.002	0%
PWC1837-01	3/26/2013 8:48	WR-210A	Xylenes, Total	<	0.003	PWC1837-02	3/26/2013 8:51	WR-210A	Xylenes, Total	<	0.003	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,1,1-Trichloroethane	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	1,1,1-Trichloroethane	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,1,2,2-Tetrachloroethane	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	1,1,2,2-Tetrachloroethane	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,1,2-Trichloroethane	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	1,1,2-Trichloroethane	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,1-Dichloroethane	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	1,1-Dichloroethane	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,1-Dichloroethene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	1,1-Dichloroethene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,1-Dichloropropene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	1,1-Dichloropropene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,2,3-Trichlorobenzene	<	0.002	PWC1548-02	3/21/2013 10:23	WR-217A	1,2,3-Trichlorobenzene	<	0.002	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,2,3-Trichloropropane	<	0.002	PWC1548-02	3/21/2013 10:23	WR-217A	1,2,3-Trichloropropane	<	0.002	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,2,4-Trichlorobenzene	<	0.002	PWC1548-02	3/21/2013 10:23	WR-217A	1,2,4-Trichlorobenzene	<	0.002	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,2,4-Trimethylbenzene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	1,2,4-Trimethylbenzene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,2-Dibromoethane (EDB)	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	1,2-Dibromoethane (EDB)	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,2-Dichlorobenzene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	1,2-Dichlorobenzene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,2-Dichloroethane	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	1,2-Dichloroethane	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,2-Dichloropropane	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	1,2-Dichloropropane	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,3,5-Trimethylbenzene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	1,3,5-Trimethylbenzene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,3-Dichlorobenzene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	1,3-Dichlorobenzene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,3-Dichloropropane	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	1,3-Dichloropropane	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	1,4-Dichlorobenzene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	1,4-Dichlorobenzene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	2,2-Dichloropropane	<	0.002	PWC1548-02	3/21/2013 10:23	WR-217A	2,2-Dichloropropane	<	0.002	0%

Appendix F

Duplicate Sample Comparison for 2013

Thomas O. Price Service Center LUST No 0767.01-0767.05, ADEQ Facility ID No. 0-005160

Login	Sample Date	Well	Parameter	Prefix	Result (mg/L)	Login	Sample Date	Well	Parameter	Prefix	Result (mg/L)	%RPD
PWC1548-01	3/21/2013 10:19	WR-217A	2-Butanone (MEK)	<	0.005	PWC1548-02	3/21/2013 10:23	WR-217A	2-Butanone (MEK)	<	0.005	0%
PWC1548-01	3/21/2013 10:19	WR-217A	2-Chlorotoluene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	2-Chlorotoluene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	2-Hexanone	<	0.005	PWC1548-02	3/21/2013 10:23	WR-217A	2-Hexanone	<	0.005	0%
PWC1548-01	3/21/2013 10:19	WR-217A	4-Chlorotoluene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	4-Chlorotoluene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	4-Methyl-2-pentanone (MIBK)	<	0.005	PWC1548-02	3/21/2013 10:23	WR-217A	4-Methyl-2-pentanone (MIBK)	<	0.005	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Acetone	<	0.02	PWC1548-02	3/21/2013 10:23	WR-217A	Acetone	<	0.02	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Benzene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Benzene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Bromobenzene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Bromobenzene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Bromochloromethane	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Bromochloromethane	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Bromodichloromethane	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Bromodichloromethane	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Bromoform	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Bromoform	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Bromomethane	<	0.002	PWC1548-02	3/21/2013 10:23	WR-217A	Bromomethane	<	0.002	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Carbon tetrachloride	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Carbon tetrachloride	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Chlorobenzene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Chlorobenzene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Chloroethane	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Chloroethane	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Chloroform	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Chloroform	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Chloromethane	<	0.005	PWC1548-02	3/21/2013 10:23	WR-217A	Chloromethane	<	0.005	0%
PWC1548-01	3/21/2013 10:19	WR-217A	cis-1,2-Dichloroethene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	cis-1,2-Dichloroethene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	cis-1,3-Dichloropropene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	cis-1,3-Dichloropropene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Dibromochloromethane	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Dibromochloromethane	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Dichlorodifluoromethane	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Dichlorodifluoromethane	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Ethylbenzene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Ethylbenzene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Isopropylbenzene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Isopropylbenzene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	m,p-Xylenes	<	0.002	PWC1548-02	3/21/2013 10:23	WR-217A	m,p-Xylenes	<	0.002	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Methylene Chloride	<	0.002	PWC1548-02	3/21/2013 10:23	WR-217A	Methylene Chloride	<	0.002	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Methyl-tert-butyl Ether (MTBE)	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Methyl-tert-butyl Ether (MTBE)	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Naphthalene	<	0.005	PWC1548-02	3/21/2013 10:23	WR-217A	Naphthalene	<	0.005	0%
PWC1548-01	3/21/2013 10:19	WR-217A	n-Butylbenzene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	n-Butylbenzene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	n-Propylbenzene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	n-Propylbenzene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	o-Xylene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	o-Xylene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	p-Isopropyltoluene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	p-Isopropyltoluene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	sec-Butylbenzene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	sec-Butylbenzene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Styrene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Styrene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	tert-Butylbenzene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	tert-Butylbenzene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Tetrachloroethene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Tetrachloroethene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Toluene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Toluene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	trans-1,2-Dichloroethene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	trans-1,2-Dichloroethene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	trans-1,3-Dichloropropene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	trans-1,3-Dichloropropene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Trichloroethene	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Trichloroethene	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Trichlorofluoromethane	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Trichlorofluoromethane	<	0.001	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Vinyl Acetate	<	0.002	PWC1548-02	3/21/2013 10:23	WR-217A	Vinyl Acetate	<	0.002	0%
PWC1548-01	3/21/2013 10:19	WR-217A	Vinyl chloride	<	0.001	PWC1548-02	3/21/2013 10:23	WR-217A	Vinyl chloride	<	0.001	0%
PWC1686-01	3/25/2013 7:50	WR-230A	Benzene	<	0.001	PWC1686-04	3/25/2013 7:52	WR-230A	Benzene	<	0.001	0%
PWC1686-01	3/25/2013 7:50	WR-230A	Ethylbenzene	<	0.002	PWC1686-04	3/25/2013 7:52	WR-230A	Ethylbenzene	<	0.002	0%

Appendix F

Duplicate Sample Comparison for 2013

Thomas O. Price Service Center LUST No 0767.01-0767.05, ADEQ Facility ID No. 0-005160

Login	Sample Date	Well	Parameter	Prefix	Result (mg/L)
PWC1686-01	3/25/2013 7:50	WR-230A	Methyl-tert-butyl Ether (MTBE)	<	0.005
PWC1686-01	3/25/2013 7:50	WR-230A	Toluene	<	0.002
PWC1686-01	3/25/2013 7:50	WR-230A	Xylenes, Total	<	0.003

Login	Sample Date	Well	Parameter	Prefix	Result (mg/L)	%RPD
PWC1686-04	3/25/2013 7:52	WR-230A	Methyl-tert-butyl Ether (MTBE)	<	0.005	0%
PWC1686-04	3/25/2013 7:52	WR-230A	Toluene	<	0.002	0%
PWC1686-04	3/25/2013 7:52	WR-230A	Xylenes, Total	<	0.003	0%

Appendix F

Trip Blank Summary Table for 2013 (all results in mg/L)

Thomas O. Price Service Center LUST No. 0767.01-0767.05, ADEQ Facility ID No. 0-005160

Lab Login	Sample Date	Sample ID	Parameter	Prefix	Result
PWC1548-08	3/21/2013 10:19	Trip Blank	1,1,1-Trichloroethane	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	1,1,2,2-Tetrachloroethane	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	1,1,2-Trichloroethane	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	1,1-Dichloroethane	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	1,1-Dichloroethene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	1,1-Dichloropropene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	1,2,3-Trichlorobenzene	<	0.002
PWC1548-08	3/21/2013 10:19	Trip Blank	1,2,3-Trichloropropane	<	0.002
PWC1548-08	3/21/2013 10:19	Trip Blank	1,2,4-Trichlorobenzene	<	0.002
PWC1548-08	3/21/2013 10:19	Trip Blank	1,2,4-Trimethylbenzene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	1,2-Dibromoethane (EDB)	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	1,2-Dichlorobenzene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	1,2-Dichloroethane	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	1,2-Dichloropropane	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	1,3,5-Trimethylbenzene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	1,3-Dichlorobenzene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	1,3-Dichloropropane	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	1,4-Dichlorobenzene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	2,2-Dichloropropane	<	0.002
PWC1548-08	3/21/2013 10:19	Trip Blank	2-Butanone (MEK)	<	0.005
PWC1548-08	3/21/2013 10:19	Trip Blank	2-Chlorotoluene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	2-Hexanone	<	0.005
PWC1548-08	3/21/2013 10:19	Trip Blank	4-Chlorotoluene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	4-Methyl-2-pentanone (MIBK)	<	0.005
PWC1548-08	3/21/2013 10:19	Trip Blank	Acetone	<	0.02
PWC1548-08	3/21/2013 10:19	Trip Blank	Benzene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Bromobenzene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Bromochloromethane	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Bromodichloromethane	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Bromoform	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Bromomethane	<	0.002
PWC1548-08	3/21/2013 10:19	Trip Blank	Carbon tetrachloride	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Chlorobenzene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Chloroethane	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Chloroform	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Chloromethane	<	0.005
PWC1548-08	3/21/2013 10:19	Trip Blank	cis-1,2-Dichloroethene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	cis-1,3-Dichloropropene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Dibromochloromethane	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Dichlorodifluoromethane	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Ethylbenzene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	m,p-Xylenes	<	0.002
PWC1548-08	3/21/2013 10:19	Trip Blank	Methyl-tert-butyl Ether (MTBE)	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Methylene Chloride	<	0.002
PWC1548-08	3/21/2013 10:19	Trip Blank	n-Butylbenzene	<	0.001

Appendix F

Trip Blank Summary Table for 2013 (all results in mg/L)

Thomas O. Price Service Center LUST No. 0767.01-0767.05, ADEQ Facility ID No. 0-005160

Lab Login	Sample Date	Sample ID	Parameter	Prefix	Result
PWC1548-08	3/21/2013 10:19	Trip Blank	n-Propylbenzene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	o-Xylene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	p-Isopropyltoluene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	sec-Butylbenzene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Styrene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	tert-Butylbenzene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Tetrachloroethene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Toluene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	trans-1,2-Dichloroethene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	trans-1,3-Dichloropropene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Trichloroethene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Trichlorofluoromethane	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Vinyl Acetate	<	0.002
PWC1548-08	3/21/2013 10:19	Trip Blank	Vinyl chloride	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Isopropylbenzene	<	0.001
PWC1548-08	3/21/2013 10:19	Trip Blank	Naphthalene	<	0.005
PWC1686-18	3/25/2013 7:50	Trip Blank	1,1,1-Trichloroethane	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	1,1,2,2-Tetrachloroethane	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	1,1,2-Trichloroethane	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	1,1-Dichloroethane	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	1,1-Dichloroethene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	1,1-Dichloropropene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	1,2,3-Trichlorobenzene	<	0.002
PWC1686-18	3/25/2013 7:50	Trip Blank	1,2,3-Trichloropropane	<	0.002
PWC1686-18	3/25/2013 7:50	Trip Blank	1,2,4-Trichlorobenzene	<	0.002
PWC1686-18	3/25/2013 7:50	Trip Blank	1,2,4-Trimethylbenzene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	1,2-Dibromoethane (EDB)	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	1,2-Dichlorobenzene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	1,2-Dichloroethane	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	1,2-Dichloropropane	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	1,3,5-Trimethylbenzene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	1,3-Dichlorobenzene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	1,3-Dichloropropane	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	1,4-Dichlorobenzene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	2,2-Dichloropropane	<	0.002
PWC1686-18	3/25/2013 7:50	Trip Blank	2-Butanone (MEK)	<	0.005
PWC1686-18	3/25/2013 7:50	Trip Blank	2-Chlorotoluene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	2-Hexanone	<	0.005
PWC1686-18	3/25/2013 7:50	Trip Blank	4-Chlorotoluene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	4-Methyl-2-pentanone (MIBK)	<	0.005
PWC1686-18	3/25/2013 7:50	Trip Blank	Acetone	<	0.02
PWC1686-18	3/25/2013 7:50	Trip Blank	Benzene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Bromobenzene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Bromochloromethane	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Bromodichloromethane	<	0.001

Appendix F

Trip Blank Summary Table for 2013 (all results in mg/L)

Thomas O. Price Service Center LUST No. 0767.01-0767.05, ADEQ Facility ID No. 0-005160

Lab Login	Sample Date	Sample ID	Parameter	Prefix	Result
PWC1686-18	3/25/2013 7:50	Trip Blank	Bromoform	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Bromomethane	<	0.002
PWC1686-18	3/25/2013 7:50	Trip Blank	Carbon tetrachloride	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Chlorobenzene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Chloroethane	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Chloroform	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Chloromethane	<	0.005
PWC1686-18	3/25/2013 7:50	Trip Blank	cis-1,2-Dichloroethene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	cis-1,3-Dichloropropene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Dibromochloromethane	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Dichlorodifluoromethane	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Ethylbenzene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	m,p-Xylenes	<	0.002
PWC1686-18	3/25/2013 7:50	Trip Blank	Methyl-tert-butyl Ether (MTBE)	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Methylene Chloride	<	0.002
PWC1686-18	3/25/2013 7:50	Trip Blank	n-Butylbenzene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	n-Propylbenzene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	o-Xylene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	p-Isopropyltoluene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	sec-Butylbenzene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Styrene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	tert-Butylbenzene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Tetrachloroethene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Toluene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	trans-1,2-Dichloroethene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	trans-1,3-Dichloropropene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Trichloroethene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Trichlorofluoromethane	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Vinyl Acetate	<	0.002
PWC1686-18	3/25/2013 7:50	Trip Blank	Vinyl chloride	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Isopropylbenzene	<	0.001
PWC1686-18	3/25/2013 7:50	Trip Blank	Naphthalene	<	0.005
PWC1837-09	3/26/2013 8:26	Trip Blank	Benzene	<	0.001
PWC1837-09	3/26/2013 8:26	Trip Blank	Ethylbenzene	<	0.002
PWC1837-09	3/26/2013 8:26	Trip Blank	Methyl-tert-butyl Ether (MTBE)	<	0.005
PWC1837-09	3/26/2013 8:26	Trip Blank	Toluene	<	0.002
PWC1837-09	3/26/2013 8:26	Trip Blank	Xylenes, Total	<	0.003
PWC1964-10	3/27/2013 8:35	Trip Blank	Benzene	<	0.001
PWC1964-10	3/27/2013 8:35	Trip Blank	Benzene	<	0.001
PWC1964-10	3/27/2013 8:35	Trip Blank	Ethylbenzene	<	0.002
PWC1964-10	3/27/2013 8:35	Trip Blank	Ethylbenzene	<	0.002
PWC1964-10	3/27/2013 8:35	Trip Blank	Methyl-tert-butyl Ether (MTBE)	<	0.005
PWC1964-10	3/27/2013 8:35	Trip Blank	Methyl-tert-butyl Ether (MTBE)	<	0.005
PWC1964-10	3/27/2013 8:35	Trip Blank	Toluene	<	0.002
PWC1964-10	3/27/2013 8:35	Trip Blank	Toluene	<	0.002

Appendix F

Trip Blank Summary Table for 2013 (all results in mg/L)

Thomas O. Price Service Center LUST No. 0767.01-0767.05, ADEQ Facility ID No. 0-005160

Lab Login	Sample Date	Sample ID	Parameter	Prefix	Result
PWC1964-10	3/27/2013 8:35	Trip Blank	Xylenes, Total	<	0.003
PWC1964-10	3/27/2013 8:35	Trip Blank	Xylenes, Total	<	0.003
PWC1966-08	3/28/2013 7:55	Trip Blank	1,1,1-Trichloroethane	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	1,1,2,2-Tetrachloroethane	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	1,1,2-Trichloroethane	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	1,1-Dichloroethane	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	1,1-Dichloroethene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	1,1-Dichloropropene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	1,2,3-Trichlorobenzene	<	0.002
PWC1966-08	3/28/2013 7:55	Trip Blank	1,2,3-Trichloropropane	<	0.002
PWC1966-08	3/28/2013 7:55	Trip Blank	1,2,4-Trichlorobenzene	<	0.002
PWC1966-08	3/28/2013 7:55	Trip Blank	1,2,4-Trimethylbenzene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	1,2-Dibromoethane (EDB)	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	1,2-Dichlorobenzene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	1,2-Dichloroethane	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	1,2-Dichloropropane	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	1,3,5-Trimethylbenzene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	1,3-Dichlorobenzene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	1,3-Dichloropropane	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	1,4-Dichlorobenzene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	2,2-Dichloropropane	<	0.002
PWC1966-08	3/28/2013 7:55	Trip Blank	2-Butanone (MEK)	<	0.005
PWC1966-08	3/28/2013 7:55	Trip Blank	2-Chlorotoluene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	2-Hexanone	<	0.005
PWC1966-08	3/28/2013 7:55	Trip Blank	4-Chlorotoluene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	4-Methyl-2-pentanone (MIBK)	<	0.005
PWC1966-08	3/28/2013 7:55	Trip Blank	Acetone	<	0.02
PWC1966-08	3/28/2013 7:55	Trip Blank	Benzene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Bromobenzene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Bromochloromethane	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Bromodichloromethane	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Bromoform	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Bromomethane	<	0.002
PWC1966-08	3/28/2013 7:55	Trip Blank	Carbon tetrachloride	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Chlorobenzene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Chloroethane	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Chloroform	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Chloromethane	<	0.005
PWC1966-08	3/28/2013 7:55	Trip Blank	cis-1,2-Dichloroethene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	cis-1,3-Dichloropropene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Dibromochloromethane	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Dichlorodifluoromethane	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Ethylbenzene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	m,p-Xylenes	<	0.002
PWC1966-08	3/28/2013 7:55	Trip Blank	Methyl-tert-butyl Ether (MTBE)	<	0.001

Appendix F

Trip Blank Summary Table for 2013 (all results in mg/L)

Thomas O. Price Service Center LUST No. 0767.01-0767.05, ADEQ Facility ID No. 0-005160

Lab Login	Sample Date	Sample ID	Parameter	Prefix	Result
PWC1966-08	3/28/2013 7:55	Trip Blank	Methylene Chloride	<	0.002
PWC1966-08	3/28/2013 7:55	Trip Blank	n-Butylbenzene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	n-Propylbenzene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	o-Xylene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	p-Isopropyltoluene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	sec-Butylbenzene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Styrene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	tert-Butylbenzene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Tetrachloroethene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Toluene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	trans-1,2-Dichloroethene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	trans-1,3-Dichloropropene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Trichloroethene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Trichlorofluoromethane	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Vinyl Acetate	<	0.002
PWC1966-08	3/28/2013 7:55	Trip Blank	Vinyl chloride	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Isopropylbenzene	<	0.001
PWC1966-08	3/28/2013 7:55	Trip Blank	Naphthalene	<	0.005
550-1520-4	4/24/2013 10:21	Trip Blank	Ethylbenzene	<	0.002
550-1520-4	4/24/2013 10:21	Trip Blank	Benzene	<	0.002
550-1520-4	4/24/2013 10:21	Trip Blank	Toluene	<	0.002
550-1520-4	4/24/2013 10:21	Trip Blank	Xylenes, Total	<	0.01
550-1520-4	4/24/2013 10:21	Trip Blank	m,p-Xylenes	<	0.005
550-1520-4	4/24/2013 10:21	Trip Blank	o-Xylene	<	0.005
550-1520-4	4/24/2013 10:21	Trip Blank	Methyl tert-butyl ether	<	0.001
550-1519-4	4/23/2013 12:50	Trip Blank	Ethylbenzene	<	0.002
550-1519-4	4/23/2013 12:50	Trip Blank	Benzene	<	0.002
550-1519-4	4/23/2013 12:50	Trip Blank	Toluene	<	0.002
550-1519-4	4/23/2013 12:50	Trip Blank	Xylenes, Total	<	0.01
550-1519-4	4/23/2013 12:50	Trip Blank	m,p-Xylenes	<	0.005
550-1519-4	4/23/2013 12:50	Trip Blank	o-Xylene	<	0.005
550-1519-4	4/23/2013 12:50	Trip Blank	Methyl tert-butyl ether	<	0.001

3/21/2013

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Center Blvd. Ste 189
Phoenix, AZ 85040
Tel: (602) 437-3340

TestAmerica Job ID: PWC1548
Client Project/Site: Price Service Center, P01064
Client Project Description: Price Service Center

For:
City of Tucson Environmental Services
255 W. Alameda, Sixth floor
Tucson, AZ 85701

Attn: Jeff Drumm

Denise Harrington

Authorized for release by:
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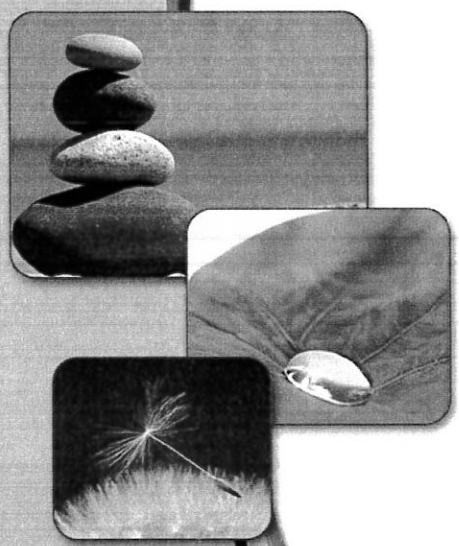

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1548

Qualifiers

GCMS Volatiles

Qualifier	Qualifier Description
L3	The associated blank spike recovery was above method acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1548

Job ID: PWC1548

Laboratory: TestAmerica Phoenix

Narrative

SAMPLE RECEIPT: Samples were received intact, at 1.8 °C, on ice and with chain of custody documentation.

HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the TestAmerica Sample Acceptance Policy unless otherwise noted in the report.

PRESERVATION: Samples requiring preservation were verified prior to sample analysis.

QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

N1 = The second source initial calibration verification analyzed immediately following the calibration recovered high and outside of acceptance limits for Vinyl Acetate. All associated samples had results less than the reporting limit for this analyte and therefore should not be impacted.

SUBCONTRACTED: No analyses were subcontracted to an outside laboratory.

COMMENTS: No significant observations were made.

COMMENT: Report was revised to include Xylenes, Total in the 8260 results.

REVISION: Report was revised to exclude the diluted Xylenes, total result from PWC1548-03.

Sample Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1548

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
PWC1548-01	WR-217A	Water	03/21/13 10:19	03/22/13 10:00
PWC1548-02	WR-217A (DUP)	Water	03/21/13 10:23	03/22/13 10:00
PWC1548-03	WR-298A	Water	03/21/13 10:40	03/22/13 10:00
PWC1548-04	WR-213A	Water	03/21/13 10:58	03/22/13 10:00
PWC1548-05	WR-218A	Water	03/21/13 11:11	03/22/13 10:00
PWC1548-06	WR-227A	Water	03/21/13 11:30	03/22/13 10:00
PWC1548-07	WR-222A	Water	03/21/13 11:48	03/22/13 10:00
PWC1548-08	Trip Blank	Water	03/21/13 10:19	03/22/13 10:00

Detection Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1548

Client Sample ID: WR-217A — Lab Sample ID: PWC1548-01

No Detections.

Client Sample ID: WR-217A (DUP) — Lab Sample ID: PWC1548-02

No Detections.

Client Sample ID: WR-298A — Lab Sample ID: PWC1548-03

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl-tert-butyl Ether (MTBE) - RE1	7.1		0.50		mg/l	100		EPA 8260B	Total

Client Sample ID: WR-213A — Lab Sample ID: PWC1548-04

No Detections.

Client Sample ID: WR-218A — Lab Sample ID: PWC1548-05

No Detections.

Client Sample ID: WR-227A — Lab Sample ID: PWC1548-06

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl-tert-butyl Ether (MTBE)	0.041		0.0010		mg/l	1.0		EPA 8260B	Total

Client Sample ID: WR-222A — Lab Sample ID: PWC1548-07

No Detections.

Client Sample ID: Trip Blank — Lab Sample ID: PWC1548-08

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1548

Client Sample ID: WR-217A

Date Collected: 03/21/13 10:19
Date Received: 03/22/13 10:00

Lab Sample ID: PWC1548-01
Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
1,1,2,2-Tetrachloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
1,1,2-Trichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
1,1-Dichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
1,1-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
1,1-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
1,2,3-Trichlorobenzene	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
1,2,3-Trichloropropane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
1,2,4-Trichlorobenzene	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
1,2,4-Trimethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
1,2-Dibromoethane (EDB)	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
1,2-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
1,2-Dichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
1,2-Dichloropropane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
1,3,5-Trimethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
1,3-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
1,3-Dichloropropane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
1,4-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
2,2-Dichloropropane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
2-Butanone (MEK)	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
2-Chlorotoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
2-Hexanone	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
4-Chlorotoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Acetone	ND		0.020		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Benzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Bromobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Bromochloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Bromodichloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Bromoform	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Bromomethane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Carbon tetrachloride	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Chlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Chloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Chloroform	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Chloromethane	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
cis-1,2-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
cis-1,3-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Dibromochloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Dichlorodifluoromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Ethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
m,p-Xylenes	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Methylene Chloride	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
n-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
n-Propylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
o-Xylene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
p-Isopropyltoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
sec-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0

Client Sample ID: WR-217A

Lab Sample ID: PWC1548-01
Matrix: Water

Date Collected: 03/21/13 10:19
Date Received: 03/22/13 10:00

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
tert-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Tetrachloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Toluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
trans-1,2-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
trans-1,3-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Trichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Trichlorofluoromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Vinyl Acetate	ND	L3	0.0020		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Vinyl chloride	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Isopropylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Naphthalene	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 09:05	1.0
Xylenes, Total	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 09:05	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*104*		*70 - 130*	*03/29/13 00:00*	*03/29/13 09:05*	*1.0*
Toluene-d8	*105*		*70 - 130*	*03/29/13 00:00*	*03/29/13 09:05*	*1.0*
4-Bromofluorobenzene	*106*		*70 - 130*	*03/29/13 00:00*	*03/29/13 09:05*	*1.0*

Client Sample ID: WR-217A (DUP)

Lab Sample ID: PWC1548-02
Matrix: Water

Date Collected: 03/21/13 10:23
Date Received: 03/22/13 10:00

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
1,1,2,2-Tetrachloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
1,1,2-Trichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
1,1-Dichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
1,1-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
1,1-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
1,2,3-Trichlorobenzene	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
1,2,3-Trichloropropane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
1,2,4-Trichlorobenzene	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
1,2,4-Trimethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
1,2-Dibromoethane (EDB)	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
1,2-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
1,2-Dichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
1,2-Dichloropropane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
1,3,5-Trimethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
1,3-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
1,3-Dichloropropane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
1,4-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
2,2-Dichloropropane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
2-Butanone (MEK)	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
2-Chlorotoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
2-Hexanone	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
4-Chlorotoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Acetone	ND		0.020		mg/l		03/29/13 00:00	03/29/13 10:40	1.0

Client Sample ID: WR-217A (DUP)

Lab Sample ID: PWC1548-02

Date Collected: 03/21/13 10:23
Date Received: 03/22/13 10:00

Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Bromobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Bromochloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Bromodichloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Bromoform	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Bromomethane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Carbon tetrachloride	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Chlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Chloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Chloroform	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Chloromethane	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
cis-1,2-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
cis-1,3-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Dibromochloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Dichlorodifluoromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Ethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
m,p-Xylenes	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Methylene Chloride	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
n-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
n-Propylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
o-Xylene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
p-Isopropyltoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
sec-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Styrene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
tert-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Tetrachloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Toluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
trans-1,2-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
trans-1,3-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Trichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Trichlorofluoromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Vinyl Acetate	ND	L3	0.0020		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Vinyl chloride	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Isopropylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Naphthalene	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 10:40	1.0
Xylenes, Total	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 10:40	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*104*		*70 - 130*	*03/29/13 00:00*	*03/29/13 10:40*	*1.0*
Toluene-d8	*104*		*70 - 130*	*03/29/13 00:00*	*03/29/13 10:40*	*1.0*
4-Bromofluorobenzene	*106*		*70 - 130*	*03/29/13 00:00*	*03/29/13 10:40*	*1.0*

Client Sample ID: WR-298A

Lab Sample ID: PWC1548-03

Date Collected: 03/21/13 10:40
Date Received: 03/22/13 10:00

Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/25/13 07:15	03/25/13 12:56	1.0

Client Sample ID: WR-298A

Lab Sample ID: PWC1548-03
Matrix: Water

Date Collected: 03/21/13 10:40
Date Received: 03/22/13 10:00

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.0020		mg/l		03/25/13 07:15	03/25/13 12:56	1.0
Toluene	ND		0.0020		mg/l		03/25/13 07:15	03/25/13 12:56	1.0
Xylenes, Total	ND		0.0030		mg/l		03/25/13 07:15	03/25/13 12:56	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*95*		*70 - 130*	*03/25/13 07:15*	*03/25/13 12:56*	*1.0*
Toluene-d8	*95*		*70 - 130*	*03/25/13 07:15*	*03/25/13 12:56*	*1.0*
4-Bromofluorobenzene	*91*		*70 - 130*	*03/25/13 07:15*	*03/25/13 12:56*	*1.0*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl-tert-butyl Ether (MTBE)	7.1		0.50		mg/l		03/25/13 07:15	03/25/13 15:11	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*96*		*70 - 130*	*03/25/13 07:15*	*03/25/13 15:11*	*100*
Toluene-d8	*95*		*70 - 130*	*03/25/13 07:15*	*03/25/13 15:11*	*100*
4-Bromofluorobenzene	*94*		*70 - 130*	*03/25/13 07:15*	*03/25/13 15:11*	*100*

Client Sample ID: WR-213A

Lab Sample ID: PWC1548-04
Matrix: Water

Date Collected: 03/21/13 10:58
Date Received: 03/22/13 10:00

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/25/13 07:15	03/25/13 14:39	1.0
Ethylbenzene	ND		0.0020		mg/l		03/25/13 07:15	03/25/13 14:39	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		03/25/13 07:15	03/25/13 14:39	1.0
Toluene	ND		0.0020		mg/l		03/25/13 07:15	03/25/13 14:39	1.0
Xylenes, Total	ND		0.0030		mg/l		03/25/13 07:15	03/25/13 14:39	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*95*		*70 - 130*	*03/25/13 07:15*	*03/25/13 14:39*	*1.0*
Toluene-d8	*95*		*70 - 130*	*03/25/13 07:15*	*03/25/13 14:39*	*1.0*
4-Bromofluorobenzene	*90*		*70 - 130*	*03/25/13 07:15*	*03/25/13 14:39*	*1.0*

Client Sample ID: WR-218A

Lab Sample ID: PWC1548-05
Matrix: Water

Date Collected: 03/21/13 11:11
Date Received: 03/22/13 10:00

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/25/13 07:15	03/25/13 14:00	1.0
Ethylbenzene	ND		0.0020		mg/l		03/25/13 07:15	03/25/13 14:00	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		03/25/13 07:15	03/25/13 14:00	1.0
Toluene	ND		0.0020		mg/l		03/25/13 07:15	03/25/13 14:00	1.0
Xylenes, Total	ND		0.0030		mg/l		03/25/13 07:15	03/25/13 14:00	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*100*		*70 - 130*	*03/25/13 07:15*	*03/25/13 14:00*	*1.0*
Toluene-d8	*95*		*70 - 130*	*03/25/13 07:15*	*03/25/13 14:00*	*1.0*
4-Bromofluorobenzene	*91*		*70 - 130*	*03/25/13 07:15*	*03/25/13 14:00*	*1.0*

Client Sample Results

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1548

Client Sample ID: WR-227A

Date Collected: 03/21/13 11:30
Date Received: 03/22/13 10:00

Lab Sample ID: PWC1548-06

Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
1,1,2,2-Tetrachloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
1,1,2-Trichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
1,1-Dichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
1,1-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
1,1-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
1,2,3-Trichlorobenzene	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
1,2,3-Trichloropropane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
1,2,4-Trichlorobenzene	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
1,2,4-Trimethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
1,2-Dibromoethane (EDB)	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
1,2-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
1,2-Dichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
1,2-Dichloropropane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
1,3,5-Trimethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
1,3-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
1,3-Dichloropropane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
1,4-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
2,2-Dichloropropane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
2-Butanone (MEK)	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
2-Chlorotoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
2-Hexanone	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
4-Chlorotoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Acetone	ND		0.020		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Benzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Bromobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Bromochloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Bromodichloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Bromoform	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Bromomethane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Carbon tetrachloride	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Chlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Chloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Chloroform	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Chloromethane	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
cis-1,2-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
cis-1,3-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Dibromochloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Dichlorodifluoromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Ethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
m,p-Xylenes	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Methyl-tert-butyl Ether (MTBE)	0.041		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Methylene Chloride	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
n-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
n-Propylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
o-Xylene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
p-Isopropyltoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
sec-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0

Client Sample ID: WR-227A

Lab Sample ID: PWC1548-06
Matrix: Water

Date Collected: 03/21/13 11:30
Date Received: 03/22/13 10:00

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
tert-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Tetrachloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Toluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
trans-1,2-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
trans-1,3-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Trichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Trichlorofluoromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Vinyl Acetate	ND	L3	0.0020		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Vinyl chloride	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Isopropylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Naphthalene	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 11:11	1.0
Xylenes, Total	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 11:11	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*107*		*70 - 130*	*03/29/13 00:00*	*03/29/13 11:11*	*1.0*
Toluene-d8	*107*		*70 - 130*	*03/29/13 00:00*	*03/29/13 11:11*	*1.0*
4-Bromofluorobenzene	*101*		*70 - 130*	*03/29/13 00:00*	*03/29/13 11:11*	*1.0*

Client Sample ID: WR-222A

Lab Sample ID: PWC1548-07
Matrix: Water

Date Collected: 03/21/13 11:48
Date Received: 03/22/13 10:00

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
1,1,2,2-Tetrachloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
1,1,2-Trichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
1,1-Dichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
1,1-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
1,1-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
1,2,3-Trichlorobenzene	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
1,2,3-Trichloropropane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
1,2,4-Trichlorobenzene	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
1,2,4-Trimethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
1,2-Dibromoethane (EDB)	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
1,2-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
1,2-Dichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
1,2-Dichloropropane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
1,3,5-Trimethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
1,3-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
1,3-Dichloropropane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
1,4-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
2,2-Dichloropropane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
2-Butanone (MEK)	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
2-Chlorotoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
2-Hexanone	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
4-Chlorotoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Acetone	ND		0.020		mg/l		03/29/13 00:00	03/29/13 11:42	1.0

Client Sample ID: WR-222A

Lab Sample ID: PWC1548-07

Date Collected: 03/21/13 11:48
Date Received: 03/22/13 10:00

Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Bromobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Bromochloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Bromodichloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Bromoform	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Bromomethane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Carbon tetrachloride	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Chlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Chloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Chloroform	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Chloromethane	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
cis-1,2-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
cis-1,3-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Dibromochloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Dichlorodifluoromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Ethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
m,p-Xylenes	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Methylene Chloride	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
n-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
n-Propylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
o-Xylene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
p-Isopropyltoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
sec-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Styrene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
tert-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Tetrachloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Toluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
trans-1,2-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
trans-1,3-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Trichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Trichlorofluoromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Vinyl Acetate	ND	L3	0.0020		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Vinyl chloride	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Isopropylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Naphthalene	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 11:42	1.0
Xylenes, Total	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 11:42	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*102*		*70 - 130*	*03/29/13 00:00*	*03/29/13 11:42*	*1.0*
Toluene-d8	*102*		*70 - 130*	*03/29/13 00:00*	*03/29/13 11:42*	*1.0*
4-Bromofluorobenzene	*99*		*70 - 130*	*03/29/13 00:00*	*03/29/13 11:42*	*1.0*

Client Sample ID: Trip Blank

Lab Sample ID: PWC1548-08

Date Collected: 03/21/13 10:19
Date Received: 03/22/13 10:00

Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0

Client Sample ID: Trip Blank

Lab Sample ID: PWC1548-08

Date Collected: 03/21/13 10:19
Date Received: 03/22/13 10:00

Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2,2-Tetrachloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
1,1,2-Trichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
1,1-Dichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
1,1-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
1,1-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
1,2,3-Trichlorobenzene	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
1,2,3-Trichloropropane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
1,2,4-Trichlorobenzene	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
1,2,4-Trimethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
1,2-Dibromoethane (EDB)	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
1,2-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
1,2-Dichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
1,2-Dichloropropane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
1,3,5-Trimethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
1,3-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
1,3-Dichloropropane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
1,4-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
2,2-Dichloropropane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
2-Butanone (MEK)	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
2-Chlorotoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
2-Hexanone	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
4-Chlorotoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Acetone	ND		0.020		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Benzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Bromobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Bromochloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Bromodichloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Bromoform	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Bromomethane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Carbon tetrachloride	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Chlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Chloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Chloroform	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Chloromethane	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
cis-1,2-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
cis-1,3-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Dibromochloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Dichlorodifluoromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Ethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
m,p-Xylenes	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Methylene Chloride	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
n-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
n-Propylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
o-Xylene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
p-Isopropyltoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
sec-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Styrene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0

Client Sample Results

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1548

Client Sample ID: Trip Blank

Lab Sample ID: PWC1548-08

Date Collected: 03/21/13 10:19
Date Received: 03/22/13 10:00

Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
tert-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Tetrachloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Toluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
trans-1,2-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
trans-1,3-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Trichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Trichlorofluoromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Vinyl Acetate	ND	L3	0.0020		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Vinyl chloride	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Isopropylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Naphthalene	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 07:30	1.0
Xylenes, Total	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 07:30	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*101*		*70 - 130*	*03/29/13 00:00*	*03/29/13 07:30*	*1.0*
Toluene-d8	*103*		*70 - 130*	*03/29/13 00:00*	*03/29/13 07:30*	*1.0*
4-Bromofluorobenzene	*106*		*70 - 130*	*03/29/13 00:00*	*03/29/13 07:30*	*1.0*

Surrogate Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1548

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Matrix: Water

Prep Type: Total

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	Toluene-d8	BFB
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)
13C0979-BLK1	Method Blank	95	96	92
13C0979-BS1	Lab Control Sample	97	95	104
13C0979-BSD1	Lab Control Sample Dup	97	96	105
13C0979-MS1	Matrix Spike	102	96	105
13C0979-MSD1	Matrix Spike Duplicate	97	95	108
PWC1548-03	WR-298A	95	95	91
PWC1548-03 - RE1	WR-298A	96	95	94
PWC1548-04	WR-213A	95	95	90
PWC1548-05	WR-218A	100	95	91

Surrogate Legend

DBFM = Dibromofluoromethane

Toluene-d8 = Toluene-d8

BFB = 4-Bromofluorobenzene

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Matrix: Water

Prep Type: Total

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	Toluene-d8	BFB
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)
13C1178-BLK1	Method Blank	100	101	104
13C1178-BS1	Lab Control Sample	104	100	103
13C1178-BSD1	Lab Control Sample Dup	105	99	101
13C1178-MS1	WR-217A	102	103	106
13C1178-MSD1	WR-217A	102	105	105
PWC1548-01	WR-217A	104	105	106
PWC1548-02	WR-217A (DUP)	104	104	106
PWC1548-06	WR-227A	107	107	101
PWC1548-07	WR-222A	102	102	99
PWC1548-08	Trip Blank	101	103	106

Surrogate Legend

DBFM = Dibromofluoromethane

Toluene-d8 = Toluene-d8

BFB = 4-Bromofluorobenzene

QC Sample Results

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1548

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Lab Sample ID: 13C0979-BLK1
Matrix: Water
Analysis Batch: 13C0979

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13C0979_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/25/13 00:00	03/25/13 06:44	1.00
Ethylbenzene	ND		0.0020		mg/l		03/25/13 00:00	03/25/13 06:44	1.00
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		03/25/13 00:00	03/25/13 06:44	1.00
Toluene	ND		0.0020		mg/l		03/25/13 00:00	03/25/13 06:44	1.00
Xylenes, Total	ND		0.0030		mg/l		03/25/13 00:00	03/25/13 06:44	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*95*		*70 - 130*	*03/25/13 00:00*	*03/25/13 06:44*	*1.00*
Toluene-d8	*96*		*70 - 130*	*03/25/13 00:00*	*03/25/13 06:44*	*1.00*
4-Bromofluorobenzene	*92*		*70 - 130*	*03/25/13 00:00*	*03/25/13 06:44*	*1.00*

Lab Sample ID: 13C0979-BS1
Matrix: Water
Analysis Batch: 13C0979

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13C0979_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0250	0.0246		mg/l		99	70 - 130
Ethylbenzene	0.0250	0.0275		mg/l		110	70 - 130
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0276		mg/l		110	70 - 130
Toluene	0.0250	0.0247		mg/l		99	70 - 130
Xylenes, Total	0.0500	0.0514		mg/l		103	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*97*		*70 - 130*
Toluene-d8	*95*		*70 - 130*
4-Bromofluorobenzene	*104*		*70 - 130*

Lab Sample ID: 13C0979-BSD1
Matrix: Water
Analysis Batch: 13C0979

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13C0979_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0250	0.0246		mg/l		98	70 - 130	0.2	20
Ethylbenzene	0.0250	0.0270		mg/l		108	70 - 130	2	20
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0284		mg/l		114	70 - 130	3	20
Toluene	0.0250	0.0249		mg/l		100	70 - 130	0.6	20
Xylenes, Total	0.0500	0.0510		mg/l		102	70 - 130	0.7	20

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Dibromofluoromethane	*97*		*70 - 130*
Toluene-d8	*96*		*70 - 130*
4-Bromofluorobenzene	*105*		*70 - 130*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C0979-MS1
Matrix: Water
Analysis Batch: 13C0979

Client Sample ID: Matrix Spike
Prep Type: Total
Prep Batch: 13C0979_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		0.0250	0.0265		mg/l		106	68 - 131
Ethylbenzene	ND		0.0250	0.0296		mg/l		119	74 - 134
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0319		mg/l		128	67 - 138
Toluene	ND		0.0250	0.0270		mg/l		108	65 - 138
Xylenes, Total	ND		0.0500	0.0563		mg/l		113	68 - 131

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*102*		*70 - 130*
Toluene-d8	*96*		*70 - 130*
4-Bromofluorobenzene	*105*		*70 - 130*

Lab Sample ID: 13C0979-MSD1
Matrix: Water
Analysis Batch: 13C0979

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total
Prep Batch: 13C0979_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		0.0250	0.0258		mg/l		103	68 - 131	3	32
Ethylbenzene	ND		0.0250	0.0290		mg/l		116	74 - 134	2	32
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0306		mg/l		122	67 - 138	4	21
Toluene	ND		0.0250	0.0264		mg/l		106	65 - 138	2	33
Xylenes, Total	ND		0.0500	0.0553		mg/l		111	68 - 131	2	31

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Dibromofluoromethane	*97*		*70 - 130*
Toluene-d8	*95*		*70 - 130*
4-Bromofluorobenzene	*108*		*70 - 130*

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Lab Sample ID: 13C1178-BLK1
Matrix: Water
Analysis Batch: 13C1178

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13C1178_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
1,1,2,2-Tetrachloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
1,1,2-Trichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
1,1-Dichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
1,1-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
1,1-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
1,2,3-Trichlorobenzene	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
1,2,3-Trichloropropane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
1,2,4-Trichlorobenzene	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
1,2,4-Trimethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
1,2-Dibromoethane (EDB)	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
1,2-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
1,2-Dichloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C1178-BLK1
Matrix: Water
Analysis Batch: 13C1178

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13C1178_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloropropane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
1,3,5-Trimethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
1,3-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
1,3-Dichloropropane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
1,4-Dichlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
2,2-Dichloropropane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
2-Butanone (MEK)	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
2-Chlorotoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
2-Hexanone	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
4-Chlorotoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Acetone	ND		0.020		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Benzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Bromobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Bromochloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Bromodichloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Bromoform	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Bromomethane	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Carbon tetrachloride	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Chlorobenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Chloroethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Chloroform	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Chloromethane	ND		0.0050		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
cis-1,2-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
cis-1,3-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Dibromochloromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Dichlorodifluoromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Ethylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
m,p-Xylenes	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Methyl-tert-butyl Ether (MTBE)	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Methylene Chloride	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
n-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
n-Propylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
o-Xylene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
p-Isopropyltoluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
sec-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Styrene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
tert-Butylbenzene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Tetrachloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Toluene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
trans-1,2-Dichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
trans-1,3-Dichloropropene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Trichloroethene	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Trichlorofluoromethane	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Vinyl Acetate	ND	N1	0.0020		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Vinyl chloride	ND		0.0010		mg/l		03/29/13 00:00	03/29/13 06:58	1.00
Xylenes, Total	ND		0.0020		mg/l		03/29/13 00:00	03/29/13 06:58	1.00

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C1178-BLK1
Matrix: Water
Analysis Batch: 13C1178

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13C1178_P

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*100*		*70 - 130*	*03/29/13 00:00*	*03/29/13 06:58*	*1.00*
Toluene-d8	*101*		*70 - 130*	*03/29/13 00:00*	*03/29/13 06:58*	*1.00*
4-Bromofluorobenzene	*104*		*70 - 130*	*03/29/13 00:00*	*03/29/13 06:58*	*1.00*

Lab Sample ID: 13C1178-BS1
Matrix: Water
Analysis Batch: 13C1178

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13C1178_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	0.0250	0.0204		mg/l		82	71 - 131
1,1,2,2-Tetrachloroethane	0.0250	0.0214		mg/l		86	70 - 130
1,1,2-Trichloroethane	0.0250	0.0229		mg/l		92	70 - 130
1,1-Dichloroethane	0.0250	0.0213		mg/l		85	70 - 130
1,1-Dichloroethene	0.0250	0.0232		mg/l		93	63 - 131
1,1-Dichloropropene	0.0250	0.0207		mg/l		83	70 - 130
1,2,3-Trichlorobenzene	0.0250	0.0258		mg/l		103	79 - 139
1,2,3-Trichloropropane	0.0250	0.0233		mg/l		93	70 - 130
1,2,4-Trichlorobenzene	0.0250	0.0251		mg/l		100	80 - 137
1,2,4-Trimethylbenzene	0.0250	0.0231		mg/l		92	70 - 130
1,2-Dibromoethane (EDB)	0.0250	0.0227		mg/l		91	70 - 130
1,2-Dichlorobenzene	0.0250	0.0223		mg/l		89	70 - 130
1,2-Dichloroethane	0.0250	0.0229		mg/l		92	66 - 139
1,2-Dichloropropane	0.0250	0.0196		mg/l		79	70 - 130
1,3,5-Trimethylbenzene	0.0250	0.0232		mg/l		93	70 - 130
1,3-Dichlorobenzene	0.0250	0.0214		mg/l		86	70 - 130
1,3-Dichloropropane	0.0250	0.0228		mg/l		91	70 - 130
1,4-Dichlorobenzene	0.0250	0.0211		mg/l		84	70 - 130
2,2-Dichloropropane	0.0250	0.0241		mg/l		96	69 - 139
2-Butanone (MEK)	0.0250	0.0320		mg/l		128	53 - 150
2-Chlorotoluene	0.0250	0.0217		mg/l		87	70 - 130
2-Hexanone	0.0250	0.0283		mg/l		113	55 - 150
4-Chlorotoluene	0.0250	0.0223		mg/l		89	70 - 130
4-Methyl-2-pentanone (MIBK)	0.0250	0.0259		mg/l		103	64 - 142
Acetone	0.0250	0.0321		mg/l		128	38 - 150
Benzene	0.0250	0.0212		mg/l		85	70 - 130
Bromobenzene	0.0250	0.0220		mg/l		88	70 - 130
Bromochloromethane	0.0250	0.0225		mg/l		90	70 - 130
Bromodichloromethane	0.0250	0.0210		mg/l		84	70 - 130
Bromoform	0.0250	0.0227		mg/l		91	69 - 129
Bromomethane	0.0250	0.0219		mg/l		88	57 - 138
Carbon tetrachloride	0.0250	0.0215		mg/l		86	70 - 143
Chlorobenzene	0.0250	0.0216		mg/l		86	70 - 130
Chloroethane	0.0250	0.0219		mg/l		88	66 - 131
Chloroform	0.0250	0.0220		mg/l		88	70 - 130
Chloromethane	0.0250	0.0203		mg/l		81	56 - 129
cis-1,2-Dichloroethene	0.0250	0.0234		mg/l		94	70 - 130
cis-1,3-Dichloropropene	0.0250	0.0218		mg/l		87	70 - 130
Dibromochloromethane	0.0250	0.0218		mg/l		87	70 - 130

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C1178-BS1
Matrix: Water
Analysis Batch: 13C1178

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13C1178_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichlorodifluoromethane	0.0250	0.0186		mg/l		74	46 - 144
Ethylbenzene	0.0250	0.0218		mg/l		87	70 - 130
m,p-Xylenes	0.0250	0.0214		mg/l		85	70 - 130
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0243		mg/l		97	70 - 130
Methylene Chloride	0.0250	0.0212		mg/l		85	63 - 128
n-Butylbenzene	0.0250	0.0224		mg/l		89	70 - 130
n-Propylbenzene	0.0250	0.0231		mg/l		92	70 - 130
o-Xylene	0.0250	0.0226		mg/l		90	70 - 130
p-Isopropyltoluene	0.0250	0.0208		mg/l		83	70 - 130
sec-Butylbenzene	0.0250	0.0224		mg/l		89	70 - 130
Styrene	0.0250	0.0235		mg/l		94	70 - 130
tert-Butylbenzene	0.0250	0.0220		mg/l		88	70 - 130
Tetrachloroethene	0.0250	0.0214		mg/l		86	70 - 130
Toluene	0.0250	0.0213		mg/l		85	70 - 130
trans-1,2-Dichloroethene	0.0250	0.0218		mg/l		87	69 - 127
trans-1,3-Dichloropropene	0.0250	0.0230		mg/l		92	70 - 130
Trichloroethene	0.0250	0.0204		mg/l		81	70 - 130
Trichlorofluoromethane	0.0250	0.0238		mg/l		95	69 - 150
Vinyl Acetate	0.0250	0.0410	L3	mg/l		164	67 - 148
Vinyl chloride	0.0250	0.0265		mg/l		106	65 - 137
Xylenes, Total	0.0500	0.0439		mg/l		88	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8	*100*		*70 - 130*
4-Bromofluorobenzene	*103*		*70 - 130*

Lab Sample ID: 13C1178-BSD1
Matrix: Water
Analysis Batch: 13C1178

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13C1178_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	0.0250	0.0205		mg/l		82	71 - 131	0.5	20
1,1,2,2-Tetrachloroethane	0.0250	0.0210		mg/l		84	70 - 130	2	20
1,1,2-Trichloroethane	0.0250	0.0227		mg/l		91	70 - 130	0.9	20
1,1-Dichloroethane	0.0250	0.0218		mg/l		87	70 - 130	2	20
1,1-Dichloroethene	0.0250	0.0233		mg/l		93	63 - 131	0.4	22
1,1-Dichloropropene	0.0250	0.0197		mg/l		79	70 - 130	5	20
1,2,3-Trichlorobenzene	0.0250	0.0254		mg/l		101	79 - 139	2	20
1,2,3-Trichloropropane	0.0250	0.0218		mg/l		87	70 - 130	7	20
1,2,4-Trichlorobenzene	0.0250	0.0251		mg/l		100	80 - 137	0.1	20
1,2,4-Trimethylbenzene	0.0250	0.0229		mg/l		92	70 - 130	0.8	20
1,2-Dibromoethane (EDB)	0.0250	0.0225		mg/l		90	70 - 130	0.9	20
1,2-Dichlorobenzene	0.0250	0.0217		mg/l		87	70 - 130	3	20
1,2-Dichloroethane	0.0250	0.0235		mg/l		94	66 - 139	3	20
1,2-Dichloropropane	0.0250	0.0214		mg/l		86	70 - 130	9	20
1,3,5-Trimethylbenzene	0.0250	0.0232		mg/l		93	70 - 130	0.1	20
1,3-Dichlorobenzene	0.0250	0.0205		mg/l		82	70 - 130	4	20

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C1178-BSD1
Matrix: Water
Analysis Batch: 13C1178

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13C1178_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,3-Dichloropropane	0.0250	0.0214		mg/l		86	70 - 130	6	20
1,4-Dichlorobenzene	0.0250	0.0214		mg/l		86	70 - 130	1	20
2,2-Dichloropropane	0.0250	0.0239		mg/l		96	69 - 139	0.7	20
2-Butanone (MEK)	0.0250	0.0263		mg/l		105	53 - 150	20	35
2-Chlorotoluene	0.0250	0.0216		mg/l		87	70 - 130	0.2	20
2-Hexanone	0.0250	0.0239		mg/l		96	55 - 150	17	35
4-Chlorotoluene	0.0250	0.0220		mg/l		88	70 - 130	1	20
4-Methyl-2-pentanone (MIBK)	0.0250	0.0239		mg/l		96	64 - 142	8	25
Acetone	0.0250	0.0275		mg/l		110	38 - 150	15	35
Benzene	0.0250	0.0201		mg/l		80	70 - 130	5	20
Bromobenzene	0.0250	0.0217		mg/l		87	70 - 130	1	20
Bromochloromethane	0.0250	0.0211		mg/l		84	70 - 130	6	20
Bromodichloromethane	0.0250	0.0216		mg/l		86	70 - 130	3	20
Bromoform	0.0250	0.0217		mg/l		87	69 - 129	5	20
Bromomethane	0.0250	0.0224		mg/l		90	57 - 138	2	20
Carbon tetrachloride	0.0250	0.0224		mg/l		90	70 - 143	4	20
Chlorobenzene	0.0250	0.0206		mg/l		83	70 - 130	4	20
Chloroethane	0.0250	0.0228		mg/l		91	66 - 131	4	20
Chloroform	0.0250	0.0218		mg/l		87	70 - 130	1	20
Chloromethane	0.0250	0.0222		mg/l		89	56 - 129	9	20
cis-1,2-Dichloroethene	0.0250	0.0223		mg/l		89	70 - 130	5	20
cis-1,3-Dichloropropene	0.0250	0.0228		mg/l		91	70 - 130	5	20
Dibromochloromethane	0.0250	0.0217		mg/l		87	70 - 130	0.1	20
Dichlorodifluoromethane	0.0250	0.0191		mg/l		76	46 - 144	3	23
Ethylbenzene	0.0250	0.0216		mg/l		86	70 - 130	1	20
m,p-Xylenes	0.0250	0.0210		mg/l		84	70 - 130	2	20
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0227		mg/l		91	70 - 130	7	20
Methylene Chloride	0.0250	0.0219		mg/l		88	63 - 128	3	21
n-Butylbenzene	0.0250	0.0224		mg/l		90	70 - 130	0.09	20
n-Propylbenzene	0.0250	0.0230		mg/l		92	70 - 130	0.4	20
o-Xylene	0.0250	0.0224		mg/l		89	70 - 130	0.9	20
p-Isopropyltoluene	0.0250	0.0209		mg/l		84	70 - 130	0.5	20
sec-Butylbenzene	0.0250	0.0224		mg/l		90	70 - 130	0.1	20
Styrene	0.0250	0.0231		mg/l		93	70 - 130	2	20
tert-Butylbenzene	0.0250	0.0225		mg/l		90	70 - 130	2	20
Tetrachloroethene	0.0250	0.0215		mg/l		86	70 - 130	0.2	20
Toluene	0.0250	0.0213		mg/l		85	70 - 130	0.09	20
trans-1,2-Dichloroethene	0.0250	0.0221		mg/l		89	69 - 127	1	20
trans-1,3-Dichloropropene	0.0250	0.0222		mg/l		89	70 - 130	4	20
Trichloroethene	0.0250	0.0215		mg/l		86	70 - 130	6	20
Trichlorofluoromethane	0.0250	0.0241		mg/l		96	69 - 150	1	22
Vinyl Acetate	0.0250	0.0392	L3	mg/l		157	67 - 148	4	22
Vinyl chloride	0.0250	0.0265		mg/l		106	65 - 137	0.08	20
Xylenes, Total	0.0500	0.0434		mg/l		87	70 - 130	1	20

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Dibromofluoromethane	*105*		*70 - 130*
Toluene-d8	*99*		*70 - 130*

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C1178-BSD1
Matrix: Water
Analysis Batch: 13C1178

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13C1178_P

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
4-Bromofluorobenzene	*101*		*70 - 130*

Lab Sample ID: 13C1178-MS1
Matrix: Water
Analysis Batch: 13C1178

Client Sample ID: WR-217A
Prep Type: Total
Prep Batch: 13C1178_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		0.0250	0.0210		mg/l		84	64 - 138
1,1,2,2-Tetrachloroethane	ND		0.0250	0.0180		mg/l		72	63 - 137
1,1,2-Trichloroethane	ND		0.0250	0.0237		mg/l		95	63 - 132
1,1-Dichloroethane	ND		0.0250	0.0203		mg/l		81	62 - 130
1,1-Dichloroethene	ND		0.0250	0.0209		mg/l		84	57 - 137
1,1-Dichloropropene	ND		0.0250	0.0198		mg/l		79	64 - 134
1,2,3-Trichlorobenzene	ND		0.0250	0.0248		mg/l		99	74 - 139
1,2,3-Trichloropropane	ND		0.0250	0.0197		mg/l		79	68 - 130
1,2,4-Trichlorobenzene	ND		0.0250	0.0239		mg/l		95	74 - 138
1,2,4-Trimethylbenzene	ND		0.0250	0.0220		mg/l		88	63 - 135
1,2-Dibromoethane (EDB)	ND		0.0250	0.0212		mg/l		85	70 - 130
1,2-Dichlorobenzene	ND		0.0250	0.0214		mg/l		86	70 - 130
1,2-Dichloroethane	ND		0.0250	0.0238		mg/l		95	54 - 147
1,2-Dichloropropane	ND		0.0250	0.0200		mg/l		80	68 - 126
1,3,5-Trimethylbenzene	ND		0.0250	0.0216		mg/l		86	66 - 137
1,3-Dichlorobenzene	ND		0.0250	0.0208		mg/l		83	70 - 130
1,3-Dichloropropane	ND		0.0250	0.0213		mg/l		85	68 - 129
1,4-Dichlorobenzene	ND		0.0250	0.0207		mg/l		83	70 - 130
2,2-Dichloropropane	ND		0.0250	0.0234		mg/l		94	60 - 146
2-Butanone (MEK)	ND		0.0250	0.0163		mg/l		65	31 - 143
2-Chlorotoluene	ND		0.0250	0.0211		mg/l		84	71 - 131
2-Hexanone	ND		0.0250	0.0173		mg/l		69	40 - 142
4-Chlorotoluene	ND		0.0250	0.0212		mg/l		85	70 - 130
4-Methyl-2-pentanone (MIBK)	ND		0.0250	0.0199		mg/l		79	52 - 143
Acetone	ND		0.0250	0.0154		mg/l		62	29 - 139
Benzene	ND		0.0250	0.0200		mg/l		80	68 - 131
Bromobenzene	ND		0.0250	0.0222		mg/l		89	70 - 130
Bromochloromethane	ND		0.0250	0.0202		mg/l		81	64 - 132
Bromodichloromethane	ND		0.0250	0.0224		mg/l		90	63 - 138
Bromoform	ND		0.0250	0.0207		mg/l		83	60 - 128
Bromomethane	ND		0.0250	0.0207		mg/l		83	47 - 144
Carbon tetrachloride	ND		0.0250	0.0242		mg/l		97	65 - 147
Chlorobenzene	ND		0.0250	0.0217		mg/l		87	70 - 130
Chloroethane	ND		0.0250	0.0186		mg/l		74	57 - 139
Chloroform	ND		0.0250	0.0221		mg/l		89	63 - 131
Chloromethane	ND		0.0250	0.0185		mg/l		74	47 - 134
cis-1,2-Dichloroethene	ND		0.0250	0.0221		mg/l		88	65 - 127
cis-1,3-Dichloropropene	ND		0.0250	0.0230		mg/l		92	63 - 135
Dibromochloromethane	ND		0.0250	0.0223		mg/l		89	65 - 134
Dichlorodifluoromethane	ND		0.0250	0.0182		mg/l		73	40 - 148
Ethylbenzene	ND		0.0250	0.0220		mg/l		88	74 - 134

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C1178-MS1
Matrix: Water
Analysis Batch: 13C1178

Client Sample ID: WR-217A
Prep Type: Total
Prep Batch: 13C1178_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
m,p-Xylenes	ND		0.0250	0.0216		mg/l		86	58 - 138
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0205		mg/l		82	67 - 138
Methylene Chloride	ND		0.0250	0.0192		mg/l		77	55 - 133
n-Butylbenzene	ND		0.0250	0.0211		mg/l		85	69 - 140
n-Propylbenzene	ND		0.0250	0.0217		mg/l		87	74 - 140
o-Xylene	ND		0.0250	0.0223		mg/l		89	66 - 137
p-Isopropyltoluene	ND		0.0250	0.0195		mg/l		78	70 - 133
sec-Butylbenzene	ND		0.0250	0.0212		mg/l		85	72 - 136
Styrene	ND		0.0250	0.0232		mg/l		93	43 - 144
tert-Butylbenzene	ND		0.0250	0.0208		mg/l		83	74 - 135
Tetrachloroethene	ND		0.0250	0.0218		mg/l		87	67 - 131
Toluene	ND		0.0250	0.0214		mg/l		85	65 - 138
trans-1,2-Dichloroethene	ND		0.0250	0.0204		mg/l		82	62 - 131
trans-1,3-Dichloropropene	ND		0.0250	0.0225		mg/l		90	58 - 136
Trichloroethene	ND		0.0250	0.0198		mg/l		79	66 - 132
Trichlorofluoromethane	ND		0.0250	0.0233		mg/l		93	62 - 150
Vinyl Acetate	ND	L3	0.0250	0.0322	N1	mg/l		129	47 - 150
Vinyl chloride	ND		0.0250	0.0206		mg/l		83	55 - 146
Xylenes, Total	ND		0.0500	0.0439		mg/l		88	68 - 131

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*102*		*70 - 130*
Toluene-d8	*103*		*70 - 130*
4-Bromofluorobenzene	*106*		*70 - 130*

Lab Sample ID: 13C1178-MSD1
Matrix: Water
Analysis Batch: 13C1178

Client Sample ID: WR-217A
Prep Type: Total
Prep Batch: 13C1178_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		0.0250	0.0218		mg/l		87	64 - 138	4	35
1,1,2,2-Tetrachloroethane	ND		0.0250	0.0189		mg/l		76	63 - 137	5	32
1,1,2-Trichloroethane	ND		0.0250	0.0238		mg/l		95	63 - 132	0.5	35
1,1-Dichloroethane	ND		0.0250	0.0198		mg/l		79	62 - 130	2	34
1,1-Dichloroethene	ND		0.0250	0.0202		mg/l		81	57 - 137	4	35
1,1-Dichloropropene	ND		0.0250	0.0201		mg/l		80	64 - 134	2	34
1,2,3-Trichlorobenzene	ND		0.0250	0.0257		mg/l		103	74 - 139	3	26
1,2,3-Trichloropropane	ND		0.0250	0.0188		mg/l		75	68 - 130	5	32
1,2,4-Trichlorobenzene	ND		0.0250	0.0250		mg/l		100	74 - 138	5	26
1,2,4-Trimethylbenzene	ND		0.0250	0.0222		mg/l		89	63 - 135	1	31
1,2-Dibromoethane (EDB)	ND		0.0250	0.0213		mg/l		85	70 - 130	0.3	33
1,2-Dichlorobenzene	ND		0.0250	0.0219		mg/l		87	70 - 130	2	27
1,2-Dichloroethane	ND		0.0250	0.0242		mg/l		97	54 - 147	2	35
1,2-Dichloropropane	ND		0.0250	0.0198		mg/l		79	68 - 126	0.9	32
1,3,5-Trimethylbenzene	ND		0.0250	0.0224		mg/l		90	66 - 137	4	30
1,3-Dichlorobenzene	ND		0.0250	0.0212		mg/l		85	70 - 130	2	28
1,3-Dichloropropane	ND		0.0250	0.0218		mg/l		87	68 - 129	2	33
1,4-Dichlorobenzene	ND		0.0250	0.0214		mg/l		85	70 - 130	3	26

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C1178-MSD1
Matrix: Water
Analysis Batch: 13C1178

Client Sample ID: WR-217A
Prep Type: Total
Prep Batch: 13C1178_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,2-Dichloropropane	ND		0.0250	0.0238		mg/l		95	60 - 146	1	35
2-Butanone (MEK)	ND		0.0250	0.0168		mg/l		67	31 - 143	3	35
2-Chlorotoluene	ND		0.0250	0.0215		mg/l		86	71 - 131	2	29
2-Hexanone	ND		0.0250	0.0166		mg/l		67	40 - 142	4	35
4-Chlorotoluene	ND		0.0250	0.0220		mg/l		88	70 - 130	3	28
4-Methyl-2-pentanone (MIBK)	ND		0.0250	0.0200		mg/l		80	52 - 143	0.8	35
Acetone	ND		0.0250	0.0162		mg/l		65	29 - 139	6	35
Benzene	ND		0.0250	0.0205		mg/l		82	68 - 131	2	32
Bromobenzene	ND		0.0250	0.0220		mg/l		88	70 - 130	0.7	28
Bromochloromethane	ND		0.0250	0.0210		mg/l		84	64 - 132	4	35
Bromodichloromethane	ND		0.0250	0.0225		mg/l		90	63 - 138	0.4	31
Bromoform	ND		0.0250	0.0220		mg/l		88	60 - 128	6	31
Bromomethane	ND		0.0250	0.0207		mg/l		83	47 - 144	0.1	35
Carbon tetrachloride	ND		0.0250	0.0242		mg/l		97	65 - 147	0.1	35
Chlorobenzene	ND		0.0250	0.0212		mg/l		85	70 - 130	3	30
Chloroethane	ND		0.0250	0.0194		mg/l		78	57 - 139	4	35
Chloroform	ND		0.0250	0.0219		mg/l		88	63 - 131	0.9	33
Chloromethane	ND		0.0250	0.0200		mg/l		80	47 - 134	8	35
cis-1,2-Dichloroethene	ND		0.0250	0.0212		mg/l		85	65 - 127	4	34
cis-1,3-Dichloropropene	ND		0.0250	0.0240		mg/l		96	63 - 135	5	35
Dibromochloromethane	ND		0.0250	0.0230		mg/l		92	65 - 134	3	33
Dichlorodifluoromethane	ND		0.0250	0.0200		mg/l		80	40 - 148	9	35
Ethylbenzene	ND		0.0250	0.0217		mg/l		87	74 - 134	1	32
m,p-Xylenes	ND		0.0250	0.0209		mg/l		84	58 - 138	3	29
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0208		mg/l		83	67 - 138	1	21
Methylene Chloride	ND		0.0250	0.0189		mg/l		76	55 - 133	2	35
n-Butylbenzene	ND		0.0250	0.0218		mg/l		87	69 - 140	3	32
n-Propylbenzene	ND		0.0250	0.0219		mg/l		88	74 - 140	1	32
o-Xylene	ND		0.0250	0.0225		mg/l		90	66 - 137	1	26
p-Isopropyltoluene	ND		0.0250	0.0199		mg/l		80	70 - 133	2	32
sec-Butylbenzene	ND		0.0250	0.0218		mg/l		87	72 - 136	3	33
Styrene	ND		0.0250	0.0226		mg/l		91	43 - 144	2	35
tert-Butylbenzene	ND		0.0250	0.0210		mg/l		84	74 - 135	1	32
Tetrachloroethene	ND		0.0250	0.0214		mg/l		85	67 - 131	2	31
Toluene	ND		0.0250	0.0225		mg/l		90	65 - 138	5	33
trans-1,2-Dichloroethene	ND		0.0250	0.0200		mg/l		80	62 - 131	2	35
trans-1,3-Dichloropropene	ND		0.0250	0.0244		mg/l		98	58 - 136	8	35
Trichloroethene	ND		0.0250	0.0206		mg/l		82	66 - 132	4	29
Trichlorofluoromethane	ND		0.0250	0.0243		mg/l		97	62 - 150	4	35
Vinyl Acetate	ND	L3	0.0250	0.0310	N1	mg/l		124	47 - 150	3	35
Vinyl chloride	ND		0.0250	0.0228		mg/l		91	55 - 146	10	35
Xylenes, Total	ND		0.0500	0.0434		mg/l		87	68 - 131	1	31

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Dibromofluoromethane	*102*		*70 - 130*
Toluene-d8	*105*		*70 - 130*
4-Bromofluorobenzene	*105*		*70 - 130*

QC Association Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1548

GCMS Volatiles

Analysis Batch: 13C0979

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13C0979-BLK1	Method Blank	Total	Water	EPA 8260B	13C0979_P
13C0979-BS1	Lab Control Sample	Total	Water	EPA 8260B	13C0979_P
13C0979-BSD1	Lab Control Sample Dup	Total	Water	EPA 8260B	13C0979_P
13C0979-MS1	Matrix Spike	Total	Water	EPA 8260B	13C0979_P
13C0979-MSD1	Matrix Spike Duplicate	Total	Water	EPA 8260B	13C0979_P
PWC1548-03	WR-298A	Total	Water	EPA 8260B	13C0979_P
PWC1548-03 - RE1	WR-298A	Total	Water	EPA 8260B	13C0979_P
PWC1548-04	WR-213A	Total	Water	EPA 8260B	13C0979_P
PWC1548-05	WR-218A	Total	Water	EPA 8260B	13C0979_P

Analysis Batch: 13C1178

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13C1178-BLK1	Method Blank	Total	Water	EPA 8260B	13C1178_P
13C1178-BS1	Lab Control Sample	Total	Water	EPA 8260B	13C1178_P
13C1178-BSD1	Lab Control Sample Dup	Total	Water	EPA 8260B	13C1178_P
13C1178-MS1	WR-217A	Total	Water	EPA 8260B	13C1178_P
13C1178-MSD1	WR-217A	Total	Water	EPA 8260B	13C1178_P
PWC1548-01	WR-217A	Total	Water	EPA 8260B	13C1178_P
PWC1548-02	WR-217A (DUP)	Total	Water	EPA 8260B	13C1178_P
PWC1548-06	WR-227A	Total	Water	EPA 8260B	13C1178_P
PWC1548-07	WR-222A	Total	Water	EPA 8260B	13C1178_P
PWC1548-08	Trip Blank	Total	Water	EPA 8260B	13C1178_P

Prep Batch: 13C0979_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13C0979-BLK1	Method Blank	Total	Water	EPA 5030 GCMS	
13C0979-BS1	Lab Control Sample	Total	Water	EPA 5030 GCMS	
13C0979-BSD1	Lab Control Sample Dup	Total	Water	EPA 5030 GCMS	
13C0979-MS1	Matrix Spike	Total	Water	EPA 5030 GCMS	
13C0979-MSD1	Matrix Spike Duplicate	Total	Water	EPA 5030 GCMS	
PWC1548-03	WR-298A	Total	Water	EPA 5030 GCMS	
PWC1548-03 - RE1	WR-298A	Total	Water	EPA 5030 GCMS	
PWC1548-04	WR-213A	Total	Water	EPA 5030 GCMS	
PWC1548-05	WR-218A	Total	Water	EPA 5030 GCMS	

Prep Batch: 13C1178_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13C1178-BLK1	Method Blank	Total	Water	EPA 5030 GCMS	
13C1178-BS1	Lab Control Sample	Total	Water	EPA 5030 GCMS	
13C1178-BSD1	Lab Control Sample Dup	Total	Water	EPA 5030 GCMS	
13C1178-MS1	WR-217A	Total	Water	EPA 5030 GCMS	
13C1178-MSD1	WR-217A	Total	Water	EPA 5030 GCMS	
PWC1548-01	WR-217A	Total	Water	EPA 5030 GCMS	
PWC1548-02	WR-217A (DUP)	Total	Water	EPA 5030 GCMS	
PWC1548-06	WR-227A	Total	Water	EPA 5030 GCMS	
PWC1548-07	WR-222A	Total	Water	EPA 5030 GCMS	
PWC1548-08	Trip Blank	Total	Water	EPA 5030 GCMS	

Lab Chronicle

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1548

Client Sample ID: WR-217A

Lab Sample ID: PWC1548-01
Matrix: Water

Date Collected: 03/21/13 10:19
Date Received: 03/22/13 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1178_P	03/29/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1178	03/29/13 09:05	KD	TAL PHX

Client Sample ID: WR-217A (DUP)

Lab Sample ID: PWC1548-02
Matrix: Water

Date Collected: 03/21/13 10:23
Date Received: 03/22/13 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1178_P	03/29/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1178	03/29/13 10:40	KD	TAL PHX

Client Sample ID: WR-298A

Lab Sample ID: PWC1548-03
Matrix: Water

Date Collected: 03/21/13 10:40
Date Received: 03/22/13 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C0979_P	03/25/13 07:15	SK	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C0979	03/25/13 12:56	SK	TAL PHX
Total	Prep	EPA 5030 GCMS	RE1	1.0	13C0979_P	03/25/13 07:15	SK	TAL PHX
Total	Analysis	EPA 8260B	RE1	100	13C0979	03/25/13 15:11	SK	TAL PHX

Client Sample ID: WR-213A

Lab Sample ID: PWC1548-04
Matrix: Water

Date Collected: 03/21/13 10:58
Date Received: 03/22/13 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C0979_P	03/25/13 07:15	SK	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C0979	03/25/13 14:39	SK	TAL PHX

Client Sample ID: WR-218A

Lab Sample ID: PWC1548-05
Matrix: Water

Date Collected: 03/21/13 11:11
Date Received: 03/22/13 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C0979_P	03/25/13 07:15	SK	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C0979	03/25/13 14:00	SK	TAL PHX

Lab Chronicle

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1548

Client Sample ID: WR-227A

Lab Sample ID: PWC1548-06
Matrix: Water

Date Collected: 03/21/13 11:30
Date Received: 03/22/13 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1178_P	03/29/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1178	03/29/13 11:11	KD	TAL PHX

Client Sample ID: WR-222A

Lab Sample ID: PWC1548-07
Matrix: Water

Date Collected: 03/21/13 11:48
Date Received: 03/22/13 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1178_P	03/29/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1178	03/29/13 11:42	KD	TAL PHX

Client Sample ID: Trip Blank

Lab Sample ID: PWC1548-08
Matrix: Water

Date Collected: 03/21/13 10:19
Date Received: 03/22/13 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1178_P	03/29/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1178	03/29/13 07:30	KD	TAL PHX

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Center Blvd. Ste 189, Phoenix, AZ 85040, TEL (602) 437-3340

Certification Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1548

Laboratory: TestAmerica Phoenix

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA	IHLAP		154268	07-01-15
Arizona	State Program	9	AZ0728	06-09-14
California	NELAP	9	01109CA	11-30-13
Nevada	State Program	9	AZ01030	07-31-14
New York	NELAP	2	11898	04-01-14
Oregon	NELAP	10	AZ100001	03-09-14
USDA	Federal		P330-09-00024	06-09-15

Method Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1548

Method	Method Description	Protocol	Laboratory
EPA 8260B	BTEX & MTBE (EPA 5030B/8260B)		TAL PHX
EPA 8260B	VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)		TAL PHX

Protocol References:

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Center Blvd. Ste 189, Phoenix, AZ 85040, TEL (602) 437-3340

PWC 1548

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-0013-550 (10/10)

CHAIN OF CUSTODY FORM

[ ] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340 FAX (602) 454-9303
[ ] Tucson - 1870 W. Prince Road, Suite 59, Tucson, AZ 85705 (520) 807-3801 FAX (520) 807-3803
[ ] Las Vegas - 6000 S Eastern Ave., Suite 5E, Las Vegas, NV 89119 (702) 429-1264

Page _____ of _____

10/10/2013

Client Name/Address: City of Tucson, PO Box 27210, Tucson AZ 85726

Project/PO Number: Price Service Center, PO 1064

Project Manager: Lori Ehman

Phone Number: 791-3175

Sampler: Alfred J. Barker, Jr

Fax Number:

Analysis Required

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	8260	BTEX/MTBE								Special Instructions
WR-217A	GW			3/21/13	1019		X				-01					
WR-217A (Dup)	GW			3/21/13	1023		X				02					
WR-298A	GW			3/21/13	1040			X			03					
WR-213A	GW			3/21/13	1058			X			04					
WR-218A	GW			3/21/13	1111			X			05					
WR-227A	GW			3/21/13	1130		X				06					
WR-222A	GW			3/21/13	1145		X				07					
Trip Blank							X				08					

Relinquished By:	Date/Time:	Received By:	Date/Time:
G. Bejarano	3/21/13 1217	[signature]	3/21/13 1217
[signature]	3/21/13 1530		
[signature]	3/22/13 1000	[signature]	3/22/13 1000

Received in Lab By: [signature]

Turnaround Time: (Check)
same day _____ 72 hours _____
24 hours _____ 5 days _____
48 hours _____ normal X

Sample Integrity: (Check)
intact ✓ on ice ✓

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

11.3

1.8c

3/25/2013

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Center Blvd. Ste 189
Phoenix, AZ 85040
Tel: (602) 437-3340

TestAmerica Job ID: PWC1686
Client Project/Site: Price Service Center, P01064
Client Project Description: Price Service Center

For:
City of Tucson Environmental Services
255 W. Alameda, Sixth floor
Tucson, AZ 85701

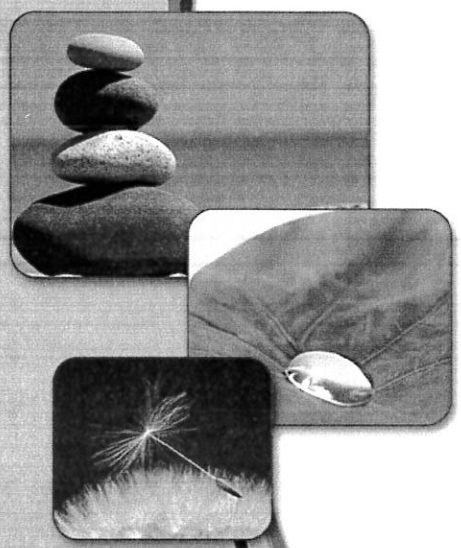
Attn: Jeff Drumm

Denise Harrington

Authorized for release by:
9/19/2013 1:20:51 PM
Denise Harrington, Project Manager Assistant
denise.harrington@testamericainc.com

Designee for

Suzanne Glass, Project Manager
suzanne.glass@testamericainc.com



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Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

Qualifiers

GCMS Volatiles

Qualifier	Qualifier Description
V1	CCV recovery was above method acceptance limits. This target analyte was not detected in the sample.
L3	The associated blank spike recovery was above method acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

Job ID: PWC1686

Laboratory: TestAmerica Phoenix

Narrative

SAMPLE RECEIPT: Samples were received intact, at 2.1 °C, on ice and with chain of custody documentation.
HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the TestAmerica Sample Acceptance Policy unless otherwise noted in the report.
PRESERVATION: Samples requiring preservation were verified prior to sample analysis.
QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

N1 = The second source initial calibration verification analyzed immediately following the calibration recovered high and outside of acceptance limits for Vinyl Acetate. All associated samples had results less than the reporting limit for this analyte and therefore should not be impacted.

COMMENTS: No significant observations were made.
SUBCONTRACTED: No analyses were subcontracted to an outside laboratory.

Report revised to include full 8260 results for sample -03.

Sample Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
PWC1686-01	WR-230A	Water	03/25/13 07:50	03/26/13 09:20
PWC1686-02	WR-225A	Water	03/25/13 08:00	03/26/13 09:20
PWC1686-03	WR-221A	Water	03/25/13 08:20	03/26/13 09:20
PWC1686-04	WR-230A dup	Water	03/25/13 07:52	03/26/13 09:20
PWC1686-05	PCM-517A	Water	03/25/13 08:40	03/26/13 09:20
PWC1686-06	PCM-508A	Water	03/25/13 09:10	03/26/13 09:20
PWC1686-07	PCM-508B	Water	03/25/13 09:15	03/26/13 09:20
PWC1686-08	WR-223A	Water	03/25/13 09:40	03/26/13 09:20
PWC1686-09	PCM-506A	Water	03/25/13 09:55	03/26/13 09:20
PWC1686-10	WR-219A	Water	03/25/13 10:10	03/26/13 09:20
PWC1686-11	R-046A	Water	03/25/13 10:30	03/26/13 09:20
PWC1686-12	WR-235A	Water	03/25/13 11:05	03/26/13 09:20
PWC1686-13	WR-231A	Water	03/25/13 11:20	03/26/13 09:20
PWC1686-14	WR-214A	Water	03/25/13 11:40	03/26/13 09:20
PWC1686-15	WR-228A	Water	03/25/13 12:05	03/26/13 09:20
PWC1686-16	WR-232A	Water	03/25/13 12:20	03/26/13 09:20
PWC1686-17	WR-216A	Water	03/25/13 12:35	03/26/13 09:20
PWC1686-18	Trip BLK	Water	03/25/13 07:50	03/26/13 09:20

Detection Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

Client Sample ID: WR-230A — Lab Sample ID: PWC1686-01

No Detections.

Client Sample ID: WR-225A — Lab Sample ID: PWC1686-02

No Detections.

Client Sample ID: WR-221A — Lab Sample ID: PWC1686-03

No Detections.

Client Sample ID: WR-230A dup — Lab Sample ID: PWC1686-04

No Detections.

Client Sample ID: PCM-517A — Lab Sample ID: PWC1686-05

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.52		0.020		mg/l	10		EPA 8260B	Total
Methyl-tert-butyl Ether (MTBE)	0.43		0.050		mg/l	10		EPA 8260B	Total
Toluene	0.022		0.020		mg/l	10		EPA 8260B	Total
Benzene - RE1	11		0.10		mg/l	100		EPA 8260B	Total

Client Sample ID: PCM-508A — Lab Sample ID: PWC1686-06

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.0025		0.0010		mg/l	1.0		EPA 8260B	Total
Methyl-tert-butyl Ether (MTBE) - RE1	8.3		0.50		mg/l	100		EPA 8260B	Total

Client Sample ID: PCM-508B — Lab Sample ID: PWC1686-07

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.010		0.010		mg/l	10		EPA 8260B	Total
Ethylbenzene	0.13		0.020		mg/l	10		EPA 8260B	Total
Xylenes, Total	0.22		0.030		mg/l	10		EPA 8260B	Total
Methyl-tert-butyl Ether (MTBE) - RE1	6.5		0.50		mg/l	100		EPA 8260B	Total

Client Sample ID: WR-223A — Lab Sample ID: PWC1686-08

No Detections.

Client Sample ID: PCM-506A — Lab Sample ID: PWC1686-09

No Detections.

Client Sample ID: WR-219A — Lab Sample ID: PWC1686-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2,4-Trimethylbenzene - RE1	0.0089		0.0010		mg/l	1.0		EPA 8260B	Total
1,3,5-Trimethylbenzene - RE1	0.0079		0.0010		mg/l	1.0		EPA 8260B	Total
Ethylbenzene - RE1	0.0022		0.0010		mg/l	1.0		EPA 8260B	Total
n-Propylbenzene - RE1	0.0031		0.0010		mg/l	1.0		EPA 8260B	Total
sec-Butylbenzene - RE1	0.0032		0.0010		mg/l	1.0		EPA 8260B	Total
Isopropylbenzene - RE1	0.0014		0.0010		mg/l	1.0		EPA 8260B	Total

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

Client Sample ID: R-046A — Lab Sample ID: PWC1686-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.016		0.010		mg/l	10		EPA 8260B	Total
Methyl-tert-butyl Ether (MTBE)	0.086		0.050		mg/l	10		EPA 8260B	Total
Xylenes, Total	0.25		0.030		mg/l	10		EPA 8260B	Total

Client Sample ID: WR-235A — Lab Sample ID: PWC1686-12

No Detections.

Client Sample ID: WR-231A — Lab Sample ID: PWC1686-13

No Detections.

Client Sample ID: WR-214A — Lab Sample ID: PWC1686-14

No Detections.

Client Sample ID: WR-228A — Lab Sample ID: PWC1686-15

No Detections.

Client Sample ID: WR-232A — Lab Sample ID: PWC1686-16

No Detections.

Client Sample ID: WR-216A — Lab Sample ID: PWC1686-17

No Detections.

Client Sample ID: Trip BLK — Lab Sample ID: PWC1686-18

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: WR-230A

Date Collected: 03/25/13 07:50
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-01
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 16:17	1.0
Ethylbenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 16:17	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 16:17	1.0
Toluene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 16:17	1.0
Xylenes, Total	ND		0.0030		mg/l		03/31/13 00:00	03/31/13 16:17	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*107*		*70 - 130*	*03/31/13 00:00*	*03/31/13 16:17*	*1.0*
Toluene-d8	*96*		*70 - 130*	*03/31/13 00:00*	*03/31/13 16:17*	*1.0*
4-Bromofluorobenzene	*102*		*70 - 130*	*03/31/13 00:00*	*03/31/13 16:17*	*1.0*

Client Sample ID: WR-225A

Date Collected: 03/25/13 08:00
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-02
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 17:52	1.0
Ethylbenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 17:52	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 17:52	1.0
Toluene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 17:52	1.0
Xylenes, Total	ND		0.0030		mg/l		03/31/13 00:00	03/31/13 17:52	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*104*		*70 - 130*	*03/31/13 00:00*	*03/31/13 17:52*	*1.0*
Toluene-d8	*94*		*70 - 130*	*03/31/13 00:00*	*03/31/13 17:52*	*1.0*
4-Bromofluorobenzene	*104*		*70 - 130*	*03/31/13 00:00*	*03/31/13 17:52*	*1.0*

Client Sample ID: WR-221A

Date Collected: 03/25/13 08:20
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-03
Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
1,1,2,2-Tetrachloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
1,1,2-Trichloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
1,1-Dichloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
1,1-Dichloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
1,1-Dichloropropene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
1,2,3-Trichlorobenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
1,2,3-Trichloropropane	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
1,2,4-Trichlorobenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
1,2,4-Trimethylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
1,2-Dibromoethane (EDB)	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
1,2-Dichlorobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
1,2-Dichloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
1,2-Dichloropropane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
1,3,5-Trimethylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
1,3-Dichlorobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0

Client Sample Results

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

Client Sample ID: WR-221A

Date Collected: 03/25/13 08:20
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-03
Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichloropropane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
1,4-Dichlorobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
2,2-Dichloropropane	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
2-Butanone (MEK)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
2-Chlorotoluene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
2-Hexanone	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
4-Chlorotoluene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Acetone	ND		0.020		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Benzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Bromobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Bromochloromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Bromodichloromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Bromoform	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Bromomethane	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Carbon tetrachloride	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Chlorobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Chloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Chloroform	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Chloromethane	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
cis-1,2-Dichloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
cis-1,3-Dichloropropene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Dibromochloromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Dichlorodifluoromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Ethylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
m,p-Xylenes	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Methylene Chloride	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
n-Butylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
n-Propylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
o-Xylene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
p-Isopropyltoluene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
sec-Butylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Styrene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
tert-Butylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Tetrachloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Toluene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
trans-1,2-Dichloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
trans-1,3-Dichloropropene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Trichloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Trichlorofluoromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Vinyl Acetate	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Vinyl chloride	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Isopropylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Naphthalene	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 12:45	1.0
Xylenes, Total	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 12:45	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*104*		*70 - 130*	*03/31/13 00:00*	*03/31/13 12:45*	*1.0*
Toluene-d8	*102*		*70 - 130*	*03/31/13 00:00*	*03/31/13 12:45*	*1.0*

Client Sample ID: WR-221A

Date Collected: 03/25/13 08:20
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-03
Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	108		70 - 130	03/31/13 00:00	03/31/13 12:45	1.0

Client Sample ID: WR-230A dup

Date Collected: 03/25/13 07:52
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-04
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 18:55	1.0
Ethylbenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 18:55	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 18:55	1.0
Toluene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 18:55	1.0
Xylenes, Total	ND		0.0030		mg/l		03/31/13 00:00	03/31/13 18:55	1.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane	105		70 - 130	03/31/13 00:00	03/31/13 18:55	1.0
Toluene-d8	100		70 - 130	03/31/13 00:00	03/31/13 18:55	1.0
4-Bromofluorobenzene	102		70 - 130	03/31/13 00:00	03/31/13 18:55	1.0

Client Sample ID: PCM-517A

Date Collected: 03/25/13 08:40
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-05
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.52		0.020		mg/l		03/31/13 00:00	03/31/13 22:36	10
Methyl-tert-butyl Ether (MTBE)	0.43		0.050		mg/l		03/31/13 00:00	03/31/13 22:36	10
Toluene	0.022		0.020		mg/l		03/31/13 00:00	03/31/13 22:36	10
Xylenes, Total	ND		0.030		mg/l		03/31/13 00:00	03/31/13 22:36	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane	107		70 - 130	03/31/13 00:00	03/31/13 22:36	10
Toluene-d8	100		70 - 130	03/31/13 00:00	03/31/13 22:36	10
4-Bromofluorobenzene	111		70 - 130	03/31/13 00:00	03/31/13 22:36	10

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	11		0.10		mg/l		04/01/13 00:00	04/02/13 02:31	100

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane	106		70 - 130	04/01/13 00:00	04/02/13 02:31	100
Toluene-d8	104		70 - 130	04/01/13 00:00	04/02/13 02:31	100
4-Bromofluorobenzene	109		70 - 130	04/01/13 00:00	04/02/13 02:31	100

Client Sample ID: PCM-508A

Date Collected: 03/25/13 09:10
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-06
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0025		0.0010		mg/l		03/31/13 00:00	03/31/13 19:27	1.0

Client Sample ID: PCM-508A

Lab Sample ID: PWC1686-06
Matrix: Water

Date Collected: 03/25/13 09:10
Date Received: 03/26/13 09:20

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 19:27	1.0
Toluene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 19:27	1.0
Xylenes, Total	ND		0.0030		mg/l		03/31/13 00:00	03/31/13 19:27	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*108*		*70 - 130*	*03/31/13 00:00*	*03/31/13 19:27*	*1.0*
Toluene-d8	*101*		*70 - 130*	*03/31/13 00:00*	*03/31/13 19:27*	*1.0*
4-Bromofluorobenzene	*110*		*70 - 130*	*03/31/13 00:00*	*03/31/13 19:27*	*1.0*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl-tert-butyl Ether (MTBE)	8.3		0.50		mg/l		04/01/13 00:00	04/02/13 03:03	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*105*		*70 - 130*	*04/01/13 00:00*	*04/02/13 03:03*	*100*
Toluene-d8	*98*		*70 - 130*	*04/01/13 00:00*	*04/02/13 03:03*	*100*
4-Bromofluorobenzene	*104*		*70 - 130*	*04/01/13 00:00*	*04/02/13 03:03*	*100*

Client Sample ID: PCM-508B

Lab Sample ID: PWC1686-07
Matrix: Water

Date Collected: 03/25/13 09:15
Date Received: 03/26/13 09:20

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.010		0.010		mg/l		03/31/13 00:00	04/01/13 00:10	10
Ethylbenzene	0.13		0.020		mg/l		03/31/13 00:00	04/01/13 00:10	10
Toluene	ND		0.020		mg/l		03/31/13 00:00	04/01/13 00:10	10
Xylenes, Total	0.22		0.030		mg/l		03/31/13 00:00	04/01/13 00:10	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*100*		*70 - 130*	*03/31/13 00:00*	*04/01/13 00:10*	*10*
Toluene-d8	*99*		*70 - 130*	*03/31/13 00:00*	*04/01/13 00:10*	*10*
4-Bromofluorobenzene	*104*		*70 - 130*	*03/31/13 00:00*	*04/01/13 00:10*	*10*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl-tert-butyl Ether (MTBE)	6.5		0.50		mg/l		04/02/13 00:00	04/03/13 03:11	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*99*		*70 - 130*	*04/02/13 00:00*	*04/03/13 03:11*	*100*
Toluene-d8	*96*		*70 - 130*	*04/02/13 00:00*	*04/03/13 03:11*	*100*
4-Bromofluorobenzene	*89*		*70 - 130*	*04/02/13 00:00*	*04/03/13 03:11*	*100*

Client Sample ID: WR-223A

Lab Sample ID: PWC1686-08
Matrix: Water

Date Collected: 03/25/13 09:40
Date Received: 03/26/13 09:20

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
1,1,2,2-Tetrachloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0

Client Sample ID: WR-223A

Date Collected: 03/25/13 09:40
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-08
Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
1,1-Dichloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
1,1-Dichloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
1,1-Dichloropropene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
1,2,3-Trichlorobenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
1,2,3-Trichloropropane	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
1,2,4-Trichlorobenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
1,2,4-Trimethylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
1,2-Dibromoethane (EDB)	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
1,2-Dichlorobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
1,2-Dichloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
1,2-Dichloropropane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
1,3,5-Trimethylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
1,3-Dichlorobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
1,3-Dichloropropane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
1,4-Dichlorobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
2,2-Dichloropropane	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
2-Butanone (MEK)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
2-Chlorotoluene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
2-Hexanone	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
4-Chlorotoluene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Acetone	ND		0.020		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Benzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Bromobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Bromochloromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Bromodichloromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Bromoform	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Bromomethane	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Carbon tetrachloride	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Chlorobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Chloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Chloroform	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Chloromethane	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
cis-1,2-Dichloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
cis-1,3-Dichloropropene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Dibromochloromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Dichlorodifluoromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Ethylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
m,p-Xylenes	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Methylene Chloride	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
n-Butylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
n-Propylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
o-Xylene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
p-Isopropyltoluene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
sec-Butylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Styrene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
tert-Butylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0

Client Sample ID: WR-223A

Lab Sample ID: PWC1686-08
Matrix: Water

Date Collected: 03/25/13 09:40
Date Received: 03/26/13 09:20

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Toluene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
trans-1,2-Dichloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
trans-1,3-Dichloropropene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Trichloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Trichlorofluoromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Vinyl Acetate	ND	N1	0.0020		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Vinyl chloride	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Isopropylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Naphthalene	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 19:58	1.0
Xylenes, Total	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 19:58	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*110*		*70 - 130*	*03/31/13 00:00*	*03/31/13 19:58*	*1.0*
Toluene-d8	*104*		*70 - 130*	*03/31/13 00:00*	*03/31/13 19:58*	*1.0*
4-Bromofluorobenzene	*106*		*70 - 130*	*03/31/13 00:00*	*03/31/13 19:58*	*1.0*

Client Sample ID: PCM-506A

Lab Sample ID: PWC1686-09
Matrix: Water

Date Collected: 03/25/13 09:55
Date Received: 03/26/13 09:20

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 20:30	1.0
Ethylbenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 20:30	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 20:30	1.0
Toluene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 20:30	1.0
Xylenes, Total	ND		0.0030		mg/l		03/31/13 00:00	03/31/13 20:30	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*107*		*70 - 130*	*03/31/13 00:00*	*03/31/13 20:30*	*1.0*
Toluene-d8	*102*		*70 - 130*	*03/31/13 00:00*	*03/31/13 20:30*	*1.0*
4-Bromofluorobenzene	*101*		*70 - 130*	*03/31/13 00:00*	*03/31/13 20:30*	*1.0*

Client Sample ID: WR-219A

Lab Sample ID: PWC1686-10
Matrix: Water

Date Collected: 03/25/13 10:10
Date Received: 03/26/13 09:20

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
1,1,2,2-Tetrachloroethane	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
1,1,2-Trichloroethane	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
1,1-Dichloroethane	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
1,1-Dichloroethene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
1,1-Dichloropropene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
1,2,3-Trichlorobenzene	ND		0.0020		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
1,2,3-Trichloropropane	ND		0.0020		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
1,2,4-Trichlorobenzene	ND		0.0020		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
1,2,4-Trimethylbenzene	0.0089		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0

Client Sample ID: WR-219A

Date Collected: 03/25/13 10:10
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-10
Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) - RE1 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromoethane (EDB)	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
1,2-Dichlorobenzene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
1,2-Dichloroethane	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
1,2-Dichloropropane	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
1,3,5-Trimethylbenzene	**0.0079**		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
1,3-Dichlorobenzene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
1,3-Dichloropropane	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
1,4-Dichlorobenzene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
2,2-Dichloropropane	ND		0.0020		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
2-Butanone (MEK)	ND		0.0050		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
2-Chlorotoluene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
2-Hexanone	ND		0.0050		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
4-Chlorotoluene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Acetone	ND	V1	0.020		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Benzene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Bromobenzene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Bromochloromethane	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Bromodichloromethane	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Bromoform	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Bromomethane	ND		0.0020		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Carbon tetrachloride	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Chlorobenzene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Chloroethane	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Chloroform	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Chloromethane	ND		0.0050		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
cis-1,2-Dichloroethene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
cis-1,3-Dichloropropene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Dibromochloromethane	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Dichlorodifluoromethane	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Ethylbenzene	**0.0022**		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
m,p-Xylenes	ND		0.0020		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Methylene Chloride	ND		0.0020		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
n-Butylbenzene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
n-Propylbenzene	**0.0031**		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
o-Xylene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
p-Isopropyltoluene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
sec-Butylbenzene	**0.0032**		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Styrene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
tert-Butylbenzene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Tetrachloroethene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Toluene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
trans-1,2-Dichloroethene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
trans-1,3-Dichloropropene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Trichloroethene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Trichlorofluoromethane	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Vinyl Acetate	ND	L3	0.0020		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Vinyl chloride	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0

Client Sample ID: WR-219A

Lab Sample ID: PWC1686-10
Matrix: Water

Date Collected: 03/25/13 10:10
Date Received: 03/26/13 09:20

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) - RE1 (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropylbenzene	0.0014		0.0010		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Naphthalene	ND		0.0050		mg/l		04/02/13 00:00	04/03/13 00:29	1.0
Xylenes, Total	ND		0.0020		mg/l		04/02/13 00:00	04/03/13 00:29	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*95*		*70 - 130*	*04/02/13 00:00*	*04/03/13 00:29*	*1.0*
Toluene-d8	*98*		*70 - 130*	*04/02/13 00:00*	*04/03/13 00:29*	*1.0*
4-Bromofluorobenzene	*92*		*70 - 130*	*04/02/13 00:00*	*04/03/13 00:29*	*1.0*

Client Sample ID: R-046A

Lab Sample ID: PWC1686-11
Matrix: Water

Date Collected: 03/25/13 10:30
Date Received: 03/26/13 09:20

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.016		0.010		mg/l		03/31/13 00:00	03/31/13 23:39	10
Ethylbenzene	ND		0.020		mg/l		03/31/13 00:00	03/31/13 23:39	10
Methyl-tert-butyl Ether (MTBE)	0.086		0.050		mg/l		03/31/13 00:00	03/31/13 23:39	10
Toluene	ND		0.020		mg/l		03/31/13 00:00	03/31/13 23:39	10
Xylenes, Total	0.25		0.030		mg/l		03/31/13 00:00	03/31/13 23:39	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*109*		*70 - 130*	*03/31/13 00:00*	*03/31/13 23:39*	*10*
Toluene-d8	*100*		*70 - 130*	*03/31/13 00:00*	*03/31/13 23:39*	*10*
4-Bromofluorobenzene	*107*		*70 - 130*	*03/31/13 00:00*	*03/31/13 23:39*	*10*

Client Sample ID: WR-235A

Lab Sample ID: PWC1686-12
Matrix: Water

Date Collected: 03/25/13 11:05
Date Received: 03/26/13 09:20

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 21:01	1.0
Ethylbenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 21:01	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 21:01	1.0
Toluene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 21:01	1.0
Xylenes, Total	ND		0.0030		mg/l		03/31/13 00:00	03/31/13 21:01	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*108*		*70 - 130*	*03/31/13 00:00*	*03/31/13 21:01*	*1.0*
Toluene-d8	*102*		*70 - 130*	*03/31/13 00:00*	*03/31/13 21:01*	*1.0*
4-Bromofluorobenzene	*105*		*70 - 130*	*03/31/13 00:00*	*03/31/13 21:01*	*1.0*

Client Sample ID: WR-231A

Lab Sample ID: PWC1686-13
Matrix: Water

Date Collected: 03/25/13 11:20
Date Received: 03/26/13 09:20

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 21:32	1.0
Ethylbenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 21:32	1.0

Client Sample ID: WR-231A

Date Collected: 03/25/13 11:20
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-13
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 21:32	1.0
Toluene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 21:32	1.0
Xylenes, Total	ND		0.0030		mg/l		03/31/13 00:00	03/31/13 21:32	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*109*		*70 - 130*	*03/31/13 00:00*	*03/31/13 21:32*	*1.0*
Toluene-d8	*101*		*70 - 130*	*03/31/13 00:00*	*03/31/13 21:32*	*1.0*
4-Bromofluorobenzene	*103*		*70 - 130*	*03/31/13 00:00*	*03/31/13 21:32*	*1.0*

Client Sample ID: WR-214A

Date Collected: 03/25/13 11:40
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-14
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 22:04	1.0
Ethylbenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 22:04	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 22:04	1.0
Toluene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 22:04	1.0
Xylenes, Total	ND		0.0030		mg/l		03/31/13 00:00	03/31/13 22:04	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*109*		*70 - 130*	*03/31/13 00:00*	*03/31/13 22:04*	*1.0*
Toluene-d8	*96*		*70 - 130*	*03/31/13 00:00*	*03/31/13 22:04*	*1.0*
4-Bromofluorobenzene	*104*		*70 - 130*	*03/31/13 00:00*	*03/31/13 22:04*	*1.0*

Client Sample ID: WR-228A

Date Collected: 03/25/13 12:05
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-15
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 20:48	1.0
Ethylbenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 20:48	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 20:48	1.0
Toluene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 20:48	1.0
Xylenes, Total	ND		0.0030		mg/l		03/31/13 00:00	03/31/13 20:48	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*105*		*70 - 130*	*03/31/13 00:00*	*03/31/13 20:48*	*1.0*
Toluene-d8	*100*		*70 - 130*	*03/31/13 00:00*	*03/31/13 20:48*	*1.0*
4-Bromofluorobenzene	*96*		*70 - 130*	*03/31/13 00:00*	*03/31/13 20:48*	*1.0*

Client Sample ID: WR-232A

Date Collected: 03/25/13 12:20
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-16
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 21:20	1.0
Ethylbenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 21:20	1.0

Client Sample ID: WR-232A

Date Collected: 03/25/13 12:20
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-16
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 21:20	1.0
Toluene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 21:20	1.0
Xylenes, Total	ND		0.0030		mg/l		03/31/13 00:00	03/31/13 21:20	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*107*		*70 - 130*	*03/31/13 00:00*	*03/31/13 21:20*	*1.0*
Toluene-d8	*97*		*70 - 130*	*03/31/13 00:00*	*03/31/13 21:20*	*1.0*
4-Bromofluorobenzene	*97*		*70 - 130*	*03/31/13 00:00*	*03/31/13 21:20*	*1.0*

Client Sample ID: WR-216A

Date Collected: 03/25/13 12:35
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-17
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 21:53	1.0
Ethylbenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 21:53	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 21:53	1.0
Toluene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 21:53	1.0
Xylenes, Total	ND		0.0030		mg/l		03/31/13 00:00	03/31/13 21:53	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*106*		*70 - 130*	*03/31/13 00:00*	*03/31/13 21:53*	*1.0*
Toluene-d8	*102*		*70 - 130*	*03/31/13 00:00*	*03/31/13 21:53*	*1.0*
4-Bromofluorobenzene	*94*		*70 - 130*	*03/31/13 00:00*	*03/31/13 21:53*	*1.0*

Client Sample ID: Trip BLK

Date Collected: 03/25/13 07:50
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-18
Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
1,1,2,2-Tetrachloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
1,1,2-Trichloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
1,1-Dichloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
1,1-Dichloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
1,1-Dichloropropene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
1,2,3-Trichlorobenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
1,2,3-Trichloropropane	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
1,2,4-Trichlorobenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
1,2,4-Trimethylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
1,2-Dibromoethane (EDB)	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
1,2-Dichlorobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
1,2-Dichloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
1,2-Dichloropropane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
1,3,5-Trimethylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
1,3-Dichlorobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
1,3-Dichloropropane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
1,4-Dichlorobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0

Client Sample ID: Trip BLK

Date Collected: 03/25/13 07:50
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-18
Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,2-Dichloropropane	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
2-Butanone (MEK)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
2-Chlorotoluene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
2-Hexanone	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
4-Chlorotoluene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Acetone	ND		0.020		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Benzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Bromobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Bromochloromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Bromodichloromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Bromoform	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Bromomethane	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Carbon tetrachloride	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Chlorobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Chloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Chloroform	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Chloromethane	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
cis-1,2-Dichloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
cis-1,3-Dichloropropene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Dibromochloromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Dichlorodifluoromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Ethylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
m,p-Xylenes	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Methylene Chloride	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
n-Butylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
n-Propylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
o-Xylene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
p-Isopropyltoluene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
sec-Butylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Styrene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
tert-Butylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Tetrachloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Toluene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
trans-1,2-Dichloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
trans-1,3-Dichloropropene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Trichloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Trichlorofluoromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Vinyl Acetate	ND	N1	0.0020		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Vinyl chloride	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Isopropylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Naphthalene	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 15:46	1.0
Xylenes, Total	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:46	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*101*		*70 - 130*	*03/31/13 00:00*	*03/31/13 15:46*	*1.0*
Toluene-d8	*109*		*70 - 130*	*03/31/13 00:00*	*03/31/13 15:46*	*1.0*
4-Bromofluorobenzene	*102*		*70 - 130*	*03/31/13 00:00*	*03/31/13 15:46*	*1.0*

Surrogate Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Matrix: Water

Prep Type: Total

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	DBFM (70-130)	Toluene-d8 (70-130)	BFB (70-130)
13C1252-BLK1	Method Blank	100	92	104
13C1252-BS1	Lab Control Sample	102	101	107
13C1252-BSD1	Lab Control Sample Dup	102	105	107
13C1252-MS1	WR-230A	109	105	110
13C1252-MSD1	WR-230A	105	104	108
13C1253-BLK1	Method Blank	104	95	98
13C1253-BS1	Lab Control Sample	103	100	99
13C1253-BSD1	Lab Control Sample Dup	105	104	102
13C1253-MS1	Matrix Spike	102	103	106
13C1253-MSD1	Matrix Spike Duplicate	102	100	103
13D0036-BLK1	Method Blank	103	95	106
13D0036-BS1	Lab Control Sample	105	97	113
13D0036-BSD1	Lab Control Sample Dup	108	98	113
13D0036-MS1	Matrix Spike	112	106	111
13D0036-MSD1	Matrix Spike Duplicate	113	98	118
13D0099-BLK1	Method Blank	95	93	90
13D0099-BS1	Lab Control Sample	94	97	104
13D0099-BSD1	Lab Control Sample Dup	101	96	98
13D0099-MS1	Matrix Spike	97	96	100
13D0099-MSD1	Matrix Spike Duplicate	104	96	101
PWC1686-01	WR-230A	107	96	102
PWC1686-02	WR-225A	104	94	104
PWC1686-04	WR-230A dup	105	100	102
PWC1686-05	PCM-517A	107	100	111
PWC1686-05 - RE1	PCM-517A	106	104	109
PWC1686-06	PCM-508A	108	101	110
PWC1686-06 - RE1	PCM-508A	105	98	104
PWC1686-07	PCM-508B	100	99	104
PWC1686-07 - RE1	PCM-508B	99	96	89
PWC1686-09	PCM-506A	107	102	101
PWC1686-11	R-046A	109	100	107
PWC1686-12	WR-235A	108	102	105
PWC1686-13	WR-231A	109	101	103
PWC1686-14	WR-214A	109	96	104
PWC1686-15	WR-228A	105	100	96
PWC1686-16	WR-232A	107	97	97
PWC1686-17	WR-216A	106	102	94

Surrogate Legend

DBFM = Dibromofluoromethane

Toluene-d8 = Toluene-d8

BFB = 4-Bromofluorobenzene

Surrogate Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Matrix: Water

Prep Type: Total

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	DBFM (70-130)	Toluene-d8 (70-130)	BFB (70-130)
13C1252-BLK1	Method Blank	100	92	104
13C1252-BS1	Lab Control Sample	102	101	107
13C1252-BSD1	Lab Control Sample Dup	102	105	107
13C1252-MS1	WR-230A	109	105	110
13C1252-MSD1	WR-230A	105	104	108
13D0099-BLK1	Method Blank	95	93	90
13D0099-BS1	Lab Control Sample	94	97	104
13D0099-BSD1	Lab Control Sample Dup	101	96	98
13D0099-MS1	Matrix Spike	97	96	100
13D0099-MSD1	Matrix Spike Duplicate	104	96	101
PWC1686-03	WR-221A	104	102	108
PWC1686-08	WR-223A	110	104	106
PWC1686-10 - RE1	WR-219A	95	98	92
PWC1686-18	Trip BLK	101	109	102

Surrogate Legend

DBFM = Dibromofluoromethane

Toluene-d8 = Toluene-d8

BFB = 4-Bromofluorobenzene

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Matrix: Water

Prep Type: Total

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	DBFM	Toluene-d8	BFB
PWC1686-01	WR-230A			

Surrogate Legend

DBFM = Dibromofluoromethane

Toluene-d8 = Toluene-d8

BFB = 4-Bromofluorobenzene

QC Sample Results

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Lab Sample ID: 13C1252-BLK1
Matrix: Water
Analysis Batch: 13C1252

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13C1252_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Ethylbenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Toluene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Xylenes, Total	ND		0.0030		mg/l		03/31/13 00:00	03/31/13 15:14	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*100*		*70 - 130*	*03/31/13 00:00*	*03/31/13 15:14*	*1.00*
Toluene-d8	*92*		*70 - 130*	*03/31/13 00:00*	*03/31/13 15:14*	*1.00*
4-Bromofluorobenzene	*104*		*70 - 130*	*03/31/13 00:00*	*03/31/13 15:14*	*1.00*

Lab Sample ID: 13C1252-BS1
Matrix: Water
Analysis Batch: 13C1252

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13C1252_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0250	0.0202		mg/l		81	70 - 130
Ethylbenzene	0.0250	0.0228		mg/l		91	70 - 130
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0212		mg/l		85	70 - 130
Toluene	0.0250	0.0218		mg/l		87	70 - 130
Xylenes, Total	0.0500	0.0448		mg/l		90	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*102*		*70 - 130*
Toluene-d8	*101*		*70 - 130*
4-Bromofluorobenzene	*107*		*70 - 130*

Lab Sample ID: 13C1252-BSD1
Matrix: Water
Analysis Batch: 13C1252

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13C1252_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0250	0.0202		mg/l		81	70 - 130	0.2	20
Ethylbenzene	0.0250	0.0238		mg/l		95	70 - 130	5	20
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0206		mg/l		82	70 - 130	3	20
Toluene	0.0250	0.0230		mg/l		92	70 - 130	5	20
Xylenes, Total	0.0500	0.0456		mg/l		91	70 - 130	2	20

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Dibromofluoromethane	*102*		*70 - 130*
Toluene-d8	*105*		*70 - 130*
4-Bromofluorobenzene	*107*		*70 - 130*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C1252-MS1
Matrix: Water
Analysis Batch: 13C1252

Client Sample ID: WR-230A
Prep Type: Total
Prep Batch: 13C1252_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		0.0250	0.0212		mg/l		85	68 - 131
Ethylbenzene	ND		0.0250	0.0233		mg/l		93	74 - 134
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0223		mg/l		89	67 - 138
Toluene	0.000430		0.0250	0.0239		mg/l		94	65 - 138
Xylenes, Total	ND		0.0500	0.0471		mg/l		94	68 - 131

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*109*		*70 - 130*
Toluene-d8	*105*		*70 - 130*
4-Bromofluorobenzene	*110*		*70 - 130*

Lab Sample ID: 13C1252-MSD1
Matrix: Water
Analysis Batch: 13C1252

Client Sample ID: WR-230A
Prep Type: Total
Prep Batch: 13C1252_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		0.0250	0.0204		mg/l		82	68 - 131	4	32
Ethylbenzene	ND		0.0250	0.0218		mg/l		87	74 - 134	6	32
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0219		mg/l		88	67 - 138	2	21
Toluene	0.000430		0.0250	0.0222		mg/l		87	65 - 138	7	33
Xylenes, Total	ND		0.0500	0.0450		mg/l		90	68 - 131	4	31

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Dibromofluoromethane	*105*		*70 - 130*
Toluene-d8	*104*		*70 - 130*
4-Bromofluorobenzene	*108*		*70 - 130*

Lab Sample ID: 13C1253-BLK1
Matrix: Water
Analysis Batch: 13C1253

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13C1253_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:25	1.00
Ethylbenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:25	1.00
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 15:25	1.00
Toluene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:25	1.00
Xylenes, Total	ND		0.0030		mg/l		03/31/13 00:00	03/31/13 15:25	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*104*		*70 - 130*	*03/31/13 00:00*	*03/31/13 15:25*	*1.00*
Toluene-d8	*95*		*70 - 130*	*03/31/13 00:00*	*03/31/13 15:25*	*1.00*
4-Bromofluorobenzene	*98*		*70 - 130*	*03/31/13 00:00*	*03/31/13 15:25*	*1.00*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C1253-BS1
Matrix: Water
Analysis Batch: 13C1253

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13C1253_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0250	0.0227		mg/l		91	70 - 130
Ethylbenzene	0.0250	0.0237		mg/l		95	70 - 130
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0240		mg/l		96	70 - 130
Toluene	0.0250	0.0235		mg/l		94	70 - 130
Xylenes, Total	0.0500	0.0471		mg/l		94	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*103*		*70 - 130*
Toluene-d8	*100*		*70 - 130*
4-Bromofluorobenzene	*99*		*70 - 130*

Lab Sample ID: 13C1253-BSD1
Matrix: Water
Analysis Batch: 13C1253

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13C1253_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0250	0.0238		mg/l		95	70 - 130	5	20
Ethylbenzene	0.0250	0.0240		mg/l		96	70 - 130	1	20
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0252		mg/l		101	70 - 130	5	20
Toluene	0.0250	0.0245		mg/l		98	70 - 130	4	20
Xylenes, Total	0.0500	0.0484		mg/l		97	70 - 130	3	20

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Dibromofluoromethane	*105*		*70 - 130*
Toluene-d8	*104*		*70 - 130*
4-Bromofluorobenzene	*102*		*70 - 130*

Lab Sample ID: 13C1253-MS1
Matrix: Water
Analysis Batch: 13C1253

Client Sample ID: Matrix Spike
Prep Type: Total
Prep Batch: 13C1253_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		0.0250	0.0245		mg/l		98	68 - 131
Ethylbenzene	ND		0.0250	0.0254		mg/l		102	74 - 134
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0234		mg/l		94	67 - 138
Toluene	0.000300		0.0250	0.0254		mg/l		101	65 - 138
Xylenes, Total	ND		0.0500	0.0527		mg/l		105	68 - 131

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*102*		*70 - 130*
Toluene-d8	*103*		*70 - 130*
4-Bromofluorobenzene	*106*		*70 - 130*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C1253-MSD1
Matrix: Water
Analysis Batch: 13C1253

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total
Prep Batch: 13C1253_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		0.0250	0.0222		mg/l		89	68 - 131	10	32
Ethylbenzene	ND		0.0250	0.0231		mg/l		92	74 - 134	10	32
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0242		mg/l		97	67 - 138	4	21
Toluene	0.000300		0.0250	0.0233		mg/l		92	65 - 138	9	33
Xylenes, Total	ND		0.0500	0.0466		mg/l		93	68 - 131	12	31

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Dibromofluoromethane	*102*		*70 - 130*
Toluene-d8	*100*		*70 - 130*
4-Bromofluorobenzene	*103*		*70 - 130*

Lab Sample ID: 13D0036-BLK1
Matrix: Water
Analysis Batch: 13D0036

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13D0036_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/01/13 00:00	04/01/13 18:01	1.00
Ethylbenzene	ND		0.0020		mg/l		04/01/13 00:00	04/01/13 18:01	1.00
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/01/13 00:00	04/01/13 18:01	1.00
Toluene	ND		0.0020		mg/l		04/01/13 00:00	04/01/13 18:01	1.00
Xylenes, Total	ND		0.0030		mg/l		04/01/13 00:00	04/01/13 18:01	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*103*		*70 - 130*	*04/01/13 00:00*	*04/01/13 18:01*	*1.00*
Toluene-d8	*95*		*70 - 130*	*04/01/13 00:00*	*04/01/13 18:01*	*1.00*
4-Bromofluorobenzene	*106*		*70 - 130*	*04/01/13 00:00*	*04/01/13 18:01*	*1.00*

Lab Sample ID: 13D0036-BS1
Matrix: Water
Analysis Batch: 13D0036

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13D0036_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0250	0.0226		mg/l		90	70 - 130
Ethylbenzene	0.0250	0.0252		mg/l		101	70 - 130
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0244		mg/l		98	70 - 130
Toluene	0.0250	0.0226		mg/l		90	70 - 130
Xylenes, Total	0.0500	0.0510		mg/l		102	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*105*		*70 - 130*
Toluene-d8	*97*		*70 - 130*
4-Bromofluorobenzene	*113*		*70 - 130*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0036-BSD1
Matrix: Water
Analysis Batch: 13D0036

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13D0036_P

Analyte			Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.0250	0.0218		mg/l		87	70 - 130	4	20
Ethylbenzene			0.0250	0.0246		mg/l		98	70 - 130	2	20
Methyl-tert-butyl Ether (MTBE)			0.0250	0.0245		mg/l		98	70 - 130	0.1	20
Toluene			0.0250	0.0224		mg/l		90	70 - 130	0.6	20
Xylenes, Total			0.0500	0.0501		mg/l		100	70 - 130	2	20

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Dibromofluoromethane	*108*		*70 - 130*
Toluene-d8	*98*		*70 - 130*
4-Bromofluorobenzene	*113*		*70 - 130*

Lab Sample ID: 13D0036-MS1
Matrix: Water
Analysis Batch: 13D0036

Client Sample ID: Matrix Spike
Prep Type: Total
Prep Batch: 13D0036_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	0.000390		0.0250	0.0246		mg/l		97	68 - 131		
Ethylbenzene	ND		0.0250	0.0255		mg/l		102	74 - 134		
Methyl-tert-butyl Ether (MTBE)	0.0358		0.0250	0.0654		mg/l		118	67 - 138		
Toluene	ND		0.0250	0.0257		mg/l		103	65 - 138		
Xylenes, Total	ND		0.0500	0.0506		mg/l		101	68 - 131		

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*112*		*70 - 130*
Toluene-d8	*106*		*70 - 130*
4-Bromofluorobenzene	*111*		*70 - 130*

Lab Sample ID: 13D0036-MSD1
Matrix: Water
Analysis Batch: 13D0036

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total
Prep Batch: 13D0036_P

Analyte	Sample Result	Sample Qualifier	Spike Added	ıtrix Spike Dup Result	Matrix Spike Du Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.000390		0.0250	0.0233		mg/l		92	68 - 131	6	32
Ethylbenzene	ND		0.0250	0.0248		mg/l		99	74 - 134	3	32
Methyl-tert-butyl Ether (MTBE)	0.0358		0.0250	0.0650		mg/l		117	67 - 138	0.6	21
Toluene	ND		0.0250	0.0230		mg/l		92	65 - 138	11	33
Xylenes, Total	ND		0.0500	0.0498		mg/l		100	68 - 131	2	31

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Dibromofluoromethane	*113*		*70 - 130*
Toluene-d8	*98*		*70 - 130*
4-Bromofluorobenzene	*118*		*70 - 130*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0099-BLK1
Matrix: Water
Analysis Batch: 13D0099

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13D0099_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Ethylbenzene	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Toluene	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Xylenes, Total	ND		0.0030		mg/l		04/02/13 00:00	04/02/13 16:51	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*95*		*70 - 130*	*04/02/13 00:00*	*04/02/13 16:51*	*1.00*
Toluene-d8	*93*		*70 - 130*	*04/02/13 00:00*	*04/02/13 16:51*	*1.00*
4-Bromofluorobenzene	*90*		*70 - 130*	*04/02/13 00:00*	*04/02/13 16:51*	*1.00*

Lab Sample ID: 13D0099-BS1
Matrix: Water
Analysis Batch: 13D0099

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13D0099_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0250	0.0225		mg/l		90	70 - 130
Ethylbenzene	0.0250	0.0237		mg/l		95	70 - 130
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0237		mg/l		95	70 - 130
Toluene	0.0250	0.0224		mg/l		90	70 - 130
Xylenes, Total	0.0500	0.0464		mg/l		93	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*94*		*70 - 130*
Toluene-d8	*97*		*70 - 130*
4-Bromofluorobenzene	*104*		*70 - 130*

Lab Sample ID: 13D0099-BSD1
Matrix: Water
Analysis Batch: 13D0099

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13D0099_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0250	0.0214		mg/l		86	70 - 130	5	20
Ethylbenzene	0.0250	0.0227		mg/l		91	70 - 130	4	20
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0232		mg/l		93	70 - 130	2	20
Toluene	0.0250	0.0218		mg/l		87	70 - 130	3	20
Xylenes, Total	0.0500	0.0452		mg/l		90	70 - 130	3	20

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Dibromofluoromethane	*101*		*70 - 130*
Toluene-d8	*96*		*70 - 130*
4-Bromofluorobenzene	*98*		*70 - 130*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0099-MS1
Matrix: Water
Analysis Batch: 13D0099

Client Sample ID: Matrix Spike
Prep Type: Total
Prep Batch: 13D0099_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		0.0250	0.0215		mg/l		86	68 - 131
Ethylbenzene	ND		0.0250	0.0220		mg/l		88	74 - 134
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0226		mg/l		91	67 - 138
Toluene	ND		0.0250	0.0213		mg/l		85	65 - 138
Xylenes, Total	ND		0.0500	0.0441		mg/l		88	68 - 131

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*97*		*70 - 130*
Toluene-d8	*96*		*70 - 130*
4-Bromofluorobenzene	*100*		*70 - 130*

Lab Sample ID: 13D0099-MSD1
Matrix: Water
Analysis Batch: 13D0099

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total
Prep Batch: 13D0099_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		0.0250	0.0224		mg/l		90	68 - 131	4	32
Ethylbenzene	ND		0.0250	0.0231		mg/l		93	74 - 134	5	32
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0248		mg/l		99	67 - 138	9	21
Toluene	ND		0.0250	0.0223		mg/l		89	65 - 138	4	33
Xylenes, Total	ND		0.0500	0.0454		mg/l		91	68 - 131	3	31

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8	*96*		*70 - 130*
4-Bromofluorobenzene	*101*		*70 - 130*

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Lab Sample ID: 13C1252-BLK1
Matrix: Water
Analysis Batch: 13C1252

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13C1252_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
1,1,2,2-Tetrachloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
1,1,2-Trichloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
1,1-Dichloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
1,1-Dichloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
1,1-Dichloropropene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
1,2,3-Trichlorobenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
1,2,3-Trichloropropane	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
1,2,4-Trichlorobenzene	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
1,2,4-Trimethylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
1,2-Dibromoethane (EDB)	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
1,2-Dichlorobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
1,2-Dichloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C1252-BLK1
Matrix: Water
Analysis Batch: 13C1252

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13C1252_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloropropane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
1,3,5-Trimethylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
1,3-Dichlorobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
1,3-Dichloropropane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
1,4-Dichlorobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
2,2-Dichloropropane	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
2-Butanone (MEK)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
2-Chlorotoluene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
2-Hexanone	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
4-Chlorotoluene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Acetone	ND		0.020		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Benzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Bromobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Bromochloromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Bromodichloromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Bromoform	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Bromomethane	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Carbon tetrachloride	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Chlorobenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Chloroethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Chloroform	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Chloromethane	ND		0.0050		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
cis-1,2-Dichloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
cis-1,3-Dichloropropene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Dibromochloromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Dichlorodifluoromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Ethylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
m,p-Xylenes	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Methyl-tert-butyl Ether (MTBE)	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Methylene Chloride	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
n-Butylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
n-Propylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
o-Xylene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
p-Isopropyltoluene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
sec-Butylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Styrene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
tert-Butylbenzene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Tetrachloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Toluene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
trans-1,2-Dichloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
trans-1,3-Dichloropropene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Trichloroethene	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Trichlorofluoromethane	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Vinyl Acetate	ND	N1	0.0020		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Vinyl chloride	ND		0.0010		mg/l		03/31/13 00:00	03/31/13 15:14	1.00
Xylenes, Total	ND		0.0020		mg/l		03/31/13 00:00	03/31/13 15:14	1.00

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C1252-BLK1
Matrix: Water
Analysis Batch: 13C1252

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13C1252_P

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*100*		*70 - 130*	*03/31/13 00:00*	*03/31/13 15:14*	*1.00*
Toluene-d8	*92*		*70 - 130*	*03/31/13 00:00*	*03/31/13 15:14*	*1.00*
4-Bromofluorobenzene	*104*		*70 - 130*	*03/31/13 00:00*	*03/31/13 15:14*	*1.00*

Lab Sample ID: 13C1252-BS1
Matrix: Water
Analysis Batch: 13C1252

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13C1252_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	0.0250	0.0224		mg/l		89	71 - 131
1,1,2,2-Tetrachloroethane	0.0250	0.0190		mg/l		76	70 - 130
1,1,2-Trichloroethane	0.0250	0.0225		mg/l		90	70 - 130
1,1-Dichloroethane	0.0250	0.0201		mg/l		80	70 - 130
1,1-Dichloroethene	0.0250	0.0210		mg/l		84	63 - 131
1,1-Dichloropropene	0.0250	0.0204		mg/l		82	70 - 130
1,2,3-Trichlorobenzene	0.0250	0.0255		mg/l		102	79 - 139
1,2,3-Trichloropropane	0.0250	0.0209		mg/l		84	70 - 130
1,2,4-Trichlorobenzene	0.0250	0.0240		mg/l		96	80 - 137
1,2,4-Trimethylbenzene	0.0250	0.0222		mg/l		89	70 - 130
1,2-Dibromoethane (EDB)	0.0250	0.0229		mg/l		92	70 - 130
1,2-Dichlorobenzene	0.0250	0.0213		mg/l		85	70 - 130
1,2-Dichloroethane	0.0250	0.0241		mg/l		96	66 - 139
1,2-Dichloropropane	0.0250	0.0213		mg/l		85	70 - 130
1,3,5-Trimethylbenzene	0.0250	0.0221		mg/l		88	70 - 130
1,3-Dichlorobenzene	0.0250	0.0208		mg/l		83	70 - 130
1,3-Dichloropropane	0.0250	0.0224		mg/l		90	70 - 130
1,4-Dichlorobenzene	0.0250	0.0205		mg/l		82	70 - 130
2,2-Dichloropropane	0.0250	0.0247		mg/l		99	69 - 139
2-Butanone (MEK)	0.0250	0.0230		mg/l		92	53 - 150
2-Chlorotoluene	0.0250	0.0214		mg/l		85	70 - 130
2-Hexanone	0.0250	0.0233		mg/l		93	55 - 150
4-Chlorotoluene	0.0250	0.0214		mg/l		85	70 - 130
4-Methyl-2-pentanone (MIBK)	0.0250	0.0231		mg/l		92	64 - 142
Acetone	0.0250	0.0264		mg/l		105	38 - 150
Benzene	0.0250	0.0202		mg/l		81	70 - 130
Bromobenzene	0.0250	0.0216		mg/l		87	70 - 130
Bromochloromethane	0.0250	0.0211		mg/l		84	70 - 130
Bromodichloromethane	0.0250	0.0238		mg/l		95	70 - 130
Bromoform	0.0250	0.0225		mg/l		90	69 - 129
Bromomethane	0.0250	0.0206		mg/l		82	57 - 138
Carbon tetrachloride	0.0250	0.0253		mg/l		101	70 - 143
Chlorobenzene	0.0250	0.0218		mg/l		87	70 - 130
Chloroethane	0.0250	0.0198		mg/l		79	66 - 131
Chloroform	0.0250	0.0215		mg/l		86	70 - 130
Chloromethane	0.0250	0.0182		mg/l		73	56 - 129
cis-1,2-Dichloroethene	0.0250	0.0214		mg/l		86	70 - 130
cis-1,3-Dichloropropene	0.0250	0.0217		mg/l		87	70 - 130
Dibromochloromethane	0.0250	0.0235		mg/l		94	70 - 130

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C1252-BS1
Matrix: Water
Analysis Batch: 13C1252

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13C1252_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichlorodifluoromethane	0.0250	0.0178		mg/l		71	46 - 144
Ethylbenzene	0.0250	0.0228		mg/l		91	70 - 130
m,p-Xylenes	0.0250	0.0216		mg/l		86	70 - 130
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0212		mg/l		85	70 - 130
Methylene Chloride	0.0250	0.0203		mg/l		81	63 - 128
n-Butylbenzene	0.0250	0.0213		mg/l		85	70 - 130
n-Propylbenzene	0.0250	0.0218		mg/l		87	70 - 130
o-Xylene	0.0250	0.0233		mg/l		93	70 - 130
p-Isopropyltoluene	0.0250	0.0201		mg/l		80	70 - 130
sec-Butylbenzene	0.0250	0.0218		mg/l		87	70 - 130
Styrene	0.0250	0.0242		mg/l		97	70 - 130
tert-Butylbenzene	0.0250	0.0212		mg/l		85	70 - 130
Tetrachloroethene	0.0250	0.0240		mg/l		96	70 - 130
Toluene	0.0250	0.0218		mg/l		87	70 - 130
trans-1,2-Dichloroethene	0.0250	0.0203		mg/l		81	69 - 127
trans-1,3-Dichloropropene	0.0250	0.0228		mg/l		91	70 - 130
Trichloroethene	0.0250	0.0218		mg/l		87	70 - 130
Trichlorofluoromethane	0.0250	0.0245		mg/l		98	69 - 150
Vinyl Acetate	0.0250	0.0347	N1	mg/l		139	67 - 148
Vinyl chloride	0.0250	0.0226		mg/l		90	65 - 137
Xylenes, Total	0.0500	0.0448		mg/l		90	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*102*		*70 - 130*
Toluene-d8	*101*		*70 - 130*
4-Bromofluorobenzene	*107*		*70 - 130*

Lab Sample ID: 13C1252-BSD1
Matrix: Water
Analysis Batch: 13C1252

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13C1252_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	0.0250	0.0230		mg/l		92	71 - 131	3	20
1,1,2,2-Tetrachloroethane	0.0250	0.0174		mg/l		70	70 - 130	8	20
1,1,2-Trichloroethane	0.0250	0.0227		mg/l		91	70 - 130	0.7	20
1,1-Dichloroethane	0.0250	0.0200		mg/l		80	70 - 130	0.7	20
1,1-Dichloroethene	0.0250	0.0217		mg/l		87	63 - 131	3	22
1,1-Dichloropropene	0.0250	0.0204		mg/l		82	70 - 130	0.2	20
1,2,3-Trichlorobenzene	0.0250	0.0242		mg/l		97	79 - 139	5	20
1,2,3-Trichloropropane	0.0250	0.0191		mg/l		76	70 - 130	9	20
1,2,4-Trichlorobenzene	0.0250	0.0250		mg/l		100	80 - 137	4	20
1,2,4-Trimethylbenzene	0.0250	0.0224		mg/l		90	70 - 130	0.8	20
1,2-Dibromoethane (EDB)	0.0250	0.0222		mg/l		89	70 - 130	3	20
1,2-Dichlorobenzene	0.0250	0.0211		mg/l		84	70 - 130	0.9	20
1,2-Dichloroethane	0.0250	0.0234		mg/l		94	66 - 139	3	20
1,2-Dichloropropane	0.0250	0.0194		mg/l		78	70 - 130	9	20
1,3,5-Trimethylbenzene	0.0250	0.0227		mg/l		91	70 - 130	3	20
1,3-Dichlorobenzene	0.0250	0.0208		mg/l		83	70 - 130	0.3	20

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C1252-BSD1
Matrix: Water
Analysis Batch: 13C1252

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13C1252_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,3-Dichloropropane	0.0250	0.0222		mg/l		89	70 - 130	1	20
1,4-Dichlorobenzene	0.0250	0.0214		mg/l		85	70 - 130	4	20
2,2-Dichloropropane	0.0250	0.0250		mg/l		100	69 - 139	1	20
2-Butanone (MEK)	0.0250	0.0190		mg/l		76	53 - 150	19	35
2-Chlorotoluene	0.0250	0.0213		mg/l		85	70 - 130	0.3	20
2-Hexanone	0.0250	0.0194		mg/l		78	55 - 150	18	35
4-Chlorotoluene	0.0250	0.0212		mg/l		85	70 - 130	0.7	20
4-Methyl-2-pentanone (MIBK)	0.0250	0.0205		mg/l		82	64 - 142	12	25
Acetone	0.0250	0.0210		mg/l		84	38 - 150	22	35
Benzene	0.0250	0.0202		mg/l		81	70 - 130	0.2	20
Bromobenzene	0.0250	0.0217		mg/l		87	70 - 130	0.2	20
Bromochloromethane	0.0250	0.0200		mg/l		80	70 - 130	5	20
Bromodichloromethane	0.0250	0.0230		mg/l		92	70 - 130	3	20
Bromoform	0.0250	0.0212		mg/l		85	69 - 129	6	20
Bromomethane	0.0250	0.0207		mg/l		83	57 - 138	0.6	20
Carbon tetrachloride	0.0250	0.0267		mg/l		107	70 - 143	6	20
Chlorobenzene	0.0250	0.0222		mg/l		89	70 - 130	2	20
Chloroethane	0.0250	0.0201		mg/l		80	66 - 131	1	20
Chloroform	0.0250	0.0218		mg/l		87	70 - 130	1	20
Chloromethane	0.0250	0.0191		mg/l		76	56 - 129	5	20
cis-1,2-Dichloroethene	0.0250	0.0220		mg/l		88	70 - 130	3	20
cis-1,3-Dichloropropene	0.0250	0.0229		mg/l		92	70 - 130	6	20
Dibromochloromethane	0.0250	0.0228		mg/l		91	70 - 130	3	20
Dichlorodifluoromethane	0.0250	0.0183		mg/l		73	46 - 144	3	23
Ethylbenzene	0.0250	0.0238		mg/l		95	70 - 130	5	20
m,p-Xylenes	0.0250	0.0223		mg/l		89	70 - 130	3	20
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0206		mg/l		82	70 - 130	3	20
Methylene Chloride	0.0250	0.0198		mg/l		79	63 - 128	2	21
n-Butylbenzene	0.0250	0.0222		mg/l		89	70 - 130	4	20
n-Propylbenzene	0.0250	0.0221		mg/l		88	70 - 130	1	20
o-Xylene	0.0250	0.0233		mg/l		93	70 - 130	0.2	20
p-Isopropyltoluene	0.0250	0.0202		mg/l		81	70 - 130	0.7	20
sec-Butylbenzene	0.0250	0.0220		mg/l		88	70 - 130	0.8	20
Styrene	0.0250	0.0241		mg/l		96	70 - 130	0.5	20
tert-Butylbenzene	0.0250	0.0222		mg/l		89	70 - 130	5	20
Tetrachloroethene	0.0250	0.0246		mg/l		98	70 - 130	2	20
Toluene	0.0250	0.0230		mg/l		92	70 - 130	5	20
trans-1,2-Dichloroethene	0.0250	0.0202		mg/l		81	69 - 127	0.4	20
trans-1,3-Dichloropropene	0.0250	0.0224		mg/l		90	70 - 130	2	20
Trichloroethene	0.0250	0.0220		mg/l		88	70 - 130	0.9	20
Trichlorofluoromethane	0.0250	0.0253		mg/l		101	69 - 150	3	22
Vinyl Acetate	0.0250	0.0321	N1	mg/l		128	67 - 148	8	22
Vinyl chloride	0.0250	0.0230		mg/l		92	65 - 137	2	20
Xylenes, Total	0.0500	0.0456		mg/l		91	70 - 130	2	20

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Dibromofluoromethane	*102*		*70 - 130*
Toluene-d8	*105*		*70 - 130*

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C1252-BSD1
Matrix: Water
Analysis Batch: 13C1252

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13C1252_P

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
4-Bromofluorobenzene	*107*		*70 - 130*

Lab Sample ID: 13C1252-MS1
Matrix: Water
Analysis Batch: 13C1252

Client Sample ID: WR-230A
Prep Type: Total
Prep Batch: 13C1252_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		0.0250	0.0236		mg/l		94	64 - 138
1,1,2,2-Tetrachloroethane	ND		0.0250	0.0177		mg/l		71	63 - 137
1,1,2-Trichloroethane	ND		0.0250	0.0239		mg/l		96	63 - 132
1,1-Dichloroethane	ND		0.0250	0.0205		mg/l		82	62 - 130
1,1-Dichloroethene	ND		0.0250	0.0204		mg/l		82	57 - 137
1,1-Dichloropropene	ND		0.0250	0.0207		mg/l		83	64 - 134
1,2,3-Trichlorobenzene	ND		0.0250	0.0260		mg/l		104	74 - 139
1,2,3-Trichloropropane	ND		0.0250	0.0195		mg/l		78	68 - 130
1,2,4-Trichlorobenzene	ND		0.0250	0.0264		mg/l		105	74 - 138
1,2,4-Trimethylbenzene	ND		0.0250	0.0234		mg/l		94	63 - 135
1,2-Dibromoethane (EDB)	ND		0.0250	0.0217		mg/l		87	70 - 130
1,2-Dichlorobenzene	ND		0.0250	0.0219		mg/l		88	70 - 130
1,2-Dichloroethane	ND		0.0250	0.0260		mg/l		104	54 - 147
1,2-Dichloropropane	ND		0.0250	0.0216		mg/l		87	68 - 126
1,3,5-Trimethylbenzene	ND		0.0250	0.0231		mg/l		92	66 - 137
1,3-Dichlorobenzene	ND		0.0250	0.0221		mg/l		88	70 - 130
1,3-Dichloropropane	ND		0.0250	0.0218		mg/l		87	68 - 129
1,4-Dichlorobenzene	ND		0.0250	0.0214		mg/l		86	70 - 130
2,2-Dichloropropane	ND		0.0250	0.0252		mg/l		101	60 - 146
2-Butanone (MEK)	ND		0.0250	0.0170		mg/l		68	31 - 143
2-Chlorotoluene	ND		0.0250	0.0218		mg/l		87	71 - 131
2-Hexanone	ND		0.0250	0.0164		mg/l		66	40 - 142
4-Chlorotoluene	ND		0.0250	0.0219		mg/l		87	70 - 130
4-Methyl-2-pentanone (MIBK)	ND		0.0250	0.0190		mg/l		76	52 - 143
Acetone	ND		0.0250	0.0174		mg/l		69	29 - 139
Benzene	ND		0.0250	0.0212		mg/l		85	68 - 131
Bromobenzene	ND		0.0250	0.0230		mg/l		92	70 - 130
Bromochloromethane	ND		0.0250	0.0229		mg/l		92	64 - 132
Bromodichloromethane	ND		0.0250	0.0264		mg/l		105	63 - 138
Bromoform	ND		0.0250	0.0223		mg/l		89	60 - 128
Bromomethane	ND		0.0250	0.0191		mg/l		77	47 - 144
Carbon tetrachloride	ND		0.0250	0.0261		mg/l		104	65 - 147
Chlorobenzene	ND		0.0250	0.0225		mg/l		90	70 - 130
Chloroethane	ND		0.0250	0.0182		mg/l		73	57 - 139
Chloroform	ND		0.0250	0.0236		mg/l		94	63 - 131
Chloromethane	ND		0.0250	0.0175		mg/l		70	47 - 134
cis-1,2-Dichloroethene	ND		0.0250	0.0223		mg/l		89	65 - 127
cis-1,3-Dichloropropene	ND		0.0250	0.0249		mg/l		99	63 - 135
Dibromochloromethane	ND		0.0250	0.0240		mg/l		96	65 - 134
Dichlorodifluoromethane	ND		0.0250	0.0177		mg/l		71	40 - 148
Ethylbenzene	ND		0.0250	0.0233		mg/l		93	74 - 134

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C1252-MS1
Matrix: Water
Analysis Batch: 13C1252

Client Sample ID: WR-230A
Prep Type: Total
Prep Batch: 13C1252_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
m,p-Xylenes	ND		0.0250	0.0228		mg/l		91	58 - 138
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0223		mg/l		89	67 - 138
Methylene Chloride	ND		0.0250	0.0195		mg/l		78	55 - 133
n-Butylbenzene	ND		0.0250	0.0226		mg/l		90	69 - 140
n-Propylbenzene	ND		0.0250	0.0226		mg/l		90	74 - 140
o-Xylene	ND		0.0250	0.0243		mg/l		97	66 - 137
p-Isopropyltoluene	ND		0.0250	0.0208		mg/l		83	70 - 133
sec-Butylbenzene	ND		0.0250	0.0221		mg/l		88	72 - 136
Styrene	ND		0.0250	0.0253		mg/l		101	43 - 144
tert-Butylbenzene	ND		0.0250	0.0221		mg/l		88	74 - 135
Tetrachloroethene	ND		0.0250	0.0236		mg/l		94	67 - 131
Toluene	0.000430		0.0250	0.0239		mg/l		94	65 - 138
trans-1,2-Dichloroethene	ND		0.0250	0.0208		mg/l		83	62 - 131
trans-1,3-Dichloropropene	ND		0.0250	0.0249		mg/l		100	58 - 136
Trichloroethene	ND		0.0250	0.0225		mg/l		90	66 - 132
Trichlorofluoromethane	ND		0.0250	0.0249		mg/l		100	62 - 150
Vinyl Acetate	ND		0.0250	0.0323	N1	mg/l		129	47 - 150
Vinyl chloride	ND		0.0250	0.0215		mg/l		86	55 - 146
Xylenes, Total	ND		0.0500	0.0471		mg/l		94	68 - 131

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*109*		*70 - 130*
Toluene-d8	*105*		*70 - 130*
4-Bromofluorobenzene	*110*		*70 - 130*

Lab Sample ID: 13C1252-MSD1
Matrix: Water
Analysis Batch: 13C1252

Client Sample ID: WR-230A
Prep Type: Total
Prep Batch: 13C1252_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		0.0250	0.0224		mg/l		90	64 - 138	5	35
1,1,2,2-Tetrachloroethane	ND		0.0250	0.0175		mg/l		70	63 - 137	1	32
1,1,2-Trichloroethane	ND		0.0250	0.0240		mg/l		96	63 - 132	0.4	35
1,1-Dichloroethane	ND		0.0250	0.0199		mg/l		80	62 - 130	3	34
1,1-Dichloroethene	ND		0.0250	0.0197		mg/l		79	57 - 137	4	35
1,1-Dichloropropene	ND		0.0250	0.0201		mg/l		80	64 - 134	3	34
1,2,3-Trichlorobenzene	ND		0.0250	0.0268		mg/l		107	74 - 139	3	26
1,2,3-Trichloropropane	ND		0.0250	0.0194		mg/l		77	68 - 130	0.8	32
1,2,4-Trichlorobenzene	ND		0.0250	0.0263		mg/l		105	74 - 138	0.2	26
1,2,4-Trimethylbenzene	ND		0.0250	0.0215		mg/l		86	63 - 135	8	31
1,2-Dibromoethane (EDB)	ND		0.0250	0.0219		mg/l		88	70 - 130	1	33
1,2-Dichlorobenzene	ND		0.0250	0.0219		mg/l		88	70 - 130	0	27
1,2-Dichloroethane	ND		0.0250	0.0251		mg/l		100	54 - 147	4	35
1,2-Dichloropropane	ND		0.0250	0.0204		mg/l		82	68 - 126	6	32
1,3,5-Trimethylbenzene	ND		0.0250	0.0219		mg/l		88	66 - 137	5	30
1,3-Dichlorobenzene	ND		0.0250	0.0212		mg/l		85	70 - 130	4	28
1,3-Dichloropropane	ND		0.0250	0.0220		mg/l		88	68 - 129	1	33
1,4-Dichlorobenzene	ND		0.0250	0.0208		mg/l		83	70 - 130	3	26

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13C1252-MSD1
Matrix: Water
Analysis Batch: 13C1252

Client Sample ID: WR-230A
Prep Type: Total
Prep Batch: 13C1252_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,2-Dichloropropane	ND		0.0250	0.0234		mg/l		94	60 - 146	7	35
2-Butanone (MEK)	ND		0.0250	0.0193		mg/l		77	31 - 143	13	35
2-Chlorotoluene	ND		0.0250	0.0208		mg/l		83	71 - 131	5	29
2-Hexanone	ND		0.0250	0.0175		mg/l		70	40 - 142	6	35
4-Chlorotoluene	ND		0.0250	0.0216		mg/l		86	70 - 130	1	28
4-Methyl-2-pentanone (MIBK)	ND		0.0250	0.0188		mg/l		75	52 - 143	0.9	35
Acetone	ND		0.0250	0.0184		mg/l		74	29 - 139	6	35
Benzene	ND		0.0250	0.0204		mg/l		82	68 - 131	4	32
Bromobenzene	ND		0.0250	0.0219		mg/l		88	70 - 130	5	28
Bromochloromethane	ND		0.0250	0.0220		mg/l		88	64 - 132	4	35
Bromodichloromethane	ND		0.0250	0.0243		mg/l		97	63 - 138	8	31
Bromoform	ND		0.0250	0.0212		mg/l		85	60 - 128	5	31
Bromomethane	ND		0.0250	0.0192		mg/l		77	47 - 144	0.2	35
Carbon tetrachloride	ND		0.0250	0.0255		mg/l		102	65 - 147	3	35
Chlorobenzene	ND		0.0250	0.0216		mg/l		86	70 - 130	4	30
Chloroethane	ND		0.0250	0.0189		mg/l		76	57 - 139	4	35
Chloroform	ND		0.0250	0.0225		mg/l		90	63 - 131	5	33
Chloromethane	ND		0.0250	0.0182		mg/l		73	47 - 134	4	35
cis-1,2-Dichloroethene	ND		0.0250	0.0220		mg/l		88	65 - 127	1	34
cis-1,3-Dichloropropene	ND		0.0250	0.0224		mg/l		90	63 - 135	10	35
Dibromochloromethane	ND		0.0250	0.0240		mg/l		96	65 - 134	0.3	33
Dichlorodifluoromethane	ND		0.0250	0.0173		mg/l		69	40 - 148	3	35
Ethylbenzene	ND		0.0250	0.0218		mg/l		87	74 - 134	6	32
m,p-Xylenes	ND		0.0250	0.0219		mg/l		88	58 - 138	4	29
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0219		mg/l		88	67 - 138	2	21
Methylene Chloride	ND		0.0250	0.0202		mg/l		81	55 - 133	4	35
n-Butylbenzene	ND		0.0250	0.0209		mg/l		83	69 - 140	8	32
n-Propylbenzene	ND		0.0250	0.0209		mg/l		83	74 - 140	8	32
o-Xylene	ND		0.0250	0.0231		mg/l		92	66 - 137	5	26
p-Isopropyltoluene	ND		0.0250	0.0196		mg/l		78	70 - 133	6	32
sec-Butylbenzene	ND		0.0250	0.0207		mg/l		83	72 - 136	7	33
Styrene	ND		0.0250	0.0238		mg/l		95	43 - 144	6	35
tert-Butylbenzene	ND		0.0250	0.0205		mg/l		82	74 - 135	7	32
Tetrachloroethene	ND		0.0250	0.0227		mg/l		91	67 - 131	4	31
Toluene	0.000430		0.0250	0.0222		mg/l		87	65 - 138	7	33
trans-1,2-Dichloroethene	ND		0.0250	0.0195		mg/l		78	62 - 131	6	35
trans-1,3-Dichloropropene	ND		0.0250	0.0243		mg/l		97	58 - 136	2	35
Trichloroethene	ND		0.0250	0.0210		mg/l		84	66 - 132	7	29
Trichlorofluoromethane	ND		0.0250	0.0238		mg/l		95	62 - 150	5	35
Vinyl Acetate	ND		0.0250	0.0321	N1	mg/l		128	47 - 150	0.6	35
Vinyl chloride	ND		0.0250	0.0211		mg/l		84	55 - 146	2	35
Xylenes, Total	ND		0.0500	0.0450		mg/l		90	68 - 131	4	31

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Dibromofluoromethane	*105*		*70 - 130*
Toluene-d8	*104*		*70 - 130*
4-Bromofluorobenzene	*108*		*70 - 130*

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0099-BLK1
Matrix: Water
Analysis Batch: 13D0099

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13D0099_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
1,1,2,2-Tetrachloroethane	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
1,1,2-Trichloroethane	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
1,1-Dichloroethane	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
1,1-Dichloroethene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
1,1-Dichloropropene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
1,2,3-Trichlorobenzene	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
1,2,3-Trichloropropane	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
1,2,4-Trichlorobenzene	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
1,2,4-Trimethylbenzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
1,2-Dibromoethane (EDB)	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
1,2-Dichlorobenzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
1,2-Dichloroethane	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
1,2-Dichloropropane	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
1,3,5-Trimethylbenzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
1,3-Dichlorobenzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
1,3-Dichloropropane	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
1,4-Dichlorobenzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
2,2-Dichloropropane	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
2-Butanone (MEK)	ND		0.0050		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
2-Chlorotoluene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
2-Hexanone	ND		0.0050		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
4-Chlorotoluene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Acetone	ND	V1	0.020		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Benzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Bromobenzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Bromochloromethane	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Bromodichloromethane	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Bromoform	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Bromomethane	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Carbon tetrachloride	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Chlorobenzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Chloroethane	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Chloroform	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Chloromethane	ND		0.0050		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
cis-1,2-Dichloroethene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
cis-1,3-Dichloropropene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Dibromochloromethane	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Dichlorodifluoromethane	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Ethylbenzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
m,p-Xylenes	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Methyl-tert-butyl Ether (MTBE)	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Methylene Chloride	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
n-Butylbenzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
n-Propylbenzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
o-Xylene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
p-Isopropyltoluene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0099-BLK1
Matrix: Water
Analysis Batch: 13D0099

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13D0099_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
sec-Butylbenzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Styrene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
tert-Butylbenzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Tetrachloroethene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Toluene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
trans-1,2-Dichloroethene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
trans-1,3-Dichloropropene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Trichloroethene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Trichlorofluoromethane	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Vinyl Acetate	ND	N1	0.0020		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Vinyl chloride	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 16:51	1.00
Xylenes, Total	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 16:51	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*95*		*70 - 130*	*04/02/13 00:00*	*04/02/13 16:51*	*1.00*
Toluene-d8	*93*		*70 - 130*	*04/02/13 00:00*	*04/02/13 16:51*	*1.00*
4-Bromofluorobenzene	*90*		*70 - 130*	*04/02/13 00:00*	*04/02/13 16:51*	*1.00*

Lab Sample ID: 13D0099-BS1
Matrix: Water
Analysis Batch: 13D0099

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13D0099_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	0.0250	0.0224		mg/l		89	71 - 131
1,1,2,2-Tetrachloroethane	0.0250	0.0226		mg/l		90	70 - 130
1,1,2-Trichloroethane	0.0250	0.0213		mg/l		85	70 - 130
1,1-Dichloroethane	0.0250	0.0225		mg/l		90	70 - 130
1,1-Dichloroethene	0.0250	0.0226		mg/l		90	63 - 131
1,1-Dichloropropene	0.0250	0.0211		mg/l		84	70 - 130
1,2,3-Trichlorobenzene	0.0250	0.0257		mg/l		103	79 - 139
1,2,3-Trichloropropane	0.0250	0.0230		mg/l		92	70 - 130
1,2,4-Trichlorobenzene	0.0250	0.0263		mg/l		105	80 - 137
1,2,4-Trimethylbenzene	0.0250	0.0240		mg/l		96	70 - 130
1,2-Dibromoethane (EDB)	0.0250	0.0236		mg/l		95	70 - 130
1,2-Dichlorobenzene	0.0250	0.0227		mg/l		91	70 - 130
1,2-Dichloroethane	0.0250	0.0231		mg/l		92	66 - 139
1,2-Dichloropropane	0.0250	0.0224		mg/l		90	70 - 130
1,3,5-Trimethylbenzene	0.0250	0.0246		mg/l		98	70 - 130
1,3-Dichlorobenzene	0.0250	0.0232		mg/l		93	70 - 130
1,3-Dichloropropane	0.0250	0.0238		mg/l		95	70 - 130
1,4-Dichlorobenzene	0.0250	0.0220		mg/l		88	70 - 130
2,2-Dichloropropane	0.0250	0.0235		mg/l		94	69 - 139
2-Butanone (MEK)	0.0250	0.0207		mg/l		83	53 - 150
2-Chlorotoluene	0.0250	0.0236		mg/l		94	70 - 130
2-Hexanone	0.0250	0.0234		mg/l		94	55 - 150
4-Chlorotoluene	0.0250	0.0240		mg/l		96	70 - 130
4-Methyl-2-pentanone (MIBK)	0.0250	0.0256		mg/l		103	64 - 142
Acetone	0.0250	0.0205	V1	mg/l		82	38 - 150

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0099-BS1
Matrix: Water
Analysis Batch: 13D0099

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13D0099_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0250	0.0225		mg/l		90	70 - 130
Bromobenzene	0.0250	0.0225		mg/l		90	70 - 130
Bromochloromethane	0.0250	0.0236		mg/l		94	70 - 130
Bromodichloromethane	0.0250	0.0223		mg/l		89	70 - 130
Bromoform	0.0250	0.0215		mg/l		86	69 - 129
Bromomethane	0.0250	0.0211		mg/l		84	57 - 138
Carbon tetrachloride	0.0250	0.0224		mg/l		89	70 - 143
Chlorobenzene	0.0250	0.0226		mg/l		90	70 - 130
Chloroethane	0.0250	0.0220		mg/l		88	66 - 131
Chloroform	0.0250	0.0225		mg/l		90	70 - 130
Chloromethane	0.0250	0.0193		mg/l		77	56 - 129
cis-1,2-Dichloroethene	0.0250	0.0228		mg/l		91	70 - 130
cis-1,3-Dichloropropene	0.0250	0.0239		mg/l		95	70 - 130
Dibromochloromethane	0.0250	0.0227		mg/l		91	70 - 130
Dichlorodifluoromethane	0.0250	0.0150		mg/l		60	46 - 144
Ethylbenzene	0.0250	0.0237		mg/l		95	70 - 130
m,p-Xylenes	0.0250	0.0222		mg/l		89	70 - 130
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0237		mg/l		95	70 - 130
Methylene Chloride	0.0250	0.0205		mg/l		82	63 - 128
n-Butylbenzene	0.0250	0.0244		mg/l		98	70 - 130
n-Propylbenzene	0.0250	0.0255		mg/l		102	70 - 130
o-Xylene	0.0250	0.0242		mg/l		97	70 - 130
p-Isopropyltoluene	0.0250	0.0228		mg/l		91	70 - 130
sec-Butylbenzene	0.0250	0.0246		mg/l		99	70 - 130
Styrene	0.0250	0.0239		mg/l		96	70 - 130
tert-Butylbenzene	0.0250	0.0242		mg/l		97	70 - 130
Tetrachloroethene	0.0250	0.0214		mg/l		86	70 - 130
Toluene	0.0250	0.0224		mg/l		90	70 - 130
trans-1,2-Dichloroethene	0.0250	0.0216		mg/l		86	69 - 127
trans-1,3-Dichloropropene	0.0250	0.0222		mg/l		89	70 - 130
Trichloroethene	0.0250	0.0222		mg/l		89	70 - 130
Trichlorofluoromethane	0.0250	0.0221		mg/l		88	69 - 150
Vinyl Acetate	0.0250	0.0398	L3	mg/l		159	67 - 148
Vinyl chloride	0.0250	0.0206		mg/l		83	65 - 137
Xylenes, Total	0.0500	0.0464		mg/l		93	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*94*		*70 - 130*
Toluene-d8	*97*		*70 - 130*
4-Bromofluorobenzene	*104*		*70 - 130*

Lab Sample ID: 13D0099-BSD1
Matrix: Water
Analysis Batch: 13D0099

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13D0099_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	0.0250	0.0221		mg/l		88	71 - 131	1	20
1,1,2,2-Tetrachloroethane	0.0250	0.0216		mg/l		86	70 - 130	4	20

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0099-BSD1
Matrix: Water
Analysis Batch: 13D0099

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13D0099_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,2-Trichloroethane	0.0250	0.0207		mg/l		83	70 - 130	3	20
1,1-Dichloroethane	0.0250	0.0235		mg/l		94	70 - 130	4	20
1,1-Dichloroethene	0.0250	0.0216		mg/l		87	63 - 131	4	22
1,1-Dichloropropene	0.0250	0.0201		mg/l		81	70 - 130	5	20
1,2,3-Trichlorobenzene	0.0250	0.0246		mg/l		98	79 - 139	4	20
1,2,3-Trichloropropane	0.0250	0.0219		mg/l		88	70 - 130	5	20
1,2,4-Trichlorobenzene	0.0250	0.0256		mg/l		102	80 - 137	3	20
1,2,4-Trimethylbenzene	0.0250	0.0229		mg/l		92	70 - 130	5	20
1,2-Dibromoethane (EDB)	0.0250	0.0227		mg/l		91	70 - 130	4	20
1,2-Dichlorobenzene	0.0250	0.0216		mg/l		86	70 - 130	5	20
1,2-Dichloroethane	0.0250	0.0229		mg/l		92	66 - 139	0.7	20
1,2-Dichloropropane	0.0250	0.0215		mg/l		86	70 - 130	4	20
1,3,5-Trimethylbenzene	0.0250	0.0232		mg/l		93	70 - 130	6	20
1,3-Dichlorobenzene	0.0250	0.0219		mg/l		88	70 - 130	6	20
1,3-Dichloropropane	0.0250	0.0229		mg/l		92	70 - 130	3	20
1,4-Dichlorobenzene	0.0250	0.0211		mg/l		84	70 - 130	4	20
2,2-Dichloropropane	0.0250	0.0220		mg/l		88	69 - 139	7	20
2-Butanone (MEK)	0.0250	0.0224		mg/l		90	53 - 150	8	35
2-Chlorotoluene	0.0250	0.0226		mg/l		90	70 - 130	4	20
2-Hexanone	0.0250	0.0223		mg/l		89	55 - 150	5	35
4-Chlorotoluene	0.0250	0.0228		mg/l		91	70 - 130	5	20
4-Methyl-2-pentanone (MIBK)	0.0250	0.0234		mg/l		94	64 - 142	9	25
Acetone	0.0250	0.0180	V1	mg/l		72	38 - 150	13	35
Benzene	0.0250	0.0214		mg/l		86	70 - 130	5	20
Bromobenzene	0.0250	0.0219		mg/l		87	70 - 130	3	20
Bromochloromethane	0.0250	0.0238		mg/l		95	70 - 130	0.9	20
Bromodichloromethane	0.0250	0.0210		mg/l		84	70 - 130	6	20
Bromoform	0.0250	0.0205		mg/l		82	69 - 129	5	20
Bromomethane	0.0250	0.0213		mg/l		85	57 - 138	1	20
Carbon tetrachloride	0.0250	0.0208		mg/l		83	70 - 143	7	20
Chlorobenzene	0.0250	0.0218		mg/l		87	70 - 130	3	20
Chloroethane	0.0250	0.0215		mg/l		86	66 - 131	2	20
Chloroform	0.0250	0.0225		mg/l		90	70 - 130	0.04	20
Chloromethane	0.0250	0.0198		mg/l		79	56 - 129	2	20
cis-1,2-Dichloroethene	0.0250	0.0232		mg/l		93	70 - 130	2	20
cis-1,3-Dichloropropene	0.0250	0.0226		mg/l		90	70 - 130	6	20
Dibromochloromethane	0.0250	0.0224		mg/l		89	70 - 130	1	20
Dichlorodifluoromethane	0.0250	0.0148		mg/l		59	46 - 144	1	23
Ethylbenzene	0.0250	0.0227		mg/l		91	70 - 130	4	20
m,p-Xylenes	0.0250	0.0218		mg/l		87	70 - 130	2	20
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0232		mg/l		93	70 - 130	2	20
Methylene Chloride	0.0250	0.0212		mg/l		85	63 - 128	3	21
n-Butylbenzene	0.0250	0.0228		mg/l		91	70 - 130	7	20
n-Propylbenzene	0.0250	0.0238		mg/l		95	70 - 130	7	20
o-Xylene	0.0250	0.0234		mg/l		94	70 - 130	3	20
p-Isopropyltoluene	0.0250	0.0213		mg/l		85	70 - 130	6	20
sec-Butylbenzene	0.0250	0.0229		mg/l		92	70 - 130	7	20
Styrene	0.0250	0.0236		mg/l		95	70 - 130	1	20

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0099-BSD1
Matrix: Water
Analysis Batch: 13D0099

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13D0099_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
tert-Butylbenzene	0.0250	0.0231		mg/l		92	70 - 130	5	20
Tetrachloroethene	0.0250	0.0209		mg/l		83	70 - 130	3	20
Toluene	0.0250	0.0218		mg/l		87	70 - 130	3	20
trans-1,2-Dichloroethene	0.0250	0.0227		mg/l		91	69 - 127	5	20
trans-1,3-Dichloropropene	0.0250	0.0213		mg/l		85	70 - 130	4	20
Trichloroethene	0.0250	0.0206		mg/l		83	70 - 130	7	20
Trichlorofluoromethane	0.0250	0.0220		mg/l		88	69 - 150	0.09	22
Vinyl Acetate	0.0250	0.0399	L3	mg/l		160	67 - 148	0.2	22
Vinyl chloride	0.0250	0.0211		mg/l		84	65 - 137	2	20
Xylenes, Total	0.0500	0.0452		mg/l		90	70 - 130	3	20

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Dibromofluoromethane	*101*		*70 - 130*
Toluene-d8	*96*		*70 - 130*
4-Bromofluorobenzene	*98*		*70 - 130*

Lab Sample ID: 13D0099-MS1
Matrix: Water
Analysis Batch: 13D0099

Client Sample ID: Matrix Spike
Prep Type: Total
Prep Batch: 13D0099_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		0.0250	0.0214		mg/l		86	64 - 138
1,1,2,2-Tetrachloroethane	ND		0.0250	0.0218		mg/l		87	63 - 137
1,1,2-Trichloroethane	ND		0.0250	0.0217		mg/l		87	63 - 132
1,1-Dichloroethane	ND		0.0250	0.0218		mg/l		87	62 - 130
1,1-Dichloroethene	ND		0.0250	0.0214		mg/l		86	57 - 137
1,1-Dichloropropene	ND		0.0250	0.0199		mg/l		79	64 - 134
1,2,3-Trichlorobenzene	ND		0.0250	0.0251		mg/l		100	74 - 139
1,2,3-Trichloropropane	ND		0.0250	0.0245		mg/l		98	68 - 130
1,2,4-Trichlorobenzene	ND		0.0250	0.0253		mg/l		101	74 - 138
1,2,4-Trimethylbenzene	ND		0.0250	0.0219		mg/l		88	63 - 135
1,2-Dibromoethane (EDB)	ND		0.0250	0.0227		mg/l		91	70 - 130
1,2-Dichlorobenzene	ND		0.0250	0.0212		mg/l		85	70 - 130
1,2-Dichloroethane	ND		0.0250	0.0227		mg/l		91	54 - 147
1,2-Dichloropropane	ND		0.0250	0.0223		mg/l		89	68 - 126
1,3,5-Trimethylbenzene	ND		0.0250	0.0224		mg/l		90	66 - 137
1,3-Dichlorobenzene	ND		0.0250	0.0213		mg/l		85	70 - 130
1,3-Dichloropropane	ND		0.0250	0.0221		mg/l		88	68 - 129
1,4-Dichlorobenzene	ND		0.0250	0.0204		mg/l		81	70 - 130
2,2-Dichloropropane	ND		0.0250	0.0205		mg/l		82	60 - 146
2-Butanone (MEK)	ND		0.0250	0.0200		mg/l		80	31 - 143
2-Chlorotoluene	ND		0.0250	0.0214		mg/l		86	71 - 131
2-Hexanone	ND		0.0250	0.0228		mg/l		91	40 - 142
4-Chlorotoluene	ND		0.0250	0.0212		mg/l		85	70 - 130
4-Methyl-2-pentanone (MIBK)	ND		0.0250	0.0242		mg/l		97	52 - 143
Acetone	ND		0.0250	0.0194	V1	mg/l		78	29 - 139
Benzene	ND		0.0250	0.0215		mg/l		86	68 - 131
Bromobenzene	ND		0.0250	0.0209		mg/l		84	70 - 130

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0099-MS1
Matrix: Water
Analysis Batch: 13D0099

Client Sample ID: Matrix Spike
Prep Type: Total
Prep Batch: 13D0099_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Bromochloromethane	ND		0.0250	0.0232		mg/l		93	64 - 132
Bromodichloromethane	ND		0.0250	0.0218		mg/l		87	63 - 138
Bromoform	ND		0.0250	0.0206		mg/l		82	60 - 128
Bromomethane	ND		0.0250	0.0196		mg/l		79	47 - 144
Carbon tetrachloride	ND		0.0250	0.0211		mg/l		84	65 - 147
Chlorobenzene	ND		0.0250	0.0218		mg/l		87	70 - 130
Chloroethane	ND		0.0250	0.0211		mg/l		84	57 - 139
Chloroform	ND		0.0250	0.0216		mg/l		86	63 - 131
Chloromethane	ND		0.0250	0.0190		mg/l		76	47 - 134
cis-1,2-Dichloroethene	ND		0.0250	0.0221		mg/l		88	65 - 127
cis-1,3-Dichloropropene	ND		0.0250	0.0221		mg/l		88	63 - 135
Dibromochloromethane	ND		0.0250	0.0219		mg/l		88	65 - 134
Dichlorodifluoromethane	ND		0.0250	0.0140		mg/l		56	40 - 148
Ethylbenzene	ND		0.0250	0.0220		mg/l		88	74 - 134
m,p-Xylenes	ND		0.0250	0.0211		mg/l		85	58 - 138
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0226		mg/l		91	67 - 138
Methylene Chloride	ND		0.0250	0.0208		mg/l		83	55 - 133
n-Butylbenzene	ND		0.0250	0.0216		mg/l		86	69 - 140
n-Propylbenzene	ND		0.0250	0.0229		mg/l		91	74 - 140
o-Xylene	ND		0.0250	0.0229		mg/l		92	66 - 137
p-Isopropyltoluene	ND		0.0250	0.0204		mg/l		82	70 - 133
sec-Butylbenzene	ND		0.0250	0.0220		mg/l		88	72 - 136
Styrene	ND		0.0250	0.0208		mg/l		83	43 - 144
tert-Butylbenzene	ND		0.0250	0.0224		mg/l		89	74 - 135
Tetrachloroethene	ND		0.0250	0.0201		mg/l		80	67 - 131
Toluene	ND		0.0250	0.0213		mg/l		85	65 - 138
trans-1,2-Dichloroethene	ND		0.0250	0.0210		mg/l		84	62 - 131
trans-1,3-Dichloropropene	ND		0.0250	0.0215		mg/l		86	58 - 136
Trichloroethene	ND		0.0250	0.0202		mg/l		81	66 - 132
Trichlorofluoromethane	ND		0.0250	0.0213		mg/l		85	62 - 150
Vinyl Acetate	ND		0.0250	0.0353	N1	mg/l		141	47 - 150
Vinyl chloride	ND		0.0250	0.0198		mg/l		79	55 - 146
Xylenes, Total	ND		0.0500	0.0441		mg/l		88	68 - 131

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*97*		*70 - 130*
Toluene-d8	*96*		*70 - 130*
4-Bromofluorobenzene	*100*		*70 - 130*

Lab Sample ID: 13D0099-MSD1
Matrix: Water
Analysis Batch: 13D0099

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total
Prep Batch: 13D0099_P

Analyte	Sample Result	Sample Qualifier	Spike Added	ıtrix Spike Dup Result	Matrix Spike Du Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		0.0250	0.0225		mg/l		90	64 - 138	5	35
1,1,2,2-Tetrachloroethane	ND		0.0250	0.0234		mg/l		94	63 - 137	7	32
1,1,2-Trichloroethane	ND		0.0250	0.0224		mg/l		90	63 - 132	3	35
1,1-Dichloroethane	ND		0.0250	0.0232		mg/l		93	62 - 130	6	34

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0099-MSD1
Matrix: Water
Analysis Batch: 13D0099

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total
Prep Batch: 13D0099_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1-Dichloroethene	ND		0.0250	0.0226		mg/l		90	57 - 137	5	35
1,1-Dichloropropene	ND		0.0250	0.0205		mg/l		82	64 - 134	3	34
1,2,3-Trichlorobenzene	ND		0.0250	0.0254		mg/l		102	74 - 139	1	26
1,2,3-Trichloropropane	ND		0.0250	0.0241		mg/l		96	68 - 130	2	32
1,2,4-Trichlorobenzene	ND		0.0250	0.0250		mg/l		100	74 - 138	1	26
1,2,4-Trimethylbenzene	ND		0.0250	0.0228		mg/l		91	63 - 135	4	31
1,2-Dibromoethane (EDB)	ND		0.0250	0.0240		mg/l		96	70 - 130	5	33
1,2-Dichlorobenzene	ND		0.0250	0.0223		mg/l		89	70 - 130	5	27
1,2-Dichloroethane	ND		0.0250	0.0245		mg/l		98	54 - 147	8	35
1,2-Dichloropropane	ND		0.0250	0.0236		mg/l		94	68 - 126	5	32
1,3,5-Trimethylbenzene	ND		0.0250	0.0232		mg/l		93	66 - 137	4	30
1,3-Dichlorobenzene	ND		0.0250	0.0220		mg/l		88	70 - 130	4	28
1,3-Dichloropropane	ND		0.0250	0.0232		mg/l		93	68 - 129	5	33
1,4-Dichlorobenzene	ND		0.0250	0.0209		mg/l		83	70 - 130	2	26
2,2-Dichloropropane	ND		0.0250	0.0215		mg/l		86	60 - 146	5	35
2-Butanone (MEK)	ND		0.0250	0.0233		mg/l		93	31 - 143	15	35
2-Chlorotoluene	ND		0.0250	0.0228		mg/l		91	71 - 131	6	29
2-Hexanone	ND		0.0250	0.0243		mg/l		97	40 - 142	7	35
4-Chlorotoluene	ND		0.0250	0.0229		mg/l		92	70 - 130	8	28
4-Methyl-2-pentanone (MIBK)	ND		0.0250	0.0255		mg/l		102	52 - 143	5	35
Acetone	ND		0.0250	0.0210	V1	mg/l		84	29 - 139	8	35
Benzene	ND		0.0250	0.0224		mg/l		90	68 - 131	4	32
Bromobenzene	ND		0.0250	0.0225		mg/l		90	70 - 130	8	28
Bromochloromethane	ND		0.0250	0.0243		mg/l		97	64 - 132	5	35
Bromodichloromethane	ND		0.0250	0.0228		mg/l		91	63 - 138	5	31
Bromoform	ND		0.0250	0.0231		mg/l		92	60 - 128	12	31
Bromomethane	ND		0.0250	0.0216		mg/l		86	47 - 144	10	35
Carbon tetrachloride	ND		0.0250	0.0219		mg/l		88	65 - 147	4	35
Chlorobenzene	ND		0.0250	0.0225		mg/l		90	70 - 130	3	30
Chloroethane	ND		0.0250	0.0230		mg/l		92	57 - 139	9	35
Chloroform	ND		0.0250	0.0231		mg/l		92	63 - 131	6	33
Chloromethane	ND		0.0250	0.0201		mg/l		80	47 - 134	6	35
cis-1,2-Dichloroethene	ND		0.0250	0.0240		mg/l		96	65 - 127	8	34
cis-1,3-Dichloropropene	ND		0.0250	0.0233		mg/l		93	63 - 135	5	35
Dibromochloromethane	ND		0.0250	0.0226		mg/l		91	65 - 134	3	33
Dichlorodifluoromethane	ND		0.0250	0.0152		mg/l		61	40 - 148	8	35
Ethylbenzene	ND		0.0250	0.0231		mg/l		93	74 - 134	5	32
m,p-Xylenes	ND		0.0250	0.0220		mg/l		88	58 - 138	4	29
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0248		mg/l		99	67 - 138	9	21
Methylene Chloride	ND		0.0250	0.0217		mg/l		87	55 - 133	4	35
n-Butylbenzene	ND		0.0250	0.0220		mg/l		88	69 - 140	2	32
n-Propylbenzene	ND		0.0250	0.0238		mg/l		95	74 - 140	4	32
o-Xylene	ND		0.0250	0.0235		mg/l		94	66 - 137	2	26
p-Isopropyltoluene	ND		0.0250	0.0214		mg/l		86	70 - 133	5	32
sec-Butylbenzene	ND		0.0250	0.0232		mg/l		93	72 - 136	5	33
Styrene	ND		0.0250	0.0210		mg/l		84	43 - 144	0.8	35
tert-Butylbenzene	ND		0.0250	0.0233		mg/l		93	74 - 135	4	32
Tetrachloroethene	ND		0.0250	0.0210		mg/l		84	67 - 131	4	31

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0099-MSD1
Matrix: Water
Analysis Batch: 13D0099

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total
Prep Batch: 13D0099_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Toluene	ND		0.0250	0.0223		mg/l		89	65 - 138	4	33
trans-1,2-Dichloroethene	ND		0.0250	0.0221		mg/l		88	62 - 131	5	35
trans-1,3-Dichloropropene	ND		0.0250	0.0220		mg/l		88	58 - 136	3	35
Trichloroethene	ND		0.0250	0.0214		mg/l		86	66 - 132	6	29
Trichlorofluoromethane	ND		0.0250	0.0225		mg/l		90	62 - 150	5	35
Vinyl Acetate	ND		0.0250	0.0353	N1	mg/l		141	47 - 150	0	35
Vinyl chloride	ND		0.0250	0.0210		mg/l		84	55 - 146	6	35
Xylenes, Total	ND		0.0500	0.0454		mg/l		91	68 - 131	3	31

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8	*96*		*70 - 130*
4-Bromofluorobenzene	*101*		*70 - 130*

QC Association Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

GCMS Volatiles

Analysis Batch: 13C1252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13C1252-BLK1	Method Blank	Total	Water	EPA 8260B	13C1252_P
13C1252-BS1	Lab Control Sample	Total	Water	EPA 8260B	13C1252_P
13C1252-BSD1	Lab Control Sample Dup	Total	Water	EPA 8260B	13C1252_P
13C1252-MS1	WR-230A	Total	Water	EPA 8260B	13C1252_P
13C1252-MSD1	WR-230A	Total	Water	EPA 8260B	13C1252_P
PWC1686-01	WR-230A	Total	Water	EPA 8260B	13C1252_P
PWC1686-02	WR-225A	Total	Water	EPA 8260B	13C1252_P
PWC1686-03	WR-221A	Total	Water	EPA 8260B	13C1252_P
PWC1686-04	WR-230A dup	Total	Water	EPA 8260B	13C1252_P
PWC1686-05	PCM-517A	Total	Water	EPA 8260B	13C1252_P
PWC1686-06	PCM-508A	Total	Water	EPA 8260B	13C1252_P
PWC1686-07	PCM-508B	Total	Water	EPA 8260B	13C1252_P
PWC1686-08	WR-223A	Total	Water	EPA 8260B	13C1252_P
PWC1686-09	PCM-506A	Total	Water	EPA 8260B	13C1252_P
PWC1686-11	R-046A	Total	Water	EPA 8260B	13C1252_P
PWC1686-12	WR-235A	Total	Water	EPA 8260B	13C1252_P
PWC1686-13	WR-231A	Total	Water	EPA 8260B	13C1252_P
PWC1686-14	WR-214A	Total	Water	EPA 8260B	13C1252_P
PWC1686-18	Trip BLK	Total	Water	EPA 8260B	13C1252_P

Analysis Batch: 13C1253

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13C1253-BLK1	Method Blank	Total	Water	EPA 8260B	13C1253_P
13C1253-BS1	Lab Control Sample	Total	Water	EPA 8260B	13C1253_P
13C1253-BSD1	Lab Control Sample Dup	Total	Water	EPA 8260B	13C1253_P
13C1253-MS1	Matrix Spike	Total	Water	EPA 8260B	13C1253_P
13C1253-MSD1	Matrix Spike Duplicate	Total	Water	EPA 8260B	13C1253_P
PWC1686-15	WR-228A	Total	Water	EPA 8260B	13C1253_P
PWC1686-16	WR-232A	Total	Water	EPA 8260B	13C1253_P
PWC1686-17	WR-216A	Total	Water	EPA 8260B	13C1253_P

Analysis Batch: 13D0036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0036-BLK1	Method Blank	Total	Water	EPA 8260B	13D0036_P
13D0036-BS1	Lab Control Sample	Total	Water	EPA 8260B	13D0036_P
13D0036-BSD1	Lab Control Sample Dup	Total	Water	EPA 8260B	13D0036_P
13D0036-MS1	Matrix Spike	Total	Water	EPA 8260B	13D0036_P
13D0036-MSD1	Matrix Spike Duplicate	Total	Water	EPA 8260B	13D0036_P
PWC1686-05 - RE1	PCM-517A	Total	Water	EPA 8260B	13D0036_P
PWC1686-06 - RE1	PCM-508A	Total	Water	EPA 8260B	13D0036_P

Analysis Batch: 13D0099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0099-BLK1	Method Blank	Total	Water	EPA 8260B	13D0099_P
13D0099-BS1	Lab Control Sample	Total	Water	EPA 8260B	13D0099_P
13D0099-BSD1	Lab Control Sample Dup	Total	Water	EPA 8260B	13D0099_P
13D0099-MS1	Matrix Spike	Total	Water	EPA 8260B	13D0099_P
13D0099-MSD1	Matrix Spike Duplicate	Total	Water	EPA 8260B	13D0099_P
PWC1686-07 - RE1	PCM-508B	Total	Water	EPA 8260B	13D0099_P
PWC1686-10 - RE1	WR-219A	Total	Water	EPA 8260B	13D0099_P

QC Association Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

GCMS Volatiles (Continued)

Prep Batch: 13C1252_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13C1252-BLK1	Method Blank	Total	Water	EPA 5030 GCMS	
13C1252-BS1	Lab Control Sample	Total	Water	EPA 5030 GCMS	
13C1252-BSD1	Lab Control Sample Dup	Total	Water	EPA 5030 GCMS	
13C1252-MS1	WR-230A	Total	Water	EPA 5030 GCMS	
13C1252-MSD1	WR-230A	Total	Water	EPA 5030 GCMS	
PWC1686-01	WR-230A	Total	Water	EPA 5030 GCMS	
PWC1686-02	WR-225A	Total	Water	EPA 5030 GCMS	
PWC1686-03	WR-221A	Total	Water	EPA 5030 GCMS	
PWC1686-04	WR-230A dup	Total	Water	EPA 5030 GCMS	
PWC1686-05	PCM-517A	Total	Water	EPA 5030 GCMS	
PWC1686-06	PCM-508A	Total	Water	EPA 5030 GCMS	
PWC1686-07	PCM-508B	Total	Water	EPA 5030 GCMS	
PWC1686-08	WR-223A	Total	Water	EPA 5030 GCMS	
PWC1686-09	PCM-506A	Total	Water	EPA 5030 GCMS	
PWC1686-11	R-046A	Total	Water	EPA 5030 GCMS	
PWC1686-12	WR-235A	Total	Water	EPA 5030 GCMS	
PWC1686-13	WR-231A	Total	Water	EPA 5030 GCMS	
PWC1686-14	WR-214A	Total	Water	EPA 5030 GCMS	
PWC1686-18	Trip BLK	Total	Water	EPA 5030 GCMS	

Prep Batch: 13C1253_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13C1253-BLK1	Method Blank	Total	Water	EPA 5030 GCMS	
13C1253-BS1	Lab Control Sample	Total	Water	EPA 5030 GCMS	
13C1253-BSD1	Lab Control Sample Dup	Total	Water	EPA 5030 GCMS	
13C1253-MS1	Matrix Spike	Total	Water	EPA 5030 GCMS	
13C1253-MSD1	Matrix Spike Duplicate	Total	Water	EPA 5030 GCMS	
PWC1686-15	WR-228A	Total	Water	EPA 5030 GCMS	
PWC1686-16	WR-232A	Total	Water	EPA 5030 GCMS	
PWC1686-17	WR-216A	Total	Water	EPA 5030 GCMS	

Prep Batch: 13D0036_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0036-BLK1	Method Blank	Total	Water	EPA 5030 GCMS	
13D0036-BS1	Lab Control Sample	Total	Water	EPA 5030 GCMS	
13D0036-BSD1	Lab Control Sample Dup	Total	Water	EPA 5030 GCMS	
13D0036-MS1	Matrix Spike	Total	Water	EPA 5030 GCMS	
13D0036-MSD1	Matrix Spike Duplicate	Total	Water	EPA 5030 GCMS	
PWC1686-05 - RE1	PCM-517A	Total	Water	EPA 5030 GCMS	
PWC1686-06 - RE1	PCM-508A	Total	Water	EPA 5030 GCMS	

Prep Batch: 13D0099_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0099-BLK1	Method Blank	Total	Water	EPA 5030 GCMS	
13D0099-BS1	Lab Control Sample	Total	Water	EPA 5030 GCMS	
13D0099-BSD1	Lab Control Sample Dup	Total	Water	EPA 5030 GCMS	
13D0099-MS1	Matrix Spike	Total	Water	EPA 5030 GCMS	
13D0099-MSD1	Matrix Spike Duplicate	Total	Water	EPA 5030 GCMS	
PWC1686-07 - RE1	PCM-508B	Total	Water	EPA 5030 GCMS	
PWC1686-10 - RE1	WR-219A	Total	Water	EPA 5030 GCMS	

QC Association Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

Analysis Batch: 13C1252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
PWC1686-01	WR-230A	Total	Water	EPA 8260B	

Lab Chronicle

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

Client Sample ID: WR-230A

Date Collected: 03/25/13 07:50
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-01
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1252_P	03/31/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1252	03/31/13 16:17	KD	TAL PHX
Total	Analysis	EPA 8260B		1.00	13C1252	03/31/13 16:49		TAL PHX

Client Sample ID: WR-225A

Date Collected: 03/25/13 08:00
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-02
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1252_P	03/31/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1252	03/31/13 17:52	KD	TAL PHX

Client Sample ID: WR-221A

Date Collected: 03/25/13 08:20
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-03
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1252_P	03/31/13 00:00	EXA	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1252	03/31/13 12:45	EXA	TAL PHX

Client Sample ID: WR-230A dup

Date Collected: 03/25/13 07:52
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-04
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1252_P	03/31/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1252	03/31/13 18:55	KD	TAL PHX

Client Sample ID: PCM-517A

Date Collected: 03/25/13 08:40
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-05
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1252_P	03/31/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		10	13C1252	03/31/13 22:36	KD	TAL PHX
Total	Prep	EPA 5030 GCMS	RE1	1.0	13D0036_P	04/01/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B	RE1	100	13D0036	04/02/13 02:31	KD	TAL PHX

Lab Chronicle

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

Client Sample ID: PCM-508A

Date Collected: 03/25/13 09:10
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-06
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1252_P	03/31/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1252	03/31/13 19:27	KD	TAL PHX
Total	Prep	EPA 5030 GCMS	RE1	1.0	13D0036_P	04/01/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B	RE1	100	13D0036	04/02/13 03:03	KD	TAL PHX

Client Sample ID: PCM-508B

Date Collected: 03/25/13 09:15
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-07
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1252_P	03/31/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		10	13C1252	04/01/13 00:10	KD	TAL PHX
Total	Prep	EPA 5030 GCMS	RE1	1.0	13D0099_P	04/02/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B	RE1	100	13D0099	04/03/13 03:11	SK	TAL PHX

Client Sample ID: WR-223A

Date Collected: 03/25/13 09:40
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-08
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1252_P	03/31/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1252	03/31/13 19:58	KD	TAL PHX

Client Sample ID: PCM-506A

Date Collected: 03/25/13 09:55
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-09
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1252_P	03/31/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1252	03/31/13 20:30	KD	TAL PHX

Client Sample ID: WR-219A

Date Collected: 03/25/13 10:10
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS	RE1	1.0	13D0099_P	04/02/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B	RE1	1.0	13D0099	04/03/13 00:29	SK	TAL PHX

Lab Chronicle

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

Client Sample ID: R-046A

Date Collected: 03/25/13 10:30
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1252_P	03/31/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		10	13C1252	03/31/13 23:39	KD	TAL PHX

Client Sample ID: WR-235A

Date Collected: 03/25/13 11:05
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1252_P	03/31/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1252	03/31/13 21:01	KD	TAL PHX

Client Sample ID: WR-231A

Date Collected: 03/25/13 11:20
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1252_P	03/31/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1252	03/31/13 21:32	KD	TAL PHX

Client Sample ID: WR-214A

Date Collected: 03/25/13 11:40
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-14
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1252_P	03/31/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1252	03/31/13 22:04	KD	TAL PHX

Client Sample ID: WR-228A

Date Collected: 03/25/13 12:05
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-15
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1253_P	03/31/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1253	03/31/13 20:48	KD	TAL PHX

Client Sample ID: WR-232A

Date Collected: 03/25/13 12:20
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-16
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1253_P	03/31/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1253	03/31/13 21:20	KD	TAL PHX

Lab Chronicle

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

Client Sample ID: WR-216A

Date Collected: 03/25/13 12:35
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-17
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1253_P	03/31/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1253	03/31/13 21:53	KD	TAL PHX

Client Sample ID: Trip BLK

Date Collected: 03/25/13 07:50
Date Received: 03/26/13 09:20

Lab Sample ID: PWC1686-18
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13C1252_P	03/31/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13C1252	03/31/13 15:46	KD	TAL PHX

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Center Blvd. Ste 189, Phoenix, AZ 85040, TEL (602) 437-3340

Certification Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

Laboratory: TestAmerica Phoenix

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA	IHLAP		154268	07-01-15
Arizona	State Program	9	AZ0728	06-09-14
California	NELAP	9	01109CA	11-30-13
Nevada	State Program	9	AZ01030	07-31-14
New York	NELAP	2	11898	04-01-14
Oregon	NELAP	10	AZ100001	03-09-14
USDA	Federal		P330-09-00024	06-09-15

Method Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1686

Method	Method Description	Protocol	Laboratory
EPA 8260B	BTEX & MTBE (EPA 5030B/8260B)		TAL PHX
EPA 8260B	VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)		TAL PHX

Protocol References:

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Center Blvd. Ste 189, Phoenix, AZ 85040, TEL (602) 437-3340

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-0013-550 (10/10)

3/25/13 1 of 2

CHAIN OF CUSTODY FORM

[ ] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340 FAX (602) 454-9303
[ ] Tucson - 1870 W. Prince Road, Suite 59, Tucson, AZ 85705 (520) 807-3801 FAX (520) 807-3803
[ ] Las Vegas - 6000 S Eastern Ave., Suite 5E, Las Vegas, NV 89119 (702) 429-1264

Page _____ of _____

Client Name/Address: City of Tucson, P.O. Box 27210, Tucson AZ 85726

Project/PO Number: PO 1064

Project Manager: Jeff Drumm

Phone Number: 520 791 3175

Sampler: GBejarano

Fax Number:

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	8260	BTEX	MTBE							Special Instructions
WR-230A	GW			3/25/13	0750			X	X				PWQ1686-		01	
WR-225A	GW			3/25/13	0800			X	X						02	
WR-221A	GW			3/25/13	0820			X	X						03	
WR-230A dup	GW			3/25/13	0752			X	X						04	
PCM-517A	GW			3/25/13	0840			X	X						05	
PCM-508A	GW			3/25/13	0910			X	X						06	
PCM-508B	GW			3/25/13	0915			X	X						07	
WR-223A	GW			3/25/13	0940		X								08	
PCM-506A	GW			3/25/13	0955			X	X						09	
WR-219A	GW			3/25/13	1010		X								10	
R-046A	GW			3/25/13	1030			X	X						11	
WR-235A	GW			3/25/13	1105			X	X						12	
WR-231A	GW			3/25/13	1120			X	X						13	
WR-214A	GW			3/25/13	1140			X	X						14	

Relinquished By:	Date/Time:	Received By:	Date/Time:	Turnaround Time: (Check)	
[signature] 3/26/13	0714	[signature]	3/26/13	same day ____	72 hours ____
Relinquished By: [signature]	Date/Time: 3/26/13 925	Received By:	Date/Time:	24 hours ____	5 days ____
				48 hours ____	normal X
Relinquished By:	Date/Time:	Received in Lab By: [signature]	Date/Time: 3/26/13 9:20	Sample Integrity: (Check) intact X	on ice X

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

46 2.1 pH JM 3-25-13

2 of 2

3/25/13

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-0013-550 (10/10)

CHAIN OF CUSTODY FORM

[ ] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340 FAX (602) 454-9303
[ ] Tucson - 1870 W. Prince Road, Suite 59, Tucson, AZ 85705 (520) 807-3801 FAX (520) 807-3803
[ ] Las Vegas - 6000 S Eastern Ave., Suite 5E, Las Vegas, NV 89119 (702) 429-1264

Page _____ of _____

9/19/2013

Client Name/Address: City of Tucson, P.O BOX 27210, Tucson Az 85726

Project/PO Number: PO 1064

Project Manager: Jeff Drumm

Phone Number: 5207913175

Sampler: G Bejarano

Fax Number:

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	8260	BTEX	MTBE							Special Instructions
WR-228A	GW			3/25/13	1205			X	X					PWC1686-15		
WR-232A	GW			3/25/10	1220			X	X							16
WR-216 A	GW			3/25/13	1235			X	X							17
TRIP BLK			1	3/25/13	0750		X	X	X							18

Analysis Required

Relinquished By:	Date/Time:	Received By:	Date/Time:	Turnaround Time: (Check)
G Bejarano	3/26/13 0714	[signature]	3/26/13 714	same day ____ 72 hours ____
Relinquished By: [signature]	Date/Time: 3/26/13 930	Received By:	Date/Time:	24 hours ____ 5 days ____
				48 hours ____ normal X
Relinquished By:	Date/Time:	Received in Lab By: [signature]	Date/Time: 3/26/13 9:20	Sample Integrity: (Check) intact X on ice X

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

4.6 2.1 P+H JM 3-25-13

3/26/13

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Center Blvd. Ste 189
Phoenix, AZ 85040
Tel: (602) 437-3340

TestAmerica Job ID: PWC1837
Client Project/Site: Price Service Center, P01064
Client Project Description: Price Service Center

For:
City of Tucson Environmental Services
255 W. Alameda, Sixth floor
Tucson, AZ 85701

Attn: Jeff Drumm

Authorized for release by:
4/8/2013 2:56:09 PM

Suzanne Glass
Project Manager
suzanne.glass@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1837

Qualifiers

GCMS Volatiles

Qualifier	Qualifier Description
M2	Matrix spike recovery was low; the associated blank spike recovery was acceptable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1837

Job ID: PWC1837

Laboratory: TestAmerica Phoenix

Narrative

SAMPLE RECEIPT: Samples were received intact, at 2.8 °C, on ice and with chain of custody documentation.
HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the TestAmerica Sample Acceptance Policy unless otherwise noted in the report.
PRESERVATION: Samples requiring preservation were verified prior to sample analysis.
QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.
COMMENTS: No significant observations were made.
SUBCONTRACTED: No analyses were subcontracted to an outside laboratory.

Sample Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1837

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
PWC1837-01	WR-210A	Water	03/26/13 08:48	03/27/13 14:00
PWC1837-02	WR-210A (DUP)	Water	03/26/13 08:51	03/27/13 14:00
PWC1837-03	PCM-509A	Water	03/26/13 09:21	03/27/13 14:00
PWC1837-04	PCM-509B	Water	03/26/13 09:34	03/27/13 14:00
PWC1837-05	R-020A	Water	03/26/13 10:06	03/27/13 14:00
PWC1837-06	R-021A	Water	03/26/13 10:19	03/27/13 14:00
PWC1837-07	R-022A	Water	03/26/13 10:35	03/27/13 14:00
PWC1837-08	R-016A	Water	03/26/13 11:01	03/27/13 14:00
PWC1837-09	Trip Blank	Water	03/26/13 08:26	03/27/13 14:00
PWC1837-10	PCM-510A	Water	03/26/13 09:47	03/27/13 14:00

Detection Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1837

Client Sample ID: WR-210A — Lab Sample ID: PWC1837-01

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene - RE1	0.0015		0.0010		mg/l	1.0		EPA 8260B	Total
Ethylbenzene - RE1	0.0061		0.0020		mg/l	1.0		EPA 8260B	Total
Methyl-tert-butyl Ether (MTBE) - RE1	0.089		0.0050		mg/l	1.0		EPA 8260B	Total

Client Sample ID: WR-210A (DUP) — Lab Sample ID: PWC1837-02

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene - RE1	0.0039		0.0020		mg/l	1.0		EPA 8260B	Total
Methyl-tert-butyl Ether (MTBE) - RE1	0.090	M2	0.0050		mg/l	1.0		EPA 8260B	Total

Client Sample ID: PCM-509A — Lab Sample ID: PWC1837-03

No Detections.

Client Sample ID: PCM-509B — Lab Sample ID: PWC1837-04

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl-tert-butyl Ether (MTBE) - RE1	2.0		1.0		mg/l	200		EPA 8260B	Total

Client Sample ID: R-020A — Lab Sample ID: PWC1837-05

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.072		0.0020		mg/l	2.0		EPA 8260B	Total
Ethylbenzene	0.018		0.0040		mg/l	2.0		EPA 8260B	Total
Methyl-tert-butyl Ether (MTBE) - RE1	7.0		0.50		mg/l	100		EPA 8260B	Total

Client Sample ID: R-021A — Lab Sample ID: PWC1837-06

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl-tert-butyl Ether (MTBE) - RE1	1.4		0.50		mg/l	100		EPA 8260B	Total

Client Sample ID: R-022A — Lab Sample ID: PWC1837-07

No Detections.

Client Sample ID: R-016A — Lab Sample ID: PWC1837-08

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl-tert-butyl Ether (MTBE) - RE1	2.6		1.0		mg/l	200		EPA 8260B	Total

Client Sample ID: Trip Blank — Lab Sample ID: PWC1837-09

No Detections.

Client Sample ID: PCM-510A — Lab Sample ID: PWC1837-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl-tert-butyl Ether (MTBE) - RE1	0.22		0.025		mg/l	5.0		EPA 8260B	Total

This Detection Summary does not include radiochemical test results.

Client Sample ID: WR-210A

Lab Sample ID: PWC1837-01
Matrix: Water

Date Collected: 03/26/13 08:48
Date Received: 03/27/13 14:00

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0015		0.0010		mg/l		04/02/13 00:00	04/03/13 14:54	1.0
Ethylbenzene	0.0061		0.0020		mg/l		04/02/13 00:00	04/03/13 14:54	1.0
Methyl-tert-butyl Ether (MTBE)	0.089		0.0050		mg/l		04/02/13 00:00	04/03/13 14:54	1.0
Toluene	ND		0.0020		mg/l		04/02/13 00:00	04/03/13 14:54	1.0
Xylenes, Total	ND		0.0030		mg/l		04/02/13 00:00	04/03/13 14:54	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*90*		*70 - 130*	*04/02/13 00:00*	*04/03/13 14:54*	*1.0*
Toluene-d8	*98*		*70 - 130*	*04/02/13 00:00*	*04/03/13 14:54*	*1.0*
4-Bromofluorobenzene	*94*		*70 - 130*	*04/02/13 00:00*	*04/03/13 14:54*	*1.0*

Client Sample ID: WR-210A (DUP)

Lab Sample ID: PWC1837-02
Matrix: Water

Date Collected: 03/26/13 08:51
Date Received: 03/27/13 14:00

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/03/13 00:00	04/03/13 09:50	1.0
Ethylbenzene	0.0039		0.0020		mg/l		04/03/13 00:00	04/03/13 09:50	1.0
Methyl-tert-butyl Ether (MTBE)	0.090	M2	0.0050		mg/l		04/03/13 00:00	04/03/13 09:50	1.0
Toluene	ND		0.0020		mg/l		04/03/13 00:00	04/03/13 09:50	1.0
Xylenes, Total	ND		0.0030		mg/l		04/03/13 00:00	04/03/13 09:50	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*99*		*70 - 130*	*04/03/13 00:00*	*04/03/13 09:50*	*1.0*
Toluene-d8	*95*		*70 - 130*	*04/03/13 00:00*	*04/03/13 09:50*	*1.0*
4-Bromofluorobenzene	*102*		*70 - 130*	*04/03/13 00:00*	*04/03/13 09:50*	*1.0*

Client Sample ID: PCM-509A

Lab Sample ID: PWC1837-03
Matrix: Water

Date Collected: 03/26/13 09:21
Date Received: 03/27/13 14:00

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 22:08	1.0
Ethylbenzene	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 22:08	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/02/13 00:00	04/02/13 22:08	1.0
Toluene	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 22:08	1.0
Xylenes, Total	ND		0.0030		mg/l		04/02/13 00:00	04/02/13 22:08	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*99*		*70 - 130*	*04/02/13 00:00*	*04/02/13 22:08*	*1.0*
Toluene-d8	*94*		*70 - 130*	*04/02/13 00:00*	*04/02/13 22:08*	*1.0*
4-Bromofluorobenzene	*101*		*70 - 130*	*04/02/13 00:00*	*04/02/13 22:08*	*1.0*

Client Sample ID: PCM-509B

Lab Sample ID: PWC1837-04
Matrix: Water

Date Collected: 03/26/13 09:34
Date Received: 03/27/13 14:00

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 22:40	1.0
Ethylbenzene	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 22:40	1.0
Toluene	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 22:40	1.0
Xylenes, Total	ND		0.0030		mg/l		04/02/13 00:00	04/02/13 22:40	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*101*		*70 - 130*	*04/02/13 00:00*	*04/02/13 22:40*	*1.0*
Toluene-d8	*94*		*70 - 130*	*04/02/13 00:00*	*04/02/13 22:40*	*1.0*
4-Bromofluorobenzene	*103*		*70 - 130*	*04/02/13 00:00*	*04/02/13 22:40*	*1.0*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl-tert-butyl Ether (MTBE)	2.0		1.0		mg/l		04/03/13 00:00	04/03/13 09:18	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*99*		*70 - 130*	*04/03/13 00:00*	*04/03/13 09:18*	*200*
Toluene-d8	*90*		*70 - 130*	*04/03/13 00:00*	*04/03/13 09:18*	*200*
4-Bromofluorobenzene	*92*		*70 - 130*	*04/03/13 00:00*	*04/03/13 09:18*	*200*

Client Sample ID: R-020A

Lab Sample ID: PWC1837-05
Matrix: Water

Date Collected: 03/26/13 10:06
Date Received: 03/27/13 14:00

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.072		0.0020		mg/l		04/02/13 00:00	04/02/13 23:11	2.0
Ethylbenzene	0.018		0.0040		mg/l		04/02/13 00:00	04/02/13 23:11	2.0
Toluene	ND		0.0040		mg/l		04/02/13 00:00	04/02/13 23:11	2.0
Xylenes, Total	ND		0.0060		mg/l		04/02/13 00:00	04/02/13 23:11	2.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*104*		*70 - 130*	*04/02/13 00:00*	*04/02/13 23:11*	*2.0*
Toluene-d8	*96*		*70 - 130*	*04/02/13 00:00*	*04/02/13 23:11*	*2.0*
4-Bromofluorobenzene	*101*		*70 - 130*	*04/02/13 00:00*	*04/02/13 23:11*	*2.0*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl-tert-butyl Ether (MTBE)	7.0		0.50		mg/l		04/03/13 00:00	04/03/13 11:27	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*97*		*70 - 130*	*04/03/13 00:00*	*04/03/13 11:27*	*100*
Toluene-d8	*93*		*70 - 130*	*04/03/13 00:00*	*04/03/13 11:27*	*100*
4-Bromofluorobenzene	*95*		*70 - 130*	*04/03/13 00:00*	*04/03/13 11:27*	*100*

Client Sample ID: R-021A

Lab Sample ID: PWC1837-06
Matrix: Water

Date Collected: 03/26/13 10:19
Date Received: 03/27/13 14:00

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 23:43	1.0

Client Sample ID: R-021A

Date Collected: 03/26/13 10:19
Date Received: 03/27/13 14:00

Lab Sample ID: PWC1837-06
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 23:43	1.0
Toluene	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 23:43	1.0
Xylenes, Total	ND		0.0030		mg/l		04/02/13 00:00	04/02/13 23:43	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*103*		*70 - 130*	*04/02/13 00:00*	*04/02/13 23:43*	*1.0*
Toluene-d8	*96*		*70 - 130*	*04/02/13 00:00*	*04/02/13 23:43*	*1.0*
4-Bromofluorobenzene	*103*		*70 - 130*	*04/02/13 00:00*	*04/02/13 23:43*	*1.0*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl-tert-butyl Ether (MTBE)	1.4		0.50		mg/l		04/03/13 00:00	04/03/13 11:59	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*94*		*70 - 130*	*04/03/13 00:00*	*04/03/13 11:59*	*100*
Toluene-d8	*96*		*70 - 130*	*04/03/13 00:00*	*04/03/13 11:59*	*100*
4-Bromofluorobenzene	*93*		*70 - 130*	*04/03/13 00:00*	*04/03/13 11:59*	*100*

Client Sample ID: R-022A

Date Collected: 03/26/13 10:35
Date Received: 03/27/13 14:00

Lab Sample ID: PWC1837-07
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:14	1.0
Ethylbenzene	ND		0.0020		mg/l		04/02/13 00:00	04/03/13 00:14	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/02/13 00:00	04/03/13 00:14	1.0
Toluene	ND		0.0020		mg/l		04/02/13 00:00	04/03/13 00:14	1.0
Xylenes, Total	ND		0.0030		mg/l		04/02/13 00:00	04/03/13 00:14	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*100*		*70 - 130*	*04/02/13 00:00*	*04/03/13 00:14*	*1.0*
Toluene-d8	*98*		*70 - 130*	*04/02/13 00:00*	*04/03/13 00:14*	*1.0*
4-Bromofluorobenzene	*100*		*70 - 130*	*04/02/13 00:00*	*04/03/13 00:14*	*1.0*

Client Sample ID: R-016A

Date Collected: 03/26/13 11:01
Date Received: 03/27/13 14:00

Lab Sample ID: PWC1837-08
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/02/13 00:00	04/03/13 00:45	1.0
Ethylbenzene	ND		0.0020		mg/l		04/02/13 00:00	04/03/13 00:45	1.0
Toluene	ND		0.0020		mg/l		04/02/13 00:00	04/03/13 00:45	1.0
Xylenes, Total	ND		0.0030		mg/l		04/02/13 00:00	04/03/13 00:45	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*104*		*70 - 130*	*04/02/13 00:00*	*04/03/13 00:45*	*1.0*
Toluene-d8	*93*		*70 - 130*	*04/02/13 00:00*	*04/03/13 00:45*	*1.0*
4-Bromofluorobenzene	*104*		*70 - 130*	*04/02/13 00:00*	*04/03/13 00:45*	*1.0*

Client Sample ID: R-016A

Date Collected: 03/26/13 11:01
Date Received: 03/27/13 14:00

Lab Sample ID: PWC1837-08
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl-tert-butyl Ether (MTBE)	2.6		1.0		mg/l		04/03/13 00:00	04/03/13 12:31	200

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*99*		*70 - 130*	*04/03/13 00:00*	*04/03/13 12:31*	*200*
Toluene-d8	*92*		*70 - 130*	*04/03/13 00:00*	*04/03/13 12:31*	*200*
4-Bromofluorobenzene	*93*		*70 - 130*	*04/03/13 00:00*	*04/03/13 12:31*	*200*

Client Sample ID: Trip Blank

Date Collected: 03/26/13 08:26
Date Received: 03/27/13 14:00

Lab Sample ID: PWC1837-09
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 19:00	1.0
Ethylbenzene	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 19:00	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/02/13 00:00	04/02/13 19:00	1.0
Toluene	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 19:00	1.0
Xylenes, Total	ND		0.0030		mg/l		04/02/13 00:00	04/02/13 19:00	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*97*		*70 - 130*	*04/02/13 00:00*	*04/02/13 19:00*	*1.0*
Toluene-d8	*100*		*70 - 130*	*04/02/13 00:00*	*04/02/13 19:00*	*1.0*
4-Bromofluorobenzene	*99*		*70 - 130*	*04/02/13 00:00*	*04/02/13 19:00*	*1.0*

Client Sample ID: PCM-510A

Date Collected: 03/26/13 09:47
Date Received: 03/27/13 14:00

Lab Sample ID: PWC1837-10
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/03/13 00:00	04/03/13 18:06	1.0
Ethylbenzene	ND		0.0020		mg/l		04/03/13 00:00	04/03/13 18:06	1.0
Toluene	ND		0.0020		mg/l		04/03/13 00:00	04/03/13 18:06	1.0
Xylenes, Total	ND		0.0030		mg/l		04/03/13 00:00	04/03/13 18:06	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*93*		*70 - 130*	*04/03/13 00:00*	*04/03/13 18:06*	*1.0*
Toluene-d8	*94*		*70 - 130*	*04/03/13 00:00*	*04/03/13 18:06*	*1.0*
4-Bromofluorobenzene	*91*		*70 - 130*	*04/03/13 00:00*	*04/03/13 18:06*	*1.0*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl-tert-butyl Ether (MTBE)	0.22		0.025		mg/l		04/04/13 00:00	04/05/13 02:39	5.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*102*		*70 - 130*	*04/04/13 00:00*	*04/05/13 02:39*	*5.0*
Toluene-d8	*98*		*70 - 130*	*04/04/13 00:00*	*04/05/13 02:39*	*5.0*
4-Bromofluorobenzene	*95*		*70 - 130*	*04/04/13 00:00*	*04/05/13 02:39*	*5.0*

QC Sample Results

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1837

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Lab Sample ID: 13D0084-BLK1
Matrix: Water
Analysis Batch: 13D0084

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13D0084_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/02/13 00:00	04/02/13 18:28	1.00
Ethylbenzene	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 18:28	1.00
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/02/13 00:00	04/02/13 18:28	1.00
Toluene	ND		0.0020		mg/l		04/02/13 00:00	04/02/13 18:28	1.00
Xylenes, Total	ND		0.0030		mg/l		04/02/13 00:00	04/02/13 18:28	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*98*		*70 - 130*	*04/02/13 00:00*	*04/02/13 18:28*	*1.00*
Toluene-d8	*91*		*70 - 130*	*04/02/13 00:00*	*04/02/13 18:28*	*1.00*
4-Bromofluorobenzene	*97*		*70 - 130*	*04/02/13 00:00*	*04/02/13 18:28*	*1.00*

Lab Sample ID: 13D0084-BS1
Matrix: Water
Analysis Batch: 13D0084

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13D0084_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0250	0.0203		mg/l		81	70 - 130
Ethylbenzene	0.0250	0.0236		mg/l		95	70 - 130
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0225		mg/l		90	70 - 130
Toluene	0.0250	0.0210		mg/l		84	70 - 130
Xylenes, Total	0.0500	0.0468		mg/l		94	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*97*		*70 - 130*
Toluene-d8	*95*		*70 - 130*
4-Bromofluorobenzene	*100*		*70 - 130*

Lab Sample ID: 13D0084-BSD1
Matrix: Water
Analysis Batch: 13D0084

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13D0084_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0250	0.0202		mg/l		81	70 - 130	0.2	20
Ethylbenzene	0.0250	0.0234		mg/l		94	70 - 130	0.9	20
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0210		mg/l		84	70 - 130	7	20
Toluene	0.0250	0.0207		mg/l		83	70 - 130	1	20
Xylenes, Total	0.0500	0.0465		mg/l		93	70 - 130	0.6	20

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Dibromofluoromethane	*93*		*70 - 130*
Toluene-d8	*98*		*70 - 130*
4-Bromofluorobenzene	*100*		*70 - 130*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0084-MS1
Matrix: Water
Analysis Batch: 13D0084

Client Sample ID: Matrix Spike
Prep Type: Total
Prep Batch: 13D0084_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		0.0250	0.0201		mg/l		81	68 - 131
Ethylbenzene	ND		0.0250	0.0234		mg/l		93	74 - 134
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0213		mg/l		85	67 - 138
Toluene	0.000560		0.0250	0.0212		mg/l		83	65 - 138
Xylenes, Total	ND		0.0500	0.0450		mg/l		90	68 - 131

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*100*		*70 - 130*
Toluene-d8	*95*		*70 - 130*
4-Bromofluorobenzene	*104*		*70 - 130*

Lab Sample ID: 13D0084-MSD1
Matrix: Water
Analysis Batch: 13D0084

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total
Prep Batch: 13D0084_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		0.0250	0.0210		mg/l		84	68 - 131	4	32
Ethylbenzene	ND		0.0250	0.0237		mg/l		95	74 - 134	1	32
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0227		mg/l		91	67 - 138	7	21
Toluene	0.000560		0.0250	0.0214		mg/l		83	65 - 138	0.7	33
Xylenes, Total	ND		0.0500	0.0474		mg/l		95	68 - 131	5	31

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Dibromofluoromethane	*95*		*70 - 130*
Toluene-d8	*94*		*70 - 130*
4-Bromofluorobenzene	*104*		*70 - 130*

Lab Sample ID: 13D0101-BLK1
Matrix: Water
Analysis Batch: 13D0101

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13D0101_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/03/13 00:00	04/03/13 07:41	1.00
Ethylbenzene	ND		0.0020		mg/l		04/03/13 00:00	04/03/13 07:41	1.00
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/03/13 00:00	04/03/13 07:41	1.00
Toluene	ND		0.0020		mg/l		04/03/13 00:00	04/03/13 07:41	1.00
Xylenes, Total	ND		0.0030		mg/l		04/03/13 00:00	04/03/13 07:41	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*99*		*70 - 130*	*04/03/13 00:00*	*04/03/13 07:41*	*1.00*
Toluene-d8	*92*		*70 - 130*	*04/03/13 00:00*	*04/03/13 07:41*	*1.00*
4-Bromofluorobenzene	*93*		*70 - 130*	*04/03/13 00:00*	*04/03/13 07:41*	*1.00*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0101-BS1
Matrix: Water
Analysis Batch: 13D0101

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13D0101_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0250	0.0217		mg/l		87	70 - 130
Ethylbenzene	0.0250	0.0245		mg/l		98	70 - 130
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0228		mg/l		91	70 - 130
Toluene	0.0250	0.0238		mg/l		95	70 - 130
Xylenes, Total	0.0500	0.0485		mg/l		97	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*96*		*70 - 130*
Toluene-d8	*96*		*70 - 130*
4-Bromofluorobenzene	*100*		*70 - 130*

Lab Sample ID: 13D0101-BSD1
Matrix: Water
Analysis Batch: 13D0101

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13D0101_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0250	0.0221		mg/l		88	70 - 130	2	20
Ethylbenzene	0.0250	0.0251		mg/l		100	70 - 130	2	20
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0242		mg/l		97	70 - 130	6	20
Toluene	0.0250	0.0234		mg/l		94	70 - 130	2	20
Xylenes, Total	0.0500	0.0494		mg/l		99	70 - 130	2	20

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Dibromofluoromethane	*97*		*70 - 130*
Toluene-d8	*94*		*70 - 130*
4-Bromofluorobenzene	*102*		*70 - 130*

Lab Sample ID: 13D0101-MS1
Matrix: Water
Analysis Batch: 13D0101

Client Sample ID: WR-210A (DUP)
Prep Type: Total
Prep Batch: 13D0101_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.000930		0.0250	0.0228		mg/l		87	68 - 131
Ethylbenzene	0.00387		0.0250	0.0278		mg/l		96	74 - 134
Methyl-tert-butyl Ether (MTBE)	0.0898	M2	0.0250	0.104	M2	mg/l		58	67 - 138
Toluene	0.000420		0.0250	0.0240		mg/l		94	65 - 138
Xylenes, Total	ND		0.0500	0.0495		mg/l		99	68 - 131

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*98*		*70 - 130*
Toluene-d8	*94*		*70 - 130*
4-Bromofluorobenzene	*99*		*70 - 130*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0101-MSD1
Matrix: Water
Analysis Batch: 13D0101

Client Sample ID: WR-210A (DUP)
Prep Type: Total
Prep Batch: 13D0101_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.000930		0.0250	0.0230		mg/l		88	68 - 131	0.8	32
Ethylbenzene	0.00387		0.0250	0.0286		mg/l		99	74 - 134	3	32
Methyl-tert-butyl Ether (MTBE)	0.0898	M2	0.0250	0.111		mg/l		86	67 - 138	7	21
Toluene	0.000420		0.0250	0.0241		mg/l		95	65 - 138	0.5	33
Xylenes, Total	ND		0.0500	0.0500		mg/l		100	68 - 131	1	31

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Dibromofluoromethane	*102*		*70 - 130*
Toluene-d8	*94*		*70 - 130*
4-Bromofluorobenzene	*100*		*70 - 130*

Lab Sample ID: 13D0134-BLK1
Matrix: Water
Analysis Batch: 13D0134

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13D0134_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/03/13 00:00	04/03/13 09:58	1.00
Ethylbenzene	ND		0.0020		mg/l		04/03/13 00:00	04/03/13 09:58	1.00
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/03/13 00:00	04/03/13 09:58	1.00
Toluene	ND		0.0020		mg/l		04/03/13 00:00	04/03/13 09:58	1.00
Xylenes, Total	ND		0.0030		mg/l		04/03/13 00:00	04/03/13 09:58	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*94*		*70 - 130*	*04/03/13 00:00*	*04/03/13 09:58*	*1.00*
Toluene-d8	*95*		*70 - 130*	*04/03/13 00:00*	*04/03/13 09:58*	*1.00*
4-Bromofluorobenzene	*88*		*70 - 130*	*04/03/13 00:00*	*04/03/13 09:58*	*1.00*

Lab Sample ID: 13D0134-BS1
Matrix: Water
Analysis Batch: 13D0134

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13D0134_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0250	0.0243		mg/l		97	70 - 130
Ethylbenzene	0.0250	0.0256		mg/l		102	70 - 130
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0260		mg/l		104	70 - 130
Toluene	0.0250	0.0242		mg/l		97	70 - 130
Xylenes, Total	0.0500	0.0498		mg/l		100	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*95*		*70 - 130*
Toluene-d8	*96*		*70 - 130*
4-Bromofluorobenzene	*99*		*70 - 130*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0134-BSD1
Matrix: Water
Analysis Batch: 13D0134

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13D0134_P

Analyte			Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.0250	0.0238		mg/l		95	70 - 130	2	20
Ethylbenzene			0.0250	0.0252		mg/l		101	70 - 130	2	20
Methyl-tert-butyl Ether (MTBE)			0.0250	0.0261		mg/l		104	70 - 130	0.4	20
Toluene			0.0250	0.0234		mg/l		94	70 - 130	3	20
Xylenes, Total			0.0500	0.0488		mg/l		97	70 - 130	2	20

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Dibromofluoromethane	*94*		*70 - 130*
Toluene-d8	*95*		*70 - 130*
4-Bromofluorobenzene	*101*		*70 - 130*

Lab Sample ID: 13D0134-MS1
Matrix: Water
Analysis Batch: 13D0134

Client Sample ID: Matrix Spike
Prep Type: Total
Prep Batch: 13D0134_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		0.0250	0.0255		mg/l		102	68 - 131
Ethylbenzene	ND		0.0250	0.0269		mg/l		108	74 - 134
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0273		mg/l		109	67 - 138
Toluene	ND		0.0250	0.0251		mg/l		100	65 - 138
Xylenes, Total	ND		0.0500	0.0534		mg/l		107	68 - 131

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*100*		*70 - 130*
Toluene-d8	*96*		*70 - 130*
4-Bromofluorobenzene	*101*		*70 - 130*

Lab Sample ID: 13D0134-MSD1
Matrix: Water
Analysis Batch: 13D0134

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total
Prep Batch: 13D0134_P

Analyte	Sample Result	Sample Qualifier	Spike Added	ıtrix Spike Dup Result	Matrix Spike Du Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		0.0250	0.0241		mg/l		96	68 - 131	6	32
Ethylbenzene	ND		0.0250	0.0260		mg/l		104	74 - 134	3	32
Methyl-tert-butyl Ether (MTBE)	ND		0.0250	0.0261		mg/l		104	67 - 138	4	21
Toluene	ND		0.0250	0.0244		mg/l		98	65 - 138	3	33
Xylenes, Total	ND		0.0500	0.0501		mg/l		100	68 - 131	6	31

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Dibromofluoromethane	*98*		*70 - 130*
Toluene-d8	*97*		*70 - 130*
4-Bromofluorobenzene	*101*		*70 - 130*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0189-BLK1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Ethylbenzene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Toluene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Xylenes, Total	ND		0.0030		mg/l		04/04/13 00:00	04/04/13 19:06	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*103*		*70 - 130*	*04/04/13 00:00*	*04/04/13 19:06*	*1.00*
Toluene-d8	*95*		*70 - 130*	*04/04/13 00:00*	*04/04/13 19:06*	*1.00*
4-Bromofluorobenzene	*94*		*70 - 130*	*04/04/13 00:00*	*04/04/13 19:06*	*1.00*

Lab Sample ID: 13D0189-BS1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0250	0.0211		mg/l		84	70 - 130
Ethylbenzene	0.0250	0.0235		mg/l		94	70 - 130
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0208		mg/l		83	70 - 130
Toluene	0.0250	0.0219		mg/l		87	70 - 130
Xylenes, Total	0.0500	0.0471		mg/l		94	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8	*97*		*70 - 130*
4-Bromofluorobenzene	*97*		*70 - 130*

Lab Sample ID: 13D0189-BSD1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0250	0.0226		mg/l		90	70 - 130	7	20
Ethylbenzene	0.0250	0.0254		mg/l		102	70 - 130	8	20
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0225		mg/l		90	70 - 130	8	20
Toluene	0.0250	0.0242		mg/l		97	70 - 130	10	20
Xylenes, Total	0.0500	0.0508		mg/l		102	70 - 130	8	20

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Dibromofluoromethane	*99*		*70 - 130*
Toluene-d8	*98*		*70 - 130*
4-Bromofluorobenzene	*103*		*70 - 130*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0189-MS1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Matrix Spike
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		0.0250	0.0213		mg/l		85	68 - 131
Ethylbenzene	ND		0.0250	0.0242		mg/l		97	74 - 134
Methyl-tert-butyl Ether (MTBE)	0.00151		0.0250	0.0236		mg/l		88	67 - 138
Toluene	ND		0.0250	0.0231		mg/l		92	65 - 138
Xylenes, Total	ND		0.0500	0.0490		mg/l		98	68 - 131

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8	*100*		*70 - 130*
4-Bromofluorobenzene	*103*		*70 - 130*

Lab Sample ID: 13D0189-MSD1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		0.0250	0.0223		mg/l		89	68 - 131	4	32
Ethylbenzene	ND		0.0250	0.0246		mg/l		98	74 - 134	2	32
Methyl-tert-butyl Ether (MTBE)	0.00151		0.0250	0.0243		mg/l		91	67 - 138	3	21
Toluene	ND		0.0250	0.0240		mg/l		96	65 - 138	4	33
Xylenes, Total	ND		0.0500	0.0497		mg/l		99	68 - 131	2	31

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8	*101*		*70 - 130*
4-Bromofluorobenzene	*103*		*70 - 130*

QC Association Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1837

GCMS Volatiles

Analysis Batch: 13D0084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0084-BLK1	Method Blank	Total	Water	EPA 8260B	13D0084_P
13D0084-BS1	Lab Control Sample	Total	Water	EPA 8260B	13D0084_P
13D0084-BSD1	Lab Control Sample Dup	Total	Water	EPA 8260B	13D0084_P
13D0084-MS1	Matrix Spike	Total	Water	EPA 8260B	13D0084_P
13D0084-MSD1	Matrix Spike Duplicate	Total	Water	EPA 8260B	13D0084_P
PWC1837-03	PCM-509A	Total	Water	EPA 8260B	13D0084_P
PWC1837-04	PCM-509B	Total	Water	EPA 8260B	13D0084_P
PWC1837-05	R-020A	Total	Water	EPA 8260B	13D0084_P
PWC1837-06	R-021A	Total	Water	EPA 8260B	13D0084_P
PWC1837-07	R-022A	Total	Water	EPA 8260B	13D0084_P
PWC1837-08	R-016A	Total	Water	EPA 8260B	13D0084_P
PWC1837-09	Trip Blank	Total	Water	EPA 8260B	13D0084_P

Analysis Batch: 13D0101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0101-BLK1	Method Blank	Total	Water	EPA 8260B	13D0101_P
13D0101-BS1	Lab Control Sample	Total	Water	EPA 8260B	13D0101_P
13D0101-BSD1	Lab Control Sample Dup	Total	Water	EPA 8260B	13D0101_P
13D0101-MS1	WR-210A (DUP)	Total	Water	EPA 8260B	13D0101_P
13D0101-MSD1	WR-210A (DUP)	Total	Water	EPA 8260B	13D0101_P
PWC1837-02 - RE1	WR-210A (DUP)	Total	Water	EPA 8260B	13D0101_P
PWC1837-04 - RE1	PCM-509B	Total	Water	EPA 8260B	13D0101_P
PWC1837-05 - RE1	R-020A	Total	Water	EPA 8260B	13D0101_P
PWC1837-06 - RE1	R-021A	Total	Water	EPA 8260B	13D0101_P
PWC1837-08 - RE1	R-016A	Total	Water	EPA 8260B	13D0101_P

Analysis Batch: 13D0134

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0134-BLK1	Method Blank	Total	Water	EPA 8260B	13D0134_P
13D0134-BS1	Lab Control Sample	Total	Water	EPA 8260B	13D0134_P
13D0134-BSD1	Lab Control Sample Dup	Total	Water	EPA 8260B	13D0134_P
13D0134-MS1	Matrix Spike	Total	Water	EPA 8260B	13D0134_P
13D0134-MSD1	Matrix Spike Duplicate	Total	Water	EPA 8260B	13D0134_P
PWC1837-01 - RE1	WR-210A	Total	Water	EPA 8260B	13D0134_P
PWC1837-10	PCM-510A	Total	Water	EPA 8260B	13D0134_P

Analysis Batch: 13D0189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0189-BLK1	Method Blank	Total	Water	EPA 8260B	13D0189_P
13D0189-BS1	Lab Control Sample	Total	Water	EPA 8260B	13D0189_P
13D0189-BSD1	Lab Control Sample Dup	Total	Water	EPA 8260B	13D0189_P
13D0189-MS1	Matrix Spike	Total	Water	EPA 8260B	13D0189_P
13D0189-MSD1	Matrix Spike Duplicate	Total	Water	EPA 8260B	13D0189_P
PWC1837-10 - RE1	PCM-510A	Total	Water	EPA 8260B	13D0189_P

Prep Batch: 13D0084_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0084-BLK1	Method Blank	Total	Water	EPA 5030 GCMS	
13D0084-BS1	Lab Control Sample	Total	Water	EPA 5030 GCMS	

GCMS Volatiles (Continued)

Prep Batch: 13D0084_P (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0084-BSD1	Lab Control Sample Dup	Total	Water	EPA 5030 GCMS	
13D0084-MS1	Matrix Spike	Total	Water	EPA 5030 GCMS	
13D0084-MSD1	Matrix Spike Duplicate	Total	Water	EPA 5030 GCMS	
PWC1837-03	PCM-509A	Total	Water	EPA 5030 GCMS	
PWC1837-04	PCM-509B	Total	Water	EPA 5030 GCMS	
PWC1837-05	R-020A	Total	Water	EPA 5030 GCMS	
PWC1837-06	R-021A	Total	Water	EPA 5030 GCMS	
PWC1837-07	R-022A	Total	Water	EPA 5030 GCMS	
PWC1837-08	R-016A	Total	Water	EPA 5030 GCMS	
PWC1837-09	Trip Blank	Total	Water	EPA 5030 GCMS	

Prep Batch: 13D0101_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0101-BLK1	Method Blank	Total	Water	EPA 5030 GCMS	
13D0101-BS1	Lab Control Sample	Total	Water	EPA 5030 GCMS	
13D0101-BSD1	Lab Control Sample Dup	Total	Water	EPA 5030 GCMS	
13D0101-MS1	WR-210A (DUP)	Total	Water	EPA 5030 GCMS	
13D0101-MSD1	WR-210A (DUP)	Total	Water	EPA 5030 GCMS	
PWC1837-02 - RE1	WR-210A (DUP)	Total	Water	EPA 5030 GCMS	
PWC1837-04 - RE1	PCM-509B	Total	Water	EPA 5030 GCMS	
PWC1837-05 - RE1	R-020A	Total	Water	EPA 5030 GCMS	
PWC1837-06 - RE1	R-021A	Total	Water	EPA 5030 GCMS	
PWC1837-08 - RE1	R-016A	Total	Water	EPA 5030 GCMS	

Prep Batch: 13D0134_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0134-BLK1	Method Blank	Total	Water	EPA 5030 GCMS	
13D0134-BS1	Lab Control Sample	Total	Water	EPA 5030 GCMS	
13D0134-BSD1	Lab Control Sample Dup	Total	Water	EPA 5030 GCMS	
13D0134-MS1	Matrix Spike	Total	Water	EPA 5030 GCMS	
13D0134-MSD1	Matrix Spike Duplicate	Total	Water	EPA 5030 GCMS	
PWC1837-01 - RE1	WR-210A	Total	Water	EPA 5030 GCMS	
PWC1837-10	PCM-510A	Total	Water	EPA 5030 GCMS	

QC Association Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1837

GCMS Volatiles (Continued)

Prep Batch: 13D0189_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0189-BLK1	Method Blank	Total	Water	EPA 5030 GCMS	
13D0189-BS1	Lab Control Sample	Total	Water	EPA 5030 GCMS	
13D0189-BSD1	Lab Control Sample Dup	Total	Water	EPA 5030 GCMS	
13D0189-MS1	Matrix Spike	Total	Water	EPA 5030 GCMS	
13D0189-MSD1	Matrix Spike Duplicate	Total	Water	EPA 5030 GCMS	
PWC1837-10 - RE1	PCM-510A	Total	Water	EPA 5030 GCMS	

Lab Chronicle

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1837

Client Sample ID: WR-210A

Lab Sample ID: PWC1837-01
Matrix: Water

Date Collected: 03/26/13 08:48
Date Received: 03/27/13 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS	RE1	1.0	13D0134_P	04/02/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B	RE1	1.0	13D0134	04/03/13 14:54	SK	TAL PHX

Client Sample ID: WR-210A (DUP)

Lab Sample ID: PWC1837-02
Matrix: Water

Date Collected: 03/26/13 08:51
Date Received: 03/27/13 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS	RE1	1.0	13D0101_P	04/03/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B	RE1	1.0	13D0101	04/03/13 09:50	KD	TAL PHX

Client Sample ID: PCM-509A

Lab Sample ID: PWC1837-03
Matrix: Water

Date Collected: 03/26/13 09:21
Date Received: 03/27/13 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0084_P	04/02/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0084	04/02/13 22:08	KD	TAL PHX

Client Sample ID: PCM-509B

Lab Sample ID: PWC1837-04
Matrix: Water

Date Collected: 03/26/13 09:34
Date Received: 03/27/13 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0084_P	04/02/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0084	04/02/13 22:40	KD	TAL PHX
Total	Prep	EPA 5030 GCMS	RE1	1.0	13D0101_P	04/03/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B	RE1	200	13D0101	04/03/13 09:18	KD	TAL PHX

Client Sample ID: R-020A

Lab Sample ID: PWC1837-05
Matrix: Water

Date Collected: 03/26/13 10:06
Date Received: 03/27/13 14:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0084_P	04/02/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		2.0	13D0084	04/02/13 23:11	KD	TAL PHX
Total	Prep	EPA 5030 GCMS	RE1	1.0	13D0101_P	04/03/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B	RE1	100	13D0101	04/03/13 11:27	KD	TAL PHX

Lab Chronicle

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1837

Client Sample ID: R-021A

Date Collected: 03/26/13 10:19
Date Received: 03/27/13 14:00

Lab Sample ID: PWC1837-06
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0084_P	04/02/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0084	04/02/13 23:43	KD	TAL PHX
Total	Prep	EPA 5030 GCMS	RE1	1.0	13D0101_P	04/03/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B	RE1	100	13D0101	04/03/13 11:59	KD	TAL PHX

Client Sample ID: R-022A

Date Collected: 03/26/13 10:35
Date Received: 03/27/13 14:00

Lab Sample ID: PWC1837-07
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0084_P	04/02/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0084	04/03/13 00:14	KD	TAL PHX

Client Sample ID: R-016A

Date Collected: 03/26/13 11:01
Date Received: 03/27/13 14:00

Lab Sample ID: PWC1837-08
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0084_P	04/02/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0084	04/03/13 00:45	KD	TAL PHX
Total	Prep	EPA 5030 GCMS	RE1	1.0	13D0101_P	04/03/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B	RE1	200	13D0101	04/03/13 12:31	KD	TAL PHX

Client Sample ID: Trip Blank

Date Collected: 03/26/13 08:26
Date Received: 03/27/13 14:00

Lab Sample ID: PWC1837-09
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0084_P	04/02/13 00:00	KD	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0084	04/02/13 19:00	KD	TAL PHX

Client Sample ID: PCM-510A

Date Collected: 03/26/13 09:47
Date Received: 03/27/13 14:00

Lab Sample ID: PWC1837-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0134_P	04/03/13 00:00	SK	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0134	04/03/13 18:06	SK	TAL PHX
Total	Prep	EPA 5030 GCMS	RE1	1.0	13D0189_P	04/04/13 00:00	SK	TAL PHX
Total	Analysis	EPA 8260B	RE1	5.0	13D0189	04/05/13 02:39	KD	TAL PHX

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Center Blvd. Ste 189, Phoenix, AZ 85040, TEL (602) 437-3340

Certification Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1837

Laboratory: TestAmerica Phoenix

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA - LAP	IHLAP		154268	07-01-13
Arizona	State Program	9	AZ0728	06-09-13
California	NELAP	9	01109CA	11-30-13
Nevada	State Program	9	AZ01030	07-31-13
Oregon	NELAP	10	AZ100001	03-09-14
USDA	Federal		P330-09-00024	09-14-13

Method Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1837

Method	Method Description	Protocol	Laboratory
EPA 8260B	BTEX & MTBE (EPA 5030B/8260B)		TAL PHX

Protocol References:

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Center Blvd. Ste 189, Phoenix, AZ 85040, TEL (602) 437-3340

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PWC 1837

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-0013-550 (10/10)

CHAIN OF CUSTODY FORM

[ ] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340 FAX (602) 454-9303
[ ] Tucson - 1870 W. Prince Road, Suite 59, Tucson, AZ 85705 (520) 807-3801 FAX (520) 807-3803
[ ] Las Vegas - 6000 S Eastern Ave., Suite 5E, Las Vegas, NV 89119 (702) 429-1264

Page _____ of _____

4/8/2013

Client Name/Address: City of Tucson, PO Box 27210, Tucson AZ 85726

Project/PO Number: Price Service Center, PO1064

Project Manager: Lori Ehman

Phone Number: 791-3175

Sampler: Alfred J. Barker, Jr.

Fax Number:

Analysis Required

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	BTEX/MTBE	8260									Special Instructions
~~R-012A~~ ajB	GW			3/26/13	0826		X										
WR-210A	GW			3/26/13	0848		X			-01							
WR-210A (Dup)	GW			3/26/13	0851		X			02							
PCM-509A	GW			3/26/13	0921		X			03							
PCM-509B	GW			3/26/13	0934		X			04							
PCM-510A	GW			3/26/13	0947		X										
R-020A	GW			3/26/13	1006		X			05							
R-021A	GW			3/26/13	1019		X			06							
R-022A	GW			3/26/13	1035		X			07							
R-016A	GW			3/26/13	1101		X			08							
TRIP BLANK ajB	~~GW~~							X		09							

Relinquished By:	Date/Time:	Received By:	Date/Time:	Turnaround Time: (Check)
[signature]	03/27/13 0747	[signature]	3/27/13 747	same day ____ 72 hours ____
[signature]	3/27/13 1145			24 hours ____ 5 days ____
				48 hours ____ normal X
Relinquished By:	Date/Time:	Received in Lab By:	Date/Time:	Sample Integrity: (Check)
		[signature]	3/27/13 1400 ~~1145~~	intact X on ice X

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

3/26/13

1.1 1.4, 1.3, 2.8

3/27/2013

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Center Blvd. Ste 189
Phoenix, AZ 85040
Tel: (602) 437-3340

TestAmerica Job ID: PWC1964
Client Project/Site: Price Service Center, P01064
Client Project Description: Price Service Center

For:
City of Tucson Environmental Services
255 W. Alameda, Sixth floor
Tucson, AZ 85701

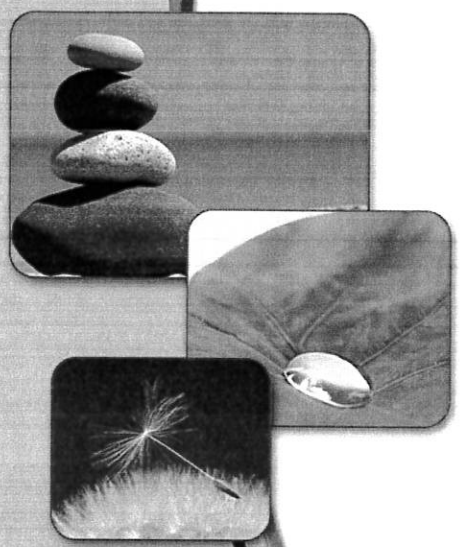
Attn: Lori Ehman

Denise Harrington

Authorized for release by:
9/16/2013 8:30:16 AM
Denise Harrington, Project Manager Assistant
denise.harrington@testamericainc.com

Designee for

Suzanne Glass, Project Manager
suzanne.glass@testamericainc.com



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Qualifiers

GCMS Volatiles

Qualifier	Qualifier Description
E8	Analyte reported to the MDL per project specification. Target analyte was not detected in the sample.
E4	Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL).

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Job ID: PWC1964

Laboratory: TestAmerica Phoenix

Narrative

SAMPLE RECEIPT: Samples were received intact, at 1.7 °C, on ice and with chain of custody documentation.
HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the TestAmerica Sample Acceptance Policy unless otherwise noted in the report.
PRESERVATION: Samples requiring preservation were verified prior to sample analysis.
QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS: No significant observations were made.
SUBCONTRACTED: No analyses were subcontracted to an outside laboratory.

REVISION: This is a partial report and includes results for samples -06 (WR-212A) and -08 (R-099A) only. The results for the remainder of the samples are included in a separate partial report.

Sample Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
PWC1964-06	WR-212A	Water	03/27/13 10:29	03/29/13 09:30
PWC1964-08	R-099A	Water	03/27/13 11:11	03/29/13 09:30

Detection Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Client Sample ID: WR-212A — Lab Sample ID: PWC1964-06

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.071		0.020	0.0032	mg/l	10		EPA 8260B	Total
Methyl-tert-butyl Ether (MTBE)	0.058		0.050	0.0022	mg/l	10		EPA 8260B	Total
Xylenes, Total	0.0087	E4	0.030	0.0086	mg/l	10		EPA 8260B	Total

Client Sample ID: R-099A — Lab Sample ID: PWC1964-08

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.0027	E4	0.010	0.0012	mg/l	10		EPA 8260B	Total
Ethylbenzene	0.021		0.020	0.0032	mg/l	10		EPA 8260B	Total
Xylenes, Total	0.13		0.030	0.0086	mg/l	10		EPA 8260B	Total

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Client Sample ID: WR-212A

Date Collected: 03/27/13 10:29
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-06
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	E8	0.010	0.0012	mg/l		04/03/13 00:00	04/04/13 03:25	10
Ethylbenzene	0.071		0.020	0.0032	mg/l		04/03/13 00:00	04/04/13 03:25	10
Methyl-tert-butyl Ether (MTBE)	0.058		0.050	0.0022	mg/l		04/03/13 00:00	04/04/13 03:25	10
Toluene	ND	E8	0.020	0.0028	mg/l		04/03/13 00:00	04/04/13 03:25	10
Xylenes, Total	0.0087	E4	0.030	0.0086	mg/l		04/03/13 00:00	04/04/13 03:25	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*96*		*70 - 130*	*04/03/13 00:00*	*04/04/13 03:25*	*10*
Toluene-d8	*92*		*70 - 130*	*04/03/13 00:00*	*04/04/13 03:25*	*10*
4-Bromofluorobenzene	*112*		*70 - 130*	*04/03/13 00:00*	*04/04/13 03:25*	*10*

Client Sample ID: R-099A

Date Collected: 03/27/13 11:11
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-08
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.0027	E4	0.010	0.0012	mg/l		04/03/13 00:00	04/04/13 03:56	10
Ethylbenzene	0.021		0.020	0.0032	mg/l		04/03/13 00:00	04/04/13 03:56	10
Methyl-tert-butyl Ether (MTBE)	ND	E8	0.050	0.0022	mg/l		04/03/13 00:00	04/04/13 03:56	10
Toluene	ND	E8	0.020	0.0028	mg/l		04/03/13 00:00	04/04/13 03:56	10
Xylenes, Total	0.13		0.030	0.0086	mg/l		04/03/13 00:00	04/04/13 03:56	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*98*		*70 - 130*	*04/03/13 00:00*	*04/04/13 03:56*	*10*
Toluene-d8	*93*		*70 - 130*	*04/03/13 00:00*	*04/04/13 03:56*	*10*
4-Bromofluorobenzene	*111*		*70 - 130*	*04/03/13 00:00*	*04/04/13 03:56*	*10*

Surrogate Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Matrix: Water

Prep Type: Total

		Percent Surrogate Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	DBFM (70-130)	Toluene-d8 (70-130)	BFB (70-130)					
13D0142-BLK1	Method Blank	94	96	106					
13D0142-BS1	Lab Control Sample	89	90	111					
13D0142-BSD1	Lab Control Sample Dup	98	93	109					
13D0142-MS1	Matrix Spike	104	93	109					
13D0142-MSD1	Matrix Spike Duplicate	101	95	116					
PWC1964-06	WR-212A	96	92	112					
PWC1964-08	R-099A	98	93	111					

Surrogate Legend

DBFM = Dibromofluoromethane

Toluene-d8 = Toluene-d8

BFB = 4-Bromofluorobenzene

QC Sample Results

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Lab Sample ID: 13D0142-BLK1
Matrix: Water
Analysis Batch: 13D0142

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13D0142_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010	0.00012	mg/l		04/03/13 00:00	04/03/13 18:59	1.00
Ethylbenzene	ND		0.0020	0.00032	mg/l		04/03/13 00:00	04/03/13 18:59	1.00
Methyl-tert-butyl Ether (MTBE)	ND		0.0050	0.00022	mg/l		04/03/13 00:00	04/03/13 18:59	1.00
Toluene	ND		0.0020	0.00028	mg/l		04/03/13 00:00	04/03/13 18:59	1.00
Xylenes, Total	ND		0.0030	0.00086	mg/l		04/03/13 00:00	04/03/13 18:59	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*94*		*70 - 130*	*04/03/13 00:00*	*04/03/13 18:59*	*1.00*
Toluene-d8	*96*		*70 - 130*	*04/03/13 00:00*	*04/03/13 18:59*	*1.00*
4-Bromofluorobenzene	*106*		*70 - 130*	*04/03/13 00:00*	*04/03/13 18:59*	*1.00*

Lab Sample ID: 13D0142-BS1
Matrix: Water
Analysis Batch: 13D0142

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13D0142_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0250	0.0199		mg/l		79	70 - 130
Ethylbenzene	0.0250	0.0255		mg/l		102	70 - 130
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0191		mg/l		76	70 - 130
Toluene	0.0250	0.0202		mg/l		81	70 - 130
Xylenes, Total	0.0500	0.0492		mg/l		98	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*89*		*70 - 130*
Toluene-d8	*90*		*70 - 130*
4-Bromofluorobenzene	*111*		*70 - 130*

Lab Sample ID: 13D0142-BSD1
Matrix: Water
Analysis Batch: 13D0142

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13D0142_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0250	0.0225		mg/l		90	70 - 130	13	20
Ethylbenzene	0.0250	0.0265		mg/l		106	70 - 130	4	20
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0218		mg/l		87	70 - 130	13	20
Toluene	0.0250	0.0219		mg/l		87	70 - 130	8	20
Xylenes, Total	0.0500	0.0517		mg/l		103	70 - 130	5	20

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Dibromofluoromethane	*98*		*70 - 130*
Toluene-d8	*93*		*70 - 130*
4-Bromofluorobenzene	*109*		*70 - 130*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0142-MS1
Matrix: Water
Analysis Batch: 13D0142

Client Sample ID: Matrix Spike
Prep Type: Total
Prep Batch: 13D0142_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.000570		0.0250	0.0216		mg/l		84	68 - 131
Ethylbenzene	0.00125		0.0250	0.0254		mg/l		96	74 - 134
Methyl-tert-butyl Ether (MTBE)	0.000990		0.0250	0.0241		mg/l		92	67 - 138
Toluene	ND		0.0250	0.0206		mg/l		82	65 - 138
Xylenes, Total	0.00263		0.0500	0.0503		mg/l		95	68 - 131

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8	*93*		*70 - 130*
4-Bromofluorobenzene	*109*		*70 - 130*

Lab Sample ID: 13D0142-MSD1
Matrix: Water
Analysis Batch: 13D0142

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total
Prep Batch: 13D0142_P

Analyte	Sample Result	Sample Qualifier	Spike Added	ıtrix Spike Dup Result	Matrix Spike Du Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.000570		0.0250	0.0217		mg/l		84	68 - 131	0.2	32
Ethylbenzene	0.00125		0.0250	0.0264		mg/l		101	74 - 134	4	32
Methyl-tert-butyl Ether (MTBE)	0.000990		0.0250	0.0233		mg/l		89	67 - 138	3	21
Toluene	ND		0.0250	0.0216		mg/l		86	65 - 138	5	33
Xylenes, Total	0.00263		0.0500	0.0542		mg/l		103	68 - 131	8	31

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Dibromofluoromethane	*101*		*70 - 130*
Toluene-d8	*95*		*70 - 130*
4-Bromofluorobenzene	*116*		*70 - 130*

QC Association Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

GCMS Volatiles

Analysis Batch: 13D0142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0142-BLK1	Method Blank	Total	Water	EPA 8260B	13D0142_P
13D0142-BS1	Lab Control Sample	Total	Water	EPA 8260B	13D0142_P
13D0142-BSD1	Lab Control Sample Dup	Total	Water	EPA 8260B	13D0142_P
13D0142-MS1	Matrix Spike	Total	Water	EPA 8260B	13D0142_P
13D0142-MSD1	Matrix Spike Duplicate	Total	Water	EPA 8260B	13D0142_P
PWC1964-06	WR-212A	Total	Water	EPA 8260B	13D0142_P
PWC1964-08	R-099A	Total	Water	EPA 8260B	13D0142_P

Prep Batch: 13D0142_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0142-BLK1	Method Blank	Total	Water	EPA 5030 GCMS	
13D0142-BS1	Lab Control Sample	Total	Water	EPA 5030 GCMS	
13D0142-BSD1	Lab Control Sample Dup	Total	Water	EPA 5030 GCMS	
13D0142-MS1	Matrix Spike	Total	Water	EPA 5030 GCMS	
13D0142-MSD1	Matrix Spike Duplicate	Total	Water	EPA 5030 GCMS	
PWC1964-06	WR-212A	Total	Water	EPA 5030 GCMS	
PWC1964-08	R-099A	Total	Water	EPA 5030 GCMS	

Lab Chronicle

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Client Sample ID: WR-212A

Lab Sample ID: PWC1964-06

Date Collected: 03/27/13 10:29
Date Received: 03/29/13 09:30

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0142_P	04/03/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B		10	13D0142	04/04/13 03:25	KD	TAL PHX

Client Sample ID: R-099A

Lab Sample ID: PWC1964-08

Date Collected: 03/27/13 11:11
Date Received: 03/29/13 09:30

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0142_P	04/03/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B		10	13D0142	04/04/13 03:56	KD	TAL PHX

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Center Blvd. Ste 189, Phoenix, AZ 85040, TEL (602) 437-3340

Certification Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Laboratory: TestAmerica Phoenix

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA	IHLAP		154268	07-01-15
Arizona	State Program	9	AZ0728	06-09-14
California	NELAP	9	01109CA	11-30-13
Nevada	State Program	9	AZ01030	07-31-14
New York	NELAP	2	11898	04-01-14
Oregon	NELAP	10	AZ100001	03-09-14
USDA	Federal		P330-09-00024	06-09-15

Method Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Method	Method Description	Protocol	Laboratory
EPA 8260B	BTEX & MTBE (EPA 5030B/8260B)		TAL PHX

Protocol References:

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Center Blvd. Ste 189, Phoenix, AZ 85040, TEL (602) 437-3340

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-0013-550 (10/10)

CHAIN OF CUSTODY FORM

[ ] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340 FAX (602) 454-9303
[ ] Tucson - 1870 W. Prince Road, Suite 59, Tucson, AZ 85705 (520) 807-3801 FAX (520) 807-3803
[ ] Las Vegas - 6000 S Eastern Ave., Suite 5E, Las Vegas, NV 89119 (702) 429-1264

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9/16/2013

Client Name/Address: City of Tucson, PO Box 27210, Tucson AZ 85726

Project/PO Number: Price Service Center, PO1064

Project Manager: Lori Ehman

Phone Number: 791-3175

Sampler: Alfred J. Barker Jr.

Fax Number:

Analysis Required: BETEX/MTBE; 8260

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	BETEX/MTBE	8260	Special Instructions
WR-209A	GW			3/27/13	0835		X		PWC1964-01
WR-209A (Dup)	GW			3/27/13	0838		X		-02
WR-211A	GW			3/27/13	0901		X		-03
WR-208A	GW			3/27/13	0927		X		-04
WR-296A	GW			3/27/13	0956		X		-05
WR-212A	GW			3/27/13	1029		X		-06
R-049A	GW			3/27/13	1051		X		-07
R-099A	GW			3/27/13	1111		X		-08
R-029A	GW			3/27/13	1134		X		-09
Trip Blank								X	-10

Relinquished By:	Date/Time:	Received By:	Date/Time:
A Barker	3/28/13 1203	[signature]	3/28/13 1203
[signature]	3/28/13 1435		
FED EX	3/29/13 0930	Received in Lab By: [signature]	3/29/13 0936

Turnaround Time: (Check)
same day _____ 72 hours _____
24 hours _____ 5 days _____
48 hours _____ normal X

Sample Integrity: (Check)
intact X on ice X

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

2.6 1.7c AB 3/28/13

3/27/2013

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Center Blvd. Ste 189
Phoenix, AZ 85040
Tel: (602) 437-3340

TestAmerica Job ID: PWC1964
Client Project/Site: Price Service Center, P01064
Client Project Description: Price Service Center

For:
City of Tucson Environmental Services
255 W. Alameda, Sixth floor
Tucson, AZ 85701

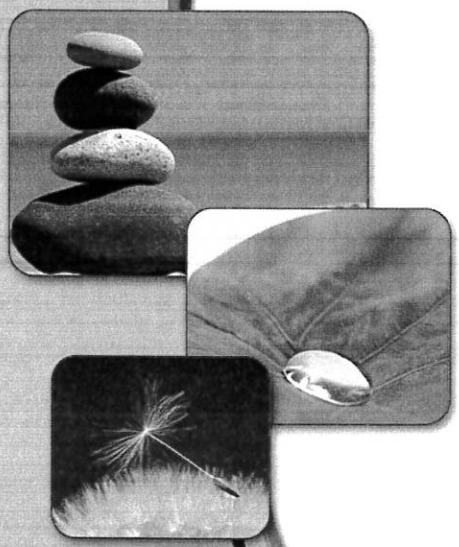
Attn: Lori Ehman

Denise Harrington

Authorized for release by:
9/16/2013 1:24:18 PM
Denise Harrington, Project Manager Assistant
denise.harrington@testamericainc.com

Designee for

Suzanne Glass, Project Manager
suzanne.glass@testamericainc.com



LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Job ID: PWC1964

Laboratory: TestAmerica Phoenix

Narrative

SAMPLE RECEIPT: Samples were received intact, at 1.7 °C, on ice and with chain of custody documentation.
HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the TestAmerica Sample Acceptance Policy unless otherwise noted in the report.
PRESERVATION: Samples requiring preservation were verified prior to sample analysis.
QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

COMMENTS: No significant observations were made.
SUBCONTRACTED: No analyses were subcontracted to an outside laboratory.

REVISION: This is a partial report and includes results for samples -01 (WR-209A), -02 (WR-209A Dup), -03 (WR-211A), -04 (WR-208A), -05 (WR-296A), -07 (R-049A), -09 (R-029A) and -10 (Trip Blank) only. The results for the remainder of the samples are included in a separate partial report.

Sample Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
PWC1964-01	WR-209A	Water	03/27/13 08:35	03/29/13 09:30
PWC1964-02	WR-209A (Dup)	Water	03/27/13 08:38	03/29/13 09:30
PWC1964-03	WR-211A	Water	03/27/13 09:01	03/29/13 09:30
PWC1964-04	WR-208A	Water	03/27/13 09:27	03/29/13 09:30
PWC1964-05	WR-296A	Water	03/27/13 09:56	03/29/13 09:30
PWC1964-07	R-049A	Water	03/27/13 10:51	03/29/13 09:30
PWC1964-09	R-029A	Water	03/27/13 11:34	03/29/13 09:30
PWC1964-10	Trip Blank	Water	03/27/13 08:35	03/29/13 09:30

Detection Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Client Sample ID: WR-209A — Lab Sample ID: PWC1964-01

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl-tert-butyl Ether (MTBE)	0.087		0.0050		mg/l	1.0		EPA 8260B	Total

Client Sample ID: WR-209A (Dup) — Lab Sample ID: PWC1964-02

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl-tert-butyl Ether (MTBE)	0.080		0.0050		mg/l	1.0		EPA 8260B	Total

Client Sample ID: WR-211A — Lab Sample ID: PWC1964-03

No Detections.

Client Sample ID: WR-208A — Lab Sample ID: PWC1964-04

No Detections.

Client Sample ID: WR-296A — Lab Sample ID: PWC1964-05

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl-tert-butyl Ether (MTBE) - RE1	3.0		0.50		mg/l	100		EPA 8260B	Total

Client Sample ID: R-049A — Lab Sample ID: PWC1964-07

No Detections.

Client Sample ID: R-029A — Lab Sample ID: PWC1964-09

No Detections.

Client Sample ID: Trip Blank — Lab Sample ID: PWC1964-10

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Client Sample ID: WR-209A

Date Collected: 03/27/13 08:35
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-01
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/03/13 00:00	04/03/13 23:44	1.0
Ethylbenzene	ND		0.0020		mg/l		04/03/13 00:00	04/03/13 23:44	1.0
Methyl-tert-butyl Ether (MTBE)	0.087		0.0050		mg/l		04/03/13 00:00	04/03/13 23:44	1.0
Toluene	ND		0.0020		mg/l		04/03/13 00:00	04/03/13 23:44	1.0
Xylenes, Total	ND		0.0030		mg/l		04/03/13 00:00	04/03/13 23:44	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*97*		*70 - 130*	*04/03/13 00:00*	*04/03/13 23:44*	*1.0*
Toluene-d8	*96*		*70 - 130*	*04/03/13 00:00*	*04/03/13 23:44*	*1.0*
4-Bromofluorobenzene	*101*		*70 - 130*	*04/03/13 00:00*	*04/03/13 23:44*	*1.0*

Client Sample ID: WR-209A (Dup)

Date Collected: 03/27/13 08:38
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-02
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/03/13 00:00	04/04/13 00:16	1.0
Ethylbenzene	ND		0.0020		mg/l		04/03/13 00:00	04/04/13 00:16	1.0
Methyl-tert-butyl Ether (MTBE)	0.080		0.0050		mg/l		04/03/13 00:00	04/04/13 00:16	1.0
Toluene	ND		0.0020		mg/l		04/03/13 00:00	04/04/13 00:16	1.0
Xylenes, Total	ND		0.0030		mg/l		04/03/13 00:00	04/04/13 00:16	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*90*		*70 - 130*	*04/03/13 00:00*	*04/04/13 00:16*	*1.0*
Toluene-d8	*91*		*70 - 130*	*04/03/13 00:00*	*04/04/13 00:16*	*1.0*
4-Bromofluorobenzene	*106*		*70 - 130*	*04/03/13 00:00*	*04/04/13 00:16*	*1.0*

Client Sample ID: WR-211A

Date Collected: 03/27/13 09:01
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-03
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/03/13 00:00	04/04/13 00:47	1.0
Ethylbenzene	ND		0.0020		mg/l		04/03/13 00:00	04/04/13 00:47	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/03/13 00:00	04/04/13 00:47	1.0
Toluene	ND		0.0020		mg/l		04/03/13 00:00	04/04/13 00:47	1.0
Xylenes, Total	ND		0.0030		mg/l		04/03/13 00:00	04/04/13 00:47	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*101*		*70 - 130*	*04/03/13 00:00*	*04/04/13 00:47*	*1.0*
Toluene-d8	*88*		*70 - 130*	*04/03/13 00:00*	*04/04/13 00:47*	*1.0*
4-Bromofluorobenzene	*102*		*70 - 130*	*04/03/13 00:00*	*04/04/13 00:47*	*1.0*

Client Sample Results

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Client Sample ID: WR-208A

Date Collected: 03/27/13 09:27
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-04
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/03/13 00:00	04/04/13 01:19	1.0
Ethylbenzene	ND		0.0020		mg/l		04/03/13 00:00	04/04/13 01:19	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/03/13 00:00	04/04/13 01:19	1.0
Toluene	ND		0.0020		mg/l		04/03/13 00:00	04/04/13 01:19	1.0
Xylenes, Total	ND		0.0030		mg/l		04/03/13 00:00	04/04/13 01:19	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*92*		*70 - 130*	*04/03/13 00:00*	*04/04/13 01:19*	*1.0*
Toluene-d8	*96*		*70 - 130*	*04/03/13 00:00*	*04/04/13 01:19*	*1.0*
4-Bromofluorobenzene	*102*		*70 - 130*	*04/03/13 00:00*	*04/04/13 01:19*	*1.0*

Client Sample ID: WR-296A

Date Collected: 03/27/13 09:56
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-05
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/03/13 00:00	04/04/13 01:51	1.0
Ethylbenzene	ND		0.0020		mg/l		04/03/13 00:00	04/04/13 01:51	1.0
Toluene	ND		0.0020		mg/l		04/03/13 00:00	04/04/13 01:51	1.0
Xylenes, Total	ND		0.0030		mg/l		04/03/13 00:00	04/04/13 01:51	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*95*		*70 - 130*	*04/03/13 00:00*	*04/04/13 01:51*	*1.0*
Toluene-d8	*95*		*70 - 130*	*04/03/13 00:00*	*04/04/13 01:51*	*1.0*
4-Bromofluorobenzene	*110*		*70 - 130*	*04/03/13 00:00*	*04/04/13 01:51*	*1.0*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) - RE1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl-tert-butyl Ether (MTBE)	3.0		0.50		mg/l		04/04/13 00:00	04/05/13 03:12	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*98*		*70 - 130*	*04/04/13 00:00*	*04/05/13 03:12*	*100*
Toluene-d8	*95*		*70 - 130*	*04/04/13 00:00*	*04/05/13 03:12*	*100*
4-Bromofluorobenzene	*94*		*70 - 130*	*04/04/13 00:00*	*04/05/13 03:12*	*100*

Client Sample ID: R-049A

Date Collected: 03/27/13 10:51
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-07
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/03/13 00:00	04/04/13 02:22	1.0
Ethylbenzene	ND		0.0020		mg/l		04/03/13 00:00	04/04/13 02:22	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/03/13 00:00	04/04/13 02:22	1.0
Toluene	ND		0.0020		mg/l		04/03/13 00:00	04/04/13 02:22	1.0
Xylenes, Total	ND		0.0030		mg/l		04/03/13 00:00	04/04/13 02:22	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*98*		*70 - 130*	*04/03/13 00:00*	*04/04/13 02:22*	*1.0*
Toluene-d8	*90*		*70 - 130*	*04/03/13 00:00*	*04/04/13 02:22*	*1.0*

Client Sample ID: R-049A

Date Collected: 03/27/13 10:51
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-07
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	107		70 - 130	04/03/13 00:00	04/04/13 02:22	1.0

Client Sample ID: R-029A

Date Collected: 03/27/13 11:34
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-09
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/03/13 00:00	04/04/13 02:53	1.0
Ethylbenzene	ND		0.0020		mg/l		04/03/13 00:00	04/04/13 02:53	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/03/13 00:00	04/04/13 02:53	1.0
Toluene	ND		0.0020		mg/l		04/03/13 00:00	04/04/13 02:53	1.0
Xylenes, Total	ND		0.0030		mg/l		04/03/13 00:00	04/04/13 02:53	1.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane	94		70 - 130	04/03/13 00:00	04/04/13 02:53	1.0
Toluene-d8	93		70 - 130	04/03/13 00:00	04/04/13 02:53	1.0
4-Bromofluorobenzene	104		70 - 130	04/03/13 00:00	04/04/13 02:53	1.0

Client Sample ID: Trip Blank

Date Collected: 03/27/13 08:35
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-10
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/03/13 00:00	04/03/13 23:12	1.0
Ethylbenzene	ND		0.0020		mg/l		04/03/13 00:00	04/03/13 23:12	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/03/13 00:00	04/03/13 23:12	1.0
Toluene	ND		0.0020		mg/l		04/03/13 00:00	04/03/13 23:12	1.0
Xylenes, Total	ND		0.0030		mg/l		04/03/13 00:00	04/03/13 23:12	1.0

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane	91		70 - 130	04/03/13 00:00	04/03/13 23:12	1.0
Toluene-d8	93		70 - 130	04/03/13 00:00	04/03/13 23:12	1.0
4-Bromofluorobenzene	100		70 - 130	04/03/13 00:00	04/03/13 23:12	1.0

Surrogate Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Matrix: Water

Prep Type: Total

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	DBFM (70-130)	Toluene-d8 (70-130)	BFB (70-130)
13D0142-BLK1	Method Blank	94	96	106
13D0142-BS1	Lab Control Sample	89	90	111
13D0142-BSD1	Lab Control Sample Dup	98	93	109
13D0142-MS1	Matrix Spike	104	93	109
13D0142-MSD1	Matrix Spike Duplicate	101	95	116
13D0189-BLK1	Method Blank	103	95	94
13D0189-BS1	Lab Control Sample	104	97	97
13D0189-BSD1	Lab Control Sample Dup	99	98	103
13D0189-MS1	Matrix Spike	104	100	103
13D0189-MSD1	Matrix Spike Duplicate	104	101	103
PWC1964-01	WR-209A	97	96	101
PWC1964-02	WR-209A (Dup)	90	91	106
PWC1964-03	WR-211A	101	88	102
PWC1964-04	WR-208A	92	96	102
PWC1964-05	WR-296A	95	95	110
PWC1964-05 - RE1	WR-296A	98	95	94
PWC1964-07	R-049A	98	90	107
PWC1964-09	R-029A	94	93	104
PWC1964-10	Trip Blank	91	93	100

Surrogate Legend

DBFM = Dibromofluoromethane

Toluene-d8 = Toluene-d8

BFB = 4-Bromofluorobenzene

QC Sample Results

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Lab Sample ID: 13D0142-BLK1
Matrix: Water
Analysis Batch: 13D0142

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13D0142_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/03/13 00:00	04/03/13 18:59	1.00
Ethylbenzene	ND		0.0020		mg/l		04/03/13 00:00	04/03/13 18:59	1.00
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/03/13 00:00	04/03/13 18:59	1.00
Toluene	ND		0.0020		mg/l		04/03/13 00:00	04/03/13 18:59	1.00
Xylenes, Total	ND		0.0030		mg/l		04/03/13 00:00	04/03/13 18:59	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*94*		*70 - 130*	*04/03/13 00:00*	*04/03/13 18:59*	*1.00*
Toluene-d8	*96*		*70 - 130*	*04/03/13 00:00*	*04/03/13 18:59*	*1.00*
4-Bromofluorobenzene	*106*		*70 - 130*	*04/03/13 00:00*	*04/03/13 18:59*	*1.00*

Lab Sample ID: 13D0142-BS1
Matrix: Water
Analysis Batch: 13D0142

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13D0142_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0250	0.0199		mg/l		79	70 - 130
Ethylbenzene	0.0250	0.0255		mg/l		102	70 - 130
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0191		mg/l		76	70 - 130
Toluene	0.0250	0.0202		mg/l		81	70 - 130
Xylenes, Total	0.0500	0.0492		mg/l		98	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*89*		*70 - 130*
Toluene-d8	*90*		*70 - 130*
4-Bromofluorobenzene	*111*		*70 - 130*

Lab Sample ID: 13D0142-BSD1
Matrix: Water
Analysis Batch: 13D0142

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13D0142_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0250	0.0225		mg/l		90	70 - 130	13	20
Ethylbenzene	0.0250	0.0265		mg/l		106	70 - 130	4	20
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0218		mg/l		87	70 - 130	13	20
Toluene	0.0250	0.0219		mg/l		87	70 - 130	8	20
Xylenes, Total	0.0500	0.0517		mg/l		103	70 - 130	5	20

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Dibromofluoromethane	*98*		*70 - 130*
Toluene-d8	*93*		*70 - 130*
4-Bromofluorobenzene	*109*		*70 - 130*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0142-MS1
Matrix: Water
Analysis Batch: 13D0142

Client Sample ID: Matrix Spike
Prep Type: Total
Prep Batch: 13D0142_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.000570		0.0250	0.0216		mg/l		84	68 - 131
Ethylbenzene	0.00125		0.0250	0.0254		mg/l		96	74 - 134
Methyl-tert-butyl Ether (MTBE)	0.000990		0.0250	0.0241		mg/l		92	67 - 138
Toluene	ND		0.0250	0.0206		mg/l		82	65 - 138
Xylenes, Total	0.00263		0.0500	0.0503		mg/l		95	68 - 131

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8	*93*		*70 - 130*
4-Bromofluorobenzene	*109*		*70 - 130*

Lab Sample ID: 13D0142-MSD1
Matrix: Water
Analysis Batch: 13D0142

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total
Prep Batch: 13D0142_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.000570		0.0250	0.0217		mg/l		84	68 - 131	0.2	32
Ethylbenzene	0.00125		0.0250	0.0264		mg/l		101	74 - 134	4	32
Methyl-tert-butyl Ether (MTBE)	0.000990		0.0250	0.0233		mg/l		89	67 - 138	3	21
Toluene	ND		0.0250	0.0216		mg/l		86	65 - 138	5	33
Xylenes, Total	0.00263		0.0500	0.0542		mg/l		103	68 - 131	8	31

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Dibromofluoromethane	*101*		*70 - 130*
Toluene-d8	*95*		*70 - 130*
4-Bromofluorobenzene	*116*		*70 - 130*

Lab Sample ID: 13D0189-BLK1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Ethylbenzene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Toluene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Xylenes, Total	ND		0.0030		mg/l		04/04/13 00:00	04/04/13 19:06	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*103*		*70 - 130*	*04/04/13 00:00*	*04/04/13 19:06*	*1.00*
Toluene-d8	*95*		*70 - 130*	*04/04/13 00:00*	*04/04/13 19:06*	*1.00*
4-Bromofluorobenzene	*94*		*70 - 130*	*04/04/13 00:00*	*04/04/13 19:06*	*1.00*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0189-BS1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0250	0.0211		mg/l		84	70 - 130
Ethylbenzene	0.0250	0.0235		mg/l		94	70 - 130
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0208		mg/l		83	70 - 130
Toluene	0.0250	0.0219		mg/l		87	70 - 130
Xylenes, Total	0.0500	0.0471		mg/l		94	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8	*97*		*70 - 130*
4-Bromofluorobenzene	*97*		*70 - 130*

Lab Sample ID: 13D0189-BSD1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0250	0.0226		mg/l		90	70 - 130	7	20
Ethylbenzene	0.0250	0.0254		mg/l		102	70 - 130	8	20
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0225		mg/l		90	70 - 130	8	20
Toluene	0.0250	0.0242		mg/l		97	70 - 130	10	20
Xylenes, Total	0.0500	0.0508		mg/l		102	70 - 130	8	20

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Dibromofluoromethane	*99*		*70 - 130*
Toluene-d8	*98*		*70 - 130*
4-Bromofluorobenzene	*103*		*70 - 130*

Lab Sample ID: 13D0189-MS1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Matrix Spike
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		0.0250	0.0213		mg/l		85	68 - 131
Ethylbenzene	ND		0.0250	0.0242		mg/l		97	74 - 134
Methyl-tert-butyl Ether (MTBE)	0.00151		0.0250	0.0236		mg/l		88	67 - 138
Toluene	ND		0.0250	0.0231		mg/l		92	65 - 138
Xylenes, Total	ND		0.0500	0.0490		mg/l		98	68 - 131

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8	*100*		*70 - 130*
4-Bromofluorobenzene	*103*		*70 - 130*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0189-MSD1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Sample Result	Sample Qualifier	Spike Added	ıtrix Spike Dup Result	Matrix Spike Du Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		0.0250	0.0223		mg/l		89	68 - 131	4	32
Ethylbenzene	ND		0.0250	0.0246		mg/l		98	74 - 134	2	32
Methyl-tert-butyl Ether (MTBE)	0.00151		0.0250	0.0243		mg/l		91	67 - 138	3	21
Toluene	ND		0.0250	0.0240		mg/l		96	65 - 138	4	33
Xylenes, Total	ND		0.0500	0.0497		mg/l		99	68 - 131	2	31

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8	*101*		*70 - 130*
4-Bromofluorobenzene	*103*		*70 - 130*

QC Association Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

GCMS Volatiles

Analysis Batch: 13D0142

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0142-BLK1	Method Blank	Total	Water	EPA 8260B	13D0142_P
13D0142-BS1	Lab Control Sample	Total	Water	EPA 8260B	13D0142_P
13D0142-BSD1	Lab Control Sample Dup	Total	Water	EPA 8260B	13D0142_P
13D0142-MS1	Matrix Spike	Total	Water	EPA 8260B	13D0142_P
13D0142-MSD1	Matrix Spike Duplicate	Total	Water	EPA 8260B	13D0142_P
PWC1964-01	WR-209A	Total	Water	EPA 8260B	13D0142_P
PWC1964-02	WR-209A (Dup)	Total	Water	EPA 8260B	13D0142_P
PWC1964-03	WR-211A	Total	Water	EPA 8260B	13D0142_P
PWC1964-04	WR-208A	Total	Water	EPA 8260B	13D0142_P
PWC1964-05	WR-296A	Total	Water	EPA 8260B	13D0142_P
PWC1964-07	R-049A	Total	Water	EPA 8260B	13D0142_P
PWC1964-09	R-029A	Total	Water	EPA 8260B	13D0142_P
PWC1964-10	Trip Blank	Total	Water	EPA 8260B	13D0142_P

Analysis Batch: 13D0189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0189-BLK1	Method Blank	Total	Water	EPA 8260B	13D0189_P
13D0189-BS1	Lab Control Sample	Total	Water	EPA 8260B	13D0189_P
13D0189-BSD1	Lab Control Sample Dup	Total	Water	EPA 8260B	13D0189_P
13D0189-MS1	Matrix Spike	Total	Water	EPA 8260B	13D0189_P
13D0189-MSD1	Matrix Spike Duplicate	Total	Water	EPA 8260B	13D0189_P
PWC1964-05 - RE1	WR-296A	Total	Water	EPA 8260B	13D0189_P

Prep Batch: 13D0142_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0142-BLK1	Method Blank	Total	Water	EPA 5030 GCMS	
13D0142-BS1	Lab Control Sample	Total	Water	EPA 5030 GCMS	
13D0142-BSD1	Lab Control Sample Dup	Total	Water	EPA 5030 GCMS	
13D0142-MS1	Matrix Spike	Total	Water	EPA 5030 GCMS	
13D0142-MSD1	Matrix Spike Duplicate	Total	Water	EPA 5030 GCMS	
PWC1964-01	WR-209A	Total	Water	EPA 5030 GCMS	
PWC1964-02	WR-209A (Dup)	Total	Water	EPA 5030 GCMS	
PWC1964-03	WR-211A	Total	Water	EPA 5030 GCMS	
PWC1964-04	WR-208A	Total	Water	EPA 5030 GCMS	
PWC1964-05	WR-296A	Total	Water	EPA 5030 GCMS	
PWC1964-07	R-049A	Total	Water	EPA 5030 GCMS	
PWC1964-09	R-029A	Total	Water	EPA 5030 GCMS	
PWC1964-10	Trip Blank	Total	Water	EPA 5030 GCMS	

Prep Batch: 13D0189_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0189-BLK1	Method Blank	Total	Water	EPA 5030 GCMS	
13D0189-BS1	Lab Control Sample	Total	Water	EPA 5030 GCMS	
13D0189-BSD1	Lab Control Sample Dup	Total	Water	EPA 5030 GCMS	
13D0189-MS1	Matrix Spike	Total	Water	EPA 5030 GCMS	
13D0189-MSD1	Matrix Spike Duplicate	Total	Water	EPA 5030 GCMS	
PWC1964-05 - RE1	WR-296A	Total	Water	EPA 5030 GCMS	

Lab Chronicle

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Client Sample ID: WR-209A

Date Collected: 03/27/13 08:35
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-01
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0142_P	04/03/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0142	04/03/13 23:44	KD	TAL PHX

Client Sample ID: WR-209A (Dup)

Date Collected: 03/27/13 08:38
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-02
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0142_P	04/03/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0142	04/04/13 00:16	KD	TAL PHX

Client Sample ID: WR-211A

Date Collected: 03/27/13 09:01
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-03
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0142_P	04/03/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0142	04/04/13 00:47	KD	TAL PHX

Client Sample ID: WR-208A

Date Collected: 03/27/13 09:27
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-04
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0142_P	04/03/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0142	04/04/13 01:19	KD	TAL PHX

Client Sample ID: WR-296A

Date Collected: 03/27/13 09:56
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-05
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0142_P	04/03/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0142	04/04/13 01:51	KD	TAL PHX
Total	Prep	EPA 5030 GCMS	RE1	1.0	13D0189_P	04/04/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B	RE1	100	13D0189	04/05/13 03:12	KD	TAL PHX

Lab Chronicle

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Client Sample ID: R-049A

Date Collected: 03/27/13 10:51
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-07
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0142_P	04/03/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0142	04/04/13 02:22	KD	TAL PHX

Client Sample ID: R-029A

Date Collected: 03/27/13 11:34
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-09
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0142_P	04/03/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0142	04/04/13 02:53	KD	TAL PHX

Client Sample ID: Trip Blank

Date Collected: 03/27/13 08:35
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1964-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0142_P	04/03/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0142	04/03/13 23:12	KD	TAL PHX

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Center Blvd. Ste 189, Phoenix, AZ 85040, TEL (602) 437-3340

Certification Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Laboratory: TestAmerica Phoenix

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA	IHLAP		154268	07-01-15
Arizona	State Program	9	AZ0728	06-09-14
California	NELAP	9	01109CA	11-30-13
Nevada	State Program	9	AZ01030	07-31-14
New York	NELAP	2	11898	04-01-14
Oregon	NELAP	10	AZ100001	03-09-14
USDA	Federal		P330-09-00024	06-09-15

Method Summary

Client: City of Tucson Environmental Services
Project/Site: Price Service Center, P01064

TestAmerica Job ID: PWC1964

Method	Method Description	Protocol	Laboratory
EPA 8260B	BTEX & MTBE (EPA 5030B/8260B)		TAL PHX

Protocol References:

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Center Blvd. Ste 189, Phoenix, AZ 85040, TEL (602) 437-3340

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-0013-550 (10/10)

CHAIN OF CUSTODY FORM

[ ] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340 FAX (602) 454-9303
[ ] Tucson - 1870 W. Prince Road, Suite 59, Tucson, AZ 85705 (520) 807-3801 FAX (520) 807-3803
[ ] Las Vegas - 6000 S Eastern Ave., Suite 5E, Las Vegas, NV 89119 (702) 429-1264

Page _____ of _____

9/16/2013

Client Name/Address: City of Tucson, PO Box 27210, Tucson AZ 85726

Project/PO Number: Price Service Center, PO1064

Project Manager: Lori Ehman

Phone Number: 791-3175

Sampler: Alfred J. Barker Sr.

Fax Number:

Analysis Required

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	BETEX/MTBE	8260								Special Instructions
WR-209A	GW			3/27/13	0835		X									PWC1964-01
WR-209A (Dup)	GW			3/27/13	0838		X									-02
WR-211A	GW			3/27/13	0901		X									-03
WR-208A	GW			3/27/13	0927		X									-04
WR-296A	GW			3/27/13	0956		X									-05
WR-212A	GW			3/27/13	1029		X									-06
R-049A	GW			3/27/13	1051		X									-07
R-099A	GW			3/27/13	1111		X									-08
R-029A	GW			3/27/13	1134		X									-09
Trip Blank								X								-10

Relinquished By:	Date/Time:	Received By:	Date/Time:	Turnaround Time: (Check)
A Barker	3/28/13 1203	[signature]	3/28/13 1203	same day ____ 72 hours ____
[signature]	3/28/13 1435	Received By:	Date/Time:	24 hours ____ 5 days ____
				48 hours ____ normal X
Relinquished By:	Date/Time:	Received in Lab By:	Date/Time:	Sample Integrity: (Check)
FED EX	3/29/13 0930	[signature]	3/29/13 0936	intact X on ice X

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

2.6 1.7c CB 3/28/13

3/28/2013

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Center Blvd. Ste 189
Phoenix, AZ 85040
Tel: (602) 437-3340

TestAmerica Job ID: PWC1966
Client Project/Site: P01064
Client Project Description: Price Service Center

For:
City of Tucson Environmental Services
255 W. Alameda, Sixth floor
Tucson, AZ 85701

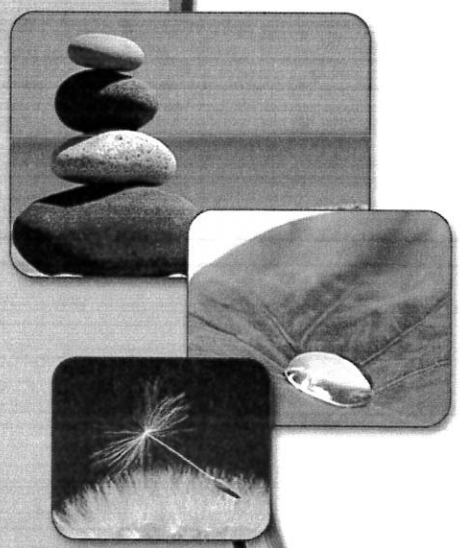
Attn: Jeff Drumm

Denise Harrington

Authorized for release by:
8/21/2013 10:34:24 AM
Denise Harrington, Project Manager Assistant
denise.harrington@testamericainc.com

Designee for

Suzanne Glass, Project Manager
suzanne.glass@testamericainc.com



LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: City of Tucson Environmental Services
Project/Site: P01064

TestAmerica Job ID: PWC1966

Qualifiers

GCMS Volatiles

Qualifier	Qualifier Description
M2	Matrix spike recovery was low; the associated blank spike recovery was acceptable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: City of Tucson Environmental Services
Project/Site: P01064

TestAmerica Job ID: PWC1966

Job ID: PWC1966

Laboratory: TestAmerica Phoenix

Narrative

SAMPLE RECEIPT: Samples were received intact, at 1.7 °C, on ice and with chain of custody documentation.
HOLDING TIMES: All samples were analyzed within prescribed holding times and/or in accordance with the TestAmerica Sample Acceptance Policy unless otherwise noted in the report.
PRESERVATION: Samples requiring preservation were verified prior to sample analysis.
QA/QC CRITERIA: All analyses met method criteria, except as noted in the report with data qualifiers.

N1 = The second source initial calibration verification analyzed immediately following the calibration recovered high and outside of acceptance limits for Vinyl Acetate. All associated samples had results less than the reporting limit for this analyte and therefore should not be impacted.

COMMENTS: No significant observations were made.
SUBCONTRACTED: No analyses were subcontracted to an outside laboratory.

Report revised to correct sample PWC1966 -07 ID from WR-223A to WR-233A, as listed on the Chain-of-Custody.

Report revised to include Xylenes, Total in the 8260 results.

Sample Summary

Client: City of Tucson Environmental Services
Project/Site: P01064

TestAmerica Job ID: PWC1966

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
PWC1966-01	R-044A	Water	03/28/13 07:55	03/29/13 09:30
PWC1966-02	R-044A dup	Water	03/28/13 07:58	03/29/13 09:30
PWC1966-03	R-045A	Water	03/28/13 08:20	03/29/13 09:30
PWC1966-04	WR-229A	Water	03/28/13 08:45	03/29/13 09:30
PWC1966-05	R-048A	Water	03/28/13 09:20	03/29/13 09:30
PWC1966-06	WR-224A	Water	03/28/13 09:50	03/29/13 09:30
PWC1966-07	WR-233A	Water	03/28/13 10:40	03/29/13 09:30
PWC1966-08	Trip Blank	Water	03/28/13 07:55	03/29/13 09:30

Detection Summary

Client: City of Tucson Environmental Services
Project/Site: P01064

TestAmerica Job ID: PWC1966

Client Sample ID: R-044A — Lab Sample ID: PWC1966-01

No Detections.

Client Sample ID: R-044A dup — Lab Sample ID: PWC1966-02

No Detections.

Client Sample ID: R-045A — Lab Sample ID: PWC1966-03

No Detections.

Client Sample ID: WR-229A — Lab Sample ID: PWC1966-04

No Detections.

Client Sample ID: R-048A — Lab Sample ID: PWC1966-05

No Detections.

Client Sample ID: WR-224A — Lab Sample ID: PWC1966-06

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
1,2-Dichloroethane	0.0015		0.0010		mg/l	1.0		EPA 8260B	Total
1,3,5-Trimethylbenzene	0.0058		0.0010		mg/l	1.0		EPA 8260B	Total
Ethylbenzene	0.028		0.0010		mg/l	1.0		EPA 8260B	Total
m,p-Xylenes	0.0076		0.0020		mg/l	1.0		EPA 8260B	Total
n-Propylbenzene	0.016		0.0010		mg/l	1.0		EPA 8260B	Total
sec-Butylbenzene	0.0093		0.0010		mg/l	1.0		EPA 8260B	Total
Isopropylbenzene	0.0053		0.0010		mg/l	1.0		EPA 8260B	Total
Naphthalene	0.0076		0.0050		mg/l	1.0		EPA 8260B	Total
Xylenes, Total	0.0076		0.0020		mg/l	1.0		EPA 8260B	Total

Client Sample ID: WR-233A — Lab Sample ID: PWC1966-07

No Detections.

Client Sample ID: Trip Blank — Lab Sample ID: PWC1966-08

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: R-044A

Date Collected: 03/28/13 07:55
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-01
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 21:16	1.0
Ethylbenzene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 21:16	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 21:16	1.0
Toluene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 21:16	1.0
Xylenes, Total	ND		0.0030		mg/l		04/04/13 00:00	04/04/13 21:16	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*105*		*70 - 130*	*04/04/13 00:00*	*04/04/13 21:16*	*1.0*
Toluene-d8	*96*		*70 - 130*	*04/04/13 00:00*	*04/04/13 21:16*	*1.0*
4-Bromofluorobenzene	*98*		*70 - 130*	*04/04/13 00:00*	*04/04/13 21:16*	*1.0*

Client Sample ID: R-044A dup

Date Collected: 03/28/13 07:58
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-02
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 21:48	1.0
Ethylbenzene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 21:48	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 21:48	1.0
Toluene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 21:48	1.0
Xylenes, Total	ND		0.0030		mg/l		04/04/13 00:00	04/04/13 21:48	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*108*		*70 - 130*	*04/04/13 00:00*	*04/04/13 21:48*	*1.0*
Toluene-d8	*97*		*70 - 130*	*04/04/13 00:00*	*04/04/13 21:48*	*1.0*
4-Bromofluorobenzene	*94*		*70 - 130*	*04/04/13 00:00*	*04/04/13 21:48*	*1.0*

Client Sample ID: R-045A

Date Collected: 03/28/13 08:20
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-03
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 22:21	1.0
Ethylbenzene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 22:21	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 22:21	1.0
Toluene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 22:21	1.0
Xylenes, Total	ND		0.0030		mg/l		04/04/13 00:00	04/04/13 22:21	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*106*		*70 - 130*	*04/04/13 00:00*	*04/04/13 22:21*	*1.0*
Toluene-d8	*96*		*70 - 130*	*04/04/13 00:00*	*04/04/13 22:21*	*1.0*
4-Bromofluorobenzene	*98*		*70 - 130*	*04/04/13 00:00*	*04/04/13 22:21*	*1.0*

Client Sample ID: WR-229A

Date Collected: 03/28/13 08:45
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-04
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 22:53	1.0
Ethylbenzene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 22:53	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 22:53	1.0
Toluene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 22:53	1.0
Xylenes, Total	ND		0.0030		mg/l		04/04/13 00:00	04/04/13 22:53	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*109*		*70 - 130*	*04/04/13 00:00*	*04/04/13 22:53*	*1.0*
Toluene-d8	*98*		*70 - 130*	*04/04/13 00:00*	*04/04/13 22:53*	*1.0*
4-Bromofluorobenzene	*98*		*70 - 130*	*04/04/13 00:00*	*04/04/13 22:53*	*1.0*

Client Sample ID: R-048A

Date Collected: 03/28/13 09:20
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-05
Matrix: Water

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:25	1.0
Ethylbenzene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 23:25	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 23:25	1.0
Toluene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 23:25	1.0
Xylenes, Total	ND		0.0030		mg/l		04/04/13 00:00	04/04/13 23:25	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*105*		*70 - 130*	*04/04/13 00:00*	*04/04/13 23:25*	*1.0*
Toluene-d8	*95*		*70 - 130*	*04/04/13 00:00*	*04/04/13 23:25*	*1.0*
4-Bromofluorobenzene	*99*		*70 - 130*	*04/04/13 00:00*	*04/04/13 23:25*	*1.0*

Client Sample ID: WR-224A

Date Collected: 03/28/13 09:50
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-06
Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
1,1,2,2-Tetrachloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
1,1,2-Trichloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
1,1-Dichloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
1,1-Dichloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
1,1-Dichloropropene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
1,2,3-Trichlorobenzene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
1,2,3-Trichloropropane	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
1,2,4-Trichlorobenzene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
1,2,4-Trimethylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
1,2-Dibromoethane (EDB)	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
1,2-Dichlorobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
1,2-Dichloroethane	0.0015		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
1,2-Dichloropropane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
1,3,5-Trimethylbenzene	0.0058		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
1,3-Dichlorobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0

Client Sample Results

Client: City of Tucson Environmental Services
Project/Site: P01064

TestAmerica Job ID: PWC1966

Client Sample ID: WR-224A

Date Collected: 03/28/13 09:50
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-06
Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,3-Dichloropropane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
1,4-Dichlorobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
2,2-Dichloropropane	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
2-Butanone (MEK)	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
2-Chlorotoluene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
2-Hexanone	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
4-Chlorotoluene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Acetone	ND		0.020		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Benzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Bromobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Bromochloromethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Bromodichloromethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Bromoform	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Bromomethane	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Carbon tetrachloride	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Chlorobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Chloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Chloroform	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Chloromethane	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
cis-1,2-Dichloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
cis-1,3-Dichloropropene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Dibromochloromethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Dichlorodifluoromethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Ethylbenzene	**0.028**		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
m,p-Xylenes	**0.0076**		0.0020		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Methylene Chloride	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
n-Butylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
n-Propylbenzene	**0.016**		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
o-Xylene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
p-Isopropyltoluene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
sec-Butylbenzene	**0.0093**		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Styrene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
tert-Butylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Tetrachloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Toluene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
trans-1,2-Dichloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
trans-1,3-Dichloropropene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Trichloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Trichlorofluoromethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Vinyl Acetate	ND	N1	0.0020		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Vinyl chloride	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Isopropylbenzene	**0.0053**		0.0010		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Naphthalene	**0.0076**		0.0050		mg/l		04/04/13 00:00	04/04/13 23:58	1.0
Xylenes, Total	**0.0076**		0.0020		mg/l		04/04/13 00:00	04/04/13 23:58	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*101*		*70 - 130*	*04/04/13 00:00*	*04/04/13 23:58*	*1.0*
Toluene-d8	*98*		*70 - 130*	*04/04/13 00:00*	*04/04/13 23:58*	*1.0*

Client Sample ID: WR-224A

Date Collected: 03/28/13 09:50
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-06
Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	111		70 - 130	04/04/13 00:00	04/04/13 23:58	1.0

Client Sample ID: WR-233A

Date Collected: 03/28/13 10:40
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-07
Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
1,1,2,2-Tetrachloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
1,1,2-Trichloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
1,1-Dichloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
1,1-Dichloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
1,1-Dichloropropene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
1,2,3-Trichlorobenzene	ND		0.0020		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
1,2,3-Trichloropropane	ND		0.0020		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
1,2,4-Trichlorobenzene	ND		0.0020		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
1,2,4-Trimethylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
1,2-Dibromoethane (EDB)	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
1,2-Dichlorobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
1,2-Dichloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
1,2-Dichloropropane	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
1,3,5-Trimethylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
1,3-Dichlorobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
1,3-Dichloropropane	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
1,4-Dichlorobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
2,2-Dichloropropane	ND		0.0020		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
2-Butanone (MEK)	ND		0.0050		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
2-Chlorotoluene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
2-Hexanone	ND		0.0050		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
4-Chlorotoluene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Acetone	ND		0.020		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Benzene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Bromobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Bromochloromethane	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Bromodichloromethane	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Bromoform	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Bromomethane	ND		0.0020		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Carbon tetrachloride	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Chlorobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Chloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Chloroform	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Chloromethane	ND		0.0050		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
cis-1,2-Dichloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
cis-1,3-Dichloropropene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Dibromochloromethane	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Dichlorodifluoromethane	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Ethylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0

Client Sample ID: WR-233A

Date Collected: 03/28/13 10:40
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-07
Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylenes	ND		0.0020		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Methylene Chloride	ND		0.0020		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
n-Butylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
n-Propylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
o-Xylene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
p-Isopropyltoluene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
sec-Butylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Styrene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
tert-Butylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Tetrachloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Toluene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
trans-1,2-Dichloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
trans-1,3-Dichloropropene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Trichloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Trichlorofluoromethane	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Vinyl Acetate	ND	N1	0.0020		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Vinyl chloride	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Isopropylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Naphthalene	ND		0.0050		mg/l		04/04/13 00:00	04/05/13 00:30	1.0
Xylenes, Total	ND		0.0020		mg/l		04/04/13 00:00	04/05/13 00:30	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*107*		*70 - 130*	*04/04/13 00:00*	*04/05/13 00:30*	*1.0*
Toluene-d8	*96*		*70 - 130*	*04/04/13 00:00*	*04/05/13 00:30*	*1.0*
4-Bromofluorobenzene	*100*		*70 - 130*	*04/04/13 00:00*	*04/05/13 00:30*	*1.0*

Client Sample ID: Trip Blank

Date Collected: 03/28/13 07:55
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-08
Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
1,1,2,2-Tetrachloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
1,1,2-Trichloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
1,1-Dichloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
1,1-Dichloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
1,1-Dichloropropene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
1,2,3-Trichlorobenzene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
1,2,3-Trichloropropane	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
1,2,4-Trichlorobenzene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
1,2,4-Trimethylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
1,2-Dibromoethane (EDB)	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
1,2-Dichlorobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
1,2-Dichloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
1,2-Dichloropropane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
1,3,5-Trimethylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
1,3-Dichlorobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
1,3-Dichloropropane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0

Client Sample ID: Trip Blank

Date Collected: 03/28/13 07:55
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-08
Matrix: Water

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
2,2-Dichloropropane	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
2-Butanone (MEK)	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
2-Chlorotoluene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
2-Hexanone	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
4-Chlorotoluene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Acetone	ND		0.020		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Benzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Bromobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Bromochloromethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Bromodichloromethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Bromoform	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Bromomethane	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Carbon tetrachloride	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Chlorobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Chloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Chloroform	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Chloromethane	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
cis-1,2-Dichloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
cis-1,3-Dichloropropene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Dibromochloromethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Dichlorodifluoromethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Ethylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
m,p-Xylenes	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Methyl-tert-butyl Ether (MTBE)	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Methylene Chloride	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
n-Butylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
n-Propylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
o-Xylene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
p-Isopropyltoluene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
sec-Butylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Styrene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
tert-Butylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Tetrachloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Toluene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
trans-1,2-Dichloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
trans-1,3-Dichloropropene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Trichloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Trichlorofluoromethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Vinyl Acetate	ND	N1	0.0020		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Vinyl chloride	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Isopropylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Naphthalene	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 19:39	1.0
Xylenes, Total	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:39	1.0

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*105*		*70 - 130*	*04/04/13 00:00*	*04/04/13 19:39*	*1.0*
Toluene-d8	*93*		*70 - 130*	*04/04/13 00:00*	*04/04/13 19:39*	*1.0*
4-Bromofluorobenzene	*97*		*70 - 130*	*04/04/13 00:00*	*04/04/13 19:39*	*1.0*

Surrogate Summary

Client: City of Tucson Environmental Services
Project/Site: P01064

TestAmerica Job ID: PWC1966

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Matrix: Water

Prep Type: Total

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	DBFM (70-130)	Toluene-d8 (70-130)	BFB (70-130)
13D0189-BLK1	Method Blank	103	95	94
13D0189-BS1	Lab Control Sample	104	97	97
13D0189-BSD1	Lab Control Sample Dup	99	98	103
13D0189-MS1	R-048A	104	100	103
13D0189-MSD1	R-048A	104	101	103
PWC1966-01	R-044A	105	96	98
PWC1966-02	R-044A dup	108	97	94
PWC1966-03	R-045A	106	96	98
PWC1966-04	WR-229A	109	98	98
PWC1966-05	R-048A	105	95	99

Surrogate Legend

DBFM = Dibromofluoromethane

Toluene-d8 = Toluene-d8

BFB = 4-Bromofluorobenzene

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Matrix: Water

Prep Type: Total

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	DBFM (70-130)	Toluene-d8 (70-130)	BFB (70-130)
13D0189-BLK1	Method Blank	103	95	94
13D0189-BS1	Lab Control Sample	104	97	97
13D0189-BSD1	Lab Control Sample Dup	99	98	103
13D0189-MS1	R-048A	104	100	103
13D0189-MSD1	R-048A	104	101	103
PWC1966-06	WR-224A	101	98	111
PWC1966-07	WR-233A	107	96	100
PWC1966-08	Trip Blank	105	93	97

Surrogate Legend

DBFM = Dibromofluoromethane

Toluene-d8 = Toluene-d8

BFB = 4-Bromofluorobenzene

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Matrix: Water

Prep Type: Total

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	DBFM	Toluene-d8	BFB
PWC1966-05	R-048A			

Surrogate Legend

DBFM = Dibromofluoromethane

Toluene-d8 = Toluene-d8

BFB = 4-Bromofluorobenzene

QC Sample Results

Client: City of Tucson Environmental Services
Project/Site: P01064

TestAmerica Job ID: PWC1966

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B)

Lab Sample ID: 13D0189-BLK1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Ethylbenzene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Methyl-tert-butyl Ether (MTBE)	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Toluene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Xylenes, Total	ND		0.0030		mg/l		04/04/13 00:00	04/04/13 19:06	1.00

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*103*		*70 - 130*	*04/04/13 00:00*	*04/04/13 19:06*	*1.00*
Toluene-d8	*95*		*70 - 130*	*04/04/13 00:00*	*04/04/13 19:06*	*1.00*
4-Bromofluorobenzene	*94*		*70 - 130*	*04/04/13 00:00*	*04/04/13 19:06*	*1.00*

Lab Sample ID: 13D0189-BS1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0250	0.0211		mg/l		84	70 - 130
Ethylbenzene	0.0250	0.0235		mg/l		94	70 - 130
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0208		mg/l		83	70 - 130
Toluene	0.0250	0.0219		mg/l		87	70 - 130
Xylenes, Total	0.0500	0.0471		mg/l		94	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8	*97*		*70 - 130*
4-Bromofluorobenzene	*97*		*70 - 130*

Lab Sample ID: 13D0189-BSD1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0250	0.0226		mg/l		90	70 - 130	7	20
Ethylbenzene	0.0250	0.0254		mg/l		102	70 - 130	8	20
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0225		mg/l		90	70 - 130	8	20
Toluene	0.0250	0.0242		mg/l		97	70 - 130	10	20
Xylenes, Total	0.0500	0.0508		mg/l		102	70 - 130	8	20

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Dibromofluoromethane	*99*		*70 - 130*
Toluene-d8	*98*		*70 - 130*
4-Bromofluorobenzene	*103*		*70 - 130*

Method: EPA 8260B - BTEX & MTBE (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0189-MS1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: R-048A
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	ND		0.0250	0.0213		mg/l		85	68 - 131
Ethylbenzene	ND		0.0250	0.0242		mg/l		97	74 - 134
Methyl-tert-butyl Ether (MTBE)	0.00151		0.0250	0.0236		mg/l		88	67 - 138
Toluene	ND		0.0250	0.0231		mg/l		92	65 - 138
Xylenes, Total	ND		0.0500	0.0490		mg/l		98	68 - 131

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8	*100*		*70 - 130*
4-Bromofluorobenzene	*103*		*70 - 130*

Lab Sample ID: 13D0189-MSD1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: R-048A
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	ND		0.0250	0.0223		mg/l		89	68 - 131	4	32
Ethylbenzene	ND		0.0250	0.0246		mg/l		98	74 - 134	2	32
Methyl-tert-butyl Ether (MTBE)	0.00151		0.0250	0.0243		mg/l		91	67 - 138	3	21
Toluene	ND		0.0250	0.0240		mg/l		96	65 - 138	4	33
Xylenes, Total	ND		0.0500	0.0497		mg/l		99	68 - 131	2	31

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8	*101*		*70 - 130*
4-Bromofluorobenzene	*103*		*70 - 130*

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)

Lab Sample ID: 13D0189-BLK1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
1,1,2,2-Tetrachloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
1,1,2-Trichloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
1,1-Dichloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
1,1-Dichloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
1,1-Dichloropropene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
1,2,3-Trichlorobenzene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
1,2,3-Trichloropropane	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
1,2,4-Trichlorobenzene	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
1,2,4-Trimethylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
1,2-Dibromoethane (EDB)	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
1,2-Dichlorobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
1,2-Dichloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0189-BLK1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Blank Result	Blank Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloropropane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
1,3,5-Trimethylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
1,3-Dichlorobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
1,3-Dichloropropane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
1,4-Dichlorobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
2,2-Dichloropropane	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
2-Butanone (MEK)	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
2-Chlorotoluene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
2-Hexanone	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
4-Chlorotoluene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
4-Methyl-2-pentanone (MIBK)	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Acetone	ND		0.020		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Benzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Bromobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Bromochloromethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Bromodichloromethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Bromoform	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Bromomethane	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Carbon tetrachloride	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Chlorobenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Chloroethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Chloroform	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Chloromethane	ND		0.0050		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
cis-1,2-Dichloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
cis-1,3-Dichloropropene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Dibromochloromethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Dichlorodifluoromethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Ethylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
m,p-Xylenes	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Methyl-tert-butyl Ether (MTBE)	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Methylene Chloride	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
n-Butylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
n-Propylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
o-Xylene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
p-Isopropyltoluene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
sec-Butylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Styrene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
tert-Butylbenzene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Tetrachloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Toluene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
trans-1,2-Dichloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
trans-1,3-Dichloropropene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Trichloroethene	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Trichlorofluoromethane	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Vinyl Acetate	ND	N1	0.0020		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Vinyl chloride	ND		0.0010		mg/l		04/04/13 00:00	04/04/13 19:06	1.00
Xylenes, Total	ND		0.0020		mg/l		04/04/13 00:00	04/04/13 19:06	1.00

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0189-BLK1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Method Blank
Prep Type: Total
Prep Batch: 13D0189_P

Surrogate	*Blank %Recovery*	*Blank Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane	*103*		*70 - 130*	*04/04/13 00:00*	*04/04/13 19:06*	*1.00*
Toluene-d8	*95*		*70 - 130*	*04/04/13 00:00*	*04/04/13 19:06*	*1.00*
4-Bromofluorobenzene	*94*		*70 - 130*	*04/04/13 00:00*	*04/04/13 19:06*	*1.00*

Lab Sample ID: 13D0189-BS1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	0.0250	0.0239		mg/l		96	71 - 131
1,1,2,2-Tetrachloroethane	0.0250	0.0201		mg/l		80	70 - 130
1,1,2-Trichloroethane	0.0250	0.0219		mg/l		88	70 - 130
1,1-Dichloroethane	0.0250	0.0191		mg/l		76	70 - 130
1,1-Dichloroethene	0.0250	0.0238		mg/l		95	63 - 131
1,1-Dichloropropene	0.0250	0.0194		mg/l		78	70 - 130
1,2,3-Trichlorobenzene	0.0250	0.0238		mg/l		95	79 - 139
1,2,3-Trichloropropane	0.0250	0.0212		mg/l		85	70 - 130
1,2,4-Trichlorobenzene	0.0250	0.0228		mg/l		91	80 - 137
1,2,4-Trimethylbenzene	0.0250	0.0240		mg/l		96	70 - 130
1,2-Dibromoethane (EDB)	0.0250	0.0221		mg/l		88	70 - 130
1,2-Dichlorobenzene	0.0250	0.0243		mg/l		97	70 - 130
1,2-Dichloroethane	0.0250	0.0188		mg/l		75	66 - 139
1,2-Dichloropropane	0.0250	0.0186		mg/l		74	70 - 130
1,3,5-Trimethylbenzene	0.0250	0.0235		mg/l		94	70 - 130
1,3-Dichlorobenzene	0.0250	0.0236		mg/l		94	70 - 130
1,3-Dichloropropane	0.0250	0.0208		mg/l		83	70 - 130
1,4-Dichlorobenzene	0.0250	0.0224		mg/l		90	70 - 130
2,2-Dichloropropane	0.0250	0.0210		mg/l		84	69 - 139
2-Butanone (MEK)	0.0250	0.0177		mg/l		71	53 - 150
2-Chlorotoluene	0.0250	0.0226		mg/l		90	70 - 130
2-Hexanone	0.0250	0.0169		mg/l		68	55 - 150
4-Chlorotoluene	0.0250	0.0227		mg/l		91	70 - 130
4-Methyl-2-pentanone (MIBK)	0.0250	0.0169		mg/l		68	64 - 142
Acetone	0.0250	0.00990		mg/l		40	38 - 150
Benzene	0.0250	0.0211		mg/l		84	70 - 130
Bromobenzene	0.0250	0.0226		mg/l		90	70 - 130
Bromochloromethane	0.0250	0.0230		mg/l		92	70 - 130
Bromodichloromethane	0.0250	0.0212		mg/l		85	70 - 130
Bromoform	0.0250	0.0204		mg/l		82	69 - 129
Bromomethane	0.0250	0.0209		mg/l		83	57 - 138
Carbon tetrachloride	0.0250	0.0231		mg/l		92	70 - 143
Chlorobenzene	0.0250	0.0231		mg/l		92	70 - 130
Chloroethane	0.0250	0.0204		mg/l		82	66 - 131
Chloroform	0.0250	0.0224		mg/l		90	70 - 130
Chloromethane	0.0250	0.0175		mg/l		70	56 - 129
cis-1,2-Dichloroethene	0.0250	0.0234		mg/l		94	70 - 130
cis-1,3-Dichloropropene	0.0250	0.0219		mg/l		87	70 - 130
Dibromochloromethane	0.0250	0.0234		mg/l		93	70 - 130

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0189-BS1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Lab Control Sample
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dichlorodifluoromethane	0.0250	0.0217		mg/l		87	46 - 144
Ethylbenzene	0.0250	0.0235		mg/l		94	70 - 130
m,p-Xylenes	0.0250	0.0234		mg/l		94	70 - 130
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0208		mg/l		83	70 - 130
Methylene Chloride	0.0250	0.0204		mg/l		81	63 - 128
n-Butylbenzene	0.0250	0.0260		mg/l		104	70 - 130
n-Propylbenzene	0.0250	0.0240		mg/l		96	70 - 130
o-Xylene	0.0250	0.0237		mg/l		95	70 - 130
p-Isopropyltoluene	0.0250	0.0240		mg/l		96	70 - 130
sec-Butylbenzene	0.0250	0.0245		mg/l		98	70 - 130
Styrene	0.0250	0.0249		mg/l		100	70 - 130
tert-Butylbenzene	0.0250	0.0241		mg/l		96	70 - 130
Tetrachloroethene	0.0250	0.0207		mg/l		83	70 - 130
Toluene	0.0250	0.0219		mg/l		87	70 - 130
trans-1,2-Dichloroethene	0.0250	0.0233		mg/l		93	69 - 127
trans-1,3-Dichloropropene	0.0250	0.0209		mg/l		84	70 - 130
Trichloroethene	0.0250	0.0226		mg/l		91	70 - 130
Trichlorofluoromethane	0.0250	0.0249		mg/l		100	69 - 150
Vinyl Acetate	0.0250	0.0260	N1	mg/l		104	67 - 148
Vinyl chloride	0.0250	0.0197		mg/l		79	65 - 137
Xylenes, Total	0.0500	0.0471		mg/l		94	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8	*97*		*70 - 130*
4-Bromofluorobenzene	*97*		*70 - 130*

Lab Sample ID: 13D0189-BSD1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	0.0250	0.0259		mg/l		104	71 - 131	8	20
1,1,2,2-Tetrachloroethane	0.0250	0.0204		mg/l		82	70 - 130	2	20
1,1,2-Trichloroethane	0.0250	0.0232		mg/l		93	70 - 130	6	20
1,1-Dichloroethane	0.0250	0.0208		mg/l		83	70 - 130	8	20
1,1-Dichloroethene	0.0250	0.0257		mg/l		103	63 - 131	8	22
1,1-Dichloropropene	0.0250	0.0209		mg/l		84	70 - 130	7	20
1,2,3-Trichlorobenzene	0.0250	0.0216		mg/l		86	79 - 139	10	20
1,2,3-Trichloropropane	0.0250	0.0232		mg/l		93	70 - 130	9	20
1,2,4-Trichlorobenzene	0.0250	0.0213		mg/l		85	80 - 137	7	20
1,2,4-Trimethylbenzene	0.0250	0.0240		mg/l		96	70 - 130	0.3	20
1,2-Dibromoethane (EDB)	0.0250	0.0251		mg/l		100	70 - 130	13	20
1,2-Dichlorobenzene	0.0250	0.0235		mg/l		94	70 - 130	3	20
1,2-Dichloroethane	0.0250	0.0211		mg/l		84	66 - 139	11	20
1,2-Dichloropropane	0.0250	0.0196		mg/l		79	70 - 130	6	20
1,3,5-Trimethylbenzene	0.0250	0.0245		mg/l		98	70 - 130	4	20
1,3-Dichlorobenzene	0.0250	0.0232		mg/l		93	70 - 130	1	20

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0189-BSD1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Spike Added	LCS Dup Result	LCS Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,3-Dichloropropane	0.0250	0.0226		mg/l		91	70 - 130	8	20
1,4-Dichlorobenzene	0.0250	0.0233		mg/l		93	70 - 130	4	20
2,2-Dichloropropane	0.0250	0.0232		mg/l		93	69 - 139	10	20
2-Butanone (MEK)	0.0250	0.0209		mg/l		84	53 - 150	16	35
2-Chlorotoluene	0.0250	0.0229		mg/l		92	70 - 130	1	20
2-Hexanone	0.0250	0.0191		mg/l		76	55 - 150	12	35
4-Chlorotoluene	0.0250	0.0231		mg/l		92	70 - 130	2	20
4-Methyl-2-pentanone (MIBK)	0.0250	0.0175		mg/l		70	64 - 142	3	25
Acetone	0.0250	0.0117		mg/l		47	38 - 150	16	35
Benzene	0.0250	0.0226		mg/l		90	70 - 130	7	20
Bromobenzene	0.0250	0.0231		mg/l		92	70 - 130	2	20
Bromochloromethane	0.0250	0.0248		mg/l		99	70 - 130	7	20
Bromodichloromethane	0.0250	0.0234		mg/l		93	70 - 130	10	20
Bromoform	0.0250	0.0212		mg/l		85	69 - 129	4	20
Bromomethane	0.0250	0.0226		mg/l		90	57 - 138	8	20
Carbon tetrachloride	0.0250	0.0250		mg/l		100	70 - 143	8	20
Chlorobenzene	0.0250	0.0251		mg/l		100	70 - 130	8	20
Chloroethane	0.0250	0.0214		mg/l		86	66 - 131	5	20
Chloroform	0.0250	0.0238		mg/l		95	70 - 130	6	20
Chloromethane	0.0250	0.0181		mg/l		72	56 - 129	4	20
cis-1,2-Dichloroethene	0.0250	0.0246		mg/l		99	70 - 130	5	20
cis-1,3-Dichloropropene	0.0250	0.0234		mg/l		93	70 - 130	7	20
Dibromochloromethane	0.0250	0.0252		mg/l		101	70 - 130	8	20
Dichlorodifluoromethane	0.0250	0.0242		mg/l		97	46 - 144	11	23
Ethylbenzene	0.0250	0.0254		mg/l		102	70 - 130	8	20
m,p-Xylenes	0.0250	0.0246		mg/l		98	70 - 130	5	20
Methyl-tert-butyl Ether (MTBE)	0.0250	0.0225		mg/l		90	70 - 130	8	20
Methylene Chloride	0.0250	0.0212		mg/l		85	63 - 128	4	21
n-Butylbenzene	0.0250	0.0254		mg/l		101	70 - 130	3	20
n-Propylbenzene	0.0250	0.0247		mg/l		99	70 - 130	3	20
o-Xylene	0.0250	0.0262		mg/l		105	70 - 130	10	20
p-Isopropyltoluene	0.0250	0.0245		mg/l		98	70 - 130	2	20
sec-Butylbenzene	0.0250	0.0247		mg/l		99	70 - 130	0.8	20
Styrene	0.0250	0.0266		mg/l		106	70 - 130	6	20
tert-Butylbenzene	0.0250	0.0257		mg/l		103	70 - 130	7	20
Tetrachloroethene	0.0250	0.0235		mg/l		94	70 - 130	13	20
Toluene	0.0250	0.0242		mg/l		97	70 - 130	10	20
trans-1,2-Dichloroethene	0.0250	0.0248		mg/l		99	69 - 127	6	20
trans-1,3-Dichloropropene	0.0250	0.0215		mg/l		86	70 - 130	3	20
Trichloroethene	0.0250	0.0247		mg/l		99	70 - 130	9	20
Trichlorofluoromethane	0.0250	0.0263		mg/l		105	69 - 150	6	22
Vinyl Acetate	0.0250	0.0276	N1	mg/l		110	67 - 148	6	22
Vinyl chloride	0.0250	0.0218		mg/l		87	65 - 137	10	20
Xylenes, Total	0.0500	0.0508		mg/l		102	70 - 130	8	20

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
Dibromofluoromethane	*99*		*70 - 130*
Toluene-d8	*98*		*70 - 130*

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0189-BSD1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: Lab Control Sample Dup
Prep Type: Total
Prep Batch: 13D0189_P

Surrogate	*LCS Dup %Recovery*	*LCS Dup Qualifier*	*Limits*
4-Bromofluorobenzene	*103*		*70 - 130*

Lab Sample ID: 13D0189-MS1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: R-048A
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	ND		0.0250	0.0250		mg/l		100	64 - 138
1,1,2,2-Tetrachloroethane	ND		0.0250	0.0192		mg/l		77	63 - 137
1,1,2-Trichloroethane	ND		0.0250	0.0214		mg/l		86	63 - 132
1,1-Dichloroethane	ND		0.0250	0.0209		mg/l		84	62 - 130
1,1-Dichloroethene	ND		0.0250	0.0246		mg/l		98	57 - 137
1,1-Dichloropropene	ND		0.0250	0.0198		mg/l		79	64 - 134
1,2,3-Trichlorobenzene	ND		0.0250	0.0215		mg/l		86	74 - 139
1,2,3-Trichloropropane	ND		0.0250	0.0210		mg/l		84	68 - 130
1,2,4-Trichlorobenzene	ND		0.0250	0.0212		mg/l		85	74 - 138
1,2,4-Trimethylbenzene	ND		0.0250	0.0230		mg/l		92	63 - 135
1,2-Dibromoethane (EDB)	ND		0.0250	0.0228		mg/l		91	70 - 130
1,2-Dichlorobenzene	ND		0.0250	0.0243		mg/l		97	70 - 130
1,2-Dichloroethane	ND		0.0250	0.0202		mg/l		81	54 - 147
1,2-Dichloropropane	ND		0.0250	0.0192		mg/l		77	68 - 126
1,3,5-Trimethylbenzene	ND		0.0250	0.0226		mg/l		91	66 - 137
1,3-Dichlorobenzene	ND		0.0250	0.0228		mg/l		91	70 - 130
1,3-Dichloropropane	ND		0.0250	0.0208		mg/l		83	68 - 129
1,4-Dichlorobenzene	ND		0.0250	0.0227		mg/l		91	70 - 130
2,2-Dichloropropane	ND		0.0250	0.0200		mg/l		80	60 - 146
2-Butanone (MEK)	ND		0.0250	0.0148		mg/l		59	31 - 143
2-Chlorotoluene	ND		0.0250	0.0223		mg/l		89	71 - 131
2-Hexanone	ND		0.0250	0.0144		mg/l		58	40 - 142
4-Chlorotoluene	ND		0.0250	0.0222		mg/l		89	70 - 130
4-Methyl-2-pentanone (MIBK)	ND		0.0250	0.0153		mg/l		61	52 - 143
Acetone	ND		0.0250	ND	M2	mg/l			29 - 139
Benzene	ND		0.0250	0.0213		mg/l		85	68 - 131
Bromobenzene	ND		0.0250	0.0234		mg/l		94	70 - 130
Bromochloromethane	ND		0.0250	0.0226		mg/l		90	64 - 132
Bromodichloromethane	ND		0.0250	0.0224		mg/l		90	63 - 138
Bromoform	ND		0.0250	0.0195		mg/l		78	60 - 128
Bromomethane	ND		0.0250	0.0212		mg/l		85	47 - 144
Carbon tetrachloride	ND		0.0250	0.0224		mg/l		89	65 - 147
Chlorobenzene	ND		0.0250	0.0246		mg/l		98	70 - 130
Chloroethane	ND		0.0250	0.0210		mg/l		84	57 - 139
Chloroform	ND		0.0250	0.0242		mg/l		97	63 - 131
Chloromethane	ND		0.0250	0.0168		mg/l		67	47 - 134
cis-1,2-Dichloroethene	ND		0.0250	0.0244		mg/l		98	65 - 127
cis-1,3-Dichloropropene	ND		0.0250	0.0212		mg/l		85	63 - 135
Dibromochloromethane	ND		0.0250	0.0235		mg/l		94	65 - 134
Dichlorodifluoromethane	ND		0.0250	0.0219		mg/l		88	40 - 148
Ethylbenzene	ND		0.0250	0.0242		mg/l		97	74 - 134

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0189-MS1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: R-048A
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Result	Matrix Spike Qualifier	Unit	D	%Rec	%Rec. Limits
m,p-Xylenes	ND		0.0250	0.0242		mg/l		97	58 - 138
Methyl-tert-butyl Ether (MTBE)	0.00151		0.0250	0.0236		mg/l		88	67 - 138
Methylene Chloride	ND		0.0250	0.0219		mg/l		88	55 - 133
n-Butylbenzene	ND		0.0250	0.0240		mg/l		96	69 - 140
n-Propylbenzene	ND		0.0250	0.0233		mg/l		93	74 - 140
o-Xylene	ND		0.0250	0.0248		mg/l		99	66 - 137
p-Isopropyltoluene	ND		0.0250	0.0235		mg/l		94	70 - 133
sec-Butylbenzene	ND		0.0250	0.0223		mg/l		89	72 - 136
Styrene	ND		0.0250	0.0248		mg/l		99	43 - 144
tert-Butylbenzene	ND		0.0250	0.0240		mg/l		96	74 - 135
Tetrachloroethene	ND		0.0250	0.0217		mg/l		87	67 - 131
Toluene	ND		0.0250	0.0231		mg/l		92	65 - 138
trans-1,2-Dichloroethene	ND		0.0250	0.0235		mg/l		94	62 - 131
trans-1,3-Dichloropropene	ND		0.0250	0.0200		mg/l		80	58 - 136
Trichloroethene	ND		0.0250	0.0233		mg/l		93	66 - 132
Trichlorofluoromethane	ND		0.0250	0.0248		mg/l		99	62 - 150
Vinyl Acetate	ND		0.0250	0.0222	N1	mg/l		89	47 - 150
Vinyl chloride	ND		0.0250	0.0193		mg/l		77	55 - 146
Xylenes, Total	ND		0.0500	0.0490		mg/l		98	68 - 131

Surrogate	*Matrix Spike %Recovery*	*Matrix Spike Qualifier*	*Limits*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8	*100*		*70 - 130*
4-Bromofluorobenzene	*103*		*70 - 130*

Lab Sample ID: 13D0189-MSD1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: R-048A
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Sample Result	Sample Qualifier	Spike Added	trix Spike Dup Result	Matrix Spike Du Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane	ND		0.0250	0.0261		mg/l		105	64 - 138	4	35
1,1,2,2-Tetrachloroethane	ND		0.0250	0.0192		mg/l		77	63 - 137	0	32
1,1,2-Trichloroethane	ND		0.0250	0.0222		mg/l		89	63 - 132	4	35
1,1-Dichloroethane	ND		0.0250	0.0215		mg/l		86	62 - 130	3	34
1,1-Dichloroethene	ND		0.0250	0.0262		mg/l		105	57 - 137	6	35
1,1-Dichloropropene	ND		0.0250	0.0210		mg/l		84	64 - 134	6	34
1,2,3-Trichlorobenzene	ND		0.0250	0.0222		mg/l		89	74 - 139	3	26
1,2,3-Trichloropropane	ND		0.0250	0.0217		mg/l		87	68 - 130	3	32
1,2,4-Trichlorobenzene	ND		0.0250	0.0219		mg/l		88	74 - 138	3	26
1,2,4-Trimethylbenzene	ND		0.0250	0.0237		mg/l		95	63 - 135	3	31
1,2-Dibromoethane (EDB)	ND		0.0250	0.0232		mg/l		93	70 - 130	2	33
1,2-Dichlorobenzene	ND		0.0250	0.0240		mg/l		96	70 - 130	1	27
1,2-Dichloroethane	ND		0.0250	0.0208		mg/l		83	54 - 147	3	35
1,2-Dichloropropane	ND		0.0250	0.0198		mg/l		79	68 - 126	3	32
1,3,5-Trimethylbenzene	ND		0.0250	0.0240		mg/l		96	66 - 137	6	30
1,3-Dichlorobenzene	ND		0.0250	0.0234		mg/l		93	70 - 130	2	28
1,3-Dichloropropane	ND		0.0250	0.0224		mg/l		90	68 - 129	7	33
1,4-Dichlorobenzene	ND		0.0250	0.0233		mg/l		93	70 - 130	3	26

Method: EPA 8260B - VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B) (Continued)

Lab Sample ID: 13D0189-MSD1
Matrix: Water
Analysis Batch: 13D0189

Client Sample ID: R-048A
Prep Type: Total
Prep Batch: 13D0189_P

Analyte	Sample Result	Sample Qualifier	Spike Added	Matrix Spike Dup Result	Matrix Spike Dup Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,2-Dichloropropane	ND		0.0250	0.0208		mg/l		83	60 - 146	4	35
2-Butanone (MEK)	ND		0.0250	0.0148		mg/l		59	31 - 143	0.3	35
2-Chlorotoluene	ND		0.0250	0.0225		mg/l		90	71 - 131	0.9	29
2-Hexanone	ND		0.0250	0.0148		mg/l		59	40 - 142	3	35
4-Chlorotoluene	ND		0.0250	0.0228		mg/l		91	70 - 130	3	28
4-Methyl-2-pentanone (MIBK)	ND		0.0250	0.0164		mg/l		66	52 - 143	7	35
Acetone	ND		0.0250	ND	M2	mg/l			29 - 139		35
Benzene	ND		0.0250	0.0223		mg/l		89	68 - 131	4	32
Bromobenzene	ND		0.0250	0.0234		mg/l		93	70 - 130	0.1	28
Bromochloromethane	ND		0.0250	0.0242		mg/l		97	64 - 132	7	35
Bromodichloromethane	ND		0.0250	0.0233		mg/l		93	63 - 138	4	31
Bromoform	ND		0.0250	0.0199		mg/l		80	60 - 128	2	31
Bromomethane	ND		0.0250	0.0222		mg/l		89	47 - 144	5	35
Carbon tetrachloride	ND		0.0250	0.0236		mg/l		94	65 - 147	5	35
Chlorobenzene	ND		0.0250	0.0248		mg/l		99	70 - 130	0.6	30
Chloroethane	ND		0.0250	0.0219		mg/l		88	57 - 139	4	35
Chloroform	ND		0.0250	0.0247		mg/l		99	63 - 131	2	33
Chloromethane	ND		0.0250	0.0172		mg/l		69	47 - 134	2	35
cis-1,2-Dichloroethene	ND		0.0250	0.0258		mg/l		103	65 - 127	6	34
cis-1,3-Dichloropropene	ND		0.0250	0.0224		mg/l		89	63 - 135	6	35
Dibromochloromethane	ND		0.0250	0.0239		mg/l		95	65 - 134	2	33
Dichlorodifluoromethane	ND		0.0250	0.0228		mg/l		91	40 - 148	4	35
Ethylbenzene	ND		0.0250	0.0246		mg/l		98	74 - 134	2	32
m,p-Xylenes	ND		0.0250	0.0246		mg/l		99	58 - 138	2	29
Methyl-tert-butyl Ether (MTBE)	0.00151		0.0250	0.0243		mg/l		91	67 - 138	3	21
Methylene Chloride	ND		0.0250	0.0220		mg/l		88	55 - 133	0.09	35
n-Butylbenzene	ND		0.0250	0.0262		mg/l		105	69 - 140	9	32
n-Propylbenzene	ND		0.0250	0.0242		mg/l		97	74 - 140	4	32
o-Xylene	ND		0.0250	0.0251		mg/l		100	66 - 137	1	26
p-Isopropyltoluene	ND		0.0250	0.0246		mg/l		98	70 - 133	5	32
sec-Butylbenzene	ND		0.0250	0.0242		mg/l		97	72 - 136	8	33
Styrene	ND		0.0250	0.0258		mg/l		103	43 - 144	4	35
tert-Butylbenzene	ND		0.0250	0.0247		mg/l		99	74 - 135	3	32
Tetrachloroethene	ND		0.0250	0.0232		mg/l		93	67 - 131	7	31
Toluene	ND		0.0250	0.0240		mg/l		96	65 - 138	4	33
trans-1,2-Dichloroethene	ND		0.0250	0.0256		mg/l		102	62 - 131	8	35
trans-1,3-Dichloropropene	ND		0.0250	0.0212		mg/l		85	58 - 136	6	35
Trichloroethene	ND		0.0250	0.0244		mg/l		98	66 - 132	5	29
Trichlorofluoromethane	ND		0.0250	0.0260		mg/l		104	62 - 150	4	35
Vinyl Acetate	ND		0.0250	0.0226	N1	mg/l		90	47 - 150	2	35
Vinyl chloride	ND		0.0250	0.0205		mg/l		82	55 - 146	6	35
Xylenes, Total	ND		0.0500	0.0497		mg/l		99	68 - 131	2	31

Surrogate	*Matrix Spike Dup %Recovery*	*Matrix Spike Dup Qualifier*	*Limits*
Dibromofluoromethane	*104*		*70 - 130*
Toluene-d8	*101*		*70 - 130*
4-Bromofluorobenzene	*103*		*70 - 130*

QC Association Summary

Client: City of Tucson Environmental Services
Project/Site: P01064

TestAmerica Job ID: PWC1966

GCMS Volatiles

Analysis Batch: 13D0189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0189-BLK1	Method Blank	Total	Water	EPA 8260B	13D0189_P
13D0189-BS1	Lab Control Sample	Total	Water	EPA 8260B	13D0189_P
13D0189-BSD1	Lab Control Sample Dup	Total	Water	EPA 8260B	13D0189_P
13D0189-MS1	R-048A	Total	Water	EPA 8260B	13D0189_P
13D0189-MSD1	R-048A	Total	Water	EPA 8260B	13D0189_P
PWC1966-01	R-044A	Total	Water	EPA 8260B	13D0189_P
PWC1966-02	R-044A dup	Total	Water	EPA 8260B	13D0189_P
PWC1966-03	R-045A	Total	Water	EPA 8260B	13D0189_P
PWC1966-04	WR-229A	Total	Water	EPA 8260B	13D0189_P
PWC1966-05	R-048A	Total	Water	EPA 8260B	13D0189_P
PWC1966-06	WR-224A	Total	Water	EPA 8260B	13D0189_P
PWC1966-07	WR-233A	Total	Water	EPA 8260B	13D0189_P
PWC1966-08	Trip Blank	Total	Water	EPA 8260B	13D0189_P

Prep Batch: 13D0189_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
13D0189-BLK1	Method Blank	Total	Water	EPA 5030 GCMS	
13D0189-BS1	Lab Control Sample	Total	Water	EPA 5030 GCMS	
13D0189-BSD1	Lab Control Sample Dup	Total	Water	EPA 5030 GCMS	
13D0189-MS1	R-048A	Total	Water	EPA 5030 GCMS	
13D0189-MSD1	R-048A	Total	Water	EPA 5030 GCMS	
PWC1966-01	R-044A	Total	Water	EPA 5030 GCMS	
PWC1966-02	R-044A dup	Total	Water	EPA 5030 GCMS	
PWC1966-03	R-045A	Total	Water	EPA 5030 GCMS	
PWC1966-04	WR-229A	Total	Water	EPA 5030 GCMS	
PWC1966-05	R-048A	Total	Water	EPA 5030 GCMS	
PWC1966-06	WR-224A	Total	Water	EPA 5030 GCMS	
PWC1966-07	WR-233A	Total	Water	EPA 5030 GCMS	
PWC1966-08	Trip Blank	Total	Water	EPA 5030 GCMS	

Analysis Batch: 13D0189

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
PWC1966-05	R-048A	Total	Water	EPA 8260B	

Lab Chronicle

Client: City of Tucson Environmental Services
Project/Site: P01064

TestAmerica Job ID: PWC1966

Client Sample ID: R-044A

Date Collected: 03/28/13 07:55
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-01
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0189_P	04/04/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0189	04/04/13 21:16	KD	TAL PHX

Client Sample ID: R-044A dup

Date Collected: 03/28/13 07:58
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-02
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0189_P	04/04/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0189	04/04/13 21:48	KD	TAL PHX

Client Sample ID: R-045A

Date Collected: 03/28/13 08:20
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-03
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0189_P	04/04/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0189	04/04/13 22:21	KD	TAL PHX

Client Sample ID: WR-229A

Date Collected: 03/28/13 08:45
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-04
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0189_P	04/04/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0189	04/04/13 22:53	KD	TAL PHX

Client Sample ID: R-048A

Date Collected: 03/28/13 09:20
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-05
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0189_P	04/04/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0189	04/04/13 23:25	KD	TAL PHX
Total	Analysis	EPA 8260B		1.00	13D0189	04/05/13 01:02		TAL PHX

Client Sample ID: WR-224A

Date Collected: 03/28/13 09:50
Date Received: 03/29/13 09:30

Lab Sample ID: PWC1966-06
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0189_P	04/04/13 00:00	J H	TAL PHX

Lab Chronicle

Client: City of Tucson Environmental Services
Project/Site: P01064

TestAmerica Job ID: PWC1966

Client Sample ID: WR-224A

Lab Sample ID: PWC1966-06
Matrix: Water

Date Collected: 03/28/13 09:50
Date Received: 03/29/13 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Analysis	EPA 8260B		1.0	13D0189	04/04/13 23:58	KD	TAL PHX

Client Sample ID: WR-233A

Lab Sample ID: PWC1966-07
Matrix: Water

Date Collected: 03/28/13 10:40
Date Received: 03/29/13 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0189_P	04/04/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0189	04/05/13 00:30	KD	TAL PHX

Client Sample ID: Trip Blank

Lab Sample ID: PWC1966-08
Matrix: Water

Date Collected: 03/28/13 07:55
Date Received: 03/29/13 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total	Prep	EPA 5030 GCMS		1.0	13D0189_P	04/04/13 00:00	J H	TAL PHX
Total	Analysis	EPA 8260B		1.0	13D0189	04/04/13 19:39	KD	TAL PHX

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Center Blvd. Ste 189, Phoenix, AZ 85040, TEL (602) 437-3340

Certification Summary

Client: City of Tucson Environmental Services
Project/Site: P01064

TestAmerica Job ID: PWC1966

Laboratory: TestAmerica Phoenix

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA	IHLAP		154268	07-01-15
Arizona	State Program	9	AZ0728	06-09-14
California	NELAP	9	01109CA	11-30-13
Nevada	State Program	9	AZ01030	07-31-14
New York	NELAP	2	11898	04-01-14
Oregon	NELAP	10	AZ100001	03-09-14
USDA	Federal		P330-09-00024	06-09-15

Method Summary

Client: City of Tucson Environmental Services
Project/Site: P01064

TestAmerica Job ID: PWC1966

Method	Method Description	Protocol	Laboratory
EPA 8260B	BTEX & MTBE (EPA 5030B/8260B)		TAL PHX
EPA 8260B	VOLATILE ORGANICS BY GC/MS (EPA 5030B/8260B)		TAL PHX

Protocol References:

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Center Blvd. Ste 189, Phoenix, AZ 85040, TEL (602) 437-3340

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-0013-550 (10/10)

CHAIN OF CUSTODY FORM

[ ] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340 FAX (602) 454-9303
[ ] Tucson - 1870 W. Prince Road, Suite 59, Tucson, AZ 85705 (520) 807-3801 FAX (520) 807-3803
[ ] Las Vegas - 6000 S Eastern Ave., Suite 5E, Las Vegas, NV 89119 (702) 429-1264

Page _____ of _____

8/21/2013

Client Name/Address: City of Tucson, P.O. Box 27210, Tucson AZ 85726

Project/PO Number: PO1064

Project Manager: Jeff Drumm

Phone Number: 520 791 3175

Sampler: G Beyarano

Fax Number:

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	8260	MTBE	BTEX							Special Instructions
R-044A	GW			3/28/13	0755			X	X							PWC1966-01
R-044A dup	GW			3/28/13	0758			X	X							-02
R-045A	GW			3/28/13	0820			X	X							-03
WR-229A	GW			3/28/13	0845			X	X							-04
R-048 A	GW			3/28/13	0920			X	X							-05
WR-224A	GW			3/28/13	0950		X									-06
WR-233 A	GW			3/28/13	1040		X									-07
TRIP BLANK				3/28/13	0755		X									-08

Relinquished By:	Date/Time:	Received By:	Date/Time:	Turnaround Time: (Check)
G Beyarano	3/28/13 1206	[signature]	3/28/13 1206	same day ____ 72 hours ____
Relinquished By: [signature]	Date/Time: 3/28/13 1435	Received By:	Date/Time:	24 hours ____ 5 days ____
				48 hours ____ normal X
Relinquished By: FED EX	Date/Time: 3/29/13 0930	Received in Lab By: [signature]	Date/Time: 3/29/13 093	Sample Integrity: (Check) intact X on ice X

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

6.0 1.7 JMA 3-28-13

4/23/13

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Ctr Blvd
Suite 189
Phoenix, AZ 85040
Tel: (602)437-3340

TestAmerica Job ID: 550-1519-1
Client Project/Site: Price SVC CTR P01064
Revision: 1

For:
City of Tucson
Environmental Services
PO BOX 27210
Tucson, Arizona 85726-7210

Attn: Lori Ehman

Jennifer Gambill

Authorized for release by:
5/30/2013 1:55:47 PM
Jennifer Gambill, Project Manager I
jennifer.gambill@testamericainc.com

Designee for

TestAmerica Inc, Project Manager II
testamericainc@testamericainc.com

LINKS

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Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 550-1519-1

Laboratory: TestAmerica Phoenix

Narrative

Job Narrative
550-1519-1

Revised Report
The following report has been revised to change the reporting units from ug/L to mg/L.

Comments
No additional comments.

Receipt
The samples were received on 4/25/2013 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9° C.

Sample Summary

Client: City of Tucson
Project/Site: Price SVC CTR P01064

TestAmerica Job ID: 550-1519-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
550-1519-1	R-012A	Water	04/23/13 12:50	04/25/13 10:00
550-1519-2	R-013A	Water	04/23/13 13:00	04/25/13 10:00
550-1519-3	R-013A Dup	Water	04/23/13 13:02	04/25/13 10:00
550-1519-4	Trip	Water	04/23/13 12:50	04/25/13 10:00

Detection Summary

Client: City of Tucson
Project/Site: Price SVC CTR P01064

TestAmerica Job ID: 550-1519-1

Client Sample ID: R-012A — Lab Sample ID: 550-1519-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	8.6		0.10		mg/L	100		8260B	Total/NA

Client Sample ID: R-013A — Lab Sample ID: 550-1519-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.023		0.020		mg/L	10		8260B	Total/NA
Benzene	0.028		0.020		mg/L	10		8260B	Total/NA
Xylenes, Total	0.17		0.10		mg/L	10		8260B	Total/NA
m,p-Xylenes	0.17		0.050		mg/L	10		8260B	Total/NA
Methyl tert-butyl ether	1.5		0.010		mg/L	10		8260B	Total/NA

Client Sample ID: R-013A Dup — Lab Sample ID: 550-1519-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.020		0.020		mg/L	10		8260B	Total/NA
Benzene	0.025		0.020		mg/L	10		8260B	Total/NA
Xylenes, Total	0.14		0.10		mg/L	10		8260B	Total/NA
m,p-Xylenes	0.14		0.050		mg/L	10		8260B	Total/NA
Methyl tert-butyl ether	1.4		0.010		mg/L	10		8260B	Total/NA

Client Sample ID: Trip — Lab Sample ID: 550-1519-4

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: City of Tucson
Project/Site: Price SVC CTR P01064

TestAmerica Job ID: 550-1519-1

Client Sample ID: R-012A

Date Collected: 04/23/13 12:50
Date Received: 04/25/13 10:00

Lab Sample ID: 550-1519-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.0020		mg/L			04/30/13 09:41	1
Benzene	ND		0.0020		mg/L			04/30/13 09:41	1
Toluene	ND		0.0020		mg/L			04/30/13 09:41	1
Xylenes, Total	ND		0.010		mg/L			04/30/13 09:41	1
m,p-Xylenes	ND		0.0050		mg/L			04/30/13 09:41	1
o-Xylene	ND		0.0050		mg/L			04/30/13 09:41	1
Methyl tert-butyl ether	8.6		0.10		mg/L			04/30/13 16:31	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*100*		*70 - 130*		*04/30/13 09:41*	*1*
Dibromofluoromethane (Surr)	*102*		*70 - 130*		*04/30/13 16:31*	*100*
Toluene-d8 (Surr)	*96*		*70 - 130*		*04/30/13 09:41*	*1*
Toluene-d8 (Surr)	*93*		*70 - 130*		*04/30/13 16:31*	*100*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*		*04/30/13 09:41*	*1*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*04/30/13 16:31*	*100*

Client Sample ID: R-013A

Date Collected: 04/23/13 13:00
Date Received: 04/25/13 10:00

Lab Sample ID: 550-1519-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.023		0.020		mg/L			05/02/13 08:56	10
Benzene	0.028		0.020		mg/L			05/02/13 08:56	10
Toluene	ND		0.020		mg/L			05/02/13 08:56	10
Xylenes, Total	0.17		0.10		mg/L			05/02/13 08:56	10
m,p-Xylenes	0.17		0.050		mg/L			05/02/13 08:56	10
o-Xylene	ND		0.050		mg/L			05/02/13 08:56	10
Methyl tert-butyl ether	1.5		0.010		mg/L			05/02/13 08:56	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*98*		*70 - 130*		*05/02/13 08:56*	*10*
Toluene-d8 (Surr)	*92*		*70 - 130*		*05/02/13 08:56*	*10*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*05/02/13 08:56*	*10*

Client Sample ID: R-013A Dup

Date Collected: 04/23/13 13:02
Date Received: 04/25/13 10:00

Lab Sample ID: 550-1519-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.020		0.020		mg/L			04/30/13 15:59	10
Benzene	0.025		0.020		mg/L			04/30/13 15:59	10
Toluene	ND		0.020		mg/L			04/30/13 15:59	10
Xylenes, Total	0.14		0.10		mg/L			04/30/13 15:59	10
m,p-Xylenes	0.14		0.050		mg/L			04/30/13 15:59	10
o-Xylene	ND		0.050		mg/L			04/30/13 15:59	10
Methyl tert-butyl ether	1.4		0.010		mg/L			04/30/13 15:59	10

Client Sample Results

Client: City of Tucson
Project/Site: Price SVC CTR P01064

TestAmerica Job ID: 550-1519-1

Client Sample ID: R-013A Dup

Date Collected: 04/23/13 13:02
Date Received: 04/25/13 10:00

Lab Sample ID: 550-1519-3
Matrix: Water

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	95		70 - 130		04/30/13 15:59	10
Toluene-d8 (Surr)	96		70 - 130		04/30/13 15:59	10
4-Bromofluorobenzene (Surr)	100		70 - 130		04/30/13 15:59	10

Client Sample ID: Trip

Date Collected: 04/23/13 12:50
Date Received: 04/25/13 10:00

Lab Sample ID: 550-1519-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.0020		mg/L			04/30/13 08:37	1
Benzene	ND		0.0020		mg/L			04/30/13 08:37	1
Toluene	ND		0.0020		mg/L			04/30/13 08:37	1
Xylenes, Total	ND		0.010		mg/L			04/30/13 08:37	1
m,p-Xylenes	ND		0.0050		mg/L			04/30/13 08:37	1
o-Xylene	ND		0.0050		mg/L			04/30/13 08:37	1
Methyl tert-butyl ether	ND		0.0010		mg/L			04/30/13 08:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	95		70 - 130		04/30/13 08:37	1
Toluene-d8 (Surr)	94		70 - 130		04/30/13 08:37	1
4-Bromofluorobenzene (Surr)	98		70 - 130		04/30/13 08:37	1

Surrogate Summary

Client: City of Tucson
Project/Site: Price SVC CTR P01064

TestAmerica Job ID: 550-1519-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)
550-1519-1	R-012A	100	96	99
550-1519-1	R-012A	102	93	98
550-1519-2	R-013A	98	92	100
550-1519-3	R-013A Dup	95	96	100
550-1519-4	Trip	95	94	98
550-1582-A-1 MS	Matrix Spike	101	97	96
550-1582-A-1 MSD	Matrix Spike Duplicate	103	98	98
550-1666-A-1 MS	Matrix Spike	99	94	98
550-1666-A-1 MSD	Matrix Spike Duplicate	100	96	100
LCS 550-3550/3	Lab Control Sample	97	98	99
LCS 550-3784/3	Lab Control Sample	97	96	101
LCSD 550-3550/4	Lab Control Sample Dup	97	98	103
LCSD 550-3784/4	Lab Control Sample Dup	96	94	99
MB 550-3550/9	Method Blank	101	93	97
MB 550-3784/5	Method Blank	99	92	97

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

QC Sample Results

Client: City of Tucson
Project/Site: Price SVC CTR P01064

TestAmerica Job ID: 550-1519-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 550-3550/9
Matrix: Water
Analysis Batch: 3550

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.0020		mg/L			04/30/13 08:03	1
Benzene	ND		0.0020		mg/L			04/30/13 08:03	1
Toluene	ND		0.0020		mg/L			04/30/13 08:03	1
Xylenes, Total	ND		0.010		mg/L			04/30/13 08:03	1
m,p-Xylenes	ND		0.0050		mg/L			04/30/13 08:03	1
o-Xylene	ND		0.0050		mg/L			04/30/13 08:03	1
Methyl tert-butyl ether	ND		0.0010		mg/L			04/30/13 08:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*70 - 130*		*04/30/13 08:03*	*1*
Toluene-d8 (Surr)	*93*		*70 - 130*		*04/30/13 08:03*	*1*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*04/30/13 08:03*	*1*

Lab Sample ID: LCS 550-3550/3
Matrix: Water
Analysis Batch: 3550

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	0.0250	0.0230		mg/L		92	70 - 130
Benzene	0.0250	0.0237		mg/L		95	70 - 130
Toluene	0.0250	0.0235		mg/L		94	70 - 130
Xylenes, Total	0.0500	0.0458		mg/L		92	70 - 130
m,p-Xylenes	0.0250	0.0225		mg/L		90	70 - 130
o-Xylene	0.0250	0.0233		mg/L		93	70 - 130
Methyl tert-butyl ether	0.0250	0.0229		mg/L		92	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*97*		*70 - 130*
Toluene-d8 (Surr)	*98*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: LCSD 550-3550/4
Matrix: Water
Analysis Batch: 3550

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	0.0250	0.0241		mg/L		96	70 - 130	4	20
Benzene	0.0250	0.0234		mg/L		94	70 - 130	1	20
Toluene	0.0250	0.0237		mg/L		95	70 - 130	1	20
Xylenes, Total	0.0500	0.0476		mg/L		95	70 - 130	4	20
m,p-Xylenes	0.0250	0.0236		mg/L		94	70 - 130	5	20
o-Xylene	0.0250	0.0240		mg/L		96	70 - 130	3	20
Methyl tert-butyl ether	0.0250	0.0230		mg/L		92	70 - 130	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*97*		*70 - 130*
Toluene-d8 (Surr)	*98*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 550-3550/4
Matrix: Water
Analysis Batch: 3550

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*

Lab Sample ID: 550-1666-A-1 MS
Matrix: Water
Analysis Batch: 3550

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	ND		0.0250	0.0247		mg/L		99	74 - 134
Benzene	ND		0.0250	0.0236		mg/L		94	68 - 131
Toluene	ND		0.0250	0.0238		mg/L		95	65 - 138
Xylenes, Total	ND		0.0500	0.0497		mg/L		99	68 - 131
m,p-Xylenes	ND		0.0250	0.0245		mg/L		98	58 - 138
o-Xylene	ND		0.0250	0.0252		mg/L		101	66 - 137
Methyl tert-butyl ether	ND		0.0250	0.0242		mg/L		97	67 - 138

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*70 - 130*
Toluene-d8 (Surr)	*94*		*70 - 130*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: 550-1666-A-1 MSD
Matrix: Water
Analysis Batch: 3550

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	ND		0.0250	0.0235		mg/L		94	74 - 134	5	32
Benzene	ND		0.0250	0.0238		mg/L		95	68 - 131	1	32
Toluene	ND		0.0250	0.0236		mg/L		94	65 - 138	1	33
Xylenes, Total	ND		0.0500	0.0467		mg/L		93	68 - 131	6	31
m,p-Xylenes	ND		0.0250	0.0231		mg/L		92	58 - 138	6	29
o-Xylene	ND		0.0250	0.0236		mg/L		94	66 - 137	6	26
Methyl tert-butyl ether	ND		0.0250	0.0248		mg/L		99	67 - 138	2	21

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*70 - 130*
Toluene-d8 (Surr)	*96*		*70 - 130*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: MB 550-3784/5
Matrix: Water
Analysis Batch: 3784

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.0020		mg/L			05/02/13 07:51	1
Benzene	ND		0.0020		mg/L			05/02/13 07:51	1
Toluene	ND		0.0020		mg/L			05/02/13 07:51	1
Xylenes, Total	ND		0.010		mg/L			05/02/13 07:51	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 550-3784/5
Matrix: Water
Analysis Batch: 3784

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylenes	ND		0.0050		mg/L			05/02/13 07:51	1
o-Xylene	ND		0.0050		mg/L			05/02/13 07:51	1
Methyl tert-butyl ether	ND		0.0010		mg/L			05/02/13 07:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*70 - 130*		*05/02/13 07:51*	*1*
Toluene-d8 (Surr)	*92*		*70 - 130*		*05/02/13 07:51*	*1*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*05/02/13 07:51*	*1*

Lab Sample ID: LCS 550-3784/3
Matrix: Water
Analysis Batch: 3784

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	0.0250	0.0257		mg/L		103	70 - 130
Benzene	0.0250	0.0249		mg/L		100	70 - 130
Toluene	0.0250	0.0243		mg/L		97	70 - 130
Xylenes, Total	0.0500	0.0497		mg/L		99	70 - 130
m,p-Xylenes	0.0250	0.0242		mg/L		97	70 - 130
o-Xylene	0.0250	0.0255		mg/L		102	70 - 130
Methyl tert-butyl ether	0.0250	0.0244		mg/L		98	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*97*		*70 - 130*
Toluene-d8 (Surr)	*96*		*70 - 130*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCSD 550-3784/4
Matrix: Water
Analysis Batch: 3784

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	0.0250	0.0248		mg/L		99	70 - 130	4	20
Benzene	0.0250	0.0235		mg/L		94	70 - 130	6	20
Toluene	0.0250	0.0232		mg/L		93	70 - 130	4	20
Xylenes, Total	0.0500	0.0477		mg/L		95	70 - 130	4	20
m,p-Xylenes	0.0250	0.0234		mg/L		94	70 - 130	3	20
o-Xylene	0.0250	0.0243		mg/L		97	70 - 130	5	20
Methyl tert-butyl ether	0.0250	0.0230		mg/L		92	70 - 130	6	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*96*		*70 - 130*
Toluene-d8 (Surr)	*94*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 550-1582-A-1 MS
Matrix: Water
Analysis Batch: 3784

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	ND		0.0250	0.0248		mg/L		99	74 - 134
Benzene	ND		0.0250	0.0243		mg/L		97	68 - 131
Toluene	ND		0.0250	0.0246		mg/L		98	65 - 138
Xylenes, Total	ND		0.0500	0.0485		mg/L		97	68 - 131
m,p-Xylenes	ND		0.0250	0.0238		mg/L		95	58 - 138
o-Xylene	ND		0.0250	0.0247		mg/L		99	66 - 137
Methyl tert-butyl ether	ND		0.0250	0.0243		mg/L		97	67 - 138

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*101*		*70 - 130*
Toluene-d8 (Surr)	*97*		*70 - 130*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*

Lab Sample ID: 550-1582-A-1 MSD
Matrix: Water
Analysis Batch: 3784

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	ND		0.0250	0.0247		mg/L		99	74 - 134	0	32
Benzene	ND		0.0250	0.0252		mg/L		101	68 - 131	4	32
Toluene	ND		0.0250	0.0255		mg/L		102	65 - 138	4	33
Xylenes, Total	ND		0.0500	0.0495		mg/L		99	68 - 131	2	31
m,p-Xylenes	ND		0.0250	0.0242		mg/L		97	58 - 138	2	29
o-Xylene	ND		0.0250	0.0253		mg/L		101	66 - 137	3	26
Methyl tert-butyl ether	ND		0.0250	0.0251		mg/L		101	67 - 138	3	21

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*103*		*70 - 130*
Toluene-d8 (Surr)	*98*		*70 - 130*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*

QC Association Summary

Client: City of Tucson
Project/Site: Price SVC CTR P01064

TestAmerica Job ID: 550-1519-1

GC/MS VOA

Analysis Batch: 3550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-1519-1	R-012A	Total/NA	Water	8260B	
550-1519-1	R-012A	Total/NA	Water	8260B	
550-1519-3	R-013A Dup	Total/NA	Water	8260B	
550-1519-4	Trip	Total/NA	Water	8260B	
550-1666-A-1 MS	Matrix Spike	Total/NA	Water	8260B	
550-1666-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
LCS 550-3550/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 550-3550/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 550-3550/9	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 3784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-1519-2	R-013A	Total/NA	Water	8260B	
550-1582-A-1 MS	Matrix Spike	Total/NA	Water	8260B	
550-1582-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
LCS 550-3784/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 550-3784/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 550-3784/5	Method Blank	Total/NA	Water	8260B	

Lab Chronicle

Client: City of Tucson
Project/Site: Price SVC CTR P01064

TestAmerica Job ID: 550-1519-1

Client Sample ID: R-012A

Date Collected: 04/23/13 12:50
Date Received: 04/25/13 10:00

Lab Sample ID: 550-1519-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	3550	04/30/13 09:41	KD	TAL PHX
Total/NA	Analysis	8260B		100	3550	04/30/13 16:31	KD	TAL PHX

Client Sample ID: R-013A

Date Collected: 04/23/13 13:00
Date Received: 04/25/13 10:00

Lab Sample ID: 550-1519-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	3784	05/02/13 08:56	KD	TAL PHX

Client Sample ID: R-013A Dup

Date Collected: 04/23/13 13:02
Date Received: 04/25/13 10:00

Lab Sample ID: 550-1519-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	3550	04/30/13 15:59	KD	TAL PHX

Client Sample ID: Trip

Date Collected: 04/23/13 12:50
Date Received: 04/25/13 10:00

Lab Sample ID: 550-1519-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	3550	04/30/13 08:37	KD	TAL PHX

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

Certification Summary

Client: City of Tucson
Project/Site: Price SVC CTR P01064

TestAmerica Job ID: 550-1519-1

Laboratory: TestAmerica Phoenix

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA	IHLAP		154268	07-01-13
Arizona	State Program	9	AZ0728	06-09-14
California	NELAP	9	01109CA	11-30-13
Nevada	State Program	9	AZ01030	07-31-13
New York	NELAP	2	11898	04-01-14
Oregon	NELAP	10	AZ100001	03-09-14
USDA	Federal		P330-09-00024	06-09-15

Method Summary

Client: City of Tucson
Project/Site: Price SVC CTR P01064

TestAmerica Job ID: 550-1519-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PHX

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-0013-550 (10/10)

CHAIN OF CUSTODY FORM

550-1519

[ ] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3
[ ] Tucson - 1870 W. Prince Road, Suite 59, Tucson, AZ 85705 (520) 807-3801 FAX
[ ] Las Vegas - 6000 S Eastern Ave., Suite 5E, Las Vegas, NV 89119 (702) 429-1264

550-1519 Chain of Custody

of _____

Client Name/Address: City of Tucson P.O. Box 27210

Project/PO Number: PO 1064 PRICE SVC CTR

Project Manager: J. Dramm / L. Ehman

Phone Number: 520 791 3175

Sampler: GBejarano

Fax Number:

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	BTEX	MTBE								Special Instructions
R-012A	GW		3	4/23/13	1250		X	X								-01
R-013A	GW		3	4/23/13	1300		X	X								-02
R-013A dup	GW		3	4/23/13	1302		X	X								-03
TRIP				4/20/13			X	X								-04

Relinquished By:	Date/Time:	Received By:	Date/Time:	Turnaround Time: (Check)
GBejarano	4/23/13 1139	[signature]	4-24-13 1139	same day ____ 72 hours ____
[signature]	4/24/13 4-24-13 1500			24 hours ____ 5 days ____
				48 hours ____ normal ✓
Relinquished By:	Date/Time:	Received in Lab By:	Date/Time:	Sample Integrity: (Check)
				intact ✓ on ice ✓

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

Login Sample Receipt Checklist

Client: City of Tucson

Job Number: 550-1519-1

Login Number: 1519
List Number: 1
Creator: Gravlin, Andrea

List Source: TestAmerica Phoenix

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	Check done at department level as required.

4/24/13

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Ctr Blvd
Suite 189
Phoenix, AZ 85040
Tel: (602)437-3340

TestAmerica Job ID: 550-1520-1
Client Project/Site: Price Service Center P01064
Revision: 1

For:
City of Tucson
Environmental Services
PO BOX 27210
Tucson, Arizona 85726-7210

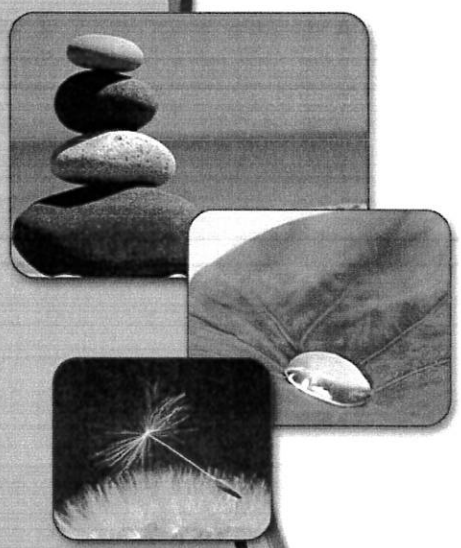
Attn: Lori Ehman

Jennifer Gambill

Authorized for release by:
5/30/2013 2:01:34 PM
Jennifer Gambill, Project Manager I
jennifer.gambill@testamericainc.com

Designee for

TestAmerica Inc, Project Manager II
testamericainc@testamericainc.com



LINKS

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Have a Question? Ask The Expert

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 550-1520-1

Laboratory: TestAmerica Phoenix

Narrative

Job Narrative
550-1520-1

Revised Report
The following report has been revised to change the reporting units from ug/L to mg/L.

Comments
No additional comments.

Receipt
The samples were received on 4/25/2013 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9° C.

Sample Summary

Client: City of Tucson
Project/Site: Price Service Center P01064

TestAmerica Job ID: 550-1520-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
550-1520-1	R-018A	Water	04/24/13 10:21	04/25/13 10:00
550-1520-2	R-036A	Water	04/24/13 10:43	04/25/13 10:00
550-1520-3	PCM-535A	Water	04/24/13 11:01	04/25/13 10:00
550-1520-4	Trip Blank	Water	04/24/13 10:21	04/25/13 10:00

Detection Summary

Client: City of Tucson
Project/Site: Price Service Center P01064

TestAmerica Job ID: 550-1520-1

Client Sample ID: R-018A — Lab Sample ID: 550-1520-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	1.6		0.20		mg/L	100		8260B	Total/NA
Benzene	1.7		0.20		mg/L	100		8260B	Total/NA
Toluene	2.6		0.20		mg/L	100		8260B	Total/NA
Xylenes, Total	14		1.0		mg/L	100		8260B	Total/NA
m,p-Xylenes	9.6		0.50		mg/L	100		8260B	Total/NA
o-Xylene	4.0		0.50		mg/L	100		8260B	Total/NA
Methyl tert-butyl ether	13		0.10		mg/L	100		8260B	Total/NA

Client Sample ID: R-036A — Lab Sample ID: 550-1520-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.051		0.020		mg/L	10		8260B	Total/NA
Xylenes, Total	0.25		0.10		mg/L	10		8260B	Total/NA
m,p-Xylenes	0.25		0.050		mg/L	10		8260B	Total/NA
Methyl tert-butyl ether	0.87		0.010		mg/L	10		8260B	Total/NA

Client Sample ID: PCM-535A — Lab Sample ID: 550-1520-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methyl tert-butyl ether	0.063		0.0020		mg/L	2		8260B	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 550-1520-4

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample ID: R-018A

Date Collected: 04/24/13 10:21
Date Received: 04/25/13 10:00

Lab Sample ID: 550-1520-1
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	1.6		0.20		mg/L			04/30/13 17:03	100
Benzene	1.7		0.20		mg/L			04/30/13 17:03	100
Toluene	2.6		0.20		mg/L			04/30/13 17:03	100
Xylenes, Total	14		1.0		mg/L			04/30/13 17:03	100
m,p-Xylenes	9.6		0.50		mg/L			04/30/13 17:03	100
o-Xylene	4.0		0.50		mg/L			04/30/13 17:03	100
Methyl tert-butyl ether	13		0.10		mg/L			04/30/13 17:03	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*97*		*70 - 130*		*04/30/13 17:03*	*100*
Toluene-d8 (Surr)	*95*		*70 - 130*		*04/30/13 17:03*	*100*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*04/30/13 17:03*	*100*

Client Sample ID: R-036A

Date Collected: 04/24/13 10:43
Date Received: 04/25/13 10:00

Lab Sample ID: 550-1520-2
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	0.051		0.020		mg/L			04/30/13 11:18	10
Benzene	ND		0.020		mg/L			04/30/13 11:18	10
Toluene	ND		0.020		mg/L			04/30/13 11:18	10
Xylenes, Total	0.25		0.10		mg/L			04/30/13 11:18	10
m,p-Xylenes	0.25		0.050		mg/L			04/30/13 11:18	10
o-Xylene	ND		0.050		mg/L			04/30/13 11:18	10
Methyl tert-butyl ether	0.87		0.010		mg/L			04/30/13 11:18	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*95*		*70 - 130*		*04/30/13 11:18*	*10*
Toluene-d8 (Surr)	*93*		*70 - 130*		*04/30/13 11:18*	*10*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*04/30/13 11:18*	*10*

Client Sample ID: PCM-535A

Date Collected: 04/24/13 11:01
Date Received: 04/25/13 10:00

Lab Sample ID: 550-1520-3
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.0040		mg/L			04/30/13 11:50	2
Benzene	ND		0.0040		mg/L			04/30/13 11:50	2
Toluene	ND		0.0040		mg/L			04/30/13 11:50	2
Xylenes, Total	ND		0.020		mg/L			04/30/13 11:50	2
m,p-Xylenes	ND		0.010		mg/L			04/30/13 11:50	2
o-Xylene	ND		0.010		mg/L			04/30/13 11:50	2
Methyl tert-butyl ether	0.063		0.0020		mg/L			04/30/13 11:50	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*92*		*70 - 130*		*04/30/13 11:50*	*2*
Toluene-d8 (Surr)	*94*		*70 - 130*		*04/30/13 11:50*	*2*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*		*04/30/13 11:50*	*2*

Client Sample Results

Client: City of Tucson
Project/Site: Price Service Center P01064

TestAmerica Job ID: 550-1520-1

Client Sample ID: Trip Blank

Date Collected: 04/24/13 10:21
Date Received: 04/25/13 10:00

Lab Sample ID: 550-1520-4
Matrix: Water

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.0020		mg/L			04/30/13 09:09	1
Benzene	ND		0.0020		mg/L			04/30/13 09:09	1
Toluene	ND		0.0020		mg/L			04/30/13 09:09	1
Xylenes, Total	ND		0.010		mg/L			04/30/13 09:09	1
m,p-Xylenes	ND		0.0050		mg/L			04/30/13 09:09	1
o-Xylene	ND		0.0050		mg/L			04/30/13 09:09	1
Methyl tert-butyl ether	ND		0.0010		mg/L			04/30/13 09:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*70 - 130*		*04/30/13 09:09*	*1*
Toluene-d8 (Surr)	*95*		*70 - 130*		*04/30/13 09:09*	*1*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*04/30/13 09:09*	*1*

Surrogate Summary

Client: City of Tucson
Project/Site: Price Service Center P01064

TestAmerica Job ID: 550-1520-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	(70-130)
550-1520-1	R-018A	97	95	94
550-1520-2	R-036A	95	93	100
550-1520-3	PCM-535A	92	94	101
550-1520-4	Trip Blank	101	95	102
550-1666-A-1 MS	Matrix Spike	99	94	98
550-1666-A-1 MSD	Matrix Spike Duplicate	100	96	100
LCS 550-3550/3	Lab Control Sample	97	98	99
LCSD 550-3550/4	Lab Control Sample Dup	97	98	103
MB 550-3550/9	Method Blank	101	93	97

Surrogate Legend

DBFM = Dibromofluoromethane (Surr)

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

QC Sample Results

Client: City of Tucson
Project/Site: Price Service Center P01064

TestAmerica Job ID: 550-1520-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 550-3550/9
Matrix: Water
Analysis Batch: 3550

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	ND		0.0020		mg/L			04/30/13 08:03	1
Benzene	ND		0.0020		mg/L			04/30/13 08:03	1
Toluene	ND		0.0020		mg/L			04/30/13 08:03	1
Xylenes, Total	ND		0.010		mg/L			04/30/13 08:03	1
m,p-Xylenes	ND		0.0050		mg/L			04/30/13 08:03	1
o-Xylene	ND		0.0050		mg/L			04/30/13 08:03	1
Methyl tert-butyl ether	ND		0.0010		mg/L			04/30/13 08:03	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*101*		*70 - 130*		*04/30/13 08:03*	*1*
Toluene-d8 (Surr)	*93*		*70 - 130*		*04/30/13 08:03*	*1*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*		*04/30/13 08:03*	*1*

Lab Sample ID: LCS 550-3550/3
Matrix: Water
Analysis Batch: 3550

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	0.0250	0.0230		mg/L		92	70 - 130
Benzene	0.0250	0.0237		mg/L		95	70 - 130
Toluene	0.0250	0.0235		mg/L		94	70 - 130
Xylenes, Total	0.0500	0.0458		mg/L		92	70 - 130
m,p-Xylenes	0.0250	0.0225		mg/L		90	70 - 130
o-Xylene	0.0250	0.0233		mg/L		93	70 - 130
Methyl tert-butyl ether	0.0250	0.0229		mg/L		92	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*97*		*70 - 130*
Toluene-d8 (Surr)	*98*		*70 - 130*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: LCSD 550-3550/4
Matrix: Water
Analysis Batch: 3550

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	0.0250	0.0241		mg/L		96	70 - 130	4	20
Benzene	0.0250	0.0234		mg/L		94	70 - 130	1	20
Toluene	0.0250	0.0237		mg/L		95	70 - 130	1	20
Xylenes, Total	0.0500	0.0476		mg/L		95	70 - 130	4	20
m,p-Xylenes	0.0250	0.0236		mg/L		94	70 - 130	5	20
o-Xylene	0.0250	0.0240		mg/L		96	70 - 130	3	20
Methyl tert-butyl ether	0.0250	0.0230		mg/L		92	70 - 130	0	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*97*		*70 - 130*
Toluene-d8 (Surr)	*98*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 550-3550/4
Matrix: Water
Analysis Batch: 3550

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*

Lab Sample ID: 550-1666-A-1 MS
Matrix: Water
Analysis Batch: 3550

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	ND		0.0250	0.0247		mg/L		99	74 - 134
Benzene	ND		0.0250	0.0236		mg/L		94	68 - 131
Toluene	ND		0.0250	0.0238		mg/L		95	65 - 138
Xylenes, Total	ND		0.0500	0.0497		mg/L		99	68 - 131
m,p-Xylenes	ND		0.0250	0.0245		mg/L		98	58 - 138
o-Xylene	ND		0.0250	0.0252		mg/L		101	66 - 137
Methyl tert-butyl ether	ND		0.0250	0.0242		mg/L		97	67 - 138

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*99*		*70 - 130*
Toluene-d8 (Surr)	*94*		*70 - 130*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: 550-1666-A-1 MSD
Matrix: Water
Analysis Batch: 3550

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	ND		0.0250	0.0235		mg/L		94	74 - 134	5	32
Benzene	ND		0.0250	0.0238		mg/L		95	68 - 131	1	32
Toluene	ND		0.0250	0.0236		mg/L		94	65 - 138	1	33
Xylenes, Total	ND		0.0500	0.0467		mg/L		93	68 - 131	6	31
m,p-Xylenes	ND		0.0250	0.0231		mg/L		92	58 - 138	6	29
o-Xylene	ND		0.0250	0.0236		mg/L		94	66 - 137	6	26
Methyl tert-butyl ether	ND		0.0250	0.0248		mg/L		99	67 - 138	2	21

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*70 - 130*
Toluene-d8 (Surr)	*96*		*70 - 130*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*

QC Association Summary

Client: City of Tucson
Project/Site: Price Service Center P01064

TestAmerica Job ID: 550-1520-1

GC/MS VOA

Analysis Batch: 3550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
550-1520-1	R-018A	Total/NA	Water	8260B	
550-1520-2	R-036A	Total/NA	Water	8260B	
550-1520-3	PCM-535A	Total/NA	Water	8260B	
550-1520-4	Trip Blank	Total/NA	Water	8260B	
550-1666-A-1 MS	Matrix Spike	Total/NA	Water	8260B	
550-1666-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B	
LCS 550-3550/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 550-3550/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 550-3550/9	Method Blank	Total/NA	Water	8260B	

Lab Chronicle

Client: City of Tucson
Project/Site: Price Service Center P01064

TestAmerica Job ID: 550-1520-1

Client Sample ID: R-018A

Date Collected: 04/24/13 10:21
Date Received: 04/25/13 10:00

Lab Sample ID: 550-1520-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		100	3550	04/30/13 17:03	KD	TAL PHX

Client Sample ID: R-036A

Date Collected: 04/24/13 10:43
Date Received: 04/25/13 10:00

Lab Sample ID: 550-1520-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		10	3550	04/30/13 11:18	KD	TAL PHX

Client Sample ID: PCM-535A

Date Collected: 04/24/13 11:01
Date Received: 04/25/13 10:00

Lab Sample ID: 550-1520-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	3550	04/30/13 11:50	KD	TAL PHX

Client Sample ID: Trip Blank

Date Collected: 04/24/13 10:21
Date Received: 04/25/13 10:00

Lab Sample ID: 550-1520-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	3550	04/30/13 09:09	KD	TAL PHX

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

Certification Summary

Client: City of Tucson
Project/Site: Price Service Center P01064

TestAmerica Job ID: 550-1520-1

Laboratory: TestAmerica Phoenix

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA	IHLAP		154268	07-01-13
Arizona	State Program	9	AZ0728	06-09-14
California	NELAP	9	01109CA	11-30-13
Nevada	State Program	9	AZ01030	07-31-13
New York	NELAP	2	11898	04-01-14
Oregon	NELAP	10	AZ100001	03-09-14
USDA	Federal		P330-09-00024	06-09-15

Method Summary

Client: City of Tucson
Project/Site: Price Service Center P01064

TestAmerica Job ID: 550-1520-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL PHX

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TAL-0013-550 (10/10)

CHAIN OF CUSTODY FORM

550-1520

[ ] Phoenix - 4625 E. Cotton Center Blvd., Suite 189, Phoenix, AZ 85040 (602) 437-3340 FAX
[ ] Tucson - 1870 W. Prince Road, Suite 59, Tucson, AZ 85705 (520) 807-3801 FAX (520) 807-
[ ] Las Vegas - 6000 S Eastern Ave., Suite 5E, Las Vegas, NV 89119 (702) 429-1264

550-1520 Chain of Custody

5/30/2013

Client Name/Address: City of Tucson, PO Box 27210, Tucson AZ 85726

Project/PO Number: Price Service Center, PO1064

Project Manager: Lori Ehman

Phone Number: 791-3175

Sampler: Alfred J. Barker Jr.

Fax Number:

Analysis

Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date	Sampling Time	Preservatives	BTEX/MTBE									Special Instructions
R-018A	GW		3	4/24/13	1021		X									-01
R-036A	GW		3	4/24/13	1043		X									-02
PCM-535A	GW		3	4/24/13	1101		X									-03
TRIP Blank							X									-04

Relinquished By:	Date/Time:	Received By:	Date/Time:	Turnaround Time: (Check)
[signature]	4/24/13 1139	[signature]	4-24-13 1135	same day ____ 72 hours ____
Relinquished By:	Date/Time:	Received By:	Date/Time:	24 hours ____ 5 days ____
[signature]	4-24-13 1520			48 hours ____ normal X
Relinquished By:	Date/Time:	Received in Lab By:	Date/Time:	Sample Integrity: (Check)
[signature]	[illegible]	[signature]	[illegible]	intact ✓ on ice X

Note: By relinquishing samples to TestAmerica, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.

4.1

Login Sample Receipt Checklist

Client: City of Tucson

Job Number: 550-1520-1

Login Number: 1520
List Number: 1
Creator: Gravlin, Andrea

List Source: TestAmerica Phoenix

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	Check done at department level as required.

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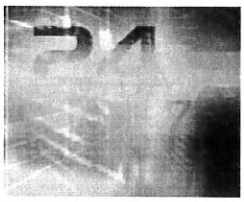
09/30/13



Technical Report for

City of Tucson Environmental Services

Price Service Center

P01064

Accutest Job Number: C29676

Sampling Date: 09/11/13

Report to:

City of Tucson - Env.Services

richard.byrd@tucsonaz.gov
lori.ehman@tucsonaz.gov; justin.patton@cardno.com
ATTN: Richard Byrd

Total number of pages in report: 23

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

James J. Rhudy
Lab Director

Client Service contact: Beth Proffitt 408-588-0200

Certifications: CA (08258CA) AZ (AZ0762) DoD/ISO/IEC 17025:2005 (L2242)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.
Test results relate only to samples analyzed.

Accutest Laboratories is the sole authority for authorizing edits or modifications to this document. Unauthorized modification of this report is strictly prohibited.

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Sample Summary

City of Tucson Environmental Services

Job No: C29676

Price Service Center
Project No: P01064

Sample Number	Collected Date	Time By	Received	Matrix Code	Matrix Type	Client Sample ID
C29676-1	09/11/13	10:05	09/12/13	AQ	Ground Water	WR-219A
C29676-2	09/11/13	10:25	09/12/13	AQ	Ground Water	WR-222A
C29676-3	09/11/13	10:40	09/12/13	AQ	Ground Water	WR-223A
C29676-4	09/11/13	11:10	09/12/13	AQ	Ground Water	WR-224A
C29676-5	09/11/13	11:40	09/12/13	AQ	Ground Water	R-020A
C29676-6	09/11/13	00:00	09/12/13	AQ	Trip Blank Water	TRIP BLANK

ACCUTEST LABORATORIES

2

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	City of Tucson Environmental Services	**Job No**	C29676
Site:	Price Service Center	**Report Date**	9/26/2013 11:48:21 P

5 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were collected on 09/11/2013 and were received at Accutest on 09/12/2013 properly preserved, at 2.1 Deg. C and intact. These Samples received an Accutest job number of C29676. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GC By Method EPA 504.1

Matrix: AQ	**Batch ID:** T:OP29884

- Analysis performed at Accutest Laboratories, Houston, TX. Refer to subcontract narrative for details.

Accutest Laboratories Northern California (ALNCA) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALNCA and as stated on the COC. ALNCA certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALNCA Quality Manual except as noted above. This report is to be used in its entirety. ALNCA is not responsible for any assumptions of data quality if partial data packages are used

ACCUTEST LABORATORIES

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Accutest Northern California, Inc.

Job No C29676

Site: CTESAZT: Price Service Center

Report Date 9/26/2013 5:15:07 PM

5 Samples 1 Trip Blank were collected on 09/11/2013 and were received intact at Accutest on 09/12/2013 and properly preserved in 1 cooler at 3.4 Deg C These Samples received an Accutest job number of C29676. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GC By Method EPA 504.1

Matrix AQ **Batch ID:** GMM309

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used

Summary of Hits

Job Number: C29676
Account: City of Tucson Environmental Services
Project: Price Service Center
Collected: 09/11/13

3

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method

C29676-1 WR-219A

No hits reported in this sample.

C29676-2 WR-222A

No hits reported in this sample.

C29676-3 WR-223A

No hits reported in this sample.

C29676-4 WR-224A

No hits reported in this sample.

C29676-5 R-020A

No hits reported in this sample.

C29676-6 TRIP BLANK

No hits reported in this sample.

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Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	WR-219A		
Lab Sample ID:	C29676-1	Date Sampled:	09/11/13
Matrix:	AQ - Ground Water	Date Received:	09/12/13
Method:	EPA 504.1 SW846 8011	Percent Solids:	n/a
Project:	Price Service Center		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	MM065904.D	1	09/25/13	ATX	09/25/13	T:OP29884	T:GMM309
Run #2							

	Initial Volume	Final Volume
Run #1	37.1 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.019	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	106%		70-130%

(a) Analysis performed at Accutest Laboratories, Houston, TX.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WR-222A		
Lab Sample ID:	C29676-2	Date Sampled:	09/11/13
Matrix:	AQ - Ground Water	Date Received:	09/12/13
Method:	EPA 504.1 SW846 8011	Percent Solids:	n/a
Project:	Price Service Center		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	MM065905.D	1	09/25/13	ATX	09/25/13	T:OP29884	T:GMM309
Run #2							

	Initial Volume	Final Volume
Run #1	37.2 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.019	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	102%		70-130%

(a) Analysis performed at Accutest Laboratories, Houston, TX.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WR-223A		
Lab Sample ID:	C29676-3	Date Sampled:	09/11/13
Matrix:	AQ - Ground Water	Date Received:	09/12/13
Method:	EPA 504.1 SW846 8011	Percent Solids:	n/a
Project:	Price Service Center		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	MM065906.D	1	09/25/13	ATX	09/25/13	T:OP29884	T:GMM309
Run #2							

	Initial Volume	Final Volume
Run #1	37.3 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.019	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	106%		70-130%

(a) Analysis performed at Accutest Laboratories, Houston, TX.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WR-224A		
Lab Sample ID:	C29676-4	Date Sampled:	09/11/13
Matrix:	AQ - Ground Water	Date Received:	09/12/13
Method:	EPA 504.1 SW846 8011	Percent Solids:	n/a
Project:	Price Service Center		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	MM065907.D	1	09/26/13	ATX	09/25/13	T:OP29884	T:GMM309
Run #2							

	Initial Volume	Final Volume
Run #1	37.7 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.019	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	108%		70-130%

(a) Analysis performed at Accutest Laboratories, Houston, TX.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-020A		
Lab Sample ID:	C29676-5	Date Sampled:	09/11/13
Matrix:	AQ - Ground Water	Date Received:	09/12/13
Method:	EPA 504.1 SW846 8011	Percent Solids:	n/a
Project:	Price Service Center		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	MM065908.D	1	09/26/13	ATX	09/25/13	T:OP29884	T:GMM309
Run #2							

	Initial Volume	Final Volume
Run #1	37.4 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.019	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	88%		70-130%

(a) Analysis performed at Accutest Laboratories, Houston, TX.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	C29676-6	Date Sampled:	09/11/13
Matrix:	AQ - Trip Blank Water	Date Received:	09/12/13
Method:	EPA 504.1 SW846 8011	Percent Solids:	n/a
Project:	Price Service Center		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	MM065909.D	1	09/26/13	ATX	09/25/13	T:OP29884	T:GMM309
Run #2							

	Initial Volume	Final Volume
Run #1	36.5 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.019	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.019	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	93%		70-130%

(a) Analysis performed at Accutest Laboratories, Houston, TX.

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

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Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

PHOENIX

ACCUTEST® LABORATORIES

CHAIN OF CUSTODY

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201

CTESAZT5487

FED-EX Tracking # 8030 1007 8903 | Bottle Order Control #
Accutest Quote # | Accutest NC Job #: C C29676

Client / Reporting Information

Company Name: City of Tucson
Address: P.O. Box 27210
City: Tucson State: AZ Zip: 85726
Project Contact: Lori Ehman / R. Byrd
Phone #: 520-791-3175
Samplers's Name: GBjerson

Project Information

Project Name: PRICE
Street:
City: Tucson State: AZ
Project #: PO 1064
EMAIL:
Client Purchase Order #:

Requested Analysis: 504.1

Matrix Codes: WW- Wastewater; GW- Ground Water; SW- Surface Water; SO- Soil; OI-Oil; WP-Wipe; LIQ - Non-aqueous Liquid; AIR; DW- Drinking Water (Perchlorate Only)

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	Na2SO4	MEOH	ENCORE	504.1	LAB USE ONLY
1	WR-219A	9/11/13	1005	GB	GW	3									X	
2	WR-222A	9/11/13	1025	GB	GW	3									X	
3	WR-223A	9/11/13	1040	GB	GW	3									X	
4	WR-224A	9/11/13	1110	GB	GW	3									X	
5	R-020A	9/11/13	1140	GB	GW	3									X	
6	Trip Blank				WTB	2									X	

Turnaround Time (Business days)

Approved By:/ Date:

- [ ] 10 Day
- [ ] 5 Day
- [ ] 3 Day
- [ ] 2 Day
- [ ] 1 Day
- [ ] Same Day

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [x] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker [ ] EDD Format
- Provide EDF Global ID
- Provide EDF Logcode:

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 GBjerson	9/11/13 1400	1 [signature]	2 FEDEX		2
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4 FEDEX	Date Time: 9/12/13 0900	Received By: 4 DLUNA
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #	Appropriate Bottle / Preservative Y N; Labels match Coc Y N	Headspace Y N; Separate Receiving Check List used Y N; On Ice Y N; Cooler Temp. 3.1-1.0 = 2.1 °C

C29676: Chain of Custody
Page 1 of 2

ACCUTEST LABORATORIES

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: C29676 **Client:** CITY OF TUCSON **Project:** PRICE

Date / Time Received: 9/12/2013 **Delivery Method:** FedEx **Airbill #'s:** 8030 1077 8903

Cooler Temps (Initial/Adjusted): #1: (3.1/2.1); 0

Cooler Security	Y	or N		Y	or N
1. Custody Seals Present:	☐	☑	3. COC Present:	☑	☐
2. Custody Seals Intact:	☐	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y or N
1. Temp criteria achieved:	☑ ☐
2. Cooler temp verification:	IR1 Glass;
3. Cooler media:	Ice (Bag)
4. No. Coolers:	1

Quality Control Preservation	Y	or N	N/A
1. Trip Blank present / cooler:	☑	☐	☐
2. Trip Blank listed on COC:	☐	☑	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☑	☐	☐

Sample Integrity - Documentation	Y	or N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	or N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	or N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments Trip Blanks added to the COC for analysis, 09/12/13

Accutest Laboratories
V:408.588.0200

2105 Lundy Avenue
F: 408.588.0201

San Jose, CA 95131
www/accutest.com

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C29676: Chain of Custody
Page 2 of 2

Northern California
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Misc. Forms

Custody Documents and Other Forms

(Accutest Laboratories Gulf Coast, Inc.)

Includes the following where applicable:

- Chain of Custody

ACCUTEST LABORATORIES

Accutest ID and PO#: C29676

2105 Lundy Avenue, San Jose, CA 95131 Phone :(408)588-0200 Fax: (408)588-0201

Subcontract Chain of Custody

Subcontract Lab: Accutest Gulf Coast
Date Sent: 09/16/13
Date Due: 09/26/13

Project Name: CTESAZT5487
Project Location:

Accutest Lab Number	Customer Sample Name/Field Point ID	Matrix	Method	Collect Date	Collect Time
C29676-1		GW	V504STD		
C29676-2		GW	V504STD		
C29676-3		GW	V504STD		
C29676-4		GW	V504STD		
C29676-5		GW	V504STD		
C29676-6		WTB	V504STD		

Comments:

Relinquished By: Elvink	Received By: FedEx	Date: 09/16/13 Time: 15:00
Relinquished By: FedEx	Received By: [illegible]	Date: 9/17/13 Time: 910
Relinquished By:	Received By:	Date: Time:

Page 1

Send Report to: bethp@accutest.com

ACCUTEST LABORATORIES

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: C29676 **Client:** ACCUTEST **Project:**

Date / Time Received: 9/17/2013 **Delivery Method:** **Airbill #'s:** 796696754317

No. Coolers: 1 **Therm ID:** IR6; **Temp Adjustment Factor:** 0;

Cooler Temps (Initial/Adjusted): #1: (3.4/3.4);

Cooler Security	Y	or N		Y	or N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	or N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:		
3. Cooler media:	Ice (Bag)	

Quality Control Preservation	Y	or N	N/A	WTB	STB
1. Trip Blank present / cooler:	☐	☐	☑	☐	☐
2. Trip Blank listed on COC:	☐	☐	☑		
3. Samples preserved properly:	☑	☐			
4. VOCs headspace free:	☑	☐	☐		

Sample Integrity - Documentation	Y	or N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	or N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	or N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments

Accutest Laboratories
V:713.271.4700

10165 Harwin Drive
F: 713.271.4770

Houston, TX 77036
www/accutest.com

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C29676: Chain of Custody
Page 2 of 3

ACCUTEST LABORATORIES

Sample Receipt Log

Job #: C29676 **Date / Time Received:** 9/17/2013 9:10:00 AM **Initials:** BG

Client: ACCUTEST

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	C29676-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29676-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29676-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29676-2	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29676-2	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29676-2	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29676-3	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29676-3	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29676-3	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29676-4	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29676-4	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29676-4	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29676-5	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29676-5	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29676-5	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29676-6	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29676-6	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4

Northern California
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GC Volatiles

QC Data Summaries

(Accutest Laboratories Gulf Coast, Inc.)

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: C29676
Account: ALNCA Accutest Northern California, Inc.
Project: CTESAZT: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP29884-MB	MM065900.D	1	09/25/13	AR	09/25/13	OP29884	GMM309

The QC reported here applies to the following samples: **Method:** EPA 504.1

C29676-1, C29676-2, C29676-3, C29676-4, C29676-5, C29676-6

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.020	0.011	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries		Limits
3017-95-6	2-Bromo-1-chloropropane	103%	70-130%

Blank Spike/Blank Spike Duplicate Summary

Job Number: C29676
Account: ALNCA Accutest Northern California, Inc.
Project: CTESAZT: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP29884-BS	MM065901.D	1	09/25/13	AR	09/25/13	OP29884	GMM309
OP29884-BSD	MM065902.D	1	09/25/13	AR	09/25/13	OP29884	GMM309

The QC reported here applies to the following samples: **Method:** EPA 504.1

C29676-1, C29676-2, C29676-3, C29676-4, C29676-5, C29676-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
96-12-8	1,2-Dibromo-3-chloropropane	0.257	0.25	97	0.25	98	0	70-130/20
106-93-4	1,2-Dibromoethane	0.257	0.25	97	0.26	101	4	70-130/20

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
3017-95-6	2-Bromo-1-chloropropane	104%	98%	70-130%

* = Outside of Control Limits.

7.2.1

7

Northern California
ACCUTEST
LABORATORIES

09/28/13

Technical Report for

City of Tucson Environmental Services

Price Service Center

P01064

Accutest Job Number: C29711

Sampling Date: 09/12/13

Report to:

City of Tucson - Env.Services
4400 S. Park Ave., Bldg 1 P.O. Box 27210
Tucson, AZ 85726
richard.byrd@tucsonaz.gov; lori.ehman@tucsonaz.gov;
justin.patton@cardno.com
ATTN: Richard Byrd

Total number of pages in report: 48

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

James J. Rhudy
Lab Director

Client Service contact: Beth Proffitt 408-588-0200

Certifications: CA (08258CA) AZ (AZ0762) DoD/ISO/IEC 17025:2005 (L2242)

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Test results relate only to samples analyzed.

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Sample Summary

City of Tucson Environmental Services

Job No: C29711

Price Service Center
Project No: P01064

Sample Number	Collected Date	Time By	Received	Matrix Code	Matrix Type	Client Sample ID
C29711-1	09/12/13	08:29 JB	09/13/13	AQ	Ground Water	WR-217A
C29711-2	09/12/13	08:59 JB	09/13/13	AQ	Ground Water	R-020A
C29711-3	09/12/13	09:23 JB	09/13/13	AQ	Ground Water	WR-221A
C29711-4	09/12/13	09:47 JB	09/13/13	AQ	Ground Water	WR-227A
C29711-5	09/12/13	10:21 JB	09/13/13	AQ	Ground Water	WR-233A
C29711-6	09/12/13	00:00 JB	09/13/13	AQ	Trip Blank Water	TRIP BLANK

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2

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client:	City of Tucson Environmental Services	**Job No**	C29711
Site:	Price Service Center	**Report Date**	9/27/2013 6:45:28 PM

5 Sample(s), 1 Trip Blank(s) and 0 Field Blank(s) were collected on 09/12/2013 and were received at Accutest on 09/13/2013 properly preserved, at 4.8 Deg. C and intact. These Samples received an Accutest job number of C29711. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GCMS By Method SW846 8260B

Matrix: AQ **Batch ID:** VR766

- Sample(s) C29743-4MS, C29743-4MSD were used as the QC samples indicated.
- Matrix Spike Recovery(s) for 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, Styrene, Xylene (total) are outside control limits. Probable cause due to matrix interference.
- Matrix Spike Duplicate Recovery(s) for 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene, Styrene, Xylene (total) are outside control limits. Probable cause due to matrix interference.

Matrix: AQ **Batch ID:** VW1480

- Sample(s) C29694-7MS, C29694-7MSD were used as the QC samples indicated.

Volatiles by GC By Method EPA 504.1

Matrix: AQ **Batch ID:** T:OP29884

- Analysis performed at Accutest Laboratories, Houston, TX. Refer to subcontract narrative for details

Accutest Laboratories Northern California (ALNCA) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALNCA and as stated on the COC. ALNCA certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALNCA Quality Manual except as noted above. This report is to be used in its entirety. ALNCA is not responsible for any assumptions of data quality if partial data packages are used

ACCUTEST LABORATORIES

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: Accutest Northern California, Inc.

Job No C29711

Site: CTESAZT: Price Service Center

Report Date 9/27/2013 3:58:40 PM

4 Samples 1 Trip Blank were collected on 09/12/2013 and were received intact at Accutest on 09/13/2013 and properly preserved in 1 cooler at 3.4 Deg C These Samples received an Accutest job number of C29711. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

Volatiles by GC By Method EPA 504.1

Matrix AQ **Batch ID:** GMM309

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Accutest Laboratories Gulf Coast (ALGC) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALGC and as stated on the COC. ALGC certifies that the data meets the Data QualityObjectives for precision, accuracy and completeness as specified in the ALGC Quality Manual except as noted above. This report is to be used in its entirety. ALGC is not responsible for any assumptions of data quality if partial data packages are used

Summary of Hits

Job Number: C29711
Account: City of Tucson Environmental Services
Project: Price Service Center
Collected: 09/12/13

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
C29711-1	WR-217A					
No hits reported in this sample.						
C29711-2	R-020A					
Benzene [a]		82.3 J	100	20	ug/l	SW846 8260B
Methyl Tert Butyl Ether		7270	100	20	ug/l	SW846 8260B
C29711-3	WR-221A					
No hits reported in this sample.						
C29711-4	WR-227A					
No hits reported in this sample.						
C29711-5	WR-233A					
No hits reported in this sample.						
C29711-6	TRIP BLANK					
No hits reported in this sample.						

(a) AZ:E4

Northern California
ACCUTEST
LABORATORIES

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	WR-217A		
Lab Sample ID:	C29711-1	Date Sampled:	09/12/13
Matrix:	AQ - Ground Water	Date Received:	09/13/13
Method:	EPA 504.1 SW846 8011	Percent Solids:	n/a
Project:	Price Service Center		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	MM065912.D	1	09/26/13	ATX	09/25/13	T:OP29884	T:GMM309
Run #2							

	Initial Volume	Final Volume
Run #1	37.1 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.019	0.011	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.019	0.010	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	100%		70-130%

(a) Analysis performed at Accutest Laboratories, Houston, TX.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-020A		
Lab Sample ID:	C29711-2	Date Sampled:	09/12/13
Matrix:	AQ - Ground Water	Date Received:	09/13/13
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Price Service Center		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	R20755.D	100	09/25/13	BD	n/a	n/a	VR766
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	2000	400	ug/l	
71-43-2	Benzene [a]	82.3	100	20	ug/l	J
108-86-1	Bromobenzene	ND	100	20	ug/l	
74-97-5	Bromochloromethane	ND	100	20	ug/l	
75-27-4	Bromodichloromethane	ND	50	20	ug/l	
75-25-2	Bromoform	ND	50	22	ug/l	
104-51-8	n-Butylbenzene	ND	200	20	ug/l	
135-98-8	sec-Butylbenzene	ND	200	20	ug/l	
98-06-6	tert-Butylbenzene	ND	200	28	ug/l	
108-90-7	Chlorobenzene	ND	50	20	ug/l	
75-00-3	Chloroethane	ND	50	20	ug/l	
67-66-3	Chloroform	ND	50	20	ug/l	
95-49-8	o-Chlorotoluene	ND	200	20	ug/l	
106-43-4	p-Chlorotoluene	ND	200	26	ug/l	
75-15-0	Carbon disulfide	ND	100	20	ug/l	
56-23-5	Carbon tetrachloride	ND	50	20	ug/l	
75-34-3	1,1-Dichloroethane	ND	50	20	ug/l	
75-35-4	1,1-Dichloroethylene	ND	50	20	ug/l	
563-58-6	1,1-Dichloropropene	ND	100	20	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	200	40	ug/l	
106-93-4	1,2-Dibromoethane	ND	100	20	ug/l	
107-06-2	1,2-Dichloroethane	ND	50	20	ug/l	
78-87-5	1,2-Dichloropropane	ND	50	20	ug/l	
142-28-9	1,3-Dichloropropane	ND	100	20	ug/l	
594-20-7	2,2-Dichloropropane	ND	100	20	ug/l	
124-48-1	Dibromochloromethane	ND	50	20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	50	20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	50	20	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	50	20	ug/l	
541-73-1	m-Dichlorobenzene	ND	50	20	ug/l	
95-50-1	o-Dichlorobenzene	ND	50	20	ug/l	
106-46-7	p-Dichlorobenzene	ND	50	20	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-020A		
Lab Sample ID:	C29711-2	Date Sampled:	09/12/13
Matrix:	AQ - Ground Water	Date Received:	09/13/13
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Price Service Center		

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	50	20	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	50	30	ug/l	
100-41-4	Ethylbenzene	ND	100	20	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	200	22	ug/l	
591-78-6	2-Hexanone	ND	1000	200	ug/l	
87-68-3	Hexachlorobutadiene	ND	200	20	ug/l	
98-82-8	Isopropylbenzene	ND	100	20	ug/l	
99-87-6	p-Isopropyltoluene	ND	200	20	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	1000	100	ug/l	
74-83-9	Methyl bromide	ND	200	20	ug/l	
74-87-3	Methyl chloride	ND	100	30	ug/l	
74-95-3	Methylene bromide	ND	100	20	ug/l	
75-09-2	Methylene chloride	ND	500	200	ug/l	
78-93-3	Methyl ethyl ketone	ND	1000	200	ug/l	
1634-04-4	Methyl Tert Butyl Ether	7270	100	20	ug/l	
91-20-3	Naphthalene	ND	500	50	ug/l	
103-65-1	n-Propylbenzene	ND	200	20	ug/l	
100-42-5	Styrene	ND	100	20	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	1000	240	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	100	30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	50	20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	50	20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	50	22	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	200	20	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	200	20	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	200	20	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	200	20	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	200	20	ug/l	
127-18-4	Tetrachloroethylene	ND	50	30	ug/l	
108-88-3	Toluene	ND	100	20	ug/l	
79-01-6	Trichloroethylene	ND	50	20	ug/l	
75-69-4	Trichlorofluoromethane	ND	50	20	ug/l	
75-01-4	Vinyl chloride	ND	50	20	ug/l	
1330-20-7	Xylene (total)	ND	200	46	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	102%		70-130%
2037-26-5	Toluene-D8	103%		70-130%
460-00-4	4-Bromofluorobenzene	99%		70-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	R-020A		
Lab Sample ID:	C29711-2	Date Sampled:	09/12/13
Matrix:	AQ - Ground Water	Date Received:	09/13/13
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Price Service Center		

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q

(a) AZ:E4

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WR-221A		
Lab Sample ID:	C29711-3	Date Sampled:	09/12/13
Matrix:	AQ - Ground Water	Date Received:	09/13/13
Method:	EPA 504.1 SW846 8011	Percent Solids:	n/a
Project:	Price Service Center		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	MM065913.D	1	09/26/13	ATX	09/25/13	T:OP29884	T:GMM309
Run #2							

	Initial Volume	Final Volume
Run #1	36.4 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.019	0.011	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.019	0.010	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	96%		70-130%

(a) Analysis performed at Accutest Laboratories, Houston, TX.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WR-227A		
Lab Sample ID:	C29711-4	Date Sampled:	09/12/13
Matrix:	AQ - Ground Water	Date Received:	09/13/13
Method:	EPA 504.1 SW846 8011	Percent Solids:	n/a
Project:	Price Service Center		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	MM065914.D	1	09/26/13	ATX	09/25/13	T:OP29884	T:GMM309
Run #2							

	Initial Volume	Final Volume
Run #1	35.6 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.020	0.011	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.020	0.010	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	99%		70-130%

(a) Analysis performed at Accutest Laboratories, Houston, TX.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WR-233A		
Lab Sample ID:	C29711-5	Date Sampled:	09/12/13
Matrix:	AQ - Ground Water	Date Received:	09/13/13
Method:	EPA 504.1 SW846 8011	Percent Solids:	n/a
Project:	Price Service Center		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	MM065915.D	1	09/26/13	ATX	09/25/13	T:OP29884	T:GMM309
Run #2							

	Initial Volume	Final Volume
Run #1	36.4 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.019	0.011	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.019	0.010	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	103%		70-130%

(a) Analysis performed at Accutest Laboratories, Houston, TX.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	C29711-6	Date Sampled:	09/12/13
Matrix:	AQ - Trip Blank Water	Date Received:	09/13/13
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Price Service Center		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W41959.D	1	09/24/13	BD	n/a	n/a	VW1480
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	20	4.0	ug/l	
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.20	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.20	ug/l	
75-27-4	Bromodichloromethane	ND	0.50	0.20	ug/l	
75-25-2	Bromoform	ND	0.50	0.22	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	0.20	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.20	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.20	ug/l	
75-00-3	Chloroethane	ND	0.50	0.20	ug/l	
67-66-3	Chloroform	ND	0.50	0.20	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	0.20	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	0.26	ug/l	
75-15-0	Carbon disulfide	ND	1.0	0.20	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.20	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.20	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.20	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.40	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.20	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.20	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.20	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.20	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.20	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.20	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.20	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.20	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	0.20	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.20	ug/l	

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	C29711-6	Date Sampled:	09/12/13
Matrix:	AQ - Trip Blank Water	Date Received:	09/13/13
Method:	SW846 8260B	Percent Solids:	n/a
Project:	Price Service Center		

VOA 8260 List

CAS No.	Compound	Result	RL	MDL	Units	Q
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.20	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	0.22	ug/l	
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.20	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.20	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	0.20	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	1.0	ug/l	
74-83-9	Methyl bromide	ND	2.0	0.20	ug/l	
74-87-3	Methyl chloride	ND	1.0	0.30	ug/l	
74-95-3	Methylene bromide	ND	1.0	0.20	ug/l	
75-09-2	Methylene chloride	ND	5.0	2.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.20	ug/l	
91-20-3	Naphthalene	ND	5.0	0.50	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	0.20	ug/l	
100-42-5	Styrene	ND	1.0	0.20	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	2.4	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.22	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	0.20	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	0.20	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	0.20	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.30	ug/l	
108-88-3	Toluene	ND	1.0	0.20	ug/l	
79-01-6	Trichloroethylene	ND	0.50	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND	0.50	0.20	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		70-130%
2037-26-5	Toluene-D8	108%		70-130%
460-00-4	4-Bromofluorobenzene	96%		70-130%

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	TRIP BLANK		
Lab Sample ID:	C29711-6	Date Sampled:	09/12/13
Matrix:	AQ - Trip Blank Water	Date Received:	09/13/13
Method:	EPA 504.1 SW846 8011	Percent Solids:	n/a
Project:	Price Service Center		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	MM065916.D	1	09/26/13	ATX	09/25/13	T:OP29884	T:GMM309
Run #2							

	Initial Volume	Final Volume
Run #1	36.5 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.019	0.011	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.019	0.010	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
3017-95-6	2-Bromo-1-chloropropane	105%		70-130%

(a) Analysis performed at Accutest Laboratories, Houston, TX.

ND = Not detected MDL - Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Northern California
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Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Arizona Qualifiers
- Chain of Custody

Arizona Qualifiers

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

The following Arizona qualifiers have been applied to data and/or QC in this report.

Qual	Description
E4	Concentration estimated. Analyte was detected below laboratory minimum reporting limit (MRL).

PHOENIX

ACCUTEST® LABORATORIES

CHAIN OF CUSTODY

2105 Lundy Ave, San Jose, CA 95131
(408) 588-0200 FAX: (408) 588-0201
CTESAZT5487

FED-EX Tracking # 8020 0829 7092 | Bottle Order Control #
Accutest Quote # | Accutest NC Job #: C C29711

Client / Reporting Information

Company Name: City of Tucson
Address: PO Box 27210
City: Tucson State: AZ Zip: 85726
Project Contact: Lori Ehman
Phone #: 791-3175
Samplers's Name: Alfred J. Barker, Jr.

Project Information

Project Name: Price Service Center
Street:
City: State:
Project #: P01064
EMAIL:
Client Purchase Order #:

Requested Analysis

Accutest Sample ID	Sample ID / Field Point / Point of Collection	Collection Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	HNO3	H2SO4	NONE	NaHSO4	MEOH	EnCORE	504.1	8260B
1	WR-217A	9/12/13	0821	JB	GW	3									X	
2	R-020A	9/12/13	0859	JB	GW	3										X
3	WR-221A	9/12/13	0923	JB	GW	3									X	
4	WR-227A	9/12/13	0947	JB	GW	3									X	
5	WR-233A	9/12/13	1021	JB	GW	3									X	
6	Trip Blank					2										X
7	Trip Blank					1									X	

Matrix Codes: WW- Wastewater; GW- Ground Water; SW- Surface Water; SO- Soil; OI-Oil; WP-Wipe; LIQ - Non-aqueous Liquid; AIR; DW- Drinking Water (Perchlorate Only)

LAB USE ONLY

Turnaround Time (Business days)

Approved By:/ Date:

- [x] 10 Day
- [ ] 5 Day
- [ ] 3 Day
- [ ] 2 Day
- [ ] 1 Day
- [ ] Same Day

Emergency T/A data available VIA Lablink

Data Deliverable Information

- [ ] Commercial "A" - Results only
- [x] Commercial "B" - Results with QC summaries
- [ ] Commerical "B+" - Results, QC, and chromatograms
- [ ] FULT1 - Level 4 data package
- [ ] EDF for Geotracker [ ] EDD Format
- Provide EDF Global ID
- Provide EDF Logcode:

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
Andy J. Vimislik	9-12-13 1400	1 [signature]	2 FEDEX	9/13/13 0945	2 [signature]
Relinquished by:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
3		3	4		4
Relinquished by:	Date Time:	Received By:	Custody Seal #	Appropriate Bottle / Preser Y N	Headspace Y N	On Ice Y N
5		5		Labels match Coc Y N	Separate Receiving Check List use Y N	Cooler Temp. 4.8 °C

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C29711: Chain of Custody
Page 1 of 2

ACCUTEST LABORATORIES

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: C29711 **Client:** CITY OF TUCSON **Project:** PRICE SERVICE CENTER

Date / Time Received: 9/13/2013 **Delivery Method:** FedEx **Airbill #'s:** 802008297092

Cooler Temps (Initial/Adjusted): #1: (4.8/4.8); 0

Cooler Security	Y	or N		Y	or N
1. Custody Seals Present:	☐	☑	3. COC Present:	☑	☐
2. Custody Seals Intact:	☐	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y or N
1. Temp criteria achieved:	☑ ☐
2. Cooler temp verification:	IR1 Plastic;
3. Cooler media:	Ice (Bag)
4. No. Coolers:	1

Quality Control Preservation	Y	or N	N/A
1. Trip Blank present / cooler:	☑	☐	☐
2. Trip Blank listed on COC:	☑	☐	☐
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☑	☐	☐

Sample Integrity - Documentation	Y	or N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	or N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	or N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments

Accutest Laboratories
V:408.588.0200

2105 Lundy Avenue
F: 408.588.0201

San Jose, CA 95131
www/accutest.com

5.2 5

C29711: Chain of Custody
Page 2 of 2

Northern California
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GC/MS Volatiles

6

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1480-MB	W41957.D	1	09/24/13	BD	n/a	n/a	VW1480

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-6

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	20	4.0	ug/l	
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.20	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.20	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.20	ug/l	
75-25-2	Bromoform	ND	1.0	0.22	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	0.20	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.20	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	1.0	0.20	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	0.20	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	0.26	ug/l	
75-15-0	Carbon disulfide	ND	1.0	0.20	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.20	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.20	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.40	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.20	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.20	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.20	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.20	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.20	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.20	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.20	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	0.22	ug/l	

Method Blank Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1480-MB	W41957.D	1	09/24/13	BD	n/a	n/a	VW1480

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-6

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.20	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.20	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	0.20	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	1.0	ug/l	
74-83-9	Methyl bromide	ND	2.0	0.20	ug/l	
74-87-3	Methyl chloride	ND	1.0	0.30	ug/l	
74-95-3	Methylene bromide	ND	1.0	0.20	ug/l	
75-09-2	Methylene chloride	ND	10	2.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.20	ug/l	
91-20-3	Naphthalene	ND	5.0	0.50	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	0.20	ug/l	
100-42-5	Styrene	ND	1.0	0.20	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	2.4	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.22	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	0.20	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	0.20	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	0.20	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	ND	1.0	0.20	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	96%	70-130%
2037-26-5	Toluene-D8	108%	70-130%

Method Blank Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1480-MB	W41957.D	1	09/24/13	BD	n/a	n/a	VW1480

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-6

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	96%	70-130%

Method Blank Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR766-MB	R20737.D	1	09/25/13	BD	n/a	n/a	VR766

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-2

CAS No.	Compound	Result	RL	MDL	Units	Q
67-64-1	Acetone	ND	20	4.0	ug/l	
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-86-1	Bromobenzene	ND	1.0	0.20	ug/l	
74-97-5	Bromochloromethane	ND	1.0	0.20	ug/l	
75-27-4	Bromodichloromethane	ND	1.0	0.20	ug/l	
75-25-2	Bromoform	ND	1.0	0.22	ug/l	
104-51-8	n-Butylbenzene	ND	2.0	0.20	ug/l	
135-98-8	sec-Butylbenzene	ND	2.0	0.20	ug/l	
98-06-6	tert-Butylbenzene	ND	2.0	0.28	ug/l	
108-90-7	Chlorobenzene	ND	1.0	0.20	ug/l	
75-00-3	Chloroethane	ND	1.0	0.20	ug/l	
67-66-3	Chloroform	ND	1.0	0.20	ug/l	
95-49-8	o-Chlorotoluene	ND	2.0	0.20	ug/l	
106-43-4	p-Chlorotoluene	ND	2.0	0.26	ug/l	
75-15-0	Carbon disulfide	ND	1.0	0.20	ug/l	
56-23-5	Carbon tetrachloride	ND	1.0	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	1.0	0.20	ug/l	
75-35-4	1,1-Dichloroethylene	ND	1.0	0.20	ug/l	
563-58-6	1,1-Dichloropropene	ND	1.0	0.20	ug/l	
96-12-8	1,2-Dibromo-3-chloropropane	ND	2.0	0.40	ug/l	
106-93-4	1,2-Dibromoethane	ND	1.0	0.20	ug/l	
107-06-2	1,2-Dichloroethane	ND	1.0	0.20	ug/l	
78-87-5	1,2-Dichloropropane	ND	1.0	0.20	ug/l	
142-28-9	1,3-Dichloropropane	ND	1.0	0.20	ug/l	
594-20-7	2,2-Dichloropropane	ND	1.0	0.20	ug/l	
124-48-1	Dibromochloromethane	ND	1.0	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	1.0	0.20	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.20	ug/l	
541-73-1	m-Dichlorobenzene	ND	1.0	0.20	ug/l	
95-50-1	o-Dichlorobenzene	ND	1.0	0.20	ug/l	
106-46-7	p-Dichlorobenzene	ND	1.0	0.20	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.20	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.30	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
637-92-3	Ethyl Tert Butyl Ether	ND	2.0	0.22	ug/l	

Method Blank Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR766-MB	R20737.D	1	09/25/13	BD	n/a	n/a	VR766

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-2

CAS No.	Compound	Result	RL	MDL	Units	Q
591-78-6	2-Hexanone	ND	10	2.0	ug/l	
87-68-3	Hexachlorobutadiene	ND	2.0	0.20	ug/l	
98-82-8	Isopropylbenzene	ND	1.0	0.20	ug/l	
99-87-6	p-Isopropyltoluene	ND	2.0	0.20	ug/l	
108-10-1	4-Methyl-2-pentanone	ND	10	1.0	ug/l	
74-83-9	Methyl bromide	ND	2.0	0.20	ug/l	
74-87-3	Methyl chloride	ND	1.0	0.30	ug/l	
74-95-3	Methylene bromide	ND	1.0	0.20	ug/l	
75-09-2	Methylene chloride	ND	10	2.0	ug/l	
78-93-3	Methyl ethyl ketone	ND	10	2.0	ug/l	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.20	ug/l	
91-20-3	Naphthalene	ND	5.0	0.50	ug/l	
103-65-1	n-Propylbenzene	ND	2.0	0.20	ug/l	
100-42-5	Styrene	ND	1.0	0.20	ug/l	
75-65-0	Tert-Butyl Alcohol	ND	10	2.4	ug/l	
630-20-6	1,1,1,2-Tetrachloroethane	ND	1.0	0.30	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.22	ug/l	
87-61-6	1,2,3-Trichlorobenzene	ND	2.0	0.20	ug/l	
96-18-4	1,2,3-Trichloropropane	ND	2.0	0.20	ug/l	
120-82-1	1,2,4-Trichlorobenzene	ND	2.0	0.20	ug/l	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/l	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	1.0	0.30	ug/l	
108-88-3	Toluene	ND	1.0	0.20	ug/l	
79-01-6	Trichloroethylene	ND	1.0	0.20	ug/l	
75-69-4	Trichlorofluoromethane	ND	1.0	0.20	ug/l	
75-01-4	Vinyl chloride	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	

CAS No.	Surrogate Recoveries		Limits
1868-53-7	Dibromofluoromethane	94%	70-130%
2037-26-5	Toluene-D8	107%	70-130%

Method Blank Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR766-MB	R20737.D	1	09/25/13	BD	n/a	n/a	VR766

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-2

CAS No.	Surrogate Recoveries		Limits
460-00-4	4-Bromofluorobenzene	104%	70-130%

Blank Spike/Blank Spike Duplicate Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1480-BS	W41954.D	1	09/24/13	BD	n/a	n/a	VW1480
VW1480-BSD	W41955.D	1	09/24/13	BD	n/a	n/a	VW1480

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	80	59.6	75	57.4	72	4	38-159/24
71-43-2	Benzene	20	19.7	99	19.6	98	1	77-122/25
108-86-1	Bromobenzene	20	20.8	104	20.9	105	0	76-126/17
74-97-5	Bromochloromethane	20	20.7	104	20.3	102	2	77-130/17
75-27-4	Bromodichloromethane	20	19.3	97	19.1	96	1	75-127/16
75-25-2	Bromoform	20	20.0	100	19.6	98	2	69-141/17
104-51-8	n-Butylbenzene	20	19.9	100	20.7	104	4	72-129/18
135-98-8	sec-Butylbenzene	20	18.8	94	19.9	100	6	74-128/18
98-06-6	tert-Butylbenzene	20	19.2	96	19.9	100	4	73-127/18
108-90-7	Chlorobenzene	20	19.5	98	19.5	98	0	77-122/16
75-00-3	Chloroethane	20	19.8	99	19.9	100	1	69-133/18
67-66-3	Chloroform	20	19.8	99	19.4	97	2	74-126/17
95-49-8	o-Chlorotoluene	20	19.5	98	19.6	98	1	72-127/20
106-43-4	p-Chlorotoluene	20	19.1	96	19.3	97	1	68-127/18
75-15-0	Carbon disulfide	20	17.2	86	18.5	93	7	56-137/19
56-23-5	Carbon tetrachloride	20	18.4	92	20.4	102	10	71-133/19
75-34-3	1,1-Dichloroethane	20	19.8	99	19.6	98	1	71-125/17
75-35-4	1,1-Dichloroethylene	20	18.3	92	19.9	100	8	66-125/20
563-58-6	1,1-Dichloropropene	20	18.4	92	19.9	100	8	75-124/18
96-12-8	1,2-Dibromo-3-chloropropane	20	18.2	91	17.7	89	3	65-131/20
106-93-4	1,2-Dibromoethane	20	19.8	99	19.5	98	2	75-135/17
107-06-2	1,2-Dichloroethane	20	17.8	89	17.4	87	2	71-131/17
78-87-5	1,2-Dichloropropane	20	20.3	102	20.1	101	1	78-124/16
142-28-9	1,3-Dichloropropane	20	19.4	97	19.1	96	2	78-123/16
594-20-7	2,2-Dichloropropane	20	19.3	97	20.0	100	4	70-131/19
124-48-1	Dibromochloromethane	20	21.8	109	21.2	106	3	76-132/16
75-71-8	Dichlorodifluoromethane	20	23.4	117	22.9	115	2	32-168/28
156-59-2	cis-1,2-Dichloroethylene	20	20.9	105	20.7	104	1	73-126/17
10061-01-5	cis-1,3-Dichloropropene	20	21.8	109	21.5	108	1	72-130/16
541-73-1	m-Dichlorobenzene	20	19.8	99	19.9	100	1	75-124/16
95-50-1	o-Dichlorobenzene	20	20.0	100	19.9	100	1	76-124/16
106-46-7	p-Dichlorobenzene	20	21.3	107	21.3	107	0	75-124/16
156-60-5	trans-1,2-Dichloroethylene	20	20.9	105	21.3	107	2	71-126/18
10061-02-6	trans-1,3-Dichloropropene	20	19.8	99	19.4	97	2	71-126/16
100-41-4	Ethylbenzene	20	20.1	101	20.2	101	0	76-126/17
637-92-3	Ethyl Tert Butyl Ether	20	21.9	110	21.8	109	0	75-134/17

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1480-BS	W41954.D	1	09/24/13	BD	n/a	n/a	VW1480
VW1480-BSD	W41955.D	1	09/24/13	BD	n/a	n/a	VW1480

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
591-78-6	2-Hexanone	80	70.2	88	66.7	83	5	67-150/22
87-68-3	Hexachlorobutadiene	20	20.2	101	21.8	109	8	69-135/20
98-82-8	Isopropylbenzene	20	18.6	93	19.1	96	3	61-125/17
99-87-6	p-Isopropyltoluene	20	19.2	96	19.9	100	4	68-127/18
108-10-1	4-Methyl-2-pentanone	80	68.9	86	65.5	82	5	71-142/21
74-83-9	Methyl bromide	20	21.9	110	21.9	110	0	68-132/18
74-87-3	Methyl chloride	20	20.4	102	20.3	102	0	39-150/28
74-95-3	Methylene bromide	20	19.6	98	19.2	96	2	77-127/16
75-09-2	Methylene chloride	20	20.3	102	20.3	102	0	67-128/18
78-93-3	Methyl ethyl ketone	80	70.7	88	67.5	84	5	56-155/23
1634-04-4	Methyl Tert Butyl Ether	20	21.1	106	20.7	104	2	73-132/17
91-20-3	Naphthalene	20	20.5	103	20.3	102	1	70-136/20
103-65-1	n-Propylbenzene	20	18.6	93	19.3	97	4	71-127/17
100-42-5	Styrene	20	21.5	108	21.4	107	0	72-134/16
75-65-0	Tert-Butyl Alcohol	100	90.3	90	87.2	87	3	60-149/26
630-20-6	1,1,1,2-Tetrachloroethane	20	22.0	110	21.8	109	1	77-130/16
71-55-6	1,1,1-Trichloroethane	20	18.8	94	19.9	100	6	74-128/19
79-34-5	1,1,2,2-Tetrachloroethane	20	20.7	104	20.3	102	2	77-129/17
79-00-5	1,1,2-Trichloroethane	20	20.2	101	19.8	99	2	77-125/16
87-61-6	1,2,3-Trichlorobenzene	20	21.4	107	21.6	108	1	70-133/18
96-18-4	1,2,3-Trichloropropane	20	19.4	97	18.8	94	3	69-126/18
120-82-1	1,2,4-Trichlorobenzene	20	21.1	106	21.0	105	0	68-129/17
95-63-6	1,2,4-Trimethylbenzene	20	21.1	106	21.5	108	2	74-129/17
108-67-8	1,3,5-Trimethylbenzene	20	21.5	108	21.8	109	1	77-129/17
127-18-4	Tetrachloroethylene	20	19.3	97	20.5	103	6	69-127/20
108-88-3	Toluene	20	20.2	101	20.3	102	0	75-122/17
79-01-6	Trichloroethylene	20	19.2	96	19.6	98	2	78-123/17
75-69-4	Trichlorofluoromethane	20	20.3	102	20.2	101	0	65-136/23
75-01-4	Vinyl chloride	20	22.0	110	22.3	112	1	57-146/22
1330-20-7	Xylene (total)	60	59.3	99	59.7	100	1	77-125/17

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	106%	104%	70-130%
2037-26-5	Toluene-D8	106%	106%	70-130%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1480-BS	W41954.D	1	09/24/13	BD	n/a	n/a	VW1480
VW1480-BSD	W41955.D	1	09/24/13	BD	n/a	n/a	VW1480

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-6

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
460-00-4	4-Bromofluorobenzene	98%	98%	70-130%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR766-BS	R20734.D	1	09/25/13	BD	n/a	n/a	VR766
VR766-BSD	R20735.D	1	09/25/13	BD	n/a	n/a	VR766

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	80	73.5	92	69.5	87	6	38-159/24
71-43-2	Benzene	20	19.0	95	20.1	101	6	77-122/25
108-86-1	Bromobenzene	20	18.4	92	18.7	94	2	76-126/17
74-97-5	Bromochloromethane	20	20.0	100	20.0	100	0	77-130/17
75-27-4	Bromodichloromethane	20	20.1	101	21.4	107	6	75-127/16
75-25-2	Bromoform	20	20.4	102	19.5	98	5	69-141/17
104-51-8	n-Butylbenzene	20	20.6	103	20.7	104	0	72-129/18
135-98-8	sec-Butylbenzene	20	20.6	103	20.6	103	0	74-128/18
98-06-6	tert-Butylbenzene	20	20.2	101	20.4	102	1	73-127/18
108-90-7	Chlorobenzene	20	19.4	97	19.3	97	1	77-122/16
75-00-3	Chloroethane	20	20.6	103	20.2	101	2	69-133/18
67-66-3	Chloroform	20	19.9	100	19.8	99	1	74-126/17
95-49-8	o-Chlorotoluene	20	20.5	103	21.3	107	4	72-127/20
106-43-4	p-Chlorotoluene	20	20.5	103	21.0	105	2	68-127/18
75-15-0	Carbon disulfide	20	18.5	93	18.5	93	0	56-137/19
56-23-5	Carbon tetrachloride	20	18.5	93	19.0	95	3	71-133/19
75-34-3	1,1-Dichloroethane	20	21.1	106	19.5	98	8	71-125/17
75-35-4	1,1-Dichloroethylene	20	17.8	89	17.8	89	0	66-125/20
563-58-6	1,1-Dichloropropene	20	18.6	93	19.9	100	7	75-124/18
96-12-8	1,2-Dibromo-3-chloropropane	20	21.8	109	20.5	103	6	65-131/20
106-93-4	1,2-Dibromoethane	20	20.2	101	20.5	103	1	75-135/17
107-06-2	1,2-Dichloroethane	20	19.8	99	21.6	108	9	71-131/17
78-87-5	1,2-Dichloropropane	20	19.2	96	21.3	107	10	78-124/16
142-28-9	1,3-Dichloropropane	20	20.1	101	21.2	106	5	78-123/16
594-20-7	2,2-Dichloropropane	20	19.7	99	19.1	96	3	70-131/19
124-48-1	Dibromochloromethane	20	20.6	103	20.1	101	2	76-132/16
75-71-8	Dichlorodifluoromethane	20	20.1	101	19.5	98	3	32-168/28
156-59-2	cis-1,2-Dichloroethylene	20	19.1	96	19.0	95	1	73-126/17
10061-01-5	cis-1,3-Dichloropropene	20	19.8	99	21.3	107	7	72-130/16
541-73-1	m-Dichlorobenzene	20	19.3	97	19.2	96	1	75-124/16
95-50-1	o-Dichlorobenzene	20	19.4	97	19.4	97	0	76-124/16
106-46-7	p-Dichlorobenzene	20	19.5	98	19.2	96	2	75-124/16
156-60-5	trans-1,2-Dichloroethylene	20	18.8	94	18.3	92	3	71-126/18
10061-02-6	trans-1,3-Dichloropropene	20	20.4	102	21.5	108	5	71-126/16
100-41-4	Ethylbenzene	20	19.4	97	20.0	100	3	76-126/17
637-92-3	Ethyl Tert Butyl Ether	20	21.3	107	20.6	103	3	75-134/17

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR766-BS	R20734.D	1	09/25/13	BD	n/a	n/a	VR766
VR766-BSD	R20735.D	1	09/25/13	BD	n/a	n/a	VR766

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
591-78-6	2-Hexanone	80	83.7	105	93.7	117	11	67-150/22
87-68-3	Hexachlorobutadiene	20	19.3	97	18.7	94	3	69-135/20
98-82-8	Isopropylbenzene	20	19.7	99	19.9	100	1	61-125/17
99-87-6	p-Isopropyltoluene	20	20.3	102	20.2	101	0	68-127/18
108-10-1	4-Methyl-2-pentanone	80	82.2	103	91.6	115	11	71-142/21
74-83-9	Methyl bromide	20	20.1	101	20.4	102	1	68-132/18
74-87-3	Methyl chloride	20	21.8	109	21.0	105	4	39-150/28
74-95-3	Methylene bromide	20	20.2	101	20.9	105	3	77-127/16
75-09-2	Methylene chloride	20	18.2	91	17.8	89	2	67-128/18
78-93-3	Methyl ethyl ketone	80	82.8	104	80.8	101	2	56-155/23
1634-04-4	Methyl Tert Butyl Ether	20	21.8	109	21.1	106	3	73-132/17
91-20-3	Naphthalene	20	20.0	100	20.2	101	1	70-136/20
103-65-1	n-Propylbenzene	20	21.1	106	21.1	106	0	71-127/17
100-42-5	Styrene	20	20.2	101	20.2	101	0	72-134/16
75-65-0	Tert-Butyl Alcohol	100	109	109	106	106	3	60-149/26
630-20-6	1,1,1,2-Tetrachloroethane	20	19.6	98	19.6	98	0	77-130/16
71-55-6	1,1,1-Trichloroethane	20	19.2	96	20.4	102	6	74-128/19
79-34-5	1,1,2,2-Tetrachloroethane	20	20.4	102	21.8	109	7	77-129/17
79-00-5	1,1,2-Trichloroethane	20	20.0	100	20.9	105	4	77-125/16
87-61-6	1,2,3-Trichlorobenzene	20	19.9	100	19.7	99	1	70-133/18
96-18-4	1,2,3-Trichloropropane	20	22.4	112	21.9	110	2	69-126/18
120-82-1	1,2,4-Trichlorobenzene	20	19.9	100	19.6	98	2	68-129/17
95-63-6	1,2,4-Trimethylbenzene	20	20.7	104	20.8	104	0	74-129/17
108-67-8	1,3,5-Trimethylbenzene	20	20.9	105	21.0	105	0	77-129/17
127-18-4	Tetrachloroethylene	20	18.5	93	17.6	88	5	69-127/20
108-88-3	Toluene	20	19.5	98	19.7	99	1	75-122/17
79-01-6	Trichloroethylene	20	19.0	95	20.0	100	5	78-123/17
75-69-4	Trichlorofluoromethane	20	20.4	102	19.9	100	2	65-136/23
75-01-4	Vinyl chloride	20	21.2	106	20.9	105	1	57-146/22
1330-20-7	Xylene (total)	60	59.0	98	59.1	99	0	77-125/17

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	104%	104%	70-130%
2037-26-5	Toluene-D8	104%	103%	70-130%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VR766-BS	R20734.D	1	09/25/13	BD	n/a	n/a	VR766
VR766-BSD	R20735.D	1	09/25/13	BD	n/a	n/a	VR766

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-2

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
460-00-4	4-Bromofluorobenzene	105%	104%	70-130%

* = Outside of Control Limits.

Laboratory Control Sample Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW1480-LCS	W41958.D	1	09/24/13	BD	n/a	n/a	VW1480

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-6

CAS No.	Compound	Spike ug/l	LCS ug/l	LCS %	Limits

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	99%	70-130%
2037-26-5	Toluene-D8	108%	70-130%
460-00-4	4-Bromofluorobenzene	96%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C29694-7MS	W41974.D	20	09/24/13	BD	n/a	n/a	VW1480
C29694-7MSD	W41975.D	20	09/24/13	BD	n/a	n/a	VW1480
C29694-7	W41973.D	20	09/24/13	BD	n/a	n/a	VW1480

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-6

CAS No.	Compound	C29694-7 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	ND		1600	1250	78	1410	88	12	38-159/24
71-43-2	Benzene	ND		400	402	101	416	104	3	77-122/16
108-86-1	Bromobenzene	ND		400	430	108	445	111	3	76-126/17
74-97-5	Bromochloromethane	ND		400	429	107	468	117	9	77-130/17
75-27-4	Bromodichloromethane	ND		400	400	100	414	104	3	75-127/16
75-25-2	Bromoform	ND		400	410	103	424	106	3	69-141/17
104-51-8	n-Butylbenzene	ND		400	416	104	427	107	3	72-129/18
135-98-8	sec-Butylbenzene	ND		400	405	101	416	104	3	74-128/18
98-06-6	tert-Butylbenzene	ND		400	410	103	423	106	3	73-127/18
108-90-7	Chlorobenzene	ND		400	402	101	411	103	2	77-122/16
75-00-3	Chloroethane	ND		400	411	103	443	111	7	69-133/18
67-66-3	Chloroform	ND		400	412	103	445	111	8	74-126/17
95-49-8	o-Chlorotoluene	ND		400	405	101	420	105	4	72-127/20
106-43-4	p-Chlorotoluene	ND		400	396	99	403	101	2	68-127/18
75-15-0	Carbon disulfide	ND		400	380	95	420	105	10	56-137/19
56-23-5	Carbon tetrachloride	ND		400	413	103	428	107	4	71-133/19
75-34-3	1,1-Dichloroethane	ND		400	411	103	447	112	8	71-125/17
75-35-4	1,1-Dichloroethylene	ND		400	411	103	455	114	10	66-125/20
563-58-6	1,1-Dichloropropene	ND		400	403	101	419	105	4	75-124/18
96-12-8	1,2-Dibromo-3-chloropropane	ND		400	370	93	390	98	5	65-131/20
106-93-4	1,2-Dibromoethane	ND		400	407	102	419	105	3	75-135/17
107-06-2	1,2-Dichloroethane	ND		400	368	92	377	94	2	71-131/17
78-87-5	1,2-Dichloropropane	ND		400	417	104	428	107	3	78-124/16
142-28-9	1,3-Dichloropropane	ND		400	397	99	411	103	3	78-123/16
594-20-7	2,2-Dichloropropane	ND		400	382	96	416	104	9	70-131/19
124-48-1	Dibromochloromethane	ND		400	445	111	459	115	3	76-132/16
75-71-8	Dichlorodifluoromethane	ND		400	537	134	518	130	4	32-168/28
156-59-2	cis-1,2-Dichloroethylene	ND		400	433	108	470	118	8	73-126/17
10061-01-5	cis-1,3-Dichloropropene	ND		400	440	110	455	114	3	72-130/16
541-73-1	m-Dichlorobenzene	ND		400	406	102	419	105	3	75-124/16
95-50-1	o-Dichlorobenzene	ND		400	409	102	420	105	3	76-124/16
106-46-7	p-Dichlorobenzene	ND		400	434	109	446	112	3	75-124/16
156-60-5	trans-1,2-Dichloroethylene	ND		400	441	110	485	121	10	71-126/18
10061-02-6	trans-1,3-Dichloropropene	ND		400	405	101	414	104	2	71-126/16
100-41-4	Ethylbenzene	ND		400	414	104	423	106	2	76-126/17
637-92-3	Ethyl Tert Butyl Ether	ND		400	454	114	496	124	9	75-134/17

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C29694-7MS	W41974.D	20	09/24/13	BD	n/a	n/a	VW1480
C29694-7MSD	W41975.D	20	09/24/13	BD	n/a	n/a	VW1480
C29694-7	W41973.D	20	09/24/13	BD	n/a	n/a	VW1480

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-6

CAS No.	Compound	C29694-7 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
591-78-6	2-Hexanone	ND		1600	1440	90	1510	94	5	67-150/22
87-68-3	Hexachlorobutadiene	ND		400	419	105	431	108	3	69-135/20
98-82-8	Isopropylbenzene	ND		400	390	98	397	99	2	61-125/17
99-87-6	p-Isopropyltoluene	ND		400	404	101	416	104	3	68-127/18
108-10-1	4-Methyl-2-pentanone	ND		1600	1390	87	1460	91	5	71-142/21
74-83-9	Methyl bromide	ND		400	454	114	491	123	8	68-132/18
74-87-3	Methyl chloride	ND		400	424	106	419	105	1	39-150/28
74-95-3	Methylene bromide	ND		400	404	101	414	104	2	77-127/16
75-09-2	Methylene chloride	ND		400	420	105	462	116	10	67-128/18
78-93-3	Methyl ethyl ketone	ND		1600	1480	93	1670	104	12	56-155/23
1634-04-4	Methyl Tert Butyl Ether	1250		400	1670	105	1810	140* a	8	73-132/17
91-20-3	Naphthalene	ND		400	406	102	432	108	6	70-136/20
103-65-1	n-Propylbenzene	ND		400	391	98	402	101	3	71-127/17
100-42-5	Styrene	ND		400	440	110	451	113	2	72-134/16
75-65-0	Tert-Butyl Alcohol	ND		2000	2020	101	2300	115	13	60-149/26
630-20-6	1,1,1,2-Tetrachloroethane	ND		400	449	112	459	115	2	77-130/16
71-55-6	1,1,1-Trichloroethane	ND		400	411	103	449	112	9	74-128/19
79-34-5	1,1,2,2-Tetrachloroethane	ND		400	425	106	446	112	5	77-129/17
79-00-5	1,1,2-Trichloroethane	ND		400	414	104	427	107	3	77-125/16
87-61-6	1,2,3-Trichlorobenzene	ND		400	420	105	441	110	5	70-133/18
96-18-4	1,2,3-Trichloropropane	ND		400	388	97	400	100	3	69-126/18
120-82-1	1,2,4-Trichlorobenzene	ND		400	413	103	429	107	4	68-129/17
95-63-6	1,2,4-Trimethylbenzene	ND		400	440	110	452	113	3	74-129/17
108-67-8	1,3,5-Trimethylbenzene	ND		400	447	112	461	115	3	77-129/17
127-18-4	Tetrachloroethylene	ND		400	406	102	421	105	4	69-127/20
108-88-3	Toluene	ND		400	420	105	429	107	2	75-122/17
79-01-6	Trichloroethylene	ND		400	400	100	415	104	4	78-123/17
75-69-4	Trichlorofluoromethane	ND		400	437	109	450	113	3	65-136/23
75-01-4	Vinyl chloride	ND		400	449	112	460	115	2	57-146/22
1330-20-7	Xylene (total)	ND		1200	1230	103	1250	104	2	77-125/17

CAS No.	Surrogate Recoveries	MS	MSD	C29694-7	Limits
1868-53-7	Dibromofluoromethane	107%	113%	111%	70-130%
2037-26-5	Toluene-D8	106%	105%	108%	70-130%

* = Outside of Control Limits.

6.4.1

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Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C29694-7MS	W41974.D	20	09/24/13	BD	n/a	n/a	VW1480
C29694-7MSD	W41975.D	20	09/24/13	BD	n/a	n/a	VW1480
C29694-7	W41973.D	20	09/24/13	BD	n/a	n/a	VW1480

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-6

CAS No.	Surrogate Recoveries	MS	MSD	C29694-7	Limits
460-00-4	4-Bromofluorobenzene	98%	98%	96%	70-130%

(a) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C29743-4MS	R20757.D	1	09/25/13	BD	n/a	n/a	VR766
C29743-4MSD	R20758.D	1	09/25/13	BD	n/a	n/a	VR766
C29743-4	R20745.D	1	09/25/13	BD	n/a	n/a	VR766

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-2

CAS No.	Compound	C29743-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
67-64-1	Acetone	20 U		80	74.2	93	76.1	95	3	38-159/24
71-43-2	Benzene	0.20	J	20	20.5	102	20.2	100	1	77-122/16
108-86-1	Bromobenzene	1.0 U		20	20.1	101	19.7	99	2	76-126/17
74-97-5	Bromochloromethane	1.0 U		20	20.3	102	20.4	102	0	77-130/17
75-27-4	Bromodichloromethane	1.0 U		20	20.1	101	19.8	99	2	75-127/16
75-25-2	Bromoform	1.0 U		20	17.0	85	16.5	83	3	69-141/17
104-51-8	n-Butylbenzene	2.0 U		20	19.3	97	18.2	91	6	72-129/18
135-98-8	sec-Butylbenzene	2.0 U		20	20.4	102	19.4	97	5	74-128/18
98-06-6	tert-Butylbenzene	2.0 U		20	19.9	100	19.4	97	3	73-127/18
108-90-7	Chlorobenzene	1.0 U		20	20.2	101	20.3	102	0	77-122/16
75-00-3	Chloroethane	0.38	J	20	22.2	109	21.5	106	3	69-133/18
67-66-3	Chloroform	1.0 U		20	20.9	105	20.9	105	0	74-126/17
95-49-8	o-Chlorotoluene	2.0 U		20	19.2	96	18.8	94	2	72-127/20
106-43-4	p-Chlorotoluene	2.0 U		20	20.5	103	20.1	101	2	68-127/18
75-15-0	Carbon disulfide	1.0 U		20	17.4	87	17.2	86	1	56-137/19
56-23-5	Carbon tetrachloride	1.0 U		20	21.6	108	20.8	104	4	71-133/19
75-34-3	1,1-Dichloroethane	1.0 U		20	20.6	103	20.8	104	1	71-125/17
75-35-4	1,1-Dichloroethylene	1.0 U		20	18.7	94	18.4	92	2	66-125/20
563-58-6	1,1-Dichloropropene	1.0 U		20	19.3	97	19.1	96	1	75-124/18
96-12-8	1,2-Dibromo-3-chloropropane	2.0 U		20	20.8	104	19.7	99	5	65-131/20
106-93-4	1,2-Dibromoethane	1.0 U		20	19.9	100	20.0	100	1	75-135/17
107-06-2	1,2-Dichloroethane	1.0 U		20	21.0	105	20.1	101	4	71-131/17
78-87-5	1,2-Dichloropropane	1.0 U		20	20.4	102	20.3	102	0	78-124/16
142-28-9	1,3-Dichloropropane	1.0 U		20	20.0	100	20.0	100	0	78-123/16
594-20-7	2,2-Dichloropropane	1.0 U		20	19.4	97	19.7	99	2	70-131/19
124-48-1	Dibromochloromethane	1.0 U		20	18.5	93	18.6	93	1	76-132/16
75-71-8	Dichlorodifluoromethane	1.0 U		20	25.5	128	22.4	112	13	32-168/28
156-59-2	cis-1,2-Dichloroethylene	1.3		20	20.3	95	21.0	99	3	73-126/17
10061-01-5	cis-1,3-Dichloropropene	1.0 U		20	19.5	98	18.8	94	4	72-130/16
541-73-1	m-Dichlorobenzene	1.0 U		20	20.2	101	20.5	103	1	75-124/16
95-50-1	o-Dichlorobenzene	1.0 U		20	20.1	101	20.6	103	2	76-124/16
106-46-7	p-Dichlorobenzene	1.0 U		20	20.3	102	20.0	100	1	75-124/16
156-60-5	trans-1,2-Dichloroethylene	1.0 U		20	19.0	95	19.3	97	2	71-126/18
10061-02-6	trans-1,3-Dichloropropene	1.0 U		20	18.9	95	18.8	94	1	71-126/16
100-41-4	Ethylbenzene	1.0 U		20	17.0	85	17.0	85	0	76-126/17
637-92-3	Ethyl Tert Butyl Ether	2.0 U		20	20.6	103	22.6	113	9	75-134/17

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C29743-4MS	R20757.D	1	09/25/13	BD	n/a	n/a	VR766
C29743-4MSD	R20758.D	1	09/25/13	BD	n/a	n/a	VR766
C29743-4	R20745.D	1	09/25/13	BD	n/a	n/a	VR766

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-2

6.4.2

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CAS No.	Compound	C29743-4 ug/l	Q	Spike ug/l	MS ug/l	MS %	MSD ug/l	MSD %	RPD	Limits Rec/RPD
591-78-6	2-Hexanone	10 U		80	79.2	99	78.6	98	1	67-150/22
87-68-3	Hexachlorobutadiene	2.0 U		20	18.5	93	19.8	99	7	69-135/20
98-82-8	Isopropylbenzene	1.0 U		20	18.3	92	18.4	92	1	61-125/17
99-87-6	p-Isopropyltoluene	2.0 U		20	16.2	81	15.8	79	2	68-127/18
108-10-1	4-Methyl-2-pentanone	10 U		80	79.6	100	87.3	109	9	71-142/21
74-83-9	Methyl bromide	2.0 U		20	20.3	102	19.9	100	2	68-132/18
74-87-3	Methyl chloride	1.0 U		20	23.8	119	22.6	113	5	39-150/28
74-95-3	Methylene bromide	1.0 U		20	20.2	101	20.0	100	1	77-127/16
75-09-2	Methylene chloride	10 U		20	19.0	95	19.3	97	2	67-128/18
78-93-3	Methyl ethyl ketone	10 U		80	74.8	94	80.0	100	7	56-155/23
1634-04-4	Methyl Tert Butyl Ether	1.0 U		20	20.2	101	20.5	103	1	73-132/17
91-20-3	Naphthalene	5.0 U		20	18.9	95	19.1	96	1	70-136/20
103-65-1	n-Propylbenzene	2.0 U		20	18.9	95	18.5	93	2	71-127/17
100-42-5	Styrene	1.0 U		20	4.7	24* [a]	4.5	23* [a]	4	72-134/16
75-65-0	Tert-Butyl Alcohol	10 U		100	109	109	112	112	3	60-149/26
630-20-6	1,1,1,2-Tetrachloroethane	1.0 U		20	20.3	102	20.3	102	0	77-130/16
71-55-6	1,1,1-Trichloroethane	1.0 U		20	21.5	108	21.2	106	1	74-128/19
79-34-5	1,1,2,2-Tetrachloroethane	1.0 U		20	21.2	106	21.8	109	3	77-129/17
79-00-5	1,1,2-Trichloroethane	1.0 U		20	19.9	100	20.0	100	1	77-125/16
87-61-6	1,2,3-Trichlorobenzene	2.0 U		20	18.5	93	19.7	99	6	70-133/18
96-18-4	1,2,3-Trichloropropane	2.0 U		20	18.9	95	19.8	99	5	69-126/18
120-82-1	1,2,4-Trichlorobenzene	2.0 U		20	18.5	93	19.6	98	6	68-129/17
95-63-6	1,2,4-Trimethylbenzene	2.0 U		20	9.5	48* [a]	8.8	44* [a]	8	74-129/17
108-67-8	1,3,5-Trimethylbenzene	2.0 U		20	6.3	32* [a]	6.0	30* [a]	5	77-129/17
127-18-4	Tetrachloroethylene	1.0 U		20	19.5	98	18.7	94	4	69-127/20
108-88-3	Toluene	0.78	J	20	16.7	80	16.6	79	1	75-122/17
79-01-6	Trichloroethylene	1.0 U		20	20.6	103	20.4	102	1	78-123/17
75-69-4	Trichlorofluoromethane	1.0 U		20	21.6	108	21.2	106	2	65-136/23
75-01-4	Vinyl chloride	1.0 U		20	23.7	119	21.8	109	8	57-146/22
1330-20-7	Xylene (total)	2.0 U		60	36.6	61* [a]	35.7	60* [a]	2	77-125/17

CAS No.	Surrogate Recoveries	MS	MSD	C29743-4	Limits
1868-53-7	Dibromofluoromethane	105%	105%	105%	70-130%
2037-26-5	Toluene-D8	89%	89%	94%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C29711
Account: CTESAZT City of Tucson Environmental Services
Project: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C29743-4MS	R20757.D	1	09/25/13	BD	n/a	n/a	VR766
C29743-4MSD	R20758.D	1	09/25/13	BD	n/a	n/a	VR766
C29743-4	R20745.D	1	09/25/13	BD	n/a	n/a	VR766

The QC reported here applies to the following samples: Method: SW846 8260B

C29711-2

CAS No.	Surrogate Recoveries	MS	MSD	C29743-4	Limits
460-00-4	4-Bromofluorobenzene	98%	101%	102%	70-130%

(a) Outside laboratory control limits.

6.4.2

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* = Outside of Control Limits.

Northern California
ACCUTEST
LABORATORIES

Misc. Forms

Custody Documents and Other Forms

(Accutest Laboratories Gulf Coast, Inc.)

Includes the following where applicable:

- Chain of Custody

ACCUTEST LABORATORIES

Accutest ID and PO#: C29711

2105 Lundy Avenue, San Jose, CA 95131 Phone :(408)588-0200 Fax: (408)588-0201

Subcontract Chain of Custody

Subcontract Lab: Accutest Gulf Coast
Date Sent: 09/16/13
Date Due: 09/27/13

Project Name: CTESAZT5487
Project Location:

	Accutest Lab Number	Customer Sample Name/Field Point ID	Matrix	Method	Collect Date	Collect Time
1	C29711-1		GW	V504STD		
3	C29711-3		GW	V504STD		
4	C29711-4		GW	V504STD		
5	C29711-5		GW	V504STD		
6	C29711-6		WTB	V504STD		

Comments: Trip Blank (1 x 40ml HCL Vial ONLY)

Relinquished By:	Received By:	Date:	Time:
Elvink	FedEx	09/16/13	15:00
Relinquished By: FedEx	Received By:	Date:	Time:
		9/17/13	9:0
Relinquished By:	Received By:	Date:	Time:

Page 1

Send Report to: bethp@accutest.com

C29711: Chain of Custody
Page 1 of 3
Accutest Laboratories Gulf Coast, Inc.

ACCUTEST LABORATORIES

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: C29711 **Client:** ACCUTEST **Project:**

Date / Time Received: 9/17/2013 **Delivery Method:** **Airbill #'s:** 796696754317

No. Coolers: 1 **Therm ID:** IR6; **Temp Adjustment Factor:** 0;

Cooler Temps (Initial/Adjusted): #1: (3.4/3.4);

Cooler Security	Y	or N		Y	or N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	or N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:		
3. Cooler media:	Ice (Bag)	

Quality Control Preservation	Y	or N	N/A	WTB	STB
1. Trip Blank present / cooler:	☐	☐	☑	☐	☐
2. Trip Blank listed on COC:	☐	☐	☑		
3. Samples preserved properly:	☑	☐			
4. VOCs headspace free:	☑	☐	☐		

Sample Integrity - Documentation	Y	or N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	or N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	or N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Comments

Accutest Laboratories
V:713.271.4700

10165 Harwin Drive
F: 713.271.4770

Houston, TX 77036
www/accutest.com

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C29711: Chain of Custody
Page 2 of 3

ACCUTEST LABORATORIES

Sample Receipt Log

Job #: C29711 **Date / Time Received:** 9/17/2013 9:10:00 AM **Initials:** BG

Client: ACCUTEST

Cooler #	Sample ID:	Vol	Bot #	Location	Pres	pH	Therm ID	Initial Temp	Therm CF	Corrected Temp
1	C29711-1	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29711-1	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29711-1	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29711-3	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29711-3	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29711-3	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29711-4	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29711-4	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29711-4	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29711-5	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29711-5	40ml	2	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29711-5	40ml	3	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4
1	C29711-6	40ml	1	VR	HCL	Note #1 - Preservative to be checked by analyst at the instrument.	IR6	3.4	0	3.4

7.1

7

C29711: Chain of Custody
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Northern California
ACCUTEST
LABORATORIES

GC Volatiles

QC Data Summaries

(Accutest Laboratories Gulf Coast, Inc.)

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: C29711
Account: ALNCA Accutest Northern California, Inc.
Project: CTESAZT: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP29884-MB	MM065900.D	1	09/25/13	AR	09/25/13	OP29884	GMM309

The QC reported here applies to the following samples: **Method:** EPA 504.1

C29711-1, C29711-3, C29711-4, C29711-5, C29711-6

CAS No.	Compound	Result	RL	MDL	Units	Q
96-12-8	1,2-Dibromo-3-chloropropane	ND	0.020	0.011	ug/l	
106-93-4	1,2-Dibromoethane	ND	0.020	0.011	ug/l	

CAS No.	Surrogate Recoveries		Limits
3017-95-6	2-Bromo-1-chloropropane	103%	70-130%

8.1.1

8

Blank Spike/Blank Spike Duplicate Summary

Job Number: C29711
Account: ALNCA Accutest Northern California, Inc.
Project: CTESAZT: Price Service Center

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP29884-BS	MM065901.D	1	09/25/13	AR	09/25/13	OP29884	GMM309
OP29884-BSD	MM065902.D	1	09/25/13	AR	09/25/13	OP29884	GMM309

The QC reported here applies to the following samples: **Method:** EPA 504.1

C29711-1, C29711-3, C29711-4, C29711-5, C29711-6

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
96-12-8	1,2-Dibromo-3-chloropropane	0.257	0.25	97	0.25	98	0	70-130/20
106-93-4	1,2-Dibromoethane	0.257	0.25	97	0.26	101	4	70-130/20

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
3017-95-6	2-Bromo-1-chloropropane	104%	98%	70-130%

* = Outside of Control Limits.

APPENDIX G

Historical Analytical Results Summary Table

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
WR-208A	3/27/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3
WR-208A	3/22/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-208A	3/23/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-208A	3/23/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-208A	3/23/09	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-208A	3/24/08	<0.5	0.3	<3	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	<2.5	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-208A	3/14/07	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-208A	3/21/06	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-208A DUP	3/21/06	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-208A	4/11/05	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-208A DUP	4/11/05	<0.5	0.3	3.4	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-208A	3/25/04	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-208A DUP	3/25/04	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-208A	4/11/03	<1.0	0.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-208A	3/21/02	<1.0	0.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-208A	4/18/01	1.4	1.4	<2.0	<2.0	3.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-208A	12/6/94	<0.5	0.3	<0.5	<0.5	1.2	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	1.2a	<0.5	<1.0	NA
WR-208A	10/6/94	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<0.5	NA	NA
WR-208A	6/22/94	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-208A	3/25/94	<0.5	0.3	0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-208A DUP	3/25/94	<0.5	0.3	0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-208A	2/23/94	0.8	0.8	0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-208A	1/25/94	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-208A DUP	1/25/94	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-208A	12/28/93	<0.5	0.3	0.6	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-208A	12/1/93	<0.5	0.3	0.8	<0.5	1.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-208A	10/27/93	<0.5	0.3	<0.5	<0.5	1.2	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-208A	9/30/93	3.7	3.7	8	2.9	11	<0.5	<0.5	NA	0.7	<0.5	1.9	<0.5	<0.5	<0.5	0.8	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-208A	6/17/93	0.5	0.5	0.7	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-208A	3/30/93	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-208A	11/7/92	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-209A	3/27/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	87
WR-209A	3/27/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	80
WR-209A	3/22/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	182
WR-209A	3/22/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	178
WR-209A	3/21/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	308
WR-209A	4/7/10	<0.5	0.3	<0.2	<0.2	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	290
WR-209A	4/6/09	<0.5	0.3	<0.2	<0.2	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	670
WR-209A	4/7/08	<0.5	0.3	<0.5	2.7	3.7	<1	1	<1	1.2	<1	2.8	<1	<1	<1	<1	NA	<0.5	<0.5	<2	<0.5	<0.5	700
WR-209A (DUP)	4/7/08	<0.5	0.3	<0.5	2.7	3.5	<1	1	<1	1.2	<1	2.8	<1	<1	<1	<1	NA	<0.5	<0.5	<2	<0.5	<0.5	710
WR-209A	3/30/06	1.5	1.5	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	480
WR-209A	5/2/05	3.7	3.7	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1600
WR-209A	12/28/04	11	11	<3.0	3.4	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1200
WR-209A	3/31/04	1.9	1.9	14	<2.0	6.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	560
WR-209A	4/14/03	52	52	<2.0	22	35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-209A	3/21/02	510	510	<2.0	37	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-209A DUP	3/21/02	440	440	<20	38	32	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-209A	4/17/01	2100	2100	<20	66	31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-209A	7/27/99	540	540	<40	<40	<80	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-209A	1/29/99	940	940	5.4	18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	11	<2	<2	NA
WR-209A	10/13/98	830	830	55	60	<75	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-209A	1/30/98	1700	1700	<125	<125	<125	<125	<125	NA	<125	<125	<125	<125	<125	<125	<125	<125*	<125*	NA	<125*	<125*	<125	NA
WR-209A	7/31/97	2100	2100	110	160	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	190	<0.5	<0.5	NA
WR-209A	5/1/97	2000	2000	160	260	160	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-209A	1/16/97	2100	2100	<5.0	240	<100	<50	<50	NA	<50	<50	<50	<50	<50	<50	<50	<50*	<50*	NA	NA	<50	<50	NA
WR-209A	10/31/96	3600	3600	410	480	149	<50	<50	NA	<50	<50	<50	<50	<50	<50	65	<50*	<50*	NA	110	<50	<50	NA
WR-209A	8/1/96	3900	3900	420	220	<200	<100	<100	NA	<100	<100	<100	<100	<100	<100	<100	<100*	<100*	NA	<200*	<200*	<100	NA
WR-209A	4/25/96	3600	3600	580	480	250	<50	<50	NA	<50	<50	72	<50	<50	<50	100	<50*	<50*	NA	<100*	<50	<50	NA
WR-209A	3/4/96	3800	3800	370	420	192	<25	40	NA	<25	<25	57	<25	<25	<25	110	<25*	<25*	NA	90	<25	<25	NA

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
WR-209A	12/18/95	1600	1600	240	180	110	<50	<50	NA	<50	<50	<50	<50	<50	<50	<50	<50*	<50*	NA	<50*	<50	<50	NA
WR-209A	9/14/95	3500	3500	460	460	130	<50	<50	NA	<50	<50	6.4	<50	<50	<50	9.9	<50*	<50*	NA	<50*	<50	<50	NA
WR-209A	6/20/95	6500	6500	740	840	250	<100	<100	NA	<100	<100	130	<100	<100	<100	140	<100*	<100*	NA	<100*	<100*	<100	NA
WR-209A	3/17/95	2800	2800	380	360	260	<50	<50	NA	<50	<50	86	<50	<50	<50	70	<100*	<50*	NA	<50*	<50	<100	NA
WR-209A	12/13/94	2600	2600	360	430	180	<50	60	NA	<50	<50	95	<50	<50	<50	84	<100*	<50*	NA	<100*	<50	<100	NA
WR-209A	10/5/94	2500	2500	150	290	76	26	<25	NA	<25	<25	<25	<25	<25	<25	33	NA	NA	NA	NA	<25	NA	NA
WR-209A	6/28/94	2500	2500	55	310	<25	<25	25	NA	<25	<25	<25	<25	<25	<25	18	0.02	NA	NA	NA	<25	NA	NA
WR-209A	3/30/94	2400	2400	81	330	45	26	27	NA	<5	<5	25	<5	<5	6.5	27	<10*	<5	NA	<20*	<10	<10	NA
WR-209A	1/5/94	1700	1700	130	200	64	6.5	17	NA	<5	<5	14	<5	<5	<5	18	NA	NA	NA	NA	<10	NA	NA
WR-209A	9/30/93	1400	1400	73	170	65	<10	15	NA	<10	<10	19	<10	<10	<10	<10	<20*	<10*	NA	<40*	<20	<20	NA
WR-209A	6/18/93	1800	1800	150	190	<100	<50	<50	NA	<50	<50	120	<50	<50	<50	<50	NA	NA	NA	NA	<100*	NA	NA
WR-209A	3/30/93	1500	1500	210	140	180	6.1	16	NA	44	<0.5	72	0.7	<0.5	15	27	<1.0*	1.5	NA	<2.0	<1.0	<1.0	NA
WR-209A DUP	3/30/93	760	760	93	60	83	1.6	3.9	NA	14	<0.5	33	<0.5	<0.5	4.5	7.3	<1.0*	0.9	NA	8.4	<1.0	<1.0	NA
WR-209A	11/13/92	1800	1800	1200	200	870	<100	<100	NA	<100	<100	120	<100	<100	<100	<100	<200*	<10*	NA	<400*	<200*	200	NA
WR-210A	3/26/13	1.5	1.5	<2	3.9	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	89
WR-210A	3/26/13	<1	0.5	<2	6.1	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	90
WR-210A	3/21/12	104	104	4.16	108	29.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	286
WR-210A	12/6/11	161	161	3.79	112	10.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	360
WR-210A	9/14/11	274	274	9.02	202	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	507
WR-210A	3/21/11	376	376	<20	174	22.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1700
WR-210A	4/7/10	12	12	<2	5.4	3.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	250
WR-210A	4/2/09	62	62	<20	43	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	N	NA	NA	NA	NA	NA	NA	770
WR-210A	4/7/08	3.6	3.6	0.51	13	14	<1	3	<1	3.9	<1	9.1	<1	<1	<1	2.4	NA	<0.5	<0.5	<2	<0.5	<0.5	130
WR-210A	4/3/07	2.5	2.5	<3.0	5	7.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	N	NA	NA	NA	NA	NA	NA	200
WR-210A	4/3/06	14	14	26	390	94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	390
WR-210A DUP	4/3/06	13	13	13	24	86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	350
WR-210A	5/3/05	72	72	10	24	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	640
WR-210A	12/28/04	740	740	250	580	1100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2400
WR-210A	4/11/03	550	550	32	66	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-210A	3/18/02	570	570	26	35	76	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-210A	4/17/01	440	440	440	580	2100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-210A	7/22/99	100	100	630	130	670	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-210A	1/29/99	44	44	96	70	170	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.8	NA	<10*	<2	<2	NA
WR-210A	12/18/95	1000	1000	3500	800	2500	<62.5	120	NA	220	<62.5	890	<62.5	<62.5	<62.5	200	<62.5*	<62.5*	NA	<62.5*	<62.5	<62.5	NA
WR-210A	9/14/95	3000	3000	4500	1000	2400	<50	130	NA	160	<50	690	<50	<50	<50	180	<50*	<50*	NA	<50*	<50	<50	NA
WR-210A	6/20/95	3400	3400	4100	1200	1800	<100	130	NA	120	<100	550	<100	<100	<100	170	<100*	<100*	NA	<100*	<100*	<100	NA
WR-210A	3/17/95	2400	2400	3300	1200	1800	51	100	NA	100	<50	550	<50	<50	72	170	<100*	<50*	NA	<50*	<50	<100	NA
WR-210A	10/4/94	2000	2000	3600	1100	2000	<50	130	NA	180	<50	680	<50	<50	<50	140	NA	NA	NA	NA	<50	NA	NA
WR-210A DUP	10/4/94	1800	1800	3100	930	1800	<50	95	NA	110	<50	440	<50	<50	<50	110	NA	NA	NA	NA	<50	NA	NA
WR-210A	6/28/94	4100	4100	5900	1200	3400	40	150	NA	230	<25	860	<25	<25	120	250	7.6	NA	NA	NA	<25	NA	NA
WR-210A	3/31/94	3700	3700	3500	860	2400	40	130	NA	210	<5.0	820	<5.0	<5.0	200	270	<10*	<5.0	NA	<20*	<10	<10	NA
WR-210A	1/5/94	3200	3200	1900	720	1500	20	78	NA	150	<5.0	550	<5.0	<5.0	53	180	NA	NA	NA	NA	<10	NA	NA
WR-210A	10/1/93	3200	3200	2100	690	2100	25	86	NA	210	<10	650	<10	<10	89	140	<20*	<10*	NA	<40*	<20	<20	NA
WR-210A	6/18/93	2900	2900	2700	710	2700	<500	<500	NA	<500	<500	510	<500	<500	<500	<500	NA	NA	NA	NA	<1,000*	NA	NA
WR-210A	3/31/93	2500	2500	1300	350	1000	14	40	NA	92	<0.5	170	1.5	0.7	30	77	2	23	NA	<2.0	<1.0	<1.0	NA
WR-210A DUP	3/31/93	2400	2400	1300	350	1000	14	40	NA	89	<0.5	180	1.5	0.6	28	67	2.1	22	NA	<2.0	<1.0	<1.0	NA
WR-210A	11/13/92	3800	3800	4200	690	3200	<250	<250	NA	<250	<150	<250	<250	<250	<250	<250	<500*	<250*	NA	<1,000*	<500*	<500	NA
	WR-210A was not sampled between years 1995 - 1999 due to free product.																						
WR-211A	3/27/13	<1	0.5	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
WR-211A	3/22/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-211A	3/28/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-211A DUP	3/28/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-211A	3/30/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-211A	3/31/09	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3
WR-211A	4/3/08	<0.5	0.3	<3	4	8.6	<2.5	<2	<5	<1.5	<2.5	3	<1.5	<2.5	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	2.8
WR-211A	3/28/07	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.2
WR-211A DUP	3/28/07	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	N	NA	NA	NA	NA	NA	NA	3.7
WR-211A	4/5/06	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.3

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
WR-211A DUP	4/5/06	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.3
WR-211A	5/10/05	2.6	2.6	7.5	<2.0	8.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.1
WR-211A	4/28/05	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.9
WR-211A	3/26/04	1.8	1.8	6.5	2.8	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14
WR-211A	4/10/03	49	49	2.5	4.3	8.31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-211A DUP	4/10/03	48	48	<2.0	4.5	8.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-211A	3/14/02	16	16	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-211A	4/18/01	180	180	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-211A	7/27/99	12	12	<1.0	<1.0	<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-211A	1/29/99	53	53	<2	11	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.9	NA	<10*	<2	<2	NA
WR-211A DUP	1/29/99	48	48	<2	10	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.4	NA	<10*	<2	<2	NA
WR-211A	10/13/98	110	110	7.5	45	470	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-211A	1/30/98	32	32	<2	5	<4	<2	<2	NA	<2	<2	<2	<2	<2	<2	<2	<2*	<2	NA	<2	<2	<2	NA
WR-211A DUP	1/29/98	32	32	<2	3.6	<4	<2	<2	NA	<2	<2	<2	<2	<2	<2	<2	<2*	<2	NA	<2	<2	<2	NA
WR-211A	7/30/97	120	120	<0.5	88	<1.0	<0.5	18	NA	<0.5	<0.5	29	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-211A	5/1/97	280	280	31	140	30	18	26	NA	24	<0.5	46	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	81	<0.5	<0.5	NA
WR-211A	1/16/97	440	440	<10	240	<20	11	<10	NA	<10	<10	38	<10	<10	<10	<10	<10*	<10*	NA	NA	<10	<10	NA
WR-211A	10/31/96	520	520	<5.0	160	120	8.7	22	NA	6.9	<5.0	24	<0.5	<5.0	<5.0	10	<5.0*	24	NA	14	<5.0	<5.0	NA
WR-211A	7/31/96	1700	1700	<50	230	<100	<50	<50	NA	<50	<50	<50	<50	<50	<50	<50	<50*	<50*	NA	<100*	<100*	<50	NA
WR-211A	4/25/96	1400	1400	<25	360	<52	<25	47	NA	27	<25	53	<25	<25	<25	43	<25*	<25*	NA	<50*	<25	<25	NA
WR-211A	3/1/96	1500	1500	72	350	54	<25	41	NA	<25	<25	57	<25	<25	<25	27	<25*	<25*	NA	110	<25	<25	NA
WR-211A	12/18/95	1300	1300	52	350	<50	<50	<50	NA	<50	<50	58	<50	<50	<50	<50	<50*	<50*	NA	<50*	<50	<50	NA
WR-211A	9/15/95	2400	2400	410	550	94	<50	60	NA	<50	<50	<50	<50	<50	<50	<50	<50*	51	NA	<50*	<50	<50	NA
WR-211A	6/20/95	2300	2300	150	490	<50	<50	54	NA	<50	<50	150	<50	<50	<50	<50	<50*	<50*	NA	<50*	<50	<50	NA
WR-211A DUP	6/20/95	2200	2200	120	500	<50	<50	55	NA	<50	<50	170	<50	<50	<50	<50	<50*	<50*	NA	<50*	<50	<50	NA
WR-211A	3/17/95	4300	4300	760	700	310	<63	<63	NA	<63	<63	290	<63	<63	<63	81	<125*	<63*	NA	<63*	<63	<125	NA
WR-211A	12/13/94	4900	4900	510	730	290	<100	<100	NA	<100	<100	410	<100	<100	<100	170	<200*	<100*	NA	<100*	<100*	<200	NA
WR-211A	10/5/94	5400	5400	670	460	230	<50	<50	NA	<50	<50	<50	<50	<50	<50	<50	NA	NA	NA	NA	<50	NA	NA
WR-211A	6/28/94	5400	5400	1300	480	690	<50	<50	NA	61	<50	250	<50	<50	<50	67	2	NA	NA	NA	<50	NA	NA
WR-211A DUP	6/28/94	5900	5900	1400	540	850	<50	<50	NA	81	<50	300	<50	<50	<50	90	NA	NA	NA	NA	<50	NA	NA
WR-211A	3/31/94	5600	5600	1500	500	820	29	42	NA	78	<5.0	310	<5.0	<5.0	70	<5.0	<10*	37	NA	<20*	<10	<10	NA
WR-211A	1/5/94	5200	5200	1700	270	690	7.1	22	NA	48	<5.0	180	<5.0	<5.0	15	49	NA	NA	NA	NA	<10	NA	NA
WR-211A	10/1/93	4100	4100	1300	220	510	<25	<25	NA	44	<25	120	<25	<25	<25	38	<50*	<25*	NA	<100*	<50	<25	NA
WR-211A	6/17/93	3400	3400	1200	310	1200	7.8	29	NA	75	<5.0	220	<5.0	<5.0	29	48	NA	NA	NA	NA	<10	NA	NA
WR-211A	3/31/93	2900	2900	650	180	410	9.5	24	NA	55	<0.5	95	1.1	0.5	21	44	1.6	22	NA	<2.0	<1.0	<1.0	NA
WR-211A	11/10/92	2400	2400	1200	200	830	7.3	<0.5	NA	52	<0.5	160	1	<0.5	<0.5	<0.5	1.1	15	NA	<2.0	<1.0	<1.0	NA
WR-212A	3/27/13	<1.2	0.6	<2.8	71	8.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	58
WR-212A	3/29/12	5	5	<20	87.7	5800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	77.6
WR-212A	3/28/11	4.89	4.89	3.22	149	313	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	140
WR-212A	4/6/10	8.4	8.4	<2	35	46	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	280
WR-212A	4/6/09	230	230	46	150	1100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	430
WR-212A	4/8/08	980	980	250	350	1400	17	44	<5	150	<5	470	5.3	17	6.2	110	NA	<2.5	<2.5	<10	<2.5	<2.5	470
WR-212A	4/4/07	640	640	310	210	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	910
WR-212A	4/11/06	1,100	1100	740	290	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	670
WR-212A	5/9/05	4400	4400	9000	880	6300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	650
WR-212A	5/2/97	10000	10000	360	1700	<1.0	<0.5	<0.5	NA	540	<0.5	950	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-212A	1/16/97	8300	8300	320	2900	<500	<250	<250	NA	<310	750	<250	<250	<250	<250	<250	<250*	<250*	NA	NA	<250*	<250	NA
WR-212A	10/31/96	12000	12000	870	3100	930	<250	<250	NA	450	<250	1200	<250	<250	<250	320	<250*	<250*	NA	<500*	<250*	<250	NA
WR-212A	8/1/96	15000	15000	1600	1800	<1,000	<500	<500	NA	<500	<500	<500	<500	<500	<500	<500	<500*	<500*	NA	<1,000*	<1,000*	<500	NA
WR-212A	4/26/96	14000	14000	3000	3200	<1,550	<250	270	NA	470	<250	1200	<250	<250	<250	600	<250*	<250*	NA	<500*	<250*	<250	NA
WR-212A	3/4/96	16000	16000	3200	3200	1960	<250	250	NA	460	<250	1300	<250	<250	<250	680	<250*	<250*	NA	910	<250*	<250	NA
WR-212A	12/13/95	15000	15000	3200	3300	1940	<250	<250	NA	450	<250	1900	<250	<250	<250	670	<250*	<250*	NA	<250*	<250*	<250	NA
WR-212A	9/14/95	15000	15000	2400	3300	1400	<250	270	NA	460	<250	1800	<250	<250	<250	560	<250*	<250*	NA	<250*	<250*	<250	NA
WR-212A	6/19/95	15000	15000	2800	3000	1600	<250	<250	NA	340	<250	1400	<250	<250	<250	540	<250*	<250*	NA	<250*	<250*	<250	NA
WR-212A	3/15/95	14000	14000	2300	2400	1700	<250	<250	NA	450	<250	1100	<250	<250	<250	490	<500*	<250*	NA	<250*	<250*	<500	NA
WR-212A	12/13/94	13000	13000	3500	2700	2700	<250	420	NA	710	<250	1400	<250	<250	<250	480	<500*	<250*	NA	<250*	<250*	<500	NA
WR-212A	10/5/94	16000	16000	4300	2700	2900	<125	170	NA	280	<125	1300	<125	<125	<125	370	NA	NA	NA	NA	<125*	NA	NA
WR-212A DUP	10/5/94	16000	16000	4200	2700	2900	<125	170	NA	280	<125	1300	<125	<125	<125	420	NA	NA	NA	NA	<125*	NA	NA
WR-212A	6/29/94	14000	14000	7200	2500	970	<100	170	NA	370	<100	1200	<100	<100	160	400	15	NA	NA	NA	<100*	NA	NA

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
WR-212A	3/31/94	14000	14000	7300	2100	4500	180	170	NA	350	<10	1200	<10	<10	330	450	<20*	38	NA	<40*	<20	<20	NA
WR-212A	1/5/94	18000	18000	14000	2600	8300	45	160	NA	320	<5.0	1100	<5.0	<5.0	110	440	NA	NA	NA	NA	<10	NA	NA
WR-212A	9/30/93	15000	15000	14000	2300	9500	40	130	NA	330	<25	1000	<25	<25	89	340	<50*	36	NA	<100*	<50	<50	NA
WR-212A	6/18/93	17000	17000	1500	2800	13000	<50	160	NA	380	<50	1300	<50	<50	110	380	NA	NA	NA	NA	100	NA	NA
WR-212A	4/1/93	15000	15000	9400	1400	5600	34	100	NA	240	<5.0	680	<5.0	<5.0	59	240	17	62	NA	<20*	<10	<10	NA
WR-212A	11/13/92	16000	16000	10000	1500	7000	4.8	<0.5	NA	220	1100	<0.5	3.5	<0.5	75	270	32	55	NA	<2.0	<1.0	<1.0	NA
	WR-212A was not sampled between years 1997 - 2005 due to free product.																						
WR-213A	3/21/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
WR-213A	3/26/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-213A	3/23/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-213A	3/16/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-213A DUP	3/16/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-213A	4/14/09	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-213A	3/18/08	<0.5	0.3	<3	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-213A	3/19/07	<1.0	0.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.0
WR-213A	3/21/06	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-213A	4/13/05	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-213A DUP	4/13/05	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-213A	3/25/04	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-213A	4/10/03	<1.0	0.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-213A	3/21/02	1.3	1.3	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-213A	7/20/99	<1.0	0.5	<1.0	<1.0	<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-213A	1/28/99	<2	1	<2	<2	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10*	<2	<2	NA
WR-213A	1/28/98	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-213A	7/29/97	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-213A	4/30/97	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-213A	1/15/97	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-213A	10/29/96	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-213A	7/30/96	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<1.0	<0.5	NA
WR-213A	4/22/96	<0.5	0.3	1.8	1	7.1	<0.5	<0.5	NA	1.8	<0.5	2.1	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-213A	2/26/96	<0.5	0.3	0.7	<0.5	1.4	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-213A	12/12/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-213A	9/13/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-213A	6/16/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-213A	3/15/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<0.5	<0.5	<1.0	NA
WR-213A	12/9/94	1.2	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<0.5	<0.5	<1.0	NA
WR-213A	10/8/94	2.6	2.6	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<0.5	NA	NA
WR-213A	6/22/94	3.2	3.2	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-213A DUP	6/22/94	3.4	3.4	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-213A	3/25/94	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-213A	12/31/93	0.6	0.6	0.9	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-213A	9/29/93	6	6	6.5	1.1	3	<0.5	<0.5	NA	<0.5	<0.5	1	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-213A	6/18/93	23	23	66	11	63	<0.5	1.1	NA	2.6	<0.5	7.9	<0.5	<0.5	0.9	0.7	NA	NA	NA	NA	<1.0	NA	NA
WR-213A	4/1/93	120	120	160	39	160	1.5	2.7	NA	8.3	<0.5	24	<0.5	<0.5	1.6	9.8	<1.0*	0.6	NA	<2.0	<1.0	<1.0	NA
WR-213A	11/13/92	13	13	20	5.4	27	<1.0	<1.0	NA	<1.0	<1.0	2.7	<1.0	<1.0	<1.0	<1.0	<2.0*	<1.0	NA	<4.0	<1.0	<2.0	NA
WR-214A	3/25/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
WR-214A	3/26/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-214A	3/23/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-214A	3/23/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-214A	4/14/09	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.5
WR-214A	3/18/08	<0.5	0.3	<3	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-214A"DUP"	3/18/08	<0.5	0.3	<3	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-214A	3/14/07	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-214A	3/29/06	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-214A	5/2/05	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.1
WR-214A	3/26/04	5.7	5.7	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2
WR-214A	4/10/03	3.8	3.8	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-214A	3/21/02	28	28	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
WR-214A	4/18/01	180	180	<2.0	20	5.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-214A	7/22/99	16	16	3.2	1.9	<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-214A	1/28/99	11	11	<2	<2	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10*	<2	<2	NA
WR-214A	1/29/98	38	38	3.5	<2	<4	<2	<2	NA	<2	<2	<2	<2	<2	<2	<2	<2*	<2	NA	<2	<2	<2	NA
WR-214A	7/31/97	55	55	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-214A	4/30/97	33	33	2.5	4.7	<5.0	2.5	<2.5	NA	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5*	<2.5	NA	<2.5	<2.5	<2.5	NA
WR-214A DUP	4/30/97	41	41	<0.5	4.9	<5.0	<2.5	<2.5	NA	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5*	<2.5	NA	<2.5	<2.5	<2.5	NA
WR-214A	1/15/97	47	47	<2.5	<2.5	<5.0	<2.5	<2.5	NA	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5*	<2.5	NA	<5.0	<2.5	<2.5	NA
WR-214A	1/15/97	53	53	<2.5	<2.5	<5.0	<2.5	<2.5	NA	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5*	<2.5	NA	<5.0	<2.5	<2.5	NA
WR-214A	10/30/96	120	120	25	1.4	16.8	0.6	<0.5	NA	1.2	<0.5	0.8	<0.5	<0.5	<0.5	0.6	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-214A	7/31/96	120	120	17	<5.0	<10	<5.0	<5.0	NA	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0*	<5.0	NA	<10*	<5.0	<5.0	NA
WR-214A	4/24/96	230	230	140	16	78	<2.5	<2.5	NA	8	<2.5	9.5	<2.5	<2.5	<2.5	<2.5	<2.5*	<2.5	NA	<5.0	<2.5	<2.5	NA
WR-214A	2/29/96	110	110	43	6	24	<5.0	<5.0	NA	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0*	<5.0	NA	24	<5.0	<5.0	NA
WR-214A	12/13/95	180	180	61	8.3	23	<5.0	<5.0	NA	<5.0	<5.0	5.1	<5.0	<5.0	<5.0	<5.0	<5.0*	<5.0	NA	<5.0	<5.0	<5.0	NA
WR-214A	9/13/95	310	310	190	31	86	<5.0	5.1	NA	6.2	<5.0	18	<5.0	<5.0	<5.0	<5.0	<5.0*	<5.0	NA	<5.0	<5.0	<5.0	NA
WR-214A	6/16/95	370	370	210	90	92	<10	10	NA	<10	<10	15	<10	<10	<10	<10	<10*	<10*	NA	<10*	<10	<10	NA
WR-214A	3/15/95	420	420	260	86	100	<5.0	8.6	NA	7.8	<5.0	11	<5.0	<5.0	<5.0	<5.0	<10*	<5.0	NA	<5.0	<5.0	<10	NA
WR-214A	12/9/94	370	370	36	110	33	5.6	24	NA	7.5	<5.0	11	<5.0	<5.0	<5.0	<5.0	<10*	<5.0	NA	9	<5.0	<10	NA
WR-214A	10/3/94	240	240	170	61	54	<5.0	5.6	NA	<5.0	<5.0	8.4	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	<5.0	NA	NA
WR-214A	6/28/94	250	250	55	86	43	<5.0	9.6	NA	6.6	<5.0	13	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	<5.0	NA	NA
WR-214A DUP	6/28/94	250	250	54	83	41	<5.0	9	NA	6.9	<5.0	12	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	<5.0	NA	NA
WR-214A	3/30/94	440	440	87	85	68	<5.0	8.2	NA	6.9	<5.0	14	<5.0	<5.0	<5.0	<5.0	<10*	<5.0	NA	<20*	<10	<10	NA
WR-214A	1/5/94	350	350	19	76	41	<5.0	7.7	NA	<5.0	<5.0	7.4	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	<10	NA	NA
WR-214A	9/30/93	1000	1000	460	170	360	5.1	9.9	NA	17	<5.0	40	<5.0	<5.0	6.1	17	<10*	<5.0	NA	<20*	<10	<10	NA
WR-214A	6/18/93	930	930	210	110	230	<5.0	7.6	NA	16	<5.0	31	<5.0	<5.0	5.4	5.1	NA	NA	NA	NA	<10	NA	NA
WR-214A	4/1/93	1000	1000	510	120	310	<5.0	6.8	NA	22	<5.0	47	<5.0	<5.0	<5.0	11	1.6	<5.0	NA	<20*	<10	<10	NA
WR-214A	11/13/92	1100	1100	690	<100	350	<5.0	<100	NA	<100	<100	<100	<100	<100	<100	<100	<200*	<100*	NA	<100*	<200*	<200	NA
WR-215A	3/23/11	288	288	<10	20.3	62	<12.5	<10	<25	<7.5	<12.5	15.6	<7.5	NA	<12.5	<25	<2.5	<7.5	NA	<15	<7.5	<2.5	1170
WR-215A	4/8/10	560	560	140	340	480	23	54	<5	72	<2.5	210	4	NA	<2.5	140	<0.5	<1.5	NA	<3	<1.5	<0.5	1800
WR-215A	4/13/09	1300	1300	1200	720	2600	40	96	<5	220	<2.5	820	8.8	NA	<2.5	350	<0.5	<1.5	<0.5	<3	<1.5	<0.5	1500
WR-215A	12/28/04	1900	1900	8900	1200	11000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	900
WR-215A	3/30/04	560	560	290	150	1700	27	59	<5.0	290	NA	860	NA	NA	NA	200	<5.0	<1.5	NA	NA	<1.5	<0.50	1700
WR-215A	4/9/03	62	62	<15	64	150	17	47	<25	88	<13	180	11	<7.5	<13	44	NA	66	<2.5	<15	<7.5	<2.5	1700
WR-215A	3/20/02	170	170	240	160	630	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-215A DUP	3/20/02	170	170	240	160	630	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-215A	4/18/01	260	260	<100	<100	340	NA	NA	NA	NA	NA	250	NA	NA	NA	NA	NA	190	1800	NA	NA	NA	NA
WR-215A	3/29/00	800	800	100	<20	520	NA	18	40	130	390	120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-215A	8/2/99	0.9	0.9	0.96	0.14	1.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-215A	4/5/99	1862	1862	1100	179	1432	<100	<100	NA	174	<100	505	<100	<100	<100	132	<100	229	NA	<100	<100	<100	NA
WR-215A	1/27/99	2500	2500	820	42	560	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110	NA	<10*	<2	<2	NA
WR-215A	10/14/98	1100	1100	<50	<50	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-215A	7/29/98	2500	2500	540	<125	980	<125	<125	NA	<125	<125	<125	<125	<125	<125	<125	6	136	NA	<125*	<125*	<125	NA
WR-215A	5/1/98	1800	1800	230	130	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	170	NA	<5	<0.5	<0.5	NA
WR-215A DUP	5/1/98	1600	1600	180	100	520	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<25*	NA	<250*	<25	<25	NA
WR-215A	5/2/97	1700	1700	130	130	520	65	<0.5	NA	180	<0.5	460	<0.5	<0.5	<0.5	290	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-215A	1/17/97	2700	2700	90	180	610	270	<5.0	NA	160	<5.0	460	9.9	<5.0	28	98	<5.0*	260	NA	<10*	<5.0	<5.0	NA
WR-215A	11/1/96	2500	2500	120	210	420	<50	75	NA	240	<50	430	<50	<50	<50	140	<50*	380	NA	<100*	<50	<50	NA
WR-215A	8/1/96	2900	2900	330	170	<200	<100	<100	NA	<100	<100	<100	<100	<100	<100	110	<100*	<200*	NA	<200*	<100*	<100	NA
WR-215A	4/25/96	2400	2400	170	550	270	<100	130	NA	170	<100	440	<100	<100	<100	190	<100*	<100*	NA	<200*	<100*	<100	NA
WR-215A	3/1/96	5200	5200	120	830	340	<100	130	NA	260	<100	500	<100	<100	<100	270	<100*	450	NA	460	<100*	<100	NA
WR-215A	12/18/95	7200	7200	210	1000	250	<100	120	NA	130	<100	530	<100	<100	<100	210	<125*	330	NA	<100*	<100*	<100	NA
WR-215A	9/13/95	7000	7000	160	1000	230	<125	<125	NA	<125	<125	530	<125	<125	<125	220	<125*	350	NA	<125*	<125*	<125	NA
WR-215A	6/16/95	8000	8000	<200	940	280	<200	<200	NA	<200	<200	550	<200	<200	<200	<200	<200*	360	NA	<200*	<200*	<200	NA
WR-215A	3/14/95	9500	9500	630	960	620	<50	86	NA	210	<50	570	<50	<50	50	140	<100*	260	NA	<50*	<50	<100	NA
WR-215A	12/13/94	11,000 c	11,000	650	890	1200	<50	230	NA	440	<50	880	<50	<50	150	280	<100*	240	NA	<50*	<50	<100	NA
WR-215A	10/5/94	4600	4600	290	420	240	<25	<25	NA	<25	<25	N140	<25	<25	<25	56	NA	NA	NA	NA	<25	NA	NA
WR-215A	6/29/94	9500	9500	580	560	970	<100	<100	NA	180	<100	590	<100	<100	<100	170	20	NA	NA	NA	<100*	NA	NA
WR-215A	3/31/94	12000	12000	640	590	1100	<100	100	NA	160	<100	580	<100	<100	120	260	<200*	300	NA	<400*	<200*	<200	NA
WR-215A	1/6/94	7700	7700	820	440	1200	14	51	NA	140	<5.0	460	<5.0	<5.0	77	130	NA	NA	NA	NA	<10	NA	NA

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
WR-215A	10/1/93	4700	4700	460	510	2800	31	100	NA	300	<25	990	<25	<25	<25	<25	<50*	<25*	NA	<100*	<50	<50	NA
WR-215A	6/18/93	12000	12000	8600	1500	8100	<50	110	NA	290	<50	1100	<50	<50	120	290	NA	NA	NA	NA	<100*	NA	NA
WR-215A	3/31/93	7200	7200	3200	590	2500	13	34	NA	100	<5.0	290	<5.0	<5.0	47	110	32	280	NA	<20*	<10	<10	NA
WR-215A	11/13/92	30000	30000	35000	2900	15000	<500	1100	NA	<500	2700	<500	<500	<500	<500	560	<1,000*	<500*	NA	<2,000*	<1,000*	<1,000	NA
	WR-215A was not sampled after 2012 due to free product.																						
WR-216A	3/25/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
WR-216A	3/22/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-216A	3/23/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-216A	3/24/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-216A	3/24/09	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-216A	3/26/08	<0.5	0.3	<3	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	<2.5	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-216A	3/15/07	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-216A	5/11/05	<0.50	0.3	<3.0	<2.0	3.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-217A	9/12/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.019	NA	NA	NA	NA	NA	NA
WR-217A	3/21/13	<1	0.5	<1	<1	<2	<1	<1	<2	<1	<1	<1	<1	NA	<1	<5	<1	<1	<1	<2	<1	<1	<1
WR-217A	3/21/13	<1	0.5	<1	<1	<2	<1	<1	<2	<1	<1	<1	<1	NA	<1	<5	<1	<1	<1	<2	<1	<1	<1
WR-217A	3/26/12	<0.5	0.3	<2.0	<2.0	<1.0	<2.5	<2	<5	<1.5	<2.5	<2.0	<1.5	NA	<2.5	<5	<0.5	<1.5	NA	<3	<1.5	<0.5	<2
WR-217A	3/23/11	<0.5	0.3	<2.0	<2.0	<1.0	<2.5	<2	<5	<1.5	<2.5	<2.0	<1.5	NA	<2.5	<5	<0.5	<1.5	NA	<3	<1.5	<0.5	<2
WR-217A	3/29/10	<0.5	0.3	<2.0	<2.0	<3.0	<2.5	<2	<5	<1.5	<2.5	<2.0	<1.5	NA	<2.5	<5	<0.5	<1.5	NA	<3	<1.5	<0.5	<2
WR-217A	3/30/09	<0.5	0.3	<2.0	<2.0	<3.0	<2.5	<2	<5	<1.5	<2.5	<2.0	<1.5	NA	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-217A	3/30/09	<0.5	0.3	<2.0	<2.0	<3.0	<2.5	<2	<5	<1.5	<2.5	<2.0	<1.5	NA	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-217A	4/2/08	<0.5	0.3	<3	2.3	3.5	<2.5	<2	<5	<1.5	<2.5	2.5	<1.5	<2.5	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-217A	3/29/07	<0.50	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	NA	<1.5	N	<2.0	<1.5	NA	<2.5	<5.0	NA	NA	NA	NA	NA	NA	<2.0
WR-217A	4/11/05	<0.5	0.3	4.6	<2.0	<3.0	<2.5	<2.0	NA	<1.5	NA	<2.0	<1.5	<1.5	<2.5	<5.0	NA	<1.5	NA	<3.0	<1.5	<0.5	<2.0
WR-217A	3/25/04	<0.5	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	NA	<1.5	NA	<2.0	NA	NA	NA	<5.0	<0.50	<1.5	NA	<3.0	<1.5	<0.5	<2.0
WR-217A	4/9/03	<0.50	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	<2.5	<2.0	<1.5	<1.5	<2.5	<5.0	NA	<1.0	<0.5	<3.0	<1.5	<0.5	<2.0
WR-217A	3/19/02	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-217A	4/16/01	<1	0.5	<1	<1	<2	NA	NA	NA	<1	NA	250	NA	NA	NA	NA	NA	<0.5	<0.5	NA	NA	NA	NA
WR-217A	3/29/00	<10*	0.5	<10	<10	<20	NA	18	40	130	390	120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-217A	7/2/99	<2	1	<2	<2	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-217A	4/5/99	1.5	1.5	1.3	<0.5	3.4	<100	<100	NA	174	N100	505	<100	N100	N100	132	N100*	229	NA	N100*	N100*	N100	NA
WR-217A	1/29/99	<2	1	<2	<2	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110	NA	<10*	<2	<2	NA
WR-217A	10/14/98	1.2	1.2	3.3	<0.5	3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-217A	7/28/98	<0.5	0.3	<0.5	<0.5	<0.5	<125	<125	NA	<125	<125	<125	<125	<125	<125	<125	6	136	NA	<125*	<125*	<125	NA
WR-218A	3/21/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
WR-218A	3/26/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-218A	3/23/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.25
WR-218A	4/5/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	42
WR-218A	4/2/09	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	48
WR-218A	4/3/08	<0.5	0.3	<3	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	<2.5	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	41
WR-218A	4/2/07	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	46
WR-218A	4/14/05	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	56
WR-218A	3/25/04	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	57
WR-219A	9/11/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.019	NA	NA	NA	NA	NA	NA
WR-219A	3/25/13	<1	0.5	<1	2.2	<2	1.4	3.1	<2	7.9	<1	8.9	3.2	NA	<1	<5	<1	<1	<1	<2	<1	<1	<1
WR-219A	3/28/12	0.51	0.51	5.68	129	49	25.8	40.9	<5	5.66	<2.5	18.5	10.3	NA	6.26	185	<0.5	<1.5	NA	<3	<1.5	<0.5	<2
WR-219A	3/22/11	0.96	0.96	18.5	439	151	47.5	97.6	<5	20.1	<2.5	74.9	11.4	NA	12.8	215	<0.5	<1.5	NA	<3	<1.5	<0.5	<2
WR-219A	3/17/10	<0.5	0.3	3.5	67	35	20	52	<5	29	<2.5	57	22	NA	38	140	<0.5	<1.5	NA	<3	<1.5	<0.5	<2
WR-219A	4/15/09	1.3	1.3	5.2	49	28	16	24	<5	4.1	<2.5	11	9.1	NA	3.6	87	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-219A	3/19/08	3.8	3.8	4.7	430	50	70	130	<5	13	<2.5	31	15	70	7.7	230	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-219A	3/27/07	7.1	7.1	14	1100	53	49	120	NA	26	NA	52	8.4	NA	6.6	210	NA	NA	NA	NA	NA	NA	<4.0
WR-219A	4/3/06	23	23	97	1500	280	81	190	NA	99	NA	140	15	NA	19	310	NA	NA	NA	NA	NA	NA	<2.0
WR-219A	5/2/05	73	73	800	1800	2700	NA	280	<5.0	570	<2.5	2100	17	<1.5	32	440	<0.5	<1.5	<0.5	<3.0	<1.5	<0.5	<2.0
WR-219A	3/25/04	25	25	470	170	1100	13	46	<5.0	100	NA	330	NA	NA	NA	19	<0.5	<1.5	NA	<3.0	<1.5	<0.5	<2.0
WR-219A	4/8/03	<0.50	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	<2.5	<2.0	<1.5	<1.5	<2.5	<5.0	NA	<1.0	<0.5	<3.0	<1.5	<0.5	<2.0
WR-219A	3/19/02	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
WR-219A DUP	3/19/02	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-219A	3/27/00	<1.0	0.5	<1.0	<1.0	<2.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5*	<0.5	NA	<1.0	<1.0	<1.0	<1.0
WR-219A	7/20/99	<1.0	0.5	<1.0	<1.0	<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-219A DUP	4/5/99	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-219A	1/26/99	<2	1	<2	<2	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10*	<2	<2	NA
WR-219A	10/15/98	<0.5	0.3	<1.0	<1.0	<1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-219A	7/28/98	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<5	<0.5	<0.5	NA
WR-219A	4/30/98	<0.5	0.3	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	NA	<5	<0.5	<0.5	NA
WR-219A	1/27/98	<0.5	0.3	<0.5	<0.5	<1	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-219A	10/21/97	<0.5	0.3	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.01	NA	NA	NA	<0.5	NA	NA
WR-219A	7/29/97	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-219A	4/30/97	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-219A	1/15/97	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-219A	10/29/96	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-219A	7/30/96	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-219A	4/22/96	<0.5	0.3	3.6	1.9	12.5	<0.5	0.8	NA	3.2	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-219A	2/26/96	<0.5	0.3	1.5	<0.5	2.3	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-219A	12/13/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-219A	9/11/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-219A	6/19/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-219A	3/15/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<0.5	<0.5	<1.0	NA
WR-219A	12/6/94	<0.5	0.3	<0.5	<0.5	0.8	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	0.8	<0.5	<1.0	NA
WR-219A	9/28/94	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<0.5	NA	NA
WR-219A	6/22/94	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	NA	NA	NA	<1.0	NA	NA
WR-219A	3/25/94	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-219A	2/23/94	0.8	0.8	1.2	0.5	1.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-219A DUP	2/23/94	0.8	0.8	1.2	0.5	1.8	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-219A	1/24/94	0.6	0.6	0.7	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-219A	12/27/93	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-219A	12/1/93	<0.5	0.3	0.8	<0.5	1.6	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-219A	10/27/93	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-219A	9/28/93	2.3	2.3	4.1	1.1	5.6	<0.5	<0.5	NA	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-220A	3/27/12	0.64	0.64	<2	<2	<1	3.2	<2	<5	<1.5	<2.5	<2.0	<1.5	NA	<2.5	<5.0	<0.5	<1.5	NA	<3.0	<1.5	<0.5	<2
WR-220A	12/6/11	<0.5	0.3	<2	<2	<1	6.81	<2	<5	<1.5	<2.5	<2.0	<1.5	NA	<2.5	<5.0	<1	<1.5	NA	<5.0	<1.5	<1	<2
WR-220A	9/14/11	<0.5	0.3	<2	<2	<1	9.37	<2	<5	<1.5	<2.5	<2.0	<1.5	NA	<2.5	<5.0	<1	<1.5	NA	<5.0	<1.5	<1	<2
WR-220A	5/4/11	13.7	13.7	<2	<2	<1	25.9	<2	<5	<1.5	<2.5	<2.0	4.25	NA	<2.5	<5.0	<0.5	<1.5	NA	<3.0	<1.5	<0.5	<2
WR-220A	3/22/11	<0.5	0.3	<2	<2	<1	<2.5	<2	<5	<1.5	<2.5	<2.0	<1.5	NA	<2.5	<5.0	<0.5	<1.5	NA	<3.0	<1.5	<0.5	<2
WR-220A DUP	3/31/10	43	43	<2	<2	<3	17	<2	<5	<1.5	<2.5	<2.0	2.6	NA	<2.5	<5.0	<0.5	<1.5	NA	<3.0	<1.5	<0.5	<2
WR-220A	3/31/10	41	41	<2	<2	<3	17	<2	<5	<1.5	<2.5	<2.0	2.6	NA	<2.5	<5.0	<0.5	<1.5	NA	<3.0	<1.5	<0.5	<2
WR-220A	3/31/09	48	48	<2	<2	<3	32	<2	<5	<1.5	<2.5	<2.0	5.9	NA	2.9	<5.0	<0.5	<1.5	<0.5	<3.0	<1.5	<0.5	<2
WR-220A	3/31/08	2.4	2.4	<0.5	<0.5	9.7	11	<1	<1	<1	<1	8.7	1.5	11	<1	<1	<1	<0.5	<0.5	<2	<0.5	<0.5	3.4
WR-220A	3/27/07	2.8	2.8	<3.0	<2.0	15	18	<2.0	NA	<1.5	NA	2.8	4.4	NA	<2.5	<5.0	NA	NA	NA	NA	NA	NA	<2.0
WR-220A	4/4/06	4.0	4	<3.0	<2.0	<3.0	15	6.4	<5.0	<1.5	<2.5	<2.0	3.6	<1.5	<2.5	<5.0	<0.50	<1.0	<0.5	<3.0	<1.5	<0.5	<2.0
WR-220A	4/28/05	4.6	4.6	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	<2.5	<2.0	<1.5	<1.5	<2.5	<5.0	NA	<1.0	<0.5	<3.0	<1.5	<0.5	<2.0
WR-220A	3/25/04	<0.5	0.3	<3.0	<2.0	24	<2.5	<2.0	<5.0	4.2	NA	8.9	NA	NA	NA	<5.0	<0.50	<1.5	NA	<3.0	<1.5	<0.5	<2.0
WR-220A	4/8/03	<0.5	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	<2.5	<2.0	<1.5	<1.5	<2.5	<5.0	NA	<1.0	<0.5	<3.0	<1.5	<0.5	<2.0
WR-220A DUP	4/8/03	<0.5	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	<2.5	<2.0	<1.5	<1.5	<2.5	<5.0	NA	<1.0	<0.5	<3.0	<1.5	<0.5	<2.0
WR-220A	3/19/02	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-220A	4/19/01	<1	0.5	<1	<1	<2	NA	NA	NA	NA	NA	<1.0	NA	NA	NA	NA	NA	<0.5	<0.5	NA	NA	NA	NA
WR-220A	3/27/00	<1.0	0.5	<1.0	<1.0	<2.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5*	<0.5	NA	<1.0	<1.0	<1.0	<1.0
WR-220A	7/20/99	<1.0	0.5	<1.0	<1.0	<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-220A	4/27/99	<0.5	0.3	<0.5	<0.5	<1	<2.0	<2.0	NA	<2	<2	<2	<2	<2	<2	<2	<5*	<2	NA	<5	<2	<2	NA
WR-220A	1/28/99	<2	1	<2	<2	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10*	<2	<2	NA
WR-220A	10/15/98	8.1	8.1	<1.0	<1.0	<1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-220A	7/28/98	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<5	<0.5	<0.5	NA
WR-220A	4/30/98	<0.5	0.3	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	NA	<5	<0.5	<0.5	NA
WR-220A	1/27/98	<0.5	0.3	<0.5	<0.5	<1	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-220A	10/21/97	<0.5	0.3	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	NA	NA
WR-220A	7/29/97	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
WR-220A	4/30/97	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-220A	1/14/97	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-220A	10/29/96	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-220A	7/30/96	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	2.2	<1.0	<0.5	NA
WR-220A	4/22/96	<0.5	0.3	2.8	1.4	8.6	<0.5	<0.5	NA	0.8	<0.5	1.8	<0.5	<0.5	<0.5	0.6	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-220A	2/27/96	<0.5	0.3	1.4	<0.5	1.9	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-220A	12/13/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-220A	9/11/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-220A	6/19/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-220A	3/15/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<0.5	<0.5	<1.0	NA
WR-220A	12/7/94	<0.5	0.3	<0.5	<0.5	0.8	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	0.6	<0.5	<1.0	NA
WR-220A	9/28/94	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<0.5	NA	NA
WR-220A	6/23/94	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-220A	3/24/94	1.2	1.2	1.6	0.7	1.3	<0.5	<0.5	NA	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-220A	2/24/94	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-220A DUP	2/24/94	<0.5	0.3	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-220A	1/24/94	3.6	3.6	4.1	1.9	5	<0.5	<0.5	NA	<0.5	<0.5	1.1	<0.5	<0.5	<0.5	0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-220A DUP	1/24/94	3.7	3.7	4.1	1.9	5	<0.5	<0.5	NA	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-220A	12/27/93	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-220A	12/1/93	<0.5	0.3	0.6	<0.5	1	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-220A	10/27/93	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-220A	9/28/93	1.7	1.7	2.5	0.7	3.5	<0.5	<0.5	NA	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-220A	8/17/93	0.8	0.8	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
	WR-220A was not sampled in 2013 due to free product.																						
WR-221A	9/12/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.019	NA	NA	NA	NA	NA	NA
WR-221A	3/25/13	<1	0.5	<2	<2	<3	<1	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<2	<1	<1	<5
WR-221A	3/27/12	<0.5	0.3	<2.0	<2.0	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-221A	3/22/11	<0.5	0.3	<2.0	<2.0	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-221A	3/30/10	<0.5	0.3	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-221A	3/23/09	1.7	1.7	<2.0	<2.0	44	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-221A DUP	3/23/09	1.7	1.7	<2.0	<2.0	42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-221A	3/24/08	4.9	4.9	<3	<2	60	3.5	<2	<5	5.2	<2.5	58	<1.5	3.5	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-221A	3/19/07	1.1	1.1	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.0
WR-221A	3/23/06	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-221A	4/28/05	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-221A DUP	4/28/05	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-221A	7/20/99	<1.0	0.5	<1.0	<1.0	<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-221A	1/26/99	<2	1	<2	<2	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10	<2	<2	NA
WR-221A	1/27/98	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-221A	7/29/97	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-221A	4/29/97	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.8	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-221A	1/14/97	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-221A	10/29/96	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-221A	7/30/96	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-221A	4/23/96	<0.5	0.3	0.9	0.5	3.4	<0.5	<0.5	NA	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-221A	2/27/96	<0.5	0.3	2.3	0.7	3.8	<0.5	<0.5	NA	0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-221A	9/11/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-221A	6/19/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-221A	3/15/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<0.5	<0.5	<1.0	NA
WR-221A	12/7/94	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	0.7	<0.5	<1.0	NA
WR-221A	9/28/94	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<0.5	NA	NA
WR-221A	6/23/94	0.9	0.9	1.6	0.8	2.8	<0.5	<0.5	NA	<0.5	<0.5	1	<0.5	<0.5	<0.5	0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-221A	3/24/94	0.6	0.6	1.1	0.6	2	<0.5	<0.5	NA	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-221A	2/23/94	0.5	0.5	0.7	<0.5	1.1	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-221A	1/24/94	1	1	1.3	0.6	1.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-221A	12/27/93	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-221A	12/1/93	<0.5	0.3	0.8	<0.5	1.6	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-221A	10/28/93	<0.5	0.3	0.7	<0.5	1.1	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-221A	10/27/93	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
WR-221A	9/29/93	0.7	0.7	3.3	0.9	4.7	<0.5	<0.5	NA	<0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-221A	8/18/93	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-222A	9/11/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.019	NA	NA	NA	NA	NA	NA
WR-222A	3/21/13	<1	0.5	<1	<1	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<2	<1	<1	<1
WR-222A	3/27/12	<0.5	0.3	<2.0	<2.0	<1.0	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	NA	<2.5	<5	<0.5	<1.5	NA	<3	<1.5	<0.5	<2
WR-222A	3/22/11	<0.5	0.3	<2.0	<2.0	<1.0	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	NA	<2.5	<5	<0.5	<1.5	NA	<3	<1.5	<0.5	<2
WR-222A	3/16/10	<0.5	0.3	<2.0	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	NA	<2.5	<5	<0.5	<1.5	NA	<3	<1.5	<0.5	<2
WR-222A	4/14/09	<0.5	0.3	<2.0	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	NA	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-222A	3/19/08	<0.5	0.3	<3	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	<2.5	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-222A	3/21/07	<1.0	0.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.0
WR-222A	3/27/06	<0.50	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	<2.5	<2.0	<0.5	<0.5	<0.5	<5.0	<0.5	<1.5	<0.5	<3.0	<1.5	<0.5	<2.0
WR-222A	4/13/05	<0.5	0.3	<3.0	<2.0	<3.0	13	9.9	<5.0	<1.5	NA	<2.0	1.6	<1.5	<2.5	<5.0	<0.5	<1.5	<0.5	<3.0	<1.5	<0.5	<2.0
WR-222A	3/29/04	<0.50	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	NA	<2.0	NA	NA	NA	<5.0	<0.5	<1.5	NA	<3.0	<1.5	<0.5	<2.0
WR-222A DUP	3/29/04	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-222A	4/10/03	<0.50	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	<2.5	<2.0	<1.5	<1.5	<2.5	<5.0	NA	<1.0	<0.5	<3.0	<1.5	<0.5	<2.0
WR-222A DUP	4/10/03	<0.50	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	<2.5	<2.0	<1.5	<1.5	<2.5	<5.0	NA	<1.0	<0.5	<3.0	<1.5	<0.5	<2.0
WR-222A	3/19/02	<0.50	0.3	<3.0	<2.0	<3.0	NA	N	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-222A	4/18/01	<1.0	0.5	<1.0	<1.0	<2.0	NA	NA	NA	NA	NA	<1.0	NA	NA	NA	NA	NA	<0.5	<0.5	NA	NA	NA	NA
WR-222A	3/27/00	<1.0	0.5	<1.0	<1.0	<2.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.5*	<0.5	NA	<1.0	<1.0	<1.0	<1.0
WR-222A	7/19/99	<1.0	0.5	<1.0	<1.0	<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-222A	4/7/99	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<5	<0.5	<0.5	NA
WR-222A	1/27/99	<2	1	<2	<2	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10*	<2	<2	NA
WR-222A	10/16/98	<0.5	0.3	<1.0	<1.0	<1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-222A	7/28/98	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<5	<0.5	<0.5	NA
WR-222A	4/30/98	<0.5	0.3	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-222A	1/28/98	<0.5	0.3	<0.5	<0.5	<0.5	<1	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-222A	10/21/97	<0.5	0.3	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	NA	NA
WR-222A	7/30/97	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-222A	4/29/97	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-222A	1/15/97	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-222A	10/29/96	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-222A	7/31/96	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-222A	4/23/96	<0.5	0.3	<0.5	<0.5	<1.3	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-222A	2/27/96	<0.5	0.3	0.8	<0.5	1.4	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<1.0	<0.5	<0.5	NA
WR-222A	12/14/95	0.6	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-222A	9/11/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-222A	6/15/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-222A	3/15/95	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<0.5	<0.5	<1.0	NA
WR-222A	12/8/94	<0.5	0.3	<0.5	<0.5	0.7	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<0.5	<0.5	<1.0	NA
WR-222A	9/29/94	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA	NA	NA
WR-222A	6/23/94	0.5	0.5	0.6	<0.5	1.6	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-222A DUP	6/23/94	0.6	0.6	0.6	<0.5	1.3	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-222A	3/23/94	0.6	0.6	1	<0.5	1.4	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-222A DUP	3/23/94	0.6	0.6	0.9	<0.5	1.3	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-222A DUP	2/24/94	<0.5	0.3	0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-222A	1/24/94	2.3	2.3	2.5	1.7	4.7	<0.5	<0.5	NA	<0.5	<0.5	0.8	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-222A	12/28/93	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-222A	11/30/93	0.9	0.9	1	<0.5	1.4	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-222A	10/25/93	1.2	1.2	0.9	<0.5	1.1	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-222A DUP	10/25/93	1.2	1.2	1.2	<0.5	1.2	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-222A	9/27/93	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-222A	8/18/93	<0.5	0.3	<0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-223A	9/11/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.019	NA	NA	NA	NA	NA	NA
WR-223A	3/25/13	<1	0.5	<1	<1	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<2	<1	<1	<1
WR-223A	3/28/12	<0.50	0.3	<2	<2.0	<1.0	<2.5	<2.0	<5	<1.5	<2.5	<2.0	<1.5	NA	<2.5	<5	<0.5	<1.5	NA	<3	<1.5	<0.5	<2
WR-223A	3/22/11	<0.50	0.3	<2	<2.0	<1.0	<2.5	<2.0	<5	<1.5	<2.5	<2.0	<1.5	NA	<2.5	<5	<0.5	<1.5	NA	<3	<1.5	<0.5	<2
WR-223A	4/5/10	<0.50	0.3	<2	<2.0	<3.0	<2.5	<2.0	<5	<1.5	<2.5	<2.0	<1.5	NA	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	22
WR-223A	4/1/09	<0.50	0.3	<2	<2.0	<3.0	<2.5	<2.0	<5	<1.5	<2.5	<2.0	<1.5	NA	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	6.8

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
WR-223A	4/2/08	1.1	1.1	<3	6.6	12	<2.5	2.1	<5	2	<2.5	5	<1.5	<2.5	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	4.9
WR-223A	3/29/07	<0.50	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	NA	<1.5	NA	<2.0	<1.5	NA	<2.5	<5.0	NA	NA	NA	NA	NA	NA	3
WR-223A	4/13/06	<0.50	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	<2.5	<2.0	<0.5	<0.5	<0.5	<5.0	<0.5	<1.5	<0.5	<3.0	<1.5	<0.5	2.9
WR-223A DUP	4/13/06	<0.50	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	<2.5	<2.0	<0.5	<0.5	<0.5	<5.0	<0.5	<1.5	<0.5	<3.0	<1.5	<0.5	3.1
WR-223A	4/28/05	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3
WR-223A	7/20/99	<1.0	0.5	<1.0	<1.0	<2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-223A	1/28/99	<2	1	<2	<2	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10*	<2	<2	NA
WR-223A DUP	1/28/99	<2	1	<2	<2	<2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10*	<2	<2	NA
WR-223A	1/28/98	<2.5	1.5	<2.5	3.9	<5	2.7	<2.5	NA	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5*	3.3	NA	<2.5	<2.5	<2.5	NA
WR-223A	7/30/97	<0.5	0.3	<0.5	140	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	46	<0.5	<0.5	NA
WR-223A	4/30/97	<0.5	0.3	<0.5	<0.5	<1.0	8.9	19	NA	3.3	<0.5	3.2	1.4	<0.5	1.4	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-223A	1/14/97	<2.5	1.5	<2.5	100	<5.0	3.1	<2.5	NA	5	<2.5	2.8	<2.5	<2.5	<2.5	<2.5	<2.5*	<2.5	NA	<5.0	<2.5	<2.5	NA
WR-223A	10/29/96	<0.5	0.3	<0.5	120	91	6	14	NA	4.2	<0.5	3	0.8	<0.5	<0.5	<0.5	<0.5*	2.6	NA	<1.0	<0.5	<0.5	NA
WR-223A	7/31/96	<2.5	1.5	<2.5	84	<5.0	<2.5	3.8	NA	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5*	<2.5	NA	<2.5	<5.0	<2.5	NA
WR-223A	4/25/96	2.8	2.8	<1.0	40	10.9	1.9	3.9	NA	1.5	<1.0	1.9	<1.0	<1.0	<1.0	3.8	<1.0*	<1.0	NA	<120*	<1.0	<1.0	NA
WR-223A	2/29/96	21	21	1.2	66	15.5	3.4	7.1	NA	2.8	<1.0	2.5	<1.0	<1.0	<1.0	6.1	<1.0*	2.4	NA	4.4	<1.0	<1.0	NA
WR-223A	12/15/95	210	210	<1.25	110	59	4.9	11	NA	7.6	<1.25	7.7	<1.25	<1.25	<1.25	4.6	<1.25*	<1.25	NA	<1.25	<1.25	<1.25	NA
WR-223A	9/15/95	80	80	4.2	21	7.3	<2.5	<2.5	NA	<2.5	<2.5	6.6	<2.5	<2.5	<2.5	<2.5	<2.5*	<2.5	NA	<2.5	<2.5	<2.5	NA
WR-223A DUP	9/15/95	84	84	5.7	23	10	<2.5	<2.5	NA	2.7	<2.5	8.8	<2.5	<2.5	<2.5	<2.5	<2.5*	<2.5	NA	<2.5	<2.5	<2.5	NA
WR-223A	6/19/95	340	340	<10	71	36	<10	<10	NA	<10	<10	<10	<10	<10	<10	<10	NA	<10*	NA	<10*	<10	<10	NA
WR-223A	3/16/95	92	92	<0.5	10	<0.5	0.6	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<0.5	<0.5	<1.0	NA
WR-223A	12/12/94	390	390	<10	67	99	<10	13	NA	16	<10	24	<10	<10	<10	17	<20*	<10*	NA	<10*	<10	<20	NA
WR-223A	10/3/94	380	380	6	45	94	<5.0	<5.0	NA	9.5	<5.0	10	<5.0	<5.0	<5.0	6.7	NA	NA	NA	NA	<5.0	NA	NA
WR-223A	6/27/94	250	250	3.2	27	80	1.5	2.9	NA	8.1	<5.0	8.8	<5.0	<5.0	2.7	6.3	NA	NA	NA	NA	<10	NA	NA
WR-223A	3/30/94	290	290	<2.5	69	120	<2.5	5.2	NA	13	<2.5	10	<2.5	<2.5	7.4	6.8	<5.0*	<2.5	NA	<10.0*	<5.0	<5.0	NA
WR-223A	3/30/94	290	290	<2.5	69	120	<2.5	5.2	NA	13	NA	10	NA	NA	7.4	6.8	NA	NA	NA	NA	NA	NA	NA
WR-223A	12/31/93	260	260	<5.0	60	120	1.4	4.4	NA	9.6	<5.0	10	<5.0	<5.0	3.2	6.6	NA	NA	NA	NA	<10	NA	NA
WR-223A	9/28/93	130	130	8.3	44	90	1.2	3.3	NA	7.8	<0.5	8.4	<0.5	<0.5	2.8	6.8	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-223A	8/19/93	140	140	<5.0	27	67	<5.0	<5.0	NA	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	<10	NA	NA
WR-224A	9/11/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.019	NA	NA	NA	NA	NA	NA
WR-224A	3/28/13	<1	0.5	<1	28	7.6	5.3	16	<2	5.8	<1	<1	9.3	<1	<1	7.6	<1	<1	<1	<2	<1	<1	<1
WR-224A	4/2/12	<0.5	0.3	<2	34.5	8.06	8.8	22.7	<5	3.4	<2.5	6.22	15.2	NA	6.83	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-224A	3/28/11	<0.5	0.3	<2	84.2	19.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-224A	3/25/10	1.9	1.9	2.2	440	760	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-224A	3/25/09	<25	13	<100	1400	3800	190	710	<250	1200	<130	3000	130	NA	290	350	<25	<75	<25	<150	<75	<25	<100
WR-224A	4/2/08	53	53	15	120	190	12	25	<5	20	<2.5	52	2.5	12	<2.5	21	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-224A	3/28/07	530	530	190	1400	6000	93	260	NA	600	NA	1700	30	NA	53	430	NA	NA	NA	NA	NA	NA	<2.0
WR-224A	4/13/06	800	800	4800	1100	7800	66	<5.0	<5.0	590	<5.0	2200	16	<5.0	34	260	<5.0	<5.0	<0.5	<2.0	<10	<1.0	<10
WR-224A	4/12/05	560	560	480	620	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20
WR-224A	3/26/04	<0.50	0.3	<3.0	170	32	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-224A	4/8/03	14	14	<20	250	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-224A DUP	4/8/03	14	14	<20	260	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-224A	3/14/02	46	46	<20	490	360	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-224A	4/19/01	21	21	13	1000	1200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-224A	1/28/99	<200	100	2200	2700	8900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<200*	NA	<5,000*	<200*	<200	NA
WR-224A	7/30/97	44000	44000	<0.5	48000	51000	15000	56000	NA	100000	<0.5	11000	<0.5	2700	<0.5	39000	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-224A	5/1/97	6.6	6.6	<0.5	14	<1.0	20	30	NA	11	<0.5	22	6.6	<0.5	<0.5	61	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-224A	1/16/97	83	83	<5.0	27	<10	120	<5.0	NA	130	<5.0	320	7.7	<5.0	5.1	110	<5.0*	<5.0	NA	<10*	<5.0	<5.0	NA
WR-224A	10/31/96	260	260	<25	<25	<50	<25	43	NA	74	<25	130	<25	<25	<25	130	<25*	<25*	NA	56	<25	<25	NA
WR-224A	8/2/96	380	380	<13	<13	<26	15	24	NA	15	<13	49	<13	<13	<13	300	<13*	<13*	NA	<25*	<13	<13	NA
WR-224A	4/24/96	720	720	<12	18	390	43	51	NA	130	<12	190	<12	<12	<12	280	<12*	<12*	NA	<25*	<12	<12	NA
WR-224A	2/29/96	570	570	15	<12	420	40	49	NA	110	<12	170	<12	<12	<12	270	<12*	<12*	NA	57	<12	<12	NA
WR-224A	12/12/95	400	400	33	<10	960	41	61	NA	180	<10	380	<10	<10	<10	330	<10*	<10*	NA	<10*	<10	<10	NA
WR-224A	9/13/95	290	290	30	33	740	49	77	NA	180	<10	450	<10	<10	<10	310	<10*	<10*	NA	<10*	<10	<10	NA
WR-224A	6/19/95	310	310	75	130	1200	41	93	NA	200	<125	630	<125	<125	<125	280	<125*	<125*	NA	<125*	<125*	<125	NA
WR-224A	3/17/95	490	490	270	140	1500	44	65	NA	150	<10	480	<10	<10	74	210	<20*	<10*	NA	<10*	<10	<20	NA
WR-224A	12/12/94	560	560	31	22	620	19	29	NA	48	<10	160	<10	<10	34	140	<20*	<10*	NA	<10*	<10	<20	NA
WR-224A	10/4/94	550	550	52	44	1000	15	25	NA	99	<5.0	250	<5.0	<5.0	38	110	NA	NA	NA	NA	NA	NA	NA
WR-224A	6/28/94	320	320	94	140	840	21	41	NA	120	<0.5	290	4.3	1.5	51	150	NA	NA	NA	NA	<0.5	NA	NA

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
WR-224A	3/30/94	440	440	96	480	1600	<25.0	42	NA	100	<25.0	300	<25.0	<25.0	62	120	<50.0*	<25.0*	NA	<100.0*	<50.0	<50.0	NA
WR-224A DUP	3/30/94	430	430	89	480	1700	<25.0	47	NA	110	<25.0	260	<25.0	<25.0	62	130	<50.0*	<25.0*	NA	<100.0*	<50.0	<50.0	NA
WR-224A	1/4/94	320	320	230	330	1100	12	30	NA	73	<0.5	180	1.2	2.6	27	93	NA	NA	NA	NA	<1.0	NA	NA
WR-224A DUP	1/4/94	290	290	210	290	990	11	32	NA	77	<0.5	160	1.3	0.6	28	97	NA	NA	NA	NA	<1.0	NA	NA
WR-224A	9/28/93	210	210	480	510	2000	24	83	NA	170	<1.0	360	4.5	2	97	83	<2.0*	<1.0	NA	<4.0	<2.0	<2.0	NA
WR-224A	8/19/93	110	110	97	320	1100	<10.0	23	NA	61	<10.0	210	<10.0	<10.0	41	39	NA	NA	NA	NA	<20	NA	NA
WR-225A	3/25/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
WR-225A	3/27/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-225A	3/22/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-225A	3/24/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-225A	3/25/09	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-225A	3/26/08	<0.5	0.3	<3	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	<2.5	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-225A	3/22/07	<1.0	0.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.0
WR-225A	3/28/06	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-225A	4/14/05	<0.5	0.3	8.3	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-225A	12/7/94	<0.5	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	0.7 a	<0.5	<1.0	NA
WR-225A	9/27/94	<0.5	0.3	<0.5	<0.5	0.6	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<0.5	NA	NA
WR-225A	6/23/94	1.3	1.3	1.9	1	3.8	<0.5	<0.5	NA	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	0.6	NA	NA	NA	NA	<1.0	NA	NA
WR-225A	3/24/94	0.8	0.8	1.3	0.5	1.7	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-225A DUP	3/24/94	0.8	0.8	1.4	<0.5	1.6	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-225A	2/25/94	<0.5	0.3	0.5	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-225A DUP	2/25/94	<0.5	0.3	0.6	<0.5	<1.0	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-225A	1/27/94	8.3	8.3	7.3	2.8	7.4	<0.5	<0.5	NA	0.5	<0.5	1.4	<0.5	<0.5	<0.5	0.8	NA	NA	NA	NA	<1.0	NA	NA
WR-225A	12/27/93	0.9	0.9	2	0.7	4.4	<0.5	<0.5	NA	<0.5	<0.5	1.1	<0.5	<0.5	<0.5	0.6	NA	NA	NA	NA	<1.0	NA	NA
WR-225A DUP	12/27/93	0.6	0.6	2.1	0.8	4.7	<0.5	<0.5	NA	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-225A	12/1/93	5.5	5.5	4.8	1.1	5.5	<0.5	<0.5	NA	<0.5	<0.5	1.1	<0.5	<0.5	<0.5	0.7	NA	NA	NA	NA	<1.0	NA	NA
WR-225A DUP	12/1/93	4.7	4.7	4.1	0.9	4.9	<0.5	<0.5	NA	<0.5	<0.5	1	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-225A	10/27/93	1.7	1.7	2.6	1	4.3	<0.5	<0.5	NA	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-225A DUP	10/27/93	2.4	2.4	3.6	1.4	6	<0.5	<0.5	NA	<0.5	<0.5	1	<0.5	<0.5	<0.5	0.6	NA	NA	NA	NA	<1.0	NA	NA
WR-225A	9/29/93	2.8	2.8	12	5.9	28	<0.5	0.5	NA	1.4	<0.5	3.5	<0.5	<0.5	<0.5	1	<1.0*	<0.5	NA	<2.0	<1.0	<1.0	NA
WR-225A	8/18/93	<0.5	0.3	<0.5	<0.5	1	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	<1.0	NA	NA
WR-227A	9/12/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.02	NA	NA	NA	NA	NA	NA
WR-227A	3/21/13	<1	0.5	<1	<1	<2	<1	<1	<2	<1	<1	<1	<1	<1	<1	<5	<1	<1	<1	<2	<1	<1	41
WR-227A	3/27/12	<0.50	0.3	<2.0	<2.0	<1	<2.5	<2.0	<5.0	<1.5	<2.5	<2.0	<1.5	NA	<2.5	<5.0	<0.5	<1.5	NA	<3.0	<1.5	<0.5	37.6
WR-227A	3/22/11	<0.50	0.3	<3.0	<2.0	<1	<2.5	<2.0	<5.0	<1.5	<2.5	<2.0	<1.5	NA	<2.5	<5.0	<0.5	<1.5	NA	<3.0	<1.5	<0.5	69.2
WR-227A	4/15/10	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	140
WR-227A	4/16/09	<0.50	0.3	<2.0	4	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	130
WR-227A	4/3/07	<0.50	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	NA	<1.5	NA	<2.0	NA	NA	NA	<5.0	NA	NA	NA	NA	NA	NA	140
WR-227A	5/2/05	<0.50	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	NA	<2.0	<1.5	<1.5	<2.5	<5.0	NA	<1.0	<0.5	<3.0	<1.5	<0.5	110
WR-227A DUP	5/2/05	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	120
WR-227A	3/25/04	1.8	1.8	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	NA	<2.0	NA	NA	NA	<5.0	<0.5	<1.5	NA	<3.0	<1.5	<0.5	110
WR-227A DUP	3/25/04	1.7	1.7	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	NA	<2.0	NA	NA	NA	<5.0	<0.5	<1.5	NA	<3.0	<1.5	<0.5	98
WR-227A	4/10/03	<0.5	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	<2.5	<2.0	<1.5	<1.5	<2.5	<5.0	NA	<1.0	<0.5	<3.0	<1.5	<0.5	82
WR-227A	3/20/02	0.58	0.58	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-228A	3/25/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
WR-228A	3/26/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-228A	3/23/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-228A	3/17/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-228A	4/14/09	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-228A	3/18/08	<0.5	0.3	<3	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-228A	3/20/07	<1.0	0.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.0
WR-228A	4/14/05	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-228A	3/26/04	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-229A	3/28/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
WR-229A	4/2/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-229A	3/28/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
WR-229A	3/17/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-229A	4/13/09	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-229A	3/25/08	<0.5	0.3	<3	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	<2.5	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-229A	3/21/07	<1.0	0.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.0
WR-229A	4/14/05	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-229A	3/26/04	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-230A	3/25/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
WR-230A	3/25/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
WR-230A	3/26/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-230A	3/22/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-230A	3/29/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-230A	4/8/09	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-231A	3/25/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
WR-231A	3/26/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-231A	3/26/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-231A	3/23/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-231A	3/23/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-231A DUP	3/23/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-231A	3/24/09	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-231A	3/26/08	<0.5	0.3	<3	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	<2.5	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-231A	3/22/07	<1.0	0.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.0
WR-231A	5/12/05	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-232A	3/25/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
WR-232A	3/22/12	<0.50	0.3	<2.0	<2.0	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-232A	3/28/11	<0.50	0.3	<2.0	<2.0	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-232A	3/25/10	<0.50	0.3	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-232A	3/26/09	<0.50	0.3	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-232A	4/1/08	<0.5	0.3	<0.5	<0.5	<1.5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<0.5	<0.5	<2	<0.5	<0.5	<2
WR-232A	3/15/07	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-232A	5/13/05	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-232A DUP	5/13/05	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-233A	9/12/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.019	NA	NA	NA	NA	NA	NA
WR-233A	3/28/13	<1	0.5	<1	<1	<2	<1	<1	<2	<1	<1	<2	<1	<1	<1	<5	<1	<1	<1	<2	<1	<1	<1
WR-233A	3/27/12	<0.5	0.3	<2.0	<2	<1	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	NA	<2.5	<5	<0.5	<1.5	NA	<3	<1.5	<0.5	<2
WR-233A	3/22/11	<0.5	0.3	<2.0	<2	<1	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	NA	<2.5	<5	<0.5	<1.5	NA	<3	<1.5	<0.5	<2
WR-233A	3/16/10	<0.5	0.3	<2.0	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	NA	<2.5	<5	<0.5	<1.5	NA	<3	<1.5	<0.5	<2
WR-233A	4/15/09	<0.5	0.3	<2.0	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	NA	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-233A DUP	4/15/09	<0.5	0.3	<2.0	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	NA	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-233A	3/19/08	<0.5	0.3	<3	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	<2.5	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-233A	3/22/07	<1.0	0.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.0
WR-233A	4/13/05	<0.5	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	NA	<2.0	<1.5	<1.5	<2.5	<5.0	NA	<1.0	<0.5	<3.0	<1.5	NA	<2.0
WR-233A	3/25/04	<0.50	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	NA	<2.0	NA	NA	NA	<5.0	<0.5	<1.5	NA	<3.0	<1.5	<0.5	<2.0
WR-233A	4/8/03	<0.5	0.3	<3.0	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	<2.5	<2.0	<1.5	<1.5	<2.5	<5.0	NA	<1.0	<0.5	<3.0	<1.5	<0.5	<2.0
WR-233A	3/20/02	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-233A DUP	3/20/02	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-235A	3/25/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
WR-235A	3/29/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-235A	3/29/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-235A	3/23/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-235A	3/25/09	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
WR-235A	3/27/08	<0.5	0.3	<3	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	<2.5	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
WR-235A	3/26/07	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
WR-295A INJ-1S	7/21/99	2700	2700	<10	81	1200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-295A INJ-1S	4/14/99	1219	1219	54.8	<0.5	645	27	15.4	NA	273	N 0.5	200	13.6	7.6	46.9	42.2	1.2	N 0.5	NA	N 0.5	N 0.5	5.5	NA

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
WR-295A INJ-1S	4/8/99	2188	2188	149	<0.5	1070	36.5	33.8	NA	263	N 0.5	523	17.8	9.6	65.8	173	2	N 0.5	NA	N 0.5	N 0.5	3.1	NA
WR-295A INJ-1S	1/27/99	1600	1600	77	<2	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	40	NA	<10*	<2	<2	NA
WR-295A INJ-1S	10/14/98	890	890	110	<50	1100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-295A INJ-1S	1/29/98	1600	1600	600	890	1080	<125	<125	NA	150	<125	550	<125	<125	<125	<125	<125*	280	NA	<125*	<125*	<125	NA
WR-295A INJ-1S	4/26/96	11000	11000	4400	1700	3300	<250	<250	NA	<250	<250	670	<250	<250	<250	460	<250*	<250*	NA	<250*	<250*	NA	NA
WR-296A	3/27/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3000
WR-296A INJ-2S	7/21/99	1300	1300	<10	75	1400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-296A INJ-2S	5/24/99	1100	1100	240	<0.5	2090	64	100	NA	520	N 20	1500	23	N 20	N 20	260	N 20*	N 20*	NA	N 50*	N 20	N 20	NA
WR-296A INJ-2S	4/14/99	317	317	39.8	<0.5	1375	90	136	NA	579	N 0.5	1087	52	16.2	134	198	0.6	N 0.5	NA	N 0.5	N 0.5	N 0.5	NA
WR-296A INJ-2S	1/26/99	1900	1900	100	3.9	2500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	96	NA	<10*	<2	<2	NA
WR-296A INJ-2S	10/14/98	740	740	580	<50	3700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-296A INJ-2S	1/29/98	5400	5400	2500	1100	2860	<250	<250	NA	270	<250	810	<250	<250	<250	<250	<250*	<250*	NA	<250*	<250*	<250	NA
WR-296A INJ-2S	4/26/96	14000	14000	6400	2000	3000	<250	<250	NA	300	<250	940	<250	<250	<250	600	<250*	<250*	NA	<250*	<250*	NA	NA
WR-297A	3/29/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7860
WR-297A INJ-3	7/19/99	170	170	<2	14	120	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-297A INJ-3	4/14/99	2.2	2.2	<0.5	<0.5	4.4	<0.5	<0.5	NA	7.2	N 0.5	2	<0.5	<0.5	4.2	5	<0.5*	35.6	NA	N 0.5	N 0.5	N 0.5	NA
WR-297A INJ-3	1/27/99	33	33	<2	<2	56	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	NA	<10*	<2	<2	NA
WR-297A INJ-3	10/14/98	97	97	26	<5	260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-297A INJ-3	1/29/98	340	340	1000	500	2950	<125	200	NA	510	<125	1900	<125	<125	<125	480	<125*	<125*	NA	180	<125*	<125	NA
WR-297A INJ-3	7/31/97	3600	3600	2200	430	2300	<0.5	<0.5	NA	450	<0.5	640	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-297A INJ-3	5/2/97	4200	4200	5600	810	5300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	230	NA	NA
WR-297A INJ-3	1/17/97	4400	4400	3900	520	3100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-297A INJ-3	10/30/96	4400	4400	3700	350	2100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-297A INJ-3	8/2/96	6700	6700	6800	460	4100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-297A INJ-3	4/26/96	6000	6000	1600	2600	13000	480	640	NA	1100	<120	2900	<120	<120	<120	3100	<120*	<120*	NA	<120*	<120*	NA	NA
WR-298A	3/21/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7100
WR-298A INJ-4	7/20/99	420	420	7.6	10	57	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-298A INJ-4	5/24/99	790	790	15	N 5	<105	N 20	N 20	NA	22	N 20	73	N 20	N 20	N 20	76	N 20*	N 20*	NA	N 50*	N 20	N 20	NA
WR-298A INJ-4 DUP	5/24/99	800	800	15	N 5	<105	N 20	N 20	NA	22	N 20	72	N 20	N 20	N 20	71	N 20*	N 20*	NA	51	N 20	N 20	NA
WR-298A INJ-4	1/27/99	370	370	9.4	<2	94	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100	NA	<10*	<2	<2	NA
WR-298A INJ-4	10/14/98	140	140	18	<2.5	110	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-298A INJ-4	1/29/98	2400	2400	<125	<125	640	<125	<125	NA	<125	<125	130	<125	<125	<125	<125	<125*	<125*	NA	300	<125*	<125	NA
WR-298A INJ-4	10/22/97	11000	11000	5700	320	4300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<50	NA	NA
WR-298A INJ-4	7/31/97	20000	20000	19000	1400	5700	<0.5	<0.5	NA	920	<0.5	1200	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
WR-298A INJ-4	5/2/97	18000	18000	16000	790	4900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	NA	NA
WR-298A INJ-4	1/17/97	15000	15000	15000	1200	6500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-298A INJ-4	10/30/96	13000	13000	15000	1300	6000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-298A INJ-4	8/2/96	5700	5700	6000	530	2700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-298A INJ-4	4/26/96	6500	6500	4100	16200	13000	270	600	NA	1000	<120	2700	<120	<120	<120	1900	<120*	<120*	NA	<120*	<120*	NA	NA
R-012A	4/23/13	<2	1	<2	<2	<10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8600
R-012A	3/21/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11800
R-012A	3/21/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12200
R-012A	3/21/11	<25	12.5	<100	<100	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14700
R-012A	4/14/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12000
R-012A	4/1/08	<100	50	<100	<100	<300	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<100	<100	<400	<100	<100	14000
R-012A	3/27/07	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17000
R-012A	4/4/06	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-012A	12/28/04	<0.5	0.25	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7500
R-012A	5/18/04	<50	25	<300	<200	<300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19000
R-012A	4/18/01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-012A	7/20/99	120	120	8.5	26	230	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-012A	1/27/99	49	49	53	<2	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10*	<2	<2	NA
R-012A	10/14/98	93	93	22	<2.5	86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-012A	1/29/98	680	680	190	290	360	<63	<63	NA	<63	<63	90	<63	<63	<63	<63	<63*	<63*	NA	<63*	<63	<63	NA
	R-012A was not sampled 2009 due to free product.																						

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
R-013A	4/23/13	25	25	<20	20	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1400
R-013A	4/23/13	28	28	<20	23	170	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1500
R-013A	3/21/11	249	249	<20	40.5	159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2650
R-013A	4/13/10	420	420	120	60	2600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5800
R-013A	4/8/09	450	450	3	43	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4700
R-013A	4/5/07	1500	1500	25	320	3400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4900
R-013A	4/11/06	240	240	<3.0	<2.0	28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	900
R-013A - 0858	5/4/05	980	**	<3.0	24	510	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2600
R-013A - 1306	5/4/05	280	280	<30	62	210	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1300
R-013A DUP	5/4/05	850	**	<30	22	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1300
R-013A DUP	5/4/05	280	280	<30	90	920	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2400
R-013A	7/20/99	640	640	160	1200	2100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-013A	1/27/99	390	390	110	8	290	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16	NA	<10*	<2	<2	NA
R-013A	10/14/98	570	570	30	<0.5	570	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-013A	1/29/98	2500	2500	2800	520	1920	<200	<200	NA	<200	<200	680	<200	<200	<200	<200	<200*	<200*	NA	<200*	<200*	<200	NA
	R-013A was not sampled in 2008 and 2012 due to free product.																						
R-016A	3/26/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2600
R-016A	3/22/12	<0.5	0.25	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5770
R-016A	3/21/11	<25	12.5	<100	<100	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7830
R-016A	4/12/10	2.5	2.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8100
R-016A	4/8/09	1.2	1.2	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11000
R-016A	4/10/08	9.6	9.6	17	29	140	<2.5	5	<5	12	<2.5	42	<1.5	<2.5	<2.5	12	<0.5	<1.5	<0.5	<3	<1.5	<0.5	8600
R-016A	4/5/07	2	2	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8300
R-016A	4/5/06	18	18	<30	<20	<30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9500
R-016A	5/4/05	350	350	<150	<100	<150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8000
R-016A	12/28/04	270	270	160	88	2400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12000
R-016A	3/31/04	1100	1100	5.5	<2.0	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13000
R-016A	4/15/03	1400	1400	<20	<20	<30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-016A	3/21/02	700	700	<2.0	3.4	21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-016A	4/17/01	730	730	2.8	<2.0	21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-016A	7/20/99	91	91	8.8	9.2	34	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-016A	1/26/99	100	100	11	<2	57	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10*	<2	<2	NA
R-016A	10/13/98	140	140	21	<10	89	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-016A	1/29/98	260	260	560	230	760	<50	54	NA	88	<50	300	<50	<50	<50	<50	<50*	<50*	NA	<50*	<50	<50	NA
R-017A	3/21/11	324	324	53.5	250	4750	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8330
R-017A	4/14/10	290	290	260	260	4500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6200
R-017A	7/20/99	450	450	34	110	310	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-017A	1/27/99	140	140	180	16	160	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10*	<2	<2	NA
R-017A	10/13/98	760	760	98	14	470	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-017A	1/29/98	980	980	320	95	227	<63	<63	NA	<63	<63	66	<63	<63	<63	<63	<63*	<63*	NA	<63*	<63	<63	NA
	R-017A was not sampled between years 1999 - 2010, and after 2011 due to free product.																						
R-018A	4/24/13	1700	1700	2600	1600	14000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13000
R-018A	3/28/11	2330	2330	1320	1790	12800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9550
R-018A	4/11/06	1,000	1000	2300	630	6800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5000
R-018A	5/3/05	2400	2400	4800	1200	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6000
R-018A	7/20/99	480	480	32	810	7300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-018A	1/28/99	900	900	2100	<200	8700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<200*	NA	<1,000*	<200*	<200	NA
R-018A	10/15/98	3500	3500	7800	1600	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	R-018A was not sampled between years 1999 - 2005 and between 2006 - 2011, and after 2011 due to free product.																						
R-019A	1/28/99	2100	2100	11000	9000	9300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<1,000*	NA	<5,000*	<4,000*	<4000	NA
R-019A	10/13/98	4700	4700	22000	6700	32000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	R-019A was not sampled between years 1999 to present day due to free product.																						
R-020A	9/12/13	82.3	82.3	<100	<100	<200	<100	<200	<200	<200	<200	<200	<200	<200	<200	<500	<100	<50	<50	<500	<50	<100	7270
R-020A	9/11/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.019	NA	NA	NA	NA	NA	NA
R-020A	3/26/13	72	72	<4	18	<6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7000

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
R-020A	3/21/12	1940	1940	<100	529	736	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10000
R-020A	3/21/11	644	644	<40	163	<20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6500
R-020A	4/8/10	740	740	59	200	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6700
R-020A	4/9/09	1400	1400	48	110	410	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7600
R-020A - 1008	5/4/05	7.1	**	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	77
R-020A - 1327	5/4/05	45	45	6.2	<2.0	15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1100
R-020A	12/28/04	370	370	<30	<20	<30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2200
R-020A	3/29/04	1000	1000	37	7.2	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.8	NA	NA	NA	NA	NA	12000
R-020A	4/14/03	4300	4300	28	<10	1100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.7	NA	NA	NA	NA	NA	10000
R-020A	3/20/02	4300	4300	460	33	1400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5800	NA	NA	NA	NA	NA	8000
R-020A	4/17/01	3400	3400	100	<20	980	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-020A	2/23/00	2800	2800	490	23	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20	NA	NA	NA	NA	NA	11000
R-020A	7/20/99	1600	1600	46	810	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-020A	1/26/99	370	370	280	9.3	870	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.7	NA	<10*	<2	<2	NA
R-020A	10/14/98	440	440	500	38	1300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-020A	1/29/98	3800	3800	6400	1000	3900	<625	<625	NA	<625	<625	700	<625	<625	<625	<625	<625*	<625*	NA	<625*	<625*	<625	NA
	R-020A was not sampled between years 2005 - 2009 due to free product.																						
R-021A	3/26/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1400
R-021A	12/17/12	3.6	3.6	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7400
R-021A	3/22/12	<50	25	<200	<200	<100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10200
R-021A	12/6/11	<50	25	<200	<200	<100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5400
R-021A	9/14/11	<2.5	1.3	<10	<10	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1420
R-021A DUP	9/14/11	<2.5	1.3	<10	<10	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2330
R-021A	3/29/11	28.9	28.9	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7670
R-021A	4/6/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	430
R-021A DUP	4/6/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	410
R-021A	4/6/09	0.5	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	410
R-021A DUP	4/6/09	0.5	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	410
R-021A	4/7/08	0.77	0.77	<0.5	4.3	4.4	1.3	3.7	<1	2.2	<1	5	<1	1.3	<1	1.2	<1	<0.5	<0.5	<2	<0.5	<0.5	290
R-021A	4/3/07	0.69	0.69	<3.0	25	38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
R-021A DUP	4/3/07	0.64	0.64	<3.0	26	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	500
R-021A	8/18/06	0.71	0.71	<3.0	30	60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	460
R-021A	5/3/05	86	86	320	570	2200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3600
R-021A DUP	5/3/05	86	86	310	600	2300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3600
R-021A	12/28/04	330	330	49	480	880	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10000
R-021A	5/17/04	460	460	3700	750	4000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2700
R-021A	7/19/99	1000	1000	<20	100	540	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-021A	1/27/99	1100	1100	<100	<100	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<100*	NA	<500*	<100*	<100	NA
R-021A	10/15/98	2100	2100	3800	190	6100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-021A	1/29/98	510	510	650	98	810	<63	<63	NA	110	<63	460	<63	<63	<63	<63	<63*	<63*	NA	<63*	<63	<63	NA
R-022A	3/26/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
R-022A	3/21/12	<0.50	0.3	<2.0	<2.0	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-022A	3/29/11	<0.50	0.3	<2.0	<2.0	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-022A	3/29/10	<0.50	0.3	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-022A	3/30/09	<0.50	0.3	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-022A	3/14/07	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-022A DUP	3/14/07	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-022A	3/21/06	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-022A	4/11/05	<0.5	0.3	5.9	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-022A	3/22/04	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-022A DUP	3/22/04	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.02	NA	NA	NA	NA	NA	<2.0
R-022A	4/14/03	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.02	NA	NA	NA	NA	NA	<2.0
R-022A	3/20/02	<1.0	0.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.010	NA	NA	NA	NA	NA	<2.0
R-022A	4/17/01	27	27	5.5	<0.10	43	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-022A	2/23/00	<0.5	0.3	<0.5	<0.5	3.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.01	NA	NA	NA	NA	NA	<5.0
R-022A	7/20/99	5	5	5.1	5.1	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-022A	1/26/99	<2	1	<2	<2	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2	NA	<10*	<2	<2	NA
R-022A	10/13/98	0.89	0.89	<1.0	<1.0	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
R-022A	1/29/98	1.9	1.9	1.1	<0.5	2.7	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5*	<0.5	NA	<0.5	<0.5	<0.5	NA
	R-022A was not sampled in 2008 due to free product.																						
R-028A	3/25/08	8.5	8.5	93	37	140	<2.5	5.3	<5	13	<2.5	39	<1.5	<2.5	<2.5	12	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
R-028A	3/20/07	<1.0	0.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.0
R-028A DUP	3/20/07	<1.0	0.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<3.0
R-028A	3/22/06	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-028A DUP	3/22/06	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-028A	4/12/05	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-028A	3/22/04	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-028A	4/7/03	<2.5	1.5	<15	<10	<15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.02	NA	NA	NA	NA	NA	<10
R-028A	3/13/02	<1.0	0.5	<2.0	13	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-028A	4/19/01	3.3	3.3	<2.0	57	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-028A FS-2	7/20/99	8.8	8.8	52	<2	7.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-028A FS-2	1/28/99	150	150	5	110	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.8	NA	<10*	<2	<2	NA
	R-028A was not sampled after 2008 due to free product.																						
R-029A	3/27/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
R-029A	3/29/12	<0.5	0.3	<2.0	<2.0	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
R-029A	5/4/11	<0.5	0.3	<2.0	<2.0	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
R-029A	3/25/10	<0.5	0.3	<2.0	4.9	8.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
R-029A	3/26/09	<0.5	0.3	<2.0	9.4	9.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
R-029A	4/1/08	<0.5	0.3	<0.5	16	18	4.3	8.1	<1	13	<1	25	1.3	4.3	<1	2.4	<1	<0.5	<0.5	<2	<0.5	<0.5	<2
R-029A (DUP)	4/1/08	<0.5	0.3	<0.5	16	18	4.2	8.2	<1	13	<1	25	1.3	4.2	<1	2.5	<1	<0.5	<0.5	<2	<0.5	<0.5	<2
R-029A	3/27/07	0.73	0.73	<3.0	35	140	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-029A	4/6/06	8.1	8.1	8.6	34	1200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
	R-029A was not sampled prior to 2006 and in 2011 due to free product.																						
R-033A	4/9/09	1100	1100	940	510	11000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7600
R-033A DUP	4/9/09	1100	1100	960	500	11000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7900
R-033A	3/13/02	9100	9100	990	910	690	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	300	NA	NA	NA	NA	NA	6600
R-033A	4/18/01	21000	21000	7000	2300	4000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-033A	2/23/00	18000	18000	11000	2900	7300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27	NA	NA	NA	NA	NA	3700
R-033A FS-7	7/21/99	18000	18000	2500	14000	8200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-033A FS-7	1/27/99	15000	15000	9300	1300	3400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<200*	NA	<1,000*	<200*	<200	NA
R-033A FS-7	8/19/98	16000	16000	5600	2000	3300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	R-033A was not sampled between years 2002 - 2009 and after 2010 due to free product.																						
R-034A FS-8	1/28/99	6300	6300	8600	2000	6000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	130	NA	<200*	<40	<40	NA
R-034A FS-8	8/19/98	5800	5800	6100	1500	4600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	R-034A was not sampled between years 1999 to present day due to free product.																						
R-035A	4/9/09	1700	1700	660	600	3800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20000
R-035A	5/9/05	3500	3500	4600	1300	5300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21000
R-035A DUP	5/9/05	4700	4700	10000	1900	9900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19000
R-035A	4/8/03	5700	5700	7300	2000	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-035A	3/14/02	2800	2800	520	1100	650	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-035A	4/19/01	6000	6000	1900	1800	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-035A FS-9	7/21/99	11000	11000	2100	3100	2400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-035A FS-9	1/28/99	15000	15000	6700	2100	4900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<100*	NA	<500*	<100*	<100	NA
R-035A FS-9	8/19/98	13000	13000	7500	1500	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	R-035A was not sampled between years 2005 - 2009 and after 2010 due to free product.																						
R-036A FS-10	4/24/13	<20	10	<20	51	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	870
R-036A FS-10	1/28/99	4900	4900	1600	780	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	130	NA	<50*	<10	<10	NA
R-036A FS-10	8/19/98	3000	3000	1200	810	1600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	R-036A was not sampled between 1999 and 2013 due to free product.																						
R-037A	3/29/11	70.2	70.2	55.9	35.4	8870	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4720
R-037A	4/8/03	4900	4900	4100	1000	2700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
R-037A	3/14/02	2600	2600	430	600	510	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-037A	4/19/01	7600	7600	1000	1000	710	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	R-037A was not sampled between 2003 - 2011 and after 2011 due to free product.																						
R-044A	3/28/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
R-044A	3/28/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
R-044A	3/28/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
R-044A	3/29/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
R-044A	3/25/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
R-044A	3/31/09	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
R-044A	3/24/08	<0.5	0.3	<3	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	<2.5	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	<2
R-044A	3/20/07	<1.0	0.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<4.0
R-044A	3/22/06	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-044A	4/12/05	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-044A DUP	4/12/05	<0.5	0.3	3.1	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-044A	3/22/04	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
R-044A	4/7/03	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.02	NA	NA	NA	NA	NA	<2.0
R-044A	3/13/02	2.5	2.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.010	NA	NA	NA	NA	NA	<2.0
R-044A	4/18/01	1.2	1.2	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-044A	2/23/00	<0.5	0.3	<0.5	<0.5	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.01	NA	NA	NA	NA	NA	<5.0
R-044A FS-11	7/19/99	<2	1	<2	<2	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-044A FS-11	2/18/99	<2	1	<2	<2	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-045A	3/28/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
R-045A	3/28/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.11
R-045A	5/4/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.87
R-045A	4/5/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9
R-045A	4/1/09	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14
R-045A	4/3/08	<0.5	0.3	<3	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	<2.5	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	16
R-045A	3/19/07	<1.0	0.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11
R-045A	3/30/06	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21
R-045A DUP	3/30/06	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21
R-045A	4/12/05	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16
R-045A	3/24/04	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14
R-045A DUP	3/24/04	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.02	NA	NA	NA	NA	NA	14
R-045A	4/7/03	<0.5	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.02	NA	NA	NA	NA	NA	7.7
R-045A	3/13/02	2.3	2.3	2.7	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.010	NA	NA	NA	NA	NA	3.3
R-045A	4/18/01	3.8	3.8	<2.0	2.2	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-045A	2/23/00	8.1	8.1	<0.5	<0.5	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.02	NA	NA	NA	NA	NA	33
R-045A FS-12	7/19/99	<2	1	<2	<2	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-045A FS-12	2/19/99	3	3	<2	34	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-046A	3/25/13	16	16	<20	<20	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	86
R-046A	4/4/06	21	22	6.9	5.5	9.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	55
R-046A DUP	4/4/06	23	24	7.4	5.7	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	55
R-046A	5/3/05	36	36	3.8	12	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	60
R-046A	3/29/04	130	130	74	32	78	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	190
R-046A DUP	3/29/04	130	130	110	31	75	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	71
R-046A	2/26/04	22	22	3.8	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	NA	<2.0	NA	NA	NA	<5.0	<0.5	<1.5	NA	<3.0	<1.5	<0.5	55
R-046A DUP	2/26/04	19	19	3.5	<2.0	<3.0	<2.5	<2.0	<5.0	<1.5	NA	<2.0	NA	NA	NA	<5.0	<0.5	<1.5	NA	<3.0	<1.5	<0.5	56
R-046A	2/26/04	24	24	7.5	2.4	4.9	<2.5	<2.0	<5.0	<1.5	NA	<2.0	NA	NA	NA	<5.0	<0.5	<1.5	NA	<3.0	<1.5	<0.5	47
R-046A	4/10/03	100	100	3.4	6	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.02	NA	NA	NA	NA	NA	66
R-046A	3/14/02	120	120	<20	23	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.010	NA	NA	NA	NA	NA	68
R-046D	3/14/02	120	120	<20	23	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.010	NA	NA	NA	NA	NA	69
R-046A	4/18/01	1100	1100	44	120	48	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-046A	2/23/00	320	320	49	71	27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.13	NA	NA	NA	NA	NA	99
R-046A FS-13	7/20/99	370	370	70	110	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
WR-PSC BD R-046A	7/20/99	390	390	72	79	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-046A FS-13	2/18/99	570	570	45	480	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	R-046A has not been sampled since 2006 due to free product.																						

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
R-047A	4/19/01	10000	10000	5200	2700	6700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	R-047A was sampled only in 2006 due to free product being present other times.																						
R-048A	3/28/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
R-048A	3/29/12	0.56	0.56	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.14
R-048A	5/4/11	0.78	0.78	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.81
R-048A	3/31/10	2.3	2.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.9
R-048A	4/1/09	4.4	4.4	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11
R-048A	4/3/08	16	16	<3	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	<2.5	<2.5	<5	<0.5	<1.5	<0.5	<3	<1.5	<0.5	14
R-048A	3/29/07	190	190	7.7	<2.0	99	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	24
R-048A	4/6/06	130	130	11	<2.0	190	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33
R-048A DUP	4/6/06	130	130	12	<2.0	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33
R-048A	5/2/05	280	280	16	5.7	340	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	49
R-048A	4/8/03	88	88	9.5	17	63	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.02	NA	NA	NA	NA	NA	260
R-048A	2/23/00	180	180	260	100	320	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.13	NA	NA	NA	NA	NA	94
R-048A FS-15	7/21/99	17000	17000	700	1200	900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-048A FS-15	1/28/99	21000	21000	4700	1500	2700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	360	NA	<10*	<50	<10	NA
R-048A FS-15	8/19/98	19000	19000	2700	1900	1900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
R-049A	3/27/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
R-049A	3/29/12	1.36	1.36	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
R-049A	3/29/11	11.5	11.5	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
R-049A	3/31/10	120	120	<2	2	3.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
R-049A	3/30/09	660	660	<2	11	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
R-049A	4/1/08	640	640	<5	28	90	<10	<10	<10	15	<10	35	<10	<10	<10	<10	<10	<5	<5	<20	<5	<5	<20
R-049A	3/28/07	760	760	24	23	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10
R-049A	4/11/06	560	560	580	160	7700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<100
R-049A DUP	4/11/06	590	590	500	140	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10
R-049A	5/9/05	990	990	210	120	1100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20
	R-049A was not sampled prior to 2005 due to free product.																						
R-099A	3/27/13	2.7	2.7	<2.8	21	130	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.2
	R-099A was not sampled prior to 2013 due to free product.																						
PCM-506A	3/25/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
PCM-506A	3/28/12	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
PCM-506A	3/22/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
PCM-506A	3/22/11	<0.5	0.3	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
PCM-506A	3/24/10	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
PCM-506A	3/26/09	<0.5	0.3	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2
PCM-506A	3/27/08	<0.5	0.3	<3	<2	<3	<2.5	<2	<5	<1.5	<2.5	<2	<1.5	<2.5	<2.5	<5	<0.50	<1.5	<0.5	<3	<1.5	<0.5	<2
PCM-506A	3/26/07	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
PCM-506A	8/18/06	<0.50	0.3	<3.0	<20	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
PCM-508A	3/25/13	2.5	2.5	<2	130	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8300
PCM-508A	3/28/12	1.55	1.55	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7630
PCM-508A	3/29/11	194	194	<20	152	782	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5670
PCM-508A	4/8/10	420	420	11	670	3000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5700
PCM-508A	4/7/09	710	710	120	340	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7500
PCM-508A	4/9/08	660	660	310	500	3000	25	58	<5	140	<5	510	<5	25	5.2	210	<5	<2.5	<2.5	<10	<2.5	<2.5	6400
PCM-508A	4/5/07	2100	2100	1300	650	3200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7400
PCM-508A	8/15/06	1,100	1,100	1,300	350	2,100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6,800
PCM-508B	3/25/13	10	10	<20	130	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6,500
PCM-508B	3/28/12	71	71	<20	91.7	439	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5,660
PCM-508B	3/28/12	76	76	<20	90.4	478	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5,520
PCM-509A	3/26/13	<1	1	<2.0	<2.0	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5
PCM-509A	3/21/12	<0.50	0.3	<2.0	<2.0	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0

APPENDIX G
HISTORICAL ANALYTICAL RESULTS
(concentrations in ug/L)

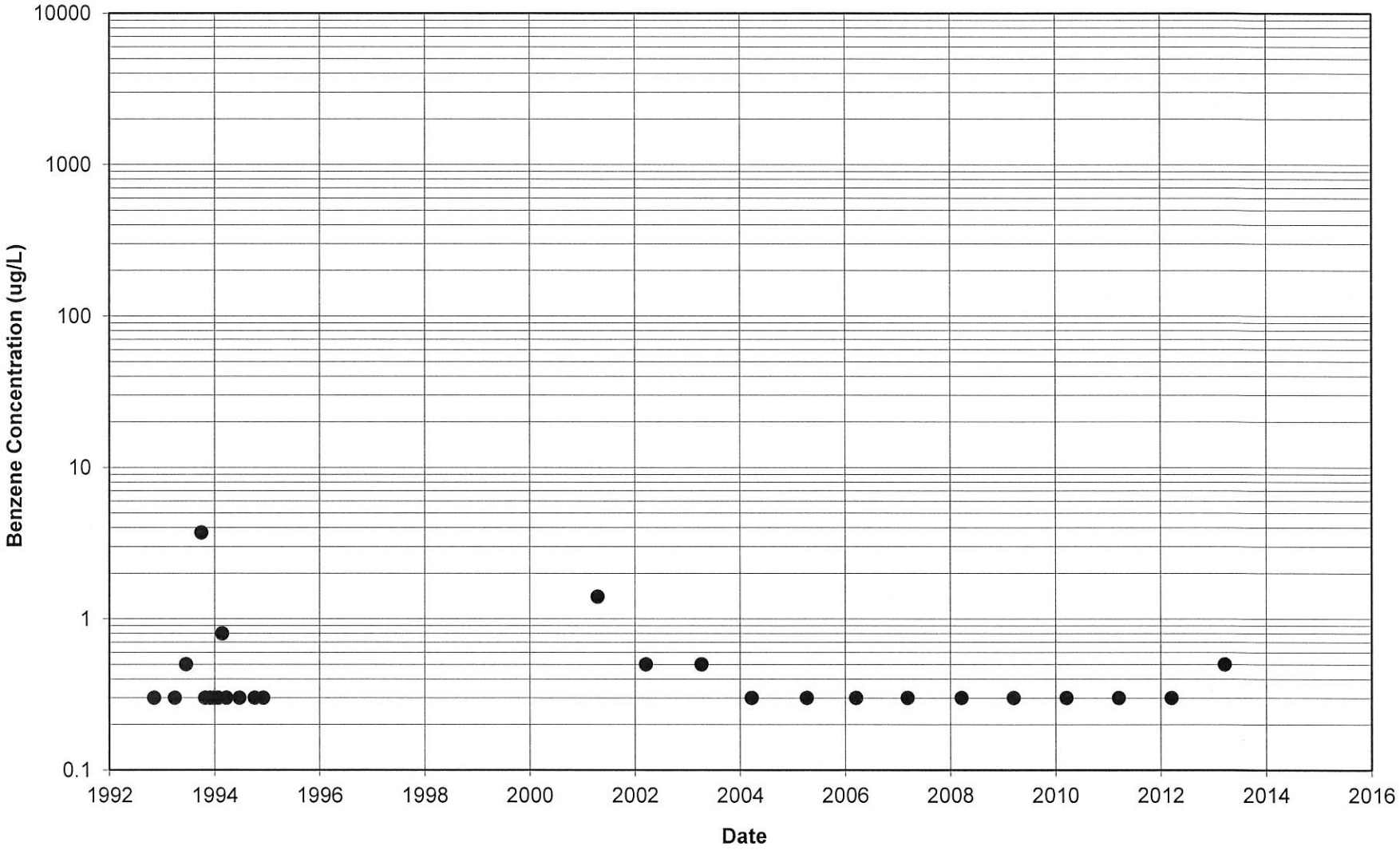
Well ID	Sample Date	Benzene (µg/L)	Plotted Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Total Xylenes (µg/L)	Isopropyl-benzene	n-Propyl-benzene	1,2,3-Trichloro-benzene	1,3,5-Trimethyl-benzene	tert-Butyl-benzene	1,2,4-Trimethyl-benzene	sec-Butyl-benzene	P-Isopropyl-toluene	N-Butyl-benzene	Naphthalene	1,2 Dibromo-ethane (EDB)	1,2-Dichloro-benzene	trans 1,2-dichloroethene	Methylene chloride	1,4-Dichloro-benzene	Bromochloro-methane	Methyl-Tert-Butyl-Ether (MTBE) (µg/L)
PCM-509A	3/28/11	<0.50	0.3	<2.0	<2.0	<1.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<2.0
PCM-509A	4/7/10	<0.50	0.3	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	730
PCM-509A	4/2/09	<0.50	0.3	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	520
PCM-509A	4/2/07	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	290
PCM-509B	3/26/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,000
PCM-509B	3/21/12	5.6	5.6	<2	<2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,280
PCM-510A	3/26/13	<1	0.5	<2	<2	<3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	220
PCM-510A	3/21/12	1.6	1.6	7.56	2.84	29.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	695
PCM-510A	3/21/11	<2.5	1.25	<10	<10	<5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	997
PCM-510A	4/12/10	<5	2.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,400
PCM-510A DUP	4/12/10	<5	2.5	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,300
PCM-510A	4/7/09	<0.50	0.3	<2.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,000
PCM-510A	4/9/08	13	13	23	16	85	<1	1.8	<1	9.5	<1	19	<1	<1	<1	6.8	<1	<0.5	<0.5	<2	<0.5	<0.5	2500
PCM-510A	4/4/07	<0.50	0.3	<3.0	<2.0	<3.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3,100
PCM-511A	3/29/11	1,180	1180	909	832	4,410	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2,470
	PCM-511A was not sampled prior to and after 2011 due to free product.																						
PCM-512A	3/27/12	1,150	1150	457	734	2,220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13,700
PCM-512A	3/21/11	865	865	<40	382	193	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	11,900
PCM-512A DUP	3/21/11	903	903	<40	403	210	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12,000
PCM-512A	4/15/10	470	470	<50	250	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14,000
PCM-512A	4/8/09	1,200	1200	150	510	3,700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	16,000
PCM-512A	4/10/08	580	580	83	280	3700	29	58	<50	290	<25	1500	<15	29	<25	270	<5	<15	<5	<30	<15	<5	16000
PCM-512A	8/19/06	1,300	1,300	1,200	390	1,200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14,000
	PCM-512A was not sampled in 2008 and 2013 due to free product.																						
PCM-517A	3/25/13	11,000	11,000	22	520	<30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	430
PCM-517A	3/29/12	10,500	10,500	<200	276	<100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	489
PCM-517A	3/29/11	13,300	13,300	<100	538	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	563
PCM-517A	4/8/10	15,000	15,000	100	690	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	520
PCM-517A	4/7/09	21,000	21,000	380	980	1,100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	600
PCM-517A	4/9/08	21000	21000	320	730	440	47	120	<5	44	<5	190	5.6	47	<5	140	<5	<2.5	<2.5	<10	<2.5	<2.5	390
PCM-517A	4/12/07	20,000	20000	3,400	1400	960	56	120	NA	92	NA	270	<15	NA	<25	230	NA	NA	NA	NA	NA	NA	680
PCM-535A	4/24/13	<4	2	<4	<4	<20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	63
PCM-535A	4/2/12	0.63	0.63	2	4.34	143	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	51.4

Notes:
µg/L = micrograms per liter
NA = Not Analyzed
<0.5 = Indicates concentration was less than the Method Detection Limit (MDL)
DUP = Field Duplicate
*** - Laboratory detection limit exceeds AWQS**
**** - Wells purged dry and initial samples were collected prior to wells recovering to at least 80%.**

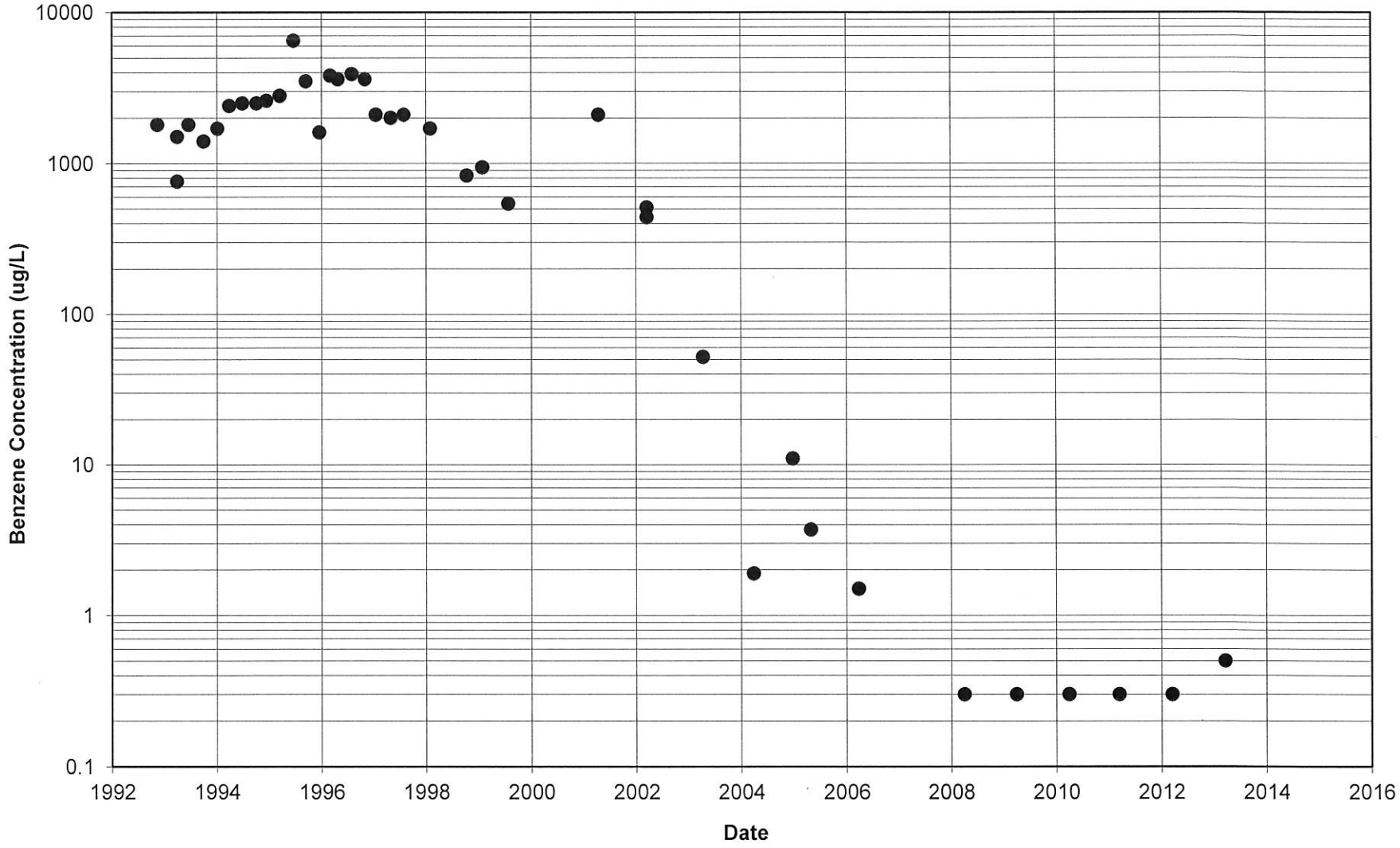
APPENDIX H

Benzene Concentration Time Series Plots

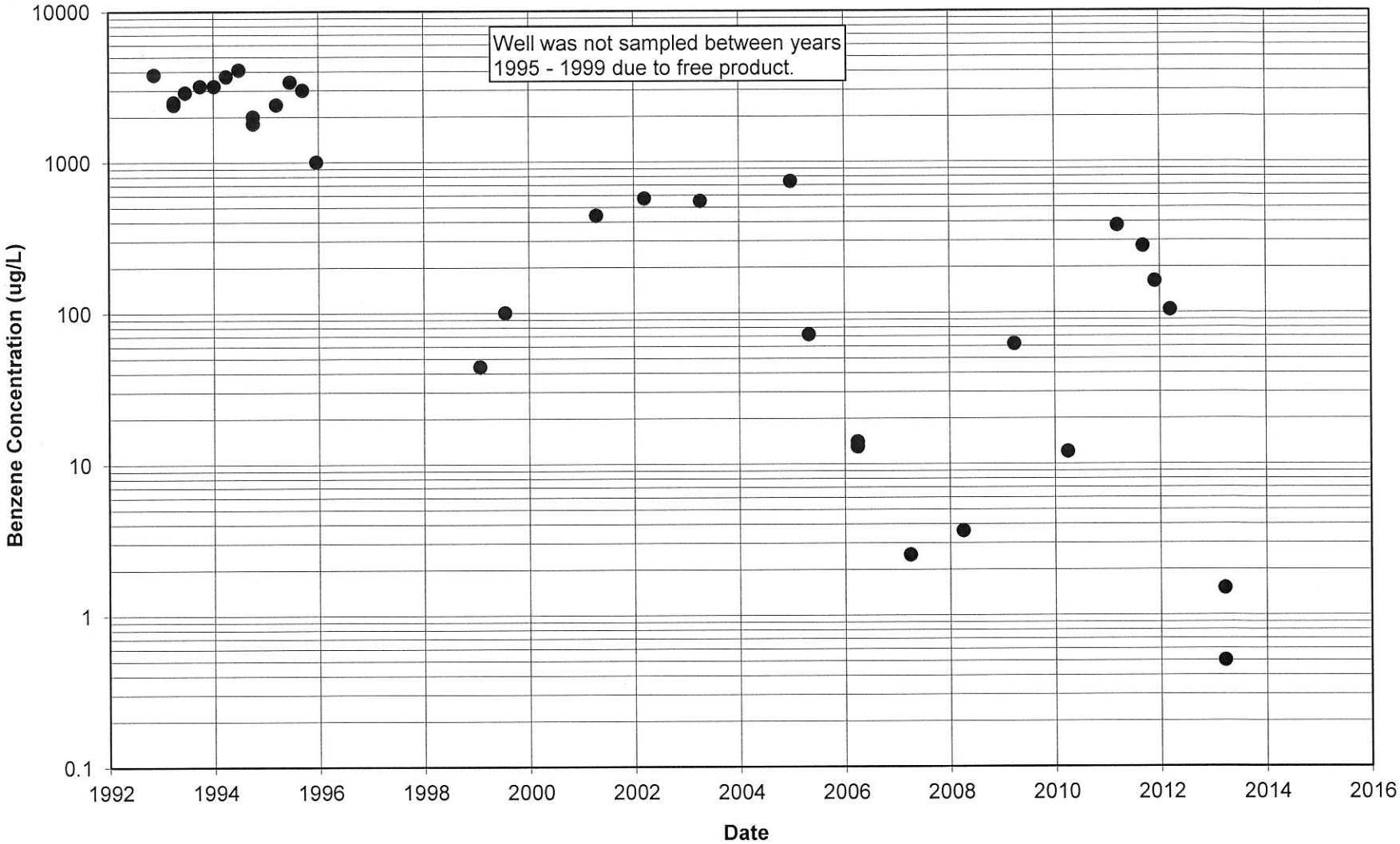
Time series plot of benzene in WR-208A



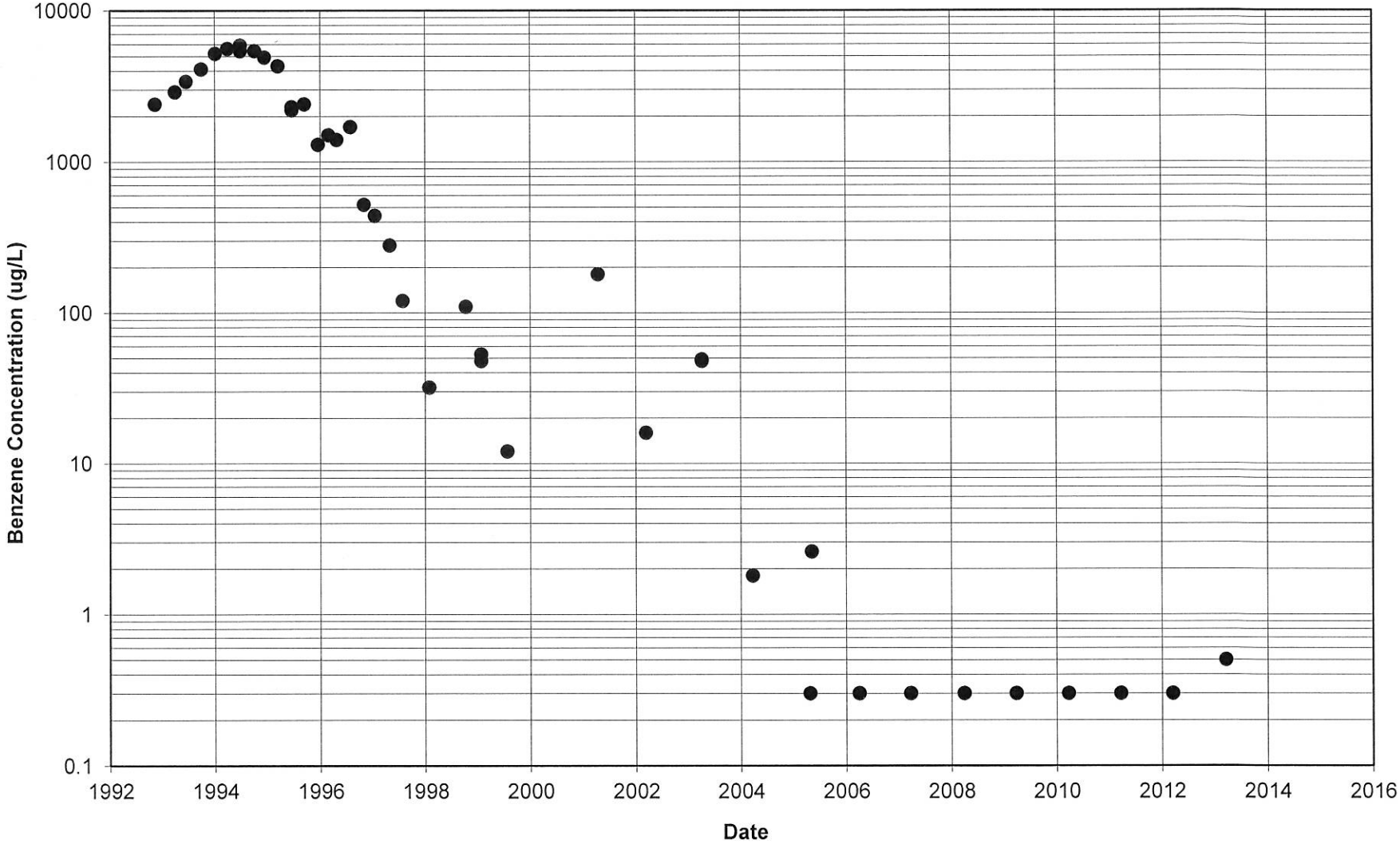
Time series plot of benzene in WR-209A



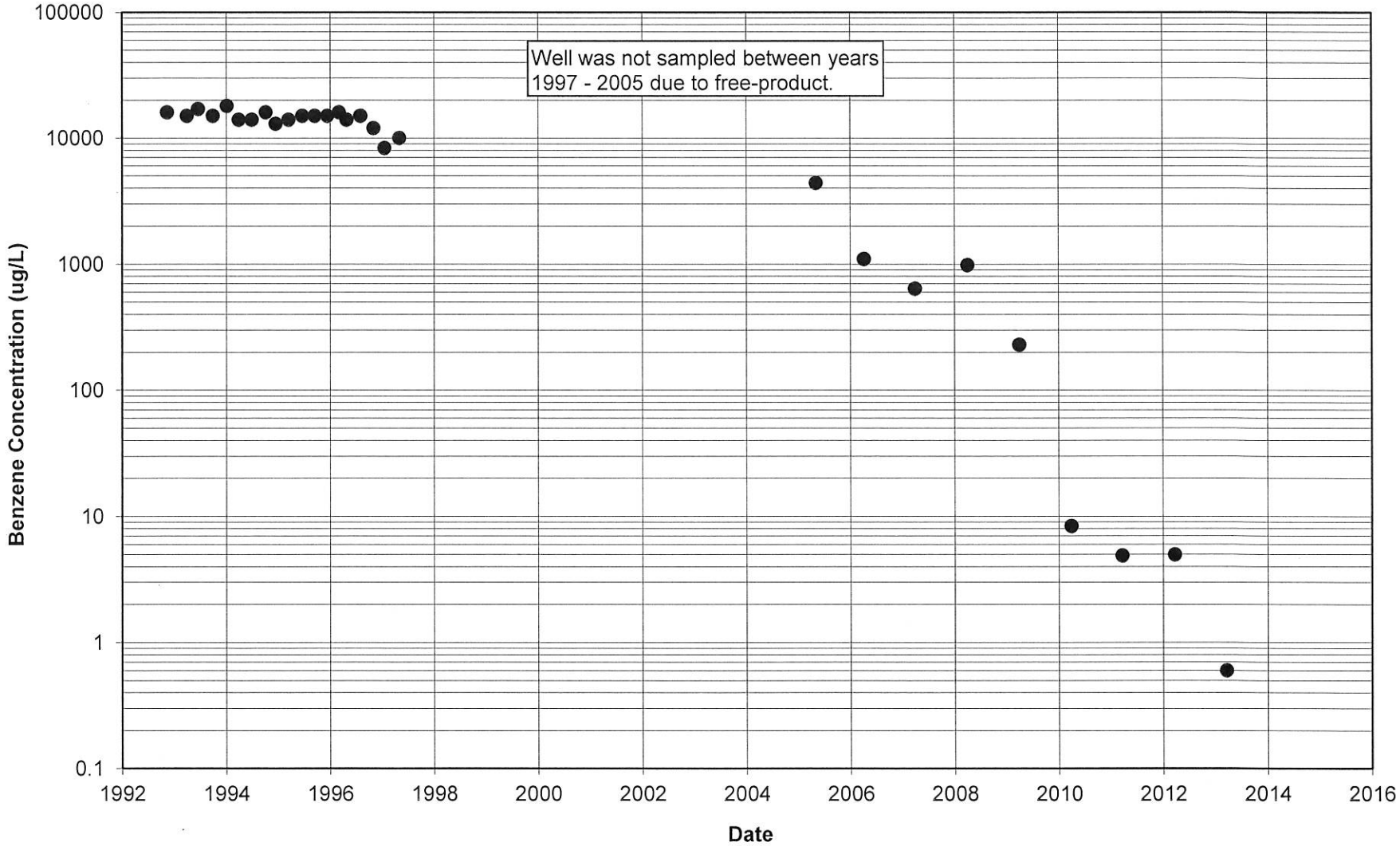
Time series plot of benzene in WR-210A



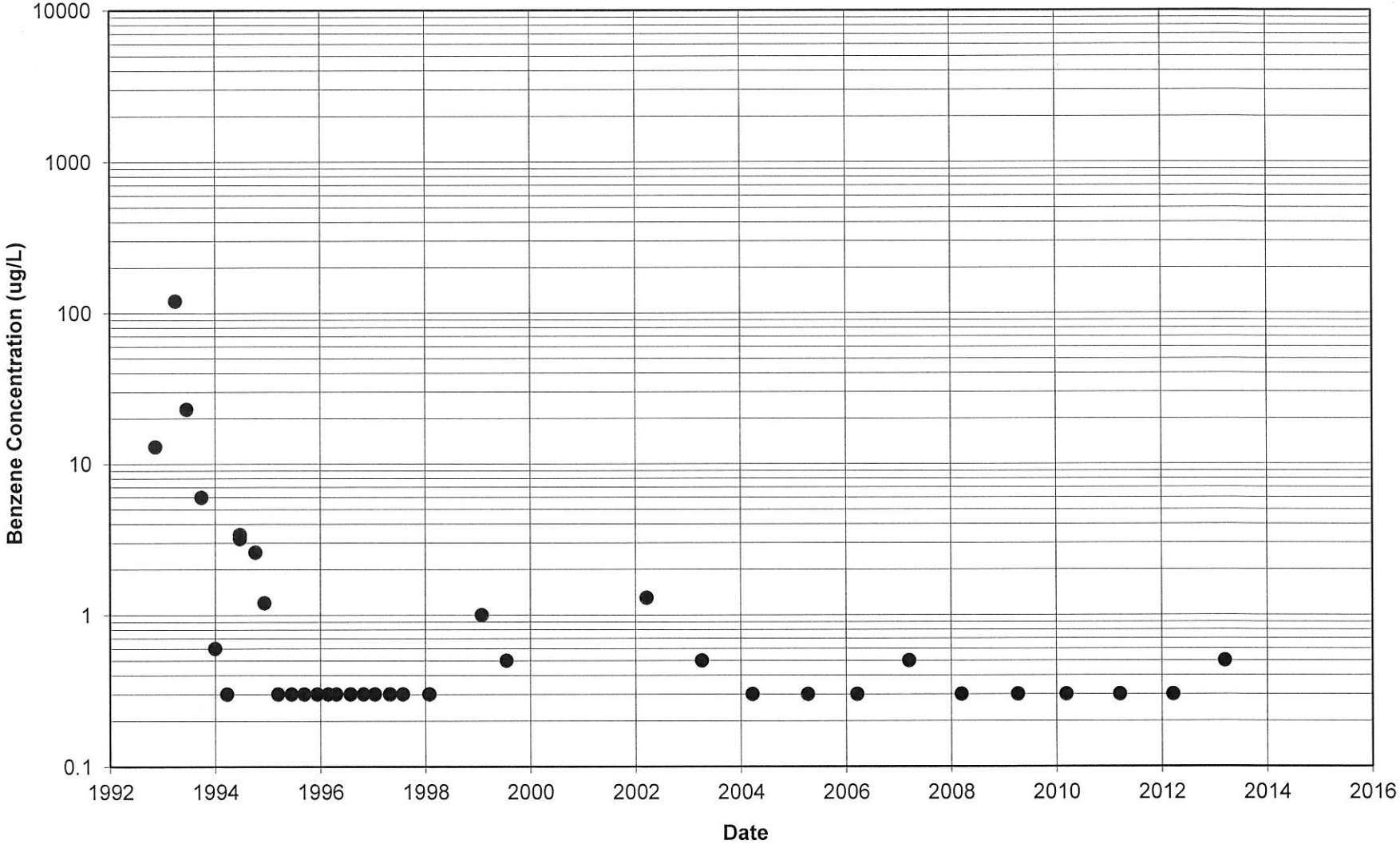
Time series plot of benzene in WR-211A



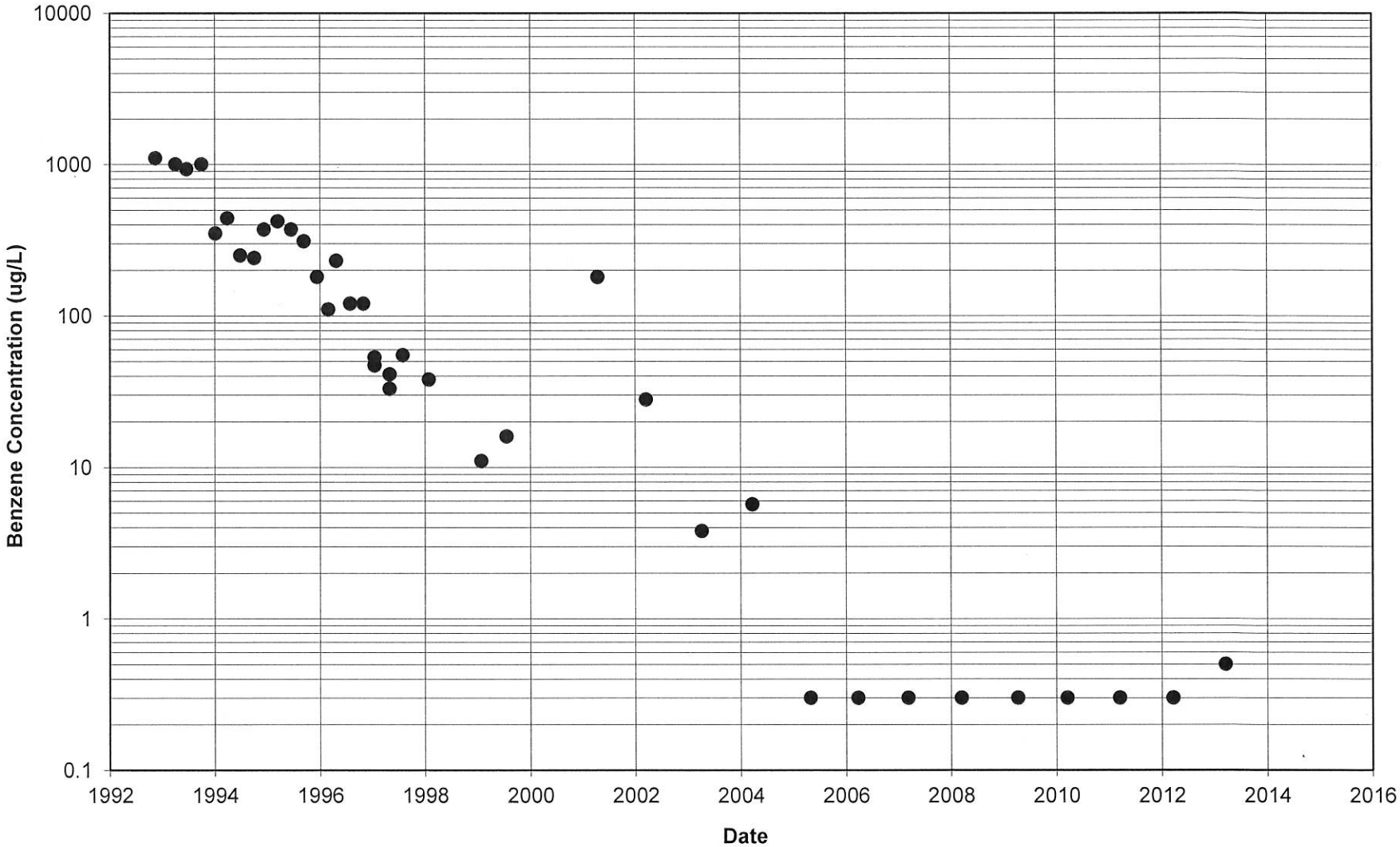
Time series plot of benzene in WR-212A



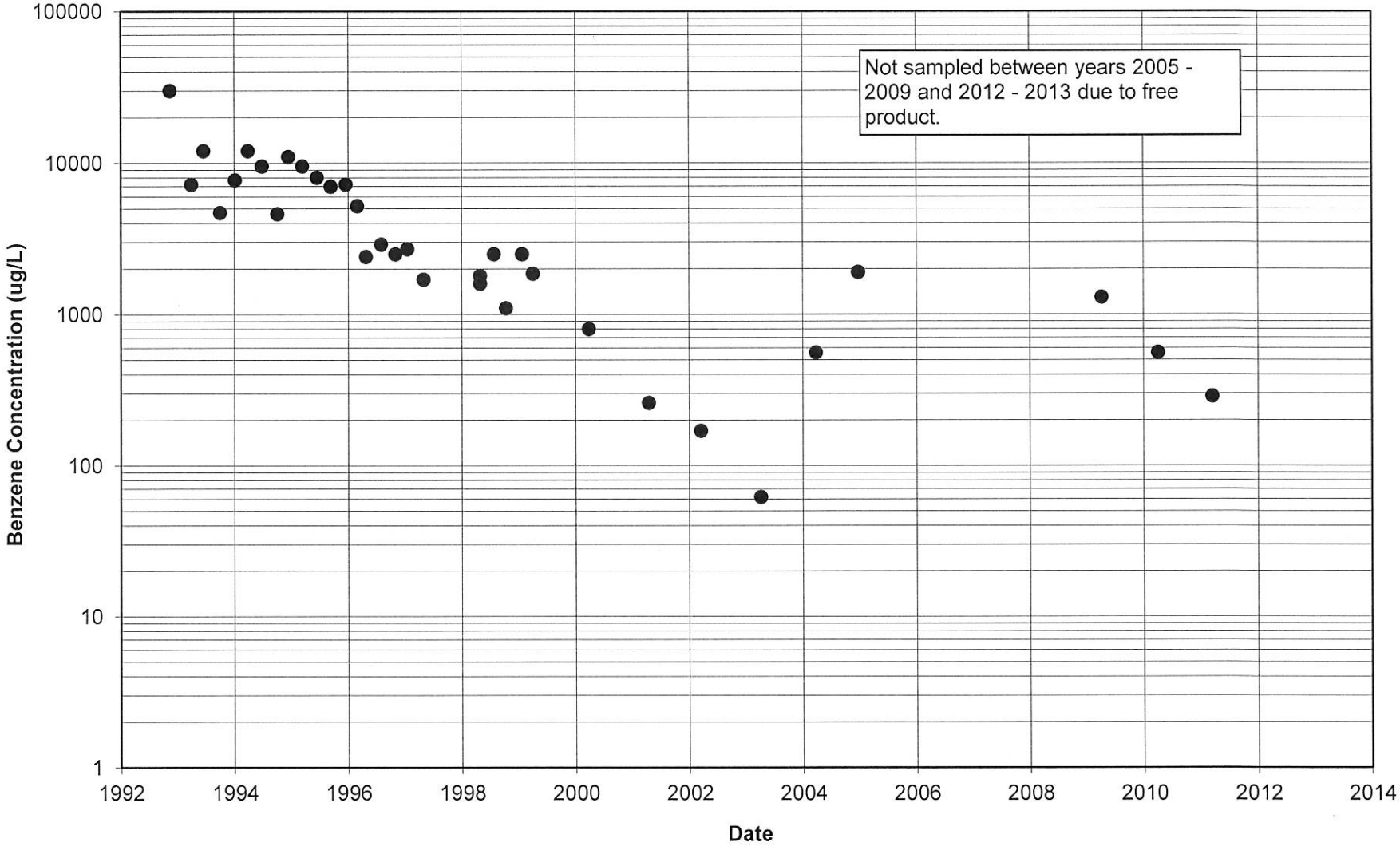
Time series plot of benzene in WR-213A



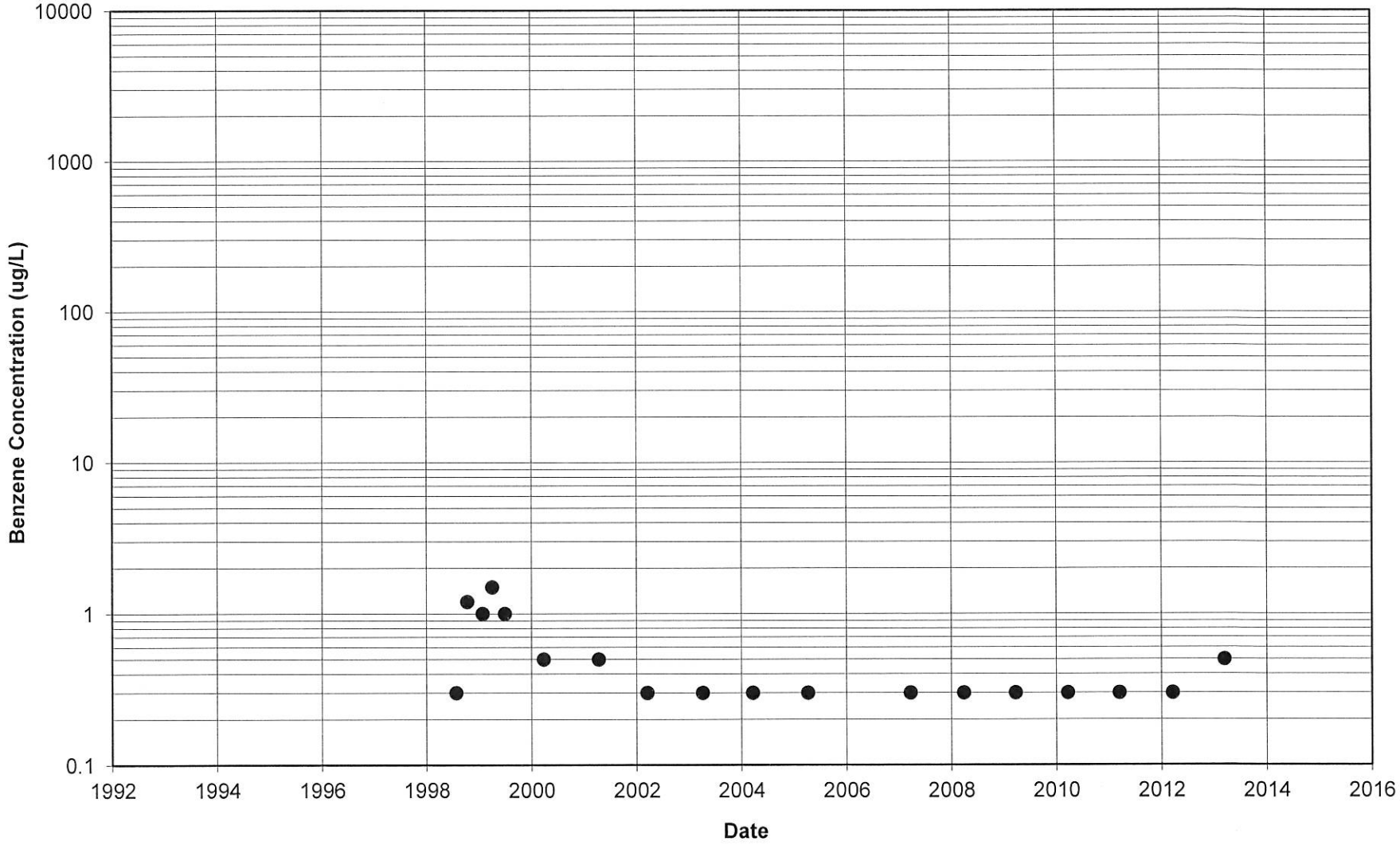
Time series plot of benzene in WR-214A



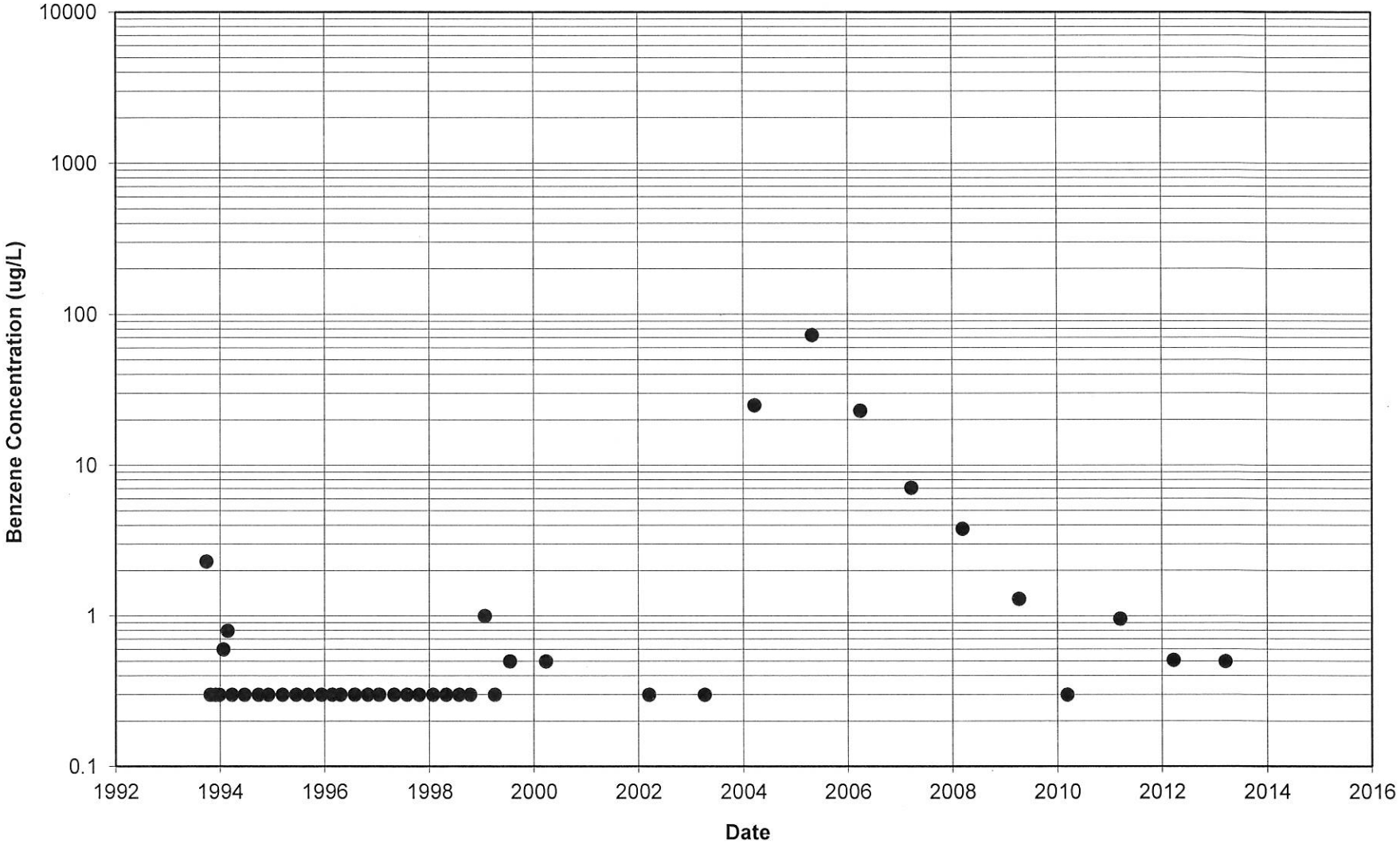
Time series plot of benzene in WR-215A



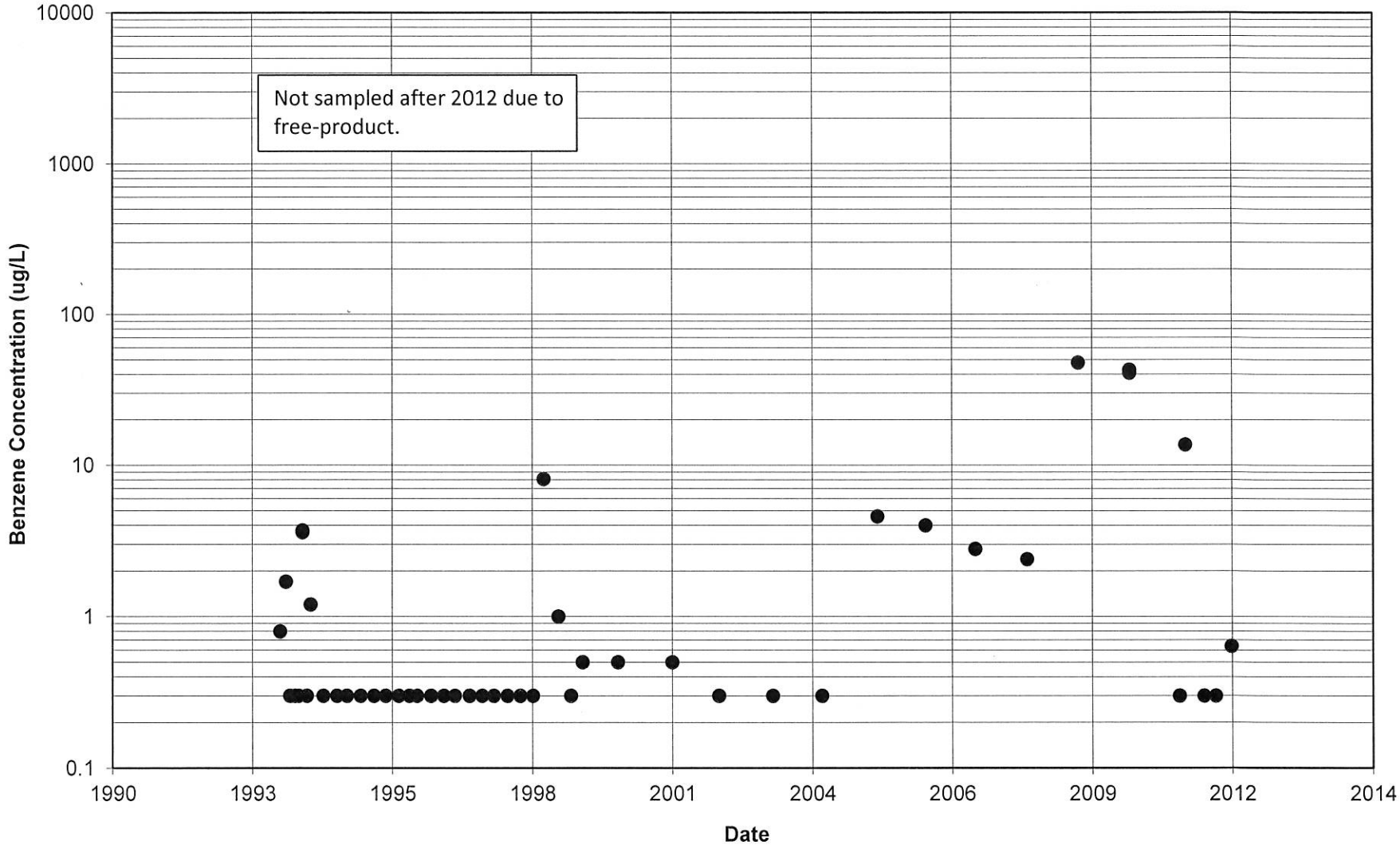
Time series plot of benzene in WR-217A



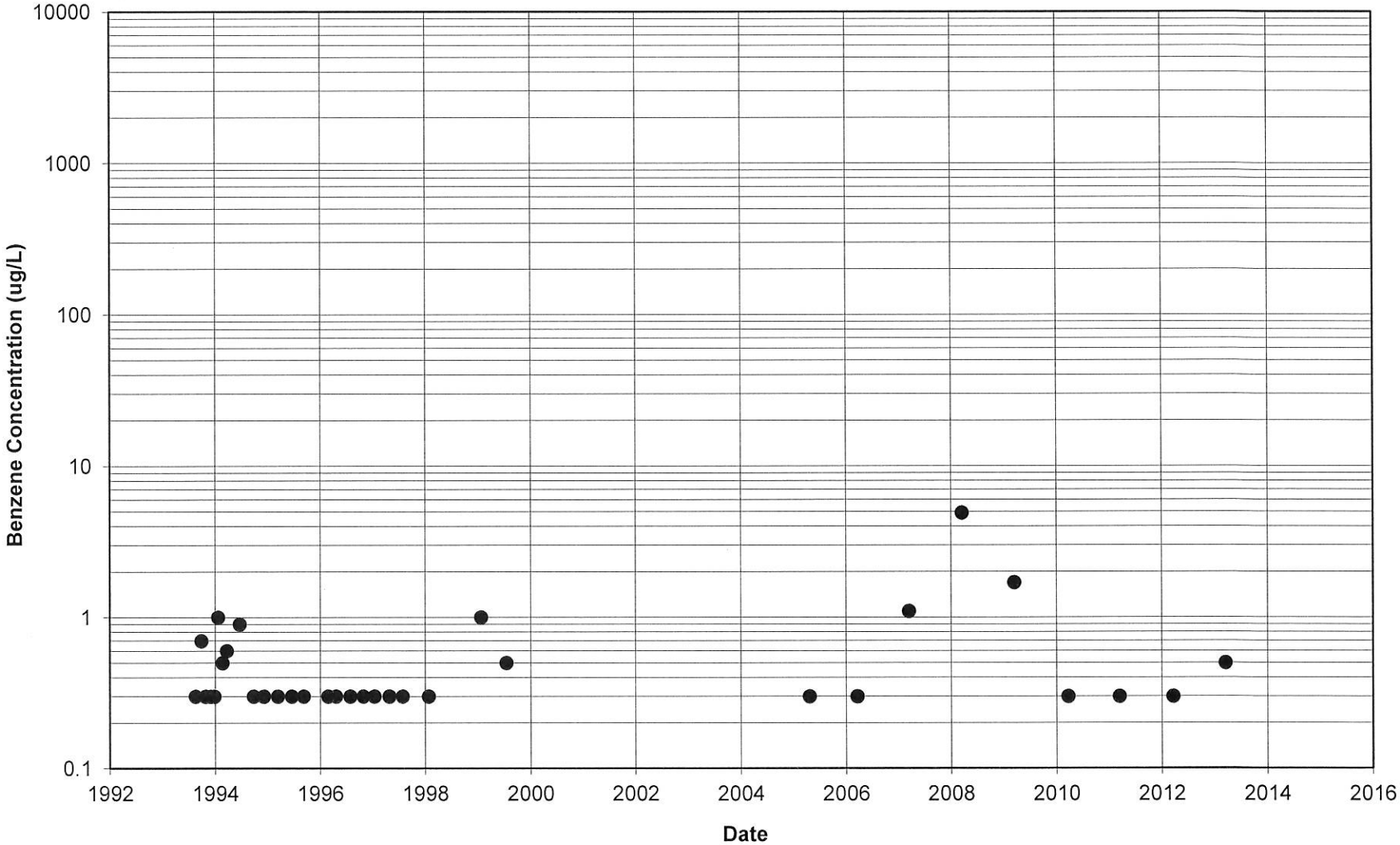
Time series plot of benzene in WR-219A



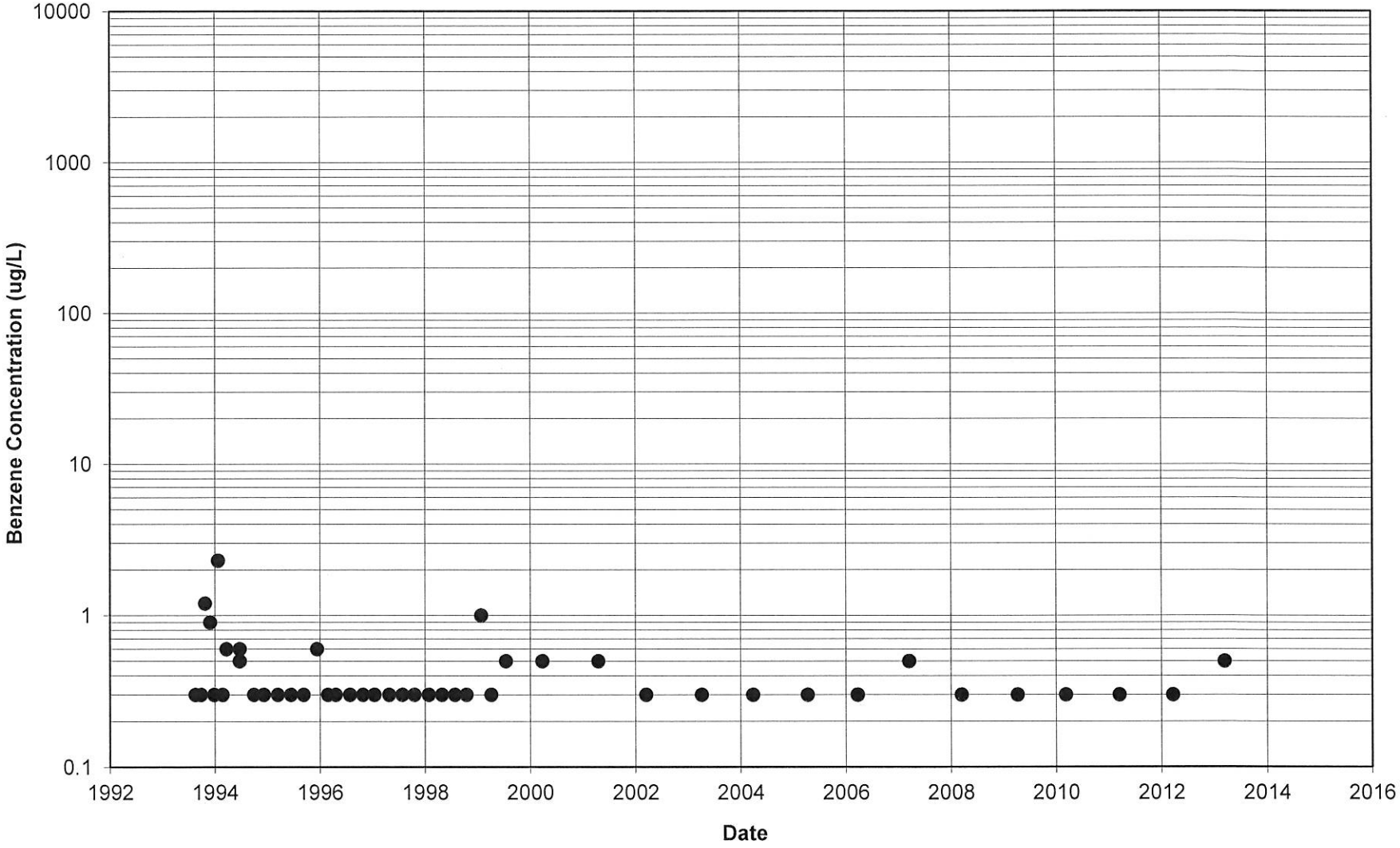
Time series plot of benzene in WR-220A



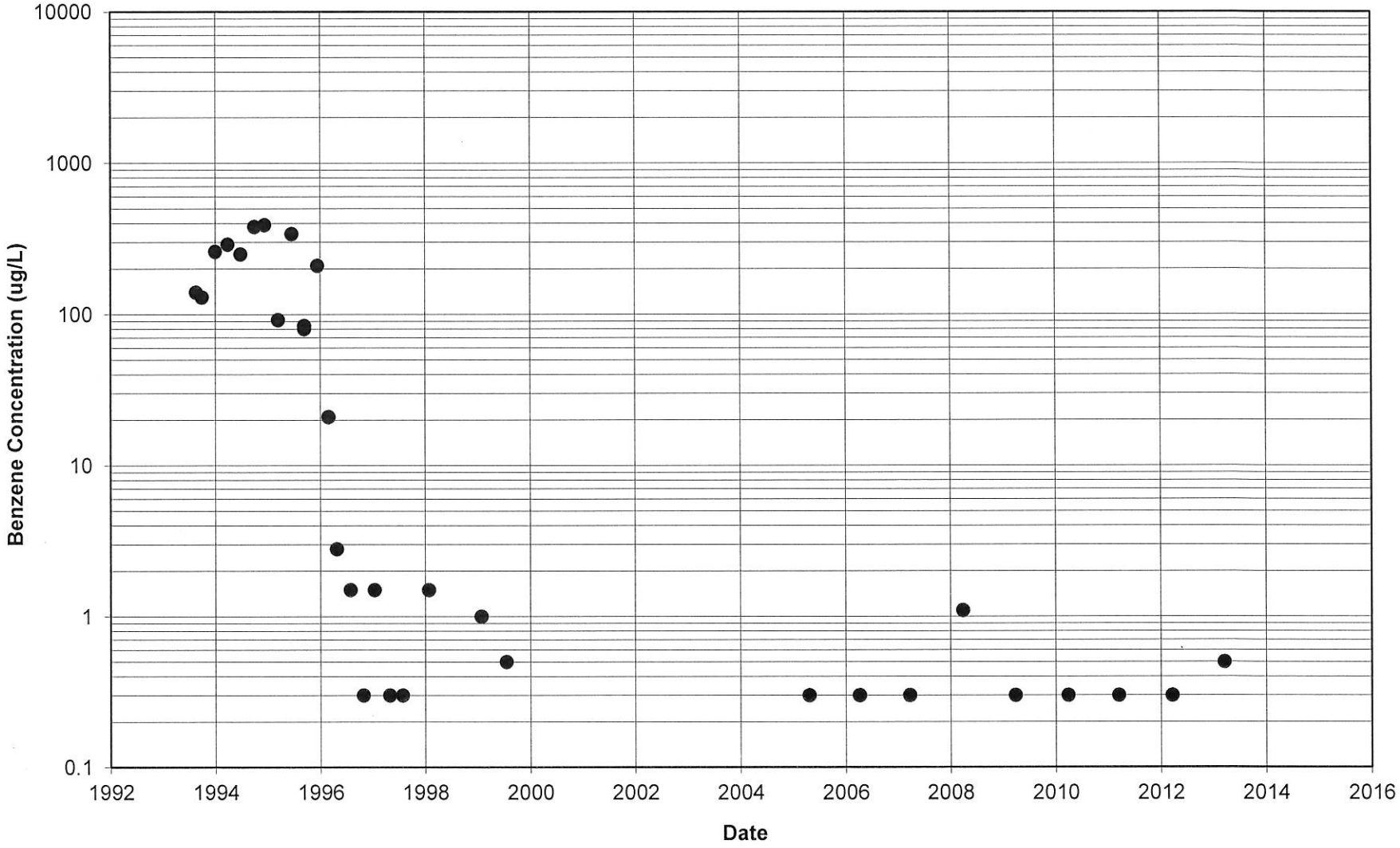
Time series plot of benzene in WR-221A



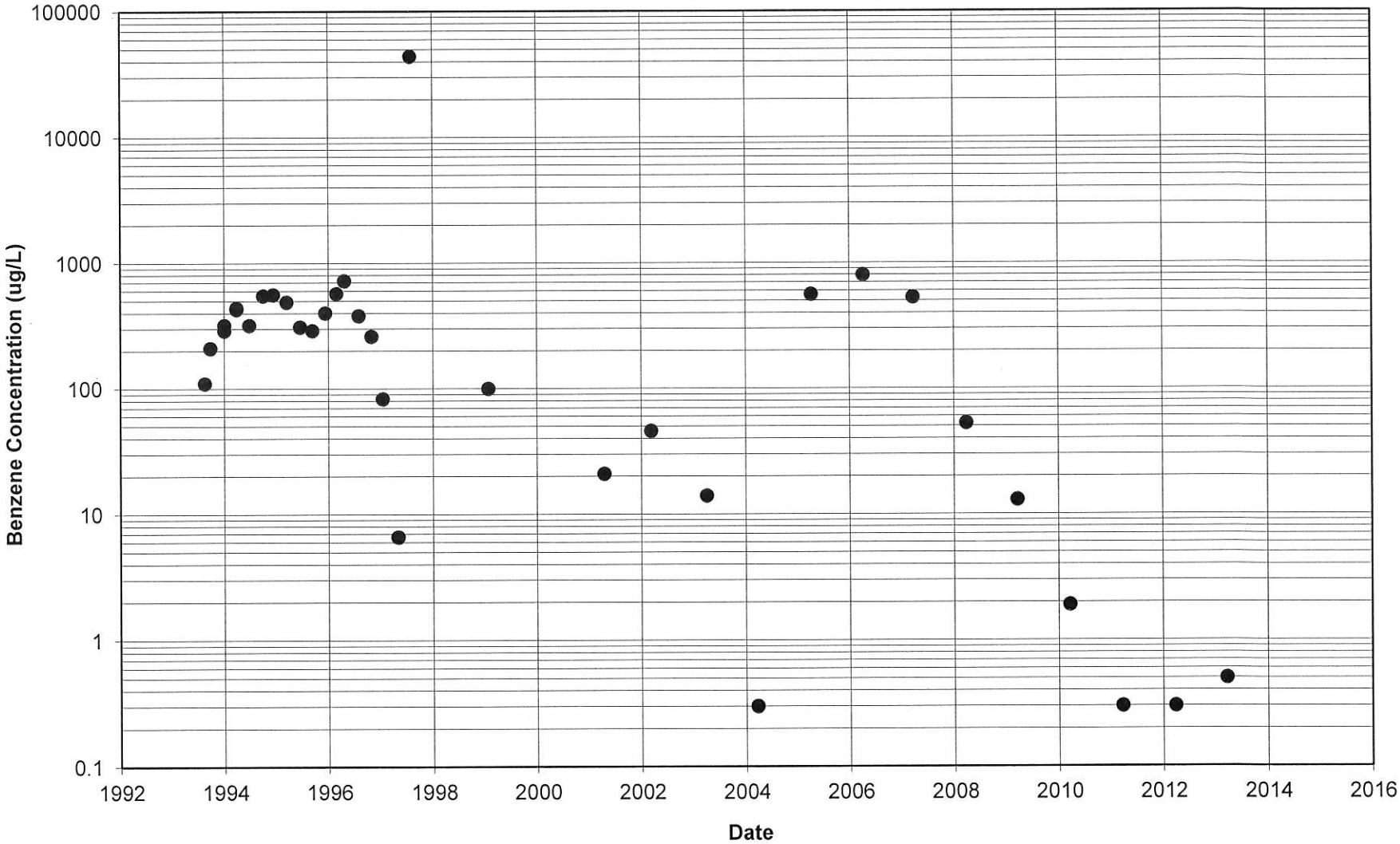
Time series plot of benzene in WR-222A



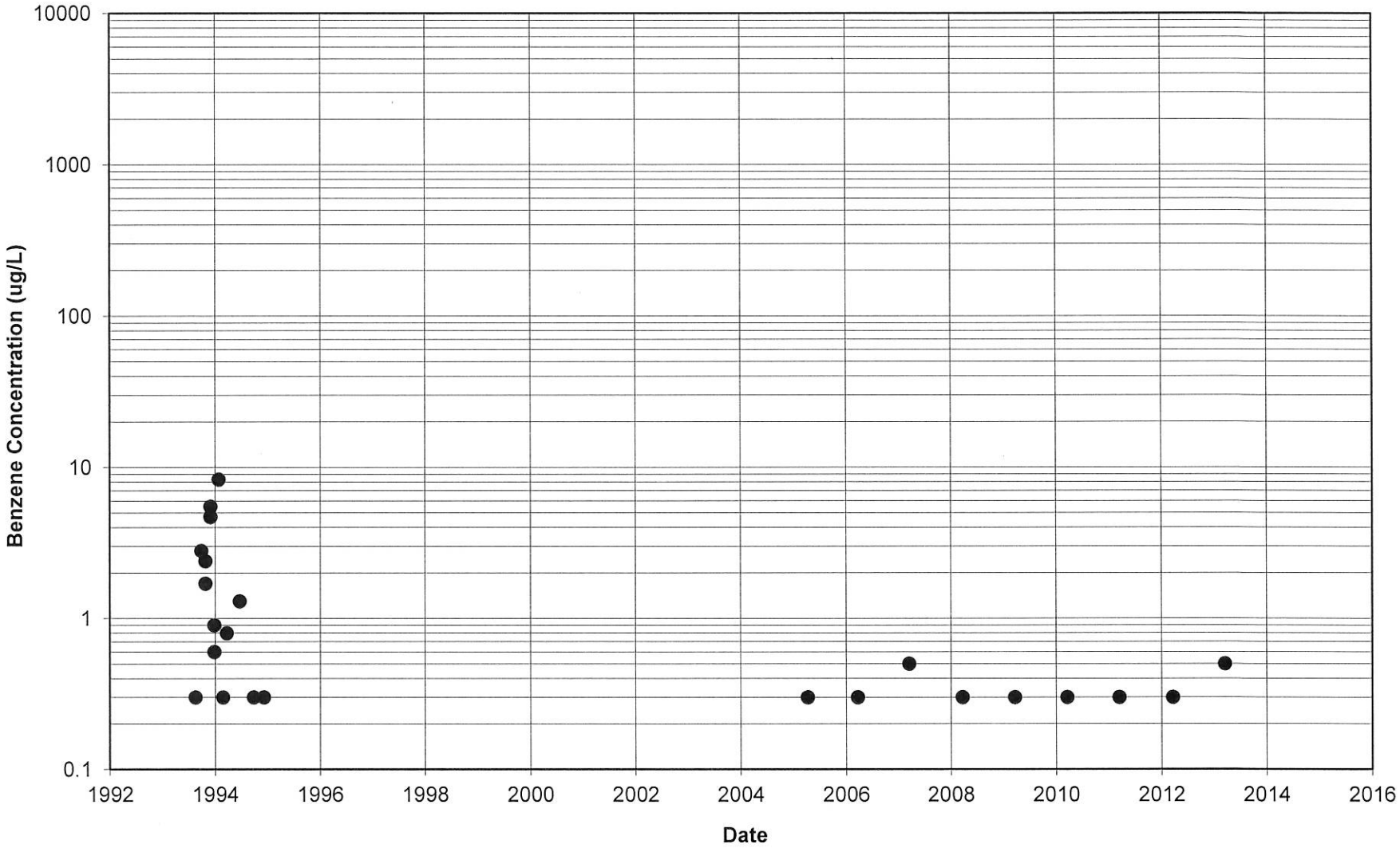
Time series plot of benzene in WR-223A

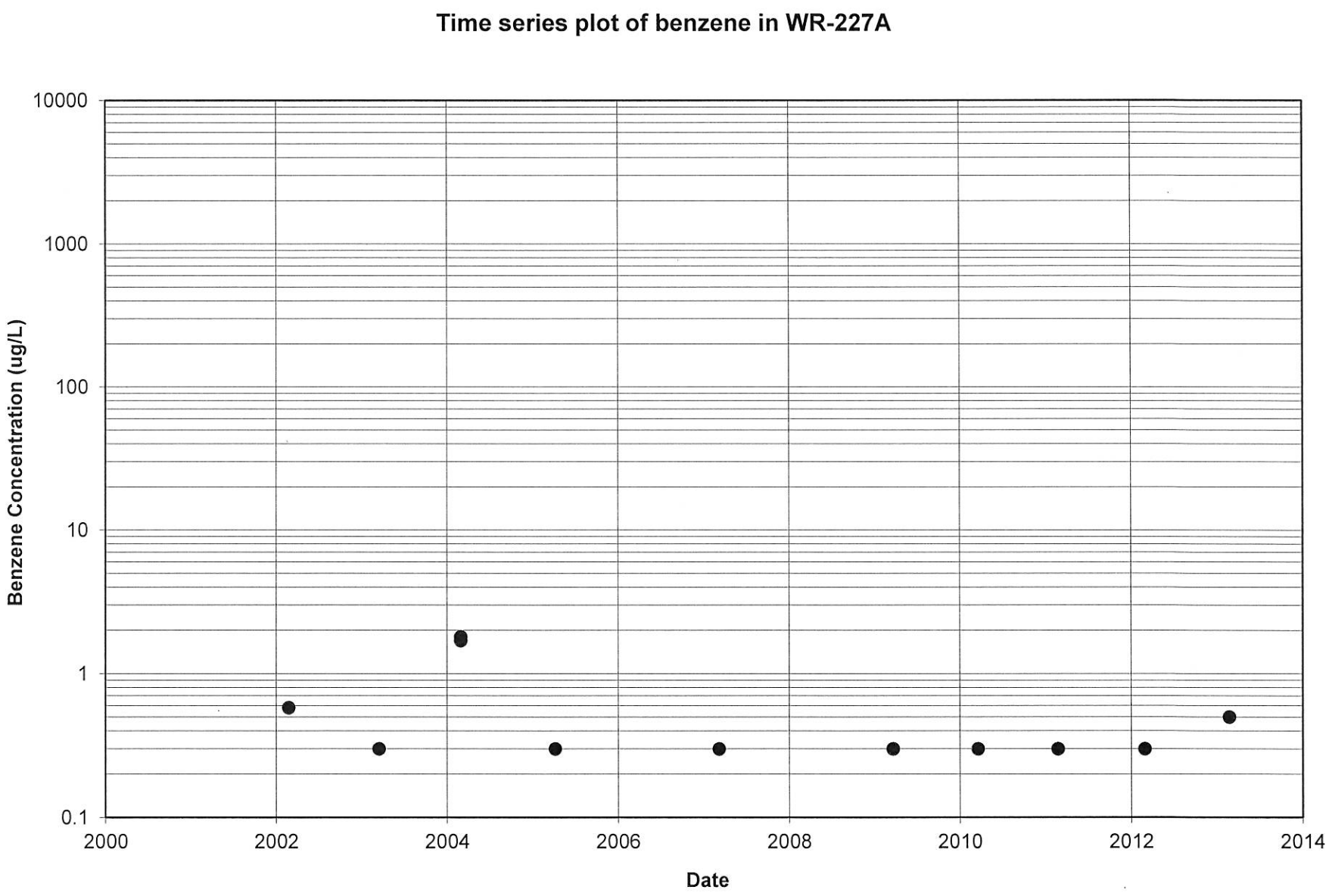


Time series plot of benzene in WR-224A

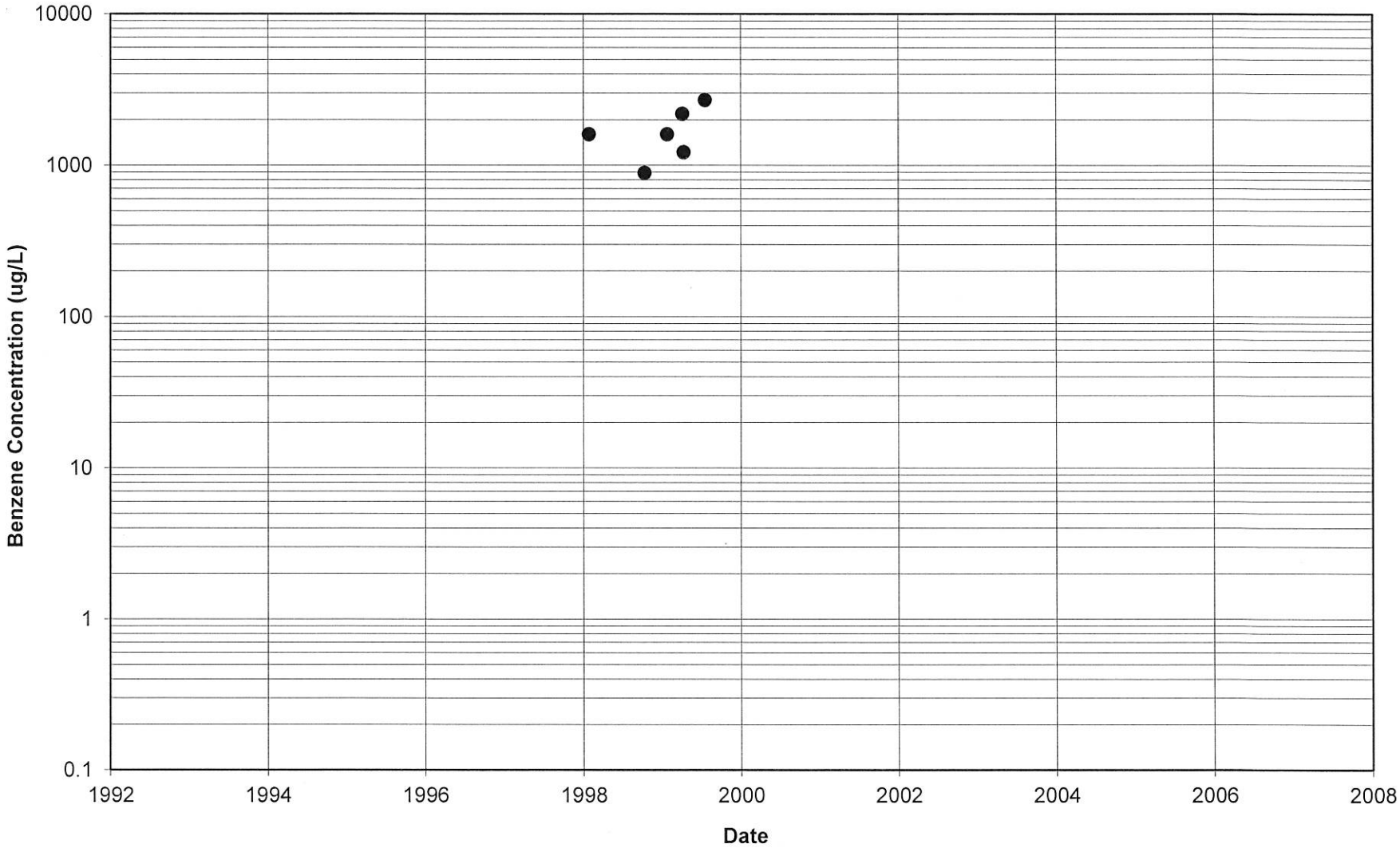


Time series plot of benzene in WR-225A

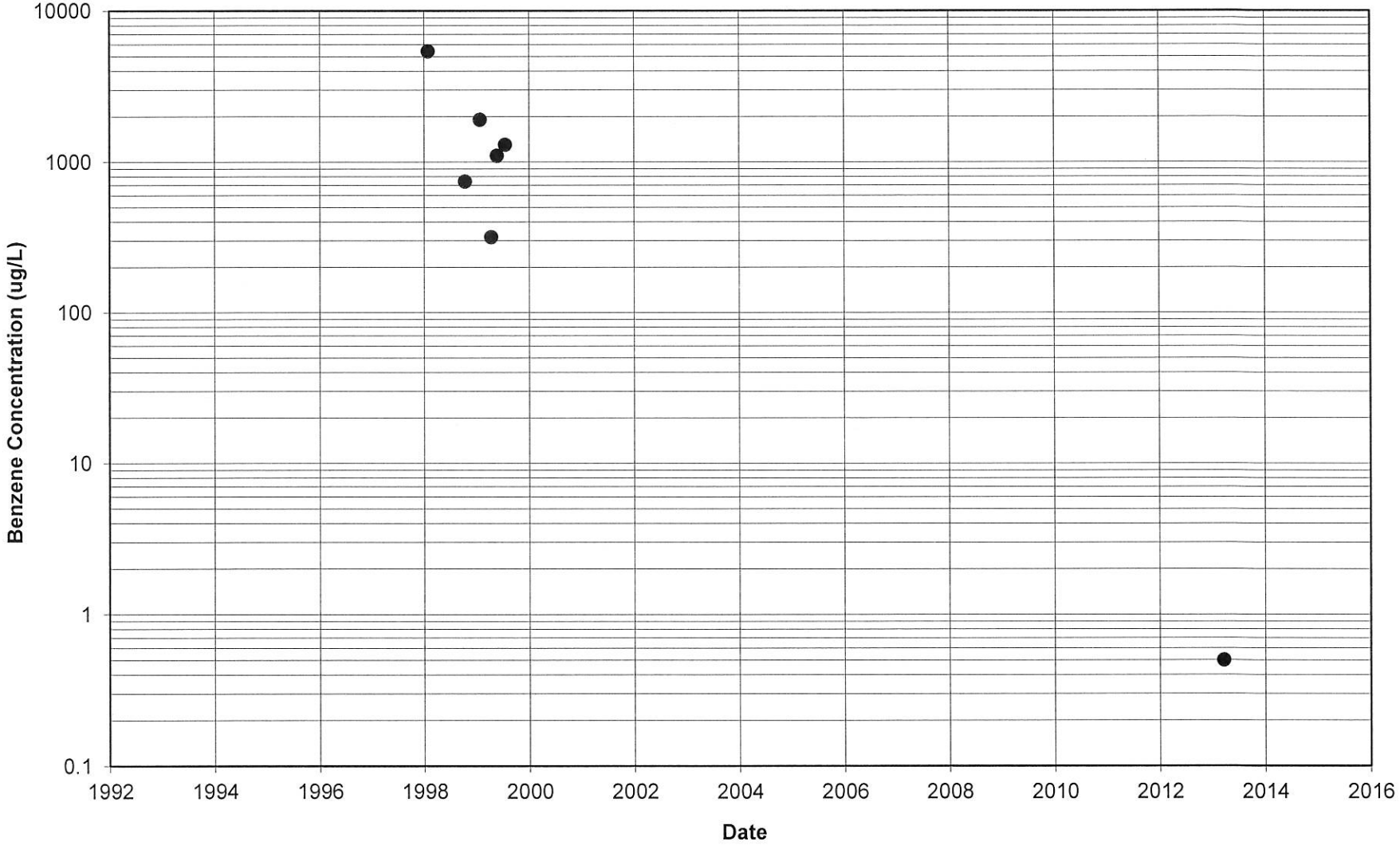



Time series plot of benzene in WR-227A
Benzene Concentration (ug/L)
10000
1000
100
10
1
0.1
2000
2002
2004
2006
2008
2010
2012
2014
Date

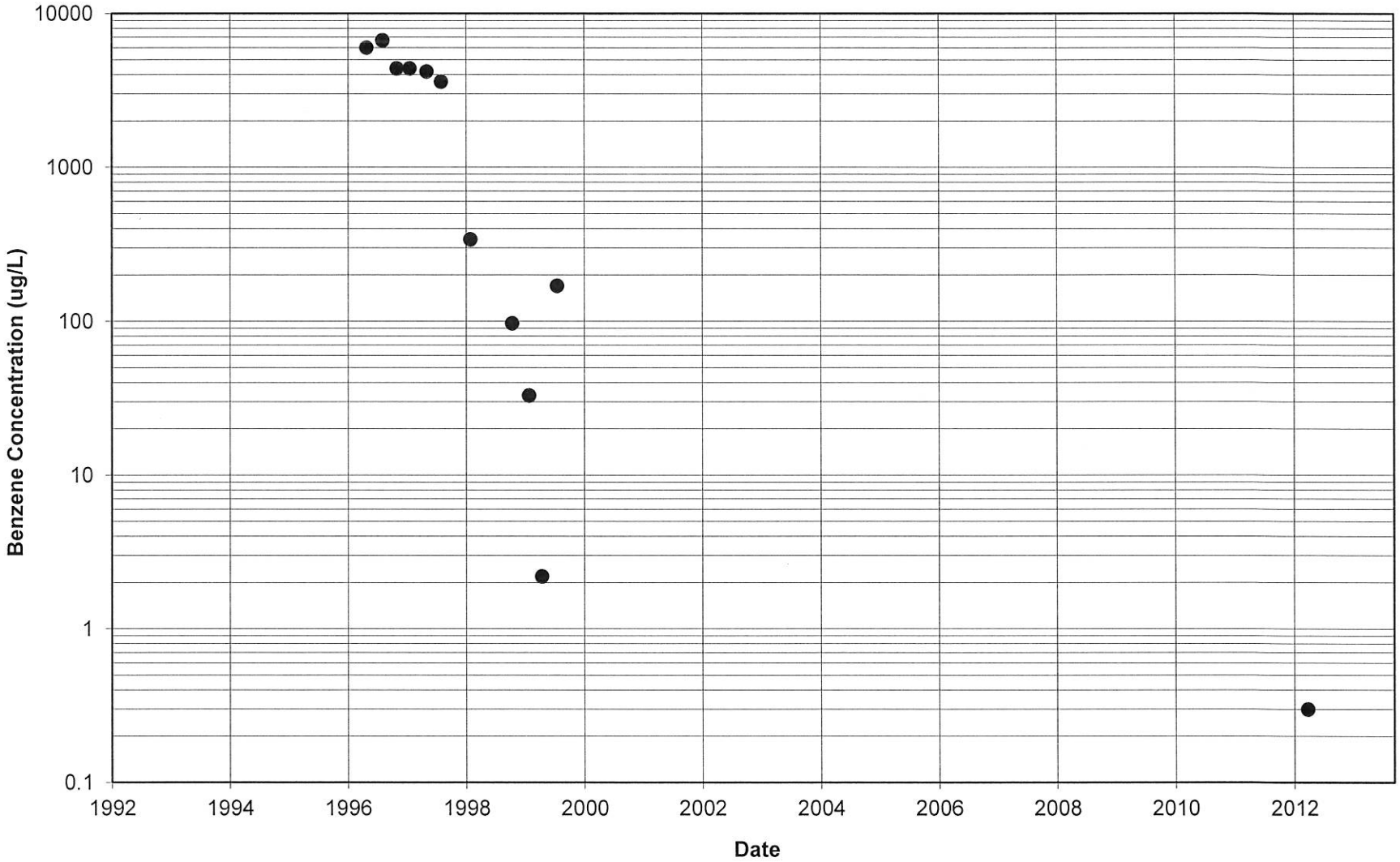
Time series plot of benzene in WR-295A INJ-1S



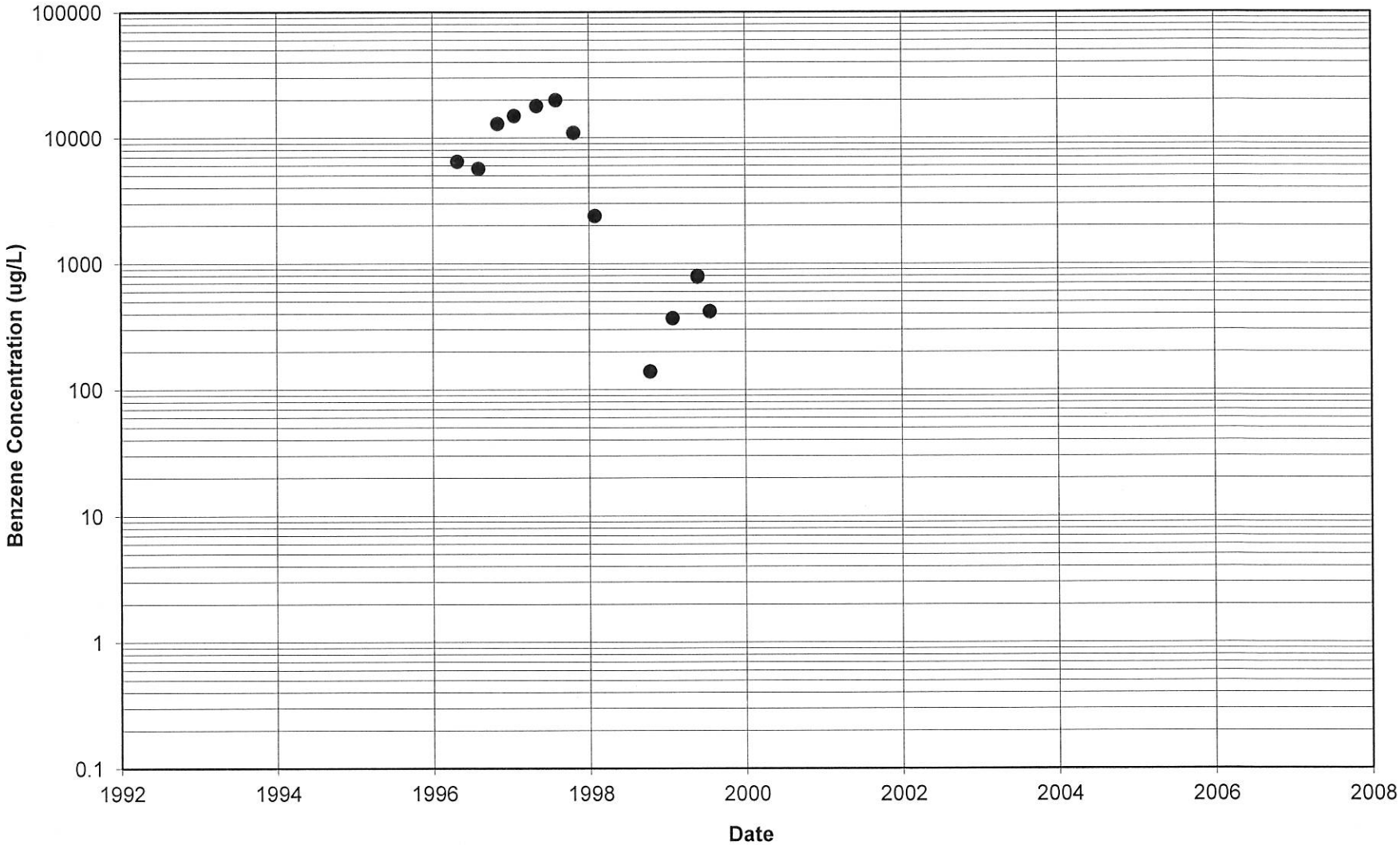
Time series plot of benzene in WR-296A INJ-1S



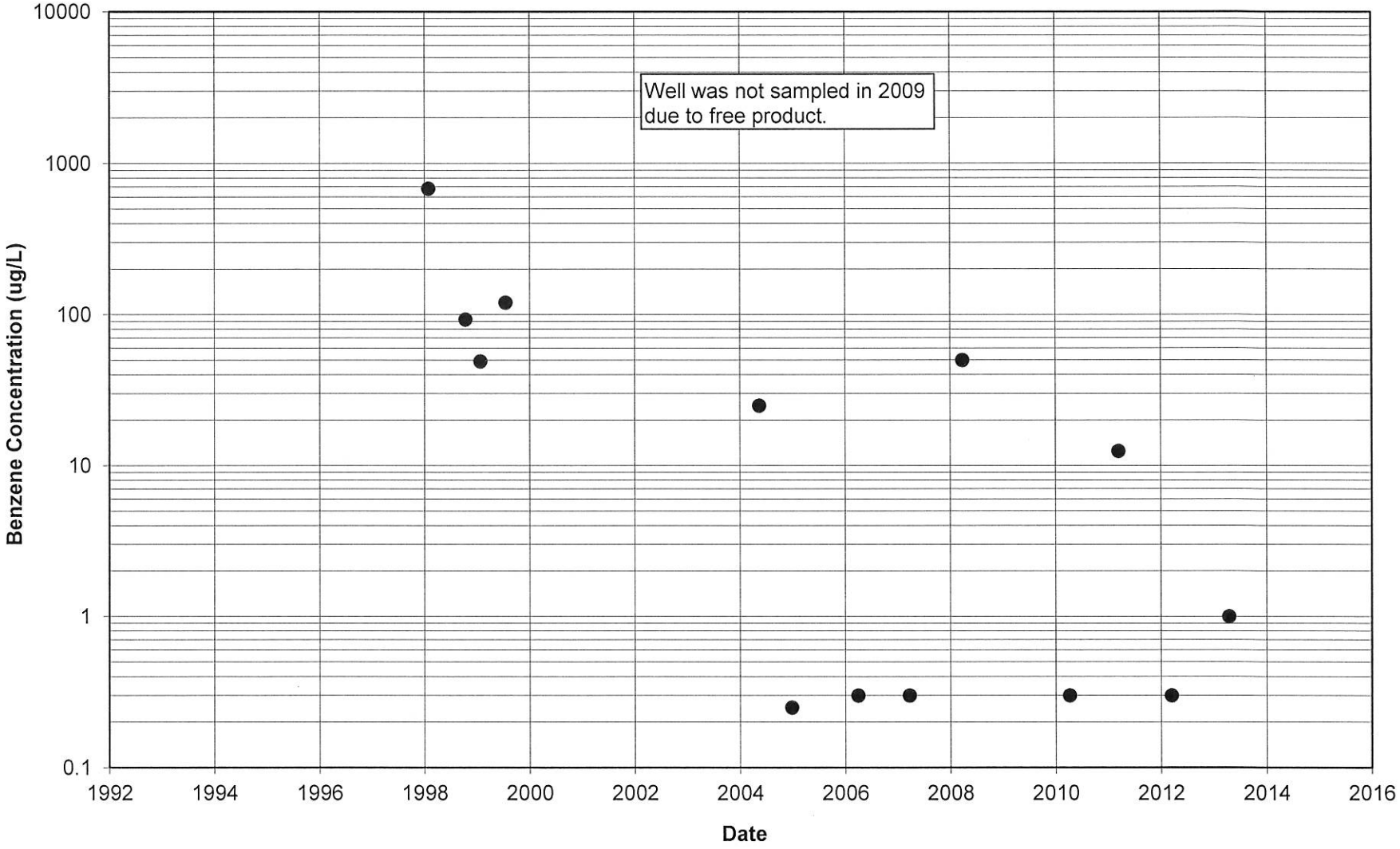
Time series plot of benzene in WR-297A INJ-3S



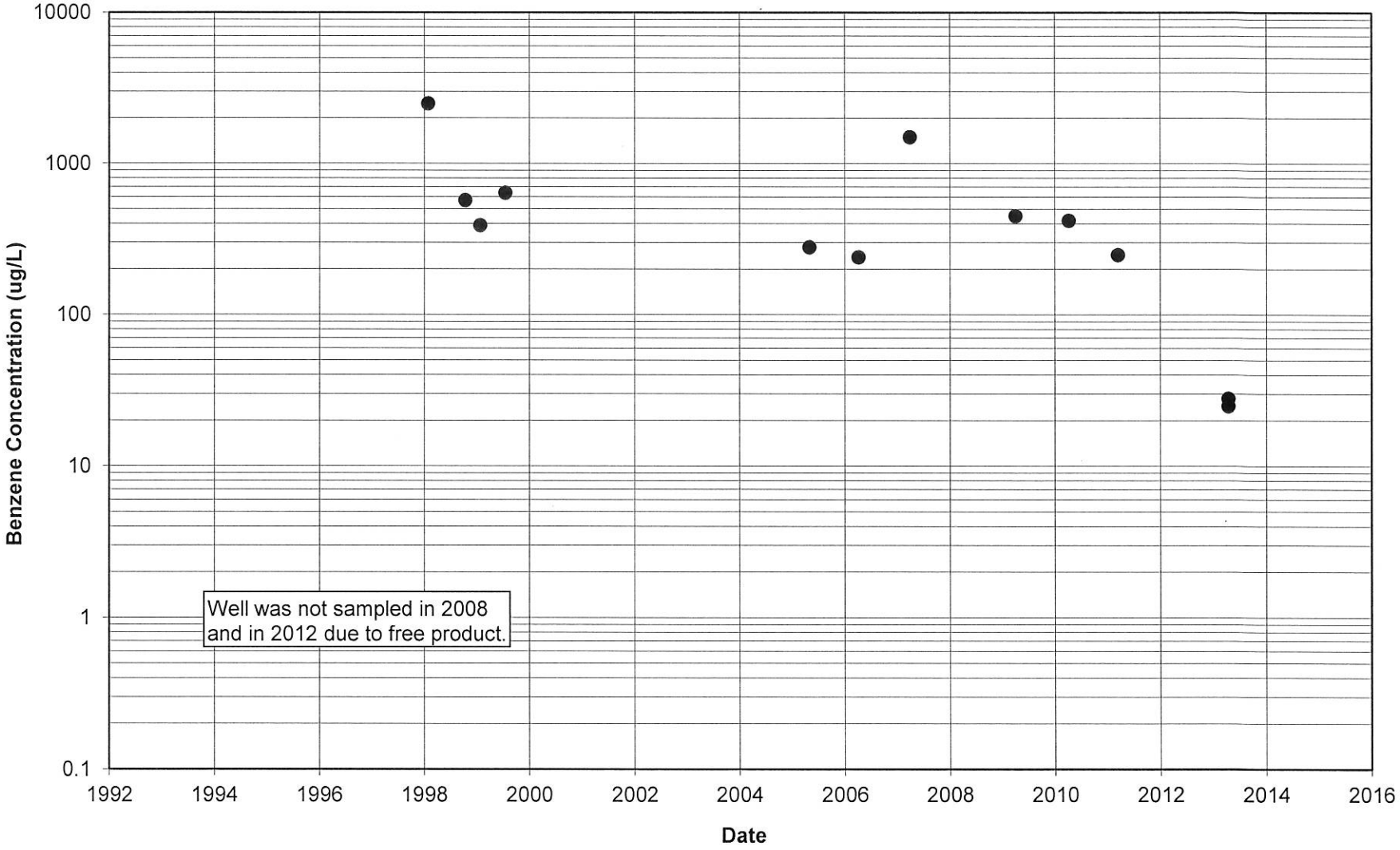
Time series plot of benzene in WR-298A INJ-4S

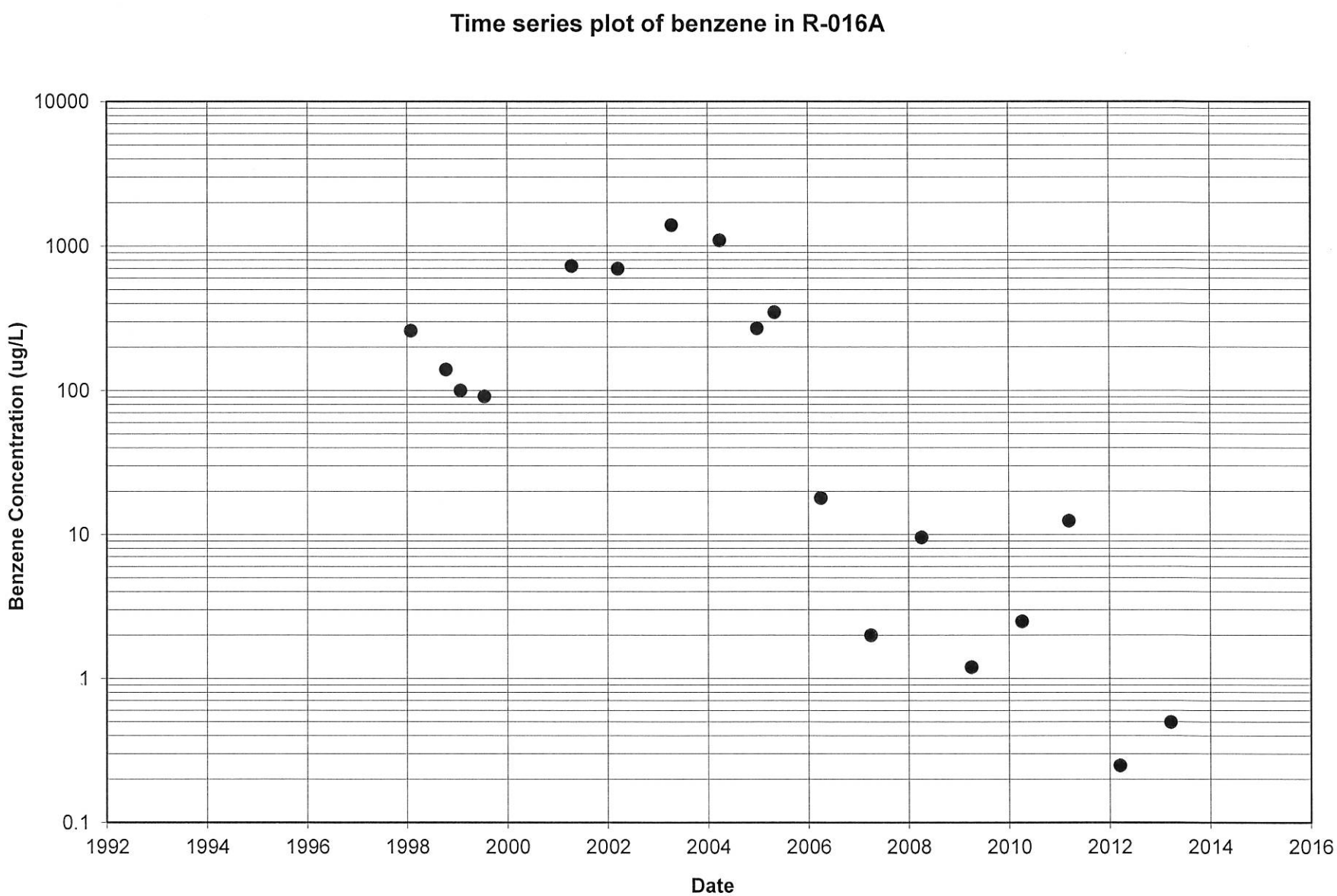


Time series plot of benzene in R-012A

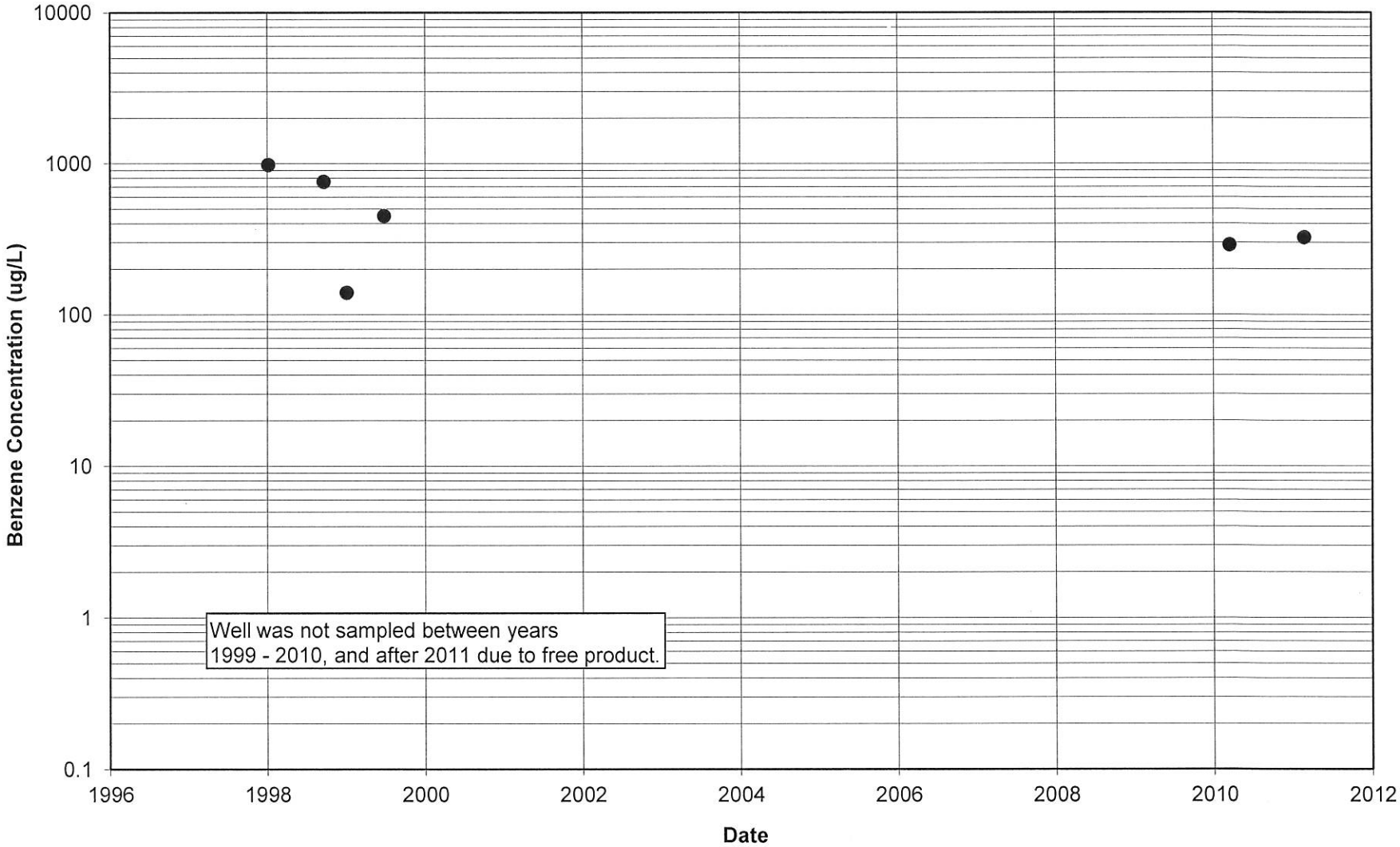


Time series plot of benzene in R-013A

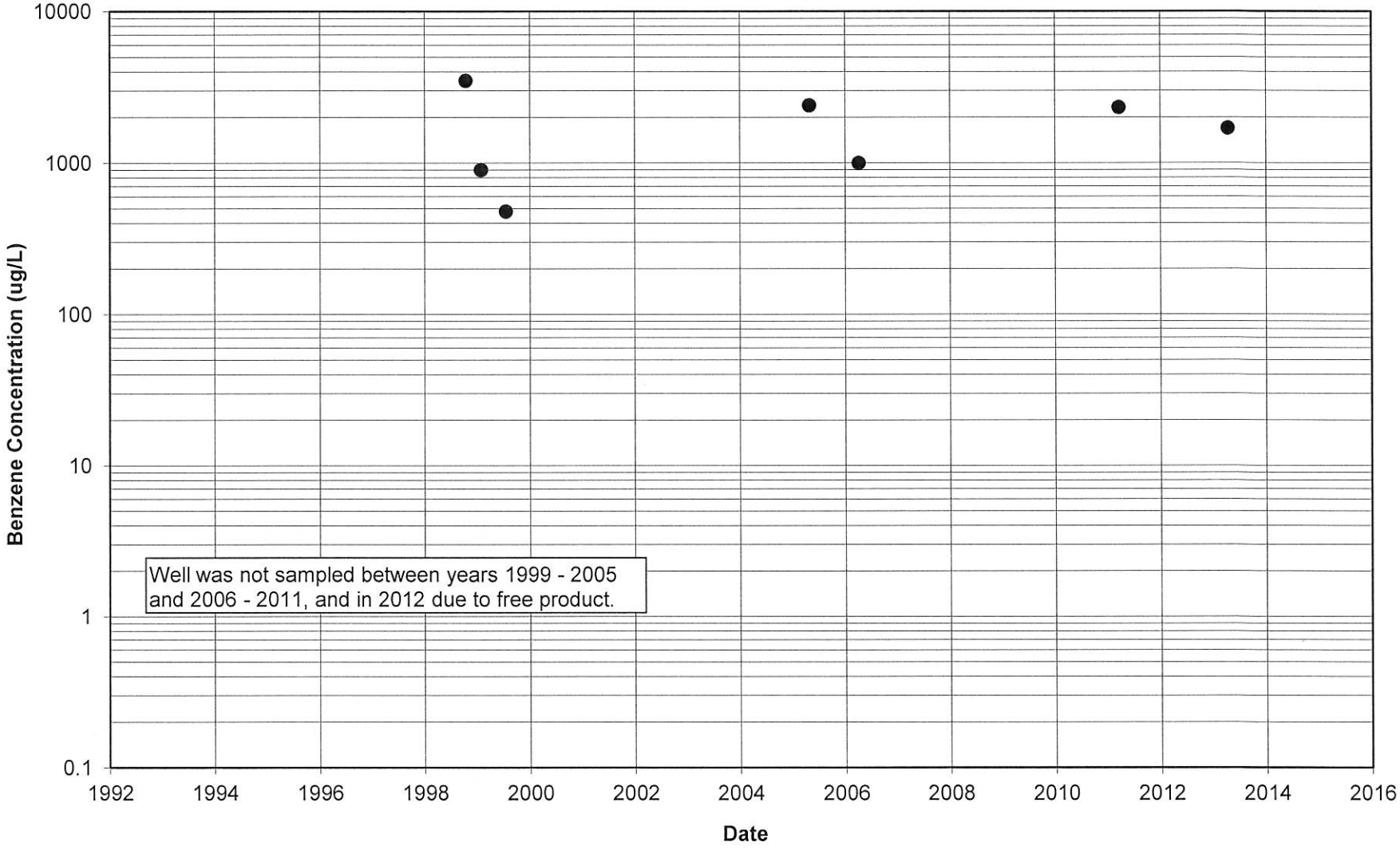



Time series plot of benzene in R-016A
Benzene Concentration (ug/L)
10000
1000
100
10
1
0.1
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
Date

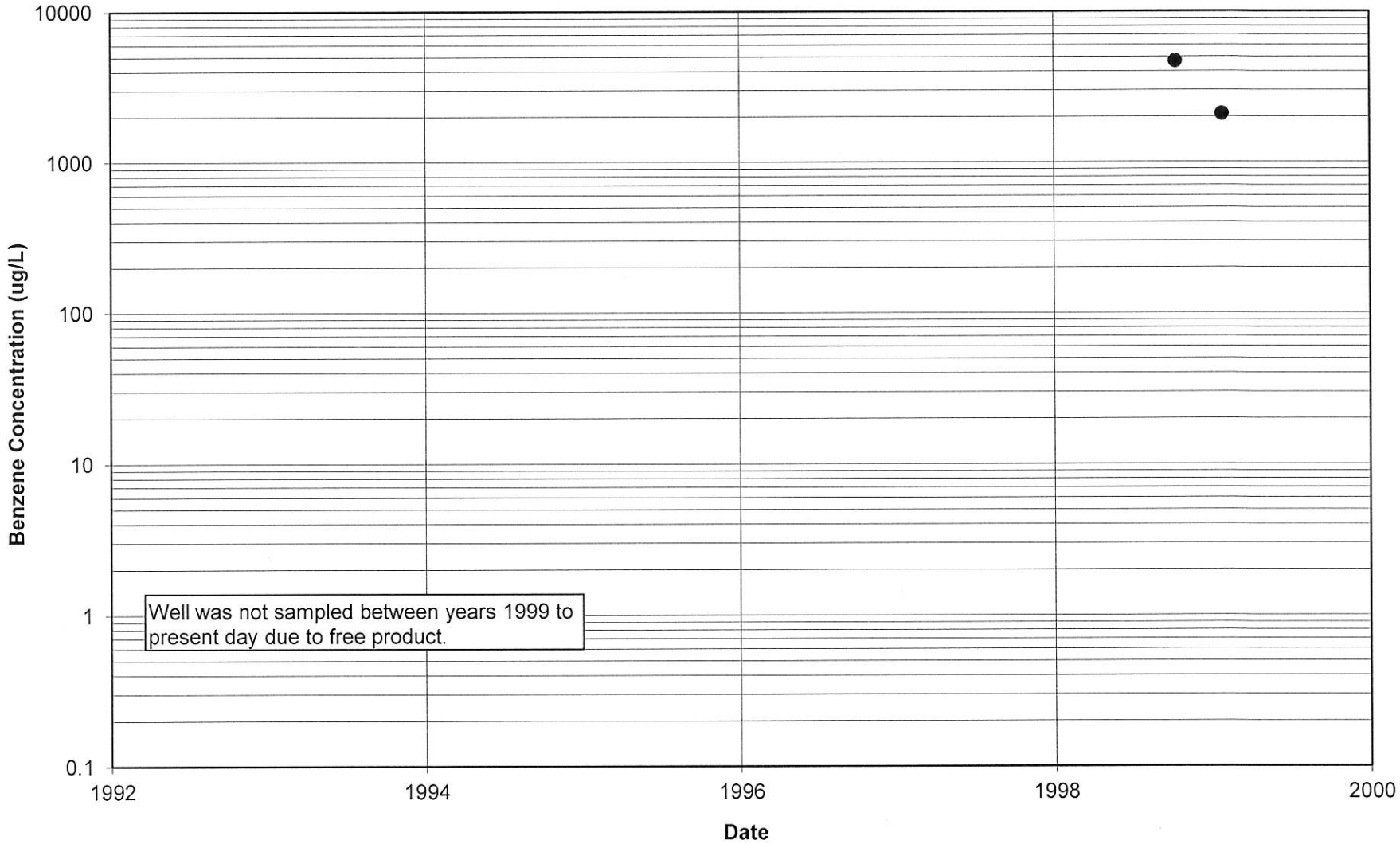
Time series plot of benzene in R-017A



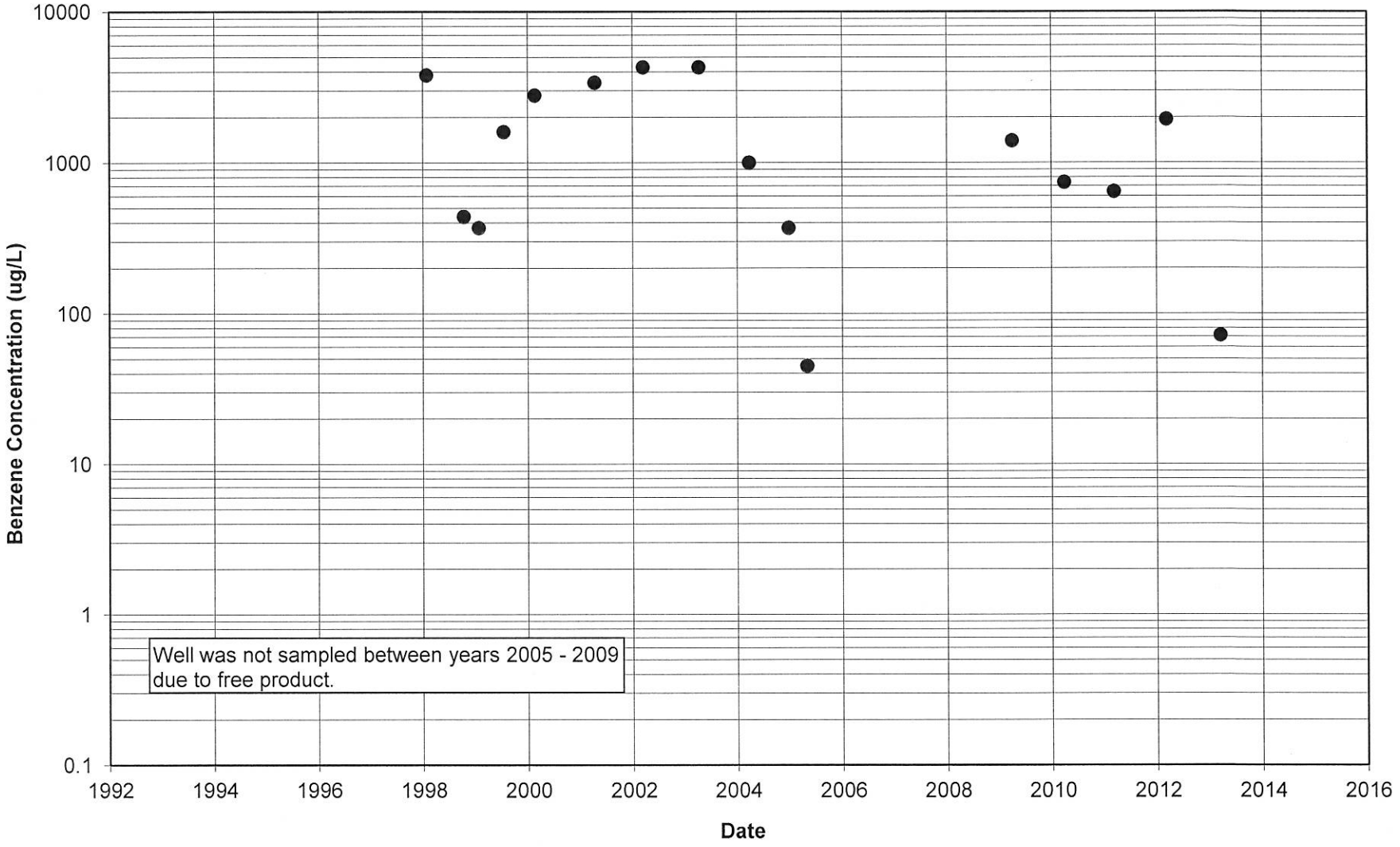
Time series plot of benzene in R-018A



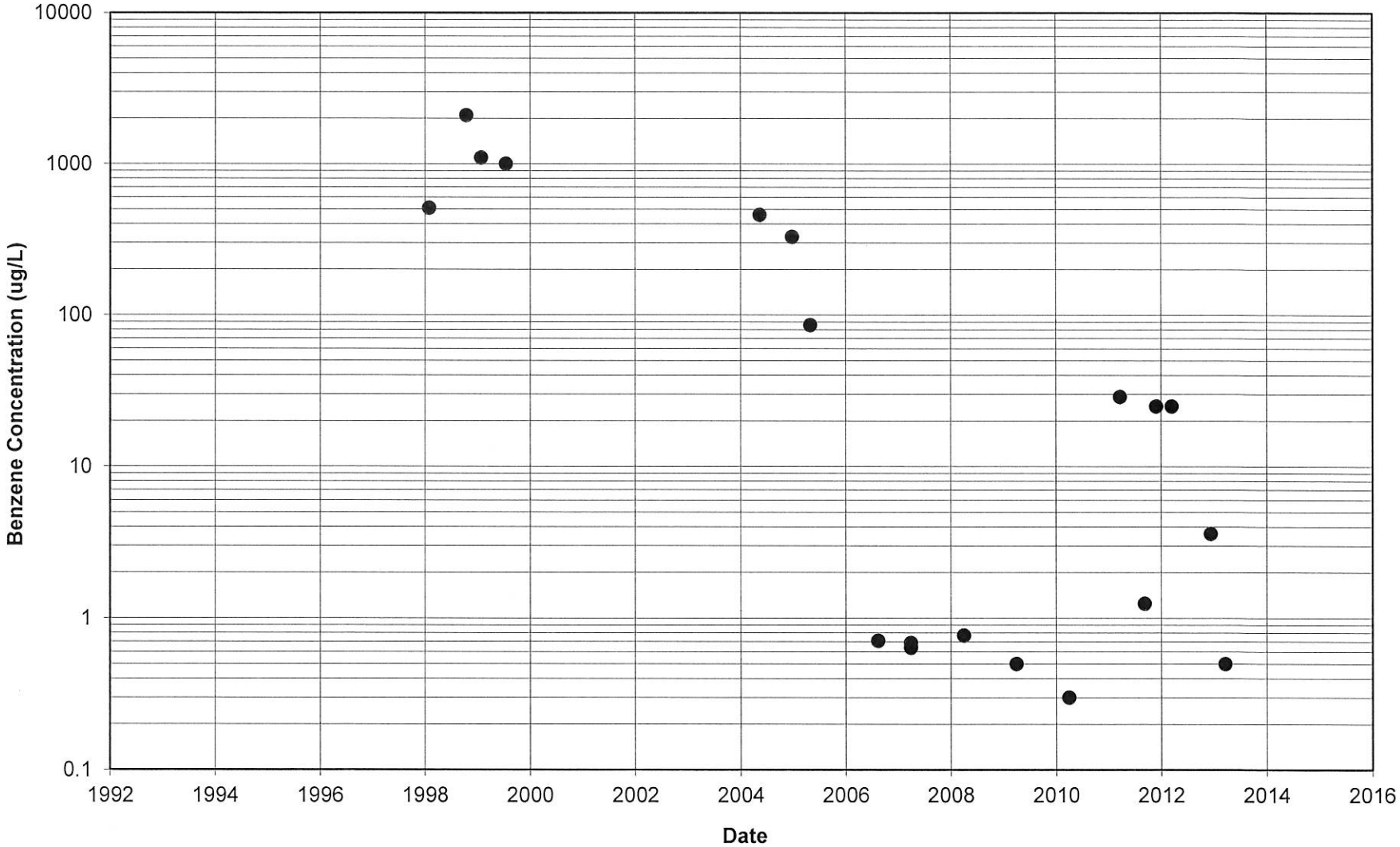
Time series plot of benzene in R-019A



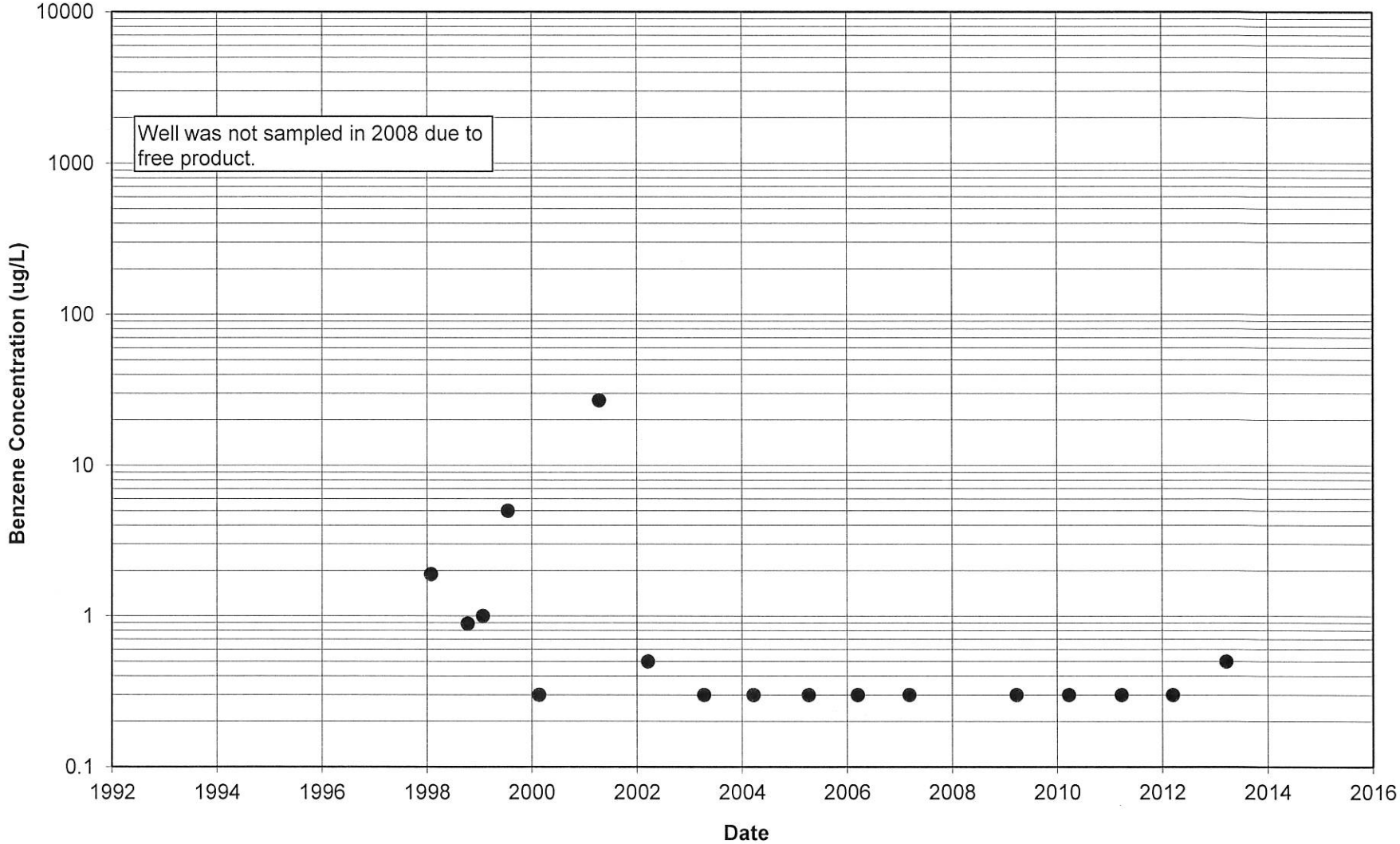
Time series plot of benzene in R-020A



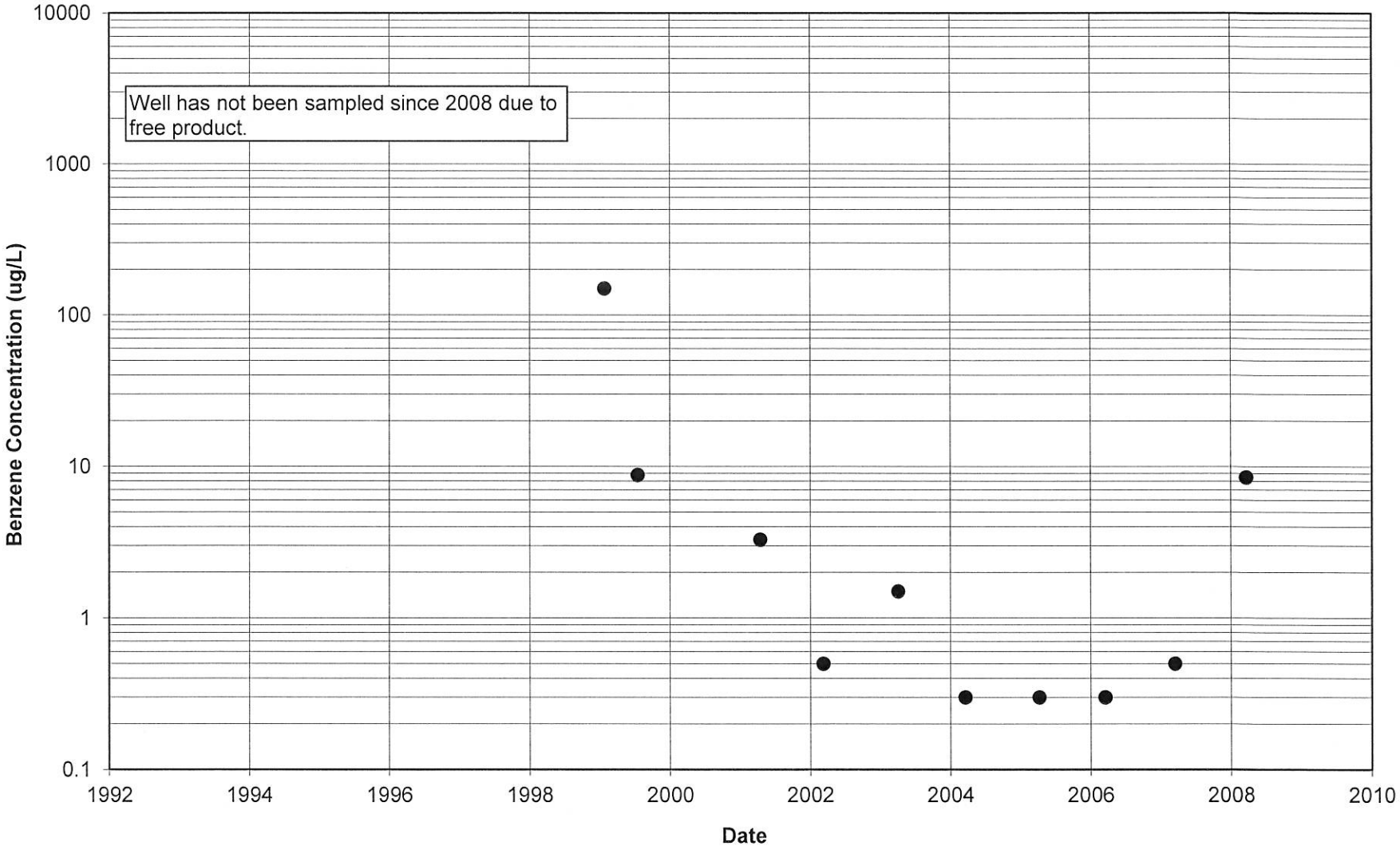
Time series plot of benzene in R-021A



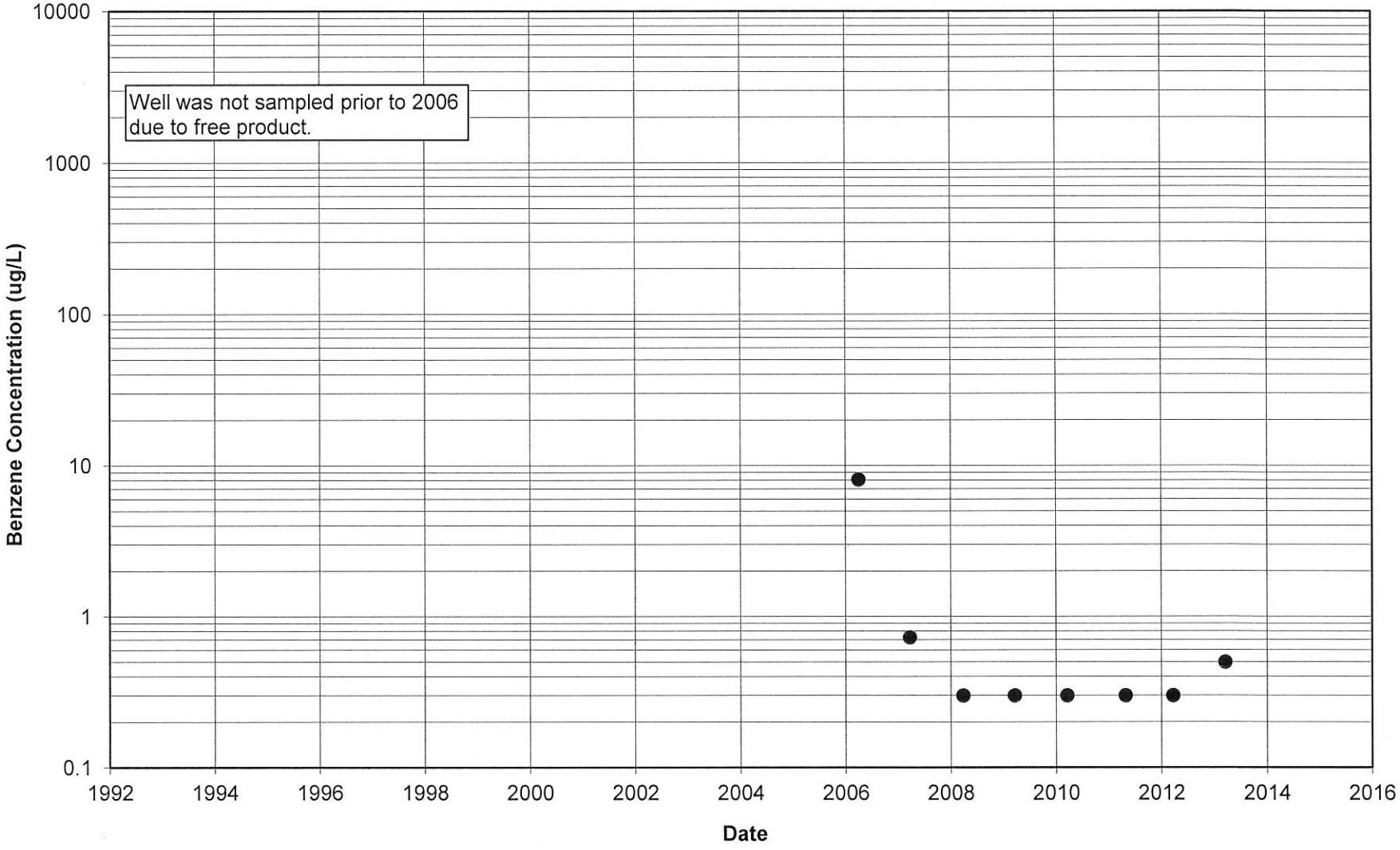
Time series plot of benzene in R-022A



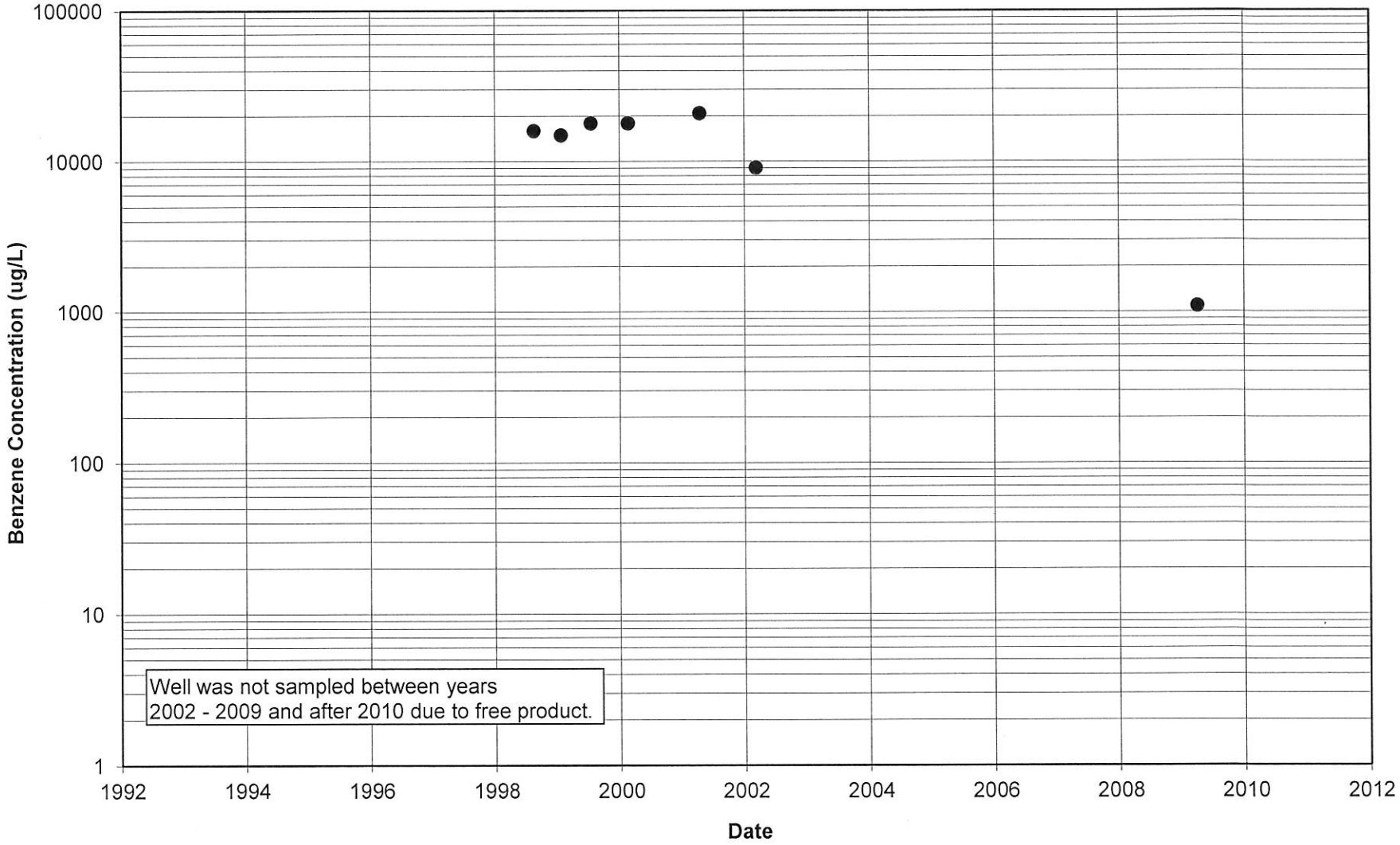
Time series plot of benzene in R-028A



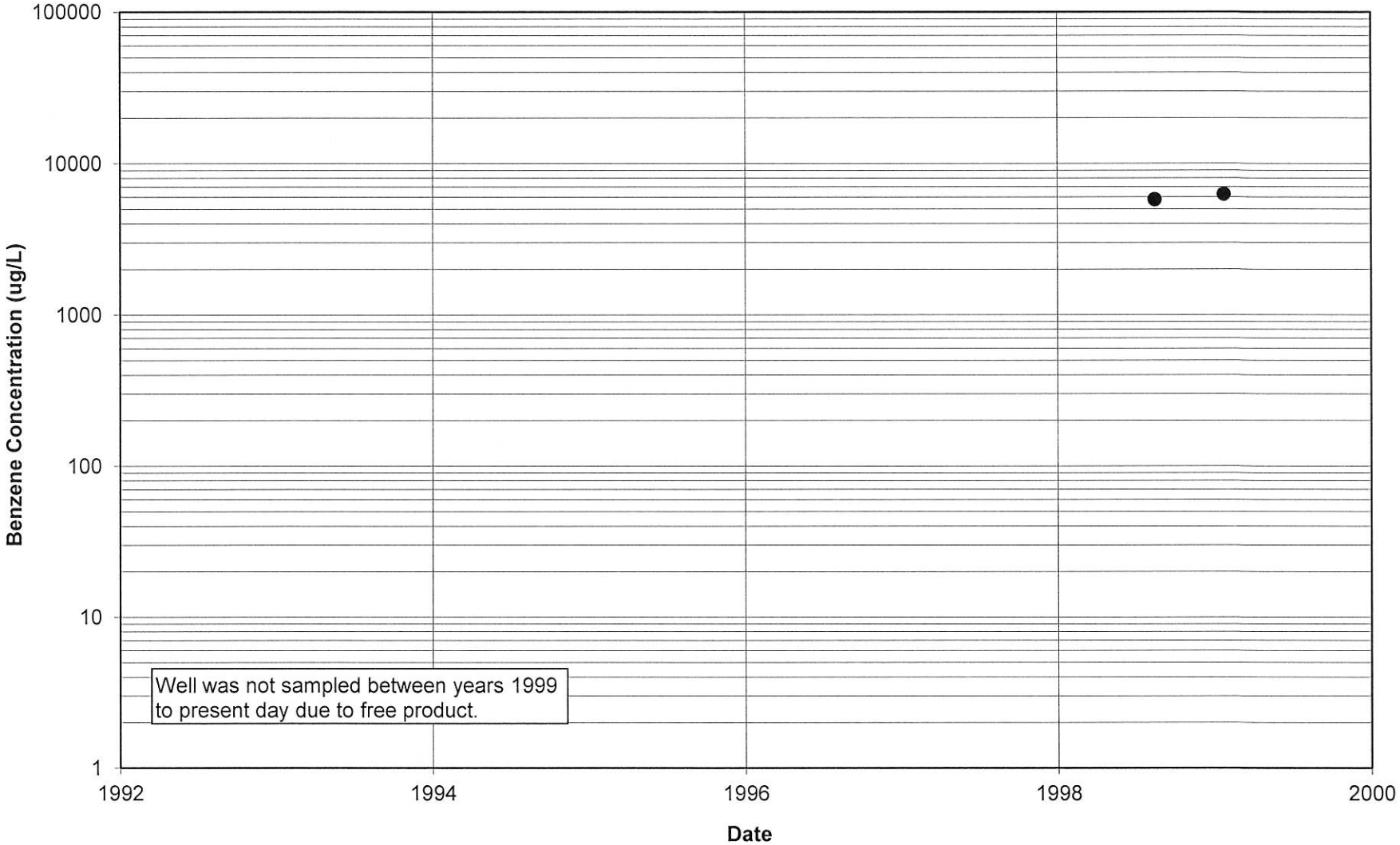
Time series plot of benzene in R-029A



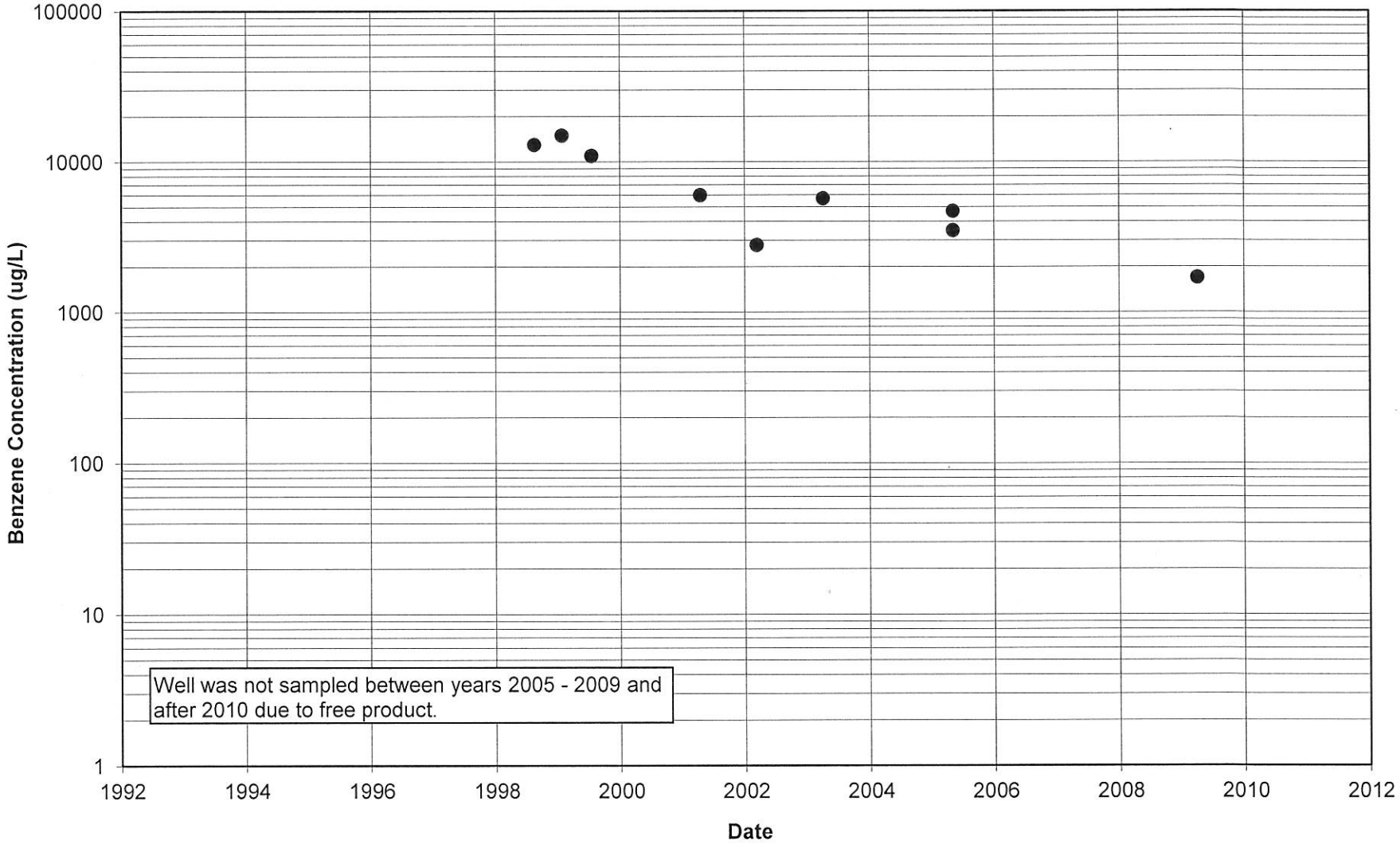
Time series plot of benzene in R-033A



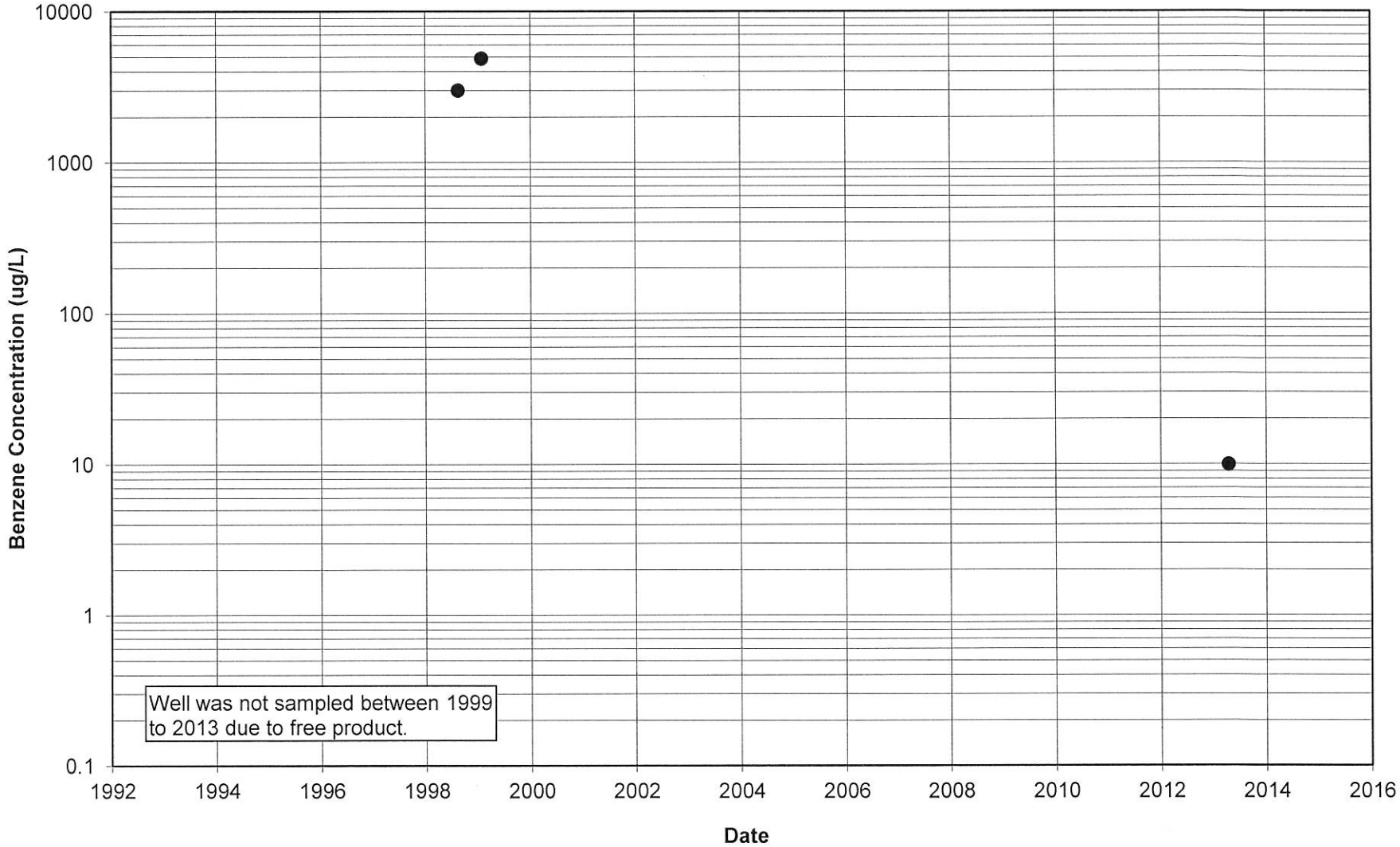
Time series plot of benzene in R-034A



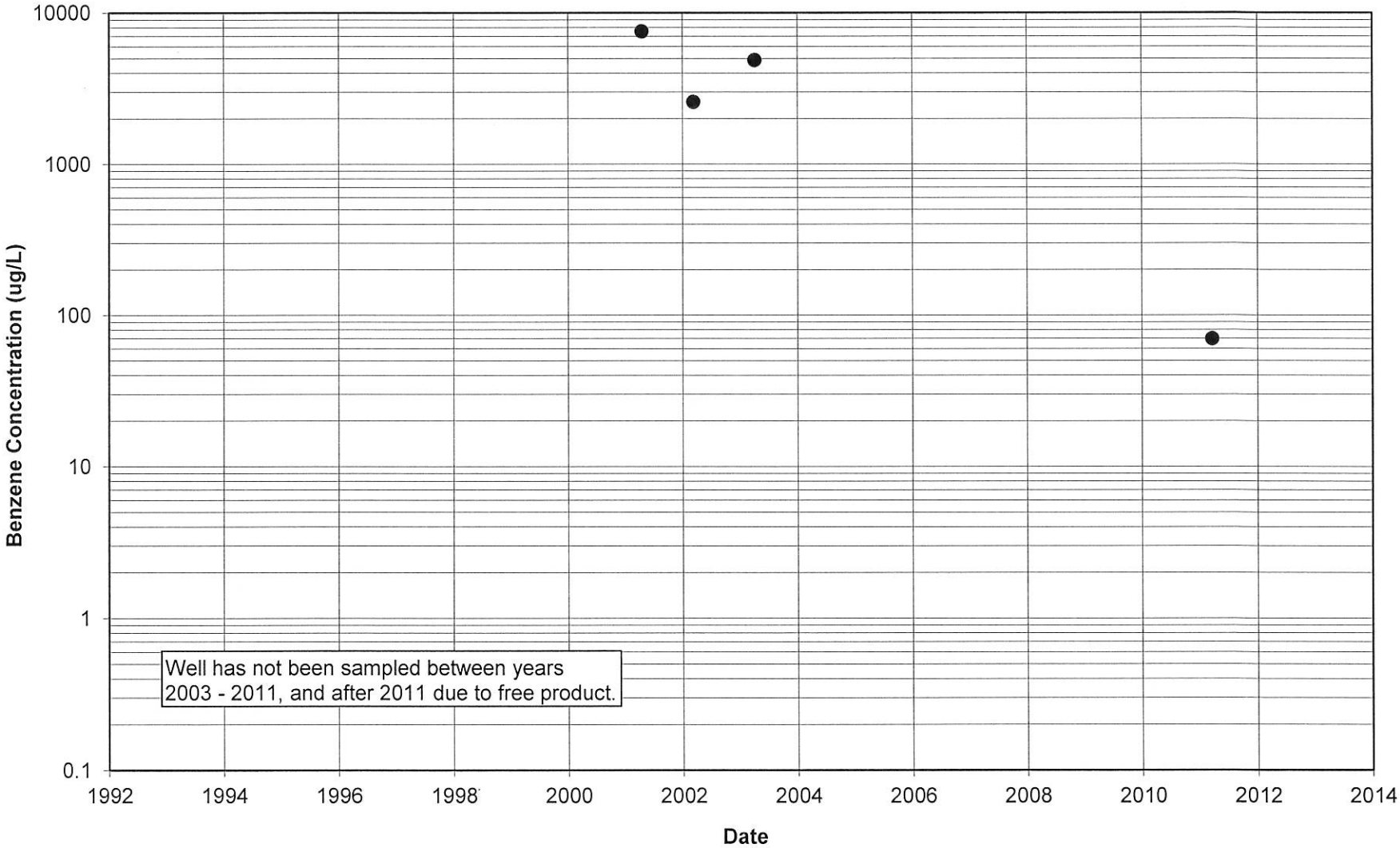
Time series plot of benzene in R-035A



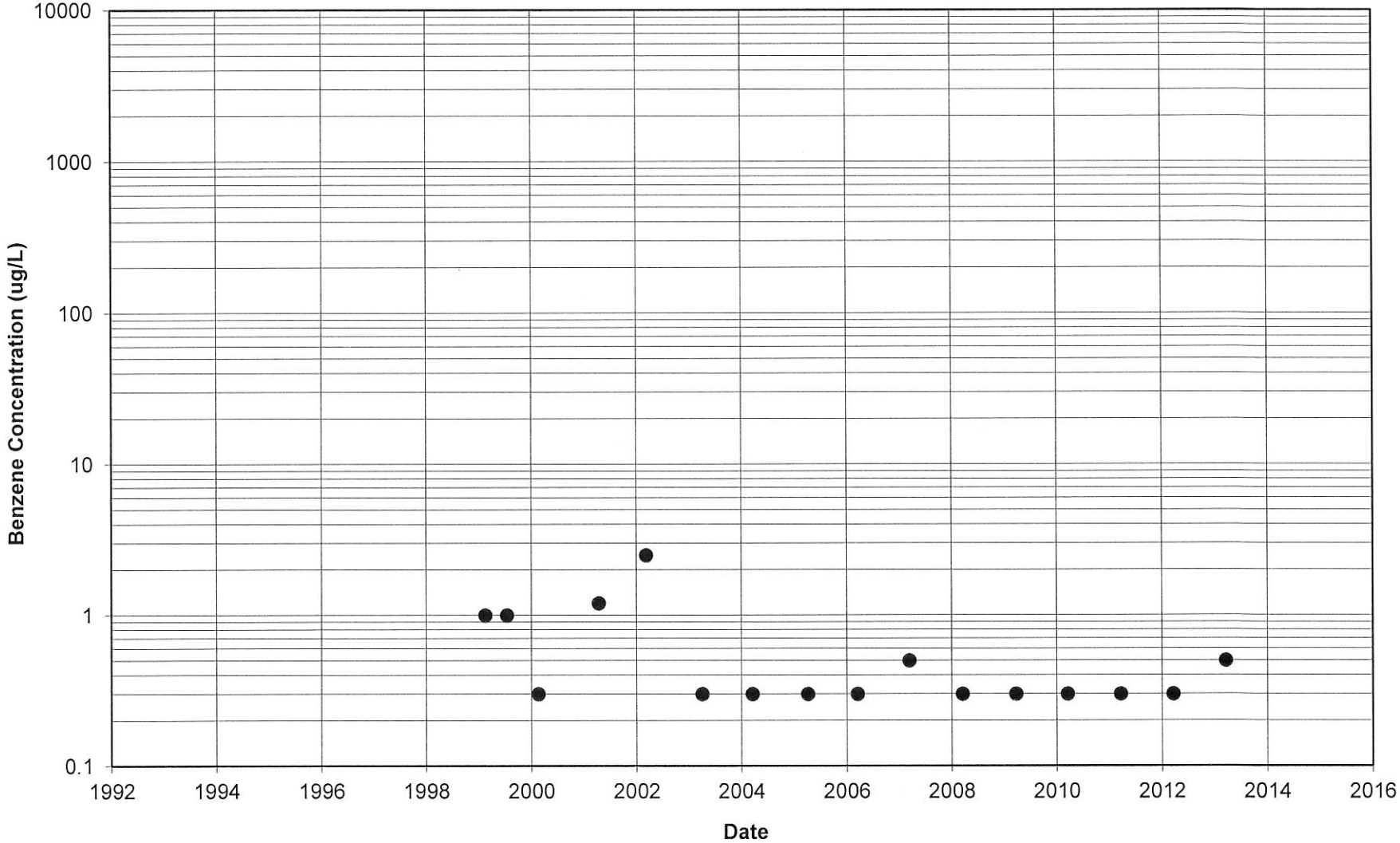
Time series plot of benzene in R-036A



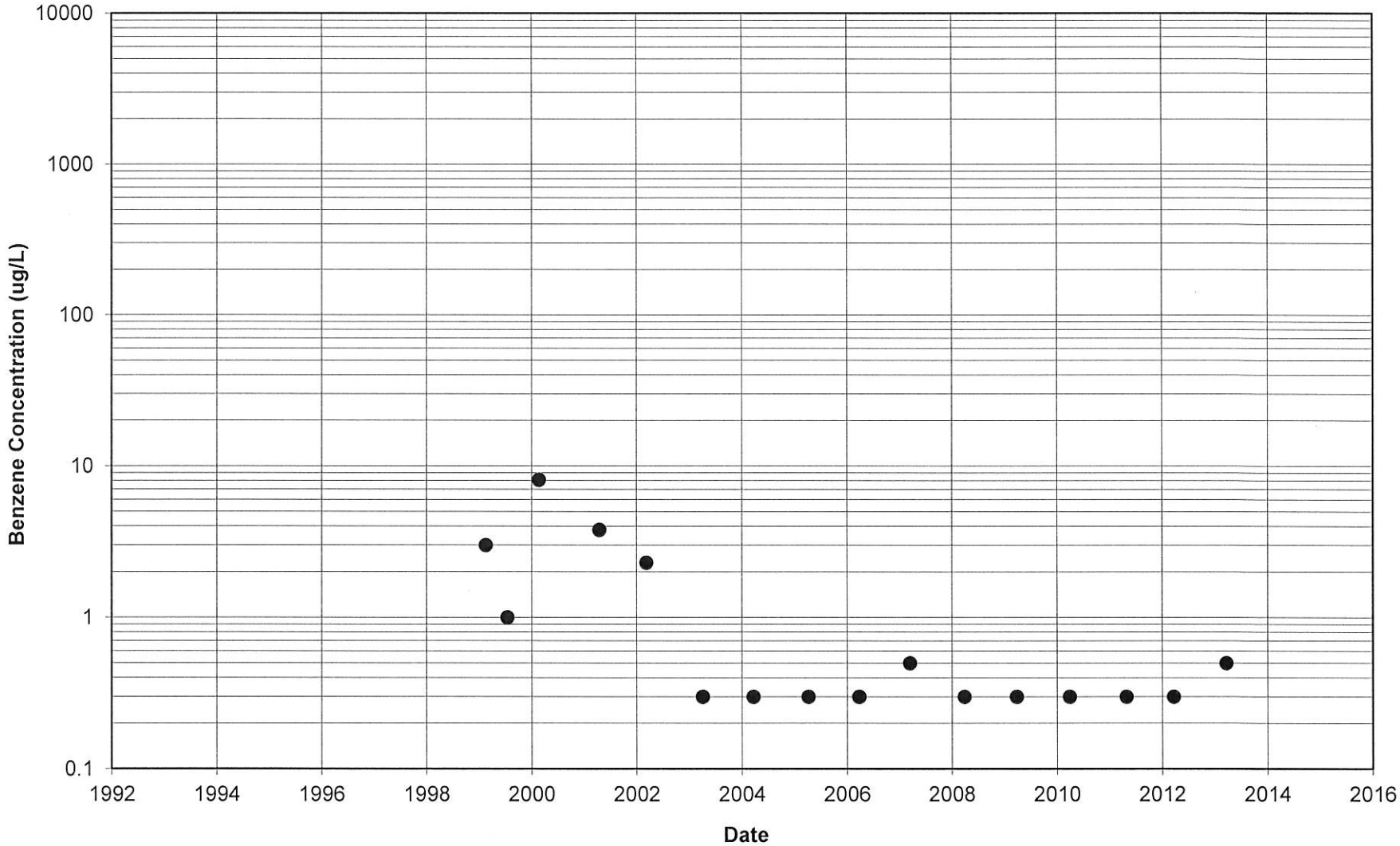
Time series plot of benzene in R-037A



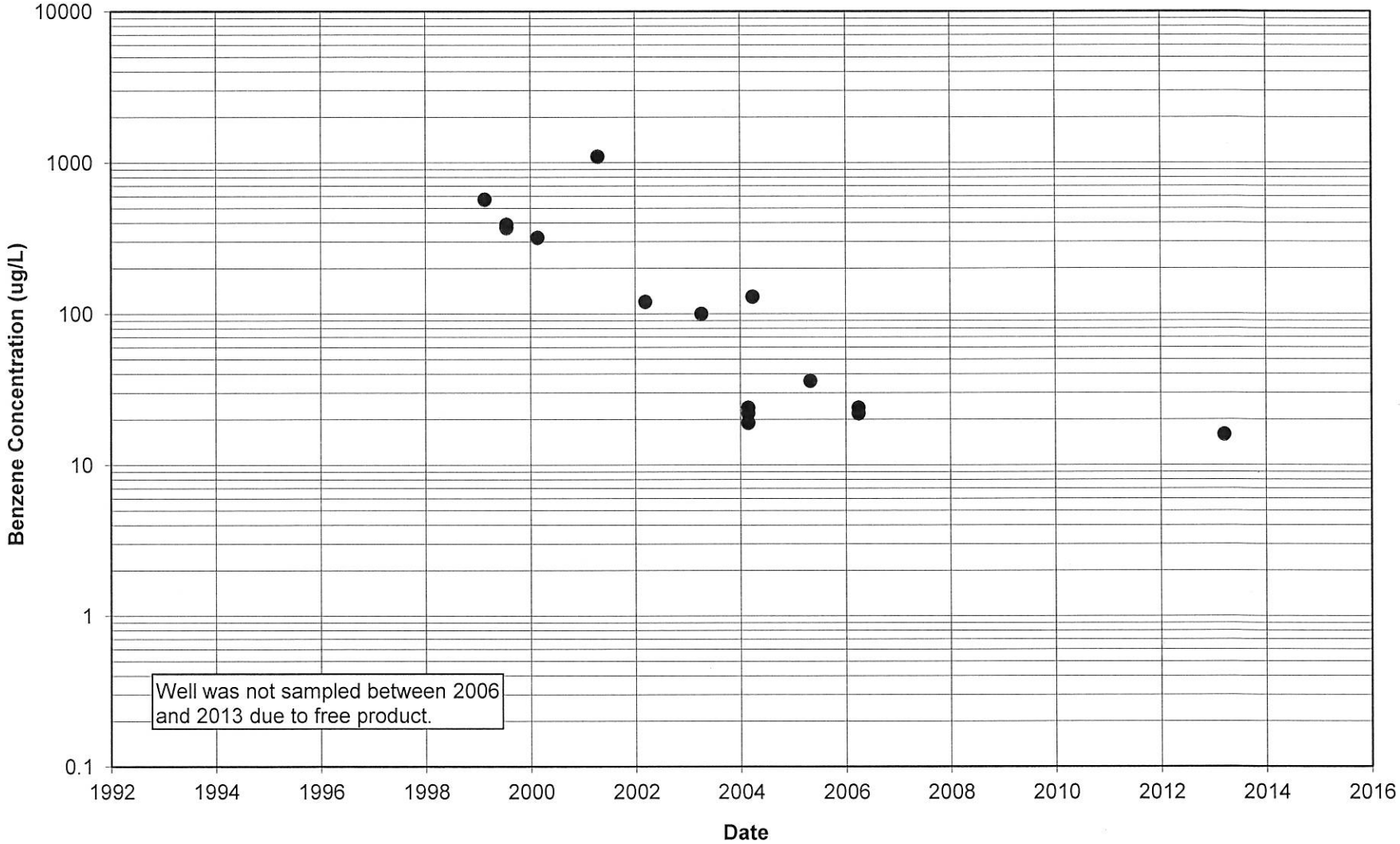
Time series plot of benzene in R-044A



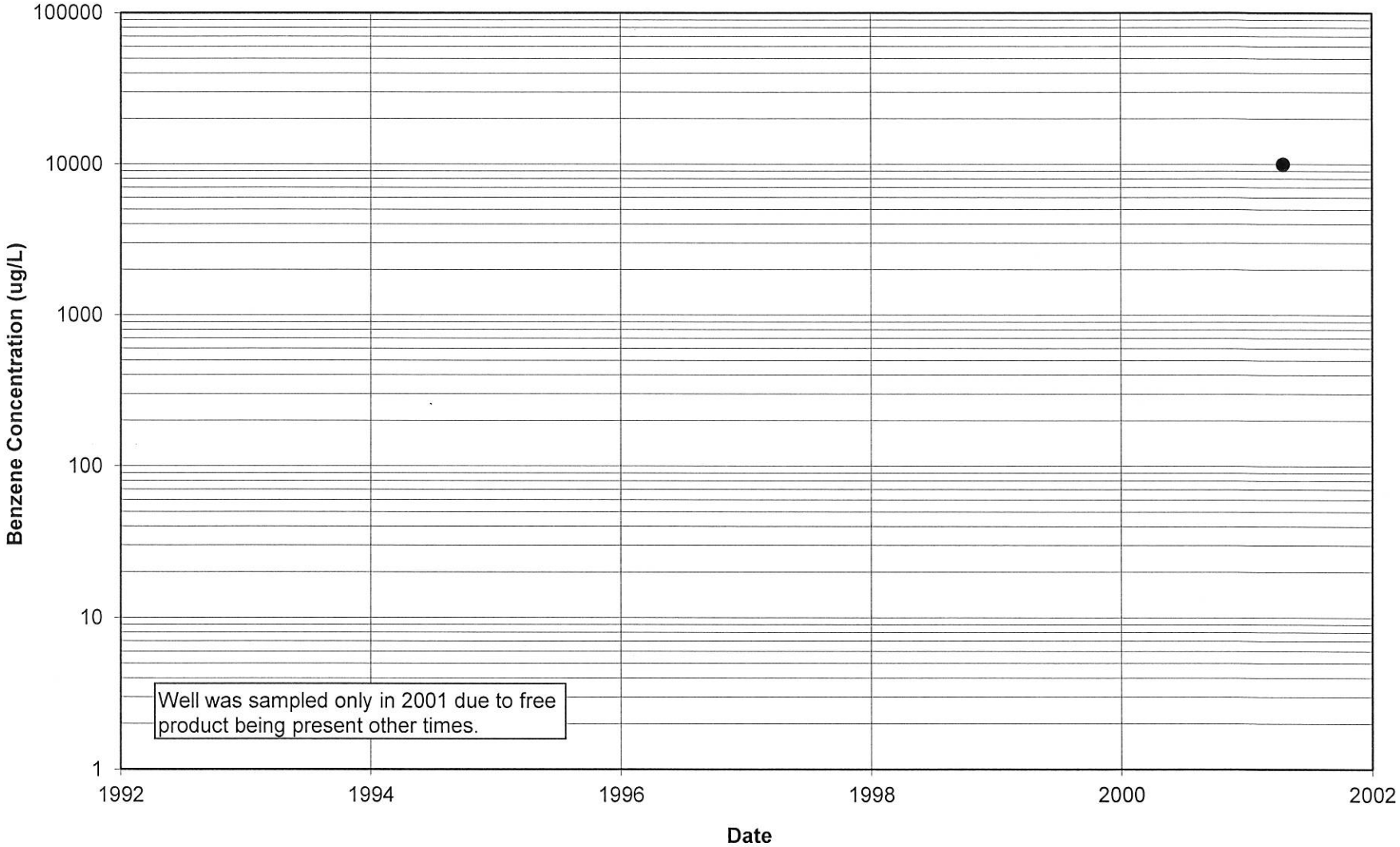
Time series plot of benzene in R-045A

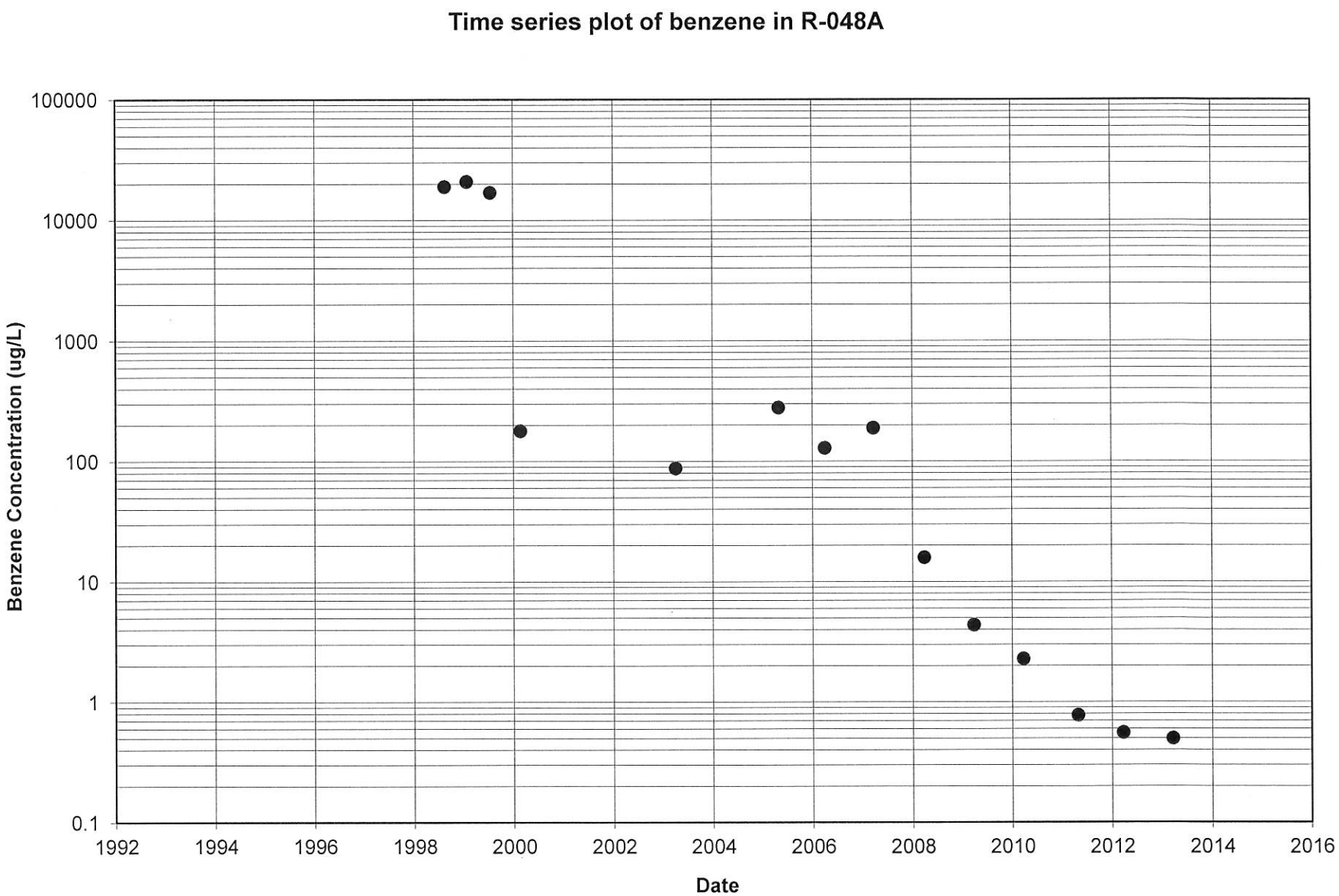


Time series plot of benzene in R-046A

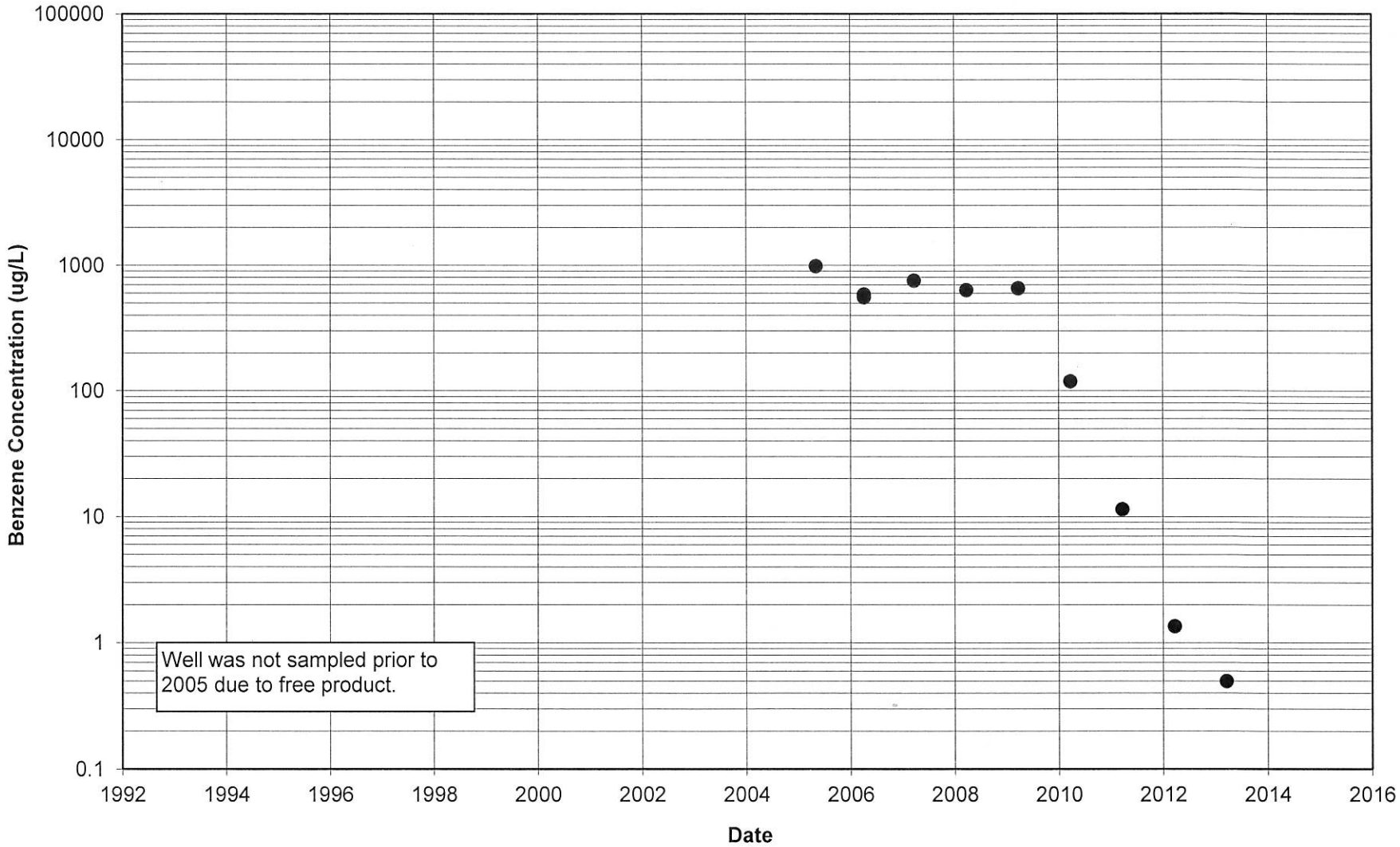


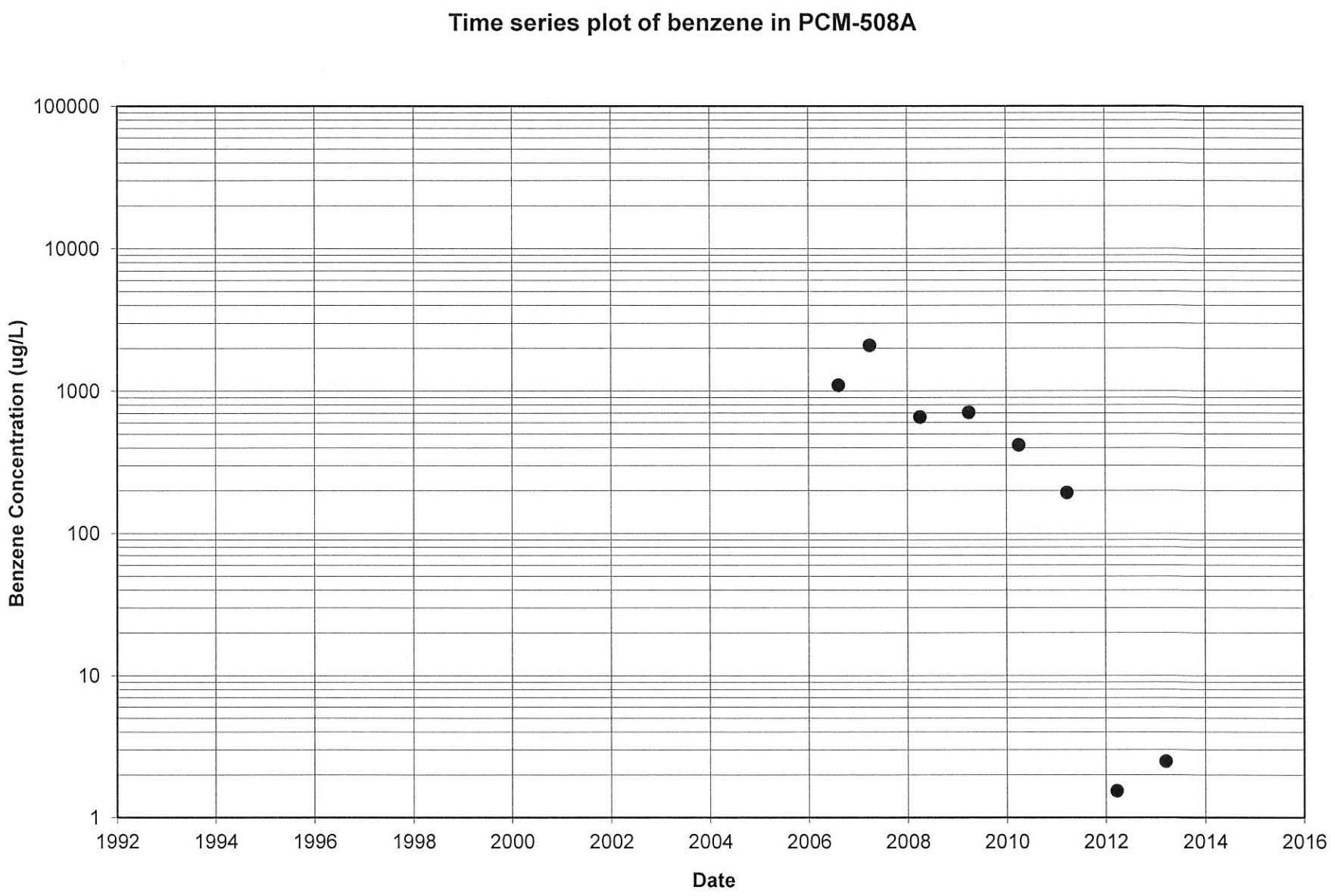
Time series plot of benzene in R-047A



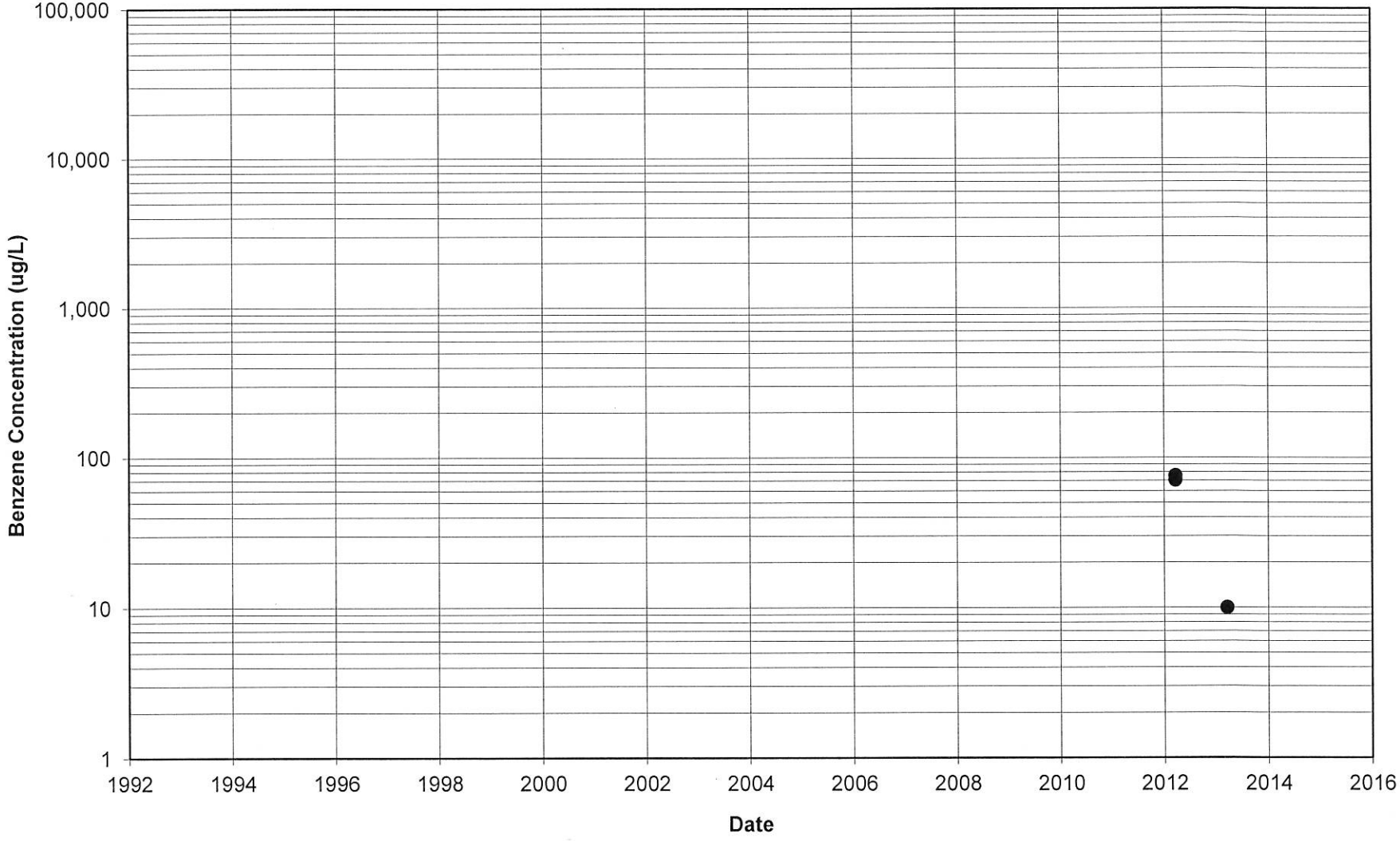

Time series plot of benzene in R-048A
Benzene Concentration (ug/L)
100000
10000
1000
100
10
1
0.1
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
Date

Time series plot of benzene in R-049A

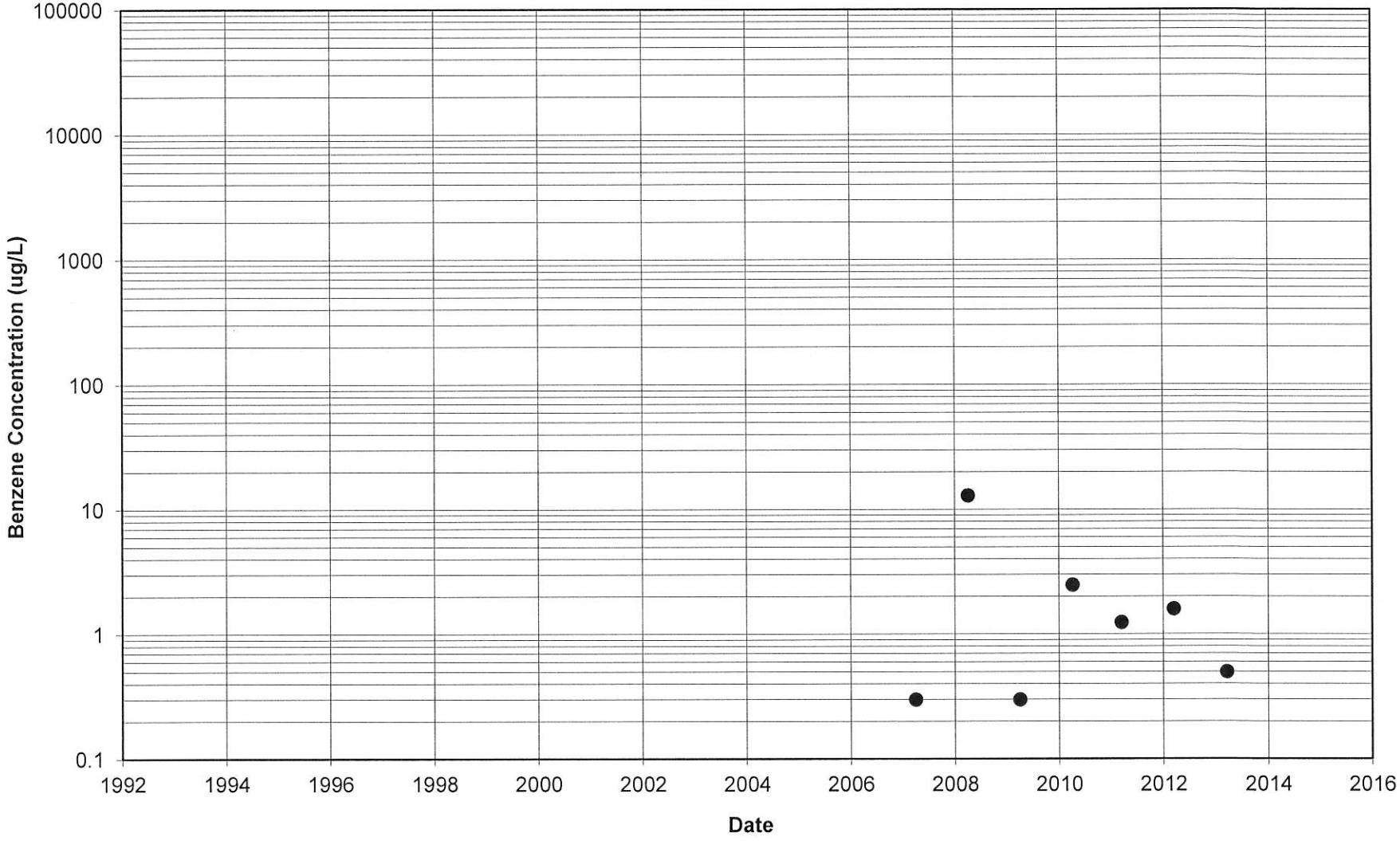



Time series plot of benzene in PCM-508A
Benzene Concentration (ug/L)
100000
10000
1000
100
10
1
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
Date

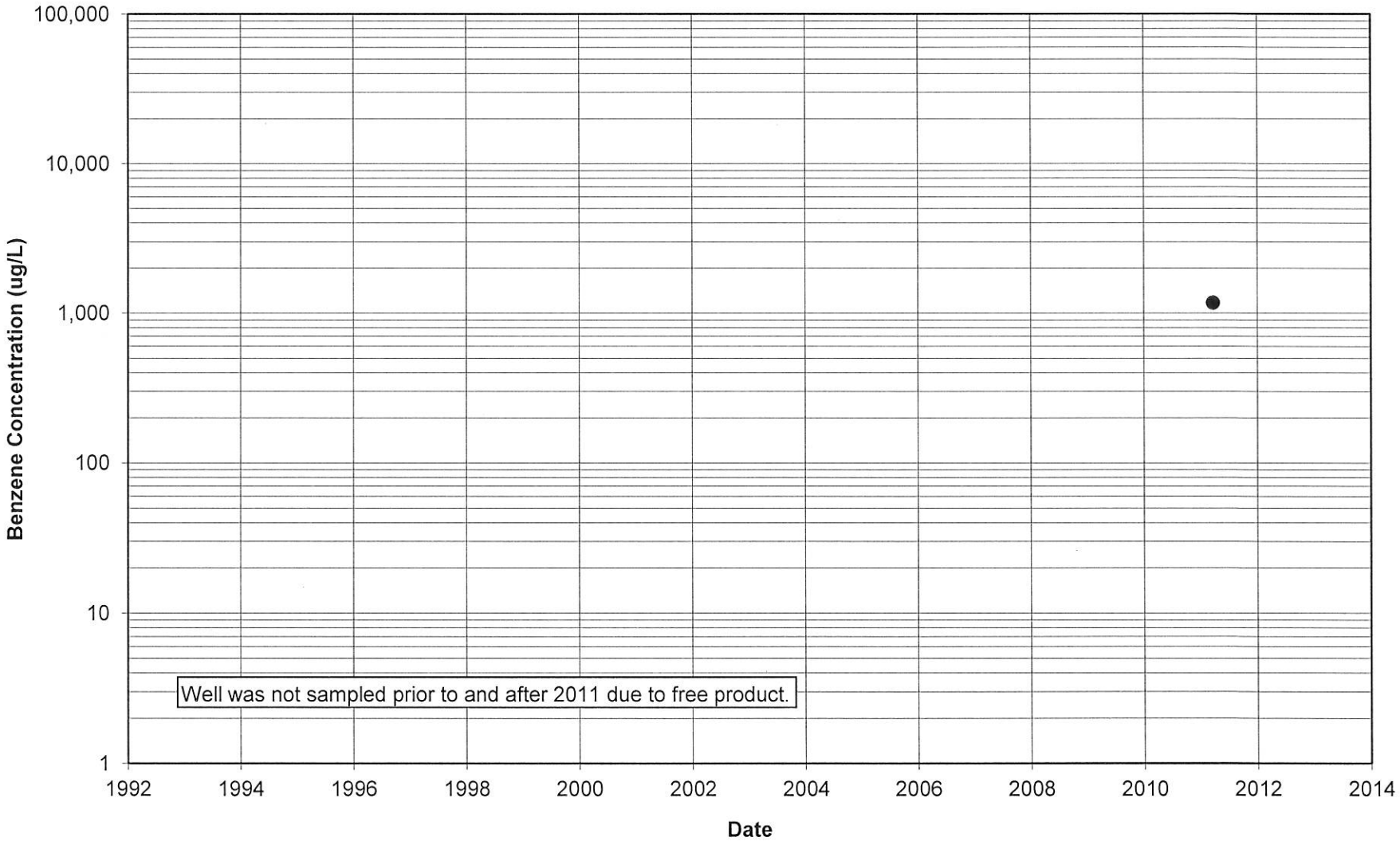
Time series plot of benzene in PCM-508B



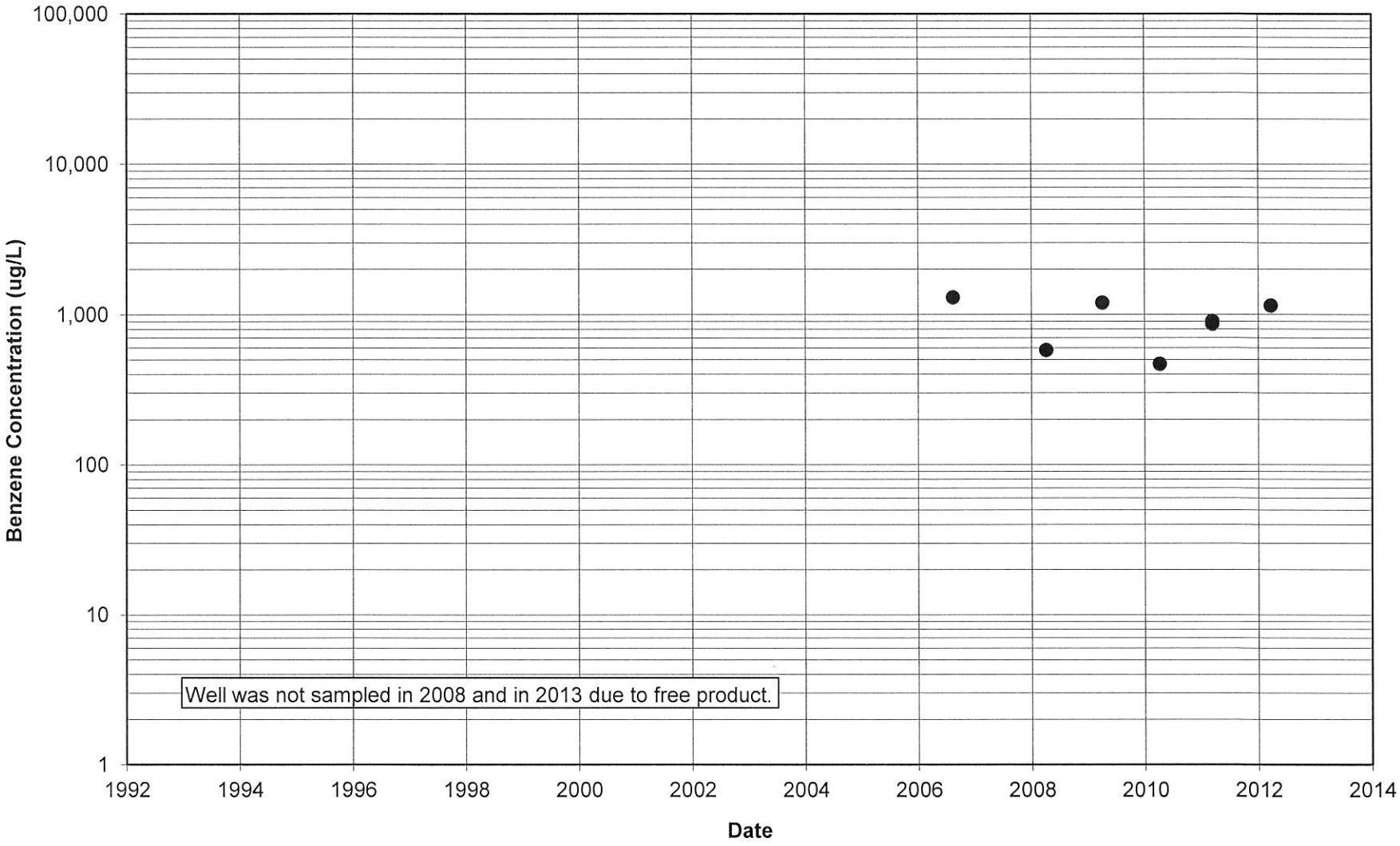
Time series plot of benzene in PCM-510A

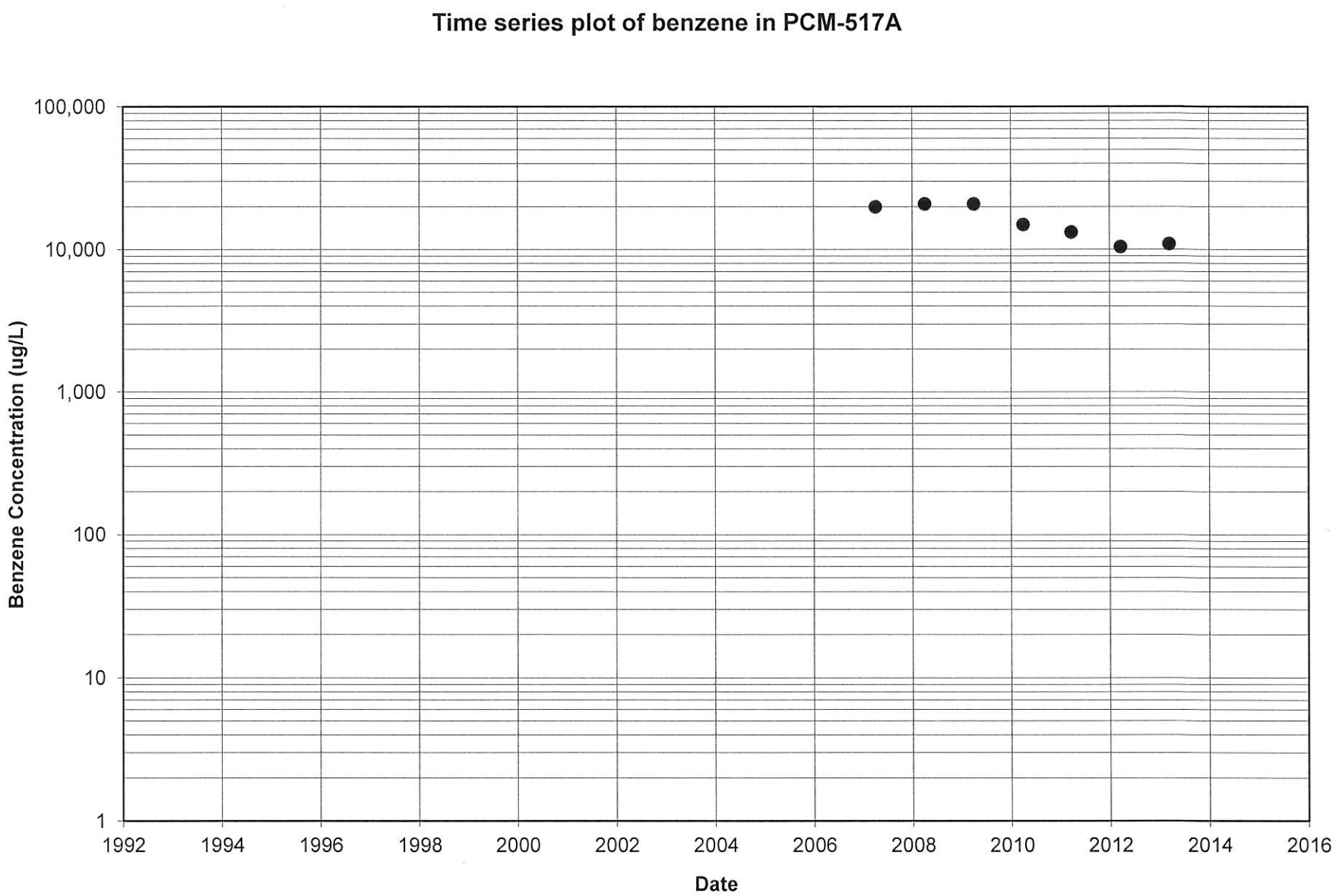


Time series plot of benzene in PCM-511A

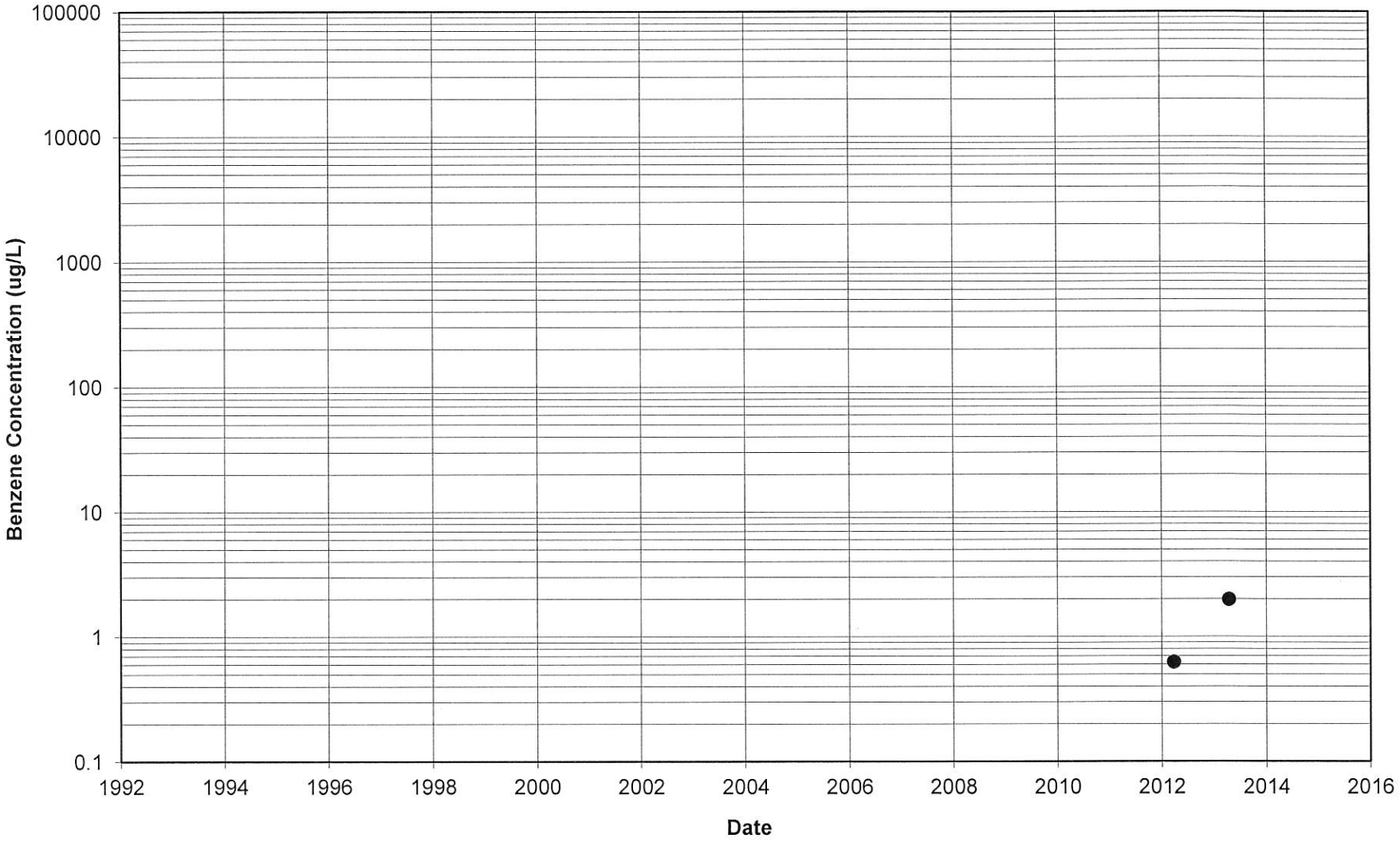


Time series plot of benzene in PCM-512A




Time series plot of benzene in PCM-517A
Benzene Concentration (ug/L)
100,000
10,000
1,000
100
10
1
1992
1994
1996
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
Date

Time series plot of benzene in PCM-535A



APPENDIX I

2013 TFS-10 Annual System Performance Summary,

by Cardno ERI

Cardno ERI
Shaping the Future

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April 30, 2014
0413001102.Q413TFS10

Mr. Richard Byrd
City of Tucson - Environmental Services
P.O. Box 27210
Tucson, AZ 85726-7210

Subject: **2013 TFS-10 Annual System Performance Summary**
Thomas O. Price Service Center
4004 South Park Avenue, Tucson, Arizona 85714
Facility ID: 0-005160, LUST No. 0767.01-.05

Mr. Byrd:

At the request of City of Tucson – Environmental Services (COT-ES), Cardno ERI is submitting an annual 2013 remedial summary for the AS/SVE with catalytic oxidation abatement system at the above referenced Site, for activities performed by Cardno ERI. Relevant figures, tables, and appendices are attached.

SUMMARY OF CARDNO ERI FIELD ACTIVITIES CONDUCTED IN 2013

1st Quarter Field Activities

- Weekly System readings and NAPL bailing.
- Monthly well gauging and vapor monitoring.
- As of March 4, 2013, all the pneumatic pumps used to remove NAPL from the extraction wells, were removed and converted to air sparge technology.
- The remediation system has seven zones (1 through 7) which represent remediation wells on the same trunk lines; currently there are 23 wells connected to the seven remedial zones. The wells and zones are depicted on Figure 1. During the first quarter of 2013, remedial zones 1 through 4 were not operating; all of the remediation wells, excluding, well PCM-535A (zone 7) were operating in zones 5 through 7.
- On March 13, 2013, the AS/SVE remediation system at TFS10 was shut down for COT-ES sampling event and NAPL fingerprint assessment.

- Removed an estimated 6,610 pounds (approximately 1,102 gallons) of petroleum hydrocarbons through the AS/SVE system.

- Removed an estimated 369 gallons (approximately 2,214 pounds) of NAPL through manually bailing and pneumatic pumps in the wells.

- During the first quarter of 2013 an estimated 8,824 pounds (approximately 1,471 gallons) of petroleum hydrocarbons were removed from the Site through AS/SVE remediation and NAPL removal activities. Since April 1, 2012 an estimated 44,353 pounds (approximately 7,392 gallons) of petroleum hydrocarbons have been removed from the Site through AS/SVE remediation and NAPL removal activities.

2nd Quarter Field Activities

- AS/SVE system was not operating March 13 through May 24, 2013 for NAPL rebound assessment, NAPL forensic analysis, and catalytic oxidizer maintenance.

- Weekly System readings and NAPL bailing during operational period.

- Monthly well gauging and vapor monitoring.

- Pneumatic pumps used to remove NAPL were removed from the extraction wells and converted to air sparge technology.

- Removed an estimated 5,434 pounds (approximately 906 gallons) of petroleum hydrocarbons through the AS/SVE system during the second quarter of 2013.

- During the second quarter of 2013, remedial zones 1 through 4 were not operating; all of the remediation wells, excluding, wells R-051A (zone 5), R-031A (zone 6), and PCM-535A (zone 7) were operating in zones 5 through 7.

- Manually bailed approximately 8.25 gallons (approximately 50 pounds) of NAPL from well PCM-516 during the second quarter of 2013.

- During the second quarter of 2013 an estimated 5,484 pounds (approximately 914 gallons) of petroleum hydrocarbons were removed from the Site through AS/SVE remediation and NAPL removal activities. Since April 1, 2012 an estimated 49,837 pounds (approximately 8,306 gallons) of petroleum hydrocarbons have been removed from the Site through AS/SVE remediation and NAPL removal activities.

3rd Quarter Field Activities

- Weekly System readings and NAPL bailing during operational period.
- Monthly well gauging and vapor monitoring.
- Removed an estimated 4,732 pounds (approximately 789 gallons) of petroleum hydrocarbons through the AS/SVE system during the third quarter of 2013.
- During the third quarter of 2013, remedial zones 1 through 4 were not operating; all of the remediation wells, excluding, well PCM-535A (zone 7) were operating in zones 5 through 7.
- Manually bailed approximately 7.5 gallons (approximately 45 pounds) of NAPL from well PCM-516 during the third quarter of 2013.
- On August 19, 2013 the AS/SVE system was shutdown to inspect the catalytic plate. The catalytic plate was replaced and the system was restarted on September 4, 2013.
- During the third quarter of 2013 an estimated 4,777 pounds (approximately 796 gallons) of petroleum hydrocarbons were removed from the Site through AS/SVE remediation and NAPL removal activities. Since April 1, 2012 an estimated 54,614 pounds (approximately 9,102 gallons) of petroleum hydrocarbons have been removed from the Site through AS/SVE remediation and NAPL removal activities.

4th Quarter Field Activities

- Weekly System readings and NAPL bailing during operational period.
- Monthly well gauging and vapor monitoring.
- Updated a Groundwater Remediation System Contingency Plan, Emergency Response, and Waste Transportation Procedures Plan.
- Conducted a file review on two leaking underground storage tank (LUST) sites adjacent to Price Service Center monitoring well WR-220A. The purpose of the file review was to identify potential sources that could contribute to the NAPL observed in groundwater monitoring well WR-220A. A LUST case site map identifying adjacent LUST cases reviewed during the quarter is provided in Figure 2.
- Removed an estimated 7,532 pounds (approximately 1,255 gallons) of petroleum hydrocarbons through the AS/SVE system during the fourth quarter of 2013.

- During the fourth quarter of 2013, remedial zones 1 through 4 were not operating; all of the remediation wells, excluding, well PCM-535A (zone 7) were operating in zones 5 through 7

- Manually bailed approximately 17.5 gallons (approximately 105 pounds) of NAPL from wells PCM-516 and WR-220A during the fourth quarter of 2013.

- During the fourth quarter of 2013 an estimated 7,637 pounds (approximately 1,273 gallons) of petroleum hydrocarbons were removed from the Site through AS/SVE remediation and NAPL removal activities. Since April 1, 2012 an estimated 62,251 pounds (approximately 10,375 gallons) of petroleum hydrocarbons have been removed from the Site through AS/SVE remediation and NAPL removal activities.

PROPOSED SITE ACTIVITIES

- Continue weekly system readings and NAPL bailing, and monthly well gauging and vapor monitoring.

- Continue adjusting system to optimize vapor recovery.

- Continue investigation to identify potential sources of NAPL in well WR-220A.

- Prepare and submit adjacent LUST case file review report to the City of Tucson.

Please feel free to call me at (480) 813-4526 or email me at matt.tomanek@cardno.com with any questions or comments.

Respectfully submitted,

Matt Tomanek
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Enclosures:

Acronym List

Figure 1	TFS-10 Site Layout and Well Location Map
Figure 2	Adjacent LUST Case Sites
Table 1	SVE Operating Conditions Summary
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Table 3	Estimated Petroleum Hydrocarbon Mass Removal
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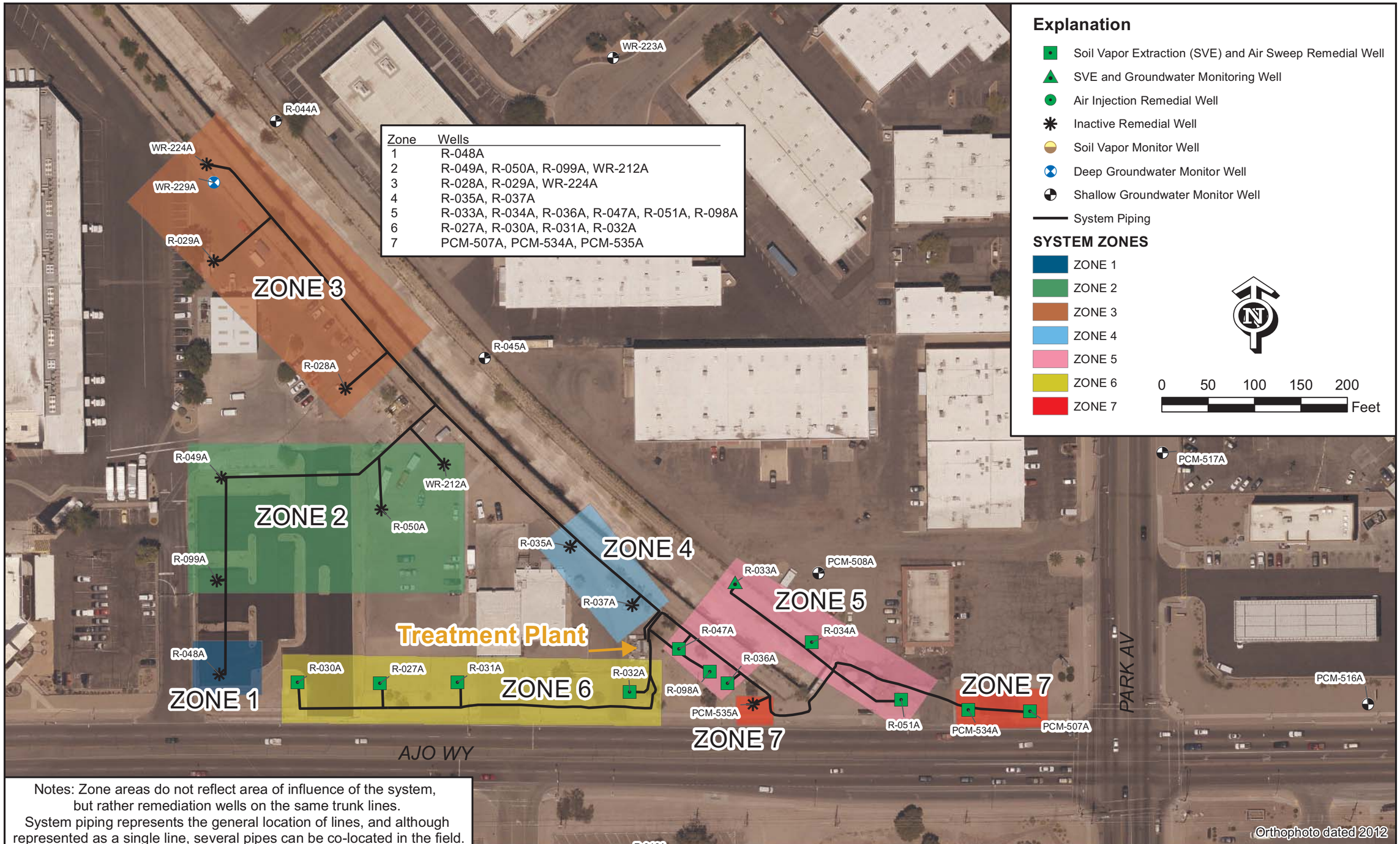
Appendix A	Weekly Operation and Maintenance System Readings

ACRONYM LIST

µg/L	Micrograms per liter
µs	Microsiemens
1,2-DCA	1,2-dichloroethane
acfm	Actual cubic feet per minute
AS	Air sparge
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
CEQA	California Environmental Quality Act
cfm	Cubic feet per minute
COC	Chain of Custody
CPT	Cone Penetration (Penetrometer) Test
DIPE	Di-isopropyl ether
DO	Dissolved oxygen
DOT	Department of Transportation
DPE	Dual-phase extraction
DTW	Depth to water
EDB	1,2-dibromoethane
EPA	Environmental Protection Agency
ESL	Environmental screening level
ETBE	Ethyl tertiary butyl ether
FID	Flame-ionization detector
fpm	Feet per minute
GAC	Granular activated carbon
gpd	Gallons per day
gpm	Gallons per minute
GWPTS	Groundwater pump and treat system
HVOC	Halogenated volatile organic compound
J	Estimated value between MDL and PQL (RL)
LEL	Lower explosive limit
LPC	Liquid-phase carbon
LRP	Liquid-ring pump
LUFT	Leaking underground fuel tank
LUST	Leaking underground storage tank
MCL	Maximum contaminant level
MDL	Method detection limit
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
mg/m^3	Milligrams per cubic meter
MPE	Multi-phase extraction
MRL	Method reporting limit
msl	Mean sea level
MTBE	Methyl tertiary butyl ether
MTCA	Model Toxics Control Act
NAI	Natural attenuation indicators
NAPL	Non-aqueous phase liquid
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
ORP	Oxidation-reduction potential
OSHA	Occupational Safety and Health Administration
OVA	Organic vapor analyzer
P&ID	Process & Instrumentation Diagram
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene or perchloroethylene
PID	Photo-ionization detector
PLC	Programmable logic control
POTW	Publicly owned treatment works
ppmv	Parts per million by volume
PQL	Practical quantitation limit
psi	Pounds per square inch
PVC	Polyvinyl chloride
QA/QC	Quality assurance/quality control
RBSL	Risk-based screening levels
RCRA	Resource Conservation and Recovery Act
RL	Reporting limit
scfm	Standard cubic feet per minute
SSTL	Site-specific target level
STLC	Soluble threshold limit concentration
SVE	Soil vapor extraction
SVOC	Semivolatile organic compound
TAME	Tertiary amyl methyl ether
TBA	Tertiary butyl alcohol
TCE	Trichloroethene
TOC	Top of well casing elevation; datum is msl
TOG	Total oil and grease
TPHd	Total petroleum hydrocarbons as diesel
TPHg	Total petroleum hydrocarbons as gasoline
TPHmo	Total petroleum hydrocarbons as motor oil
TPHs	Total petroleum hydrocarbons as stoddard solvent
TRPH	Total recoverable petroleum hydrocarbons
UCL	Upper confidence level
USCS	Unified Soil Classification System
USGS	United States Geologic Survey
UST	Underground storage tank
VCP	Voluntary Cleanup Program
VOC	Volatile organic compound
VPC	Vapor-phase carbon



Notes: Zone areas do not reflect area of influence of the system, but rather remediation wells on the same trunk lines. System piping represents the general location of lines, and although represented as a single line, several pipes can be co-located in the field.

CITY OF TUCSON
ENVIRONMENTAL SERVICES

FIGURE 1
TFS-10 SITE LAYOUT AND WELL LOCATION MAP
THOMAS O. PRICE SERVICE CENTER
4004 South Park Avenue
Tucson, Arizona

Drawn By:	LE
Checked:	RB
Approved:	NP
Date:	1/24/2014
File:	See Below

J:GIS\PRICE\2012\TFSSYS.mxd

Cardno ERI
Shaping the Future

ADJACENT LUST CASE SITES

THOMAS O. PRICE SERVICE CENTER
4004 South Park Avenue
Tucson, Arizona

PROJECT NO.
041300

FIGURE
2

TABLE 1
SVE OPERATING CONDITIONS SUMMARY
Price Service Center - TFS-10 System
4004 South Park Avenue
Tucson, Arizona

Date	Op Hours	Vacuum (Inches H_2O)	VOC (ppmv)	Flow (scfm)	Temp (Deg. F)
08/27/12	13472	67	318	480	167
09/05/12	13685	50	577	471	159
09/18/12	13779	55	425	468	155
09/24/12	13924	52	612	466	156
10/01/12	14090	55	747	469	154
10/08/12	14256	57	251	476	153
10/18/12	14493	61	655	479	151
10/22/12	14560	64	596	484	145
11/06/12	14920	70	338	520	146
11/27/12	15394	63	219	395	139
12/11/12	15729	63	439	404	132
01/02/13	16205	66	822	246	125
01/21/13	16657	64	381	399	132
02/07/13	17062	64	285	366	135
04/30/13	17880	48	737	425	146
07/15/13	19128	60	367	306	179
08/12/13	19706	63	287	319	172
11/07/13	20590	48	508	309	148
12/12/13	21407	51	422	324	145
01/14/14	22357	45	743	324	150
Average		**58**	**486**	**407**	**149**

Notes:

VOC	=	Volatile organic compounds concentrations reported from PID.
ppmv	=	Parts per million by volume.
scfm	=	Standard cubic feet per minute.
Deg. F	=	Degree Fahrenheit.

TABLE 2
INFLUENT VAPOR PROCESS STREAM ANALYTICAL RESULTS
Price Service Center - TFS-10 System
4004 South Park Avenue
Tucson, Arizona

Date	Time	B (ppmv)	T (ppmv)	E (ppmv)	X (ppmv)	TPH (ppmv)
08/27/12	12:50	9.9	9.9	2.0	8.2	630
09/05/12	9:36	14	17	3.2	12	810
09/18/12	10:55	8.5	12	3.2	16	880
09/24/12	1:00	19	15	2.0	8.5	900
10/01/12	11:10	23	20	2.5	15	1,100
10/08/12	10:30	4.4	3.7	<5.0	4.4	320
10/18/12	11:15	22	18	2.0	12	1,100
10/22/12	11:20	14	13	1.8	7.6	730
11/06/12	11:15	8.1	8.0	<5.0	3.9	460
11/27/12	12:50	5.6	2.9	0.99	7.4	440
12/11/12	12:50	10	8.8	1.3	6.9	590
01/02/13	10:50	18	20	2.8	12	760
01/21/13	11:50	8.5	7.7	1.7	7.8	460
02/07/13	11:35	4.7	3.7	1.2	6.9	370
04/30/13	11:28	17	14	1.7	8.0	900
07/15/13	9:15	3.89	9.42	<2.30	17.2	767
08/12/13	8:40	2.48	5.03	<1.15	13.4	579
11/07/13	10:20	7.43	18.2	2.96	16.7	891
12/12/13	10:25	4.20	12.5	2.11	14.2	619
01/14/14	8:48	8.48	25.0	4.27	25.9	1,210
Average		**10.66**	**12.19**	**2.46**	**11.2**	**726**

Notes:

ppmv = Part per million by volume.
BTEX = Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method 8260.
TPH = Total petroleum hydrocarbons analyzed using EPA Method 8015.
< = Below laboratory reporting limits.

TABLE 3
ESTIMATED PETROLEUM HYDROCARBON MASS REMOVAL
Price Service Center - TFS-10 System
4004 South Park Avenue
Tucson, Arizona
(Page 1 of 2)

Date	Flow (scfm)	Hydrocarbon Concentration (ppmv)					TPH (Lbs)		Benzene (Lbs)		Toluene (Lbs)		Ethylbenzene (Lbs)		Total Xylenes (Lbs)	
		TPH	B	T	E	X	Average per Hour	Average per Day	Average per Hour	Average per Day	Average per Hour	Average per Day	Average per Hour	Average per Day	Average per Hour	Average per Day
08/27/12	480	630	9.9	9.9	2.0	8.2	4.70	112.81	5.8E-02	1.4E+00	6.7E-02	1.6E+00	1.6E-02	3.8E-01	6.5E-02	1.6E+00
09/05/12	471	810	14	17	3.2	12	5.93	142.33	8.0E-02	1.9E+00	1.1E-01	2.7E+00	2.5E-02	6.0E-01	9.3E-02	2.2E+00
09/18/12	468	880	8.5	12	3.2	16	6.40	153.64	4.8E-02	1.2E+00	7.9E-02	1.9E+00	2.5E-02	5.9E-01	1.2E-01	3.0E+00
09/24/12	466	900	19	15	2.0	8.5	6.52	156.46	1.1E-01	2.6E+00	9.9E-02	2.4E+00	1.5E-02	3.7E-01	6.5E-02	1.6E+00
10/01/12	469	1,100	23	20	2.5	15	8.02	192.46	1.3E-01	3.1E+00	1.3E-01	3.2E+00	1.9E-02	4.6E-01	1.2E-01	2.8E+00
10/08/12	476	320	4.4	3.7	<5.0	4.4	2.37	56.82	2.5E-02	6.1E-01	2.5E-02	6.0E-01	3.9E-02	9.4E-01	3.5E-02	8.3E-01
10/18/12	479	1,100	22	18	2.0	12	8.19	196.57	1.3E-01	3.1E+00	1.2E-01	2.9E+00	1.6E-02	3.8E-01	9.5E-02	2.3E+00
10/22/12	484	730	14	13	1.8	7.6	5.49	131.81	8.2E-02	2.0E+00	8.9E-02	2.1E+00	1.4E-02	3.4E-01	6.1E-02	1.5E+00
11/06/12	520	460	8.1	8	<5.0	3.9	3.72	89.24	5.1E-02	1.2E+00	5.9E-02	1.4E+00	4.3E-02	1.0E+00	3.3E-02	8.0E-01
11/27/12	395	440	5.6	2.9	1.0	7.4	2.70	64.84	2.7E-02	6.4E-01	1.6E-02	3.9E-01	6.4E-03	1.5E-01	4.8E-02	1.2E+00
12/11/12	404	590	10	8.8	1.3	6.9	3.71	88.92	4.9E-02	1.2E+00	5.0E-02	1.2E+00	8.7E-03	2.1E-01	4.6E-02	1.1E+00
01/02/13	246	760	18	20	2.8	12	2.91	69.75	5.4E-02	1.3E+00	7.0E-02	1.7E+00	1.1E-02	2.7E-01	4.9E-02	1.2E+00
01/21/13	399	460	8.5	7.7	1.7	7.8	2.85	68.47	4.1E-02	9.9E-01	4.3E-02	1.0E+00	1.1E-02	2.7E-01	5.1E-02	1.2E+00
02/07/13	366	370	4.7	3.7	1.2	6.9	2.11	50.52	2.1E-02	5.0E-01	1.9E-02	4.6E-01	7.2E-03	1.7E-01	4.2E-02	1.0E+00
04/30/13	425	900	17	14	1.7	8.0	5.95	142.70	8.8E-02	2.1E+00	8.4E-02	2.0E+00	1.2E-02	2.9E-01	5.6E-02	1.3E+00
07/15/13	306	767	3.89	9.42	<2.30	17.2	3.65	87.56	1.4E-02	3.5E-01	4.1E-02	9.8E-01	1.2E-02	2.8E-01	8.7E-02	2.1E+00
08/12/13	319	579	2.48	5.03	<1.15	13.4	2.87	68.91	9.6E-03	2.3E-01	2.3E-02	5.4E-01	6.0E-03	1.5E-01	7.0E-02	1.7E+00
11/07/13	309	891	7.43	18.2	2.96	16.7	4.28	102.71	2.8E-02	6.7E-01	8.0E-02	1.9E+00	1.5E-02	3.6E-01	8.5E-02	2.0E+00
12/12/13	324	619	4.20	12.5	2.11	14.2	3.12	74.82	1.6E-02	4.0E-01	5.7E-02	1.4E+00	1.1E-02	2.7E-01	7.6E-02	1.8E+00
01/14/14	324	1,210	8.48	25.0	4.27	25.9	6.09	146.26	3.3E-02	8.0E-01	1.1E-01	2.7E+00	2.3E-02	5.5E-01	1.4E-01	3.3E+00
Average	**407**	**726**	**10.66**	**12.19**	**2.46**	**11.2**	**4.58**	**109.88**	**5.5E-02**	**1.3E+00**	**6.9E-02**	**1.7E+00**	**1.7E-02**	**4.0E-01**	**7.2E-02**	**1.7E+00**

Total Vapor Phase Hydrocarbon Removal Between Sampling Events (Lbs)

Date	OP Hours	TPH	B	T	E	X
08/27/12	3,321	**15,611**	**191.34**	**223.23**	**52.53**	**215.4**
09/05/12	213	**1,263**	**17.03**	**24.12**	**5.29**	**19.8**
09/18/12	94	**602**	**4.53**	**7.47**	**2.32**	**11.6**
09/24/12	145	**945**	**15.57**	**14.34**	**2.23**	**9.5**

TABLE 3
ESTIMATED PETROLEUM HYDROCARBON MASS REMOVAL
Price Service Center - TFS-10 System
4004 South Park Avenue
Tucson, Arizona

Total Vapor Phase Hydrocarbon Removal Between Sampling Events (Lbs)

Date	OP Hours	TPH	B	T	E	X
10/01/12	166	**1,331**	**21.71**	**22.03**	**3.21**	**19.2**
10/08/12	166	**393**	**4.22**	**4.14**	**6.51**	**5.7**
10/18/12	237	**1,941**	**30.28**	**28.90**	**3.74**	**22.4**
10/22/12	67	**368**	**5.50**	**5.96**	**0.96**	**4.1**
11/06/12	360	**1,339**	**18.38**	**21.18**	**15.42**	**12.0**
11/27/12	474	**1,281**	**12.71**	**7.68**	**3.05**	**22.8**
12/11/12	335	**1,241**	**16.41**	**16.85**	**2.90**	**15.4**
01/02/13	476	**1,383**	**25.56**	**33.13**	**5.40**	**23.2**
01/21/13	452	**1,290**	**18.59**	**19.64**	**5.05**	**23.2**
02/07/13	405	**853**	**8.45**	**7.76**	**2.93**	**16.9**
04/30/13	818	**4,864**	**71.66**	**68.85**	**9.74**	**45.8**
07/15/13	1,248	**4,553**	**18.01**	**50.89**	**14.47**	**108.2**
08/12/13	578	**1,659**	**5.54**	**13.12**	**3.49**	**40.7**
11/07/13	884	**3,783**	**24.61**	**70.32**	**13.32**	**75.2**
12/12/13	817	**2,547**	**13.48**	**46.80**	**9.20**	**61.9**
01/14/14	950	**5,789**	**31.65**	**108.85**	**21.66**	**131.4**
TOTAL	**12,206**	**53,036**	**555.22**	**795.26**	**183.43**	**884.4**

Notes:

TPH	=	Total petroleum hydrocarbons analyzed using EPA Method 8015.
BTEX	=	Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method 8260.
Lbs	=	Pounds.
OP Hours	=	Duration of SVE operation during period.
scfm	=	Standard cubic feet per minute.
ppmv	=	Parts per million by volume.
<	=	Below minimum laboaratory reporting limits.

TABLE 4
CUMULATIVE TPH MASS REMOVAL
Price Service Center - TFS-10 System
4004 South Park Avenue
Tucson, Arizona

Date	Duration of SVE (Hours)	SVE System Removal				NAPL Removal				SVE and NAPL Removal	
		TPH (Lbs)[a]	Cumulative TPH (Lbs)	TPH (Gallons)[b]	Cumulative TPH (Gallons)[b]	Manually Bailed (Gallons)	Well Pumps (Gallons)[c]	Bailed/Pumped (Gallons)	Cumulative NAPL (Gallons)	TPH (Lbs)[d]	TPH (Gallons)[d]
04/03/12 - **08/27/12**	3321	15,611	15,611	2,602	2,602	83.50	520.00	603.50	1,277	23,270	3,878
08/27/12 - **09/05/12**	213	1,263	16,874	211	2,812	3.50	30.00	33.50	1,310	24,734	4,122
09/05/12 - **09/18/12**	94	602	17,476	100	2,913	6.25	33.50	39.75	1,350	25,575	4,262
09/18/12 - **09/24/12**	145	945	18,421	158	3,070	4.00	20.00	24.00	1,374	26,664	4,444
09/24/12 - **10/01/12**	166	1,331	19,752	222	3,292	3.50	23.25	26.75	1,401	28,156	4,693
10/01/12 - **10/08/12**	166	393	20,145	66	3,358	3.00	23.25	26.25	1,427	28,706	4,784
10/08/12 - **10/18/12**	237	1,941	22,086	324	3,681	3.00	33.00	36.00	1,463	30,863	5,144
10/18/12 - **10/22/12**	67	368	22,454	61	3,742	3.00	13.28	16.28	1,479	31,329	5,221
10/22/12 - **11/06/12**	360	1,339	23,793	223	3,965	9.25	50.00	59.25	1,538	33,023	5,504
11/06/12 - **11/27/12**	474	1,281	25,073	213	4,179	9.25	62.37	71.62	1,610	34,733	5,789
11/27/12 - **12/11/12**	335	1,241	26,315	207	4,386	9.50	36.52	46.02	1,656	36,251	6,042
12/11/12 - **01/02/13**	476	1,383	27,698	231	4,616	9.50	85.85	95.35	1,751	38,206	6,368
01/02/13 - **01/21/13**	452	1,290	28,987	215	4,831	9.50	72.56	82.06	1,833	39,988	6,665
01/21/13 - **02/07/13**	405	853	29,840	142	4,973	6.50	64.92	71.42	1,905	41,269	6,878
02/07/13 - **04/30/13**	818	4,864	34,704	811	5,784	13.50	191.00	204.50	2,109	47,360	7,893
04/30/13 - **07/15/13**	1248	4,553	39,257	759	6,543	8.25	---	8.25	2,118	51,962	8,660
07/15/13 - **08/12/13**	578	1,659	40,916	277	6,819	5.25	---	5.25	2,123	53,653	8,942
08/12/13 - **11/07/13**	884	3,783	44,699	631	7,450	6.75	---	6.75	2,130	57,477	9,579
11/07/13 - **12/12/13**	817	2,547	47,246	424	7,874	9.75	---	9.75	2,139	60,082	10,014
12/12/13 - **01/14/14**	950	5,789	53,036	965	8,839	4.00	---	4.00	2,143	65,896	10,983

Notes:

BOLD = Sample collection date.

Lbs = Pounds.

--- = All skimmer pump extraction wells were converted to air-sparge technology.

[a] = TPH lbs are calculated from mass removal from SVE remediaiton system.

[b] = TPH gallons are converted to gallons using 6 lbs = 1 gallon of TPH.

[c] = Well pump totals are calculated by subtracting the total volume of NAPL (combination of manually bailed and pneumatically pumped from well) in the storage vessel minus the manually bailed NAPL and averaged over the NAPL collection period.

[d] = Cumulative TPH lbs and gallons are calculated by adding NAPL removed from wells to mass removal from SVE remediaiton system.

TABLE 5
MANUALLY BAILED NAPL REMOVAL
Price Service Center - TFS-10 System
4004 South Park Avenue
Tucson, Arizona
(Page 1 of 2)

Date	Wells Bailed	LPH Removed Gallons	Cummulative LPH Gallons
04/03/12	R-028A,PCM-516	4.00	4.00
04/17/12	PCM-516	2.25	6.25
05/01/12	PCM-516	4.25	10.50
05/10/12	PCM-516	2.50	13.00
05/17/12	R-32,PCM-516	3.50	16.50
05/25/12	R-017A, 018A, 028A, 035A, 037A, PCM-516, WR-215A	11.3	27.75
05/31/12	PCM-516	3.00	30.75
06/06/12	PCM-516,17,18	7.75	38.50
06/12/12	PCM-516,17,18	3.25	41.75
06/18/12	PCM-516	3.00	44.75
06/28/12	PCM-516,35,37	5.75	50.50
07/05/12	PCM-516, R-099	5.25	55.75
07/10/12	PCM-516	3.00	58.75
07/18/12	PCM-516, R-099	7.50	66.25
07/25/12	PCM-516	3.00	69.25
07/30/12	PCM-516	3.25	72.50
08/10/12	PCM-516	8.00	80.50
08/27/12	PCM-516	3.00	83.50
09/05/12	PCM-516	3.50	87.00
09/14/12	PCM-516	3.00	90.00
09/18/12	PCM-516	3.25	93.25
09/24/12	PCM-516	4.00	97.25
10/01/12	PCM-516	3.50	100.75
10/08/12	PCM-516	3.00	103.75
10/18/12	PCM-516	3.00	106.75
10/22/12	PCM-516	3.00	109.75
11/01/12	PCM-516	3.00	112.75
11/06/15	PCM-516	3.25	116.00
11/13/12	PCM-516	3.25	119.25
11/19/12	PCM-516	3.00	122.25
11/27/12	PCM-516	3.00	125.25
12/04/12	PCM-516	3.00	128.25
12/11/12	PCM-516	3.50	131.75
12/18/12	PCM-516	3.25	135.00
12/27/12	PCM-516	3.00	138.00
01/02/13	PCM-516	3.25	141.25
01/07/13	PCM-516	3.25	144.50
01/14/13	PCM-516	3.25	147.75
01/21/13	PCM-516	3.00	150.75
01/28/13	PCM-516	3.50	154.25
02/07/13	PCM-516	3.00	157.25
02/11/13	PCM-516	3.00	160.25
02/19/13	PCM-516	3.50	163.75
02/25/13	PCM-516	3.50	167.25
03/04/13	PCM-516	3.50	170.75
05/15/13	R-028A, 035A, 037A, 050A, PCM-516	4.00	174.75

TABLE 5
MANUALLY BAILED NAPL REMOVAL
Price Service Center - TFS-10 System
4004 South Park Avenue
Tucson, Arizona
(Page 2 of 2)

Date	Wells Bailed	LPH Removed Gallons	Cummulative LPH Gallons
06/13/13	PCM-516	2.25	177.00
06/24/13	PCM-516	2.00	179.00
07/31/13	PCM-516	1.75	180.75
08/05/13	PCM-516	2.00	182.75
08/12/13	PCM-516	1.50	184.25
08/19/13	PCM-516	1.00	185.25
09/04/13	PCM-516	1.25	186.50
10/10/13	PCM-516	1.75	188.25
10/21/13	PCM-516	0.75	189.00
10/30/13	PCM-516	1.00	190.00
11/07/13	PCM-516	1.00	191.00
11/11/13	PCM-516	1.00	192.00
11/25/13	PCM-516, WR-220A	5.00	197.00
12/02/13	PCM-516, WR-220A	3.75	200.75
12/18/13	PCM-516, WR-220A	3.25	204.00
01/02/14	PCM-516, WR-220A	4.00	208.00

TABLE 6
ANNUAL NAPL REMOVAL
Price Service Center - TFS-10 System
4004 South Park Avenue
Tucson, Arizona
(Page 1 of 1)

Time Period	LPH Removed Bailed/Pumped (Gallons)	Cummulative LPH Removal (Gallons)
1998	86	86
1999	131	217
2000	45	262
2001	45	307
2002	28	335
2003	956	1,291
2004	1,210	2,501
2005	1,365	3,866
2006	923	4,789
2007	2,315	7,104
2008	2,577	9,681
2009	1,200	10,881
2010	1,703	12,584
2011	1,750	14,334
2012	1,690	16,024
2013	473	16,497

APPENDIX A

WEEKLY OPERATION AND MAINTENANCE SYSTEM READINGS

APPENDIX A
WEEKLY OPERATION AND MAINTENANCE SYSTEM READINGS
Price Service Center - TFS-10 System
4004 South Park Avenue
Tucson, Arizona

CLIENT NAME: CTES Job # 0413001102 SYSTEM READINGS
SITE LOCATION: TFS-10

SOLLECO			4" Pipe											
			FLOW	TEMP	SYS	INF	EFF	Inlet	Gas	Electric	LNAPL	Visible	TEDLARS	COMMENTS
	OP	VAC	p-tube	INF	FLOW			TEMP	Reading	Reading	Bailed	Emission	TAKEN	
DATE	HOUR	(in. H2O)	(in. fpm)	(°F)	(scfm)	(ppmv)	(ppmv)	(°F)			Gallons	Y/N	Y/N	
04/03/12	10151	64	2700	134	211	252	0.7	619	82438	103776	4.00	N	N	run/o&m/run
04/09/12	10294	59	2800	145	215	306	1.3	601	82724	103806	0.00	N	N	run/o&m/run
05/01/12	10818	58	2400	146	184	164	4	624	83794	103918	4.25	N	N	run/o&m/run
05/08/12	10984	58	2400	137	186	246	4	614	84141	103954	0.00	N	N	run/o&m/run "see note 1"
	10985	57	2400	144	184	368	1	691	84143	103955		N	N	
	10988	85	4200 [a]	166	311	395	1	696	84148	103955		N	N	
05/10/12	11033	67	4800	153	363	251	2	623	84241	103968	2.50	N	N	run/o&m/run
05/17/12	11109	65	4900	163	365	238	1	627	84388	103988	3.50	N	N	run/o&m/run "see note 2"
	11112	63	5000	169	369	263	4	630	84393	103989		N	N	
05/25/12	11304	63	NT [b]	160	450 [b]	246	2	635	84765	104034	11.25	N	N	run/o&m/run
05/31/12	11443	55	NT	146	459	255	3	620	85034	104067	3.00	N	N	run/o&m/run "see note 2"
	11445	54	NT	155	458	435	0	704	85039	104067		N	N	
06/28/12	12066	60	NT	168	472	347	21	688	86299	104213	5.75	N	N	run/o&m/run
07/05/12	12237	77	NT	171	481	635	7	778	86647	104254	5.25	N	N	run/o&m/run
07/25/12	12701	62	NT	159	462	558	11	705	87525	104367	3.00	N	N	run/o&m/run
07/30/12	12820	63	NT	157	465	287	2	658	87754	104397	3.25	N	N	run/o&m/run
08/10/12	13070	59	NT	169	479	221	6	644	0004 [c]	104459	8.00	N	N	run/o&m/run
08/14/12	13163	60	NT	171	485	233	13	653	00168	104484	0.00	N	N	run/o&m/run
08/20/12	13305	67	NT	169	483	256	16	654	00431	104521	8.00	N	N	run/o&m/run
08/27/12	13472	67	NT	167	480	318	11	685	00733	104565	3.00	N	Y	run/o&m/run
09/05/12	13683	68	NT	154	463	302	14	655	1119	104622	3.50	N	N	run/o&m/run "see note 2"
	13685	50	NT	159	471	577	9	619	1119	104622		N	Y	run/o&m/run "see note 2"
09/18/12	13779	55	NT	155	468	425	18	633	1297	104651	3.25	N	Y	run/o&m/run
09/24/12	13924	52	NT	156	466	612	10	622	1576	104685	4.00	N	Y	run/o&m/run
10/01/12	14090	55	NT	154	469	747	6	649	1910	104722	3.50	N	Y	run/o&m/run
10/08/12	14256	57	NT	153	476	251	0	647	2228	104764	3.00	N	Y	run/o&m/run
10/18/12	14493	61	NT	151	479	655	16	636	2688	104818	3.00	N	Y	run/o&m/run
10/22/12	14560	64	NT	145	484	596	7	638	2816	104837	3.00	N	Y	run/o&m/run
11/01/12	14800	74	NT	149	520	472	16	636	3277	104901	3.00	N	N	run/o&m/run
11/06/12	14920	70	NT	146	520	338	9	643	3504	104933	3.25	N	Y	run/o&m/run
11/13/12	15067	71	5150	140	398	481	9	644	3790	104972	3.25	N	N	run/o&m/run
11/19/12	15202	62	4950	141	382	231	2	628	4060	105009	3.00	N	N	run/o&m/run
11/27/12	15394	63	5100	139	395	219	6	614	4440	105061	3.00	N	Y	run/o&m/run
12/04/12	15559	65	5000	139	387	286	4	628	4771	105106	3.00	N	N	run/o&m/run
12/11/12	15729	63	5160	132	404	439	26	635	5118	105152	3.50	N	Y	run/o&m/run
12/18/12	15889	64	2460	130	193	276	0	618	5440	105192	3.25	N	N	run/o&m/run
12/27/12	16107	64	2600	127	205	959	12	636	5899	105246	3.00	N	N	run/o&m/run

APPENDIX A
WEEKLY OPERATION AND MAINTENANCE SYSTEM READINGS
Price Service Center - TFS-10 System
4004 South Park Avenue
Tucson, Arizona

CLIENT NAME: CTES Job # 0413001102 SYSTEM READINGS
SITE LOCATION: TFS-10

SOLLECO			4" Pipe											
			FLOW	TEMP	SYS	INF	EFF	Inlet	Gas	Electric	LNAPL	Visible	TEDLARS	COMMENTS
	OP	VAC	p-tube	INF	FLOW			TEMP	Reading	Reading	Bailed	Emission	TAKEN	
DATE	HOUR	(in. H2O)	(in. fpm)	(°F)	(scfm)	(ppmv)	(ppmv)	(°F)			Gallons	Y/N	Y/N	
01/02/13	16205	66	3100	125	246	822	12	627	6105	105274	3.25	N	Y	down/o&m,ted/run
01/07/13	16325	67	5255	128	414	359	6	642	6355	106307	3.25	N	N	run/o&m/run
01/14/13	16493	66	5150	120	411	346	21	625	6079	105354	3.25	N	N	run/o&m/run
01/16/13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.00	NT	N	Down/monthly well
01/21/13	16657	64	5100	132	399	381	6	637	7070	105398	3.00	N	Y	run/o&m,ted/run
01/28/13	16822	63	4900	125	388	305	9	626	7410	105443	3.50	N	N	run/o&m/run
02/07/13	17062	64	4700	135	366	285	7	690	7920	105509	3.00	N	Y	run/o&m,ted/run
02/11/13	17157	62	4736	125	375	165	4	687	8116	105535	3.00	N	N	run/o&m/run
02/18/13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.00	NT	N	Down/monthly well
02/19/13	17349	54	5100	127	403	243	27	620	8509	105588	3.50	N	N	run/o&m/run
02/25/13	17494	64	4950	124	393	266	5	640	8815	105627	3.50	N	N	run/o&m/run
03/04/13	17659	64	5150	127	407	256	28	1014	9167	105672	3.50	N	N	run/o&m/run
03/13/13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.00	NT	N	run/down "see note 3"
03/20/13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.00	NT	N	Down/monthly well
03/26/13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.00	NT	N	down/down "see note 4"
04/09/13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.00	NT	N	down/down
04/18/13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.00	NT	N	down/down
04/19/13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.00	NT	N	Down/monthly well
04/23/13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.00	NT	N	down/down
04/24/13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.00	NT	N	down/down
04/25/13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.00	NT	N	down/down
04/30/13	17880	48	5560	146	425	737	32	690	9643	105750	0.00	N	Y	down/o&m/ted/down
05/15/13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	4.00	NT	N	Down/monthly well
05/24/13	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.00	NT	N	Down/run "see note 5"
05/30/13	18050	33	8730	145	668	774	65	776	9978	105803	0.00	N	N	run/o&m/run "see note 6"
06/06/13	18218	54	9500	164	706	235	0	625	10289	105850	0.00	N	N	run/o&m/run
06/13/13	18387	64	9240	176	679	317	58	653	10589	105899	2.25	N	Y	run/o&m,ted/run
06/21/13	18574	72	9300	168	686	280	40	646	10907	105956	0.00	N	N	run/o&m/run
06/24/13	18647	73	9265	166	686	320	61	655	11033	105978	2.00	N	N	run/o&m/run
07/01/13	18792	64	5520	165	480	266	24	631	11284	106023	2.25	N	N	run/o&m/run
07/08/13	18959	58	4039	175	295	296	31	647	11550	106068	2.00	N	N	run/o&m/run
07/15/13	19128	60	4220	179	306	367	32	658	11821	106114	1.25	N	Y	run/o&m,ted/run
07/25/13	19363	61	4165	173	305	312	28	640	12213	106191	2.00	N	N	run/o&m/run
07/31/13	19418	60	4202	168	310	247	19	644	12302	106209	1.75	N	N	run/o&m/run
08/05/13	19538	64	4244	162	316	265	29	660	12498	106240	2.00	N	N	run/o&m/run
08/12/13	19706	63	4355	172	319	287	34	652	12772	106288	1.50	N	Y	run/o&m,ted/run
08/19/13	19874	64	4390	172	322	274	51	636	13045	106336	1.00	N	N	run/o&m/down "see note 7"

APPENDIX A
WEEKLY OPERATION AND MAINTENANCE SYSTEM READINGS
Price Service Center - TFS-10 System
4004 South Park Avenue
Tucson, Arizona

CLIENT NAME: CTES Job # 0413001102 SYSTEM READINGS
SITE LOCATION: TFS-10

SOLLECO			4" Pipe											
			FLOW	TEMP	SYS	INF	EFF	Inlet	Gas	Electric	LNAPL	Visible	TEDLARS	COMMENTS
	OP	VAC	p-tube	INF	FLOW			TEMP	Reading	Reading	Bailed	Emission	TAKEN	
DATE	HOUR	(in. H2O)	(in. fpm)	(°F)	(scfm)	(ppmv)	(ppmv)	(°F)			Gallons	Y/N	Y/N	
09/04/13	19877	60	4335	172	318	286	31	626	13052	106345	1.25	N	Y *	down/o&m,ted/down
10/08/13	19879	60	4401	168	325	447	44	637	13054	106363	0.00	N	N	Down/O&M/run
10/10/13	19922	56	4567	152	346	1051	103	770	13125	106376	1.75	N	Y	run/o&m,ted/run
10/15/13	20046	54	4166	160	311	245	14	630	13334	106412	0.00	N	N	run/wells,o&m/run
10/21/13	20181	50	4000	153	302	459	19	667	13554	106449	0.75	N	N	run/o&m/run
10/30/13	20398	45	4065	153	307	377	24	636	13897	106505	1.00	N	N	run/o&m/run
11/07/13	20590	48	4063	148	309	508	4	682	14205	106556	1.00	N	Y	run/o&m,ted/run
11/11/13	20685	49	4100	149	312	296	11	631	14357	106578	1.00	N	N	run/o&m,well/down
11/19/13	20854	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.00	N	N	run/o&m/run
11/25/13	20997	49	4040	138	313	429	7	669	14870	106662	5.00	N	N	run/o&m/run
12/02/13	21165	48	4065	144	311	502	6	691	15149	106707	3.75	N	N	run/o&m/run
12/12/13	21407	51	4230	145	324	422	0	630	15550	106773	3.50	N	Y	run/o&m,ted/run
12/18/13	21523	49	4205	148	328	389	0	602	15746	106806	3.25	N	N	run/o&m/run
12/24/13	21668	49	4255	143	327	308	0	630	15971	106841	0.00	N	N	run/o&m/run
01/02/14	21881	48	4100	147	313	281	0	628	16294	106898	4.00	N	N	run/o&m/run
01/07/14	22004	49	4165	149	317	322	12	629	16485	NT	3.5	N	N	run/o&m/run
01/14/14	22169	45	4275	150	324	743	2	640	16734	106907	3.5	N	Y	run/o&m,ted/run
01/22/14	22357	48	4220	150	320	503	1	670	17016	107020	3.25	N	N	run/o&m/run

Notes:

[a] Reading was taken approximately 8-inches from the original location were the first two readings were collected.
[b] Reading was taken from system display screen.
[c] New natural gas meter was installed on August 10, 2012.
Note 1: Multiple system readings were collected with initial air sparge start up and optomize air sparge system.
Note 2: Multiple system readings were collected to optomize air sparge equipment.
Note 3: System was shutdown for City of Tucson sampling event and NAPL fingerprint assessment.
Note 4: Lori Ehman with City of Tucson was on-site and informed Cardno of upcoming well test and asked Cardno to postpone NAPL removal until well testing is complete.
Note 5: Bill with the City of Tucson re-started the system with dilution open and Air Sparge system off.
Note 6: Re-started Air Sparge system.
Note 7: The remediation system was shut down due to poor distruction. Inspect the catalytic plate.
* Pre-compliance sample event, due to sample results from 8/12/13 showing poor distruction "NOT COMPLIANCE SAMPLE".
Highlighted cells indicate vapor sampling events.

APPENDIX J

2013 Paragon Annual System Performance Summary,

by Cardno ERI

Cardno ERI
Shaping the Future

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April 30, 2014
0413001103.Q413PSC

Mr. Richard Byrd
City of Tucson - Environmental Services
P.O. Box 27210
Tucson, AZ 85726-7210

Subject: **2013 Paragon Annual System Performance Summary**
Thomas O. Price Service Center
4004 South Park Avenue, Tucson, Arizona 85714
Facility ID: 0-005160, LUST No. 0767.01-.05

Mr. Byrd:

Cardno ERI is submitting an annual 2013 remedial summary for the AS/SVE with catalytic oxidation abatement system at the above referenced Site, for activities performed by Cardno ERI. Relevant tables and appendices are attached.

SUMMARY OF FIELD ACTIVITIES CONDUCTED IN 2013

1st Quarter Field Activities

- System readings were taken during the operational period.
- Began retrofit of PSC Paragon AS/SVE system manifold.
- Shut down PSC AS/SVE remediation systems for CTES sampling event and NAPL fingerprint assessment.
- The remediation system has three zones (A through C) which represent remediation wells on the same trunk lines; currently there are 15 wells connected to the three remedial zones. The wells and zones are depicted on Figure 1. During the first quarter of 2013, remedial zones B through C were not operating; all of the remediation wells were operating in zone A.
- Removed an estimated 508 pounds (approximately 85 gallons) of petroleum hydrocarbons through the SVE system. An estimated 5,954 pounds (approximately 992 gallons) of petroleum hydrocarbons have been removed from the Site since August 18, 2009.

2nd Quarter Field Activities

- The system operated 5/28/13 through 6/30/13 following shut down for system cycling, a CTES Non-Aqueous Phase Liquid (NAPL) rebound assessment, manifold retrofit, and repair to the electrical components.
- Weekly System readings and NAPL bailing during operational period.
- Air Sparge (AS) and Soil Vapor Extraction (SVE) manifold retrofits.
- Installation of AS blower, conducted by CTES.
- Monthly well gauging and vapor monitoring.
- During the second quarter of 2013, remedial zones B through C were not operating; all of the remediation wells were operating in zone A.
- Removed an estimated 94 pounds (approximately 16 gallons) of petroleum hydrocarbons through the SVE system during limited operation in the quarter. An estimated 6,048 pounds (approximately 1,008 gallons) of petroleum hydrocarbons have been removed from the Site since August 18, 2009.

3rd Quarter Field Activities

- The system operated July 1, through July 15, 2013 and was shut down on July 15th for maintenance and repair. The system was restarted on August 8th, and remained operating throughout the third quarter.
- Weekly System readings and NAPL bailing during operational period.
- Monthly well gauging and vapor monitoring.
- During the third quarter of 2013, remedial zones B through C were not operating; all of the remediation wells were operating in zone A.
- Removed an estimated 220 pounds (approximately 37 gallons) of petroleum hydrocarbons through the SVE system during limited operation in the quarter. An estimated 6,268 pounds (approximately 1,045 gallons) of petroleum hydrocarbons has been removed since August 18, 2009.
- Conducted an air sparge (AS) pilot test on August 8, 13, and 14, 2013; to evaluate the feasibility and effectiveness of AS as a remedial technology for NAPL and dissolved phase benzene, toluene, ethylbenzene, and xylenes (BTEX). The AS Pilot Test Summary report is provided in Appendix B.

Results of AS Pilot Test

- Based on observations made during the AS pilot test, AS appears to be a feasible remedial technology at PSC. This is supported by the increases of DO in nested wells PCM-509A and PCM-510A, groundwater elevation increases in the observations wells, and detected vapor-phase VOC concentrations.
- High concentrations of VOCs detected in vapors from well PCM-510B immediately following AS operation suggests effective localized transfer of dissolved-phase VOCs to vapor-phase. During monitoring, NAPL did not rebound in the well following the AS test completion.
- The AS test successfully demonstrated the ability of PCM-509A and PCM-510A to be used for AS. The groundwater mounding, localized DO concentration increases, and vapor-phase VOC concentrations are evidence to support likely effectiveness of air-sparging.

4th Quarter Field Activities

- Weekly System readings and NAPL bailing during operational period.
- Monthly well gauging and vapor monitoring.
- During the fourth quarter of 2013, remedial zones B through C were not operating; all of the remediation wells were operating in zone A.
- Removed an estimated 302 pounds (approximately 50 gallons) of petroleum hydrocarbons through the SVE system during limited operation in the quarter. An estimated 6,570 pounds (approximately 1,095 gallons) of petroleum hydrocarbons has been removed since August 18, 2009.
- Initiated vadose zone air injection through existing wells and blower.

PROPOSED FIELD ACTIVITIES

- Continue weekly system readings, NAPL bailing, and monthly well gauging and vapor monitoring.
- Connected wells PCM-509A, PCM-510A, PCM-509B, and PCM-510B to the existing manifold.
- Replaced existing blower with an air compressor capable of maintaining, at minimum, 50 scfm at 40 psi.
- Weekly monitoring of DO for the first month, then Quarterly monitoring of DO following AS initiation.

- Installation of a soil boring in the vicinity of R-017A to assess current subsurface soil conditions.
- Completion of the boring as an AS well.
- Connection of the new AS well to the existing manifold.
- Operation of AS at 2 to 4 scfm and approximately 20 psi.

Please feel free to call me at (480) 813-4526 or email me at matt.tomanek@cardno.com with any questions or comments.

Respectfully submitted,

Matt Tomanek
Senior Consultant
for Cardno ERI
Direct Line 480.248.3750
Email: matt.tomanek@cardno.com

Enclosures:

Acronym List

Figure 1	Paragon Site Layout and Well Location Map
Table 1	2013 SVE Operating Conditions Summary
Table 2	2013 Vapor Process Stream Analytical Results
Table 3	2013 Estimated Petroleum Hydrocarbon Mass Removal
Table 4	Cumulative TPH_g Mass Removal
Appendix A	Weekly Operation and Maintenance System Readings
Appendix B	Air Sparge Pilot Test Summary

ACRONYM LIST

µg/L	Micrograms per liter
µs	Microsiemens
1,2-DCA	1,2-dichloroethane
acfm	Actual cubic feet per minute
AS	Air sparge
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
CEQA	California Environmental Quality Act
cfm	Cubic feet per minute
COC	Chain of Custody
CPT	Cone Penetration (Penetrometer) Test
DIPE	Di-isopropyl ether
DO	Dissolved oxygen
DOT	Department of Transportation
DPE	Dual-phase extraction
DTW	Depth to water
EDB	1,2-dibromoethane
EPA	Environmental Protection Agency
ESL	Environmental screening level
ETBE	Ethyl tertiary butyl ether
FID	Flame-ionization detector
fpm	Feet per minute
GAC	Granular activated carbon
gpd	Gallons per day
gpm	Gallons per minute
GWPTS	Groundwater pump and treat system
HVOC	Halogenated volatile organic compound
J	Estimated value between MDL and PQL (RL)
LEL	Lower explosive limit
LPC	Liquid-phase carbon
LRP	Liquid-ring pump
LUFT	Leaking underground fuel tank
LUST	Leaking underground storage tank
MCL	Maximum contaminant level
MDL	Method detection limit
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
mg/m^3	Milligrams per cubic meter
MPE	Multi-phase extraction
MRL	Method reporting limit
msl	Mean sea level
MTBE	Methyl tertiary butyl ether
MTCA	Model Toxics Control Act
NAI	Natural attenuation indicators
NAPL	Non-aqueous phase liquid
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
ORP	Oxidation-reduction potential
OSHA	Occupational Safety and Health Administration
OVA	Organic vapor analyzer
P&ID	Process & Instrumentation Diagram
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene or perchloroethylene
PID	Photo-ionization detector
PLC	Programmable logic control
POTW	Publicly owned treatment works
ppmv	Parts per million by volume
PQL	Practical quantitation limit
psi	Pounds per square inch
PVC	Polyvinyl chloride
QA/QC	Quality assurance/quality control
RBSL	Risk-based screening levels
RCRA	Resource Conservation and Recovery Act
RL	Reporting limit
scfm	Standard cubic feet per minute
SSTL	Site-specific target level
STLC	Soluble threshold limit concentration
SVE	Soil vapor extraction
SVOC	Semivolatile organic compound
TAME	Tertiary amyl methyl ether
TBA	Tertiary butyl alcohol
TCE	Trichloroethene
TOC	Top of well casing elevation; datum is msl
TOG	Total oil and grease
TPHd	Total petroleum hydrocarbons as diesel
TPHg	Total petroleum hydrocarbons as gasoline
TPHmo	Total petroleum hydrocarbons as motor oil
TPHs	Total petroleum hydrocarbons as stoddard solvent
TRPH	Total recoverable petroleum hydrocarbons
UCL	Upper confidence level
USCS	Unified Soil Classification System
USGS	United States Geologic Survey
UST	Underground storage tank
VCP	Voluntary Cleanup Program
VOC	Volatile organic compound
VPC	Vapor-phase carbon

Explanation

- Soil Vapor Extraction (SVE) and Air Sweep Remedial Well
- SVE and Groundwater Monitoring Well
- Air Injection Remedial Well
- Inactive Remedial Well
- Soil Vapor Monitor Well
- Deep Groundwater Monitor Well
- Shallow Groundwater Monitor Well

SYSTEM PIPING

- Air Injection Line
- SVE Piping

SYSTEM ZONES

- ZONE A
- ZONE B
- ZONE C

0 50 100 150 200 Feet

N

CITY OF TUCSON
ENVIRONMENTAL SERVICES

FIGURE 1
PARAGON SITE LAYOUT AND WELL LOCATION MAP
THOMAS O. PRICE SERVICE CENTER
4004 South Park Avenue
Tucson, Arizona

Drawn By:	LE
Checked:	RB
Approved:	NP
Date:	1/24/2014
File:	See Below

J:GIS\PRICE\2012\PSCSYS.mxd

TABLE 1
2013 SVE OPERATING CONDITIONS SUMMARY
Price Service Center - Paragon System
4004 South Park Avenue
Tucson, Arizona

Date	Op Hours	Operating Conditions			
		Vacuum	VOC*	Flow	Temp
		(Inches H_2O)	(ppmv)	(scfm)	(Deg. F)
03/04/13[a]	6410	52	NT	107	162
06/13/13	6720	53	92	108	186
07/15/13	7464	57	66	90	190
08/12/13	7601	44	48	93	174
09/26/13	7842	51	NT	96	160
10/21/13	8439	52	262	89	161
11/07/13	8845	47	144	94	156
12/12/13	9540	54	132	83	175
Average		**51**	**124**	**95**	**171**

Notes:

*	=	VOC concentrations reported from PID.
NT	=	Not Taken.
[a]	=	System data results prior to 05/31/13 provided by City of Tucson.

TABLE 2
2013 VAPOR PROCESS STREAM ANALYTICAL RESULTS
Price Service Center - Paragon System
4004 South Park Avenue
Tucson, Arizona

Date	Time	Influent (ppmv)				
		B	T	E	X	TPH
03/04/13[a]	8:10	0.85	2.06	0.59	6.25	174
06/13/13	11:20	0.67	1.1	<0.46	4.7	180
07/15/13	11:44	0.41	0.92	0.35	3.42	135
08/12/13	10:05	0.65	1.15	0.32	5.72	143
09/26/13	9:15	0.47	0.95	0.59	5.24	143
10/21/13	9:58	0.43	0.88	0.57	4.76	132
11/07/13	11:30	0.43	0.95	0.47	5.35	168
12/12/13	12:28	<0.31	0.32	<0.23	3.04	113
Average		**<0.53**	**1.04**	**<0.45**	**4.81**	**149**

Notes:

ppmv	=	Part per million by volume.
BTEX	=	Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method 8260.
TPH	=	Total petroleum hydrocarbons analyzed using EPA Method 8015.
<	=	Below laboratory reporting limits.
[a]	=	Sample data results prior to 05/31/13 provided by City of Tucson.

TABLE 3
2013 ESTIMATED PETROLEUM HYDROCARBON MASS REMOVAL
Price Service Center - Paragon System
4004 South Park Avenue
Tucson, Arizona

			Hydrocarbon Concentration (ppmv)				Lbs TPH		Lbs Benzene		Lbs Toluene		Lbs Ethylbenzene		Lbs Total Xylenes	
Date	Flow (SCFM)	TPH	B	T	E	X	Average per Hour	Average per Day	Average per Hour	Average per Day	Average per Hour	Average per Day	Average per Hour	Average per Day	Average per Hour	Average per Day
03/04/13[a]	107	174	0.85	2.06	0.59	6.25	0.29	6.95	1.1E-03	2.6E-02	3.1E-03	7.5E-02	1.0E-03	2.5E-02	1.1E-02	2.6E-01
06/13/13	108	180	0.67	1.1	<0.46	4.7	0.30	7.25	8.8E-04	2.1E-02	1.7E-03	4.0E-02	8.2E-04	2.0E-02	8.4E-03	2.0E-01
07/15/13	90	135	0.4	0.9	0.35	3.4	0.19	4.53	4.5E-04	1.1E-02	1.2E-03	2.8E-02	5.2E-04	1.2E-02	5.1E-03	1.2E-01
08/12/13	93	143	0.7	1.2	0.32	5.7	0.21	4.96	7.3E-04	1.8E-02	1.5E-03	3.6E-02	4.9E-04	1.2E-02	8.8E-03	2.1E-01
09/26/13	96	143	0.47	0.95	0.59	5.24	0.21	5.12	5.5E-04	1.3E-02	1.3E-03	3.1E-02	9.3E-04	2.2E-02	8.3E-03	2.0E-01
10/21/13	89	132	0.43	0.88	0.57	4.76	0.18	4.38	4.6E-04	1.1E-02	1.1E-03	2.7E-02	8.4E-04	2.0E-02	7.0E-03	1.7E-01
11/07/13	94	168	0.43	0.95	0.47	5.35	0.25	5.89	4.9E-04	1.2E-02	1.3E-03	3.0E-02	7.3E-04	1.7E-02	8.3E-03	2.0E-01
12/12/13	83	113	<0.31	0.32	<0.23	3.04	0.15	3.50	3.1E-04	7.5E-03	3.8E-04	9.0E-03	3.1E-04	7.5E-03	4.2E-03	1.0E-01
Average	**95**	**149**	**<0.53**	**1.04**	**<0.45**	**4.81**	**0.22**	**5.32**	**6.2E-04**	**1.5E-02**	**1.4E-03**	**3.5E-02**	**7.1E-04**	**1.7E-02**	**7.6E-03**	**1.8E-01**

Total Vapor Phase Hydrocarbon Removal Between Sampling Events (Lbs)

Date	OP Hours	TPH	B	T	E	X
03/04/13[a]	1755	**508**	**1.94**	**5.47**	**1.83**	**19.34**
06/13/13	310	**94**	**0.27**	**0.52**	**0.25**	**2.59**
07/15/13	744	**141**	**0.33**	**0.87**	**0.39**	**3.77**
08/12/13	137	**28**	**0.10**	**0.21**	**0.07**	**1.20**
09/26/13	241	**51**	**0.13**	**0.31**	**0.22**	**2.00**
10/21/13	597	**109**	**0.28**	**0.66**	**0.50**	**4.17**
11/07/13	376	**92**	**0.18**	**0.47**	**0.27**	**3.12**
12/12/13	695	**101**	**0.22**	**0.26**	**0.22**	**2.89**
TOTAL	**4855**	**1,124**	**3.45**	**8.78**	**3.75**	**39.07**

Notes:

TPH = Total petroleum hydrocarbons analyzed using EPA Method 8015.
BTEX = Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method 8260.
Lbs = Pounds.
< = Below minimum laboaratory reporting limits.
OP Hours = Duration of SVE operation during period.
[a] = System data results prior to 05/31/13 provided by City of Tucson.

TABLE 4
CUMMULATIVE TPHg MASS REMOVAL
Price Service Center - Paragon System
4004 South Park Avenue
Tucson, Arizona

Date	Duration of SVE (Hours)	Removal			
		TPH (lbs)	Average (lbs/hour)	TPH (Cumulative lbs)	TPH (Cumulative gallons)
2009 - 2010[ab]	7,248	862	0.12	862	144
2011[ab]	---	---	---	862	144
2012[a]	5,184	4,584	0.88	5,446	908
11/28/12[a] - **03/04/13**	1,755	508	0.29	5,954	992
05/31/13 - **06/13/13**	310	94	0.30	6,048	1,008
06/13/13 - **07/15/13**	744	141	0.19	6,188	1,031
07/15/13[c] - **08/12/13**	137	28	0.21	6,216	1,036
08/12/13 - **09/26/13**	241	51	0.21	6,268	1,045
09/26/13 - **10/21/13**	597	109	0.18	6,377	1,063
10/21/13 - **11/07/13**	376	92	0.25	6,469	1,078
11/07/13 - **12/12/13**	695	101	0.15	6,570	1,095

Notes:

BOLD	=	Sample collection date.
lbs	=	Pounds.
gallons	=	Converted to gallons using 6 lbs = 1 gallon of TPH.
a	=	System data results prior to 05/31/13 provided by City of Tucson.
b	=	System was shutdown between September 2010 through March 2012 due to low inlet VOC concentrations.
c	=	System was started on 05/31/13 following shut down for retrofits and repairs.
d	=	System was shutdown on 07/15/13 for electrical repairs and restarted on 08/08/13.

APPENDIX A

WEEKLY OPERATION AND MAINTENANCE SYSTEM READINGS

APPENDIX A
SVE OPERATING CONDITIONS SUMMARY
Price Service Center - Paragon System
4004 South Park Avenue
Tucson, Arizona
(Page 1 of 2)

CLIENT NAME: CTES Job # 0413001103 SYSTEM READINGS
SITE LOCATION: PSC

Paragon			3" Pipe									
			FLOW	TEMP	SYS	INF	EFF	Inlet	Gas	Visible	TEDLARS	COMMENTS
	OP	VAC	p-tube	INF	FLOW			TEMP	Reading	Emission	TAKEN	
DATE	HOUR	(in. H2O)	(in. fpm)	(°F)	(scfm)	(ppmv)	(ppmv)	(°F)		Y/N	Y/N	
05/31/13	6410	60	3540	153	150	75	0	NT	35681	N	N	run/o&m/run
06/06/13	6550	61	3700	165	154	57	0	712	35873	N	N	run/o&m/run
06/13/13	6720	53	2680	186	108	92	0	713	36102	N	Y	run/o&m,ted/run
06/21/13	6885	61	3250	148	139	82	0	744	36324	N	N	run/o&m/run
06/24/13	6959	60	3350	156	141	86	0	740	36425	N	N	run/o&m/run
07/01/13	7125	62	3110	147	271	74	0	747	36650	N	N	run/o&m/run
07/08/13	7294	56	2317	185	93	61	0	721	36874	N	N	run/o&m/run
07/15/13	7464	57	2242	190	90	66	0	711	37097	N	Y	run/o&m,ted/run
07/16/13	7465	NT	NT	NT	NT	NT	NT	NT	NT	NT	N	DOWN "see note 1"
07/25/13	7465	NT	NT	NT	NT	NT	NT	NT	NT	NT	N	DOWN "see note 1"
08/08/13	7510	NT	NT	NT	NT	NT	NT	NT	NT	NT	N	RUN/RUN
08/12/13	7601	44	2278	174	93	48	0	707	37274	N	Y	run/o&m,ted/run
08/19/13	7630	45	2227	171	92	68	0	426	37378	N	N	run/o&m/run
09/04/13	7630	41	2193	183	89	61	0	450	37620	N	N	run/o&m/run
09/10/13	7630	42	2239	170	92	54	0	427	37710	N	N	run/o&m/run
09/17/13	7630/0 *	40	2176	172	89	58	0	434	NT	N	N	run/o&m/run
09/26/13	212	51	2297	160	96	NT	NT	751	38095	N	Y	run/o&m,ted/run
10/03/13	382	51	2180	169	90	NT	NT	707	38315	N	N	run/o&m/run
10/07/13	477	50	2099	166	87	68	0	752	38439	N	N	run/o&m/run
10/16/13	692	50	2445	156	103	123	0	720	38719	N	N	run/o&m,wells/run
10/21/13	809	52	2127	161	89	262	0	751	38870	N	Y	run/o&m,ted/run
10/30/13	1021	52	2261	138	98	167	0	750	39142	N	N	down/o&m/run
11/07/13	1215	47	2227	156	94	71	0	750	39391	N	Y	run/o&m,ted/run
11/11/13	1310	48	2242	149	96	144	0	750	39512	N	N	run/o&m,wells/down
11/19/13	1475	NT	NT	NT	NT	NT	NT	NT	NT	N	N	run/o&m/run
11/25/13	1616	46	2202	147	94	217	0	750	39878	N	N	run/o&m/run
12/02/13	1785	46	1759	195	70	106	0	753	40085	N	N	run/o&m/run
12/12/13	1910	54	2025	175	83	132	0	751	40234	N	Y	run/o&m,ted/run
12/18/13	1986	NT	NT	NT	NT	NT	NT	NT	NT	NT	N	down

APPENDIX A
SVE OPERATING CONDITIONS SUMMARY
Price Service Center - Paragon System
4004 South Park Avenue
Tucson, Arizona

CLIENT NAME: CTES Job # 0413001103 SYSTEM READINGS
SITE LOCATION: PSC

Paragon			3" Pipe									
12/24/13	2075	55	2375	154	100	108	0	750	40451	N	N	run/o&m/run

Notes:

Note 1: Bill with the City of Tucson called Norman Buxton on 07/16/13 and informed him that the system was down. When Bill tried to restart the system it kept blowing fuses. System is down until an electrician can troubleshoot and repair fuse box.

* OP hour was changed out.

Highlighted cells indicate vapor sampling events.

APPENDIX B

AIR SPARGE PILOT TEST SUMMARY

Cardno ERI
Shaping the Future

Cardno ERI
114698/114699

9185 S. Farmer Avenue,
Suite 111
Tempe, AZ 85284
USA

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November 7, 2013
0413001103.R04

Mr. Richard Byrd
City of Tucson - Environmental Services
P.O. Box 27210
Tucson, AZ 85726-7210

Subject: **Air Sparge Pilot Test Summary**
Wells PCM-509A and PCM-510A Thomas O. Price Service Center
4004 South Park Avenue, Tucson, Arizona 85714
Facility ID: 0-005160, LUST No. 0767.01-.05

INTRODUCTION

Cardno ERI is submitting a summary of the air sparge (AS) pilot test activities and results conducted on August 8, 13 and 14, 2013. The subject wells for testing included PCM-509A and PCM-510A. The objective of the pilot test was to evaluate the feasibility and effectiveness of AS as a remedial technology for suspected submerged Non-Aqueous Phase Liquid (NAPL) and dissolved phase benzene, toluene, ethylbenzene, and xylenes (BTEX). Potential benefits of AS implementation include:

- Accelerated NAPL and dissolved phase BTEX removal through volatilization and soil vapor extraction (SVE).
- Increased dissolved oxygen (DO) in groundwater, resulting in accelerated natural attenuation.

SUMMARY OF FIELD ACTIVITIES

August 8, 2013

Cardno connected the existing blower and AS manifold to well PCM-510A. Attempts to inject air into well PCM-510A, at 25 psi (required to displace water in the well to the screen depth), were unsuccessful. The existing blower could not produce high enough pressure for air sparging in the existing wells at the Price Service Center (PSC).

August 13, 2013

The on-site SVE system was shut down approximately two hours prior to collection of pre-AS well data for stabilization prior to testing. Cardno rented a portable air compressor with sufficient pressure capability to conduct the AS test. Wells PCM-509A and PCM-510A were connected to the rental air compressor via a fabricated manifold. Compressed air was injected into the two test wells at pressure of 25 to 30 psi with a flow rate of 5 to 9 scfm. Physical parameters were monitored in a control well (PCM-512A) and near-by surrounding wells (R-018A and R-019A). The air compressor was left operating after Cardno departed from the site to establish longer time period radius of influence (ROI) conditions.

August 14, 2013

The portable air compressor was not operating upon arrival by Cardno staff, and operating hours on the air compressor were noted. The air compressor was refueled and restarted. Monitoring of surrounding wells and the control well was continued. The AS test was completed and final field measurements recorded.

RESULTS

Compressed air was successfully injected into groundwater through 2-inch PVC wells with screened intervals of 117 to 120 feet bgs. Air injection rates of 5 to 9 scfm were achieved with 25 to 30 psi of pressure. The rates and pressures were consistent with expectations, based on depth of water column above the screen interval and soil type. A total volume of approximately 7,000 ft^3 of air was injected during the 17 hours of AS operation. Operating conditions and well monitoring data are presented in Table 1. Well construction details are included in Table 2.

Groundwater elevations in near-by observation wells increased approximately 0.25 to 1.18-feet during AS operation. Observation wells R-018A and R-019A are located approximately 16 to 33-feet from the AS wells; location of the wells are identified in Figure 1. During the AS test groundwater elevations were monitored in the wells and are presented in Figure 2. An increase in groundwater elevation represents mounding of displaced water, suggesting influence of air-sparging.

DO concentrations in observation and control wells ranged from 0.1 mg/L to 0.6 mg/L prior to initiation of air sparging. Significant changes in DO were not observed in observation wells R-018A and R-019A or control well PCM-512A. Increases in DO concentrations in observation wells are typically not observed for days to months following AS implementation; limited by diffusion rates and preferential pathway development.

DO concentrations in AS wells and nested shallow monitoring wells increased significantly in measurements collected before and after AS operation. DO concentrations in well PCM-509A increased from 2.8 mg/L to 7.0

mg/L; PCM-509B from 0.1 mg/L to 5.3 mg/L; PCM-510A from 2.4 mg/L to 5.5 mg/L, and PCM-510B from 0.7 mg/L to 5.3 mg/L.

Nested wells PCM-509 and PCM-510 were dry in both shallow and deep screened wells following completion of AS operations. The wells recharged for approximately two hours prior to post-AS DO monitoring.

A preferential pathway between PCM-510B and PCM-510A is present. Some of the air injected through PCM-510A exited through the top of well PCM-510B until a PVC cap was secured. A poor seal above the screen interval in PCM-510A is the likely reason for the pathway. A PVC cap was also secured on well PCM-509A to prevent potential preferential pathway development.

Well PCM-510B contained 0.92-foot of NAPL prior to AS operation. NAPL was not present during the post-AS monitoring; however, groundwater did not rebound to pre-test elevations during the monitoring.

VOCs were periodically monitored with a PID in nested vapor monitoring wells PCM-509A and PCM-510A. Vapor monitoring results are presented in Table 3. VOCs were not detected with a PID in nested vapor monitoring wells associated with each AS well prior to AS initiation. The nested vapor monitoring wells were installed in the same boring as the AS well, but screened approximately 63 feet above the screen interval of the AS well. VOCs were not detected with a PID in the PCM-510A vapor monitoring well during AS operation. VOCs were detected with a PID in the PCM-509A vapor monitoring well during operation at a concentration of 51 ppm.

Following the removal of the PVC caps, VOCs were reported by a PID at concentrations of 2,774 ppm and 13.5 ppm for PCM-510B and PCM-509B respectively.

DISCUSSION

Based on observations made during the AS pilot test, AS appears to be a feasible remedial technology at PSC. This is supported by the increases of DO in nested wells PCM-509A and PCM-510A, groundwater elevation increases in the observations wells, and detected vapor-phase VOC concentrations.

High concentrations of VOCs detected in vapors from well PCM-510B immediately following AS operation suggests effective localized transfer of dissolved-phase VOCs to vapor-phase. During monitoring, NAPL did not rebound in the well following the AS test completion.

A ROI was not estimated for PCM-509A and PCM-510A. Several factors contribute the inability to estimate a reliable ROI:

- Natural positive and negative pressure has been observed in various wells on-site in excess of typical positive pressure measurements collected during AS operations.

- An insufficient number of observation wells, screened at the appropriate intervals, are currently installed to provide enough data points for confident ROI estimates.
- Duration of the test was not sufficient to achieve pseudo-steady state conditions. Several days are often required for subsurface conditions to stabilize following initiation of air-sparging.

Regardless of the inability to estimate a ROI, the AS test successfully demonstrated the ability of PCM-509A and PCM-510A to be used for AS. The groundwater mounding, localized DO concentration increases, and vapor-phase VOC concentrations are evidence to support likely effectiveness of air-sparging.

The existing AS manifold should be connected to an air compressor capable of producing, at minimum, 50 scfm at 40psi. Subsurface piping will connect the AS manifold to wells PCM-509A and PCM-510A with 1" schedule 80 PVC. Flow meters and valves at the manifold will regulate air injection rates to the zone; currently no zone has been established. Multiple AS zones may be developed if additional AS wells are installed. Valves at the well heads will regulate air injection rates to individual wells. Air will be injected into wells PCM-509A and PCM-510A at approximately 4 scfm, at approximately 20 psi. The required pressure to inject the desired air flow rate is a function of well screen interval depth, ground water elevation, and soil type. These factors should be considered during design of future AS wells.

A boring in the vicinity of well R-017A for assessment of current subsurface soil and contaminate conditions is recommended. The boring can be completed as an AS well and connected to the existing AS manifold during the subsurface piping event described above. If connection of wells PCM-509A and PCM-510A occurs prior to installation of a new AS well, piping to the general area of the proposed well should be advanced for ease of future use.

RECOMMENDATIONS SUMMARY

Cardno recommends the following:

- Subsurface connection of wells PCM-509A and PCM-510A to the existing AS manifold.
- Subsurface connection of wells PCM-509B and PCM-510B to the existing SVE manifold.
- Replacement of the existing blower with an air compressor capable of maintaining, at minimum, 50 scfm at 40 psi.
- Weekly monitoring of DO for the first month, then Quarterly monitoring of DO.
- Installation of a soil boring in the vicinity of R-017A to assess current subsurface soil conditions.
- Completion of the boring as an AS well.
- Connection of the new AS well to the existing manifold.
- Operation of AS at 2 to 4 scfm and approximately 20 psi.

LIMITATIONS

For documents cited that were not generated by Cardno ERI, the data taken from those documents is used "as is" and is assumed to be accurate. Cardno ERI does not guarantee the accuracy of this data and makes no warranties for the referenced work performed nor the inferences or conclusions stated in these documents.

This document and the work performed have been undertaken in good faith, with due diligence and with the expertise, experience, capability, and specialized knowledge necessary to perform the work in a good and workmanlike manner and within all accepted standards pertaining to providers of environmental services in Arizona at the time of investigation. No soil engineering or geotechnical references are implied or should be inferred. The evaluation of the geologic conditions at the site for this investigation is made from a limited number of data points. Subsurface conditions may vary away from these data points.

Please call Matt Tomanek, Cardno ERI's Senior Consultant for this Site, at (480) 813-4526 or email at matt.tomanek@cardno.com with any questions regarding this report.

Respectfully submitted,

Matt Tomanek
Senior Consultant
for Cardno ERI
Direct Line 602.502.7625
Email: matt.tomanek@cardno.com

Enclosures:

Acronym List

Figure 1: Generalized Site Plan

Figure 2: Groundwater Elevation in Observation and Control Wells

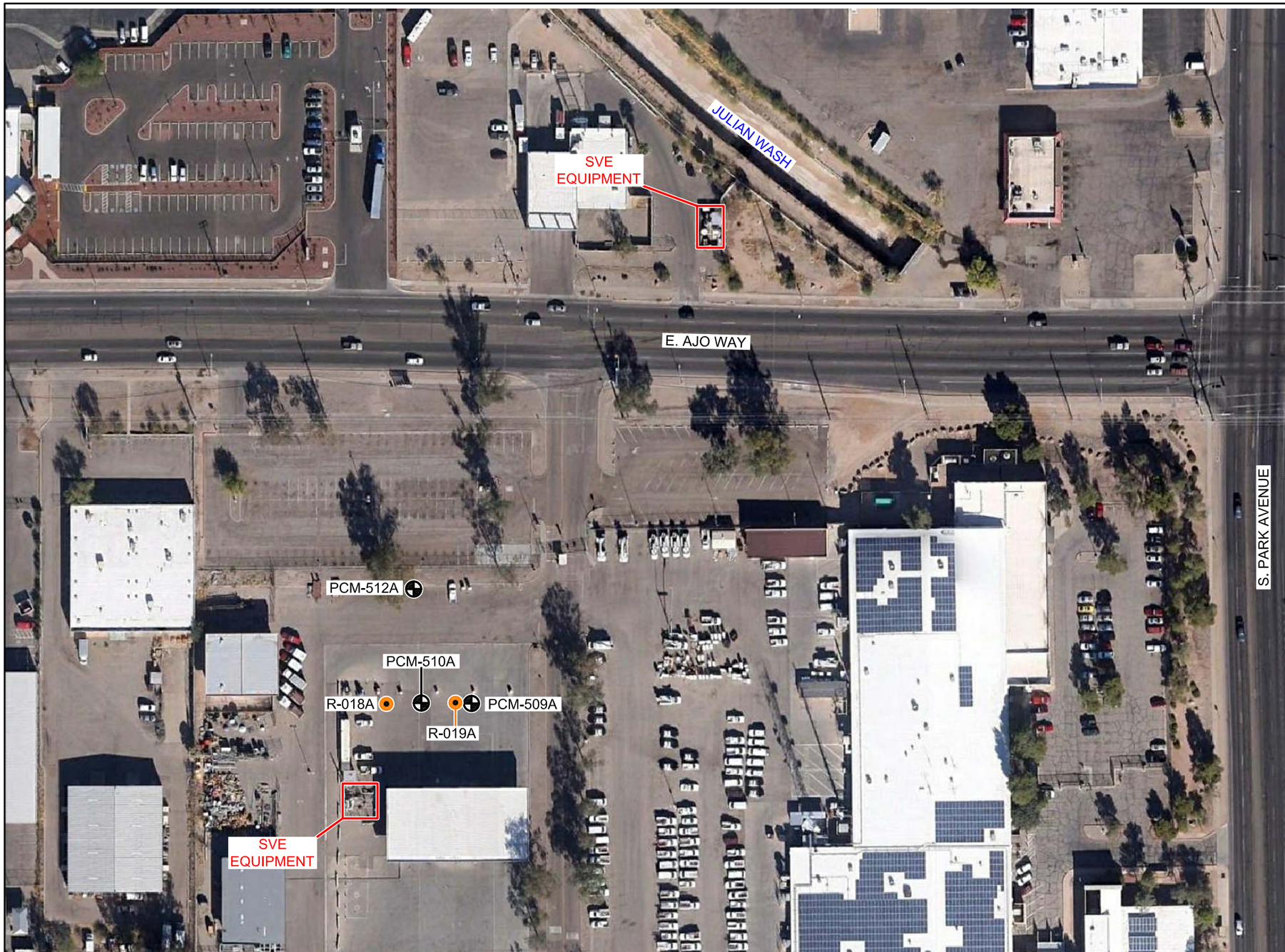
Table 1: AS and Observation Well Data

Table 2: Well Construction Details

Table 3: Vapor Monitoring Results

ACRONYM LIST

µg/L	Micrograms per liter
µs	Microsiemens
1,2-DCA	1,2-dichloroethane
acfm	Actual cubic feet per minute
AS	Air sparge
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
CEQA	California Environmental Quality Act
cfm	Cubic feet per minute
COC	Chain of Custody
CPT	Cone Penetration (Penetrometer) Test
DIPE	Di-isopropyl ether
DO	Dissolved oxygen
DOT	Department of Transportation
DPE	Dual-phase extraction
DTW	Depth to water
EDB	1,2-dibromoethane
EPA	Environmental Protection Agency
ESL	Environmental screening level
ETBE	Ethyl tertiary butyl ether
FID	Flame-ionization detector
fpm	Feet per minute
GAC	Granular activated carbon
gpd	Gallons per day
gpm	Gallons per minute
GWPTS	Groundwater pump and treat system
HVOC	Halogenated volatile organic compound
J	Estimated value between MDL and PQL (RL)
LEL	Lower explosive limit
LPC	Liquid-phase carbon
LRP	Liquid-ring pump
LUFT	Leaking underground fuel tank
LUST	Leaking underground storage tank
MCL	Maximum contaminant level
MDL	Method detection limit
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
mg/m^3	Milligrams per cubic meter
MPE	Multi-phase extraction
MRL	Method reporting limit
msl	Mean sea level
MTBE	Methyl tertiary butyl ether
MTCA	Model Toxics Control Act
NAI	Natural attenuation indicators
NAPL	Non-aqueous phase liquid
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
ORP	Oxidation-reduction potential
OSHA	Occupational Safety and Health Administration
OVA	Organic vapor analyzer
P&ID	Process & Instrumentation Diagram
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene or perchloroethylene
PID	Photo-ionization detector
PLC	Programmable logic control
POTW	Publicly owned treatment works
ppmv	Parts per million by volume
PQL	Practical quantitation limit
psi	Pounds per square inch
PVC	Polyvinyl chloride
QA/QC	Quality assurance/quality control
RBSL	Risk-based screening levels
RCRA	Resource Conservation and Recovery Act
RL	Reporting limit
scfm	Standard cubic feet per minute
SSTL	Site-specific target level
STLC	Soluble threshold limit concentration
SVE	Soil vapor extraction
SVOC	Semivolatile organic compound
TAME	Tertiary amyl methyl ether
TBA	Tertiary butyl alcohol
TCE	Trichloroethene
TOC	Top of well casing elevation; datum is msl
TOG	Total oil and grease
TPHd	Total petroleum hydrocarbons as diesel
TPHg	Total petroleum hydrocarbons as gasoline
TPHmo	Total petroleum hydrocarbons as motor oil
TPHs	Total petroleum hydrocarbons as stoddard solvent
TRPH	Total recoverable petroleum hydrocarbons
UCL	Upper confidence level
USCS	Unified Soil Classification System
USGS	United States Geologic Survey
UST	Underground storage tank
VCP	Voluntary Cleanup Program
VOC	Volatile organic compound
VPC	Vapor-phase carbon



LEGEND

Shallow Groundwater Monitoring Well

SVE and Groundwater Monitoring Well

SOURCE: Modified from a map provided by Pima County

APPROXIMATE SCALE

0 100 200 FEET

FN 041300GSP1

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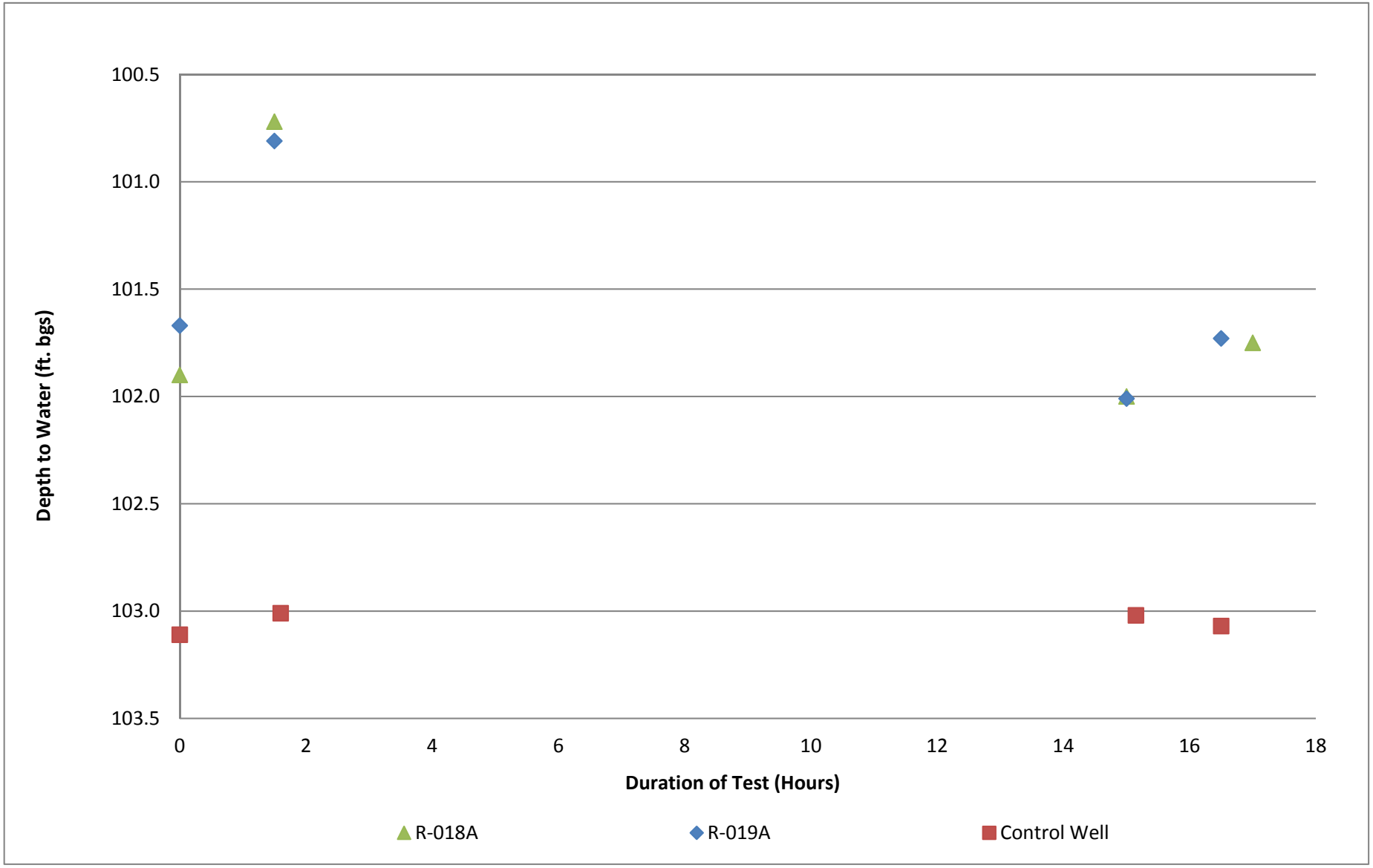
Shaping the Future

GENERALIZED SITE PLAN

THOMAS O. PRICE SERVICE CENTER
4004 South Park Avenue, Tucson, Arizona
UST Facility ID 0-005160; LUST No. 0767.01-.05

PROJECT NO.
041300

FIGURE
1



Cardno ERI
Shaping the Future

GROUNDWATER ELEVATION IN OBSERVATION AND CONTROL WELLS

THOMAS O. PRICE SERVICE CENTER
4004 South Park Avenue, Tucson, Arizona
UST Facility ID 0-005160; LUST No. 0767.01-.05

PROJECT NO.
041300

FIGURE
2

TABLE 1
AIR SPARGE AND OBSERVATION WELL DATA
Price Service Center
4004 South Park Avenue
Tucson, Arizona
(Page 1 of 2)

		Air Injection Well PCM-510A				Observation Wells					Control Well PCM-512A			
Date	Time	Pressure (PSI)	Flow (CFM)	DTW (feet bgs)	DO (mg/L)	Well	Dist. From AI (ft)	DTW (feet bgs)	DO (mg/L)	Temp (deg. C)	DTW (feet bgs)	DO (mg/L)	Temp (deg. C)	Notes
8/13/2013	11:55	---	---	102.40	2.4	PCM-510B	0.5	130.00	0.7	27.8				
8/13/2013	12:05					R-018A	32	101.90	0.3	27.9				
8/13/2013	12:20					R-019A	33	101.67	0.6	27.8				
8/13/2013	12:30										103.11	0.5	27.8	
8/13/2013	13:10	30	5											Start AI
8/13/2013	14:40	30	5			R-018A	32	100.72	0.3	28.3				
8/13/2013	14:45	30	5			R-019A	33	100.81	0.3	28.4				
8/13/2013	14:50	30	5								103.01	0.3	27.1	
8/13/2013	16:00	25	7											Offsite, AI running
8/14/2013	8:30	25	7			R-018A	32	102.00	0.2	27.4				Restart AI
8/14/2013	9:00	25	7			R-019A	33	102.01	0.4	28.1				
8/14/2013	9:10	25	7								103.02	0.2	26.9	
8/14/2013	10:30			DRY	---	PCM-510B	0.5	DRY	---	---	103.07	0.5	27.1	Stop AI
8/14/2013	10:30					R-018A	32	101.75	0.4	28.2				
8/14/2013	10:30					R-019A	33	101.73	0.4	28.5				
8/14/2013	12:45	---	---	114.00*	5.5	PCM-510B	0.5	105.70*	5.3	27.9				GW recharging in well

Notes:

--- = not determined/not applicable/not available

Dist. = Distance

LPH = Liquid Phase Hydrocarbons

AI = Air Injection

* = Approximate

PSI = pouds per square inch

TABLE 1
AIR SPARGE AND OBSERVATION WELL DATA
Price Service Center
4004 South Park Avenue
Tucson, Arizona
(Page 2 of 2)

		Air Injection Well PCM-509A				Observation Wells					Control Well PCM-512A			
Date	Time	Pressure (PSI)	Flow (CFM)	DTW (feet bgs)	DO (mg/L)	Well	Dist. From AI (ft)	DTW (feet bgs)	DO (mg/L)	Temp (deg. C)	DTW (feet bgs)	DO (mg/L)	Temp (deg. C)	Notes
8/13/2013	12:10	---	---	102.58	2.8	PCM-509B	0.5	102.21	0.1	28.3				
8/13/2013	12:20					R-019A	16	101.67	0.6	27.8				
8/13/2013	12:30										103.11	0.5	27.8	
8/13/2013	13:10	30	7											Start AI
8/13/2013	14:45	30	7			R-019A	16	100.81	0.3	28.4				
8/13/2013	14:50	30	7								103.01	0.3	27.1	
8/13/2013	16:00	25	8											Offsite, AI running
8/14/2013	8:30	25	9											Restart AI
8/14/2013	9:00	25	9			R-019A	16	102.01	0.4	28.1				
8/14/2013	9:10	25	9								103.02	0.2	26.9	
8/14/2013	10:30	25	9			R-019A	16	101.73	0.4	28.5	103.07	0.5	27.1	
8/14/2013	11:00			DRY	---	PCM-509B	0.5	DRY	---	---				Stop AI
8/14/2013	13:00	---	---	110.10*	7	PCM-509B	0.5	105.21*	5.3	26.5				

Notes:

--- = not determined/not applicable/not available
Dist. = Distance
LPH = Liquid Phase Hydrocarbons
AI = Air Injection
* = Approximate
PSI = pouds per square inch

TABLE 2
WELL CONSTRUCTION DETAILS
Price Service Center
4004 South Park Avenue
Tucson, Arizona
(Page 1 of 1)

Well Identifier	Groundwater Zone CCA 2010 Annual Rept (1)	Groundwater Zone URS (Regional GW Elevation 2360)	Groundwater Elevation City of Tucson, 03/2011	ADWR Registry ID	Construction Details							Elevation Details (ft-asl)						Drilling Method	Lithologic Log Comments	Groundwater Zone - Info
					Total Depth Drilled (ft-bgs)	Well Casing Total Depth (feet)	Well Diameter (inches)	Well Casing Type	Length of Screen (feet)	Depth to Top of Screen (ft-bgs)	Depth to Bottom of Screen (ft-bgs)	Ground Surface Elevation	TOC Elevation (ft-asl)	Survey Point	Well Bottom Elevation	Top of Screen Elevation	Bottom of Screen Elevation			
PCM-509A (1/2-inch)	Vapor	Vapor			121	55	1/2	PVC	5	50	55	2,480.711	2,480.71	CASING	2,425.711	2,430.711	2,425.711	Becker Hammer	Scr. 50-55' Interval is silty sand.	NA
PCM-509B (2-inch)	Shallow	Shallow	2,379.35			108	2	PVC	13	95	108	2,480.711		CASING	2,372.711	2,385.711	2,372.711	Becker Hammer	Scr. 95-108'. Clay, compact, interbedded caliche 85-121'. SWL 101.25 at completion July 2006.	SZ unbounded in compact clay, PID not diminished with depth.
PCM-509A (2-inch)	Shallow	Shallow				120	2	PVC	3	117	120	2,480.711		CASING	2,360.711	2,363.711	2,360.711	Becker Hammer	Scr. 117-120'. Clay, compact, interbedded caliche 85-121'	PID 447 ppmv in compact clay at TD.
PCM-510A (1/2-inch)	Vapor	Vapor			121	55	1/2	PVC	5	50	55	2,480.787	2,480.79	CASING	2,425.787	2,430.787	2,425.787	Becker Hammer	Scr. 50-55' Interval is caliche with some sand.	NA
PCM-510B (2-inch)	Shallow	Shallow	2,379.56			108	2	PVC	13	95	108	2,480.787		CASING	2,372.787	2,385.787	2,372.787	Becker Hammer	Scr. 95-108'. Clay, slightly moist, high plasticity, 95-110'. No SWL on log.	SZ semi bounded in high plasticity clay, diminished PID with depth. Note moist clay below with PID >10,000 ppmv at 115'. PID 48.2 ppmv at 120'.
PCM-510A (2-inch)	Shallow	Shallow				120	2	PVC	3	117	120	2,480.787		CASING	2,360.787	2,363.787	2,360.787	Becker Hammer	Scr. 117-120'. Clay, moist, high plasticity, 117-121'.	PID 48.2 ppmv in high plasticity clay at TD.
PCM-512A	Shallow	Combined/Deep	2,378.30		121	120	4	PVC	70	50	120	2,479.950	2,479.95	CASING	2,359.950	2,429.950	2,359.950	Becker Hammer	Clayey silt, moist, plastic 75-90'; silty clay, moist, plastic 90-121'. SWL 101.48' at completion July 2006.	SZ unbounded in silty clay (8 BPF=medium stiff), PID increasing with depth. PID 1152 ppmv at TD.
R-018A	Shallow	Shallow	2,379.75	564625	120	110	4	PVC	30	80	110	2,480.708	2,480.71	CASING	2,370.708	2,400.708	2,370.708	ARCH	Sandy clayey silt, damp to moist 100-104'; sandy silty clay, moist 104-119', saturated with free produt 105.5-106'; silty clay, very hard, moderate plasticity 119-120'. SWL 106' at completion November 1997.	SZ semi bounded in sandy and silty clay. Log notes silty clay, damp, very hard, medium plasticity at TD. Note 113-113.5' saturated, zone not screened as SZ, too shallow for DHZ.
R-019A	Shallow	Shallow	2,379.52	564626	114	112	4	PVC	30	82	112	2,481.379	2,481.38	RIM	2,369.379	2,399.379	2,369.379	ARCH	Sandy clay and silt 102-106.5', saturated/trace free product at 105.8'; sandy silty clay, moist 106.5-110'; sandy silty clay, very hard, caliche cementation 110-114'. SWL 106' at completion November 1997.	SZ semi bounded in sandy silty clay. Log notes damp to moist, hard to very hard at TD. No hydrocarbon odor 110-114'. PID 14 ppmv at TD.

NOTES:
Combined/Deep = Shallow zone screens are believed to be in communication with deep hydraulic zone
SZ = Shallow Perched Groundwater Zone
DZ = Deep Perched Groundwater Zone
SWL = Static Water Level
TD = Total Depth
PID = Photo-Ionization Detector
WL = Water Level
HC = Hydrocarbon
ft-bgs = feet below groundsurface
Bounded or Semi bounded = General term given to apparent hydraulic zone boundaries based on litholigic log descriptions.
Unbounded = Litholigic logs indicate more permeable sediments near lower the hydraulic zone boundary.
(1) = Annual Remediation Status and Groundwater Monitoring Report September 2008 trhough August 2009, Thomas O. Price Service Center, Tucson, AZ; Clear Creek Associates; February 2010
Nested Well

TABLE 3
VAPOR MONITORING WELL DATA
Price Service Center
4004 South Park Avenue
Tucson, Arizona
(Page 1 of 1)

Date	Time	Well	Horizontal Dist. From AS (ft)	Vertical Dist. From AS (ft between screen intervals)	VOCs (ppm)	Notes
8/13/2013	11:55	PCM-510A*	0.5	62	0.0	pre-AS test
8/13/2013	12:10	PCM-509A*	0.5	62	0.0	pre-AS test
8/13/2013	14:30	PCM-510A*	0.5	62	0.0	during AS
8/13/2013	14:35	PCM-509A*	0.5	62	0.0	during AS
8/14/2013	9:30	PCM-510A*	0.5	62	0.0	during AS
8/14/2013	9:35	PCM-509A*	0.5	62	51	during AS
8/14/2013	11:00	PCM-510B	0.5	9	2,774	immediately after AS completion
8/14/2013	11:00	PCM-509B	0.5	9	13.5	immediately after AS completion

Notes:

--- = Not determined/not applicable/not available

Dist. = Distance

VOCs = Volatile organic compounds, measured by PID

* = Nested vapor monitoring well