



06/28/12

## Technical Report for

**XTO Energy**

**FRU 297-8B**

**1106-06**

**Accutest Job Number: D35709**

**Sampling Date: 06/20/12**

### Report to:

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ATTN: Dwayne Knudson**

**Total number of pages in report: 69**



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.

  
**Brad Madadian**  
**Laboratory Director**

**Client Service contact: Renea Jackson 303-425-6021**

Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP CO00049), TX (T104704511-12-1)

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Test results relate only to samples analyzed.

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Sample Summary

XTO Energy

Job No: D35709

FRU 297-8B

Project No: 1106-06

Sample Number	Collected		Matrix Code	Type	Client Sample ID
	Date	Time By			
D35709-1	06/20/12	11:30 DS	06/21/12	SO Soil	CUT 1 MB DAY 6 (6/18)

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



## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** XTO Energy

**Job No** D35709

**Site:** FRU 297-8B

**Report Date** 6/28/2012 8:48:16 AM

On 06/21/2012, 1 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4.0 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D35709 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

### Volatiles by GCMS By Method SW846 8260B

**Matrix** SO

**Batch ID:** V5V1355

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35708-1MS, D35708-1MSD were used as the QC samples indicated.

### Volatiles by GC By Method SW846 8015B

**Matrix** SO

**Batch ID:** GGB910

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35708-1MS, D35708-1MSD were used as the QC samples indicated.

### Extractables by GC By Method SW846-8015B

**Matrix** SO

**Batch ID:** OP6112

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D35708-1MS, D35708-1MSD were used as the QC samples indicated.

### Wet Chemistry By Method SM19 2540B M

**Matrix** SO

**Batch ID:** GN15536

- The data for SM19 2540B M meets quality control requirements.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

## Sample Results

## Report of Analysis

Accutest Laboratories

## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	CUT 1 MB DAY 6 (6/18)	
<b>Lab Sample ID:</b>	D35709-1	<b>Date Sampled:</b> 06/20/12
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b> 06/21/12
<b>Method:</b>	SW846 8260B	<b>Percent Solids:</b> 89.2
<b>Project:</b>	FRU 297-8B	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	5V22143.D	1	06/25/12	BD	n/a	n/a	V5V1355
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.05 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0247	0.062	0.023	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
2037-26-5	Toluene-D8	87%		61-130%
460-00-4	4-Bromofluorobenzene	93%		53-131%
17060-07-0	1,2-Dichloroethane-D4	96%		62-130%

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

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## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	CUT 1 MB DAY 6 (6/18)	
<b>Lab Sample ID:</b>	D35709-1	<b>Date Sampled:</b> 06/20/12
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b> 06/21/12
<b>Method:</b>	SW846 8015B	<b>Percent Solids:</b> 89.2
<b>Project:</b>	FRU 297-8B	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GB16419.D	1	06/21/12	SK	n/a	n/a	GGB910
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	9.05	12	6.2	mg/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	95%		60-140%

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

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## Report of Analysis

Page 1 of 1

<b>Client Sample ID:</b>	CUT 1 MB DAY 6 (6/18)	
<b>Lab Sample ID:</b>	D35709-1	<b>Date Sampled:</b> 06/20/12
<b>Matrix:</b>	SO - Soil	<b>Date Received:</b> 06/21/12
<b>Method:</b>	SW846-8015B SW846 3546	<b>Percent Solids:</b> 89.2
<b>Project:</b>	FRU 297-8B	

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD14718.D	1	06/23/12	AW	06/22/12	OP6112	GFD764
Run #2							

	Initial Weight	Final Volume
Run #1	30.1 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	124	15	9.7	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	73%		43-136%		

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



## Misc. Forms

### Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody



## Accutest Laboratories Sample Receipt Summary

**Accutest Job Number:** D35709

**Client:** KRW

**Immediate Client Services Action Required:** No

**Date / Time Received:** 6/21/2012 10:20:00 AM

**No. Coolers:** 1

**Client Service Action Required at Login:** No

**Project:** XTO

**Airbill #'s:** CO

**Cooler Security**
**Y or N**
**Y or N**

- |  |  |
|--|--|
| 1. Custody Seals Present: <input checked="" type="checkbox"/> <input type="checkbox"/> | 3. COC Present: <input checked="" type="checkbox"/> <input type="checkbox"/>       |
| 2. Custody Seals Intact: <input checked="" type="checkbox"/> <input type="checkbox"/>  | 4. Smpl Dates/Time OK <input checked="" type="checkbox"/> <input type="checkbox"/> |

**Cooler Temperature**
**Y or N**

- |   |              |
|---|--------------|
| 1. Temp criteria achieved: <input checked="" type="checkbox"/> <input type="checkbox"/> |              |
| 2. Cooler temp verification:  | Infrared gun |
| 3. Cooler media:  | Ice (bag)    |

**Quality Control Preservation**
**Y or N**
**N/A**

- |                                 |                                     |                          |                                     |
|---------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/>            | <input type="checkbox"/> |                                     |
| 2. Trip Blank listed on COC:    | <input type="checkbox"/>            | <input type="checkbox"/> |                                     |
| 3. Samples preserved properly:  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                                     |
| 4. VOCs headspace free:         | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

**Sample Integrity - Documentation**
**Y or N**

- |  |                                     |                          |  |
|--|-------------------------------------|--------------------------|--|
| 1. Sample labels present on bottles:   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |
| 2. Container labeling complete:        | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |  |

**Sample Integrity - Condition**
**Y or N**

- |                                  |                                     |                          |        |
|----------------------------------|-------------------------------------|--------------------------|--------|
| 1. Sample recvd within HT:       | <input checked="" type="checkbox"/> | <input type="checkbox"/> |        |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |        |
| 3. Condition of sample:          |                                     |                          | Intact |

**Sample Integrity - Instructions**
**Y or N N/A**

- |   |                                     |                                     |                                     |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear:           | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 2. Bottles received for unspecified tests | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                                     |
| 3. Sufficient volume rec'd for analysis:  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                     |
| 4. Compositing instructions clear:        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear:          | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |

Comments

 Accutest Laboratories  
 V: (303) 425-6021

 4036 Youngfield Street  
 F: (303) 425-6854

 Wheat Ridge, CO  
 www.accutest.com

## GC/MS Volatiles

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### QC Data Summaries

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Includes the following where applicable:

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

**Method Blank Summary**

Page 1 of 1

**Job Number:** D35709  
**Account:** XTOKRWR XTO Energy  
**Project:** FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1355-MB	5V22134.D	1	06/25/12	BD	n/a	n/a	V5V1355

The QC reported here applies to the following samples:

Method: SW846 8260B

D35709-1

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	50	19	ug/kg	

CAS No.	Surrogate Recoveries	Limits
2037-26-5	Toluene-D8	88% 61-130%
460-00-4	4-Bromofluorobenzene	88% 53-131%
17060-07-0	1,2-Dichloroethane-D4	110% 62-130%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D35709  
**Account:** XTOKRWR XTO Energy  
**Project:** FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
V5V1355-BS	5V22135.D	1	06/25/12	BD	n/a	n/a	V5V1355

The QC reported here applies to the following samples:

Method: SW846 8260B

D35709-1

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	49.0	98	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Toluene-D8	83%	61-130%
460-00-4	4-Bromofluorobenzene	93%	53-131%
17060-07-0	1,2-Dichloroethane-D4	98%	62-130%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D35709  
**Account:** XTOKRWR XTO Energy  
**Project:** FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D35708-1MS	5V22137.D	1	06/25/12	BD	n/a	n/a	V5V1355
D35708-1MSD	5V22138.D	1	06/25/12	BD	n/a	n/a	V5V1355
D35708-1	5V22136.D	1	06/25/12	BD	n/a	n/a	V5V1355

The QC reported here applies to the following samples:

Method: SW846 8260B

D35709-1

CAS No.	Compound	D35708-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	22.0	J	2750	2880	104	2870	104	0	70-134/30

CAS No.	Surrogate Recoveries	MS	MSD	D35708-1	Limits
2037-26-5	Toluene-D8	88%	85%	95%	61-130%
460-00-4	4-Bromofluorobenzene	108%	103%	103%	53-131%
17060-07-0	1,2-Dichloroethane-D4	107%	96%	114%	62-130%

\* = Outside of Control Limits.

GC/MS Volatiles

Raw Data





## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5062512.S\  
 Data File : 5V22143.D  
 Acq On : 25 Jun 2012 5:32 pm  
 Operator : BRETD  
 Sample : D35709-1, X50  
 Misc : MS4172,V5V1355,5.049,,100,5,1  
 ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 26 08:53:59 2012  
 Quant Method : C:\msdchem\1\METHODS\V5AP1304TVH1304.M  
 Quant Title : 8260  
 QLast Update : Thu May 24 07:55:17 2012  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	195638	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	302738	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	396077	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	281318	50.00	ug/l	0.00

## System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.035	102	28721	47.78	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	95.56%
61) Toluene-d8	13.850	98	585175	43.71	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	87.42%
69) 4-Bromofluorobenzene	16.043	95	254195	46.36	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	92.72%

## Target Compounds

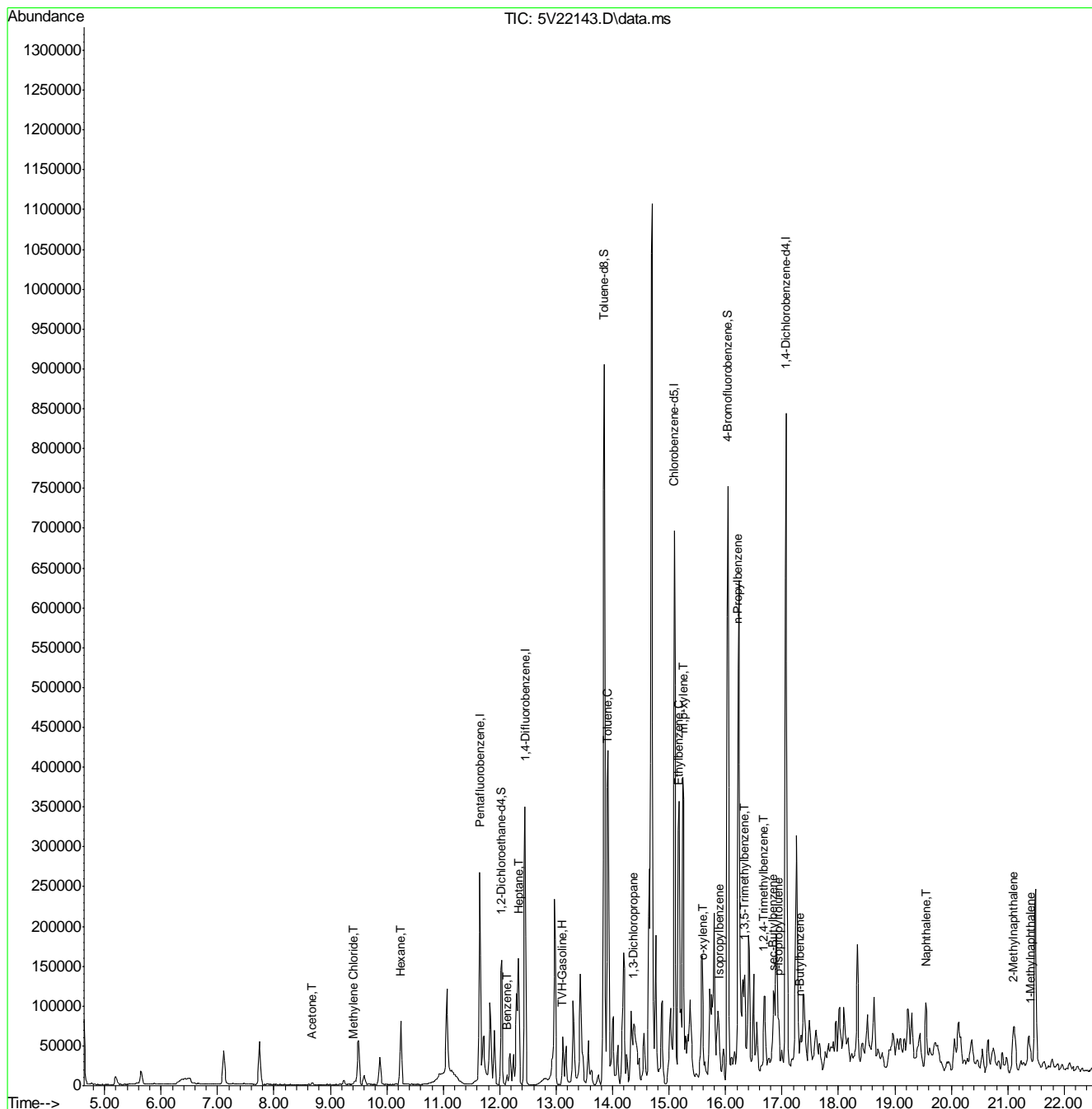
					Qvalue
1) TVH-Gasoline	13.102	TIC	15097304m	754.39	ug/l
15) Acetone	8.679	58	1036	1.46	ug/l
17) Methylene Chloride	9.409	84	1582	0.48	ug/l #
41) Hexane	10.243	57	44313	10.57	ug/l
43) Heptane	12.332	43	59291	13.22	ug/l
50) Benzene	12.127	78	5044	0.40	ug/l
55) 1,3-Dichloropropane	14.376	76	2414	0.51	ug/l #
62) Toluene	13.908	92	116497	11.31	ug/l
66) Ethylbenzene	15.163	91	73092	3.83	ug/l
68) Isopropylbenzene	15.883	105	4002	0.21	ug/l #
72) m,p-xylene	15.243	106	121618	15.94	ug/l
73) o-xylene	15.597	106	10853	1.47	ug/l
77) n-Propylbenzene	16.225	91	27038	1.07	ug/l
80) 1,3,5-Trimethylbenzene	16.328	105	6274m	0.35	ug/l
82) 1,2,4-Trimethylbenzene	16.682	105	34463	1.90	ug/l
83) sec-Butylbenzene	16.842	105	2531	0.10	ug/l #
86) p-Isopropyltoluene	16.944	119	29714	1.46	ug/l #
88) n-Butylbenzene	17.321	91	15353	0.81	ug/l #
91) Naphthalene	19.559	128	22842	2.16	ug/l
94) 2-Methylnaphthalene	21.100	142	35043	7.27	ug/l
95) 1-Methylnaphthalene	21.397	142	12935	3.40	ug/l

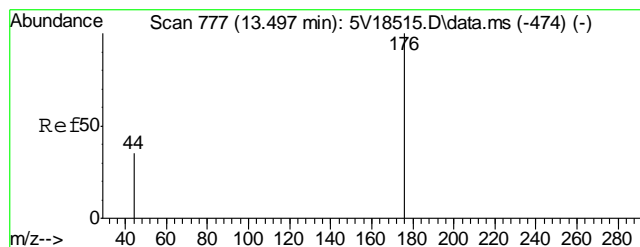
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5062512.S\  
Data File : 5V22143.D  
Acq On : 25 Jun 2012 5:32 pm  
Operator : BRETD  
Sample : D35709-1, X50  
Misc : MS4172,V5V1355,5.049,,100,5,1  
ALS Vial : 12 Sample Multiplier: 1

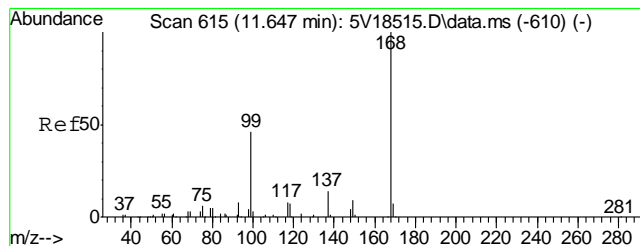
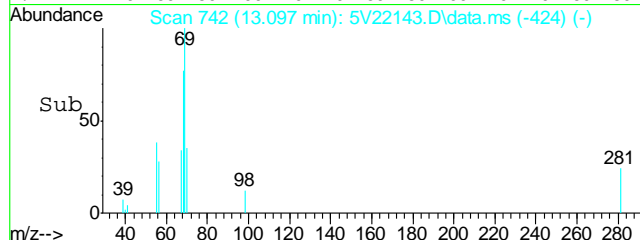
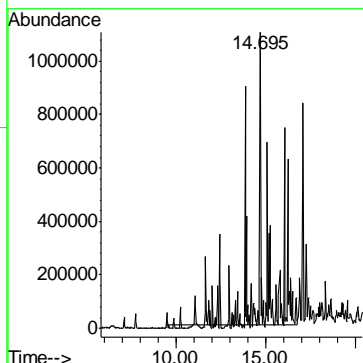
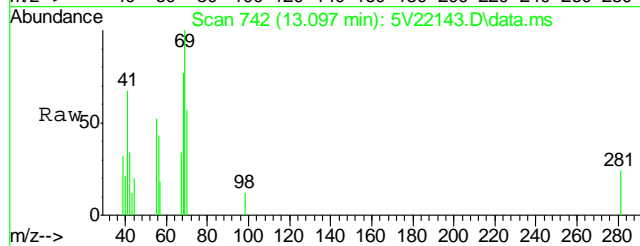
Quant Time: Jun 26 08:53:59 2012  
Quant Method : C:\msdchem\1\METHODS\V5AP1304TVH1304.M  
Quant Title : 8260  
QLast Update : Thu May 24 07:55:17 2012  
Response via : Initial Calibration





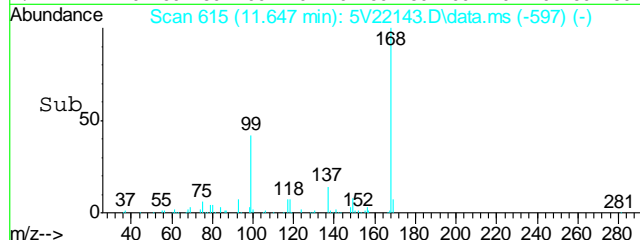
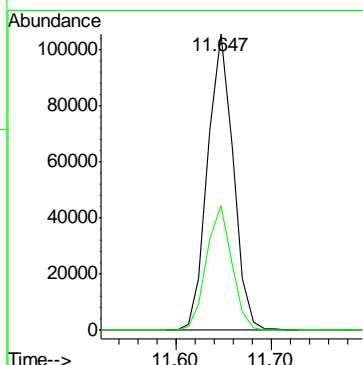
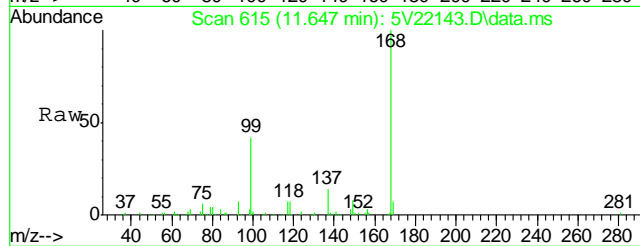
#1  
TVH-Gasoline  
Concen: 754.39 ug/l m  
RT: 13.102 min Scan# 742  
Delta R.T. 0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

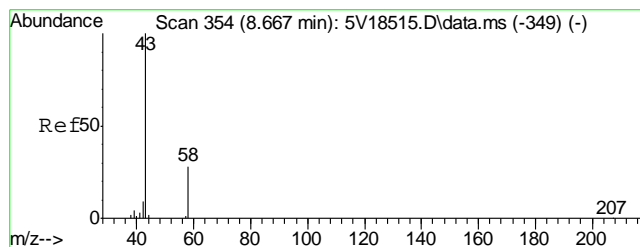
Tgt Ion:TIC Resp:15097304



#2  
Pentafluorobenzene  
Concen: 50.00 ug/l  
RT: 11.647 min Scan# 615  
Delta R.T. -0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

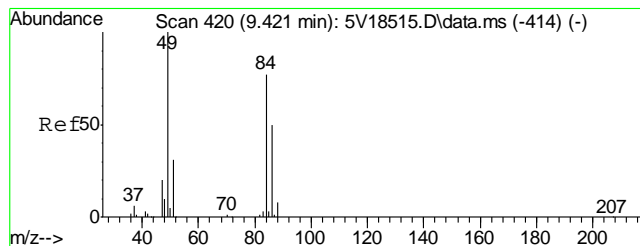
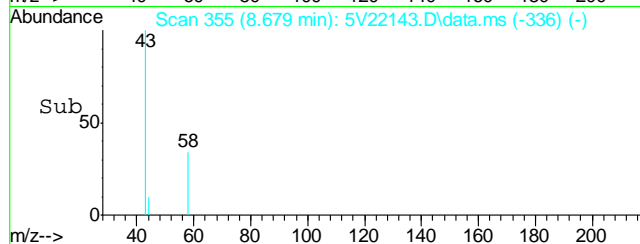
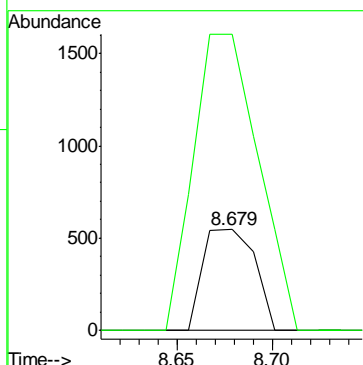
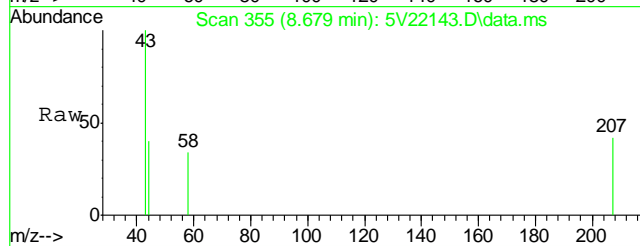
Tgt Ion:168 Resp: 195638  
Ion Ratio Lower Upper  
168 100  
99 41.5 37.4 56.2





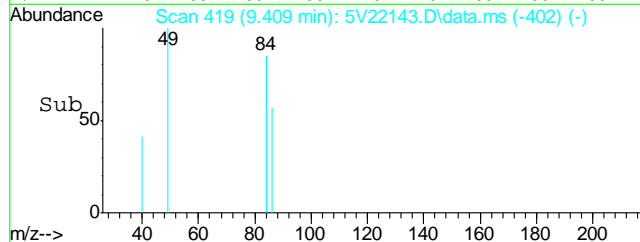
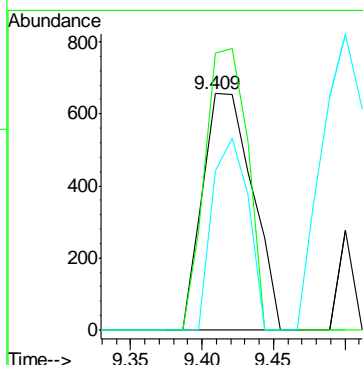
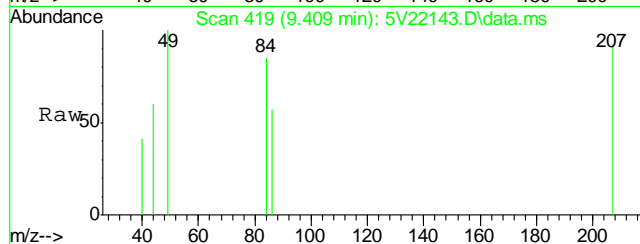
#15  
Acetone  
Concen: 1.46 ug/l  
RT: 8.679 min Scan# 355  
Delta R.T. 0.012 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

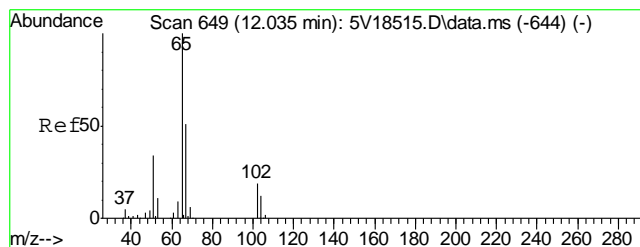
Tgt Ion: 58 Resp: 1036  
Ion Ratio Lower Upper  
58 100  
43 367.1 353.6 393.6



#17  
Methylene Chloride  
Concen: 0.48 ug/l  
RT: 9.409 min Scan# 419  
Delta R.T. -0.011 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

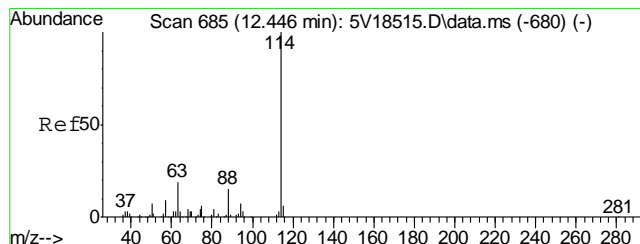
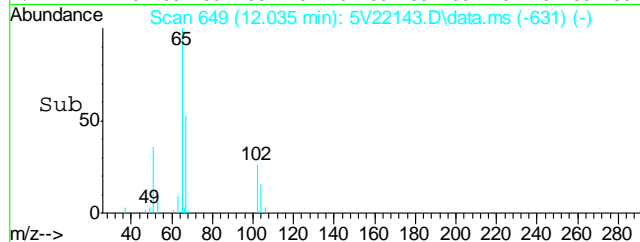
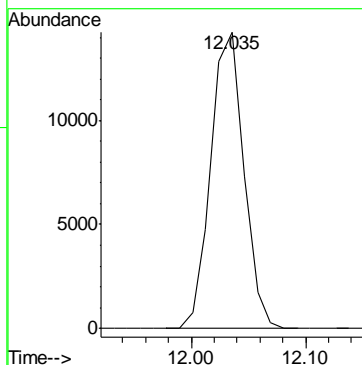
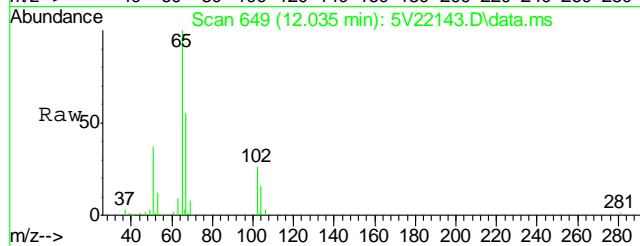
Tgt Ion: 84 Resp: 1582  
Ion Ratio Lower Upper  
84 100  
49 101.8 110.4 150.4#  
86 58.3 44.0 84.0





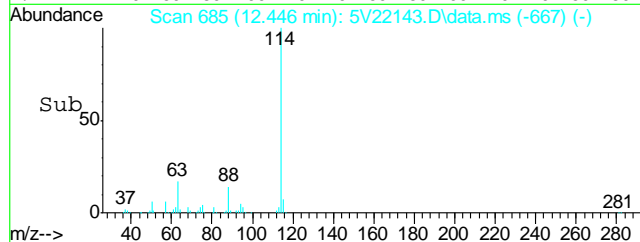
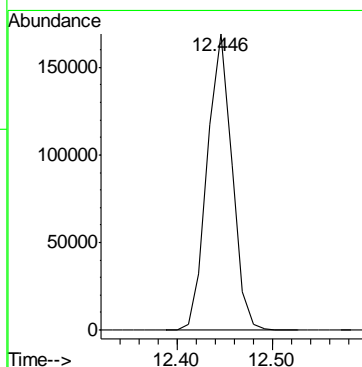
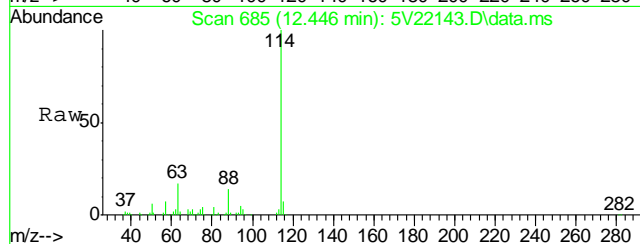
#33  
1,2-Dichloroethane-d4  
Concen: 47.78 ug/l  
RT: 12.035 min Scan# 649  
Delta R.T. 0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

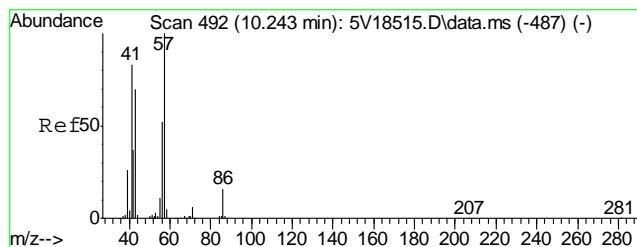
Tgt Ion:102 Resp: 28721



#35  
1,4-Difluorobenzene  
Concen: 50.00 ug/l  
RT: 12.446 min Scan# 685  
Delta R.T. -0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

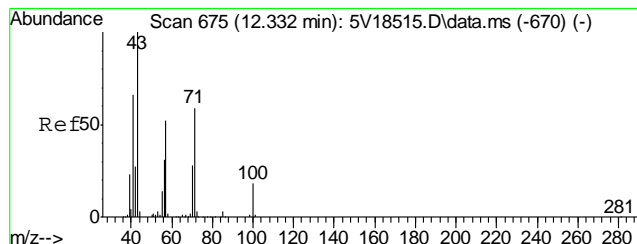
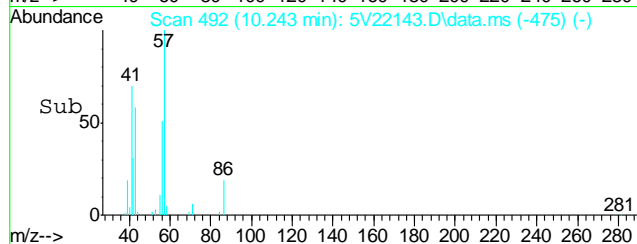
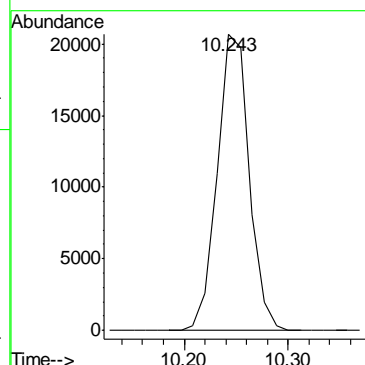
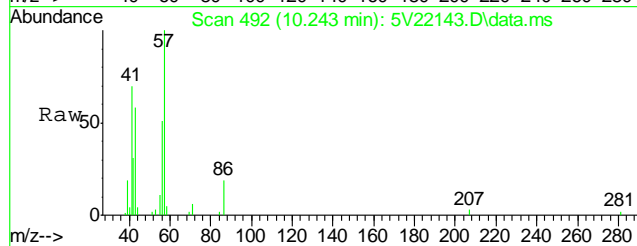
Tgt Ion:114 Resp: 302738





#41  
Hexane  
Concen: 10.57 ug/l  
RT: 10.243 min Scan# 492  
Delta R.T. -0.011 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

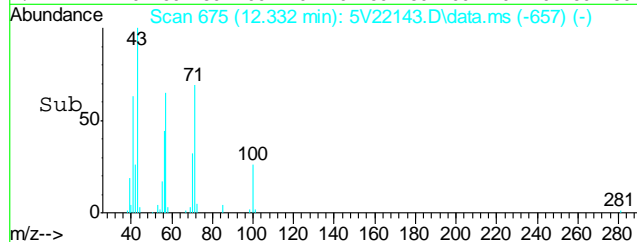
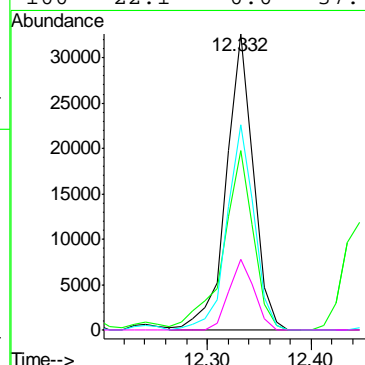
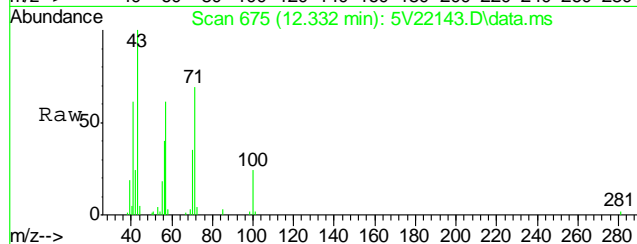
Tgt Ion: 57 Resp: 44313

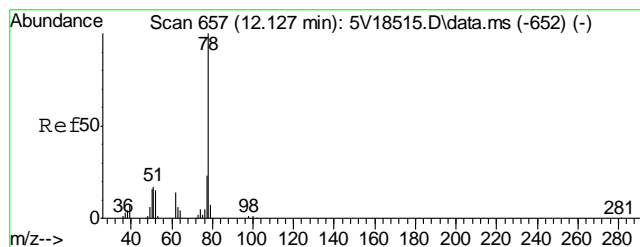


#43  
Heptane  
Concen: 13.22 ug/l  
RT: 12.332 min Scan# 675  
Delta R.T. -0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

Tgt Ion: 43 Resp: 59291

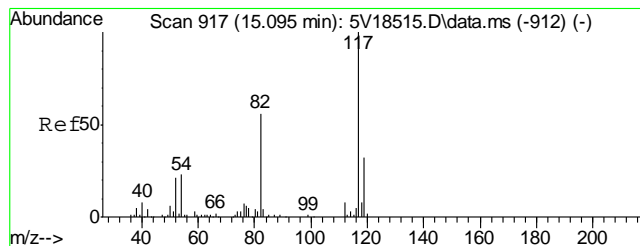
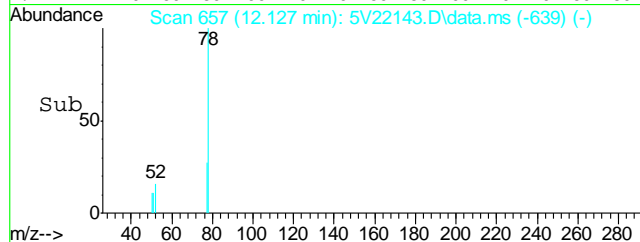
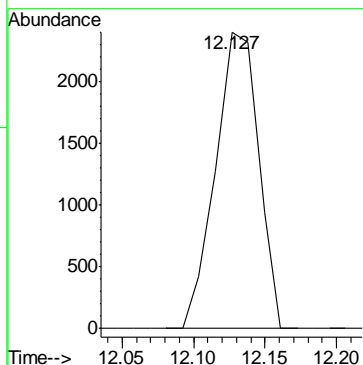
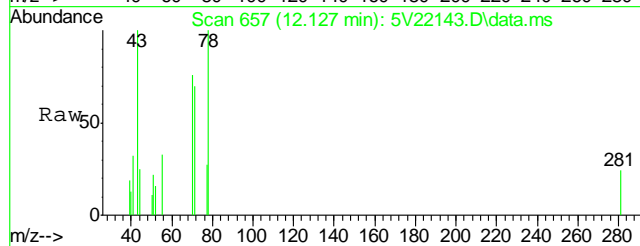
Ion	Ratio	Lower	Upper
43	100		
57	67.0	30.6	70.6
71	69.7	38.9	78.9
100	22.1	0.0	37.4





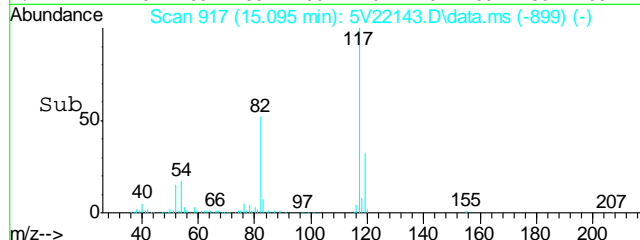
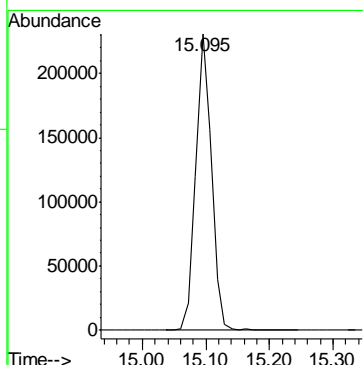
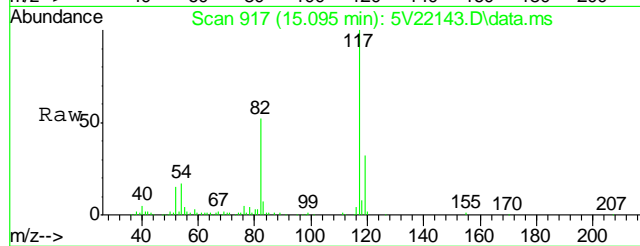
#50  
Benzene  
Concen: 0.40 ug/l  
RT: 12.127 min Scan# 657  
Delta R.T. -0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

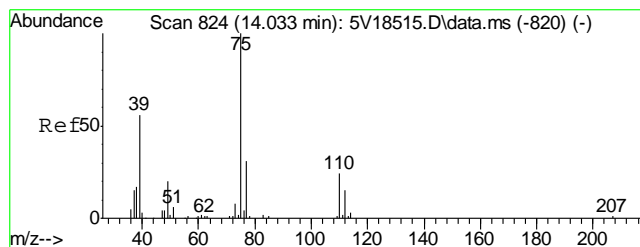
Tgt Ion: 78 Resp: 5044



#53  
Chlorobenzene-d5  
Concen: 50.00 ug/l  
RT: 15.095 min Scan# 917  
Delta R.T. -0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

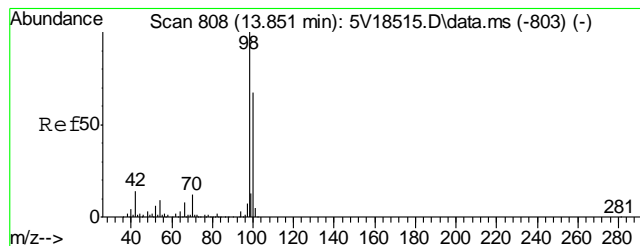
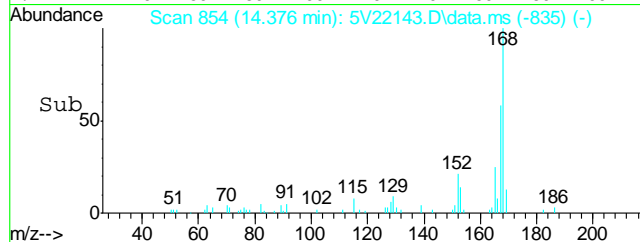
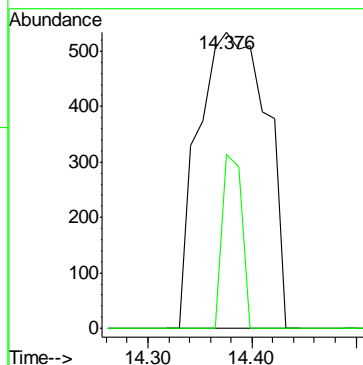
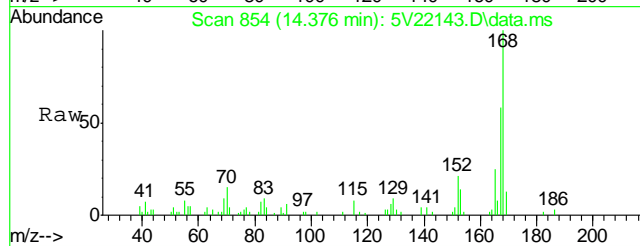
Tgt Ion: 117 Resp: 396077





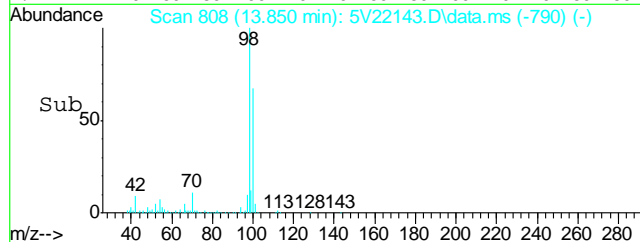
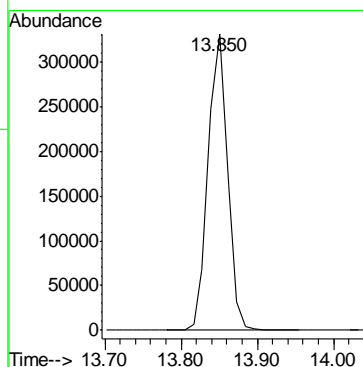
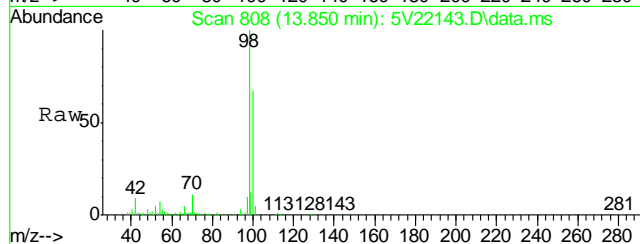
#55  
1,3-Dichloropropane  
Concen: 0.51 ug/l  
RT: 14.376 min Scan# 854  
Delta R.T. 0.011 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

Tgt Ion: 76 Resp: 2414  
Ion Ratio Lower Upper  
76 100  
78 17.2 20.6 31.0#

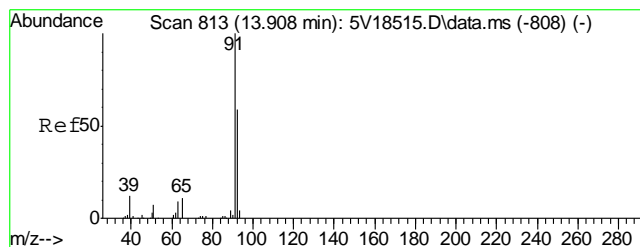


#61  
Toluene-d8  
Concen: 43.71 ug/l  
RT: 13.850 min Scan# 808  
Delta R.T. -0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

Tgt Ion: 98 Resp: 585175

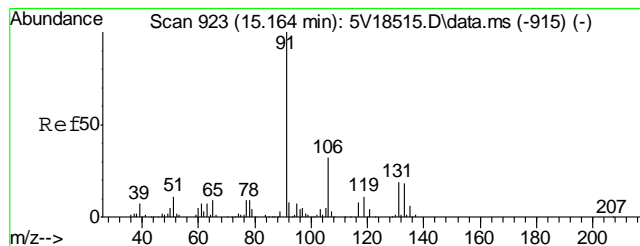
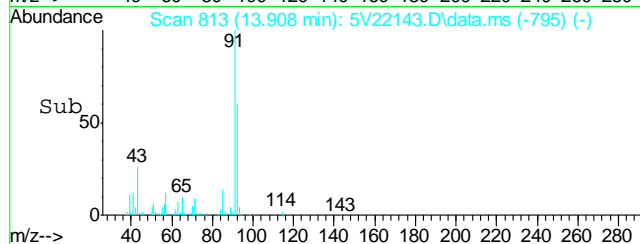
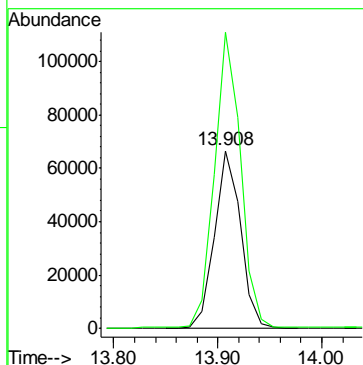
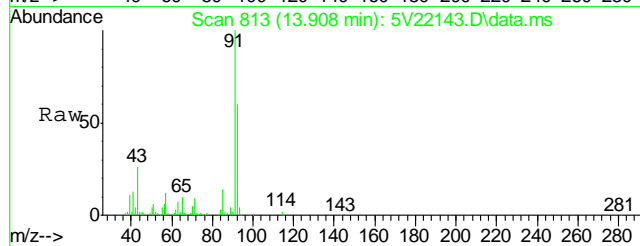






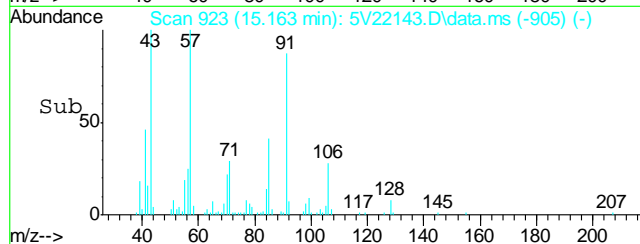
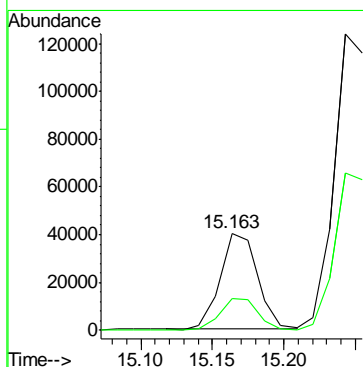
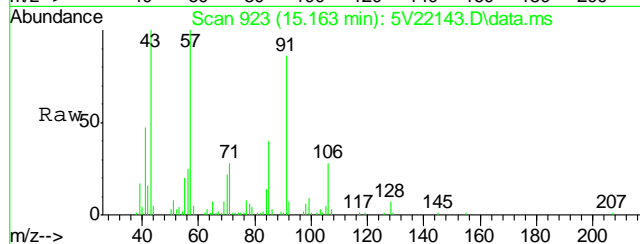
#62  
Toluene  
Concen: 11.31 ug/l  
RT: 13.908 min Scan# 813  
Delta R.T. -0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

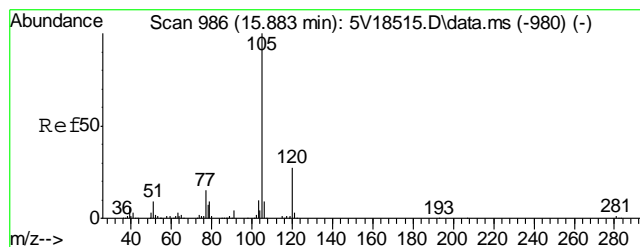
Tgt Ion	Ratio	Lower	Upper
92	100		
91	170.3	149.8	189.8



#66  
Ethylbenzene  
Concen: 3.83 ug/l  
RT: 15.163 min Scan# 923  
Delta R.T. -0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

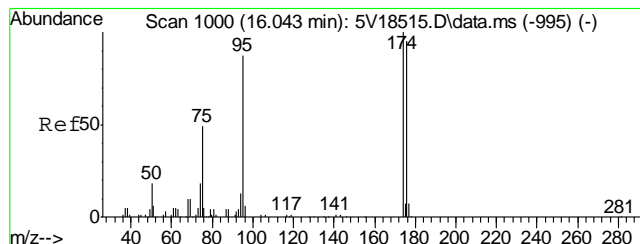
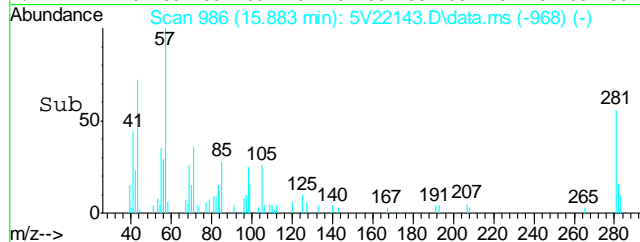
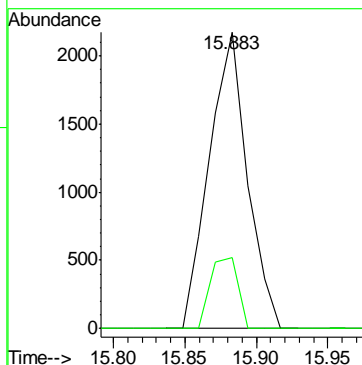
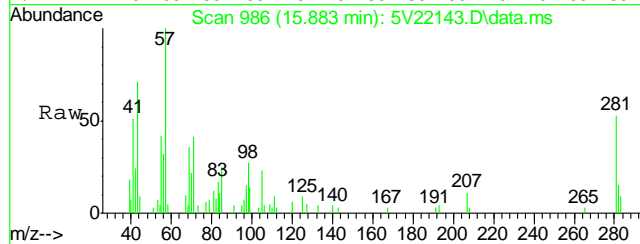
Tgt Ion	Ratio	Lower	Upper
91	100		
106	33.4	11.7	51.7





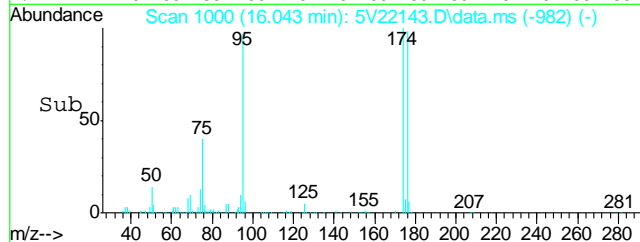
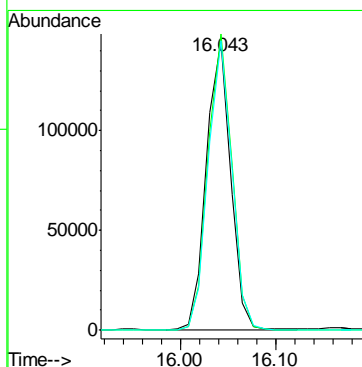
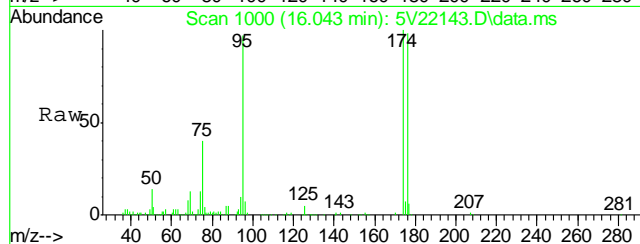
#68  
Isopropylbenzene  
Concen: 0.21 ug/l  
RT: 15.883 min Scan# 986  
Delta R.T. -0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

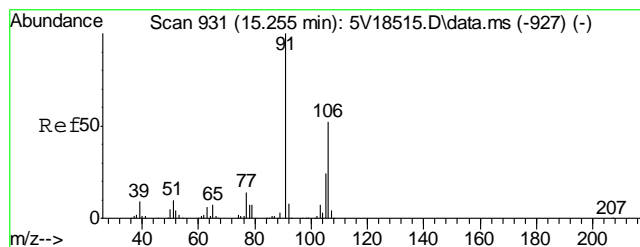
Tgt Ion	Ratio	Lower	Upper
105	100		
120	17.2	21.0	31.4#



#69  
4-Bromofluorobenzene  
Concen: 46.36 ug/l  
RT: 16.043 min Scan# 1000  
Delta R.T. -0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

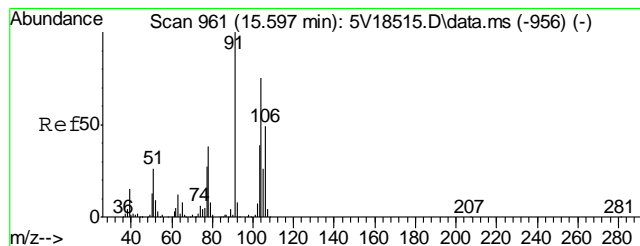
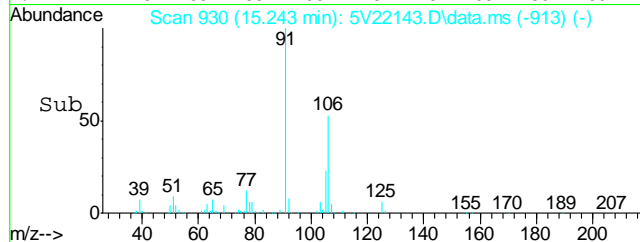
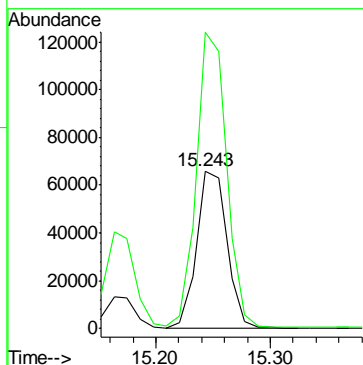
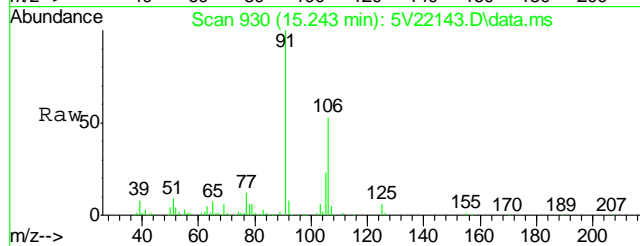
Tgt Ion	Ratio	Lower	Upper
95	100		
174	100.8	77.1	117.1
176	97.8	73.4	113.4





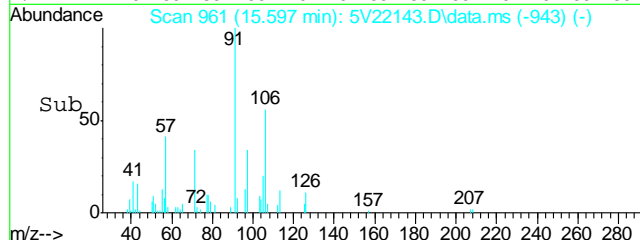
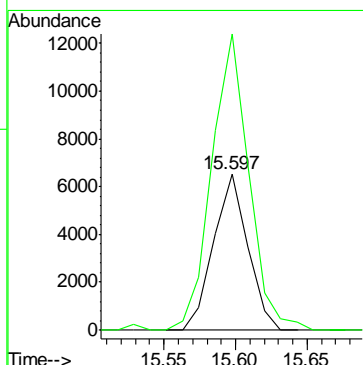
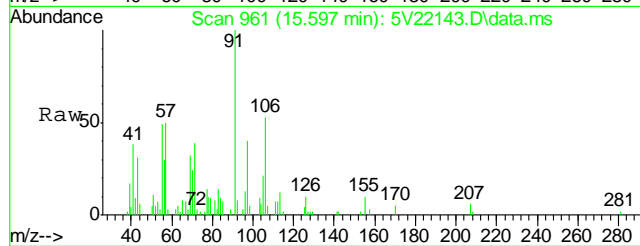
#72  
m,p-xylene  
Concen: 15.94 ug/l  
RT: 15.243 min Scan# 930  
Delta R.T. -0.011 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

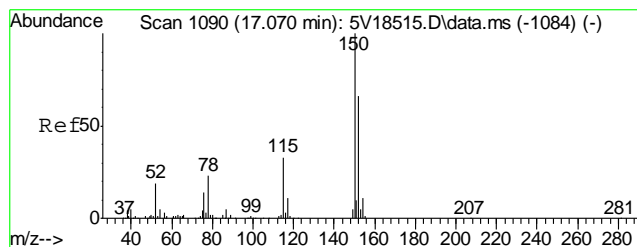
Tgt Ion	Ratio	Lower	Upper
106	100		
91	185.8	177.1	217.1



#73  
o-xylene  
Concen: 1.47 ug/l  
RT: 15.597 min Scan# 961  
Delta R.T. -0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

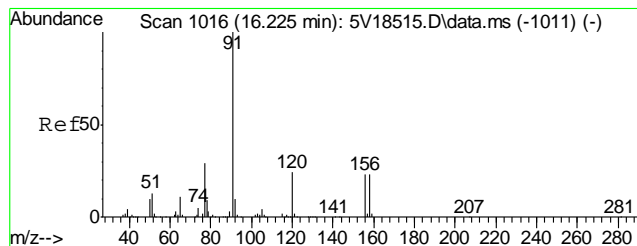
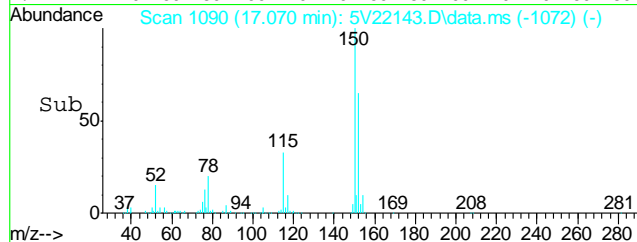
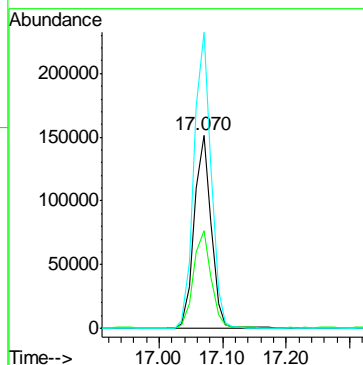
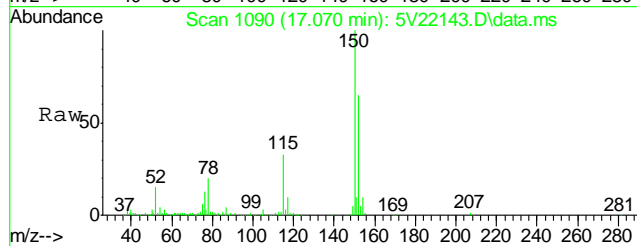
Tgt Ion	Ratio	Lower	Upper
106	100		
91	205.7	166.6	249.8





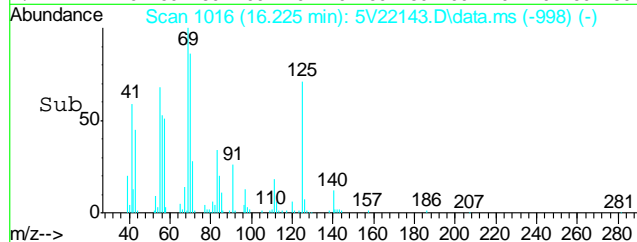
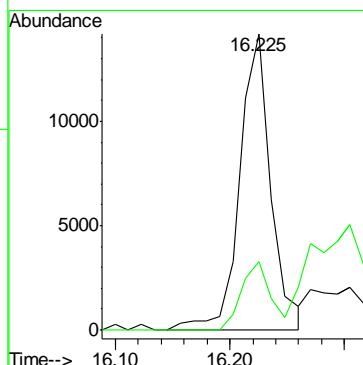
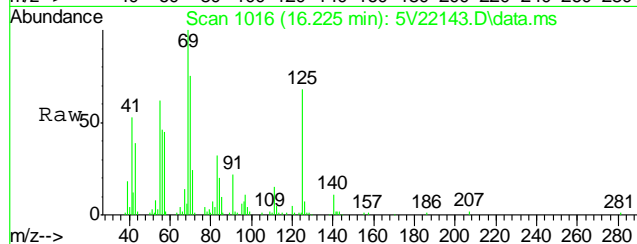
#74  
1,4-Dichlorobenzene-d4  
Concen: 50.00 ug/l  
RT: 17.070 min Scan# 1090  
Delta R.T. -0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

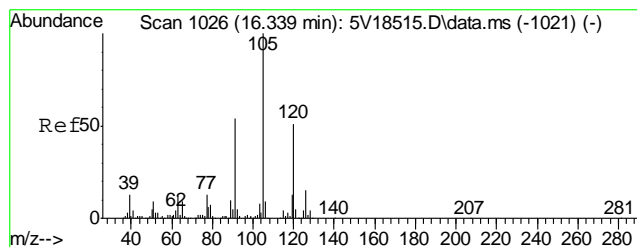
Tgt Ion	Ratio	Lower	Upper
152	100		
115	52.4	41.4	62.0
150	153.7	153.9	230.9#



#77  
n-Propylbenzene  
Concen: 1.07 ug/l  
RT: 16.225 min Scan# 1016  
Delta R.T. -0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

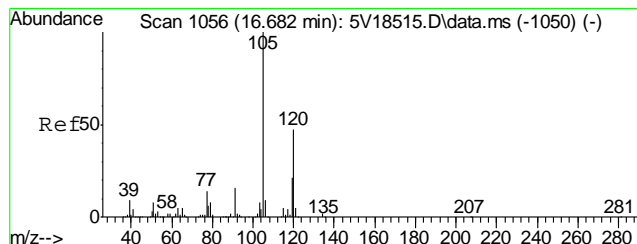
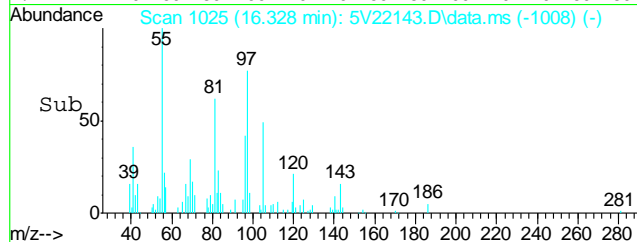
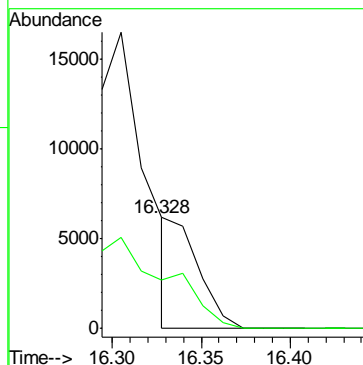
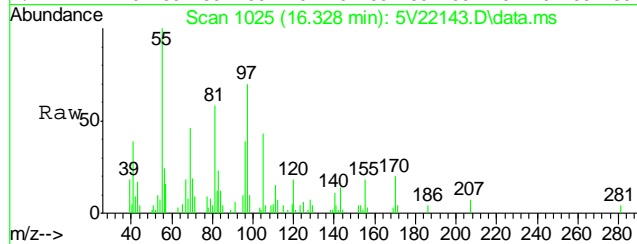
Tgt Ion	Ratio	Lower	Upper
91	100		
120	21.7	18.6	27.8





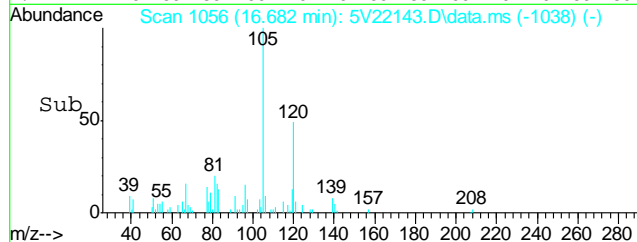
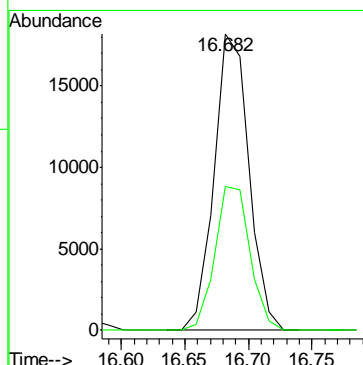
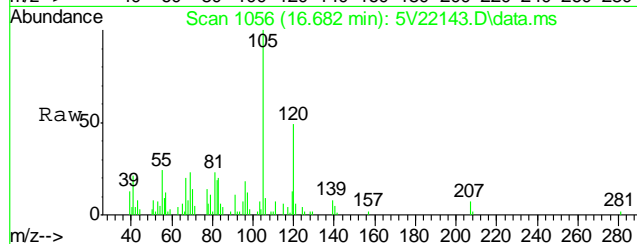
#80  
1,3,5-Trimethylbenzene  
Concen: 0.35 ug/l m  
RT: 16.328 min Scan# 1025  
Delta R.T. -0.011 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

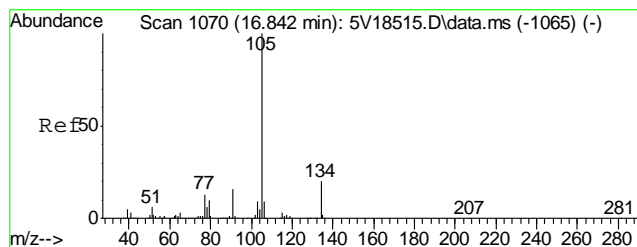
Tgt Ion:105 Resp: 6274  
Ion Ratio Lower Upper  
105 100  
120 324.9 40.1 60.1#



#82  
1,2,4-Trimethylbenzene  
Concen: 1.90 ug/l  
RT: 16.682 min Scan# 1056  
Delta R.T. -0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

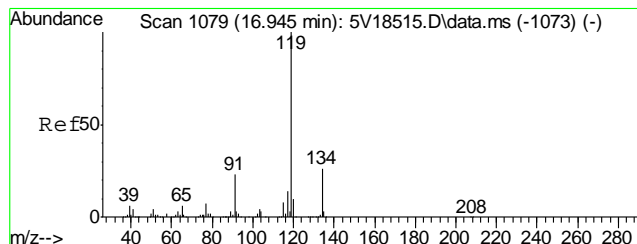
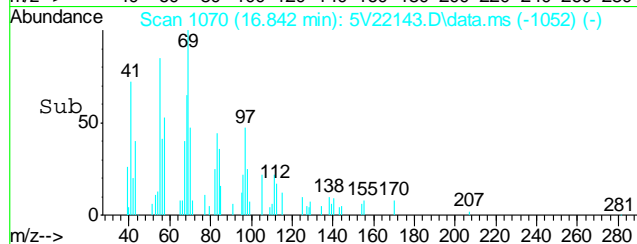
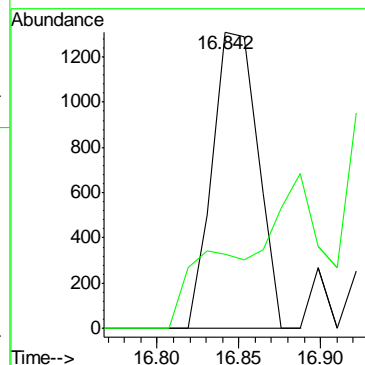
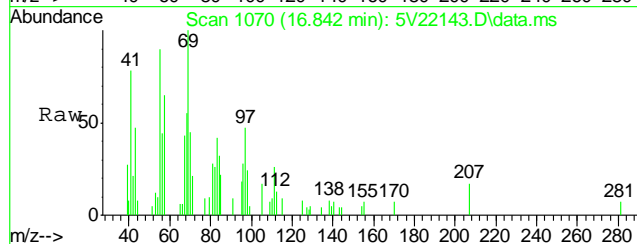
Tgt Ion:105 Resp: 34463  
Ion Ratio Lower Upper  
105 100  
120 48.8 43.8 65.8





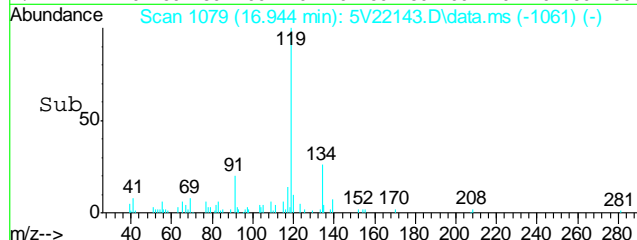
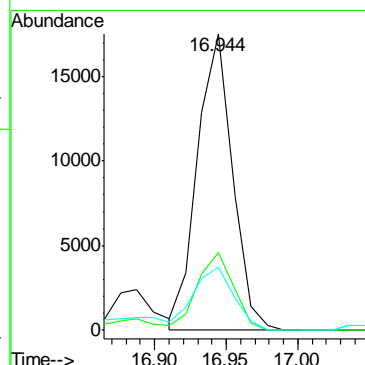
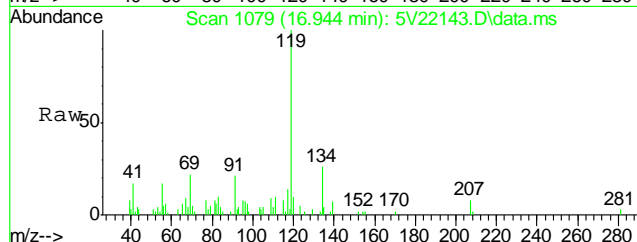
#83  
sec-Butylbenzene  
Concen: 0.10 ug/l  
RT: 16.842 min Scan# 1070  
Delta R.T. -0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

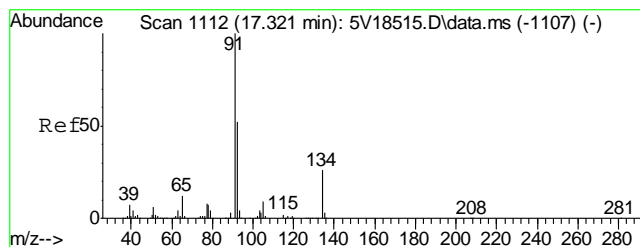
Tgt Ion:	105	Resp:	2531
Ion Ratio	Lower	Upper	
105	100		
134	92.9	16.5	24.7#



#86  
p-Isopropyltoluene  
Concen: 1.46 ug/l  
RT: 16.944 min Scan# 1079  
Delta R.T. -0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

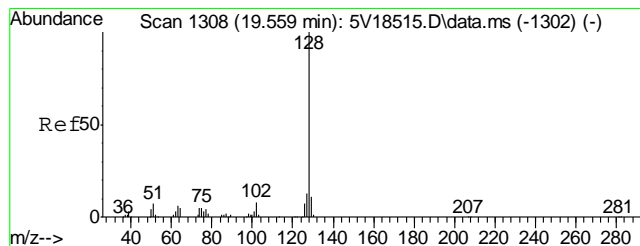
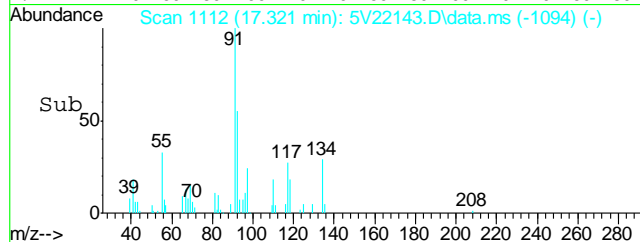
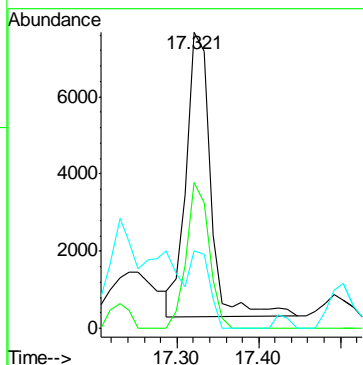
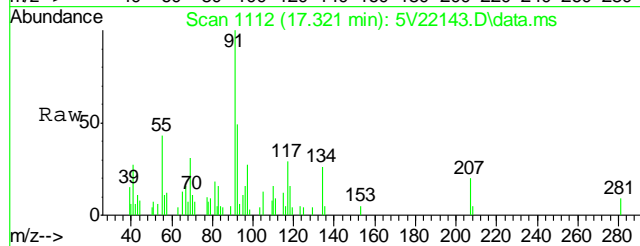
Tgt Ion:	119	Resp:	29714
Ion Ratio	Lower	Upper	
119	100		
134	26.8	21.3	31.9
91	30.0	19.0	28.6#





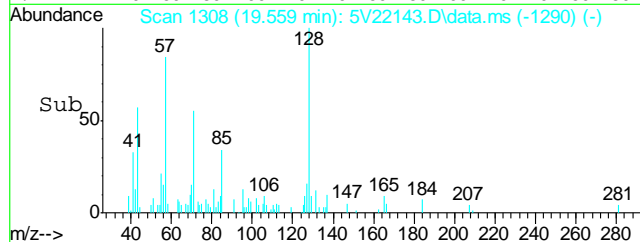
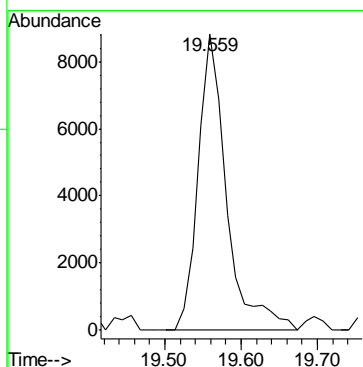
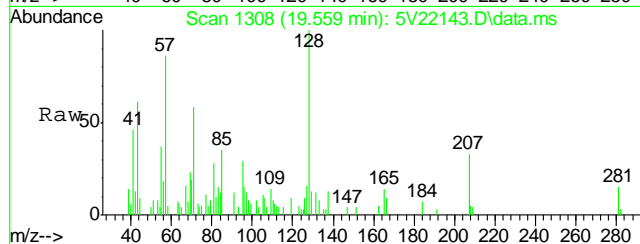
#88  
n-Butylbenzene  
Concen: 0.81 ug/l  
RT: 17.321 min Scan# 1112  
Delta R.T. -0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

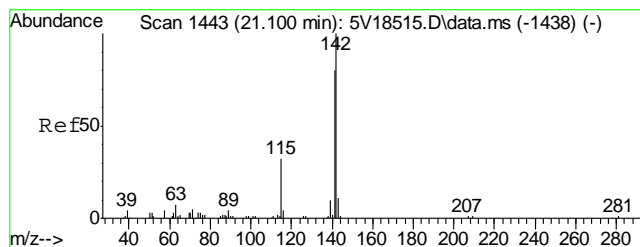
Tgt Ion	Ratio	Lower	Upper
91	100		
92	47.3	42.2	63.4
134	21.0	21.4	32.2#



#91  
Naphthalene  
Concen: 2.16 ug/l  
RT: 19.559 min Scan# 1308  
Delta R.T. 0.001 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

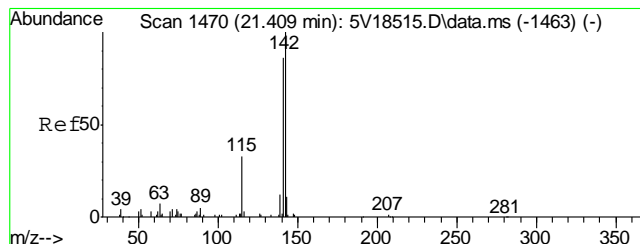
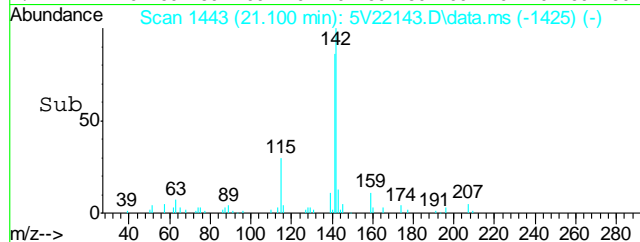
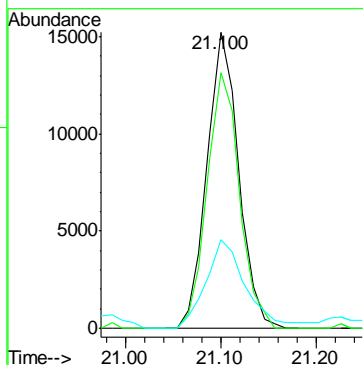
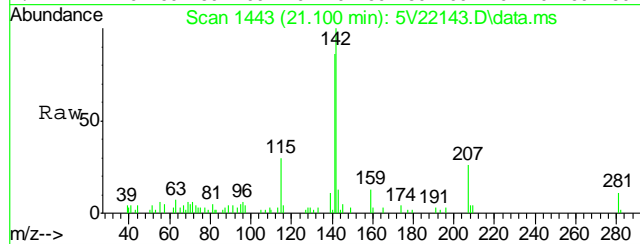
Tgt Ion: 128 Resp: 22842





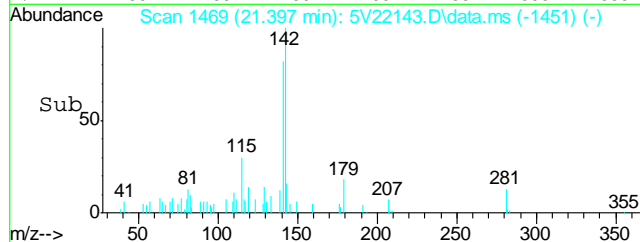
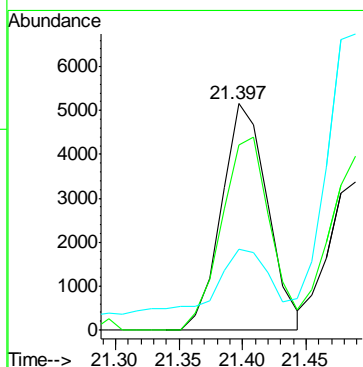
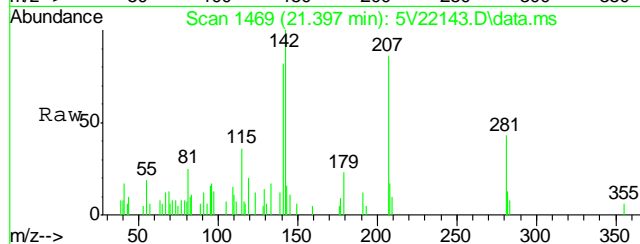
#94  
2-Methylnaphthalene  
Concen: 7.27 ug/l  
RT: 21.100 min Scan# 1443  
Delta R.T. 0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

Tgt Ion:	142	Resp:	35043
Ion Ratio	Lower	Upper	
142	100		
141	87.9	66.2	99.4
115	37.6	25.9	38.9



#95  
1-Methylnaphthalene  
Concen: 3.40 ug/l  
RT: 21.397 min Scan# 1469  
Delta R.T. 0.000 min  
Lab File: 5V22143.D  
Acq: 25 Jun 2012 5:32 pm

Tgt Ion:	142	Resp:	12935
Ion Ratio	Lower	Upper	
142	100		
141	90.6	68.9	103.3
115	36.1	27.3	40.9





## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5062512.S\  
Data File : 5V22134.D  
Acq On : 25 Jun 2012 12:48 pm  
Operator : BRETD  
Sample : MB  
Misc : MS4172,V5V1355,5.00,,100,5,1  
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jun 26 08:09:10 2012  
Quant Method : C:\msdchem\1\METHODS\V5AP1304TVH1304.M  
Quant Title : 8260  
QLast Update : Thu May 24 07:55:17 2012  
Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
2) Pentafluorobenzene	11.647	168	184781	50.00	ug/l	0.00
35) 1,4-Difluorobenzene	12.446	114	295222	50.00	ug/l	0.00
53) Chlorobenzene-d5	15.095	117	382975	50.00	ug/l	0.00
74) 1,4-Dichlorobenzene-d4	17.070	152	250095	50.00	ug/l	0.00

## System Monitoring Compounds

33) 1,2-Dichloroethane-d4	12.035	102	30897	54.76	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	109.52%
61) Toluene-d8	13.850	98	570641	44.09	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	88.18%
69) 4-Bromofluorobenzene	16.042	95	234606	44.25	ug/l	0.00
Spiked Amount	50.000	Range	70 - 130	Recovery	=	88.50%

## Target Compounds

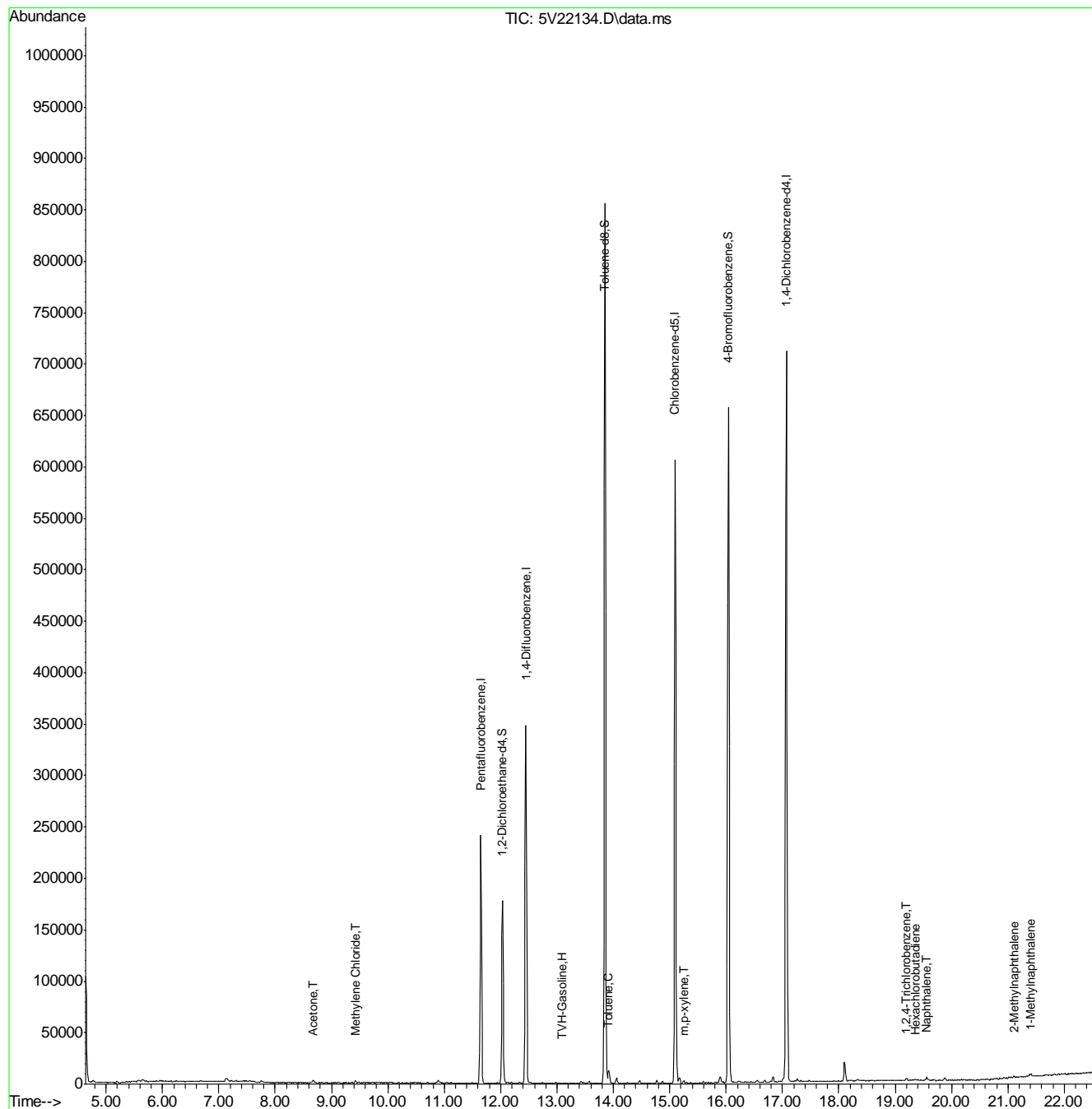
						Qvalue
1) TVH-Gasoline	13.102	TIC	3202m	1.56	ug/l	
15) Acetone	8.679	58	1372	2.86	ug/l #	78
17) Methylene Chloride	9.421	84	1205	0.39	ug/l #	79
62) Toluene	13.908	92	2752	0.28	ug/l	95
72) m,p-xylene	15.255	106	1050	0.14	ug/l	96
90) 1,2,4-Trichlorobenzene	19.194	180	1591	0.24	ug/l #	86
91) Naphthalene	19.559	128	4770	0.96	ug/l	100
92) Hexachlorobutadiene	19.353	225	489	0.10	ug/l #	19
94) 2-Methylnaphthalene	21.112	142	1809	1.69	ug/l #	89
95) 1-Methylnaphthalene	21.397	142	1948	1.57	ug/l	94

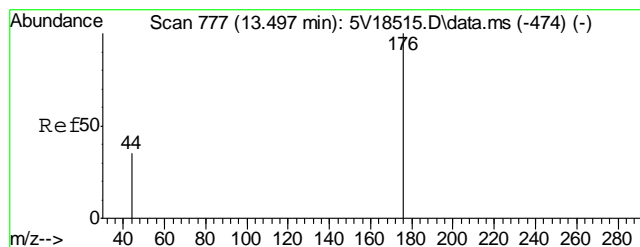
(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\V5062512.S\  
Data File : 5V22134.D  
Acq On : 25 Jun 2012 12:48 pm  
Operator : BRETD  
Sample : MB  
Misc : MS4172,V5V1355,5.00,,100,5,1  
ALS Vial : 3 Sample Multiplier: 1

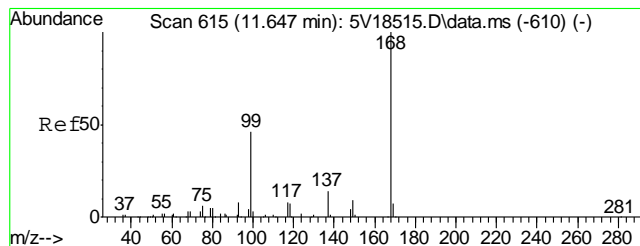
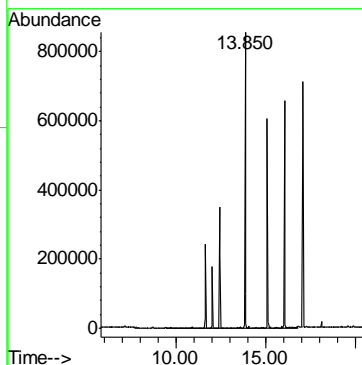
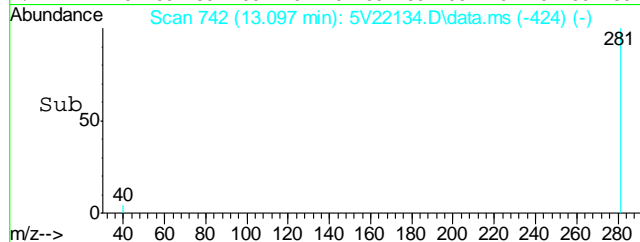
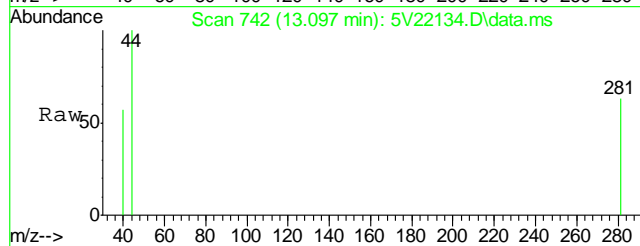
Quant Time: Jun 26 08:09:10 2012  
Quant Method : C:\msdchem\1\METHODS\V5AP1304TVH1304.M  
Quant Title : 8260  
QLast Update : Thu May 24 07:55:17 2012  
Response via : Initial Calibration





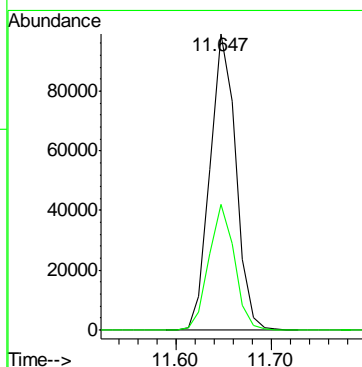
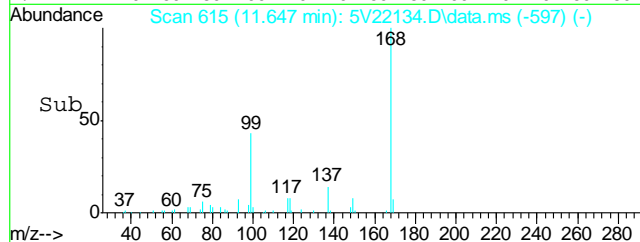
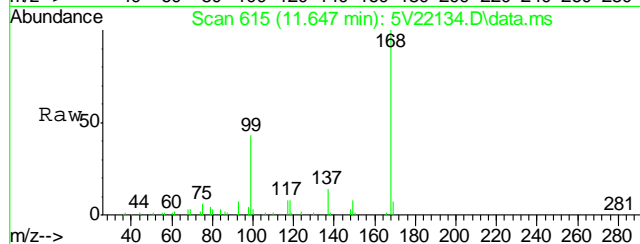
#1  
TVH-Gasoline  
Concen: 1.56 ug/l m  
RT: 13.102 min Scan# 742  
Delta R.T. 0.000 min  
Lab File: 5V22134.D  
Acq: 25 Jun 2012 12:48 pm

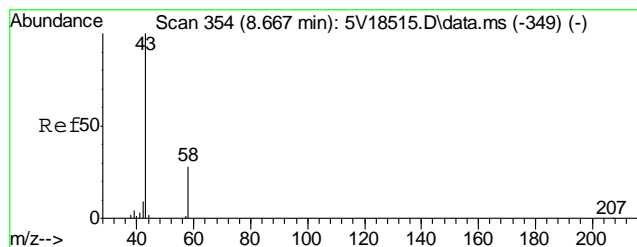
Tgt Ion:TIC Resp: 3202



#2  
Pentafluorobenzene  
Concen: 50.00 ug/l  
RT: 11.647 min Scan# 615  
Delta R.T. -0.000 min  
Lab File: 5V22134.D  
Acq: 25 Jun 2012 12:48 pm

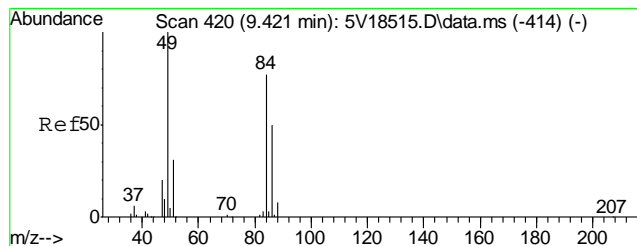
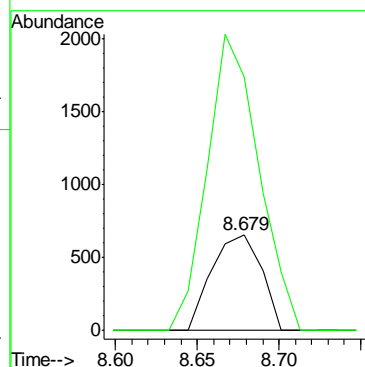
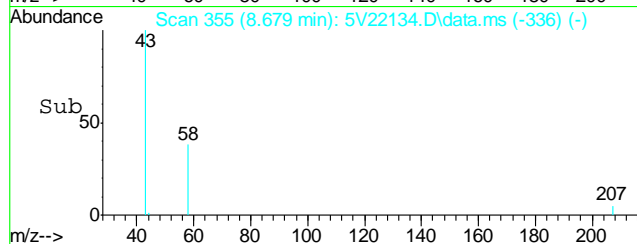
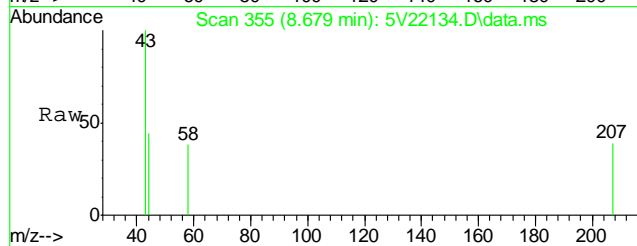
Tgt Ion:168 Resp: 184781  
Ion Ratio Lower Upper  
168 100  
99 42.0 37.4 56.2





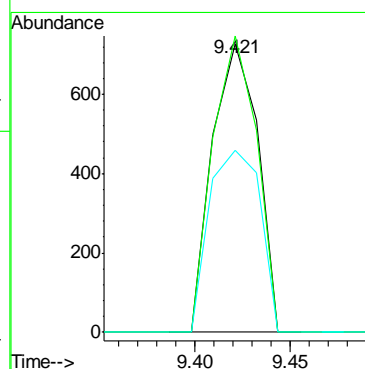
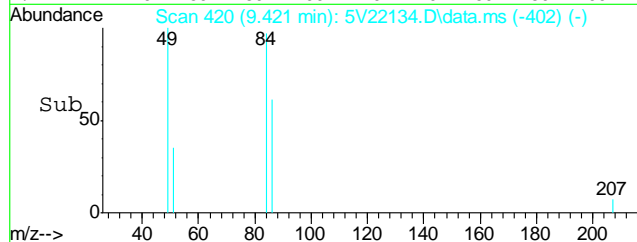
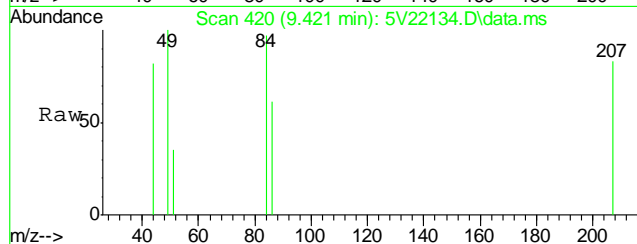
#15  
Acetone  
Concen: 2.86 ug/l  
RT: 8.679 min Scan# 355  
Delta R.T. 0.012 min  
Lab File: 5V22134.D  
Acq: 25 Jun 2012 12:48 pm

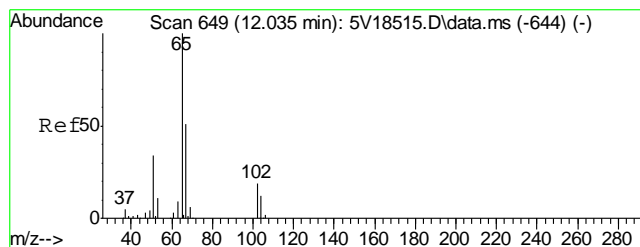
Tgt Ion: 58 Resp: 1372  
Ion Ratio Lower Upper  
58 100  
43 323.3 353.6 393.6#



#17  
Methylene Chloride  
Concen: 0.39 ug/l  
RT: 9.421 min Scan# 420  
Delta R.T. -0.000 min  
Lab File: 5V22134.D  
Acq: 25 Jun 2012 12:48 pm

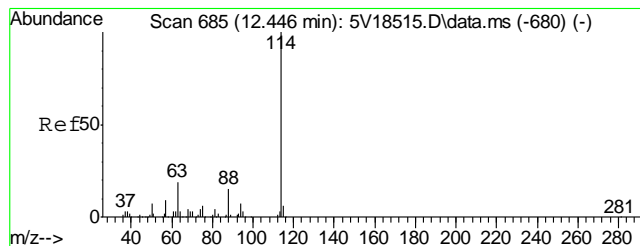
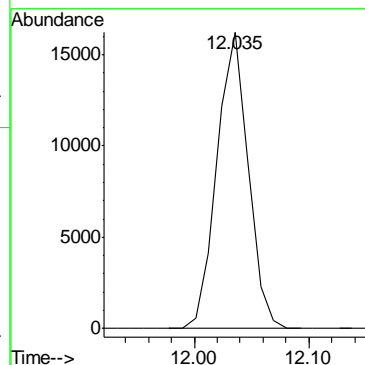
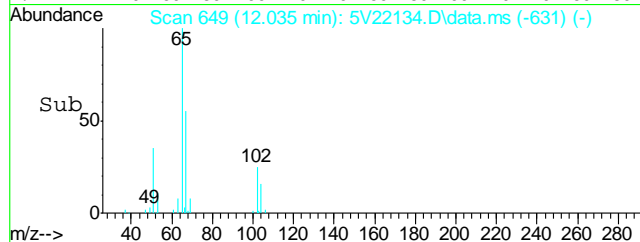
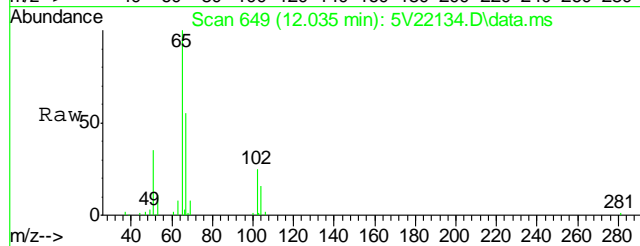
Tgt Ion: 84 Resp: 1205  
Ion Ratio Lower Upper  
84 100  
49 99.4 110.4 150.4#  
86 71.0 44.0 84.0





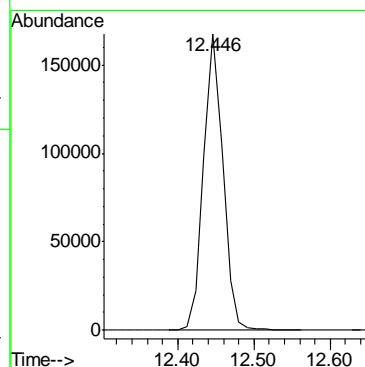
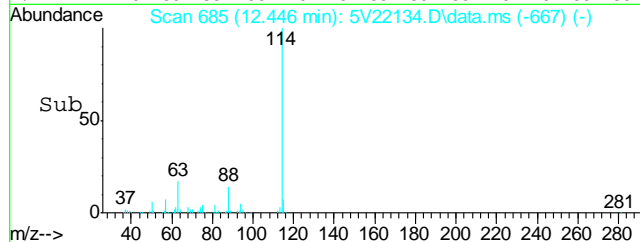
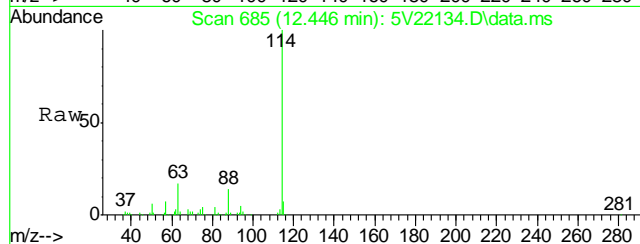
#33  
1,2-Dichloroethane-d4  
Concen: 54.76 ug/l  
RT: 12.035 min Scan# 649  
Delta R.T. 0.000 min  
Lab File: 5V22134.D  
Acq: 25 Jun 2012 12:48 pm

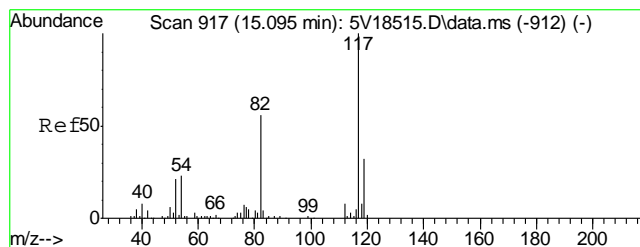
Tgt Ion:102 Resp: 30897



#35  
1,4-Difluorobenzene  
Concen: 50.00 ug/l  
RT: 12.446 min Scan# 685  
Delta R.T. -0.000 min  
Lab File: 5V22134.D  
Acq: 25 Jun 2012 12:48 pm

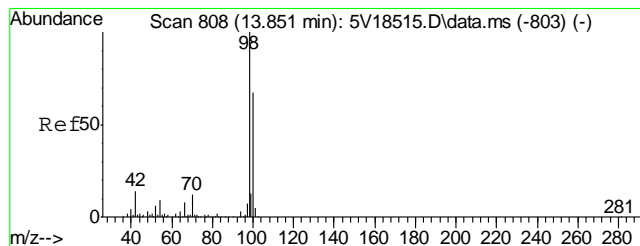
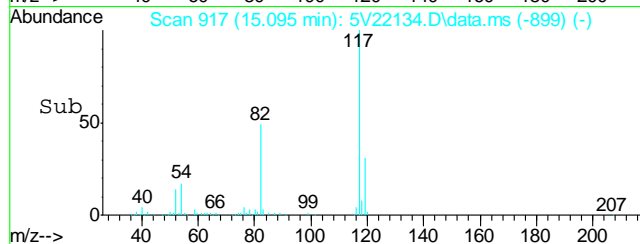
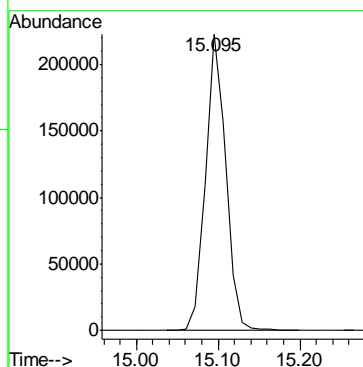
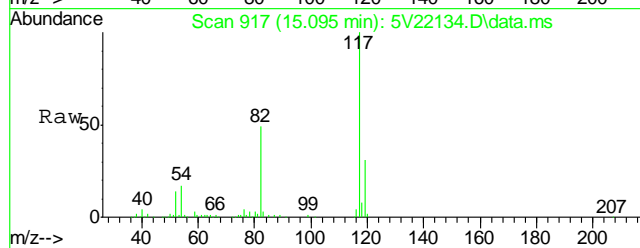
Tgt Ion:114 Resp: 295222





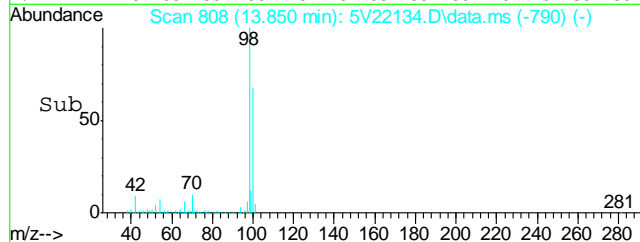
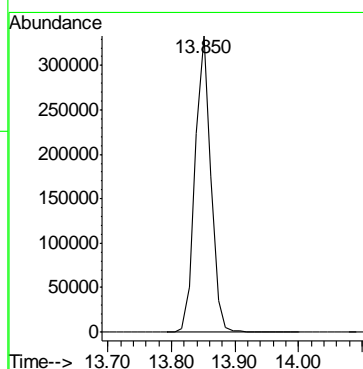
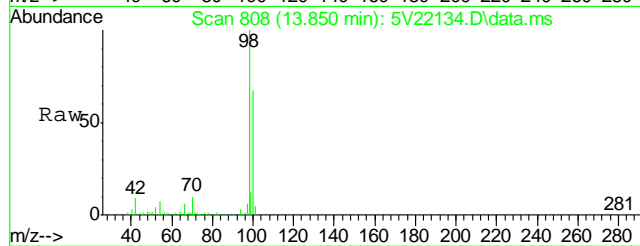
#53  
Chlorobenzene-d5  
Concen: 50.00 ug/l  
RT: 15.095 min Scan# 917  
Delta R.T. -0.000 min  
Lab File: 5V22134.D  
Acq: 25 Jun 2012 12:48 pm

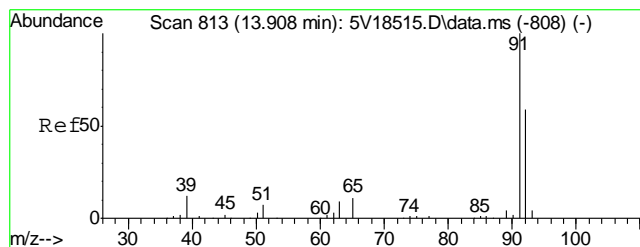
Tgt Ion: 117 Resp: 382975



#61  
Toluene-d8  
Concen: 44.09 ug/l  
RT: 13.850 min Scan# 808  
Delta R.T. -0.000 min  
Lab File: 5V22134.D  
Acq: 25 Jun 2012 12:48 pm

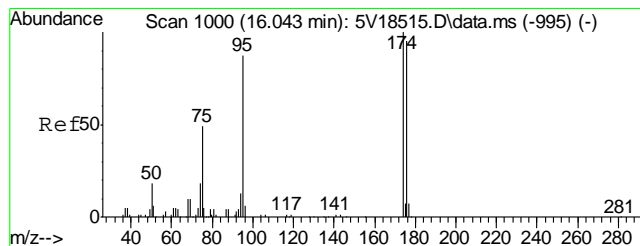
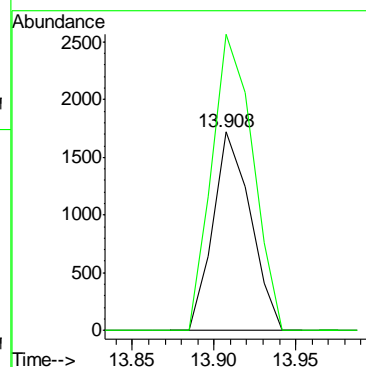
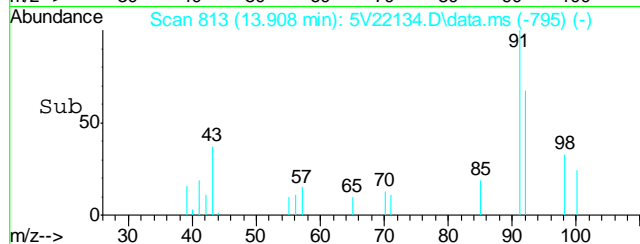
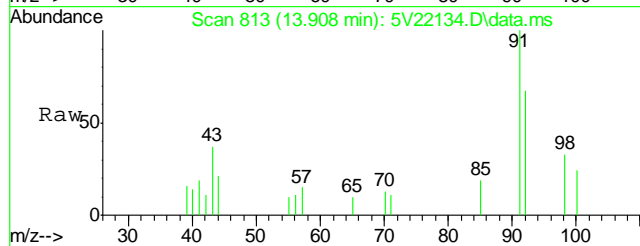
Tgt Ion: 98 Resp: 570641





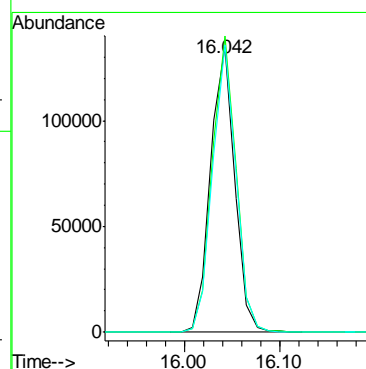
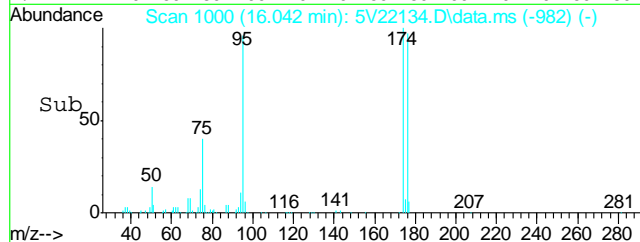
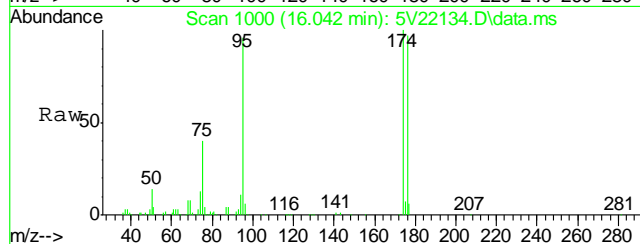
#62  
Toluene  
Concen: 0.28 ug/l  
RT: 13.908 min Scan# 813  
Delta R.T. -0.000 min  
Lab File: 5V22134.D  
Acq: 25 Jun 2012 12:48 pm

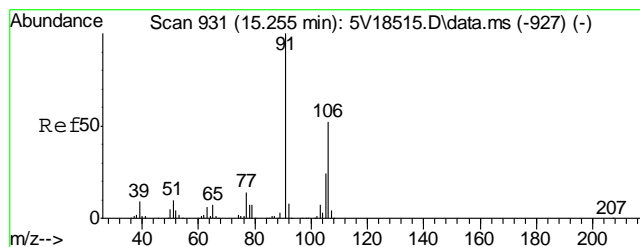
Tgt Ion: 92 Resp: 2752  
Ion Ratio Lower Upper  
92 100  
91 163.1 149.8 189.8



#69  
4-Bromofluorobenzene  
Concen: 44.25 ug/l  
RT: 16.042 min Scan# 1000  
Delta R.T. -0.000 min  
Lab File: 5V22134.D  
Acq: 25 Jun 2012 12:48 pm

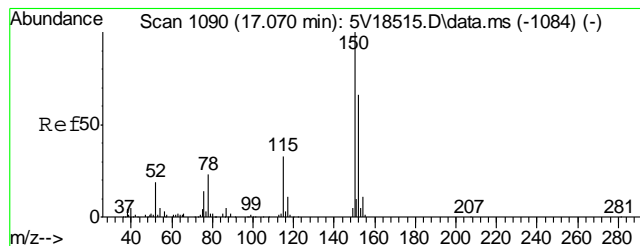
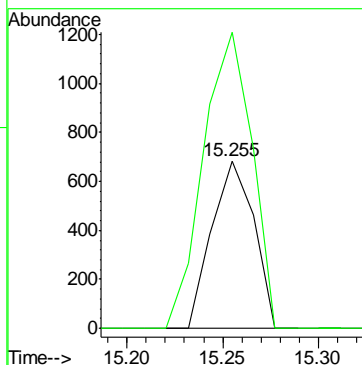
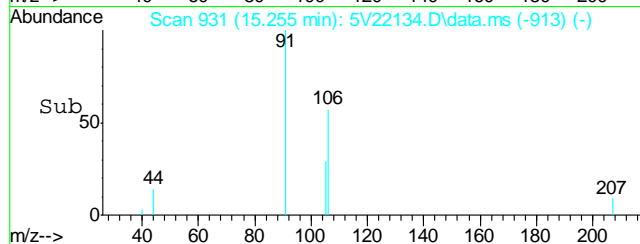
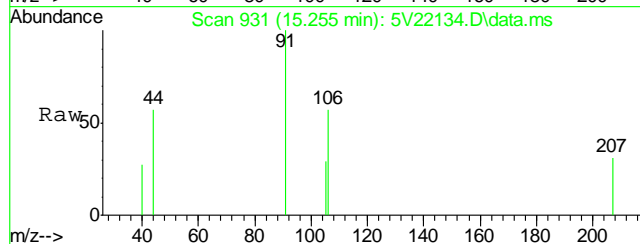
Tgt Ion: 95 Resp: 234606  
Ion Ratio Lower Upper  
95 100  
174 102.3 77.1 117.1  
176 98.2 73.4 113.4





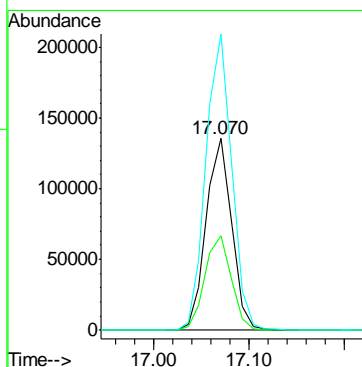
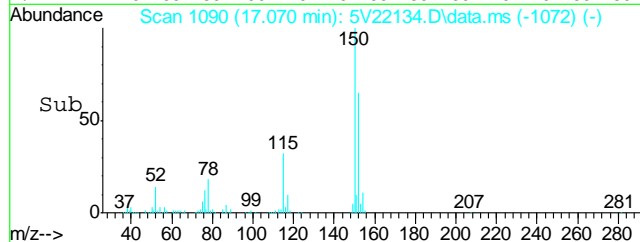
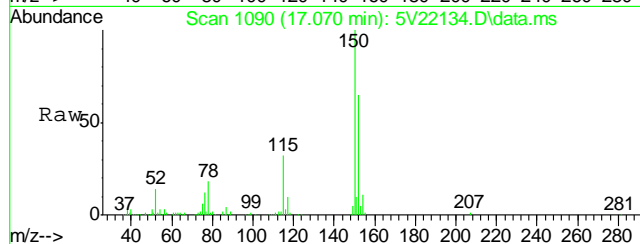
#72  
m,p-xylene  
Concen: 0.14 ug/l  
RT: 15.255 min Scan# 931  
Delta R.T. -0.000 min  
Lab File: 5V22134.D  
Acq: 25 Jun 2012 12:48 pm

Tgt Ion:106 Resp: 1050  
Ion Ratio Lower Upper  
106 100  
91 203.7 177.1 217.1

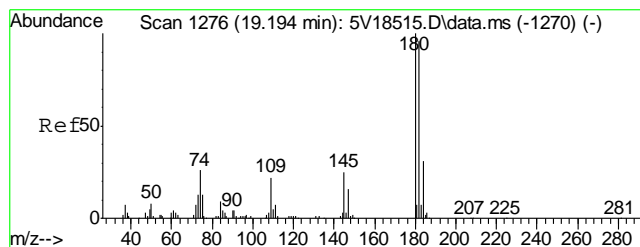


#74  
1,4-Dichlorobenzene-d4  
Concen: 50.00 ug/l  
RT: 17.070 min Scan# 1090  
Delta R.T. -0.000 min  
Lab File: 5V22134.D  
Acq: 25 Jun 2012 12:48 pm

Tgt Ion:152 Resp: 250095  
Ion Ratio Lower Upper  
152 100  
115 50.7 41.4 62.0  
150 156.7 153.9 230.9

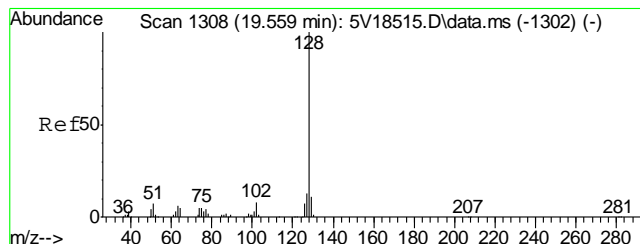
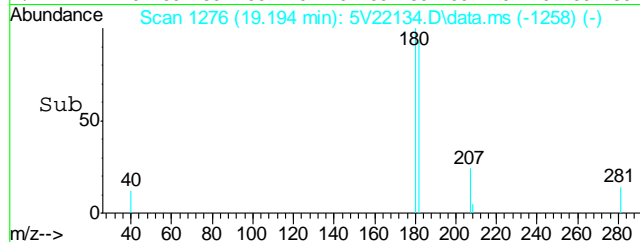
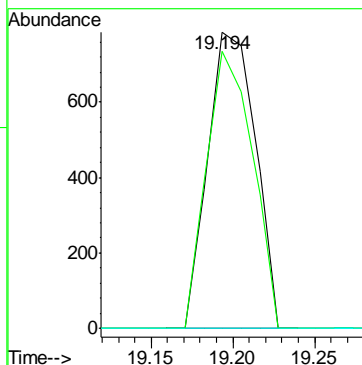
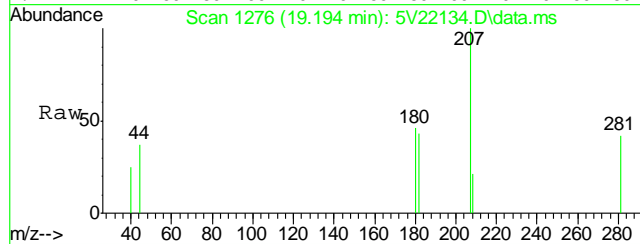






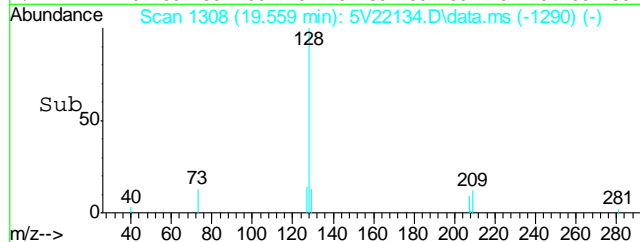
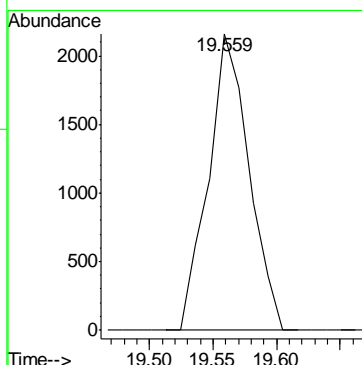
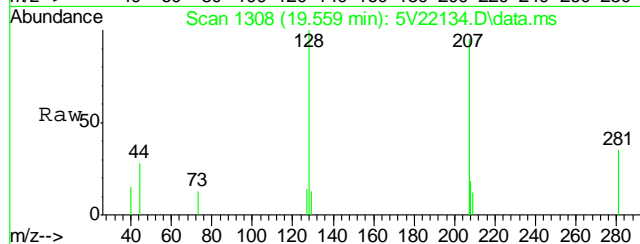
#90  
1,2,4-Trichlorobenzene  
Concen: 0.24 ug/l  
RT: 19.194 min Scan# 1276  
Delta R.T. -0.000 min  
Lab File: 5V22134.D  
Acq: 25 Jun 2012 12:48 pm

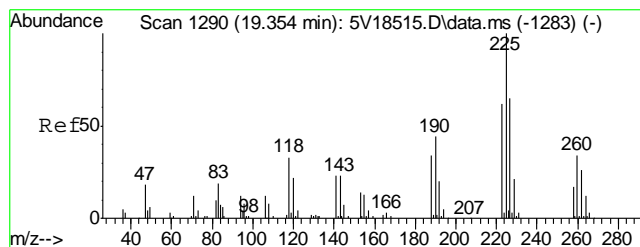
Tgt Ion:	180	Resp:	1591
Ion Ratio	Lower	Upper	
180	100		
182	90.6	76.2	114.4
145	0.0	20.1	30.1#



#91  
Naphthalene  
Concen: 0.96 ug/l  
RT: 19.559 min Scan# 1308  
Delta R.T. 0.001 min  
Lab File: 5V22134.D  
Acq: 25 Jun 2012 12:48 pm

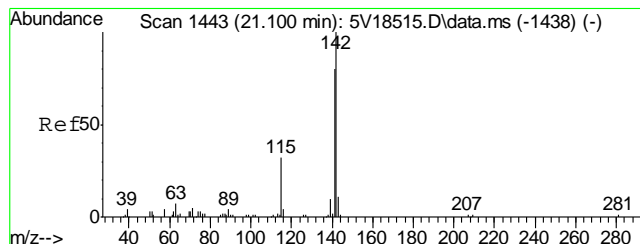
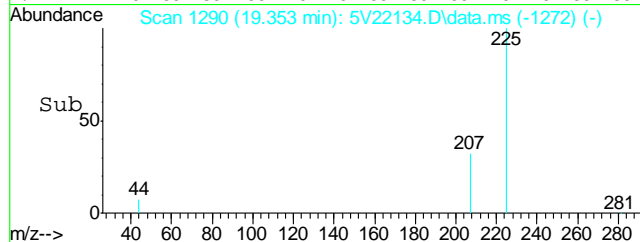
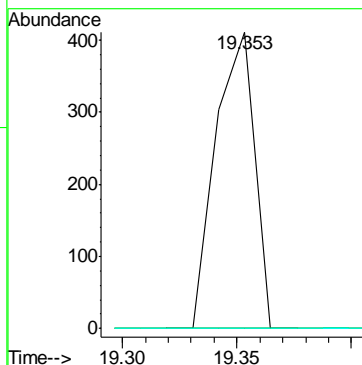
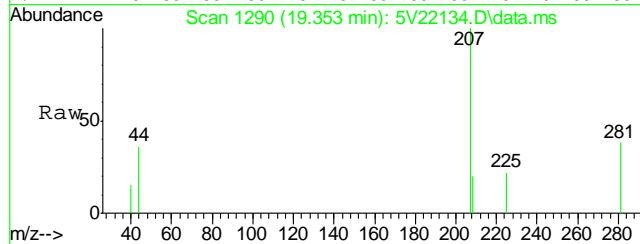
Tgt Ion:	128	Resp:	4770
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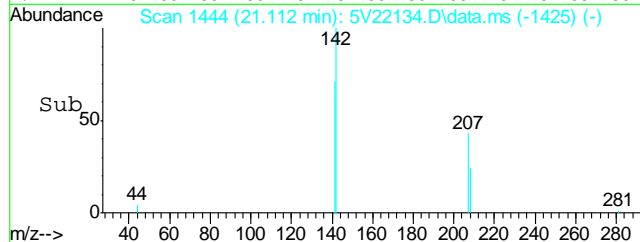
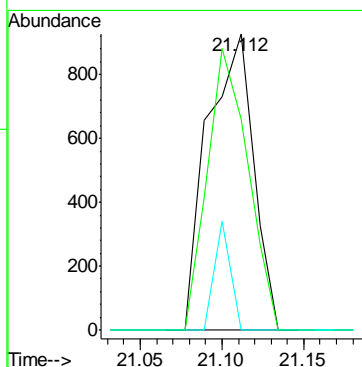
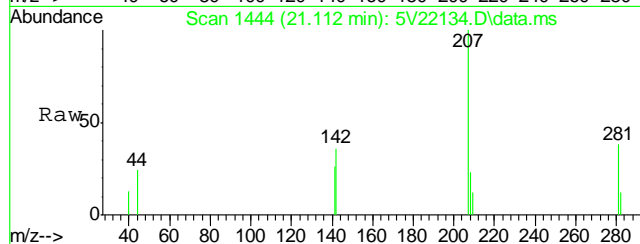
#92  
Hexachlorobutadiene  
Concen: 0.10 ug/l  
RT: 19.353 min Scan# 1290  
Delta R.T. -0.000 min  
Lab File: 5V22134.D  
Acq: 25 Jun 2012 12:48 pm

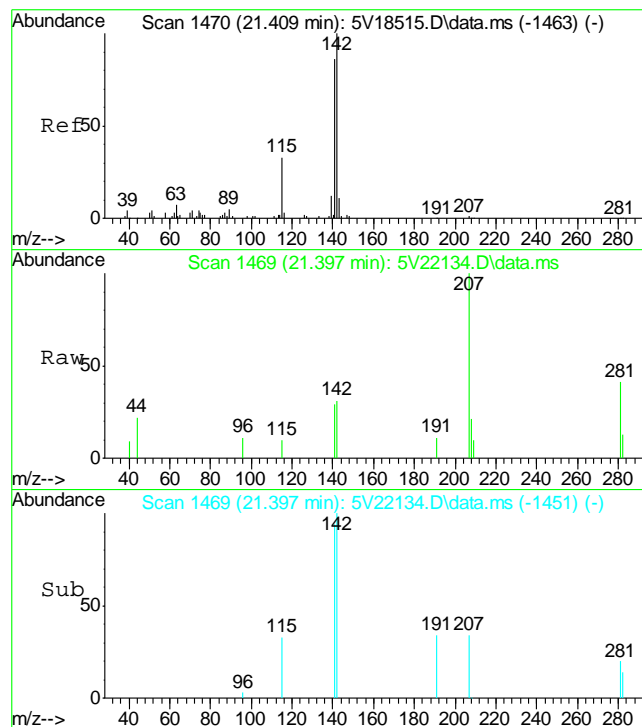
Tgt Ion	225	223	227
Resp	489		
Ratio	100	0.0	0.0
Lower		49.5	51.1
Upper		74.3#	76.7#



#94  
2-Methylnaphthalene  
Concen: 1.69 ug/l  
RT: 21.112 min Scan# 1444  
Delta R.T. 0.012 min  
Lab File: 5V22134.D  
Acq: 25 Jun 2012 12:48 pm

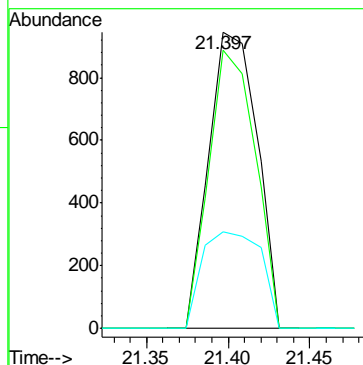
Tgt Ion	142	141	115
Resp	1809		
Ratio	100	84.2	12.9
Lower		66.2	25.9
Upper		99.4	38.9#





#95  
1-Methylnaphthalene  
Concen: 1.57 ug/l  
RT: 21.397 min Scan# 1469  
Delta R.T. 0.000 min  
Lab File: 5V22134.D  
Acq: 25 Jun 2012 12:48 pm

Tgt Ion	Ratio	Lower	Upper
142	100		
141	90.2	68.9	103.3
115	39.6	27.3	40.9



## GC Volatiles

## QC Data Summaries

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Includes the following where applicable:

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

**Method Blank Summary**

Page 1 of 1

**Job Number:** D35709  
**Account:** XTOKRWR XTO Energy  
**Project:** FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB910-MB	GB16414.D	1	06/21/12	SK	n/a	n/a	GGB910

The QC reported here applies to the following samples:

Method: SW846 8015B

D35709-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	10	5.0	mg/kg	

CAS No.	Surrogate Recoveries	Limits
120-82-1	1,2,4-Trichlorobenzene	100% 60-140%

## Blank Spike Summary

Page 1 of 1

**Job Number:** D35709  
**Account:** XTOKRWR XTO Energy  
**Project:** FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
GGB910-BS	GB16415.D	1	06/21/12	SK	n/a	n/a	GGB910

The QC reported here applies to the following samples:

Method: SW846 8015B

D35709-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-GRO (C6-C10)	110	111	101	70-130

CAS No.	Surrogate Recoveries	BSP	Limits
120-82-1	1,2,4-Trichlorobenzene	113%	60-140%

\* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D35709  
Account: XTOKRWR XTO Energy  
Project: FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
D35708-1MS	GB16417.D	1	06/21/12	SK	n/a	n/a	GGB910
D35708-1MSD	GB16418.D	1	06/21/12	SK	n/a	n/a	GGB910
D35708-1	GB16416.D	1	06/21/12	SK	n/a	n/a	GGB910

The QC reported here applies to the following samples: Method: SW846 8015B

D35709-1

CAS No.	Compound	D35708-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-GRO (C6-C10)	ND		121	125	103	124	102	1	70-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D35708-1	Limits
120-82-1	1,2,4-Trichlorobenzene	106%	105%	98%	60-140%

\* = Outside of Control Limits.

GC Volatiles

Raw Data

∞



Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\062112\GB16419.D\FID1A.CH Vial: 8  
Signal #2 : Y:\1\DATA\062112\GB16419.D\FID2B.CH  
Acq On : 21 Jun 2012 6:30 pm Operator: StephK  
Sample : D35709-1, 50X Inst : GC/MS Ins  
Misc : GC2928,GGB910,5.049,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: Jun 22 08:09:06 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Thu Jun 21 15:17:12 2012  
Response via : Initial Calibration  
DataAcq Meth : TVB4.M

Volume Inj. :  
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

Compound	R.T.	Response	Conc	Units
-----				
System Monitoring Compounds				
2) S 1,2,4-Trichlorobenzene	14.36	2971262	94.825 %	m
10) S 1,2,4-Trichlorobenzene (P)	14.35	18730575	115.246 %	
Target Compounds				
1) H TVH-Gasoline	7.23	11347432	0.147 mg/L	
4) T Methyl-t-butyl-ether	0.00	0	N.D. ug/L	d
5) T Benzene	0.00	0	N.D. ug/L	d
6) T Toluene	7.63	668990	1.688 ug/L	
7) T Ethylbenzene	10.27	284143	0.840 ug/L	
8) T m,p-Xylene	10.45	1415882	3.506 ug/L	
9) T o-Xylene	10.95	181675	0.553 ug/L	
11) T Naphthalene	14.54	2863164	14.511 ug/L	

8.1.1

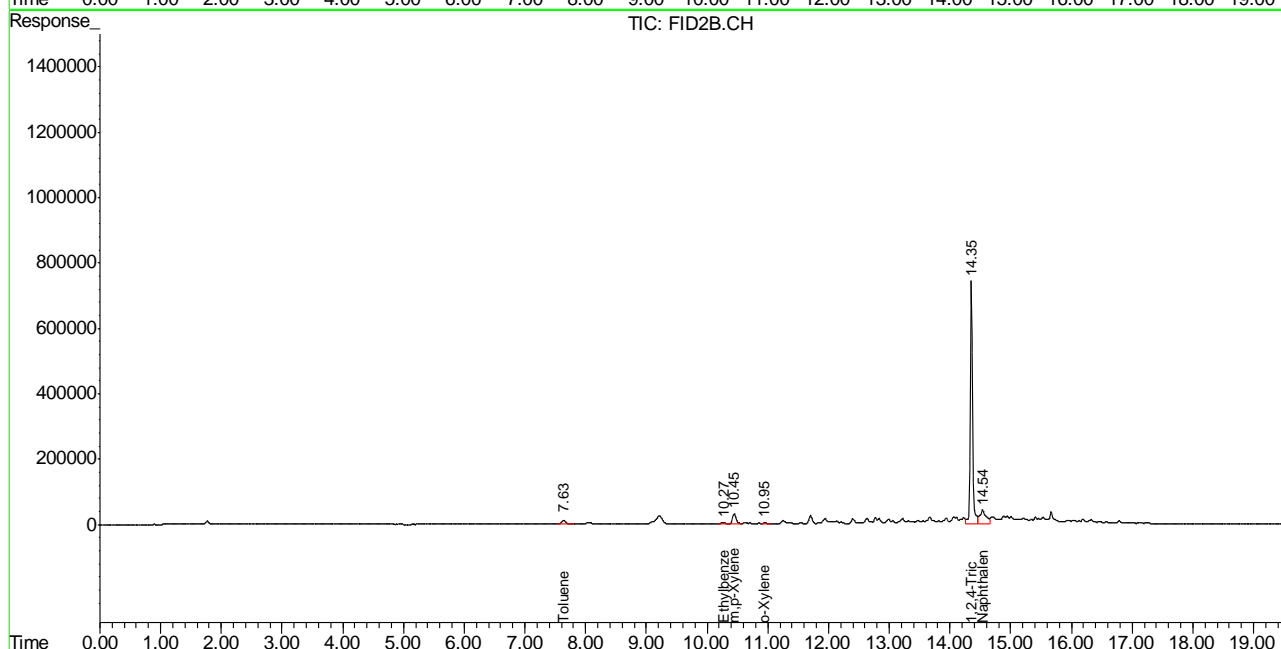
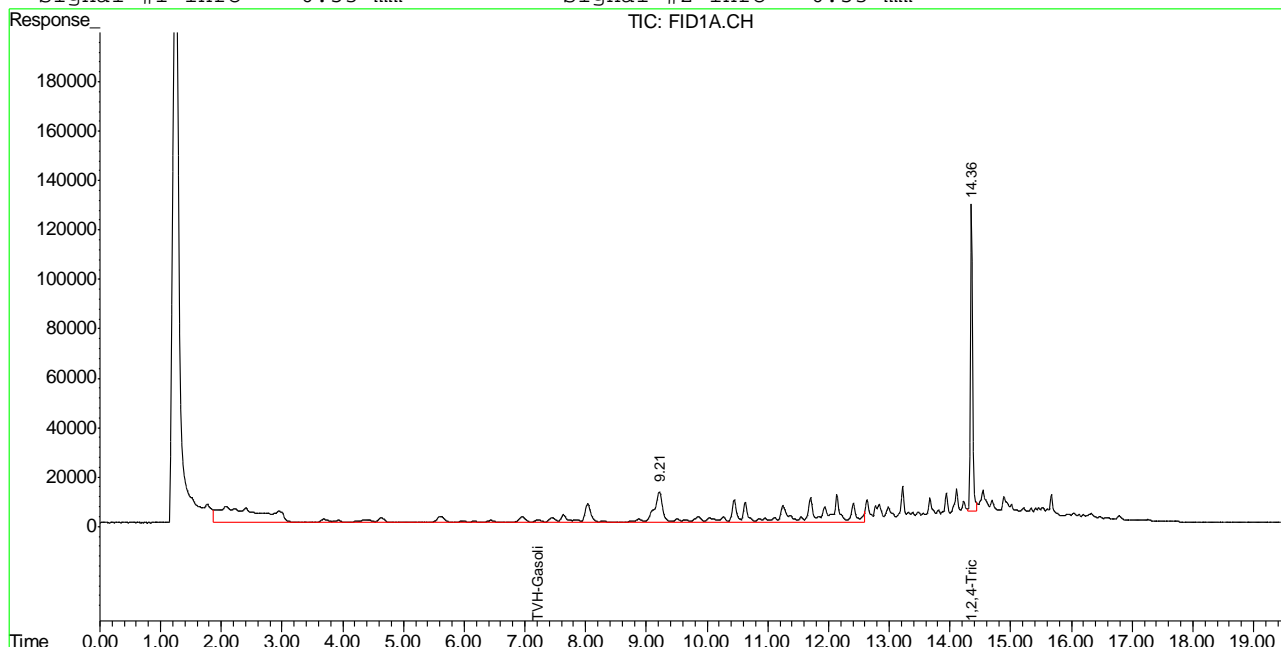
8

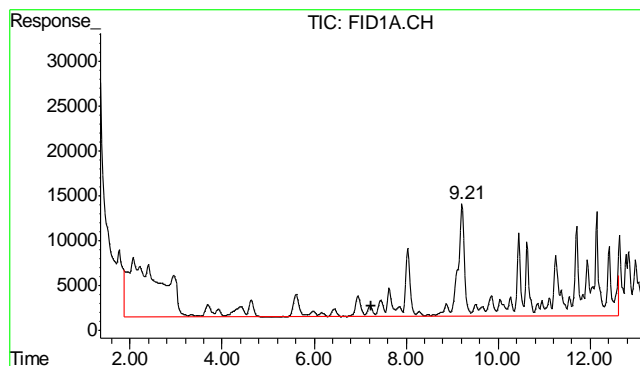
Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\062112\GB16419.D\FID1A.CH Vial: 8  
 Signal #2 : Y:\1\DATA\062112\GB16419.D\FID2B.CH  
 Acq On : 21 Jun 2012 6:30 pm Operator: StephK  
 Sample : D35709-1, 50X Inst : GC/MS Ins  
 Misc : GC2928,GGB910,5.049,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
 Quant Time: Jun 22 7:13 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Thu Jun 21 15:17:12 2012  
 Response via : Multiple Level Calibration  
 DataAcq Meth : TVB4.M

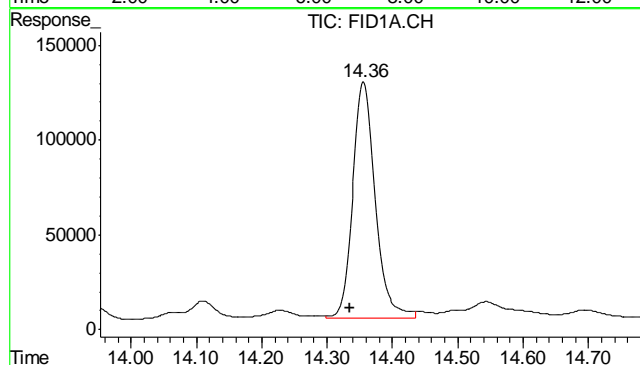
Volume Inj. :  
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





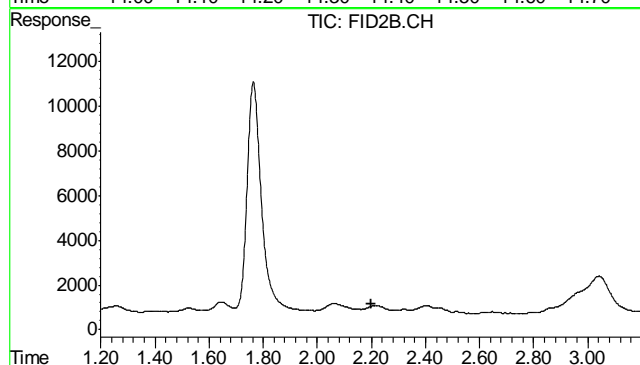
#1 TVH-Gasoline

R.T.: 7.230 min  
Delta R.T.: 0.000 min  
Response: 11347432  
Conc: 0.15 mg/L m



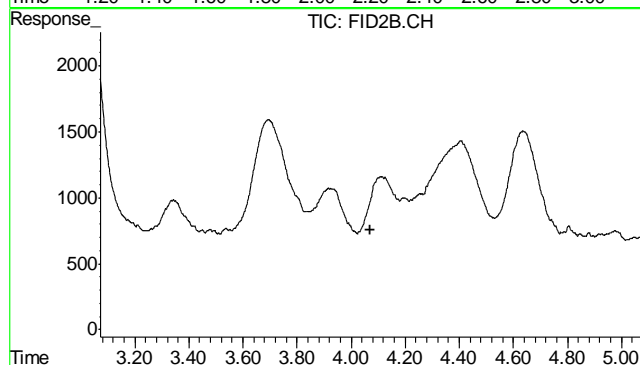
#2 1,2,4-Trichlorobenzene

R.T.: 14.355 min  
Delta R.T.: 0.021 min  
Response: 2971262  
Conc: 94.83 % m



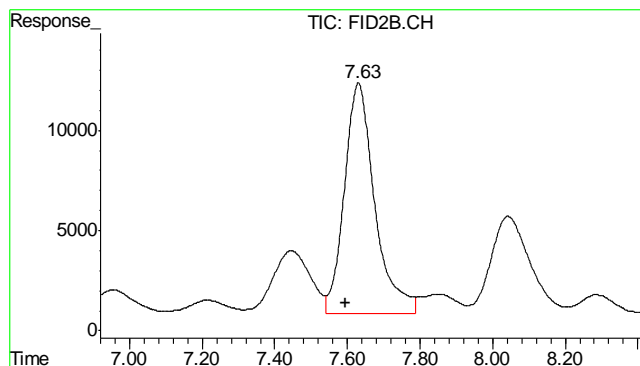
#4 Methyl-t-butyl-ether

R.T.: 0.000 min  
Exp R.T.: 2.198 min  
Response: 0  
Conc: N.D.



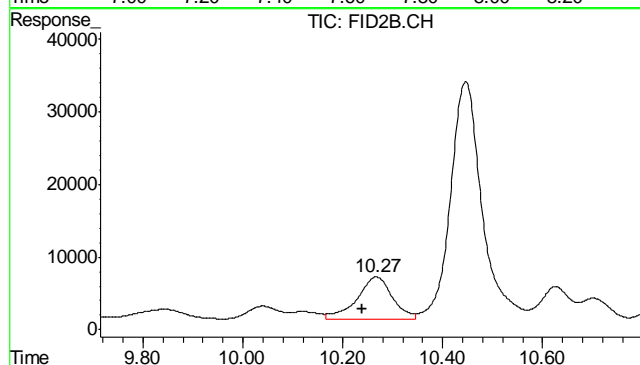
#5 Benzene

R.T.: 0.000 min  
Exp R.T.: 4.072 min  
Response: 0  
Conc: N.D.



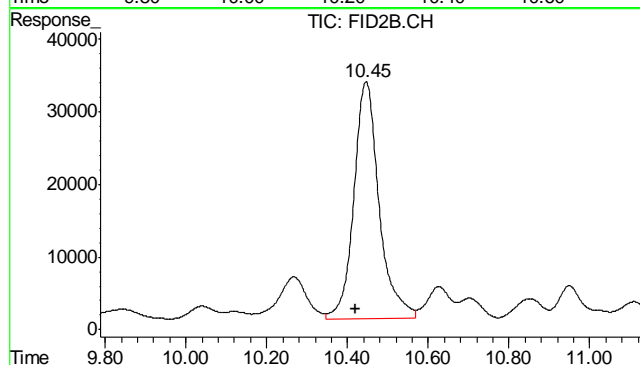
#6 Toluene

R.T.: 7.630 min  
Delta R.T.: 0.036 min  
Response: 668990  
Conc: 1.69 ug/L



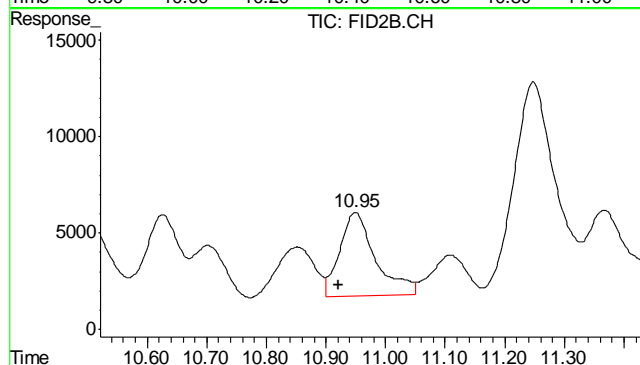
#7 Ethylbenzene

R.T.: 10.267 min  
Delta R.T.: 0.029 min  
Response: 284143  
Conc: 0.84 ug/L



#8 m,p-Xylene

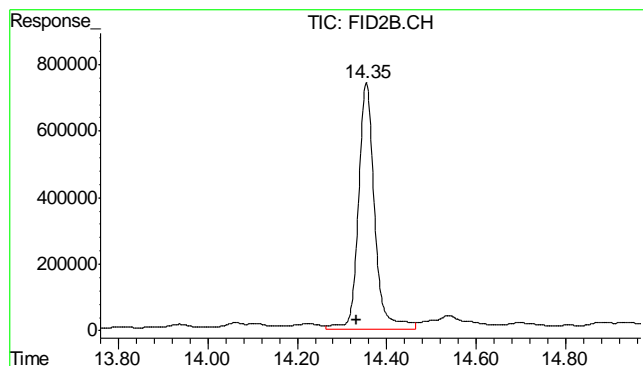
R.T.: 10.446 min  
Delta R.T.: 0.025 min  
Response: 1415882  
Conc: 3.51 ug/L



#9 o-Xylene

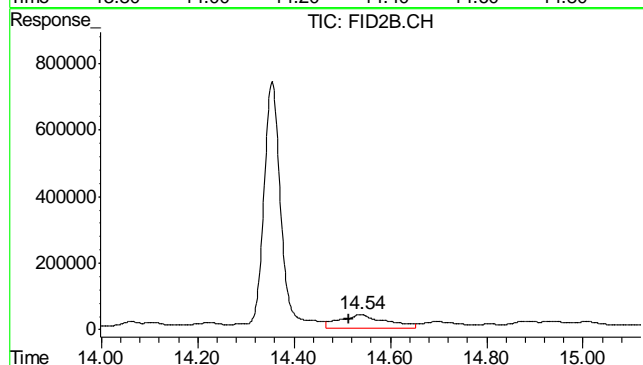
R.T.: 10.949 min  
Delta R.T.: 0.027 min  
Response: 181675  
Conc: 0.55 ug/L

8.1.1  
8



#10 1,2,4-Trichlorobenzene (P)

R.T.: 14.355 min  
 Delta R.T.: 0.023 min  
 Response: 18730575  
 Conc: 115.25 %



#11 Naphthalene

R.T.: 14.539 min  
 Delta R.T.: 0.025 min  
 Response: 2863164  
 Conc: 14.51 ug/L

8.1.1

8

## Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\062112\GB16414.D\FID1A.CH Vial: 3  
 Signal #2 : Y:\1\DATA\062112\GB16414.D\FID2B.CH  
 Acq On : 21 Jun 2012 3:32 pm Operator: StephK  
 Sample : MB Inst : GC/MS Ins  
 Misc : GC2928,GGB910,5.000,,100,5,1 Multiplr: 1.00  
 IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
 Quant Time: Jun 21 15:56:52 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)  
 Title : 8015B/8021B TVH/BTEX  
 Last Update : Thu Jun 21 15:17:12 2012  
 Response via : Initial Calibration  
 DataAcq Meth : TVB4.M

Volume Inj. :  
 Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
 Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm

	Compound	R.T.	Response	Conc	Units
-----					
System Monitoring Compounds					
2) S	1,2,4-Trichlorobenzene	14.35	3123776	99.693	%
10) S	1,2,4-Trichlorobenzene (P)	14.35	17660046	108.659	%
Target Compounds					
1) H	TVH-Gasoline	7.23	4200171	<MDL	mg/L
4) T	Methyl-t-butyl-ether	0.00	0	N.D.	ug/L d
5) T	Benzene	0.00	0	N.D.	ug/L d
6) T	Toluene	7.62	142182	0.359	ug/L
7) T	Ethylbenzene	0.00	0	N.D.	ug/L d
8) T	m,p-Xylene	0.00	0	N.D.	ug/L d
9) T	o-Xylene	0.00	0	N.D.	ug/L d
11) T	Naphthalene	14.52	245477	1.244	ug/L

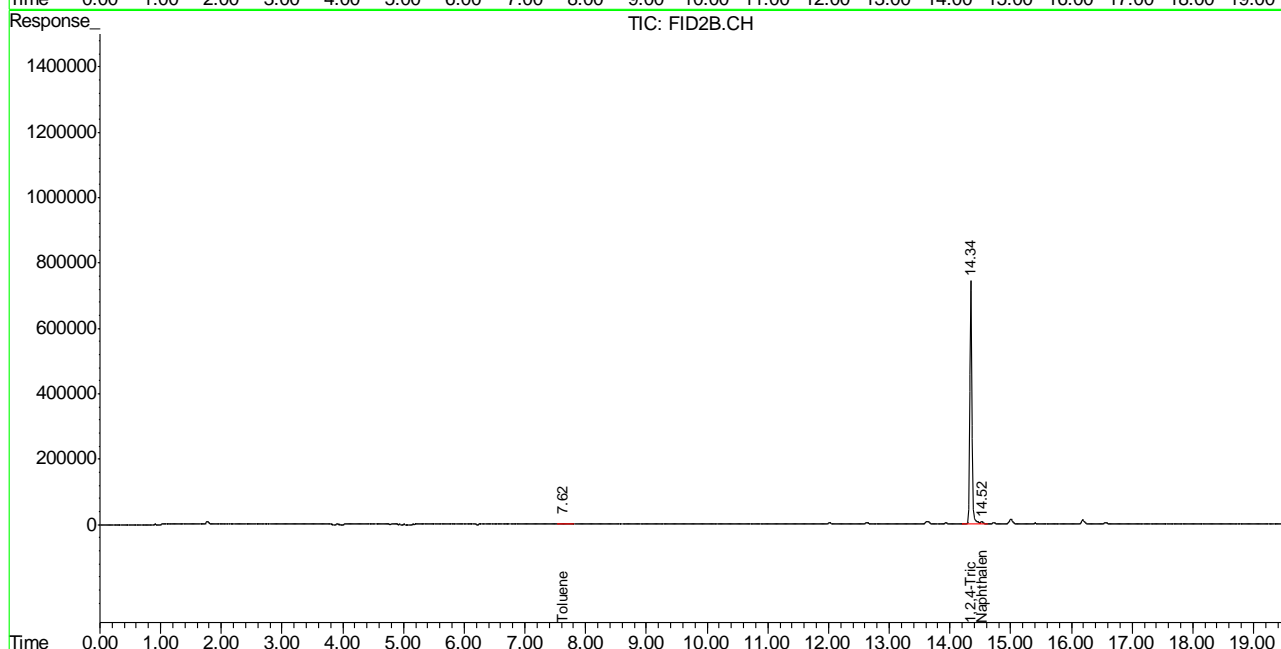
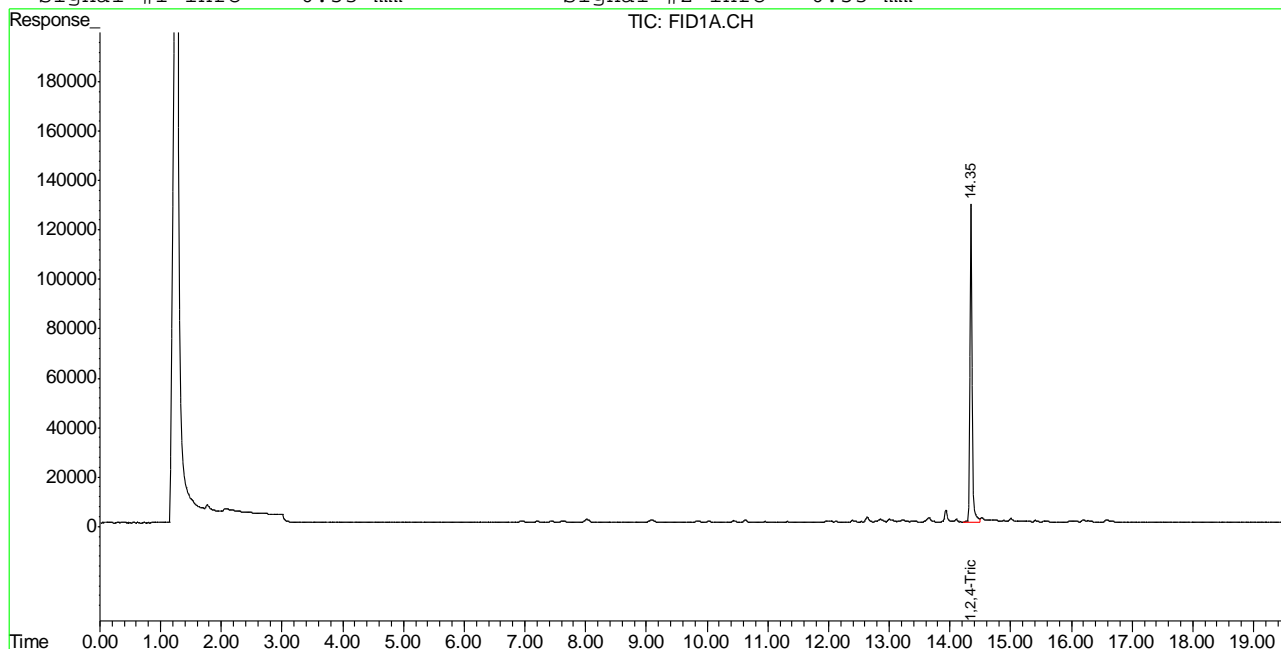
-----  
 (f)=RT Delta > 1/2 Window (m)=manual int.  
 GB16414.D TB868GB868SOIL.M Fri Jun 22 08:12:40 2012 GC

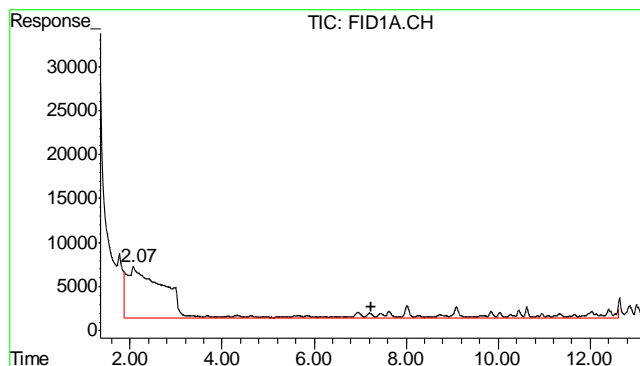
## Quantitation Report (QT Reviewed)

Signal #1 : Y:\1\DATA\062112\GB16414.D\FID1A.CH Vial: 3  
Signal #2 : Y:\1\DATA\062112\GB16414.D\FID2B.CH  
Acq On : 21 Jun 2012 3:32 pm Operator: StephK  
Sample : MB Inst : GC/MS Ins  
Misc : GC2928,GGB910,5.000,,100,5,1 Multiplr: 1.00  
IntFile Signal #1: TVH1.E IntFile Signal #2: FB2.E  
Quant Time: Jun 21 14:59 2012 Quant Results File: TB868GB868SOIL.RES

Quant Method : C:\MSDCHEM\1...\TB868GB868SOIL.M (Chemstation Integrator)  
Title : 8015B/8021B TVH/BTEX  
Last Update : Thu Jun 21 15:17:12 2012  
Response via : Multiple Level Calibration  
DataAcq Meth : TVB4.M

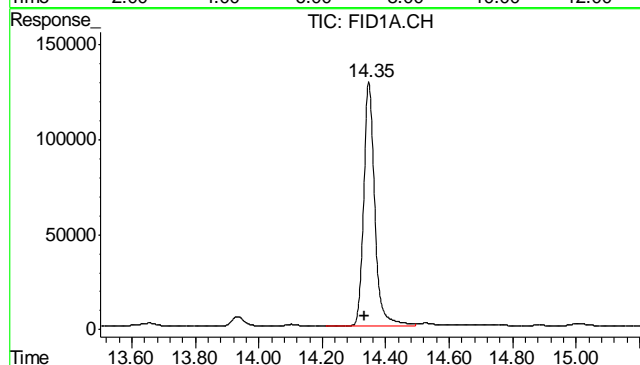
Volume Inj. :  
Signal #1 Phase : DB-624 Signal #2 Phase: DB-624  
Signal #1 Info : 0.53 mm Signal #2 Info : 0.53 mm





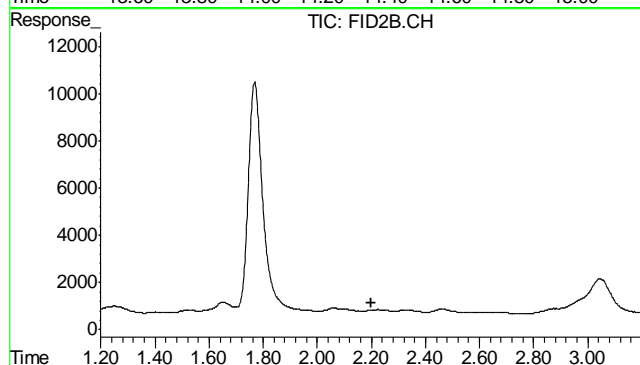
#1 TVH-Gasoline

R.T.: 7.230 min  
Delta R.T.: 0.000 min  
Response: 4200171  
Conc: N.D.



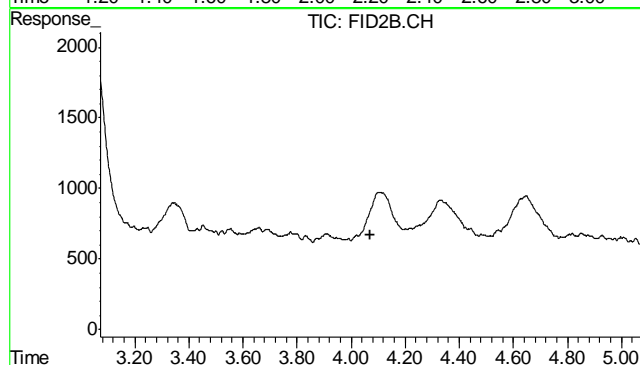
#2 1,2,4-Trichlorobenzene

R.T.: 14.347 min  
Delta R.T.: 0.013 min  
Response: 3123776  
Conc: 99.69 %



#4 Methyl-t-butyl-ether

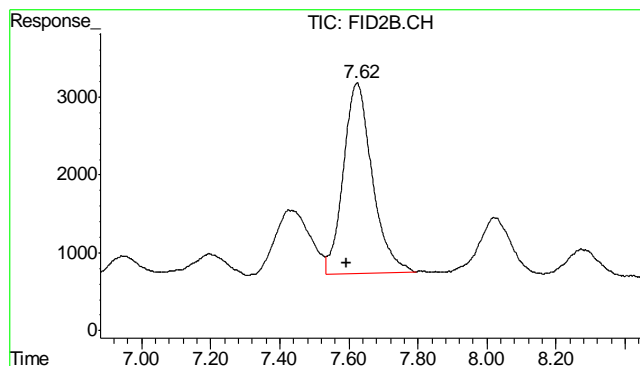
R.T.: 0.000 min  
Exp R.T.: 2.198 min  
Response: 0  
Conc: N.D.



#5 Benzene

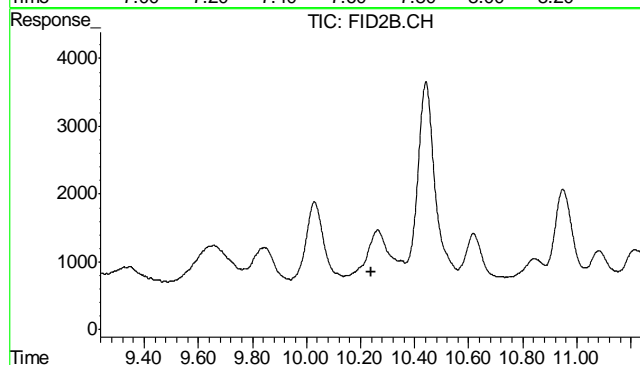
R.T.: 0.000 min  
Exp R.T.: 4.072 min  
Response: 0  
Conc: N.D.





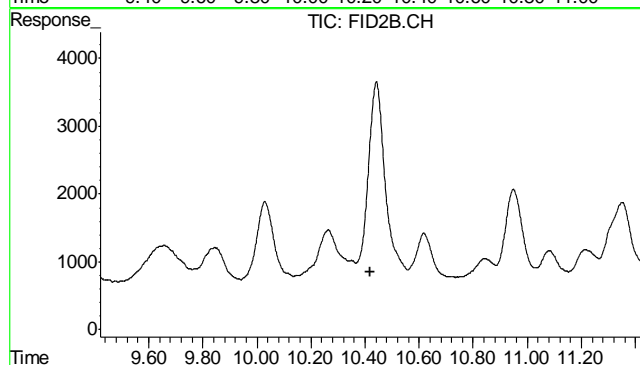
#6 Toluene

R.T.: 7.624 min  
Delta R.T.: 0.030 min  
Response: 142182  
Conc: 0.36 ug/L



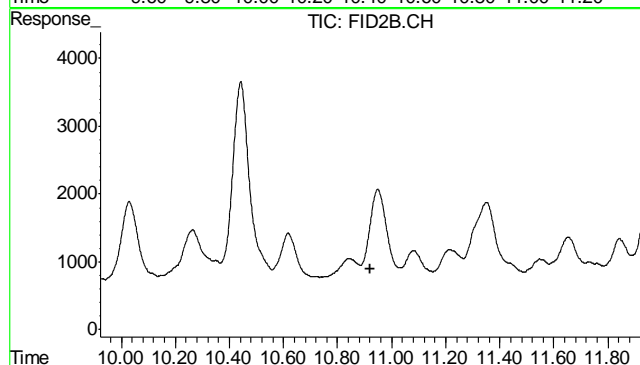
#7 Ethylbenzene

R.T.: 0.000 min  
Exp R.T.: 10.238 min  
Response: 0  
Conc: N.D.



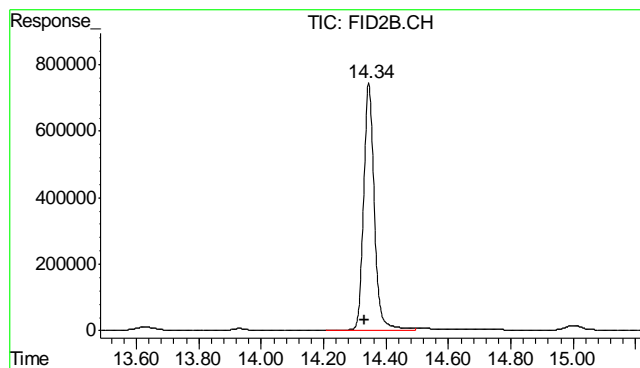
#8 m,p-Xylene

R.T.: 0.000 min  
Exp R.T.: 10.421 min  
Response: 0  
Conc: N.D.



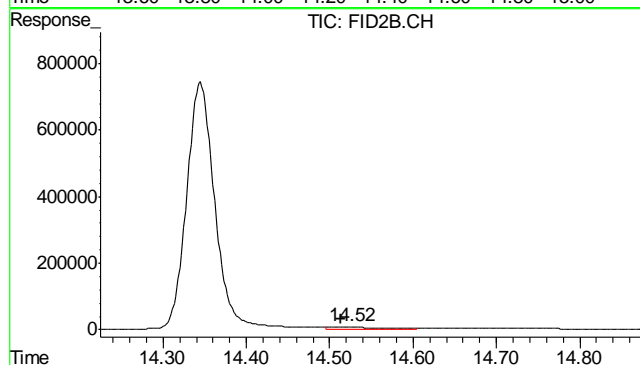
#9 o-Xylene

R.T.: 0.000 min  
Exp R.T.: 10.922 min  
Response: 0  
Conc: N.D.



#10 1,2,4-Trichlorobenzene (P)

R.T.: 14.345 min  
Delta R.T.: 0.013 min  
Response: 17660046  
Conc: 108.66 %



#11 Naphthalene

R.T.: 14.524 min  
Delta R.T.: 0.011 min  
Response: 245477  
Conc: 1.24 ug/L

8.2.1

8

## GC Semi-volatiles

### QC Data Summaries

Includes the following where applicable:

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

**Method Blank Summary**

Page 1 of 1

**Job Number:** D35709  
**Account:** XTOKRWR XTO Energy  
**Project:** FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6112-MB	FD14698.D	1	06/23/12	AW	06/22/12	OP6112	GFD764

The QC reported here applies to the following samples:

Method: SW846-8015B

D35709-1

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	13	8.7	mg/kg	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	96% 43-136%

9.1.1

9

## Blank Spike Summary

Page 1 of 1

**Job Number:** D35709

**Account:** XTOKRWR XTO Energy

**Project:** FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6112-BS	FD14700.D	1	06/23/12	AW	06/22/12	OP6112	GFD764

The QC reported here applies to the following samples:

Method: SW846-8015B

D35709-1

CAS No.	Compound	Spike mg/kg	BSP mg/kg	BSP %	Limits
	TPH-DRO (C10-C28)	667	500	75	58-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	89%	43-136%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

**Job Number:** D35709  
**Account:** XTOKRWR XTO Energy  
**Project:** FRU 297-8B

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6112-MS	FD14702.D	1	06/23/12	AW	06/22/12	OP6112	GFD764
OP6112-MSD	FD14704.D	1	06/23/12	AW	06/22/12	OP6112	GFD764
D35708-1	FD14706.D	1	06/23/12	AW	06/22/12	OP6112	GFD764

The QC reported here applies to the following samples:

Method: SW846-8015B

D35709-1

CAS No.	Compound	D35708-1 mg/kg	Q	Spike mg/kg	MS mg/kg	MS %	MSD mg/kg	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	107		702	513	58	496	56	3	20-183/43

CAS No.	Surrogate Recoveries	MS	MSD	D35708-1	Limits
84-15-1	o-Terphenyl	77%	90%	96%	43-136%

\* = Outside of Control Limits.

GC Semi-volatiles

Raw Data

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\JUNE\FD062312.SEC\FD14718.D Vial: 63  
Acq On : 6-23-2012 04:53:14 PM Operator: alexwl  
Sample : D35709-1 Inst : FID5  
Misc : OP6112,GFD764,30.13,,,2,1 Multiplr: 1.00  
IntFile : autoint1.e  
Quant Time: Jun 25 09:38:32 2012 Quant Results File: DRO-GFD743R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD743R.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Tue Jun 12 11:16:41 2012  
Response via : Initial Calibration  
DataAcq Meth : DRODUAL.M

Volume Inj. : 1ul  
Signal Phase : RTX-5  
Signal Info : 530um

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	9.63	31573119	727.218 mg/L
Target Compounds			
2) H TPH-DRO (c10-c28)	7.40	69016134	1662.018 mg/L

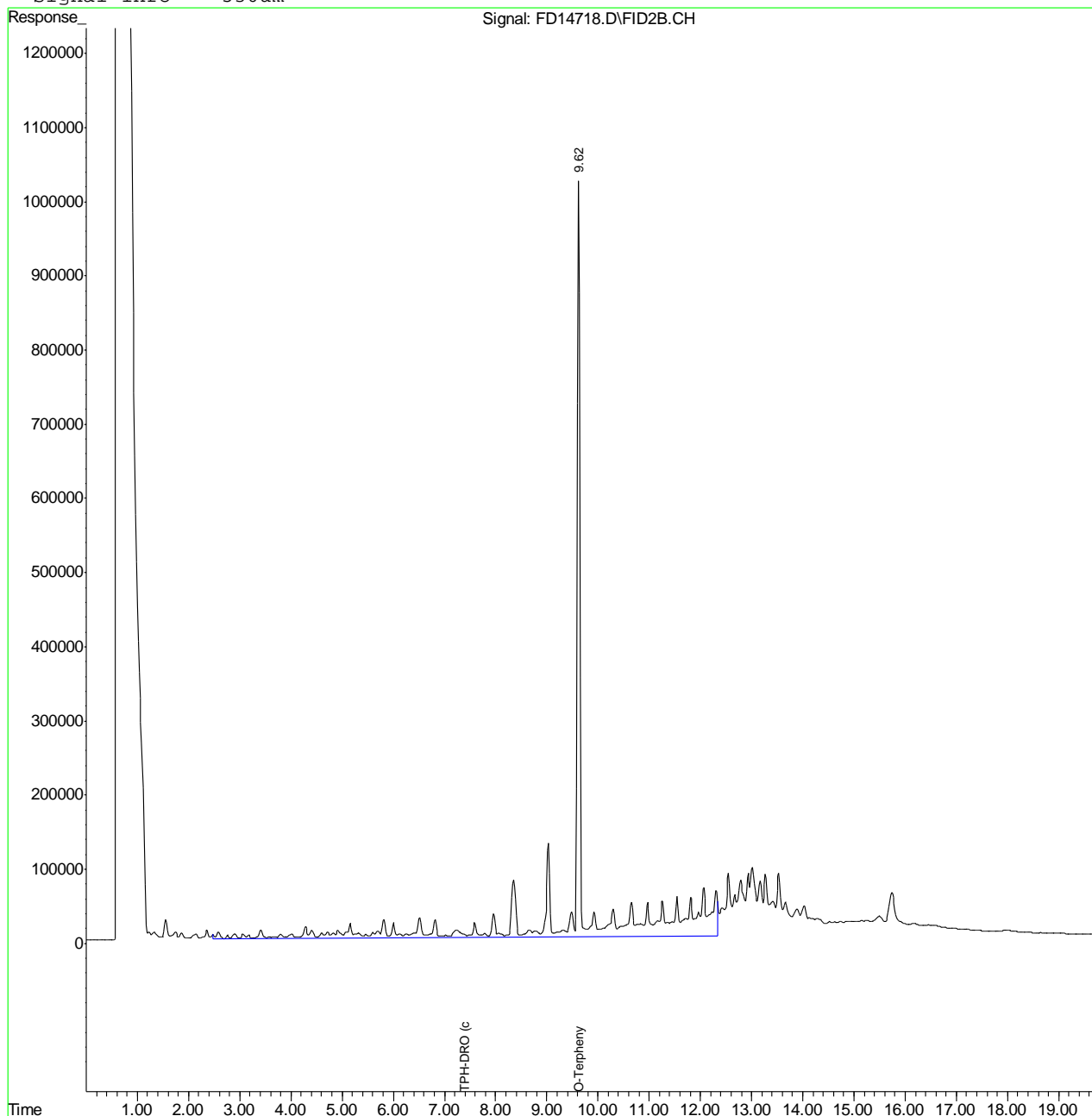


Quantitation Report (QT Reviewed)

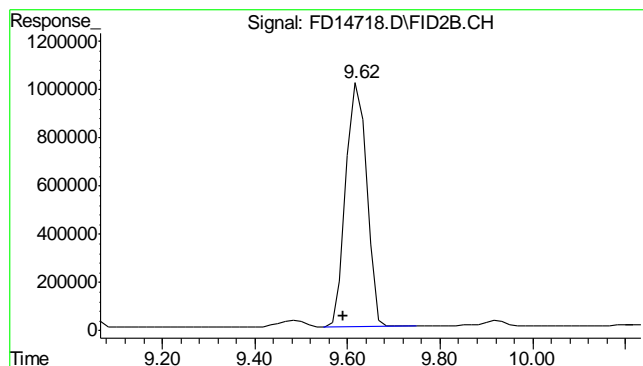
Data File : C:\MSDCHEM\2\DATA\2012\JUNE\FD062312.SEC\FD14718.D Vial: 63  
 Acq On : 6-23-2012 04:53:14 PM Operator: alexwl  
 Sample : D35709-1 Inst : FID5  
 Misc : OP6112,GFD764,30.13,,,2,1 Multiplr: 1.00  
 IntFile : autoint1.e  
 Quant Time: Jun 25 9:38 2012 Quant Results File: DRO-GFD743R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD743R.M (Chemstation Integrator)  
 Title : 8015B TEH  
 Last Update : Tue Jun 12 11:16:41 2012  
 Response via : Multiple Level Calibration  
 DataAcq Meth : DRODUAL.M

Volume Inj. : 1ul  
 Signal Phase : RTX-5  
 Signal Info : 530um

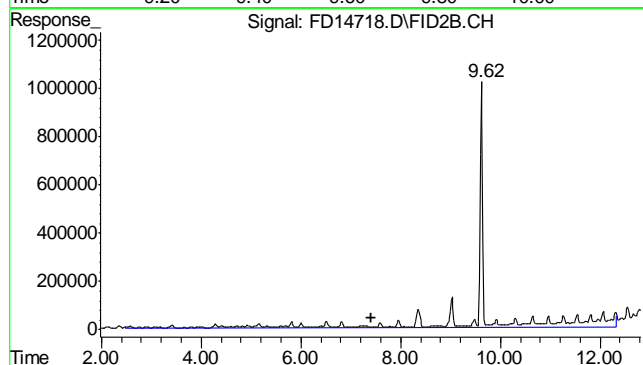


10.1.1  
10



#1 O-Terphenyl

R.T.: 9.626 min  
 Delta R.T.: 0.036 min  
 Response: 31573119  
 Conc: 727.22 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 7.400 min  
 Delta R.T.: 0.000 min  
 Response: 69016134  
 Conc: 1662.02 mg/L m

10.1.1  
10

## Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\JUNE\FD062312.SEC\FD14698.D Vial: 53  
Acq On : 23 Jun 2012 12:31 pm Operator: alexwl  
Sample : OP6112-MB Inst : FID5  
Misc : OP6112,GFD764,30.00,,,2,1 Multiplr: 1.00  
IntFile : autoint1.e  
Quant Time: Jun 25 09:33:29 2012 Quant Results File: DRO-GFD743R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD743R.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Tue Jun 12 11:16:41 2012  
Response via : Initial Calibration  
DataAcq Meth : DRODUAL.M

Volume Inj. : 1ul  
Signal Phase : RTX-5  
Signal Info : 530um

Compound	R.T.	Response	Conc Units
-----			
System Monitoring Compounds			
1) S O-Terphenyl	9.62	41812248	963.054 mg/L
Target Compounds			
2) H TPH-DRO (c10-c28)	7.40	2168150	52.213 mg/L

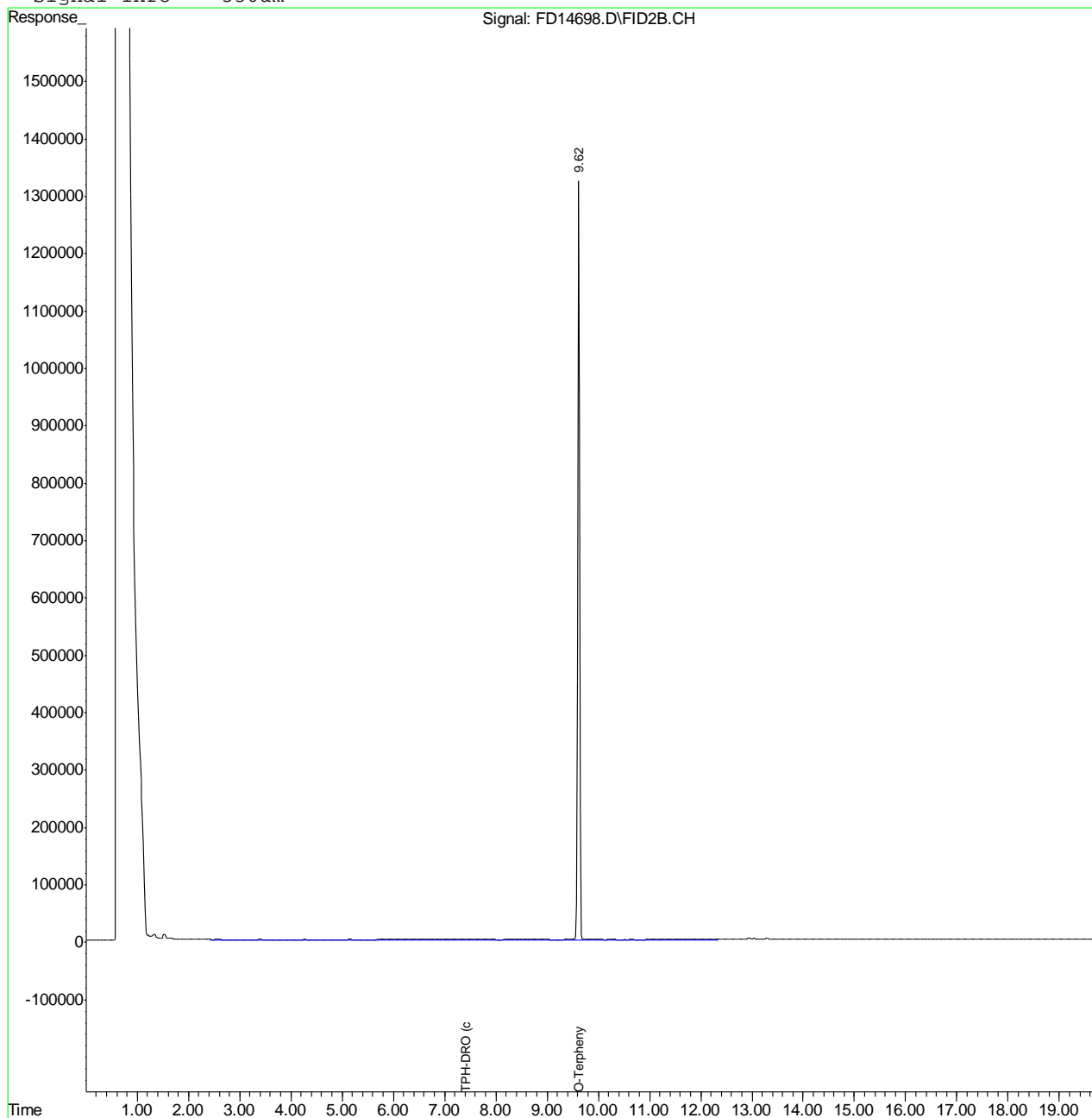
-----  
(f)=RT Delta > 1/2 Window (m)=manual int.  
FD14698.D DRO-GFD743R.M Mon Jun 25 10:37:19 2012 GC

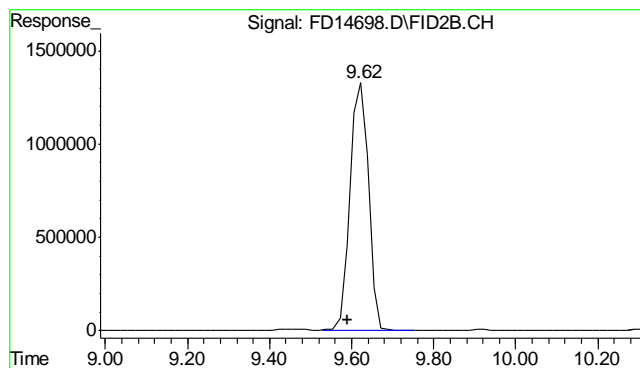
## Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2012\JUNE\FD062312.SEC\FD14698.D Vial: 53  
Acq On : 23 Jun 2012 12:31 pm Operator: alexwl  
Sample : OP6112-MB Inst : FID5  
Misc : OP6112,GFD764,30.00,,,2,1 Multiplr: 1.00  
IntFile : autoint1.e  
Quant Time: Jun 25 9:34 2012 Quant Results File: DRO-GFD743R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD743R.M (Chemstation Integrator)  
Title : 8015B TEH  
Last Update : Tue Jun 12 11:16:41 2012  
Response via : Multiple Level Calibration  
DataAcq Meth : DRODUAL.M

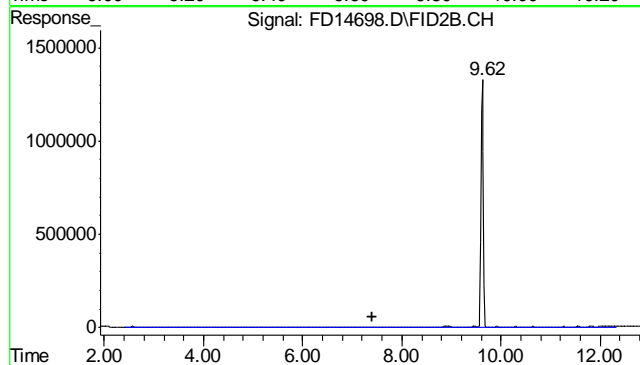
Volume Inj. : 1ul  
Signal Phase : RTX-5  
Signal Info : 530um





#1 O-Terphenyl

R.T.: 9.625 min  
Delta R.T.: 0.035 min  
Response: 41812248  
Conc: 963.05 mg/L



#2 TPH-DRO (c10-c28)

R.T.: 7.400 min  
Delta R.T.: 0.000 min  
Response: 2168150  
Conc: 52.21 mg/L m

10.2.1  
10