

GROUNDWATER MONITORING REPORT FOURTH QUARTER 2014

**MARGARET SPAULDING WATER TREATMENT FACILITY
COGCC FACILITY ID# 115241 – REM #7058
SW ¼ SE ¼ SECTION 28, T9N, R81W
JACKSON COUNTY, COLORADO**

PREPARED FOR

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JANUARY 2015

PROJECT No. 013-1489

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1.0 INTRODUCTION

Olsson Associates (Olsson) was contracted by CM Production, LLC (CM Production) to assist them with environmental compliance following acquisition of the Lone Pine field. This report presents the fourth quarter groundwater monitoring results conducted on November 19, 2014. The purpose of the groundwater monitoring was to assess groundwater conditions around the former Margaret Spaulding treater overflow pit (Colorado Oil and Gas Conservation Commission (COGCC) Facility ID# 115241) excavation and former produced water treatment pits (COGCC Facility # 112265, 112266, and 112267). The general site location is shown on **Figure 1**.

1.1 Site Location

The Margaret Spaulding produced water treatment system (Site) is located in the southwest quarter, of the southeast quarter of Section 28, Township 9 North, Range 81 West of the 6th Principal Meridian. The Site is located approximately 11 miles west of the town of Walden, Jackson County, Colorado, and is located on the Lone Pine Ranch off of County Road 12W.

1.2 Project Description

Groundwater monitoring wells (MW-1, MW-2, MW-3, MW-4, MW-5, and MW-6) were installed by Lone Pine Gas, Inc., the previous site owner, and their consultant, North Park Engineering & Consulting, Inc. The wells were installed on April 11 and April 12, 2012 to assess the potential for subsurface soil and groundwater impacts having resulted from the treater overflow pit onsite. Groundwater samples were initially collected on April 17, 2012.

1.3 Site Geology and Hydrogeology

The North Park Basin is an axial basin located west of the Front Range and bounded by the Continental Divide to the south and west. The Site is located in the southern part of the North Park Basin to the west of the Delaney Butte anticline. The Delaney Butte anticline consists of a large wedge-shaped granite core bound on the west by the Delaney Butte fault, a north-trending thrust fault. The Delaney Butte anticline is an asymmetric fold which plunges steeply to the south (Welsh, 1953) and the anticline is bound by the hanging wall of a reverse fault (Murray et al, 2012).

Based on a review of the geologic maps on the COGCC website, the Site is located on the Tertiary-age Coalmont Formation, near the contact with the Cretaceous-age Pierre Shale. The Pierre Shale is a marine shale composed of a sandy upper member, and a lower gray shale member. The maximum thickness of the Pierre Shale is 4,500 feet in the North Park area. The Coalmont Formation unconformably overlies the Pierre Shale. The Pierre Shale is a confining unit which inhibits groundwater flow.

According to a 1979 BLM and USGS Resource & Potential Reclamation Evaluation for the McCallum Study Area, located east of Walden, Colorado, the Coalmont Formation consists of non-marine fine-grained micaceous sandstones, tuffaceous siltstones, conglomerate, and carbonaceous claystones, and mudstones, and shale with some coal. According to the Colorado Geologic Survey, the Coalmont Formation is a basin-fill unit derived from the surrounding uplifted mountains, and consists of a complex, interfingering of coarse- and fine-grained sediments. The Coalmont Formation is poorly to moderately consolidated, and consists predominantly of shale in the central part of the North Park Basin (Topper et al, 2003).

Surface water hydrology in the vicinity of the site is controlled by the Spring Gulch drainage to the west of the former produced water treatment system on the Margaret Spaulding lease, the former pits, and Wolfers Ditch to the east of the former produced water treatment system. Both Spring Gulch and Wolfers Ditch flow to the north – northeast toward the confluence with Hell Creek. Hell Creek flows to the east – northeast to the north fork of the North Platte River.

Shallow groundwater in the vicinity of the site is generally expected to follow topography and flow to the west and northwest toward the Spring Gulch drainage. A potentiometric surface map for the November 2014 sampling event shows a west - southwest flow direction which likely is the result of seasonal variation in groundwater flow.

2.0 NOVEMBER 2014 GROUNDWATER MONITORING

This report presents the results of groundwater monitoring that was conducted by Olsson on November 19, 2014. A site map is presented as **Figure 2**.

2.1 Fluid Level Measurements

Olsson measured groundwater levels in five of the six groundwater monitoring wells using an oil/water interface probe. MW-6 was damaged and field personnel were unable to access the well. Light non-aqueous phase liquids (LNAPL) were not detected in any of the five measured monitoring wells. The absence of LNAPL was confirmed in all monitoring wells prior to sampling by observing the water in each of the bailers.

The fluid levels were measured in the wells to the top, north side of the PVC casing in each of the stick up well monuments to ± 0.01 feet. Field parameters were measured in five of the six monitoring wells using a YSI 556 multi-meter probe. The fluid levels are presented in **Table 1** and field parameters are presented in **Table 2**. The depth to groundwater ranged from 15.00 feet below ground surface (bgs) in MW-2 to 41.20 feet bgs in MW-5. Total depths were not measured so the total depths measured in November 2013 were used to determine the water column in each of the monitoring wells and calculate purge volumes. The November 2014 potentiometric surface map is presented as **Figure 3**.

The potentiometric surface map shows that the shallow groundwater flow is toward the west - southwest based on the groundwater levels measured in the monitoring wells and calculations based surveyed elevations of the tops of the well casings. This is a change from previous groundwater monitoring events which showed the flow to the northwest, but likely represents seasonal variation in the groundwater flow toward Spring Gulch. The approximate gradient across the site in November was 0.045 feet per foot as determined based on monitoring well MW-4 and MW-2.

Latitude and longitude coordinates for the monitoring wells were provided along with the soil analytical results electronic data deliverables on the COGCC website for remediation #7058. North Park Engineering and Consulting, Inc. surveyed the monitoring wells on June 18, 2012 and a copy of the survey was provided to Olsson by the COGCC. The data in **Table 1** presents the groundwater elevations calculated using the North Park Engineering and Consulting, Inc. survey data. Olsson has not verified the survey data for the monitoring wells, but the values are consistent with those observed from Google Earth[®] and empirically consistent with the site topography. Lithologic logs and well completion information is not available for these wells.

2.2 Groundwater Purge Volumes and Bailing

Groundwater purge volumes were calculated based on removing a minimum of three casing volumes from the two inch diameter monitoring wells using new dedicated disposable bailers, and nylon rope. Purged groundwater volume was estimated by filling 5-gallon capacity plastic buckets. Purge water volumes of 5 gallons were bailed from each well prior to groundwater sampling. The purge water was disposed onsite.

2.3 Groundwater Field Parameter Measurements

The field parameters show that the groundwater temperature, pH, and specific conductance were within expected ranges. The dissolved oxygen readings were high in monitoring wells MW-2, MW-3, MW-4, and MW-5, and readings were consistent in monitoring wells MW-1. The oxidation – reduction potential (ORP) showed negative values for MW-1 and MW-5 groundwater and positive values for the five other monitoring wells.

2.4 Groundwater Sample Analytes

The samples were contained in bottleware provided by Accutest Mountain States Laboratory in Wheat Ridge, Colorado. Groundwater samples were stored on ice in a plastic cooler pending delivery to Accutest Mountain States Laboratory under chain-of-custody protocols.

The samples were submitted for the groundwater parameters specified in the COGCC Table 910-1, including:

- Volatile organic compounds (VOCs) including benzene, toluene, ethylbenzene, xylenes (BTEX) and Gasoline Range Organics (GRO) by EPA Method 8260
- Diesel Range Organics (DRO) using an EPA modified Method 8015
- Polycyclic aromatic hydrocarbons (PAH) by EPA Method 8270
- Chloride by EPA 300.0/SW 845/9056
- Total Dissolved Solids (TDS) by SM 2540C -2011
- Sulfate by EPA 300.0/SW 846 9056

Copies of the laboratory analytical reports are included in **Appendix A**.

2.5 Groundwater Analytical Results

Organic Compound Results

The analytical results for groundwater samples collected from monitoring wells MW-1, MW-2, MW-3, MW-4, and MW-5 show that BTEX and GRO were not detected above laboratory reporting limits or method detection limits. The analytical results for groundwater samples collected from MW-1 and MW2 were also below laboratory detection limits. The presence of DRO was detected in all sampled monitoring wells and ranged from 0.214 mg/l in MW-3 to 4.1 mg/l in MW-1. The COGCC Table 910-1 does not have groundwater standards for DRO since it is not compound specific.

Inorganic Results

The inorganic results for the MW-1 groundwater sample showed that chloride was detected at 3.9 mg/l, TDS at 384 mg/l, and sulfate at 4.5 mg/l. The inorganic compound results for the MW-2 groundwater sample showed that chloride was detected at 0.8 mg/l, TDS were reported at 66.8 mg/l, and sulfate was reported at 3.2 mg/l. The inorganic results for MW-3 showed chloride was detected at 1.3 mg/l, TDS at 100, and sulfate was reported at 2.6 mg/l. The inorganic

compound results for the MW-4 groundwater sample showed that chloride was 0.71 mg/l, TDS were reported at 90 mg/l, and sulfate was reported at 3.2 mg/l.

The inorganic parameters in COGCC Table 910-1 concentration levels are based on 1.25 times background concentrations. The inorganic parameter results for the MW-1 sample are slightly elevated with respect to the results from the groundwater samples from the other three wells, but there does not appear to be evidence of significant groundwater impacts from the operation of the produced water pits and treatment system.

The BTEX, GRO, and DRO in groundwater results are summarized on **Table 3**, and the PAH compounds in groundwater results are summarized on **Table 4**. **Figure 4** also summarizes the groundwater results for the November 22, 2014 groundwater sampling event.

3.0 SUMMARY

Olsson conducted quarterly groundwater monitoring on November 19, 2014 at the former Margaret Spaulding produced water treatment facility. The results are summarized as follows.

Groundwater Monitoring Summary

- The potentiometric surface map shows a gradient to the west-southwest toward Spring Gulch.
- Phase separated hydrocarbons were not detected in any of the monitoring wells.
- Groundwater samples collected from all accessible wells were submitted for analysis of BTEX. The results show that benzene, toluene, ethylbenzene and xylenes were not detected above the laboratory reporting limits in these samples.
- Groundwater samples collected from all wells were submitted for analysis of GRO and DRO to assess total petroleum hydrocarbon concentrations as an indication of subsurface soil impacts beneath the pits. The laboratory report showed that GRO was not detected in any of the groundwater samples. The DRO results for the groundwater samples from these wells ranged from 0.214 mg/l to 4.1 mg/l. Table 3 presents the BTEX and TPH data. The COGCC Table 910-1 does not have a standard for DRO in groundwater; however, groundwater does not appear to be significantly impacted at the site based on these results or the results from previous sampling events.
- Groundwater samples from MW-1 and MW-2 were submitted for analysis of PAH compounds. The laboratory results show that PAH compounds were not detected above the laboratory method detection limits or the laboratory reporting limits in either sample.
- Groundwater samples submitted for analysis of chlorides, TDS, and sulfate during the November 2014 event show that the TDS results reported in the MW-1 sample were slightly elevated as compared to the results for the groundwater sample results reported for the other monitoring wells. However, the results do not indicate that groundwater has been significantly impacted in the vicinity of the former Margaret Spaulding produced water treatment system.

Since the previous sampling results do not show significant impacts to groundwater, and the results have not been above the Table 910-1 concentrations for groundwater, Olsson and CM Production propose to suspend groundwater monitoring at the site pending remediation of the pits.

Once the pit soils meet the Table 910-1 concentrations or levels, CM Production and Olsson propose groundwater monitoring for the Table 910-1 groundwater analytes of BTEX, TDS, chlorides, and sulfate to verify that nothing has leached to groundwater or is migrating offsite, and to document that the Table 910-1 concentrations and levels for the groundwater parameters have been met.

4.0 REFERENCES

Bureau of Land Management McCallum Study Area, 1979, Resource & Potential Reclamation Evaluation, BLM Report No. 26, 36 p.

Hail, W.J, 1965 Geology of Northwestern North Park, Colorado A study of the stratigraphy and areal geology of part of the North Park basin Jackson County, Colorado USGS Bulletin 1188, 139 p.

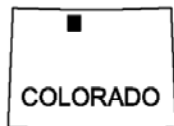
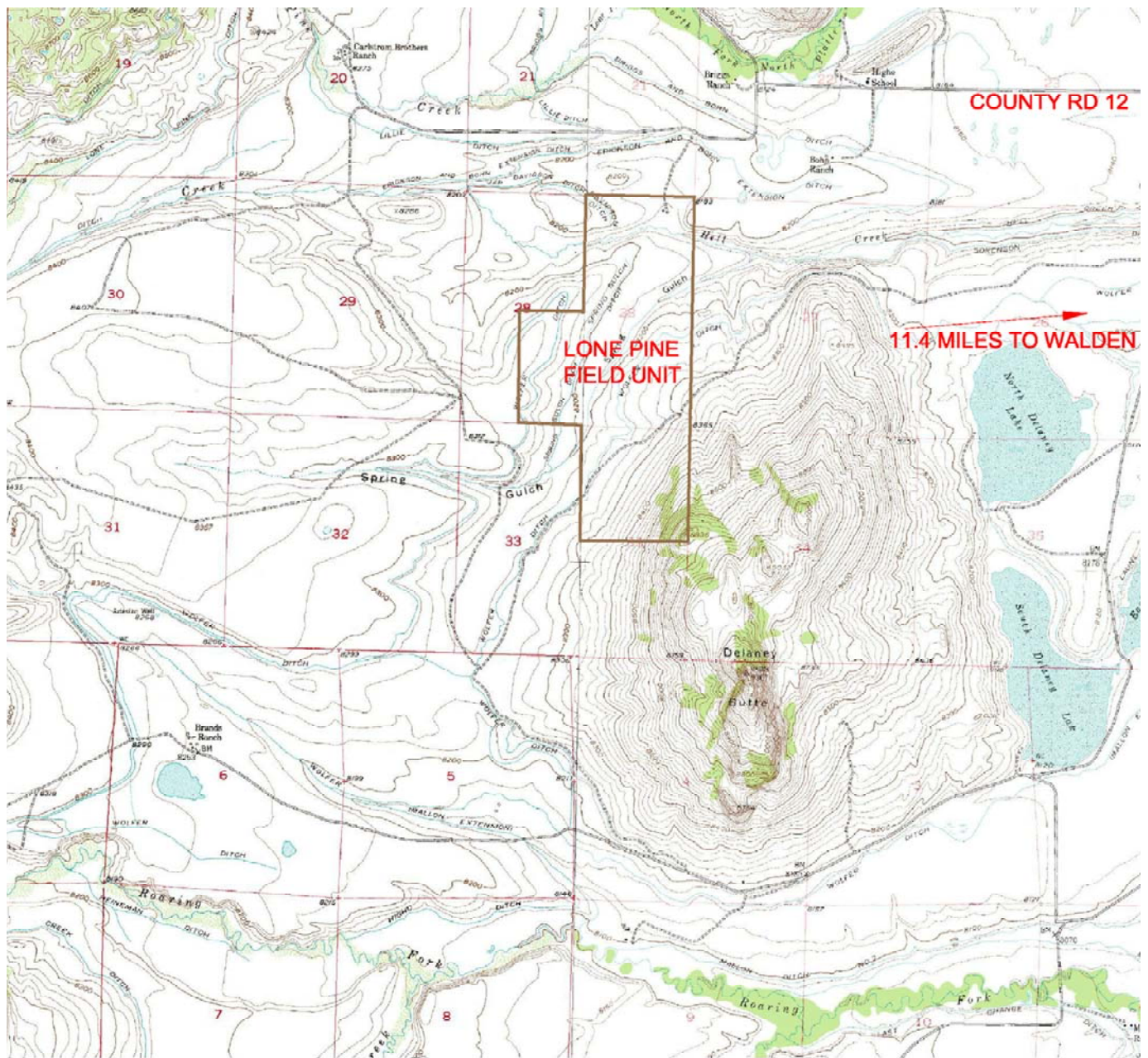
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FIGURES



LOCATION MAP



0 1/4 1/2 1 MILES

FIGURE 1

GENERAL SITE LOCATION MAP

CM Production, LLC

Lone Pine Field, Jackson County, Colorado

Revision Date:	09/18/14
Revision Number	
Revised by:	JWH
Approved by:	
Project Number:	013-1489
Scale:	As Shown

OLSSON
ASSOCIATES



PROJECT NO: 013-1489

DRAWN BY: JWH

DATE: 09/18/2014

Groundwater Monitoring Wells Map CM Production, LLC Lone Pine Field, Jackson County, Colorado



4690 Table Mountain Drive #200
Golden, Colorado 80403
TEL 303.237.2072
FAX 303.237.2659

FIGURE

2



PROJECT NO: 013-1489

DRAWN BY: NG

DATE: 1/5/15

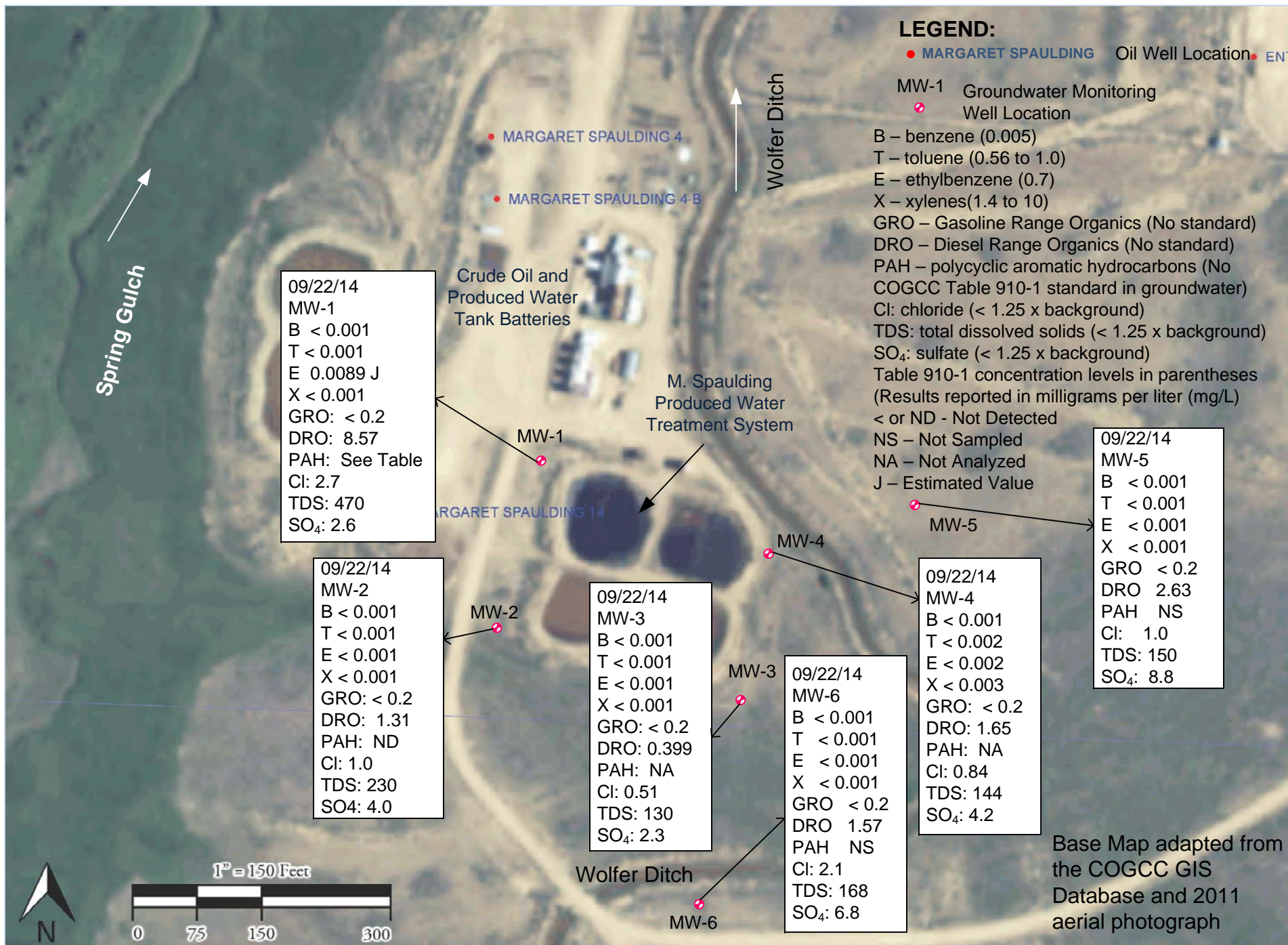
Potentiometric Surface Map – November, 19 2014
CM Production, LLC
Lone Pine Field, Jackson County, Colorado

OLSSON
ASSOCIATES

4690 Table Mountain Drive #200
Golden, Colorado 80403
TEL 303.237.2072
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FIGURE

5



PROJECT NO: 013-1489

DRAWN BY: JWH

DATE: 12/6/14

Groundwater Analytical Results – September 22, 2014
CM Production, LLC
Lone Pine Field, Jackson County, Colorado

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FIGURE

4

TABLES

TABLE 1

Summary of Fluid Level Measurements

CM Production Inc. - Lone Pine Field Pits
Groundwater Monitoring

Station ID#	Date Measured	Northing	Easting	Depth to Product (feet)	Depth to Water (feet)	Total Depth (feet)	Water Column (feet)	Measuring Point Elevation (ft-amsl)	Calculated Groundwater Elevation (ft - amsl)
MW-1	7/12/2012	4403030.111	506765.951		19.00			8227.34	8208.34
	9/19/2013			ND	22.18	30.99	8.81		8205.16
	11/20/2013			ND	23.16		7.83		8204.18
	3/25/2014			ND	24.57		6.42		8202.77
	6/26/2014			ND	20.26		10.73		8207.08
	9/22/2014			ND	22.46		8.53		8204.88
	11/19/2014			ND	23.82		7.17		8220.17
MW-2	7/12/2012	4403049.744	506765.848		10.01			8219.87	8209.86
	9/19/2013			ND	13.33	24.87	11.54		8206.54
	11/20/2013			ND	14.26		10.61		8205.61
	3/25/2014			NM	NM	NM	NM		NM
	6/26/2014			ND	11.22		13.65		8208.65
	9/22/2014			ND	13.70		11.17		8206.17
	11/19/2014			ND	15.00		9.87		8210.00
MW-3	7/12/2012	4403107.371	506677.024		17.38			8229.00	8211.62
	9/19/2013			ND	22.13	34.35	12.22		8206.87
	11/20/2013			ND	23.24		11.11		8205.76
	3/25/2014			ND	24.87		9.48		8204.13
	6/26/2014			ND	18.82		15.53		8210.18
	9/22/2014			ND	22.19		12.16		8206.81
	11/19/2014			ND	23.80		10.55		8218.45
MW-4	7/12/2012	4403109.303	506751.803		24.77			8235.71	8210.94
	9/19/2013			ND	29.71	42.50	12.79		8206.00
	11/20/2013			ND	30.90		11.60		8204.81
	3/24/2014			ND	32.56		9.94		8203.15
	6/26/2014			ND	26.67		15.83		8209.04
	9/22/2014			ND	29.84		12.66		8205.87
	11/19/2014			ND	31.55		10.95		8224.76
MW-5	7/12/2012	4403107.537	506790.649		34.37			8244.96	8210.59
	9/19/2013			ND	34.27	42.70	8.43		8210.69
	11/20/2013			ND	40.56		2.14		8204.40
	3/25/2014			NM	NM	NM	NM		NM
	6/26/2014			ND	35.56		7.14		8209.40
	9/22/2014			ND	39.45		3.25		8205.51
	11/19/2014			ND	41.20		1.50		8243.46
MW-6	7/12/2012	4402964.351	506739.099		34.37			8242.23	8207.86
	9/19/2013			ND	39.42	47.55	8.13		8202.81
	11/20/2013			ND	35.28		12.27		8206.95
	3/25/2014			ND	36.81		10.74		8205.42
	6/26/2014			ND	30.45		17.10		8211.78
	9/22/2014			ND	34.20		13.35		8208.03
	11/19/2014			NM	NM		NM		NM

ft - amsl feet above mean sea level

ND Not Detected

Monitoring wells were installed and surveyed by North Park Engineering - R. Miller on 06/18/2012.

Coordinate System - UTM Zone 13/NAD 1983

North Park Engineering measured groundwater in the monitoring wells on 07/12/2012.

Olsson Associates measured fluid levels in the monitoring wells on 09/19/2013, 11/20/2013, 3/25/2014, 6/26/2014, and 9/22/2014.

TABLE 2

Field Parameter Measurements

CM Production Inc. - Lone Pine Field Pits
Groundwater Monitoring

Station ID	Date Measured	Temperature (°C)	pH (s.u.)	D.O. (mg/l)	Specific Conductance (µmohs/cm)	ORP
MW-1	7/12/2012	NM	NM	NM	NM	NM
	9/19/2013	NM	NM	NM	NM	NM
	11/20/2013	12.45	7.48	0.44	0.773	-69.0
	3/25/2014	10.97	7.37	1.42	0.468	-80.0
	6/26/2014	9.82	5.92	0.80	0.682	-126.40
	9/22/2014	10.80	7.04	0.85	0.474	-71.80
	11/19/2014	10.78	7.41	0.43	0.429	-60.8
MW-2	7/12/2012	NM	NM	NM	NM	NM
	9/19/2013	NM	NM	NM	NM	NM
	11/20/2013	8.98	7.51	4.61	0.172	59.0
	3/25/2014	NM	NM	NM	NM	NM
	6/26/2014	6.72	6.71	6.58	0.182	137.8
	9/22/2014	10.59	7.25	5.12	0.181	117.9
	11/19/2014	8.86	7.66	6.64	0.720	72.6
MW-3	7/12/2012	NM	NM	NM	NM	NM
	9/19/2013	NM	NM	NM	NM	NM
	11/20/2013	8.17	7.69	6.67	0.143	62.0
	3/25/2014	6.79	7.73	1.31	0.197	49.9
	6/26/2014	7.14	7.00	7.95	0.988	168.7
	9/22/2014	7.98	7.77	2.47	0.150	109.3
	11/19/2014	8.39	7.67	7.71	0.146	241.6
MW-4	7/12/2012	NM	NM	NM	NM	NM
	9/19/2013	NM	NM	NM	NM	NM
	11/20/2013	8.70	6.54	6.92	0.145	89.8
	3/25/2014	8.06	7.53	2.31	0.202	38.3
	6/26/2014	7.77	5.80	7.22	0.192	158.4
	9/22/2014	7.68	6.95	3.02	0.178	140.6
	11/19/2014	7.93	7.32	7.58	1.171	340.3
MW-5	7/12/2012	NM	NM	NM	NM	NM
	9/19/2013	NM	NM	NM	NM	NM
	11/20/2013	NM	NM	NM	NM	NM
	3/25/2014	NM	NM	NM	NM	NM
	6/26/2014	8.54	6.42	6.80	0.277	131.3
	9/22/2014	8.15	7.56	5.21	0.226	88.6
	11/19/2014	7.23	8.01	7.33	0.223	-125.4
MW-6	7/12/2012	NM	NM	NM	NM	NM
	9/19/2013	NM	NM	NM	NM	NM
	11/20/2013	NM	NM	NM	NM	NM
	3/25/2014	7.12	7.47	1.27	0.191	41.6
	6/26/2014	8.07	6.62	1.71	0.235	140.7
	9/22/2014	7.76	7.98	1.11	0.232	89.6
	11/19/2014	NM	NM	NM	NM	NM

°C - temperature in degrees Celsius

pH (s.u.) - pH measurement in standard units

D.O. - dissolved oxygen in milligrams per liter (mg/l)

Specific Conductance in micromohs per centimeter (µmohs/cm)

ORP - Oxidation reduction potential

TABLE 3

Groundwater Analytical Results
Summary of Volatile Organic Compounds and Total Petroleum Hydrocarbons

CM Production Inc. - Lone Pine Field Pits

Station ID#	Date Sampled	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	GRO (mg/L)	DRO (mg/L)
COGCC 910-1		0.005	0.56	0.7	1.4	N/A	N/A
MW-1	4/17/2012	< 0.002	< 0.002	< 0.002	< 0.004	< 0.05	4.3
	1/8/2013	< 0.001	0.0032	< 0.001	< 0.001	0.057	2.1
	9/19/2013	< 0.001	< 0.002	0.00073 J	< 0.001	NA	26.8
	11/20/2013	< 0.001	< 0.001	< 0.001	< 0.001	NA	6.5
	3/25/2014	< 0.001	< 0.001	< 0.002	< 0.001	NA	2.26
	6/26/2014	0.0029	< 0.001	0.0081	< 0.001	< 0.2	6.6
	9/22/2014	< 0.001	< 0.001	0.0089 J	< 0.001	< 0.2	8.57
	11/19/2014	< 0.001	< 0.001	< 0.001	< 0.002	< 0.050	4.1
MW-2	4/17/2012	< 0.002	< 0.002	< 0.002	< 0.004	< 0.05	1.1
	1/8/2013	< 0.001	0.0029	< 0.001	< 0.001	< 0.040	< 1.0
	9/19/2013	< 0.001	< 0.002	< 0.002	< 0.003	NA	< 0.40
	11/20/2013	< 0.001	< 0.001	< 0.001	< 0.001	NA	2.5
	3/25/2014	NS	NS	NS	NS	NS	NS
	6/26/2014	< 0.001	< 0.002	< 0.002	< 0.003	< 0.2	1.48
	9/22/2014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.2	1.31
	11/19/2014	< 0.001	< 0.001	< 0.001	< 0.002	< 0.050	1.44
MW-3	4/17/2012	< 0.002	< 0.002	< 0.002	< 0.004	< 0.05	3.9
	1/8/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.040	< 1.0
	9/19/2013	< 0.001	< 0.002	< 0.002	< 0.003	NA	NA
	11/20/2013	< 0.001	< 0.001	< 0.001	< 0.001	NA	< 1.0
	3/25/2014	< 0.001	< 0.002	< 0.002	< 0.003	NA	0.441
	6/26/2014	< 0.001	< 0.002	< 0.002	< 0.003	< 0.2	0.418
	9/22/2014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.2	0.399
	11/19/2014	< 0.001	< 0.001	< 0.001	< 0.002	< 0.050	0.214
MW-4	4/17/2012	< 0.002	< 0.002	< 0.002	< 0.004	< 0.05	1.2
	1/8/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.040	< 1.0
	9/19/2013	< 0.001	< 0.002	< 0.002	< 0.003	NA	NA
	11/20/2013	< 0.001	< 0.001	< 0.001	< 0.001	NA	1.7
	3/25/2014	< 0.001	< 0.002	< 0.002	< 0.003	< 0.2	3.12
	6/26/2014	< 0.001	< 0.002	< 0.002	< 0.003	< 0.2	1.65
	9/22/2014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.2	1.21
	11/19/2014	< 0.001	< 0.001	< 0.001	< 0.002	< 0.05	1.09
MW-5	4/17/2012	NS	NS	NS	NS	NS	NS
	1/8/2013	NS	NS	NS	NS	NS	NS
	2/5/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.040	< 1.0
	9/19/2013	< 0.001	< 0.002	< 0.002	< 0.003	NA	NA
	11/20/2013	NS	NS	NS	NS	NS	NS
	3/25/2014	NS	NS	NS	NS	NS	NS
	6/26/2014	NS	NS	NS	NS	NS	NS
	9/22/2014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.2	2.63
	11/19/2014	NS	NS	NS	NS	NS	NS
MW-6	4/17/2012	NS	NS	NS	NS	NS	NS
	1/8/2013	NS	NS	NS	NS	NS	NS
	2/5/2013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.040	< 1.0
	9/19/2013	< 0.001	< 0.002	< 0.002	< 0.003	NA	NA
	11/20/2013	NS	NS	NS	NS	NS	NS
	3/25/2014	NS	NS	NS	NS	NS	NS
	6/26/2014	NS	NS	NS	NS	NS	NS
	9/22/2014	< 0.001	< 0.001	< 0.001	< 0.001	< 0.2	1.57
	11/19/2014	NS	NS	NS	NS	NS	NS

COGCC 910-1 Colorado Oil and Gas Conservation Commission Table 910-1 Concentration Levels
mg/L milligrams per liter
N/A Not Applicable (COGCC has not established a Table 910-1 Concentration Level for GRO or DRO in Groundwater)
< or ND Not Detected
NA Not Analyzed
NS Not Sampled

<div>TABLE 4</div> <div>Groundwater Analytical Results</div> <div>Semi-Volatile Organic Compounds - Polycyclic Aromatic Hydrocarbons</div> <div>CM Production Inc. - Lone Pine Field Pits</div>														
Station ID#	Date Sampled	Acenaphthene (mg/l)	Anthracene (mg/l)	Benzo(a) anthrocene (mg/l)	Benzo(b) fluoranthene (mg/l)	Benzo(a) pyrene (mg/l)	Chrysene (mg/l)	Dibenzo(a,h) anthracene (mg/l)	Fluoranthene (mg/l)	Fluorene (mg/l)	Indeno (1,2,3-cd) pyrene (mg/l)	Naphthalene (mg/l)	Pyrene (mg/l)	DRO (mg/l)
COGCC 910-1		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
CDPHE-WQCC Reg 41		0.42	2.1	0.000048	0.000048	0.000048	0.000048	0.000048	0.28	0.28	0.000048	0.14	0.21	NE
MW-1	9/19/2013	0.0003	< 0.00019	< 0.000095	< 0.000095	< 0.00019	0.00014	< 0.000095	< 0.00019	0.002	< 0.00019	0.00036	< 0.00019	26.8
	11/20/2013	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	6.5
	3/25/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.0019	2.26
	6/26/2014	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	6.6
	9/22/2014	0.00038	< 0.00019	< 0.000095	< 0.000095	< 0.000095	0.00017	< 0.000095	< 0.00019	< 0.00019	0.000071	< 0.00019	< 0.0019	8.57
	11/19/2014	< 0.0047	< 0.0047	< 0.0047	< 0.00094	< 0.00094	< 0.00094	< 0.00094	< 0.0047	< 0.0047	< 0.00094	< 0.0047	< 0.0047	4.1
MW-2	9/1/9/2013	< 0.00038	< 0.00038	< 0.00019	< 0.00019	< 0.00038	< 0.00019	< 0.00019	< 0.00038	< 0.00038	< 0.00039	< 0.00039	< 0.00038	< 0.40
	11/20/2013	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	2.5
	3/25/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/26/2014	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	< 0.0047	1.48
	9/22/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.0019	1.31
	11/19/2014	< 0.0047	< 0.0047	< 0.000094	< 0.000094	< 0.00094	< 0.00094	< 0.000094	< 0.0047	< 0.0047	< 0.000094	< 0.0047	< 0.0047	1.44
MW-3	9/19/2013	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.000095	< 0.000095	< 0.000019	<0.00019	< 0.00019	< 0.00019	< 0.00019	NA
	11/20/2013	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.10	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 1.0
	3/25/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.00019	0.441
	6/26/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.418
	9/22/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.0019	0.399
	11/19/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.214
MW-4	9/19/2013	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.00019	< 0.00019	< 0.00019	NA
	11/20/2013	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	1.7
	3/25/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.00019	3.12
	6/26/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.65
	9/22/2014	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.000095	< 0.00019	< 0.0019	1.21
	11/19/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	
MW-5	9/19/2013	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.00019	< 0.00019	< 0.00019	NA
	11/20/2013	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/25/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/26/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/22/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	2.63
	11/19/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-6	9/19/2013	< 0.00019	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.000095	< 0.000095	< 0.00019	< 0.00019	< 0.00019	< 0.00019	< 0.00019	NA
	11/20/2013	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	3/25/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	6/26/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	9/22/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1.57
	11/19/2014	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

:OGCC 910- Colorado Oil and Gas Conservation Commission Table 910-1 Concentration Levels

mg/L milligrams per liter
 N/A Not Applicable - Total PAH (polycyclic aromatic hydrocarbons)
 NE None Established - the COGCC has Table 910-1 Concentration Levels for PAHs in soil, but has not established PAH concentrations in Groundwater
 < Not Detected above the laboratory reporting limit
 NS Not Sampled

 Note: Upgradient wells MW-5 and MW-6 were not sampled.

TABLE 5

Summary of Inorganic Compounds in Groundwater

CM Production Inc. - Lone Pine Field Pits
Groundwater Monitoring

Station ID#	Date Measured	Chloride (mg/L)	Iron (mg/L)	TDS (mg/L)	Sulfate (mg/L)
COGCC T 910-1		< 1.25 x background	NE	< 1.25 x background	< 1.25 x background
MW-1	4/17/2012	9.41		360	3.43
	9/19/2013	NS		NS	NS
	11/20/2013	NS		NS	NS
	3/25/2014	NS		NS	NS
	6/26/2014	4.6		452	2.5
	9/23/2014	2.7	30.1	470	2.6
	11/19/2014	3.9	42.1	384	4.5
MW-2	4/17/2012	1.71		120	4.48
	9/19/2013	NS		NS	NS
	11/20/2013	NS		NS	NS
	3/25/2014	NS		NS	NS
	6/26/2014	1.3		156	6.0
	9/22/2014	1.0	29.2	230	4.0
	11/19/2014	0.8	66.8	156	3.2
MW-3	4/17/2012	6.8		160	10.04
	9/19/2013	NS		NS	NS
	11/20/2013	NS		NS	NS
	3/25/2014	NS		NS	NS
	6/26/2014	0.93		133	4.9
	9/23/2014	0.51	49.1	130	2.3
	11/19/2014	1.3	71.5	100	2.6
MW-4	4/17/2012	6.34		160	4.47
	9/19/2013	NS		NS	NS
	11/20/2013	NS		NS	NS
	3/25/2014	NS		NS	NS
	6/26/2014	2.3		134	4.7
	9/22/2014	0.84	64.7	144	4.2
	11/19/2014	0.71	44.4	90.0	3.2
MW-5	4/17/2012	NS		NS	NS
	9/19/2013	NS		NS	NS
	11/20/2013	NS		NS	NS
	3/25/2014	NS		NS	NS
	6/26/2014	NS		NS	NS
	9/22/2014	1.0	27.7	150	8.8
	11/19/2014	NS	NS	NS	NS
MW-6	4/17/2012	NS		NS	NS
	9/19/2013	NS		NS	NS
	11/20/2013	NS		NS	NS
	3/25/2014	NS		NS	NS
	6/26/2014	NS		NS	NS
	9/22/2014	2.1	74.8	168	6.8
	11/19/2014	NS	NS	NS	NS

mg/L milligrams per liter

ND Not Detected

NS Not Sampled

APPENDIX A
November 2014
Groundwater Analytical Results



12/05/14

Technical Report for

Olsson Associates - Denver

CM Production-Lone Pine Excav.

013-1489

Accutest Job Number: D64894

Sampling Date: 11/19/14

Report to:

**Olsson Associates
4690 Table Mountain Drive #200 Suite 200
Golden, CO 80403
jhix@olssonassociates.com**

ATTN: James Hix

Total number of pages in report: 156



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

A handwritten signature in black ink, appearing to read 'Scott Heideman'.

**Scott Heideman
Laboratory Director**

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories.
Test results relate only to samples analyzed.

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Sample Summary

Olsson Associates - Denver

Job No: D64894

CM Production-Lone Pine Excav.
Project No: 013-1489

Sample Number	Collected		Matrix Code	Type	Client	
	Date	Time By	Received		Sample ID	
D64894-1	11/19/14	11:58 NG	11/21/14	AQ	Ground Water	
D64894-2	11/19/14	12:52 NG	11/21/14	AQ	Ground Water	
D64894-3	11/19/14	10:01 NG	11/21/14	AQ	Ground Water	
D64894-4	11/19/14	11:04 NG	11/21/14	AQ	Ground Water	

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: Olsson Associates - Denver

Job No D64894

Site: CM Production-Lone Pine Excav.

Report Date 12/5/2014 3:29:39 PM

On 11/21/2014, 4 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.4 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D64894 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: AQ

Batch ID: C:VQ1074

- The data for SW846 8260B meets quality control requirements.
- D64894-1: Sample was not preserved to a pH < 2. Analysis performed at Accutest Laboratories, San Jose, CA.
- D64894-2,-3,-4: Analysis performed at Accutest Laboratories, San Jose, CA.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix: AQ

Batch ID: C:OP11273

- The data for SW846 8270C BY SIM meets quality control requirements.
- D64894-2: Analysis performed at Accutest Laboratories, San Jose, CA.

Matrix: AQ

Batch ID: C:OP11318

- The data for SW846 8270C BY SIM meets quality control requirements.
- D64894-1: Sample extracted beyond hold-time; originally on hold. Analysis performed at Accutest Laboratories, San Jose, CA.

Extractables by GC By Method SW846-8015B

Matrix: AQ

Batch ID: OP11003

- All samples were extracted and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D60574-26MS, D60574-26MSD were used as the QC samples indicated.

Metals By Method EPA 200.8

Matrix: AQ

Batch ID: MP14679

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D65140-1FAMS, D65140-1FAMSD were used as the QC samples for the metals analysis.

Wet Chemistry By Method EPA 300.0/SW846 9056

Matrix: AQ

Batch ID: GP14108

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D64795-1MS, D64795-1MSD were used as the QC samples for the Chloride, Sulfate, Chloride analysis.

Matrix: AQ

Batch ID: GP14109

- All samples were prepared and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D64894-4MS, D64894-4MSD were used as the QC samples for the Chloride, Sulfate, Chloride analysis.

Wet Chemistry By Method SM 2540C-2011

Matrix: AQ

Batch ID: GN27594

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D64894-1DUP, D64894-2DUP were used as the QC samples for the Solids, Total Dissolved analysis.

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 DELIVERY GROUP CASE NARRATIVE

Client: Accutest Mountain States

Job No D64894

Site: COCSCOG: CM Production-Lone Pine Excav.

Report Date 12/4/2014 7:35:56 PM

4 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were collected on 11/19/2014 and were received at Accutest on 11/21/2014 properly preserved, at 4.3 Deg. C and intact. These Samples received an Accutest job number of D64894. 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: VQ1074

- Sample(s) C37147-1MS, C37147-1MSD were used as the QC samples indicated.
- D64894-1: Sample was not preserved to a pH < 2.

Extractables by GCMS By Method SW846 8270C BY SIM

Matrix: AQ

Batch ID: OP11273

- Sample(s) C37344-2MS, C37344-2MSD were used as the QC samples indicated.

Matrix: AQ

Batch ID: OP11318

- The following samples were extracted outside of holding time for method SW846 8270C BY SIM: D64894-1
- D64894-1: Sample extracted beyond hold-time; originally on hold.

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 Quality Objectives 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

Summary of Hits

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Job Number: D64894
Account: Olsson Associates - Denver
Project: CM Production-Lone Pine Excav.
Collected: 11/19/14



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
---------------	------------------	-----------------	----	-----	-------	--------

D64894-1 MW1

TPH-DRO (C10-C28)	4.10	0.19	0.17	mg/l	SW846-8015B
Iron	42100	20		ug/l	EPA 200.8
Chloride	3.9	0.50		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved	384	10		mg/l	SM 2540C-2011
Sulfate	4.5	0.50		mg/l	EPA 300.0/SW846 9056

D64894-2 MW2

TPH-DRO (C10-C28)	1.44	0.19	0.17	mg/l	SW846-8015B
Iron	66800	20		ug/l	EPA 200.8
Chloride	0.79	0.50		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved	156	10		mg/l	SM 2540C-2011
Sulfate	3.2	0.50		mg/l	EPA 300.0/SW846 9056

D64894-3 MW3

TPH-DRO (C10-C28)	0.214	0.20	0.18	mg/l	SW846-8015B
Iron	71500	20		ug/l	EPA 200.8
Chloride	1.3	0.50		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved	100	10		mg/l	SM 2540C-2011
Sulfate	2.6	0.50		mg/l	EPA 300.0/SW846 9056

D64894-4 MW4

TPH-DRO (C10-C28)	1.09	0.20	0.18	mg/l	SW846-8015B
Iron	44400	20		ug/l	EPA 200.8
Chloride	0.71	0.50		mg/l	EPA 300.0/SW846 9056
Solids, Total Dissolved	90.0	10		mg/l	SM 2540C-2011
Sulfate	3.2	0.50		mg/l	EPA 300.0/SW846 9056

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

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Client Sample ID:	MW1		
Lab Sample ID:	D64894-1	Date Sampled:	11/19/14
Matrix:	AQ - Ground Water	Date Received:	11/21/14
Method:	SW846 8260B	Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	Q25385.D	1	12/01/14	ANC	n/a	n/a	C:VQ1074
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

Purgeable Aromatics, BTEX and GRO

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-88-3	Toluene	ND	1.0	0.20	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	
	TPH-GRO (C6-C10)	ND	50	25	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		70-130%
2037-26-5	Toluene-D8	96%		70-130%
460-00-4	4-Bromofluorobenzene	97%		70-130%

(a) Sample was not preserved to a pH < 2. Analysis performed at Accutest Laboratories, San Jose, CA.

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

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Client Sample ID:	MW1	Date Sampled:	11/19/14
Lab Sample ID:	D64894-1	Date Received:	11/21/14
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C BY SIM SW846 3510C		
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	T17053.D	1	12/04/14	ANC	12/04/14	C:OP11318	C:ET751
Run #2							

	Initial Volume	Final Volume
Run #1	1060 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.47	0.047	ug/l	
208-96-8	Acenaphthylene	ND	0.47	0.047	ug/l	
120-12-7	Anthracene	ND	0.47	0.047	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.094	0.050	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.094	0.039	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.094	0.033	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.094	0.034	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.094	0.037	ug/l	
218-01-9	Chrysene	ND	0.094	0.042	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.094	0.033	ug/l	
206-44-0	Fluoranthene	ND	0.47	0.047	ug/l	
86-73-7	Fluorene	ND	0.47	0.047	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.094	0.033	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.47	0.094	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.47	0.094	ug/l	
91-20-3	Naphthalene	ND	0.47	0.094	ug/l	
85-01-8	Phenanthrene	ND	0.47	0.047	ug/l	
129-00-0	Pyrene	ND	0.47	0.047	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	77%		42-116%
321-60-8	2-Fluorobiphenyl	82%		44-115%
1718-51-0	Terphenyl-d14	88%		45-141%

(a) Sample extracted beyond hold-time; originally on hold. Analysis performed at Accutest Laboratories, San Jose, CA.

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

Page 1 of 1

Client Sample ID:	MW1	Date Sampled:	11/19/14
Lab Sample ID:	D64894-1	Date Received:	11/21/14
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846-8015B SW846 3510C		
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD37089.D	1	11/24/14	JJ	11/24/14	OP11003	GFD1683
Run #2							

	Initial Volume	Final Volume
Run #1	1060 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	4.10	0.19	0.17	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	73%		10-130%		

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:	MW1	Date Sampled:	11/19/14
Lab Sample ID:	D64894-1	Date Received:	11/21/14
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	42100	20	ug/l	2	12/04/14	12/04/14 KV	EPA 200.8 ¹	EPA 200.8 ²

(1) Instrument QC Batch: MA5547
(2) Prep QC Batch: MP14679

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW1	Date Sampled:	11/19/14
Lab Sample ID:	D64894-1	Date Received:	11/21/14
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	3.9	0.50	mg/l	1	11/22/14 13:08	JB	EPA 300.0/SW846 9056
Solids, Total Dissolved	384	10	mg/l	1	11/24/14	AK	SM 2540C-2011
Sulfate	4.5	0.50	mg/l	1	11/22/14 13:08	JB	EPA 300.0/SW846 9056

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	MW2		
Lab Sample ID:	D64894-2	Date Sampled:	11/19/14
Matrix:	AQ - Ground Water	Date Received:	11/21/14
Method:	SW846 8260B	Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	Q25386.D	1	12/01/14	ANC	n/a	n/a	C:VQ1074
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

Purgeable Aromatics,BTEX and GRO

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-88-3	Toluene	ND	1.0	0.20	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	
	TPH-GRO (C6-C10)	ND	50	25	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		70-130%
2037-26-5	Toluene-D8	82%		70-130%
460-00-4	4-Bromofluorobenzene	93%		70-130%

(a) Analysis performed at Accutest Laboratories, San Jose, CA.

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

Page 1 of 1

Client Sample ID:	MW2	Date Sampled:	11/19/14
Lab Sample ID:	D64894-2	Date Received:	11/21/14
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8270C BY SIM SW846 3510C		
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	X40921.D	1	11/25/14	ANC	11/25/14	C:OP11273	C:EX1749
Run #2							

	Initial Volume	Final Volume
Run #1	1060 ml	1.0 ml
Run #2		

BN PAH List

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.47	0.047	ug/l	
208-96-8	Acenaphthylene	ND	0.47	0.047	ug/l	
120-12-7	Anthracene	ND	0.47	0.047	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.094	0.050	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.094	0.039	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.094	0.033	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.094	0.034	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.094	0.037	ug/l	
218-01-9	Chrysene	ND	0.094	0.042	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.094	0.033	ug/l	
206-44-0	Fluoranthene	ND	0.47	0.047	ug/l	
86-73-7	Fluorene	ND	0.47	0.047	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.094	0.033	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.47	0.094	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.47	0.094	ug/l	
91-20-3	Naphthalene	ND	0.47	0.094	ug/l	
85-01-8	Phenanthrene	ND	0.47	0.047	ug/l	
129-00-0	Pyrene	ND	0.47	0.047	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	85%		42-116%
321-60-8	2-Fluorobiphenyl	73%		44-115%
1718-51-0	Terphenyl-d14	54%		45-141%

(a) Analysis performed at Accutest Laboratories, San Jose, CA.

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

Page 1 of 1

Client Sample ID:	MW2	Date Sampled:	11/19/14
Lab Sample ID:	D64894-2	Date Received:	11/21/14
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846-8015B SW846 3510C		
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD37091.D	1	11/24/14	JJ	11/24/14	OP11003	GFD1683
Run #2							

	Initial Volume	Final Volume
Run #1	1060 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	1.44	0.19	0.17	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	78%		10-130%		

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:	MW2	Date Sampled:	11/19/14
Lab Sample ID:	D64894-2	Date Received:	11/21/14
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	66800	20	ug/l	2	12/04/14	12/04/14 KV	EPA 200.8 ¹	EPA 200.8 ²

(1) Instrument QC Batch: MA5547
(2) Prep QC Batch: MP14679

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW2	Date Sampled:	11/19/14
Lab Sample ID:	D64894-2	Date Received:	11/21/14
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	0.79	0.50	mg/l	1	11/22/14 13:21	JB	EPA 300.0/SW846 9056
Solids, Total Dissolved	156	10	mg/l	1	11/24/14	AK	SM 2540C-2011
Sulfate	3.2	0.50	mg/l	1	11/22/14 13:21	JB	EPA 300.0/SW846 9056

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	MW3						
Lab Sample ID:	D64894-3					Date Sampled:	11/19/14
Matrix:	AQ - Ground Water					Date Received:	11/21/14
Method:	SW846 8260B					Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	Q25387.D	1	12/01/14	ANC	n/a	n/a	C:VQ1074
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

Purgeable Aromatics, BTEX and GRO

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-88-3	Toluene	ND	1.0	0.20	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	
	TPH-GRO (C6-C10)	ND	50	25	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	99%		70-130%
2037-26-5	Toluene-D8	87%		70-130%
460-00-4	4-Bromofluorobenzene	93%		70-130%

(a) Analysis performed at Accutest Laboratories, San Jose, CA.

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

Page 1 of 1

Client Sample ID:	MW3	Date Sampled:	11/19/14
Lab Sample ID:	D64894-3	Date Received:	11/21/14
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846-8015B SW846 3510C		
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD37093.D	1	11/24/14	JJ	11/24/14	OP11003	GFD1683
Run #2							

	Initial Volume	Final Volume
Run #1	990 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	0.214	0.20	0.18	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	55%		10-130%		

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:	MW3	Date Sampled:	11/19/14
Lab Sample ID:	D64894-3	Date Received:	11/21/14
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	71500	20	ug/l	2	12/04/14	12/04/14 KV	EPA 200.8 ¹	EPA 200.8 ²

(1) Instrument QC Batch: MA5547
(2) Prep QC Batch: MP14679

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW3	Date Sampled:	11/19/14
Lab Sample ID:	D64894-3	Date Received:	11/21/14
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	1.3	0.50	mg/l	1	11/22/14 13:34	JB	EPA 300.0/SW846 9056
Solids, Total Dissolved	100	10	mg/l	1	11/24/14	AK	SM 2540C-2011
Sulfate	2.6	0.50	mg/l	1	11/22/14 13:34	JB	EPA 300.0/SW846 9056

RL = Reporting Limit

Accutest Laboratories

Report of Analysis

Page 1 of 1

Client Sample ID:	MW4	Date Sampled:	11/19/14
Lab Sample ID:	D64894-4	Date Received:	11/21/14
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846 8260B		
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 ^a	Q25388.D	1	12/01/14	ANC	n/a	n/a	C:VQ1074
Run #2							

	Purge Volume
Run #1	10.0 ml
Run #2	

Purgeable Aromatics, BTEX and GRO

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
108-88-3	Toluene	ND	1.0	0.20	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	
	TPH-GRO (C6-C10)	ND	50	25	ug/l	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		70-130%
2037-26-5	Toluene-D8	82%		70-130%
460-00-4	4-Bromofluorobenzene	89%		70-130%

(a) Analysis performed at Accutest Laboratories, San Jose, CA.

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

Page 1 of 1

Client Sample ID:	MW4	Date Sampled:	11/19/14
Lab Sample ID:	D64894-4	Date Received:	11/21/14
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Method:	SW846-8015B SW846 3510C		
Project:	CM Production-Lone Pine Excav.		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FD37095.D	1	11/24/14	JJ	11/24/14	OP11003	GFD1683
Run #2							

	Initial Volume	Final Volume
Run #1	1000 ml	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	1.09	0.20	0.18	mg/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	77%		10-130%		

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:	MW4	Date Sampled:	11/19/14
Lab Sample ID:	D64894-4	Date Received:	11/21/14
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	44400	20	ug/l	2	12/04/14	12/04/14 KV	EPA 200.8 ¹	EPA 200.8 ²

(1) Instrument QC Batch: MA5547
(2) Prep QC Batch: MP14679

RL = Reporting Limit

Report of Analysis

Client Sample ID:	MW4	Date Sampled:	11/19/14
Lab Sample ID:	D64894-4	Date Received:	11/21/14
Matrix:	AQ - Ground Water	Percent Solids:	n/a
Project:	CM Production-Lone Pine Excav.		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Chloride	0.71	0.50	mg/l	1	11/22/14 19:38	JB	EPA 300.0/SW846 9056
Solids, Total Dissolved	90.0	10	mg/l	1	11/24/14	AK	SM 2540C-2011
Sulfate	3.2	0.50	mg/l	1	11/22/14 19:38	JB	EPA 300.0/SW846 9056

RL = Reporting Limit

Misc. Forms

5

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Mountain States
4036 Youngfield Street Wheat Ridge, Co 80033
TEL. 303-425-6021 877-737-4521
FAX 303-425-6021

FED-EX Tracking #				Bottle Order Control #			
Accusert Quote #				Accusert Job # D64894			
Requested Analysis (see TEST CODE sheet)							Matrix Codes
							DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank
Bottle:							
	BTEX	GAS	DAO	Sulfate	TDS	Chlorides	
						PAH (COACC)	
X	X	X	X	X	X	X	LAB USE ONLY
X	X	X	X	X	X	X	01
X	X	X	X	X	X	X	02
X	X	X	X	X	X	X	03
X	X	X	X	X	X	X	04
							Prior
Comments / Special Instructions							
Intact _____							

Including courier delivery.				Date Time:	Received By:	11/21/04 12:41	
42841				Date Time:	Received By:	4	
<input type="checkbox"/> Intact Preserved where applicable				<input checked="" type="checkbox"/> On Ice		Cooler Temp. 24	
<input checked="" type="checkbox"/> Not Intact							

5.1

D64894: Chain of Custody

Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D64894 **Client:** OLSSON **Project:** LONE PINE
Date / Time Received: 11/21/2014 12:41:00 PM **Delivery Method:** _____ **Airbill #'s:** CO
Cooler Temps (Initial/Adjusted): #1: (2.4/2.4):

Cooler Security
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: <u>Bar Therm;</u> | |
| 3. Cooler media: <u>Ice (Bag)</u> | |
| 4. No. Coolers: <u>1</u> | |

Quality Control Preservation
Y or N
N/A

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

Comments

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: <u>Intact</u> | |

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 recvd 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"/> | |

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: D64894**Account:** COCSCOG Olsson Associates - Denver**Project:** CM Production-Lone Pine Excav.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP11003-MB	FD37076.D	1	11/24/14	JJ	11/24/14	OP11003	GFD1682

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

D64894-1, D64894-2, D64894-3, D64894-4

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	ND	0.20	0.18	mg/l	

CAS No.	Surrogate Recoveries	Limits
84-15-1	o-Terphenyl	50% 10-130%

Blank Spike Summary

Page 1 of 1

Job Number: D64894

Account: COCSCOG Olsson Associates - Denver

Project: CM Production-Lone Pine Excav.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP11003-BS	FD37078.D	1	11/24/14	JJ	11/24/14	OP11003	GFD1682

The QC reported here applies to the following samples:

Method: SW846-8015B

D64894-1, D64894-2, D64894-3, D64894-4

CAS No.	Compound	Spike mg/l	BSP mg/l	BSP %	Limits
	TPH-DRO (C10-C28)	5	2.51	50	33-130

CAS No.	Surrogate Recoveries	BSP	Limits
84-15-1	o-Terphenyl	84%	10-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D64894

Account: COCSCOG Olsson Associates - Denver

Project: CM Production-Lone Pine Excav.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP11003-MS	FD37080.D	1	11/24/14	JJ	11/24/14	OP11003	GFD1682
OP11003-MSD	FD37082.D	1	11/24/14	JJ	11/24/14	OP11003	GFD1682
D60574-26	FD37084.D	1	11/24/14	JJ	11/24/14	OP11003	GFD1682

The QC reported here applies to the following samples:

Method: SW846-8015B

D64894-1, D64894-2, D64894-3, D64894-4

CAS No.	Compound	D60574-26 mg/l	Spike Q mg/l	MS mg/l	MS %	Spike mg/l	MSD mg/l	MSD %	RPD	Limits Rec/RPD
	TPH-DRO (C10-C28)	ND	5	3.16	63	5	2.55	51	21	33-130/30

CAS No.	Surrogate Recoveries	MS	MSD	D60574-26	Limits
84-15-1	o-Terphenyl	99%	80%	78%	10-130%

* = Outside of Control Limits.

GC Semi-volatiles

Raw Data

7

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2014\NOV\FD112414\FD37089.D Vial: 19
Acq On : 24 Nov 2014 10:22 pm Operator: JENNJ1
Sample : D64894-1 Inst : FID5
Misc : OP11003,GFD1683,1055,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Nov 25 13:51:46 2014 Quant Results File: DRO-GFD1659F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD1659F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Sat Nov 15 16:33:33 2014
Response via : Initial Calibration
DataAcq Meth : DRODUAL.M

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

Compound	R.T.	Response	Conc Units

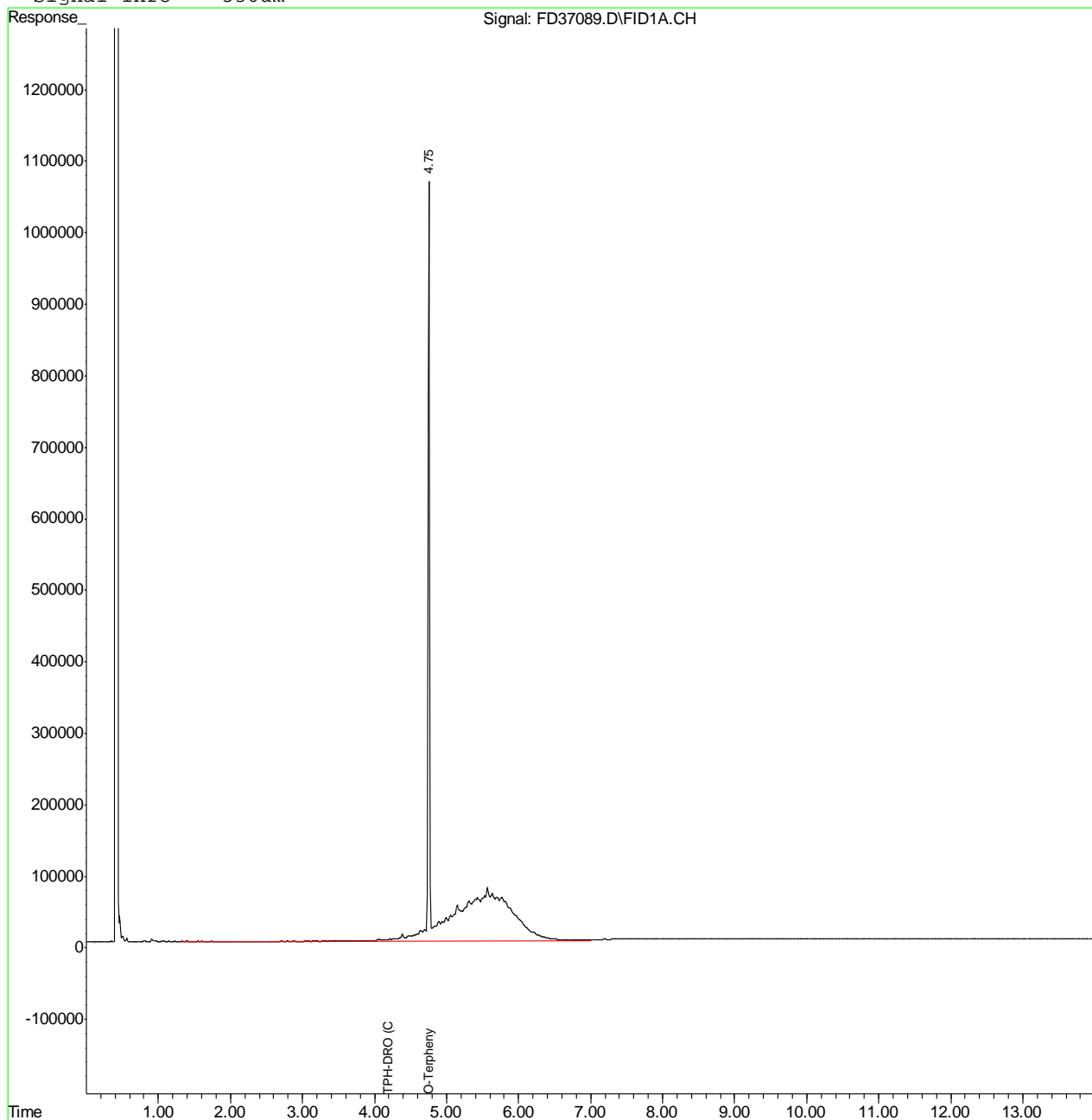
System Monitoring Compounds			
1) S O-Terphenyl	4.75	13393736	1462.302 mg/L
Target Compounds			
3) H TPH-DRO (C10-C28)	4.17	41627828	4325.500 mg/L

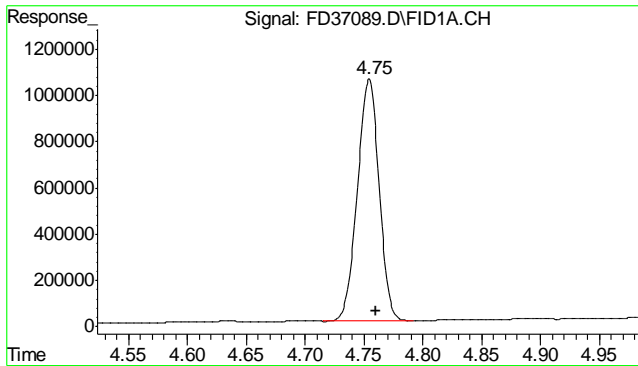
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2014\NOV\FD112414\FD37089.D Vial: 19
Acq On : 24 Nov 2014 10:22 pm Operator: JENNJ1
Sample : D64894-1 Inst : FID5
Misc : OP11003,GFD1683,1055,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Nov 25 14:14 2014 Quant Results File: DRO-GFD1659F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD1659F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Sat Nov 15 16:33:33 2014
Response via : Multiple Level Calibration
DataAcq Meth : DRODUAL.M

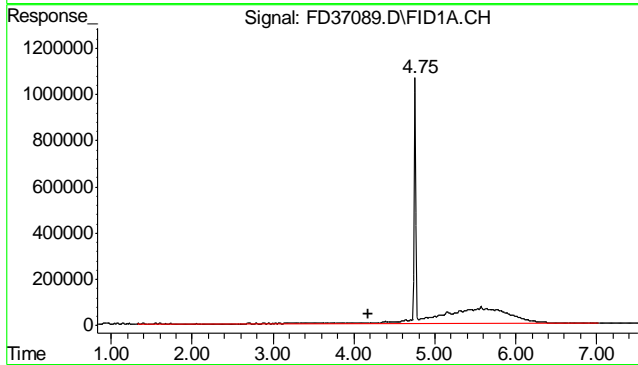
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 4.754 min
Delta R.T.: -0.006 min
Response: 13393736
Conc: 1462.30 mg/L



#3 TPH-DRO (C10-C28)

R.T.: 4.175 min
Delta R.T.: 0.000 min
Response: 41627828
Conc: 4325.50 mg/L m

7.1.1
7

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2014\NOV\FD112414\FD37091.D Vial: 20
Acq On : 24 Nov 2014 10:43 pm Operator: JENNJ1
Sample : D64894-2 Inst : FID5
Misc : OP11003,GFD1683,1055,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Nov 25 13:51:48 2014 Quant Results File: DRO-GFD1659F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD1659F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Sat Nov 15 16:33:33 2014
Response via : Initial Calibration
DataAcq Meth : DRODUAL.M

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

Compound	R.T.	Response	Conc Units

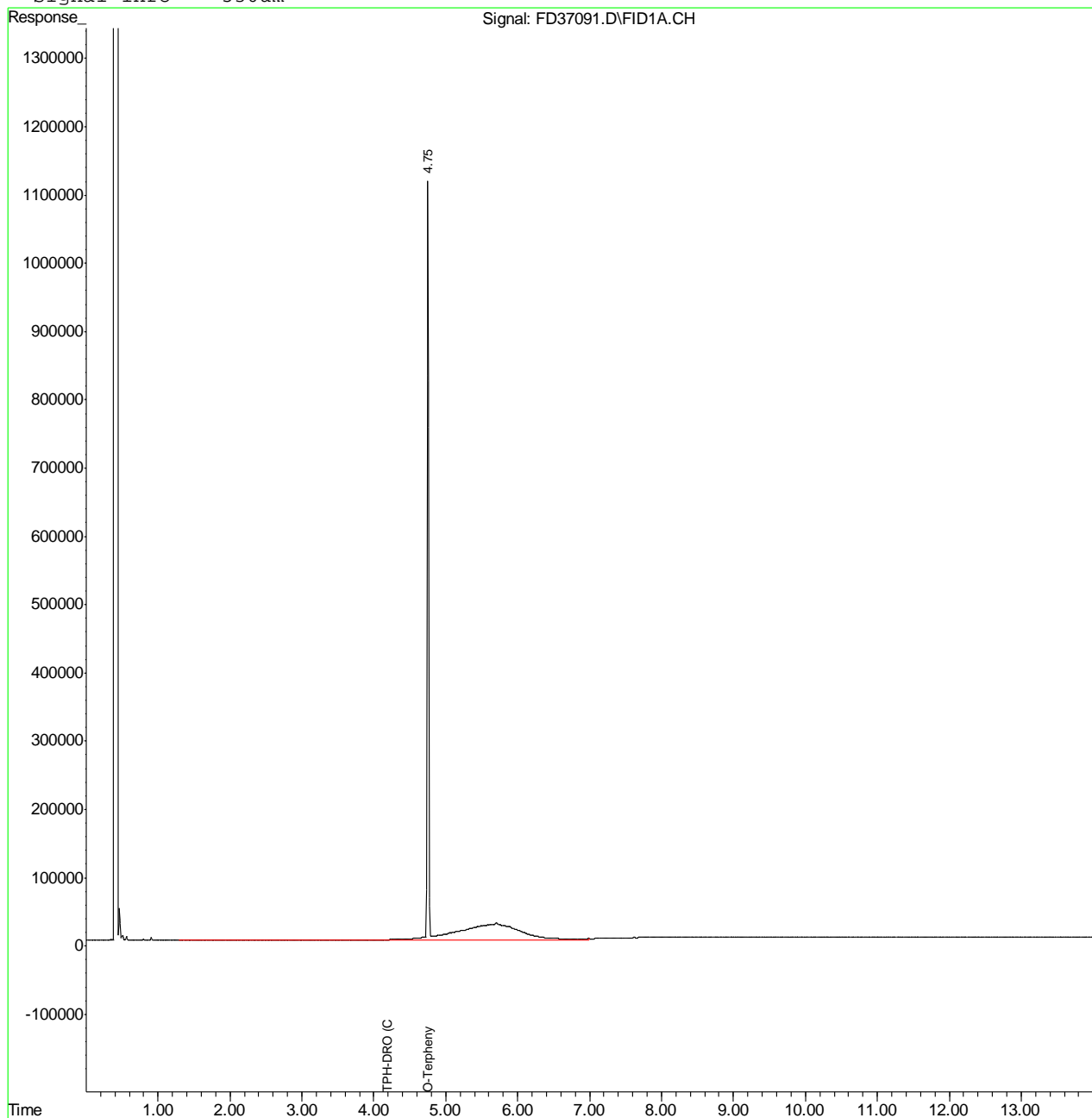
System Monitoring Compounds			
1) S O-Terphenyl	4.75	14222254	1552.758 mg/L
Target Compounds			
3) H TPH-DRO (C10-C28)	4.17	14624244	1519.588 mg/L

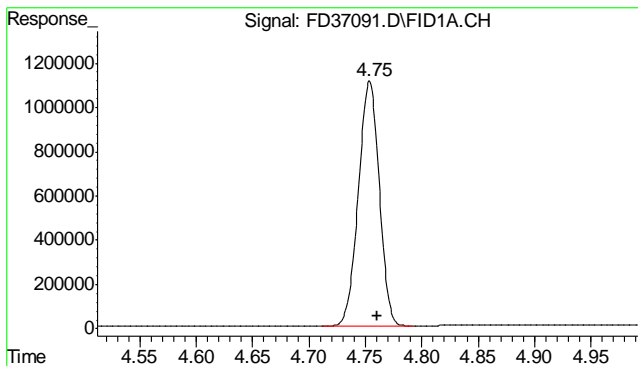
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2014\NOV\FD112414\FD37091.D Vial: 20
 Acq On : 24 Nov 2014 10:43 pm Operator: JENNJ1
 Sample : D64894-2 Inst : FID5
 Misc : OP11003,GFD1683,1055,,,1,1 Multiplr: 1.00
 IntFile : autoint1.e
 Quant Time: Nov 25 14:15 2014 Quant Results File: DRO-GFD1659F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD1659F.M (Chemstation Integrator)
 Title : 8015B TEH
 Last Update : Sat Nov 15 16:33:33 2014
 Response via : Multiple Level Calibration
 DataAcq Meth : DRODUAL.M

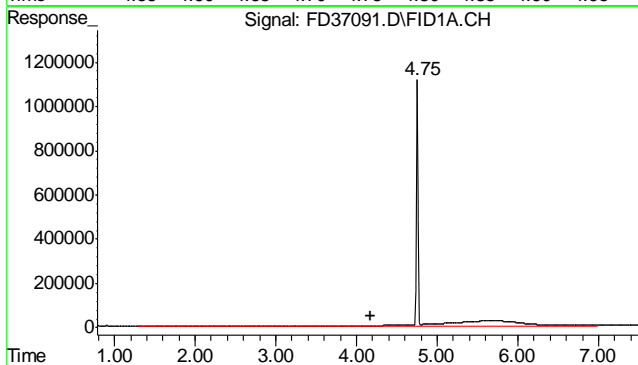
Volume Inj. : 1ul
 Signal Phase : RTX-5
 Signal Info : 530um





#1 O-Terphenyl

R.T.: 4.754 min
Delta R.T.: -0.006 min
Response: 14222254
Conc: 1552.76 mg/L



#3 TPH-DRO (C10-C28)

R.T.: 4.175 min
Delta R.T.: 0.000 min
Response: 14624244
Conc: 1519.59 mg/L m

7.1.2
7

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2014\NOV\FD112414\FD37093.D Vial: 21
Acq On : 24 Nov 2014 11:04 pm Operator: JENNJ1
Sample : D64894-3 Inst : FID5
Misc : OP11003,GFD1683,990,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Nov 25 13:51:50 2014 Quant Results File: DRO-GFD1659F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD1659F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Sat Nov 15 16:33:33 2014
Response via : Initial Calibration
DataAcq Meth : DRODUAL.M

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

Compound	R.T.	Response	Conc Units

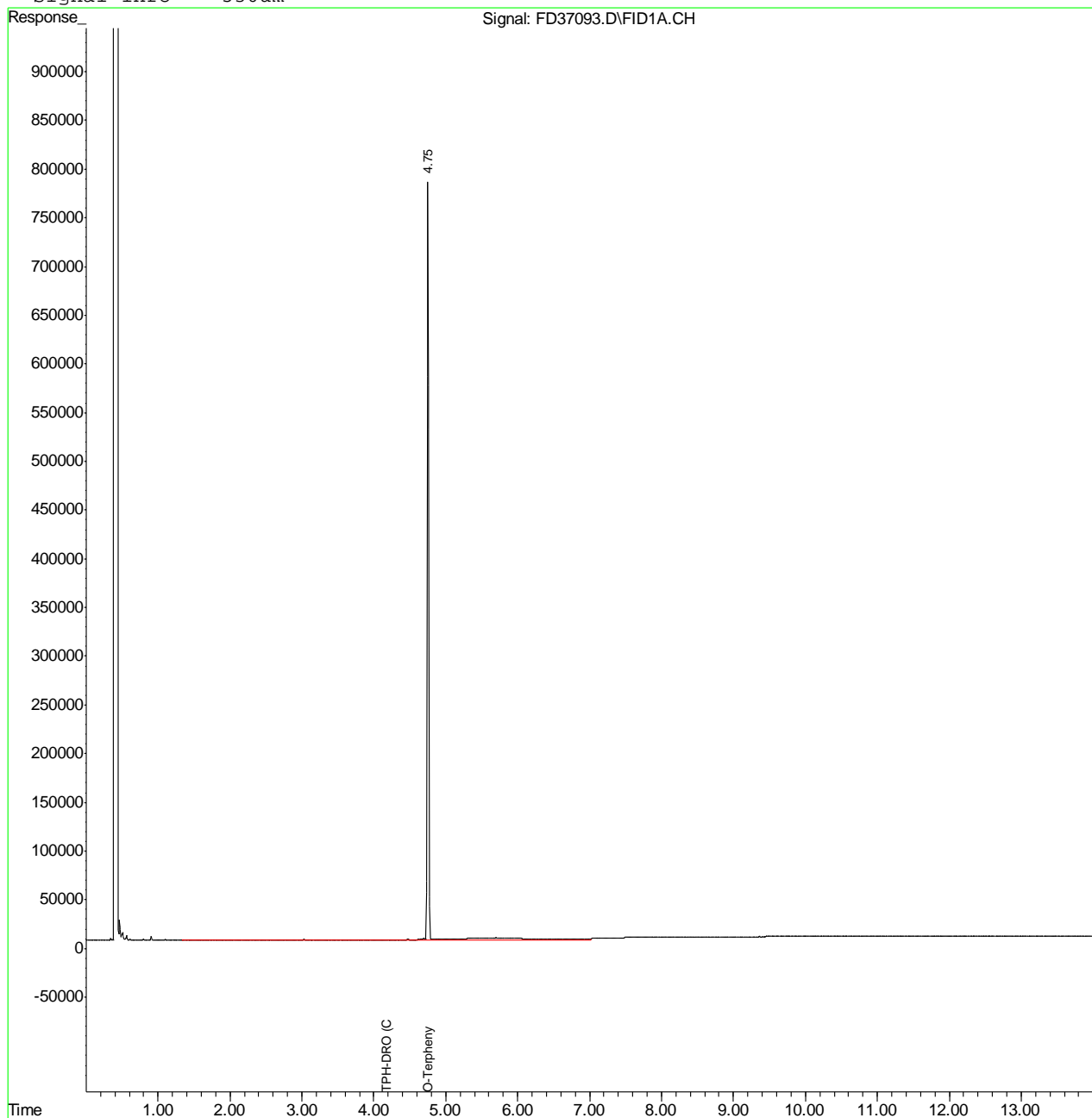
System Monitoring Compounds			
1) S O-Terphenyl	4.75	10028871	1094.933 mg/L
Target Compounds			
3) H TPH-DRO (C10-C28)	4.17	2041260	212.105 mg/L

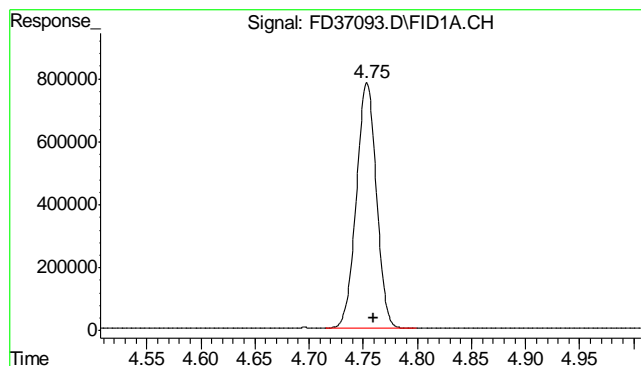
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2014\NOV\FD112414\FD37093.D Vial: 21
 Acq On : 24 Nov 2014 11:04 pm Operator: JENNJ1
 Sample : D64894-3 Inst : FID5
 Misc : OP11003,GFD1683,990,,,1,1 Multiplr: 1.00
 IntFile : autoint1.e
 Quant Time: Nov 25 14:15 2014 Quant Results File: DRO-GFD1659F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD1659F.M (Chemstation Integrator)
 Title : 8015B TEH
 Last Update : Sat Nov 15 16:33:33 2014
 Response via : Multiple Level Calibration
 DataAcq Meth : DRODUAL.M

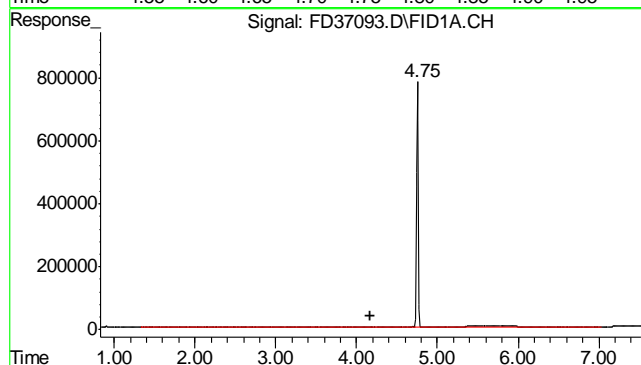
Volume Inj. : 1ul
 Signal Phase : RTX-5
 Signal Info : 530um





#1 O-Terphenyl

R.T.: 4.754 min
 Delta R.T.: -0.006 min
 Response: 10028871
 Conc: 1094.93 mg/L



#3 TPH-DRO (C10-C28)

R.T.: 4.175 min
 Delta R.T.: 0.000 min
 Response: 2041260
 Conc: 212.10 mg/L m

7.1.3

7

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2014\NOV\FD112414\FD37095.D Vial: 22
Acq On : 24 Nov 2014 11:25 pm Operator: JENNJ1
Sample : D64894-4 Inst : FID5
Misc : OP11003,GFD1683,1000,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Nov 25 13:51:52 2014 Quant Results File: DRO-GFD1659F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD1659F.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Sat Nov 15 16:33:33 2014
Response via : Initial Calibration
DataAcq Meth : DRODUAL.M

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

Compound	R.T.	Response	Conc Units

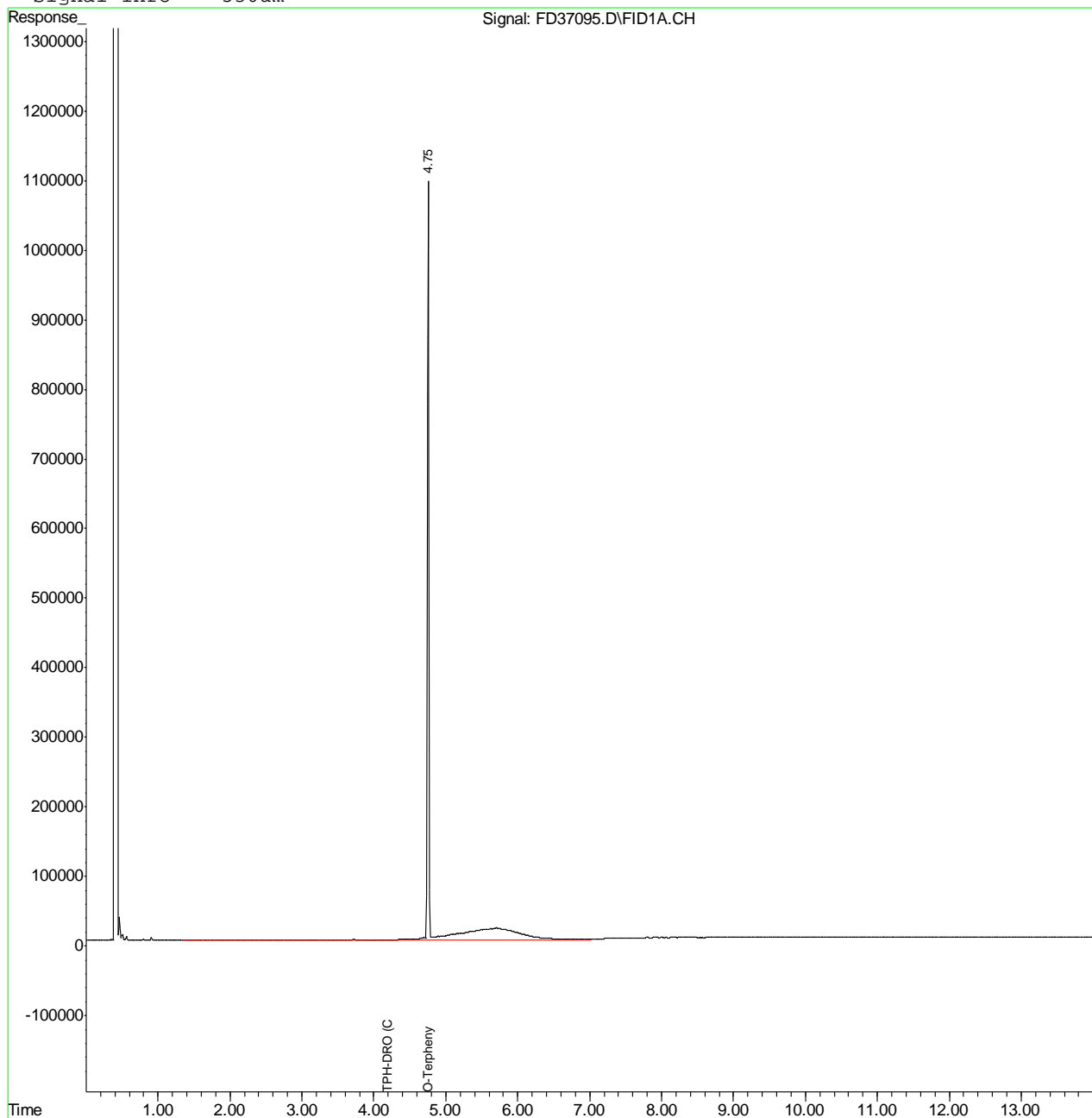
System Monitoring Compounds			
1) S O-Terphenyl	4.75	14063907	1535.470 mg/L
Target Compounds			
3) H TPH-DRO (C10-C28)	4.17	10498368	1090.873 mg/L

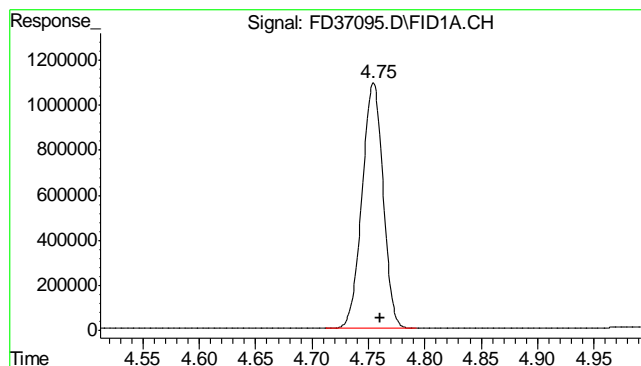
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2014\NOV\FD112414\FD37095.D Vial: 22
 Acq On : 24 Nov 2014 11:25 pm Operator: JENNJ1
 Sample : D64894-4 Inst : FID5
 Misc : OP11003,GFD1683,1000,,,1,1 Multiplr: 1.00
 IntFile : autoint1.e
 Quant Time: Nov 25 14:16 2014 Quant Results File: DRO-GFD1659F.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD1659F.M (Chemstation Integrator)
 Title : 8015B TEH
 Last Update : Sat Nov 15 16:33:33 2014
 Response via : Multiple Level Calibration
 DataAcq Meth : DRODUAL.M

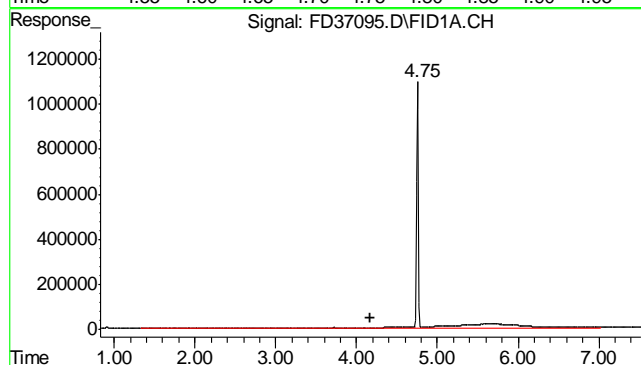
Volume Inj. : 1ul
 Signal Phase : RTX-5
 Signal Info : 530um





#1 O-Terphenyl

R.T.: 4.754 min
 Delta R.T.: -0.006 min
 Response: 14063907
 Conc: 1535.47 mg/L



#3 TPH-DRO (C10-C28)

R.T.: 4.175 min
 Delta R.T.: 0.000 min
 Response: 10498368
 Conc: 1090.87 mg/L m

7.1.4

7

Cooper Walsh
11/25/14 21:13

Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2014\NOV\FD112414.SEC\FD37076.D Vial: 39
Acq On : 11-24-2014 08:15:22 PM Operator: JENNJ1
Sample : OP11003-MB Inst : FID5
Misc : OP11003,GFD1682,1000,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Nov 25 12:58:45 2014 Quant Results File: DRO-GFD1658R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD1658R.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Nov 18 13:28:04 2014
Response via : Initial Calibration
DataAcq Meth : DRODUAL.M

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

Compound	R.T.	Response	Conc Units

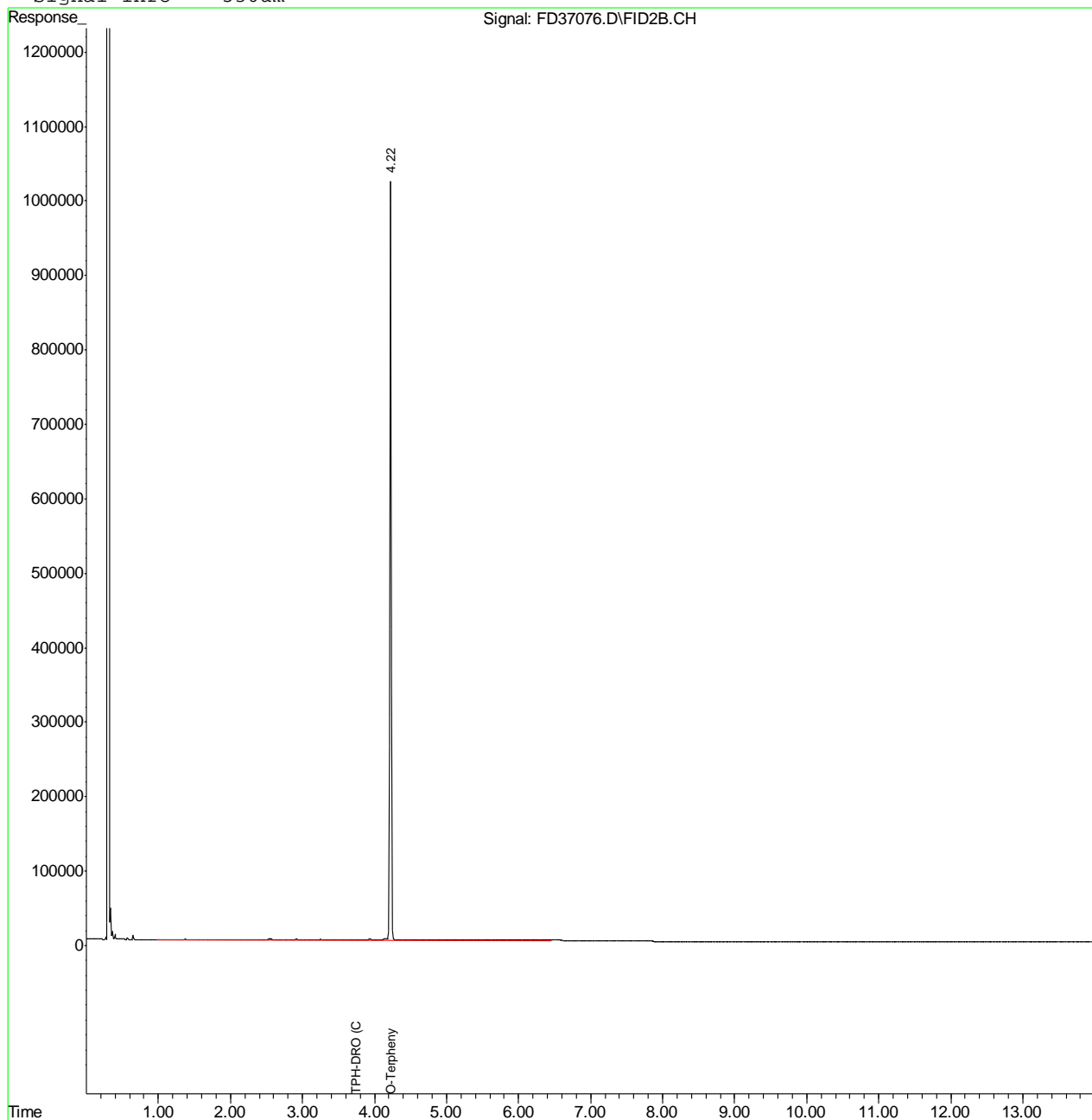
System Monitoring Compounds			
1) S O-Terphenyl	4.22	14081743	1009.595 mg/L m
Target Compounds			
3) H TPH-DRO (C10-C28)	3.75	1579399	90.997 mg/L

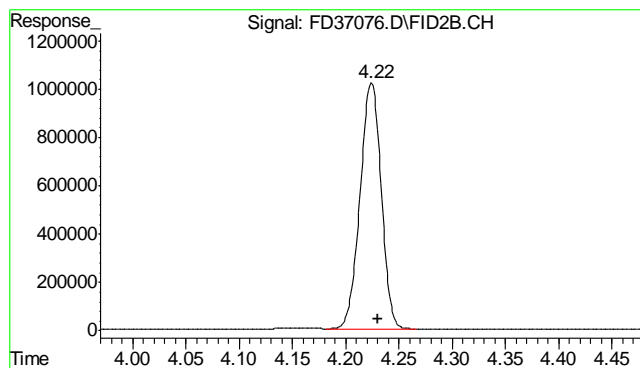
Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\2\DATA\2014\NOV\FD112414.SEC\FD37076.D Vial: 39
Acq On : 11-24-2014 08:15:22 PM Operator: JENNJ1
Sample : OP11003-MB Inst : FID5
Misc : OP11003,GFD1682,1000,,,1,1 Multiplr: 1.00
IntFile : autoint1.e
Quant Time: Nov 25 13:18 2014 Quant Results File: DRO-GFD1658R.RES

Quant Method : C:\MSDCHEM\2...\DRO-GFD1658R.M (Chemstation Integrator)
Title : 8015B TEH
Last Update : Tue Nov 18 13:28:04 2014
Response via : Multiple Level Calibration
DataAcq Meth : DRODUAL.M

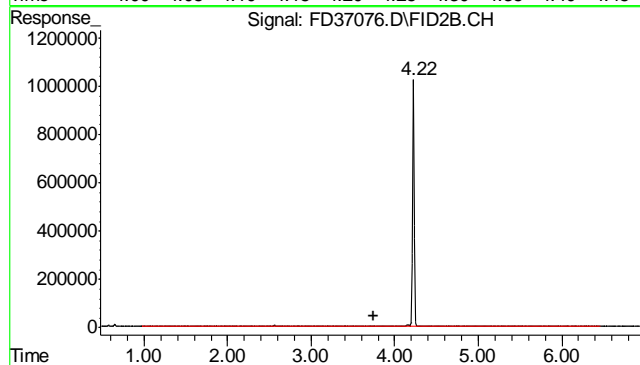
Volume Inj. : 1ul
Signal Phase : RTX-5
Signal Info : 530um





#1 O-Terphenyl

R.T.: 4.224 min
Delta R.T.: -0.006 min
Response: 14081743
Conc: 1009.59 mg/L m



#3 TPH-DRO (C10-C28)

R.T.: 3.750 min
Delta R.T.: 0.000 min
Response: 1579399
Conc: 91.00 mg/L m

7.2.1

7

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D64894
Account: COCSCOG - Olsson Associates - Denver
Project: CM Production-Lone Pine Excav.

QC Batch ID: MP14679
Matrix Type: AQUEOUS

Methods: EPA 200.8
Units: ug/l

Prep Date: 12/04/14

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.1	2		
Antimony	0.40	.0022	.011		
Arsenic	0.20	.017	.044		
Barium	2.0	.016	.079		
Beryllium	0.20	.016	.069		
Boron	40	.49	2.1		
Calcium	400	5.6	12		
Chromium	2.0	.053	.053		
Cobalt	0.20	.0049	.015		
Copper	2.0	.06	.13		
Iron	10	3.5	4.6	1.5	<10
Lead	0.50	.0079	.008		
Magnesium	100	1.3	1.3		
Manganese	1.0	.12	.13		
Molybdenum	1.0	.049	.029		
Nickel	2.0	.0088	.027		
Phosphorus	60	2.6	4.3		
Potassium	200	2.9	2.9		
Selenium	0.40	.06	.21		
Silver	0.10	.0019	.008		
Sodium	500	4.9	4.9		
Strontium	20	.01	.015		
Thallium	0.20	.0024	.005		
Tin	10	.063	1.3		
Titanium	2.0	.059	.092		
Uranium	0.20	.0017	.002		
Vanadium	1.0	.037	.2		
Zinc	10	.21	.96		

Associated samples MP14679: D64894-1, D64894-2, D64894-3, D64894-4

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D64894
 Account: COCSCOG - Olsson Associates - Denver
 Project: CM Production-Lone Pine Excav.

QC Batch ID: MP14679
 Matrix Type: AQUEOUS

Methods: EPA 200.8
 Units: ug/l

Prep Date: 12/04/14

Metal	D65140-1FA Original MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Barium	anr			
Beryllium				
Boron				
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	74.4	1080	1000	100.6 70-130
Lead	anr			
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silver	anr			
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium	anr			
Vanadium				
Zinc	anr			

Associated samples MP14679: D64894-1, D64894-2, D64894-3, D64894-4

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D64894
 Account: COCSCOG - Olsson Associates - Denver
 Project: CM Production-Lone Pine Excav.

QC Batch ID: MP14679
 Matrix Type: AQUEOUS

Methods: EPA 200.8
 Units: ug/l

Prep Date: 12/04/14

Metal	D65140-1FA Original MSD		Spikelot ICPALL2 % Rec		MSD RPD	QC Limit
Aluminum						
Antimony						
Barium	anr					
Beryllium						
Boron						
Calcium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron	74.4	1050	1000	97.6	2.8	20
Lead	anr					
Magnesium						
Manganese						
Molybdenum	anr					
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silver	anr					
Sodium						
Strontium						
Thallium	anr					
Tin						
Titanium						
Uranium	anr					
Vanadium						
Zinc	anr					

Associated samples MP14679: D64894-1, D64894-2, D64894-3, D64894-4

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

8.1.2
8

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D64894

Account: COCSCOG - Olsson Associates - Denver

Project: CM Production-Lone Pine Excav.

QC Batch ID: MP14679

Methods: EPA 200.8

Matrix Type: AQUEOUS

Units: ug/l

Prep Date:

12/04/14

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Boron				
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	1040	1000	104.0	85-115
Lead	anr			
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silver	anr			
Sodium				
Strontium				
Thallium	anr			
Tin				
Titanium				
Uranium	anr			
Vanadium				
Zinc	anr			

Associated samples MP14679: D64894-1, D64894-2, D64894-3, D64894-4

Results < IDL are shown as zero for calculation purposes

(*) Outside of QC limits

(anr) Analyte not requested

8.1.3

8

General Chemistry

QC Data Summaries

Includes the following where applicable:

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

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D64894
Account: COCSCOG - Olsson Associates - Denver
Project: CM Production-Lone Pine Excav.

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP14108/GN27589	0.50	0.0	mg/l	5	5.01	100.2	90-110%
Chloride	GP14109/GN27590	0.50	0.0	mg/l	5	5.21	104.2	90-110%
Fluoride	GP14108/GN27589	0.10	0.0	mg/l	1	0.950	95.0	90-110%
Fluoride	GP14109/GN27590	0.10	0.0	mg/l	1	1.08	108.0	90-110%
Nitrogen, Nitrate	GP14108/GN27589	0.010	0.0	mg/l	0.1	0.106	106.0	90-110%
Nitrogen, Nitrate	GP14109/GN27590	0.010	0.0	mg/l	0.1	0.104	104.0	90-110%
Nitrogen, Nitrite	GP14109/GN27590	0.0040	0.0	mg/l	0.05	0.0534	106.8	90-110%
Solids, Total Dissolved	GN27594	10	0.0	mg/l	400	388	97.0	90-110%
Sulfate	GP14108/GN27589	0.50	0.0	mg/l	5	5.02	100.4	90-110%
Sulfate	GP14109/GN27590	0.50	0.0	mg/l	5	5.21	104.2	90-110%

Associated Samples:

Batch GN27594: D64894-1, D64894-2, D64894-3, D64894-4

Batch GP14108: D64894-1, D64894-2, D64894-3

Batch GP14109: D64894-4

(*) Outside of QC limits

9.1

6

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D64894
Account: COCSCOG - Olsson Associates - Denver
Project: CM Production-Lone Pine Excav.

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN27594	D64894-2	mg/l	156	156	0.0	0-20%
Solids, Total Dissolved	GN27594	D64894-1	mg/l	384	384	0.0	0-20%

Associated Samples:

Batch GN27594: D64894-1, D64894-2, D64894-3, D64894-4

(*) Outside of QC limits

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D64894
Account: COCSCOG - Olsson Associates - Denver
Project: CM Production-Lone Pine Excav.

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP14108/GN27589	D64795-1	mg/l	7.5	5	12.9	108.0	80-120%
Chloride	GP14109/GN27590	D64894-4	mg/l	0.71	5	5.8	101.8	80-120%
Fluoride	GP14108/GN27589	D64795-1	mg/l	0.26	1	1.3	104.0	80-120%
Fluoride	GP14109/GN27590	D64894-4	mg/l	0.52	1	1.6	108.0	80-120%
Nitrogen, Nitrate	GP14108/GN27589	D64795-1	mg/l	0.16	0.1	0.27	110.0	80-120%
Nitrogen, Nitrate	GP14109/GN27590	D64894-4	mg/l	0.086	0.1	0.20	114.0	80-120%
Nitrogen, Nitrite	GP14109/GN27590	D64894-4	mg/l	0.0	0.05	0.053	106.0	80-120%
Sulfate	GP14108/GN27589	D64795-1	mg/l	3.6	5	8.7	102.0	80-120%
Sulfate	GP14109/GN27590	D64894-4	mg/l	3.2	5	8.3	102.0	80-120%

Associated Samples:

Batch GP14108: D64894-1, D64894-2, D64894-3

Batch GP14109: D64894-4

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

9.3

9

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: D64894
Account: COCSCOG - Olsson Associates - Denver
Project: CM Production-Lone Pine Excav.

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chloride	GP14108/GN27589	D64795-1	mg/l	7.5	5	12.9	0.0	20%
Chloride	GP14109/GN27590	D64894-4	mg/l	0.71	5	5.7	1.7	20%
Fluoride	GP14108/GN27589	D64795-1	mg/l	0.26	1	1.3	0.0	20%
Fluoride	GP14109/GN27590	D64894-4	mg/l	0.52	1	1.5	6.5	20%
Nitrogen, Nitrate	GP14108/GN27589	D64795-1	mg/l	0.16	0.1	0.26	3.8	20%
Nitrogen, Nitrate	GP14109/GN27590	D64894-4	mg/l	0.086	0.1	0.19	5.1	20%
Nitrogen, Nitrite	GP14109/GN27590	D64894-4	mg/l	0.0	0.05	0.054	1.9	20%
Sulfate	GP14108/GN27589	D64795-1	mg/l	3.6	5	8.7	0.0	20%
Sulfate	GP14109/GN27590	D64894-4	mg/l	3.2	5	8.2	1.2	20%

Associated Samples:

Batch GP14108: D64894-1, D64894-2, D64894-3

Batch GP14109: D64894-4

(*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

9.4

9

Misc. Forms

Custody Documents and Other Forms

(Accutest Northern California, Inc.)

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D64894 **Client:** AMS **Project:** AMS
Date / Time Received: 11/24/2014 10:10:00 AM **Delivery Method:** FedEx **Airbill #'s:** 581027616293
Cooler Temps (Initial/Adjusted): #1: (4.3/4.3):

Cooler Security

	Y	or	N		Y	or	N
1. Custody Seals Present:	<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact:	<input type="checkbox"/>		<input type="checkbox"/>		<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. COC Present:					<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:	IR1;		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	1		

Quality Control Preservation

	Y	or	N	N/A
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input 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 type="checkbox"/>		<input checked="" 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 recvd 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 Unpreserved Amber D64894-1 was broken upon received

GC/MS Volatiles

QC Data Summaries

(Accutest Northern California, Inc.)

Includes the following where applicable:

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

Method Blank Summary

Job Number: D64894
Account: ALMS Accutest Mountain States
Project: COCSCOG: CM Production-Lone Pine Excav.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VQ1074-MB	Q25378.D	1	12/01/14	TN	n/a	n/a	VQ1074

The QC reported here applies to the following samples: Method: SW846 8260B
D64894-1, D64894-2, D64894-3, D64894-4

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.0	0.20	ug/l	
100-41-4	Ethylbenzene	ND	1.0	0.20	ug/l	
108-88-3	Toluene	ND	1.0	0.20	ug/l	
1330-20-7	Xylene (total)	ND	2.0	0.46	ug/l	
	TPH-GRO (C6-C10)	ND	50	25	ug/l	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	102% 70-130%
2037-26-5	Toluene-D8	94% 70-130%
460-00-4	4-Bromofluorobenzene	93% 70-130%

11.1.1
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Blank Spike/Blank Spike Duplicate Summary

Page 1 of 1

Job Number: D64894

Account: ALMS Accutest Mountain States

Project: COCSCOG: CM Production-Lone Pine Excav.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VQ1074-BS	Q25375.D	1	12/01/14	TN	n/a	n/a	VQ1074
VQ1074-BSD	Q25376.D	1	12/01/14	TN	n/a	n/a	VQ1074

The QC reported here applies to the following samples:

Method: SW846 8260B

D64894-1, D64894-2, D64894-3, D64894-4

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	20	18.3	92	20.2	101	10	77-122/25
100-41-4	Ethylbenzene	20	18.9	95	20.4	102	8	76-126/17
108-88-3	Toluene	20	19.1	96	19.5	98	2	75-122/17
1330-20-7	Xylene (total)	60	57.2	95	61.5	103	7	77-125/17

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
1868-53-7	Dibromofluoromethane	101%	99%	70-130%
2037-26-5	Toluene-D8	88%	91%	70-130%
460-00-4	4-Bromofluorobenzene	94%	96%	70-130%

* = Outside of Control Limits.

Laboratory Control Sample Summary

Job Number: D64894
Account: ALMS Accutest Mountain States
Project: COCSCOG: CM Production-Lone Pine Excav.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VQ1074-LCS	Q25377.D	1	12/01/14	TN	n/a	n/a	VQ1074

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

D64894-1, D64894-2, D64894-3, D64894-4

CAS No.	Compound	Spike ug/l	LCS ug/l	LCS %	Limits
	TPH-GRO (C6-C10)	125	124	99	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	97%	70-130%
2037-26-5	Toluene-D8	92%	70-130%
460-00-4	4-Bromofluorobenzene	94%	70-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: D64894
Account: ALMS Accutest Mountain States
Project: COCSCOG: CM Production-Lone Pine Excav.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C37147-1MS	Q25393.D	100	12/01/14	TN	n/a	n/a	VQ1074
C37147-1MSD	Q25394.D	100	12/01/14	TN	n/a	n/a	VQ1074
C37147-1 ^a	Q25380.D	100	12/01/14	TN	n/a	n/a	VQ1074

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

D64894-1, D64894-2, D64894-3, D64894-4

CAS No.	Compound	C37147-1 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	1310	2000	3460	108	2000	3080	89	12	77-122/16
100-41-4	Ethylbenzene	1050	2000	3020	99	2000	3070	101	2	76-126/17
108-88-3	Toluene	6590	2000	8400	91	2000	8770	109	4	75-122/17
1330-20-7	Xylene (total)	23800	6000	29700	98	6000	30900	118	4	77-125/17

CAS No.	Surrogate Recoveries	MS	MSD	C37147-1	Limits
1868-53-7	Dibromofluoromethane	98%	98%	101%	70-130%
2037-26-5	Toluene-D8	89%	95%	93%	70-130%
460-00-4	4-Bromofluorobenzene	94%	98%	97%	70-130%

(a) Sample reanalyzed past hold time due to need for further dilution; initial analysis within hold time.

* = Outside of Control Limits.



GC/MS Volatiles

Raw Data

(Accutest Northern California, Inc.)

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\141201\
 Data File : Q25385.D
 Acq On : 1 Dec 2014 4:47 pm
 Operator : thuy
 Sample : D64894-1
 Misc : MS1826,VQ1074,50,,,,1
 ALS Vial : 13 Sample Multiplier: 1

Quant Time: Dec 02 14:22:23 2014
 Quant Method : C:\msdchem\1\METHODS\VQ1063_141117.M
 Quant Title : EPA -8260B
 QLast Update : Mon Nov 24 08:15:34 2014
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	10.888	168	1726172	10.00	ug/L	-0.01
44) 1,4-Difluorobenzene	12.210	114	2659245	10.00	ug/L	-0.01
60) Chlorobenzene-d5	15.891	117	2431944	10.00	ug/L	0.00
84) 1,4-Dichlorobenzene-d4	18.875	152	1267385	10.00	ug/L	# 0.00
106) 1,4-Dichlorobenzene-d4A	18.875	152	1267385	10.00	ug/L	# 0.00
System Monitoring Compounds						
40) Dibromofluoromethane	10.994	111	993066	9.68	ug/L	0.00
Spiked Amount	10.000	Range	70 - 130	Recovery	=	96.80%
61) Toluene-d8	14.146	98	3210480	9.63	ug/L	0.00
Spiked Amount	10.000	Range	70 - 130	Recovery	=	96.30%
81) 4-Bromofluorobenzene	17.309	95	1285049	9.71	ug/L	0.00
Spiked Amount	10.000	Range	70 - 130	Recovery	=	97.10%
Target Compounds						
107) TPH-GRO (C6-C10)	14.146	TIC	40133050m	3.41	ug/L	Qvalue
108) TPH-GRO (C4-C12)	13.275	TIC	-5691575m	Below	Cal	

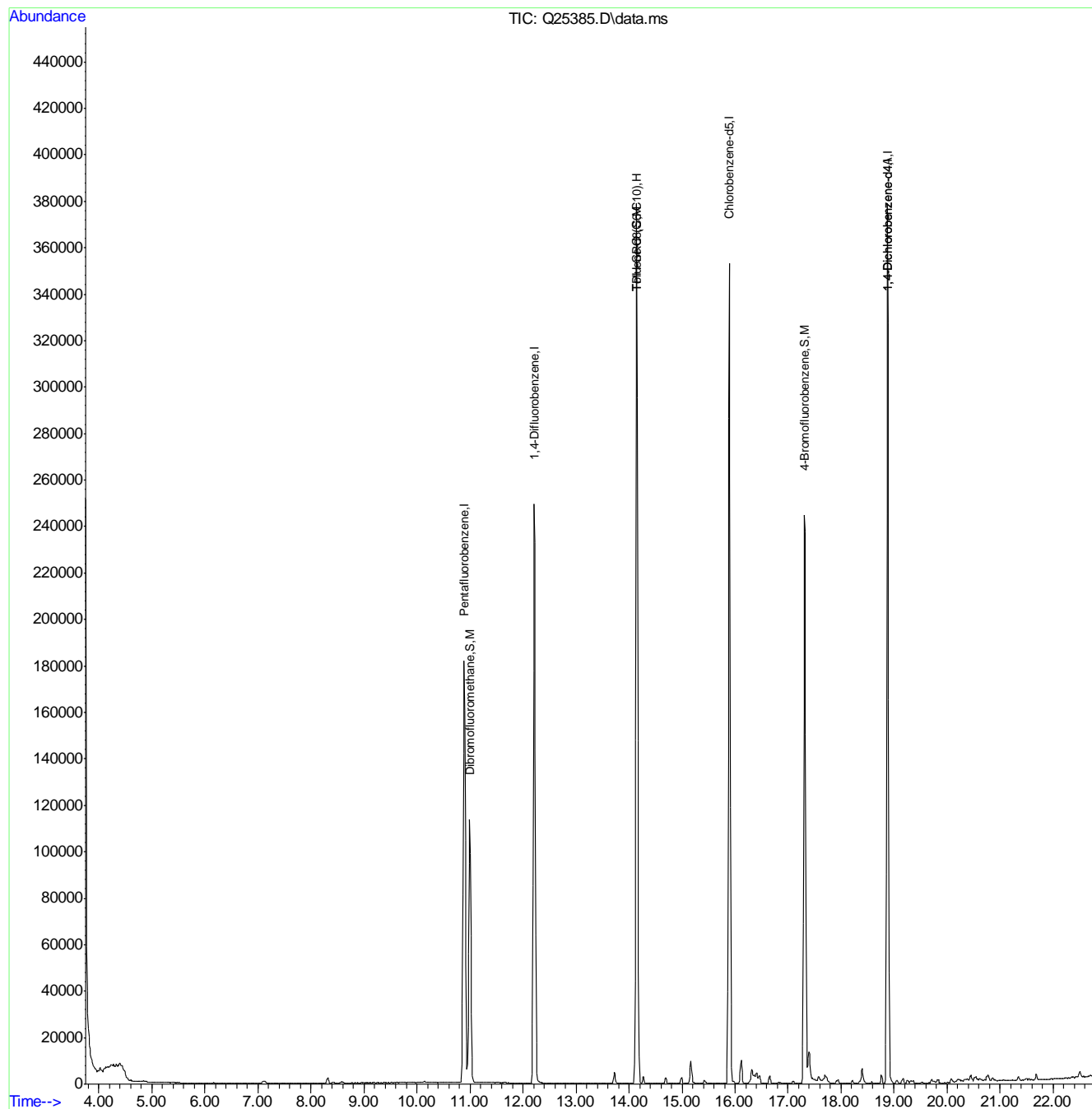
(#) = qualifier out of range (m) = manual integration (+) = signals summed

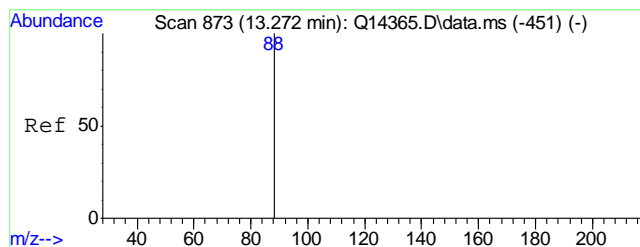
12.1.1
12

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\141201\
Data File : Q25385.D
Acq On : 1 Dec 2014 4:47 pm
Operator : thuy
Sample : D64894-1
Misc : MS1826,VQ1074,50,,,1
ALS Vial : 13 Sample Multiplier: 1

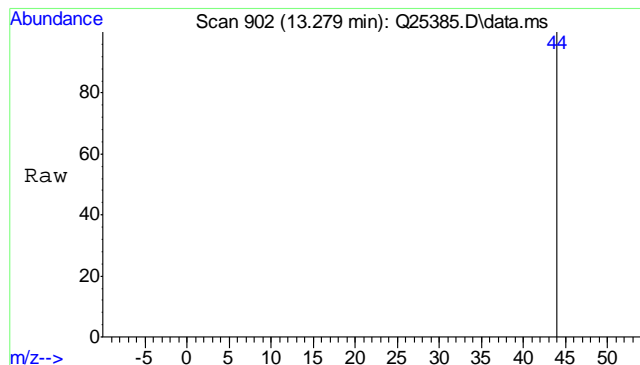
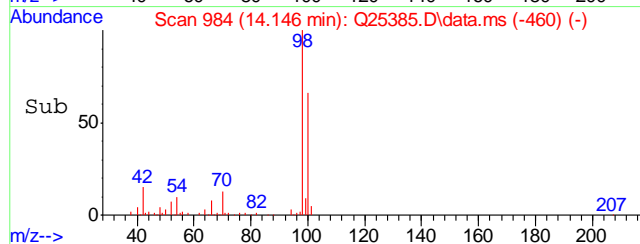
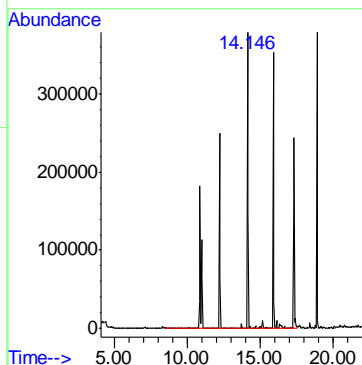
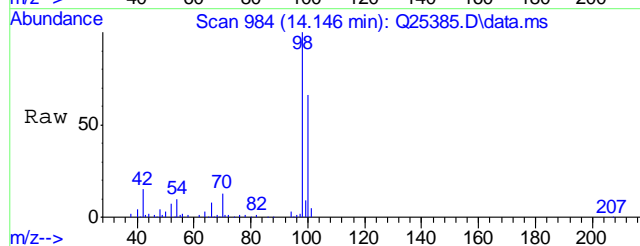
Quant Time: Dec 02 14:22:23 2014
Quant Method : C:\msdchem\1\METHODS\VQ1063_141117.M
Quant Title : EPA -8260B
QLast Update : Mon Nov 24 08:15:34 2014
Response via : Initial Calibration





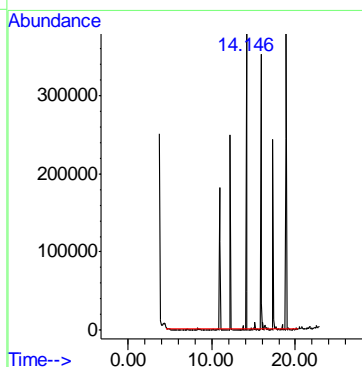
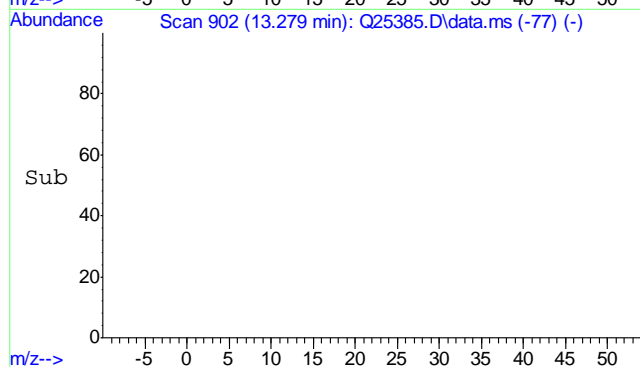
#107
 TPH-GRO (C6-C10)
 Concen: 3.41 ug/L m
 RT: 14.146 min Scan# 984
 Delta R.T. 0.871 min
 Lab File: Q25385.D
 Acq: 1 Dec 2014 4:47 pm

Tgt Ion:TIC Resp:40133050



#108
 TPH-GRO (C4-C12)
 Concen: Below Cal m
 RT: 13.275 min Scan# 902
 Delta R.T. 0.000 min
 Lab File: Q25385.D
 Acq: 1 Dec 2014 4:47 pm

Tgt Ion:TIC Resp:-5691575



12.1.1
 12

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\141201\
 Data File : Q25386.D
 Acq On : 1 Dec 2014 5:19 pm
 Operator : thuy
 Sample : D64894-2
 Misc : MS1826,VQ1074,50,,,,1
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Dec 02 14:23:14 2014
 Quant Method : C:\msdchem\1\METHODS\VQ1063_141117.M
 Quant Title : EPA -8260B
 QLast Update : Mon Nov 24 08:15:34 2014
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	10.898	168	1644818	10.00	ug/L	0.00
44) 1,4-Difluorobenzene	12.210	114	2595358	10.00	ug/L	-0.01
60) Chlorobenzene-d5	15.891	117	2312452	10.00	ug/L	0.00
84) 1,4-Dichlorobenzene-d4	18.875	152	1205193	10.00	ug/L	# 0.00
106) 1,4-Dichlorobenzene-d4A	18.875	152	1205193	10.00	ug/L	# 0.00
System Monitoring Compounds						
40) Dibromofluoromethane	10.994	111	977932	10.01	ug/L	0.00
Spiked Amount	10.000	Range	70 - 130	Recovery	=	100.10%
61) Toluene-d8	14.146	98	2605153	8.22	ug/L	0.00
Spiked Amount	10.000	Range	70 - 130	Recovery	=	82.20%
81) 4-Bromofluorobenzene	17.309	95	1165101	9.26	ug/L	0.00
Spiked Amount	10.000	Range	70 - 130	Recovery	=	92.60%
Target Compounds						
10) Isopropyl Alcohol	6.847	45	77053	7.39	ug/L	78
11) Acetone	7.101	58	28323	2.59	ug/L	# 83
32) Tetrahydrofuran	10.983	42	68589	1.57	ug/L	96
107) TPH-GRO (C6-C10)	15.891	TIC	35116341m	Below	Cal	
108) TPH-GRO (C4-C12)	13.275	TIC	-7684637m	Below	Cal	

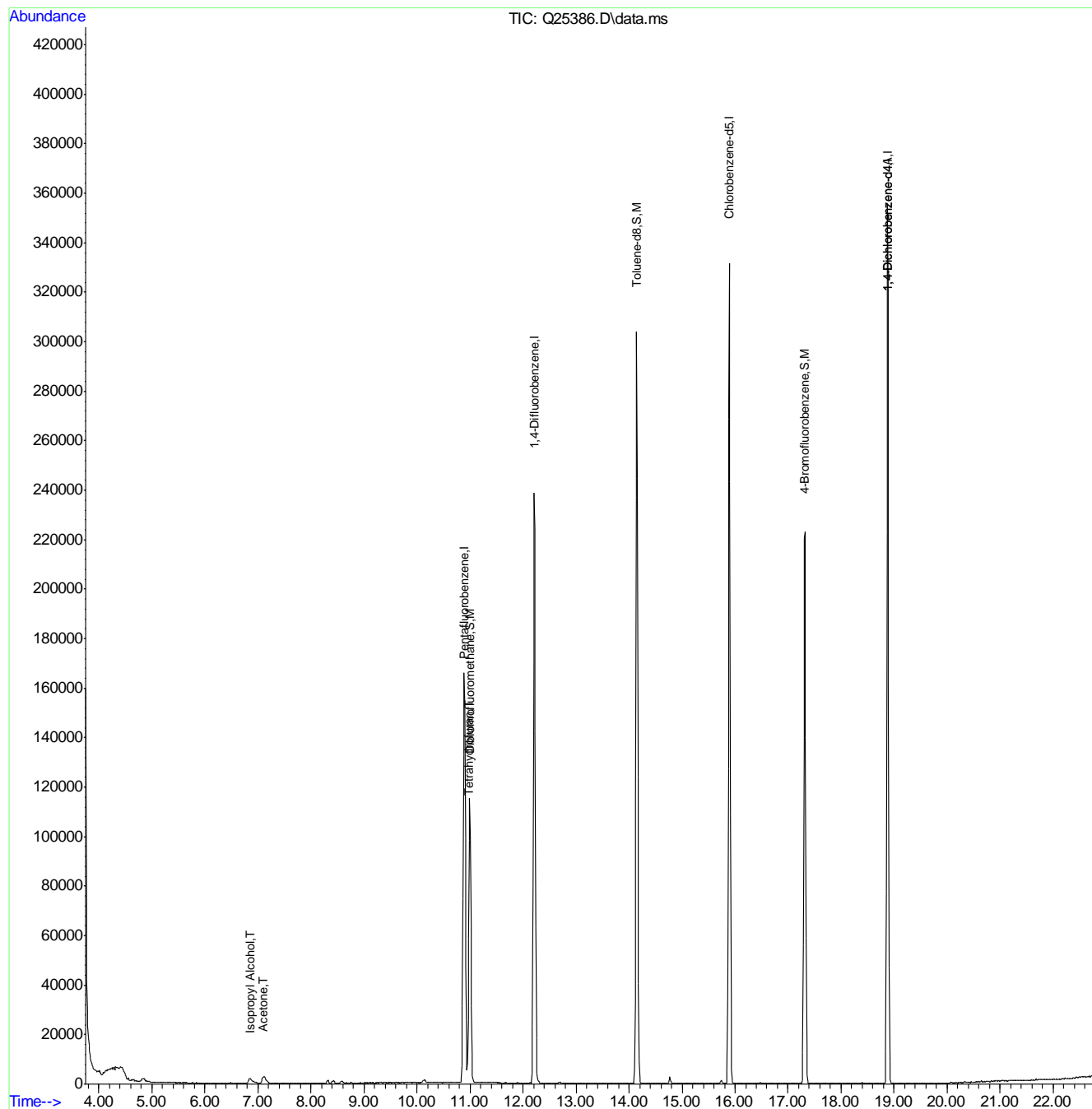
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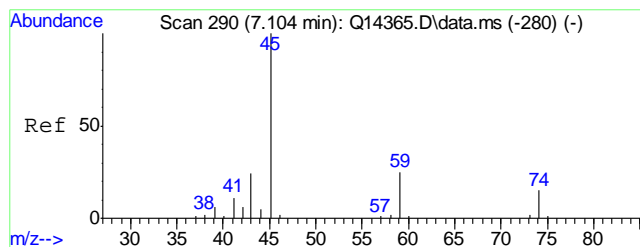
12.1.2 12

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\141201\
Data File : Q25386.D
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Operator : thuy
Sample : D64894-2
Misc : MS1826,VQ1074,50,,,1
ALS Vial : 14 Sample Multiplier: 1

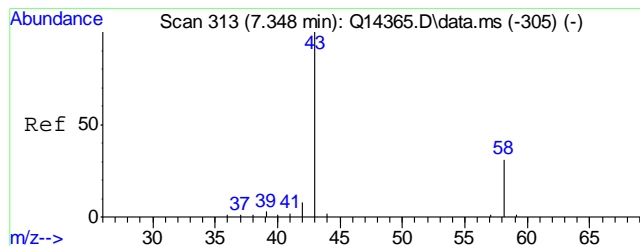
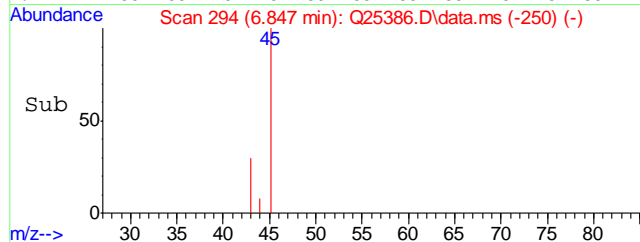
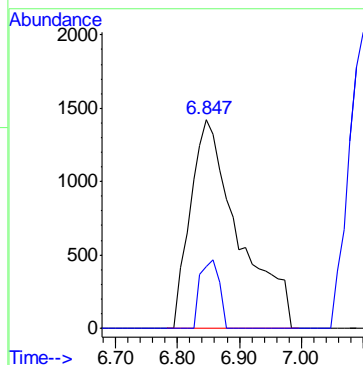
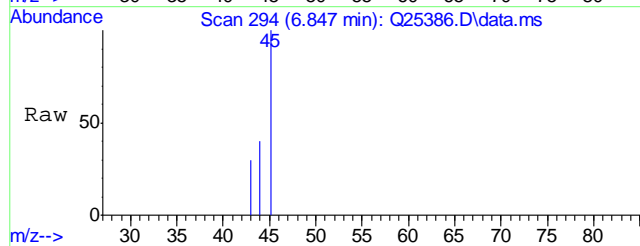
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Quant Method : C:\msdchem\1\METHODS\VQ1063_141117.M
Quant Title : EPA -8260B
QLast Update : Mon Nov 24 08:15:34 2014
Response via : Initial Calibration





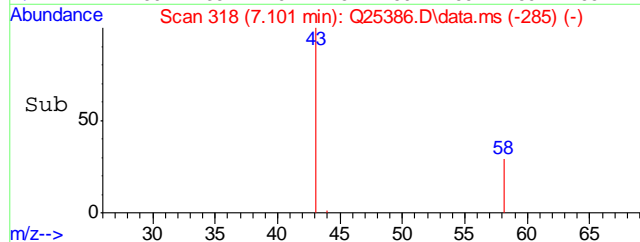
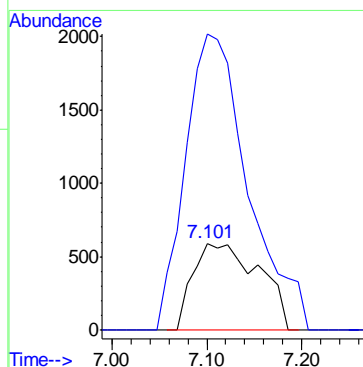
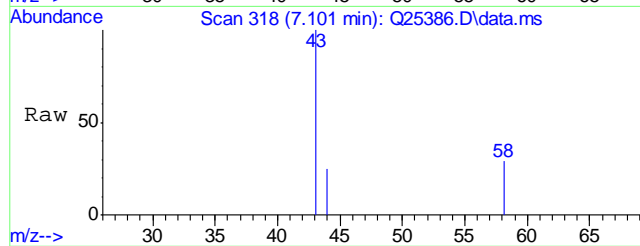
#10
Isopropyl Alcohol
Concen: 7.39 ug/L
RT: 6.847 min Scan# 294
Delta R.T. -0.032 min
Lab File: Q25386.D
Acq: 1 Dec 2014 5:19 pm

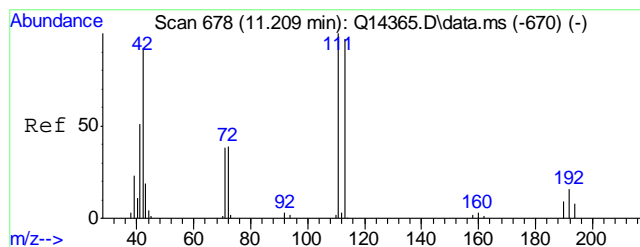
Tgt Ion: 45 Resp: 77053
Ion Ratio Lower Upper
45 100
43 12.9 3.9 43.9



#11
Acetone
Concen: 2.59 ug/L
RT: 7.101 min Scan# 318
Delta R.T. -0.000 min
Lab File: Q25386.D
Acq: 1 Dec 2014 5:19 pm

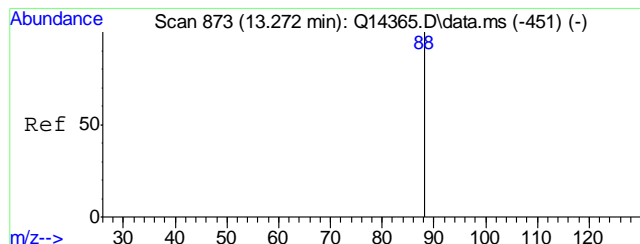
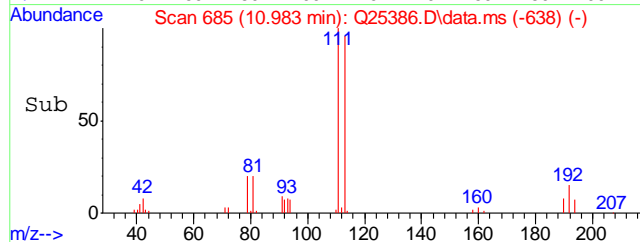
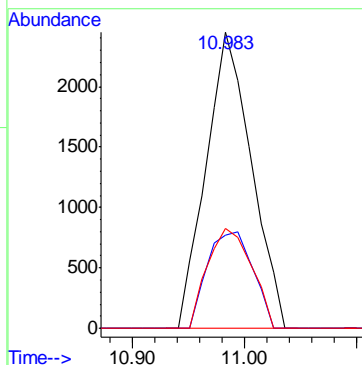
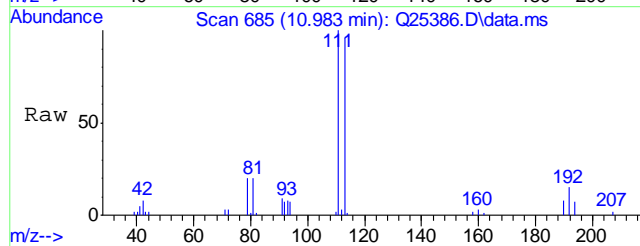
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Ion Ratio Lower Upper
58 100
43 325.3 344.0 384.0#





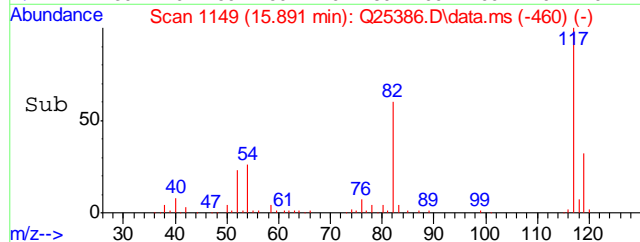
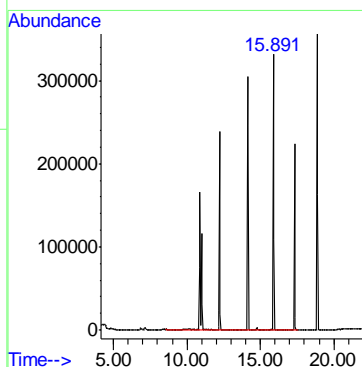
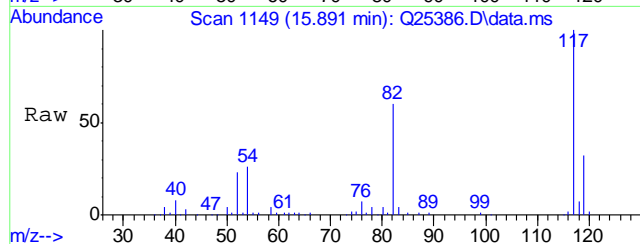
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Tetrahydrofuran
Concen: 1.57 ug/L
RT: 10.983 min Scan# 685
Delta R.T. 0.000 min
Lab File: Q25386.D
Acq: 1 Dec 2014 5:19 pm

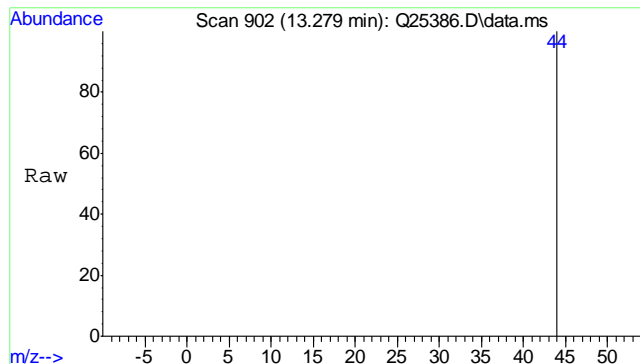
Tgt Ion: 42 Resp: 68589
Ion Ratio Lower Upper
42 100
71 32.8 14.0 54.0
72 32.8 16.3 56.3



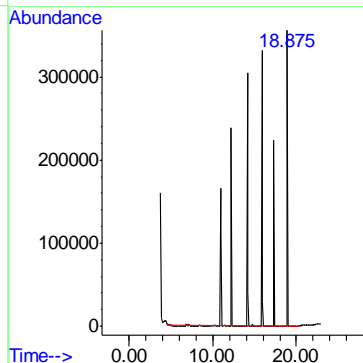
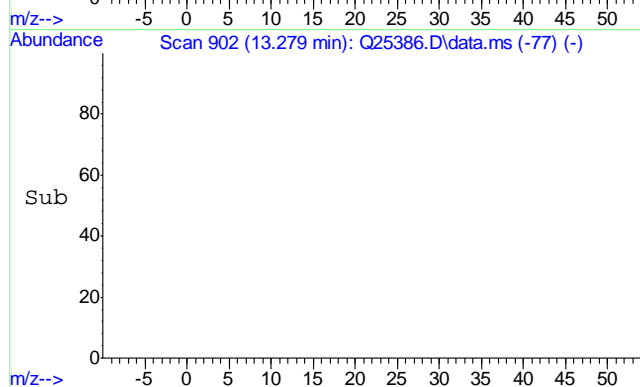
#107
TPH-GRO (C6-C10)
Concen: Below Cal m
RT: 15.891 min Scan# 1149
Delta R.T. 2.616 min
Lab File: Q25386.D
Acq: 1 Dec 2014 5:19 pm

Tgt Ion:TIC Resp:35116341





#108
TPH-GRO (C4-C12)
Concen: Below Cal m
RT: 13.275 min Scan# 902
Delta R.T. 0.000 min
Lab File: Q25386.D
Acq: 1 Dec 2014 5:19 pm
Tgt Ion:TIC Resp:-7684637



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\141201\
 Data File : Q25387.D
 Acq On : 1 Dec 2014 5:53 pm
 Operator : thuy
 Sample : D64894-3
 Misc : MS1826,VQ1074,50,,,,,1
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: Dec 02 14:25:02 2014
 Quant Method : C:\msdchem\1\METHODS\VQ1063_141117.M
 Quant Title : EPA -8260B
 QLast Update : Mon Nov 24 08:15:34 2014
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	10.898	168	1620560	10.00	ug/L	0.00
44) 1,4-Difluorobenzene	12.210	114	2481521	10.00	ug/L	-0.01
60) Chlorobenzene-d5	15.891	117	2338740	10.00	ug/L	0.00
84) 1,4-Dichlorobenzene-d4	18.875	152	1209078	10.00	ug/L	# 0.00
106) 1,4-Dichlorobenzene-d4A	18.875	152	1209078	10.00	ug/L	# 0.00
System Monitoring Compounds						
40) Dibromofluoromethane	10.994	111	950640	9.87	ug/L	0.00
Spiked Amount	10.000	Range	70 - 130	Recovery	=	98.70%
61) Toluene-d8	14.146	98	2783756	8.68	ug/L	0.00
Spiked Amount	10.000	Range	70 - 130	Recovery	=	86.80%
81) 4-Bromofluorobenzene	17.309	95	1177970	9.25	ug/L	0.00
Spiked Amount	10.000	Range	70 - 130	Recovery	=	92.50%
Target Compounds						
10) Isopropyl Alcohol	6.857	45	15099	1.47	ug/L	# 51
11) Acetone	7.122	58	12765	1.18	ug/L	# 37
107) TPH-GRO (C6-C10)	15.891	TIC	35219536m	Below	Cal	
108) TPH-GRO (C4-C12)	13.275	TIC	-7497039m	Below	Cal	

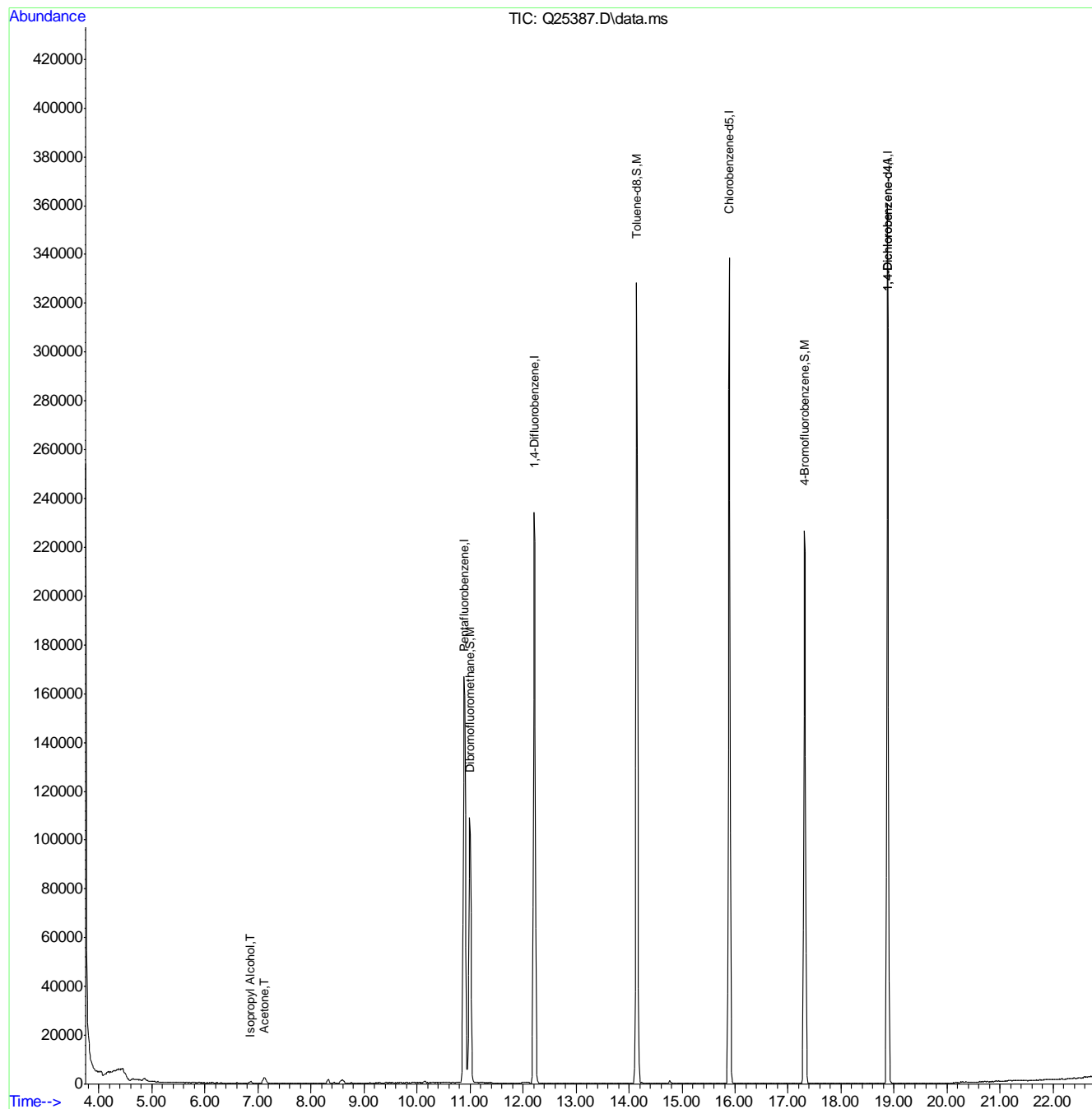
(#) = qualifier out of range (m) = manual integration (+) = signals summed

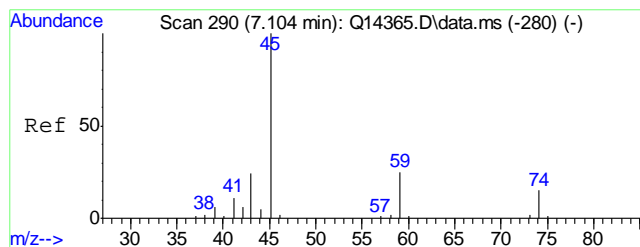
12.1.3
12

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\141201\
Data File : Q25387.D
Acq On : 1 Dec 2014 5:53 pm
Operator : thuy
Sample : D64894-3
Misc : MS1826,VQ1074,50,,,1
ALS Vial : 15 Sample Multiplier: 1

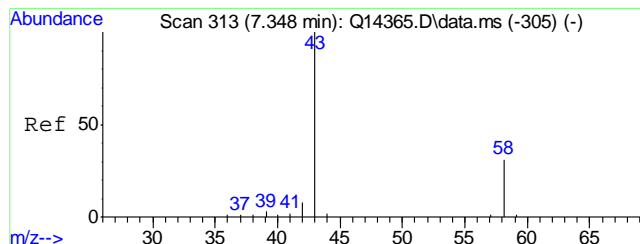
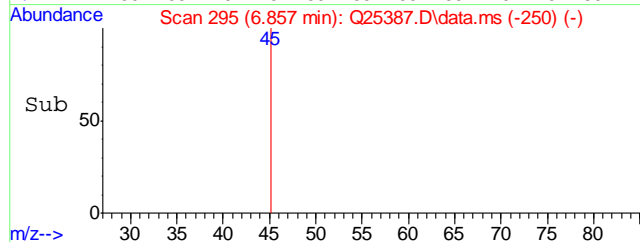
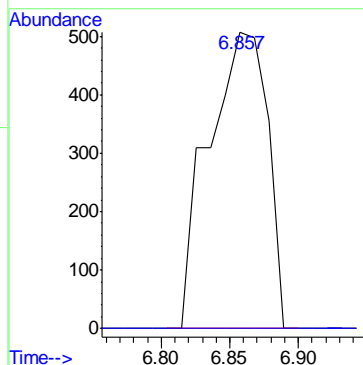
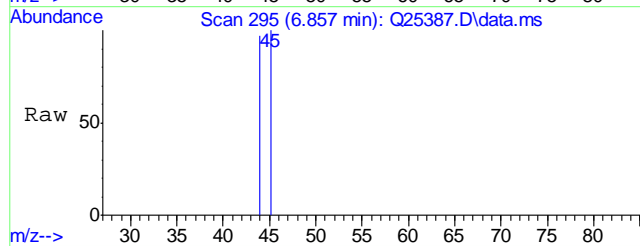
Quant Time: Dec 02 14:25:02 2014
Quant Method : C:\msdchem\1\METHODS\VQ1063_141117.M
Quant Title : EPA -8260B
QLast Update : Mon Nov 24 08:15:34 2014
Response via : Initial Calibration





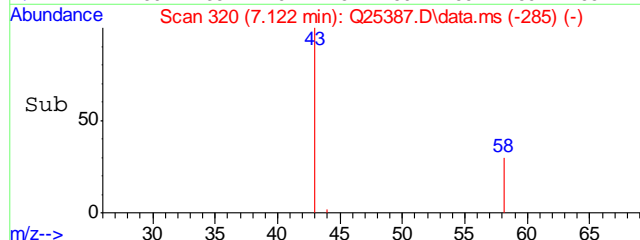
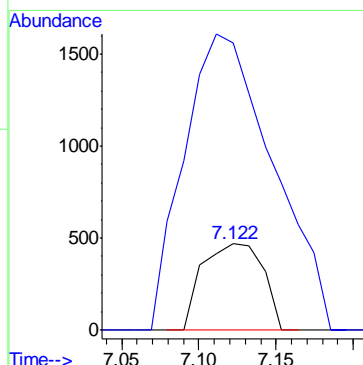
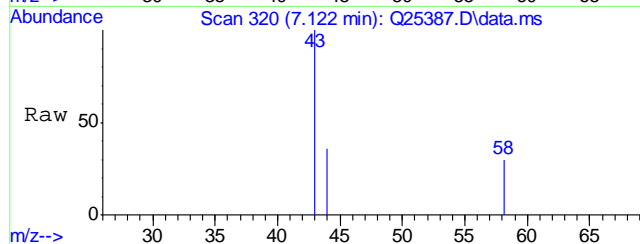
#10
Isopropyl Alcohol
Concen: 1.47 ug/L
RT: 6.857 min Scan# 295
Delta R.T. -0.022 min
Lab File: Q25387.D
Acq: 1 Dec 2014 5:53 pm

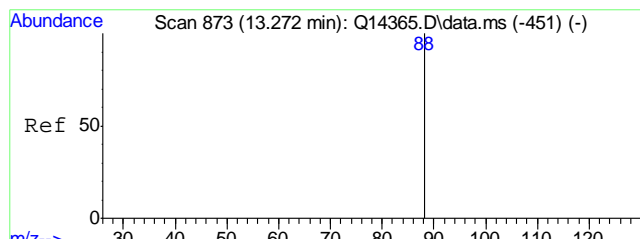
Tgt Ion: 45 Resp: 15099
Ion Ratio Lower Upper
45 100
43 0.0 3.9 43.9#



#11
Acetone
Concen: 1.18 ug/L
RT: 7.122 min Scan# 320
Delta R.T. 0.021 min
Lab File: Q25387.D
Acq: 1 Dec 2014 5:53 pm

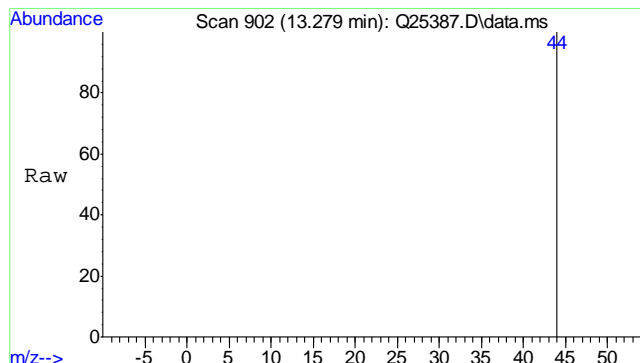
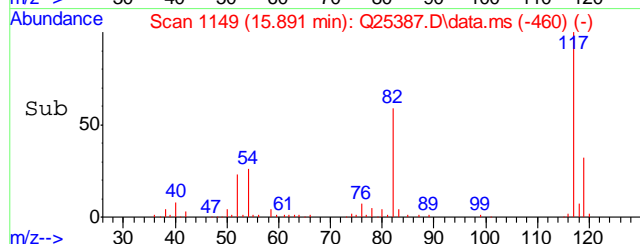
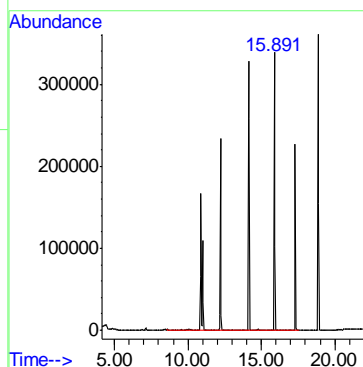
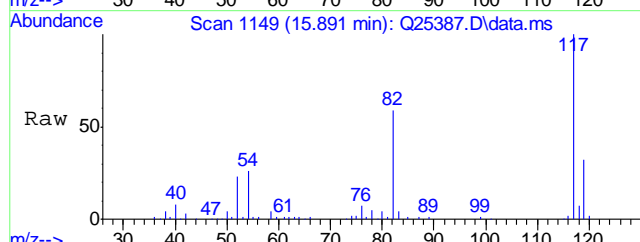
Tgt Ion: 58 Resp: 12765
Ion Ratio Lower Upper
58 100
43 504.3 344.0 384.0#





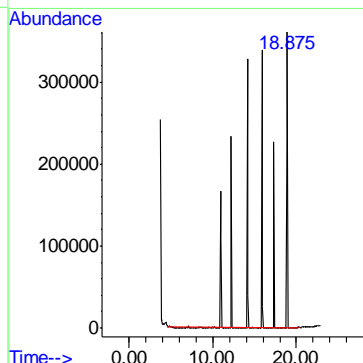
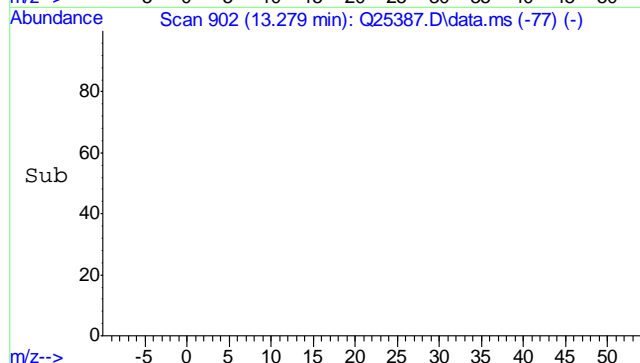
#107
TPH-GRO (C6-C10)
Concen: Below Cal m
RT: 15.891 min Scan# 1149
Delta R.T. 2.616 min
Lab File: Q25387.D
Acq: 1 Dec 2014 5:53 pm

Tgt Ion:TIC Resp:35219536



#108
TPH-GRO (C4-C12)
Concen: Below Cal m
RT: 13.275 min Scan# 902
Delta R.T. 0.000 min
Lab File: Q25387.D
Acq: 1 Dec 2014 5:53 pm

Tgt Ion:TIC Resp:-7497039



12.1.3
12

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\141201\
Data File : Q25388.D
Acq On : 1 Dec 2014 6:29 pm
Operator : thuy
Sample : D64894-4
Misc : MS1826,VQ1074,50,,,,1
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Dec 02 14:25:43 2014
Quant Method : C:\msdchem\1\METHODS\VQ1063_141117.M
Quant Title : EPA -8260B
QLast Update : Mon Nov 24 08:15:34 2014
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	10.888	168	1598015	10.00	ug/L	-0.01
44) 1,4-Difluorobenzene	12.210	114	2473169	10.00	ug/L	-0.01
60) Chlorobenzene-d5	15.892	117	2307659	10.00	ug/L	0.00
84) 1,4-Dichlorobenzene-d4	18.875	152	1211351	10.00	ug/L	# 0.00
106) 1,4-Dichlorobenzene-d4A	18.875	152	1211351	10.00	ug/L	# 0.00
System Monitoring Compounds						
40) Dibromofluoromethane	10.994	111	946358	9.97	ug/L	0.00
Spiked Amount	10.000	Range	70 - 130	Recovery	=	99.70%
61) Toluene-d8	14.146	98	2588180	8.18	ug/L	0.00
Spiked Amount	10.000	Range	70 - 130	Recovery	=	81.80%
81) 4-Bromofluorobenzene	17.309	95	1112535	8.86	ug/L	0.00
Spiked Amount	10.000	Range	70 - 130	Recovery	=	88.60%
Target Compounds						
10) Isopropyl Alcohol	6.847	45	900203	88.84	ug/L	Qvalue 97
11) Acetone	7.122	58	54001	5.08	ug/L	# 80
32) Tetrahydrofuran	10.983	42	64599	1.52	ug/L	96
107) TPH-GRO (C6-C10)	15.892	TIC	36220478m	Below	Cal	
108) TPH-GRO (C4-C12)	13.275	TIC	-5682918m	Below	Cal	

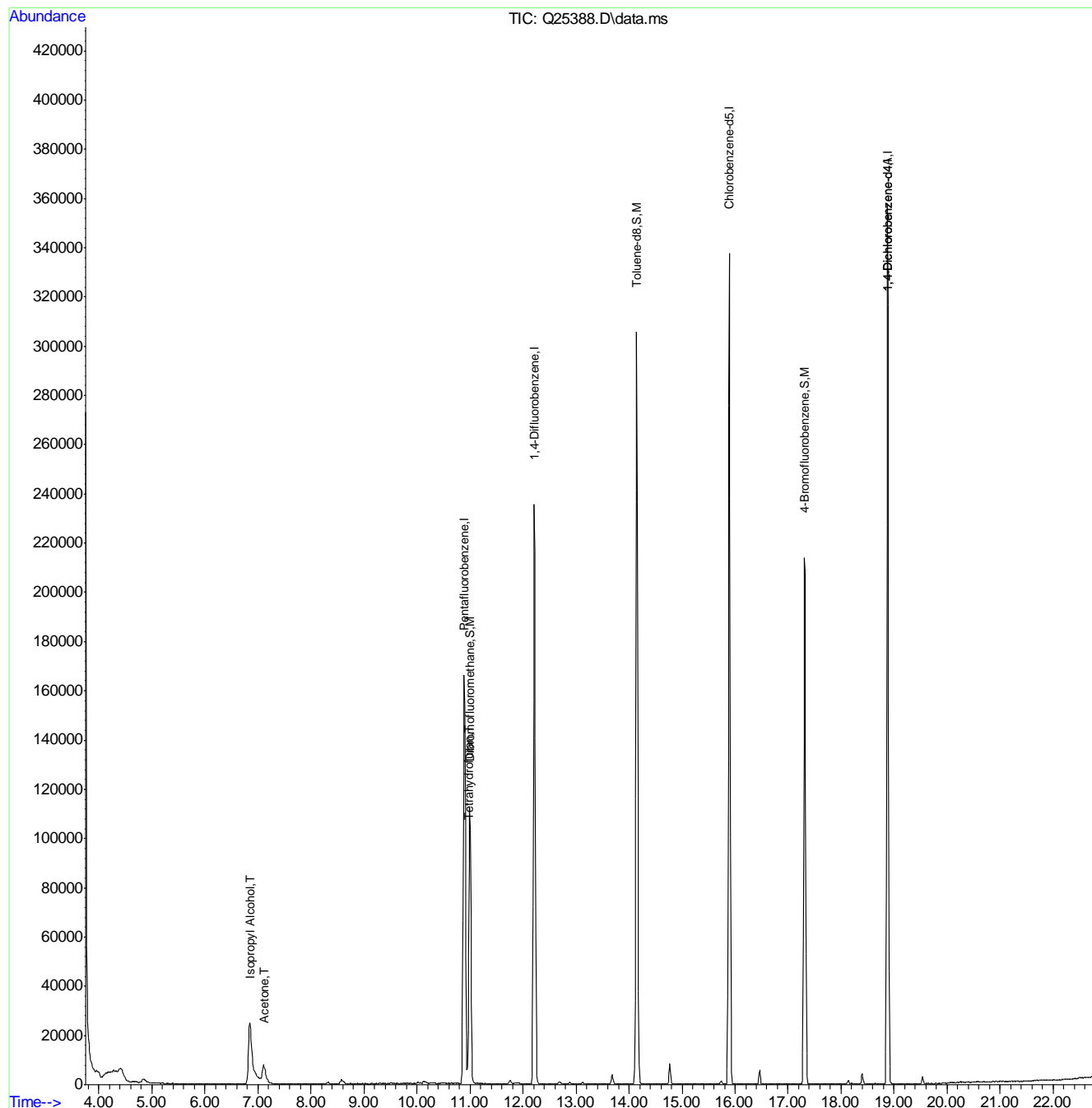
(#) = qualifier out of range (m) = manual integration (+) = signals summed

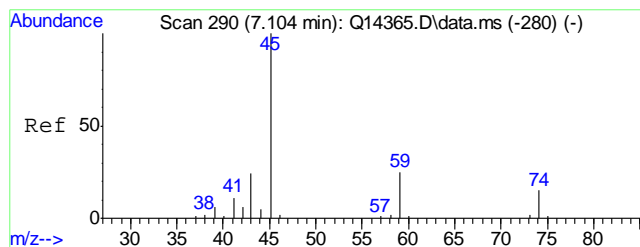
12.1.4
12

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\141201\
Data File : Q25388.D
Acq On : 1 Dec 2014 6:29 pm
Operator : thuy
Sample : D64894-4
Misc : MS1826,VQ1074,50,,,1
ALS Vial : 16 Sample Multiplier: 1

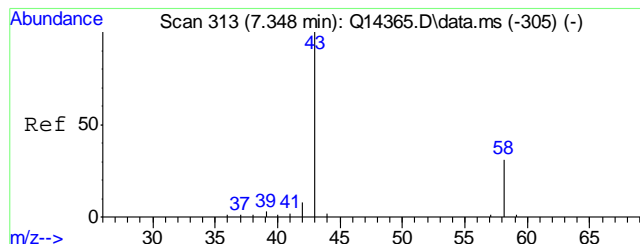
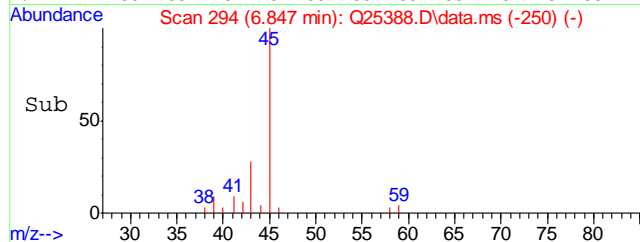
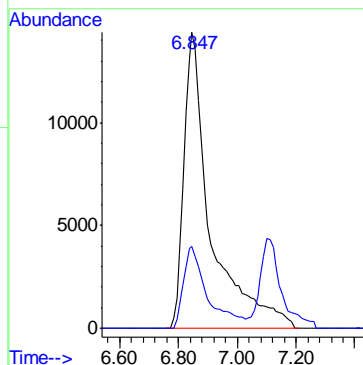
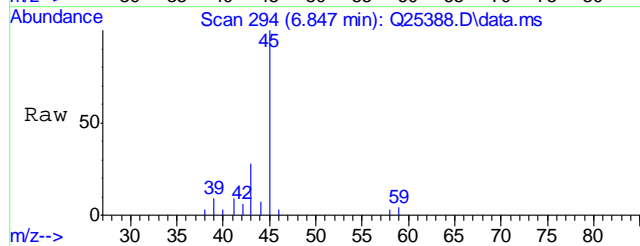
Quant Time: Dec 02 14:25:43 2014
Quant Method : C:\msdchem\1\METHODS\VQ1063_141117.M
Quant Title : EPA -8260B
QLast Update : Mon Nov 24 08:15:34 2014
Response via : Initial Calibration





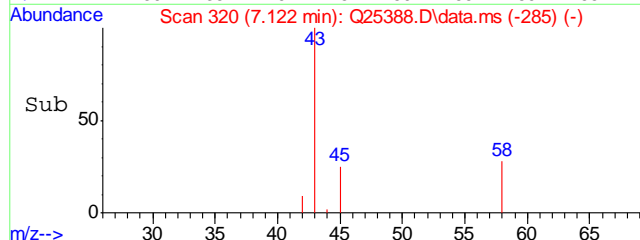
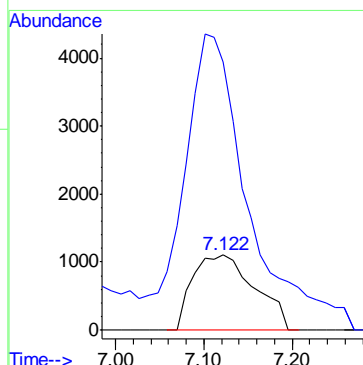
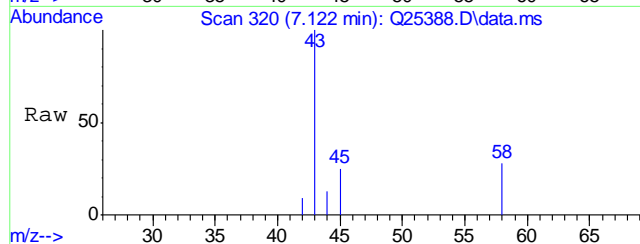
#10
Isopropyl Alcohol
Concen: 88.84 ug/L
RT: 6.847 min Scan# 294
Delta R.T. -0.032 min
Lab File: Q25388.D
Acq: 1 Dec 2014 6:29 pm

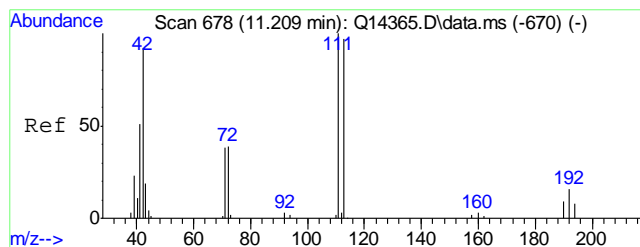
Tgt Ion: 45 Resp: 900203
Ion Ratio Lower Upper
45 100
43 25.2 3.9 43.9



#11
Acetone
Concen: 5.08 ug/L
RT: 7.122 min Scan# 320
Delta R.T. 0.021 min
Lab File: Q25388.D
Acq: 1 Dec 2014 6:29 pm

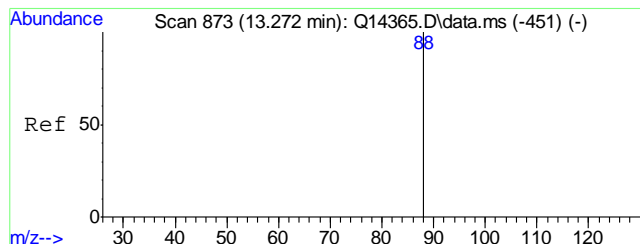
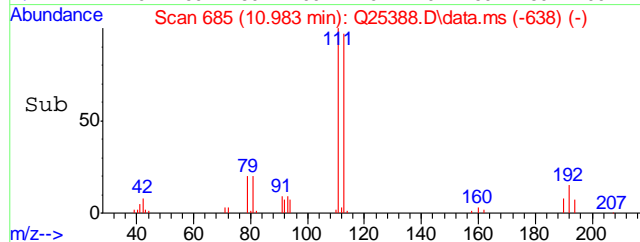
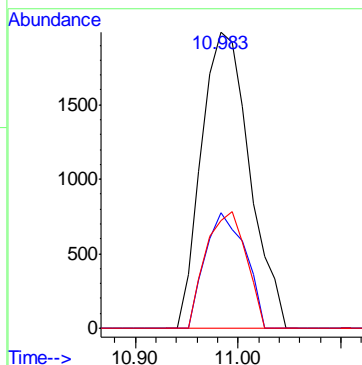
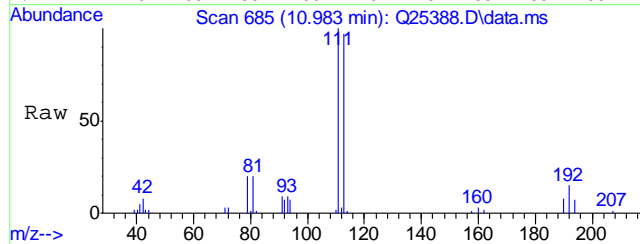
Tgt Ion: 58 Resp: 54001
Ion Ratio Lower Upper
58 100
43 408.8 344.0 384.0#





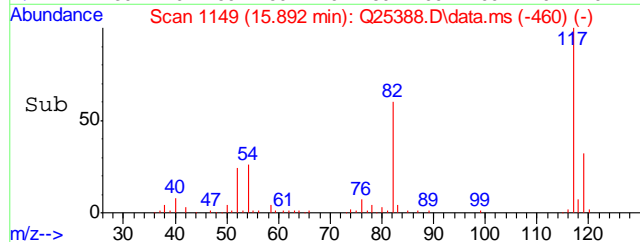
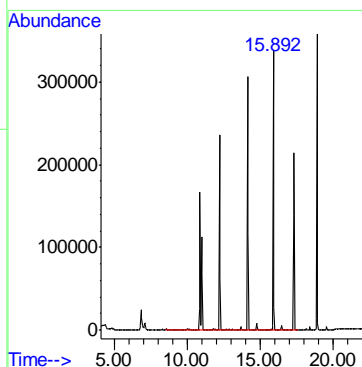
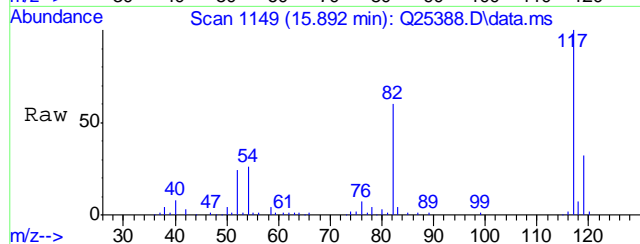
#32
Tetrahydrofuran
Concen: 1.52 ug/L
RT: 10.983 min Scan# 685
Delta R.T. 0.000 min
Lab File: Q25388.D
Acq: 1 Dec 2014 6:29 pm

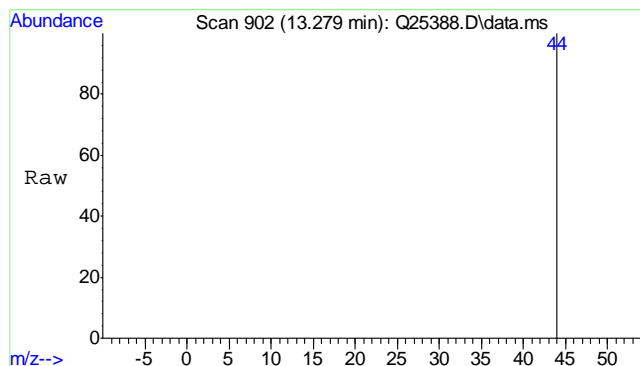
Tgt Ion: 42 Resp: 64599
Ion Ratio Lower Upper
42 100
71 32.7 14.0 54.0
72 32.7 16.3 56.3



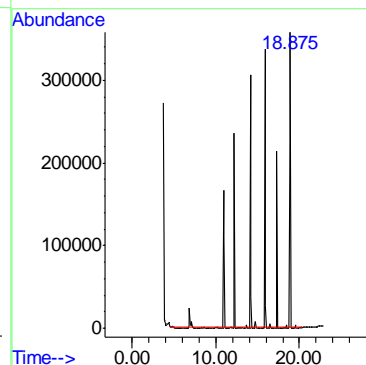
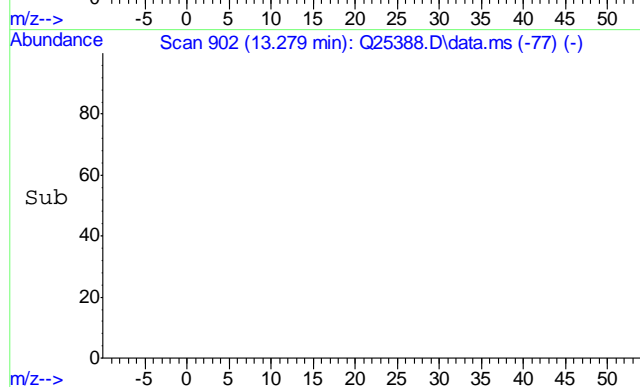
#107
TPH-GRO (C6-C10)
Concen: Below Cal m
RT: 15.892 min Scan# 1149
Delta R.T. 2.617 min
Lab File: Q25388.D
Acq: 1 Dec 2014 6:29 pm

Tgt Ion:TIC Resp:36220478





#108
TPH-GRO (C4-C12)
Concen: Below Cal m
RT: 13.275 min Scan# 902
Delta R.T. 0.000 min
Lab File: Q25388.D
Acq: 1 Dec 2014 6:29 pm
Tgt Ion:TIC Resp:-5682918



Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\141201\
Data File : Q25378.D
Acq On : 1 Dec 2014 1:02 pm
Operator : thuy
Sample : MB
Misc : MS1826,VQ1074,50,,,,,1
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Dec 01 16:34:03 2014
Quant Method : C:\msdchem\1\METHODS\VQ1063_141117.M
Quant Title : EPA -8260B
QLast Update : Mon Nov 24 08:15:34 2014
Response via : Initial Calibration

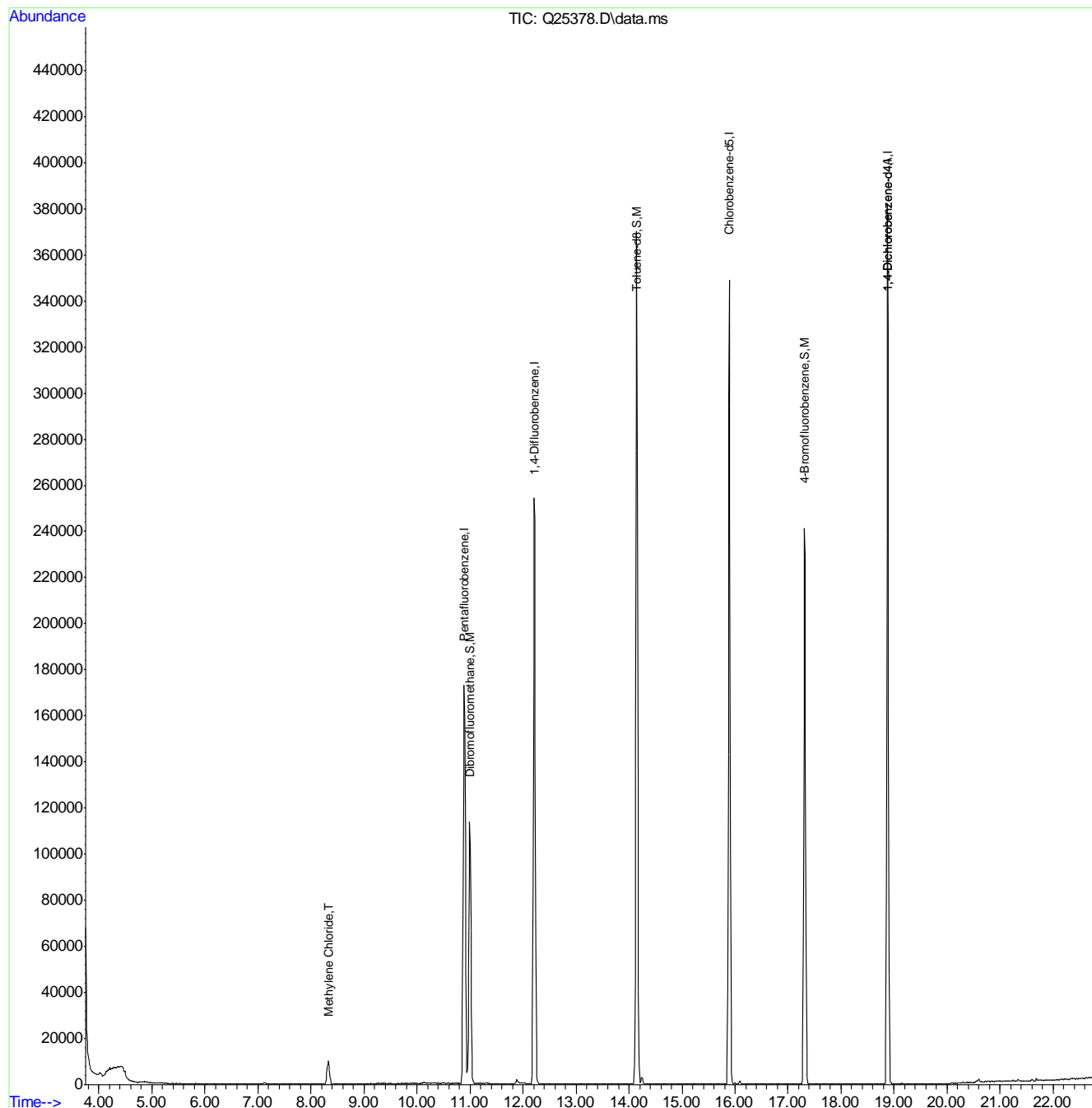
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) Pentafluorobenzene	10.888	168	1659283	10.00	ug/L	-0.01
44) 1,4-Difluorobenzene	12.221	114	2727252	10.00	ug/L	0.00
60) Chlorobenzene-d5	15.891	117	2423642	10.00	ug/L	0.00
84) 1,4-Dichlorobenzene-d4	18.875	152	1262327	10.00	ug/L	# 0.00
106) 1,4-Dichlorobenzene-d4A	18.875	152	1262327	10.00	ug/L	# 0.00
System Monitoring Compounds						
40) Dibromofluoromethane	10.994	111	1004846	10.19	ug/L	0.00
Spiked Amount	10.000	Range	70 - 130	Recovery	=	101.90%
61) Toluene-d8	14.146	98	3123442	9.40	ug/L	0.00
Spiked Amount	10.000	Range	70 - 130	Recovery	=	94.00%
81) 4-Bromofluorobenzene	17.309	95	1224671	9.28	ug/L	0.00
Spiked Amount	10.000	Range	70 - 130	Recovery	=	92.80%
Target Compounds						
20) Methylene Chloride	8.328	84	84976	0.83	ug/L	Qvalue 98
107) TPH-GRO (C6-C10)	14.146	TIC	37143931m	Below	Cal	
108) TPH-GRO (C4-C12)	13.275	TIC	-7687637m	Below	Cal	

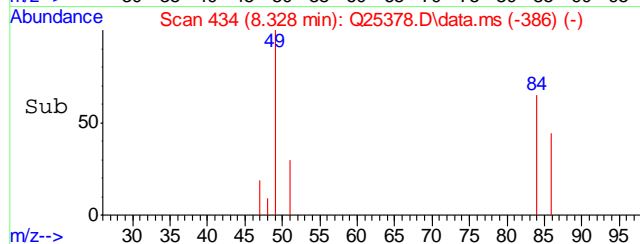
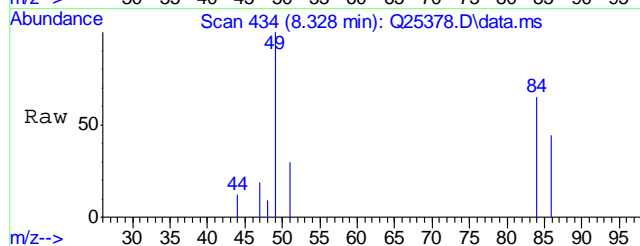
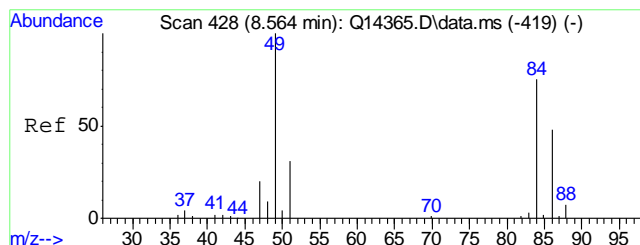
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\141201\
Data File : Q25378.D
Acq On : 1 Dec 2014 1:02 pm
Operator : thuy
Sample : MB
Misc : MS1826,VQ1074,50,,,1
ALS Vial : 6 Sample Multiplier: 1

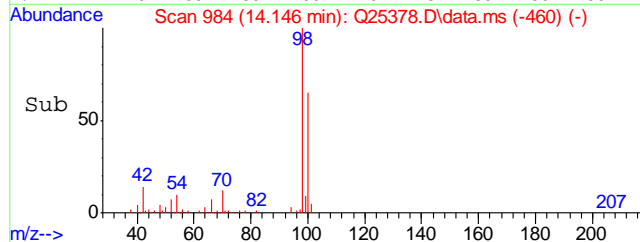
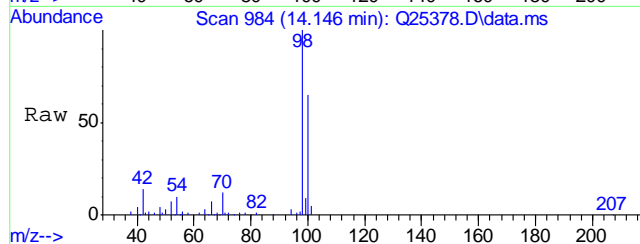
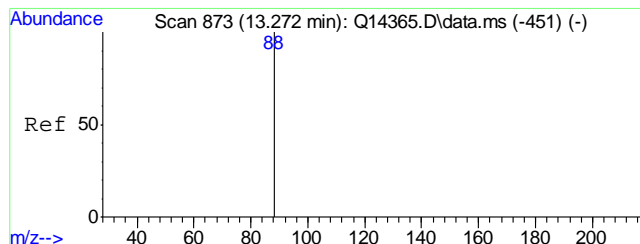
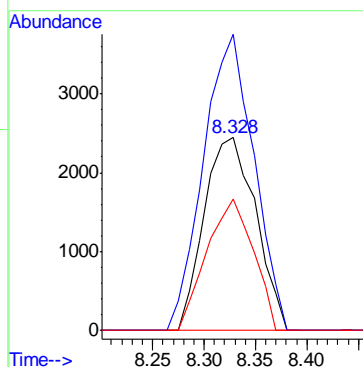
Quant Time: Dec 01 16:34:03 2014
Quant Method : C:\msdchem\1\METHODS\VQ1063_141117.M
Quant Title : EPA -8260B
QLast Update : Mon Nov 24 08:15:34 2014
Response via : Initial Calibration





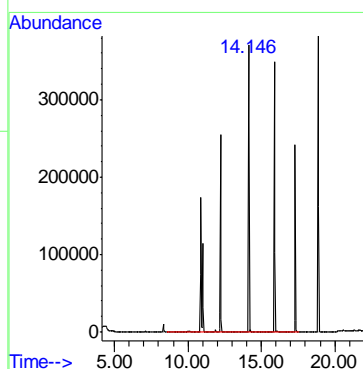
#20
Methylene Chloride
Concen: 0.83 ug/L
RT: 8.328 min Scan# 434
Delta R.T. 0.011 min
Lab File: Q25378.D
Acq: 1 Dec 2014 1:02 pm

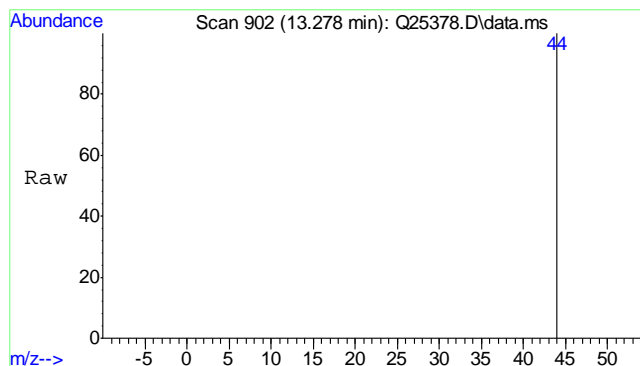
Tgt Ion: 84 Resp: 84976
Ion Ratio Lower Upper
84 100
49 150.6 128.9 168.9
86 61.6 43.6 83.6



#107
TPH-GRO (C6-C10)
Concen: Below Cal m
RT: 14.146 min Scan# 984
Delta R.T. 0.871 min
Lab File: Q25378.D
Acq: 1 Dec 2014 1:02 pm

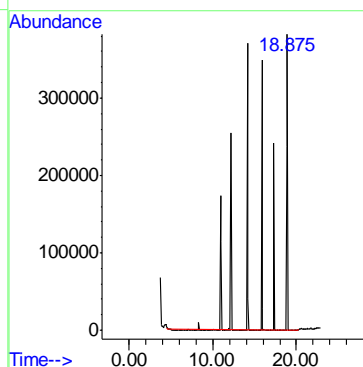
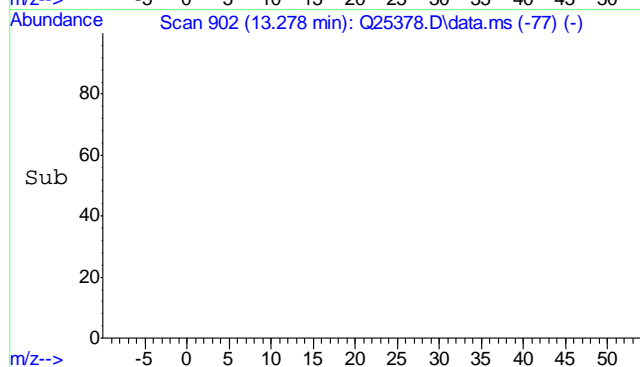
Tgt Ion:TIC Resp:37143931





#108
TPH-GRO (C4-C12)
Concen: Below Cal m
RT: 13.275 min Scan# 902
Delta R.T. 0.000 min
Lab File: Q25378.D
Acq: 1 Dec 2014 1:02 pm

Tgt Ion:TIC Resp:-7687637



GC/MS Semi-volatiles

QC Data Summaries

(Accutest Northern California, Inc.)

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: D64894
Account: ALMS Accutest Mountain States
Project: COCSCOG: CM Production-Lone Pine Excav.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP11273-MB	X40915.D	1	11/25/14	BJ	11/25/14	OP11273	EX1749

The QC reported here applies to the following samples:**Method:** SW846 8270C BY SIM

D64894-2

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.50	0.050	ug/l	
208-96-8	Acenaphthylene	ND	0.50	0.050	ug/l	
120-12-7	Anthracene	ND	0.50	0.050	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.053	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.041	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.035	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.039	ug/l	
218-01-9	Chrysene	ND	0.10	0.045	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.035	ug/l	
206-44-0	Fluoranthene	ND	0.50	0.050	ug/l	
86-73-7	Fluorene	ND	0.50	0.050	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.035	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.50	0.10	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.50	0.10	ug/l	
91-20-3	Naphthalene	ND	0.50	0.10	ug/l	
85-01-8	Phenanthrene	ND	0.50	0.050	ug/l	
129-00-0	Pyrene	ND	0.50	0.050	ug/l	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	84% 42-116%
321-60-8	2-Fluorobiphenyl	86% 44-115%
1718-51-0	Terphenyl-d14	80% 45-141%

13.1.1
13

Method Blank Summary

Page 1 of 1

Job Number: D64894
Account: ALMS Accutest Mountain States
Project: COCSCOG: CM Production-Lone Pine Excav.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP11318-MB	T17040.D	1	12/04/14	BJ	12/03/14	OP11318	ET751

The QC reported here applies to the following samples:**Method:** SW846 8270C BY SIM

D64894-1

CAS No.	Compound	Result	RL	MDL	Units	Q
83-32-9	Acenaphthene	ND	0.50	0.050	ug/l	
208-96-8	Acenaphthylene	ND	0.50	0.050	ug/l	
120-12-7	Anthracene	ND	0.50	0.050	ug/l	
56-55-3	Benzo(a)anthracene	ND	0.10	0.053	ug/l	
50-32-8	Benzo(a)pyrene	ND	0.10	0.041	ug/l	
205-99-2	Benzo(b)fluoranthene	ND	0.10	0.035	ug/l	
191-24-2	Benzo(g,h,i)perylene	ND	0.10	0.036	ug/l	
207-08-9	Benzo(k)fluoranthene	ND	0.10	0.039	ug/l	
218-01-9	Chrysene	ND	0.10	0.045	ug/l	
53-70-3	Dibenzo(a,h)anthracene	ND	0.10	0.035	ug/l	
206-44-0	Fluoranthene	ND	0.50	0.050	ug/l	
86-73-7	Fluorene	ND	0.50	0.050	ug/l	
193-39-5	Indeno(1,2,3-cd)pyrene	ND	0.10	0.035	ug/l	
90-12-0	1-Methylnaphthalene	ND	0.50	0.10	ug/l	
91-57-6	2-Methylnaphthalene	ND	0.50	0.10	ug/l	
91-20-3	Naphthalene	ND	0.50	0.10	ug/l	
85-01-8	Phenanthrene	ND	0.50	0.050	ug/l	
129-00-0	Pyrene	ND	0.50	0.050	ug/l	

CAS No.	Surrogate Recoveries	Limits	
4165-60-0	Nitrobenzene-d5	95%	42-116%
321-60-8	2-Fluorobiphenyl	91%	44-115%
1718-51-0	Terphenyl-d14	111%	45-141%

13.1.2
13

Blank Spike/Blank Spike Duplicate Summary

Page 1 of 1

Job Number: D64894
Account: ALMS Accutest Mountain States
Project: COCSCOG: CM Production-Lone Pine Excav.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP11273-BS	X40916.D	1	11/25/14	BJ	11/25/14	OP11273	EX1749
OP11273-BSD	X40917.D	1	11/25/14	BJ	11/25/14	OP11273	EX1749

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D64894-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	5	3.5	70	3.4	68	3	54-108/21
208-96-8	Acenaphthylene	5	3.5	70	3.4	68	3	53-108/22
120-12-7	Anthracene	5	3.9	78	3.8	76	3	58-111/19
56-55-3	Benzo(a)anthracene	5	3.9	78	3.9	78	0	59-120/14
50-32-8	Benzo(a)pyrene	5	3.7	74	3.6	72	3	53-113/18
205-99-2	Benzo(b)fluoranthene	5	4.0	80	4.1	82	2	57-127/18
191-24-2	Benzo(g,h,i)perylene	5	4.8	96	4.6	92	4	52-126/21
207-08-9	Benzo(k)fluoranthene	5	3.9	78	3.9	78	0	60-125/16
218-01-9	Chrysene	5	4.2	84	4.1	82	2	63-120/14
53-70-3	Dibenzo(a,h)anthracene	5	3.4	68	3.5	70	3	53-127/22
206-44-0	Fluoranthene	5	4.3	86	4.2	84	2	59-123/17
86-73-7	Fluorene	5	3.6	72	3.5	70	3	57-113/21
193-39-5	Indeno(1,2,3-cd)pyrene	5	4.6	92	4.6	92	0	48-130/22
90-12-0	1-Methylnaphthalene	5	3.2	64	3.2	64	0	51-104/24
91-57-6	2-Methylnaphthalene	5	3.3	66	3.2	64	3	52-108/25
91-20-3	Naphthalene	5	3.3	66	3.2	64	3	51-102/23
85-01-8	Phenanthrene	5	3.8	76	3.7	74	3	58-112/18
129-00-0	Pyrene	5	3.3	66	3.3	66	0	52-124/20

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
4165-60-0	Nitrobenzene-d5	80%	78%	42-116%
321-60-8	2-Fluorobiphenyl	82%	79%	44-115%
1718-51-0	Terphenyl-d14	75%	75%	45-141%

* = Outside of Control Limits.

Blank Spike/Blank Spike Duplicate Summary

Page 1 of 1

Job Number: D64894
Account: ALMS Accutest Mountain States
Project: COCSCOG: CM Production-Lone Pine Excav.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP11318-BS	T17038.D	1	12/04/14	BJ	12/03/14	OP11318	ET751
OP11318-BSD	T17039.D	1	12/04/14	BJ	12/03/14	OP11318	ET751

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D64894-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	BSD ug/l	BSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	5	3.7	74	3.7	74	0	54-108/21
208-96-8	Acenaphthylene	5	3.7	74	3.7	74	0	53-108/22
120-12-7	Anthracene	5	4.1	82	4.2	84	2	58-111/19
56-55-3	Benzo(a)anthracene	5	4.2	84	4.5	90	7	59-120/14
50-32-8	Benzo(a)pyrene	5	4.1	82	4.4	88	7	53-113/18
205-99-2	Benzo(b)fluoranthene	5	4.6	92	4.7	94	2	57-127/18
191-24-2	Benzo(g,h,i)perylene	5	3.9	78	4.0	80	3	52-126/21
207-08-9	Benzo(k)fluoranthene	5	4.7	94	4.7	94	0	60-125/16
218-01-9	Chrysene	5	4.3	86	4.1	82	5	63-120/14
53-70-3	Dibenzo(a,h)anthracene	5	3.9	78	3.8	76	3	53-127/22
206-44-0	Fluoranthene	5	4.3	86	4.3	86	0	59-123/17
86-73-7	Fluorene	5	3.9	78	3.8	76	3	57-113/21
193-39-5	Indeno(1,2,3-cd)pyrene	5	4.1	82	4.0	80	2	48-130/22
90-12-0	1-Methylnaphthalene	5	3.5	70	3.5	70	0	51-104/24
91-57-6	2-Methylnaphthalene	5	3.6	72	3.7	74	3	52-108/25
91-20-3	Naphthalene	5	3.4	68	3.5	70	3	51-102/23
85-01-8	Phenanthrene	5	3.9	78	4.1	82	5	58-112/18
129-00-0	Pyrene	5	4.1	82	4.2	84	2	52-124/20

CAS No.	Surrogate Recoveries	BSP	BSD	Limits
4165-60-0	Nitrobenzene-d5	89%	85%	42-116%
321-60-8	2-Fluorobiphenyl	83%	82%	44-115%
1718-51-0	Terphenyl-d14	99%	99%	45-141%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: D64894
Account: ALMS Accutest Mountain States
Project: COCSCOG: CM Production-Lone Pine Excav.

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP11273-MS	X40925.D	1	11/25/14	BJ	11/25/14	OP11273	EX1749
OP11273-MSD	X40926.D	1	11/25/14	BJ	11/25/14	OP11273	EX1749
C37344-2	X40924.D	1	11/25/14	BJ	11/25/14	OP11273	EX1749

The QC reported here applies to the following samples:

Method: SW846 8270C BY SIM

D64894-2

CAS No.	Compound	C37344-2 ug/l	Spike Q ug/l	MS ug/l	MS %	Spike ug/l	MSD ug/l	MSD %	RPD	Limits Rec/RPD
83-32-9	Acenaphthene	0.48 U	9.62	6.8	71	9.62	6.6	69	3	54-108/21
208-96-8	Acenaphthylene	0.48 U	9.62	6.8	71	9.62	6.5	68	5	53-108/22
120-12-7	Anthracene	0.48 U	9.62	7.6	79	9.62	7.5	78	1	58-111/19
56-55-3	Benzo(a)anthracene	0.096 U	9.62	7.5	78	9.62	7.7	80	3	59-120/14
50-32-8	Benzo(a)pyrene	0.096 U	9.62	7.5	78	9.62	7.8	81	4	53-113/18
205-99-2	Benzo(b)fluoranthene	0.096 U	9.62	8.1	84	9.62	8.5	88	5	57-127/18
191-24-2	Benzo(g,h,i)perylene	0.096 U	9.62	7.0	73	9.62	7.0	73	0	52-126/21
207-08-9	Benzo(k)fluoranthene	0.096 U	9.62	8.2	85	9.62	7.9	82	4	60-125/16
218-01-9	Chrysene	0.096 U	9.62	7.8	81	9.62	8.1	84	4	63-120/14
53-70-3	Dibenzo(a,h)anthracene	0.096 U	9.62	5.8	60	9.62	5.9	61	2	53-127/22
206-44-0	Fluoranthene	0.48 U	9.62	8.5	88	9.62	8.0	83	6	59-123/17
86-73-7	Fluorene	0.48 U	9.62	7.0	73	9.62	6.7	70	4	57-113/21
193-39-5	Indeno(1,2,3-cd)pyrene	0.096 U	9.62	7.2	75	9.62	7.4	77	3	48-130/22
90-12-0	1-Methylnaphthalene	0.48 U	9.62	6.5	68	9.62	6.2	64	5	51-104/24
91-57-6	2-Methylnaphthalene	0.48 U	9.62	6.6	69	9.62	6.2	64	6	52-108/25
91-20-3	Naphthalene	0.48 U	9.62	6.1	63	9.62	5.8	60	5	51-102/23
85-01-8	Phenanthrene	0.48 U	9.62	7.3	76	9.62	7.2	75	1	58-112/18
129-00-0	Pyrene	0.48 U	9.62	6.7	70	9.62	6.9	72	3	52-124/20

CAS No.	Surrogate Recoveries	MS	MSD	C37344-2	Limits
4165-60-0	Nitrobenzene-d5	78%	73%	65%	42-116%
321-60-8	2-Fluorobiphenyl	80%	78%	66%	44-115%
1718-51-0	Terphenyl-d14	80%	82%	91%	45-141%

* = Outside of Control Limits.



GC/MS Semi-volatiles

Raw Data

(Accutest Northern California, Inc.)

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\T141204\
 Data File : T17053.D
 Acq On : 4 Dec 2014 3:55 pm
 Operator : bijanj
 Sample : D64894-1
 Misc : OP11318,ET751,1060,,,1,1,W
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: Dec 04 18:22:54 2014
 Quant Method : C:\msdchem\1\METHODS\ET748.M
 Quant Title : SW8270 SIM 1,4-DIOXANE and PAH
 QLast Update : Tue Dec 02 14:11:16 2014
 Response via : Initial Calibration
 DataAcq Meth:ACQ_MIXALL3.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.726	152	115096	4.00	ppm	# 0.00
5) Naphthalene-d8	6.822	136	226684	4.00	ppm	0.00
9) Acenaphthene-d10	8.775	164	111412	4.00	ppm	# 0.00
15) Phenanthrene-d10	10.502	188	163379	4.00	ppm	# 0.00
20) Chrysene-d12	13.686	240	76827	4.00	ppm	# 0.00
25) Perylene-d12	15.381	264	57386	4.00	ppm	# 0.00
System Monitoring Compounds						
4) Nitrobenzene-d5	6.178	82	67248	3.86	ppm	0.00
Spiked Amount	5.000	Range 25 - 100	Recovery	=	77.20%	
11) 2-Fluorobiphenyl	8.024	172	163734	4.10	ppm	0.00
Spiked Amount	5.000	Range 25 - 106	Recovery	=	82.00%	
22) p-Terphenyl-d14	12.482	244	63977	4.39	ppm	0.00
Spiked Amount	5.000	Range 35 - 130	Recovery	=	87.80%	
Target Compounds						Qvalue
2) 1,4-Dioxane	0.000		0	N.D.	d	
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
6) Naphthalene	6.838	128	238	0.00	ppm	97
7) 2-Methylnaphthalene	0.000		0	N.D.	d	
8) 1-Methylnaphthalene	0.000		0	N.D.	d	
10) Hexachlorocyclopentadiene	0.000		0	N.D.	d	
12) Acenaphthylene	0.000		0	N.D.	d	
13) Acenaphthene	0.000		0	N.D.	d	
14) Fluorene	0.000		0	N.D.	d	
16) Hexachlorobenzene	0.000		0	N.D.	d	
17) Phenanthrene	10.525	178	502	0.01	ppm	# 71
18) Anthracene	0.000		0	N.D.	d	
19) Fluoranthene	11.964	202	143	0.00	ppm	# 40
21) Pyrene	12.217	202	2249	0.04	ppm	# 87
23) Benzo[a]anthracene	0.000		0	N.D.	d	
24) Chrysene	0.000		0	N.D.	d	
26) Benzo(b)fluoranthene	0.000		0	N.D.	d	
27) Benzo(k)fluoranthene	0.000		0	N.D.	d	
28) Benzo(a)pyrene	0.000		0	N.D.	d	
29) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
30) Dibenz(a,h)anthracene	16.739	278	36	0.00	ppm	# 13
31) Benzo(g,h,i)perylene	17.005	276	82	0.00	ppm	# 41

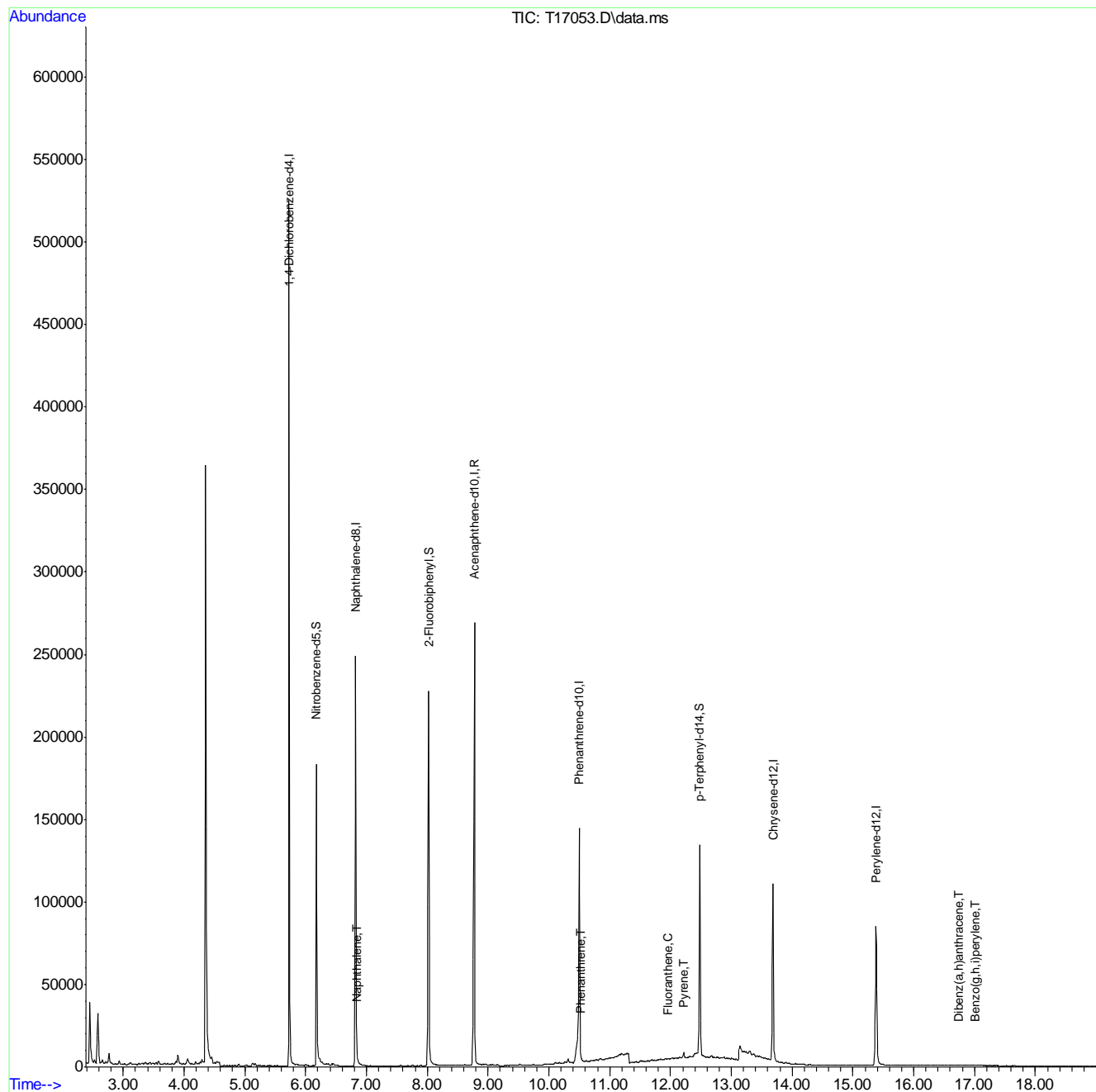
(#) = qualifier out of range (m) = manual integration (+) = signals summed

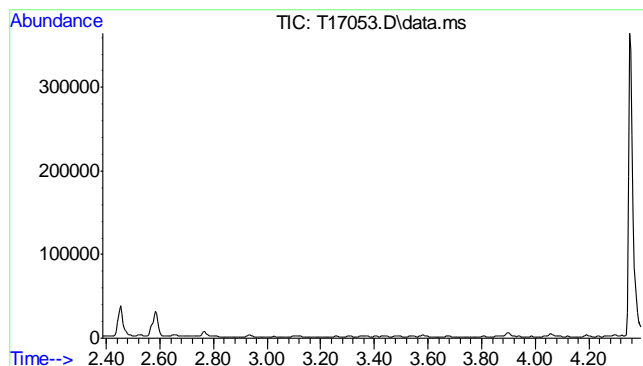
14.1.1
14

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\T141204\
Data File : T17053.D
Acq On : 4 Dec 2014 3:55 pm
Operator : bijanj
Sample : D64894-1
Misc : OP11318,ET751,1060,,,1,1,W
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Dec 04 18:22:54 2014
Quant Method : C:\msdchem\1\METHODS\ET748.M
Quant Title : SW8270 SIM 1,4-DIOXANE and PAH
QLast Update : Tue Dec 02 14:11:16 2014
Response via : Initial Calibration
DataAcq Meth:ACQ_MIXALL3.M

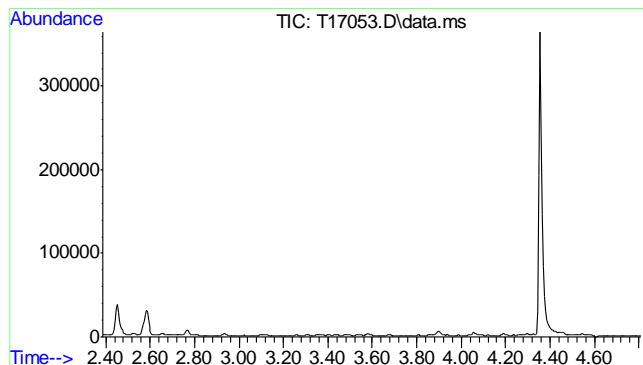
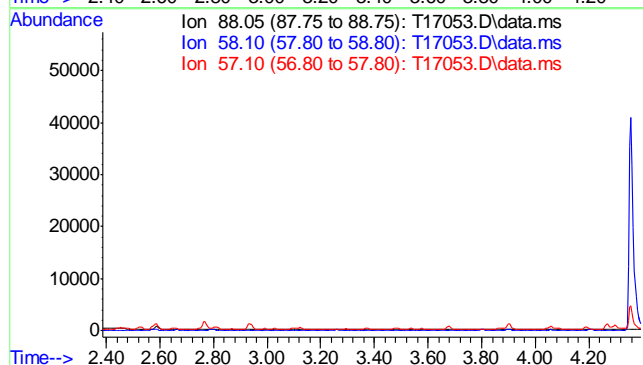




#2
 1,4-Dioxane
 Concen: N.D.
 Expected RT: 2.90 min

Lab File: T17053.D
 Acq: 4 Dec 2014 3:55 pm

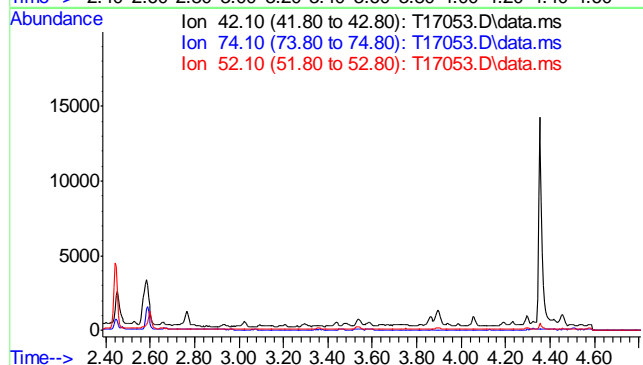
Tgt Ion	Exp Ratio
88	100
58	53.8
57	43.8



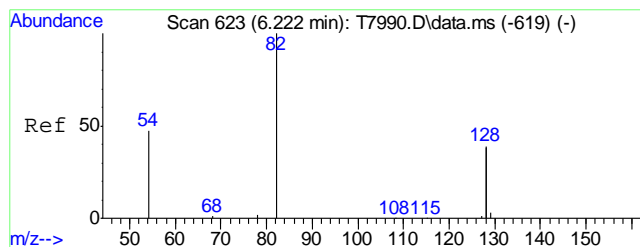
#3
 N-Nitrosodimethylamine
 Concen: N.D.
 Expected RT: 3.31 min

Lab File: T17053.D
 Acq: 4 Dec 2014 3:55 pm

Tgt Ion	Exp Ratio
42	100
74	98.6
52	36.3

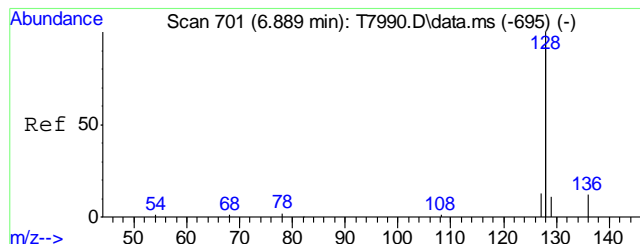
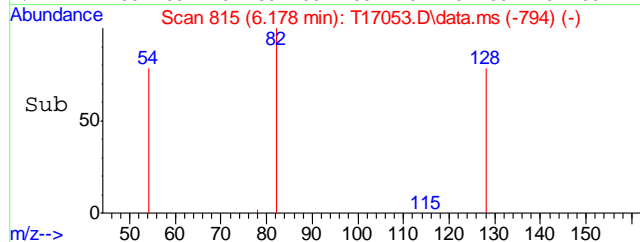
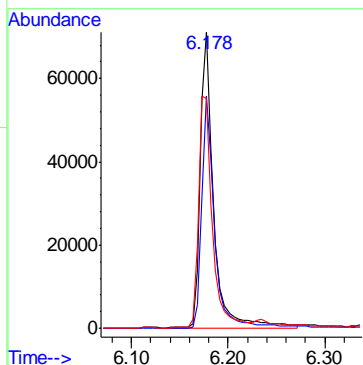
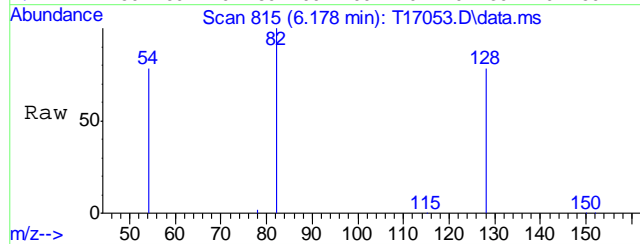


14.1.1
 14



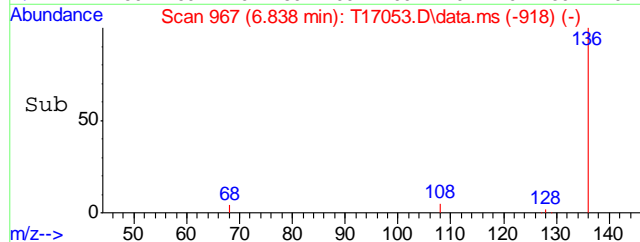
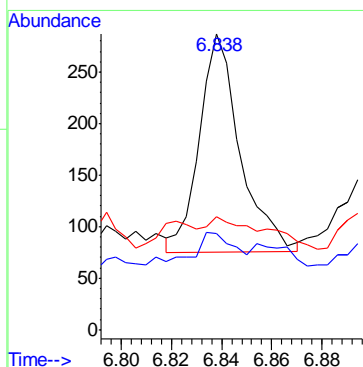
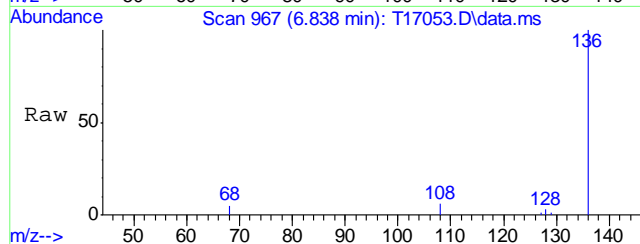
#4
Nitrobenzene-d5
Concen: 3.86 ppm
RT: 6.178 min Scan# 815
Delta R.T. 0.000 min
Lab File: T17053.D
Acq: 4 Dec 2014 3:55 pm

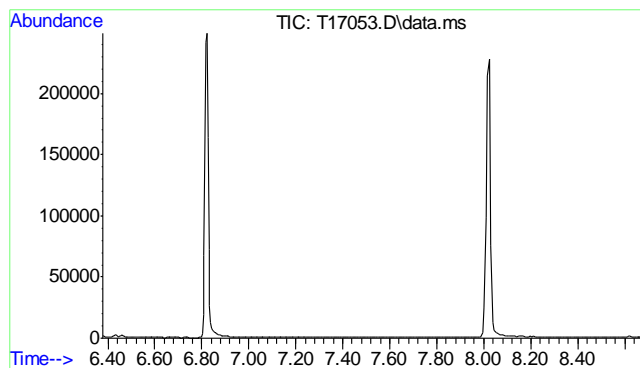
Tgt Ion	Ratio	Lower	Upper
82	100		
128	78.1	37.7	69.9#
54	81.9	30.7	56.9#



#6
Naphthalene
Concen: 0.00 ppm
RT: 6.838 min Scan# 967
Delta R.T. -0.004 min
Lab File: T17053.D
Acq: 4 Dec 2014 3:55 pm

Tgt Ion	Ratio	Lower	Upper
128	100		
127	14.3	9.0	16.8
129	10.5	7.8	14.6

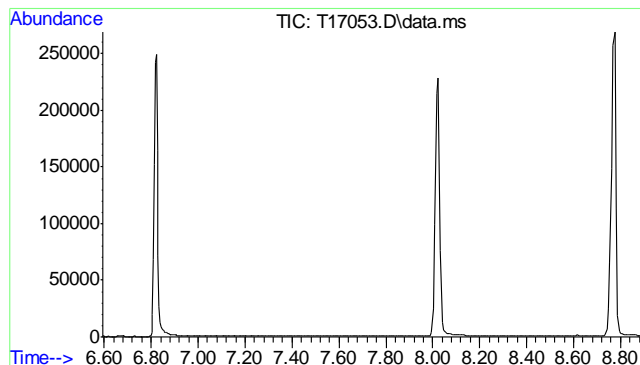
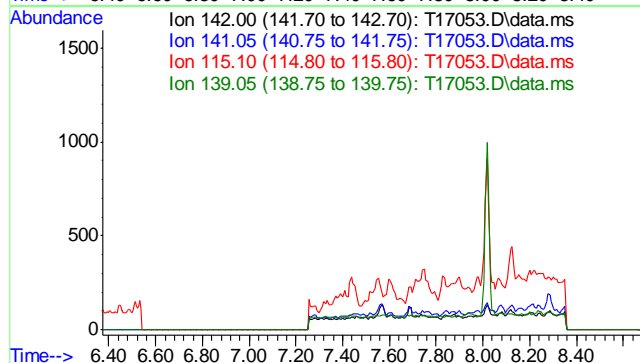




#7
2-Methylnaphthalene
Concen: N.D.
Expected RT: 7.57 min

Lab File: T17053.D
Acq: 4 Dec 2014 3:55 pm

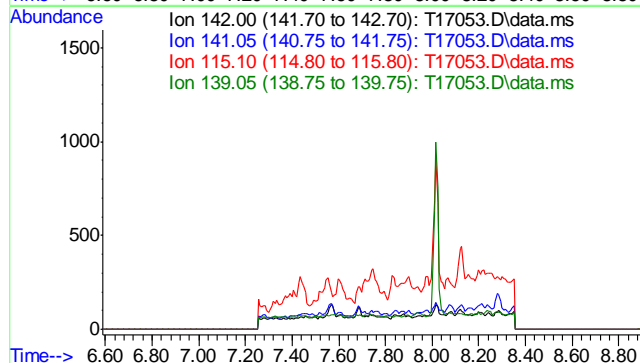
Tgt Ion	Exp Ratio
142	100
141	88.6
115	30.9
139	11.3

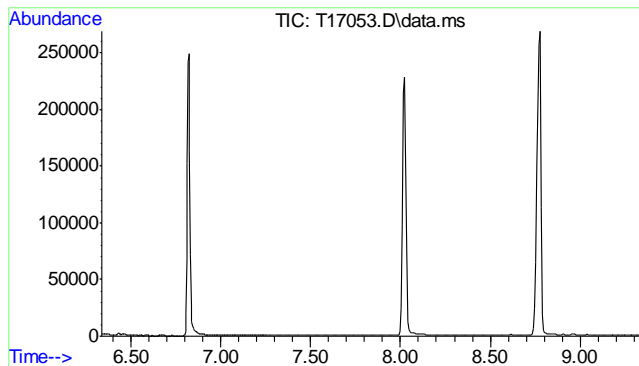


#8
1-Methylnaphthalene
Concen: N.D.
Expected RT: 7.69 min

Lab File: T17053.D
Acq: 4 Dec 2014 3:55 pm

Tgt Ion	Exp Ratio
142	100
141	91.9
115	32.4
139	11.7

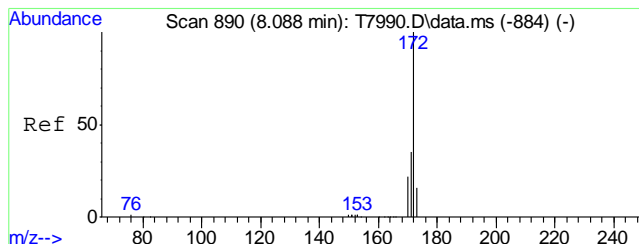
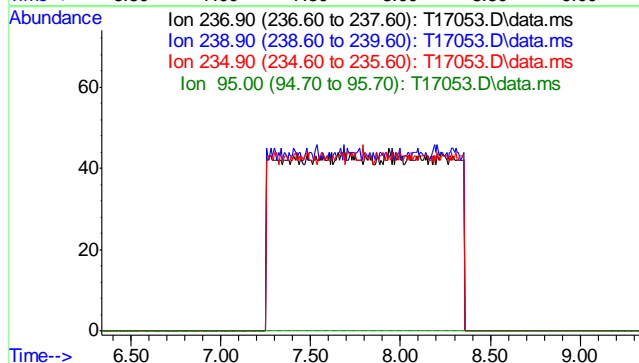




#10
Hexachlorocyclopentadiene
Concen: N.D.
Expected RT: 7.84 min

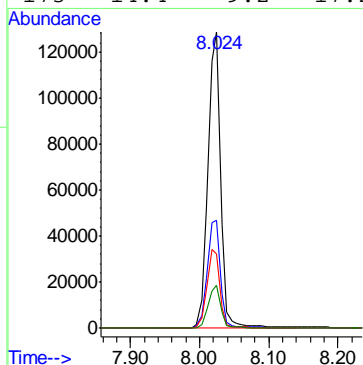
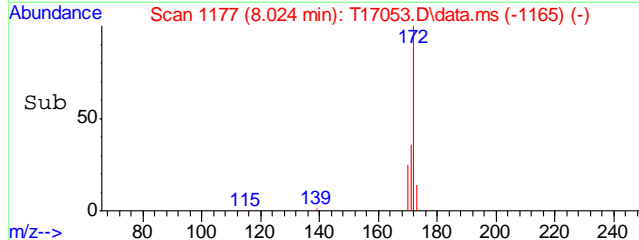
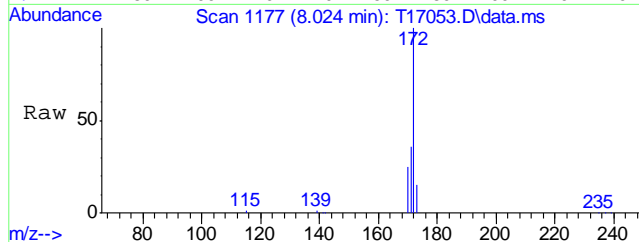
Lab File: T17053.D
Acq: 4 Dec 2014 3:55 pm

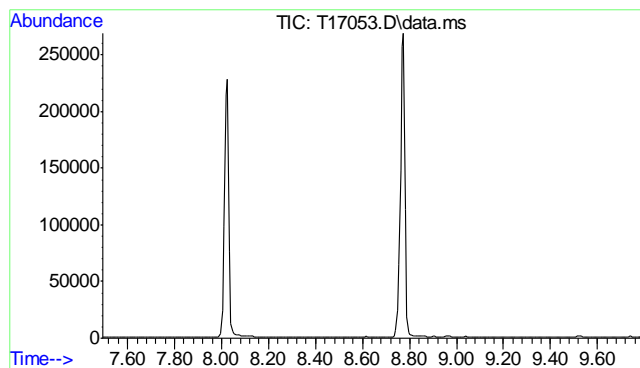
Tgt Ion: 237
Sig Exp Ratio
237 100
239 71.3
235 58.8
95 36.0



#11
2-Fluorobiphenyl
Concen: 4.10 ppm
RT: 8.024 min Scan# 1177
Delta R.T. -0.001 min
Lab File: T17053.D
Acq: 4 Dec 2014 3:55 pm

Tgt Ion: 172 Resp: 163734
Ion Ratio Lower Upper
172 100
171 37.6 24.8 46.0
170 27.1 16.7 30.9
173 14.4 9.2 17.2

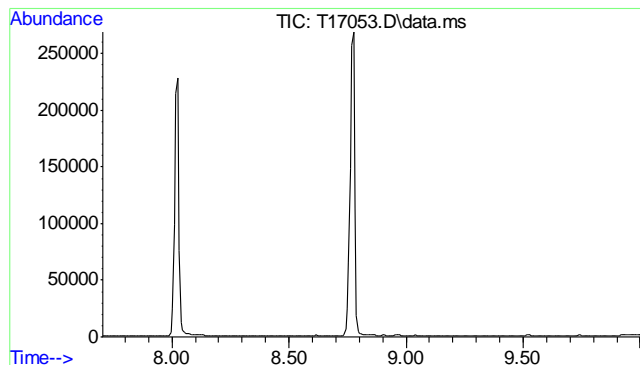
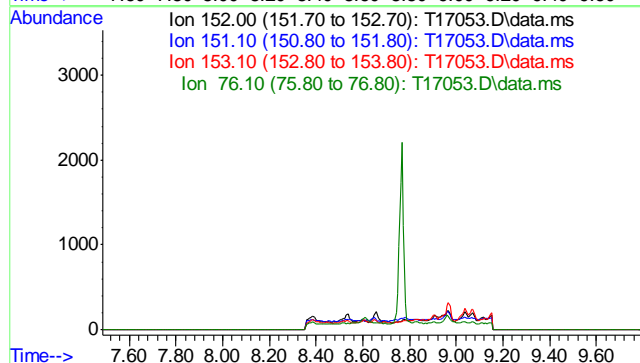




#12
 Acenaphthylene
 Concen: N.D.
 Expected RT: 8.59 min

Lab File: T17053.D
 Acq: 4 Dec 2014 3:55 pm

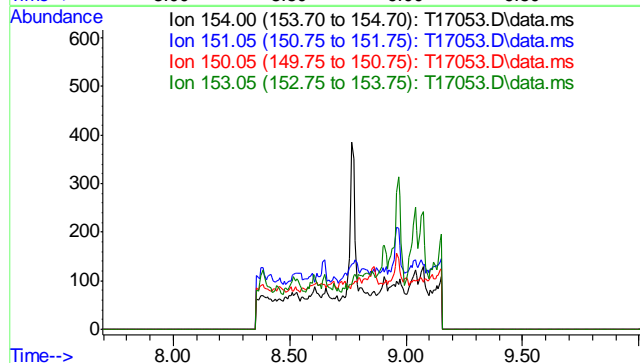
Tgt Ion	Sig	Exp Ratio
152	100	
151	20.2	
153	13.3	
76	9.4	

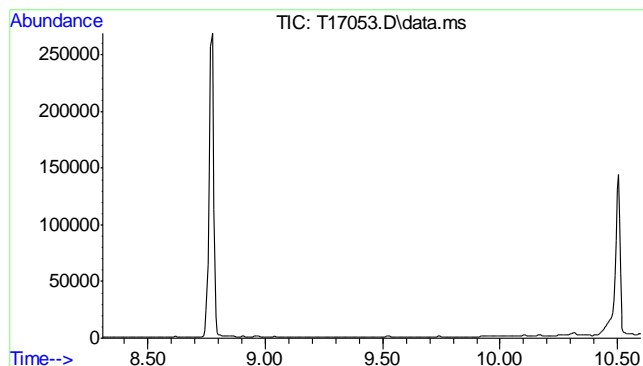


#13
 Acenaphthene
 Concen: N.D.
 Expected RT: 8.81 min

Lab File: T17053.D
 Acq: 4 Dec 2014 3:55 pm

Tgt Ion	Sig	Exp Ratio
154	100	
151	19.5	
150	9.5	
153	110.7	

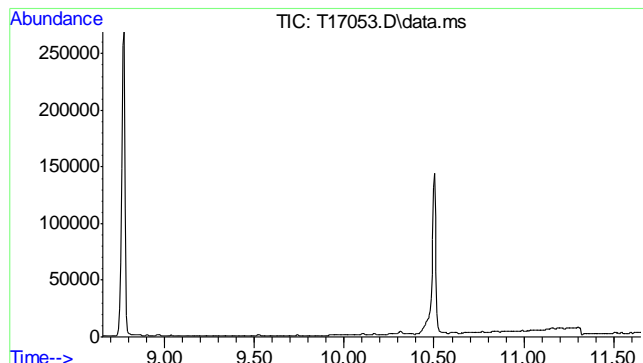
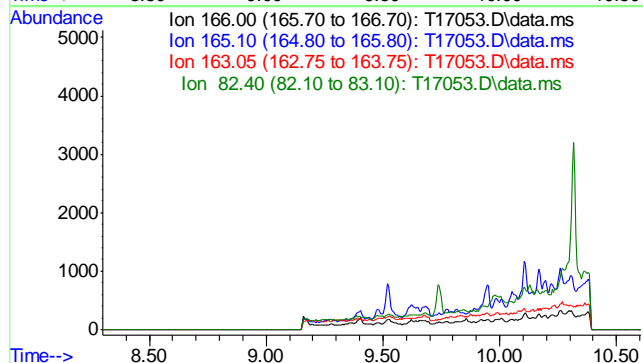




#14
 Fluorene
 Concen: N.D.
 Expected RT: 9.40 min

Lab File: T17053.D
 Acq: 4 Dec 2014 3:55 pm

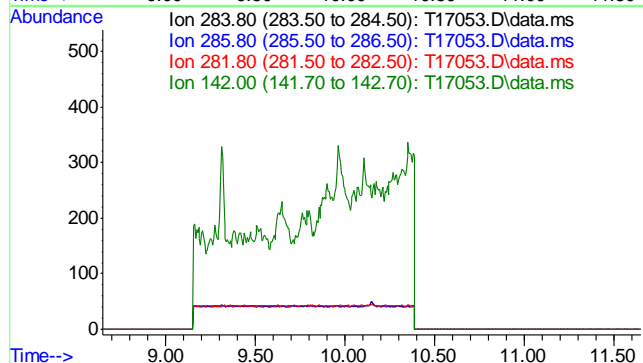
Tgt Ion	Sig	Exp Ratio
166	100	
165	96.7	
163	16.0	
82	12.4	

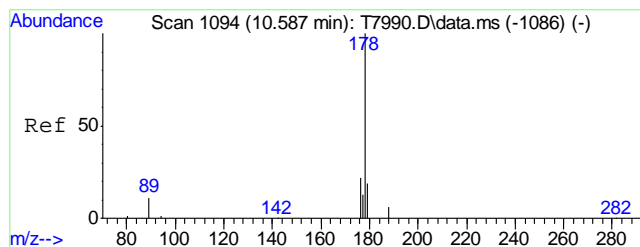


#16
 Hexachlorobenzene
 Concen: N.D.
 Expected RT: 10.15 min

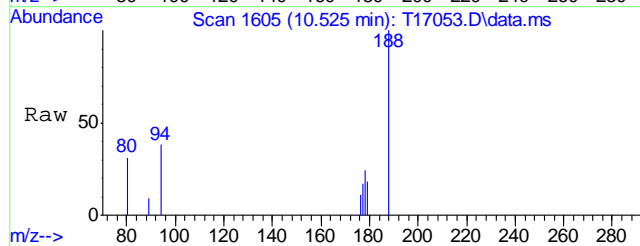
Lab File: T17053.D
 Acq: 4 Dec 2014 3:55 pm

Tgt Ion	Sig	Exp Ratio
284	100	
286	58.6	
282	47.2	
142	46.9	

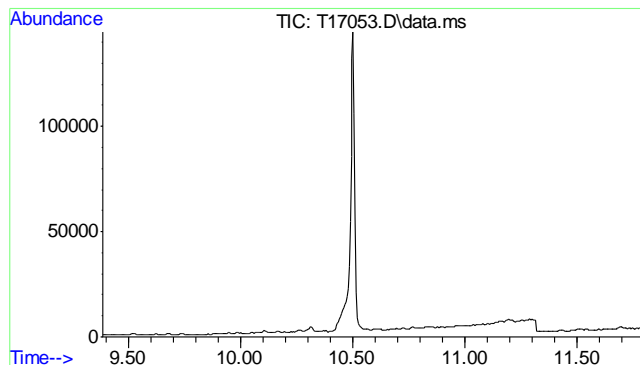
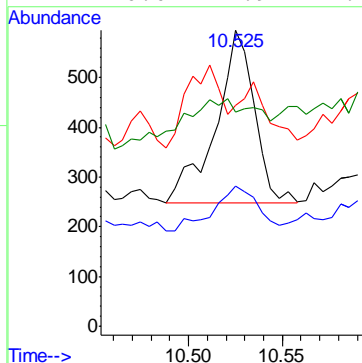
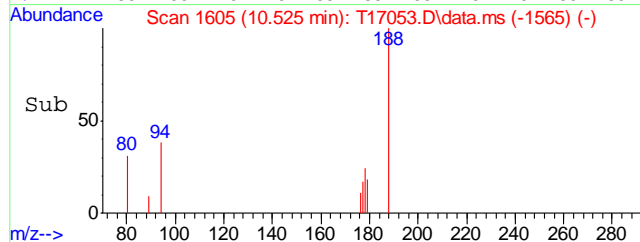




#17
Phenanthrene
Concen: 0.01 ppm
RT: 10.525 min Scan# 1605
Delta R.T. -0.005 min
Lab File: T17053.D
Acq: 4 Dec 2014 3:55 pm

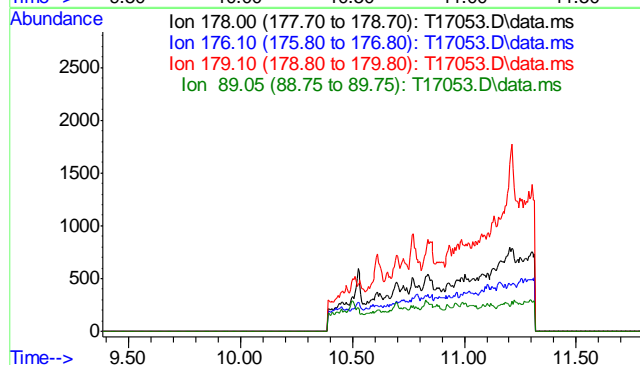


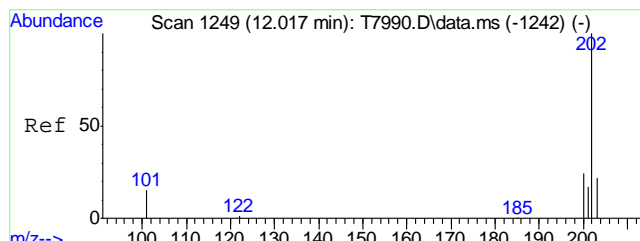
Tgt Ion: 178 Resp: 502
Ion Ratio Lower Upper
178 100
176 19.1 14.1 26.1
179 42.0 11.3 20.9#
177 0.0 7.9 14.7#



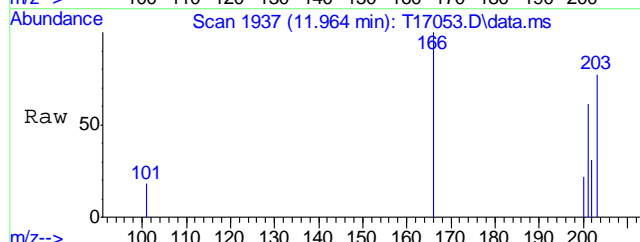
#18
Anthracene
Concen: N.D.
Expected RT: 10.59 min
Lab File: T17053.D
Acq: 4 Dec 2014 3:55 pm

Tgt Ion: 178
Sig Exp Ratio
178 100
176 19.4
179 16.1
89 9.5

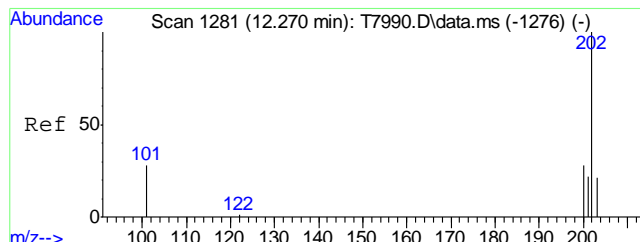
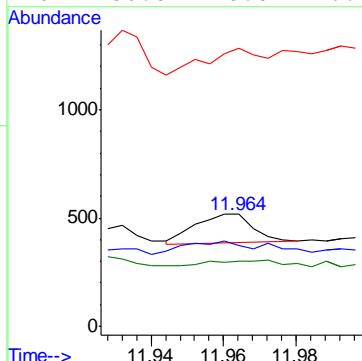
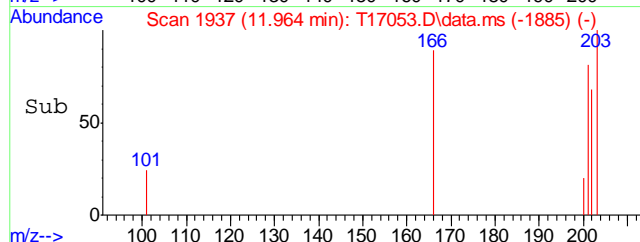




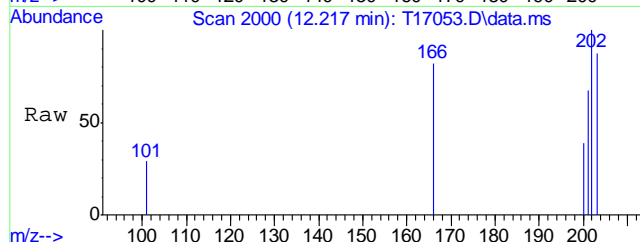
#19
Fluoranthene
Concen: 0.00 ppm
RT: 11.964 min Scan# 1937
Delta R.T. 0.008 min
Lab File: T17053.D
Acq: 4 Dec 2014 3:55 pm



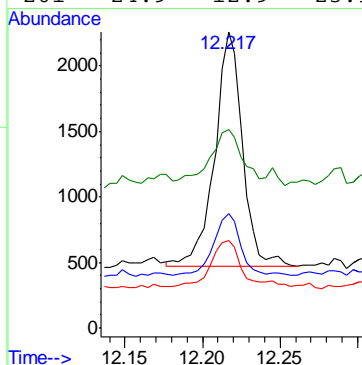
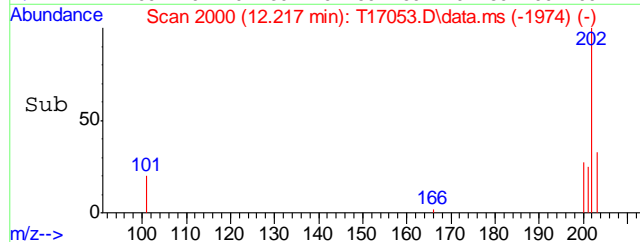
Tgt Ion: 202 Resp: 143
Ion Ratio Lower Upper
202 100
200 46.9 15.2 28.2#
203 52.4 12.7 23.7#
101 30.8 8.8 16.3#

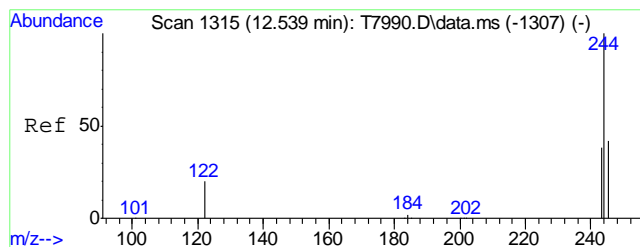


#21
Pyrene
Concen: 0.04 ppm
RT: 12.217 min Scan# 2000
Delta R.T. 0.004 min
Lab File: T17053.D
Acq: 4 Dec 2014 3:55 pm

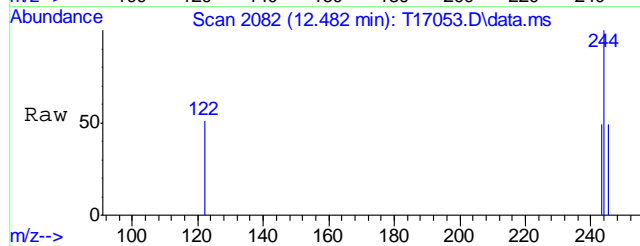


Tgt Ion: 202 Resp: 2249
Ion Ratio Lower Upper
202 100
200 25.1 15.4 28.6
101 22.6 10.3 19.1#
201 24.9 12.9 23.9#

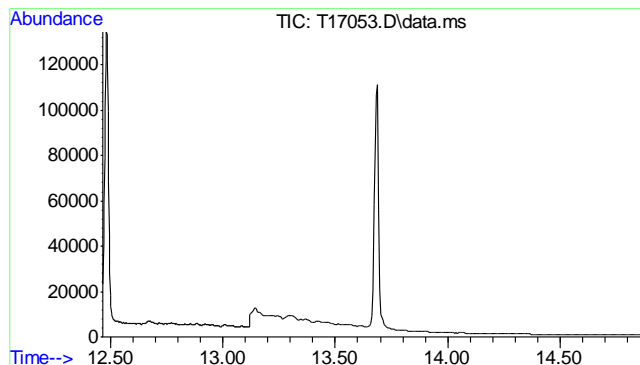
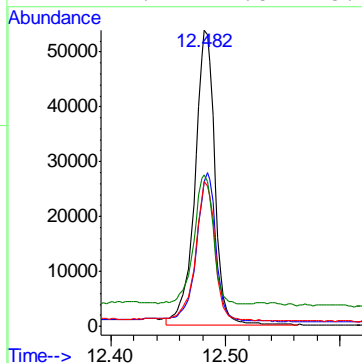
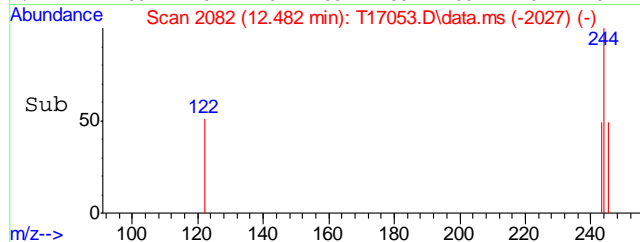




#22
p-Terphenyl-d14
Concen: 4.39 ppm
RT: 12.482 min Scan# 2082
Delta R.T. 0.007 min
Lab File: T17053.D
Acq: 4 Dec 2014 3:55 pm

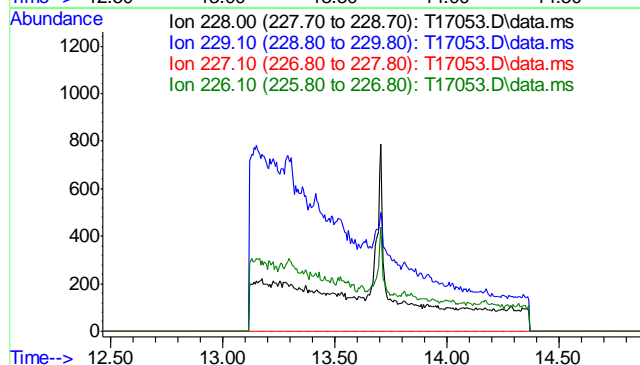


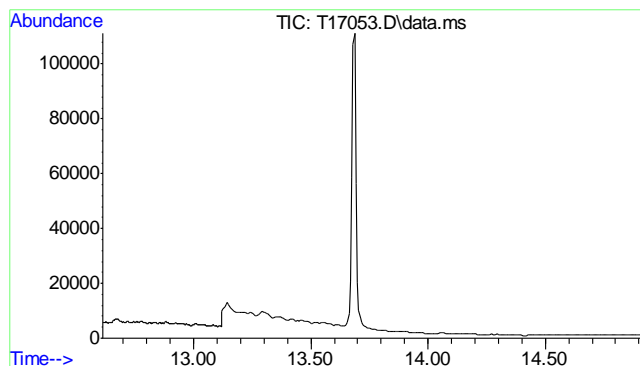
Tgt Ion	Ratio	Lower	Upper
244	100		
243	48.4	31.5	58.5
245	45.9	20.2	37.6#
122	42.7	12.8	23.8#



#23
Benzo[a]anthracene
Concen: N.D.
Expected RT: 13.66 min
Lab File: T17053.D
Acq: 4 Dec 2014 3:55 pm

Tgt Ion	Sig	Exp Ratio
228	100	
229		36.0
227		30.0
226		29.7

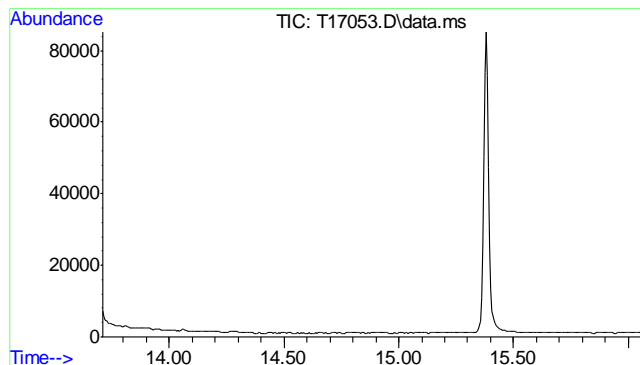
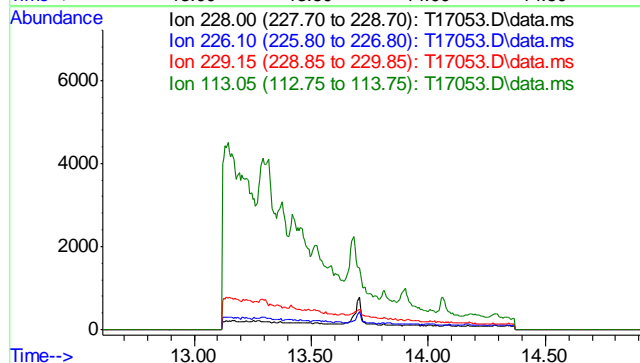




#24
 Chrysene
 Concen: N.D.
 Expected RT: 13.71 min

 Lab File: T17053.D
 Acq: 4 Dec 2014 3:55 pm

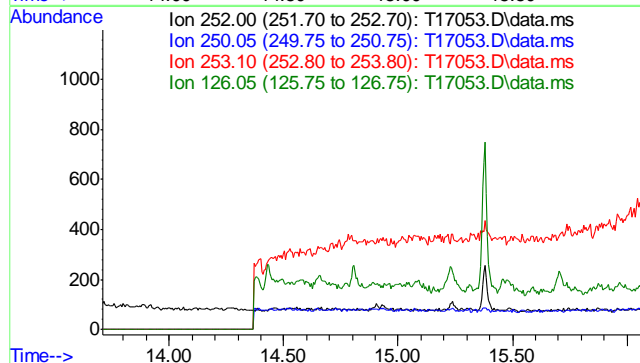
Tgt Ion	Exp Ratio
228	100
226	32.7
229	21.4
113	13.4

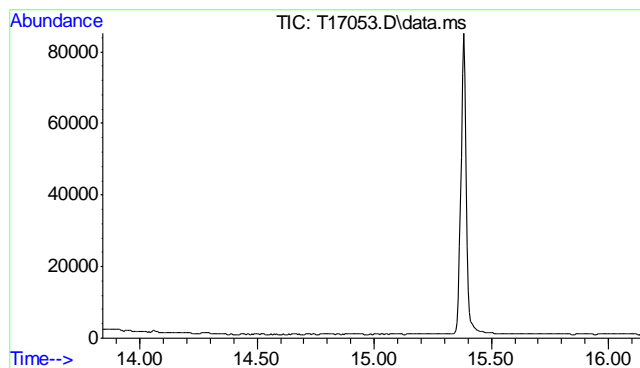


#26
 Benzo(b)fluoranthene
 Concen: N.D.
 Expected RT: 14.91 min

 Lab File: T17053.D
 Acq: 4 Dec 2014 3:55 pm

Tgt Ion	Exp Ratio
252	100
250	26.4
253	24.1
126	16.1

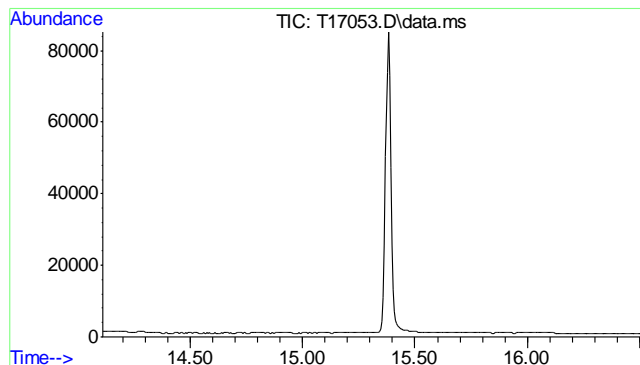
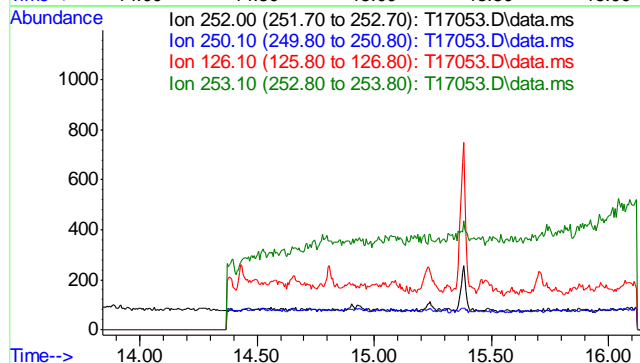




#27
Benzo(k)fluoranthene
Concen: N.D.
Expected RT: 14.94 min

Lab File: T17053.D
Acq: 4 Dec 2014 3:55 pm

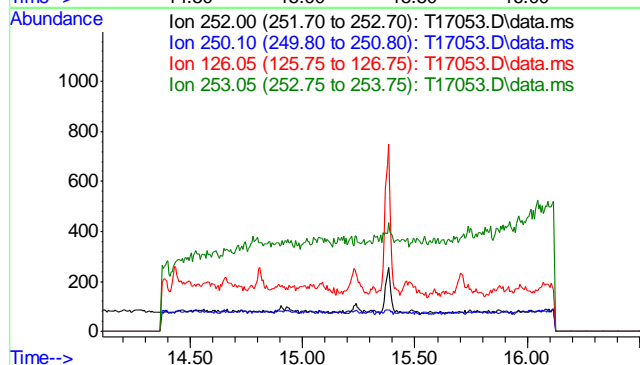
Tgt Ion	Sig	Exp Ratio
252	100	
250	25.5	
126	17.6	
253	24.1	

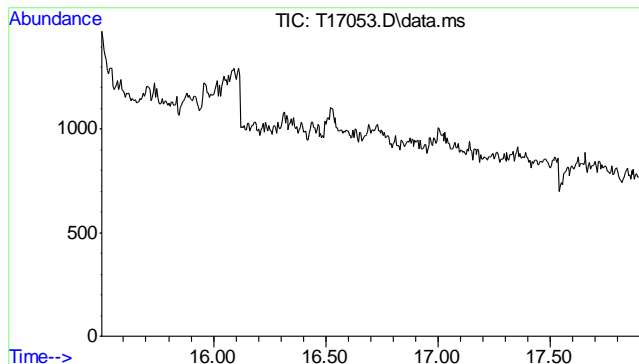


#28
Benzo(a)pyrene
Concen: N.D.
Expected RT: 15.31 min

Lab File: T17053.D
Acq: 4 Dec 2014 3:55 pm

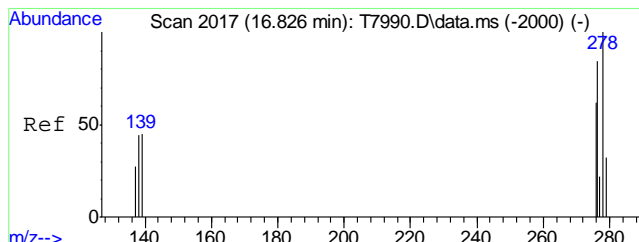
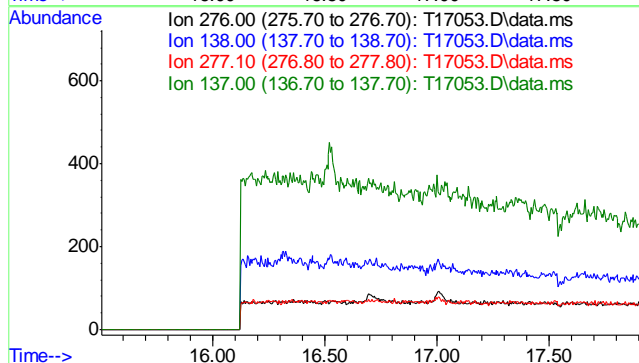
Tgt Ion	Sig	Exp Ratio
252	100	
250	26.8	
126	17.5	
253	23.2	





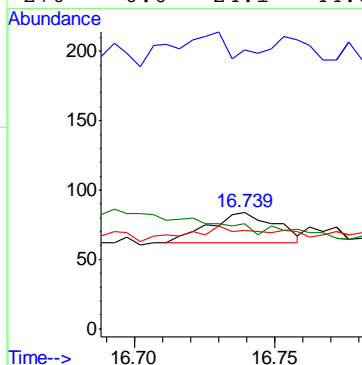
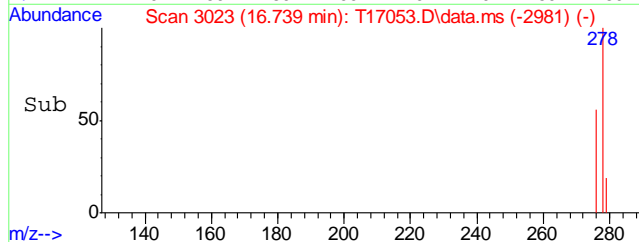
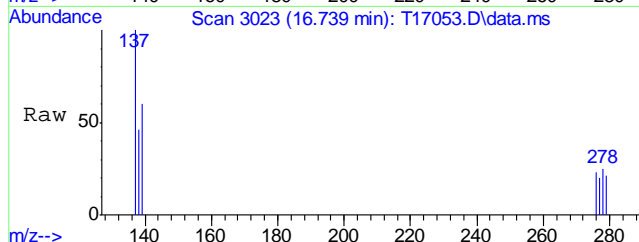
#29
 Indeno(1,2,3-cd)pyrene
 Concen: N.D.
 Expected RT: 16.70 min
 Lab File: T17053.D
 Acq: 4 Dec 2014 3:55 pm

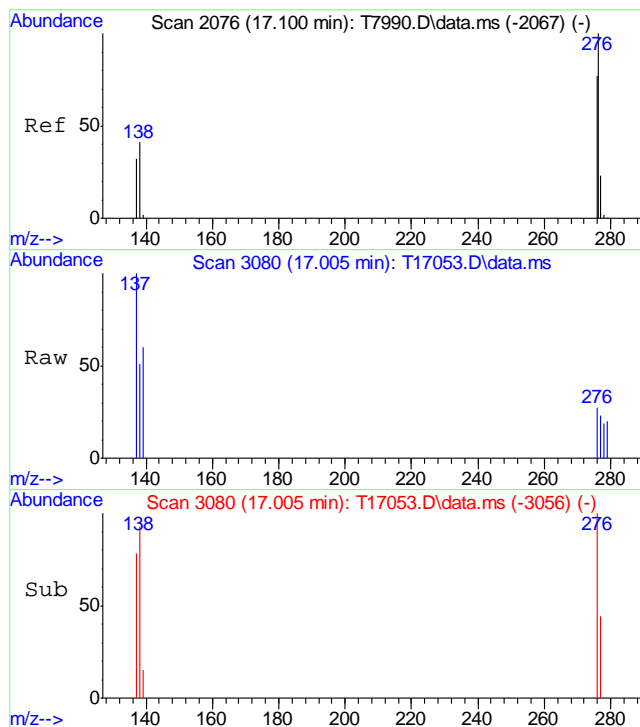
Tgt Ion: 276
 Sig Exp Ratio
 276 100
 138 22.2
 277 23.7
 137 15.8



#30
 Dibenzo(a,h)anthracene
 Concen: 0.00 ppm
 RT: 16.739 min Scan# 3023
 Delta R.T. -0.005 min
 Lab File: T17053.D
 Acq: 4 Dec 2014 3:55 pm

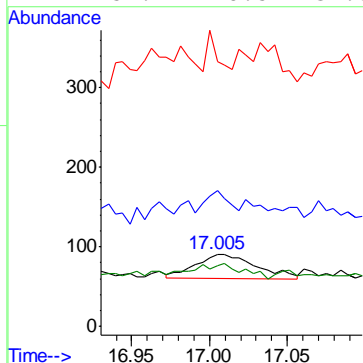
Tgt Ion: 278 Resp: 36
 Ion Ratio Lower Upper
 278 100
 139 108.3 14.7 27.3#
 279 50.0 18.9 35.1#
 276 0.0 24.1 44.8#





#31
 Benzo(g,h,i)perylene
 Concen: 0.00 ppm
 RT: 17.005 min Scan# 3080
 Delta R.T. -0.009 min
 Lab File: T17053.D
 Acq: 4 Dec 2014 3:55 pm

Tgt Ion:	276	Resp:	82
Ion Ratio	Lower	Upper	
276	100		
138	56.1	19.0	35.2#
137	57.3	16.0	29.6#
277	52.4	18.5	34.3#



Quantitation Report (QT Reviewed)
 Data File : C:\msdchem\1\DATA\X141125\X40921.D Vial: 10
 Acq On : 25 Nov 2014 6:06 pm Operator: bijanj
 Sample : D64894-2 Inst : X
 Misc : OP11273,EX1749,1060,,,1,1,W
 Quant Results File: EX1748.RES
 Quant Time: Nov 26 12:04:57 2014

Quant Method : C:\msdchem\1\METHODS\EX1748.M
 Quant Title : SW8270 SIM 1,4-DIOXANE and PAH
 QLast Update : Tue Nov 25 14:59:31 2014
 Response via : Initial Calibration
 DataAcq Meth:ACQ_MIXALL1.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)

Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.669	152	20828	4.00	ppm	#-0.03
5) Naphthalene-d8	6.732	136	67339	4.00	ppm	#-0.01
9) Acenaphthene-d10	8.663	164	38144	4.00	ppm	0.00
15) Phenanthrene-d10	10.384	188	52527	4.00	ppm	# 0.00
20) Chrysene-d12	13.553	240	30687	4.00	ppm	0.00
25) Perylene-d12	15.215	264	24416	4.00	ppm	# 0.00
System Monitoring Compounds						
4) Nitrobenzene-d5	6.104	82	45070	4.26	ppm	-0.02
Spiked Amount	5.000	Range 25 - 100	Recovery	=	85.20%	
11) 2-Fluorobiphenyl	7.923	172	49335	3.65	ppm	0.00
Spiked Amount	5.000	Range 25 - 106	Recovery	=	73.00%	
22) p-Terphenyl-d14	12.356	244	25704	2.72	ppm	0.00
Spiked Amount	5.000	Range 35 - 130	Recovery	=	54.40%	
Target Compounds						
						Qvalue
2) 1,4-Dioxane	0.000		0	N.D.	d	
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
6) Naphthalene	0.000		0	N.D.	d	
7) 2-Methylnaphthalene	7.477	142	59	0.00	ppm	# 24
8) 1-Methylnaphthalene	7.589	142	51	0.00	ppm	# 59
10) Hexachlorocyclopentadiene	0.000		0	N.D.	d	
12) Acenaphthylene	0.000		0	N.D.	d	
13) Acenaphthene	0.000		0	N.D.	d	
14) Fluorene	9.286	166	68m	0.00	ppm	
16) Hexachlorobenzene	0.000		0	N.D.		
17) Phenanthrene	0.000		0	N.D.	d	
18) Anthracene	0.000		0	N.D.	d	
19) Fluoranthene	0.000		0	N.D.	d	
21) Pyrene	0.000		0	N.D.	d	
23) Benzo[a]anthracene	0.000		0	N.D.	d	
24) Chrysene	0.000		0	N.D.	d	
26) Benzo(b)fluoranthene	0.000		0	N.D.	d	
27) Benzo(k)fluoranthene	0.000		0	N.D.	d	
28) Benzo(a)pyrene	0.000		0	N.D.	d	
29) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
30) Dibenz(a,h)anthracene	0.000		0	N.D.	d	
31) Benzo(g,h,i)perylene	0.000		0	N.D.	d	

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

Quantitation Report

(QT Reviewed)

Data File : C:\msdchem\1\DATA\X141125\X40921.D

Vial: 10

Acq On : 25 Nov 2014 6:06 pm

Operator: bijanj

Sample : D64894-2

Inst : X

Misc : OP11273,EX1749,1060,,,1,1,W

Quant Results File: EX1748.RES

Quant Time: Nov 26 12:04:57 2014

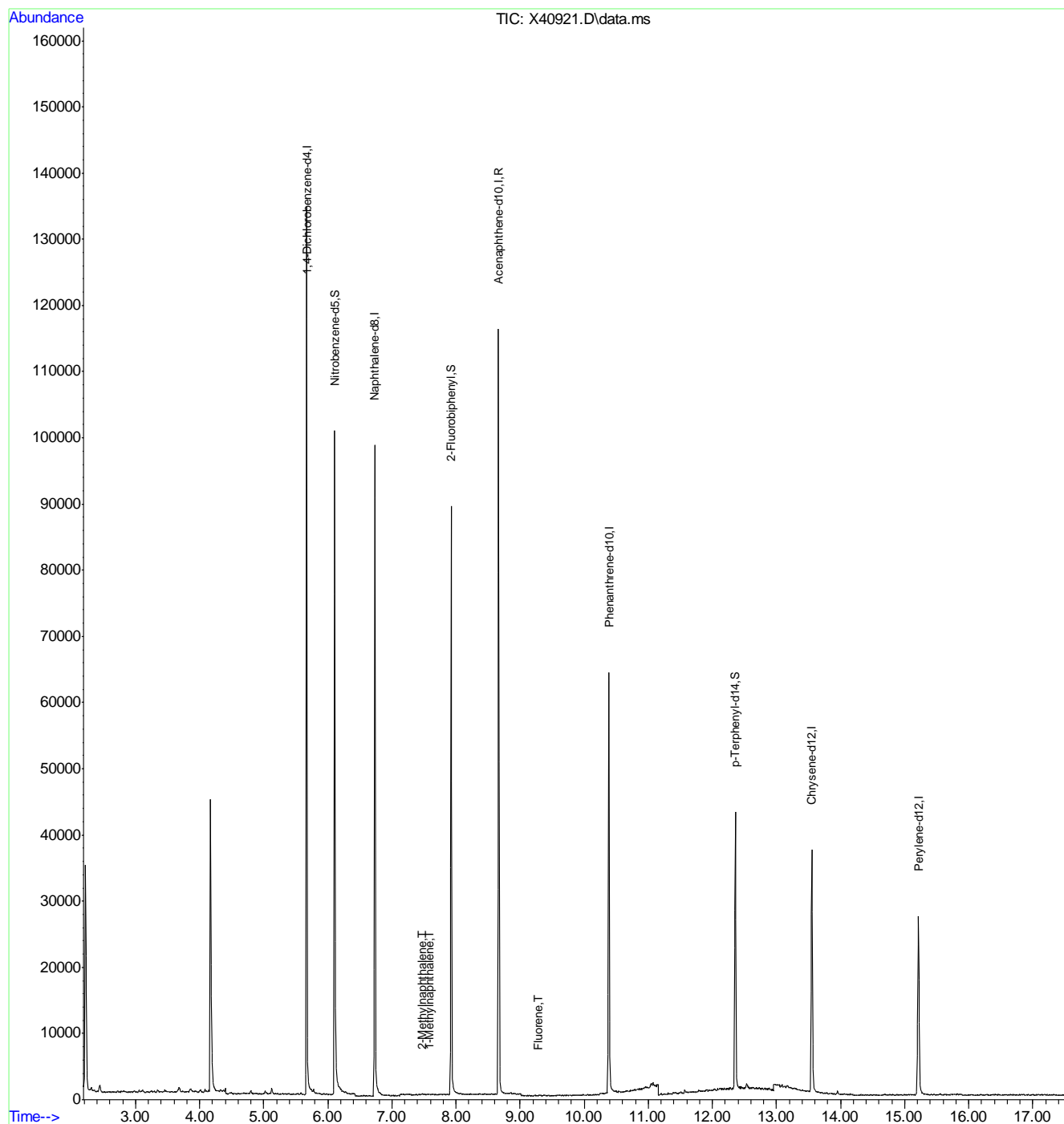
Quant Method : C:\msdchem\1\METHODS\EX1748.M

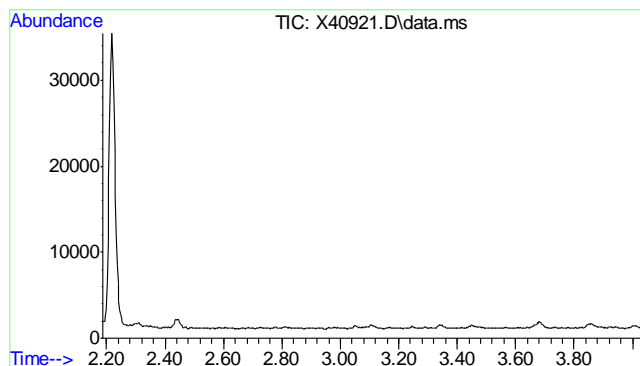
Quant Title : SW8270 SIM 1,4-DIOXANE and PAH

QLast Update : Tue Nov 25 14:59:31 2014

Response via : Initial Calibration

DataAcq Meth:ACQ_MIXALL1.M

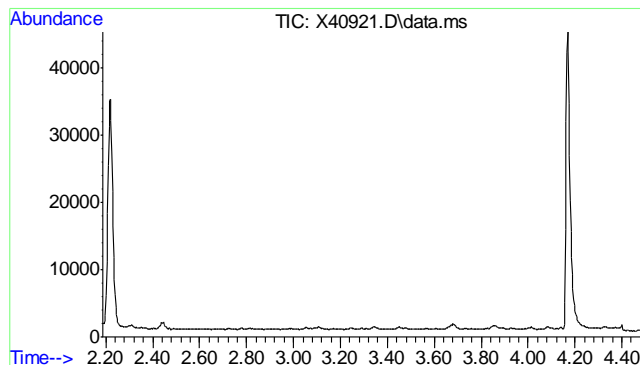
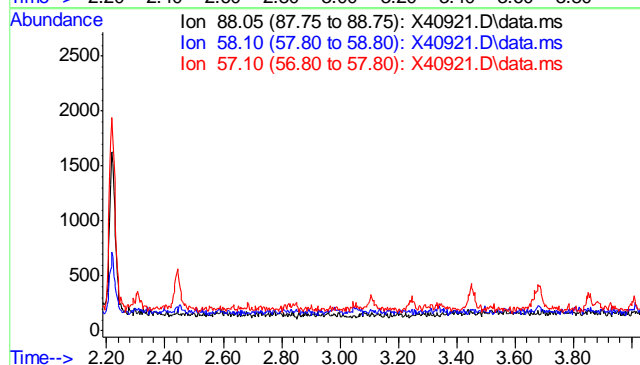




#2
1,4-Dioxane
Concen: N.D.
Expected RT: 2.53 min

Lab File: X40921.D
Acq: 25 Nov 2014 6:06 pm

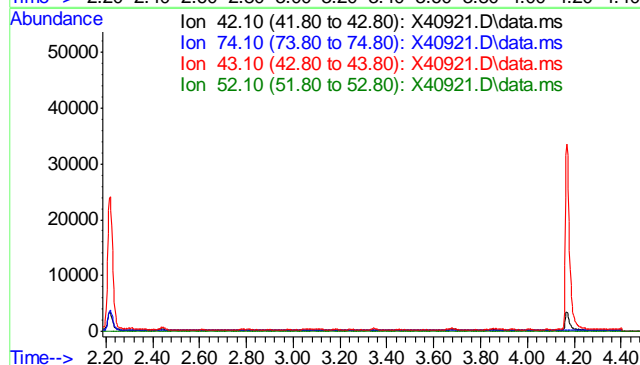
Tgt Ion	Exp Ratio
88	100
58	53.8
57	43.8

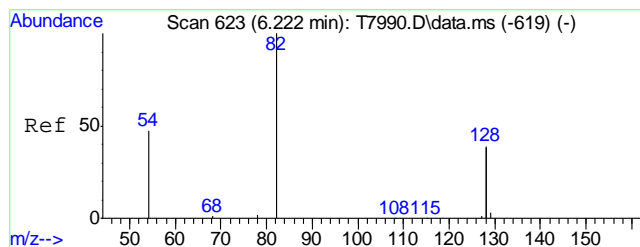


#3
N-Nitrosodimethylamine
Concen: N.D.
Expected RT: 2.98 min

Lab File: X40921.D
Acq: 25 Nov 2014 6:06 pm

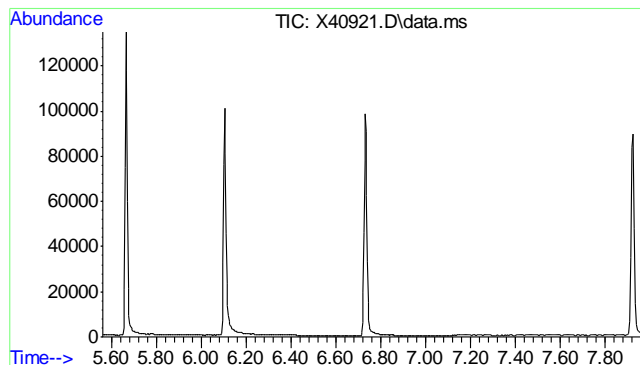
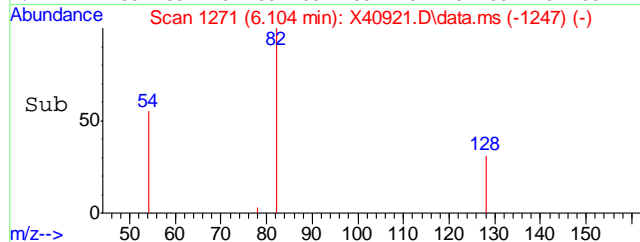
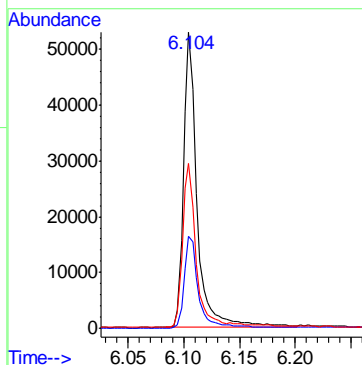
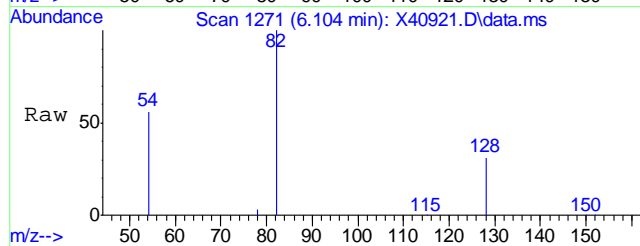
Tgt Ion	Exp Ratio
42	100
74	98.6
43	36.3
52	15.9





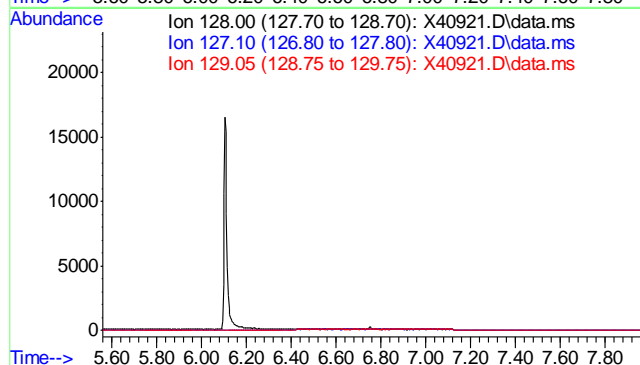
#4
Nitrobenzene-d5
Concen: 4.26 ppm
RT: 6.104 min Scan# 1271
Delta R.T. -0.020 min
Lab File: X40921.D
Acq: 25 Nov 2014 6:06 pm

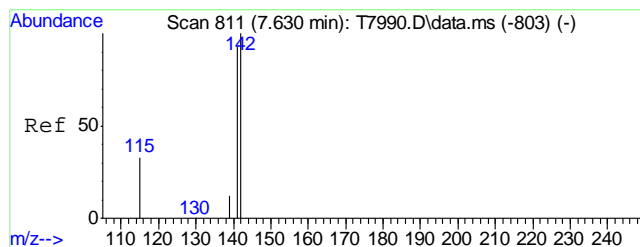
Tgt Ion: 82 Resp: 45070
Ion Ratio Lower Upper
82 100
128 32.6 37.7 69.9#
54 55.9 30.7 56.9



#6
Naphthalene
Concen: N.D.
Expected RT: 6.76 min
Lab File: X40921.D
Acq: 25 Nov 2014 6:06 pm

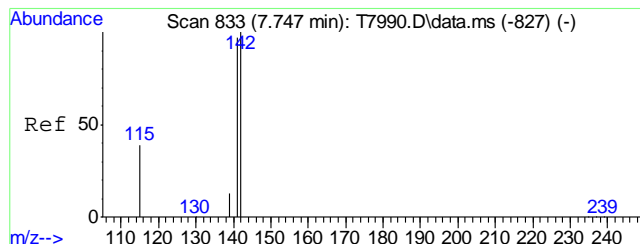
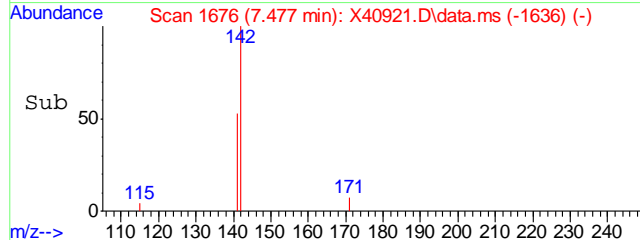
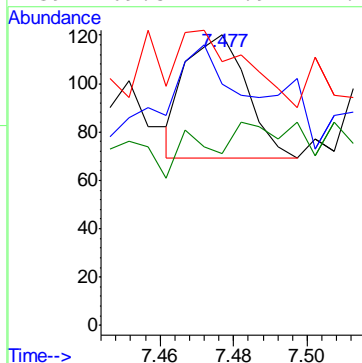
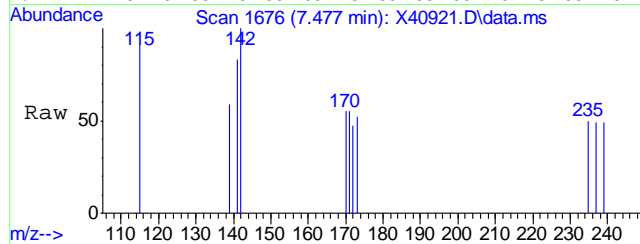
Tgt Ion: 128
Sig Exp Ratio
128 100
127 12.9
129 11.2





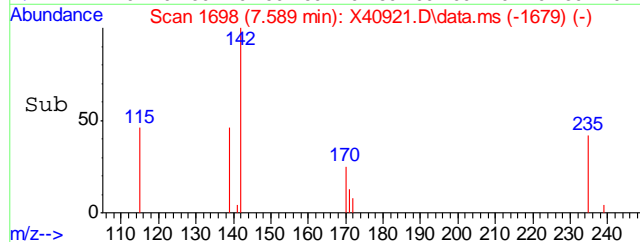
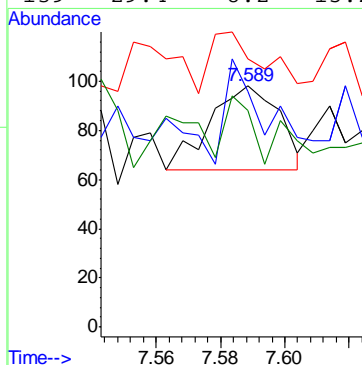
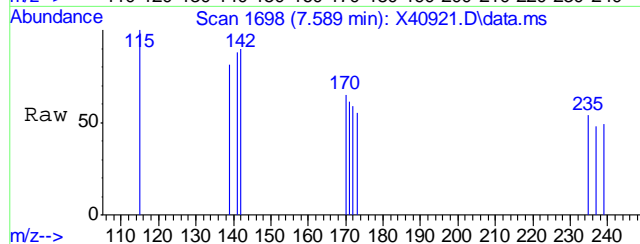
#7
2-Methylnaphthalene
Concen: 0.00 ppm
RT: 7.477 min Scan# 1676
Delta R.T. 0.001 min
Lab File: X40921.D
Acq: 25 Nov 2014 6:06 pm

Tgt Ion:	142	Resp:	59
Ion Ratio	Lower	Upper	
142	100		
141	169.5	62.0	115.2#
115	22.0	21.6	40.2
139	69.5	7.9	14.7#

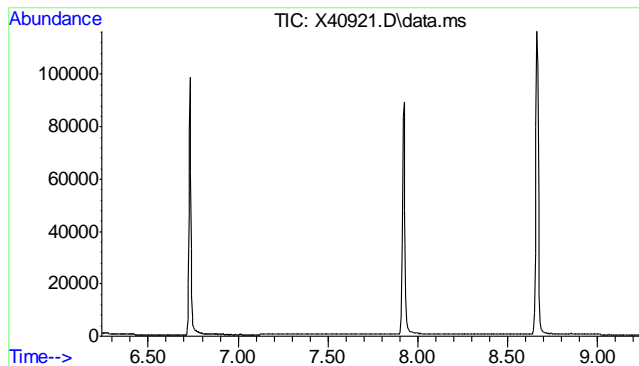


#8
1-Methylnaphthalene
Concen: 0.00 ppm
RT: 7.589 min Scan# 1698
Delta R.T. -0.004 min
Lab File: X40921.D
Acq: 25 Nov 2014 6:06 pm

Tgt Ion:	142	Resp:	51
Ion Ratio	Lower	Upper	
142	100		
141	78.4	64.3	119.5
115	96.1	22.7	42.1#
139	29.4	8.2	15.2#



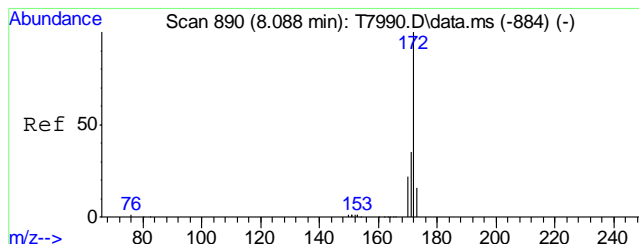
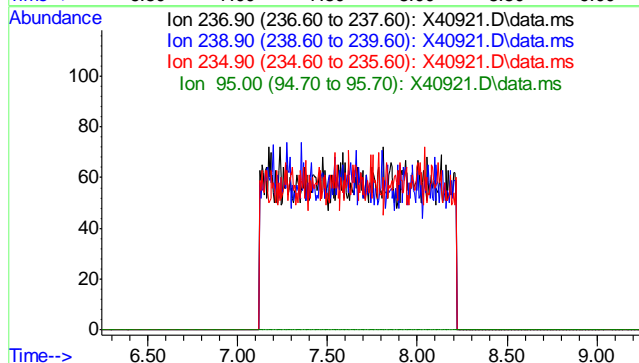
14.1.2 14



#10
Hexachlorocyclopentadiene
Concen: N.D.
Expected RT: 7.74 min

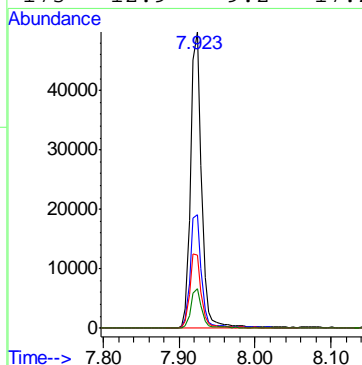
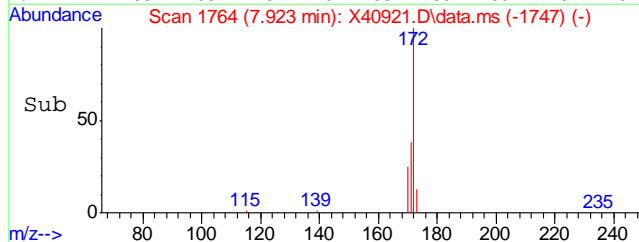
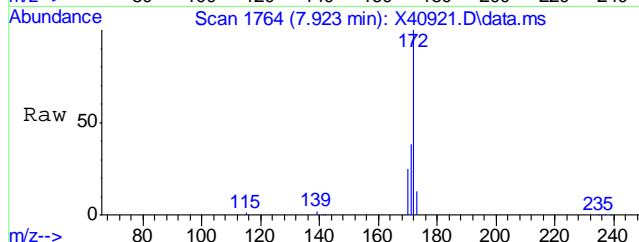
Lab File: X40921.D
Acq: 25 Nov 2014 6:06 pm

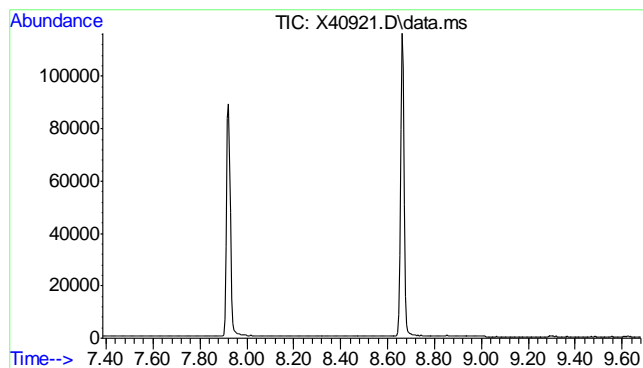
Tgt Ion	Exp Ratio
237	100
239	71.3
235	58.8
95	17.7



#11
2-Fluorobiphenyl
Concen: 3.65 ppm
RT: 7.923 min Scan# 1764
Delta R.T. 0.001 min
Lab File: X40921.D
Acq: 25 Nov 2014 6:06 pm

Tgt Ion	Ratio	Lower	Upper
172	100		
171	38.7	24.8	46.0
170	25.7	16.7	30.9
173	12.9	9.2	17.2

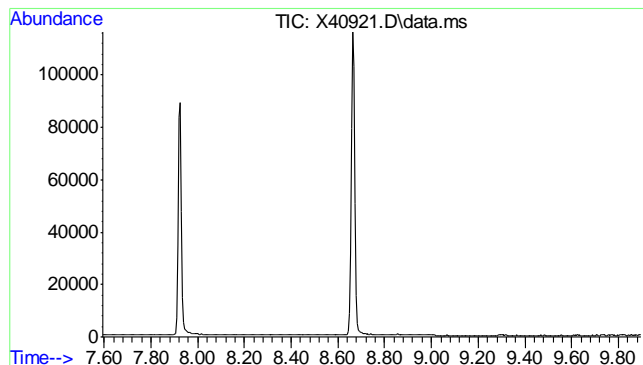
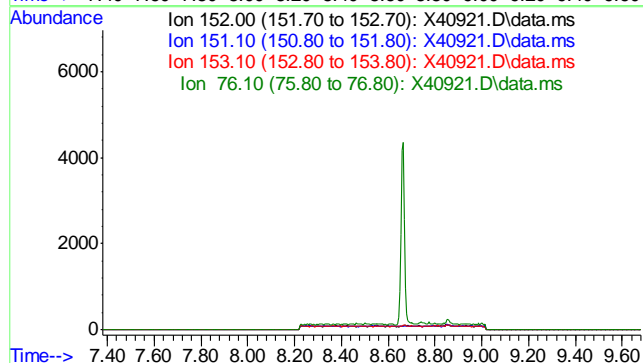




#12
 Acenaphthylene
 Concen: N.D.
 Expected RT: 8.48 min

Lab File: X40921.D
 Acq: 25 Nov 2014 6:06 pm

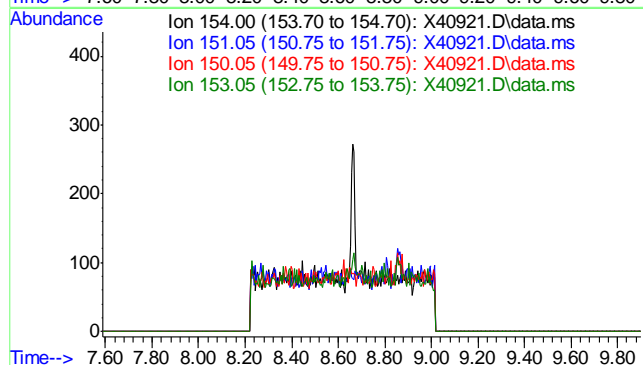
Tgt Ion	Sig	Exp Ratio
152	100	
151	20.2	
153	13.3	
76	9.4	

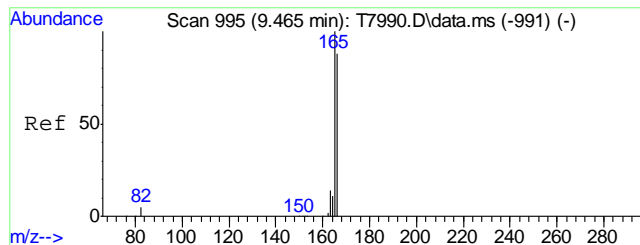


#13
 Acenaphthene
 Concen: N.D.
 Expected RT: 8.70 min

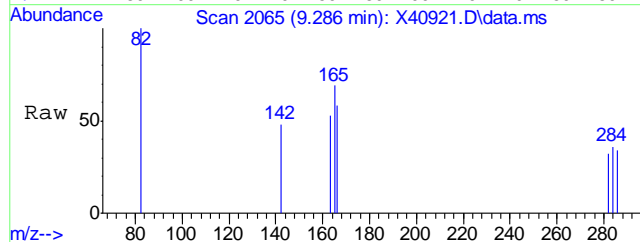
Lab File: X40921.D
 Acq: 25 Nov 2014 6:06 pm

Tgt Ion	Sig	Exp Ratio
154	100	
151	19.5	
150	9.5	
153	110.7	

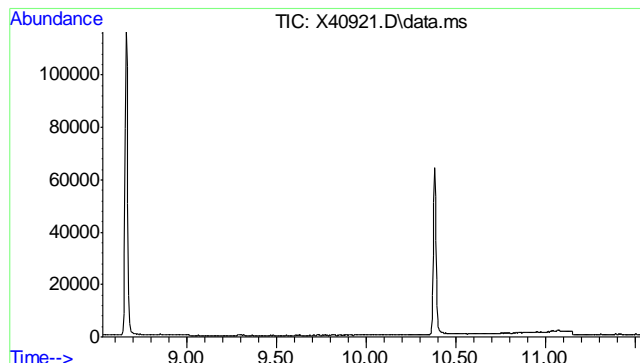
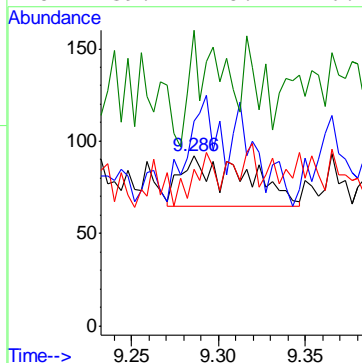
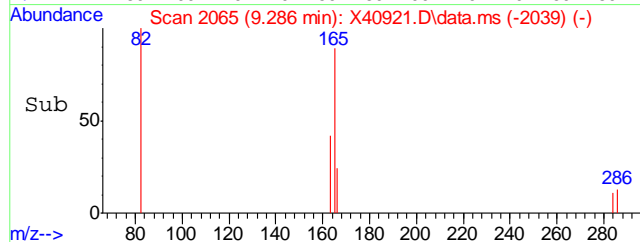




#14
Fluorene
Concen: 0.00 ppm m
RT: 9.286 min Scan# 2065
Delta R.T. -0.003 min
Lab File: X40921.D
Acq: 25 Nov 2014 6:06 pm

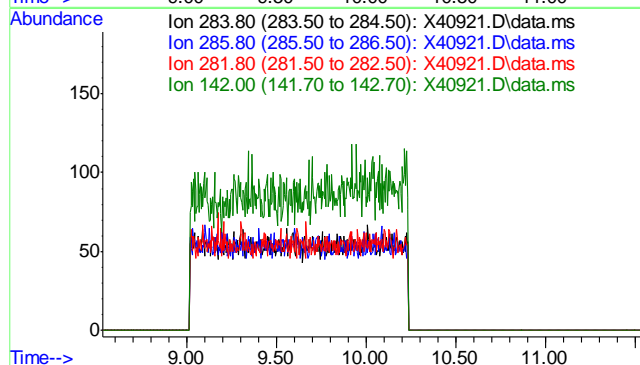


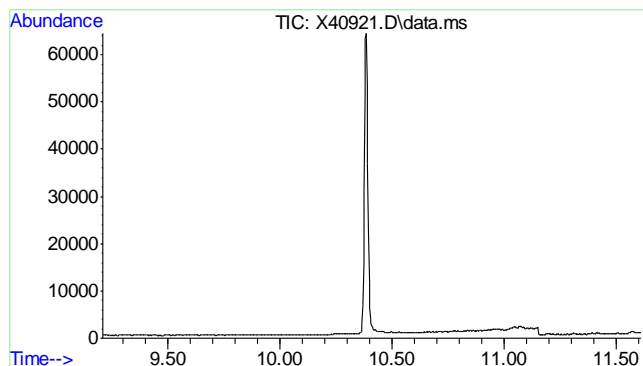
Tgt Ion: 166 Resp: 68
Ion Ratio Lower Upper
166 100
165 100.0 67.7 125.7
163 36.8 11.2 20.8#
82 39.7 8.7 16.1#



#16
Hexachlorobenzene
Concen: N.D.
Expected RT: 10.03 min
Lab File: X40921.D
Acq: 25 Nov 2014 6:06 pm

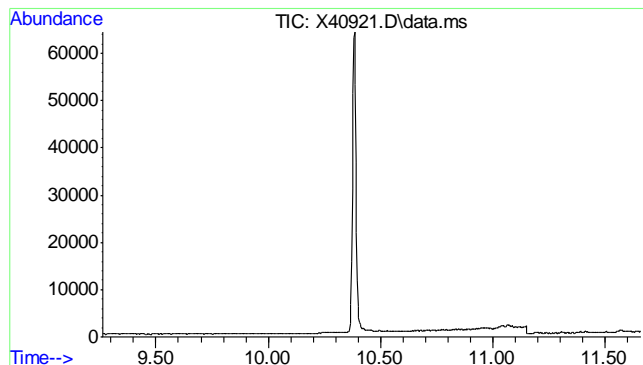
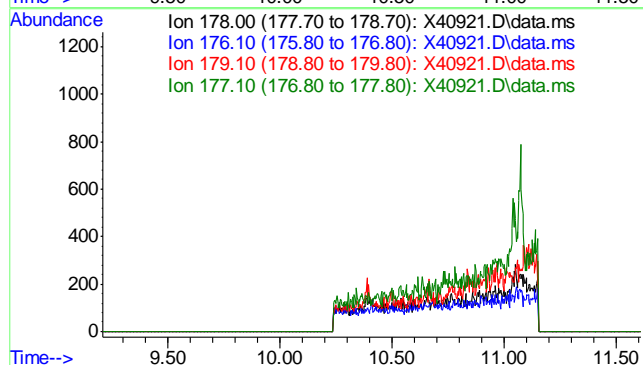
Tgt Ion: 284
Sig Exp Ratio
284 100
286 58.6
282 47.2
142 46.9





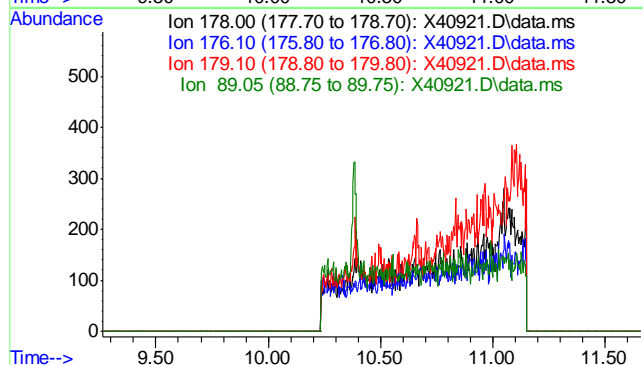
#17
 Phenanthrene
 Concen: N.D.
 Expected RT: 10.41 min
 Lab File: X40921.D
 Acq: 25 Nov 2014 6:06 pm

Tgt Ion	Exp Ratio
178	100
176	20.1
179	16.1
177	11.3

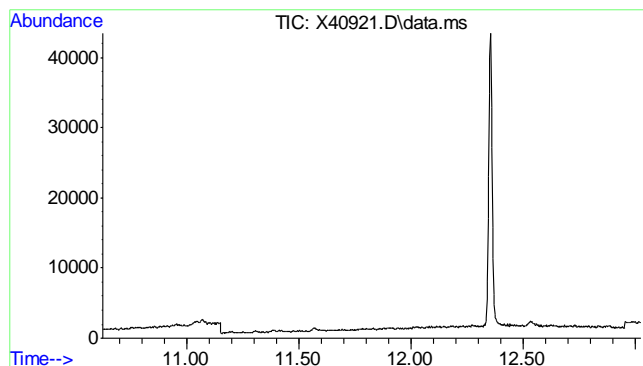


#18
 Anthracene
 Concen: N.D.
 Expected RT: 10.46 min
 Lab File: X40921.D
 Acq: 25 Nov 2014 6:06 pm

Tgt Ion	Exp Ratio
178	100
176	19.4
179	16.1
89	9.5



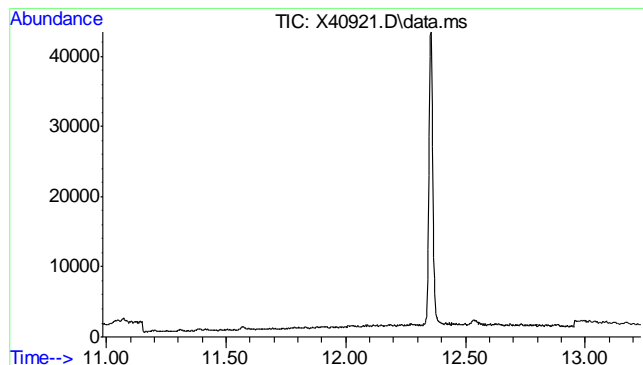
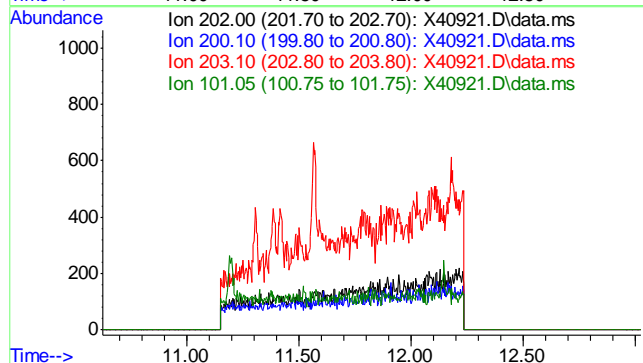
14.1.2
 14



#19
 Fluoranthene
 Concen: N.D.
 Expected RT: 11.83 min

Lab File: X40921.D
 Acq: 25 Nov 2014 6:06 pm

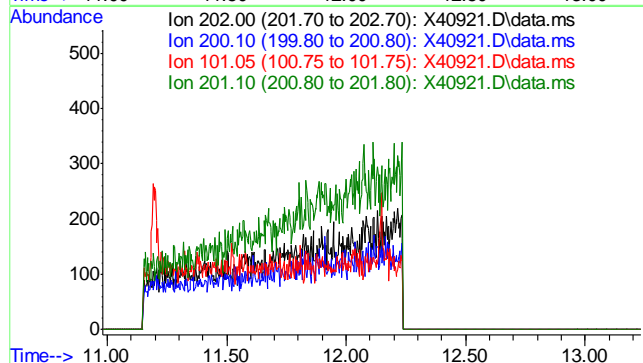
Tgt Ion	Exp Ratio
202	100
200	21.7
203	18.2
101	12.5

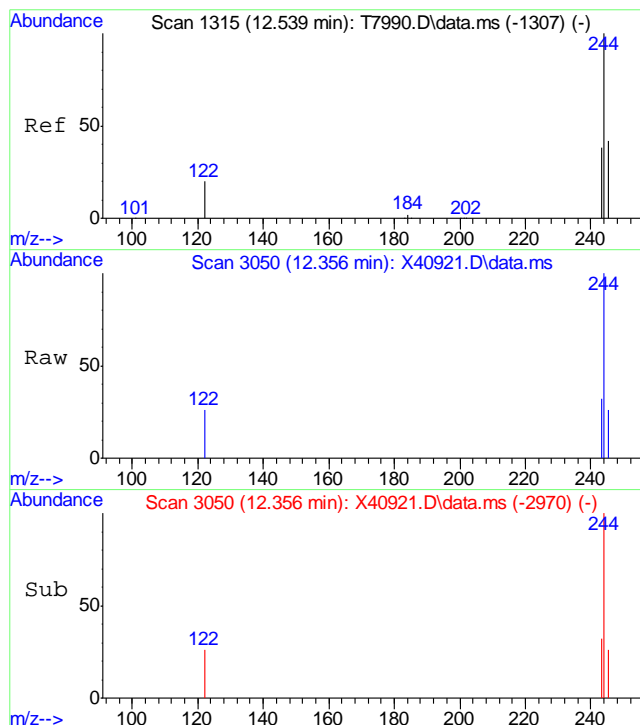


#21
 Pyrene
 Concen: N.D.
 Expected RT: 12.08 min

Lab File: X40921.D
 Acq: 25 Nov 2014 6:06 pm

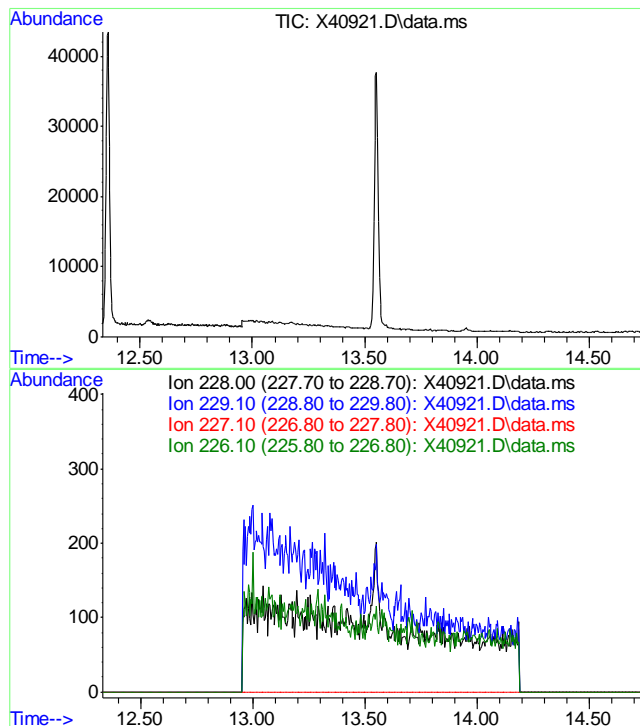
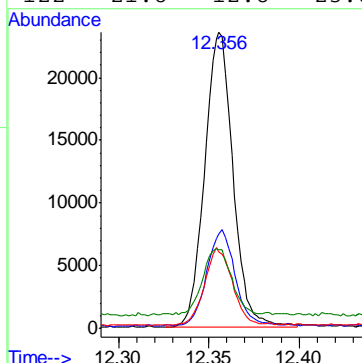
Tgt Ion	Exp Ratio
202	100
200	22.0
101	14.7
201	18.4





#22
p-Terphenyl-d14
Concen: 2.72 ppm
RT: 12.356 min Scan# 3050
Delta R.T. 0.004 min
Lab File: X40921.D
Acq: 25 Nov 2014 6:06 pm

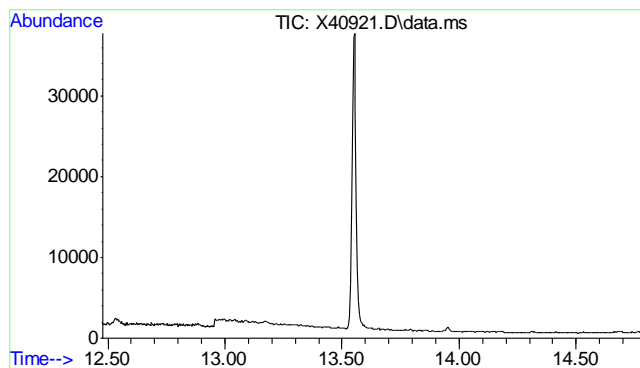
Tgt Ion:	244	Resp:	25704
Ion Ratio	Lower	Upper	
244	100		
243	32.0	31.5	58.5
245	25.0	20.2	37.6
122	21.8	12.8	23.8



#23
Benzo[a]anthracene
Concen: N.D.
Expected RT: 13.53 min

Lab File: X40921.D
Acq: 25 Nov 2014 6:06 pm

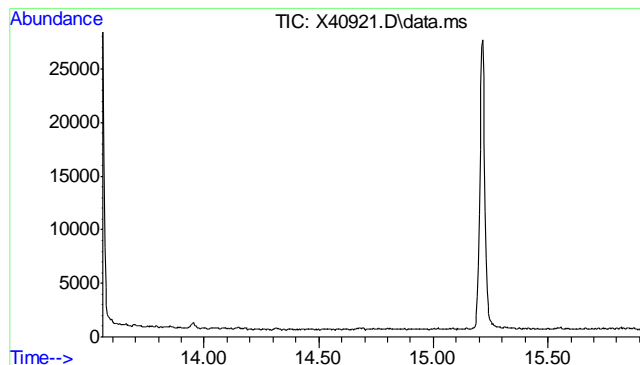
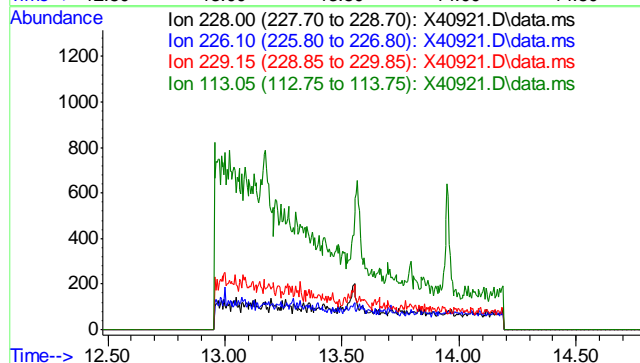
Tgt Ion:	228
Sig	Exp Ratio
228	100
229	19.0
227	8.0
226	29.7



#24
 Chrysene
 Concen: N.D.
 Expected RT: 13.58 min

Lab File: X40921.D
 Acq: 25 Nov 2014 6:06 pm

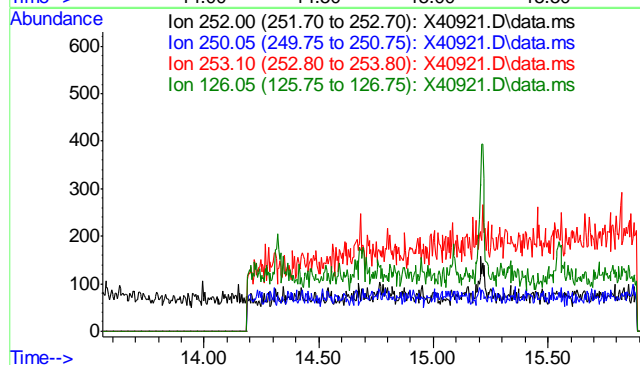
Tgt Ion	Sig	Exp Ratio
228	100	
226	32.7	
229	21.4	
113	13.4	



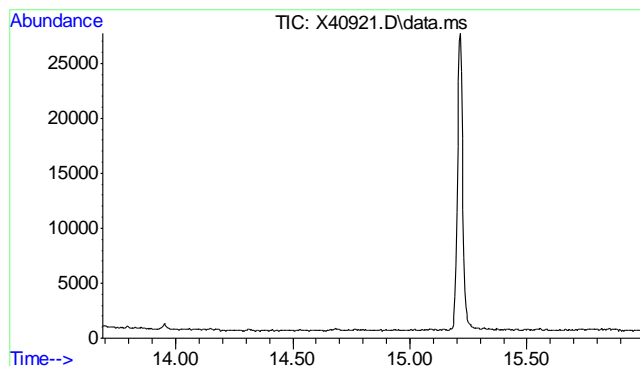
#26
 Benzo(b)fluoranthene
 Concen: N.D.
 Expected RT: 14.76 min

Lab File: X40921.D
 Acq: 25 Nov 2014 6:06 pm

Tgt Ion	Sig	Exp Ratio
252	100	
250	26.4	
253	24.1	
126	16.1	



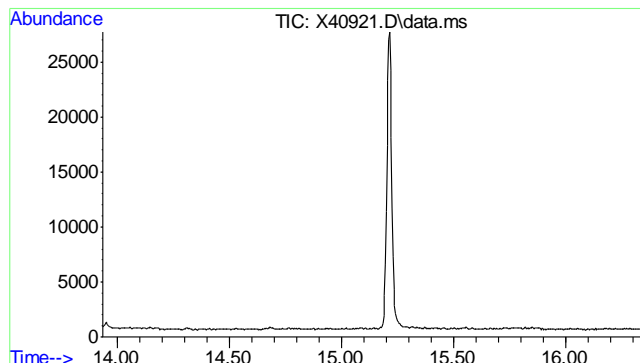
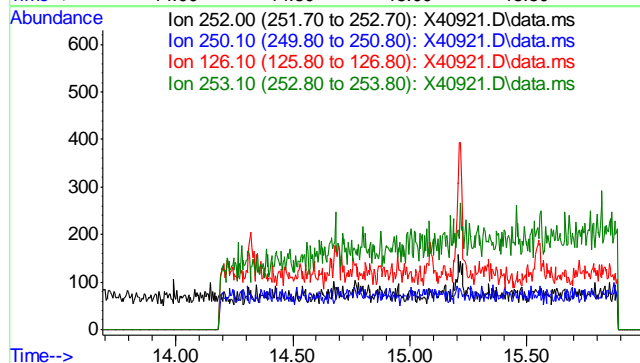
14.1.2 14



#27
Benzo(k)fluoranthene
Concen: N.D.
Expected RT: 14.79 min

Lab File: X40921.D
Acq: 25 Nov 2014 6:06 pm

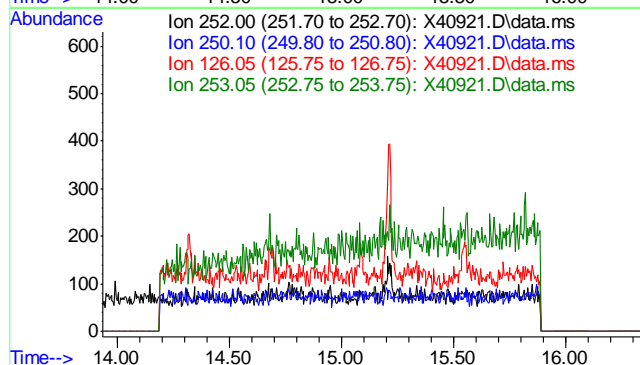
Tgt Ion	Exp Ratio
252	100
250	25.5
126	17.6
253	24.1

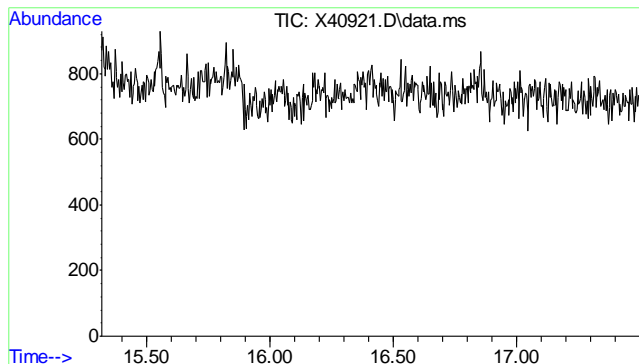


#28
Benzo(a)pyrene
Concen: N.D.
Expected RT: 15.14 min

Lab File: X40921.D
Acq: 25 Nov 2014 6:06 pm

Tgt Ion	Exp Ratio
252	100
250	26.8
126	17.5
253	23.2

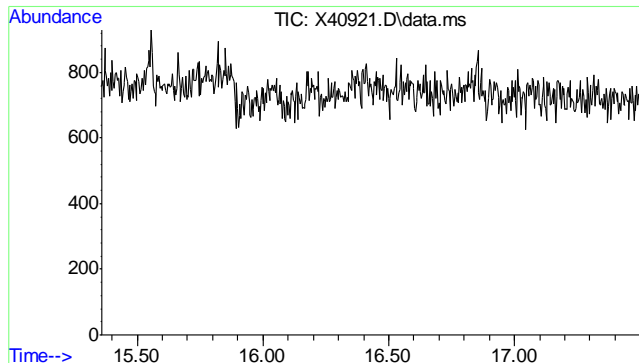
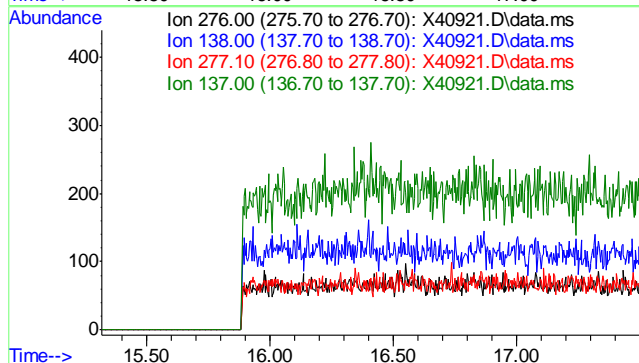




#29
 Indeno(1,2,3-cd)pyrene
 Concen: N.D.
 Expected RT: 16.52 min

 Lab File: X40921.D
 Acq: 25 Nov 2014 6:06 pm

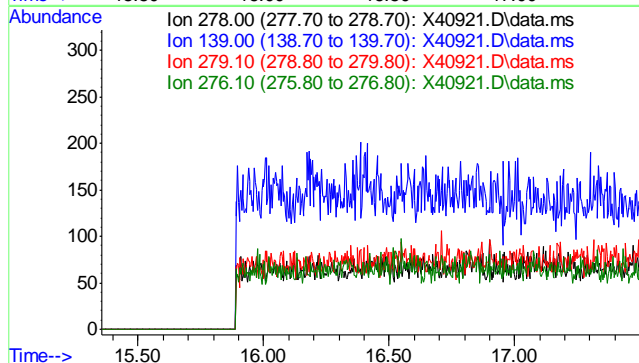
Tgt Ion	Exp Ratio
276	100
138	22.2
277	23.7
137	15.8

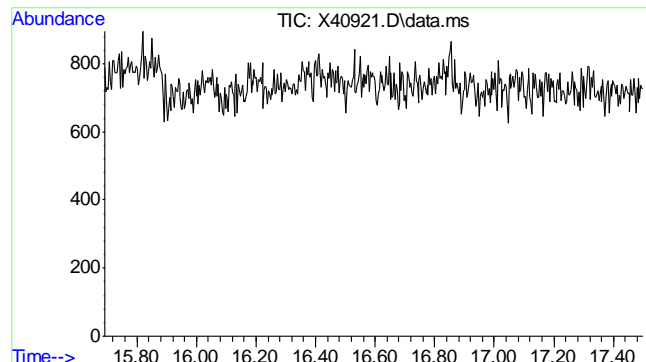


#30
 Dibenzo(a,h)anthracene
 Concen: N.D.
 Expected RT: 16.56 min

 Lab File: X40921.D
 Acq: 25 Nov 2014 6:06 pm

Tgt Ion	Exp Ratio
278	100
139	21.0
279	27.0
276	34.5

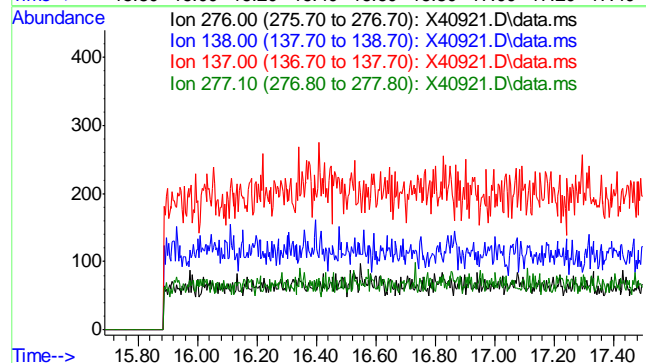




#31
Benzo(g,h,i)perylene
Concen: N.D.
Expected RT: 16.81 min

Lab File: X40921.D
Acq: 25 Nov 2014 6:06 pm

Tgt Ion: 276
Sig Exp Ratio
276 100
138 27.1
137 22.8
277 26.4



14.1.2
14

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\T141204\
 Data File : T17040.D
 Acq On : 4 Dec 2014 10:40 am
 Operator : bijanj
 Sample : OP11318-MB
 Misc : OP11318,ET751,1000,,,1,1,W
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 04 18:27:52 2014
 Quant Method : C:\msdchem\1\METHODS\ET748.M
 Quant Title : SW8270 SIM 1,4-DIOXANE and PAH
 QLast Update : Tue Dec 02 14:11:16 2014
 Response via : Initial Calibration
 DataAcq Meth:ACQ_MIXALL3.M

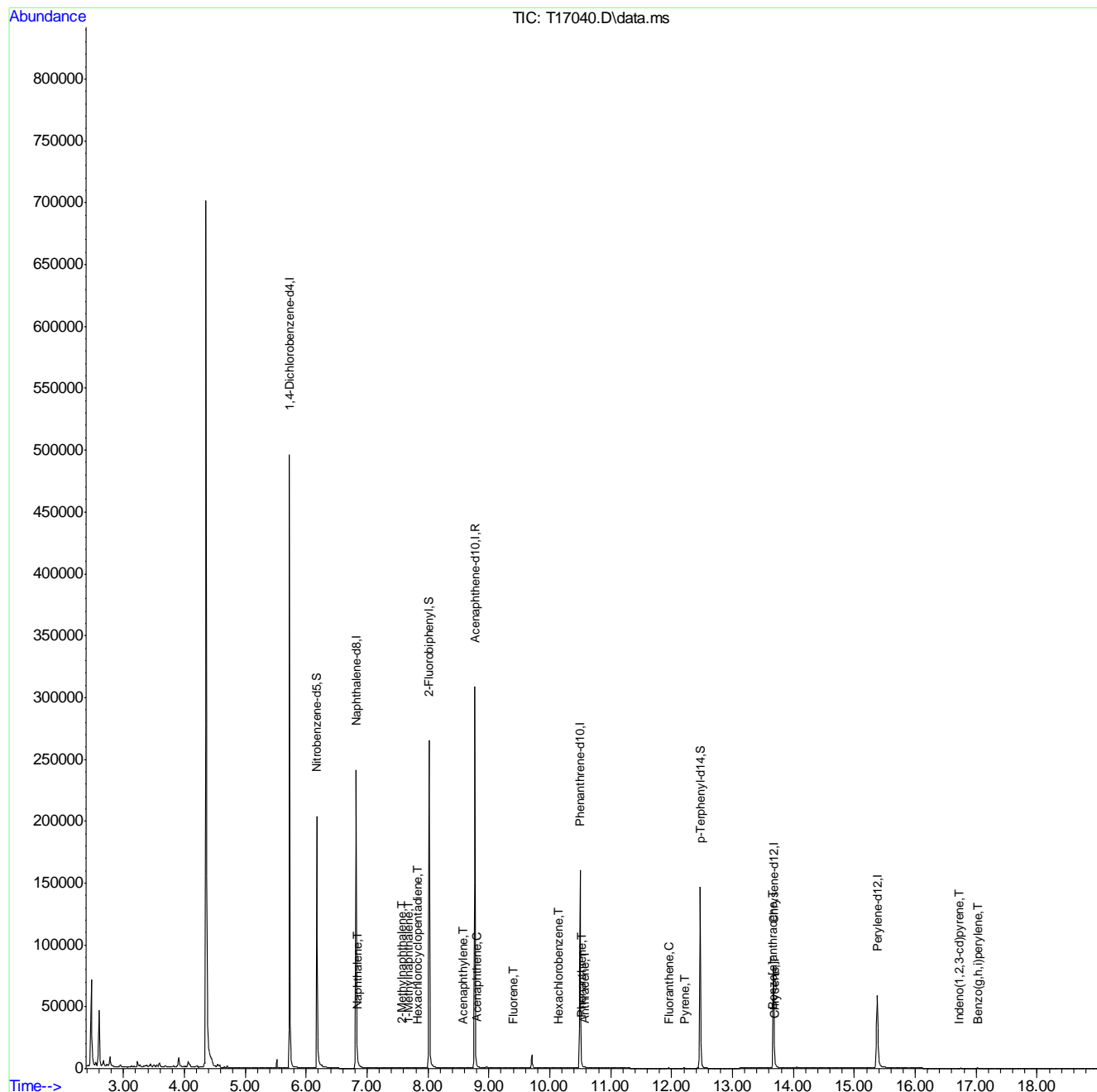
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.726	152	105753	4.00	ppm	# 0.00
5) Naphthalene-d8	6.818	136	211372	4.00	ppm	0.00
9) Acenaphthene-d10	8.768	164	100478	4.00	ppm	# 0.00
15) Phenanthrene-d10	10.497	188	137320	4.00	ppm	# 0.00
20) Chrysene-d12	13.674	240	62562	4.00	ppm	# 0.00
25) Perylene-d12	15.375	264	41763	4.00	ppm	# 0.00
System Monitoring Compounds						
4) Nitrobenzene-d5	6.178	82	76403	4.77	ppm	0.00
Spiked Amount 5.000	Range 25 - 100		Recovery =	95.40%		
11) 2-Fluorobiphenyl	8.017	172	163067	4.53	ppm	0.00
Spiked Amount 5.000	Range 25 - 106		Recovery =	90.60%		
22) p-Terphenyl-d14	12.470	244	65820	5.55	ppm	0.00
Spiked Amount 5.000	Range 35 - 130		Recovery =	111.00%		
Target Compounds						
2) 1,4-Dioxane	0.000	0	N.D.	d		
3) N-Nitrosodimethylamine	0.000	0	N.D.	d		
6) Naphthalene	6.838	128	1222	0.02	ppm	# 94
7) 2-Methylnaphthalene	7.567	142	320	0.01	ppm	# 85
8) 1-Methylnaphthalene	7.683	142	226	0.01	ppm	# 88
10) Hexachlorocyclopentadiene	7.836	237	21	0.00	ppm	# 74
12) Acenaphthylene	8.583	152	234	0.00	ppm	# 61
13) Acenaphthene	8.801	154	129	0.00	ppm	# 52
14) Fluorene	9.403	166	215	0.01	ppm	# 54
16) Hexachlorobenzene	10.141	284	55	0.00	ppm	# 71
17) Phenanthrene	10.521	178	506	0.01	ppm	# 91
18) Anthracene	10.576	178	159	0.00	ppm	# 91
19) Fluoranthene	11.952	202	195	0.00	ppm	# 75
21) Pyrene	12.209	202	204	0.00	ppm	# 87
23) Benzo[a]anthracene	13.656	228	49m	0.00	ppm	
24) Chrysene	13.698	228	85m	0.00	ppm	
26) Benzo(b)fluoranthene	0.000	0	N.D.	d		
27) Benzo(k)fluoranthene	0.000	0	N.D.	d		
28) Benzo(a)pyrene	0.000	0	N.D.	d		
29) Indeno(1,2,3-cd)pyrene	16.716	276	24	0.00	ppm	# 76
30) Dibenz(a,h)anthracene	0.000	0	N.D.	d		
31) Benzo(g,h,i)perylene	17.023	276	41	0.00	ppm	# 14

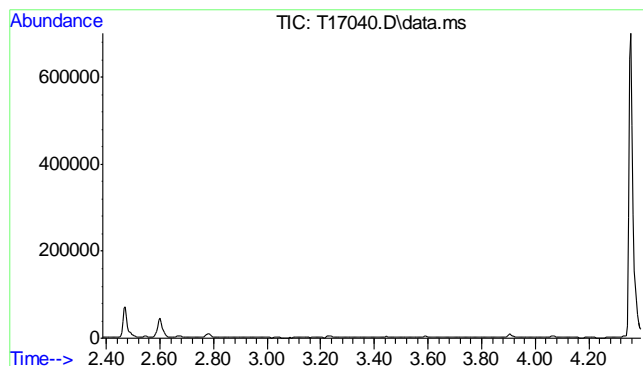
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\T141204\
Data File : T17040.D
Acq On : 4 Dec 2014 10:40 am
Operator : bijanj
Sample : OP11318-MB
Misc : OP11318,ET751,1000,,,1,1,W
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Dec 04 18:27:52 2014
Quant Method : C:\msdchem\1\METHODS\ET748.M
Quant Title : SW8270 SIM 1,4-DIOXANE and PAH
QLast Update : Tue Dec 02 14:11:16 2014
Response via : Initial Calibration
DataAcq Meth:ACQ_MIXALL3.M

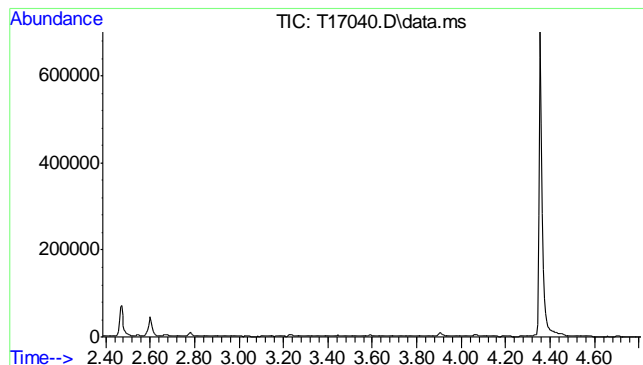
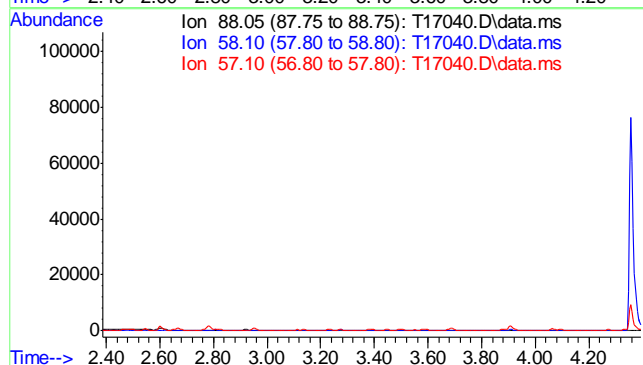




#2
1,4-Dioxane
Concen: N.D.
Expected RT: 2.90 min

Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

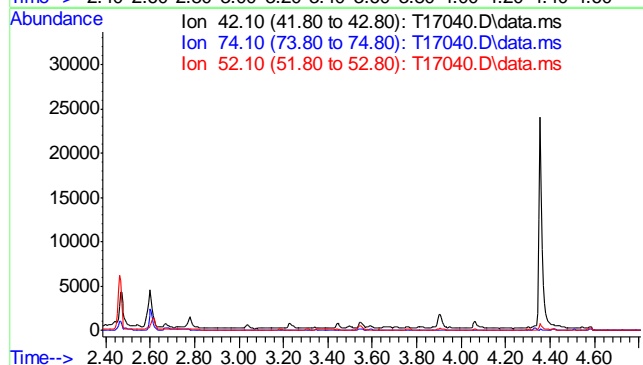
Tgt Ion:	88
Sig	Exp Ratio
88	100
58	53.8
57	43.8

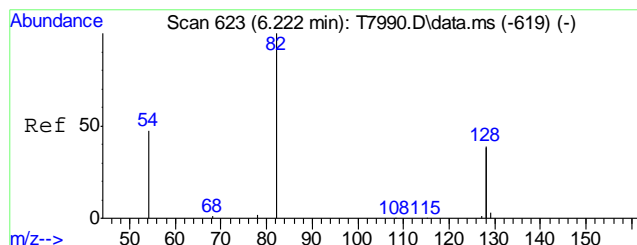


#3
N-Nitrosodimethylamine
Concen: N.D.
Expected RT: 3.31 min

Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

Tgt Ion:	42
Sig	Exp Ratio
42	100
74	98.6
52	36.3





#4

Nitrobenzene-d5

Concen: 4.77 ppm

RT: 6.178 min Scan# 815

Delta R.T. 0.000 min

Lab File: T17040.D

Acq: 4 Dec 2014 10:40 am

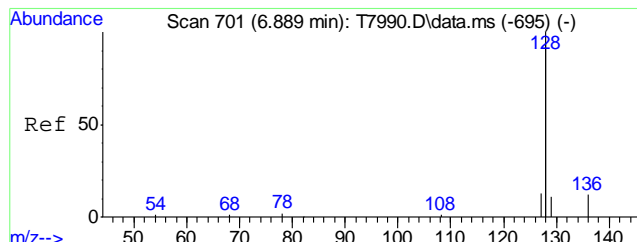
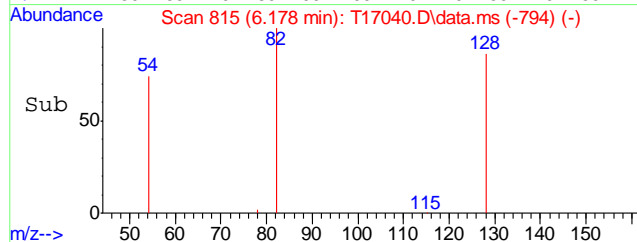
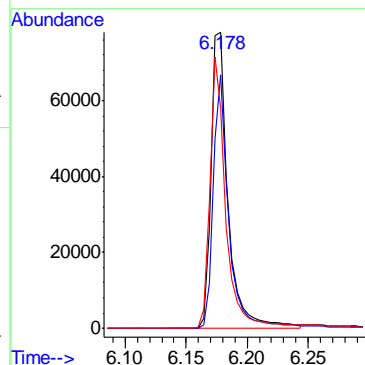
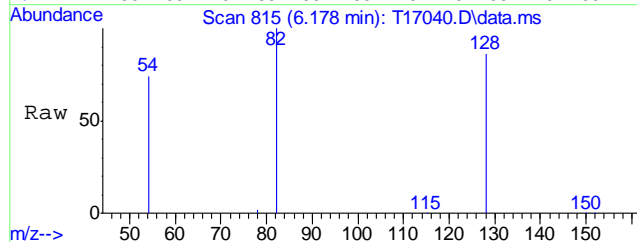
Tgt Ion: 82 Resp: 76403

Ion Ratio Lower Upper

82 100

128 80.4 37.7 69.9#

54 84.7 30.7 56.9#



#6

Naphthalene

Concen: 0.02 ppm

RT: 6.838 min Scan# 967

Delta R.T. -0.004 min

Lab File: T17040.D

Acq: 4 Dec 2014 10:40 am

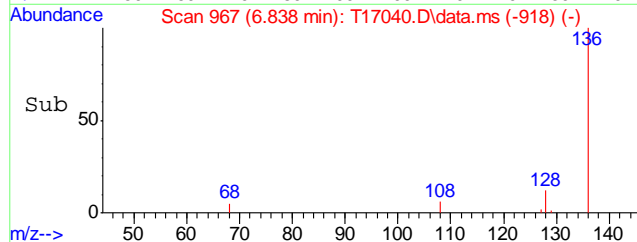
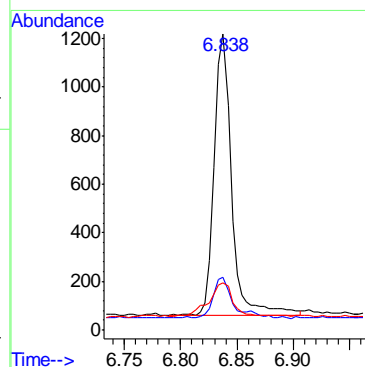
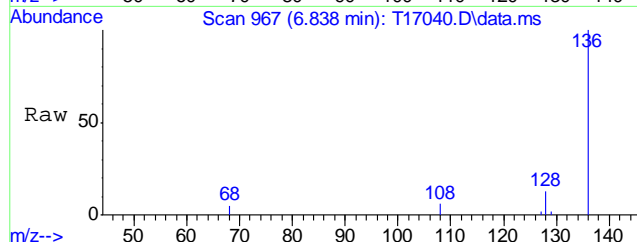
Tgt Ion: 128 Resp: 1222

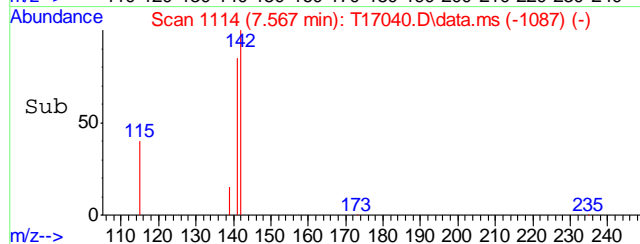
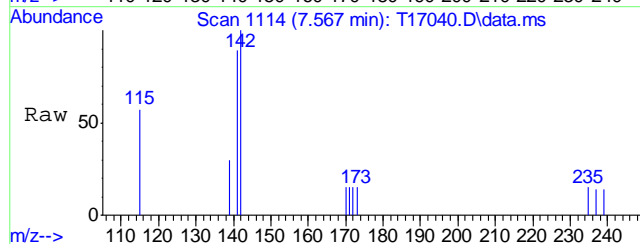
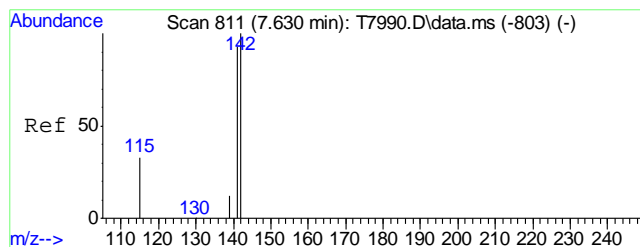
Ion Ratio Lower Upper

128 100

127 13.6 9.0 16.8

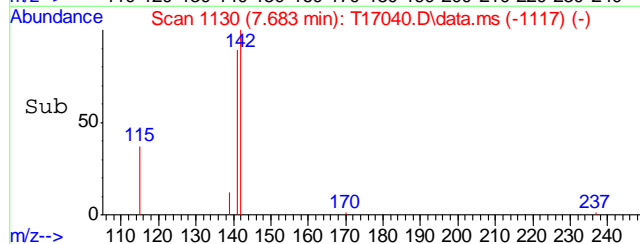
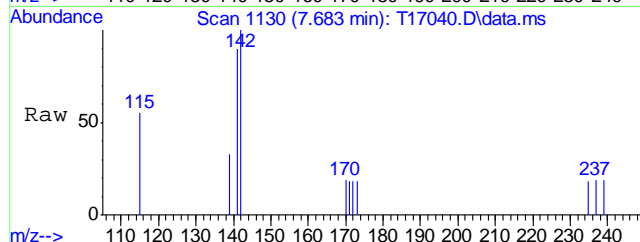
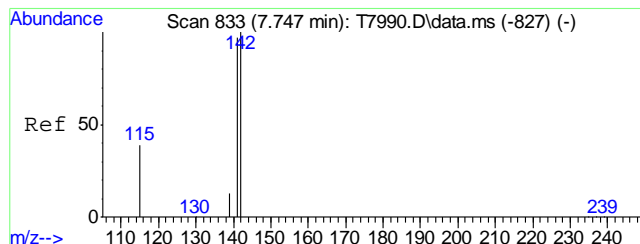
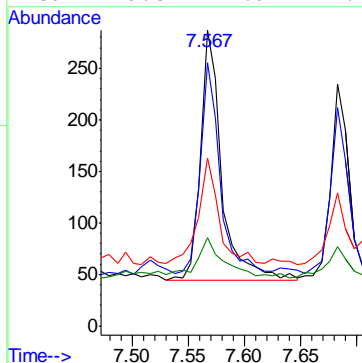
129 15.2 7.8 14.6#





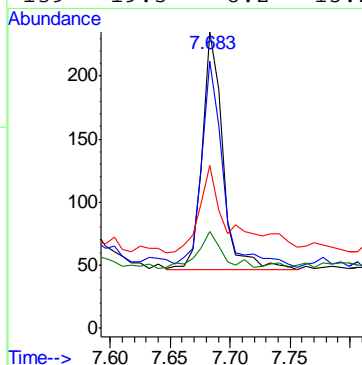
#7
2-Methylnaphthalene
Concen: 0.01 ppm
RT: 7.567 min Scan# 1114
Delta R.T. -0.007 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

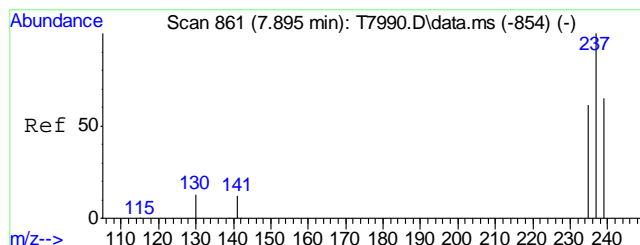
Tgt Ion	Ratio	Lower	Upper
142	100		
141	76.9	62.0	115.2
115	42.2	21.6	40.2#
139	20.3	7.9	14.7#



#8
1-Methylnaphthalene
Concen: 0.01 ppm
RT: 7.683 min Scan# 1130
Delta R.T. -0.008 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

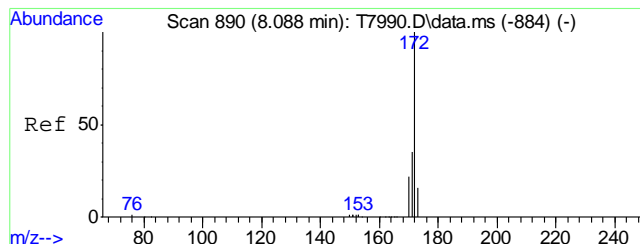
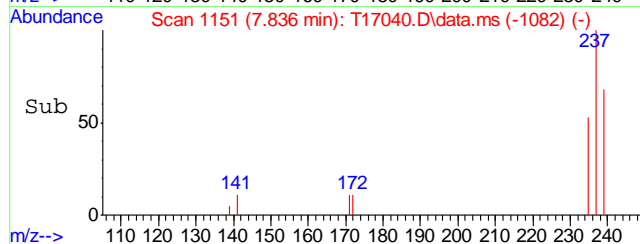
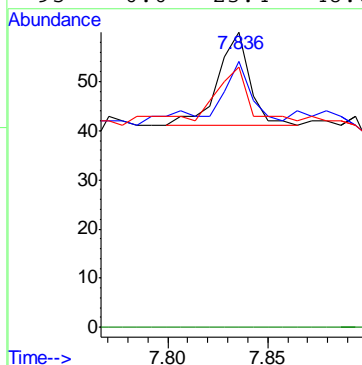
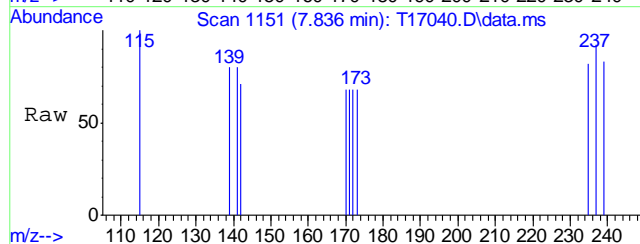
Tgt Ion	Ratio	Lower	Upper
142	100		
141	90.7	64.3	119.5
115	55.3	22.7	42.1#
139	19.5	8.2	15.2#





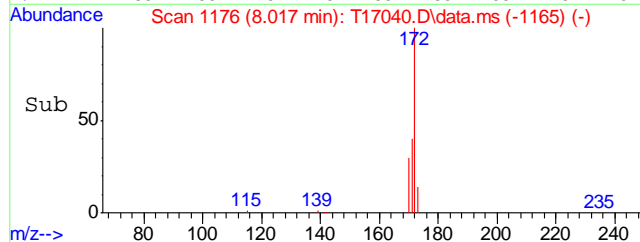
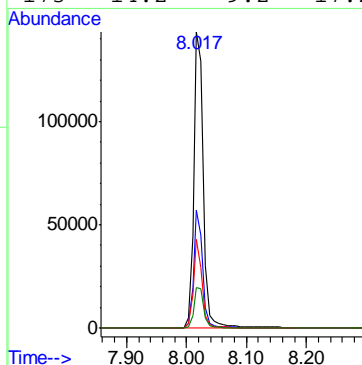
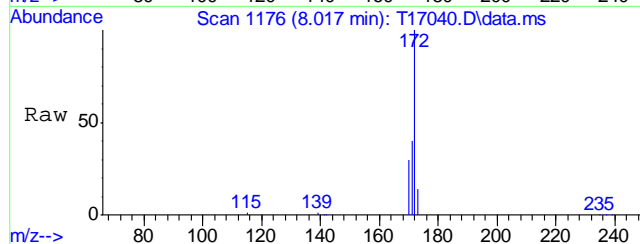
#10
Hexachlorocyclopentadiene
Concen: 0.00 ppm
RT: 7.836 min Scan# 1151
Delta R.T. -0.000 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

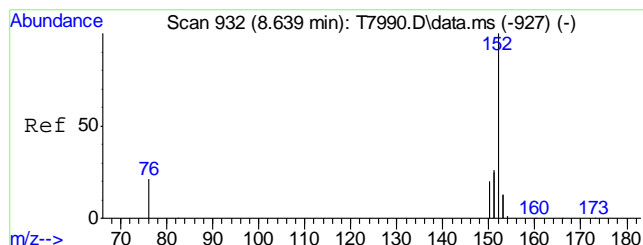
Tgt Ion:	237	Resp:	21
Ion Ratio	Lower	Upper	
237	100		
239	81.0	46.3	96.3
235	76.2	38.2	79.4
95	0.0	23.4	48.6#



#11
2-Fluorobiphenyl
Concen: 4.53 ppm
RT: 8.017 min Scan# 1176
Delta R.T. -0.008 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

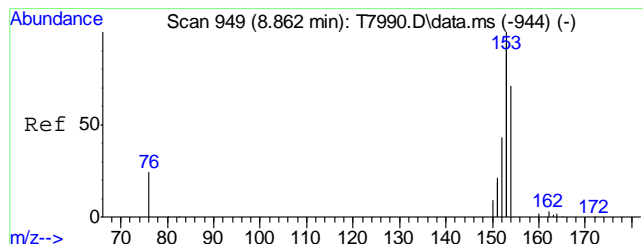
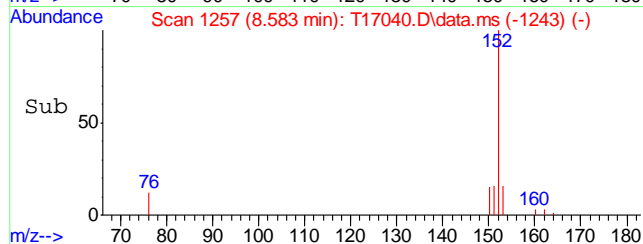
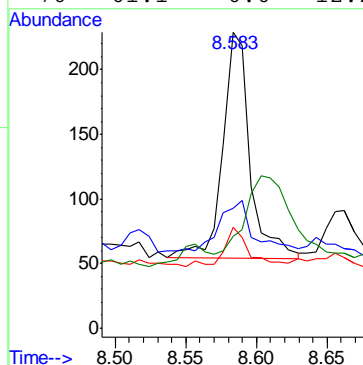
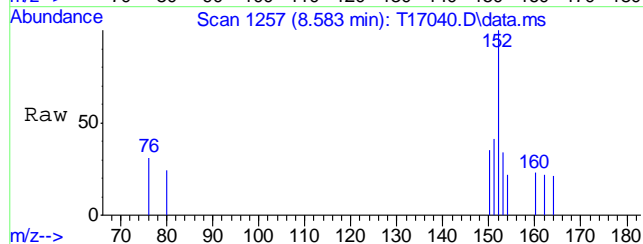
Tgt Ion:	172	Resp:	163067
Ion Ratio	Lower	Upper	
172	100		
171	37.6	24.8	46.0
170	27.2	16.7	30.9
173	14.2	9.2	17.2





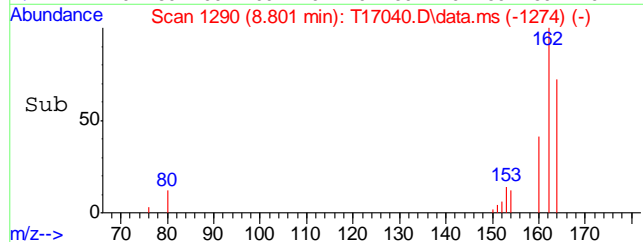
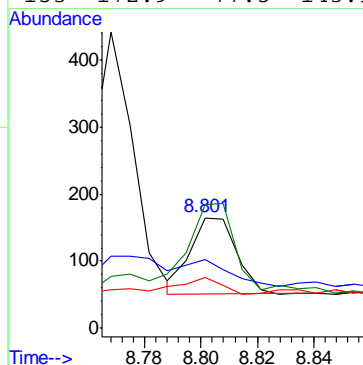
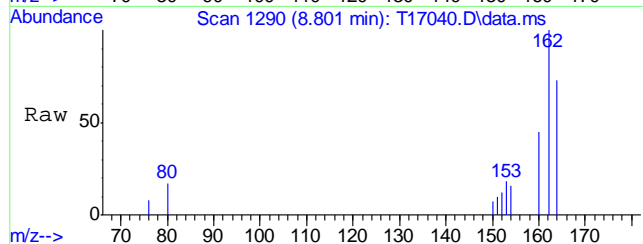
#12
Acenaphthylene
Concen: 0.00 ppm
RT: 8.583 min Scan# 1257
Delta R.T. -0.007 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

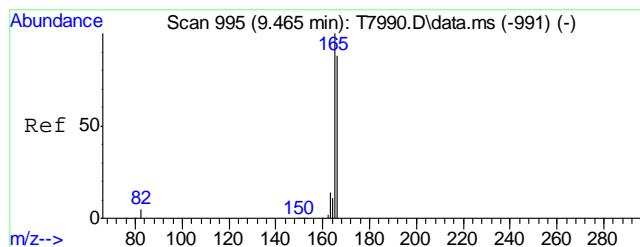
Tgt Ion:	152	Resp:	234
Ion Ratio	Lower	Upper	
152	100		
151	26.5	14.1	26.3#
153	15.4	9.3	17.3
76	61.1	6.6	12.2#



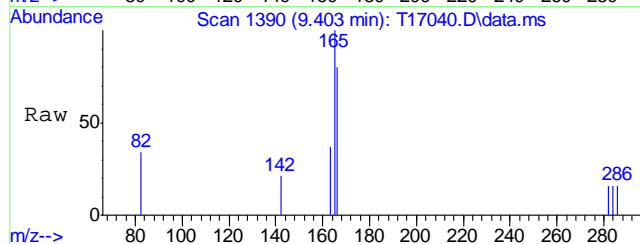
#13
Acenaphthene
Concen: 0.00 ppm
RT: 8.801 min Scan# 1290
Delta R.T. -0.007 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

Tgt Ion:	154	Resp:	129
Ion Ratio	Lower	Upper	
154	100		
151	20.9	13.6	25.4
150	16.3	6.6	12.4#
153	172.9	77.5	143.9#



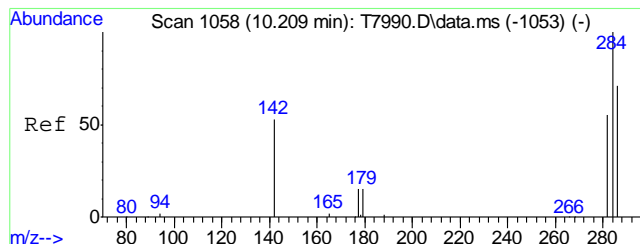
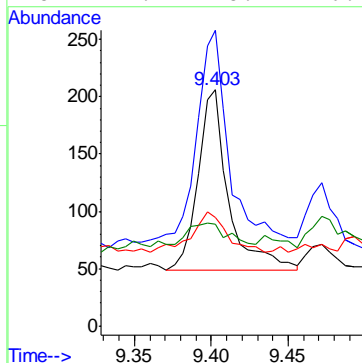
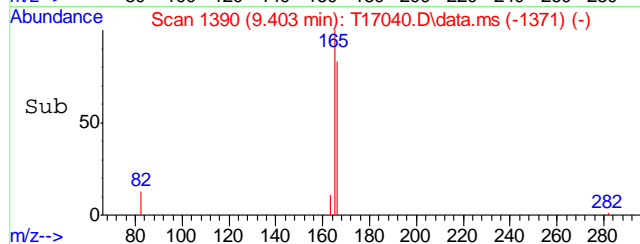


#14
Fluorene
Concen: 0.01 ppm
RT: 9.403 min Scan# 1390
Delta R.T. -0.000 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

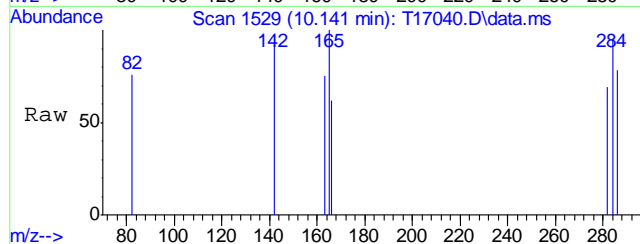


Tgt Ion: 166 Resp: 215

Ion	Ratio	Lower	Upper
166	100		
165	146.5	67.7	125.7#
163	26.0	11.2	20.8#
82	27.4	8.7	16.1#

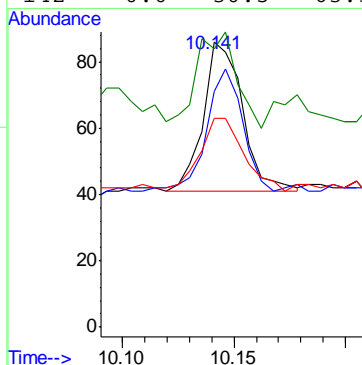
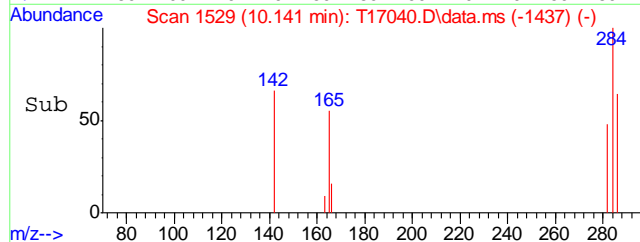


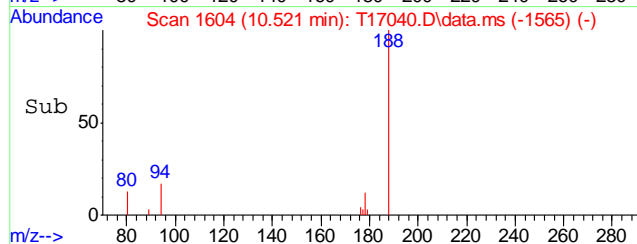
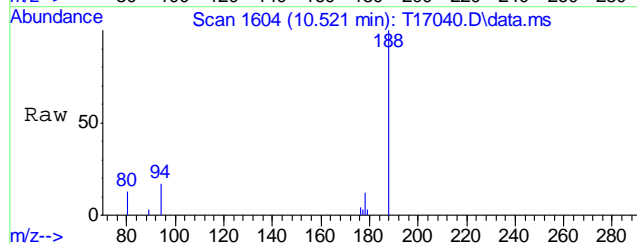
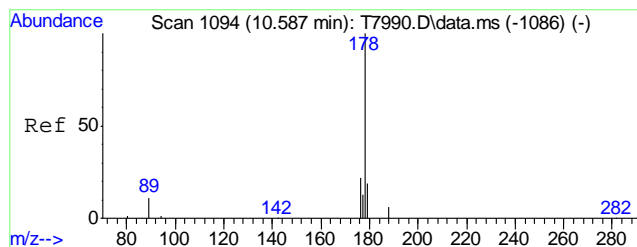
#16
Hexachlorobenzene
Concen: 0.00 ppm
RT: 10.141 min Scan# 1529
Delta R.T. -0.011 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am



Tgt Ion: 284 Resp: 55

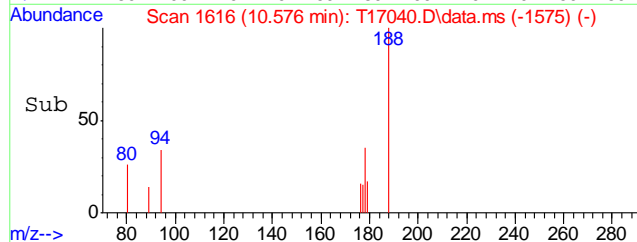
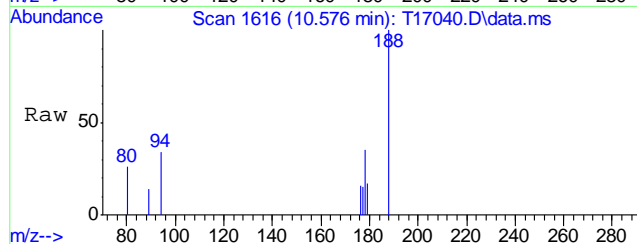
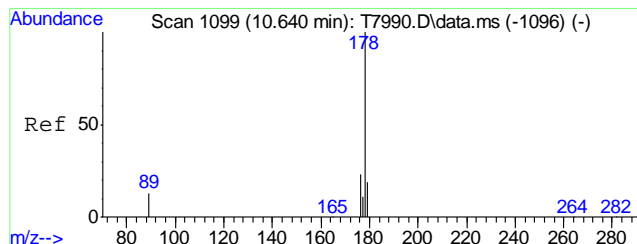
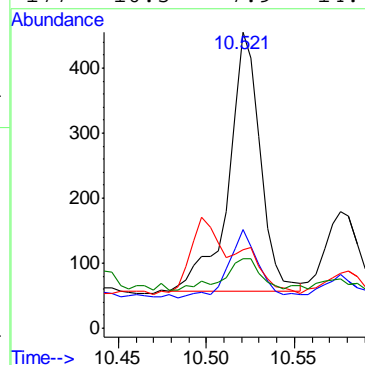
Ion	Ratio	Lower	Upper
284	100		
286	67.3	38.1	79.1
282	52.7	30.7	63.7
142	0.0	30.5	63.3#





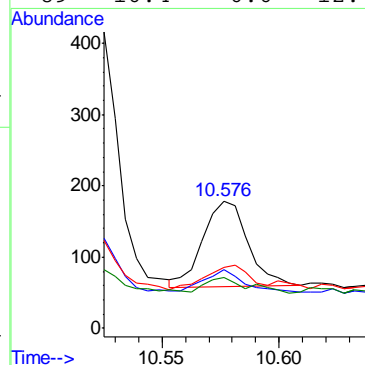
#17
Phenanthrene
Concen: 0.01 ppm
RT: 10.521 min Scan# 1604
Delta R.T. -0.009 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

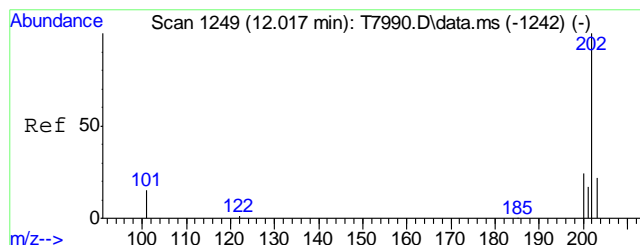
Tgt Ion: 178	Resp: 506
Ion Ratio	Lower Upper
178 100	
176 20.4	14.1 26.1
179 26.1	11.3 20.9#
177 10.5	7.9 14.7



#18
Anthracene
Concen: 0.00 ppm
RT: 10.576 min Scan# 1616
Delta R.T. -0.010 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

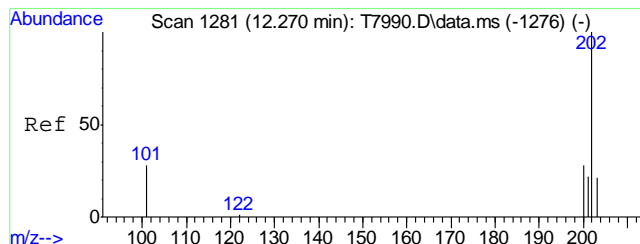
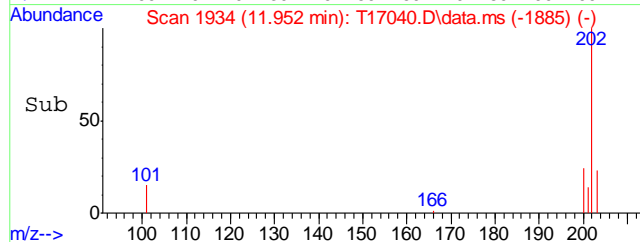
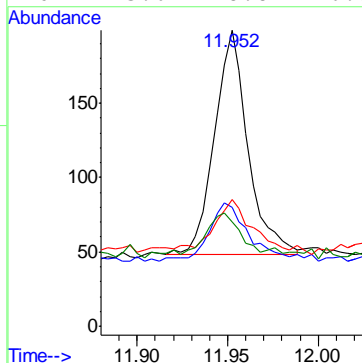
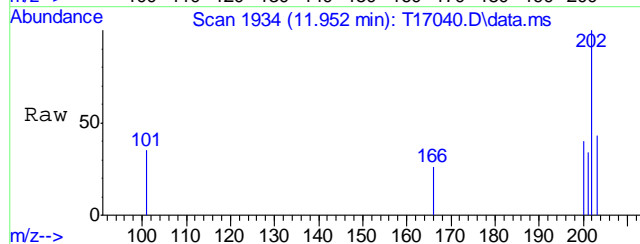
Tgt Ion: 178	Resp: 159
Ion Ratio	Lower Upper
178 100	
176 22.6	13.6 25.2
179 18.9	11.3 20.9
89 16.4	6.6 12.4#





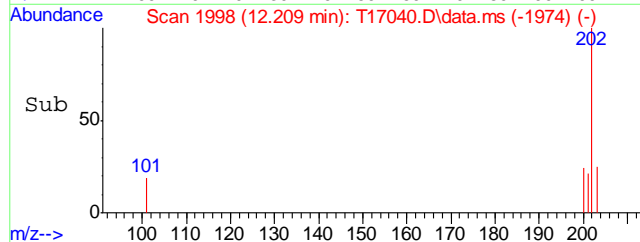
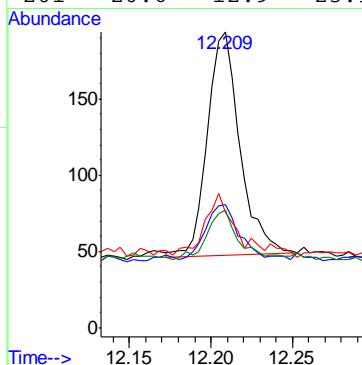
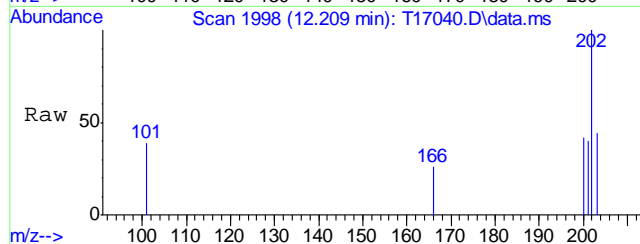
#19
Fluoranthene
Concen: 0.00 ppm
RT: 11.952 min Scan# 1934
Delta R.T. -0.004 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

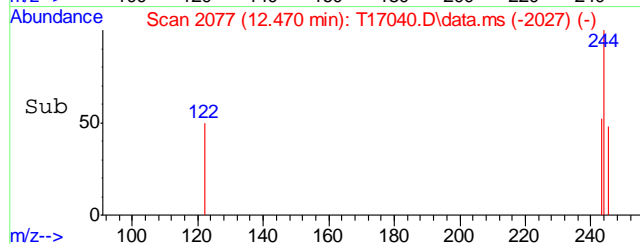
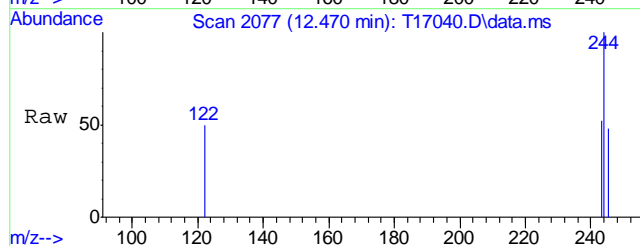
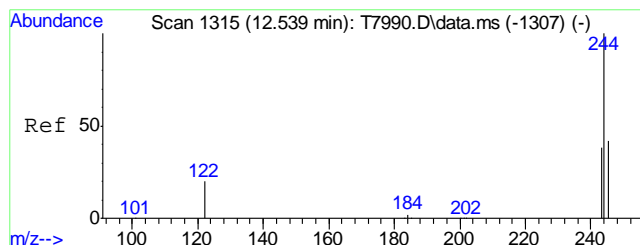
Tgt Ion:	202	Resp:	195
Ion Ratio	Lower	Upper	
202	100		
200	31.3	15.2	28.2#
203	30.8	12.7	23.7#
101	23.6	8.8	16.3#



#21
Pyrene
Concen: 0.00 ppm
RT: 12.209 min Scan# 1998
Delta R.T. -0.004 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

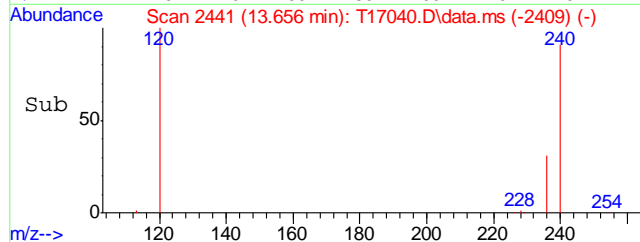
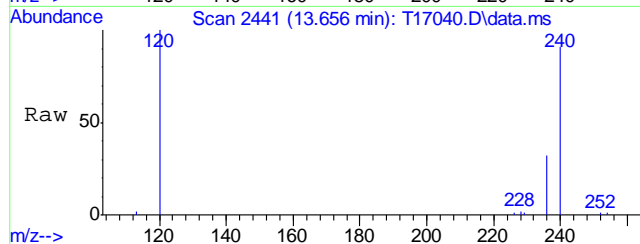
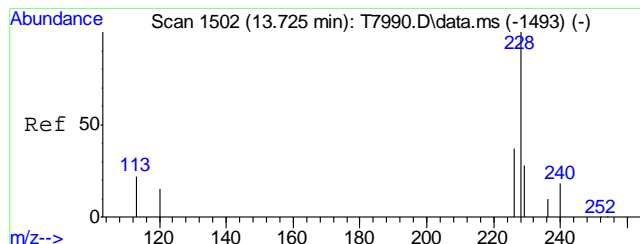
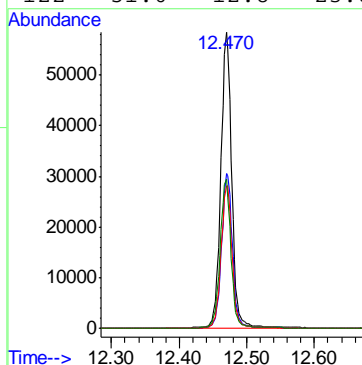
Tgt Ion:	202	Resp:	204
Ion Ratio	Lower	Upper	
202	100		
200	27.9	15.4	28.6
101	24.0	10.3	19.1#
201	20.6	12.9	23.9





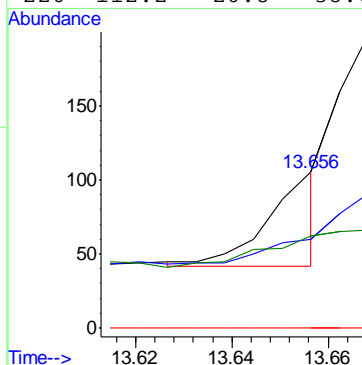
#22
p-Terphenyl-d14
Concen: 5.55 ppm
RT: 12.470 min Scan# 2077
Delta R.T. -0.005 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

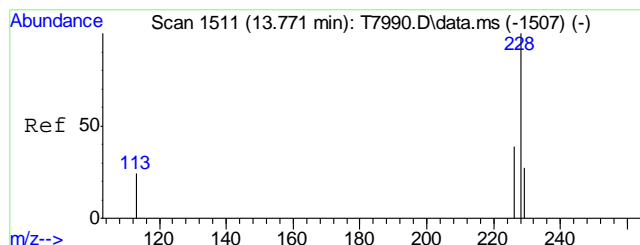
Tgt Ion: 244	Resp: 65820
Ion Ratio	Lower Upper
244	100
243	52.7 31.5 58.5
245	49.5 20.2 37.6#
122	51.0 12.8 23.8#



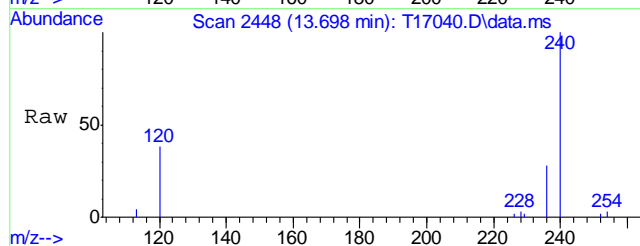
#23
Benzo[a]anthracene
Concen: 0.00 ppm m
RT: 13.656 min Scan# 2441
Delta R.T. -0.007 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

Tgt Ion: 228	Resp: 49
Ion Ratio	Lower Upper
228	100
229	244.9 25.2 46.8#
227	0.0 21.0 39.0#
226	112.2 20.8 38.6#

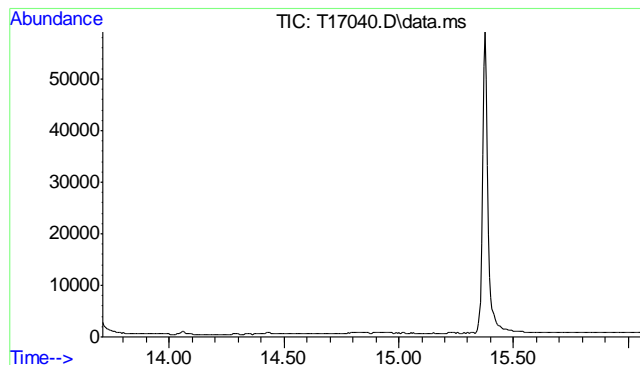
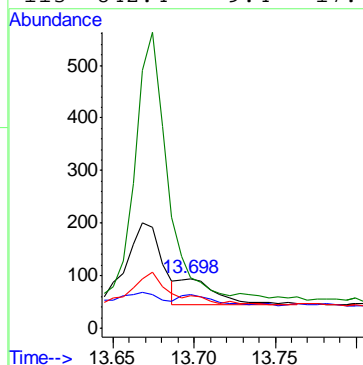
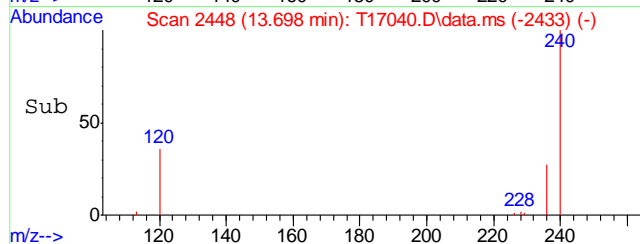




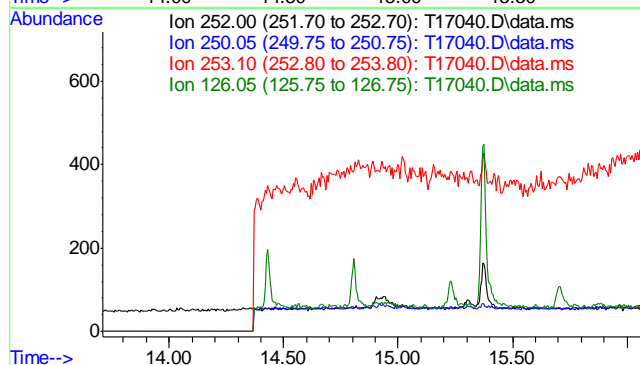
#24
Chrysene
Concen: 0.00 ppm m
RT: 13.698 min Scan# 2448
Delta R.T. -0.012 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am



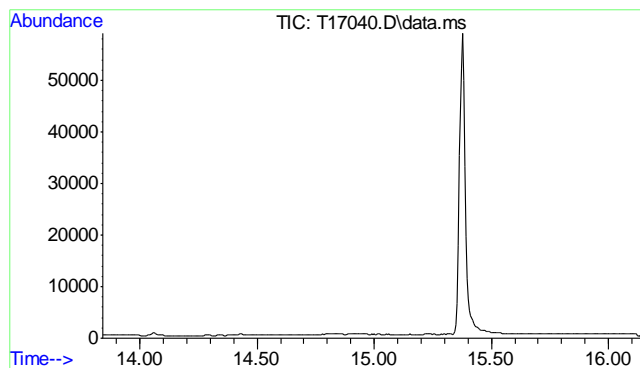
Tgt Ion: 228 Resp: 85
Ion Ratio Lower Upper
228 100
226 64.7 22.9 42.5#
229 141.2 15.0 27.8#
113 842.4 9.4 17.4#



#26
Benzo(b)fluoranthene
Concen: N.D.
Expected RT: 14.91 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am



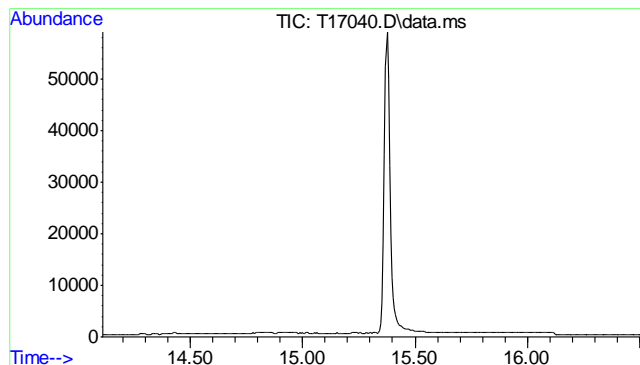
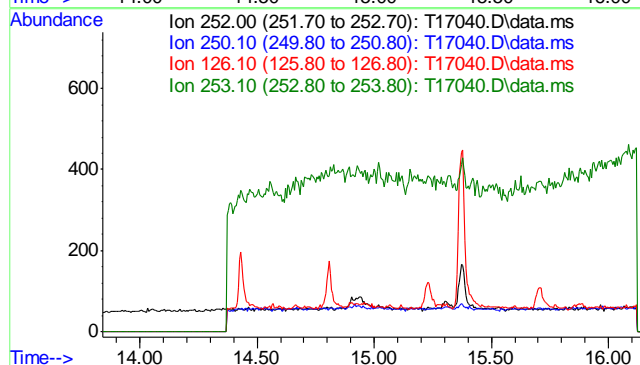
Tgt Ion: 252
Sig Exp Ratio
252 100
250 26.4
253 24.1
126 16.1



#27
Benzo(k)fluoranthene
Concen: N.D.
Expected RT: 14.94 min

Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

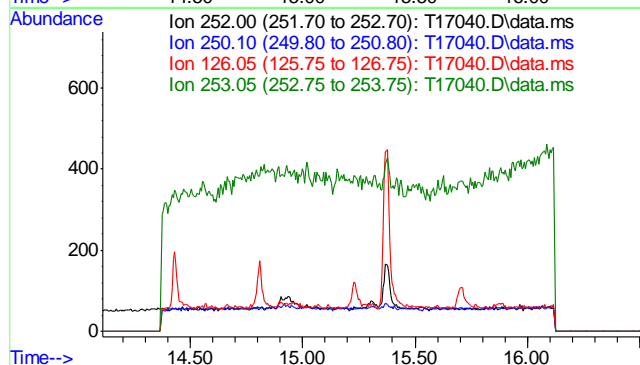
Tgt Ion:	252
Sig	Exp Ratio
252	100
250	25.5
126	17.6
253	24.1

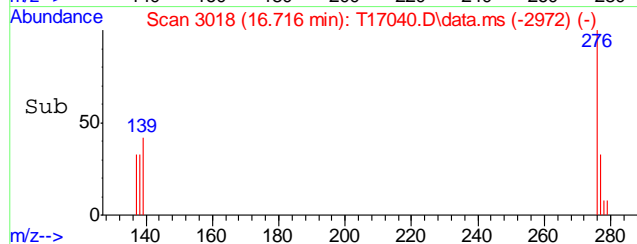
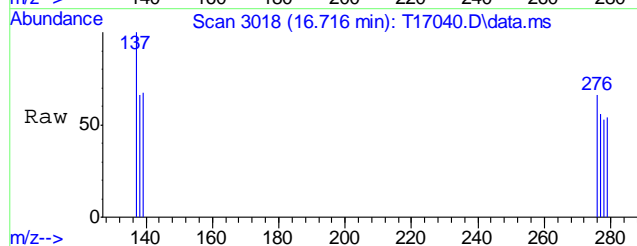
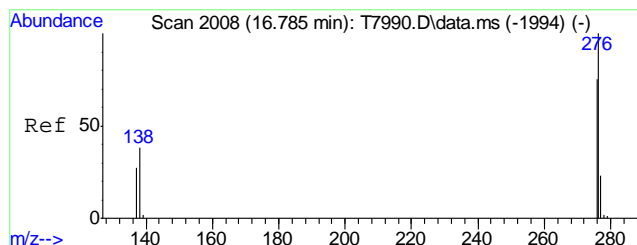


#28
Benzo(a)pyrene
Concen: N.D.
Expected RT: 15.31 min

Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

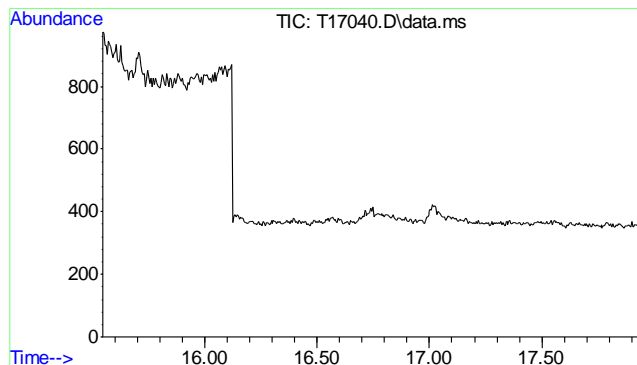
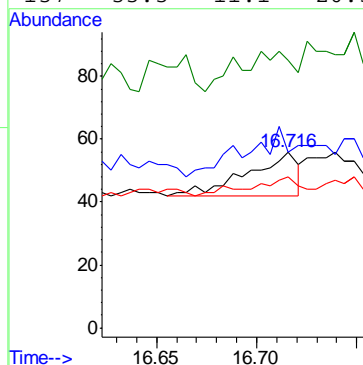
Tgt Ion:	252
Sig	Exp Ratio
252	100
250	26.8
126	17.5
253	23.2





#29
Indeno(1,2,3-cd)pyrene
Concen: 0.00 ppm
RT: 16.716 min Scan# 3018
Delta R.T. 0.014 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

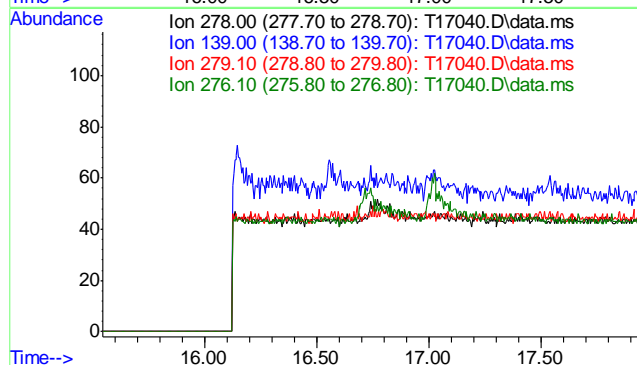
Tgt Ion	Ratio	Lower	Upper
276	100		
138	33.3	15.5	28.9#
277	16.7	16.6	30.8
137	33.3	11.1	20.5#

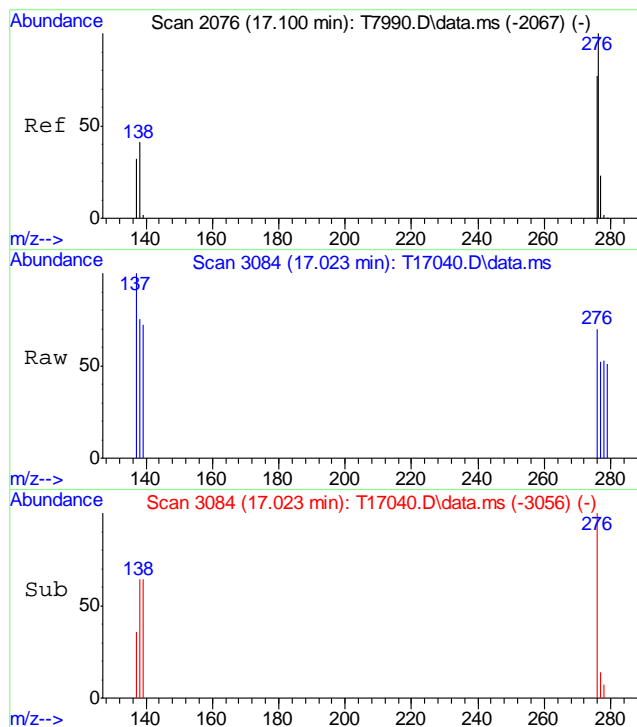


#30
Dibenz(a,h)anthracene
Concen: N.D.
Expected RT: 16.74 min

Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

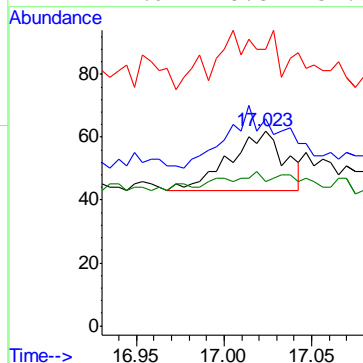
Tgt Ion	Sig	Exp Ratio
278	100	
139	21.0	
279	27.0	
276	34.5	





#31
Benzo(g,h,i)perylene
Concen: 0.00 ppm
RT: 17.023 min Scan# 3084
Delta R.T. 0.009 min
Lab File: T17040.D
Acq: 4 Dec 2014 10:40 am

Tgt Ion	276	Resp	41
Ion	Ratio	Lower	Upper
276	100		
138	112.2	19.0	35.2#
137	43.9	16.0	29.6#
277	4.9	18.5	34.3#



Quantitation Report (QT Reviewed)
 Data File : C:\msdchem\1\DATA\X141125\X40915.D Vial: 4
 Acq On : 25 Nov 2014 3:32 pm Operator: bijanj
 Sample : OP11273-MB Inst : X
 Misc : OP11273,EX1749,1000,,,1,1,W
 Quant Results File: EX1748.RES
 Quant Time: Nov 25 16:41:09 2014

Quant Method : C:\msdchem\1\METHODS\EX1748.M
 Quant Title : SW8270 SIM 1,4-DIOXANE and PAH
 QLast Update : Tue Nov 25 14:59:31 2014
 Response via : Initial Calibration
 DataAcq Meth:ACQ_MIXALL1.M

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	5.676	152	18854	4.00	ppm	#-0.02
5) Naphthalene-d8	6.734	136	59028	4.00	ppm	# 0.00
9) Acenaphthene-d10	8.663	164	32335	4.00	ppm	0.00
15) Phenanthrene-d10	10.381	188	43796	4.00	ppm	# 0.00
20) Chrysene-d12	13.549	240	25083	4.00	ppm	0.00
25) Perylene-d12	15.211	264	21328	4.00	ppm	# 0.00
System Monitoring Compounds						
4) Nitrobenzene-d5	6.111	82	40199	4.20	ppm	-0.01
Spiked Amount	5.000	Range 25 - 100	Recovery	=	84.00%	
11) 2-Fluorobiphenyl	7.923	172	49132	4.29	ppm	0.00
Spiked Amount	5.000	Range 25 - 106	Recovery	=	85.80%	
22) p-Terphenyl-d14	12.352	244	30884	3.99	ppm	0.00
Spiked Amount	5.000	Range 35 - 130	Recovery	=	79.80%	
Target Compounds						
						Qvalue
2) 1,4-Dioxane	0.000		0	N.D.	d	
3) N-Nitrosodimethylamine	0.000		0	N.D.	d	
6) Naphthalene	6.754	128	226	0.01	ppm	# 88
7) 2-Methylnaphthalene	7.476	142	88	0.01	ppm	# 71
8) 1-Methylnaphthalene	7.593	142	66	0.01	ppm	# 69
10) Hexachlorocyclopentadiene	0.000		0	N.D.		
12) Acenaphthylene	0.000		0	N.D.	d	
13) Acenaphthene	0.000		0	N.D.	d	
14) Fluorene	0.000		0	N.D.	d	
16) Hexachlorobenzene	0.000		0	N.D.	d	
17) Phenanthrene	10.402	178	92	0.01	ppm	# 28
18) Anthracene	10.462	178	33	0.00	ppm	# 1
19) Fluoranthene	11.829	202	60	0.00	ppm	# 42
21) Pyrene	12.077	202	67	0.00	ppm	# 81
23) Benzo[a]anthracene	13.528	228	51m	0.01	ppm	
24) Chrysene	0.000		0	N.D.	d	
26) Benzo(b)fluoranthene	0.000		0	N.D.	d	
27) Benzo(k)fluoranthene	0.000		0	N.D.	d	
28) Benzo(a)pyrene	0.000		0	N.D.	d	
29) Indeno(1,2,3-cd)pyrene	0.000		0	N.D.	d	
30) Dibenz(a,h)anthracene	16.569	278	49m	0.01	ppm	
31) Benzo(g,h,i)perylene	16.821	276	53m	0.01	ppm	

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

Quantitation Report

(QT Reviewed)

Data File : C:\msdchem\1\DATA\X141125\X40915.D

Vial: 4

Acq On : 25 Nov 2014 3:32 pm

Operator: bijanj

Sample : OP11273-MB

Inst : X

Misc : OP11273,EX1749,1000,,,1,1,W

Quant Results File: EX1748.RES

Quant Time: Nov 25 16:41:09 2014

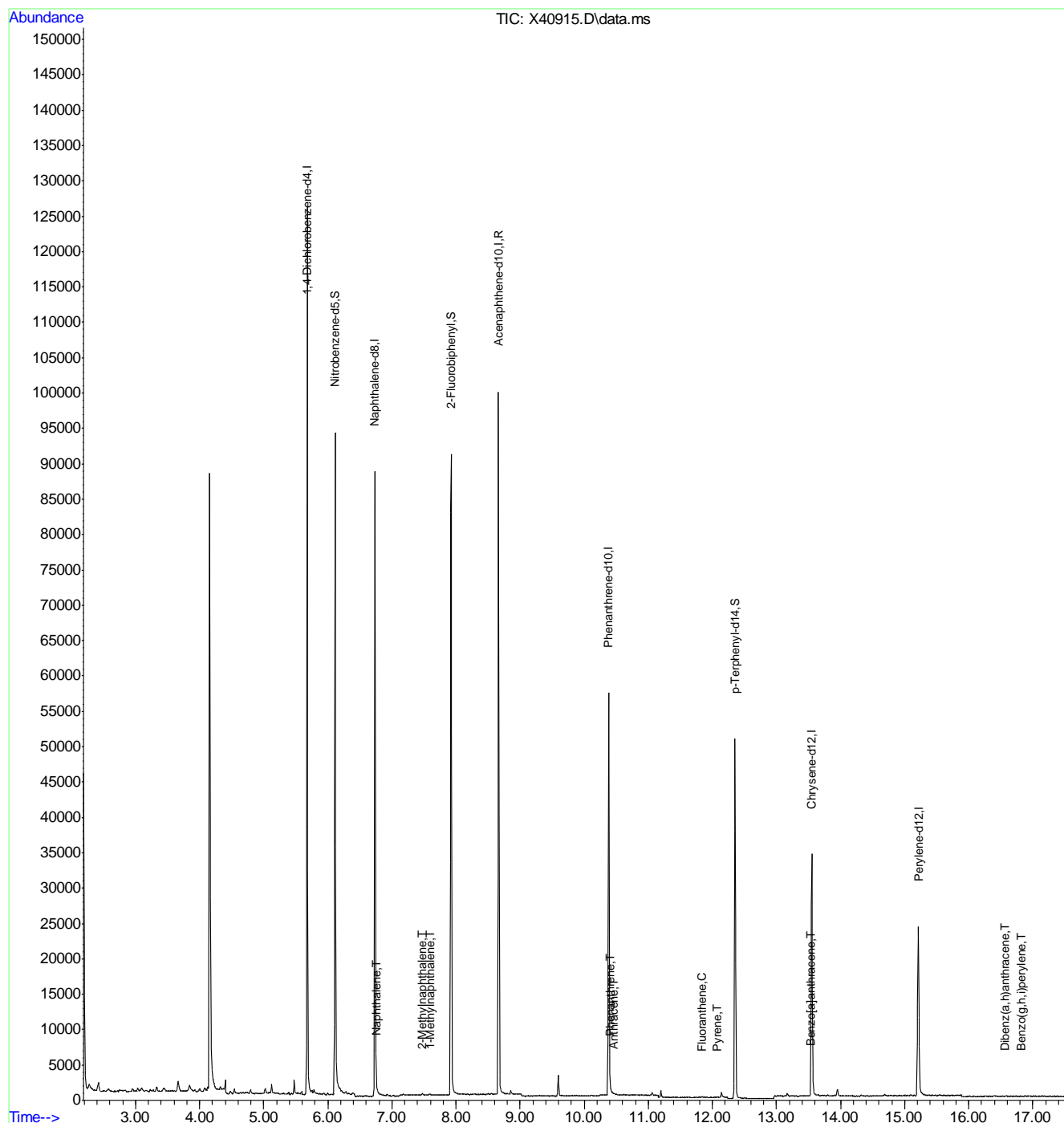
Quant Method : C:\msdchem\1\METHODS\EX1748.M

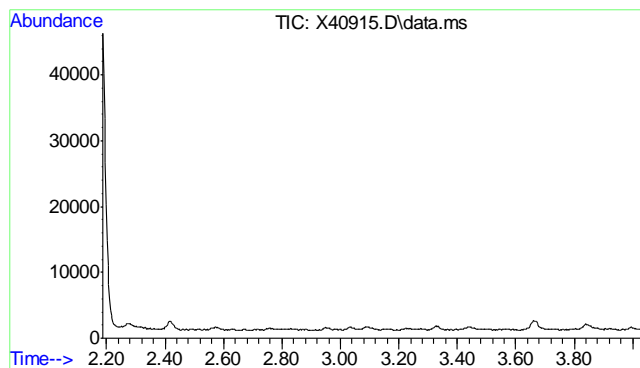
Quant Title : SW8270 SIM 1,4-DIOXANE and PAH

QLast Update : Tue Nov 25 14:59:31 2014

Response via : Initial Calibration

DataAcq Meth:ACQ_MIXALL1.M

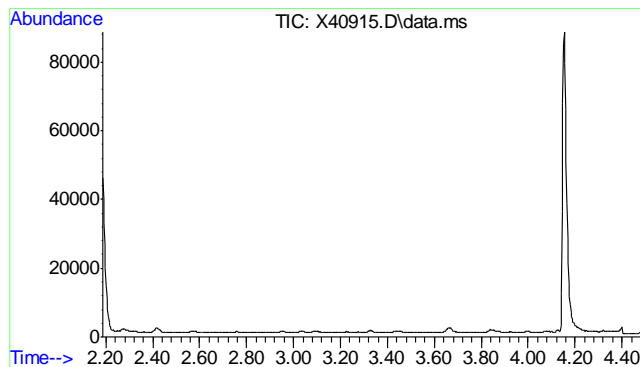
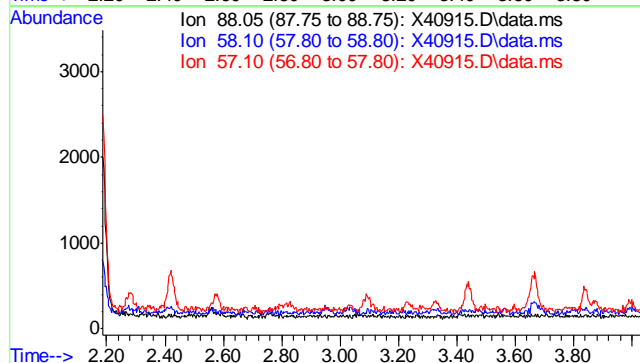




#2
1,4-Dioxane
Concen: N.D.
Expected RT: 2.53 min

Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

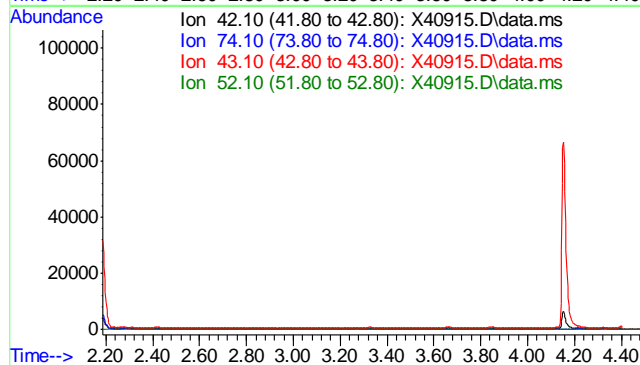
Tgt Ion:	88
Sig	Exp Ratio
88	100
58	53.8
57	43.8

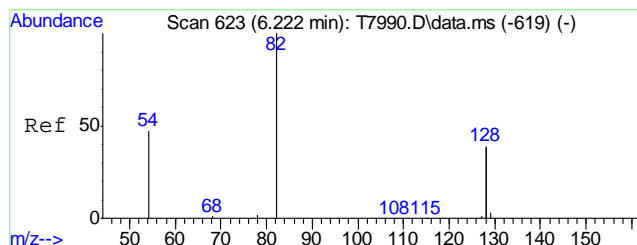


#3
N-Nitrosodimethylamine
Concen: N.D.
Expected RT: 2.98 min

Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

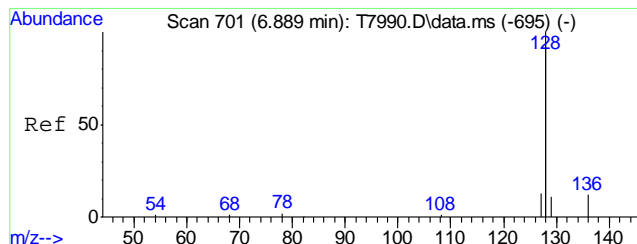
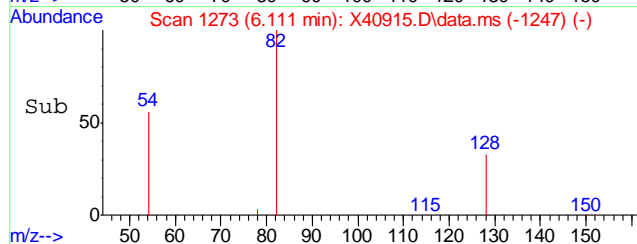
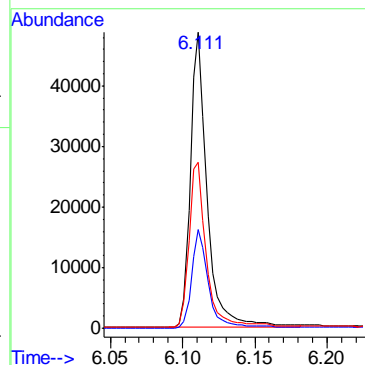
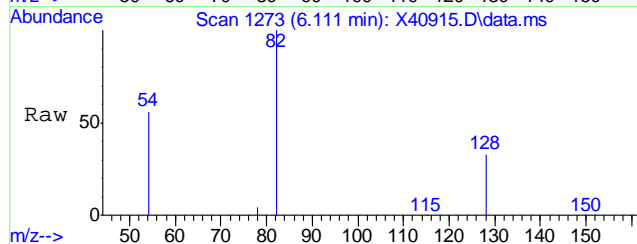
Tgt Ion:	42
Sig	Exp Ratio
42	100
74	98.6
43	36.3
52	15.9





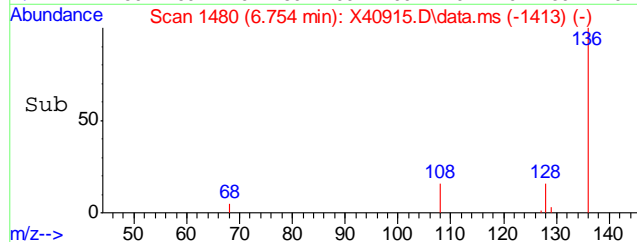
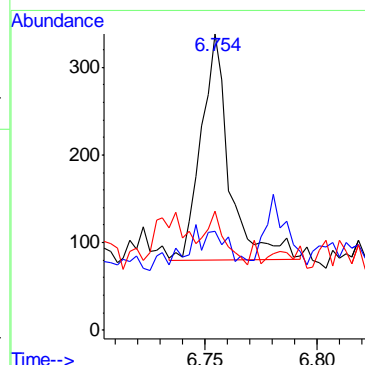
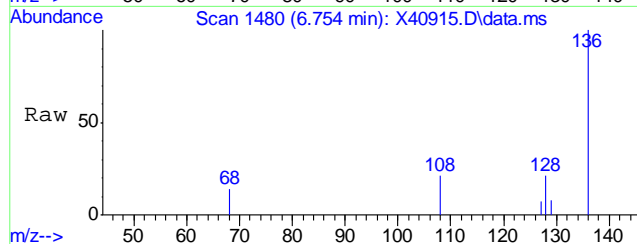
#4
Nitrobenzene-d5
Concen: 4.20 ppm
RT: 6.111 min Scan# 1273
Delta R.T. -0.013 min
Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

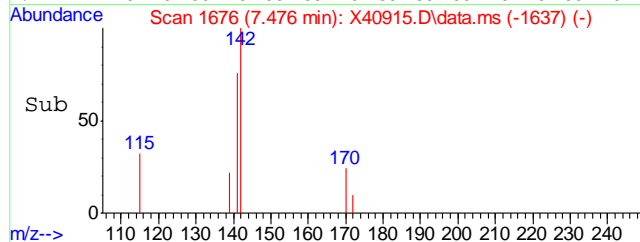
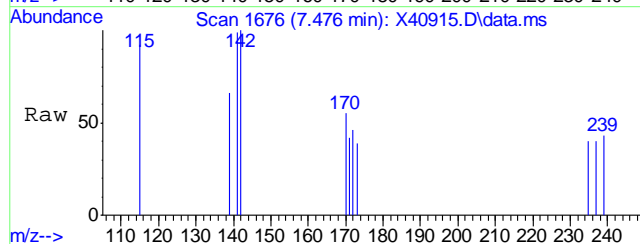
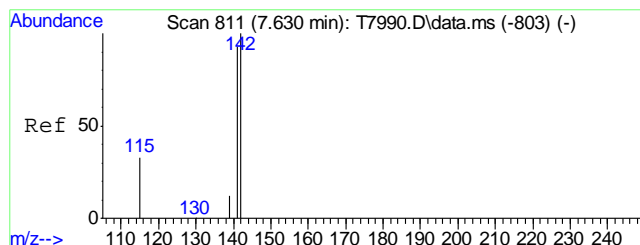
Tgt Ion:	82	Resp:	40199
Ion Ratio	100	Lower	Upper
82	100		
128	33.2	37.7	69.9#
54	57.4	30.7	56.9#



#6
Naphthalene
Concen: 0.01 ppm
RT: 6.754 min Scan# 1480
Delta R.T. -0.006 min
Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

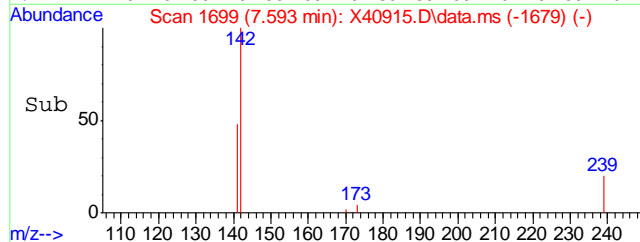
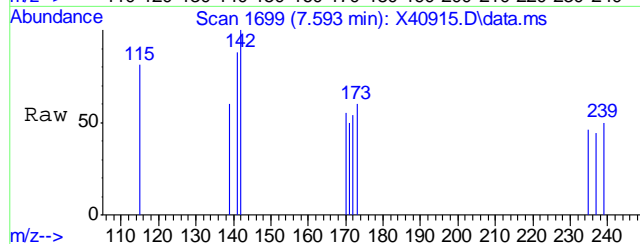
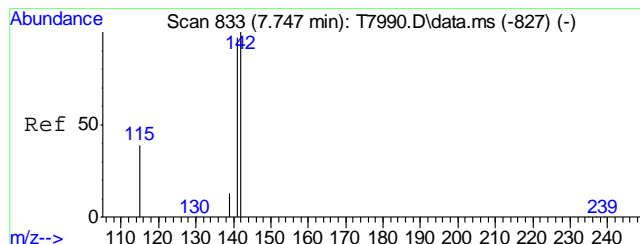
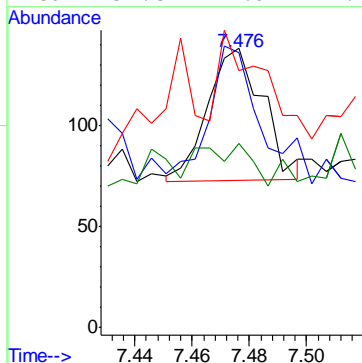
Tgt Ion:	128	Resp:	226
Ion Ratio	100	Lower	Upper
128	100		
127	8.0	9.0	16.8#
129	15.9	7.8	14.6#





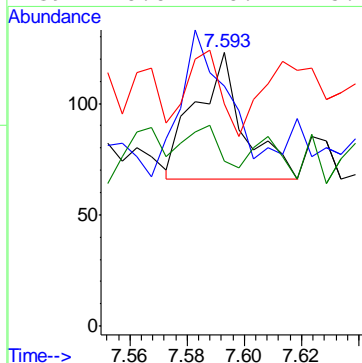
#7
2-Methylnaphthalene
Concen: 0.01 ppm
RT: 7.476 min Scan# 1676
Delta R.T. 0.000 min
Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

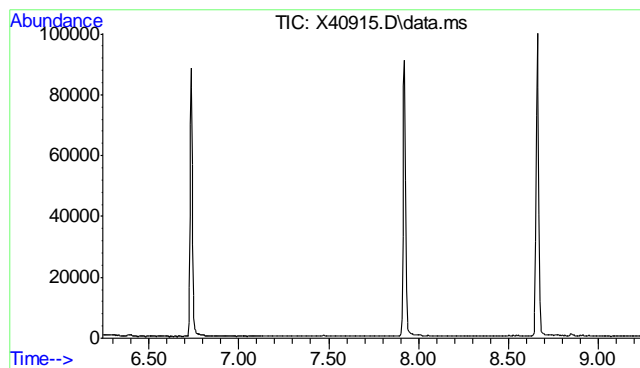
Tgt Ion	Ratio	Lower	Upper
142	100		
141	97.7	62.0	115.2
115	68.2	21.6	40.2#
139	37.5	7.9	14.7#



#8
1-Methylnaphthalene
Concen: 0.01 ppm
RT: 7.593 min Scan# 1699
Delta R.T. 0.000 min
Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

Tgt Ion	Ratio	Lower	Upper
142	100		
141	121.2	64.3	119.5#
115	48.5	22.7	42.1#
139	28.8	8.2	15.2#

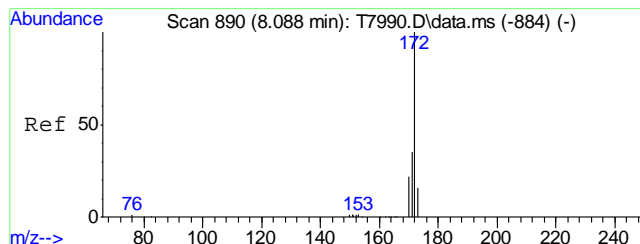
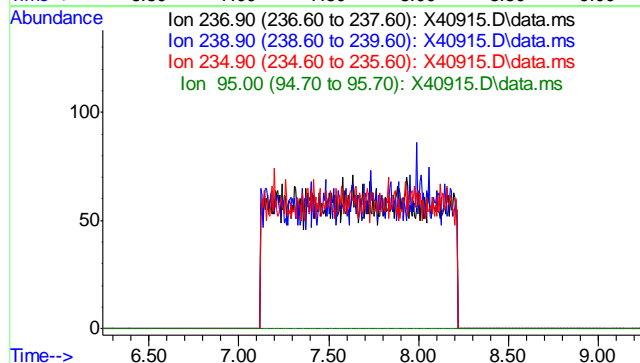




#10
Hexachlorocyclopentadiene
Concen: N.D.
Expected RT: 7.74 min

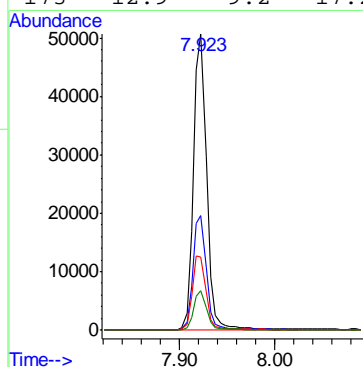
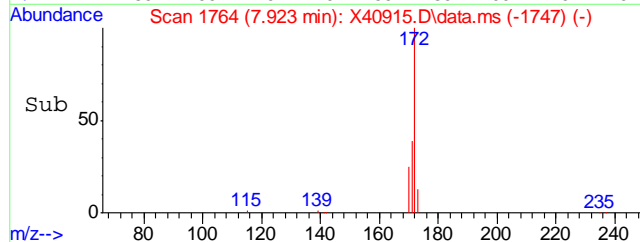
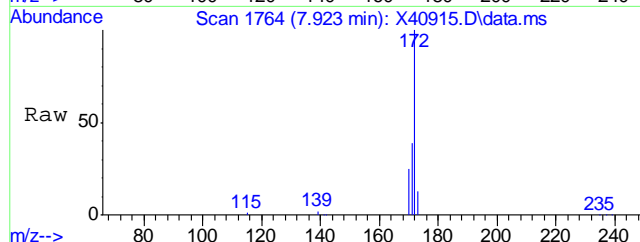
Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

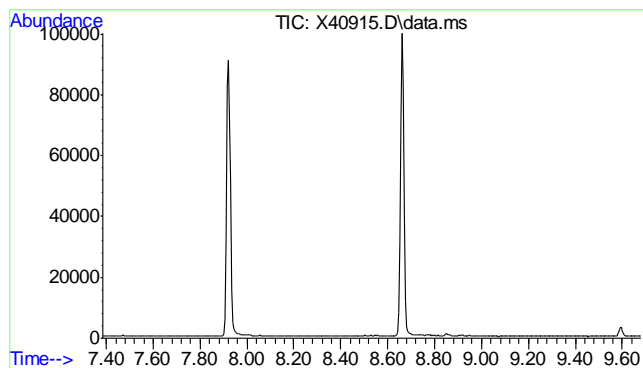
Tgt Ion:	237
Sig	Exp Ratio
237	100
239	71.3
235	58.8
95	17.7



#11
2-Fluorobiphenyl
Concen: 4.29 ppm
RT: 7.923 min Scan# 1764
Delta R.T. 0.000 min
Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

Tgt Ion:	172	Resp:	49132
Ion	Ratio	Lower	Upper
172	100		
171	39.2	24.8	46.0
170	25.9	16.7	30.9
173	12.9	9.2	17.2

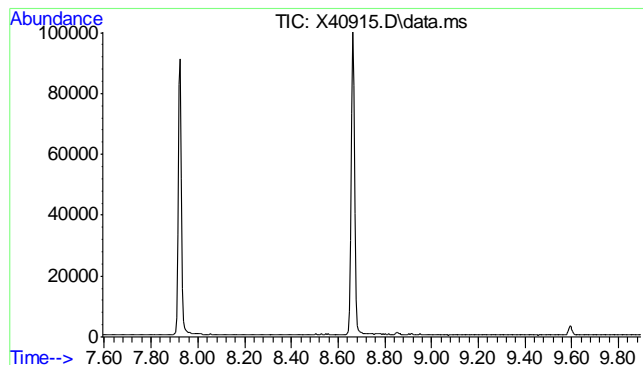
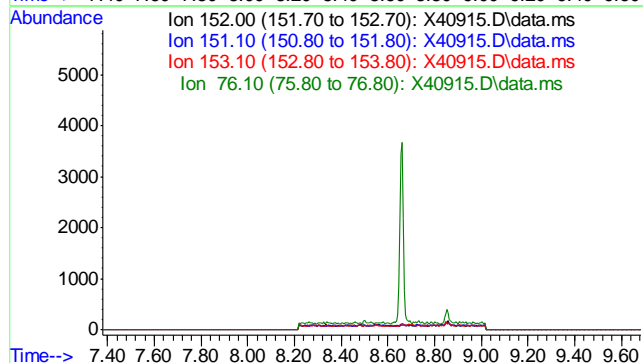




#12
Acenaphthylene
Concen: N.D.
Expected RT: 8.48 min

Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

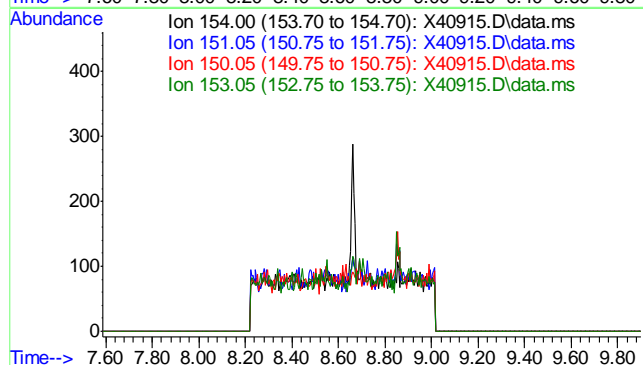
Tgt Ion:	152
Sig	Exp Ratio
152	100
151	20.2
153	13.3
76	9.4

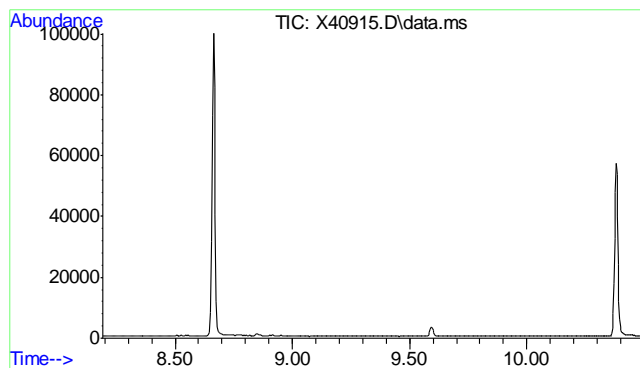


#13
Acenaphthene
Concen: N.D.
Expected RT: 8.70 min

Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

Tgt Ion:	154
Sig	Exp Ratio
154	100
151	19.5
150	9.5
153	110.7

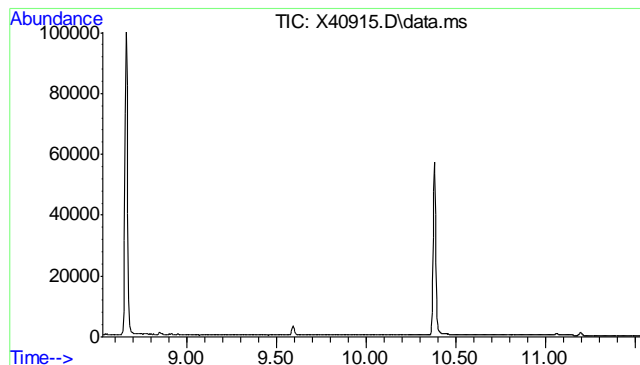
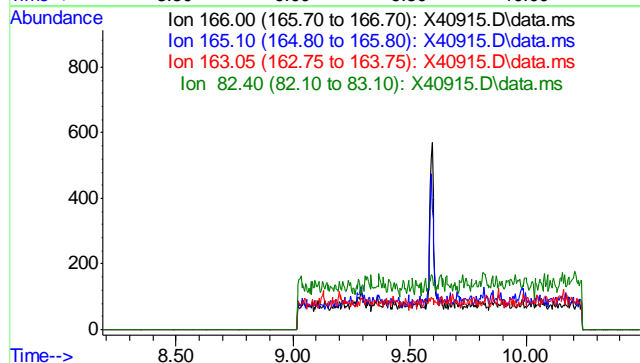




#14
Fluorene
Concen: N.D.
Expected RT: 9.29 min

Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

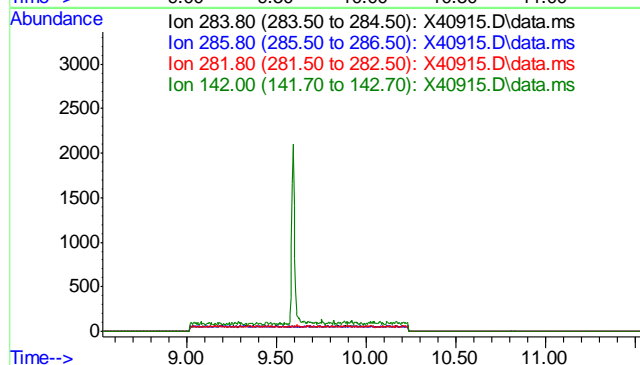
Tgt Ion: 166
Sig Exp Ratio
166 100
165 96.7
163 16.0
82 12.4

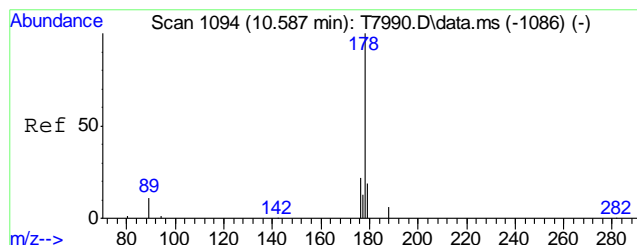


#16
Hexachlorobenzene
Concen: N.D.
Expected RT: 10.03 min

Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

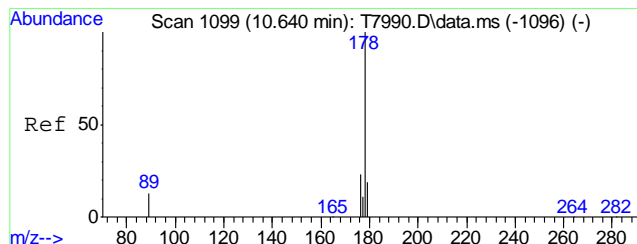
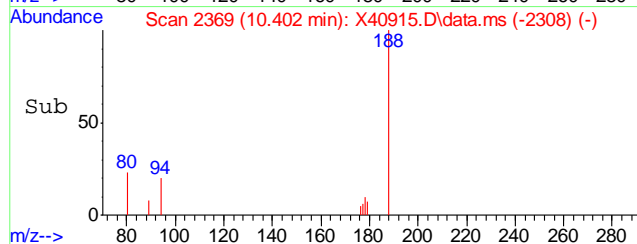
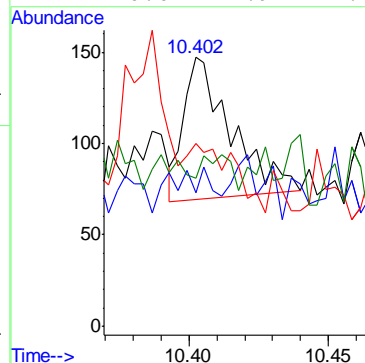
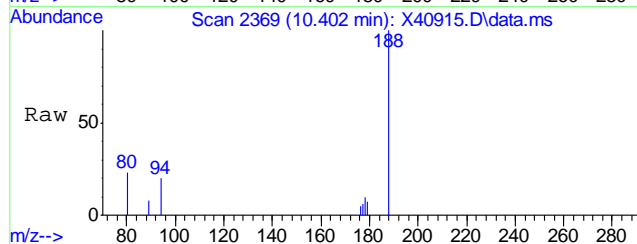
Tgt Ion: 284
Sig Exp Ratio
284 100
286 58.6
282 47.2
142 46.9





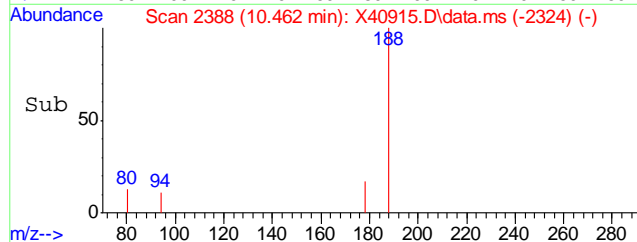
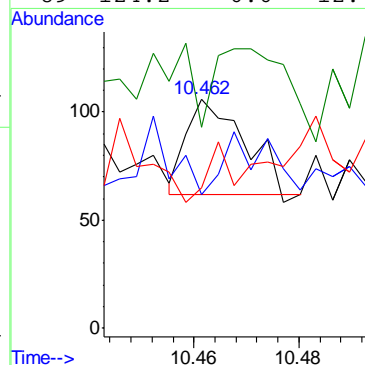
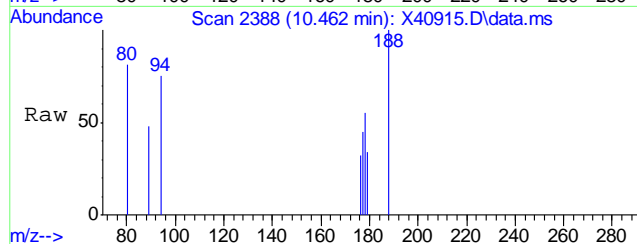
#17
Phenanthrene
Concen: 0.01 ppm
RT: 10.402 min Scan# 2369
Delta R.T. -0.006 min
Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

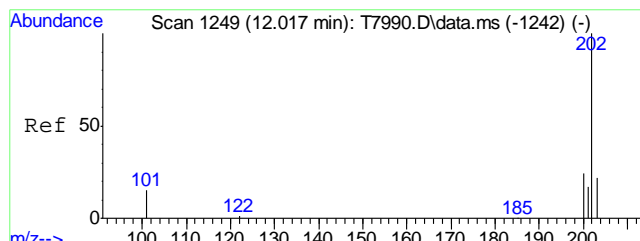
Tgt Ion: 178 Resp: 92
Ion Ratio Lower Upper
178 100
176 0.0 14.1 26.1#
179 75.0 11.3 20.9#
177 0.0 7.9 14.7#



#18
Anthracene
Concen: 0.00 ppm
RT: 10.462 min Scan# 2388
Delta R.T. 0.000 min
Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

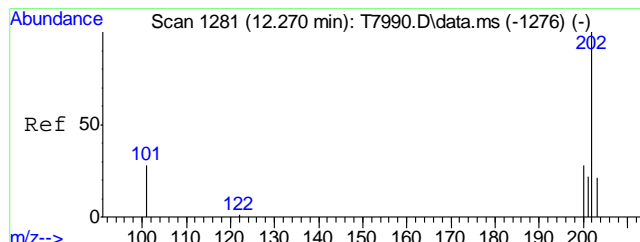
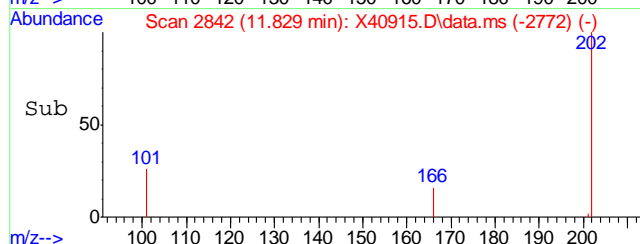
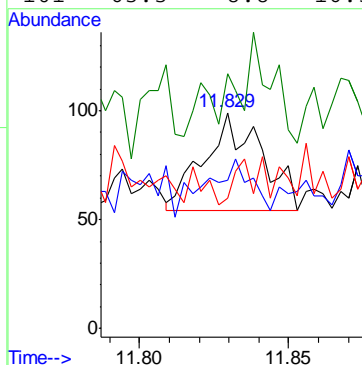
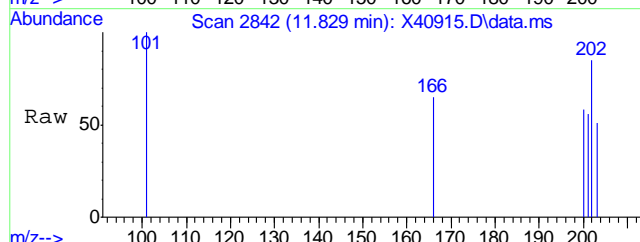
Tgt Ion: 178 Resp: 33
Ion Ratio Lower Upper
178 100
176 51.5 13.6 25.2#
179 24.2 11.3 20.9#
89 124.2 6.6 12.4#





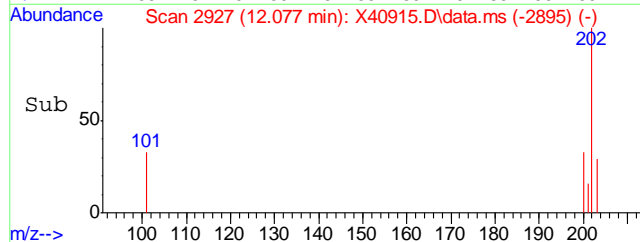
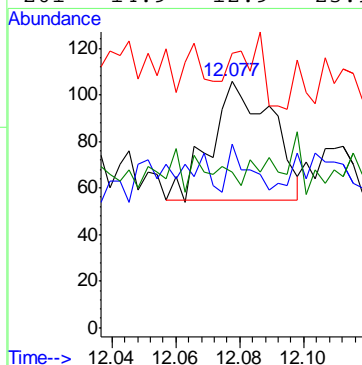
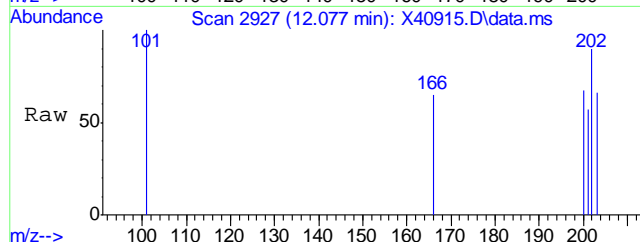
#19
Fluoranthene
Concen: 0.00 ppm
RT: 11.829 min Scan# 2842
Delta R.T. 0.003 min
Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

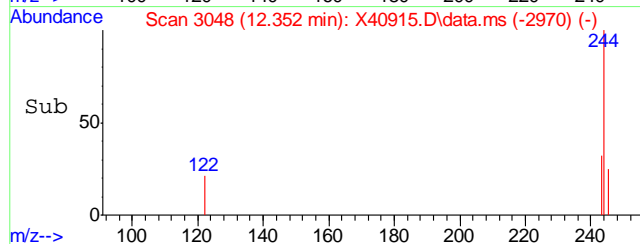
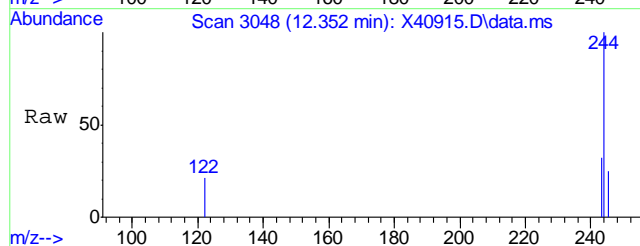
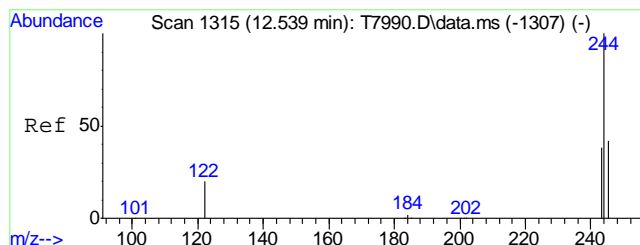
Tgt Ion:	202	Resp:	60
Ion Ratio	Lower	Upper	
202	100		
200	48.3	15.2	28.2#
203	13.3	12.7	23.7
101	63.3	8.8	16.3#



#21
Pyrene
Concen: 0.00 ppm
RT: 12.077 min Scan# 2927
Delta R.T. -0.006 min
Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

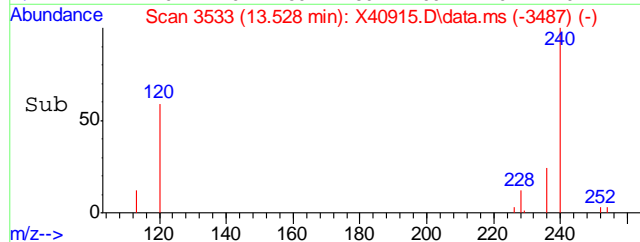
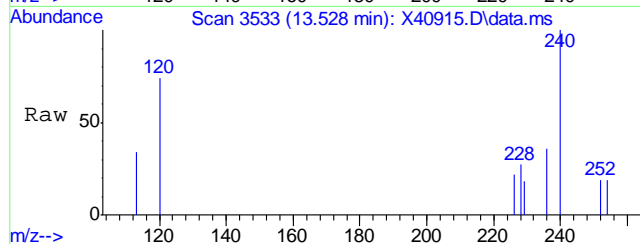
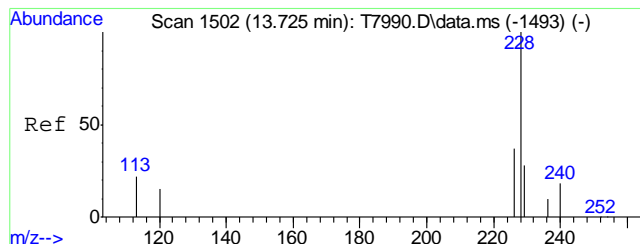
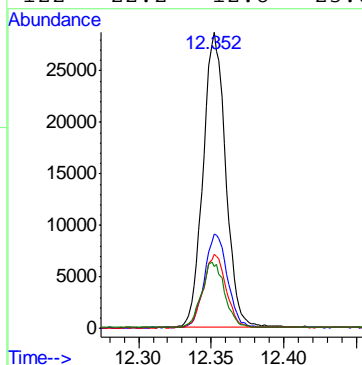
Tgt Ion:	202	Resp:	67
Ion Ratio	Lower	Upper	
202	100		
200	13.4	15.4	28.6#
101	0.0	10.3	19.1#
201	14.9	12.9	23.9





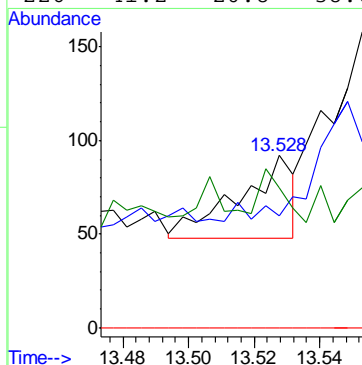
#22
p-Terphenyl-d14
Concen: 3.99 ppm
RT: 12.352 min Scan# 3048
Delta R.T. 0.000 min
Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

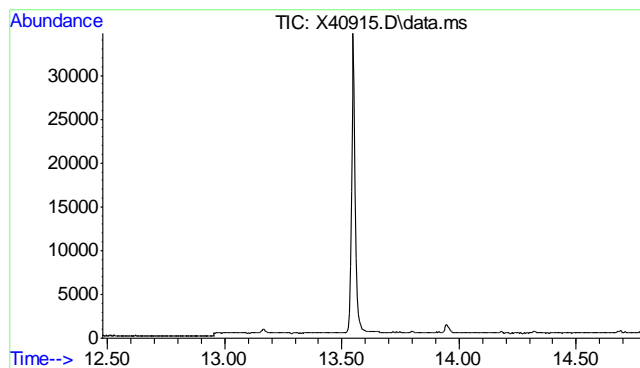
Tgt Ion:	244	Resp:	30884
Ion Ratio	Lower	Upper	
244	100		
243	32.1	31.5	58.5
245	24.9	20.2	37.6
122	22.2	12.8	23.8



#23
Benzo[a]anthracene
Concen: 0.01 ppm m
RT: 13.528 min Scan# 3533
Delta R.T. -0.004 min
Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

Tgt Ion:	228	Resp:	51
Ion Ratio	Lower	Upper	
228	100		
229	143.1	13.3	24.7#
227	0.0	5.6	10.4#
226	41.2	20.8	38.6#

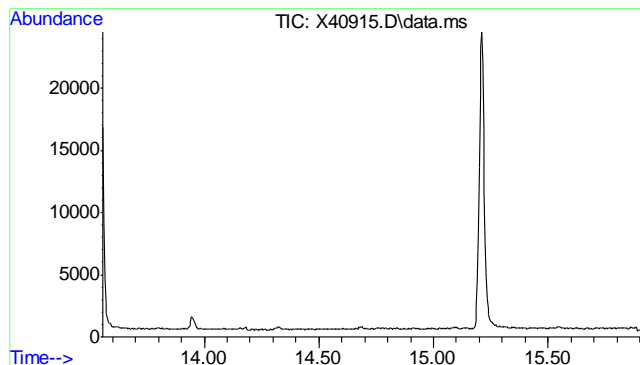
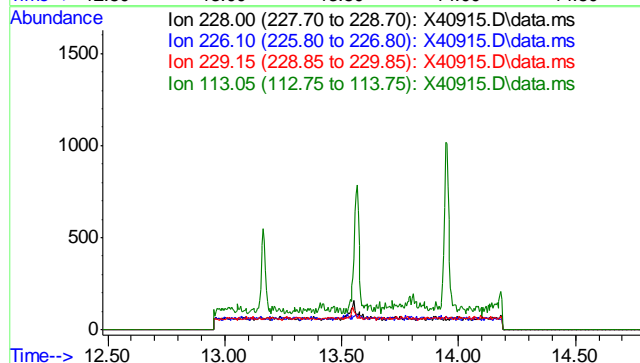




#24
Chrysene
Concen: N.D.
Expected RT: 13.58 min

Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

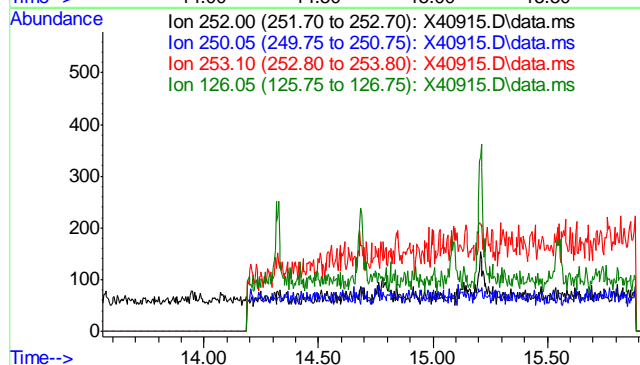
Tgt Ion:	228
Sig	Exp Ratio
228	100
226	32.7
229	21.4
113	13.4

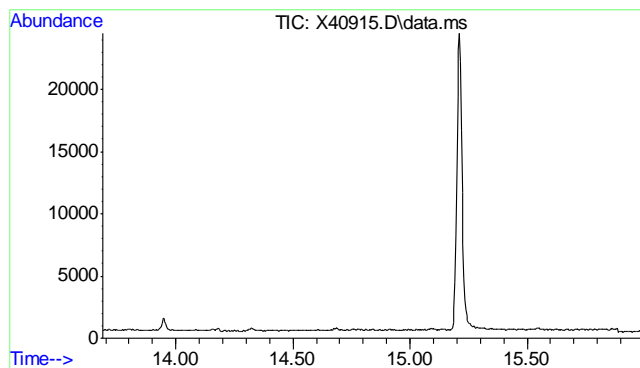


#26
Benzo(b)fluoranthene
Concen: N.D.
Expected RT: 14.76 min

Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
250	26.4
253	24.1
126	16.1

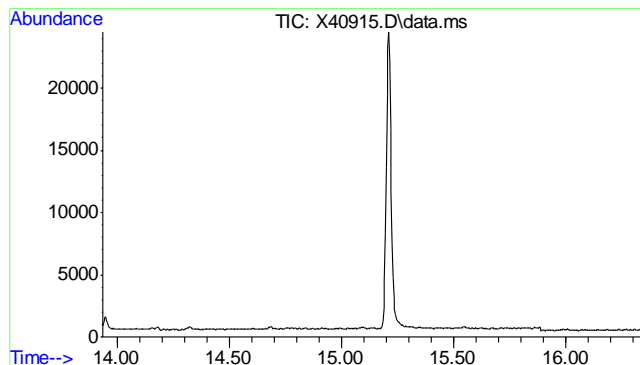
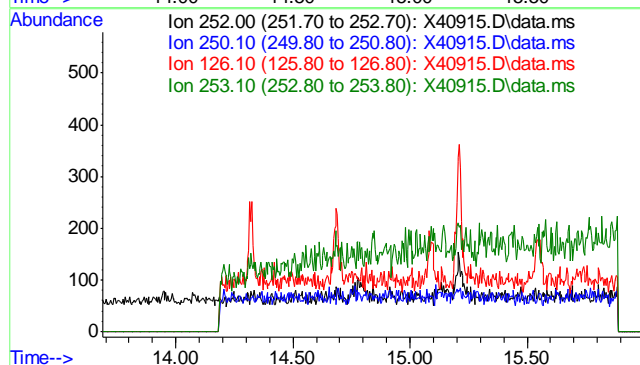




#27
Benzo(k)fluoranthene
Concen: N.D.
Expected RT: 14.79 min

Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

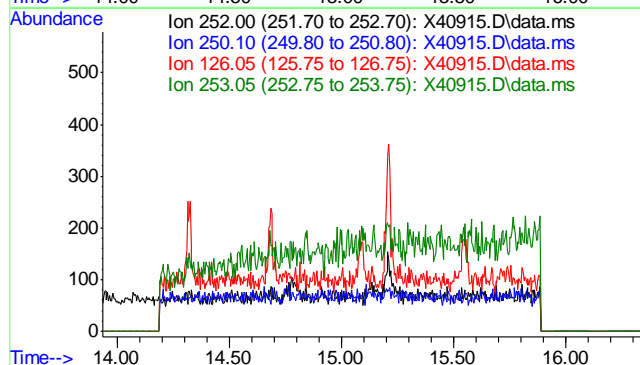
Tgt Ion:	252
Sig	Exp Ratio
252	100
250	25.5
126	17.6
253	24.1

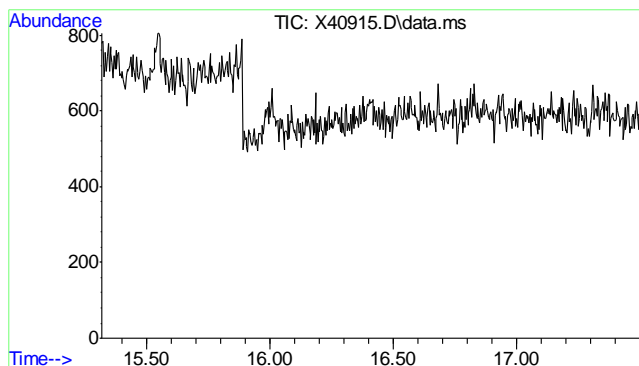


#28
Benzo(a)pyrene
Concen: N.D.
Expected RT: 15.14 min

Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

Tgt Ion:	252
Sig	Exp Ratio
252	100
250	26.8
126	17.5
253	23.2

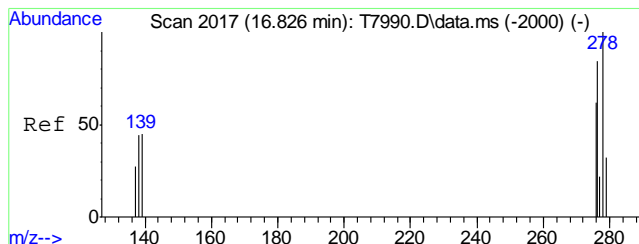
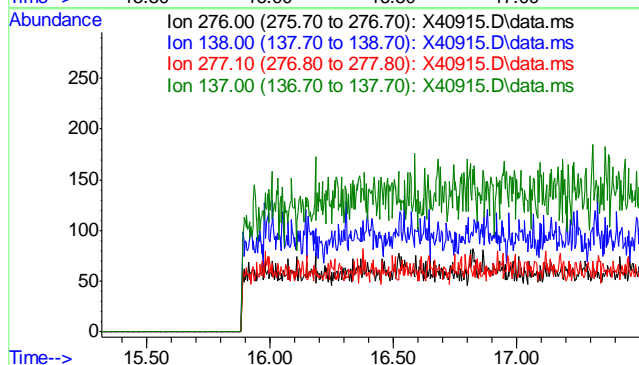




#29
Indeno(1,2,3-cd)pyrene
Concen: N.D.
Expected RT: 16.52 min

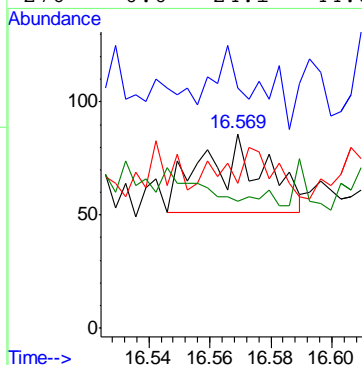
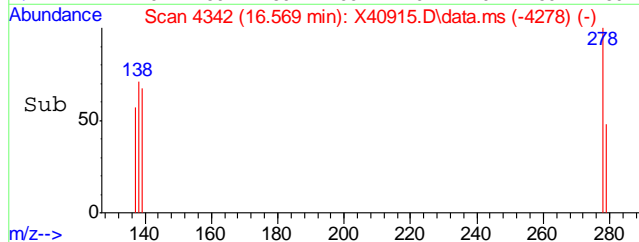
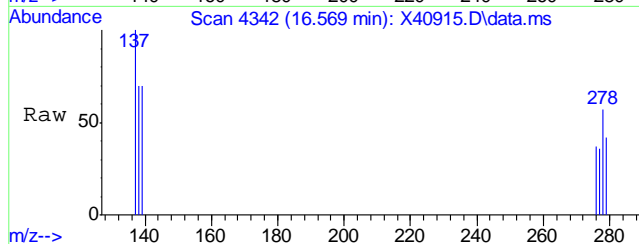
Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

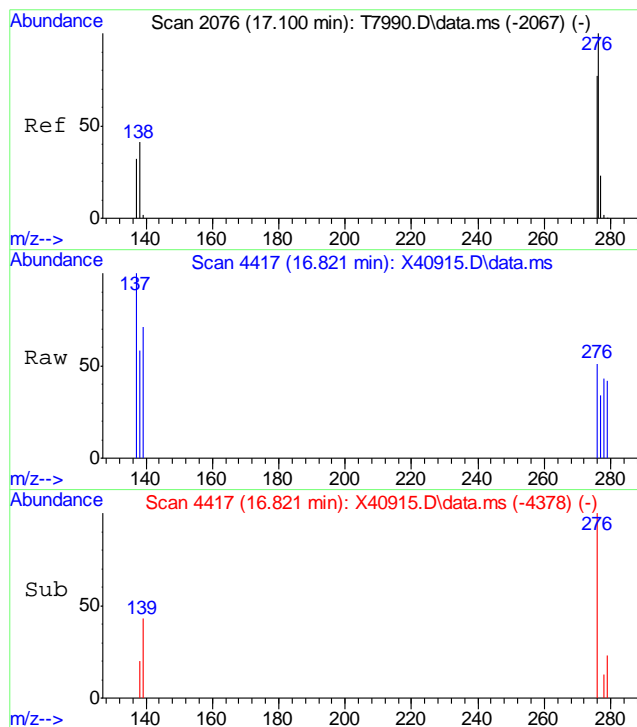
Tgt Ion:	276
Sig	Exp Ratio
276	100
138	22.2
277	23.7
137	15.8



#30
Dibenz(a,h)anthracene
Concen: 0.01 ppm m
RT: 16.569 min Scan# 4342
Delta R.T. 0.013 min
Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

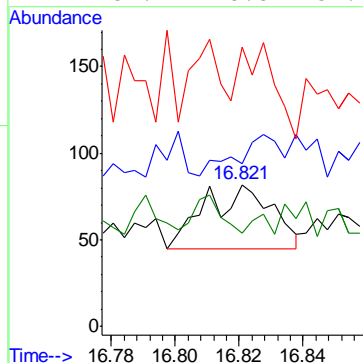
Tgt Ion:	278	Resp:	49
Ion	Ratio	Lower	Upper
278	100		
139	0.0	14.7	27.3#
279	6.1	18.9	35.1#
276	0.0	24.1	44.8#





#31
Benzo(g,h,i)perylene
Concen: 0.01 ppm m
RT: 16.821 min Scan# 4417
Delta R.T. 0.010 min
Lab File: X40915.D
Acq: 25 Nov 2014 3:32 pm

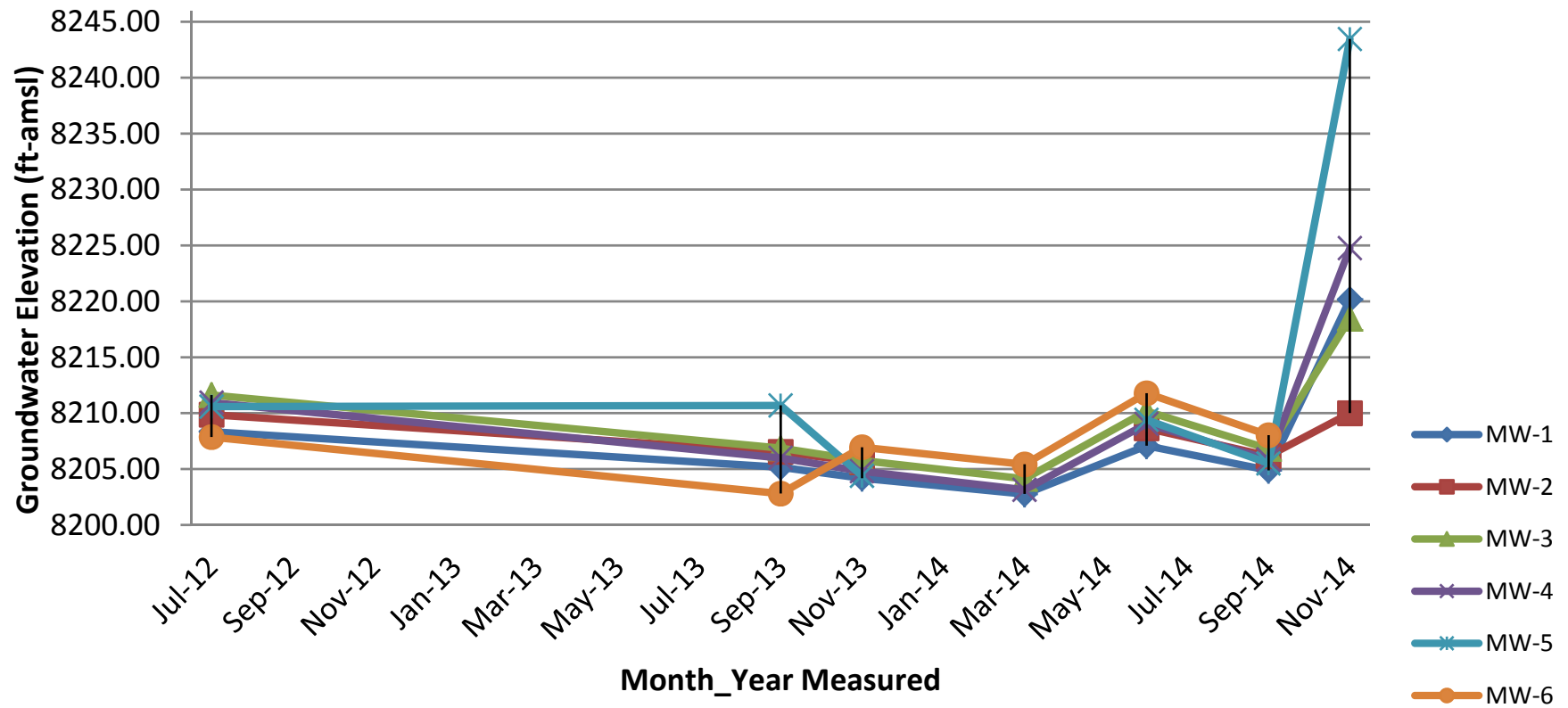
Tgt Ion	Ratio	Lower	Upper
276	100		
138	0.0	19.0	35.2#
137	73.6	16.0	29.6#
277	32.1	18.5	34.3



APPENDIX B

Monitoring Well Hydrographs

CM Production - Lone Pine Field Monitoring Well Groundwater Elevations vs. Time



CM Production - Lone Pine Field MW-1 BTEX vs. Groundwater Elevations

