

Mr. Robert Weimer
Alaska Department of Environmental Conservation (ADEC)
555 Cordova Street
Anchorage, Alaska 95501

Subject:
2019 First Semi-Annual Groundwater Monitoring Report

ENVIRONMENT

Dear Mr. Weimer,

On behalf of Chevron Environmental Management Company (Chevron), Arcadis US, Inc. (Arcadis) has prepared the attached *2019 First Semi-Annual Groundwater Monitoring Report* for the 2019 first semi-annual groundwater monitoring and sampling events for the following facility:

Date:
December 27, 2019

Contact:
Nicole Monroe

Chevron Branded

<u>Station No.</u>	<u>ADEC File No.</u>	<u>Hazard ID:</u>	<u>Location</u>
96489	2100.26.066	23518	1304 Airport Heights Drive Anchorage, Alaska

Phone:
503.785.9414

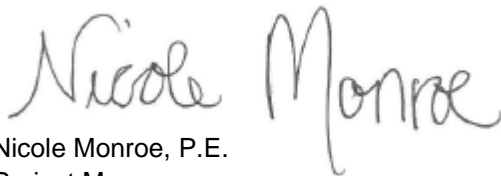
Email:
Nicole.Monroe@arcadis.com

If you have any questions, please do not hesitate to contact me.

Our ref:
30015219

Sincerely,

Arcadis U.S., Inc.



Nicole Monroe, P.E.
Project Manager
EV-149409

Copies:
Tim Bishop (*electronic copy*)
Mark Engelke
Fred K. Heinzelmann
Paul Mitchell CHFM, CHSP

Chevron Environmental Management Company

2019 FIRST SEMI-ANNUAL GROUNDWATER MONITORING REPORT

Chevron-Branded Service Station 96489
1304 Airport Heights Drive
Anchorage, Alaska
ADEC File No. 2100.26.066

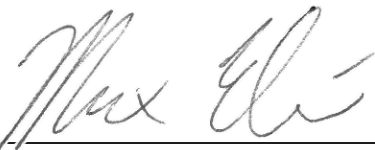
December 27, 2019



2019 FIRST SEMI-ANNUAL GROUNDWATER MONITORING REPORT



Evan Wujcik
Environmental Engineer



Max Elias
Environmental Scientist



Nicole Monroe, P.E.
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Chevron-Branded Service Station 96489

1304 Airport Heights Drive
Anchorage, Alaska

ADEC File No: 2100.26.066
HAZARD ID No: 23518

Prepared for:

Chevron Environmental Management
Company

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Our Ref.:
30015219

Date:
December 27, 2019

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**SEMI-ANNUAL STATUS REPORT
FIRST HALF 2019
December 27, 2019**

Facility No: Chevron-Branded Service Station 96489 Address: 1304 Airport Heights Drive Anchorage, Alaska

Arcadis Contact Person / Phone No.: Nicole Monroe / (503) 785-9414

Arcadis Project No.: 30015219

Primary Agency/Regulatory ID No.: Alaska Department of Environmental Conservation (ADEC) / Robert Weimer / ADEC file ID: 2100.26.066

WORK CONDUCTED THIS PERIOD [First Half 2019]:

1. Conducted semi-annual groundwater monitoring activities for the first half on May 28, 2019.
2. Well survey conducted on June 6, 2019.
3. Prepared the *Semi-Annual Status Report, First Half 2019*.

WORK PROPOSED NEXT PERIOD [Second Half 2019]:

1. Conduct semi-annual groundwater monitoring activities in the second half of 2019.
2. Prepare the *Semi-Annual Status Report, Second Half 2019*.

Current Phase of Project:	<u>Monitoring</u>	
Frequency of Monitoring / Sampling:	<u>Semi-Annual</u>	
Is LNAPL Present On-site:	<u>None</u>	
Cumulative LNAPL Recovered to Date:	<u>0.00</u>	(gallons)
Approximate Depth to Groundwater:	<u>26.03 to 28.45</u>	(feet below top of casing)
Approximate Groundwater Elevation:	<u>112.44 to 113.39</u>	(feet relative to corresponding datum)
Groundwater Flow Direction	<u>West-Northwest</u>	
Groundwater Gradient	<u>0.0038</u>	(feet per foot)

Current Remediation Techniques:	None
Permits for Discharge:	None
Summary of Unusual Activity:	None
Agency Directive Requirements:	None

1 INTRODUCTION

On behalf of Chevron Environmental Management Company (CEMC), Arcadis US, Inc. (Arcadis), has prepared this report to document the first semi-annual groundwater sampling events of 2019 for Chevron facility 96489, located at 1304 Airport Heights Drive Anchorage, Alaska (the site). A site location map and a site plan are shown as Figure 1 and Figure 2, respectively.

This work was conducted under the direction of a “qualified person” [18 AAC 75. 990 (100), and 18 AAC 78.995 (118)]. Site background and history summaries are attached as Appendix A.

2 GROUNDWATER MONITORING

2.1 Groundwater Gauging Methods

The 2019 first semi-annual groundwater gauging event was conducted on May 28, 2019. Site monitoring wells were gauged with an oil/water interface probe to determine depth-to-water and to ascertain if LNAPL was present. Wells were gauged and resurveyed on June 6, 2019.

In order to prevent the possibility of cross-contamination, wells were gauged in the order of lowest to highest historical petroleum hydrocarbon concentrations in groundwater. In addition, non-disposable groundwater gauging equipment was decontaminated prior to and after each use with a detergent solution and rinsed in potable water.

2.2 Groundwater Elevation and Flow Direction

During the 2019 first semi-annual event, monitoring wells MW-4, MW-5, MW-6, MW-7, MW-10, and MW-11 were scheduled to be gauged for groundwater elevations and the presence of LNAPL. The groundwater monitoring event field notes are presented in Appendix B.

The inferred groundwater flow direction for the first semi-annual 2019 monitoring events is to the northwest and is consistent with historical flow direction. Current and historical groundwater depth-to-water and elevation data are included in Table 1 and Table 2 respectively. A groundwater contour map is presented as Figure 3.

2.3 Groundwater Sampling Methods

The first semi-annual groundwater monitoring event was conducted on May 28, 2019. Groundwater samples were collected from monitoring wells MW-4, MW-5, MW-6, MW-7, MW-10, and MW-11 using a low flow purge sampling method.

Sampling procedures were conducted in accordance with ADEC *Field Sampling Guidance* (ADEC, 2017). Monitoring well caps were removed to allow groundwater levels to stabilize and equilibrate before using an electronic interface probe (EIP) meter capable of 0.01-foot accuracy to measure the depth to groundwater and total well depth. A bladder pump with compressor & control unit with clean/disposable Teflon lined tubing and bladders was used to purge groundwater from the wells and collect samples to minimize the risk of volatile contaminant absorption by the sampling equipment. Water table drawdown was continuously monitored during purging with a water level meter and the flow rate of the pump was adjusted to limit drawdown to 0.1 meter. The intake of the pump was set as close as possible to the soil groundwater interface. Water quality parameters were monitored during purging with a multi-parameter water quality meter equipped with a flow through cell and Turbidity meter. Parameters were recorded every 3 to 5 minutes until a minimum of three (minimum of four if using temperature as an indicator) of the parameters listed below stabilized. The flow rate was reduced to 100-150 ml/minute and samples were collected from the discharge line into laboratory sample bottles. Water quality parameters were considered stable when three successive readings were within the following ADEC limits:

- $\pm 3\%$ for temperature (minimum of $\pm 0.2\text{ C}^\circ$),
- ± 0.1 for pH,
- $\pm 3\%$ for conductivity,
- $\pm 10\text{ mv}$ for redox potential,
- $\pm 10\%$ for dissolved oxygen, and
- $\pm 10\%$ for turbidity.

Sample bottles were labeled, stored in a cooler packed with ice, and submitted to Eurofins Lancaster Laboratories Environmental (Eurofins) in Lancaster, Pennsylvania, under proper chain-of-custody procedures.

Groundwater samples collected from monitoring wells MW-4, MW-5, MW-6, MW-7, MW-10, and MW-11 were submitted to the analytical laboratory for the following analysis:

- Benzene, toluene, ethylbenzene, and xylenes (collectively BTEX) by United States Environmental Protection Agency (USEPA) Method 8260C

Groundwater sampled collected from monitoring wells MW-4, MW-7, MW-10, and MW-11 were submitted to the laboratory for the following additional analysis:

- Total petroleum hydrocarbons - Gasoline range organics (TPH-g) by Alaska method AK101

A groundwater duplicate sample was collected from monitoring wells MW-4. The duplicate sample was analyzed for BTEX and TPH-g. The duplicate samples were submitted blind with the sample set to Eurofins.

2.4 Groundwater Analytical Results

Routine analytical results for the above-mentioned constituents obtained from the 2019 first semi-annual groundwater monitoring event are summarized in Table 1 and are shown on Figure 4. Historical groundwater analytical data is summarized in Table 2. Historical groundwater analytical results for Polynuclear Aromatic Hydrocarbons (PAHs) analytical results are summarized in Table 3.

3 LABORATORY DATA QUALITY ASSURANCE SUMMARY

As required by ADEC (Technical Memorandum 06-002, dated March 2009), Arcadis completed a laboratory data review checklist for each of the laboratory reports generated for the 2019 first semi-annual event. The laboratory reports are included as Appendix C and data review checklists are included as Appendix D. The following quality assurance (QA) summary describes six parameters, related to the quality and usability of the data presented in this report.

3.1 Precision

The relative percent difference (RPD) for matrix spike/matrix spike duplicate (MS/MSD), laboratory control sample/laboratory control sample duplicate (LCS/LCSD) were within the control limits.

The compound TPH GRO C6-C10 was exceeded RPD limit in field duplicate (FD) pair MW-4-W-190528 / BD-1-WD-190528 and qualified as estimated (J).

The precision of the data, as measured by laboratory quality control (QC) indicators, suggest that the Data Quality Objectives (DQOs) were met.

3.2 Accuracy

The percent recoveries for LCS/LCSD and MS/MSD were within the control limits.

The accuracy of the data, as measured by laboratory quality control (QC) indicators, suggest that the DQOs were met.

3.3 Representativeness

The data appear to be representative of site conditions and are generally consistent with historical groundwater monitoring results and expected impacts to groundwater.

3.4 Comparability

The laboratory results are presented in the same units as previous reports to allow comparison.

3.5 Completeness

The results appear to be valid and usable, and thus, the laboratory results have 100% completeness.

3.6 Sensitivity

The sensitivity of the analyses was adequate for the samples as the detection limits were less than the ADEC GCLs for compounds.

4 CONCLUSIONS AND RECOMMENDATIONS

The groundwater data collected during the first semi-annual 2019 events indicate groundwater flow directions (west-northwest) are generally consistent with historical data. During the first semi-annual 2019 groundwater monitoring events, groundwater samples were collected for analysis from monitoring wells MW-4, MW-5, MW-6, MW-7, MW-10, and MW-11. Analytical results are generally consistent with historical data.

Groundwater monitoring will continue in accordance with the current semi-annual schedule. The second semi-annual sampling event of 2019 will be conducted in the fall of 2019.

5 REFERENCES

ADEC. *Field Sampling Guidance*. Division of Spill Prevention and Response Contaminated Sites Program. August, 2017.

ADEC Technical Memorandum, March, 2017. *Data Quality Objectives, Checklists, Quality Assurance Requirements for Laboratory Data, and Sample Handling*. ADEC, Division of Spill Prevention and Response Contaminated Sites Program.

TABLES



Table 1. Current Groundwater Gauging and Analytical Results

Chevron-Branded Service Station 96489

1304 Airport Heights Drive

Anchorage, Alaska

Well ID	Sample Date	TOC (ft)	Datum	DTW* (ft bTOC)	LNAPL thickness (ft)	GW Elev* (ft)	TPH-g (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)
ADEC Groundwater Cleanup Levels							2.2	0.0046	1.1	0.015	0.19
MW-4	5/28/2019	138.88	NAVD88	26.03	0.00	112.85	0.41 J [0.2 J]	0.007 [0.009]	<0.001B [$<0.001B$]	0.018 [0.022]	0.045 [0.056]
MW-5	5/28/2019	140.36	NAVD88	27.38	0.00	112.98	--	0.001 J	<0.001B	<0.0004	<0.001
MW-6	5/28/2019	140.01	NAVD88	26.62	0.00	113.39	--	0.003	<0.0002	<0.0004	<0.001
MW-7	5/28/2019	139.75	NAVD88	26.74	0.00	113.01	3.2	0.028	0.007	0.12	0.62 D
MW-10	5/28/2019	141.25	NAVD88	28.45	0.00	112.80	<0.014	<0.0002	<0.0002	<0.0004	<0.001
MW-11	5/28/2019	140.32	NAVD88	27.88	0.00	112.44	<0.014	<0.0002	<0.0002	<0.0004	<0.001

Notes:

MW = Groundwater monitoring well

TOC = Top of casing

DTW = Depth to groundwater

ft bTOC = Feet below top of casing

ft = Feet

GW Elev = Groundwater elevation

mg/L = Milligrams per liter

Bold = Value exceeds laboratory reporting limits

Bold and Shaded = Value exceeds ADEC Groundwater Cleanup Level

<0.0002 = Not detected at or above the method detection limit (MDL)

NAVD88 = North American Vertical Datum of 1988

ADEC = Alaska Department of Environmental Conservation

-- = Not Analyzed/Not Measured

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only

B = Compound considered non-detect at the listed value due to associated blank contamination.

D = The sample results reported from dilution.

* Depth to water updated from well survey dated June 6, 2019

[] = Duplicate Sample Result

TPH-g = Total petroleum hydrocarbons, gasoline range by LUFT GC/MS according to Alaska Method AK101

Samples analyzed by Method SW-846 8260C:

Benzene, toluene, ethylbenzene and total xylenes (collectively BTEX)

Table 2. Historical Groundwater Guaging and Analytical Results
 Chevron-Branded Service Station 96489
 1304 Airport Heights Drive
 Anchorage Alaska

Well ID	Sample Date	Screen Interval (ft bTOC)	TOC (ft)	DTW (ft bTOC)	LNAPL Thickness (ft)	GW Elev (ft)	TPH-g (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels							2.2	0.0046	1.1	0.015	0.19	0.14	
MW-4	7/3/1999	--	131.97	27.74	--	104.23	9.33	0.625	0.54	0.041	0.292	<0.04	
MW-4	10/12/1999	--	131.97	26.44	--	105.53	17.9	1.48	4.35	0.296	1.67	<0.125	
MW-4	5/22/2000	--	131.97	26.21	--	105.76	19.2 [9.57]	1.63 [0.809]	4.02 [1.83]	0.403 [0.0246]	1.89 [0.82]	<0.1 [<0.04]	
MW-4	9/20/2000	--	131.97	26.25	--	105.72	47.7	3.4	13.6	<0.25	6.86	<0.5	
MW-4	5/4/2001	--	131.97	26.90	--	105.07	9.32	0.63	2.28	0.202	0.904	<0.5	
MW-4	9/26/2001	--	131.97	26.90	--	105.07	9.16	0.539	2.39	0.181	0.684	<0.5	
MW-4	5/8/2002	--	131.98	--	--	--	--	--	--	--	--	--	
MW-4	10/2/2002	--	131.98	26.24	--	105.74	--	--	--	--	--	--	
MW-4	12/12/2002	--	131.98	25.68	--	106.30	5.2	0.25	1.8	0.29	0.89	0.002	
MW-4	6/5/2003	--	131.98	26.31	--	105.67	4.1	0.1	1.1	0.054	0.32	<0.002	
MW-4	10/2/2003	--	131.98	26.72	--	105.26	8.0	0.085	1.6	0.21	0.9	<0.002	
MW-4	06/08/2004	--	131.98	25.97	--	106.01	38.0 [25.0]	0.4 [0.24]	9.4 [5.4]	0.75 [0.44]	3.6 [2.1]	--	
MW-4	09/27/2004	--	131.98	26.55	--	105.43	4.6 [13.0]	0.079 [0.12]	1.8 [2.6]	0.26 [0.38]	0.91 [1.3]	--	
MW-4	05/10/2005	--	131.98	25.97	--	106.01	34.0	0.19	6.5	0.76	3.8	--	
MW-4	05/16/2005	--	131.98	26.38	--	105.60	17.0	0.072	2.9	0.48	2.4	--	
MW-4	09/22/2006	--	131.98	25.84	--	106.14	5.7	0.078	1.1	0.19	0.85	--	
MW-4	05/23/2007	--	131.98	26.11	--	105.87	3.8	0.03	0.7	0.1	0.7	--	
MW-4	09/21/2007	--	131.98	26.14	--	105.84	3.1	0.03	0.6	0.1	0.5	--	
MW-4	05/02/2008	--	131.98	26.18	--	105.80	0.914 [0.878]	0.0122 [0.0115]	0.152 [0.147]	0.0433 [0.0411]	0.197 [0.184]	--	
MW-4	07/14/2008	--	98.67	25.12	--	73.55	16.0 [14.0]	0.1 [0.03]	1.3 [1.0]	0.7 [0.5]	3.0 [2.6]	--	
MW-4	05/05/2009	--	98.67	25.51	--	73.16	8.0 [5.9]	0.092 [0.070]	0.84 [0.64]	0.40 [0.30]	1.9 [1.4]	--	
MW-4	08/28/2009	--	98.67	25.52	--	73.15	9.4 [7.8]	0.14 [0.11]	1.0 [0.86]	0.49 [0.42]	2.3 [1.9]	--	
MW-4	07/22/2010	--	98.67	25.75	--	72.92	0.035 J [0.038 J]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	0.0006 J [0.0006 J]	0.0030 J [0.0037 J]	--	
MW-4	09/05/2010	--	98.67	25.59	--	73.08	--	--	--	--	--	--	
MW-4	09/06/2010	--	--	--	--	--	0.77 J [0.54 J]	0.0069 J [0.0043 J]	0.017 J [0.0097 J]	0.036 J [0.023 J]	0.15 J [0.10 J]	--	
MW-4	06/09/2011	--	98.67	26.96	--	71.71	--	--	--	--	--	--	
MW-4	06/10/2011	--	--	--	--	--	0.37 [0.42]	0.013 [0.016]	0.0008 J [0.0009 J]	0.018 [0.021]	0.060 [0.065]	--	
MW-4	09/18/2011	--	98.67	26.50	--	72.17	0.58 [0.68]	0.016 [0.020]	0.0008 J [0.0014 J]	0.032 [0.041]	0.088 [0.11]	--	
MW-4	05/30/2012	--	98.67	25.99	--	72.68	0.80	0.025	0.0015 J	0.036	0.15	--	
MW-4	09/19/2012	--	98.67	26.31	--	72.36	0.14	0.0057	<0.0005	0.0094	0.023	--	
MW-4	05/16/2013	--	98.67	26.31	--	72.36	--	--	--	--	--	--	
MW-4	05/17/2013	--	--	--	--	--	2.0	0.042	0.0040	0.18	0.78	--	
MW-4	05/17/2013	--	--	--	--	--	0.11	0.0037	<0.00023	0.0022	0.0081	--	Sampled via Hydrasleeve
MW-4	09/16/2013	--	98.67	25.66	--	73.01	1.4	0.011	0.0011	0.054	0.22	--	
MW-4	05/05/2014	--	98.67	25.94	--	72.73	1.1	0.0091	0.0014	0.050	0.26	--	
MW-4	11/06/2014	--	98.67	25.95	--	72.72	2.1	0.012	0.0018	0.083	0.39	--	
MW-4	04/28/2015	--	98.67	26.91	--	71.76	0.66	0.0065	0.0008 J	0.026	0.096	<0.0040	
MW-4	11/11/2015	--	98.67	26.03	--	72.64	0.88	0.011	0.001	0.040	0.13	--	
MW-4	05/26/2016	--	98.67	26.63	--	72.04	0.12	0.003	<0.0005	0.004	0.010	--	
MW-4	10/20/2016	--	98.67	25.97	--	72.70	2.6	0.046	0.004	0.19	0.54	--	
MW-4	06/23/2017	--	98.67	26.04	--	72.63	1.5	0.028	0.001	0.07	0.21	--	
MW-4	10/11/17	--	98.67	26.84	--	71.83	7.8	0.18	0.009 J	0.60	1.9	--	
MW-4	05/22/2018	--	98.67	26.09	--	72.58	0.83 [0.76]	0.014 [0.015]	0.0008 J [0.0008 J]	0.031 [0.032]	0.099 [0.10]	<0.0005 [<0.0005]	
MW-4	10/17/2018	--	98.67	25.73	--	72.94	6.2	0.087	0.006 J	0.35	1.5	--	
MW-4	5/28/2019	--	138.88	26.03	0.00	112.85	0.41 J [0.2 J]	0.007 [0.009]	<0.001B [<0.001B]	0.018 [0.022]	0.045 [0.056]	--	
MW-5	07/03/1999	--	133.43	28.04	--	105.39	1.18	0.0063	0.0073	0.0122	0.0036	<0.002	
MW-5	10/12/1999	--	133.43	27.75	--	105.68	0.098 [0.103]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.005 [<0.005]	
MW-5	05/22/2000	--	133.43	27.50	--	105.93	<0.08	<0.0005	0.00175	<0.0005	<0.001	<0.002	
MW-5	09/20/2000	--	133.43	27.57	--	105.86	<0.05	<0.0002	<0.0005	<0.0005	<0.001	<0.001	
MW-5	05/04/2001	--	133.43	28.24	--	105.19	<0.05	0.000639	<0.0005	<0.0005	<0.001	<0.001	
MW-5	09/26/2001	--	133.43	--	--	--	--	--	--	--	--	--	

Table 2. Historical Groundwater Gauging and Analytical Results
Chevron-Branded Service Station 96489
1304 Airport Heights Drive
Anchorage Alaska

Well ID	Sample Date	Screen Interval (ft bTOC)	TOC (ft)	DTW (ft bTOC)	LNAPL Thickness (ft)	GW Elev (ft)	TPH-g (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels							2.2	0.0046	1.1	0.015	0.19	0.14	
MW-5	05/08/2002	--	133.54	28.60	--	104.94	<0.05 [<0.05]	<0.0002 [0.000405]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.001 [<0.0001]	<0.001 [<0.001]	
MW-5	10/02/2002	--	133.43	27.56	--	105.98	--	--	--	--	--	--	
MW-5	06/05/2003	--	133.44	27.68	--	105.76	0.012 [0.012]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.002 [<0.002]	
MW-5	10/02/2003	--	133.44	28.04	--	105.40	0.026 [0.037]	0.0005 [<0.0005]	0.0005 [<0.0005]	0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.002 [<0.002]	
MW-5	06/08/2004	--	133.44	27.26	--	106.18	0.027	0.005	<0.0005	<0.0005	<0.0005	--	
MW-5	09/27/2004	--	133.44	27.65	--	105.79	0.017	0.001	<0.0005	<0.0005	<0.0005	--	
MW-5	05/10/2005	--	133.44	27.30	--	106.14	0.035	0.0059	0.0005	<0.0002	<0.0006	--	
MW-5	09/27/2005	--	133.44	27.49	--	105.95	0.039	0.004	<0.0005	<0.0005	<0.0005	--	
MW-5	05/16/2006	--	133.44	27.67	--	105.77	0.068 [0.068]	0.013 [0.015]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.0015 [<0.0015]	--	
MW-5	09/22/2006	--	133.44	27.13	--	106.31	0.027	0.0094	<0.0005	<0.0005	<0.0015	--	
MW-5	05/23/2007	--	133.44	27.42	--	106.02	0.01	0.003	<0.001	<0.001	<0.002	--	
MW-5	09/21/2007	--	133.44	27.48	--	105.96	0.02	0.008	<0.001	<0.001	<0.002	--	
MW-5	05/02/2008	--	133.54	27.53	--	106.01	<0.05	0.00677	<0.0005	<0.0005	<0.0015	--	
MW-5	07/14/2008	--	100.17	26.51	--	73.66	0.08	0.03	<0.001	<0.001	<0.002	--	
MW-5	05/05/2009	--	100.17	26.83	--	73.34	0.039	0.014	<0.0005	<0.0005	<0.0015	--	
MW-5	08/28/2009	--	100.17	26.81	--	73.36	0.063 J	0.018	<0.0005	<0.0005	<0.0015	--	
MW-5	07/22/2010	--	100.17	27.15	--	73.02	0.081 J	0.020	<0.0005	<0.0005	<0.0015	--	
MW-5	09/05/2010	--	100.17	26.95	--	73.22	0.13	0.042	<0.0005	<0.0005	<0.0015	--	
MW-5	06/09/2011	--	100.17	28.30	--	71.87	--	--	--	--	--	--	
MW-5	06/10/2011	--	--	--	--	--	0.025 J	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-5	09/18/2011	--	100.17	27.88	--	72.29	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-5	05/30/2012	--	100.17	27.31	--	72.86	0.047 J	0.0046	<0.0005	<0.0005	<0.0015	--	
MW-5	09/19/2012	--	100.17	27.66	--	72.51	<0.010	0.0012 J	<0.0005	<0.0005	<0.0015	--	
MW-5	05/16/2013	--	100.17	27.70	--	72.47	--	--	--	--	--	--	
MW-5	05/17/2013	--	--	--	--	--	<0.050	0.00050 J	<0.00023	<0.00024	<0.00072	--	
MW-5	05/17/2013	--	--	--	--	--	<0.050	0.00033 J	<0.00023	<0.00024	<0.00072	--	
MW-5	09/16/2013	--	100.17	26.98	--	73.19	<0.050	0.00035 J	<0.00023	<0.00024	<0.00072	--	
MW-5	05/05/2014	--	100.17	27.29	--	72.88	<0.050	<0.00015	<0.00011	<0.00016	<0.00040	--	
MW-5	11/06/2014	--	100.17	27.24	--	72.93	<0.050	0.00048 J	<0.00011 J	<0.00016	<0.00040	--	
MW-5	04/28/2015	--	100.17	28.28	--	71.89	<0.010 [0.021 J]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.0015 [<0.0015]	<0.0025 [<0.0025]	
MW-5	11/11/2015	--	100.17	27.36	--	72.81	0.047 J	0.001	<0.0005	<0.0005	<0.0005	--	
MW-5	05/26/2016	--	100.17	28.02	--	72.15	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-5	10/20/2016	--	100.17	27.32	--	72.85	0.034 J	0.002	<0.0005	<0.0005	<0.0005	--	
MW-5	06/23/2017	--	100.17	27.23	--	72.94	0.023 J	0.001	<0.0005	<0.0005	<0.0005	--	
MW-5	10/11/2017	--	100.17	27.20	--	72.97	0.048 J	0.002	<0.0005	<0.0005	<0.0005	--	
MW-5	05/22/2018	--	100.17	27.45	--	72.72	--	0.001	<0.0005	<0.0005	<0.0005	<0.0005	
MW-5	10/17/2018	--	100.17	27.02	--	73.15	--	0.002	0.0003 J	<0.0002	<0.0005	--	
MW-5	5/28/2019	--	140.36	27.38	0.00	112.98	--	0.001 J	<0.001B	<0.0004	<0.001	--	
MW-6	07/03/1999	--	133.12	27.36	--	105.76	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	
MW-6	10/12/1999	--	133.12	27.04	--	106.08	0.266	0.053	<0.0005	<0.0005	<0.0005	<0.005	
MW-6	05/22/2000	--	133.12	26.79	--	106.33	<0.08	<0.0005	<0.0005	<0.0005	0.00147	<0.002	
MW-6	09/20/2000	--	133.12	26.86	--	106.26	<0.05	<0.0002	<0.0005	<0.0005	<0.001	<0.001	
MW-6	05/04/2001	--	133.12	27.54	--	105.58	<0.05	0.0167	<0.0005	<0.0005	<0.001	<0.001	
MW-6	09/26/2001	--	133.12	27.51	--	105.61	0.211	0.0694	<0.0005	<0.0005	<0.001	0.00246	
MW-6	05/08/2002	--	133.11	27.91	--	105.20	0.0961	0.0367	<0.0005	<0.0005	<0.001	<0.001	
MW-6	10/02/2002	--	133.11	26.84	--	106.27	--	--	--	--	--	--	
MW-6	12/12/2002	--	133.11	26.19	--	106.92	0.16	0.068	<0.0005	<0.0005	<0.0005	<0.0005	
MW-6	06/05/2003	--	133.11	26.93	--	106.18	0.026	0.008	<0.0005	<0.0005	<0.0005	<0.002	

Table 2. Historical Groundwater Guaging and Analytical Results
 Chevron-Branded Service Station 96489
 1304 Airport Heights Drive
 Anchorage Alaska

Well ID	Sample Date	Screen Interval (ft bTOC)	TOC (ft)	DTW (ft bTOC)	LNAPL Thickness (ft)	GW Elev (ft)	TPH-g (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels							2.2	0.0046	1.1	0.015	0.19	0.14	
MW-6	10/02/2003	--	133.11	27.33	--	105.78	0.095	0.043	<0.0005	<0.0005	<0.0005	<0.002	
MW-6	06/08/2004	--	133.11	26.52	--	106.59	0.21	0.14	<0.0005	<0.0005	<0.0005	--	
MW-6	09/27/2004	--	133.11	27.02	--	106.09	0.048	0.018	<0.0005	<0.0005	<0.0005	--	
MW-6	05/10/2005	--	133.11	26.56	--	106.55	0.3	0.086	<0.0002	<0.0002	<0.0006	--	
MW-6	09/27/2005	--	133.11	26.76	--	106.35	0.24	0.14	<0.0005	<0.0005	<0.0005	--	
MW-6	05/16/2006	--	133.11	27.02	--	106.09	0.24	0.079	<0.0005	<0.0005	<0.0015	--	
MW-6	09/22/2006	--	133.11	26.41	--	106.70	0.13	0.044	<0.0005	<0.0005	<0.0015	--	
MW-6	05/23/2007	--	133.11	26.73	--	106.38	0.04	0.02	<0.001	<0.001	<0.002	--	
MW-6	09/21/2007	--	133.11	26.81	--	106.30	0.07 [0.07]	0.03 [0.03]	<0.001 [<0.001]	<0.001 [<0.001]	<0.002 [<0.002]	--	
MW-6	05/02/2008	--	133.11	26.84	--	106.27	<0.05	0.018	<0.0005	<0.0005	<0.0015	--	
MW-6	07/14/2008	--	99.81	25.80	--	74.01	0.2	0.08	<0.001	<0.001	<0.002	--	
MW-6	05/05/2009	--	99.81	26.04	--	73.77	0.088	0.036	<0.0005	<0.0005	<0.0015	--	
MW-6	08/28/2009	--	99.81	26.12	--	73.69	0.36	0.11	<0.0005	<0.0005	<0.0015	--	
MW-6	07/22/2010	--	99.81	26.51	--	73.30	0.12	0.0066	<0.0005	<0.0005	<0.0015	--	
MW-6	09/05/2010	--	99.81	26.31	--	73.50	0.24	0.021	<0.0005	<0.0005	<0.0015	--	
MW-6	06/09/2011	--	99.81	27.57	--	72.24	--	--	--	--	--	--	
MW-6	06/10/2011	--	--	--	--	--	0.13	0.0084	<0.0005	<0.0005	<0.0015	--	
MW-6	09/18/2011	--	99.81	27.16	--	72.65	0.22	0.0057	<0.0005	<0.0005	<0.0015	--	
MW-6	05/30/2012	--	99.81	26.51	--	73.30	0.17	0.012	<0.0005	<0.0005	<0.0015	--	
MW-6	09/19/2012	--	99.81	26.91	--	72.90	0.41	0.031	<0.0005	<0.0005	<0.0015	--	
MW-6	05/16/2013	--	99.81	26.91	--	72.90	--	--	--	--	--	--	
MW-6	05/17/2013	--	--	--	--	--	<0.050	0.0027	<0.00023	<0.00024	<0.00072	--	
MW-6	05/17/2013	--	--	--	--	--	0.058 J	0.0054	<0.00023	<0.00024	<0.00072	--	Sampled via Hydrosleeve
MW-6	09/16/2013	--	99.81	26.25	--	73.56	0.16 J [1.2 J]	0.0028 J [0.023 J]	<0.00023 J [0.0020 J]	<0.00024 J [0.095 J]	<0.00072 J [0.38 J]	--	
MW-6	05/05/2014	--	99.81	26.49	--	73.32	<0.050	0.00074 J	<0.00011	<0.00016	<0.00040	--	
MW-6	11/06/2014	--	99.81	26.51	--	73.30	0.34 [0.32]	0.0019 [0.0020]	0.00044 J [-0.00049]	0.0069/0.0071	0.074 [0.076]	--	
MW-6	04/28/2015	--	99.81	27.56	--	72.25	0.052 J	0.0017 J	<0.0005	<0.0005	<0.0015	<0.0025	
MW-6	11/11/2015	--	99.81	26.61	--	73.20	0.093 J [0.091 J]	0.008 [0.008]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	--	
MW-7	05/26/2016	--	99.81	27.21	--	72.60	0.039 J [0.023 J]	0.002 [0.002]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	--	
MW-6	10/20/2016	--	99.81	26.57	--	73.24	0.12 [0.12]	0.005 [0.005]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	0.0007 J [0.0007 J]	--	
MW-6	06/23/2017	--	99.81	26.70	--	73.11	0.063 J [0.067 J]	0.004 [0.004]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	--	
MW-6	10/11/2017	--	99.81	26.50	--	73.31	0.13 [0.13]	0.006 [0.006]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	--	
MW-6	05/22/2018	--	99.81	26.75	--	73.06	--	0.002	<0.0005	<0.0005	<0.0005	<0.0005	
MW-6	10/17/2018	--	99.81	26.41	--	73.40	--	0.005	<0.0002	<0.0002	<0.0005	--	
MW-6	5/28/2019	--	140.01	26.41	0.00	113.39	--	0.003	<0.0002	<0.0004	<0.001	--	
MW-7	07/03/1999	--	132.95	27.42	--	105.53	20.1	0.627	2.82	0.507	2.42	<0.2	
MW-7	10/12/1999	--	132.95	27.18	--	105.77	22.2	1.24	4.98	0.452	2.74	<0.25	
MW-7	05/22/2000	--	132.95	26.94	--	106.01	29.1	1.25	5.71	0.504	3.06	<0.2	
MW-7	09/20/2000	--	132.95	26.99	--	105.96	33.2 [24.6]	1.5 [1.44]	8.52 [5.33]	0.873 [<0.1]	5.04 [4.94]	<0.1 [<0.2]	
MW-7	05/04/2001	--	132.95	27.65	--	105.30	6.04	0.222	0.841	0.122	0.488	<0.005	
MW-7	09/26/2001	--	132.95	27.60	--	105.35	8.4	0.254	1.76	0.214	1.43	<0.01	
MW-7	05/08/2002	--	132.85	27.98	--	104.87	28.1	0.48	5.24	0.573	4.31	<0.025	
MW-7	10/02/2002	--	132.85	26.96	--	105.89	--	--	--	--	--	--	
MW-7	12/12/2002	--	132.84	26.37	--	106.47	4.9 [12.0]	0.024 [0.32]	3.9 [4.3]	0.39 [0.48]	2.2 [2.6]	0.5 [<0.001]	
MW-7	06/05/2003	--	132.84	27.04	--	105.80	0.83	0.012	0.14	0.017	0.13	<0.002	
MW-7	10/02/2003	--	132.84	27.45	--	105.39	14.0	0.086	1.5	0.28	1.6	<0.002	
MW-7	06/08/2004	--	132.84	26.65	--	106.19	73.0	0.53	15.0	2.0	12.0	--	
MW-7	09/27/2004	--	132.84	27.11	--	105.73	8.7	0.066	2.3	0.31	1.7	--	
MW-7	05/10/2005	--	132.84	26.65	--	106.19	26.0	0.11	4.2	0.63	3.7	--	
MW-7	09/27/2005	--	132.84	27.15	--	105.69	9.6	0.088	1.3	0.22	1.6	--	
MW-7	05/16/2006	--	132.84	27.09	--	105.75	12.0	0.11	1.6	0.35	2.0	--	

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Well ID	Sample Date	Screen Interval (ft bTOC)	TOC (ft)	DTW (ft bTOC)	LNAPL Thickness (ft)	GW Elev (ft)	TPH-g (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels							2.2	0.0046	1.1	0.015	0.19	0.14	
MW-7	09/22/2006	--	132.84	26.52	--	106.32	6.0 [5.9]	0.11 [0.12]	0.77 [0.78]	0.17 [0.17]	1.1 [1.1]	--	
MW-7	05/23/2007	--	132.84	26.81	--	106.03	4.9 [2.2]	0.09 [0.04]	0.6 [0.3]	0.2 [0.08]	1.1 [0.4]	--	
MW-7	09/21/2007	--	132.84	26.83	--	106.01	0.9	0.03	0.1	0.03	0.2	--	
MW-7	05/02/2008	--	132.85	26.93	--	105.92	20.4	0.415	3.05	0.786	4.36	--	
MW-7	07/14/2008	--	99.54	25.86	--	73.68	8.2	0.04	0.02	0.5	1.8	--	
MW-7	05/05/2009	--	99.54	26.21	--	73.33	5.3	0.19	0.52	0.26	1.2	--	
MW-7	08/28/2009	--	99.54	26.21	--	73.33	11	0.35	0.63	0.56	3.0	--	
MW-7	07/22/2010	--	99.54	26.52	--	--	3.5	0.063	0.19	0.12	1.2	--	
MW-7	09/05/2010	--	99.54	26.35	--	73.19	3.0	0.044	0.13	0.091	0.73	--	
MW-7	06/09/2011	--	99.54	27.70	--	--	--	--	--	--	--	--	
MW-7	06/10/2011	--	--	--	--	--	0.86	0.014	0.022	0.039	0.26	--	
MW-7	09/18/2011	--	99.54	27.24	--	72.30	0.84	0.012	0.013	0.031	0.24	--	
MW-7	05/30/2012	--	99.54	26.68	--	72.86	0.16 J [0.49 J]	0.0019 J [0.0037 J]	0.0005 J [0.0029 J]	0.0033 J [0.012 J]	0.035 J [0.11 J]	--	
MW-7	09/19/2012	--	99.54	27.04	--	72.50	0.041 J [0.039 J]	0.0007 J [0.0008 J]	<0.0005 [<0.0005]	0.0013 J [0.0015 J]	0.010 [0.012]	--	
MW-7	05/16/2013	--	99.54	27.01	--	72.53	--	--	--	--	--	--	
MW-7	05/17/2013	--	--	--	--	--	0.41 [0.54]	0.0054 [0.0042]	0.0017 [0.0016]	0.025 [0.023]	0.15 [0.14]	--	
MW-7	05/17/2013	--	--	--	--	--	0.55 [0.52]	0.0034 [0.0033]	0.0014 [0.0020]	0.018 [0.021]	0.18 [0.21]	--	Sampled via Hydrasleeve
MW-7	09/16/2013	--	99.54	26.37	--	73.17	0.57	0.0022	0.00087 J	0.010	0.094	--	
MW-7	05/05/2014	--	99.54	26.65	--	72.89	2.6 [2.3]	0.015 [0.014]	0.0062 [0.0058]	0.10 [0.10]	0.51 [0.51]	--	
MW-7	11/06/2014	--	99.54	26.65	--	72.89	1.9 J	0.0067	0.0034	0.052	0.29	--	
MW-7	04/28/2015	--	99.54	27.65	--	71.89	0.65	0.0041	0.0013 J	0.028	0.12	<0.0036	
MW-7	11/11/2015	--	99.54	26.72	--	72.82	0.94	0.006	0.002	0.034	0.22	--	
MW-7	05/26/2016	--	99.54	27.36	--	72.18	0.52	0.002	0.0006 J	0.023	0.11	--	
MW-7	10/20/2016	--	99.54	26.70	--	72.84	1.9	0.018	0.003	0.065	0.35	--	
MW-7	06/23/2017	--	99.54	26.78	--	72.76	2.7	0.017	0.007	0.13	0.71	--	
MW-7	10/11/2017	--	99.54	26.58	--	72.96	1.5	0.018	0.004	0.083	0.47	--	
MW-7	05/22/2018	--	99.54	26.81	--	72.73	2.4	0.019	0.008	0.12	0.59	<0.0005	
MW-7	10/17/2018	--	99.54	26.49	--	73.05	6.0 [5.8]	0.055 [0.052]	0.019 [0.017 J]	0.30 [0.27]	1.8 [1.7]	--	
MW-7	5/28/2019	--	99.54	26.62	0.00	113.01	3.2	0.028	0.007	0.12	0.62 D	--	
MW-8	09/20/2000	--	--	25.46	--	--	<0.05	<0.0002	<0.0005	<0.0005	<0.001	<0.001	
MW-8	05/04/2001	--	--	--	--	--	--	--	--	--	--	--	
MW-8	06/25/2001	--	--	--	--	--	<0.05	0.000224	<0.0005	<0.0005	<0.001	<0.001	
MW-8	09/26/2001	--	--	26.00	--	--	<0.05 [<0.05]	<0.0002 [<0.0002]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.001 [<0.001]	<0.001 [<0.001]	
MW-8	05/08/2002	--	129.94	--	--	--	--	--	--	--	--	--	
MW-8	10/02/2002	--	129.94	--	--	--	--	--	--	--	--	--	
MW-8	12/12/2002	--	129.95	24.94	--	105.01	0.029	<0.0005	<0.0005	<0.0005	<0.0005	0.055	
MW-8	06/05/2003	--	129.95	--	--	--	--	--	--	--	--	--	
MW-8	10/02/2003	--	129.95	--	--	--	--	--	--	--	--	--	
MW-8	06/08/2004	--	129.95	--	--	--	--	--	--	--	--	--	
MW-8	09/27/2004	--	129.95	--	--	--	--	--	--	--	--	--	
MW-8	05/10/2005	--	129.95	25.18	--	104.77	<0.01 [<0.01]	<0.0002 [<0.0002]	0.0003 [<0.0002]	<0.0002 [<0.0002]	<0.0006 [<0.0006]	--	
MW-8	09/27/2005	--	129.95	25.35	--	104.60	<0.01 [<0.01]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	<0.0005 [<0.0005]	--	
MW-8	05/16/2006	--	129.95	--	--	--	--	--	--	--	--	--	
MW-8	09/22/2006	--	129.95	24.99	--	104.96	<0.01	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-8	05/23/2007	--	129.95	--	--	--	--	--	--	--	--	--	
MW-8	09/21/2007	--	129.95	25.36	--	104.59	<0.01	<0.001	<0.001	<0.001	<0.002	--	
MW-8	05/02/2008	--	129.94	--	--	--	--	--	--	--	--	--	
MW-8	07/14/2008	--	97.04	--	--	--	--	--	--	--	--	--	
MW-8	05/05/2009	--	97.04	--	0.00	--	--	--	--	--	--	--	
MW-9	12/12/2002	--	132.96	26.32	--	106.64	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	

Table 2. Historical Groundwater Gauging and Analytical Results
 Chevron-Branded Service Station 96489
 1304 Airport Heights Drive
 Anchorage Alaska

Well ID	Sample Date	Screen Interval (ft bTOC)	TOC (ft)	DTW (ft bTOC)	LNAPL Thickness (ft)	GW Elev (ft)	TPH-g (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels							2.2	0.0046	1.1	0.015	0.19	0.14	
MW-9	06/05/2003	--	132.96	--	--	--	--	--	--	--	--	--	
MW-9	10/02/2003	--	132.96	--	--	--	--	--	--	--	--	--	
MW-9	06/08/2004	--	132.96	26.71	--	106.25	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-9	09/27/2004	--	132.96	--	--	--	--	--	--	--	--	--	
MW-9	05/10/2005	--	132.96	--	--	--	--	--	--	--	--	--	
MW-9	09/27/2005	--	132.96	--	--	--	--	--	--	--	--	--	
MW-9	05/16/2006	--	132.96	--	--	--	--	--	--	--	--	--	
MW-9	09/22/2006	--	132.96	--	--	--	--	--	--	--	--	--	
MW-9	05/23/2007	--	132.96	26.86	--	106.10	<0.01	<0.001	<0.001	<0.001	<0.002	--	
MW-9	09/21/2007	--	132.96	26.93	--	106.03	<0.01	<0.001	<0.001	<0.001	<0.002	--	
MW-9	05/02/2008	--	132.96	27.00	--	105.96	<0.05	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-9	07/14/2008	--	99.67	26.00	--	73.67	<0.01	<0.001	<0.001	<0.001	<0.002	--	
MW-9	05/14/2009	--	99.67	26.19	--	73.48	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-10	10/02/2003	--	132.15	28.19	--	103.96	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	<0.002	
MW-10	06/08/2004	--	132.15	28.45	--	103.70	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-10	09/27/2004	--	132.15	26.91	--	105.24	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-10	05/10/2005	--	132.15	28.57	--	103.58	<0.01	<0.0002	<0.0002	<0.0002	<0.0002	--	
MW-10	09/27/2005	--	132.15	28.65	--	103.50	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-10	05/16/2006	--	132.15	28.84	--	103.31	<0.01	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-10	09/22/2006	--	132.15	28.33	--	103.82	<0.01	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-10	05/23/2007	--	132.15	28.58	--	103.57	<0.01	<0.001	<0.001	<0.001	<0.002	--	
MW-10	09/21/2007	--	132.15	28.60	--	103.55	<0.01	<0.001	<0.001	<0.001	<0.002	--	
MW-10	05/02/2008	--	132.15	28.62	--	103.53	<0.05	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-10	07/14/2008	--	101.07	27.46	--	73.61	<0.01	<0.001	<0.001	<0.001	<0.002	--	
MW-10	05/05/2009	--	101.07	27.97	--	73.10	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-10	08/28/2009	--	101.07	27.98	--	73.09	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-10	07/22/2010	--	101.07	28.18	--	72.89	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-10	09/05/2010	--	101.07	28.03	--	73.04	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-10	06/09/2011	--	101.07	29.39	--	71.68	--	--	--	--	--	--	
MW-10	06/10/2011	--	--	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-10	09/18/2011	--	101.07	28.94	--	72.13	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-10	05/30/2012	--	101.07	28.45	--	72.62	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-10	09/19/2012	--	101.07	28.77	--	72.30	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-10	05/16/2013	--	101.07	28.43	--	72.64	--	--	--	--	--	--	
MW-10	05/17/2013	--	--	--	--	--	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	--	
MW-10	05/17/2013	--	--	--	--	--	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	--	Sampled via Hydrasleeve
MW-10	09/16/2013	--	101.07	28.11	--	72.96	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	--	
MW-10	05/05/2014	--	101.07	28.36	--	72.71	<0.050	<0.00015	<0.00011	<0.00016	<0.00040	--	
MW-10	11/06/2014	--	101.07	28.42	--	72.65	<0.050	<0.00015	<0.00011	<0.00016	<0.00040	--	
MW-10	04/28/2015	--	101.07	29.34	--	71.73	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	<0.0025	
MW-10	11/11/2015	--	101.07	--	--	--	--	--	--	--	--	--	
MW-10	05/26/2016	--	101.07	29.03	--	72.04	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-10	10/20/2016	--	101.07	28.42	--	72.65	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-10	06/23/2017	--	101.07	28.46	--	72.61	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-10	10/11/2017	--	101.07	28.27	--	72.80	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-10	05/22/2018	--	101.07	28.52	--	72.55	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
MW-10	10/17/2018	--	101.07	28.20	--	72.87	<0.014	<0.0002	<0.0002	<0.0002	<0.0005	--	
MW-10	5/28/2019	--	141.25	26.74	0.00	112.8	<0.014	<0.0002	<0.0002	<0.0004	<0.001	--	
MW-11	09/22/2006	--	133.42	27.74	--	105.68	<0.01	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-11	05/23/2007	--	133.42	27.98	--	105.44	<0.01	<0.001	<0.001	<0.001	<0.002	--	

Table 2. Historical Groundwater Guaging and Analytical Results
 Chevron-Branded Service Station 96489
 1304 Airport Heights Drive
 Anchorage Alaska

Well ID	Sample Date	Screen Interval (ft bTOC)	TOC (ft)	DTW (ft bTOC)	LNAPL Thickness (ft)	GW Elev (ft)	TPH-g (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels							2.2	0.0046	1.1	0.015	0.19	0.14	
MW-11	09/21/2007	--	133.42	28.01	--	105.41	<0.01	<0.001	<0.001	<0.001	<0.002	--	
MW-11	05/02/2008	--	133.42	28.02	--	105.40	<0.05	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-11	07/14/2008	--	100.14	26.87	--	73.27	<0.01	<0.001	<0.001	<0.001	<0.002	--	
MW-11	05/05/2009	--	100.14	27.42	--	72.72	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-11	08/28/2009	--	100.14	27.41	--	72.73	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-11	07/22/2010	--	100.14	27.45	--	72.69	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-11	09/05/2010	--	100.14	27.34	--	72.80	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-11	06/09/2011	--	100.14	28.81	--	71.33	--	--	--	--	--	--	
MW-11	06/10/2011	--	--	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-11	09/18/2011	--	100.14	28.33	--	71.81	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-11	05/30/2012	--	100.14	27.96	--	72.18	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-11	09/19/2012	--	100.14	28.23	--	71.91	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
MW-11	05/16/2013	--	100.14	28.19	--	71.95	--	--	--	--	--	--	
MW-11	05/17/2013	--	--	--	--	--	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	--	
MW-11	05/17/2013	--	--	--	--	--	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	--	Sampled via Hydrasleeve
MW-11	09/16/2013	--	100.14	27.55	--	72.59	<0.050	<0.00024	<0.00023	<0.00024	<0.00072	--	
MW-11	05/05/2014	--	100.14	27.84	--	72.3	<0.050	<0.00015	<0.00011	<0.00016	<0.00040	--	
MW-11	11/06/2014	--	100.14	27.88	--	72.26	<0.050	<0.00015	<0.00011	<0.00016	<0.00040	--	
MW-11	04/28/2015	--	100.14	28.77	--	71.37	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	<0.0025	
MW-11	11/11/2015	--	100.14	27.18	--	72.96	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-11	05/26/2016	--	100.14	28.49	--	71.65	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-11	10/20/2016	--	100.14	27.84	--	72.30	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-11	06/23/2017	--	100.14	27.87	--	72.27	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-11	10/11/2017	--	100.14	27.67	--	72.47	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--	
MW-11	05/22/2018	--	100.14	27.90	--	72.24	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
MW-11	10/17/2018	--	100.14	27.58	--	72.56	<0.014	<0.0002	<0.0002	<0.0002	<0.0005	--	
MW-11	5/28/2019	--	140.32	27.88	0.00	112.44	<0.014	<0.0002	<0.0002	<0.0004	<0.001	--	
Trip Blank	10/12/1999	--	--	--	--	--	<0.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.005	
Trip Blank	05/22/2000	--	--	--	--	--	<0.08	<0.0005	<0.0005	<0.0005	<0.001	<0.002	
Trip Blank	09/20/2000	--	--	--	--	--	<0.05	<0.0002	<0.0005	<0.0005	<0.001	<0.001	
Trip Blank	05/04/2001	--	--	--	--	--	<0.05	-	-	-	-	<0.005	
Trip Blank	06/25/2001	--	--	--	--	--	<0.05	<0.0002	<0.0005	<0.0005	1.19	<0.001	
Trip Blank	09/26/2001	--	--	--	--	--	<0.05	<0.0002	<0.0005	<0.0005	<0.001	<0.001	
Trip Blank	05/08/2002	--	--	--	--	--	<0.05	<0.0002	<0.0005	<0.0005	<0.001	<0.001	
Trip Blank	12/12/2002	--	--	--	--	--	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Trip Blank	06/05/2003	--	--	--	--	--	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002
Trip Blank	10/02/2003	--	--	--	--	--	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002
Trip Blank	06/08/2004	--	--	--	--	--	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	--	
Trip Blank	09/27/2004	--	--	--	--	--	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	--	
Trip Blank	05/10/2005	--	--	--	--	--	<0.01	<0.0005	<0.0002	<0.0002	<0.0006	--	
Trip Blank	09/27/2005	--	--	--	--	--	<0.01	<0.0005	<0.0005	<0.0005	<0.0005	--	
Trip Blank	05/16/2006	--	--	--	--	--	<0.01	<0.0005	<0.0005	<0.0005	<0.0015	--	
Trip Blank	09/24/2006	--	--	--	--	--	<0.01	<0.0005	<0.0005	<0.0005	<0.0015	--	
Trip Blank	05/23/2007	--	--	--	--	--	<0.01	<0.001	<0.001	<0.001	<0.002	--	
Trip Blank	09/21/2007	--	--	--	--	--	<0.01	<0.001	<0.001	<0.001	<0.002	--	
Trip Blank	05/02/2008	--	--	--	--	--	<0.05	<0.0005	<0.0005	<0.0005	<0.0015	--	
Trip Blank	07/14/2008	--	--	--	--	--	<0.01	<0.001	<0.001	<0.001	<0.002	--	
Trip Blank	04/29/2009	--	--	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
Trip Blank	08/19/2009	--	--	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
Trip Blank	07/22/2010	--	--	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
Trip Blank	08/27/2010	--	--	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	

Table 2. Historical Groundwater Gauging and Analytical Results
 Chevron-Branded Service Station 96489
 1304 Airport Heights Drive
 Anchorage Alaska

Well ID	Sample Date	Screen Interval (ft bTOC)	TOC (ft)	DTW (ft bTOC)	LNAPL Thickness (ft)	GW Elev (ft)	TPH-g (mg/L)	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Total Xylenes (mg/L)	MTBE (mg/L)	Comments
ADEC Groundwater Cleanup Levels							2.2	0.0046	1.1	0.015	0.19	0.14	
Trip Blank	06/10/2011	--	--	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
Trip Blank	09/07/2011	--	--	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
Trip Blank	05/30/2012	--	--	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
Trip Blank	09/19/2012	--	--	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	--	
Trip Blank	05/17/2013	--	--	--	--	--	-	<0.00024	<0.00023	<0.00024	<0.00072	--	
Trip Blank	05/05/2014	--	--	--	--	--	<0.050	<0.00015	<0.00011	<0.00016	<0.00040	--	
Trip Blank	11/06/2014	--	--	--	--	--	<0.050	<0.00015	0.00020 J	<0.00016	<0.00040	--	
Trip Blank	04/28/2015	--	--	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0015	<0.0025	
Trip Blank	11/11/2015	--	--	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--	
Trip Blank	05/26/2016	--	--	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--	
Trip Blank	10/20/2016	--	--	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--	
Trip Blank	06/23/2017	--	--	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--	
Trip Blank	10/11/2017	--	--	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	--	
Trip Blank	05/22/2018	--	--	--	--	--	<0.010	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Trip Blank	10/17/2018	--	--	--	--	--	<0.014	<0.0002	<0.0002	<0.0002	<0.0005	--	

Notes

ID = Identification

MW = Groundwater monitoring well

TOC = Top of casing

DTW = Depth to groundwater

ft bTOC = Feet below top of casing

ft = Feet

GW Elev = Groundwater elevation

mg/L = Milligrams per liter

<0.0002 = Not detected at or above the method detection limit (MDL)

Bold and Shaded = Value exceeds ADEC Groundwater Cleanup Level

Bold = Value exceeds MDL

LNAPL = Light Non-Aqueous Phase Liquid

[] = Duplicate sample result

NADV88 = North American Vertical Datum of 1988

-- = Not Analyzed

TPH-g = Total petroleum hydrocarbons, gasoline range by LUFT GC/MS according to Alaska Method AK101

Samples analyzed by Method SW-846 8260C:

Benzene, toluene, ethylbenzene and total xylenes (collectively BTEX)

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only

B = Compound considered non-detect at the listed value due to associated blank contamination.

D = The sample results reported from dilution.

ADEC = Alaska Department of Environmental Conservation

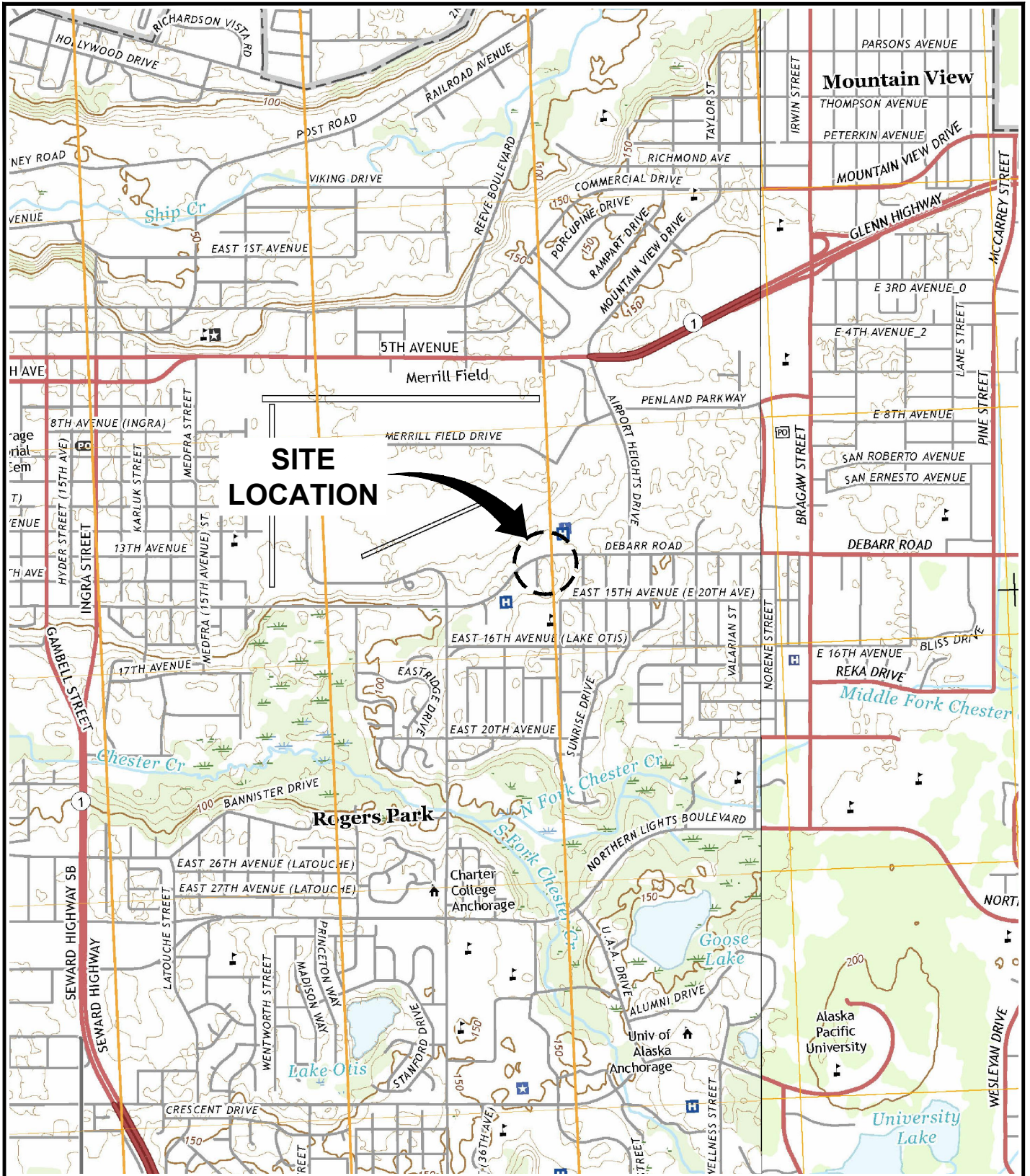
Table 3: Historical Groundwater Analytical Results- Polynuclear Aromatic Hydrocarbons (PAHs)
Chevron-Branded Service Station 96489
1304 Airport Heights Drive
Anchorage Alaska

Well ID	Sample Date	Acenaphthene (mg/L)	Acenaphthylene (mg/L)	Anthracene (mg/L)	Benzo(a)anthracene (mg/L)	Benzo(a)pyrene (mg/L)	Benzo(b)fluoranthene (mg/L)	Benzo(g,h,i)perylene (mg/L)	Benzo(k)fluoranthene (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)	Phenanthrene (mg/L)	Pyrene (mg/L)
ADEC Groundwater Cleanup Levels		0.53	0.26	0.043	0.00012	0.00034	0.00034	0.00026	0.00060	0.002	0.00034	0.26	0.29	0.00019	0.0017	0.17	0.12
MW-4	07/22/2010	<0.00010 [-0.000010]	<0.00010 [-0.000010]	<0.00010 [-0.000010]	<0.00010 [-0.000010]	<0.00010 [-0.000010]	<0.00010 [-0.000010]	<0.00010 [-0.000010]	<0.00010 [-0.000010]	<0.00010 [-0.000010]	<0.00010 [-0.000010]	<0.00010 [-0.000010]	<0.00010 [-0.000010]	<0.00010 [-0.000010]	0.00095 J [0.0041 J]	<0.00010 [0.000013 J]	<0.00010 [-0.000010]
MW-4	05/22/2018	<0.00009 [0.00001 J]	<0.00009 [-0.00001]	<0.00009 [-0.00001]	<0.00009 [-0.00001]	<0.00009 [-0.00001]	<0.00009 [-0.00001]	<0.00009 [-0.00001]	<0.00009 [-0.00001]	<0.00009 [-0.00001]	<0.00009 [-0.00001]	<0.00009 [-0.00001]	<0.00009 [-0.00001]	<0.00009 [-0.00001]	0.005 [0.007]	<0.00003 [-0.00003]	<0.00002 [-0.00002]
MW-5	05/22/2018	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00003	<0.00003	<0.00002
MW-6	05/22/2018	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00003	<0.00003	<0.00002
MW-7	07/22/2010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
MW-7	05/30/2012	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-7	05/22/2018	<0.00001	<0.00001	<0.00001	<0.00001	0.00002 J	0.00002 J	0.00003 J	0.00002 J	<0.00001	0.00003 J	<0.00001	0.00001 J	0.00003 J	0.016	<0.00003	<0.00002
MW-10	05/22/2018	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00003	<0.00003	<0.00002
MW-11	05/22/2018	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00003	<0.00003	<0.00002

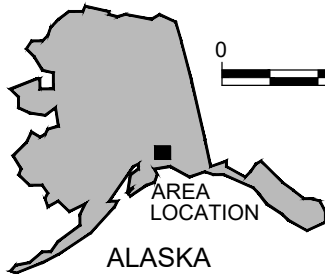
Notes:
 MW = Groundwater monitoring well
 PAHs = poly aromatic hydrocarbons by Method SW 8270
 ADEC = Alaska Department of Environmental Conservation
 * = Levels established in ADEC Table C Groundwater Cleanup Levels (18 AAC 75.345)
BOLD = Indicates concentration above the ADEC Table C Groundwater Cleanup Level
 mg/L = milligrams per liter
Bold and Shaded = Value exceeds ADEC Groundwater Cleanup Level
 J = Estimated value
 - = Not measured / not analyzed
 -x = Constituent not detected above x milligrams per liter
 [] = Duplicate sample results
 <0.0001 = Not detected at or above the Method detection limit

FIGURES





SOURCE: USGS QUAD MAPS; ANCHORAGE A-8 NE, AK 2015 AND A-8 NW, AK 2016.



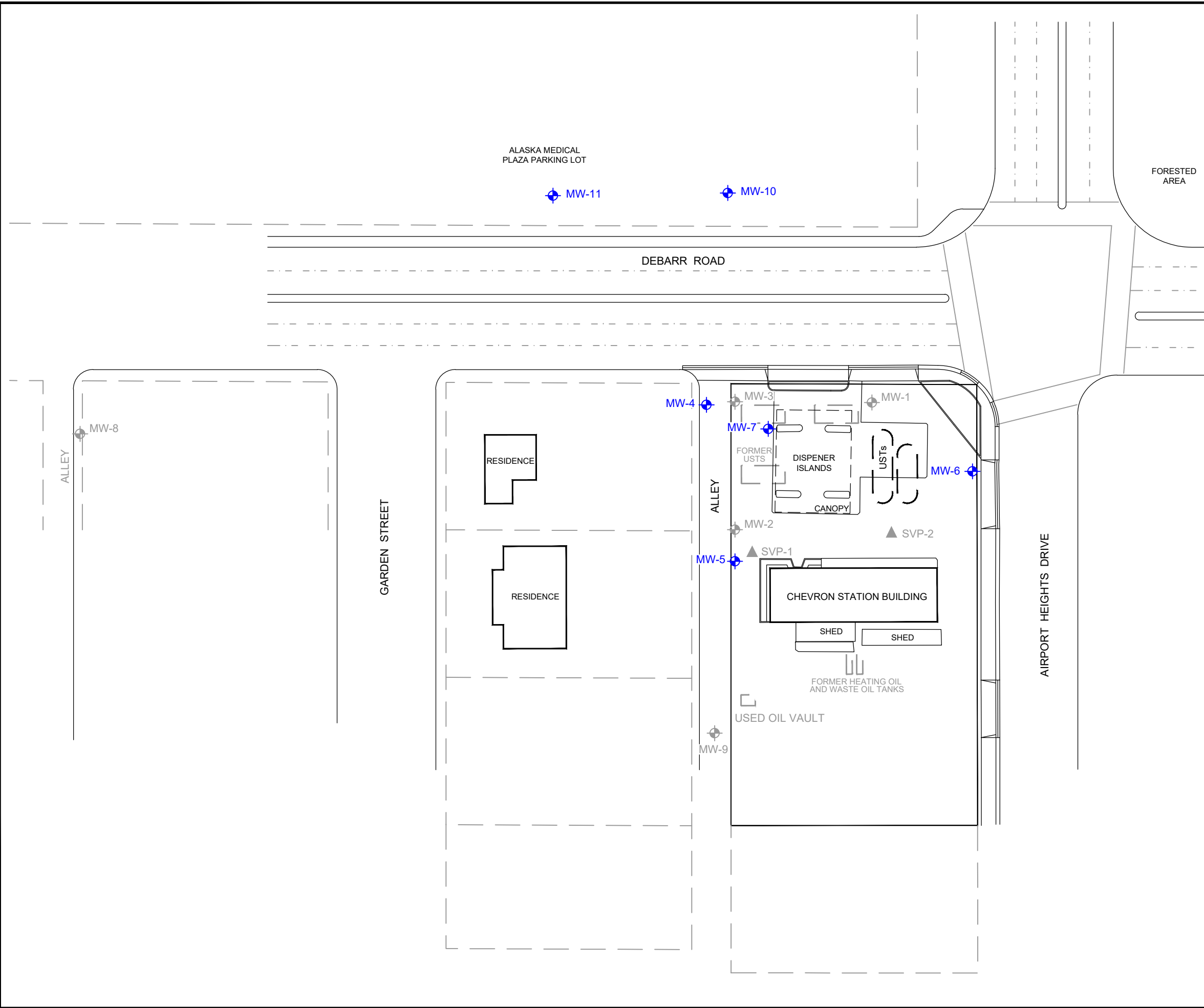
CHEVRON-BRANDED SERVICE STATION 96489
1304 AIRPORT HEIGHTS DRIVE
ANCHORAGE, ALASKA

SITE LOCATION MAP



FIGURE
1

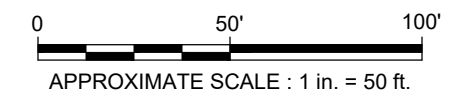
CITY:\Reed\DIV\GROUP\Reed\ DB\Reed\ LD\Opt\ PIC\Opt\ PM\Reed\ TM\Opt\ Lyr\Opt\ON*OFF+REF*
 C:\Users\8888\BIM\360\Arcadis\ANA - CHEVRON CORPORATION\Project Files\96489 - Anchorage\2019\GWR\AK000\646801-DWG\GWM - Figure 1 - Site Plan.dwg LAYOUT: 2 - SAVED: 12/6/2019 3:36 PM ACADVER: 23.1.5 (LMS TECH) PAGESSETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 12/6/2019 3:36
 PM BY: N. BALA



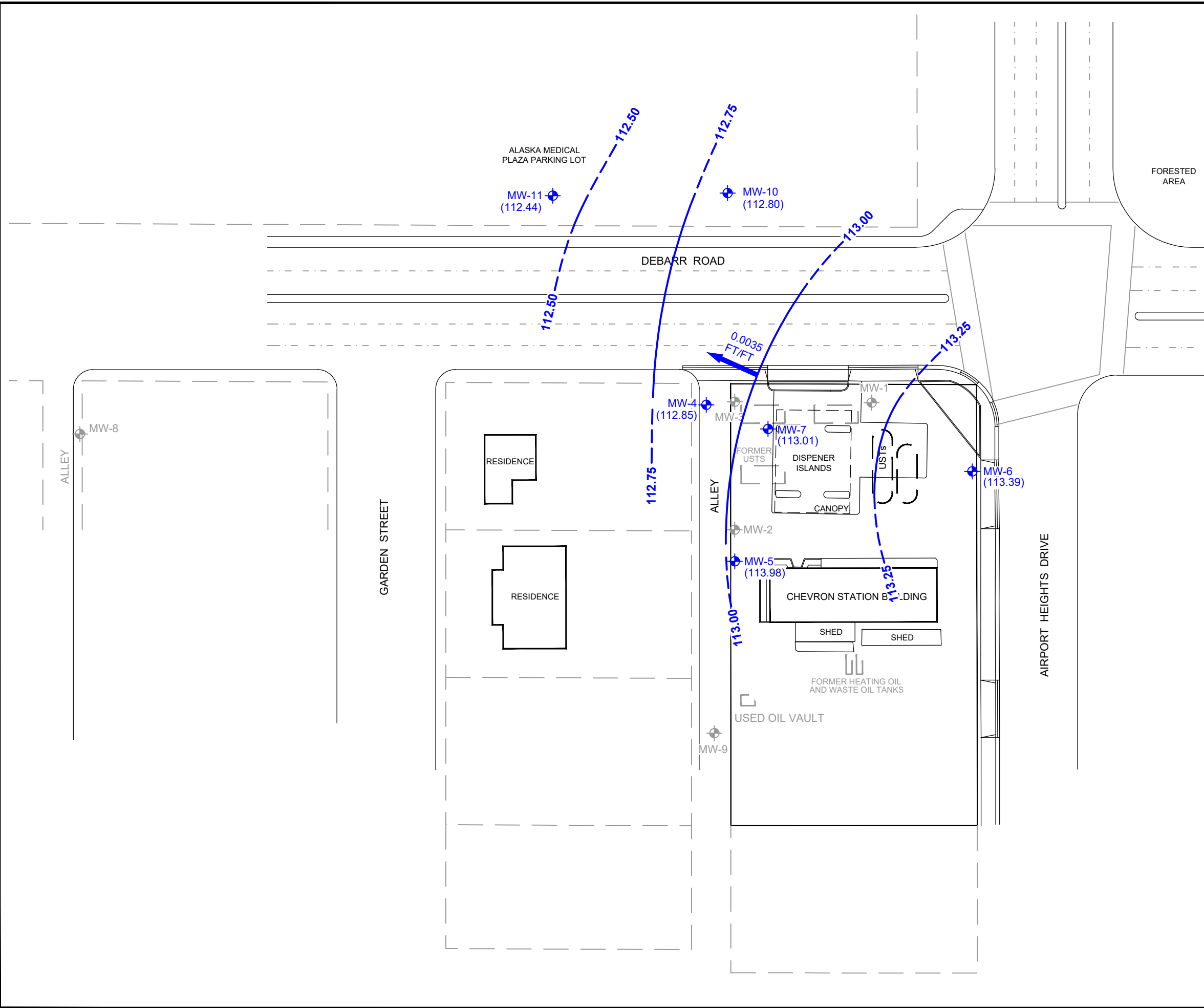
- LEGEND:**
- MW-4 GROUNDWATER MONITORING WELL
 - MW-3 ABANDONED GROUNDWATER MONITORING WELL
 - SVP-2 DESTROYED SOIL PROBE LOCATION



NOTE:
 1. BASE MAP PROVIDED BY GHD DATED 11/20/2018 AT AN APPROXIMATE SCALE OF 1"=40'.

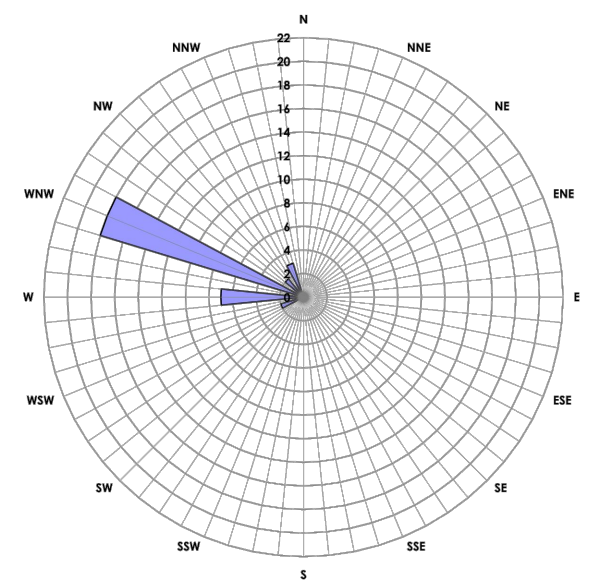


CHEVRON-BRANDED SERVICE STATION 96489 1304 AIRPORT HEIGHTS DRIVE ANCHORAGE, ALASKA	
<h2 style="margin: 0;">SITE PLAN</h2>	
Design & Consultancy for natural and built assets	FIGURE <h1 style="margin: 0;">2</h1>



LEGEND:

- MW-4 GROUNDWATER MONITORING WELL
- MW-3 ABANDONED GROUNDWATER MONITORING WELL
- (113.42) GROUNDWATER ELEVATION (FEET)
- 113.25 GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW
- 0.0035 FT/FT APPROXIMATE HYDRAULIC GRADIENT (FEET/FOOT)



Legend
 Concentric Circles represent Quarterly/Semi-Annual Monitoring Events
 Figure represents data collected till May 28, 2019
 31 Events shown

HISTORIC GROUNDWATER FLOW DIRECTION

NOTE:
 1. BASE MAP PROVIDED BY GHD DATED 11/20/2018 AT AN APPROXIMATE SCALE OF 1"=40'.

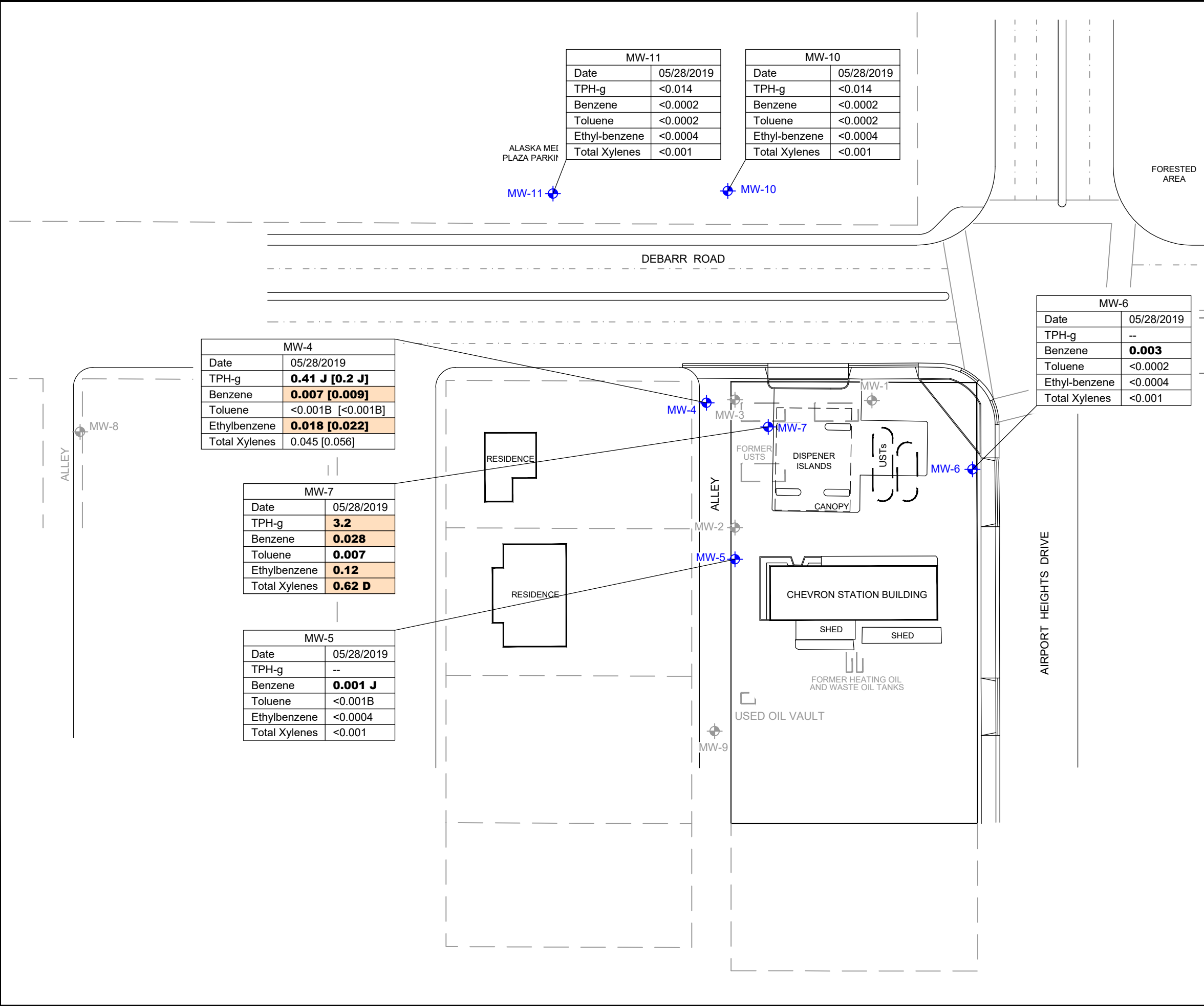


CHEVRON-BRANDED SERVICE STATION 96489
 1304 AIRPORT HEIGHTS DRIVE
 ANCHORAGE, ALASKA

GROUNDWATER ELEVATION CONTOUR MAP
JUNE 6, 2019

ARCADIS Design & Consultancy for natural and built assets

FIGURE **3**



MW-11	
Date	05/28/2019
TPH-g	<0.014
Benzene	<0.0002
Toluene	<0.0002
Ethyl-benzene	<0.0004
Total Xylenes	<0.001

MW-10	
Date	05/28/2019
TPH-g	<0.014
Benzene	<0.0002
Toluene	<0.0002
Ethyl-benzene	<0.0004
Total Xylenes	<0.001

MW-4	
Date	05/28/2019
TPH-g	0.41 J [0.2 J]
Benzene	0.007 [0.009]
Toluene	<0.001B [<0.001B]
Ethylbenzene	0.018 [0.022]
Total Xylenes	0.045 [0.056]

MW-7	
Date	05/28/2019
TPH-g	3.2
Benzene	0.028
Toluene	0.007
Ethylbenzene	0.12
Total Xylenes	0.62 D

MW-5	
Date	05/28/2019
TPH-g	--
Benzene	0.001 J
Toluene	<0.001B
Ethylbenzene	<0.0004
Total Xylenes	<0.001

MW-6	
Date	05/28/2019
TPH-g	--
Benzene	0.003
Toluene	<0.0002
Ethyl-benzene	<0.0004
Total Xylenes	<0.001

LEGEND:

- MW-4 GROUNDWATER MONITORING WELL
- MW-3 ABANDONED GROUNDWATER MONITORING WELL
- TPH-g TOTAL PETROLEUM HYDROCARBONS, AS GASOLINE RANGE
- [0.2 J] DUPLICATE SAMPLE RESULT
- <0.001 NOT DETECTED AT OR ABOVE THE METHOD DETECTION LIMIT (MDL)
- J THE COMPOUND WAS POSITIVELY IDENTIFIED; HOWEVER, THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY
- D THE SAMPLE RESULTS REPORTED FROM DILUTION
- BOLD** CONCENTRATION EXCEEDS LABORATORY MDL
- BOLD** CONCENTRATION EXCEEDS ADEC GROUNDWATER CLEANUP LEVEL
- ADEC ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
- NOT ANALYZED
- B COMPOUND CONSIDERED NON-DETECT AT THE LISTED VALUE DUE TO ASSOCIATED BLANK CONTAMINATION

WELL ID

MW-7	
Date	05/28/2019
TPH-g	3.2
Benzene	0.028
Toluene	0.007
Ethylbenzene	0.12
Total Xylenes	0.62 D

CONCENTRATION

ANALYTE

NOTE:

- BASE MAP PROVIDED BY GHD DATED 11/20/2018 AT AN APPROXIMATE SCALE OF 1"=40'
- ALL CONCENTRATIONS ARE IN MILLIGRAMS PER LITER (mg/L)

0 50' 100'

APPROXIMATE SCALE : 1 in. = 50 ft.

CHEVRON-BRANDED SERVICE STATION 96489
 1304 AIRPORT HEIGHTS DRIVE
 ANCHORAGE, ALASKA

GROUNDWATER ANALYTICAL MAP
 MAY 28, 2019

ARCADIS Design & Consultancy for natural and built assets

FIGURE 4

APPENDIX A

Site Background and History



**Chevron Environmental
Management Company**

Appendix A:

Site History and Background

Chevron Facility 96489
1304 Airport Heights Drive
Anchorage, Alaska
ADEC File No: 2100.26.066
HAZARD ID No: 23518

December 27, 2019

Appendix A: 96489 Site Description and Background

1 96489 SITE BACKGROUND AND HISTORY

1.1 Site Description and Vicinity

Chevron facility 96489 is located at 1304 Airport Heights Drive in Anchorage, Alaska. The site is currently a Chevron-branded service station with two underground storage tanks (UST), dispenser islands, product piping and a station building with three auto service bays. The surrounding properties are mixed commercial and residential; the site is south of the Alaska Regional Hospital across Debarr Road, and is bordered by residences to the east, south and west.

2 SITE CHARACTERIZATION

There are currently three groundwater monitoring wells located onsite (MW-5 through MW-7) and three groundwater monitoring wells located offsite (MW-4, MW-10 and MW-11).

3 CURRENT SITE MONITORING ACTIVITIES

The site currently has a network of 6 groundwater monitoring wells located onsite (MW-5 through MW-7) and offsite (MW-4, MW-10 and MW-11) which are monitored and sampled semiannually.

In recent historic sampling, concentrations of gasoline-range organics (GRO), benzene, ethylbenzene, and total xylene have exceeded ADEC TLs in MW-4 and MW-7. Concentrations of benzene have also historically exceeded ADEC TLs in well MW-6. Historically, no concentrations of hydrocarbons have been detected above ADEC TLs in downgradient wells MW-10 and MW-11.

4 GEOLOGY AND HYDROGEOLOGY

4.1 Site Hydrogeology

The site is in south central Alaska, south of the Knik Arm and north of the Turnagain Arm of Cook Inlet. Static groundwater depths from 1999 to the present have ranged between 24.94 to 29.39 feet below top of casing (ft btoc). Historic groundwater flow is to the northwest.

5 REFERENCES

GHD Inc. 2018. Second Semiannual 2018 Groundwater Monitoring Report: Chevron-Branded Service Station 96489, 1304 Airport Heights Drive, Anchorage, AK. November 20.

APPENDIX B

Field Data Sheets



Daily Log

Project Name Chevron 76489 Project Number 76489 Page 1 of 1

Site Location 1304 August Heights Dr. Anchorage AK Date 5/28/19

Field Personnel Daniel Beaudoin, Evan Ujevik

Time	Description of Activities																																			
0700	Arrive at office																																			
0800	Load vehicle, go to Air cargo, ext PPE																																			
0930	Depart to site																																			
1000	Arrive on site, contact PM, conduct H+S tailgate meeting																																			
	Well gauging notes																																			
	<table border="1"> <thead> <tr> <th>Well ID</th> <th>PID</th> <th>DTW</th> <th>TD</th> <th>notes</th> </tr> </thead> <tbody> <tr> <td>MW-4</td> <td>0.0</td> <td>26.03</td> <td>39.7</td> <td>concrete cracked vaulted</td> </tr> <tr> <td>MW-5</td> <td>0.0</td> <td>27.38</td> <td>37.1</td> <td>good</td> </tr> <tr> <td>MW-6</td> <td>4.0</td> <td>26.62</td> <td>35.8</td> <td>needs new belts</td> </tr> <tr> <td>MW-7</td> <td>0.0</td> <td>26.74</td> <td>36.5</td> <td>good</td> </tr> <tr> <td>MW-10</td> <td>0.0</td> <td>28.45</td> <td>38.6</td> <td>needs new belts</td> </tr> <tr> <td>MW-11</td> <td>0.0</td> <td>27.88</td> <td>37.3</td> <td>good</td> </tr> </tbody> </table>	Well ID	PID	DTW	TD	notes	MW-4	0.0	26.03	39.7	concrete cracked vaulted	MW-5	0.0	27.38	37.1	good	MW-6	4.0	26.62	35.8	needs new belts	MW-7	0.0	26.74	36.5	good	MW-10	0.0	28.45	38.6	needs new belts	MW-11	0.0	27.88	37.3	good
Well ID	PID	DTW	TD	notes																																
MW-4	0.0	26.03	39.7	concrete cracked vaulted																																
MW-5	0.0	27.38	37.1	good																																
MW-6	4.0	26.62	35.8	needs new belts																																
MW-7	0.0	26.74	36.5	good																																
MW-10	0.0	28.45	38.6	needs new belts																																
MW-11	0.0	27.88	37.3	good																																
1050	Sample MW-4 for PERO, GRO, BTEX																																			
1120	Decon equipment move to next well																																			
1140	Sample MW-7 for PERO, BTEX																																			
1210	Decon equipment move to next well																																			
1220	Sample MW-5 for BTEX																																			
1250	Decon equipment move to next well																																			
1300	Sample MW-6 for BTEX																																			
1320	Decon equipment move to next well																																			
1340	Sample MW-11 for GRO, BTEX																																			
1400	Decon equipment move to next well																																			
1420	Sample MW-10 for GRO, BTEX																																			
1445	Decon equipment load vehicle, contact PM, depart site																																			
1530	Arrive at office																																			

GROUNDWATER SAMPLING FORM



Project No. 96489 Well ID MW-4 Page 1 of 1
 Project Name/Location 1304 Airport Heights Dr. Anchorage AK Date 5/28/19
 Measuring Pt. Description 10C Screen Setting (ft-bmp) - Casing Diameter (in.) 2 Weather 50°
 Static Water Level (ft-bmp) 26.03 Total Depth (ft-bmp) 34.7 Water Column (ft) 8.7 Gallons in Well 1.39
 MP Elevation - Pump Intake (ft-bmp) ~2 Purge Method: Low Flow Sample Method Low Flow
 Pump On/Off 1005 1050 / 1120 Volumes Purged - Centrifugal - Submersible - Other Bladder
 Sample Time: Label 1015 110 Gallons Purged 0.864 Replicate/Code No. - Sampled by EW
 Purge Start 1003 1052 Purge End 1012 1102

Time	Minutes Elapsed	Rate (gpm)/(mL/min) 200mL/min +	Depth to Water (ft) -0.3	Gallons Purged	pH ± 0.1	Cond. (µMhos)/(mS/cm) ± 3%	Turbidity (NTU) ± 10%	DO (mg/L) ± 10%	Temp. (°C)/(°F) ± 2%	Redox (mV) ± 10mV	Appearance								
											Color	Odor							
1003 1052	3	300	26.02	900	6.40	0.424		7.36	7.89	22.6									
1005 1054	6	300	25.99	1800	6.31	0.420		5.81	7.65	24.7									
1009 1054	9	300	26.02	2700	6.27	0.419		5.50	7.56	26.5									
1012 1102	12	300	26.02	3600	6.22	0.420		5.00	7.49	29.9									
Stabilization Calculations (±)																			
Stabilization Criteria												± 0.1 s.u.	± 3%	± 10% or within 1 NTU or	± 10%	± 3%	± 10 mV		

(1) Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU.

Constituents Sampled	Container	Number	Preservative
GRD DR 101	40 mL VOA	3	HCl
BTEX 5260	40 mL VOA	3	HCl

Comments BD-1 - W-19028 sampled at MW-4

Well Casing Volumes	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
Gallons/Foot	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location: _____

Condition of Well: good

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: _____

GROUNDWATER SAMPLING FORM



Project No. Chevron 96482 Well ID MW-7 Page 1 of 1
 Project Name/Location 1304 Air port Heights Dr. Anchorage AK Date 5/28/19
 Measuring Pt. Description TOC Screen Setting (ft-bmp) - Casing Diameter (in.) 2 Weather 50°
 Static Water Level (ft-bmp) 26.74 Total Depth (ft-bmp) 36.5 Water Column (ft) 9.8 Gallons in Well 1.57
 MP Elevation - Pump Intake (ft-bmp) ~2 Purge Method: Low Flow Sample Method Low Flow
 Pump On/Off 1140 / 1210 Volumes Purged - Centrifugal - Submersible - Other Bladder
 Sample Time: Label 1200 Gallons Purged 0.964 Replicate/Code No. - Sampled by EW
 Purge Start 1143
 Purge End 1152

Time	Minutes Elapsed	Rate (gpm)/(mL/min) 200mL/min +	Depth to Water (ft) -0.3	Gallons Purged	pH ± 0.1	Cond. (µMhos)/(mS/cm) ± 3%	Turbidity (NTU) ± 10%	DO (mg/L) ± 10%	Temp. (°C)/(°F) ± 3%	Redox (mV) ± 10mV	Appearance	
											Color	Odor
1143	3	300	26.70	900	6.30	0.445		4.66	7.96	26.8		
1146	6	300	26.71	1800	6.25	0.438		4.21	7.63	26.4		
1149	9	300	26.71	2700	6.22	0.437		4.26	7.51	26.8		
1152	12	300	26.73	3600	6.19	0.439		4.23	7.59	26.6		
Stabilization Calculations (±)					✓			✓		✓		
Stabilization Criteria					± 0.1 s.u.	± 3%	± 10% or within 1 NTU @	± 10%	± 3%	± 10 mV		

(1) Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
GRB AR101	40 mL 401	3	HCl
BTEX 6210	40 mL 401	3	HCl

Comments _____

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location: _____ Well Locked at Arrival: Yes / No
 Condition of Well: Good Well Locked at Departure: Yes / No
 Well Completion: Flush Mount / Stick Up Key Number To Well: _____

GROUNDWATER SAMPLING FORM



Project No. Chevron 96489 Well ID MW-5 Page 1 of 1
 Date 5/28/19
 Project Name/Location 1304 Airport Heights Dr. Anchorage, AK Weather 50°
 Measuring Pt. Description TOC Screen Setting (ft-bmp) - Casing Diameter (in.) 2 Well Material PVC SS
 Static Water Level (ft-bmp) 27.38 Total Depth (ft-bmp) 37.1 Water Column (ft) 9.8 Gallons in Well 1.57
 MP Elevation - Pump Intake (ft-bmp) ~2 Purge Method: Low Flow Sample Method Low Flow
 Pump On/Off 1220 / 1250 Volumes Purged - Centrifugal Submersible Other Other
 Sample Time: Label 1240 Gallons Purged 0.864 Replicate/Code No. - Sampled by EW
 Purge Start 1233
 Purge End 1232

Time	Minutes Elapsed	Rate (gpm)/(mL/min) 200mL/min +	Depth to Water (ft) -0.3	Gallons Purged	pH ± 0.1	Cond. (µMhos)/(mS/cm) ± 3%	Turbidity (NTU) ± 10%	DO (mg/L) ± 10%	Temp. (°C)/(°F) ± 3%	Redox (mV) ± 10mV	Appearance		
											Color	Odor	
1223	3	300	27.30	900	6.09	0.658		1.10	8.64	37.7			
1226	6	300	27.35	1800	6.07	0.661		1.29	8.00	38.3			
1229	9	300	27.35	2700	6.06	0.668		1.49	7.91	38.8			
1232	12	300	27.36	3600	6.05	0.673		1.61	7.89	39.5			
Stabilization Calculations (±)													
Stabilization Criteria					± 0.1 s.u.	± 3%	± 10% or within 1 NTU	± 10%	± 3%	± 10 mV			

(1) Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when < 10 NTU

Constituents Sampled	Container	Number	Preservative
BTEX 5260	40 mL VOA	3	HCl

Comments MW-5 - MS-W-190528 + MW-5 - MS-D-W-190528 sampled at MW-5

Well Casing Volumes

Gallons/foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location:	Well Locked at Arrival: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Condition of Well: <u>Good</u>	Well Locked at Departure: <input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Well Completion: <u>Flush Mount / Stick Up</u>	Key Number To Well: <u>-</u>

GROUNDWATER SAMPLING FORM



Project No. Chevron 26489 Well ID MW-6 Page 1 of 1
 Project Name/Location 1304 Airport Heights And Garage AT Date 5/28/17
 Measuring Pt. Description 70C Screen Setting (ft-bmp) — Casing Diameter (in.) 2 Weather 50°
 Static Water Level (ft-bmp) 26.62 Total Depth (ft-bmp) 358 Water Column (ft) 9.2 Gallons in Well 1.47
 MP Elevation — Pump Intake (ft-bmp) ~2 Purge Method: Low Flow Sample Method Low Flow
 Pump On/Off 1300/1320 Volumes Purged — Centrifugal Submersible — Other B.G. 60
 Sample Time: Label 1315 Gallons Purged 0.864 Replicate/Code No. — Sampled by EW
 Purge Start 1303 Purge End 1312

Time	Minutes Elapsed	Rate (gpm)/(mL/min) 200mL/min +	Depth to Water (ft) -0.3	Gallons Purged	pH ± 0.1	Cond. (µMhos)/(mS/cm) ± 3%	Turbidity (NTU) ± 10%	DO (mg/L) ± 10%	Temp. (°C)/(°F) ± 3%	Redox (mV) ± 10mV	Appearance								
											Color	Odor							
1303	3	300	26.58	900	6.10	0.529		3.07	10.46	32.0									
1306	6	300	26.60	1800	5.80	0.534		2.08	9.80	50.9									
1309	9	300	26.60	2700	5.74	0.536		2.12	9.17	57.1									
1312	12	300	26.60	3600	5.65	0.538		2.27	8.70	62.3									
Stabilization Calculations (±)																			
Stabilization Criteria												± 0.1 s.u.	± 3%	± 10% of within 1 NTU @	± 10%	± 3%	± 10 mV		

(1) Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
BTEX 8260	40mL VOA	3	HCl

Comments

Well Casing Volumes					
Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.60	6" = 1.47
	1.25" = 0.06	2" = 0.15	3" = 0.37	4" = 0.65	

Well Information

Well Location: _____
 Condition of Well: good needs bolts
 Well Completion: Flush Mount / Stick Up
 Well Locked at Arrival: Yes / No
 Well Locked at Departure: Yes / No
 Key Number To Well: _____

GROUNDWATER SAMPLING FORM



Project No. Chewon 26480 Well ID MW-11 Date 5/28/17
 Project Name/Location 1304 Airport Heights Anchorage AK Weather 50°
 Measuring Pt. Description TOC Screen Setting (ft-bmp) — Casing Diameter (in.) 2 Well Material PVC SS
 Static Water Level (ft-bmp) 27.88 Total Depth (ft-bmp) 37.3 Water Column (ft) 9.4 Gallons in Well 1.5
 MP Elevation — Pump Intake (ft-bmp) ~2 Purge Method: Low Flow Sample Method Low Flow
 Pump On/Off 1340/1350 Volumes Purged — Centrifugal Submersible Other Bladder
 Sample Time: Label 1355 Gallons Purged 0.864 Replicate/Code No. — Sampled by EW
 Purge Start 1343
 Purge End 1352

Time	Minutes Elapsed	Rate (gpm)/(mL/min) 200mL/min +	Depth to Water (ft) -0.3	Gallons Purged	pH ± 0.1	Cond. (µMhos)/(mS/cm) ± 3%	Turbidity (NTU) ± 10%	DO (mg/L) ± 10%	Temp. (°C)/(°F) ± 3%	Redox (mV) ± 10mV	Appearance		
											Color	Odor	
1343	3	300	27.80	200	6.01	0.503		6.16	9.34	39.6			
1346	6	300	27.85	1500	5.91	0.500		6.00	7.66	47.8			
1349	9	300	27.86	2700	5.69	0.497		5.89	7.60	56.1			
1352	12	300	27.86	3600	5.50	0.497		6.04	7.55	61.9			
Stabilization Calculations (±)													
Stabilization Criteria					± 0.1 s.u.	± 3%	± 10% or within 1 NTU (1)	± 10%	± 3%	± 10 mV			

(1) Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
<u>GLD Atr 101</u>	<u>40ml VOA</u>	<u>3</u>	<u>HCl</u>
<u>870p 8260</u>	<u>40ml 101</u>	<u>3</u>	<u>HCl</u>

Comments _____

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.18	3" = 0.37	4" = 0.65	

Well Information

Well Location: _____ Well Locked at Arrival: Yes / No
 Condition of Well: good Well Locked at Departure: Yes / No
 Well Completion: Flush Mount / Stick Up Key Number To Well: _____

GROUNDWATER SAMPLING FORM



Project No. Charm 96489 Well ID mw-10 Page 1 of 1
 Project Name/Location 1304 Airport Heights Anchorage AK Date 5/28/19
 Measuring Pt. Description 100 Screen Setting (ft-bmp) — Casing Diameter (in.) 2 Weather 50°
 Static Water Level (ft-bmp) 28.45 Total Depth (ft-bmp) 38.6 Water Column (ft) 10.1 Gallons in Well 1.62
 MP Elevation — Pump Intake (ft-bmp) ~2 Purge Method: Low Flow Sample Method Low Flow
 Pump On/Off 1420 / 1445 Volumes Purged — Centrifugal Submersible — Other Bladder
 Sample Time: Label 1440 Gallons Purged 0.804 Replicate/Code No. — Sampled by ELW
 Purge Start 1423
 Purge End 1432

Time	Minutes Elapsed	Rate (gpm)(mL/min) 200mL/min +	Depth to Water (ft) -0.3	Gallons Purged	pH ± 0.1	Cond. (µMhos)(mS/cm) ± 3%	Turbidity (NTU) ± 10%	DO (mg/L) ± 10%	Temp. (°C)(°F) ± 3%	Redox (mV) ± 10mV	Appearance	
											Color	Odor
1423	3	300	29.46	900	5.02	0.507		5.53	10.38	106.2		
1426	6	300	29.47	1500	4.91	0.502		5.19	10.28	103.1		
1429	9	300	28.43	2700	4.84	0.501		5.21	9.91	107.2		
1432	12	300	28.43	3600	4.78	0.500		4.95	9.80	108.3		
Stabilization Calculations (±)												
Stabilization Criteria					± 0.1 s.u.	± 3%	± 10% or within 1 NTU @	± 10%	± 3%	± 10 mV		

(1) Turbidity < 50 NTU and ±10% or within 1 NTU of a previous reading when <10 NTU

Constituents Sampled	Container	Number	Preservative
GLO AK 101	40mL VOA	3	HCl
BTEX 8268	40mL VOA	3	HCl

Comments _____

Well Casing Volumes

Gallons/Foot	1" = 0.04	1.5" = 0.09	2.5" = 0.26	3.5" = 0.50	6" = 1.47
	1.25" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65	

Well Information

Well Location: _____

Condition of Well: needs new bolts

Well Completion: Flush Mount / Stick Up

Well Locked at Arrival: Yes / No

Well Locked at Departure: Yes / No

Key Number To Well: _____

Chevron Generic Analysis Request/Chain of Custody



Lancaster Laboratories Environmental

For Eurofins Lancaster Laboratories Environmental use only

Acct. # _____

Group # _____

Sample # _____

Client Information		Matrix		Analyses Requested		Preservation and Filtration Codes	Remarks
Facility #	WBS	Sediment	Soil	TPH-DRO without Silica Gel Cleanup	TPH-DRO with Silica Gel Cleanup		
1304 Airport Heights Dr Anchorage, AK	07.09 Groundwater sampling - monitoring	<input checked="" type="checkbox"/> Ground	<input checked="" type="checkbox"/> Composite	<input type="checkbox"/> TPH-GRO without Silica Gel Cleanup	<input type="checkbox"/> TPH-GRO with Silica Gel Cleanup	<input type="checkbox"/> Total	
Eric Hetrick	Lead Consultant	<input type="checkbox"/> NPDES	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Diss.	
111 SW Columbus St. Suite 670 Portland, OR	Arcadis	<input type="checkbox"/> Surface	<input type="checkbox"/> Oil	<input type="checkbox"/> 8015	<input type="checkbox"/> 8015	<input type="checkbox"/> Method	
Nicole Monroe	Consultant Project Mgr.	<input type="checkbox"/> Potable	<input type="checkbox"/> Air	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
Evan Wojcik	Sampler	<input type="checkbox"/> Soil	<input type="checkbox"/> Composite	<input type="checkbox"/> 8260 full scan	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
AK	State where samples were collected:	<input type="checkbox"/> Sediment	<input type="checkbox"/> Composite	<input type="checkbox"/> 8021	<input type="checkbox"/> 8021	<input type="checkbox"/> Method	
	For Compliance: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/> Water	<input type="checkbox"/> Grab	<input type="checkbox"/> BTEX + MTBE	<input type="checkbox"/> BTEX + MTBE	<input type="checkbox"/> Method	
		<input type="checkbox"/> NPDES	<input type="checkbox"/> Grab	<input type="checkbox"/> 8021	<input type="checkbox"/> 8021	<input type="checkbox"/> Method	
		<input type="checkbox"/> Surface	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> Air	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> Oil	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> Total Number of Containers	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> TPH-DRO without Silica Gel Cleanup	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> TPH-DRO with Silica Gel Cleanup	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> Lead	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> VPH	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> Total	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> Results in Dry Weight	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> J value reporting needed	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> Preservation Codes	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> H = HCl	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> T = Thiosulfate	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> N = HNO ₃	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> B = NaOH	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> S = H ₂ SO ₄	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> P = H ₃ PO ₄	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> F = Field Filtered	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> O = Other	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	
		<input type="checkbox"/> SCR #:	<input type="checkbox"/> Grab	<input type="checkbox"/> 8260	<input type="checkbox"/> 8260	<input type="checkbox"/> Method	

Turnaround Time Requested (TAT) (please circle): Standard (5 day), 72 hour, 48 hour, 24 hour, 4 day

Data Package (circle if required): Type I - Full, Type III, Type VI (Raw Data)

EDD (circle if required): CVX-RTBU-FL_05 (default), Other: _____

Relinquished by: _____ Date: 5.28.19 Time: 1530 Received by: Arcadis Cold Storage

Relinquished by: _____ Date: 5.29.19 Time: 0930 Received by: FedEx

Relinquished by: _____ Date: _____ Time: _____ Received by: _____

Relinquished by Commercial Carrier: UPS FedEx X Other _____

Temperature Upon Receipt _____ °C Custody Seals Intact? Yes No

APPENDIX C

Laboratory Analytical Results



Type III Data Package

Prepared for:

ARCADIS U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch CO 80129

Project: 96489
Groundwater and Water Samples
Collected on 05/28/19

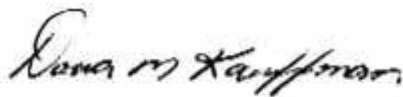
SDG# LSV64-V.2

GROUP	SAMPLE NUMBERS
2046352	1068869-1068879

PA Cert. # 36-00037
NY Cert. # 10670
NJ Cert. # PA011
NC Cert. # 521
TX Cert. # T104704194-18-27
AZ Cert. # AZ0780

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client.

Authorized by:



Date: 10/23/2019

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Loran Carter at (717) 556-7252.

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**Sample Reference List for SDG Number LSV64
with a Data Package Type of III**

10847 - ARCADIS U.S., Inc.

Project: 96489

Lab Sample Number	Client Sample ID	Collection Date	Date Received
1068869	QA-O-190528	05/28/2019 10:30	05/30/2019 10:20
1068870	MW-4-W-190528	05/28/2019 11:10	05/30/2019 10:20
1068871	MW-7-W-190528	05/28/2019 12:00	05/30/2019 10:20
1068872	MW-5-W-190528	05/28/2019 12:40	05/30/2019 10:20
1068873	MW-5-W-190528 MS	05/28/2019 12:40	05/30/2019 10:20
1068874	MW-5-W-190528 MSD	05/28/2019 12:40	05/30/2019 10:20
1068875	MW-6-W-190528	05/28/2019 13:15	05/30/2019 10:20
1068876	MW-11-W-190528	05/28/2019 13:55	05/30/2019 10:20
1068877	MW-10-W-190528	05/28/2019 14:40	05/30/2019 10:20
1068878	BD-1-WD-190528	05/28/2019 00:00	05/30/2019 10:20
1068879	QA-T-190422	04/22/2019 00:00	05/30/2019 10:20

Sample pH Log

SDG: LSV64

<u>LLI Sample Number</u>	<u>Bottle Code</u>	<u>Actual pH</u>	<u>Exp. pH</u>	<u>*pH Check Code</u>	<u>Adj. pH</u>	<u>Adjusted Date</u>	<u>Adjusted Time</u>	<u>Preservative Added</u>	<u>Preservative Lot #</u>	<u>LLI Supplied Bottle?</u>	<u>Sulfide Present?</u>	<u>Corrective Substance</u>	<u>CS Lot #</u>	<u>**Chlorine Present?</u>	<u>Corrective Substance</u>	<u>CS Lot #</u>	<u>Record Date</u>	<u>Employee</u>
1068869	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	6/12/2019 2:09:19PM	2648
1068870	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	6/12/2019 1:56:47PM	2648
1068871	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	6/11/2019 10:43:16AM	7818
1068872	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	6/12/2019 2:09:19PM	2648
1068873	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	6/12/2019 2:09:19PM	2648
1068874	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	6/12/2019 2:09:19PM	2648
1068875	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	6/12/2019 1:56:47PM	2648
1068876	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	6/12/2019 1:56:47PM	2648
1068877	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	6/12/2019 1:56:47PM	2648
1068878	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	6/12/2019 1:56:48PM	2648
1068879	038A	<2	<2	NA	NA	NA	NA	NA	NA	Y	NA	NA	NA	NA	NA	NA	6/12/2019 1:56:48PM	2648

<u>*pH Check Code Key</u>	<u>**Chlorine Present Code Key</u>
<p>PK = Original container checked - pH is within the correct range. (No preservative was added)</p> <p>PA = Original container checked - pH adjusted to correct range. (Preservative was added)</p> <p>PV = Volatile container checked</p> <p>PC = pH checked (unpreserved container)</p> <p>SPK = Subsampled from an original container. Original container checked - pH is within correct range</p> <p>SPA = Subsampled from an original container. Subsample container checked - pH adjusted to correct range.</p> <p>SPC = Subsampled from an original container. pH checked (unpreserved container).</p> <p>SUP = Subsampled from original container. Unable to be preserved due to the matrix of the sample.</p> <p>UP = Unable to preserve due to matrix of the sample.</p> <p>NA = Not applicable</p>	<p>NA = Chlorine Not Checked</p> <p>Y = Chlorine Present</p> <p>N = Chlorine Not Present</p>

Batchlog Summary 19151A20A

QC	ID	Sample Code	Amt	SS/IS S	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	SW	DF	BC	Comments
BLANKA	AA	BLKUJ	1.00	SS1914225A	0.0002			1		1.00		
LCSA	AA	LCSHP	1.00	SS1914225A	0.0002	MS1913625A	0.548478	1		1.00		Prepped
LCSDA	AA	LCSDTN	1.00	SS1914225A	0.0002	MS1913625A	0.548478	1		1.00		5-31

Sample#	ID	Sample Code	Amt	SS/IS Std.	Amt (mL)	FV (mL)	SW	DF	PH	BC	HS	Due Date	Hold Date	P	Analyses/Comments
1068869	AA	64L01	1.00	SS1914225A	0.0002	1		1.00	L2	104A	<input type="checkbox"/>	6/10	6/11	N	01438
1068870	AA	64L02	1.00	SS1914225A	0.0002	1		1.00	L2	104A	<input type="checkbox"/>	6/10	6/11	N	01438
1068871	AA	64L03	1.00	SS1914225A	0.0002	1		1.00	L2	104A	<input type="checkbox"/>	6/10	6/11	N	01438
1068876	AA	64L06	1.00	SS1914225A	0.0002	1		1.00	L2	104A	<input type="checkbox"/>	6/10	6/11	N	01438
1068877	AA	64L07	1.00	SS1914225A	0.0002	1		1.00	L2	104A	<input type="checkbox"/>	6/10	6/11	N	01438
1068878	AA	64L08	1.00	SS1914225A	0.0002	1		1.00	L2	104A	<input type="checkbox"/>	6/10	6/11	N	01438
1068879	AA	64L09	1.00	SS1914225A	0.0002	1		1.00	L2	104A	<input type="checkbox"/>	6/10	5/6	N	01438

Spike Solutions:

MS1913625A Waters GRO Spike
 SS1914225A #20 TFT Surrogate Soln.

A = wt. does not meet requirements B = vial leaked C# where # = volume of MeOH added in mL due to sample not covered/matrix (lot #)
 D = sampler not full E = effervescence observed F = pH >= 2 G = headspace in container
 Dilution factors in BOLD indicate moisture volume correction was performed

Analyst: MOB2001 Verifier: MS8358 Comments
 Date: 6-3-19 Date: LS 6-5-19 Page 5 of 187
 5/31/2019

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 · 717-656-2300 Fax: 717-656-2681 · www.lancasterlabs.com

01163 GC/MS VOA Water Prep**01146 GC VOA Water Prep**

An undiluted aliquot of the water sample or a dilution of the sample is purged with an inert gas and the volatiles are collected on an adsorbent trap that is subsequently desorbed onto a gas chromatographic column.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 5030C, May 2003.

13130 VOCs- 5ml Water by 8260C/D UST

The water sample is purged and the volatile compounds are collected on a sorbent trap that is subsequently desorbed onto the GC/MS system for chromatographic and mass spectral analysis.

Reference: Volatile Organic Compounds by Gas Chromatography/ Mass Spectrometry (GC/MS), SW-846 Method 8260C, August 2006.

01438 TPH-GRO AK water C6-C10

The volatile compounds are extracted by bubbling an inert gas through the sample and collecting them on a sorbent trap. The trap is thermally desorbed onto a capillary column and analysis is performed using gas chromatography with a flame ionization detector (FID) and, optionally, a photoionization detector (PID) in series. Quantitation for Gasoline Range Organics (GRO) is performed using the total peak area detected within the hydrocarbon range defined in the method.

Reference: Method AK101 for the Determination of Gasoline Range Organics, April 8, 2002

Analysis Reports / Field Chain of Custody



ANALYSIS REPORT

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

ARCADIS U.S., Inc.
630 Plaza Drive
Suite 600
Highlands Ranch CO 80129

Report Date: September 26, 2019 15:31

Project: 96489

Account #: 10847
Group Number: 2046352
SDG: LSV64
PO Number: 30010563
Release Number: HETRICK
State of Sample Origin: AK

Electronic Copy To ARCADIS
Electronic Copy To Arcadis
Electronic Copy To Arcadis
Electronic Copy To Arcadis

Attn: Max Elias
Attn: Nicole Monroe
Attn: Evan Wujcik
Attn: Dilbagh Singh

Respectfully Submitted,



Amek Carter
Specialist

(717) 556-7252

A previous version of this report was generated on 08/26/2019 11:55.

To view our laboratory's current scopes of accreditation please go to <https://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/certifications-and-accreditations-eurofins-lancaster-laboratories-environmental/>. Historical copies may be requested through your project manager.



REVISED

SAMPLE INFORMATION

<u>Client Sample Description</u>	<u>Sample Collection Date/Time</u>	<u>ELLE#</u>
QA-O-190528 Grab Water	05/28/2019 10:30	1068869
MW-4-W-190528 Grab Groundwater	05/28/2019 11:10	1068870
MW-7-W-190528 Grab Groundwater	05/28/2019 12:00	1068871
MW-5-W-190528 Grab Groundwater	05/28/2019 12:40	1068872
MW-5-W-190528 MS Grab Groundwater	05/28/2019 12:40	1068873
MW-5-W-190528 MSD Grab Groundwater	05/28/2019 12:40	1068874
MW-6-W-190528 Grab Groundwater	05/28/2019 13:15	1068875
MW-11-W-190528 Grab Groundwater	05/28/2019 13:55	1068876
MW-10-W-190528 Grab Groundwater	05/28/2019 14:40	1068877
BD-1-WD-190528 Grab Groundwater	05/28/2019	1068878
QA-T-190422 NA Water	04/22/2019	1068879

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Project Name: 96489
ELLE Group #: 2046352

General Comments:

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client. The compliance signature is located on the cover page of the Analysis Reports.

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below.

Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set.

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

No additional comments are necessary.

REVISED

Sample Description: QA-O-190528 Grab Water
Facility# 96489
1304 Airport Heights Dr - Anchorage, AK

ARCADIS U.S., Inc.
ELLE Sample #: GW 1068869
ELLE Group #: 2046352
Matrix: Water

Project Name: 96489

Submittal Date/Time: 05/30/2019 10:20
Collection Date/Time: 05/28/2019 10:30
SDG#: LSV64-01EB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	mg/l	mg/l	mg/l	
13130	Benzene	71-43-2	N.D.	0.0002	0.001	1
13130	Ethylbenzene	100-41-4	N.D.	0.0004	0.001	1
13130	Toluene	108-88-3	0.0007 J	0.0002	0.001	1
13130	Xylene (Total)	1330-20-7	N.D.	0.001	0.005	1
GC Volatiles		AK 101	mg/l	mg/l	mg/l	
01438	TPH-GRO AK water C6-C10	n.a.	N.D.	0.014	0.10	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX 8260C	SW-846 8260C	1	F191581AA	06/07/2019 11:11	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F191581AA	06/07/2019 11:10	Alexander D Sechrist	1
01438	TPH-GRO AK water C6-C10	AK 101	1	19151A20A	05/31/2019 21:59	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19151A20A	05/31/2019 21:58	Marie D Beamenderfer	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: MW-4-W-190528 Grab Groundwater
Facility# 96489
1304 Airport Heights Dr - Anchorage, AK

ARCADIS U.S., Inc.
ELLE Sample #: GW 1068870
ELLE Group #: 2046352
Matrix: Groundwater

Project Name: 96489

Submittal Date/Time: 05/30/2019 10:20
Collection Date/Time: 05/28/2019 11:10
SDG#: LSV64-02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	mg/l	mg/l	mg/l	
13130	Benzene	71-43-2	0.007	0.0002	0.001	1
13130	Ethylbenzene	100-41-4	0.018	0.0004	0.001	1
13130	Toluene	108-88-3	0.0004 J	0.0002	0.001	1
13130	Xylene (Total)	1330-20-7	0.045	0.001	0.005	1
GC Volatiles		AK 101	mg/l	mg/l	mg/l	
01438	TPH-GRO AK water C6-C10	n.a.	0.41	0.014	0.10	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX 8260C	SW-846 8260C	1	F191582AA	06/07/2019 16:28	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F191582AA	06/07/2019 16:27	Alexander D Sechrist	1
01438	TPH-GRO AK water C6-C10	AK 101	1	19151A20A	05/31/2019 22:55	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19151A20A	05/31/2019 22:54	Marie D Beamenderfer	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: MW-7-W-190528 Grab Groundwater
Facility# 96489
1304 Airport Heights Dr - Anchorage, AK

ARCADIS U.S., Inc.
ELLE Sample #: GW 1068871
ELLE Group #: 2046352
Matrix: Groundwater

Project Name: 96489

Submittal Date/Time: 05/30/2019 10:20
Collection Date/Time: 05/28/2019 12:00
SDG#: LSV64-03

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	mg/l	mg/l	mg/l	
13130	Benzene	71-43-2	0.028	0.0002	0.001	1
13130	Ethylbenzene	100-41-4	0.12	0.0004	0.001	1
13130	Toluene	108-88-3	0.007	0.0002	0.001	1
13130	Xylene (Total)	1330-20-7	0.62	0.010	0.050	10
GC Volatiles		AK 101	mg/l	mg/l	mg/l	
01438	TPH-GRO AK water C6-C10	n.a.	3.2	0.014	0.10	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX 8260C	SW-846 8260C	1	F191582AA	06/07/2019 16:50	Alexander D Sechrist	1
13130	BTEX 8260C	SW-846 8260C	1	F191611AA	06/10/2019 17:08	Alexander D Sechrist	10
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F191582AA	06/07/2019 16:49	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	2	F191611AA	06/10/2019 17:07	Alexander D Sechrist	10
01438	TPH-GRO AK water C6-C10	AK 101	1	19151A20A	05/31/2019 23:22	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19151A20A	05/31/2019 23:21	Marie D Beamenderfer	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: MW-5-W-190528 Grab Groundwater
Facility# 96489
1304 Airport Heights Dr - Anchorage, AK

ARCADIS U.S., Inc.
ELLE Sample #: GW 1068872
ELLE Group #: 2046352
Matrix: Groundwater

Project Name: 96489

Submittal Date/Time: 05/30/2019 10:20
Collection Date/Time: 05/28/2019 12:40
SDG#: LSV64-04BKG

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	mg/l	mg/l	mg/l	
13130	Benzene	71-43-2	0.001 J	0.0002	0.001	1
13130	Ethylbenzene	100-41-4	N.D.	0.0004	0.001	1
13130	Toluene	108-88-3	0.0002 J	0.0002	0.001	1
13130	Xylene (Total)	1330-20-7	N.D.	0.001	0.005	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX 8260C	SW-846 8260C	1	F191581AA	06/07/2019 11:33	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F191581AA	06/07/2019 11:32	Alexander D Sechrist	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: MW-5-W-190528 MS Grab Groundwater
Facility# 96489
1304 Airport Heights Dr - Anchorage, AK

ARCADIS U.S., Inc.
ELLE Sample #: GW 1068873
ELLE Group #: 2046352
Matrix: Groundwater

Project Name: 96489

Submittal Date/Time: 05/30/2019 10:20
Collection Date/Time: 05/28/2019 12:40
SDG#: LSV64-04MS

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	mg/l	mg/l	mg/l	
13130	Benzene	71-43-2	0.024	0.0002	0.001	1
13130	Ethylbenzene	100-41-4	0.022	0.0004	0.001	1
13130	Toluene	108-88-3	0.023	0.0002	0.001	1
13130	Xylene (Total)	1330-20-7	0.068	0.001	0.005	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX 8260C	SW-846 8260C	1	F191581AA	06/07/2019 11:55	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F191581AA	06/07/2019 11:54	Alexander D Sechrist	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: MW-5-W-190528 MSD Grab Groundwater
Facility# 96489
1304 Airport Heights Dr - Anchorage, AK

ARCADIS U.S., Inc.
ELLE Sample #: GW 1068874
ELLE Group #: 2046352
Matrix: Groundwater

Project Name: 96489

Submittal Date/Time: 05/30/2019 10:20
Collection Date/Time: 05/28/2019 12:40
SDG#: LSV64-04MSD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	mg/l	mg/l	mg/l	
13130	Benzene	71-43-2	0.024	0.0002	0.001	1
13130	Ethylbenzene	100-41-4	0.023	0.0004	0.001	1
13130	Toluene	108-88-3	0.023	0.0002	0.001	1
13130	Xylene (Total)	1330-20-7	0.068	0.001	0.005	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX 8260C	SW-846 8260C	1	F191581AA	06/07/2019 12:17	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F191581AA	06/07/2019 12:16	Alexander D Sechrist	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: MW-6-W-190528 Grab Groundwater
Facility# 96489
1304 Airport Heights Dr - Anchorage, AK

ARCADIS U.S., Inc.
ELLE Sample #: GW 1068875
ELLE Group #: 2046352
Matrix: Groundwater

Project Name: 96489

Submittal Date/Time: 05/30/2019 10:20
Collection Date/Time: 05/28/2019 13:15
SDG#: LSV64-05

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	mg/l	mg/l	mg/l	
13130	Benzene	71-43-2	0.003	0.0002	0.001	1
13130	Ethylbenzene	100-41-4	N.D.	0.0004	0.001	1
13130	Toluene	108-88-3	N.D.	0.0002	0.001	1
13130	Xylene (Total)	1330-20-7	N.D.	0.001	0.005	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX 8260C	SW-846 8260C	1	F191582AA	06/07/2019 17:12	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F191582AA	06/07/2019 17:11	Alexander D Sechrist	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: MW-11-W-190528 Grab Groundwater
Facility# 96489
1304 Airport Heights Dr - Anchorage, AK

ARCADIS U.S., Inc.
ELLE Sample #: GW 1068876
ELLE Group #: 2046352
Matrix: Groundwater

Project Name: 96489

Submittal Date/Time: 05/30/2019 10:20
Collection Date/Time: 05/28/2019 13:55
SDG#: LSV64-06

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	mg/l	mg/l	mg/l	
13130	Benzene	71-43-2	N.D.	0.0002	0.001	1
13130	Ethylbenzene	100-41-4	N.D.	0.0004	0.001	1
13130	Toluene	108-88-3	N.D.	0.0002	0.001	1
13130	Xylene (Total)	1330-20-7	N.D.	0.001	0.005	1
GC Volatiles		AK 101	mg/l	mg/l	mg/l	
01438	TPH-GRO AK water C6-C10	n.a.	N.D.	0.014	0.10	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX 8260C	SW-846 8260C	1	F191582AA	06/07/2019 17:34	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F191582AA	06/07/2019 17:33	Alexander D Sechrist	1
01438	TPH-GRO AK water C6-C10	AK 101	1	19151A20A	06/01/2019 00:18	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19151A20A	06/01/2019 00:17	Marie D Beamenderfer	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: MW-10-W-190528 Grab Groundwater
Facility# 96489
1304 Airport Heights Dr - Anchorage, AK

ARCADIS U.S., Inc.
ELLE Sample #: GW 1068877
ELLE Group #: 2046352
Matrix: Groundwater

Project Name: 96489

Submittal Date/Time: 05/30/2019 10:20
Collection Date/Time: 05/28/2019 14:40
SDG#: LSV64-07

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	mg/l	mg/l	mg/l	
13130	Benzene	71-43-2	N.D.	0.0002	0.001	1
13130	Ethylbenzene	100-41-4	N.D.	0.0004	0.001	1
13130	Toluene	108-88-3	N.D.	0.0002	0.001	1
13130	Xylene (Total)	1330-20-7	N.D.	0.001	0.005	1
GC Volatiles		AK 101	mg/l	mg/l	mg/l	
01438	TPH-GRO AK water C6-C10	n.a.	N.D.	0.014	0.10	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX 8260C	SW-846 8260C	1	F191582AA	06/07/2019 17:56	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F191582AA	06/07/2019 17:55	Alexander D Sechrist	1
01438	TPH-GRO AK water C6-C10	AK 101	1	19151A20A	06/01/2019 00:46	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19151A20A	06/01/2019 00:45	Marie D Beamenderfer	1

*=This limit was used in the evaluation of the final result

Sample Description: BD-1-WD-190528 Grab Groundwater
Facility# 96489
1304 Airport Heights Dr - Anchorage, AK

ARCADIS U.S., Inc.
ELLE Sample #: GW 1068878
ELLE Group #: 2046352
Matrix: Groundwater

Project Name: 96489

Submittal Date/Time: 05/30/2019 10:20
Collection Date/Time: 05/28/2019
SDG#: LSV64-08FD

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	mg/l	mg/l	mg/l	
13130	Benzene	71-43-2	0.009	0.0002	0.001	1
13130	Ethylbenzene	100-41-4	0.022	0.0004	0.001	1
13130	Toluene	108-88-3	0.0006 J	0.0002	0.001	1
13130	Xylene (Total)	1330-20-7	0.056	0.001	0.005	1
GC Volatiles		AK 101	mg/l	mg/l	mg/l	
01438	TPH-GRO AK water C6-C10	n.a.	0.20	0.014	0.10	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX 8260C	SW-846 8260C	1	F191582AA	06/07/2019 18:17	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F191582AA	06/07/2019 18:16	Alexander D Sechrist	1
01438	TPH-GRO AK water C6-C10	AK 101	1	19151A20A	06/01/2019 01:13	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19151A20A	06/01/2019 01:12	Marie D Beamenderfer	1

*=This limit was used in the evaluation of the final result

REVISED

Sample Description: QA-T-190422 NA Water
Facility# 96489
1304 Airport Heights Dr - Anchorage, AK

ARCADIS U.S., Inc.
ELLE Sample #: GW 1068879
ELLE Group #: 2046352
Matrix: Water

Project Name: 96489

Submittal Date/Time: 05/30/2019 10:20
Collection Date/Time: 04/22/2019
SDG#: LSV64-09TB

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit*	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	mg/l	mg/l	mg/l	
13130	Benzene	71-43-2	N.D.	0.0002	0.001	1
13130	Ethylbenzene	100-41-4	N.D.	0.0004	0.001	1
13130	Toluene	108-88-3	N.D.	0.0002	0.001	1
13130	Xylene (Total)	1330-20-7	N.D.	0.001	0.005	1
GC Volatiles		AK 101	mg/l	mg/l	mg/l	
01438	TPH-GRO AK water C6-C10	n.a.	N.D.	0.014	0.10	1

Sample Comments

State of Alaska Lab Certification No. UST-061

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
13130	BTEX 8260C	SW-846 8260C	1	F191582AA	06/07/2019 18:39	Alexander D Sechrist	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	F191582AA	06/07/2019 18:38	Alexander D Sechrist	1
01438	TPH-GRO AK water C6-C10	AK 101	1	19151A20A	05/31/2019 22:27	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030C	1	19151A20A	05/31/2019 22:26	Marie D Beamenderfer	1

*=This limit was used in the evaluation of the final result

Quality Control Summary

Client Name: ARCADIS U.S., Inc.
Reported: 09/26/2019 15:31

Group Number: 2046352

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result mg/l	MDL** mg/l	LOQ mg/l
Batch number: F191581AA	Sample number(s): 1068869,1068872-1068874		
Benzene	N.D.	0.0002	0.001
Ethylbenzene	N.D.	0.0004	0.001
Toluene	N.D.	0.0002	0.001
Xylene (Total)	N.D.	0.001	0.003
Batch number: F191582AA	Sample number(s): 1068870-1068871,1068875-1068879		
Benzene	N.D.	0.0002	0.001
Ethylbenzene	N.D.	0.0004	0.001
Toluene	N.D.	0.0002	0.001
Xylene (Total)	N.D.	0.001	0.005
Batch number: F191611AA	Sample number(s): 1068871		
Xylene (Total)	N.D.	0.001	0.003
Batch number: 19151A20A TPH-GRO AK water C6-C10	Sample number(s): 1068869-1068871,1068876-1068879		
	N.D.	0.014	0.10

LCS/LCSD

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: F191581AA	Sample number(s): 1068869,1068872-1068874								
Benzene	0.0200	0.0219			110		80-120		
Ethylbenzene	0.0200	0.0205			102		80-120		
Toluene	0.0200	0.0210			105		80-120		
Xylene (Total)	0.0600	0.0632			105		80-120		
Batch number: F191582AA	Sample number(s): 1068870-1068871,1068875-1068879								
Benzene	0.0200	0.0215			107		80-120		
Ethylbenzene	0.0200	0.0205			102		80-120		
Toluene	0.0200	0.0212			106		80-120		
Xylene (Total)	0.0600	0.0634			106		80-120		
Batch number: F191611AA	Sample number(s): 1068871								
Xylene (Total)	0.0600	0.0605	0.0600	0.0634	101	106	80-120	5	30
	mg/l	mg/l	mg/l	mg/l					

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc.
Reported: 09/26/2019 15:31

Group Number: 2046352

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 19151A20A TPH-GRO AK water C6-C10	Sample number(s): 1068869-1068871,1068876-1068879								
	1.10	1.20	1.10	1.27	109	115	60-120	6	20

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: F191581AA	Sample number(s): 1068869,1068872-1068874 UNSPK: 1068872									
Benzene	0.000996	0.0200	0.0242	0.0200	0.0243	116	116	80-120	0	30
Ethylbenzene	N.D.	0.0200	0.0223	0.0200	0.0226	112	113	80-120	1	30
Toluene	0.000214	0.0200	0.0226	0.0200	0.0230	112	114	80-120	2	30
Xylene (Total)	N.D.	0.0600	0.0676	0.0600	0.0684	113	114	80-120	1	30

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: BTEX 8260C
Batch number: F191581AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1068869	95	95	98	91
1068872	95	95	98	92
1068873	95	100	99	93
1068874	95	103	99	96
Blank	95	99	99	93
LCS	96	95	97	94
MS	95	100	99	93
MSD	95	103	99	96
Limits:	80-120	80-120	80-120	80-120

Analysis Name: BTEX 8260C
Batch number: F191582AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1068870	95	95	99	95

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: ARCADIS U.S., Inc.
Reported: 09/26/2019 15:31

Group Number: 2046352

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: BTEX 8260C
Batch number: F191582AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
1068871	95	96	97	96
1068875	96	97	98	91
1068876	97	95	99	94
1068877	96	95	101	93
1068878	96	96	99	94
1068879	94	98	96	90
Blank	94	95	97	91
LCS	99	100	97	94
Limits:	80-120	80-120	80-120	80-120

Analysis Name: TPH-GRO AK water C6-C10
Batch number: 19151A20A

	Trifluorotoluene-F
1068869	84
1068870	91
1068871	93
1068876	86
1068877	88
1068878	89
1068879	94
Blank	90
LCS	97
LCSD	98
Limits:	60-120

*- Outside of specification

** - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Chevron Generic Analysis Request/Chain of Custody



**Lancaster Laboratories
Environmental**

Acct. # 11964 For Eurofins Lancaster Laboratories Environmental use only
Group # _____ Sample # _____

2046352 1068869-79

Client Information				Matrix			Analyses Requested										SCR #: _____																																																																
Facility # <u>WBS</u> <u>Chevron 96489 07.07 Groundwater sampling-monitoring</u>				Sediment <input type="checkbox"/>	Ground <input type="checkbox"/>	Surface <input type="checkbox"/>	Preservation and Filtration Codes																																																																										
Site Address <u>1304 Airport Heights Dr. Anchorage, AK</u>							Potable <input type="checkbox"/>	NPDES <input type="checkbox"/>	Oil <input type="checkbox"/>	Air <input type="checkbox"/>	<table border="1" style="font-size: small;"> <tr> <td><input type="checkbox"/> BTEX + MTBE</td> <td><input type="checkbox"/> 8021</td> <td><input type="checkbox"/> 8260</td> <td><input type="checkbox"/> Naphth</td> <td><input type="checkbox"/> 8260</td> <td><input type="checkbox"/> TPH-GRO AK 10/8015</td> <td><input type="checkbox"/> 8260</td> <td><input type="checkbox"/> TPH-DRO without Silica Gel Cleanup</td> <td><input type="checkbox"/> TPH-DRO with Silica Gel Cleanup</td> <td><input type="checkbox"/> VPH</td> <td><input type="checkbox"/> EPH</td> <td><input type="checkbox"/> Method</td> <td><input type="checkbox"/> Lead</td> <td><input type="checkbox"/> Total</td> <td><input type="checkbox"/> Diss.</td> <td><input type="checkbox"/> Method</td> </tr> </table>										<input type="checkbox"/> BTEX + MTBE	<input type="checkbox"/> 8021	<input type="checkbox"/> 8260	<input type="checkbox"/> Naphth	<input type="checkbox"/> 8260	<input type="checkbox"/> TPH-GRO AK 10/8015	<input type="checkbox"/> 8260	<input type="checkbox"/> TPH-DRO without Silica Gel Cleanup	<input type="checkbox"/> TPH-DRO with Silica Gel Cleanup	<input type="checkbox"/> VPH	<input type="checkbox"/> EPH	<input type="checkbox"/> Method	<input type="checkbox"/> Lead	<input type="checkbox"/> Total	<input type="checkbox"/> Diss.	<input type="checkbox"/> Method																																													
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Chevron PM <u>Eric Hetrick</u>				Lead Consultant <u>Aradis</u>			<table border="1" style="font-size: small;"> <tr> <td><input type="checkbox"/> 8260 full scan</td> <td><input type="checkbox"/> Oxygenates</td> <td colspan="14"></td> </tr> </table>										<input type="checkbox"/> 8260 full scan	<input type="checkbox"/> Oxygenates																																																															
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Consultant/Office <u>111 SW Columbia St Suite 670 Portland, OR</u>				Consultant Project Mgr. <u>Nicole Monroe</u>			<table border="1" style="font-size: small;"> <tr> <td><input type="checkbox"/> Results in Dry Weight</td> <td colspan="15"></td> </tr> <tr> <td><input type="checkbox"/> J value reporting needed</td> <td colspan="15"></td> </tr> <tr> <td><input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds</td> <td colspan="15"></td> </tr> </table>										<input type="checkbox"/> Results in Dry Weight																<input type="checkbox"/> J value reporting needed																<input type="checkbox"/> Must meet lowest detection limits possible for 8260 compounds																																
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Sampler <u>Evan Wycik</u>				State where samples were collected: <u>AK</u>			For Compliance: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			<table border="1" style="font-size: small;"> <tr> <td><input type="checkbox"/> Soil</td> <td><input type="checkbox"/> Water</td> <td><input type="checkbox"/> Oil</td> <td><input type="checkbox"/> Air</td> <td><input type="checkbox"/> Total Number of Containers</td> <td><input checked="" type="checkbox"/> BTEX + MTBE</td> <td><input type="checkbox"/> 8021</td> <td><input type="checkbox"/> 8260</td> <td><input type="checkbox"/> Naphth</td> <td><input type="checkbox"/> 8260 full scan</td> <td><input type="checkbox"/> Oxygenates</td> <td><input type="checkbox"/> TPH-GRO AK 10/8015</td> <td><input type="checkbox"/> 8260</td> <td><input type="checkbox"/> TPH-DRO without Silica Gel Cleanup</td> <td><input type="checkbox"/> TPH-DRO with Silica Gel Cleanup</td> <td><input type="checkbox"/> VPH</td> <td><input type="checkbox"/> EPH</td> <td><input type="checkbox"/> Method</td> <td><input type="checkbox"/> Lead</td> <td><input type="checkbox"/> Total</td> <td><input type="checkbox"/> Diss.</td> <td><input type="checkbox"/> Method</td> </tr> </table>										<input type="checkbox"/> Soil	<input type="checkbox"/> Water	<input type="checkbox"/> Oil	<input type="checkbox"/> Air	<input type="checkbox"/> Total Number of Containers	<input checked="" type="checkbox"/> BTEX + MTBE	<input type="checkbox"/> 8021	<input type="checkbox"/> 8260	<input type="checkbox"/> Naphth	<input type="checkbox"/> 8260 full scan	<input type="checkbox"/> Oxygenates	<input type="checkbox"/> TPH-GRO AK 10/8015	<input type="checkbox"/> 8260	<input type="checkbox"/> TPH-DRO without Silica Gel Cleanup	<input type="checkbox"/> TPH-DRO with Silica Gel Cleanup	<input type="checkbox"/> VPH	<input type="checkbox"/> EPH	<input type="checkbox"/> Method	<input type="checkbox"/> Lead	<input type="checkbox"/> Total	<input type="checkbox"/> Diss.	<input type="checkbox"/> Method																																								
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<u>Trip Blank</u>				<u>4.22.19</u>	<u>---</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																										
Turnaround Time Requested (TAT) (please circle) <input checked="" type="radio"/> Standard 5 day 4 day 72 hour 48 hour 24 hour				Relinquished by <u>Evan Wycik</u> Date <u>5.28.19</u> Time <u>1530</u> Received by <u>Aradis Cold Storage</u> Date _____ Time _____			Relinquished by <u>Evan Wycik</u> Date <u>5.29.19</u> Time <u>0930</u> Received by <u>Fed Ex</u> Date _____ Time _____			Relinquished by _____ Date _____ Time _____ Received by _____ Date _____ Time _____			Relinquished by Commercial Carrier: UPS _____ FedEx <input checked="" type="checkbox"/> Other _____ Received by <u>[Signature]</u> Date <u>5.30.19</u> Time <u>1000</u>			Temperature Upon Receipt <u>0.9</u> °C Custody Seals Intact? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																																																																	
Data Package (circle if required) Type I - Full <input checked="" type="radio"/> Type III Type VI (Raw Data)																																																																																	
EDD (circle if required) <input checked="" type="radio"/> CVX-RTBU-FL_05 (default) Other: _____																																																																																	



Client: Chevron

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 05/30/2019 10:20
 Number of Packages: 1 Number of Projects: 1
 State/Province of Origin: AK

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace \geq 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCI
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Darian Jaynes (29952) at 16:10 on 05/30/2019

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.9	DT	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mL	milliliter(s)
C	degrees Celsius	MPN	Most Probable Number
cfu	colony forming units	N.D.	non-detect
CP Units	cobalt-chloroplatinate units	ng	nanogram(s)
F	degrees Fahrenheit	NTU	nephelometric turbidity units
g	gram(s)	pg/L	picogram/liter
IU	International Units	RL	Reporting Limit
kg	kilogram(s)	TNTC	Too Numerous To Count
L	liter(s)	µg	microgram(s)
lb.	pound(s)	µL	microliter(s)
m3	cubic meter(s)	umhos/cm	micromhos/cm
meq	milliequivalents	MCL	Maximum Contamination Limit
mg	milligram(s)		
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Data Qualifiers

Qualifier	Definition
C	Result confirmed by reanalysis
D1	Indicates for dual column analyses that the result is reported from column 1
D2	Indicates for dual column analyses that the result is reported from column 2
E	Concentration exceeds the calibration range
K1	Initial Calibration Blank is above the QC limit and the sample result is ND
K2	Continuing Calibration Blank is above the QC limit and the sample result is ND
K3	Initial Calibration Verification is above the QC limit and the sample result is ND
K4	Continuing Calibration Verification is above the QC limit and the sample result is ND
J (or G, I, X)	Estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
P	Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
P^	Concentration difference between the primary and confirmation column $> 40\%$. The higher result is reported.
U	Analyte was not detected at the value indicated
V	Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference.
W	The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.
Z	Laboratory Defined - see analysis report

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Volatiles by GC/MS Data

Case Narrative/Conformance Summary

Volatiles by GC/MS

Case Narrative/Conformance Summary

CLIENT: ARCADIS U.S., Inc.
SDG: LSV64

GC/MS Volatiles

Fraction: Volatiles by GC/MS

Sample #	Client ID	Matrix		DF	Comments
		Liquid	Solid		
1068869	QA-O-190528	X		1	Equipment Blank
1068870	MW-4-W-190528	X		1	
1068871	MW-7-W-190528	X		1; 10	
1068872	MW-5-W-190528	X		1	Unspiked
1068873	MW-5-W-190528 MS	X		1	Matrix Spike
1068874	MW-5-W-190528 MSD	X		1	Matrix Spike Duplicate
1068875	MW-6-W-190528	X		1	
1068876	MW-11-W-190528	X		1	
1068877	MW-10-W-190528	X		1	
1068878	BD-1-WD-190528	X		1	Field Duplicate Sample
1068879	QA-T-190422	X		1	Trip Blank

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

All QC is within specification.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

Case Narrative/Conformance Summary

CLIENT: ARCADIS U.S., Inc.
SDG: LSV64

GC/MS Volatiles

Fraction: Volatiles by GC/MS

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
+MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

Quality Control and Calibration Summary Forms

Volatiles by GC/MS

Quality Control Reference List
GC/MS Volatiles

CLIENT: ARCADIS U.S., Inc.
SDG: LSV64

Fraction: Volatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
BTEX 8260C	F191581AA	VBLKF07	06/07/2019 10:36
		LCSF07	06/07/2019 10:14
		1068869	06/07/2019 11:11
		1068872 UNSPK	06/07/2019 11:33
		1068873 MS	06/07/2019 11:55
		1068874 MSD	06/07/2019 12:17
BTEX 8260C	F191582AA	VBLKF08	06/07/2019 10:46
		LCSF08	06/07/2019 10:24
		1068870	06/07/2019 16:28
		1068871	06/07/2019 16:50
		1068875	06/07/2019 17:12
		1068876	06/07/2019 17:34
		1068877	06/07/2019 17:56
		1068878	06/07/2019 18:17
		1068879	06/07/2019 18:39
BTEX 8260C	F191611AA	VBLKF09	06/10/2019 11:49
		LCSF09	06/10/2019 11:05
		LCDF09	06/10/2019 11:27
		1068871	06/10/2019 17:08

Fraction: Volatiles by GC/MS

F191581AA / VBLKF07					
Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Benzene	06/07/19	N.D.	mg/l	0.0002	0.001
Toluene	06/07/19	N.D.	mg/l	0.0002	0.001
Ethylbenzene	06/07/19	N.D.	mg/l	0.0004	0.001
Xylene (Total)	06/07/19	N.D.	mg/l	0.001	0.003

F191582AA / VBLKF08					
Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Benzene	06/07/19	N.D.	mg/l	0.0002	0.001
Toluene	06/07/19	N.D.	mg/l	0.0002	0.001
Ethylbenzene	06/07/19	N.D.	mg/l	0.0004	0.001
Xylene (Total)	06/07/19	N.D.	mg/l	0.001	0.005

F191611AA / VBLKF09					
Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Xylene (Total)	06/10/19	N.D.	mg/l	0.001	0.003

Fraction: Volatiles by GC/MS

F191581AA	1,2-Dichloroethane-d4		4-Bromofluorobenzene		Dibromofluoromethane		Toluene-d8	
	Spike Added	0.05 mg/l	Spike Added	0.05 mg/l	Spike Added	0.05 mg/l	Spike Added	0.05 mg/l
	Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery
VBLKF07	99	80 - 120	93	80 - 120	95	80 - 120	99	80 - 120
LCSF07	95	80 - 120	94	80 - 120	96	80 - 120	97	80 - 120
1068869	95	80 - 120	91	80 - 120	95	80 - 120	98	80 - 120
1068872 UNSPK	95	80 - 120	92	80 - 120	95	80 - 120	98	80 - 120
1068873 MS	100	80 - 120	93	80 - 120	95	80 - 120	99	80 - 120
1068874 MSD	103	80 - 120	96	80 - 120	95	80 - 120	99	80 - 120

F191582AA	1,2-Dichloroethane-d4		4-Bromofluorobenzene		Dibromofluoromethane		Toluene-d8	
	Spike Added	0.05 mg/l	Spike Added	0.05 mg/l	Spike Added	0.05 mg/l	Spike Added	0.05 mg/l
	Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery
VBLKF08	95	80 - 120	91	80 - 120	94	80 - 120	97	80 - 120
LCSF08	100	80 - 120	94	80 - 120	99	80 - 120	97	80 - 120
1068870	95	80 - 120	95	80 - 120	95	80 - 120	99	80 - 120
1068871	96	80 - 120	96	80 - 120	95	80 - 120	97	80 - 120
1068875	97	80 - 120	91	80 - 120	96	80 - 120	98	80 - 120
1068876	95	80 - 120	94	80 - 120	97	80 - 120	99	80 - 120
1068877	95	80 - 120	93	80 - 120	96	80 - 120	101	80 - 120
1068878	96	80 - 120	94	80 - 120	96	80 - 120	99	80 - 120
1068879	98	80 - 120	90	80 - 120	94	80 - 120	96	80 - 120

GC/MS Volatiles

Fraction: Volatiles by GC/MS

UNSPK: 1068872 MS: 1068873 MSD: 1068874 Analyte	Batch: F191581AA (Sample number(s): 1068869, 1068872-1068874)								
	Spike Added mg/l	Unspiked Conc mg/l	MS Conc mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	%Rec Limits	%RPD	%RPD Limits
Benzene	0.0200	0.000996	0.0242	0.0243	116	116	80-120	0	30
Toluene	0.0200	0.000214	0.0226	0.0230	112	114	80-120	2	30
Ethylbenzene	0.0200	N.D.	0.0223	0.0226	112	113	80-120	1	30
Xylene (Total)	0.0600	N.D.	0.0676	0.0684	113	114	80-120	1	30

Comments:

(2) The unspiked sample result is greater than four times the spike added.

* = Out of Specification

Results are being reported on an as received basis.

SDG: LSV64
Matrix: LIQUID

GC/MS Volatiles
Fraction: Volatiles by GC/MS

LCS: LCSF07		Batch: F191581AA (Sample number(s): 1068869, 1068872-1068874)						
Analyte	Spike Added mg/l	LCS Conc mg/l	LCSD Conc mg/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Benzene	0.0200	0.0219	NA	110	NA	80-120	NA	NA
Toluene	0.0200	0.0210	NA	105	NA	80-120	NA	NA
Ethylbenzene	0.0200	0.0205	NA	102	NA	80-120	NA	NA
Xylene (Total)	0.0600	0.0632	NA	105	NA	80-120	NA	NA

LCS: LCSF08		Batch: F191582AA (Sample number(s): 1068870-1068871, 1068875-1068879)						
Analyte	Spike Added mg/l	LCS Conc mg/l	LCSD Conc mg/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Benzene	0.0200	0.0215	NA	107	NA	80-120	NA	NA
Toluene	0.0200	0.0212	NA	106	NA	80-120	NA	NA
Ethylbenzene	0.0200	0.0205	NA	102	NA	80-120	NA	NA
Xylene (Total)	0.0600	0.0634	NA	106	NA	80-120	NA	NA

LCS: LCSF09 LCSD: LCDF09		Batch: F191611AA (Sample number(s): 1068871)						
Analyte	Spike Added mg/l	LCS Conc mg/l	LCSD Conc mg/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Xylene (Total)	0.0600	0.0605	0.0634	101	106	80-120	5	30

Fraction: Volatiles by GC/MS

13130: BTEX 8260C Analyte Name	Default MDL	Default LOQ	Units
Benzene	0.0002	0.001	mg/l
Toluene	0.0002	0.001	mg/l
Ethylbenzene	0.0004	0.001	mg/l
Xylene (Total)	0.001	0.003	mg/l

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: fa09t51.d BFB Injection Date: 04/09/19
 Instrument ID: HP15830 BFB Injection Time: 20:41
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.21
75	30.0 - 60.0% of mass 95	47.07
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.35
173	Less than 2.0% of mass 174	0.62 (0.78)1
174	Greater than 50.0% of mass 95	78.69
175	5.0 - 9.0% of mass 174	5.71 (7.26)1
176	Greater than 95.0%, but less than 101.0% of mass 174	75.65 (96.13)1
177	5.0 - 9.0% of mass 176	5.03 (6.65)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD200	fa09i51.d	04/09/19	21:37
02	VSTD200	fa09i52.d	04/09/19	21:46
03	VSTD100	fa09i53.d	04/09/19	21:59
04	VSTD100	fa09i54.d	04/09/19	22:08
05	VSTD50	fa09i55.d	04/09/19	22:21
06	VSTD50	fa09i56.d	04/09/19	22:31
07	VSTD20	fa09i57.d	04/09/19	22:43
08	VSTD20	fa09i58.d	04/09/19	22:53
09	VSTD10	fa09i59.d	04/09/19	23:05
10	VSTD10	fa09i60.d	04/09/19	23:15
11	VSTD2	fa09i61.d	04/09/19	23:27
12	VSTD2	fa09i62.d	04/09/19	23:37
13	VSTD1	fa09i63.d	04/09/19	23:49
14	VSTD1	fa09i64.d	04/09/19	23:59
15	ICVF03	fa09v51.d	04/10/19	00:55
16	ICVF04	fa09v52.d	04/10/19	01:05

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: fu07t01.d BFB Injection Date: 06/07/19
 Instrument ID: HP15830 BFB Injection Time: 08:29
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.65
75	30.0 - 60.0% of mass 95	46.32
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.45
173	Less than 2.0% of mass 174	1.00 (1.10)1
174	Greater than 50.0% of mass 95	90.79
175	5.0 - 9.0% of mass 174	7.02 (7.73)1
176	Greater than 95.0%, but less than 101.0% of mass 174	88.29 (97.24)1
177	5.0 - 9.0% of mass 176	5.44 (6.17)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	fu07c03.d	06/07/19	09:52
02	VSTD50	fu07c04.d	06/07/19	10:02
03	LCSF07	fu07s01.d	06/07/19	10:14
04	LCSF08	fu07s02.d	06/07/19	10:24
05	VBLKF07	fu07b01.d	06/07/19	10:36
06	VBLKF08	fu07b02.d	06/07/19	10:46
07	1068869	fu07s03.d	06/07/19	11:11
08	1068909	fu07s04.d	06/07/19	11:21
09	1068872	fu07s05.d	06/07/19	11:33
10	1068910	fu07s06.d	06/07/19	11:43
11	1068873MS	fu07s07.d	06/07/19	11:55
12	1068910MS	fu07s08.d	06/07/19	12:05
13	1068874MSD	fu07s09.d	06/07/19	12:17
14	1068910MSD	fu07s10.d	06/07/19	12:27
15	1068848	fu07s11.d	06/07/19	12:39
16	1068911	fu07s12.d	06/07/19	12:49
17	1068849	fu07s13.d	06/07/19	13:01
18	1068912	fu07s14.d	06/07/19	13:10
19	1068850	fu07s15.d	06/07/19	13:23
20	1068913	fu07s16.d	06/07/19	13:32
21	1068851	fu07s17.d	06/07/19	13:45
22	1068914	fu07s18.d	06/07/19	13:55

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: fu07t01.d BFB Injection Date: 06/07/19
 Instrument ID: HP15830 BFB Injection Time: 08:29
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.65
75	30.0 - 60.0% of mass 95	46.32
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.45
173	Less than 2.0% of mass 174	1.00 (1.10)1
174	Greater than 50.0% of mass 95	90.79
175	5.0 - 9.0% of mass 174	7.02 (7.73)1
176	Greater than 95.0%, but less than 101.0% of mass 174	88.29 (97.24)1
177	5.0 - 9.0% of mass 176	5.44 (6.17)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	1068852	fu07s19.d	06/07/19	14:07
24	1068915	fu07s20.d	06/07/19	14:17
25	1068853	fu07s21.d	06/07/19	14:29
26	1068602	fu07s22.d	06/07/19	14:39
27	1068854	fu07s23.d	06/07/19	14:51
28	1068603	fu07s24.d	06/07/19	15:01
29	1068855	fu07s25.d	06/07/19	15:10
30	1068604	fu07s26.d	06/07/19	15:23
31	1068856	fu07s27.d	06/07/19	15:32
32	1068605	fu07s28.d	06/07/19	15:44
33	1068857	fu07s29.d	06/07/19	15:54
34	1068606	fu07s30.d	06/07/19	16:06
35	1068858	fu07s31.d	06/07/19	16:16
36	1068870	fu07s32.d	06/07/19	16:28
37	1068859	fu07s33.d	06/07/19	16:38
38	1068871	fu07s34.d	06/07/19	16:50
39	1068859DL	fu07s35.d	06/07/19	17:00
40	1068875	fu07s36.d	06/07/19	17:12
41	1068860	fu07s37.d	06/07/19	17:22
42	1068876	fu07s38.d	06/07/19	17:34
43	1068861	fu07s39.d	06/07/19	17:44
44	1068877	fu07s40.d	06/07/19	17:56

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: fu07t01.d BFB Injection Date: 06/07/19
 Instrument ID: HP15830 BFB Injection Time: 08:29
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.65
75	30.0 - 60.0% of mass 95	46.32
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.45
173	Less than 2.0% of mass 174	1.00 (1.10)1
174	Greater than 50.0% of mass 95	90.79
175	5.0 - 9.0% of mass 174	7.02 (7.73)1
176	Greater than 95.0%, but less than 101.0% of mass 174	88.29 (97.24)1
177	5.0 - 9.0% of mass 176	5.44 (6.17)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
45	1068862	fu07s41.d	06/07/19	18:06
46	1068878	fu07s42.d	06/07/19	18:17
47	1068370	fu07s43.d	06/07/19	18:29
48	1068879	fu07s44.d	06/07/19	18:39

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: fu10t01.d BFB Injection Date: 06/10/19
 Instrument ID: HP15830 BFB Injection Time: 08:50
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.97
75	30.0 - 60.0% of mass 95	46.42
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.21
173	Less than 2.0% of mass 174	0.47 (0.54)1
174	Greater than 50.0% of mass 95	87.16
175	5.0 - 9.0% of mass 174	6.41 (7.36)1
176	Greater than 95.0%, but less than 101.0% of mass 174	83.81 (96.16)1
177	5.0 - 9.0% of mass 176	5.59 (6.67)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD1100	fu10c04.d	06/10/19	10:08
02	VSTD50	fu10c05.d	06/10/19	10:43
03	VSTD50	fu10c06.d	06/10/19	10:52
04	LCSF09	fu10s01.d	06/10/19	11:05
05	LCSF12	fu10s02.d	06/10/19	11:14
06	LCDF09	fu10s03.d	06/10/19	11:27
07	LCDF12	fu10s04.d	06/10/19	11:36
08	VBLKF09	fu10b01.d	06/10/19	11:49
09	LCSF14	fu10s06.d	06/10/19	11:58
10	LCDF14	fu10s08.d	06/10/19	12:20
11	VBLKF12	fu10b02.d	06/10/19	12:42
12	1069256	fu10s09.d	06/10/19	13:08
13	1071471	fu10s10.d	06/10/19	13:17
14	1069257	fu10s11.d	06/10/19	13:30
15	1071472	fu10s12.d	06/10/19	13:40
16	1069258	fu10s13.d	06/10/19	13:52
17	1071473	fu10s14.d	06/10/19	14:02
18	1069259	fu10s15.d	06/10/19	14:14
19	1068454DL	fu10s16.d	06/10/19	14:24
20	1069261	fu10s17.d	06/10/19	14:36
21	1069093	fu10s18.d	06/10/19	14:46
22	1069262	fu10s19.d	06/10/19	14:58

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID: fu10t01.d BFB Injection Date: 06/10/19
 Instrument ID: HP15830 BFB Injection Time: 08:50
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.97
75	30.0 - 60.0% of mass 95	46.42
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.21
173	Less than 2.0% of mass 174	0.47 (0.54)1
174	Greater than 50.0% of mass 95	87.16
175	5.0 - 9.0% of mass 174	6.41 (7.36)1
176	Greater than 95.0%, but less than 101.0% of mass 174	83.81 (96.16)1
177	5.0 - 9.0% of mass 176	5.59 (6.67)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	1069093MS	fu10s20.d	06/10/19	15:08
24	1069263	fu10s21.d	06/10/19	15:21
25	1069093MSD	fu10s22.d	06/10/19	15:30
26	1069264	fu10s23.d	06/10/19	15:42
27	1069092	fu10s24.d	06/10/19	15:52
28	1068848DL	fu10s25.d	06/10/19	16:05
29	1069094	fu10s26.d	06/10/19	16:14
30	1068855RE	fu10s27.d	06/10/19	16:24
31	1069105	fu10s28.d	06/10/19	16:36
32	1070053	fu10s29.d	06/10/19	16:46
33	1069106	fu10s30.d	06/10/19	16:58
34	1068871DL	fu10s31.d	06/10/19	17:08
35	1069080DL2	fu10s32.d	06/10/19	17:20
36	1070449	fu10s33.d	06/10/19	17:30
37	1069085	fu10s34.d	06/10/19	17:42
38	1070046	fu10s35.d	06/10/19	17:52
39	1069086	fu10s36.d	06/10/19	18:03
40	1070047	fu10s37.d	06/10/19	18:14
41	1069086DL	fu10s38.d	06/10/19	18:25
42	1070048	fu10s39.d	06/10/19	18:36
43	1070049	fu10s41.d	06/10/19	18:58
44	1067266DL	fu10s42.d	06/10/19	19:08

6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Instrument ID: HP15830 Calibration Date(s): 04/09/19 04/09/19
 Heated Purge: (Y/N) Y Calibration Times: 21:37 23:49
 Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rtx-VRXID: .18

LAB FILE ID: RRF 1 = fa09i63.d RRF 2 = fa09i61.d RRF 10= fa09i59.d
 RRF 20= fa09i57.d RRF 50= fa09i55.d RRF100= fa09i53.d RRF200= fa09i51.d

COMPOUND	RRF 1	RRF 2	RRF 10	RRF 20	RRF 50	RRF100	RRF200	RRF	% RSD	CAL. METHOD
Ethanol	0.1050	0.0910	0.0897	0.0914	0.0873	0.0903	0.0919	0.0924	6	AVG
t-Butyl alcohol	0.9097	1.0139	1.1688	1.1126	1.2567	1.5961	1.3610	1.2027	19	AVG
Methyl Tertiary Butyl Ether	0.7843	0.8628	0.9335	0.9037	0.9162	0.9270	0.8781	0.8865	6	AVG
di-Isopropyl ether	0.8325	0.8959	0.9472	0.9635	1.0050	0.9500	0.9601	0.9363	6	AVG
Ethyl t-butyl ether	0.8394	0.8919	0.9654	0.9829	1.0336	0.9804	0.9958	0.9556	7	AVG
1,2-Dichloroethane	0.4296	0.4104	0.4376	0.4389	0.4433	0.4165	0.4236	0.4285	3	AVG
Benzene	1.2102	1.2340	1.3024	1.3306	1.3998	1.3143	1.3095	1.3001	5	AVG
t-Amyl methyl ether	0.1995	0.2225	0.2386	0.2431	0.2536	0.2510	0.2515	0.2371	8	AVG
Toluene	1.0794	1.0680	1.1132	1.1558	1.2093	1.1374	1.1393	1.1289	4	AVG
1,2-Dibromoethane	0.3749	0.3979	0.3978	0.4050	0.4327	0.4450	0.4326	0.4122	6	AVG
Ethylbenzene	1.9724	2.0813	2.1291	2.2024	2.3401	2.3093	2.2329	2.1811	6	AVG
m+p-Xylene	0.7888	0.8211	0.8550	0.8732	0.9399	0.9303	0.8994	0.8725	6	AVG
o-Xylene	0.7118	0.7723	0.8130	0.8322	0.9046	0.9143	0.8671	0.8308	9	AVG
Isopropylbenzene	1.9551	1.9881	2.1300	2.2312	2.3788	2.3976	2.2755	2.1938	8	AVG
1,3,5-Trimethylbenzene	2.8221	2.9125	3.1145	3.2698	3.5013	3.6640	3.4274	3.2445	10	AVG
1,2,4-Trimethylbenzene	2.9620	2.9426	3.1938	3.2887	3.5793	3.8544	3.5370	3.3368	10	AVG
Naphthalene	3.8265	3.7856	3.6722	3.6973	4.2195	4.8576	4.3172	4.0537	11	AVG
Dibromofluoromethane	0.2354	0.2383	0.2377	0.2329	0.2339	0.2343	0.2319	0.2349	1	AVG
Dibromofluoromethane(2)	0.2401	0.2461	0.2429	0.2413	0.2362	0.2404	0.2361	0.2404	1	AVG
1,2-Dichloroethane-d4	0.0653	0.0666	0.0670	0.0669	0.0688	0.0704	0.0709	0.0680	3	AVG
1,2-Dichloroethane-d4(2)	0.2819	0.2836	0.2882	0.2879	0.2903	0.2996	0.3033	0.2907	3	AVG
1,2-Dichloroethane-d4(3)	0.0429	0.0414	0.0412	0.0415	0.0423	0.0429	0.0421	0.0420	2	AVG
Toluene-d8	1.2898	1.2907	1.2758	1.3057	1.2915	1.2896	1.2828	1.2894	1	AVG
Toluene-d8(2)	0.8632	0.8602	0.8543	0.8606	0.8716	0.8664	0.8574	0.8620	1	AVG
4-Bromofluorobenzene	0.5020	0.5087	0.5018	0.5120	0.5142	0.5134	0.5123	0.5092	1	AVG
4-Bromofluorobenzene(2)	0.4224	0.4325	0.4297	0.4301	0.4311	0.4267	0.4283	0.4287	1	AVG

Average %RSD 6

Minimum RRF for SPCC(#) = 0.10
 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
 Maximum %RSD for CCC(*) = 30%

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP15830.i/19apr09z.b/fa09i51.d	VSTD200
/chem/HP15830.i/19apr09z.b/fa09i53.d	VSTD100
/chem/HP15830.i/19apr09z.b/fa09i55.d	VSTD050
/chem/HP15830.i/19apr09z.b/fa09i57.d	VSTD020
/chem/HP15830.i/19apr09z.b/fa09i59.d	VSTD010
/chem/HP15830.i/19apr09z.b/fa09i61.d	VSTD002
/chem/HP15830.i/19apr09z.b/fa09i63.d	VSTD001

Area Summary

File ID:

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Internal Standard Name	fa09i51.d	fa09i53.d	fa09i55.d	fa09i57.d	fa09i59.d	fa09i61.d	fa09i63.d	Avg. Area	%RSD	In Spec
t-Butyl alcohol-d10	215123	215182	223539	212596	211252	214970	214695	215337	2	Yes
Fluorobenzene	507482	503044	512950	500890	490251	493688	497754	500866	2	Yes
Chlorobenzene-d5	392940	392178	394538	385860	386262	385618	385479	388982	1	Yes
1,4-Dichlorobenzene-d4	218577	216604	219950	215987	215412	215142	215601	216753	1	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

=====

Internal Standard Name	fa09i51.d	fa09i53.d	fa09i55.d	fa09i57.d	fa09i59.d	fa09i61.d	fa09i63.d	Avg. RT
t-Butyl alcohol-d10	1.959	1.952	1.946	1.965	1.946	1.946	1.952	1.952
Fluorobenzene	3.544	3.544	3.544	3.544	3.544	3.544	3.544	3.544
Chlorobenzene-d5	4.879	4.879	4.879	4.879	4.879	4.879	4.879	4.879
1,4-Dichlorobenzene-d4	5.830	5.830	5.830	5.830	5.830	5.830	5.830	5.830

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 04/10/2019 at 10:36.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Instrument ID: HP15830 ICV Date: 04/10/19 Time: 00:55
 Lab File ID: fa09v51.d Init. Calib. Date(s): 04/09/19 04/09/19
 Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rtx-VRXID: .18

COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Ethanol	0.0924	0.0931	504.08	500	1
t-Butyl alcohol	1.2027	1.2304	204.60	200	2
# Methyl Tertiary Butyl Ether	0.8865	0.9144	20.63	20	3 #
di-Isopropyl ether	0.9363	0.9485	20.26	20	1
Ethyl t-butyl ether	0.9556	0.9579	20.05	20	0
# 1,2-Dichloroethane	0.4285	0.4155	19.39	20	-3 #
# Benzene	1.3001	1.2949	19.92	20	0 #
t-Amyl methyl ether	0.2371	0.2413	20.35	20	2
# Toluene	1.1289	1.1291	20.00	20	0 #
# 1,2-Dibromoethane	0.4122	0.4119	19.98	20	0 #
# Ethylbenzene	2.1811	2.1793	19.98	20	0 #
# m+p-Xylene	0.8725	0.8810	40.39	40	1 #
# o-Xylene	0.8308	0.8567	20.62	20	3 #
# Isopropylbenzene	2.1938	2.2444	20.46	20	2 #
1,3,5-Trimethylbenzene	3.2445	3.2301	19.91	20	0
1,2,4-Trimethylbenzene	3.3368	3.2712	19.61	20	-2
Naphthalene	4.0537	3.8883	19.18	20	-4

Average %Drift 1

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
 Maximum %Drift for CCC(*)=20%

6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Instrument ID: HP15830 Calibration Date(s): 04/09/19 04/09/19
 Heated Purge: (Y/N) Y Calibration Times: 21:46 23:59
 Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rtx-VRXID: .18

LAB FILE ID: RRF 1 = fa09i64.d RRF 2 = fa09i62.d RRF 10= fa09i60.d
 RRF 20= fa09i58.d RRF 50= fa09i56.d RRF100= fa09i54.d RRF200= fa09i52.d

COMPOUND	RRF 1	RRF 2	RRF 10	RRF 20	RRF 50	RRF100	RRF200	RRF	% RSD	CAL. METHOD
Ethanol	0.1045	0.1022	0.1040	0.1054	0.1023	0.1049	0.1079	0.1045	2	AVG
t-Butyl alcohol		1.0018	1.1013	1.0278	1.2119	1.5278	1.2923	1.1938	17	AVG
Methyl Tertiary Butyl Ether	#0.7982	0.8424	0.8869	0.8505	0.9155	0.8919	0.8658	0.8644	4	AVG #
di-Isopropyl ether	0.8465	0.8321	0.9136	0.9034	0.9727	0.8963	0.9224	0.8982	5	AVG
Ethyl t-butyl ether	0.8499	0.8414	0.9235	0.9237	0.9951	0.9288	0.9571	0.9171	6	AVG
1,2-Dichloroethane	#0.4308	0.4003	0.4085	0.4117	0.4265	0.3922	0.4030	0.4104	3	AVG #
Benzene	#1.1457	1.1749	1.2781	1.2503	1.3391	1.2232	1.2583	1.2385	5	AVG #
t-Amyl methyl ether	0.1817	0.2083	0.2289	0.2270	0.2480	0.2367	0.2420	0.2246	10	AVG
Toluene	#1.0011	1.0409	1.0760	1.0898	1.1455	1.0739	1.1030	1.0757	4	AVG #
1,2-Dibromoethane	#0.3587	0.3468	0.3800	0.3740	0.4145	0.4150	0.4053	0.3849	7	AVG #
Ethylbenzene	#1.8944	1.9536	2.0996	2.0273	2.2305	2.2103	2.1629	2.0826	6	AVG #
m+p-Xylene	#0.7602	0.7947	0.8356	0.8074	0.8903	0.8887	0.8620	0.8341	6	AVG #
o-Xylene	#0.7329	0.7330	0.8016	0.7673	0.8639	0.8664	0.8411	0.8009	7	AVG #
Isopropylbenzene	#1.9444	1.9030	2.0985	1.9637	2.2589	2.3131	2.2047	2.0981	8	AVG #
1,3,5-Trimethylbenzene	2.7757	2.7764	3.1079	2.8619	3.3586	3.5120	3.2922	3.0978	10	AVG
1,2,4-Trimethylbenzene	2.9272	2.9232	3.1062	2.9133	3.4688	3.6415	3.3715	3.1931	9	AVG
Naphthalene	3.3829	3.3917	3.3702	3.1144	3.8641	4.3671	3.8586	3.6213	12	AVG
Dibromofluoromethane	0.2349	0.2364	0.2346	0.2358	0.2359	0.2306	0.2326	0.2344	1	AVG
Dibromofluoromethane(2)	0.2405	0.2416	0.2404	0.2401	0.2405	0.2358	0.2383	0.2396	1	AVG
1,2-Dichloroethane-d4	0.0646	0.0656	0.0651	0.0668	0.0674	0.0687	0.0697	0.0669	3	AVG
1,2-Dichloroethane-d4(2)	0.2819	0.2796	0.2829	0.2855	0.2814	0.2872	0.3013	0.2857	3	AVG
1,2-Dichloroethane-d4(3)	0.0416	0.0405	0.0405	0.0419	0.0415	0.0401	0.0410	0.0410	2	AVG
Toluene-d8	1.2968	1.2771	1.2897	1.3084	1.2820	1.2944	1.3057	1.2934	1	AVG
Toluene-d8(2)	0.8640	0.8558	0.8490	0.8700	0.8589	0.8629	0.8727	0.8619	1	AVG
4-Bromofluorobenzene	0.5050	0.5066	0.5041	0.5139	0.5094	0.5144	0.5194	0.5104	1	AVG
4-Bromofluorobenzene(2)	0.4331	0.4208	0.4255	0.4330	0.4234	0.4259	0.4277	0.4270	1	AVG

Average %RSD 5

Minimum RRF for SPCC(#) = 0.10
 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
 Maximum %RSD for CCC(*) = 30%

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP15830.i/19apr09z.b/fa09i52.d	VSTD200
/chem/HP15830.i/19apr09z.b/fa09i54.d	VSTD100
/chem/HP15830.i/19apr09z.b/fa09i56.d	VSTD050
/chem/HP15830.i/19apr09z.b/fa09i58.d	VSTD020
/chem/HP15830.i/19apr09z.b/fa09i60.d	VSTD010
/chem/HP15830.i/19apr09z.b/fa09i62.d	VSTD002
/chem/HP15830.i/19apr09z.b/fa09i64.d	VSTD001

Area Summary

File ID:

=====

Internal Standard Name	fa09i52.d	fa09i54.d	fa09i56.d	fa09i58.d	fa09i60.d	fa09i62.d	fa09i64.d	Avg. Area	%RSD	In Spec
t-Butyl alcohol-d10	159329	159716	160949	161100	156065	158796	157662	159088	1	Yes
Fluorobenzene	523689	522492	516173	517579	498117	508191	512083	514046	2	Yes
Chlorobenzene-d5	403563	401635	404584	398960	391350	400536	396618	399607	1	Yes
1,4-Dichlorobenzene-d4	226754	223708	223580	223014	216792	219785	221185	222117	1	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

=====

Internal Standard Name	fa09i52.d	fa09i54.d	fa09i56.d	fa09i58.d	fa09i60.d	fa09i62.d	fa09i64.d	Avg. RT
t-Butyl alcohol-d10	1.952	1.940	1.946	1.946	1.940	1.946	1.946	1.946
Fluorobenzene	3.544	3.538	3.544	3.544	3.538	3.544	3.544	3.542
Chlorobenzene-d5	4.879	4.879	4.885	4.885	4.879	4.885	4.885	4.882
1,4-Dichlorobenzene-d4	5.830	5.830	5.830	5.830	5.830	5.830	5.830	5.830

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 04/10/2019 at 10:56.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Instrument ID: HP15830 ICV Date: 04/10/19 Time: 01:05
 Lab File ID: fa09v52.d Init. Calib. Date(s): 04/09/19 04/09/19
 Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rtx-VRXID: .18

COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Ethanol	0.1045	0.1151	550.80	500	10
t-Butyl alcohol	1.1938	1.2324	206.47	200	3
# Methyl Tertiary Butyl Ether	0.8644	0.9187	21.25	20	6 #
di-Isopropyl ether	0.8982	0.9579	21.33	20	7
Ethyl t-butyl ether	0.9171	0.9597	20.93	20	5
# 1,2-Dichloroethane	0.4104	0.4240	20.66	20	3 #
# Benzene	1.2385	1.3088	21.14	20	6 #
t-Amyl methyl ether	0.2246	0.2412	21.47	20	7
# Toluene	1.0757	1.1199	20.82	20	4 #
# 1,2-Dibromoethane	0.3849	0.4093	21.27	20	6 #
# Ethylbenzene	2.0826	2.1690	20.83	20	4 #
# m+p-Xylene	0.8341	0.8760	42.01	40	5 #
# o-Xylene	0.8009	0.8360	20.88	20	4 #
# Isopropylbenzene	2.0981	2.2226	21.19	20	6 #
1,3,5-Trimethylbenzene	3.0978	3.2197	20.79	20	4
1,2,4-Trimethylbenzene	3.1931	3.3651	21.08	20	5
Naphthalene	3.6213	3.5950	19.85	20	-1

Average %Drift 5

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
 Maximum %Drift for CCC(*)=20%

Lancaster Laboratories

Continuing Calibration Internal Standard Check

Initial Calibration Standards:

```

/chem/HP15830.i/19apr09z.b/fa09i63.d
/chem/HP15830.i/19apr09z.b/fa09i61.d
/chem/HP15830.i/19apr09z.b/fa09i59.d
/chem/HP15830.i/19apr09z.b/fa09i57.d
/chem/HP15830.i/19apr09z.b/fa09i55.d
/chem/HP15830.i/19apr09z.b/fa09i53.d
/chem/HP15830.i/19apr09z.b/fa09i51.d

```

File /chem/HP15830.i/19apr09z.b/fa09i55.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem/HP15830.i/19jun07a.b/fu07c03.d

RT Summary

File ID:
=====

Internal Standard Name	fu07c03.d	ICAL RT	In Spec
=====	=====	=====	=====
t-Butyl alcohol-d10	1.916	1.946	Yes
Fluorobenzene	3.513	3.544	Yes
Chlorobenzene-d5	4.860	4.879	Yes
1,4-Dichlorobenzene-d4	5.811	5.830	Yes

A "No" indicates the retention time is greater than 10 seconds from the referenced ICAL standard.

Area Summary

File ID:
=====

Internal Standard Name	fu07c03.d	ICAL Area	Low Limit	High Limit	In Spec
=====	=====	=====	=====	=====	=====
t-Butyl alcohol-d10	141868	223539	111770	447078	Yes
Fluorobenzene	400817	512950	256475	1025900	Yes
Chlorobenzene-d5	307053	394538	197269	789076	Yes
1,4-Dichlorobenzene-d4	172360	219950	109975	439900	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Instrument ID: HP15830 Calibration Date: 06/07/19 Time: 09:52
 Lab File ID: fu07c03.d Init. Calib. Date(s): 04/09/19 04/09/19
 Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rtx-VRXID: .18

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Ethanol	0.0924	0.0753	1018.54	1250	-19
t-Butyl alcohol	1.2027	1.3011	270.46	250	8
# Methyl Tertiary Butyl Ether	0.8865	0.9195	207.45	200	4 #
di-Isopropyl ether	0.9363	1.0025	53.54	50	7
Ethyl t-butyl ether	0.9556	0.9807	51.31	50	3
# 1,2-Dichloroethane	0.4285	0.4101	47.85	50	-4 #
# Benzene	1.3001	1.3616	52.37	50	5 #
t-Amyl methyl ether	0.2371	0.2364	49.86	50	0
# Toluene	1.1289	1.1676	51.71	50	3 #
# 1,2-Dibromoethane	0.4122	0.4172	50.60	50	1 #
# Ethylbenzene	2.1811	2.2024	50.49	50	1 #
# m+p-Xylene	0.8725	0.9046	103.67	100	4 #
# o-Xylene	0.8308	0.8630	51.94	50	4 #
# Isopropylbenzene	2.1938	2.2440	51.14	50	2 #
1,3,5-Trimethylbenzene	3.2445	3.2663	50.34	50	1
1,2,4-Trimethylbenzene	3.3368	3.3932	50.84	50	2
Naphthalene	4.0537	4.1000	50.57	50	1
Dibromofluoromethane	0.2349	0.2174	46.27	50	-7
Dibromofluoromethane (2)	0.2404	0.2272	47.25	50	-6
1,2-Dichloroethane-d4	0.0680	0.0663	48.74	50	-3
1,2-Dichloroethane-d4 (2)	0.2907	0.2794	48.07	50	-4
1,2-Dichloroethane-d4 (3)	0.0420	0.0402	47.80	50	-4
Toluene-d8	1.2894	1.2951	50.22	50	0
Toluene-d8 (2)	0.8620	0.8647	50.16	50	0
4-Bromofluorobenzene	0.5092	0.4942	48.53	50	-3
4-Bromofluorobenzene (2)	0.4287	0.4424	51.60	50	3

Average %Drift 4

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
 Maximum %Drift for CCC(*)=20%

Lancaster Laboratories

Continuing Calibration Internal Standard Check

Initial Calibration Standards:

```

/chem/HP15830.i/19apr09z.b/fa09i64.d
/chem/HP15830.i/19apr09z.b/fa09i62.d
/chem/HP15830.i/19apr09z.b/fa09i60.d
/chem/HP15830.i/19apr09z.b/fa09i58.d
/chem/HP15830.i/19apr09z.b/fa09i56.d
/chem/HP15830.i/19apr09z.b/fa09i54.d
/chem/HP15830.i/19apr09z.b/fa09i52.d
    
```

File /chem/HP15830.i/19apr09z.b/fa09i56.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

```

/chem/HP15830.i/19jun07a.b/fu07c04.d
    
```

RT Summary

File ID:
=====

Internal Standard Name	fu07c04.d	ICAL RT	In Spec
=====	=====	=====	=====
t-Butyl alcohol-d10	1.916	1.946	Yes
Fluorobenzene	3.507	3.544	Yes
Chlorobenzene-d5	4.861	4.885	Yes
1,4-Dichlorobenzene-d4	5.812	5.830	Yes

A "No" indicates the retention time is greater than 10 seconds from the referenced ICAL standard.

Area Summary

File ID:
=====

Internal Standard Name	fu07c04.d	ICAL Area	Low Limit	High Limit	In Spec
=====	=====	=====	=====	=====	=====
t-Butyl alcohol-d10	97191	160949	80474	321898	Yes
Fluorobenzene	413662	516173	258086	1032346	Yes
Chlorobenzene-d5	316962	404584	202292	809168	Yes
1,4-Dichlorobenzene-d4	177176	223580	111790	447160	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments: _____

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Instrument ID: HP15830 Calibration Date: 06/07/19 Time: 10:02
 Lab File ID: fu07c04.d Init. Calib. Date(s): 04/09/19 04/09/19
 Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rtx-VRXID: .18

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Ethanol	0.1045	0.0883	1056.33	1250	-15
t-Butyl alcohol	1.1938	1.2577	263.37	250	5
# Methyl Tertiary Butyl Ether	0.8644	0.9103	210.60	200	5 #
di-Isopropyl ether	0.8982	0.9446	52.58	50	5
Ethyl t-butyl ether	0.9171	0.9353	50.99	50	2
# 1,2-Dichloroethane	0.4104	0.3944	48.05	50	-4 #
# Benzene	1.2385	1.2873	51.97	50	4 #
t-Amyl methyl ether	0.2246	0.2226	49.54	50	-1
# Toluene	1.0757	1.1029	51.26	50	3 #
# 1,2-Dibromoethane	0.3849	0.3868	50.24	50	0 #
# Ethylbenzene	2.0826	2.0991	50.40	50	1 #
# m+p-Xylene	0.8341	0.8527	102.22	100	2 #
# o-Xylene	0.8009	0.8174	51.03	50	2 #
# Isopropylbenzene	2.0981	2.1141	50.38	50	1 #
1,3,5-Trimethylbenzene	3.0978	3.1161	50.30	50	1
1,2,4-Trimethylbenzene	3.1931	3.2233	50.47	50	1
Naphthalene	3.6213	3.6544	50.46	50	1
Dibromofluoromethane	0.2344	0.2173	46.34	50	-7
Dibromofluoromethane (2)	0.2396	0.2261	47.17	50	-6
1,2-Dichloroethane-d4	0.0669	0.0685	51.23	50	2
1,2-Dichloroethane-d4 (2)	0.2857	0.2898	50.72	50	1
1,2-Dichloroethane-d4 (3)	0.0410	0.0425	51.86	50	4
Toluene-d8	1.2934	1.2775	49.38	50	-1
Toluene-d8 (2)	0.8619	0.8661	50.24	50	0
4-Bromofluorobenzene	0.5104	0.4952	48.51	50	-3
4-Bromofluorobenzene (2)	0.4270	0.4399	51.51	50	3

Average %Drift 3

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
 Maximum %Drift for CCC(*)=20%

Lancaster Laboratories

Continuing Calibration Internal Standard Check

Initial Calibration Standards:

```

/chem/HP15830.i/19apr09z.b/fa09i63.d
/chem/HP15830.i/19apr09z.b/fa09i61.d
/chem/HP15830.i/19apr09z.b/fa09i59.d
/chem/HP15830.i/19apr09z.b/fa09i57.d
/chem/HP15830.i/19apr09z.b/fa09i55.d
/chem/HP15830.i/19apr09z.b/fa09i53.d
/chem/HP15830.i/19apr09z.b/fa09i51.d

```

File /chem/HP15830.i/19apr09z.b/fa09i55.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem/HP15830.i/19jun10a.b/fu10c05.d

RT Summary

File ID:
=====

Internal Standard Name	fu10c05.d	ICAL RT	In Spec
=====	=====	=====	=====
t-Butyl alcohol-d10	1.928	1.946	Yes
Fluorobenzene	3.513	3.544	Yes
Chlorobenzene-d5	4.860	4.879	Yes
1,4-Dichlorobenzene-d4	5.811	5.830	Yes

A "No" indicates the retention time is greater than 10 seconds from the referenced ICAL standard.

Area Summary

File ID:
=====

Internal Standard Name	fu10c05.d	ICAL Area	Low Limit	High Limit	In Spec
=====	=====	=====	=====	=====	=====
t-Butyl alcohol-d10	159296	223539	111770	447078	Yes
Fluorobenzene	413732	512950	256475	1025900	Yes
Chlorobenzene-d5	326607	394538	197269	789076	Yes
1,4-Dichlorobenzene-d4	181160	219950	109975	439900	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments: _____

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____ SDG No.: _____
 Instrument ID: HP15830 Calibration Date: 06/10/19 Time: 10:43
 Lab File ID: fu10c05.d Init. Calib. Date(s): 04/09/19 04/09/19
 Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: Rtx-VRXID: .18

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Ethanol	0.0924	0.0850	1150.76	1250	-8
t-Butyl alcohol	1.2027	1.2705	264.10	250	6
# Methyl Tertiary Butyl Ether	0.8865	0.9141	206.22	200	3 #
di-Isopropyl ether	0.9363	0.8963	47.86	50	-4
Ethyl t-butyl ether	0.9556	0.8951	46.83	50	-6
# 1,2-Dichloroethane	0.4285	0.3697	43.14	50	-14 #
# Benzene	1.3001	1.2154	46.74	50	-7 #
t-Amyl methyl ether	0.2371	0.2110	44.50	50	-11
# Toluene	1.1289	1.0289	45.57	50	-9 #
# 1,2-Dibromoethane	0.4122	0.3639	44.13	50	-12 #
# Ethylbenzene	2.1811	1.9688	45.13	50	-10 #
# m+p-Xylene	0.8725	0.7980	91.46	100	-9 #
# o-Xylene	0.8308	0.7916	47.64	50	-5 #
# Isopropylbenzene	2.1938	1.9906	45.37	50	-9 #
1,3,5-Trimethylbenzene	3.2445	2.9802	45.93	50	-8
1,2,4-Trimethylbenzene	3.3368	3.0912	46.32	50	-7
Naphthalene	4.0537	3.9308	48.48	50	-3
Dibromofluoromethane	0.2349	0.2207	46.97	50	-6
Dibromofluoromethane(2)	0.2404	0.2327	48.39	50	-3
1,2-Dichloroethane-d4	0.0680	0.0694	51.03	50	2
1,2-Dichloroethane-d4(2)	0.2907	0.2809	48.32	50	-3
1,2-Dichloroethane-d4(3)	0.0420	0.0389	46.24	50	-8
Toluene-d8	1.2894	1.2587	48.81	50	-2
Toluene-d8(2)	0.8620	0.8508	49.35	50	-1
4-Bromofluorobenzene	0.5092	0.4895	48.06	50	-4
4-Bromofluorobenzene(2)	0.4287	0.4335	50.55	50	1

Average %Drift 6

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
 Maximum %Drift for CCC(*)=20%

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____

Lab File ID (Standard): fu07c03.d Date Analyzed: 06/07/19

Instrument ID: HP15830 Time Analyzed: 09:52

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
12 HOUR STD	141868	1.916	400817	3.513	307053	4.860	172360	5.811
UPPER LIMIT	283736	2.416	801634	4.013	614106	5.360	344720	6.311
LOWER LIMIT	70934	1.416	200408	3.013	153526	4.360	86180	5.311
LAB SAMPLE ID								
01 LCSF07	149570	1.934	397480	3.513	312398	4.860	171811	5.812
02 LCSF08	94062	1.922	407749	3.507	321342	4.860	177175	5.811
03 VBLKF07	149845	1.916	389623	3.513	304732	4.860	168741	5.812
04 VBLKF08	97532	1.916	406534	3.507	320748	4.860	172453	5.811
05 1068869	142905	1.928	378477	3.513	301738	4.860	164254	5.811
06 1068909	95402	1.922	416732	3.507	330558	4.860	177206	5.812
07 1068872	154559	1.916	388386	3.507	305268	4.860	164700	5.811
08 1068910	94777	1.910	400469	3.501	325166	4.860	172954	5.812
09 1068873MS	154084	1.940	395569	3.513	312267	4.860	175102	5.811
10 1068910MS	96748	1.910	402835	3.507	321070	4.860	176429	5.812
11 1068874MSD	158005	1.910	399832	3.507	312188	4.860	171750	5.812
12 1068910MSD	100616	1.904	405731	3.507	315291	4.860	178402	5.811
13 1068848	143754	1.922	394784	3.513	313153	4.860	177365	5.811
14 1068911	111302	1.916	420625	3.507	341501	4.860	185192	5.811
15 1068849	158128	1.934	415011	3.513	328066	4.860	178372	5.811
16 1068912	113754	1.910	418716	3.507	334060	4.860	179713	5.811
17 1068850	161246	1.928	410053	3.513	319691	4.860	178861	5.811
18 1068913	113066	1.922	425621	3.507	332326	4.860	187732	5.812
19 1068851	165958	1.934	414668	3.513	329092	4.860	177722	5.811
20 1068914	106784	1.910	420410	3.507	332931	4.860	179350	5.812
21 1068852	157136	1.928	409463	3.513	323585	4.860	180885	5.811
22 1068915	102404	1.898	402319	3.507	321917	4.860	175311	5.811

IS1 (TBA)=t-Butyl alcohol-d10
 IS2 (FBZ)=Fluorobenzene
 IS3 (CBZ)=Chlorobenzene-d5
 IS4 (DCB)=1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100%
 of internal standard area.
 LOWER LIMIT = - 50%
 of internal standard area.

Column used to flag values outside QC limits with an asterisk
 * Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____

Lab File ID (Standard): fu07c03.d Date Analyzed: 06/07/19

Instrument ID: HP15830 Time Analyzed: 09:52

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	12 HOUR STD	141868	1.916	400817	3.513	307053	4.860	172360	5.811
	UPPER LIMIT	283736	2.416	801634	4.013	614106	5.360	344720	6.311
	LOWER LIMIT	70934	1.416	200408	3.013	153526	4.360	86180	5.311
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
	LAB SAMPLE ID								
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
23	1068853	153669	1.928	389743	3.513	311184	4.860	170945	5.811
24	1068602	97606	1.904	404857	3.507	318568	4.860	178299	5.812
25	1068854	159901	1.922	403326	3.513	317983	4.860	177542	5.812
26	1068603	101539	1.904	410868	3.507	330127	4.860	182008	5.811
27	1068855	1053 *	1.904	69245 *	3.501	67341 *	4.860	38961 *	5.811
28	1068604	106572	1.916	428186	3.507	336772	4.860	184285	5.812
29	1068856	157263	1.922	412547	3.513	326124	4.860	178514	5.811
30	1068605	101889	1.910	417634	3.507	326553	4.860	179403	5.811
31	1068857	167452	1.922	413990	3.513	325790	4.860	182995	5.812
32	1068606	101379	1.910	411162	3.507	330010	4.860	176451	5.812
33	1068858	163291	1.934	406574	3.513	325310	4.860	178673	5.812
34	1068870	100641	1.904	423015	3.507	336956	4.860	187836	5.811
35	1068859	187292	1.928	417560	3.513	331282	4.860	184254	5.812
36	1068871	101117	1.922	425807	3.507	340351	4.860	190566	5.811
37	1068859DL	171392	1.922	415170	3.513	323142	4.860	176941	5.811
38	1068875	103842	1.904	423317	3.507	334207	4.860	179957	5.812
39	1068860	162243	1.922	415211	3.513	323253	4.860	180268	5.811
40	1068876	105091	1.910	423682	3.507	342459	4.860	183427	5.811
41	1068861	159716	1.928	415312	3.513	327343	4.860	177385	5.811
42	1068877	100643	1.916	422834	3.507	330688	4.860	184320	5.811
43	1068862	166333	1.922	415060	3.513	325053	4.860	181883	5.811
44	1068878	103074	1.910	423545	3.507	337584	4.860	186783	5.811

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____

Lab File ID (Standard): fu07c03.d Date Analyzed: 06/07/19

Instrument ID: HP15830 Time Analyzed: 09:52

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	141868	1.916	400817	3.513	307053	4.860	172360	5.811
UPPER LIMIT	283736	2.416	801634	4.013	614106	5.360	344720	6.311
LOWER LIMIT	70934	1.416	200408	3.013	153526	4.360	86180	5.311
=====	=====	=====	=====	=====	=====	=====	=====	=====
LAB SAMPLE ID								
=====	=====	=====	=====	=====	=====	=====	=====	=====
45 1068370	161167	1.922	405922	3.513	312549	4.860	175424	5.811
46 1068879	95389	1.904	423521	3.501	346943	4.860	185781	5.811
=====	=====	=====	=====	=====	=====	=====	=====	=====

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____

Lab File ID (Standard): fu07c04.d Date Analyzed: 06/07/19

Instrument ID: HP15830 Time Analyzed: 10:02

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
12 HOUR STD	97191	1.916	413662	3.507	316962	4.860	177176	5.812
UPPER LIMIT	194382	2.416	827324	4.007	633924	5.360	354352	6.312
LOWER LIMIT	48596	1.416	206831	3.007	158481	4.360	88588	5.312
LAB SAMPLE ID								
01 LCSF07	149570	1.934	397480	3.513	312398	4.860	171811	5.812
02 LCSF08	94062	1.922	407749	3.507	321342	4.860	177175	5.811
03 VBLKF07	149845	1.916	389623	3.513	304732	4.860	168741	5.812
04 VBLKF08	97532	1.916	406534	3.507	320748	4.860	172453	5.811
05 1068869	142905	1.928	378477	3.513	301738	4.860	164254	5.811
06 1068909	95402	1.922	416732	3.507	330558	4.860	177206	5.812
07 1068872	154559	1.916	388386	3.507	305268	4.860	164700	5.811
08 1068910	94777	1.910	400469	3.501	325166	4.860	172954	5.812
09 1068873MS	154084	1.940	395569	3.513	312267	4.860	175102	5.811
10 1068910MS	96748	1.910	402835	3.507	321070	4.860	176429	5.812
11 1068874MSD	158005	1.910	399832	3.507	312188	4.860	171750	5.812
12 1068910MSD	100616	1.904	405731	3.507	315291	4.860	178402	5.811
13 1068848	143754	1.922	394784	3.513	313153	4.860	177365	5.811
14 1068911	111302	1.916	420625	3.507	341501	4.860	185192	5.811
15 1068849	158128	1.934	415011	3.513	328066	4.860	178372	5.811
16 1068912	113754	1.910	418716	3.507	334060	4.860	179713	5.811
17 1068850	161246	1.928	410053	3.513	319691	4.860	178861	5.811
18 1068913	113066	1.922	425621	3.507	332326	4.860	187732	5.812
19 1068851	165958	1.934	414668	3.513	329092	4.860	177722	5.811
20 1068914	106784	1.910	420410	3.507	332931	4.860	179350	5.812
21 1068852	157136	1.928	409463	3.513	323585	4.860	180885	5.811
22 1068915	102404	1.898	402319	3.507	321917	4.860	175311	5.811

IS1 (TBA)=t-Butyl alcohol-d10
 IS2 (FBZ)=Fluorobenzene
 IS3 (CBZ)=Chlorobenzene-d5
 IS4 (DCB)=1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100%
 of internal standard area.
 LOWER LIMIT = - 50%
 of internal standard area.

Column used to flag values outside QC limits with an asterisk
 * Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____

Lab File ID (Standard): fu07c04.d Date Analyzed: 06/07/19

Instrument ID: HP15830 Time Analyzed: 10:02

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
	12 HOUR STD	97191	1.916	413662	3.507	316962	4.860	177176	5.812
	UPPER LIMIT	194382	2.416	827324	4.007	633924	5.360	354352	6.312
	LOWER LIMIT	48596	1.416	206831	3.007	158481	4.360	88588	5.312
	LAB SAMPLE ID								
23	1068853	153669	1.928	389743	3.513	311184	4.860	170945	5.811
24	1068602	97606	1.904	404857	3.507	318568	4.860	178299	5.812
25	1068854	159901	1.922	403326	3.513	317983	4.860	177542	5.812
26	1068603	101539	1.904	410868	3.507	330127	4.860	182008	5.811
27	1068855	1053 *	1.904	69245 *	3.501	67341 *	4.860	38961 *	5.811
28	1068604	106572	1.916	428186	3.507	336772	4.860	184285	5.812
29	1068856	157263	1.922	412547	3.513	326124	4.860	178514	5.811
30	1068605	101889	1.910	417634	3.507	326553	4.860	179403	5.811
31	1068857	167452	1.922	413990	3.513	325790	4.860	182995	5.812
32	1068606	101379	1.910	411162	3.507	330010	4.860	176451	5.812
33	1068858	163291	1.934	406574	3.513	325310	4.860	178673	5.812
34	1068870	100641	1.904	423015	3.507	336956	4.860	187836	5.811
35	1068859	187292	1.928	417560	3.513	331282	4.860	184254	5.812
36	1068871	101117	1.922	425807	3.507	340351	4.860	190566	5.811
37	1068859DL	171392	1.922	415170	3.513	323142	4.860	176941	5.811
38	1068875	103842	1.904	423317	3.507	334207	4.860	179957	5.812
39	1068860	162243	1.922	415211	3.513	323253	4.860	180268	5.811
40	1068876	105091	1.910	423682	3.507	342459	4.860	183427	5.811
41	1068861	159716	1.928	415312	3.513	327343	4.860	177385	5.811
42	1068877	100643	1.916	422834	3.507	330688	4.860	184320	5.811
43	1068862	166333	1.922	415060	3.513	325053	4.860	181883	5.811
44	1068878	103074	1.910	423545	3.507	337584	4.860	186783	5.811

IS1 (TBA)=t-Butyl alcohol-d10
IS2 (FBZ)=Fluorobenzene
IS3 (CBZ)=Chlorobenzene-d5
IS4 (DCB)=1,4-Dichlorobenzene-d4

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract: _____

Lab Code: LANCAS Case No.: _____ SAS No.: _____

Lab File ID (Standard): fu07c04.d Date Analyzed: 06/07/19

Instrument ID: HP15830 Time Analyzed: 10:02

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	97191	1.916	413662	3.507	316962	4.860	177176	5.812
UPPER LIMIT	194382	2.416	827324	4.007	633924	5.360	354352	6.312
LOWER LIMIT	48596	1.416	206831	3.007	158481	4.360	88588	5.312
=====	=====	=====	=====	=====	=====	=====	=====	=====
LAB SAMPLE ID								
=====	=====	=====	=====	=====	=====	=====	=====	=====
45 1068370	161167	1.922	405922	3.513	312549	4.860	175424	5.811
46 1068879	95389	1.904	423521	3.501	346943	4.860	185781	5.811
=====	=====	=====	=====	=====	=====	=====	=====	=====

IS1 (TBA)=t-Butyl alcohol-d10 UPPER LIMIT = + 100%
 IS2 (FBZ)=Fluorobenzene of internal standard area.
 IS3 (CBZ)=Chlorobenzene-d5 LOWER LIMIT = - 50%
 IS4 (DCB)=1,4-Dichlorobenzene-d4 of internal standard area.

Column used to flag values outside QC limits with an asterisk
 * Values outside of QC limits.
 page 3 of 3

FORM VIII VOA

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID (Standard): ful0c05.d Date Analyzed: 06/10/19
 Instrument ID: HP15830 Time Analyzed: 10:43
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
12 HOUR STD	159296	1.928	413732	3.513	326607	4.860	181160	5.811
UPPER LIMIT	318592	2.428	827464	4.013	653214	5.360	362320	6.311
LOWER LIMIT	79648	1.428	206866	3.013	163304	4.360	90580	5.311
LAB SAMPLE ID								
01 LCSF09	159928	1.928	414259	3.513	326164	4.860	182430	5.812
02 LCSF12	102029	1.904	428633	3.507	340596	4.860	189212	5.811
03 LCDF09	154361	1.934	413824	3.513	325480	4.860	179518	5.811
04 LCDF12	100211	1.898	426636	3.501	337829	4.860	190876	5.811
05 VBLKF09	149902	1.928	399621	3.513	318380	4.860	174521	5.811
06 LCSF14	99177	1.904	423482	3.507	336147	4.860	193873	5.812
07 LCDF14	96405	1.916	417230	3.507	329822	4.860	185225	5.811
08 VBLKF12	98152	1.904	407278	3.507	330522	4.860	177306	5.811
09 1069256	160098	1.922	380306	3.507	306848	4.860	165411	5.812
10 1071471	112602	1.916	422019	3.507	342310	4.860	191032	5.812
11 1069257	155244	1.922	391578	3.513	308515	4.860	172320	5.811
12 1071472	92609	1.910	400983	3.507	318226	4.860	179790	5.812
13 1069258	152631	1.940	390639	3.513	315779	4.860	172001	5.812
14 1071473	98702	1.910	407096	3.507	329249	4.860	181287	5.811
15 1069259	144723	1.934	390282	3.513	313999	4.860	173475	5.811
16 1068454DL	100633	1.916	403739	3.507	328278	4.860	181793	5.811
17 1069261	155574	1.928	385210	3.513	314205	4.860	168626	5.811
18 1069093	97052	1.891	395435	3.507	322294	4.860	177896	5.811
19 1069262	142572	1.922	382429	3.513	310653	4.860	167451	5.812
20 1069093MS	98056	1.916	410802	3.507	328471	4.860	186014	5.811
21 1069263	154465	1.928	377915	3.513	305748	4.860	168766	5.811
22 1069093MSD	97378	1.904	402330	3.507	324084	4.860	180465	5.811

IS1 (TBA)=t-Butyl alcohol-d10 UPPER LIMIT = + 100%
 IS2 (FBZ)=Fluorobenzene of internal standard area.
 IS3 (CBZ)=Chlorobenzene-d5 LOWER LIMIT = - 50%
 IS4 (DCB)=1,4-Dichlorobenzene-d4 of internal standard area.

Column used to flag values outside QC limits with an asterisk
 * Values outside of QC limits.
 page 1 of 2

FORM VIII VOA

8A
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract: _____
 Lab Code: LANCAS Case No.: _____ SAS No.: _____
 Lab File ID (Standard): ful0c05.d Date Analyzed: 06/10/19
 Instrument ID: HP15830 Time Analyzed: 10:43
 Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(TBA) AREA #	RT #	IS2(FBZ) AREA #	RT #	IS3(CBZ) AREA #	RT #	IS4(DCB) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	159296	1.928	413732	3.513	326607	4.860	181160	5.811
UPPER LIMIT	318592	2.428	827464	4.013	653214	5.360	362320	6.311
LOWER LIMIT	79648	1.428	206866	3.013	163304	4.360	90580	5.311
=====	=====	=====	=====	=====	=====	=====	=====	=====
LAB SAMPLE ID								
=====	=====	=====	=====	=====	=====	=====	=====	=====
23 1069264	144269	1.934	378083	3.513	307044	4.860	169087	5.811
24 1069092	100005	1.910	407829	3.507	333042	4.860	183970	5.812
25 1068848DL	158467	1.928	387139	3.513	315128	4.860	176848	5.811
26 1069094	82242	1.891	389200	3.501	317579	4.860	179115	5.811
27 1068855RE	579 *	1.898	52293 *	3.501	54559 *	4.860	31172 *	5.812
28 1069105	93416	1.898	409398	3.507	325920	4.860	183125	5.812
29 1070053	152256	1.922	390850	3.513	313870	4.860	173128	5.812
30 1069106	97166	1.910	396549	3.507	318297	4.861	176373	5.812
31 1068871DL	160461	1.940	399728	3.513	314693	4.860	181907	5.812
32 1069080DL2	96550	1.910	397874	3.507	317063	4.860	176987	5.811
33 1070449	159442	1.922	382405	3.513	315391	4.860	171560	5.811
34 1069085	91059	1.898	397745	3.501	329869	4.860	176653	5.811
35 1070046	153296	1.934	388127	3.513	312744	4.860	174995	5.812
36 1069086	103207	1.916	411007	3.507	334618	4.860	182527	5.811
37 1070047	160587	1.922	397780	3.513	311477	4.860	172718	5.811
38 1069086DL	102512	1.898	401907	3.507	328140	4.860	182866	5.811
39 1070048	153427	1.928	396344	3.513	316353	4.860	175258	5.811
40 1070049	156952	1.922	395076	3.513	318539	4.860	175429	5.811
41 1067266DL	93265	1.910	392019	3.507	325385	4.860	179658	5.812

IS1 (TBA)=t-Butyl alcohol-d10	UPPER LIMIT = + 100%
IS2 (FBZ)=Fluorobenzene	of internal standard area.
IS3 (CBZ)=Chlorobenzene-d5	LOWER LIMIT = - 50%
IS4 (DCB)=1,4-Dichlorobenzene-d4	of internal standard area.

Column used to flag values outside QC limits with an asterisk
 * Values outside of QC limits.

Sample Data

Volatiles by GC/MS

64L01

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles 1068869

Data file: /chem/HP15830.i/19jun07a.b/fu07s03.d Injection date and time: 07-JUN-2019 11:11
Data file Sample Info. Line: 64L01;1068869;1;0;;LSV64;;;fu07b01; Instrument ID: HP15830.i Batch: F191581AA
Date, time and analyst ID of latest file update: 07-Jun-2019 11:18 Automation

Blank Data file reference: /chem/HP15830.i/19jun07a.b/fu07b01.d

Method used: /chem/HP15830.i/19jun07a.b/UST-PT1C.m Sublist used: 12790
Calibration date and time (Last Method Edit): 07-JUN-2019 09:59
Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/19jun07a.b/fu07c03.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.928(-0.012)	179	65	142905 (1)	250.00	
14) Fluorobenzene	3.513(0.000)	439	96	378477 (-6)	50.00	
19) Chlorobenzene-d5	4.860(0.000)	660	117	301738 (-2)	50.00	
28) 1,4-Dichlorobenzene-d4	5.811(0.000)	816	152	164254 (-5)	50.00	

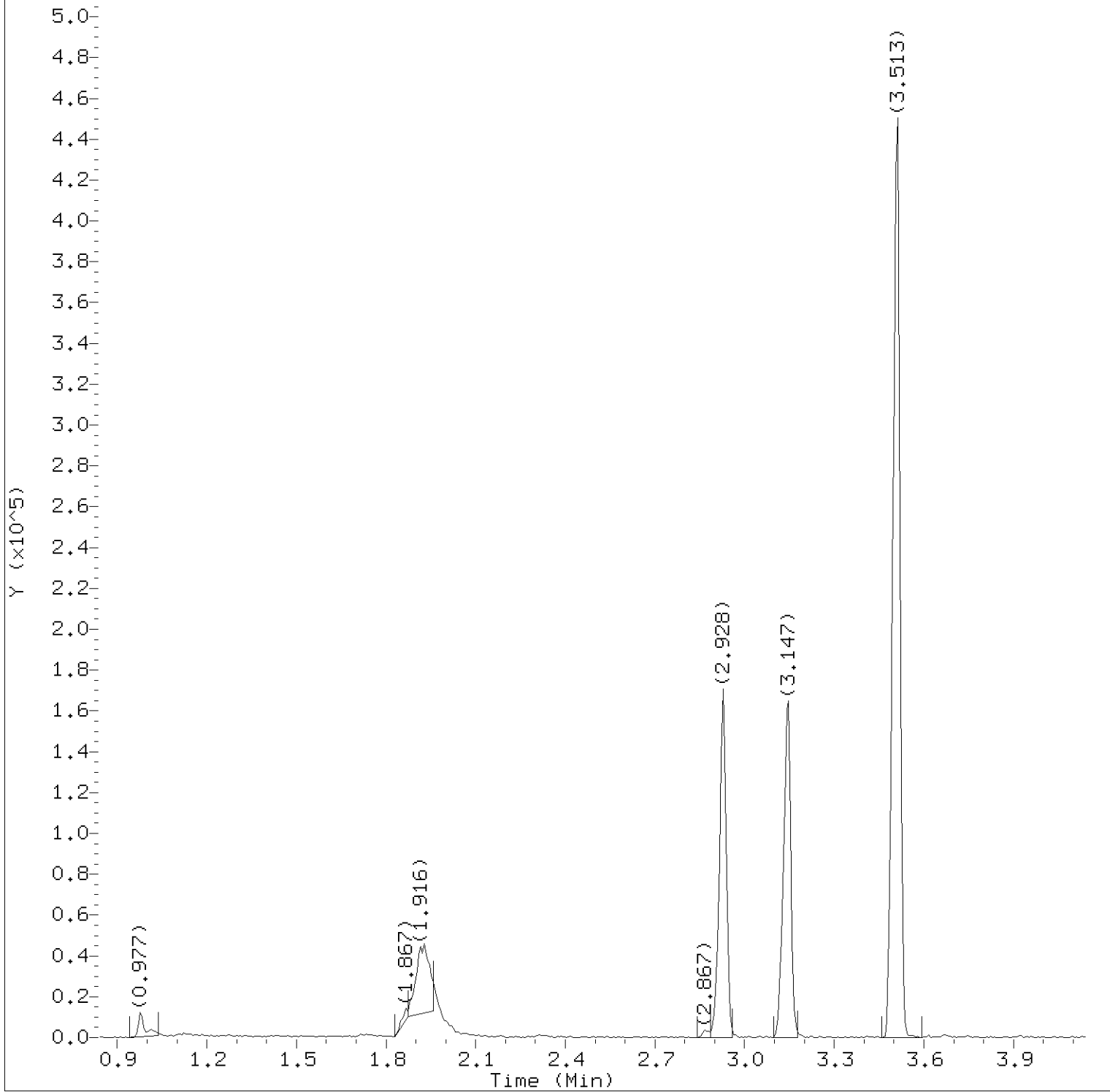
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.928(0.000)	113	84878	47.735	95%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.147(-0.002)	102	24383	47.377	95%		80 - 120
15) Toluene-d8	(3)	4.287(0.000)	98	379871	48.819	98%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.324(0.000)	95	139807	45.496	91%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)	4.318(-0.001)	92	4877	0.716	0.72		J	0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	5

Total number of targets = 6

Digitally signed by Hu Yang on 06/07/2019 at 19:05. Target 3.5 esignature user ID: hy07820

Secondary review performed and digitally signed by Richard Samson on 06/10/2019 at 21:42. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07s03.d
Injection date and time: 07-JUN-2019 11:11

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT1C.m
Calibration date and time: 07-JUN-2019 09:59

Sublist used: 12790

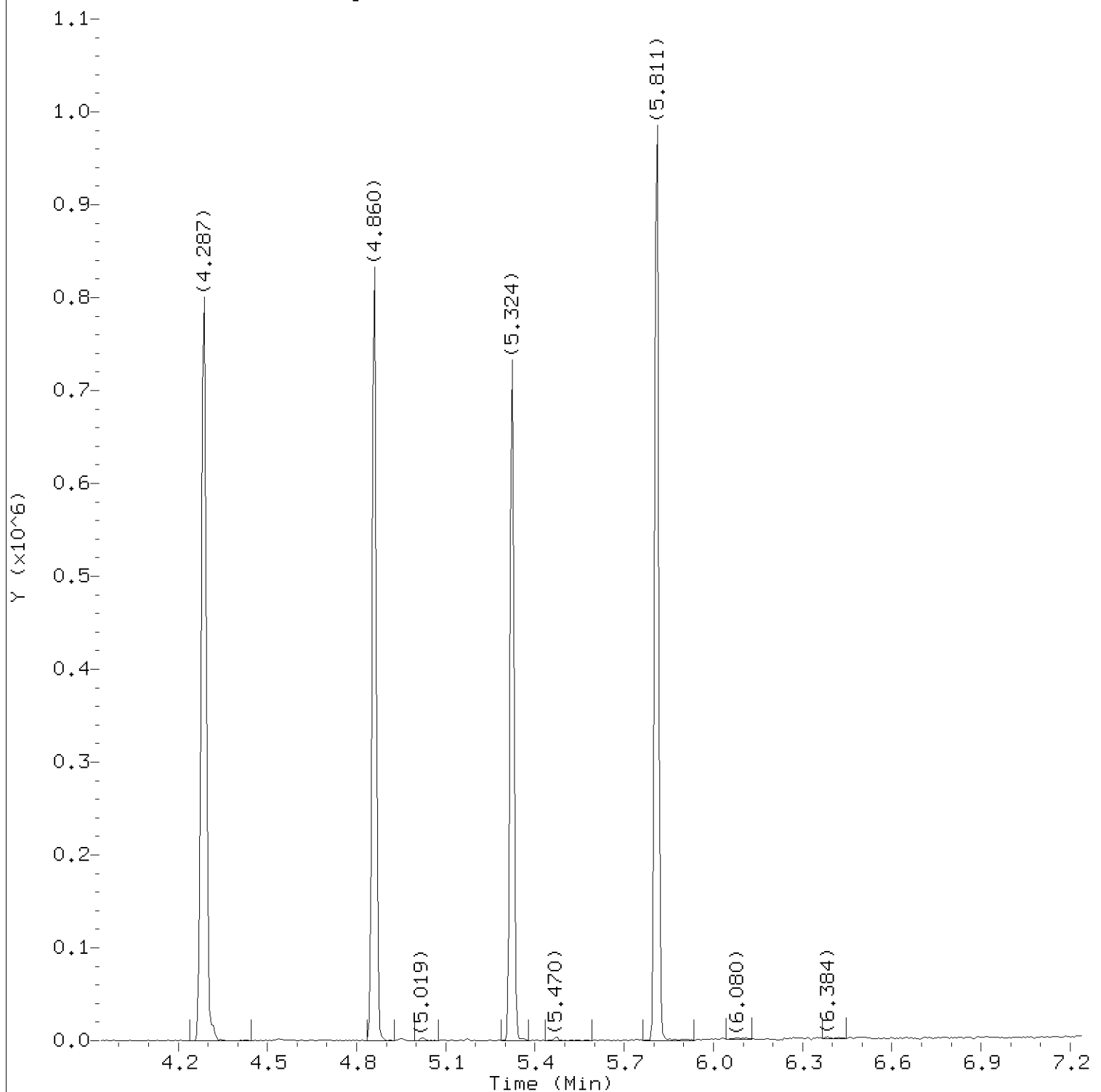
Date, time and analyst ID of latest file update: 07-Jun-2019 11:18 Automation

Sample Name: 64L01

Lab Sample ID: 1068869

Digitally signed by Hu Yang
on 06/07/2019 at 19:05.

Target 3.5 esignature user ID: hy07820



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07s03.d
Injection date and time: 07-JUN-2019 11:11

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT1C.m
Calibration date and time: 07-JUN-2019 09:59

Sublist used: 12790

Date, time and analyst ID of latest file update: 07-Jun-2019 11:18 Automation

Sample Name: 64L01

Lab Sample ID: 1068869

Digitally signed by Hu Yang
on 06/07/2019 at 19:05.

Target 3.5 esignature user ID: hy07820

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a.b/fu07s03.d
 Injection date and time: 07-JUN-2019 11:11

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT1C.m
 Calibration date and time: 07-JUN-2019 09:59

Sublist used: 12790

Date, time and analyst ID of latest file update: 07-Jun-2019 11:18 Automation

Sample Name: 64L01

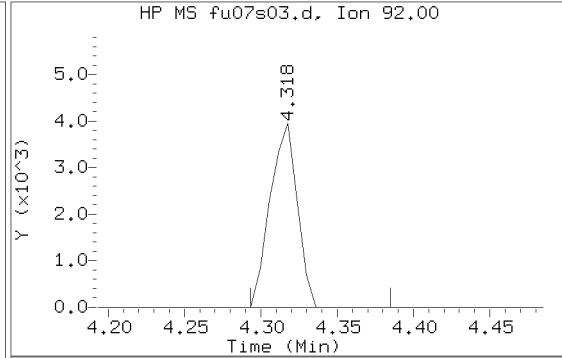
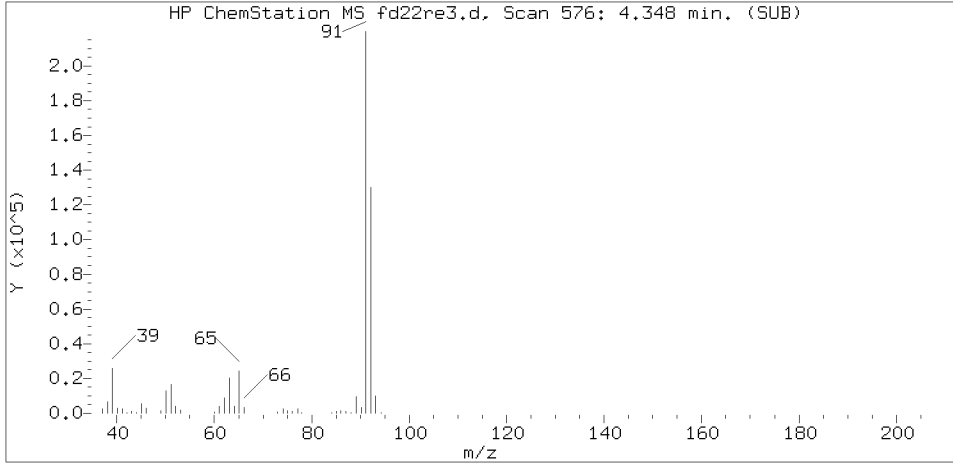
Lab Sample ID: 1068869

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
2)*t-Butyl alcohol-d10	(1)	1.928	65	142905	250.000
7)\$Dibromofluoromethane	(2)	2.928	113	84878	47.735
10)\$1,2-Dichloroethane-d4	(2)	3.147	102	24383	47.377
14)*Fluorobenzene	(2)	3.513	96	378477	50.000
15)\$Toluene-d8	(3)	4.287	98	379871	48.819
16) Toluene	(3)	4.318	92	4877	0.716
19)*Chlorobenzene-d5	(3)	4.860	117	301738	50.000
25)\$4-Bromofluorobenzene	(3)	5.324	95	139807	45.496
28)*1,4-Dichlorobenzene-d4	(4)	5.811	152	164254	50.000

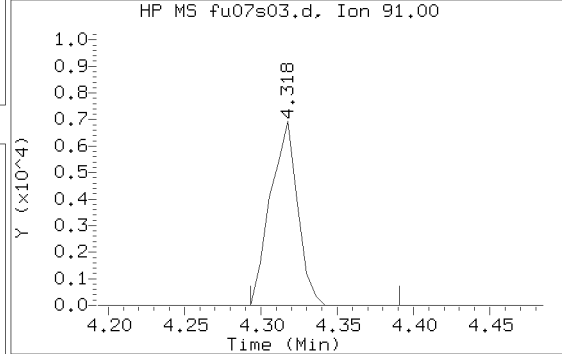
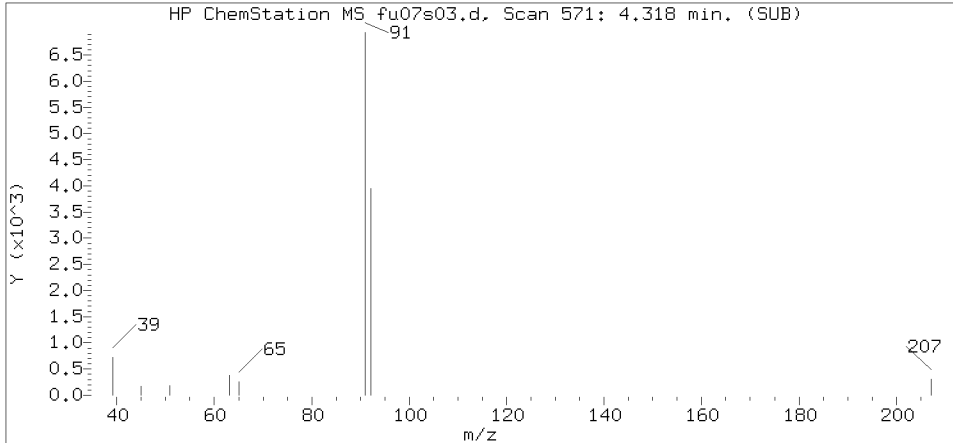
* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

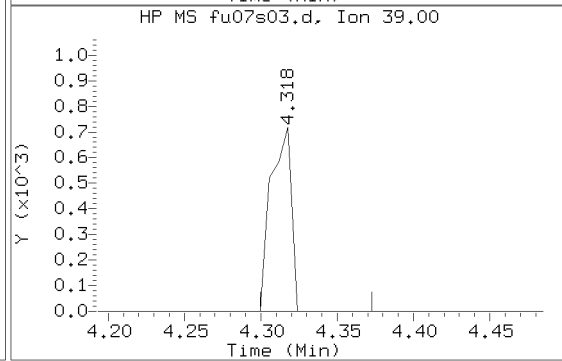
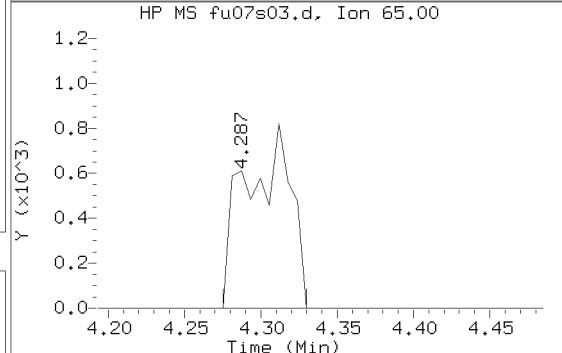
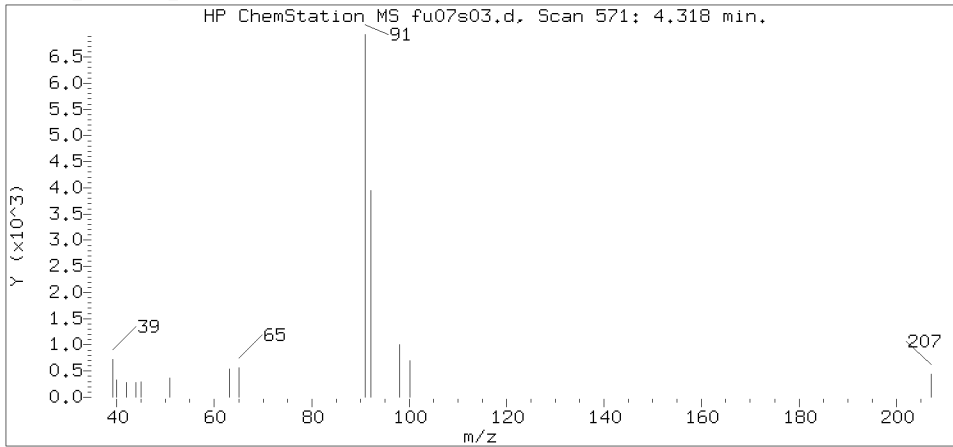
Reference Standard Spectrum for Toluene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s03.d
 Injection date and time: 07-JUN-2019 11:11

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT1C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 09:59
 Date, time and analyst ID of latest file update: 07-Jun-2019 11:18 Automation

Sample Name: 64L01

Lab Sample ID: 1068869

Compound Number : 16
 Compound Name : Toluene
 Scan Number : 571
 Retention Time (minutes): 4.318
 Relative Retention Time : -0.00126
 Quant Ion : 92.00
 Area (flag) : 4877
 On-Column Amount (ng) : 0.7160

Digitally signed by Hu Yang on 06/07/2019 at 19:05.
 Target 3.5 esignature user ID: hp07820

64L02

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles 1068870

Data file: /chem/HP15830.i/19jun07a.b/fu07s32.d Injection date and time: 07-JUN-2019 16:28
Data file Sample Info. Line: 64L02;1068870;1;0;;LSV64;;;fu07b02; Instrument ID: HP15830.i Batch: F191582AA
Date, time and analyst ID of latest file update: 07-Jun-2019 19:14 hy07820

Blank Data file reference: /chem/HP15830.i/19jun07a.b/fu07b02.d

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
Calibration date and time (Last Method Edit): 07-JUN-2019 10:09
Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/19jun07a.b/fu07c04.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.904(0.012)	175	65	100641 (4)	250.00	
14) Fluorobenzene	3.507(0.000)	438	96	423015 (2)	50.00	
19) Chlorobenzene-d5	4.860(0.000)	660	117	336956 (6)	50.00	
28) 1,4-Dichlorobenzene-d4	5.811(0.000)	816	152	187836 (6)	50.00	

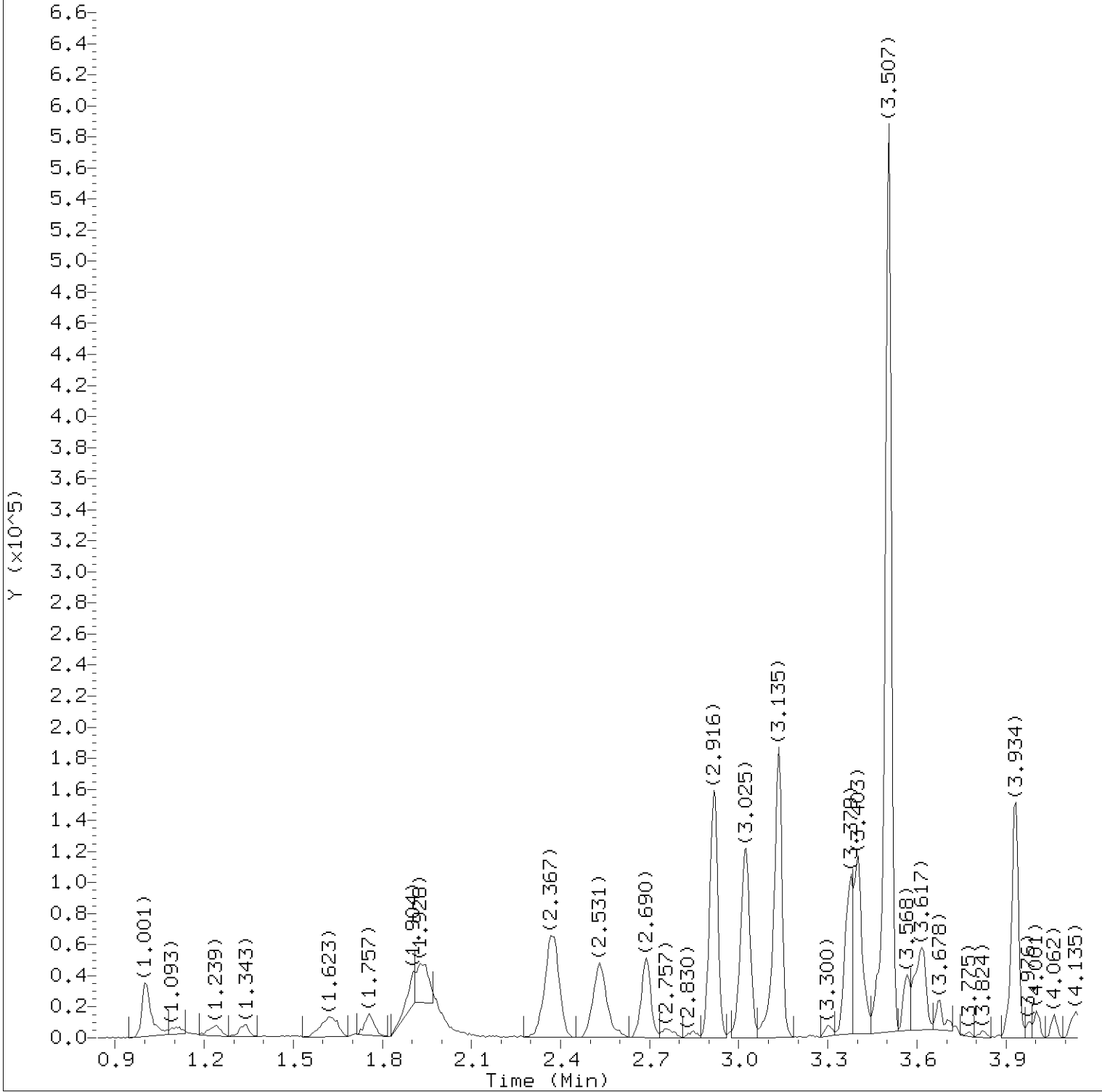
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.916(0.002)	113	94196	47.497	95%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.135(0.002)	102	26874	47.506	95%		80 - 120
15) Toluene-d8	(3)	4.287(0.000)	98	429719	49.299	99%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.324(0.000)	95	163441	47.517	95%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
12) Benzene	(2)	3.403(0.001)	78	73155	6.982	6.98			0.2	1
16) Toluene	(3)	4.318(-0.001)	92	3049	0.421	0.42		J	0.2	1
20) Ethylbenzene	(3)	4.946(0.000)	91	249720	17.793	17.79			0.4	1
21) m+p-Xylene	(3)	5.019(0.001)	106	231135	41.117	41.12			1	5
22) o-Xylene	(3)	5.171(-0.000)	106	18707	3.466	3.47			0.4	1
23) Xylene (Total)	(3)		106	249842	44.583	44.58			1	5

Total number of targets = 6

Digitally signed by Hu Yang on 06/07/2019 at 21:31. Target 3.5 esignature user ID: hy07820

Secondary review performed and digitally signed by Richard Samson on 06/10/2019 at 22:02. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07s32.d
Injection date and time: 07-JUN-2019 16:28

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT2C.m
Calibration date and time: 07-JUN-2019 10:09

Sublist used: 12790

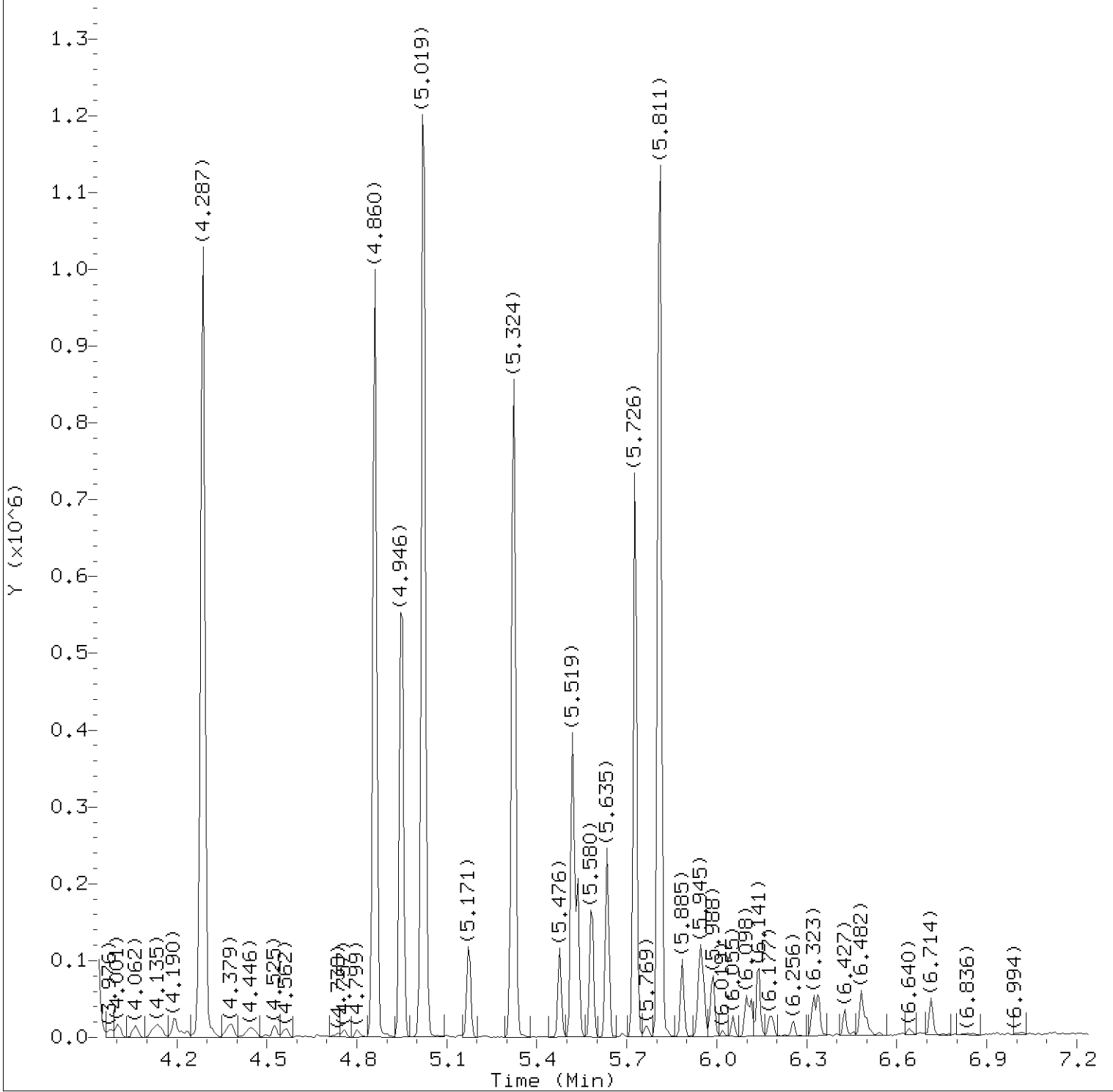
Date, time and analyst ID of latest file update: 07-Jun-2019 19:14 hy07820

Sample Name: 64L02

Lab Sample ID: 1068870

Digitally signed by Hu Yang
on 06/07/2019 at 21:31.

Target 3.5 esignature user ID: hy07820



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07s32.d
Injection date and time: 07-JUN-2019 16:28

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT2C.m
Calibration date and time: 07-JUN-2019 10:09

Sublist used: 12790

Date, time and analyst ID of latest file update: 07-Jun-2019 19:14 hy07820

Sample Name: 64L02

Lab Sample ID: 1068870

Digitally signed by Hu Yang
on 06/07/2019 at 21:31.

Target 3.5 esignature user ID: hy07820

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a.b/fu07s32.d
 Injection date and time: 07-JUN-2019 16:28

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:14 hy07820

Sublist used: 12790

Sample Name: 64L02

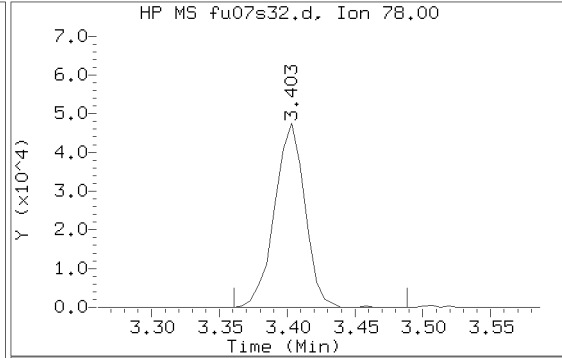
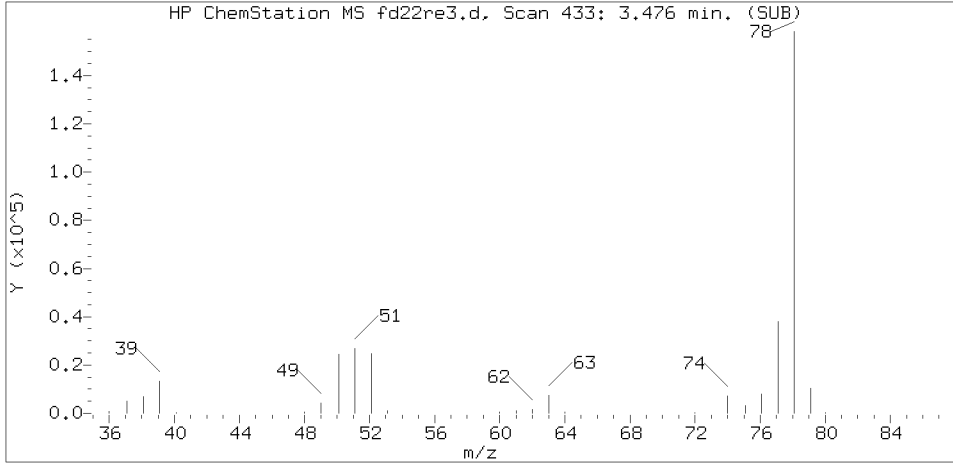
Lab Sample ID: 1068870

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
2)*t-Butyl alcohol-d10	(1)	1.904	65	100641	250.000
7)\$Dibromofluoromethane	(2)	2.916	113	94196	47.497
10)\$1,2-Dichloroethane-d4	(2)	3.135	102	26874	47.506
12) Benzene	(2)	3.403	78	73155	6.982
14)*Fluorobenzene	(2)	3.507	96	423015	50.000
15)\$Toluene-d8	(3)	4.287	98	429719	49.299
16) Toluene	(3)	4.318	92	3049	0.421
19)*Chlorobenzene-d5	(3)	4.860	117	336956	50.000
20) Ethylbenzene	(3)	4.946	91	249720	17.793
21) m+p-Xylene	(3)	5.019	106	231135	41.117
22) o-Xylene	(3)	5.171	106	18707	3.466
25)\$4-Bromofluorobenzene	(3)	5.324	95	163441	47.517
23) Xylene (Total)	(3)		106	249842	44.583
28)*1,4-Dichlorobenzene-d4	(4)	5.811	152	187836	50.000

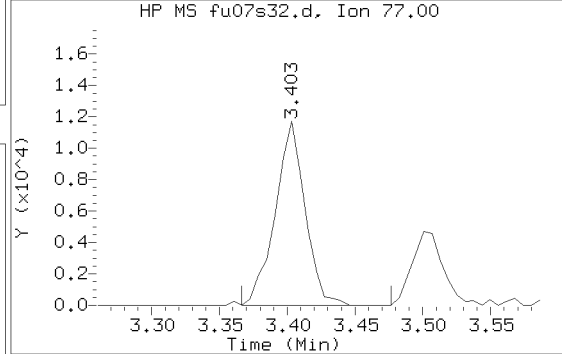
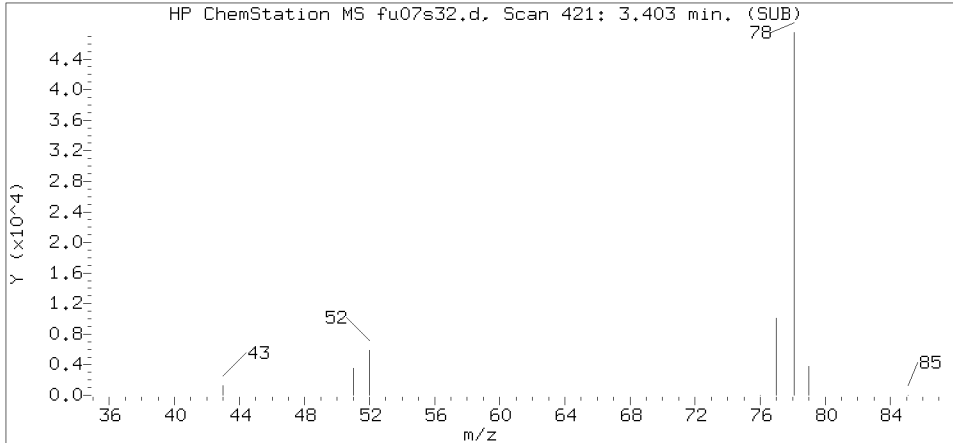
* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

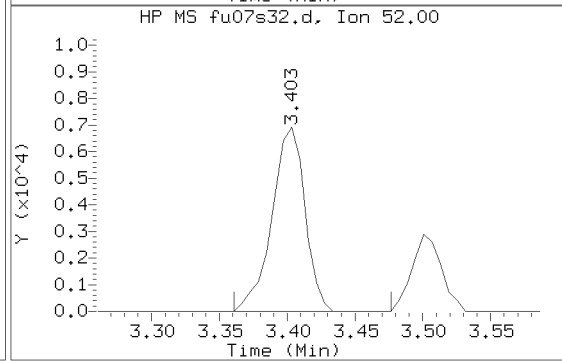
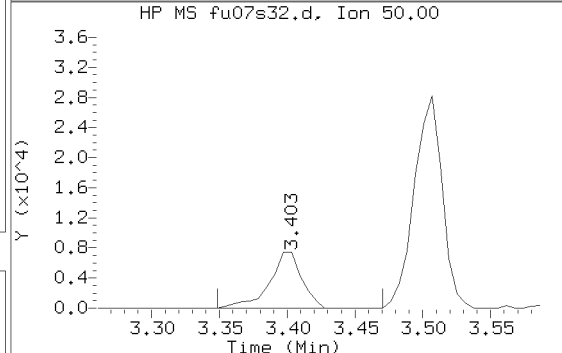
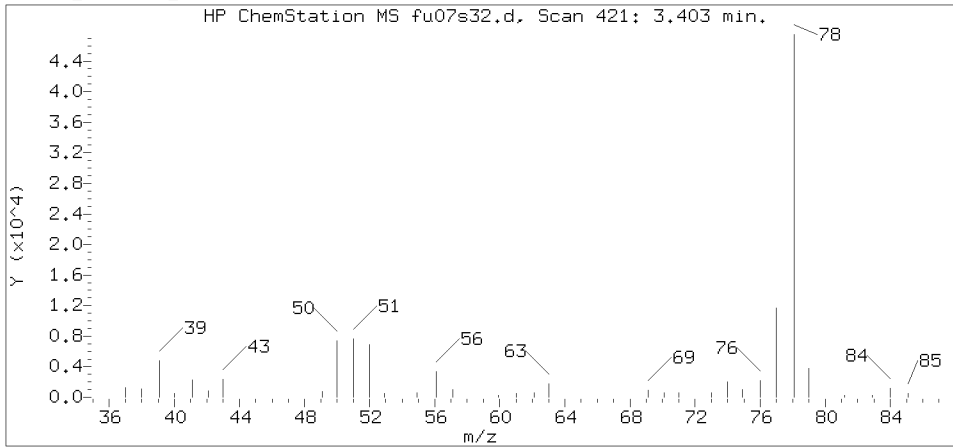
Reference Standard Spectrum for Benzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s32.d
 Injection date and time: 07-JUN-2019 16:28

Instrument ID: HP15830.i
 Analyst ID: ADS07818

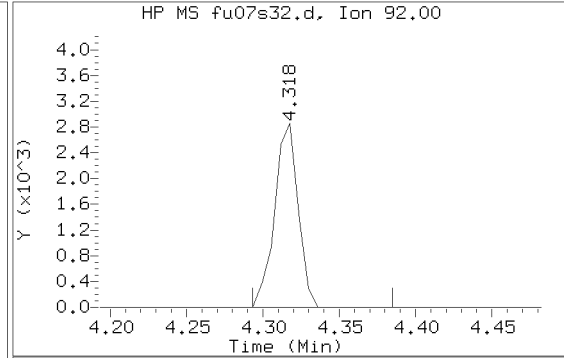
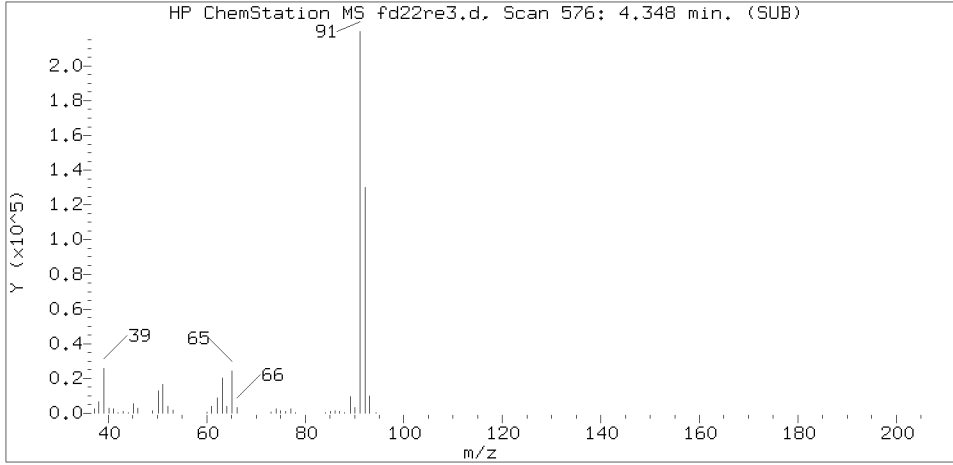
Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:14 hy07820

Sample Name: 64L02

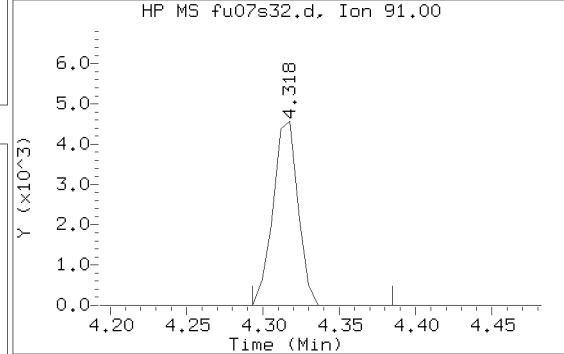
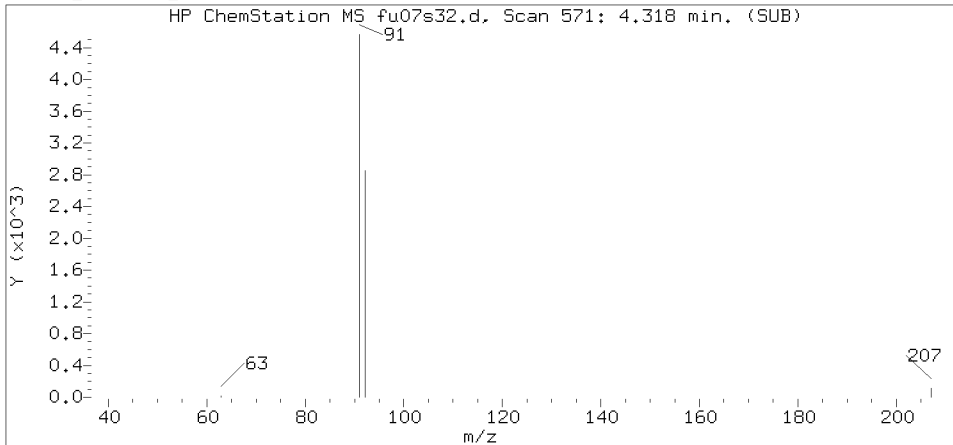
Lab Sample ID: 1068870

Compound Number : 12
 Compound Name : Benzene
 Scan Number : 421
 Retention Time (minutes): 3.403
 Relative Retention Time : 0.00174
 Quant Ion : 78.00
 Area (flag) : 73155
 On-Column Amount (ng) : 6.9816

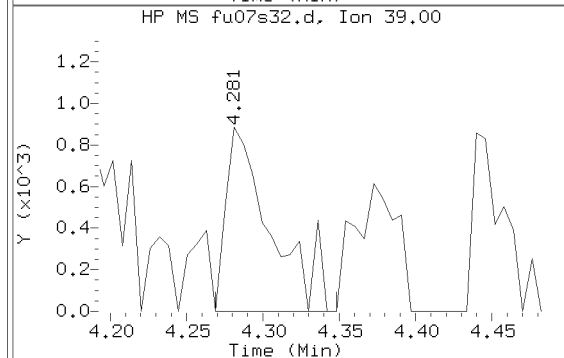
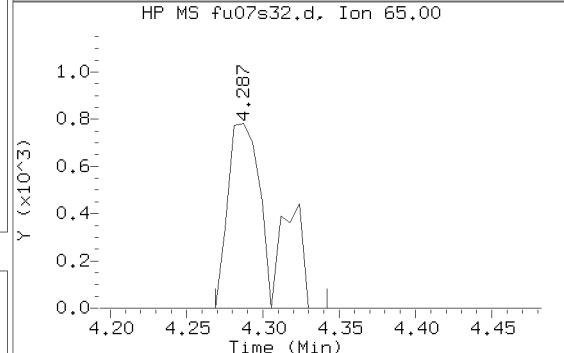
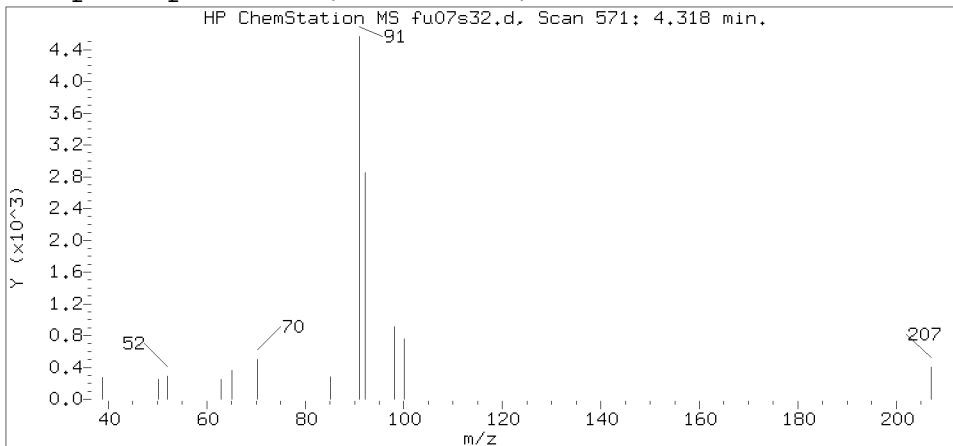
Reference Standard Spectrum for Toluene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s32.d
 Injection date and time: 07-JUN-2019 16:28

Instrument ID: HP15830.i
 Analyst ID: ADS07818

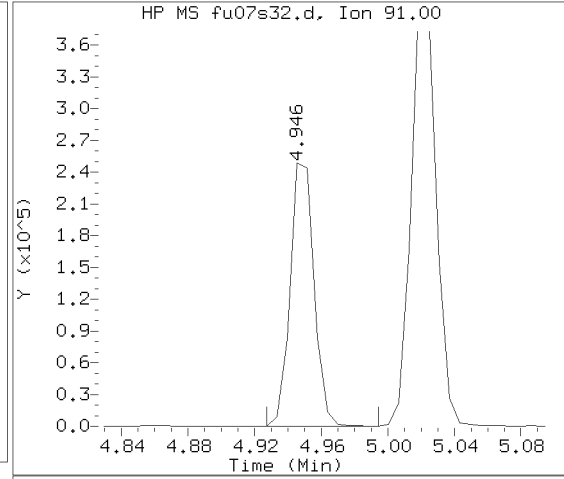
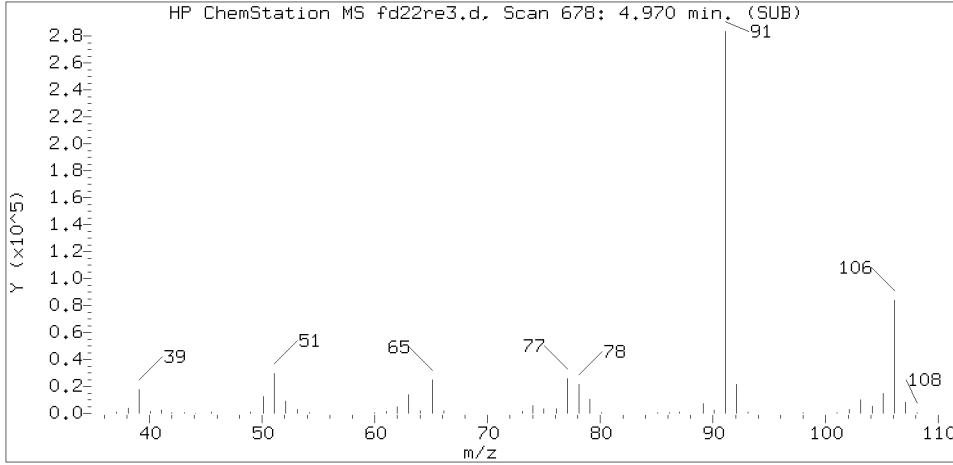
Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:14 hy07820

Sample Name: 64L02

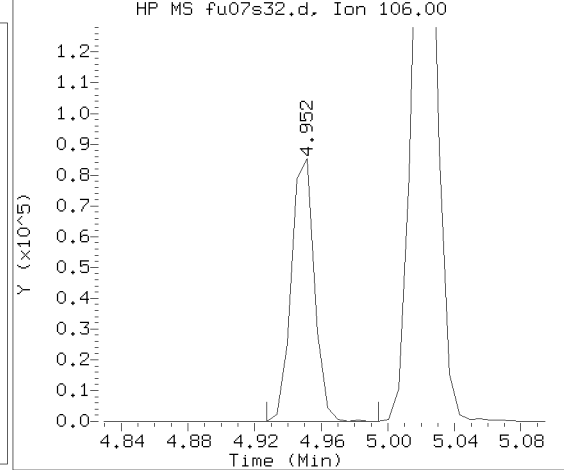
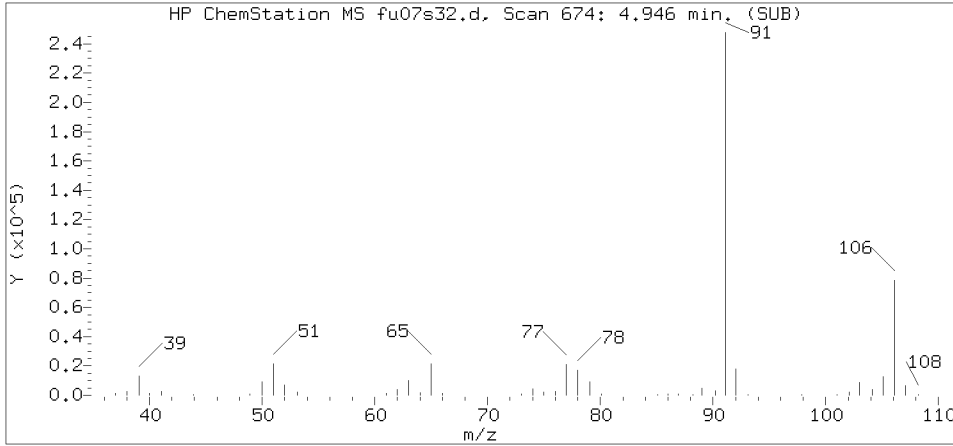
Lab Sample ID: 1068870

Compound Number : 16
 Compound Name : Toluene
 Scan Number : 571
 Retention Time (minutes): 4.318
 Relative Retention Time : -0.00125
 Quant Ion : 92.00
 Area (flag) : 3049
 On-Column Amount (ng) : 0.4206

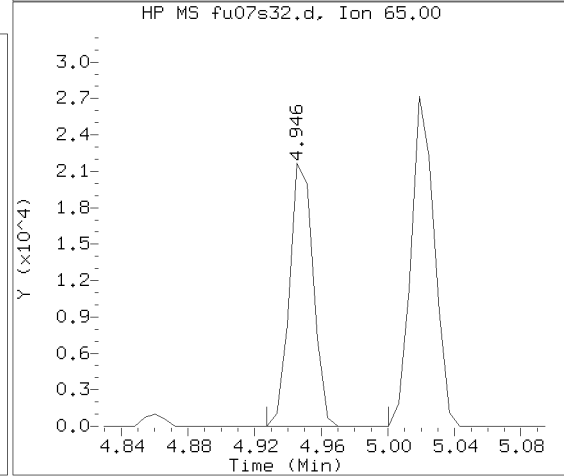
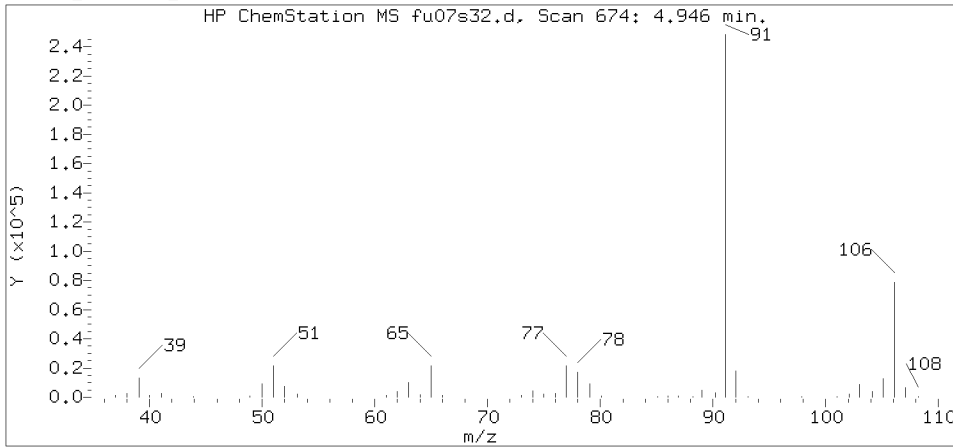
Reference Standard Spectrum for Ethylbenzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s32.d
 Injection date and time: 07-JUN-2019 16:28

Instrument ID: HP15830.i
 Analyst ID: ADS07818

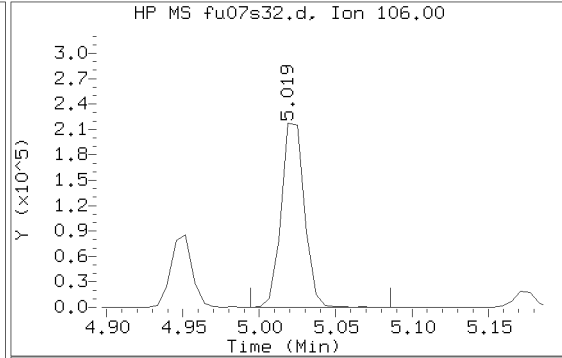
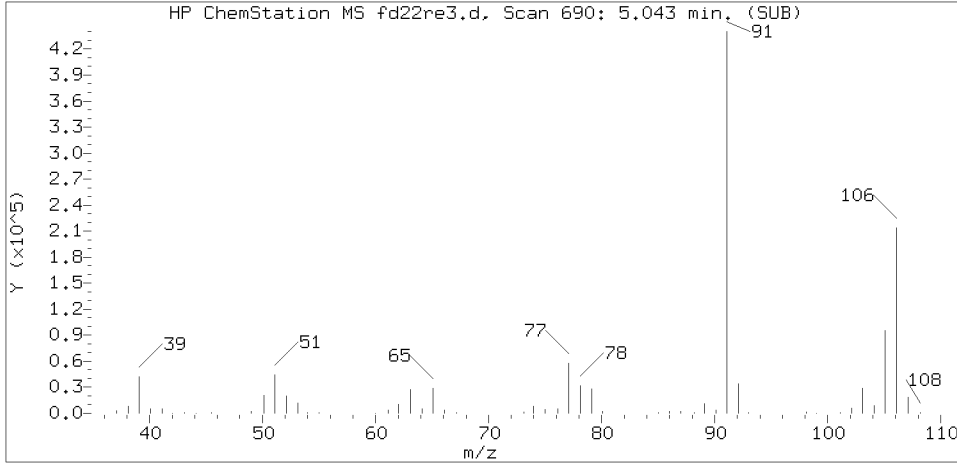
Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:14 hy07820

Sample Name: 64L02

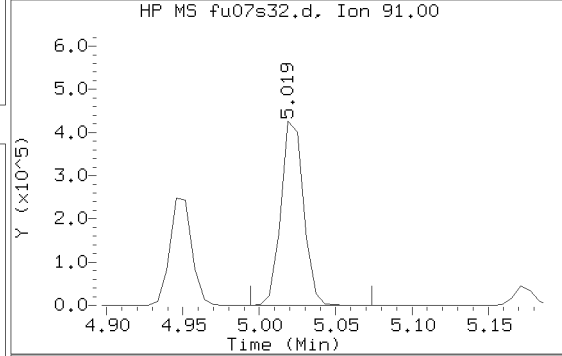
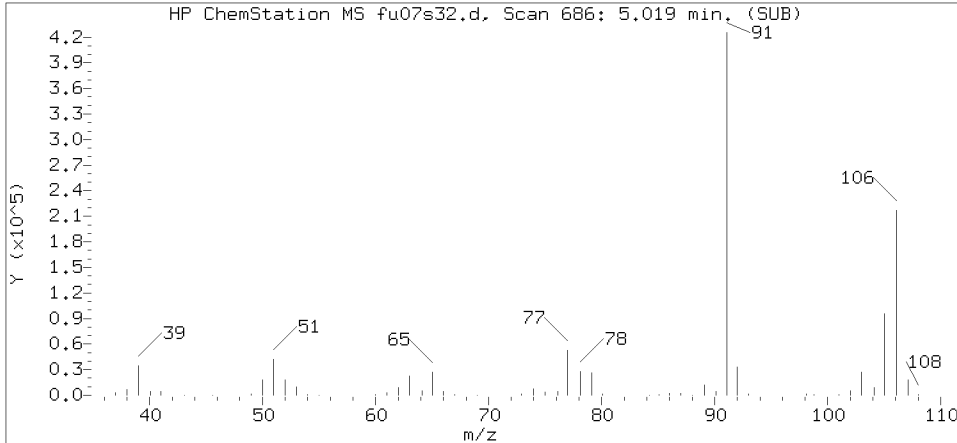
Lab Sample ID: 1068870

Compound Number : 20
 Compound Name : Ethylbenzene
 Scan Number : 674
 Retention Time (minutes): 4.946
 Relative Retention Time : 0.00000
 Quant Ion : 91.00
 Area (flag) : 249720
 On-Column Amount (ng) : 17.7925

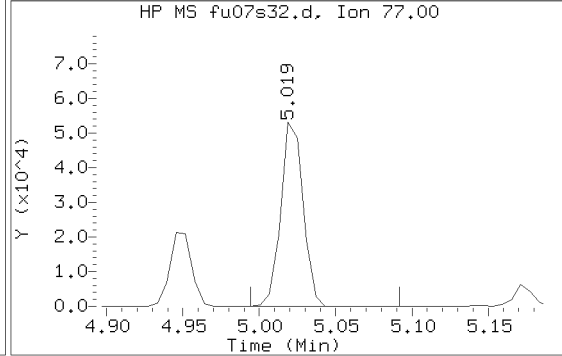
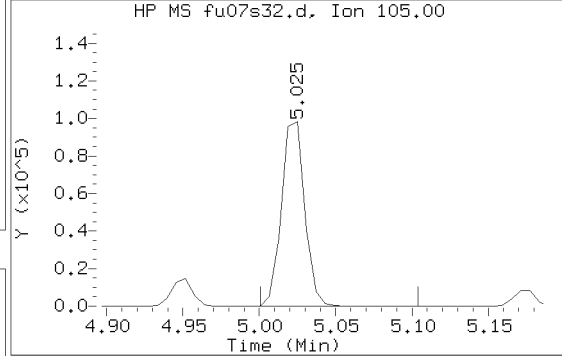
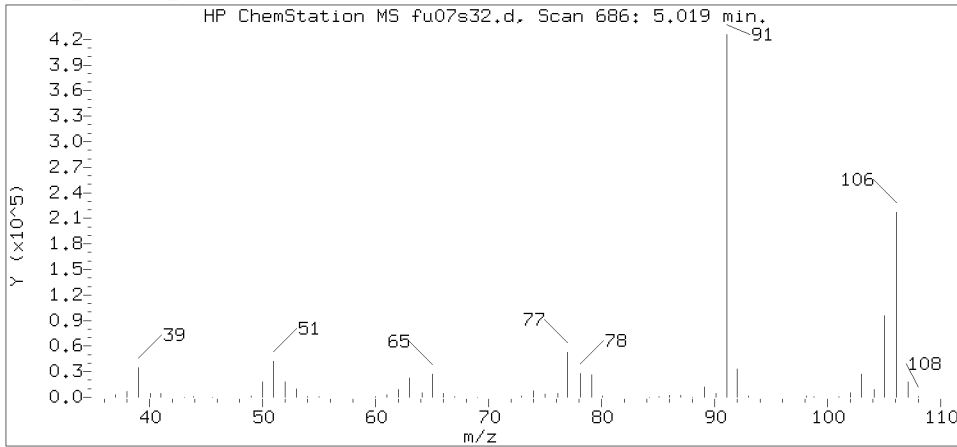
Reference Standard Spectrum for m+p-Xylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s32.d
 Injection date and time: 07-JUN-2019 16:28

Instrument ID: HP15830.i
 Analyst ID: ADS07818

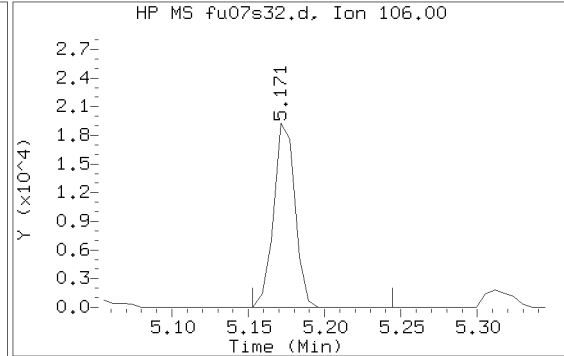
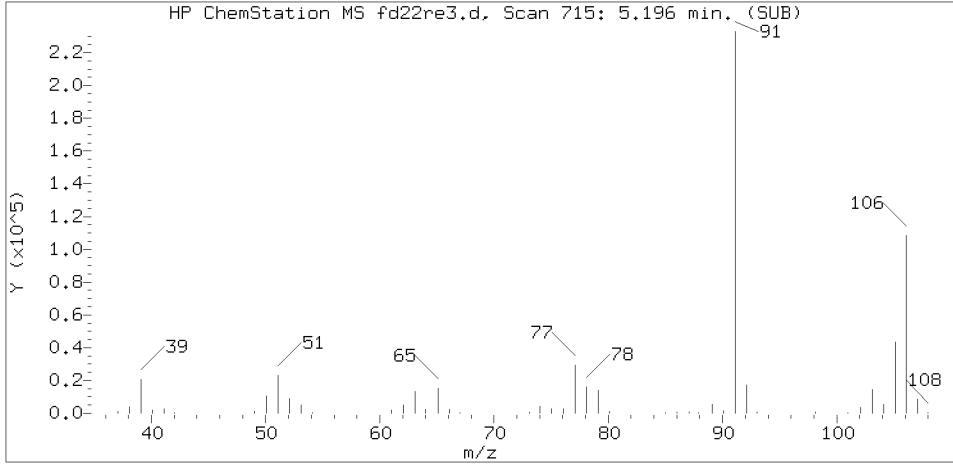
Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:14 hy07820

Sample Name: 64L02

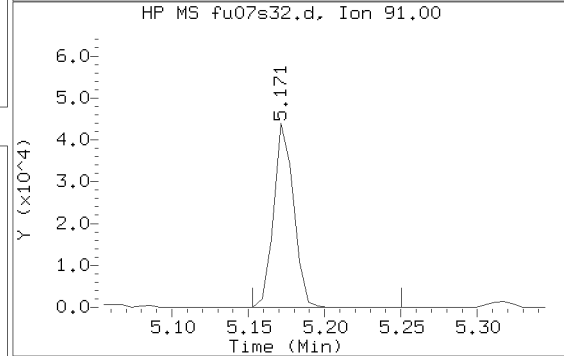
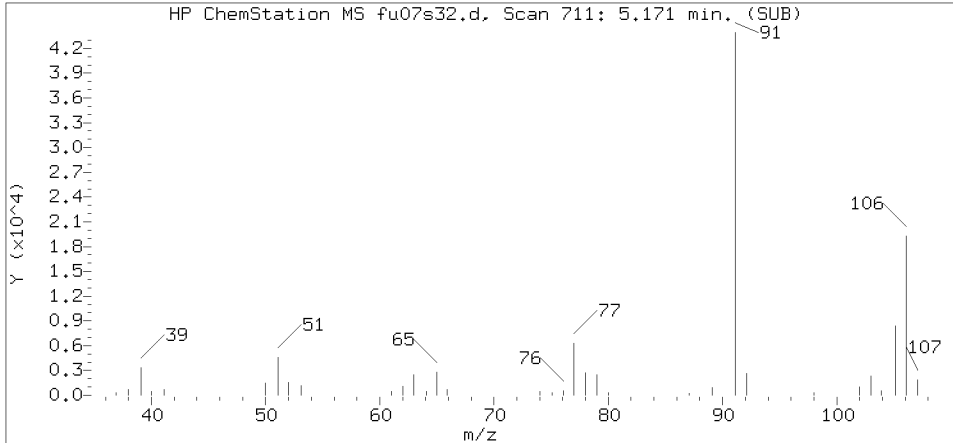
Lab Sample ID: 1068870

Compound Number : 21
 Compound Name : m+p-Xylene
 Scan Number : 686
 Retention Time (minutes): 5.019
 Relative Retention Time : 0.00125
 Quant Ion : 106.00
 Area (flag) : 231135
 On-Column Amount (ng) : 41.1170

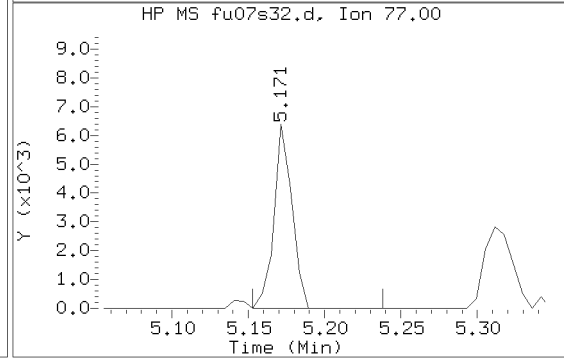
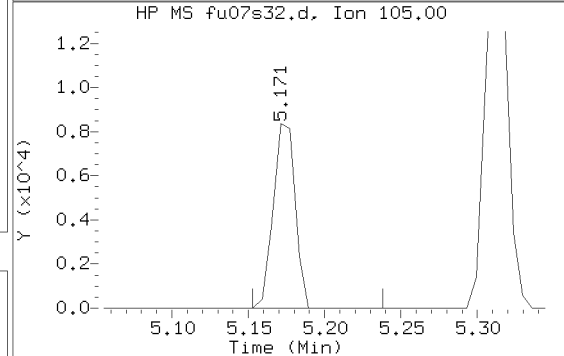
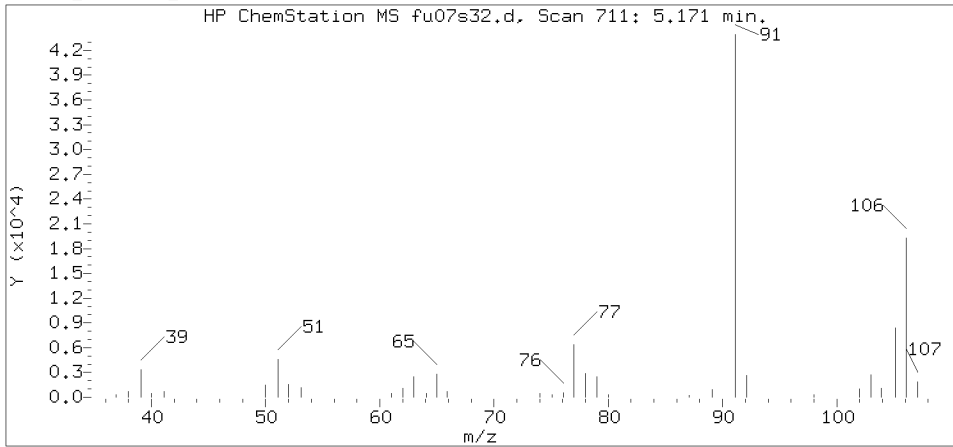
Reference Standard Spectrum for o-Xylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s32.d
 Injection date and time: 07-JUN-2019 16:28

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:14 hy07820

Sample Name: 64L02

Lab Sample ID: 1068870

Compound Number : 22
 Compound Name : o-Xylene
 Scan Number : 711
 Retention Time (minutes): 5.171
 Relative Retention Time : -0.00000
 Quant Ion : 106.00
 Area (flag) : 18707
 On-Column Amount (ng) : 3.4661

64L03

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles 1068871

Data file: /chem/HP15830.i/19jun07a.b/fu07s34.d Injection date and time: 07-JUN-2019 16:50
Data file Sample Info. Line: 64L03;1068871;1;0;;LSV64;;;fu07b02; Instrument ID: HP15830.i Batch: F191582AA
Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Blank Data file reference: /chem/HP15830.i/19jun07a.b/fu07b02.d

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
Calibration date and time (Last Method Edit): 07-JUN-2019 10:09
Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/19jun07a.b/fu07c04.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.922(-0.006)	178	65	101117 (4)	250.00	
14) Fluorobenzene	3.507(0.000)	438	96	425807 (3)	50.00	
19) Chlorobenzene-d5	4.860(0.000)	660	117	340351 (7)	50.00	
28) 1,4-Dichlorobenzene-d4	5.811(0.000)	816	152	190566 (8)	50.00	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.922(0.000)	113	94979	47.578	95%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.141(0.000)	102	27230	47.819	96%		80 - 120
15) Toluene-d8	(3)	4.287(0.000)	98	429010	48.726	97%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.324(0.000)	95	166772	48.001	96%		80 - 120

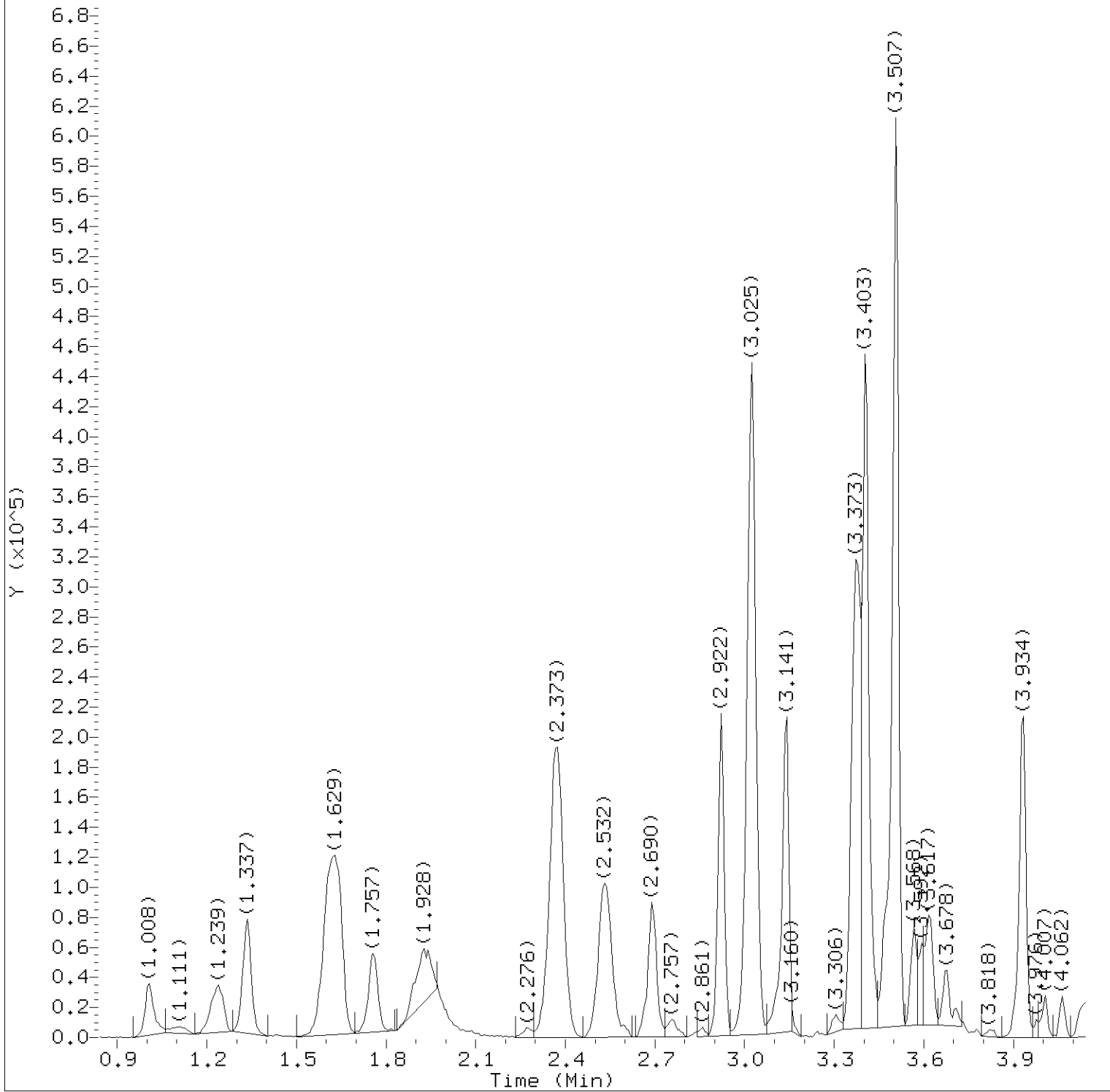
Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
12) Benzene	(2)	3.403(0.001)	78	291625	27.649	27.65			0.2	1
16) Toluene	(3)	4.312(0.000)	92	54694	7.469	7.47			0.2	1
20) Ethylbenzene	(3)	4.946(-0.000)	91	1712715	120.813	120.81			0.4	1
21) m+p-Xylene	(3)	5.025(-0.000)	106	3285002	578.544	578.54		E	1	5
22) o-Xylene	(3)	5.171(-0.000)	106	737158	135.219	135.22			0.4	1
23) Xylene (Total)	(3)		106	4022160	713.762	713.76		E	1	5

E = Compound concentration above calibration range.

Total number of targets = 6

Digitally signed by Hu Yang on 06/07/2019 at 21:31. Target 3.5 esignature user ID: hy07820

Secondary review performed and digitally signed by Richard Samson on 06/10/2019 at 22:02. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07s34.d
Injection date and time: 07-JUN-2019 16:50

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT2C.m
Calibration date and time: 07-JUN-2019 10:09

Sublist used: 12790

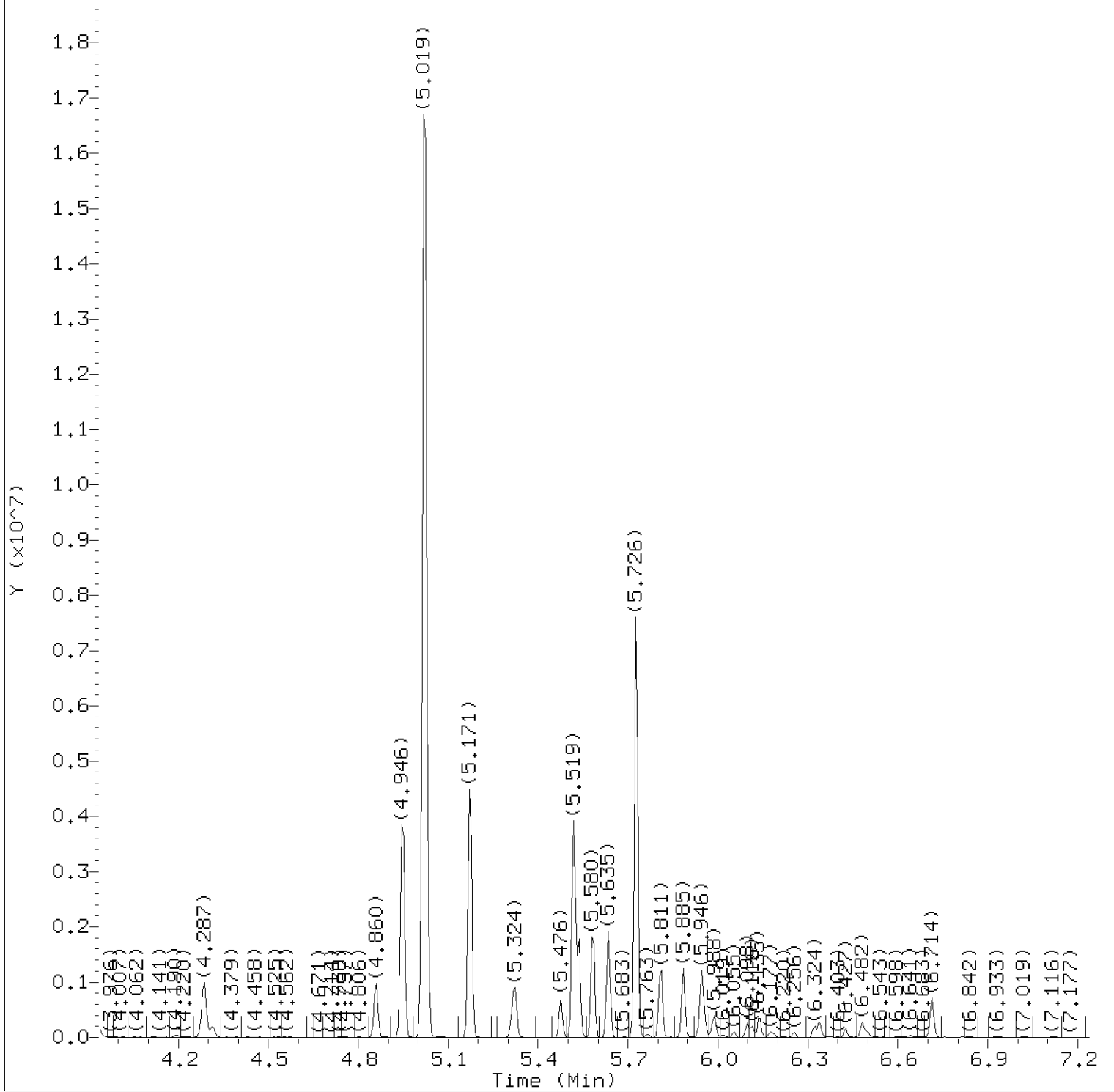
Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L03

Lab Sample ID: 1068871

Digitally signed by Hu Yang
on 06/07/2019 at 21:31.

Target 3.5 esignature user ID: hy07820



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07s34.d Instrument ID: HP15830.i
Injection date and time: 07-JUN-2019 16:50 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT2C.m Sublist used: 12790
Calibration date and time: 07-JUN-2019 10:09
Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L03 Lab Sample ID: 1068871

Digitally signed by Hu Yang
on 06/07/2019 at 21:31.

Target 3.5 esignature user ID: hy07820

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a.b/fu07s34.d
 Injection date and time: 07-JUN-2019 16:50

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sublist used: 12790

Sample Name: 64L03

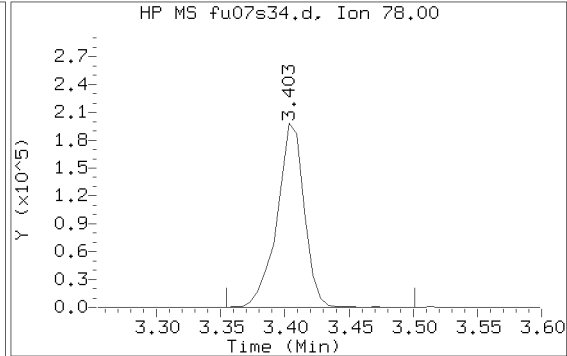
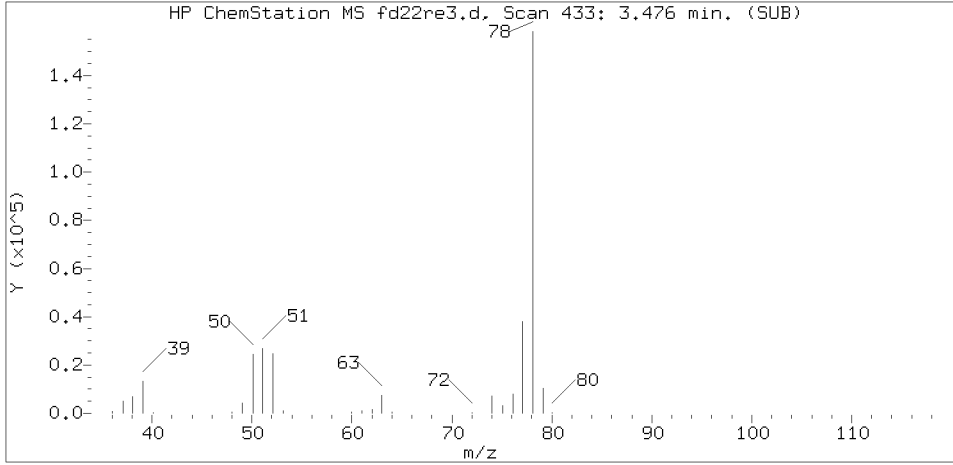
Lab Sample ID: 1068871

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
2)*t-Butyl alcohol-d10	(1)	1.922	65	101117	250.000
7)\$Dibromofluoromethane	(2)	2.922	113	94979	47.578
10)\$1,2-Dichloroethane-d4	(2)	3.141	102	27230	47.819
12) Benzene	(2)	3.403	78	291625	27.649
14)*Fluorobenzene	(2)	3.507	96	425807	50.000
15)\$Toluene-d8	(3)	4.287	98	429010	48.726
16) Toluene	(3)	4.312	92	54694	7.469
19)*Chlorobenzene-d5	(3)	4.860	117	340351	50.000
20) Ethylbenzene	(3)	4.946	91	1712715	120.813
21) m+p-Xylene	(3)	5.025	106	3285002	578.544
22) o-Xylene	(3)	5.171	106	737158	135.219
25)\$4-Bromofluorobenzene	(3)	5.324	95	166772	48.001
23) Xylene (Total)	(3)		106	4022160	713.762
28)*1,4-Dichlorobenzene-d4	(4)	5.811	152	190566	50.000

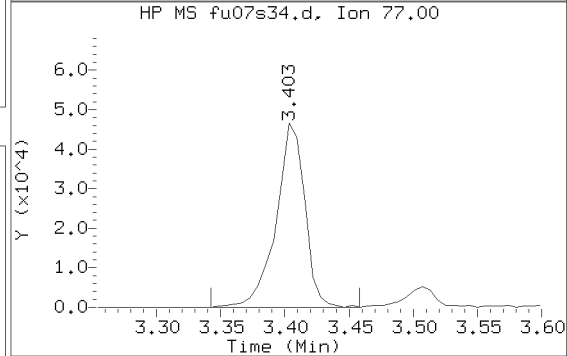
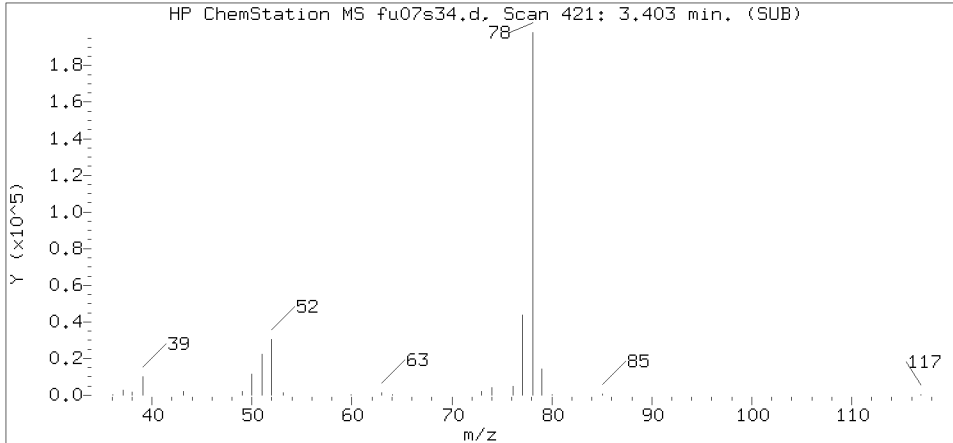
* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

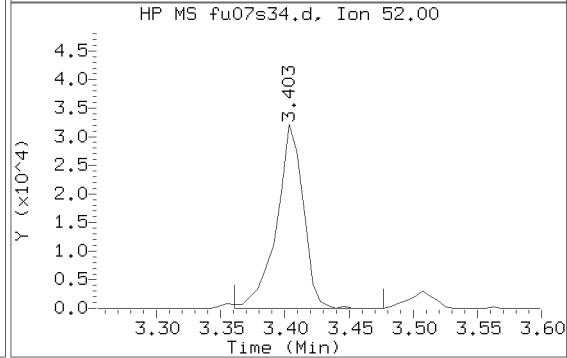
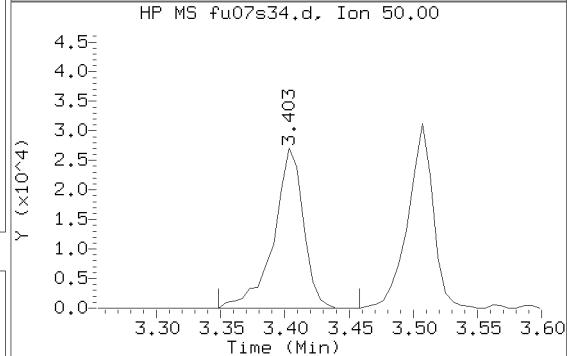
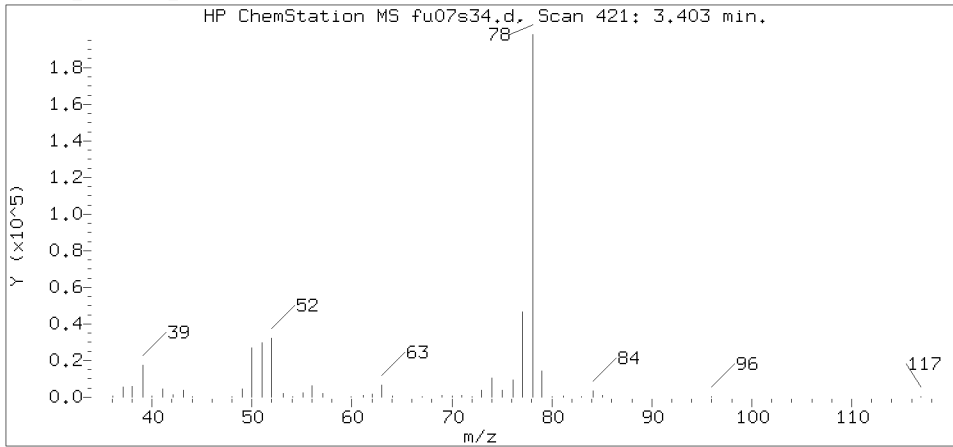
Reference Standard Spectrum for Benzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s34.d
 Injection date and time: 07-JUN-2019 16:50

Instrument ID: HP15830.i
 Analyst ID: ADS07818

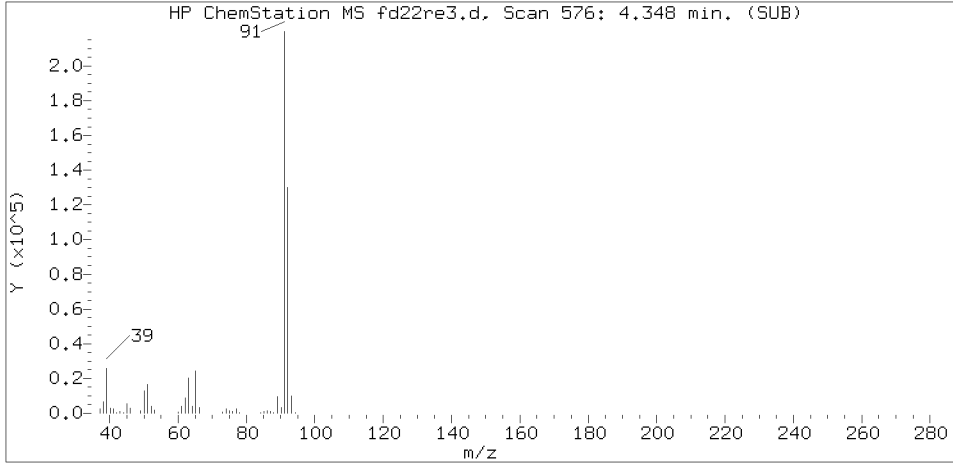
Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L03

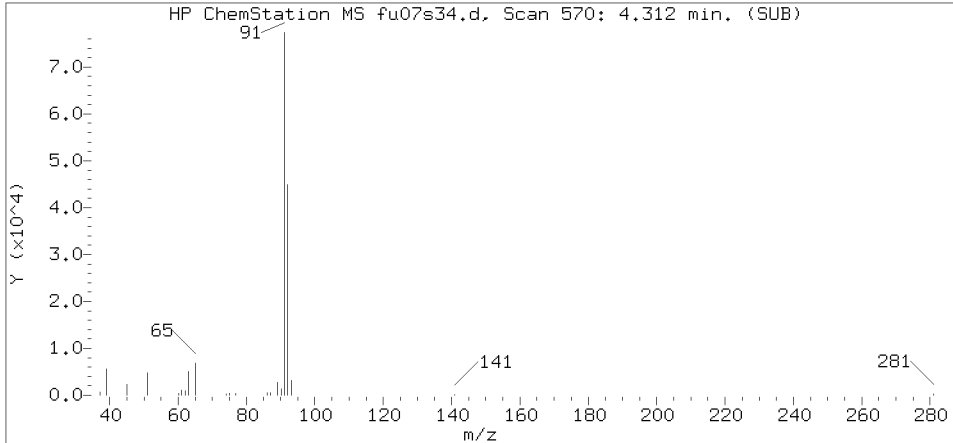
Lab Sample ID: 1068871

Compound Number : 12
 Compound Name : Benzene
 Scan Number : 421
 Retention Time (minutes): 3.403
 Relative Retention Time : 0.00175
 Quant Ion : 78.00
 Area (flag) : 291625
 On-Column Amount (ng) : 27.6490

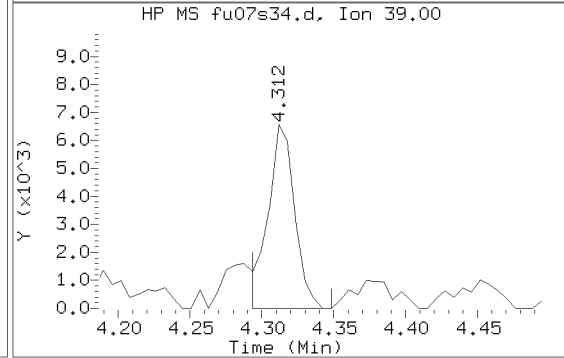
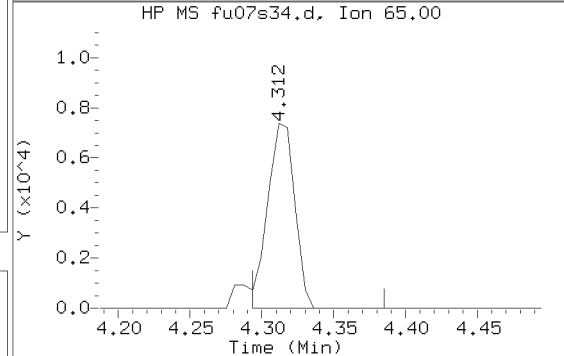
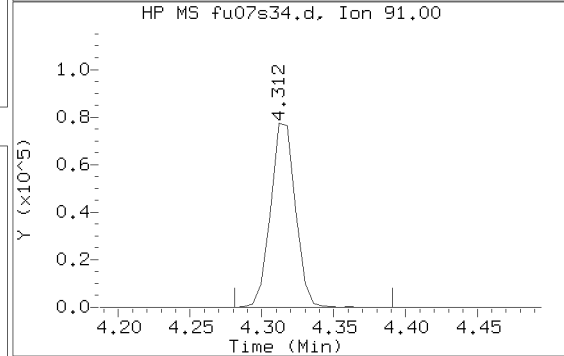
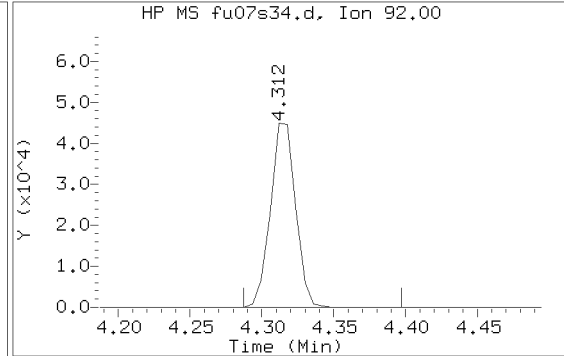
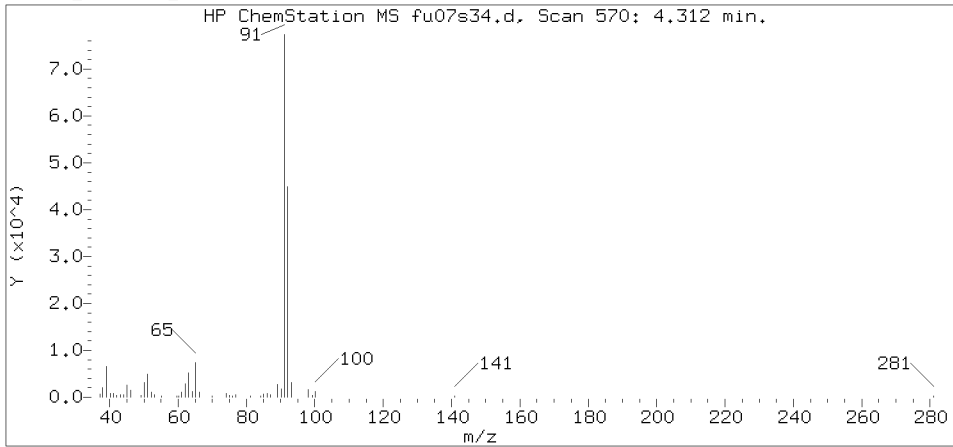
Reference Standard Spectrum for Toluene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s34.d
 Injection date and time: 07-JUN-2019 16:50

Instrument ID: HP15830.i
 Analyst ID: ADS07818

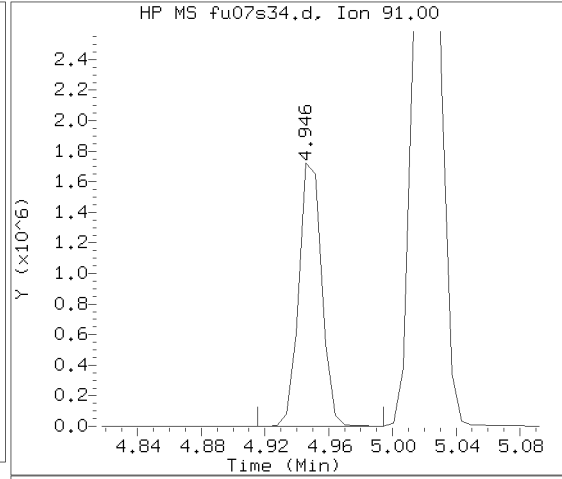
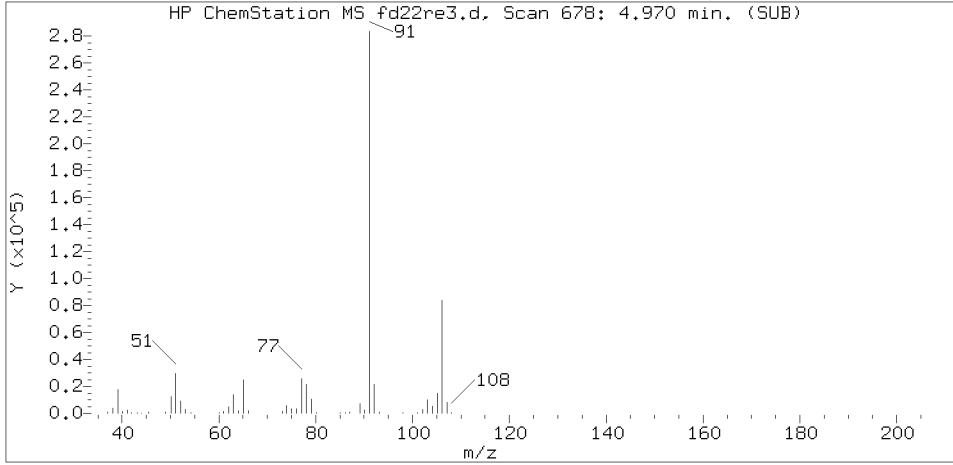
Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L03

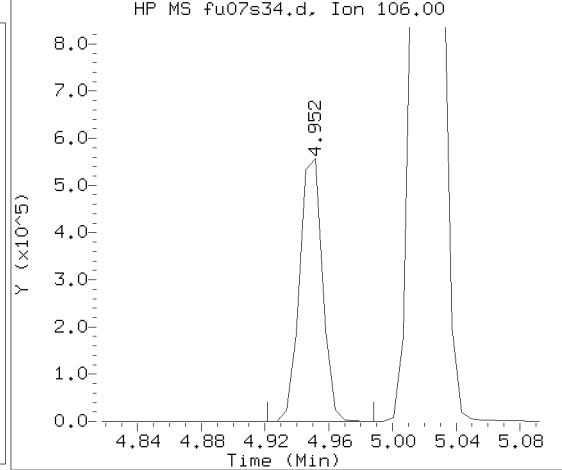
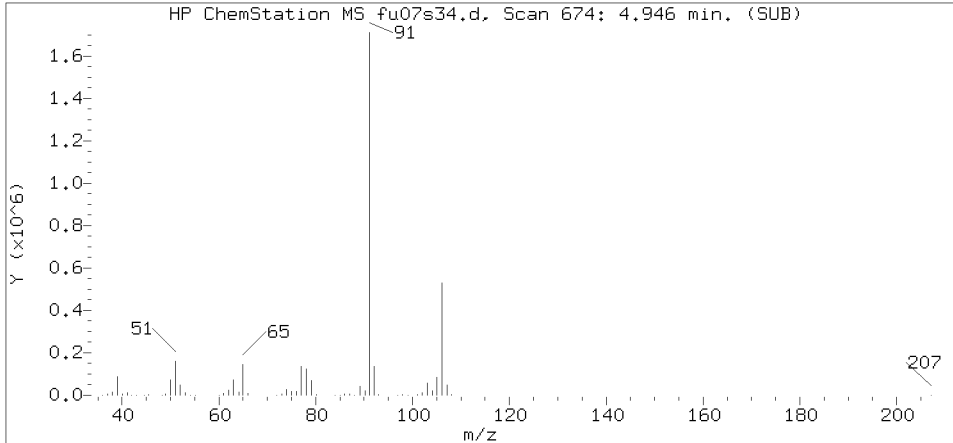
Lab Sample ID: 1068871

Compound Number : 16
 Compound Name : Toluene
 Scan Number : 570
 Retention Time (minutes): 4.312
 Relative Retention Time : 0.00000
 Quant Ion : 92.00
 Area (flag) : 54694
 On-Column Amount (ng) : 7.4691

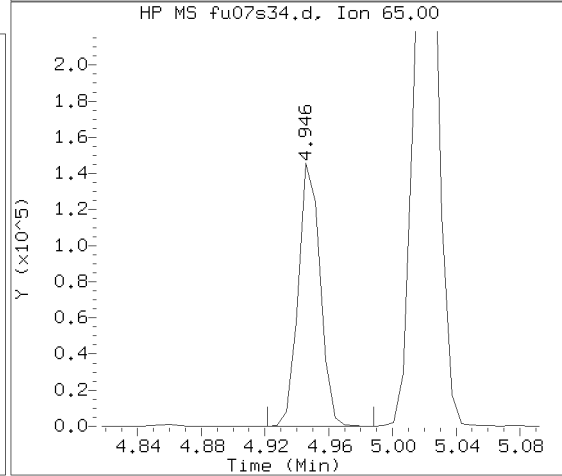
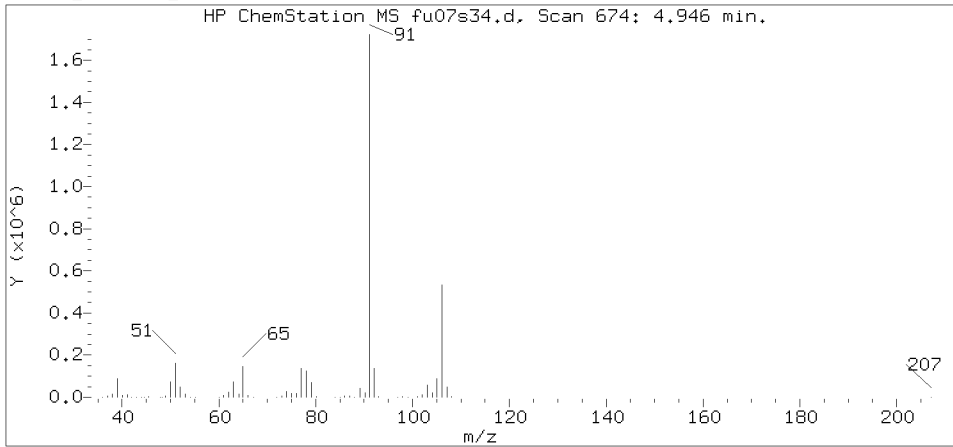
Reference Standard Spectrum for Ethylbenzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s34.d
 Injection date and time: 07-JUN-2019 16:50

Instrument ID: HP15830.i
 Analyst ID: ADS07818

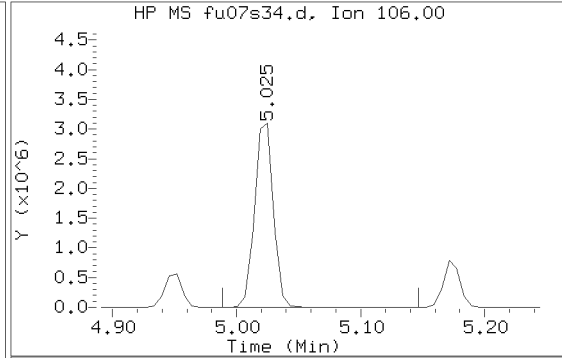
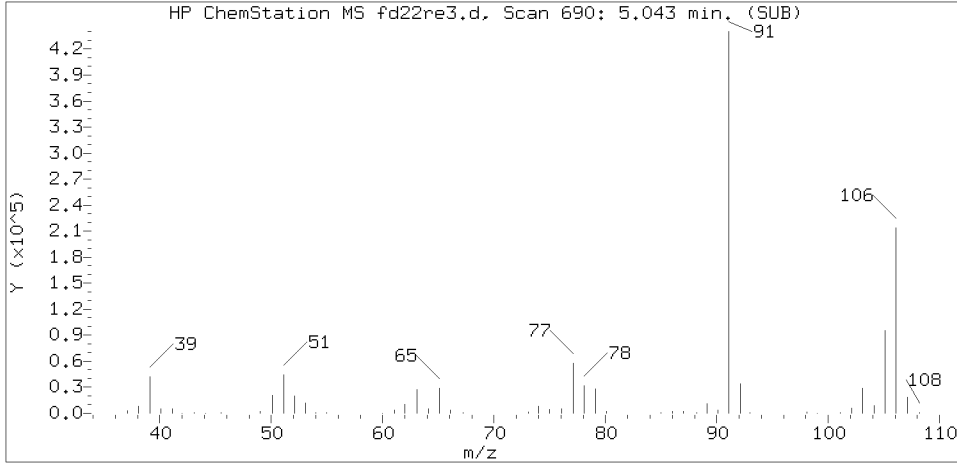
Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L03

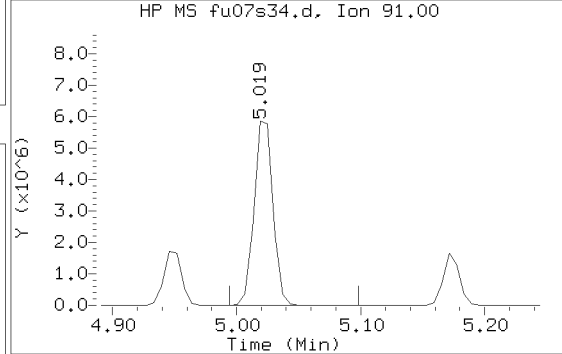
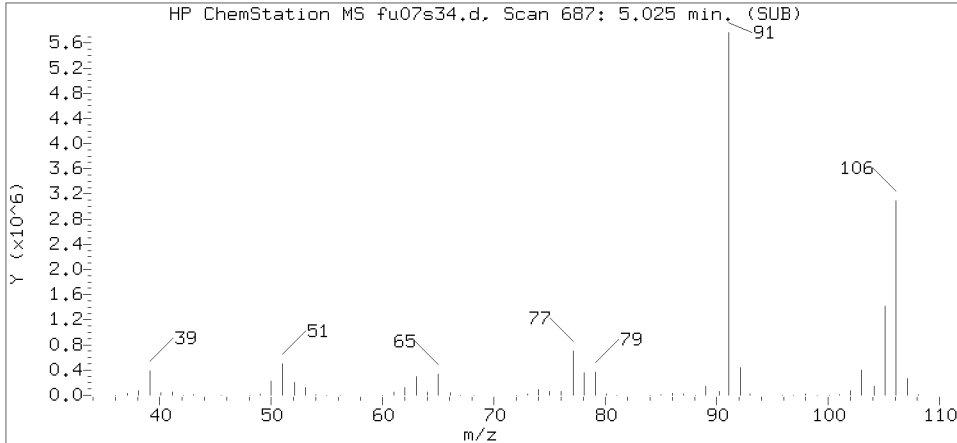
Lab Sample ID: 1068871

Compound Number : 20
 Compound Name : Ethylbenzene
 Scan Number : 674
 Retention Time (minutes): 4.946
 Relative Retention Time : -0.00000
 Quant Ion : 91.00
 Area (flag) : 1712715
 On-Column Amount (ng) : 120.8128

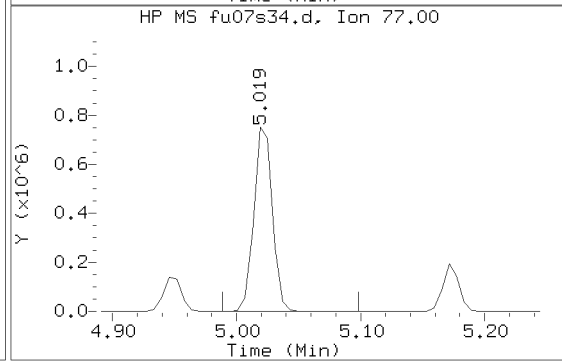
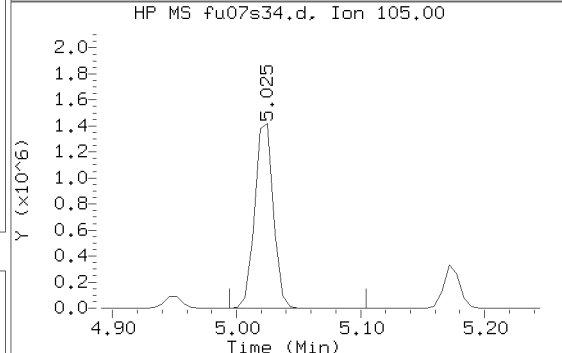
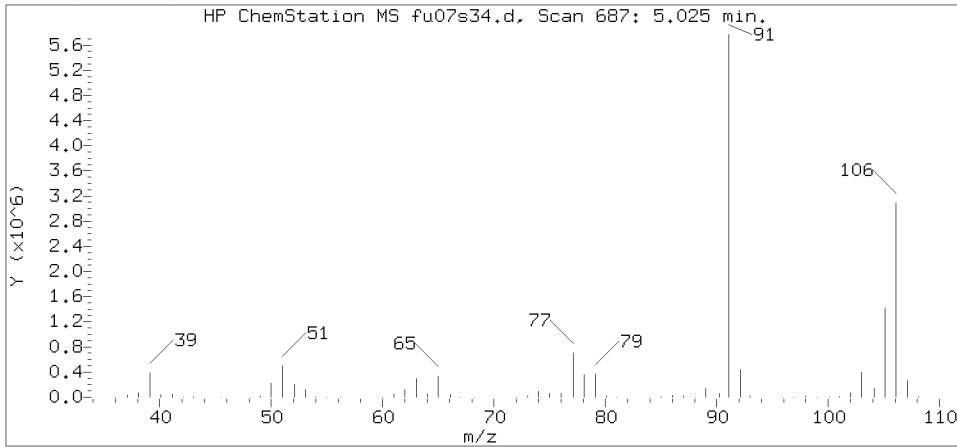
Reference Standard Spectrum for m+p-Xylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s34.d
 Injection date and time: 07-JUN-2019 16:50

Instrument ID: HP15830.i
 Analyst ID: ADS07818

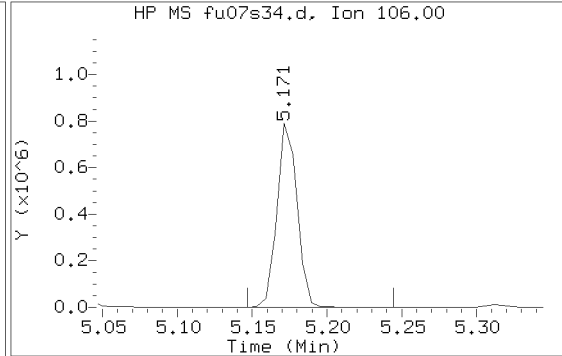
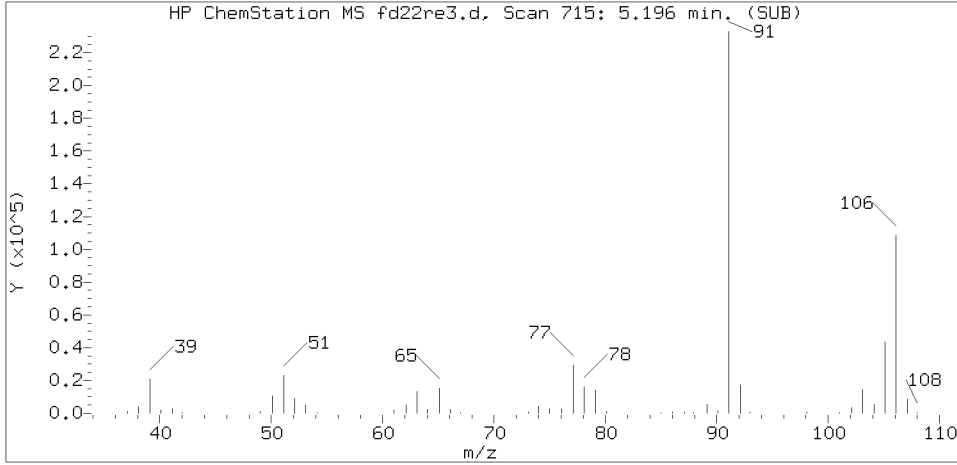
Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L03

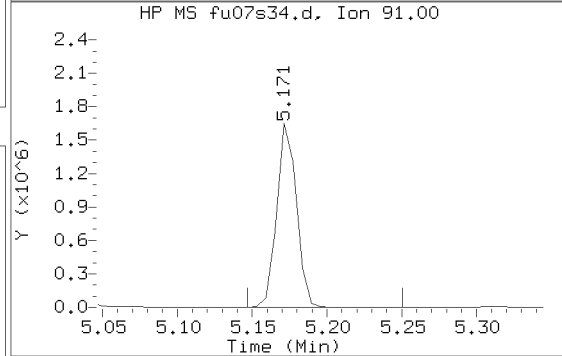
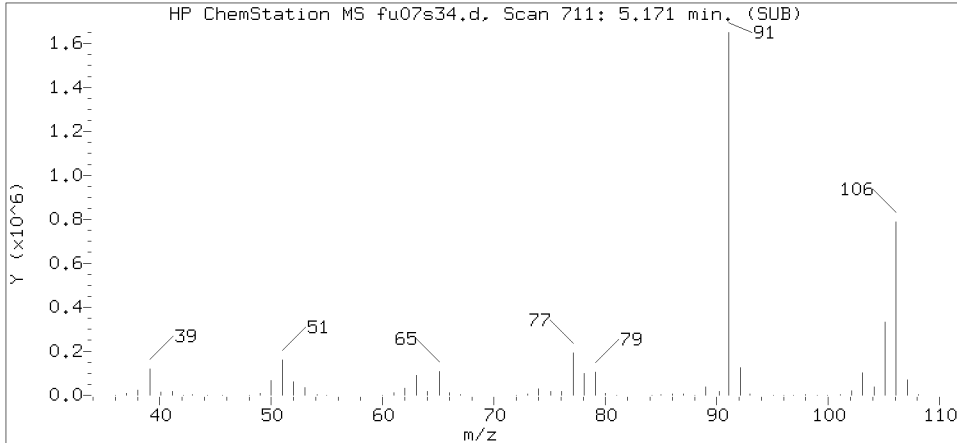
Lab Sample ID: 1068871

Compound Number : 21
 Compound Name : m+p-Xylene
 Scan Number : 687
 Retention Time (minutes): 5.025
 Relative Retention Time : -0.00000
 Quant Ion : 106.00
 Area (flag) : 3285002
 On-Column Amount (ng) : 578.5437

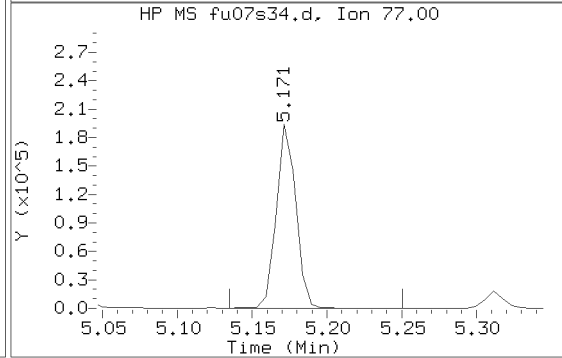
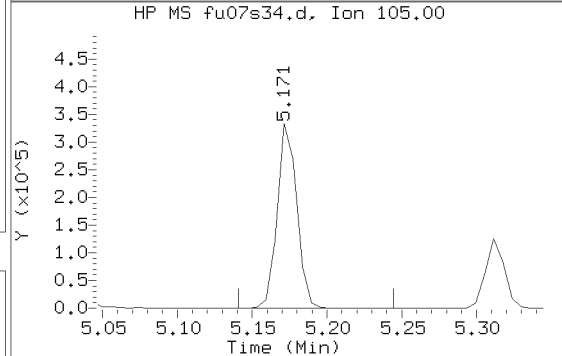
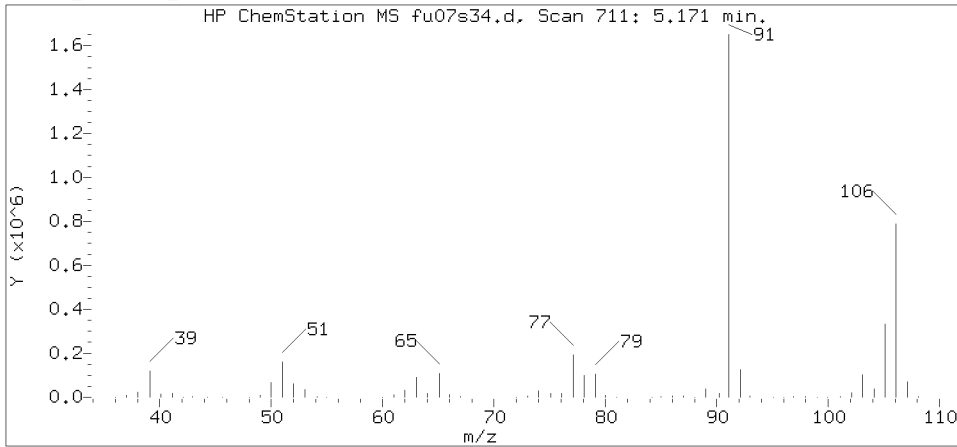
Reference Standard Spectrum for o-Xylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s34.d
 Injection date and time: 07-JUN-2019 16:50

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L03

Lab Sample ID: 1068871

Compound Number : 22
 Compound Name : o-Xylene
 Scan Number : 711
 Retention Time (minutes): 5.171
 Relative Retention Time : -0.00000
 Quant Ion : 106.00
 Area (flag) : 737158
 On-Column Amount (ng) : 135.2187

64L03DL

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

1068871DL

Data file: /chem/HP15830.i/19jun10a.b/fu10s31.d Injection date and time: 10-JUN-2019 17:08
Data file Sample Info. Line: 64L03DL;1068871DL;1;0;;LSV64;;;fu10b01; Instrument ID: HP15830.i Batch: F191611AA
Date, time and analyst ID of latest file update: 12-Jun-2019 13:54 ads07818

Blank Data file reference: /chem/HP15830.i/19jun10a.b/fu10b01.d

Method used: /chem/HP15830.i/19jun10a.b/UST-PT1C.m Sublist used: 12790
Calibration date and time (Last Method Edit): 10-JUN-2019 10:56
Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/19jun10a.b/fu10c05.d

Bottle Code: 038B Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 10.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 0.5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.940(-0.012)	181	65	160461 (1)	250.00	
14) Fluorobenzene	3.513(0.000)	439	96	399728 (-3)	50.00	
19) Chlorobenzene-d5	4.860(0.000)	660	117	314693 (-4)	50.00	
28) 1,4-Dichlorobenzene-d4	5.811(0.000)	816	152	181907 (0)	50.00	

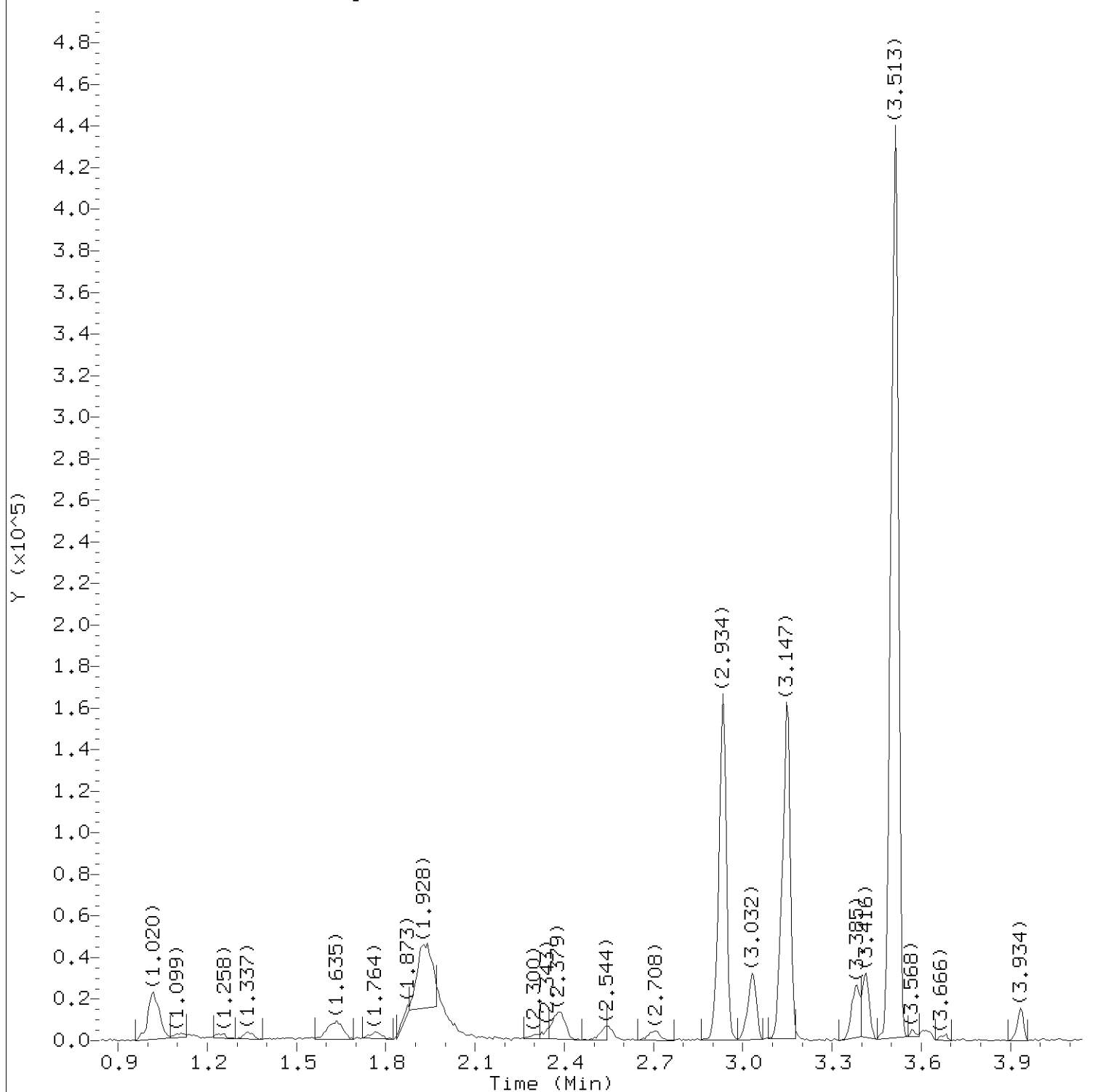
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.934(0.000)	113	90146	48.003	96%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.153(-0.002)	102	25570	47.041	94%		80 - 120
15) Toluene-d8	(3)	4.287(0.000)	98	400027	49.293	99%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.324(0.000)	95	157092	49.017	98%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
12) Benzene	(2)	3.416(-0.001)	78	25458	2.449	24.49			2	10
16) Toluene	(3)	4.312(0.001)	92	4696	0.661	6.61		J	2	10
20) Ethylbenzene	(3)	4.952(0.000)	91	144278	10.510	105.10			4	10
21) m+p-Xylene	(3)	5.025(0.000)	106	275678	50.200	502.00			10	50
22) o-Xylene	(3)	5.177(-0.001)	106	60520	11.575	115.75			4	10
23) Xylene (Total)	(3)		106	336198	61.775	617.75			10	50

Total number of targets = 6

Digitally signed by Alexander D. Sechrist on 06/12/2019 at 13:55. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Richard Samson on 06/12/2019 at 16:42. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun10a,b/fu10s31.d
Injection date and time: 10-JUN-2019 17:08

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun10a,b/UST-PT1C.m
Calibration date and time: 10-JUN-2019 10:56

Sublist used: 12790

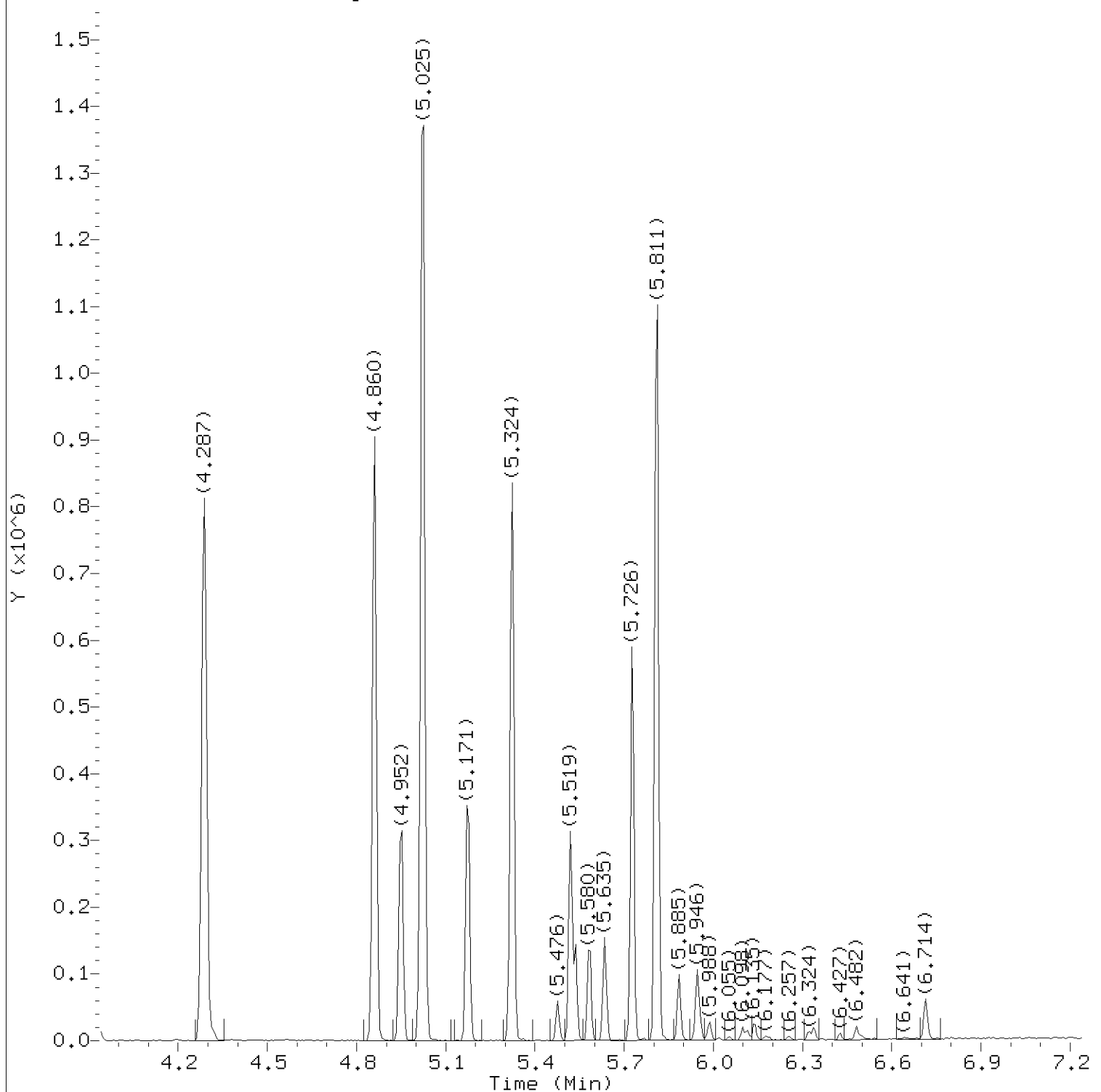
Date, time and analyst ID of latest file update: 12-Jun-2019 13:54 ads07818

Sample Name: 64L03DL

Lab Sample ID: 1068871DL

Digitally signed by Alexander D. Sechrist
on 06/12/2019 at 13:55.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun10a,b/fu10s31.d
Injection date and time: 10-JUN-2019 17:08

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun10a,b/UST-PT1C.m
Calibration date and time: 10-JUN-2019 10:56

Sublist used: 12790

Date, time and analyst ID of latest file update: 12-Jun-2019 13:54 ads07818

Sample Name: 64L03DL

Lab Sample ID: 1068871DL

Digitally signed by Alexander D. Sechrist
on 06/12/2019 at 13:55.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/19jun10a.b/fu10s31.d
 Injection date and time: 10-JUN-2019 17:08

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun10a.b/UST-PT1C.m

Sublist used: 12790

Calibration date and time: 10-JUN-2019 10:56

Date, time and analyst ID of latest file update: 12-Jun-2019 13:54 ads07818

Sample Name: 64L03DL

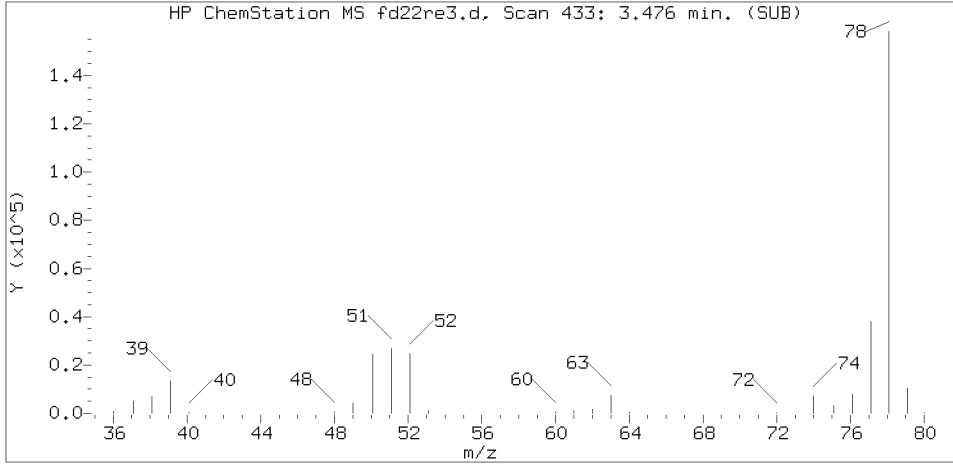
Lab Sample ID: 1068871DL

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
2)*t-Butyl alcohol-d10	(1)	1.940	65	160461	250.000
7)\$Dibromofluoromethane	(2)	2.934	113	90146	48.003
10)\$1,2-Dichloroethane-d4	(2)	3.153	102	25570	47.041
12) Benzene	(2)	3.416	78	25458	2.449
14)*Fluorobenzene	(2)	3.513	96	399728	50.000
15)\$Toluene-d8	(3)	4.287	98	400027	49.293
16) Toluene	(3)	4.312	92	4696	0.661
19)*Chlorobenzene-d5	(3)	4.860	117	314693	50.000
20) Ethylbenzene	(3)	4.952	91	144278	10.510
21) m+p-Xylene	(3)	5.025	106	275678	50.200
22) o-Xylene	(3)	5.177	106	60520	11.575
25)\$4-Bromofluorobenzene	(3)	5.324	95	157092	49.017
23) Xylene (Total)	(3)		106	336198	61.775
28)*1,4-Dichlorobenzene-d4	(4)	5.811	152	181907	50.000

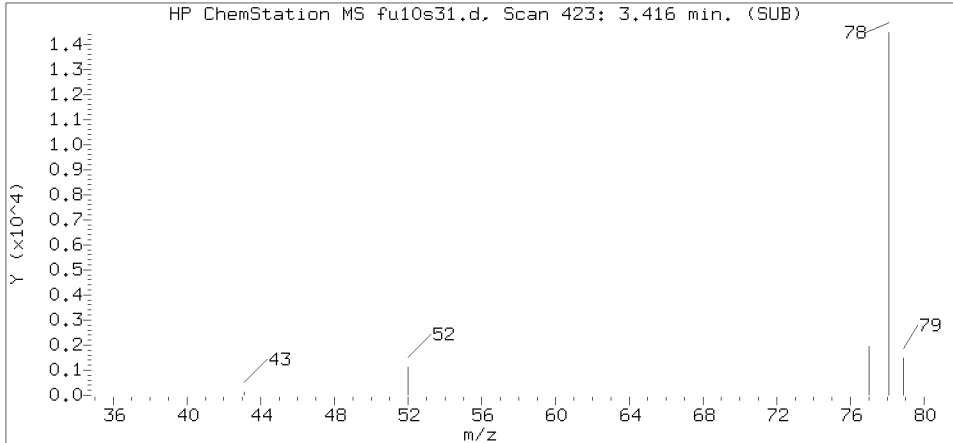
* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

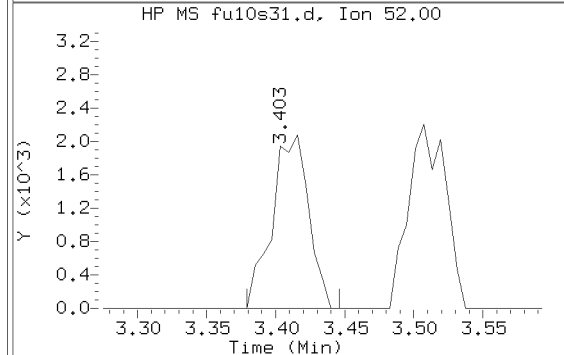
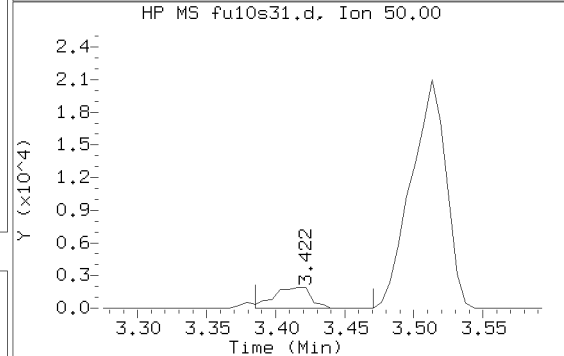
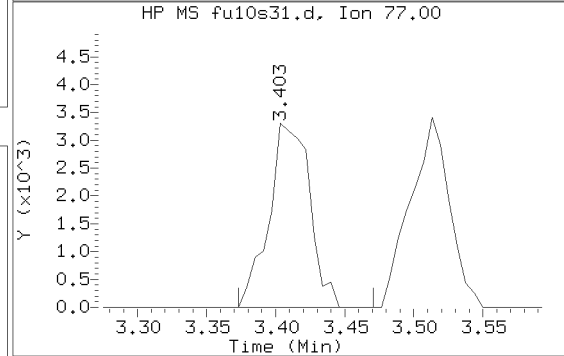
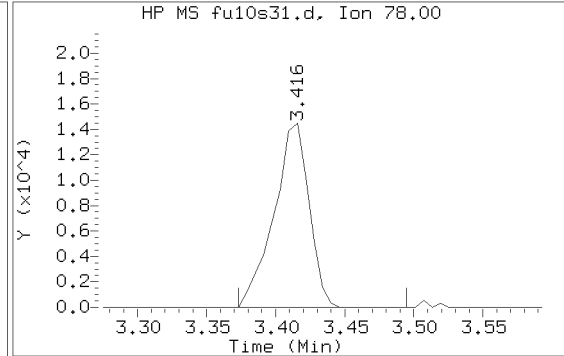
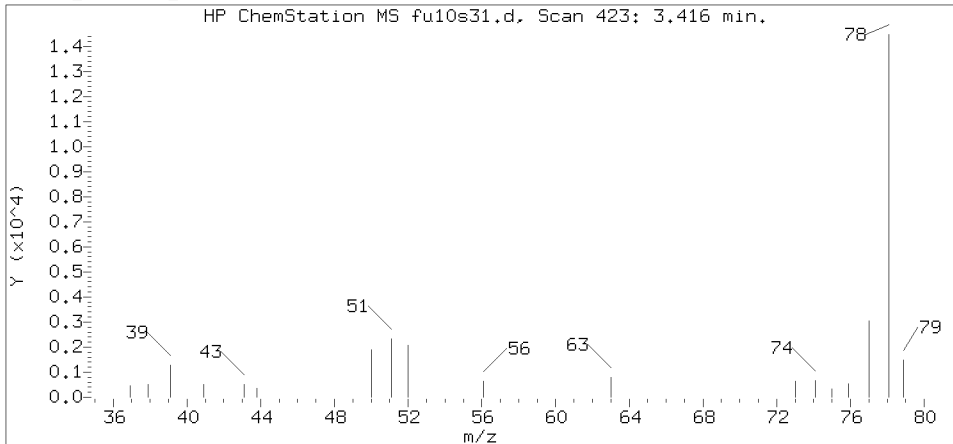
Reference Standard Spectrum for Benzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun10a.b/fu10s31.d
 Injection date and time: 10-JUN-2019 17:08

Instrument ID: HP15830.i
 Analyst ID: ADS07818

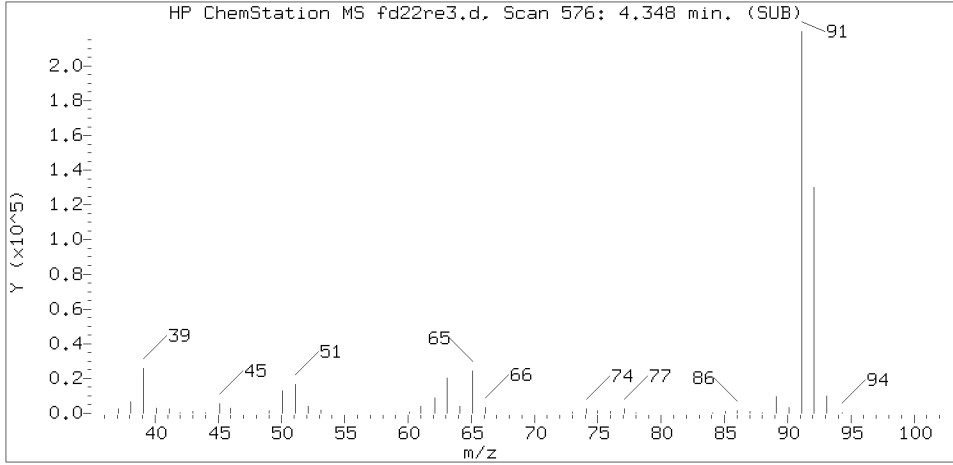
Method used: /chem/HP15830.i/19jun10a.b/UST-PT1C.m Sublist used: 12790
 Calibration date and time: 10-JUN-2019 10:56
 Date, time and analyst ID of latest file update: 12-Jun-2019 13:54 ads07818

Sample Name: 64L03DL

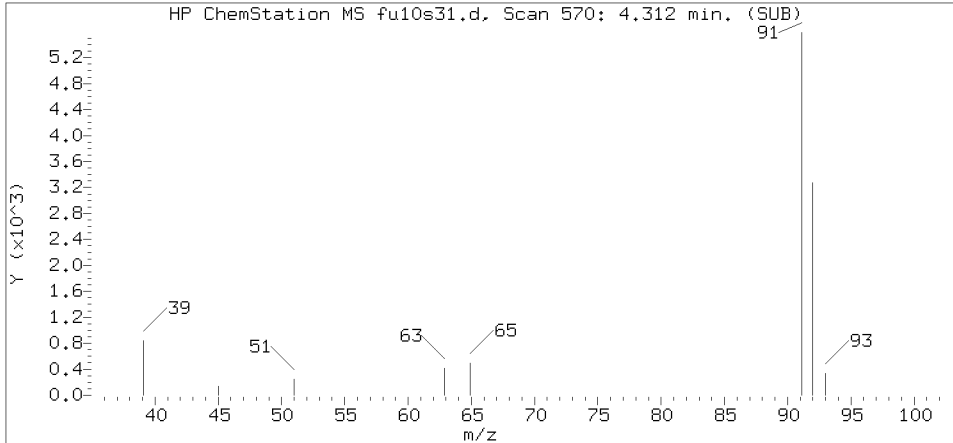
Lab Sample ID: 1068871DL

Compound Number : 12
 Compound Name : Benzene
 Scan Number : 423
 Retention Time (minutes): 3.416
 Relative Retention Time : -0.00174
 Quant Ion : 78.00
 Area (flag) : 25458
 On-Column Amount (ng) : 2.4493

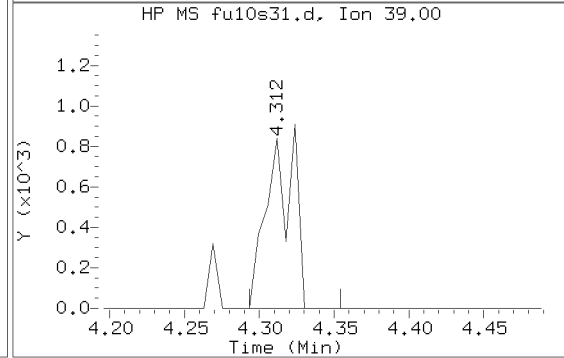
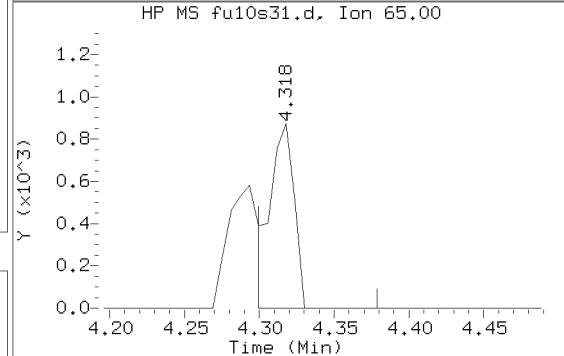
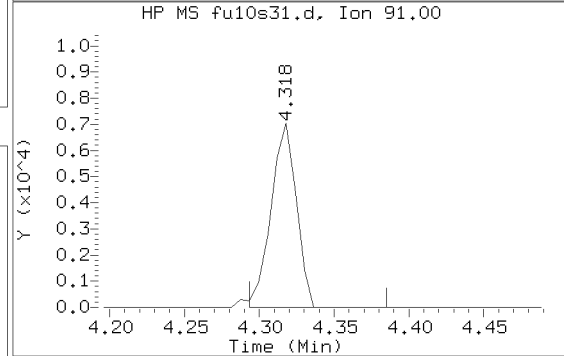
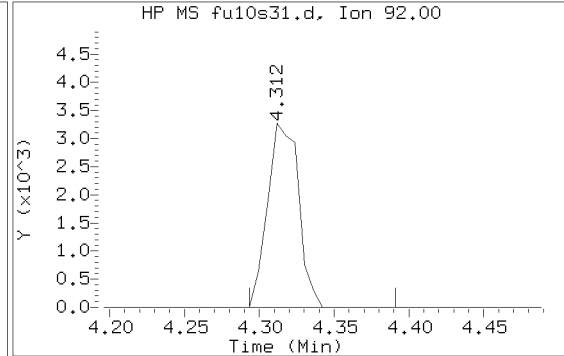
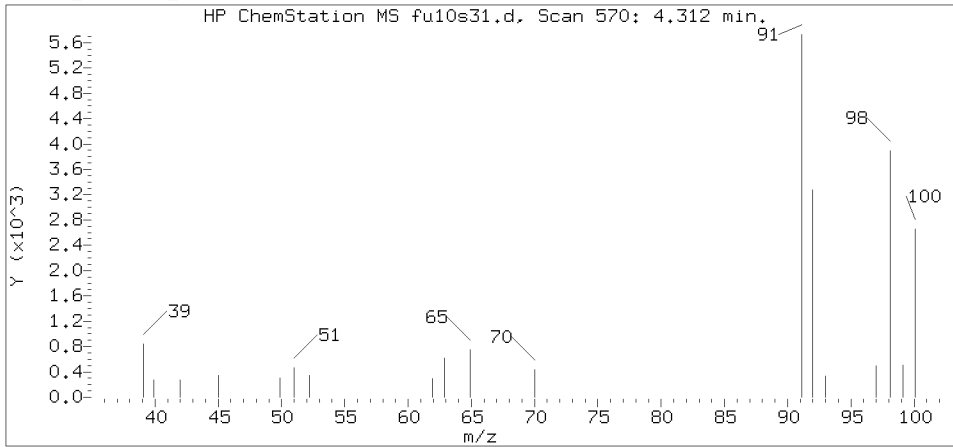
Reference Standard Spectrum for Toluene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun10a.b/fu10s31.d
 Injection date and time: 10-JUN-2019 17:08

Instrument ID: HP15830.i
 Analyst ID: ADS07818

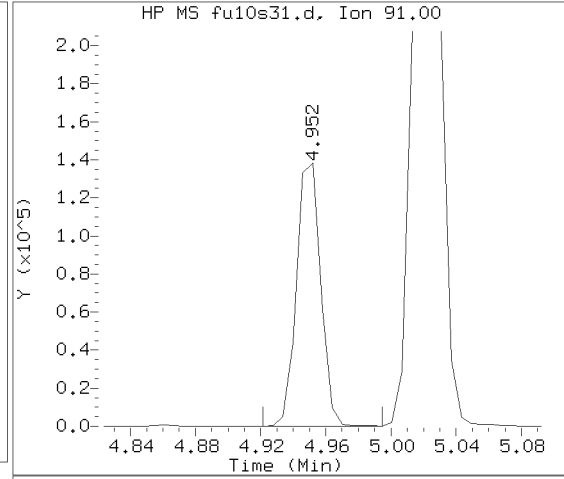
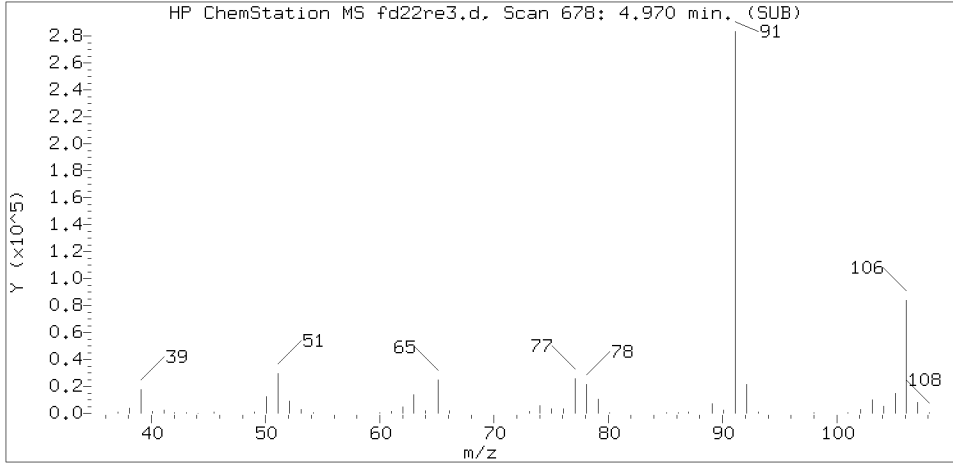
Method used: /chem/HP15830.i/19jun10a.b/UST-PT1C.m Sublist used: 12790
 Calibration date and time: 10-JUN-2019 10:56
 Date, time and analyst ID of latest file update: 12-Jun-2019 13:54 ads07818

Sample Name: 64L03DL

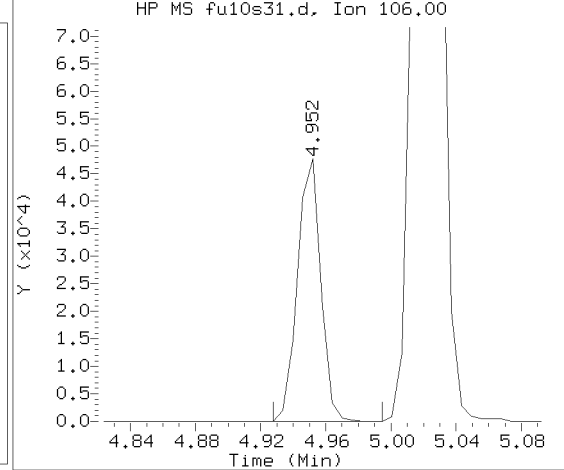
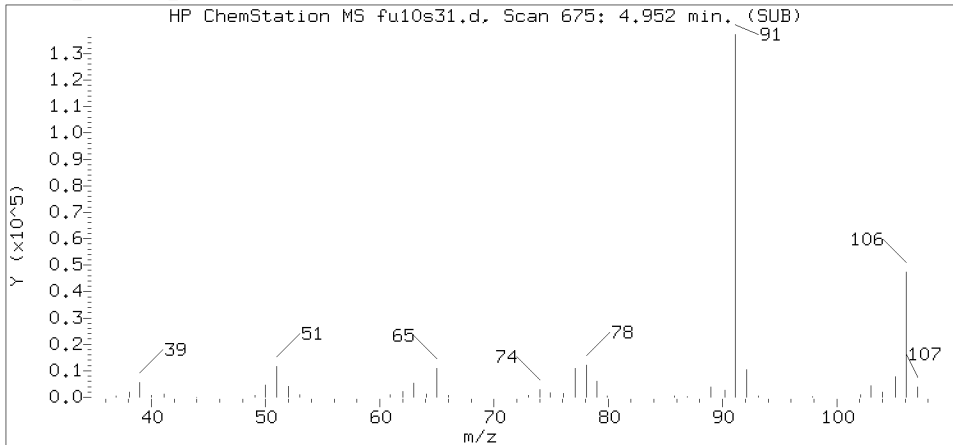
Lab Sample ID: 1068871DL

Compound Number : 16
 Compound Name : Toluene
 Scan Number : 570
 Retention Time (minutes): 4.312
 Relative Retention Time : 0.00125
 Quant Ion : 92.00
 Area (flag) : 4696
 On-Column Amount (ng) : 0.6609

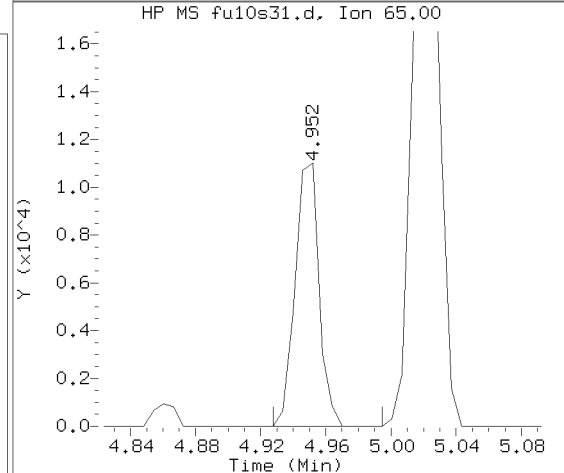
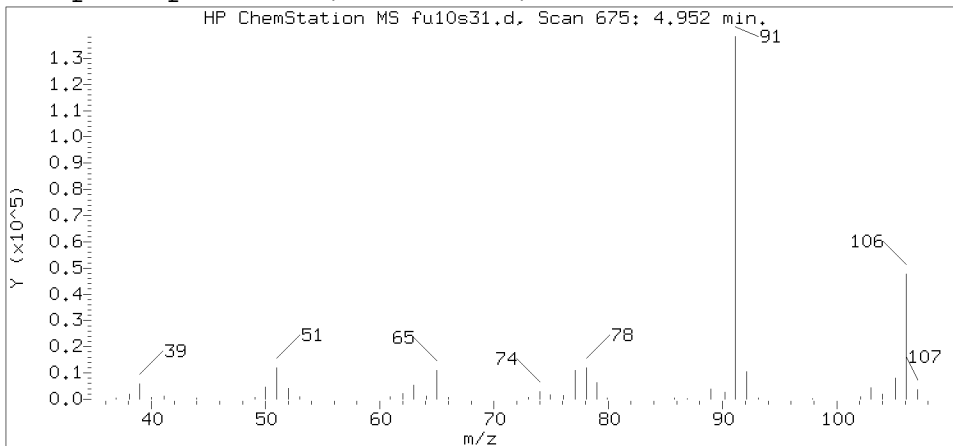
Reference Standard Spectrum for Ethylbenzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun10a.b/fu10s31.d
 Injection date and time: 10-JUN-2019 17:08

Instrument ID: HP15830.i
 Analyst ID: ADS07818

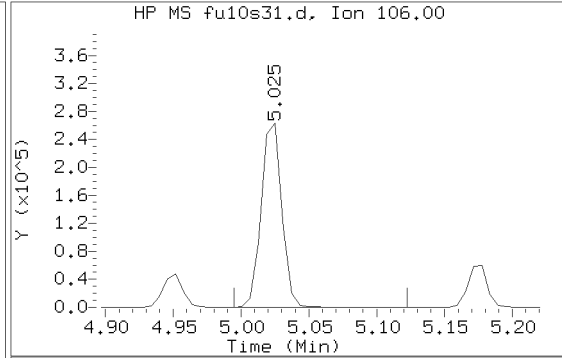
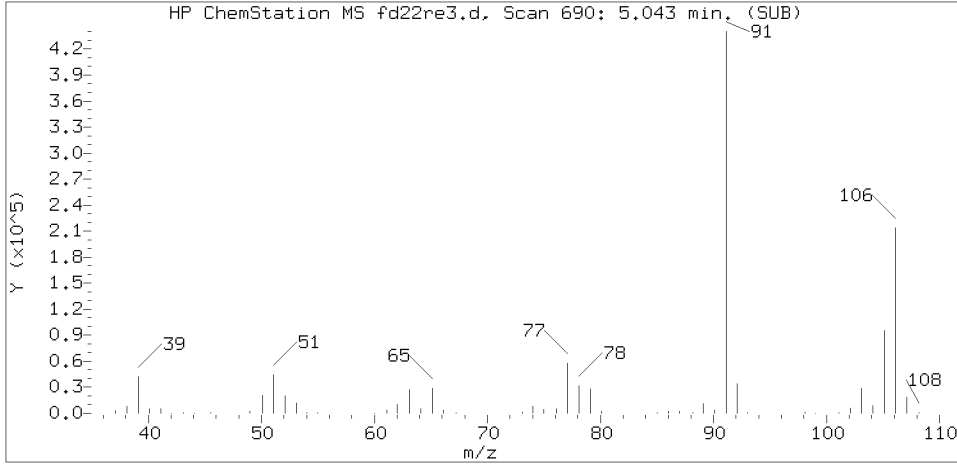
Method used: /chem/HP15830.i/19jun10a.b/UST-PT1C.m Sublist used: 12790
 Calibration date and time: 10-JUN-2019 10:56
 Date, time and analyst ID of latest file update: 12-Jun-2019 13:54 ads07818

Sample Name: 64L03DL

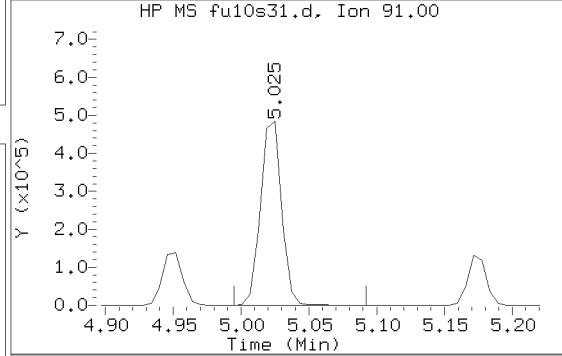
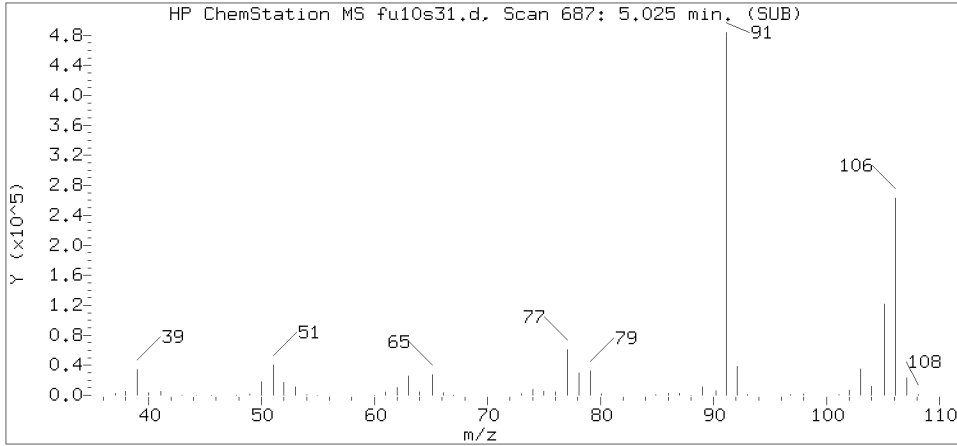
Lab Sample ID: 1068871DL

Compound Number : 20
 Compound Name : Ethylbenzene
 Scan Number : 675
 Retention Time (minutes): 4.952
 Relative Retention Time : 0.00000
 Quant Ion : 91.00
 Area (flag) : 144278
 On-Column Amount (ng) : 10.5103

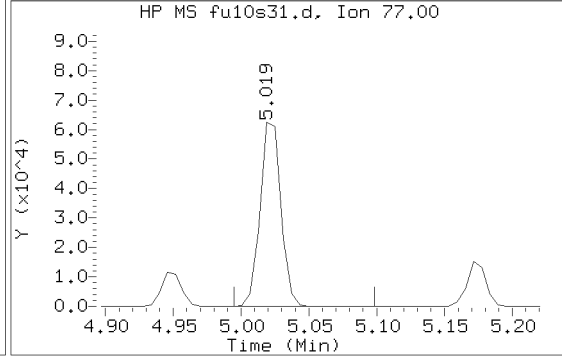
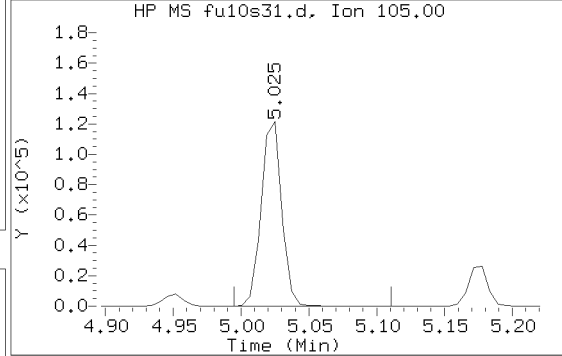
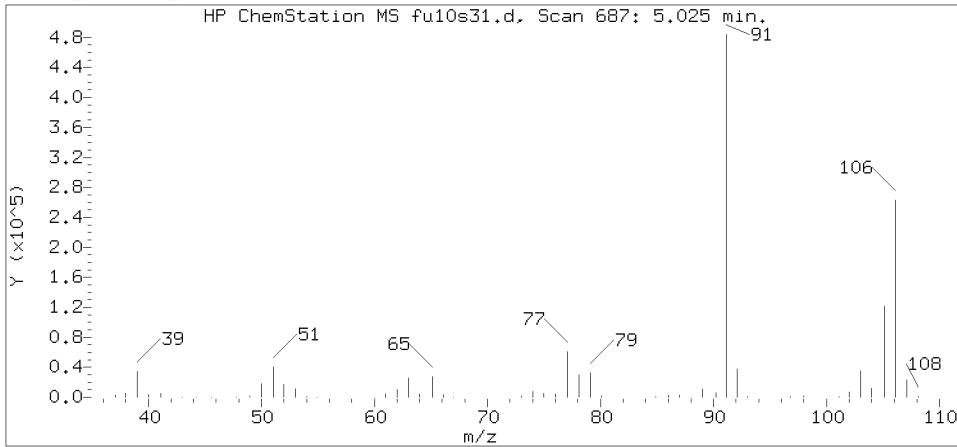
Reference Standard Spectrum for m+p-Xylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun10a.b/fu10s31.d
 Injection date and time: 10-JUN-2019 17:08

Instrument ID: HP15830.i
 Analyst ID: ADS07818

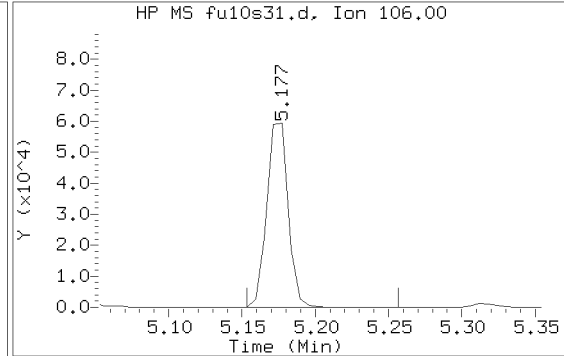
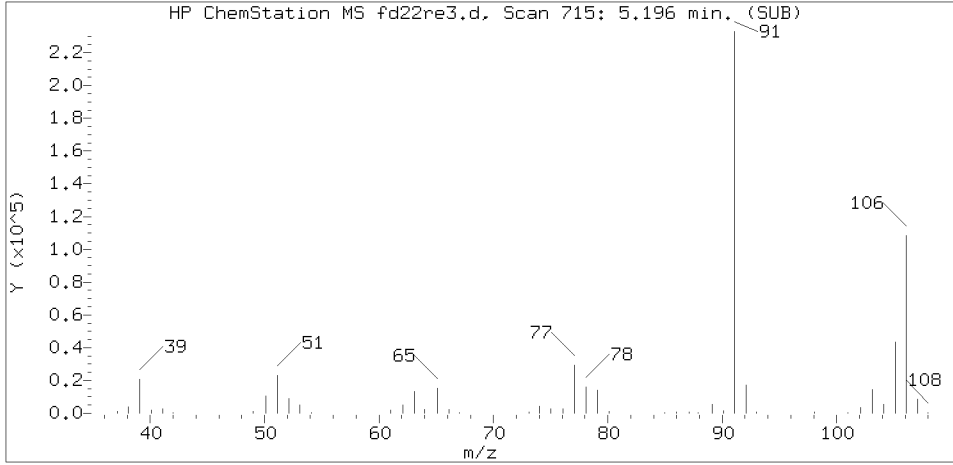
Method used: /chem/HP15830.i/19jun10a.b/UST-PT1C.m Sublist used: 12790
 Calibration date and time: 10-JUN-2019 10:56
 Date, time and analyst ID of latest file update: 12-Jun-2019 13:54 ads07818

Sample Name: 64L03DL

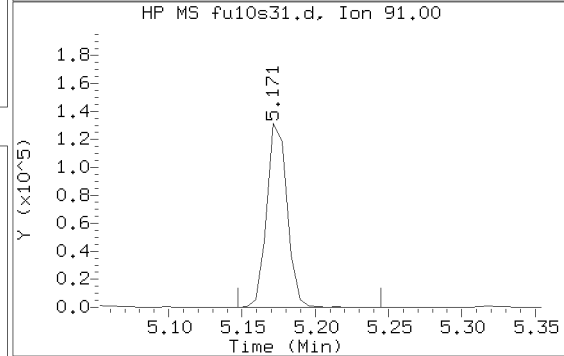
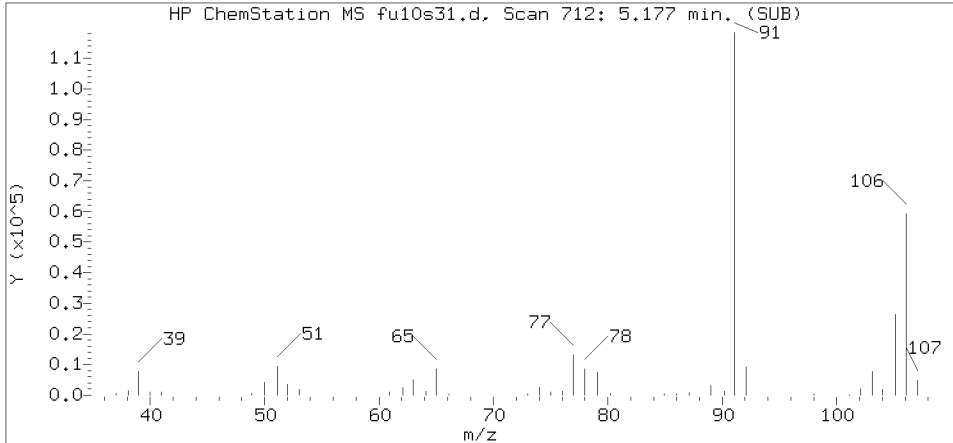
Lab Sample ID: 1068871DL

Compound Number : 21
 Compound Name : m+p-Xylene
 Scan Number : 687
 Retention Time (minutes): 5.025
 Relative Retention Time : 0.00000
 Quant Ion : 106.00
 Area (flag) : 275678
 On-Column Amount (ng) : 50.2001

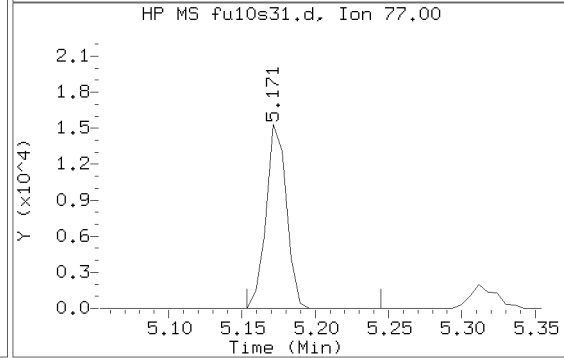
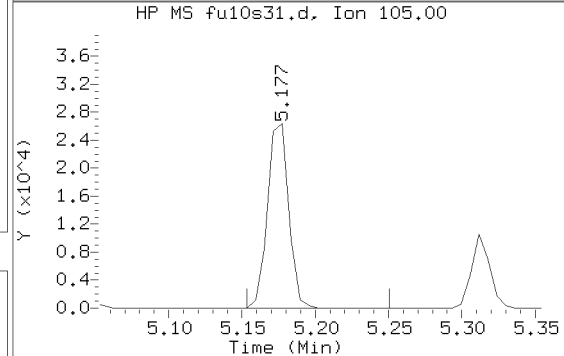
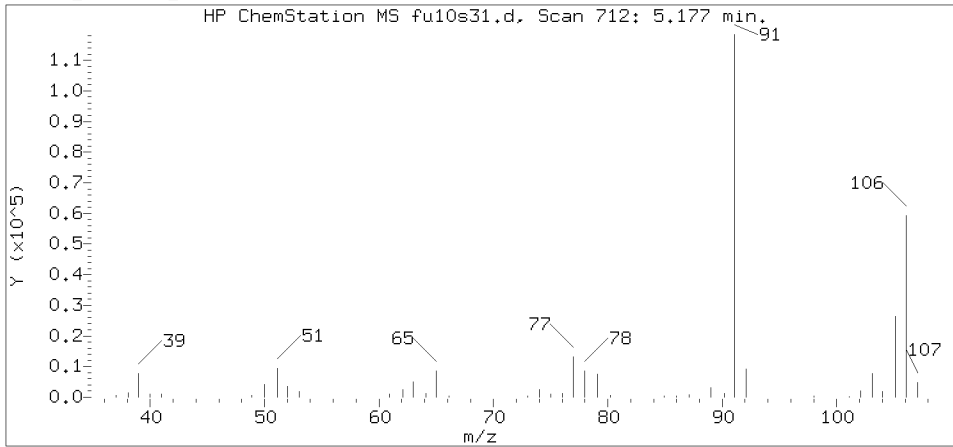
Reference Standard Spectrum for o-Xylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun10a.b/fu10s31.d
 Injection date and time: 10-JUN-2019 17:08

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun10a.b/UST-PT1C.m Sublist used: 12790
 Calibration date and time: 10-JUN-2019 10:56
 Date, time and analyst ID of latest file update: 12-Jun-2019 13:54 ads07818

Sample Name: 64L03DL

Lab Sample ID: 1068871DL

Compound Number : 22
 Compound Name : o-Xylene
 Scan Number : 712
 Retention Time (minutes): 5.177
 Relative Retention Time : -0.00125
 Quant Ion : 106.00
 Area (flag) : 60520
 On-Column Amount (ng) : 11.5746

64L04

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles 1068872

Data file: /chem/HP15830.i/19jun07a.b/fu07s05.d Injection date and time: 07-JUN-2019 11:33
Data file Sample Info. Line: 64L04;1068872;1;0;;LSV64;;;fu07b01; Instrument ID: HP15830.i Batch: F191581AA
Date, time and analyst ID of latest file update: 07-Jun-2019 19:09 hy07820

Blank Data file reference: /chem/HP15830.i/19jun07a.b/fu07b01.d

Method used: /chem/HP15830.i/19jun07a.b/UST-PT1C.m Sublist used: 12790
Calibration date and time (Last Method Edit): 07-JUN-2019 09:59
Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/19jun07a.b/fu07c03.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

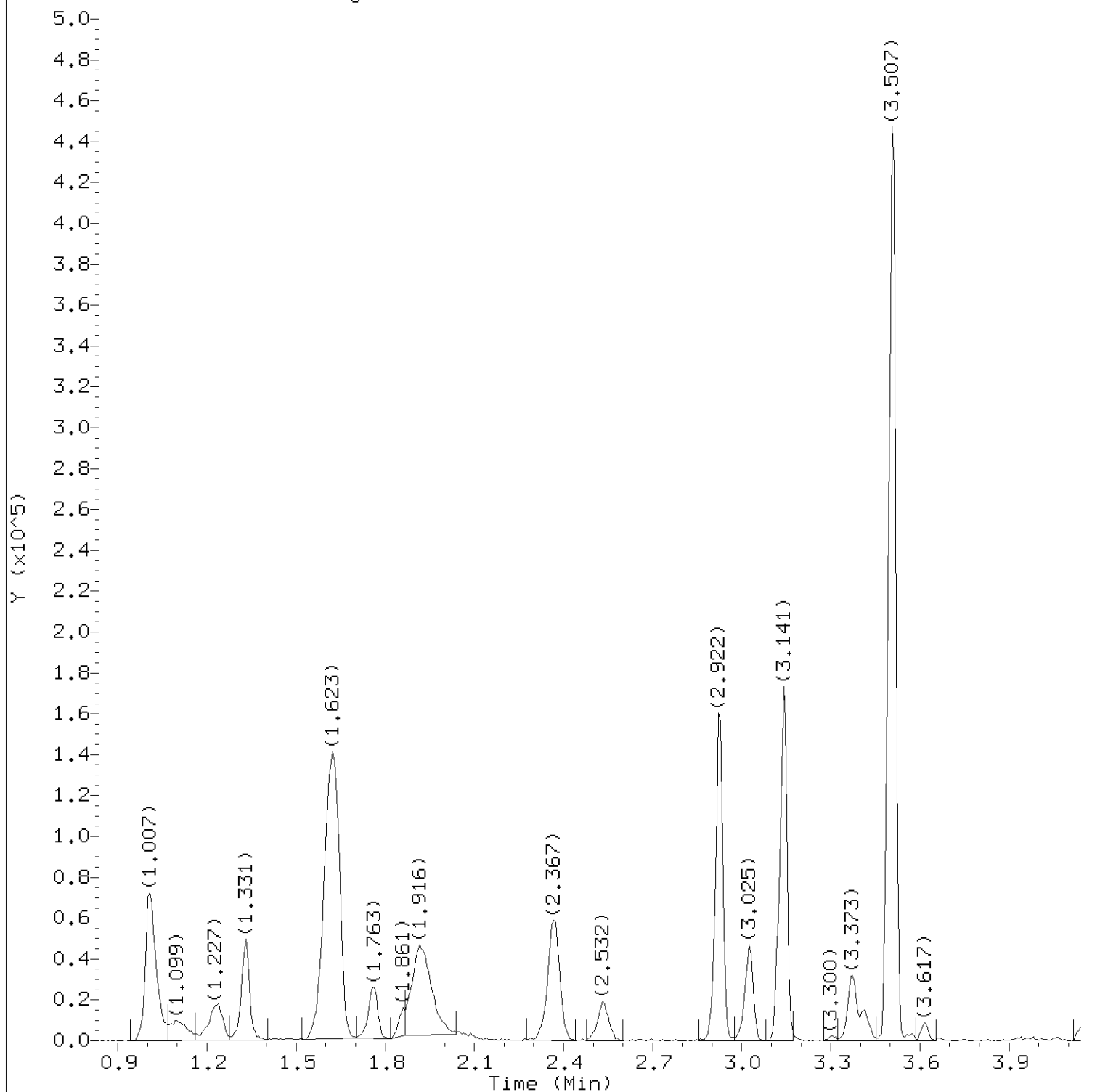
Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.916(0.000)	177	65	154559 (9)	250.00	
14) Fluorobenzene	3.507(0.006)	438	96	388386 (-3)	50.00	
19) Chlorobenzene-d5	4.860(0.000)	660	117	305268 (-1)	50.00	
28) 1,4-Dichlorobenzene-d4	5.811(0.000)	816	152	164700 (-4)	50.00	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.928(-0.001)	113	87049	47.707	95%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.147(-0.003)	102	25127	47.576	95%		80 - 120
15) Toluene-d8	(3)	4.287(0.000)	98	387476	49.220	98%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.324(0.000)	95	143030	46.007	92%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
12) Benzene	(2)	3.403(0.000)	78	10056	0.996	1.00		J	0.2	1
16) Toluene	(3)	4.312(-0.000)	92	1475	0.214	0.21		J	0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	5

Total number of targets = 6

Digitally signed by Hu Yang on 06/07/2019 at 19:09. Target 3.5 esignature user ID: hy07820



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07s05.d
Injection date and time: 07-JUN-2019 11:33

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT1C.m

Sublist used: 12790

Calibration date and time: 07-JUN-2019 09:59

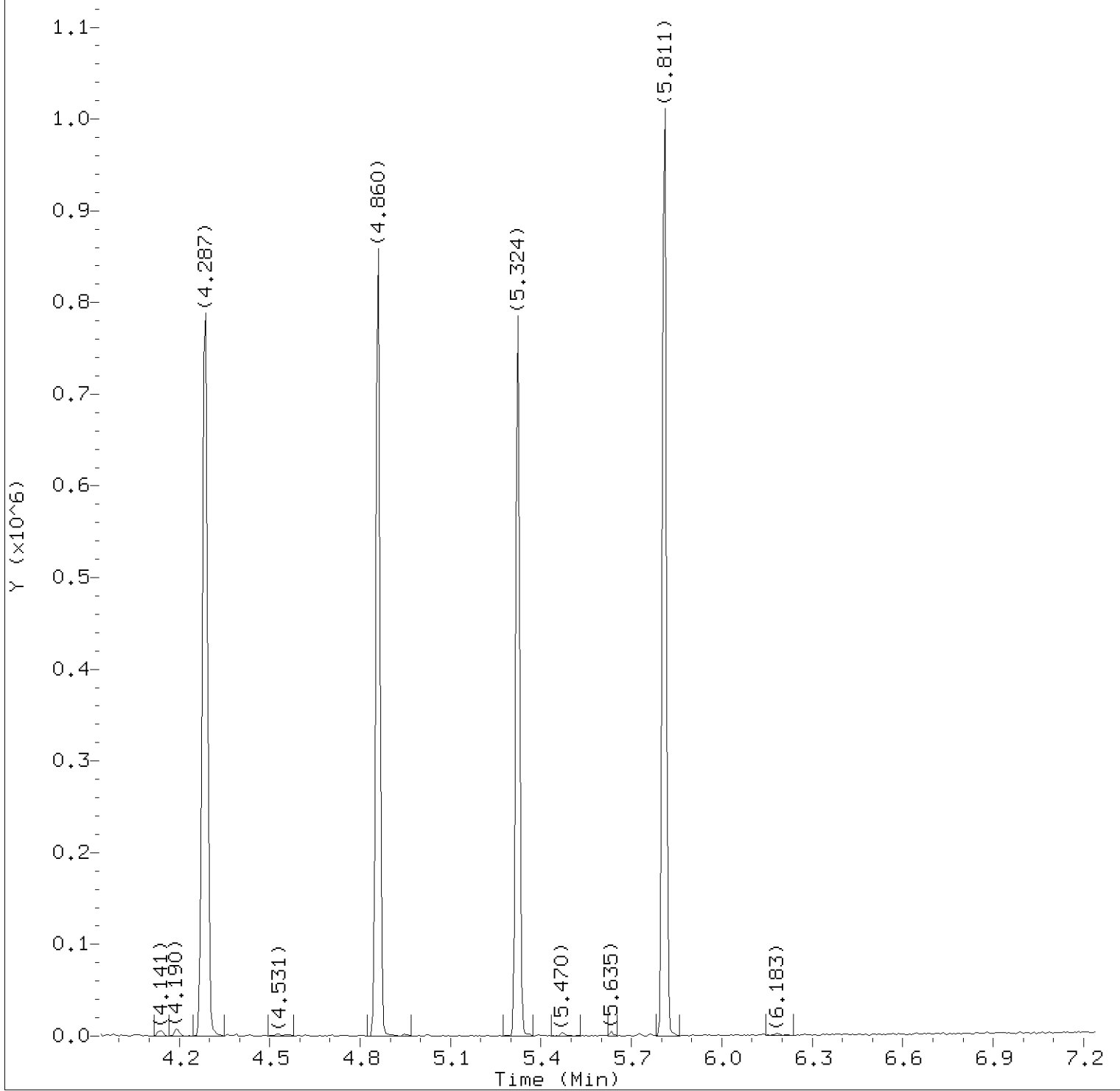
Date, time and analyst ID of latest file update: 07-Jun-2019 19:09 hy07820

Sample Name: 64L04

Lab Sample ID: 1068872

Digitally signed by Hu Yang
on 06/07/2019 at 19:09.

Target 3.5 esignature user ID: hy07820



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07s05.d
Injection date and time: 07-JUN-2019 11:33

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT1C.m
Calibration date and time: 07-JUN-2019 09:59

Sublist used: 12790

Date, time and analyst ID of latest file update: 07-Jun-2019 19:09 hy07820

Sample Name: 64L04

Lab Sample ID: 1068872

Digitally signed by Hu Yang
on 06/07/2019 at 19:09.

Target 3.5 esignature user ID: hy07820

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a.b/fu07s05.d
 Injection date and time: 07-JUN-2019 11:33

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT1C.m
 Calibration date and time: 07-JUN-2019 09:59

Sublist used: 12790

Date, time and analyst ID of latest file update: 07-Jun-2019 19:09 hy07820

Sample Name: 64L04

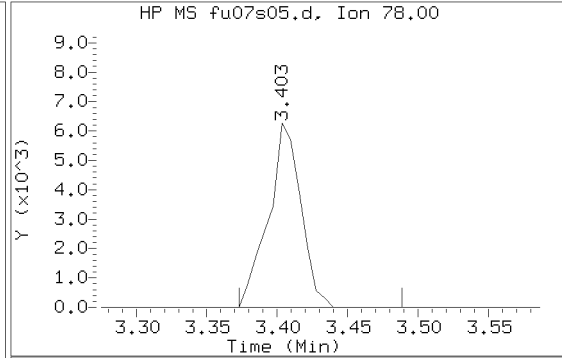
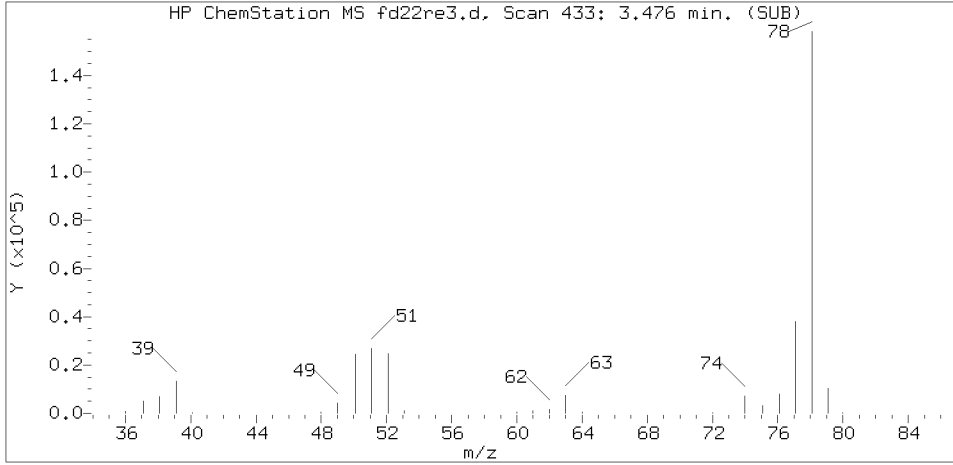
Lab Sample ID: 1068872

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
2)*t-Butyl alcohol-d10	(1)	1.916	65	154559	250.000
7)\$Dibromofluoromethane	(2)	2.928	113	87049	47.707
10)\$1,2-Dichloroethane-d4	(2)	3.147	102	25127	47.576
12) Benzene	(2)	3.403	78	10056	0.996
14)*Fluorobenzene	(2)	3.507	96	388386	50.000
15)\$Toluene-d8	(3)	4.287	98	387476	49.220
16) Toluene	(3)	4.312	92	1475	0.214
19)*Chlorobenzene-d5	(3)	4.860	117	305268	50.000
25)\$4-Bromofluorobenzene	(3)	5.324	95	143030	46.007
28)*1,4-Dichlorobenzene-d4	(4)	5.811	152	164700	50.000

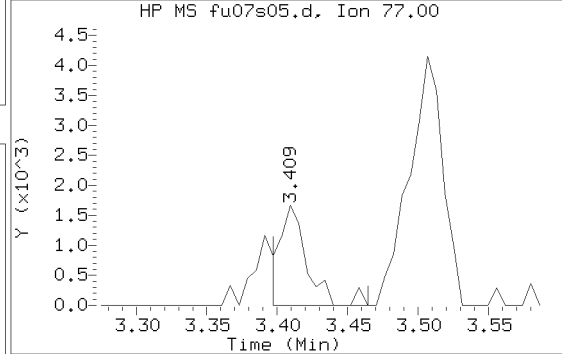
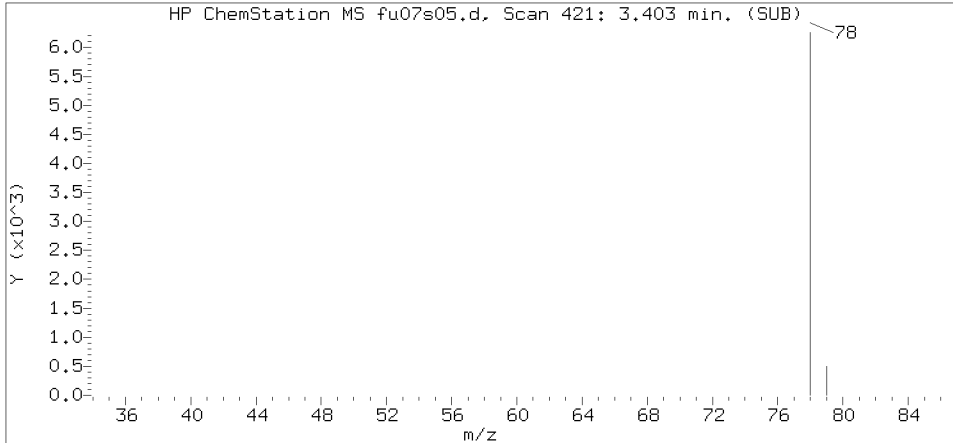
* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

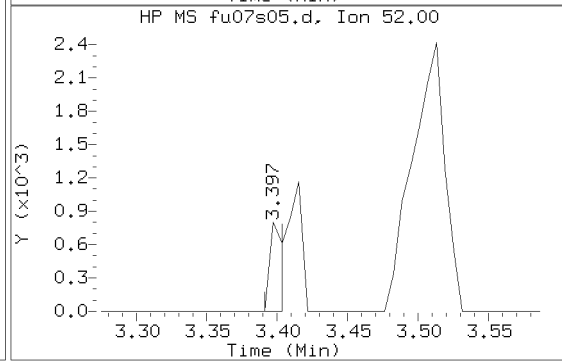
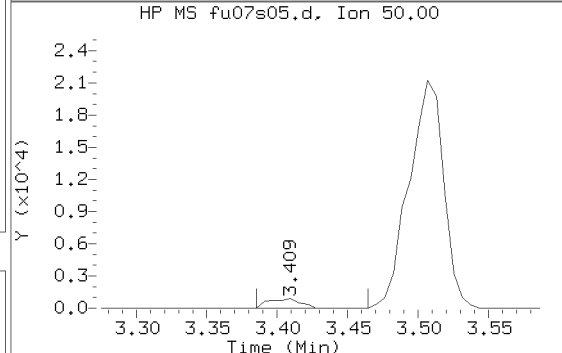
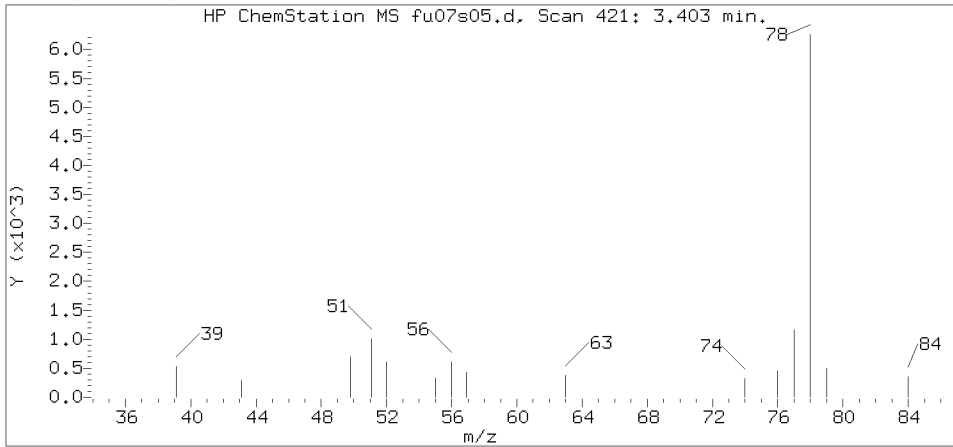
Reference Standard Spectrum for Benzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s05.d
 Injection date and time: 07-JUN-2019 11:33

Instrument ID: HP15830.i
 Analyst ID: ADS07818

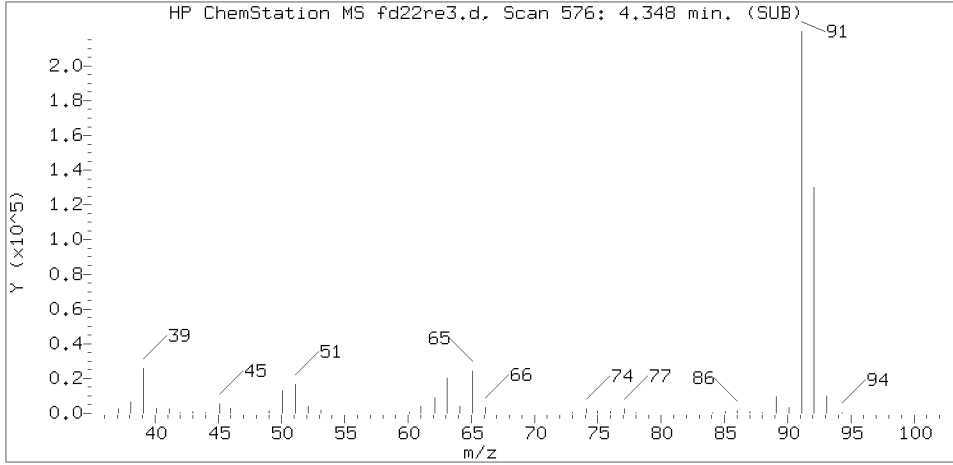
Method used: /chem/HP15830.i/19jun07a.b/UST-PT1C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 09:59
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:09 hy07820

Sample Name: 64L04

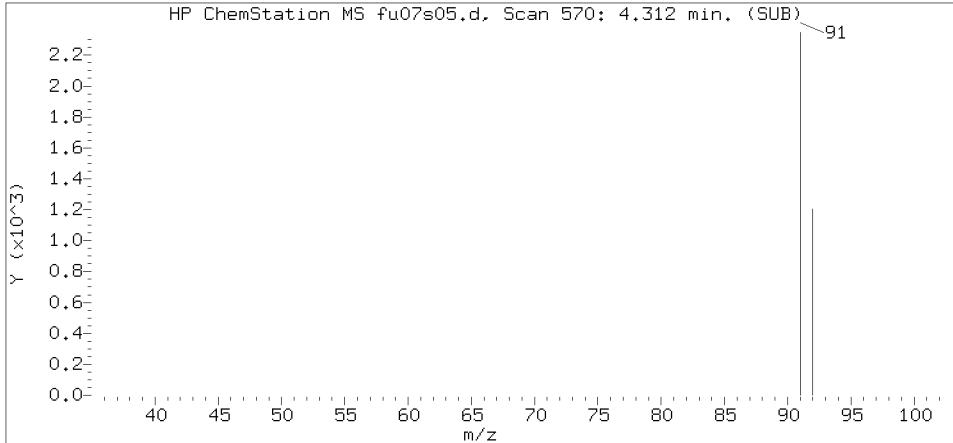
Lab Sample ID: 1068872

Compound Number : 12
 Compound Name : Benzene
 Scan Number : 421
 Retention Time (minutes): 3.403
 Relative Retention Time : 0.00005
 Quant Ion : 78.00
 Area (flag) : 10056
 On-Column Amount (ng) : 0.9957

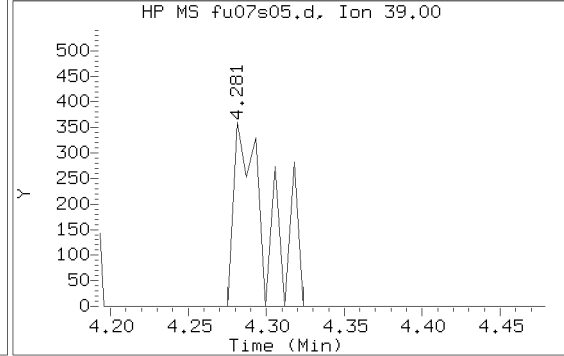
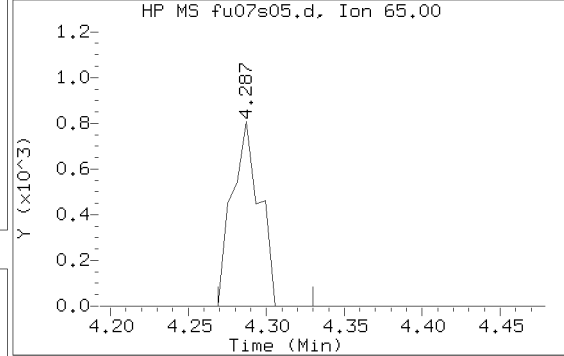
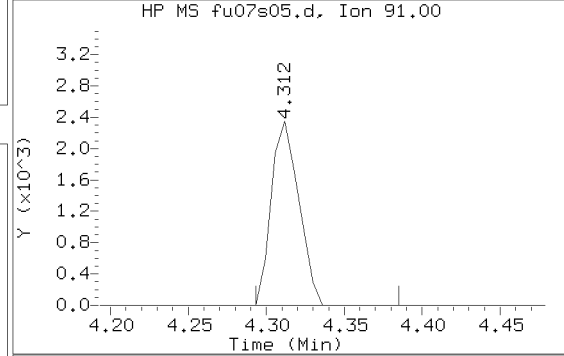
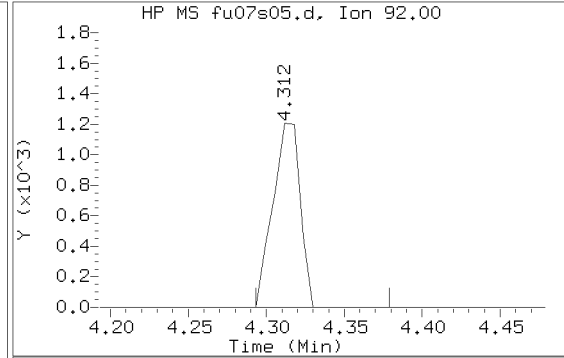
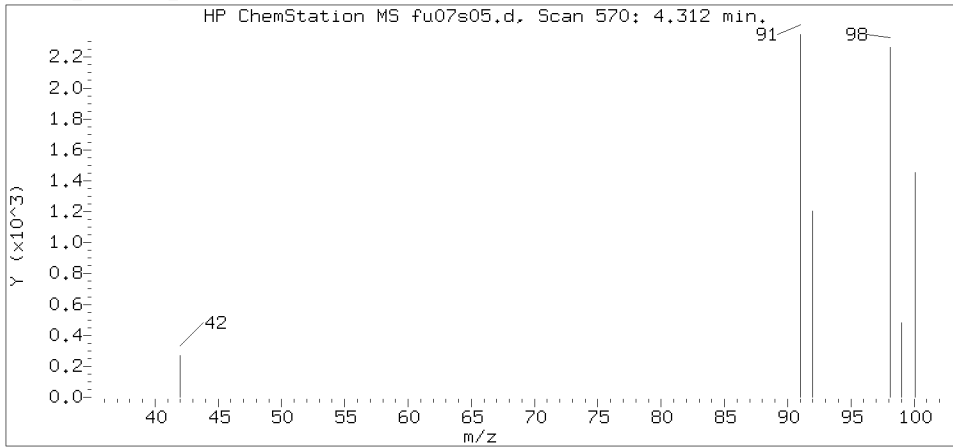
Reference Standard Spectrum for Toluene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s05.d
 Injection date and time: 07-JUN-2019 11:33

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT1C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 09:59
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:09 hy07820

Sample Name: 64L04

Lab Sample ID: 1068872

Compound Number : 16
 Compound Name : Toluene
 Scan Number : 570
 Retention Time (minutes): 4.312
 Relative Retention Time : -0.00000
 Quant Ion : 92.00
 Area (flag) : 1475
 On-Column Amount (ng) : 0.2140

64L05

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles 1068875

Data file: /chem/HP15830.i/19jun07a.b/fu07s36.d Injection date and time: 07-JUN-2019 17:12
Data file Sample Info. Line: 64L05;1068875;1;0;;LSV64;;;fu07b02; Instrument ID: HP15830.i Batch: F191582AA
Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Blank Data file reference: /chem/HP15830.i/19jun07a.b/fu07b02.d

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
Calibration date and time (Last Method Edit): 07-JUN-2019 10:09
Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/19jun07a.b/fu07c04.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.904(0.012)	175	65	103842 (7)	250.00	
14) Fluorobenzene	3.507(0.000)	438	96	423317 (2)	50.00	
19) Chlorobenzene-d5	4.860(0.000)	660	117	334207 (5)	50.00	
28) 1,4-Dichlorobenzene-d4	5.812(0.000)	816	152	179957 (2)	50.00	

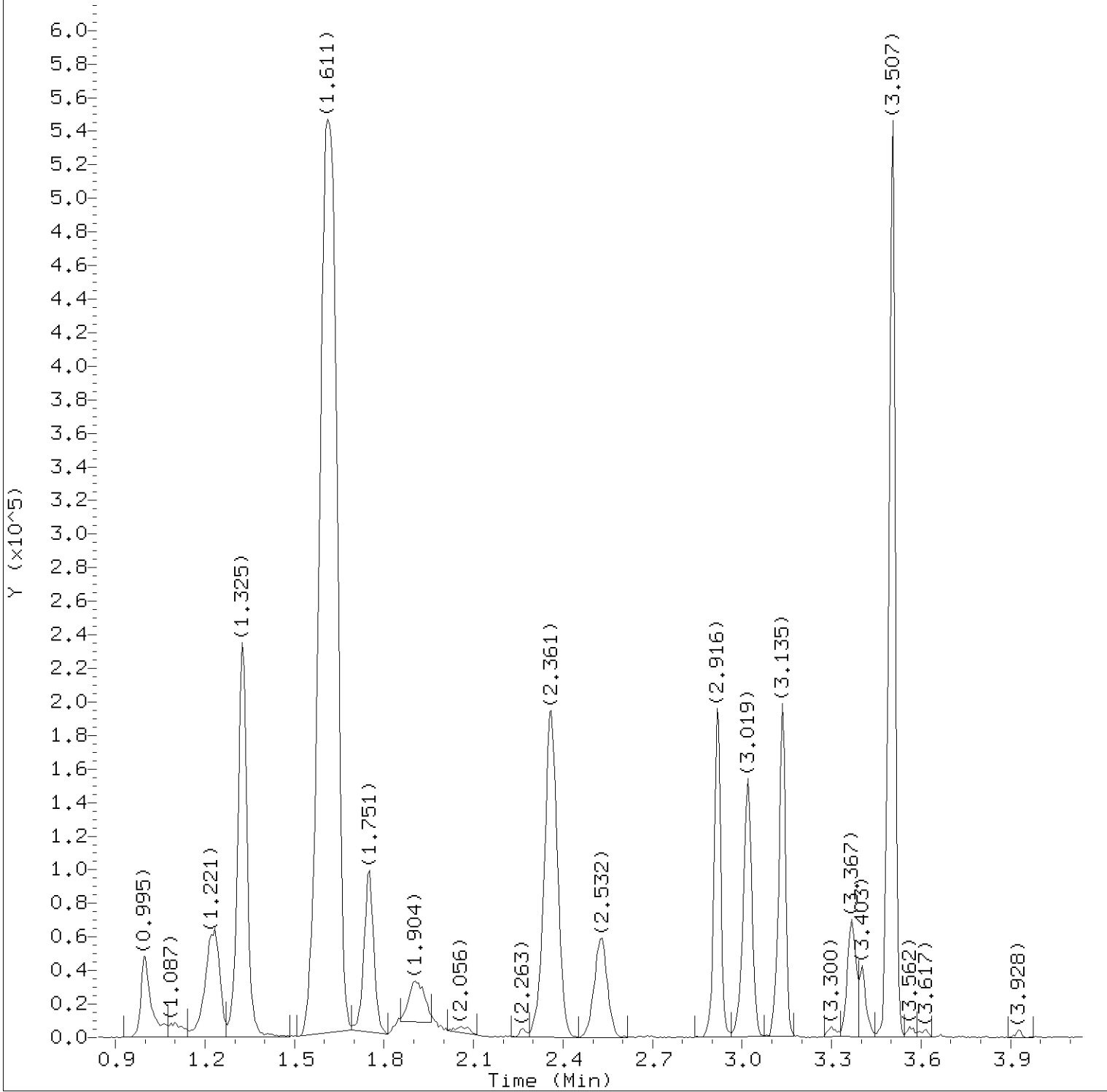
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.916(0.002)	113	95107	47.922	96%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.135(0.002)	102	27324	48.265	97%		80 - 120
15) Toluene-d8	(3)	4.281(0.001)	98	424214	49.067	98%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.324(0.000)	95	154644	45.329	91%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
12) Benzene	(2)	3.403(0.001)	78	27946	2.665	2.67			0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	5

Total number of targets = 6

Digitally signed by Hu Yang on 06/07/2019 at 21:31. Target 3.5 esignature user ID: hy07820

Secondary review performed and digitally signed by Richard Samson on 06/10/2019 at 22:02. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07s36.d
Injection date and time: 07-JUN-2019 17:12

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT2C.m
Calibration date and time: 07-JUN-2019 10:09

Sublist used: 12790

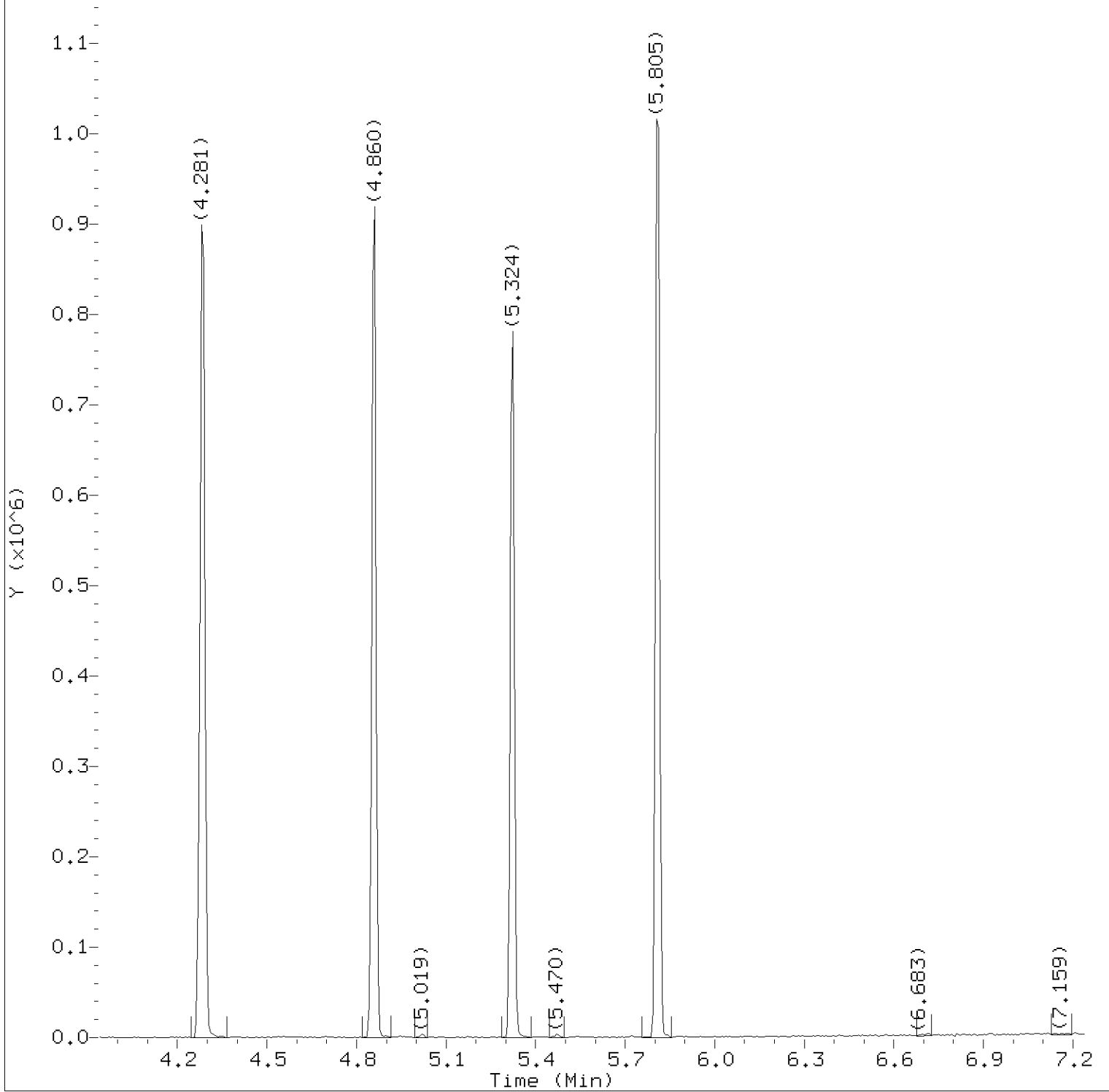
Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L05

Lab Sample ID: 1068875

Digitally signed by Hu Yang
on 06/07/2019 at 21:31.

Target 3.5 esignature user ID: hy07820



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07s36.d
Injection date and time: 07-JUN-2019 17:12

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT2C.m
Calibration date and time: 07-JUN-2019 10:09

Sublist used: 12790

Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L05

Lab Sample ID: 1068875

Digitally signed by Hu Yang
on 06/07/2019 at 21:31.

Target 3.5 esignature user ID: hy07820

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a.b/fu07s36.d
 Injection date and time: 07-JUN-2019 17:12

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m
 Calibration date and time: 07-JUN-2019 10:09

Sublist used: 12790

Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L05

Lab Sample ID: 1068875

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
2)*t-Butyl alcohol-d10	(1)	1.904	65	103842	250.000
7)\$Dibromofluoromethane	(2)	2.916	113	95107	47.922
10)\$1,2-Dichloroethane-d4	(2)	3.135	102	27324	48.265
12) Benzene	(2)	3.403	78	27946	2.665
14)*Fluorobenzene	(2)	3.507	96	423317	50.000
15)\$Toluene-d8	(3)	4.281	98	424214	49.067
19)*Chlorobenzene-d5	(3)	4.860	117	334207	50.000
25)\$4-Bromofluorobenzene	(3)	5.324	95	154644	45.329
28)*1,4-Dichlorobenzene-d4	(4)	5.812	152	179957	50.000

* = Compound is an internal standard.

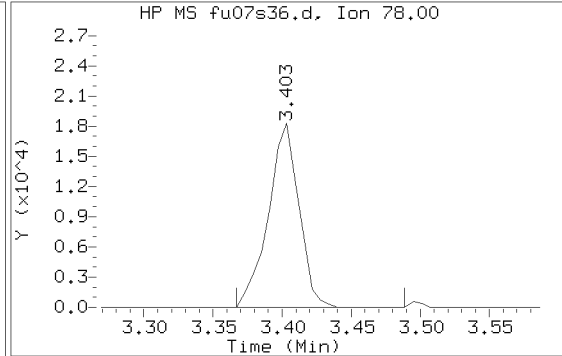
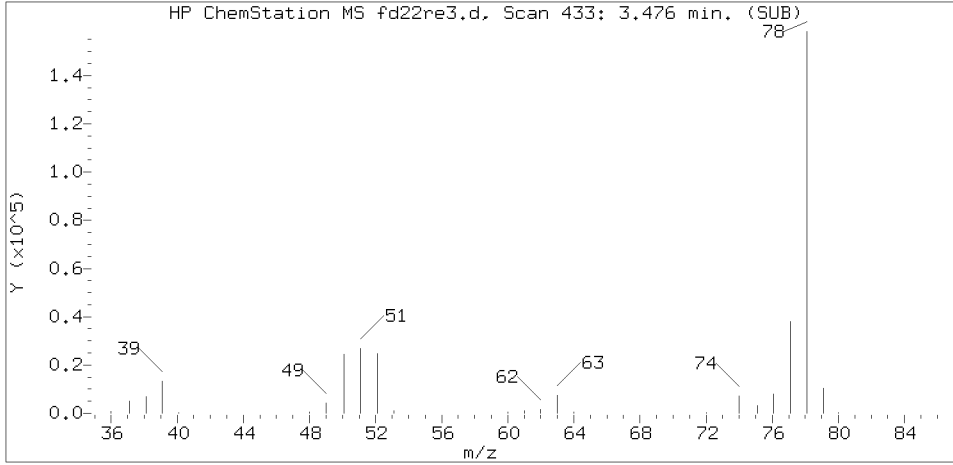
\$ = Compound is a surrogate standard.

page 1 of 1

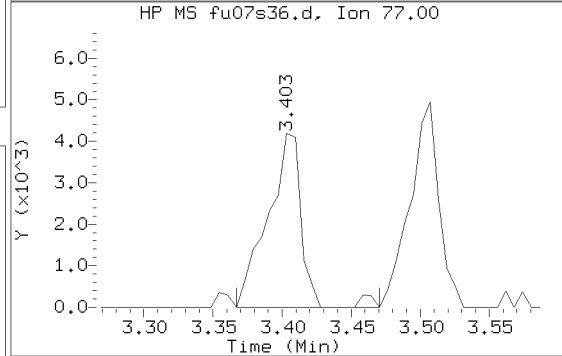
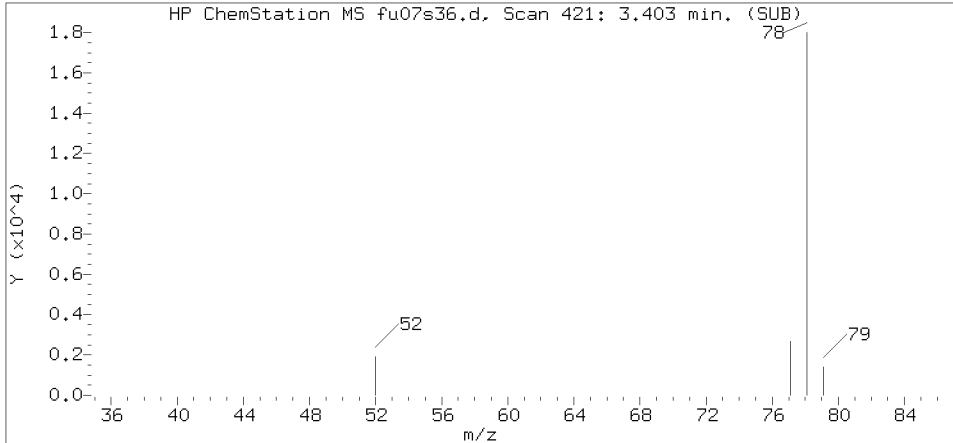
Digitally signed by Hu Yang
 on 06/07/2019 at 21:31.

Target 3.5 esignature user ID: hy07820

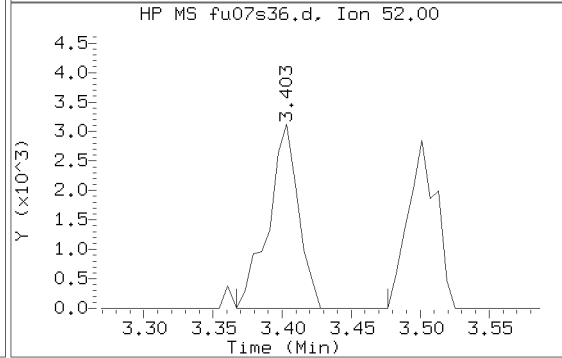
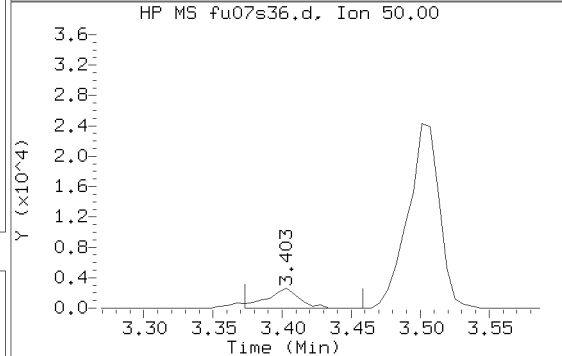
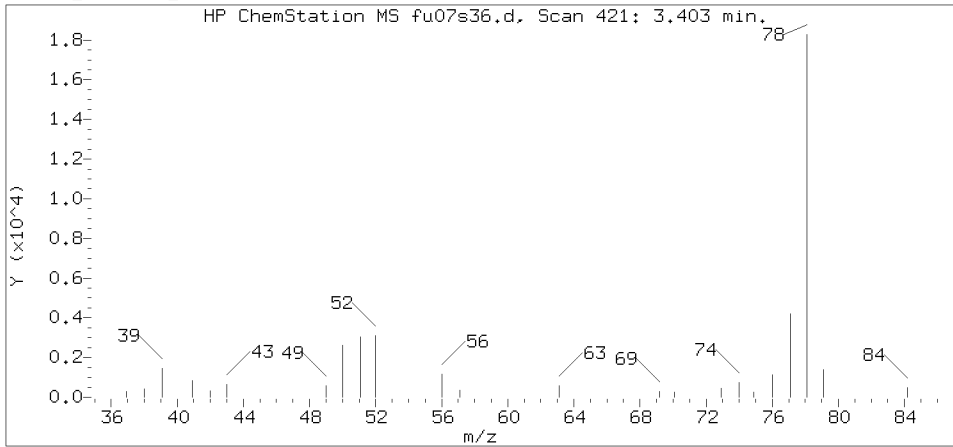
Reference Standard Spectrum for Benzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s36.d
 Injection date and time: 07-JUN-2019 17:12

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L05

Lab Sample ID: 1068875

Compound Number : 12
 Compound Name : Benzene
 Scan Number : 421
 Retention Time (minutes): 3.403
 Relative Retention Time : 0.00174
 Quant Ion : 78.00
 Area (flag) : 27946
 On-Column Amount (ng) : 2.6652

64L06

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles 1068876

Data file: /chem/HP15830.i/19jun07a.b/fu07s38.d Injection date and time: 07-JUN-2019 17:34
Data file Sample Info. Line: 64L06;1068876;1;0;;LSV64;;;fu07b02; Instrument ID: HP15830.i Batch: F191582AA
Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Blank Data file reference: /chem/HP15830.i/19jun07a.b/fu07b02.d

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
Calibration date and time (Last Method Edit): 07-JUN-2019 10:09
Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/19jun07a.b/fu07c04.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.910(0.006)	176	65	105091 (8)	250.00	
14) Fluorobenzene	3.507(0.000)	438	96	423682 (2)	50.00	
19) Chlorobenzene-d5	4.860(0.000)	660	117	342459 (8)	50.00	
28) 1,4-Dichlorobenzene-d4	5.811(0.000)	816	152	183427 (4)	50.00	

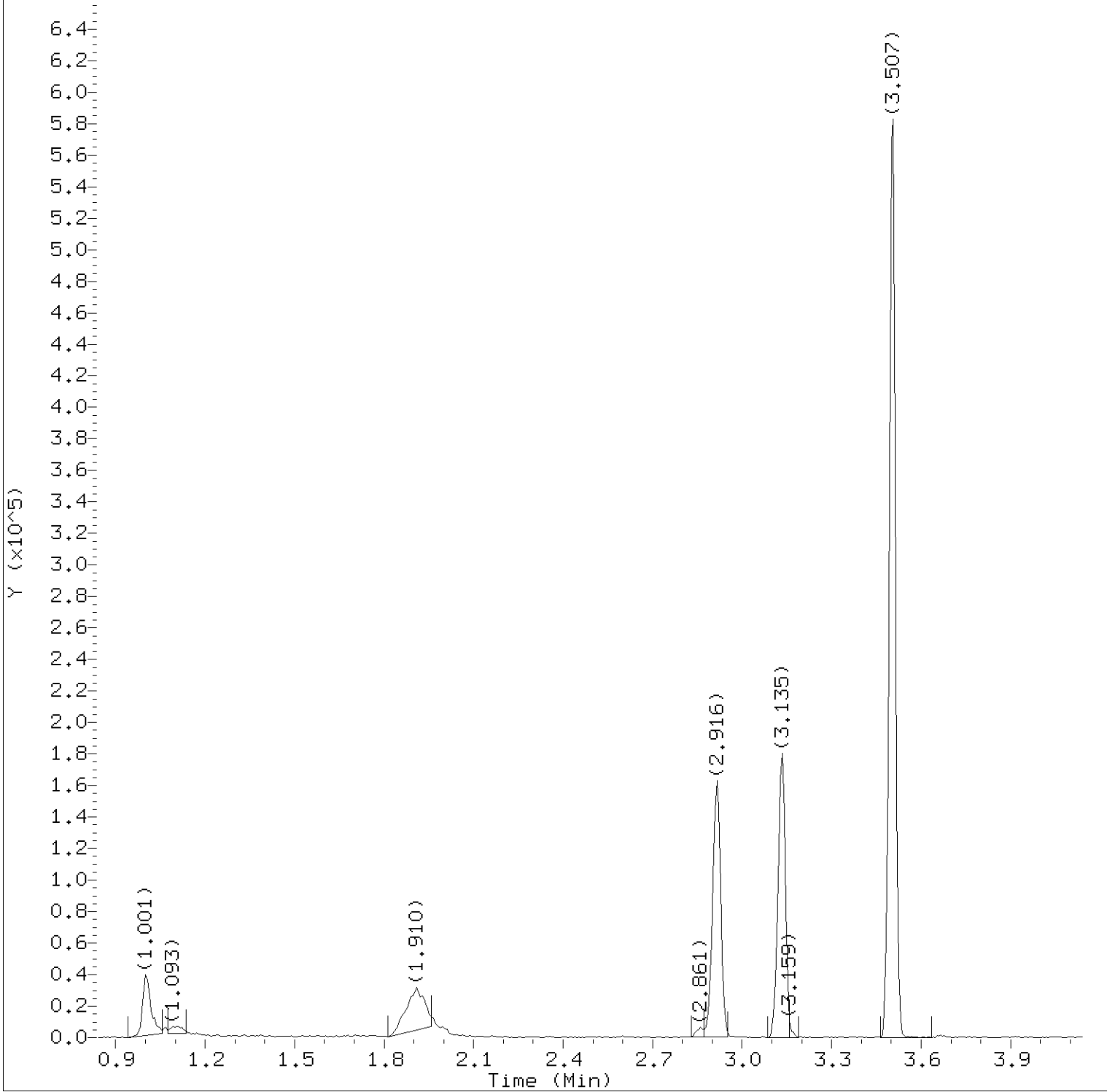
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.916(0.002)	113	96402	48.533	97%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.135(0.002)	102	27029	47.704	95%		80 - 120
15) Toluene-d8	(3)	4.287(0.000)	98	436531	49.275	99%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.324(0.000)	95	164155	46.957	94%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	5

Total number of targets = 6

Digitally signed by Hu Yang on 06/07/2019 at 21:32. Target 3.5 esignature user ID: hy07820

Secondary review performed and digitally signed by Richard Samson on 06/10/2019 at 22:02. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a.b/fu07s38.d
Injection date and time: 07-JUN-2019 17:34

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m
Calibration date and time: 07-JUN-2019 10:09

Sublist used: 12790

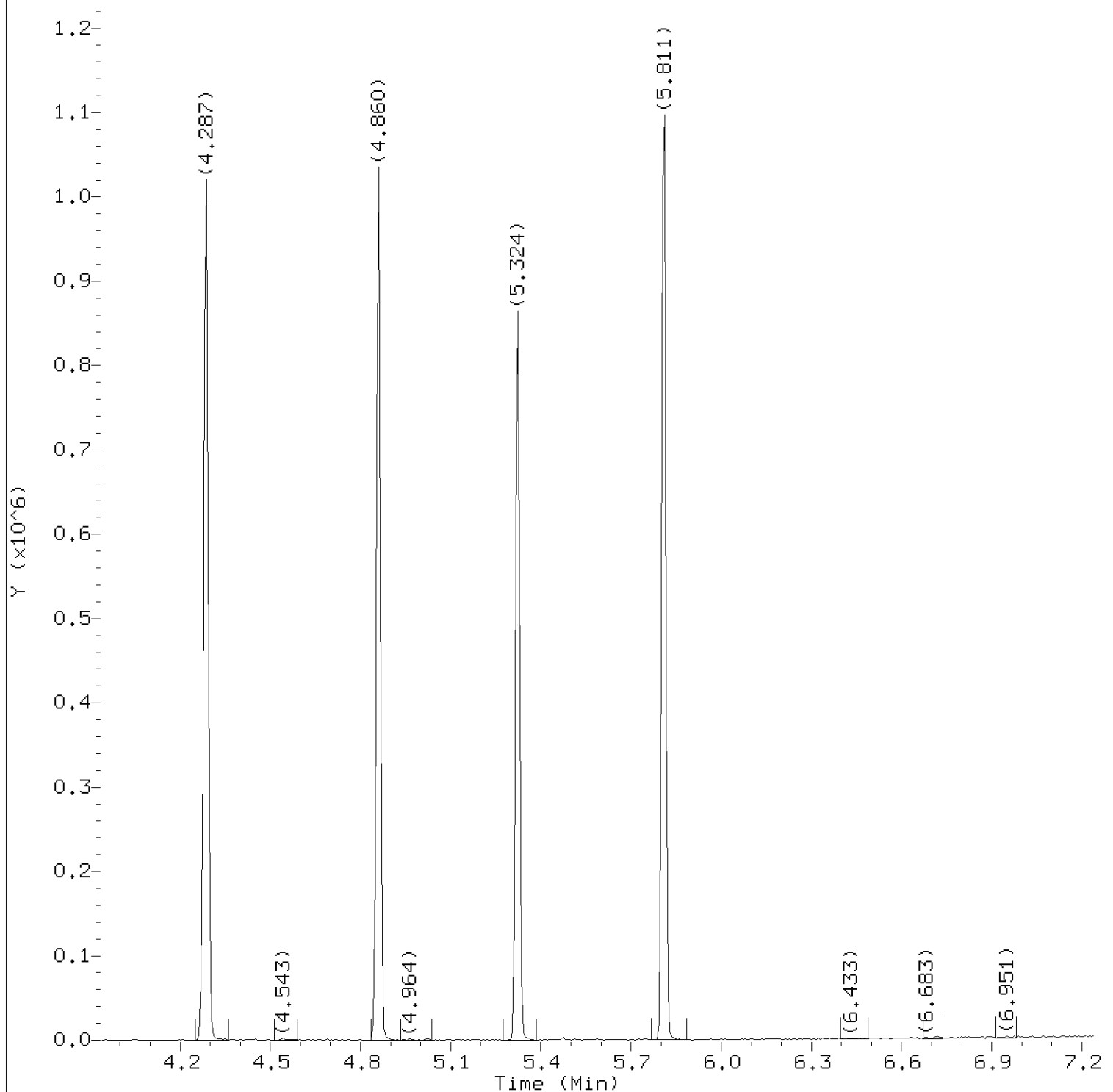
Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L06

Lab Sample ID: 1068876

Digitally signed by Hu Yang
on 06/07/2019 at 21:32.

Target 3.5 esignature user ID: hy07820



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07s38.d
Injection date and time: 07-JUN-2019 17:34

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT2C.m
Calibration date and time: 07-JUN-2019 10:09

Sublist used: 12790

Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L06

Lab Sample ID: 1068876

Digitally signed by Hu Yang
on 06/07/2019 at 21:32.

Target 3.5 esignature user ID: hy07820

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a.b/fu07s38.d
 Injection date and time: 07-JUN-2019 17:34

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m
 Calibration date and time: 07-JUN-2019 10:09

Sublist used: 12790

Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L06

Lab Sample ID: 1068876

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
2)*t-Butyl alcohol-d10	(1)	1.910	65	105091	250.000
7)\$Dibromofluoromethane	(2)	2.916	113	96402	48.533
10)\$1,2-Dichloroethane-d4	(2)	3.135	102	27029	47.704
14)*Fluorobenzene	(2)	3.507	96	423682	50.000
15)\$Toluene-d8	(3)	4.287	98	436531	49.275
19)*Chlorobenzene-d5	(3)	4.860	117	342459	50.000
25)\$4-Bromofluorobenzene	(3)	5.324	95	164155	46.957
28)*1,4-Dichlorobenzene-d4	(4)	5.811	152	183427	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

64L07

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles 1068877

Data file: /chem/HP15830.i/19jun07a.b/fu07s40.d Injection date and time: 07-JUN-2019 17:56
Data file Sample Info. Line: 64L07;1068877;1;0;;LSV64;;;fu07b02; Instrument ID: HP15830.i Batch: F191582AA
Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Blank Data file reference: /chem/HP15830.i/19jun07a.b/fu07b02.d

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
Calibration date and time (Last Method Edit): 07-JUN-2019 10:09
Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/19jun07a.b/fu07c04.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.916(0.000)	177	65	100643 (4)	250.00	
14) Fluorobenzene	3.507(0.000)	438	96	422834 (2)	50.00	
19) Chlorobenzene-d5	4.860(0.000)	660	117	330688 (4)	50.00	
28) 1,4-Dichlorobenzene-d4	5.811(0.000)	816	152	184320 (4)	50.00	

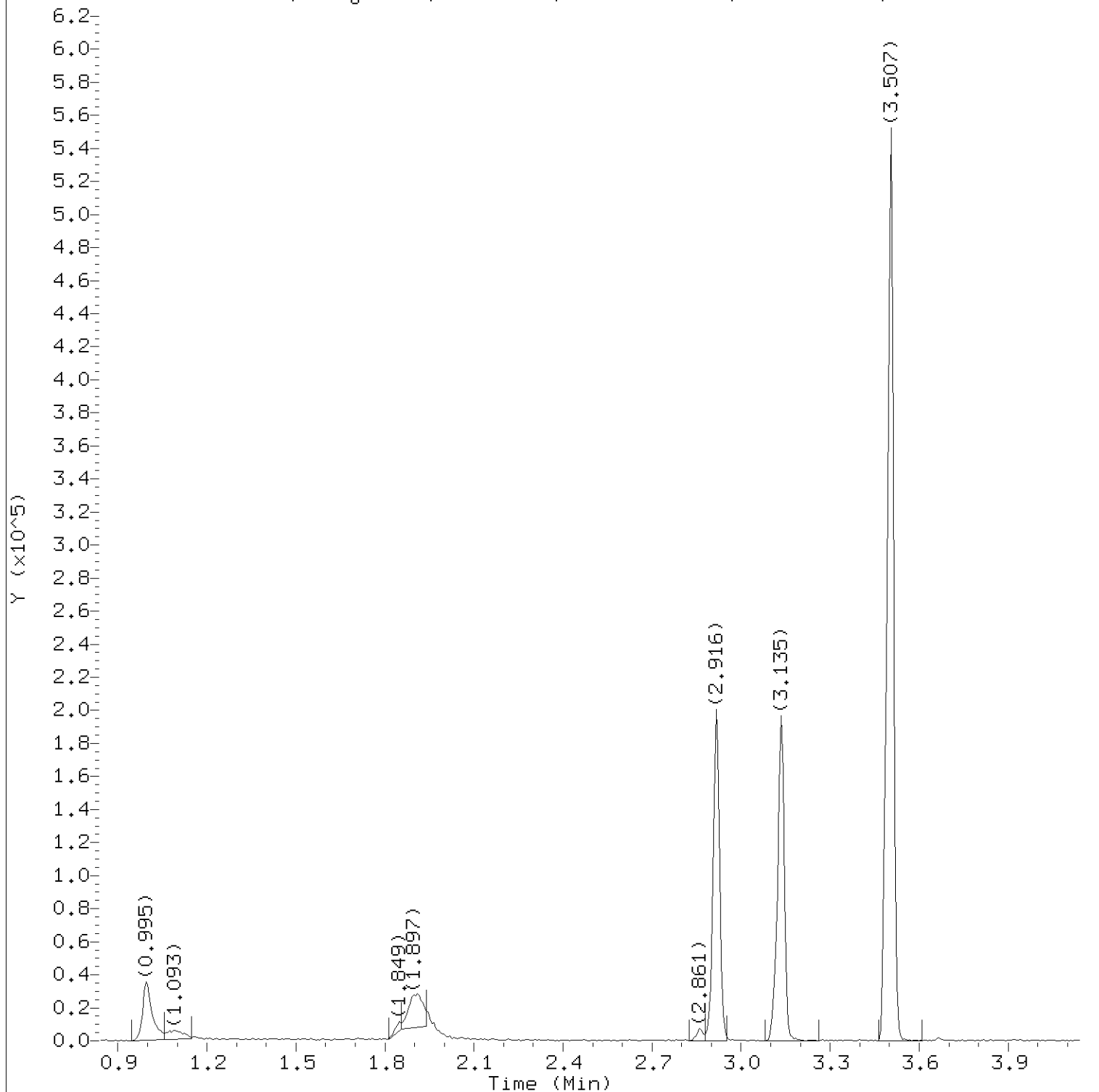
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.916(0.002)	113	95556	48.204	96%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.135(0.002)	102	26862	47.503	95%		80 - 120
15) Toluene-d8	(3)	4.281(0.001)	98	431112	50.396	101%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.324(0.000)	95	156281	46.296	93%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	5

Total number of targets = 6

Digitally signed by Hu Yang on 06/07/2019 at 21:32. Target 3.5 esignature user ID: hy07820

Secondary review performed and digitally signed by Richard Samson on 06/10/2019 at 22:02. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07s40.d
Injection date and time: 07-JUN-2019 17:56

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT2C.m
Calibration date and time: 07-JUN-2019 10:09

Sublist used: 12790

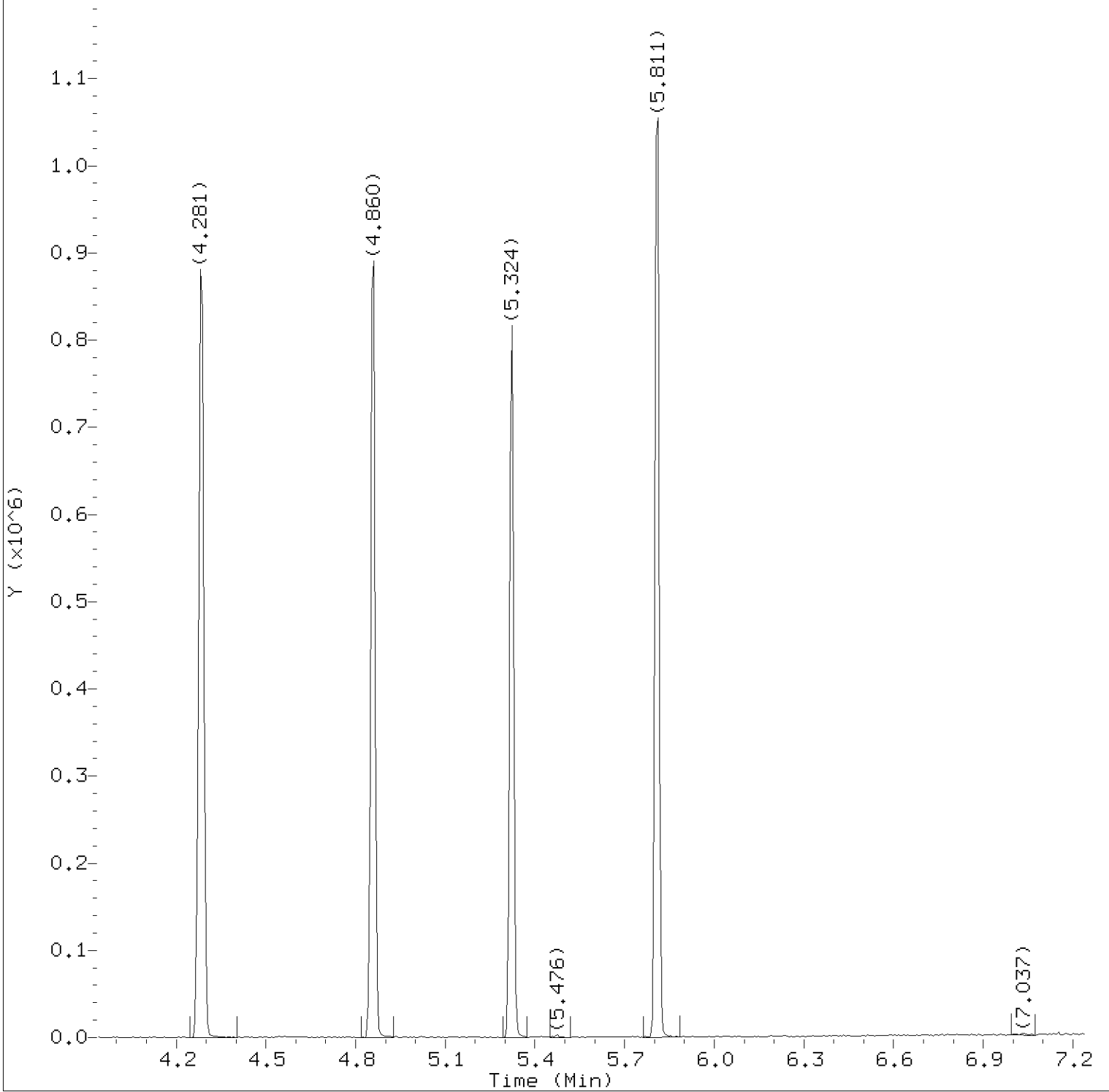
Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L07

Lab Sample ID: 1068877

Digitally signed by Hu Yang
on 06/07/2019 at 21:32.

Target 3.5 esignature user ID: hy07820



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07s40.d
Injection date and time: 07-JUN-2019 17:56

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT2C.m
Calibration date and time: 07-JUN-2019 10:09

Sublist used: 12790

Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L07

Lab Sample ID: 1068877

Digitally signed by Hu Yang
on 06/07/2019 at 21:32.

Target 3.5 esignature user ID: hy07820

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a.b/fu07s40.d
 Injection date and time: 07-JUN-2019 17:56

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m
 Calibration date and time: 07-JUN-2019 10:09

Sublist used: 12790

Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L07

Lab Sample ID: 1068877

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
2)*t-Butyl alcohol-d10	(1)	1.916	65	100643	250.000
7)\$Dibromofluoromethane	(2)	2.916	113	95556	48.204
10)\$1,2-Dichloroethane-d4	(2)	3.135	102	26862	47.503
14)*Fluorobenzene	(2)	3.507	96	422834	50.000
15)\$Toluene-d8	(3)	4.281	98	431112	50.396
19)*Chlorobenzene-d5	(3)	4.860	117	330688	50.000
25)\$4-Bromofluorobenzene	(3)	5.324	95	156281	46.296
28)*1,4-Dichlorobenzene-d4	(4)	5.811	152	184320	50.000

* = Compound is an internal standard.
 \$ = Compound is a surrogate standard.

64L08

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles 1068878

Data file: /chem/HP15830.i/19jun07a.b/fu07s42.d Injection date and time: 07-JUN-2019 18:17
Data file Sample Info. Line: 64L08;1068878;1;0;;LSV64;;;fu07b02; Instrument ID: HP15830.i Batch: F191582AA
Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Blank Data file reference: /chem/HP15830.i/19jun07a.b/fu07b02.d

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
Calibration date and time (Last Method Edit): 07-JUN-2019 10:09
Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/19jun07a.b/fu07c04.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.910(0.006)	176	65	103074 (6)	250.00	
14) Fluorobenzene	3.507(0.000)	438	96	423545 (2)	50.00	
19) Chlorobenzene-d5	4.860(0.000)	660	117	337584 (7)	50.00	
28) 1,4-Dichlorobenzene-d4	5.811(0.000)	816	152	186783 (5)	50.00	

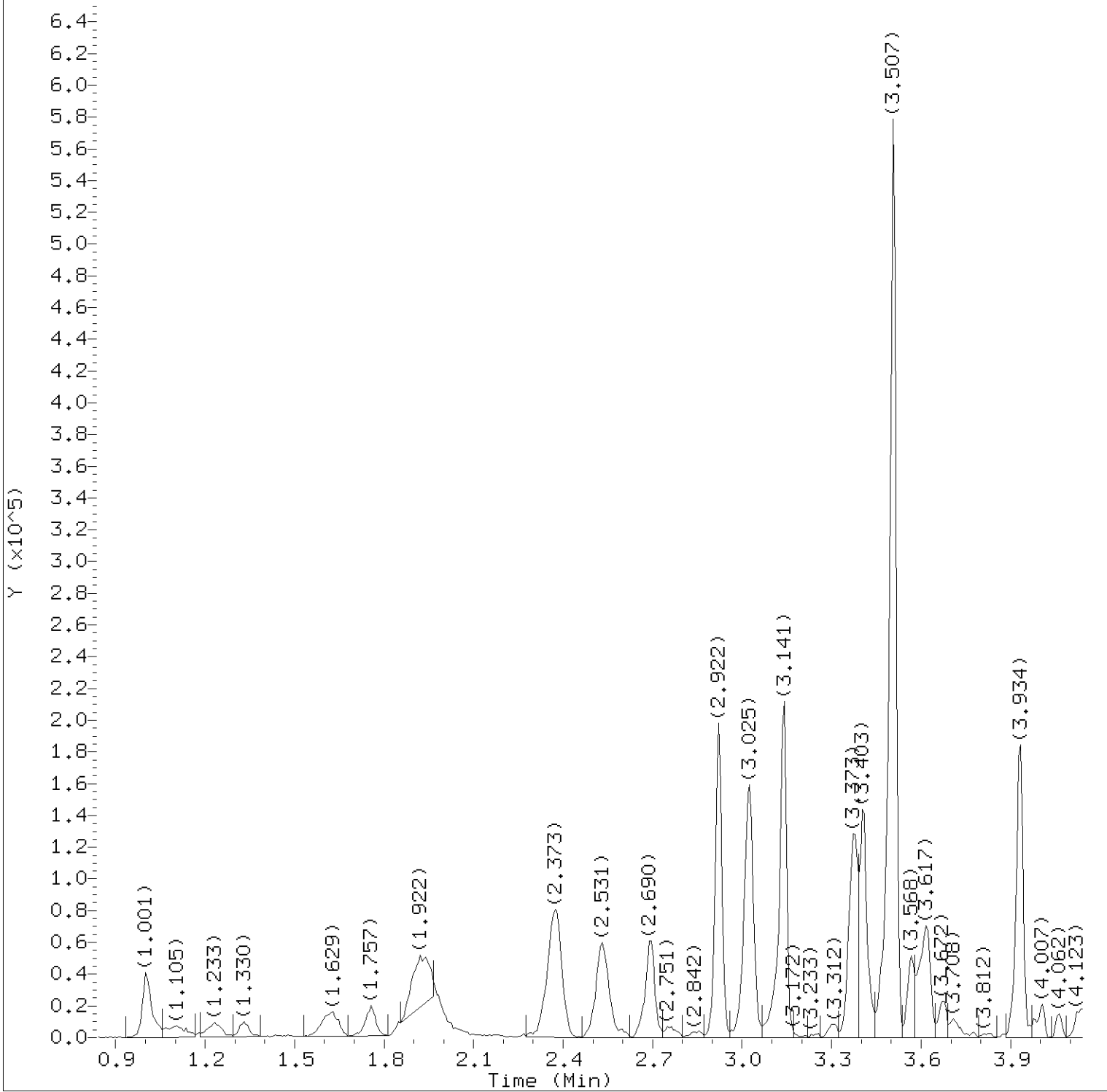
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.922(0.000)	113	95209	47.948	96%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.141(0.000)	102	27283	48.168	96%		80 - 120
15) Toluene-d8	(3)	4.287(0.000)	98	433617	49.653	99%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.324(0.000)	95	161697	46.922	94%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
12) Benzene	(2)	3.403(0.001)	78	92057	8.775	8.77			0.2	1
16) Toluene	(3)	4.312(0.000)	92	4175	0.575	0.57		J	0.2	1
20) Ethylbenzene	(3)	4.946(-0.000)	91	308173	21.916	21.92			0.4	1
21) m+p-Xylene	(3)	5.019(0.001)	106	288955	51.307	51.31			1	5
22) o-Xylene	(3)	5.171(-0.000)	106	24689	4.566	4.57			0.4	1
23) Xylene (Total)	(3)		106	313644	55.873	55.87			1	5

Total number of targets = 6

Digitally signed by Hu Yang on 06/07/2019 at 21:32. Target 3.5 esignature user ID: hy07820

Secondary review performed and digitally signed by Richard Samson on 06/10/2019 at 22:02. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07s42.d
Injection date and time: 07-JUN-2019 18:17

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT2C.m
Calibration date and time: 07-JUN-2019 10:09

Sublist used: 12790

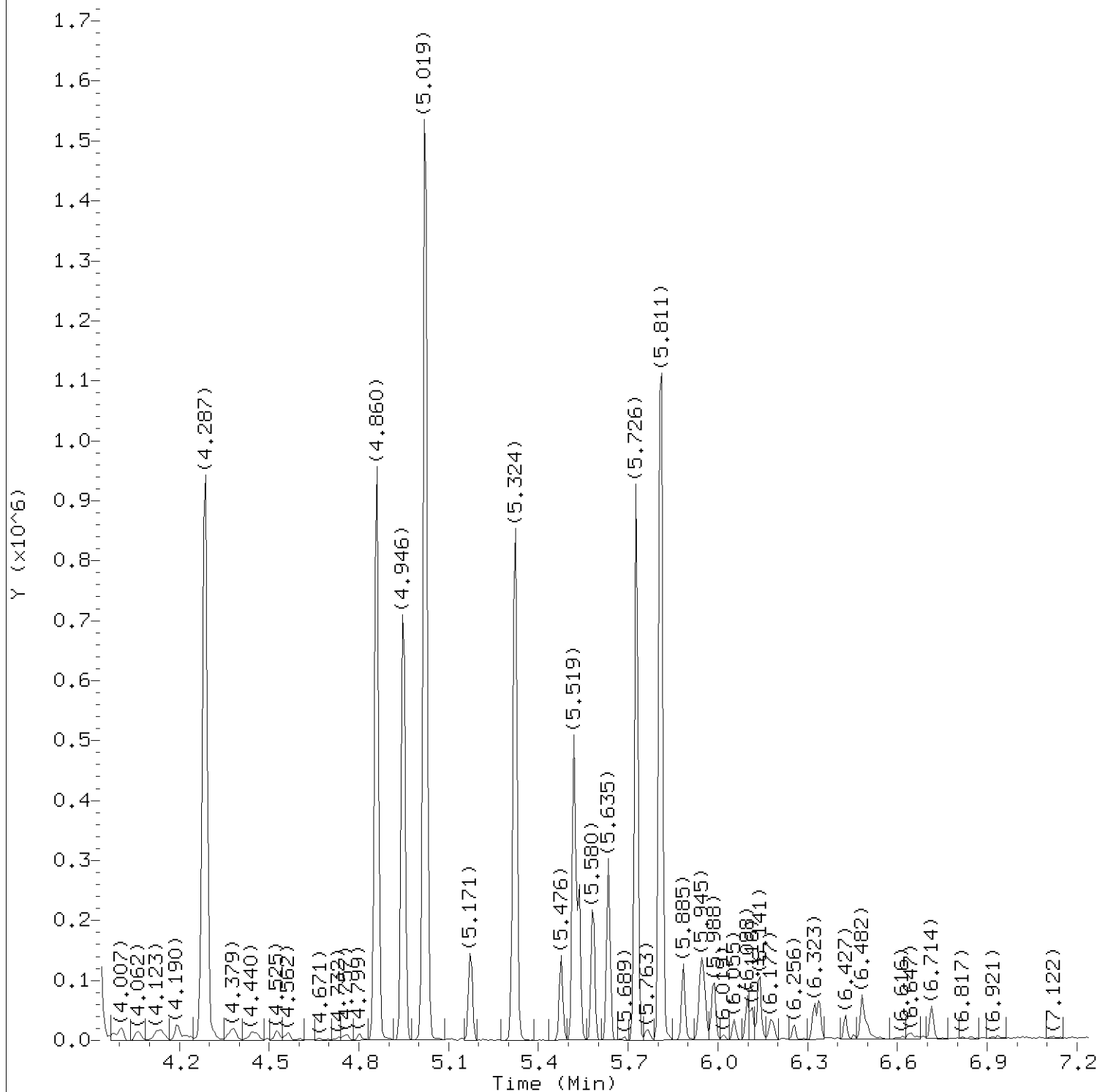
Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L08

Lab Sample ID: 1068878

Digitally signed by Hu Yang
on 06/07/2019 at 21:32.

Target 3.5 esignature user ID: hy07820



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07s42.d
Injection date and time: 07-JUN-2019 18:17

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT2C.m
Calibration date and time: 07-JUN-2019 10:09
Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sublist used: 12790

Sample Name: 64L08

Lab Sample ID: 1068878

Digitally signed by Hu Yang
on 06/07/2019 at 21:32.

Target 3.5 esignature user ID: hy07820

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a.b/fu07s42.d
 Injection date and time: 07-JUN-2019 18:17

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sublist used: 12790

Sample Name: 64L08

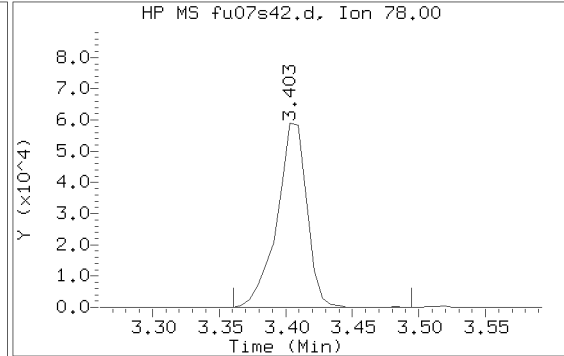
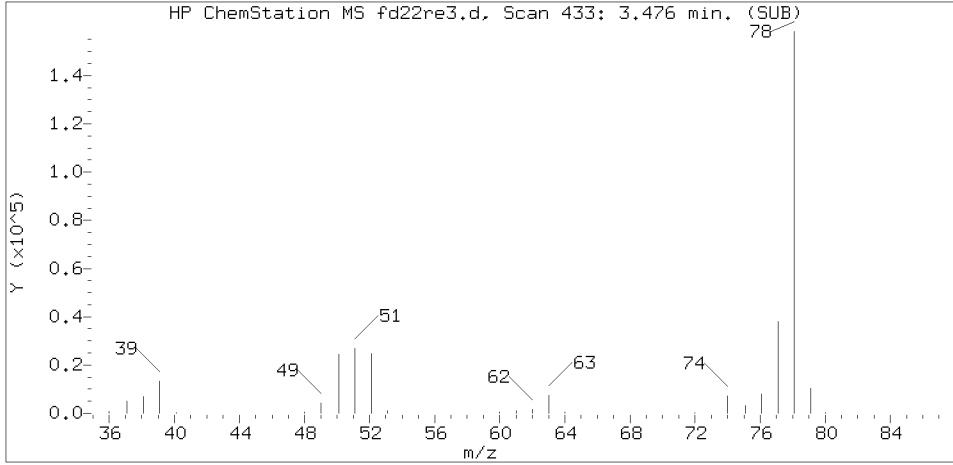
Lab Sample ID: 1068878

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
2)*t-Butyl alcohol-d10	(1)	1.910	65	103074	250.000
7)\$Dibromofluoromethane	(2)	2.922	113	95209	47.948
10)\$1,2-Dichloroethane-d4	(2)	3.141	102	27283	48.168
12) Benzene	(2)	3.403	78	92057	8.775
14)*Fluorobenzene	(2)	3.507	96	423545	50.000
15)\$Toluene-d8	(3)	4.287	98	433617	49.653
16) Toluene	(3)	4.312	92	4175	0.575
19)*Chlorobenzene-d5	(3)	4.860	117	337584	50.000
20) Ethylbenzene	(3)	4.946	91	308173	21.916
21) m+p-Xylene	(3)	5.019	106	288955	51.307
22) o-Xylene	(3)	5.171	106	24689	4.566
25)\$4-Bromofluorobenzene	(3)	5.324	95	161697	46.922
23) Xylene (Total)	(3)		106	313644	55.873
28)*1,4-Dichlorobenzene-d4	(4)	5.811	152	186783	50.000

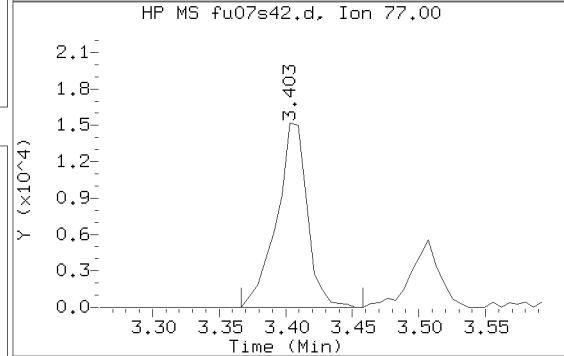
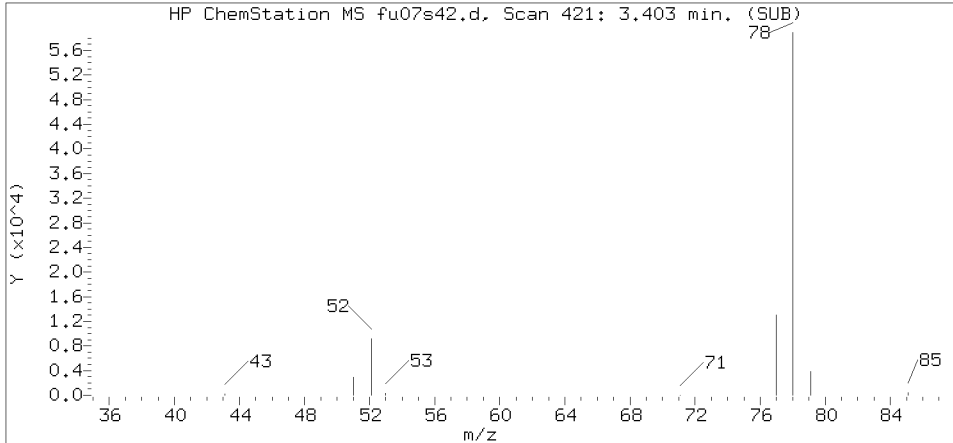
* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

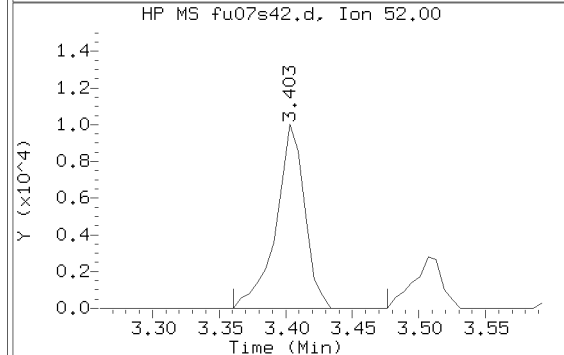
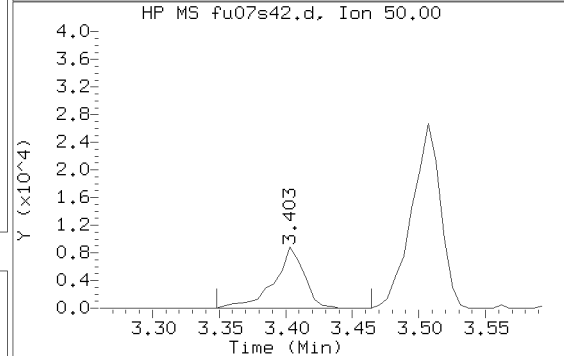
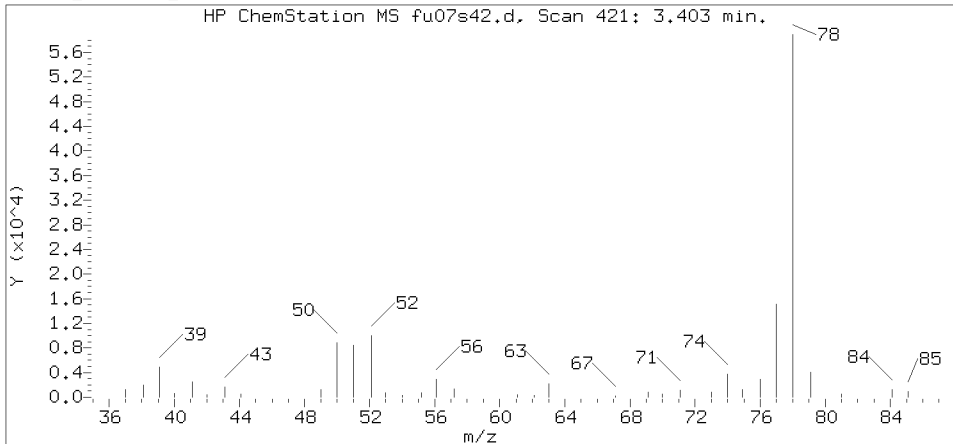
Reference Standard Spectrum for Benzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s42.d
 Injection date and time: 07-JUN-2019 18:17

Instrument ID: HP15830.i
 Analyst ID: ADS07818

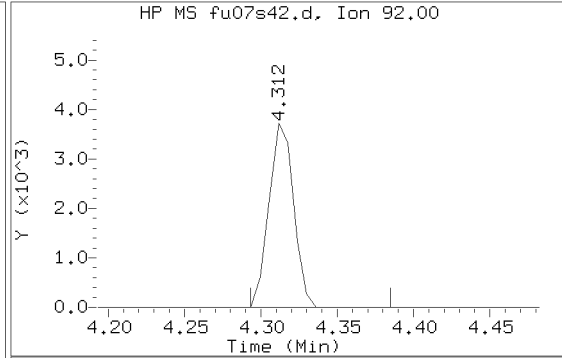
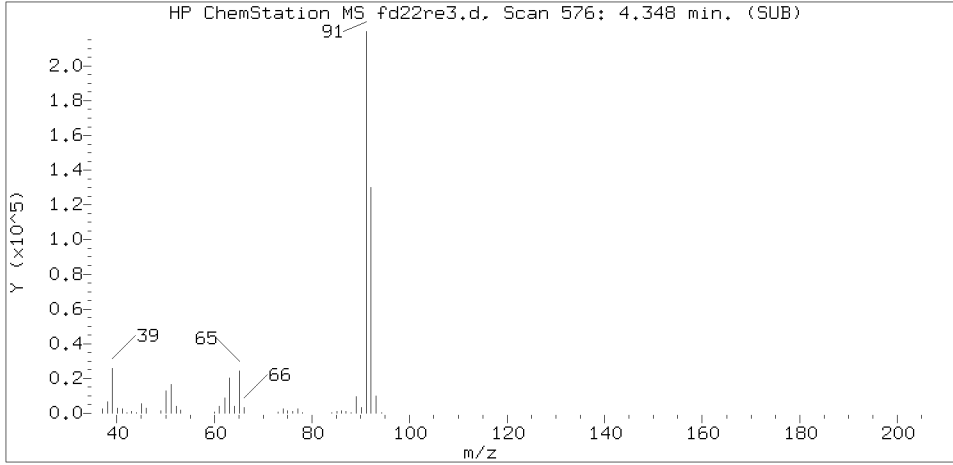
Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L08

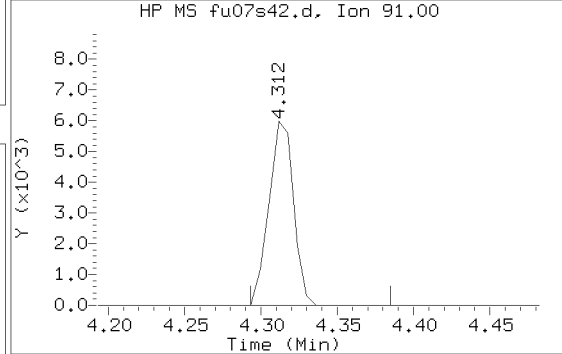
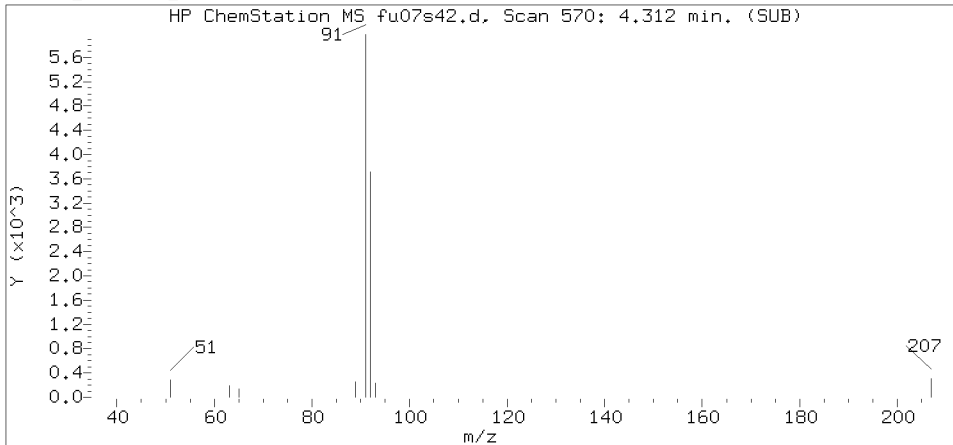
Lab Sample ID: 1068878

Compound Number : 12
 Compound Name : Benzene
 Scan Number : 421
 Retention Time (minutes): 3.403
 Relative Retention Time : 0.00175
 Quant Ion : 78.00
 Area (flag) : 92057
 On-Column Amount (ng) : 8.7745

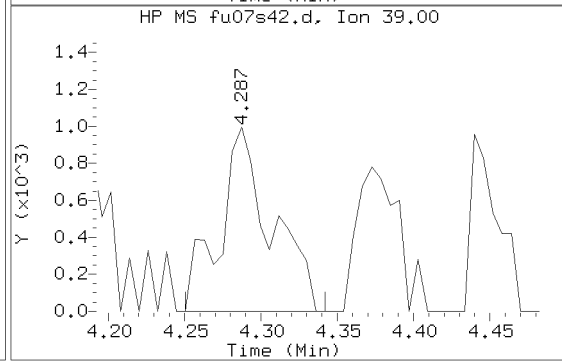
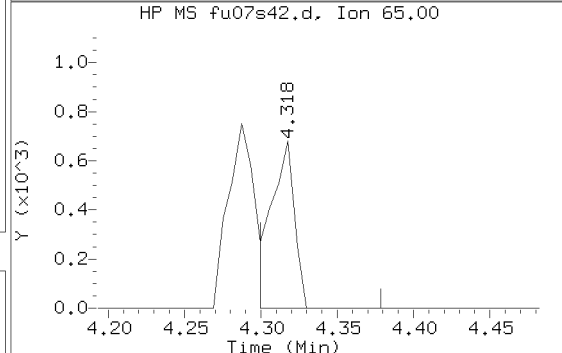
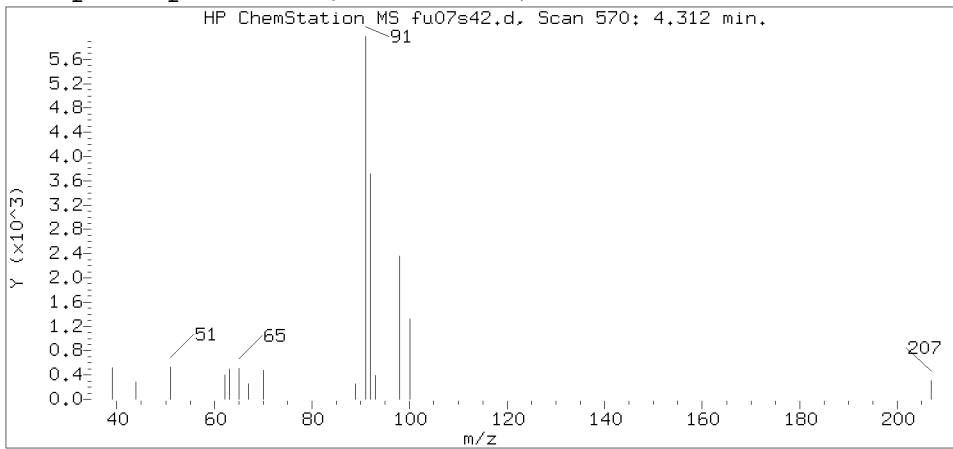
Reference Standard Spectrum for Toluene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s42.d
 Injection date and time: 07-JUN-2019 18:17

Instrument ID: HP15830.i
 Analyst ID: ADS07818

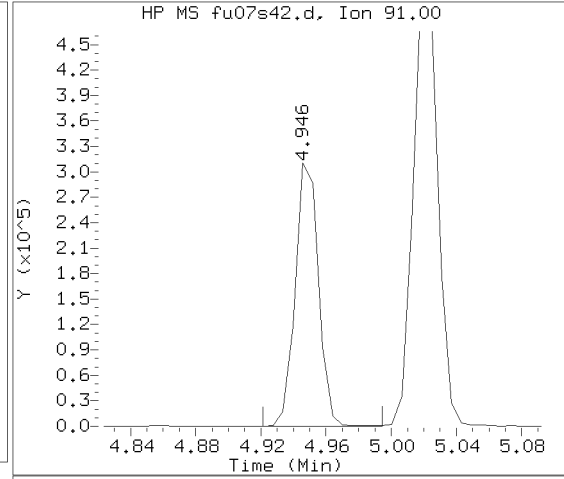
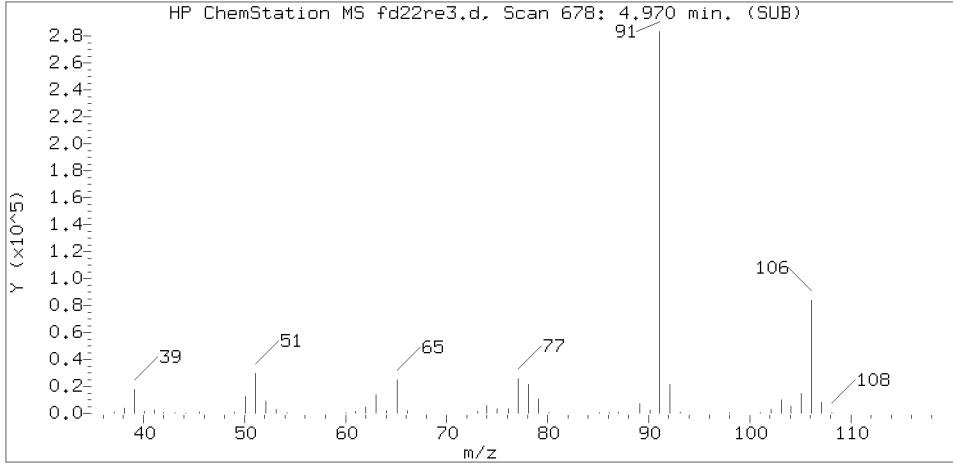
Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L08

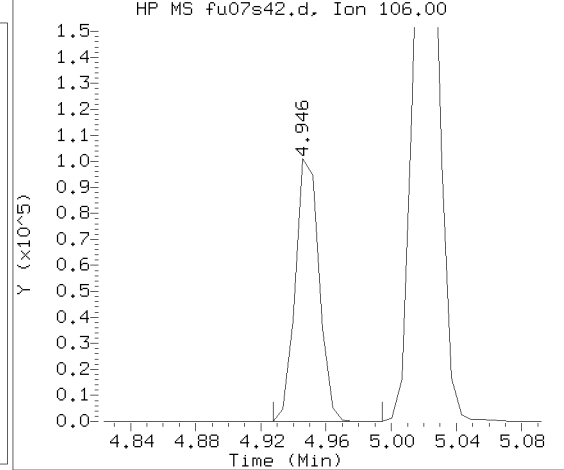
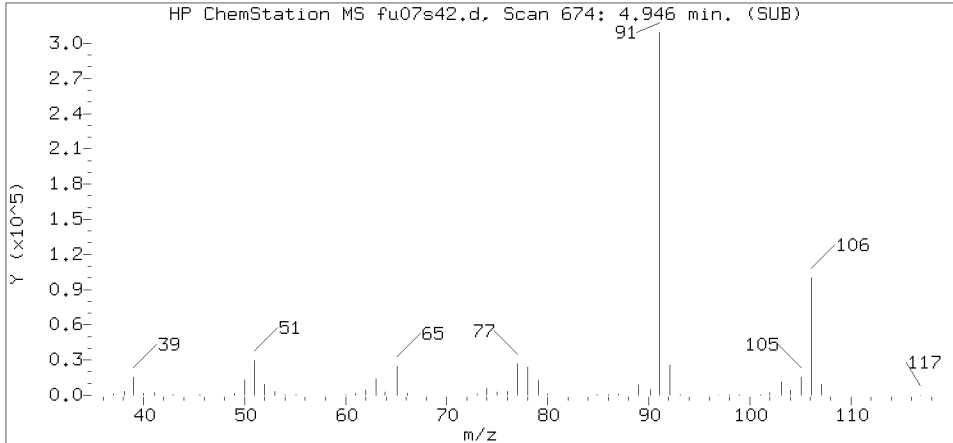
Lab Sample ID: 1068878

Compound Number : 16
 Compound Name : Toluene
 Scan Number : 570
 Retention Time (minutes): 4.312
 Relative Retention Time : 0.00001
 Quant Ion : 92.00
 Area (flag) : 4175
 On-Column Amount (ng) : 0.5749

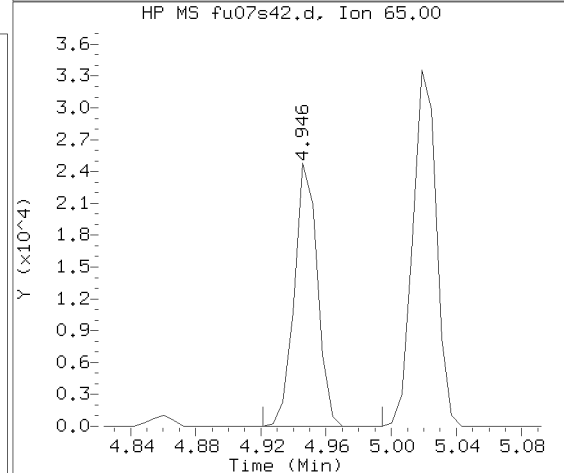
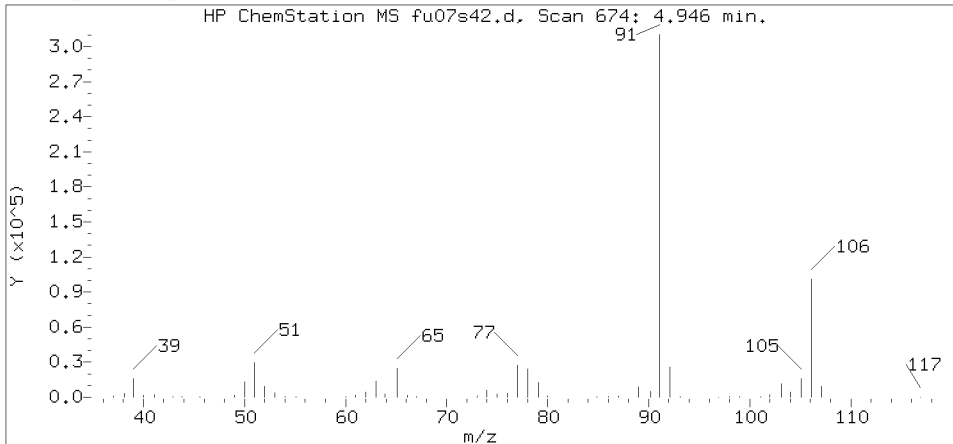
Reference Standard Spectrum for Ethylbenzene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s42.d
 Injection date and time: 07-JUN-2019 18:17

Instrument ID: HP15830.i
 Analyst ID: ADS07818

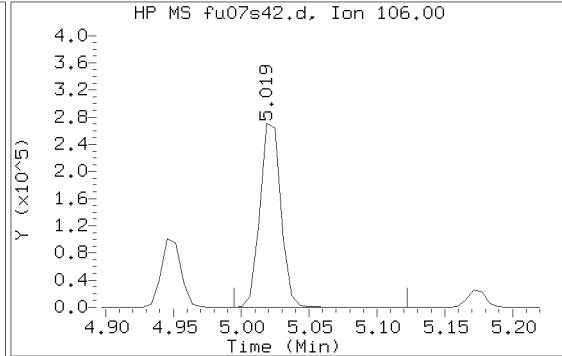
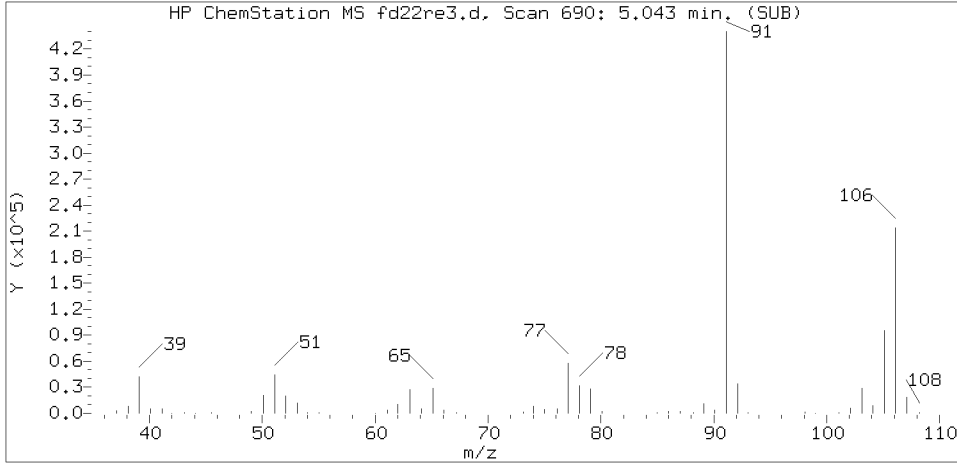
Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L08

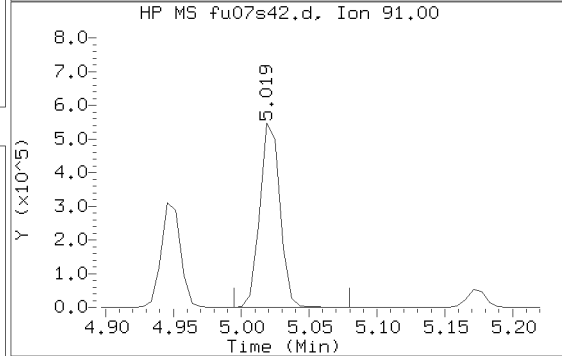
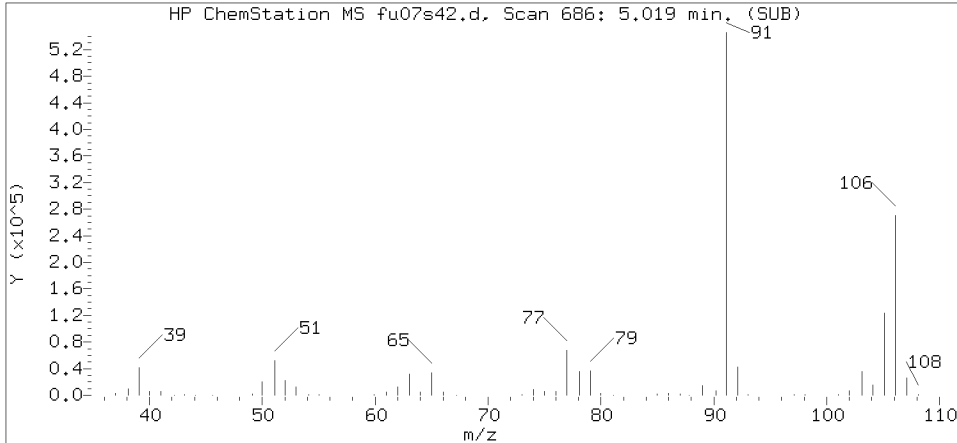
Lab Sample ID: 1068878

Compound Number : 20
 Compound Name : Ethylbenzene
 Scan Number : 674
 Retention Time (minutes): 4.946
 Relative Retention Time : -0.00000
 Quant Ion : 91.00
 Area (flag) : 308173
 On-Column Amount (ng) : 21.9163

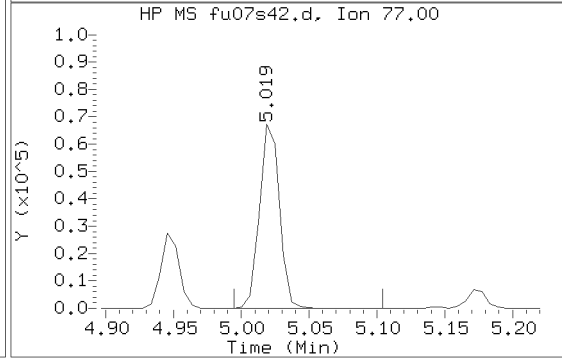
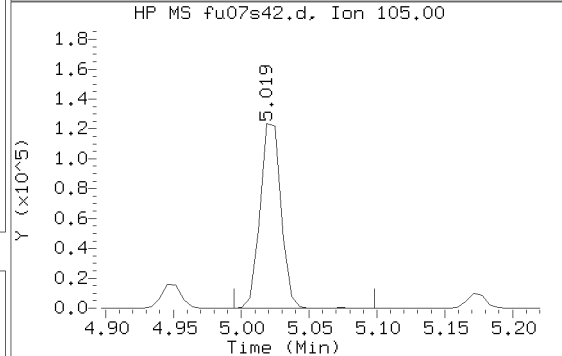
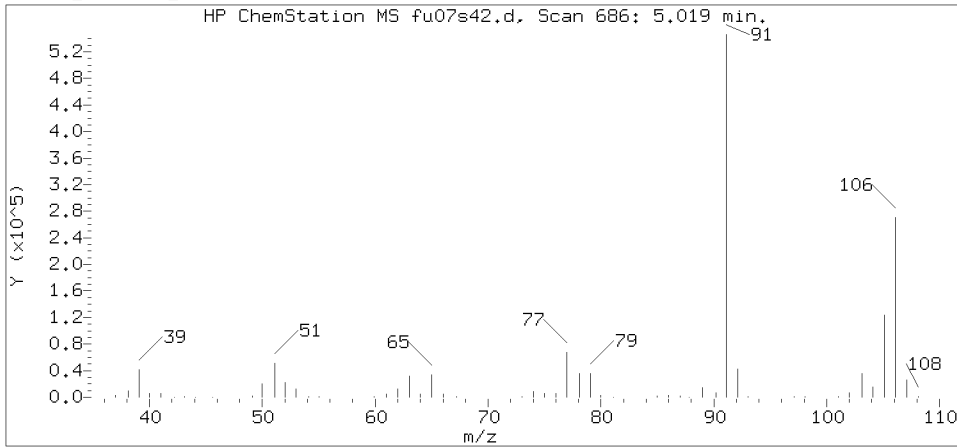
Reference Standard Spectrum for m+p-Xylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s42.d
 Injection date and time: 07-JUN-2019 18:17

Instrument ID: HP15830.i
 Analyst ID: ADS07818

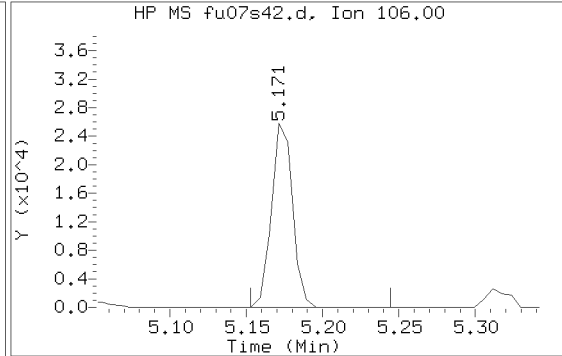
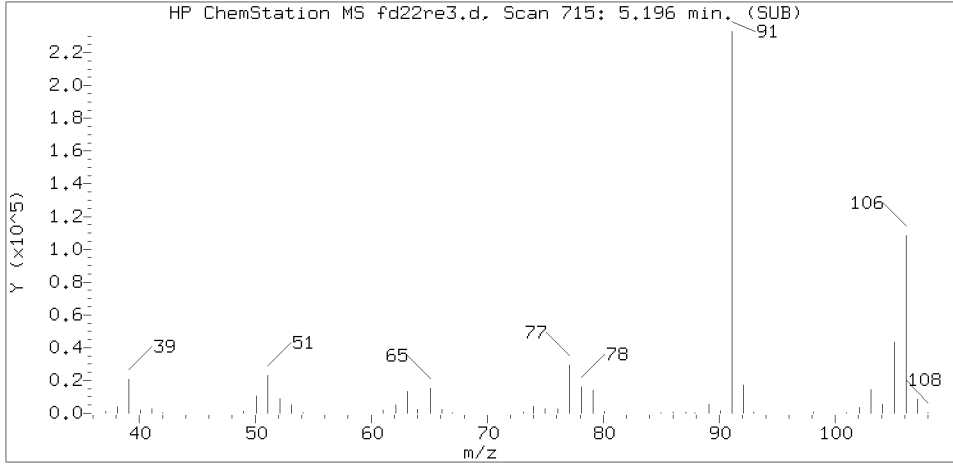
Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L08

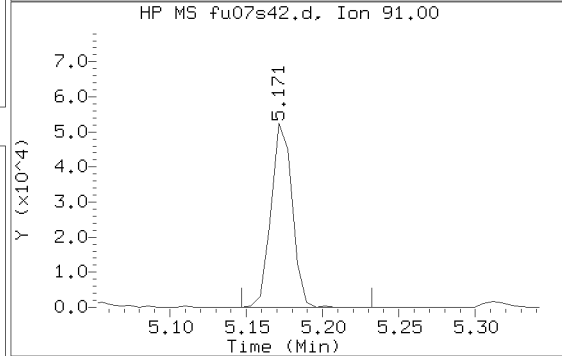
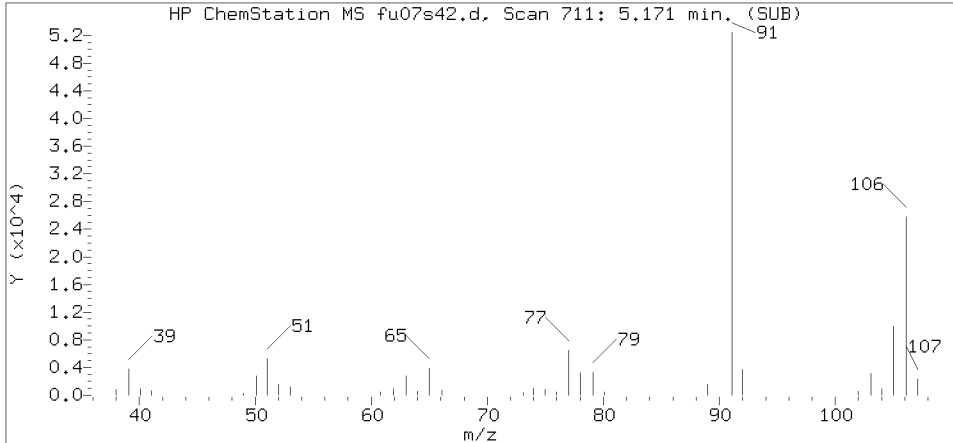
Lab Sample ID: 1068878

Compound Number : 21
 Compound Name : m+p-Xylene
 Scan Number : 686
 Retention Time (minutes): 5.019
 Relative Retention Time : 0.00125
 Quant Ion : 106.00
 Area (flag) : 288955
 On-Column Amount (ng) : 51.3071

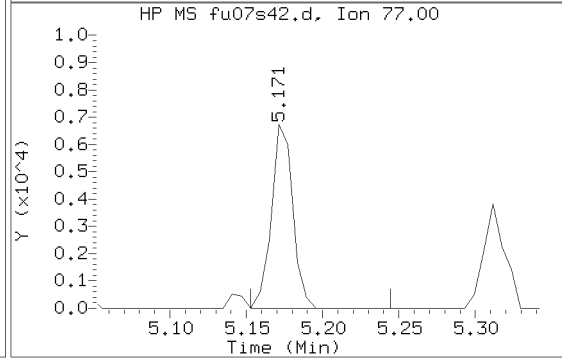
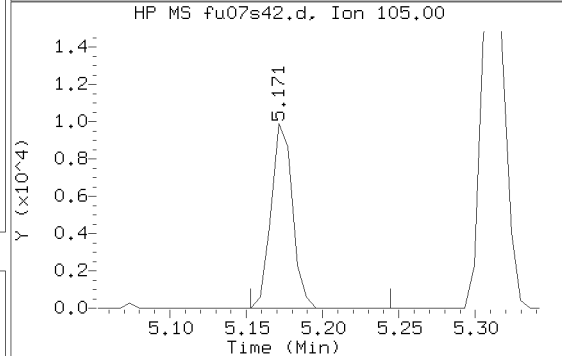
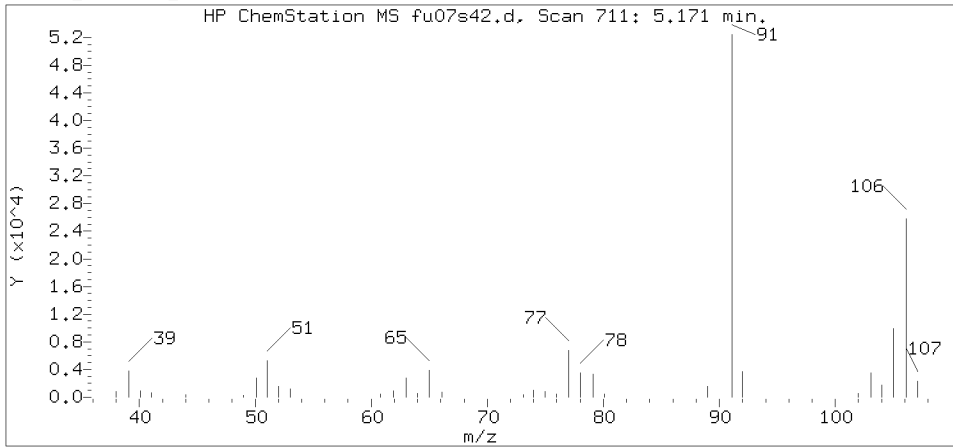
Reference Standard Spectrum for o-Xylene



Sample Spectrum (Background Subtracted)



Sample Spectrum (Unaltered)



Data File: /chem/HP15830.i/19jun07a.b/fu07s42.d
 Injection date and time: 07-JUN-2019 18:17

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
 Calibration date and time: 07-JUN-2019 10:09
 Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L08

Lab Sample ID: 1068878

Compound Number : 22
 Compound Name : o-Xylene
 Scan Number : 711
 Retention Time (minutes): 5.171
 Relative Retention Time : -0.00000
 Quant Ion : 106.00
 Area (flag) : 24689
 On-Column Amount (ng) : 4.5660

64L09

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles 1068879

Data file: /chem/HP15830.i/19jun07a.b/fu07s44.d Injection date and time: 07-JUN-2019 18:39
Data file Sample Info. Line: 64L09;1068879;1;0;;LSV64;;;fu07b02; Instrument ID: HP15830.i Batch: F191582AA
Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Blank Data file reference: /chem/HP15830.i/19jun07a.b/fu07b02.d

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 12790
Calibration date and time (Last Method Edit): 07-JUN-2019 10:09
Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/19jun07a.b/fu07c04.d

Bottle Code: 038A Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.904(0.012)	175	65	95389 (-2)	250.00	
14) Fluorobenzene	3.501(0.006)	437	96	423521 (2)	50.00	
19) Chlorobenzene-d5	4.860(0.000)	660	117	346943 (9)	50.00	
28) 1,4-Dichlorobenzene-d4	5.811(0.000)	816	152	185781 (5)	50.00	

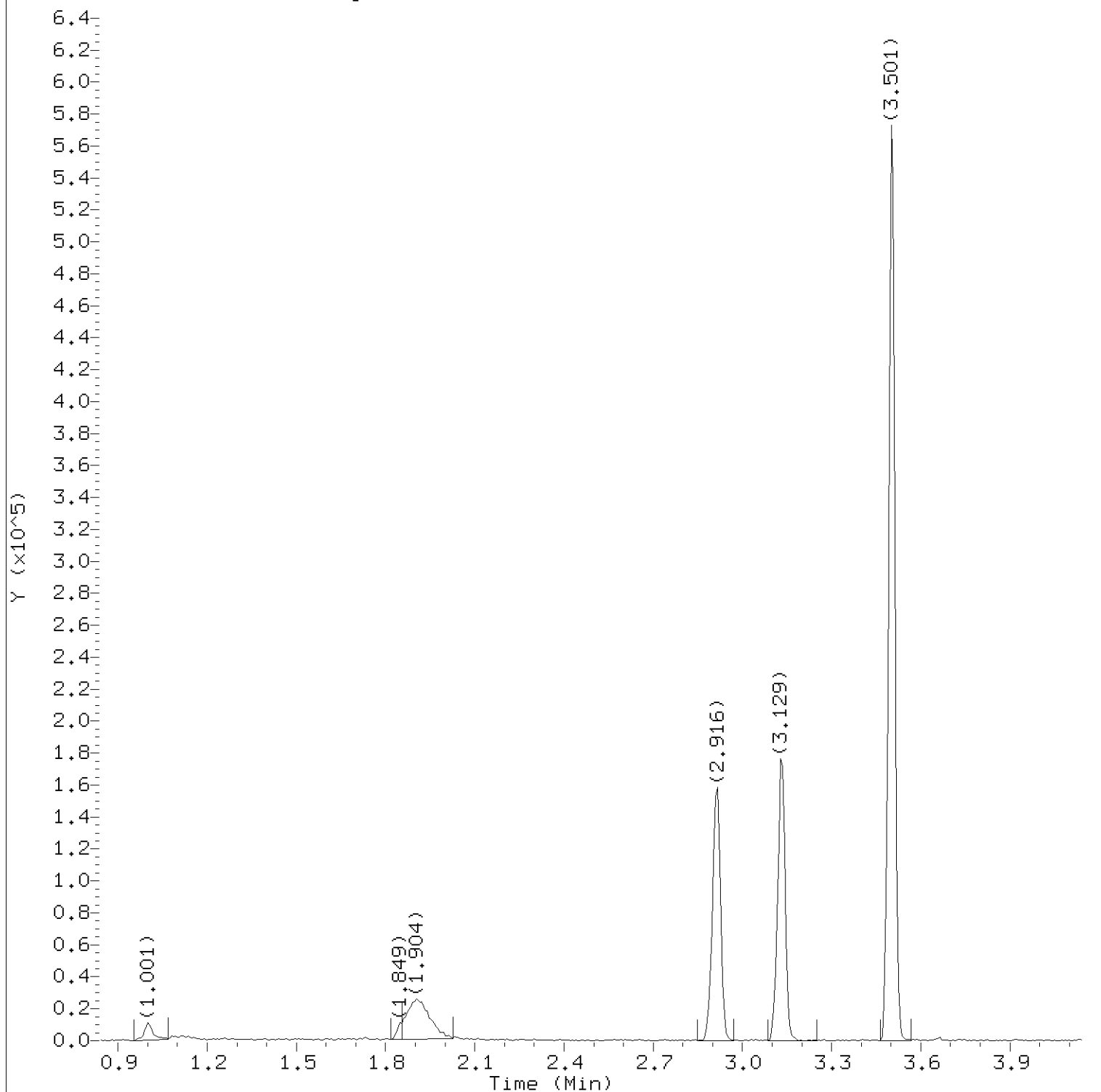
Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.916(0.000)	113	93713	47.197	94%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.129(0.002)	102	27882	49.227	98%		80 - 120
15) Toluene-d8	(3)	4.287(0.000)	98	430486	47.965	96%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.324(0.000)	95	159895	45.147	90%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
12) Benzene	(2)			Not Detected					0.2	1
16) Toluene	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	5

Total number of targets = 6

Digitally signed by Hu Yang on 06/07/2019 at 21:32. Target 3.5 esignature user ID: hy07820

Secondary review performed and digitally signed by Richard Samson on 06/10/2019 at 22:02. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a.b/fu07s44.d
Injection date and time: 07-JUN-2019 18:39

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m
Calibration date and time: 07-JUN-2019 10:09

Sublist used: 12790

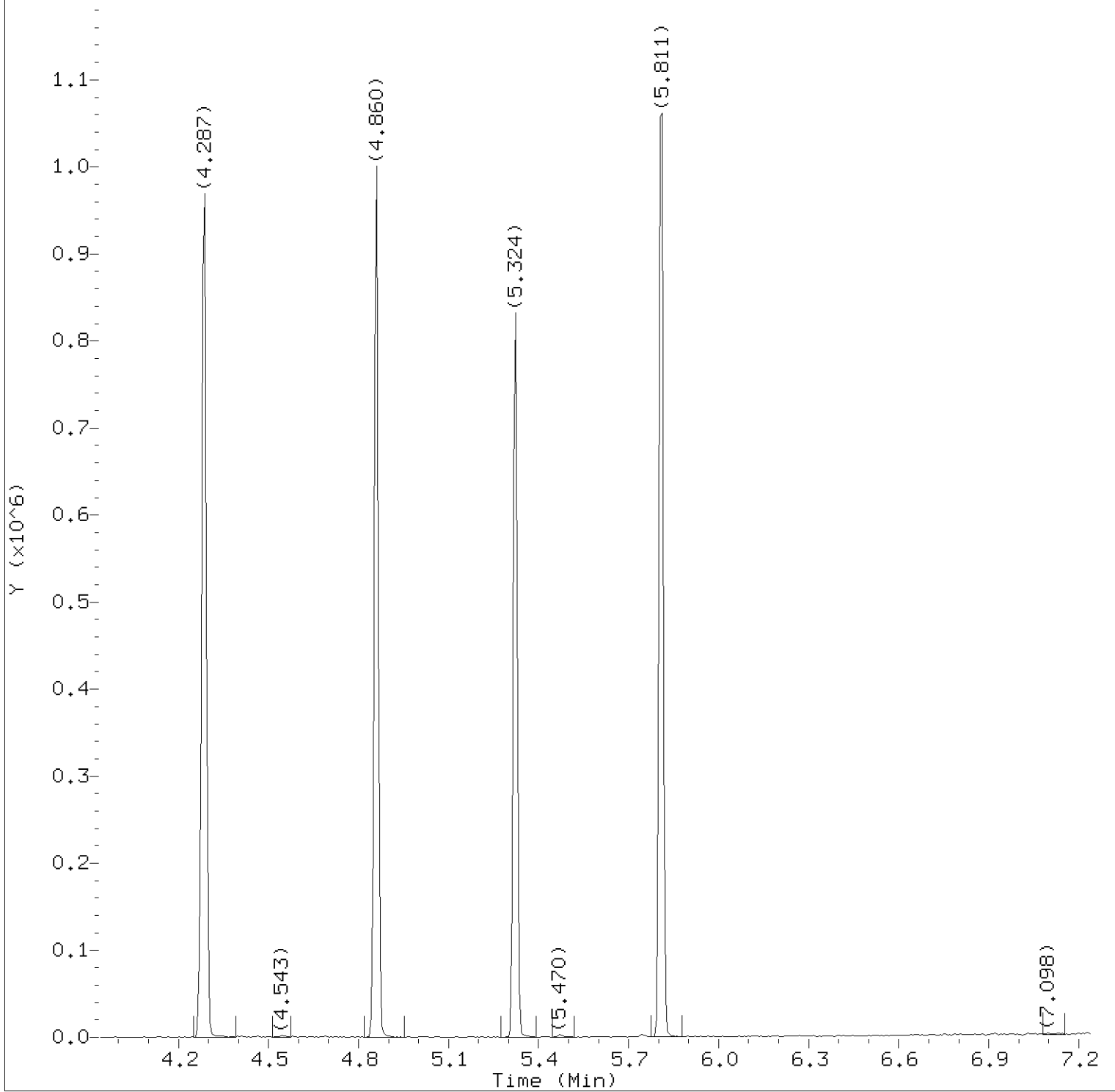
Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L09

Lab Sample ID: 1068879

Digitally signed by Hu Yang
on 06/07/2019 at 21:32.

Target 3.5 esignature user ID: hy07820



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07s44.d
Injection date and time: 07-JUN-2019 18:39

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT2C.m
Calibration date and time: 07-JUN-2019 10:09

Sublist used: 12790

Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L09

Lab Sample ID: 1068879

Digitally signed by Hu Yang
on 06/07/2019 at 21:32.

Target 3.5 esignature user ID: hy07820

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a.b/fu07s44.d
 Injection date and time: 07-JUN-2019 18:39

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m
 Calibration date and time: 07-JUN-2019 10:09

Sublist used: 12790

Date, time and analyst ID of latest file update: 07-Jun-2019 19:15 hy07820

Sample Name: 64L09

Lab Sample ID: 1068879

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
2)*t-Butyl alcohol-d10	(1)	1.904	65	95389	250.000
7)\$Dibromofluoromethane	(2)	2.916	113	93713	47.197
10)\$1,2-Dichloroethane-d4	(2)	3.129	102	27882	49.227
14)*Fluorobenzene	(2)	3.501	96	423521	50.000
15)\$Toluene-d8	(3)	4.287	98	430486	47.965
19)*Chlorobenzene-d5	(3)	4.860	117	346943	50.000
25)\$4-Bromofluorobenzene	(3)	5.324	95	159895	45.147
28)*1,4-Dichlorobenzene-d4	(4)	5.811	152	185781	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Raw QC Data

Volatiles by GC/MS

VBLKF07

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

VBLKF07

Data file: /chem/HP15830.i/19jun07a.b/fu07b01.d
Data file Sample Info. Line: VBLKF07;VBLKF07;1;3;;;;;
Date, time and analyst ID of latest file update: 07-Jun-2019 10:44 Automation

Injection date and time: 07-JUN-2019 10:36
Instrument ID: HP15830.i Batch: F191581AA

Blank Data file reference: /chem/HP15830.i/19jun07a.b/fu07b01.d

Method used: /chem/HP15830.i/19jun07a.b/UST-PT1C.m Sublist used: 10943AC
Calibration date and time (Last Method Edit): 07-JUN-2019 09:59
Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/19jun07a.b/fu07c03.d

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.916(0.000)	177	65	149845 (6)	250.00	
14) Fluorobenzene	3.513(0.000)	439	96	389623 (-3)	50.00	
19) Chlorobenzene-d5	4.861(0.000)	660	117	304732 (-1)	50.00	
28) 1,4-Dichlorobenzene-d4	5.812(0.000)	816	152	168741 (-2)	50.00	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.922(0.002)	113	87333	47.711	95%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.141(0.000)	102	26184	49.422	99%		80 - 120
15) Toluene-d8	(3)	4.287(0.000)	98	388892	49.487	99%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.324(0.000)	95	143613	46.276	93%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
1) Ethanol	(1)			Not Detected					280	750
3) t-Butyl alcohol	(1)			Not Detected					12	50
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
5) di-Isopropyl ether	(2)			Not Detected					0.2	1
6) Ethyl t-butyl ether	(2)			Not Detected					0.2	1
11) 1,2-Dichloroethane	(2)			Not Detected					0.3	1
12) Benzene	(2)			Not Detected					0.2	1
13) t-Amyl methyl ether	(2)			Not Detected					0.8	5
16) Toluene	(3)			Not Detected					0.2	1
18) 1,2-Dibromoethane	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	5
24) Isopropylbenzene	(3)			Not Detected					0.2	5
26) 1,3,5-Trimethylbenzene	(4)			Not Detected					0.3	5
27) 1,2,4-Trimethylbenzene	(4)			Not Detected					1	5
29) Naphthalene	(4)			Not Detected					1	5

VBLKF07

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

VBLKF07

Data file: /chem/HP15830.i/19jun07a.b/fu07b01.d

Injection date and time: 07-JUN-2019 10:36

Data file Sample Info. Line: VBLKF07;VBLKF07;1;3;;;;;

Instrument ID: HP15830.i Batch: F191581AA

Date, time and analyst ID of latest file update: 07-Jun-2019 10:44 Automation

Blank Data file reference: /chem/HP15830.i/19jun07a.b/fu07b01.d

Method used: /chem/HP15830.i/19jun07a.b/UST-PT1C.m Sublist used: 10943AC

Calibration date and time (Last Method Edit): 07-JUN-2019 09:59

Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/19jun07a.b/fu07c03.d

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

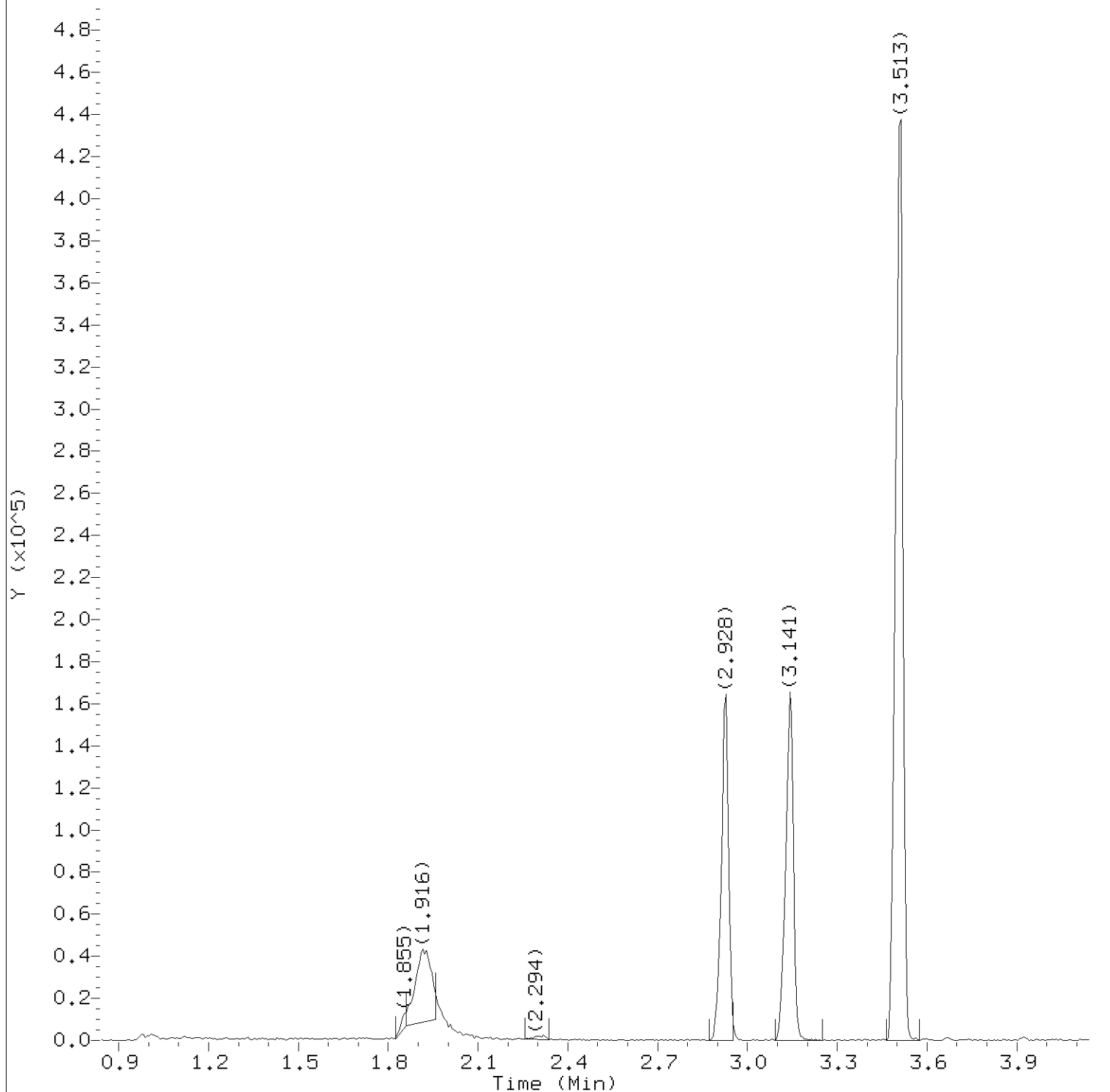
Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

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Total number of targets = 18

Digitally signed by Kevin A. Sposito on 06/12/2019 at 14:10. Target 3.5 esignature user ID: kas02648

Secondary review performed and digitally signed by Richard Samson on 06/12/2019 at 16:41. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07b01.d
Injection date and time: 07-JUN-2019 10:36

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT1C.m
Calibration date and time: 07-JUN-2019 09:59

Sublist used: 10943AC

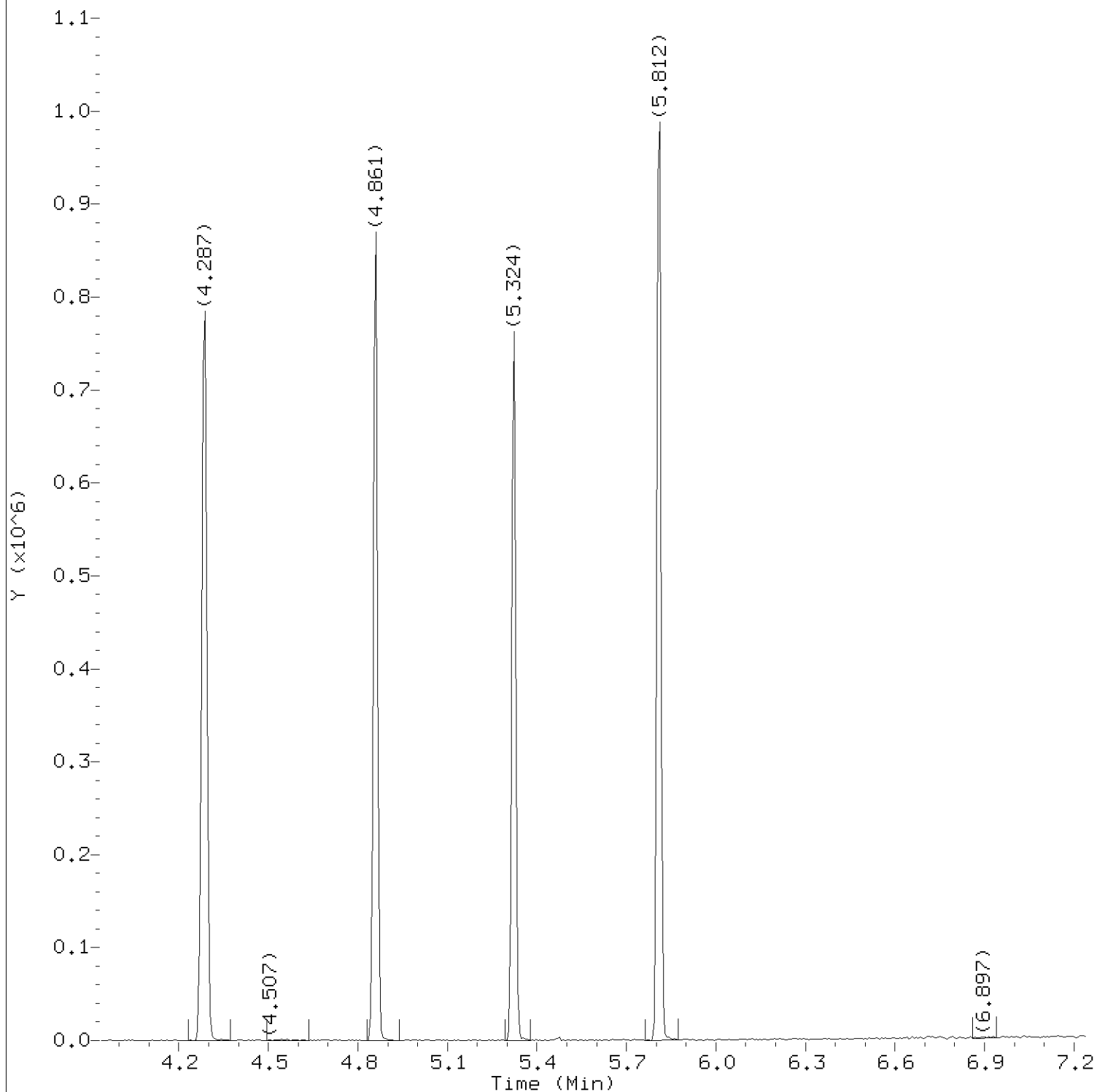
Date, time and analyst ID of latest file update: 07-Jun-2019 10:44 Automation

Sample Name: VBLKF07

Lab Sample ID: VBLKF07

Digitally signed by Kevin A. Sposito
on 06/12/2019 at 14:10.

Target 3.5 esignature user ID: kas02648



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07b01.d
Injection date and time: 07-JUN-2019 10:36

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT1C.m
Calibration date and time: 07-JUN-2019 09:59

Sublist used: 10943AC

Date, time and analyst ID of latest file update: 07-Jun-2019 10:44 Automation

Sample Name: VBLKF07

Lab Sample ID: VBLKF07

Digitally signed by Kevin A. Sposito
on 06/12/2019 at 14:10.

Target 3.5 esignature user ID: kas02648

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a.b/fu07b01.d
 Injection date and time: 07-JUN-2019 10:36

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT1C.m
 Calibration date and time: 07-JUN-2019 09:59

Sublist used: 10943AC

Date, time and analyst ID of latest file update: 07-Jun-2019 10:44 Automation

Sample Name: VBLKF07

Lab Sample ID: VBLKF07

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
2)*t-Butyl alcohol-d10	(1)	1.916	65	149845	250.000
7)\$Dibromofluoromethane	(2)	2.922	113	87333	47.711
10)\$1,2-Dichloroethane-d4	(2)	3.141	102	26184	49.422
14)*Fluorobenzene	(2)	3.513	96	389623	50.000
15)\$Toluene-d8	(3)	4.287	98	388892	49.487
19)*Chlorobenzene-d5	(3)	4.861	117	304732	50.000
25)\$4-Bromofluorobenzene	(3)	5.324	95	143613	46.276
28)*1,4-Dichlorobenzene-d4	(4)	5.812	152	168741	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

Data file: /chem/HP15830.i/19jun07a.b/fu07b02.d Injection date and time: 07-JUN-2019 10:46
 Data file Sample Info. Line: VBLKF08;VBLKF08;1;3;;;;; Instrument ID: HP15830.i Batch: F191582AA
 Date, time and analyst ID of latest file update: 07-Jun-2019 10:53 Automation

Blank Data file reference: /chem/HP15830.i/19jun07a.b/fu07b02.d

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 10943BC
 Calibration date and time (Last Method Edit): 07-JUN-2019 10:09
 Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/19jun07a.b/fu07c04.d

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.916(0.000)	177	65	97532 (0)	250.00	
14) Fluorobenzene	3.507(0.000)	438	96	406534 (-2)	50.00	
19) Chlorobenzene-d5	4.860(0.000)	660	117	320748 (1)	50.00	
28) 1,4-Dichlorobenzene-d4	5.811(0.000)	816	152	172453 (-3)	50.00	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.916(0.002)	113	89654	47.040	94%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.135(0.002)	102	25954	47.738	95%		80 - 120
15) Toluene-d8	(3)	4.287(0.000)	98	401380	48.374	97%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.324(0.000)	95	148446	45.338	91%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
1) Ethanol	(1)			Not Detected					280	750
3) t-Butyl alcohol	(1)			Not Detected					12	50
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
5) di-Isopropyl ether	(2)			Not Detected					0.2	1
6) Ethyl t-butyl ether	(2)			Not Detected					0.2	1
11) 1,2-Dichloroethane	(2)			Not Detected					0.3	1
12) Benzene	(2)			Not Detected					0.2	1
13) t-Amyl methyl ether	(2)			Not Detected					0.8	5
16) Toluene	(3)			Not Detected					0.2	1
18) 1,2-Dibromoethane	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	5
24) Isopropylbenzene	(3)			Not Detected					0.2	5
26) 1,3,5-Trimethylbenzene	(4)			Not Detected					0.3	5
27) 1,2,4-Trimethylbenzene	(4)			Not Detected					1	5
29) Naphthalene	(4)			Not Detected					1	5

VBLKF08

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

VBLKF08

Data file: /chem/HP15830.i/19jun07a.b/fu07b02.d

Injection date and time: 07-JUN-2019 10:46

Data file Sample Info. Line: VBLKF08;VBLKF08;1;3;;;;;

Instrument ID: HP15830.i Batch: F191582AA

Date, time and analyst ID of latest file update: 07-Jun-2019 10:53 Automation

Blank Data file reference: /chem/HP15830.i/19jun07a.b/fu07b02.d

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m Sublist used: 10943BC

Calibration date and time (Last Method Edit): 07-JUN-2019 10:09

Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/19jun07a.b/fu07c04.d

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

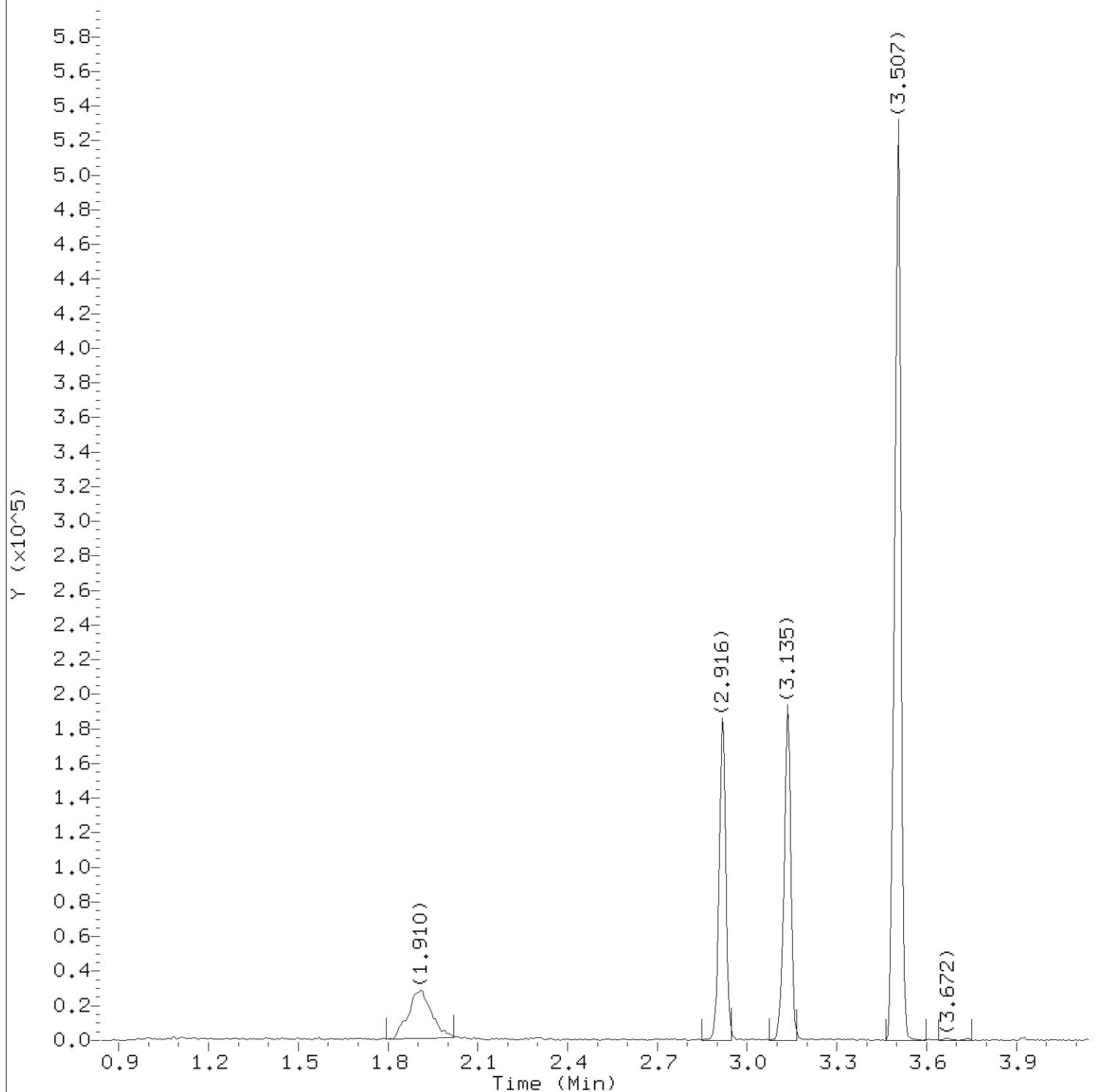
Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

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Total number of targets = 18

Digitally signed by Kevin A. Sposito on 06/12/2019 at 13:57. Target 3.5 esignature user ID: kas02648

Secondary review performed and digitally signed by Richard Samson on 06/12/2019 at 16:56. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07b02.d
Injection date and time: 07-JUN-2019 10:46

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT2C.m
Calibration date and time: 07-JUN-2019 10:09

Sublist used: 10943BC

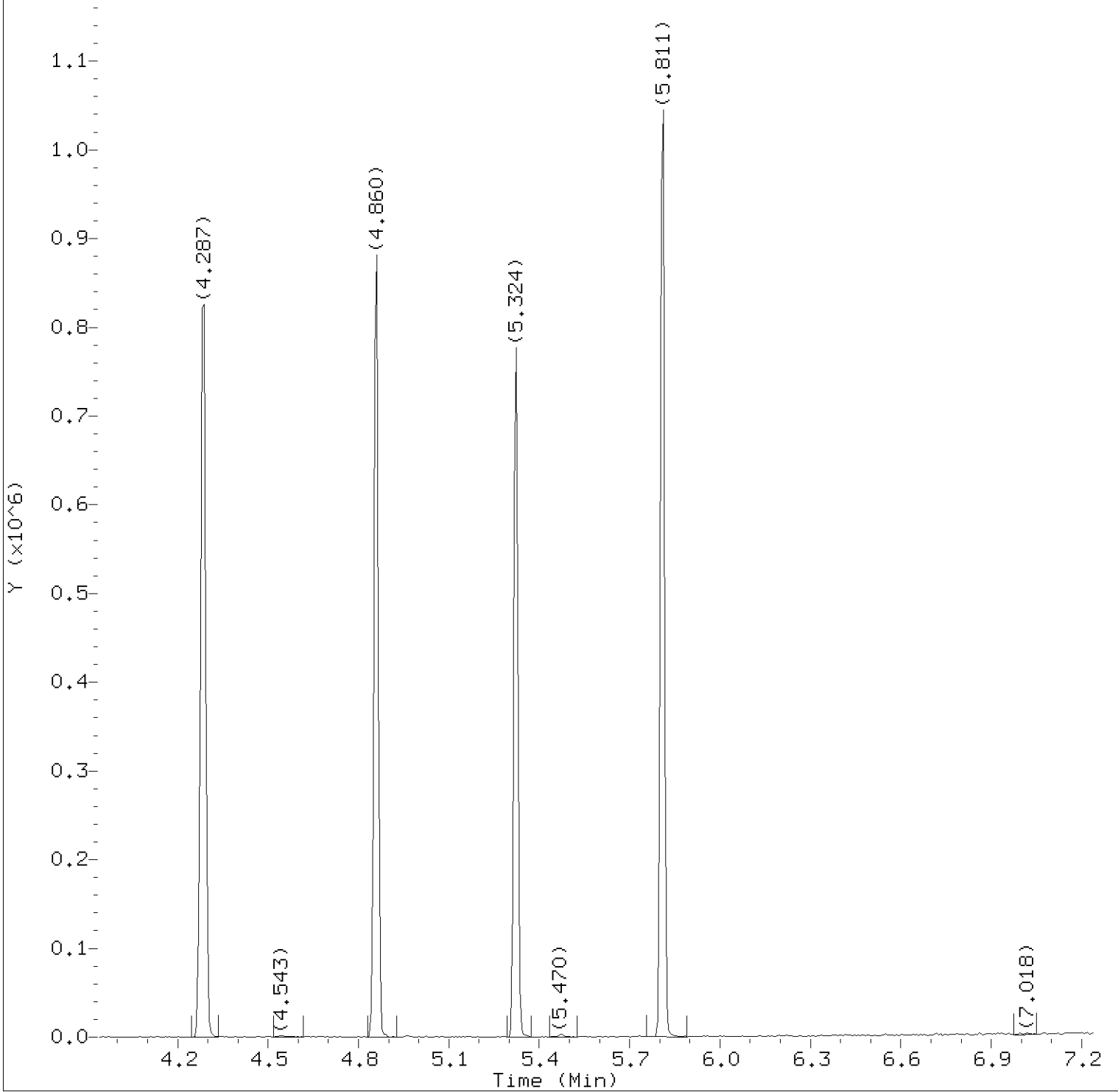
Date, time and analyst ID of latest file update: 07-Jun-2019 10:53 Automation

Sample Name: VBLKF08

Lab Sample ID: VBLKF08

Digitally signed by Kevin A. Sposito
on 06/12/2019 at 13:57.

Target 3.5 esignature user ID: kas02648



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a,b/fu07b02.d
Injection date and time: 07-JUN-2019 10:46

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a,b/UST-PT2C.m
Calibration date and time: 07-JUN-2019 10:09

Sublist used: 10943BC

Date, time and analyst ID of latest file update: 07-Jun-2019 10:53 Automation

Sample Name: VBLKF08

Lab Sample ID: VBLKF08

Digitally signed by Kevin A. Sposito
on 06/12/2019 at 13:57.

Target 3.5 esignature user ID: kas02648

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/19jun07a.b/fu07b02.d
 Injection date and time: 07-JUN-2019 10:46

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun07a.b/UST-PT2C.m
 Calibration date and time: 07-JUN-2019 10:09

Sublist used: 10943BC

Date, time and analyst ID of latest file update: 07-Jun-2019 10:53 Automation

Sample Name: VBLKF08

Lab Sample ID: VBLKF08

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
2)*t-Butyl alcohol-d10	(1)	1.916	65	97532	250.000
7)\$Dibromofluoromethane	(2)	2.916	113	89654	47.040
10)\$1,2-Dichloroethane-d4	(2)	3.135	102	25954	47.738
14)*Fluorobenzene	(2)	3.507	96	406534	50.000
15)\$Toluene-d8	(3)	4.287	98	401380	48.374
19)*Chlorobenzene-d5	(3)	4.860	117	320748	50.000
25)\$4-Bromofluorobenzene	(3)	5.324	95	148446	45.338
28)*1,4-Dichlorobenzene-d4	(4)	5.811	152	172453	50.000

* = Compound is an internal standard.
 \$ = Compound is a surrogate standard.

Data file: /chem/HP15830.i/19jun10a.b/fu10b01.d
 Data file Sample Info. Line: VBLKF09;VBLKF09;1;3;;;;;
 Date, time and analyst ID of latest file update: 10-Jun-2019 12:41 ads07818

Injection date and time: 10-JUN-2019 11:49
 Instrument ID: HP15830.i Batch: F191611AA

Blank Data file reference: /chem/HP15830.i/19jun10a.b/fu10b01.d

Method used: /chem/HP15830.i/19jun10a.b/UST-PT1C.m Sublist used: 10943AC
 Calibration date and time (Last Method Edit): 10-JUN-2019 10:56
 Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/19jun10a.b/fu10c05.d

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

Analysis Comments:

Internal Standards	RT (+/-RT)	Scan	QIon	Area(+/- %Change)	Conc. (on-column)	QC Flag
2) t-Butyl alcohol-d10	1.928(0.000)	179	65	149902 (-6)	250.00	
14) Fluorobenzene	3.513(0.000)	439	96	399621 (-3)	50.00	
19) Chlorobenzene-d5	4.860(0.000)	660	117	318380 (-3)	50.00	
28) 1,4-Dichlorobenzene-d4	5.811(0.000)	816	152	174521 (-4)	50.00	

Surrogate Standards	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	%Rec.	QC flags	QC Limits
7) Dibromofluoromethane	(2)	2.934(0.000)	113	92039	49.024	98%		80 - 120
10) 1,2-Dichloroethane-d4	(2)	3.147(0.000)	102	26073	47.980	96%		80 - 120
15) Toluene-d8	(3)	4.287(0.000)	98	402470	49.019	98%		80 - 120
25) 4-Bromofluorobenzene	(3)	5.324(0.000)	95	149812	46.204	92%		80 - 120

Target Compounds	I.S. Ref.	RT (+/-RRT)	QIon	Area	Conc. (on-column)	Conc. (in sample)	Blank Conc.	Qual.	Reporting Limit (in sample)	LOQ
1) Ethanol	(1)			Not Detected					280	750
3) t-Butyl alcohol	(1)			Not Detected					12	50
4) Methyl Tertiary Butyl Ether	(2)			Not Detected					0.2	1
5) di-Isopropyl ether	(2)			Not Detected					0.2	1
6) Ethyl t-butyl ether	(2)			Not Detected					0.2	1
11) 1,2-Dichloroethane	(2)			Not Detected					0.3	1
12) Benzene	(2)			Not Detected					0.2	1
13) t-Amyl methyl ether	(2)			Not Detected					0.8	5
16) Toluene	(3)			Not Detected					0.2	1
18) 1,2-Dibromoethane	(3)			Not Detected					0.2	1
20) Ethylbenzene	(3)			Not Detected					0.4	1
21) m+p-Xylene	(3)			Not Detected					1	5
22) o-Xylene	(3)			Not Detected					0.4	1
23) Xylene (Total)	(3)			Not Detected					1	5
24) Isopropylbenzene	(3)			Not Detected					0.2	5
26) 1,3,5-Trimethylbenzene	(4)			Not Detected					0.3	5
27) 1,2,4-Trimethylbenzene	(4)			Not Detected					1	5
29) Naphthalene	(4)			Not Detected					1	5

VBLKF09

Lancaster Laboratories
Analysis Summary for GC/MS Volatiles

VBLKF09

Data file: /chem/HP15830.i/19jun10a.b/fu10b01.d

Injection date and time: 10-JUN-2019 11:49

Data file Sample Info. Line: VBLKF09;VBLKF09;1;3;;;;;

Instrument ID: HP15830.i Batch: F191611AA

Date, time and analyst ID of latest file update: 10-Jun-2019 12:41 ads07818

Blank Data file reference: /chem/HP15830.i/19jun10a.b/fu10b01.d

Method used: /chem/HP15830.i/19jun10a.b/UST-PT1C.m Sublist used: 10943AC

Calibration date and time (Last Method Edit): 10-JUN-2019 10:56

Mid Level Daily Calibration Standard Reference: /chem/HP15830.i/19jun10a.b/fu10c05.d

Bottle Code: Matrix: WATER Level: Low

On-Column Amount units: ng In Sample Concentration units: ug/L

Sample Concentration Formula: On-Column Amount * (Vt/Vo) VOA Prep Factor: 1.00

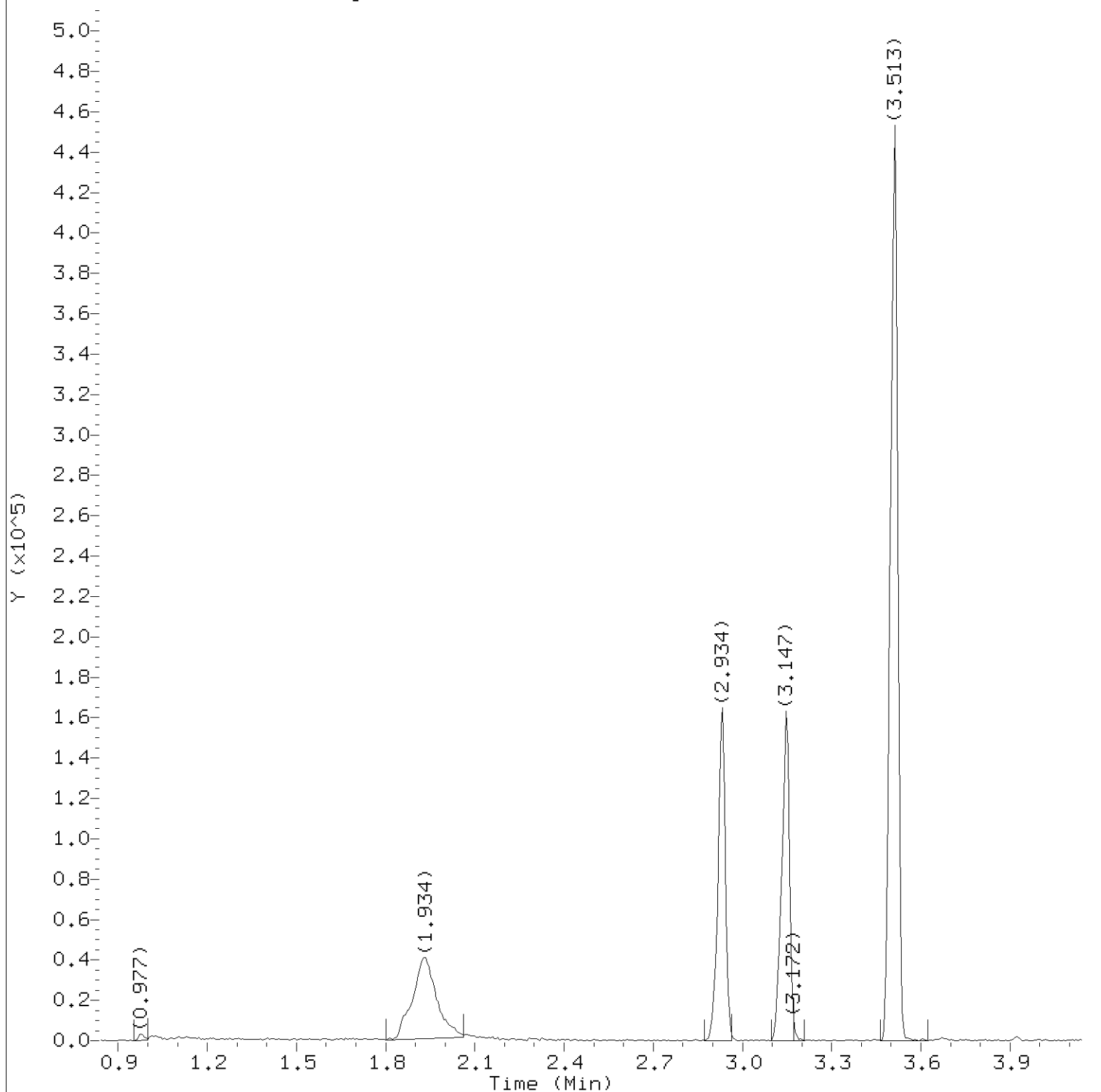
Volume Purged (Vt): 5 ml Sample Volume (Vo): 5 ml

THIS SPACE
WAS LEFT
BLANK INTENTIONALLY

Total number of targets = 18

Digitally signed by Alexander D. Sechrist on 06/11/2019 at 14:47. Target 3.5 esignature user ID: ads07818

Secondary review performed and digitally signed by Richard Samson on 06/11/2019 at 15:32. PARALLAX ID: rs08358



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun10a.b/fu10b01.d
Injection date and time: 10-JUN-2019 11:49

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun10a.b/UST-PT1C.m
Calibration date and time: 10-JUN-2019 10:56

Sublist used: 10943AC

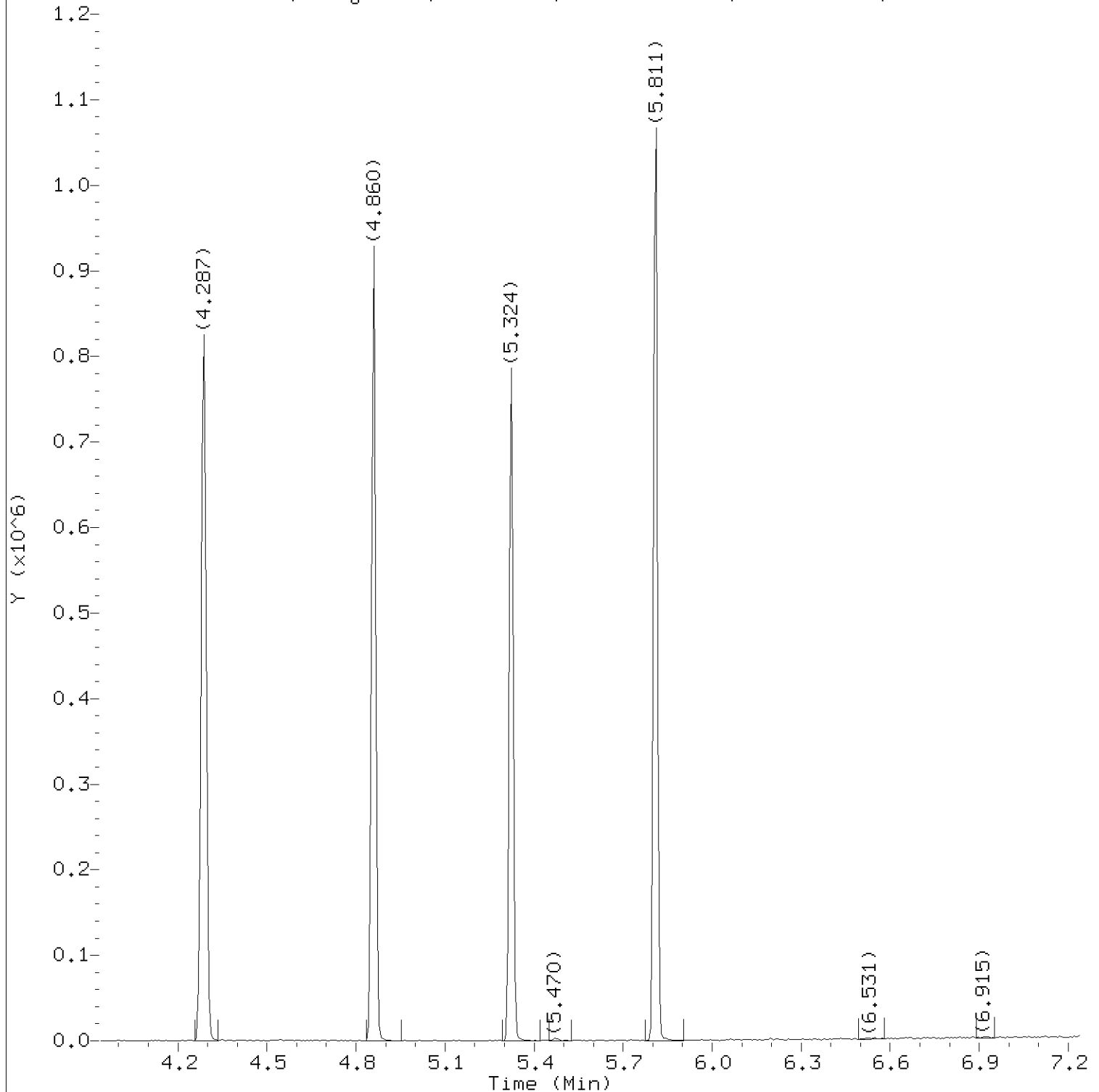
Date, time and analyst ID of latest file update: 10-Jun-2019 12:41 ads07818

Sample Name: VBLKF09

Lab Sample ID: VBLKF09

Digitally signed by Alexander D. Sechrist
on 06/11/2019 at 14:47.

Target 3.5 esignature user ID: ads07818



Total Ion Chromatogram (TIC)

Target Revision 3.5

Data File: /chem/HP15830.i/19jun10a,b/fu10b01.d
Injection date and time: 10-JUN-2019 11:49

Instrument ID: HP15830.i
Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun10a,b/UST-PT1C.m
Calibration date and time: 10-JUN-2019 10:56

Sublist used: 10943AC

Date, time and analyst ID of latest file update: 10-Jun-2019 12:41 ads07818

Sample Name: VBLKF09

Lab Sample ID: VBLKF09

Digitally signed by Alexander D. Sechrist
on 06/11/2019 at 14:47.

Target 3.5 esignature user ID: ads07818

Quant Report

Target Revision 3.5

Data File: /chem/HP15830.i/19jun10a.b/fu10b01.d
 Injection date and time: 10-JUN-2019 11:49

Instrument ID: HP15830.i
 Analyst ID: ADS07818

Method used: /chem/HP15830.i/19jun10a.b/UST-PT1C.m
 Calibration date and time: 10-JUN-2019 10:56

Sublist used: 10943AC

Date, time and analyst ID of latest file update: 10-Jun-2019 12:41 ads07818

Sample Name: VBLKF09

Lab Sample ID: VBLKF09

Compounds	I.S. Ref.	RT	QIon	Area	On-Column Amount (ng)
2)*t-Butyl alcohol-d10	(1)	1.928	65	149902	250.000
7)\$Dibromofluoromethane	(2)	2.934	113	92039	49.024
10)\$1,2-Dichloroethane-d4	(2)	3.147	102	26073	47.980
14)*Fluorobenzene	(2)	3.513	96	399621	50.000
15)\$Toluene-d8	(3)	4.287	98	402470	49.019
19)*Chlorobenzene-d5	(3)	4.860	117	318380	50.000
25)\$4-Bromofluorobenzene	(3)	5.324	95	149812	46.204
28)*1,4-Dichlorobenzene-d4	(4)	5.811	152	174521	50.000

* = Compound is an internal standard.

\$ = Compound is a surrogate standard.

page 1 of 1

Digitally signed by Alexander D. Sechrist
 on 06/11/2019 at 14:47.

Target 3.5 esignature user ID: ads07818

Volatiles by GC-GRO Data

Case Narrative/Conformance Summary

Volatiles by GC-GRO

Case Narrative/Conformance Summary

CLIENT: ARCADIS U.S., Inc.
SDG: LSV64

Volatiles by GC

Fraction: Volatiles by GC-GRO

Sample #	Client ID	Matrix		DF	Comments
		Liquid	Solid		
1068869	QA-O-190528	X		1	Equipment Blank
1068870	MW-4-W-190528	X		1	
1068871	MW-7-W-190528	X		1	
1068876	MW-11-W-190528	X		1	
1068877	MW-10-W-190528	X		1	
1068878	BD-1-WD-190528	X		1	Field Duplicate Sample
1068879	QA-T-190422	X		1	Trip Blank

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

MS/MSD

Matrix QC may not be included if site-specific QC were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, laboratory spike data (LCS) are provided.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

Case Narrative/Conformance Summary

CLIENT: ARCADIS U.S., Inc.
SDG: LSV64

Volatiles by GC

Fraction: Volatiles by GC-GRO

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
+MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

Quality Control and Calibration Summary Forms

Volatiles by GC-GRO

Quality Control Reference List
Volatiles by GC

CLIENT: ARCADIS U.S., Inc.
SDG: LSV64

Fraction: Volatiles by GC-GRO

Analysis	Batch Number	Sample Number	Analysis Date
TPH-GRO AK water C6-C10	19151A20A	BLKUJ	05/31/2019 20:35
		LCSHP	05/31/2019 21:03
		LCSDTN	05/31/2019 21:31
		1068869	05/31/2019 21:59
		1068870	05/31/2019 22:55
		1068871	05/31/2019 23:22
		1068876	06/01/2019 00:18
		1068877	06/01/2019 00:46
		1068878	06/01/2019 01:13
		1068879	05/31/2019 22:27

Fraction: Volatiles by GC-GRO

19151A20A / BLKUJ Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
TPH-GRO AK water C6-C10	05/31/19	N.D.	mg/l	0.014	0.10

Fraction: Volatiles by GC-GRO

19151A20A Sample	Trifluorotoluene-F	
	Spike Added	0.02999999 mg/l
	% Recovery	Limits
BLKUJ	90	60 - 120
LCSHP	97	60 - 120
LCSDTN	98	60 - 120
1068869	84	60 - 120
1068870	91	60 - 120
1068871	93	60 - 120
1068876	86	60 - 120
1068877	88	60 - 120
1068878	89	60 - 120
1068879	94	60 - 120

SDG: LSV64
Matrix: LIQUID

Volatiles by GC
Fraction: Volatiles by GC-GRO

LCS: LCSHP LCSD: LCSDTN Analyte	Batch: 19151A20A (Sample number(s): 1068869-1068871, 1068876-1068879)							
	Spike Added mg/l	LCS Conc mg/l	LCSD Conc mg/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
TPH-GRO AK water C6-C10	1.10	1.20	1.27	109	115	60-120	6	20

Fraction: Volatiles by GC-GRO

01438: TPH-GRO AK water C6-C10 Analyte Name	Default MDL	Default LOQ	Units
TPH-GRO AK water C6-C10	0.014	0.10	mg/l

6D

INITIAL CALIBRATION - RETENTION TIME SUMMARY

Lab Name: Lancaster Laboratories

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.:

Instrument: 11002F

Calibration File: [PT1]ALK20019

GC Column (1): J&W DB-VRX ID: 75 (mm)

ICAL Date(s) Analyzed: 1/19/2018 1/19/2018

COMPOUND	RT OF STANDARDS						MIDPOINT RT	RT WINDOW	
	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6		FROM	TO
Trifluorotoluene-F	2.91	2.91	2.91	2.91	2.91	2.91	2.91	2.88	2.94

6E

INITIAL CALIBRATION - CALIBRATION FACTOR SUMMARY

Lab Name: Lancaster Laboratories

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.:

Instrument: 11002F

Calibration File: [PT1]ALK20019

GC Column (1) : J&W DB-VRX ID: 75 (mm)

ICAL Date(s) Analyzed: 1/19/2018 1/19/2018

COMPOUND	CALIBRATION FACTORS						MEAN	%RSD
	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5	LEVEL 6		
Trifluorotoluene-F	3.64E+03	3.91E+03	3.85E+03	3.86E+03	4.01E+03		3.85E+03	4

Average % RSD: 4

6F

INITIAL CALIBRATION OF MULTICOMPONENT ANALYTES

Lab Name: Lancaster Laboratories

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.:

Instrument: 11002F

Calibration File: [PT1]ALK20019

GC Column (1) : J&W DB-VRX ID: 75 (mm)

ICAL Date(s) Analyzed: 1/19/2018 1/19/2018

COMPOUND	PEAK	RT	RT WINDOW		CALIBRATION FACTOR	AVERAGE CF	LEVEL	AMOUNT	PEAK AREA	%RSD
			FROM	TO						
GRO	1		1.63	5.14	2611	2597	1	44	114893	2.86
					2631		2	110	289460	
					2529		3	550	1391061	
					2537		4	1100	2790369	
					2552		5	2750	7017771	
					2723		6	5500	14977560	

Approved: *MMS 8358*
1-23-18

Chrom Perfect Calibration File

File Name: I:\Cal\20\PT1\ALK20019.cal
Version: 9

Creator: MDB02001
Description: TPH GRO (Northern CA)
Reason for change:

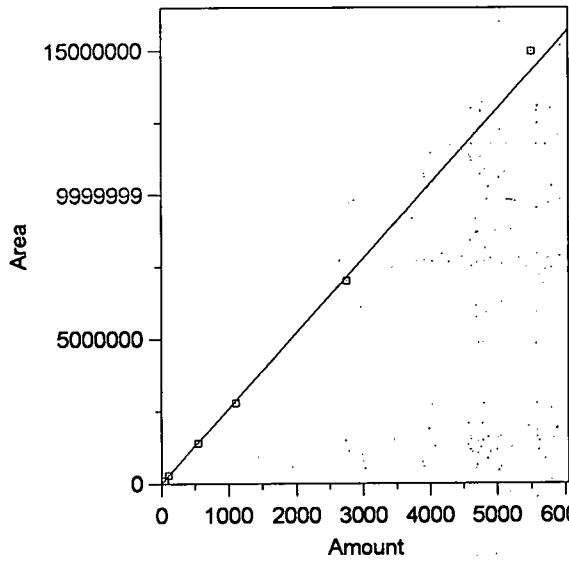
External standard calibration

Standard injection volume: 1
Standard sample weight: 1
Area reject threshold: 0
Reference peak area reject threshold: 0
Amount units: PPB
No default component

Method of calculating data point averages: Current update equal to cal data
Print calibration update report

All levels are normal data points.

1 GRO



Expected retention time: 2 minutes
 Search window: 0 minutes
 No retention time reference component
 Group number: 3
 GRO
 High alarm limit: 0
 Low alarm limit: 0
 Component constant: 550

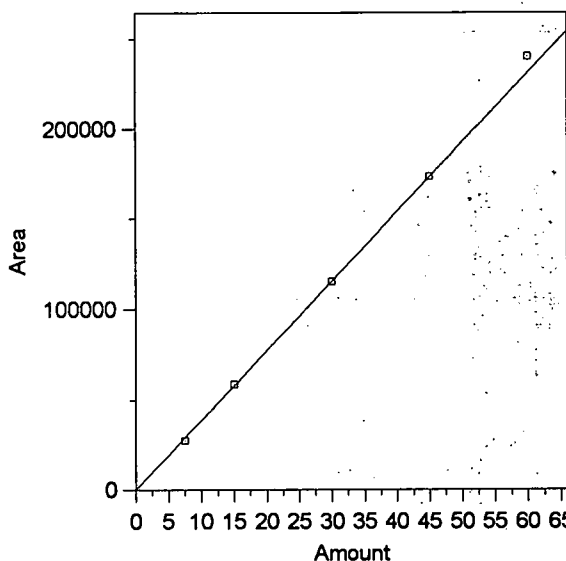
Single peak quantification by area

$Y = 2597.278 X + 0$

Average CF fit with equal weighting, forced to origin
 Coefficient of determination: 0.9969752
 Average error: 2.233%
 Average CF: 2597.278
 RSD: 2.859%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	44	114893	2611.205	0.536	Manual	1/19/2018 7:49:10 PM
2	110	289460	2631.455	1.316	Manual	1/19/2018 7:49:17 PM
3	550	1391061	2529.202	-2.621	Manual	1/19/2018 7:49:25 PM
4	1100	2790369	2536.699	-2.332	Manual	1/19/2018 7:49:36 PM
5	2750	7017771	2551.917	-1.747	Manual	1/19/2018 7:49:45 PM
6	5500	1.497756E+07	2723.193	4.848	Y:\Active\CP20\2018019.0027.BND	1/19/2018 7:45:47 PM

2 SURR-TFT-F



Expected retention time: 2.911 minutes
 Search window: 0.03 minutes
 No retention time reference component
 Group number: 1
 SURR-TFT-F
 High alarm limit: 0
 Low alarm limit: 0
 Component constant: 30

Single peak quantification by area

$Y = 3853.917 X + 0$

Average CF fit with equal weighting, forced to origin
 Coefficient of determination: 0.9969668
 Average error: 2.242%
 Average CF: 3853.917
 RSD: 3.508%

Level	Amount	Response	Cal Factor	Error, %	Source	Date and time
1	7.5	27304.12	3640.549	-5.536	Y:\Active\CP20\2018019.0017.BND	1/19/2018 7:45:33 PM
2	15	58693.23	3912.882	1.530	Y:\Active\CP20\2018019.0019.BND	1/19/2018 7:45:36 PM
3	30	115538.5	3851.283	-0.068	Y:\Active\CP20\2018019.0021.BND	1/19/2018 7:45:39 PM
4	45	173506	3855.689	0.046	Y:\Active\CP20\2018019.0023.BND	1/19/2018 7:45:41 PM
5	60	240550.8	4009.18	4.029	Y:\Active\CP20\2018019.0025.BND	1/19/2018 7:45:44 PM
6	(-1)	(42208)	--	--	Manual	5/13/2015 2:40:57 PM

CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.:

Instrument: 11002F

Detector: FID

Date Analyzed: 01/19/18

GC Column (1): J&W DB-VRX ID: 75 (mm)

Time Analyzed: 4:16

Lab File ID: 2018019.0035.RAW

Initial Calibration:

Lab Standard ID: GICVXHD

Init. Calib Date(s): 01/19/18

01/19/18

Calibration: [PT1]ALK20019

Method: ALASKA

COMPOUND	RT	RT WINDOW FROM TO		CALC AMOUNT	NOM AMOUNT	%D	Limits
Trifluorotoluene-F	2.91	2.88	2.94	28.55	30.18	-5	-43 to +46
GRO		1.63	5.14	1046.33	1100.94	-5	-25 to +25

Compounds 2

Average of %D:

5

7E

CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.:

Instrument: 11002F

Detector: FID

Date Analyzed: 05/31/19

GC Column (1): J&W DB-VRX ID: 75 (mm)

Time Analyzed: 20:08

Lab File ID: 2019151.0007.RAW

Initial Calibration: [PT1]ALK20019

Lab Standard ID: WG20XKD

Init. Calib Date(s): 01/19/18 01/19/18

Calibration: [PT1]ALK20019

Method: ALASKA

COMPOUND	RT	RT WINDOW		CALC AMOUNT	NOM AMOUNT	%D	Limits
		FROM	TO				
Trifluorotoluene-F	2.92	2.88	2.94	29.38	30.28	-3	-43 to +46
GRO		1.62	5.13	1319.86	1100.90	20	-25 to +25

Compounds 2

Average of %D: 12

7E

CALIBRATION VERIFICATION SUMMARY

Lab Name: Lancaster Laboratories

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.:

Instrument: 11002F

Detector: FID

Date Analyzed: 06/01/19

GC Column (1): J&W DB-VRX ID: 75 (mm)

Time Analyzed: 1:41

Lab File ID: 2019151.0031.RAW

Initial Calibration: [PT1]ALK20019

Lab Standard ID: WG20XKE

Init. Calib Date(s): 01/19/18 01/19/18

Calibration: [PT1]ALK20019

Method: ALASKA

COMPOUND	RT	RT WINDOW		CALC AMOUNT	NOM AMOUNT	%D	Limits
		FROM	TO				
Trifluorotoluene-F	2.92	2.88	2.94	29.44	30.28	-3	-43 to +46
GRO		1.62	5.13	1248.38	1100.90	13	-25 to +25

Compounds 2

Average of %D: 8

8D

ANALYTICAL SEQUENCE

Sequence: 2018019

Lab Name: Lancaster laboratories

Contract:

Lab Code:

Case No.:

SAS No:

SDG No.:

GC Column: JW DB-VRX

ID: 75

Instrument: 11002F

THIS ANALYTICAL SEQUENCE OF BLANKS, SAMPLES AND STANDARDS IS GIVEN BELOW:

	Sample Code No.	Lab Sample ID	Date Analyzed	Time Analyzed	Calibration File	TFTF
001	AA	IBLK	01/18/2018	20:31:30	[PT1]8015B20019	2.92
002	AA	IBLK	01/18/2018	20:45:03	[PT2]8015B20019	2.91
003	AA	IBLK	01/18/2018	20:58:42	[PT1]8015B20019	2.91
004	AA	IBLK	01/18/2018	21:12:27	[PT2]8015B20019	2.91
005	AA	IBLK	01/18/2018	21:26:07	[PT1]8015B20019	2.92
006	AA	IBLK	01/18/2018	21:39:49	[PT2]8015B20019	2.90
007	AA	IBLK	01/18/2018	21:53:29	[PT1]8015B20019	2.91
008	AA	IBLK	01/18/2018	22:07:10	[PT2]8015B20019	2.91
009	AA	IBLK	01/18/2018	22:20:51	[PT1]8015B20019	2.91
010	AA	IBLK	01/18/2018	22:34:33	[PT2]8015B20019	2.91
011	AA	WGRTX1825A	01/18/2018	22:48:14	[PT1]8015B20019	2.92
012	AA	WGRTX1825A	01/18/2018	23:02:00	[PT2]8015B20019	2.90
013	AA	IBLK	01/18/2018	23:15:40	[PT1]8015B20019	
014	AA	IBLK	01/18/2018	23:29:23	[PT2]8015B20019	2.91
015	AA	IBLK	01/18/2018	23:43:02	[PT1]8015B20019	
016	AA	IBLK	01/18/2018	23:56:44	[PT2]8015B20019	2.90
017	WGRO1AA	WGRO11825B	01/19/2018	00:10:25	[PT1]8015B20019	2.91
018	WGRO1AA	WGRO11825B	01/19/2018	00:24:07	[PT2]8015B20019	2.90
019	WGRO2AA	WGRO21825B	01/19/2018	00:37:47	[PT1]8015B20019	2.91

ICAL Dates

ICAL RT QC Limits

[PT1]8015B20019	01/19/2018 - 01/19/2018	TFTF = Trifluorotoluene-F	2.91	(2.88 - 2.94 Minutes)
[PT1]ALK20019	01/19/2018 - 01/19/2018	TFTF = Trifluorotoluene-F	2.91	(2.88 - 2.94 Minutes)
[PT1]GX20019	01/19/2018 - 01/19/2018	TFTF = Trifluorotoluene-F	2.91	(2.88 - 2.94 Minutes)
[PT1]LUFT20019	01/19/2018 - 01/19/2018	TFTF = Trifluorotoluene-F	2.91	(2.88 - 2.94 Minutes)
[PT1]TPH20019	01/19/2018 - 01/19/2018	TFTF = Trifluorotoluene-F	2.91	(2.88 - 2.94 Minutes)
[PT2]8015B20019	01/19/2018 - 01/19/2018	TFTF = Trifluorotoluene-F	2.9	(2.87 - 2.93 Minutes)
[PT2]LUFT20019	01/19/2018 - 01/19/2018	TFTF = Trifluorotoluene-F	2.9	(2.85 - 2.95 Minutes)

8D

ANALYTICAL SEQUENCE

Sequence: 2018019

Lab Name: Lancaster laboratories

Contract:

Lab Code:

Case No.:

SAS No:

SDG No.:

GC Column: JW DB-VRX

ID: 75

Instrument: 11002F

THIS ANALYTICAL SEQUENCE OF BLANKS, SAMPLES AND STANDARDS IS GIVEN BELOW:

	Sample Code No.	Lab Sample ID	Date Analyzed	Time Analyzed	Calibration File	TFTF
020	WGRO2AA	WGRO21825B	01/19/2018	00:51:31	[PT2]8015B20019	2.90
021	WGRO3AA	WGRO31825B	01/19/2018	01:05:12	[PT1]8015B20019	2.91
022	WGRO3AA	WGRO31825B	01/19/2018	01:18:54	[PT2]8015B20019	2.91
023	WGRO4AA	WGRO41825B	01/19/2018	01:32:35	[PT1]8015B20019	2.91
024	WGRO4AA	WGRO41825B	01/19/2018	01:46:17	[PT2]8015B20019	2.90
025	WGRO5AA	WGRO51825B	01/19/2018	01:59:56	[PT1]8015B20019	2.91
026	WGRO5AA	WGRO51825B	01/19/2018	02:13:39	[PT2]8015B20019	2.90
027	WGRO6AA	WGRO61825B	01/19/2018	02:27:19	[PT1]8015B20019	2.91
028	WGRO6AA	WGRO61825B	01/19/2018	02:41:01	[PT2]8015B20019	2.90
029	AA	IBLK	01/19/2018	02:54:40	[PT1]8015B20019	2.91
030	AA	IBLK	01/19/2018	03:08:20	[PT2]8015B20019	2.91
031	AA	IBLK	01/19/2018	03:21:58	[PT1]8015B20019	2.91
032	AA	IBLK	01/19/2018	03:35:38	[PT2]8015B20019	2.91
033	GMDLXLC	GMDLX1825B	01/19/2018	03:49:18	[PT1]8015B20019	2.91
034	GMDLXLD	GMDLX1825B	01/19/2018	04:03:00	[PT2]8015B20019	2.90
035	GICVXHD	GICVX1825B	01/19/2018	04:16:35	[PT1]8015B20019	2.91
036	GICVXHE	GICVX1825B	01/19/2018	04:30:13	[PT2]8015B20019	2.91

ICAL Dates

[PT1]8015B20019	01/19/2018 - 01/19/2018
[PT1]ALK20019	01/19/2018 - 01/19/2018
[PT1]GX20019	01/19/2018 - 01/19/2018
[PT1]LUFT20019	01/19/2018 - 01/19/2018
[PT1]TPH20019	01/19/2018 - 01/19/2018
[PT2]8015B20019	01/19/2018 - 01/19/2018
[PT2]LUFT20019	01/19/2018 - 01/19/2018

ICAL RT QC Limits

TFTF = Trifluorotoluene-F	2.91	(2.88 - 2.94 Minutes)
TFTF = Trifluorotoluene-F	2.91	(2.88 - 2.94 Minutes)
TFTF = Trifluorotoluene-F	2.91	(2.88 - 2.94 Minutes)
TFTF = Trifluorotoluene-F	2.91	(2.88 - 2.94 Minutes)
TFTF = Trifluorotoluene-F	2.91	(2.88 - 2.94 Minutes)
TFTF = Trifluorotoluene-F	2.9	(2.87 - 2.93 Minutes)
TFTF = Trifluorotoluene-F	2.9	(2.85 - 2.95 Minutes)

8D

ANALYTICAL SEQUENCE

Sequence: 2019151

Lab Name: Lancaster laboratories

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.:

GC Column: JW DB-VRXID: 75Instrument: 11002F

THIS ANALYTICAL SEQUENCE OF BLANKS, SAMPLES AND STANDARDS IS GIVEN BELOW:

	Sample Code No.	Lab Sample ID	Date Analyzed	Time Analyzed	Calibration File
001	AA	IBLK	05/31/2019	18:45:12	[PT1]ALK20019
002	AA	IBLK	05/31/2019	18:58:53	[PT2]8015B20019
003	AA	IBLK	05/31/2019	19:12:42	[PT1]ALK20019
004	AA	IBLK	05/31/2019	19:26:27	[PT2]8015B20019
005	AA	WGRTX1925K	05/31/2019	19:40:17	[PT1]ALK20019
006	AA	WGRTX1925K	05/31/2019	19:54:11	[PT2]8015B20019
007	WG20XKD	WG20X1925CQ	05/31/2019	20:08:08	[PT1]ALK20019
008	WG20XKF	WG20X1925CQ	05/31/2019	20:22:04	[PT2]8015B20019
009	BLKUJ	BLANKA	05/31/2019	20:35:53	[PT1]ALK20019
010	BLKUK	BLANKA	05/31/2019	20:49:48	[PT2]8015B20019
011	LCSHP	LCSA	05/31/2019	21:03:38	[PT1]ALK20019
012	LCSHQ	LCSA	05/31/2019	21:17:34	[PT2]8015B20019
013	LCSDTN	LCSDA	05/31/2019	21:31:28	[PT1]ALK20019
014	A8201	1068554	05/31/2019	21:45:26	[PT2]8015B20019
015	64L01	1068869	05/31/2019	21:59:22	[PT1]ALK20019
016	RIWM2	1068371	05/31/2019	22:13:21	[PT2]8015B20019
017	64L09	1068879	05/31/2019	22:27:18	[PT1]ALK20019
018	RIWM2MS	1068371	05/31/2019	22:41:09	[PT2]8015B20019
019	64L02	1068870	05/31/2019	22:55:02	[PT1]ALK20019
020	RIWM2MSD	1068371	05/31/2019	23:08:57	[PT2]8015B20019
021	64L03	1068871	05/31/2019	23:22:50	[PT1]ALK20019
022	RIWM4	1068372	05/31/2019	23:36:47	[PT2]8015B20019
023	AA	IBLK	05/31/2019	23:50:39	[PT1]ALK20019
024	RIWDF	1068373	06/01/2019	00:04:31	[PT2]8015B20019
025	64L06	1068876	06/01/2019	00:18:25	[PT1]ALK20019
026	AA	IBLK	06/01/2019	00:32:18	[PT2]8015B20019
027	64L07	1068877	06/01/2019	00:46:08	[PT1]ALK20019
028	28837	1068773	06/01/2019	00:59:59	[PT2]8015B20019
029	64L08	1068878	06/01/2019	01:13:48	[PT1]ALK20019
030	WG20XKG	WG20X1925CQ	06/01/2019	01:27:41	[PT2]8015B20019
031	WG20XKE	WG20X1925CQ	06/01/2019	01:41:33	[PT1]ALK20019
032	AA	IBLK	06/01/2019	01:55:25	[PT2]8015B20019

Sample Data

Volatiles by GC-GRO

Eurofins Lancaster Laboratories-Range Data Summary

Sample Name: 1068869 64L01 **Sample ID:** AA **Batchnumber:** 19151A20A
Sample Amount: 1. **Total Volume:** 1. ml **Analyst:** 2001 **SDG:** LSV64 **State:** AK
Analyses: 01438

Injection Summary

Injected on : 5/31/2019 21:59:22
Instrument : CP20--11002F
Result file : 2019151.0015.RAW
Calibration files : [PT1]ALK20019.cal
Method files : [PT1]ALK20019.MET
Setting : [PT1]ALK20019

Surrogate Recoveries

SURR-TFT-F 84% (60-120) Conc.: 25.158773

Range	Retention Times	Area	Amount	LOQ	MDL	Flags	Units
<input type="checkbox"/> SURR-TFT-F	2.91 (2.88 - 2.94)	96960	25.1588				ppb
<input type="checkbox"/> SURR-1C3FB	4.53 - 4.60	0	0.0000				ppb
<input type="checkbox"/> GRO	1.62 - 5.13	133063	13.9017	<100	<14		ppb

Comments: _____

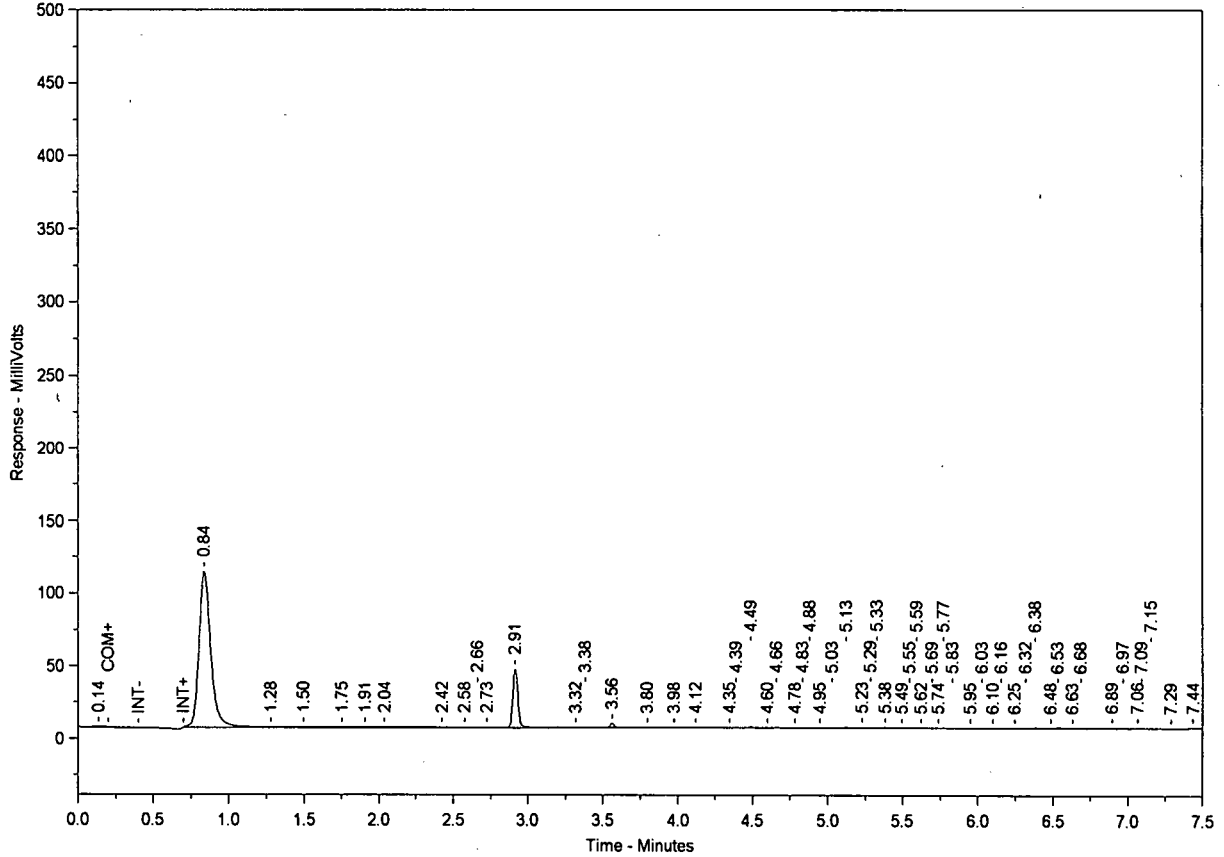
Reviewed by: MOB001
Date: 6-5-19

Verified by: MS8358
Date: 6-5-19

Chrom Perfect Chromatogram Report

1068869 AA64L01 T 19151A20A 01438
 CP20 11002F 2019151.0015.RAW
 Date Acquired: 5/31/2019 9:59:22 PM

\\US19FIVP003\ENV\CHROMPERFECT-DATA\DEPT-25\ACTIVE\CP20\20191068869 AA64L01 T 19151A20A 01438



1068869 AA64L01 T 19151A20A 01438
 Date Acquired: 5/31/2019 9:59:22 PM Instrument: CP20 11002F
 Raw File: 2019151.0015.RAW Units: ug/L
 Analyst: Method File: [PT1]ALK20019.MET
 Dilution Factor: 1 Column: 30 M DB-VRX x 0.25mm x 1.40 um

Threshold: 1

Peak Table using calibration : [PT1]ALK20019.cal- Version 12
 Number of Compounds: 2

Component Name	Ret. Time	Exp. Ret Time	Amount ug/L	Peak Area (A)*	Peak Height (H)
SURR-TFT-F	2.914	2.907	25.159	96960	40742.88

RT Start	RT Stop	Unadj GRO	Total Surr.	Adj. GRO
1.62	5.13	133063	96960	36103

Surrogate Percent Recovery: 83.86258

Total GRO Area: 36102.80
 Total GRO Concentration: 13.90 ug/L

File: \\US19FIVP003\ENV\CHROMPERFECT-DATA\DEPT-25\ACTIVE\CP20\2019151.0015.RAW

Eurofins Lancaster Laboratories-Range Data Summary

Sample Name: 1068870 64L02 **Sample ID:** AA **Batchnumber:** 19151A20A
Sample Amount: 1. **Total Volume:** 1. ml **Analyst:** 2001 **SDG:** LSV64 **State:** AK
Analyses: 01438

Injection Summary

Injected on : 5/31/2019 22:55:02
Instrument : CP20--11002F
Result file : 2019151.0019.RAW
Calibration files : [PT1]ALK20019.cal
Method files : [PT1]ALK20019.MET
Setting : [PT1]ALK20019

Surrogate Recoveries

SURR-TFT-F 91% (60-120) Conc.: 27.305138

Range	Retention Times	Area	Amount	LOQ	MDL	Flags	Units
<input type="checkbox"/> SURR-TFT-F	2.92 (2.88 - 2.94)	105232	27.3051				ppb
<input type="checkbox"/> SURR-1C3FB	4.53 - 4.60	0	0.0000				ppb
<input type="checkbox"/> GRO	1.62 - 5.13	1177886	413.0358	100	14		ppb

Comments: _____

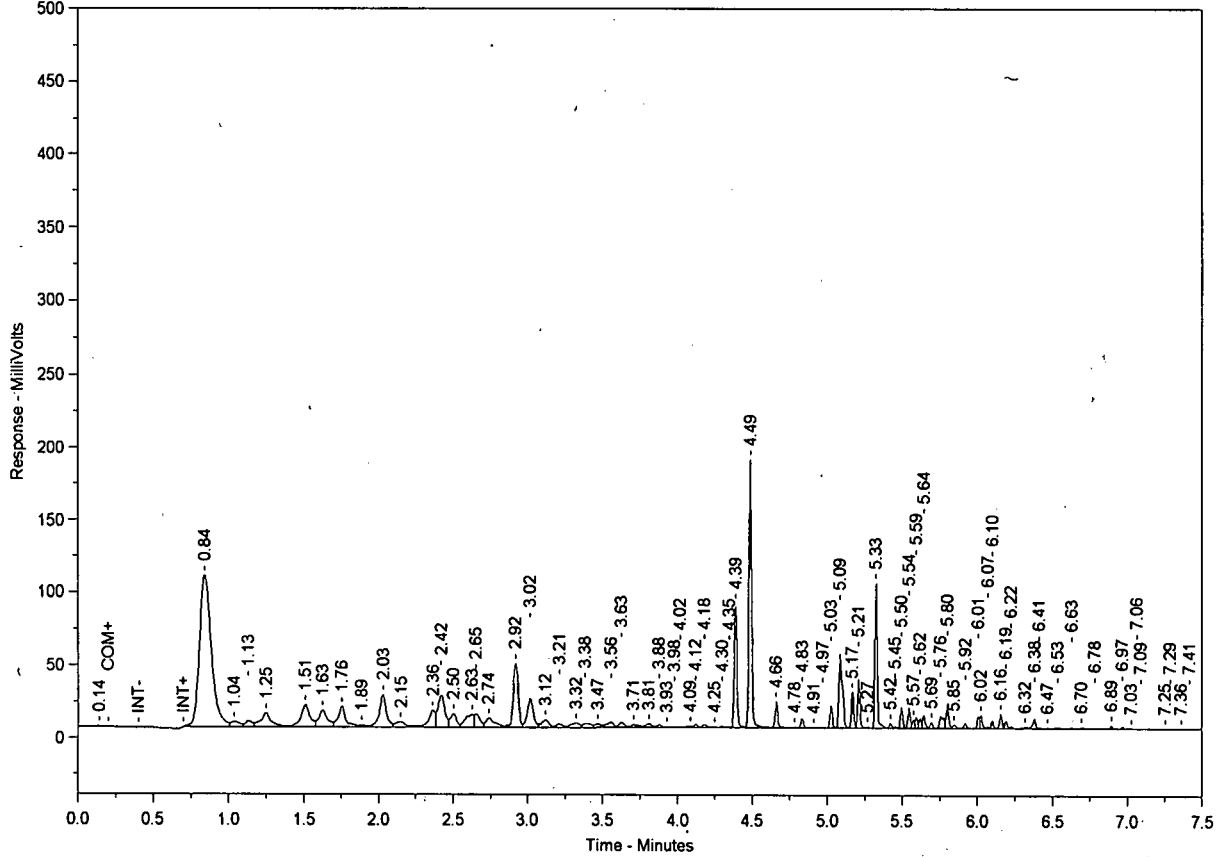
Reviewed by: M.D. B...
Date: 6-5-19

Verified by: M.S. 8358
Date: 6-5-19

Chrom Perfect Chromatogram Report

1068870 AA64L02 T 19151A20A 01438
 CP20 11002F 2019151.0019.RAW
 Date Acquired: 5/31/2019 10:55:02 PM

\\US19FIVP003\ENV\CHROMPERFECT-DATA\DEPT-25\ACTIVE\CP20\20191068870 AA64L02 T 19151A20A 01438



1068870 AA64L02 T 19151A20A 01438
 Date Acquired: 5/31/2019 10:55:02 PM Instrument: CP20 11002F
 Raw File: 2019151.0019.RAW Units: ug/L
 Analyst: Method File: [PT1]ALK20019.MET
 Dilution Factor: 1 Column: 30 M DB-VRX x 0.25mm x 1.40 um

Threshold: 1

Peak Table using calibration : [PT1]ALK20019.cal- Version 12
 Number of Compounds: 2

Component Name	Ret. Time	Exp. Ret Time	Amount ug/L	Peak Area (A)*	Peak Height (H)
SURR-TFT-F	2.918	2.907	27.305	105232	44682.97

RT Start	RT Stop	Unadj GRO	Total Surr.	Adj. GRO
1.62	5.13	1177885	105232	1072654

Surrogate Percent Recovery: 91.01713

Total GRO Area: 1072654.00
 Total GRO Concentration: 412.99 ug/L

File: \\US19FIVP003\ENV\CHROMPERFECT-DATA\DEPT-25\ACTIVE\CP20\2019151.0019.RAW

Eurofins Lancaster Laboratories-Range Data Summary

Sample Name: 1068871 64L03 **Sample ID:** AA **Batchnumber:** 19151A20A
Sample Amount: 1. **Total Volume:** 1. ml **Analyst:** 2001 **SDG:** LSV64 **State:** AK
Analyses: 01438

Injection Summary

Injected on : 5/31/2019 23:22:50
Instrument : CP20--11002F
Result file : 2019151.0021.RAW
Calibration files : [PT1]ALK20019.cal
Method files : [PT1]ALK20019.MET
Setting : [PT1]ALK20019

Surrogate Recoveries

SURR-TFT-F 93% (60-120) Conc.: 27.957726

Range	Retention Times	Area	Amount	LOQ	MDL	Flags	Units
<input type="checkbox"/> SURR-TFT-F	2.92 (2.88 - 2.94)	107747	27.9577	---	---	---	ppb
<input type="checkbox"/> SURR-1C3FB	4.53 - 4.60	0	0.0000	---	---	---	ppb
<input type="checkbox"/> GRO	1.62 - 5.13	8361436	3178.1629	100	14	---	ppb

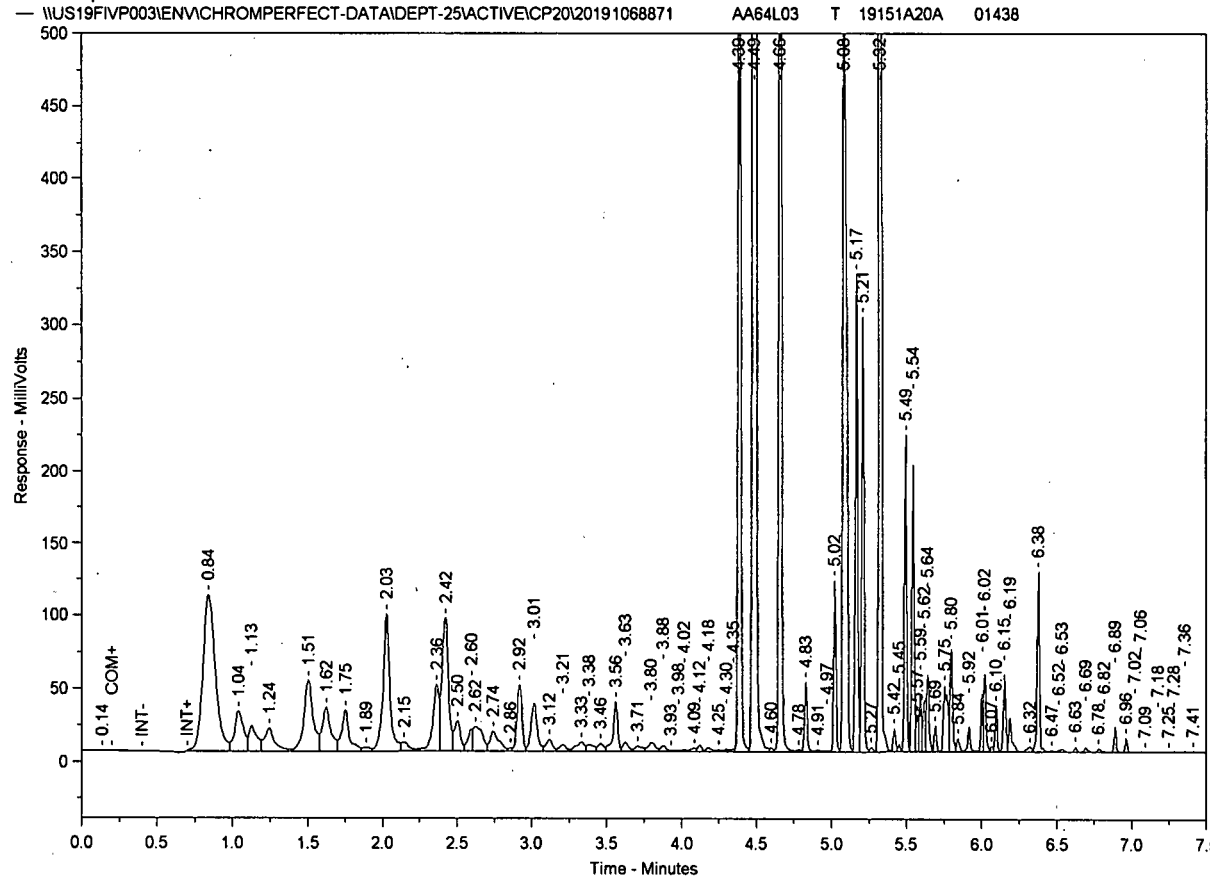
Comments: _____

Reviewed by: MOB2001
Date: 6-5-19

Verified by: MBS8358
Date: 6-5-19

Chrom Perfect Chromatogram Report

1068871 AA64L03 T 19151A20A 01438
 CP20 11002F 2019151.0021.RAW
 Date Acquired: 5/31/2019 11:22:50 PM



1068871 AA64L03 T 19151A20A 01438
 Date Acquired: 5/31/2019 11:22:50 PM Instrument: CP20 11002F
 Raw File: 2019151.0021.RAW Units: ug/L
 Analyst: Method File: [PT1]ALK20019.MET
 Dilution Factor: 1 Column: 30 M DB-VRX x 0.25mm x 1.40 um

Threshold: 1

Peak Table using calibration : [PT1]ALK20019.cal- Version 12
 Number of Compounds: 2

Component Name	Ret. Time	Exp. Ret Time	Amount ug/L	Peak Area (A)*	Peak Height (H)
SURR-TFT-F	2.917	2.907	27.958	107747	45975.09
RT Start	RT Stop	Unadj GRO	Total Surr.	Adj. GRO	
1.62	5.13	8361435	107747	8253688	

Surrogate Percent Recovery: 93.19241

Total GRO Area: 8253688.00
 Total GRO Concentration: 3177.82 ug/L

File: \\US19FIVP003\ENV\CHROMPERFECT-DATA\DEPT-25\ACTIVE\CP20\2019151.0021.RAW

Eurofins Lancaster Laboratories-Range Data Summary

Sample Name: 1068876 64L06 **Sample ID:** AA **Batchnumber:** 19151A20A
Sample Amount: 1. **Total Volume:** 1. ml **Analyst:** 2001 **SDG:** LSV64 **State:** AK
Analyses: 01438

Injection Summary

Injected on : 6/1/2019 00:18:25
Instrument : CP20--11002F
Result file : 2019151.0025.RAW
Calibration files : [PT1]ALK20019.cal
Method files : [PT1]ALK20019.MET
Setting : [PT1]ALK20019

Surrogate Recoveries

SURR-TFT-F 86% (60-120) Conc.: 25.715242

Range	Retention Times	Area	Amount	LOQ	MDL	Flags	Units
<input type="checkbox"/> SURR-TFT-F	2.91 (2.88 - 2.94)	99104	25.7152				ppb
<input type="checkbox"/> SURR-1C3FB	4.53 - 4.60	0	0.0000				ppb
<input type="checkbox"/> GRO	1.62 - 5.13	105726	2.5499	<100	<14		ppb

Comments: _____

Reviewed by: MOB2001
Date: 6-5-19

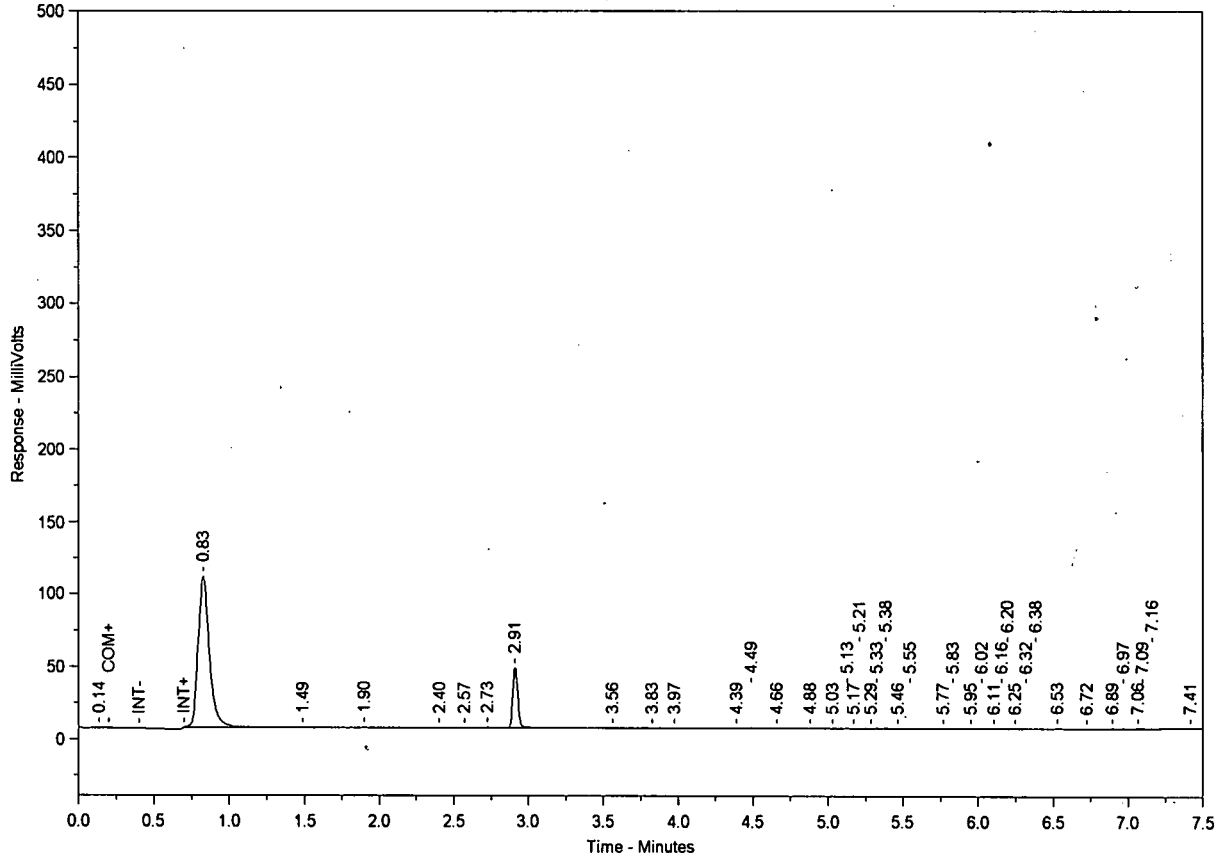
Verified by: MS8358
Date: 6-5-19

Chrom Perfect Chromatogram Report

1068876 AA64L06 T 19151A20A 01438
 CP20 11002F 2019151.0025.RAW

Date Acquired: 6/1/2019 12:18:25 AM

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1068876 AA64L06 T 19151A20A 01438
 Date Acquired: 6/1/2019 12:18:25 AM Instrument: CP20 11002F
 Raw File: 2019151.0025.RAW Units: ug/L
 Analyst: Method File: [PT1]ALK20019.MET
 Dilution Factor: 1 Column: 30 M DB-VRX x 0.25mm x 1.40 um

Threshold: 1

Peak Table using calibration : [PT1]ALK20019.cal- Version 12

Number of Compounds: 2

Component Name	Ret. Time	Exp. Ret Time	Amount ug/L	Peak Area (A)*	Peak Height (H)
SURR-TFT-F	2.911	2.907	25.715	99104	41843.99

RT Start	RT Stop	Unadj GRO	Total Surr.	Adj. GRO
1.62	5.13	105726	99104	6622

Surrogate Percent Recovery: 85.71748

Total GRO Area: 6621.98
 Total GRO Concentration: 2.55 ug/L

File: \\US19FIVP003\ENV\CHROMPERFECT-DATA\DEPT-25\ACTIVE\CP20\2019151.0025.RAW

Eurofins Lancaster Laboratories-Range Data Summary

Sample Name: 1068877 64L07 **Sample ID:** AA **Batchnumber:** 19151A20A
Sample Amount: 1. **Total Volume:** 1. ml **Analyst:** 2001 **SDG:** LSV64 **State:** AK
Analyses: 01438

Injection Summary

Injected on : 6/1/2019 00:46:08
Instrument : CP20--11002F
Result file : 2019151.0027.RAW
Calibration files : [PT1]ALK20019.cal
Method files : [PT1]ALK20019.MET
Setting : [PT1]ALK20019

Surrogate Recoveries

SURR-TFT-F 88% (60-120) Conc.: 26.404566

Range	Retention Times	Area	Amount	LOQ	MDL	Flags	Units
<input type="checkbox"/> SURR-TFT-F	2.92 (2.88 - 2.94)	101761	26.4046				ppb
<input type="checkbox"/> SURR-1C3FB	4.53 - 4.60	0	0.0000				ppb
<input type="checkbox"/> GRO	1.62 - 5.13	123798	8.4856	<100	<14		ppb

Comments: _____

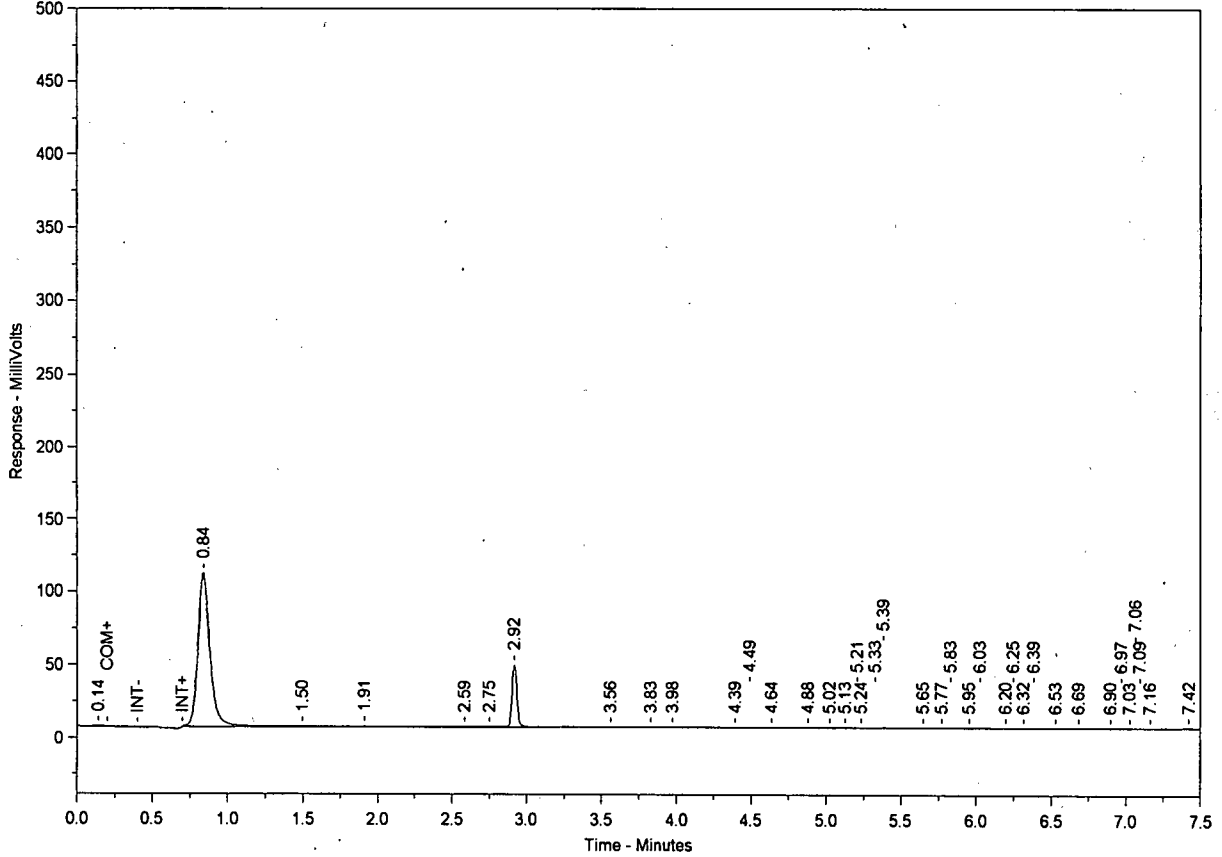
Reviewed by: MOB001
Date: 6/5/19

Verified by: MS8358
Date: 6/5/19

Chrom Perfect Chromatogram Report

1068877 AA64L07 T 19151A20A 01438
 CP20 11002F 2019151.0027.RAW
 Date Acquired: 6/1/2019 12:46:08 AM

\\US19FIVP003\ENV\CHROMPERFECT-DATA\DEPT-25\ACTIVE\CP20\20191068877 AA64L07 T 19151A20A 01438



1068877 AA64L07 T 19151A20A 01438
 Date Acquired: 6/1/2019 12:46:08 AM Instrument: CP20 11002F
 Raw File: 2019151.0027.RAW Units: ug/L
 Analyst: Method File: [PT1]ALK20019.MET
 Dilution Factor: 1 Column: 30 M DB-VRX x 0.25mm x 1.40 um

Threshold: 1

Peak Table using calibration : [PT1]ALK20019.cal- Version 12
 Number of Compounds: 2

Component Name	Ret. Time	Exp. Ret Time	Amount ug/L	Peak Area (A)*	Peak Height (H)
SURR-TFT-F	2.917	2.907	26.405	101761	42917.22

RT Start	RT Stop	Unadj GRO	Total Surr.	Adj. GRO
1.62	5.13	123798	101761	22037

Surrogate Percent Recovery: 88.01521

Total GRO Area: 22037.21
 Total GRO Concentration: 8.48 ug/L

File: \\US19FIVP003\ENV\CHROMPERFECT-DATA\DEPT-25\ACTIVE\CP20\2019151.0027.RAW

Eurofins Lancaster Laboratories-Range Data Summary

Sample Name: 1068878 64L08 **Sample ID:** AA **Batchnumber:** 19151A20A
Sample Amount: 1. **Total Volume:** 1. ml **Analyst:** 2001 **SDG:** LSV64 **State:** AK
Analyses: 01438

Injection Summary

Injected on : 6/1/2019 01:13:48
Instrument : CP20--11002F
Result file : 2019151.0029.RAW
Calibration files : [PT1]ALK20019.cal
Method files : [PT1]ALK20019.MET
Setting : [PT1]ALK20019

Surrogate Recoveries

SURR-TFT-F 89% (60-120) Conc.: 26.565933

Range	Retention Times	Area	Amount	LOQ	MDL	Flags	Units
<input type="checkbox"/> SURR-TFT-F	2.91 (2.88 - 2.94)	102383	26.5659				ppb
<input type="checkbox"/> SURR-1C3FB	4.53 - 4.60	0	0.0000				ppb
<input type="checkbox"/> GRO	1.62 - 5.13	618655	198.7956	100	14		ppb

Comments: _____

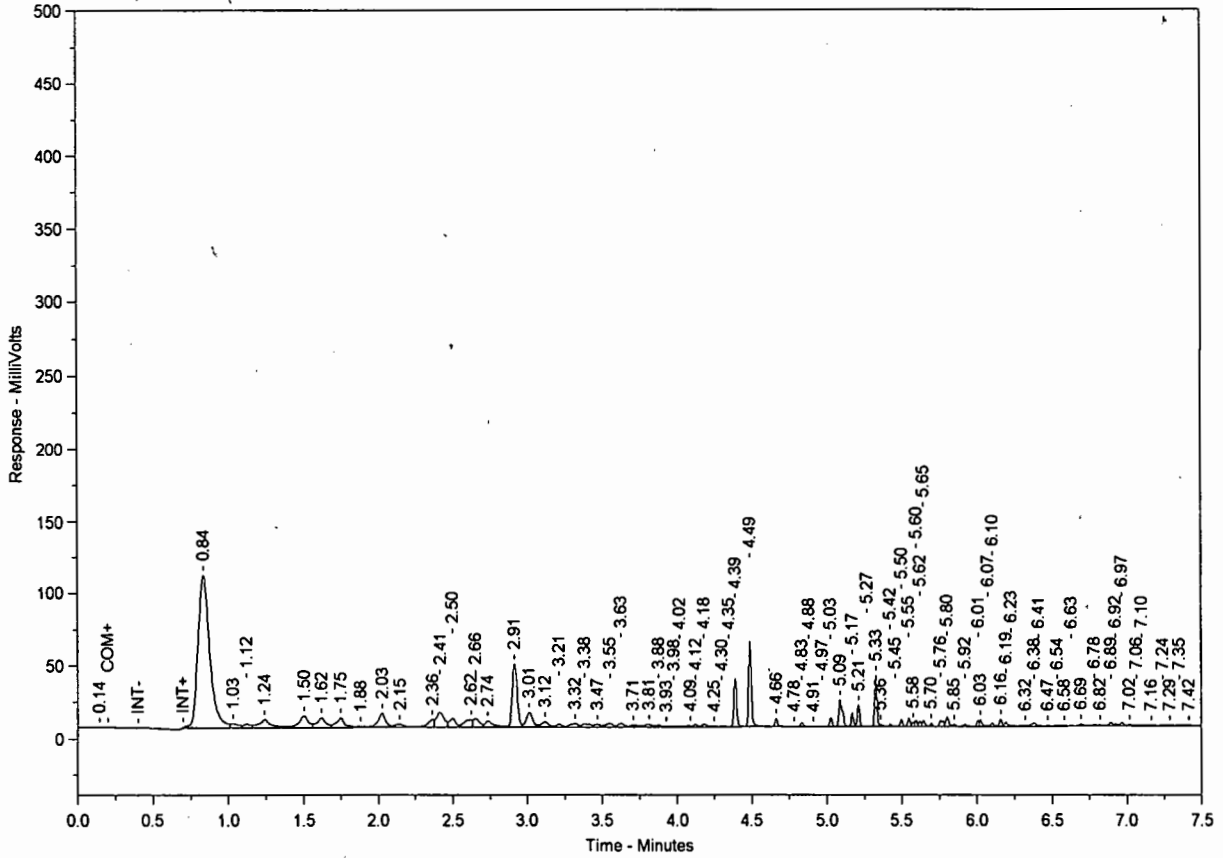
Reviewed by: MDB0001
Date: 6-5-19

Verified by: MS8358
Date: 6-5-19

Chrom Perfect Chromatogram Report

1068878 AA64L08 T 19151A20A 01438
 CP20 11002F 2019151.0029.RAW
 Date Acquired: 6/1/2019 1:13:48 AM

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1068878 AA64L08 T 19151A20A 01438
 Date Acquired: 6/1/2019 1:13:48 AM Instrument: CP20 11002F
 Raw File: 2019151.0029.RAW Units: ug/L
 Analyst: Method File: [PT1]ALK20019.MET
 Dilution Factor: 1 Column: 30 M DB-VRX x 0.25mm x 1.40 um

Threshold: 1

Peak Table using calibration : [PT1]ALK20019.cal- Version 12

Number of Compounds: 2

Component Name	Ret. Time	Exp. Ret Time	Amount ug/L	Peak Area (A)*	Peak Height (H)
SURR-TFT-F	2.914	2.907	26.566	102383	43811.17

RT Start	RT Stop	Unadj GRO	Total Surr.	Adj. GRO
1.62	5.13	618655	102383	516272

Surrogate Percent Recovery: 88.55312

Total GRO Area: 516272.10
 Total GRO Concentration: 198.77 ug/L

File: \\US19FIVP003\ENV\CHROMPERFECT-DATA\DEPT-25\ACTIVE\CP20\2019151.0029.RAW

Eurofins Lancaster Laboratories-Range Data Summary

Sample Name: 1068879 64L09 Sample ID: AA Batchnumber: 19151A20A
Sample Amount: 1. Total Volume: 1. ml Analyst: 2001 SDG: LSV64 State: AK
Analyses: 01438

Injection Summary

Injected on : 5/31/2019 22:27:18
Instrument : CP20--11002F
Result file : 2019151.0017.RAW
Calibration files : [PT1]ALK20019.cal
Method files : [PT1]ALK20019.MET
Setting : [PT1]ALK20019

Surrogate Recoveries

SURR-TFT-F 94% (60-120) Conc.: 28.114983

Range	Retention Times	Area	Amount	LOQ	MDL	Flags	Units
<input type="checkbox"/> SURR-TFT-F	2.92 (2.88 - 2.94)	108353	28.1150				ppb
<input type="checkbox"/> SURR-1C3FB	4.53 - 4.60	0	0.0000				ppb
<input type="checkbox"/> GRO	1.62 - 5.13	137830	11.3503	<100	<14		ppb

Comments: _____

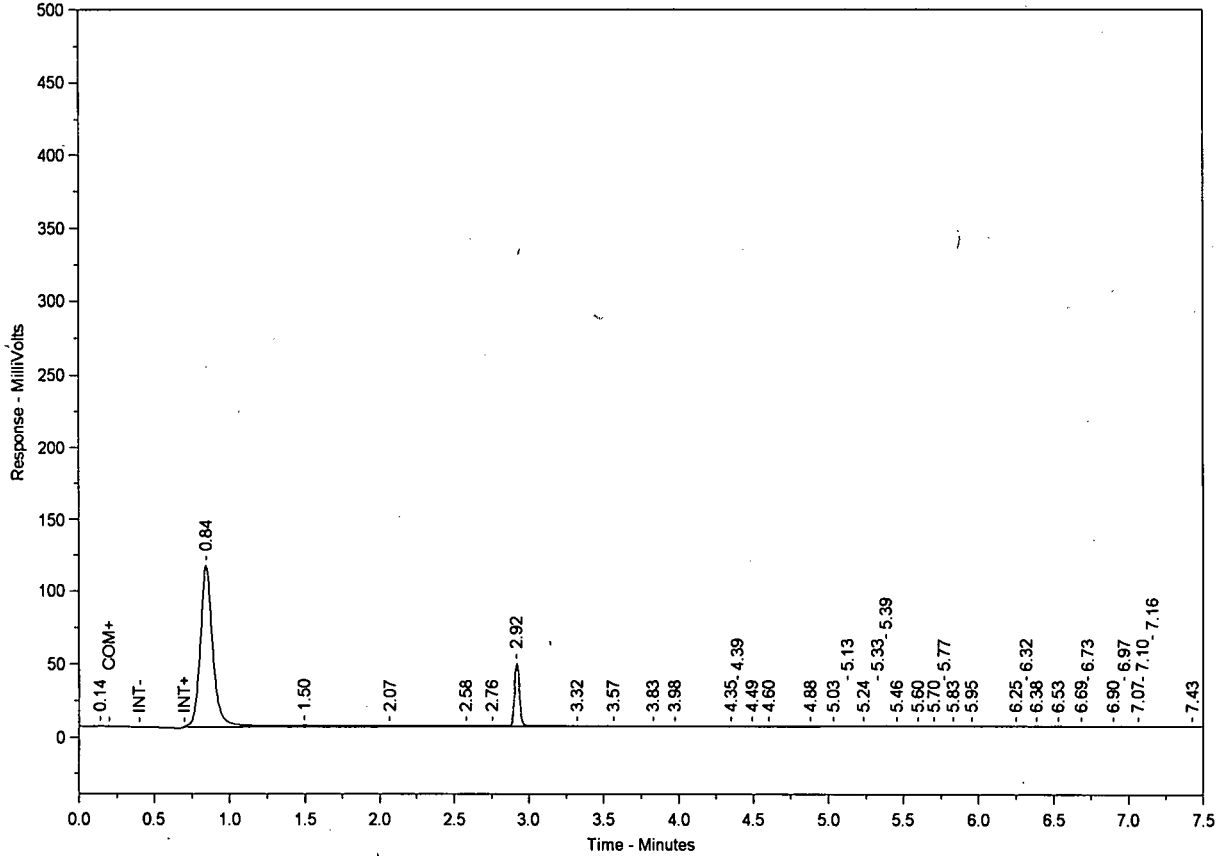
Reviewed by: MOB2001
Date: 6-5-19

Verified by: MS838
Date: 6-5-19

Chrom Perfect Chromatogram Report

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 CP20 11002F 2019151.0017.RAW
 Date Acquired: 5/31/2019 10:27:18 PM

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1068879 AA64L09 T 19151A20A 01438
 Date Acquired: 5/31/2019 10:27:18 PM Instrument: CP20 11002F
 Raw File: 2019151.0017.RAW Units: ug/L
 Analyst: Method File: [PT1]ALK20019.MET
 Dilution Factor: 1 Column: 30 M DB-VRX x 0.25mm x 1.40 um

Threshold: 1

Peak Table using calibration : [PT1]ALK20019.cal- Version 12
 Number of Compounds: 2

Component Name	Ret. Time	Exp. Ret Time	Amount ug/L	Peak Area (A)*	Peak Height (H)
SURR-TFT-F	2.919	2.907	28.115	108353	43598.28
	RT Start	RT Stop	Unadj GRO	Total Surr.	Adj. GRO
	1.62	5.13	137830	108353	29477

Surrogate Percent Recovery: 93.71661

Total GRO Area: 29476.71
 Total GRO Concentration: 11.35 ug/L

File: \\US19FIVP003\ENV\CHROMPERFECT-DATA\DEPT-25\ACTIVE\CP20\2019151.0017.RAW

Raw QC Data

Volatiles by GC-GRO

Eurofins Lancaster Laboratories-Range Data Summary

Sample Name: BLANKA BLKUJ **Sample ID:** AA **Batchnumber:** 19151A20A
Sample Amount: 1. **Total Volume:** 1. ml **Analyst:** 2001 **SDG:** **State:**
Analyses: 01438

Injection Summary

Injected on : 5/31/2019 20:35:53
Instrument : CP20--11002F
Result file : 2019151.0009.RAW
Calibration files : [PT1]ALK20019.cal
Method files : [PT1]ALK20019.MET
Setting : [PT1]ALK20019

Surrogate Recoveries

SURR-TFT-F 90% (60-120) Conc.: 26.865234

Range	Retention Times	Area	Amount	LOQ	MDL	Flags	Units
<input type="checkbox"/> SURR-TFT-F	2.91 (2.88 - 2.94)	103536	26.8652				ppb
<input type="checkbox"/> SURR-1C3FB	4.53 - 4.60	0	0.0000				ppb
<input checked="" type="checkbox"/> GRO	1.62 - 5.13	121465	6.9037	<100	<14		ppb

Comments: _____

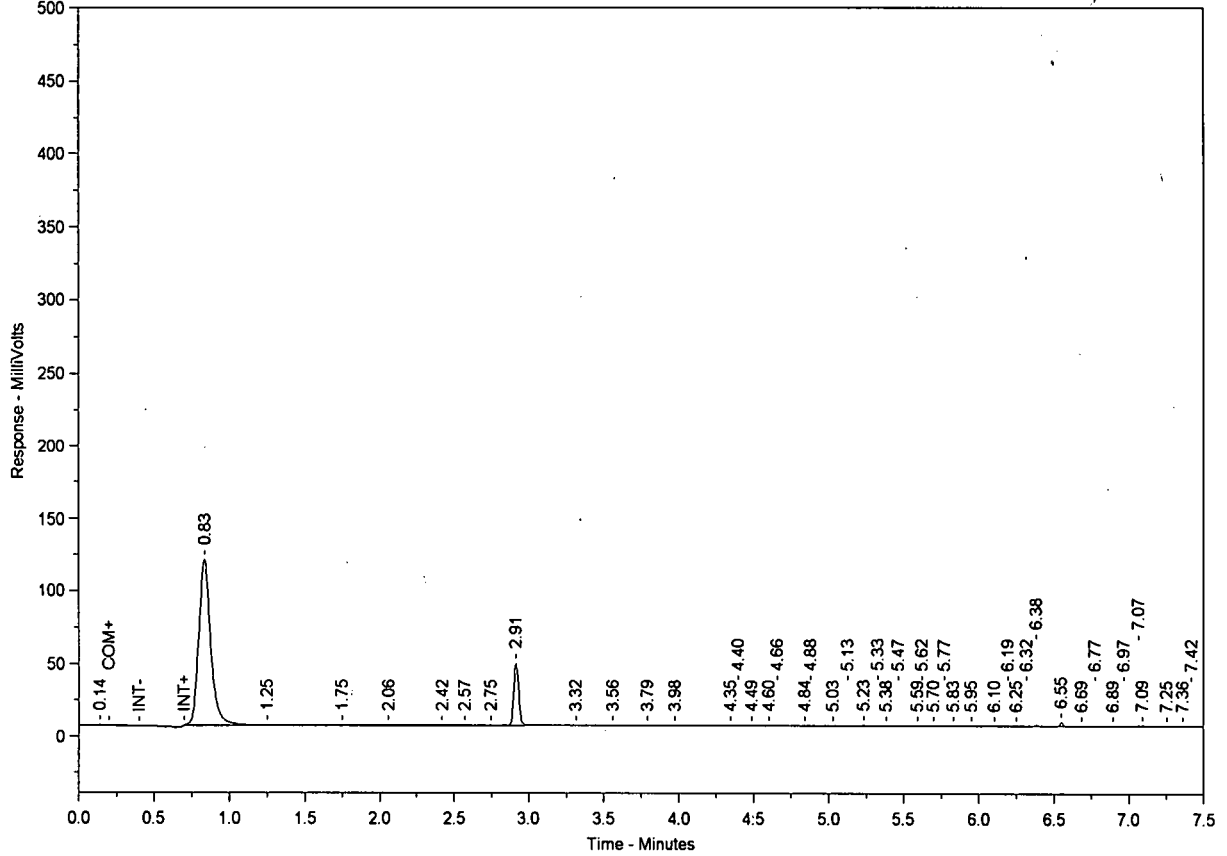
Reviewed by: MDB2001
Date: 6-5-19

Verified by: MS8358
Date: 6-5-19

Chrom Perfect Chromatogram Report

BLANKA AABLKUJ BLK 19151A20A 01438
 CP20 11002F 2019151.0009.RAW
 Date Acquired: 5/31/2019 8:35:53 PM

\\US19FIVP003\ENV\CHROMPERFECT-DATA\DEPT-25\ACTIVE\CP20\2019\BLANKA AABLKUJ BLK 19151A20A 01438



BLANKA AABLKUJ BLK 19151A20A 01438
 Date Acquired: 5/31/2019 8:35:53 PM Instrument: CP20 11002F
 Raw File: 2019151.0009.RAW Units: ug/L
 Analyst: Method File: [PT1]ALK20019.MET
 Dilution Factor: 1 Column: 30 M DB-VRX x 0.25mm x 1.40 um

Threshold: 1

Peak Table using calibration : [PT1]ALK20019.cal- Version 12
 Number of Compounds: 2

Component Name	Ret. Time	Exp. Ret Time	Amount ug/L	Peak Area (A)*	Peak Height (H)
SURR-TFT-F	2.913	2.907	26.865	103536	43335.79

RT Start	RT Stop	Unadj GRO	Total Surr.	Adj. GRO
1.62	5.13	121465	103536	17929

Surrogate Percent Recovery: 89.55078

Total GRO Area: 17928.83
 Total GRO Concentration: 6.90 ug/L

File: \\US19FIVP003\ENV\CHROMPERFECT-DATA\DEPT-25\ACTIVE\CP20\2019151.0009.RAW

APPENDIX D

ADEC Data Review Checklist



Laboratory Data Review Checklist

Completed By:

Suresh PR

Title:

Project Chemist

Date:

October 8, 2019

CS Report Name:

First Semiannual 2019 Groundwater Monitoring Report

Report Date:

September 26, 2019

Consultant Firm:

ARCADIS U.S., Inc

Laboratory Name:

Eurofins Lancaster Laboratory, Lancaster, Pennsylvania

Laboratory Report Number:

2046352-LSV64

ADEC File Number:

2100.26.066

Hazard Identification Number:

23518

1. Laboratory

a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

Yes No

Comments:

Yes.

b. If the samples were transferred to another “network” laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

Yes No

Comments:

No.

2. Chain of Custody (CoC)

a. CoC information completed, signed, and dated (including released/received by)?

Yes No

Comments:

Yes.

b. Correct Analyses requested?

Yes No

Comments:

Yes.

3. Laboratory Sample Receipt Documentation

a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

Yes No

Comments:

Yes.

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

Yes No

Comments:

Yes.

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes No

Comments:

Yes.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes No

Comments:

No discrepancies.

e. Data quality or usability affected?

Yes No

Comments:

Data quality/usability was not affected.

4. Case Narrative

a. Present and understandable?

Yes No

Comments:

Yes.

b. Discrepancies, errors, or QC failures identified by the lab?

Yes No

Comments:

Yes.

c. Were all corrective actions documented?

Yes No

Comments:

Yes.

d. What is the effect on data quality/usability according to the case narrative?

Yes No

Comments:

Data quality/usability was not affected.

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes No

Comments:

Yes.

b. All applicable holding times met?

Yes No

Comments:

Yes.

c. All soils reported on a dry weight basis?

Yes No

Comments:

No soil samples were submitted for analysis.

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes No

Comments:

Yes.

e. Data quality or usability affected?

Yes No

Comments:

Data quality/usability was not affected.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes No

Comments:

Yes.

ii. All method blank results less than Method Detection Limit (MDL)?

Yes No

Comments:

Yes.

iii. If above MDL, what samples are affected?

Yes No

Comments:

None of the samples were affected.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No

Comments:

No.

v. Data quality or usability affected?

Yes No

Comments:

Data quality/usability was not affected.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes No

Comments:

Yes.

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes No

Comments:

Metals/Inorganic analysis was not requested for submitted samples.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes No

Comments:

Yes. All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes No

Comments:

The RPDs between LCS/LCSD were within the control limits.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Yes No

Comments:

None of the sample affected.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No

Comments:

No.

vii. Data quality or usability affected?

Yes No

Comments:

Data quality/usability was not affected.

c. Matrix spike/Matrix Spike Duplicate (MS/MSD)

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes No

Comments:

Sample MW-5-W-190528 was used as MS/MSD analysis.

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes No

Comments:

All compounds associated with MS/MSD analysis exhibited recoveries within the control limits.

iii. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes No

Comments:

The RPD between MS/MSD recoveries were within the control limits.

iv. If %R or RPD is outside of acceptable limits, what samples are affected?

Yes No

Comments:

None of the samples were accepted.

v. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes No

Comments:

No.

vi. Data quality or usability affected? (use comment box to explain)

Yes No

Comments:

Data quality/usability was not affected.

d. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?

Yes No

Comments:

Yes

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes No

Comments:

Yes.

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?

Yes No

Comments:

No.

iv. Data quality or usability affected? (use comment box to explain)

Yes No

Comments:

Data quality/usability was not affected.

e. Trip blank – Volatile analyses only (GRO, BTEX, etc): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples?

(If not, enter explanation below.)

Yes No

Comments:

Yes.

ii. All results less than MDL?

Yes No

Comments:

Yes.

iii. If above MDL, what samples are affected?

Yes No

Comments:

None of the data affected.

iv. Data quality or usability affected?

Yes No

Comments:

Data quality/usability was not affected.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes No

Comments:

Yes.

ii. Submitted blind to lab?

Yes No

Comments:

BD-1-WD-190528 was collected from MW-4-W-190528.

iii. Precision – All relative percent differences (RPD) less than specified DQOs?
(Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1 - R_2)}{((R_1 + R_2)/2)} \times 100$$

Where R_1 = Sample Concentration

R_2 = Field Duplicate Concentration

Yes No

Comments:

The RPD for compound TPH-GRO C6-C10 was exceeded in field duplicate pair MW-4-W-190528 / BD-1-WD-190528. The compound TPH-GRO C6-C10 result in this field duplicate pair was qualified as estimated (J).

iv. Data quality or usability affected?

Yes No

Comments:

The field duplicate RPD exceedance considered as minor and would result in the estimation of the associated data. The reported data should still consider as usable.

g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below).

Yes No

Comments:

Equipment blank was collected as QA-O-190528

i. If above MDL, what samples are affected?

Yes No

Comments:

The compound toluene was detected (0.0007 mg/l) below the reporting limit in an equipment blank sample QA-O-190528 for the method SW 846 8260C. A blank action level was established at five times of the detected blank concentration. The compound toluene results in samples MW-4-W-190528, MW-5-W-190528 and BD-1-WD-190528 were reported less than the reporting limit and qualified as non-detect (UB) at the reporting limit.

ii. Data quality or usability affected?

The equipment blank contamination considered minor and would result in the non-detect of associated data. The reported data should still consider as usable.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes No

Comments:

Yes.