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TECHNICAL MEMORANDUM

TO: Andy Smith – Dept. of Ecology

FROM: Matt Dalton

DATE: January 28, 2020

SUBJECT: 2019 Annual Monitoring Summary Report
1920 Port of Tacoma Road Remediation
Tacoma, Washington

REF. NO: POT-023-00

CC: Ty Gaub – USOR
Scott Hooton – Port of Tacoma
Dave Cooper - DOF

This technical memorandum documents data collected as part of the fourth year (2019) post-interim action groundwater monitoring program being conducted at the 1920 Port of Tacoma Road site in Tacoma, Washington (Figure 1). The interim action and performance monitoring are being conducted to fulfill the requirements of Agreed Order No. DE 8914 between the Washington State Department of Ecology (Ecology) and U.S. Oil & Refining Co. (USOR). The Facility Site (FS) ID number is 30005 and the Cleanup Site (CS) ID number is 3801. The purpose of performance monitoring is to assess the impacts on groundwater quality of the interim action completed by USOR in July 2015 (DOF 2015a). The interim action consisted of the removal of soil contaminated with gasoline from beneath the Port of Tacoma Road in the area illustrated on Figure 2.

Performance monitoring is being conducted in general accordance with the Ecology approved Interim Action Performance Monitoring Plan (DOF 2015b). Monitoring is being completed using resource protection wells constructed in the uppermost groundwater zone termed the *"Shallow (Upper) Aquifer"*. This zone consists of the water saturated (below water table) dredge and other fills to depths of between approximately 7 and 9.5 feet below existing grade. Beneath the roadway in the interim action area, the fill consists primarily of compacted sand and gravel. Where present (in areas not disturbed by construction), dredge fill primarily consists of silty fine sand and fine to medium sand. The water table lies at depths of between approximately four and seven feet depending on location and season.

MONITORING SYSTEM AND LABORATORY ANALYSES

The monitoring system currently consists of seven wells to assess groundwater flow directions and five wells where groundwater samples are being collected to assess changes in gasoline constituent concentrations as summarized below in Table 1. Well locations are shown on Figure 2. In early April 2019, access to well MW-USO-3S (MW-3S) was not possible because of a fence.

Table 1. Monitoring Well Function

Well Number/ Designation	Assess Groundwater Flow Directions	Collect Groundwater Samples
MW-USO-3S (MW-3S)	X	
MW-USO-5S (MW-5S)	X	X (upgradient)
MW-USO-6S (MW-6S)	X	
MW-USO-R1 (MW-R1)	X	X (downgradient)
MW-USO-R2 (MW-R2)	X	X (downgradient)
MW-USO-R3 (MW-R3)	X	X (downgradient)
MW-USO-R4 (MW-R4)	X	X(downgradient)

In March 2019, well MW-R4 was installed north (site north) of MW-R3 (Figure 2). The well location was approved by Marv Coleman (Ecology) in an e-mail dated January 22, 2019. The purpose of the well was to provide groundwater analytical data on the west/northwest side of MW-R2 where concentrations of gasoline range organics (TPH-G) and benzene exceed cleanup levels. The well was installed by Holt Drilling in a similar manner as the existing wells. Anthony Cerruti – Staff Geologist with DOF logged the boring and observed the well installation. The Top of Casing (TOC) elevation was surveyed by DOF (Dave Cooper) using the MW-R2 TOC as a reference. The log of well MW-R4 is presented in Attachment A. During drilling, approximately seven to eight feet of fine to medium sand were found to overlie a clayey Silt to the final drilling depth of approximately thirteen feet.

Laboratory analyses were conducted for the following gasoline constituents:

- Gasoline range organics (TPH-G), and
- Benzene, Toluene, Ethylbenzene, m,p-Xylene and o-Xylene (BTEX).

Analytical Resources Inc. (ARI), Tukwila, WA, a Washington State Certified Laboratory, completed the analyses using Ecology approved methods (purge & trap, GC/MS – Method SW8260C/NWTPHG). Pre- and post-interim action sample data are summarized in attached Table 2 (2014 to 2019). Post-interim action laboratory data sheets for 2019 are presented in Attachment B. Pre-interim action data includes the analysis of push-probe samples collected on July 12, 2014 and monitoring well samples collected on November 1, 2014. Post-interim action groundwater samples were collected on the dates listed in Table 3 below. The results of the 2015/16, 2017 and 2018 monitoring are presented in DOF reports (2016;2018; 2019).

Table 3. Post-Interim Action Monitoring Dates

2015-2016	2017	2018	2019
October 13, 2015	March 16, 2017	March 18, 2018	April 2, 2019
January 14, 2016	June 28, 2017	June 15, 2018	July 1, 2019
May 3, 2016	September 24, 2017	September 29, 2018	September 9, 2019
September 7, 2016	December 3, 2017	December 27, 2018	December 26, 2019
December 6, 2016			

GROUNDWATER FLOW DIRECTIONS

A set of water level measurements were made during each monitoring round. The measurements were converted to elevations and the elevations contoured to estimate groundwater flow directions. The post-interim action 2019 groundwater elevation contours and estimated flow directions are illustrated on Figures 3a to 3d. Groundwater flows in a generally northeasterly/easterly direction beneath the site. Estimated flow directions in 2019 were similar to those interpreted for 2016, 2017 and 2018. Well MW-5S is located on the upgradient side of the remedial area while wells MW-R1, MW-R2, MW-R3 and MW-R4 are located downgradient of the remediated area.

GROUNDWATER CONCENTRATIONS AND COMPARISON TO CLEANUP LEVELS

Groundwater analytical data are summarized in attached Table 2. Cleanup levels (CULs) are presented and discussed in the performance groundwater monitoring plan (DOF 2015b) and are summarized in Table 4 below.

Table 4. Groundwater Cleanup Levels

Constituent	Cleanup Level (ug/l)	Basis
TPH-G	800	Drinking water/vapor intrusion
Benzene	23	Surface water via groundwater discharge
Toluene	15000	
Ethylbenzene	2100	
Total Xylenes	670	Vapor intrusion

Concentrations of toluene, ethylbenzene and total xylenes were below CULs in all post-interim action samples. During 2019, concentrations of TPH-G (1.5 to 3.2 mg/l) and benzene (67 to 76 ug/l) exceeded the CUL in samples from MW-R2. TPH-G and benzene concentrations were below CULs in samples from MW-R1, MW-R3 and MW-R4. Groundwater concentrations of TPH-G and benzene are shown on Figures 3a to 3d with the estimated flow directions.

Time-series concentration trends and CULs are shown on Figures 4a to 4d for each of the wells and analytical constituents. The following observations are noted based on review of the plots.

- Concentrations are well below CULs in the post–interim action 2019 samples collected from wells MW-5S (Figure 4a[i]), MW-R1 (Figure 4b), MW-R2 (Figure 4c), MW-R3 (Figure 4d) and MW-R4 (Figure 4e).

- The highest TPH-G and benzene concentrations were detected in samples from well MW-R2 (Figure 4c). In 2019, TPH-G concentrations were between approximately 1.5 and 3.2 mg/l and benzene was between 63 and 75 ug/l. Figure 5 shows TPH-G and benzene concentrations for data collected in 2017, 2018, and 2019. Overall, a least square line fits indicate declining trends, especially for benzene. However, data collected in 2019 suggests concentrations may have stabilized above CULs.

RECOMMENDED ACTIVITIES FOR 2020

Monitoring Program. The performance monitoring plan anticipated that monitoring would be required for at least five years after the interim action and that the monitoring program would be refined as data are collected. It is proposed that monitoring be conducted in 2020 as outlined in Tables 5 and 6 below.

Table 5 – Monitoring Schedule

Period
March 2020
June 2020
September 2020
December 2020

Table 6 - Monitoring Locations and Parameters

Well	Water Level Measurements	Collect/Analyze Groundwater Samples (a)
MW-3S	X	
MW-5S	X	X
MW-6S	X	
MW-R1	X	X (March/June)[ii]
MW-R2	X	X
MW-R3	X	X
MW-R4	X	X

Note: (a) – Analyze samples for TPH-G and BTEX

Reporting: Submit 2020 annual report to Ecology during the first quarter of 2021.

[i] Figure 4a also shows data for monitoring completed as part of the cleanup of a crude oil spill that occurred in January 1991. Well MW-5S is located downgradient of the former spill area and upgradient of the interim action remedial area.

[ii] Data for MW-R2 indicates seasonal effected higher concentrations occur in March and June. Cleanup levels are achieved in samples from MW-R1. A reduced sampling frequency is proposed for year 5 to confirm concentrations remain below CULs.

Develop plan to address exceedances in Well MW-R2. Four years of monitoring suggest that there may be gasoline residues in soil between the remediated POT road right-of-way and well MW-R2, as TPH-G and benzene concentrations appear to have stabilized above cleanup levels. During the first quarter of 2020 a sampling plan will be prepared to assess the presence and extent of any residues. A draft plan will be submitted to Ecology for review and comment. Once any issues are resolved, sampling will be completed, and a report will be prepared to document the results and the path-forward. It is anticipated that the work will be completed during the second quarter of 2020.

REFERENCES

DOF (Dalton, Olmsted & Fuglevand, Inc.), 2015a, Interim Action Construction Report, 1920 Port of Tacoma Road Remediation, Tacoma, Washington; prepared for the U.S. Oil & Refining Co., Final November 25, 2015.

DOF, 2015b, Interim Action Performance Groundwater Monitoring Plan, 1920 Port of Tacoma Road Remediation, Tacoma, Washington; prepared for the U.S. Oil & Refining Co., Final November 25, 2015.

DOF, 2016, 2016 Annual Monitoring Summary Report, 1920 Port of Tacoma Road Remediation, Tacoma, Washington; prepared for the U.S. Oil & Refining Co., Agency Review Draft: December 30, 2016.

DOF, 2018, 2017 Annual Monitoring Summary Report, 1920 Port of Tacoma Road Remediation, Tacoma, Washington; prepared for the U.S. Oil & Refining Co., Agency Review Draft: February 20, 2018.

DOF, 2019, 2018 Annual Monitoring Summary Report, 1920 Port of Tacoma Road Remediation, Tacoma, Washington; prepared for the U.S. Oil & Refining Co.; Agency Review Draft: January 14, 2019.

Attachments

Table 2 – Groundwater Analytical Data – July 2014 to December 2019

Figure 1 – Vicinity Location
Figure 2 – Interim Action Remedial Area and Monitoring Well Locations
Figure 3a – Estimated Groundwater Flow Directions and TPH-G/Benzene Concentrations in Groundwater – April 2, 2019
Figure 3b – Estimated Groundwater Flow Directions and TPH-G/Benzene Concentrations in Groundwater – July 1, 2019
Figure 3c – Estimated Groundwater Flow Directions and TPH-G/Benzene Concentrations in Groundwater – September 9, 2019
Figure 3d – Estimated Groundwater Flow Directions and TPH-G/Benzene Concentrations in Groundwater – December 16, 2019
Figure 4a – Time Series Concentration Plots – MW-5S
Figure 4b – Time Series Concentration Plots – MW-R1
Figure 4c – Time Series Concentration Plots – MW-R2
Figure 4d – Time Series Concentration Plots – MW-R3

Figure 5 – TPH-G and Benzene Trends – MW-USO-R2

Appendix A – Boring/Well Construction Log – MW-R4
Appendix B – Laboratory Data Sheets – 2019, Analytical Resources Inc.

TABLE 2 - Groundwater Analytical Data - July 2014 to December 2019

1920 Port of Tacoma Rd.
Tacoma, Washington

Constituent / Location / Date / Type	Units	USO-W-P15	USO-W-P17	MW-USO-3S	MW-USO-3S	MW-USO-3S	MW-USO-3S	MW-USO-3S	MW-USO-3S	MW-USO-3S	MW-USO-3S	MW-USO-3S	MW-USO-3S	MW-USO-3S	MW-USO-3S	MW-USO-3S	MW-USO-3S	MW-USO-3S	MW-USO-3S	MW-USO-3S
		7/12/14	7/12/14	11/1/14	10/13/15	1/14/16	5/3/16	9/7/16	12/6/16	3/16/17	6/28/17	9/24/17	12/3/17	3/18/18	6/15/18	9/29/18	12/27/18	4/2/19	7/1/19	9/9/19	12/16/19
		Push-Probe	Push-Probe	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
ARI Delivery Group		YR60	YR60	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
TOC Elevation	feet(b)	-----	-----	13.92	13.92	13.92	13.92	13.92	13.92	13.92	13.92	13.92	13.92	13.92	13.92	13.92	13.92	13.92	13.92	13.92	13.92
Field Parameters																					
Water Level	feet(a)	-----	-----	4.96	5.60	3.96	4.21	5.30	4.52	3.64	4.41	5.25	4.65	nm (c)	nm (c)	nm (c)	nm (c)	nm (c)	5.10	5.59	5.50
Water Level Elevation	feet(b)	-----	-----	8.96	8.32	9.96	9.71	8.62	9.40	10.28	9.51	8.67	9.27	nm (c)	nm (c)	nm (c)	nm (c)	nm (c)	8.82	8.33	8.42
pH	std. units	7.0	7.2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Electrical Conductivity	uS/cm	822	494	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Temperature	C	20.9	22.1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Dissolved Oxygen	mg/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Oxidation-Reduction Potential (ORP)	mV	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Ferrous Iron	mg/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Turbidity	NTU	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Method SW8260C																					
Gasoline Range Hydrocarbons	mg/l	<0.25	<0.25	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Benzene	ug/l	**20**	**1.5**	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Toluene	ug/l	<0.5	<0.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Ethylbenzene	ug/l	**1.6**	<0.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
m,p-Xylene	ug/l	**1.9**	<1.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
o-Xylene	ug/l	**0.7**	<0.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Method WA VPH																					
Benzene	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Toluene	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Ethylbenzene	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
m,p-Xylene	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
o-Xylene	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Methyl tert-Butyl Ether	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Pentane	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Hexane	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Octane	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Decane	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Dodecane	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C8-C10 Aromatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C10-C12 Aromatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C12-C13 Aromatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C5-C6 Aliphatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C6-C8 Aliphatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C8-C10 Aliphatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C10-C12 Aliphatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EC5-6 aliphatics+EC6-8 aliphatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EC8-10 aliphatics+EC10-12 aliphatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EC8-10 aromatics+EC10-12 aromatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Notes: < Not detected at indicated reporting limit. Equilivant to the "U" flag.
----- - Not analyzed
Bold value - Constituent detected
(a) - Depth below top of casing (TOC)
(b) - feet - NAVD88
(c) - Not measured (not accessible)
J - Estimated value

Pre-Remediation
Post-Remediation by Year
Exceeds cleanup level

TABLE 2 - Groundwater Analytical Data - July 2014 to December 2019

1920 Port of Tacoma Rd.
Tacoma, Washington

Constituent / Location / Date / Type	Units	MW-USO-5S	MW-USO-5S	MW-USO-5S				MW-USO-5S				MW-USO-5S			
		11/1/14	10/13/15	1/14/16	5/3/16	9/7/16	12/6/16	3/16/17	6/28/17	9/24/17	12/3/17	3/18/18	6/15/18	9/29/18	12/27/18
		Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
ARI Delivery Group		ZI84	AOM4	AUF1	BAC7	16I0129	16L0088	17C0284	17F0459	17I0342	17L0028	18C0298	18F0250	18J0007	18L0406
TOC Elevation	feet(b)	13.23	13.23	13.23	13.23	13.23	13.23	13.23	13.23	13.23	13.23	13.23	13.23	13.23	13.23
Field Parameters															
Water Level	feet(a)	4.85	5.71	3.99	4.12	5.26	4.60	3.73	4.29	5.21	4.51	4.30	4.69	5.57	5.00
Water Level Elevation	feet(b)	8.38	7.52	9.24	9.11	7.97	8.63	9.50	8.94	8.02	8.72	8.93	8.54	7.66	8.23
pH	std. units	6.4	6.7	6.5	6.4	6.4	6.2	6.1	6.6	6.4	6.2	6.7	6.4	6.9	6.8
Electrical Conductivity	uS/cm	1085	1520	905	937	1225	1024	1020	1111	1111	906	973	1045	1494	774
Temperature	C	18.6	20.7	12.9	15.8	22.8	16.4	12.8	18.1	21.8	15.8	12	18.1	20.7	13.9
Dissolved Oxygen	mg/l	0.5	0	1.2	0.53	0.25	0.75	1	1	1	1.4	0.24	0.14	5.8	0.28
Oxidation-Reduction Potential (ORP)	mV	-63.2	-176	3.4	19.6	-16.3	65.1	76.9	58.5	135	-28.6	-72.1	14.5	-57.9	41.7
Ferrous Iron	mg/l	3.8	2.8	3.3	5.0	-----	2.5	2.5	4.0	4.3	3.0	2.0	2.5	4.0	1.9
Turbidity	NTU	3	8.8	2.4	3.1	2.5	6.6	83	18	1.4	2.5	11.1	<1	10.4	5.9
Method SW8260C															
Gasoline Range Hydrocarbons	mg/l	**0.60**	<0.25	**0.41**	**0.18**	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzene	ug/l	<0.5	<0.2	<0.2	<0.2	<0.2	**0.07 J**	**0.06 J**	**0.05 J**	<0.2	**0.05 J**	<0.2	<0.2	<0.2	<0.20
Toluene	ug/l	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**0.17 J**	**0.06 J**	<0.2	<0.2	<0.2	<0.2	<0.20
Ethylbenzene	ug/l	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**0.07 J**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20
m,p-Xylene	ug/l	<1.0	<0.4	<0.4	<0.4	**0.07**	**0.07 J**	<0.4	**0.21 J**	**0.08 J**	<0.4	<0.4	<0.4	<0.4	<0.40
o-Xylene	ug/l	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**0.05 J**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.20
Method WA VPH															
Benzene	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Toluene	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Ethylbenzene	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
m,p-Xylene	ug/l	<10	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
o-Xylene	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Methyl tert-Butyl Ether	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Pentane	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Hexane	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Octane	ug/l	**6.5**	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Decane	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Dodecane	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C8-C10 Aromatics	ug/l	**54**	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C10-C12 Aromatics	ug/l	**150**	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C12-C13 Aromatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C5-C6 Aliphatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C6-C8 Aliphatics	ug/l	**64**	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C8-C10 Aliphatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C10-C12 Aliphatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EC5-6 aliphatics+EC6-8 aliphatics	ug/l	**64**	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EC8-10 aliphatics+EC10-12 aliphatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EC8-10 aromatics+EC10-12 aromatics	ug/l	**204**	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Notes: < Not detected at indicated reporting limit. Equilivant to the "U" flag.
----- - Not analyzed
Bold value - Constituent detected
(a) - Depth below top of casing (TOC)
(b) - feet - NAVD88
J - Estimated value

Pre-Remediation
Post-Remediation by Year
Exceeds cleanup level

TABLE 2 - Groundwater Analytical Data - July 2014 to December 2019

Constituent / Location / Date / Type	Units	MW-USO-5S			
		4/2/19 Well	7/1/19 Well	9/9/19 Well	12/16/19 Well
ARI Delivery Group		19D0049	19G0033	19I0135	19L0288
TOC Elevation	feet(b)	13.23	13.23	13.23	13.23
Field Parameters					
Water Level	feet(a)	4.72	5.09	5.64	5.50
Water Level Elevation	feet(b)	8.51	8.14	7.59	7.73
pH	std. units	6.6	6.7	6.4	6.5
Electrical Conductivity	uS/cm	751	890	1136	1153
Temperature	C	12.6	19.3	20.7	14.6
Dissolved Oxygen	mg/l	0.56	0.51	0.3	0.21
Oxidation-Reduction Potential (ORP)	mV	148	-84.3	222	-67.8
Ferrous Iron	mg/l	1.8	2.0	3.6	2.5
Turbidity	NTU	1.3	3.0	<1	0.3
Method SW8260C					
Gasoline Range Hydrocarbons	mg/l	<0.10	<0.10	<0.10	<0.10
Benzene	ug/l	<0.20	<0.20	<0.20	<0.20
Toluene	ug/l	<0.20	<0.20	<0.20	<0.20
Ethylbenzene	ug/l	<0.20	<0.20	<0.20	<0.20
m,p-Xylene	ug/l	<0.40	<0.40	<0.40	<0.40
o-Xylene	ug/l	<0.20	<0.20	<0.20	<0.20
Method WA VPH					
Benzene	ug/l				
Toluene	ug/l				
Ethylbenzene	ug/l				
m,p-Xylene	ug/l				
o-Xylene	ug/l				
Methyl tert-Butyl Ether	ug/l				
n-Pentane	ug/l				
n-Hexane	ug/l				
n-Octane	ug/l				
n-Decane	ug/l				
n-Dodecane	ug/l				
C8-C10 Aromatics	ug/l				
C10-C12 Aromatics	ug/l				
C12-C13 Aromatics	ug/l				
C5-C6 Aliphatics	ug/l				
C6-C8 Aliphatics	ug/l				
C8-C10 Aliphatics	ug/l				
C10-C12 Aliphatics	ug/l				
EC5-6 aliphatics+EC6-8 aliphatics	ug/l				
EC8-10 aliphatics+EC10-12 aliphatics	ug/l				
EC8-10 aromatics+EC10-12 aromatics	ug/l				

Notes:

TABLE 2 - Groundwater Analytical Data - July 2014 to December 2019

1920 Port of Tacoma Rd.
Tacoma, Washington

Constituent / Location / Date / Type	Units	MW-USO-6S 11/1/14 Well	MW-USO-6S 10/13/15 Well	MW-USO-6S 1/14/16 Well	MW-USO-6S 5/3/16 Well	MW-USO-6S 9/7/16 Well	MW-USO-6S 12/6/16 Well	MW-USO-6S 3/16/17 Well	MW-USO-6S 6/28/17 Well	MW-USO-6S 9/24/17 Well	MW-USO-6S 12/3/17 Well	MW-USO-6S 3/18/18 Well	MW-USO-6S 6/15/18 Well	MW-USO-6S 9/29/18 Well	MW-USO-6S 12/27/18 Well
ARI Delivery Group		**ZI84**	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
TOC Elevation	**feet(b)**	**13.90**	**13.90**	**13.90**	**13.90**	**13.90**	**13.90**	**13.90**	**13.90**	**13.90**	**13.90**	**13.90**	**13.90**	**13.90**	**13.90**
Field Parameters															
Water Level	feet(a)	5.30	5.99	4.65	4.80	5.75	5.13	4.40	5.02	5.70	5.02	4.95	5.23	5.93	5.48
Water Level Elevation	feet(b)	8.60	7.91	9.25	9.10	8.15	8.77	9.50	8.88	8.20	8.88	8.95	8.67	7.97	8.42
pH	std. units	6.4	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Electrical Conductivity	uS/cm	3509	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Temperature	C	16.4	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Dissolved Oxygen	mg/l	0.3	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Oxidation-Reduction Potential (ORP)	mV	-59.2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Ferrous Iron	mg/l	2.6	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Turbidity	NTU	9.2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Method SW8260C															
Gasoline Range Hydrocarbons	mg/l	<0.25	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Benzene	ug/l	<0.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Toluene	ug/l	<0.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Ethylbenzene	ug/l	<0.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
m,p-Xylene	ug/l	<1.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
o-Xylene	ug/l	<0.5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Method WA VPH															
Benzene	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Toluene	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Ethylbenzene	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
m,p-Xylene	ug/l	<10	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
o-Xylene	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Methyl tert-Butyl Ether	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Pentane	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Hexane	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Octane	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Decane	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Dodecane	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C8-C10 Aromatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C10-C12 Aromatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C12-C13 Aromatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C5-C6 Aliphatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C6-C8 Aliphatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C8-C10 Aliphatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C10-C12 Aliphatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EC5-6 aliphatics+EC6-8 aliphatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EC8-10 aliphatics+EC10-12 aliphatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EC8-10 aromatics+EC10-12 aromatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Notes: < Not detected at indicated reporting limit. Equilivant to the "U" flag.
----- - Not analyzed
Bold value - Constituent detected
(a) - Depth below top of casing (TOC)
(b) - feet - NAVD88
J - Estimated value

Pre-Remediation
Post-Remediation by Year
Exceeds cleanup level

TABLE 2 - Groundwater Analytical Data - July 2014 to December 2019

Constituent / Location / Date / Type	Units	MW-USO-6S 4/2/19 Well	MW-USO-6S 7/1/19 Well	MW-USO-6S 9/9/19 Well	MW-USO-6S 12/16/19 Well
ARI Delivery Group		-----	-----	-----	-----
TOC Elevation	**feet(b)**	**13.90**	**13.90**	**13.90**	**13.90**
Field Parameters					
Water Level	feet(a)	5.25	5.61	6.01	6.00
Water Level Elevation	feet(b)	8.65	8.29	7.89	7.90
pH	std. units	-----	-----	-----	-----
Electrical Conductivity	uS/cm	-----	-----	-----	-----
Temperature	C	-----	-----	-----	-----
Dissolved Oxygen	mg/l	-----	-----	-----	-----
Oxidation-Reduction Potential (ORP)	mV	-----	-----	-----	-----
Ferrous Iron	mg/l	-----	-----	-----	-----
Turbidity	NTU	-----	-----	-----	-----
Method SW8260C					
Gasoline Range Hydrocarbons	mg/l	-----	-----	-----	-----
Benzene	ug/l	-----	-----	-----	-----
Toluene	ug/l	-----	-----	-----	-----
Ethylbenzene	ug/l	-----	-----	-----	-----
m,p-Xylene	ug/l	-----	-----	-----	-----
o-Xylene	ug/l	-----	-----	-----	-----
Method WA VPH					
Benzene	ug/l	-----	-----	-----	-----
Toluene	ug/l	-----	-----	-----	-----
Ethylbenzene	ug/l	-----	-----	-----	-----
m,p-Xylene	ug/l	-----	-----	-----	-----
o-Xylene	ug/l	-----	-----	-----	-----
Methyl tert-Butyl Ether	ug/l	-----	-----	-----	-----
n-Pentane	ug/l	-----	-----	-----	-----
n-Hexane	ug/l	-----	-----	-----	-----
n-Octane	ug/l	-----	-----	-----	-----
n-Decane	ug/l	-----	-----	-----	-----
n-Dodecane	ug/l	-----	-----	-----	-----
C8-C10 Aromatics	ug/l	-----	-----	-----	-----
C10-C12 Aromatics	ug/l	-----	-----	-----	-----
C12-C13 Aromatics	ug/l	-----	-----	-----	-----
C5-C6 Aliphatics	ug/l	-----	-----	-----	-----
C6-C8 Aliphatics	ug/l	-----	-----	-----	-----
C8-C10 Aliphatics	ug/l	-----	-----	-----	-----
C10-C12 Aliphatics	ug/l	-----	-----	-----	-----
EC5-6 aliphatics+EC6-8 aliphatics	ug/l	-----	-----	-----	-----
EC8-10 aliphatics+EC10-12 aliphatics	ug/l	-----	-----	-----	-----
EC8-10 aromatics+EC10-12 aromatics	ug/l	-----	-----	-----	-----

Notes:

TABLE 2 - Groundwater Analytical Data - July 2014 to December 2019

Constituent / Location / Date / Type	Units	MW-USO-R1	MW-USO-R1	MW-USO-R1				MW-USO-R1				MW-USO-R1			
		11/1/14	10/13/15	1/14/16	5/3/16	9/7/16	12/6/16	3/16/17	6/28/17	9/24/17	12/3/17	3/18/18	6/15/18	9/29/18	12/27/18
		Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
ARI Delivery Group		ZI84	AOM4	AUF1	BAC7	16I0129	16L0088	17C0284	17F0459	17I0342	17L0028	18C0298	18F0250	18J0007	18L0406
TOC Elevation	feet(b)	13.97	13.97	13.97	13.97	13.97	13.97	13.97	13.97	13.97	13.97	13.97	13.97	13.97	13.97
Field Parameters															
Water Level	feet(a)	6.37	6.92	5.41	5.61	6.81	6.04	5.15	5.76	6.66	5.92	5.78	6.16	6.96	6.32
Water Level Elevation	feet(b)	7.60	7.05	8.56	8.36	7.16	7.93	8.82	8.21	7.31	8.05	8.19	7.81	7.01	7.65
pH	std. units	6.1	6.5	6.1	5.9	5.8	6.0	5.9	6.1	6.1	5.6	6.1	5.8	6.6	6.3
Electrical Conductivity	uS/cm	782	652	536	927	617	506	779	647	772	860	547	599	612	600
Temperature	C	19.5	20.6	14.5	16	22.4	17.4	13.8	17.8	20.3	16.9	13.4	17.6	20.4	15.4
Dissolved Oxygen	mg/l	0.2	0.6	0.31	0.21	0.91	0.35	0.36	0.55	0.96	1.4	0.22	0.37	0.48	0.28
Oxidation-Reduction Potential (ORP)	mV	-47.8	-162	46.5	-50	14.5	-5.8	47.2	56.6	138	-1	1.8	-2.7	-15.9	17.7
Ferrous Iron	mg/l	5.4	4.8	4.2	2.8	-----	4.5	4	3.8	5.2	4.7	3	4	3.5	2.2
Turbidity	NTU	11	15.5	23.9	4.5	1.8	5.7	11.8	14.4	8.6	4.9	10.8	2.4	34.9	7.6
Method SW8260C															
Gasoline Range Hydrocarbons	mg/l	<0.25	<0.25	<0.25	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Benzene	ug/l	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toluene	ug/l	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**0.45**	**0.13 J**	<0.2	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	ug/l	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**0.19 J**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
m,p-Xylene	ug/l	<1.0	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	**0.56**	**0.09 J**	<0.4	<0.4	<0.4	<0.4	<0.4
o-Xylene	ug/l	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	**0.12 J**	**0.04 J**	<0.2	<0.2	<0.2	<0.2	<0.2
Method WA VPH															
Benzene	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Toluene	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Ethylbenzene	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
m,p-Xylene	ug/l	<10	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
o-Xylene	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Methyl tert-Butyl Ether	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Pentane	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Hexane	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Octane	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Decane	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Dodecane	ug/l	<5.0	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C8-C10 Aromatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C10-C12 Aromatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C12-C13 Aromatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C5-C6 Aliphatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C6-C8 Aliphatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C8-C10 Aliphatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C10-C12 Aliphatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EC5-6 aliphatics+EC6-8 aliphatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EC8-10 aliphatics+EC10-12 aliphatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EC8-10 aromatics+EC10-12 aromatics	ug/l	<50	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Notes: < Not detected at indicated reporting limit. Equilivant to the "U" flag.
----- - Not analyzed
Bold value - Constituent detected
(a) - Depth below top of casing (TOC)
(b) - feet - NAVD88
J - Estimated value

Pre-Remediation
Post-Remediation by Year
Exceeds cleanup level

TABLE 2 - Groundwater Analytical Data - July 2014 to December 2019

Constituent / Location / Date / Type	Units	MW-USO-R1			
		4/2/19 Well	7/1/19 Well	9/9/19 Well	12/16/19 Well
ARI Delivery Group		19D0049	19G0033	19I0135	19L0288
TOC Elevation	feet(b)	13.97	13.97	13.97	13.97
Field Parameters					
Water Level	feet(a)	6.19	6.65	7.13	6.92
Water Level Elevation	feet(b)	7.78	7.32	6.84	7.05
pH	std. units	6.1	6.0	5.8	5.9
Electrical Conductivity	uS/cm	857	985	716	820
Temperature	C	13.4	18.7	20.1	15.2
Dissolved Oxygen	mg/l	0.25	0.59	1.1	0.18
Oxidation-Reduction Potential (ORP)	mV	103	-10.2	117	-8.7
Ferrous Iron	mg/l	2.8	3.0	3.3	2.0
Turbidity	NTU	<1	1.7	<1	5.0
Method SW8260C					
Gasoline Range Hydrocarbons	mg/l	<0.10	<0.10	<0.10	<0.10
Benzene	ug/l	<0.2	<0.2	<0.2	<0.2
Toluene	ug/l	<0.2	<0.2	<0.2	<0.2
Ethylbenzene	ug/l	<0.2	<0.2	<0.2	<0.2
m,p-Xylene	ug/l	<0.4	<0.4	<0.4	<0.4
o-Xylene	ug/l	<0.2	<0.2	<0.2	<0.2
Method WA VPH					
Benzene	ug/l				
Toluene	ug/l				
Ethylbenzene	ug/l				
m,p-Xylene	ug/l				
o-Xylene	ug/l				
Methyl tert-Butyl Ether	ug/l				
n-Pentane	ug/l				
n-Hexane	ug/l				
n-Octane	ug/l				
n-Decane	ug/l				
n-Dodecane	ug/l				
C8-C10 Aromatics	ug/l				
C10-C12 Aromatics	ug/l				
C12-C13 Aromatics	ug/l				
C5-C6 Aliphatics	ug/l				
C6-C8 Aliphatics	ug/l				
C8-C10 Aliphatics	ug/l				
C10-C12 Aliphatics	ug/l				
EC5-6 aliphatics+EC6-8 aliphatics	ug/l				
EC8-10 aliphatics+EC10-12 aliphatics	ug/l				
EC8-10 aromatics+EC10-12 aromatics	ug/l				

Notes:

TABLE 2 - Groundwater Analytical Data - July 2014 to December 2019

Constituent / Location / Date / Type	Units	MW-USO-R2	MW-USO-R2	MW-USO-R2				MW-USO-R2				MW-USO-R2			
		11/1/14	10/13/15	1/14/16	5/3/16	9/7/16	12/6/16	3/16/17	6/28/17	9/24/17	12/3/17	3/18/18	6/15/18	9/29/18	12/27/18
		Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
ARI Delivery Group		ZI84	AOM4	AUF1	BAC7	16I0129	16L0088	17C0284	17F0459	17I0342	17L0028	18C0298	18F0250	18J0007	18L0406
TOC Elevation	feet(b)	14.07	14.07	14.07	14.07	14.07	14.07	14.07	14.07	14.07	14.07	14.07	14.07	14.07	14.07
Field Parameters															
Water Level	feet(a)	5.91	6.26	4.51	4.86	6.25	5.56	4.60	5.12	6.13	5.62	5.12	5.54	6.46	5.75
Water Level Elevation	feet(b)	8.16	7.81	9.56	9.21	7.82	8.51	9.47	8.95	7.94	8.45	8.95	8.53	7.61	8.32
pH	std. units	6.2	6.6	6.3	6.3	6.1	6.3	6.3	6.4	6.4	6.0	6.5	6.1	6.6	6.7
Electrical Conductivity	uS/cm	749	670	556	539	542	527	492	530	576	560	565	595	618	506
Temperature	C	19.8	21	14.3	16.4	23	17.4	13.7	18.7	22	17.1	13.2	18.6	21.6	13.5
Dissolved Oxygen	mg/l	0.1	0.5	0.15	0	0.22	0.28	0.16	0.18	0.23	0.68	0.95	0.15	0.07	0.19
Oxidation-Reduction Potential (ORP)	mV	-87.1	-196	-36.2	-165.5	-48.9	-107.6	-74.2	37.1	30.1	- 79.4	-61.8	-40.3	-58.4	-10.5
Ferrous Iron	mg/l	3.6	2.2	3.2	2.5	-----	4.5	3	5	5	4.3	3	2	6	2.8
Turbidity	NTU	5.8	7.1	7.3	3.3	6.5	4	7.7	6.8	2.3	5.1	1.7	<1	6.3	2
Method SW8260C															
Gasoline Range Hydrocarbons	mg/l	**3.0**	**2.5**	**5.6**	**3.7**	**1.8**	**2.6**	**2.4**	**2.8**	**2.0**	**3.0**	**2.7**	**3.5**	**1.3**	**2.0**
Benzene	ug/l	**980**	**990**	**640**	**320**	**35**	**324**	**198**	**157**	**186**	**238**	**110**	**55.4**	**8.3**	**49.9**
Toluene	ug/l	**16**	**13**	**9.8**	**3.6**	**1.2**	**3.7**	**3.3**	**3.9**	**3.0**	**4.7**	**2.6**	**1.8**	**0.3**	**1.0**
Ethylbenzene	ug/l	**28**	**35**	**46**	**26**	**19**	**14.4**	**15.3**	**12.6**	**8.7**	**10.1**	**6.4**	**5.4**	**1.9**	**1.5**
m,p-Xylene	ug/l	**36**	**28**	**18**	**6.2**	**2.6**	**4.7**	**4.1**	**3.6**	**2.7**	**5.1**	**2.1**	**1.6**	**0.24**	**0.69**
o-Xylene	ug/l	**4.3**	**4.3**	<4.0	**0.81**	**0.38**	**1.1**	**0.94**	**1.2**	**1.2**	**1.5**	**0.76**	**0.52**	**0.07**	**0.26**
Method WA VPH															
Benzene	ug/l	**1400**	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Toluene	ug/l	<100	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Ethylbenzene	ug/l	<100	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
m,p-Xylene	ug/l	<200	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
o-Xylene	ug/l	<100	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Methyl tert-Butyl Ether	ug/l	<100	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Pentane	ug/l	<100	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Hexane	ug/l	<100	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Octane	ug/l	<100	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Decane	ug/l	<100	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
n-Dodecane	ug/l	<100	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C8-C10 Aromatics	ug/l	<1000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C10-C12 Aromatics	ug/l	<1000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C12-C13 Aromatics	ug/l	<1000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C5-C6 Aliphatics	ug/l	<1000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C6-C8 Aliphatics	ug/l	**1700**	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C8-C10 Aliphatics	ug/l	<1000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
C10-C12 Aliphatics	ug/l	<1000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EC5-6 aliphatics+EC6-8 aliphatics	ug/l	**1700**	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EC8-10 aliphatics+EC10-12 aliphatics	ug/l	<1000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
EC8-10 aromatics+EC10-12 aromatics	ug/l	<1000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Notes: < Not detected at indicated reporting limit. Equilivant to the "U" flag.
----- - Not analyzed
Bold value - Constituent detected
(a) - Depth below top of casing (TOC)
(b) - feet - NAVD88
J - Estimated value

Pre-Remediation
Post-Remediation by Year
Exceeds cleanup level

TABLE 2 - Groundwater Analytical Data - July 2014 to December 2019

Constituent / Location / Date / Type	Units	MW-USO-R2			
		4/2/19	7/1/19	9/9/19	12/16/19
		Well	Well	Well	Well
ARI Delivery Group		19D0049	19G0033	19I0135	19L0288
TOC Elevation	feet(b)	14.07	14.07	14.07	14.07
Field Parameters					
Water Level	feet(a)	5.60	6.13	6.64	6.39
Water Level Elevation	feet(b)	8.47	7.94	7.43	7.68
pH	std. units	6.6	6.4	6.1	6.3
Electrical Conductivity	uS/cm	698	610	470	510
Temperature	C	13.6	18.3	21	15
Dissolved Oxygen	mg/l	0.16	0.51	0.17	-----
Oxidation-Reduction Potential (ORP)	mV	44.6	-25.5	71.3	-36.1
Ferrous Iron	mg/l	2.0	3.2	2.1	2.0
Turbidity	NTU	1.8	2.0	3.8	2.4
Method SW8260C					
Gasoline Range Hydrocarbons	mg/l	**3.2**	**2.1**	**1.5**	**1.7**
Benzene	ug/l	**74.8**	**67.0**	**75.1**	**77.5**
Toluene	ug/l	**2.0**	**1.2**	**1.4**	**1.4**
Ethylbenzene	ug/l	**1.9**	**1.1**	**2.0**	**1.8**
m,p-Xylene	ug/l	**2.3**	**0.89**	**1.3**	**1.3**
o-Xylene	ug/l	**0.58**	**0.35**	**0.5**	**0.51**
Method WA VPH					
Benzene	ug/l				
Toluene	ug/l				
Ethylbenzene	ug/l				
m,p-Xylene	ug/l				
o-Xylene	ug/l				
Methyl tert-Butyl Ether	ug/l				
n-Pentane	ug/l				
n-Hexane	ug/l				
n-Octane	ug/l				
n-Decane	ug/l				
n-Dodecane	ug/l				
C8-C10 Aromatics	ug/l				
C10-C12 Aromatics	ug/l				
C12-C13 Aromatics	ug/l				
C5-C6 Aliphatics	ug/l				
C6-C8 Aliphatics	ug/l				
C8-C10 Aliphatics	ug/l				
C10-C12 Aliphatics	ug/l				
EC5-6 aliphatics+EC6-8 aliphatics	ug/l				
EC8-10 aliphatics+EC10-12 aliphatics	ug/l				
EC8-10 aromatics+EC10-12 aromatics	ug/l				

Notes: < Not detected at indicated reporting limit. Equilivant to th
----- - Not analyzed
Bold value - Constituent detected
(a) - Depth below top of casing (TOC)
(b) - feet - NAVD88
J - Estimated value

TABLE 2 - Groundwater Analytical Data - July 2014 to December 2019

Constituent / Location / Date / Type	Units	MW-USO-R3	MW-USO-R3	MW-USO-R3	MW-USO-R3	MW-USO-R3	MW-USO-R3	MW-USO-R3	MW-USO-R3	MW-USO-R3	MW-USO-R3	MW-USO-R3	MW-USO-R3	MW-USO-R3	MW-USO-R3	MW-USO-R3	MW-USO-R3
		10/13/15	1/14/16	5/3/16	9/7/16	12/6/16	3/16/17	6/28/17	9/24/17	12/3/17	3/18/18	6/15/18	9/29/18	12/27/18	4/2/19	7/1/19	9/9/19	12/16/19
		Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
ARI Delivery Group		AOM4	AUF1	BAC7	16I0129	16L0088	17C0284	17F0459	17I0342	17L0028	18C0298	18F0250	18J0007	18L0406	19D0049	19G0033	19I0135	19L0288
TOC Elevation	feet(b)	13.89	13.89	13.89	13.89	13.89	13.89	13.89	13.89	13.89	13.89	13.89	13.89	13.89	13.89	13.89	13.89	13.89
Field Parameters																		
Water Level	feet(a)	6.25	4.78	4.98	6.22	5.58	4.45	5.15	6.14	5.51	5.20	5.58	6.46	5.72	5.62	6.09	6.56	6.34
Water Level Elevation	feet(b)	7.64	9.11	8.91	7.67	8.31	9.44	8.74	7.75	8.38	8.69	8.31	7.43	8.17	8.27	7.80	7.33	7.55
pH	std. units	6.5	6.3	6.1	6.0	6.2	6.1	5.9	6.4	5.7	6.4	6.0	6.6	6.6	6.3	6.1	6.0	6.2
Electrical Conductivity	uS/cm	523	801	938	723	813	742	1894	865	610	706	550	638	656	1205	1600	1091	772
Temperature	C	20.4	14.2	16.2	21.8	17.2	13.7	17.9	20.4	16.6	13.4	17.6	20.2	14.9	13.5	18.6	19.8	15.1
Dissolved Oxygen	mg/l	0.2	0.2	0.14	0.84	0.31	0.14	0.34	0.31	1.1	0.2	0.12	0.46	0.16	0.24	0.99	0.23	0.15
Oxidation-Reduction Potential (ORP)	mV	-167	15.6	-47.5	-21.6	-24.7	18.4	49.3	88.4	-21.6	-37.5	-26.1	-19.7	-9.6	69.1	7.4	91.4	-23.8
Ferrous Iron	mg/l	3	2.5	4.6	-----	3.5	4	4.5	4	4.3	3	2	4.5	3.5	2.5	3.0	2.7	2.0
Turbidity	NTU	6.5	14.8	4.6	19.2	11.4	54.8	52	36.8	5.3	10.9	<1	42	5.2	1.3	18	12.7	5.56
Method SW8260C																		
Gasoline Range Hydrocarbons	mg/l	**0.69**	**0.78**	**0.32**	**0.29**	**0.30**	**0.15**	**0.21**	**0.17**	**0.29**	**0.37**	**0.46**	**0.22**	**0.30**	**0.27**	**0.28**	**0.14**	**0.23**
Benzene	ug/l	**310**	**78**	**45**	**26**	**24.7**	**0.23**	**0.19 J**	**0.16 J**	**15.4**	**10.2**	**8.1**	**3.0**	**10.3**	**0.14 J**	**0.07 J**	**0.08 J**	**0.29**
Toluene	ug/l	**6.7**	**2.4**	**0.73**	**0.61**	**0.59**	<0.2	**0.14 J**	**0.06 J**	**0.33**	**0.89**	**1.5**	**0.27**	**0.27**	**0.05 J**	<0.20	<0.20	<0.20
Ethylbenzene	ug/l	**6.2**	**1.4**	**1.0**	**1.4**	**0.45**	<0.2	**0.06 J**	**0.04 J**	**0.22**	**0.19 J**	**0.25**	**0.44**	**0.14 J**	**0.06 J**	**0.05 J**	**0.04 J**	<0.20
m,p-Xylene	ug/l	**12**	**2.6**	<0.40	**0.77**	**0.77**	**0.07 J**	**0.14 J**	**0.09 J**	**0.25 J**	**0.63**	**1.1**	**0.42**	**0.22 J**	<0.40	<0.40	<0.40	<0.40
o-Xylene	ug/l	**2.7**	**1.1**	**0.33**	**0.26**	**0.33**	<0.2	**0.07 J**	**0.06 J**	**0.18 J**	**0.42**	**0.53**	**0.18**	**0.15 J**	**0.09 J**	<0.20	**0.04 J**	**0.04 J**
Method WA VPH																		
Benzene	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
Toluene	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
Ethylbenzene	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
m,p-Xylene	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
o-Xylene	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
Methyl tert-Butyl Ether	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
n-Pentane	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
n-Hexane	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
n-Octane	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
n-Decane	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
n-Dodecane	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
C8-C10 Aromatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
C10-C12 Aromatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
C12-C13 Aromatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
C5-C6 Aliphatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
C6-C8 Aliphatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
C8-C10 Aliphatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
C10-C12 Aliphatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
EC5-6 aliphatics+EC6-8 aliphatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
EC8-10 aliphatics+EC10-12 aliphatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				
EC8-10 aromatics+EC10-12 aromatics	ug/l	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----				

Notes: ıe "U" flag.

Pre-Remediation
Post-Remediation by Year
Exceeds cleanup level

TABLE 2 - Groundwater Analytical Data - July 2014 to December 2019

Constituent / Location / Date / Type	Units	MW-USO-R4			
		4/2/19 Well	7/1/19 Well	9/9/19 Well	12/16/19 Well
ARI Delivery Group		**19D0049**	**19G0033**	**19I0135**	**19L0288**
TOC Elevation	**feet(b)**	**14.18**	**14.18**	**14.18**	**14.18**
Field Parameters					
Water Level	feet(a)	5.71	6.25	6.72	6.52
Water Level Elevation	feet(b)	8.47	7.93	7.46	7.66
pH	std. units	6.6	6.4	6.1	6.3
Electrical Conductivity	uS/cm	810	634	658	343
Temperature	C	12.9	18.7	20.6	13.8
Dissolved Oxygen	mg/l	0.4	0.71	0.14	0.13
Oxidation-Reduction Potential (ORP)	mV	15	-9.8	73.9	-12.4
Ferrous Iron	mg/l	1.5	3.8	2.5	2.0
Turbidity	NTU	<1	2.6	8.1	4.3
Method SW8260C					
Gasoline Range Hydrocarbons	mg/l	<0.10	<0.10	<0.10	<0.10
Benzene	ug/l	**0.03 J**	<0.2	**0.04 J**	<0.2
Toluene	ug/l	<0.20	<0.2	<0.2	<0.2
Ethylbenzene	ug/l	<0.20	<0.2	<0.2	<0.2
m,p-Xylene	ug/l	<0.40	<0.4	<0.4	<0.4
o-Xylene	ug/l	<0.20	<0.2	<0.2	<0.2
Method WA VPH					
Benzene	ug/l				
Toluene	ug/l				
Ethylbenzene	ug/l				
m,p-Xylene	ug/l				
o-Xylene	ug/l				
Methyl tert-Butyl Ether	ug/l				
n-Pentane	ug/l				
n-Hexane	ug/l				
n-Octane	ug/l				
n-Decane	ug/l				
n-Dodecane	ug/l				
C8-C10 Aromatics	ug/l				
C10-C12 Aromatics	ug/l				
C12-C13 Aromatics	ug/l				
C5-C6 Aliphatics	ug/l				
C6-C8 Aliphatics	ug/l				
C8-C10 Aliphatics	ug/l				
C10-C12 Aliphatics	ug/l				
EC5-6 aliphatics+EC6-8 aliphatics	ug/l				
EC8-10 aliphatics+EC10-12 aliphatics	ug/l				
EC8-10 aromatics+EC10-12 aromatics	ug/l				

Notes:



Air Photo Date: May 4, 2013

True North

Site North

1920 Port of Tacoma Road
Tacoma, Washington

Vicinity Location

POT-001-00 **FIGURE 1** Dec. 2014

Dalton, Olmsted & Fuglevand, Inc.

Ref: Vicinity Map 12-2014a.cdr

US OIL & REFINING
1735 PORT OF TACOMA RD

CITY OF TACOMA
2545 LINCOLN AVE.

Washington United Terminal
2545 LINCOLN AVE.

PORT OF TACOMA
2545 LINCON AVE

MW-R4

MW-R2

MW-R3

MW-R1

Excavated to Eight Feet

Excavated to Five Feet

Terminal Entrance

Fiber Optic Line

Abandoned Pipeline Corridor

Water Line

12" Storm Drain

12" Sewer Line

PORT OF TACOMA RD.

84+00

83+00

82+00

81+00

77+00

MHSAN
52546

MHSTR
52549

Excavated to 9.5 Feet

6" Gas Line

Excavated to Three Feet

Excavated to Seven Feet

MW-5S

PORT OF TACOMA

USOR Pipelines

PORT OF TACOMA

Container Truck Staging Area

E. 19th STREET

THE WATTLES
1926 PORT OF TACOMA RD

PORT CLINIC
1930 PORT OF TACOMA RD

MW-6S

BUILDING

BUILDING

MW-3S

MW-3M

True North

Site North

0

50

Scale in Feet

Remedial Core (Excavation) Area

Remedial Layback Area

Note: Interim remedial action completed in July 2015

Monitoring Well (Installed in 1992)

Monitoring Well (Installed in 2014/2015)

Manholes

Catch Basins

Remedial Area and Spl Loc2019.cdr

U.S. Oil & Refining Company
Tacoma, WA

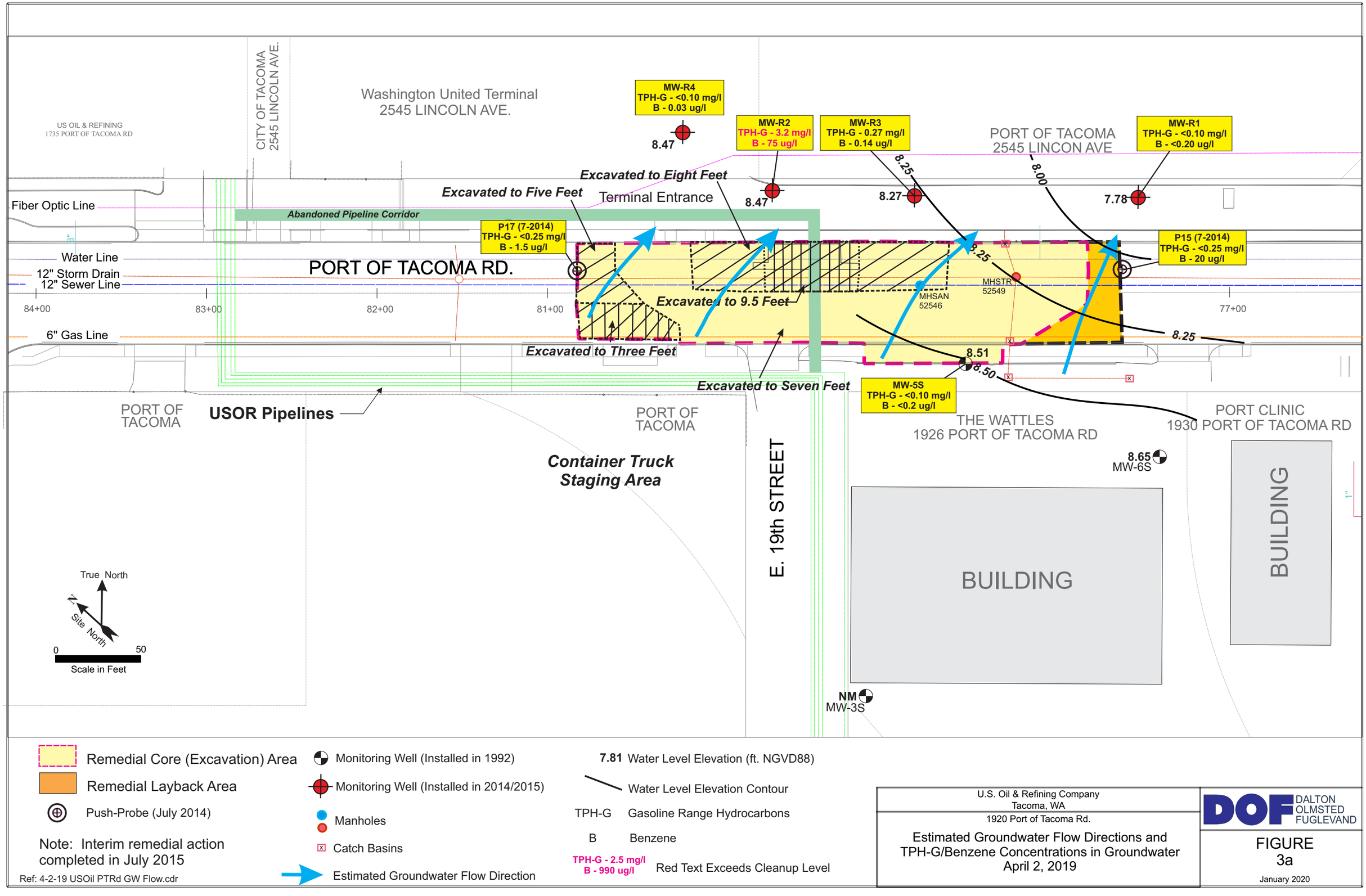
1920 Port of Tacoma Rd.

Interim Action Remedial Area and Monitoring Well Locations

DALTON OLMSTED FUGLEVAND

FIGURE
2

January 2020



U.S. Oil & Refining Company
Tacoma, WA

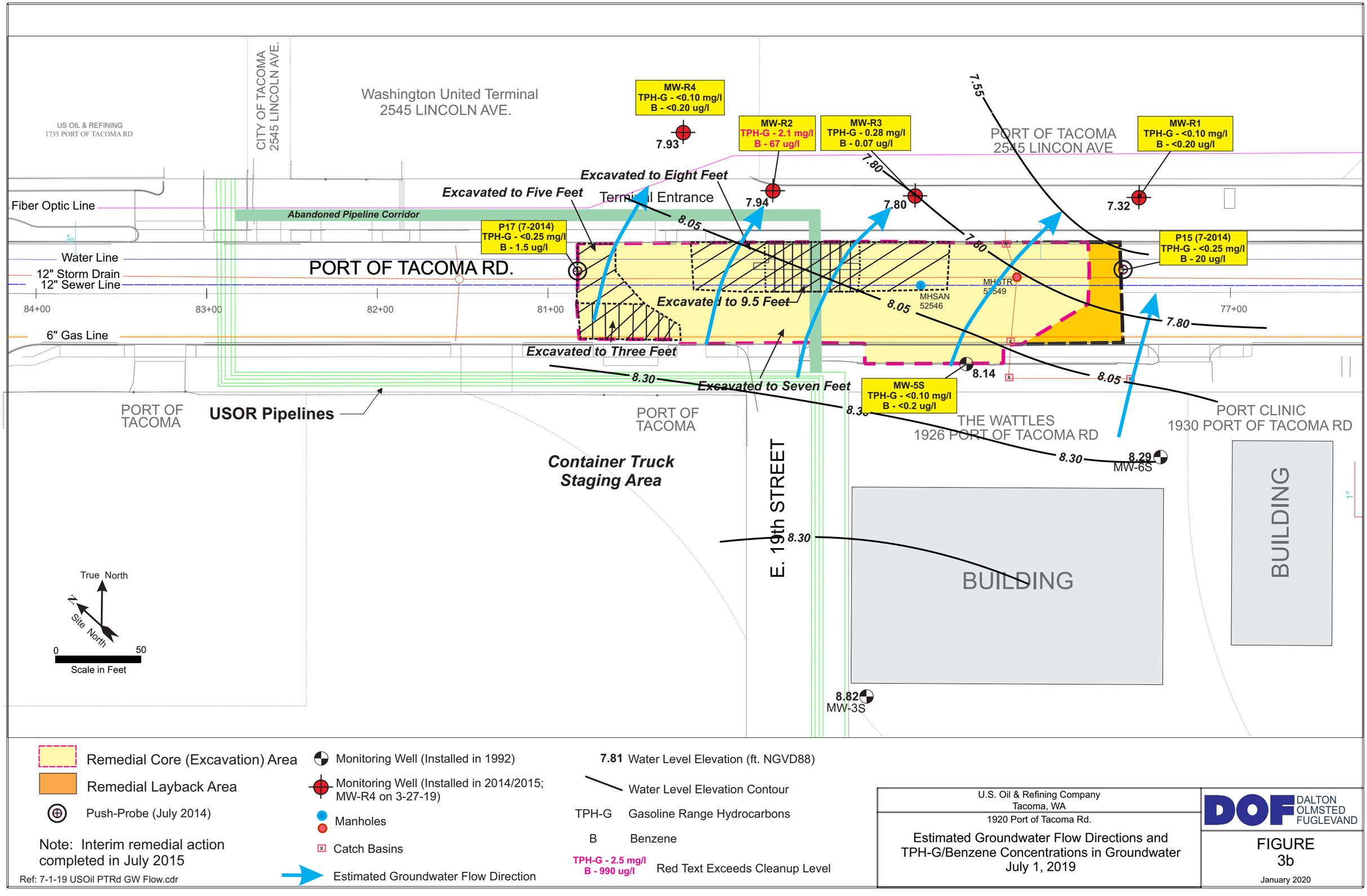
1920 Port of Tacoma Rd.

Estimated Groundwater Flow Directions and TPH-G/Benzene Concentrations in Groundwater
April 2, 2019

DALTON OLMSTED FUGLEVAND

FIGURE
3a

January 2020



U.S. Oil & Refining Company
Tacoma, WA

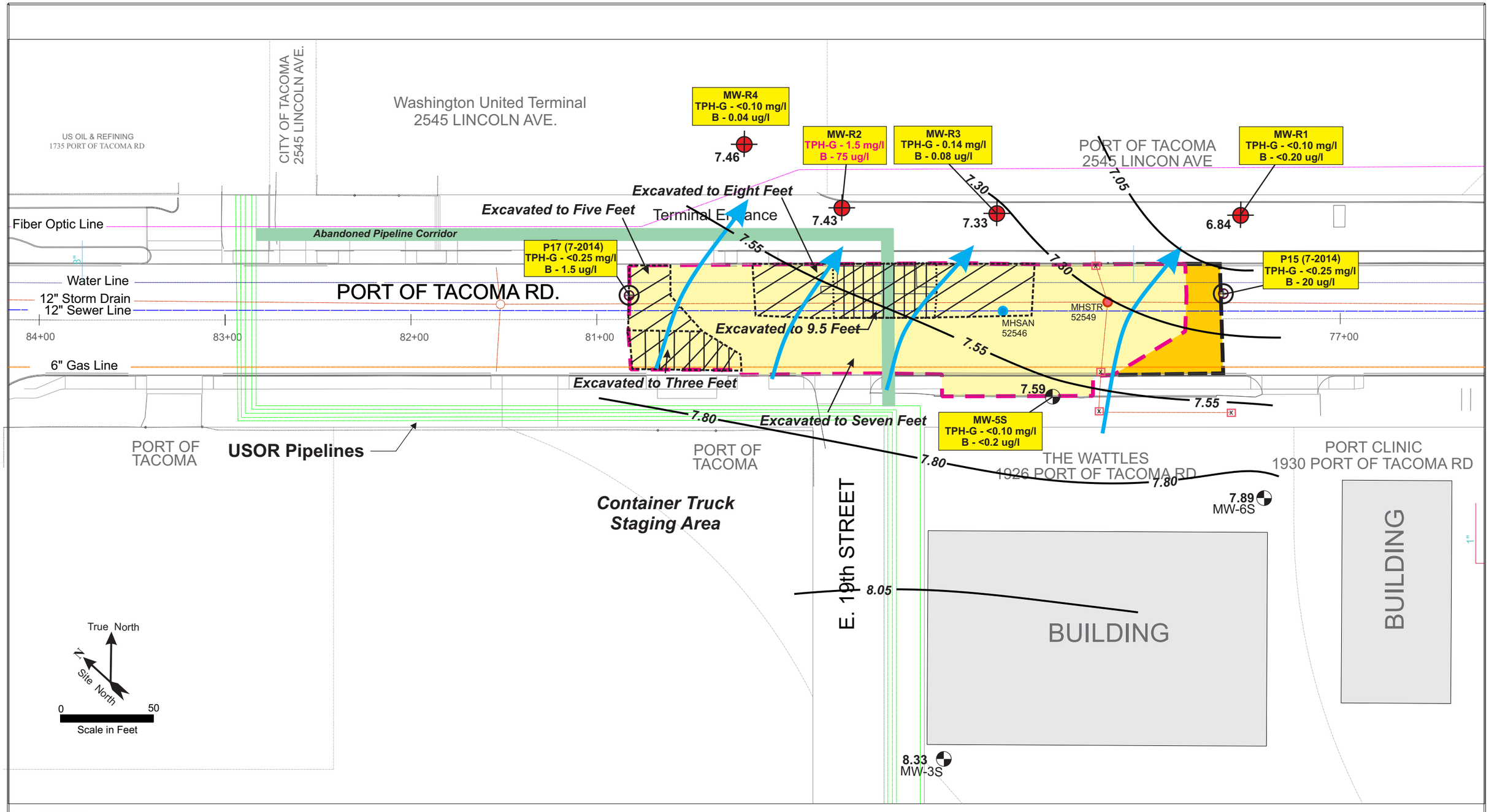
1920 Port of Tacoma Rd.

Estimated Groundwater Flow Directions and TPH-G/Benzene Concentrations in Groundwater
July 1, 2019

DALTON OLMSTED FUGLEVAND

FIGURE
3b

January 2020



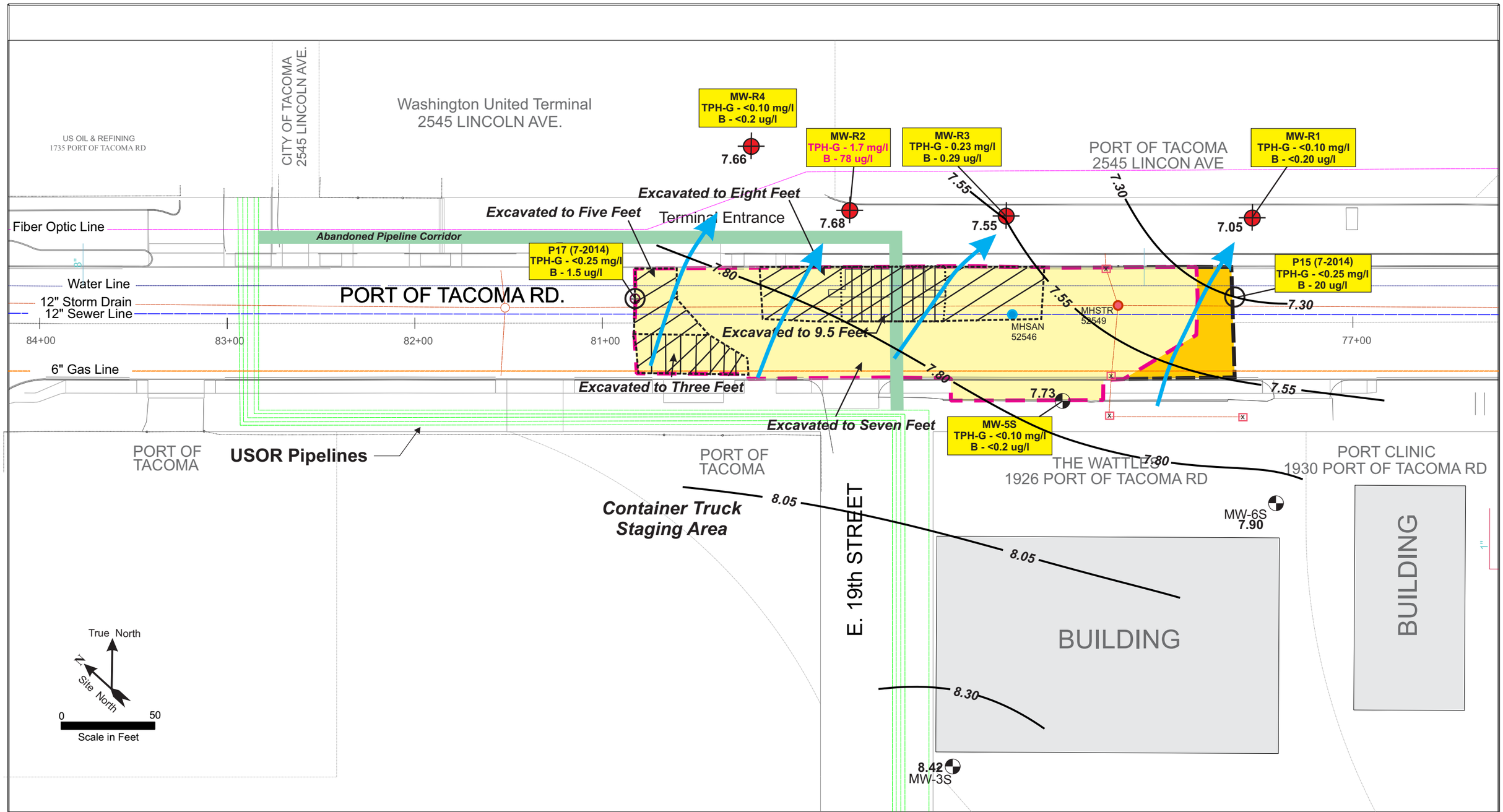
U.S. Oil & Refining Company
Tacoma, WA
1920 Port of Tacoma Rd.

Estimated Groundwater Flow Directions and TPH-G/Benzene Concentrations in Groundwater
September 9, 2019

DALTON OLMSTED FUGLEVAND

FIGURE
3c

January 2020



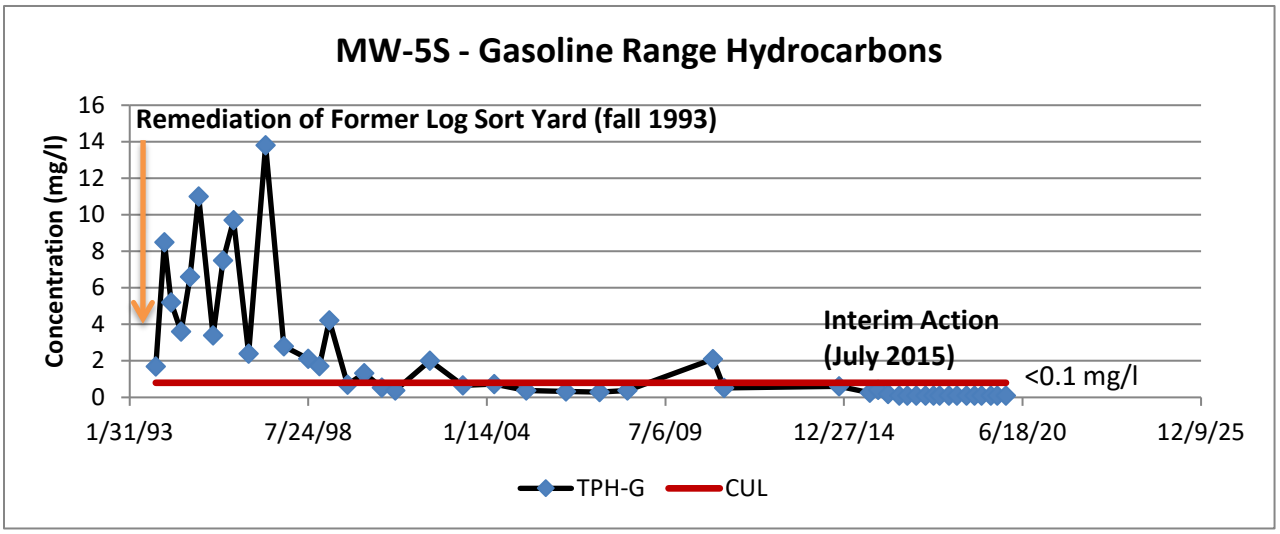
U.S. Oil & Refining Company
Tacoma, WA
1920 Port of Tacoma Rd.

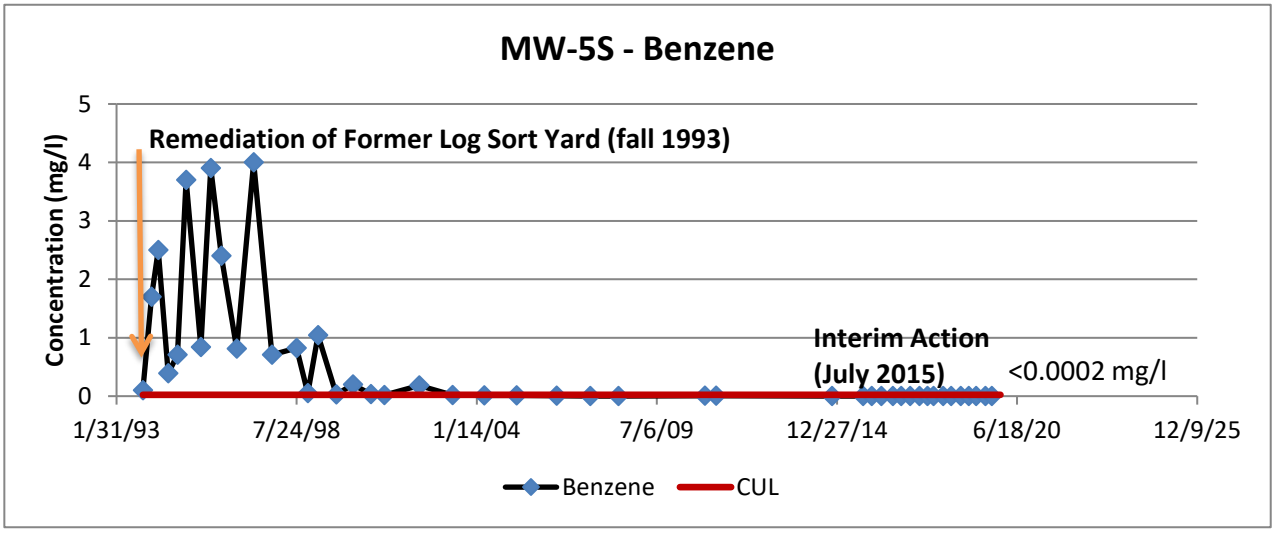
Estimated Groundwater Flow Directions and TPH-G/Benzene Concentrations in Groundwater
December 16, 2019

DALTON OLMSTED FUGLEVAND

FIGURE
3d

January 2020





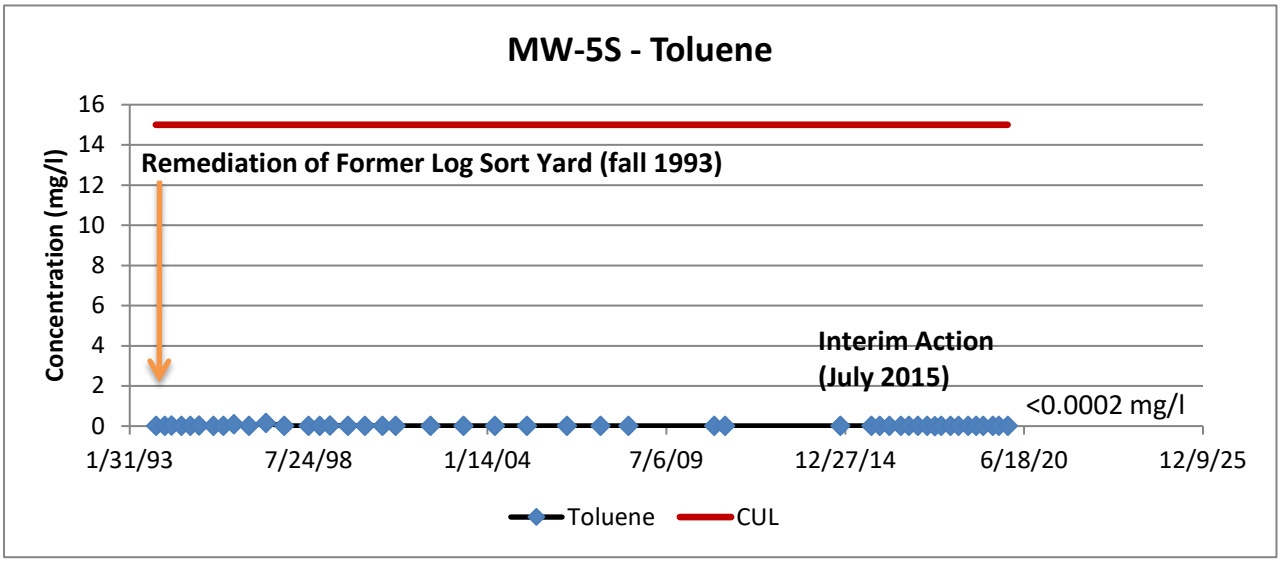
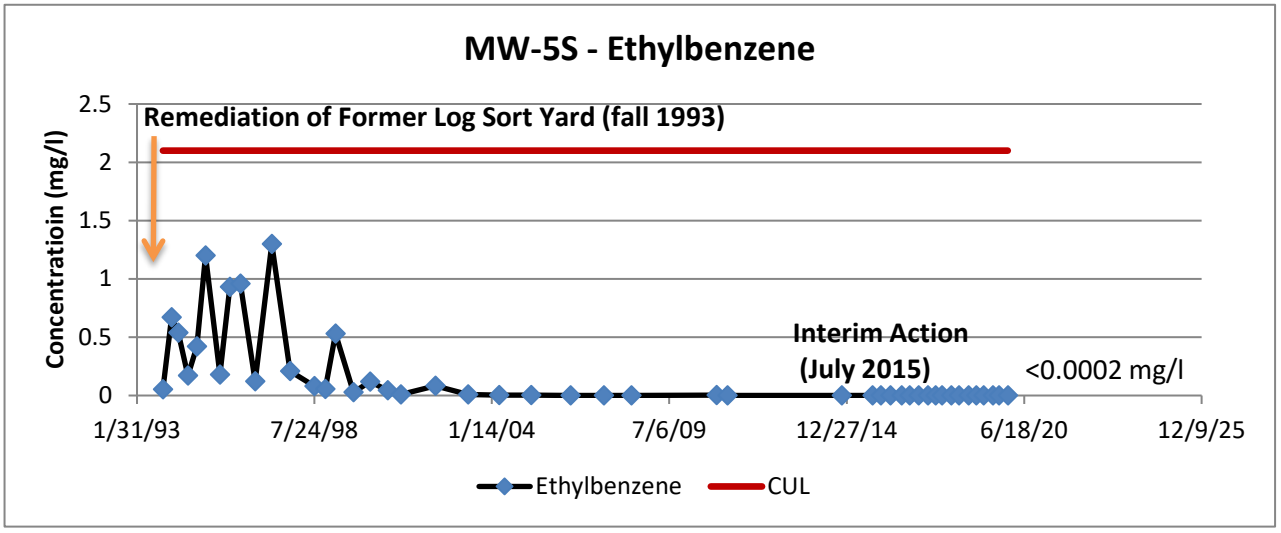


FIGURE 4a - Time Series Concentration Plots - MW-5S



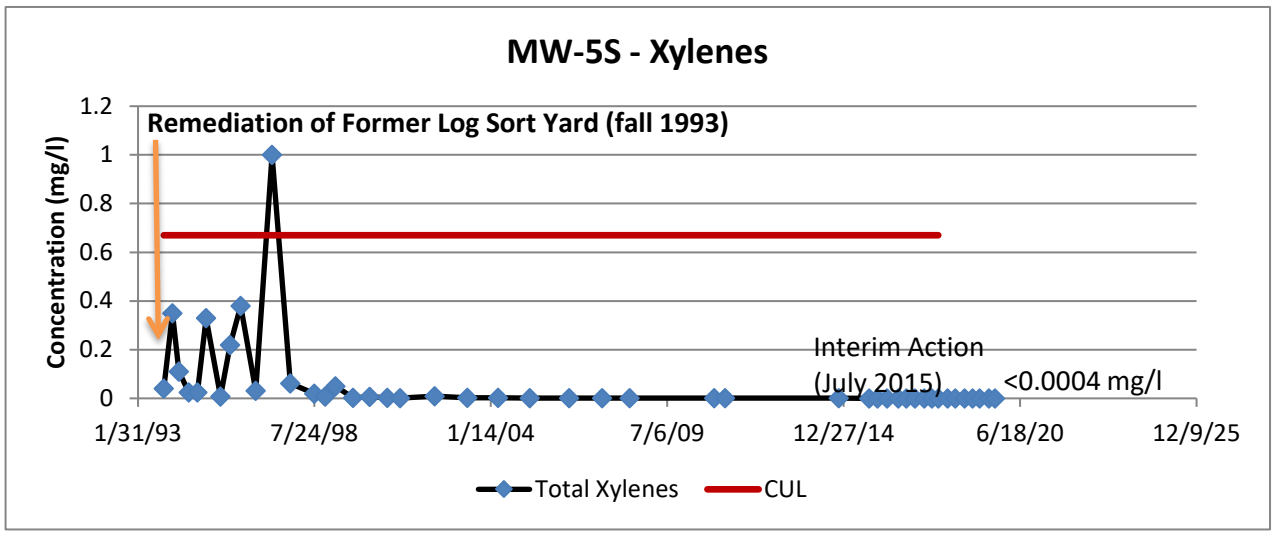
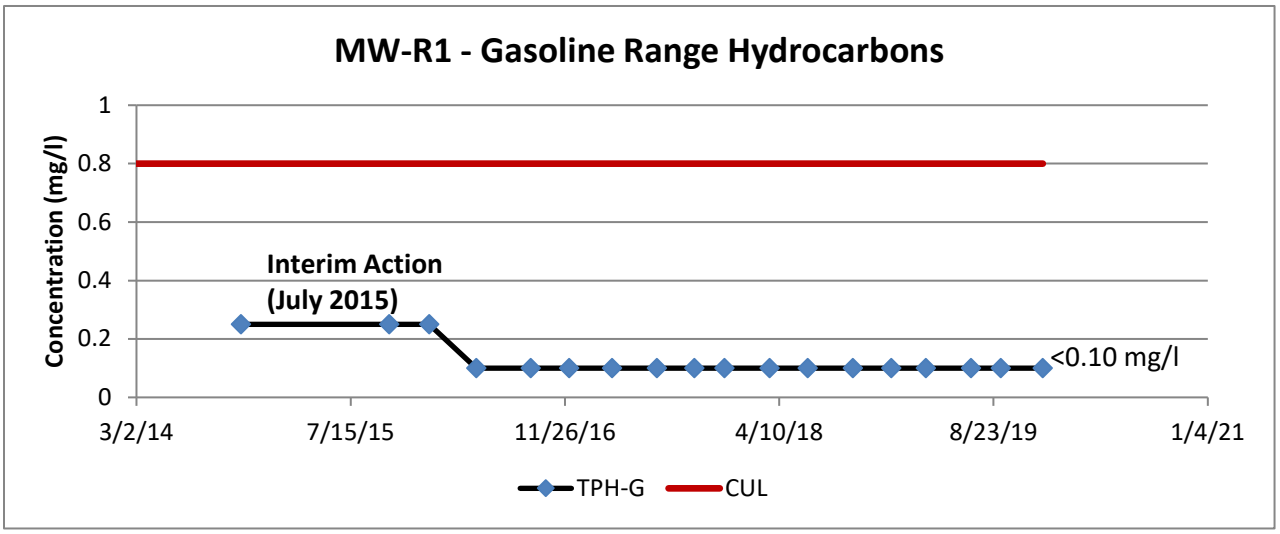
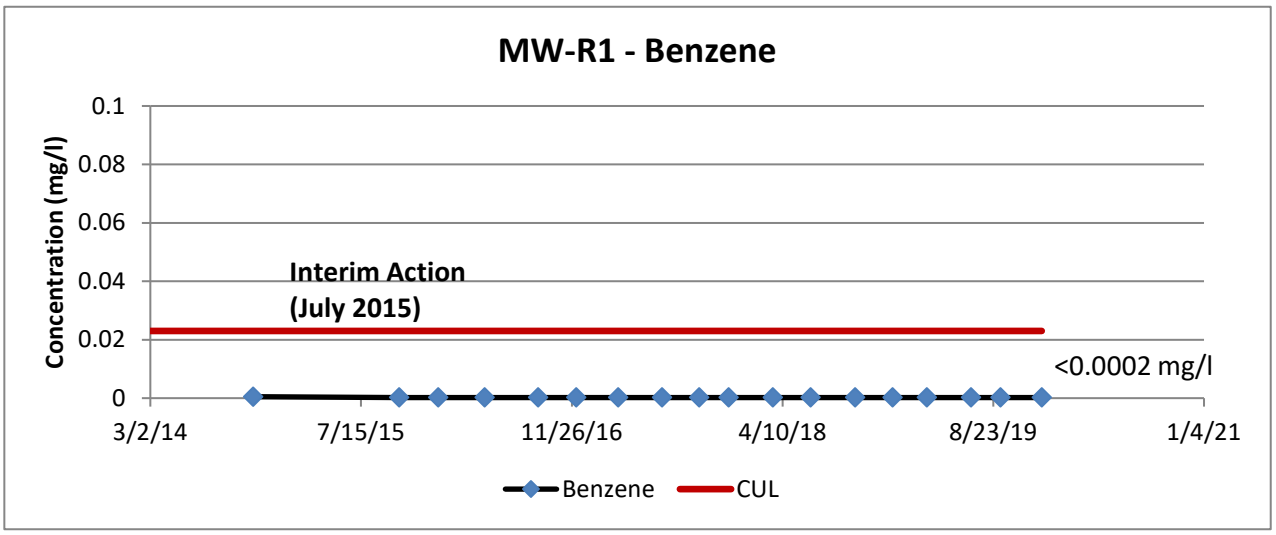


FIGURE 4a - Time Series Concentration Plots - MW-5S





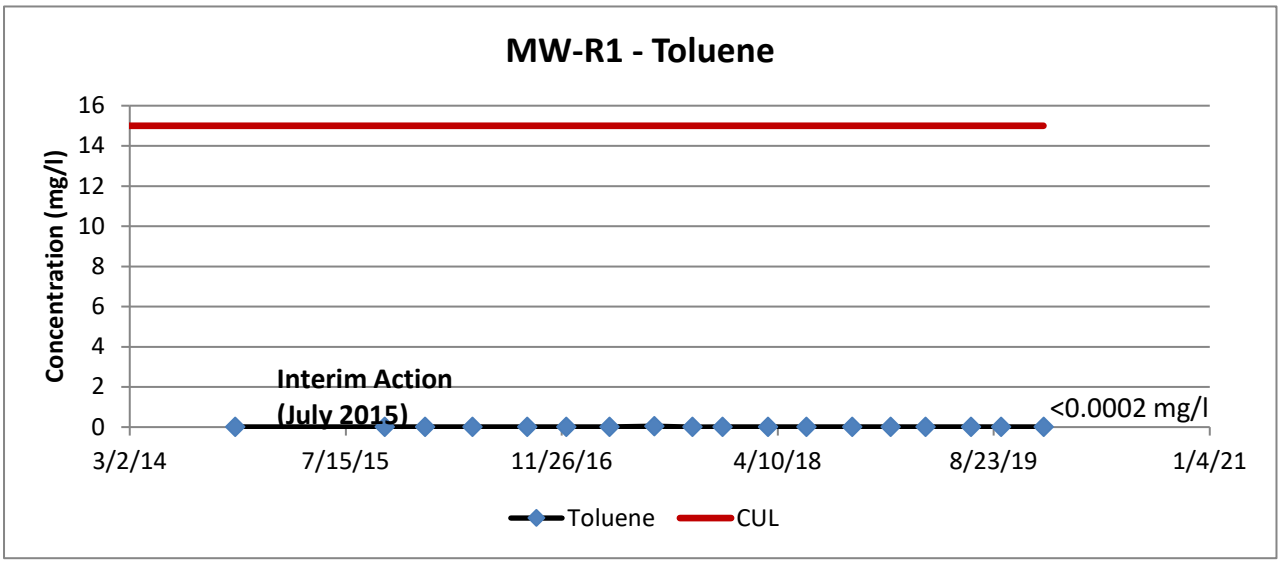
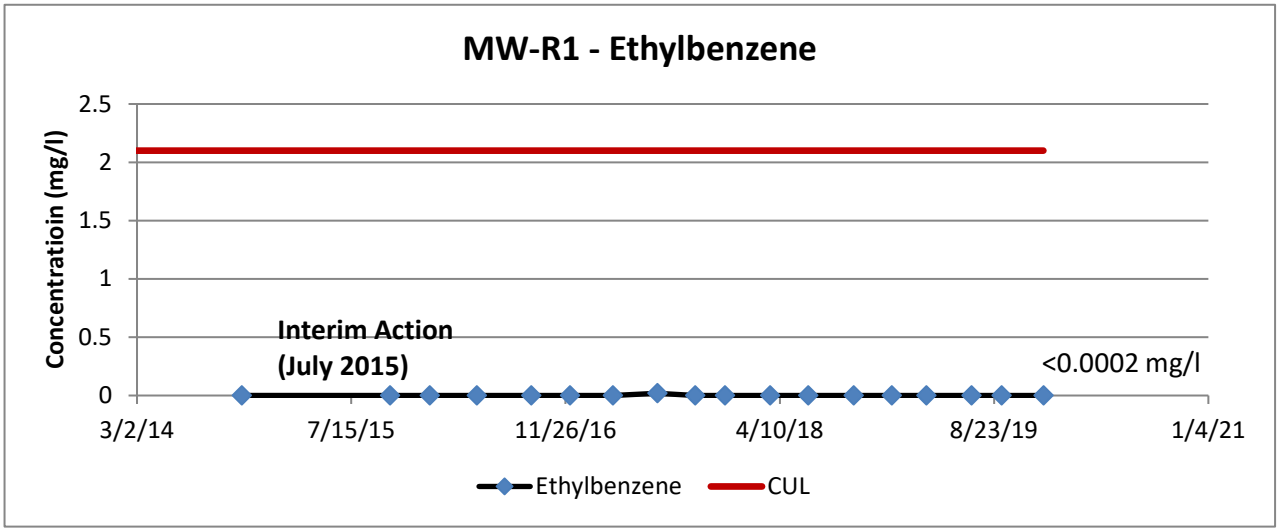


FIGURE 4b - Time-Series Concentration Plots - MW-R1



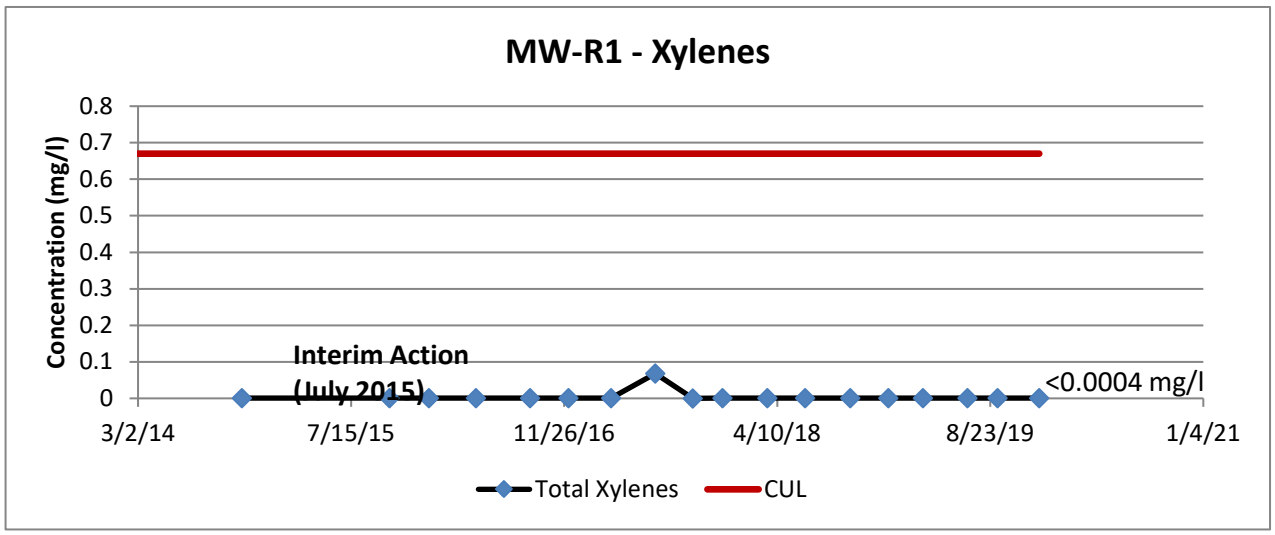
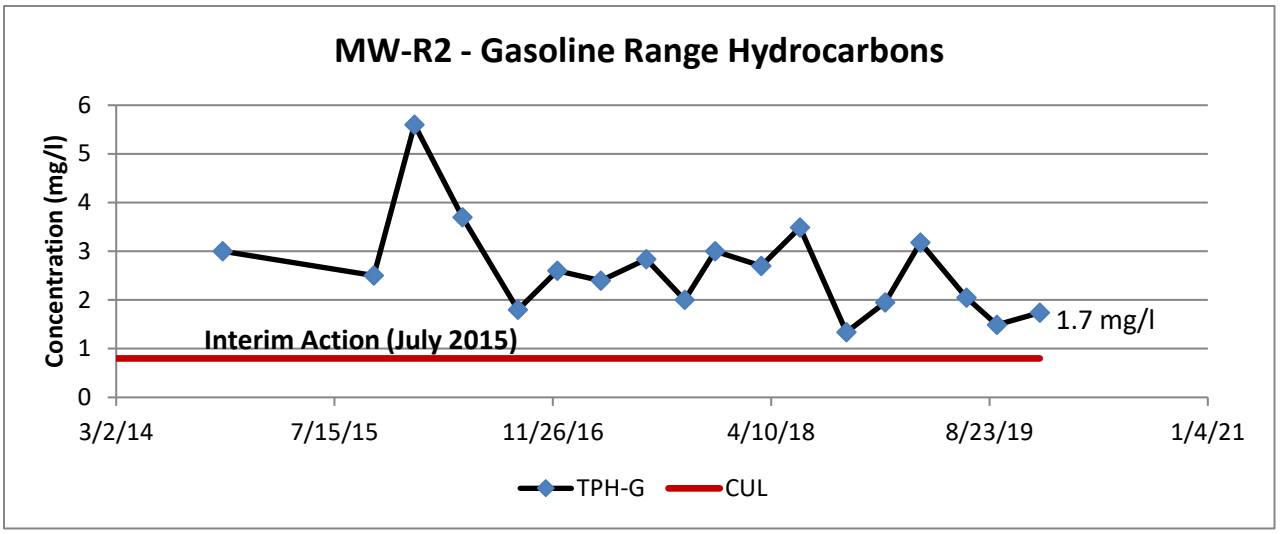
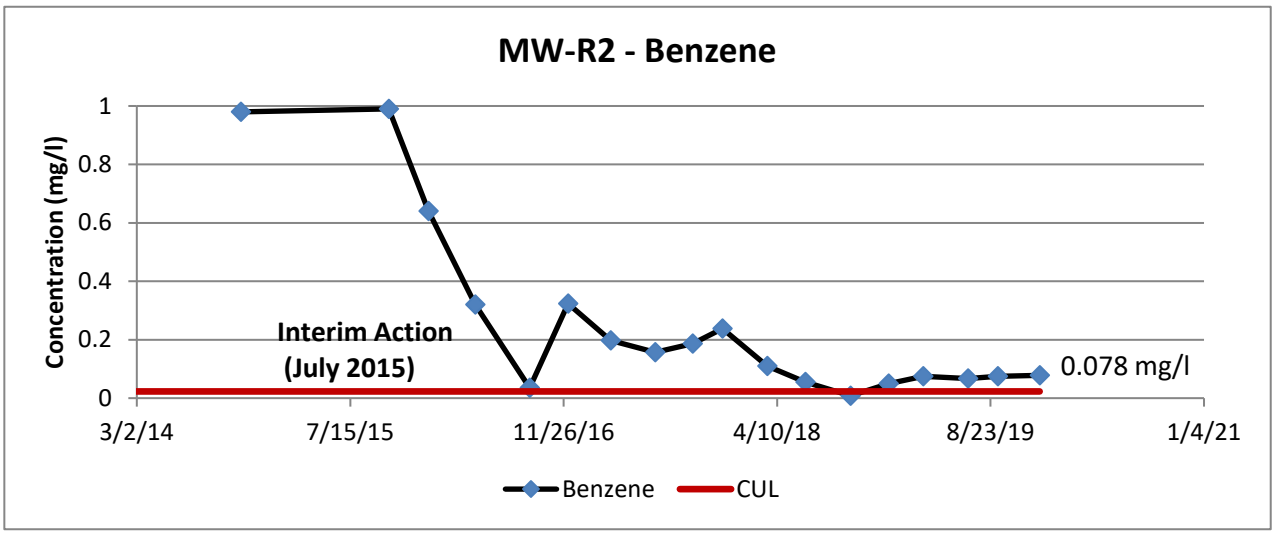


FIGURE 4b - Time-Series Concentration Plots - MW-R1





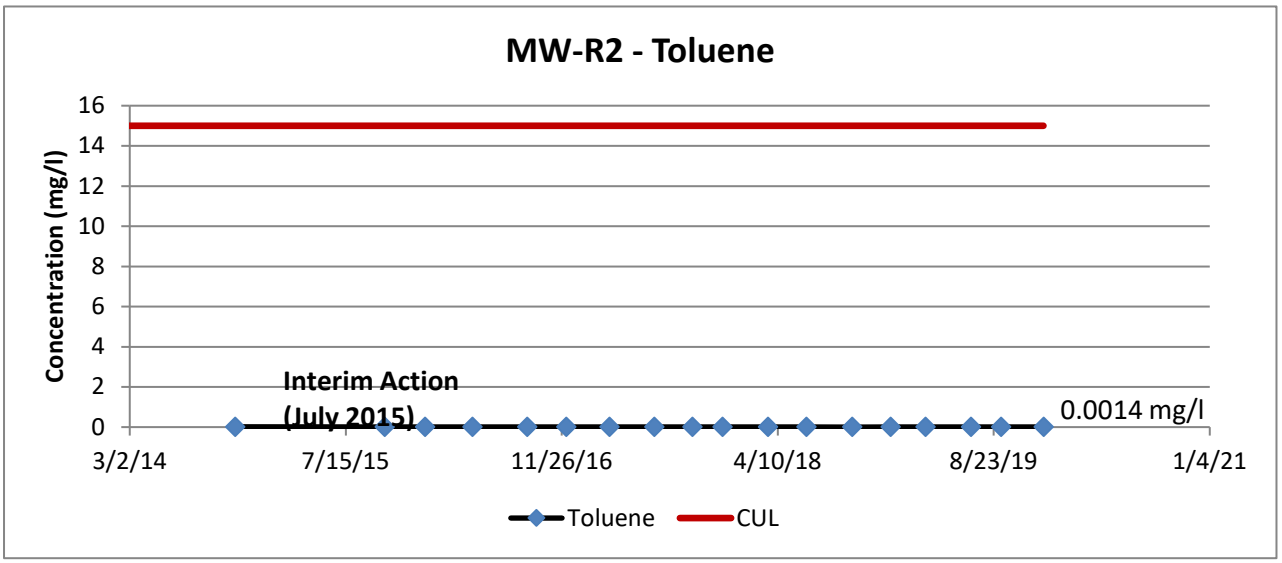
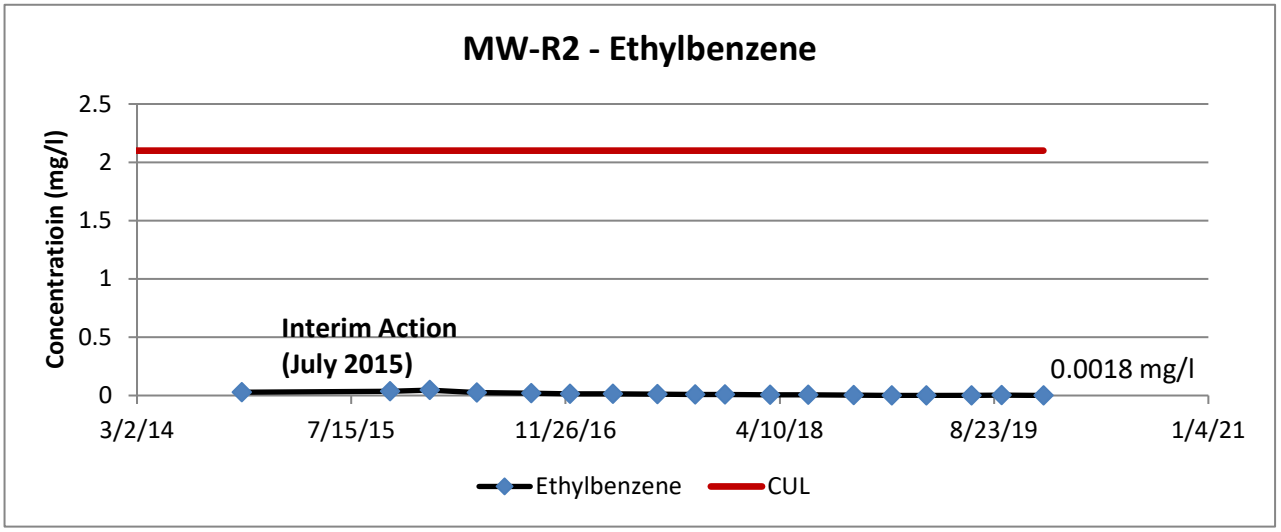


FIGURE 4c - Time Series Concentration Plots - MW-R2



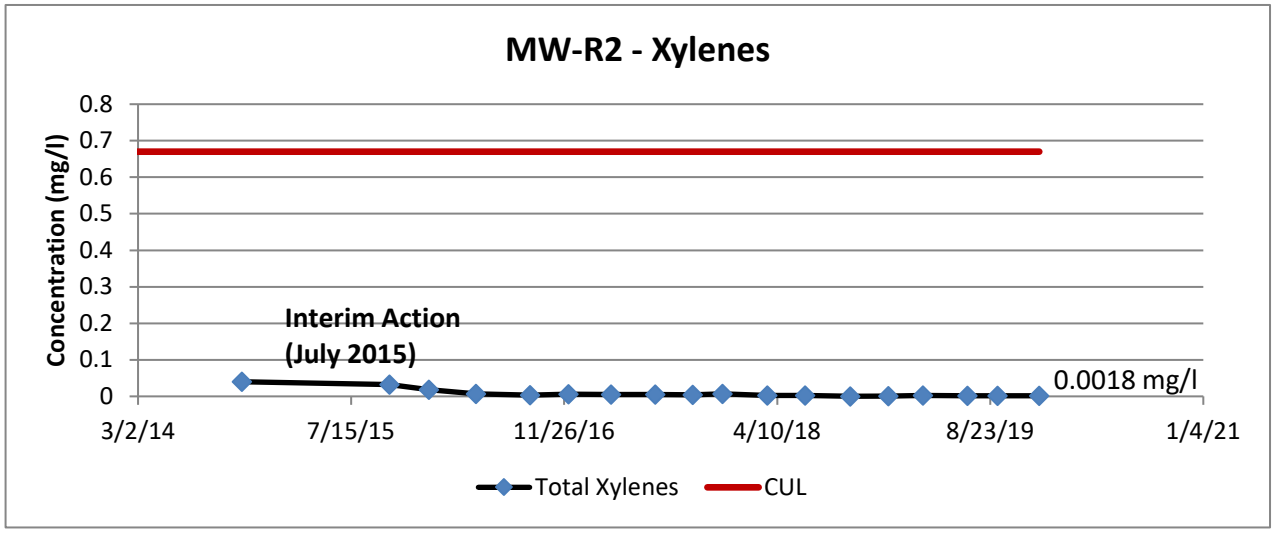
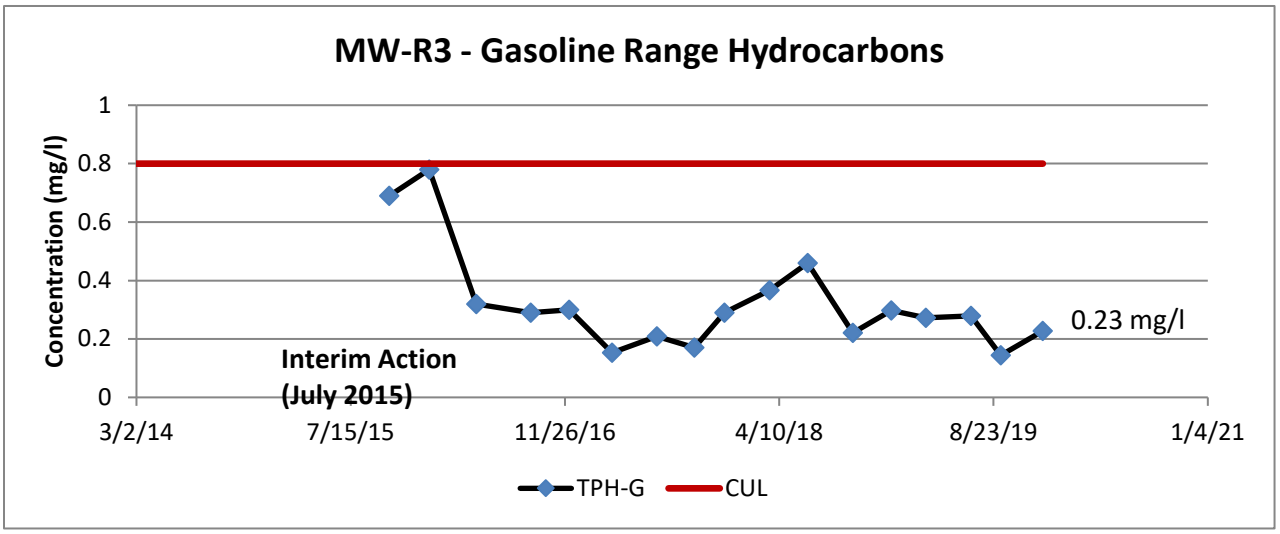
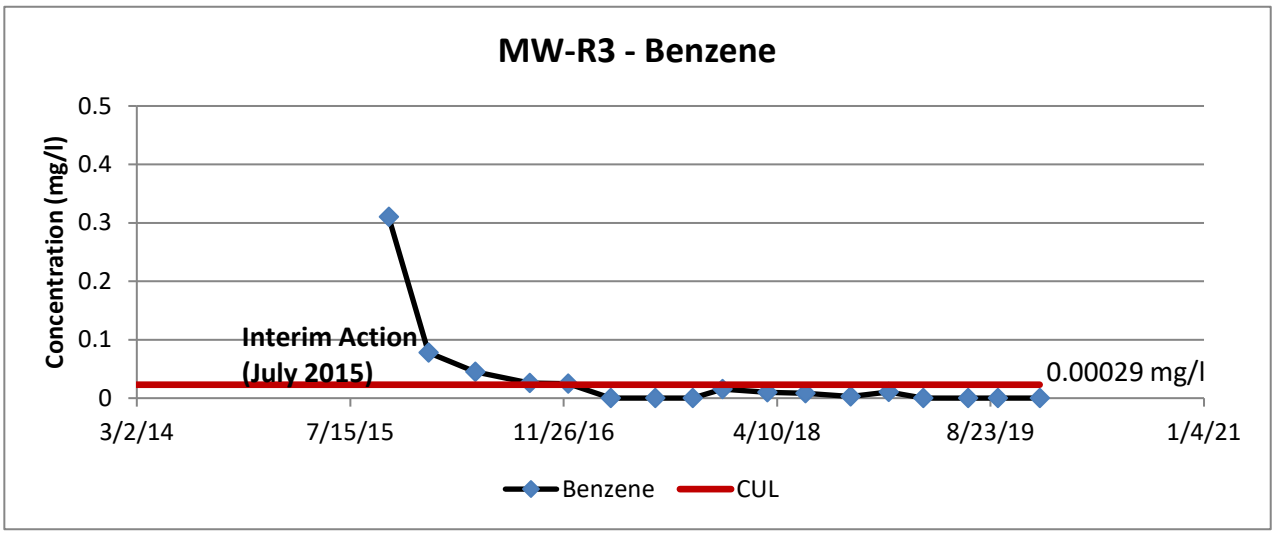


FIGURE 4c - Time Series Concentration Plots - MW-R2





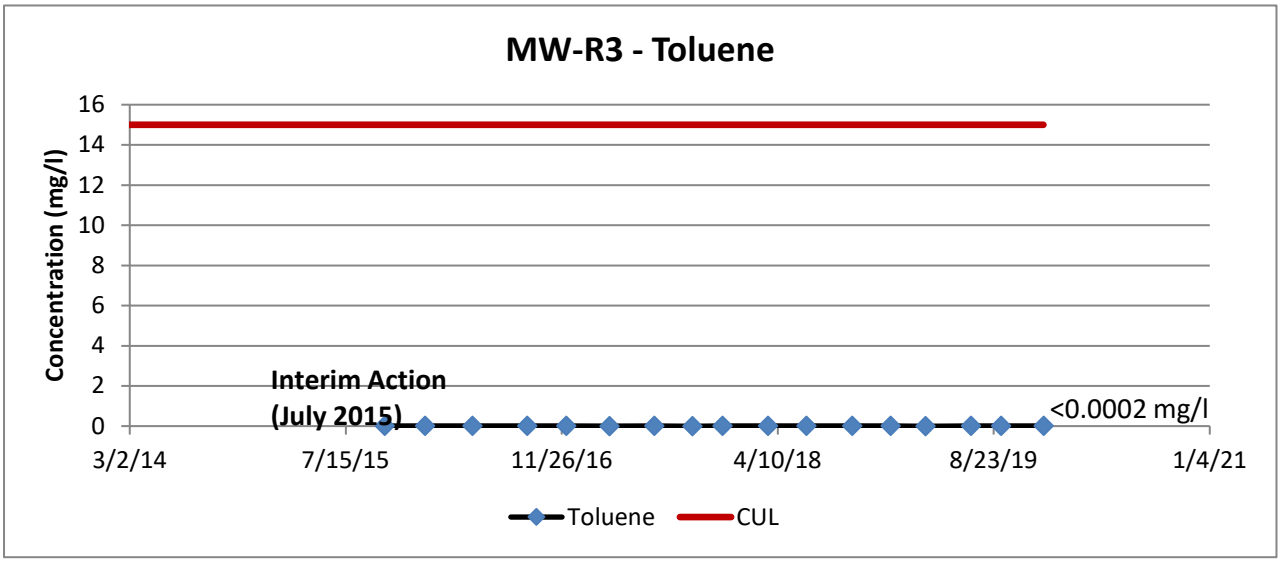
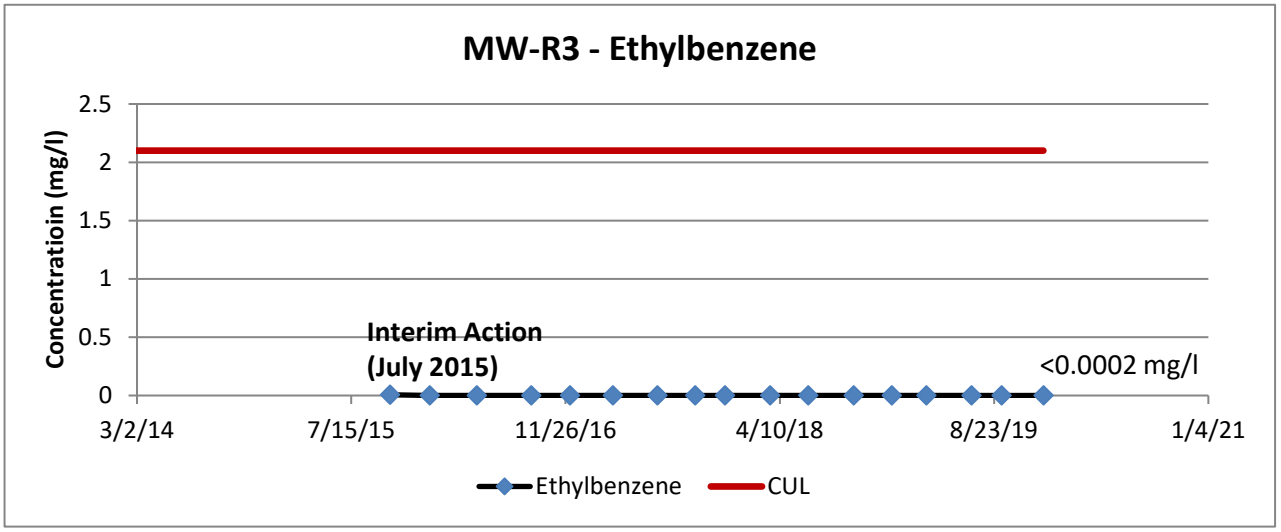


FIGURE 4d - Time Series Concentration Plots - MW-R3



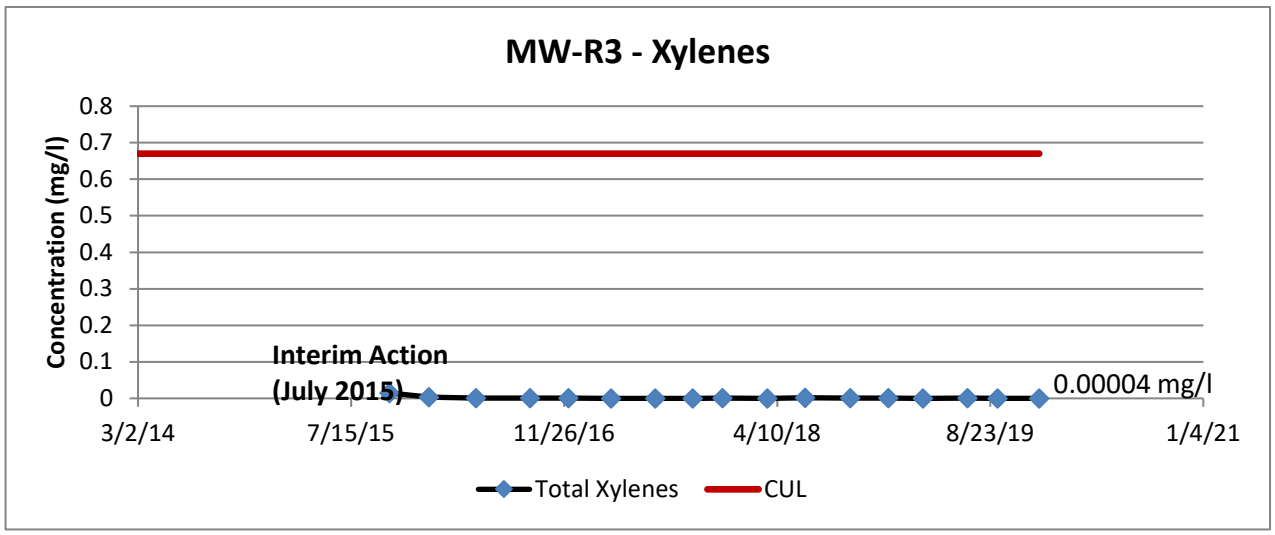
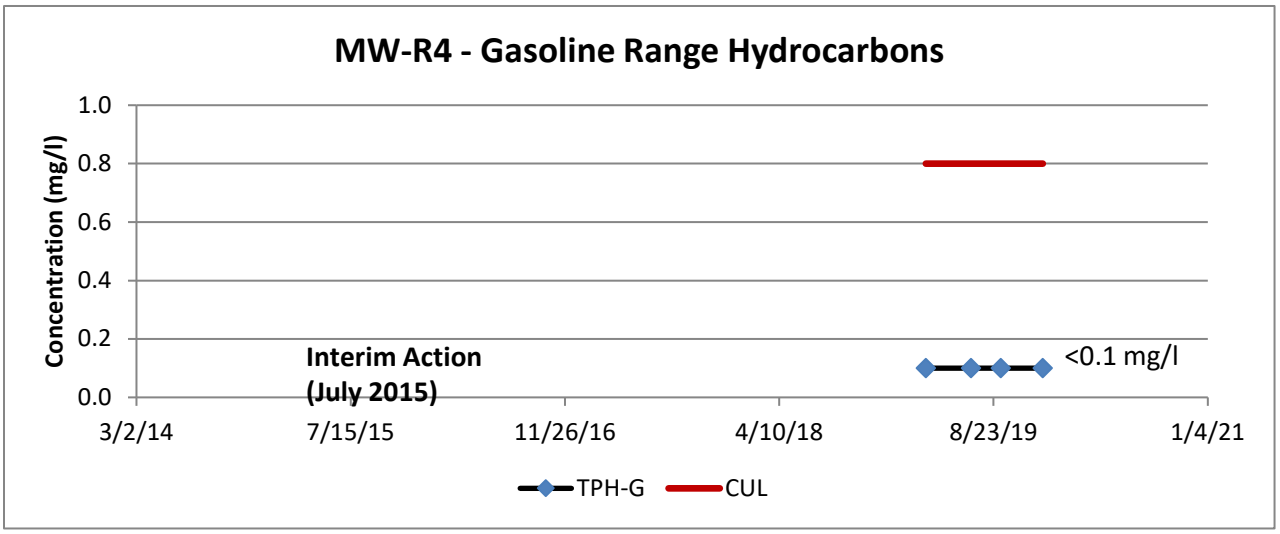
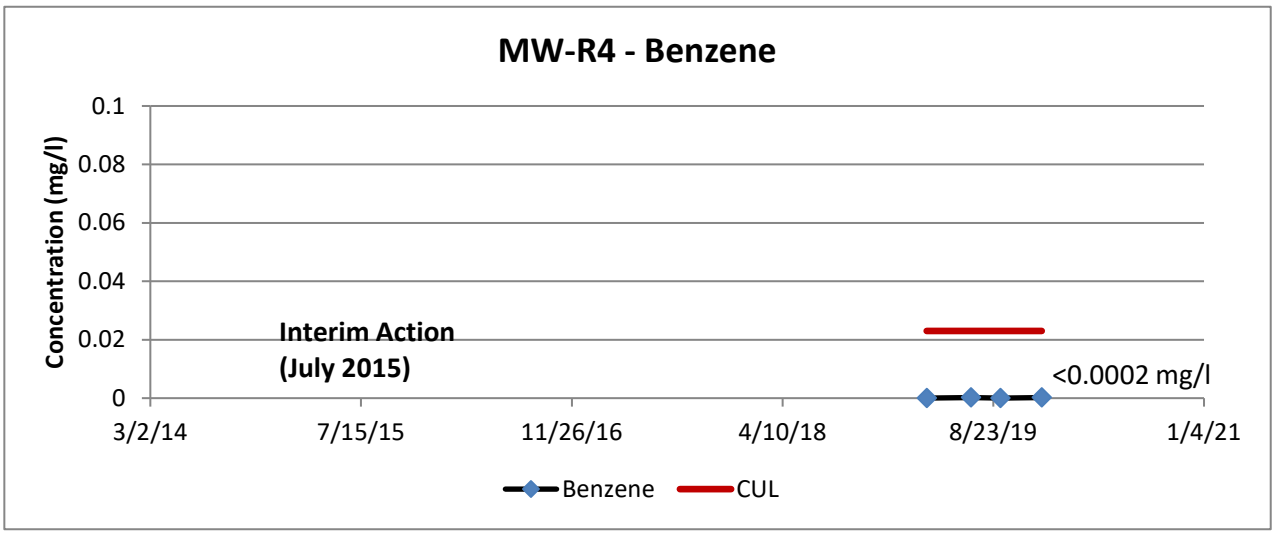


FIGURE 4d - Time Series Concentration Plots - MW-R3





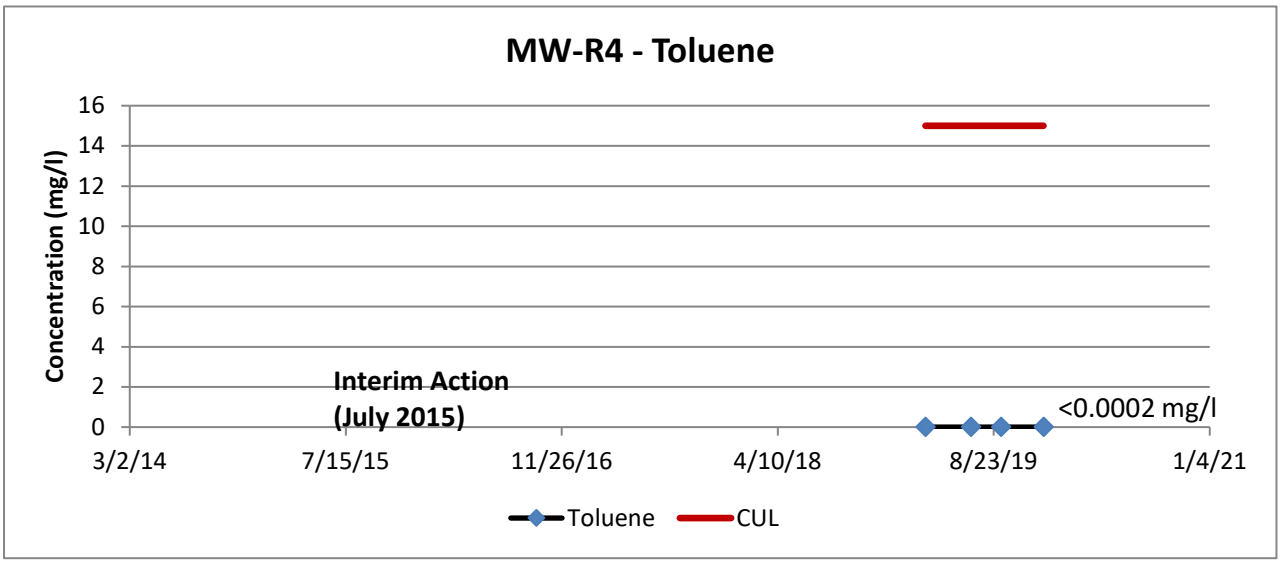
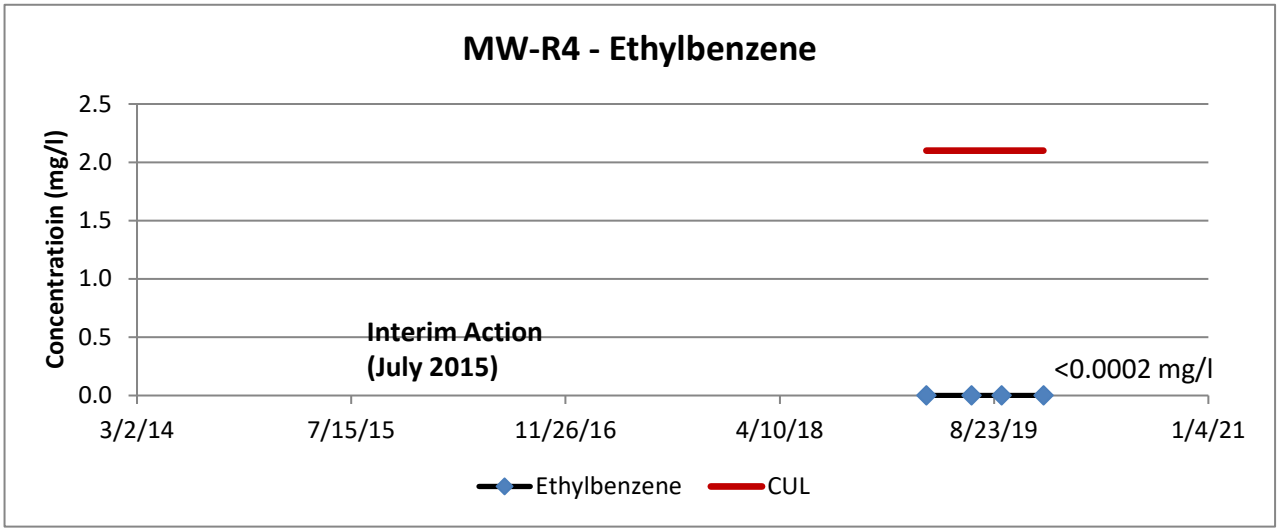


FIGURE 4e - Time Series Concentration Plots - MW-R4



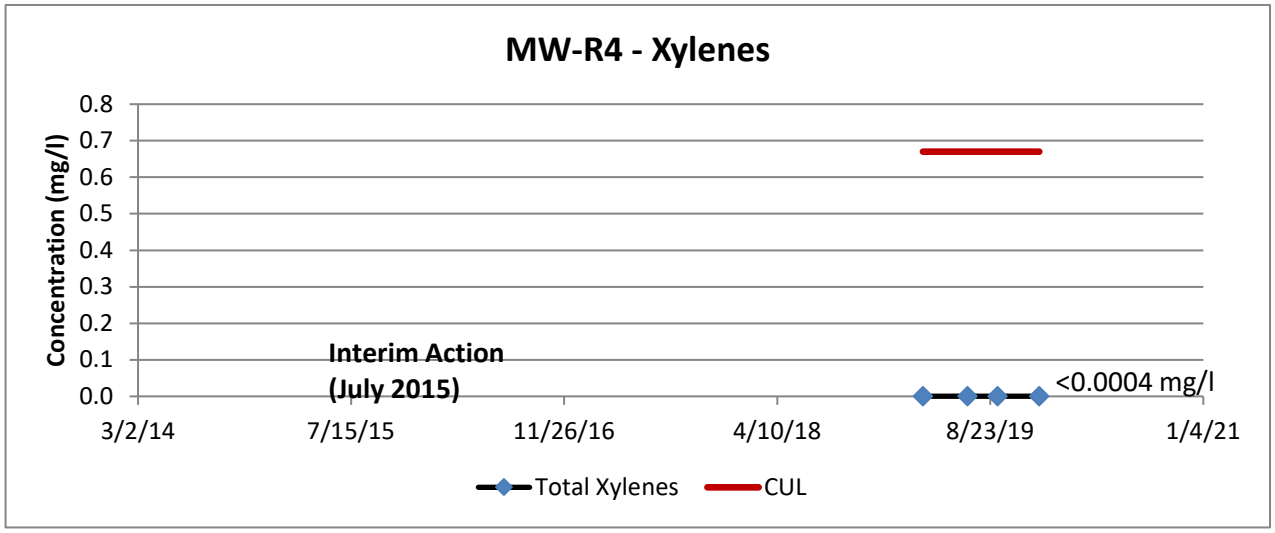
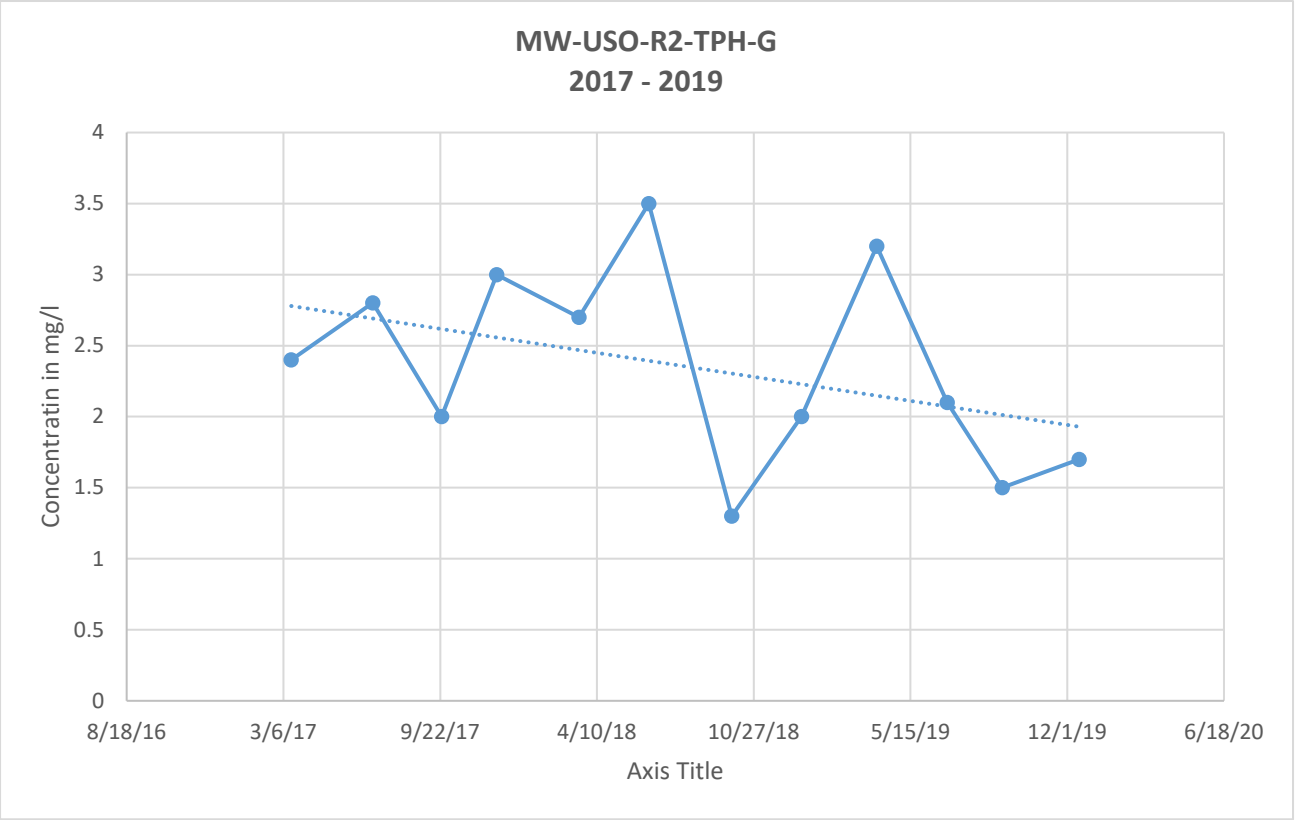
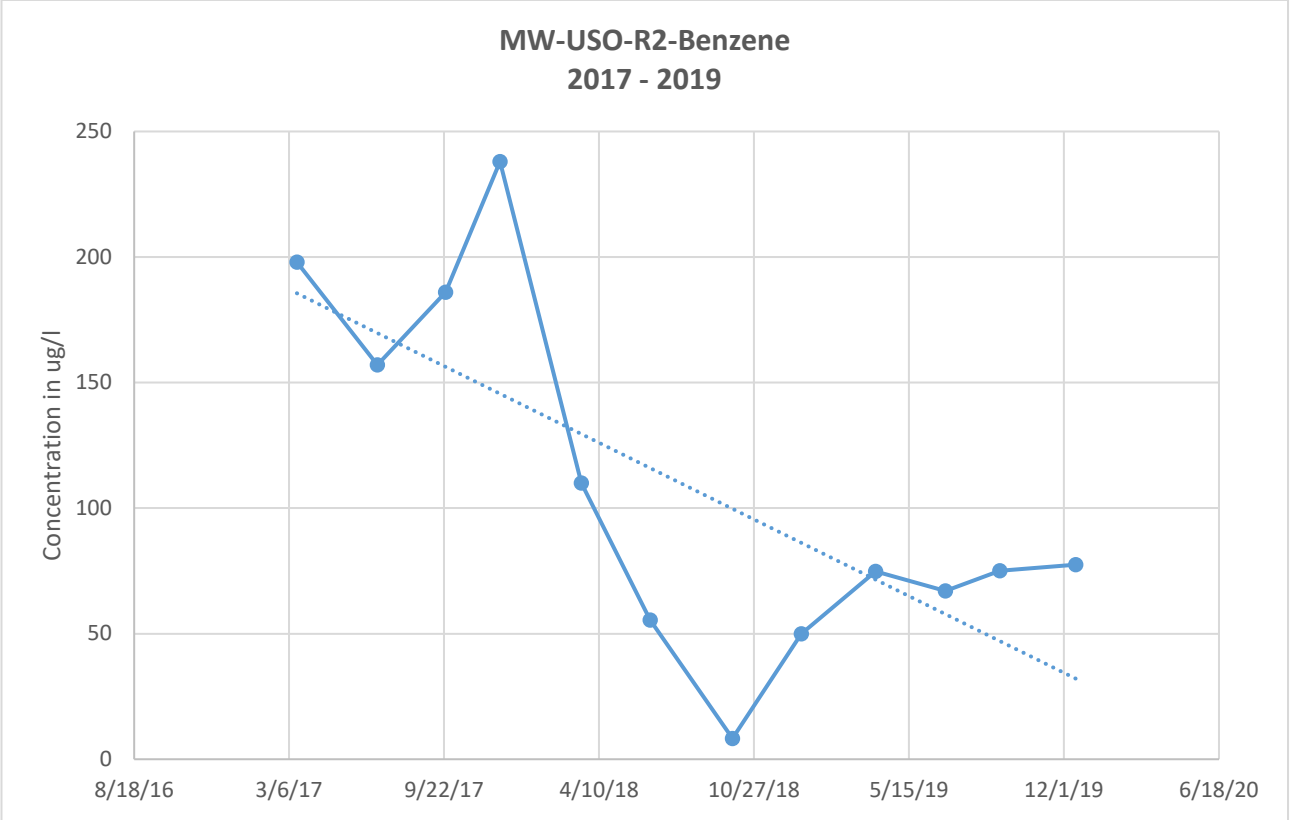


FIGURE 4e - Time Series Concentration Plots - MW-R4





Dalton, Olmsted Fuglevand, Inc. (MWR3Plot.xlsx-Sheet1)

FIGURE 5 - TPH-G and Benzene Trends - MW-USO-R2

APPENDIX A
BORING/WELL CONSTRUCTION LOG – MW-R4

1920 PORT OF TACOMA ROAD
TACOMA, WASHINGTON

Dalton, Olmsted & Fuglevand, Inc.
Environmental Consultants

1920 Port of Tacoma Road

BORING - DESCRIPTION OF SAMPLES & DATA

MW-R4

Field Rep: A.Cerruti
Location: N 709528.6 E 1169247.6 (NAD83)
Drilling Co. Holt Drilling
Elevation (Ft.): 14.6 NAVD88
Ground Surface: Asphalt Pavement
Driller: Mike Running
Date Completed: 3/27/2019
Drill Type: Geoprobe 7822 DT
Weather: Overcast 55F
Size/Type Casing: 3.5 " Rod with closed tip
Hammer Type: Direct push
Sampler Type: 2.25" Macro w/ 1.75" acrylic liner

Spl.No.	Type sample saved	PID (ppm)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
			0-5	46		0-0.8 Asphalt concrete
						0.8-1.7 3/4" crushed rock w/ trace sand and fines
						1.7-2.8 poorly graded SAND with gravel (SP) moist, brown,
						85% F-M sand, 10% fine gravel, 5% fines. Large broken gravel at
						base with interbedded sand below. No odor, no sheen
						2.8-3.8 poorly graded SAND (SP) moist, dark brown,
						100% F-M sand with interbedded mottling at base, no odor, no sheen
			5-10	30		5-7.5 poorly graded SAND (SP) saturated, dark gray,
						100% F-M sand, no odor, no sheen
			10-15	30		10-11.3 SILT (ML), wet, dark brown, 100% silt with
						black root casts and scattered organics
						11.3-13 clayey SILT (CL-ML), saturated, brown, plastic,
						with scattered organics, thin silty sand bed @ 11.8', dense marsh
						grasses at base, slight sufurous odor throughout, no sheen.

Note:

MONITORING WELL DIAGRAM

Depth(ft.)

0 **SUMMARY LOG**

-10" Asphalt Concrete
-10" of 3/4" minus crushed rock

Moist, brown, fine to medium SAND (SP)
with fine gravel, no odor, no sheen

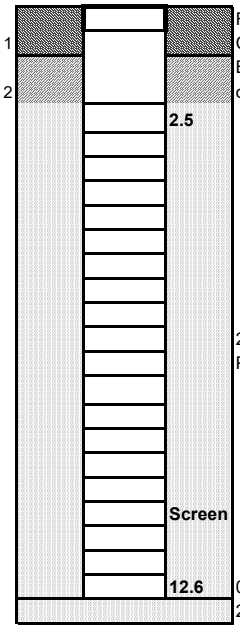
6 -becomes saturated

7.5

Saturated, brown, Clayey SILT (CL-ML),
with scattered organics

12.6 (Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.



Flush monument (10" Morris)
Concrete
Bentonite Chip
on 6" 2/12 sand
2/12 Sand
Pre-Pac
0.3" end cap
2/12 Sand

MONITORING WELL INFORMATION

TOC Elevation: 14.18 feet NAVD88
Riser: 2" dia.SCH 40 PVC
Length: 2.0'
Screen: Pre-Pac 2" dia. SCH 40 PVC
Slot size: 0.010"
Length: 5' x 2
(top/bot) 2.5/12.5
0.3' end cap
Sandpack: Pre-Pac 2/12 colorado sand
2/12 backfill (top/bot) 2/12
Seal: 3/8" Bentonite chip
(top/bot) 1/2
Monument: 10" dia. Flush Mount (Morris)
-0.4' to top of PVC/TOC

APPENDIX B
LABORATORY DATA SHEETS – 2019
ANALYTICAL RESOURCES INC.

1920 PORT OF TACOMA ROAD
TACOMA, WASHINGTON

April 2, 2019

July 1, 2019

September 9, 2019

December 16, 2019

Analytical Resources, Incorporated
Analytical Chemists and Consultants

16 April 2019

Dave Cooper
Dalton, Olmsted & Fuglevand, Inc
1420 - 156th Ave., NE STE C1
Bellevue, WA 98007

RE: USOR POT RD

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
19D0049	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.



Amanda Volgardsen, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006

PJLA Testing
Accreditation # 66169

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 19D0049	Turn-around Requested: STANDARD	Page: 1 of 1	
ARI Client Company: DOF	Phone: 206 660 3466	Date: 4/3/19	Ice Present? YES
Client Contact: DAVID COOPER: DCOOPER@DOFNW.COM		No. of Coolers: 1	Cooler Temps: 5.4°C
Client Project Name: PORT OF TACOMA Rd.			
Client Project #: 450-23	Samplers: A. CERUTTI		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPH-Dx BTEX	Notes/Comments
MW-R1	4/2/19	1740	W	5-40mL	X	
MW-R2		1840			X	
MW-R3		1810			X	
MW-R4		1910			X	
MW-5S		1705			X	
TRIP BLANK						

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: ANTHONY CERUTTI	Printed Name: Jacob Walter	Printed Name:	Printed Name:
	Company: DOF	Company: ARI	Company:	Company:
	Date & Time: 4/3/19 1022	Date & Time: 04/03/19 1022	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-R1	19D0049-01	Water	02-Apr-2019 17:40	03-Apr-2019 10:22
MW-R2	19D0049-02	Water	02-Apr-2019 18:40	03-Apr-2019 10:22
MW-R3	19D0049-03	Water	02-Apr-2019 18:10	03-Apr-2019 10:22
MW-R4	19D0049-04	Water	02-Apr-2019 19:10	03-Apr-2019 10:22
MW-5s	19D0049-05	Water	02-Apr-2019 17:05	03-Apr-2019 10:22
Trip Blank	19D0049-06	Water	02-Apr-2019 17:05	03-Apr-2019 10:22

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

Case Narrative

Sample receipt

Samples as listed on the preceding page were received April 3, 2019 under ARI work order 19D0049. For details regarding sample receipt, please refer to the Cooler Receipt Form. All results reported from bubble free volume.

Gasoline by NWTPH-g (GC/MS)

The samples were analyzed within the recommended holding times.

Sample MW-R2 was analyzed with reduced volume due to heavy end VOA unknowns. Sample is on scale and appears to be weathered gasoline.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limits.

The LCS/LCSD percent recoveries and RPD were within control limits.

Volatiles - EPA Method SW8260C

The samples were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limits.

The LCS/LCSD percent recoveries and RPD were within control limits.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: DOF Project Name: Part of Tacoma Rd

COC No(s): NA Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: 19D0049 Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1022 5.4°C

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 90057206

Cooler Accepted by: JJ Date: 04/03/19 Time: 1022

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	YES	NO
Were all bottles sealed in individual plastic bags?		YES	NO
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA		

Was Sample Split by ARI: NA YES Date/Time: Equipment: Split by:

Samples Logged by: Date: 4/3/19 Time: 1411 Labels checked by:

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

Air Bubbles found in MW-R2A, MW-R3A-A&C, TripblankA

By: Date: 4/3/19

WORK ORDER

19D0049

Client: Dalton, Olmsted & Fuglevand, Inc	**Project Manager:** Amanda Volgardsen
Project: USOR POT RD	**Project Number:** USO-023-00

Preservation Confirmation

Container ID	Container Type	pH
19D0049-01 A	VOA Vial, Clear, 40 mL, HCL	
19D0049-01 B	VOA Vial, Clear, 40 mL, HCL	
19D0049-01 C	VOA Vial, Clear, 40 mL, HCL	
19D0049-01 D	VOA Vial, Clear, 40 mL, HCL	
19D0049-01 E	VOA Vial, Clear, 40 mL, HCL	
19D0049-02 A	VOA Vial, Clear, 40 mL, HCL	airbubble
19D0049-02 B	VOA Vial, Clear, 40 mL, HCL	
19D0049-02 C	VOA Vial, Clear, 40 mL, HCL	
19D0049-02 D	VOA Vial, Clear, 40 mL, HCL	
19D0049-02 E	VOA Vial, Clear, 40 mL, HCL	
19D0049-03 A	VOA Vial, Clear, 40 mL, HCL	airbubble
19D0049-03 B	VOA Vial, Clear, 40 mL, HCL	airbubble
19D0049-03 C	VOA Vial, Clear, 40 mL, HCL	airbubble
19D0049-03 D	VOA Vial, Clear, 40 mL, HCL	
19D0049-03 E	VOA Vial, Clear, 40 mL, HCL	
19D0049-04 A	VOA Vial, Clear, 40 mL, HCL	
19D0049-04 B	VOA Vial, Clear, 40 mL, HCL	
19D0049-04 C	VOA Vial, Clear, 40 mL, HCL	
19D0049-04 D	VOA Vial, Clear, 40 mL, HCL	
19D0049-04 E	VOA Vial, Clear, 40 mL, HCL	
19D0049-05 A	VOA Vial, Clear, 40 mL, HCL	
19D0049-05 B	VOA Vial, Clear, 40 mL, HCL	
19D0049-05 C	VOA Vial, Clear, 40 mL, HCL	
19D0049-05 D	VOA Vial, Clear, 40 mL, HCL	
19D0049-05 E	VOA Vial, Clear, 40 mL, HCL	
19D0049-06 A	VOA Vial, Clear, 40 mL, HCL	airbubble
19D0049-06 B	VOA Vial, Clear, 40 mL, HCL	
19D0049-06 C	VOA Vial, Clear, 40 mL, HCL	
19D0049-06 D	VOA Vial, Clear, 40 mL, HCL	

Preservation Confirmed By _____ Date _____

Reviewed By _____ Date _____

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

MW-R1

19D0049-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 04/02/2019 17:40
Instrument: NT2 — Analyzed: 04-Apr-2019 12:59

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHD0129 — Sample Size: 10 mL
Prepared: 04-Apr-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*99.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*98.6*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

MW-R1

19D0049-01 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 04/02/2019 17:40
Instrument: NT2 — Analyzed: 04-Apr-2019 12:59

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHD0129 — Sample Size: 10 mL
Prepared: 04-Apr-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*99.9*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*98.6*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt2.i\20190404s.b\V204041916G.D

Date : 04-APR-2019 12:59

Client ID:

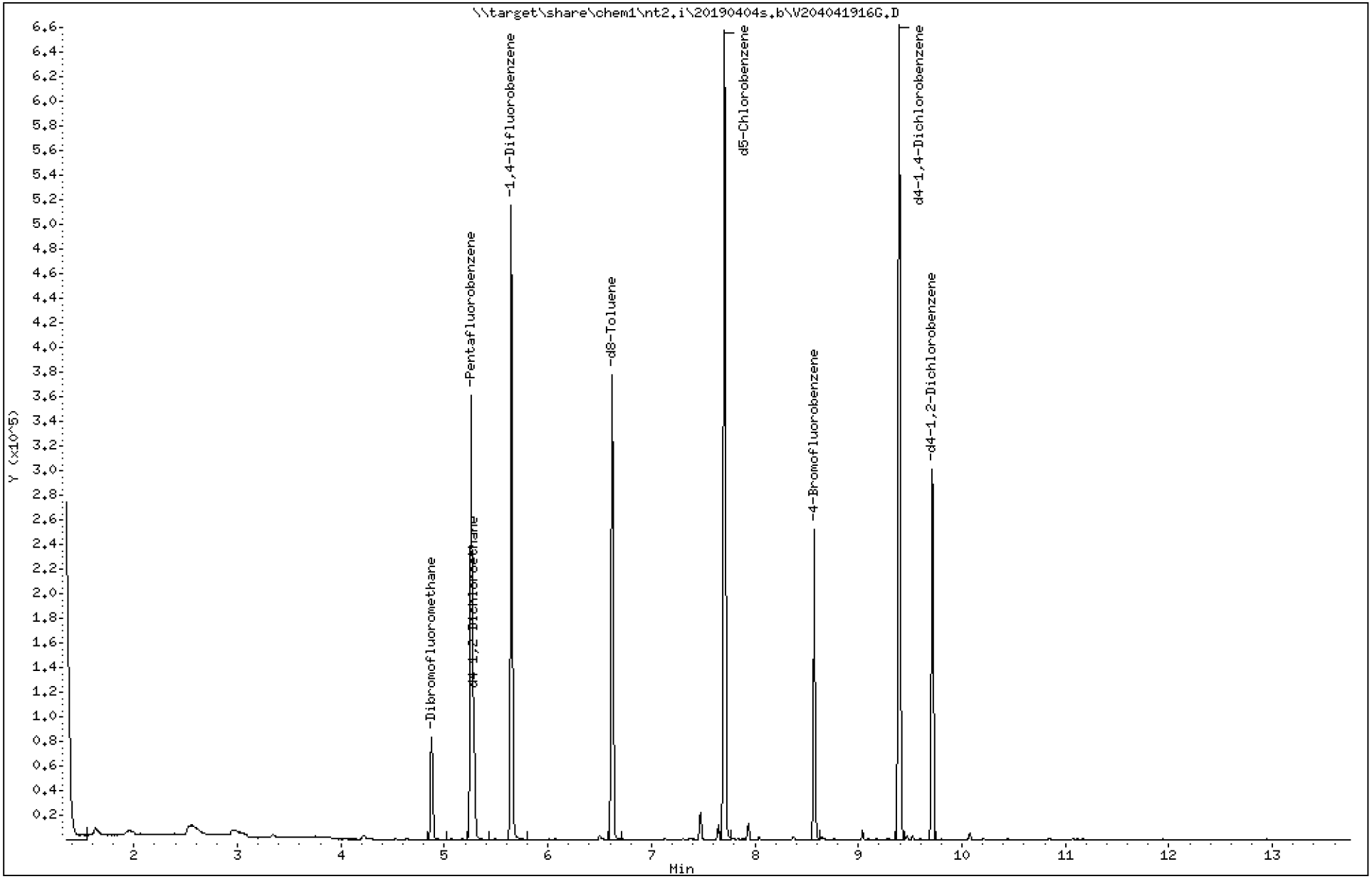
Instrument: nt2.i

Sample Info: 19D0049-01

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



Page 9 of 95 19D0049 ARISample_WithFuelPDFs FINAL 16 Apr 2019 1247

ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190404s.b\V204041916G.D
Lab Smp Id: 19D0049-01
Inj Date : 04-APR-2019 12:59
Operator : LH   Inst ID: nt2.i
Smp Info : 19D0049-01
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Meth Date : 05-Apr-2019 09:44 nt2.i   Quant Type: ISTD
Cal Date : 27-MAR-2019 11:51   Cal File: V203271913.D
Als bottle: 13
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.875	4.876	(0.927)	45253	4.82536	4.825
* 32 Pentafluorobenzene	168	5.259	5.259	(1.000)	185347	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.283	5.284	(1.005)	51184	4.99303	4.993
* 37 1,4-Difluorobenzene	114	5.648	5.649	(1.000)	332757	10.0000	
$ 43 d8-Toluene	98	6.621	6.622	(1.172)	200938	4.99382	4.994
* 53 d5-Chlorobenzene	117	7.704	7.705	(1.000)	309303	10.0000	
$ 62 4-Bromofluorobenzene	174	8.574	8.575	(1.113)	54886	4.93035	4.930
* 76 d4-1,4-Dichlorobenzene	152	9.395	9.396	(1.000)	145504	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.712	9.712	(1.034)	67967	4.99946	4.999

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V204041916G.D
Lab Smp Id: 19D0049-01
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 15-

Calibration Date: 04-APR-2019
Calibration Time: 15:27
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	199603	99802	399206	185347	-7.14
37 1,4-Difluorobenze	364397	182199	728794	332757	-8.68
53 d5-Chlorobenzene	328727	164364	657454	309303	-5.91
76 d4-1,4-Dichlorobe	151591	75796	303182	145504	-4.02

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.26	4.76	5.76	5.26	-0.01
37 1,4-Difluorobenze	5.65	5.15	6.15	5.65	-0.01
53 d5-Chlorobenzene	7.71	7.21	8.21	7.70	-0.01
76 d4-1,4-Dichlorobe	9.40	8.90	9.90	9.40	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19D0049-01
Level:
Operator: LH
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.825	96.51	
$ 33 d4-1,2-Dichloroeth	5.000	4.993	99.86	
$ 43 d8-Toluene	5.000	4.994	99.88	
$ 62 4-Bromofluorobenze	5.000	4.930	98.61	
$ 79 d4-1,2-Dichloroben	5.000	4.999	99.99	

REVIEW SUMMARY FOR FILE - V204041916G.D

Lab ID: 19D0049-01
nt2.i, 20190404s.b\82600327919.m,   04-APR-2019 12:59

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190404g.b\V204041916G.D

Date : 04-APR-2019 12:59

Client ID:

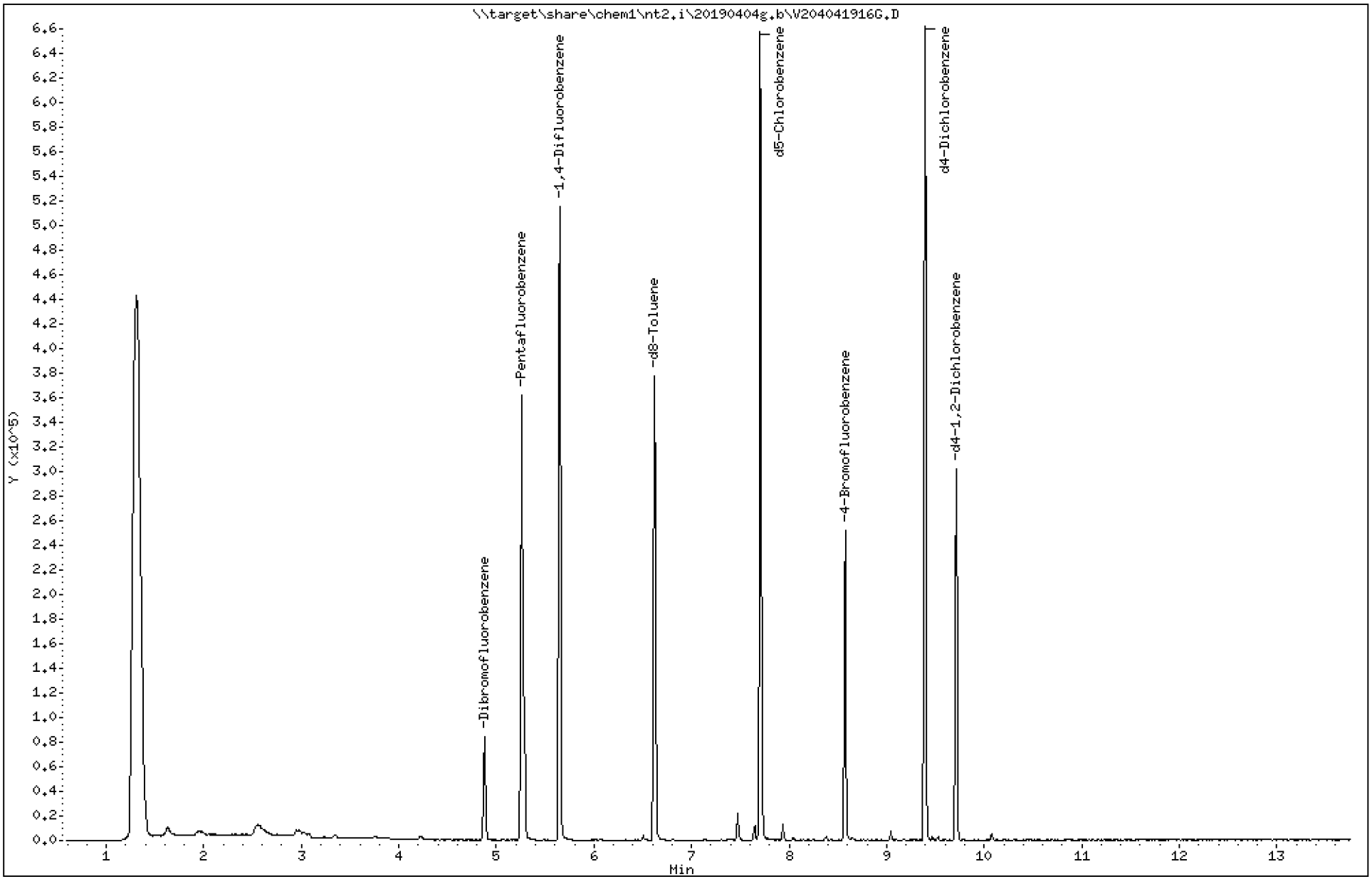
Instrument: nt2.i

Sample Info: 19D0049-01

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



Page 14 of 95 19D0049 ARISample_WithFuelPDFs FINAL 16 Apr 2019 1247

Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190404g.b/V204041916G.D
Method: \20190404g.b\GA032719.m
Instrument: nt2.i
Gas Ical Date: 3/27/19
Injection Date: 04-APR-2019 12:59

ARI ID: 19D0049-01
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.56 to 10.43)	23999549	59931	0.002
8015C 2MP-TMB	(3.04 to 9.23)	33333333	59931	0.002
AK101 nC6-nC10	(3.39 to 8.54)	31889318	59930	0.002
NWTPHG Tol-Nap	(6.56 to 11.21)	25107058	59931	0.002
mod8015 nC7-nC12	(5.05 to 10.43)	35467060	59932	0.002

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.705	874507	d5-Chlorobenzene
8.574	313451	4-Bromofluorobenzene
6.622	507584	d8-Toluene
9.396	867775	d4-Dichlorobenzene
9.712	396013	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

MW-R2

19D0049-02 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 04/02/2019 18:40
Instrument: NT2 — Analyzed: 04-Apr-2019 14:46

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHD0129 — Sample Size: 5 mL
Prepared: 04-Apr-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.05	0.40	**74.8**	ug/L	
Toluene	108-88-3	1	0.08	0.40	**1.99**	ug/L	
Ethylbenzene	100-41-4	1	0.07	0.40	**1.89**	ug/L	
m,p-Xylene	179601-23-1	1	0.10	0.80	**2.25**	ug/L	
o-Xylene	95-47-6	1	0.07	0.40	**0.58**	ug/L	
Surrogate: Toluene-d8				*80-120 %*	*103*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*101*	*%*	

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

MW-R2

19D0049-02 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 04/02/2019 18:40
Instrument: NT2 — Analyzed: 04-Apr-2019 14:46

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHD0129 — Sample Size: 5 mL
Prepared: 04-Apr-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	200	**3180**	ug/L	
HC ID: GAS						
Surrogate: Toluene-d8			*80-120 %*	*103*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*101*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt2.i\20190404s.b\V204041921G.D

Date : 04-APR-2019 14:46

Client ID:

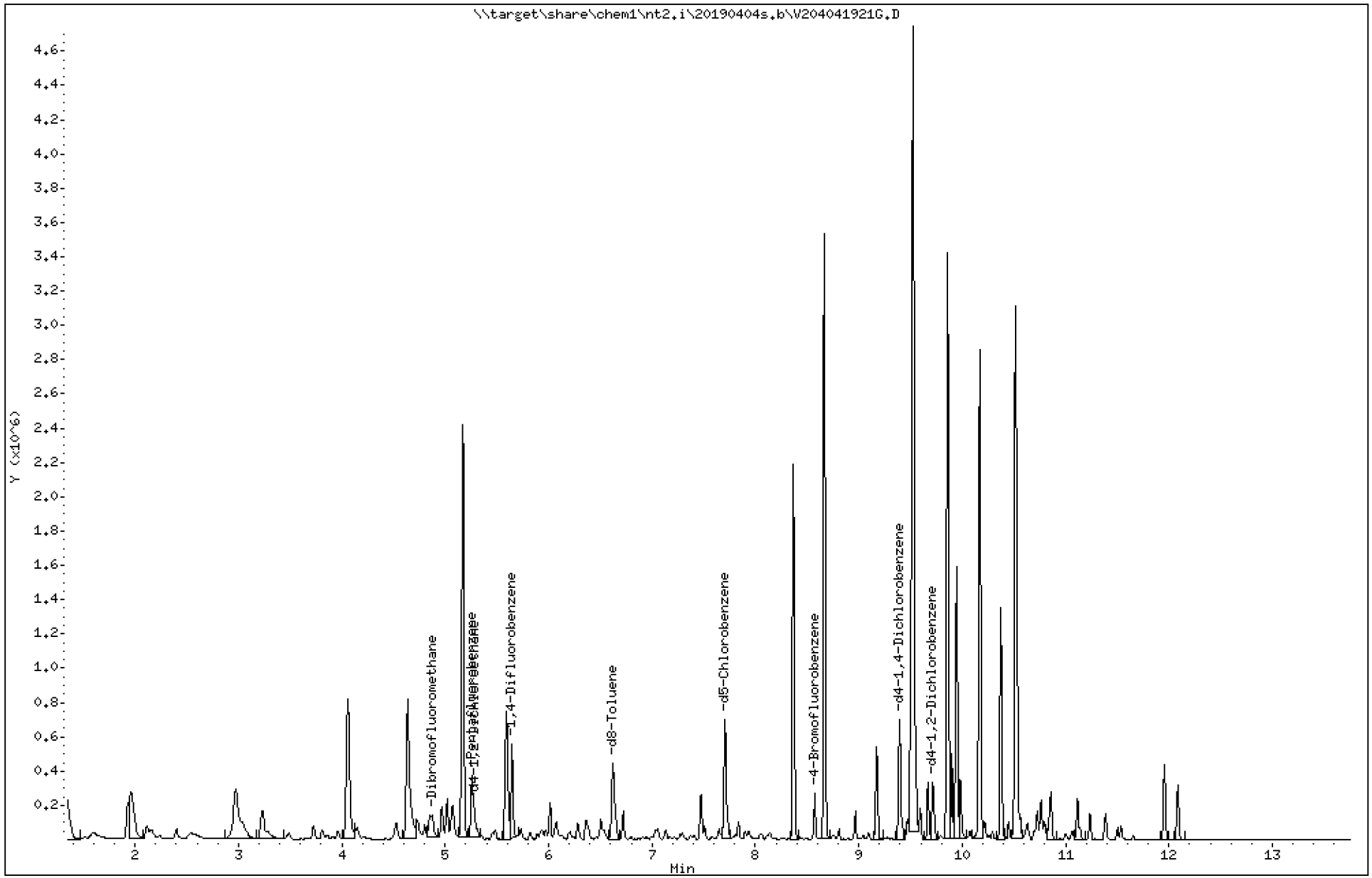
Instrument: nt2.i

Sample Info: 19D0049-02,10,5,0,

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190404s.b\V204041921G.D
Lab Smp Id: 19D0049-02
Inj Date : 04-APR-2019 14:46
Operator : LH   Inst ID: nt2.i
Smp Info : 19D0049-02,10,5,0,
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Meth Date : 05-Apr-2019 09:44 nt2.i   Quant Type: ISTD
Cal Date : 27-MAR-2019 11:51   Cal File: V203271913.D
Als bottle: 14
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.876	4.876	(0.927)	46554	4.76480	4.765
* 32 Pentafluorobenzene	168	5.259	5.259	(1.000)	193099	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.283	5.284	(1.005)	55693	5.21478	5.215
* 37 1,4-Difluorobenzene	114	5.648	5.649	(1.000)	345340	10.0000	
$ 43 d8-Toluene	98	6.622	6.622	(1.172)	214284	5.13146	5.131
* 53 d5-Chlorobenzene	117	7.704	7.705	(1.000)	318943	10.0000	
$ 62 4-Bromofluorobenzene	174	8.574	8.575	(1.113)	57892	5.04319	5.043
* 76 d4-1,4-Dichlorobenzene	152	9.396	9.396	(1.000)	157082	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.712	9.712	(1.034)	74380	5.06792	5.068

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V204041921G.D
Lab Smp Id: 19D0049-02
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 1

Calibration Date: 04-APR-2019
Calibration Time: 15:27
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	199603	99802	399206	193099	-3.26
37 1,4-Difluorobenze	364397	182199	728794	345340	-5.23
53 d5-Chlorobenzene	328727	164364	657454	318943	-2.98
76 d4-1,4-Dichlorobe	151591	75796	303182	157082	3.62

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.26	4.76	5.76	5.26	-0.00
37 1,4-Difluorobenze	5.65	5.15	6.15	5.65	-0.00
53 d5-Chlorobenzene	7.71	7.21	8.21	7.70	-0.00
76 d4-1,4-Dichlorobe	9.40	8.90	9.90	9.40	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19D0049-02
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.765	95.30	
$ 33 d4-1,2-Dichloroeth	5.000	5.215	104.30	
$ 43 d8-Toluene	5.000	5.131	102.63	
$ 62 4-Bromofluorobenze	5.000	5.043	100.86	
$ 79 d4-1,2-Dichloroben	5.000	5.068	101.36	

REVIEW SUMMARY FOR FILE - V204041921G.D

Lab ID: 19D0049-02
nt2.i, 20190404s.b\82600327919.m,   04-APR-2019 14:46

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190404g.b\V204041921G.D

Date : 04-APR-2019 14:46

Client ID:

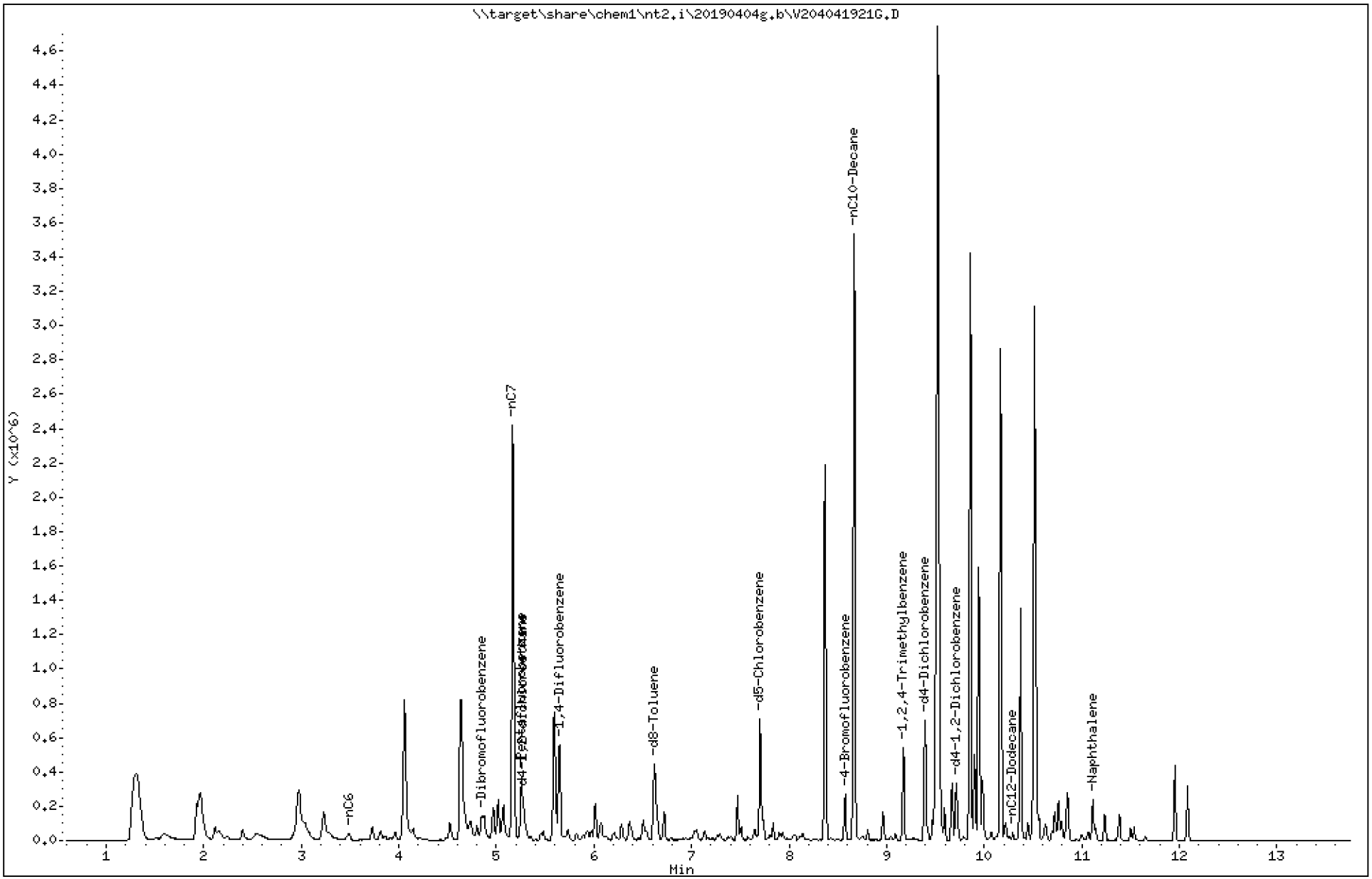
Instrument: nt2.i

Sample Info: 19D0049-02,10,5,0,

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190404g.b/V204041921G.D
Method: \20190404g.b\GA032719.m
Instrument: nt2.i
Gas Ical Date: 3/27/19
Injection Date: 04-APR-2019 14:46

ARI ID: 19D0049-02
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.56 to 10.43)	23999549	32445699	1.352
8015C 2MP-TMB	(3.04 to 9.23)	33333333	25055046	0.752 M
AK101 nC6-nC10	(3.39 to 8.54)	31889318	18977850	0.595 M
NWTPHG Tol-Nap	(6.56 to 11.21)	25107058	39867142	1.588 M
mod8015 nC7-nC12	(5.05 to 10.43)	35467060	40380755	1.139 M

* Surrogate areas are subtracted from Total Area

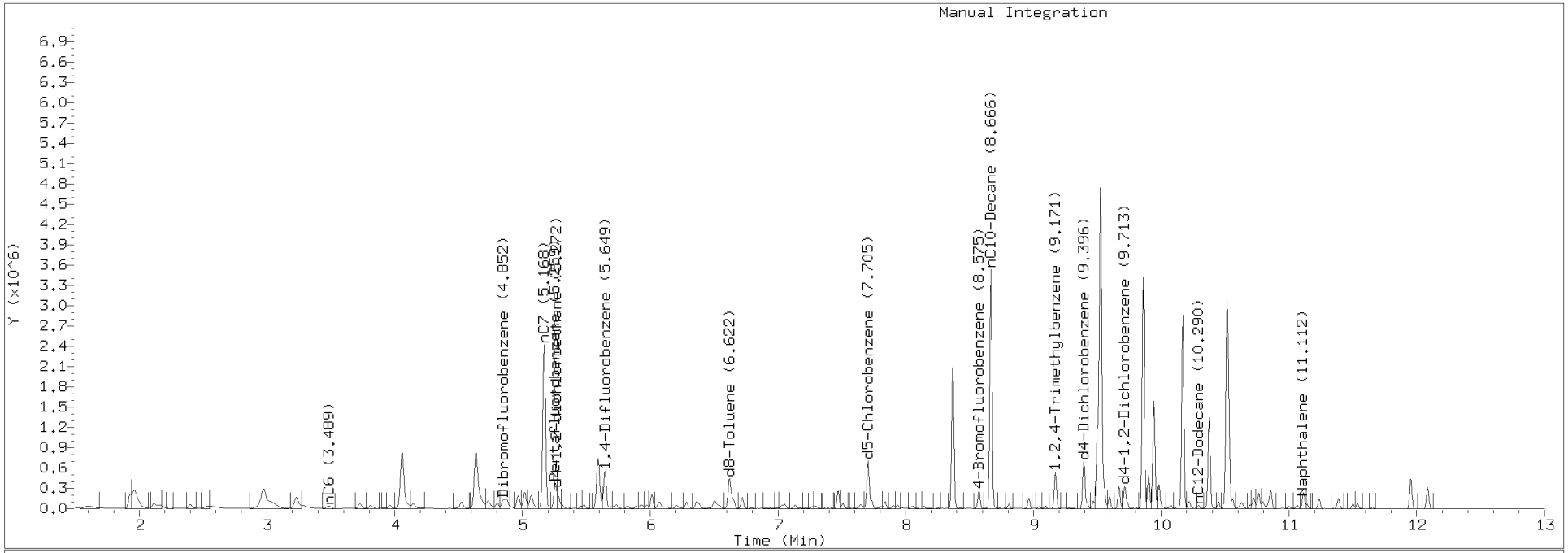
NW Gas Range Subtracted Peaks

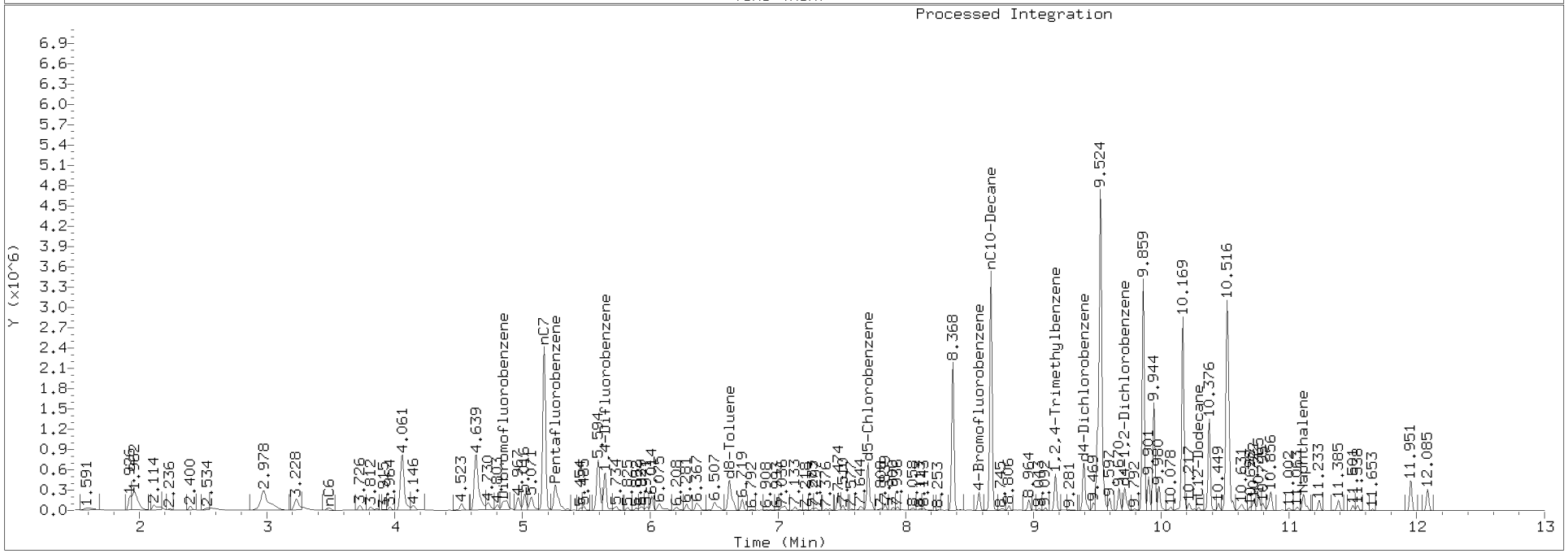
7.705	1110420	d5-Chlorobenzene
8.575	361535	4-Bromofluorobenzene
6.622	957203	d8-Toluene
9.396	1035784	d4-Dichlorobenzene
9.713	534855	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190404g.b/V204041921G.D Injection: 04-APR-2019 14:46

Lab ID:19D0049-02





Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

MW-R3

19D0049-03 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 04/02/2019 18:10
Instrument: NT2 — Analyzed: 04-Apr-2019 13:42

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHD0129 — Sample Size: 10 mL
Prepared: 04-Apr-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	**0.14**	ug/L	J
Toluene	108-88-3	1	0.04	0.20	**0.05**	ug/L	J
Ethylbenzene	100-41-4	1	0.04	0.20	**0.06**	ug/L	J
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	**0.09**	ug/L	J
Surrogate: Toluene-d8				*80-120 %*	*102*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*101*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

MW-R3

19D0049-03 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 04/02/2019 18:10
Instrument: NT2 — Analyzed: 04-Apr-2019 13:42

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHD0129 — Sample Size: 10 mL
Prepared: 04-Apr-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	**272**	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*102*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*101*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt2.i\20190404s.b\V204041918G.D

Page 1

Date : 04-APR-2019 13:42

Client ID:

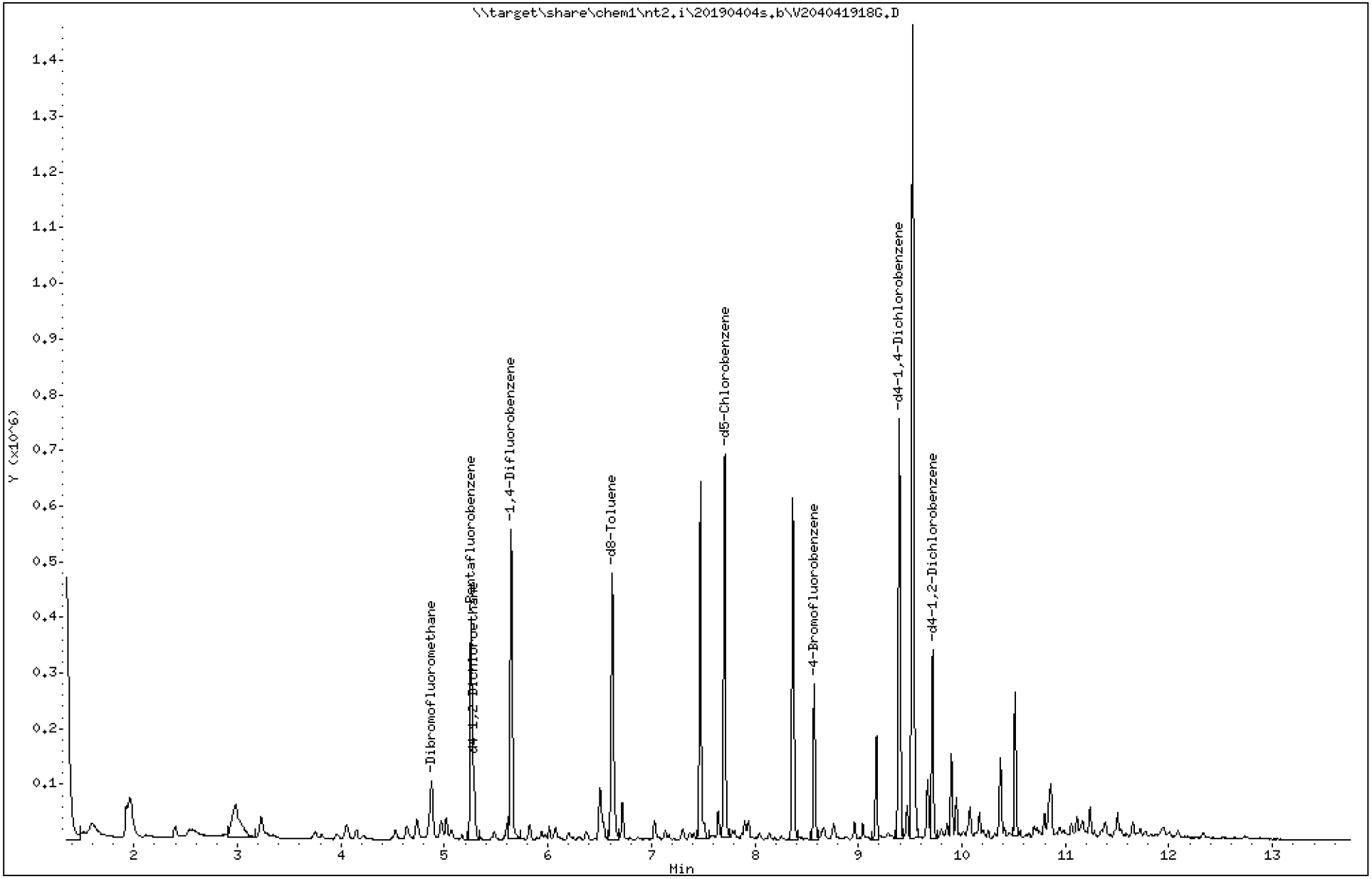
Instrument: nt2.i

Sample Info: 19D0049-03

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190404s.b\V204041918G.D
Lab Smp Id: 19D0049-03
Inj Date : 04-APR-2019 13:42
Operator : LH   Inst ID: nt2.i
Smp Info : 19D0049-03
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Meth Date : 05-Apr-2019 09:44 nt2.i   Quant Type: ISTD
Cal Date : 27-MAR-2019 11:51   Cal File: V203271913.D
Als bottle: 15
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.880	4.876	(0.928)	48301	4.69726	4.697
* 32 Pentafluorobenzene	168	5.257	5.259	(1.000)	203226	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.281	5.284	(1.005)	55328	4.92245	4.922
* 37 1,4-Difluorobenzene	114	5.646	5.649	(1.000)	359468	10.0000	
$ 43 d8-Toluene	98	6.619	6.622	(1.172)	221016	5.08466	5.085
* 53 d5-Chlorobenzene	117	7.708	7.705	(1.000)	333669	10.0000	
$ 62 4-Bromofluorobenzene	174	8.572	8.575	(1.112)	60944	5.07476	5.075
* 76 d4-1,4-Dichlorobenzene	152	9.394	9.396	(1.000)	161722	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.716	9.712	(1.034)	76410	5.05686	5.057

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V204041918G.D
Lab Smp Id: 19D0049-03
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 1

Calibration Date: 04-APR-2019
Calibration Time: 15:27
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	199603	99802	399206	203226	1.82
37 1,4-Difluorobenze	364397	182199	728794	359468	-1.35
53 d5-Chlorobenzene	328727	164364	657454	333669	1.50
76 d4-1,4-Dichlorobe	151591	75796	303182	161722	6.68

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.26	4.76	5.76	5.26	-0.05
37 1,4-Difluorobenze	5.65	5.15	6.15	5.65	-0.04
53 d5-Chlorobenzene	7.71	7.21	8.21	7.71	0.05
76 d4-1,4-Dichlorobe	9.40	8.90	9.90	9.39	-0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19D0049-03
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.697	93.95	
$ 33 d4-1,2-Dichloroeth	5.000	4.922	98.45	
$ 43 d8-Toluene	5.000	5.085	101.69	
$ 62 4-Bromofluorobenze	5.000	5.075	101.50	
$ 79 d4-1,2-Dichloroben	5.000	5.057	101.14	

REVIEW SUMMARY FOR FILE - V204041918G.D

Lab ID: 19D0049-03
nt2.i, 20190404s.b\82600327919.m,   04-APR-2019 13:42

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190404g.b\V204041918G.D

Page 1

Date : 04-APR-2019 13:42

Client ID:

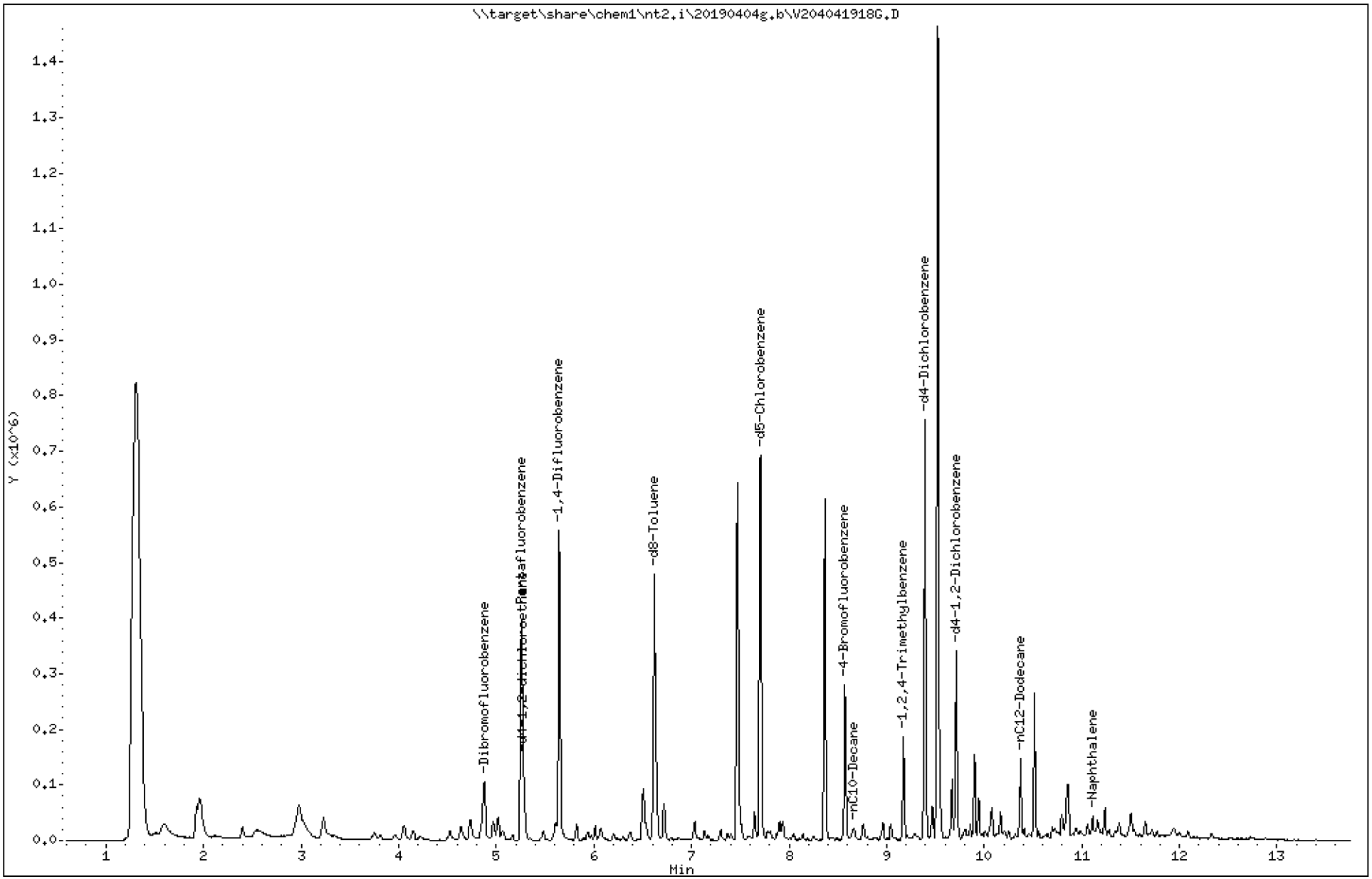
Instrument: nt2.i

Sample Info: 19D0049-03

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190404g.b/V204041918G.D
Method: \20190404g.b\GA032719.m
Instrument: nt2.i
Gas Ical Date: 3/27/19
Injection Date: 04-APR-2019 13:42

ARI ID: 19D0049-03
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.56 to 10.43)	23999549	5857462	0.244
8015C 2MP-TMB	(3.04 to 9.23)	33333333	3693069	0.111 M
AK101 nC6-nC10	(3.39 to 8.54)	31889318	3140974	0.098 M
NWTPHG Tol-Nap	(6.56 to 11.21)	25107058	6821557	0.272
mod8015 nC7-nC12	(5.05 to 10.43)	35467060	6358679	0.179 M

* Surrogate areas are subtracted from Total Area

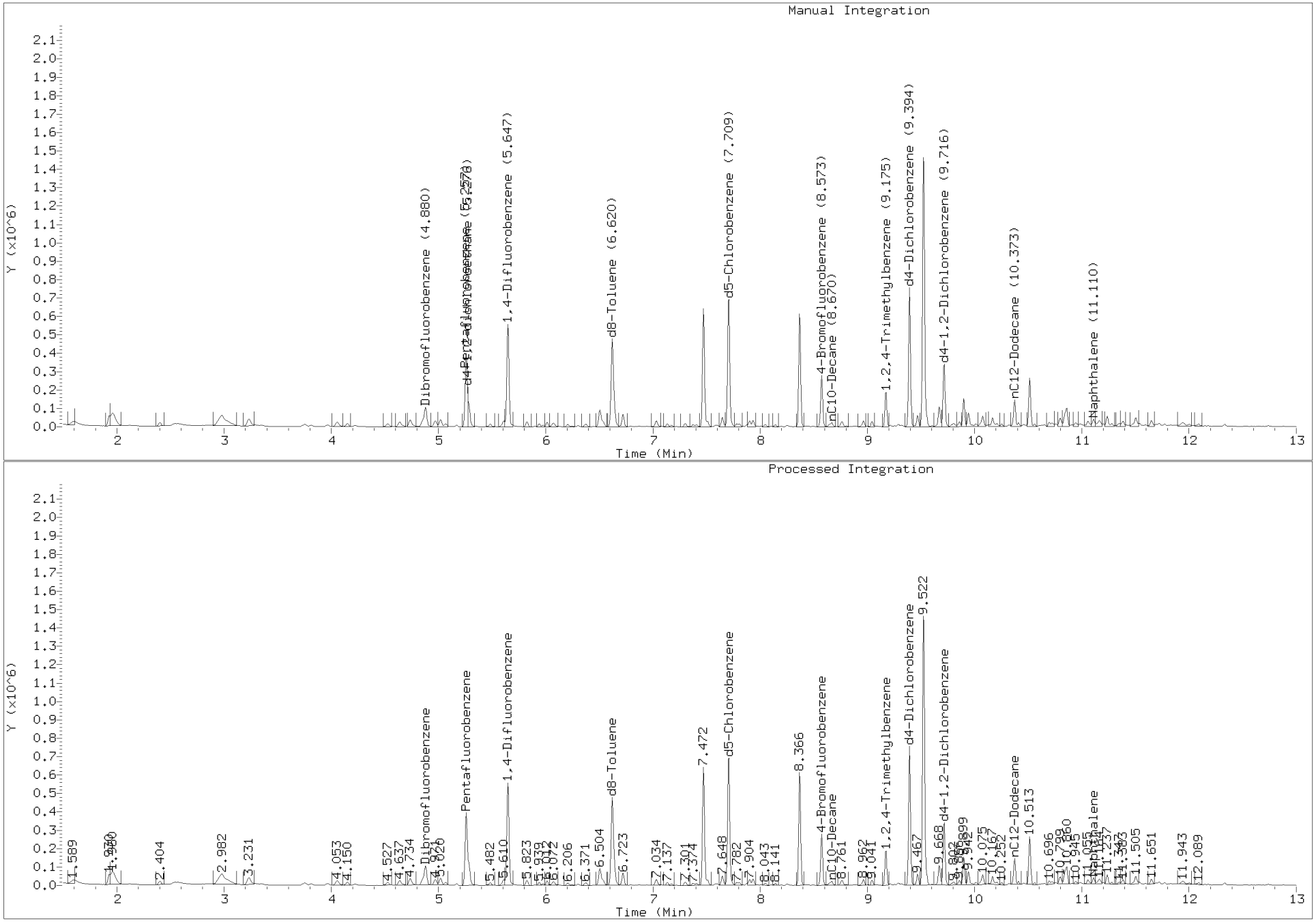
NW Gas Range Subtracted Peaks

7.709	982961	d5-Chlorobenzene
8.573	374540	4-Bromofluorobenzene
6.620	826944	d8-Toluene
9.394	976068	d4-Dichlorobenzene
9.716	472961	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190404g.b/V204041918G.D Injection: 04-APR-2019 13:42

Lab ID:19D0049-03



Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

MW-R4

19D0049-04 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 04/02/2019 19:10
Instrument: NT2 — Analyzed: 04-Apr-2019 14:03

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHD0129 — Sample Size: 10 mL
Prepared: 04-Apr-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	**0.03**	ug/L	J
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*99.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*103*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

MW-R4

19D0049-04 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 04/02/2019 19:10
Instrument: NT2 — Analyzed: 04-Apr-2019 14:03

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHD0129 — Sample Size: 10 mL
Prepared: 04-Apr-2019 — Final Volume: 10 mL

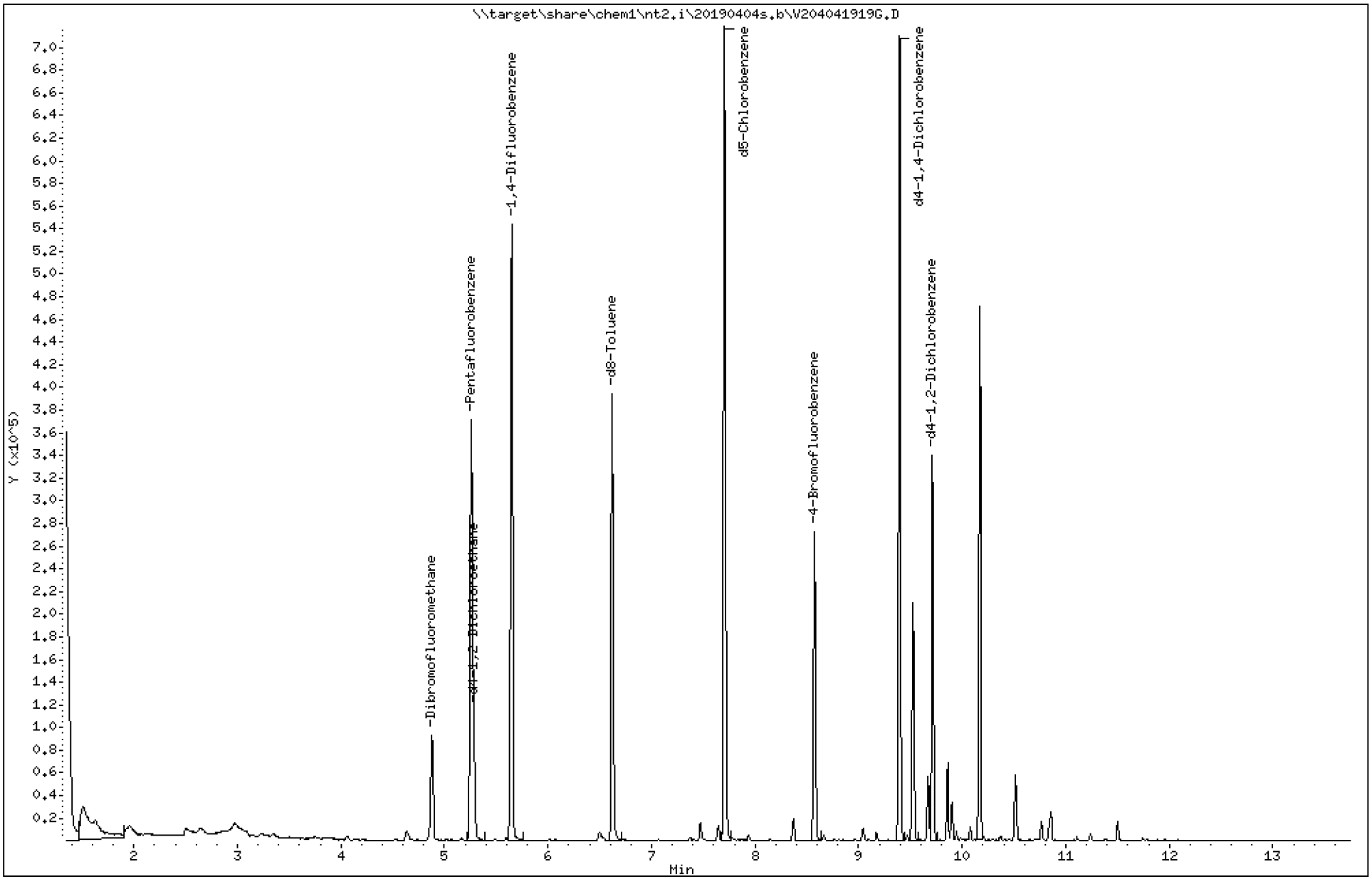
Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*99.5*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*103*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Data File: \\target\share\chem1\nt2.i\20190404s.b\V204041919G.D
Date : 04-APR-2019 14:03
Client ID:
Sample Info: 19D0049-04

Instrument: nt2.i
Operator: LH
Column diameter: 0.18

Column phase: RTXVMS



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190404s.b\V204041919G.D
Lab Smp Id: 19D0049-04
Inj Date : 04-APR-2019 14:03
Operator : LH   Inst ID: nt2.i
Smp Info : 19D0049-04
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Meth Date : 05-Apr-2019 09:44 nt2.i   Quant Type: ISTD
Cal Date : 27-MAR-2019 11:51   Cal File: V203271913.D
Als bottle: 16
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.876	4.876	(0.927)	48079	4.85293	4.853
* 32 Pentafluorobenzene	168	5.259	5.259	(1.000)	195803	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.284	5.284	(1.005)	55581	5.13242	5.132
* 37 1,4-Difluorobenzene	114	5.649	5.649	(1.000)	352859	10.0000	
$ 43 d8-Toluene	98	6.622	6.622	(1.172)	212258	4.97464	4.975
* 53 d5-Chlorobenzene	117	7.705	7.705	(1.000)	326203	10.0000	
$ 62 4-Bromofluorobenzene	174	8.575	8.575	(1.113)	60240	5.13094	5.131
* 76 d4-1,4-Dichlorobenzene	152	9.396	9.396	(1.000)	158499	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.712	9.712	(1.034)	76362	5.15645	5.156

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V204041919G.D
Lab Smp Id: 19D0049-04
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 1

Calibration Date: 04-APR-2019
Calibration Time: 15:27
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	199603	99802	399206	195803	-1.90
37 1,4-Difluorobenze	364397	182199	728794	352859	-3.17
53 d5-Chlorobenzene	328727	164364	657454	326203	-0.77
76 d4-1,4-Dichlorobe	151591	75796	303182	158499	4.56

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.26	4.76	5.76	5.26	0.00
37 1,4-Difluorobenze	5.65	5.15	6.15	5.65	0.00
53 d5-Chlorobenzene	7.71	7.21	8.21	7.71	0.00
76 d4-1,4-Dichlorobe	9.40	8.90	9.90	9.40	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19D0049-04
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.853	97.06	
$ 33 d4-1,2-Dichloroeth	5.000	5.132	102.65	
$ 43 d8-Toluene	5.000	4.975	99.49	
$ 62 4-Bromofluorobenze	5.000	5.131	102.62	
$ 79 d4-1,2-Dichloroben	5.000	5.156	103.13	

REVIEW SUMMARY FOR FILE - V204041919G.D

Lab ID: 19D0049-04
nt2.i, 20190404s.b\82600327919.m,   04-APR-2019 14:03

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190404g.b\V204041919G.D

Date : 04-APR-2019 14:03

Client ID:

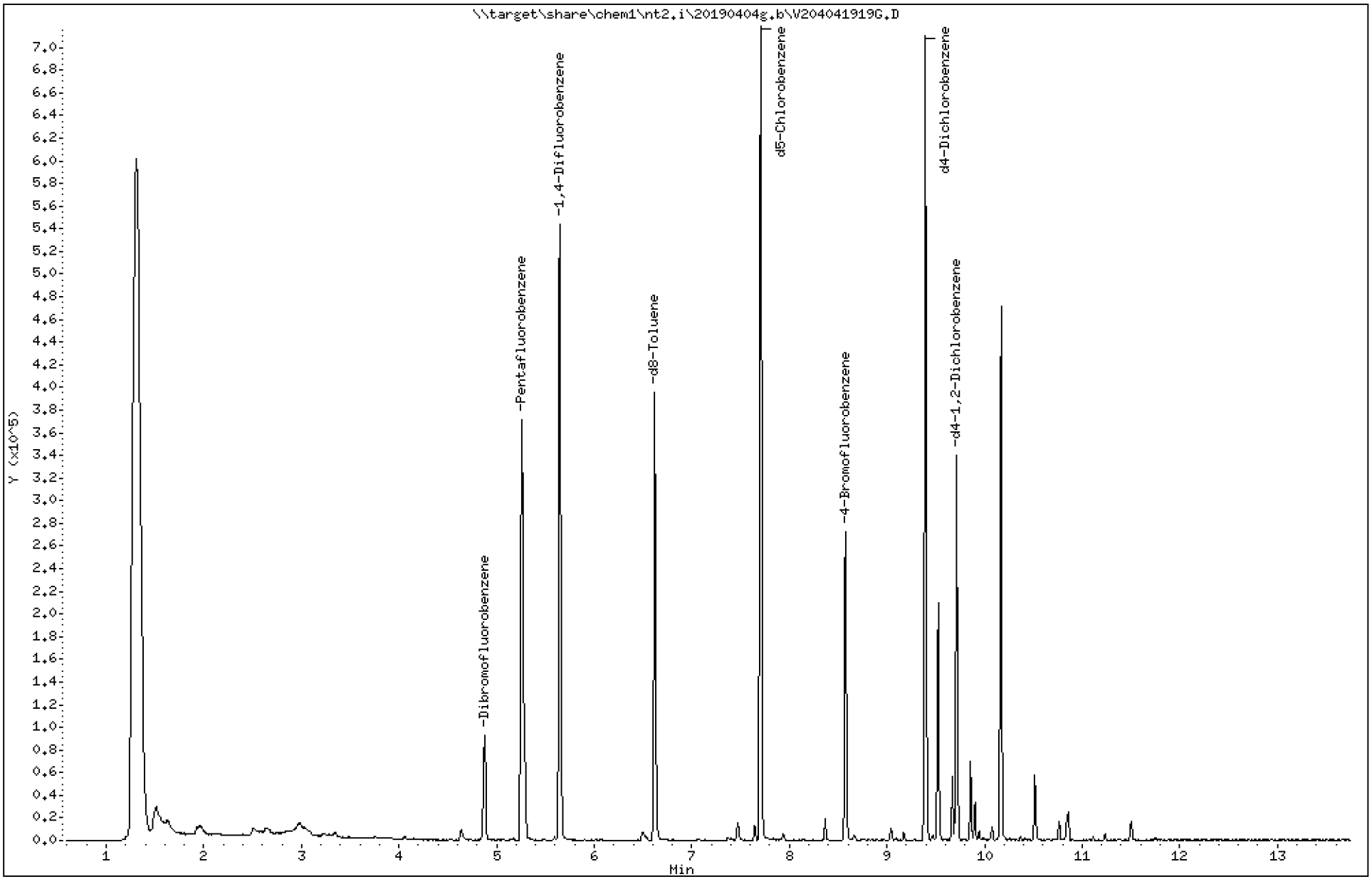
Instrument: nt2.i

Sample Info: 19D0049-04

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190404g.b/V204041919G.D
Method: \20190404g.b\GA032719.m
Instrument: nt2.i
Gas Ical Date: 3/27/19
Injection Date: 04-APR-2019 14:03

ARI ID: 19D0049-04
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.56 to 10.43)	23999549	1104328	0.046
8015C 2MP-TMB	(3.04 to 9.23)	33333333	72847	0.002
AK101 nC6-nC10	(3.39 to 8.54)	31889318	59915	0.002
NWTPHG Tol-Nap	(6.56 to 11.21)	25107058	1222625	0.049
mod8015 nC7-nC12	(5.05 to 10.43)	35467060	1104329	0.031

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.705	923180	d5-Chlorobenzene
8.575	340687	4-Bromofluorobenzene
6.623	536325	d8-Toluene
9.391	948126	d4-Dichlorobenzene
9.713	440973	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

MW-5s

19D0049-05 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 04/02/2019 17:05
Instrument: NT2 — Analyzed: 04-Apr-2019 14:23

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHD0129 — Sample Size: 10 mL
Prepared: 04-Apr-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*99.5*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*99.6*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

MW-5s

19D0049-05 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 04/02/2019 17:05
Instrument: NT2 — Analyzed: 04-Apr-2019 14:23

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHD0129 — Sample Size: 10 mL
Prepared: 04-Apr-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*99.5*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*99.6*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Data File: \\target\share\chem1\nt2.i\20190404s.b\V204041920G.D

Page 1

Date : 04-APR-2019 14:23

Client ID:

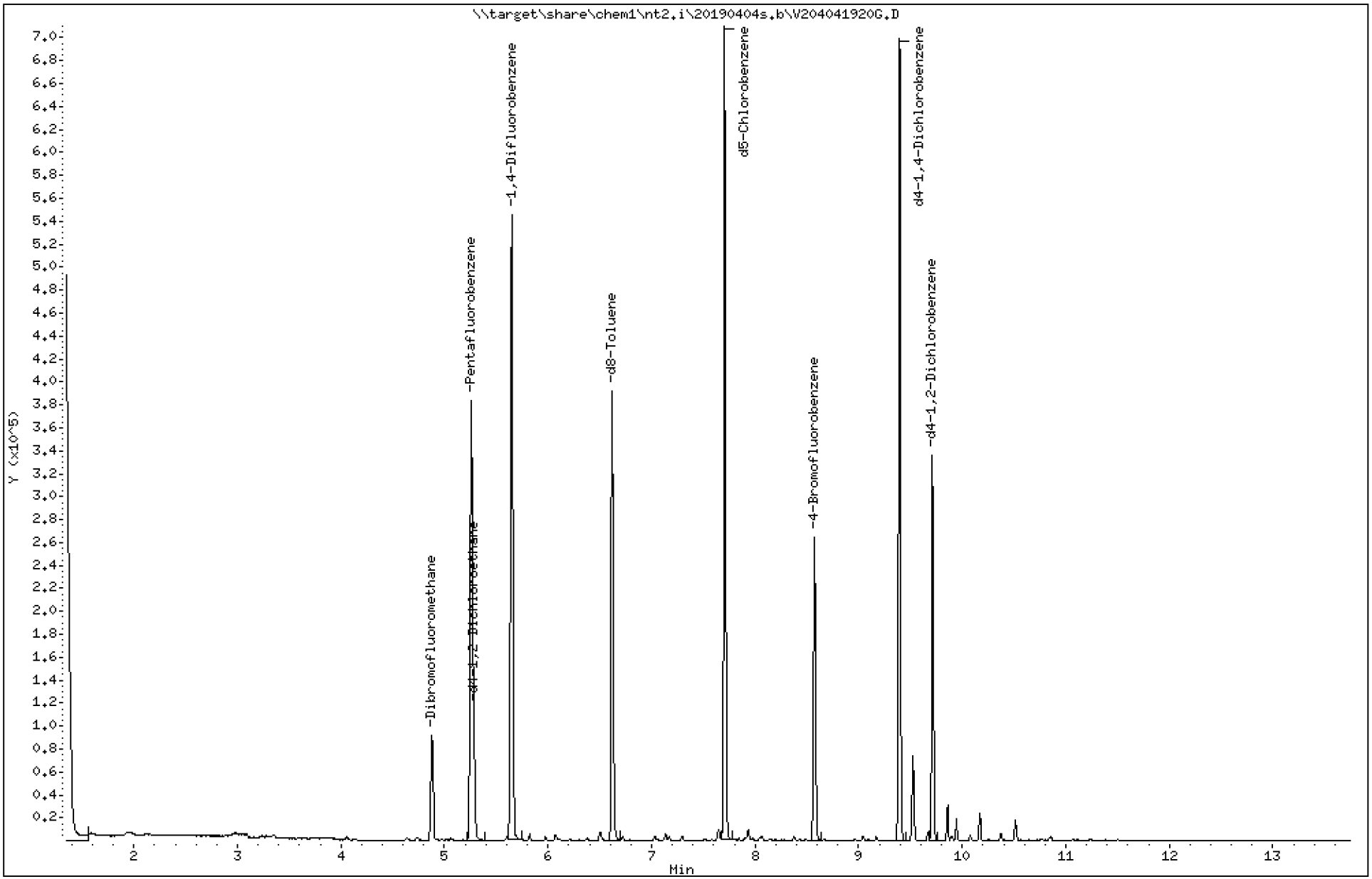
Instrument: nt2.i

Sample Info: 19D0049-05

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190404s.b\V204041920G.D
Lab Smp Id: 19D0049-05
Inj Date : 04-APR-2019 14:23
Operator : LH   Inst ID: nt2.i
Smp Info : 19D0049-05
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Meth Date : 05-Apr-2019 09:44 nt2.i   Quant Type: ISTD
Cal Date : 27-MAR-2019 11:51   Cal File: V203271913.D
Als bottle: 17
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.876	4.876	(0.927)	48305	4.84076	4.841
* 32 Pentafluorobenzene	168	5.260	5.259	(1.000)	197218	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.284	5.284	(1.005)	56785	5.20598	5.206
* 37 1,4-Difluorobenzene	114	5.649	5.649	(1.000)	355914	10.0000	
$ 43 d8-Toluene	98	6.622	6.622	(1.172)	214187	4.97676	4.977
* 53 d5-Chlorobenzene	117	7.705	7.705	(1.000)	325197	10.0000	
$ 62 4-Bromofluorobenzene	174	8.575	8.575	(1.113)	58293	4.98047	4.980
* 76 d4-1,4-Dichlorobenzene	152	9.396	9.396	(1.000)	155556	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.713	9.712	(1.034)	73855	5.08151	5.082

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V204041920G.D
Lab Smp Id: 19D0049-05
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 1

Calibration Date: 04-APR-2019
Calibration Time: 15:27
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	199603	99802	399206	197218	-1.19
37 1,4-Difluorobenze	364397	182199	728794	355914	-2.33
53 d5-Chlorobenzene	328727	164364	657454	325197	-1.07
76 d4-1,4-Dichlorobe	151591	75796	303182	155556	2.62

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.26	4.76	5.76	5.26	0.01
37 1,4-Difluorobenze	5.65	5.15	6.15	5.65	0.01
53 d5-Chlorobenzene	7.71	7.21	8.21	7.71	0.01
76 d4-1,4-Dichlorobe	9.40	8.90	9.90	9.40	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19D0049-05
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.841	96.82	
$ 33 d4-1,2-Dichloroeth	5.000	5.206	104.12	
$ 43 d8-Toluene	5.000	4.977	99.54	
$ 62 4-Bromofluorobenze	5.000	4.980	99.61	
$ 79 d4-1,2-Dichloroben	5.000	5.082	101.63	

REVIEW SUMMARY FOR FILE - V204041920G.D

Lab ID: 19D0049-05
nt2.i, 20190404s.b\82600327919.m,   04-APR-2019 14:23

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190404g.b\V204041920G.D

Date : 04-APR-2019 14:23

Client ID:

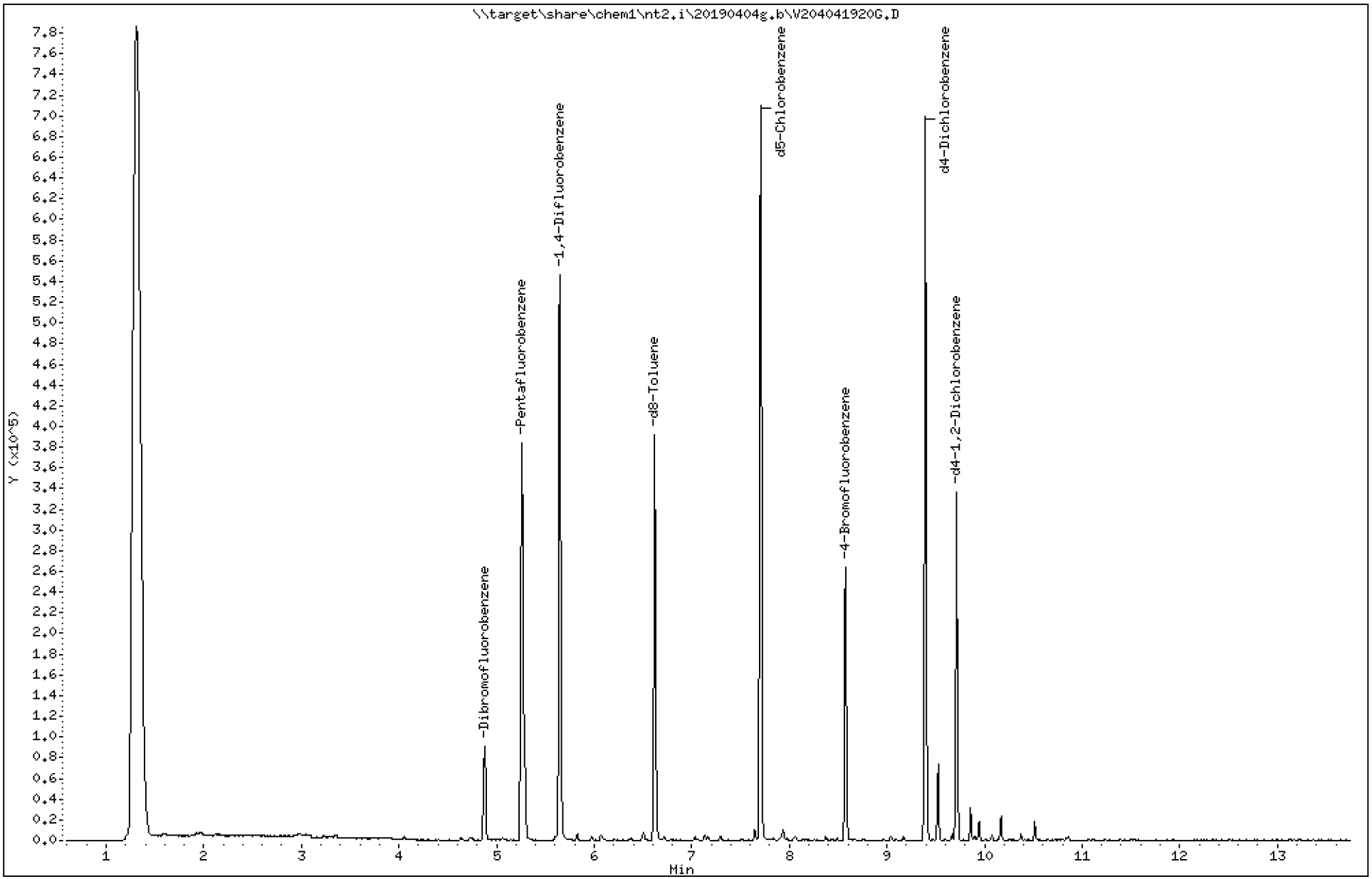
Instrument: nt2.i

Sample Info: 19D0049-05

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190404g.b/V204041920G.D
Method: \20190404g.b\GA032719.m
Instrument: nt2.i
Gas Ical Date: 3/27/19
Injection Date: 04-APR-2019 14:23

ARI ID: 19D0049-05
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.56 to 10.43)	23999549	170031	0.007
8015C 2MP-TMB	(3.04 to 9.23)	33333333	4	0.000
AK101 nC6-nC10	(3.39 to 8.54)	31889318	3	0.000
NWTPHG Tol-Nap	(6.56 to 11.21)	25107058	189599	0.008
mod8015 nC7-nC12	(5.05 to 10.43)	35467060	170033	0.005

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.706	919584	d5-Chlorobenzene
8.576	334765	4-Bromofluorobenzene
6.623	541100	d8-Toluene
9.391	927069	d4-Dichlorobenzene
9.713	428699	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

Trip Blank
19D0049-06 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 04/02/2019 17:05
Instrument: NT2 — Analyzed: 04-Apr-2019 12:39

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHD0129 — Sample Size: 10 mL
Prepared: 04-Apr-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*99.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*102*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

Trip Blank

19D0049-06 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 04/02/2019 17:05
Instrument: NT2 — Analyzed: 04-Apr-2019 12:39

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHD0129 — Sample Size: 10 mL
Prepared: 04-Apr-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*99.7*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*101*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Data File: \\target\share\chem1\nt2.i\20190404s.b\V204041915G.D

Page 1

Date : 04-APR-2019 12:39

Client ID:

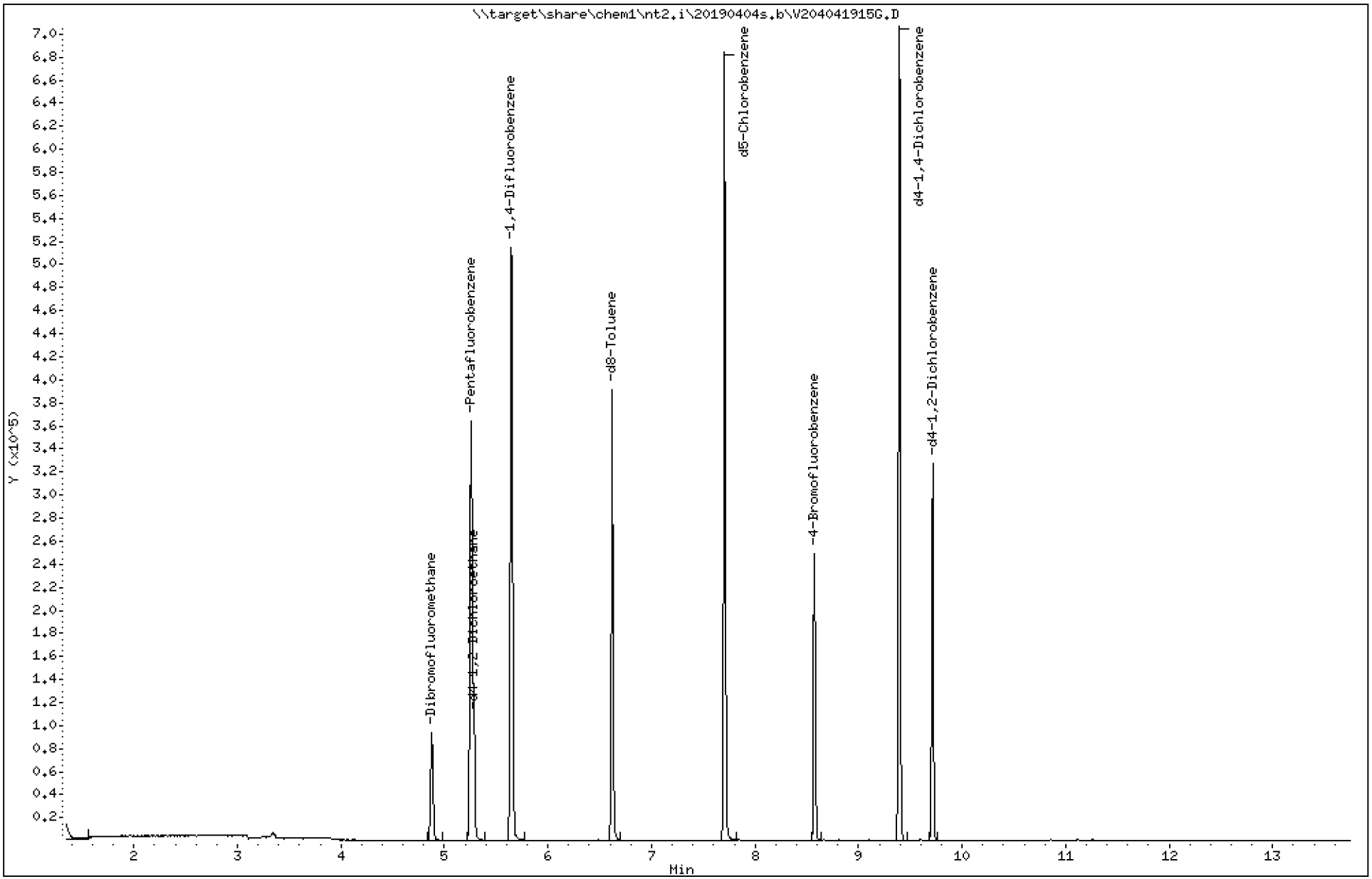
Instrument: nt2.i

Sample Info: 19D0049-06

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190404s.b\V204041915G.D
Lab Smp Id: 19D0049-06
Inj Date : 04-APR-2019 12:39
Operator : LH   Inst ID: nt2.i
Smp Info : 19D0049-06
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Meth Date : 05-Apr-2019 09:44 nt2.i   Quant Type: ISTD
Cal Date : 27-MAR-2019 11:51   Cal File: V203271913.D
Als bottle: 12
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.878	4.876	(0.927)	47793	4.85803	4.858
* 32 Pentafluorobenzene	168	5.261	5.259	(1.000)	194434	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.286	5.284	(1.005)	54141	5.03465	5.035
* 37 1,4-Difluorobenzene	114	5.651	5.649	(1.000)	347711	10.0000	
$ 43 d8-Toluene	98	6.618	6.622	(1.171)	209630	4.98578	4.986
* 53 d5-Chlorobenzene	117	7.707	7.705	(1.000)	319800	10.0000	
$ 62 4-Bromofluorobenzene	174	8.577	8.575	(1.113)	58294	5.06460	5.065
* 76 d4-1,4-Dichlorobenzene	152	9.392	9.396	(1.000)	154677	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.714	9.712	(1.034)	72018	4.98328	4.983

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V204041915G.D
Lab Smp Id: 19D0049-06
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 15-

Calibration Date: 04-APR-2019
Calibration Time: 15:27
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	199603	99802	399206	194434	-2.59
37 1,4-Difluorobenze	364397	182199	728794	347711	-4.58
53 d5-Chlorobenzene	328727	164364	657454	319800	-2.72
76 d4-1,4-Dichlorobe	151591	75796	303182	154677	2.04

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.26	4.76	5.76	5.26	0.04
37 1,4-Difluorobenze	5.65	5.15	6.15	5.65	0.04
53 d5-Chlorobenzene	7.71	7.21	8.21	7.71	0.03
76 d4-1,4-Dichlorobe	9.40	8.90	9.90	9.39	-0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19D0049-06
Level:
Operator: LH
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.858	97.16	
$ 33 d4-1,2-Dichloroeth	5.000	5.035	100.69	
$ 43 d8-Toluene	5.000	4.986	99.72	
$ 62 4-Bromofluorobenze	5.000	5.065	101.29	
$ 79 d4-1,2-Dichloroben	5.000	4.983	99.67	

REVIEW SUMMARY FOR FILE - V204041915G.D

Lab ID: 19D0049-06
nt2.i, 20190404s.b\82600327919.m,   04-APR-2019 12:39

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190404g.b\V204041915G.D

Date : 04-APR-2019 12:39

Client ID:

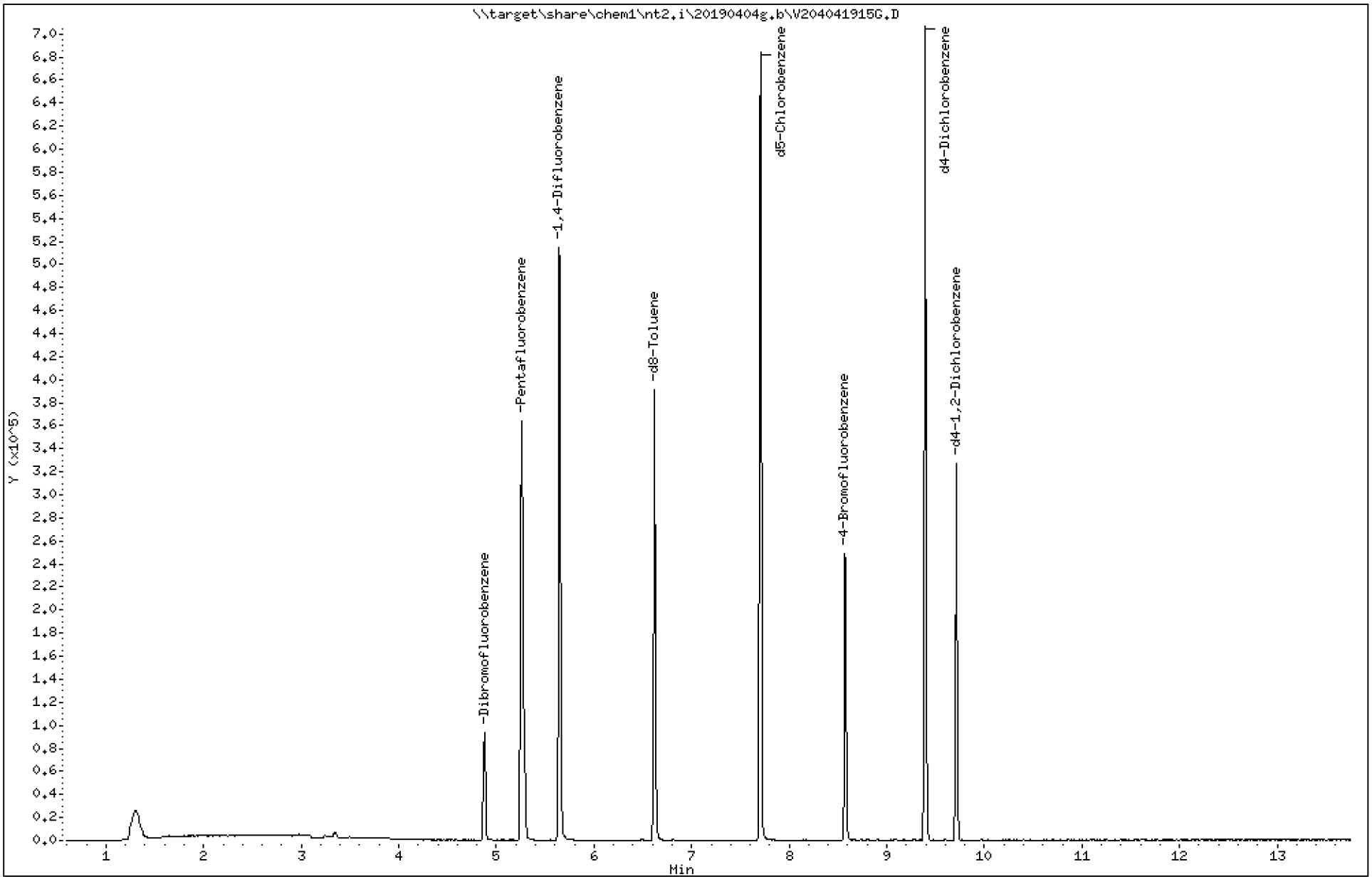
Instrument: nt2.i

Sample Info: 19D0049-06

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190404g.b/V204041915G.D
Method: \20190404g.b\GA032719.m
Instrument: nt2.i
Gas Ical Date: 3/27/19
Injection Date: 04-APR-2019 12:39

ARI ID: 19D0049-06
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.56 to 10.43)	23999549	3	0.000
8015C 2MP-TMB	(3.04 to 9.23)	33333333	4	0.000
AK101 nC6-nC10	(3.39 to 8.54)	31889318	4	0.000
NWTPHG Tol-Nap	(6.56 to 11.21)	25107058	3	0.000
mod8015 nC7-nC12	(5.05 to 10.43)	35467060	5	0.000

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.707	897497	d5-Chlorobenzene
8.571	326871	4-Bromofluorobenzene
6.618	518647	d8-Toluene
9.392	916237	d4-Dichlorobenzene
9.715	417544	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

Volatile Organic Compounds - Quality Control

Batch BHD0129 - EPA 5030 (Purge and Trap)

Instrument: NT2

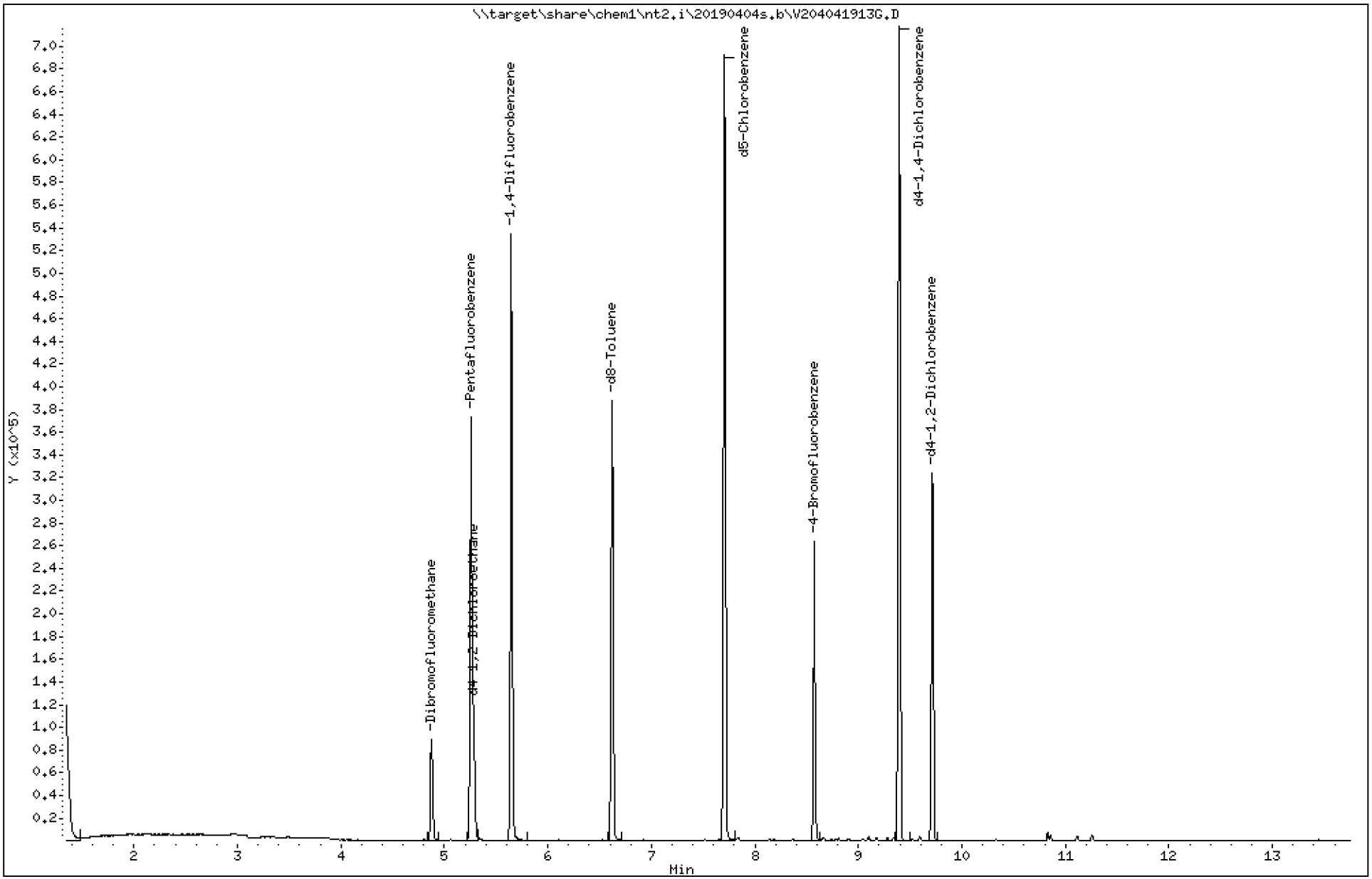
QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHD0129-BLK1)				Prepared: 04-Apr-2019 Analyzed: 04-Apr-2019 11:58						
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.94		ug/L	*5.00*		*98.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.99		ug/L	*5.00*		*99.8*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt2.i\20190404s.b\V204041913G.D
Date : 04-APR-2019 11:58
Client ID:
Sample Info: BHD0129-BLK1

Instrument: nt2.i
Operator: LH
Column phase: RTXVMS
Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190404s.b\V204041913G.D
Lab Smp Id: BHD0129-BLK1
Inj Date : 04-APR-2019 11:58
Operator : LH   Inst ID: nt2.i
Smp Info : BHD0129-BLK1
Misc Info : 1
Comment   :
Method   : \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Meth Date : 05-Apr-2019 09:44 nt2.i   Quant Type: ISTD
Cal Date : 27-MAR-2019 11:51   Cal File: V203271913.D
Als bottle: 10
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.875	4.876	(0.927)	47988	4.96168	4.962
* 32 Pentafluorobenzene	168	5.258	5.259	(1.000)	191149	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.283	5.284	(1.005)	53942	5.10235	5.102
* 37 1,4-Difluorobenzene	114	5.648	5.649	(1.000)	347520	10.0000	
$ 43 d8-Toluene	98	6.621	6.622	(1.172)	207568	4.93946	4.939
* 53 d5-Chlorobenzene	117	7.704	7.705	(1.000)	323074	10.0000	
$ 62 4-Bromofluorobenzene	174	8.574	8.575	(1.113)	58020	4.98972	4.990
* 76 d4-1,4-Dichlorobenzene	152	9.395	9.396	(1.000)	154695	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.717	9.712	(1.034)	73168	5.06227	5.062

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V204041913G.D
Lab Smp Id: BHD0129-BLK1
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 1

Calibration Date: 04-APR-2019
Calibration Time: 15:27
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	199603	99802	399206	191149	-4.24
37 1,4-Difluorobenze	364397	182199	728794	347520	-4.63
53 d5-Chlorobenzene	328727	164364	657454	323074	-1.72
76 d4-1,4-Dichlorobe	151591	75796	303182	154695	2.05

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.26	4.76	5.76	5.26	-0.02
37 1,4-Difluorobenze	5.65	5.15	6.15	5.65	-0.02
53 d5-Chlorobenzene	7.71	7.21	8.21	7.70	-0.01
76 d4-1,4-Dichlorobe	9.40	8.90	9.90	9.40	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHD0129-BLK1
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.962	99.23	
$ 33 d4-1,2-Dichloroeth	5.000	5.102	102.05	
$ 43 d8-Toluene	5.000	4.939	98.79	
$ 62 4-Bromofluorobenze	5.000	4.990	99.79	
$ 79 d4-1,2-Dichloroben	5.000	5.062	101.25	

REVIEW SUMMARY FOR FILE - V204041913G.D

Lab ID: BHD0129-BLK1
nt2.i, 20190404s.b\82600327919.m,   04-APR-2019 11:58

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190404g.b\V204041913G.D

Page 1

Date : 04-APR-2019 11:58

Client ID:

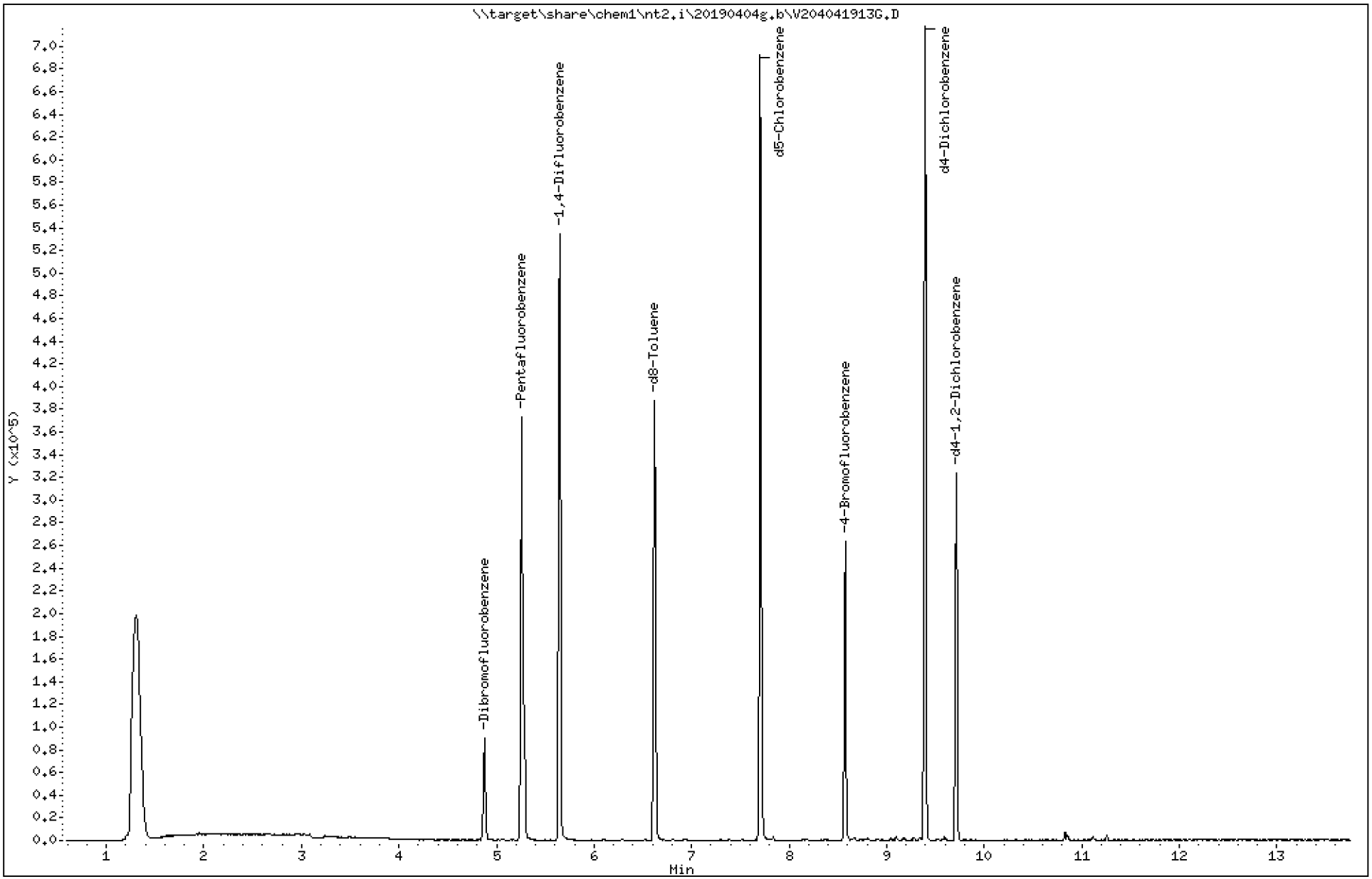
Instrument: nt2.i

Sample Info: BHD0129-BLK1

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190404g.b/V204041913G.D
Method: \20190404g.b\GA032719.m
Instrument: nt2.i
Gas Ical Date: 3/27/19
Injection Date: 04-APR-2019 11:58

ARI ID: BHD0129-BLK1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.56 to 10.43)	23999549	3	0.000
8015C 2MP-TMB	(3.04 to 9.23)	33333333	3	0.000
AK101 nC6-nC10	(3.39 to 8.54)	31889318	2	0.000
NWTPHG Tol-Nap	(6.56 to 11.21)	25107058	3	0.000
mod8015 nC7-nC12	(5.05 to 10.43)	35467060	4	0.000

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.704	904638	d5-Chlorobenzene
8.574	330115	4-Bromofluorobenzene
6.621	514487	d8-Toluene
9.396	921358	d4-Dichlorobenzene
9.712	427623	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

Volatile Organic Compounds - Quality Control

Batch BHD0129 - EPA 5030 (Purge and Trap)

Instrument: NT2

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHD0129-BLK2)				Prepared: 04-Apr-2019 Analyzed: 04-Apr-2019 11:58							
Benzene	ND	0.03	0.20	ug/L							U
Toluene	ND	0.04	0.20	ug/L							U
Ethylbenzene	ND	0.04	0.20	ug/L							U
m,p-Xylene	ND	0.05	0.40	ug/L							U
o-Xylene	ND	0.03	0.20	ug/L							U
Surrogate: Toluene-d8	4.94			ug/L	*5.00*		*98.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.99			ug/L	*5.00*		*99.8*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

Volatile Organic Compounds - Quality Control

Batch BHD0129 - EPA 5030 (Purge and Trap)

Instrument: NT2

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BHD0129-BS1)				Prepared: 04-Apr-2019 Analyzed: 04-Apr-2019 10:58						
Gasoline Range Organics (Tol-Nap)	1130	100	ug/L	1000		113	72-128			
Surrogate: Toluene-d8	5.18		ug/L	*5.00*		*104*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.15		ug/L	*5.00*		*103*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt2.i\20190404s.b\V204041910GLCS.D

Date : 04-APR-2019 10:58

Client ID:

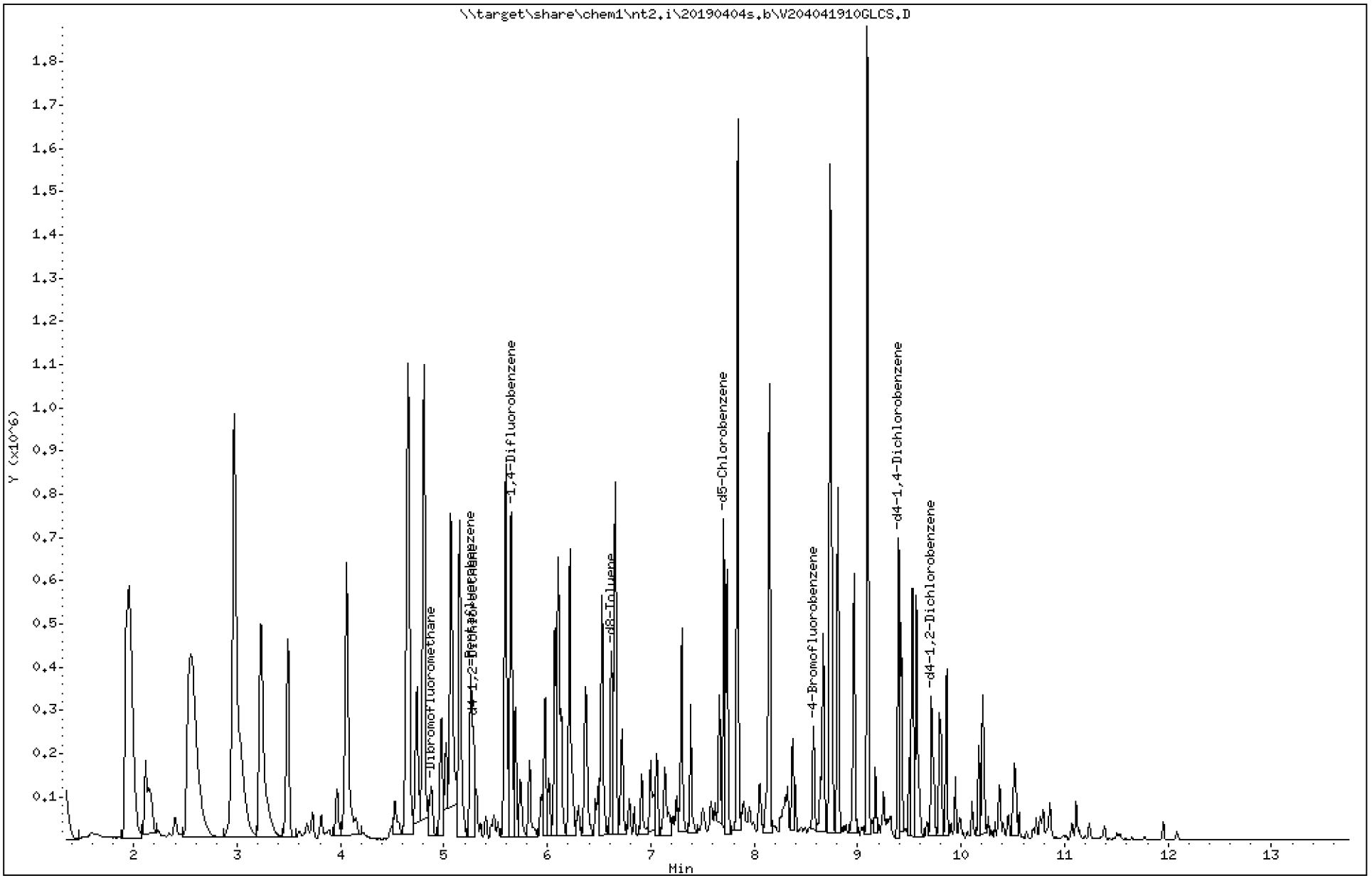
Instrument: nt2.i

Sample Info: BHD0129-BS1

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190404s.b\V204041910GLCS.D
Lab Smp Id: BHD0129-BS1
Inj Date : 04-APR-2019 10:58
Operator : LH   Inst ID: nt2.i
Smp Info : BHD0129-BS1
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Meth Date : 05-Apr-2019 09:44 nt2.i   Quant Type: ISTD
Cal Date : 27-MAR-2019 11:51   Cal File: V203271913.D
Als bottle: 7
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.877	4.876	(0.927)	46739	4.81541	4.815
* 32 Pentafluorobenzene	168	5.260	5.259	(1.000)	191829	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.284	5.284	(1.005)	54488	5.13573	5.136
* 37 1,4-Difluorobenzene	114	5.649	5.649	(1.000)	338743	10.0000	
$ 43 d8-Toluene	98	6.617	6.622	(1.171)	212012	5.17593	5.176
* 53 d5-Chlorobenzene	117	7.706	7.705	(1.000)	311965	10.0000	
$ 62 4-Bromofluorobenzene	174	8.576	8.575	(1.113)	57786	5.14656	5.147
* 76 d4-1,4-Dichlorobenzene	152	9.391	9.396	(1.000)	152818	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.713	9.712	(1.034)	71277	4.99200	4.992

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V204041910GLCS.D
Lab Smp Id: BHD0129-BS1
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 15-

Calibration Date: 04-APR-2019
Calibration Time: 15:27
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	199603	99802	399206	191829	-3.89
37 1,4-Difluorobenze	364397	182199	728794	338743	-7.04
53 d5-Chlorobenzene	328727	164364	657454	311965	-5.10
76 d4-1,4-Dichlorobe	151591	75796	303182	152818	0.81

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.26	4.76	5.76	5.26	0.02
37 1,4-Difluorobenze	5.65	5.15	6.15	5.65	0.02
53 d5-Chlorobenzene	7.71	7.21	8.21	7.71	0.01
76 d4-1,4-Dichlorobe	9.40	8.90	9.90	9.39	-0.06

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHD0129-BS1
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.815	96.31	
$ 33 d4-1,2-Dichloroeth	5.000	5.136	102.71	
$ 43 d8-Toluene	5.000	5.176	103.52	
$ 62 4-Bromofluorobenze	5.000	5.147	102.93	
$ 79 d4-1,2-Dichloroben	5.000	4.992	99.84	

REVIEW SUMMARY FOR FILE - V204041910GLCS.D

Lab ID: BHD0129-BS1
nt2.i, 20190404s.b\82600327919.m,   04-APR-2019 10:58

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190404g.b\V204041910GLCS.D

Page 1

Date : 04-APR-2019 10:58

Client ID:

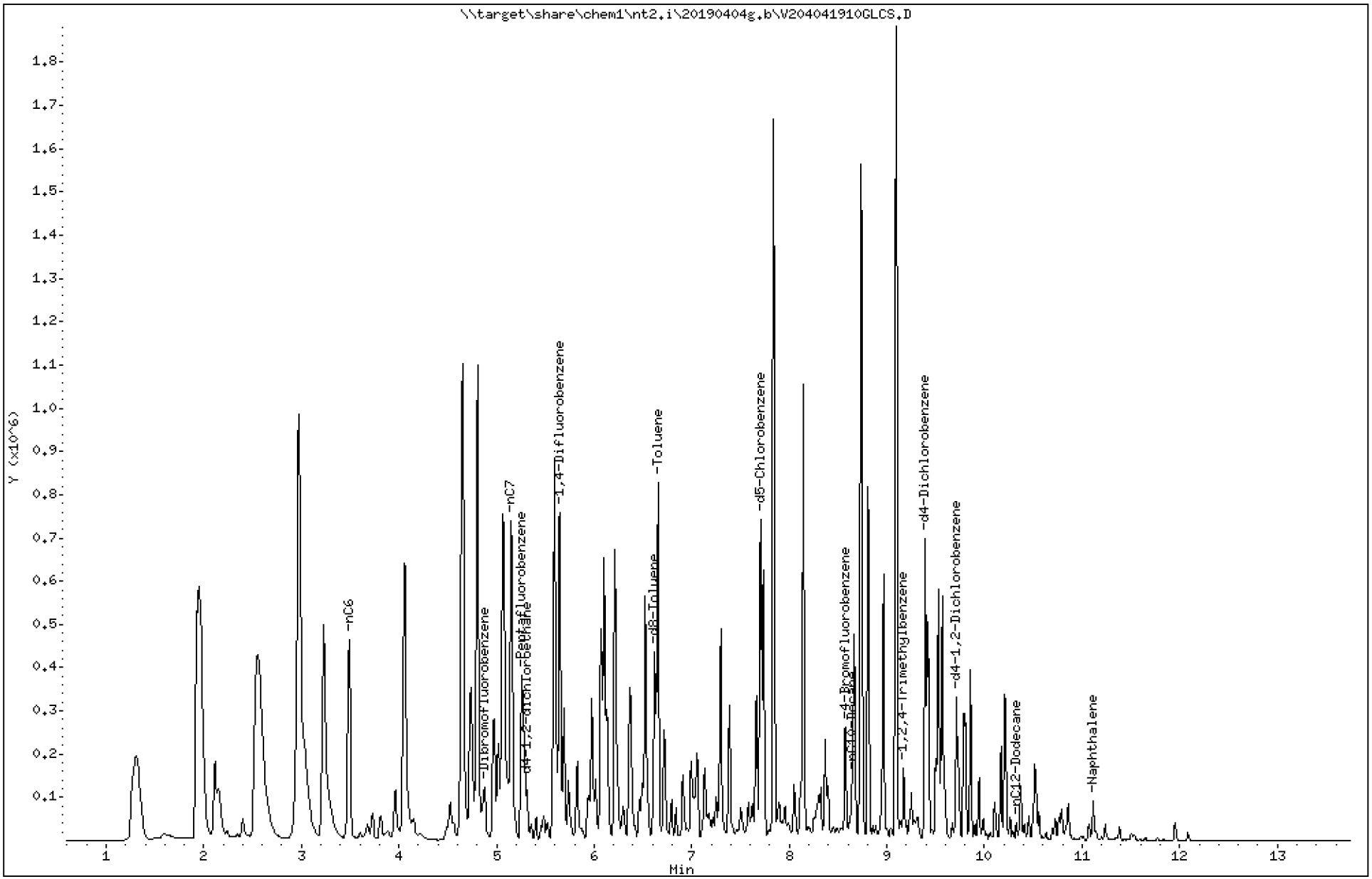
Instrument: nt2.i

Sample Info: BHD0129-BS1

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190404g.b/V204041910GLCS.D
Method: \20190404g.b\GA032719.m
Instrument: nt2.i
Gas Ical Date: 3/27/19
Injection Date: 04-APR-2019 10:58

ARI ID: BHD0129-BS1
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.56 to 10.43)	23999549	27004459	1.125	
8015C 2MP-TMB	(3.04 to 9.23)	33333333	45418595	1.363	M
AK101 nC6-nC10	(3.39 to 8.54)	31889318	35704212	1.120	M
NWTPHG Tol-Nap	(6.56 to 11.21)	25107058	28287511	1.127	
mod8015 nC7-nC12	(5.05 to 10.43)	35467060	40350756	1.138	M

* Surrogate areas are subtracted from Total Area

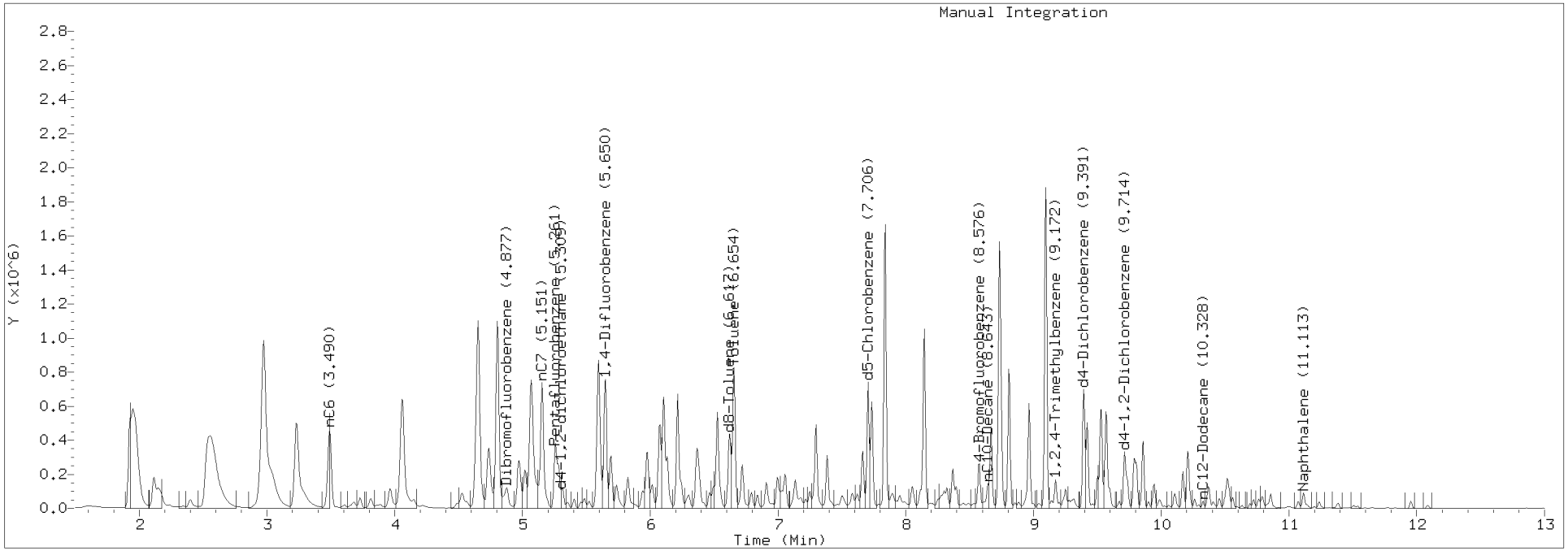
NW Gas Range Subtracted Peaks

7.706	1025788	d5-Chlorobenzene
8.576	396295	4-Bromofluorobenzene
6.617	768277	d8-Toluene
9.391	996371	d4-Dichlorobenzene
9.714	646109	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190404g.b/V204041910GLCS.D Injection: 04-APR-2019 10:58

Lab ID:BHD0129-BS1



Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

Volatile Organic Compounds - Quality Control

Batch BHD0129 - EPA 5030 (Purge and Trap)

Instrument: NT2

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BHD0129-BS2)					Prepared: 04-Apr-2019 Analyzed: 04-Apr-2019 10:38						
Benzene	9.63	0.03	0.20	ug/L	10.0		96.3	80-120			
Toluene	9.83	0.04	0.20	ug/L	10.0		98.3	80-120			
Ethylbenzene	9.96	0.04	0.20	ug/L	10.0		99.6	80-120			
m,p-Xylene	20.9	0.05	0.40	ug/L	20.0		105	80-121			
o-Xylene	9.92	0.03	0.20	ug/L	10.0		99.2	80-121			
Surrogate: Toluene-d8	5.10			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.12			ug/L	*5.00*		*102*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

Volatile Organic Compounds - Quality Control

Batch BHD0129 - EPA 5030 (Purge and Trap)

Instrument: NT2

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BHD0129-BSD1)				Prepared: 04-Apr-2019 Analyzed: 04-Apr-2019 11:18						
Gasoline Range Organics (Tol-Nap)	1120	100	ug/L	1000		112	72-128	1.03	30	
Surrogate: Toluene-d8	5.03		ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.20		ug/L	*5.00*		*104*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt2.i\20190404s.b\V204041911G.D

Date : 04-APR-2019 11:18

Client ID: GAS

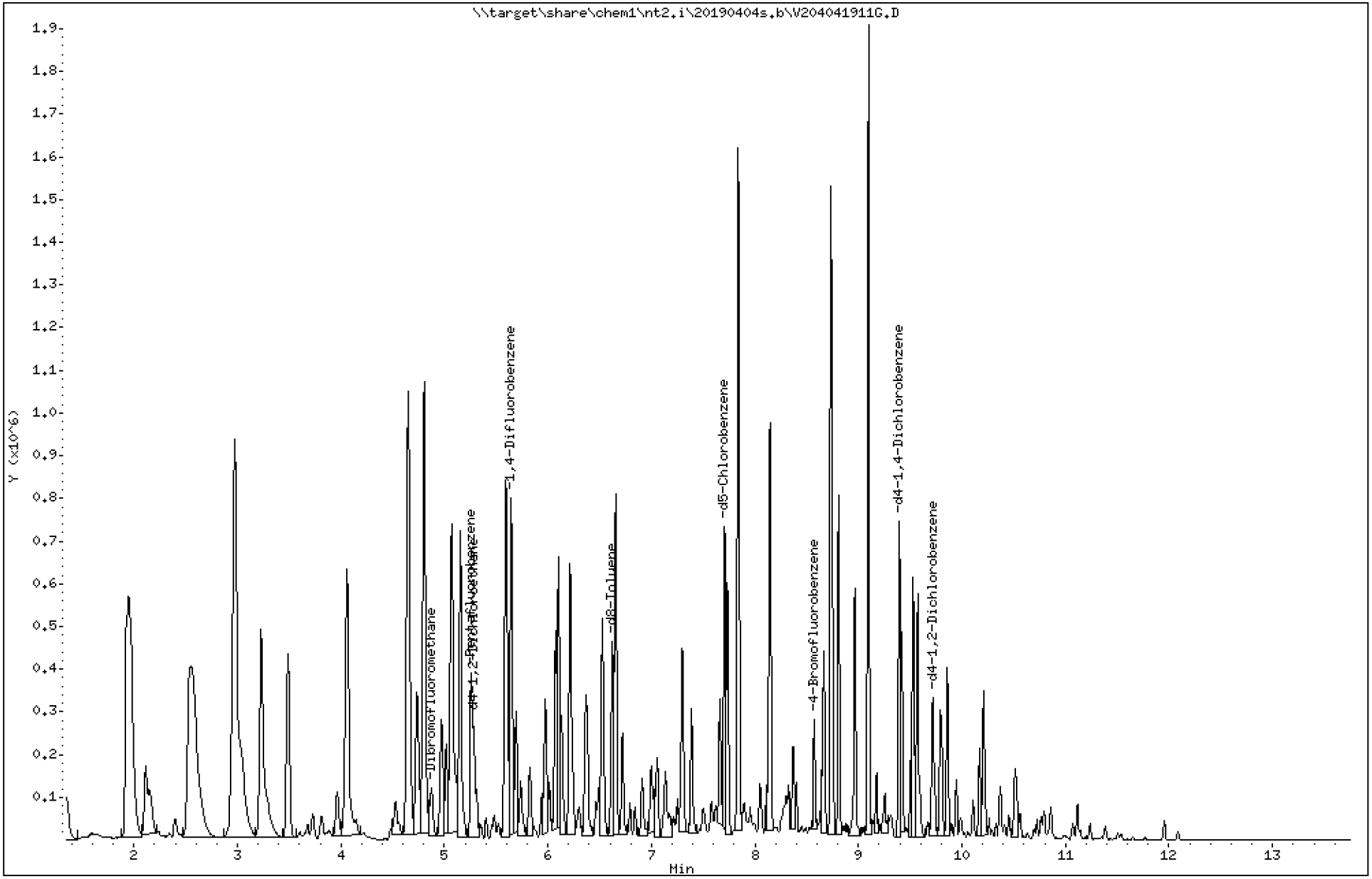
Instrument: nt2.i

Sample Info: BHD0129-BSD1

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt2.i\20190404s.b\V204041911G.D
Lab Smp Id: BHD0129-BSD1 Client Smp ID: GAS
Inj Date : 04-APR-2019 11:18
Operator : LH Inst ID: nt2.i
Smp Info : BHD0129-BSD1
Misc Info : 1
Comment :
Method : \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Meth Date : 05-Apr-2019 09:44 nt2.i Quant Type: ISTD
Cal Date : 27-MAR-2019 11:51 Cal File: V203271913.D
Als bottle: 8
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.880	4.876	(0.928)	48087	4.81716	4.817
* 32 Pentafluorobenzene	168	5.257	5.259	(1.000)	197290	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.281	5.284	(1.005)	55697	5.10437	5.104
* 37 1,4-Difluorobenzene	114	5.646	5.649	(1.000)	355749	10.0000	
$ 43 d8-Toluene	98	6.619	6.622	(1.172)	216293	5.02802	5.028
* 53 d5-Chlorobenzene	117	7.708	7.705	(1.000)	319100	10.0000	
$ 62 4-Bromofluorobenzene	174	8.572	8.575	(1.112)	59718	5.19970	5.200
* 76 d4-1,4-Dichlorobenzene	152	9.393	9.396	(1.000)	156479	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.716	9.712	(1.034)	73535	5.02965	5.030

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt2.i
Lab File ID: V204041911G.D
Lab Smp Id: BHD0129-BSD1
Analysis Type: VOA
Quant Type: ISTD
Operator: LH
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 1

Calibration Date: 04-APR-2019
Calibration Time: 15:27
Client Smp ID: GAS
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	199603	99802	399206	197290	-1.16
37 1,4-Difluorobenze	364397	182199	728794	355749	-2.37
53 d5-Chlorobenzene	328727	164364	657454	319100	-2.93
76 d4-1,4-Dichlorobe	151591	75796	303182	156479	3.22

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.26	4.76	5.76	5.26	-0.05
37 1,4-Difluorobenze	5.65	5.15	6.15	5.65	-0.04
53 d5-Chlorobenzene	7.71	7.21	8.21	7.71	0.05
76 d4-1,4-Dichlorobe	9.40	8.90	9.90	9.39	-0.03

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151001
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHD0129-BSD1 Client Smp ID: GAS
Level: Operator: LH
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt2.i\20190404s.b\82600327919.m
Misc Info: 1

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.817	96.34	
$ 33 d4-1,2-Dichloroeth	5.000	5.104	102.09	
$ 43 d8-Toluene	5.000	5.028	100.56	
$ 62 4-Bromofluorobenze	5.000	5.200	103.99	
$ 79 d4-1,2-Dichloroben	5.000	5.030	100.59	

REVIEW SUMMARY FOR FILE - V204041911G.D

Lab ID: BHD0129-BSD1
nt2.i, 20190404s.b\82600327919.m,   04-APR-2019 11:18

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt2.i\20190404g.b\V204041911G.D

Page 1

Date : 04-APR-2019 11:18

Client ID: GAS

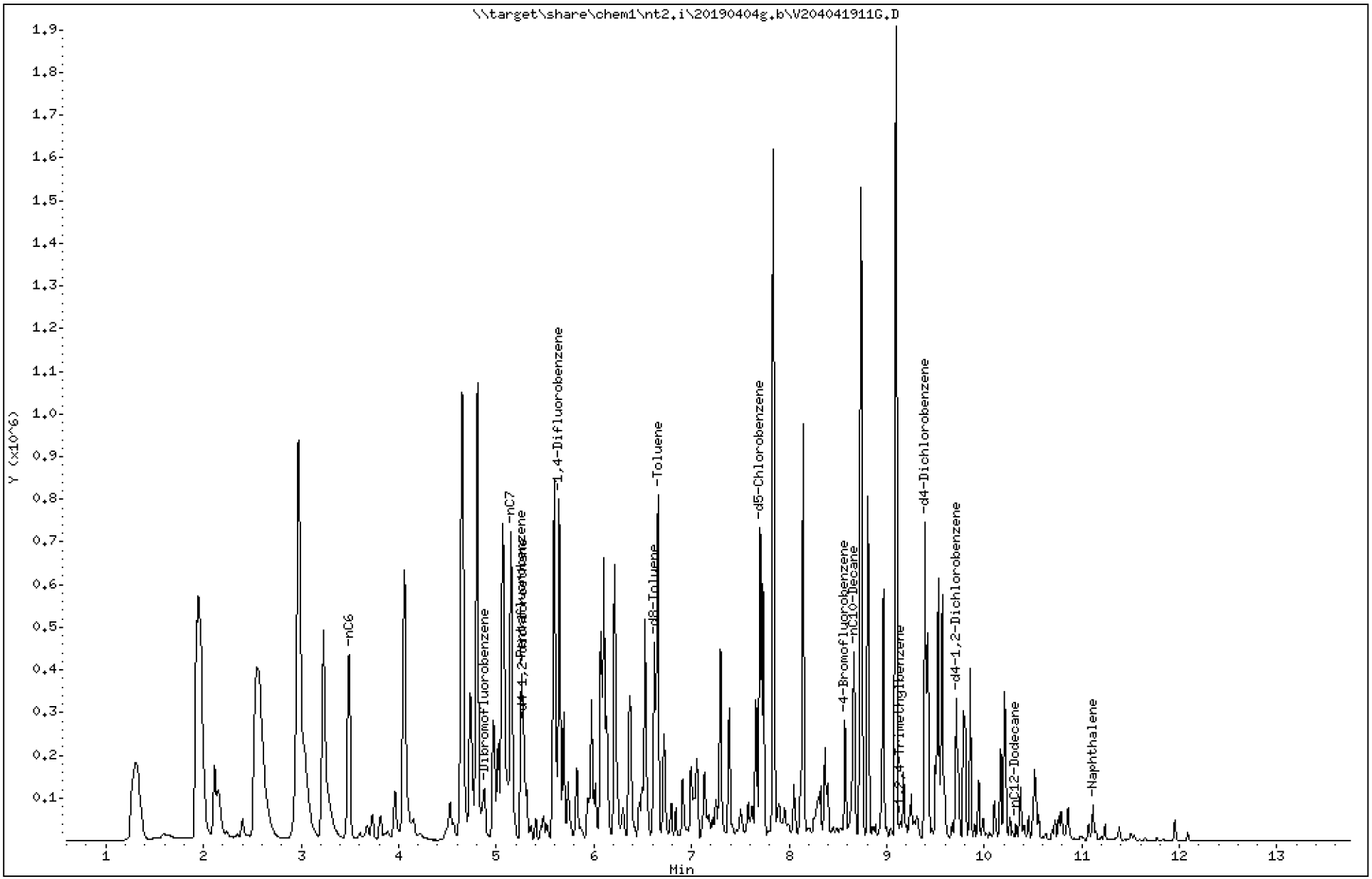
Instrument: nt2.i

Sample Info: BHD0129-BSD1

Operator: LH

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190404g.b/V204041911G.D
Method: \20190404g.b\GA032719.m
Instrument: nt2.i
Gas Ical Date: 3/27/19
Injection Date: 04-APR-2019 11:18

ARI ID: BHD0129-BSD1
Client ID: GAS
Matrix: NONE
Dilution Factor: 1.000
Operator: LH

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.56 to 10.43)	23999549	26789275	1.116
8015C 2MP-TMB	(3.04 to 9.23)	33333333	45020696	1.351 M
AK101 nC6-nC10	(3.39 to 8.54)	31889318	35440427	1.111 M
NWTPHG Tol-Nap	(6.56 to 11.21)	25107058	27996385	1.115
mod8015 nC7-nC12	(5.05 to 10.43)	35467060	40045901	1.129 M

* Surrogate areas are subtracted from Total Area

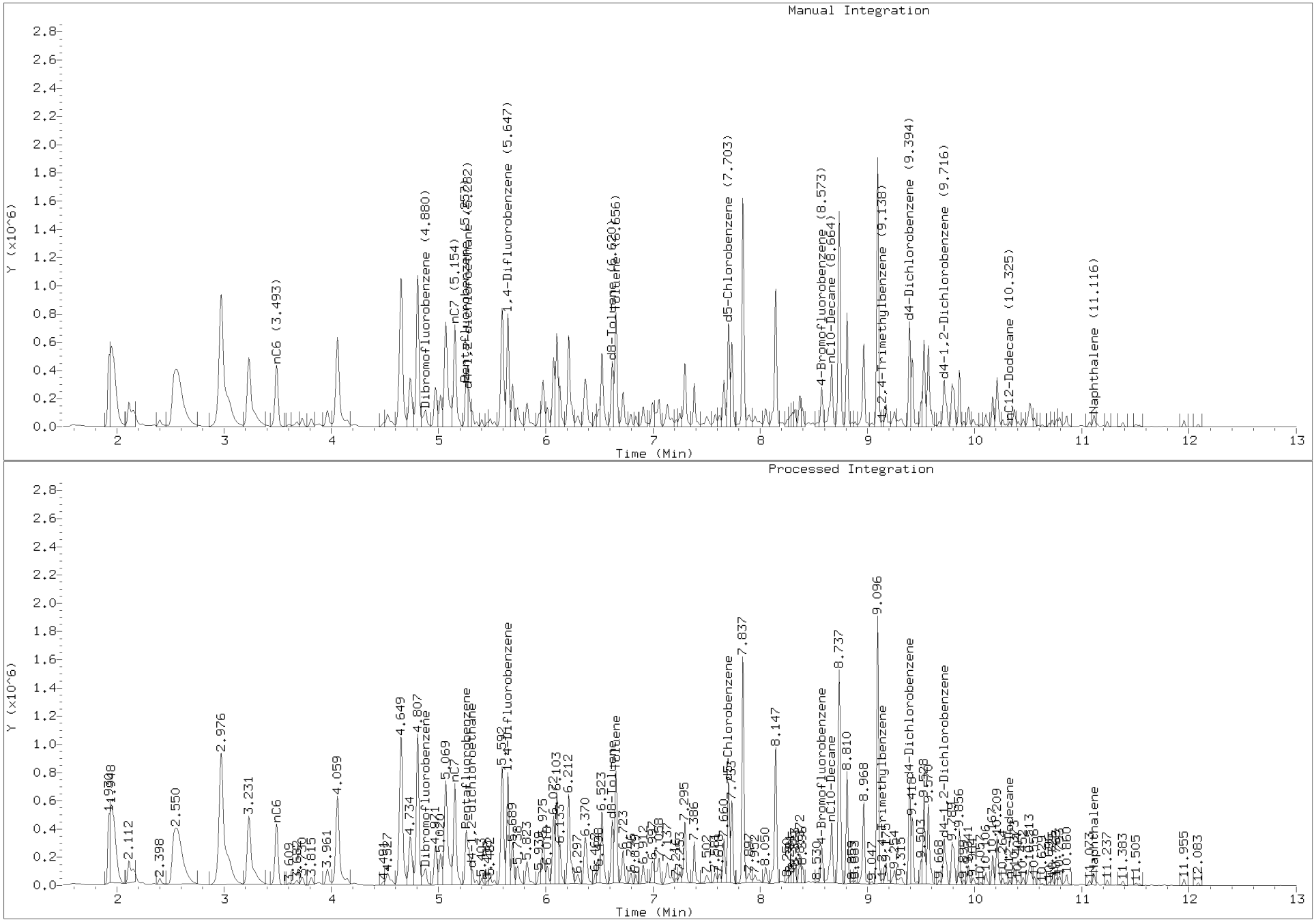
NW Gas Range Subtracted Peaks

7.703	1073650	d5-Chlorobenzene
8.573	397432	4-Bromofluorobenzene
6.620	712736	d8-Toluene
9.394	951796	d4-Dichlorobenzene
9.716	658080	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT2, 20190404g.b/V204041911G.D Injection: 04-APR-2019 11:18

Lab ID:BHD0129-BSD1



Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

Volatile Organic Compounds - Quality Control

Batch BHD0129 - EPA 5030 (Purge and Trap)

Instrument: NT2

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BHD0129-BSD2)					Prepared: 04-Apr-2019 Analyzed: 04-Apr-2019 11:38						
Benzene	10.4	0.03	0.20	ug/L	10.0		104	80-120	7.32	30	
Toluene	10.5	0.04	0.20	ug/L	10.0		105	80-120	6.47	30	
Ethylbenzene	10.6	0.04	0.20	ug/L	10.0		106	80-120	6.36	30	
m,p-Xylene	21.9	0.05	0.40	ug/L	20.0		109	80-121	4.57	30	
o-Xylene	10.6	0.03	0.20	ug/L	10.0		106	80-121	6.71	30	
Surrogate: Toluene-d8	5.07			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.09			ug/L	*5.00*		*102*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

Certified Analyses included in this Report

Analyte	Certifications
EPA 8260C in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Hexane	WADOE

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

2-Pentanone	WADOE

NWTPHg in Water

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-011	05/12/2019
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	16-Apr-2019 12:47

Notes and Definitions

U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
J	Estimated concentration value detected below the reporting limit.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

17 July 2019

Matt Dalton
Dalton, Olmsted & Fuglevand, Inc
6034 N Star Rd
Ferndale, WA 98248

RE: USOR POT RD

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
19G0033	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.



Amanda Volgardsen, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006

PJLA Testing
Accreditation # 66169

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 19G0033	Turn-around Requested: STANDARD	Page: 1 of 1	
ARI Client Company: DOF	Phone: 206 460 3466	Date: 7/2/19	Ice Present? Yes
Client Contact: DAVID COOPER		No. of Coolers: 1	Cooler Temps: 3.4°C
Client Project Name: PORT OF TACOMA RD.			
Client Project #: USO-023	Samplers: A. CERRUTI		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPHGx & BTEX								Notes/Comments
MW-R1	7/1/19	1810	WATER	5	X								
MW-R2	7/1/19	1915	WATER	5	X								
MW-R3	7/1/19	1840	WATER	5	X								
MW-R4	7/1/19	1940	WATER	5	X								
MW-5s	7/1/19	1745	WATER	5	X								
TRIP BLANK			WATER	2									
													AC

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: ANTHONY CERRUTI	Printed Name: Jacob Hu	Printed Name:	Printed Name:
	Company: DOF	Company: ARI	Company:	Company:
	Date & Time: 7/2/19 1039	Date & Time: 07/02/19 1039	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-R1	19G0033-01	Water	01-Jul-2019 18:10	02-Jul-2019 10:39
MW-R2	19G0033-02	Water	01-Jul-2019 19:15	02-Jul-2019 10:39
MW-R3	19G0033-03	Water	01-Jul-2019 18:40	02-Jul-2019 10:39
MW-R4	19G0033-04	Water	01-Jul-2019 19:40	02-Jul-2019 10:39
MW-5s	19G0033-05	Water	01-Jul-2019 17:45	02-Jul-2019 10:39
TRIP BLANK	19G0033-06	Water	01-Jul-2019 17:45	02-Jul-2019 10:39

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

Case Narrative

Sample receipt

Samples as listed on the preceding page were received July 2, 2019 under ARI work order 19G0033. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260C

The samples were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limits.

The LCS/LCSD percent recoveries and RPD were within control limits.

Gasoline by NWTPH-g (GC/MS)

The samples were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limits.

The LCS/LCSD percent recoveries and RPD were within control limits.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Printed: 7/2/2019 3:52:30PM

WORK ORDER

19G0033

Client: Dalton, Olmsted & Fuglevand, Inc
Project: USOR POT RD

Project Manager: Amanda Volgardsen
Project Number: USO-023-00

Report To:
Dalton, Olmsted & Fuglevand, Inc
Matt Dalton
6034 N Star Rd
Ferndale, WA 98248
Phone: (360) 394-7917
Fax: -

Invoice To:
Dalton, Olmsted & Fuglevand, Inc
Dave Cooper
1420 - 156th Ave., NE STE C1
Bellevue, WA 98007
Phone :(206) 660-3466
Fax: -

Date Due: 17-Jul-2019 18:00 (10 day TAT)

Received By: Jacob Walter
Logged In By: Kenny Dang

Date Received: 02-Jul-2019 10:39
Date Logged In: 02-Jul-2019 15:38

Samples Received at: **3.4°C**

Intact, properly signed and dated custody seals attached to outside of cooler(s)	No	Custody papers included with the cooler	Yes
Custody papers properly filled out (in, signed, analyses requested, etc)	Yes	Was a temperature blank included in the cooler	No
Was sufficient ice used (if appropriate)	Yes	All bottles sealed in individual plastic bags	No
All bottles arrived in good condition (unbroken)	Yes	All bottle labels complete and legible	Yes
Number of containers listed on COC match number received	Yes	Bottle labels and tags agree with COC	Yes
Correct bottles used for the requested analyses	Yes	All VOC vials free of air bubbles	Yes
Analyses/bottles require preservation (attach preservation sheet excluding VOC)	No	Sufficient amount of sample sent in each bottle	Yes
Sample split at ARI	No		

Analysis	Due	TAT	Expires	Comments

WORK ORDER

19G0033

Client: Dalton, Olmsted & Fuglevand, Inc
Project Manager: Amanda Volgardsen
Project: USOR POT RD
Project Number: USO-023-00

Analysis	Due	TAT	Expires	Comments
19G0033-01 MW-R1 [Water] Sampled 01-Jul-2019 18:10 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL C = VOA Vial, Clear, 40 mL, HCL D = VOA Vial, Clear, 40 mL, HCL E = VOA Vial, Clear, 40 mL, HCL				
8260C VOA	17-Jul-2019 15:00	10	15-Jul-2019 18:10	
8260C Gas (NWTPH)	17-Jul-2019 15:00	10	15-Jul-2019 18:10	
19G0033-02 MW-R2 [Water] Sampled 01-Jul-2019 19:15 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL C = VOA Vial, Clear, 40 mL, HCL D = VOA Vial, Clear, 40 mL, HCL E = VOA Vial, Clear, 40 mL, HCL				
8260C VOA	17-Jul-2019 15:00	10	15-Jul-2019 19:15	
8260C Gas (NWTPH)	17-Jul-2019 15:00	10	15-Jul-2019 19:15	
19G0033-03 MW-R3 [Water] Sampled 01-Jul-2019 18:40 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL C = VOA Vial, Clear, 40 mL, HCL D = VOA Vial, Clear, 40 mL, HCL E = VOA Vial, Clear, 40 mL, HCL				
8260C VOA	17-Jul-2019 15:00	10	15-Jul-2019 18:40	
8260C Gas (NWTPH)	17-Jul-2019 15:00	10	15-Jul-2019 18:40	
19G0033-04 MW-R4 [Water] Sampled 01-Jul-2019 19:40 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL C = VOA Vial, Clear, 40 mL, HCL D = VOA Vial, Clear, 40 mL, HCL E = VOA Vial, Clear, 40 mL, HCL				
8260C VOA	17-Jul-2019 15:00	10	15-Jul-2019 19:40	
8260C Gas (NWTPH)	17-Jul-2019 15:00	10	15-Jul-2019 19:40	
19G0033-05 MW-5s [Water] Sampled 01-Jul-2019 17:45 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL C = VOA Vial, Clear, 40 mL, HCL D = VOA Vial, Clear, 40 mL, HCL E = VOA Vial, Clear, 40 mL, HCL				
8260C VOA	17-Jul-2019 15:00	10	15-Jul-2019 17:45	
8260C Gas (NWTPH)	17-Jul-2019 15:00	10	15-Jul-2019 17:45	
19G0033-06 TRIP BLANK [Water] Sampled 01-Jul-2019 17:45 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL				
8260C VOA	17-Jul-2019 15:00	10	15-Jul-2019 17:45	
8260C Gas (NWTPH)	17-Jul-2019 15:00	10	15-Jul-2019 17:45	

Reviewed By

Date

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: DOF

Project Name: Part of Tacoma RD

COC No(s): NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: 19G0033

Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1039 3.4°C

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: DOO 5206

Cooler Accepted by: JS Date: 07/02/19 Time: 1039

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA	6/25/19	

Were the sample(s) split by ARI? NA YES Date/Time: Equipment: Split by:

Samples Logged by: KD Date: 7/2/19 Time: 1538 Labels checked by: KD

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

MW-R1

19G0033-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 07/01/2019 18:10
Instrument: NT3 — Analyzed: 05-Jul-2019 17:54

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHG0144 — Sample Size: 10 mL
Prepared: 05-Jul-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*98.7*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*98.4*	*%*	

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

MW-R1

19G0033-01 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 07/01/2019 18:10
Instrument: NT3 — Analyzed: 05-Jul-2019 17:54

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHG0144 — Sample Size: 10 mL
Prepared: 05-Jul-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*98.7*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*98.4*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Data File: \\target\share\chem1\nt3.i\20190705s.b\V307051919G.D

Date : 05-JUL-2019 17:54

Client ID:

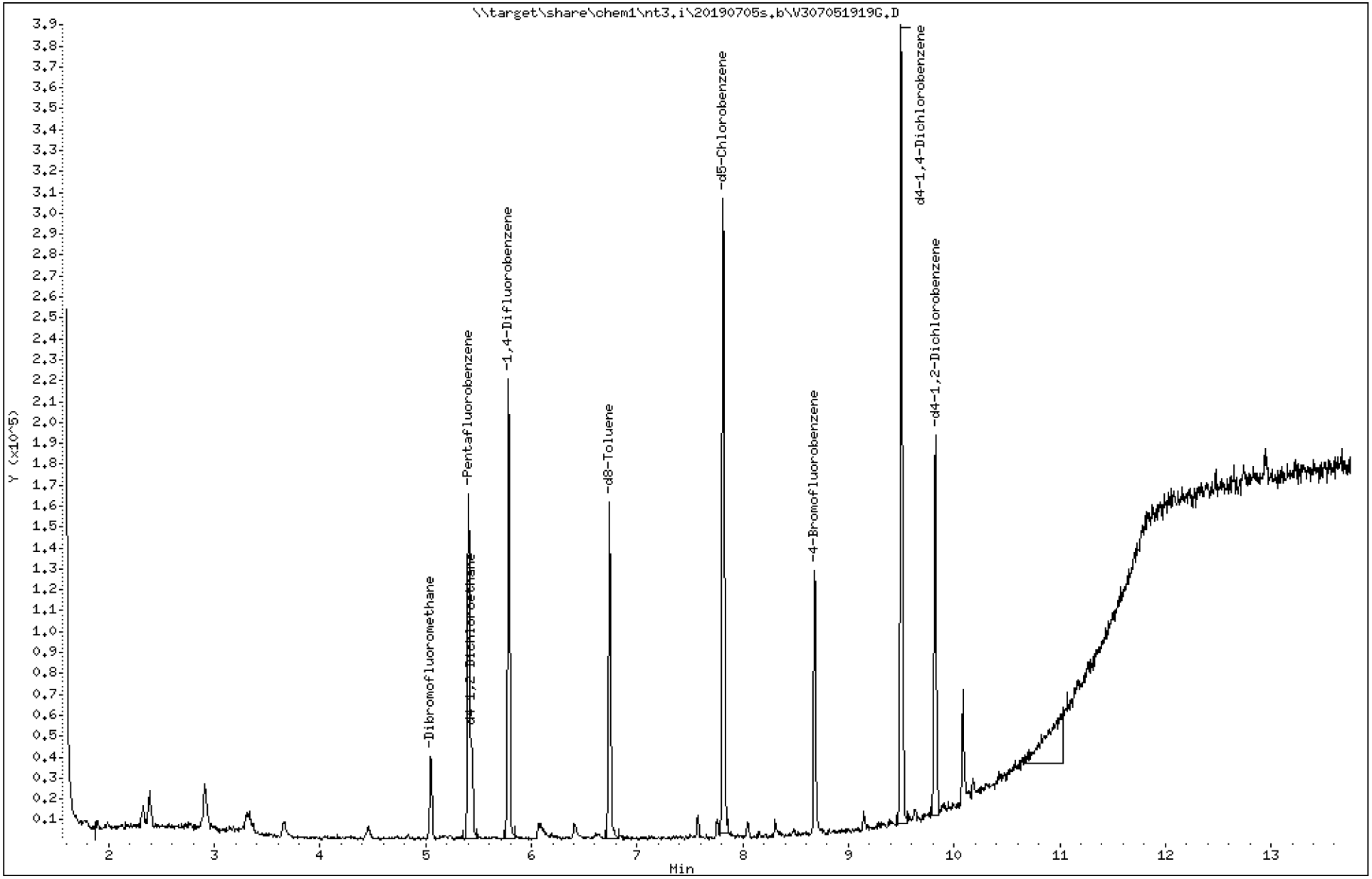
Instrument: nt3.i

Sample Info: 19G0033-01

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190705s.b\V307051919G.D
Lab Smp Id: 19G0033-01
Inj Date : 05-JUL-2019 17:54
Operator : PKC   Inst ID: nt3.i
Smp Info : 19G0033-01
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Meth Date : 08-Jul-2019 10:21 nt3.i   Quant Type: ISTD
Cal Date : 02-JUL-2019 16:45   Cal File: V307021918.D
Als bottle: 56
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.046	5.047	(0.933)	18972	4.96130	4.961
* 32 Pentafluorobenzene	168	5.407	5.403	(1.000)	88764	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.433	5.435	(1.005)	22398	4.99936	4.999
* 37 1,4-Difluorobenzene	114	5.784	5.786	(1.000)	127051	10.0000	
$ 43 d8-Toluene	98	6.735	6.737	(1.164)	78747	4.93264	4.933
* 53 d5-Chlorobenzene	117	7.814	7.815	(1.000)	133463	10.0000	
$ 62 4-Bromofluorobenzene	174	8.680	8.681	(1.111)	31187	4.91978	4.920
* 76 d4-1,4-Dichlorobenzene	152	9.498	9.500	(1.000)	84543	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.822	9.824	(1.034)	41018	5.18220	5.182

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V307051919G.D
Lab Smp Id: 19G0033-01
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 15-

Calibration Date: 05-JUL-2019
Calibration Time: 21:25
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	93009	46505	186018	88764	-4.56
37 1,4-Difluorobenze	136010	68005	272020	127051	-6.59
53 d5-Chlorobenzene	139657	69829	279314	133463	-4.44
76 d4-1,4-Dichlorobe	88785	44393	177570	84543	-4.78

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.40	4.90	5.90	5.41	0.07
37 1,4-Difluorobenze	5.79	5.29	6.29	5.78	-0.02
53 d5-Chlorobenzene	7.82	7.32	8.32	7.81	-0.02
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: 19G0033-01
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.961	99.23	80-120
$ 33 d4-1,2-Dichloroeth	5.000	4.999	99.99	80-128
$ 43 d8-Toluene	5.000	4.933	98.65	80-120
$ 62 4-Bromofluorobenze	5.000	4.920	98.40	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.182	103.64	80-120

REVIEW SUMMARY FOR FILE - V307051919G.D

Lab ID: 19G0033-01
nt3.i, 20190705s.b\8260C070219.m,   05-JUL-2019 17:54

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190705g.b\V307051919G.D

Date : 05-JUL-2019 17:54

Client ID:

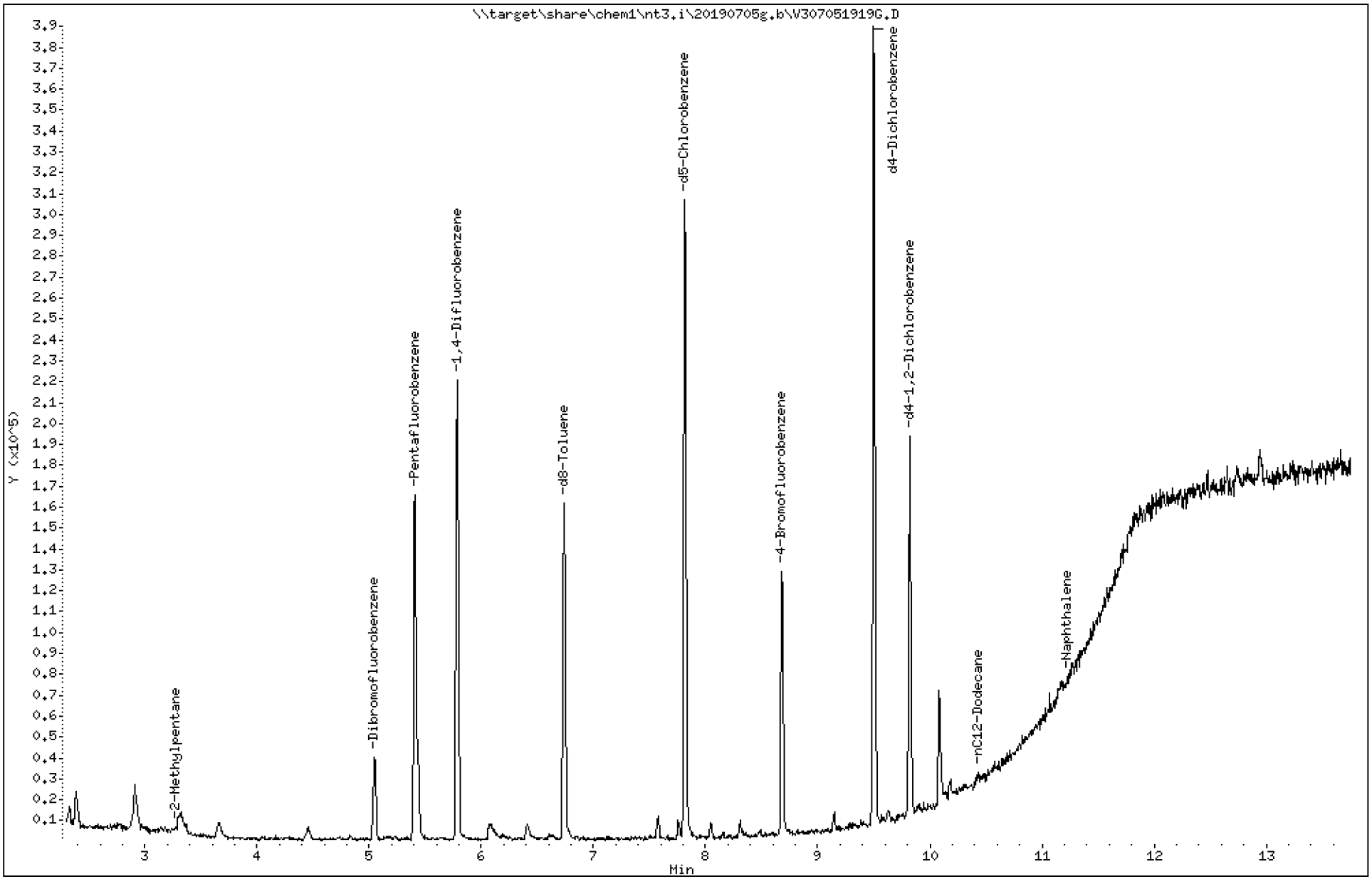
Instrument: nt3.i

Sample Info: 19G0033-01

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190705g.b/V307051919G.D
Method: \20190705g.b\NWTPHG.m
Instrument: nt3.i
Gas Ical Date: 13-JUN-2019
Injection Date: 05-JUL-2019 17:54

ARI ID: 19G0033-01
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.67 to 10.53)	15577275	249628	0.016
8015C 2MP-TMB	(3.11 to 9.43)	30509602	165107	0.005
AK101 nC6-nC10	(3.68 to 8.65)	20565293	99414	0.005
NWTPHG Tol-Nap	(6.67 to 11.32)	16736874	427779	0.026
mod8015 nC7-nC12	(5.21 to 10.53)	23297057	274714	0.012

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.814	458799	d5-Chlorobenzene
6.741	248299	d8-Toluene
9.499	557064	d4-Dichlorobenzene
8.680	182166	4-Bromofluorobenzene
9.823	269853	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

MW-R2

19G0033-02 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 07/01/2019 19:15
Instrument: NT3 — Analyzed: 05-Jul-2019 18:20

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHG0144 — Sample Size: 10 mL
Prepared: 05-Jul-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	**67.0**	ug/L	
Toluene	108-88-3	1	0.04	0.20	**1.22**	ug/L	
Ethylbenzene	100-41-4	1	0.04	0.20	**1.05**	ug/L	
m,p-Xylene	179601-23-1	1	0.05	0.40	**0.89**	ug/L	
o-Xylene	95-47-6	1	0.03	0.20	**0.35**	ug/L	
Surrogate: Toluene-d8				*80-120 %*	*102*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.8*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

MW-R2

19G0033-02 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 07/01/2019 19:15
Instrument: NT3 — Analyzed: 05-Jul-2019 18:20

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHG0144 — Sample Size: 10 mL
Prepared: 05-Jul-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	**2050**	ug/L	
HC ID: GAS						
Surrogate: Toluene-d8			*80-120 %*	*102*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*96.8*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20190705s.b\V307051920G.D

Date : 05-JUL-2019 18:20

Client ID:

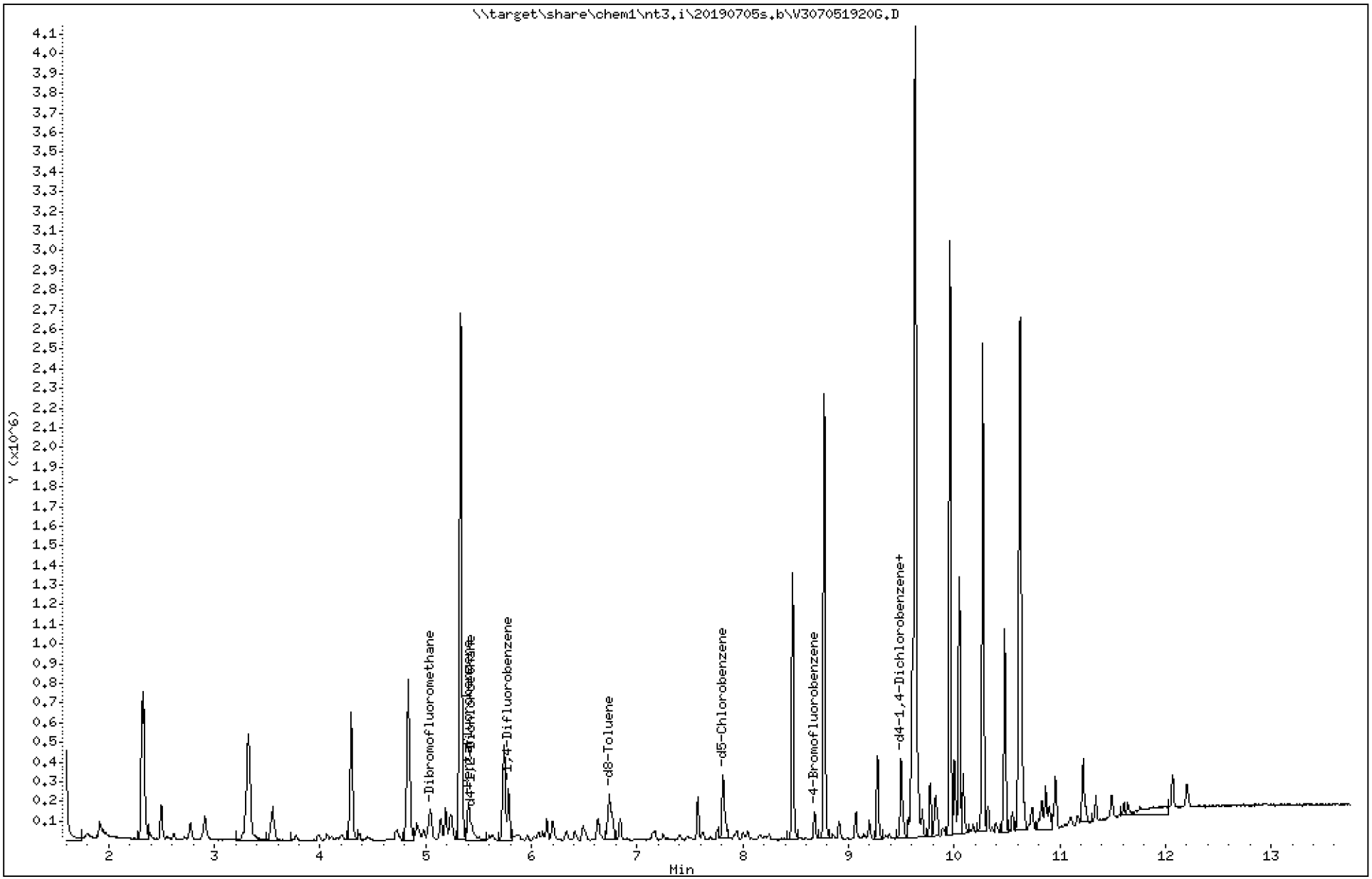
Instrument: nt3.i

Sample Info: 19G0033-02

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190705s.b\V307051920G.D
Lab Smp Id: 19G0033-02
Inj Date : 05-JUL-2019 18:20
Operator : PKC   Inst ID: nt3.i
Smp Info : 19G0033-02
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Meth Date : 08-Jul-2019 10:21 nt3.i   Quant Type: ISTD
Cal Date : 02-JUL-2019 16:45   Cal File: V307021918.D
Als bottle: 57
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.046	5.047	(0.933)	19896	4.98584	4.986
* 32 Pentafluorobenzene	168	5.407	5.403	(1.000)	92629	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.434	5.435	(1.005)	24008	5.13513	5.135
* 37 1,4-Difluorobenzene	114	5.784	5.786	(1.000)	135577	10.0000	
$ 43 d8-Toluene	98	6.735	6.737	(1.164)	87056	5.11018	5.110
* 53 d5-Chlorobenzene	117	7.814	7.815	(1.000)	135864	10.0000	
$ 62 4-Bromofluorobenzene	174	8.680	8.681	(1.111)	31229	4.83935	4.839
* 76 d4-1,4-Dichlorobenzene	152	9.504	9.500	(1.000)	87697	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.504	9.824	(1.000)	84882	10.3383	10.338(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V307051920G.D
Lab Smp Id: 19G0033-02
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 15-

Calibration Date: 05-JUL-2019
Calibration Time: 21:25
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	93009	46505	186018	92629	-0.41
37 1,4-Difluorobenze	136010	68005	272020	135577	-0.32
53 d5-Chlorobenzene	139657	69829	279314	135864	-2.72
76 d4-1,4-Dichlorobe	88785	44393	177570	87697	-1.23

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.40	4.90	5.90	5.41	0.07
37 1,4-Difluorobenze	5.79	5.29	6.29	5.78	-0.02
53 d5-Chlorobenzene	7.82	7.32	8.32	7.81	-0.02
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.04

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: 19G0033-02
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.986	99.72	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.135	102.70	80-128
$ 43 d8-Toluene	5.000	5.110	102.20	80-120
$ 62 4-Bromofluorobenze	5.000	4.839	96.79	80-120
$ 79 d4-1,2-Dichloroben	5.000	10.338	206.77*	80-120

REVIEW SUMMARY FOR FILE - V307051920G.D

Lab ID: 19G0033-02
nt3.i, 20190705s.b\8260C070219.m,   05-JUL-2019 18:20

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190705g.b\V307051920G.D

Date : 05-JUL-2019 18:20

Client ID:

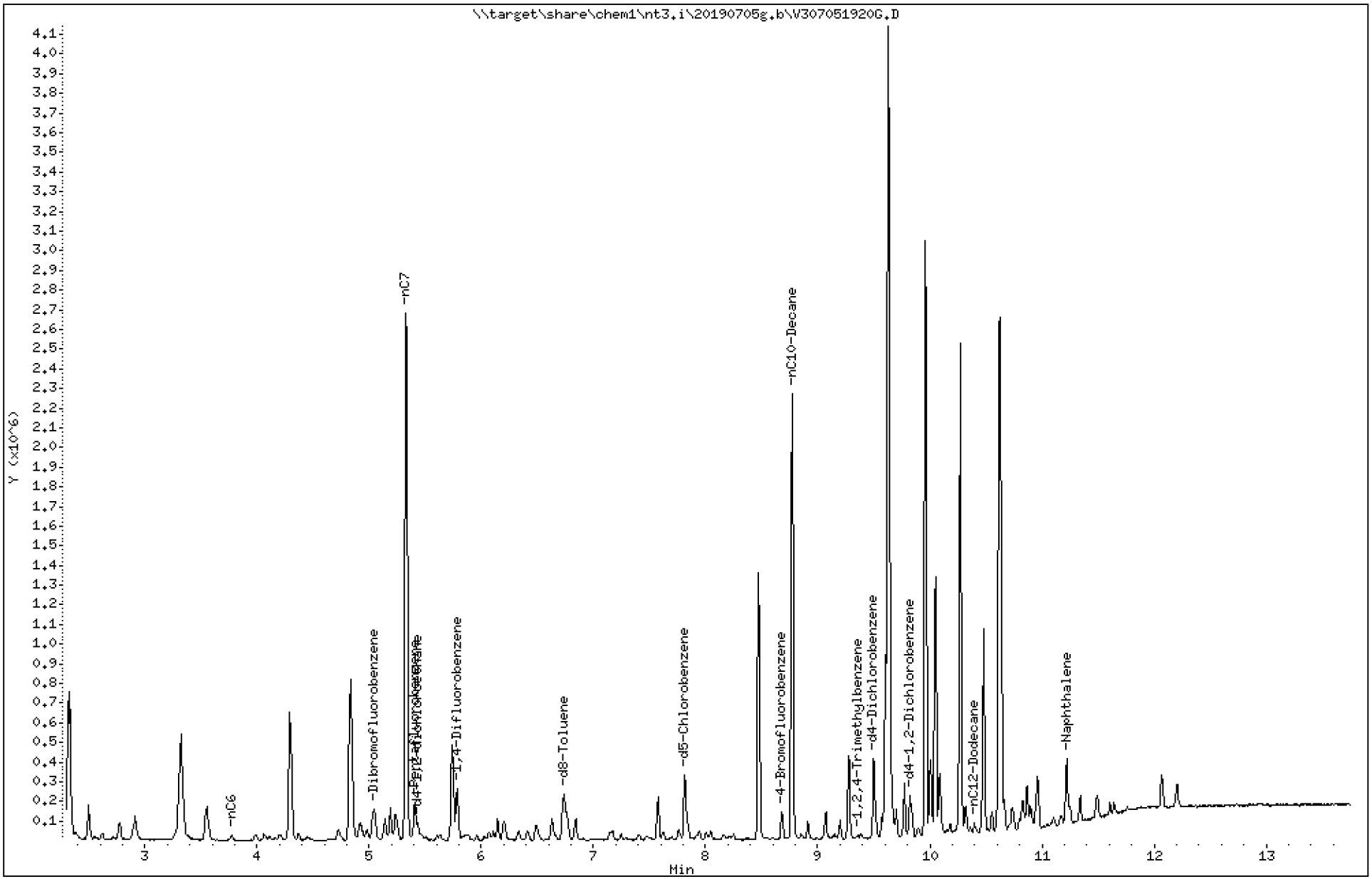
Instrument: nt3.i

Sample Info: 19G0033-02

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190705g.b/V307051920G.D
Method: \20190705g.b\NWTPHG.m
Instrument: nt3.i
Gas Ical Date: 13-JUN-2019
Injection Date: 05-JUL-2019 18:20

ARI ID: 19G0033-02
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.67 to 10.53)	15577275	27169538	1.744
8015C 2MP-TMB	(3.11 to 9.43)	30509602	20011660	0.656 M
AK101 nC6-nC10	(3.68 to 8.65)	20565293	13928200	0.677 M
NWTPHG Tol-Nap	(6.67 to 11.32)	16736874	34269597	2.048
mod8015 nC7-nC12	(5.21 to 10.53)	23297057	33791787	1.450 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

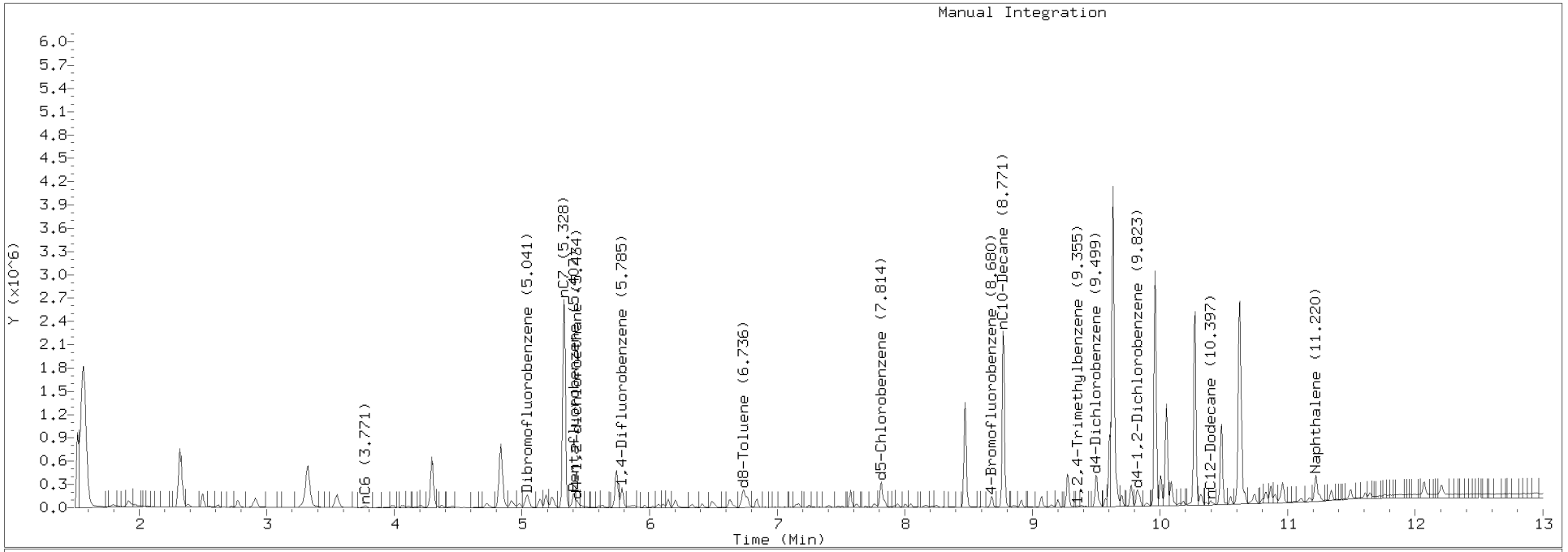
NW Gas Range Subtracted Peaks

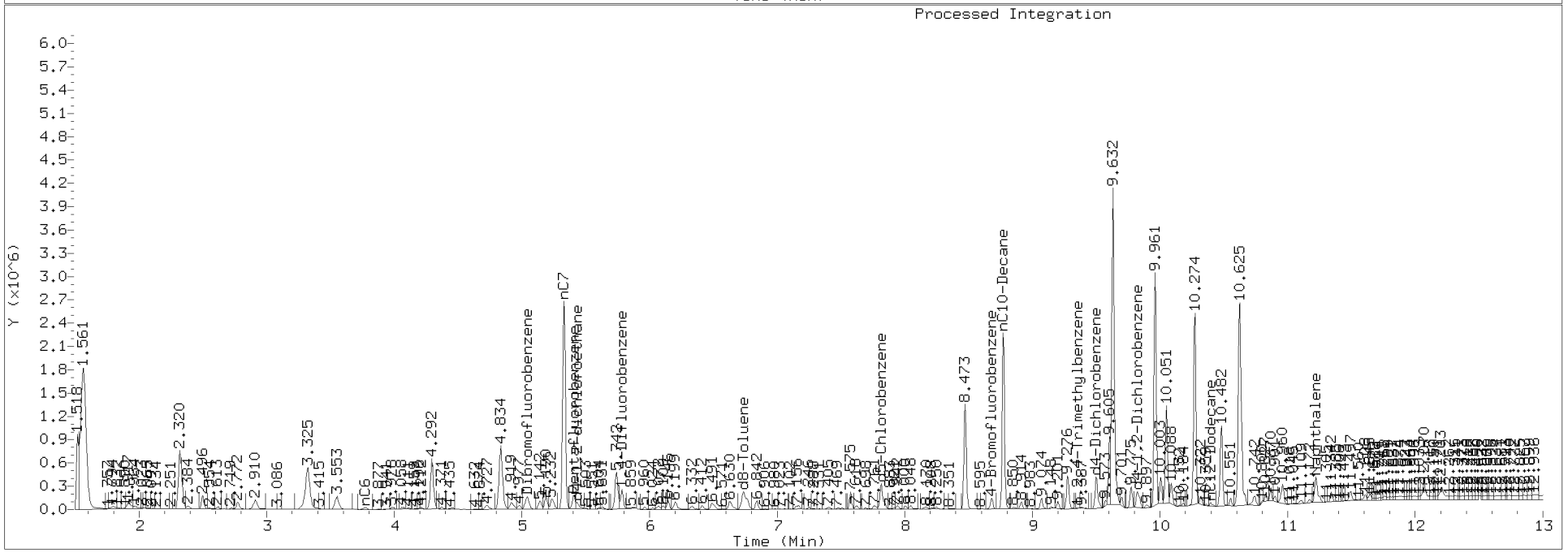
7.814	585488	d5-Chlorobenzene
6.736	652547	d8-Toluene
9.499	634088	d4-Dichlorobenzene
8.680	211637	4-Bromofluorobenzene
9.823	409149	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20190705g.b/V307051920G.D Injection: 05-JUL-2019 18:20

Lab ID:19G0033-02





Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

MW-R3

19G0033-03 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 07/01/2019 18:40
Instrument: NT3 — Analyzed: 05-Jul-2019 18:47

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHG0144 — Sample Size: 10 mL
Prepared: 05-Jul-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	**0.07**	ug/L	J
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	**0.05**	ug/L	J
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*102*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*98.2*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

MW-R3

19G0033-03 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 07/01/2019 18:40
Instrument: NT3 — Analyzed: 05-Jul-2019 18:47

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHG0144 — Sample Size: 10 mL
Prepared: 05-Jul-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	**279**	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*102*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*98.2*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20190705s.b\V307051921G.D

Date : 05-JUL-2019 18:47

Client ID:

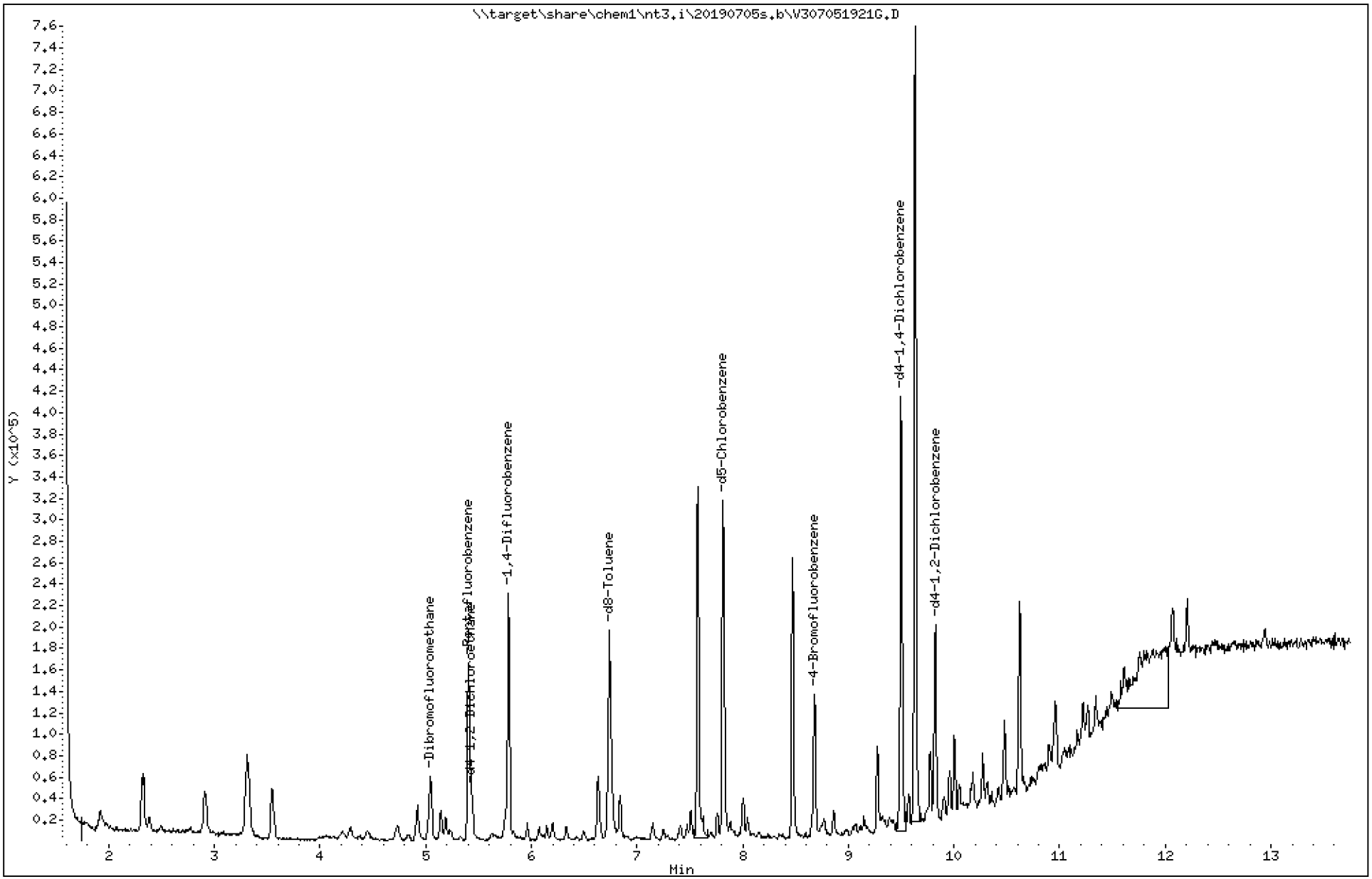
Instrument: nt3.i

Sample Info: 19G0033-03

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190705s.b\V307051921G.D
Lab Smp Id: 19G0033-03
Inj Date : 05-JUL-2019 18:47
Operator : PKC   Inst ID: nt3.i
Smp Info : 19G0033-03
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Meth Date : 08-Jul-2019 10:21 nt3.i   Quant Type: ISTD
Cal Date : 02-JUL-2019 16:45   Cal File: V307021918.D
Als bottle: 58
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.046	5.047	(0.933)	19526	4.99850	4.999
* 32 Pentafluorobenzene	168	5.407	5.403	(1.000)	90676	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.434	5.435	(1.005)	23309	5.09300	5.093
* 37 1,4-Difluorobenzene	114	5.784	5.786	(1.000)	132118	10.0000	
$ 43 d8-Toluene	98	6.736	6.737	(1.164)	84484	5.08904	5.089
* 53 d5-Chlorobenzene	117	7.814	7.815	(1.000)	137182	10.0000	
$ 62 4-Bromofluorobenzene	174	8.680	8.681	(1.111)	31983	4.90857	4.909
* 76 d4-1,4-Dichlorobenzene	152	9.498	9.500	(1.000)	87675	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.823	9.824	(1.034)	41140	5.01194	5.012

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V307051921G.D
Lab Smp Id: 19G0033-03
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 15-

Calibration Date: 05-JUL-2019
Calibration Time: 21:25
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	93009	46505	186018	90676	-2.51
37 1,4-Difluorobenze	136010	68005	272020	132118	-2.86
53 d5-Chlorobenzene	139657	69829	279314	137182	-1.77
76 d4-1,4-Dichlorobe	88785	44393	177570	87675	-1.25

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.40	4.90	5.90	5.41	0.08
37 1,4-Difluorobenze	5.79	5.29	6.29	5.78	-0.02
53 d5-Chlorobenzene	7.82	7.32	8.32	7.81	-0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: 19G0033-03
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.999	99.97	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.093	101.86	80-128
$ 43 d8-Toluene	5.000	5.089	101.78	80-120
$ 62 4-Bromofluorobenze	5.000	4.909	98.17	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.012	100.24	80-120

REVIEW SUMMARY FOR FILE - V307051921G.D

Lab ID: 19G0033-03
nt3.i, 20190705s.b\8260C070219.m,   05-JUL-2019 18:47

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190705g.b\V307051921G.D

Date : 05-JUL-2019 18:47

Client ID:

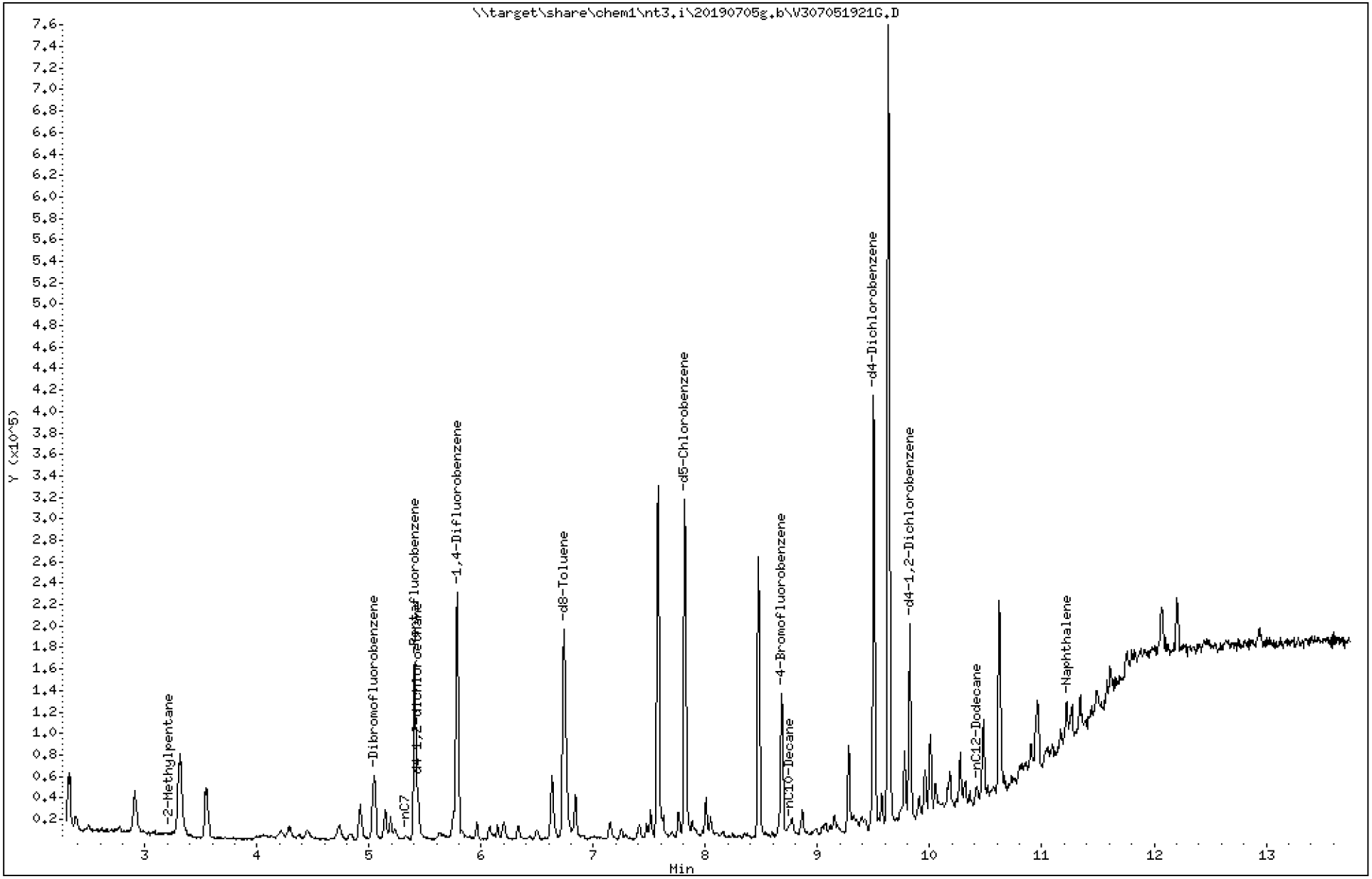
Instrument: nt3.i

Sample Info: 19G0033-03

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Page 34 of 96 19G0033 ARISample_WithFuelPDFs FINAL 17 Jul 2019 1636

Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190705g.b/V307051921G.D
Method: \20190705g.b\NWTPHG.m
Instrument: nt3.i
Gas Ical Date: 13-JUN-2019
Injection Date: 05-JUL-2019 18:47
ARI ID: 19G0033-03
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.67 to 10.53)	15577275	3776870	0.242
8015C 2MP-TMB	(3.11 to 9.43)	30509602	2686995	0.088 M
AK101 nC6-nC10	(3.68 to 8.65)	20565293	1969460	0.096 M
NWTPHG Tol-Nap	(6.67 to 11.32)	16736874	4667555	0.279
mod8015 nC7-nC12	(5.21 to 10.53)	23297057	4088368	0.175 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

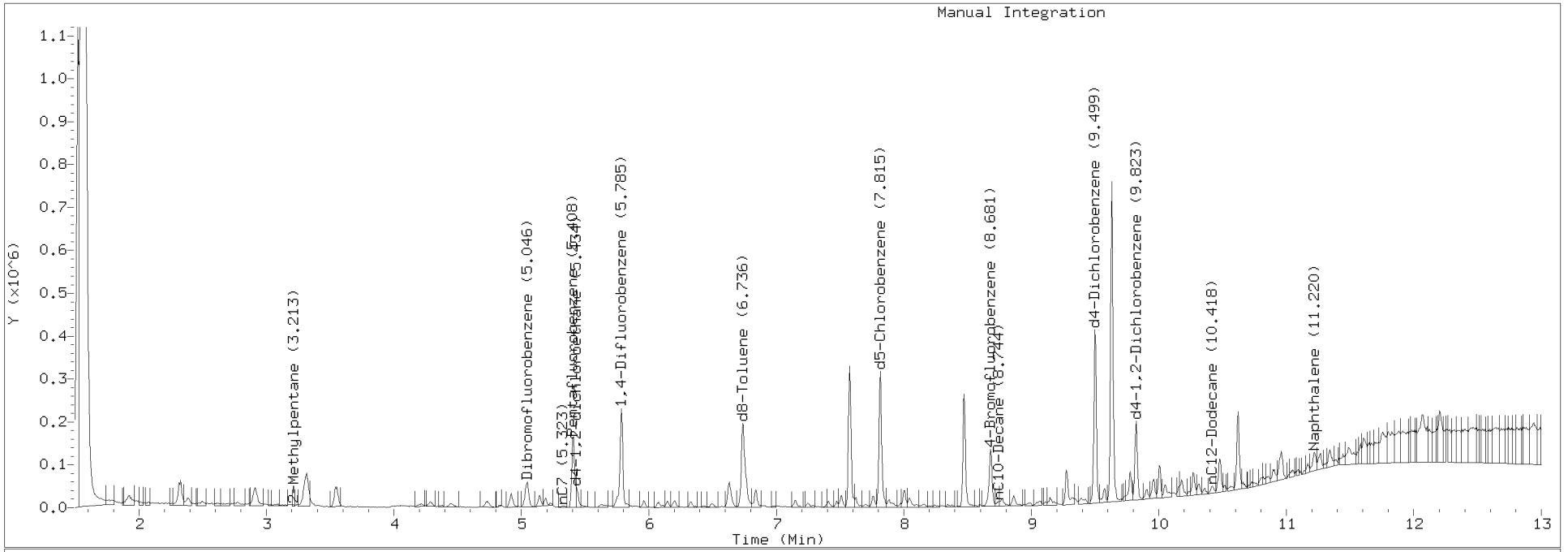
NW Gas Range Subtracted Peaks

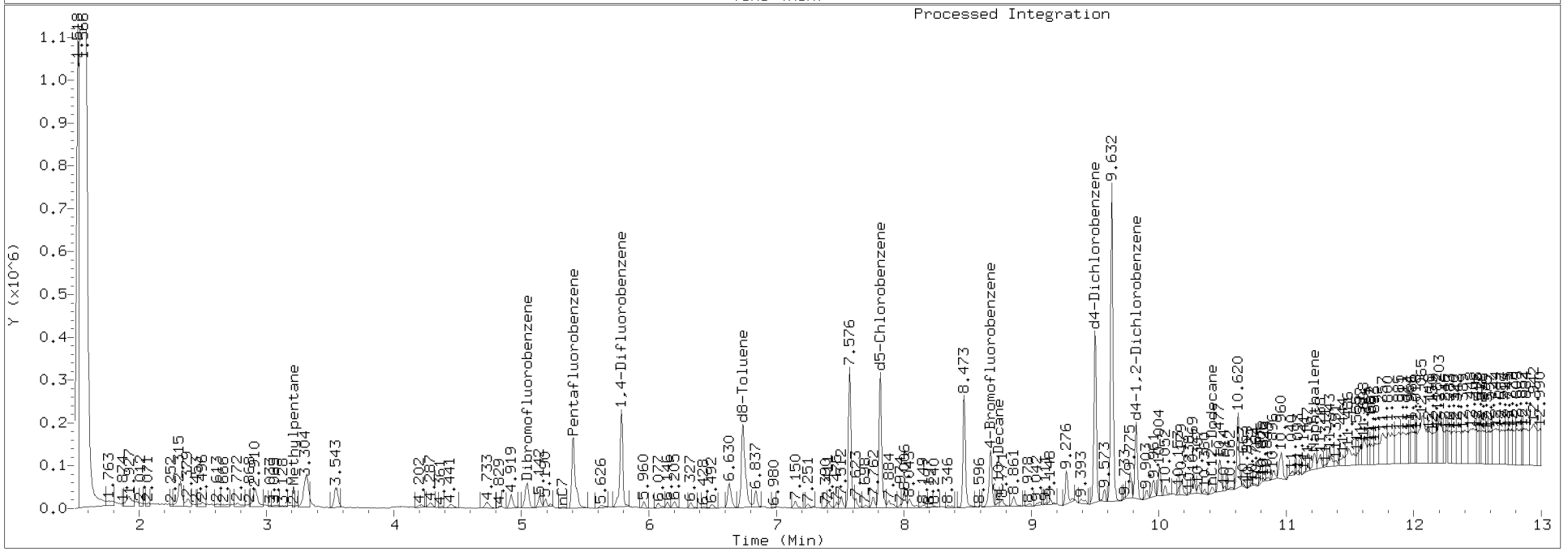
7.815	470868	d5-Chlorobenzene
6.736	430232	d8-Toluene
9.499	567135	d4-Dichlorobenzene
8.681	223193	4-Bromofluorobenzene
9.823	270159	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20190705g.b/V307051921G.D Injection: 05-JUL-2019 18:47

Lab ID:19G0033-03





Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

MW-R4

19G0033-04 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 07/01/2019 19:40
Instrument: NT3 — Analyzed: 05-Jul-2019 19:13

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHG0144 — Sample Size: 10 mL
Prepared: 05-Jul-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*97.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.3*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

MW-R4

19G0033-04 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 07/01/2019 19:40
Instrument: NT3 — Analyzed: 05-Jul-2019 19:13

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHG0144 — Sample Size: 10 mL
Prepared: 05-Jul-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*97.0*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*94.3*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Data File: \\target\share\chem1\nt3.i\20190705s.b\V3070519226.D

Date : 05-JUL-2019 19:13

Client ID:

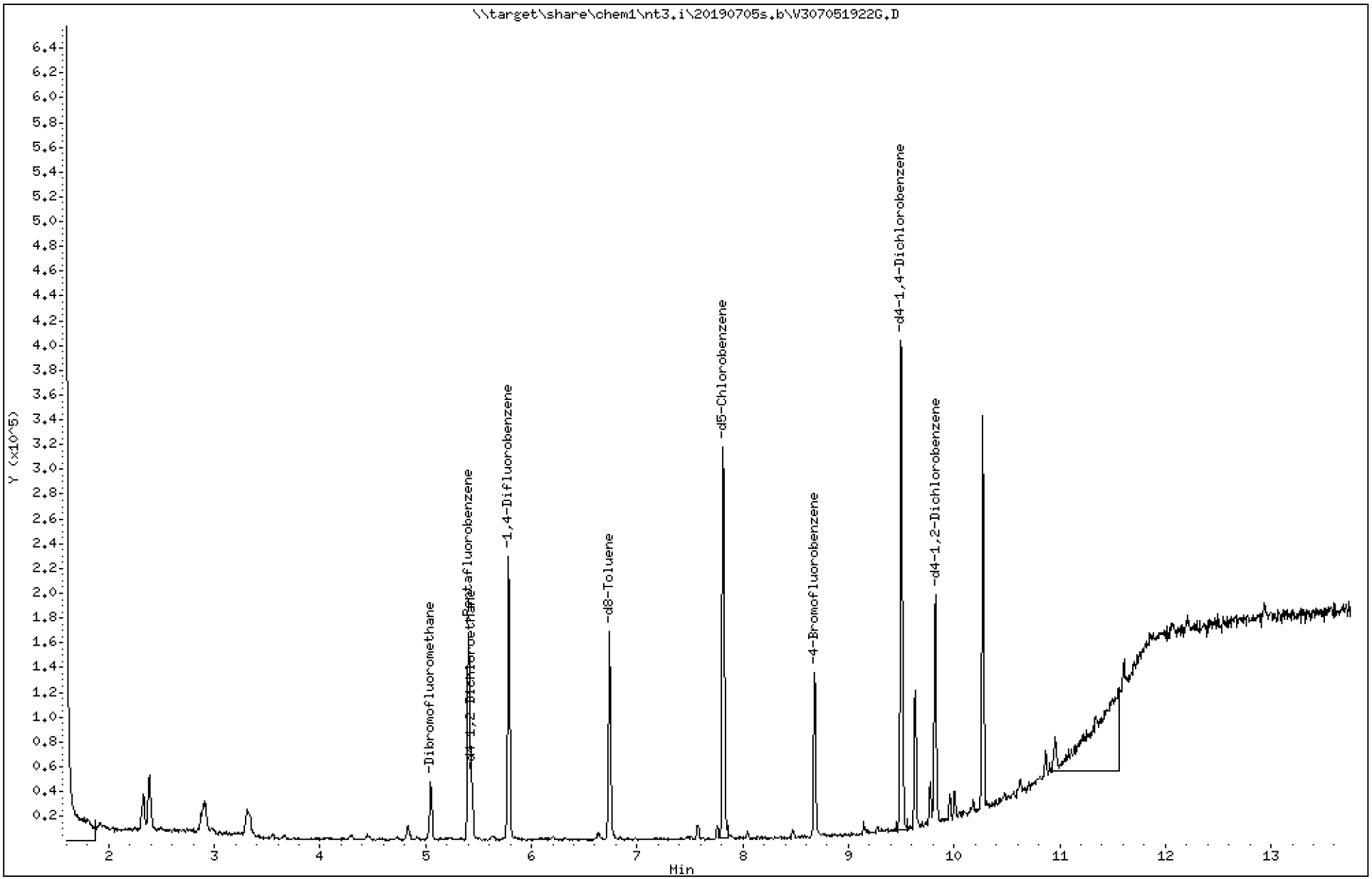
Sample Info: 19G0033-04

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



Page 39 of 96 19G0033 ARISample_WithFuelPDFs FINAL 17 Jul 2019 1636

ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190705s.b\V307051922G.D
Lab Smp Id: 19G0033-04
Inj Date : 05-JUL-2019 19:13
Operator : PKC   Inst ID: nt3.i
Smp Info : 19G0033-04
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Meth Date : 08-Jul-2019 10:21 nt3.i   Quant Type: ISTD
Cal Date : 02-JUL-2019 16:45   Cal File: V307021918.D
Als bottle: 59
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.046	5.047	(0.933)	20374	5.07516	5.075
* 32 Pentafluorobenzene	168	5.407	5.403	(1.000)	93185	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.434	5.435	(1.005)	23877	5.07664	5.077
* 37 1,4-Difluorobenzene	114	5.784	5.786	(1.000)	133600	10.0000	
$ 43 d8-Toluene	98	6.735	6.737	(1.164)	81425	4.85037	4.850
* 53 d5-Chlorobenzene	117	7.814	7.815	(1.000)	140511	10.0000	
$ 62 4-Bromofluorobenzene	174	8.680	8.681	(1.111)	31458	4.71361	4.714
* 76 d4-1,4-Dichlorobenzene	152	9.498	9.500	(1.000)	87021	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.822	9.824	(1.034)	41404	5.08201	5.082

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V307051922G.D
Lab Smp Id: 19G0033-04
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 15-

Calibration Date: 05-JUL-2019
Calibration Time: 21:25
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	93009	46505	186018	93185	0.19
37 1,4-Difluorobenze	136010	68005	272020	133600	-1.77
53 d5-Chlorobenzene	139657	69829	279314	140511	0.61
76 d4-1,4-Dichlorobe	88785	44393	177570	87021	-1.99

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.40	4.90	5.90	5.41	0.07
37 1,4-Difluorobenze	5.79	5.29	6.29	5.78	-0.02
53 d5-Chlorobenzene	7.82	7.32	8.32	7.81	-0.02
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151005
Sample Matrix: LIQUID
Fraction: VOA
Lab Smp Id: 19G0033-04
Level: LOW
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.075	101.50	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.077	101.53	80-128
$ 43 d8-Toluene	5.000	4.850	97.01	80-120
$ 62 4-Bromofluorobenze	5.000	4.714	94.27	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.082	101.64	80-120

REVIEW SUMMARY FOR FILE - V307051922G.D

Lab ID: 19G0033-04
nt3.i, 20190705s.b\8260C070219.m,   05-JUL-2019 19:13

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190705g.b\V3070519226.D

Page 1

Date : 05-JUL-2019 19:13

Client ID:

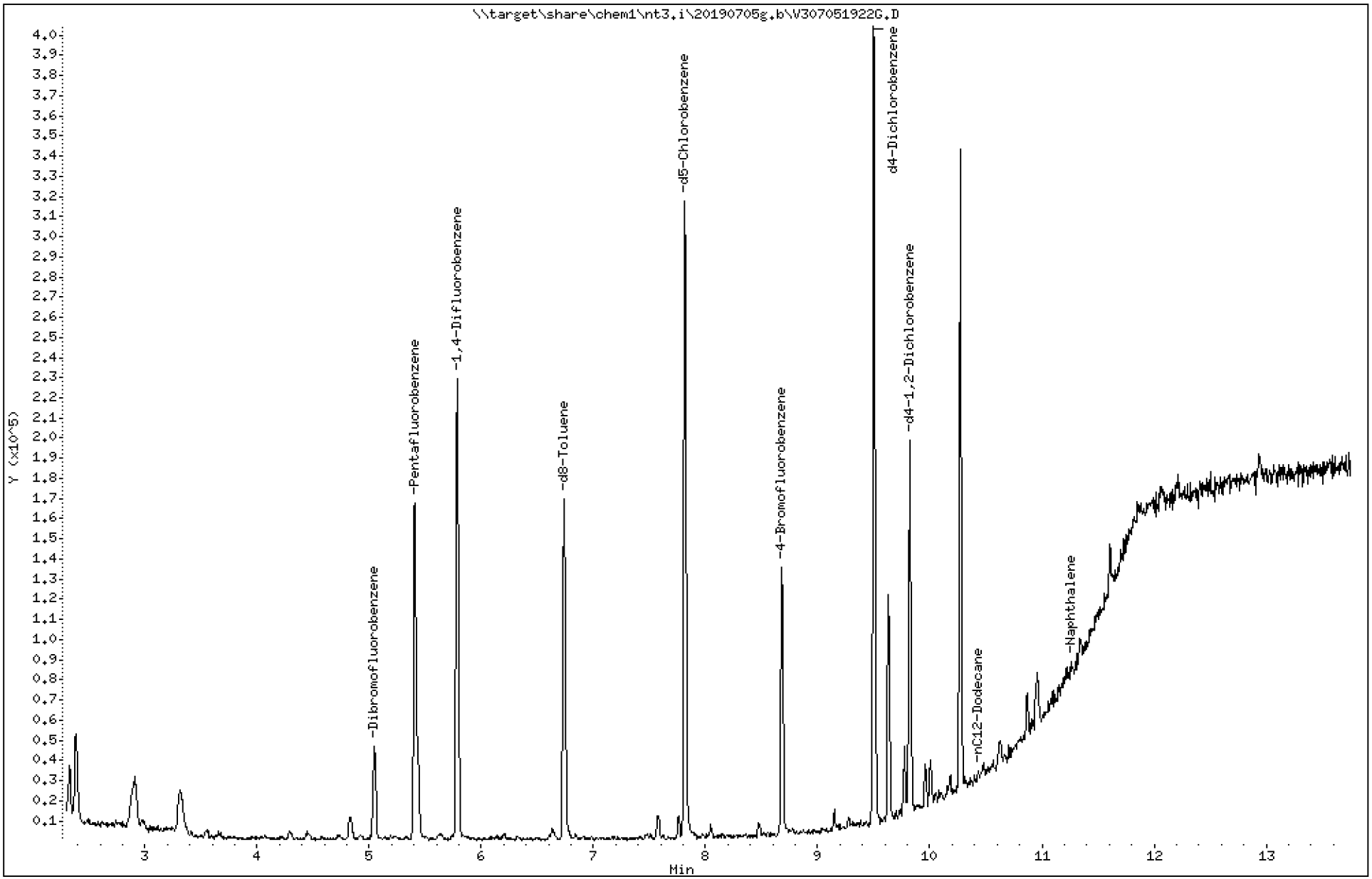
Instrument: nt3.i

Sample Info: 19G0033-04

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190705g.b/V307051922G.D
Method: \20190705g.b\NWTPHG.m
Instrument: nt3.i
Gas Ical Date: 13-JUN-2019
Injection Date: 05-JUL-2019 19:13
ARI ID: 19G0033-04
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.67 to 10.53)	15577275	869629	0.056
8015C 2MP-TMB	(3.11 to 9.43)	30509602	247709	0.008
AK101 nC6-nC10	(3.68 to 8.65)	20565293	139131	0.007
NWTPHG Tol-Nap	(6.67 to 11.32)	16736874	1040756	0.062
mod8015 nC7-nC12	(5.21 to 10.53)	23297057	886289	0.038

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.814	477966	d5-Chlorobenzene
6.736	256350	d8-Toluene
9.499	568876	d4-Dichlorobenzene
8.681	189664	4-Bromofluorobenzene
9.823	272132	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

MW-5s

19G0033-05 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 07/01/2019 17:45
Instrument: NT3 — Analyzed: 05-Jul-2019 19:39

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHG0144 — Sample Size: 10 mL
Prepared: 05-Jul-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*96.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.4*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

MW-5s

19G0033-05 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 07/01/2019 17:45
Instrument: NT3 — Analyzed: 05-Jul-2019 19:39

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHG0144 — Sample Size: 10 mL
Prepared: 05-Jul-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*96.0*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*94.4*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

Data File: \\target\share\chem1\nt3.i\20190705s.b\V307051923G.D

Date : 05-JUL-2019 19:39

Client ID:

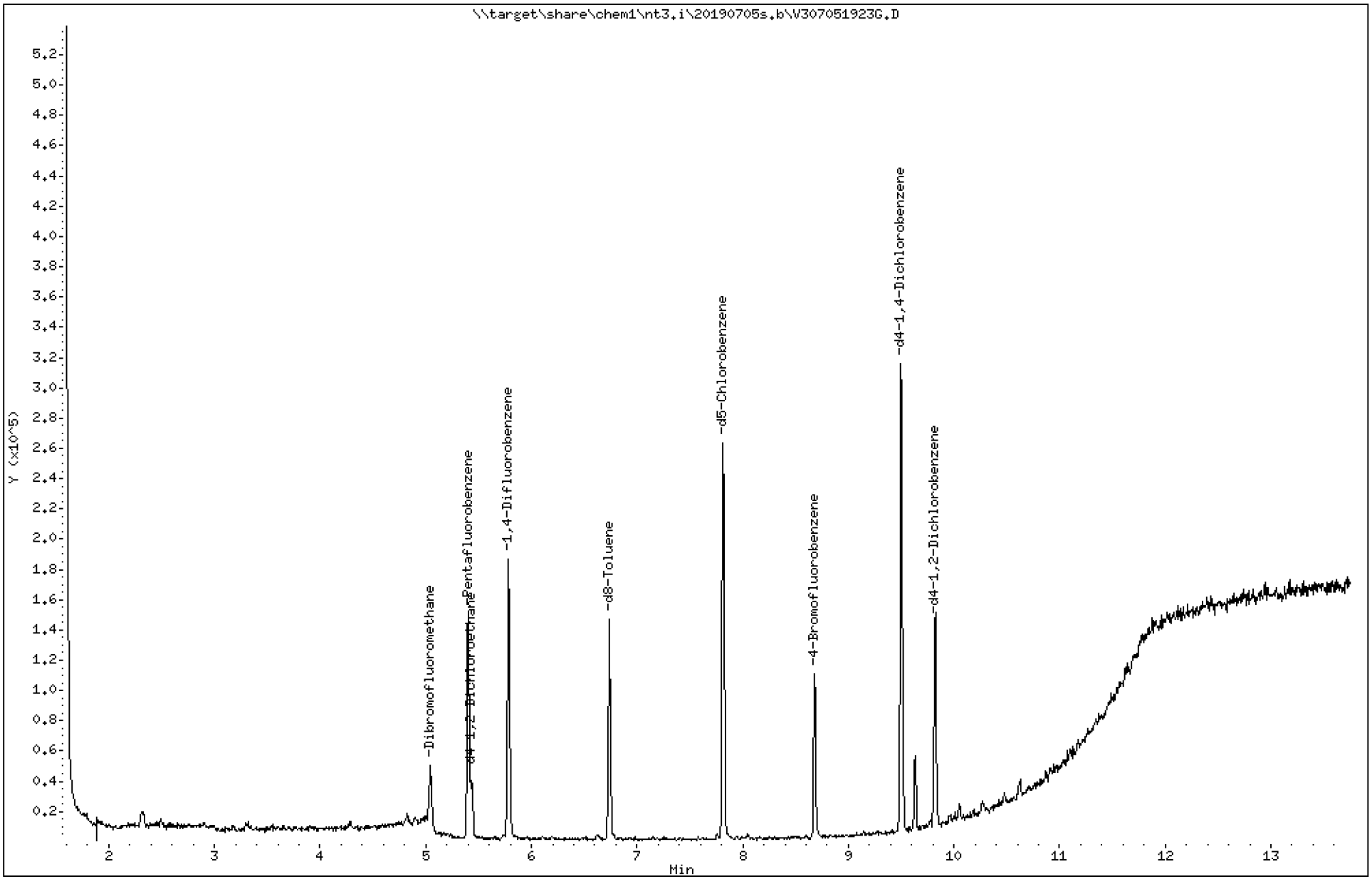
Instrument: nt3.i

Sample Info: 19G0033-05

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190705s.b\V307051923G.D
Lab Smp Id: 19G0033-05
Inj Date : 05-JUL-2019 19:39
Operator : PKC   Inst ID: nt3.i
Smp Info : 19G0033-05
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Meth Date : 08-Jul-2019 10:21 nt3.i   Quant Type: ISTD
Cal Date : 02-JUL-2019 16:45   Cal File: V307021918.D
Als bottle: 60
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.041	5.047	(0.933)	16475	4.92731	4.927
* 32 Pentafluorobenzene	168	5.402	5.403	(1.000)	77613	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.434	5.435	(1.006)	19927	5.08686	5.087
* 37 1,4-Difluorobenzene	114	5.785	5.786	(1.000)	112223	10.0000	
$ 43 d8-Toluene	98	6.736	6.737	(1.164)	67695	4.80063	4.801
* 53 d5-Chlorobenzene	117	7.814	7.815	(1.000)	114164	10.0000	
$ 62 4-Bromofluorobenzene	174	8.681	8.681	(1.111)	25601	4.72129	4.721
* 76 d4-1,4-Dichlorobenzene	152	9.499	9.500	(1.000)	67196	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.818	9.824	(1.034)	32181	5.11533	5.115

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V307051923G.D
Lab Smp Id: 19G0033-05
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 15-

Calibration Date: 05-JUL-2019
Calibration Time: 21:25
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	93009	46505	186018	77613	-16.55
37 1,4-Difluorobenze	136010	68005	272020	112223	-17.49
53 d5-Chlorobenzene	139657	69829	279314	114164	-18.25
76 d4-1,4-Dichlorobe	88785	44393	177570	67196	-24.32

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.40	4.90	5.90	5.40	-0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.82	7.32	8.32	7.81	-0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20151005
Sample Matrix: LIQUID
Fraction: VOA
Lab Smp Id: 19G0033-05
Level: LOW
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.927	98.55	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.087	101.74	80-128
$ 43 d8-Toluene	5.000	4.801	96.01	80-120
$ 62 4-Bromofluorobenze	5.000	4.721	94.43	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.115	102.31	80-120

REVIEW SUMMARY FOR FILE - V307051923G.D

Lab ID: 19G0033-05
nt3.i, 20190705s.b\8260C070219.m,   05-JUL-2019 19:39

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190705g.b\V307051923G.D

Date : 05-JUL-2019 19:39

Client ID:

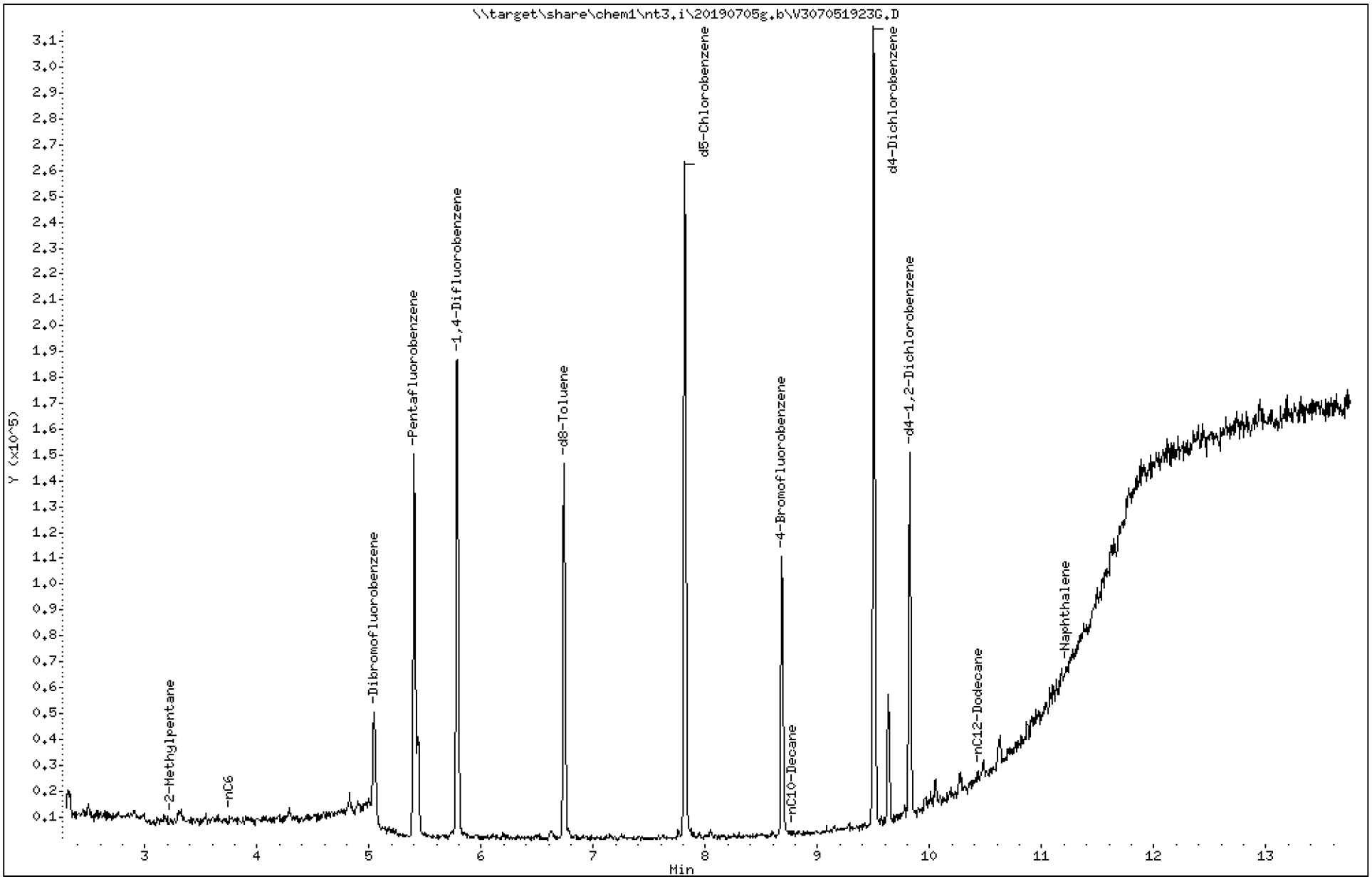
Instrument: nt3.i

Sample Info: 19G0033-05

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190705g.b/V307051923G.D
Method: \20190705g.b\NWTPHG.m
Instrument: nt3.i
Gas Ical Date: 13-JUN-2019
Injection Date: 05-JUL-2019 19:39

ARI ID: 19G0033-05
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.67 to 10.53)	15577275	173941	0.011
8015C 2MP-TMB	(3.11 to 9.43)	30509602	279033	0.009
AK101 nC6-nC10	(3.68 to 8.65)	20565293	237454	0.012
NWTPHG Tol-Nap	(6.67 to 11.32)	16736874	277594	0.017
mod8015 nC7-nC12	(5.21 to 10.53)	23297057	192649	0.008

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.815	378987	d5-Chlorobenzene
6.736	215338	d8-Toluene
9.499	451454	d4-Dichlorobenzene
8.681	160103	4-Bromofluorobenzene
9.823	215238	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

TRIP BLANK

19G0033-06 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 07/01/2019 17:45
Instrument: NT3 — Analyzed: 05-Jul-2019 14:47

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHG0144 — Sample Size: 10 mL
Prepared: 05-Jul-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*96.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*97.0*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

TRIP BLANK

19G0033-06 (Water)

Volatile Organic Compounds

Method: NWTPHg
Instrument: NT3

Sampled: 07/01/2019 17:45
Analyzed: 05-Jul-2019 14:47

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHG0144
Prepared: 05-Jul-2019
Sample Size: 10 mL
Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*96.6*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*97.0*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Data File: \\target\share\chem1\nt3.i\20190705s.b\V3070519l2G.D

Date : 05-JUL-2019 14:47

Client ID:

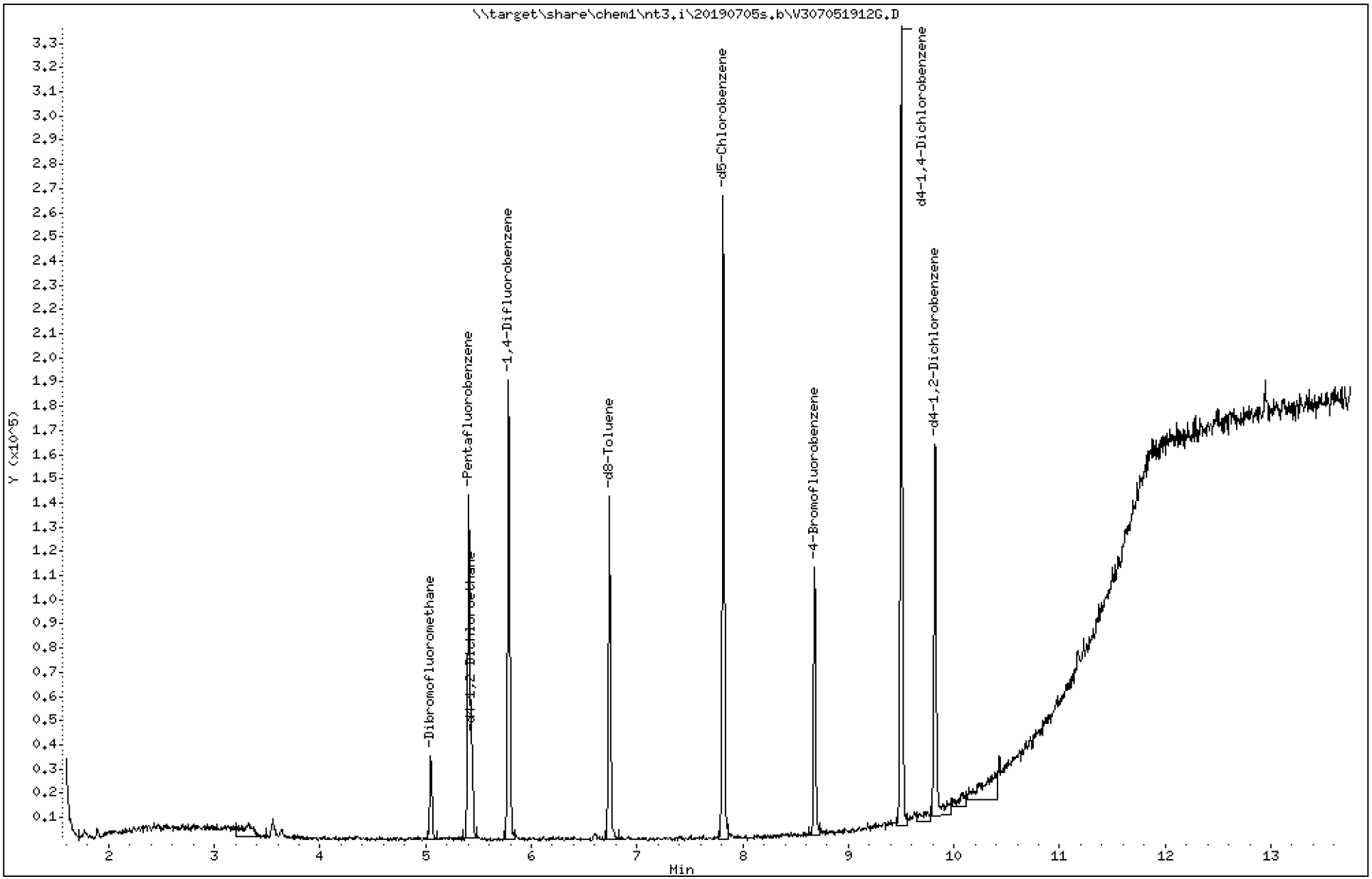
Sample Info: 19G0033-06

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190705s.b\V307051912G.D
Lab Smp Id: 19G0033-06
Inj Date : 05-JUL-2019 14:47
Operator : PKC Inst ID: nt3.i
Smp Info : 19G0033-06
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Meth Date : 08-Jul-2019 10:21 nt3.i Quant Type: ISTD
Cal Date : 02-JUL-2019 16:45 Cal File: V307021918.D
Als bottle: 56
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.047	5.047	(0.933)	16878	5.06867	5.069(R)
* 32 Pentafluorobenzene	168	5.408	5.403	(1.000)	77294	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.435	5.435	(1.005)	19916	5.10503	5.105(R)
* 37 1,4-Difluorobenzene	114	5.785	5.786	(1.000)	112442	10.0000	
$ 43 d8-Toluene	98	6.736	6.737	(1.164)	68244	4.83014	4.830(R)
* 53 d5-Chlorobenzene	117	7.815	7.815	(1.000)	114294	10.0000	
$ 62 4-Bromofluorobenzene	174	8.681	8.681	(1.111)	26334	4.85095	4.851(R)
* 76 d4-1,4-Dichlorobenzene	152	9.499	9.500	(1.000)	72270	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.818	9.824	(1.034)	34621	5.11681	5.117(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V307051912G.D
Lab Smp Id: 19G0033-06
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 16-

Calibration Date: 05-JUL-2019
Calibration Time: 21:25
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	93009	46505	186018	77294	-16.90
37 1,4-Difluorobenze	136010	68005	272020	112442	-17.33
53 d5-Chlorobenzene	139657	69829	279314	114294	-18.16
76 d4-1,4-Dichlorobe	88785	44393	177570	72270	-18.60

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.40	4.90	5.90	5.41	0.09
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.82	7.32	8.32	7.82	-0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930a
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19G0033-06
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.069	101.37	
$ 33 d4-1,2-Dichloroeth	5.000	5.105	102.10	
$ 43 d8-Toluene	5.000	4.830	96.60	
$ 62 4-Bromofluorobenze	5.000	4.851	97.02	
$ 79 d4-1,2-Dichloroben	5.000	5.117	102.34	

REVIEW SUMMARY FOR FILE - V307051912G.D

Lab ID: 19G0033-06
nt3.i, 20190705s.b\8260C070219.m,   05-JUL-2019 14:47

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190705g.b\V3070519126.D

Page 1

Date : 05-JUL-2019 14:47

Client ID:

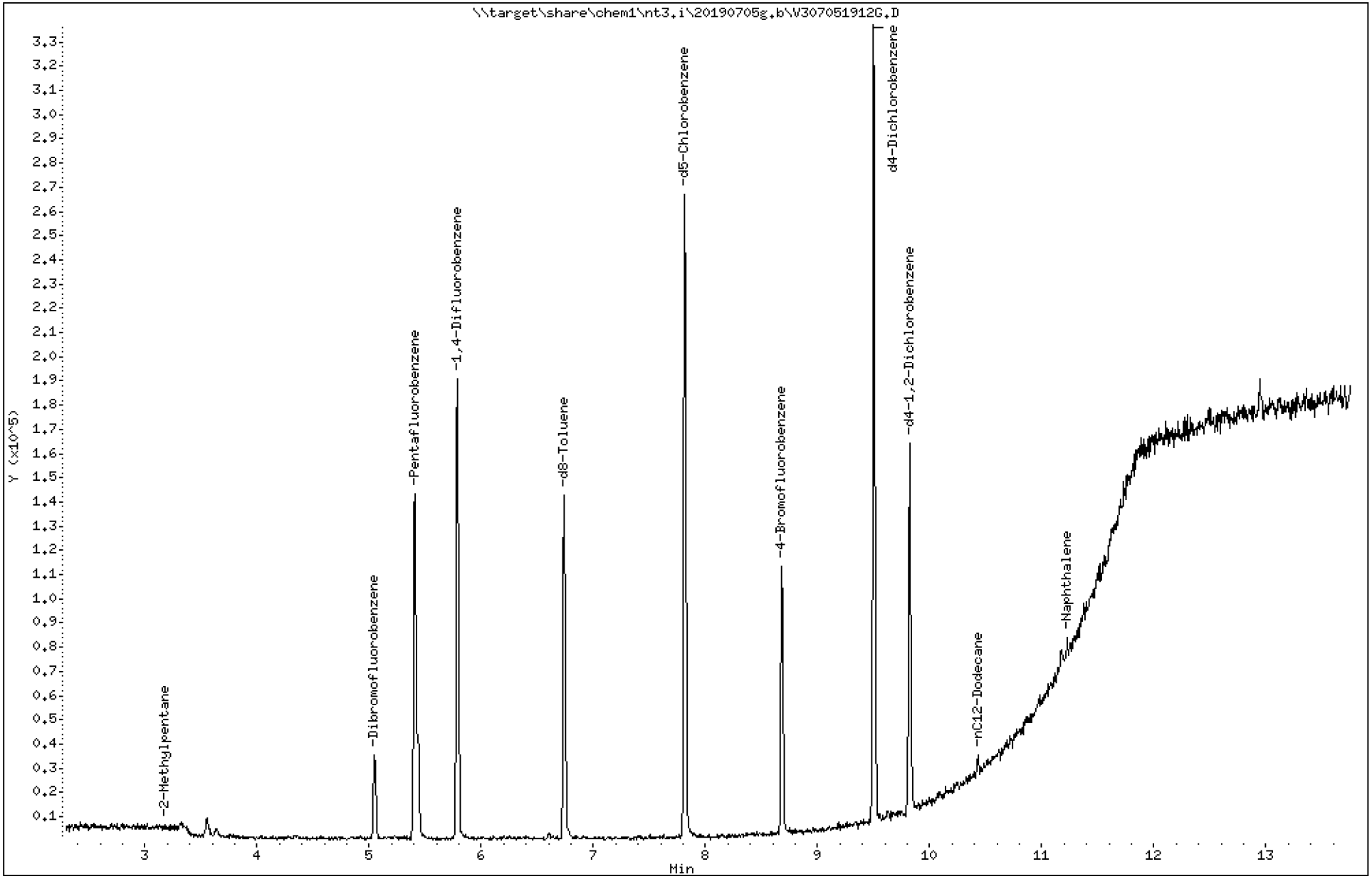
Instrument: nt3.i

Sample Info: 19G0033-06

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190705g.b/V307051912G.D
Method: \20190705g.b\NWTPHG.m
Instrument: nt3.i
Gas Ical Date: 13-JUN-2019
Injection Date: 05-JUL-2019 14:47

ARI ID: 19G0033-06
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.67 to 10.53)	15577275	59540	0.004
8015C 2MP-TMB	(3.11 to 9.43)	30509602	55702	0.002
AK101 nC6-nC10	(3.68 to 8.65)	20565293	6285	0.000
NWTPHG Tol-Nap	(6.67 to 11.32)	16736874	144415	0.009
mod8015 nC7-nC12	(5.21 to 10.53)	23297057	63811	0.003

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.815	380490	d5-Chlorobenzene
6.737	214371	d8-Toluene
9.500	473631	d4-Dichlorobenzene
8.681	156718	4-Bromofluorobenzene
9.819	233716	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

Volatile Organic Compounds - Quality Control

Batch BHG0144 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHG0144-BLK1)				Prepared: 05-Jul-2019 Analyzed: 05-Jul-2019 13:09							
Benzene	ND	0.03	0.20	ug/L							U
Toluene	ND	0.04	0.20	ug/L							U
Ethylbenzene	ND	0.04	0.20	ug/L							U
m,p-Xylene	ND	0.05	0.40	ug/L							U
o-Xylene	ND	0.03	0.20	ug/L							U
Surrogate: Toluene-d8	4.92			ug/L	*5.00*		*98.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.85			ug/L	*5.00*		*97.0*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

Volatile Organic Compounds - Quality Control

Batch BHG0144 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHG0144-BLK2)			Prepared: 05-Jul-2019 Analyzed: 05-Jul-2019 13:09							
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.92		ug/L	*5.00*		*98.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.85		ug/L	*5.00*		*97.0*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

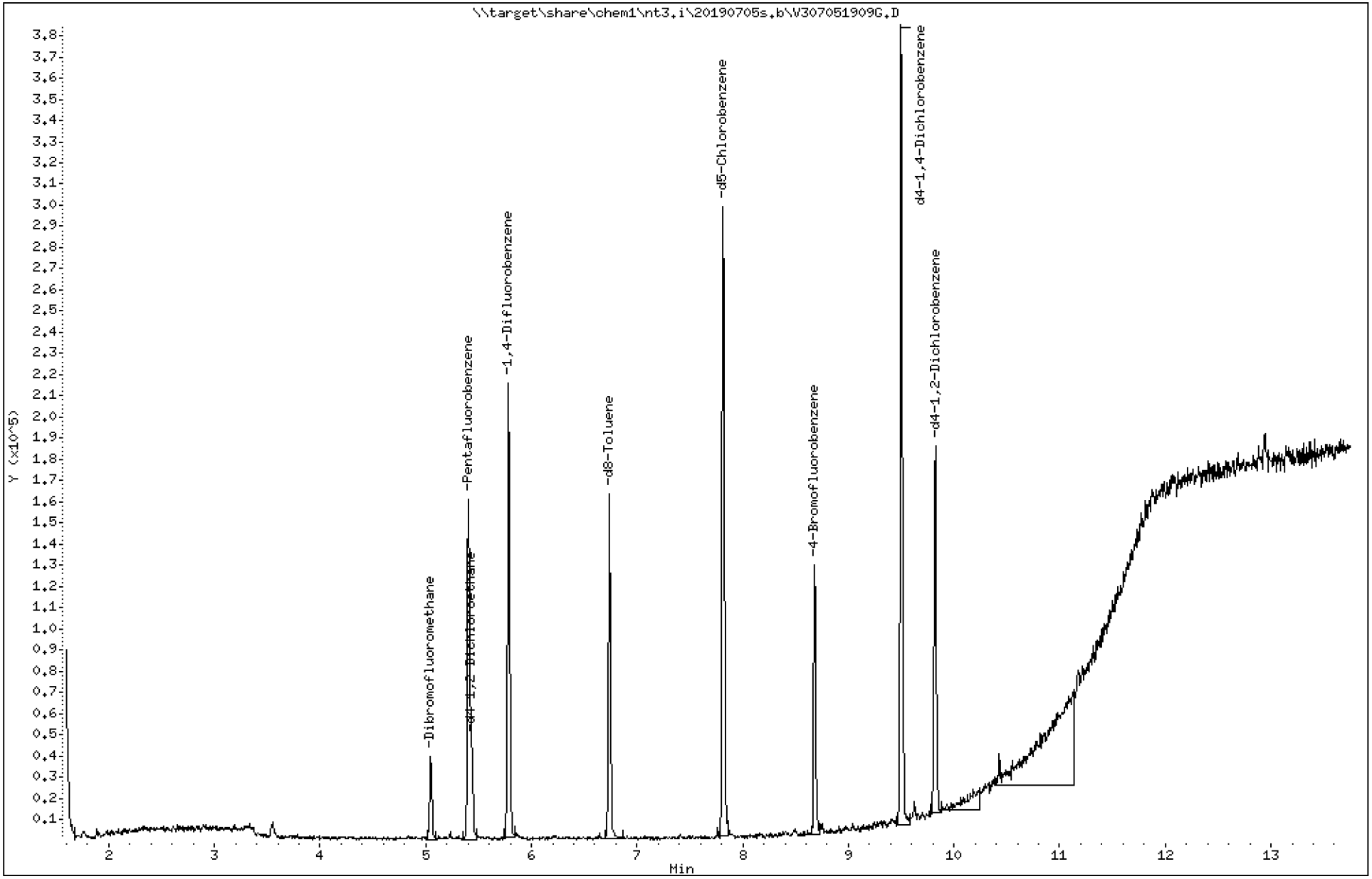
4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

Data File: \\target\share\chem1\nt3.i\20190705s.b\V307051909G.D
Date : 05-JUL-2019 13:09
Client ID:
Sample Info: BHG0144-BLK2

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC
Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190705s.b\V307051909G.D
Lab Smp Id: BHG0144-BLK2
Inj Date : 05-JUL-2019 13:09
Operator : PKC   Inst ID: nt3.i
Smp Info : BHG0144-BLK2
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Meth Date : 08-Jul-2019 10:21 nt3.i   Quant Type: ISTD
Cal Date : 02-JUL-2019 16:45   Cal File: V307021918.D
Als bottle: 56
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.046	5.047	(0.933)	18868	4.92367	4.924(R)
* 32 Pentafluorobenzene	168	5.407	5.403	(1.000)	88952	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.434	5.435	(1.005)	22977	5.11776	5.118(R)
* 37 1,4-Difluorobenzene	114	5.785	5.786	(1.000)	126324	10.0000	
$ 43 d8-Toluene	98	6.736	6.737	(1.164)	78042	4.91661	4.917(R)
* 53 d5-Chlorobenzene	117	7.814	7.815	(1.000)	134443	10.0000	
$ 62 4-Bromofluorobenzene	174	8.680	8.681	(1.111)	30974	4.85056	4.851(R)
* 76 d4-1,4-Dichlorobenzene	152	9.499	9.500	(1.000)	81676	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.823	9.824	(1.034)	39195	5.12571	5.126(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V307051909G.D
Lab Smp Id: BHG0144-BLK2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 16-

Calibration Date: 05-JUL-2019
Calibration Time: 21:25
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	93009	46505	186018	88952	-4.36
37 1,4-Difluorobenze	136010	68005	272020	126324	-7.12
53 d5-Chlorobenzene	139657	69829	279314	134443	-3.73
76 d4-1,4-Dichlorobe	88785	44393	177570	81676	-8.01

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.40	4.90	5.90	5.41	0.08
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.01
53 d5-Chlorobenzene	7.82	7.32	8.32	7.81	-0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHG0144-BLK2
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.924	98.47	
$ 33 d4-1,2-Dichloroeth	5.000	5.118	102.36	
$ 43 d8-Toluene	5.000	4.917	98.33	
$ 62 4-Bromofluorobenze	5.000	4.851	97.01	
$ 79 d4-1,2-Dichloroben	5.000	5.126	102.51	

REVIEW SUMMARY FOR FILE - V307051909G.D

Lab ID: BHG0144-BLK2
nt3.i, 20190705s.b\8260C070219.m,   05-JUL-2019 13:09

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190705g.b\V307051909G.D

Date : 05-JUL-2019 13:09

Client ID:

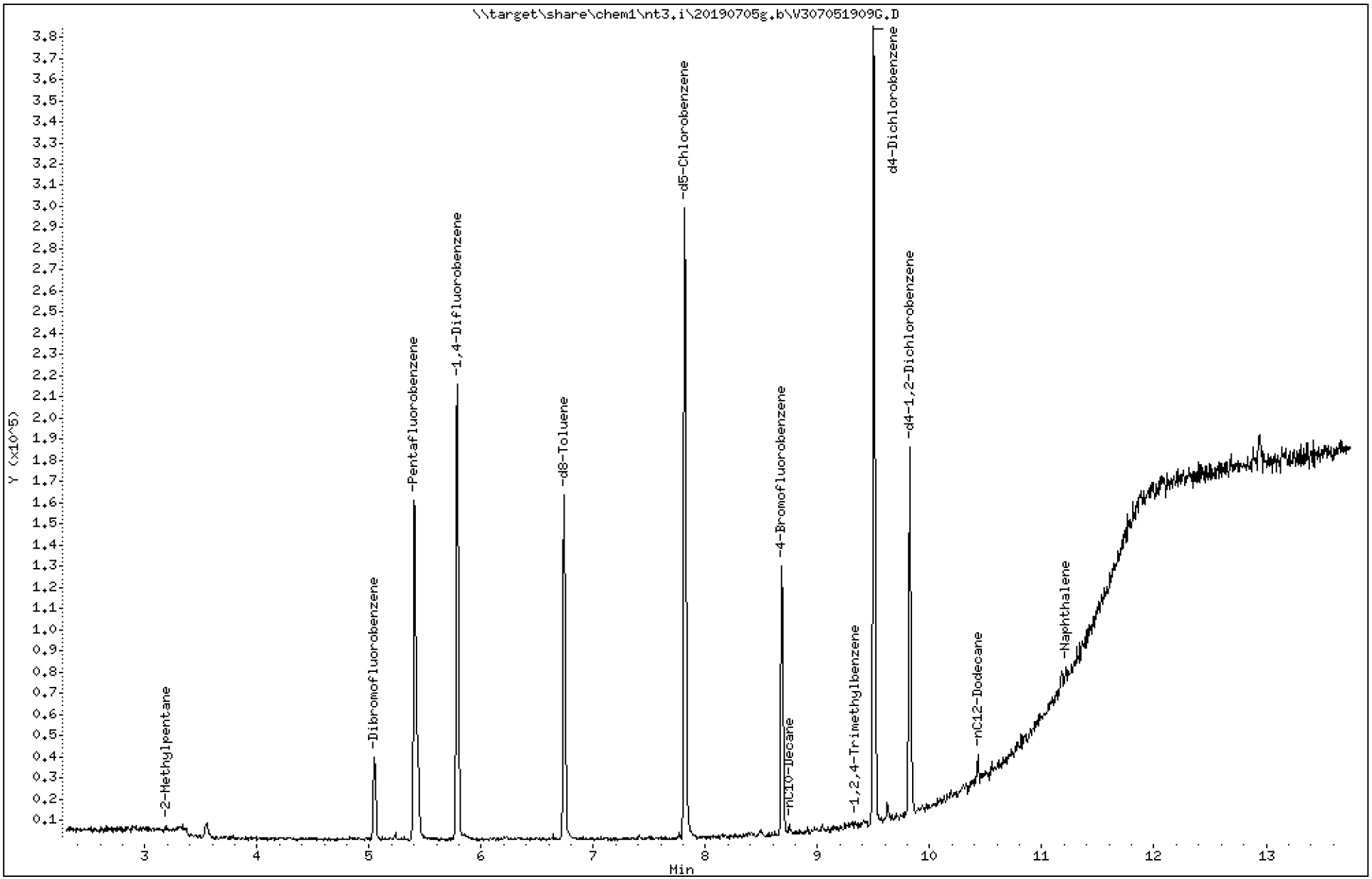
Instrument: nt3.i

Sample Info: BHG0144-BLK2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190705g.b/V307051909G.D
Method: \20190705g.b\NWTPHG.m
Instrument: nt3.i
Gas Ical Date: 13-JUN-2019
Injection Date: 05-JUL-2019 13:09

ARI ID: BHG0144-BLK2
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.67 to 10.53)	15577275	95544	0.006
8015C 2MP-TMB	(3.11 to 9.43)	30509602	58998	0.002
AK101 nC6-nC10	(3.68 to 8.65)	20565293	2641	0.000
NWTPHG Tol-Nap	(6.67 to 11.32)	16736874	180747	0.011
mod8015 nC7-nC12	(5.21 to 10.53)	23297057	95546	0.004

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.815	440595	d5-Chlorobenzene
6.736	238323	d8-Toluene
9.499	547546	d4-Dichlorobenzene
8.681	185916	4-Bromofluorobenzene
9.823	263161	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

Volatile Organic Compounds - Quality Control

Batch BHG0144 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BHG0144-BS1)					Prepared: 05-Jul-2019 Analyzed: 05-Jul-2019 10:55						
Benzene	9.93	0.03	0.20	ug/L	10.0		99.3	80-120			
Toluene	10.2	0.04	0.20	ug/L	10.0		102	80-120			
Ethylbenzene	9.86	0.04	0.20	ug/L	10.0		98.6	80-120			
m,p-Xylene	20.0	0.05	0.40	ug/L	20.0		99.8	80-121			
o-Xylene	9.82	0.03	0.20	ug/L	10.0		98.2	80-121			
Surrogate: Toluene-d8	4.93			ug/L	*5.00*		*98.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.87			ug/L	*5.00*		*97.3*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

Volatile Organic Compounds - Quality Control

Batch BHG0144 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BHG0144-BS2)				Prepared: 05-Jul-2019 Analyzed: 05-Jul-2019 11:49						
Gasoline Range Organics (Tol-Nap)	908	100	ug/L	1000		90.8	72-128			
Surrogate: Toluene-d8	4.83		ug/L	*5.00*		*96.6*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.74		ug/L	*5.00*		*94.8*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20190705s.b\V307051906GLCS.D

Date : 05-JUL-2019 11:49

Client ID:

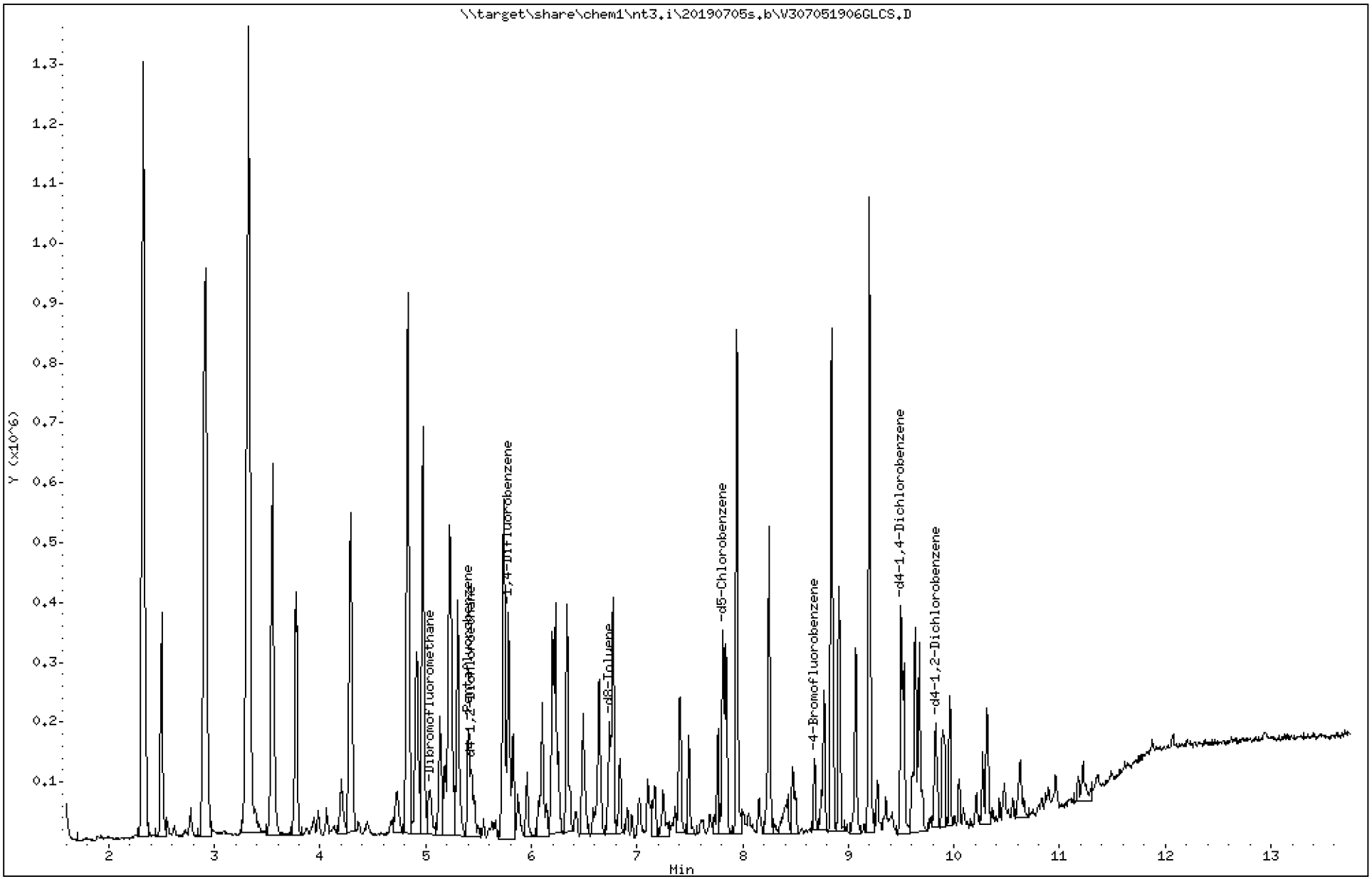
Instrument: nt3.i

Sample Info: BHG0144-BS2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190705s.b\V307051906GLCS.D
Lab Smp Id: BHG0144-BS2
Inj Date : 05-JUL-2019 11:49
Operator : PKC Inst ID: nt3.i
Smp Info : BHG0144-BS2
Misc Info : 15-
Comment :
Method : \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Meth Date : 08-Jul-2019 10:21 nt3.i Quant Type: ISTD
Cal Date : 02-JUL-2019 16:45 Cal File: V307021918.D
Als bottle: 56
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.046	5.047	(0.934)	18115	4.55107	4.551
* 32 Pentafluorobenzene	168	5.402	5.403	(1.000)	92394	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.434	5.435	(1.006)	24768	5.31116	5.311
* 37 1,4-Difluorobenzene	114	5.785	5.786	(1.000)	136707	10.0000	
$ 43 d8-Toluene	98	6.736	6.737	(1.164)	82945	4.82862	4.829
* 53 d5-Chlorobenzene	117	7.814	7.815	(1.000)	136398	10.0000	
$ 62 4-Bromofluorobenzene	174	8.680	8.681	(1.111)	30717	4.74137	4.741
* 76 d4-1,4-Dichlorobenzene	152	9.499	9.500	(1.000)	81088	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.823	9.824	(1.034)	36517	4.81012	4.810

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V307051906GLCS.D
Lab Smp Id: BHG0144-BS2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 15-

Calibration Date: 05-JUL-2019
Calibration Time: 21:25
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	93009	46505	186018	92394	-0.66
37 1,4-Difluorobenze	136010	68005	272020	136707	0.51
53 d5-Chlorobenzene	139657	69829	279314	136398	-2.33
76 d4-1,4-Dichlorobe	88785	44393	177570	81088	-8.67

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.40	4.90	5.90	5.40	-0.02
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.02
53 d5-Chlorobenzene	7.82	7.32	8.32	7.81	-0.01
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: BHG0144-BS2
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.551	91.02	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.311	106.22	80-128
$ 43 d8-Toluene	5.000	4.829	96.57	80-120
$ 62 4-Bromofluorobenze	5.000	4.741	94.83	80-120
$ 79 d4-1,2-Dichloroben	5.000	4.810	96.20	80-120

REVIEW SUMMARY FOR FILE - V307051906GLCS.D

Lab ID: BHG0144-BS2
nt3.i, 20190705s.b\8260C070219.m,   05-JUL-2019 11:49

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190705g.b\V307051906GLCS.D

Date : 05-JUL-2019 11:49

Client ID:

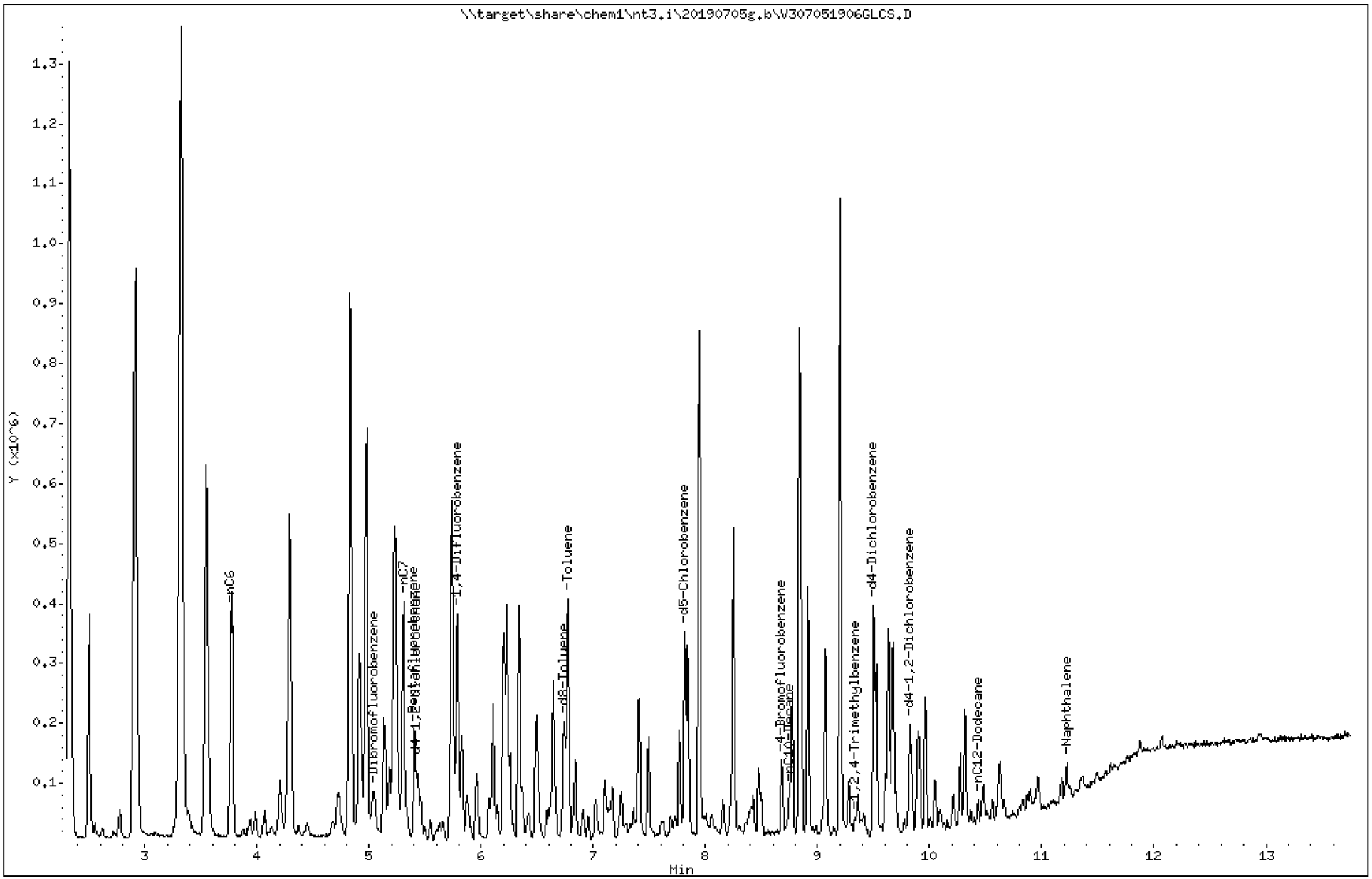
Instrument: nt3.i

Sample Info: BHG0144-BS2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190705g.b/V307051906GLCS.D
Method: \20190705g.b\NWTPHG.m
Instrument: nt3.i
Gas Ical Date: 13-JUN-2019
Injection Date: 05-JUL-2019 11:49

ARI ID: BHG0144-BS2
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.67 to 10.53)	15577275	14341477	0.921
8015C 2MP-TMB	(3.11 to 9.43)	30509602	30299668	0.993 M
AK101 nC6-nC10	(3.68 to 8.65)	20565293	20982594	1.020 M
NWTPHG Tol-Nap	(6.67 to 11.32)	16736874	15193608	0.908
mod8015 nC7-nC12	(5.21 to 10.53)	23297057	22006171	0.945 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

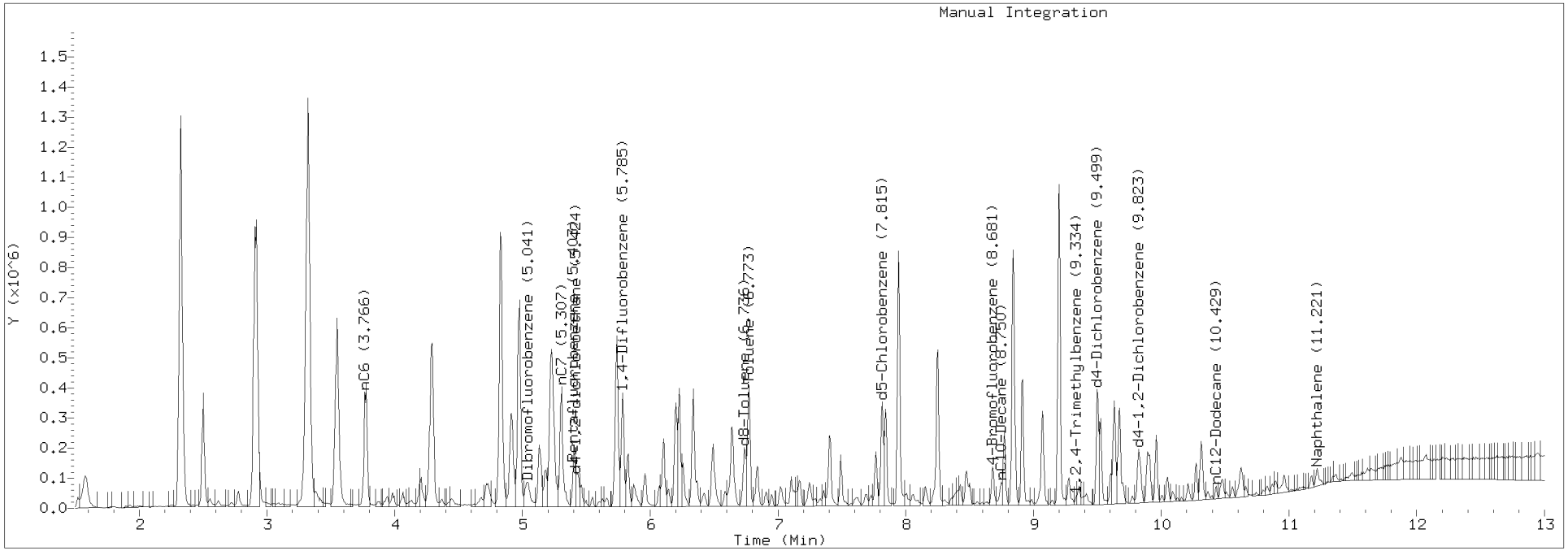
NW Gas Range Subtracted Peaks

7.815	525881	d5-Chlorobenzene
6.736	342618	d8-Toluene
9.499	554520	d4-Dichlorobenzene
8.681	187786	4-Bromofluorobenzene
9.823	351788	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20190705g.b/V307051906GLCS.D Injection: 05-JUL-2019 11:49

Lab ID:BHG0144-BS2



Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

Volatile Organic Compounds - Quality Control

Batch BHG0144 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BHG0144-BSD1)					Prepared: 05-Jul-2019 Analyzed: 05-Jul-2019 11:22						
Benzene	9.94	0.03	0.20	ug/L	10.0		99.4	80-120	0.13	30	
Toluene	10.0	0.04	0.20	ug/L	10.0		100	80-120	1.35	30	
Ethylbenzene	9.69	0.04	0.20	ug/L	10.0		96.9	80-120	1.74	30	
m,p-Xylene	19.8	0.05	0.40	ug/L	20.0		98.8	80-121	0.98	30	
o-Xylene	9.78	0.03	0.20	ug/L	10.0		97.8	80-121	0.42	30	
Surrogate: Toluene-d8	4.93			ug/L	*5.00*		*98.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.88			ug/L	*5.00*		*97.7*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

Volatile Organic Compounds - Quality Control

Batch BHG0144 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BHG0144-BSD2)				Prepared: 05-Jul-2019 Analyzed: 05-Jul-2019 12:16						
Gasoline Range Organics (Tol-Nap)	736	100	ug/L	1000		73.6	72-128	20.90	30	
Surrogate: Toluene-d8	4.92		ug/L	*5.00*		*98.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.01		ug/L	*5.00*		*100*	*80-120*			

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Data File: \\target\share\chem1\nt3.i\20190705s.b\V307051907G.D

Date : 05-JUL-2019 12:16

Client ID:

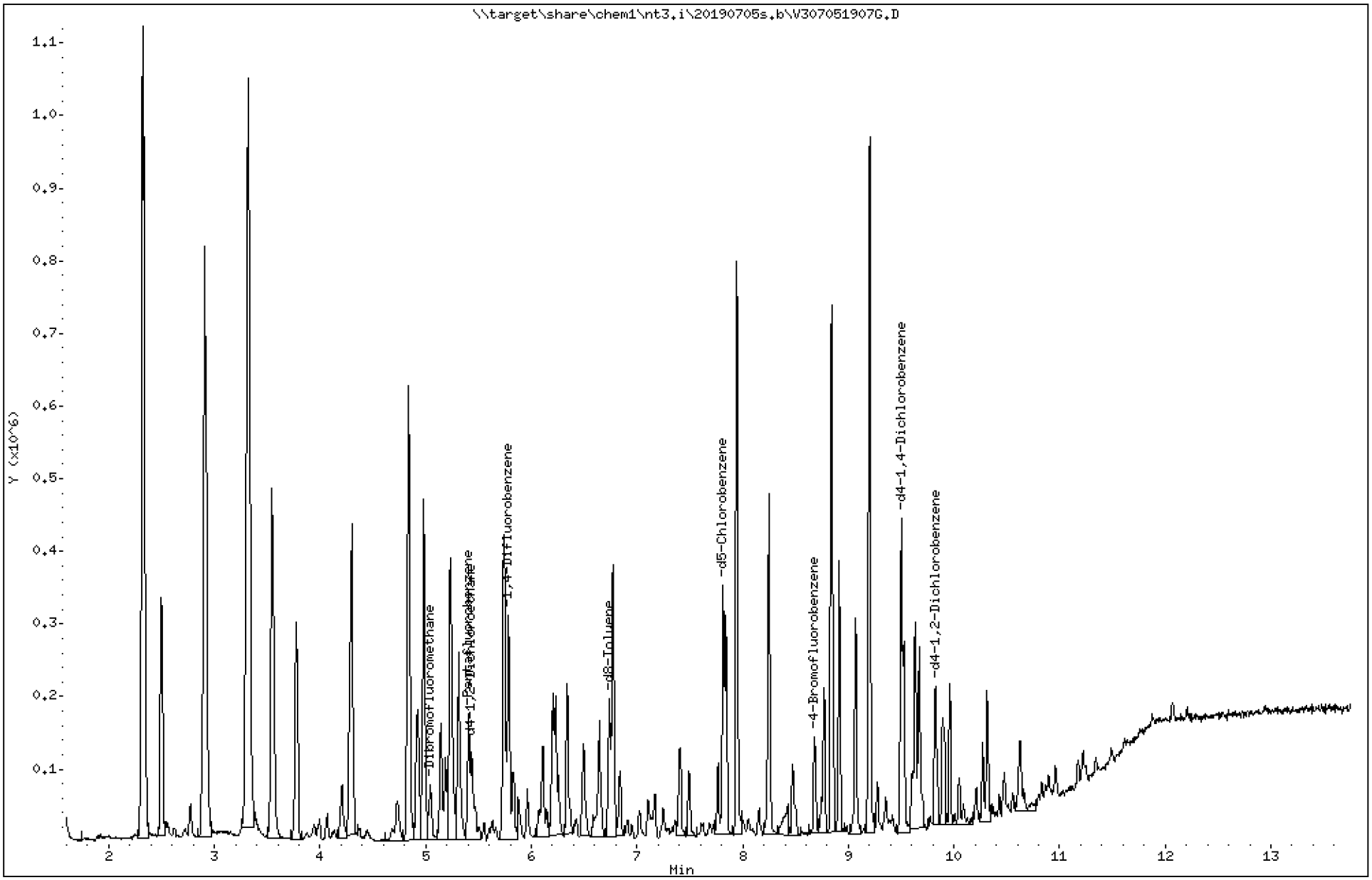
Instrument: nt3.i

Sample Info: BHG0144-BSD2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190705s.b\V307051907G.D
Lab Smp Id: BHG0144-BSD2
Inj Date : 05-JUL-2019 12:16
Operator : PKC   Inst ID: nt3.i
Smp Info : BHG0144-BSD2
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Meth Date : 08-Jul-2019 10:21 nt3.i   Quant Type: ISTD
Cal Date : 02-JUL-2019 16:45   Cal File: V307021918.D
Als bottle: 56
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.047	5.047	(0.933)	20059	4.91899	4.919
* 32 Pentafluorobenzene	168	5.408	5.403	(1.000)	94657	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.435	5.435	(1.005)	25875	5.41589	5.416
* 37 1,4-Difluorobenzene	114	5.785	5.786	(1.000)	141425	10.0000	
$ 43 d8-Toluene	98	6.736	6.737	(1.164)	87502	4.92397	4.924
* 53 d5-Chlorobenzene	117	7.815	7.815	(1.000)	140814	10.0000	
$ 62 4-Bromofluorobenzene	174	8.681	8.681	(1.111)	33515	5.01102	5.011
* 76 d4-1,4-Dichlorobenzene	152	9.499	9.500	(1.000)	91969	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.823	9.824	(1.034)	42701	4.95923	4.959

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V307051907G.D
Lab Smp Id: BHG0144-BSD2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 15-

Calibration Date: 05-JUL-2019
Calibration Time: 21:25
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	93009	46505	186018	94657	1.77
37 1,4-Difluorobenze	136010	68005	272020	141425	3.98
53 d5-Chlorobenzene	139657	69829	279314	140814	0.83
76 d4-1,4-Dichlorobe	88785	44393	177570	91969	3.59

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.40	4.90	5.90	5.41	0.09
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	-0.00
53 d5-Chlorobenzene	7.82	7.32	8.32	7.82	-0.00
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: BHG0144-BSD2
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190705s.b\8260C070219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.919	98.38	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.416	108.32	80-128
$ 43 d8-Toluene	5.000	4.924	98.48	80-120
$ 62 4-Bromofluorobenze	5.000	5.011	100.22	80-120
$ 79 d4-1,2-Dichloroben	5.000	4.959	99.18	80-120

REVIEW SUMMARY FOR FILE - V307051907G.D

Lab ID: BHG0144-BSD2
nt3.i, 20190705s.b\8260C070219.m,   05-JUL-2019 12:16

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190705g.b\V307051907G.D

Date : 05-JUL-2019 12:16

Client ID:

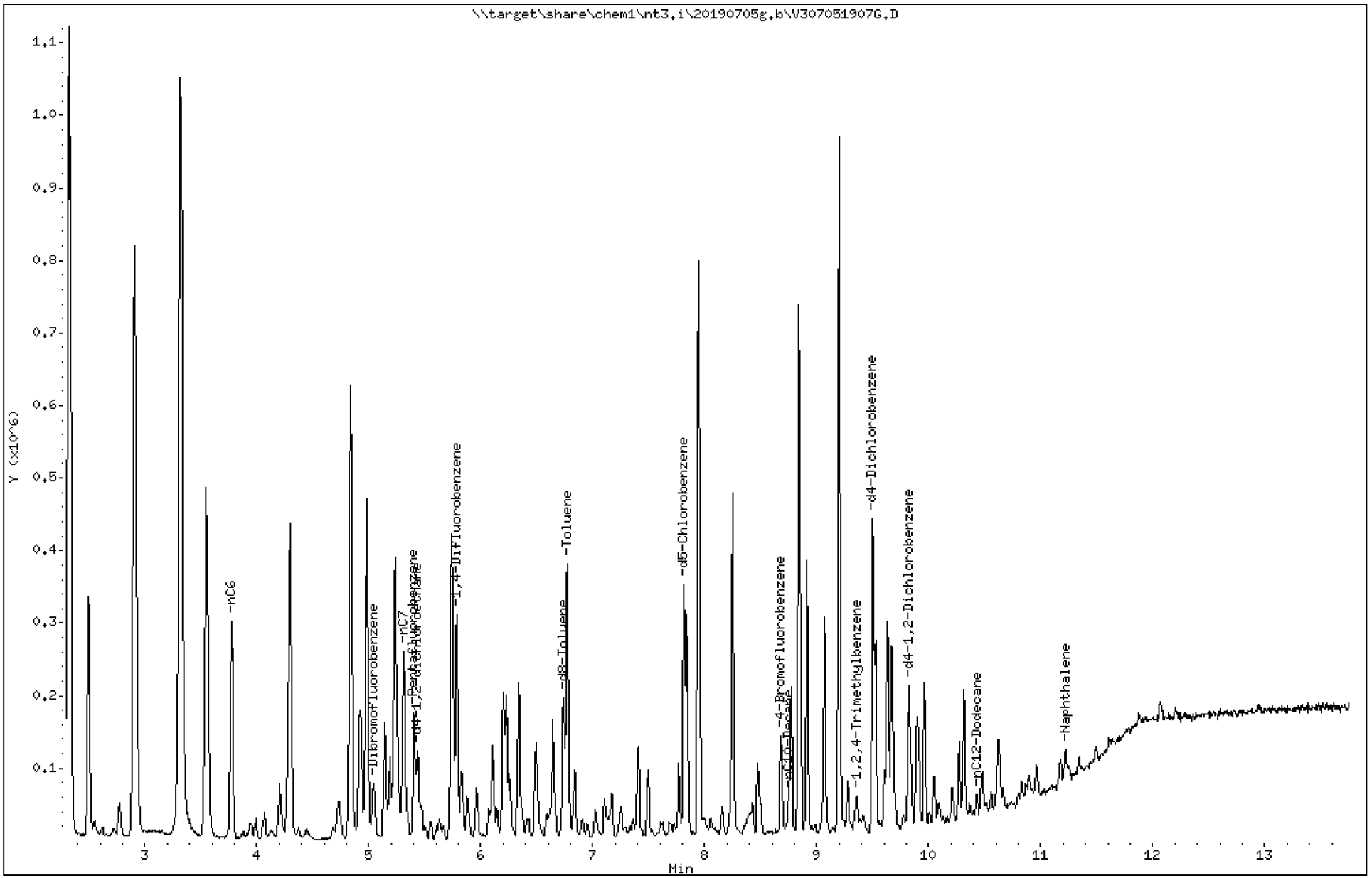
Instrument: nt3.i

Sample Info: BHG0144-BSD2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Page 90 of 96 19G0033 ARISample_WithFuelPDFs FINAL 17 Jul 2019 1636

Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190705g.b/V307051907G.D
Method: \20190705g.b\NWTPHG.m
Instrument: nt3.i
Gas Ical Date: 13-JUN-2019
Injection Date: 05-JUL-2019 12:16

ARI ID: BHG0144-BSD2
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.67 to 10.53)	15577275	11455651	0.735
8015C 2MP-TMB	(3.11 to 9.43)	30509602	21762876	0.713 M
AK101 nC6-nC10	(3.68 to 8.65)	20565293	14174771	0.689 M
NWTPHG Tol-Nap	(6.67 to 11.32)	16736874	12318186	0.736
mod8015 nC7-nC12	(5.21 to 10.53)	23297057	16347541	0.702 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

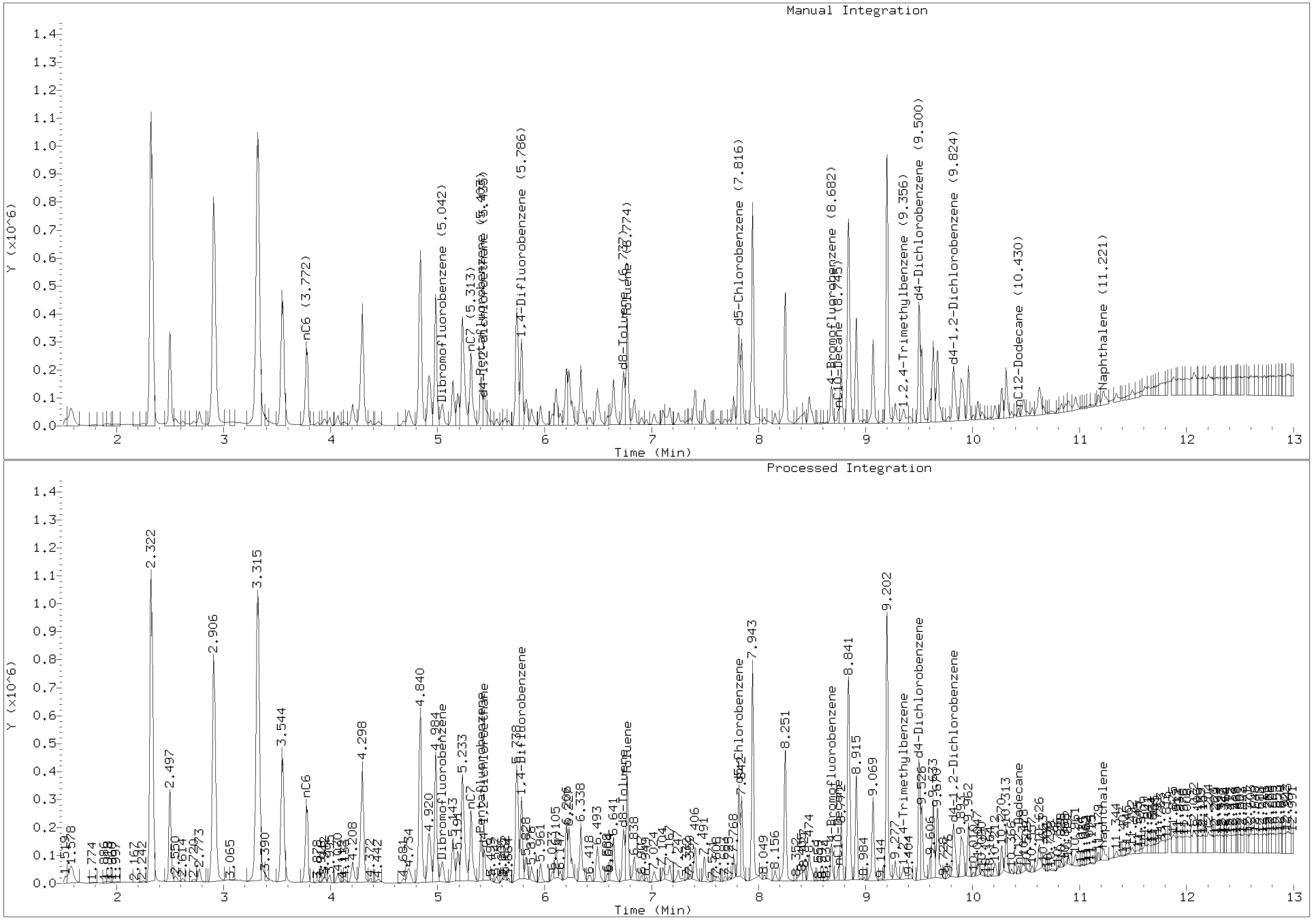
NW Gas Range Subtracted Peaks

7.816	528299	d5-Chlorobenzene
6.737	323140	d8-Toluene
9.500	620129	d4-Dichlorobenzene
8.682	196488	4-Bromofluorobenzene
9.824	367708	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20190705g.b/V307051907G.D Injection: 05-JUL-2019 12:16

Lab ID:BHG0144-BSD2



Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

Certified Analyses included in this Report

Analyte	Certifications
EPA 8260C in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Hexane	WADOE

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

2-Pentanone	WADOE

NWTPHg in Water

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2020
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
6034 N Star Rd	Project Number: USO-023-00	**Reported:**
Ferndale WA, 98248	Project Manager: Matt Dalton	17-Jul-2019 16:36

Notes and Definitions

U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
J	Estimated concentration value detected below the reporting limit.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

24 September 2019

Dave Cooper
Dalton, Olmsted & Fuglevand, Inc
1420 - 156th Ave., NE STE C1
Bellevue, WA 98007

RE: USOR POT RD

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
19I0135	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.



Amanda Volgardsen, Project Manager

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006

PJLA Testing
Accreditation # 66169

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 19I0135	Turn-around Requested: STANDARD	Page: 1 of 1	
ARI Client Company: DOF	Phone: 206 660 3466	Date: 9/9/19	Ice Present? Yes
Client Contact: DAVID COOPER		No. of Coolers: 1	Cooler Temps: 4.9°C
Client Project Name: PORT OF TACOMA RD			
Client Project #: USO-23	Samplers: A. CERRUTI		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPHG & BTEX	Notes/Comments
MW-R1	9/9/19	1915	W	5-40mL	X	
MW-R2	9/9/19	2015	W	5-40mL	X	
MW-R3	9/9/19	1945	W	5-40mL	X	
MW-R4	9/9/19	2045	W	5-40mL	X	
MW-5S	9/9/19	1845	W	5-40mL	X	
TRIP BLANK					X	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: ANTHONY CERRUTI	Printed Name: Jacob Walter	Printed Name:	Printed Name:
	Company: DOF	Company: ARI	Company:	Company:
	Date & Time: ~~9/9/19~~ 9/10/19 1120	Date & Time: 09/10/19 1120	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-R1	19I0135-01	Water	09-Sep-2019 19:15	10-Sep-2019 11:20
MW-R2	19I0135-02	Water	09-Sep-2019 20:15	10-Sep-2019 11:20
MW-R3	19I0135-03	Water	09-Sep-2019 19:45	10-Sep-2019 11:20
MW-R4	19I0135-04	Water	09-Sep-2019 20:45	10-Sep-2019 11:20
MW-5s	19I0135-05	Water	09-Sep-2019 18:45	10-Sep-2019 11:20
Trip Blank	19I0135-06	Water	09-Sep-2019 18:45	10-Sep-2019 11:20

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

Case Narrative

Sample receipt

Samples as listed on the preceding page were received September 10, 2019 under ARI work order 19I0135. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Volatiles - EPA Method SW8260C

The samples were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limits.

The LCS/LCSD percent recoveries and RPD were within control limits.

Gasoline by NWTPH-g (GC/MS)

The samples were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank was clean at the reporting limits.

The LCS/LCSD percent recoveries and RPD were within control limits.

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Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: DOF

Project Name: Port of Tacoma RD

COC No(s): NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: 19I0135

Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1120 4.9°C

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: DOO5006

Cooler Accepted by: JBm Date: 09/10/19 Time: 1120

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:		
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA	9/7/19	

Were the sample(s) split by ARI? NA YES Date/Time: Equipment: Split by:

Samples Logged by: Date: 9/10/19 Time: 1341 Labels checked by:

*** Notify Project Manager of discrepancies or concerns ***

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

MW-R1

19I0135-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 09/09/2019 19:15
Instrument: NT3 — Analyzed: 11-Sep-2019 19:30

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHI0307 — Sample Size: 10 mL
Prepared: 11-Sep-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*99.3*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*99.0*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

MW-R1

19I0135-01 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/09/2019 19:15
Instrument: NT3 — Analyzed: 11-Sep-2019 19:30

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHI0307 — Sample Size: 10 mL
Prepared: 11-Sep-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*99.3*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*99.0*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20190911s.b\V309111924G.D

Date : 11-SEP-2019 19:30

Client ID:

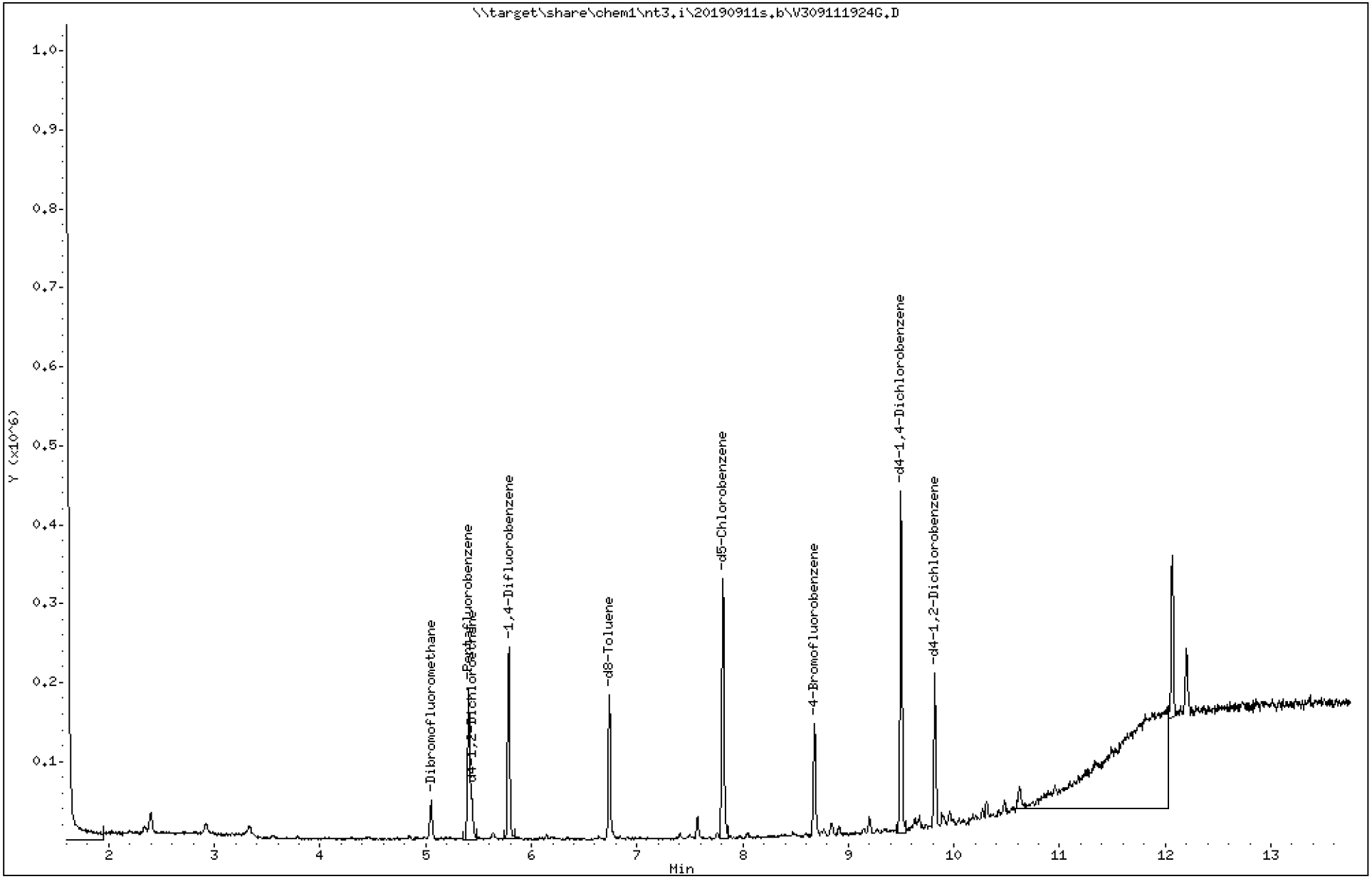
Instrument: nt3.i

Sample Info: 19I0135-01

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Page 8 of 92 19I0135 ARISample_WithFuelPDFs FINAL 24 Sep 2019 1553

ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190911s.b\V309111924G.D
Lab Smp Id: 19I0135-01
Inj Date : 11-SEP-2019 19:30
Operator : PKC Inst ID: nt3.i
Smp Info : 19I0135-01
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Meth Date : 12-Sep-2019 10:46 nt3.i Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 60
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.048	5.047	(0.933)	22326	4.95977	4.960
*	32 Pentafluorobenzene	168	5.410	5.408	(1.000)	104105	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.436	5.435	(1.005)	25506	5.08579	5.086
*	37 1,4-Difluorobenzene	114	5.787	5.786	(1.000)	149252	10.0000	
$	43 d8-Toluene	98	6.738	6.737	(1.164)	89690	4.96740	4.967
*	53 d5-Chlorobenzene	117	7.812	7.816	(1.000)	154689	10.0000	
$	62 4-Bromofluorobenzene	174	8.679	8.677	(1.111)	36379	4.94918	4.949
*	76 d4-1,4-Dichlorobenzene	152	9.497	9.496	(1.000)	96382	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.816	9.820	(1.034)	47505	5.24569	5.246

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309111924G.D
Lab Smp Id: 19I0135-01
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 11-SEP-2019
Calibration Time: 22:35
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	104105	7.44
37 1,4-Difluorobenze	140121	70061	280242	149252	6.52
53 d5-Chlorobenzene	140128	70064	280256	154689	10.39
76 d4-1,4-Dichlorobe	90137	45069	180274	96382	6.93

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.02
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.02
53 d5-Chlorobenzene	7.82	7.32	8.32	7.81	-0.05
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: 19I0135-01
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.960	99.20	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.086	101.72	80-128
$ 43 d8-Toluene	5.000	4.967	99.35	80-120
$ 62 4-Bromofluorobenze	5.000	4.949	98.98	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.246	104.91	80-120

REVIEW SUMMARY FOR FILE - V309111924G.D

Lab ID: 19I0135-01
nt3.i, 20190911s.b\8260C090219.m,   11-SEP-2019 19:30

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190911g.b\V309111924G.D

Date : 11-SEP-2019 19:30

Client ID:

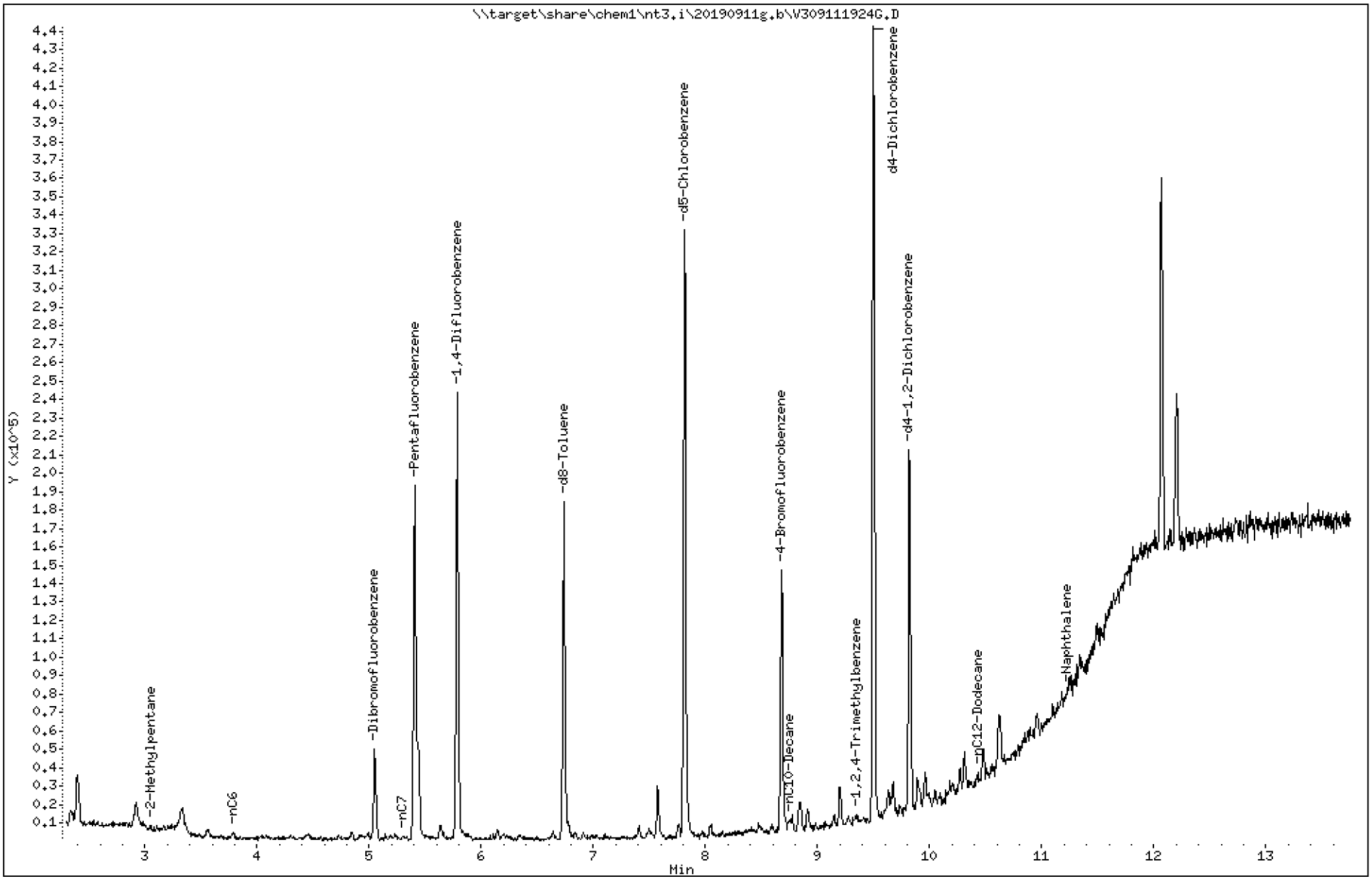
Instrument: nt3.i

Sample Info: 19I0135-01

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V309111924G.D
Method: \20190911g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 11-SEP-2019 19:30
ARI ID: 19I0135-01
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.67 to 10.53)	15876360	497575	0.031
8015C 2MP-TMB	(2.93 to 9.46)	32687243	403366	0.012
AK101 nC6-nC10	(3.68 to 8.64)	19977596	189276	0.009
NWTPHG Tol-Nap	(6.67 to 11.32)	17259421	718715	0.042
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	536016	0.023

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.813	498162	d5-Chlorobenzene
6.739	289933	d8-Toluene
9.498	618150	d4-Dichlorobenzene
8.679	213377	4-Bromofluorobenzene
9.817	290312	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

MW-R2

19I0135-02 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 09/09/2019 20:15
Instrument: NT3 — Analyzed: 11-Sep-2019 19:57

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHI0307 — Sample Size: 10 mL
Prepared: 11-Sep-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	**75.1**	ug/L	
Toluene	108-88-3	1	0.04	0.20	**1.39**	ug/L	
Ethylbenzene	100-41-4	1	0.04	0.20	**2.00**	ug/L	
m,p-Xylene	179601-23-1	1	0.05	0.40	**1.33**	ug/L	
o-Xylene	95-47-6	1	0.03	0.20	**0.50**	ug/L	
Surrogate: Toluene-d8				*80-120 %*	*102*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*94.6*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

MW-R2

19I0135-02 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/09/2019 20:15
Instrument: NT3 — Analyzed: 11-Sep-2019 19:57

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHI0307 — Sample Size: 10 mL
Prepared: 11-Sep-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	**1490**	ug/L	
HC ID: GAS						
Surrogate: Toluene-d8			*80-120 %*	*102*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*94.6*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20190911s.b\V309111925G.D

Date : 11-SEP-2019 19:57

Client ID:

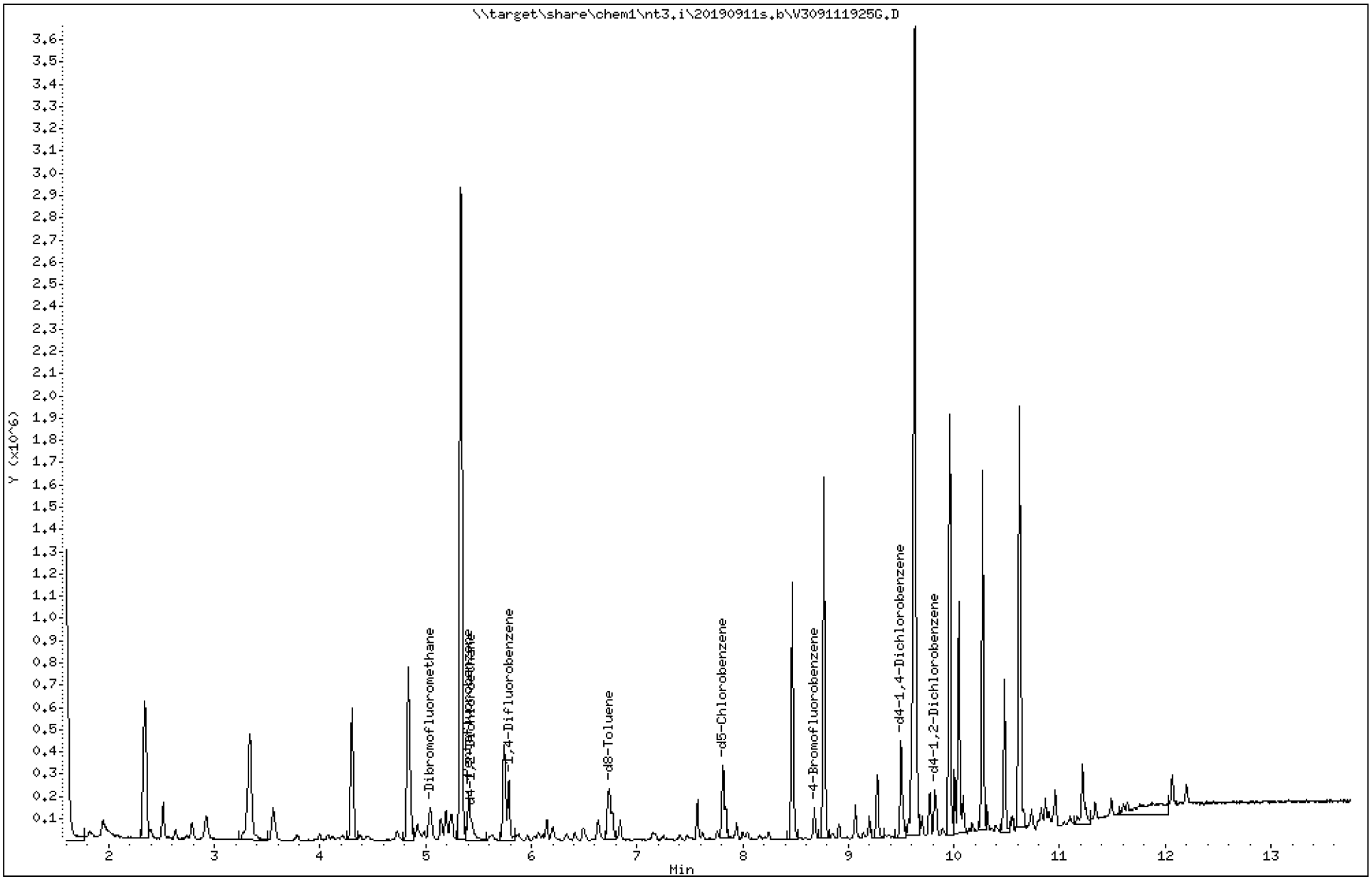
Instrument: nt3.i

Sample Info: 19I0135-02

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190911s.b\V309111925G.D
Lab Smp Id: 19I0135-02
Inj Date : 11-SEP-2019 19:57
Operator : PKC   Inst ID: nt3.i
Smp Info : 19I0135-02
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Meth Date : 12-Sep-2019 10:46 nt3.i   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 61
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.048	5.047	(0.933)	21854	4.86160	4.862
*	32 Pentafluorobenzene	168	5.409	5.408	(1.000)	103962	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.436	5.435	(1.005)	24793	4.95043	4.950
*	37 1,4-Difluorobenzene	114	5.787	5.786	(1.000)	151021	10.0000	
$	43 d8-Toluene	98	6.738	6.737	(1.164)	93622	5.12443	5.124
*	53 d5-Chlorobenzene	117	7.812	7.816	(1.000)	155942	10.0000	
$	62 4-Bromofluorobenzene	174	8.678	8.677	(1.111)	35042	4.72898	4.729
*	76 d4-1,4-Dichlorobenzene	152	9.497	9.496	(1.000)	97179	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.820	(1.034)	45980	5.03565	5.036

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309111925G.D
Lab Smp Id: 19I0135-02
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 11-SEP-2019
Calibration Time: 22:35
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	103962	7.29
37 1,4-Difluorobenze	140121	70061	280242	151021	7.78
53 d5-Chlorobenzene	140128	70064	280256	155942	11.29
76 d4-1,4-Dichlorobe	90137	45069	180274	97179	7.81

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.02
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.02
53 d5-Chlorobenzene	7.82	7.32	8.32	7.81	-0.06
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: 19I0135-02
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.862	97.23	80-120
$ 33 d4-1,2-Dichloroeth	5.000	4.950	99.01	80-128
$ 43 d8-Toluene	5.000	5.124	102.49	80-120
$ 62 4-Bromofluorobenze	5.000	4.729	94.58	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.036	100.71	80-120

REVIEW SUMMARY FOR FILE - V309111925G.D

Lab ID: 19I0135-02
nt3.i, 20190911s.b\8260C090219.m,   11-SEP-2019 19:57

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190911g.b\V309111925G.D

Page 1

Date : 11-SEP-2019 19:57

Client ID:

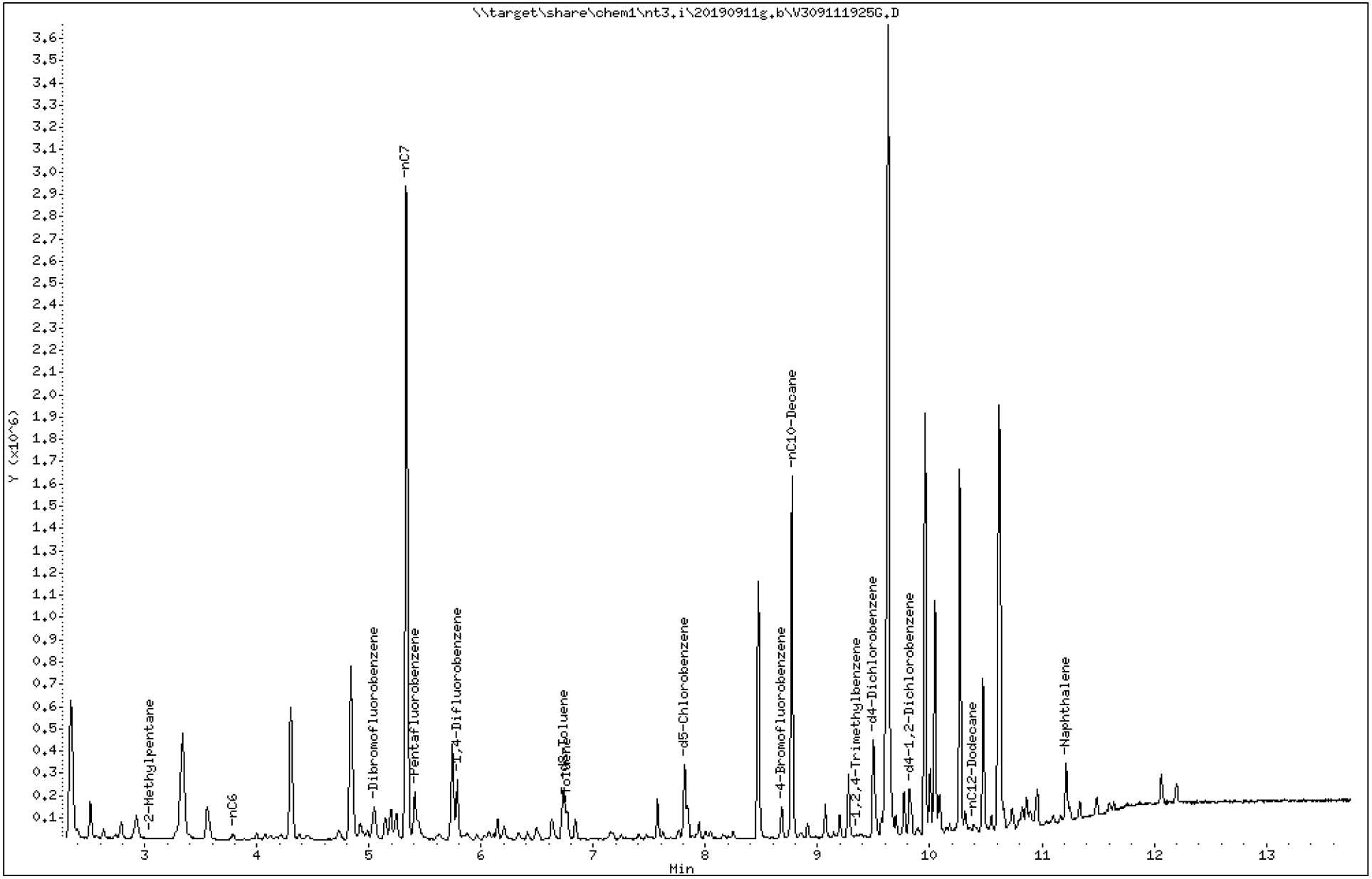
Instrument: nt3.i

Sample Info: 19I0135-02

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Page 22 of 92 19I0135 ARISample_WithFuelPDFs FINAL 24 Sep 2019 1553

Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V309111925G.D
Method: \20190911g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 11-SEP-2019 19:57

ARI ID: 19I0135-02
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.67 to 10.53)	15876360	20794233	1.310 M
8015C 2MP-TMB	(2.93 to 9.46)	32687243	18728905	0.573 M
AK101 nC6-nC10	(3.68 to 8.64)	19977596	13847555	0.693 M
NWTPHG Tol-Nap	(6.67 to 11.32)	17259421	25656194	1.487 M
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	27441274	1.194 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

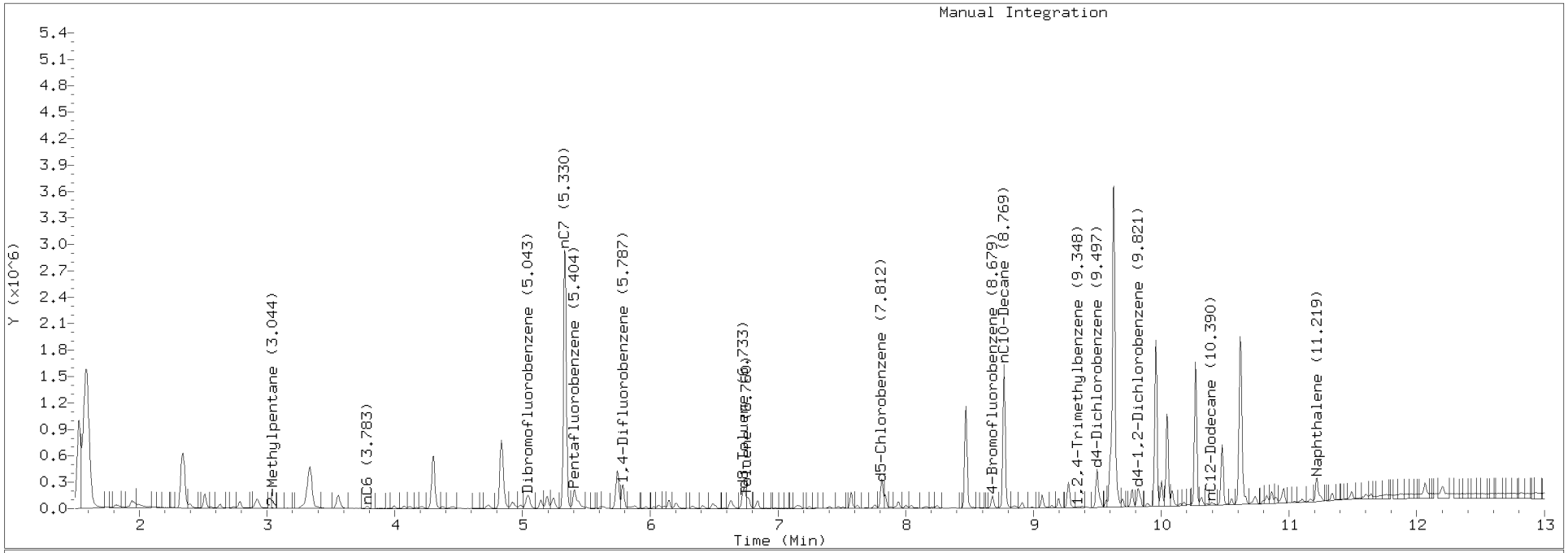
NW Gas Range Subtracted Peaks

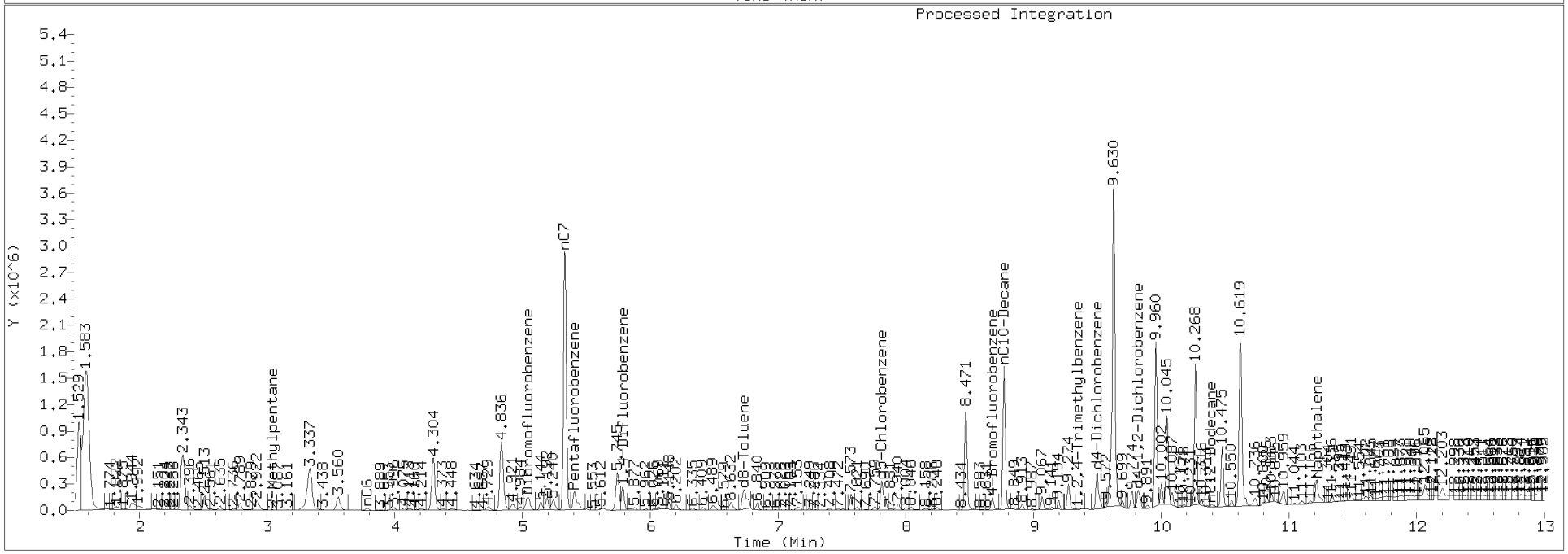
7.812	536825	d5-Chlorobenzene
6.733	493757	d8-Toluene
9.497	705250	d4-Dichlorobenzene
8.679	221234	4-Bromofluorobenzene
9.821	381367	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20190911g.b/V309111925G.D Injection: 11-SEP-2019 19:57

Lab ID:19I0135-02





Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

MW-R3

19I0135-03 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 09/09/2019 19:45
Instrument: NT3 — Analyzed: 11-Sep-2019 20:23

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHI0307 — Sample Size: 10 mL
Prepared: 11-Sep-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	**0.08**	ug/L	J
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	**0.04**	ug/L	J
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	**0.04**	ug/L	J
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*91.9*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

MW-R3

19I0135-03 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/09/2019 19:45
Instrument: NT3 — Analyzed: 11-Sep-2019 20:23

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHI0307 — Sample Size: 10 mL
Prepared: 11-Sep-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	**144**	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*91.9*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

Data File: \\target\share\chem1\nt3.i\20190911s.b\V309111926G.D

Date : 11-SEP-2019 20:23

Client ID:

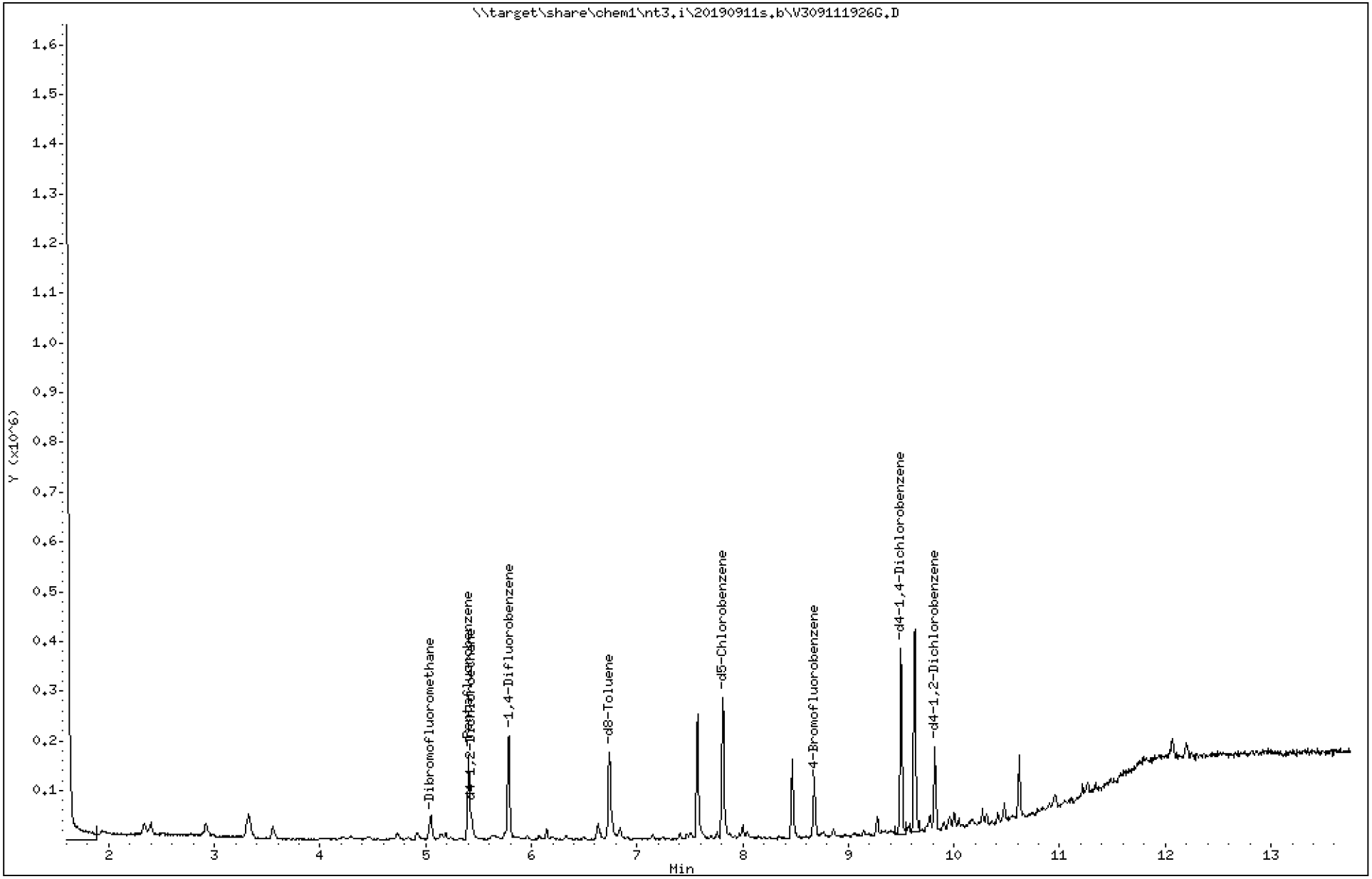
Instrument: nt3.i

Sample Info: 19I0135-03

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190911s.b\V309111926G.D
Lab Smp Id: 19I0135-03
Inj Date : 11-SEP-2019 20:23
Operator : PKC   Inst ID: nt3.i
Smp Info : 19I0135-03
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Meth Date : 12-Sep-2019 10:46 nt3.i   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 62
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.043	5.047	(0.933)	18457	4.74978	4.750
*	32 Pentafluorobenzene	168	5.404	5.408	(1.000)	89869	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.436	5.435	(1.006)	21029	4.85732	4.857
*	37 1,4-Difluorobenzene	114	5.787	5.786	(1.000)	128458	10.0000	
$	43 d8-Toluene	98	6.738	6.737	(1.164)	78089	5.02497	5.025
*	53 d5-Chlorobenzene	117	7.812	7.816	(1.000)	135650	10.0000	
$	62 4-Bromofluorobenzene	174	8.684	8.677	(1.112)	29626	4.59616	4.596
*	76 d4-1,4-Dichlorobenzene	152	9.497	9.496	(1.000)	82282	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.816	9.820	(1.034)	38932	5.03571	5.036

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309111926G.D
Lab Smp Id: 19I0135-03
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 11-SEP-2019
Calibration Time: 22:35
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	89869	-7.25
37 1,4-Difluorobenze	140121	70061	280242	128458	-8.32
53 d5-Chlorobenzene	140128	70064	280256	135650	-3.20
76 d4-1,4-Dichlorobe	90137	45069	180274	82282	-8.71

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.40	-0.08
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.02
53 d5-Chlorobenzene	7.82	7.32	8.32	7.81	-0.05
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: 19I0135-03
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.750	95.00	80-120
$ 33 d4-1,2-Dichloroeth	5.000	4.857	97.15	80-128
$ 43 d8-Toluene	5.000	5.025	100.50	80-120
$ 62 4-Bromofluorobenze	5.000	4.596	91.92	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.036	100.71	80-120

REVIEW SUMMARY FOR FILE - V309111926G.D

Lab ID: 19I0135-03
nt3.i, 20190911s.b\8260C090219.m,   11-SEP-2019 20:23

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190911g.b\W309111926G.D

Date : 11-SEP-2019 20:23

Client ID:

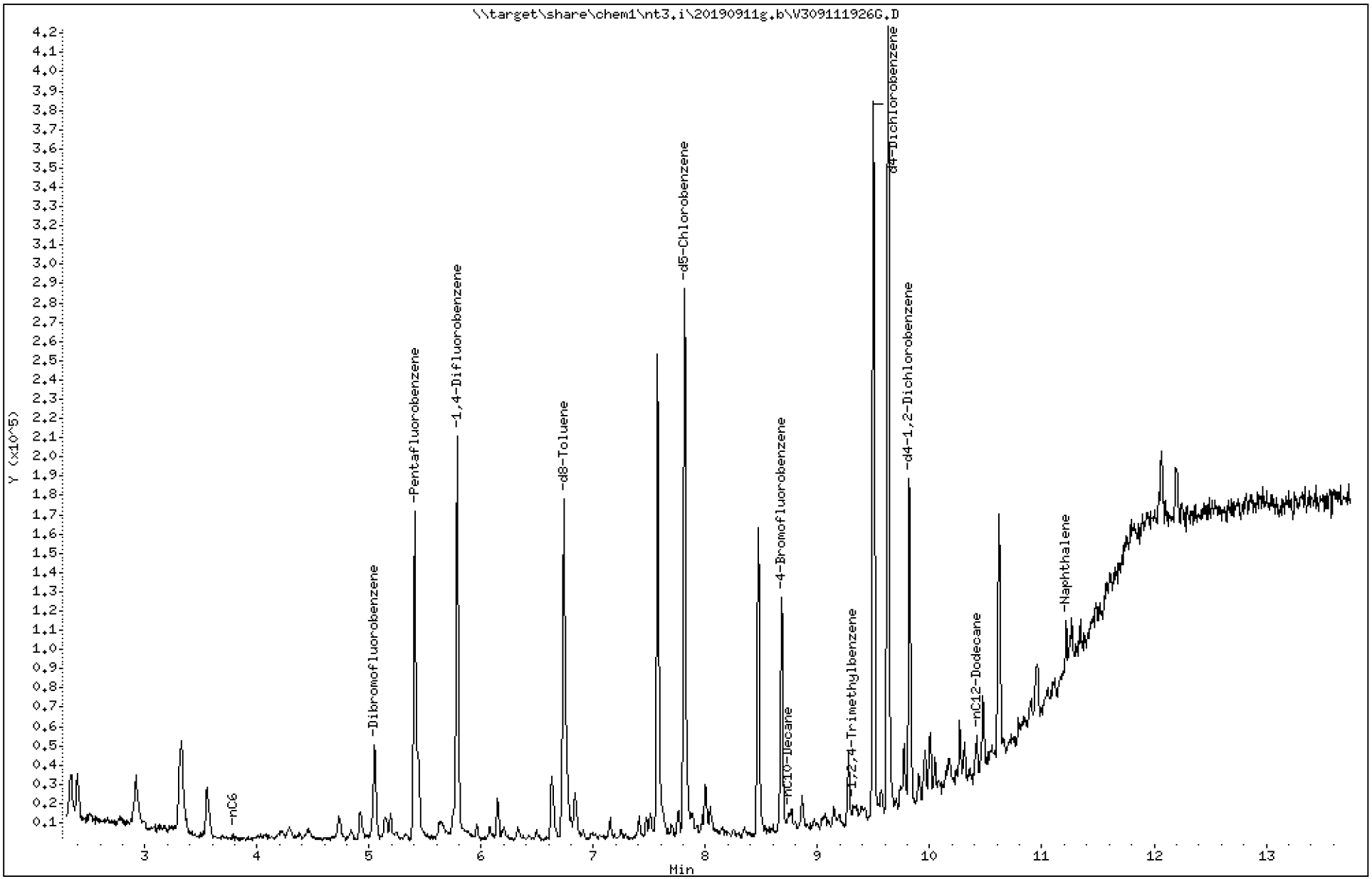
Instrument: nt3.i

Sample Info: 19I0135-03

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V309111926G.D
Method: \20190911g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 11-SEP-2019 20:23

ARI ID: 19I0135-03
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.67 to 10.53)	15876360	2098806	0.132
8015C 2MP-TMB	(2.93 to 9.46)	32687243	1647684	0.050
AK101 nC6-nC10	(3.68 to 8.64)	19977596	1232672	0.062
NWTPHG Tol-Nap	(6.67 to 11.32)	17259421	2486077	0.144
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	2266318	0.099

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.812	428508	d5-Chlorobenzene
6.739	367310	d8-Toluene
9.497	504641	d4-Dichlorobenzene
8.679	183269	4-Bromofluorobenzene
9.816	240037	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

MW-R4

19I0135-04 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 09/09/2019 20:45
Instrument: NT3 — Analyzed: 11-Sep-2019 20:49

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHI0307 — Sample Size: 10 mL
Prepared: 11-Sep-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	**0.04**	ug/L	J
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.1*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

MW-R4

19I0135-04 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/09/2019 20:45
Instrument: NT3 — Analyzed: 11-Sep-2019 20:49

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHI0307 — Sample Size: 10 mL
Prepared: 11-Sep-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*96.1*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Data File: \\target\share\chem1\nt3.i\20190911s.b\V309111927G.D

Date : 11-SEP-2019 20:49

Client ID:

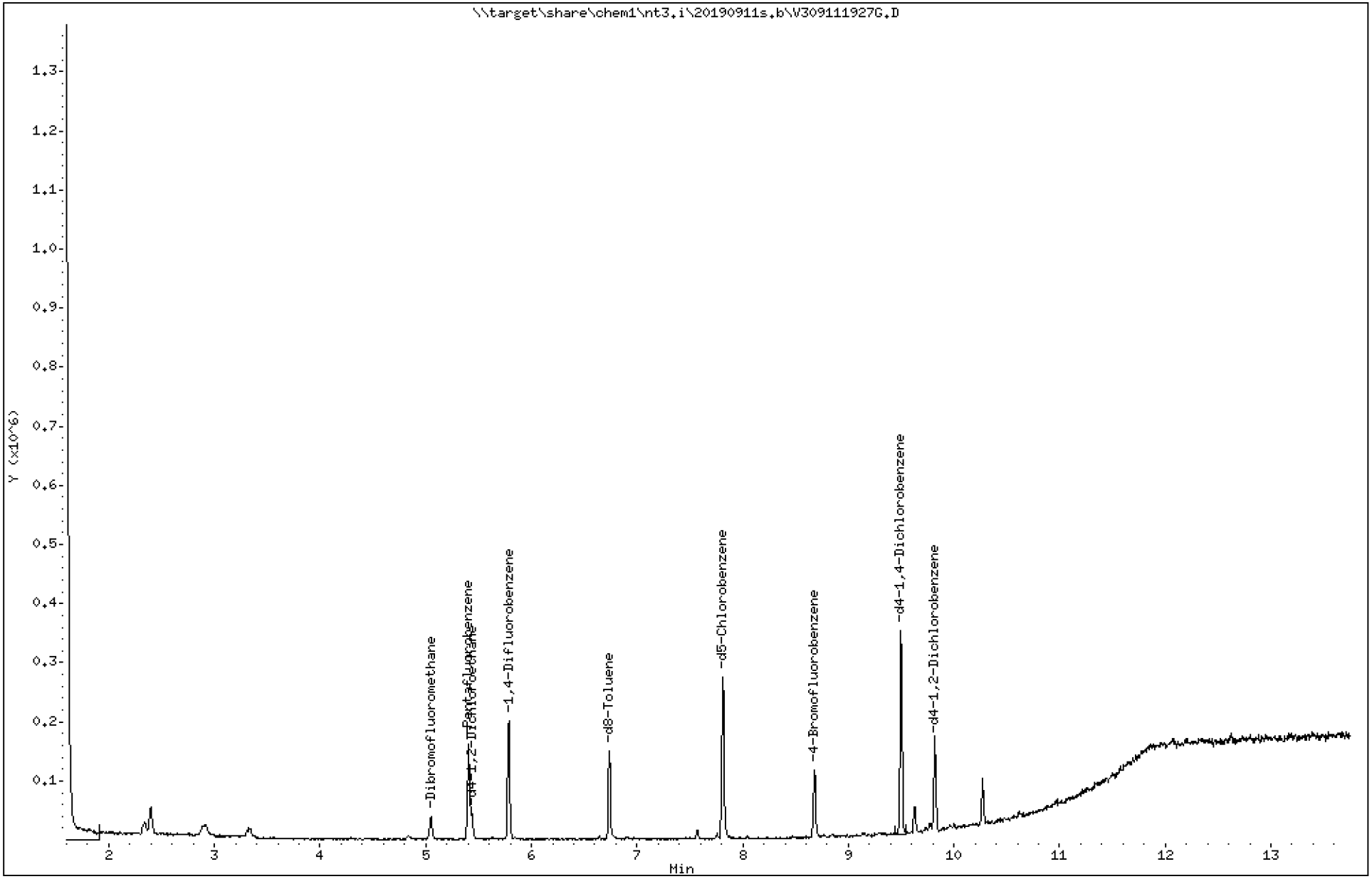
Instrument: nt3.i

Sample Info: 19I0135-04

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190911s.b\V309111927G.D
Lab Smp Id: 19I0135-04
Inj Date : 11-SEP-2019 20:49
Operator : PKC   Inst ID: nt3.i
Smp Info : 19I0135-04
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Meth Date : 12-Sep-2019 10:46 nt3.i   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 63
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.048	5.047	(0.934)	17997	4.75413	4.754
*	32 Pentafluorobenzene	168	5.404	5.408	(1.000)	87549	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.436	5.435	(1.006)	21567	5.11360	5.114
*	37 1,4-Difluorobenzene	114	5.787	5.786	(1.000)	124436	10.0000	
$	43 d8-Toluene	98	6.738	6.737	(1.164)	75998	5.04848	5.048
*	53 d5-Chlorobenzene	117	7.812	7.816	(1.000)	125775	10.0000	
$	62 4-Bromofluorobenzene	174	8.679	8.677	(1.111)	28730	4.80710	4.807
*	76 d4-1,4-Dichlorobenzene	152	9.497	9.496	(1.000)	77521	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.820	(1.034)	37636	5.16706	5.167

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309111927G.D
Lab Smp Id: 19I0135-04
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 11-SEP-2019
Calibration Time: 22:35
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	87549	-9.65
37 1,4-Difluorobenze	140121	70061	280242	124436	-11.19
53 d5-Chlorobenzene	140128	70064	280256	125775	-10.24
76 d4-1,4-Dichlorobe	90137	45069	180274	77521	-14.00

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.40	-0.07
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.02
53 d5-Chlorobenzene	7.82	7.32	8.32	7.81	-0.05
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: 19I0135-04
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.754	95.08	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.114	102.27	80-128
$ 43 d8-Toluene	5.000	5.048	100.97	80-120
$ 62 4-Bromofluorobenze	5.000	4.807	96.14	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.167	103.34	80-120

REVIEW SUMMARY FOR FILE - V309111927G.D

Lab ID: 19I0135-04
nt3.i, 20190911s.b\8260C090219.m,   11-SEP-2019 20:49

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190911g.b\V309111927G.D

Date : 11-SEP-2019 20:49

Client ID:

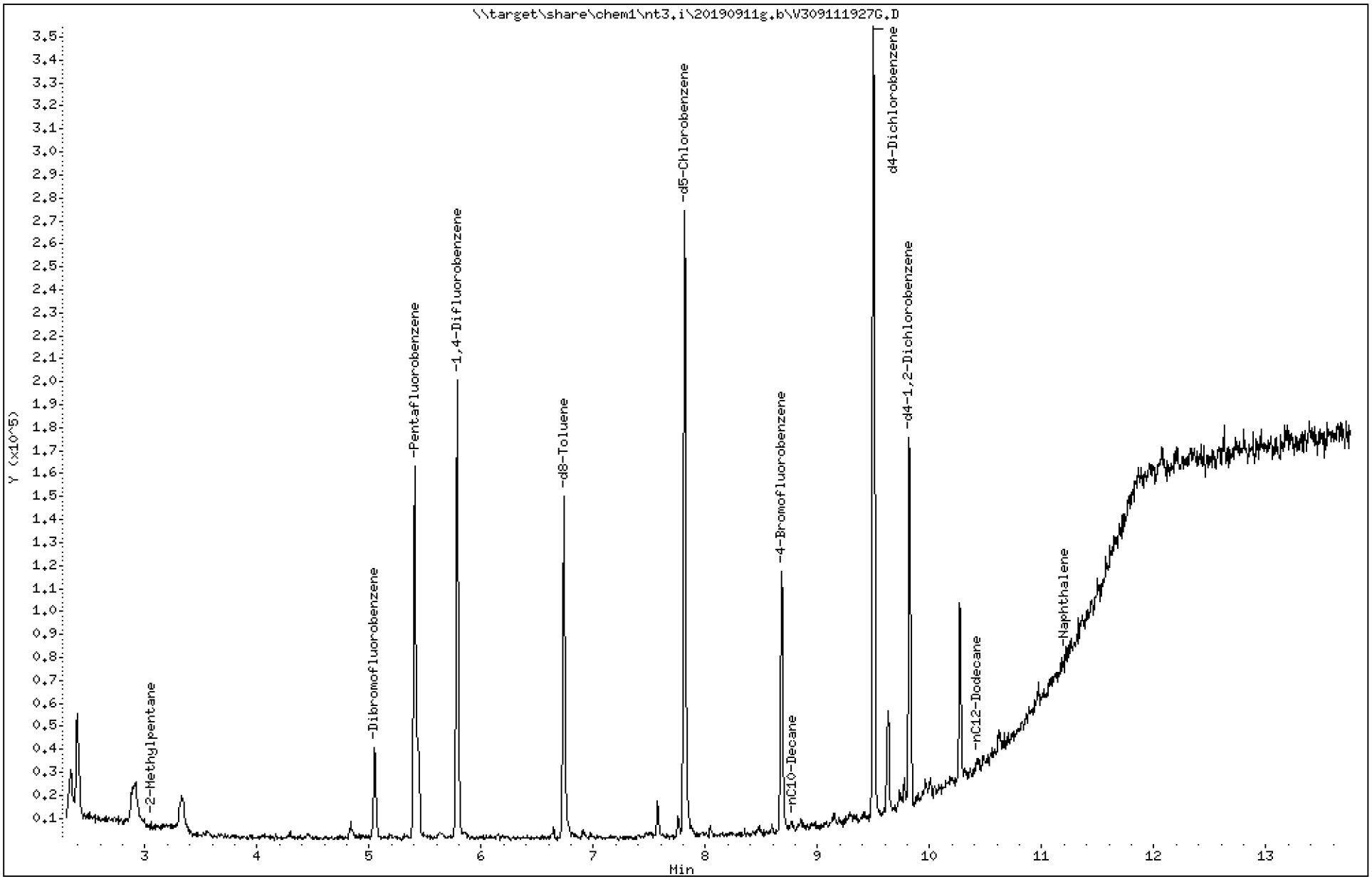
Instrument: nt3.i

Sample Info: 19I0135-04

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V309111927G.D
Method: \20190911g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 11-SEP-2019 20:49

ARI ID: 19I0135-04
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.67 to 10.53)	15876360	375138	0.024
8015C 2MP-TMB	(2.94 to 9.45)	32687243	182825	0.006
AK101 nC6-nC10	(3.68 to 8.64)	19977596	107708	0.005
NWTPHG Tol-Nap	(6.67 to 11.32)	17259421	490692	0.028
mod8015 nC7-nC12	(5.23 to 10.53)	22982624	385774	0.017

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.813	413493	d5-Chlorobenzene
6.739	236637	d8-Toluene
9.498	499482	d4-Dichlorobenzene
8.679	176139	4-Bromofluorobenzene
9.817	235788	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

MW-5s

19I0135-05 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 09/09/2019 18:45
Instrument: NT3 — Analyzed: 11-Sep-2019 21:16

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHI0307 — Sample Size: 10 mL
Prepared: 11-Sep-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*95.8*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

MW-5s

19I0135-05 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/09/2019 18:45
Instrument: NT3 — Analyzed: 11-Sep-2019 21:16

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHI0307 — Sample Size: 10 mL
Prepared: 11-Sep-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*100*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*94.0*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190911s.b\V309111928G.D
Lab Smp Id: 19I0135-05
Inj Date : 11-SEP-2019 21:16
Operator : PKC   Inst ID: nt3.i
Smp Info : 19I0135-05
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Meth Date : 12-Sep-2019 10:46 nt3.i   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 64
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

	Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$	27 Dibromofluoromethane	111	5.048	5.047	(0.933)	21223	4.90181	4.902
*	32 Pentafluorobenzene	168	5.410	5.408	(1.000)	100132	10.0000	
$	33 d4-1,2-Dichloroethane	65	5.436	5.435	(1.005)	24672	5.11469	5.115
*	37 1,4-Difluorobenzene	114	5.787	5.786	(1.000)	143443	10.0000	
$	43 d8-Toluene	98	6.738	6.737	(1.164)	86970	5.01181	5.012
*	53 d5-Chlorobenzene	117	7.812	7.816	(1.000)	151076	10.0000	
$	62 4-Bromofluorobenzene	174	8.679	8.677	(1.111)	33729	4.69839	4.698
*	76 d4-1,4-Dichlorobenzene	152	9.497	9.496	(1.000)	94992	10.0000	
$	79 d4-1,2-Dichlorobenzene	152	9.821	9.820	(1.034)	44982	5.03977	5.040

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309111928G.D
Lab Smp Id: 19I0135-05
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 11-SEP-2019
Calibration Time: 22:35
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	100132	3.34
37 1,4-Difluorobenze	140121	70061	280242	143443	2.37
53 d5-Chlorobenzene	140128	70064	280256	151076	7.81
76 d4-1,4-Dichlorobe	90137	45069	180274	94992	5.39

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.02
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.02
53 d5-Chlorobenzene	7.82	7.32	8.32	7.81	-0.05
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: 19I0135-05
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.902	98.04	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.115	102.29	80-128
$ 43 d8-Toluene	5.000	5.012	100.24	80-120
$ 62 4-Bromofluorobenze	5.000	4.698	93.97	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.040	100.80	80-120

REVIEW SUMMARY FOR FILE - V309111928G.D

Lab ID: 19I0135-05
nt3.i, 20190911s.b\8260C090219.m,   11-SEP-2019 21:16

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190911g.b\V309111928G.D

Date : 11-SEP-2019 21:16

Client ID:

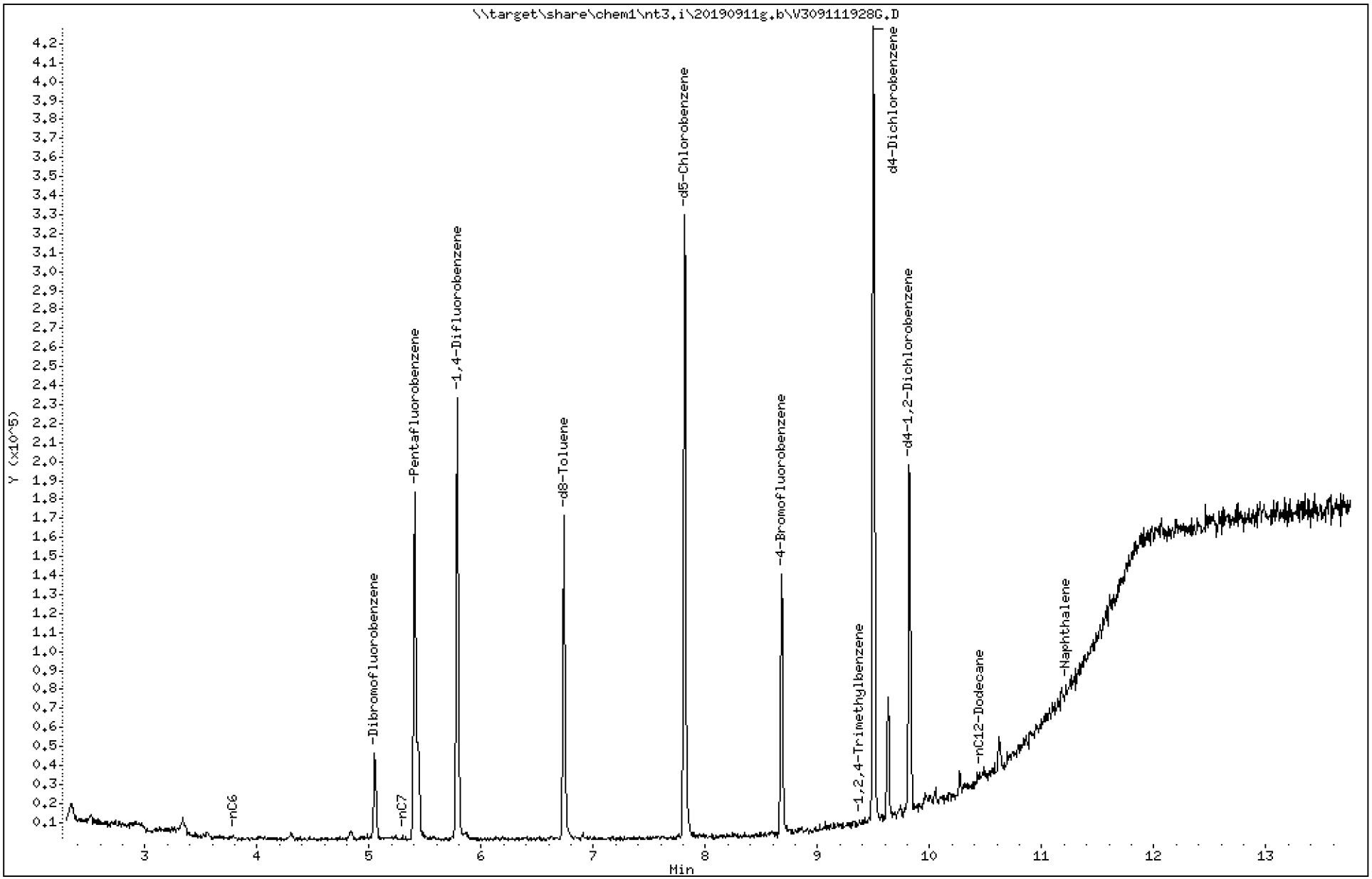
Instrument: nt3.i

Sample Info: 19I0135-05

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V309111928G.D
Method: \20190911g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 11-SEP-2019 21:16

ARI ID: 19I0135-05
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.67 to 10.53)	15876360	244000	0.015
8015C 2MP-TMB	(2.93 to 9.46)	32687243	97973	0.003
AK101 nC6-nC10	(3.68 to 8.64)	19977596	36308	0.002
NWTPHG Tol-Nap	(6.67 to 11.32)	17259421	391388	0.023
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	249079	0.011

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.813	484458	d5-Chlorobenzene
6.739	249106	d8-Toluene
9.498	602972	d4-Dichlorobenzene
8.679	204658	4-Bromofluorobenzene
9.817	283493	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

Trip Blank
19I0135-06 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 09/09/2019 18:45
Instrument: NT3 — Analyzed: 11-Sep-2019 13:04

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHI0307 — Sample Size: 10 mL
Prepared: 11-Sep-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*96.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*100*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

Trip Blank
19I0135-06 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 09/09/2019 18:45
Instrument: NT3 — Analyzed: 11-Sep-2019 13:04

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHI0307 — Sample Size: 10 mL
Prepared: 11-Sep-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*96.9*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*100*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20190911s.b\W309111910G.D

Date : 11-SEP-2019 13:04

Client ID:

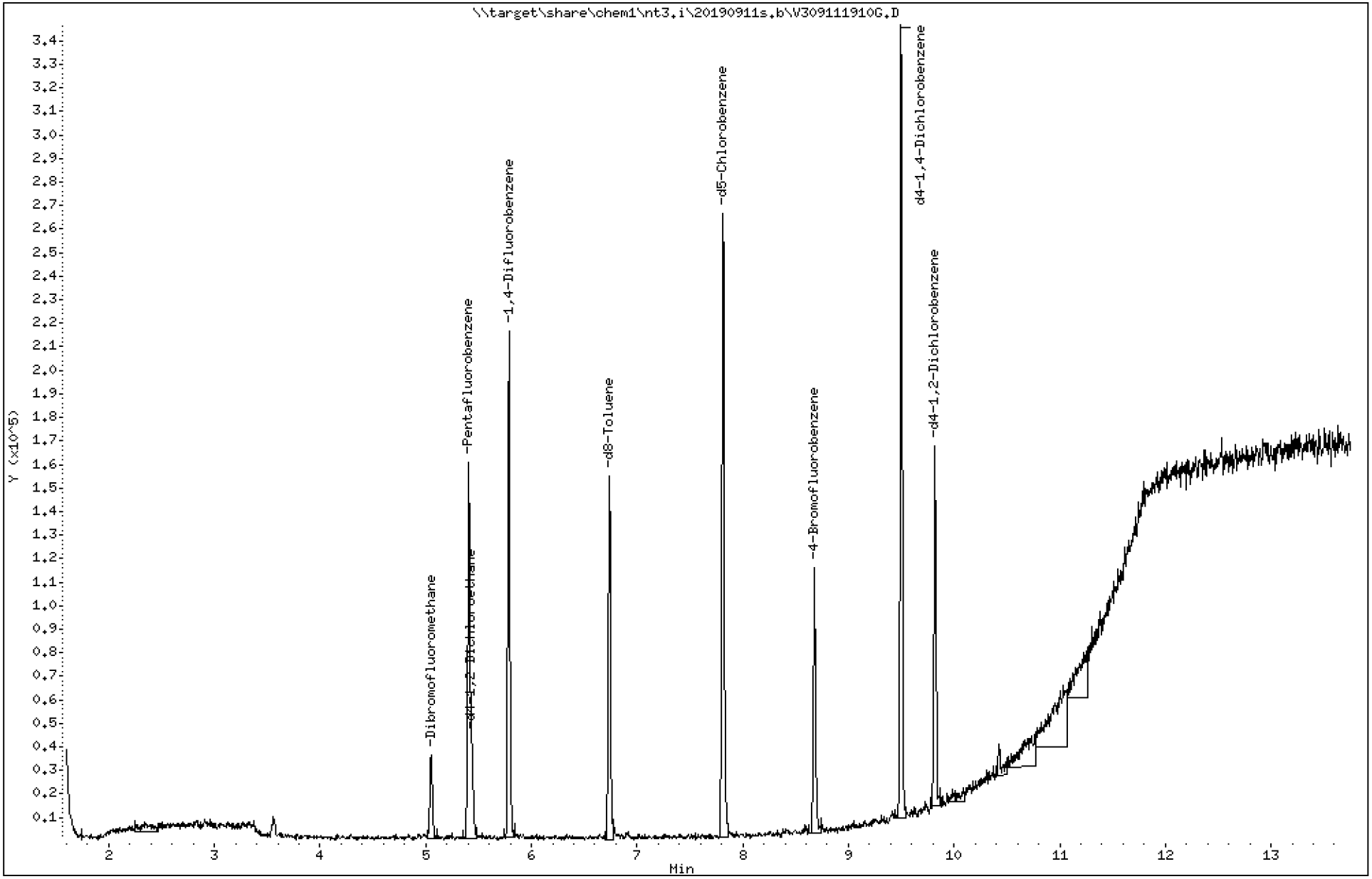
Sample Info: 19I0135-06

Column phase: RTXVMS

Instrument: nt3.i

Operator: PKC

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190911s.b\V309111910G.D
Lab Smp Id: 19I0135-06
Inj Date : 11-SEP-2019 13:04
Operator : PKC   Inst ID: nt3.i
Smp Info : 19I0135-06
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Meth Date : 12-Sep-2019 10:46 nt3.i   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.053	5.047	(0.934)	18153	4.81619	4.816(R)
* 32 Pentafluorobenzene	168	5.409	5.408	(1.000)	87170	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.435	5.435	(1.005)	20349	4.84578	4.846(R)
* 37 1,4-Difluorobenzene	114	5.786	5.786	(1.000)	126648	10.0000	
$ 43 d8-Toluene	98	6.738	6.737	(1.164)	74229	4.84485	4.845(R)
* 53 d5-Chlorobenzene	117	7.811	7.816	(1.000)	126204	10.0000	
$ 62 4-Bromofluorobenzene	174	8.678	8.677	(1.111)	29975	4.99836	4.998(R)
* 76 d4-1,4-Dichlorobenzene	152	9.496	9.496	(1.000)	77381	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.821	9.820	(1.034)	36464	5.01521	5.015(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309111910G.D
Lab Smp Id: 19I0135-06
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 16-

Calibration Date: 11-SEP-2019
Calibration Time: 22:35
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	87170	-10.04
37 1,4-Difluorobenze	140121	70061	280242	126648	-9.62
53 d5-Chlorobenzene	140128	70064	280256	126204	-9.94
76 d4-1,4-Dichlorobe	90137	45069	180274	77381	-14.15

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.01
53 d5-Chlorobenzene	7.82	7.32	8.32	7.81	-0.06
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930a
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19I0135-06
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.816	96.32	
$ 33 d4-1,2-Dichloroeth	5.000	4.846	96.92	
$ 43 d8-Toluene	5.000	4.845	96.90	
$ 62 4-Bromofluorobenze	5.000	4.998	99.97	
$ 79 d4-1,2-Dichloroben	5.000	5.015	100.30	

REVIEW SUMMARY FOR FILE - V309111910G.D

Lab ID: 19I0135-06
nt3.i, 20190911s.b\8260C090219.m,   11-SEP-2019 13:04

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190911g.b\W309111910G.D

Page 1

Date : 11-SEP-2019 13:04

Client ID:

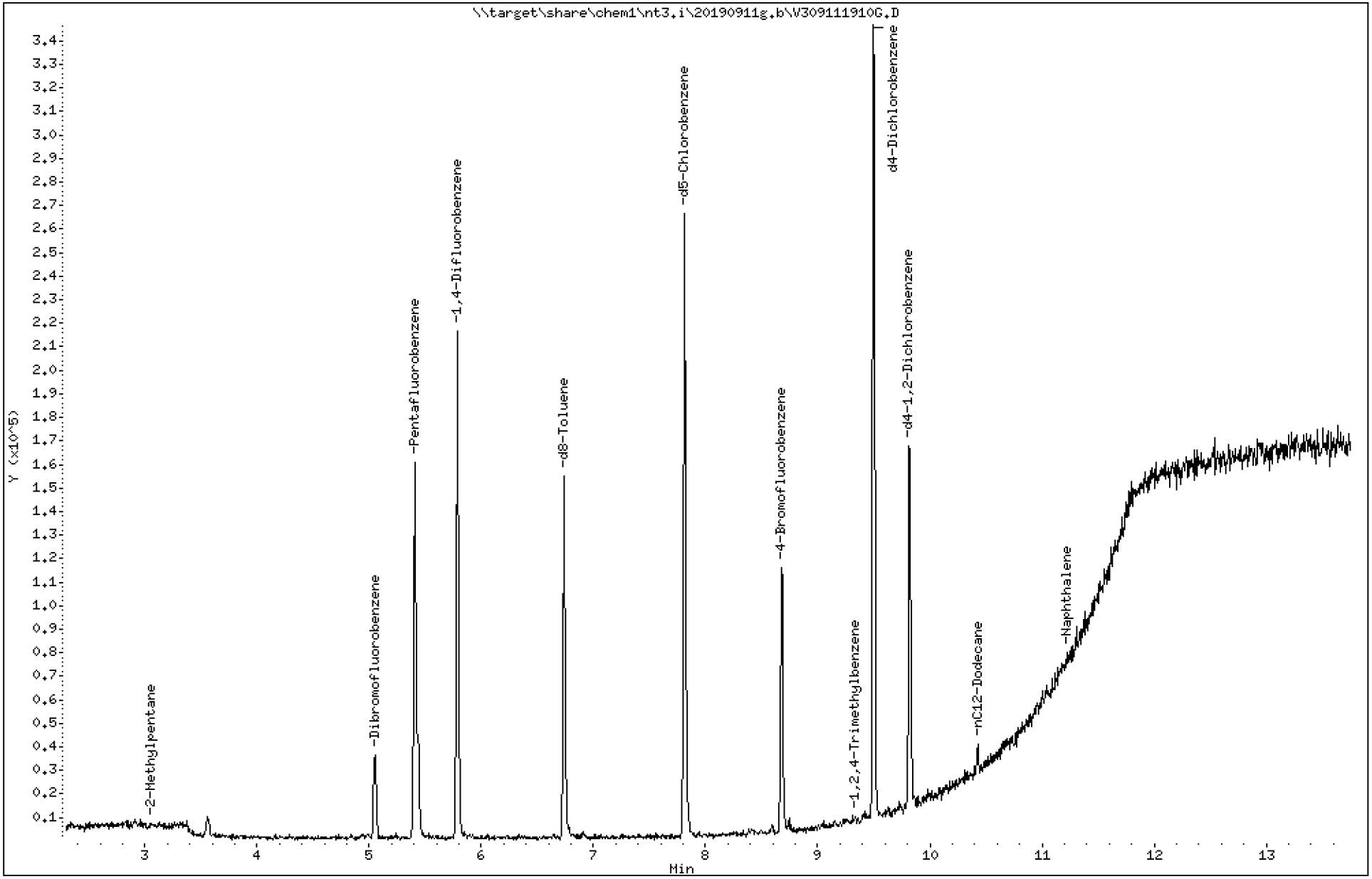
Instrument: nt3.i

Sample Info: 19I0135-06

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V309111910G.D
Method: \20190911g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 11-SEP-2019 13:04

ARI ID: 19I0135-06
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.67 to 10.53)	15876360	110560	0.007
8015C 2MP-TMB	(2.93 to 9.46)	32687243	122836	0.004
AK101 nC6-nC10	(3.68 to 8.64)	19977596	14773	0.001
NWTPHG Tol-Nap	(6.67 to 11.32)	17259421	276174	0.016
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	110561	0.005

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.812	406307	d5-Chlorobenzene
6.738	210434	d8-Toluene
9.497	487127	d4-Dichlorobenzene
8.678	172348	4-Bromofluorobenzene
9.816	244932	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

Volatile Organic Compounds - Quality Control

Batch BHI0307 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHI0307-BLK1)				Prepared: 11-Sep-2019 Analyzed: 11-Sep-2019 12:37							
Benzene	ND	0.03	0.20	ug/L							U
Toluene	ND	0.04	0.20	ug/L							U
Ethylbenzene	ND	0.04	0.20	ug/L							U
m,p-Xylene	ND	0.05	0.40	ug/L							U
o-Xylene	ND	0.03	0.20	ug/L							U
Surrogate: Toluene-d8	4.85			ug/L	*5.00*		*97.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.85			ug/L	*5.00*		*97.0*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

Volatile Organic Compounds - Quality Control

Batch BHI0307 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHI0307-BLK2)			Prepared: 11-Sep-2019 Analyzed: 11-Sep-2019 12:37							
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.85		ug/L	*5.00*		*97.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.85		ug/L	*5.00*		*97.0*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20190911s.b\V309111909G.D

Date : 11-SEP-2019 12:37

Client ID:

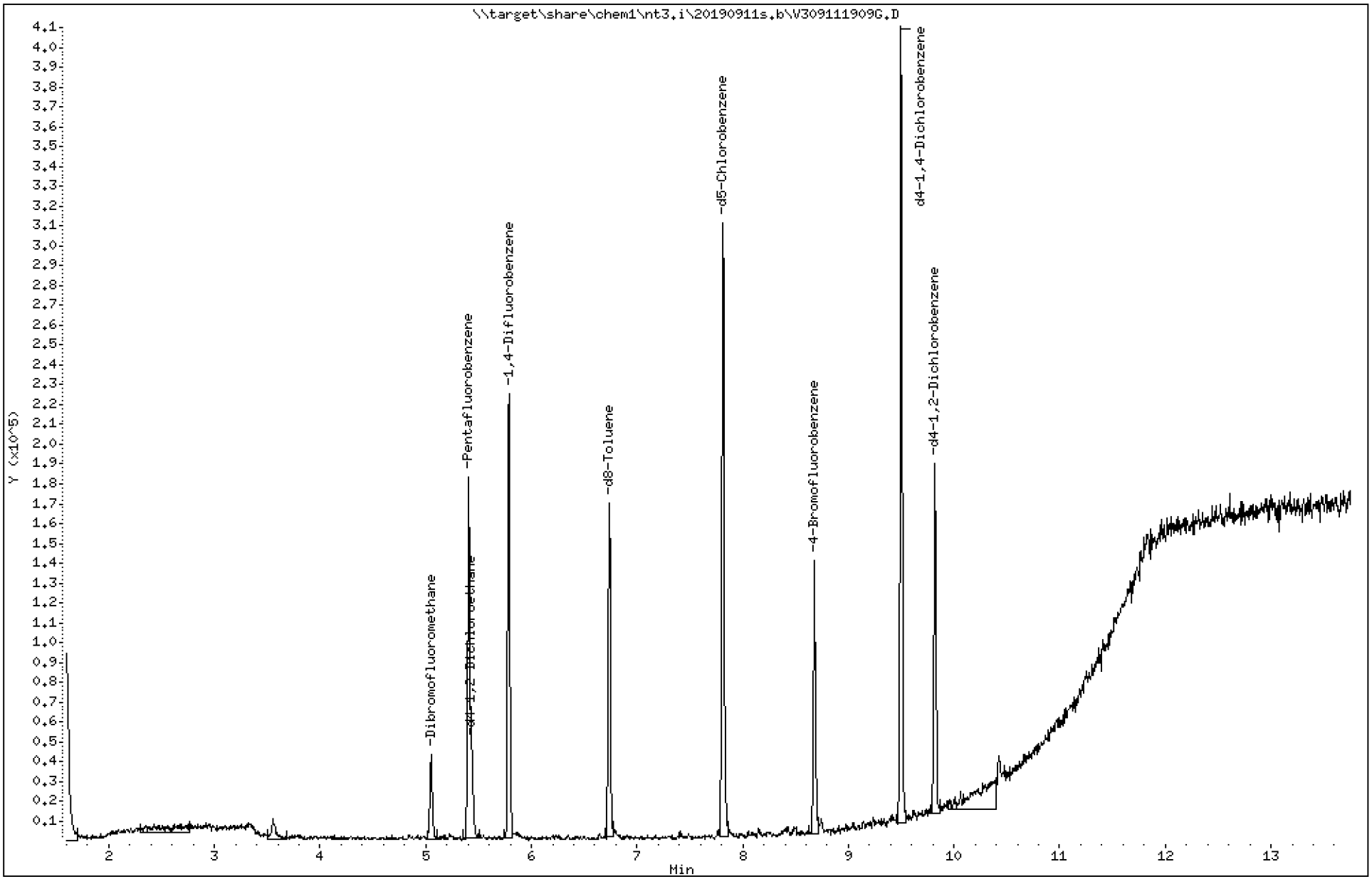
Instrument: nt3.i

Sample Info: BHI0307-BLK2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190911s.b\V309111909G.D
Lab Smp Id: BHI0307-BLK2
Inj Date : 11-SEP-2019 12:37
Operator : PKC   Inst ID: nt3.i
Smp Info : BHI0307-BLK2
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Meth Date : 12-Sep-2019 10:46 nt3.i   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.048	5.047	(0.933)	20569	4.73073	4.731(R)
* 32 Pentafluorobenzene	168	5.409	5.408	(1.000)	100556	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.436	5.435	(1.005)	23858	4.92509	4.925(R)
* 37 1,4-Difluorobenzene	114	5.787	5.786	(1.000)	142192	10.0000	
$ 43 d8-Toluene	98	6.738	6.737	(1.164)	83401	4.84843	4.848(R)
* 53 d5-Chlorobenzene	117	7.812	7.816	(1.000)	148012	10.0000	
$ 62 4-Bromofluorobenzene	174	8.678	8.677	(1.111)	34098	4.84812	4.848(R)
* 76 d4-1,4-Dichlorobenzene	152	9.497	9.496	(1.000)	90668	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.821	9.820	(1.034)	42063	4.93748	4.937(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309111909G.D
Lab Smp Id: BHI0307-BLK2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 16-

Calibration Date: 11-SEP-2019
Calibration Time: 22:35
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	100556	3.78
37 1,4-Difluorobenze	140121	70061	280242	142192	1.48
53 d5-Chlorobenzene	140128	70064	280256	148012	5.63
76 d4-1,4-Dichlorobe	90137	45069	180274	90668	0.59

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.02
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.02
53 d5-Chlorobenzene	7.82	7.32	8.32	7.81	-0.06
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHI0307-BLK2
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.731	94.61	
$ 33 d4-1,2-Dichloroeth	5.000	4.925	98.50	
$ 43 d8-Toluene	5.000	4.848	96.97	
$ 62 4-Bromofluorobenze	5.000	4.848	96.96	
$ 79 d4-1,2-Dichloroben	5.000	4.937	98.75	

REVIEW SUMMARY FOR FILE - V309111909G.D

Lab ID: BHI0307-BLK2
nt3.i, 20190911s.b\8260C090219.m,   11-SEP-2019 12:37

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190911g.b\W309111909G.D

Page 1

Date : 11-SEP-2019 12:37

Client ID:

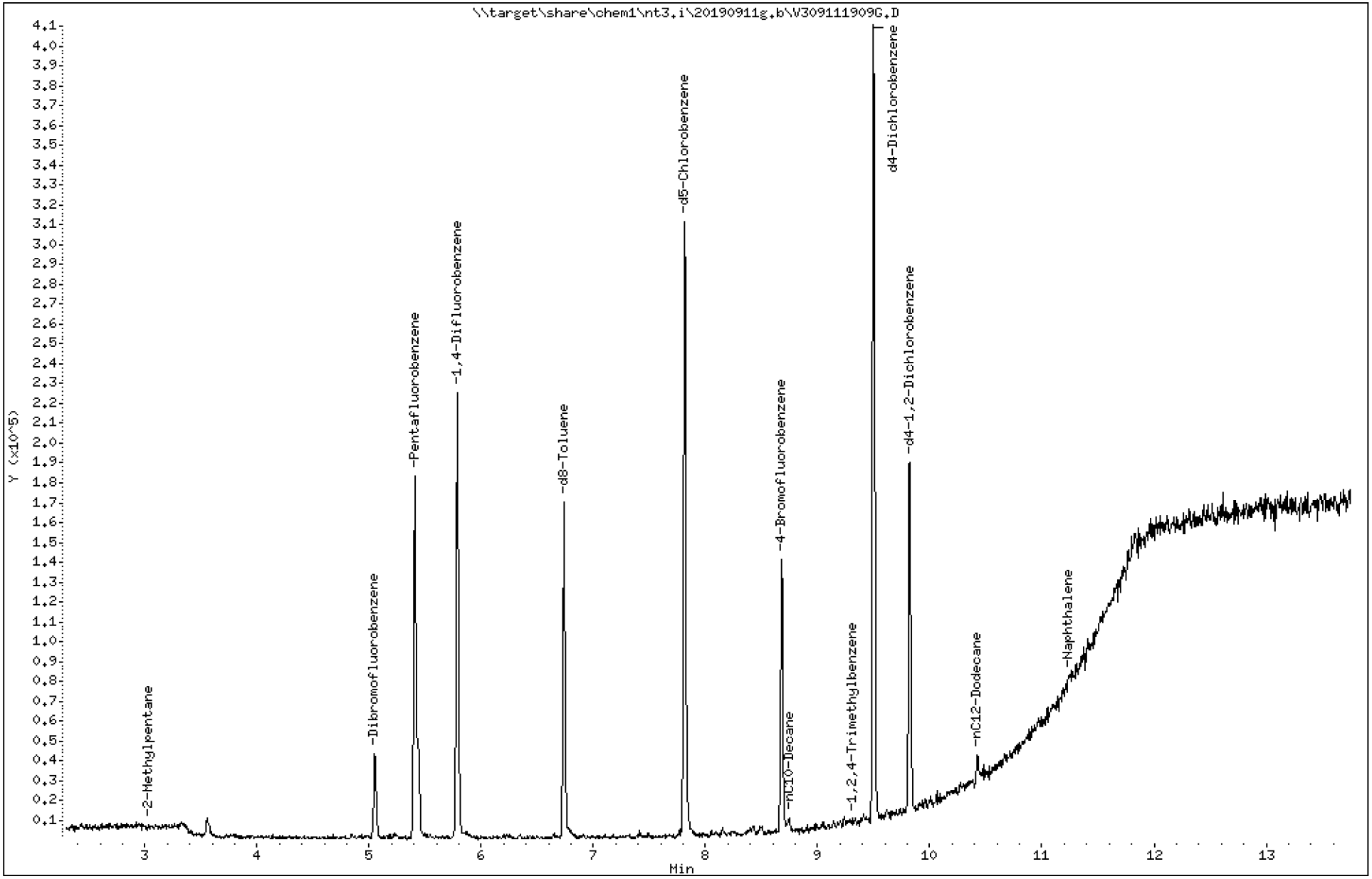
Instrument: nt3.i

Sample Info: BHI0307-BLK2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V309111909G.D
Method: \20190911g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 11-SEP-2019 12:37

ARI ID: BHI0307-BLK2
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.67 to 10.53)	15876360	217691	0.014
8015C 2MP-TMB	(2.93 to 9.46)	32687243	162120	0.005
AK101 nC6-nC10	(3.68 to 8.64)	19977596	48314	0.002
NWTPHG Tol-Nap	(6.67 to 11.32)	17259421	321635	0.019
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	228229	0.010

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.812	451622	d5-Chlorobenzene
6.739	243558	d8-Toluene
9.497	579940	d4-Dichlorobenzene
8.679	195886	4-Bromofluorobenzene
9.822	269062	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

Volatile Organic Compounds - Quality Control

Batch BHI0307 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BHI0307-BS1)					Prepared: 11-Sep-2019 Analyzed: 11-Sep-2019 10:24						
Benzene	9.38	0.03	0.20	ug/L	10.0		93.8	80-120			
Toluene	9.65	0.04	0.20	ug/L	10.0		96.5	80-120			
Ethylbenzene	9.57	0.04	0.20	ug/L	10.0		95.7	80-120			
m,p-Xylene	19.3	0.05	0.40	ug/L	20.0		96.6	80-121			
o-Xylene	9.51	0.03	0.20	ug/L	10.0		95.1	80-121			
Surrogate: Toluene-d8	5.12			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.99			ug/L	*5.00*		*99.8*	*80-120*			

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

Volatile Organic Compounds - Quality Control

Batch BHI0307 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BHI0307-BS2)				Prepared: 11-Sep-2019 Analyzed: 11-Sep-2019 11:18						
Gasoline Range Organics (Tol-Nap)	924	100	ug/L	1000		92.4	72-128			
Surrogate: Toluene-d8	5.19		ug/L	*5.00*		*104*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.90		ug/L	*5.00*		*98.0*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20190911s.b\V309111906GLCS.D

Date : 11-SEP-2019 11:18

Client ID:

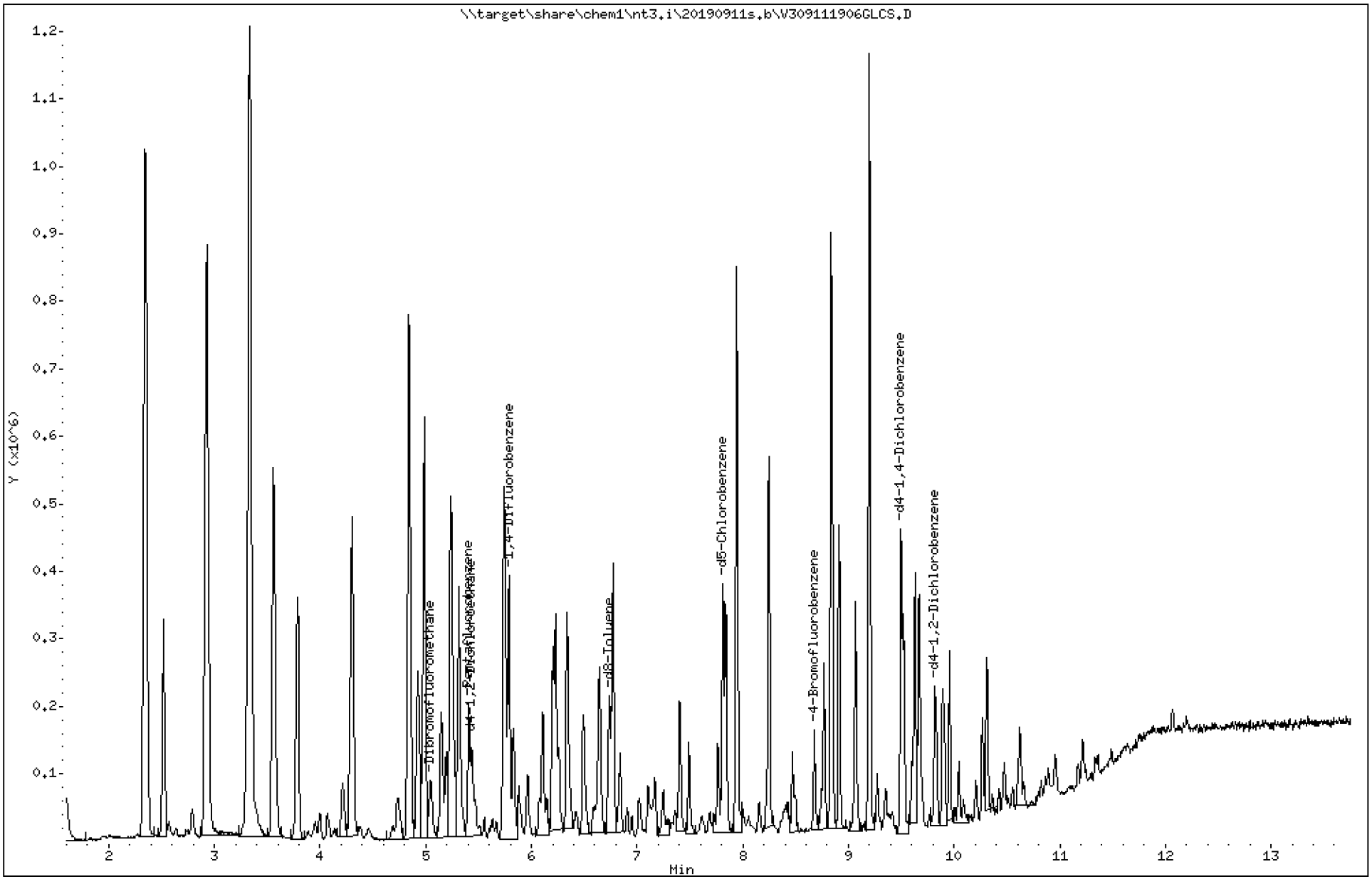
Instrument: nt3.i

Sample Info: BHI0307-BS2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190911s.b\V309111906GLCS.D
Lab Smp Id: BHI0307-BS2
Inj Date : 11-SEP-2019 11:18
Operator : PKC Inst ID: nt3.i
Smp Info : BHI0307-BS2
Misc Info : 15-
Comment :
Method : \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Meth Date : 12-Sep-2019 10:46 nt3.i Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35 Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.047	5.047	(0.933)	22336	4.89272	4.893
* 32 Pentafluorobenzene	168	5.409	5.408	(1.000)	105579	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.435	5.435	(1.005)	26001	5.11211	5.112
* 37 1,4-Difluorobenzene	114	5.786	5.786	(1.000)	153871	10.0000	
$ 43 d8-Toluene	98	6.738	6.737	(1.164)	96542	5.18638	5.186
* 53 d5-Chlorobenzene	117	7.811	7.816	(1.000)	157349	10.0000	
$ 62 4-Bromofluorobenzene	174	8.678	8.677	(1.111)	36629	4.89895	4.899
* 76 d4-1,4-Dichlorobenzene	152	9.496	9.496	(1.000)	99051	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.820	9.820	(1.034)	47196	5.07114	5.071

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309111906GLCS.D
Lab Smp Id: BHI0307-BS2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 11-SEP-2019
Calibration Time: 22:35
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	105579	8.96
37 1,4-Difluorobenze	140121	70061	280242	153871	9.81
53 d5-Chlorobenzene	140128	70064	280256	157349	12.29
76 d4-1,4-Dichlorobe	90137	45069	180274	99051	9.89

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.01
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.01
53 d5-Chlorobenzene	7.82	7.32	8.32	7.81	-0.06
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

Report Date: 12-Sep-2019 12:45

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: BHI0307-BS2
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.893	97.85	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.112	102.24	80-128
$ 43 d8-Toluene	5.000	5.186	103.73	80-120
$ 62 4-Bromofluorobenze	5.000	4.899	97.98	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.071	101.42	80-120

REVIEW SUMMARY FOR FILE - V309111906GLCS.D

Lab ID: BHI0307-BS2
nt3.i, 20190911s.b\8260C090219.m,   11-SEP-2019 11:18

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190911g.b\V309111906GLCS.D

Date : 11-SEP-2019 11:18

Client ID:

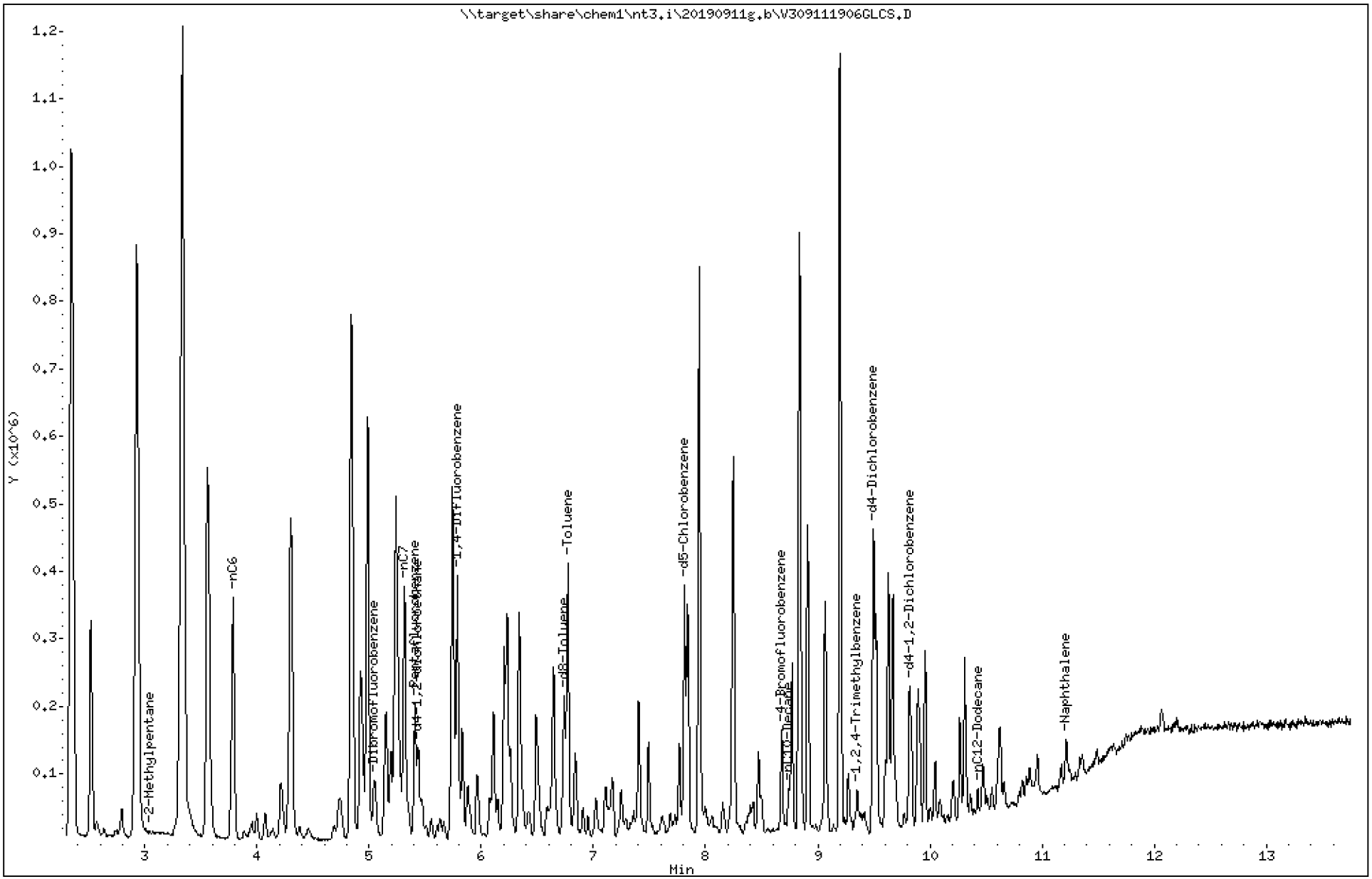
Instrument: nt3.i

Sample Info: BHI0307-BS2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V309111906GLCS.D
Method: \20190911g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 11-SEP-2019 11:18

ARI ID: BHI0307-BS2
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.67 to 10.53)	15876360	14890833	0.938
8015C 2MP-TMB	(2.93 to 9.46)	32687243	26685257	0.816 M
AK101 nC6-nC10	(3.68 to 8.64)	19977596	19361894	0.969 M
NWTPHG Tol-Nap	(6.67 to 11.32)	17259421	15955093	0.924 M
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	22050640	0.959 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

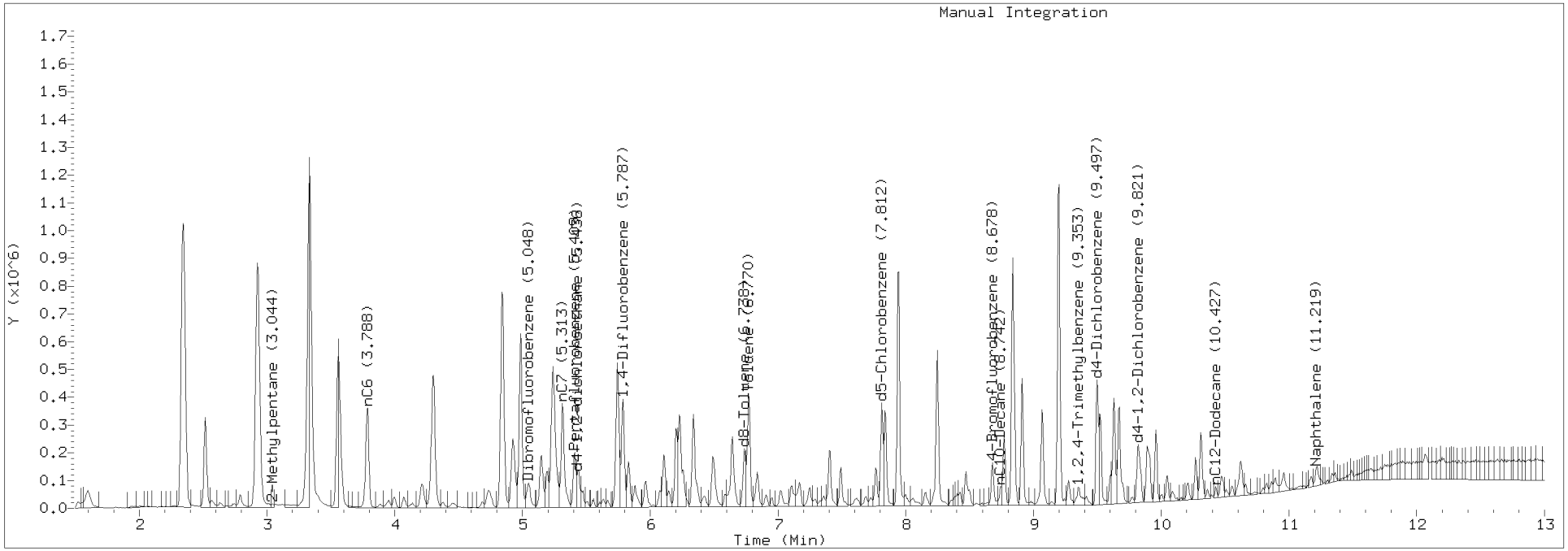
NW Gas Range Subtracted Peaks

7.812	545035	d5-Chlorobenzene
6.738	319111	d8-Toluene
9.497	650333	d4-Dichlorobenzene
8.678	229879	4-Bromofluorobenzene
9.821	418210	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20190911g.b/V309111906GLCS.D Injection: 11-SEP-2019 11:18

Lab ID:BHI0307-BS2



Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

Volatile Organic Compounds - Quality Control

Batch BHI0307 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BHI0307-BSD1)					Prepared: 11-Sep-2019 Analyzed: 11-Sep-2019 10:51						
Benzene	9.59	0.03	0.20	ug/L	10.0		95.9	80-120	2.16	30	
Toluene	10.2	0.04	0.20	ug/L	10.0		102	80-120	5.40	30	
Ethylbenzene	9.76	0.04	0.20	ug/L	10.0		97.6	80-120	1.92	30	
m,p-Xylene	19.6	0.05	0.40	ug/L	20.0		97.8	80-121	1.18	30	
o-Xylene	9.64	0.03	0.20	ug/L	10.0		96.4	80-121	1.37	30	
Surrogate: Toluene-d8	5.04			ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.95			ug/L	*5.00*		*99.0*	*80-120*			

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

Volatile Organic Compounds - Quality Control

Batch BHI0307 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BHI0307-BSD2)				Prepared: 11-Sep-2019 Analyzed: 11-Sep-2019 11:44						
Gasoline Range Organics (Tol-Nap)	952	100	ug/L	1000		95.2	72-128	2.91	30	
Surrogate: Toluene-d8	5.07		ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.95		ug/L	*5.00*		*99.1*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20190911s.b\V309111907G.D

Date : 11-SEP-2019 11:44

Client ID:

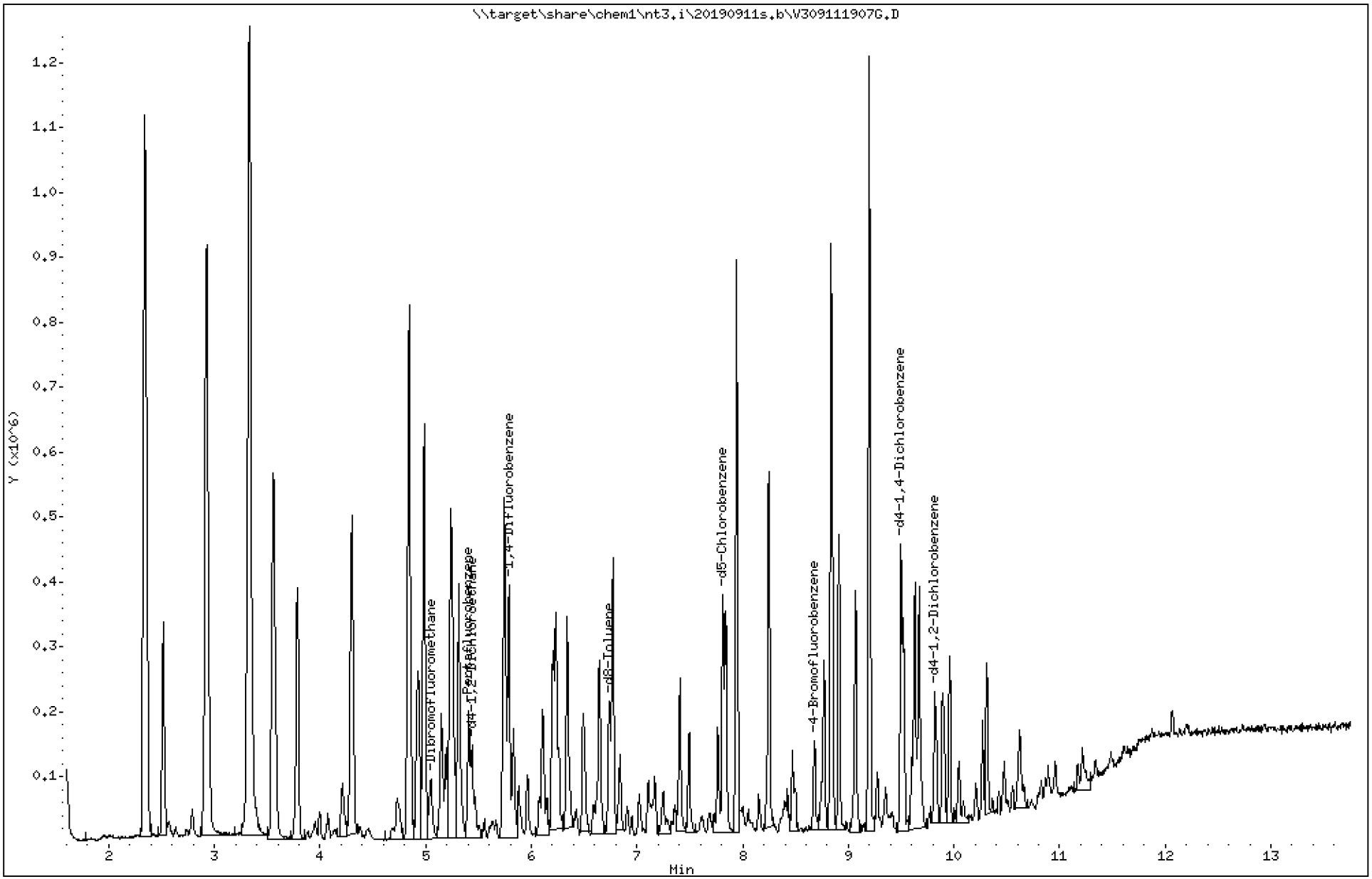
Instrument: nt3.i

Sample Info: BHI0307-BSD2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20190911s.b\V309111907G.D
Lab Smp Id: BHI0307-BSD2
Inj Date : 11-SEP-2019 11:44
Operator : PKC   Inst ID: nt3.i
Smp Info : BHI0307-BSD2
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Meth Date : 12-Sep-2019 10:46 nt3.i   Quant Type: ISTD
Cal Date : 04-SEP-2019 20:35   Cal File: V309041912.D
Als bottle: 55
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	5.048	5.047	(0.933)	22906	5.10033	5.100
* 32 Pentafluorobenzene	168	5.410	5.408	(1.000)	103866	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.436	5.435	(1.005)	28223	5.64050	5.641
* 37 1,4-Difluorobenzene	114	5.787	5.786	(1.000)	153968	10.0000	
$ 43 d8-Toluene	98	6.739	6.737	(1.164)	94342	5.06500	5.065
* 53 d5-Chlorobenzene	117	7.812	7.816	(1.000)	159459	10.0000	
$ 62 4-Bromofluorobenzene	174	8.679	8.677	(1.111)	37536	4.95382	4.954
* 76 d4-1,4-Dichlorobenzene	152	9.497	9.496	(1.000)	100853	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.816	9.820	(1.034)	47088	4.96913	4.969

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V309111907G.D
Lab Smp Id: BHI0307-BSD2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 15-

Calibration Date: 11-SEP-2019
Calibration Time: 22:35
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	96897	48449	193794	103866	7.19
37 1,4-Difluorobenze	140121	70061	280242	153968	9.88
53 d5-Chlorobenzene	140128	70064	280256	159459	13.80
76 d4-1,4-Dichlorobe	90137	45069	180274	100853	11.89

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.03
37 1,4-Difluorobenze	5.79	5.29	6.29	5.79	0.03
53 d5-Chlorobenzene	7.82	7.32	8.32	7.81	-0.05
76 d4-1,4-Dichlorobe	9.50	9.00	10.00	9.50	0.02

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: BHI0307-BSD2
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20190911s.b\8260C090219.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.100	102.01	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.641	112.81	80-128
$ 43 d8-Toluene	5.000	5.065	101.30	80-120
$ 62 4-Bromofluorobenze	5.000	4.954	99.08	80-120
$ 79 d4-1,2-Dichloroben	5.000	4.969	99.38	80-120

REVIEW SUMMARY FOR FILE - V309111907G.D

Lab ID: BHI0307-BSD2
nt3.i, 20190911s.b\8260C090219.m,   11-SEP-2019 11:44

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20190911g.b\V309111907G.D

Page 1

Date : 11-SEP-2019 11:44

Client ID:

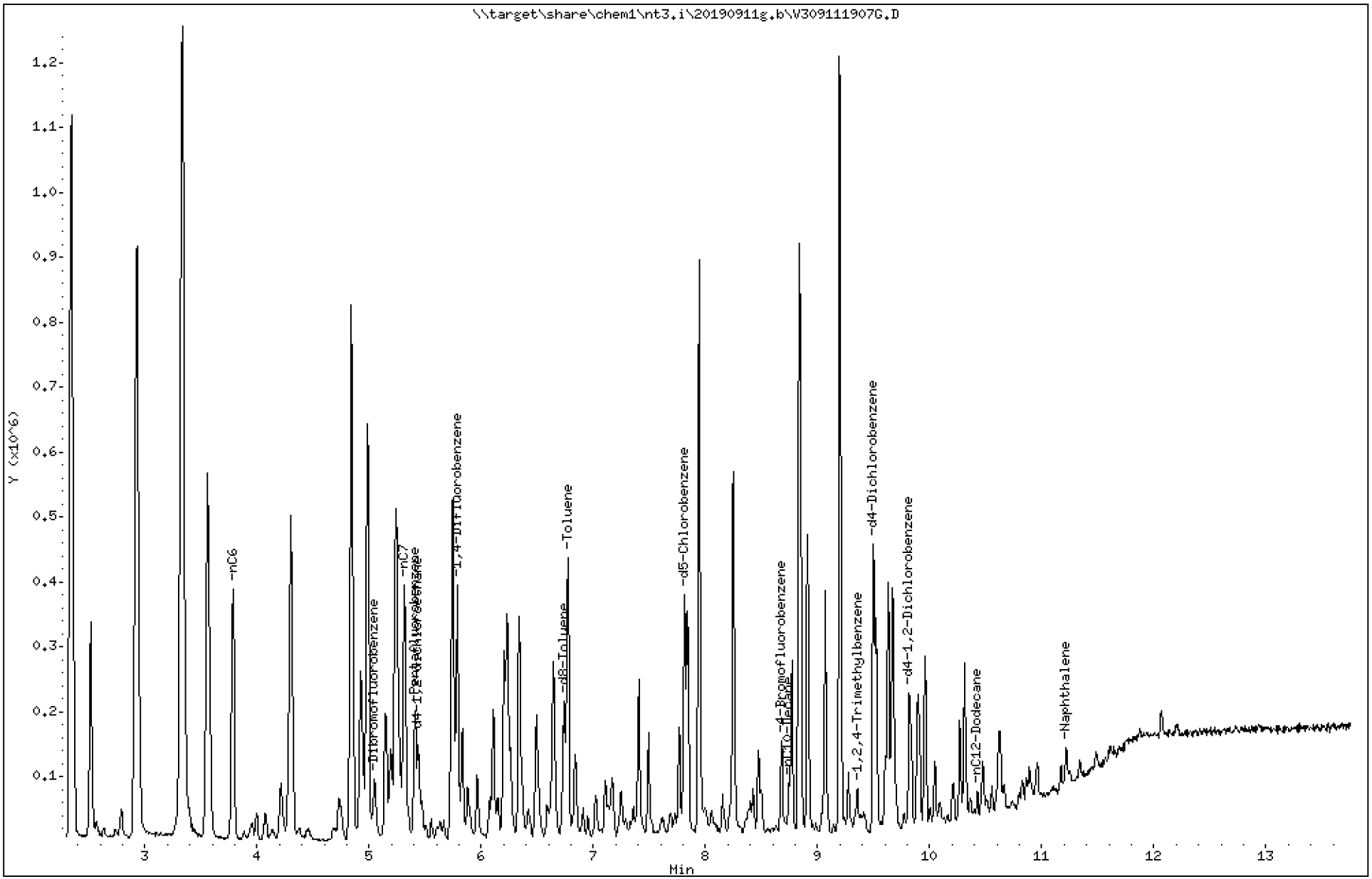
Instrument: nt3.i

Sample Info: BHI0307-BSD2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20190911g.b/V309111907G.D
Method: \20190911g.b\NWTPHG090419.m
Instrument: nt3.i
Gas Ical Date: 04-SEP-2019
Injection Date: 11-SEP-2019 11:44

ARI ID: BHI0307-BSD2
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.67 to 10.53)	15876360	15314336	0.965	M
8015C 2MP-TMB	(2.93 to 9.46)	32687243	29803789	0.912	M
AK101 nC6-nC10	(3.68 to 8.64)	19977596	20082835	1.005	M
NWTPHG Tol-Nap	(6.67 to 11.32)	17259421	16426180	0.952	M
mod8015 nC7-nC12	(5.24 to 10.53)	22982624	22735253	0.989	M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

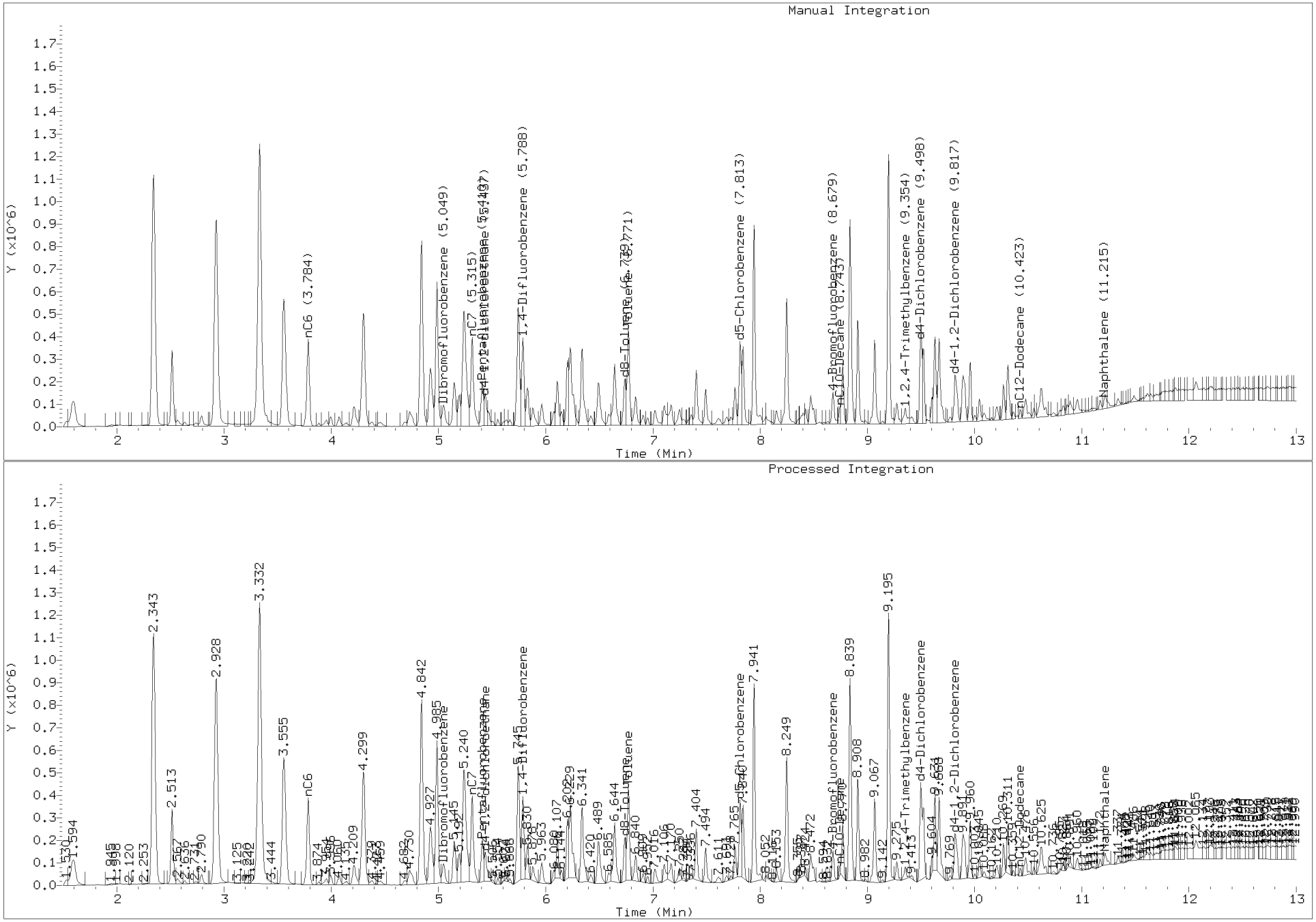
NW Gas Range Subtracted Peaks

7.813	579047	d5-Chlorobenzene
6.739	336321	d8-Toluene
9.498	672946	d4-Dichlorobenzene
8.679	228755	4-Bromofluorobenzene
9.817	420771	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20190911g.b/V309111907G.D Injection: 11-SEP-2019 11:44

Lab ID:BHI0307-BSD2



Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

Certified Analyses included in this Report

Analyte	Certifications
EPA 8260C in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Hexane	WADOE

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

2-Pentanone	WADOE

NWTPHg in Water

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2020
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	24-Sep-2019 15:53

Notes and Definitions

U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
J	Estimated concentration value detected below the reporting limit.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
*	Flagged value is not within established control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

30 December 2019

Dave Cooper
Dalton, Olmsted & Fuglevand, Inc
1420 - 156th Ave., NE STE C1
Bellevue, WA 98007

RE: USOR POT RD

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
19L0288	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, Inc.



Amanda Volgardsen, Project Manager

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ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006

PJLA Testing
Accreditation # 66169

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: 19L0288	Turn-around Requested: NORMAL	Page: 1 of 2	
ARI Client Company: DOF	Phone: 206 660 3466	Date: 12/17/19	Ice Present?
Client Contact: DAVID COOPER / ANTHONY CERRUTI		No. of Coolers: 1	Cooler Temps: 1.3
Client Project Name: PORT OF TACOMA RD			
Client Project #: USO-23	Samplers: A. CERRUTI		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: TPH-Gx & BTEX	Notes/Comments
MW-R1	12/16/19	1620	WATER	5-40mL	X	
MW-R2	12/16/19	1715	WATER	5-40mL	X	
MW-R3	12/16/19	1640	WATER	5-40mL	X	
MW-R4	12/16/19	1800	WATER	5-40mL	X	
MW-5S	12/16/19	1550	WATER	5-40mL	X	
TRIP BLANK				2-40mL	X	

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: ANTHONY CERRUTI	Printed Name: Erin Sallee	Printed Name:	Printed Name:
	Company: DOF	Company: ARI	Company:	Company:
	Date & Time: 12/17/19 0800	Date & Time: 12/17/19 0800	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-R1	19L0288-01	Water	16-Dec-2019 16:20	17-Dec-2019 08:00
MW-R2	19L0288-02	Water	16-Dec-2019 17:15	17-Dec-2019 08:00
MW-R3	19L0288-03	Water	16-Dec-2019 16:40	17-Dec-2019 08:00
MW-R4	19L0288-04	Water	16-Dec-2019 18:00	17-Dec-2019 08:00
MW-R5s	19L0288-05	Water	16-Dec-2019 15:50	17-Dec-2019 08:00
Trip Blank	19L0288-06	Water	16-Dec-2019 15:50	17-Dec-2019 08:00

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

Case Narrative

Sample receipt

Samples as listed on the preceding page were received December 17, 2019 under ARI work order 19L0288. For details regarding sample receipt, please refer to the Cooler Receipt Form.

Gasoline by NWTPH-g (GC/MS)

The samples were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limits.

The LCS/LCSD percent recoveries and RPD were within control limits.

Volatiles - EPA Method SW8260C

The samples were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blanks were clean at the reporting limits.

The LCS/LCSD percent recoveries and RPD were within control limits.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: DOF

Project Name: Port of Tacoma Rd

COC No(s): _____ NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 19L0288

Tracking No: _____ NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler?	YES	NO
Were custody papers included with the cooler?	YES	NO
Were custody papers properly filled out (ink, signed, etc.)	YES	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

1.3

Time 0800

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: DOO520B

Cooler Accepted by: _____ Date: 12/17/19 Time: 0800

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	NO
What kind of packing material was used?	Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____		
Was sufficient ice used (if appropriate)?	NA	YES	NO
How were bottles sealed in plastic bags?	Individually	Grouped	Not
Did all bottles arrive in good condition (unbroken)?		YES	NO
Were all bottle labels complete and legible?		YES	NO
Did the number of containers listed on COC match with the number of containers received?		YES	NO
Did all bottle labels and tags agree with custody papers?		YES	NO
Were all bottles used correct for the requested analyses?		YES	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	YES	NO
Were all VOC vials free of air bubbles?	NA	YES	NO
Was sufficient amount of sample sent in each bottle?		YES	NO
Date VOC Trip Blank was made at ARI	NA	12/16/19	

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: JJ Date: 12/17/19 Time: 0939 Labels checked by: JJ

** ***Notify Project Manager of discrepancies or concerns*** **

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

MW-R1

19L0288-01 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/16/2019 16:20
Instrument: NT3 — Analyzed: 17-Dec-2019 17:52

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHL0477 — Sample Size: 10 mL
Prepared: 17-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*99.3*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.5*	*%*	

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

MW-R1

19L0288-01 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 12/16/2019 16:20
Instrument: NT3 — Analyzed: 17-Dec-2019 17:52

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHL0477 — Sample Size: 10 mL
Prepared: 17-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*99.3*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*96.5*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20191217s.b\W312171920G.D

Page 1

Date : 17-DEC-2019 17:52

Client ID:

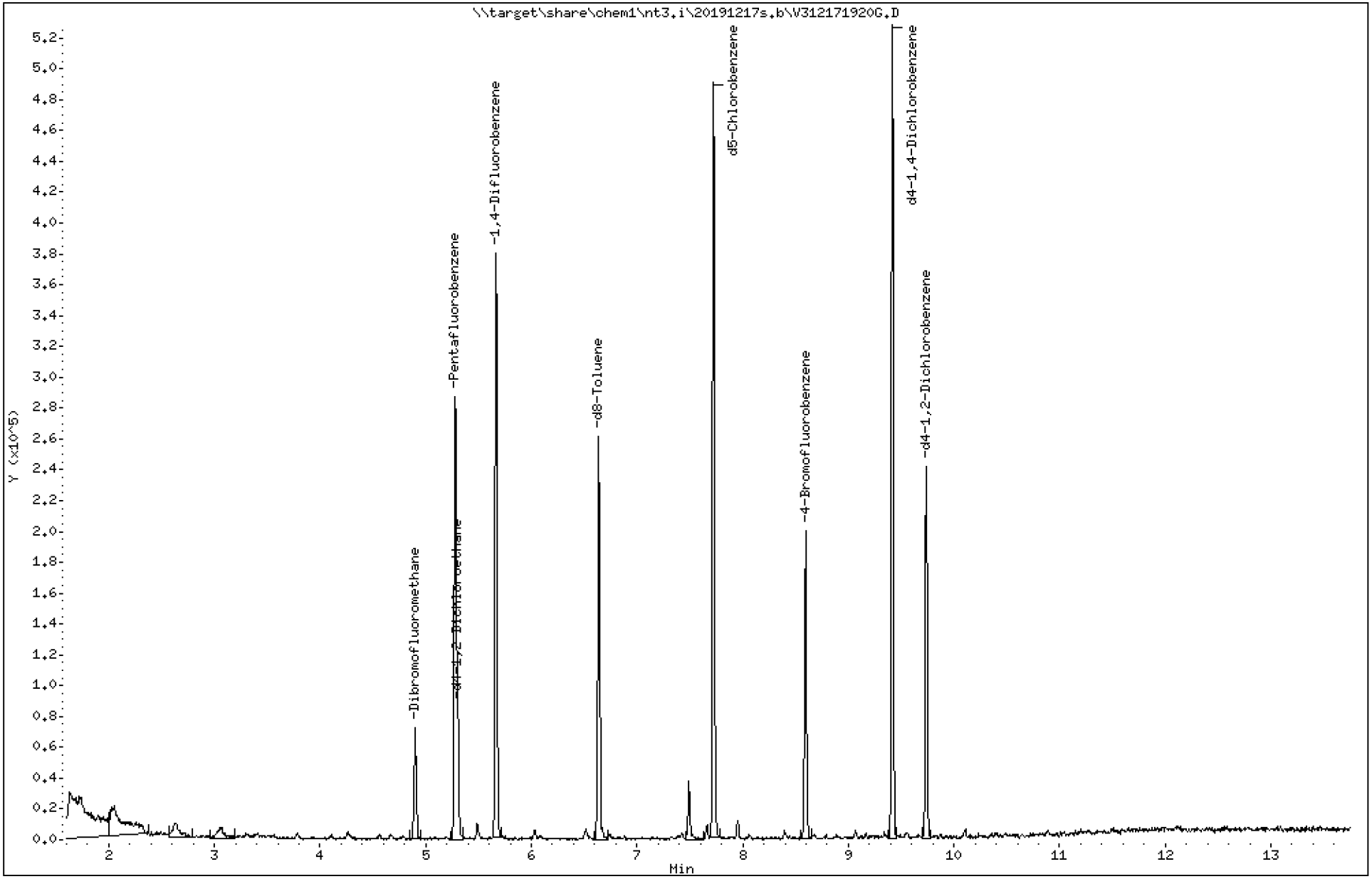
Instrument: nt3.i

Sample Info: 19L0288-01

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Page 8 of 123 19L0288 ARISample_WithFuelPDFs FINAL 30 Dec 2019 1401

ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20191217s.b\V312171920G.D
Lab Smp Id: 19L0288-01
Inj Date : 17-DEC-2019 17:52
Operator : PKC   Inst ID: nt3.i
Smp Info : 19L0288-01
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Meth Date : 18-Dec-2019 12:59 nt3.i   Quant Type: ISTD
Cal Date : 26-NOV-2019 18:46   Cal File: V311261918.D
Als bottle: 56
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.900	4.899	(0.928)	32743	4.84637	4.846(R)
* 32 Pentafluorobenzene	168	5.277	5.282	(1.000)	151007	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.304	5.303	(1.005)	42670	5.06455	5.065(R)
* 37 1,4-Difluorobenzene	114	5.665	5.665	(1.000)	226351	10.0000	
$ 43 d8-Toluene	98	6.638	6.637	(1.172)	130798	4.96689	4.967(R)
* 53 d5-Chlorobenzene	117	7.722	7.722	(1.000)	219902	10.0000	
$ 62 4-Bromofluorobenzene	174	8.594	8.593	(1.113)	45769	4.82559	4.826(R)
* 76 d4-1,4-Dichlorobenzene	152	9.418	9.417	(1.000)	111692	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.737	9.741	(1.034)	54730	5.27446	5.274(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V312171920G.D
Lab Smp Id: 19L0288-01
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Misc Info: 16-

Calibration Date: 17-DEC-2019
Calibration Time: 22:03
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166279	83140	332558	151007	-9.18
37 1,4-Difluorobenze	246302	123151	492604	226351	-8.10
53 d5-Chlorobenzene	233630	116815	467260	219902	-5.88
76 d4-1,4-Dichlorobe	121471	60736	242942	111692	-8.05

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.28	4.78	5.78	5.28	-0.09
37 1,4-Difluorobenze	5.67	5.17	6.17	5.67	0.01
53 d5-Chlorobenzene	7.72	7.22	8.22	7.72	0.01
76 d4-1,4-Dichlorobe	9.42	8.92	9.92	9.42	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19L0288-01
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.846	96.93	
$ 33 d4-1,2-Dichloroeth	5.000	5.065	101.29	
$ 43 d8-Toluene	5.000	4.967	99.34	
$ 62 4-Bromofluorobenze	5.000	4.826	96.51	
$ 79 d4-1,2-Dichloroben	5.000	5.274	105.49	

REVIEW SUMMARY FOR FILE - V312171920G.D

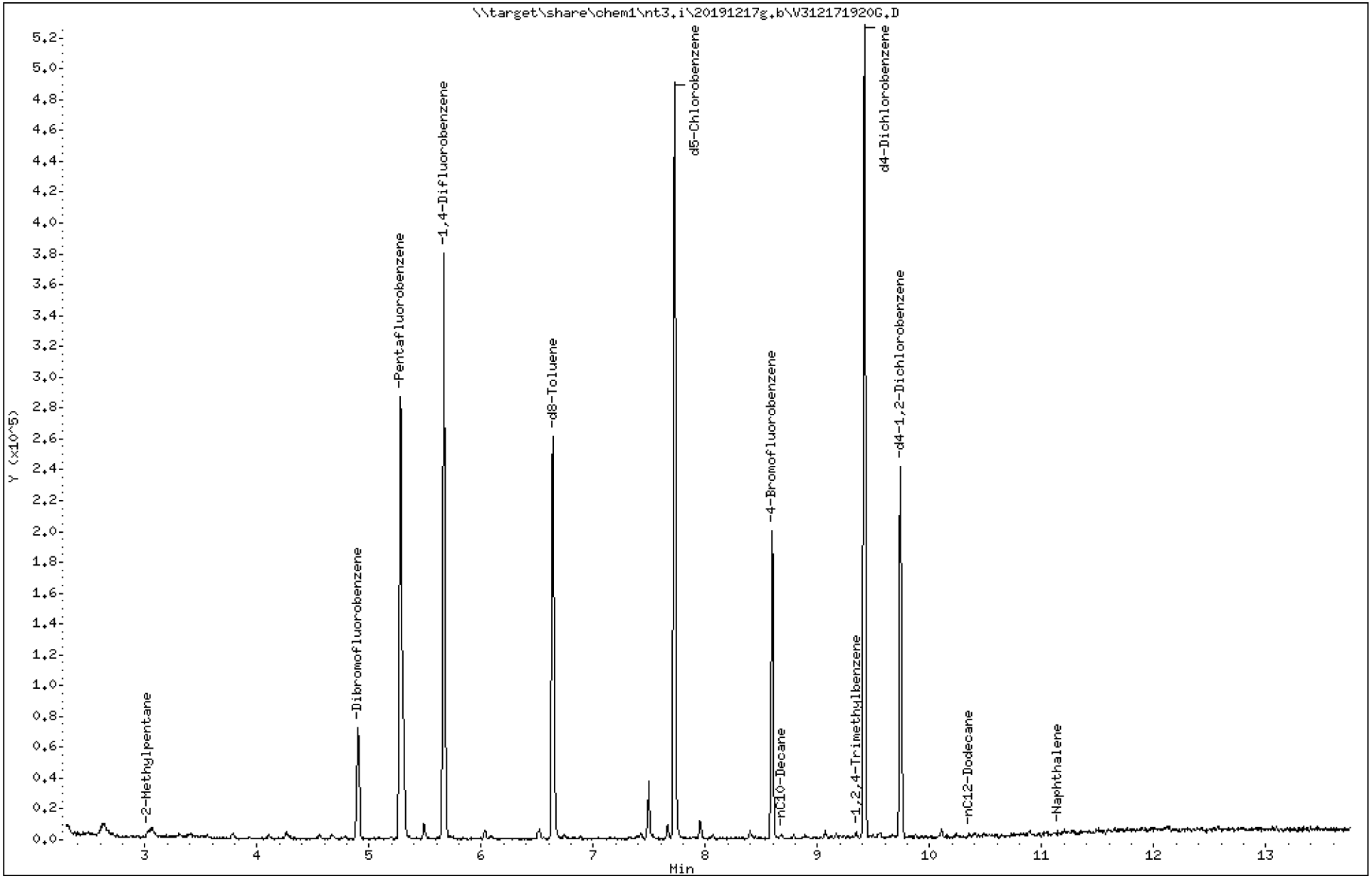
Lab ID: 19L0288-01
nt3.i, 20191217s.b\8260C112619.m,   17-DEC-2019 17:52

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20191217g.b\W312171920G.D
Date : 17-DEC-2019 17:52
Client ID:
Sample Info: 19L0288-01

Instrument: nt3.i
Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20191217g.b/V312171920G.D
Method: \20191217g.b\NWTPHG120419.m
Instrument: nt3.i
Gas Ical Date: 04-DEC-2019
Injection Date: 17-DEC-2019 17:52

ARI ID: 19L0288-01
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.58 to 10.46)	21714890	174387	0.008
8015C 2MP-TMB	(2.88 to 9.41)	48023951	198962	0.004
AK101 nC6-nC10	(3.45 to 8.57)	34280429	159044	0.005
NWTPHG Tol-Nap	(6.58 to 11.25)	22631510	196431	0.009
mod8015 nC7-nC12	(5.09 to 10.46)	35103448	209997	0.006

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.723	671073	d5-Chlorobenzene
6.638	372956	d8-Toluene
9.418	694486	d4-Dichlorobenzene
8.594	260676	4-Bromofluorobenzene
9.737	326967	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

MW-R2

19L0288-02 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/16/2019 17:15
Instrument: NT3 — Analyzed: 17-Dec-2019 18:20

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHL0477 — Sample Size: 10 mL
Prepared: 17-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	**77.5**	ug/L	
Toluene	108-88-3	1	0.04	0.20	**1.42**	ug/L	
Ethylbenzene	100-41-4	1	0.04	0.20	**1.79**	ug/L	
m,p-Xylene	179601-23-1	1	0.05	0.40	**1.27**	ug/L	
o-Xylene	95-47-6	1	0.03	0.20	**0.51**	ug/L	
Surrogate: Toluene-d8				*80-120 %*	*102*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*99.6*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

MW-R2

19L0288-02 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 12/16/2019 17:15
Instrument: NT3 — Analyzed: 17-Dec-2019 18:20

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHL0477 — Sample Size: 10 mL
Prepared: 17-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	**1740**	ug/L	
HC ID: GAS						
Surrogate: Toluene-d8			*80-120 %*	*102*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*99.6*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20191217s.b\V312171921G.D

Page 1

Date : 17-DEC-2019 18:20

Client ID:

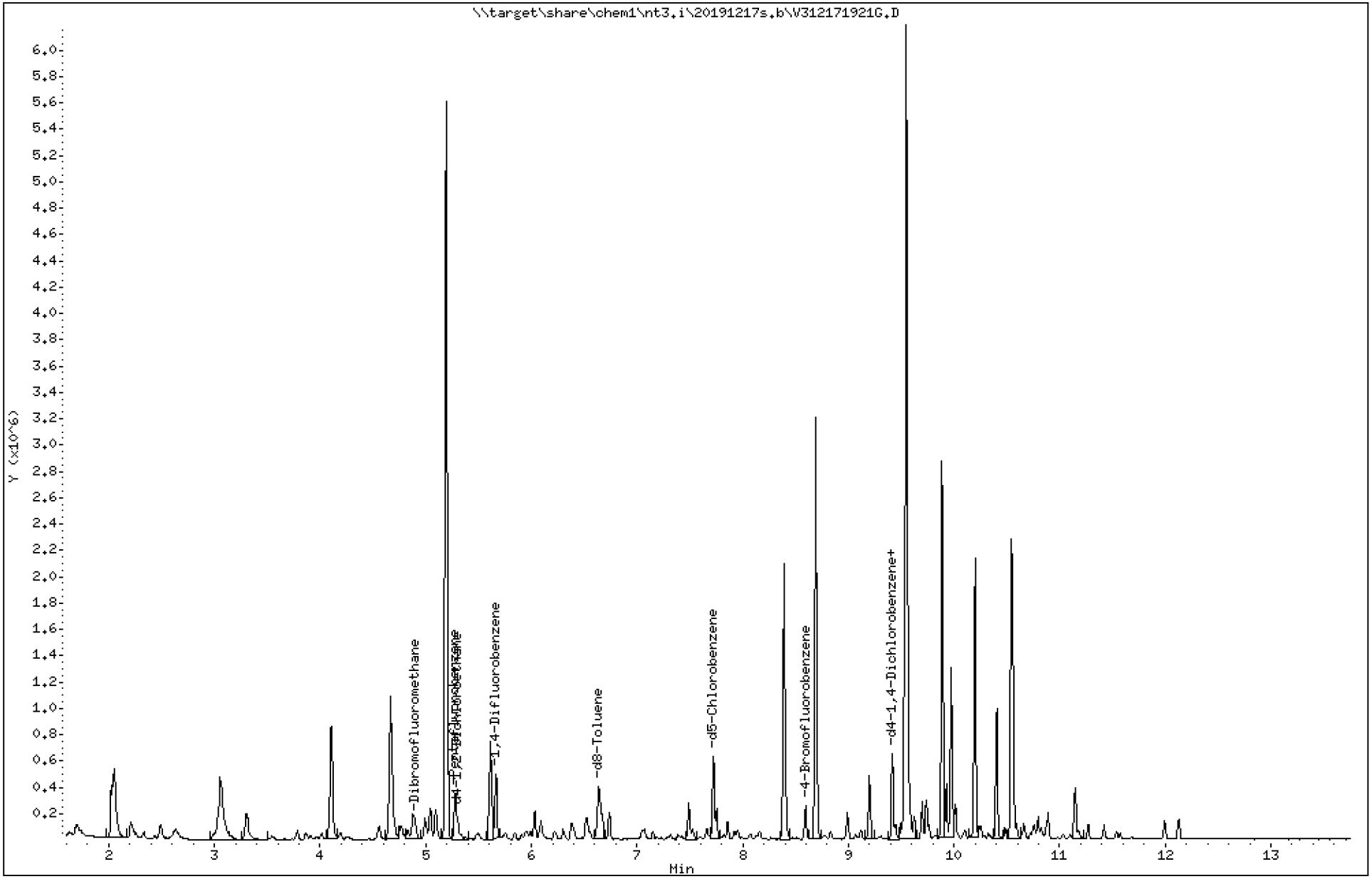
Instrument: nt3.i

Sample Info: 19L0288-02

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20191217s.b\V312171921G.D
Lab Smp Id: 19L0288-02
Inj Date : 17-DEC-2019 18:20
Operator : PKC   Inst ID: nt3.i
Smp Info : 19L0288-02
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Meth Date : 18-Dec-2019 12:59 nt3.i   Quant Type: ISTD
Cal Date : 26-NOV-2019 18:46   Cal File: V311261918.D
Als bottle: 57
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.899	4.899	(0.928)	37941	4.60338	4.603(R)
* 32 Pentafluorobenzene	168	5.282	5.282	(1.000)	184216	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.303	5.303	(1.004)	51819	5.04169	5.042(R)
* 37 1,4-Difluorobenzene	114	5.665	5.665	(1.000)	279492	10.0000	
$ 43 d8-Toluene	98	6.637	6.637	(1.172)	165465	5.08865	5.089(R)
* 53 d5-Chlorobenzene	117	7.722	7.722	(1.000)	268721	10.0000	
$ 62 4-Bromofluorobenzene	174	8.593	8.593	(1.113)	57691	4.97754	4.978(R)
* 76 d4-1,4-Dichlorobenzene	152	9.417	9.417	(1.000)	140584	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.417	9.741	(1.000)	140356	10.7466	10.747(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V312171921G.D
Lab Smp Id: 19L0288-02
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Misc Info: 16-

Calibration Date: 17-DEC-2019
Calibration Time: 22:03
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166279	83140	332558	184216	10.79
37 1,4-Difluorobenze	246302	123151	492604	279492	13.48
53 d5-Chlorobenzene	233630	116815	467260	268721	15.02
76 d4-1,4-Dichlorobe	121471	60736	242942	140584	15.73

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.28	4.78	5.78	5.28	0.00
37 1,4-Difluorobenze	5.67	5.17	6.17	5.67	0.00
53 d5-Chlorobenzene	7.72	7.22	8.22	7.72	0.00
76 d4-1,4-Dichlorobe	9.42	8.92	9.92	9.42	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19L0288-02
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.603	92.07	
$ 33 d4-1,2-Dichloroeth	5.000	5.042	100.83	
$ 43 d8-Toluene	5.000	5.089	101.77	
$ 62 4-Bromofluorobenze	5.000	4.978	99.55	
$ 79 d4-1,2-Dichloroben	5.000	10.747	214.93	

REVIEW SUMMARY FOR FILE - V312171921G.D

Lab ID: 19L0288-02
nt3.i, 20191217s.b\8260C112619.m,   17-DEC-2019 18:20

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20191217g.b\V312171921G.D

Page 1

Date : 17-DEC-2019 18:20

Client ID:

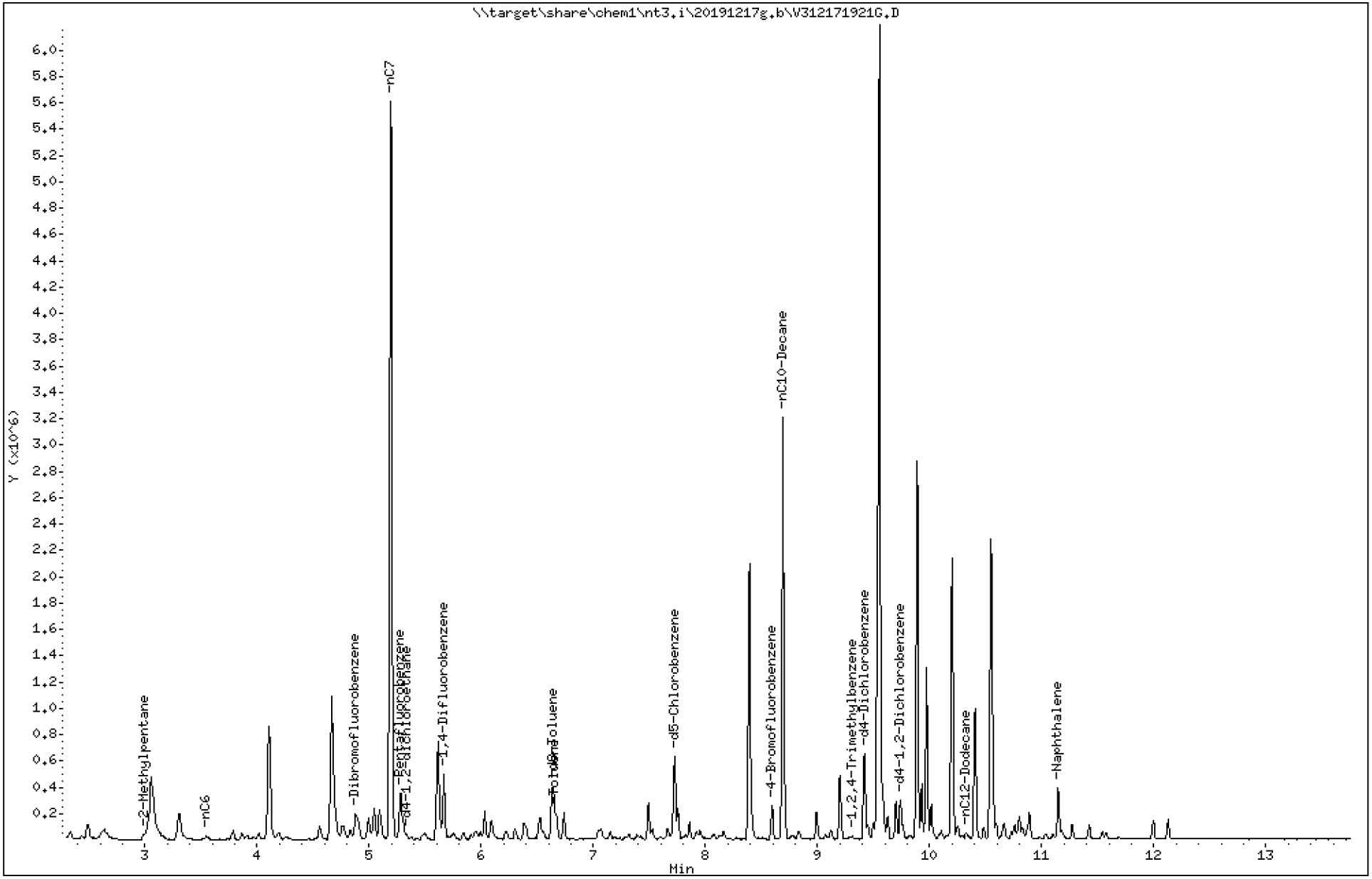
Instrument: nt3.i

Sample Info: 19L0288-02

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20191217g.b/V312171921G.D
Method: \20191217g.b\NWTPHG120419.m
Instrument: nt3.i
Gas Ical Date: 04-DEC-2019
Injection Date: 17-DEC-2019 18:20
ARI ID: 19L0288-02
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.58 to 10.46)	21714890	33163069	1.527 M
8015C 2MP-TMB	(2.88 to 9.41)	48023951	32674904	0.680 M
AK101 nC6-nC10	(3.45 to 8.57)	34280429	24918988	0.727 M
NWTPHG Tol-Nap	(6.58 to 11.25)	22631510	39274572	1.735 M
mod8015 nC7-nC12	(5.09 to 10.46)	35103448	45805076	1.305 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

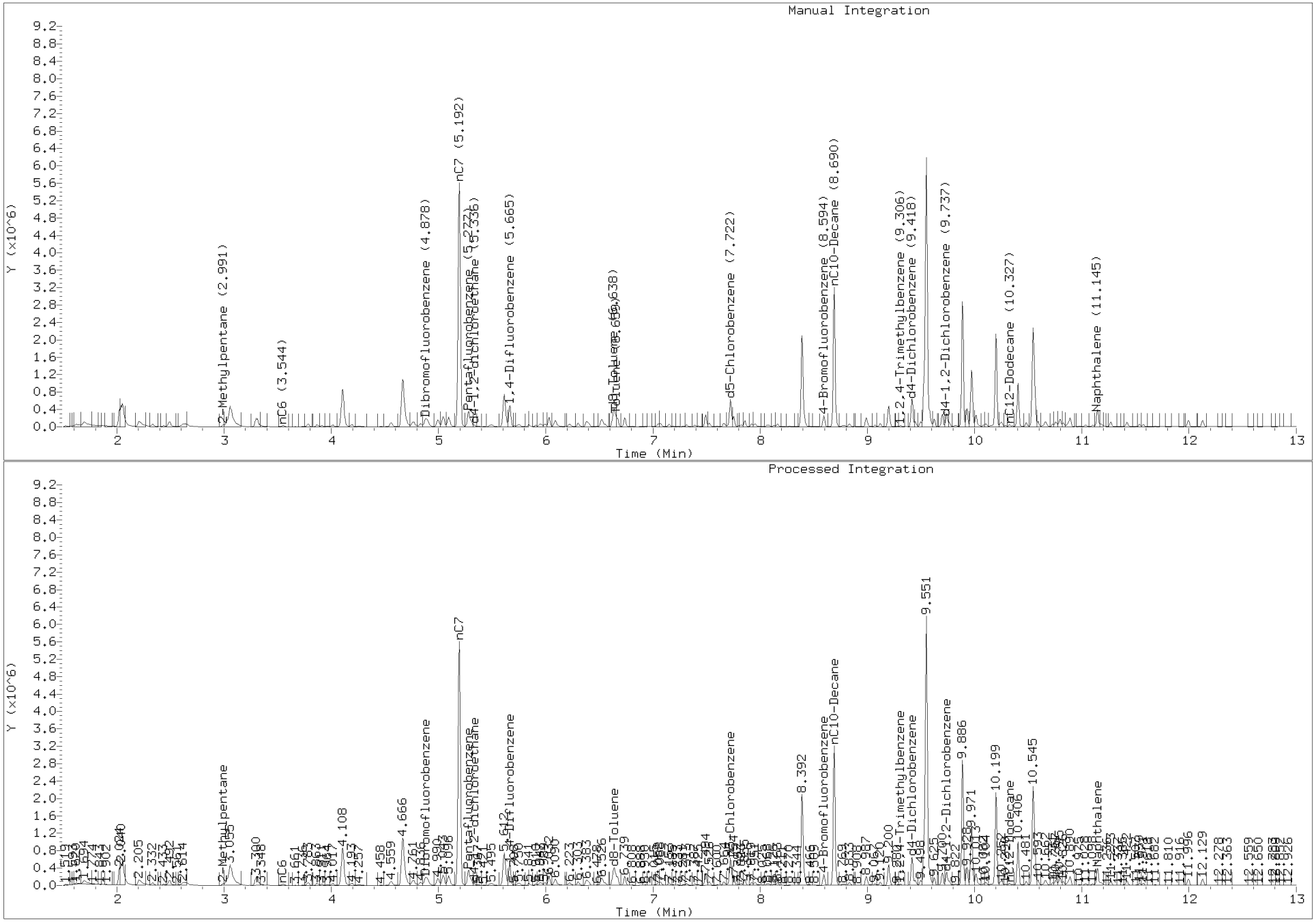
NW Gas Range Subtracted Peaks

7.722	906042	d5-Chlorobenzene
6.638	849700	d8-Toluene
9.418	879865	d4-Dichlorobenzene
8.594	343546	4-Bromofluorobenzene
9.737	443081	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20191217g.b/V312171921G.D Injection: 17-DEC-2019 18:20

Lab ID:19L0288-02



Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

MW-R3

19L0288-03 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/16/2019 16:40
Instrument: NT3 — Analyzed: 17-Dec-2019 18:48

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHL0477 — Sample Size: 10 mL
Prepared: 17-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	**0.29**	ug/L	
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	**0.04**	ug/L	J
Surrogate: Toluene-d8				*80-120 %*	*105*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*99.9*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

MW-R3

19L0288-03 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 12/16/2019 16:40
Instrument: NT3 — Analyzed: 17-Dec-2019 18:48

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHL0477 — Sample Size: 10 mL
Prepared: 17-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	**227**	ug/L	
HC ID: GAS						
Surrogate: Toluene-d8			*80-120 %*	*105*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*99.9*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20191217s.b\V3121922G.D

Page 1

Date : 17-DEC-2019 18:48

Client ID:

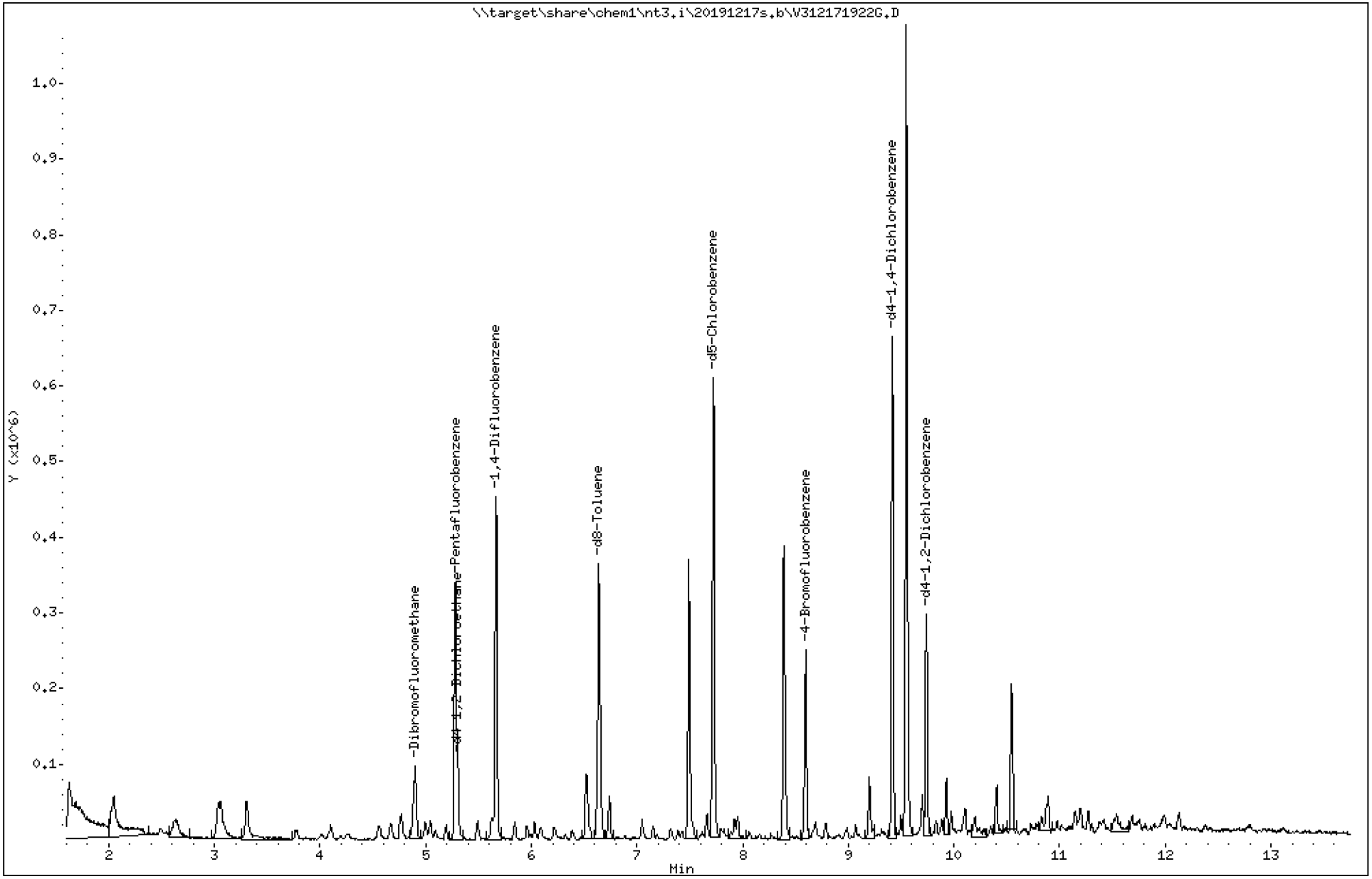
Instrument: nt3.i

Sample Info: 19L0288-03

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20191217s.b\V312171922G.D
Lab Smp Id: 19L0288-03
Inj Date : 17-DEC-2019 18:48
Operator : PKC   Inst ID: nt3.i
Smp Info : 19L0288-03
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Meth Date : 18-Dec-2019 12:59 nt3.i   Quant Type: ISTD
Cal Date : 26-NOV-2019 18:46   Cal File: V311261918.D
Als bottle: 58
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.899	4.899	(0.928)	38323	4.76300	4.763(R)
* 32 Pentafluorobenzene	168	5.282	5.282	(1.000)	179835	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.303	5.303	(1.004)	48556	4.83931	4.839(R)
* 37 1,4-Difluorobenzene	114	5.664	5.665	(1.000)	264178	10.0000	
$ 43 d8-Toluene	98	6.637	6.637	(1.172)	161330	5.24909	5.249(R)
* 53 d5-Chlorobenzene	117	7.721	7.722	(1.000)	268460	10.0000	
$ 62 4-Bromofluorobenzene	174	8.598	8.593	(1.114)	57846	4.99576	4.996(R)
* 76 d4-1,4-Dichlorobenzene	152	9.417	9.417	(1.000)	141066	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.741	9.741	(1.034)	67124	5.12189	5.122(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V312171922G.D
Lab Smp Id: 19L0288-03
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Misc Info: 16-

Calibration Date: 17-DEC-2019
Calibration Time: 22:03
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166279	83140	332558	179835	8.15
37 1,4-Difluorobenze	246302	123151	492604	264178	7.26
53 d5-Chlorobenzene	233630	116815	467260	268460	14.91
76 d4-1,4-Dichlorobe	121471	60736	242942	141066	16.13

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.28	4.78	5.78	5.28	-0.00
37 1,4-Difluorobenze	5.67	5.17	6.17	5.66	-0.00
53 d5-Chlorobenzene	7.72	7.22	8.22	7.72	-0.00
76 d4-1,4-Dichlorobe	9.42	8.92	9.92	9.42	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930a
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19L0288-03
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.763	95.26	
$ 33 d4-1,2-Dichloroeth	5.000	4.839	96.79	
$ 43 d8-Toluene	5.000	5.249	104.98	
$ 62 4-Bromofluorobenze	5.000	4.996	99.92	
$ 79 d4-1,2-Dichloroben	5.000	5.122	102.44	

REVIEW SUMMARY FOR FILE - V312171922G.D

Lab ID: 19L0288-03
nt3.i, 20191217s.b\8260C112619.m,   17-DEC-2019 18:48

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20191217g.b\V3121719226.D

Page 1

Date : 17-DEC-2019 18:48

Client ID:

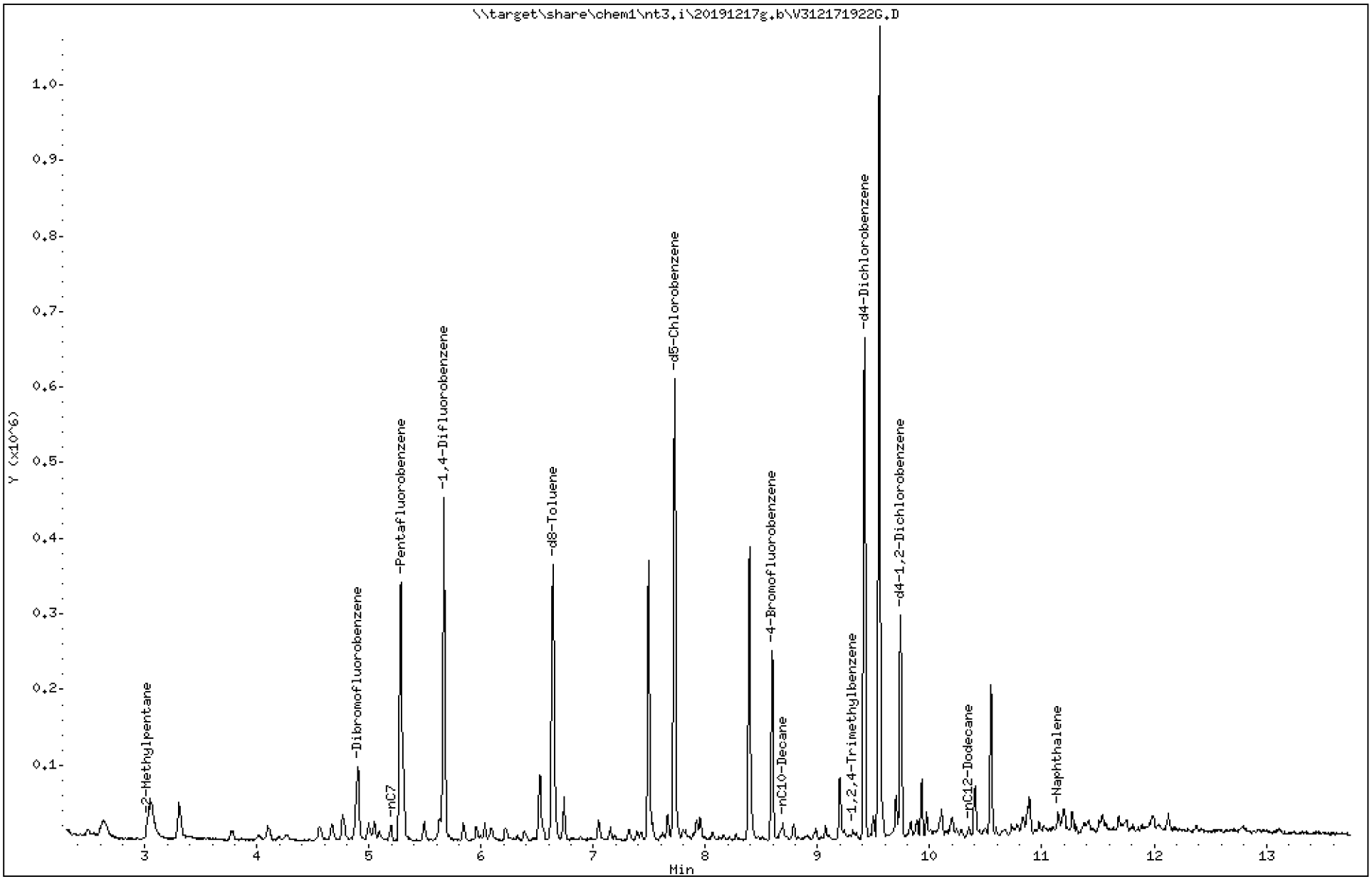
Instrument: nt3.i

Sample Info: 19L0288-03

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20191217g.b/V312171922G.D
Method: \20191217g.b\NWTPHG120419.m
Instrument: nt3.i
Gas Ical Date: 04-DEC-2019
Injection Date: 17-DEC-2019 18:48
ARI ID: 19L0288-03
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.58 to 10.46)	21714890	4149555	0.191
8015C 2MP-TMB	(2.88 to 9.41)	48023951	3237682	0.067
AK101 nC6-nC10	(3.45 to 8.57)	34280429	2552775	0.074
NWTPHG Tol-Nap	(6.58 to 11.25)	22631510	5139551	0.227
mod8015 nC7-nC12	(5.09 to 10.46)	35103448	4656622	0.133

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

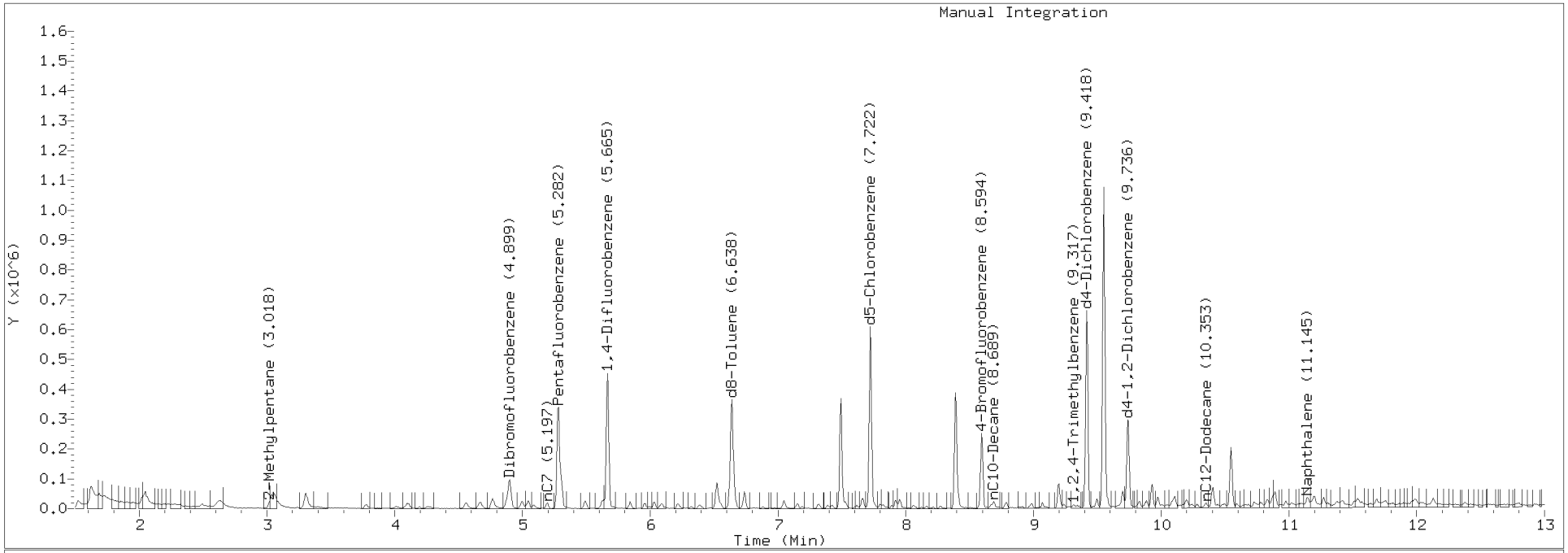
NW Gas Range Subtracted Peaks

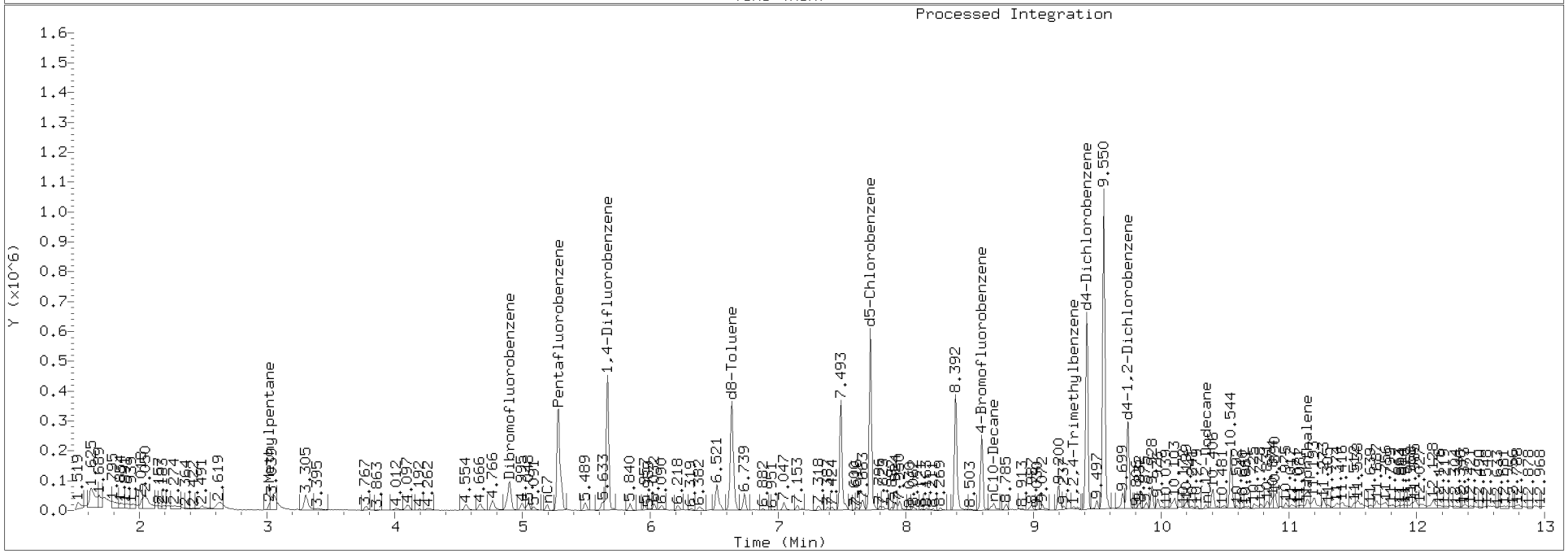
7.722	824112	d5-Chlorobenzene
6.638	631328	d8-Toluene
9.418	843007	d4-Dichlorobenzene
8.594	335646	4-Bromofluorobenzene
9.736	418820	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20191217g.b/V312171922G.D Injection: 17-DEC-2019 18:48

Lab ID:19L0288-03





Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

MW-R4

19L0288-04 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/16/2019 18:00
Instrument: NT3 — Analyzed: 18-Dec-2019 13:47

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHL0526 — Sample Size: 10 mL
Prepared: 18-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*99.6*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*96.6*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

MW-R4

19L0288-04 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 12/16/2019 18:00
Instrument: NT3 — Analyzed: 18-Dec-2019 13:47

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHL0526 — Sample Size: 10 mL
Prepared: 18-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*99.6*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*96.6*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20191218s.b\V312181911G.D

Date : 18-DEC-2019 13:47

Client ID:

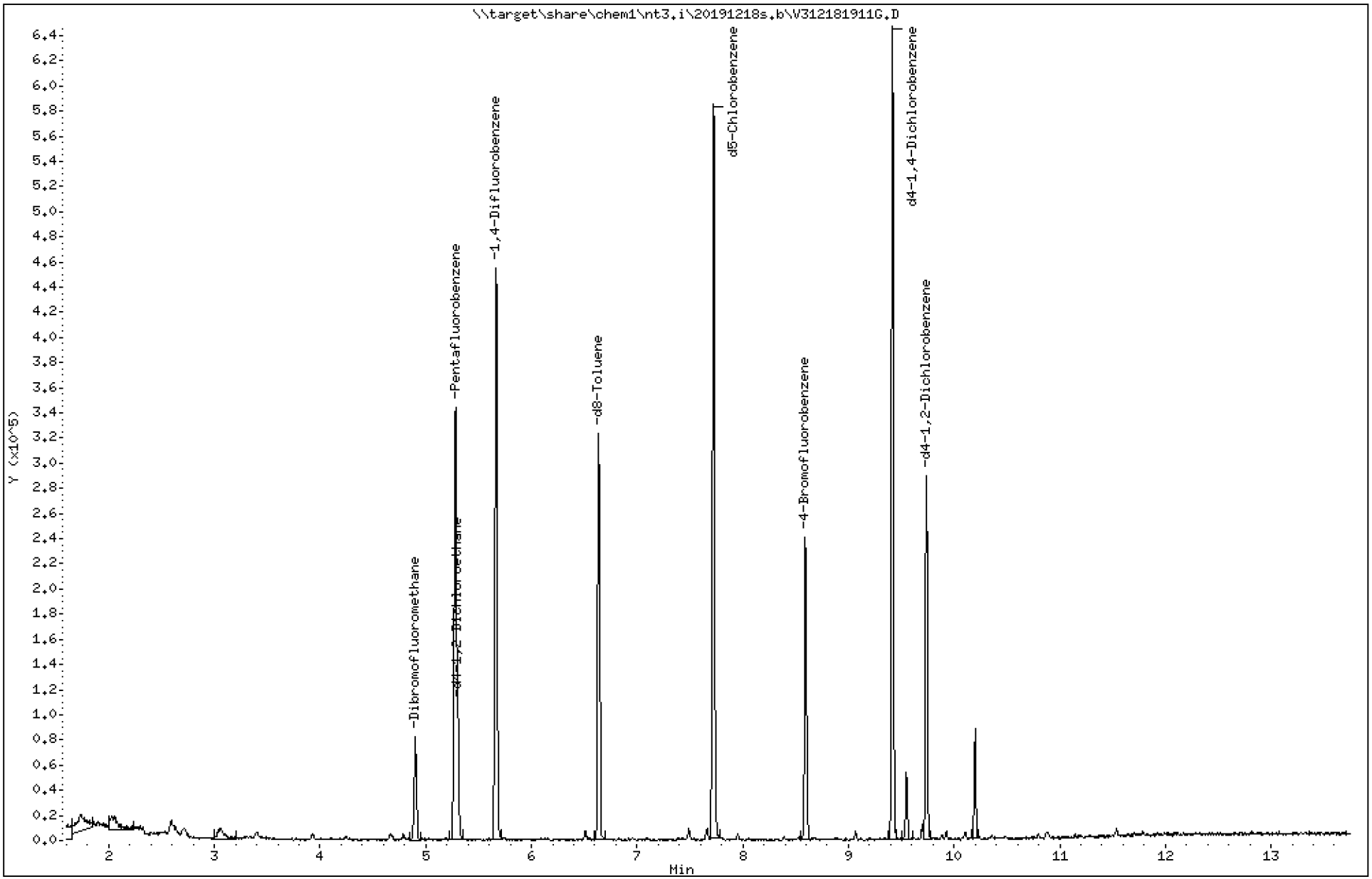
Instrument: nt3.i

Sample Info: 19L0288-04

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20191218s.b\V312181911G.D
Lab Smp Id: 19L0288-04
Inj Date : 18-DEC-2019 13:47
Operator : PKC   Inst ID: nt3.i
Smp Info : 19L0288-04
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20191218s.b\8260C112619.m
Meth Date : 19-Dec-2019 10:47 nt3.i   Quant Type: ISTD
Cal Date : 26-NOV-2019 18:46   Cal File: V311261918.D
Als bottle: 56
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.898	4.900	(0.928)	38378	4.73924	4.739(R)
* 32 Pentafluorobenzene	168	5.281	5.277	(1.000)	180996	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.302	5.303	(1.004)	51395	5.08940	5.089(R)
* 37 1,4-Difluorobenzene	114	5.664	5.665	(1.000)	272100	10.0000	
$ 43 d8-Toluene	98	6.636	6.638	(1.172)	157697	4.98150	4.982(R)
* 53 d5-Chlorobenzene	117	7.721	7.722	(1.000)	268220	10.0000	
$ 62 4-Bromofluorobenzene	174	8.592	8.594	(1.113)	55877	4.83003	4.830(R)
* 76 d4-1,4-Dichlorobenzene	152	9.416	9.418	(1.000)	137156	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.741	9.737	(1.034)	64923	5.09517	5.095(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V312181911G.D
Lab Smp Id: 19L0288-04
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20191218s.b\8260C112619.m
Misc Info: 16-

Calibration Date: 18-DEC-2019
Calibration Time: 22:09
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166279	83140	332558	180996	8.85
37 1,4-Difluorobenze	246302	123151	492604	272100	10.47
53 d5-Chlorobenzene	233630	116815	467260	268220	14.81
76 d4-1,4-Dichlorobe	121471	60736	242942	137156	12.91

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.28	4.78	5.78	5.28	0.07
37 1,4-Difluorobenze	5.67	5.17	6.17	5.66	-0.02
53 d5-Chlorobenzene	7.72	7.22	8.22	7.72	-0.02
76 d4-1,4-Dichlorobe	9.42	8.92	9.92	9.42	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930a
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19L0288-04
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20191218s.b\8260C112619.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.739	94.78	
$ 33 d4-1,2-Dichloroeth	5.000	5.089	101.79	
$ 43 d8-Toluene	5.000	4.982	99.63	
$ 62 4-Bromofluorobenze	5.000	4.830	96.60	
$ 79 d4-1,2-Dichloroben	5.000	5.095	101.90	

REVIEW SUMMARY FOR FILE - V312181911G.D

Lab ID: 19L0288-04
nt3.i, 20191218s.b\8260C112619.m,   18-DEC-2019 13:47

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20191218g.b\V312181911G.D

Date : 18-DEC-2019 13:47

Client ID:

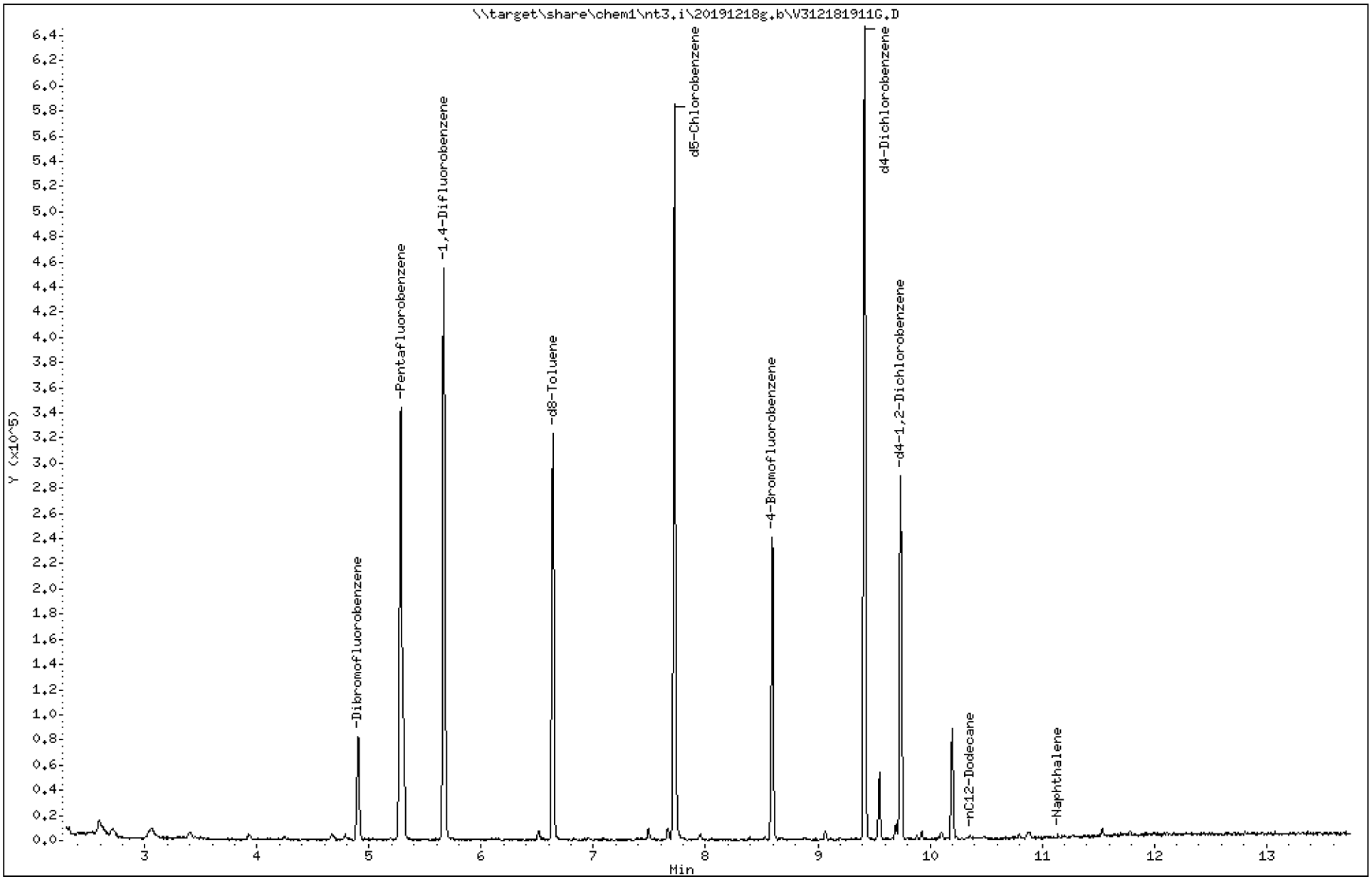
Instrument: nt3.i

Sample Info: 19L0288-04

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20191218g.b/V312181911G.D
Method: \20191218g.b\NWTPHG120419.m
Instrument: nt3.i
Gas Ical Date: 04-DEC-2019
Injection Date: 18-DEC-2019 13:47

ARI ID: 19L0288-04
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.57 to 10.46)	21714890	263459	0.012
8015C 2MP-TMB	(2.88 to 9.41)	48023951	117131	0.002
AK101 nC6-nC10	(3.45 to 8.57)	34280429	71892	0.002
NWTPHG Tol-Nap	(6.57 to 11.25)	22631510	278520	0.012
mod8015 nC7-nC12	(5.09 to 10.46)	35103448	276809	0.008

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.721	805810	d5-Chlorobenzene
6.637	435784	d8-Toluene
9.417	851479	d4-Dichlorobenzene
8.593	320806	4-Bromofluorobenzene
9.741	399391	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

MW-R5s

19L0288-05 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/16/2019 15:50
Instrument: NT3 — Analyzed: 18-Dec-2019 14:15

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHL0526 — Sample Size: 10 mL
Prepared: 18-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*98.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*101*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

MW-R5s

19L0288-05 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 12/16/2019 15:50
Instrument: NT3 — Analyzed: 18-Dec-2019 14:15

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHL0526 — Sample Size: 10 mL
Prepared: 18-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*98.9*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*101*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20191218s.b\V312181912G.D

Date : 18-DEC-2019 14:15

Client ID:

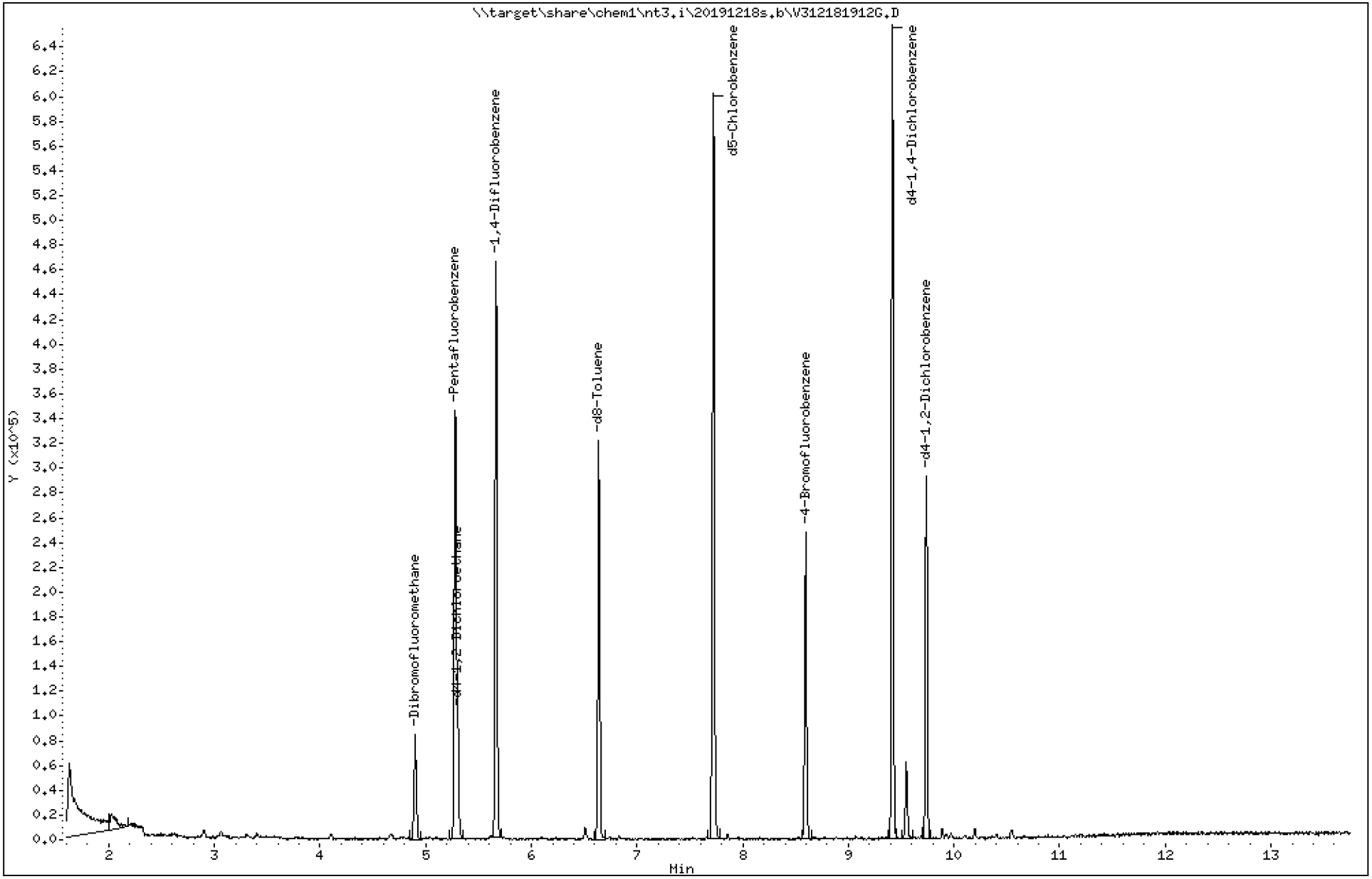
Instrument: nt3.i

Sample Info: 19L0288-05

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20191218s.b\V312181912G.D
Lab Smp Id: 19L0288-05
Inj Date : 18-DEC-2019 14:15
Operator : PKC   Inst ID: nt3.i
Smp Info : 19L0288-05
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20191218s.b\8260C112619.m
Meth Date : 19-Dec-2019 10:47 nt3.i   Quant Type: ISTD
Cal Date : 26-NOV-2019 18:46   Cal File: V311261918.D
Als bottle: 57
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.899	4.900	(0.928)	38496	4.73219	4.732(R)
* 32 Pentafluorobenzene	168	5.282	5.277	(1.000)	181823	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.303	5.303	(1.004)	50735	5.00119	5.001(R)
* 37 1,4-Difluorobenzene	114	5.664	5.665	(1.000)	272864	10.0000	
$ 43 d8-Toluene	98	6.637	6.638	(1.172)	157018	4.94617	4.946(R)
* 53 d5-Chlorobenzene	117	7.721	7.722	(1.000)	268132	10.0000	
$ 62 4-Bromofluorobenzene	174	8.593	8.594	(1.113)	58328	5.04355	5.044(R)
* 76 d4-1,4-Dichlorobenzene	152	9.417	9.418	(1.000)	138781	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.741	9.737	(1.034)	66368	5.14759	5.148(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V312181912G.D
Lab Smp Id: 19L0288-05
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20191218s.b\8260C112619.m
Misc Info: 16-

Calibration Date: 18-DEC-2019
Calibration Time: 22:09
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166279	83140	332558	181823	9.35
37 1,4-Difluorobenze	246302	123151	492604	272864	10.78
53 d5-Chlorobenzene	233630	116815	467260	268132	14.77
76 d4-1,4-Dichlorobe	121471	60736	242942	138781	14.25

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.28	4.78	5.78	5.28	0.09
37 1,4-Difluorobenze	5.67	5.17	6.17	5.66	-0.01
53 d5-Chlorobenzene	7.72	7.22	8.22	7.72	-0.01
76 d4-1,4-Dichlorobe	9.42	8.92	9.92	9.42	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930a
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: 19L0288-05
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20191218s.b\8260C112619.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.732	94.64	
$ 33 d4-1,2-Dichloroeth	5.000	5.001	100.02	
$ 43 d8-Toluene	5.000	4.946	98.92	
$ 62 4-Bromofluorobenze	5.000	5.044	100.87	
$ 79 d4-1,2-Dichloroben	5.000	5.148	102.95	

REVIEW SUMMARY FOR FILE - V312181912G.D

Lab ID: 19L0288-05
nt3.i, 20191218s.b\8260C112619.m,   18-DEC-2019 14:15

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20191218g.b\V312181912G.D

Date : 18-DEC-2019 14:15

Client ID:

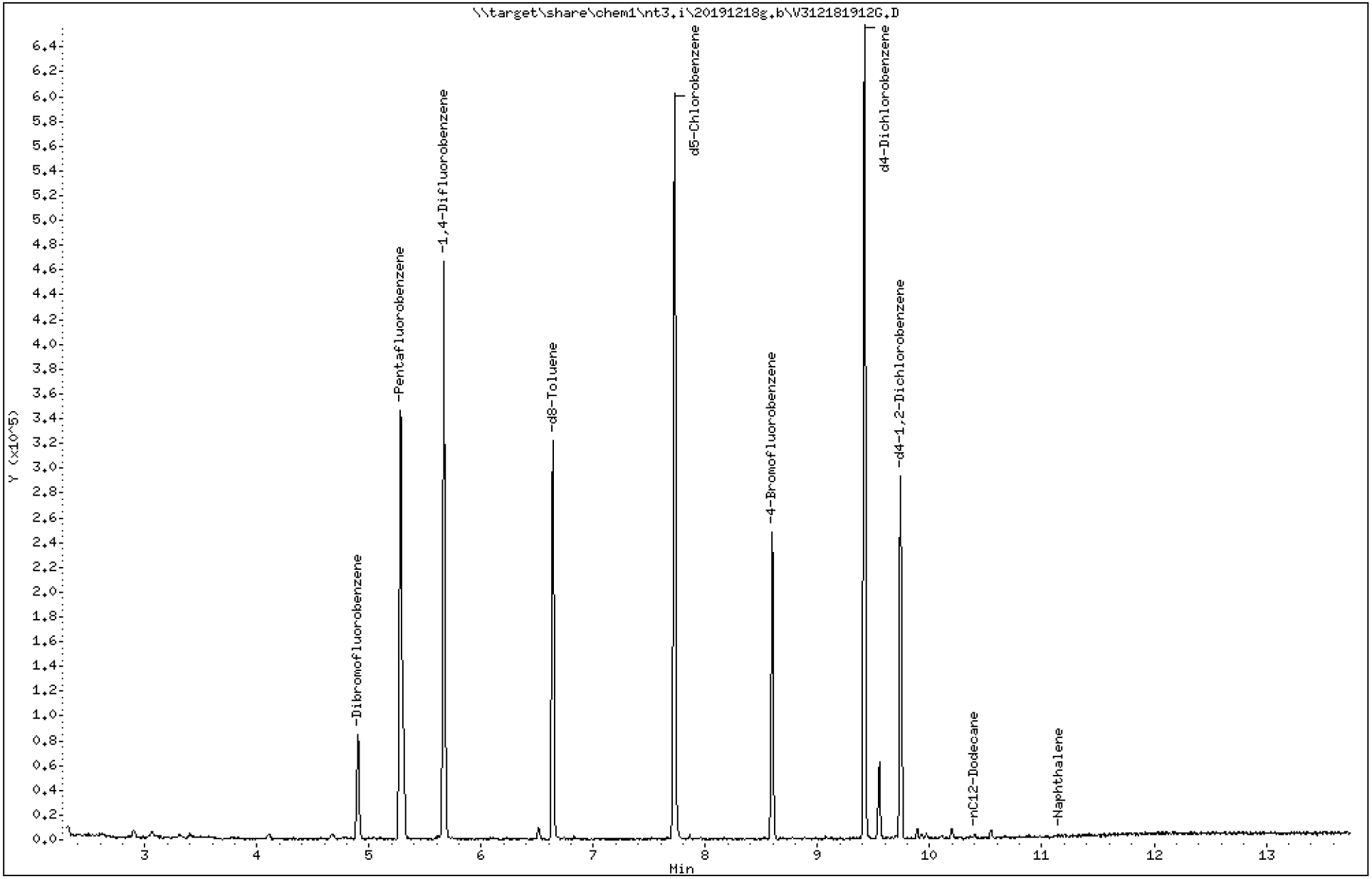
Instrument: nt3.i

Sample Info: 19L0288-05

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20191218g.b/V312181912G.D
Method: \20191218g.b\NWTPHG120419.m
Instrument: nt3.i
Gas Ical Date: 04-DEC-2019
Injection Date: 18-DEC-2019 14:15

ARI ID: 19L0288-05
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.57 to 10.46)	21714890	145741	0.007
8015C 2MP-TMB	(2.88 to 9.41)	48023951	69195	0.001
AK101 nC6-nC10	(3.45 to 8.57)	34280429	44381	0.001
NWTPHG Tol-Nap	(6.57 to 11.25)	22631510	159130	0.007
mod8015 nC7-nC12	(5.09 to 10.46)	35103448	159995	0.005

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.722	805567	d5-Chlorobenzene
6.638	431693	d8-Toluene
9.418	851299	d4-Dichlorobenzene
8.594	322227	4-Bromofluorobenzene
9.736	399135	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

Trip Blank

19L0288-06 (Water)

Volatile Organic Compounds

Method: EPA 8260C — Sampled: 12/16/2019 15:50
Instrument: NT3 — Analyzed: 17-Dec-2019 14:36

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHL0477 — Sample Size: 10 mL
Prepared: 17-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Benzene	71-43-2	1	0.03	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.04	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.04	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.05	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.03	0.20	ND	ug/L	U
Surrogate: Toluene-d8				*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*93.2*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

Trip Blank
19L0288-06 (Water)

Volatile Organic Compounds

Method: NWTPHg — Sampled: 12/16/2019 15:50
Instrument: NT3 — Analyzed: 17-Dec-2019 14:36

Sample Preparation: Preparation Method: EPA 5030 (Purge and Trap)
Preparation Batch: BHL0477 — Sample Size: 10 mL
Prepared: 17-Dec-2019 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			*80-120 %*	*101*	*%*	
Surrogate: 4-Bromofluorobenzene			*80-120 %*	*93.2*	*%*	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20191217s.b\V312171913G.D

Date : 17-DEC-2019 14:36

Client ID:

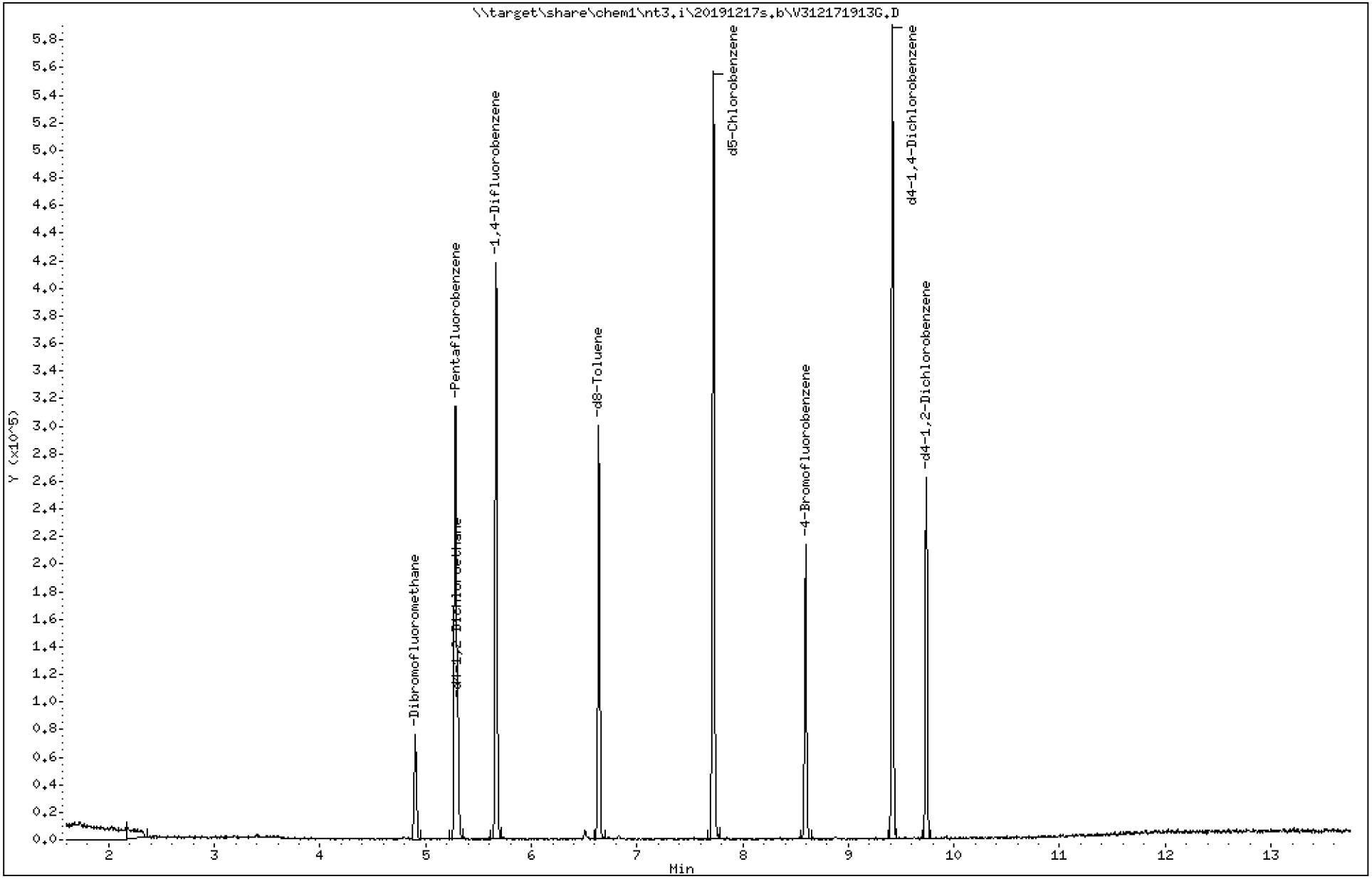
Instrument: nt3.i

Sample Info: 19L0288-06

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20191217s.b\V312171913G.D
Lab Smp Id: 19L0288-06
Inj Date : 17-DEC-2019 14:36
Operator : PKC Inst ID: nt3.i
Smp Info : 19L0288-06
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Meth Date : 18-Dec-2019 12:59 nt3.i Quant Type: ISTD
Cal Date : 26-NOV-2019 18:46 Cal File: V311261918.D
Als bottle: 56
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.899	4.899	(0.928)	36172	4.93130	4.931(R)
* 32 Pentafluorobenzene	168	5.282	5.282	(1.000)	163948	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.303	5.303	(1.004)	47578	5.20134	5.201(R)
* 37 1,4-Difluorobenzene	114	5.664	5.665	(1.000)	249066	10.0000	
$ 43 d8-Toluene	98	6.637	6.637	(1.172)	146933	5.07073	5.071(R)
* 53 d5-Chlorobenzene	117	7.721	7.722	(1.000)	248364	10.0000	
$ 62 4-Bromofluorobenzene	174	8.599	8.593	(1.114)	49921	4.66018	4.660(R)
* 76 d4-1,4-Dichlorobenzene	152	9.417	9.417	(1.000)	126390	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.741	9.741	(1.034)	59821	5.09467	5.095(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V312171913G.D
Lab Smp Id: 19L0288-06
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Misc Info: 16-

Calibration Date: 17-DEC-2019
Calibration Time: 22:03
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166279	83140	332558	163948	-1.40
37 1,4-Difluorobenze	246302	123151	492604	249066	1.12
53 d5-Chlorobenzene	233630	116815	467260	248364	6.31
76 d4-1,4-Dichlorobe	121471	60736	242942	126390	4.05

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.28	4.78	5.78	5.28	-0.00
37 1,4-Difluorobenze	5.67	5.17	6.17	5.66	-0.00
53 d5-Chlorobenzene	7.72	7.22	8.22	7.72	-0.00
76 d4-1,4-Dichlorobe	9.42	8.92	9.92	9.42	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: 19L0288-06
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.931	98.63	
$ 33 d4-1,2-Dichloroeth	5.000	5.201	104.03	
$ 43 d8-Toluene	5.000	5.071	101.41	
$ 62 4-Bromofluorobenze	5.000	4.660	93.20	
$ 79 d4-1,2-Dichloroben	5.000	5.095	101.89	

REVIEW SUMMARY FOR FILE - V312171913G.D

Lab ID: 19L0288-06
nt3.i, 20191217s.b\8260C112619.m,   17-DEC-2019 14:36

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20191217g.b\V312171913G.D

Page 1

Date : 17-DEC-2019 14:36

Client ID:

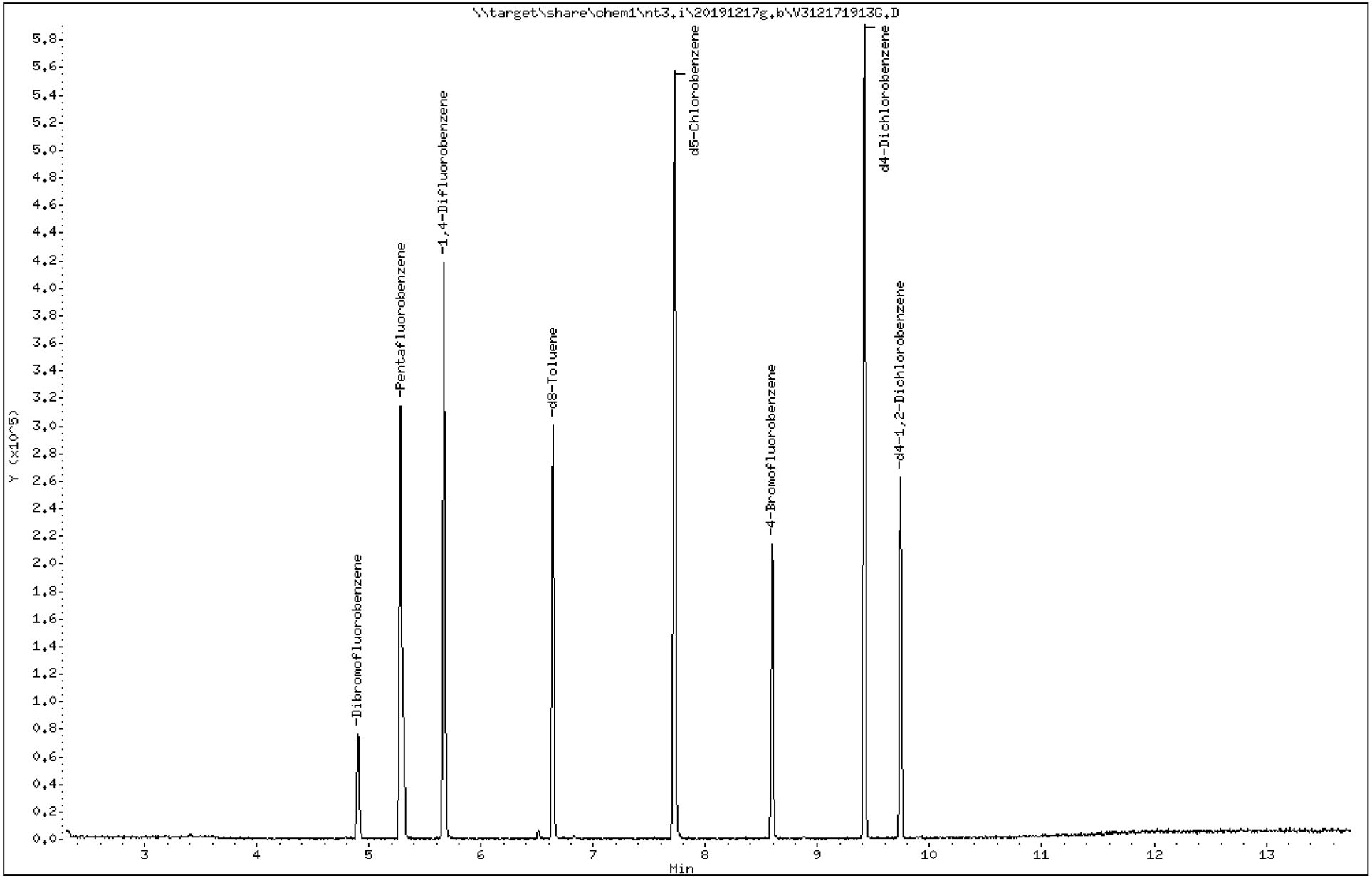
Instrument: nt3.i

Sample Info: 19L0288-06

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20191217g.b/V3121719l3G.D
Method: \20191217g.b\NWTPHG120419.m
Instrument: nt3.i
Gas Ical Date: 04-DEC-2019
Injection Date: 17-DEC-2019 14:36

ARI ID: 19L0288-06
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.58 to 10.46)	21714890	6660	0.000
8015C 2MP-TMB	(2.88 to 9.41)	48023951	20549	0.000
AK101 nC6-nC10	(3.45 to 8.57)	34280429	16991	0.000
NWTPHG Tol-Nap	(6.58 to 11.25)	22631510	9128	0.000
mod8015 nC7-nC12	(5.09 to 10.46)	35103448	19222	0.001

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.722	746794	d5-Chlorobenzene
6.638	397614	d8-Toluene
9.418	771774	d4-Dichlorobenzene
8.594	283025	4-Bromofluorobenzene
9.737	365455	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

Volatile Organic Compounds - Quality Control

Batch BHL0477 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHL0477-BLK1)				Prepared: 17-Dec-2019 Analyzed: 17-Dec-2019 12:44							
Benzene	ND	0.03	0.20	ug/L							U
Toluene	ND	0.04	0.20	ug/L							U
Ethylbenzene	ND	0.04	0.20	ug/L							U
m,p-Xylene	ND	0.05	0.40	ug/L							U
o-Xylene	ND	0.03	0.20	ug/L							U
Surrogate: Toluene-d8	4.83			ug/L	*5.00*		*96.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.83			ug/L	*5.00*		*96.6*	*80-120*			

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

Volatile Organic Compounds - Quality Control

Batch BHL0477 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHL0477-BLK2)				Prepared: 17-Dec-2019 Analyzed: 17-Dec-2019 12:44						
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.83		ug/L	*5.00*		*96.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.83		ug/L	*5.00*		*96.6*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20191217s.b\V312171909G.D

Date : 17-DEC-2019 12:44

Client ID:

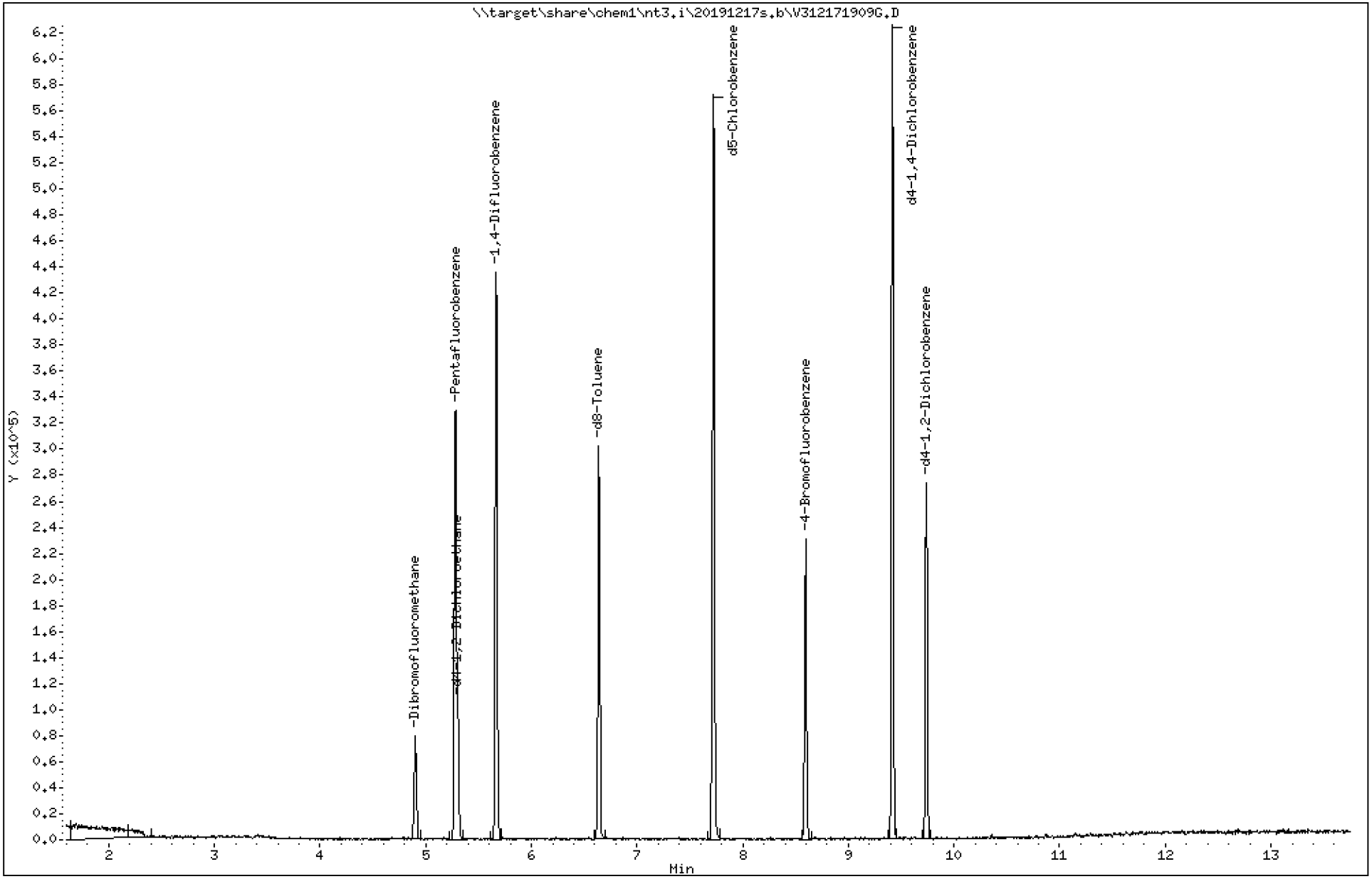
Instrument: nt3.i

Sample Info: BHL0477-BLK2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20191217s.b\V312171909G.D
Lab Smp Id: BHL0477-BLK2
Inj Date : 17-DEC-2019 12:44
Operator : PKC   Inst ID: nt3.i
Smp Info : BHL0477-BLK2
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Meth Date : 18-Dec-2019 12:59 nt3.i   Quant Type: ISTD
Cal Date : 26-NOV-2019 18:46   Cal File: V311261918.D
Als bottle: 56
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.899	4.899	(0.928)	37772	4.83677	4.837(R)
* 32 Pentafluorobenzene	168	5.281	5.282	(1.000)	174546	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.303	5.303	(1.004)	49509	5.08381	5.084(R)
* 37 1,4-Difluorobenzene	114	5.664	5.665	(1.000)	263347	10.0000	
$ 43 d8-Toluene	98	6.637	6.637	(1.172)	148069	4.83283	4.833(R)
* 53 d5-Chlorobenzene	117	7.721	7.722	(1.000)	258335	10.0000	
$ 62 4-Bromofluorobenzene	174	8.593	8.593	(1.113)	53828	4.83095	4.831(R)
* 76 d4-1,4-Dichlorobenzene	152	9.417	9.417	(1.000)	131820	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.741	9.741	(1.034)	63829	5.21209	5.212(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V312171909G.D
Lab Smp Id: BHL0477-BLK2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Misc Info: 16-

Calibration Date: 17-DEC-2019
Calibration Time: 22:03
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166279	83140	332558	174546	4.97
37 1,4-Difluorobenze	246302	123151	492604	263347	6.92
53 d5-Chlorobenzene	233630	116815	467260	258335	10.57
76 d4-1,4-Dichlorobe	121471	60736	242942	131820	8.52

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.28	4.78	5.78	5.28	-0.01
37 1,4-Difluorobenze	5.67	5.17	6.17	5.66	-0.01
53 d5-Chlorobenzene	7.72	7.22	8.22	7.72	-0.00
76 d4-1,4-Dichlorobe	9.42	8.92	9.92	9.42	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930a
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: BHL0477-BLK2
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.837	96.74	
$ 33 d4-1,2-Dichloroeth	5.000	5.084	101.68	
$ 43 d8-Toluene	5.000	4.833	96.66	
$ 62 4-Bromofluorobenze	5.000	4.831	96.62	
$ 79 d4-1,2-Dichloroben	5.000	5.212	104.24	

REVIEW SUMMARY FOR FILE - V312171909G.D

Lab ID: BHL0477-BLK2
nt3.i, 20191217s.b\8260C112619.m,   17-DEC-2019 12:44

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20191217g.b\W312171909G.D

Date : 17-DEC-2019 12:44

Client ID:

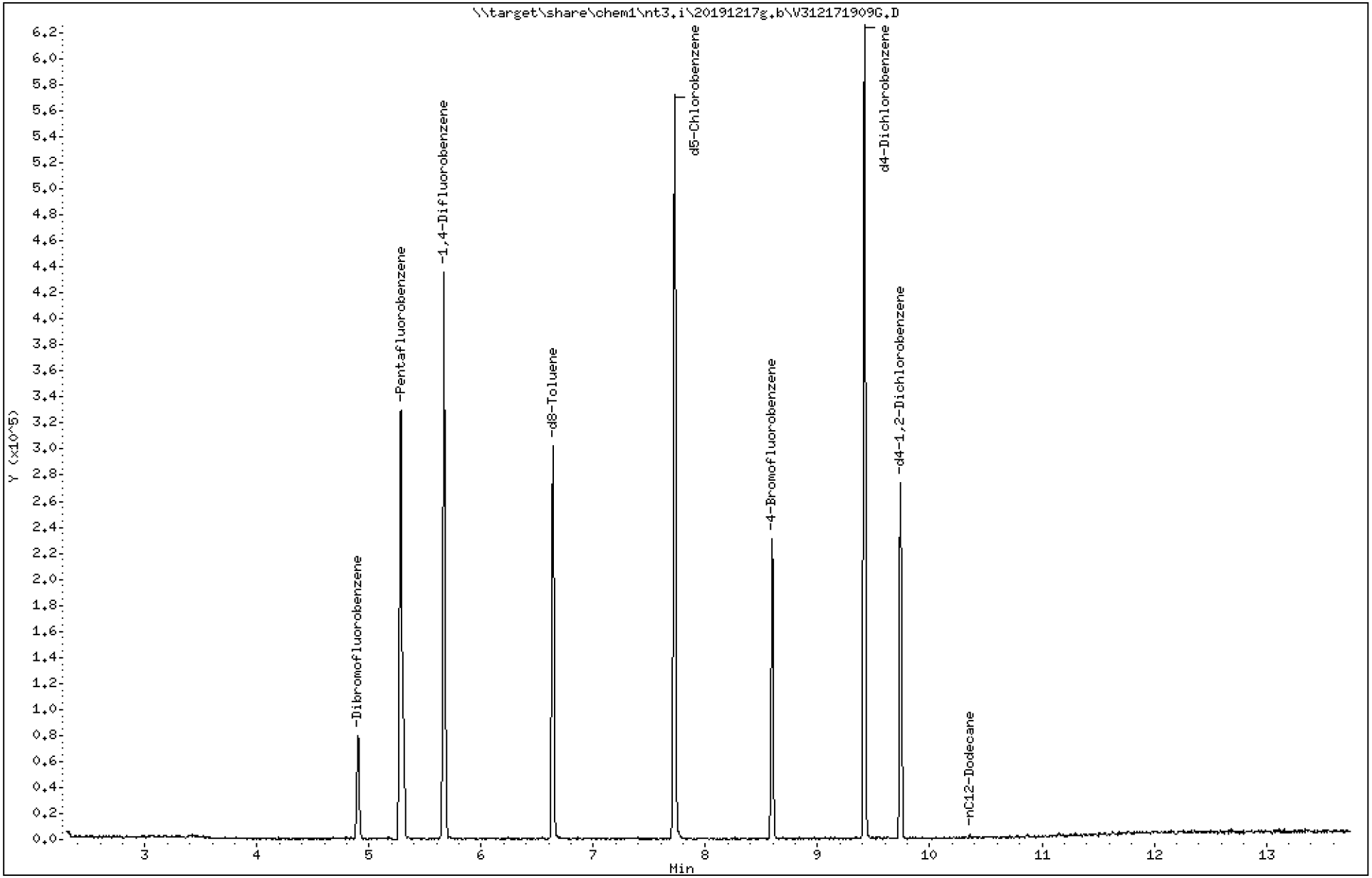
Instrument: nt3.i

Sample Info: BHL0477-BLK2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



Page 69 of 123 19L0288 ARISample_WithFuelPDFs FINAL 30 Dec 2019 1401

Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20191217g.b/V312171909G.D
Method: \20191217g.b\NWTPHG120419.m
Instrument: nt3.i
Gas Ical Date: 04-DEC-2019
Injection Date: 17-DEC-2019 12:44

ARI ID: BHL0477-BLK2
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.58 to 10.46)	21714890	2651	0.000
8015C 2MP-TMB	(2.88 to 9.41)	48023951	1	0.000
AK101 nC6-nC10	(3.45 to 8.57)	34280429	1	0.000
NWTPHG Tol-Nap	(6.58 to 11.25)	22631510	8397	0.000
mod8015 nC7-nC12	(5.09 to 10.46)	35103448	2652	0.000

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.722	777403	d5-Chlorobenzene
6.637	412545	d8-Toluene
9.417	808053	d4-Dichlorobenzene
8.594	304664	4-Bromofluorobenzene
9.736	380113	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

Volatile Organic Compounds - Quality Control

Batch BHL0477 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BHL0477-BS1)					Prepared: 17-Dec-2019 Analyzed: 17-Dec-2019 09:56						
Benzene	9.44	0.03	0.20	ug/L	10.0		94.4	80-120			
Toluene	9.56	0.04	0.20	ug/L	10.0		95.6	80-120			
Ethylbenzene	9.27	0.04	0.20	ug/L	10.0		92.7	80-120			
m,p-Xylene	18.7	0.05	0.40	ug/L	20.0		93.5	80-121			
o-Xylene	9.42	0.03	0.20	ug/L	10.0		94.2	80-121			
Surrogate: Toluene-d8	5.08			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.08			ug/L	*5.00*		*102*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

Volatile Organic Compounds - Quality Control

Batch BHL0477 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BHL0477-BS2)				Prepared: 17-Dec-2019 Analyzed: 17-Dec-2019 10:52						
Gasoline Range Organics (Tol-Nap)	1080	100	ug/L	1000		108	72-128			
Surrogate: Toluene-d8	5.15		ug/L	*5.00*		*103*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.99		ug/L	*5.00*		*99.9*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20191217s.b\V312171905LCSG.D

Page 1

Date : 17-DEC-2019 10:52

Client ID:

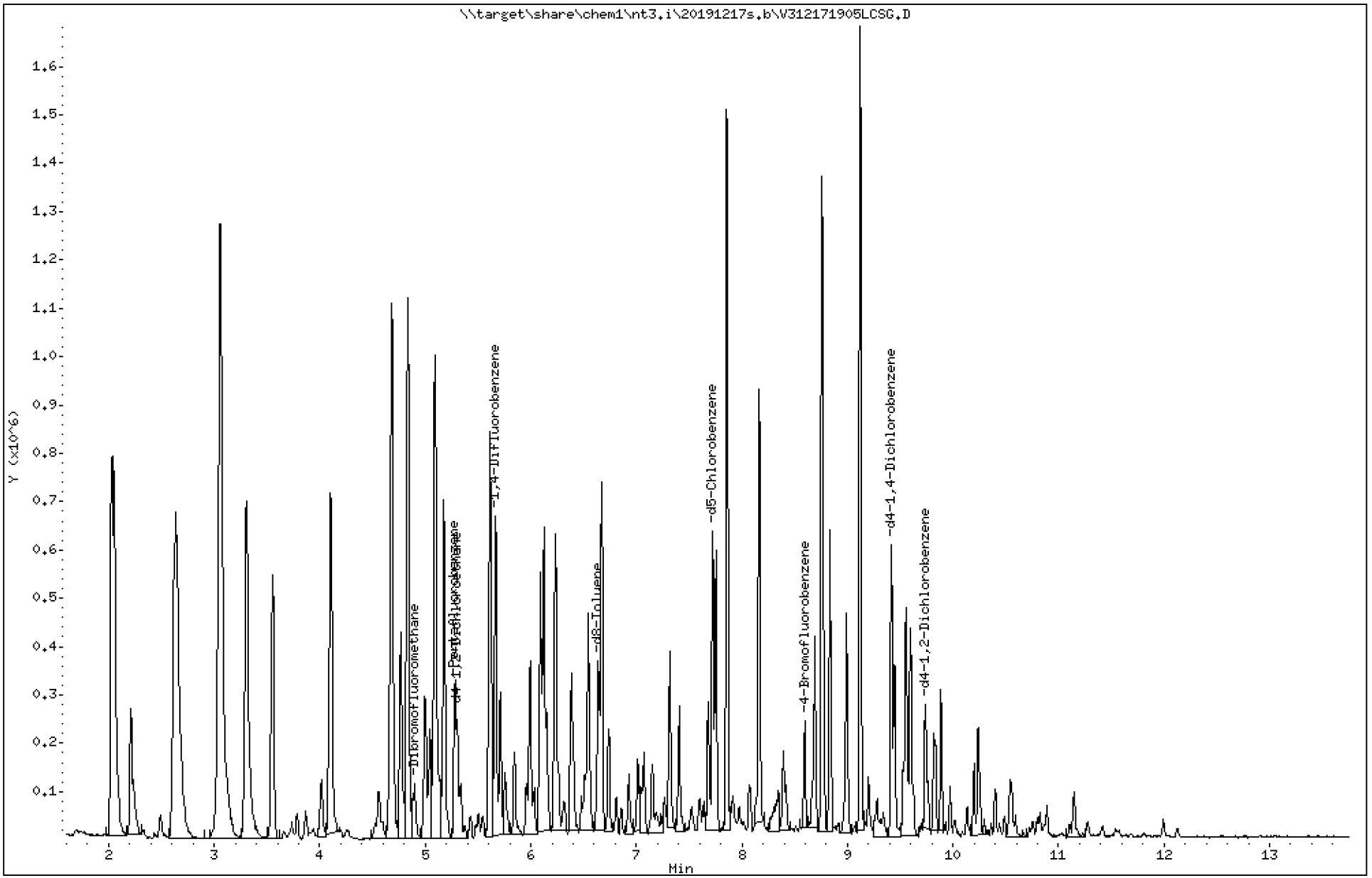
Instrument: nt3.i

Sample Info: BHL0477-BS2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20191217s.b\V312171905LCSG.D
Lab Smp Id: BHL0477-BS2
Inj Date : 17-DEC-2019 10:52
Operator : PKC Inst ID: nt3.i
Smp Info : BHL0477-BS2
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Meth Date : 18-Dec-2019 12:59 nt3.i Quant Type: ISTD
Cal Date : 26-NOV-2019 18:46 Cal File: V311261918.D
Als bottle: 56
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.899	4.899	(0.928)	36538	4.91426	4.914(R)
* 32 Pentafluorobenzene	168	5.277	5.282	(1.000)	166181	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.303	5.303	(1.005)	51196	5.52166	5.522(R)
* 37 1,4-Difluorobenzene	114	5.665	5.665	(1.000)	257393	10.0000	
$ 43 d8-Toluene	98	6.638	6.637	(1.172)	154305	5.15286	5.153(R)
* 53 d5-Chlorobenzene	117	7.722	7.722	(1.000)	251333	10.0000	
$ 62 4-Bromofluorobenzene	174	8.594	8.593	(1.113)	54136	4.99395	4.994(R)
* 76 d4-1,4-Dichlorobenzene	152	9.418	9.417	(1.000)	127653	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.742	9.741	(1.034)	60876	5.13322	5.133(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V312171905LCSG.D
Lab Smp Id: BHL0477-BS2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Misc Info: 16-

Calibration Date: 17-DEC-2019
Calibration Time: 22:03
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166279	83140	332558	166181	-0.06
37 1,4-Difluorobenze	246302	123151	492604	257393	4.50
53 d5-Chlorobenzene	233630	116815	467260	251333	7.58
76 d4-1,4-Dichlorobe	121471	60736	242942	127653	5.09

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.28	4.78	5.78	5.28	-0.10
37 1,4-Difluorobenze	5.67	5.17	6.17	5.67	0.00
53 d5-Chlorobenzene	7.72	7.22	8.22	7.72	0.00
76 d4-1,4-Dichlorobe	9.42	8.92	9.92	9.42	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHL0477-BS2
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.914	98.29	
$ 33 d4-1,2-Dichloroeth	5.000	5.522	110.43	
$ 43 d8-Toluene	5.000	5.153	103.06	
$ 62 4-Bromofluorobenze	5.000	4.994	99.88	
$ 79 d4-1,2-Dichloroben	5.000	5.133	102.66	

REVIEW SUMMARY FOR FILE - V312171905LCSG.D

Lab ID: BHL0477-BS2
nt3.i, 20191217s.b\8260C112619.m,   17-DEC-2019 10:52

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20191217g.b\V312171905LCSG.D

Page 1

Date : 17-DEC-2019 10:52

Client ID:

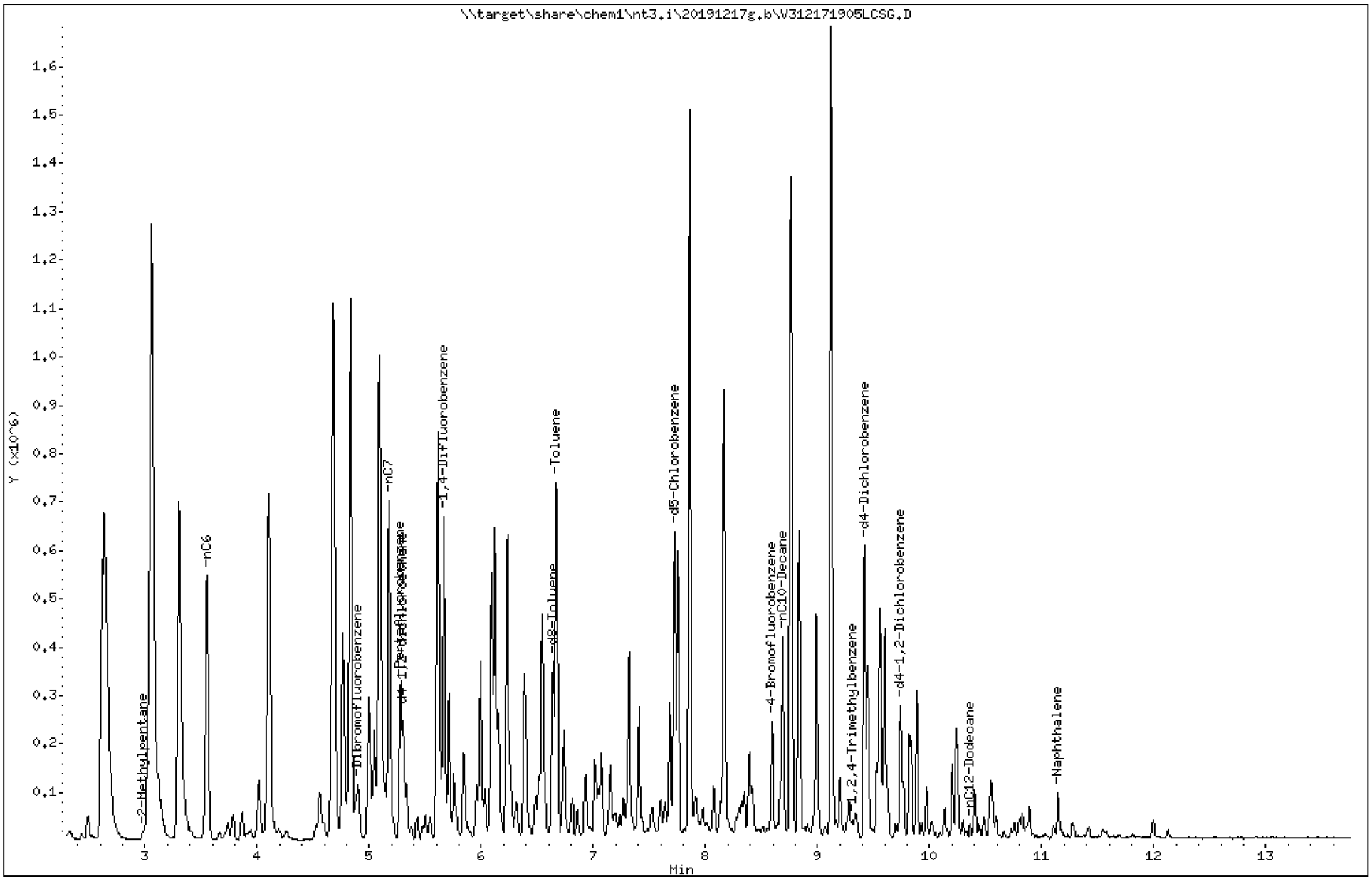
Instrument: nt3.i

Sample Info: BHL0477-BS2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20191217g.b/V312171905LCSG.D
Method: \20191217g.b\NWTPHG120419.m
Instrument: nt3.i
Gas Ical Date: 04-DEC-2019
Injection Date: 17-DEC-2019 10:52

ARI ID: BHL0477-BS2
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.58 to 10.46)	21714890	23480229	1.081 M
8015C 2MP-TMB	(2.88 to 9.41)	48023951	46778239	0.974
AK101 nC6-nC10	(3.45 to 8.57)	34280429	33616343	0.981
NWTPHG Tol-Nap	(6.58 to 11.25)	22631510	24553700	1.085 M
mod8015 nC7-nC12	(5.09 to 10.46)	35103448	34063457	0.970 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

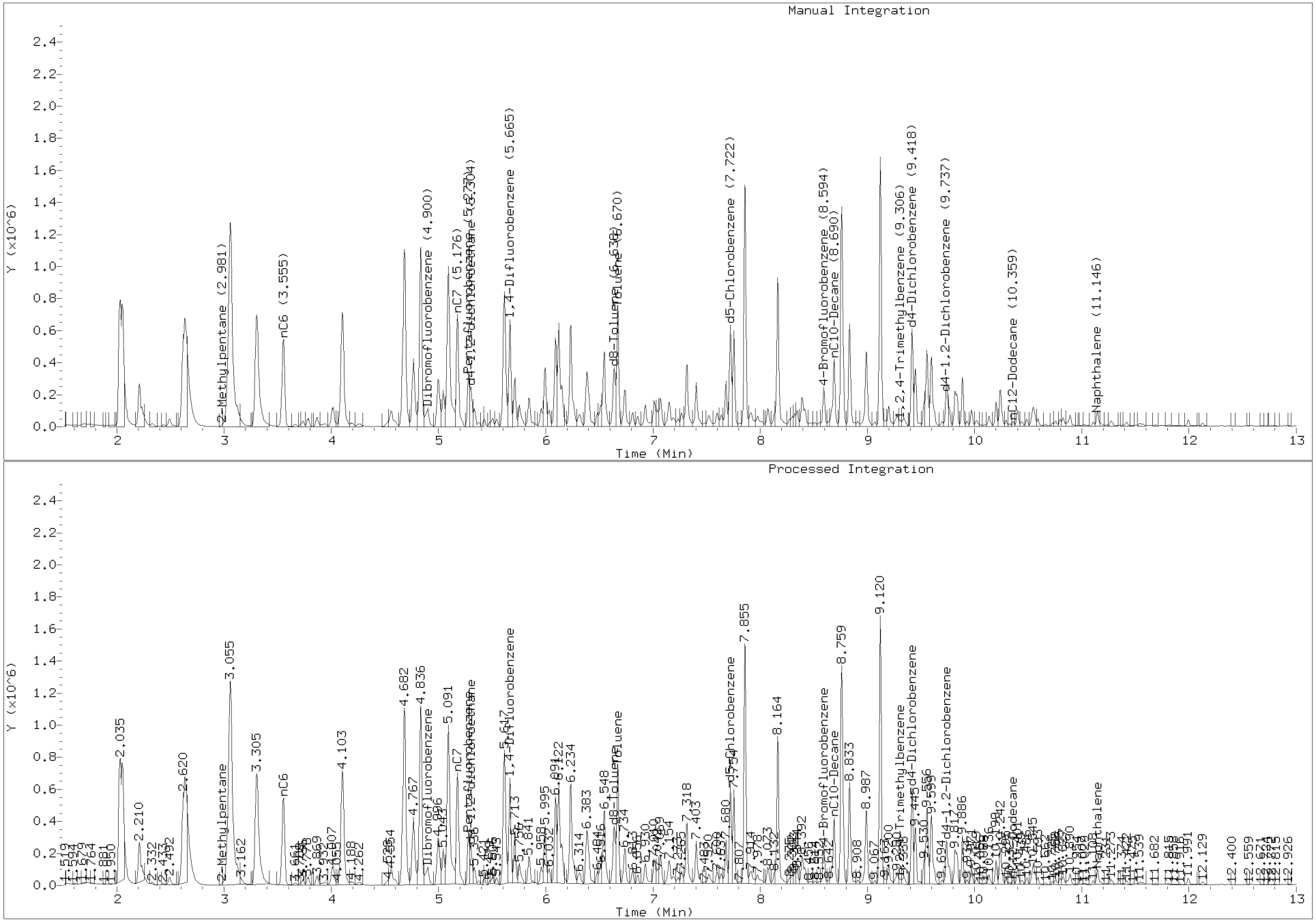
NW Gas Range Subtracted Peaks

7.722	871292	d5-Chlorobenzene
6.638	659237	d8-Toluene
9.418	816980	d4-Dichlorobenzene
8.594	345555	4-Bromofluorobenzene
9.737	430195	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20191217g.b/V312171905LCSG.D Injection: 17-DEC-2019 10:52

Lab ID:BHL0477-BS2



Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

Volatile Organic Compounds - Quality Control

Batch BHL0477 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BHL0477-BSD1)					Prepared: 17-Dec-2019 Analyzed: 17-Dec-2019 10:24						
Benzene	9.75	0.03	0.20	ug/L	10.0		97.5	80-120	3.20	30	
Toluene	9.63	0.04	0.20	ug/L	10.0		96.3	80-120	0.80	30	
Ethylbenzene	9.50	0.04	0.20	ug/L	10.0		95.0	80-120	2.43	30	
m,p-Xylene	19.0	0.05	0.40	ug/L	20.0		95.1	80-121	1.68	30	
o-Xylene	9.56	0.03	0.20	ug/L	10.0		95.6	80-121	1.39	30	
Surrogate: Toluene-d8	5.15			ug/L	*5.00*		*103*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.96			ug/L	*5.00*		*99.2*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

Volatile Organic Compounds - Quality Control

Batch BHL0477 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BHL0477-BSD2)				Prepared: 17-Dec-2019 Analyzed: 17-Dec-2019 11:20						
Gasoline Range Organics (Tol-Nap)	1100	100	ug/L	1000		110	72-128	1.42	30	
Surrogate: Toluene-d8	5.01		ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.98		ug/L	*5.00*		*99.6*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20191217s.b\V312171906G.D

Date : 17-DEC-2019 11:20

Client ID:

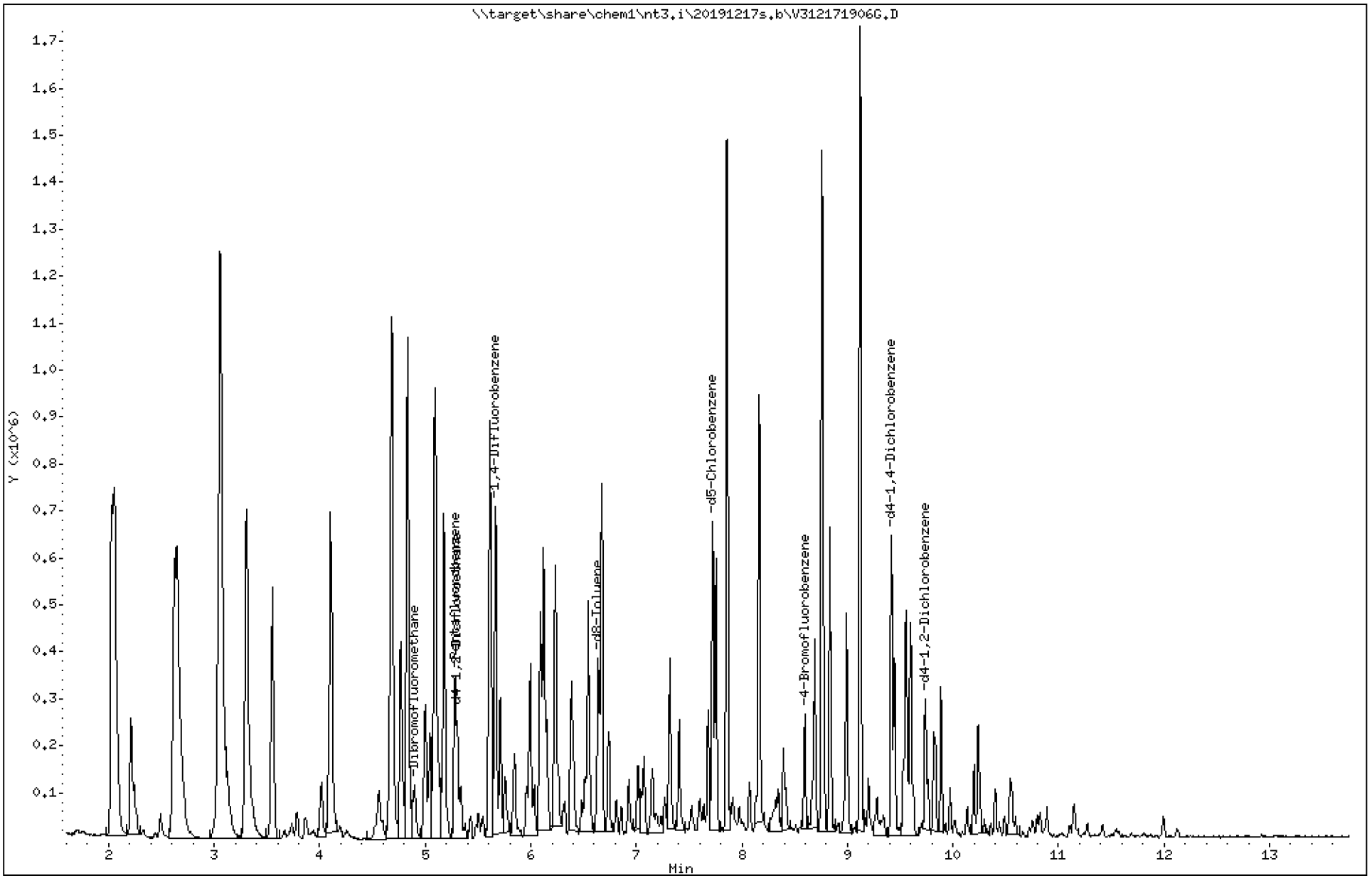
Instrument: nt3.i

Sample Info: BHL0477-BSD2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20191217s.b\V312171906G.D
Lab Smp Id: BHL0477-BSD2
Inj Date : 17-DEC-2019 11:20
Operator : PKC   Inst ID: nt3.i
Smp Info : BHL0477-BSD2
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Meth Date : 18-Dec-2019 12:59 nt3.i   Quant Type: ISTD
Cal Date : 26-NOV-2019 18:46   Cal File: V311261918.D
Als bottle: 56
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA20

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.899	4.899	(0.928)	38523	4.92495	4.925(R)
* 32 Pentafluorobenzene	168	5.282	5.282	(1.000)	174829	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.303	5.303	(1.004)	51615	5.29148	5.291(R)
* 37 1,4-Difluorobenzene	114	5.665	5.665	(1.000)	274829	10.0000	
$ 43 d8-Toluene	98	6.637	6.637	(1.172)	160282	5.01288	5.013(R)
* 53 d5-Chlorobenzene	117	7.722	7.722	(1.000)	263934	10.0000	
$ 62 4-Bromofluorobenzene	174	8.593	8.593	(1.113)	56719	4.98243	4.982(R)
* 76 d4-1,4-Dichlorobenzene	152	9.417	9.417	(1.000)	137872	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.736	9.741	(1.034)	65620	5.12313	5.123(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V312171906G.D
Lab Smp Id: BHL0477-BSD2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Misc Info: 16-

Calibration Date: 17-DEC-2019
Calibration Time: 22:03
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166279	83140	332558	174829	5.14
37 1,4-Difluorobenze	246302	123151	492604	274829	11.58
53 d5-Chlorobenzene	233630	116815	467260	263934	12.97
76 d4-1,4-Dichlorobe	121471	60736	242942	137872	13.50

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.28	4.78	5.78	5.28	0.00
37 1,4-Difluorobenze	5.67	5.17	6.17	5.67	0.00
53 d5-Chlorobenzene	7.72	7.22	8.22	7.72	0.00
76 d4-1,4-Dichlorobe	9.42	8.92	9.92	9.42	0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHL0477-BSD2
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20191217s.b\8260C112619.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.925	98.50	
$ 33 d4-1,2-Dichloroeth	5.000	5.291	105.83	
$ 43 d8-Toluene	5.000	5.013	100.26	
$ 62 4-Bromofluorobenze	5.000	4.982	99.65	
$ 79 d4-1,2-Dichloroben	5.000	5.123	102.46	

REVIEW SUMMARY FOR FILE - V312171906G.D

Lab ID: BHL0477-BSD2
nt3.i, 20191217s.b\8260C112619.m,   17-DEC-2019 11:20

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20191217g.b\V312171906G.D

Date : 17-DEC-2019 11:20

Client ID:

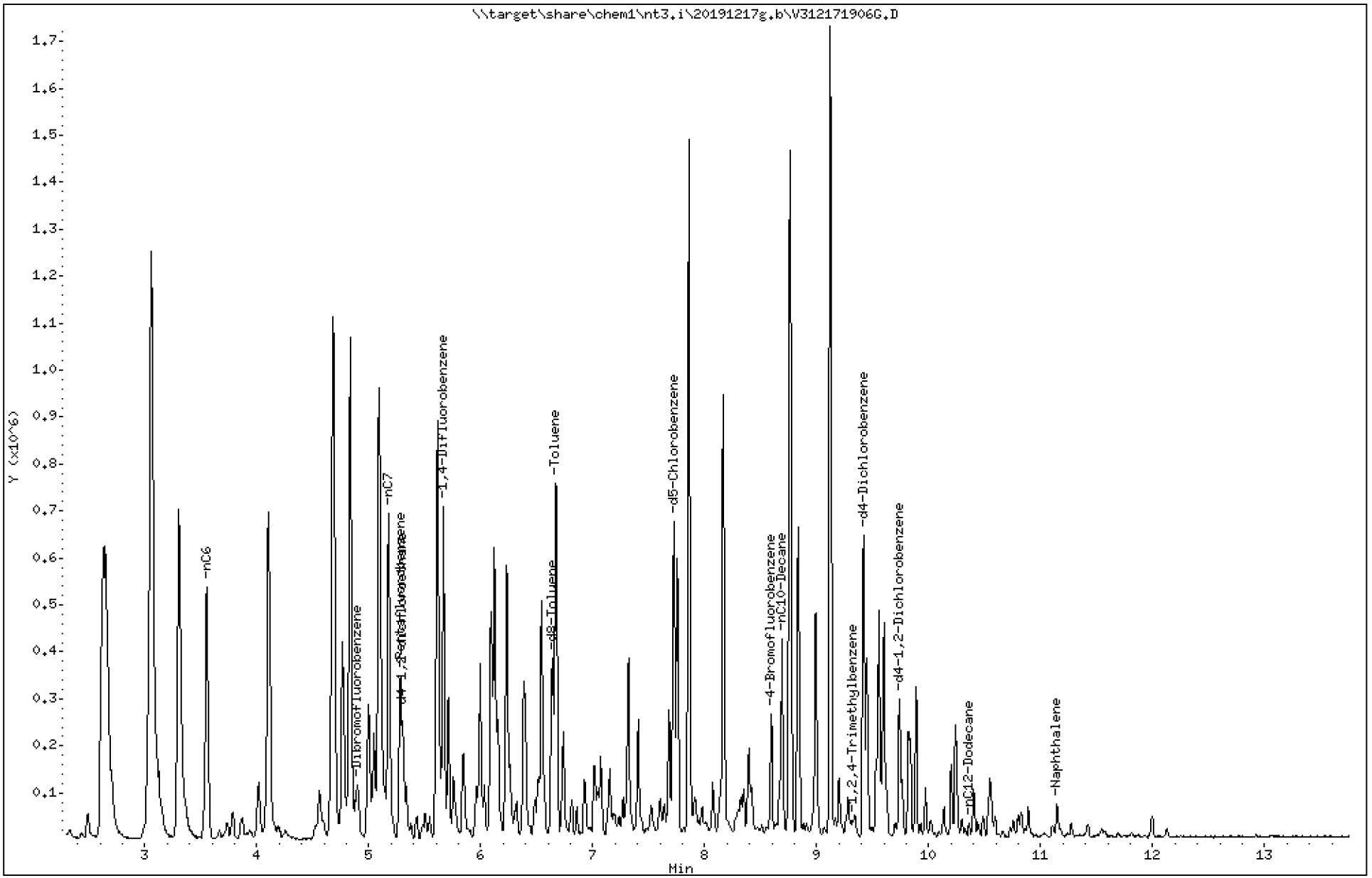
Instrument: nt3.i

Sample Info: BHL0477-BSD2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20191217g.b/V312171906G.D
Method: \20191217g.b\NWTPHG120419.m
Instrument: nt3.i
Gas Ical Date: 04-DEC-2019
Injection Date: 17-DEC-2019 11:20

ARI ID: BHL0477-BSD2
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.58 to 10.46)	21714890	23863452	1.099	M
8015C 2MP-TMB	(2.88 to 9.41)	48023951	46778972	0.974	M
AK101 nC6-nC10	(3.45 to 8.57)	34280429	33567998	0.979	M
NWTPHG Tol-Nap	(6.58 to 11.25)	22631510	24903693	1.100	M
mod8015 nC7-nC12	(5.09 to 10.46)	35103448	34516042	0.983	M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

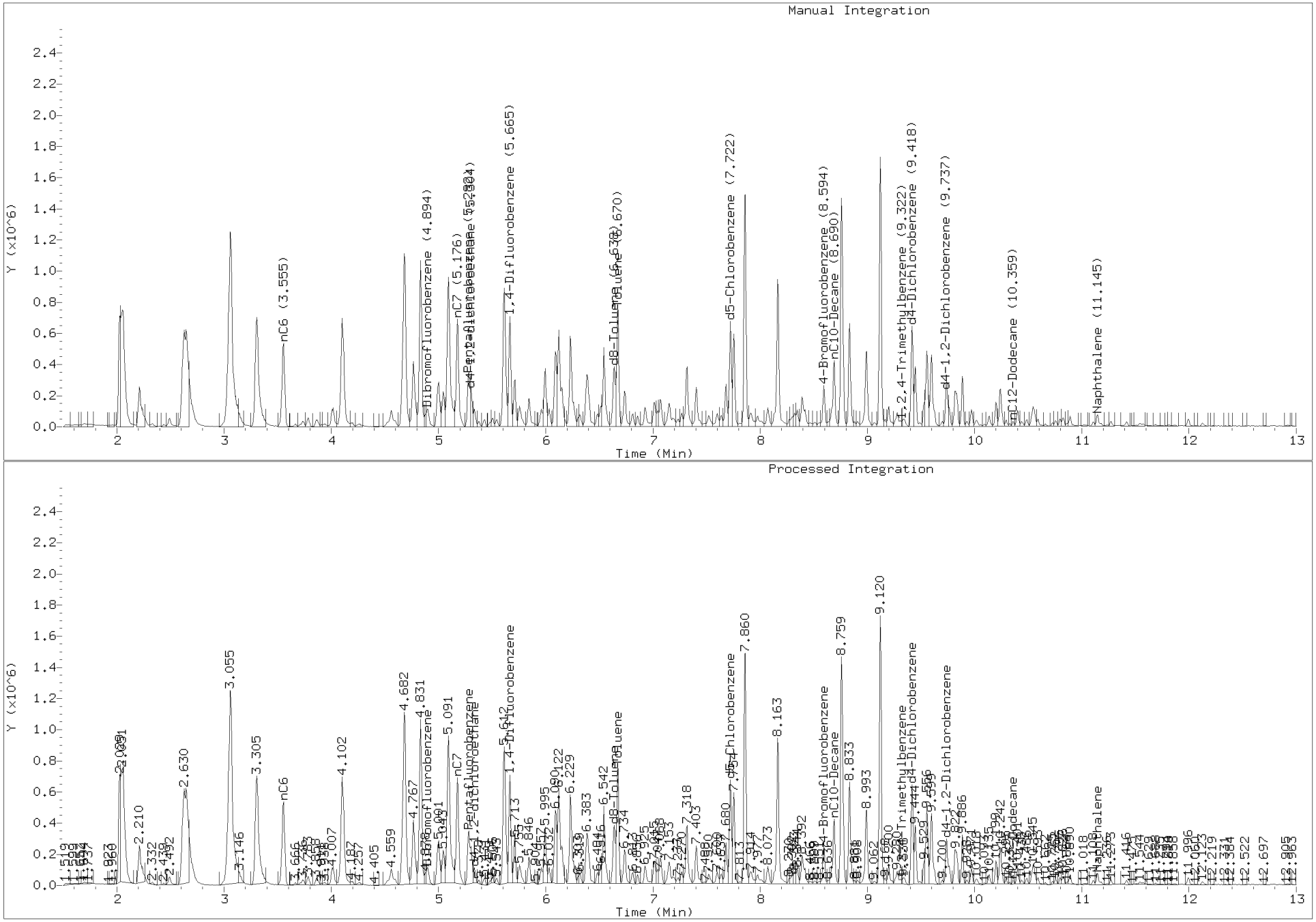
NW Gas Range Subtracted Peaks

7.722	913713	d5-Chlorobenzene
6.638	670311	d8-Toluene
9.418	870653	d4-Dichlorobenzene
8.594	364237	4-Bromofluorobenzene
9.737	454176	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20191217g.b/V312171906G.D   Injection: 17-DEC-2019 11:20

Lab ID:BHL0477-BSD2



Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

Volatile Organic Compounds - Quality Control

Batch BHL0526 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHL0526-BLK1)				Prepared: 18-Dec-2019 Analyzed: 18-Dec-2019 12:51							
Benzene	ND	0.03	0.20	ug/L							U
Toluene	ND	0.04	0.20	ug/L							U
Ethylbenzene	ND	0.04	0.20	ug/L							U
m,p-Xylene	ND	0.05	0.40	ug/L							U
o-Xylene	ND	0.03	0.20	ug/L							U
Surrogate: Toluene-d8	4.94			ug/L	*5.00*		*98.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.93			ug/L	*5.00*		*98.5*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

Volatile Organic Compounds - Quality Control

Batch BHL0526 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BHL0526-BLK2)			Prepared: 18-Dec-2019 Analyzed: 18-Dec-2019 12:51							
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.94		ug/L	*5.00*		*98.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.93		ug/L	*5.00*		*98.5*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20191218s.b\V312181909G.D

Date : 18-DEC-2019 12:51

Client ID:

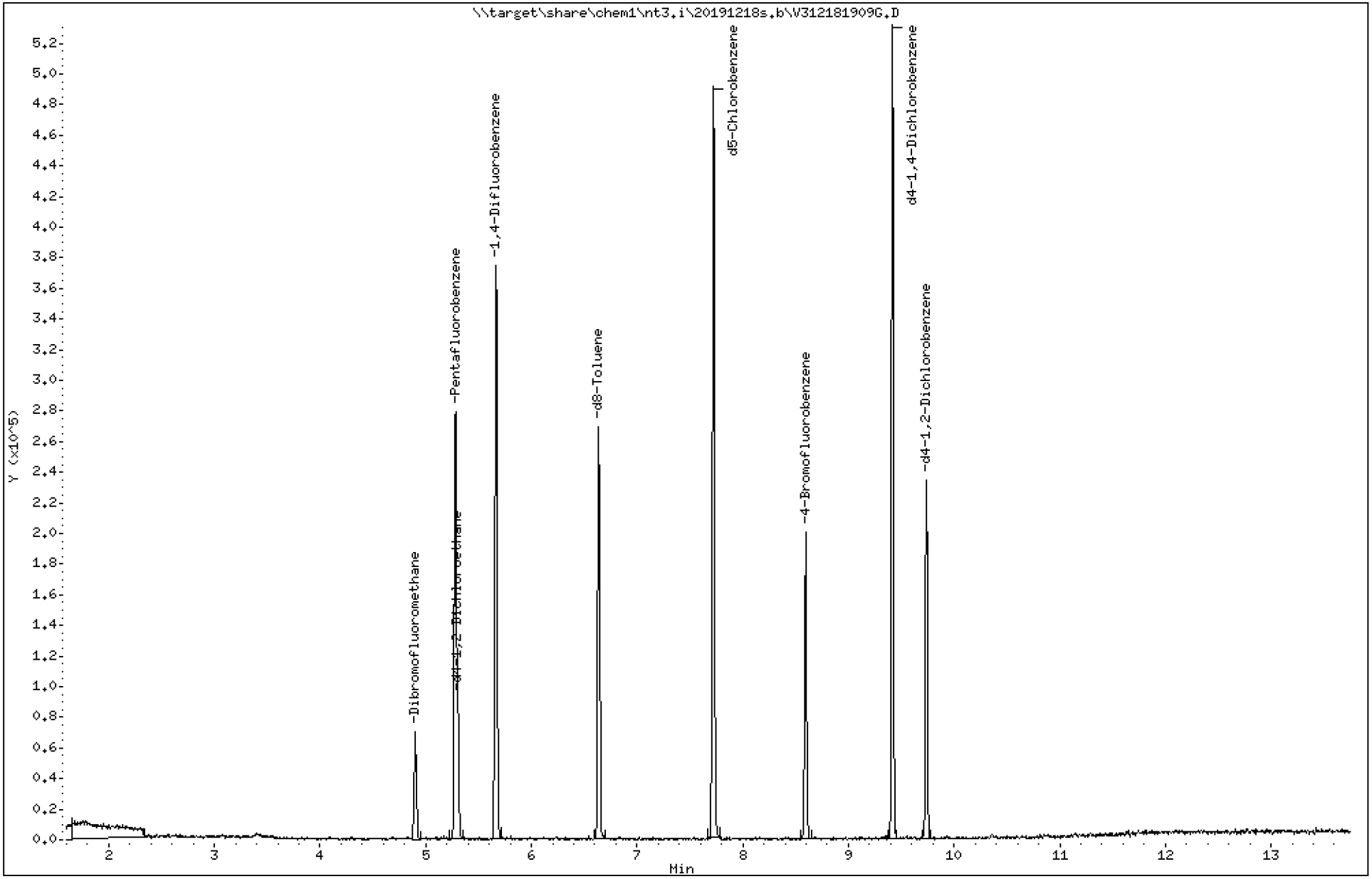
Instrument: nt3.i

Sample Info: BHL0526-BLK2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20191218s.b\V312181909G.D
Lab Smp Id: BHL0526-BLK2
Inj Date : 18-DEC-2019 12:51
Operator : PKC   Inst ID: nt3.i
Smp Info : BHL0526-BLK2
Misc Info : 16-
Comment   :
Method   : \\target\share\chem1\nt3.i\20191218s.b\8260C112619.m
Meth Date : 19-Dec-2019 10:47 nt3.i   Quant Type: ISTD
Cal Date : 26-NOV-2019 18:46   Cal File: V311261918.D
Als bottle: 56
Dil Factor: 1.00000
Integrator: HP RTE   Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.899	4.900	(0.928)	33290	5.08294	5.083(R)
* 32 Pentafluorobenzene	168	5.281	5.277	(1.000)	146384	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.303	5.303	(1.004)	43569	5.33456	5.335(R)
* 37 1,4-Difluorobenzene	114	5.664	5.665	(1.000)	228092	10.0000	
$ 43 d8-Toluene	98	6.637	6.638	(1.172)	131060	4.93885	4.939(R)
* 53 d5-Chlorobenzene	117	7.721	7.722	(1.000)	219716	10.0000	
$ 62 4-Bromofluorobenzene	174	8.593	8.594	(1.113)	46673	4.92507	4.925(R)
* 76 d4-1,4-Dichlorobenzene	152	9.417	9.418	(1.000)	112113	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.741	9.737	(1.034)	53742	5.15980	5.160(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V312181909G.D
Lab Smp Id: BHL0526-BLK2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20191218s.b\8260C112619.m
Misc Info: 16-

Calibration Date: 18-DEC-2019
Calibration Time: 22:09
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

		AREA LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166279	83140	332558	146384	-11.96
37 1,4-Difluorobenze	246302	123151	492604	228092	-7.39
53 d5-Chlorobenzene	233630	116815	467260	219716	-5.96
76 d4-1,4-Dichlorobe	121471	60736	242942	112113	-7.70

		RT LIMIT			
COMPOUND	STANDARD	LOWER	UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.28	4.78	5.78	5.28	0.08
37 1,4-Difluorobenze	5.67	5.17	6.17	5.66	-0.02
53 d5-Chlorobenzene	7.72	7.22	8.22	7.72	-0.01
76 d4-1,4-Dichlorobe	9.42	8.92	9.92	9.42	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a
Sample Matrix: NONE Fraction: VOA
Lab Smp Id: BHL0526-BLK2
Level: Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20191218s.b\8260C112619.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	5.083	101.66	
$ 33 d4-1,2-Dichloroeth	5.000	5.335	106.69	
$ 43 d8-Toluene	5.000	4.939	98.78	
$ 62 4-Bromofluorobenze	5.000	4.925	98.50	
$ 79 d4-1,2-Dichloroben	5.000	5.160	103.20	

REVIEW SUMMARY FOR FILE - V312181909G.D

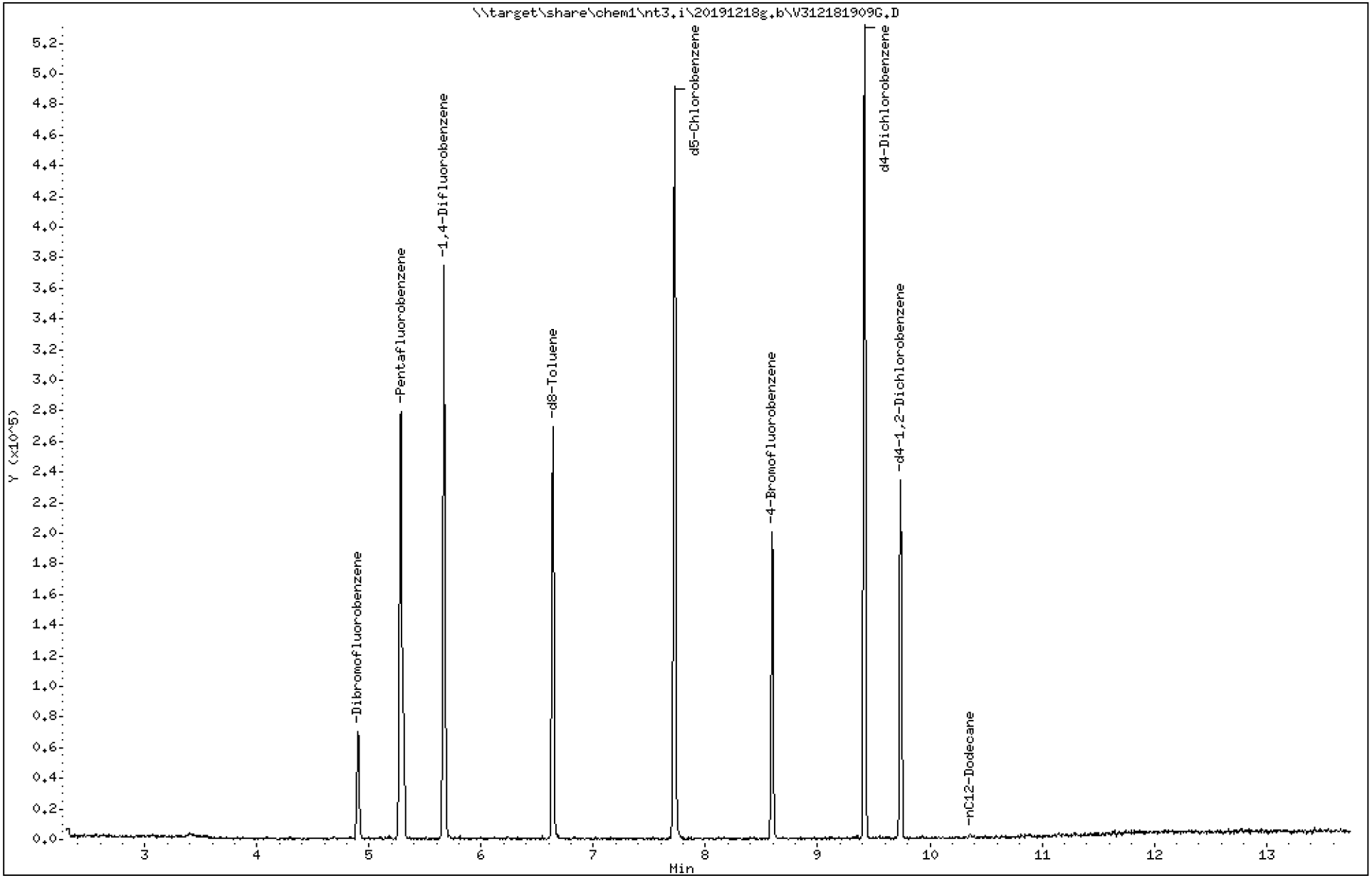
Lab ID: BHL0526-BLK2
nt3.i, 20191218s.b\8260C112619.m,   18-DEC-2019 12:51

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20191218g.b\V312181909G.D
Date : 18-DEC-2019 12:51
Client ID:
Sample Info: BHL0526-BLK2

Instrument: nt3.i
Operator: PKC
Column diameter: 0.18

Column phase: RTXVMS



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20191218g.b/V312181909G.D
Method: \20191218g.b\NWTPHG120419.m
Instrument: nt3.i
Gas Ical Date: 04-DEC-2019
Injection Date: 18-DEC-2019 12:51

ARI ID: BHL0526-BLK2
Client ID:
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.57 to 10.46)	21714890	5191	0.000
8015C 2MP-TMB	(2.88 to 9.41)	48023951	3	0.000
AK101 nC6-nC10	(3.45 to 8.57)	34280429	2	0.000
NWTPHG Tol-Nap	(6.57 to 11.25)	22631510	7565	0.000
mod8015 nC7-nC12	(5.09 to 10.46)	35103448	5192	0.000

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

7.722	663526	d5-Chlorobenzene
6.637	357008	d8-Toluene
9.417	690062	d4-Dichlorobenzene
8.593	262779	4-Bromofluorobenzene
9.742	324461	d4-1,2-Dichlorobenzene

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

Volatile Organic Compounds - Quality Control

Batch BHL0526 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BHL0526-BS1)					Prepared: 18-Dec-2019 Analyzed: 18-Dec-2019 10:03						
Benzene	9.34	0.03	0.20	ug/L	10.0		93.4	80-120			
Toluene	9.01	0.04	0.20	ug/L	10.0		90.1	80-120			
Ethylbenzene	9.13	0.04	0.20	ug/L	10.0		91.3	80-120			
m,p-Xylene	18.4	0.05	0.40	ug/L	20.0		92.1	80-121			
o-Xylene	9.30	0.03	0.20	ug/L	10.0		93.0	80-121			
Surrogate: Toluene-d8	4.92			ug/L	*5.00*		*98.4*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.09			ug/L	*5.00*		*102*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

Volatile Organic Compounds - Quality Control

Batch BHL0526 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BHL0526-BS2)				Prepared: 18-Dec-2019 Analyzed: 18-Dec-2019 10:59						
Gasoline Range Organics (Tol-Nap)	1080	100	ug/L	1000		108	72-128			
Surrogate: Toluene-d8	5.13		ug/L	*5.00*		*103*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.05		ug/L	*5.00*		*101*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20191218s.b\V312181905GLCS.D

Page 1

Date : 18-DEC-2019 10:59

Client ID:

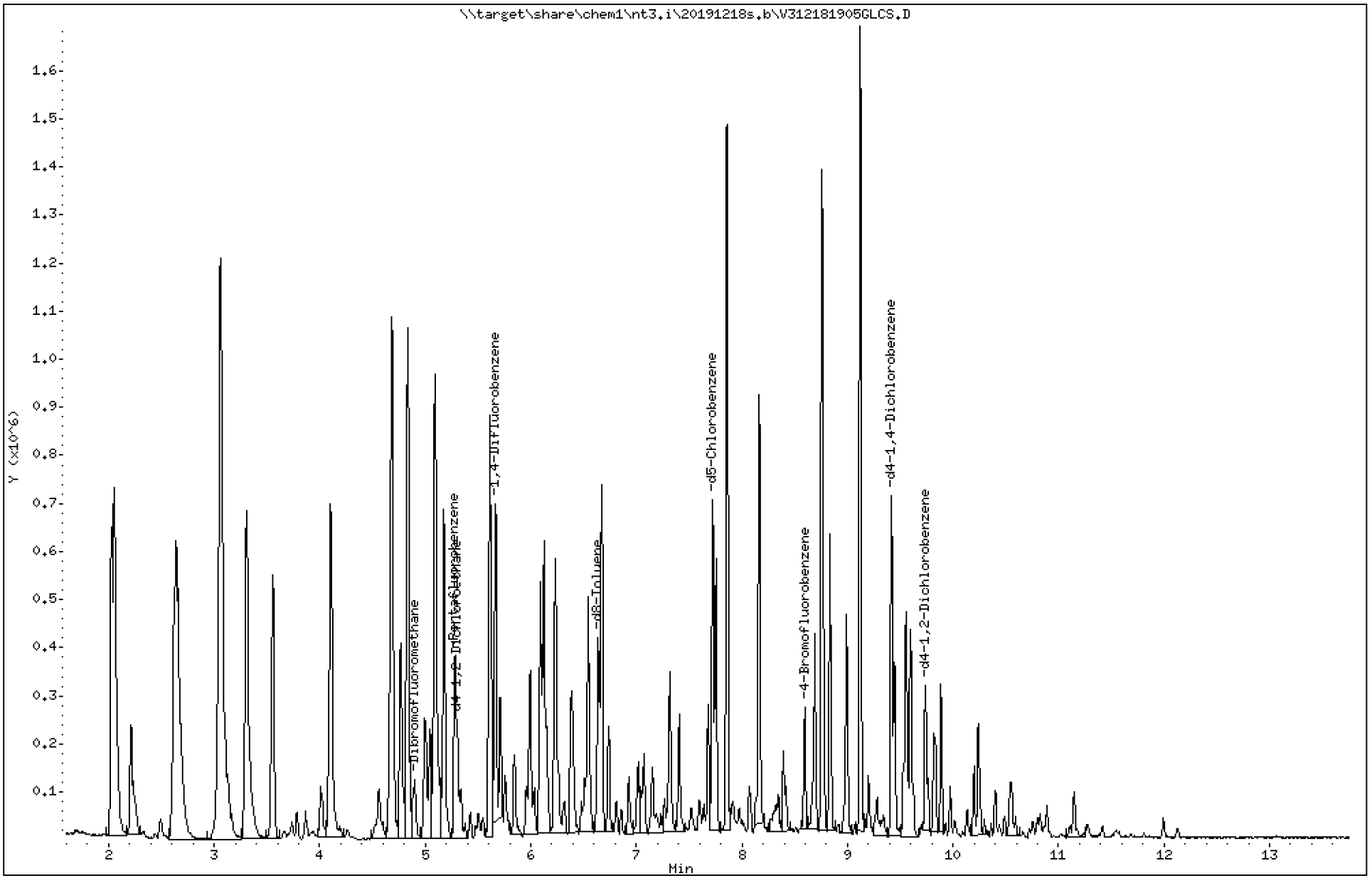
Instrument: nt3.i

Sample Info: BHL0526-BS2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20191218s.b\V312181905GLCS.D
Lab Smp Id: BHL0526-BS2
Inj Date : 18-DEC-2019 10:59
Operator : PKC Inst ID: nt3.i
Smp Info : BHL0526-BS2
Misc Info : 15-
Comment   :
Method   : \\target\share\chem1\nt3.i\20191218s.b\8260C112619.m
Meth Date : 19-Dec-2019 10:47 nt3.i Quant Type: ISTD
Cal Date : 26-NOV-2019 18:46 Cal File: V311261918.D
Als bottle: 56
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Concentration Formula: Amt * DF * Pv / Sa * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.899	4.900	(0.928)	40130	4.54924	4.549
* 32 Pentafluorobenzene	168	5.282	5.277	(1.000)	197163	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.303	5.303	(1.004)	58138	5.28506	5.285
* 37 1,4-Difluorobenzene	114	5.665	5.665	(1.000)	292929	10.0000	
$ 43 d8-Toluene	98	6.638	6.638	(1.172)	174702	5.12626	5.126
* 53 d5-Chlorobenzene	117	7.722	7.722	(1.000)	285805	10.0000	
$ 62 4-Bromofluorobenzene	174	8.594	8.594	(1.113)	62285	5.05268	5.053
* 76 d4-1,4-Dichlorobenzene	152	9.418	9.418	(1.000)	150797	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.737	9.737	(1.034)	71705	5.11837	5.118

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V312181905GLCS.D
Lab Smp Id: BHL0526-BS2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20191218s.b\8260C112619.m
Misc Info: 15-

Calibration Date: 18-DEC-2019
Calibration Time: 22:09
Level: LOW
Sample Type: WATER

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166279	83140	332558	197163	18.57
37 1,4-Difluorobenze	246302	123151	492604	292929	18.93
53 d5-Chlorobenzene	233630	116815	467260	285805	22.33
76 d4-1,4-Dichlorobe	121471	60736	242942	150797	24.14

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.28	4.78	5.78	5.28	0.10
37 1,4-Difluorobenze	5.67	5.17	6.17	5.67	-0.00
53 d5-Chlorobenzene	7.72	7.22	8.22	7.72	-0.00
76 d4-1,4-Dichlorobe	9.42	8.92	9.92	9.42	-0.00

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005
Sample Matrix: LIQUID Fraction: VOA
Lab Smp Id: BHL0526-BS2
Level: LOW Operator: PKC
Data Type: MS DATA SampleType: SAMPLE
SpikeList File: allspike.spk Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20191218s.b\8260C112619.m
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.549	90.98	80-120
$ 33 d4-1,2-Dichloroeth	5.000	5.285	105.70	80-128
$ 43 d8-Toluene	5.000	5.126	102.53	80-120
$ 62 4-Bromofluorobenze	5.000	5.053	101.05	80-120
$ 79 d4-1,2-Dichloroben	5.000	5.118	102.37	80-120

REVIEW SUMMARY FOR FILE - V312181905GLCS.D

Lab ID: BHL0526-BS2
nt3.i, 20191218s.b\8260C112619.m,   18-DEC-2019 10:59

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20191218g.b\V312181905GLCS.D

Page 1

Date : 18-DEC-2019 10:59

Client ID:

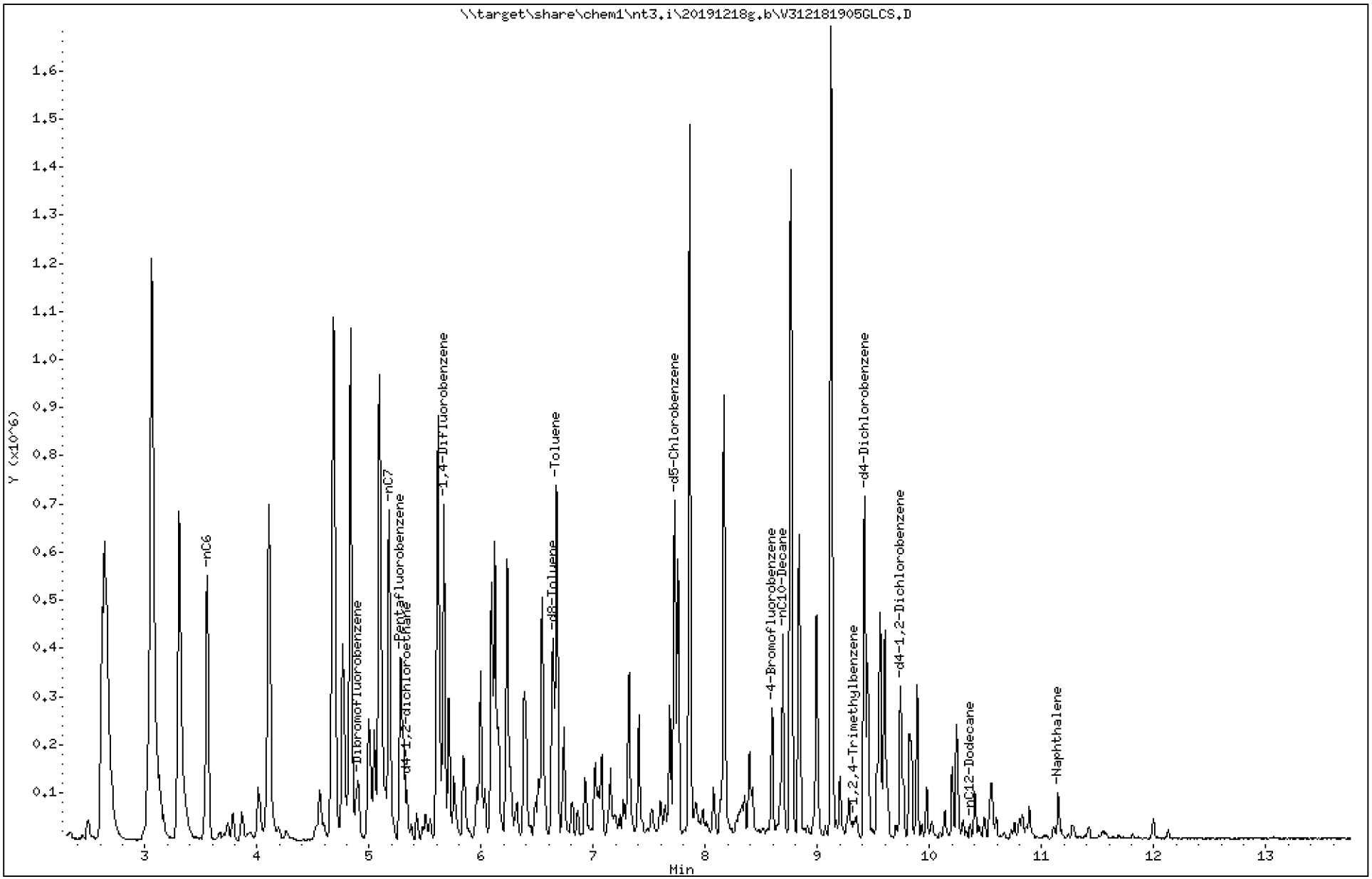
Instrument: nt3.i

Sample Info: BHL0526-BS2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20191218g.b/V312181905GLCS.D
Method: \20191218g.b\NWTPHG120419.m
Instrument: nt3.i
Gas Ical Date: 04-DEC-2019
Injection Date: 18-DEC-2019 10:59

ARI ID: BHL0526-BS2
Client ID:
Matrix: WATER
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

Range		RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12	(6.57 to 10.46)	21714890	23295785	1.073 M
8015C 2MP-TMB	(2.88 to 9.41)	48023951	45897726	0.956
AK101 nC6-nC10	(3.45 to 8.57)	34280429	33037466	0.964
NWTPHG Tol-Nap	(6.57 to 11.25)	22631510	24343767	1.076 M
mod8015 nC7-nC12	(5.09 to 10.46)	35103448	33687290	0.960 M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

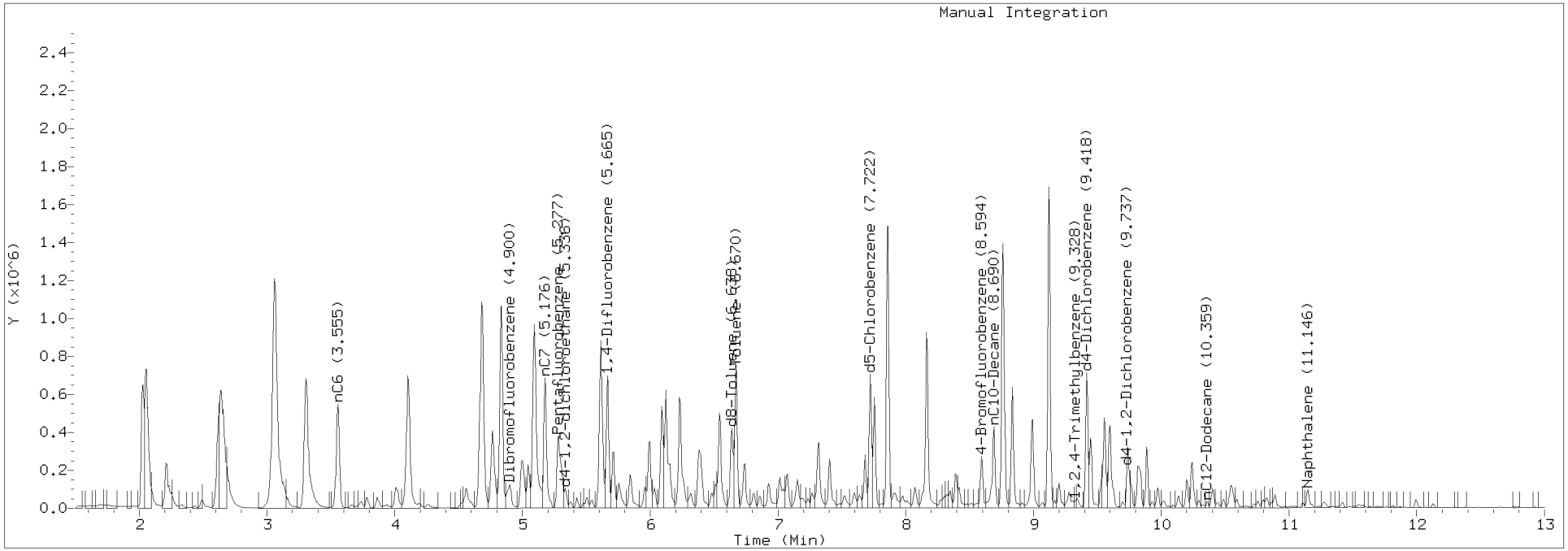
NW Gas Range Subtracted Peaks

7.722	966020	d5-Chlorobenzene
6.638	715371	d8-Toluene
9.418	935582	d4-Dichlorobenzene
8.594	390866	4-Bromofluorobenzene
9.737	474081	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20191218g.b/V312181905GLCS.D Injection: 18-DEC-2019 10:59

Lab ID:BHL0526-BS2



Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

Volatile Organic Compounds - Quality Control

Batch BHL0526 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BHL0526-BSD1)					Prepared: 18-Dec-2019 Analyzed: 18-Dec-2019 10:31						
Benzene	11.1	0.03	0.20	ug/L	10.0		111	80-120	17.00	30	
Toluene	10.8	0.04	0.20	ug/L	10.0		108	80-120	18.20	30	
Ethylbenzene	10.7	0.04	0.20	ug/L	10.0		107	80-120	15.60	30	
m,p-Xylene	21.7	0.05	0.40	ug/L	20.0		109	80-121	16.50	30	
o-Xylene	11.0	0.03	0.20	ug/L	10.0		110	80-121	16.50	30	
Surrogate: Toluene-d8	5.02			ug/L	*5.00*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.90			ug/L	*5.00*		*98.0*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

Volatile Organic Compounds - Quality Control

Batch BHL0526 - EPA 5030 (Purge and Trap)

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BHL0526-BSD2)				Prepared: 18-Dec-2019 Analyzed: 18-Dec-2019 11:27						
Gasoline Range Organics (Tol-Nap)	1080	100	ug/L	1000		108	72-128	0.34	30	
Surrogate: Toluene-d8	5.06		ug/L	*5.00*		*101*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.05		ug/L	*5.00*		*101*	*80-120*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Data File: \\target\share\chem1\nt3.i\20191218s.b\V312181906G.D

Page 1

Date : 18-DEC-2019 11:27

Client ID: Gas

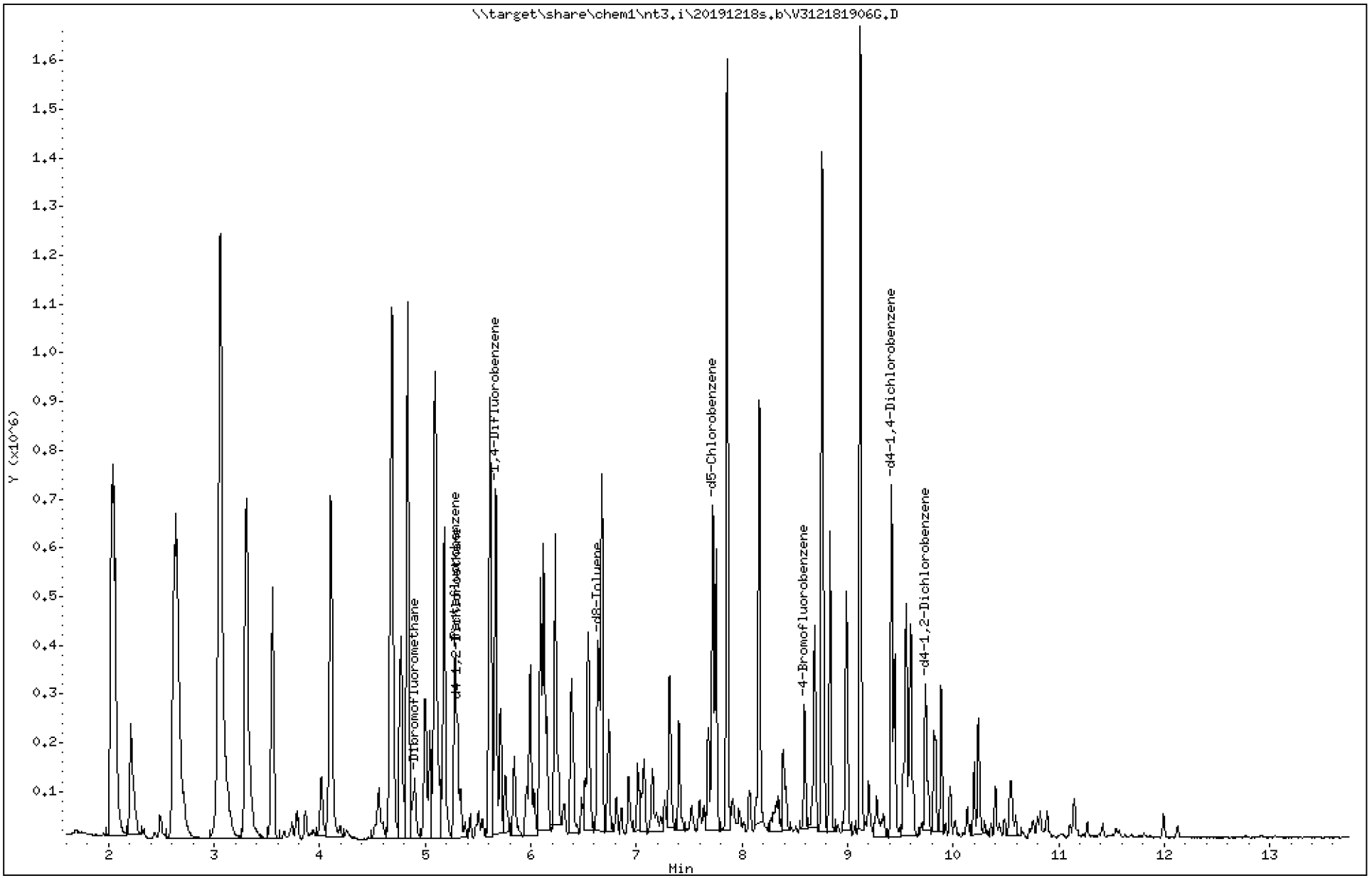
Instrument: nt3.i

Sample Info: BHL0526-BSD2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20191218s.b\V312181906G.D
Lab Smp Id: BHL0526-BSD2 Client Smp ID: Gas
Inj Date : 18-DEC-2019 11:27
Operator : PKC Inst ID: nt3.i
Smp Info : BHL0526-BSD2
Misc Info : 16-
Comment :
Method : \\target\share\chem1\nt3.i\20191218s.b\8260C112619.m
Meth Date : 19-Dec-2019 10:47 nt3.i Quant Type: ISTD
Cal Date : 26-NOV-2019 18:46 Cal File: V311261918.D
Als bottle: 56
Dil Factor: 1.00000
Integrator: HP RTE Compound Sublist: gsurr.sub
Target Version: 4.14
Processing Host: ORGDATA11

Compounds	QUANT SIG MASS	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS ON-COLUMN (ug/L)	FINAL (ug/L)
$ 27 Dibromofluoromethane	111	4.898	4.900	(0.928)	40592	4.78855	4.789(R)
* 32 Pentafluorobenzene	168	5.281	5.277	(1.000)	189466	10.0000	
$ 33 d4-1,2-Dichloroethane	65	5.302	5.303	(1.004)	55519	5.25201	5.252(R)
* 37 1,4-Difluorobenzene	114	5.664	5.665	(1.000)	295602	10.0000	
$ 43 d8-Toluene	98	6.636	6.638	(1.172)	174112	5.06275	5.063(R)
* 53 d5-Chlorobenzene	117	7.721	7.722	(1.000)	280689	10.0000	
$ 62 4-Bromofluorobenzene	174	8.598	8.594	(1.114)	61195	5.05474	5.055(R)
* 76 d4-1,4-Dichlorobenzene	152	9.416	9.418	(1.000)	147804	10.0000	
$ 79 d4-1,2-Dichlorobenzene	152	9.741	9.737	(1.034)	70952	5.16718	5.167(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS
AREA AND RT SUMMARY

Instrument ID: nt3.i
Lab File ID: V312181906G.D
Lab Smp Id: BHL0526-BSD2
Analysis Type: VOA
Quant Type: ISTD
Operator: PKC
Method File: \\target\share\chem1\nt3.i\20191218s.b\8260C112619.m
Misc Info: 16-

Calibration Date: 18-DEC-2019
Calibration Time: 22:09
Client Smp ID: Gas
Level:
Sample Type:

Test Mode:
Use Initial Calibration Level 5.
If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT LOWER	AREA LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	166279	83140	332558	189466	13.94
37 1,4-Difluorobenze	246302	123151	492604	295602	20.02
53 d5-Chlorobenzene	233630	116815	467260	280689	20.14
76 d4-1,4-Dichlorobe	121471	60736	242942	147804	21.68

COMPOUND	STANDARD	RT LIMIT LOWER	RT LIMIT UPPER	SAMPLE	%DIFF
32 Pentafluorobenzen	5.28	4.78	5.78	5.28	0.08
37 1,4-Difluorobenze	5.67	5.17	6.17	5.66	-0.02
53 d5-Chlorobenzene	7.72	7.22	8.22	7.72	-0.02
76 d4-1,4-Dichlorobe	9.42	8.92	9.92	9.42	-0.01

AREA UPPER LIMIT = +100% of internal standard area.
AREA LOWER LIMIT = - 50% of internal standard area.
RT UPPER LIMIT = + 0.50 minutes of internal standard RT.
RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name:
Client SDG: 20150930a
Sample Matrix: NONE
Fraction: VOA
Lab Smp Id: BHL0526-BSD2
Client Smp ID: Gas
Level:
Operator: PKC
Data Type: MS DATA
SampleType: SAMPLE
SpikeList File: allspike.spk
Quant Type: ISTD
Sublist File: gsurr.sub
Method File: \\target\share\chem1\nt3.i\20191218s.b\8260C112619.m
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
$ 27 Dibromofluorometha	5.000	4.789	95.77	
$ 33 d4-1,2-Dichloroeth	5.000	5.252	105.04	
$ 43 d8-Toluene	5.000	5.063	101.26	
$ 62 4-Bromofluorobenze	5.000	5.055	101.09	
$ 79 d4-1,2-Dichloroben	5.000	5.167	103.34	

REVIEW SUMMARY FOR FILE - V312181906G.D

Lab ID: BHL0526-BSD2
nt3.i, 20191218s.b\8260C112619.m,   18-DEC-2019 11:27

RT	CO-ELUTION COMPOUNDS

Data File: \\target\share\chem1\nt3.i\20191218g.b\V312181906G.D

Page 1

Date : 18-DEC-2019 11:27

Client ID: Gas

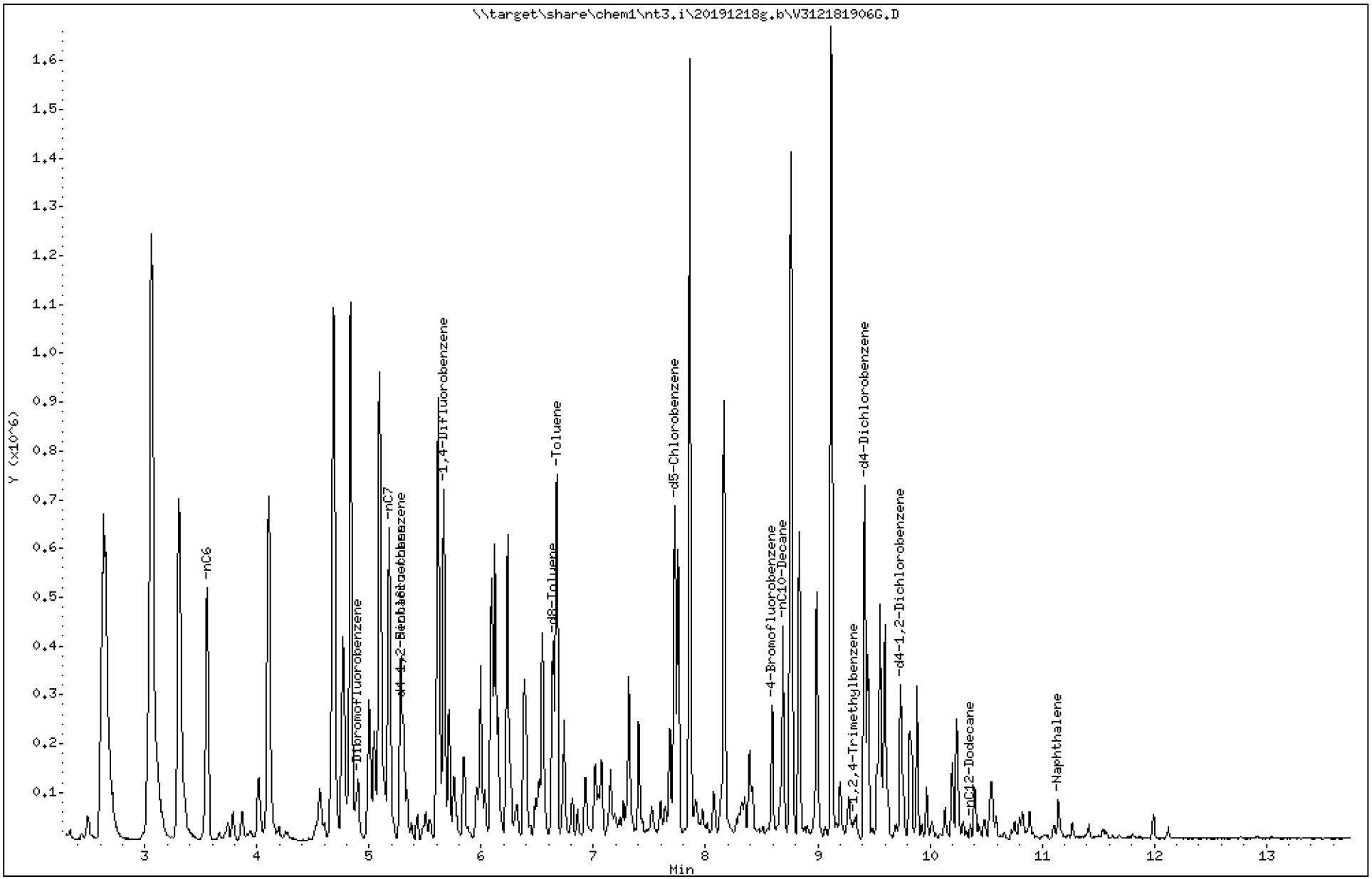
Instrument: nt3.i

Sample Info: BHL0526-BSD2

Operator: PKC

Column phase: RTXVMS

Column diameter: 0.18



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Analytical Resources Inc.
GC/MS Gas Quantitation Report

Data file: 20191218g.b/V312181906G.D
Method: \20191218g.b\NWTPHG120419.m
Instrument: nt3.i
Gas Ical Date: 04-DEC-2019
Injection Date: 18-DEC-2019 11:27

ARI ID: BHL0526-BSD2
Client ID: Gas
Matrix: NONE
Dilution Factor: 1.000
Operator: PKC

GASOLINE HYDROCARBONS

	Range	RF	Total Area*	Amount (ug/mL)	
WAGas Tol-C12	(6.57 to 10.46)	21714890	23398088	1.078	M
8015C 2MP-TMB	(2.88 to 9.41)	48023951	46168960	0.961	M
AK101 nC6-nC10	(3.45 to 8.57)	34280429	33270671	0.971	M
NWTPHG Tol-Nap	(6.57 to 11.25)	22631510	24427301	1.079	M
mod8015 nC7-nC12	(5.09 to 10.46)	35103448	33987862	0.968	M

M Indicates manual integration within range

* Surrogate areas are subtracted from Total Area

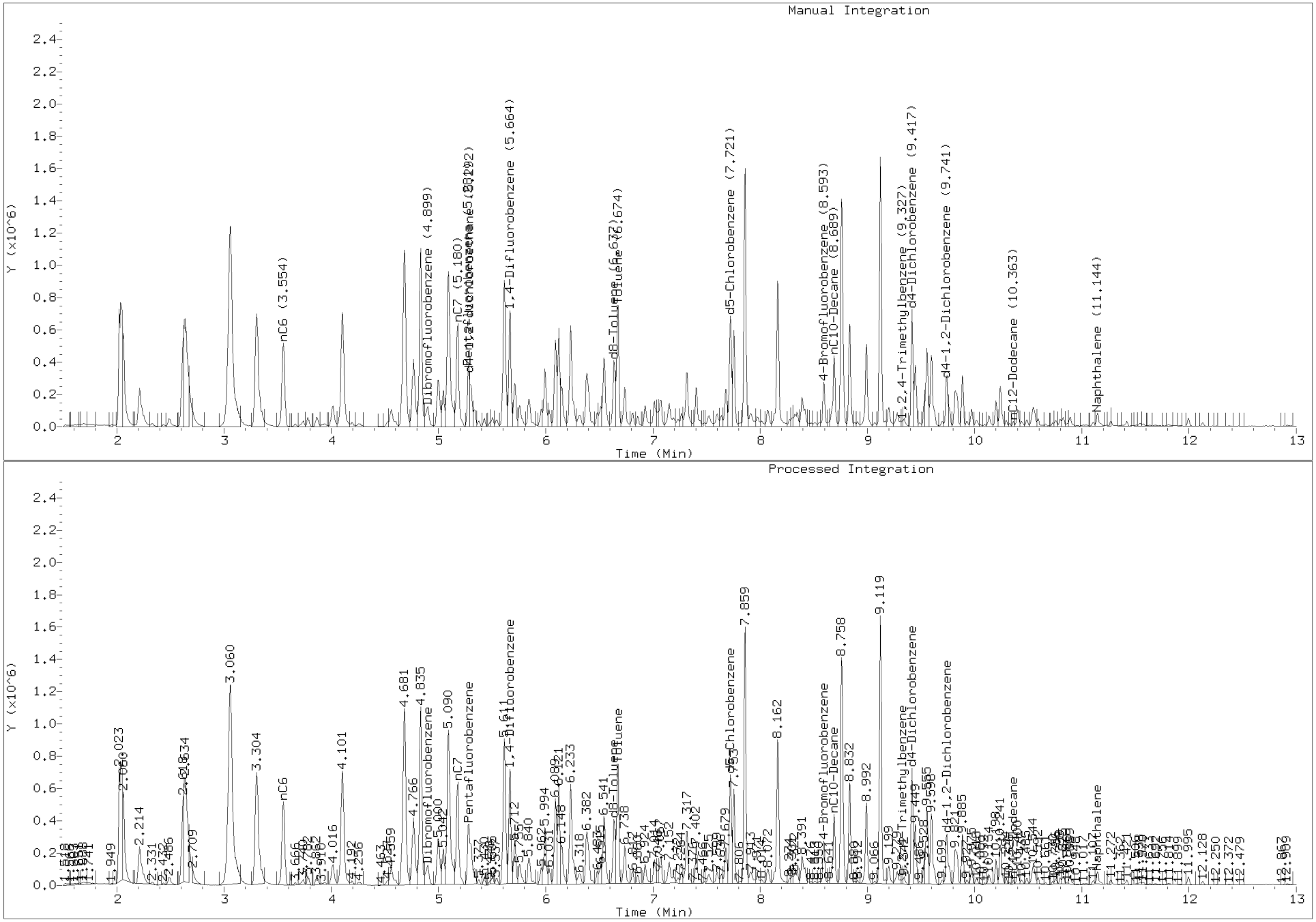
NW Gas Range Subtracted Peaks

7.721	953237	d5-Chlorobenzene
6.637	687793	d8-Toluene
9.417	910854	d4-Dichlorobenzene
8.593	400369	4-Bromofluorobenzene
9.741	468376	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20191218g.b/V312181906G.D   Injection: 18-DEC-2019 11:27

Lab ID:BHL0526-BSD2



Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

Certified Analyses included in this Report

Analyte	Certifications
EPA 8260C in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrolein	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Iodomethane	DoD-ELAP,NELAP,CALAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,CALAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,CALAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,CALAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Butanone	DoD-ELAP,NELAP,CALAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,CALAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE

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Dalton, Olmsted & Fuglevand, Inc	Project: USOR POT RD	
1420 - 156th Ave., NE STE C1	Project Number: USO-023-00	**Reported:**
Bellevue WA, 98007	Project Manager: Dave Cooper	30-Dec-2019 14:01

trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,CALAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Styrene	DoD-ELAP,NELAP,CALAP,WADOE
Bromoform	DoD-ELAP,NELAP,CALAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,CALAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,CALAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,CALAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,CALAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,CALAP,WADOE
n-Hexane	WADOE

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2-Pentanone	WADOE

NWTPHg in Water

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	01/31/2021
CALAP	California Department of Public Health CAELAP	2748	06/30/2019
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program	66169	01/01/2021
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2020
WADOE	WA Dept of Ecology	C558	06/30/2019
WA-DW	Ecology - Drinking Water	C558	06/30/2019

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Notes and Definitions

U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
J	Estimated concentration value detected below the reporting limit.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.