



—AN ATLAS COMPANY—

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**GROUNDWATER MONITORING REPORT  
(September 2019)**

**Former U-Haul Facility No. 615081  
800-812 West Columbia Drive  
Kennewick, Washington 99336**

**Washington Department of Ecology Facility/Site No. 333  
Cleanup Site ID No. 4898  
Voluntary Cleanup Program Site ID No. CE0494**

**Prepared for:**

**AMERCO Real Estate Company  
2727 North Central Avenue, Suite 500  
Phoenix, Arizona 85004**

**Submitted to:**

**Washington Department of Ecology  
CRO Toxics Cleanup Program  
1250 West Alder Street  
Union Gap, Washington 98903-0009**

**ATC Project No. 1052 5081 07**

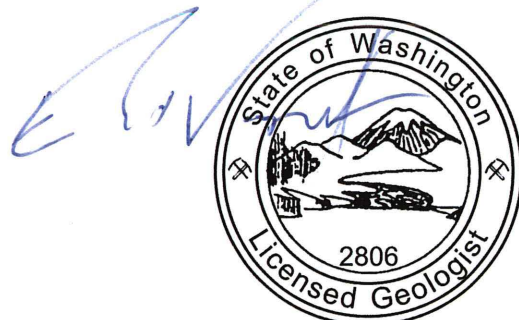
**October 29, 2019**

**Prepared by:**

*Keli Vandegrift*

**Keli Vandegrift  
Project Staff**

**Reviewed by:**



**Edwin T. Vandegrift**

**Edwin Vandegrift, L.G.  
Senior Project Manager**

**GROUNDWATER MONITORING REPORT  
(September 2019)**

Former U-Haul Facility No. 615081  
800-812 West Columbia Drive  
Kennewick, Washington 99336

**SITE INFORMATION:**

ATC Group Services LLC (ATC) Contact Person:	Edwin Vandegrift, L.G.
Date of previous sampling event:	06/13/19
Date of previous monitoring event:	06/13/19
Current remediation technique(s):	Monitored natural attenuation.

**FIELD ACTIVITY:**

Date(s) monitored and/or sampled:	09/12/19
Wells monitored:	Seven (UKMW-1 through UKMW-7)
Wells sampled:	Two (UKMW-1 and UKMW-5)
Purging method:	Low-flow purged using peristaltic pump.
Sampling method:	Samples collected using pump with dedicated tubing.

**SITE HYDROGEOLOGY (09/12/19):**

Minimum depth to groundwater (feet below top of casing [TOC]):	11.99 (UKMW-3)
Maximum depth to groundwater (feet below TOC):	13.46 (UKMW-7)
Average groundwater elevation (feet above mean sea level):	332.11
Change in average groundwater elevation since previous monitoring event (feet):	+0.06
Approximate groundwater gradient/flow direction:	0.0022 foot/foot (ft/ft) / Northwest
Previous groundwater gradient/flow direction:	0.0028 ft/ft / Northwest

**GROUNDWATER CONDITIONS (09/12/19):**

Minimum dissolved phase chlorobenzene concentration excluding "non-detects" (micrograms per liter [µg/L]):	111 (UKMW-5)
Maximum dissolved phase chlorobenzene (µg/L):	111 (UKMW-5)
Maximum dissolved phase chlorobenzene (µg/L) observed previous sampling event:	109 (UKMW-5)
Minimum dissolved phase 1,4-dichlorobenzene concentration excluding "non-detects" (µg/L):	55.9 (UKMW-5)
Maximum dissolved phase 1,4-dichlorobenzene concentration (µg/L):	55.9 (UKMW-5)
Maximum dissolved phase 1,4-dichlorobenzene concentration (µg/L) observed previous sampling event:	43.4 (UKMW-5)

**ADDITIONAL INFORMATION AND COMMENTS:**

This groundwater monitoring report presents the results of activities performed on September 12, 2019. As approved in the Washington Department of Ecology (email dated April 15, 2019, ATC has been conducting quarterly gauging of all accessible wells with purge/sample collection at the following two wells only: UKMW-1 (as the hydraulically down-gradient point-of-compliance well) and UKMW-5 (as the 'source' well). Based on the chlorobenzene exceedance of the maximum contaminant level at UKMW-5, ATC will attempt to spot remediate (by excavation) and apply biodegradation enhancement products at the groundwater interface. Groundwater monitoring and sampling events will resume following remediation efforts.

**ATTACHMENTS:**

Table 1 Summary of Current Groundwater Gauging and Laboratory Analytical Data  
Table 2 Summary of Historical Groundwater Gauging and Laboratory Analytical Data  
Table 3 Summary of Field Parameters  
  
Figure 1 Groundwater Conditions Map (09/12/19)  
  
Appendix A Groundwater Elevation / COC Attenuation Graphs  
Appendix B Laboratory Analytical Data Report and Chain of Custody Document  
Appendix C Well Gauging Log and Well Purging and Sampling Logs

**GROUNDWATER MONITORING REPORT**

**(September 2019)**

Former U-Haul Facility No. 615081

800-812 West Columbia Drive

Kennewick, Washington 99336

**CERTIFICATION:**

The information provided in this Groundwater Monitoring Report (September 2019) for Former U-Haul Facility No. 615081, located at 800-812 West Columbia Drive in Kennewick, Washington was prepared under the supervision of a Washington Licensed Geologist.

I certify under penalty of law that this document, including all attachments and supplemental information, was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information.



Edwin T. Vandegrift

*Edwin T. Vandegrift*

*October 29, 2019*

**Edwin T. Vandegrift, L.G.**  
Washington Licensed Geologist No. 2806  
Senior Project Manager  
**ATC Group Services LLC**

**Date**

## *Tables*



**TABLE 1**  
**SUMMARY OF CURRENT GROUNDWATER GAUGING AND LABORATORY ANALYTICAL DATA**  
Former U-Haul Facility No. 615081  
800-812 West Columbia Drive, Kennewick, Washington 99336

Well ID	Date	TOC Elevation (feet above MSL)	Approximate Well Depth (feet below TOC)	Top of Screen Elevation (feet above MSL)	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet above MSL)	Volatile Organic Compounds											
							Benzene	Ethylbenzene	Chlorobenzene	sec-Butylbenzene	Carbon Disulfide	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene*	Isopropylbenzene	n-Propylbenzene	Other VOC**	
							EPA Method 8260B											
							All results reported in micrograms per liter (µg/L).											
Model Toxics Control Act (MTCA) Method A Cleanup Levels for Groundwater							5	700	NE	NE	NE	NE	NE	NE	NE	NE	NE	Various
MTCA Method B Cleanup Levels (Carcinogenic/Non-carcinogenic) for Groundwater							0.795 / 32.0	NE / 800	NE / 160	NE / 800	NE / 800	NE / 720	NE	8.10 / 560	NE	NE / 800	Various	
Washington Maximum Contaminant Levels (MCL) for Groundwater							5	70	100	NE	NE	600	NE	75	NE	NE	Various	
UKMW-1	09/12/19	344.86	24.00	340.86	12.80	332.06	<0.331	<0.384	<0.348	<0.365	---	<0.349	<0.220	<0.274	<0.326	<0.349	ND	
UKMW-2	09/12/19	344.18	25.16	339.18	12.09	332.09	---	---	---	---	---	---	---	---	---	---	---	
UKMW-3	09/12/19	---	25.00	---	11.99	---	---	---	---	---	---	---	---	---	---	---	---	
UKMW-4	09/12/19	345.26	24.30	339.26	13.22	332.04	---	---	---	---	---	---	---	---	---	---	---	
UKMW-5	09/12/19	345.30	24.45	340.30	13.17	332.13	<0.331	<0.384	<b>111</b>	3.70 B1	---	9.45	6.20	55.9	2.23	<0.349	ND	
UKMW-6	09/12/19	345.36	24.36	340.36	13.17	332.19	---	---	---	---	---	---	---	---	---	---	---	
UKMW-7	09/12/19	345.63	24.45	340.63	13.46	332.17	---	---	---	---	---	---	---	---	---	---	---	
Notes:	<p>TOC - Top of casing.  MSL - Mean sea level.  * - The applicable cleanup level for 1,4-dichlorobenzene is the Maximum Contaminant Level (since 10<sup>-6</sup> [Method B] &lt; MCL &lt; 10<sup>-5</sup> [Method C]).  VOC - Volatile organic compounds.  ** - Only VOC exceeding MTCA Method A Cleanup Level for Groundwater or the Washington MCL (if established) are identified.  EPA - Environmental Protection Agency  NE - Not established.  &lt;0.331 - Not detected above laboratory specified method detection limit (MDL).  --- - Not analyzed, not measured or no data available.  ND - No other constituents were quantified at, or exceeding, laboratory specified MDL.  - Constituent quantified above laboratory specified MDL.  B1 - Laboratory qualifier: analyte detected in method blank at or above the method reporting limit.  <b>Bold</b> - Concentration equals or exceeds the applicable cleanup level.</p>																	

**TABLE 2  
SUMMARY OF HISTORICAL GROUNDWATER GAUGING AND LABORATORY ANALYTICAL DATA**

Former U-Haul Facility No. 615081  
800-812 West Columbia Drive, Kennewick, Washington 99336

Well ID	Date	TOC Elevation (feet above MSL) <sup>(1)</sup>	Approximate Well Depth (feet below TOC)	Top of Screen Elevation (feet above MSL)	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet above MSL)	Gasoline	Diesel (Fuel Oil)	Heavy Oil	Benzene	Ethylbenzene	Chlorobenzene	sec-Butylbenzene	Carbon Disulfide	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene*	Isopropylbenzene	n-Propylbenzene	Other VOC**	Benzof(a)pyrene	Benzof(b)fluoranthene	Benzof(k)fluoranthene	Fluoranthene	Phenanthrene	Other PAH	Aroclor 1242	PCB Mixtures***	
							Total Petroleum Hydrocarbons			Volatile Organic Compounds											Polynuclear Aromatic Hydrocarbons					Polychlorinated Biphenyls			
							NWTPH-Gx	NWTPH-Dx/Dx Ext., NWTPHDX-SGT or WTPH-D Modified		EPA Method 8260 / 8021B / 8240 / 601											EPA Method 8270 (SIM) / 8270C / 8270D (SIM) / 8270 Modified					EPA Method 8082, 8081 or 8080			
All results reported in micrograms per liter (µg/L).																													
Model Toxics Control Act (MTCA) Method A Cleanup Levels for Groundwater							800/1,000 <sup>(2)</sup>	500	500	5	700	NE	NE	NE	NE	NE	NE	NE	NE	NE	Various	0.10	NE	NE	NE	NE	Various	NE	0.1
MTCA Method B Cleanup Levels (Carcinogenic/Non-carcinogenic) for Groundwater							NE	NE	NE	0.795 / 32.0	NE / 800	NE / 160	NE / 800	NE / 800	NE / 720	NE	8.10 / 560	NE	NE / 800	Various	0.012 / NE	0.12 / NE	0.12 / NE	NE / 640	NE	Various	NE	0.0438 / NE	
Washington Maximum Contaminant Levels (MCL) for Groundwater							NE	NE	NE	5	70	100	NE	NE	600	NE	75	NE	NE	Various	0.2	NE	NE	NE	NE	Various	NE	0.5	
UKMW-1	06/22/93	344.86	24	340.86	10.88	333.98	---	---	---	<5	<5	<5	---	<5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
UKMW-1	07/08/93	344.86	24	340.86	10.84	334.02	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
UKMW-1	11/24/93	344.86	24	340.86	10.88	333.98	---	---	<1,000	---	---	---	---	---	---	<1	---	---	---	---	---	---	---	---	---	---	<0.5	ND	
UKMW-1	04/20/01	344.86	24	340.86	11.98	332.88	<50.0	---	---	<0.500	<0.500	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND	---	---	---	---	---	---	<0.813	ND	
UKMW-1	05/02/02 <sup>(3)</sup>	344.86	24	340.86	12.20	332.66	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<0.100	<0.100	<0.100	<0.100	<0.100	ND	<0.0400	ND
UKMW-1	05/03/02 <sup>(4)</sup>	344.86	24	340.86	---	---	<100	---	---	<0.500	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND	<0.100	<0.100	<0.100	<0.100	<0.100	ND	---	---	
UKMW-1	11/10/04	344.86	24	340.86	11.08	333.78	<100	---	---	<0.500	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND	<0.100	<0.100	<0.100	<0.100	<0.100	ND	---	---	
UKMW-1	06/19/08	344.86	24	340.86	10.46	334.40	---	---	---	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	ND	<4.76	<4.76	<4.76	<4.76	<4.76	ND	<0.476	ND		
UKMW-1	09/09/08	344.86	24	340.86	10.55	334.31	---	---	---	<0.200	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND	<4.76	<4.76	<4.76	<4.76	<4.76	ND	<0.154	ND		
UKMW-1	03/03/15	344.86	24	340.86	---	---	<100	---	---	<0.250	<0.500	<0.500	<1.00	---	<0.500	<0.500	<0.500	<1.00	<0.500	ND	<0.0381	<0.0381	<0.0381	<0.0381	<0.0381	ND	<0.0952	ND	
UKMW-1	12/15/17	344.86	23.98	340.86	13.31	331.55	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
UKMW-1	04/26/18	344.86	24.00	340.86	11.97	332.89	---	<66.7	<83.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
UKMW-1	09/11/18	344.86	24.00	340.86	11.64	333.22	---	---	---	<0.331	<0.384	<0.348	<0.365	---	<0.349	<0.220	<0.274	<0.326	<0.349	ND	---	---	---	---	---	---	<0.0470	<0.100	
UKMW-1	12/14/18	344.86	24.00	340.86	13.61	331.25	---	---	---	<0.331	<0.384	<0.348	<0.365	<0.275	<0.349	<0.220	<0.274	---	<0.349	ND	---	---	---	---	---	---	<0.0470	<0.100	
UKMW-1	03/05/19	344.86	24.00	340.86	15.11	329.75	---	---	---	<0.331	<0.384	<0.348	<0.365	---	<0.349	<0.220	<0.274	<0.326	<0.349	ND	---	---	---	---	---	---	<0.0470	<0.100	
UKMW-1	06/13/19	344.86	24.00	340.86	12.88	331.98	---	---	---	<0.331	<0.384	<0.348	<0.365	---	<0.349	<0.220	<0.274	<0.326	<0.349	ND	---	---	---	---	---	---	---	---	
UKMW-1	09/12/19	344.86	24.00	340.86	12.80	332.06	---	---	---	<0.331	<0.384	<0.348	<0.365	---	<0.349	<0.220	<0.274	<0.326	<0.349	ND	---	---	---	---	---	---	---	---	
UKMW-2	06/22/93	344.18	25	339.18	10.16	334.02	---	---	---	<5	<5	<5	---	<5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
UKMW-2	07/08/93	344.18	25	339.18	10.12	334.06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
UKMW-2	11/24/93	344.18	25	339.18	10.16	334.02	---	---	<1,000	---	---	---	---	---	---	<1	---	---	---	---	---	---	---	---	---	---	<0.5	ND	
UKMW-2	04/20/01	344.18	25	339.18	11.26	332.92	114	---	---	<0.500	<0.500	<1.00	<1.00	2.42	<1.00	<1.00	<1.00	<1.00	<1.00	ND	---	---	---	---	---	---	<0.813	ND	
UKMW-2	05/02/02 <sup>(3)</sup>	344.18	25	339.18	11.48	332.70	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<0.100	<0.100	<0.100	<0.100	<0.100	ND	<0.0400	ND
UKMW-2	05/03/02 <sup>(4)</sup>	344.18	25	339.18	---	---	<100	---	---	<0.500	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND	<0.100	<0.100	<0.100	<0.100	<0.100	ND	---	---	
UKMW-2	11/10/04	344.18	25	339.18	10.36	333.82	<100	---	---	<0.500	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND	<0.100	<0.100	<0.100	<0.100	<0.100	ND	---	---	
UKMW-2	06/19/08	344.18	25	339.18	9.74	334.44	---	---	---	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	ND	<4.76	<4.76	<4.76	<4.76	<4.76	ND	<0.476	ND		
UKMW-2	09/09/08	344.18	25	339.18	9.83	334.35	---	---	---	<0.200	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND	<4.76	<4.76	<4.76	<4.76	<4.76	ND	<0.100	ND		
UKMW-2	03/03/15	344.18	25	339.18	---	---	<100	---	---	<0.250	<0.500	<0.500	<1.00	---	<0.500	<0.500	<0.500	<1.00	<0.500	ND	<0.0381	<0.0381	<0.0381	<0.0381	<0.0381	ND	<0.0952	ND	
UKMW-2	12/15/17	344.18	25.08	339.18	12.28	331.90	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
UKMW-2	04/26/18	344.18	25.16	339.18	11.24	332.94	---	<66.7	<83.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
UKMW-2	09/11/18	344.18	25.16	339.18	10.90	333.28	---	---	---	<0.331	<0.384	<0.348	<0.365	---	<0.349	<0.220	<0.274	<0.326	<0.349	ND	---	---	---	---	---	---	<0.0470	<0.100	
UKMW-2	12/14/18	344.18	25.16	339.18	12.90	331.28	---	---	---	<0.331	<0.384	<0.348	<0.365	<0.275	<0.349	<0.220	<0.274	---	<0.349	ND	---	---	---	---	---	---	<0.0470	<0.100	
UKMW-2	03/05/19	344.18	25.16	339.18	14.37	329.81	---	---	---	<0.331	<0.384	<0.348	<0.365	---	<0.349	<0.220	<0.274	<0.326	<0.349	ND	---	---	---	---	---	---	<0.0470	<0.100	
UKMW-2	06/13/19	344.18	25.16	339.18	12.18	332.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
UKMW-2	09/12/19	344.18	25.16	339.18	12.09	332.09	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
UKMW-3	06/22/93	---	25	---	10.04	---	---	---	---	<5	<5	<5	---	<5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
UKMW-3	07/08/93	---	25	---	10.00	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
UKMW-3	11/24/93	---	25	---	10.03	---	---	---	<1,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<0.5	ND	
UKMW-3	04/20/01	---	25	---	11.17	---	<50.0	---	---	<0.500	<0.500	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND	---	---	---	---	---	---	<0.833	ND	
UKMW-3	05/02/02 <sup>(3)</sup>	---	25	---	11.39	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<0.100	<0.100	<0.100	<0.100	<0.100	ND	<0.0400	ND

**TABLE 2  
SUMMARY OF HISTORICAL GROUNDWATER GAUGING AND LABORATORY ANALYTICAL DATA**

Former U-Haul Facility No. 615081  
800-812 West Columbia Drive, Kennewick, Washington 99336

Well ID	Date	TOC Elevation (feet above MSL) <sup>(1)</sup>	Approximate Well Depth (feet below TOC)	Top of Screen Elevation (feet above MSL)	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet above MSL)	Gasoline	Diesel (Fuel Oil)	Heavy Oil	Benzene	Ethylbenzene	Chlorobenzene	sec-Butylbenzene	Carbon Disulfide	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene*	Isopropylbenzene	n-Propylbenzene	Other VOC**	Benzo(a)pyrene	Benzo(a)anthracene	Benzo(b)fluoranthene	Fluoranthene	Phenanthrene	Other PAH	Aroclor 1242	PCB Mixtures***						
							Total Petroleum Hydrocarbons			Volatile Organic Compounds											Polynuclear Aromatic Hydrocarbons					Polychlorinated Biphenyls								
							NWTPH-Gx	NWTPH-Dx/Dx Ext., NWTPHDX-SGT or WTPH-D Modified		EPA Method 8260 / 8021B / 8240 / 601											EPA Method 8270 (SIM) / 8270C / 8270D (SIM) / 8270 Modified					EPA Method 8082, 8081 or 8080								
							All results reported in micrograms per liter (µg/L).																											
Model Toxics Control Act (MTCA) Method A Cleanup Levels for Groundwater							800/1,000 <sup>(2)</sup>	500	500	5	700	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	Various	0.10	NE	NE	NE	NE	Various	NE	0.1				
MTCA Method B Cleanup Levels (Carcinogenic/Non-carcinogenic) for Groundwater							NE	NE	NE	0.795 / 32.0	NE / 800	NE / 160	NE / 800	NE / 800	NE / 720	NE	8.10 / 560	NE	NE / 800	Various	0.012 / NE	0.12 / NE	0.12 / NE	NE / 640	NE	Various	NE	0.0438 / NE						
Washington Maximum Contaminant Levels (MCL) for Groundwater							NE	NE	NE	5	70	100	NE	NE	600	NE	75	NE	NE	Various	0.2	NE	NE	NE	NE	Various	NE	0.5						
UKMW-3	05/03/02 <sup>(4)</sup>	---	25	---	---	---	<100	---	---	<0.500	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND	<0.100	<0.100	<0.100	<0.100	<0.100	ND	---	---
UKMW-3	11/10/04	---	25	---	10.28	---	<100	---	---	<0.500	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND	<0.100	<0.100	<0.100	<0.100	<0.100	ND	---	---
UKMW-3	06/19/08	---	25	---	9.66	---	---	---	---	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	ND	<4.76	<4.76	<4.76	<4.76	<4.76	<4.76	ND	<0.100	<0.100	<0.100	<0.100	<0.100	ND	<0.476	ND
UKMW-3	09/09/08	---	25	---	9.75	---	---	---	---	<0.200	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND	<4.76	<4.76	<4.76	<4.76	<4.76	<4.76	ND	<0.100	<0.100	<0.100	<0.100	<0.100	ND	<0.100	ND
UKMW-3	12/14/18	---	25	---	12.79	---	---	---	---	<0.331	<0.384	<0.348	<0.365	<0.275	<0.349	<0.220	<0.274	---	<0.349	ND	---	---	---	---	---	---	---	---	---	---	---	---	<0.0470	<0.100
UKMW-3	09/12/19	---	25	---	11.99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
UKMW-4	11/24/93	345.26	24	339.26	11.30	333.96	---	---	<1,000	---	---	---	---	---	---	---	<1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<0.5	<0.5
UKMW-4	04/20/01	345.26	24	339.26	12.39	332.87	55.9	---	---	<0.500	<0.500	<1.00	<1.00	1.37	<1.00	<1.00	<1.00	<1.00	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	<0.943	ND
UKMW-4	05/02/02 <sup>(3)</sup>	345.26	24	339.26	12.59	332.67	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	ND	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	ND
UKMW-4	05/03/02 <sup>(4)</sup>	345.26	24	339.26	---	---	<100	---	---	<0.500	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	ND	<0.100	<0.100	<0.100	<0.100	<0.100	ND	---	---
UKMW-4	11/10/04	345.26	24	339.26	11.49	333.77	<100	---	---	<0.500	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND	<0.100	0.464	0.502	0.135	0.348	ND	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	ND	---	---
UKMW-4	06/19/08	345.26	24	339.26	10.86	334.40	---	---	---	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	ND	<4.76	<4.76	<4.76	<4.76	<4.76	<4.76	ND	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.476	ND
UKMW-4	09/09/08	345.26	24	339.26	10.93	334.33	---	---	---	<0.200	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND	<4.76	<4.76	<4.76	<4.76	<4.76	<4.76	ND	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	ND
UKMW-4	03/03/15	345.26	24	339.26	---	---	<100	---	---	<0.250	<0.500	<0.500	<1.00	---	<0.500	<0.500	<0.500	<1.00	<0.500	ND	<0.0381	<0.0381	<0.0381	<0.0381	<0.0381	ND	<0.0381	<0.0381	<0.0381	<0.0381	<0.0381	<0.0381	<0.0943	ND
UKMW-4	12/15/17	345.26	23.80	339.26	13.43	331.83	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
UKMW-4	04/26/18	345.26	24.30	339.26	12.36	332.90	---	<66.7	<83.3	<0.331	<0.384	<0.348	<0.365	---	<0.349	<0.220	<0.274	<0.326	<0.349	ND	<0.0116	<0.00410	<0.00212	<0.0157	<0.00820	Naphthalene 0.0272	<0.0470	<0.0470	<0.0470	<0.0470	<0.0470	<0.0470	<0.0470	<0.0470
UKMW-4	09/10/18	345.26	24.30	339.26	11.98	333.28	---	---	---	<0.331	<0.384	<0.348	<0.365	---	<0.349	<0.220	<0.274	<0.326	<0.349	ND	---	---	---	---	---	---	---	---	---	---	---	---	<0.0470	<0.100
UKMW-4	12/14/18	345.26	24.30	339.26	13.99	331.27	---	---	---	<0.331	<0.384	<0.348	<0.365	<0.275	<0.349	<0.220	<0.274	---	<0.349	ND	---	---	---	---	---	---	---	---	---	---	---	<0.0470	<0.100	
UKMW-4	03/05/19	345.26	24.30	339.26	15.50	329.76	---	---	---	<0.331	<0.384	<0.348	<0.365	---	<0.349	<0.220	<0.274	<0.326	<0.349	ND	---	---	---	---	---	---	---	---	---	---	---	<0.0470	<0.100	
UKMW-4	06/13/19	345.26	24.30	339.26	13.27	331.99	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
UKMW-4	09/12/19	345.26	24.30	339.26	13.22	332.04	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
UKMW-5	06/19/08	345.30	24	340.30	10.84	334.46	---	---	---	<1.00	<1.00	25.3	<1.00	<10.0	23.2	<1.00	21.9	<2.00	<1.00	ND	<19.0	<19.0	<19.0	<19.0	<19.0	ND	<19.0	<19.0	<19.0	<19.0	<19.0	11.4	11.4	
UKMW-5	09/09/08	345.30	24	340.30	10.91	334.39	---	---	---	0.210	2.32	232	4.08	<1.00	336	15.4	301	11.5	5.91	ND	<4.76	<4.76	<4.76	<4.76	<4.76	ND	<4.76	<4.76	<4.76	<4.76	<4.76	<4.76	<4.76	ND
UKMW-5	12/15/17	345.30	24.50	340.30	13.33	331.97	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
UKMW-5	04/26/18	345.30	24.45	340.30	12.34	332.96	---	120	<83.3	<0.331	<0.384	86.1	1.70	---	4.57	3.86	29.0	1.12	<0.349	ND	<0.0116	<0.00410	<0.00212	<0.0157	<0.00820	Acenaphthene 0.0321 Naphthalene 0.0415 1-Methylnaphthalene 0.0107	<0.0470	<0.0470	<0.0470	<0.0470	<0.0470	<0.0470	<0.0470	
UKMW-5	09/11/18	345.30	24.45	340.30	11.96	333.34	---	---	---	<0.331	<0.384	<0.348	<0.365	---	<0.349	<0.220	<0.274	<0.326	<0.349	ND	---	---	---	---	---	---	---	---	---	---	---	<0.0470	<0.100	
UKMW-5	12/14/18	345.30	24.45	340.30	13.95	331.35	---	---	---	<0.331	<0.384	108	3.68	<0.275	5.51	3.81	33.6	---	<0.349	tert-Butylbenzene 0.488	---	---	---	---	---	---	---	---	---	---	<0.0470	<0.100		
UKMW-5	03/05/19	345.30	24.45	340.30	15.45	329.85	---	---	---	<0.331	<0.384	<0.348	<0.365	---	<0.349	<0.220	<0.274	<0.326	<0.349	ND	---	---	---	---	---	---	---	---	---	---	<0.0470	<0.100		
UKMW-5	06/13/19	345.30	24.45	340.30	13.22	332.08	---	---	---	<0.331	<0.384	109	3.30	---	7.06	5.06	43.4	2.06	<0.349	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---
UKMW-5	09/12/19	345.30	24.45	340.30	13.17	332.13	---	---	---	<0.331	<0.384	111	3.70 B1	---	9.45	6.20	55.9	2.23	<0.349	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---
UKMW-6	06/19/08	345.36	24	340.36	10.86	334.50	---	---	---	<1.00	<1.00	<1.00	1.59	<10.0	1.67	<1.00	<1.00	<2.00	<1.00	ND	<4.76	<4.76	<4.76	<4.76	<4.76	ND	<4.76	<4.76	<4.76	<4.76	<4.76	3.66	3.66	
UKMW-6	09/09/08	345.36	24	340.36	10.93	334.43	---	---	---	<0.200	<1.00	<1.00	<1.00	<1.00	2.24	<1.00	1.45	<1.00	<1.00	ND	<4.76	<4.76	<4.76	<4.76	<4.76	ND	<4.76	&						

**TABLE 2**  
**SUMMARY OF HISTORICAL GROUNDWATER GAUGING AND LABORATORY ANALYTICAL DATA**  
Former U-Haul Facility No. 615081  
800-812 West Columbia Drive, Kennewick, Washington 99336

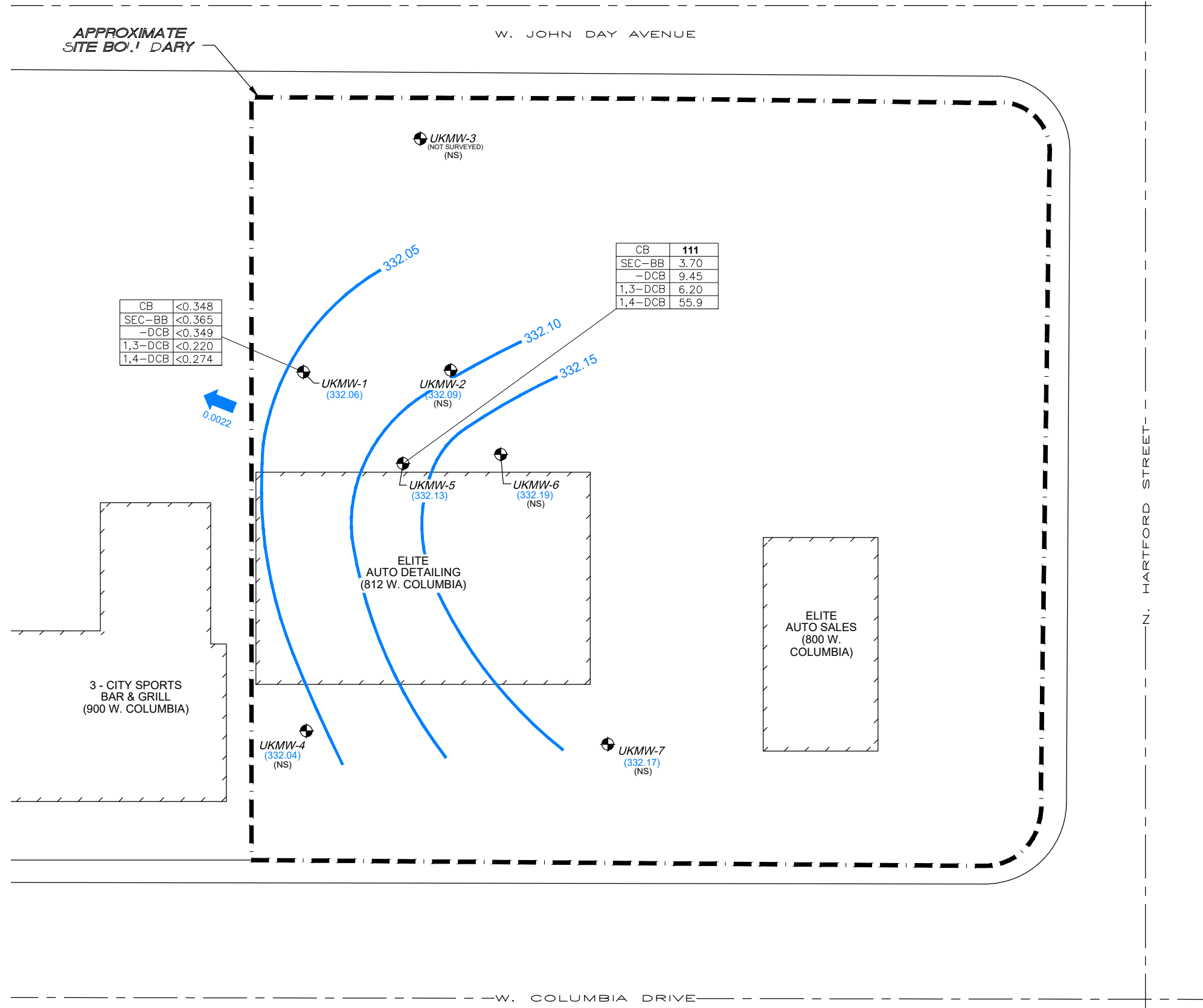
Well ID	Date	TOC Elevation (feet above MSL) <sup>(1)</sup>	Approximate Well Depth (feet below TOC)	Top of Screen Elevation (feet above MSL)	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet above MSL)	Gasoline	Diesel (Fuel Oil)	Heavy Oil	Benzene	Ethylbenzene	Chlorobenzene	sec-Butylbenzene	Carbon Disulfide	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene*	Isopropylbenzene	n-Propylbenzene	Other VOC**	Benzo(a)pyrene	Benzo(e)anthracene	Benzo(b)fluoranthene	Fluoranthene	Phenanthrene	Other PAH	Aroclor 1242	PCB Mixtures***		
							Total Petroleum Hydrocarbons			Volatile Organic Compounds											Polynuclear Aromatic Hydrocarbons					Polychlorinated Biphenyls				
							NWTPH-Gx	NWTPH-Dx/Dx Ext., NWTPHDx-SGT or WTPH-D Modified		EPA Method 8260 / 8021B / 8240 / 601											EPA Method 8270 (SIM) / 8270C / 8270D (SIM) / 8270 Modified					EPA Method 8082, 8081 or 8080				
All results reported in micrograms per liter (µg/L).																														
<b>Model Toxics Control Act (MTCA) Method A Cleanup Levels for Groundwater</b>							<b>800/1,000<sup>(2)</sup></b>	<b>500</b>	<b>500</b>	<b>5</b>	<b>700</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>Various</b>	<b>0.10</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>Various</b>	<b>NE</b>	<b>0.1</b>
<b>MTCA Method B Cleanup Levels (Carcinogenic/Non-carcinogenic) for Groundwater</b>							<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>0.795 / 32.0</b>	<b>NE / 800</b>	<b>NE / 160</b>	<b>NE / 800</b>	<b>NE / 800</b>	<b>NE / 720</b>	<b>NE</b>	<b>8.10 / 560</b>	<b>NE</b>	<b>NE / 800</b>	<b>Various</b>	<b>0.012 / NE</b>	<b>0.12 / NE</b>	<b>0.12 / NE</b>	<b>NE / 640</b>	<b>NE</b>	<b>Various</b>	<b>NE</b>	<b>0.0438 / NE</b>		
<b>Washington Maximum Contaminant Levels (MCL) for Groundwater</b>							<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>5</b>	<b>70</b>	<b>100</b>	<b>NE</b>	<b>NE</b>	<b>600</b>	<b>NE</b>	<b>75</b>	<b>NE</b>	<b>NE</b>	<b>Various</b>	<b>0.2</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>NE</b>	<b>Various</b>	<b>NE</b>	<b>0.5</b>		
UKMW-6	03/05/19	345.36	24.36	340.36	15.46	329.90	---	---	---	<0.331	<0.384	<0.348	<0.365	---	<0.349	<0.220	<0.274	<0.326	<0.349	ND	---	---	---	---	---	---	<0.0470	<0.100		
UKMW-6	06/13/19	345.36	24.36	340.36	13.23	332.13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
UKMW-6	09/12/19	345.36	24.36	340.36	13.17	332.19	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
UKMW-7	06/19/08	345.63	24	340.63	11.15	334.48	---	---	---	<1.00	<1.00	<1.00	<1.00	<10.0	<1.00	<1.00	<2.00	<1.00	ND	<4.76	<4.76	<4.76	<4.76	<4.76	ND	<0.476	ND			
UKMW-7	09/09/08	345.63	24	340.63	11.20	334.43	---	---	---	<0.200	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	ND	<4.76	<4.76	<4.76	<4.76	<4.76	ND	<0.100	ND			
UKMW-7	03/03/15	345.63	24	340.63	---	---	<100	---	---	<0.250	<0.500	<0.500	<1.00	---	<0.500	<0.500	<0.500	<1.00	<0.500	ND	<0.0381	<0.0381	<0.0381	<0.0381	<0.0381	ND	<0.0957	ND		
UKMW-7	12/15/17	345.63	24.45	340.63	13.67	331.96	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
UKMW-7	04/26/18	345.63	24.45	340.63	12.64	332.99	---	<66.7	<83.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
UKMW-7	09/11/18	345.63	24.45	340.63	12.31	333.32	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
UKMW-7	12/14/18	345.63	24.45	340.63	14.24	331.39	---	---	---	<0.331	<0.384	<0.348	<0.365	<0.275	<0.349	<0.220	<0.274	---	<0.349	ND	---	---	---	---	---	---	<0.0470	<0.100		
UKMW-7	03/05/19	345.63	24.45	340.63	15.74	329.89	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
UKMW-7	06/13/19	345.63	24.45	340.63	13.52	332.11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
UKMW-7	09/12/19	345.63	24.45	340.63	13.46	332.17	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
Notes: TOC - Top of casing. MSL - Mean sea level. (1) - All wells except UKMW-3 were professionally resurveyed 05/31/18. Well UKMW-3 was thought to have been destroyed until it was located beneath three to four inches of compacted material on 12/13/18. * - The applicable cleanup level for 1,4-dichlorobenzene is the Maximum Contaminant Level (since 10 <sup>6</sup> [Method B] < MCL < 10 <sup>5</sup> [Method C]). VOC - Volatile organic compounds. ** - Only VOC exceeding MTCA Method A Cleanup Level for groundwater or the Washington MCL (if established) are identified. PAH - Polynuclear aromatic hydrocarbons. PCB - Polychlorinated biphenyls. *** - PCB mixtures equals cumulative total (sum) of all Aroclor constituents. NWTPH-Gx - Northwest Total Petroleum Hydrocarbons - gasoline range. WTPH-Dx/Dx Ext - Northwest Total Petroleum Hydrocarbons - diesel/heavy oil range. EPA - Environmental Protection Agency (2) - MTCA Method A Cleanup Level of 800 mg/L if benzene present in groundwater and 1,000 mg/L if no detectable benzene is present in groundwater. NE - Not established. --- - Not analyzed, not measured or no data available. <5 - Not detected above laboratory specified method reporting limit (MRL) and/or method detection limit (MDL). ND - No other constituents (VOC or PAH) were quantified at, or exceeding, laboratory specified MRL and/or MDL. (3) - Sample collected near bottom of well using whale pump. (4) - Sample collected near top of water column using disposable bailer. - Constituent quantified above laboratory specified MDL. <i>Italics</i> - Estimated concentration. Analyte detected between MRL and MDL. B1 - Laboratory qualifier: analyte detected in method blank at or above the method reporting limit. <b>Bold</b> - Concentration equals or exceeds the applicable cleanup level.																														

**TABLE 3**  
**SUMMARY OF GROUNDWATER FIELD PARAMETERS**  
Former U-Haul Facility No. 615081  
800-812 West Columbia Drive, Kennewick, Washington 99336

Well ID	Date	Temperature (°C)	Specific Conductance (µS/cm)	Turbidity NTU	DO (mg/L)	pH	ORP (mV)
		Field Instrumentation					
UKMW-1	04/26/18	18.21	506	---	5.51	8.50	-73.4
UKMW-1	09/11/18	20.02	655	1.17	8.12	7.42	58.1
UKMW-1	12/14/18	15.8	541.8	1.08	4.96	7.29	131.3
UKMW-1	03/05/19	14.80	523	0.02	6.60	7.09	201.3
UKMW-1	06/13/19	19.0	593	0.72	10.21	6.94	-59.6
UKMW-1	09/12/19	19.92	633	0.95	8.48	7.07	-20.1
UKMW-2	04/26/18	16.69	481	---	5.38	8.06	-39.6
UKMW-2	09/11/18	21.00	652	1.15	8.66	7.62	49.4
UKMW-2	12/14/18	16.7	577.0	1.11	2.14	7.10	138.9
UKMW-2	03/05/19	13.18	531	0.34	4.93	6.80	198.4
UKMW-3	12/14/18	17.0	547.7	2.35	3.80	7.28	128.1
UKMW-4	04/26/18	15.12	464	---	2.07	7.59	-3.2
UKMW-4	09/10/18	21.14	687	1.05	6.99	7.47	69.6
UKMW-4	12/14/18	16.1	506.3	0.72	6.60	7.29	108.7
UKMW-4	03/05/19	14.13	459	0.37	6.28	7.13	173.8
UKMW-5	04/26/18	17.00	666	---	1.42	7.93	-70.1
UKMW-5	09/11/18	19.16	652	4.02	9.76	7.61	66.2
UKMW-5	12/14/18	16.0	721	1.60	1.49	6.85	11.9
UKMW-5	03/05/19	13.01	493	4.37	5.51	6.98	180.4
UKMW-5	06/13/19	19.1	860	3.51	1.22	6.55	-79.0
UKMW-5	09/12/19	19.14	845	2.93	1.64	6.69	-41.5
UKMW-6	04/26/18	15.99	478	---	5.41	8.04	-53.3
UKMW-6	09/10/18	20.38	71.5	1.60	6.41	7.30	73.2
UKMW-6	12/14/18	16.2	563.0	2.72	4.05	7.13	109.3
UKMW-6	03/05/19	13.41	503	0.03	6.95	7.08	186.3
UKMW-7	04/26/18	15.60	480	---	5.59	7.67	1.5
UKMW-7	12/14/18	16.2	535.2	0.76	5.38	7.29	124.6
Notes:    °C                    - Degrees Celsius µS/cm                - Microsiemens per centimeter NTU                - Nephelometric turbidity units DO                 - Dissolved oxygen. mg/L                - Milligrams per liter. ORP                - Oxidation reduction potential. mV                 - Millivolts ---                - Not analyzed, not measured or no data available.							

**Figure**





CB	<0.348
SEC-BB	<0.365
-DCB	<0.349
1,3-DCB	<0.220
1,4-DCB	<0.274

CB	<b>111</b>
SEC-BB	3.70
-DCB	9.45
1,3-DCB	6.20
1,4-DCB	55.9

**LEGEND**

- GROUNDWATER MONITOR WELL
- (332.06) GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
- 332.05 GROUNDWATER ELEVATION CONTOUR (FEET ABOVE MEAN SEA LEVEL)
- GROUNDWATER GRADIENT (FT/FT)
- 0.0022

CB	<0.348	CHLOROBENZENE
SEC-BB	<0.365	SEC-BUTYLBENZENE
-DCB	<0.349	1,2-DICHLOROBENZENE
1,3-DCB	<0.220	1,3-DICHLOROBENZENE
1,4-DCB	<0.274	1,4-DICHLOROBENZENE

**BOLD** RESULTS EXCEED MTCA METHOD B CLEANUP LEVEL OR WASHINGTON MCL (WHERE APPLICABLE)  
(NS) NOT SAMPLED  
ALL ANALYTICAL RESULTS REPORTED IN MICROGRAMS PER LITER (µg/L)



-PPROX. SCALE, FT

NOTE: SCALE AND LOCATIONS ARE APPROXIMATE. WELL LOCATIONS BASED ON 05/31/18 SURVEY DATA (CRONES LAND SURVEYORS).

**GROUNDWATER CONDITIONS MAP  
(09/12/19)**

FORMER U-HAUL FACILITY NO. 615081  
800-812 W. COLUMBIA DRIVE  
KENNEWICK, WA 99336

PROJECT NUMBER: 1052508107  
DATE: 10/29/19  
APPROVED BY: KV  
DRAWN BY: BK

FIGURE 1  
9185 S. Farmer Ave., Ste. #111  
Tempe, AZ

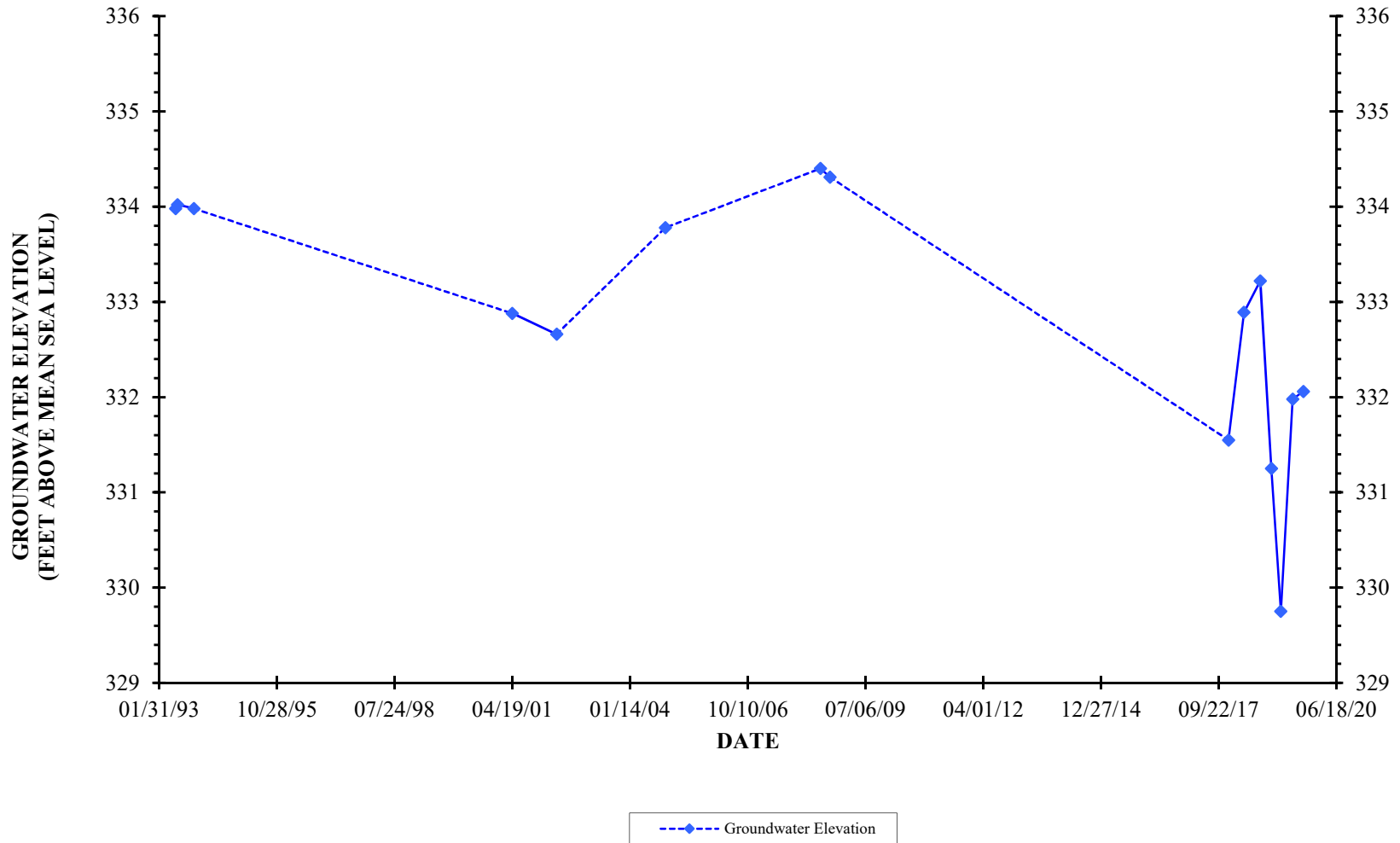


## **Appendix A**

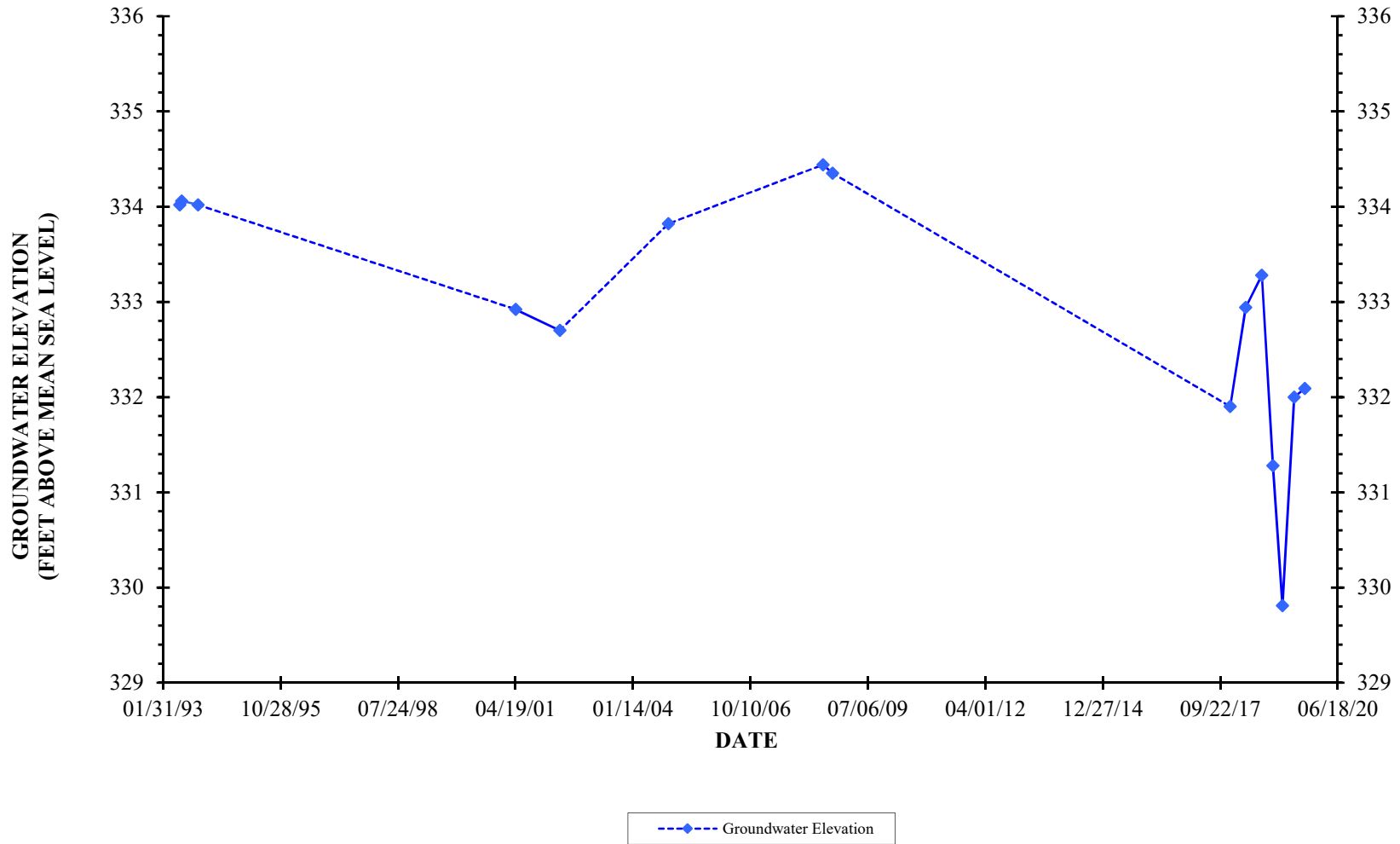
### *Groundwater Elevation / COC Attenuation Graphs*



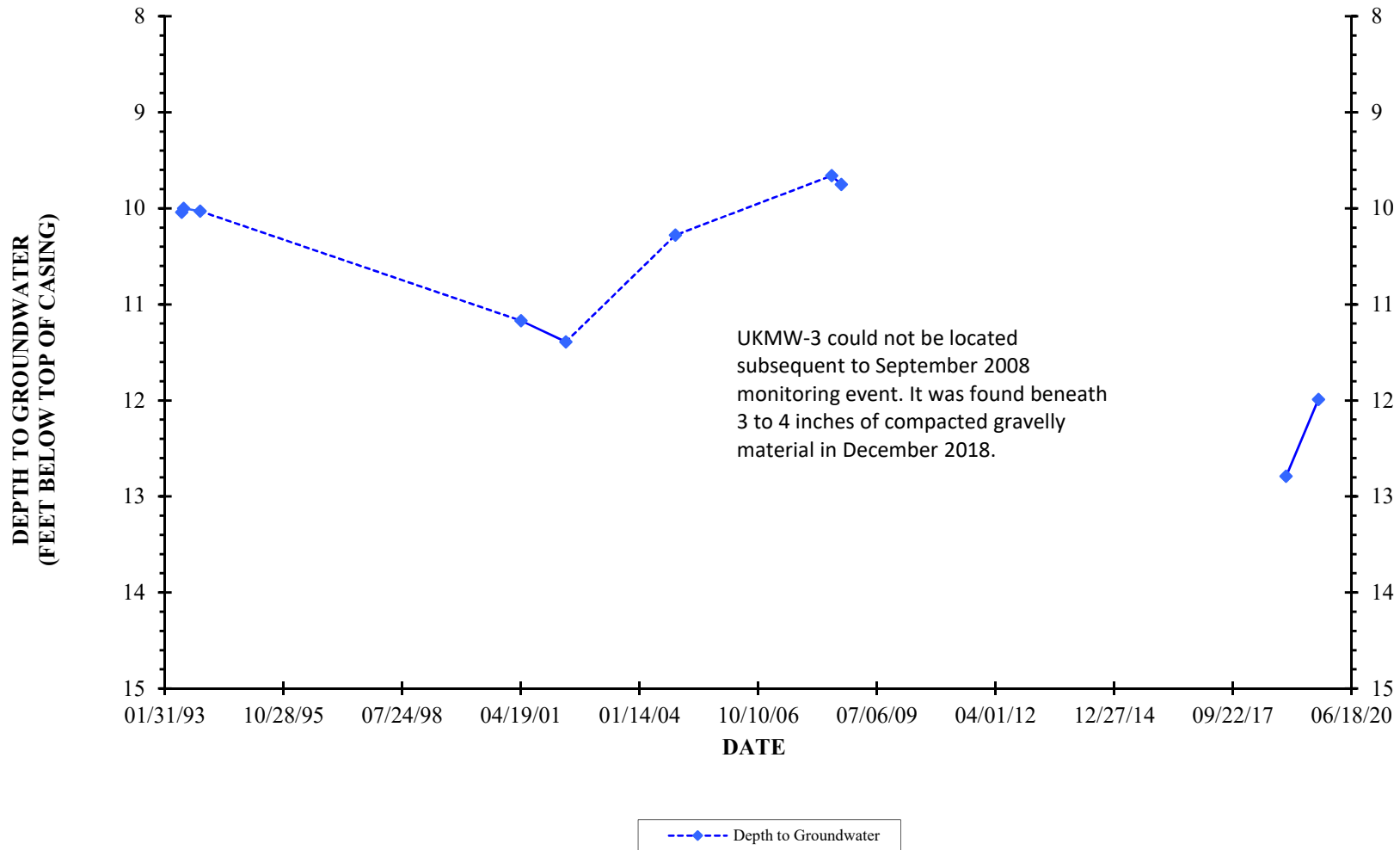
**GROUNDWATER ELEVATION  
UKMW-1  
Former U-Haul Facility No. 615081  
800-812 West Columbia Drive, Kennewick, Washington 99336**



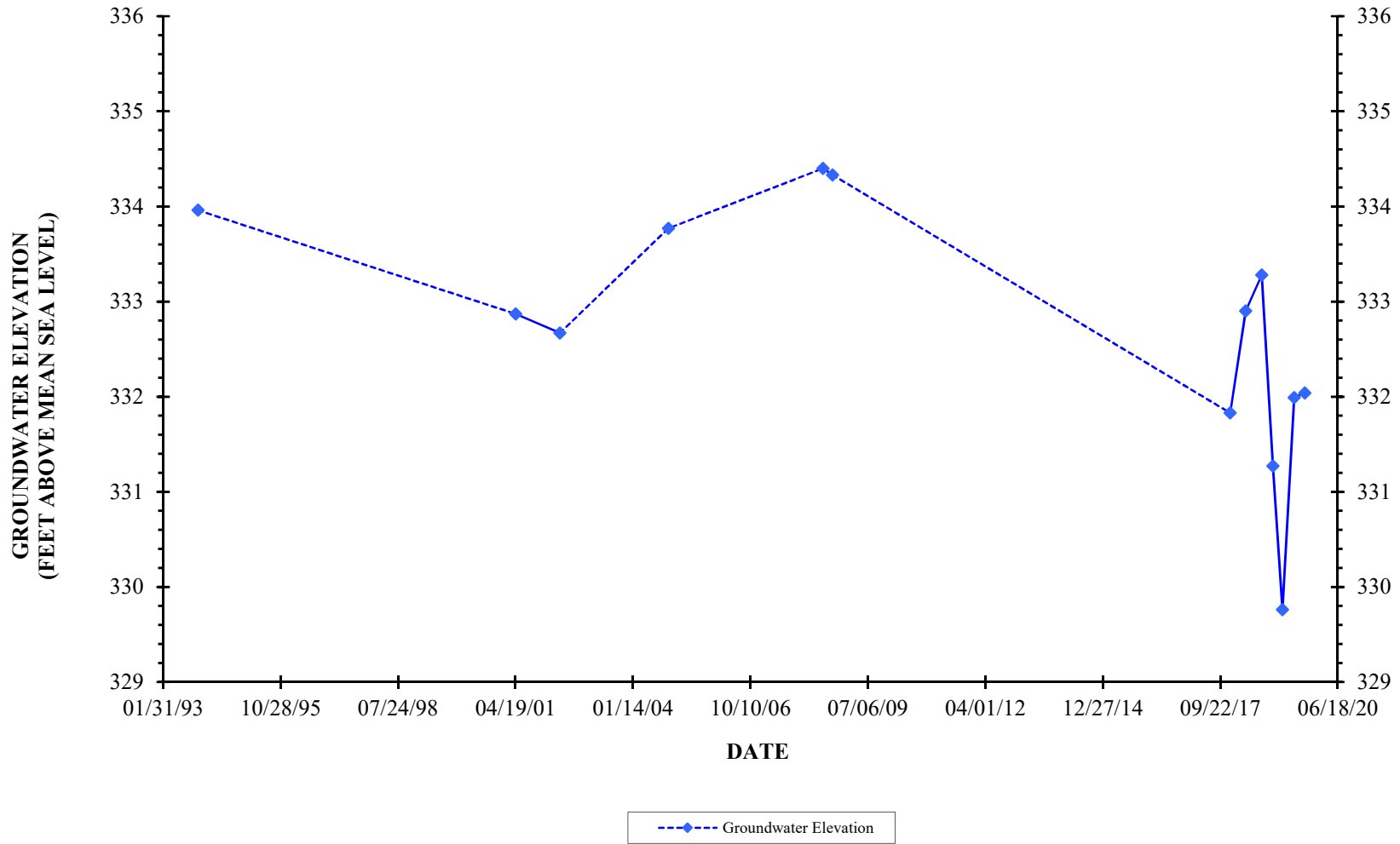
**GROUNDWATER ELEVATION  
UKMW-2  
Former U-Haul Facility No. 615081  
800-812 West Columbia Drive, Kennewick, Washington 99336**



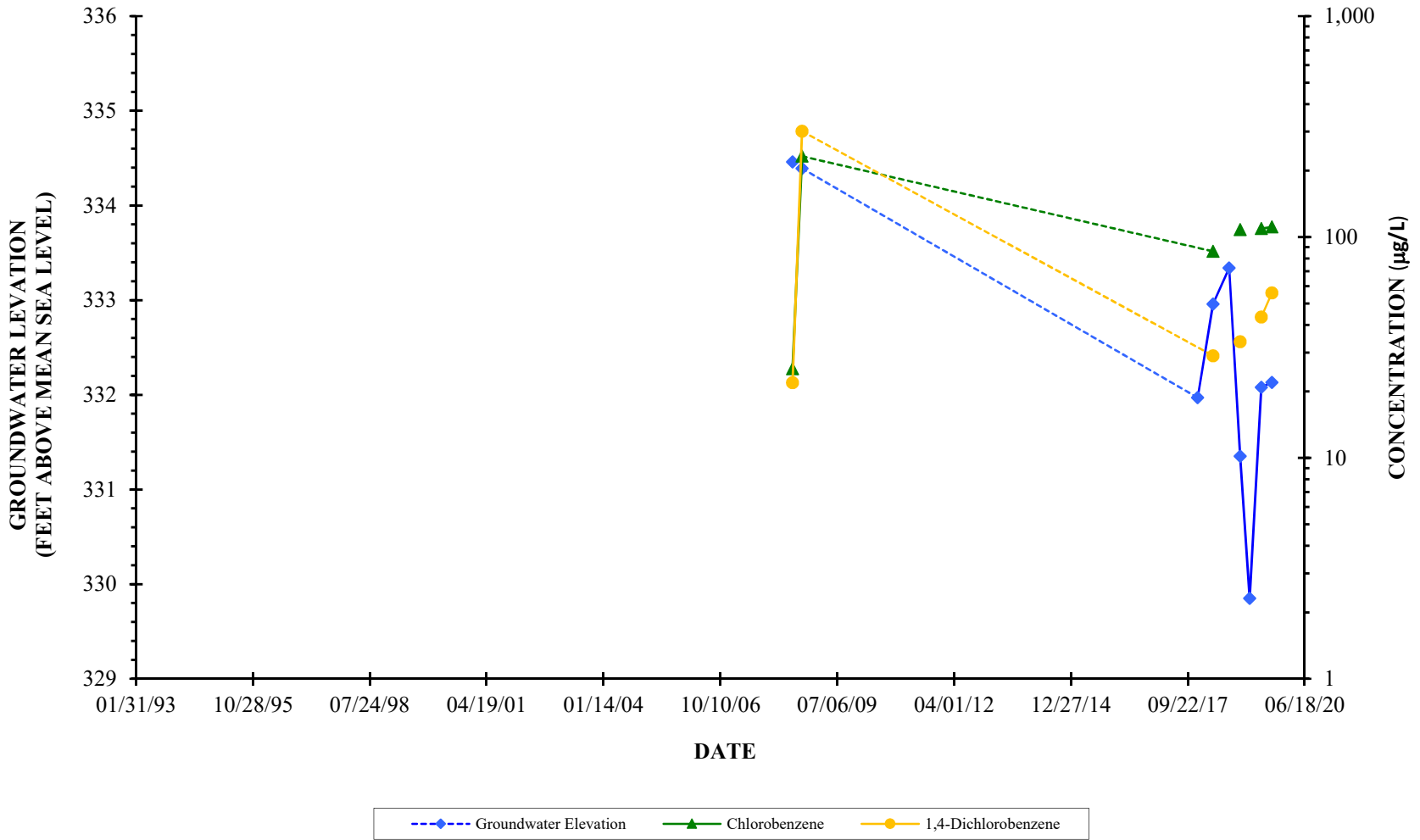
**DEPTH TO GROUNDWATER  
UKMW-3  
Former U-Haul Facility No. 615081  
800-812 West Columbia Drive, Kennewick, Washington 99336**



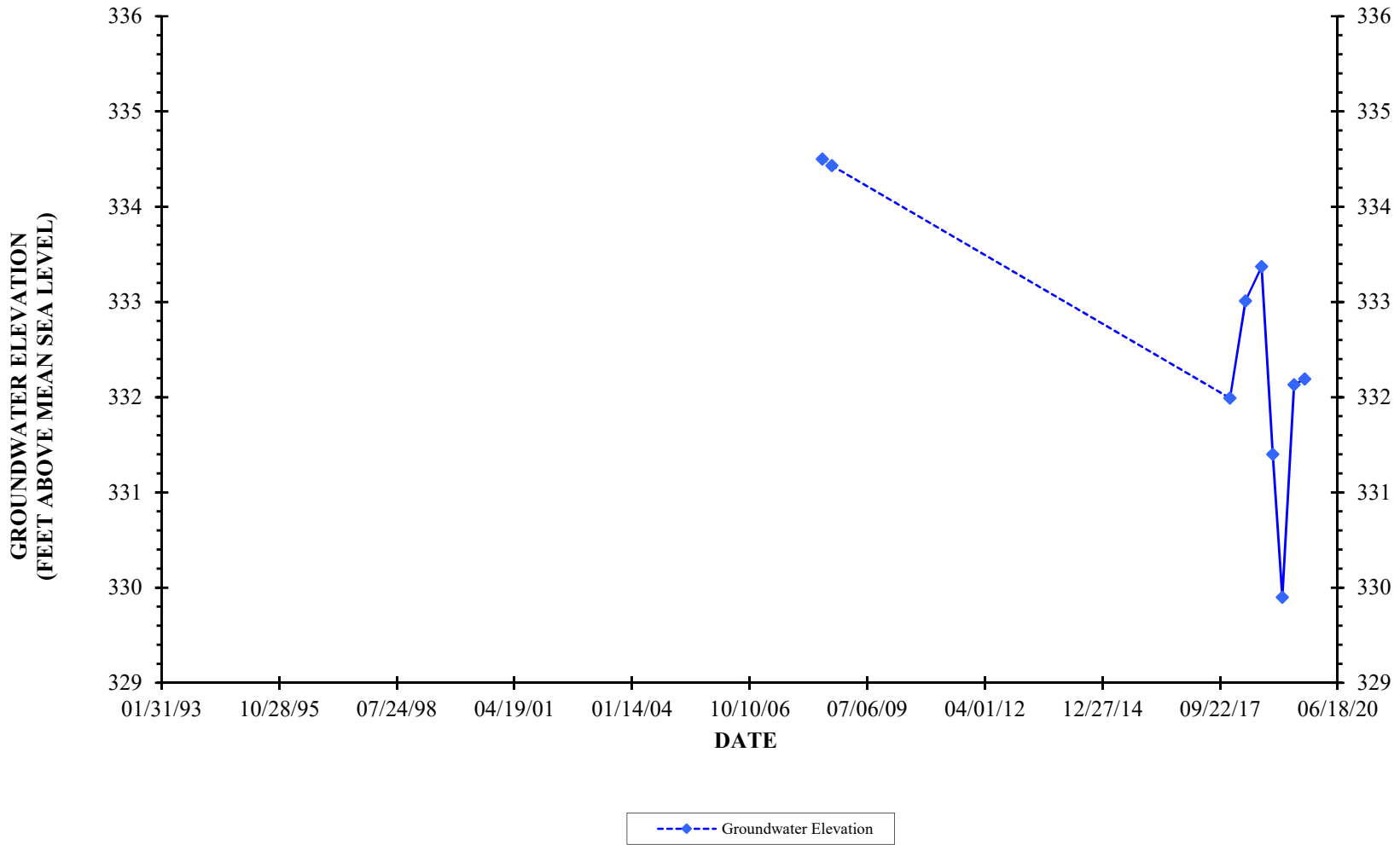
**GROUNDWATER ELEVATION  
UKMW-4  
Former U-Haul Facility No. 615081  
800-812 West Columbia Drive, Kennewick, Washington 99336**



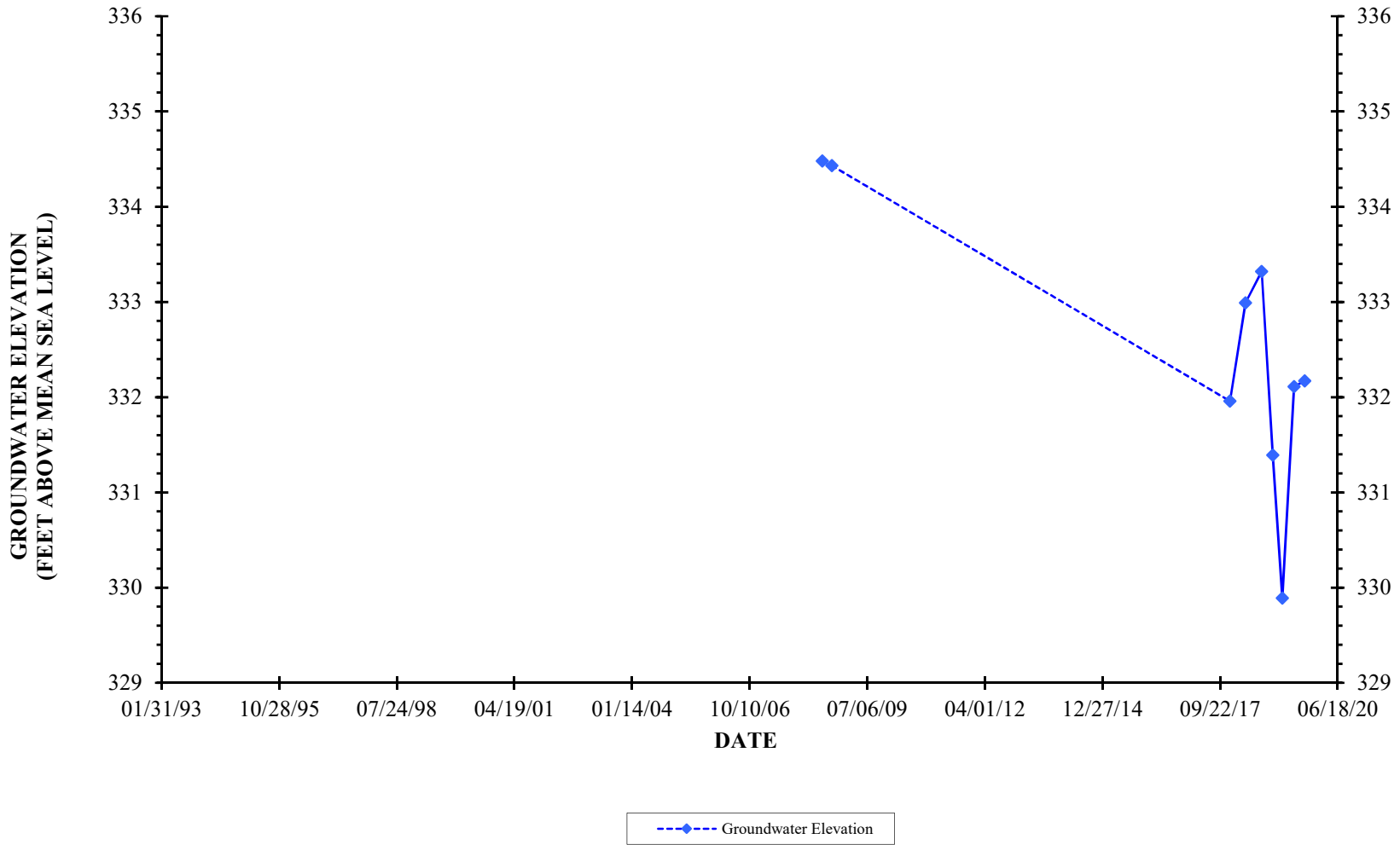
**GROUNDWATER ELEVATION / COC ATTENUATION GRAPH**  
**UKMW-5**  
**Former U-Haul Facility No. 615081**  
**800-812 West Columbia Drive, Kennewick, Washington 99336**



**GROUNDWATER ELEVATION  
UKMW-6  
Former U-Haul Facility No. 615081  
800-812 West Columbia Drive, Kennewick, Washington 99336**



**GROUNDWATER ELEVATION**  
**UKMW-7**  
**Former U-Haul Facility No. 615081**  
**800-812 West Columbia Drive, Kennewick, Washington 99336**



## ***Appendix B***

### *Laboratory Analytical Data Report and Chain of Custody Document*



September 25, 2019

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Is

8 Gl

9 Al

10 Sc

## ATC Group Services

Sample Delivery Group: L1139672  
Samples Received: 09/14/2019  
Project Number: 1052508106  
Description: U-Haul Kennewick

Report To: Edwin Vandegrift  
9185 S. Farmer Ave Ste 111  
Tempe, AZ 85284

Entire Report Reviewed By:



Daphne Richards  
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



<b>Cp: Cover Page</b>	<b>1</b>	<b>1</b> Cp
<b>Tc: Table of Contents</b>	<b>2</b>	<b>2</b> Tc
<b>Ss: Sample Summary</b>	<b>3</b>	<b>3</b> Ss
<b>Cn: Case Narrative</b>	<b>4</b>	<b>4</b> Cn
<b>Sr: Sample Results</b>	<b>5</b>	<b>5</b> Sr
UKMW-1 L1139672-01	<b>5</b>	
UKMW-5 L1139672-02	<b>7</b>	
TRIP BLANK L1139672-03	<b>9</b>	
<b>Qc: Quality Control Summary</b>	<b>11</b>	<b>6</b> Qc
Volatile Organic Compounds (GC/MS) by Method 8260B	<b>11</b>	
<b>Is: Internal Standard Summary</b>	<b>15</b>	<b>7</b> Is
Volatile Organic Compounds (GC/MS) by Method 8260B	<b>15</b>	
<b>Gl: Glossary of Terms</b>	<b>16</b>	<b>8</b> Gl
<b>Al: Accreditations &amp; Locations</b>	<b>17</b>	<b>9</b> Al
<b>Sc: Sample Chain of Custody</b>	<b>18</b>	<b>10</b> Sc

# SAMPLE SUMMARY



## UKMW-1 L1139672-01 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1349685	1	09/21/19 01:29	09/21/19 01:29	JHH	Mt. Juliet, TN

Collected by  
Collected date/time  
Received date/time

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

## UKMW-5 L1139672-02 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1349685	1	09/21/19 01:51	09/21/19 01:51	JHH	Mt. Juliet, TN

Collected by  
Collected date/time  
Received date/time

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

## TRIP BLANK L1139672-03 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1349685	1	09/20/19 19:32	09/20/19 19:32	JHH	Mt. Juliet, TN

Collected by  
Collected date/time  
Received date/time

<sup>7</sup> Is

<sup>8</sup> Gl

<sup>9</sup> Al

<sup>10</sup> Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne Richards  
Project Manager

- <sup>1</sup> Cp
- <sup>2</sup> Tc
- <sup>3</sup> Ss
- <sup>4</sup> Cn
- <sup>5</sup> Sr
- <sup>6</sup> Qc
- <sup>7</sup> Is
- <sup>8</sup> Gl
- <sup>9</sup> Al
- <sup>10</sup> Sc



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		10.0	50.0	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Acrolein	U		8.87	50.0	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Acrylonitrile	U		1.87	10.0	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Benzene	U		0.331	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Bromobenzene	U		0.352	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Bromodichloromethane	U		0.380	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Bromoform	U		0.469	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Bromomethane	U		0.866	5.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
n-Butylbenzene	U	<u>L1</u>	0.361	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
sec-Butylbenzene	U		0.365	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
tert-Butylbenzene	U		0.399	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Carbon tetrachloride	U		0.379	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Chlorobenzene	U		0.348	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Chlorodibromomethane	U		0.327	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Chloroethane	U		0.453	5.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Chloroform	U		0.324	5.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Chloromethane	1.13	<u>E4</u>	0.276	2.50	1	09/21/2019 01:29	<a href="#">WG1349685</a>
2-Chlorotoluene	U		0.375	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
4-Chlorotoluene	U		0.351	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,2-Dibromo-3-Chloropropane	U		1.33	5.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,2-Dibromoethane	U		0.381	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Dibromomethane	U		0.346	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,2-Dichlorobenzene	U		0.349	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,3-Dichlorobenzene	U		0.220	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,4-Dichlorobenzene	U		0.274	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Dichlorodifluoromethane	U		0.551	5.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,1-Dichloroethane	U		0.259	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,2-Dichloroethane	U		0.361	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,1-Dichloroethene	U		0.398	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
cis-1,2-Dichloroethene	U		0.260	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
trans-1,2-Dichloroethene	U		0.396	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,2-Dichloropropane	U		0.306	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,1-Dichloropropene	U		0.352	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,3-Dichloropropane	U		0.366	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
cis-1,3-Dichloropropene	U		0.418	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
trans-1,3-Dichloropropene	U		0.419	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
2,2-Dichloropropane	U		0.321	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Di-isopropyl ether	U		0.320	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Ethylbenzene	U		0.384	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Hexachloro-1,3-butadiene	U		0.256	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Isopropylbenzene	U		0.326	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
p-Isopropyltoluene	U		0.350	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
2-Butanone (MEK)	U		3.93	10.0	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Methylene Chloride	U		1.00	5.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
4-Methyl-2-pentanone (MIBK)	U		2.14	10.0	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Methyl tert-butyl ether	U		0.367	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Naphthalene	U		1.00	5.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
n-Propylbenzene	U		0.349	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Styrene	U		0.307	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,1,1,2-Tetrachloroethane	U		0.385	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,1,2,2-Tetrachloroethane	U		0.130	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,1,2-Trichlorotrifluoroethane	U		0.303	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Tetrachloroethene	U		0.372	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Toluene	U		0.412	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,2,3-Trichlorobenzene	U		0.230	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,2,4-Trichlorobenzene	U		0.355	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Is

8 Gl

9 Al

10 Sc



Collected date/time: 09/12/19 13:05

L1139672

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	U		0.319	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,1,2-Trichloroethane	U		0.383	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Trichloroethene	U		0.398	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Trichlorofluoromethane	U		1.20	5.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,2,3-Trichloropropane	U		0.807	2.50	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,2,4-Trimethylbenzene	U		0.373	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,2,3-Trimethylbenzene	U		0.321	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
1,3,5-Trimethylbenzene	U		0.387	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Vinyl chloride	U		0.259	1.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
Xylenes, Total	U		1.06	3.00	1	09/21/2019 01:29	<a href="#">WG1349685</a>
(S) Toluene-d8	95.3			80.0-120		09/21/2019 01:29	<a href="#">WG1349685</a>
(S) 4-Bromofluorobenzene	88.7			77.0-126		09/21/2019 01:29	<a href="#">WG1349685</a>
(S) 1,2-Dichloroethane-d4	93.2			70.0-130		09/21/2019 01:29	<a href="#">WG1349685</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Is
- 8 Gl
- 9 Al
- 10 Sc



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		10.0	50.0	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Acrolein	U		8.87	50.0	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Acrylonitrile	U		1.87	10.0	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Benzene	U		0.331	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Bromobenzene	U		0.352	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Bromodichloromethane	U		0.380	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Bromoform	U		0.469	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Bromomethane	U		0.866	5.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
n-Butylbenzene	U	L1	0.361	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
sec-Butylbenzene	3.70	B1	0.365	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
tert-Butylbenzene	0.554	E4	0.399	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Carbon tetrachloride	U		0.379	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Chlorobenzene	111		0.348	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Chlorodibromomethane	U		0.327	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Chloroethane	U		0.453	5.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Chloroform	U		0.324	5.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Chloromethane	U		0.276	2.50	1	09/21/2019 01:51	<a href="#">WG1349685</a>
2-Chlorotoluene	U		0.375	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
4-Chlorotoluene	U		0.351	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,2-Dibromo-3-Chloropropane	U		1.33	5.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,2-Dibromoethane	U		0.381	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Dibromomethane	U		0.346	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,2-Dichlorobenzene	9.45		0.349	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,3-Dichlorobenzene	6.20		0.220	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,4-Dichlorobenzene	55.9		0.274	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Dichlorodifluoromethane	U		0.551	5.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,1-Dichloroethane	U		0.259	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,2-Dichloroethane	U		0.361	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,1-Dichloroethene	U		0.398	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
cis-1,2-Dichloroethene	U		0.260	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
trans-1,2-Dichloroethene	U		0.396	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,2-Dichloropropane	U		0.306	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,1-Dichloropropene	U		0.352	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,3-Dichloropropane	U		0.366	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
cis-1,3-Dichloropropene	U		0.418	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
trans-1,3-Dichloropropene	U		0.419	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
2,2-Dichloropropane	U		0.321	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Di-isopropyl ether	U		0.320	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Ethylbenzene	U		0.384	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Hexachloro-1,3-butadiene	U		0.256	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Isopropylbenzene	2.23		0.326	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
p-Isopropyltoluene	U		0.350	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
2-Butanone (MEK)	U		3.93	10.0	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Methylene Chloride	U		1.00	5.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
4-Methyl-2-pentanone (MIBK)	U		2.14	10.0	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Methyl tert-butyl ether	U		0.367	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Naphthalene	U		1.00	5.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
n-Propylbenzene	U		0.349	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Styrene	U		0.307	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,1,1,2-Tetrachloroethane	U		0.385	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,1,2,2-Tetrachloroethane	U		0.130	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,1,2-Trichlorotrifluoroethane	U		0.303	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Tetrachloroethene	U		0.372	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Toluene	U		0.412	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,2,3-Trichlorobenzene	U		0.230	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,2,4-Trichlorobenzene	U		0.355	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Is

8 Gl

9 Al

10 Sc



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	U		0.319	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,1,2-Trichloroethane	U		0.383	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Trichloroethene	U		0.398	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Trichlorofluoromethane	U		1.20	5.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,2,3-Trichloropropane	U		0.807	2.50	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,2,4-Trimethylbenzene	U		0.373	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,2,3-Trimethylbenzene	U		0.321	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
1,3,5-Trimethylbenzene	U		0.387	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Vinyl chloride	U		0.259	1.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
Xylenes, Total	U		1.06	3.00	1	09/21/2019 01:51	<a href="#">WG1349685</a>
(S) Toluene-d8	94.8			80.0-120		09/21/2019 01:51	<a href="#">WG1349685</a>
(S) 4-Bromofluorobenzene	89.9			77.0-126		09/21/2019 01:51	<a href="#">WG1349685</a>
(S) 1,2-Dichloroethane-d4	96.4			70.0-130		09/21/2019 01:51	<a href="#">WG1349685</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Is
- 8 Gl
- 9 Al
- 10 Sc



Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		10.0	50.0	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Acrolein	U		8.87	50.0	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Acrylonitrile	U		1.87	10.0	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Benzene	U		0.331	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Bromobenzene	U		0.352	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Bromodichloromethane	U		0.380	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Bromoform	U		0.469	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Bromomethane	U		0.866	5.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
n-Butylbenzene	U	L1	0.361	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
sec-Butylbenzene	U		0.365	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
tert-Butylbenzene	U		0.399	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Carbon tetrachloride	U		0.379	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Chlorobenzene	U		0.348	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Chlorodibromomethane	U		0.327	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Chloroethane	U		0.453	5.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Chloroform	U		0.324	5.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Chloromethane	U		0.276	2.50	1	09/20/2019 19:32	<a href="#">WG1349685</a>
2-Chlorotoluene	U		0.375	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
4-Chlorotoluene	U		0.351	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,2-Dibromo-3-Chloropropane	U		1.33	5.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,2-Dibromoethane	U		0.381	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Dibromomethane	U		0.346	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,2-Dichlorobenzene	U		0.349	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,3-Dichlorobenzene	U		0.220	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,4-Dichlorobenzene	U		0.274	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Dichlorodifluoromethane	U		0.551	5.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,1-Dichloroethane	U		0.259	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,2-Dichloroethane	U		0.361	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,1-Dichloroethene	U		0.398	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
cis-1,2-Dichloroethene	U		0.260	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
trans-1,2-Dichloroethene	U		0.396	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,2-Dichloropropane	U		0.306	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,1-Dichloropropene	U		0.352	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,3-Dichloropropane	U		0.366	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
cis-1,3-Dichloropropene	U		0.418	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
trans-1,3-Dichloropropene	U		0.419	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
2,2-Dichloropropane	U		0.321	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Di-isopropyl ether	U		0.320	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Ethylbenzene	U		0.384	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Hexachloro-1,3-butadiene	U		0.256	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Isopropylbenzene	U		0.326	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
p-Isopropyltoluene	U		0.350	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
2-Butanone (MEK)	U		3.93	10.0	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Methylene Chloride	U		1.00	5.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
4-Methyl-2-pentanone (MIBK)	U		2.14	10.0	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Methyl tert-butyl ether	U		0.367	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Naphthalene	U		1.00	5.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
n-Propylbenzene	U		0.349	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Styrene	U		0.307	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,1,1,2-Tetrachloroethane	U		0.385	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,1,2,2-Tetrachloroethane	U		0.130	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,1,2-Trichlorotrifluoroethane	U		0.303	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Tetrachloroethene	U		0.372	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Toluene	U		0.412	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,2,3-Trichlorobenzene	U		0.230	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,2,4-Trichlorobenzene	U		0.355	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Is

8 Gl

9 Al

10 Sc



Collected date/time: 09/12/19 00:00

L1139672

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,1-Trichloroethane	U		0.319	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,1,2-Trichloroethane	U		0.383	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Trichloroethene	U		0.398	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Trichlorofluoromethane	U		1.20	5.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,2,3-Trichloropropane	U		0.807	2.50	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,2,4-Trimethylbenzene	U		0.373	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,2,3-Trimethylbenzene	U		0.321	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
1,3,5-Trimethylbenzene	U		0.387	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Vinyl chloride	U		0.259	1.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
Xylenes, Total	U		1.06	3.00	1	09/20/2019 19:32	<a href="#">WG1349685</a>
(S) Toluene-d8	97.4			80.0-120		09/20/2019 19:32	<a href="#">WG1349685</a>
(S) 4-Bromofluorobenzene	95.1			77.0-126		09/20/2019 19:32	<a href="#">WG1349685</a>
(S) 1,2-Dichloroethane-d4	92.3			70.0-130		09/20/2019 19:32	<a href="#">WG1349685</a>

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Is
- 8 Gl
- 9 Al
- 10 Sc



Method Blank (MB)

(MB) R3453254-3 09/20/19 17:48

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		10.0	50.0
Acrolein	U		8.87	50.0
Acrylonitrile	U		1.87	10.0
Benzene	U		0.331	1.00
Bromobenzene	U		0.352	1.00
Bromodichloromethane	U		0.380	1.00
Bromoform	U		0.469	1.00
Bromomethane	U		0.866	5.00
n-Butylbenzene	0.679	E4	0.361	1.00
sec-Butylbenzene	0.541	E4	0.365	1.00
tert-Butylbenzene	U		0.399	1.00
Carbon tetrachloride	U		0.379	1.00
Chlorobenzene	U		0.348	1.00
Chlorodibromomethane	U		0.327	1.00
Chloroethane	U		0.453	5.00
Chloroform	U		0.324	5.00
Chloromethane	U		0.276	2.50
2-Chlorotoluene	U		0.375	1.00
4-Chlorotoluene	U		0.351	1.00
1,2-Dibromo-3-Chloropropane	U		1.33	5.00
1,2-Dibromoethane	U		0.381	1.00
Dibromomethane	U		0.346	1.00
1,2-Dichlorobenzene	U		0.349	1.00
1,3-Dichlorobenzene	U		0.220	1.00
1,4-Dichlorobenzene	U		0.274	1.00
Dichlorodifluoromethane	U		0.551	5.00
1,1-Dichloroethane	U		0.259	1.00
1,2-Dichloroethane	U		0.361	1.00
1,1-Dichloroethene	U		0.398	1.00
cis-1,2-Dichloroethene	U		0.260	1.00
trans-1,2-Dichloroethene	U		0.396	1.00
1,2-Dichloropropane	U		0.306	1.00
1,1-Dichloropropene	U		0.352	1.00
1,3-Dichloropropane	U		0.366	1.00
cis-1,3-Dichloropropene	U		0.418	1.00
trans-1,3-Dichloropropene	U		0.419	1.00
2,2-Dichloropropane	U		0.321	1.00
Di-isopropyl ether	U		0.320	1.00
Ethylbenzene	U		0.384	1.00
Hexachloro-1,3-butadiene	0.745	E4	0.256	1.00

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Is

<sup>8</sup> Gl

<sup>9</sup> Al

<sup>10</sup> Sc



Method Blank (MB)

(MB) R3453254-3 09/20/19 17:48

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	ug/l
Isopropylbenzene	U		0.326	1.00
p-Isopropyltoluene	0.493	E4	0.350	1.00
2-Butanone (MEK)	U		3.93	10.0
Methylene Chloride	U		1.00	5.00
4-Methyl-2-pentanone (MIBK)	U		2.14	10.0
Methyl tert-butyl ether	U		0.367	1.00
Naphthalene	U		1.00	5.00
n-Propylbenzene	U		0.349	1.00
Styrene	U		0.307	1.00
1,1,1,2-Tetrachloroethane	U		0.385	1.00
1,1,2,2-Tetrachloroethane	U		0.130	1.00
Tetrachloroethene	U		0.372	1.00
Toluene	U		0.412	1.00
1,1,2-Trichlorotrifluoroethane	U		0.303	1.00
1,2,3-Trichlorobenzene	1.15		0.230	1.00
1,2,4-Trichlorobenzene	0.789	E4	0.355	1.00
1,1,1-Trichloroethane	U		0.319	1.00
1,1,2-Trichloroethane	U		0.383	1.00
Trichloroethene	U		0.398	1.00
Trichlorofluoromethane	U		1.20	5.00
1,2,3-Trichloropropane	U		0.807	2.50
1,2,3-Trimethylbenzene	U		0.321	1.00
1,2,4-Trimethylbenzene	U		0.373	1.00
1,3,5-Trimethylbenzene	U		0.387	1.00
Vinyl chloride	U		0.259	1.00
Xylenes, Total	U		1.06	3.00
(S) Toluene-d8	98.8			80.0-120
(S) 4-Bromofluorobenzene	91.9			77.0-126
(S) 1,2-Dichloroethane-d4	88.1			70.0-130

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Is
- 8 Gl
- 9 Al
- 10 Sc

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3453254-1 09/20/19 15:37 • (LCSD) R3453254-2 09/20/19 16:58

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
	ug/l	ug/l	ug/l	%	%	%			%	%
Acetone	125	125	121	99.9	96.5	19.0-160			3.38	27
Acrolein	125	144	146	115	117	10.0-160			1.22	26
Acrylonitrile	125	127	132	101	106	55.0-149			4.26	20
Benzene	25.0	25.4	28.2	102	113	70.0-123			10.5	20



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3453254-1 09/20/19 15:37 • (LCSD) R3453254-2 09/20/19 16:58

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromobenzene	25.0	25.9	28.9	104	116	73.0-121			11.2	20
Bromodichloromethane	25.0	25.2	27.3	101	109	75.0-120			8.09	20
Bromoform	25.0	23.4	24.8	93.7	99.0	68.0-132			5.52	20
Bromomethane	25.0	27.3	29.2	109	117	10.0-160			6.62	25
n-Butylbenzene	25.0	27.7	32.3	111	129	73.0-125		L1	15.4	20
sec-Butylbenzene	25.0	26.3	30.8	105	123	75.0-125			16.0	20
tert-Butylbenzene	25.0	25.0	29.4	99.9	118	76.0-124			16.4	20
Carbon tetrachloride	25.0	21.5	23.3	85.8	93.3	68.0-126			8.32	20
Chlorobenzene	25.0	25.2	27.3	101	109	80.0-121			7.86	20
Chlorodibromomethane	25.0	24.2	25.0	96.6	100	77.0-125			3.45	20
Chloroethane	25.0	30.0	31.9	120	127	47.0-150			6.14	20
Chloroform	25.0	23.9	25.6	95.5	102	73.0-120			6.94	20
Chloromethane	25.0	27.3	29.3	109	117	41.0-142			6.81	20
2-Chlorotoluene	25.0	25.3	29.8	101	119	76.0-123			16.2	20
4-Chlorotoluene	25.0	26.7	29.8	107	119	75.0-122			11.0	20
1,2-Dibromo-3-Chloropropane	25.0	20.6	21.8	82.5	87.3	58.0-134			5.63	20
1,2-Dibromoethane	25.0	25.4	27.3	101	109	80.0-122			7.31	20
Dibromomethane	25.0	25.7	26.1	103	105	80.0-120			1.68	20
1,2-Dichlorobenzene	25.0	25.8	29.5	103	118	79.0-121			13.1	20
1,3-Dichlorobenzene	25.0	25.3	28.1	101	113	79.0-120			10.8	20
1,4-Dichlorobenzene	25.0	25.8	29.3	103	117	79.0-120			12.6	20
Dichlorodifluoromethane	25.0	29.9	32.1	120	128	51.0-149			7.12	20
1,1-Dichloroethane	25.0	25.4	28.6	101	114	70.0-126			11.8	20
1,2-Dichloroethane	25.0	23.0	24.4	91.9	97.6	70.0-128			5.98	20
1,1-Dichloroethene	25.0	28.2	30.1	113	120	71.0-124			6.64	20
cis-1,2-Dichloroethene	25.0	25.6	26.9	102	108	73.0-120			5.27	20
trans-1,2-Dichloroethene	25.0	25.3	26.9	101	107	73.0-120			5.88	20
1,2-Dichloropropane	25.0	27.5	29.5	110	118	77.0-125			6.97	20
1,1-Dichloropropene	25.0	26.9	28.7	108	115	74.0-126			6.55	20
1,3-Dichloropropane	25.0	27.8	29.3	111	117	80.0-120			5.31	20
cis-1,3-Dichloropropene	25.0	25.4	28.0	101	112	80.0-123			9.94	20
trans-1,3-Dichloropropene	25.0	25.5	26.6	102	107	78.0-124			4.40	20
2,2-Dichloropropane	25.0	26.3	29.0	105	116	58.0-130			9.70	20
Di-isopropyl ether	25.0	25.7	27.5	103	110	58.0-138			6.98	20
Ethylbenzene	25.0	24.5	26.8	98.1	107	79.0-123			8.91	20
Hexachloro-1,3-butadiene	25.0	23.8	28.3	95.2	113	54.0-138			17.1	20
Isopropylbenzene	25.0	25.6	28.5	102	114	76.0-127			10.5	20
p-Isopropyltoluene	25.0	25.7	29.7	103	119	76.0-125			14.6	20
2-Butanone (MEK)	125	141	139	113	111	44.0-160			0.997	20
Methylene Chloride	25.0	26.2	27.8	105	111	67.0-120			5.87	20

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Is

8 Gl

9 Al

10 Sc



Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3453254-1 09/20/19 15:37 • (LCSD) R3453254-2 09/20/19 16:58

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
4-Methyl-2-pentanone (MIBK)	125	132	136	106	109	68.0-142			2.88	20
Methyl tert-butyl ether	25.0	26.3	27.9	105	112	68.0-125			5.92	20
Naphthalene	25.0	23.6	26.8	94.6	107	54.0-135			12.6	20
n-Propylbenzene	25.0	26.4	30.9	106	124	77.0-124			15.9	20
Styrene	25.0	26.1	28.2	104	113	73.0-130			7.84	20
1,1,1,2-Tetrachloroethane	25.0	23.3	25.7	93.0	103	75.0-125			9.81	20
1,1,2,2-Tetrachloroethane	25.0	27.9	30.5	112	122	65.0-130			8.91	20
Tetrachloroethene	25.0	25.3	28.2	101	113	72.0-132			10.7	20
Toluene	25.0	25.6	27.5	102	110	79.0-120			7.41	20
1,1,2-Trichlorotrifluoroethane	25.0	26.3	29.1	105	117	69.0-132			10.4	20
1,2,3-Trichlorobenzene	25.0	27.7	31.5	111	126	50.0-138			12.8	20
1,2,4-Trichlorobenzene	25.0	25.5	28.6	102	115	57.0-137			11.7	20
1,1,1-Trichloroethane	25.0	24.4	26.7	97.5	107	73.0-124			9.25	20
1,1,2-Trichloroethane	25.0	25.7	27.1	103	109	80.0-120			5.63	20
Trichloroethene	25.0	23.6	25.3	94.3	101	78.0-124			6.93	20
Trichlorofluoromethane	25.0	27.5	29.1	110	116	59.0-147			5.34	20
1,2,3-Trichloropropane	25.0	23.7	25.9	94.9	103	73.0-130			8.64	20
1,2,3-Trimethylbenzene	25.0	24.3	28.3	97.3	113	77.0-120			14.9	20
1,2,4-Trimethylbenzene	25.0	25.1	29.5	100	118	76.0-121			16.1	20
1,3,5-Trimethylbenzene	25.0	24.7	28.5	98.7	114	76.0-122			14.4	20
Vinyl chloride	25.0	29.7	31.5	119	126	67.0-131			5.88	20
Xylenes, Total	75.0	73.7	80.3	98.3	107	79.0-123			8.57	20
(S) Toluene-d8				98.6	97.4	80.0-120				
(S) 4-Bromofluorobenzene				93.9	90.3	77.0-126				
(S) 1,2-Dichloroethane-d4				95.7	92.3	70.0-130				

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Is

<sup>8</sup> Gl

<sup>9</sup> Al

<sup>10</sup> Sc



Instrument: VOCMS23 • File ID: 0920\_02

09/20/19 15:37

Sample ID	File ID	8260-FLUOROBENZENE Response	8260-CHLOROBENZENE-D5 Response	8260-1,4-DICHLOROBENZENE-D4 Response
Standard	0920_02	288955	126461	102487
Upper Limit		577910	252922	204974
Lower Limit		144478	63231	51244
LCS R3453254-1 WG1349685 1x	0920_02LCS	288955	126461	102487
LCSD R3453254-2 WG1349685 1x	0920_03	320702	139650	108313
BLANK R3453254-3 WG1349685 1x	0920_05	303119	130178	100211
L1139672-03 WG1349685 1x	0920_08	278058	122959	95234
L1139672-01 WG1349685 1x	0920_24	258570	114510	88931
L1139672-02 WG1349685 1x	0920_25	259503	116055	88284

<sup>1</sup> Cp

<sup>2</sup> Tc

<sup>3</sup> Ss

<sup>4</sup> Cn

<sup>5</sup> Sr

<sup>6</sup> Qc

<sup>7</sup> Is

<sup>8</sup> Gl

<sup>9</sup> Al

<sup>10</sup> Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Is
- 8 Gl
- 9 Al
- 10 Sc

Qualifier	Description
B1	Target analyte detected in method blank at or above the method reporting limit.
E4	Concentration estimated. Analyte was detected below laboratory minimum reporting level (MRL) but above MDL.
L1	The associated blank spike recovery was above laboratory acceptance limits.



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.  
 \* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Is
- 8 Gl
- 9 Al
- 10 Sc

## State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico <sup>1</sup>	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina <sup>1</sup>	DW21704
Georgia	NELAP	North Carolina <sup>3</sup>	41
Georgia <sup>1</sup>	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky <sup>1,6</sup>	90010	South Carolina	84004
Kentucky <sup>2</sup>	16	South Dakota	n/a
Louisiana	AI30792	Tennessee <sup>1,4</sup>	2006
Louisiana <sup>1</sup>	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

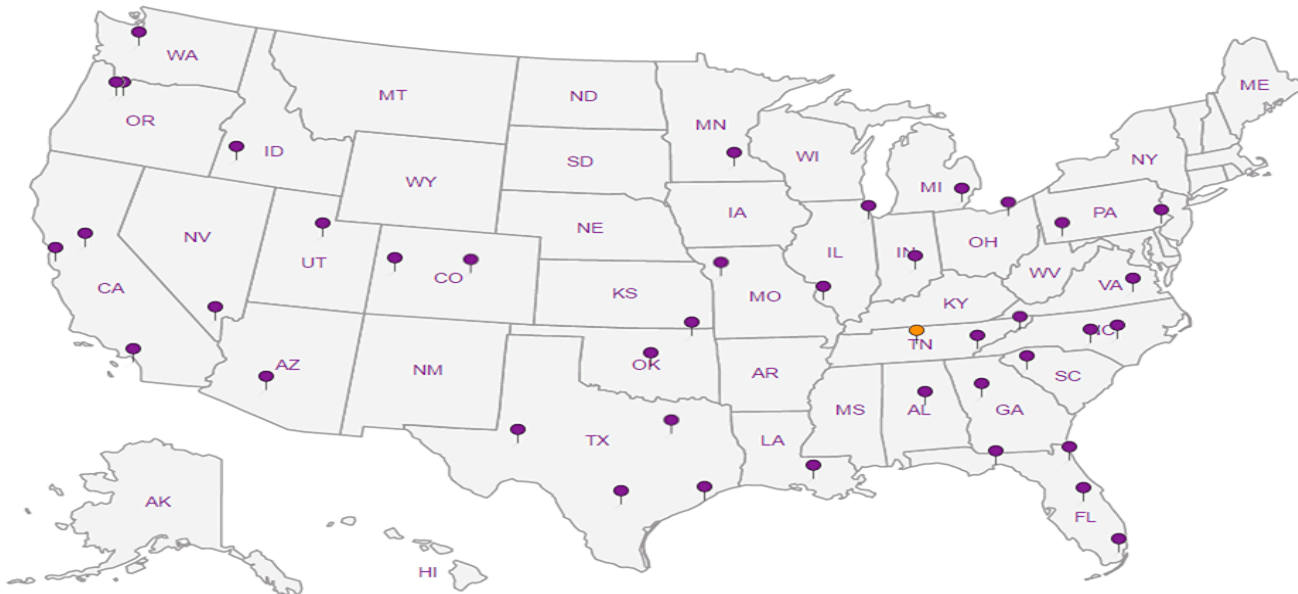
## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable


## Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.





**Pace Analytical National Center for Testing & Innovation  
Cooler Receipt Form**

Client:	L1139672		
Cooler Received/Opened On: 9/17/19	Temperature:	0.5	
Received By: Adam Burns			
Signature: 			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		✓	
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?		✓	
Preservation Correct / Checked?			

## **Appendix C**

### *Well Gauging Log and Well Purging and Sampling Logs*







ENVIRONMENTAL • GEOTECHNICAL  
BUILDING SCIENCES • MATERIALS TESTING

# Monitoring Well Purging and Sampling Log

FLD-103

Revision 1.0

Jul-08

ATC Branch: 40146 Monterey Park *10282 - Seattle* Date: *9/12/2019* Page *1* of *1*  
 On-Site Representative(s): *L. Brown* Project: *J-Haul 615081*  
 Location: 800-812 W Columbia Drive, Kennewick, WA 99336  
 Contact Information: Project No: 1052 5081 06 1  
 Well ID: **MW- 5** (*UKMW-5*) Weather: *Sunny* Temperature: *80°-85°*

## Purging & Sampling Instrumentation & Method

Water Level Meter (Model/ID): *Solinst 101* Interface Probe (Model/ID): *NA*  
 Water Quality Meter (Model/ID): *YSI 556* Decontamination Method: *Alconox and tap water rinse*  
 Purging Equipment:  PVC Bailer  Bladder Pump  Submersible Pump  Peristaltic Pump  Other: \_\_\_\_\_  
 Purge Method:  3 Well Volumes  Low Flow  Micro Purge  Intake Depth (feet below TOC) *18'*  
 Sampling Method:  Teflon Bailer  Disposable Bailer  Dedicated Tubing  Other: \_\_\_\_\_

## Casing Volume Information

## Purging Calculations

Casing Diameter (Circle): *2"* 4" 6" Other \_\_\_\_\_  
 Casing Multiplier (CM)(gallons/foot): *0.16* 0.65 1.47  
 WC *11.83* x CM *0.46* = *1.89* (CV)(gal) x 3.0 CV (gal) = *5.68* PV

## Monitoring Measurements

Depth to LNAPL (feet): *NA* Top of Screen (feet bTOC)/Total Well Depth (feet): \_\_\_\_\_  
 Depth to Water (DTW)(feet): *13.17* Water Column (WC)(feet): *11.83*  
 LNAPL Thickness (ft): *NA* Purging Start Time: *1320*

## Purging Data

Time (24 Hours)	DTW (Feet)	Cum. Vol. Purged (liters)	Temp (°C) (± 1°)	Specific Cond. (uS/cm) (± 5%)	Turbidity NTU	Dissolved Oxygen (mg/L) (± 10%)	pH (± 0.1)	ORP (mV) (± 10 mV)	Other
<i>1330</i>	<i>13.17</i>	<i>0.3</i>	<i>19.09</i>	<i>884</i>	<i>9.52</i>	<i>1.28</i>	<i>6.62</i>	<i>-38.8</i>	
<i>1333</i>	<i>13.17</i>	<i>0.4</i>	<i>19.18</i>	<i>871</i>	<i>7.55</i>	<i>1.38</i>	<i>6.65</i>	<i>-41.9</i>	
<i>1336</i>	<i>13.17</i>	<i>0.5</i>	<i>19.18</i>	<i>861</i>	<i>3.74</i>	<i>1.58</i>	<i>6.66</i>	<i>-42.4</i>	
<i>1339</i>	<i>13.17</i>	<i>0.6</i>	<i>19.21</i>	<i>854</i>	<i>3.31</i>	<i>1.67</i>	<i>6.67</i>	<i>-42.3</i>	
<i>1342</i>	<i>13.17</i>	<i>0.7</i>	<i>19.14</i>	<i>845</i>	<i>2.93</i>	<i>1.64</i>	<i>6.69</i>	<i>-41.5</i>	

## Sample Data

Sample ID: **MW- 5** (*UKMW-5*) Time of Sample: *1345*  
 Container Types, Volumes, & Quantities: *40 mL HCL WCA x 4 various*  
 Filtered (yes/no): *No* Preservatives: *various* Analytical Parameters: *halogenated VOC, PCB*

## Well Recovery Data

Maximum Drawdown (DTWm)(feet): \_\_\_\_\_ Approximate Flow Rate (GPM): *130 mL/min*  
 Recovery Type:  Fast  Slow % Recovery = \_\_\_\_\_  
 Purge Water Disposition (Attach Drum Inventory Log - FLD 108): \_\_\_\_\_

Comments: *Orange - rust colored material in purge (b.o. - flake?)*  
*Slight Chem - odor from purge, no sheen.*



ENVIRONMENTAL - GEOTECHNICAL  
BUILDING SCIENCES - MATERIALS TESTING

# Monitoring Well Purging and Sampling Log

FLD-103

Revision 1.0

Jul-08

ATC Branch: 16416 Monterey Park *10282 - Seattle* Date: *9/12/2019* Page *1* of *1*

On-Site Representative(s): *L. Brown* Project: U-Haul 615081  
Location: 800-812 W Columbia Drive, Kennewick, WA 99336

Contact Information: Project No: 1052 5081 06 1

Well ID: *MW-1 (UKMW-1)* Weather: *Sunny* Temperature: *~80°-85°F*

## Purging & Sampling Instrumentation & Method

Water Level Meter (Model/ID): *Solinst 101* Interface Probe (Model/ID): *NA*

Water Quality Meter (Model/ID): *YSI 556* Decontamination Method: *Alconox and tap water rinse*

Purging Equipment:  PVC Bailer  Bladder Pump  Submersible Pump  Peristaltic Pump  Other:

Purge Method:  3 Well Volumes  Low Flow  Micro Purge  Intake Depth (feet below TOC) *18'*

Sampling Method:  Teflon Bailer  Disposable Bailer  Dedicated Tubing  Other:

### Casing Volume Information

### Purging Calculations

Casing Diameter (Circle): 2" 4" 6" Other

Casing Multiplier (CM)(gallons/foot): 0.16 0.65 1.47

Casing Volumes (CV):  
WC *11.20* x CM *0.65* = *7.28* (CV)(gal) x 3.0 CV (gal) = *21.84* PV

## Monitoring Measurements

Depth to LNAPL (feet): *NA* Top of Screen (feet bTOC)/Total Well Depth (feet):

Depth to Water (DTW)(feet): *12.80* Water Column (WC)(feet): *11.20*

LNAPL Thickness (ft): *NA* Purging Start Time: *1236*

## Purging Data

Time (24 Hours)	DTW (Feet)	Cum. Vol. Purged (liters)	Temp (°C) (± 1°)	Specific Cond. (uS/cm) (± 5%)	Turbidity NTU	Dissolved Oxygen (mg/L) (± 10%)	pH (± 0.1)	ORP (mV) (± 10 mV)	Other
<del>1236</del> <i>1250</i>	<i>12.80</i>	<i>0.6</i>	<i>20.16</i>	<i>637</i>	<i>0.57</i>	<i>8.72</i>	<i>7.08</i>	<i>-13.7</i>	
<i>1254</i>	<i>12.80</i>	<i>0.7</i>	<i>20.07</i>	<i>636</i>	<i>0.61</i>	<i>8.80</i>	<i>7.06</i>	<i>-19.5</i>	
<i>1257</i>	<i>12.80</i>	<i>0.85</i>	<i>19.96</i>	<i>634</i>	<i>0.48</i>	<i>8.76</i>	<i>7.07</i>	<i>-19.5</i>	
<i>1300</i>	<i>12.80</i>	<i>0.95</i>	<i>19.92</i>	<i>633</i>	<i>0.95</i>	<i>8.48</i>	<i>7.07</i>	<i>-20.1</i>	

## Sample Data

Sample ID: *MW-1 (UKMW-1)* Time of Sample: *1305*

Container Types, Volumes, & Quantities: *40mL HCL VOA x 4* ~~Various~~

Filtered (yes/no): *No* Preservatives: ~~various~~ Analytical Parameters: *halogenated VOC, PCB*

## Well Recovery Data

Maximum Drawdown (DTWm)(feet): Approximate Flow Rate (GPM): *150 ml/min*

Recovery Type:  Fast  Slow % Recovery =

Purge Water Disposition (Attach Drum Inventory Log - FLD 108):

Comments: *No odor or sheen noted in purge*