

ZipperGeo

Geoprofessional Consultants

January 26, 2018

Mill Creek Crossing LLC
22833 Bothell Everett Highway, Suite 207
Bothell, Washington 98021

Attn: Mr. Nicholas Echelbarger

Re: Groundwater Monitoring Report – Former Prime Cleaners
18001 Bothell Everett Highway
Bothell, Snohomish County, Washington
ZGA Project No. 1001.25
VCP #NW2571

Dear Mr. Echelbarger:

Zipper Geo Associates, LLC (ZGA) is pleased to submit this Groundwater Monitoring Report for the above referenced site. This investigation was performed in accordance with ZGA's Proposal No. P14297R, dated July 2, 2015 and includes results for sampling events completed in November 2017.

We appreciate the opportunity to perform these services for Mill Creek Crossing LLC. Please contact the undersigned at (425) 582-9928 if you have questions regarding the information provided in the report.

Sincerely,

Zipper Geo Associates, LLC



Evelyn Conrado, GIT
Staff Geologist



Jon Einarsen, LG
Principal

Attachments: Appendix A – Figures

Figure 1 – Groundwater Contour Map (November 2017)

Appendix B – Laboratory Report

Appendix C – 2016 Alderwood Water and Wastewater District Water Quality Report

Introduction

A dual-phase extraction (DPE) system has been installed at the Site to treat soil and groundwater that has been impacted by tetrachloroethylene (PCE) due to historical use of two adjoining tenant spaces for dry cleaning activities. The DPE system was first started on February 1, 2017. After troubleshooting several electrical and mechanical issues that were causing the system to automatically shut down, the system has been running more or less continuously since June of 2017, with periodic shutdowns for maintenance and groundwater sampling.

This groundwater monitoring report presents a summary of a groundwater sampling event completed in November of 2017, which is the second quarterly sampling event since system startup. The scope of the monitoring study is to sample 10 groundwater wells located proximal to the former dry cleaning facilities located on the southwest part of the Mill Creek Crossing Retail Center. Results from the monitoring study are used to assess trends in concentrations of volatile organic compounds (VOC), particularly tetrachloroethylene (PCE), and its degradational products trichloroethylene (TCE), 1,1-dichloroethene, cis-1,2-dichloroethylene (cis-1,2-DCE), and trans-1,2-dichloroethylene (trans-1,2-DCE), and vinyl chloride. 1,1-dichloroethene and the end-member degradational product vinyl chloride have never been detected at the Site.

Table 1. Project Information

Site Name	Former Prime Cleaners
Site Location/Address	18001 Bothell-Everett Highway
VCP #	NW2571
Sampling Schedule	Quarterly
Sampling Dates (this report)	November 14-16, 2017
Wells Sounded	MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10
Wells Sampled	MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10
Next Sampling Event	November, 2017

Groundwater Flow

Ten dedicated groundwater monitoring wells are present on the Site (MW-1 through MW-10). We measured depth to groundwater in each well on November 14, 2017. Depth to groundwater was measured in relation to the north side of the PVC casing of each well. Generally, we observed a southerly trend to groundwater flow. Relative groundwater elevations measured during previous sampling events and the event discussed in this report are presented in Table 2. A groundwater contour map for the November 2017 sampling event is attached in Appendix A as Figure 1.

Table 2. Groundwater Elevations

Well ID	Relative Casing Elevation (ft.)	Date of Measurement	Depth to Groundwater (ft.)	Relative Groundwater Elevation (ft.)
MW-1	296.31	08-25-2010	25.22	271.09
		05-09-2011	21.18	275.13
		05-23-2012	22.73	273.58
		03-05-2014	23.95	272.36
		01-09-2017	22.85	273.46
		08-17-2017	24.87	271.44
		11-14-2017	24.66	271.65
MW-2	296.47	08-25-2010	25.58	270.89
		05-09-2011	21.61	274.86
		05-23-2012	22.97	273.50
		03-05-2014	24.28	272.19
		01-09-2017	23.14	273.33
		08-17-2017	25.57	270.90
		11-14-2017	25.15	271.32
MW-3	296.96	08-25-2010	26.17	270.79
		05-09-2011	22.21	274.75
		05-23-2012	23.49	273.47
		03-05-2014	24.88	272.08
		01-09-2017	23.66	273.30
		08-17-2017	26.10	270.86
		11-14-2017	25.69	271.27
MW-4	296.56	08-25-2010	25.76	270.80
		05-09-2011	21.77	274.79
		05-23-2012	23.10	273.46
		03-05-2014	24.47	272.09
		01-09-2017	23.21	273.35
		08-17-2017	25.67	270.89
		11-14-2017	25.32	271.24
MW-5	289.85	08-25-2010	18.71	271.14
		05-09-2011	14.96	274.89
		05-23-2012	16.18	273.67
		03-05-2014	17.49	272.36
		01-09-2017	17.36	272.49
		08-17-2017	18.71	271.14
		11-14-2017	18.51	271.34

Well ID	Relative Casing Elevation (ft.)	Date of Measurement	Depth to Groundwater (ft.)	Relative Groundwater Elevation (ft.)
MW-6	289.94	08-25-2010	18.91	271.03
		05-09-2011	15.06	274.88
		05-23-2012	16.30	273.64
		03-05-2014	17.54	272.40
		01-09-2017	16.44	273.50
		08-17-2017	18.81	271.13
		11-14-2017	18.71	271.23
MW-7	289.72	08-25-2010	19.14	270.58
		05-09-2011	15.22	274.50
		05-23-2012	16.41	273.31
		03-05-2014	17.85	271.87
		01-09-2017	16.61	273.11
		08-17-2017	19.11	270.61
		11-14-2017	18.68	271.04
MW-8	290.56	08-25-2010	Not Installed	
		05-09-2011	16.02	274.54
		05-23-2012	17.21	273.35
		03-05-2014	18.69	271.87
		01-09-2017	17.47	273.09
		08-17-2017	19.91	270.65
		11-14-2017	19.46	271.10
MW-9	298.90	08-25-2010	Not Installed	
		05-09-2011	Not Installed	
		05-23-2012	Not Installed	
		03-05-2014	26.30	272.60
		01-09-2017	25.10	273.80
		08-17-2017	27.55	271.35
		11-14-2017	27.52	271.38
MW-10	297.49	08-25-2010	Not Installed	
		05-09-2011	Not Installed	
		05-23-2012	Not Installed	
		03-05-2014	25.19	272.30
		1/12/2017	24.17	273.32
		8/18/17	26.21	271.28
		11/14/17	25.91	271.58

Groundwater Sampling and Analysis

The DPE system was shut down on November 12, 2017 and groundwater was sampled by ZGA on November 14 to November 16, 2017. Each groundwater monitoring well was purged using a portable bladder pump equipped with a disposable bladder and dedicated tubing. The pump was lowered gently into the water column to a depth that corresponded with the highest concentration of PCE observed in that well in soil during the remedial investigation (ZGA Project No. 1001.22). If no PCE was measured in soil in a well, the pump was set at the mid-point of the screen. Flow rates were maintained at approximately 0.1 to 0.3 liters per minute. During the purging process, groundwater quality parameters including temperature, electrical conductivity (EC), pH, turbidity, dissolved oxygen (DO), and oxidation-reduction potential (ORP) were measured at regular intervals using a Horiba U-22 water-quality meter

equipped with a flow cell. Purging at a given well was considered complete when: DO and turbidity were within +/- 10% variance; pH was within +/- 0.1 variance; EC was with +/- 3% variance; and ORP was within +/- 10 mV. All non-disposable pump components were decontaminated after sampling by rinsing with potable water, scrubbing in a solution of Alconox™ and potable water, and a final rinse with distilled water. Purge water and decontamination water were stored in a sealed, labeled 50-gallon drum at the Site and are awaiting classification and off-site disposal.

Groundwater samples were collected after parameter stabilization into laboratory supplied glass 40 mL VOA vials preserved with hydrochloric acid. Sample containers were labeled with the well ID, the project name, the project number, the date, and the time of collection. Sample containers were immediately stored in a chilled cooler and were later transferred to a dedicated refrigerator in our office. Sample containers were transported to Field Environmental Instruments (FEI) in Woodinville in a chilled cooler under chain of custody procedures. FEI functioned as an intermediary to the analytical laboratory: Environmental Science Corporation (ESC), a Washington State accredited laboratory. All samples were analyzed by ESC at their central laboratory, located in Tennessee.

The analytical results are summarized in Table 3, and are compared to cleanup levels defined in the Model Toxics Control Act (WAC 173-340).

Groundwater Sampling Analytical Results (November 2017)

The following results were drawn from the analysis of 10 groundwater samples. The executed chain-of-custody forms and laboratory analytical certificates are provided in Appendix B.

- PCE was detected at concentrations that exceeded the applicable cleanup level (5 µg/L) in two wells: MW-4 (50.8 µg/L and duplicate analysis 56.9 µg/L), and MW-8 (19.2 µg/L).
- PCE was detected at concentrations above the laboratory reporting limit (RDL) but below the applicable cleanup level in five wells: MW-1 (0.231 µg/L), MW-3 (4.96 µg/L), MW-5 (0.259 µg/L), MW-6 (2.37 µg/L), and MW-7 (3.8 µg/L). This sampling event is the second consecutive quarter that the concentration of PCE in MW-3 has remained below cleanup levels.
- PCE was not detected above the RDL in three wells: MW-2, MW-9, and MW-10.

Acetone was reported at a concentration of 1.45 µg/L in MW-4, which is below the MTCA Method B cleanup of 7,200 µg/L. Chloroform was reported at concentrations of 25.7 µg/L (MW-1), 2.32 µg/L (MW-7) and 1.79 µg/L (MW-10), which exceed the MTCA Method B cleanup level (1.41 µg/L). Chloroform was reported above the RDL but below the cleanup level in MW-2, MW-3, MW-6, MW-8 and MW-9. Bromodichloromethane was reported at concentrations of 1.13 µg/L and 0.239 µg/L in MW-1 and MW-7, respectively, which is above the MTCA Method B cleanup level (0.706 µg/L). No other VOC were reported above laboratory RDLs.

Chloroform and bromodichloromethane are disinfection by-products commonly produced during the chlorination of drinking water and wastewater (Ivahnenco and Zogorski, 2006; Centers for Disease Control¹). Potable water to the Site and vicinity is provided by the Alderwood Water and Waste Water District (AWWD). According to the 2016 AWWD Water Quality Report, the average concentration of chloroform and bromodichloromethane measured in the public water supply was 37.2 µg/L and 1.9 µg/L. Based on these results, the presence of chloroform and bromodichloromethane in groundwater at the Site is likely derived from leaky public water supply piping and irrigation.

¹ <https://www.atsdr.cdc.gov/phs/phs.asp?id=706&tid=127>

Table 3. Groundwater Analytical Results

Monitoring Well	Date	Volatile Organic Compounds (µg/L)			
		PCE	TCE	Cis-1,2-DCE	Trans-1,2-DCE
MW-1	06-17-09	12	ND<1	4.8	ND<1
	08-10-10	ND<1	3.2	1.4	ND<1
	05-10-11	1.3	ND<1	ND<1	ND<1
	05-23-12	ND<2	ND<2	ND<2	ND<2
	03-05-14	ND<2	ND<2	ND<2	ND<2
	01-11-17	0.508	ND<1	ND<1	ND<1
	08-18-17	0.431	ND<1	ND<1	ND<1
	11-15-17	0.231	ND<0.5	ND<0.5	ND<0.5
MW-2	06-16-09	ND<1	ND<1	ND<1	ND<1
	08-12-10	ND<1	ND<1	ND<1	ND<1
	05-10-11	ND<1	ND<1	ND<1	ND<1
	05-24-12	ND<2	ND<2	ND<2	ND<2
	03-05-14	ND<2	ND<2	ND<2	ND<2
	01-11-17	ND<1	ND<1	ND<1	ND<1
	08-17-17	ND<1	ND<1	ND<1	ND<1
	11-14-17	ND<0.5	ND<0.5	ND<0.5	ND<0.5
MW-3	06-17-09	6.6	ND<1	ND<1	ND<1
	08-12-10	6.4	ND<1	ND<1	ND<1
	05-10-11	9.3	ND<1	ND<1	ND<1
	05-24-12	15	ND<2	ND<2	ND<2
	03-07-14	5.6	ND<2	ND<2	ND<2
	01-12-17	9.28	ND<1	ND<1	ND<1
	08-21-17	2.81	ND<1	ND<1	ND<1
	11-16-17	4.96	ND<0.5	ND<0.5	ND<0.5
MW-4	10-31-07	45	ND<1	ND<1	ND<1
	06-16-09	170	ND<1	ND<1	ND<1
	08-12-10	140	ND<1	ND<1	ND<1
	05-10-11	110	ND<1	ND<1	ND<1
	05-24-12	140	ND<2	ND<2	ND<2
	03-07-14	44	ND<2	ND<2	ND<2
	01-13-17	96.1	ND<1	ND<1	ND<1
	01-13-17 DUP	95.8	ND<1	ND<1	ND<1
	08-21-17	76.5	ND<1	ND<1	ND<1
	11-16-17	50.8	ND<0.5	ND<0.5	ND<0.5
	11-16-17 DUP	56.9	ND<0.5	ND<0.5	ND<0.5
MW-5	08-10-10	0.61	ND<1	ND<1	ND<1
	05-09-11	0.60	ND<1	ND<1	ND<1
	03-06-14	ND<2	ND<2	ND<2	ND<2
	01-12-17	ND<1	ND<1	ND<1	ND<1
	08-18-17	0.281	ND<1	ND<1	ND<1
	11-15-17	0.259	ND<0.5	ND<0.5	ND<0.5

Monitoring Well	Date	Volatile Organic Compounds (µg/L)			
		PCE	TCE	Cis-1,2-DCE	Trans-1,2-DCE
MW-6	08-10-10	ND<1	ND<1	ND<1	ND<1
	05-09-11	2.2	ND<1	ND<1	ND<1
	03-06-14	4.7	ND<2	ND<2	ND<2
	01-12-17	1.07	ND<1	ND<1	ND<1
	08-21-17	0.674	ND<1	ND<1	ND<1
	11-15-17	2.37	ND<0.5	ND<0.5	ND<0.5
MW-7	08-10-10	0.55	ND<1	ND<1	ND<1
	05-09-11	ND<1	ND<1	ND<1	ND<1
	03-06-14	8.0	ND<2	ND<2	ND<2
	01-12-17	0.948	ND<1	ND<1	ND<1
	08-21-17	1.49	ND<1	ND<1	ND<1
	11-15-17	3.8	ND<0.5	ND<0.5	ND<0.5
MW-8	05-10-11	22	ND<1	ND<1	ND<1
	05-24-12	36	ND<2	ND<2	ND<2
	03-07-14	13	ND<2	ND<2	ND<2
	01-13-17	26.4	ND<1	ND<1	ND<1
	08-21-17	25.1	ND<1	ND<1	0.250
	11-16-17	19.2	ND<0.5	ND<0.5	ND<0.5
MW-9	03-05-14	ND<2	ND<2	ND<2	ND<2
	01-11-17	ND<1	ND<1	ND<1	ND<1
	08-18-17	ND<1	ND<1	ND<1	ND<1
	11-14-17	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	03-06-14	ND<2	ND<2	ND<2	ND<2
MW-10	01-12-17	ND<1	ND<1	ND<1	ND<1
	08-18-17	ND<1	ND<1	ND<1	ND<1
	11-14-17	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	06-16-09	ND<1	ND<1	ND<1	ND<1
Equipment Blank	08-12-10	ND<1	ND<1	ND<1	ND<1
	01-13-17	ND<1	ND<1	ND<1	ND<1
	11-16-17	ND<0.5	ND<0.5	ND<0.5	ND<0.5
DPE Effluent	03-08-17	0.748	ND<1	ND<1	ND<1
	11-12-17	0.286	ND<0.5	ND<0.5	ND<0.5
MTCA Cleanup Level		5	5	16	160

ug/L: micrograms per liter (parts-per-billion); ND<: Not detected above indicated laboratory reporting detection limit; Shaded values exceed MTCA Method A cleanup levels. ^A: Method A cleanup level. ^B: Method B cleanup level. Please refer to Appendix C for the complete set of analytes and analytical results for VOC.

Conclusions

ZGA completed a groundwater monitoring sampling event in November 2017. Historically, PCE has exceeded cleanup levels in MW-3, MW-4 and MW-8. The concentration of PCE fell to a concentration below the cleanup level in MW-3 for the second consecutive quarter in November 2017. The concentrations of PCE in MW-4 and MW-8 remain above the cleanup level but may be declining.

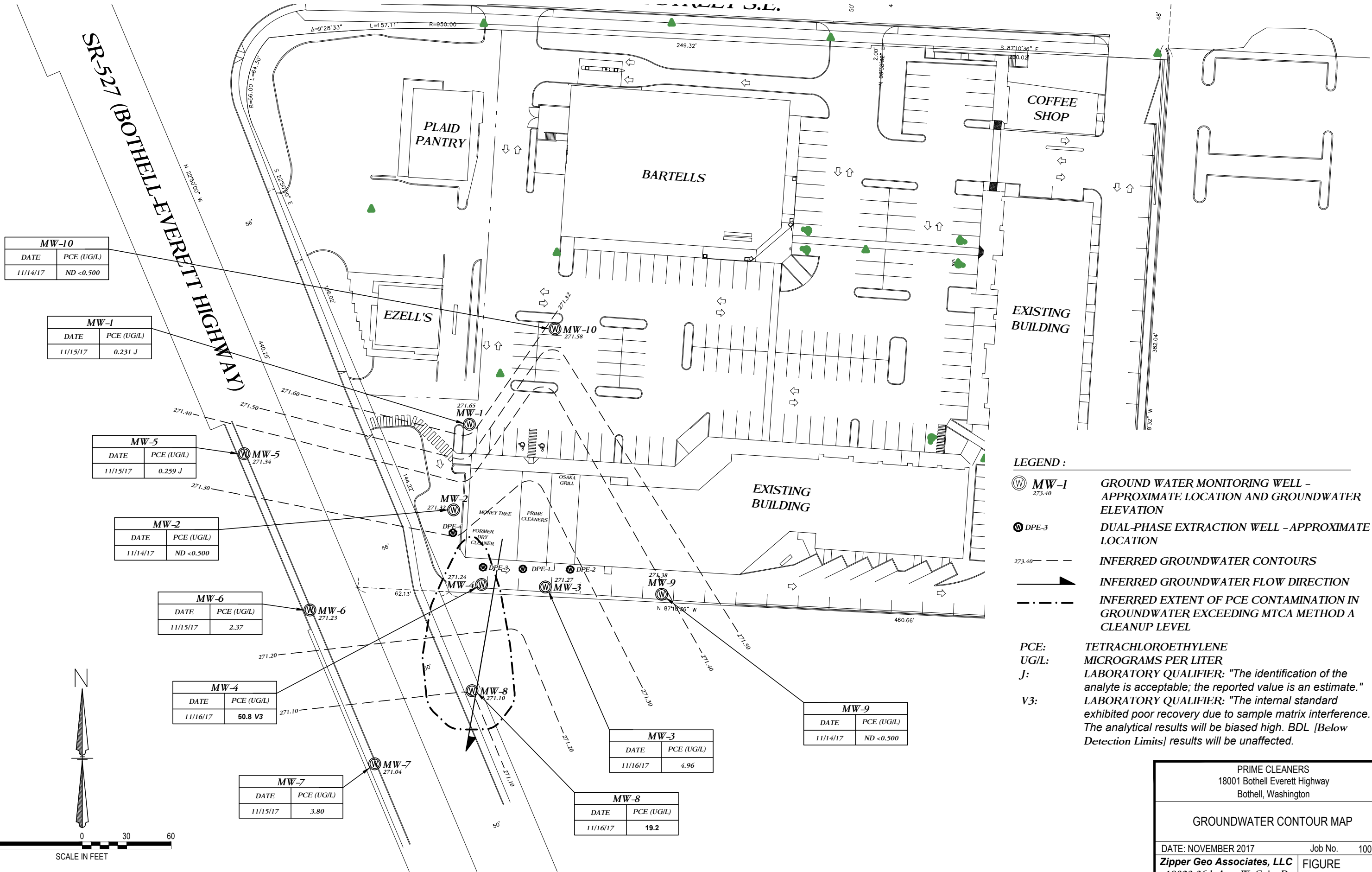
ZGA will continue to monitor the effectiveness of the DPE system by completing additional groundwater monitoring events on a quarterly basis going forward. The next sampling event is scheduled for February 2018.

References

Ivahnenco, T. and Zogorski, J.S., 2006, Sources and occurrence of Chloroform and Other Trihalomethanes in Drinking-Water Supply Wells in the United States, 1986-2001, U.S. Geological Survey, Scientific Investigations Report 2006-5015.

APPENDIX A

Figures



Appendix B

Laboratory Report

November 29, 2017

Zipper Geo Associates - Lynnwood, WA

Sample Delivery Group: L952378
Samples Received: 11/20/2017
Project Number: 1001.25
Description: Prime Cleaners

Report To: Jon Einarsen
19019 36th Ave. W.
Ste. E
Lynnwood, WA 98036

Entire Report Reviewed By:



Brian Ford
Technical Service Representative

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 ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



MW-1 L952378-01 GW

			Collected by	Collected date/time	Received date/time
				11/15/17 09:00	11/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1046162	1	11/26/17 22:57	11/26/17 22:57	JHH

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

MW-2 L952378-02 GW

			Collected by	Collected date/time	Received date/time
				11/14/17 13:04	11/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1046162	1	11/26/17 23:17	11/26/17 23:17	JHH

MW-3 L952378-03 GW

			Collected by	Collected date/time	Received date/time
				11/16/17 09:07	11/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1046162	1	11/26/17 23:36	11/26/17 23:36	JHH

MW-4 L952378-04 GW

			Collected by	Collected date/time	Received date/time
				11/16/17 12:25	11/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1046162	1	11/26/17 23:56	11/26/17 23:56	JHH

MW-5 L952378-05 GW

			Collected by	Collected date/time	Received date/time
				11/15/17 11:15	11/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1046162	1	11/27/17 00:16	11/27/17 00:16	JHH

MW-6 L952378-06 GW

			Collected by	Collected date/time	Received date/time
				11/15/17 13:10	11/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1046162	1	11/27/17 00:36	11/27/17 00:36	JHH

MW-7 L952378-07 GW

			Collected by	Collected date/time	Received date/time
				11/15/17 14:40	11/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1046162	1	11/27/17 00:56	11/27/17 00:56	JHH

MW-8 L952378-08 GW

			Collected by	Collected date/time	Received date/time
				11/16/17 10:40	11/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1046162	1	11/27/17 01:16	11/27/17 01:16	JHH

ACCOUNT:

Zipper Geo Associates - Lynnwood, WA

PROJECT:

1001.25

SDG:

L952378

DATE/TIME:

11/29/17 10:36

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SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



MW-9 L952378-09 GW

			Collected by	Collected date/time	Received date/time
				11/14/17 15:23	11/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1046162	1	11/27/17 01:35	11/27/17 01:35	JHH

¹ Cp² Tc³ Ss

MW-10 L952378-10 GW

			Collected by	Collected date/time	Received date/time
				11/14/17 10:53	11/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1046162	1	11/27/17 01:55	11/27/17 01:55	JHH

⁴ Cn⁵ Sr

EQUIPMENT BLANK L952378-11 GW

			Collected by	Collected date/time	Received date/time
				11/16/17 11:25	11/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1046162	1	11/26/17 22:37	11/26/17 22:37	JHH

⁶ Qc⁷ Gl

DUPLICATE L952378-12 GW

			Collected by	Collected date/time	Received date/time
				11/16/17 00:00	11/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1046162	1	11/27/17 02:15	11/27/17 02:15	JHH

⁸ Al⁹ Sc

EFFLUENT L952378-13 GW

			Collected by	Collected date/time	Received date/time
				11/12/17 13:05	11/20/17 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1046670	1	11/26/17 18:00	11/26/17 18:00	JAH
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1046670	1	11/26/17 20:00	11/26/17 20:00	DWR

ACCOUNT:

Zipper Geo Associates - Lynnwood, WA

PROJECT:

1001.25

SDG:

L952378

DATE/TIME:

11/29/17 10:36

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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. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. 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.

Brian Ford
Technical Service Representative

Sample Handling and Receiving

The following sample(s) were received at greater than 6 degrees C.

<u>ESC Sample ID</u>	<u>Project Sample ID</u>	<u>Method</u>
L952378-01	MW-1	8260C
L952378-02	MW-2	8260C
L952378-03	MW-3	8260C
L952378-04	MW-4	8260C
L952378-05	MW-5	8260C
L952378-06	MW-6	8260C
L952378-07	MW-7	8260C
L952378-08	MW-8	8260C
L952378-09	MW-9	8260C
L952378-10	MW-10	8260C
L952378-11	EQUIPMENT BLANK	8260C
L952378-12	DUPLICATE	8260C
L952378-13	EFFLUENT	8260C

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		1.05	25.0	1	11/26/2017 22:57	WG1046162
Acrylonitrile	U		0.873	5.00	1	11/26/2017 22:57	WG1046162
Benzene	U		0.0896	0.500	1	11/26/2017 22:57	WG1046162
Bromobenzene	U		0.133	0.500	1	11/26/2017 22:57	WG1046162
Bromodichloromethane	1.13		0.0800	0.500	1	11/26/2017 22:57	WG1046162
Bromochloromethane	U		0.145	0.500	1	11/26/2017 22:57	WG1046162
Bromoform	U		0.186	0.500	1	11/26/2017 22:57	WG1046162
Bromomethane	U		0.157	2.50	1	11/26/2017 22:57	WG1046162
n-Butylbenzene	U		0.143	0.500	1	11/26/2017 22:57	WG1046162
sec-Butylbenzene	U		0.134	0.500	1	11/26/2017 22:57	WG1046162
tert-Butylbenzene	U		0.183	0.500	1	11/26/2017 22:57	WG1046162
Carbon disulfide	U		0.101	0.500	1	11/26/2017 22:57	WG1046162
Carbon tetrachloride	U		0.159	0.500	1	11/26/2017 22:57	WG1046162
Chlorobenzene	U		0.140	0.500	1	11/26/2017 22:57	WG1046162
Chlorodibromomethane	U		0.128	0.500	1	11/26/2017 22:57	WG1046162
Chloroethane	U		0.141	2.50	1	11/26/2017 22:57	WG1046162
Chloroform	25.7		0.0860	0.500	1	11/26/2017 22:57	WG1046162
Chloromethane	U		0.153	1.25	1	11/26/2017 22:57	WG1046162
2-Chlorotoluene	U		0.111	0.500	1	11/26/2017 22:57	WG1046162
4-Chlorotoluene	U		0.0972	0.500	1	11/26/2017 22:57	WG1046162
1,2-Dibromo-3-Chloropropane	U		0.325	2.50	1	11/26/2017 22:57	WG1046162
1,2-Dibromoethane	U		0.193	0.500	1	11/26/2017 22:57	WG1046162
Dibromomethane	U		0.117	0.500	1	11/26/2017 22:57	WG1046162
1,2-Dichlorobenzene	U		0.101	0.500	1	11/26/2017 22:57	WG1046162
1,3-Dichlorobenzene	U		0.130	0.500	1	11/26/2017 22:57	WG1046162
1,4-Dichlorobenzene	U		0.121	0.500	1	11/26/2017 22:57	WG1046162
Dichlorodifluoromethane	U		0.127	2.50	1	11/26/2017 22:57	WG1046162
1,1-Dichloroethane	U		0.114	0.500	1	11/26/2017 22:57	WG1046162
1,2-Dichloroethane	U		0.108	0.500	1	11/26/2017 22:57	WG1046162
1,1-Dichloroethene	U		0.188	0.500	1	11/26/2017 22:57	WG1046162
cis-1,2-Dichloroethene	U		0.0933	0.500	1	11/26/2017 22:57	WG1046162
trans-1,2-Dichloroethene	U		0.152	0.500	1	11/26/2017 22:57	WG1046162
1,2-Dichloropropane	U		0.190	0.500	1	11/26/2017 22:57	WG1046162
1,1-Dichloropropene	U		0.128	0.500	1	11/26/2017 22:57	WG1046162
1,3-Dichloropropane	U		0.147	1.00	1	11/26/2017 22:57	WG1046162
cis-1,3-Dichloropropene	U		0.0976	0.500	1	11/26/2017 22:57	WG1046162
trans-1,3-Dichloropropene	U		0.222	0.500	1	11/26/2017 22:57	WG1046162
trans-1,4-Dichloro-2-butene	U		0.257	5.00	1	11/26/2017 22:57	WG1046162
2,2-Dichloropropane	U		0.0929	0.500	1	11/26/2017 22:57	WG1046162
Di-isopropyl ether	U		0.0924	0.500	1	11/26/2017 22:57	WG1046162
Ethylbenzene	U		0.158	0.500	1	11/26/2017 22:57	WG1046162
Hexachloro-1,3-butadiene	U		0.157	1.00	1	11/26/2017 22:57	WG1046162
2-Hexanone	U		0.757	5.00	1	11/26/2017 22:57	WG1046162
n-Hexane	U		0.305	5.00	1	11/26/2017 22:57	WG1046162
Iodomethane	U		0.377	10.0	1	11/26/2017 22:57	WG1046162
Isopropylbenzene	U		0.126	0.500	1	11/26/2017 22:57	WG1046162
p-Isopropyltoluene	U		0.138	0.500	1	11/26/2017 22:57	WG1046162
2-Butanone (MEK)	U		1.28	5.00	1	11/26/2017 22:57	WG1046162
Methylene Chloride	U		1.07	2.50	1	11/26/2017 22:57	WG1046162
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00	1	11/26/2017 22:57	WG1046162
Methyl tert-butyl ether	U		0.102	0.500	1	11/26/2017 22:57	WG1046162
Naphthalene	U		0.174	2.50	1	11/26/2017 22:57	WG1046162
n-Propylbenzene	U		0.162	0.500	1	11/26/2017 22:57	WG1046162
Styrene	U		0.117	0.500	1	11/26/2017 22:57	WG1046162
1,1,1,2-Tetrachloroethane	U		0.120	0.500	1	11/26/2017 22:57	WG1046162
1,1,2,2-Tetrachloroethane	U		0.130	0.500	1	11/26/2017 22:57	WG1046162

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 11/15/17 09:00

L952378

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500	1	11/26/2017 22:57	WG1046162
Tetrachloroethene	0.231	J	0.199	0.500	1	11/26/2017 22:57	WG1046162
Toluene	U		0.412	0.500	1	11/26/2017 22:57	WG1046162
1,2,3-Trichlorobenzene	U		0.164	0.500	1	11/26/2017 22:57	WG1046162
1,2,4-Trichlorobenzene	U		0.355	0.500	1	11/26/2017 22:57	WG1046162
1,1,1-Trichloroethane	U		0.0940	0.500	1	11/26/2017 22:57	WG1046162
1,1,2-Trichloroethane	U		0.186	0.500	1	11/26/2017 22:57	WG1046162
Trichloroethene	U		0.153	0.500	1	11/26/2017 22:57	WG1046162
Trichlorofluoromethane	U		0.130	2.50	1	11/26/2017 22:57	WG1046162
1,2,3-Trichloropropane	U		0.247	2.50	1	11/26/2017 22:57	WG1046162
1,2,4-Trimethylbenzene	U		0.123	0.500	1	11/26/2017 22:57	WG1046162
1,2,3-Trimethylbenzene	U		0.0739	0.500	1	11/26/2017 22:57	WG1046162
1,3,5-Trimethylbenzene	U		0.124	0.500	1	11/26/2017 22:57	WG1046162
Vinyl acetate	U		0.645	5.00	1	11/26/2017 22:57	WG1046162
Vinyl chloride	U		0.118	0.500	1	11/26/2017 22:57	WG1046162
Xylenes, Total	U		0.316	1.50	1	11/26/2017 22:57	WG1046162
(S) Toluene-d8	102			80.0-120		11/26/2017 22:57	WG1046162
(S) Dibromofluoromethane	100			76.0-123		11/26/2017 22:57	WG1046162
(S) 4-Bromofluorobenzene	94.9			80.0-120		11/26/2017 22:57	WG1046162

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 11/14/17 13:04

L952378

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		1.05	25.0	1	11/26/2017 23:17	WG1046162
Acrylonitrile	U		0.873	5.00	1	11/26/2017 23:17	WG1046162
Benzene	U		0.0896	0.500	1	11/26/2017 23:17	WG1046162
Bromobenzene	U		0.133	0.500	1	11/26/2017 23:17	WG1046162
Bromodichloromethane	U		0.0800	0.500	1	11/26/2017 23:17	WG1046162
Bromochloromethane	U		0.145	0.500	1	11/26/2017 23:17	WG1046162
Bromoform	U		0.186	0.500	1	11/26/2017 23:17	WG1046162
Bromomethane	U		0.157	2.50	1	11/26/2017 23:17	WG1046162
n-Butylbenzene	U		0.143	0.500	1	11/26/2017 23:17	WG1046162
sec-Butylbenzene	U		0.134	0.500	1	11/26/2017 23:17	WG1046162
tert-Butylbenzene	U		0.183	0.500	1	11/26/2017 23:17	WG1046162
Carbon disulfide	U		0.101	0.500	1	11/26/2017 23:17	WG1046162
Carbon tetrachloride	U		0.159	0.500	1	11/26/2017 23:17	WG1046162
Chlorobenzene	U		0.140	0.500	1	11/26/2017 23:17	WG1046162
Chlorodibromomethane	U		0.128	0.500	1	11/26/2017 23:17	WG1046162
Chloroethane	U		0.141	2.50	1	11/26/2017 23:17	WG1046162
Chloroform	0.265	J	0.0860	0.500	1	11/26/2017 23:17	WG1046162
Chloromethane	U		0.153	1.25	1	11/26/2017 23:17	WG1046162
2-Chlorotoluene	U		0.111	0.500	1	11/26/2017 23:17	WG1046162
4-Chlorotoluene	U		0.0972	0.500	1	11/26/2017 23:17	WG1046162
1,2-Dibromo-3-Chloropropane	U		0.325	2.50	1	11/26/2017 23:17	WG1046162
1,2-Dibromoethane	U		0.193	0.500	1	11/26/2017 23:17	WG1046162
Dibromomethane	U		0.117	0.500	1	11/26/2017 23:17	WG1046162
1,2-Dichlorobenzene	U		0.101	0.500	1	11/26/2017 23:17	WG1046162
1,3-Dichlorobenzene	U		0.130	0.500	1	11/26/2017 23:17	WG1046162
1,4-Dichlorobenzene	U		0.121	0.500	1	11/26/2017 23:17	WG1046162
Dichlorodifluoromethane	U		0.127	2.50	1	11/26/2017 23:17	WG1046162
1,1-Dichloroethane	U		0.114	0.500	1	11/26/2017 23:17	WG1046162
1,2-Dichloroethane	U		0.108	0.500	1	11/26/2017 23:17	WG1046162
1,1-Dichloroethene	U		0.188	0.500	1	11/26/2017 23:17	WG1046162
cis-1,2-Dichloroethene	U		0.0933	0.500	1	11/26/2017 23:17	WG1046162
trans-1,2-Dichloroethene	U		0.152	0.500	1	11/26/2017 23:17	WG1046162
1,2-Dichloropropane	U		0.190	0.500	1	11/26/2017 23:17	WG1046162
1,1-Dichloropropene	U		0.128	0.500	1	11/26/2017 23:17	WG1046162
1,3-Dichloropropane	U		0.147	1.00	1	11/26/2017 23:17	WG1046162
cis-1,3-Dichloropropene	U		0.0976	0.500	1	11/26/2017 23:17	WG1046162
trans-1,3-Dichloropropene	U		0.222	0.500	1	11/26/2017 23:17	WG1046162
trans-1,4-Dichloro-2-butene	U		0.257	5.00	1	11/26/2017 23:17	WG1046162
2,2-Dichloropropane	U		0.0929	0.500	1	11/26/2017 23:17	WG1046162
Di-isopropyl ether	U		0.0924	0.500	1	11/26/2017 23:17	WG1046162
Ethylbenzene	U		0.158	0.500	1	11/26/2017 23:17	WG1046162
Hexachloro-1,3-butadiene	U		0.157	1.00	1	11/26/2017 23:17	WG1046162
2-Hexanone	U		0.757	5.00	1	11/26/2017 23:17	WG1046162
n-Hexane	U		0.305	5.00	1	11/26/2017 23:17	WG1046162
Iodomethane	U		0.377	10.0	1	11/26/2017 23:17	WG1046162
Isopropylbenzene	U		0.126	0.500	1	11/26/2017 23:17	WG1046162
p-Isopropyltoluene	U		0.138	0.500	1	11/26/2017 23:17	WG1046162
2-Butanone (MEK)	U		1.28	5.00	1	11/26/2017 23:17	WG1046162
Methylene Chloride	U		1.07	2.50	1	11/26/2017 23:17	WG1046162
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00	1	11/26/2017 23:17	WG1046162
Methyl tert-butyl ether	U		0.102	0.500	1	11/26/2017 23:17	WG1046162
Naphthalene	U		0.174	2.50	1	11/26/2017 23:17	WG1046162
n-Propylbenzene	U		0.162	0.500	1	11/26/2017 23:17	WG1046162
Styrene	U		0.117	0.500	1	11/26/2017 23:17	WG1046162
1,1,1,2-Tetrachloroethane	U		0.120	0.500	1	11/26/2017 23:17	WG1046162
1,1,2,2-Tetrachloroethane	U		0.130	0.500	1	11/26/2017 23:17	WG1046162

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 11/14/17 13:04

L952378

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500	1	11/26/2017 23:17	WG1046162
Tetrachloroethene	U		0.199	0.500	1	11/26/2017 23:17	WG1046162
Toluene	U		0.412	0.500	1	11/26/2017 23:17	WG1046162
1,2,3-Trichlorobenzene	U		0.164	0.500	1	11/26/2017 23:17	WG1046162
1,2,4-Trichlorobenzene	U		0.355	0.500	1	11/26/2017 23:17	WG1046162
1,1,1-Trichloroethane	U		0.0940	0.500	1	11/26/2017 23:17	WG1046162
1,1,2-Trichloroethane	U		0.186	0.500	1	11/26/2017 23:17	WG1046162
Trichloroethene	U		0.153	0.500	1	11/26/2017 23:17	WG1046162
Trichlorofluoromethane	U		0.130	2.50	1	11/26/2017 23:17	WG1046162
1,2,3-Trichloropropane	U		0.247	2.50	1	11/26/2017 23:17	WG1046162
1,2,4-Trimethylbenzene	U		0.123	0.500	1	11/26/2017 23:17	WG1046162
1,2,3-Trimethylbenzene	U		0.0739	0.500	1	11/26/2017 23:17	WG1046162
1,3,5-Trimethylbenzene	U		0.124	0.500	1	11/26/2017 23:17	WG1046162
Vinyl acetate	U		0.645	5.00	1	11/26/2017 23:17	WG1046162
Vinyl chloride	U		0.118	0.500	1	11/26/2017 23:17	WG1046162
Xylenes, Total	U		0.316	1.50	1	11/26/2017 23:17	WG1046162
(S) Toluene-d8	101			80.0-120		11/26/2017 23:17	WG1046162
(S) Dibromofluoromethane	98.9			76.0-123		11/26/2017 23:17	WG1046162
(S) 4-Bromofluorobenzene	98.2			80.0-120		11/26/2017 23:17	WG1046162

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



Collected date/time: 11/16/17 09:07

L952378

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		1.05	25.0	1	11/26/2017 23:36	WG1046162
Acrylonitrile	U		0.873	5.00	1	11/26/2017 23:36	WG1046162
Benzene	U		0.0896	0.500	1	11/26/2017 23:36	WG1046162
Bromobenzene	U		0.133	0.500	1	11/26/2017 23:36	WG1046162
Bromodichloromethane	U		0.0800	0.500	1	11/26/2017 23:36	WG1046162
Bromochloromethane	U		0.145	0.500	1	11/26/2017 23:36	WG1046162
Bromoform	U		0.186	0.500	1	11/26/2017 23:36	WG1046162
Bromomethane	U		0.157	2.50	1	11/26/2017 23:36	WG1046162
n-Butylbenzene	U		0.143	0.500	1	11/26/2017 23:36	WG1046162
sec-Butylbenzene	U		0.134	0.500	1	11/26/2017 23:36	WG1046162
tert-Butylbenzene	U		0.183	0.500	1	11/26/2017 23:36	WG1046162
Carbon disulfide	U		0.101	0.500	1	11/26/2017 23:36	WG1046162
Carbon tetrachloride	U		0.159	0.500	1	11/26/2017 23:36	WG1046162
Chlorobenzene	U		0.140	0.500	1	11/26/2017 23:36	WG1046162
Chlorodibromomethane	U		0.128	0.500	1	11/26/2017 23:36	WG1046162
Chloroethane	U		0.141	2.50	1	11/26/2017 23:36	WG1046162
Chloroform	0.218	J	0.0860	0.500	1	11/26/2017 23:36	WG1046162
Chloromethane	U		0.153	1.25	1	11/26/2017 23:36	WG1046162
2-Chlorotoluene	U		0.111	0.500	1	11/26/2017 23:36	WG1046162
4-Chlorotoluene	U		0.0972	0.500	1	11/26/2017 23:36	WG1046162
1,2-Dibromo-3-Chloropropane	U		0.325	2.50	1	11/26/2017 23:36	WG1046162
1,2-Dibromoethane	U		0.193	0.500	1	11/26/2017 23:36	WG1046162
Dibromomethane	U		0.117	0.500	1	11/26/2017 23:36	WG1046162
1,2-Dichlorobenzene	U		0.101	0.500	1	11/26/2017 23:36	WG1046162
1,3-Dichlorobenzene	U		0.130	0.500	1	11/26/2017 23:36	WG1046162
1,4-Dichlorobenzene	U		0.121	0.500	1	11/26/2017 23:36	WG1046162
Dichlorodifluoromethane	U		0.127	2.50	1	11/26/2017 23:36	WG1046162
1,1-Dichloroethane	U		0.114	0.500	1	11/26/2017 23:36	WG1046162
1,2-Dichloroethane	U		0.108	0.500	1	11/26/2017 23:36	WG1046162
1,1-Dichloroethene	U		0.188	0.500	1	11/26/2017 23:36	WG1046162
cis-1,2-Dichloroethene	U		0.0933	0.500	1	11/26/2017 23:36	WG1046162
trans-1,2-Dichloroethene	U		0.152	0.500	1	11/26/2017 23:36	WG1046162
1,2-Dichloropropane	U		0.190	0.500	1	11/26/2017 23:36	WG1046162
1,1-Dichloropropene	U		0.128	0.500	1	11/26/2017 23:36	WG1046162
1,3-Dichloropropane	U		0.147	1.00	1	11/26/2017 23:36	WG1046162
cis-1,3-Dichloropropene	U		0.0976	0.500	1	11/26/2017 23:36	WG1046162
trans-1,3-Dichloropropene	U		0.222	0.500	1	11/26/2017 23:36	WG1046162
trans-1,4-Dichloro-2-butene	U		0.257	5.00	1	11/26/2017 23:36	WG1046162
2,2-Dichloropropane	U		0.0929	0.500	1	11/26/2017 23:36	WG1046162
Di-isopropyl ether	U		0.0924	0.500	1	11/26/2017 23:36	WG1046162
Ethylbenzene	U		0.158	0.500	1	11/26/2017 23:36	WG1046162
Hexachloro-1,3-butadiene	U		0.157	1.00	1	11/26/2017 23:36	WG1046162
2-Hexanone	U		0.757	5.00	1	11/26/2017 23:36	WG1046162
n-Hexane	U		0.305	5.00	1	11/26/2017 23:36	WG1046162
Iodomethane	U		0.377	10.0	1	11/26/2017 23:36	WG1046162
Isopropylbenzene	U		0.126	0.500	1	11/26/2017 23:36	WG1046162
p-Isopropyltoluene	U		0.138	0.500	1	11/26/2017 23:36	WG1046162
2-Butanone (MEK)	U		1.28	5.00	1	11/26/2017 23:36	WG1046162
Methylene Chloride	U		1.07	2.50	1	11/26/2017 23:36	WG1046162
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00	1	11/26/2017 23:36	WG1046162
Methyl tert-butyl ether	U		0.102	0.500	1	11/26/2017 23:36	WG1046162
Naphthalene	U		0.174	2.50	1	11/26/2017 23:36	WG1046162
n-Propylbenzene	U		0.162	0.500	1	11/26/2017 23:36	WG1046162
Styrene	U		0.117	0.500	1	11/26/2017 23:36	WG1046162
1,1,1,2-Tetrachloroethane	U		0.120	0.500	1	11/26/2017 23:36	WG1046162
1,1,2,2-Tetrachloroethane	U		0.130	0.500	1	11/26/2017 23:36	WG1046162

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 11/16/17 09:07

L952378

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500	1	11/26/2017 23:36	WG1046162
Tetrachloroethene	4.96		0.199	0.500	1	11/26/2017 23:36	WG1046162
Toluene	U		0.412	0.500	1	11/26/2017 23:36	WG1046162
1,2,3-Trichlorobenzene	U		0.164	0.500	1	11/26/2017 23:36	WG1046162
1,2,4-Trichlorobenzene	U		0.355	0.500	1	11/26/2017 23:36	WG1046162
1,1,1-Trichloroethane	U		0.0940	0.500	1	11/26/2017 23:36	WG1046162
1,1,2-Trichloroethane	U		0.186	0.500	1	11/26/2017 23:36	WG1046162
Trichloroethene	U		0.153	0.500	1	11/26/2017 23:36	WG1046162
Trichlorofluoromethane	U		0.130	2.50	1	11/26/2017 23:36	WG1046162
1,2,3-Trichloropropane	U		0.247	2.50	1	11/26/2017 23:36	WG1046162
1,2,4-Trimethylbenzene	U		0.123	0.500	1	11/26/2017 23:36	WG1046162
1,2,3-Trimethylbenzene	U		0.0739	0.500	1	11/26/2017 23:36	WG1046162
1,3,5-Trimethylbenzene	U		0.124	0.500	1	11/26/2017 23:36	WG1046162
Vinyl acetate	U		0.645	5.00	1	11/26/2017 23:36	WG1046162
Vinyl chloride	U		0.118	0.500	1	11/26/2017 23:36	WG1046162
Xylenes, Total	U		0.316	1.50	1	11/26/2017 23:36	WG1046162
(S) Toluene-d8	105			80.0-120		11/26/2017 23:36	WG1046162
(S) Dibromofluoromethane	98.7			76.0-123		11/26/2017 23:36	WG1046162
(S) 4-Bromofluorobenzene	95.8			80.0-120		11/26/2017 23:36	WG1046162

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 11/16/17 12:25

L952378

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	1.45	J JO	1.05	25.0	1	11/26/2017 23:56	WG1046162
Acrylonitrile	U		0.873	5.00	1	11/26/2017 23:56	WG1046162
Benzene	U		0.0896	0.500	1	11/26/2017 23:56	WG1046162
Bromobenzene	U		0.133	0.500	1	11/26/2017 23:56	WG1046162
Bromodichloromethane	U		0.0800	0.500	1	11/26/2017 23:56	WG1046162
Bromochloromethane	U		0.145	0.500	1	11/26/2017 23:56	WG1046162
Bromoform	U		0.186	0.500	1	11/26/2017 23:56	WG1046162
Bromomethane	U		0.157	2.50	1	11/26/2017 23:56	WG1046162
n-Butylbenzene	U		0.143	0.500	1	11/26/2017 23:56	WG1046162
sec-Butylbenzene	U		0.134	0.500	1	11/26/2017 23:56	WG1046162
tert-Butylbenzene	U		0.183	0.500	1	11/26/2017 23:56	WG1046162
Carbon disulfide	U		0.101	0.500	1	11/26/2017 23:56	WG1046162
Carbon tetrachloride	U		0.159	0.500	1	11/26/2017 23:56	WG1046162
Chlorobenzene	U		0.140	0.500	1	11/26/2017 23:56	WG1046162
Chlorodibromomethane	U		0.128	0.500	1	11/26/2017 23:56	WG1046162
Chloroethane	U		0.141	2.50	1	11/26/2017 23:56	WG1046162
Chloroform	U		0.0860	0.500	1	11/26/2017 23:56	WG1046162
Chloromethane	U		0.153	1.25	1	11/26/2017 23:56	WG1046162
2-Chlorotoluene	U		0.111	0.500	1	11/26/2017 23:56	WG1046162
4-Chlorotoluene	U		0.0972	0.500	1	11/26/2017 23:56	WG1046162
1,2-Dibromo-3-Chloropropane	U		0.325	2.50	1	11/26/2017 23:56	WG1046162
1,2-Dibromoethane	U		0.193	0.500	1	11/26/2017 23:56	WG1046162
Dibromomethane	U		0.117	0.500	1	11/26/2017 23:56	WG1046162
1,2-Dichlorobenzene	U		0.101	0.500	1	11/26/2017 23:56	WG1046162
1,3-Dichlorobenzene	U		0.130	0.500	1	11/26/2017 23:56	WG1046162
1,4-Dichlorobenzene	U		0.121	0.500	1	11/26/2017 23:56	WG1046162
Dichlorodifluoromethane	U		0.127	2.50	1	11/26/2017 23:56	WG1046162
1,1-Dichloroethane	U		0.114	0.500	1	11/26/2017 23:56	WG1046162
1,2-Dichloroethane	U		0.108	0.500	1	11/26/2017 23:56	WG1046162
1,1-Dichloroethene	U		0.188	0.500	1	11/26/2017 23:56	WG1046162
cis-1,2-Dichloroethene	U		0.0933	0.500	1	11/26/2017 23:56	WG1046162
trans-1,2-Dichloroethene	U		0.152	0.500	1	11/26/2017 23:56	WG1046162
1,2-Dichloropropane	U		0.190	0.500	1	11/26/2017 23:56	WG1046162
1,1-Dichloropropene	U		0.128	0.500	1	11/26/2017 23:56	WG1046162
1,3-Dichloropropane	U		0.147	1.00	1	11/26/2017 23:56	WG1046162
cis-1,3-Dichloropropene	U		0.0976	0.500	1	11/26/2017 23:56	WG1046162
trans-1,3-Dichloropropene	U		0.222	0.500	1	11/26/2017 23:56	WG1046162
trans-1,4-Dichloro-2-butene	U		0.257	5.00	1	11/26/2017 23:56	WG1046162
2,2-Dichloropropane	U		0.0929	0.500	1	11/26/2017 23:56	WG1046162
Di-isopropyl ether	U		0.0924	0.500	1	11/26/2017 23:56	WG1046162
Ethylbenzene	U		0.158	0.500	1	11/26/2017 23:56	WG1046162
Hexachloro-1,3-butadiene	U		0.157	1.00	1	11/26/2017 23:56	WG1046162
2-Hexanone	U		0.757	5.00	1	11/26/2017 23:56	WG1046162
n-Hexane	U		0.305	5.00	1	11/26/2017 23:56	WG1046162
Iodomethane	U		0.377	10.0	1	11/26/2017 23:56	WG1046162
Isopropylbenzene	U		0.126	0.500	1	11/26/2017 23:56	WG1046162
p-Isopropyltoluene	U		0.138	0.500	1	11/26/2017 23:56	WG1046162
2-Butanone (MEK)	U		1.28	5.00	1	11/26/2017 23:56	WG1046162
Methylene Chloride	U		1.07	2.50	1	11/26/2017 23:56	WG1046162
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00	1	11/26/2017 23:56	WG1046162
Methyl tert-butyl ether	U		0.102	0.500	1	11/26/2017 23:56	WG1046162
Naphthalene	U		0.174	2.50	1	11/26/2017 23:56	WG1046162
n-Propylbenzene	U		0.162	0.500	1	11/26/2017 23:56	WG1046162
Styrene	U		0.117	0.500	1	11/26/2017 23:56	WG1046162
1,1,1,2-Tetrachloroethane	U		0.120	0.500	1	11/26/2017 23:56	WG1046162
1,1,2,2-Tetrachloroethane	U		0.130	0.500	1	11/26/2017 23:56	WG1046162

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

ACCOUNT:

Zipper Geo Associates - Lynnwood, WA

PROJECT:

1001.25

SDG:

L952378

DATE/TIME:

11/29/17 10:36

PAGE:

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Collected date/time: 11/16/17 12:25

L952378

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500	1	11/26/2017 23:56	WG1046162
Tetrachloroethene	50.8	V3	0.199	0.500	1	11/26/2017 23:56	WG1046162
Toluene	U		0.412	0.500	1	11/26/2017 23:56	WG1046162
1,2,3-Trichlorobenzene	U		0.164	0.500	1	11/26/2017 23:56	WG1046162
1,2,4-Trichlorobenzene	U		0.355	0.500	1	11/26/2017 23:56	WG1046162
1,1,1-Trichloroethane	U		0.0940	0.500	1	11/26/2017 23:56	WG1046162
1,1,2-Trichloroethane	U		0.186	0.500	1	11/26/2017 23:56	WG1046162
Trichloroethene	U		0.153	0.500	1	11/26/2017 23:56	WG1046162
Trichlorofluoromethane	U		0.130	2.50	1	11/26/2017 23:56	WG1046162
1,2,3-Trichloropropane	U		0.247	2.50	1	11/26/2017 23:56	WG1046162
1,2,4-Trimethylbenzene	U		0.123	0.500	1	11/26/2017 23:56	WG1046162
1,2,3-Trimethylbenzene	U		0.0739	0.500	1	11/26/2017 23:56	WG1046162
1,3,5-Trimethylbenzene	U		0.124	0.500	1	11/26/2017 23:56	WG1046162
Vinyl acetate	U		0.645	5.00	1	11/26/2017 23:56	WG1046162
Vinyl chloride	U		0.118	0.500	1	11/26/2017 23:56	WG1046162
Xylenes, Total	U		0.316	1.50	1	11/26/2017 23:56	WG1046162
(S) Toluene-d8	89.3			80.0-120		11/26/2017 23:56	WG1046162
(S) Dibromofluoromethane	109			76.0-123		11/26/2017 23:56	WG1046162
(S) 4-Bromofluorobenzene	98.0			80.0-120		11/26/2017 23:56	WG1046162

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 11/15/17 11:15

L952378

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		1.05	25.0	1	11/27/2017 00:16	WG1046162
Acrylonitrile	U		0.873	5.00	1	11/27/2017 00:16	WG1046162
Benzene	U		0.0896	0.500	1	11/27/2017 00:16	WG1046162
Bromobenzene	U		0.133	0.500	1	11/27/2017 00:16	WG1046162
Bromodichloromethane	U		0.0800	0.500	1	11/27/2017 00:16	WG1046162
Bromochloromethane	U		0.145	0.500	1	11/27/2017 00:16	WG1046162
Bromoform	U		0.186	0.500	1	11/27/2017 00:16	WG1046162
Bromomethane	U		0.157	2.50	1	11/27/2017 00:16	WG1046162
n-Butylbenzene	U		0.143	0.500	1	11/27/2017 00:16	WG1046162
sec-Butylbenzene	U		0.134	0.500	1	11/27/2017 00:16	WG1046162
tert-Butylbenzene	U		0.183	0.500	1	11/27/2017 00:16	WG1046162
Carbon disulfide	U		0.101	0.500	1	11/27/2017 00:16	WG1046162
Carbon tetrachloride	U		0.159	0.500	1	11/27/2017 00:16	WG1046162
Chlorobenzene	U		0.140	0.500	1	11/27/2017 00:16	WG1046162
Chlorodibromomethane	U		0.128	0.500	1	11/27/2017 00:16	WG1046162
Chloroethane	U		0.141	2.50	1	11/27/2017 00:16	WG1046162
Chloroform	U		0.0860	0.500	1	11/27/2017 00:16	WG1046162
Chloromethane	U		0.153	1.25	1	11/27/2017 00:16	WG1046162
2-Chlorotoluene	U		0.111	0.500	1	11/27/2017 00:16	WG1046162
4-Chlorotoluene	U		0.0972	0.500	1	11/27/2017 00:16	WG1046162
1,2-Dibromo-3-Chloropropane	U		0.325	2.50	1	11/27/2017 00:16	WG1046162
1,2-Dibromoethane	U		0.193	0.500	1	11/27/2017 00:16	WG1046162
Dibromomethane	U		0.117	0.500	1	11/27/2017 00:16	WG1046162
1,2-Dichlorobenzene	U		0.101	0.500	1	11/27/2017 00:16	WG1046162
1,3-Dichlorobenzene	U		0.130	0.500	1	11/27/2017 00:16	WG1046162
1,4-Dichlorobenzene	U		0.121	0.500	1	11/27/2017 00:16	WG1046162
Dichlorodifluoromethane	U		0.127	2.50	1	11/27/2017 00:16	WG1046162
1,1-Dichloroethane	U		0.114	0.500	1	11/27/2017 00:16	WG1046162
1,2-Dichloroethane	U		0.108	0.500	1	11/27/2017 00:16	WG1046162
1,1-Dichloroethene	U		0.188	0.500	1	11/27/2017 00:16	WG1046162
cis-1,2-Dichloroethene	U		0.0933	0.500	1	11/27/2017 00:16	WG1046162
trans-1,2-Dichloroethene	U		0.152	0.500	1	11/27/2017 00:16	WG1046162
1,2-Dichloropropane	U		0.190	0.500	1	11/27/2017 00:16	WG1046162
1,1-Dichloropropene	U		0.128	0.500	1	11/27/2017 00:16	WG1046162
1,3-Dichloropropane	U		0.147	1.00	1	11/27/2017 00:16	WG1046162
cis-1,3-Dichloropropene	U		0.0976	0.500	1	11/27/2017 00:16	WG1046162
trans-1,3-Dichloropropene	U		0.222	0.500	1	11/27/2017 00:16	WG1046162
trans-1,4-Dichloro-2-butene	U		0.257	5.00	1	11/27/2017 00:16	WG1046162
2,2-Dichloropropane	U		0.0929	0.500	1	11/27/2017 00:16	WG1046162
Di-isopropyl ether	U		0.0924	0.500	1	11/27/2017 00:16	WG1046162
Ethylbenzene	U		0.158	0.500	1	11/27/2017 00:16	WG1046162
Hexachloro-1,3-butadiene	U		0.157	1.00	1	11/27/2017 00:16	WG1046162
2-Hexanone	U		0.757	5.00	1	11/27/2017 00:16	WG1046162
n-Hexane	U		0.305	5.00	1	11/27/2017 00:16	WG1046162
Iodomethane	U		0.377	10.0	1	11/27/2017 00:16	WG1046162
Isopropylbenzene	U		0.126	0.500	1	11/27/2017 00:16	WG1046162
p-Isopropyltoluene	U		0.138	0.500	1	11/27/2017 00:16	WG1046162
2-Butanone (MEK)	U		1.28	5.00	1	11/27/2017 00:16	WG1046162
Methylene Chloride	U		1.07	2.50	1	11/27/2017 00:16	WG1046162
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00	1	11/27/2017 00:16	WG1046162
Methyl tert-butyl ether	U		0.102	0.500	1	11/27/2017 00:16	WG1046162
Naphthalene	U		0.174	2.50	1	11/27/2017 00:16	WG1046162
n-Propylbenzene	U		0.162	0.500	1	11/27/2017 00:16	WG1046162
Styrene	U		0.117	0.500	1	11/27/2017 00:16	WG1046162
1,1,1,2-Tetrachloroethane	U		0.120	0.500	1	11/27/2017 00:16	WG1046162
1,1,2,2-Tetrachloroethane	U		0.130	0.500	1	11/27/2017 00:16	WG1046162

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 11/15/17 11:15

L952378

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500	1	11/27/2017 00:16	WG1046162
Tetrachloroethene	0.259	J	0.199	0.500	1	11/27/2017 00:16	WG1046162
Toluene	U		0.412	0.500	1	11/27/2017 00:16	WG1046162
1,2,3-Trichlorobenzene	U		0.164	0.500	1	11/27/2017 00:16	WG1046162
1,2,4-Trichlorobenzene	U		0.355	0.500	1	11/27/2017 00:16	WG1046162
1,1,1-Trichloroethane	U		0.0940	0.500	1	11/27/2017 00:16	WG1046162
1,1,2-Trichloroethane	U		0.186	0.500	1	11/27/2017 00:16	WG1046162
Trichloroethene	U		0.153	0.500	1	11/27/2017 00:16	WG1046162
Trichlorofluoromethane	U		0.130	2.50	1	11/27/2017 00:16	WG1046162
1,2,3-Trichloropropane	U		0.247	2.50	1	11/27/2017 00:16	WG1046162
1,2,4-Trimethylbenzene	U		0.123	0.500	1	11/27/2017 00:16	WG1046162
1,2,3-Trimethylbenzene	U		0.0739	0.500	1	11/27/2017 00:16	WG1046162
1,3,5-Trimethylbenzene	U		0.124	0.500	1	11/27/2017 00:16	WG1046162
Vinyl acetate	U		0.645	5.00	1	11/27/2017 00:16	WG1046162
Vinyl chloride	U		0.118	0.500	1	11/27/2017 00:16	WG1046162
Xylenes, Total	U		0.316	1.50	1	11/27/2017 00:16	WG1046162
(S) Toluene-d8	114			80.0-120		11/27/2017 00:16	WG1046162
(S) Dibromofluoromethane	100			76.0-123		11/27/2017 00:16	WG1046162
(S) 4-Bromofluorobenzene	108			80.0-120		11/27/2017 00:16	WG1046162

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 11/15/17 13:10

L952378

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		1.05	25.0	1	11/27/2017 00:36	WG1046162
Acrylonitrile	U		0.873	5.00	1	11/27/2017 00:36	WG1046162
Benzene	U		0.0896	0.500	1	11/27/2017 00:36	WG1046162
Bromobenzene	U		0.133	0.500	1	11/27/2017 00:36	WG1046162
Bromodichloromethane	U		0.0800	0.500	1	11/27/2017 00:36	WG1046162
Bromochloromethane	U		0.145	0.500	1	11/27/2017 00:36	WG1046162
Bromoform	U		0.186	0.500	1	11/27/2017 00:36	WG1046162
Bromomethane	U		0.157	2.50	1	11/27/2017 00:36	WG1046162
n-Butylbenzene	U		0.143	0.500	1	11/27/2017 00:36	WG1046162
sec-Butylbenzene	U		0.134	0.500	1	11/27/2017 00:36	WG1046162
tert-Butylbenzene	U		0.183	0.500	1	11/27/2017 00:36	WG1046162
Carbon disulfide	U		0.101	0.500	1	11/27/2017 00:36	WG1046162
Carbon tetrachloride	U		0.159	0.500	1	11/27/2017 00:36	WG1046162
Chlorobenzene	U		0.140	0.500	1	11/27/2017 00:36	WG1046162
Chlorodibromomethane	U		0.128	0.500	1	11/27/2017 00:36	WG1046162
Chloroethane	U		0.141	2.50	1	11/27/2017 00:36	WG1046162
Chloroform	0.134	J	0.0860	0.500	1	11/27/2017 00:36	WG1046162
Chloromethane	U		0.153	1.25	1	11/27/2017 00:36	WG1046162
2-Chlorotoluene	U		0.111	0.500	1	11/27/2017 00:36	WG1046162
4-Chlorotoluene	U		0.0972	0.500	1	11/27/2017 00:36	WG1046162
1,2-Dibromo-3-Chloropropane	U		0.325	2.50	1	11/27/2017 00:36	WG1046162
1,2-Dibromoethane	U		0.193	0.500	1	11/27/2017 00:36	WG1046162
Dibromomethane	U		0.117	0.500	1	11/27/2017 00:36	WG1046162
1,2-Dichlorobenzene	U		0.101	0.500	1	11/27/2017 00:36	WG1046162
1,3-Dichlorobenzene	U		0.130	0.500	1	11/27/2017 00:36	WG1046162
1,4-Dichlorobenzene	U		0.121	0.500	1	11/27/2017 00:36	WG1046162
Dichlorodifluoromethane	U		0.127	2.50	1	11/27/2017 00:36	WG1046162
1,1-Dichloroethane	U		0.114	0.500	1	11/27/2017 00:36	WG1046162
1,2-Dichloroethane	U		0.108	0.500	1	11/27/2017 00:36	WG1046162
1,1-Dichloroethene	U		0.188	0.500	1	11/27/2017 00:36	WG1046162
cis-1,2-Dichloroethene	U		0.0933	0.500	1	11/27/2017 00:36	WG1046162
trans-1,2-Dichloroethene	U		0.152	0.500	1	11/27/2017 00:36	WG1046162
1,2-Dichloropropane	U		0.190	0.500	1	11/27/2017 00:36	WG1046162
1,1-Dichloropropene	U		0.128	0.500	1	11/27/2017 00:36	WG1046162
1,3-Dichloropropane	U		0.147	1.00	1	11/27/2017 00:36	WG1046162
cis-1,3-Dichloropropene	U		0.0976	0.500	1	11/27/2017 00:36	WG1046162
trans-1,3-Dichloropropene	U		0.222	0.500	1	11/27/2017 00:36	WG1046162
trans-1,4-Dichloro-2-butene	U		0.257	5.00	1	11/27/2017 00:36	WG1046162
2,2-Dichloropropane	U		0.0929	0.500	1	11/27/2017 00:36	WG1046162
Di-isopropyl ether	U		0.0924	0.500	1	11/27/2017 00:36	WG1046162
Ethylbenzene	U		0.158	0.500	1	11/27/2017 00:36	WG1046162
Hexachloro-1,3-butadiene	U		0.157	1.00	1	11/27/2017 00:36	WG1046162
2-Hexanone	U		0.757	5.00	1	11/27/2017 00:36	WG1046162
n-Hexane	U		0.305	5.00	1	11/27/2017 00:36	WG1046162
Iodomethane	U		0.377	10.0	1	11/27/2017 00:36	WG1046162
Isopropylbenzene	U		0.126	0.500	1	11/27/2017 00:36	WG1046162
p-Isopropyltoluene	U		0.138	0.500	1	11/27/2017 00:36	WG1046162
2-Butanone (MEK)	U		1.28	5.00	1	11/27/2017 00:36	WG1046162
Methylene Chloride	U		1.07	2.50	1	11/27/2017 00:36	WG1046162
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00	1	11/27/2017 00:36	WG1046162
Methyl tert-butyl ether	U		0.102	0.500	1	11/27/2017 00:36	WG1046162
Naphthalene	U		0.174	2.50	1	11/27/2017 00:36	WG1046162
n-Propylbenzene	U		0.162	0.500	1	11/27/2017 00:36	WG1046162
Styrene	U		0.117	0.500	1	11/27/2017 00:36	WG1046162
1,1,1,2-Tetrachloroethane	U		0.120	0.500	1	11/27/2017 00:36	WG1046162
1,1,2,2-Tetrachloroethane	U		0.130	0.500	1	11/27/2017 00:36	WG1046162

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Collected date/time: 11/15/17 13:10

L952378

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500	1	11/27/2017 00:36	WG1046162
Tetrachloroethene	2.37		0.199	0.500	1	11/27/2017 00:36	WG1046162
Toluene	U		0.412	0.500	1	11/27/2017 00:36	WG1046162
1,2,3-Trichlorobenzene	U		0.164	0.500	1	11/27/2017 00:36	WG1046162
1,2,4-Trichlorobenzene	U		0.355	0.500	1	11/27/2017 00:36	WG1046162
1,1,1-Trichloroethane	U		0.0940	0.500	1	11/27/2017 00:36	WG1046162
1,1,2-Trichloroethane	U		0.186	0.500	1	11/27/2017 00:36	WG1046162
Trichloroethene	U		0.153	0.500	1	11/27/2017 00:36	WG1046162
Trichlorofluoromethane	U		0.130	2.50	1	11/27/2017 00:36	WG1046162
1,2,3-Trichloropropane	U		0.247	2.50	1	11/27/2017 00:36	WG1046162
1,2,4-Trimethylbenzene	U		0.123	0.500	1	11/27/2017 00:36	WG1046162
1,2,3-Trimethylbenzene	U		0.0739	0.500	1	11/27/2017 00:36	WG1046162
1,3,5-Trimethylbenzene	U		0.124	0.500	1	11/27/2017 00:36	WG1046162
Vinyl acetate	U		0.645	5.00	1	11/27/2017 00:36	WG1046162
Vinyl chloride	U		0.118	0.500	1	11/27/2017 00:36	WG1046162
Xylenes, Total	U		0.316	1.50	1	11/27/2017 00:36	WG1046162
(S) Toluene-d8	102			80.0-120		11/27/2017 00:36	WG1046162
(S) Dibromofluoromethane	100			76.0-123		11/27/2017 00:36	WG1046162
(S) 4-Bromofluorobenzene	98.8			80.0-120		11/27/2017 00:36	WG1046162

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 11/15/17 14:40

L952378

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		1.05	25.0	1	11/27/2017 00:56	WG1046162
Acrylonitrile	U		0.873	5.00	1	11/27/2017 00:56	WG1046162
Benzene	U		0.0896	0.500	1	11/27/2017 00:56	WG1046162
Bromobenzene	U		0.133	0.500	1	11/27/2017 00:56	WG1046162
Bromodichloromethane	0.239	J	0.0800	0.500	1	11/27/2017 00:56	WG1046162
Bromochloromethane	U		0.145	0.500	1	11/27/2017 00:56	WG1046162
Bromoform	U		0.186	0.500	1	11/27/2017 00:56	WG1046162
Bromomethane	U		0.157	2.50	1	11/27/2017 00:56	WG1046162
n-Butylbenzene	U		0.143	0.500	1	11/27/2017 00:56	WG1046162
sec-Butylbenzene	U		0.134	0.500	1	11/27/2017 00:56	WG1046162
tert-Butylbenzene	U		0.183	0.500	1	11/27/2017 00:56	WG1046162
Carbon disulfide	U		0.101	0.500	1	11/27/2017 00:56	WG1046162
Carbon tetrachloride	U		0.159	0.500	1	11/27/2017 00:56	WG1046162
Chlorobenzene	U		0.140	0.500	1	11/27/2017 00:56	WG1046162
Chlorodibromomethane	U		0.128	0.500	1	11/27/2017 00:56	WG1046162
Chloroethane	U		0.141	2.50	1	11/27/2017 00:56	WG1046162
Chloroform	2.32		0.0860	0.500	1	11/27/2017 00:56	WG1046162
Chloromethane	U		0.153	1.25	1	11/27/2017 00:56	WG1046162
2-Chlorotoluene	U		0.111	0.500	1	11/27/2017 00:56	WG1046162
4-Chlorotoluene	U		0.0972	0.500	1	11/27/2017 00:56	WG1046162
1,2-Dibromo-3-Chloropropane	U		0.325	2.50	1	11/27/2017 00:56	WG1046162
1,2-Dibromoethane	U		0.193	0.500	1	11/27/2017 00:56	WG1046162
Dibromomethane	U		0.117	0.500	1	11/27/2017 00:56	WG1046162
1,2-Dichlorobenzene	U		0.101	0.500	1	11/27/2017 00:56	WG1046162
1,3-Dichlorobenzene	U		0.130	0.500	1	11/27/2017 00:56	WG1046162
1,4-Dichlorobenzene	U		0.121	0.500	1	11/27/2017 00:56	WG1046162
Dichlorodifluoromethane	U		0.127	2.50	1	11/27/2017 00:56	WG1046162
1,1-Dichloroethane	U		0.114	0.500	1	11/27/2017 00:56	WG1046162
1,2-Dichloroethane	U		0.108	0.500	1	11/27/2017 00:56	WG1046162
1,1-Dichloroethene	U		0.188	0.500	1	11/27/2017 00:56	WG1046162
cis-1,2-Dichloroethene	U		0.0933	0.500	1	11/27/2017 00:56	WG1046162
trans-1,2-Dichloroethene	U		0.152	0.500	1	11/27/2017 00:56	WG1046162
1,2-Dichloropropane	U		0.190	0.500	1	11/27/2017 00:56	WG1046162
1,1-Dichloropropene	U		0.128	0.500	1	11/27/2017 00:56	WG1046162
1,3-Dichloropropane	U		0.147	1.00	1	11/27/2017 00:56	WG1046162
cis-1,3-Dichloropropene	U		0.0976	0.500	1	11/27/2017 00:56	WG1046162
trans-1,3-Dichloropropene	U		0.222	0.500	1	11/27/2017 00:56	WG1046162
trans-1,4-Dichloro-2-butene	U		0.257	5.00	1	11/27/2017 00:56	WG1046162
2,2-Dichloropropane	U		0.0929	0.500	1	11/27/2017 00:56	WG1046162
Di-isopropyl ether	U		0.0924	0.500	1	11/27/2017 00:56	WG1046162
Ethylbenzene	U		0.158	0.500	1	11/27/2017 00:56	WG1046162
Hexachloro-1,3-butadiene	U		0.157	1.00	1	11/27/2017 00:56	WG1046162
2-Hexanone	U		0.757	5.00	1	11/27/2017 00:56	WG1046162
n-Hexane	U		0.305	5.00	1	11/27/2017 00:56	WG1046162
Iodomethane	U		0.377	10.0	1	11/27/2017 00:56	WG1046162
Isopropylbenzene	U		0.126	0.500	1	11/27/2017 00:56	WG1046162
p-Isopropyltoluene	U		0.138	0.500	1	11/27/2017 00:56	WG1046162
2-Butanone (MEK)	U		1.28	5.00	1	11/27/2017 00:56	WG1046162
Methylene Chloride	U		1.07	2.50	1	11/27/2017 00:56	WG1046162
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00	1	11/27/2017 00:56	WG1046162
Methyl tert-butyl ether	U		0.102	0.500	1	11/27/2017 00:56	WG1046162
Naphthalene	U		0.174	2.50	1	11/27/2017 00:56	WG1046162
n-Propylbenzene	U		0.162	0.500	1	11/27/2017 00:56	WG1046162
Styrene	U		0.117	0.500	1	11/27/2017 00:56	WG1046162
1,1,1,2-Tetrachloroethane	U		0.120	0.500	1	11/27/2017 00:56	WG1046162
1,1,2,2-Tetrachloroethane	U		0.130	0.500	1	11/27/2017 00:56	WG1046162

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 11/15/17 14:40

L952378

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500	1	11/27/2017 00:56	WG1046162
Tetrachloroethene	3.80		0.199	0.500	1	11/27/2017 00:56	WG1046162
Toluene	U		0.412	0.500	1	11/27/2017 00:56	WG1046162
1,2,3-Trichlorobenzene	U		0.164	0.500	1	11/27/2017 00:56	WG1046162
1,2,4-Trichlorobenzene	U		0.355	0.500	1	11/27/2017 00:56	WG1046162
1,1,1-Trichloroethane	U		0.0940	0.500	1	11/27/2017 00:56	WG1046162
1,1,2-Trichloroethane	U		0.186	0.500	1	11/27/2017 00:56	WG1046162
Trichloroethene	U		0.153	0.500	1	11/27/2017 00:56	WG1046162
Trichlorofluoromethane	U		0.130	2.50	1	11/27/2017 00:56	WG1046162
1,2,3-Trichloropropane	U		0.247	2.50	1	11/27/2017 00:56	WG1046162
1,2,4-Trimethylbenzene	U		0.123	0.500	1	11/27/2017 00:56	WG1046162
1,2,3-Trimethylbenzene	U		0.0739	0.500	1	11/27/2017 00:56	WG1046162
1,3,5-Trimethylbenzene	U		0.124	0.500	1	11/27/2017 00:56	WG1046162
Vinyl acetate	U		0.645	5.00	1	11/27/2017 00:56	WG1046162
Vinyl chloride	U		0.118	0.500	1	11/27/2017 00:56	WG1046162
Xylenes, Total	U		0.316	1.50	1	11/27/2017 00:56	WG1046162
(S) Toluene-d8	102			80.0-120		11/27/2017 00:56	WG1046162
(S) Dibromofluoromethane	98.9			76.0-123		11/27/2017 00:56	WG1046162
(S) 4-Bromofluorobenzene	100			80.0-120		11/27/2017 00:56	WG1046162

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 11/16/17 10:40

L952378

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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		1.05	25.0	1	11/27/2017 01:16	WG1046162
Acrylonitrile	U		0.873	5.00	1	11/27/2017 01:16	WG1046162
Benzene	U		0.0896	0.500	1	11/27/2017 01:16	WG1046162
Bromobenzene	U		0.133	0.500	1	11/27/2017 01:16	WG1046162
Bromodichloromethane	U		0.0800	0.500	1	11/27/2017 01:16	WG1046162
Bromochloromethane	U		0.145	0.500	1	11/27/2017 01:16	WG1046162
Bromoform	U		0.186	0.500	1	11/27/2017 01:16	WG1046162
Bromomethane	U		0.157	2.50	1	11/27/2017 01:16	WG1046162
n-Butylbenzene	U		0.143	0.500	1	11/27/2017 01:16	WG1046162
sec-Butylbenzene	U		0.134	0.500	1	11/27/2017 01:16	WG1046162
tert-Butylbenzene	U		0.183	0.500	1	11/27/2017 01:16	WG1046162
Carbon disulfide	U		0.101	0.500	1	11/27/2017 01:16	WG1046162
Carbon tetrachloride	U		0.159	0.500	1	11/27/2017 01:16	WG1046162
Chlorobenzene	U		0.140	0.500	1	11/27/2017 01:16	WG1046162
Chlorodibromomethane	U		0.128	0.500	1	11/27/2017 01:16	WG1046162
Chloroethane	U		0.141	2.50	1	11/27/2017 01:16	WG1046162
Chloroform	0.508		0.0860	0.500	1	11/27/2017 01:16	WG1046162
Chloromethane	U		0.153	1.25	1	11/27/2017 01:16	WG1046162
2-Chlorotoluene	U		0.111	0.500	1	11/27/2017 01:16	WG1046162
4-Chlorotoluene	U		0.0972	0.500	1	11/27/2017 01:16	WG1046162
1,2-Dibromo-3-Chloropropane	U		0.325	2.50	1	11/27/2017 01:16	WG1046162
1,2-Dibromoethane	U		0.193	0.500	1	11/27/2017 01:16	WG1046162
Dibromomethane	U		0.117	0.500	1	11/27/2017 01:16	WG1046162
1,2-Dichlorobenzene	U		0.101	0.500	1	11/27/2017 01:16	WG1046162
1,3-Dichlorobenzene	U		0.130	0.500	1	11/27/2017 01:16	WG1046162
1,4-Dichlorobenzene	U		0.121	0.500	1	11/27/2017 01:16	WG1046162
Dichlorodifluoromethane	U		0.127	2.50	1	11/27/2017 01:16	WG1046162
1,1-Dichloroethane	U		0.114	0.500	1	11/27/2017 01:16	WG1046162
1,2-Dichloroethane	U		0.108	0.500	1	11/27/2017 01:16	WG1046162
1,1-Dichloroethene	U		0.188	0.500	1	11/27/2017 01:16	WG1046162
cis-1,2-Dichloroethene	U		0.0933	0.500	1	11/27/2017 01:16	WG1046162
trans-1,2-Dichloroethene	U		0.152	0.500	1	11/27/2017 01:16	WG1046162
1,2-Dichloropropane	U		0.190	0.500	1	11/27/2017 01:16	WG1046162
1,1-Dichloropropene	U		0.128	0.500	1	11/27/2017 01:16	WG1046162
1,3-Dichloropropane	U		0.147	1.00	1	11/27/2017 01:16	WG1046162
cis-1,3-Dichloropropene	U		0.0976	0.500	1	11/27/2017 01:16	WG1046162
trans-1,3-Dichloropropene	U		0.222	0.500	1	11/27/2017 01:16	WG1046162
trans-1,4-Dichloro-2-butene	U		0.257	5.00	1	11/27/2017 01:16	WG1046162
2,2-Dichloropropane	U		0.0929	0.500	1	11/27/2017 01:16	WG1046162
Di-isopropyl ether	U		0.0924	0.500	1	11/27/2017 01:16	WG1046162
Ethylbenzene	U		0.158	0.500	1	11/27/2017 01:16	WG1046162
Hexachloro-1,3-butadiene	U		0.157	1.00	1	11/27/2017 01:16	WG1046162
2-Hexanone	U		0.757	5.00	1	11/27/2017 01:16	WG1046162
n-Hexane	U		0.305	5.00	1	11/27/2017 01:16	WG1046162
Iodomethane	U		0.377	10.0	1	11/27/2017 01:16	WG1046162
Isopropylbenzene	U		0.126	0.500	1	11/27/2017 01:16	WG1046162
p-Isopropyltoluene	U		0.138	0.500	1	11/27/2017 01:16	WG1046162
2-Butanone (MEK)	U		1.28	5.00	1	11/27/2017 01:16	WG1046162
Methylene Chloride	U		1.07	2.50	1	11/27/2017 01:16	WG1046162
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00	1	11/27/2017 01:16	WG1046162
Methyl tert-butyl ether	U		0.102	0.500	1	11/27/2017 01:16	WG1046162
Naphthalene	U		0.174	2.50	1	11/27/2017 01:16	WG1046162
n-Propylbenzene	U		0.162	0.500	1	11/27/2017 01:16	WG1046162
Styrene	U		0.117	0.500	1	11/27/2017 01:16	WG1046162
1,1,1,2-Tetrachloroethane	U		0.120	0.500	1	11/27/2017 01:16	WG1046162
1,1,2,2-Tetrachloroethane	U		0.130	0.500	1	11/27/2017 01:16	WG1046162

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



Collected date/time: 11/16/17 10:40

L952378

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500	1	11/27/2017 01:16	WG1046162
Tetrachloroethene	19.2		0.199	0.500	1	11/27/2017 01:16	WG1046162
Toluene	U		0.412	0.500	1	11/27/2017 01:16	WG1046162
1,2,3-Trichlorobenzene	U		0.164	0.500	1	11/27/2017 01:16	WG1046162
1,2,4-Trichlorobenzene	U		0.355	0.500	1	11/27/2017 01:16	WG1046162
1,1,1-Trichloroethane	U		0.0940	0.500	1	11/27/2017 01:16	WG1046162
1,1,2-Trichloroethane	U		0.186	0.500	1	11/27/2017 01:16	WG1046162
Trichloroethene	U		0.153	0.500	1	11/27/2017 01:16	WG1046162
Trichlorofluoromethane	U		0.130	2.50	1	11/27/2017 01:16	WG1046162
1,2,3-Trichloropropane	U		0.247	2.50	1	11/27/2017 01:16	WG1046162
1,2,4-Trimethylbenzene	U		0.123	0.500	1	11/27/2017 01:16	WG1046162
1,2,3-Trimethylbenzene	U		0.0739	0.500	1	11/27/2017 01:16	WG1046162
1,3,5-Trimethylbenzene	U		0.124	0.500	1	11/27/2017 01:16	WG1046162
Vinyl acetate	U		0.645	5.00	1	11/27/2017 01:16	WG1046162
Vinyl chloride	U		0.118	0.500	1	11/27/2017 01:16	WG1046162
Xylenes, Total	U		0.316	1.50	1	11/27/2017 01:16	WG1046162
(S) Toluene-d8	108			80.0-120		11/27/2017 01:16	WG1046162
(S) Dibromofluoromethane	98.7			76.0-123		11/27/2017 01:16	WG1046162
(S) 4-Bromofluorobenzene	102			80.0-120		11/27/2017 01:16	WG1046162

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		1.05	25.0	1	11/27/2017 01:35	WG1046162
Acrylonitrile	U		0.873	5.00	1	11/27/2017 01:35	WG1046162
Benzene	U		0.0896	0.500	1	11/27/2017 01:35	WG1046162
Bromobenzene	U		0.133	0.500	1	11/27/2017 01:35	WG1046162
Bromodichloromethane	U		0.0800	0.500	1	11/27/2017 01:35	WG1046162
Bromochloromethane	U		0.145	0.500	1	11/27/2017 01:35	WG1046162
Bromoform	U		0.186	0.500	1	11/27/2017 01:35	WG1046162
Bromomethane	U		0.157	2.50	1	11/27/2017 01:35	WG1046162
n-Butylbenzene	U		0.143	0.500	1	11/27/2017 01:35	WG1046162
sec-Butylbenzene	U		0.134	0.500	1	11/27/2017 01:35	WG1046162
tert-Butylbenzene	U		0.183	0.500	1	11/27/2017 01:35	WG1046162
Carbon disulfide	U		0.101	0.500	1	11/27/2017 01:35	WG1046162
Carbon tetrachloride	U		0.159	0.500	1	11/27/2017 01:35	WG1046162
Chlorobenzene	U		0.140	0.500	1	11/27/2017 01:35	WG1046162
Chlorodibromomethane	U		0.128	0.500	1	11/27/2017 01:35	WG1046162
Chloroethane	U		0.141	2.50	1	11/27/2017 01:35	WG1046162
Chloroform	0.759		0.0860	0.500	1	11/27/2017 01:35	WG1046162
Chloromethane	U		0.153	1.25	1	11/27/2017 01:35	WG1046162
2-Chlorotoluene	U		0.111	0.500	1	11/27/2017 01:35	WG1046162
4-Chlorotoluene	U		0.0972	0.500	1	11/27/2017 01:35	WG1046162
1,2-Dibromo-3-Chloropropane	U		0.325	2.50	1	11/27/2017 01:35	WG1046162
1,2-Dibromoethane	U		0.193	0.500	1	11/27/2017 01:35	WG1046162
Dibromomethane	U		0.117	0.500	1	11/27/2017 01:35	WG1046162
1,2-Dichlorobenzene	U		0.101	0.500	1	11/27/2017 01:35	WG1046162
1,3-Dichlorobenzene	U		0.130	0.500	1	11/27/2017 01:35	WG1046162
1,4-Dichlorobenzene	U		0.121	0.500	1	11/27/2017 01:35	WG1046162
Dichlorodifluoromethane	U		0.127	2.50	1	11/27/2017 01:35	WG1046162
1,1-Dichloroethane	U		0.114	0.500	1	11/27/2017 01:35	WG1046162
1,2-Dichloroethane	U		0.108	0.500	1	11/27/2017 01:35	WG1046162
1,1-Dichloroethene	U		0.188	0.500	1	11/27/2017 01:35	WG1046162
cis-1,2-Dichloroethene	U		0.0933	0.500	1	11/27/2017 01:35	WG1046162
trans-1,2-Dichloroethene	U		0.152	0.500	1	11/27/2017 01:35	WG1046162
1,2-Dichloropropane	U		0.190	0.500	1	11/27/2017 01:35	WG1046162
1,1-Dichloropropene	U		0.128	0.500	1	11/27/2017 01:35	WG1046162
1,3-Dichloropropane	U		0.147	1.00	1	11/27/2017 01:35	WG1046162
cis-1,3-Dichloropropene	U		0.0976	0.500	1	11/27/2017 01:35	WG1046162
trans-1,3-Dichloropropene	U		0.222	0.500	1	11/27/2017 01:35	WG1046162
trans-1,4-Dichloro-2-butene	U		0.257	5.00	1	11/27/2017 01:35	WG1046162
2,2-Dichloropropane	U		0.0929	0.500	1	11/27/2017 01:35	WG1046162
Di-isopropyl ether	U		0.0924	0.500	1	11/27/2017 01:35	WG1046162
Ethylbenzene	U		0.158	0.500	1	11/27/2017 01:35	WG1046162
Hexachloro-1,3-butadiene	U		0.157	1.00	1	11/27/2017 01:35	WG1046162
2-Hexanone	U		0.757	5.00	1	11/27/2017 01:35	WG1046162
n-Hexane	U		0.305	5.00	1	11/27/2017 01:35	WG1046162
Iodomethane	U		0.377	10.0	1	11/27/2017 01:35	WG1046162
Isopropylbenzene	U		0.126	0.500	1	11/27/2017 01:35	WG1046162
p-Isopropyltoluene	U		0.138	0.500	1	11/27/2017 01:35	WG1046162
2-Butanone (MEK)	U		1.28	5.00	1	11/27/2017 01:35	WG1046162
Methylene Chloride	U		1.07	2.50	1	11/27/2017 01:35	WG1046162
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00	1	11/27/2017 01:35	WG1046162
Methyl tert-butyl ether	U		0.102	0.500	1	11/27/2017 01:35	WG1046162
Naphthalene	U		0.174	2.50	1	11/27/2017 01:35	WG1046162
n-Propylbenzene	U		0.162	0.500	1	11/27/2017 01:35	WG1046162
Styrene	U		0.117	0.500	1	11/27/2017 01:35	WG1046162
1,1,1,2-Tetrachloroethane	U		0.120	0.500	1	11/27/2017 01:35	WG1046162
1,1,2,2-Tetrachloroethane	U		0.130	0.500	1	11/27/2017 01:35	WG1046162

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 11/14/17 15:23

L952378

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

Analyte	Result ug/l	Qualifier	MDL ug/l	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500	1	11/27/2017 01:35	WG1046162
Tetrachloroethene	U		0.199	0.500	1	11/27/2017 01:35	WG1046162
Toluene	U		0.412	0.500	1	11/27/2017 01:35	WG1046162
1,2,3-Trichlorobenzene	U		0.164	0.500	1	11/27/2017 01:35	WG1046162
1,2,4-Trichlorobenzene	U		0.355	0.500	1	11/27/2017 01:35	WG1046162
1,1,1-Trichloroethane	U		0.0940	0.500	1	11/27/2017 01:35	WG1046162
1,1,2-Trichloroethane	U		0.186	0.500	1	11/27/2017 01:35	WG1046162
Trichloroethene	U		0.153	0.500	1	11/27/2017 01:35	WG1046162
Trichlorofluoromethane	U		0.130	2.50	1	11/27/2017 01:35	WG1046162
1,2,3-Trichloropropane	U		0.247	2.50	1	11/27/2017 01:35	WG1046162
1,2,4-Trimethylbenzene	U		0.123	0.500	1	11/27/2017 01:35	WG1046162
1,2,3-Trimethylbenzene	U		0.0739	0.500	1	11/27/2017 01:35	WG1046162
1,3,5-Trimethylbenzene	U		0.124	0.500	1	11/27/2017 01:35	WG1046162
Vinyl acetate	U		0.645	5.00	1	11/27/2017 01:35	WG1046162
Vinyl chloride	U		0.118	0.500	1	11/27/2017 01:35	WG1046162
Xylenes, Total	U		0.316	1.50	1	11/27/2017 01:35	WG1046162
(S) Toluene-d8	100			80.0-120		11/27/2017 01:35	WG1046162
(S) Dibromofluoromethane	100			76.0-123		11/27/2017 01:35	WG1046162
(S) 4-Bromofluorobenzene	99.0			80.0-120		11/27/2017 01:35	WG1046162

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



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

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		1.05	25.0	1	11/27/2017 01:55	WG1046162
Acrylonitrile	U		0.873	5.00	1	11/27/2017 01:55	WG1046162
Benzene	U		0.0896	0.500	1	11/27/2017 01:55	WG1046162
Bromobenzene	U		0.133	0.500	1	11/27/2017 01:55	WG1046162
Bromodichloromethane	U		0.0800	0.500	1	11/27/2017 01:55	WG1046162
Bromochloromethane	U		0.145	0.500	1	11/27/2017 01:55	WG1046162
Bromoform	U		0.186	0.500	1	11/27/2017 01:55	WG1046162
Bromomethane	U		0.157	2.50	1	11/27/2017 01:55	WG1046162
n-Butylbenzene	U		0.143	0.500	1	11/27/2017 01:55	WG1046162
sec-Butylbenzene	U		0.134	0.500	1	11/27/2017 01:55	WG1046162
tert-Butylbenzene	U		0.183	0.500	1	11/27/2017 01:55	WG1046162
Carbon disulfide	U		0.101	0.500	1	11/27/2017 01:55	WG1046162
Carbon tetrachloride	U		0.159	0.500	1	11/27/2017 01:55	WG1046162
Chlorobenzene	U		0.140	0.500	1	11/27/2017 01:55	WG1046162
Chlorodibromomethane	U		0.128	0.500	1	11/27/2017 01:55	WG1046162
Chloroethane	U		0.141	2.50	1	11/27/2017 01:55	WG1046162
Chloroform	1.79		0.0860	0.500	1	11/27/2017 01:55	WG1046162
Chloromethane	U		0.153	1.25	1	11/27/2017 01:55	WG1046162
2-Chlorotoluene	U		0.111	0.500	1	11/27/2017 01:55	WG1046162
4-Chlorotoluene	U		0.0972	0.500	1	11/27/2017 01:55	WG1046162
1,2-Dibromo-3-Chloropropane	U		0.325	2.50	1	11/27/2017 01:55	WG1046162
1,2-Dibromoethane	U		0.193	0.500	1	11/27/2017 01:55	WG1046162
Dibromomethane	U		0.117	0.500	1	11/27/2017 01:55	WG1046162
1,2-Dichlorobenzene	U		0.101	0.500	1	11/27/2017 01:55	WG1046162
1,3-Dichlorobenzene	U		0.130	0.500	1	11/27/2017 01:55	WG1046162
1,4-Dichlorobenzene	U		0.121	0.500	1	11/27/2017 01:55	WG1046162
Dichlorodifluoromethane	U		0.127	2.50	1	11/27/2017 01:55	WG1046162
1,1-Dichloroethane	U		0.114	0.500	1	11/27/2017 01:55	WG1046162
1,2-Dichloroethane	U		0.108	0.500	1	11/27/2017 01:55	WG1046162
1,1-Dichloroethene	U		0.188	0.500	1	11/27/2017 01:55	WG1046162
cis-1,2-Dichloroethene	U		0.0933	0.500	1	11/27/2017 01:55	WG1046162
trans-1,2-Dichloroethene	U		0.152	0.500	1	11/27/2017 01:55	WG1046162
1,2-Dichloropropane	U		0.190	0.500	1	11/27/2017 01:55	WG1046162
1,1-Dichloropropene	U		0.128	0.500	1	11/27/2017 01:55	WG1046162
1,3-Dichloropropane	U		0.147	1.00	1	11/27/2017 01:55	WG1046162
cis-1,3-Dichloropropene	U		0.0976	0.500	1	11/27/2017 01:55	WG1046162
trans-1,3-Dichloropropene	U		0.222	0.500	1	11/27/2017 01:55	WG1046162
trans-1,4-Dichloro-2-butene	U		0.257	5.00	1	11/27/2017 01:55	WG1046162
2,2-Dichloropropane	U		0.0929	0.500	1	11/27/2017 01:55	WG1046162
Di-isopropyl ether	U		0.0924	0.500	1	11/27/2017 01:55	WG1046162
Ethylbenzene	U		0.158	0.500	1	11/27/2017 01:55	WG1046162
Hexachloro-1,3-butadiene	U		0.157	1.00	1	11/27/2017 01:55	WG1046162
2-Hexanone	U		0.757	5.00	1	11/27/2017 01:55	WG1046162
n-Hexane	U		0.305	5.00	1	11/27/2017 01:55	WG1046162
Iodomethane	U		0.377	10.0	1	11/27/2017 01:55	WG1046162
Isopropylbenzene	U		0.126	0.500	1	11/27/2017 01:55	WG1046162
p-Isopropyltoluene	U		0.138	0.500	1	11/27/2017 01:55	WG1046162
2-Butanone (MEK)	U		1.28	5.00	1	11/27/2017 01:55	WG1046162
Methylene Chloride	U		1.07	2.50	1	11/27/2017 01:55	WG1046162
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00	1	11/27/2017 01:55	WG1046162
Methyl tert-butyl ether	U		0.102	0.500	1	11/27/2017 01:55	WG1046162
Naphthalene	U		0.174	2.50	1	11/27/2017 01:55	WG1046162
n-Propylbenzene	U		0.162	0.500	1	11/27/2017 01:55	WG1046162
Styrene	U		0.117	0.500	1	11/27/2017 01:55	WG1046162
1,1,1,2-Tetrachloroethane	U		0.120	0.500	1	11/27/2017 01:55	WG1046162
1,1,2,2-Tetrachloroethane	U		0.130	0.500	1	11/27/2017 01:55	WG1046162

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Trichlorofluoromethane	U	0.130	2.50	1	11/27/2017 01:55	WG1046162
1,2,3-Trichloropropane	U	0.247	2.50	1	11/27/2017 01:55	WG1046162
1,2,4-Trimethylbenzene	U	0.123	0.500	1	11/27/2017 01:55	WG1046162
1,2,3-Trimethylbenzene	U	0.0739	0.500	1	11/27/2017 01:55	WG1046162
1,3,5-Trimethylbenzene	U	0.124	0.500	1	11/27/2017 01:55	WG1046162
Vinyl acetate	U	0.645	5.00	1	11/27/2017 01:55	WG1046162
Vinyl chloride	U	0.118	0.500	1	11/27/2017 01:55	WG1046162
Xylenes, Total	U	0.316	1.50	1	11/27/2017 01:55	WG1046162
(S) Toluene-d8	102		80.0-120		11/27/2017 01:55	WG1046162
(S) Dibromofluoromethane	98.1		76.0-123		11/27/2017 01:55	WG1046162
(S) 4-Bromofluorobenzene	100		80.0-120		11/27/2017 01:55	WG1046162

5

6 Qc

7 Gl

8 Al

9 Sc

Trichlorofluoromethane	U	0.130	2.50	1	11/26/2017 22:37	WG1046162
1,2,3-Trichloropropane	U	0.247	2.50	1	11/26/2017 22:37	WG1046162
1,2,4-Trimethylbenzene	U	0.123	0.500	1	11/26/2017 22:37	WG1046162
1,2,3-Trimethylbenzene	U	0.0739	0.500	1	11/26/2017 22:37	WG1046162
1,3,5-Trimethylbenzene	U	0.124	0.500	1	11/26/2017 22:37	WG1046162
Vinyl acetate	U	0.645	5.00	1	11/26/2017 22:37	WG1046162
Vinyl chloride	U	0.118	0.500	1	11/26/2017 22:37	WG1046162
Xylenes, Total	U	0.316	1.50	1	11/26/2017 22:37	WG1046162
(S) Toluene-d8	102		80.0-120		11/26/2017 22:37	WG1046162
(S) Dibromofluoromethane	98.9		76.0-123		11/26/2017 22:37	WG1046162
(S) 4-Bromofluorobenzene	96.6		80.0-120		11/26/2017 22:37	WG1046162

5

6 Qc

7 Gl

8 Al

9 Sc

n-Butylbenzene	U	0.143	0.500	1	11/27/2017 02:15	WG1046162	
sec-Butylbenzene	U	0.134	0.500	1	11/27/2017 02:15	WG1046162	
tert-Butylbenzene	U	0.183	0.500	1	11/27/2017 02:15	WG1046162	6 Qc
Carbon disulfide	U	0.101	0.500	1	11/27/2017 02:15	WG1046162	
Carbon tetrachloride	U	0.159	0.500	1	11/27/2017 02:15	WG1046162	7 Gl
Chlorobenzene	U	0.140	0.500	1	11/27/2017 02:15	WG1046162	
Chlorodibromomethane	U	0.128	0.500	1	11/27/2017 02:15	WG1046162	
Chloroethane	U	0.141	2.50	1	11/27/2017 02:15	WG1046162	8 Al
Chloroform	U	0.0860	0.500	1	11/27/2017 02:15	WG1046162	
Chloromethane	U	0.153	1.25	1	11/27/2017 02:15	WG1046162	9 Sc
2-Chlorotoluene	U	0.111	0.500	1	11/27/2017 02:15	WG1046162	
4-Chlorotoluene	U	0.0972	0.500	1	11/27/2017 02:15	WG1046162	
1,2-Dibromo-3-Chloropropane	U	0.325	2.50	1	11/27/2017 02:15	WG1046162	
1,2-Dibromoethane	U	0.193	0.500	1	11/27/2017 02:15	WG1046162	
Dibromomethane	U	0.117	0.500	1	11/27/2017 02:15	WG1046162	
1,2-Dichlorobenzene	U	0.101	0.500	1	11/27/2017 02:15	WG1046162	
1,3-Dichlorobenzene	U	0.130	0.500	1	11/27/2017 02:15	WG1046162	
1,4-Dichlorobenzene	U	0.121	0.500	1	11/27/2017 02:15	WG1046162	
Dichlorodifluoromethane	U	0.127	2.50	1	11/27/2017 02:15	WG1046162	
1,1-Dichloroethane	U	0.114	0.500	1	11/27/2017 02:15	WG1046162	
1,2-Dichloroethane	U	0.108	0.500	1	11/27/2017 02:15	WG1046162	
1,1-Dichloroethene	U	0.188	0.500	1	11/27/2017 02:15	WG1046162	
cis-1,2-Dichloroethene	U	0.0933	0.500	1	11/27/2017 02:15	WG1046162	
trans-1,2-Dichloroethene	U	0.152	0.500	1	11/27/2017 02:15	WG1046162	
1,2-Dichloropropane	U	0.190	0.500	1	11/27/2017 02:15	WG1046162	
1,1-Dichloropropene	U	0.128	0.500	1	11/27/2017 02:15	WG1046162	
1,3-Dichloropropane	U	0.147	1.00	1	11/27/2017 02:15	WG1046162	
cis-1,3-Dichloropropene	U	0.0976	0.500	1	11/27/2017 02:15	WG1046162	
trans-1,3-Dichloropropene	U	0.222	0.500	1	11/27/2017 02:15	WG1046162	
trans-1,4-Dichloro-2-butene	U	0.257	5.00	1	11/27/2017 02:15	WG1046162	
2,2-Dichloropropane	U	0.0929	0.500	1	11/27/2017 02:15	WG1046162	
Di-isopropyl ether	U	0.0924	0.500	1	11/27/2017 02:15	WG1046162	
Ethylbenzene	U	0.158	0.500	1	11/27/2017 02:15	WG1046162	
Hexachloro-1,3-butadiene	U	0.157	1.00	1	11/27/2017 02:15	WG1046162	
2-Hexanone	U	0.757	5.00	1	11/27/2017 02:15	WG1046162	
n-Hexane	U	0.305	5.00	1	11/27/2017 02:15	WG1046162	
Iodomethane	U	0.377	10.0	1	11/27/2017 02:15	WG1046162	
Isopropylbenzene	U	0.126	0.500	1	11/27/2017 02:15	WG1046162	
p-Isopropyltoluene	U	0.138	0.500	1	11/27/2017 02:15	WG1046162	
2-Butanone (MEK)	U	1.28	5.00	1	11/27/2017 02:15	WG1046162	
Methylene Chloride	U	1.07	2.50	1	11/27/2017 02:15	WG1046162	
4-Methyl-2-pentanone (MIBK)	U	0.823	5.00	1	11/27/2017 02:15	WG1046162	
Methyl tert-butyl ether	U	0.102	0.500	1	11/27/2017 02:15	WG1046162	
Naphthalene	U	0.174	2.50	1	11/27/2017 02:15	WG1046162	
n-Propylbenzene	U	0.162	0.500	1	11/27/2017 02:15	WG1046162	
Styrene	U	0.117	0.500	1	11/27/2017 02:15	WG1046162	
1,1,1,2-Tetrachloroethane	U	0.120	0.500	1	11/27/2017 02:15	WG1046162	
1,1,2,2-Tetrachloroethane	U	0.130	0.500	1	11/27/2017 02:15	WG1046162	
ACCOUNT:		PROJECT:		SDG:		DATE/TIME:	PAGE:
Zipper Geo Associates - Lynnwood, WA		1001.25		L952378		11/29/17 10:36	28 of 44

Trichlorofluoromethane	U	0.130	2.50	1	11/27/2017 02:15	WG1046162
1,2,3-Trichloropropane	U	0.247	2.50	1	11/27/2017 02:15	WG1046162
1,2,4-Trimethylbenzene	U	0.123	0.500	1	11/27/2017 02:15	WG1046162
1,2,3-Trimethylbenzene	U	0.0739	0.500	1	11/27/2017 02:15	WG1046162
1,3,5-Trimethylbenzene	U	0.124	0.500	1	11/27/2017 02:15	WG1046162
Vinyl acetate	U	0.645	5.00	1	11/27/2017 02:15	WG1046162
Vinyl chloride	U	0.118	0.500	1	11/27/2017 02:15	WG1046162
Xylenes, Total	U	0.316	1.50	1	11/27/2017 02:15	WG1046162
<i>(S)</i> Toluene-d8	99.6		80.0-120		11/27/2017 02:15	WG1046162
<i>(S)</i> Dibromofluoromethane	99.7		76.0-123		11/27/2017 02:15	WG1046162
<i>(S)</i> 4-Bromofluorobenzene	98.0		80.0-120		11/27/2017 02:15	WG1046162

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6 Qc

7 Gl

8 Al

9 Sc

n-Butylbenzene	U		0.143	0.500	1	11/26/2017 18:00	WG1046670	
sec-Butylbenzene	U		0.134	0.500	1	11/26/2017 18:00	WG1046670	
tert-Butylbenzene	U		0.183	0.500	1	11/26/2017 18:00	WG1046670	6 Qc
Carbon disulfide	U		0.101	0.500	1	11/26/2017 18:00	WG1046670	
Carbon tetrachloride	U		0.159	0.500	1	11/26/2017 18:00	WG1046670	7 Gl
Chlorobenzene	U		0.140	0.500	1	11/26/2017 18:00	WG1046670	
Chlorodibromomethane	U		0.128	0.500	1	11/26/2017 18:00	WG1046670	
Chloroethane	U		0.141	2.50	1	11/26/2017 18:00	WG1046670	8 Al
Chloroform	U	JO	0.0860	0.500	1	11/26/2017 18:00	WG1046670	
Chloromethane	U	JO	0.153	1.25	1	11/26/2017 18:00	WG1046670	9 Sc
2-Chlorotoluene	U		0.111	0.500	1	11/26/2017 18:00	WG1046670	
4-Chlorotoluene	U		0.0972	0.500	1	11/26/2017 18:00	WG1046670	
1,2-Dibromo-3-Chloropropane	U		0.325	2.50	1	11/26/2017 18:00	WG1046670	
1,2-Dibromoethane	U		0.193	0.500	1	11/26/2017 18:00	WG1046670	
Dibromomethane	U		0.117	0.500	1	11/26/2017 18:00	WG1046670	
1,2-Dichlorobenzene	U		0.101	0.500	1	11/26/2017 18:00	WG1046670	
1,3-Dichlorobenzene	U		0.130	0.500	1	11/26/2017 18:00	WG1046670	
1,4-Dichlorobenzene	U		0.121	0.500	1	11/26/2017 18:00	WG1046670	
Dichlorodifluoromethane	U		0.127	2.50	1	11/26/2017 18:00	WG1046670	
1,1-Dichloroethane	U		0.114	0.500	1	11/26/2017 18:00	WG1046670	
1,2-Dichloroethane	U		0.108	0.500	1	11/26/2017 18:00	WG1046670	
1,1-Dichloroethene	U		0.188	0.500	1	11/26/2017 18:00	WG1046670	
cis-1,2-Dichloroethene	U		0.0933	0.500	1	11/26/2017 18:00	WG1046670	
trans-1,2-Dichloroethene	U		0.152	0.500	1	11/26/2017 18:00	WG1046670	
1,2-Dichloropropane	U		0.190	0.500	1	11/26/2017 18:00	WG1046670	
1,1-Dichloropropene	U		0.128	0.500	1	11/26/2017 18:00	WG1046670	
1,3-Dichloropropane	U		0.147	1.00	1	11/26/2017 18:00	WG1046670	
cis-1,3-Dichloropropene	U		0.0976	0.500	1	11/26/2017 18:00	WG1046670	
trans-1,3-Dichloropropene	U		0.222	0.500	1	11/26/2017 18:00	WG1046670	
trans-1,4-Dichloro-2-butene	U		0.257	5.00	1	11/26/2017 18:00	WG1046670	
2,2-Dichloropropane	U		0.0929	0.500	1	11/26/2017 18:00	WG1046670	
Di-isopropyl ether	U	JO	0.0924	0.500	1	11/26/2017 18:00	WG1046670	
Ethylbenzene	U		0.158	0.500	1	11/26/2017 18:00	WG1046670	
Hexachloro-1,3-butadiene	U		0.157	1.00	1	11/26/2017 18:00	WG1046670	
2-Hexanone	U		0.757	5.00	1	11/26/2017 18:00	WG1046670	
n-Hexane	U		0.305	5.00	1	11/26/2017 18:00	WG1046670	
Iodomethane	U	JO J4	0.377	10.0	1	11/26/2017 18:00	WG1046670	
Isopropylbenzene	U		0.126	0.500	1	11/26/2017 18:00	WG1046670	
p-Isopropyltoluene	U		0.138	0.500	1	11/26/2017 18:00	WG1046670	
2-Butanone (MEK)	U		1.28	5.00	1	11/26/2017 18:00	WG1046670	
Methylene Chloride	U	JO	1.07	2.50	1	11/26/2017 18:00	WG1046670	
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00	1	11/26/2017 18:00	WG1046670	
Methyl tert-butyl ether	U		0.102	0.500	1	11/26/2017 18:00	WG1046670	
Naphthalene	U	JO	0.174	2.50	1	11/26/2017 18:00	WG1046670	
n-Propylbenzene	U		0.162	0.500	1	11/26/2017 18:00	WG1046670	
Styrene	U		0.117	0.500	1	11/26/2017 18:00	WG1046670	
1,1,1,2-Tetrachloroethane	U		0.120	0.500	1	11/26/2017 18:00	WG1046670	
1,1,2,2-Tetrachloroethane	U		0.130	0.500	1	11/26/2017 18:00	WG1046670	

ACCOUNT:	PROJECT:	SDG:	DATE/TIME:	PAGE:
Zipper Geo Associates - Lynnwood, WA	1001.25	L952378	11/29/17 10:36	30 of 44

Trichlorofluoromethane	U	0.130	2.50	1	11/26/2017 18:00	WG1046670
1,2,3-Trichloropropane	U	0.247	2.50	1	11/26/2017 18:00	WG1046670
1,2,4-Trimethylbenzene	U	0.123	0.500	1	11/26/2017 18:00	WG1046670
1,2,3-Trimethylbenzene	U	0.0739	0.500	1	11/26/2017 18:00	WG1046670
1,3,5-Trimethylbenzene	U	0.124	0.500	1	11/26/2017 18:00	WG1046670
Vinyl acetate	U	0.645	5.00	1	11/26/2017 18:00	WG1046670
Vinyl chloride	U	0.118	0.500	1	11/26/2017 18:00	WG1046670
Xylenes, Total	U	0.316	1.50	1	11/26/2017 18:00	WG1046670
(S) Toluene-d8	105		80.0-120		11/26/2017 18:00	WG1046670
(S) Toluene-d8	102		80.0-120		11/26/2017 20:00	WG1046670
(S) Dibromofluoromethane	98.7		76.0-123		11/26/2017 20:00	WG1046670
(S) Dibromofluoromethane	91.7		76.0-123		11/26/2017 18:00	WG1046670
(S) 4-Bromofluorobenzene	101		80.0-120		11/26/2017 18:00	WG1046670
(S) 4-Bromofluorobenzene	98.8		80.0-120		11/26/2017 20:00	WG1046670

5

6 Qc

7 Gl

8 Al

9 Sc

WG1046162

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

QUALITY CONTROL SUMMARY

[L952378-01,02,03,04,05,06,07,08,09,10,11,12](#)

Method Blank (MB)

(MB) R3268682-2 11/26/17 21:38

	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
Analyte	ug/l		ug/l	ug/l
Acetone	U		1.05	25.0
Acrylonitrile	U		0.873	5.00
Benzene	U		0.0896	0.500
Bromobenzene	U		0.133	0.500
Bromodichloromethane	U		0.0800	0.500
Bromochloromethane	U		0.145	0.500
Bromoform	U		0.186	0.500
Bromomethane	U		0.157	2.50
n-Butylbenzene	U		0.143	0.500
sec-Butylbenzene	U		0.134	0.500
tert-Butylbenzene	U		0.183	0.500
Carbon disulfide	U		0.101	0.500
Carbon tetrachloride	U		0.159	0.500
Chlorobenzene	U		0.140	0.500
Chlorodibromomethane	U		0.128	0.500
Chloroethane	U		0.141	2.50
2-Chlorotoluene	U		0.111	0.500
Chloroform	U		0.0860	0.500
4-Chlorotoluene	U		0.0972	0.500
Chloromethane	U		0.153	1.25
Dibromomethane	U		0.117	0.500
1,2-Dibromo-3-Chloropropane	U		0.325	2.50
1,2-Dibromoethane	U		0.193	0.500
1,2-Dichlorobenzene	U		0.101	0.500
1,3-Dichlorobenzene	U		0.130	0.500
1,4-Dichlorobenzene	U		0.121	0.500
Dichlorodifluoromethane	U		0.127	2.50
1,1-Dichloroethane	U		0.114	0.500
1,1-Dichloropropene	U		0.128	0.500
1,2-Dichloroethane	U		0.108	0.500
1,1-Dichloroethene	U		0.188	0.500
1,3-Dichloropropane	U		0.147	1.00
cis-1,2-Dichloroethene	U		0.0933	0.500
trans-1,2-Dichloroethene	U		0.152	0.500
1,2-Dichloropropane	U		0.190	0.500
trans-1,4-Dichloro-2-butene	U		0.257	5.00
2,2-Dichloropropane	U		0.0929	0.500
Di-isopropyl ether	U		0.0924	0.500
cis-1,3-Dichloropropene	U		0.0976	0.500
Hexachloro-1,3-butadiene	U		0.157	1.00

ACCOUNT:

Zipper Geo Associates - Lynnwood, WA

PROJECT:

1001.25

SDG:

L952378

DATE/TIME:

11/29/17 10:36

WG1046162

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

QUALITY CONTROL SUMMARY

[L952378-01,02,03,04,05,06,07,08,09,10,11,12](#)

Method Blank (MB)

(MB) R3268682-2 11/26/17 21:38

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
trans-1,3-Dichloropropene	U		0.222	0.500
n-Hexane	U		0.305	5.00
Iodomethane	U		0.377	10.0
Ethylbenzene	U		0.158	0.500
2-Hexanone	U		0.757	5.00
Isopropylbenzene	U		0.126	0.500
1,1,1,2-Tetrachloroethane	U		0.120	0.500
p-Isopropyltoluene	U		0.138	0.500
2-Butanone (MEK)	U		1.28	5.00
Methylene Chloride	U		1.07	2.50
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00
Methyl tert-butyl ether	U		0.102	0.500
Naphthalene	U		0.174	2.50
1,2,3-Trichloropropane	U		0.247	2.50
n-Propylbenzene	U		0.162	0.500
Styrene	U		0.117	0.500
1,2,3-Trimethylbenzene	U		0.0739	0.500
1,1,2,2-Tetrachloroethane	U		0.130	0.500
Tetrachloroethene	U		0.199	0.500
Vinyl acetate	U		0.645	5.00
Toluene	U		0.412	0.500
Xylenes, Total	U		0.316	1.50
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500
1,2,3-Trichlorobenzene	U		0.164	0.500
1,2,4-Trichlorobenzene	U		0.355	0.500
1,1,1-Trichloroethane	U		0.0940	0.500
1,1,2-Trichloroethane	U		0.186	0.500
Trichloroethene	U		0.153	0.500
Trichlorofluoromethane	U		0.130	2.50
1,2,4-Trimethylbenzene	U		0.123	0.500
1,3,5-Trimethylbenzene	U		0.124	0.500
Vinyl chloride	U		0.118	0.500
(S) Toluene-d8	102			80.0-120
(S) Dibromofluoromethane	97.7			76.0-123
(S) 4-Bromofluorobenzene	97.4			80.0-120

ACCOUNT:

Zipper Geo Associates - Lynnwood, WA

PROJECT:

1001.25

SDG:

L952378

DATE/TIME:

11/29/17 10:36

WG1046162

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

QUALITY CONTROL SUMMARY

[L952378-01,02,03,04,05,06,07,08,09,10,11,12](#)

Laboratory Control Sample (LCS)

(LCS) R3268682-1 11/26/17 20:59

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Acrylonitrile	125	126	101	60.0-142	
Bromobenzene	25.0	23.9	95.7	79.0-120	
2-Chlorotoluene	25.0	24.0	95.9	74.0-122	
4-Chlorotoluene	25.0	24.7	98.8	79.0-120	
Dibromomethane	25.0	24.5	98.2	78.0-120	
1,1-Dichloropropene	25.0	25.3	101	71.0-129	
1,3-Dichloropropane	25.0	24.3	97.3	80.0-121	
Acetone	125	175	140	10.0-160	
Benzene	25.0	25.2	101	69.0-123	
trans-1,4-Dichloro-2-butene	25.0	24.6	98.2	55.0-134	
2,2-Dichloropropane	25.0	27.1	109	60.0-125	
Bromodichloromethane	25.0	24.8	99.2	76.0-120	
Di-isopropyl ether	25.0	25.1	100	59.0-133	
Bromochloromethane	25.0	25.4	102	76.0-122	
Bromoform	25.0	25.6	103	67.0-132	
Hexachloro-1,3-butadiene	25.0	26.9	107	64.0-131	
Bromomethane	25.0	26.3	105	18.0-160	
n-Hexane	25.0	27.1	108	56.0-124	
Iodomethane	125	127	102	57.0-140	
n-Butylbenzene	25.0	25.6	103	72.0-126	
sec-Butylbenzene	25.0	25.6	103	74.0-121	
tert-Butylbenzene	25.0	25.3	101	75.0-122	
Carbon disulfide	25.0	26.3	105	55.0-127	
Carbon tetrachloride	25.0	25.4	102	63.0-122	
Chlorobenzene	25.0	24.6	98.4	79.0-121	
Chlorodibromomethane	25.0	24.8	99.4	75.0-125	
Chloroethane	25.0	25.5	102	47.0-152	
Chloroform	25.0	24.9	99.6	72.0-121	
1,1,1,2-Tetrachloroethane	25.0	25.1	100	75.0-122	
Chloromethane	25.0	25.3	101	48.0-139	
1,2-Dibromo-3-Chloropropane	25.0	24.2	96.8	64.0-127	
1,2-Dibromoethane	25.0	24.7	98.6	77.0-123	
1,2-Dichlorobenzene	25.0	24.9	99.5	80.0-120	
1,3-Dichlorobenzene	25.0	24.7	98.7	72.0-123	
1,4-Dichlorobenzene	25.0	24.3	97.1	77.0-120	
Dichlorodifluoromethane	25.0	29.9	120	49.0-155	
1,2,3-Trichloropropane	25.0	24.5	97.9	72.0-124	
1,1-Dichloroethane	25.0	25.6	102	70.0-126	
1,2,3-Trimethylbenzene	25.0	24.5	97.9	75.0-120	
1,2-Dichloroethane	25.0	24.9	99.4	67.0-126	



Laboratory Control Sample (LCS)

(LCS) R3268682-1 11/26/17 20:59

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
1,1-Dichloroethene	25.0	27.0	108	64.0-129	
cis-1,2-Dichloroethene	25.0	24.7	99.0	73.0-120	
Vinyl acetate	125	147	117	46.0-160	
trans-1,2-Dichloroethene	25.0	24.9	99.5	71.0-121	
1,2-Dichloropropane	25.0	25.1	101	75.0-125	
Xylenes, Total	75.0	75.3	100	77.0-120	
cis-1,3-Dichloropropene	25.0	25.4	101	79.0-123	
trans-1,3-Dichloropropene	25.0	25.2	101	74.0-127	
Ethylbenzene	25.0	24.7	98.9	77.0-120	
2-Hexanone	125	136	109	58.0-147	
Isopropylbenzene	25.0	24.3	97.2	75.0-120	
p-Isopropyltoluene	25.0	26.1	104	74.0-126	
2-Butanone (MEK)	125	142	114	37.0-158	
Methylene Chloride	25.0	24.1	96.5	66.0-121	
4-Methyl-2-pentanone (MIBK)	125	132	105	59.0-143	
Methyl tert-butyl ether	25.0	25.3	101	64.0-123	
Naphthalene	25.0	25.9	104	62.0-128	
n-Propylbenzene	25.0	25.2	101	79.0-120	
Styrene	25.0	25.6	102	78.0-124	
1,1,2,2-Tetrachloroethane	25.0	24.7	98.9	71.0-122	
Tetrachloroethene	25.0	24.2	96.6	70.0-127	
Toluene	25.0	24.6	98.5	77.0-120	
1,1,2-Trichlorotrifluoroethane	25.0	27.6	110	61.0-136	
1,2,3-Trichlorobenzene	25.0	26.2	105	61.0-133	
1,2,4-Trichlorobenzene	25.0	26.4	106	69.0-129	
1,1,1-Trichloroethane	25.0	25.9	104	68.0-122	
1,1,2-Trichloroethane	25.0	25.1	100	78.0-120	
Trichloroethene	25.0	25.4	101	78.0-120	
Trichlorofluoromethane	25.0	27.2	109	56.0-137	
1,2,4-Trimethylbenzene	25.0	25.0	99.8	75.0-120	
1,3,5-Trimethylbenzene	25.0	25.2	101	75.0-120	
Vinyl chloride	25.0	25.6	102	64.0-133	
(S) Toluene-d8			101	80.0-120	
(S) Dibromofluoromethane			100	76.0-123	
(S) 4-Bromofluorobenzene			97.7	80.0-120	

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3268488-2 11/26/17 12:22

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		1.05	25.0
Acrylonitrile	U		0.873	5.00
Benzene	U		0.0896	0.500
Bromobenzene	U		0.133	0.500
Bromodichloromethane	U		0.0800	0.500
Bromochloromethane	U		0.145	0.500
Bromoform	U		0.186	0.500
Bromomethane	U		0.157	2.50
n-Butylbenzene	U		0.143	0.500
sec-Butylbenzene	U		0.134	0.500
tert-Butylbenzene	U		0.183	0.500
Carbon disulfide	U		0.101	0.500
Carbon tetrachloride	U		0.159	0.500
Chlorobenzene	U		0.140	0.500
Chlorodibromomethane	U		0.128	0.500
Chloroethane	U		0.141	2.50
Chloroform	U		0.0860	0.500
Chloromethane	U		0.153	1.25
2-Chlorotoluene	U		0.111	0.500
4-Chlorotoluene	U		0.0972	0.500
1,2-Dibromo-3-Chloropropane	U		0.325	2.50
1,2-Dibromoethane	U		0.193	0.500
Dibromomethane	U		0.117	0.500
1,2-Dichlorobenzene	U		0.101	0.500
1,3-Dichlorobenzene	U		0.130	0.500
1,4-Dichlorobenzene	U		0.121	0.500
Dichlorodifluoromethane	U		0.127	2.50
1,1-Dichloroethane	U		0.114	0.500
1,2-Dichloroethane	U		0.108	0.500
1,1-Dichloroethene	U		0.188	0.500
cis-1,2-Dichloroethene	U		0.0933	0.500
trans-1,2-Dichloroethene	U		0.152	0.500
1,2-Dichloropropane	U		0.190	0.500
1,1-Dichloropropene	U		0.128	0.500
1,3-Dichloropropane	U		0.147	1.00
cis-1,3-Dichloropropene	U		0.0976	0.500
trans-1,3-Dichloropropene	U		0.222	0.500
trans-1,4-Dichloro-2-butene	U		0.257	5.00
2,2-Dichloropropane	U		0.0929	0.500
Di-isopropyl ether	U		0.0924	0.500

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3268488-2 11/26/17 12:22

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	ug/l		ug/l	
Ethylbenzene	U		0.158	0.500
Hexachloro-1,3-butadiene	U		0.157	1.00
2-Hexanone	U		0.757	5.00
n-Hexane	U		0.305	5.00
Iodomethane	U		0.377	10.0
Isopropylbenzene	U		0.126	0.500
p-Isopropyltoluene	U		0.138	0.500
2-Butanone (MEK)	U		1.28	5.00
Methylene Chloride	U		1.07	2.50
4-Methyl-2-pentanone (MIBK)	U		0.823	5.00
Methyl tert-butyl ether	U		0.102	0.500
Naphthalene	U		0.174	2.50
n-Propylbenzene	U		0.162	0.500
Styrene	U		0.117	0.500
1,1,1,2-Tetrachloroethane	U		0.120	0.500
1,1,2,2-Tetrachloroethane	U		0.130	0.500
1,1,2-Trichlorotrifluoroethane	U		0.164	0.500
Tetrachloroethene	U		0.199	0.500
Toluene	U		0.412	0.500
1,2,3-Trichlorobenzene	U		0.164	0.500
1,2,4-Trichlorobenzene	U		0.355	0.500
1,1,1-Trichloroethane	U		0.0940	0.500
1,1,2-Trichloroethane	U		0.186	0.500
Trichloroethene	U		0.153	0.500
Trichlorofluoromethane	U		0.130	2.50
1,2,3-Trichloropropane	U		0.247	2.50
1,2,4-Trimethylbenzene	U		0.123	0.500
1,2,3-Trimethylbenzene	U		0.0739	0.500
1,3,5-Trimethylbenzene	U		0.124	0.500
Vinyl acetate	U		0.645	5.00
Vinyl chloride	U		0.118	0.500
Xylenes, Total	U		0.316	1.50
(S) Toluene-d8	106			80.0-120
(S) Dibromofluoromethane	89.0			76.0-123
(S) 4-Bromofluorobenzene	103			80.0-120

ACCOUNT:

Zipper Geo Associates - Lynnwood, WA

PROJECT:

1001.25

SDG:

L952378

DATE/TIME:

11/29/17 10:36

PAGE:

37 of 44

Laboratory Control Sample (LCS)

(LCS) R3268488-1 11/26/17 11:24

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Acetone	125	187	149	10.0-160	
Acrylonitrile	125	116	93.1	60.0-142	
Benzene	25.0	23.4	93.4	69.0-123	
Bromobenzene	25.0	23.5	93.8	79.0-120	
Bromodichloromethane	25.0	24.6	98.6	76.0-120	
Bromochloromethane	25.0	26.8	107	76.0-122	
Bromoform	25.0	25.2	101	67.0-132	
Bromomethane	25.0	15.5	62.0	18.0-160	
n-Butylbenzene	25.0	23.7	95.0	72.0-126	
sec-Butylbenzene	25.0	24.6	98.2	74.0-121	
tert-Butylbenzene	25.0	24.2	96.9	75.0-122	
Carbon disulfide	25.0	23.4	93.7	55.0-127	
Carbon tetrachloride	25.0	25.2	101	63.0-122	
Chlorobenzene	25.0	25.8	103	79.0-121	
Chlorodibromomethane	25.0	25.8	103	75.0-125	
Chloroethane	25.0	23.6	94.2	47.0-152	
Chloroform	25.0	24.0	95.9	72.0-121	
Chloromethane	25.0	19.7	78.9	48.0-139	
2-Chlorotoluene	25.0	23.5	93.9	74.0-122	
4-Chlorotoluene	25.0	22.7	90.8	79.0-120	
1,2-Dibromo-3-Chloropropane	25.0	21.5	86.1	64.0-127	
1,2-Dibromoethane	25.0	26.1	104	77.0-123	
Dibromomethane	25.0	25.5	102	78.0-120	
1,2-Dichlorobenzene	25.0	23.1	92.5	80.0-120	
1,3-Dichlorobenzene	25.0	23.7	94.8	72.0-123	
1,4-Dichlorobenzene	25.0	22.4	89.6	77.0-120	
Dichlorodifluoromethane	25.0	26.1	104	49.0-155	
1,1-Dichloroethane	25.0	24.3	97.1	70.0-126	
1,2-Dichloroethane	25.0	24.2	96.7	67.0-126	
1,1-Dichloroethene	25.0	26.1	104	64.0-129	
cis-1,2-Dichloroethene	25.0	24.2	96.8	73.0-120	
trans-1,2-Dichloroethene	25.0	24.0	95.9	71.0-121	
1,2-Dichloropropane	25.0	25.3	101	75.0-125	
1,1-Dichloropropene	25.0	24.6	98.6	71.0-129	
1,3-Dichloropropane	25.0	26.3	105	80.0-121	
cis-1,3-Dichloropropene	25.0	25.2	101	79.0-123	
trans-1,3-Dichloropropene	25.0	24.8	99.2	74.0-127	
trans-1,4-Dichloro-2-butene	25.0	21.1	84.3	55.0-134	
2,2-Dichloropropane	25.0	24.1	96.2	60.0-125	
Di-isopropyl ether	25.0	21.6	86.4	59.0-133	

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

WG1046670

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

QUALITY CONTROL SUMMARY

[L952378-13](#)

Laboratory Control Sample (LCS)

(LCS) R3268488-1 11/26/17 11:24

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Ethylbenzene	25.0	25.5	102	77.0-120	
Hexachloro-1,3-butadiene	25.0	22.3	89.0	64.0-131	
2-Hexanone	125	150	120	58.0-147	
n-Hexane	25.0	25.6	102	56.0-124	
Iodomethane	125	54.5	43.6	57.0-140	J4
Isopropylbenzene	25.0	25.2	101	75.0-120	
p-Isopropyltoluene	25.0	25.3	101	74.0-126	
2-Butanone (MEK)	125	153	122	37.0-158	
Methylene Chloride	25.0	21.6	86.4	66.0-121	
4-Methyl-2-pentanone (MIBK)	125	125	100	59.0-143	
Methyl tert-butyl ether	25.0	24.2	96.9	64.0-123	
Naphthalene	25.0	15.5	62.1	62.0-128	
n-Propylbenzene	25.0	24.4	97.5	79.0-120	
Styrene	25.0	24.8	99.2	78.0-124	
1,1,1,2-Tetrachloroethane	25.0	25.3	101	75.0-122	
1,1,2,2-Tetrachloroethane	25.0	24.5	98.0	71.0-122	
1,1,2-Trichlorotrifluoroethane	25.0	25.5	102	61.0-136	
Tetrachloroethene	25.0	27.2	109	70.0-127	
Toluene	25.0	25.3	101	77.0-120	
1,2,3-Trichlorobenzene	25.0	17.4	69.7	61.0-133	
1,2,4-Trichlorobenzene	25.0	20.4	81.6	69.0-129	
1,1,1-Trichloroethane	25.0	24.6	98.4	68.0-122	
1,1,2-Trichloroethane	25.0	25.7	103	78.0-120	
Trichloroethene	25.0	24.5	97.9	78.0-120	
Trichlorofluoromethane	25.0	25.1	100	56.0-137	
1,2,3-Trichloropropane	25.0	24.6	98.3	72.0-124	
1,2,4-Trimethylbenzene	25.0	23.7	94.7	75.0-120	
1,2,3-Trimethylbenzene	25.0	23.6	94.5	75.0-120	
1,3,5-Trimethylbenzene	25.0	24.2	96.8	75.0-120	
Vinyl acetate	125	132	106	46.0-160	
Vinyl chloride	25.0	24.0	95.9	64.0-133	
Xylenes, Total	75.0	75.8	101	77.0-120	
(S) Toluene-d8			103	80.0-120	
(S) Dibromofluoromethane			90.7	76.0-123	
(S) 4-Bromofluorobenzene			102	80.0-120	

ACCOUNT:

Zipper Geo Associates - Lynnwood, WA

PROJECT:

1001.25

SDG:

L952378

DATE/TIME:

11/29/17 10:36



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.

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, 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.
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.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J0	J0: Calibration verification outside of acceptance limits. Result is estimated.
J4	The associated batch QC was outside the established quality control range for accuracy.
V3	The internal standard exhibited poor recovery due to sample matrix interference. The analytical results will be biased high. BDL results will be unaffected.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gi

8 Ai

9 Sc

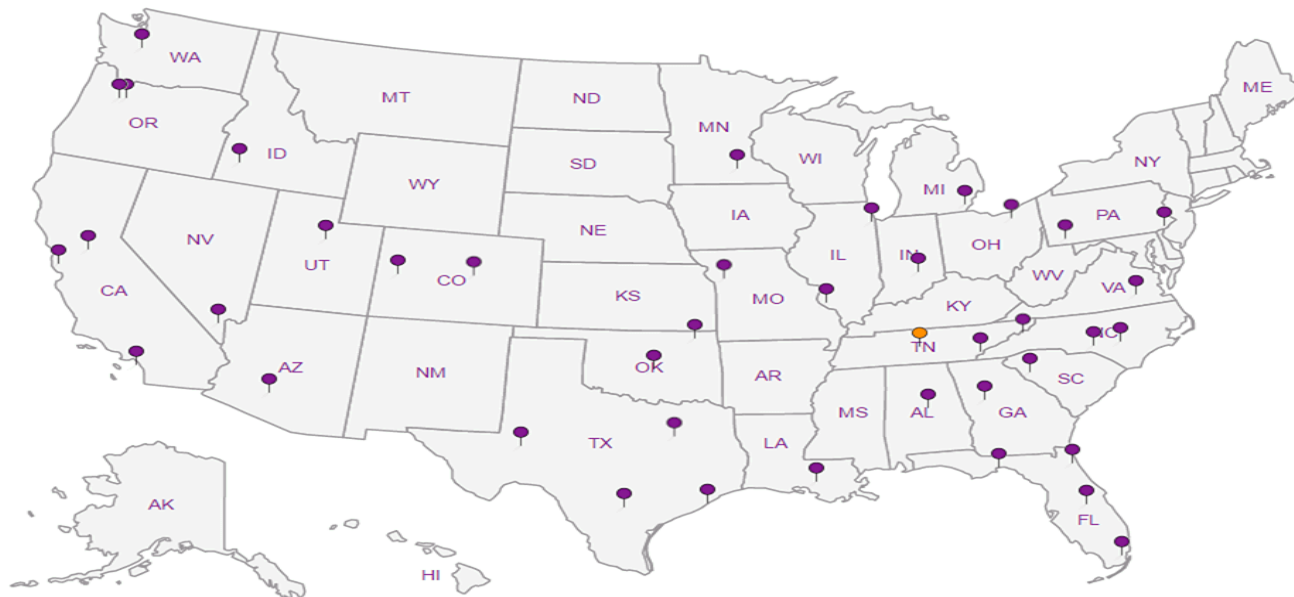
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

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

Third Party & Federal Accreditations

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ^{n/a} Accreditation not applicable

ES&C Lab Sciences 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. **ES&C Lab Sciences performs all testing at our central laboratory.**



Zipper Geo Associates - Lynnwood, WA

19019 36th Ave. W.

Report to:
Jon Einarsen

Billing Information:

Jon Einarsen
19019 36th Ave. W.
Ste. E
Lynnwood, WA 98036

Email To: jeinarsen@zippergeo.com

Project
Description: Prime Cleaners

Phone: 425-582-9928
Fax:

Client Project #
1001.25

City/State
Collected:
Lab Project #
ZIPGEOLWA-100125

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)

Same Day Five Day
Next Day 5 Day (Rad Only)
Two Day 10 Day (Rad Only)
Three Day

Quote #

Immediately
Packed on Ice N ___ Y ___

Date Results Needed

No.
of
Cntrs

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs
MW-1		GW		11/15/17	9:00	3
MW-2		GW		11/14/17	13:04	3
MW-3		GW		11/16/17	9:07	3
MW-4		GW		11/16/17	12:25	3
MW-5		GW		11/15/17	11:15	3
MW-6		GW		11/15/17	13:10	3
MW-7		GW		11/15/17	14:40	3
MW-8		GW		11/16/17	10:40	3
MW-9		GW		11/14/17	15:23	3
MW-10		GW		11/14/17	10:53	3

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:

UPS FedEx Courier

Tracking #

7884 0308 2887

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes/No
193 MeOH
TBH

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: 11.3°C Bottles Received: 7011 38

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: 11/20/17 Time: 0845

Analysis / Container / Preservative

Pres
Chk

V8260LLC 40mlAmb-HCI

Zipper Geo Associates - Lynnwood, WA

19019 36th Ave. W.

Billing Information:

Jon Einarsen
19019 36th Ave. W.
Ste. E
Lynnwood, WA 98036

Report to:
Jon Einarsen

Email To: jeinarsen@zippergeo.com

Project
Description: Prime Cleaners

City/State
Collected:

Phone: 425-582-9928
Fax:

Client Project #
1001.25

Lab Project #
ZIPGEOLWA-100125

Collected by (print):

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)

Quote #

☐ Same Day ☐ Five Day
☐ Next Day ☐ 5 Day (Rad Only)
☐ Two Day ☒ 10 Day (Rad Only)
☐ Three Day

Date Results Needed

Immediately
Packed on Ice N ☐ Y ☐

No.
of.
Cnts

V8260LLC 40mlAmb-HCl

Analysis / Container / Preservative

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cnts
Equipment Blank		GW		11/16/17	11:25	3 X
Duplicate		GW		11/16/17		3 X
		GW				3 X
Effluent		GW		11/12/17	13:05	2 X

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:

☐ UPS ☐ FedEx ☐ Courier

Tracking #

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received: Yes/No

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: _____ °C Bottles Received:

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date: _____ Time: _____

Evelyn Conrad

11/16/17

100% MeOH
TBR

11.3 °C 38

11-20-17 0845

Troy Dunlap

ESC Lab Sciences
Non-Conformance Form

Login #: L952378	Client: ZIPGEOLWA	Date: 11/20/17	Evaluated by: Troy Dunlap
------------------	-------------------	----------------	---------------------------

Non-Conformance (check applicable items)

	Sample Integrity	Chain of Custody Clarification	
	Parameter(s) past holding time	Login Clarification Needed	If Broken Container:
X	Improper temperature	Chain of custody is incomplete	Insufficient packing material around container
	Improper container type	Please specify Metals requested.	Insufficient packing material inside cooler
	Improper preservation	Please specify TCLP requested.	Improper handling by carrier (FedEx / UPS / Courier)
	Insufficient sample volume.	Received additional samples not listed on coc.	Sample was frozen
	Sample is biphasic.	Sample ids on containers do not match ids on coc	Container lid not intact
	Vials received with headspace.	Trip Blank not received.	If no Chain of Custody:
	Broken container	Client did not "X" analysis.	Received by:
	Broken container:	Chain of Custody is missing	Date/Time:
	Sufficient sample remains		Temp./Cont. Rec./pH:
			Carrier:
			Tracking#

Login Comments: Received out of temperature at 11.3°C.

Client informed by:	Call	Email	x	Voice Mail	Date: 11/20/17	Time: 1445
TSR Initials: bjf	Client Contact: Jon Einarsen					

Appendix C

2016 Alderwood Water and Wastewater District Water Quality Report

Alderwood Water & Wastewater District



2016

Annual Water Quality Report

Each year, AWWD prepares a Water Quality Report to keep you informed about the water and services we have delivered over the past year. Our goal in providing this information is to help you understand what is in your water—and what is not.

Included in this report are details describing where your water comes from, what it contains, and how it compares to stringent Federal water quality standards. It also provides water treatment information, facts on contaminants, and issues of concern to immune-compromised persons. Although this report is of a technical nature, it is important information.



Table of Contents

1. Introduction
2. Translations
3. Source Water & Contacts
4. Drinking Water Facts
5. Additional Information & Your Concerns About Lead
6. Contaminants
 - Perchlorate
 - Cryptosporidium
 - Treatment Polymers
7. Important Terms and Abbreviations Defined
8. Regulated Contaminants
9. Detected Unregulated Contaminants
10. Lead and Copper Results & Voluntarily Monitored Substances
11. Water Conservation Items
12. Water Conservation Data & Tips

This report contains important information about your drinking water.

Have someone translate it for you, or speak with someone who understands it.



В этом сообщении содержится важная информация о воде, которую вы пьёте. Попросите кого-нибудь перевести для вас это сообщение или поговорите с человеком, который понимает его содержание.

Naglalaman ang report na ito ng importanteng impormasyon tungkol sa iyong iniinom na tubig. Magkaroon ng isang tao na isasalin ito sa iyong wika para sa iyo, o makipag-usap sa isang tao na nakakaintindi dito.

Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.

Tài liệu này có tin tức quan trọng về nước uống của quý vị. Hãy nhờ người dịch cho quý vị, hoặc hỏi người nào hiểu tài liệu

이 보고서에는 귀하의 식수에 대한 중요한 내용이 실려있습니다. 그러므로 이 보고서를 이해할 수 있는 사람한테 번역해 달라고 부탁하시기 바랍니다.

Would you like to participate in decisions that may affect the quality of your water?

The Alderwood Water & Wastewater District's Board of Commissioners regular business meetings are held on the first and third Mondays of the month at 5:00 p.m. at the District Administration Building at: 3626 156th St. SW, Lynnwood, Washington 98087

Important Contact Information

To obtain more information on water quality issues, contact any of the following agencies:

Alderwood Water & Wastewater District

Water Quality Division
425-787-0250
www.awwd.com

Washington State Department of Health

Regional DOH Office
253-395-6750
www.doh.wa.gov/ehp/dw

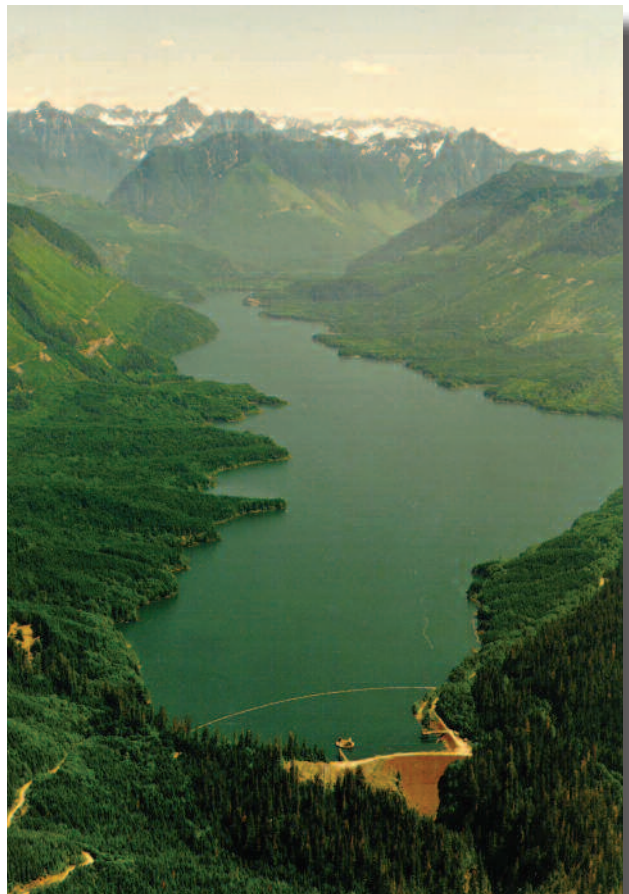
US Environmental Protection Agency

Safe Drinking Water
Hotline
1-800-426-4791

Source Water

Your drinking water is purchased from the City of Everett and comes from Spada Reservoir, located at the headwaters of the Sultan River about 30 miles east of Everett. Spada Reservoir was created in 1964, in partnership with the Snohomish County Public Utility District (PUD), and holds about 50 billion gallons of water. From Spada Reservoir, the water travels through a pipeline to Chaplain Reservoir, where the City of Everett Treatment facility is located. Chaplain Reservoir is about eight miles downstream from Spada Reservoir and holds about 4.5 billion gallons of water.

Spada Reservoir is located in the Upper Sultan River Watershed. A watershed is a geographic area where all precipitation drains into a single body of water. In the Sultan Basin Watershed, rain and snowmelt from the Cascade Mountains flow into the Spada Reservoir. The Sultan Basin Watershed covers an area of about 84 square miles and is one of the wettest watersheds on the west side of the Cascade Mountains. The average rainfall is about 165 inches, or five times our local rainfall.



To protect the naturally pristine water in the Spada Reservoir, water quality in the Sultan Basin is carefully monitored and human activities are limited to minimize the impact on water quality.

What's in Your Water?

While it may be easy to take our water for granted, providing safe drinking water is a very complex business, and a critical part of protecting public health.

Day after day, year after year, Alderwood Water & Wastewater District (AWWD) continues to meet and exceed all Federal and State standards for the drinking water provided to you.

Your family's health is our #1 priority, and we understand the importance of clean drinking water to a healthy life.

Drinking Water Facts

The following statement is required by the United States Environmental Protection Agency (US EPA), although the conditions may not apply to your drinking water source.

All water sources (both tap water and bottled water) contain impurities.

As water flows over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.



Your Concerns About Lead

AWWD is paying close attention to the public water supply crisis that has unfolded in Flint, Michigan. Their situation is very serious, and naturally raises questions among our customers about our own water supply.

In summary, AWWD delivers water that is safe to drink. We test it frequently and it meets all standards for lead. Tests for lead have been performed within the Alderwood water system every three years since 1992. Any issues or concerns resulting from testing would be identified and remedied quickly.

Visit our website for more information on our safe water.
www.awwd.com

Additional Information

In order to ensure that tap water is safe to drink, the US EPA and the Washington State Board of Health prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The US Food and Drug Administration and the Washington State Department of Agriculture regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA Safe Drinking Water Hotline at 1-800-426-4791.



NOTE: Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA and US Center for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by

Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Contaminants

Perchlorate

In January 2009, the US EPA released a health advisory for perchlorate. Perchlorate is an inorganic contaminant used in solid propellant for rockets, missiles, fireworks and elsewhere (e.g. production of matches, flares, explosives, etc.). Sodium hypochlorite solutions used for disinfection of water and wastewater in treatment plants have also been identified as a potential source of perchlorate contamination.



Perchlorate can interfere with iodine uptake by the thyroid gland and decrease production of thyroid hormones, which are needed for prenatal and postnatal growth and development, as well as for normal metabolism and mental function in adults. US EPA set the safe health advisory limit for drinking water at 0.015 ppm (15 parts per billion). In mid-2009, the Everett water treatment plant staff implemented a monthly perchlorate monitoring program at the plant to determine if the hypochlorite used for disinfection at the water plant contributed measureable levels of perchlorate to the drinking water. The method used is capable of detecting perchlorate as low as 0.0004ppm (0.4 ppb). Through 2016, **no perchlorate has been detected in the drinking water.**

Cryptosporidium

Cryptosporidium is a one-celled intestinal parasite that if ingested may cause diarrhea, fever, and other gastrointestinal distress. It can be found in all of Washington's rivers, streams, and lakes and comes from animal or human wastes deposited in the watershed. Cryptosporidium is resistant to chlorine, but is removed by effective filtration and sedimentation treatment. It can also be inactivated by certain types of alternate disinfection processes such as ozonation and ultraviolet light contactors. Past monitoring results suggest that Cryptosporidium is present in the source only occasionally and at very low concentrations. In 2016, Everett collected monthly Cryptosporidium samples from the source water at plant intakes. One sample contained 0.097oocysts/L.

Treatment Polymers

During water treatment, organic polymer coagulants are added to improve coagulation and filtration that remove particulates from water. The particulates that are removed can include viruses, bacteria and other disease-causing organisms. The US EPA sets limits on the type and amount of polymer that a water system can add to the water. In addition to the US EPA limits, the State of Washington requires that all polymers used be certified safe for potable water use by an independent testing organization (NSF International). During treatment, water treatment plant staff adds only NSF approved polymers and the **levels used are far below the safe limits set by the US EPA.**

Important Terms and Abbreviations Defined

- Action Level (AL) – The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.
- ccf – 100 cubic feet of water; 748 gallons.
- Disinfection By-Products (DBP's) – Organic compounds resulting from the interaction of chlorine with natural organic matter in water supplies.
- Maximum Contaminant Level Goal (MCLG) – The maximum level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.
- Maximum Contaminant Level (MCL) – The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- Maximum Residual Disinfectant Level (MRDL) – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- Maximum Residual Disinfectant Level Goal (MRDLG) – The level of a drinking water disinfectant below which there is no known or expected health risk. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- Treatment Technique (TT) – A required process intended to reduce the level of contaminant in drinking water.
- Parts per Billion (ppb) – One part of a particular contaminant is present for every billion parts of water.
- Parts per Million (ppm) – One part of a particular contaminant is present for every million parts of water.
- Not Applicable (NA) – Means that EPA has not established MCLG's for these substances.



Numeric Terms Simply Stated

How Can I Relate to PPM's & PPB's?

Parts per million (ppm)
3 drops in 42 gallons

Parts per billion (ppb)
1 drop in 14,000 gallons

Regulated Contaminants

Last year, your drinking water was tested for hundreds of possible contaminants. The contaminants that were detected are listed in the following tables. In reading this data, it is important to note that all of these contaminants were present in amounts below the US EPA allowable levels. To ensure that tap water is safe to drink, US EPA prescribes regulations that limit the amount of certain contaminants in the water provided by public water systems.

2016 Water Quality Results						
Parameter	Units	EPA Regulations		Your Water Results		
		Ideal Level/Goal (MCLG)	Maximum Allowable (MCL)	Range or Other	Average Value or Highest Result	Comply?
Total Coliform Bacteria	% Positive	0	5% Positive per Month	None	0	Yes
Total coliform bacteria testing is used to monitor microbial quality in the water distribution system. Alderwood collects a minimum of 150 samples each month. Not more than 5% of the monthly total can be positive for total coliforms.						
Fluoride—Dental Health Additive	ppm	2	4	0.1 – 1.0	0.7	Yes
Fluoride is added to your water in carefully controlled levels for dental health. In April 2016, the Washington State Department of Health changed the fluoridation requirement to a target of 0.7 ppm from the previous target of 1.0 ppm to 0.8 ppm. The minimum value 0.1 ppm is due to several maintenance-related feed outages lasting no more than a few hours in duration.						
Residual Disinfectant	ppm	4.0 (MRDLG)	4.0 (MRDL)	0.3 – 1.1	0.7	Yes
Haloacetic Acids (5)	ppb	N/A	60	28.9 – 35.2	32.7*	Yes
Total Trihalomethanes	ppb	N/A	80	37.1 – 49.7	44.7*	Yes
Haloacetic acids (HAA5) and trihalomethanes (TTHM) form as by-products of the chlorination process that is used to kill or inactivate disease-causing microbes. The results for TTHM and HAA5 are from eight locations which are monitored to determine compliance with the current regulations. *The values reported are the highest running annual average of the eight sites that were monitored in 2016.						
Turbidity	NTU	N/A	TT	100%	0.05	Yes
Turbidity is a measure of the amount of particulates in water in Nephelometric Turbidity Units (NTU). Particulates in water can include bacteria, viruses and protozoans that can cause disease. Turbidity measurements are used to determine the effectiveness of the treatment processes used to remove these particulates. The values reported are the lowest monthly percentages of samples that met the EPA turbidity limit and the highest single filtered water turbidity measurement obtained during the year. In 2016, no filtered water turbidity results were above the EPA 0.3 NTU limit so the lowest percentage was 100%. Everett's filtration plant targets production of drinking water turbidities of 0.10 NTU or less.						

Health Effects of Trihalomethanes

Some recent health effects studies have suggested that high levels of Trihalomethanes (THMs) in drinking water may be linked to increased risks for birth defects or miscarriages in pregnant women.

THMs are by-products that form when drinking water is chlorinated to kill disease-causing organisms.

Since required monitoring for THM began seventeen years ago, the THM content of Alderwood's water has been significantly below the new maximum allowable safe level of 80 ppb.

Detected Unregulated Contaminants

Disinfection By-Products

Chlorine is the chemical disinfectant of choice in drinking water, used since the early 1900's to inactivate or chemically kill microorganisms. However, certain organic compounds result from the interaction of chlorine with natural organic matter in water supplies. These compounds are known as disinfection by-products (DBP's). Some of these compounds have been linked to potential health effects. DBP's are regulated by the United States Environmental Protection Agency and the Washington State Department of Health.



We monitor for ten different DBP's, which are broken down into two groups, Haloacetic Acids (HAA5) and Trihalomethanes (THM). Alderwood completed the expanded DBP sampling program in preparation for the forthcoming EPA rule and water quality standard known as the Stage Two Disinfection By-Product Rule (DBPR). The purpose of the Stage 2 DBPR is to supplement existing drinking water regulations to insure water purveyors supply the safest drinking water possible to their customers. Alderwood's water has always tested below EPA and DOH maximum contaminant levels (MCL) for DBP's since testing was first mandated in the 1980's. The Regulated Contaminants Chart shows the totals for both the Haloacetic Acids and Trihalomethanes groups.

The information in the Disinfection By-Products chart below is an individual breakdown of the DBP's that were detected in 2016. DBP's that were tested for but not detected are not listed. Please see note boxes at the bottom of the

Disinfection By-Products	Units	Ideal Level/Goal (MCLG)	Your Water Results	
			Range	Average
Bromodichloro-methane	ppb	0	1.3 – 2.4	1.9
Chloroform (trichloromethane)	ppb	300	27.5 – 49.9	37.2
Dichloroacetic Acid	ppb	0	3.0 – 16.8	10.8
Trichloroacetic Acid	ppb	300	16.3 – 23.3	19.1
Monochloroacetic Acid	ppb	0	0.0 – 2.6	0.2
Dibromoacetic Acid	ppb	0	0	N/D
These substances are individual disinfection by-products for which no MCL standard has been set, but which must be monitored to determine compliance with the USEPA Stage 2 Disinfection By-Products Rule MCLs for Total Trihalomethanes and Haloacetic Acids (5).				

EPA Lead Statement

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children.

Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The District is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components.

If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods and steps you can take to minimize your exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.¹

Lead and Copper Results

Lead, Copper and pH			EPA Regulations		Your Water Results 108 Homes Tested		
Parameter	Major Source	Units	Ideal Level/Goal (MCLG)	Action Level (AL)	90 th % Level	Homes Exceeding the AL	Comply?
Lead	Plumbing, erosion of natural deposits	ppb	0	15	2	0	YES
Copper	Plumbing, erosion of natural deposits	ppm	1.3	1.3	0.122	0	YES

US EPA and state regulations require water systems to monitor for the presence of lead and copper at household taps every three years. Everett and many of the systems it supplies conduct lead and copper monitoring in their combined service area as a regional group. The above data was collected in 2015. The 90th % level is the highest result obtained in 90 percent of the samples collected when the results are ranked in order from lowest to highest. In the past, the results for water tested before it enters household plumbing were even lower than the tap results. This indicates that there is virtually no lead or copper in the water, but household plumbing may contribute to the presence of lead and copper at the tap.

Voluntarily Monitored Substances

Parameter	Units	Everett Water Results	
		Range Detected	Average Value
Alkalinity ^{1,2}	ppm	14 – 26.5	17.2
Aluminum ¹	ppm	0.005 – 0.080	0.02
Arsenic ³	ppb	<0.1 – 0.2	0.2
Calcium Hardness ^{1,2}	ppm	7.8 – 13	9.5
pH ¹	s.u.	7.6 – 9.8	8
Sodium ³	ppm	5.5 – 7.2	6.2
Total Hardness ^{1,2}	ppm	10.3 – 15.6	12.3

¹ Results are from samples collected from 26 locations in Everett's distribution system.
² Hardness and alkalinity units are in ppm as CaCO₃ (calcium carbonate equivalent units).
³ Arsenic and Sodium were monitored at the treatment plant effluent.

When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using water for drinking or cooking.¹

¹ US EPA regulations require this statement be included with the lead and copper sampling results regardless of the levels observed.



Toilet Rebate Offer for Customers

AWWD offers a rebate program that enables District retail customers (i.e. you must pay your water bill to Alderwood) to replace their old toilets with efficient water-conserving toilets in order to save water and money. Participants can receive up to \$75 rebate for a qualifying toilet installed (1 toilet per customer). Replacement toilets must be WaterSense labeled and be on EPA's list of High Efficiency Toilets (HET). You can find additional information about this program at:

www.awwd.com

Choose the "How To" menu, and select "Conservation".

Water Conservation Items

AWWD is offering free indoor and outdoor Conservation items. These items are intended to help customers reduce or control water flow from fixtures within and outside the home. Conservation items are just one way we can all work together to save water...and money!

Indoor Water Conservation Kits

AWWD's Indoor Water Conservation Kits contain a water efficient shower-head, bathroom faucet aerators and leak tape and a conservation information brochure. Each household is welcome to pick up one (1) indoor kit per bathroom in the home per year (max 3).

Outdoor Water Conservation Items

AWWD's Outdoor Water Conservation items include a garden hose nozzle, moisture meters, rain gauges and lawn timers. Customers are welcome to pick up a total of two (2) hose nozzles, and one timer, moisture meter, and rain gauge per household.

Where Can I Get the Conservation Items?

AWWD has free conservation items and toilet leak-detecting kits for free at our offices: 3626 156th St SW, Lynnwood, WA, Monday – Friday, 8 am to 5 pm.



For more information, call Alderwood Water & Wastewater District or visit us at awwd.com
Our programs count on your voluntary participation.

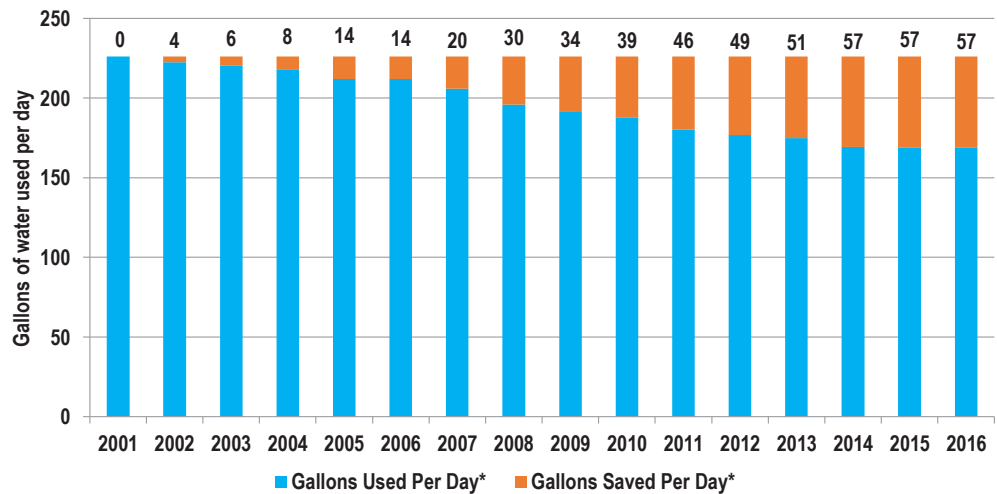
AWWD Customers Continue to Reduce Water Use

Since 2001, the gallons of water used per day by a typical household in the District have decreased by approximately 57 gallons per day.

The reduction can be attributed to customer response to the conservation messages and programs, implementation of uniform plumbing code changes, and responses to water rates.

The District applauds its customers' efforts to help sustain our valuable water resources.

Water Conservation by Average Single-Family Residential Connection



Water Conservation Tips

- Examine indoor and outdoor faucets, sprinklers and hoses for leaks. Toilets can leak up to 200 gallons per day! Use a toilet leak detection tablet (available at AWWD for your tank-style toilet) to help determine if you have a leak.
- Choose native shrubs and ground covers instead of turf for hard-to-water areas such as steep slopes and isolated strips.
- Run full loads in your dishwasher and clothes washer. Check to see if shorter cycles will do the job!
- While you wait for hot water, collect running water and use it to water plants.
- Do not water your lawn. Fall rains will revive a dormant lawn.
- If you do water your lawn and garden, water in the morning or evening when temperatures are cooler to minimize evaporation. Limit watering to one inch per week.
- Don't water your lawn or garden on windy days when most of the water blows away or evaporates.
- Use a layer of organic mulch on the surface of your planting beds to minimize weed growth that competes for water.
- Check the root zone of your lawn or garden for moisture using a spade, trowel or moisture meter before watering. If it's still moist two inches under the soil surface, you don't need to water.
- Adjust your lawn mower to a higher setting. A taller lawn shades roots and holds soil moisture better than if it is closely clipped.
- Set a timer when watering your lawn or garden to remind you when to stop. A running hose can discharge up to 10 gallons a minute.