



May 9, 2019

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

Attn: Mr. Nicholas Echelbarger

Re: April 2019 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 general accordance with ZGA's Proposal No. P14297R, dated July 2, 2015 and includes results for sampling events completed in April 2019.

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

A handwritten signature in black ink, appearing to read "Kaelin Newman".

Kaelin Newman, GIT
Staff Geologist



A handwritten signature in black ink, appearing to read "Jon Einarsen".

Jon Einarsen, LG
Principal

Attachments: Appendix A – Figures
Appendix B – Laboratory Reports

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 ran more or less continuously from June of 2017, with periodic shutdowns for maintenance and groundwater sampling, until February of 2018. At that time the system was shut down to accommodate tenant improvements to the former Prime Cleaners tenant space (being converted to a restaurant), which included improvements to the DPE groundwater effluent plumbing system. Upon completion of their inspection of tenant improvements, the Alderwood Water and Wastewater District informed ZGA that a permit with that entity was required. ZGA prepared the documentation, acquired the permit, and the system was restarted in October 2018. The system has run more or less continuously since that time.

This groundwater monitoring report presents a summary of a groundwater sampling event completed in April 2019, which is the fifth 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 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)	April 10-11, 2019
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	July 2019

Groundwater Flow

Ten dedicated groundwater monitoring wells are present on or adjoining the Site (MW-1 through MW-10). We measured depth to groundwater in each well on April 10, 2019. 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, consistent with previous sampling events. 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 April 2019 sampling event is attached in 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
		02-13-2018	21.65	274.66
		01-14-2019	23.78	272.53
		04-10-2019	24.04	272.27
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
		02-13-2018	22.00	274.47
		01-14-2019	24.05	272.42
		04-10-2019	24.40	272.07
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
		02-13-2018	22.45	274.51
		01-14-2019	24.53	272.43
		04-10-2019	24.92	272.04
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
		02-13-2018	22.10	274.46
		01-14-2019	24.16	272.40
		04-10-2019	24.53	272.03

Well ID	Relative Casing Elevation (ft.)	Date of Measurement	Depth to Groundwater (ft.)	Relative Groundwater Elevation (ft.)
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
		02-13-2018	15.52	274.33
		01-14-2019	17.59	272.26
		04-10-2019	17.64	272.21
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
		02-13-2018	15.53	274.41
		01-14-2019	17.64	272.30
		04-10-2019	17.66	272.28
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
		02-13-2018	15.51	274.21
		01-14-2019	17.52	272.20
		04-10-2019	17.84	271.88
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
		02-13-2018	16.30	274.26
		01-14-2019	18.30	272.26
		04-10-2019	18.61	271.95

Well ID	Relative Casing Elevation (ft.)	Date of Measurement	Depth to Groundwater (ft.)	Relative Groundwater Elevation (ft.)
MW-9	298.90	08-25-2010	Not Installed	
		05-09-2011		
		05-23-2012		
		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
		02-13-2018	24.35	274.55
		01-14-2019	26.43	272.47
		04-10-2019	26.73	272.17
MW-10	297.49	08-25-2010	Not Installed	
		05-09-2011		
		05-23-2012		
		03-05-2014	25.19	272.30
		01-12-2017	24.17	273.32
		08-18-2017	26.21	271.28
		11-14-2017	25.91	271.58
		02-13-2018	22.85	274.64
		01-14-2019	24.94	272.55
		04-10-2019	25.25	272.24

Groundwater Sampling and Analysis

The DPE system was shut down on April 5, 2019 and groundwater was sampled by ZGA on April 10 and April 11, 2019. 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 investigations. 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 within +/- 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 three 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: Pace Analytical (formerly Environmental Science Corporation), a Washington State accredited laboratory. All samples were analyzed by Pace 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 (April 2019)

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 (22.5 ug/L and duplicate 21.8 µg/L), and MW-8 (14.3 µg/L).
- PCE was detected at concentrations above the laboratory reporting limit (RDL) but below the applicable cleanup level in one well: MW-3 (2.51 µg/L).
- PCE was not detected above the RDL in seven wells: MW-1, MW-2, MW-5, MW-6, MW-7, MW-9, and MW-10.

Chloroform was reported at concentrations of 4.42 µg/L (MW-1) and 4.34 ug/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-7 and MW-8. No other VOC were reported above laboratory RDLs.

Chloroform and bromodichloromethane (which has been previously detected at the Site) 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 2017 AWWD Water Quality Report (the most recent report available), the average concentration of chloroform and bromodichloromethane measured in the public water supply was 38.7 µg/L and 1.8 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
	02-13-18	0.300	ND<0.5	ND<0.5	ND<0.5
	01-14-19	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	04-10-19	ND<0.5	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
	02-13-18	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	01-14-19	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	04-10-19	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
	02-14-18	6.78	ND<0.5	ND<0.5	ND<0.5
	01-15-19	4.44	ND<0.5	ND<0.5	ND<0.5
	04-11-19	2.51	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-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
	02-14-18	28.5	ND<0.5	ND<0.5	ND<0.5
	01-15-19	10.7	ND<0.5	ND<0.5	ND<0.5
	01-15-19 DUP	10.6	ND<0.5	ND<0.5	ND<0.5
	04-11-19	22.5	ND<0.5	ND<0.5	ND<0.5
	04-11-19 DUP	21.8	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
	02-13-18	0.220	ND<0.5	ND<0.5	ND<0.5
	01-15-19	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	04-11-19	ND<0.5	ND<0.5	ND<0.5	ND<0.5
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
	02-14-18	3.21	ND<0.5	ND<0.5	ND<0.5
	01-15-19	2.04	ND<0.5	ND<0.5	ND<0.5
	04-11-19	ND<0.5	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
	02-14-18	1.93	ND<0.5	ND<0.5	ND<0.5
	01-15-19	3.88	ND<0.5	ND<0.5	ND<0.5
	04-11-19	ND<0.5	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-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
	02-14-18	16.1	ND<0.5	ND<0.5	ND<0.5
	02-14-18 DUP	14.7	ND<0.5	ND<0.5	ND<0.5
	01-15-19	12.1	ND<0.5	ND<0.5	ND<0.5
	04-11-19	14.3	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
	02-13-18	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	01-14-19	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	04-10-19	ND<0.5	ND<0.5	ND<0.5	ND<0.5
MW-10	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	ND<1	ND<1	ND<1	ND<1
	11-14-17	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	02-13-18	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	01-14-19	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	04-10-19	ND<0.5	ND<0.5	ND<0.5	ND<0.5
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
	02-14-18	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	01-15-19	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	04-11-19	ND<0.5	ND<0.5	ND<0.5	ND<0.5
DPE Groundwater 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
	01-11-19	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	05-16-19	ND<0.5	ND<0.5	ND<0.5	ND<0.5
MTCA Cleanup Level		5^A	5^A	16^B	160^B

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.

Indoor Air Sampling and Analysis (April 2019)

Air Sampling Narrative

During the April 2019 sampling event, all three tenant spaces were open for businesses, and the Former Prime Cleaners was fully converted into a restaurant. The north and south doors at all three tenant spaces were closed. The indoor air canister in the Money Tree tenant space was placed on a refrigerator at an

elevation of about seven feet in a back room (south part of the tenant space). The indoor air canister in the Former Prime Cleaners was placed at an elevation of about seven feet on a cooler in the dining area (central part of the tenant space). The indoor air canister at the Osaka Grill was placed at an elevation of about seven feet on a cooler in the dining area (central part of the tenant space). The canister for ambient outdoor air was placed on the roof of the Conex box that houses the dual-phase extraction (DPE) system in the alley south of the tenant spaces.

All four canisters were equipped with 8-hour regulators. The samples were analyzed for a subset of VOC, including tetrachloroethylene (PCE) and trichloroethylene (TCE), by Friedman & Bruya (Seattle, Washington) using the EPA TO-15 Method. The analytical results are summarized in Table 1 and the laboratory reports are attached in Appendix B. Contaminant concentrations in indoor air have been corrected for concentrations in ambient air, if applicable. The Modified Method B calculation is illustrated on Table 5.

Table 4. Summarized Ambient and Indoor Air Analytical Results

Sampling Location	Date	PCE	TCE	EDC
Ambient Air	06-03-14	<0.23	<0.18	<0.14
	08-22-18	<0.68	0.28	0.24
	01-14-19	<6.8	<0.27	0.11
	04-18-19	<6.8	<0.27	0.089
Former Prime Cleaners	06-03-14	0.51	0.39	<0.13
	08-22-18	0.73	<0.27	<0.04
	01-14-19	<6.8	<0.27	0.01
	04-18-19	<6.8	<0.27	0.008
Money Tree	06-03-14	<1.1	<0.88	<0.66
	08-22-18	<0.68	0.82	0.00
	01-14-19	<6.8	<0.27	0.00
	04-18-19	<6.8	<0.27	0.004
Osaka Grill	06-03-14	0.48	0.07	<0.28
	08-22-18	<0.68	<0.27	0.00
	01-14-19	<6.8	<0.27	0.02
	04-18-19	<6.8	<0.27	0.021
Default MTCA Method B Indoor Air Cleanup Level		9.62	0.37	0.09
Modified MTCA Method B Indoor Air Cleanup Level		32.05	1.24	NC

The bold values exceed the Default Method B cleanup level. NC, not calculated.

Table 5. Modified Method B Air Cleanup Level (Equation 750-2)

Equation 750-2 for Carcinogens			Tetrachloroethylene		Trichloroethylene	
Parameters ¹		Units	Default Method B ²	Modified Method B ³	Default Method B ²	Modified Method B ³
Carcinogenic Risk	RISK	unitless	1.00E-06	1.00E-06	1.00E-06	1.00E-06
Average Body Weight	ABW	kg	70	70	70	70
Averaging Time	AT	years	75	75	75	75
Unit Conversion Factor	UCF	ug/mg	1,000	1,000	1,000	1,000
Carcinogenic Potency Factor	CPF	kg-day/mg	9.10E-04	9.10E-04	0.0235	0.0235
Breathing Rate	BR	m ³ /day	20	20	20	20
Inhalation Adsorption Rate	ABS	unitless	1	1	1	1
Exposure Duration	ED	years	30	30	30	30
Exposure Frequency	EF	unitless	1	0.3	1	0.3
Method B Air Cleanup Level		ug/m³	9.62	32.05	0.37	1.24

¹Parameter values are derived from MTCA Equation 750-2 or the CLARC database (<https://fortress.wa.gov/ecy/clarc/clarkdatatables.aspx>)

²Default Method B cleanup level calculation using default parameters reflective of a residential setting

³Modified Method B cleanup level calculation using an exposure frequency reflective of a commercial setting.

Method B air cleanup level = RISK x ABW x AT x UCF / CPF x BR x ABS x ED X EF

Exposure Frequency

Default: 24 hours/day for 365 days = 8,760 hours/year

Modified: 10 hours/day for 250 days = 2,500 hours/year

Modified Exposure Frequency = 2,500/8,760 = 0.285. However, in accordance with Ecology's Implementation Memorandum No. 21, dated November 15, 2018 (see Question No. 17 in the memorandum), we have used an exposure frequency value of 0.3 for the Modified Method B calculations.

PCE and TCE were not reported above the laboratory reporting limit in ambient air or any of the three tenant spaces during the April 2019 sampling event.

Conclusions

ZGA completed a groundwater monitoring sampling event in April 2019. 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, after slightly exceeding the cleanup level in the February 2018 sampling event. The concentrations of PCE in MW-4 and MW-8 remain above cleanup levels but continue to decline. PCE in the other wells was not detected above laboratory reporting limits, or were reported in concentrations below the MTCA Method A cleanup level for PCE.

ZGA completed ambient and indoor air sampling in April 2019. PCE and TCE were not reported above laboratory reporting limits in ambient air or in three indoor air samples.

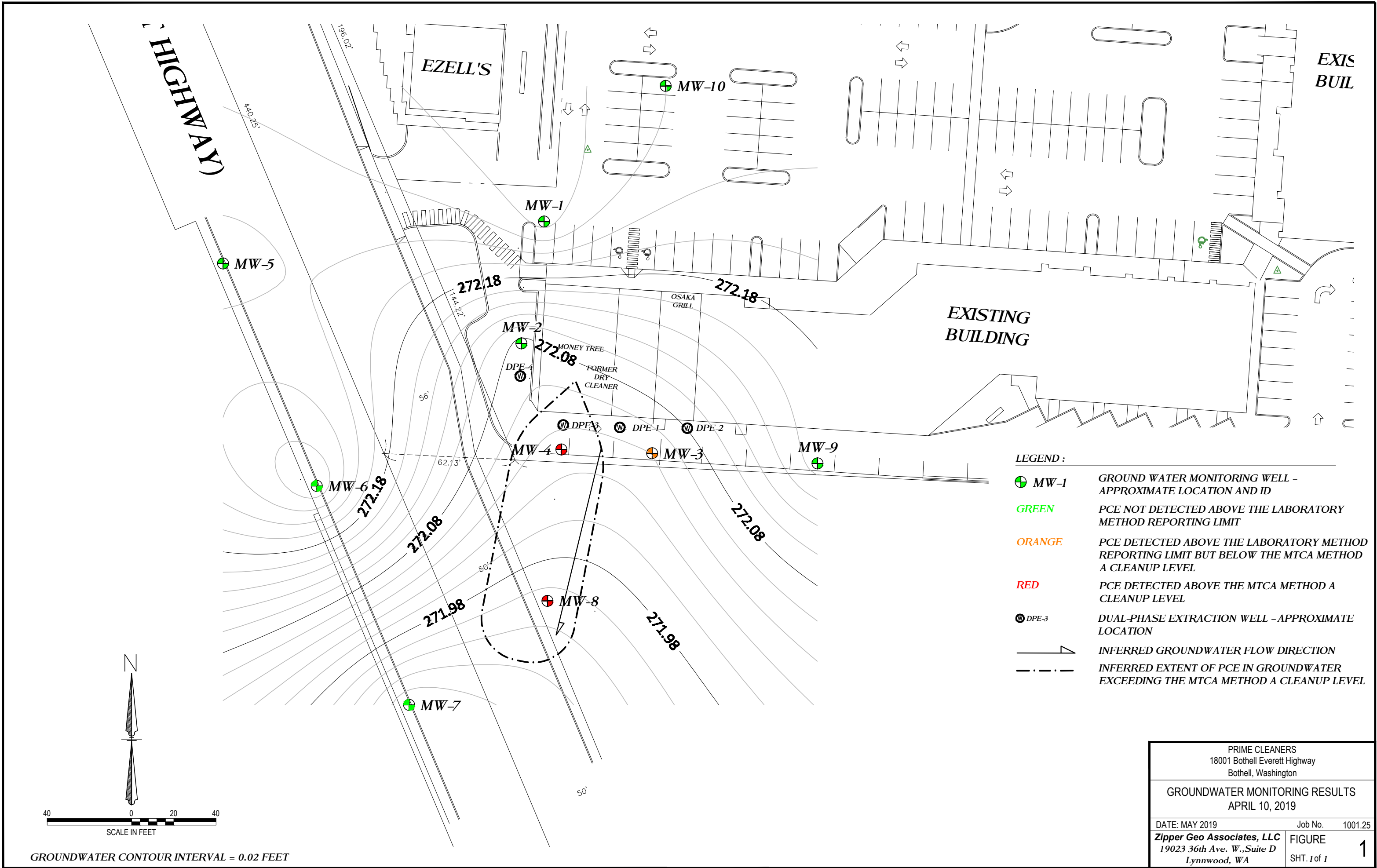
ZGA will continue to monitor the effectiveness of the DPE system by completing additional groundwater and air monitoring events on a quarterly basis going forward.

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 Reports

April 22, 2019

Zipper Geo Associates - Lynnwood, WA

Sample Delivery Group: L1088963
Samples Received: 04/13/2019
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
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National 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 L1088963-01 GW

				Collected by K. Newman	Collected date/time 04/10/19 16:08	Received date/time 04/13/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1266452	1	04/17/19 13:07	04/17/19 13:07	JHH	Mt. Juliet, TN

¹ Cp² Tc³ Ss

MW-2 L1088963-02 GW

				Collected by K. Newman	Collected date/time 04/10/19 13:20	Received date/time 04/13/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1266452	1	04/17/19 13:27	04/17/19 13:27	JHH	Mt. Juliet, TN

⁴ Cn⁵ Sr

MW-3 L1088963-03 GW

				Collected by K. Newman	Collected date/time 04/11/19 11:55	Received date/time 04/13/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1266452	1	04/17/19 13:47	04/17/19 13:47	JHH	Mt. Juliet, TN

⁶ Qc⁷ Gl

MW-4 L1088963-04 GW

				Collected by K. Newman	Collected date/time 04/11/19 14:00	Received date/time 04/13/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1266452	1	04/17/19 14:07	04/17/19 14:07	JHH	Mt. Juliet, TN

⁸ Al⁹ Sc

MW-5 L1088963-05 GW

				Collected by K. Newman	Collected date/time 04/11/19 10:40	Received date/time 04/13/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1266452	1	04/17/19 14:28	04/17/19 14:28	JHH	Mt. Juliet, TN

MW-6 L1088963-06 GW

				Collected by K. Newman	Collected date/time 04/11/19 09:00	Received date/time 04/13/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1266452	1	04/17/19 14:48	04/17/19 14:48	JHH	Mt. Juliet, TN

MW-7 L1088963-07 GW

				Collected by K. Newman	Collected date/time 04/11/19 07:41	Received date/time 04/13/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1266452	1	04/17/19 15:08	04/17/19 15:08	JHH	Mt. Juliet, TN

MW-8 L1088963-08 GW

				Collected by K. Newman	Collected date/time 04/11/19 13:05	Received date/time 04/13/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1266452	1	04/17/19 15:28	04/17/19 15:28	JHH	Mt. Juliet, TN

ACCOUNT:

Zipper Geo Associates - Lynnwood, WA

PROJECT:

1001.25

SDG:

L1088963

DATE/TIME:

04/22/19 14:53

PAGE:

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MW-9 L1088963-09 GW

				Collected by K. Newman	Collected date/time 04/10/19 14:40	Received date/time 04/13/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1266452	1	04/17/19 15:48	04/17/19 15:48	JHH	Mt. Juliet, TN

MW-10 L1088963-10 GW

				Collected by K. Newman	Collected date/time 04/10/19 11:20	Received date/time 04/13/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1266452	1	04/17/19 16:08	04/17/19 16:08	JHH	Mt. Juliet, TN

DUPLICATE L1088963-11 GW

				Collected by K. Newman	Collected date/time 04/11/19 00:00	Received date/time 04/13/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1266452	1	04/17/19 16:28	04/17/19 16:28	JHH	Mt. Juliet, TN

EQUIPMENT BLANK L1088963-12 GW

				Collected by K. Newman	Collected date/time 04/11/19 13:20	Received date/time 04/13/19 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1266452	1	04/17/19 16:48	04/17/19 16:48	JHH	Mt. Juliet, TN

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



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

Brian Ford
Project Manager

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 ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	04/17/2019 13:07	WG1266452
Acrylonitrile	ND		5.00	1	04/17/2019 13:07	WG1266452
Benzene	ND		0.500	1	04/17/2019 13:07	WG1266452
Bromobenzene	ND		0.500	1	04/17/2019 13:07	WG1266452
Bromodichloromethane	ND		0.500	1	04/17/2019 13:07	WG1266452
Bromochloromethane	ND		0.500	1	04/17/2019 13:07	WG1266452
Bromoform	ND		0.500	1	04/17/2019 13:07	WG1266452
Bromomethane	ND	JO	2.50	1	04/17/2019 13:07	WG1266452
n-Butylbenzene	ND		0.500	1	04/17/2019 13:07	WG1266452
sec-Butylbenzene	ND		0.500	1	04/17/2019 13:07	WG1266452
tert-Butylbenzene	ND		0.500	1	04/17/2019 13:07	WG1266452
Carbon disulfide	ND		0.500	1	04/17/2019 13:07	WG1266452
Carbon tetrachloride	ND		0.500	1	04/17/2019 13:07	WG1266452
Chlorobenzene	ND		0.500	1	04/17/2019 13:07	WG1266452
Chlorodibromomethane	ND		0.500	1	04/17/2019 13:07	WG1266452
Chloroethane	ND	JO	2.50	1	04/17/2019 13:07	WG1266452
Chloroform	4.42		0.500	1	04/17/2019 13:07	WG1266452
Chloromethane	ND		1.25	1	04/17/2019 13:07	WG1266452
2-Chlorotoluene	ND		0.500	1	04/17/2019 13:07	WG1266452
4-Chlorotoluene	ND		0.500	1	04/17/2019 13:07	WG1266452
1,2-Dibromo-3-Chloropropane	ND		2.50	1	04/17/2019 13:07	WG1266452
1,2-Dibromoethane	ND		0.500	1	04/17/2019 13:07	WG1266452
Dibromomethane	ND		0.500	1	04/17/2019 13:07	WG1266452
1,2-Dichlorobenzene	ND		0.500	1	04/17/2019 13:07	WG1266452
1,3-Dichlorobenzene	ND		0.500	1	04/17/2019 13:07	WG1266452
1,4-Dichlorobenzene	ND		0.500	1	04/17/2019 13:07	WG1266452
Dichlorodifluoromethane	ND		2.50	1	04/17/2019 13:07	WG1266452
1,1-Dichloroethane	ND		0.500	1	04/17/2019 13:07	WG1266452
1,2-Dichloroethane	ND	JO	0.500	1	04/17/2019 13:07	WG1266452
1,1-Dichloroethene	ND		0.500	1	04/17/2019 13:07	WG1266452
cis-1,2-Dichloroethene	ND		0.500	1	04/17/2019 13:07	WG1266452
trans-1,2-Dichloroethene	ND		0.500	1	04/17/2019 13:07	WG1266452
1,2-Dichloropropane	ND		0.500	1	04/17/2019 13:07	WG1266452
1,1-Dichloropropene	ND		0.500	1	04/17/2019 13:07	WG1266452
1,3-Dichloropropane	ND		1.00	1	04/17/2019 13:07	WG1266452
cis-1,3-Dichloropropene	ND		0.500	1	04/17/2019 13:07	WG1266452
trans-1,3-Dichloropropene	ND		0.500	1	04/17/2019 13:07	WG1266452
trans-1,4-Dichloro-2-butene	ND		5.00	1	04/17/2019 13:07	WG1266452
2,2-Dichloropropane	ND		0.500	1	04/17/2019 13:07	WG1266452
Di-isopropyl ether	ND		0.500	1	04/17/2019 13:07	WG1266452
Ethylbenzene	ND		0.500	1	04/17/2019 13:07	WG1266452
Hexachloro-1,3-butadiene	ND		1.00	1	04/17/2019 13:07	WG1266452
2-Hexanone	ND		5.00	1	04/17/2019 13:07	WG1266452
n-Hexane	ND		5.00	1	04/17/2019 13:07	WG1266452
Iodomethane	ND		10.0	1	04/17/2019 13:07	WG1266452
Isopropylbenzene	ND		0.500	1	04/17/2019 13:07	WG1266452
p-Isopropyltoluene	ND		0.500	1	04/17/2019 13:07	WG1266452
2-Butanone (MEK)	ND		5.00	1	04/17/2019 13:07	WG1266452
Methylene Chloride	ND		2.50	1	04/17/2019 13:07	WG1266452
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/17/2019 13:07	WG1266452
Methyl tert-butyl ether	ND		0.500	1	04/17/2019 13:07	WG1266452
Naphthalene	ND		2.50	1	04/17/2019 13:07	WG1266452
n-Propylbenzene	ND		0.500	1	04/17/2019 13:07	WG1266452
Styrene	ND		0.500	1	04/17/2019 13:07	WG1266452
1,1,1,2-Tetrachloroethane	ND		0.500	1	04/17/2019 13:07	WG1266452
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/17/2019 13:07	WG1266452

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 04/10/19 16:08

L1088963

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	04/17/2019 13:07	WG1266452
Tetrachloroethene	ND		0.500	1	04/17/2019 13:07	WG1266452
Toluene	ND		0.500	1	04/17/2019 13:07	WG1266452
1,2,3-Trichlorobenzene	ND		0.500	1	04/17/2019 13:07	WG1266452
1,2,4-Trichlorobenzene	ND		0.500	1	04/17/2019 13:07	WG1266452
1,1,1-Trichloroethane	ND		0.500	1	04/17/2019 13:07	WG1266452
1,1,2-Trichloroethane	ND		0.500	1	04/17/2019 13:07	WG1266452
Trichloroethene	ND		0.500	1	04/17/2019 13:07	WG1266452
Trichlorofluoromethane	ND	JO J4	2.50	1	04/17/2019 13:07	WG1266452
1,2,3-Trichloropropane	ND		2.50	1	04/17/2019 13:07	WG1266452
1,2,4-Trimethylbenzene	ND		0.500	1	04/17/2019 13:07	WG1266452
1,2,3-Trimethylbenzene	ND		0.500	1	04/17/2019 13:07	WG1266452
1,3,5-Trimethylbenzene	ND		0.500	1	04/17/2019 13:07	WG1266452
Vinyl acetate	ND	JO	5.00	1	04/17/2019 13:07	WG1266452
Vinyl chloride	ND	JO	0.500	1	04/17/2019 13:07	WG1266452
Xylenes, Total	ND		1.50	1	04/17/2019 13:07	WG1266452
(S) Toluene-d8	102		80.0-120		04/17/2019 13:07	WG1266452
(S) 4-Bromofluorobenzene	105		77.0-126		04/17/2019 13:07	WG1266452
(S) 1,2-Dichloroethane-d4	92.0		70.0-130		04/17/2019 13:07	WG1266452

¹ Cp² Tc³ Ss⁴ Cn⁵ Sr⁶ Qc⁷ Gl⁸ Al⁹ Sc



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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	04/17/2019 13:27	WG1266452
Acrylonitrile	ND		5.00	1	04/17/2019 13:27	WG1266452
Benzene	ND		0.500	1	04/17/2019 13:27	WG1266452
Bromobenzene	ND		0.500	1	04/17/2019 13:27	WG1266452
Bromodichloromethane	ND		0.500	1	04/17/2019 13:27	WG1266452
Bromochloromethane	ND		0.500	1	04/17/2019 13:27	WG1266452
Bromoform	ND		0.500	1	04/17/2019 13:27	WG1266452
Bromomethane	ND	JO	2.50	1	04/17/2019 13:27	WG1266452
n-Butylbenzene	ND		0.500	1	04/17/2019 13:27	WG1266452
sec-Butylbenzene	ND		0.500	1	04/17/2019 13:27	WG1266452
tert-Butylbenzene	ND		0.500	1	04/17/2019 13:27	WG1266452
Carbon disulfide	ND		0.500	1	04/17/2019 13:27	WG1266452
Carbon tetrachloride	ND		0.500	1	04/17/2019 13:27	WG1266452
Chlorobenzene	ND		0.500	1	04/17/2019 13:27	WG1266452
Chlorodibromomethane	ND		0.500	1	04/17/2019 13:27	WG1266452
Chloroethane	ND	JO	2.50	1	04/17/2019 13:27	WG1266452
Chloroform	ND		0.500	1	04/17/2019 13:27	WG1266452
Chloromethane	ND		1.25	1	04/17/2019 13:27	WG1266452
2-Chlorotoluene	ND		0.500	1	04/17/2019 13:27	WG1266452
4-Chlorotoluene	ND		0.500	1	04/17/2019 13:27	WG1266452
1,2-Dibromo-3-Chloropropane	ND		2.50	1	04/17/2019 13:27	WG1266452
1,2-Dibromoethane	ND		0.500	1	04/17/2019 13:27	WG1266452
Dibromomethane	ND		0.500	1	04/17/2019 13:27	WG1266452
1,2-Dichlorobenzene	ND		0.500	1	04/17/2019 13:27	WG1266452
1,3-Dichlorobenzene	ND		0.500	1	04/17/2019 13:27	WG1266452
1,4-Dichlorobenzene	ND		0.500	1	04/17/2019 13:27	WG1266452
Dichlorodifluoromethane	ND		2.50	1	04/17/2019 13:27	WG1266452
1,1-Dichloroethane	ND		0.500	1	04/17/2019 13:27	WG1266452
1,2-Dichloroethane	ND	JO	0.500	1	04/17/2019 13:27	WG1266452
1,1-Dichloroethene	ND		0.500	1	04/17/2019 13:27	WG1266452
cis-1,2-Dichloroethene	ND		0.500	1	04/17/2019 13:27	WG1266452
trans-1,2-Dichloroethene	ND		0.500	1	04/17/2019 13:27	WG1266452
1,2-Dichloropropane	ND		0.500	1	04/17/2019 13:27	WG1266452
1,1-Dichloropropene	ND		0.500	1	04/17/2019 13:27	WG1266452
1,3-Dichloropropane	ND		1.00	1	04/17/2019 13:27	WG1266452
cis-1,3-Dichloropropene	ND		0.500	1	04/17/2019 13:27	WG1266452
trans-1,3-Dichloropropene	ND		0.500	1	04/17/2019 13:27	WG1266452
trans-1,4-Dichloro-2-butene	ND		5.00	1	04/17/2019 13:27	WG1266452
2,2-Dichloropropane	ND		0.500	1	04/17/2019 13:27	WG1266452
Di-isopropyl ether	ND		0.500	1	04/17/2019 13:27	WG1266452
Ethylbenzene	ND		0.500	1	04/17/2019 13:27	WG1266452
Hexachloro-1,3-butadiene	ND		1.00	1	04/17/2019 13:27	WG1266452
2-Hexanone	ND		5.00	1	04/17/2019 13:27	WG1266452
n-Hexane	ND		5.00	1	04/17/2019 13:27	WG1266452
Iodomethane	ND		10.0	1	04/17/2019 13:27	WG1266452
Isopropylbenzene	ND		0.500	1	04/17/2019 13:27	WG1266452
p-Isopropyltoluene	ND		0.500	1	04/17/2019 13:27	WG1266452
2-Butanone (MEK)	ND		5.00	1	04/17/2019 13:27	WG1266452
Methylene Chloride	ND		2.50	1	04/17/2019 13:27	WG1266452
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/17/2019 13:27	WG1266452
Methyl tert-butyl ether	ND		0.500	1	04/17/2019 13:27	WG1266452
Naphthalene	ND		2.50	1	04/17/2019 13:27	WG1266452
n-Propylbenzene	ND		0.500	1	04/17/2019 13:27	WG1266452
Styrene	ND		0.500	1	04/17/2019 13:27	WG1266452
1,1,1,2-Tetrachloroethane	ND		0.500	1	04/17/2019 13:27	WG1266452
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/17/2019 13:27	WG1266452

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 04/10/19 13:20

L1088963

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	04/17/2019 13:27	WG1266452
Tetrachloroethene	ND		0.500	1	04/17/2019 13:27	WG1266452
Toluene	ND		0.500	1	04/17/2019 13:27	WG1266452
1,2,3-Trichlorobenzene	ND		0.500	1	04/17/2019 13:27	WG1266452
1,2,4-Trichlorobenzene	ND		0.500	1	04/17/2019 13:27	WG1266452
1,1,1-Trichloroethane	ND		0.500	1	04/17/2019 13:27	WG1266452
1,1,2-Trichloroethane	ND		0.500	1	04/17/2019 13:27	WG1266452
Trichloroethene	ND		0.500	1	04/17/2019 13:27	WG1266452
Trichlorofluoromethane	ND	JO J4	2.50	1	04/17/2019 13:27	WG1266452
1,2,3-Trichloropropane	ND		2.50	1	04/17/2019 13:27	WG1266452
1,2,4-Trimethylbenzene	ND		0.500	1	04/17/2019 13:27	WG1266452
1,2,3-Trimethylbenzene	ND		0.500	1	04/17/2019 13:27	WG1266452
1,3,5-Trimethylbenzene	ND		0.500	1	04/17/2019 13:27	WG1266452
Vinyl acetate	ND	JO	5.00	1	04/17/2019 13:27	WG1266452
Vinyl chloride	ND	JO	0.500	1	04/17/2019 13:27	WG1266452
Xylenes, Total	ND		1.50	1	04/17/2019 13:27	WG1266452
(S) Toluene-d8	100		80.0-120		04/17/2019 13:27	WG1266452
(S) 4-Bromofluorobenzene	104		77.0-126		04/17/2019 13:27	WG1266452
(S) 1,2-Dichloroethane-d4	89.8		70.0-130		04/17/2019 13:27	WG1266452

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		25.0	1	04/17/2019 13:47	WG1266452
Acrylonitrile	ND		5.00	1	04/17/2019 13:47	WG1266452
Benzene	ND		0.500	1	04/17/2019 13:47	WG1266452
Bromobenzene	ND		0.500	1	04/17/2019 13:47	WG1266452
Bromodichloromethane	ND		0.500	1	04/17/2019 13:47	WG1266452
Bromochloromethane	ND		0.500	1	04/17/2019 13:47	WG1266452
Bromoform	ND		0.500	1	04/17/2019 13:47	WG1266452
Bromomethane	ND	JO	2.50	1	04/17/2019 13:47	WG1266452
n-Butylbenzene	ND		0.500	1	04/17/2019 13:47	WG1266452
sec-Butylbenzene	ND		0.500	1	04/17/2019 13:47	WG1266452
tert-Butylbenzene	ND		0.500	1	04/17/2019 13:47	WG1266452
Carbon disulfide	ND		0.500	1	04/17/2019 13:47	WG1266452
Carbon tetrachloride	ND		0.500	1	04/17/2019 13:47	WG1266452
Chlorobenzene	ND		0.500	1	04/17/2019 13:47	WG1266452
Chlorodibromomethane	ND		0.500	1	04/17/2019 13:47	WG1266452
Chloroethane	ND	JO	2.50	1	04/17/2019 13:47	WG1266452
Chloroform	ND		0.500	1	04/17/2019 13:47	WG1266452
Chloromethane	ND		1.25	1	04/17/2019 13:47	WG1266452
2-Chlorotoluene	ND		0.500	1	04/17/2019 13:47	WG1266452
4-Chlorotoluene	ND		0.500	1	04/17/2019 13:47	WG1266452
1,2-Dibromo-3-Chloropropane	ND		2.50	1	04/17/2019 13:47	WG1266452
1,2-Dibromoethane	ND		0.500	1	04/17/2019 13:47	WG1266452
Dibromomethane	ND		0.500	1	04/17/2019 13:47	WG1266452
1,2-Dichlorobenzene	ND		0.500	1	04/17/2019 13:47	WG1266452
1,3-Dichlorobenzene	ND		0.500	1	04/17/2019 13:47	WG1266452
1,4-Dichlorobenzene	ND		0.500	1	04/17/2019 13:47	WG1266452
Dichlorodifluoromethane	ND		2.50	1	04/17/2019 13:47	WG1266452
1,1-Dichloroethane	ND		0.500	1	04/17/2019 13:47	WG1266452
1,2-Dichloroethane	ND	JO	0.500	1	04/17/2019 13:47	WG1266452
1,1-Dichloroethene	ND		0.500	1	04/17/2019 13:47	WG1266452
cis-1,2-Dichloroethene	ND		0.500	1	04/17/2019 13:47	WG1266452
trans-1,2-Dichloroethene	ND		0.500	1	04/17/2019 13:47	WG1266452
1,2-Dichloropropane	ND		0.500	1	04/17/2019 13:47	WG1266452
1,1-Dichloropropene	ND		0.500	1	04/17/2019 13:47	WG1266452
1,3-Dichloropropane	ND		1.00	1	04/17/2019 13:47	WG1266452
cis-1,3-Dichloropropene	ND		0.500	1	04/17/2019 13:47	WG1266452
trans-1,3-Dichloropropene	ND		0.500	1	04/17/2019 13:47	WG1266452
trans-1,4-Dichloro-2-butene	ND		5.00	1	04/17/2019 13:47	WG1266452
2,2-Dichloropropane	ND		0.500	1	04/17/2019 13:47	WG1266452
Di-isopropyl ether	ND		0.500	1	04/17/2019 13:47	WG1266452
Ethylbenzene	ND		0.500	1	04/17/2019 13:47	WG1266452
Hexachloro-1,3-butadiene	ND		1.00	1	04/17/2019 13:47	WG1266452
2-Hexanone	ND		5.00	1	04/17/2019 13:47	WG1266452
n-Hexane	ND		5.00	1	04/17/2019 13:47	WG1266452
Iodomethane	ND		10.0	1	04/17/2019 13:47	WG1266452
Isopropylbenzene	ND		0.500	1	04/17/2019 13:47	WG1266452
p-Isopropyltoluene	ND		0.500	1	04/17/2019 13:47	WG1266452
2-Butanone (MEK)	ND		5.00	1	04/17/2019 13:47	WG1266452
Methylene Chloride	ND		2.50	1	04/17/2019 13:47	WG1266452
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/17/2019 13:47	WG1266452
Methyl tert-butyl ether	ND		0.500	1	04/17/2019 13:47	WG1266452
Naphthalene	ND		2.50	1	04/17/2019 13:47	WG1266452
n-Propylbenzene	ND		0.500	1	04/17/2019 13:47	WG1266452
Styrene	ND		0.500	1	04/17/2019 13:47	WG1266452
1,1,1,2-Tetrachloroethane	ND		0.500	1	04/17/2019 13:47	WG1266452
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/17/2019 13:47	WG1266452

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 ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	04/17/2019 13:47	WG1266452
Tetrachloroethene	2.51		0.500	1	04/17/2019 13:47	WG1266452
Toluene	ND		0.500	1	04/17/2019 13:47	WG1266452
1,2,3-Trichlorobenzene	ND		0.500	1	04/17/2019 13:47	WG1266452
1,2,4-Trichlorobenzene	ND		0.500	1	04/17/2019 13:47	WG1266452
1,1,1-Trichloroethane	ND		0.500	1	04/17/2019 13:47	WG1266452
1,1,2-Trichloroethane	ND		0.500	1	04/17/2019 13:47	WG1266452
Trichloroethene	ND		0.500	1	04/17/2019 13:47	WG1266452
Trichlorofluoromethane	ND	JO J4	2.50	1	04/17/2019 13:47	WG1266452
1,2,3-Trichloropropane	ND		2.50	1	04/17/2019 13:47	WG1266452
1,2,4-Trimethylbenzene	ND		0.500	1	04/17/2019 13:47	WG1266452
1,2,3-Trimethylbenzene	ND		0.500	1	04/17/2019 13:47	WG1266452
1,3,5-Trimethylbenzene	ND		0.500	1	04/17/2019 13:47	WG1266452
Vinyl acetate	ND	JO	5.00	1	04/17/2019 13:47	WG1266452
Vinyl chloride	ND	JO	0.500	1	04/17/2019 13:47	WG1266452
Xylenes, Total	ND		1.50	1	04/17/2019 13:47	WG1266452
(S) Toluene-d8	102		80.0-120		04/17/2019 13:47	WG1266452
(S) 4-Bromofluorobenzene	104		77.0-126		04/17/2019 13:47	WG1266452
(S) 1,2-Dichloroethane-d4	90.7		70.0-130		04/17/2019 13:47	WG1266452

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



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

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		25.0	1	04/17/2019 14:07	WG1266452
Acrylonitrile	ND		5.00	1	04/17/2019 14:07	WG1266452
Benzene	ND		0.500	1	04/17/2019 14:07	WG1266452
Bromobenzene	ND		0.500	1	04/17/2019 14:07	WG1266452
Bromodichloromethane	ND		0.500	1	04/17/2019 14:07	WG1266452
Bromochloromethane	ND		0.500	1	04/17/2019 14:07	WG1266452
Bromoform	ND		0.500	1	04/17/2019 14:07	WG1266452
Bromomethane	ND	JO	2.50	1	04/17/2019 14:07	WG1266452
n-Butylbenzene	ND		0.500	1	04/17/2019 14:07	WG1266452
sec-Butylbenzene	ND		0.500	1	04/17/2019 14:07	WG1266452
tert-Butylbenzene	ND		0.500	1	04/17/2019 14:07	WG1266452
Carbon disulfide	ND		0.500	1	04/17/2019 14:07	WG1266452
Carbon tetrachloride	ND		0.500	1	04/17/2019 14:07	WG1266452
Chlorobenzene	ND		0.500	1	04/17/2019 14:07	WG1266452
Chlorodibromomethane	ND		0.500	1	04/17/2019 14:07	WG1266452
Chloroethane	ND	JO	2.50	1	04/17/2019 14:07	WG1266452
Chloroform	ND		0.500	1	04/17/2019 14:07	WG1266452
Chloromethane	ND		1.25	1	04/17/2019 14:07	WG1266452
2-Chlorotoluene	ND		0.500	1	04/17/2019 14:07	WG1266452
4-Chlorotoluene	ND		0.500	1	04/17/2019 14:07	WG1266452
1,2-Dibromo-3-Chloropropane	ND		2.50	1	04/17/2019 14:07	WG1266452
1,2-Dibromoethane	ND		0.500	1	04/17/2019 14:07	WG1266452
Dibromomethane	ND		0.500	1	04/17/2019 14:07	WG1266452
1,2-Dichlorobenzene	ND		0.500	1	04/17/2019 14:07	WG1266452
1,3-Dichlorobenzene	ND		0.500	1	04/17/2019 14:07	WG1266452
1,4-Dichlorobenzene	ND		0.500	1	04/17/2019 14:07	WG1266452
Dichlorodifluoromethane	ND		2.50	1	04/17/2019 14:07	WG1266452
1,1-Dichloroethane	ND		0.500	1	04/17/2019 14:07	WG1266452
1,2-Dichloroethane	ND	JO	0.500	1	04/17/2019 14:07	WG1266452
1,1-Dichloroethene	ND		0.500	1	04/17/2019 14:07	WG1266452
cis-1,2-Dichloroethene	ND		0.500	1	04/17/2019 14:07	WG1266452
trans-1,2-Dichloroethene	ND		0.500	1	04/17/2019 14:07	WG1266452
1,2-Dichloropropane	ND		0.500	1	04/17/2019 14:07	WG1266452
1,1-Dichloropropene	ND		0.500	1	04/17/2019 14:07	WG1266452
1,3-Dichloropropane	ND		1.00	1	04/17/2019 14:07	WG1266452
cis-1,3-Dichloropropene	ND		0.500	1	04/17/2019 14:07	WG1266452
trans-1,3-Dichloropropene	ND		0.500	1	04/17/2019 14:07	WG1266452
trans-1,4-Dichloro-2-butene	ND		5.00	1	04/17/2019 14:07	WG1266452
2,2-Dichloropropane	ND		0.500	1	04/17/2019 14:07	WG1266452
Di-isopropyl ether	ND		0.500	1	04/17/2019 14:07	WG1266452
Ethylbenzene	ND		0.500	1	04/17/2019 14:07	WG1266452
Hexachloro-1,3-butadiene	ND		1.00	1	04/17/2019 14:07	WG1266452
2-Hexanone	ND		5.00	1	04/17/2019 14:07	WG1266452
n-Hexane	ND		5.00	1	04/17/2019 14:07	WG1266452
Iodomethane	ND		10.0	1	04/17/2019 14:07	WG1266452
Isopropylbenzene	ND		0.500	1	04/17/2019 14:07	WG1266452
p-Isopropyltoluene	ND		0.500	1	04/17/2019 14:07	WG1266452
2-Butanone (MEK)	ND		5.00	1	04/17/2019 14:07	WG1266452
Methylene Chloride	ND		2.50	1	04/17/2019 14:07	WG1266452
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/17/2019 14:07	WG1266452
Methyl tert-butyl ether	ND		0.500	1	04/17/2019 14:07	WG1266452
Naphthalene	ND		2.50	1	04/17/2019 14:07	WG1266452
n-Propylbenzene	ND		0.500	1	04/17/2019 14:07	WG1266452
Styrene	ND		0.500	1	04/17/2019 14:07	WG1266452
1,1,1,2-Tetrachloroethane	ND		0.500	1	04/17/2019 14:07	WG1266452
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/17/2019 14:07	WG1266452

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 04/11/19 14:00

L1088963

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	04/17/2019 14:07	WG1266452
Tetrachloroethene	22.5		0.500	1	04/17/2019 14:07	WG1266452
Toluene	ND		0.500	1	04/17/2019 14:07	WG1266452
1,2,3-Trichlorobenzene	ND		0.500	1	04/17/2019 14:07	WG1266452
1,2,4-Trichlorobenzene	ND		0.500	1	04/17/2019 14:07	WG1266452
1,1,1-Trichloroethane	ND		0.500	1	04/17/2019 14:07	WG1266452
1,1,2-Trichloroethane	ND		0.500	1	04/17/2019 14:07	WG1266452
Trichloroethene	ND		0.500	1	04/17/2019 14:07	WG1266452
Trichlorofluoromethane	ND	JO J4	2.50	1	04/17/2019 14:07	WG1266452
1,2,3-Trichloropropane	ND		2.50	1	04/17/2019 14:07	WG1266452
1,2,4-Trimethylbenzene	ND		0.500	1	04/17/2019 14:07	WG1266452
1,2,3-Trimethylbenzene	ND		0.500	1	04/17/2019 14:07	WG1266452
1,3,5-Trimethylbenzene	ND		0.500	1	04/17/2019 14:07	WG1266452
Vinyl acetate	ND	JO	5.00	1	04/17/2019 14:07	WG1266452
Vinyl chloride	ND	JO	0.500	1	04/17/2019 14:07	WG1266452
Xylenes, Total	ND		1.50	1	04/17/2019 14:07	WG1266452
(S) Toluene-d8	102		80.0-120		04/17/2019 14:07	WG1266452
(S) 4-Bromofluorobenzene	105		77.0-126		04/17/2019 14:07	WG1266452
(S) 1,2-Dichloroethane-d4	91.3		70.0-130		04/17/2019 14:07	WG1266452

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 ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	04/17/2019 14:28	WG1266452
Acrylonitrile	ND		5.00	1	04/17/2019 14:28	WG1266452
Benzene	ND		0.500	1	04/17/2019 14:28	WG1266452
Bromobenzene	ND		0.500	1	04/17/2019 14:28	WG1266452
Bromodichloromethane	ND		0.500	1	04/17/2019 14:28	WG1266452
Bromochloromethane	ND		0.500	1	04/17/2019 14:28	WG1266452
Bromoform	ND		0.500	1	04/17/2019 14:28	WG1266452
Bromomethane	ND	JO	2.50	1	04/17/2019 14:28	WG1266452
n-Butylbenzene	ND		0.500	1	04/17/2019 14:28	WG1266452
sec-Butylbenzene	ND		0.500	1	04/17/2019 14:28	WG1266452
tert-Butylbenzene	ND		0.500	1	04/17/2019 14:28	WG1266452
Carbon disulfide	ND		0.500	1	04/17/2019 14:28	WG1266452
Carbon tetrachloride	ND		0.500	1	04/17/2019 14:28	WG1266452
Chlorobenzene	ND		0.500	1	04/17/2019 14:28	WG1266452
Chlorodibromomethane	ND		0.500	1	04/17/2019 14:28	WG1266452
Chloroethane	ND	JO	2.50	1	04/17/2019 14:28	WG1266452
Chloroform	ND		0.500	1	04/17/2019 14:28	WG1266452
Chloromethane	ND		1.25	1	04/17/2019 14:28	WG1266452
2-Chlorotoluene	ND		0.500	1	04/17/2019 14:28	WG1266452
4-Chlorotoluene	ND		0.500	1	04/17/2019 14:28	WG1266452
1,2-Dibromo-3-Chloropropane	ND		2.50	1	04/17/2019 14:28	WG1266452
1,2-Dibromoethane	ND		0.500	1	04/17/2019 14:28	WG1266452
Dibromomethane	ND		0.500	1	04/17/2019 14:28	WG1266452
1,2-Dichlorobenzene	ND		0.500	1	04/17/2019 14:28	WG1266452
1,3-Dichlorobenzene	ND		0.500	1	04/17/2019 14:28	WG1266452
1,4-Dichlorobenzene	ND		0.500	1	04/17/2019 14:28	WG1266452
Dichlorodifluoromethane	ND		2.50	1	04/17/2019 14:28	WG1266452
1,1-Dichloroethane	ND		0.500	1	04/17/2019 14:28	WG1266452
1,2-Dichloroethane	ND	JO	0.500	1	04/17/2019 14:28	WG1266452
1,1-Dichloroethene	ND		0.500	1	04/17/2019 14:28	WG1266452
cis-1,2-Dichloroethene	ND		0.500	1	04/17/2019 14:28	WG1266452
trans-1,2-Dichloroethene	ND		0.500	1	04/17/2019 14:28	WG1266452
1,2-Dichloropropane	ND		0.500	1	04/17/2019 14:28	WG1266452
1,1-Dichloropropene	ND		0.500	1	04/17/2019 14:28	WG1266452
1,3-Dichloropropane	ND		1.00	1	04/17/2019 14:28	WG1266452
cis-1,3-Dichloropropene	ND		0.500	1	04/17/2019 14:28	WG1266452
trans-1,3-Dichloropropene	ND		0.500	1	04/17/2019 14:28	WG1266452
trans-1,4-Dichloro-2-butene	ND		5.00	1	04/17/2019 14:28	WG1266452
2,2-Dichloropropane	ND		0.500	1	04/17/2019 14:28	WG1266452
Di-isopropyl ether	ND		0.500	1	04/17/2019 14:28	WG1266452
Ethylbenzene	ND		0.500	1	04/17/2019 14:28	WG1266452
Hexachloro-1,3-butadiene	ND		1.00	1	04/17/2019 14:28	WG1266452
2-Hexanone	ND		5.00	1	04/17/2019 14:28	WG1266452
n-Hexane	ND		5.00	1	04/17/2019 14:28	WG1266452
Iodomethane	ND		10.0	1	04/17/2019 14:28	WG1266452
Isopropylbenzene	ND		0.500	1	04/17/2019 14:28	WG1266452
p-Isopropyltoluene	ND		0.500	1	04/17/2019 14:28	WG1266452
2-Butanone (MEK)	ND		5.00	1	04/17/2019 14:28	WG1266452
Methylene Chloride	ND		2.50	1	04/17/2019 14:28	WG1266452
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/17/2019 14:28	WG1266452
Methyl tert-butyl ether	ND		0.500	1	04/17/2019 14:28	WG1266452
Naphthalene	ND		2.50	1	04/17/2019 14:28	WG1266452
n-Propylbenzene	ND		0.500	1	04/17/2019 14:28	WG1266452
Styrene	ND		0.500	1	04/17/2019 14:28	WG1266452
1,1,1,2-Tetrachloroethane	ND		0.500	1	04/17/2019 14:28	WG1266452
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/17/2019 14:28	WG1266452

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 04/11/19 10:40

L1088963

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	04/17/2019 14:28	WG1266452
Tetrachloroethene	ND		0.500	1	04/17/2019 14:28	WG1266452
Toluene	ND		0.500	1	04/17/2019 14:28	WG1266452
1,2,3-Trichlorobenzene	ND		0.500	1	04/17/2019 14:28	WG1266452
1,2,4-Trichlorobenzene	ND		0.500	1	04/17/2019 14:28	WG1266452
1,1,1-Trichloroethane	ND		0.500	1	04/17/2019 14:28	WG1266452
1,1,2-Trichloroethane	ND		0.500	1	04/17/2019 14:28	WG1266452
Trichloroethene	ND		0.500	1	04/17/2019 14:28	WG1266452
Trichlorofluoromethane	ND	JO J4	2.50	1	04/17/2019 14:28	WG1266452
1,2,3-Trichloropropane	ND		2.50	1	04/17/2019 14:28	WG1266452
1,2,4-Trimethylbenzene	ND		0.500	1	04/17/2019 14:28	WG1266452
1,2,3-Trimethylbenzene	ND		0.500	1	04/17/2019 14:28	WG1266452
1,3,5-Trimethylbenzene	ND		0.500	1	04/17/2019 14:28	WG1266452
Vinyl acetate	ND	JO	5.00	1	04/17/2019 14:28	WG1266452
Vinyl chloride	ND	JO	0.500	1	04/17/2019 14:28	WG1266452
Xylenes, Total	ND		1.50	1	04/17/2019 14:28	WG1266452
(S) Toluene-d8	102		80.0-120		04/17/2019 14:28	WG1266452
(S) 4-Bromofluorobenzene	104		77.0-126		04/17/2019 14:28	WG1266452
(S) 1,2-Dichloroethane-d4	91.9		70.0-130		04/17/2019 14:28	WG1266452

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc



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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	04/17/2019 14:48	WG1266452
Acrylonitrile	ND		5.00	1	04/17/2019 14:48	WG1266452
Benzene	ND		0.500	1	04/17/2019 14:48	WG1266452
Bromobenzene	ND		0.500	1	04/17/2019 14:48	WG1266452
Bromodichloromethane	ND		0.500	1	04/17/2019 14:48	WG1266452
Bromochloromethane	ND		0.500	1	04/17/2019 14:48	WG1266452
Bromoform	ND		0.500	1	04/17/2019 14:48	WG1266452
Bromomethane	ND	JO	2.50	1	04/17/2019 14:48	WG1266452
n-Butylbenzene	ND		0.500	1	04/17/2019 14:48	WG1266452
sec-Butylbenzene	ND		0.500	1	04/17/2019 14:48	WG1266452
tert-Butylbenzene	ND		0.500	1	04/17/2019 14:48	WG1266452
Carbon disulfide	ND		0.500	1	04/17/2019 14:48	WG1266452
Carbon tetrachloride	ND		0.500	1	04/17/2019 14:48	WG1266452
Chlorobenzene	ND		0.500	1	04/17/2019 14:48	WG1266452
Chlorodibromomethane	ND		0.500	1	04/17/2019 14:48	WG1266452
Chloroethane	ND	JO	2.50	1	04/17/2019 14:48	WG1266452
Chloroform	ND		0.500	1	04/17/2019 14:48	WG1266452
Chloromethane	ND		1.25	1	04/17/2019 14:48	WG1266452
2-Chlorotoluene	ND		0.500	1	04/17/2019 14:48	WG1266452
4-Chlorotoluene	ND		0.500	1	04/17/2019 14:48	WG1266452
1,2-Dibromo-3-Chloropropane	ND		2.50	1	04/17/2019 14:48	WG1266452
1,2-Dibromoethane	ND		0.500	1	04/17/2019 14:48	WG1266452
Dibromomethane	ND		0.500	1	04/17/2019 14:48	WG1266452
1,2-Dichlorobenzene	ND		0.500	1	04/17/2019 14:48	WG1266452
1,3-Dichlorobenzene	ND		0.500	1	04/17/2019 14:48	WG1266452
1,4-Dichlorobenzene	ND		0.500	1	04/17/2019 14:48	WG1266452
Dichlorodifluoromethane	ND		2.50	1	04/17/2019 14:48	WG1266452
1,1-Dichloroethane	ND		0.500	1	04/17/2019 14:48	WG1266452
1,2-Dichloroethane	ND	JO	0.500	1	04/17/2019 14:48	WG1266452
1,1-Dichloroethene	ND		0.500	1	04/17/2019 14:48	WG1266452
cis-1,2-Dichloroethene	ND		0.500	1	04/17/2019 14:48	WG1266452
trans-1,2-Dichloroethene	ND		0.500	1	04/17/2019 14:48	WG1266452
1,2-Dichloropropane	ND		0.500	1	04/17/2019 14:48	WG1266452
1,1-Dichloropropene	ND		0.500	1	04/17/2019 14:48	WG1266452
1,3-Dichloropropane	ND		1.00	1	04/17/2019 14:48	WG1266452
cis-1,3-Dichloropropene	ND		0.500	1	04/17/2019 14:48	WG1266452
trans-1,3-Dichloropropene	ND		0.500	1	04/17/2019 14:48	WG1266452
trans-1,4-Dichloro-2-butene	ND		5.00	1	04/17/2019 14:48	WG1266452
2,2-Dichloropropane	ND		0.500	1	04/17/2019 14:48	WG1266452
Di-isopropyl ether	ND		0.500	1	04/17/2019 14:48	WG1266452
Ethylbenzene	ND		0.500	1	04/17/2019 14:48	WG1266452
Hexachloro-1,3-butadiene	ND		1.00	1	04/17/2019 14:48	WG1266452
2-Hexanone	ND		5.00	1	04/17/2019 14:48	WG1266452
n-Hexane	ND		5.00	1	04/17/2019 14:48	WG1266452
Iodomethane	ND		10.0	1	04/17/2019 14:48	WG1266452
Isopropylbenzene	ND		0.500	1	04/17/2019 14:48	WG1266452
p-Isopropyltoluene	ND		0.500	1	04/17/2019 14:48	WG1266452
2-Butanone (MEK)	ND		5.00	1	04/17/2019 14:48	WG1266452
Methylene Chloride	ND		2.50	1	04/17/2019 14:48	WG1266452
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/17/2019 14:48	WG1266452
Methyl tert-butyl ether	ND		0.500	1	04/17/2019 14:48	WG1266452
Naphthalene	ND		2.50	1	04/17/2019 14:48	WG1266452
n-Propylbenzene	ND		0.500	1	04/17/2019 14:48	WG1266452
Styrene	ND		0.500	1	04/17/2019 14:48	WG1266452
1,1,1,2-Tetrachloroethane	ND		0.500	1	04/17/2019 14:48	WG1266452
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/17/2019 14:48	WG1266452

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



Collected date/time: 04/11/19 09:00

L1088963

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	04/17/2019 14:48	WG1266452
Tetrachloroethene	ND		0.500	1	04/17/2019 14:48	WG1266452
Toluene	ND		0.500	1	04/17/2019 14:48	WG1266452
1,2,3-Trichlorobenzene	ND		0.500	1	04/17/2019 14:48	WG1266452
1,2,4-Trichlorobenzene	ND		0.500	1	04/17/2019 14:48	WG1266452
1,1,1-Trichloroethane	ND		0.500	1	04/17/2019 14:48	WG1266452
1,1,2-Trichloroethane	ND		0.500	1	04/17/2019 14:48	WG1266452
Trichloroethene	ND		0.500	1	04/17/2019 14:48	WG1266452
Trichlorofluoromethane	ND	JO J4	2.50	1	04/17/2019 14:48	WG1266452
1,2,3-Trichloropropane	ND		2.50	1	04/17/2019 14:48	WG1266452
1,2,4-Trimethylbenzene	ND		0.500	1	04/17/2019 14:48	WG1266452
1,2,3-Trimethylbenzene	ND		0.500	1	04/17/2019 14:48	WG1266452
1,3,5-Trimethylbenzene	ND		0.500	1	04/17/2019 14:48	WG1266452
Vinyl acetate	ND	JO	5.00	1	04/17/2019 14:48	WG1266452
Vinyl chloride	ND	JO	0.500	1	04/17/2019 14:48	WG1266452
Xylenes, Total	ND		1.50	1	04/17/2019 14:48	WG1266452
(S) Toluene-d8	101		80.0-120		04/17/2019 14:48	WG1266452
(S) 4-Bromofluorobenzene	106		77.0-126		04/17/2019 14:48	WG1266452
(S) 1,2-Dichloroethane-d4	92.2		70.0-130		04/17/2019 14:48	WG1266452

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 ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	04/17/2019 15:08	WG1266452
Acrylonitrile	ND		5.00	1	04/17/2019 15:08	WG1266452
Benzene	ND		0.500	1	04/17/2019 15:08	WG1266452
Bromobenzene	ND		0.500	1	04/17/2019 15:08	WG1266452
Bromodichloromethane	ND		0.500	1	04/17/2019 15:08	WG1266452
Bromochloromethane	ND		0.500	1	04/17/2019 15:08	WG1266452
Bromoform	ND		0.500	1	04/17/2019 15:08	WG1266452
Bromomethane	ND	JO	2.50	1	04/17/2019 15:08	WG1266452
n-Butylbenzene	ND		0.500	1	04/17/2019 15:08	WG1266452
sec-Butylbenzene	ND		0.500	1	04/17/2019 15:08	WG1266452
tert-Butylbenzene	ND		0.500	1	04/17/2019 15:08	WG1266452
Carbon disulfide	ND		0.500	1	04/17/2019 15:08	WG1266452
Carbon tetrachloride	ND		0.500	1	04/17/2019 15:08	WG1266452
Chlorobenzene	ND		0.500	1	04/17/2019 15:08	WG1266452
Chlorodibromomethane	ND		0.500	1	04/17/2019 15:08	WG1266452
Chloroethane	ND	JO	2.50	1	04/17/2019 15:08	WG1266452
Chloroform	0.501		0.500	1	04/17/2019 15:08	WG1266452
Chloromethane	ND		1.25	1	04/17/2019 15:08	WG1266452
2-Chlorotoluene	ND		0.500	1	04/17/2019 15:08	WG1266452
4-Chlorotoluene	ND		0.500	1	04/17/2019 15:08	WG1266452
1,2-Dibromo-3-Chloropropane	ND		2.50	1	04/17/2019 15:08	WG1266452
1,2-Dibromoethane	ND		0.500	1	04/17/2019 15:08	WG1266452
Dibromomethane	ND		0.500	1	04/17/2019 15:08	WG1266452
1,2-Dichlorobenzene	ND		0.500	1	04/17/2019 15:08	WG1266452
1,3-Dichlorobenzene	ND		0.500	1	04/17/2019 15:08	WG1266452
1,4-Dichlorobenzene	ND		0.500	1	04/17/2019 15:08	WG1266452
Dichlorodifluoromethane	ND		2.50	1	04/17/2019 15:08	WG1266452
1,1-Dichloroethane	ND		0.500	1	04/17/2019 15:08	WG1266452
1,2-Dichloroethane	ND	JO	0.500	1	04/17/2019 15:08	WG1266452
1,1-Dichloroethene	ND		0.500	1	04/17/2019 15:08	WG1266452
cis-1,2-Dichloroethene	ND		0.500	1	04/17/2019 15:08	WG1266452
trans-1,2-Dichloroethene	ND		0.500	1	04/17/2019 15:08	WG1266452
1,2-Dichloropropane	ND		0.500	1	04/17/2019 15:08	WG1266452
1,1-Dichloropropene	ND		0.500	1	04/17/2019 15:08	WG1266452
1,3-Dichloropropane	ND		1.00	1	04/17/2019 15:08	WG1266452
cis-1,3-Dichloropropene	ND		0.500	1	04/17/2019 15:08	WG1266452
trans-1,3-Dichloropropene	ND		0.500	1	04/17/2019 15:08	WG1266452
trans-1,4-Dichloro-2-butene	ND		5.00	1	04/17/2019 15:08	WG1266452
2,2-Dichloropropane	ND		0.500	1	04/17/2019 15:08	WG1266452
Di-isopropyl ether	ND		0.500	1	04/17/2019 15:08	WG1266452
Ethylbenzene	ND		0.500	1	04/17/2019 15:08	WG1266452
Hexachloro-1,3-butadiene	ND		1.00	1	04/17/2019 15:08	WG1266452
2-Hexanone	ND		5.00	1	04/17/2019 15:08	WG1266452
n-Hexane	ND		5.00	1	04/17/2019 15:08	WG1266452
Iodomethane	ND		10.0	1	04/17/2019 15:08	WG1266452
Isopropylbenzene	ND		0.500	1	04/17/2019 15:08	WG1266452
p-Isopropyltoluene	ND		0.500	1	04/17/2019 15:08	WG1266452
2-Butanone (MEK)	ND		5.00	1	04/17/2019 15:08	WG1266452
Methylene Chloride	ND		2.50	1	04/17/2019 15:08	WG1266452
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/17/2019 15:08	WG1266452
Methyl tert-butyl ether	ND		0.500	1	04/17/2019 15:08	WG1266452
Naphthalene	ND		2.50	1	04/17/2019 15:08	WG1266452
n-Propylbenzene	ND		0.500	1	04/17/2019 15:08	WG1266452
Styrene	ND		0.500	1	04/17/2019 15:08	WG1266452
1,1,1,2-Tetrachloroethane	ND		0.500	1	04/17/2019 15:08	WG1266452
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/17/2019 15:08	WG1266452

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Trichlorofluoromethane	ND	<u>JO 34</u>	2.50	1	04/17/2019 15:08	WG1266452
1,2,3-Trichloropropane	ND		2.50	1	04/17/2019 15:08	WG1266452
1,2,4-Trimethylbenzene	ND		0.500	1	04/17/2019 15:08	WG1266452
1,2,3-Trimethylbenzene	ND		0.500	1	04/17/2019 15:08	WG1266452
1,3,5-Trimethylbenzene	ND		0.500	1	04/17/2019 15:08	WG1266452
Vinyl acetate	ND	<u>JO</u>	5.00	1	04/17/2019 15:08	WG1266452
Vinyl chloride	ND	<u>JO</u>	0.500	1	04/17/2019 15:08	WG1266452
Xylenes, Total	ND		1.50	1	04/17/2019 15:08	WG1266452
<i>(S) Toluene-d8</i>	103		80.0-120		04/17/2019 15:08	WG1266452
<i>(S) 4-Bromofluorobenzene</i>	105		77.0-126		04/17/2019 15:08	WG1266452
<i>(S) 1,2-Dichloroethane-d4</i>	92.9		70.0-130		04/17/2019 15:08	WG1266452

5

6
Qc

7
Gl

8
Al

9
Sc

n-Butylbenzene	ND		0.500	1	04/17/2019 15:28	WG1266452	
sec-Butylbenzene	ND		0.500	1	04/17/2019 15:28	WG1266452	
tert-Butylbenzene	ND		0.500	1	04/17/2019 15:28	WG1266452	6 Qc
Carbon disulfide	ND		0.500	1	04/17/2019 15:28	WG1266452	
Carbon tetrachloride	ND		0.500	1	04/17/2019 15:28	WG1266452	7 Gl
Chlorobenzene	ND		0.500	1	04/17/2019 15:28	WG1266452	
Chlorodibromomethane	ND		0.500	1	04/17/2019 15:28	WG1266452	
Chloroethane	ND	JO	2.50	1	04/17/2019 15:28	WG1266452	8 Al
Chloroform	0.639		0.500	1	04/17/2019 15:28	WG1266452	
Chloromethane	ND		1.25	1	04/17/2019 15:28	WG1266452	9 Sc
2-Chlorotoluene	ND		0.500	1	04/17/2019 15:28	WG1266452	
4-Chlorotoluene	ND		0.500	1	04/17/2019 15:28	WG1266452	
1,2-Dibromo-3-Chloropropane	ND		2.50	1	04/17/2019 15:28	WG1266452	
1,2-Dibromoethane	ND		0.500	1	04/17/2019 15:28	WG1266452	
Dibromomethane	ND		0.500	1	04/17/2019 15:28	WG1266452	
1,2-Dichlorobenzene	ND		0.500	1	04/17/2019 15:28	WG1266452	
1,3-Dichlorobenzene	ND		0.500	1	04/17/2019 15:28	WG1266452	
1,4-Dichlorobenzene	ND		0.500	1	04/17/2019 15:28	WG1266452	
Dichlorodifluoromethane	ND		2.50	1	04/17/2019 15:28	WG1266452	
1,1-Dichloroethane	ND		0.500	1	04/17/2019 15:28	WG1266452	
1,2-Dichloroethane	ND	JO	0.500	1	04/17/2019 15:28	WG1266452	
1,1-Dichloroethene	ND		0.500	1	04/17/2019 15:28	WG1266452	
cis-1,2-Dichloroethene	ND		0.500	1	04/17/2019 15:28	WG1266452	
trans-1,2-Dichloroethene	ND		0.500	1	04/17/2019 15:28	WG1266452	
1,2-Dichloropropane	ND		0.500	1	04/17/2019 15:28	WG1266452	
1,1-Dichloropropene	ND		0.500	1	04/17/2019 15:28	WG1266452	
1,3-Dichloropropane	ND		1.00	1	04/17/2019 15:28	WG1266452	
cis-1,3-Dichloropropene	ND		0.500	1	04/17/2019 15:28	WG1266452	
trans-1,3-Dichloropropene	ND		0.500	1	04/17/2019 15:28	WG1266452	
trans-1,4-Dichloro-2-butene	ND		5.00	1	04/17/2019 15:28	WG1266452	
2,2-Dichloropropane	ND		0.500	1	04/17/2019 15:28	WG1266452	
Di-isopropyl ether	ND		0.500	1	04/17/2019 15:28	WG1266452	
Ethylbenzene	ND		0.500	1	04/17/2019 15:28	WG1266452	
Hexachloro-1,3-butadiene	ND		1.00	1	04/17/2019 15:28	WG1266452	
2-Hexanone	ND		5.00	1	04/17/2019 15:28	WG1266452	
n-Hexane	ND		5.00	1	04/17/2019 15:28	WG1266452	
Iodomethane	ND		10.0	1	04/17/2019 15:28	WG1266452	
Isopropylbenzene	ND		0.500	1	04/17/2019 15:28	WG1266452	
p-Isopropyltoluene	ND		0.500	1	04/17/2019 15:28	WG1266452	
2-Butanone (MEK)	ND		5.00	1	04/17/2019 15:28	WG1266452	
Methylene Chloride	ND		2.50	1	04/17/2019 15:28	WG1266452	
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/17/2019 15:28	WG1266452	
Methyl tert-butyl ether	ND		0.500	1	04/17/2019 15:28	WG1266452	
Naphthalene	ND		2.50	1	04/17/2019 15:28	WG1266452	
n-Propylbenzene	ND		0.500	1	04/17/2019 15:28	WG1266452	
Styrene	ND		0.500	1	04/17/2019 15:28	WG1266452	
1,1,1,2-Tetrachloroethane	ND		0.500	1	04/17/2019 15:28	WG1266452	
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/17/2019 15:28	WG1266452	

Trichlorofluoromethane	ND	<u>JO 34</u>	2.50	1	04/17/2019 15:28	WG1266452
1,2,3-Trichloropropane	ND		2.50	1	04/17/2019 15:28	WG1266452
1,2,4-Trimethylbenzene	ND		0.500	1	04/17/2019 15:28	WG1266452
1,2,3-Trimethylbenzene	ND		0.500	1	04/17/2019 15:28	WG1266452
1,3,5-Trimethylbenzene	ND		0.500	1	04/17/2019 15:28	WG1266452
Vinyl acetate	ND	<u>JO</u>	5.00	1	04/17/2019 15:28	WG1266452
Vinyl chloride	ND	<u>JO</u>	0.500	1	04/17/2019 15:28	WG1266452
Xylenes, Total	ND		1.50	1	04/17/2019 15:28	WG1266452
<i>(S) Toluene-d8</i>	102		80.0-120		04/17/2019 15:28	WG1266452
<i>(S) 4-Bromofluorobenzene</i>	106		77.0-126		04/17/2019 15:28	WG1266452
<i>(S) 1,2-Dichloroethane-d4</i>	91.9		70.0-130		04/17/2019 15:28	WG1266452

5

6
Qc

7
Gl

8
Al

9
Sc

n-Butylbenzene	ND	0.500	1	04/17/2019 15:48	WG1266452	
sec-Butylbenzene	ND	0.500	1	04/17/2019 15:48	WG1266452	
tert-Butylbenzene	ND	0.500	1	04/17/2019 15:48	WG1266452	6 Qc
Carbon disulfide	ND	0.500	1	04/17/2019 15:48	WG1266452	
Carbon tetrachloride	ND	0.500	1	04/17/2019 15:48	WG1266452	7 Gl
Chlorobenzene	ND	0.500	1	04/17/2019 15:48	WG1266452	
Chlorodibromomethane	ND	0.500	1	04/17/2019 15:48	WG1266452	
Chloroethane	ND	JO	1	04/17/2019 15:48	WG1266452	8 Al
Chloroform	ND	0.500	1	04/17/2019 15:48	WG1266452	
Chloromethane	ND	1.25	1	04/17/2019 15:48	WG1266452	9 Sc
2-Chlorotoluene	ND	0.500	1	04/17/2019 15:48	WG1266452	
4-Chlorotoluene	ND	0.500	1	04/17/2019 15:48	WG1266452	
1,2-Dibromo-3-Chloropropane	ND	2.50	1	04/17/2019 15:48	WG1266452	
1,2-Dibromoethane	ND	0.500	1	04/17/2019 15:48	WG1266452	
Dibromomethane	ND	0.500	1	04/17/2019 15:48	WG1266452	
1,2-Dichlorobenzene	ND	0.500	1	04/17/2019 15:48	WG1266452	
1,3-Dichlorobenzene	ND	0.500	1	04/17/2019 15:48	WG1266452	
1,4-Dichlorobenzene	ND	0.500	1	04/17/2019 15:48	WG1266452	
Dichlorodifluoromethane	ND	2.50	1	04/17/2019 15:48	WG1266452	
1,1-Dichloroethane	ND	0.500	1	04/17/2019 15:48	WG1266452	
1,2-Dichloroethane	ND	JO	1	04/17/2019 15:48	WG1266452	
1,1-Dichloroethene	ND	0.500	1	04/17/2019 15:48	WG1266452	
cis-1,2-Dichloroethene	ND	0.500	1	04/17/2019 15:48	WG1266452	
trans-1,2-Dichloroethene	ND	0.500	1	04/17/2019 15:48	WG1266452	
1,2-Dichloropropane	ND	0.500	1	04/17/2019 15:48	WG1266452	
1,1-Dichloropropene	ND	0.500	1	04/17/2019 15:48	WG1266452	
1,3-Dichloropropane	ND	1.00	1	04/17/2019 15:48	WG1266452	
cis-1,3-Dichloropropene	ND	0.500	1	04/17/2019 15:48	WG1266452	
trans-1,3-Dichloropropene	ND	0.500	1	04/17/2019 15:48	WG1266452	
trans-1,4-Dichloro-2-butene	ND	5.00	1	04/17/2019 15:48	WG1266452	
2,2-Dichloropropane	ND	0.500	1	04/17/2019 15:48	WG1266452	
Di-isopropyl ether	ND	0.500	1	04/17/2019 15:48	WG1266452	
Ethylbenzene	ND	0.500	1	04/17/2019 15:48	WG1266452	
Hexachloro-1,3-butadiene	ND	1.00	1	04/17/2019 15:48	WG1266452	
2-Hexanone	ND	5.00	1	04/17/2019 15:48	WG1266452	
n-Hexane	ND	5.00	1	04/17/2019 15:48	WG1266452	
Iodomethane	ND	10.0	1	04/17/2019 15:48	WG1266452	
Isopropylbenzene	ND	0.500	1	04/17/2019 15:48	WG1266452	
p-Isopropyltoluene	ND	0.500	1	04/17/2019 15:48	WG1266452	
2-Butanone (MEK)	ND	5.00	1	04/17/2019 15:48	WG1266452	
Methylene Chloride	ND	2.50	1	04/17/2019 15:48	WG1266452	
4-Methyl-2-pentanone (MIBK)	ND	5.00	1	04/17/2019 15:48	WG1266452	
Methyl tert-butyl ether	ND	0.500	1	04/17/2019 15:48	WG1266452	
Naphthalene	ND	2.50	1	04/17/2019 15:48	WG1266452	
n-Propylbenzene	ND	0.500	1	04/17/2019 15:48	WG1266452	
Styrene	ND	0.500	1	04/17/2019 15:48	WG1266452	
1,1,1,2-Tetrachloroethane	ND	0.500	1	04/17/2019 15:48	WG1266452	
1,1,2,2-Tetrachloroethane	ND	0.500	1	04/17/2019 15:48	WG1266452	



Collected date/time: 04/10/19 14:40

L1088963

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	04/17/2019 15:48	WG1266452
Tetrachloroethene	ND		0.500	1	04/17/2019 15:48	WG1266452
Toluene	ND		0.500	1	04/17/2019 15:48	WG1266452
1,2,3-Trichlorobenzene	ND		0.500	1	04/17/2019 15:48	WG1266452
1,2,4-Trichlorobenzene	ND		0.500	1	04/17/2019 15:48	WG1266452
1,1,1-Trichloroethane	ND		0.500	1	04/17/2019 15:48	WG1266452
1,1,2-Trichloroethane	ND		0.500	1	04/17/2019 15:48	WG1266452
Trichloroethene	ND		0.500	1	04/17/2019 15:48	WG1266452
Trichlorofluoromethane	ND	JO J4	2.50	1	04/17/2019 15:48	WG1266452
1,2,3-Trichloropropane	ND		2.50	1	04/17/2019 15:48	WG1266452
1,2,4-Trimethylbenzene	ND		0.500	1	04/17/2019 15:48	WG1266452
1,2,3-Trimethylbenzene	ND		0.500	1	04/17/2019 15:48	WG1266452
1,3,5-Trimethylbenzene	ND		0.500	1	04/17/2019 15:48	WG1266452
Vinyl acetate	ND	JO	5.00	1	04/17/2019 15:48	WG1266452
Vinyl chloride	ND	JO	0.500	1	04/17/2019 15:48	WG1266452
Xylenes, Total	ND		1.50	1	04/17/2019 15:48	WG1266452
(S) Toluene-d8	101		80.0-120		04/17/2019 15:48	WG1266452
(S) 4-Bromofluorobenzene	103		77.0-126		04/17/2019 15:48	WG1266452
(S) 1,2-Dichloroethane-d4	91.5		70.0-130		04/17/2019 15:48	WG1266452

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 ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	04/17/2019 16:08	WG1266452
Acrylonitrile	ND		5.00	1	04/17/2019 16:08	WG1266452
Benzene	ND		0.500	1	04/17/2019 16:08	WG1266452
Bromobenzene	ND		0.500	1	04/17/2019 16:08	WG1266452
Bromodichloromethane	ND		0.500	1	04/17/2019 16:08	WG1266452
Bromochloromethane	ND		0.500	1	04/17/2019 16:08	WG1266452
Bromoform	ND		0.500	1	04/17/2019 16:08	WG1266452
Bromomethane	ND	JO	2.50	1	04/17/2019 16:08	WG1266452
n-Butylbenzene	ND		0.500	1	04/17/2019 16:08	WG1266452
sec-Butylbenzene	ND		0.500	1	04/17/2019 16:08	WG1266452
tert-Butylbenzene	ND		0.500	1	04/17/2019 16:08	WG1266452
Carbon disulfide	ND		0.500	1	04/17/2019 16:08	WG1266452
Carbon tetrachloride	ND		0.500	1	04/17/2019 16:08	WG1266452
Chlorobenzene	ND		0.500	1	04/17/2019 16:08	WG1266452
Chlorodibromomethane	ND		0.500	1	04/17/2019 16:08	WG1266452
Chloroethane	ND	JO	2.50	1	04/17/2019 16:08	WG1266452
Chloroform	4.34		0.500	1	04/17/2019 16:08	WG1266452
Chloromethane	ND		1.25	1	04/17/2019 16:08	WG1266452
2-Chlorotoluene	ND		0.500	1	04/17/2019 16:08	WG1266452
4-Chlorotoluene	ND		0.500	1	04/17/2019 16:08	WG1266452
1,2-Dibromo-3-Chloropropane	ND		2.50	1	04/17/2019 16:08	WG1266452
1,2-Dibromoethane	ND		0.500	1	04/17/2019 16:08	WG1266452
Dibromomethane	ND		0.500	1	04/17/2019 16:08	WG1266452
1,2-Dichlorobenzene	ND		0.500	1	04/17/2019 16:08	WG1266452
1,3-Dichlorobenzene	ND		0.500	1	04/17/2019 16:08	WG1266452
1,4-Dichlorobenzene	ND		0.500	1	04/17/2019 16:08	WG1266452
Dichlorodifluoromethane	ND		2.50	1	04/17/2019 16:08	WG1266452
1,1-Dichloroethane	ND		0.500	1	04/17/2019 16:08	WG1266452
1,2-Dichloroethane	ND	JO	0.500	1	04/17/2019 16:08	WG1266452
1,1-Dichloroethene	ND		0.500	1	04/17/2019 16:08	WG1266452
cis-1,2-Dichloroethene	ND		0.500	1	04/17/2019 16:08	WG1266452
trans-1,2-Dichloroethene	ND		0.500	1	04/17/2019 16:08	WG1266452
1,2-Dichloropropane	ND		0.500	1	04/17/2019 16:08	WG1266452
1,1-Dichloropropene	ND		0.500	1	04/17/2019 16:08	WG1266452
1,3-Dichloropropane	ND		1.00	1	04/17/2019 16:08	WG1266452
cis-1,3-Dichloropropene	ND		0.500	1	04/17/2019 16:08	WG1266452
trans-1,3-Dichloropropene	ND		0.500	1	04/17/2019 16:08	WG1266452
trans-1,4-Dichloro-2-butene	ND		5.00	1	04/17/2019 16:08	WG1266452
2,2-Dichloropropane	ND		0.500	1	04/17/2019 16:08	WG1266452
Di-isopropyl ether	ND		0.500	1	04/17/2019 16:08	WG1266452
Ethylbenzene	ND		0.500	1	04/17/2019 16:08	WG1266452
Hexachloro-1,3-butadiene	ND		1.00	1	04/17/2019 16:08	WG1266452
2-Hexanone	ND		5.00	1	04/17/2019 16:08	WG1266452
n-Hexane	ND		5.00	1	04/17/2019 16:08	WG1266452
Iodomethane	ND		10.0	1	04/17/2019 16:08	WG1266452
Isopropylbenzene	ND		0.500	1	04/17/2019 16:08	WG1266452
p-Isopropyltoluene	ND		0.500	1	04/17/2019 16:08	WG1266452
2-Butanone (MEK)	ND		5.00	1	04/17/2019 16:08	WG1266452
Methylene Chloride	ND		2.50	1	04/17/2019 16:08	WG1266452
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/17/2019 16:08	WG1266452
Methyl tert-butyl ether	ND		0.500	1	04/17/2019 16:08	WG1266452
Naphthalene	ND		2.50	1	04/17/2019 16:08	WG1266452
n-Propylbenzene	ND		0.500	1	04/17/2019 16:08	WG1266452
Styrene	ND		0.500	1	04/17/2019 16:08	WG1266452
1,1,1,2-Tetrachloroethane	ND		0.500	1	04/17/2019 16:08	WG1266452
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/17/2019 16:08	WG1266452

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

Trichlorofluoromethane	ND	<u>JO 34</u>	2.50	1	04/17/2019 16:08	WG1266452
1,2,3-Trichloropropane	ND		2.50	1	04/17/2019 16:08	WG1266452
1,2,4-Trimethylbenzene	ND		0.500	1	04/17/2019 16:08	WG1266452
1,2,3-Trimethylbenzene	ND		0.500	1	04/17/2019 16:08	WG1266452
1,3,5-Trimethylbenzene	ND		0.500	1	04/17/2019 16:08	WG1266452
Vinyl acetate	ND	<u>JO</u>	5.00	1	04/17/2019 16:08	WG1266452
Vinyl chloride	ND	<u>JO</u>	0.500	1	04/17/2019 16:08	WG1266452
Xylenes, Total	ND		1.50	1	04/17/2019 16:08	WG1266452
(S) Toluene-d8	102		80.0-120		04/17/2019 16:08	WG1266452
(S) 4-Bromofluorobenzene	107		77.0-126		04/17/2019 16:08	WG1266452
(S) 1,2-Dichloroethane-d4	92.5		70.0-130		04/17/2019 16:08	WG1266452

5

6
Qc

7
Gl

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Al

9
Sc

n-Butylbenzene	ND		0.500	1	04/17/2019 16:28	WG1266452
sec-Butylbenzene	ND		0.500	1	04/17/2019 16:28	WG1266452
tert-Butylbenzene	ND		0.500	1	04/17/2019 16:28	WG1266452
Carbon disulfide	ND		0.500	1	04/17/2019 16:28	WG1266452
Carbon tetrachloride	ND		0.500	1	04/17/2019 16:28	WG1266452
Chlorobenzene	ND		0.500	1	04/17/2019 16:28	WG1266452
Chlorodibromomethane	ND		0.500	1	04/17/2019 16:28	WG1266452
Chloroethane	ND	JO	2.50	1	04/17/2019 16:28	WG1266452
Chloroform	ND		0.500	1	04/17/2019 16:28	WG1266452
Chloromethane	ND		1.25	1	04/17/2019 16:28	WG1266452
2-Chlorotoluene	ND		0.500	1	04/17/2019 16:28	WG1266452
4-Chlorotoluene	ND		0.500	1	04/17/2019 16:28	WG1266452
1,2-Dibromo-3-Chloropropane	ND		2.50	1	04/17/2019 16:28	WG1266452
1,2-Dibromoethane	ND		0.500	1	04/17/2019 16:28	WG1266452
Dibromomethane	ND		0.500	1	04/17/2019 16:28	WG1266452
1,2-Dichlorobenzene	ND		0.500	1	04/17/2019 16:28	WG1266452
1,3-Dichlorobenzene	ND		0.500	1	04/17/2019 16:28	WG1266452
1,4-Dichlorobenzene	ND		0.500	1	04/17/2019 16:28	WG1266452
Dichlorodifluoromethane	ND		2.50	1	04/17/2019 16:28	WG1266452
1,1-Dichloroethane	ND		0.500	1	04/17/2019 16:28	WG1266452
1,2-Dichloroethane	ND	JO	0.500	1	04/17/2019 16:28	WG1266452
1,1-Dichloroethene	ND		0.500	1	04/17/2019 16:28	WG1266452
cis-1,2-Dichloroethene	ND		0.500	1	04/17/2019 16:28	WG1266452
trans-1,2-Dichloroethene	ND		0.500	1	04/17/2019 16:28	WG1266452
1,2-Dichloropropane	ND		0.500	1	04/17/2019 16:28	WG1266452
1,1-Dichloropropene	ND		0.500	1	04/17/2019 16:28	WG1266452
1,3-Dichloropropane	ND		1.00	1	04/17/2019 16:28	WG1266452
cis-1,3-Dichloropropene	ND		0.500	1	04/17/2019 16:28	WG1266452
trans-1,3-Dichloropropene	ND		0.500	1	04/17/2019 16:28	WG1266452
trans-1,4-Dichloro-2-butene	ND		5.00	1	04/17/2019 16:28	WG1266452
2,2-Dichloropropane	ND		0.500	1	04/17/2019 16:28	WG1266452
Di-isopropyl ether	ND		0.500	1	04/17/2019 16:28	WG1266452
Ethylbenzene	ND		0.500	1	04/17/2019 16:28	WG1266452
Hexachloro-1,3-butadiene	ND		1.00	1	04/17/2019 16:28	WG1266452
2-Hexanone	ND		5.00	1	04/17/2019 16:28	WG1266452
n-Hexane	ND		5.00	1	04/17/2019 16:28	WG1266452
Iodomethane	ND		10.0	1	04/17/2019 16:28	WG1266452
Isopropylbenzene	ND		0.500	1	04/17/2019 16:28	WG1266452
p-Isopropyltoluene	ND		0.500	1	04/17/2019 16:28	WG1266452
2-Butanone (MEK)	ND		5.00	1	04/17/2019 16:28	WG1266452
Methylene Chloride	ND		2.50	1	04/17/2019 16:28	WG1266452
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/17/2019 16:28	WG1266452
Methyl tert-butyl ether	ND		0.500	1	04/17/2019 16:28	WG1266452
Naphthalene	ND		2.50	1	04/17/2019 16:28	WG1266452
n-Propylbenzene	ND		0.500	1	04/17/2019 16:28	WG1266452
Styrene	ND		0.500	1	04/17/2019 16:28	WG1266452
1,1,1,2-Tetrachloroethane	ND		0.500	1	04/17/2019 16:28	WG1266452
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/17/2019 16:28	WG1266452

6

Qc

7

Gl

8

Al

9

Sc



Collected date/time: 04/11/19 00:00

L1088963

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

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	04/17/2019 16:28	WG1266452
Tetrachloroethene	21.8		0.500	1	04/17/2019 16:28	WG1266452
Toluene	ND		0.500	1	04/17/2019 16:28	WG1266452
1,2,3-Trichlorobenzene	ND		0.500	1	04/17/2019 16:28	WG1266452
1,2,4-Trichlorobenzene	ND		0.500	1	04/17/2019 16:28	WG1266452
1,1,1-Trichloroethane	ND		0.500	1	04/17/2019 16:28	WG1266452
1,1,2-Trichloroethane	ND		0.500	1	04/17/2019 16:28	WG1266452
Trichloroethene	ND		0.500	1	04/17/2019 16:28	WG1266452
Trichlorofluoromethane	ND	JO J4	2.50	1	04/17/2019 16:28	WG1266452
1,2,3-Trichloropropane	ND		2.50	1	04/17/2019 16:28	WG1266452
1,2,4-Trimethylbenzene	ND		0.500	1	04/17/2019 16:28	WG1266452
1,2,3-Trimethylbenzene	ND		0.500	1	04/17/2019 16:28	WG1266452
1,3,5-Trimethylbenzene	ND		0.500	1	04/17/2019 16:28	WG1266452
Vinyl acetate	ND	JO	5.00	1	04/17/2019 16:28	WG1266452
Vinyl chloride	ND	JO	0.500	1	04/17/2019 16:28	WG1266452
Xylenes, Total	ND		1.50	1	04/17/2019 16:28	WG1266452
(S) Toluene-d8	102		80.0-120		04/17/2019 16:28	WG1266452
(S) 4-Bromofluorobenzene	105		77.0-126		04/17/2019 16:28	WG1266452
(S) 1,2-Dichloroethane-d4	93.7		70.0-130		04/17/2019 16:28	WG1266452

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 ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		25.0	1	04/17/2019 16:48	WG1266452
Acrylonitrile	ND		5.00	1	04/17/2019 16:48	WG1266452
Benzene	ND		0.500	1	04/17/2019 16:48	WG1266452
Bromobenzene	ND		0.500	1	04/17/2019 16:48	WG1266452
Bromodichloromethane	ND		0.500	1	04/17/2019 16:48	WG1266452
Bromochloromethane	ND		0.500	1	04/17/2019 16:48	WG1266452
Bromoform	ND		0.500	1	04/17/2019 16:48	WG1266452
Bromomethane	ND	JO	2.50	1	04/17/2019 16:48	WG1266452
n-Butylbenzene	ND		0.500	1	04/17/2019 16:48	WG1266452
sec-Butylbenzene	ND		0.500	1	04/17/2019 16:48	WG1266452
tert-Butylbenzene	ND		0.500	1	04/17/2019 16:48	WG1266452
Carbon disulfide	ND		0.500	1	04/17/2019 16:48	WG1266452
Carbon tetrachloride	ND		0.500	1	04/17/2019 16:48	WG1266452
Chlorobenzene	ND		0.500	1	04/17/2019 16:48	WG1266452
Chlorodibromomethane	ND		0.500	1	04/17/2019 16:48	WG1266452
Chloroethane	ND	JO	2.50	1	04/17/2019 16:48	WG1266452
Chloroform	ND		0.500	1	04/17/2019 16:48	WG1266452
Chloromethane	ND		1.25	1	04/17/2019 16:48	WG1266452
2-Chlorotoluene	ND		0.500	1	04/17/2019 16:48	WG1266452
4-Chlorotoluene	ND		0.500	1	04/17/2019 16:48	WG1266452
1,2-Dibromo-3-Chloropropane	ND		2.50	1	04/17/2019 16:48	WG1266452
1,2-Dibromoethane	ND		0.500	1	04/17/2019 16:48	WG1266452
Dibromomethane	ND		0.500	1	04/17/2019 16:48	WG1266452
1,2-Dichlorobenzene	ND		0.500	1	04/17/2019 16:48	WG1266452
1,3-Dichlorobenzene	ND		0.500	1	04/17/2019 16:48	WG1266452
1,4-Dichlorobenzene	ND		0.500	1	04/17/2019 16:48	WG1266452
Dichlorodifluoromethane	ND		2.50	1	04/17/2019 16:48	WG1266452
1,1-Dichloroethane	ND		0.500	1	04/17/2019 16:48	WG1266452
1,2-Dichloroethane	ND	JO	0.500	1	04/17/2019 16:48	WG1266452
1,1-Dichloroethene	ND		0.500	1	04/17/2019 16:48	WG1266452
cis-1,2-Dichloroethene	ND		0.500	1	04/17/2019 16:48	WG1266452
trans-1,2-Dichloroethene	ND		0.500	1	04/17/2019 16:48	WG1266452
1,2-Dichloropropane	ND		0.500	1	04/17/2019 16:48	WG1266452
1,1-Dichloropropene	ND		0.500	1	04/17/2019 16:48	WG1266452
1,3-Dichloropropane	ND		1.00	1	04/17/2019 16:48	WG1266452
cis-1,3-Dichloropropene	ND		0.500	1	04/17/2019 16:48	WG1266452
trans-1,3-Dichloropropene	ND		0.500	1	04/17/2019 16:48	WG1266452
trans-1,4-Dichloro-2-butene	ND		5.00	1	04/17/2019 16:48	WG1266452
2,2-Dichloropropane	ND		0.500	1	04/17/2019 16:48	WG1266452
Di-isopropyl ether	ND		0.500	1	04/17/2019 16:48	WG1266452
Ethylbenzene	ND		0.500	1	04/17/2019 16:48	WG1266452
Hexachloro-1,3-butadiene	ND		1.00	1	04/17/2019 16:48	WG1266452
2-Hexanone	ND		5.00	1	04/17/2019 16:48	WG1266452
n-Hexane	ND		5.00	1	04/17/2019 16:48	WG1266452
Iodomethane	ND		10.0	1	04/17/2019 16:48	WG1266452
Isopropylbenzene	ND		0.500	1	04/17/2019 16:48	WG1266452
p-Isopropyltoluene	ND		0.500	1	04/17/2019 16:48	WG1266452
2-Butanone (MEK)	ND		5.00	1	04/17/2019 16:48	WG1266452
Methylene Chloride	ND		2.50	1	04/17/2019 16:48	WG1266452
4-Methyl-2-pentanone (MIBK)	ND		5.00	1	04/17/2019 16:48	WG1266452
Methyl tert-butyl ether	ND		0.500	1	04/17/2019 16:48	WG1266452
Naphthalene	ND		2.50	1	04/17/2019 16:48	WG1266452
n-Propylbenzene	ND		0.500	1	04/17/2019 16:48	WG1266452
Styrene	ND		0.500	1	04/17/2019 16:48	WG1266452
1,1,1,2-Tetrachloroethane	ND		0.500	1	04/17/2019 16:48	WG1266452
1,1,2,2-Tetrachloroethane	ND		0.500	1	04/17/2019 16:48	WG1266452

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 ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	ND		0.500	1	04/17/2019 16:48	WG1266452
Tetrachloroethene	ND		0.500	1	04/17/2019 16:48	WG1266452
Toluene	ND		0.500	1	04/17/2019 16:48	WG1266452
1,2,3-Trichlorobenzene	ND		0.500	1	04/17/2019 16:48	WG1266452
1,2,4-Trichlorobenzene	ND		0.500	1	04/17/2019 16:48	WG1266452
1,1,1-Trichloroethane	ND		0.500	1	04/17/2019 16:48	WG1266452
1,1,2-Trichloroethane	ND		0.500	1	04/17/2019 16:48	WG1266452
Trichloroethene	ND		0.500	1	04/17/2019 16:48	WG1266452
Trichlorofluoromethane	ND	JO J4	2.50	1	04/17/2019 16:48	WG1266452
1,2,3-Trichloropropane	ND		2.50	1	04/17/2019 16:48	WG1266452
1,2,4-Trimethylbenzene	ND		0.500	1	04/17/2019 16:48	WG1266452
1,2,3-Trimethylbenzene	ND		0.500	1	04/17/2019 16:48	WG1266452
1,3,5-Trimethylbenzene	ND		0.500	1	04/17/2019 16:48	WG1266452
Vinyl acetate	ND	JO	5.00	1	04/17/2019 16:48	WG1266452
Vinyl chloride	ND	JO	0.500	1	04/17/2019 16:48	WG1266452
Xylenes, Total	ND		1.50	1	04/17/2019 16:48	WG1266452
(S) Toluene-d8	99.2		80.0-120		04/17/2019 16:48	WG1266452
(S) 4-Bromofluorobenzene	101		77.0-126		04/17/2019 16:48	WG1266452
(S) 1,2-Dichloroethane-d4	92.4		70.0-130		04/17/2019 16:48	WG1266452

1
Cp2
Tc3
Ss4
Cn5
Sr6
Qc7
Gl8
Al9
Sc

WG1266452

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

QUALITY CONTROL SUMMARY

[L1088963-01,02,03,04,05,06,07,08,09,10,11,12](#)

Method Blank (MB)

(MB) R3402609-3 04/17/19 09:32

	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
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

ACCOUNT:

Zipper Geo Associates - Lynnwood, WA

PROJECT:

1001.25

SDG:

L1088963

DATE/TIME:

04/22/19 14:53

WG1266452

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

QUALITY CONTROL SUMMARY

[L1088963-01,02,03,04,05,06,07,08,09,10,11,12](#)

Method Blank (MB)

(MB) R3402609-3 04/17/19 09:32

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Ethylbenzene	U		0.158	0.500
Hexachloro-1,3-butadiene	0.300	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	101			80.0-120
(S) 4-Bromofluorobenzene	104			77.0-126
(S) 1,2-Dichloroethane-d4	92.6			70.0-130

ACCOUNT:

Zipper Geo Associates - Lynnwood, WA

PROJECT:

1001.25

SDG:

L1088963

DATE/TIME:

04/22/19 14:53

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

(LCS) R3402609-1 04/17/19 08:32 • (LCSD) R3402609-2 04/17/19 08:52

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Acetone	125	181	183	145	147	19.0-160			1.18	27
Acrylonitrile	125	152	153	121	123	55.0-149			1.08	20
Benzene	25.0	25.1	25.1	101	100	70.0-123			0.210	20
Bromobenzene	25.0	23.0	23.0	92.1	91.9	73.0-121			0.278	20
Bromodichloromethane	25.0	21.3	21.2	85.2	84.8	75.0-120			0.479	20
Bromochloromethane	25.0	22.7	22.6	90.7	90.6	76.0-122			0.181	20
Bromoform	25.0	25.9	26.2	104	105	68.0-132			0.977	20
Bromomethane	25.0	17.4	17.0	69.8	68.1	10.0-160			2.41	25
n-Butylbenzene	25.0	21.0	21.8	84.0	87.1	73.0-125			3.62	20
sec-Butylbenzene	25.0	22.5	22.6	90.1	90.4	75.0-125			0.336	20
tert-Butylbenzene	25.0	23.3	23.6	93.3	94.5	76.0-124			1.33	20
Carbon disulfide	25.0	27.2	27.1	109	108	61.0-128			0.567	20
Carbon tetrachloride	25.0	22.9	22.9	91.5	91.5	68.0-126			0.0964	20
Chlorobenzene	25.0	23.4	23.3	93.6	93.1	80.0-121			0.530	20
Chlorodibromomethane	25.0	23.0	23.4	92.0	93.4	77.0-125			1.50	20
Chloroethane	25.0	15.8	15.9	63.3	63.7	47.0-150			0.562	20
Chloroform	25.0	21.0	21.1	84.1	84.3	73.0-120			0.264	20
Chloromethane	25.0	24.1	24.0	96.4	95.9	41.0-142			0.496	20
2-Chlorotoluene	25.0	22.3	22.7	89.3	91.0	76.0-123			1.89	20
4-Chlorotoluene	25.0	22.6	22.9	90.2	91.7	75.0-122			1.65	20
1,2-Dibromo-3-Chloropropane	25.0	26.6	27.7	106	111	58.0-134			3.89	20
1,2-Dibromoethane	25.0	22.8	23.0	91.1	91.9	80.0-122			0.799	20
Dibromomethane	25.0	21.4	21.5	85.7	86.1	80.0-120			0.449	20
1,2-Dichlorobenzene	25.0	22.7	23.4	90.7	93.6	79.0-121			3.21	20
1,3-Dichlorobenzene	25.0	22.6	22.9	90.4	91.5	79.0-120			1.14	20
1,4-Dichlorobenzene	25.0	21.8	22.1	87.1	88.3	79.0-120			1.29	20
Dichlorodifluoromethane	25.0	22.2	22.1	88.8	88.5	51.0-149			0.343	20
1,1-Dichloroethane	25.0	23.5	23.5	93.9	94.0	70.0-126			0.104	20
1,2-Dichloroethane	25.0	19.7	19.7	79.0	78.9	70.0-128			0.0743	20
1,1-Dichloroethene	25.0	23.8	23.7	95.3	94.8	71.0-124			0.495	20
cis-1,2-Dichloroethene	25.0	22.9	22.7	91.5	91.0	73.0-120			0.574	20
trans-1,2-Dichloroethene	25.0	23.7	24.0	94.9	95.9	73.0-120			1.05	20
1,2-Dichloropropane	25.0	25.5	25.3	102	101	77.0-125			0.621	20
1,1-Dichloropropene	25.0	23.3	23.4	93.1	93.6	74.0-126			0.474	20
1,3-Dichloropropane	25.0	24.2	24.4	96.9	97.5	80.0-120			0.645	20
cis-1,3-Dichloropropene	25.0	22.5	22.4	90.0	89.6	80.0-123			0.446	20
trans-1,3-Dichloropropene	25.0	21.7	22.1	86.7	88.6	78.0-124			2.11	20
trans-1,4-Dichloro-2-butene	25.0	21.2	22.2	84.6	88.8	33.0-144			4.80	20
2,2-Dichloropropane	25.0	24.8	25.0	99.1	100	58.0-130			0.952	20
Di-isopropyl ether	25.0	27.1	27.0	108	108	58.0-138			0.334	20

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

(LCS) R3402609-1 04/17/19 08:32 • (LCSD) R3402609-2 04/17/19 08:52

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Ethylbenzene	25.0	24.1	24.0	96.3	96.0	79.0-123			0.341	20
Hexachloro-1,3-butadiene	25.0	28.0	29.7	112	119	54.0-138			6.03	20
2-Hexanone	125	142	144	114	115	67.0-149			1.40	20
n-Hexane	25.0	24.3	24.6	97.1	98.3	57.0-133			1.17	20
Iodomethane	125	128	129	102	103	33.0-147			0.620	26
Isopropylbenzene	25.0	24.5	25.0	98.0	99.9	76.0-127			1.93	20
p-Isopropyltoluene	25.0	22.4	22.9	89.7	91.7	76.0-125			2.21	20
2-Butanone (MEK)	125	157	157	125	125	44.0-160			0.00835	20
Methylene Chloride	25.0	24.0	23.9	95.9	95.7	67.0-120			0.139	20
4-Methyl-2-pentanone (MIBK)	125	140	142	112	113	68.0-142			1.52	20
Methyl tert-butyl ether	25.0	22.4	22.5	89.5	90.1	68.0-125			0.759	20
Naphthalene	25.0	24.5	24.9	98.0	99.5	54.0-135			1.47	20
n-Propylbenzene	25.0	22.1	22.0	88.6	87.9	77.0-124			0.728	20
Styrene	25.0	26.5	26.6	106	106	73.0-130			0.491	20
1,1,1,2-Tetrachloroethane	25.0	22.9	22.9	91.5	91.7	75.0-125			0.210	20
1,1,2,2-Tetrachloroethane	25.0	21.0	21.2	84.2	84.7	65.0-130			0.635	20
1,1,2-Trichlorotrifluoroethane	25.0	22.0	21.9	87.8	87.6	69.0-132			0.243	20
Tetrachloroethene	25.0	24.6	25.0	98.5	99.8	72.0-132			1.27	20
Toluene	25.0	25.3	25.7	101	103	79.0-120			1.51	20
1,2,3-Trichlorobenzene	25.0	24.4	25.2	97.8	101	50.0-138			2.98	20
1,2,4-Trichlorobenzene	25.0	25.3	25.4	101	102	57.0-137			0.297	20
1,1,1-Trichloroethane	25.0	22.6	22.7	90.5	90.6	73.0-124			0.170	20
1,1,2-Trichloroethane	25.0	22.0	22.3	88.2	89.2	80.0-120			1.23	20
Trichloroethene	25.0	24.6	25.0	98.4	99.8	78.0-124			1.47	20
Trichlorofluoromethane	25.0	14.4	14.4	57.4	57.6	59.0-147	J4	J4	0.336	20
1,2,3-Trichloropropane	25.0	20.2	20.7	80.9	82.9	73.0-130			2.43	20
1,2,4-Trimethylbenzene	25.0	21.8	22.5	87.3	90.1	76.0-121			3.22	20
1,2,3-Trimethylbenzene	25.0	21.6	21.9	86.3	87.8	77.0-120			1.75	20
1,3,5-Trimethylbenzene	25.0	22.0	22.6	88.0	90.5	76.0-122			2.82	20
Vinyl acetate	125	78.6	79.2	62.9	63.4	11.0-160			0.727	20
Vinyl chloride	25.0	17.7	17.2	70.8	68.8	67.0-131			2.81	20
Xylenes, Total	75.0	72.3	73.2	96.4	97.6	79.0-123			1.24	20
(S) Toluene-d8				101	102	80.0-120				
(S) 4-Bromofluorobenzene				103	107	77.0-126				
(S) 1,2-Dichloroethane-d4				90.6	90.7	70.0-130				



Guide to Reading and Understanding Your Laboratory Report

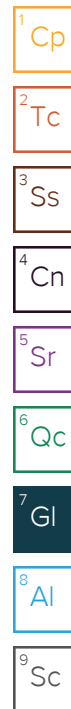
The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

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

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
J0	J0: The identification of the analyte is acceptable, but the reported concentration is an estimate. The calibration method criteria.
J4	The associated batch QC was outside the established quality control range for accuracy.





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

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

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

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

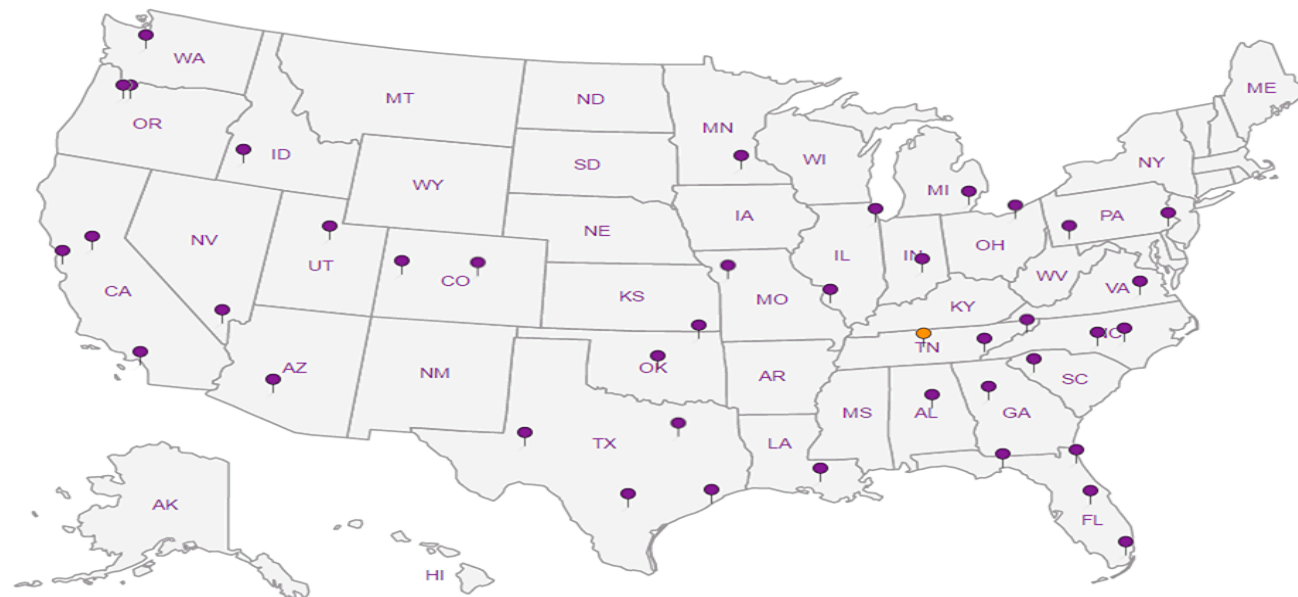
Third Party Federal Accreditations

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

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

Our Locations

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



Zipper Geo Associates - Lynnwood, WA

Billing Information:

Accounts Payable
19019 36th Ave. W.
Ste. E
Lynnwood, WA 98036

Pres
Chk

Analysis / Container / Preservative

Chain of Custody Page 1 of 2



12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859



Report to:
Jon Einarsen

Email To: jeinarsen@zippergeo.com

Project
Description: Prime Cleaners

City/State
Collected: Bothell WA

Phone: 425-582-9928
Fax:

Client Project #
1001.25

Lab Project #
ZIPGEOLWA-100125

Collected by (print):

Site/Facility ID #

P.O. #
1001.25

Collected by (signature):

Rush? (Lab MUST Be Notified)

Quote #

Immediately
Packed on Ice N ☐ Y ☒

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

Date Results Needed

No.
of
Cntrs

VOCs (V8260LLC) 40ml Amb-HCl

L# 108 8963

B172

Acctnum: ZIPGEOLWA

Template: T144736

Prelogin: P702546

TSR: 110 - Brian Ford

PB:

Shipped Via:

Remarks

Sample # (lab only)

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	VOCs (V8260LLC) 40ml Amb-HCl	Remarks	Sample # (lab only)
MW-1	Grab	GW	N/A	4/10/19	11008	3	X	UBW	-01
MW-2		GW		4/10/19	1320	1	X		-02
MW-3		GW		4/11/19	1155	1	X		-03
MW-4		GW		4/11/19	1400	1	X		-04
MW-5		GW		4/11/19	1040	1	X		-05
MW-6		GW			0900	1	X		-06
MW-7		GW			0741	1	X		-07
MW-8		GW			1305	1	X		-08
MW-9		GW		4/10/19	1440	1	X		-09
MW-10		GW		4/10/19	1120	1	X		-10

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

Remarks:

Samples returned via:

☐ UPS ☐ FedEx ☐ Courier

Tracking #

4794 8835 4572

pH Temp

Flow Other

Sample Receipt Checklist

COC Seal Present/Intact: ☒ NP ☐ Y ☐ N
COC Signed/Accurate: ☒ Y ☐ N
Bottles arrive intact: ☒ Y ☐ N
Correct bottles used: ☒ Y ☐ N
Sufficient volume sent: ☒ Y ☐ N
If Applicable
VOA Zero Headspace: ☒ Y ☐ N
Preservation Correct/Checked: ☒ Y ☐ N

RAD SCREEN: <0.5 mR/hr

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Trip Blank Received:

Yes/No
HCL/MeOH
TBR

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

Temp: 73.8°F

Bottles Received:

If preservation required by Login: Date/Time

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

Date:

Time:

Hold:

Condition:
NCF / OK

Hold:	Condition: NCF / OK
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

April 30, 2019

Jon Einarsen, Project Manager
Zipper Geo Associates, LLC
19019 36th Ave W, Suite E
Lynnwood, WA 98036

Dear Mr Einarsen:

Included are the results from the testing of material submitted on April 22, 2019 from the Prime Cleaners 1001-25, F&BI 904428 project. There are 8 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures
ZGA0430R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 22, 2019 by Friedman & Bruya, Inc. from the Zipper Geo Associates, LLC Prime Cleaners 1001-25, F&BI 904428 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Zipper Geo Associates, LLC</u>
904428 -01	Ambient
904428 -02	Money Tree
904428 -03	Prime Cleaners
904428 -04	Osaka Grill

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Ambient	Client:	Zipper Geo Associates, LLC
Date Received:	04/22/19	Project:	Prime Cleaners 1001-25
Date Collected:	04/18/19	Lab ID:	904428-01
Date Analyzed:	04/24/19	Data File:	042419.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

	%	Lower	Upper
Surrogates:	Recovery:	Limit:	Limit:
4-Bromofluorobenzene	95	70	130

Compounds:	Concentration	
	ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	0.089	0.022
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.27	<0.05
1,1,2-Trichloroethane	<0.11	<0.02
Tetrachloroethene	<6.8	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Money Tree	Client:	Zipper Geo Associates, LLC
Date Received:	04/22/19	Project:	Prime Cleaners 1001-25
Date Collected:	04/18/19	Lab ID:	904428-02
Date Analyzed:	04/24/19	Data File:	042420.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	95	70	130

Compounds:	Concentration	
	ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	0.093	0.023
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.27	<0.05
1,1,2-Trichloroethane	<0.11	<0.02
Tetrachloroethene	<6.8	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Prime Cleaners	Client:	Zipper Geo Associates, LLC
Date Received:	04/22/19	Project:	Prime Cleaners 1001-25
Date Collected:	04/18/19	Lab ID:	904428-03
Date Analyzed:	04/24/19	Data File:	042421.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	90	70	130

Compounds:	Concentration	
	ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	0.097	0.024
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.27	<0.05
1,1,2-Trichloroethane	<0.11	<0.02
Tetrachloroethene	<6.8	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Osaka Grill	Client:	Zipper Geo Associates, LLC
Date Received:	04/22/19	Project:	Prime Cleaners 1001-25
Date Collected:	04/18/19	Lab ID:	904428-04
Date Analyzed:	04/24/19	Data File:	042422.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	104	70	130

Compounds:	Concentration	
	ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	0.11	0.026
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.27	<0.05
1,1,2-Trichloroethane	<0.11	<0.02
Tetrachloroethene	<6.8	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Zipper Geo Associates, LLC
Date Received:	Not Applicable	Project:	Prime Cleaners 1001-25
Date Collected:	Not Applicable	Lab ID:	09-0913 mb
Date Analyzed:	04/24/19	Data File:	042418.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	112	70	130

Compounds:	Concentration	
	ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.27	<0.05
1,1,2-Trichloroethane	<0.11	<0.02
Tetrachloroethene	<6.8	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/30/19

Date Received: 04/22/19

Project: Prime Cleaners 1001-25, F&BI 904428

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES
FOR VOLATILES BY METHOD TO-15**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Vinyl chloride	ppbv	5	103	70-130
Chloroethane	ppbv	5	99	70-130
1,1-Dichloroethene	ppbv	5	99	70-130
trans-1,2-Dichloroethene	ppbv	5	99	70-130
1,1-Dichloroethane	ppbv	5	98	70-130
cis-1,2-Dichloroethene	ppbv	5	97	70-130
1,2-Dichloroethane (EDC)	ppbv	5	98	70-130
1,1,1-Trichloroethane	ppbv	5	100	70-130
Trichloroethene	ppbv	5	100	70-130
1,1,2-Trichloroethane	ppbv	5	106	70-130
Tetrachloroethene	ppbv	5	104	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht - The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

Page # _____ of _____

jeinansen@zippergeo.com

ANALYSIS REQUESTED

Samples received at 20 °C

FORMS\COG\COCTO-15.DOC