



Memorandum

February 18, 2019

To: Peter Ramanauskas/EPA

Ref. No.: 017322A

From: Michael Coram/GHD/ds/46 *MC*

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CC: Dave Favero/RACER

**Subject: Third and Fourth Quarter 2018 Sampling Results
RACER Trust PCC-Validation
Pontiac, Michigan**

1. Introduction

GHD is providing this memorandum on behalf of Revitalizing Auto Communities Environmental Response (RACER) Trust for the former PCC-Validation property in Pontiac, Michigan (Site) (Figure 1). The purpose of this memorandum is to provide the results from the third and fourth quarter 2018 sampling events. The sampling activities were conducted as per the March 5, 2018 Interim Groundwater Monitoring Plan (IGWMP). The IGWMP amended the Sampling and Analysis (SAP) submitted to the U.S. EPA on July 25, 2014 and Supplemental SAP submitted to the U.S. EPA on January 13, 2015. The description of work completed below includes the third and fourth quarter 2018 sampling and analysis.

2. Third and Fourth Quarterly 2018 Groundwater Sampling

Quarterly sampling events were conducted on September 17 through September 18, 2018 and December 3 through December 4, 2018. During each quarterly event, ten monitoring wells were sampled, which included the newly installed monitoring wells (MW12-07, MW10-07, MW33-07, MW38-07, MW54-08, and MW85-12) and existing off-Site monitoring wells (MW80-12, MW92S-13, MW92I-13, MW93I-13, and MW81-12). MW-38-07 was dry; therefore, a sample could not be collected during these events.

Prior to groundwater sample collection, static groundwater elevations were measured and recorded. Groundwater samples were collected from the monitoring wells using low-flow sampling techniques with a peristaltic pump and dedicated tubing. Field parameters collected during purging included pH, temperature, conductivity, oxidation/reduction potential (ORP), dissolved oxygen (DO), and turbidity. Groundwater samples were collected after the field parameters stabilized.

The groundwater samples were analyzed using USEPA Method 8260 for VOCs and/or Method 6020 for Aluminum, Lead, and Vanadium. During the third quarter event, dissolved Aluminum was analyzed to allow for consideration of the impact of suspended solids on the results. The September 2018 groundwater samples were shipped under chain-of-custody protocol via courier to Pace Analytical (Pace) located in



Grand Rapids, Michigan with a standard (2 week) turn-around-time (TAT). Prior to the fourth quarterly sampling event, Pace closed the laboratory in Grand Rapids, Michigan and TestAmerica Laboratories in North Canon, OH was selected as a replacement for future sampling events. Therefore, the December 2018 groundwater samples were shipped under chain-of-custody protocol to TestAmerica Laboratories in North Canon, OH and analyzed with a 2 week TAT. Table 2 presents the sample analysis summary. See Attachment A for the low-flow sampling field notes.

3. Third and Fourth Quarter 2018 Groundwater Analytical Results

Groundwater analytical results were compared against all MDEQ Part 201 Groundwater Cleanup Criteria. The following is a summary of the results:

- No VOCs were detected above MDEQ Part 201 Groundwater Cleanup Criteria
- MW-10-07 exceeded the MDEQ Part 201 Non-Residential Drinking Water Criteria (DWC) for total (September and December 2018) and dissolved Aluminum (September 2019 only).
- All other analyzed constituents were not detected or detected at concentrations below criteria.

Groundwater results are shown in Figure 2 and a summary of results compared against MDEQ Cleanup Criteria is presented in Table 3. Laboratory Analytical Reports are presented in Attachment B.

4. Discussion

Groundwater levels were collected during the third and fourth quarter 2018 sampling events; however, no groundwater contour map is provided in this summary memorandum. A groundwater contour map with the limited well distribution is not anticipated to present an accurate representation of groundwater gradient or flow on-Site. Based on the known hydrogeology of the Site, the saturated units are generally limited in connectivity. Once all required monitoring wells are installed, a groundwater contour map will be created to identify the groundwater flow direction and hydraulic gradient. It should be noted that groundwater levels were generally consistent with historic levels except at MW10-07, which had an approximate groundwater elevation change of 12 feet, as identified in Table 1.

Monitoring well MW38-07 did not produce sufficient groundwater for a sample to be collected, which is consistent with previous sampling events.

During the third and fourth quarter 2018 sampling events, no VOCs were detected above MDEQ Part 201 Groundwater Cleanup Criteria including MW92I-13, which is located off-Site to the north of the Site. In 2013, MW92I-13 exceeded MDEQ Part 201 Cleanup Criteria for vinyl chloride. Since 2014, vinyl chloride concentrations at MW92-13 (and all other off-Site monitoring wells) have been below the MDEQ Part 201 Groundwater Cleanup Criteria, including the most recent sampling events in 2018.

Aluminum (total and dissolved) in monitoring well MW10-07 exceeded the MDEQ Part 201 Non-Residential DWC for Aluminum, which is consistent with previous groundwater data. Dissolved aluminum exceeded



MDEQ cleanup criteria but the reported concentration was nearly an order of magnitude lower than the reported total concentration. Turbidity appears to significantly affect the concentration of aluminum.

5. Schedule

The following schedule is dependent upon access to the property and subcontractor availability.

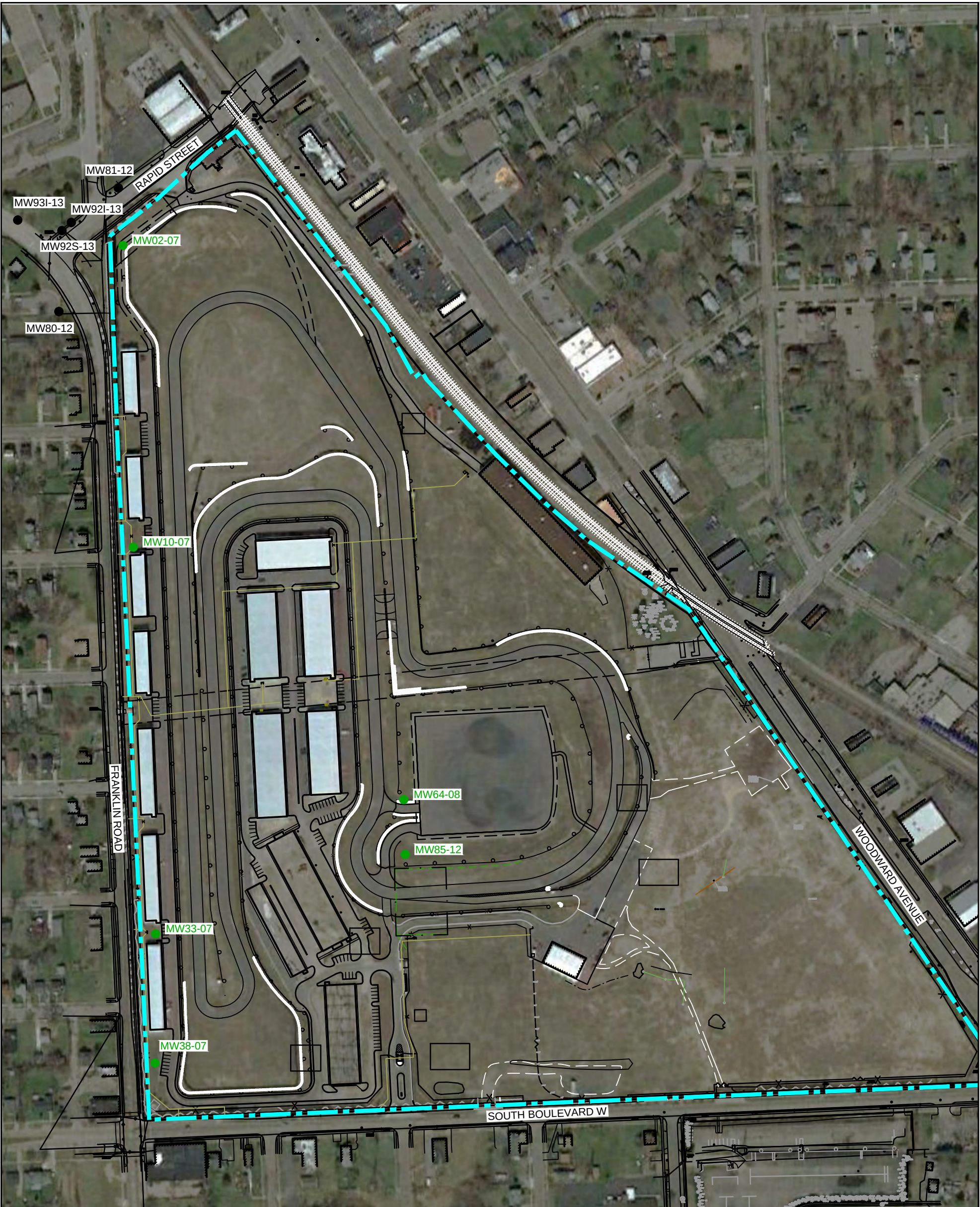
Task:

Monitoring Well Installation, Development and Quarterly Sampling
Well Installation and Data Report Submittal
Quarterly Groundwater Monitoring
Data Report Submittal
Quarterly Groundwater Monitoring
Data Report Submittal
Quarterly Groundwater Monitoring
First Annual Monitoring Report Submittal
Second Phase of Monitoring Well Installation

Approximate Timeline:

May 2018 - Completed
August 2018 - Completed
September 2018 – Completed
December 2018 - Completed
December 2018 – Completed
February 2019 - Completed
March 2019
June 2019
First or Second Q 2019

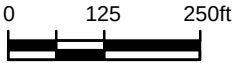
Encl: Figure1: Site Map with Monitoring Well Locations
Figure 2: Site Map with Third and Fourth Quarter 2018 VOC and Metals Results
Table 1: Groundwater Elevation Summary
Table 2: Sample Analysis Summary
Table 3: Third and Fourth Quarter 2018 Groundwater Analytical Results
Attachment A: Low-Flow Sampling Field Notes
Attachment B: Laboratory Analytical Reports



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- RAILROAD
- MW80-12 MONITORING WELL LOCATION
- MW85-12 MONITORING WELL LOCATION (MAY, 2018)

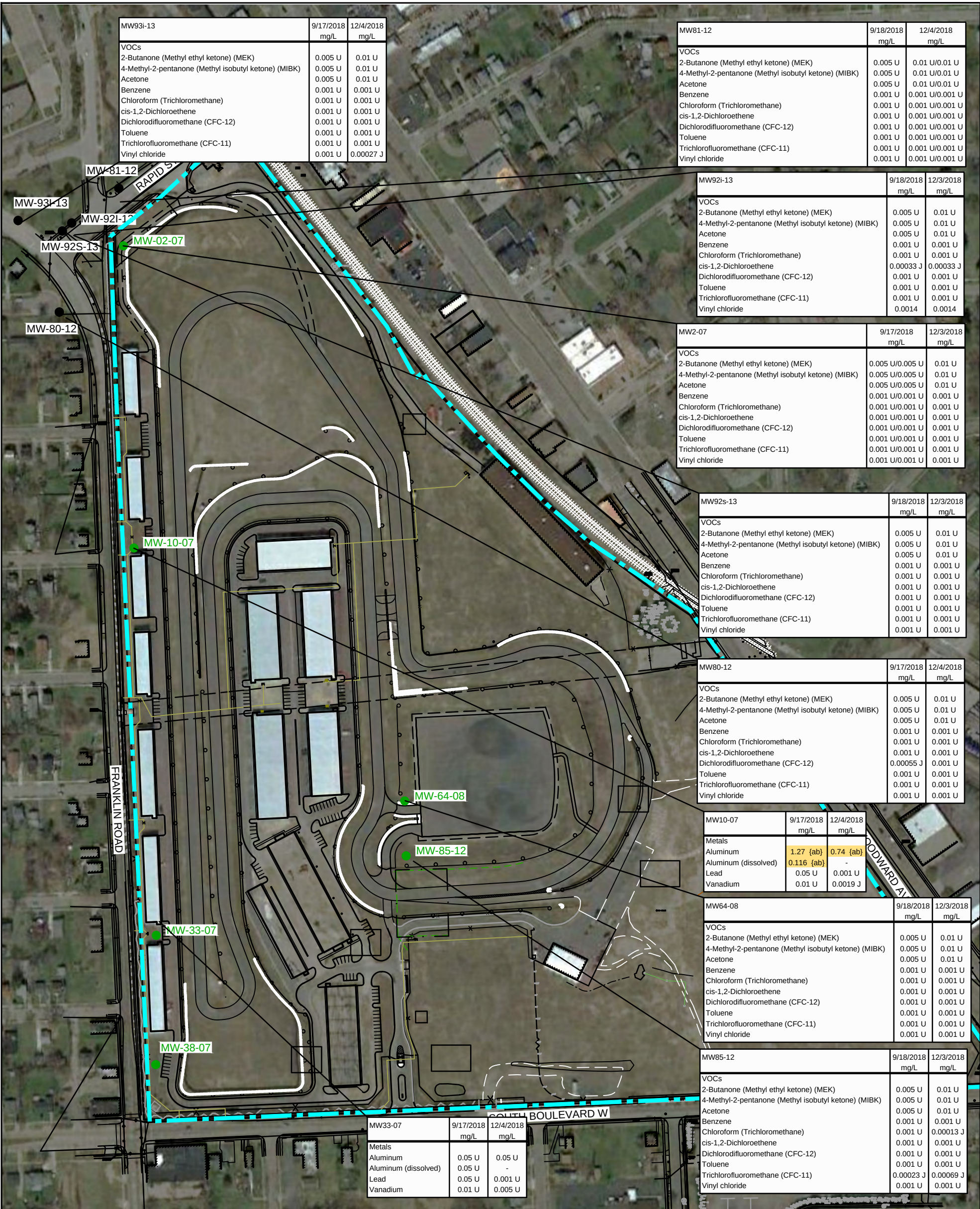
Source: GOOGLE EARTH (DIGITAL GLOBE 4/7/2017)



RACER
1 CONCOURSE DRIVE
PONTIAC, MICHIGAN
SITE MAP WITH
MONITORING WELL LOCATIONS

017322-T03
Feb 18, 2019

FIGURE 1



LEGEND

--- APPROXIMATE PROPERTY BOUNDARY

--- RAILROAD

● MW-80-12 MONITORING WELL LOCATION

● MW-85-12 MONITORING WELL LOCATION (MAY, 2018)

MDEQ Generic Groundwater Cleanup Criteria:

	Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface
	a	b	c
Metals (mg/L)			
Aluminum	0.05	0.05	NA
Lead	0.004	0.004	0.004
Vanadium	0.0045	0.062	0.027

Notes:
U - Not detected at the associated reporting limit.
J - Estimated concentration.
NA - No criteria available

Source: GOOGLE EARTH (DIGITAL GLOBE 4/7/2017)

Table 1

**Groundwater Elevation Summary
RACER PCC- Validation
Pontiac, Michigan**

Sample Location	Current Ground Elevation (FT AMSL)	Current Screen Elevation (FT AMSL)			Third Quarter 2018 Depth To Groundwater (FT BGS)	Third Quarter 2018 Groundwater Elevation (FT AMSL)	Change in Groundwater Elevation: Previous Vs. Current (FT)	Fourth Quarter 2018 Depth To Groundwater (FT BGS)	Fourth Quarter 2018 Groundwater Elevation (FT AMSL)	Change in Groundwater Elevation: Previous Vs. Current (FT)
MW02-07	935.988	924.59	-	919.59	13.39	922.60	1.89	12.04	923.95	0.54
MW10-07	942.912	930.36	-	925.36	14.12	928.79	11.84	14.30	928.61	12.02
MW21-07	950.719	NA		NA	NA	NA	NA	NA	NA	NA
MW33-07	949.346	931.75	-	926.75	17.90	931.45	-0.14	18.45	930.90	0.41
MW38-07	949.244	937.04	-	932.04	Dry	Dry	Dry	Dry	Dry	Dry
MW64-08	947.085	936.84	-	931.84	6.96	940.13	-0.33	6.65	940.44	-0.64
MW-79-12	936.268	NA		NA	NA	NA	NA	NA	NA	NA
MW85-12	947.156	943.96	-	938.96	6.01	941.15	3.52	4.41	942.75	1.92

Footnotes:

FT AMSL - Feet above mean sea level

FT BGS - Feet below ground surface

NA - No data available

Table 2

**Sample Analysis Summary
RACER PCC- Validation
Pontiac, Michigan**

Matrix	Sample ID	Sample Location	Date	QA/QC	Analysis
September 2018 Groundwater Sampling Event (Third Quarter)					
Groundwater	GW-17322A-091718-DS-001	MW33-07	9/17/2018	NA	AL, PB, V
Groundwater	GW-17322A-091718-DS-002	MW10-07	9/17/2018	NA	AL (total and dissolved), PB, V
Groundwater	GW-17322A-091718-DS-003	MW02-07	9/17/2018	NA	TCL VOCs
Groundwater	GW-17322A-091718-DS-004	MW02-07	9/17/2018	Dupe	TCL VOCs
Groundwater	GW-17322A-091718-DS-005	MW80-12	9/17/2018	NA	TCL VOCs
Groundwater	GW-17322A-091718-DS-006	MW93I-13	9/17/2018	NA	TCL VOCs
Groundwater	GW-17322A-091818-DS-007	MW85-12	9/18/2018	MS/MSD	TCL VOCs
Groundwater	GW-17322A-091818-DS-008	MW64-08	9/18/2018	NA	TCL VOCs
Groundwater	GW-17322A-091818-DS-009	MW92I-12	9/18/2018	NA	TCL VOCs
Groundwater	GW-17322A-091818-DS-010	MW92S-12	9/18/2018	NA	TCL VOCs
Groundwater	GW-17322A-091818-DS-011	MW81-12	9/18/2018	NA	TCL VOCs
December 2018 Groundwater Sampling Event (Fourth Quarter)					
Groundwater	GW-17322A-120318-DS-001	MW64-08	12/3/2018	NA	TCL VOCs
Groundwater	GW-17322A-120318-DS-002	MW85-12	12/3/2018	NA	TCL VOCs
Groundwater	GW-17322A-120318-DS-003	MW02-07	12/3/2018	MS/MSD	TCL VOCs
Groundwater	GW-17322A-120318-DS-004	MW92S-12	12/3/2018	NA	TCL VOCs
Groundwater	GW-17322A-120318-DS-005	MW92I-12	12/3/2018	NA	TCL VOCs
Groundwater	GW-17322A-120418-DS-006	MW33-07	12/4/2018	NA	AL, PB, V
Groundwater	GW-17322A-120418-DS-007	MW10-07	12/4/2018	NA	AL, PB, V
Groundwater	GW-17322A-120418-DS-008	MW81-12	12/4/2018	NA	TCL VOCs
Groundwater	GW-17322A-120418-DS-009	MW81-12	12/4/2018	Dupe	TCL VOCs
Groundwater	GW-17322A-120418-DS-010	MW93I-13	12/4/2018	NA	TCL VOCs
Groundwater	GW-17322A-120418-DS-011	MW80-12	12/4/2018	NA	TCL VOCs

Footnotes:

ft bgs - Feet below ground surface

MW - Monitoring well

NA - Not applicable

TCL VOCS - Target Compound List Volatile Organic Compounds

AL, PB, V - Aluminum, lead, and vanadium

Table 3

Third and Fourth Quarter 2018 Groundwater Analytical Results
RACER PCC- Validation
Pontiac, Michigan

Sample Location:		MDEQ Generic Groundwater Cleanup Criteria: Residential and Nonresidential (1)			MW2-07	MW2-07	MW2-07	MW10-07	MW10-07	MW33-07	MW33-07	MW64-08	MW64-08	MW80-12	MW80-12	MW81-12
Sample Date:		Residential	Non-Residential	Groundwater	9/17/2018	9/17/2018	12/3/2018	9/17/2018	12/4/2018	9/17/2018	12/4/2018	9/18/2018	12/3/2018	9/17/2018	12/4/2018	9/18/2018
Sample Type:		Drinking Water	Drinking Water	Surface Water Interface		Duplicate										
Metals	Units	a	b	c												
Aluminum	mg/L	0.05	0.05	NA	--	--	--	1.27 ^{ab}	0.74 ^{ab}	0.05 U	0.05 U	--	--	--	--	--
Aluminum (dissolved)	mg/L	0.05	0.05	NA	--	--	--	0.116 ^{ab}	--	0.05 U	--	--	--	--	--	--
Lead	mg/L	0.004	0.004	0.004	--	--	--	0.05 U	0.001 U	0.05 U	0.001 U	--	--	--	--	--
Lead (dissolved)	mg/L	0.004	0.004	0.004	--	--	--	0.05 U	--	0.05 U	--	--	--	--	--	--
Vanadium	mg/L	0.0045	0.062	0.027	--	--	--	0.01 U	0.0019 J	0.01 U	0.005 U	--	--	--	--	--
Vanadium (dissolved)	mg/L	0.0045	0.062	0.027	--	--	--	0.01 U	--	0.01 U	--	--	--	--	--	--
Volatile Organic Compounds (VOCs)																
1,1,1-Trichloroethane	mg/L	0.2	0.2	0.089	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	mg/L	0.0085	0.035	0.078	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	mg/L	0.005	0.005	0.33	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	mg/L	0.88	2.5	0.74	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	mg/L	0.007	0.007	0.13	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2,4-Trichlorobenzene	mg/L	0.07	0.07	0.099	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/L	0.0002	0.0002	NA	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dibromoethane (Ethylene dibromide)	mg/L	0.00005	0.00005	0.0057	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	mg/L	0.6	0.6	0.013	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloroethane	mg/L	0.005	0.005	0.36	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	mg/L	0.005	0.005	0.23	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	mg/L	0.0066	0.019	0.028	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,4-Dichlorobenzene	mg/L	0.075	0.075	0.017	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/L	13	38	2.2	0.005 U	0.005 U	0.01 U	--	--	--	--	0.005 U	0.01 U	0.005 U	0.01 U	0.005 U
2-Hexanone	mg/L	1	2.9	ID	0.005 U	0.005 U	0.01 U	--	--	--	--	0.005 U	0.01 U	0.005 U	0.01 U	0.005 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/L	1.8	5.2	ID	0.005 U	0.005 U	0.01 U	--	--	--	--	0.005 U	0.01 U	0.005 U	0.01 U	0.005 U
Acetone	mg/L	0.73	2.1	1.7	0.005 U	0.005 U	0.01 U	--	--	--	--	0.005 U	0.01 U	0.005 U	0.01 U	0.005 U
Benzene	mg/L	0.005	0.005	0.2	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromodichloromethane	mg/L	0.08	0.08	ID	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromoform	mg/L	0.08	0.08	ID	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromomethane (Methyl bromide)	mg/L	0.01	0.029	0.005	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Carbon disulfide	mg/L	0.8	2.3	ID	0.005 U	0.005 U	0.005 U	--	--	--	--	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Carbon tetrachloride	mg/L	0.005	0.005	0.038	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	mg/L	0.1	0.1	0.025	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U

Third and Fourth Quarter 2018 Groundwater Analytical Results
RACER PCC- Validation
Pontiac, Michigan

Sample Location:		MDEQ Generic Groundwater Cleanup Criteria: Residential and Nonresidential (1)			MW2-07	MW2-07	MW2-07	MW10-07	MW10-07	MW33-07	MW33-07	MW64-08	MW64-08	MW80-12	MW80-12	MW81-12
		Residential Drinking Water	Non-Residential Drinking Water	Groundwater Surface Water Interface	9/17/2018	9/17/2018 Duplicate	12/3/2018	9/17/2018	12/4/2018	9/17/2018	12/4/2018	9/18/2018	12/3/2018	9/17/2018	12/4/2018	9/18/2018
Chloroethane	mg/L	0.43	1.7	1.1	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform (Trichloromethane)	mg/L	0.08	0.08	0.35	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloromethane (Methyl chloride)	mg/L	0.26	1.1	ID	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	mg/L	0.07	0.07	0.62	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	mg/L	NA	NA	NA	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cyclohexane	mg/L	NA	NA	NA	0.005 U	0.005 U	0.001 U	--	--	--	--	0.005 U	0.001 U	0.005 U	0.001 U	0.005 U
Dibromochloromethane	mg/L	0.08	0.08	ID	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dichlorodifluoromethane (CFC-12)	mg/L	1.7	4.8	ID	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.00055 J	0.001 U	0.001 U
Ethylbenzene	mg/L	0.074	0.074	0.018	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Isopropyl benzene	mg/L	0.8	2.3	0.028	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Methyl acetate	mg/L	NA	NA	NA	0.005 U	0.005 U	0.01 U	--	--	--	--	0.005 U	0.01 U	0.005 U	0.01 U	0.005 U
Methyl cyclohexane	mg/L	NA	NA	NA	0.005 U	0.005 U	0.001 U	--	--	--	--	0.005 U	0.001 U	0.005 U	0.001 U	0.005 U
Methyl tert butyl ether (MTBE)	mg/L	0.04	0.04	7.1	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Methylene chloride	mg/L	0.005	0.005	1.5	0.001 U	0.001 U	0.005 U	--	--	--	--	0.001 U	0.005 U	0.001 U	0.005 U	0.001 U
Styrene	mg/L	0.1	0.1	0.08	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Tetrachloroethene	mg/L	0.005	0.005	0.06	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Toluene	mg/L	0.79	0.79	0.27	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	mg/L	0.1	0.1	1.5	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	mg/L	NA	NA	NA	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	mg/L	0.005	0.005	0.2	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichlorofluoromethane (CFC-11)	mg/L	2.6	7.3	NA	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trifluorotrichloroethane (CFC-113)	mg/L	170	170	0.032	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	mg/L	0.002	0.002	0.013	0.001 U	0.001 U	0.001 U	--	--	--	--	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Xylenes (total)	mg/L	0.28	0.28	0.049	0.003 U	0.003 U	0.002 U	--	--	--	--	0.003 U	0.002 U	0.003 U	0.002 U	0.003 U

Footnotes:

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J The associated value is qualified as an estimated quantity.
UJ The analyte was reported or qualified as not detected however, the sample report limit is qualified as an estimated value and may be inaccurate or imprecise.
⁽¹⁾ MDEQ (Michigan) Generic groundwater cleanup criteria, administrative rule R 299.44 effective December 30, 2013, pursuant to Part 201 of 1994 PA 451 as amended
NA Criteria not available or not applicable

7.4^{ab}

- Boxed cell denotes exceedance of cleanup criteria screening level identified by superscript.
-- Sample not analyzed
ID Insufficient data to develop criterion
NLV Not likely to volatilize under most conditions

Table 3

Third and Fourth Quarter 2018 Groundwater Analytical Results
RACER PCC- Validation
Pontiac, Michigan

Sample Location:		MDEQ Generic Groundwater Cleanup Criteria: Residential and Nonresidential (1)			MW81-12	MW81-12	MW85-12	MW85-12	MW92i-13	MW92i-13	MW92s-13	MW92s-13	MW93i-13	MW93i-13
Sample Date:		Residential	Non-Residential	Groundwater	12/4/2018	12/4/2018	9/18/2018	12/3/2018	9/18/2018	12/3/2018	9/18/2018	12/3/2018	9/17/2018	12/4/2018
Sample Type:		Drinking Water	Drinking Water	Surface Water Interface	Duplicate									
Metals	Units	a	b	c										
Aluminum	mg/L	0.05	0.05	NA	--	--	--	--	--	--	--	--	--	--
Aluminum (dissolved)	mg/L	0.05	0.05	NA	--	--	--	--	--	--	--	--	--	--
Lead	mg/L	0.004	0.004	0.004	--	--	--	--	--	--	--	--	--	--
Lead (dissolved)	mg/L	0.004	0.004	0.004	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/L	0.0045	0.062	0.027	--	--	--	--	--	--	--	--	--	--
Vanadium (dissolved)	mg/L	0.0045	0.062	0.027	--	--	--	--	--	--	--	--	--	--
Volatile Organic Compounds (VOCs)														
1,1,1-Trichloroethane	mg/L	0.2	0.2	0.089	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2,2-Tetrachloroethane	mg/L	0.0085	0.035	0.078	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1,2-Trichloroethane	mg/L	0.005	0.005	0.33	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethane	mg/L	0.88	2.5	0.74	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,1-Dichloroethene	mg/L	0.007	0.007	0.13	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2,4-Trichlorobenzene	mg/L	0.07	0.07	0.099	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/L	0.0002	0.0002	NA	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dibromoethane (Ethylene dibromide)	mg/L	0.00005	0.00005	0.0057	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichlorobenzene	mg/L	0.6	0.6	0.013	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloroethane	mg/L	0.005	0.005	0.36	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,2-Dichloropropane	mg/L	0.005	0.005	0.23	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,3-Dichlorobenzene	mg/L	0.0066	0.019	0.028	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
1,4-Dichlorobenzene	mg/L	0.075	0.075	0.017	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/L	13	38	2.2	0.01 U	0.01 U	0.005 U	0.01 U	0.005 U	0.01 U	0.005 U	0.01 U	0.005 U	0.01 U
2-Hexanone	mg/L	1	2.9	ID	0.01 U	0.01 U	0.005 U	0.01 U	0.005 U	0.01 U	0.005 U	0.01 U	0.005 U	0.01 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/L	1.8	5.2	ID	0.01 U	0.01 U	0.005 U	0.01 U	0.005 U	0.01 U	0.005 U	0.01 U	0.005 U	0.01 U
Acetone	mg/L	0.73	2.1	1.7	0.01 U	0.01 U	0.005 U	0.01 U	0.005 U	0.01 U	0.005 U	0.01 U	0.005 U	0.01 U
Benzene	mg/L	0.005	0.005	0.2	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromodichloromethane	mg/L	0.08	0.08	ID	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromoform	mg/L	0.08	0.08	ID	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Bromomethane (Methyl bromide)	mg/L	0.01	0.029	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Carbon disulfide	mg/L	0.8	2.3	ID	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U
Carbon tetrachloride	mg/L	0.005	0.005	0.038	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chlorobenzene	mg/L	0.1	0.1	0.025	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U

Table 3

Third and Fourth Quarter 2018 Groundwater Analytical Results
RACER PCC- Validation
Pontiac, Michigan

Sample Location:		MDEQ Generic Groundwater Cleanup Criteria: Residential and Nonresidential (1)			MW81-12	MW81-12	MW85-12	MW85-12	MW92i-13	MW92i-13	MW92s-13	MW92s-13	MW93i-13	MW93i-13
Sample Date:		Residential	Non-Residential	Groundwater	12/4/2018	12/4/2018	9/18/2018	12/3/2018	9/18/2018	12/3/2018	9/18/2018	12/3/2018	9/17/2018	12/4/2018
Sample Type:		Drinking Water	Drinking Water	Surface Water Interface		Duplicate								
Chloroethane	mg/L	0.43	1.7	1.1	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloroform (Trichloromethane)	mg/L	0.08	0.08	0.35	0.001 U	0.001 U	0.001 U	0.00013 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chloromethane (Methyl chloride)	mg/L	0.26	1.1	ID	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,2-Dichloroethene	mg/L	0.07	0.07	0.62	0.001 U	0.001 U	0.001 U	0.001 U	0.00033 J	0.00033 J	0.001 U	0.001 U	0.001 U	0.001 U
cis-1,3-Dichloropropene	mg/L	NA	NA	NA	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cyclohexane	mg/L	NA	NA	NA	0.001 U	0.001 U	0.005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.001 U
Dibromochloromethane	mg/L	0.08	0.08	ID	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Dichlorodifluoromethane (CFC-12)	mg/L	1.7	4.8	ID	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Ethylbenzene	mg/L	0.074	0.074	0.018	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Isopropyl benzene	mg/L	0.8	2.3	0.028	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Methyl acetate	mg/L	NA	NA	NA	0.01 U	0.01 U	0.005 U	0.01 U	0.005 U	0.01 U	0.005 U	0.01 U	0.005 U	0.01 U
Methyl cyclohexane	mg/L	NA	NA	NA	0.001 U	0.001 U	0.005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.001 U
Methyl tert butyl ether (MTBE)	mg/L	0.04	0.04	7.1	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Methylene chloride	mg/L	0.005	0.005	1.5	0.005 U	0.005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.001 U	0.005 U	0.001 U	0.005 U
Styrene	mg/L	0.1	0.1	0.08	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Tetrachloroethene	mg/L	0.005	0.005	0.06	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Toluene	mg/L	0.79	0.79	0.27	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,2-Dichloroethene	mg/L	0.1	0.1	1.5	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
trans-1,3-Dichloropropene	mg/L	NA	NA	NA	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichloroethene	mg/L	0.005	0.005	0.2	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trichlorofluoromethane (CFC-11)	mg/L	2.6	7.3	NA	0.001 U	0.001 U	0.00023 J	0.00069 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Trifluorotrichloroethane (CFC-113)	mg/L	170	170	0.032	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Vinyl chloride	mg/L	0.002	0.002	0.013	0.001 U	0.001 U	0.001 U	0.001 U	0.0014	0.0014	0.001 U	0.001 U	0.001 U	0.00027 J
Xylenes (total)	mg/L	0.28	0.28	0.049	0.002 U	0.002 U	0.003 U	0.002 U	0.003 U	0.002 U	0.003 U	0.002 U	0.003 U	0.002 U

Footnotes:

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- J The associated value is qualified as an estimated quantity.
- UJ The analyte was reported or qualified as not detected however, the sample report limit is qualified as an estimated value and may be inaccurate or imprecise.
- ⁽¹⁾ MDEQ (Michigan) Generic groundwater cleanup criteria, administrative rule R 299.44 effective December 30, 2013, pursuant to Part 201 of 1994 PA 451 as amended
- NA Criteria not available or not applicable

7.4^{ab}

- Boxed cell denotes exceedance of cleanup criteria screening level identified by superscript.

-- Sample not analyzed

ID Insufficient data to develop criterion

NLV Not likely to volatilize under most conditions

Attachment A

Low Flow Sampling Field Notes

Project Data:

Project Name:	PCC
Ref. No.:	017322A
Date:	09-17-18
Personnel:	D. J. O'Brien

Monitoring Well Data:

Well No.: MW 08-07

Vapour PID (ppm):

Measurement Point:

Constructed Well Depth (m/ft):

Measured Well Depth (m/ft):

Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):

Depth to Pump Intake (m/ft)⁽¹⁾:

Well Diameter, D (cm/in):

Well Screen Volume, $V_s(L)^{(2)}$:

Initial Depth to Water (m/ft):

[illegible]

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r ($=D/2$) and L are in cm.

For Imperial units, $V_s = \pi * (r^2) * L * (2.54)^3$, where r and L are in inches

3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid

and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= Vp/Vs.

5) For conductivity, the average value of three readings $< 1 \text{ mS/cm} \pm 0.005 \text{ mS/cm}$ or where conductivity $> 1 \text{ mS/cm} \pm 0.01 \text{ mS/cm}$.

GHD Form SP-01 – Revision 0 – July 1, 2015

TEL voc's

Monitoring Well Record for Flow Purging (Form SP-09)

Project Data:

Project Name:

Ref. No.:

017322A
PCC

Monitoring Well Data:

Well No.:

Vapour PID (ppm):

Measurement Point:

Unconstructed Well Depth (m/ft):

Measured Well Depth (m/ft):

Depth of Sediment (m/ft):

~~CONFIDENTIAL~~ NW 10-07

1

Abstract

10

29.11

Saturated Screen Length (m/ft):

Depth to Pump Intake (m/ft)⁽¹⁾.

Well Diameter D (cm/in):

Well Screen Volume: $V_w(L)^{(2)}$.

Initial Depth to Water (m/ft):

[illegible]

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi(r^2) * L$ in mL, where r ($r=D/2$) and L are For Imperial units, $V_s = \pi(r^2) * L * (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= V_p/V_s .
- (5) For conductivity, the average value of three readings <1 mS/cm ± 0.005 mS/cm or where conductivity >1 mS/cm ± 0.01 mS/cm.

$A_1, A_2, \dots, A_n$

Project Data:

Project Name: PCC

Ref. No.: 01732017

Date: 9-12-18

Personnel: D. Salyba

[illegible][illegible]

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi(r^2) \cdot L$ in mL, where r (r=D/2) and L are in cm.
- For Imperial units, $V_s = \pi(r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= V_p/V_s .
- (5) For conductivity, the average value of three readings <1 mS/cm ± 0.005 mS/cm or where conductivity >1 mS/cm ± 0.01 mS/cm.

Al, Pb, ✓

-Flow Purging (Form SP-09)

Project Data:

Project Name:

Ref. No.:

Monitoring Well Data:

Well N

Vapour PID (ppm):

Measurement Point:

Constructed Well Depth (m/ft):

Measured Well Depth (m/ft):

Depth of Sediment (m/ft):

Date:

Personnel:

Saturated Screen Length (m/ft):

Depth to Pump Intake (m/ft)⁽¹⁾:

Well Diameter, D (cm/in):

Vell Screen Volume, $V_s(L)^{(2)}$:

Initial Depth to Water (m/ft):

[illegible]

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi r^2 \cdot L$ in mL, where r ($=D/2$) and L are in cm. For Imperial units, $V_s = \pi r^2 \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged = V_p/V_s .
- (5) For conductivity, the average value of three readings <1 mS/cm ± 0.005 mS/cm or where conductivity >1 mS/cm ± 0.01 mS/cm.

Project Data: Project Name: DLL Ref. No.: 017322A

Project Name:

Ref. No.:

Monitoring Well Data:

Well No.:

Vapour PID (ppm):

Measurement Point:

Constructed Well Depth (m/ft):

Measured Well Depth (m/ft):

Depth of Sediment (m/ft):

Date:

Personnel:

Saturated Screen Length (m/ft):

Depth to Pump Intake (m/ft)⁽¹⁾:

Well Diameter, D (cm/in):

Well Screen Volume, $V_s(L)^{(2)}$:

Initial Depth to Water (m/ft):

[illegible]

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi * (r^2) * L$ in mL, where r ($r=D/2$) and L are in cm.
- (3) For Imperial units, $V_s = \pi * (r^2) * L * (2.54)^3$, where r and L are in inches
- (4) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (5) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= V_p/V_s .

Tech voc's

Project Data:

Project Name:

Ref. No.:

PCC

7328A

Monitoring Well Data:

Well No.:

Vapour PID (ppm):

Measurement Point:

Constructed Well Depth (m/ft):

Measured Well Depth (m/ft):

Depth of Sediment (m/ft):

Date:

Personnel:

9-18-18

D. Saliba

Saturated Screen Length (m/ft):

Depth to Pump Intake (m/ft)⁽¹⁾:

Well Diameter, D (cm/in):

Well Screen Volume, $V_s(L)^{(2)}$:

Initial Depth to Water (m/ft):

[illegible]

Notes:

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi r^2 L$ in mL, where r ($=D/2$) and L are in cm.

For Imperial units, $V_s = \pi^* (r^2)^* L^* (2.54)^3$, where r and L are in inches

The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid

and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged= V_p/V_s .

(5) For conductivity, the average value of three readings $< 1 \text{ mS/cm} \pm 0.005 \text{ mS/cm}$ or where conductivity $> 1 \text{ mS/cm} \pm 0.01 \text{ mS/cm}$.

Project Data:

Project Name:	DCC	Date:	4-18-10
Ref. No.:	1750A	Personnel:	Dr. S. H. Lee

Monitoring Well Data:	Well No.: MW 925-13	Saturated Screen Length (m/ft):
Vapour PID (ppm):		Depth to Pump Intake (m/ft) ⁽¹⁾ :
Measurement Point:		Well Diameter, D (cm/in):
Constructed Well Depth (m/ft):		Well Screen Volume, V _s (L) ⁽²⁾ :
Measured Well Depth (m/ft):	9.65	Initial Depth to Water (m/ft):
Depth of Sediment (m/ft):		

[illegible]

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi(r^2) \cdot L$ in mL, where r ($=D/2$) and L are in cm
- (3) For Imperial units, $V_s = \pi(r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (4) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.
- (5) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged = V_p/V_s .

Project Data:

Project Name:

Ref. No.:

pel

17320A

Monitoring Well Data:

W

Vapour PID (ppm):

Measurement Point:

Constructed Well Depth (m/ft):

Measured Well Depth (m/ft):

Depth of Sediment (m/ft):

Date:

Personnel:

9018-18

D. Saliba

Saturated Screen Length (m/ft):

Depth to Pump Intake (m/ft)⁽¹⁾:

Well Diameter. D (cm/in):

Well Screen Volume, $V_w(L)^{(2)}$:

Initial Depth to Water (m/ft):

Start: 1055

[illegible]

Notes:

600-56-818160-A2251-mb

(1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi(r^2)L$ in mL, where r ($=D/2$) and L are in cm.

For Imperial units, $V_s = \pi * (r^2) * L * (2.54)^3$, where r and L are in inches

The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 600 mL/min.

(4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing), No. of Well Screen Volumes Purged = V_p/V_s .

(5) For conductivity, the average value of three readings $<1 \text{ mS/cm} \pm 0.005 \text{ mS/cm}$ or where conductivity $>1 \text{ mS/cm} \pm 0.01 \text{ mS/cm}$.

Project Data:

Project Name: 405
Ref. No.: 0239A

Date: 12-4-78

Personnel: D. S. Liba

Monitoring Well Data:

Well No.: MLW 10-07

Vapour PID (ppm): _____

Measurement Point: _____

Constructed Well Depth (m/ft): _____

Measured Well Depth (m/ft): _____

Depth of Sediment (m/ft): _____

Saturated Screen Length (m/ft): _____
 Depth to Pump Intake (m/ft)⁽¹⁾: _____
 Well Diameter, D (cm/in): _____
 Well Screen Volume, V_s (L)⁽²⁾: _____
 Initial Depth to Water (m/ft): 144.30

Step 1: 09/15

[illegible]

Sample ID: 69-17322-130418-D5-007

Sample Time: 10:53

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi(r^2) \cdot L$ in mL, where $r (=D/2)$ and L are in cm. For Imperial units, $V_s = \pi(r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged= V_p/V_s .
- (5) For conductivity, the average value of three readings < 1 mS/cm ± 0.005 mS/cm or where conductivity > 1 mS/cm ± 0.01 mS/cm.

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GHD Form SP-09 -- Revision 02 -- August 8, 2017

GHD Form SP-09 – Revision 02 – August 8, 2017

Project Data:

Project Name:

Ref. No.:

22

0.7329

Monitoring Well Data:

Well No.:

Vapour PID (ppm):

Measurement Point:

Constructed Well Depth (m/ft):

Measured Well Depth (m/ft):

Depth of Sediment (m/ft):

Date:

Personnel:

4-3-18

0516

Monitoring Well Data:

25-1-2

Vapour PID (ppm):

Measurement Point:

Constructed Well Depth (m/ft):

Measured Well Depth (m/ft): _____

Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):

Depth to Pump Intake (m/ft)⁽¹⁾:

Well Diameter. D (cm/in):

Well Screen Volume, V_s (L)⁽⁴⁾: -

Initial Depth to Water (m/ft):

[illegible]

Sample ID:

44-1732-120318-D5-002

Sample Time:

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi \cdot (r^2) \cdot L$ in mL, where r ($=D/2$) and L are in cm. For Imperial units, $V_s = \pi \cdot (r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged = V_p/V_s .
- (5) For conductivity, the average value of three readings < 1 mS/cm ± 0.005 mS/cm or where conductivity > 1 mS/cm ± 0.01 mS/cm.

Project Data:

Project Name: _____
Ref. No.: 01700A

Date: 6-3-18
Personnel: D. Salinas

Monitoring Well Data:

Well No.: W-983-13

Vapour PID (ppm):

Measurement Point: _____

Constructed Well Depth (m/ft):

Measured Well Depth (m/ft):

Depth of Sediment (m/ft):

Saturated Screen Length (m/ft):

Depth to Pump Intake (m/ft)⁽¹⁾:

Well Diameter, D (cm/in):

Well Screen Volume, $V_s(L)^{(2)}$:

Initial Depth to Water (m/ft):

[illegible]

Sample ID:

17372-120318-DS-004

Sample Time: 1300

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi r^2 (r^2) L$ in mL, where r ($r=D/2$) and L are in cm.
- (3) For Imperial units, $V_s = \pi (r^2) L \cdot (2.54)^3$, where r and L are in inches
- (4) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.
- (5) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged= V_p/V_s .

Project Data:

Project Name: 166
Ref. No.: 017322A

Date: 12-3-18
Personnel: D. Saib

Monitoring Well Data:

Well No.: _____

Vapour PID (ppm): _____

Measurement Point: _____

Constructed Well Depth (m/ft): _____

Measured Well Depth (m/ft): _____

Depth of Sediment (m/ft): _____

HW 921-13

Saturated Screen Length (m/ft): _____

Depth to Pump Intake (m/ft) ⁽¹⁾: _____

Well Diameter, D (cm/in): _____

Well Screen Volume, V_s (L) ⁽²⁾: _____

Initial Depth to Water (m/ft): 6.27

[illegible]

Sample ID:

500-58-815081-26321-MB

Sample Time:

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 0.6 m (2 ft) above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 1.52 metres (5-foot) screen length (L). For metric units, $V_s = \pi(r^2) \cdot L$ in mL, where $r = (D/2)$ and L are in cm. For Imperial units, $V_s = \pi(r^2) \cdot L \cdot (2.54)^3$, where r and L are in inches
- (3) The drawdown from the initial water level should not exceed 0.1 m (0.3 ft). The pumping rate should not exceed 500 mL/min.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged= V_p/V_s .
- (5) For conductivity, the average value of three readings < 1 mS/cm ± 0.005 mS/cm or where conductivity > 1 mS/cm ± 0.01 mS/cm.

Attachment B Analytical Report

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-105129-1

Client Project/Site: 17322A-T06, PCC Validation

For:

GHD Services Inc.

26850 Haggerty Rd.

Farmington Hills, Michigan 48331

Attn: James Abston



Authorized for release by:

12/17/2018 11:48:59 AM

Denise Heckler, Project Manager II

(330)966-9477

denise.heckler@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Job ID: 240-105129-1

Laboratory: TestAmerica Canton

Narrative

Job Narrative 240-105129-1

Comments

No additional comments.

Receipt

The samples were received on 12/4/2018 10:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.2° C.

GC/MS VOA

Method(s) 8260B: Surrogate recovery for the following sample(s) was outside the upper control limit: This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed:

TB-17322-120318 (240-105129-1), GW-17322-120318-DS-001 (240-105129-2), GW-17322-120318-DS-002 (240-105129-3), GW-17322-120318-DS-003 (240-105129-4), GW-17322-120318-DS-004 (240-105129-5) and (MB 240-359485/6)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-105129-1	TB-17322-120318	Water	12/03/18 00:00	12/04/18 10:05
240-105129-2	GW-17322-120318-DS-001	Water	12/03/18 10:00	12/04/18 10:05
240-105129-3	GW-17322-120318-DS-002	Water	12/03/18 10:55	12/04/18 10:05
240-105129-4	GW-17322-120318-DS-003	Water	12/03/18 12:00	12/04/18 10:05
240-105129-5	GW-17322-120318-DS-004	Water	12/03/18 13:00	12/04/18 10:05
240-105129-6	GW-17322-120318-DS-005	Water	12/03/18 13:45	12/04/18 10:05

Detection Summary

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Client Sample ID: TB-17322-120318

Lab Sample ID: 240-105129-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.18	J	1.0	0.14	ug/L	1		8260B	Total/NA

Client Sample ID: GW-17322-120318-DS-001

Lab Sample ID: 240-105129-2

No Detections.

Client Sample ID: GW-17322-120318-DS-002

Lab Sample ID: 240-105129-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloroform	0.13	J	1.0	0.13	ug/L	1		8260B	Total/NA
Trichlorofluoromethane	0.69	J	1.0	0.45	ug/L	1		8260B	Total/NA

Client Sample ID: GW-17322-120318-DS-003

Lab Sample ID: 240-105129-4

No Detections.

Client Sample ID: GW-17322-120318-DS-004

Lab Sample ID: 240-105129-5

No Detections.

Client Sample ID: GW-17322-120318-DS-005

Lab Sample ID: 240-105129-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	1.4		1.0	0.20	ug/L	1		8260B	Total/NA
cis-1,2-Dichloroethene	0.33	J	1.0	0.16	ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Method Summary

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-17322-120318

Date Collected: 12/03/18 00:00

Date Received: 12/04/18 10:05

Lab Sample ID: 240-105129-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			12/12/18 16:51	1
Benzene	1.0	U	1.0	0.13	ug/L			12/12/18 16:51	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			12/12/18 16:51	1
Bromoform	1.0	U	1.0	0.76	ug/L			12/12/18 16:51	1
Bromomethane	1.0	U	1.0	0.42	ug/L			12/12/18 16:51	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			12/12/18 16:51	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			12/12/18 16:51	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			12/12/18 16:51	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			12/12/18 16:51	1
Chloroethane	1.0	U	1.0	0.83	ug/L			12/12/18 16:51	1
Chloroform	1.0	U	1.0	0.13	ug/L			12/12/18 16:51	1
Chloromethane	1.0	U	1.0	0.20	ug/L			12/12/18 16:51	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			12/12/18 16:51	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			12/12/18 16:51	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/12/18 16:51	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			12/12/18 16:51	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			12/12/18 16:51	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			12/12/18 16:51	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			12/12/18 16:51	1
2-Hexanone	10	U	10	0.54	ug/L			12/12/18 16:51	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			12/12/18 16:51	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			12/12/18 16:51	1
Styrene	1.0	U	1.0	0.10	ug/L			12/12/18 16:51	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			12/12/18 16:51	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/12/18 16:51	1
Toluene	0.18	J	1.0	0.14	ug/L			12/12/18 16:51	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/12/18 16:51	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			12/12/18 16:51	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			12/12/18 16:51	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			12/12/18 16:51	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			12/12/18 16:51	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			12/12/18 16:51	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			12/12/18 16:51	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			12/12/18 16:51	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			12/12/18 16:51	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			12/12/18 16:51	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/12/18 16:51	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			12/12/18 16:51	1
Methyl acetate	10	U	10	1.7	ug/L			12/12/18 16:51	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			12/12/18 16:51	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			12/12/18 16:51	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			12/12/18 16:51	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/12/18 16:51	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/12/18 16:51	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			12/12/18 16:51	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			12/12/18 16:51	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			12/12/18 16:51	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			12/12/18 16:51	1

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	134	X	70 - 121		12/12/18 16:51	1
4-Bromofluorobenzene (Surr)	78		59 - 120		12/12/18 16:51	1
Toluene-d8 (Surr)	87		70 - 123		12/12/18 16:51	1
Dibromofluoromethane (Surr)	131	X	75 - 128		12/12/18 16:51	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: GW-17322-120318-DS-001

Date Collected: 12/03/18 10:00

Date Received: 12/04/18 10:05

Lab Sample ID: 240-105129-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			12/12/18 17:15	1
Benzene	1.0	U	1.0	0.13	ug/L			12/12/18 17:15	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			12/12/18 17:15	1
Bromoform	1.0	U	1.0	0.76	ug/L			12/12/18 17:15	1
Bromomethane	1.0	U	1.0	0.42	ug/L			12/12/18 17:15	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			12/12/18 17:15	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			12/12/18 17:15	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			12/12/18 17:15	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			12/12/18 17:15	1
Chloroethane	1.0	U	1.0	0.83	ug/L			12/12/18 17:15	1
Chloroform	1.0	U	1.0	0.13	ug/L			12/12/18 17:15	1
Chloromethane	1.0	U	1.0	0.20	ug/L			12/12/18 17:15	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			12/12/18 17:15	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			12/12/18 17:15	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/12/18 17:15	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			12/12/18 17:15	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			12/12/18 17:15	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			12/12/18 17:15	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			12/12/18 17:15	1
2-Hexanone	10	U	10	0.54	ug/L			12/12/18 17:15	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			12/12/18 17:15	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			12/12/18 17:15	1
Styrene	1.0	U	1.0	0.10	ug/L			12/12/18 17:15	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			12/12/18 17:15	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/12/18 17:15	1
Toluene	1.0	U	1.0	0.14	ug/L			12/12/18 17:15	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/12/18 17:15	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			12/12/18 17:15	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			12/12/18 17:15	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			12/12/18 17:15	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			12/12/18 17:15	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			12/12/18 17:15	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			12/12/18 17:15	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			12/12/18 17:15	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			12/12/18 17:15	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			12/12/18 17:15	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/12/18 17:15	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			12/12/18 17:15	1
Methyl acetate	10	U	10	1.7	ug/L			12/12/18 17:15	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			12/12/18 17:15	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			12/12/18 17:15	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			12/12/18 17:15	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/12/18 17:15	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/12/18 17:15	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			12/12/18 17:15	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			12/12/18 17:15	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			12/12/18 17:15	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			12/12/18 17:15	1

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	130	X	70 - 121		12/12/18 17:15	1
4-Bromofluorobenzene (Surr)	75		59 - 120		12/12/18 17:15	1
Toluene-d8 (Surr)	86		70 - 123		12/12/18 17:15	1
Dibromofluoromethane (Surr)	126		75 - 128		12/12/18 17:15	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: GW-17322-120318-DS-002

Date Collected: 12/03/18 10:55

Date Received: 12/04/18 10:05

Lab Sample ID: 240-105129-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			12/12/18 17:42	1
Benzene	1.0	U	1.0	0.13	ug/L			12/12/18 17:42	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			12/12/18 17:42	1
Bromoform	1.0	U	1.0	0.76	ug/L			12/12/18 17:42	1
Bromomethane	1.0	U	1.0	0.42	ug/L			12/12/18 17:42	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			12/12/18 17:42	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			12/12/18 17:42	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			12/12/18 17:42	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			12/12/18 17:42	1
Chloroethane	1.0	U	1.0	0.83	ug/L			12/12/18 17:42	1
Chloroform	0.13	J	1.0	0.13	ug/L			12/12/18 17:42	1
Chloromethane	1.0	U	1.0	0.20	ug/L			12/12/18 17:42	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			12/12/18 17:42	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			12/12/18 17:42	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/12/18 17:42	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			12/12/18 17:42	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			12/12/18 17:42	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			12/12/18 17:42	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			12/12/18 17:42	1
2-Hexanone	10	U	10	0.54	ug/L			12/12/18 17:42	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			12/12/18 17:42	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			12/12/18 17:42	1
Styrene	1.0	U	1.0	0.10	ug/L			12/12/18 17:42	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			12/12/18 17:42	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/12/18 17:42	1
Toluene	1.0	U	1.0	0.14	ug/L			12/12/18 17:42	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/12/18 17:42	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			12/12/18 17:42	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			12/12/18 17:42	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			12/12/18 17:42	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			12/12/18 17:42	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			12/12/18 17:42	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			12/12/18 17:42	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			12/12/18 17:42	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			12/12/18 17:42	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			12/12/18 17:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/12/18 17:42	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			12/12/18 17:42	1
Methyl acetate	10	U	10	1.7	ug/L			12/12/18 17:42	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			12/12/18 17:42	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			12/12/18 17:42	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			12/12/18 17:42	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/12/18 17:42	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/12/18 17:42	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			12/12/18 17:42	1
Trichlorofluoromethane	0.69	J	1.0	0.45	ug/L			12/12/18 17:42	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			12/12/18 17:42	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			12/12/18 17:42	1

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	137	X	70 - 121		12/12/18 17:42	1
4-Bromofluorobenzene (Surr)	78		59 - 120		12/12/18 17:42	1
Toluene-d8 (Surr)	89		70 - 123		12/12/18 17:42	1
Dibromofluoromethane (Surr)	128		75 - 128		12/12/18 17:42	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: GW-17322-120318-DS-003

Date Collected: 12/03/18 12:00

Date Received: 12/04/18 10:05

Lab Sample ID: 240-105129-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			12/12/18 18:06	1
Benzene	1.0	U	1.0	0.13	ug/L			12/12/18 18:06	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			12/12/18 18:06	1
Bromoform	1.0	U	1.0	0.76	ug/L			12/12/18 18:06	1
Bromomethane	1.0	U	1.0	0.42	ug/L			12/12/18 18:06	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			12/12/18 18:06	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			12/12/18 18:06	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			12/12/18 18:06	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			12/12/18 18:06	1
Chloroethane	1.0	U	1.0	0.83	ug/L			12/12/18 18:06	1
Chloroform	1.0	U	1.0	0.13	ug/L			12/12/18 18:06	1
Chloromethane	1.0	U	1.0	0.20	ug/L			12/12/18 18:06	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			12/12/18 18:06	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			12/12/18 18:06	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/12/18 18:06	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			12/12/18 18:06	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			12/12/18 18:06	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			12/12/18 18:06	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			12/12/18 18:06	1
2-Hexanone	10	U	10	0.54	ug/L			12/12/18 18:06	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			12/12/18 18:06	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			12/12/18 18:06	1
Styrene	1.0	U	1.0	0.10	ug/L			12/12/18 18:06	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			12/12/18 18:06	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/12/18 18:06	1
Toluene	1.0	U	1.0	0.14	ug/L			12/12/18 18:06	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/12/18 18:06	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			12/12/18 18:06	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			12/12/18 18:06	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			12/12/18 18:06	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			12/12/18 18:06	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			12/12/18 18:06	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			12/12/18 18:06	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			12/12/18 18:06	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			12/12/18 18:06	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			12/12/18 18:06	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/12/18 18:06	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			12/12/18 18:06	1
Methyl acetate	10	U	10	1.7	ug/L			12/12/18 18:06	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			12/12/18 18:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			12/12/18 18:06	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			12/12/18 18:06	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/12/18 18:06	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/12/18 18:06	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			12/12/18 18:06	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			12/12/18 18:06	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			12/12/18 18:06	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			12/12/18 18:06	1

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	134	X	70 - 121		12/12/18 18:06	1
4-Bromofluorobenzene (Surr)	73		59 - 120		12/12/18 18:06	1
Toluene-d8 (Surr)	86		70 - 123		12/12/18 18:06	1
Dibromofluoromethane (Surr)	129	X	75 - 128		12/12/18 18:06	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: GW-17322-120318-DS-004

Date Collected: 12/03/18 13:00

Date Received: 12/04/18 10:05

Lab Sample ID: 240-105129-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			12/12/18 18:29	1
Benzene	1.0	U	1.0	0.13	ug/L			12/12/18 18:29	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			12/12/18 18:29	1
Bromoform	1.0	U	1.0	0.76	ug/L			12/12/18 18:29	1
Bromomethane	1.0	U	1.0	0.42	ug/L			12/12/18 18:29	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			12/12/18 18:29	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			12/12/18 18:29	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			12/12/18 18:29	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			12/12/18 18:29	1
Chloroethane	1.0	U	1.0	0.83	ug/L			12/12/18 18:29	1
Chloroform	1.0	U	1.0	0.13	ug/L			12/12/18 18:29	1
Chloromethane	1.0	U	1.0	0.20	ug/L			12/12/18 18:29	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			12/12/18 18:29	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			12/12/18 18:29	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/12/18 18:29	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			12/12/18 18:29	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			12/12/18 18:29	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			12/12/18 18:29	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			12/12/18 18:29	1
2-Hexanone	10	U	10	0.54	ug/L			12/12/18 18:29	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			12/12/18 18:29	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			12/12/18 18:29	1
Styrene	1.0	U	1.0	0.10	ug/L			12/12/18 18:29	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			12/12/18 18:29	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/12/18 18:29	1
Toluene	1.0	U	1.0	0.14	ug/L			12/12/18 18:29	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/12/18 18:29	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			12/12/18 18:29	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			12/12/18 18:29	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			12/12/18 18:29	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			12/12/18 18:29	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			12/12/18 18:29	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			12/12/18 18:29	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			12/12/18 18:29	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			12/12/18 18:29	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			12/12/18 18:29	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/12/18 18:29	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			12/12/18 18:29	1
Methyl acetate	10	U	10	1.7	ug/L			12/12/18 18:29	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			12/12/18 18:29	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			12/12/18 18:29	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			12/12/18 18:29	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/12/18 18:29	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/12/18 18:29	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			12/12/18 18:29	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			12/12/18 18:29	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			12/12/18 18:29	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			12/12/18 18:29	1

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	134	X	70 - 121		12/12/18 18:29	1
4-Bromofluorobenzene (Surr)	77		59 - 120		12/12/18 18:29	1
Toluene-d8 (Surr)	87		70 - 123		12/12/18 18:29	1
Dibromofluoromethane (Surr)	135	X	75 - 128		12/12/18 18:29	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: GW-17322-120318-DS-005

Date Collected: 12/03/18 13:45

Date Received: 12/04/18 10:05

Lab Sample ID: 240-105129-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			12/13/18 14:42	1
Benzene	1.0	U	1.0	0.13	ug/L			12/13/18 14:42	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			12/13/18 14:42	1
Bromoform	1.0	U	1.0	0.76	ug/L			12/13/18 14:42	1
Bromomethane	1.0	U	1.0	0.42	ug/L			12/13/18 14:42	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			12/13/18 14:42	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			12/13/18 14:42	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			12/13/18 14:42	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			12/13/18 14:42	1
Chloroethane	1.0	U	1.0	0.83	ug/L			12/13/18 14:42	1
Chloroform	1.0	U	1.0	0.13	ug/L			12/13/18 14:42	1
Chloromethane	1.0	U	1.0	0.20	ug/L			12/13/18 14:42	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			12/13/18 14:42	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			12/13/18 14:42	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/13/18 14:42	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			12/13/18 14:42	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			12/13/18 14:42	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			12/13/18 14:42	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			12/13/18 14:42	1
2-Hexanone	10	U	10	0.54	ug/L			12/13/18 14:42	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			12/13/18 14:42	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			12/13/18 14:42	1
Styrene	1.0	U	1.0	0.10	ug/L			12/13/18 14:42	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			12/13/18 14:42	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/13/18 14:42	1
Toluene	1.0	U	1.0	0.14	ug/L			12/13/18 14:42	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/13/18 14:42	1
Vinyl chloride	1.4		1.0	0.20	ug/L			12/13/18 14:42	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			12/13/18 14:42	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			12/13/18 14:42	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			12/13/18 14:42	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			12/13/18 14:42	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			12/13/18 14:42	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			12/13/18 14:42	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			12/13/18 14:42	1
cis-1,2-Dichloroethene	0.33	J	1.0	0.16	ug/L			12/13/18 14:42	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/13/18 14:42	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			12/13/18 14:42	1
Methyl acetate	10	U	10	1.7	ug/L			12/13/18 14:42	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			12/13/18 14:42	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			12/13/18 14:42	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			12/13/18 14:42	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/13/18 14:42	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/13/18 14:42	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			12/13/18 14:42	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			12/13/18 14:42	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			12/13/18 14:42	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			12/13/18 14:42	1

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	86		70 - 121		12/13/18 14:42	1
4-Bromofluorobenzene (Surr)	90		59 - 120		12/13/18 14:42	1
Toluene-d8 (Surr)	97		70 - 123		12/13/18 14:42	1
Dibromofluoromethane (Surr)	91		75 - 128		12/13/18 14:42	1

QC Association Summary

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

GC/MS VOA

Analysis Batch: 359485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-105129-1	TB-17322-120318	Total/NA	Water	8260B	
240-105129-2	GW-17322-120318-DS-001	Total/NA	Water	8260B	
240-105129-3	GW-17322-120318-DS-002	Total/NA	Water	8260B	
240-105129-4	GW-17322-120318-DS-003	Total/NA	Water	8260B	
240-105129-5	GW-17322-120318-DS-004	Total/NA	Water	8260B	
MB 240-359485/6	Method Blank	Total/NA	Water	8260B	
LCS 240-359485/4	Lab Control Sample	Total/NA	Water	8260B	
240-105129-4 MS	GW-17322-120318-DS-003	Total/NA	Water	8260B	
240-105129-4 MSD	GW-17322-120318-DS-003	Total/NA	Water	8260B	

Analysis Batch: 359752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-105129-6	GW-17322-120318-DS-005	Total/NA	Water	8260B	
MB 240-359752/6	Method Blank	Total/NA	Water	8260B	
LCS 240-359752/4	Lab Control Sample	Total/NA	Water	8260B	

QC Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-359485/6

Matrix: Water

Analysis Batch: 359485

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			12/12/18 14:45	1
Benzene	1.0	U	1.0	0.13	ug/L			12/12/18 14:45	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			12/12/18 14:45	1
Bromoform	1.0	U	1.0	0.76	ug/L			12/12/18 14:45	1
Bromomethane	1.0	U	1.0	0.42	ug/L			12/12/18 14:45	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			12/12/18 14:45	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			12/12/18 14:45	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			12/12/18 14:45	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			12/12/18 14:45	1
Chloroethane	1.0	U	1.0	0.83	ug/L			12/12/18 14:45	1
Chloroform	1.0	U	1.0	0.13	ug/L			12/12/18 14:45	1
Chloromethane	1.0	U	1.0	0.20	ug/L			12/12/18 14:45	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			12/12/18 14:45	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			12/12/18 14:45	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/12/18 14:45	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			12/12/18 14:45	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			12/12/18 14:45	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			12/12/18 14:45	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			12/12/18 14:45	1
2-Hexanone	10	U	10	0.54	ug/L			12/12/18 14:45	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			12/12/18 14:45	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			12/12/18 14:45	1
Styrene	1.0	U	1.0	0.10	ug/L			12/12/18 14:45	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			12/12/18 14:45	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/12/18 14:45	1
Toluene	1.0	U	1.0	0.14	ug/L			12/12/18 14:45	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/12/18 14:45	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			12/12/18 14:45	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			12/12/18 14:45	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			12/12/18 14:45	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			12/12/18 14:45	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			12/12/18 14:45	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			12/12/18 14:45	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			12/12/18 14:45	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			12/12/18 14:45	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			12/12/18 14:45	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/12/18 14:45	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			12/12/18 14:45	1
Methyl acetate	10	U	10	1.7	ug/L			12/12/18 14:45	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			12/12/18 14:45	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			12/12/18 14:45	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			12/12/18 14:45	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/12/18 14:45	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/12/18 14:45	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			12/12/18 14:45	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			12/12/18 14:45	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			12/12/18 14:45	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			12/12/18 14:45	1

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	128	X	70 - 121		12/12/18 14:45	1
4-Bromofluorobenzene (Surr)	77		59 - 120		12/12/18 14:45	1
Toluene-d8 (Surr)	89		70 - 123		12/12/18 14:45	1
Dibromofluoromethane (Surr)	118		75 - 128		12/12/18 14:45	1

Lab Sample ID: LCS 240-359485/4

Matrix: Water

Analysis Batch: 359485

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	19.6		ug/L		98	21 - 162
Benzene	10.0	10.4		ug/L		104	80 - 123
Bromodichloromethane	10.0	11.0		ug/L		110	77 - 125
Bromoform	10.0	11.2		ug/L		112	49 - 141
Bromomethane	10.0	9.80		ug/L		98	41 - 175
2-Butanone (MEK)	20.0	18.5		ug/L		93	39 - 163
Carbon disulfide	10.0	10.4		ug/L		104	60 - 138
Carbon tetrachloride	10.0	12.9		ug/L		129	63 - 140
Chlorobenzene	10.0	10.2		ug/L		102	80 - 121
Chloroethane	10.0	8.11		ug/L		81	33 - 173
Chloroform	10.0	11.9		ug/L		119	79 - 127
Chloromethane	10.0	11.8		ug/L		118	54 - 143
1,1-Dichloroethane	10.0	10.6		ug/L		106	75 - 133
1,2-Dichloroethane	10.0	11.7		ug/L		117	71 - 135
1,1-Dichloroethene	10.0	11.1		ug/L		111	65 - 139
1,2-Dichloropropane	10.0	10.6		ug/L		106	78 - 133
cis-1,3-Dichloropropene	10.0	10.1		ug/L		101	64 - 132
trans-1,3-Dichloropropene	10.0	9.95		ug/L		100	55 - 128
Ethylbenzene	10.0	10.2		ug/L		102	80 - 120
2-Hexanone	20.0	18.7		ug/L		93	43 - 148
Methylene Chloride	10.0	11.1		ug/L		111	70 - 134
4-Methyl-2-pentanone (MIBK)	20.0	18.5		ug/L		93	49 - 143
Styrene	10.0	10.3		ug/L		103	79 - 120
1,1,2,2-Tetrachloroethane	10.0	9.40		ug/L		94	65 - 139
Tetrachloroethene	10.0	11.7		ug/L		117	74 - 130
Toluene	10.0	10.6		ug/L		106	78 - 129
Trichloroethene	10.0	10.5		ug/L		105	76 - 125
Vinyl chloride	10.0	11.0		ug/L		110	58 - 143
Xylenes, Total	20.0	21.1		ug/L		106	80 - 120
1,1,1-Trichloroethane	10.0	12.4		ug/L		124	69 - 134
1,1,2-Trichloroethane	10.0	11.4		ug/L		114	78 - 133
Cyclohexane	10.0	10.1		ug/L		101	58 - 145
1,2-Dibromo-3-Chloropropane	10.0	9.03		ug/L		90	46 - 132
1,2-Dibromoethane	10.0	10.9		ug/L		109	77 - 123
Dichlorodifluoromethane	10.0	12.0		ug/L		120	29 - 148
cis-1,2-Dichloroethene	10.0	10.6		ug/L		106	76 - 128
trans-1,2-Dichloroethene	10.0	11.1		ug/L		111	78 - 133
Isopropylbenzene	10.0	10.4		ug/L		104	74 - 120
Methyl acetate	20.0	20.3		ug/L		102	52 - 145
Methyl tert-butyl ether	10.0	10.4		ug/L		104	51 - 133
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	12.7		ug/L		127	50 - 156
1,2,4-Trichlorobenzene	10.0	8.57		ug/L		86	42 - 133
1,2-Dichlorobenzene	10.0	10.2		ug/L		102	78 - 120

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-359485/4

Matrix: Water

Analysis Batch: 359485

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3-Dichlorobenzene	10.0	9.77		ug/L		98	78 - 120
1,4-Dichlorobenzene	10.0	9.58		ug/L		96	78 - 120
Trichlorofluoromethane	10.0	14.5		ug/L		145	51 - 164
Dibromochloromethane	10.0	11.1		ug/L		111	70 - 132
Methylcyclohexane	10.0	9.65		ug/L		96	60 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	111		70 - 121
4-Bromofluorobenzene (Surr)	101		59 - 120
Toluene-d8 (Surr)	97		70 - 123
Dibromofluoromethane (Surr)	107		75 - 128

Lab Sample ID: 240-105129-4 MS

Matrix: Water

Analysis Batch: 359485

Client Sample ID: GW-17322-120318-DS-003

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	10	U	20.0	15.3		ug/L		77	10 - 168
Benzene	1.0	U	10.0	9.67		ug/L		97	71 - 122
Bromodichloromethane	1.0	U	10.0	10.3		ug/L		103	64 - 125
Bromoform	1.0	U	10.0	9.85		ug/L		99	44 - 129
Bromomethane	1.0	U	10.0	11.0		ug/L		110	19 - 187
2-Butanone (MEK)	10	U	20.0	15.6		ug/L		78	37 - 156
Carbon disulfide	5.0	U	10.0	9.72		ug/L		97	43 - 144
Carbon tetrachloride	1.0	U	10.0	11.6		ug/L		116	41 - 143
Chlorobenzene	1.0	U	10.0	9.73		ug/L		97	70 - 123
Chloroethane	1.0	U	10.0	8.38		ug/L		84	11 - 189
Chloroform	1.0	U	10.0	11.1		ug/L		111	68 - 130
Chloromethane	1.0	U	10.0	11.4		ug/L		114	31 - 154
1,1-Dichloroethane	1.0	U	10.0	10.0		ug/L		100	63 - 136
1,2-Dichloroethane	1.0	U	10.0	11.1		ug/L		111	65 - 135
1,1-Dichloroethene	1.0	U	10.0	10.3		ug/L		103	53 - 140
1,2-Dichloropropane	1.0	U	10.0	9.40		ug/L		94	70 - 132
cis-1,3-Dichloropropene	1.0	U	10.0	8.11		ug/L		81	48 - 127
trans-1,3-Dichloropropene	1.0	U	10.0	8.68		ug/L		87	40 - 125
Ethylbenzene	1.0	U	10.0	9.23		ug/L		92	66 - 120
2-Hexanone	10	U	20.0	16.0		ug/L		80	42 - 150
Methylene Chloride	5.0	U	10.0	10.5		ug/L		105	61 - 130
4-Methyl-2-pentanone (MIBK)	10	U	20.0	15.1		ug/L		76	44 - 143
Styrene	1.0	U	10.0	9.77		ug/L		98	68 - 120
1,1,2,2-Tetrachloroethane	1.0	U	10.0	8.10		ug/L		81	60 - 137
Tetrachloroethene	1.0	U	10.0	10.5		ug/L		105	51 - 136
Toluene	1.0	U	10.0	9.85		ug/L		98	62 - 132
Trichloroethene	1.0	U	10.0	9.60		ug/L		96	55 - 131
Vinyl chloride	1.0	U	10.0	11.3		ug/L		113	43 - 154
Xylenes, Total	2.0	U	20.0	19.3		ug/L		96	67 - 120
1,1,1-Trichloroethane	1.0	U	10.0	11.7		ug/L		117	51 - 138
1,1,2-Trichloroethane	1.0	U	10.0	10.6		ug/L		106	76 - 132

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-105129-4 MS

Matrix: Water

Analysis Batch: 359485

Client Sample ID: GW-17322-120318-DS-003

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyclohexane	1.0	U	10.0	8.22		ug/L		82	42 - 135
1,2-Dibromo-3-Chloropropane	1.0	U	10.0	6.83		ug/L		68	38 - 124
1,2-Dibromoethane	1.0	U	10.0	9.83		ug/L		98	71 - 123
Dichlorodifluoromethane	1.0	U	10.0	11.3		ug/L		113	28 - 136
cis-1,2-Dichloroethene	1.0	U	10.0	9.57		ug/L		96	64 - 130
trans-1,2-Dichloroethene	1.0	U	10.0	10.2		ug/L		102	68 - 133
Isopropylbenzene	1.0	U	10.0	9.44		ug/L		94	59 - 120
Methyl acetate	10	U	20.0	15.3		ug/L		76	41 - 142
Methyl tert-butyl ether	1.0	U	10.0	8.95		ug/L		89	41 - 136
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	10.0	11.6		ug/L		116	31 - 156
1,2,4-Trichlorobenzene	1.0	U	10.0	6.86		ug/L		69	30 - 126
1,2-Dichlorobenzene	1.0	U	10.0	9.12		ug/L		91	64 - 120
1,3-Dichlorobenzene	1.0	U	10.0	8.85		ug/L		88	62 - 120
1,4-Dichlorobenzene	1.0	U	10.0	8.90		ug/L		89	63 - 120
Trichlorofluoromethane	1.0	U	10.0	14.7		ug/L		147	37 - 174
Dibromochloromethane	1.0	U	10.0	10.5		ug/L		105	60 - 129
Methylcyclohexane	1.0	U	10.0	7.73		ug/L		77	37 - 123

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	111		70 - 121
4-Bromofluorobenzene (Surr)	102		59 - 120
Toluene-d8 (Surr)	96		70 - 123
Dibromofluoromethane (Surr)	109		75 - 128

Lab Sample ID: 240-105129-4 MSD

Matrix: Water

Analysis Batch: 359485

Client Sample ID: GW-17322-120318-DS-003

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	10	U	20.0	16.5		ug/L		83	10 - 168	8	35
Benzene	1.0	U	10.0	9.77		ug/L		98	71 - 122	1	22
Bromodichloromethane	1.0	U	10.0	10.5		ug/L		105	64 - 125	2	27
Bromoform	1.0	U	10.0	10.0		ug/L		100	44 - 129	2	28
Bromomethane	1.0	U	10.0	10.5		ug/L		105	19 - 187	5	35
2-Butanone (MEK)	10	U	20.0	15.6		ug/L		78	37 - 156	0	35
Carbon disulfide	5.0	U	10.0	9.80		ug/L		98	43 - 144	1	33
Carbon tetrachloride	1.0	U	10.0	11.5		ug/L		115	41 - 143	1	30
Chlorobenzene	1.0	U	10.0	9.66		ug/L		97	70 - 123	1	23
Chloroethane	1.0	U	10.0	8.66		ug/L		87	11 - 189	3	35
Chloroform	1.0	U	10.0	11.4		ug/L		114	68 - 130	2	23
Chloromethane	1.0	U	10.0	11.4		ug/L		114	31 - 154	0	35
1,1-Dichloroethane	1.0	U	10.0	9.95		ug/L		99	63 - 136	1	23
1,2-Dichloroethane	1.0	U	10.0	10.9		ug/L		109	65 - 135	2	24
1,1-Dichloroethene	1.0	U	10.0	10.2		ug/L		102	53 - 140	1	35
1,2-Dichloropropane	1.0	U	10.0	9.44		ug/L		94	70 - 132	0	26
cis-1,3-Dichloropropene	1.0	U	10.0	8.27		ug/L		83	48 - 127	2	30
trans-1,3-Dichloropropene	1.0	U	10.0	8.41		ug/L		84	40 - 125	3	27

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 240-105129-4 MSD

Matrix: Water

Analysis Batch: 359485

Client Sample ID: GW-17322-120318-DS-003

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylbenzene	1.0	U	10.0	9.15		ug/L		91	66 - 120	1	24
2-Hexanone	10	U	20.0	17.0		ug/L		85	42 - 150	6	35
Methylene Chloride	5.0	U	10.0	10.9		ug/L		109	61 - 130	3	29
4-Methyl-2-pentanone (MIBK)	10	U	20.0	16.0		ug/L		80	44 - 143	5	35
Styrene	1.0	U	10.0	9.58		ug/L		96	68 - 120	2	26
1,1,2,2-Tetrachloroethane	1.0	U	10.0	8.08		ug/L		81	60 - 137	0	31
Tetrachloroethene	1.0	U	10.0	10.3		ug/L		103	51 - 136	2	23
Toluene	1.0	U	10.0	9.68		ug/L		97	62 - 132	2	23
Trichloroethene	1.0	U	10.0	9.72		ug/L		97	55 - 131	1	23
Vinyl chloride	1.0	U	10.0	11.3		ug/L		113	43 - 154	0	29
Xylenes, Total	2.0	U	20.0	18.9		ug/L		95	67 - 120	2	25
1,1,1-Trichloroethane	1.0	U	10.0	11.7		ug/L		117	51 - 138	0	27
1,1,2-Trichloroethane	1.0	U	10.0	10.7		ug/L		107	76 - 132	1	25
Cyclohexane	1.0	U	10.0	8.27		ug/L		83	42 - 135	1	35
1,2-Dibromo-3-Chloropropane	1.0	U	10.0	7.86		ug/L		79	38 - 124	14	35
1,2-Dibromoethane	1.0	U	10.0	10.2		ug/L		102	71 - 123	4	27
Dichlorodifluoromethane	1.0	U	10.0	11.1		ug/L		111	28 - 136	2	35
cis-1,2-Dichloroethene	1.0	U	10.0	9.96		ug/L		100	64 - 130	4	21
trans-1,2-Dichloroethene	1.0	U	10.0	10.2		ug/L		102	68 - 133	0	24
Isopropylbenzene	1.0	U	10.0	9.07		ug/L		91	59 - 120	4	31
Methyl acetate	10	U	20.0	17.1		ug/L		85	41 - 142	11	35
Methyl tert-butyl ether	1.0	U	10.0	9.44		ug/L		94	41 - 136	5	29
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	10.0	11.3		ug/L		113	31 - 156	3	35
1,2,4-Trichlorobenzene	1.0	U	10.0	7.49		ug/L		75	30 - 126	9	35
1,2-Dichlorobenzene	1.0	U	10.0	9.07		ug/L		91	64 - 120	0	30
1,3-Dichlorobenzene	1.0	U	10.0	8.82		ug/L		88	62 - 120	0	31
1,4-Dichlorobenzene	1.0	U	10.0	8.81		ug/L		88	63 - 120	1	28
Trichlorofluoromethane	1.0	U	10.0	14.1		ug/L		141	37 - 174	4	35
Dibromochloromethane	1.0	U	10.0	10.2		ug/L		102	60 - 129	2	26
Methylcyclohexane	1.0	U	10.0	7.73		ug/L		77	37 - 123	0	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	111		70 - 121
4-Bromofluorobenzene (Surr)	102		59 - 120
Toluene-d8 (Surr)	98		70 - 123
Dibromofluoromethane (Surr)	106		75 - 128

Lab Sample ID: MB 240-359752/6

Matrix: Water

Analysis Batch: 359752

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			12/13/18 13:53	1
Benzene	1.0	U	1.0	0.13	ug/L			12/13/18 13:53	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			12/13/18 13:53	1
Bromoform	1.0	U	1.0	0.76	ug/L			12/13/18 13:53	1
Bromomethane	1.0	U	1.0	0.42	ug/L			12/13/18 13:53	1

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-359752/6

Matrix: Water

Analysis Batch: 359752

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2-Butanone (MEK)	10	U	10	1.2	ug/L			12/13/18 13:53	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			12/13/18 13:53	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			12/13/18 13:53	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			12/13/18 13:53	1
Chloroethane	1.0	U	1.0	0.83	ug/L			12/13/18 13:53	1
Chloroform	1.0	U	1.0	0.13	ug/L			12/13/18 13:53	1
Chloromethane	1.0	U	1.0	0.20	ug/L			12/13/18 13:53	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			12/13/18 13:53	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			12/13/18 13:53	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/13/18 13:53	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			12/13/18 13:53	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			12/13/18 13:53	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			12/13/18 13:53	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			12/13/18 13:53	1
2-Hexanone	10	U	10	0.54	ug/L			12/13/18 13:53	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			12/13/18 13:53	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			12/13/18 13:53	1
Styrene	1.0	U	1.0	0.10	ug/L			12/13/18 13:53	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			12/13/18 13:53	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/13/18 13:53	1
Toluene	1.0	U	1.0	0.14	ug/L			12/13/18 13:53	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/13/18 13:53	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			12/13/18 13:53	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			12/13/18 13:53	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			12/13/18 13:53	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			12/13/18 13:53	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			12/13/18 13:53	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			12/13/18 13:53	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			12/13/18 13:53	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			12/13/18 13:53	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			12/13/18 13:53	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/13/18 13:53	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			12/13/18 13:53	1
Methyl acetate	10	U	10	1.7	ug/L			12/13/18 13:53	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			12/13/18 13:53	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			12/13/18 13:53	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			12/13/18 13:53	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/13/18 13:53	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/13/18 13:53	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			12/13/18 13:53	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			12/13/18 13:53	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			12/13/18 13:53	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			12/13/18 13:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		70 - 121		12/13/18 13:53	1
4-Bromofluorobenzene (Surr)	90		59 - 120		12/13/18 13:53	1
Toluene-d8 (Surr)	92		70 - 123		12/13/18 13:53	1

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-359752/6

Matrix: Water

Analysis Batch: 359752

Client Sample ID: Method Blank

Prep Type: Total/NA

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	%Recovery	Qualifier	75 - 128		12/13/18 13:53	1
	96					

Lab Sample ID: LCS 240-359752/4

Matrix: Water

Analysis Batch: 359752

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	22.3		ug/L		111	21 - 162
Benzene	10.0	10.2		ug/L		102	80 - 123
Bromodichloromethane	10.0	9.71		ug/L		97	77 - 125
Bromoform	10.0	9.19		ug/L		92	49 - 141
Bromomethane	10.0	10.7		ug/L		107	41 - 175
2-Butanone (MEK)	20.0	20.1		ug/L		100	39 - 163
Carbon disulfide	10.0	10.1		ug/L		101	60 - 138
Carbon tetrachloride	10.0	9.67		ug/L		97	63 - 140
Chlorobenzene	10.0	9.87		ug/L		99	80 - 121
Chloroethane	10.0	11.3		ug/L		113	33 - 173
Chloroform	10.0	10.1		ug/L		101	79 - 127
Chloromethane	10.0	11.3		ug/L		113	54 - 143
1,1-Dichloroethane	10.0	10.8		ug/L		108	75 - 133
1,2-Dichloroethane	10.0	9.40		ug/L		94	71 - 135
1,1-Dichloroethene	10.0	10.3		ug/L		103	65 - 139
1,2-Dichloropropane	10.0	10.8		ug/L		108	78 - 133
cis-1,3-Dichloropropene	10.0	9.91		ug/L		99	64 - 132
trans-1,3-Dichloropropene	10.0	9.22		ug/L		92	55 - 128
Ethylbenzene	10.0	10.0		ug/L		100	80 - 120
2-Hexanone	20.0	22.1		ug/L		110	43 - 148
Methylene Chloride	10.0	10.5		ug/L		105	70 - 134
4-Methyl-2-pentanone (MIBK)	20.0	20.1		ug/L		100	49 - 143
Styrene	10.0	9.56		ug/L		96	79 - 120
1,1,2,2-Tetrachloroethane	10.0	9.89		ug/L		99	65 - 139
Tetrachloroethene	10.0	9.88		ug/L		99	74 - 130
Toluene	10.0	9.99		ug/L		100	78 - 129
Trichloroethene	10.0	9.65		ug/L		97	76 - 125
Vinyl chloride	10.0	11.3		ug/L		113	58 - 143
Xylenes, Total	20.0	19.7		ug/L		99	80 - 120
1,1,1-Trichloroethane	10.0	10.1		ug/L		101	69 - 134
1,1,2-Trichloroethane	10.0	9.97		ug/L		100	78 - 133
Cyclohexane	10.0	11.0		ug/L		110	58 - 145
1,2-Dibromo-3-Chloropropane	10.0	8.45		ug/L		84	46 - 132
1,2-Dibromoethane	10.0	9.91		ug/L		99	77 - 123
Dichlorodifluoromethane	10.0	9.46		ug/L		95	29 - 148
cis-1,2-Dichloroethene	10.0	10.2		ug/L		102	76 - 128
trans-1,2-Dichloroethene	10.0	10.4		ug/L		104	78 - 133
Isopropylbenzene	10.0	9.72		ug/L		97	74 - 120
Methyl acetate	20.0	20.1		ug/L		100	52 - 145
Methyl tert-butyl ether	10.0	9.28		ug/L		93	51 - 133

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-359752/4

Matrix: Water

Analysis Batch: 359752

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	10.9		ug/L		109	50 - 156
1,2,4-Trichlorobenzene	10.0	8.73		ug/L		87	42 - 133
1,2-Dichlorobenzene	10.0	9.69		ug/L		97	78 - 120
1,3-Dichlorobenzene	10.0	9.47		ug/L		95	78 - 120
1,4-Dichlorobenzene	10.0	9.66		ug/L		97	78 - 120
Trichlorofluoromethane	10.0	10.9		ug/L		109	51 - 164
Dibromochloromethane	10.0	9.71		ug/L		97	70 - 132
Methylcyclohexane	10.0	9.27		ug/L		93	60 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	89		70 - 121
4-Bromofluorobenzene (Surr)	95		59 - 120
Toluene-d8 (Surr)	98		70 - 123
Dibromofluoromethane (Surr)	96		75 - 128

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
Lab Sample ID	Client Sample ID	DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-105129-1	TB-17322-120318	134 X	78	87	131 X
240-105129-2	GW-17322-120318-DS-001	130 X	75	86	126
240-105129-3	GW-17322-120318-DS-002	137 X	78	89	128
240-105129-4	GW-17322-120318-DS-003	134 X	73	86	129 X
240-105129-4 MS	GW-17322-120318-DS-003	111	102	96	109
240-105129-4 MSD	GW-17322-120318-DS-003	111	102	98	106
240-105129-5	GW-17322-120318-DS-004	134 X	77	87	135 X
240-105129-6	GW-17322-120318-DS-005	86	90	97	91
LCS 240-359485/4	Lab Control Sample	111	101	97	107
LCS 240-359752/4	Lab Control Sample	89	95	98	96
MB 240-359485/6	Method Blank	128 X	77	89	118
MB 240-359752/6	Method Blank	87	90	92	96

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Client Sample ID: TB-17322-120318

Date Collected: 12/03/18 00:00

Date Received: 12/04/18 10:05

Lab Sample ID: 240-105129-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	359485	12/12/18 16:51	LRW	TAL CAN

Client Sample ID: GW-17322-120318-DS-001

Date Collected: 12/03/18 10:00

Date Received: 12/04/18 10:05

Lab Sample ID: 240-105129-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	359485	12/12/18 17:15	LRW	TAL CAN

Client Sample ID: GW-17322-120318-DS-002

Date Collected: 12/03/18 10:55

Date Received: 12/04/18 10:05

Lab Sample ID: 240-105129-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	359485	12/12/18 17:42	LRW	TAL CAN

Client Sample ID: GW-17322-120318-DS-003

Date Collected: 12/03/18 12:00

Date Received: 12/04/18 10:05

Lab Sample ID: 240-105129-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	359485	12/12/18 18:06	LRW	TAL CAN

Client Sample ID: GW-17322-120318-DS-004

Date Collected: 12/03/18 13:00

Date Received: 12/04/18 10:05

Lab Sample ID: 240-105129-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	359485	12/12/18 18:29	LRW	TAL CAN

Client Sample ID: GW-17322-120318-DS-005

Date Collected: 12/03/18 13:45

Date Received: 12/04/18 10:05

Lab Sample ID: 240-105129-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	359752	12/13/18 14:42	LRW	TAL CAN

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TestAmerica Canton

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105129-1

Laboratory: TestAmerica Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-19
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	01-31-19
Kentucky (UST)	State Program	4	58	02-23-19
Kentucky (WW)	State Program	4	98016	12-31-18 *
Minnesota	NELAP	5	039-999-348	12-31-18 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-19
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-19
West Virginia DEP	State Program	3	210	12-31-18 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Canton

[illegible]

TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 105129

Client GHD Site Name _____ Cooler unpacked by: [Signature]
 Cooler Received on 12-4-18 Opened on 12-4-18
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____
 Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # _____ Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None
 1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
 IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #36 (CF +0°C) Observed Cooler Temp. 3.2 °C Corrected Cooler Temp. 3.2 °C
 2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____ Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
 3. Shippers' packing slip attached to the cooler(s)? Yes No
 4. Did custody papers accompany the sample(s)? Yes No
 5. Were the custody papers relinquished & signed in the appropriate place? Yes No
 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
 7. Did all bottles arrive in good condition (Unbroken)? Yes No
 8. Could all bottle labels be reconciled with the COC? Yes No
 9. Were correct bottle(s) used for the test(s) indicated? Yes No
 10. Sufficient quantity received to perform indicated analyses? Yes No
 11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
 12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC854592
 13. Were VOAs on the COC? Yes No
 14. Were air bubbles >6 mm in any VOA vials? Yes ☒ Larger than this. Yes No NA
 15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Covered Yes No
 16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not
checked for pH by
Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: [Signature]

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-105187-1

Client Project/Site: 17322A-T06, PCC Validation

For:

GHD Services Inc.

26850 Haggerty Rd.

Farmington Hills, Michigan 48331

Attn: James Abston



Authorized for release by:

12/18/2018 9:34:38 AM

Denise Heckler, Project Manager II

(330)966-9477

denise.heckler@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Job ID: 240-105187-1

Laboratory: TestAmerica Canton

Narrative

Job Narrative 240-105187-1

Comments

No additional comments.

Receipt

The samples were received on 12/5/2018 9:50 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.0° C.

GC/MS VOA

Method(s) 8260B: Surrogate recovery for the following sample(s) was outside the upper control limit: This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

TB-17322-120418 (240-105187-1), GW-17322-120418-DS-008 (240-105187-4), GW-17322-120418-DS-009 (240-105187-5), GW-17322-120418-DS-010 (240-105187-6), GW-17322-120418-DS-011 (240-105187-7) and (240-105183-B-13)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-105187-1	TB-17322-120418	Water	12/04/18 00:00	12/05/18 09:50
240-105187-2	GW-17322-120418-DS-006	Water	12/04/18 09:00	12/05/18 09:50
240-105187-3	GW-17322-120418-DS-007	Water	12/04/18 09:55	12/05/18 09:50
240-105187-4	GW-17322-120418-DS-008	Water	12/04/18 11:00	12/05/18 09:50
240-105187-5	GW-17322-120418-DS-009	Water	12/04/18 11:05	12/05/18 09:50
240-105187-6	GW-17322-120418-DS-010	Water	12/04/18 11:55	12/05/18 09:50
240-105187-7	GW-17322-120418-DS-011	Water	12/04/18 12:45	12/05/18 09:50

Detection Summary

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Client Sample ID: TB-17322-120418

Lab Sample ID: 240-105187-1

No Detections.

Client Sample ID: GW-17322-120418-DS-006

Lab Sample ID: 240-105187-2

No Detections.

Client Sample ID: GW-17322-120418-DS-007

Lab Sample ID: 240-105187-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Aluminum	740		50	34	ug/L	1		6020	Total
Vanadium	1.9	J	5.0	0.82	ug/L	1		6020	Recoverable
									Total
									Recoverable

Client Sample ID: GW-17322-120418-DS-008

Lab Sample ID: 240-105187-4

No Detections.

Client Sample ID: GW-17322-120418-DS-009

Lab Sample ID: 240-105187-5

No Detections.

Client Sample ID: GW-17322-120418-DS-010

Lab Sample ID: 240-105187-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Vinyl chloride	0.27	J	1.0	0.20	ug/L	1		8260B	Total/NA

Client Sample ID: GW-17322-120418-DS-011

Lab Sample ID: 240-105187-7

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Method Summary

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
6020	Metals (ICP/MS)	SW846	TAL CAN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CAN
5030B	Purge and Trap	SW846	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: TB-17322-120418

Date Collected: 12/04/18 00:00

Date Received: 12/05/18 09:50

Lab Sample ID: 240-105187-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			12/13/18 16:43	1
Benzene	1.0	U	1.0	0.13	ug/L			12/13/18 16:43	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			12/13/18 16:43	1
Bromoform	1.0	U	1.0	0.76	ug/L			12/13/18 16:43	1
Bromomethane	1.0	U	1.0	0.42	ug/L			12/13/18 16:43	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			12/13/18 16:43	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			12/13/18 16:43	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			12/13/18 16:43	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			12/13/18 16:43	1
Chloroethane	1.0	U	1.0	0.83	ug/L			12/13/18 16:43	1
Chloroform	1.0	U	1.0	0.13	ug/L			12/13/18 16:43	1
Chloromethane	1.0	U	1.0	0.20	ug/L			12/13/18 16:43	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			12/13/18 16:43	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			12/13/18 16:43	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/13/18 16:43	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			12/13/18 16:43	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			12/13/18 16:43	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			12/13/18 16:43	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			12/13/18 16:43	1
2-Hexanone	10	U	10	0.54	ug/L			12/13/18 16:43	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			12/13/18 16:43	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			12/13/18 16:43	1
Styrene	1.0	U	1.0	0.10	ug/L			12/13/18 16:43	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			12/13/18 16:43	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/13/18 16:43	1
Toluene	1.0	U	1.0	0.14	ug/L			12/13/18 16:43	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/13/18 16:43	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			12/13/18 16:43	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			12/13/18 16:43	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			12/13/18 16:43	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			12/13/18 16:43	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			12/13/18 16:43	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			12/13/18 16:43	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			12/13/18 16:43	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			12/13/18 16:43	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			12/13/18 16:43	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/13/18 16:43	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			12/13/18 16:43	1
Methyl acetate	10	U	10	1.7	ug/L			12/13/18 16:43	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			12/13/18 16:43	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			12/13/18 16:43	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			12/13/18 16:43	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/13/18 16:43	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/13/18 16:43	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			12/13/18 16:43	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			12/13/18 16:43	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			12/13/18 16:43	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			12/13/18 16:43	1

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	139	X	70 - 121		12/13/18 16:43	1
4-Bromofluorobenzene (Surr)	74		59 - 120		12/13/18 16:43	1
Toluene-d8 (Surr)	85		70 - 123		12/13/18 16:43	1
Dibromofluoromethane (Surr)	134	X	75 - 128		12/13/18 16:43	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: GW-17322-120418-DS-008

Date Collected: 12/04/18 11:00

Date Received: 12/05/18 09:50

Lab Sample ID: 240-105187-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			12/13/18 17:07	1
Benzene	1.0	U	1.0	0.13	ug/L			12/13/18 17:07	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			12/13/18 17:07	1
Bromoform	1.0	U	1.0	0.76	ug/L			12/13/18 17:07	1
Bromomethane	1.0	U	1.0	0.42	ug/L			12/13/18 17:07	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			12/13/18 17:07	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			12/13/18 17:07	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			12/13/18 17:07	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			12/13/18 17:07	1
Chloroethane	1.0	U	1.0	0.83	ug/L			12/13/18 17:07	1
Chloroform	1.0	U	1.0	0.13	ug/L			12/13/18 17:07	1
Chloromethane	1.0	U	1.0	0.20	ug/L			12/13/18 17:07	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			12/13/18 17:07	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			12/13/18 17:07	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/13/18 17:07	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			12/13/18 17:07	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			12/13/18 17:07	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			12/13/18 17:07	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			12/13/18 17:07	1
2-Hexanone	10	U	10	0.54	ug/L			12/13/18 17:07	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			12/13/18 17:07	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			12/13/18 17:07	1
Styrene	1.0	U	1.0	0.10	ug/L			12/13/18 17:07	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			12/13/18 17:07	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/13/18 17:07	1
Toluene	1.0	U	1.0	0.14	ug/L			12/13/18 17:07	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/13/18 17:07	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			12/13/18 17:07	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			12/13/18 17:07	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			12/13/18 17:07	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			12/13/18 17:07	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			12/13/18 17:07	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			12/13/18 17:07	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			12/13/18 17:07	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			12/13/18 17:07	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			12/13/18 17:07	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/13/18 17:07	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			12/13/18 17:07	1
Methyl acetate	10	U	10	1.7	ug/L			12/13/18 17:07	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			12/13/18 17:07	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			12/13/18 17:07	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			12/13/18 17:07	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/13/18 17:07	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/13/18 17:07	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			12/13/18 17:07	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			12/13/18 17:07	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			12/13/18 17:07	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			12/13/18 17:07	1

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	141	X	70 - 121		12/13/18 17:07	1
4-Bromofluorobenzene (Surr)	78		59 - 120		12/13/18 17:07	1
Toluene-d8 (Surr)	88		70 - 123		12/13/18 17:07	1
Dibromofluoromethane (Surr)	132	X	75 - 128		12/13/18 17:07	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: GW-17322-120418-DS-009

Date Collected: 12/04/18 11:05

Date Received: 12/05/18 09:50

Lab Sample ID: 240-105187-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			12/13/18 17:30	1
Benzene	1.0	U	1.0	0.13	ug/L			12/13/18 17:30	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			12/13/18 17:30	1
Bromoform	1.0	U	1.0	0.76	ug/L			12/13/18 17:30	1
Bromomethane	1.0	U	1.0	0.42	ug/L			12/13/18 17:30	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			12/13/18 17:30	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			12/13/18 17:30	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			12/13/18 17:30	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			12/13/18 17:30	1
Chloroethane	1.0	U	1.0	0.83	ug/L			12/13/18 17:30	1
Chloroform	1.0	U	1.0	0.13	ug/L			12/13/18 17:30	1
Chloromethane	1.0	U	1.0	0.20	ug/L			12/13/18 17:30	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			12/13/18 17:30	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			12/13/18 17:30	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/13/18 17:30	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			12/13/18 17:30	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			12/13/18 17:30	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			12/13/18 17:30	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			12/13/18 17:30	1
2-Hexanone	10	U	10	0.54	ug/L			12/13/18 17:30	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			12/13/18 17:30	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			12/13/18 17:30	1
Styrene	1.0	U	1.0	0.10	ug/L			12/13/18 17:30	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			12/13/18 17:30	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/13/18 17:30	1
Toluene	1.0	U	1.0	0.14	ug/L			12/13/18 17:30	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/13/18 17:30	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			12/13/18 17:30	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			12/13/18 17:30	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			12/13/18 17:30	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			12/13/18 17:30	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			12/13/18 17:30	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			12/13/18 17:30	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			12/13/18 17:30	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			12/13/18 17:30	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			12/13/18 17:30	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/13/18 17:30	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			12/13/18 17:30	1
Methyl acetate	10	U	10	1.7	ug/L			12/13/18 17:30	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			12/13/18 17:30	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			12/13/18 17:30	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			12/13/18 17:30	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/13/18 17:30	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/13/18 17:30	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			12/13/18 17:30	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			12/13/18 17:30	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			12/13/18 17:30	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			12/13/18 17:30	1

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	141	X	70 - 121		12/13/18 17:30	1
4-Bromofluorobenzene (Surr)	78		59 - 120		12/13/18 17:30	1
Toluene-d8 (Surr)	88		70 - 123		12/13/18 17:30	1
Dibromofluoromethane (Surr)	135	X	75 - 128		12/13/18 17:30	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: GW-17322-120418-DS-010

Date Collected: 12/04/18 11:55

Date Received: 12/05/18 09:50

Lab Sample ID: 240-105187-6

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			12/13/18 17:54	1
Benzene	1.0	U	1.0	0.13	ug/L			12/13/18 17:54	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			12/13/18 17:54	1
Bromoform	1.0	U	1.0	0.76	ug/L			12/13/18 17:54	1
Bromomethane	1.0	U	1.0	0.42	ug/L			12/13/18 17:54	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			12/13/18 17:54	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			12/13/18 17:54	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			12/13/18 17:54	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			12/13/18 17:54	1
Chloroethane	1.0	U	1.0	0.83	ug/L			12/13/18 17:54	1
Chloroform	1.0	U	1.0	0.13	ug/L			12/13/18 17:54	1
Chloromethane	1.0	U	1.0	0.20	ug/L			12/13/18 17:54	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			12/13/18 17:54	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			12/13/18 17:54	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/13/18 17:54	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			12/13/18 17:54	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			12/13/18 17:54	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			12/13/18 17:54	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			12/13/18 17:54	1
2-Hexanone	10	U	10	0.54	ug/L			12/13/18 17:54	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			12/13/18 17:54	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			12/13/18 17:54	1
Styrene	1.0	U	1.0	0.10	ug/L			12/13/18 17:54	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			12/13/18 17:54	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/13/18 17:54	1
Toluene	1.0	U	1.0	0.14	ug/L			12/13/18 17:54	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/13/18 17:54	1
Vinyl chloride	0.27	J	1.0	0.20	ug/L			12/13/18 17:54	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			12/13/18 17:54	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			12/13/18 17:54	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			12/13/18 17:54	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			12/13/18 17:54	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			12/13/18 17:54	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			12/13/18 17:54	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			12/13/18 17:54	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			12/13/18 17:54	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/13/18 17:54	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			12/13/18 17:54	1
Methyl acetate	10	U	10	1.7	ug/L			12/13/18 17:54	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			12/13/18 17:54	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			12/13/18 17:54	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			12/13/18 17:54	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/13/18 17:54	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/13/18 17:54	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			12/13/18 17:54	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			12/13/18 17:54	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			12/13/18 17:54	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			12/13/18 17:54	1

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	138	X	70 - 121		12/13/18 17:54	1
4-Bromofluorobenzene (Surr)	79		59 - 120		12/13/18 17:54	1
Toluene-d8 (Surr)	88		70 - 123		12/13/18 17:54	1
Dibromofluoromethane (Surr)	139	X	75 - 128		12/13/18 17:54	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: GW-17322-120418-DS-011

Date Collected: 12/04/18 12:45

Date Received: 12/05/18 09:50

Lab Sample ID: 240-105187-7

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			12/13/18 18:18	1
Benzene	1.0	U	1.0	0.13	ug/L			12/13/18 18:18	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			12/13/18 18:18	1
Bromoform	1.0	U	1.0	0.76	ug/L			12/13/18 18:18	1
Bromomethane	1.0	U	1.0	0.42	ug/L			12/13/18 18:18	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			12/13/18 18:18	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			12/13/18 18:18	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			12/13/18 18:18	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			12/13/18 18:18	1
Chloroethane	1.0	U	1.0	0.83	ug/L			12/13/18 18:18	1
Chloroform	1.0	U	1.0	0.13	ug/L			12/13/18 18:18	1
Chloromethane	1.0	U	1.0	0.20	ug/L			12/13/18 18:18	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			12/13/18 18:18	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			12/13/18 18:18	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/13/18 18:18	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			12/13/18 18:18	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			12/13/18 18:18	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			12/13/18 18:18	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			12/13/18 18:18	1
2-Hexanone	10	U	10	0.54	ug/L			12/13/18 18:18	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			12/13/18 18:18	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			12/13/18 18:18	1
Styrene	1.0	U	1.0	0.10	ug/L			12/13/18 18:18	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			12/13/18 18:18	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/13/18 18:18	1
Toluene	1.0	U	1.0	0.14	ug/L			12/13/18 18:18	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/13/18 18:18	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			12/13/18 18:18	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			12/13/18 18:18	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			12/13/18 18:18	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			12/13/18 18:18	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			12/13/18 18:18	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			12/13/18 18:18	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			12/13/18 18:18	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			12/13/18 18:18	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			12/13/18 18:18	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/13/18 18:18	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			12/13/18 18:18	1
Methyl acetate	10	U	10	1.7	ug/L			12/13/18 18:18	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			12/13/18 18:18	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			12/13/18 18:18	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			12/13/18 18:18	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/13/18 18:18	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/13/18 18:18	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			12/13/18 18:18	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			12/13/18 18:18	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			12/13/18 18:18	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			12/13/18 18:18	1

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

<i>Surrogate</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
1,2-Dichloroethane-d4 (Surr)	138	X	70 - 121		12/13/18 18:18	1
4-Bromofluorobenzene (Surr)	76		59 - 120		12/13/18 18:18	1
Toluene-d8 (Surr)	88		70 - 123		12/13/18 18:18	1
Dibromofluoromethane (Surr)	134	X	75 - 128		12/13/18 18:18	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: GW-17322-120418-DS-006

Date Collected: 12/04/18 09:00

Date Received: 12/05/18 09:50

Lab Sample ID: 240-105187-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	50	U	50	34	ug/L		12/06/18 14:00	12/07/18 16:37	1
Lead	1.0	U	1.0	0.45	ug/L		12/06/18 14:00	12/07/18 16:37	1
Vanadium	5.0	U	5.0	0.82	ug/L		12/06/18 14:00	12/07/18 16:37	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Client Sample ID: GW-17322-120418-DS-007

Date Collected: 12/04/18 09:55

Date Received: 12/05/18 09:50

Lab Sample ID: 240-105187-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	740		50	34	ug/L		12/06/18 14:00	12/07/18 16:39	1
Lead	1.0	U	1.0	0.45	ug/L		12/06/18 14:00	12/07/18 16:39	1
Vanadium	1.9	J	5.0	0.82	ug/L		12/06/18 14:00	12/07/18 16:39	1

QC Association Summary

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

GC/MS VOA

Analysis Batch: 359754

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-105187-1	TB-17322-120418	Total/NA	Water	8260B	
240-105187-4	GW-17322-120418-DS-008	Total/NA	Water	8260B	
240-105187-5	GW-17322-120418-DS-009	Total/NA	Water	8260B	
240-105187-6	GW-17322-120418-DS-010	Total/NA	Water	8260B	
240-105187-7	GW-17322-120418-DS-011	Total/NA	Water	8260B	
MB 240-359754/6	Method Blank	Total/NA	Water	8260B	
LCS 240-359754/4	Lab Control Sample	Total/NA	Water	8260B	

Metals

Prep Batch: 358638

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-105187-2	GW-17322-120418-DS-006	Total Recoverable	Water	3005A	
240-105187-3	GW-17322-120418-DS-007	Total Recoverable	Water	3005A	
MB 240-358638/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 240-358638/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 359037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-105187-2	GW-17322-120418-DS-006	Total Recoverable	Water	6020	358638
240-105187-3	GW-17322-120418-DS-007	Total Recoverable	Water	6020	358638
MB 240-358638/1-A	Method Blank	Total Recoverable	Water	6020	358638
LCS 240-358638/2-A	Lab Control Sample	Total Recoverable	Water	6020	358638

QC Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-359754/6

Matrix: Water

Analysis Batch: 359754

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	10	U	10	5.4	ug/L			12/13/18 14:09	1
Benzene	1.0	U	1.0	0.13	ug/L			12/13/18 14:09	1
Bromodichloromethane	1.0	U	1.0	0.17	ug/L			12/13/18 14:09	1
Bromoform	1.0	U	1.0	0.76	ug/L			12/13/18 14:09	1
Bromomethane	1.0	U	1.0	0.42	ug/L			12/13/18 14:09	1
2-Butanone (MEK)	10	U	10	1.2	ug/L			12/13/18 14:09	1
Carbon disulfide	5.0	U	5.0	0.28	ug/L			12/13/18 14:09	1
Carbon tetrachloride	1.0	U	1.0	0.26	ug/L			12/13/18 14:09	1
Chlorobenzene	1.0	U	1.0	0.14	ug/L			12/13/18 14:09	1
Chloroethane	1.0	U	1.0	0.83	ug/L			12/13/18 14:09	1
Chloroform	1.0	U	1.0	0.13	ug/L			12/13/18 14:09	1
Chloromethane	1.0	U	1.0	0.20	ug/L			12/13/18 14:09	1
1,1-Dichloroethane	1.0	U	1.0	0.17	ug/L			12/13/18 14:09	1
1,2-Dichloroethane	1.0	U	1.0	0.21	ug/L			12/13/18 14:09	1
1,1-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/13/18 14:09	1
1,2-Dichloropropane	1.0	U	1.0	0.15	ug/L			12/13/18 14:09	1
cis-1,3-Dichloropropene	1.0	U	1.0	0.61	ug/L			12/13/18 14:09	1
trans-1,3-Dichloropropene	1.0	U	1.0	0.67	ug/L			12/13/18 14:09	1
Ethylbenzene	1.0	U	1.0	0.11	ug/L			12/13/18 14:09	1
2-Hexanone	10	U	10	0.54	ug/L			12/13/18 14:09	1
Methylene Chloride	5.0	U	5.0	2.6	ug/L			12/13/18 14:09	1
4-Methyl-2-pentanone (MIBK)	10	U	10	0.42	ug/L			12/13/18 14:09	1
Styrene	1.0	U	1.0	0.10	ug/L			12/13/18 14:09	1
1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.13	ug/L			12/13/18 14:09	1
Tetrachloroethene	1.0	U	1.0	0.15	ug/L			12/13/18 14:09	1
Toluene	1.0	U	1.0	0.14	ug/L			12/13/18 14:09	1
Trichloroethene	1.0	U	1.0	0.10	ug/L			12/13/18 14:09	1
Vinyl chloride	1.0	U	1.0	0.20	ug/L			12/13/18 14:09	1
Xylenes, Total	2.0	U	2.0	0.15	ug/L			12/13/18 14:09	1
1,1,1-Trichloroethane	1.0	U	1.0	0.24	ug/L			12/13/18 14:09	1
1,1,2-Trichloroethane	1.0	U	1.0	0.090	ug/L			12/13/18 14:09	1
Cyclohexane	1.0	U	1.0	0.24	ug/L			12/13/18 14:09	1
1,2-Dibromo-3-Chloropropane	1.0	U	1.0	0.91	ug/L			12/13/18 14:09	1
1,2-Dibromoethane	1.0	U	1.0	0.12	ug/L			12/13/18 14:09	1
Dichlorodifluoromethane	1.0	U	1.0	0.35	ug/L			12/13/18 14:09	1
cis-1,2-Dichloroethene	1.0	U	1.0	0.16	ug/L			12/13/18 14:09	1
trans-1,2-Dichloroethene	1.0	U	1.0	0.19	ug/L			12/13/18 14:09	1
Isopropylbenzene	1.0	U	1.0	0.090	ug/L			12/13/18 14:09	1
Methyl acetate	10	U	10	1.7	ug/L			12/13/18 14:09	1
Methyl tert-butyl ether	1.0	U	1.0	0.070	ug/L			12/13/18 14:09	1
1,1,2-Trichloro-1,2,2-trifluoroethane	1.0	U	1.0	0.41	ug/L			12/13/18 14:09	1
1,2,4-Trichlorobenzene	1.0	U	1.0	0.26	ug/L			12/13/18 14:09	1
1,2-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/13/18 14:09	1
1,3-Dichlorobenzene	1.0	U	1.0	0.15	ug/L			12/13/18 14:09	1
1,4-Dichlorobenzene	1.0	U	1.0	0.16	ug/L			12/13/18 14:09	1
Trichlorofluoromethane	1.0	U	1.0	0.45	ug/L			12/13/18 14:09	1
Dibromochloromethane	1.0	U	1.0	0.39	ug/L			12/13/18 14:09	1
Methylcyclohexane	1.0	U	1.0	0.33	ug/L			12/13/18 14:09	1

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	117		70 - 121		12/13/18 14:09	1
4-Bromofluorobenzene (Surr)	67		59 - 120		12/13/18 14:09	1
Toluene-d8 (Surr)	78		70 - 123		12/13/18 14:09	1
Dibromofluoromethane (Surr)	109		75 - 128		12/13/18 14:09	1

Lab Sample ID: LCS 240-359754/4
Matrix: Water
Analysis Batch: 359754

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	20.0	17.1		ug/L		86	21 - 162
Benzene	10.0	10.0		ug/L		100	80 - 123
Bromodichloromethane	10.0	10.4		ug/L		104	77 - 125
Bromoform	10.0	10.4		ug/L		104	49 - 141
Bromomethane	10.0	9.11		ug/L		91	41 - 175
2-Butanone (MEK)	20.0	17.3		ug/L		87	39 - 163
Carbon disulfide	10.0	9.97		ug/L		100	60 - 138
Carbon tetrachloride	10.0	12.3		ug/L		123	63 - 140
Chlorobenzene	10.0	9.92		ug/L		99	80 - 121
Chloroethane	10.0	7.70		ug/L		77	33 - 173
Chloroform	10.0	11.2		ug/L		112	79 - 127
Chloromethane	10.0	11.2		ug/L		112	54 - 143
1,1-Dichloroethane	10.0	10.2		ug/L		102	75 - 133
1,2-Dichloroethane	10.0	11.1		ug/L		111	71 - 135
1,1-Dichloroethene	10.0	10.4		ug/L		104	65 - 139
1,2-Dichloropropane	10.0	9.82		ug/L		98	78 - 133
cis-1,3-Dichloropropene	10.0	9.47		ug/L		95	64 - 132
trans-1,3-Dichloropropene	10.0	9.13		ug/L		91	55 - 128
Ethylbenzene	10.0	9.65		ug/L		96	80 - 120
2-Hexanone	20.0	16.3		ug/L		81	43 - 148
Methylene Chloride	10.0	11.3		ug/L		113	70 - 134
4-Methyl-2-pentanone (MIBK)	20.0	16.5		ug/L		82	49 - 143
Styrene	10.0	9.88		ug/L		99	79 - 120
1,1,2,2-Tetrachloroethane	10.0	8.50		ug/L		85	65 - 139
Tetrachloroethene	10.0	10.9		ug/L		109	74 - 130
Toluene	10.0	10.0		ug/L		100	78 - 129
Trichloroethene	10.0	10.1		ug/L		101	76 - 125
Vinyl chloride	10.0	11.0		ug/L		110	58 - 143
Xylenes, Total	20.0	19.9		ug/L		99	80 - 120
1,1,1-Trichloroethane	10.0	12.1		ug/L		121	69 - 134
1,1,2-Trichloroethane	10.0	10.5		ug/L		105	78 - 133
Cyclohexane	10.0	9.41		ug/L		94	58 - 145
1,2-Dibromo-3-Chloropropane	10.0	8.31		ug/L		83	46 - 132
1,2-Dibromoethane	10.0	10.2		ug/L		102	77 - 123
Dichlorodifluoromethane	10.0	11.8		ug/L		118	29 - 148
cis-1,2-Dichloroethene	10.0	9.76		ug/L		98	76 - 128
trans-1,2-Dichloroethene	10.0	10.2		ug/L		102	78 - 133
Isopropylbenzene	10.0	9.94		ug/L		99	74 - 120
Methyl acetate	20.0	18.0		ug/L		90	52 - 145
Methyl tert-butyl ether	10.0	9.56		ug/L		96	51 - 133
1,1,2-Trichloro-1,2,2-trifluoroethane	10.0	12.5		ug/L		125	50 - 156
1,2,4-Trichlorobenzene	10.0	7.95		ug/L		80	42 - 133
1,2-Dichlorobenzene	10.0	9.55		ug/L		96	78 - 120

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QC Sample Results

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 240-359754/4

Matrix: Water

Analysis Batch: 359754

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3-Dichlorobenzene	10.0	9.42		ug/L		94	78 - 120
1,4-Dichlorobenzene	10.0	9.18		ug/L		92	78 - 120
Trichlorofluoromethane	10.0	14.8		ug/L		148	51 - 164
Dibromochloromethane	10.0	10.5		ug/L		105	70 - 132
Methylcyclohexane	10.0	9.06		ug/L		91	60 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	110		70 - 121
4-Bromofluorobenzene (Surr)	102		59 - 120
Toluene-d8 (Surr)	97		70 - 123
Dibromofluoromethane (Surr)	107		75 - 128

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 240-358638/1-A

Matrix: Water

Analysis Batch: 359037

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 358638

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Aluminum	50	U	50	34	ug/L		12/06/18 14:00	12/07/18 15:42	1
Lead	1.0	U	1.0	0.45	ug/L		12/06/18 14:00	12/07/18 15:42	1
Vanadium	5.0	U	5.0	0.82	ug/L		12/06/18 14:00	12/07/18 15:42	1

Lab Sample ID: LCS 240-358638/2-A

Matrix: Water

Analysis Batch: 359037

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 358638

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aluminum	10000	9800		ug/L		98	80 - 120
Lead	1000	1010		ug/L		101	80 - 120
Vanadium	1000	971		ug/L		97	80 - 120

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Surrogate Summary

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCA (70-121)	BFB (59-120)	TOL (70-123)	DBFM (75-128)
240-105187-1	TB-17322-120418	139 X	74	85	134 X
240-105187-4	GW-17322-120418-DS-008	141 X	78	88	132 X
240-105187-5	GW-17322-120418-DS-009	141 X	78	88	135 X
240-105187-6	GW-17322-120418-DS-010	138 X	79	88	139 X
240-105187-7	GW-17322-120418-DS-011	138 X	76	88	134 X
LCS 240-359754/4	Lab Control Sample	110	102	97	107
MB 240-359754/6	Method Blank	117	67	78	109

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Client Sample ID: TB-17322-120418

Date Collected: 12/04/18 00:00

Date Received: 12/05/18 09:50

Lab Sample ID: 240-105187-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	359754	12/13/18 16:43	LRW	TAL CAN

Client Sample ID: GW-17322-120418-DS-006

Date Collected: 12/04/18 09:00

Date Received: 12/05/18 09:50

Lab Sample ID: 240-105187-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			358638	12/06/18 14:00	SLD	TAL CAN
Total Recoverable	Analysis	6020		1	359037	12/07/18 16:37	DSH	TAL CAN

Client Sample ID: GW-17322-120418-DS-007

Date Collected: 12/04/18 09:55

Date Received: 12/05/18 09:50

Lab Sample ID: 240-105187-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			358638	12/06/18 14:00	SLD	TAL CAN
Total Recoverable	Analysis	6020		1	359037	12/07/18 16:39	DSH	TAL CAN

Client Sample ID: GW-17322-120418-DS-008

Date Collected: 12/04/18 11:00

Date Received: 12/05/18 09:50

Lab Sample ID: 240-105187-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	359754	12/13/18 17:07	LRW	TAL CAN

Client Sample ID: GW-17322-120418-DS-009

Date Collected: 12/04/18 11:05

Date Received: 12/05/18 09:50

Lab Sample ID: 240-105187-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	359754	12/13/18 17:30	LRW	TAL CAN

Client Sample ID: GW-17322-120418-DS-010

Date Collected: 12/04/18 11:55

Date Received: 12/05/18 09:50

Lab Sample ID: 240-105187-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	359754	12/13/18 17:54	LRW	TAL CAN

TestAmerica Canton

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Client Sample ID: GW-17322-120418-DS-011

Lab Sample ID: 240-105187-7

Date Collected: 12/04/18 12:45

Matrix: Water

Date Received: 12/05/18 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	359754	12/13/18 18:18	LRW	TAL CAN

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: 17322A-T06, PCC Validation

TestAmerica Job ID: 240-105187-1

Laboratory: TestAmerica Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-19
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	01-31-19
Kentucky (UST)	State Program	4	58	02-23-19
Kentucky (WW)	State Program	4	98016	12-31-18 *
Minnesota	NELAP	5	039-999-348	12-31-18 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-19
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-19
West Virginia DEP	State Program	3	210	12-31-18 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Canton

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact		Project Manager: Jon Kinney Tel/Fax: 848-843-3400		Date: 12.4.18 Carrier: Fed Ex	COC No: 1 of 1 COCs	
Company Name: (HID) Address: 26850 Hagerly Rd City/State/Zip: Farmington Hills, MI, 48331 Phone: 248-843-3400 Fax: 248-843-3400		Analysis Turnaround Time ☐ CALENDAR DAYS ☒ WORKING DAYS TAT if different from below: ☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		Sampler: D-Soliba For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.:		
Project Name: 1732A, PLC Validation Site: Pontiac, MI P.O.#: 24026174						
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.
TB-1732A-120418		12/4/18	/	-	TB	1
GW-1732A-120418 - DS-006			0900	G	GW	3
-007			0955			
-008			1100			
-009			1105			
-010			1155			
-011			1245			
 240-105187 Chain of Custody						
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months ☐ Filled Sample (Y/N) Perform MS/MSD (Y/N) Cooler Temp. (°C): Obs'd: _____ Corrd: _____ Therm ID No.: _____ Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
Possible Hazard Identification: Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____ Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown						
Special Instructions/QC Requirements & Comments: Relinquished by: _____ Date/Time: _____ Relinquished by: _____ Date/Time: _____ Relinquished by: _____ Date/Time: _____						

TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 105187

Client CHD Site Name _____ Cooler unpacked by: [Signature]
 Cooler Received on 12-5-18 Opened on 12-5-18
 FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 2A Foam Box Client Cooler Box Other _____
 Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
 IR GUN# IR-8 (CF -0.2 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #36 (CF +0°C) Observed Cooler Temp. 3.0 °C Corrected Cooler Temp. 3.0 °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
 4. Did custody papers accompany the sample(s)? Yes No
 5. Were the custody papers relinquished & signed in the appropriate place? Yes No
 6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
 7. Did all bottles arrive in good condition (Unbroken)? Yes No
 8. Could all bottle labels be reconciled with the COC? Yes No
 9. Were correct bottle(s) used for the test(s) indicated? Yes No
 10. Sufficient quantity received to perform indicated analyses? Yes No
 11. Are these work share samples? Yes No
 If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC854592
 13. Were VOAs on the COC? Yes No
 14. Were air bubbles >6 mm in any VOA vials?  Larger than this. Yes No NA
 15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Covered Yes No
 16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not
checked for pH by
Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

MS

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
 Sample(s) _____ were received in a broken container.
 Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
 Time preserved: _____ Preservative(s) added/Lot number(s): _____

Temperature readings: _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container</u> <u>pH</u>	<u>Preservative</u> <u>Added (mls)</u>	<u>Lot #</u>
GW-17322-120418-DS-006	240-105187-A-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
GW-17322-120418-DS-007	240-105187-A-3	Plastic 250ml - with Nitric Acid	<2	_____	_____

September 26, 2018

James Abston
GHD-Farmington Hills, Michigan
26850 Haggerty Road
Farmington, MI 48331

RE: Project: PCC Validation
Pace Project No.: 4617735

Dear James Abston:

Enclosed are the analytical results for sample(s) received by the laboratory on September 18, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

051710-E201072-028

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Will Cole
will.cole@pacelabs.com
(616)975-4500
Project Manager

Enclosures

cc: Detroit Chemistry, GHD



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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CERTIFICATIONS

Project: PCC Validation

Pace Project No.: 4617735

Grand Rapids Certification ID's

5560 Corporate Exchange Ct SE, Grand Rapids, MI 49512

Minnesota Department of Health, Certificate #1385941

Arkansas Department of Environmental Quality, Certificate
#18-046-0

Georgia Environmental Protection Division, Stipulation

Illinois Environmental Protection Agency, Certificate

#004325

Michigan Department of Environmental Quality, Laboratory

#0034

New York State Department of Health, Serial #57971 and
57972

North Carolina Division of Water Resources, Certificate
#659

Virginia Department of General Services, Certificate #9780

Wisconsin Department of Natural Resources, Laboratory
#999472650

U.S. Department of Agriculture Permit to Receive Soil,
Permit #P330-17-00278

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: PCC Validation

Pace Project No.: 4617735

Lab ID	Sample ID	Matrix	Date Collected	Date Received
4617735001	TB-17322A-091718	Water	09/17/18 00:00	09/18/18 08:30
4617735002	GW-17322A-091719-DS-001	Water	09/17/18 10:00	09/18/18 08:30
4617735003	GW-17322A-091719-DS-002	Water	09/17/18 11:00	09/18/18 08:30
4617735004	GW-17322A-091719-DS-003	Water	09/17/18 11:45	09/18/18 08:30
4617735005	GW-17322A-091719-DS-004	Water	09/17/18 11:50	09/18/18 08:30
4617735006	GW-17322A-091719-DS-005	Water	09/17/18 12:40	09/18/18 08:30
4617735007	GW-17322A-091719-DS-006	Water	09/17/18 13:40	09/18/18 08:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: PCC Validation

Pace Project No.: 4617735

Lab ID	Sample ID	Method	Analysts	Analytes Reported
4617735001	TB-17322A-091718	EPA 8260B	BAG	52
4617735002	GW-17322A-091719-DS-001	EPA 6010C	AWS	3
		EPA 6010C	AWS	3
4617735003	GW-17322A-091719-DS-002	EPA 6010C	AWS	3
		EPA 6010C	AWS	3
4617735004	GW-17322A-091719-DS-003	EPA 8260B	BAG	52
4617735005	GW-17322A-091719-DS-004	EPA 8260B	BAG	52
4617735006	GW-17322A-091719-DS-005	EPA 8260B	BAG	52
4617735007	GW-17322A-091719-DS-006	EPA 8260B	BAG	52

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617735

Sample: TB-17322A-091718		Lab ID: 4617735001		Collected: 09/17/18 00:00		Received: 09/18/18 08:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV		Analytical Method: EPA 8260B							
Acetone	5.0 U	ug/L	5.0	1.9	1		09/20/18 14:44	67-64-1	
Benzene	1.0 U	ug/L	1.0	0.23	1		09/20/18 14:44	71-43-2	
Bromodichloromethane	1.0 U	ug/L	1.0	0.21	1		09/20/18 14:44	75-27-4	
Bromoform	1.0 U	ug/L	1.0	0.23	1		09/20/18 14:44	75-25-2	
Bromomethane	1.0 U	ug/L	1.0	0.29	1		09/20/18 14:44	74-83-9	
2-Butanone (MEK)	5.0 U	ug/L	5.0	1.4	1		09/20/18 14:44	78-93-3	
Carbon disulfide	5.0 U	ug/L	5.0	0.24	1		09/20/18 14:44	75-15-0	CH
Carbon tetrachloride	1.0 U	ug/L	1.0	0.28	1		09/20/18 14:44	56-23-5	
Chlorobenzene	1.0 U	ug/L	1.0	0.20	1		09/20/18 14:44	108-90-7	
Chloroethane	1.0 U	ug/L	1.0	0.27	1		09/20/18 14:44	75-00-3	
Chloroform	1.0 U	ug/L	1.0	0.23	1		09/20/18 14:44	67-66-3	
Chloromethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 14:44	74-87-3	
Cyclohexane	5.0 U	ug/L	5.0	0.27	1		09/20/18 14:44	110-82-7	
1,2-Dibromo-3-chloropropane	1.0 U	ug/L	1.0	0.23	1		09/20/18 14:44	96-12-8	
Dibromochloromethane	1.0 U	ug/L	1.0	0.26	1		09/20/18 14:44	124-48-1	
1,2-Dibromoethane (EDB)	1.0 U	ug/L	1.0	0.22	1		09/20/18 14:44	106-93-4	
1,2-Dichlorobenzene	1.0 U	ug/L	1.0	0.11	1		09/20/18 14:44	95-50-1	
1,3-Dichlorobenzene	1.0 U	ug/L	1.0	0.27	1		09/20/18 14:44	541-73-1	
1,4-Dichlorobenzene	1.0 U	ug/L	1.0	0.16	1		09/20/18 14:44	106-46-7	
Dichlorodifluoromethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 14:44	75-71-8	
1,1-Dichloroethane	1.0 U	ug/L	1.0	0.20	1		09/20/18 14:44	75-34-3	
1,2-Dichloroethane	1.0 U	ug/L	1.0	0.27	1		09/20/18 14:44	107-06-2	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.22	1		09/20/18 14:44	75-35-4	
cis-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.25	1		09/20/18 14:44	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.26	1		09/20/18 14:44	156-60-5	
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.22	1		09/20/18 14:44	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.13	1		09/20/18 14:44	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.26	1		09/20/18 14:44	10061-02-6	
Ethylbenzene	1.0 U	ug/L	1.0	0.13	1		09/20/18 14:44	100-41-4	
2-Hexanone	5.0 U	ug/L	5.0	0.61	1		09/20/18 14:44	591-78-6	
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.12	1		09/20/18 14:44	98-82-8	
Methyl acetate	5.0 U	ug/L	5.0	0.24	1		09/20/18 14:44	79-20-9	N2
Methylcyclohexane	5.0 U	ug/L	5.0	0.22	1		09/20/18 14:44	108-87-2	
Methylene Chloride	1.0 U	ug/L	1.0	0.24	1		09/20/18 14:44	75-09-2	
4-Methyl-2-pentanone (MIBK)	5.0 U	ug/L	5.0	1.4	1		09/20/18 14:44	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.24	1		09/20/18 14:44	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.16	1		09/20/18 14:44	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.22	1		09/20/18 14:44	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.26	1		09/20/18 14:44	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.13	1		09/20/18 14:44	108-88-3	
1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	0.17	1		09/20/18 14:44	120-82-1	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.28	1		09/20/18 14:44	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 14:44	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.26	1		09/20/18 14:44	79-01-6	
Trichlorofluoromethane	1.0 U	ug/L	1.0	0.20	1		09/20/18 14:44	75-69-4	
1,1,2-Trichlorotrifluoroethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 14:44	76-13-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617735

Sample: TB-17322A-091718		Lab ID: 4617735001		Collected: 09/17/18 00:00		Received: 09/18/18 08:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV		Analytical Method: EPA 8260B							
Vinyl chloride	1.0 U	ug/L	1.0	0.27	1		09/20/18 14:44	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	0.44	1		09/20/18 14:44	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%.	87-122		1		09/20/18 14:44	17060-07-0	
Dibromofluoromethane (S)	94	%.	85-118		1		09/20/18 14:44	1868-53-7	
4-Bromofluorobenzene (S)	99	%.	82-110		1		09/20/18 14:44	460-00-4	
Toluene-d8 (S)	100	%.	85-113		1		09/20/18 14:44	2037-26-5	

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617735

Sample: GW-17322A-091719-DS-001 Lab ID: 4617735002 Collected: 09/17/18 10:00 Received: 09/18/18 08:30 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP Analytical Method: EPA 6010C Preparation Method: EPA 3010A									
Aluminum	50.0 U	ug/L	50.0	31.0	1	09/20/18 06:23	09/24/18 16:04	7429-90-5	
Lead	50.0 U	ug/L	50.0	28.0	1	09/20/18 06:23	09/24/18 16:04	7439-92-1	
Vanadium	10.0 U	ug/L	10.0	6.1	1	09/20/18 06:23	09/24/18 16:04	7440-62-2	
6010C MET ICP, Lab Filtered Analytical Method: EPA 6010C Preparation Method: EPA 3010A									
Aluminum, Dissolved	50.0 U	ug/L	50.0	31.0	1	09/20/18 07:10	09/21/18 09:58	7429-90-5	
Lead, Dissolved	50.0 U	ug/L	50.0	28.0	1	09/20/18 07:10	09/21/18 09:58	7439-92-1	
Vanadium, Dissolved	10.0 U	ug/L	10.0	6.1	1	09/20/18 07:10	09/21/18 09:58	7440-62-2	

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617735

Sample: GW-17322A-091719-DS-002		Lab ID: 4617735003		Collected: 09/17/18 11:00		Received: 09/18/18 08:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010C MET ICP Analytical Method: EPA 6010C Preparation Method: EPA 3010A									
Aluminum	1270	ug/L	50.0	31.0	1	09/20/18 06:23	09/24/18 16:36	7429-90-5	
Lead	50.0 U	ug/L	50.0	28.0	1	09/20/18 06:23	09/24/18 16:36	7439-92-1	
Vanadium	10.0 U	ug/L	10.0	6.1	1	09/20/18 06:23	09/24/18 16:36	7440-62-2	
6010C MET ICP, Lab Filtered Analytical Method: EPA 6010C Preparation Method: EPA 3010A									
Aluminum, Dissolved	116	ug/L	50.0	31.0	1	09/20/18 07:10	09/21/18 10:05	7429-90-5	
Lead, Dissolved	50.0 U	ug/L	50.0	28.0	1	09/20/18 07:10	09/21/18 10:05	7439-92-1	
Vanadium, Dissolved	10.0 U	ug/L	10.0	6.1	1	09/20/18 07:10	09/21/18 10:05	7440-62-2	

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617735

Sample: GW-17322A-091719-DS-003 **Lab ID:** 4617735004 **Collected:** 09/17/18 11:45 **Received:** 09/18/18 08:30 **Matrix:** Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV		Analytical Method: EPA 8260B							
Acetone	5.0 U	ug/L	5.0	1.9	1		09/20/18 20:24	67-64-1	
Benzene	1.0 U	ug/L	1.0	0.23	1		09/20/18 20:24	71-43-2	
Bromodichloromethane	1.0 U	ug/L	1.0	0.21	1		09/20/18 20:24	75-27-4	
Bromoform	1.0 U	ug/L	1.0	0.23	1		09/20/18 20:24	75-25-2	
Bromomethane	1.0 U	ug/L	1.0	0.29	1		09/20/18 20:24	74-83-9	
2-Butanone (MEK)	5.0 U	ug/L	5.0	1.4	1		09/20/18 20:24	78-93-3	
Carbon disulfide	5.0 U	ug/L	5.0	0.24	1		09/20/18 20:24	75-15-0	CH
Carbon tetrachloride	1.0 U	ug/L	1.0	0.28	1		09/20/18 20:24	56-23-5	
Chlorobenzene	1.0 U	ug/L	1.0	0.20	1		09/20/18 20:24	108-90-7	
Chloroethane	1.0 U	ug/L	1.0	0.27	1		09/20/18 20:24	75-00-3	
Chloroform	1.0 U	ug/L	1.0	0.23	1		09/20/18 20:24	67-66-3	
Chloromethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 20:24	74-87-3	
Cyclohexane	5.0 U	ug/L	5.0	0.27	1		09/20/18 20:24	110-82-7	
1,2-Dibromo-3-chloropropane	1.0 U	ug/L	1.0	0.23	1		09/20/18 20:24	96-12-8	
Dibromochloromethane	1.0 U	ug/L	1.0	0.26	1		09/20/18 20:24	124-48-1	
1,2-Dibromoethane (EDB)	1.0 U	ug/L	1.0	0.22	1		09/20/18 20:24	106-93-4	
1,2-Dichlorobenzene	1.0 U	ug/L	1.0	0.11	1		09/20/18 20:24	95-50-1	
1,3-Dichlorobenzene	1.0 U	ug/L	1.0	0.27	1		09/20/18 20:24	541-73-1	
1,4-Dichlorobenzene	1.0 U	ug/L	1.0	0.16	1		09/20/18 20:24	106-46-7	
Dichlorodifluoromethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 20:24	75-71-8	
1,1-Dichloroethane	1.0 U	ug/L	1.0	0.20	1		09/20/18 20:24	75-34-3	
1,2-Dichloroethane	1.0 U	ug/L	1.0	0.27	1		09/20/18 20:24	107-06-2	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.22	1		09/20/18 20:24	75-35-4	
cis-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.25	1		09/20/18 20:24	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.26	1		09/20/18 20:24	156-60-5	
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.22	1		09/20/18 20:24	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.13	1		09/20/18 20:24	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.26	1		09/20/18 20:24	10061-02-6	
Ethylbenzene	1.0 U	ug/L	1.0	0.13	1		09/20/18 20:24	100-41-4	
2-Hexanone	5.0 U	ug/L	5.0	0.61	1		09/20/18 20:24	591-78-6	
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.12	1		09/20/18 20:24	98-82-8	
Methyl acetate	5.0 U	ug/L	5.0	0.24	1		09/20/18 20:24	79-20-9	N2
Methylcyclohexane	5.0 U	ug/L	5.0	0.22	1		09/20/18 20:24	108-87-2	
Methylene Chloride	1.0 U	ug/L	1.0	0.24	1		09/20/18 20:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	5.0 U	ug/L	5.0	1.4	1		09/20/18 20:24	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.24	1		09/20/18 20:24	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.16	1		09/20/18 20:24	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.22	1		09/20/18 20:24	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.26	1		09/20/18 20:24	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.13	1		09/20/18 20:24	108-88-3	
1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	0.17	1		09/20/18 20:24	120-82-1	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.28	1		09/20/18 20:24	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 20:24	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.26	1		09/20/18 20:24	79-01-6	
Trichlorofluoromethane	1.0 U	ug/L	1.0	0.20	1		09/20/18 20:24	75-69-4	
1,1,2-Trichlorotrifluoroethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 20:24	76-13-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617735

Sample: GW-17322A-091719-DS-003		Lab ID: 4617735004		Collected: 09/17/18 11:45		Received: 09/18/18 08:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV									
Analytical Method: EPA 8260B									
Vinyl chloride	1.0 U	ug/L	1.0	0.27	1		09/20/18 20:24	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	0.44	1		09/20/18 20:24	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%.	87-122		1		09/20/18 20:24	17060-07-0	
Dibromofluoromethane (S)	93	%.	85-118		1		09/20/18 20:24	1868-53-7	
4-Bromofluorobenzene (S)	99	%.	82-110		1		09/20/18 20:24	460-00-4	
Toluene-d8 (S)	101	%.	85-113		1		09/20/18 20:24	2037-26-5	

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617735

Sample: GW-17322A-091719-DS-004 **Lab ID:** 4617735005 **Collected:** 09/17/18 11:50 **Received:** 09/18/18 08:30 **Matrix:** Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV		Analytical Method: EPA 8260B							
Acetone	5.0 U	ug/L	5.0	1.9	1		09/20/18 20:49	67-64-1	
Benzene	1.0 U	ug/L	1.0	0.23	1		09/20/18 20:49	71-43-2	
Bromodichloromethane	1.0 U	ug/L	1.0	0.21	1		09/20/18 20:49	75-27-4	
Bromoform	1.0 U	ug/L	1.0	0.23	1		09/20/18 20:49	75-25-2	
Bromomethane	1.0 U	ug/L	1.0	0.29	1		09/20/18 20:49	74-83-9	
2-Butanone (MEK)	5.0 U	ug/L	5.0	1.4	1		09/20/18 20:49	78-93-3	
Carbon disulfide	5.0 U	ug/L	5.0	0.24	1		09/20/18 20:49	75-15-0	CH
Carbon tetrachloride	1.0 U	ug/L	1.0	0.28	1		09/20/18 20:49	56-23-5	
Chlorobenzene	1.0 U	ug/L	1.0	0.20	1		09/20/18 20:49	108-90-7	
Chloroethane	1.0 U	ug/L	1.0	0.27	1		09/20/18 20:49	75-00-3	
Chloroform	1.0 U	ug/L	1.0	0.23	1		09/20/18 20:49	67-66-3	
Chloromethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 20:49	74-87-3	
Cyclohexane	5.0 U	ug/L	5.0	0.27	1		09/20/18 20:49	110-82-7	
1,2-Dibromo-3-chloropropane	1.0 U	ug/L	1.0	0.23	1		09/20/18 20:49	96-12-8	
Dibromochloromethane	1.0 U	ug/L	1.0	0.26	1		09/20/18 20:49	124-48-1	
1,2-Dibromoethane (EDB)	1.0 U	ug/L	1.0	0.22	1		09/20/18 20:49	106-93-4	
1,2-Dichlorobenzene	1.0 U	ug/L	1.0	0.11	1		09/20/18 20:49	95-50-1	
1,3-Dichlorobenzene	1.0 U	ug/L	1.0	0.27	1		09/20/18 20:49	541-73-1	
1,4-Dichlorobenzene	1.0 U	ug/L	1.0	0.16	1		09/20/18 20:49	106-46-7	
Dichlorodifluoromethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 20:49	75-71-8	
1,1-Dichloroethane	1.0 U	ug/L	1.0	0.20	1		09/20/18 20:49	75-34-3	
1,2-Dichloroethane	1.0 U	ug/L	1.0	0.27	1		09/20/18 20:49	107-06-2	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.22	1		09/20/18 20:49	75-35-4	
cis-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.25	1		09/20/18 20:49	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.26	1		09/20/18 20:49	156-60-5	
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.22	1		09/20/18 20:49	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.13	1		09/20/18 20:49	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.26	1		09/20/18 20:49	10061-02-6	
Ethylbenzene	1.0 U	ug/L	1.0	0.13	1		09/20/18 20:49	100-41-4	
2-Hexanone	5.0 U	ug/L	5.0	0.61	1		09/20/18 20:49	591-78-6	
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.12	1		09/20/18 20:49	98-82-8	
Methyl acetate	5.0 U	ug/L	5.0	0.24	1		09/20/18 20:49	79-20-9	N2
Methylcyclohexane	5.0 U	ug/L	5.0	0.22	1		09/20/18 20:49	108-87-2	
Methylene Chloride	1.0 U	ug/L	1.0	0.24	1		09/20/18 20:49	75-09-2	
4-Methyl-2-pentanone (MIBK)	5.0 U	ug/L	5.0	1.4	1		09/20/18 20:49	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.24	1		09/20/18 20:49	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.16	1		09/20/18 20:49	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.22	1		09/20/18 20:49	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.26	1		09/20/18 20:49	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.13	1		09/20/18 20:49	108-88-3	
1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	0.17	1		09/20/18 20:49	120-82-1	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.28	1		09/20/18 20:49	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 20:49	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.26	1		09/20/18 20:49	79-01-6	
Trichlorofluoromethane	1.0 U	ug/L	1.0	0.20	1		09/20/18 20:49	75-69-4	
1,1,2-Trichlorotrifluoroethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 20:49	76-13-1	

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617735

Sample: GW-17322A-091719-DS-004		Lab ID: 4617735005		Collected: 09/17/18 11:50		Received: 09/18/18 08:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV									
Analytical Method: EPA 8260B									
Vinyl chloride	1.0 U	ug/L	1.0	0.27	1		09/20/18 20:49	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	0.44	1		09/20/18 20:49	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%.	87-122		1		09/20/18 20:49	17060-07-0	
Dibromofluoromethane (S)	93	%.	85-118		1		09/20/18 20:49	1868-53-7	
4-Bromofluorobenzene (S)	98	%.	82-110		1		09/20/18 20:49	460-00-4	
Toluene-d8 (S)	101	%.	85-113		1		09/20/18 20:49	2037-26-5	

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617735

Sample: GW-17322A-091719-DS-005 **Lab ID:** 4617735006 **Collected:** 09/17/18 12:40 **Received:** 09/18/18 08:30 **Matrix:** Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV		Analytical Method: EPA 8260B							
Acetone	5.0 U	ug/L	5.0	1.9	1		09/20/18 21:13	67-64-1	
Benzene	1.0 U	ug/L	1.0	0.23	1		09/20/18 21:13	71-43-2	
Bromodichloromethane	1.0 U	ug/L	1.0	0.21	1		09/20/18 21:13	75-27-4	
Bromoform	1.0 U	ug/L	1.0	0.23	1		09/20/18 21:13	75-25-2	
Bromomethane	1.0 U	ug/L	1.0	0.29	1		09/20/18 21:13	74-83-9	
2-Butanone (MEK)	5.0 U	ug/L	5.0	1.4	1		09/20/18 21:13	78-93-3	
Carbon disulfide	5.0 U	ug/L	5.0	0.24	1		09/20/18 21:13	75-15-0	CH
Carbon tetrachloride	1.0 U	ug/L	1.0	0.28	1		09/20/18 21:13	56-23-5	
Chlorobenzene	1.0 U	ug/L	1.0	0.20	1		09/20/18 21:13	108-90-7	
Chloroethane	1.0 U	ug/L	1.0	0.27	1		09/20/18 21:13	75-00-3	
Chloroform	1.0 U	ug/L	1.0	0.23	1		09/20/18 21:13	67-66-3	
Chloromethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 21:13	74-87-3	
Cyclohexane	5.0 U	ug/L	5.0	0.27	1		09/20/18 21:13	110-82-7	
1,2-Dibromo-3-chloropropane	1.0 U	ug/L	1.0	0.23	1		09/20/18 21:13	96-12-8	
Dibromochloromethane	1.0 U	ug/L	1.0	0.26	1		09/20/18 21:13	124-48-1	
1,2-Dibromoethane (EDB)	1.0 U	ug/L	1.0	0.22	1		09/20/18 21:13	106-93-4	
1,2-Dichlorobenzene	1.0 U	ug/L	1.0	0.11	1		09/20/18 21:13	95-50-1	
1,3-Dichlorobenzene	1.0 U	ug/L	1.0	0.27	1		09/20/18 21:13	541-73-1	
1,4-Dichlorobenzene	1.0 U	ug/L	1.0	0.16	1		09/20/18 21:13	106-46-7	
Dichlorodifluoromethane	0.55J	ug/L	1.0	0.24	1		09/20/18 21:13	75-71-8	
1,1-Dichloroethane	1.0 U	ug/L	1.0	0.20	1		09/20/18 21:13	75-34-3	
1,2-Dichloroethane	1.0 U	ug/L	1.0	0.27	1		09/20/18 21:13	107-06-2	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.22	1		09/20/18 21:13	75-35-4	
cis-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.25	1		09/20/18 21:13	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.26	1		09/20/18 21:13	156-60-5	
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.22	1		09/20/18 21:13	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.13	1		09/20/18 21:13	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.26	1		09/20/18 21:13	10061-02-6	
Ethylbenzene	1.0 U	ug/L	1.0	0.13	1		09/20/18 21:13	100-41-4	
2-Hexanone	5.0 U	ug/L	5.0	0.61	1		09/20/18 21:13	591-78-6	
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.12	1		09/20/18 21:13	98-82-8	
Methyl acetate	5.0 U	ug/L	5.0	0.24	1		09/20/18 21:13	79-20-9	N2
Methylcyclohexane	5.0 U	ug/L	5.0	0.22	1		09/20/18 21:13	108-87-2	
Methylene Chloride	1.0 U	ug/L	1.0	0.24	1		09/20/18 21:13	75-09-2	
4-Methyl-2-pentanone (MIBK)	5.0 U	ug/L	5.0	1.4	1		09/20/18 21:13	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.24	1		09/20/18 21:13	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.16	1		09/20/18 21:13	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.22	1		09/20/18 21:13	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.26	1		09/20/18 21:13	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.13	1		09/20/18 21:13	108-88-3	
1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	0.17	1		09/20/18 21:13	120-82-1	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.28	1		09/20/18 21:13	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 21:13	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.26	1		09/20/18 21:13	79-01-6	
Trichlorofluoromethane	1.0 U	ug/L	1.0	0.20	1		09/20/18 21:13	75-69-4	
1,1,2-Trichlorotrifluoroethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 21:13	76-13-1	

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617735

Sample: GW-17322A-091719-DS-005 Lab ID: 4617735006 Collected: 09/17/18 12:40 Received: 09/18/18 08:30 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Analytical Method: EPA 8260B									
Vinyl chloride	1.0 U	ug/L	1.0	0.27	1		09/20/18 21:13	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	0.44	1		09/20/18 21:13	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	99	%.	87-122		1		09/20/18 21:13	17060-07-0	
Dibromofluoromethane (S)	94	%.	85-118		1		09/20/18 21:13	1868-53-7	
4-Bromofluorobenzene (S)	99	%.	82-110		1		09/20/18 21:13	460-00-4	
Toluene-d8 (S)	102	%.	85-113		1		09/20/18 21:13	2037-26-5	

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617735

Sample: GW-17322A-091719-DS-006 **Lab ID:** 4617735007 **Collected:** 09/17/18 13:40 **Received:** 09/18/18 08:30 **Matrix:** Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV		Analytical Method: EPA 8260B							
Acetone	5.0 U	ug/L	5.0	1.9	1		09/20/18 21:37	67-64-1	
Benzene	1.0 U	ug/L	1.0	0.23	1		09/20/18 21:37	71-43-2	
Bromodichloromethane	1.0 U	ug/L	1.0	0.21	1		09/20/18 21:37	75-27-4	
Bromoform	1.0 U	ug/L	1.0	0.23	1		09/20/18 21:37	75-25-2	
Bromomethane	1.0 U	ug/L	1.0	0.29	1		09/20/18 21:37	74-83-9	
2-Butanone (MEK)	5.0 U	ug/L	5.0	1.4	1		09/20/18 21:37	78-93-3	
Carbon disulfide	5.0 U	ug/L	5.0	0.24	1		09/20/18 21:37	75-15-0	CH
Carbon tetrachloride	1.0 U	ug/L	1.0	0.28	1		09/20/18 21:37	56-23-5	
Chlorobenzene	1.0 U	ug/L	1.0	0.20	1		09/20/18 21:37	108-90-7	
Chloroethane	1.0 U	ug/L	1.0	0.27	1		09/20/18 21:37	75-00-3	
Chloroform	1.0 U	ug/L	1.0	0.23	1		09/20/18 21:37	67-66-3	
Chloromethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 21:37	74-87-3	
Cyclohexane	5.0 U	ug/L	5.0	0.27	1		09/20/18 21:37	110-82-7	
1,2-Dibromo-3-chloropropane	1.0 U	ug/L	1.0	0.23	1		09/20/18 21:37	96-12-8	
Dibromochloromethane	1.0 U	ug/L	1.0	0.26	1		09/20/18 21:37	124-48-1	
1,2-Dibromoethane (EDB)	1.0 U	ug/L	1.0	0.22	1		09/20/18 21:37	106-93-4	
1,2-Dichlorobenzene	1.0 U	ug/L	1.0	0.11	1		09/20/18 21:37	95-50-1	
1,3-Dichlorobenzene	1.0 U	ug/L	1.0	0.27	1		09/20/18 21:37	541-73-1	
1,4-Dichlorobenzene	1.0 U	ug/L	1.0	0.16	1		09/20/18 21:37	106-46-7	
Dichlorodifluoromethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 21:37	75-71-8	
1,1-Dichloroethane	1.0 U	ug/L	1.0	0.20	1		09/20/18 21:37	75-34-3	
1,2-Dichloroethane	1.0 U	ug/L	1.0	0.27	1		09/20/18 21:37	107-06-2	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.22	1		09/20/18 21:37	75-35-4	
cis-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.25	1		09/20/18 21:37	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.26	1		09/20/18 21:37	156-60-5	
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.22	1		09/20/18 21:37	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.13	1		09/20/18 21:37	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.26	1		09/20/18 21:37	10061-02-6	
Ethylbenzene	1.0 U	ug/L	1.0	0.13	1		09/20/18 21:37	100-41-4	
2-Hexanone	5.0 U	ug/L	5.0	0.61	1		09/20/18 21:37	591-78-6	
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.12	1		09/20/18 21:37	98-82-8	
Methyl acetate	5.0 U	ug/L	5.0	0.24	1		09/20/18 21:37	79-20-9	N2
Methylcyclohexane	5.0 U	ug/L	5.0	0.22	1		09/20/18 21:37	108-87-2	
Methylene Chloride	1.0 U	ug/L	1.0	0.24	1		09/20/18 21:37	75-09-2	
4-Methyl-2-pentanone (MIBK)	5.0 U	ug/L	5.0	1.4	1		09/20/18 21:37	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.24	1		09/20/18 21:37	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.16	1		09/20/18 21:37	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.22	1		09/20/18 21:37	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.26	1		09/20/18 21:37	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.13	1		09/20/18 21:37	108-88-3	
1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	0.17	1		09/20/18 21:37	120-82-1	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.28	1		09/20/18 21:37	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 21:37	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.26	1		09/20/18 21:37	79-01-6	
Trichlorofluoromethane	1.0 U	ug/L	1.0	0.20	1		09/20/18 21:37	75-69-4	
1,1,2-Trichlorotrifluoroethane	1.0 U	ug/L	1.0	0.24	1		09/20/18 21:37	76-13-1	

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617735

Sample: GW-17322A-091719-DS-006		Lab ID: 4617735007		Collected: 09/17/18 13:40		Received: 09/18/18 08:30		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV									
Analytical Method: EPA 8260B									
Vinyl chloride	1.0 U	ug/L	1.0	0.27	1		09/20/18 21:37	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	0.44	1		09/20/18 21:37	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%.	87-122		1		09/20/18 21:37	17060-07-0	
Dibromofluoromethane (S)	93	%.	85-118		1		09/20/18 21:37	1868-53-7	
4-Bromofluorobenzene (S)	98	%.	82-110		1		09/20/18 21:37	460-00-4	
Toluene-d8 (S)	102	%.	85-113		1		09/20/18 21:37	2037-26-5	

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QUALITY CONTROL DATA

Project: PCC Validation

Pace Project No.: 4617735

QC Batch:	33545	Analysis Method:	EPA 6010C
QC Batch Method:	EPA 3010A	Analysis Description:	6010C MET
Associated Lab Samples: 4617735002, 4617735003			

METHOD BLANK: 135413 Matrix: Water

Associated Lab Samples: 4617735002, 4617735003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aluminum	ug/L	50.0 U	50.0	31.0	09/24/18 15:48	
Lead	ug/L	50.0 U	50.0	28.0	09/24/18 15:48	
Vanadium	ug/L	10.0 U	10.0	6.1	09/24/18 15:48	

LABORATORY CONTROL SAMPLE: 135414

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	2000	1950	97	80-120	
Lead	ug/L	400	392	98	80-120	
Vanadium	ug/L	400	397	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 135415 135416

Parameter	Units	4617735002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum	ug/L	50.0 U	2000	2000	2030	2010	102	101	75-125	1	20	
Lead	ug/L	50.0 U	400	400	386	388	95	96	75-125	1	20	
Vanadium	ug/L	10.0 U	400	400	399	399	100	100	75-125	0	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL DATA

Project: PCC Validation

Pace Project No.: 4617735

QC Batch: 33551

Analysis Method: EPA 6010C

QC Batch Method: EPA 3010A

Analysis Description: 6010C MET Dissolved

Associated Lab Samples: 4617735002, 4617735003

METHOD BLANK: 135436

Matrix: Water

Associated Lab Samples: 4617735002, 4617735003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	50.0 U	50.0	31.0	09/21/18 09:42	
Lead, Dissolved	ug/L	50.0 U	50.0	28.0	09/21/18 09:42	
Vanadium, Dissolved	ug/L	10.0 U	10.0	6.1	09/21/18 09:42	

LABORATORY CONTROL SAMPLE: 135437

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	2000	1890	95	80-120	
Lead, Dissolved	ug/L	400	380	95	80-120	
Vanadium, Dissolved	ug/L	400	395	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 135438

135439

Parameter	Units	4617759011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aluminum, Dissolved	ug/L	ND	2000	2000	1890	1870	95	94	75-125	1	20	
Lead, Dissolved	ug/L	ND	400	400	382	384	96	96	75-125	0	20	
Vanadium, Dissolved	ug/L	ND	400	400	391	391	97	97	75-125	0	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PCC Validation
Pace Project No.: 4617735

QC Batch: 33705 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV
Associated Lab Samples: 4617735001, 4617735004, 4617735005, 4617735006, 4617735007

METHOD BLANK: 136046 Matrix: Water
Associated Lab Samples: 4617735001, 4617735004, 4617735005, 4617735006, 4617735007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	1.0 U	1.0	0.28	09/20/18 14:19	
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0	0.22	09/20/18 14:19	
1,1,2-Trichloroethane	ug/L	1.0 U	1.0	0.24	09/20/18 14:19	
1,1,2-Trichlorotrifluoroethane	ug/L	1.0 U	1.0	0.24	09/20/18 14:19	
1,1-Dichloroethane	ug/L	1.0 U	1.0	0.20	09/20/18 14:19	
1,1-Dichloroethene	ug/L	1.0 U	1.0	0.22	09/20/18 14:19	
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0	0.17	09/20/18 14:19	
1,2-Dibromo-3-chloropropane	ug/L	1.0 U	1.0	0.23	09/20/18 14:19	
1,2-Dibromoethane (EDB)	ug/L	1.0 U	1.0	0.22	09/20/18 14:19	
1,2-Dichlorobenzene	ug/L	1.0 U	1.0	0.11	09/20/18 14:19	
1,2-Dichloroethane	ug/L	1.0 U	1.0	0.27	09/20/18 14:19	
1,2-Dichloropropane	ug/L	1.0 U	1.0	0.22	09/20/18 14:19	
1,3-Dichlorobenzene	ug/L	1.0 U	1.0	0.27	09/20/18 14:19	
1,4-Dichlorobenzene	ug/L	1.0 U	1.0	0.16	09/20/18 14:19	
2-Butanone (MEK)	ug/L	5.0 U	5.0	1.4	09/20/18 14:19	
2-Hexanone	ug/L	5.0 U	5.0	0.61	09/20/18 14:19	
4-Methyl-2-pentanone (MIBK)	ug/L	5.0 U	5.0	1.4	09/20/18 14:19	
Acetone	ug/L	5.0 U	5.0	1.9	09/20/18 14:19	
Benzene	ug/L	1.0 U	1.0	0.23	09/20/18 14:19	
Bromodichloromethane	ug/L	1.0 U	1.0	0.21	09/20/18 14:19	
Bromoform	ug/L	1.0 U	1.0	0.23	09/20/18 14:19	
Bromomethane	ug/L	1.0 U	1.0	0.29	09/20/18 14:19	
Carbon disulfide	ug/L	5.0 U	5.0	0.24	09/20/18 14:19	
Carbon tetrachloride	ug/L	1.0 U	1.0	0.28	09/20/18 14:19	
Chlorobenzene	ug/L	1.0 U	1.0	0.20	09/20/18 14:19	
Chloroethane	ug/L	1.0 U	1.0	0.27	09/20/18 14:19	
Chloroform	ug/L	0.37J	1.0	0.23	09/20/18 14:19	
Chloromethane	ug/L	1.0 U	1.0	0.24	09/20/18 14:19	
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0	0.25	09/20/18 14:19	
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0	0.13	09/20/18 14:19	
Cyclohexane	ug/L	5.0 U	5.0	0.27	09/20/18 14:19	
Dibromochloromethane	ug/L	1.0 U	1.0	0.26	09/20/18 14:19	
Dichlorodifluoromethane	ug/L	1.0 U	1.0	0.24	09/20/18 14:19	
Ethylbenzene	ug/L	1.0 U	1.0	0.13	09/20/18 14:19	
Isopropylbenzene (Cumene)	ug/L	1.0 U	1.0	0.12	09/20/18 14:19	
Methyl acetate	ug/L	5.0 U	5.0	0.24	09/20/18 14:19	N2
Methyl-tert-butyl ether	ug/L	1.0 U	1.0	0.24	09/20/18 14:19	
Methylcyclohexane	ug/L	5.0 U	5.0	0.22	09/20/18 14:19	
Methylene Chloride	ug/L	1.0 U	1.0	0.24	09/20/18 14:19	
Styrene	ug/L	1.0 U	1.0	0.16	09/20/18 14:19	
Tetrachloroethene	ug/L	1.0 U	1.0	0.26	09/20/18 14:19	

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QUALITY CONTROL DATA

Project: PCC Validation

Pace Project No.: 4617735

METHOD BLANK: 136046

Matrix: Water

Associated Lab Samples: 4617735001, 4617735004, 4617735005, 4617735006, 4617735007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Toluene	ug/L	1.0 U	1.0	0.13	09/20/18 14:19	
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0	0.26	09/20/18 14:19	
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0	0.26	09/20/18 14:19	
Trichloroethene	ug/L	1.0 U	1.0	0.26	09/20/18 14:19	
Trichlorofluoromethane	ug/L	1.0 U	1.0	0.20	09/20/18 14:19	
Vinyl chloride	ug/L	1.0 U	1.0	0.27	09/20/18 14:19	
Xylene (Total)	ug/L	3.0 U	3.0	0.44	09/20/18 14:19	
1,2-Dichloroethane-d4 (S)	%	97	87-122		09/20/18 14:19	
4-Bromofluorobenzene (S)	%	99	82-110		09/20/18 14:19	
Dibromofluoromethane (S)	%	96	85-118		09/20/18 14:19	
Toluene-d8 (S)	%	101	85-113		09/20/18 14:19	

LABORATORY CONTROL SAMPLE: 136047

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	43.5	109	81-122	
1,1,2,2-Tetrachloroethane	ug/L	40	40.9	102	70-137	
1,1,2-Trichloroethane	ug/L	40	42.2	105	83-121	
1,1,2-Trichlorotrifluoroethane	ug/L	40	40.8	102	76-126	
1,1-Dichloroethane	ug/L	40	41.9	105	80-118	
1,1-Dichloroethene	ug/L	40	41.4	104	77-123	
1,2,4-Trichlorobenzene	ug/L	40	40.1	100	75-125	
1,2-Dibromo-3-chloropropane	ug/L	40	38.8	97	58-130	
1,2-Dibromoethane (EDB)	ug/L	40	41.5	104	84-125	
1,2-Dichlorobenzene	ug/L	40	39.2	98	81-124	
1,2-Dichloroethane	ug/L	40	39.5	99	81-122	
1,2-Dichloropropane	ug/L	40	43.1	108	82-122	
1,3-Dichlorobenzene	ug/L	40	39.5	99	81-124	
1,4-Dichlorobenzene	ug/L	40	38.9	97	79-122	
2-Butanone (MEK)	ug/L	40	45.5	114	52-142	
2-Hexanone	ug/L	40	45.4	114	55-141	
4-Methyl-2-pentanone (MIBK)	ug/L	40	46.0	115	60-142	
Acetone	ug/L	40	45.7	114	53-138	
Benzene	ug/L	40	41.9	105	84-119	
Bromodichloromethane	ug/L	40	39.3	98	82-124	
Bromoform	ug/L	40	38.5	96	65-123	
Bromomethane	ug/L	40	40.9	102	55-142	
Carbon disulfide	ug/L	40	50.3	126	70-131	
Carbon tetrachloride	ug/L	40	36.8	92	79-127	
Chlorobenzene	ug/L	40	39.7	99	84-118	
Chloroethane	ug/L	40	41.0	102	76-124	
Chloroform	ug/L	40	39.7	99	82-119	
Chloromethane	ug/L	40	37.1	93	73-125	
cis-1,2-Dichloroethene	ug/L	40	41.9	105	84-119	

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QUALITY CONTROL DATA

Project: PCC Validation

Pace Project No.: 4617735

LABORATORY CONTROL SAMPLE: 136047

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,3-Dichloropropene	ug/L	40	39.8	100	77-120	
Cyclohexane	ug/L	40	42.7	107	70-129	
Dibromochloromethane	ug/L	40	36.6	92	74-121	
Dichlorodifluoromethane	ug/L	40	35.1	88	68-130	
Ethylbenzene	ug/L	40	40.6	101	87-119	
Isopropylbenzene (Cumene)	ug/L	40	41.0	103	76-126	
Methyl acetate	ug/L	40	35.7	89	67-129	N2
Methyl-tert-butyl ether	ug/L	40	42.1	105	72-128	
Methylcyclohexane	ug/L	40	42.9	107	78-126	
Methylene Chloride	ug/L	40	42.5	106	75-129	
Styrene	ug/L	40	40.7	102	84-120	
Tetrachloroethene	ug/L	40	40.3	101	81-117	
Toluene	ug/L	40	41.8	104	85-118	
trans-1,2-Dichloroethene	ug/L	40	42.0	105	76-126	
trans-1,3-Dichloropropene	ug/L	40	39.2	98	73-116	
Trichloroethene	ug/L	40	41.8	104	82-119	
Trichlorofluoromethane	ug/L	40	40.8	102	76-128	
Vinyl chloride	ug/L	40	40.3	101	77-123	
Xylene (Total)	ug/L	120	121	101	86-119	
1,2-Dichloroethane-d4 (S)	%			96	87-122	
4-Bromofluorobenzene (S)	%			99	82-110	
Dibromofluoromethane (S)	%			99	85-118	
Toluene-d8 (S)	%			101	85-113	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 136048 136049

Parameter	Units	4617679001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	1.0 U	40	40	43.5	46.0	109	115	79-131	5	10	
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	40	40	42.6	42.7	106	107	71-129	0	10	
1,1,2-Trichloroethane	ug/L	1.0 U	40	40	43.5	43.8	109	109	76-127	1	10	
1,1,2-Trichlorotrifluoroethane	ug/L	1.0 U	40	40	41.1	41.0	103	102	67-135	0	14	
1,1-Dichloroethane	ug/L	1.0 U	40	40	43.1	44.3	108	111	76-129	3	13	
1,1-Dichloroethene	ug/L	1.0 U	40	40	42.0	42.6	105	106	74-134	1	11	
1,2,4-Trichlorobenzene	ug/L	1.0 U	40	40	40.1	40.5	100	101	66-131	1	15	
1,2-Dibromo-3-chloropropane	ug/L	1.0 U	40	40	38.1	39.1	95	98	55-126	3	16	
1,2-Dibromoethane (EDB)	ug/L	1.0 U	40	40	42.6	42.9	107	107	78-125	1	9	
1,2-Dichlorobenzene	ug/L	1.0 U	40	40	40.3	40.6	101	102	76-124	1	10	
1,2-Dichloroethane	ug/L	1.0 U	40	40	41.4	41.6	104	104	74-131	1	9	
1,2-Dichloropropane	ug/L	1.0 U	40	40	43.7	45.0	109	112	79-128	3	9	
1,3-Dichlorobenzene	ug/L	1.0 U	40	40	40.7	40.9	102	102	76-123	1	10	
1,4-Dichlorobenzene	ug/L	1.0 U	40	40	40.1	40.5	100	101	75-121	1	10	
2-Butanone (MEK)	ug/L	5.0 U	40	40	46.6	46.7	116	117	52-134	0	17	
2-Hexanone	ug/L	5.0 U	40	40	46.9	47.1	117	118	53-134	0	15	

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QUALITY CONTROL DATA

Project: PCC Validation

Pace Project No.: 4617735

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 136048											
136049											
Parameter	Units	4617679001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
4-Methyl-2-pentanone (MIBK)	ug/L	5.0 U	40	40	47.4	47.0	119	118	55-139	1	15
Acetone	ug/L	5.0 U	40	40	46.6	46.8	116	117	46-145	1	17
Benzene	ug/L	1.0 U	40	40	43.2	44.0	108	110	80-129	2	9
Bromodichloromethane	ug/L	1.0 U	40	40	39.0	40.7	97	102	81-130	4	10
Bromoform	ug/L	1.0 U	40	40	38.1	39.4	95	99	60-122	3	12
Bromomethane	ug/L	1.0 U	40	40	29.5	36.1	74	90	44-140	20	35
Carbon disulfide	ug/L	5.0 U	40	40	47.2	51.2	118	128	69-144	8	15
Carbon tetrachloride	ug/L	1.0 U	40	40	37.4	39.1	94	98	78-137	4	11
Chlorobenzene	ug/L	1.0 U	40	40	41.0	41.7	103	104	80-121	2	8
Chloroethane	ug/L	1.0 U	40	40	40.7	42.4	102	106	72-137	4	14
Chloroform	ug/L	1.0 U	40	40	41.0	41.9	102	105	79-128	2	9
Chloromethane	ug/L	1.0 U	40	40	36.2	37.2	90	93	72-134	3	11
cis-1,2-Dichloroethene	ug/L	1.0 U	40	40	43.5	44.3	109	111	76-129	2	12
cis-1,3-Dichloropropene	ug/L	1.0 U	40	40	37.7	39.0	94	97	68-122	3	11
Cyclohexane	ug/L	5.0 U	40	40	44.4	45.4	111	114	65-131	2	11
Dibromochloromethane	ug/L	1.0 U	40	40	36.3	37.7	91	94	70-126	4	10
Dichlorodifluoromethane	ug/L	1.0 U	40	40	34.4	34.8	86	87	64-138	1	13
Ethylbenzene	ug/L	1.0 U	40	40	42.1	42.6	105	106	82-127	1	10
Isopropylbenzene (Cumene)	ug/L	1.0 U	40	40	42.4	43.0	106	108	73-131	1	12
Methyl acetate	ug/L	5.0 U	40	40	35.2	34.6	88	87	40-133	2	16 N2
Methyl-tert-butyl ether	ug/L	1.0 U	40	40	41.6	42.8	104	107	65-131	3	15
Methylcyclohexane	ug/L	5.0 U	40	40	43.7	44.9	109	112	70-137	3	14
Methylene Chloride	ug/L	1.0 U	40	40	42.8	43.0	107	108	75-133	1	10
Styrene	ug/L	1.0 U	40	40	41.7	42.1	104	105	75-129	1	10
Tetrachloroethene	ug/L	1.0 U	40	40	41.4	41.8	103	105	75-126	1	10
Toluene	ug/L	1.0 U	40	40	43.1	44.0	108	110	79-129	2	9
trans-1,2-Dichloroethene	ug/L	1.0 U	40	40	43.2	44.8	108	112	71-137	4	15
trans-1,3-Dichloropropene	ug/L	1.0 U	40	40	37.4	38.8	93	97	66-117	4	12
Trichloroethene	ug/L	1.0 U	40	40	43.0	43.7	108	109	75-127	2	10
Trichlorofluoromethane	ug/L	1.0 U	40	40	41.4	42.8	103	107	70-141	3	11
Vinyl chloride	ug/L	1.0 U	40	40	40.0	41.2	100	103	73-136	3	12
Xylene (Total)	ug/L	3.0 U	120	120	125	127	104	106	78-130	2	9
1,2-Dichloroethane-d4 (S)	%						97	97	87-122		
4-Bromofluorobenzene (S)	%						100	100	82-110		
Dibromofluoromethane (S)	%						99	100	85-118		
Toluene-d8 (S)	%						102	101	85-113		

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: PCC Validation
Pace Project No.: 4617735

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
TNTC - Too Numerous To Count
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

ANALYTE QUALIFIERS

CH	The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
N2	The lab does not hold NELAC/TNI accreditation for this parameter.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PCC Validation

Pace Project No.: 4617735

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
4617735002	GW-17322A-091719-DS-001	EPA 3010A	33545	EPA 6010C	33971
4617735003	GW-17322A-091719-DS-002	EPA 3010A	33545	EPA 6010C	33971
4617735002	GW-17322A-091719-DS-001	EPA 3010A	33551	EPA 6010C	33791
4617735003	GW-17322A-091719-DS-002	EPA 3010A	33551	EPA 6010C	33791
4617735001	TB-17322A-091718	EPA 8260B	33705		
4617735004	GW-17322A-091719-DS-003	EPA 8260B	33705		
4617735005	GW-17322A-091719-DS-004	EPA 8260B	33705		
4617735006	GW-17322A-091719-DS-005	EPA 8260B	33705		
4617735007	GW-17322A-091719-DS-006	EPA 8260B	33705		

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WO#: 4617735



4617735

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

1787

Section C	
Required Client Information:	Required Project Information:
Company: GHD - Farmington Hills, Michigan	Report To: Abston, James
Address: 26850 Haggerty Road	Copy To:
Farmington Hills, MI 48331	
Email: james.abston@ghd.com	Purchase Order #: 017322A-008-102-118
Phone: 248-883-3400	Project Name: POC-Validation
Requested Due Date: Standard YAT	Project #: 017322A-102
Section D	
Attention: Accounts Receivable	
Company Name: 6140	
Address: 26850 Haggerty	
Pace Quote: will.cole@pace-labs.com	
Pace Project Manager: will.cole@pace-labs.com	
Pace Profile #: 1787	
Regulatory Agency	
State / Location MI	

Page: 1 of 1

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / . ,) Sample Ids must be unique										MATRIX CODE (see valid codes to left)		COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Analyses Test	Y/N																	Residual Chlorine (Y/N)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	MATRIX		CODE		DATE	TIME	DATE	TIME	START	END	Unpreserved	H2SO4	HNO3	HCl			NaOH	Na2S2O3	Methanol	Other																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	Drinking Water	DW	Waste Water	WW																	Product	P	Soil/Solid	SL			Oil	OL	Wipe	WP	Air	OT	Other	TS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
1	TB-17322A-091718										TB	17322A	091718	1	9/17/18	/	1																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															

ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION		DATE		TIME		ACCEPTED BY / AFFILIATION		DATE		TIME		SAMPLE CONDITIONS	
Lab to filter Dissolved Metals		M. M. GHD		9-17-18		1430		Derek Saliba		9/18/18		0830			

SAMPLER NAME AND SIGNATURE	
PRINT Name of SAMPLER: Derek Saliba	DATE Signed: 9-13-18
SIGNATURE of SAMPLER: [Signature]	
TEMP in C	Received on
	Ice (Y/N)
	Custody (Y/N)
	Sealed (Y/N)
	Cooler (Y/N)
	Samples Intact (Y/N)



Sample Conditions Upon Rec

WO# : 4617735

Date: <u>9/18/18</u>	Evaluated by: <u>ICB</u>	PM: WDC Due Date: 09/28/18 CLIENT: GHD-PLYMOUTH
Client: <u>GHD</u>	<u>9-7</u>	
Profile ID: <u>-</u>	Project Manager: <u>-</u>	
Sample Receiving Non Conformance Form Required: <u>YES</u> NO		Rush Turn Around Time Requested: YES <u>NO</u> Due Date: <u>-</u>
Page <u>1</u> Of <u>1</u>		Lab Notified of Rush or Short Holds: YES <u>NO</u>

Lab Sample Receipt Checklist:

Samples Received Via:	<u>FEDEX</u>	UPS	CLIENT	PACE COURIER
Custody Seals Present and Intact:	YES	<u>NO</u>	NA	
USDA Regulated Soils:	YES	<u>NO</u>	NA	
Short Holds Present (< 72 Hours):	YES	<u>NO</u>	NA	
Samples Received in Hold:	<u>YES</u>	NO	NA	
Custody Signatures Present:	<u>YES</u>	NO	NA	
Collector Signature Present:	<u>YES</u>	NO	NA	
Samples Received On Ice:	<u>YES</u>	NO	NA	
Type of Ice: <u>WET</u> BLUE DRY NONE				
Packing Material Used:	<u>YES</u>	NO	NA	
IR Gun #: 202 <u>402</u> Temp should be 0-6°C	Cooler Temp Upon Receipt: <u>2.9</u> °C			
Temp Blank Received:	<u>YES</u>	NO	NA	<u>3.9°C</u>
Trip Blank Received: Type: <u>HCL</u> MeOH TSP OTHER	<u>YES</u>	NO	NA	
Bottles Intact:	<u>YES</u>	NO	NA	
Correct Bottles:	<u>YES</u>	NO	NA	
Sufficient Volume:	<u>YES</u>	NO	NA	
Sample pH Acceptable: All containers needing preservation are found to be in compliance with EPA recommendation Exceptions are VOA, coliform, TOC, O & G, HEM, DRO	<u>YES</u>	NO	NA	pH Strip Lot Number: <u>HL739245</u>
VOA Headspace Acceptable (<6mm):	<u>YES</u>	NO	NA	
Comments:				

Sample Receiving Non-Conformance Form (NCF)

Affix Workorder/Login Label Here or List Pace
 Workorder Number or MTL Log-in Number
 Here

Date: 9/18/18	Client: GHD
Evaluated by: ICB	9-7

1. If Chain-of-Custody (COC) is not received: contact client and if necessary, fill out a COC and indicate that it was filled out by lab personnel. Note issues on this NCF.

2. If COC is incomplete, check applicable issues below and add details where appropriate:

Collection date/time missing or incorrect	Analyses or analytes: missing or clarification needed	Samples listed on COC do not match samples received (missing, additional, etc.)
Sample IDs on COC do not match sample labels	Required trip blanks were not received	Required signatures are missing

Comments/Details/Other issues not listed above:

3. Sample integrity issues: check applicable issues below and add details where appropriate:

Samples: Past holding time	Samples: Condition needs to be brought to lab personnel's attention (details below)	Preservation: Improper	Temperature: not within acceptance criteria (typically 0-6C)
Samples: Not field filtered	Containers: Broken or compromised	Containers: Incorrect	Temperature: Samples arrived frozen
Samples: Insufficient volume received		Containers: Missing or compromised on samples, trip blanks or coolers	
Samples: Cooler damaged or compromised			
Samples: contain chlorine or sulfides			

Comments/Details:

TB-17321A has headspace

4. If Samples not preserved properly and Sample Receiving adjusts pH, add details below:

Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:

5. Client Contact: If client is contacted for any issue listed above, fill in details below:

Client:	Contacted per:
PM Initials:	Date/Time:

Client Comments/Instructions:

September 24, 2018

James Abston
GHD-Farmington Hills, Michigan
26850 Haggerty Road
Farmington, MI 48331

RE: Project: PCC Validation
Pace Project No.: 4617820

Dear James Abston:

Enclosed are the analytical results for sample(s) received by the laboratory on September 19, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

051710-E201072-028

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Will Cole
will.cole@pacelabs.com
(616)975-4500
Project Manager

Enclosures

cc: Detroit Chemistry, GHD



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: PCC Validation

Pace Project No.: 4617820

Grand Rapids Certification ID's

5560 Corporate Exchange Ct SE, Grand Rapids, MI 49512

Minnesota Department of Health, Certificate #1385941

Arkansas Department of Environmental Quality, Certificate
#18-046-0

Georgia Environmental Protection Division, Stipulation

Illinois Environmental Protection Agency, Certificate

#004325

Michigan Department of Environmental Quality, Laboratory

#0034

New York State Department of Health, Serial #57971 and
57972

North Carolina Division of Water Resources, Certificate
#659

Virginia Department of General Services, Certificate #9780

Wisconsin Department of Natural Resources, Laboratory
#999472650

U.S. Department of Agriculture Permit to Receive Soil,
Permit #P330-17-00278

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: PCC Validation

Pace Project No.: 4617820

Lab ID	Sample ID	Matrix	Date Collected	Date Received
4617820001	TB-17322A-091818	Water	09/18/18 00:00	09/19/18 09:40
4617820002	GW-17322A-091818-DS-007	Water	09/18/18 09:00	09/19/18 09:40
4617820003	GW-17322A-091818-DS-008	Water	09/18/18 10:25	09/19/18 09:40
4617820004	GW-17322A-091818-DS-009	Water	09/18/18 11:45	09/19/18 13:15
4617820005	GW-17322A-091818-DS-010	Water	09/18/18 12:35	09/19/18 13:15
4617820006	GW-17322A-091818-DS-011	Water	09/18/18 13:35	09/19/18 13:15

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SAMPLE ANALYTE COUNT

Project: PCC Validation

Pace Project No.: 4617820

Lab ID	Sample ID	Method	Analysts	Analytes Reported
4617820001	TB-17322A-091818	EPA 8260B	BAG	52
4617820002	GW-17322A-091818-DS-007	EPA 8260B	BAG	52
4617820003	GW-17322A-091818-DS-008	EPA 8260B	BAG	52
4617820004	GW-17322A-091818-DS-009	EPA 8260B	BAG	52
4617820005	GW-17322A-091818-DS-010	EPA 8260B	BAG	52
4617820006	GW-17322A-091818-DS-011	EPA 8260B	BAG	52

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617820

Sample: TB-17322A-091818		Lab ID: 4617820001		Collected: 09/18/18 00:00		Received: 09/19/18 09:40		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV		Analytical Method: EPA 8260B							
Acetone	5.0 U	ug/L	5.0	1.9	1		09/21/18 22:49	67-64-1	
Benzene	1.0 U	ug/L	1.0	0.23	1		09/21/18 22:49	71-43-2	
Bromodichloromethane	1.0 U	ug/L	1.0	0.21	1		09/21/18 22:49	75-27-4	
Bromoform	1.0 U	ug/L	1.0	0.23	1		09/21/18 22:49	75-25-2	
Bromomethane	1.0 U	ug/L	1.0	0.29	1		09/21/18 22:49	74-83-9	CL
2-Butanone (MEK)	5.0 U	ug/L	5.0	1.4	1		09/21/18 22:49	78-93-3	
Carbon disulfide	5.0 U	ug/L	5.0	0.24	1		09/21/18 22:49	75-15-0	CH
Carbon tetrachloride	1.0 U	ug/L	1.0	0.28	1		09/21/18 22:49	56-23-5	
Chlorobenzene	1.0 U	ug/L	1.0	0.20	1		09/21/18 22:49	108-90-7	
Chloroethane	1.0 U	ug/L	1.0	0.27	1		09/21/18 22:49	75-00-3	
Chloroform	1.0 U	ug/L	1.0	0.23	1		09/21/18 22:49	67-66-3	
Chloromethane	1.0 U	ug/L	1.0	0.24	1		09/21/18 22:49	74-87-3	
Cyclohexane	5.0 U	ug/L	5.0	0.27	1		09/21/18 22:49	110-82-7	
1,2-Dibromo-3-chloropropane	1.0 U	ug/L	1.0	0.23	1		09/21/18 22:49	96-12-8	
Dibromochloromethane	1.0 U	ug/L	1.0	0.26	1		09/21/18 22:49	124-48-1	
1,2-Dibromoethane (EDB)	1.0 U	ug/L	1.0	0.22	1		09/21/18 22:49	106-93-4	
1,2-Dichlorobenzene	1.0 U	ug/L	1.0	0.11	1		09/21/18 22:49	95-50-1	
1,3-Dichlorobenzene	1.0 U	ug/L	1.0	0.27	1		09/21/18 22:49	541-73-1	
1,4-Dichlorobenzene	1.0 U	ug/L	1.0	0.16	1		09/21/18 22:49	106-46-7	
Dichlorodifluoromethane	1.0 U	ug/L	1.0	0.24	1		09/21/18 22:49	75-71-8	
1,1-Dichloroethane	1.0 U	ug/L	1.0	0.20	1		09/21/18 22:49	75-34-3	
1,2-Dichloroethane	1.0 U	ug/L	1.0	0.27	1		09/21/18 22:49	107-06-2	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.22	1		09/21/18 22:49	75-35-4	
cis-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.25	1		09/21/18 22:49	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.26	1		09/21/18 22:49	156-60-5	
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.22	1		09/21/18 22:49	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.13	1		09/21/18 22:49	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.26	1		09/21/18 22:49	10061-02-6	
Ethylbenzene	1.0 U	ug/L	1.0	0.13	1		09/21/18 22:49	100-41-4	
2-Hexanone	5.0 U	ug/L	5.0	0.61	1		09/21/18 22:49	591-78-6	
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.12	1		09/21/18 22:49	98-82-8	
Methyl acetate	5.0 U	ug/L	5.0	0.24	1		09/21/18 22:49	79-20-9	N2
Methylcyclohexane	5.0 U	ug/L	5.0	0.22	1		09/21/18 22:49	108-87-2	
Methylene Chloride	2.4	ug/L	1.0	0.24	1		09/21/18 22:49	75-09-2	B
4-Methyl-2-pentanone (MIBK)	5.0 U	ug/L	5.0	1.4	1		09/21/18 22:49	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.24	1		09/21/18 22:49	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.16	1		09/21/18 22:49	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.22	1		09/21/18 22:49	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.26	1		09/21/18 22:49	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.13	1		09/21/18 22:49	108-88-3	
1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	0.17	1		09/21/18 22:49	120-82-1	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.28	1		09/21/18 22:49	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.24	1		09/21/18 22:49	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.26	1		09/21/18 22:49	79-01-6	
Trichlorofluoromethane	1.0 U	ug/L	1.0	0.20	1		09/21/18 22:49	75-69-4	
1,1,2-Trichlorotrifluoroethane	1.0 U	ug/L	1.0	0.24	1		09/21/18 22:49	76-13-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617820

Sample: TB-17322A-091818		Lab ID: 4617820001		Collected: 09/18/18 00:00		Received: 09/19/18 09:40		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV		Analytical Method: EPA 8260B							
Vinyl chloride	1.0 U	ug/L	1.0	0.27	1		09/21/18 22:49	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	0.44	1		09/21/18 22:49	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%.	87-122		1		09/21/18 22:49	17060-07-0	
Dibromofluoromethane (S)	98	%.	85-118		1		09/21/18 22:49	1868-53-7	
4-Bromofluorobenzene (S)	99	%.	82-110		1		09/21/18 22:49	460-00-4	
Toluene-d8 (S)	102	%.	85-113		1		09/21/18 22:49	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617820

Sample: GW-17322A-091818-DS-007 **Lab ID:** 4617820002 **Collected:** 09/18/18 09:00 **Received:** 09/19/18 09:40 **Matrix:** Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Analytical Method: EPA 8260B									
Acetone	5.0 U	ug/L	5.0	1.9	1		09/21/18 23:13	67-64-1	
Benzene	1.0 U	ug/L	1.0	0.23	1		09/21/18 23:13	71-43-2	
Bromodichloromethane	1.0 U	ug/L	1.0	0.21	1		09/21/18 23:13	75-27-4	
Bromoform	1.0 U	ug/L	1.0	0.23	1		09/21/18 23:13	75-25-2	
Bromomethane	1.0 U	ug/L	1.0	0.29	1		09/21/18 23:13	74-83-9	CL
2-Butanone (MEK)	5.0 U	ug/L	5.0	1.4	1		09/21/18 23:13	78-93-3	
Carbon disulfide	5.0 U	ug/L	5.0	0.24	1		09/21/18 23:13	75-15-0	CH
Carbon tetrachloride	1.0 U	ug/L	1.0	0.28	1		09/21/18 23:13	56-23-5	
Chlorobenzene	1.0 U	ug/L	1.0	0.20	1		09/21/18 23:13	108-90-7	
Chloroethane	1.0 U	ug/L	1.0	0.27	1		09/21/18 23:13	75-00-3	
Chloroform	1.0 U	ug/L	1.0	0.23	1		09/21/18 23:13	67-66-3	
Chloromethane	1.0 U	ug/L	1.0	0.24	1		09/21/18 23:13	74-87-3	
Cyclohexane	5.0 U	ug/L	5.0	0.27	1		09/21/18 23:13	110-82-7	
1,2-Dibromo-3-chloropropane	1.0 U	ug/L	1.0	0.23	1		09/21/18 23:13	96-12-8	
Dibromochloromethane	1.0 U	ug/L	1.0	0.26	1		09/21/18 23:13	124-48-1	
1,2-Dibromoethane (EDB)	1.0 U	ug/L	1.0	0.22	1		09/21/18 23:13	106-93-4	
1,2-Dichlorobenzene	1.0 U	ug/L	1.0	0.11	1		09/21/18 23:13	95-50-1	
1,3-Dichlorobenzene	1.0 U	ug/L	1.0	0.27	1		09/21/18 23:13	541-73-1	
1,4-Dichlorobenzene	1.0 U	ug/L	1.0	0.16	1		09/21/18 23:13	106-46-7	
Dichlorodifluoromethane	1.0 U	ug/L	1.0	0.24	1		09/21/18 23:13	75-71-8	
1,1-Dichloroethane	1.0 U	ug/L	1.0	0.20	1		09/21/18 23:13	75-34-3	
1,2-Dichloroethane	1.0 U	ug/L	1.0	0.27	1		09/21/18 23:13	107-06-2	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.22	1		09/21/18 23:13	75-35-4	
cis-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.25	1		09/21/18 23:13	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.26	1		09/21/18 23:13	156-60-5	
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.22	1		09/21/18 23:13	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.13	1		09/21/18 23:13	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.26	1		09/21/18 23:13	10061-02-6	
Ethylbenzene	1.0 U	ug/L	1.0	0.13	1		09/21/18 23:13	100-41-4	
2-Hexanone	5.0 U	ug/L	5.0	0.61	1		09/21/18 23:13	591-78-6	
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.12	1		09/21/18 23:13	98-82-8	
Methyl acetate	5.0 U	ug/L	5.0	0.24	1		09/21/18 23:13	79-20-9	N2
Methylcyclohexane	5.0 U	ug/L	5.0	0.22	1		09/21/18 23:13	108-87-2	
Methylene Chloride	1.0 U	ug/L	1.0	0.24	1		09/21/18 23:13	75-09-2	
4-Methyl-2-pentanone (MIBK)	5.0 U	ug/L	5.0	1.4	1		09/21/18 23:13	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.24	1		09/21/18 23:13	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.16	1		09/21/18 23:13	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.22	1		09/21/18 23:13	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.26	1		09/21/18 23:13	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.13	1		09/21/18 23:13	108-88-3	
1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	0.17	1		09/21/18 23:13	120-82-1	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.28	1		09/21/18 23:13	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.24	1		09/21/18 23:13	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.26	1		09/21/18 23:13	79-01-6	
Trichlorofluoromethane	0.23J	ug/L	1.0	0.20	1		09/21/18 23:13	75-69-4	
1,1,2-Trichlorotrifluoroethane	1.0 U	ug/L	1.0	0.24	1		09/21/18 23:13	76-13-1	

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617820

Sample: GW-17322A-091818-DS-007		Lab ID: 4617820002		Collected: 09/18/18 09:00		Received: 09/19/18 09:40		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV									
Analytical Method: EPA 8260B									
Vinyl chloride	1.0 U	ug/L	1.0	0.27	1		09/21/18 23:13	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	0.44	1		09/21/18 23:13	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	87-122		1		09/21/18 23:13	17060-07-0	
Dibromofluoromethane (S)	98	%.	85-118		1		09/21/18 23:13	1868-53-7	
4-Bromofluorobenzene (S)	99	%.	82-110		1		09/21/18 23:13	460-00-4	
Toluene-d8 (S)	102	%.	85-113		1		09/21/18 23:13	2037-26-5	

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617820

Sample: GW-17322A-091818-DS-008 **Lab ID:** 4617820003 **Collected:** 09/18/18 10:25 **Received:** 09/19/18 09:40 **Matrix:** Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV		Analytical Method: EPA 8260B							
Acetone	5.0 U	ug/L	5.0	1.9	1		09/21/18 23:38	67-64-1	
Benzene	1.0 U	ug/L	1.0	0.23	1		09/21/18 23:38	71-43-2	
Bromodichloromethane	1.0 U	ug/L	1.0	0.21	1		09/21/18 23:38	75-27-4	
Bromoform	1.0 U	ug/L	1.0	0.23	1		09/21/18 23:38	75-25-2	
Bromomethane	1.0 U	ug/L	1.0	0.29	1		09/21/18 23:38	74-83-9	CL
2-Butanone (MEK)	5.0 U	ug/L	5.0	1.4	1		09/21/18 23:38	78-93-3	
Carbon disulfide	5.0 U	ug/L	5.0	0.24	1		09/21/18 23:38	75-15-0	CH
Carbon tetrachloride	1.0 U	ug/L	1.0	0.28	1		09/21/18 23:38	56-23-5	
Chlorobenzene	1.0 U	ug/L	1.0	0.20	1		09/21/18 23:38	108-90-7	
Chloroethane	1.0 U	ug/L	1.0	0.27	1		09/21/18 23:38	75-00-3	
Chloroform	1.0 U	ug/L	1.0	0.23	1		09/21/18 23:38	67-66-3	
Chloromethane	1.0 U	ug/L	1.0	0.24	1		09/21/18 23:38	74-87-3	
Cyclohexane	5.0 U	ug/L	5.0	0.27	1		09/21/18 23:38	110-82-7	
1,2-Dibromo-3-chloropropane	1.0 U	ug/L	1.0	0.23	1		09/21/18 23:38	96-12-8	
Dibromochloromethane	1.0 U	ug/L	1.0	0.26	1		09/21/18 23:38	124-48-1	
1,2-Dibromoethane (EDB)	1.0 U	ug/L	1.0	0.22	1		09/21/18 23:38	106-93-4	
1,2-Dichlorobenzene	1.0 U	ug/L	1.0	0.11	1		09/21/18 23:38	95-50-1	
1,3-Dichlorobenzene	1.0 U	ug/L	1.0	0.27	1		09/21/18 23:38	541-73-1	
1,4-Dichlorobenzene	1.0 U	ug/L	1.0	0.16	1		09/21/18 23:38	106-46-7	
Dichlorodifluoromethane	1.0 U	ug/L	1.0	0.24	1		09/21/18 23:38	75-71-8	
1,1-Dichloroethane	1.0 U	ug/L	1.0	0.20	1		09/21/18 23:38	75-34-3	
1,2-Dichloroethane	1.0 U	ug/L	1.0	0.27	1		09/21/18 23:38	107-06-2	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.22	1		09/21/18 23:38	75-35-4	
cis-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.25	1		09/21/18 23:38	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.26	1		09/21/18 23:38	156-60-5	
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.22	1		09/21/18 23:38	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.13	1		09/21/18 23:38	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.26	1		09/21/18 23:38	10061-02-6	
Ethylbenzene	1.0 U	ug/L	1.0	0.13	1		09/21/18 23:38	100-41-4	
2-Hexanone	5.0 U	ug/L	5.0	0.61	1		09/21/18 23:38	591-78-6	
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.12	1		09/21/18 23:38	98-82-8	
Methyl acetate	5.0 U	ug/L	5.0	0.24	1		09/21/18 23:38	79-20-9	N2
Methylcyclohexane	5.0 U	ug/L	5.0	0.22	1		09/21/18 23:38	108-87-2	
Methylene Chloride	1.0 U	ug/L	1.0	0.24	1		09/21/18 23:38	75-09-2	
4-Methyl-2-pentanone (MIBK)	5.0 U	ug/L	5.0	1.4	1		09/21/18 23:38	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.24	1		09/21/18 23:38	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.16	1		09/21/18 23:38	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.22	1		09/21/18 23:38	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.26	1		09/21/18 23:38	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.13	1		09/21/18 23:38	108-88-3	
1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	0.17	1		09/21/18 23:38	120-82-1	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.28	1		09/21/18 23:38	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.24	1		09/21/18 23:38	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.26	1		09/21/18 23:38	79-01-6	
Trichlorofluoromethane	1.0 U	ug/L	1.0	0.20	1		09/21/18 23:38	75-69-4	
1,1,2-Trichlorotrifluoroethane	1.0 U	ug/L	1.0	0.24	1		09/21/18 23:38	76-13-1	

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617820

Sample: GW-17322A-091818-DS-008		Lab ID: 4617820003		Collected: 09/18/18 10:25		Received: 09/19/18 09:40		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV									
Analytical Method: EPA 8260B									
Vinyl chloride	1.0 U	ug/L	1.0	0.27	1		09/21/18 23:38	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	0.44	1		09/21/18 23:38	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%.	87-122		1		09/21/18 23:38	17060-07-0	
Dibromofluoromethane (S)	97	%.	85-118		1		09/21/18 23:38	1868-53-7	
4-Bromofluorobenzene (S)	100	%.	82-110		1		09/21/18 23:38	460-00-4	
Toluene-d8 (S)	102	%.	85-113		1		09/21/18 23:38	2037-26-5	

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617820

Sample: GW-17322A-091818-DS-009 **Lab ID:** 4617820004 **Collected:** 09/18/18 11:45 **Received:** 09/19/18 13:15 **Matrix:** Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Analytical Method: EPA 8260B									
Acetone	5.0 U	ug/L	5.0	1.9	1		09/22/18 00:02	67-64-1	
Benzene	1.0 U	ug/L	1.0	0.23	1		09/22/18 00:02	71-43-2	
Bromodichloromethane	1.0 U	ug/L	1.0	0.21	1		09/22/18 00:02	75-27-4	
Bromoform	1.0 U	ug/L	1.0	0.23	1		09/22/18 00:02	75-25-2	
Bromomethane	1.0 U	ug/L	1.0	0.29	1		09/22/18 00:02	74-83-9	CL
2-Butanone (MEK)	5.0 U	ug/L	5.0	1.4	1		09/22/18 00:02	78-93-3	
Carbon disulfide	5.0 U	ug/L	5.0	0.24	1		09/22/18 00:02	75-15-0	CH
Carbon tetrachloride	1.0 U	ug/L	1.0	0.28	1		09/22/18 00:02	56-23-5	
Chlorobenzene	1.0 U	ug/L	1.0	0.20	1		09/22/18 00:02	108-90-7	
Chloroethane	1.0 U	ug/L	1.0	0.27	1		09/22/18 00:02	75-00-3	
Chloroform	1.0 U	ug/L	1.0	0.23	1		09/22/18 00:02	67-66-3	
Chloromethane	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:02	74-87-3	
Cyclohexane	5.0 U	ug/L	5.0	0.27	1		09/22/18 00:02	110-82-7	
1,2-Dibromo-3-chloropropane	1.0 U	ug/L	1.0	0.23	1		09/22/18 00:02	96-12-8	
Dibromochloromethane	1.0 U	ug/L	1.0	0.26	1		09/22/18 00:02	124-48-1	
1,2-Dibromoethane (EDB)	1.0 U	ug/L	1.0	0.22	1		09/22/18 00:02	106-93-4	
1,2-Dichlorobenzene	1.0 U	ug/L	1.0	0.11	1		09/22/18 00:02	95-50-1	
1,3-Dichlorobenzene	1.0 U	ug/L	1.0	0.27	1		09/22/18 00:02	541-73-1	
1,4-Dichlorobenzene	1.0 U	ug/L	1.0	0.16	1		09/22/18 00:02	106-46-7	
Dichlorodifluoromethane	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:02	75-71-8	
1,1-Dichloroethane	1.0 U	ug/L	1.0	0.20	1		09/22/18 00:02	75-34-3	
1,2-Dichloroethane	1.0 U	ug/L	1.0	0.27	1		09/22/18 00:02	107-06-2	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.22	1		09/22/18 00:02	75-35-4	
cis-1,2-Dichloroethene	0.33J	ug/L	1.0	0.25	1		09/22/18 00:02	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.26	1		09/22/18 00:02	156-60-5	
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.22	1		09/22/18 00:02	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.13	1		09/22/18 00:02	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.26	1		09/22/18 00:02	10061-02-6	
Ethylbenzene	1.0 U	ug/L	1.0	0.13	1		09/22/18 00:02	100-41-4	
2-Hexanone	5.0 U	ug/L	5.0	0.61	1		09/22/18 00:02	591-78-6	
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.12	1		09/22/18 00:02	98-82-8	
Methyl acetate	5.0 U	ug/L	5.0	0.24	1		09/22/18 00:02	79-20-9	N2
Methylcyclohexane	5.0 U	ug/L	5.0	0.22	1		09/22/18 00:02	108-87-2	
Methylene Chloride	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:02	75-09-2	
4-Methyl-2-pentanone (MIBK)	5.0 U	ug/L	5.0	1.4	1		09/22/18 00:02	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:02	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.16	1		09/22/18 00:02	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.22	1		09/22/18 00:02	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.26	1		09/22/18 00:02	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.13	1		09/22/18 00:02	108-88-3	
1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	0.17	1		09/22/18 00:02	120-82-1	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.28	1		09/22/18 00:02	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:02	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.26	1		09/22/18 00:02	79-01-6	
Trichlorofluoromethane	1.0 U	ug/L	1.0	0.20	1		09/22/18 00:02	75-69-4	
1,1,2-Trichlorotrifluoroethane	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:02	76-13-1	

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617820

Sample: GW-17322A-091818-DS-009 Lab ID: 4617820004 Collected: 09/18/18 11:45 Received: 09/19/18 13:15 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Analytical Method: EPA 8260B									
Vinyl chloride	1.4	ug/L	1.0	0.27	1		09/22/18 00:02	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	0.44	1		09/22/18 00:02	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%.	87-122		1		09/22/18 00:02	17060-07-0	
Dibromofluoromethane (S)	97	%.	85-118		1		09/22/18 00:02	1868-53-7	
4-Bromofluorobenzene (S)	99	%.	82-110		1		09/22/18 00:02	460-00-4	
Toluene-d8 (S)	102	%.	85-113		1		09/22/18 00:02	2037-26-5	

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617820

Sample: GW-17322A-091818-DS-010 **Lab ID:** 4617820005 **Collected:** 09/18/18 12:35 **Received:** 09/19/18 13:15 **Matrix:** Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV		Analytical Method: EPA 8260B							
Acetone	5.0 U	ug/L	5.0	1.9	1		09/22/18 00:26	67-64-1	
Benzene	1.0 U	ug/L	1.0	0.23	1		09/22/18 00:26	71-43-2	
Bromodichloromethane	1.0 U	ug/L	1.0	0.21	1		09/22/18 00:26	75-27-4	
Bromoform	1.0 U	ug/L	1.0	0.23	1		09/22/18 00:26	75-25-2	
Bromomethane	1.0 U	ug/L	1.0	0.29	1		09/22/18 00:26	74-83-9	CL
2-Butanone (MEK)	5.0 U	ug/L	5.0	1.4	1		09/22/18 00:26	78-93-3	
Carbon disulfide	5.0 U	ug/L	5.0	0.24	1		09/22/18 00:26	75-15-0	CH
Carbon tetrachloride	1.0 U	ug/L	1.0	0.28	1		09/22/18 00:26	56-23-5	
Chlorobenzene	1.0 U	ug/L	1.0	0.20	1		09/22/18 00:26	108-90-7	
Chloroethane	1.0 U	ug/L	1.0	0.27	1		09/22/18 00:26	75-00-3	
Chloroform	1.0 U	ug/L	1.0	0.23	1		09/22/18 00:26	67-66-3	
Chloromethane	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:26	74-87-3	
Cyclohexane	5.0 U	ug/L	5.0	0.27	1		09/22/18 00:26	110-82-7	
1,2-Dibromo-3-chloropropane	1.0 U	ug/L	1.0	0.23	1		09/22/18 00:26	96-12-8	
Dibromochloromethane	1.0 U	ug/L	1.0	0.26	1		09/22/18 00:26	124-48-1	
1,2-Dibromoethane (EDB)	1.0 U	ug/L	1.0	0.22	1		09/22/18 00:26	106-93-4	
1,2-Dichlorobenzene	1.0 U	ug/L	1.0	0.11	1		09/22/18 00:26	95-50-1	
1,3-Dichlorobenzene	1.0 U	ug/L	1.0	0.27	1		09/22/18 00:26	541-73-1	
1,4-Dichlorobenzene	1.0 U	ug/L	1.0	0.16	1		09/22/18 00:26	106-46-7	
Dichlorodifluoromethane	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:26	75-71-8	
1,1-Dichloroethane	1.0 U	ug/L	1.0	0.20	1		09/22/18 00:26	75-34-3	
1,2-Dichloroethane	1.0 U	ug/L	1.0	0.27	1		09/22/18 00:26	107-06-2	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.22	1		09/22/18 00:26	75-35-4	
cis-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.25	1		09/22/18 00:26	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.26	1		09/22/18 00:26	156-60-5	
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.22	1		09/22/18 00:26	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.13	1		09/22/18 00:26	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.26	1		09/22/18 00:26	10061-02-6	
Ethylbenzene	1.0 U	ug/L	1.0	0.13	1		09/22/18 00:26	100-41-4	
2-Hexanone	5.0 U	ug/L	5.0	0.61	1		09/22/18 00:26	591-78-6	
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.12	1		09/22/18 00:26	98-82-8	
Methyl acetate	5.0 U	ug/L	5.0	0.24	1		09/22/18 00:26	79-20-9	N2
Methylcyclohexane	5.0 U	ug/L	5.0	0.22	1		09/22/18 00:26	108-87-2	
Methylene Chloride	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:26	75-09-2	
4-Methyl-2-pentanone (MIBK)	5.0 U	ug/L	5.0	1.4	1		09/22/18 00:26	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:26	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.16	1		09/22/18 00:26	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.22	1		09/22/18 00:26	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.26	1		09/22/18 00:26	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.13	1		09/22/18 00:26	108-88-3	
1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	0.17	1		09/22/18 00:26	120-82-1	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.28	1		09/22/18 00:26	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:26	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.26	1		09/22/18 00:26	79-01-6	
Trichlorofluoromethane	1.0 U	ug/L	1.0	0.20	1		09/22/18 00:26	75-69-4	
1,1,2-Trichlorotrifluoroethane	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:26	76-13-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617820

Sample: GW-17322A-091818-DS-010		Lab ID: 4617820005		Collected: 09/18/18 12:35		Received: 09/19/18 13:15		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV									
Analytical Method: EPA 8260B									
Vinyl chloride	1.0 U	ug/L	1.0	0.27	1		09/22/18 00:26	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	0.44	1		09/22/18 00:26	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%.	87-122		1		09/22/18 00:26	17060-07-0	
Dibromofluoromethane (S)	96	%.	85-118		1		09/22/18 00:26	1868-53-7	
4-Bromofluorobenzene (S)	100	%.	82-110		1		09/22/18 00:26	460-00-4	
Toluene-d8 (S)	102	%.	85-113		1		09/22/18 00:26	2037-26-5	

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617820

Sample: GW-17322A-091818-DS-011 **Lab ID:** 4617820006 **Collected:** 09/18/18 13:35 **Received:** 09/19/18 13:15 **Matrix:** Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV		Analytical Method: EPA 8260B							
Acetone	5.0 U	ug/L	5.0	1.9	1		09/22/18 00:50	67-64-1	
Benzene	1.0 U	ug/L	1.0	0.23	1		09/22/18 00:50	71-43-2	
Bromodichloromethane	1.0 U	ug/L	1.0	0.21	1		09/22/18 00:50	75-27-4	
Bromoform	1.0 U	ug/L	1.0	0.23	1		09/22/18 00:50	75-25-2	
Bromomethane	1.0 U	ug/L	1.0	0.29	1		09/22/18 00:50	74-83-9	CL
2-Butanone (MEK)	5.0 U	ug/L	5.0	1.4	1		09/22/18 00:50	78-93-3	
Carbon disulfide	5.0 U	ug/L	5.0	0.24	1		09/22/18 00:50	75-15-0	CH
Carbon tetrachloride	1.0 U	ug/L	1.0	0.28	1		09/22/18 00:50	56-23-5	
Chlorobenzene	1.0 U	ug/L	1.0	0.20	1		09/22/18 00:50	108-90-7	
Chloroethane	1.0 U	ug/L	1.0	0.27	1		09/22/18 00:50	75-00-3	
Chloroform	1.0 U	ug/L	1.0	0.23	1		09/22/18 00:50	67-66-3	
Chloromethane	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:50	74-87-3	
Cyclohexane	5.0 U	ug/L	5.0	0.27	1		09/22/18 00:50	110-82-7	
1,2-Dibromo-3-chloropropane	1.0 U	ug/L	1.0	0.23	1		09/22/18 00:50	96-12-8	
Dibromochloromethane	1.0 U	ug/L	1.0	0.26	1		09/22/18 00:50	124-48-1	
1,2-Dibromoethane (EDB)	1.0 U	ug/L	1.0	0.22	1		09/22/18 00:50	106-93-4	
1,2-Dichlorobenzene	1.0 U	ug/L	1.0	0.11	1		09/22/18 00:50	95-50-1	
1,3-Dichlorobenzene	1.0 U	ug/L	1.0	0.27	1		09/22/18 00:50	541-73-1	
1,4-Dichlorobenzene	1.0 U	ug/L	1.0	0.16	1		09/22/18 00:50	106-46-7	
Dichlorodifluoromethane	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:50	75-71-8	
1,1-Dichloroethane	1.0 U	ug/L	1.0	0.20	1		09/22/18 00:50	75-34-3	
1,2-Dichloroethane	1.0 U	ug/L	1.0	0.27	1		09/22/18 00:50	107-06-2	
1,1-Dichloroethene	1.0 U	ug/L	1.0	0.22	1		09/22/18 00:50	75-35-4	
cis-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.25	1		09/22/18 00:50	156-59-2	
trans-1,2-Dichloroethene	1.0 U	ug/L	1.0	0.26	1		09/22/18 00:50	156-60-5	
1,2-Dichloropropane	1.0 U	ug/L	1.0	0.22	1		09/22/18 00:50	78-87-5	
cis-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.13	1		09/22/18 00:50	10061-01-5	
trans-1,3-Dichloropropene	1.0 U	ug/L	1.0	0.26	1		09/22/18 00:50	10061-02-6	
Ethylbenzene	1.0 U	ug/L	1.0	0.13	1		09/22/18 00:50	100-41-4	
2-Hexanone	5.0 U	ug/L	5.0	0.61	1		09/22/18 00:50	591-78-6	
Isopropylbenzene (Cumene)	1.0 U	ug/L	1.0	0.12	1		09/22/18 00:50	98-82-8	
Methyl acetate	5.0 U	ug/L	5.0	0.24	1		09/22/18 00:50	79-20-9	N2
Methylcyclohexane	5.0 U	ug/L	5.0	0.22	1		09/22/18 00:50	108-87-2	
Methylene Chloride	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:50	75-09-2	
4-Methyl-2-pentanone (MIBK)	5.0 U	ug/L	5.0	1.4	1		09/22/18 00:50	108-10-1	
Methyl-tert-butyl ether	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:50	1634-04-4	
Styrene	1.0 U	ug/L	1.0	0.16	1		09/22/18 00:50	100-42-5	
1,1,2,2-Tetrachloroethane	1.0 U	ug/L	1.0	0.22	1		09/22/18 00:50	79-34-5	
Tetrachloroethene	1.0 U	ug/L	1.0	0.26	1		09/22/18 00:50	127-18-4	
Toluene	1.0 U	ug/L	1.0	0.13	1		09/22/18 00:50	108-88-3	
1,2,4-Trichlorobenzene	1.0 U	ug/L	1.0	0.17	1		09/22/18 00:50	120-82-1	
1,1,1-Trichloroethane	1.0 U	ug/L	1.0	0.28	1		09/22/18 00:50	71-55-6	
1,1,2-Trichloroethane	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:50	79-00-5	
Trichloroethene	1.0 U	ug/L	1.0	0.26	1		09/22/18 00:50	79-01-6	
Trichlorofluoromethane	1.0 U	ug/L	1.0	0.20	1		09/22/18 00:50	75-69-4	
1,1,2-Trichlorotrifluoroethane	1.0 U	ug/L	1.0	0.24	1		09/22/18 00:50	76-13-1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: PCC Validation

Pace Project No.: 4617820

Sample: GW-17322A-091818-DS-011 Lab ID: 4617820006 Collected: 09/18/18 13:35 Received: 09/19/18 13:15 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260B MSV Analytical Method: EPA 8260B									
Vinyl chloride	1.0 U	ug/L	1.0	0.27	1		09/22/18 00:50	75-01-4	
Xylene (Total)	3.0 U	ug/L	3.0	0.44	1		09/22/18 00:50	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	101	%.	87-122		1		09/22/18 00:50	17060-07-0	
Dibromofluoromethane (S)	97	%.	85-118		1		09/22/18 00:50	1868-53-7	
4-Bromofluorobenzene (S)	99	%.	82-110		1		09/22/18 00:50	460-00-4	
Toluene-d8 (S)	103	%.	85-113		1		09/22/18 00:50	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PCC Validation
Pace Project No.: 4617820

QC Batch: 33830 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV
Associated Lab Samples: 4617820001, 4617820002, 4617820003, 4617820004, 4617820005, 4617820006

METHOD BLANK: 136574 Matrix: Water
Associated Lab Samples: 4617820001, 4617820002, 4617820003, 4617820004, 4617820005, 4617820006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/L	1.0 U	1.0	0.28	09/21/18 22:25	
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0	0.22	09/21/18 22:25	
1,1,2-Trichloroethane	ug/L	1.0 U	1.0	0.24	09/21/18 22:25	
1,1,2-Trichlorotrifluoroethane	ug/L	1.0 U	1.0	0.24	09/21/18 22:25	
1,1-Dichloroethane	ug/L	1.0 U	1.0	0.20	09/21/18 22:25	
1,1-Dichloroethene	ug/L	1.0 U	1.0	0.22	09/21/18 22:25	
1,2,4-Trichlorobenzene	ug/L	1.0 U	1.0	0.17	09/21/18 22:25	
1,2-Dibromo-3-chloropropane	ug/L	1.0 U	1.0	0.23	09/21/18 22:25	
1,2-Dibromoethane (EDB)	ug/L	1.0 U	1.0	0.22	09/21/18 22:25	
1,2-Dichlorobenzene	ug/L	1.0 U	1.0	0.11	09/21/18 22:25	
1,2-Dichloroethane	ug/L	1.0 U	1.0	0.27	09/21/18 22:25	
1,2-Dichloropropane	ug/L	1.0 U	1.0	0.22	09/21/18 22:25	
1,3-Dichlorobenzene	ug/L	1.0 U	1.0	0.27	09/21/18 22:25	
1,4-Dichlorobenzene	ug/L	1.0 U	1.0	0.16	09/21/18 22:25	
2-Butanone (MEK)	ug/L	5.0 U	5.0	1.4	09/21/18 22:25	
2-Hexanone	ug/L	5.0 U	5.0	0.61	09/21/18 22:25	
4-Methyl-2-pentanone (MIBK)	ug/L	5.0 U	5.0	1.4	09/21/18 22:25	
Acetone	ug/L	5.0 U	5.0	1.9	09/21/18 22:25	
Benzene	ug/L	1.0 U	1.0	0.23	09/21/18 22:25	
Bromodichloromethane	ug/L	1.0 U	1.0	0.21	09/21/18 22:25	
Bromoform	ug/L	1.0 U	1.0	0.23	09/21/18 22:25	
Bromomethane	ug/L	1.0 U	1.0	0.29	09/21/18 22:25	
Carbon disulfide	ug/L	5.0 U	5.0	0.24	09/21/18 22:25	
Carbon tetrachloride	ug/L	1.0 U	1.0	0.28	09/21/18 22:25	
Chlorobenzene	ug/L	1.0 U	1.0	0.20	09/21/18 22:25	
Chloroethane	ug/L	1.0 U	1.0	0.27	09/21/18 22:25	
Chloroform	ug/L	0.48J	1.0	0.23	09/21/18 22:25	
Chloromethane	ug/L	1.0 U	1.0	0.24	09/21/18 22:25	
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0	0.25	09/21/18 22:25	
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0	0.13	09/21/18 22:25	
Cyclohexane	ug/L	5.0 U	5.0	0.27	09/21/18 22:25	
Dibromochloromethane	ug/L	1.0 U	1.0	0.26	09/21/18 22:25	
Dichlorodifluoromethane	ug/L	1.0 U	1.0	0.24	09/21/18 22:25	
Ethylbenzene	ug/L	1.0 U	1.0	0.13	09/21/18 22:25	
Isopropylbenzene (Cumene)	ug/L	1.0 U	1.0	0.12	09/21/18 22:25	
Methyl acetate	ug/L	5.0 U	5.0	0.24	09/21/18 22:25	N2
Methyl-tert-butyl ether	ug/L	1.0 U	1.0	0.24	09/21/18 22:25	
Methylcyclohexane	ug/L	5.0 U	5.0	0.22	09/21/18 22:25	
Methylene Chloride	ug/L	0.96J	1.0	0.24	09/21/18 22:25	
Styrene	ug/L	1.0 U	1.0	0.16	09/21/18 22:25	
Tetrachloroethene	ug/L	1.0 U	1.0	0.26	09/21/18 22:25	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: PCC Validation

Pace Project No.: 4617820

METHOD BLANK: 136574

Matrix: Water

Associated Lab Samples: 4617820001, 4617820002, 4617820003, 4617820004, 4617820005, 4617820006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Toluene	ug/L	1.0 U	1.0	0.13	09/21/18 22:25	
trans-1,2-Dichloroethene	ug/L	1.0 U	1.0	0.26	09/21/18 22:25	
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0	0.26	09/21/18 22:25	
Trichloroethene	ug/L	1.0 U	1.0	0.26	09/21/18 22:25	
Trichlorofluoromethane	ug/L	1.0 U	1.0	0.20	09/21/18 22:25	
Vinyl chloride	ug/L	1.0 U	1.0	0.27	09/21/18 22:25	
Xylene (Total)	ug/L	3.0 U	3.0	0.44	09/21/18 22:25	
1,2-Dichloroethane-d4 (S)	%	99	87-122		09/21/18 22:25	
4-Bromofluorobenzene (S)	%	100	82-110		09/21/18 22:25	
Dibromofluoromethane (S)	%	98	85-118		09/21/18 22:25	
Toluene-d8 (S)	%	101	85-113		09/21/18 22:25	

LABORATORY CONTROL SAMPLE: 136575

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	40	46.1	115	81-122	
1,1,2,2-Tetrachloroethane	ug/L	40	41.2	103	70-137	
1,1,2-Trichloroethane	ug/L	40	44.2	111	83-121	
1,1,2-Trichlorotrifluoroethane	ug/L	40	39.7	99	76-126	
1,1-Dichloroethane	ug/L	40	44.4	111	80-118	
1,1-Dichloroethene	ug/L	40	41.8	105	77-123	
1,2,4-Trichlorobenzene	ug/L	40	40.5	101	75-125	
1,2-Dibromo-3-chloropropane	ug/L	40	40.6	101	58-130	
1,2-Dibromoethane (EDB)	ug/L	40	42.8	107	84-125	
1,2-Dichlorobenzene	ug/L	40	39.7	99	81-124	
1,2-Dichloroethane	ug/L	40	42.8	107	81-122	
1,2-Dichloropropane	ug/L	40	45.2	113	82-122	
1,3-Dichlorobenzene	ug/L	40	39.9	100	81-124	
1,4-Dichlorobenzene	ug/L	40	39.7	99	79-122	
2-Butanone (MEK)	ug/L	40	48.5	121	52-142	
2-Hexanone	ug/L	40	47.3	118	55-141	
4-Methyl-2-pentanone (MIBK)	ug/L	40	48.2	121	60-142	
Acetone	ug/L	40	50.2	126	53-138	
Benzene	ug/L	40	43.7	109	84-119	
Bromodichloromethane	ug/L	40	42.4	106	82-124	
Bromoform	ug/L	40	42.0	105	65-123	
Bromomethane	ug/L	40	29.9	75	55-142	
Carbon disulfide	ug/L	40	49.5	124	70-131	
Carbon tetrachloride	ug/L	40	39.6	99	79-127	
Chlorobenzene	ug/L	40	41.1	103	84-118	
Chloroethane	ug/L	40	41.9	105	76-124	
Chloroform	ug/L	40	42.5	106	82-119	
Chloromethane	ug/L	40	34.6	86	73-125	
cis-1,2-Dichloroethene	ug/L	40	44.1	110	84-119	

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QUALITY CONTROL DATA

Project: PCC Validation

Pace Project No.: 4617820

LABORATORY CONTROL SAMPLE: 136575

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,3-Dichloropropene	ug/L	40	40.9	102	77-120	
Cyclohexane	ug/L	40	43.1	108	70-129	
Dibromochloromethane	ug/L	40	39.1	98	74-121	
Dichlorodifluoromethane	ug/L	40	34.7	87	68-130	
Ethylbenzene	ug/L	40	41.7	104	87-119	
Isopropylbenzene (Cumene)	ug/L	40	41.4	104	76-126	
Methyl acetate	ug/L	40	44.8	112	67-129	N2
Methyl-tert-butyl ether	ug/L	40	43.5	109	72-128	
Methylcyclohexane	ug/L	40	42.5	106	78-126	
Methylene Chloride	ug/L	40	46.1	115	75-129	
Styrene	ug/L	40	41.6	104	84-120	
Tetrachloroethene	ug/L	40	41.0	103	81-117	
Toluene	ug/L	40	43.9	110	85-118	
trans-1,2-Dichloroethene	ug/L	40	44.1	110	76-126	
trans-1,3-Dichloropropene	ug/L	40	40.1	100	73-116	
Trichloroethene	ug/L	40	44.7	112	82-119	
Trichlorofluoromethane	ug/L	40	41.7	104	76-128	
Vinyl chloride	ug/L	40	39.6	99	77-123	
Xylene (Total)	ug/L	120	124	103	86-119	
1,2-Dichloroethane-d4 (S)	%			98	87-122	
4-Bromofluorobenzene (S)	%			100	82-110	
Dibromofluoromethane (S)	%			102	85-118	
Toluene-d8 (S)	%			102	85-113	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 136576 136577

Parameter	Units	4617820002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1-Trichloroethane	ug/L	1.0 U	40	40	45.5	48.1	114	120	79-131	6	10	
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	40	40	40.6	41.6	101	104	71-129	2	10	
1,1,2-Trichloroethane	ug/L	1.0 U	40	40	44.1	45.1	110	113	76-127	2	10	
1,1,2-Trichlorotrifluoroethane	ug/L	1.0 U	40	40	41.5	42.9	104	107	67-135	3	14	
1,1-Dichloroethane	ug/L	1.0 U	40	40	44.3	45.9	111	115	76-129	4	13	
1,1-Dichloroethene	ug/L	1.0 U	40	40	43.0	44.2	107	111	74-134	3	11	
1,2,4-Trichlorobenzene	ug/L	1.0 U	40	40	37.5	39.0	94	97	66-131	4	15	
1,2-Dibromo-3-chloropropane	ug/L	1.0 U	40	40	36.9	38.9	92	97	55-126	6	16	
1,2-Dibromoethane (EDB)	ug/L	1.0 U	40	40	41.1	42.5	103	106	78-125	3	9	
1,2-Dichlorobenzene	ug/L	1.0 U	40	40	38.3	39.5	96	99	76-124	3	10	
1,2-Dichloroethane	ug/L	1.0 U	40	40	43.4	43.9	108	110	74-131	1	9	
1,2-Dichloropropane	ug/L	1.0 U	40	40	45.0	46.3	112	116	79-128	3	9	
1,3-Dichlorobenzene	ug/L	1.0 U	40	40	38.6	39.5	96	99	76-123	2	10	
1,4-Dichlorobenzene	ug/L	1.0 U	40	40	37.8	39.1	94	98	75-121	3	10	
2-Butanone (MEK)	ug/L	5.0 U	40	40	46.7	47.5	117	119	52-134	2	17	
2-Hexanone	ug/L	5.0 U	40	40	45.3	45.8	113	115	53-134	1	15	

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QUALITY CONTROL DATA

Project: PCC Validation

Pace Project No.: 4617820

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 136576 136577											
Parameter	Units	4617820002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
4-Methyl-2-pentanone (MIBK)	ug/L	5.0 U	40	40	47.9	48.3	120	121	55-139	1	15
Acetone	ug/L	5.0 U	40	40	51.9	52.1	130	130	46-145	0	17
Benzene	ug/L	1.0 U	40	40	44.2	45.4	110	114	80-129	3	9
Bromodichloromethane	ug/L	1.0 U	40	40	40.4	42.5	101	106	81-130	5	10
Bromoform	ug/L	1.0 U	40	40	38.2	40.3	96	101	60-122	5	12
Bromomethane	ug/L	1.0 U	40	40	22.9	30.3	57	76	44-140	28	35
Carbon disulfide	ug/L	5.0 U	40	40	49.7	53.3	124	133	69-144	7	15
Carbon tetrachloride	ug/L	1.0 U	40	40	39.2	41.7	98	104	78-137	6	11
Chlorobenzene	ug/L	1.0 U	40	40	39.9	41.3	100	103	80-121	3	8
Chloroethane	ug/L	1.0 U	40	40	42.4	43.8	106	110	72-137	3	14
Chloroform	ug/L	1.0 U	40	40	42.4	43.7	106	109	79-128	3	9
Chloromethane	ug/L	1.0 U	40	40	34.3	35.4	86	88	72-134	3	11
cis-1,2-Dichloroethene	ug/L	1.0 U	40	40	44.0	45.1	110	113	76-129	3	12
cis-1,3-Dichloropropene	ug/L	1.0 U	40	40	37.5	39.3	94	98	68-122	5	11
Cyclohexane	ug/L	5.0 U	40	40	45.1	46.2	113	116	65-131	2	11
Dibromochloromethane	ug/L	1.0 U	40	40	36.4	38.3	91	96	70-126	5	10
Dichlorodifluoromethane	ug/L	1.0 U	40	40	34.9	35.6	87	89	64-138	2	13
Ethylbenzene	ug/L	1.0 U	40	40	40.9	42.4	102	106	82-127	3	10
Isopropylbenzene (Cumene)	ug/L	1.0 U	40	40	40.4	41.6	101	104	73-131	3	12
Methyl acetate	ug/L	5.0 U	40	40	30.5	30.3	76	76	40-133	1	16 N2
Methyl-tert-butyl ether	ug/L	1.0 U	40	40	42.1	44.0	105	110	65-131	4	15
Methylcyclohexane	ug/L	5.0 U	40	40	44.0	45.2	110	113	70-137	3	14
Methylene Chloride	ug/L	1.0 U	40	40	45.0	45.8	112	115	75-133	2	10
Styrene	ug/L	1.0 U	40	40	40.6	41.7	102	104	75-129	3	10
Tetrachloroethene	ug/L	1.0 U	40	40	40.3	41.6	101	104	75-126	3	10
Toluene	ug/L	1.0 U	40	40	44.1	45.2	110	113	79-129	2	9
trans-1,2-Dichloroethene	ug/L	1.0 U	40	40	44.4	46.0	111	115	71-137	3	15
trans-1,3-Dichloropropene	ug/L	1.0 U	40	40	36.6	38.8	91	97	66-117	6	12
Trichloroethene	ug/L	1.0 U	40	40	44.0	45.7	110	114	75-127	4	10
Trichlorofluoromethane	ug/L	0.23J	40	40	43.8	45.2	109	113	70-141	3	11
Vinyl chloride	ug/L	1.0 U	40	40	40.1	41.5	100	104	73-136	3	12
Xylene (Total)	ug/L	3.0 U	120	120	121	125	101	105	78-130	3	9
1,2-Dichloroethane-d4 (S)	%						101	99	87-122		
4-Bromofluorobenzene (S)	%						100	102	82-110		
Dibromofluoromethane (S)	%						103	103	85-118		
Toluene-d8 (S)	%						104	104	85-113		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: PCC Validation

Pace Project No.: 4617820

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

CH The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.

CL The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

N2 The lab does not hold NELAC/TNI accreditation for this parameter.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: PCC Validation

Pace Project No.: 4617820

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
4617820001	TB-17322A-091818	EPA 8260B	33830		
4617820002	GW-17322A-091818-DS-007	EPA 8260B	33830		
4617820003	GW-17322A-091818-DS-008	EPA 8260B	33830		
4617820004	GW-17322A-091818-DS-009	EPA 8260B	33830		
4617820005	GW-17322A-091818-DS-010	EPA 8260B	33830		
4617820006	GW-17322A-091818-DS-011	EPA 8260B	33830		

REPORT OF LABORATORY ANALYSIS

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WO#: 4617820



4617820

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section C		Invoice Information:	
Company:	GHD - Farmington Hills, Michigan	Report To:	Abston, James
Address:	26850 Haggerty Road	Copy To:	
Farmington Hills, MI 48331			
Email:	james.gardner@ghd.com	Purchase Order #:	017322-008-702V18
Phone:	248-340-3400	Project Name:	PCC-Validation
Requested Due Date:	5/20/2017	Project #:	017322-008-702

Section C		Invoice Information:	
Company Name:	Account Receivable	Attention:	
Address:	26850 Haggerty	Company Name:	GHD
Pace Quote:		Address:	26850 Haggerty
Pace Project Manager:	will.cole@pacelabs.com	Pace Profile #:	1787
State / Location:	MI		

ITEM #	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives								Y/N	Analyses Test	TCL VOCs	6010 Metals	Residual Chlorine (Y/N)	#682 WHITE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION		DATE		TIME		ACCEPTED BY / AFFILIATION		DATE		TIME		SAMPLE CONDITIONS	
mm: GHD		mm: GHD		9-18-18		1430		mm: GHD		9/19/18		0940		11-17	



Sample Conditions Upon Receipt

WO#: 4617820

Date: 9/19/18	Evaluated by: ICB	Affi W. PM: WDC Due Date: 10/01/18 CLIENT: GHD-PLYMOUTH
Client: GHD	11-17	
Profile ID: -	Project Manager: -	
Sample Receiving Non Conformance Form Required: YES ☐ NO ☒		Rush Turn Around Time Requested: YES ☐ NO ☒ Due Date: -
Page 1	Of 1	Lab Notified of Rush or Short Holds: YES ☐ NO ☒

Lab Sample Receipt Checklist:

Samples Received Via:	☒ FEDEX	☐ UPS	☐ CLIENT	☐ PACE COURIER
Custody Seals Present and Intact:	YES	☒ NO	NA	
USDA Regulated Soils:	YES	☒ NO	NA	
Short Holds Present (< 72 Hours):	YES	☒ NO	NA	
Samples Received in Hold:	☒ YES	NO	NA	
Custody Signatures Present:	☒ YES	NO	NA	
Collector Signature Present:	☒ YES	NO	NA	
Samples Received On Ice:	☒ YES	NO	NA	
Type of Ice: ☒ WET ☐ BLUE ☐ DRY ☐ NONE	☒ YES	NO	NA	
Packing Material Used:	☒ YES	NO	NA	
IR Gun #: 202 ☒ 402 Temp should be 0-6°C	Cooler Temp Upon Receipt: 3.1 °C			
Temp Blank Received:	YES	☒ NO	NA	
Trip Blank Received: Type: ☒ HCL ☐ MeOH ☐ TSP ☐ OTHER	☒ YES	NO	NA	
Bottles Intact:	☒ YES	NO	NA	
Correct Bottles:	☒ YES	NO	NA	
Sufficient Volume:	☒ YES	NO	NA	
Sample pH Acceptable: All containers needing preservation are found to be in compliance with EPA recommendation Exceptions are VOA, coliform, TOC, O & G, HEM, DRO	YES	NO	☒ NA	pH Strip Lot Number: -
VOA Headspace Acceptable (<6mm):	☒ YES	NO	NA	
Comments:				