Applied EcoSystems, Inc.
Environmental Management, Consulting & Field Services

DATA REPORT
AND PROPOSED ADDITIONAL MONITORING

TO: Brandon Pursel, USEPA
Dave Favero, RACER TRUST
Grant Trigger, RACER TRUST

FROM: Mike Smith, Applied EcoSystems, Inc.

DATE: April 9, 2019

SUBJECT: RACER Flint West Industrial Land (#12990)
Insitu Pilot Test Follow-up Monitoring

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FIGURES:

ATTACHMENTS:

G-4300 South Saginaw Street, Burton, Michigan 48529 Office (810) 715-2525 Fax (810) 715-2526

1.0 INTRODUCTION

Since the previous Data Report (dated December 12, 2018), Applied EcoSystems, Inc. (Æ) completed in-situ pilot test follow-up monitoring, (as outlined in the January 2018 Data Report and a letter dated April 11, 2018 submitted to the United States Environmental Protection Agency (USEPA) and additional correspondence with the Michigan Department of Environmental Quality (MDEQ) and USEPA (as outlined in the Work Plan HRC Pilot Test and Addendum) for the RACER Trust Flint West Industrial Land - #12990 Site. In addition, all monitoring wells installed by RACER on the Site and the adjoining Genesee County Parks (GCP) site to the north were gauged for depth to groundwater. A routine groundwater monitoring event was conducted on February 27 and 28, 2019.

A Site Location Map is included as Figure 1. The Site consists of approximately five acres of land located west of Stevens Street and north of Glenwood Avenue in Flint, Genesee County, Michigan. Almost the entire Site consists of concrete pavement, remaining after the demolition of a former manufacturing building. The Site is secured with a locked chain-link fence.

The Site is developed with a Consumers Energy electrical substation with an equipment shelter in the central portion and a utility conduit shed on the southeast corner. Per John Ebenhoeh with Consumers Energy, the small building on the southeast corner is a shelter for conduits that run under the road to the GM tool and die facility. This building is accessed approximately once per year for approximately two hours. The building in the fenced area is a support equipment shelter for the substation. The fenced area is accessed approximately once per month for approximately two hours, and the building itself is accessed less frequently and for shorter durations.

A Work Plan for HRC Pilot Test was submitted to USEPA and MDEQ. USEPA approved the plan on January 13, 2017, and MDEQ approved the plan with amendments on October 13, 2017.

Access to the adjacent former railroad parcel was obtained on May 10, 2018 from GCP, which now owns the former railroad property to the north.

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2.0 MONITORING ACTIVITIES COMPLETED

Groundwater Monitoring

- All monitoring wells were gauged for depth to water on January 17, 2019. A Groundwater Contour Map, prepared using the January 17, 2019 groundwater elevation data, is included as Figure 3 in Appendix A. Cross section diagrams, showing soil types, groundwater elevations, and soil and groundwater data, are included in Attachment 1.
- A routine groundwater monitoring event was conducted on February 27 and 28, 2019.

HRC Pilot Test

- On January 16, 2019, four Geoprobe soil borings (SB-138, SB-139, SB-140, and SB-141) were advanced in the vicinity of soil borings which previously showed significant chlorinated impact (SB-123/SB-131/SB-132, and SB-122/SB-133) and were within the HRC pilot test injection area. A total of nine soil samples were collected from the borings at intervals that revealed the highest concentrations of volatile organic compounds (VOCs) in soil during previous investigations.
- Groundwater samples were collected from monitoring wells MW-109S, MW-111S, MW-112S, MW-113S, and MW-114S on January 17, 2019. Samples were analyzed for the following: VOCs, total organic carbon, metals (total and dissolved) including arsenic, chromium (total and hexavalent), manganese, copper, lead, selenium, zinc, iron and lead, and methane. Oxidation reduction potential, pH, dissolved oxygen, and conductivity were measured with a meter in the field during sampling. Results are reported on Attachment 2, Table 2. Additionally, a groundwater sample was collected from MW-103S and analyzed for PFAS.

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3.0 MONITORING RESULTS

Soil Data

A table showing soil analytical results from the January 16, 2019 sampling event is included as Attachment 4. The following table shows the soil sample results for select VOCs from the similar boring locations and depths from the 2014 and 2019 soil sampling events:

2014 Sample ID	2019 Sample ID	Analytes	2014 Results	2019 Results
SB-122 (15-16')	SB-141 (16')	VC – Cis-1,2 DCE – TCE –	ND 16,600 14,400	ND 15 180
SB-133 (17')	SB-140 (16')	VC – Cis-1,2 DCE – TCE –	46 1,990 11,680	ND 3,500 13,100
SB-133 (19')	SB-140 (19')	VC – Cis-1,2 DCE – TCE –	ND 530 10,860	ND 150 2,870
SB-132 (15')	SB-138 (15')	VC – Cis-1,2 DCE – TCE –	89 1,200 13,700	ND 470 2,880
SB-131 (18')	SB-138 (18')	VC – Cis-1,2 DCE – TCE –	90 2,820 12,160	ND 550 2,300
SB-131 (18')	SB-139 (18')	VC – Cis-1,2 DCE – TCE –	90 2,820 12,160	42 8,850 3,440

- All results are reported in ug/Kg
- VC = Vinyl Chloride
- Cis-1,2 DCE = Cis-1,2 Dichloroethene
- TCE = Trichloroethene
- ND = Not Detected

Note that due to site grading conducted by GCP in 2018, the actual soil sample depths for the 2014 and 2019 sample events may not be reflective of equal finished grade elevations; however, due to depth to the clay layer and bedrock, the soil samples likely were collected at depths similar to the previous sampling event. Concentrations of TCE reduced by approximately seventy-five percent or more in all locations except SB-133 (17)/SB-140 (16) location, which showed an increase.

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Groundwater (Biannual Sampling)

Comparison of groundwater data (February 2019) to current (December 30, 2013/June 25, 2018) (the June 25, 2018 date represents the date of some revised criteria) Michigan Department of Environmental Quality (MDEQ) Generic Residential and Non-Residential Cleanup Criteria (GRCC) indicates the following:

Metals: Select metals were detected above drinking water and GSI criteria as shown in the table below. The metals concentrations are consistent with expected regional conditions, do not appear to represent a plume, and are believed to generally be naturally-occurring. Although MDEQ has published state-wide and regional "background" concentrations for soils, there are no such values published for groundwater. The concentrations are generally consistent with concentrations encountered by Applied EcoSystems at other uncontaminated sites in the Flint area. The 102 ug/L arsenic result for MW-112S is consistent with concentrations from previous monitoring events (108 ug/L in October/November 2016 and 82 ug/L in June 2017, 100 ug/L in January 2018, 104 ug/L in September 2018). Total metals results are generally lower than previous sampling events. The dissolved metals concentrations are considered to be more representative of site conditions for the purposes of this assessment.

Table 1.0 – Dissolved Metals Exceedances in Groundwater

Well ID	Metal	Drinking Water Criterion	GSI Criterion	Result
MW-105S	Dissolved Selenium	50	**5**	**8**
MW-112S	Dissolved Arsenic	**10**	**10**	**35**
MW-114S	Dissolved Arsenic	**10**	**10**	**28**

- All results are expressed in ug/L.

VOCs: Exceedances were present as follows:

Table 2.0 – VOCs Exceedances in Groundwater

Well ID	VOC	Drinking Water Criterion	GSI Criterion	Result
MW-105S	Tetrachloroethane	**5**	**60**	**78**
MW-109S	Vinyl Chloride	**2**	13	**5**
MW-109S	Trichloroethene	**5**	200	**13**
MW-111S	Trichloroethene	**5**	200	**39**
MW-113S	Trichloroethene	**5**	200	**9**
MW-114S	Vinyl Chloride	**2**	13	**12**
MW-114S	cis-1,2-Dichloroethene	**70**	620	**295**
MW-114S	Trichloroethene	**5**	200	**162**

- All results are expressed in ug/L.

Criteria in **red** indicate an exceedance for that pathway.

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Monitoring well MW-103S was the only well sampled for PFAS during this sampling event. Only PFOS was detected. The concentration exceeds the 70 ng/L combined drinking water cleanup criterion for PFOA and PFOS established by MDEQ on January 10, 2018, at a concentration of 90 ng/L. This result is consistent with the previous PFAS results from MW-103S.

A table of all groundwater sample analytical results for all groundwater samples collected on behalf of RACER is included as Attachment 2. Sample analytical results for the January 2019 sampling events are included as Attachment 3. Figure 4 illustrates the GSI and drinking water exceedances in groundwater identified in groundwater samples collected from 2012 through 2019. Figure 6 includes data boxes for PFAS results.

Note that elevated tetrachloroethene levels have been consistently detected in one up gradient well, MW-105S since April 2012, and trichloroethene has also consistently been detected in the same well, likely as a degradation product of the tetrachloroethene. This well is hydrogeologically downgradient from a former print shop located south of the Site.

The primary Site-specific constituents of concern are trichloroethene and vinyl chloride, which appear to be exhibiting enhanced natural attenuation.

While groundwater monitoring results have shown a general downward trend in concentrations of TCE Site-wide over time, TCE concentrations in MW-114S and MW-109S following the HRC injection dropped substantially following the HRC injection. This is likely due to the location of these two wells, which are expected to have been most affected by the HRC injection due to likely higher volumes of HRC reaching those wells in the short term, as well as generation of anerobic dichlorination conditions. MW-113S exhibited minor fluctuations in TCE concentrations, likely due to the greater distance from the HRC injection locations. The limited variability of TCE concentrations in MW-111S is likely due to limited injection of HRC upgradient from this well relative to the other wells, as upgradient anerobic dichlorination conditions were not established (because areas upgradient were not subjected to HRC injection).

Based on discussions with Regenesis (supplier of the HRC), the elevated concentrations of total organic carbon in downgradient monitoring wells is indicative of the HRC having created anerobic conditions suitable for contaminant dichlorination.

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4.0 ADDITIONAL MONITORING

The HRC Pilot Study Workplan did not include further monitoring; however, per recommendations of Regenesis, an additional well sampling event will be conducted approximately one year after the HRC injection. Wells MW-109S, MW-111S, MW-112S, MW-113S, and MW-114S will be sampled. Samples will be analyzed for the following: VOCs, total organic carbon, metals (total and dissolved) including arsenic, chromium (total and hexavalent), manganese, copper, lead, selenium, zinc, iron and lead, and methane. Oxidation reduction potential, pH, dissolved oxygen, and conductivity will measured with a meter in the field during sampling.

A routine monitoring event will be conducted in July, 2019. In addition, wells MW-102S, MW-103S, MW-108S, MW-109S, MW-110S, MW-111S, MW-113S, and MW-114S will be sampled and analyzed for PFAS.

5.0 SCHEDULE:

The proposed additional monitoring will coincide with a routine well monitoring event in July, 2019.

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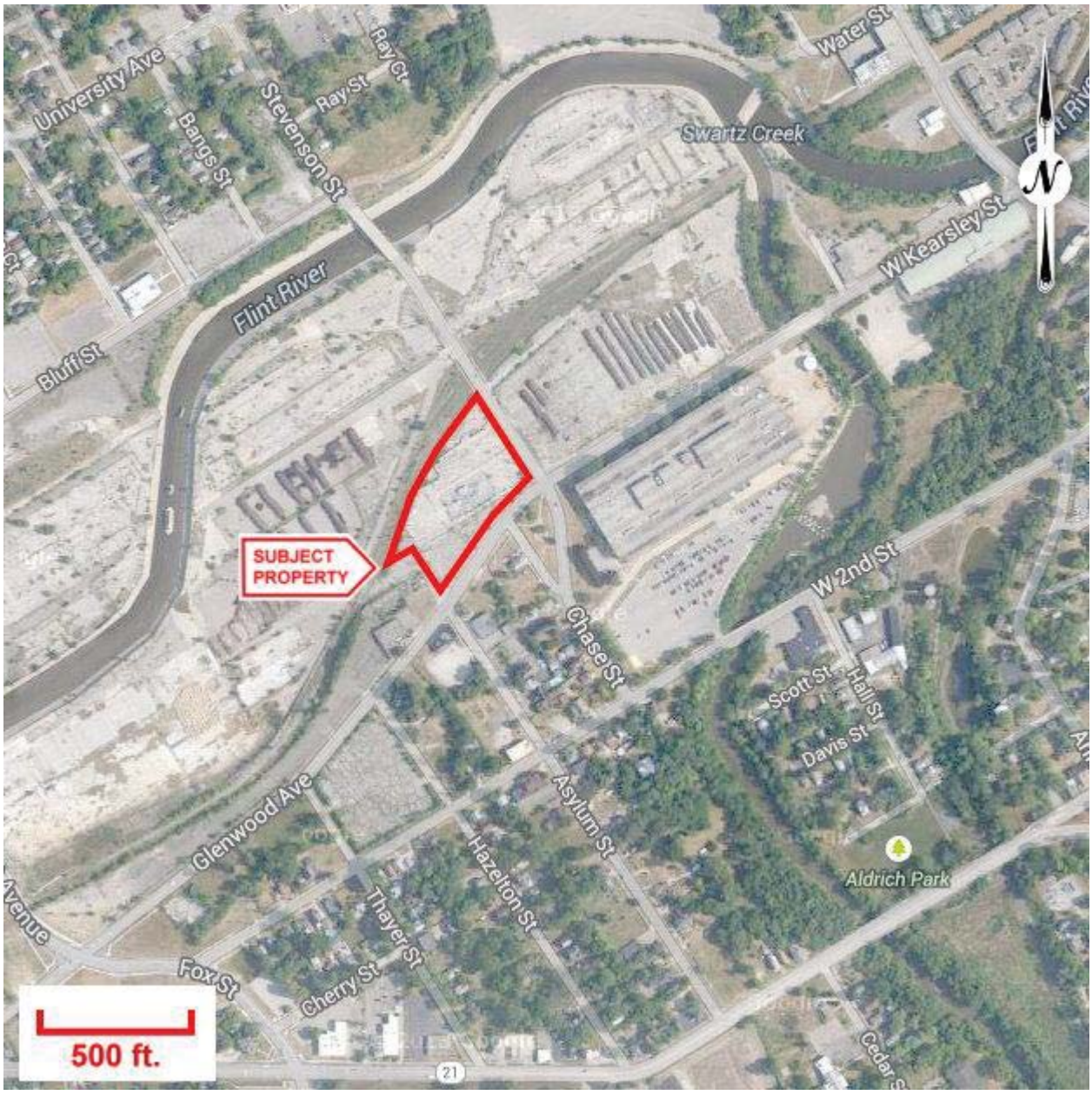
FIGURES

SITE LOCATION MAP

RACER Flint West

FIGURE	DATE	SCALE	PROJECT No.
1	2014	As Shown	11-4317-102



Source: United States Geological Survey

Property outline is approximate.

Applied EcoSystems, Inc.
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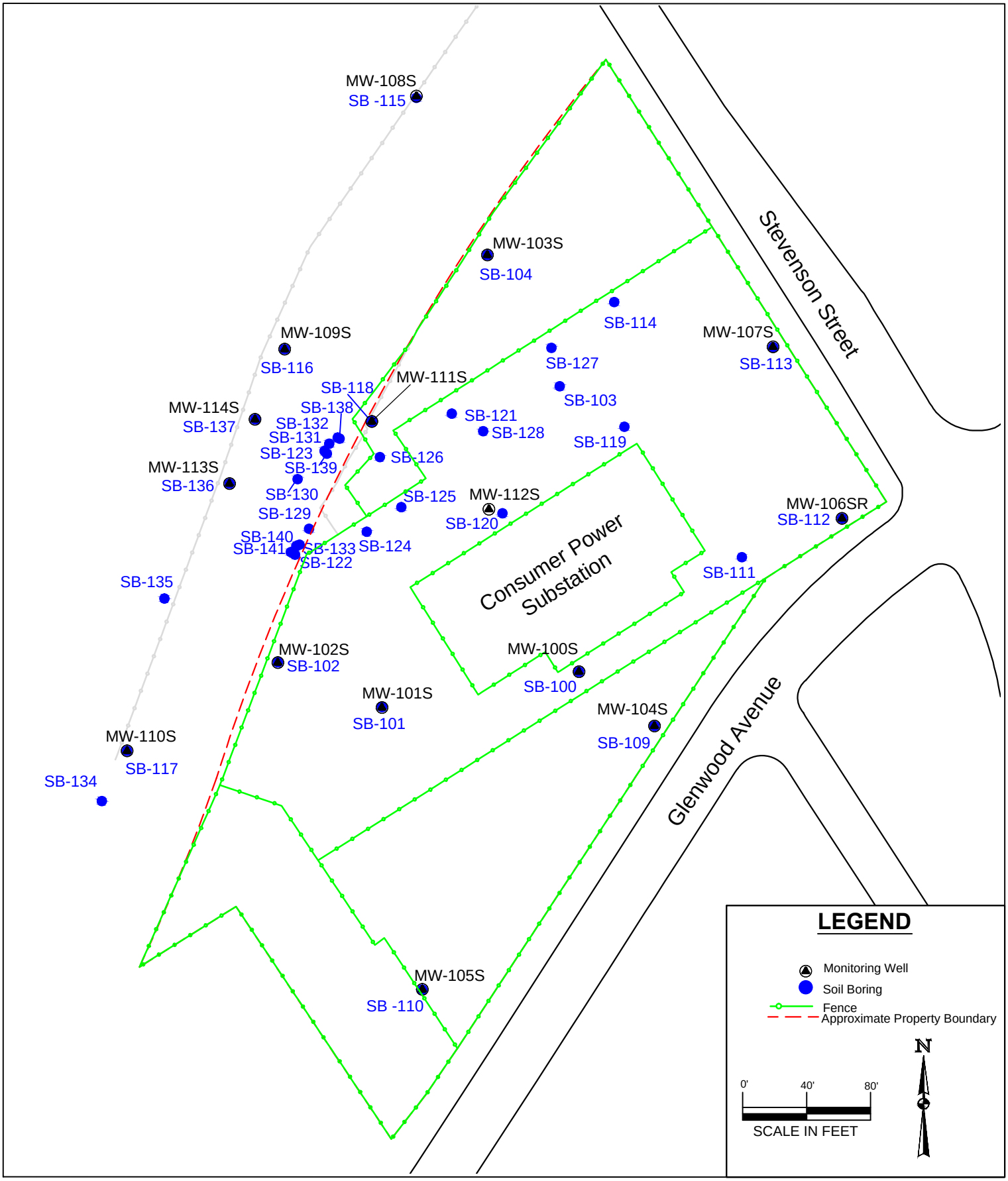
G-4300 South Saginaw Street
Burton, Michigan 48529
☎(810) 715-2525
FAX (810) 715-2526
www.AppliedEcoSystems.com

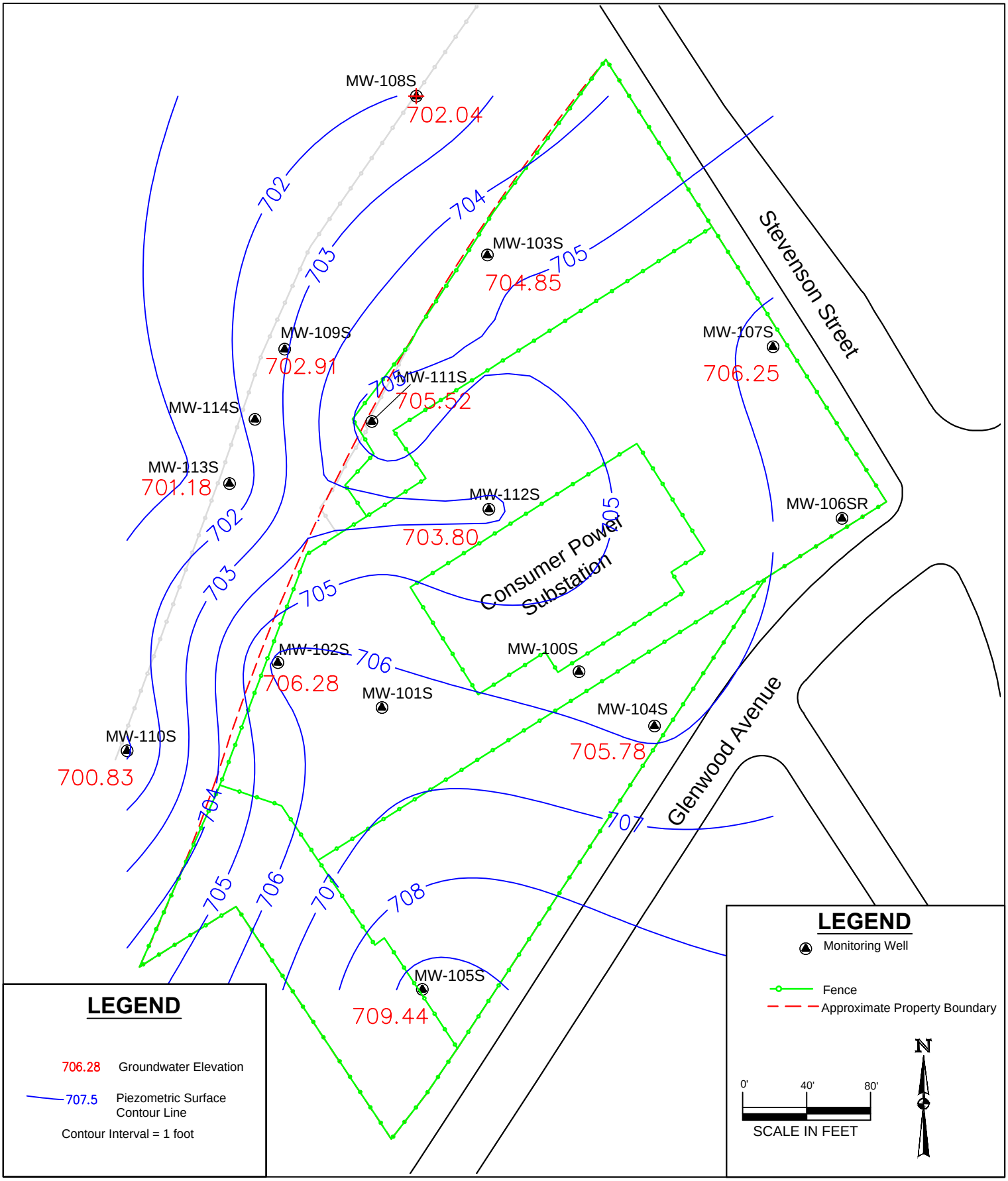


Applied EcoSystems, Inc.
Environmental Management, Consulting & Field Services
G-4300 South Saginaw Street, Burton, Michigan 48529
Phone: 810.715.2525; Fax: 810.715.2526

Soil Boring and Well Location Map

Racer Flint West -12990
Flint West Industrial Land, Flint, Michigan

DATE:	CHECKED BY:
02/25/2019	MDS
PROJECT:	**FIGURE:**
11-4317-102	2



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Phone: 810.715.2525; Fax: 810.715.2526

Groundwater Contour Map (February 27, 2019)

Racer Flint West -12990
Flint West Industrial Land, Flint, Michigan

DATE:	CHECKED BY:
03/21/2019	MDS
PROJECT:	FIGURE:
11-4317-102	3

MW–109S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Vinyl Chloride	2	13	28,17,13,8,182,10,12,21,20,15,8,42,5	2,3,4,5,6,7,8,9,10,11,16,17
Copper	1000	20	28,77,26,90	2,5,8,10
Lead	4	44	20,59,32,70	2,5,8,10
Trichloroethene	5	200	166,178,183,161,102,160,138,200,93,119,17,13	2,3,4,5,6,8,9,10,11,12,16,17
cis–1,2–Dichloroethane	70	620	105,80	2,10
Arsenic	10	10	45,16,40,39	5,8,10,17
Tetrachloroethane	5	60	104	7
Zinc dissolved	2400	260	730	11

SB–125 TWT

ANALYTE	DW	GSI	Exceedance	Sampling Event
Arsenic dissolved	10	10	17	6

SB–125 TWB

ANALYTE	DW	GSI	Exceedance	Sampling Event
Arsenic dissolved	10	10	30	6
Zinc dissolved	2400	260	400	6

MW–111S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Arsenic	10	10	13,60	2,10
Vinyl Chloride	2	13	195,99 4,4,97,72	2,5 6,9,10,12
1,1–Dichloroethane	7	130	10,18	2,5
Trichloroethene	5	200	115,6,180 92,7,78,92,11 41,30,7,12,39	2,4,5,6,8 9,10,11, 12,14,15, 16,17
cis–1,2–Dichloroethane	70	620	160	5
Lead	4	44	20,140,6	8,10,14
Copper	1000	20	22,70	8,10
Chromium	100	160	237,1140	8,10
Selenium	50	5	16	10

MW–108S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Arsenic	10	10	13,18.4	5,10
Arsenic dissolved	10	10	15	12
Copper	1000	20	40,31,90	5,8,10
Lead	4	44	55,15,90	5,8,10
Selenium	50	5	6,6,7,6	3,6,7,11
Selenium dissolved	50	5	6,6	7,11
Zinc	2400	260	350	10
Zinc dissolved	2400	260	1220	11

MW–103S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Arsenic	10	10	48,55,41,52,24,58,14 0,22,13,29,53,30	1,2,3,4,5,7,10, 11,13,14,16,17
Arsenic dissolved	10	10	23,11,29,19	5,6,14,16
Chromium	100	160	120	10
Copper	1000	20	160	10
Lead	4	44	80	10
Zinc	2400	260	410	10
Zinc dissolved	2400	260	1870	11

SB–131 TWT

ANALYTE	DW	GSI	Exceedance	Sampling Event
Copper dissolved	1000	20	28	6
Lead dissolved	4	44	16	6
Trichloroethene	5	200	81	6

SB–131 TWB

ANALYTE	DW	GSI	Exceedance	Sampling Event
Copper dissolved	1000	20	144	6
Lead dissolved	4	44	14	6
Trichloroethene	5	200	78	6

SB–127 TWT

ANALYTE	DW	GSI	Exceedance	Sampling Event
Arsenic dissolved	10	10	57	6
Lead dissolved	4	44	5	6
Vinyl chloride	2	13	5	6

SB–127 TWB

ANALYTE	DW	GSI	Exceedance	Sampling Event
Arsenic dissolved	10	10	38	6
Lead dissolved	4	44	19	6
Ethylbenzene	74	18	31	6

MW–114S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Arsenic, dissolved	10	10	28	17
Arsenic	10	10	86	17
Vinyl Chloride	2	13	9.5,12	16,17
cis–1,1–Dichloroethene	70	620	490,295	16,17
Trichloroethene	5	200	210,162	16,17

MW–107S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Arsenic	10	10	20,15,68	5,6,10
Copper dissolved	1000	20	110	5
Copper	1000	20	29,70	8,10
Lead	4	44	30,17,5,16,8	5,6,8,10
Selenium	50	5	10	5
Zinc	2400	260	190,97	5,6
Zinc dissolved	2400	260	60	5
Trichloroethene	5	200	6,9	2,3
Chromium	100	160	1510	7

MW–112S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Selenium dissolved	50	5	102	10
Vinyl Chloride	2	13	8/3/6/21,10	4,5,6,7,13
Arsenic	10	10	93,274,169 121,400,235,79,126, 129,60,104,35	4,5,6,7,8,10,11, 13,14,15,16,17
Arsenic dissolved	10	10	19,19,20,16,18,108,82, 100,23,52	6,7,8,9,11,12, 13,14,15,16
Lead	4	28	11,257,354 100	4,5,8,10
Zinc	2400	260	929,920,450	5,8,10
Copper	1000	20	418,502,200	5,8,10
Copper dissolved	1000	20	300,115	5,10
Chromium	100	160	256,140,150	5,8,10
Trichloroethene	5	200	24,12,10,13,7	7,11,13,15,16
Vinyl Chloride	2	13	3,4,17,10,9,5	8,9,11,13,15,16

MW–106SR

ANALYTE	DW	GSI	Exceedance	Sampling Event
Vinyl Chloride	2	13	99	1
Silver	34	0.2	0.6	3
Arsenic	10	10	99,65,13	5,6,8,10
Copper	1000	20	747,1100,402, 2760,28,23	5,6,8,10,13, 16
Cooper dissolved	1000	20	32	12
Lead	4	44	146,64,44,300	5,6,8,10
Lead dissolved	4	44	23	7
Selenium	50	5	8,7	5,6
Zinc	2400	260	657,342,1600	5,8,10
Chromium	100	160	40000,38700 68000,446000, 2500,789	5,6,8,10,13, 16
Chromium dissolved	100	160	128,340	10,12

MW–113S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Zinc	2400	260	7030,504	5,8
Zinc dissolved	2400	260	502,317	5,11
Chromium	100	160	479,2920 132,170,822 ,220	4,5 6,7,8,10
Chromium dissolved	100	160	128,152	6,7
Trichloroethene	5	200	21,62,69,61, 36,67,50,50, 9	4,5,7,8 9,10,11,12, 17
Lead	4	44	3310,5 289,50	5,7,8,10
Lead dissolved	4	44	5	7
Copper	1000	20	4160,300,80	5,8,10
Arsenic	10	10	40,30,13	8,10,17

SB–129 TWT

ANALYTE	DW	GSI	Exceedance	Sampling Event
Copper dissolved	1000	20	22	6
Lead dissolved	4	44	23	6
Zinc dissolved	2400	260	323	6
Trichloroethene	5	200	8	6

SB–129 TWB

ANALYTE	DW	GSI	Exceedance	Sampling Event
Copper dissolved	1000	20	24	6
Lead dissolved	4	44	11	6
Trichloroethene	5	200	8	6

SB–130 TWT

ANALYTE	DW	GSI	Exceedance	Sampling Event
Copper dissolved	1000	20	140	6
Lead dissolved	4	44	208	6
Zinc dissolved	2400	260	326	6

SB–130 TWB

ANALYTE	DW	GSI	Exceedance	Sampling Event
Copper dissolved	1000	20	94	6
Lead dissolved	4	44	31	6

SB–124 TWT

ANALYTE	DW	GSI	Exceedance	Sampling Event
Copper dissolved	1000	20	21	6
Lead dissolved	4	44	29	6
Selenium dissolved	50	5	12	6
Zinc dissolved	2400	260	311	6

SB–124 TWB

ANALYTE	DW	GSI	Exceedance	Sampling Event
Copper dissolved	1000	20	42	6
Lead dissolved	4	44	47	6
Selenium dissolved	50	5	12	6

MW–100S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Trichloroethene	5	200	11,8	1,4
Selenium	50	5	6	1
Arsenic	10	10	29	8
Copper	1000	20	230	8
Lead	4	44	70	8
Zinc	2400	260	493	8

MW–110S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Arsenic	10	10	11,41,20,55, 30	4,5,6,8, 10
Arsenic dissolved	10	10	21,17	6,8
Copper	1000	20	49,62 278,059,736	2,4 5,6,8
Copper dissolved	1000	20	28,90	6,10
Lead	4	44	16,19,61 28,17,249,20. 3	2,4,5 6,7,8
Lead dissolved	4	44	24,15	6,7
Chromium	100	160	101	5
Zinc	2400	260	556	8
Zinc dissolved	2400	260	373	11

MW–102S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Cadmium	5	4.5	65	1
Selenium	50	5	6,16	1,10
Selenium dissolved	50	5	6	7
Arsenic	10	10	19,12,20	5,8,10
Copper	1000	20	25,22,37.4	5,8,10
Lead	4	44	13,14,20.4	5,8,10

MW–101S

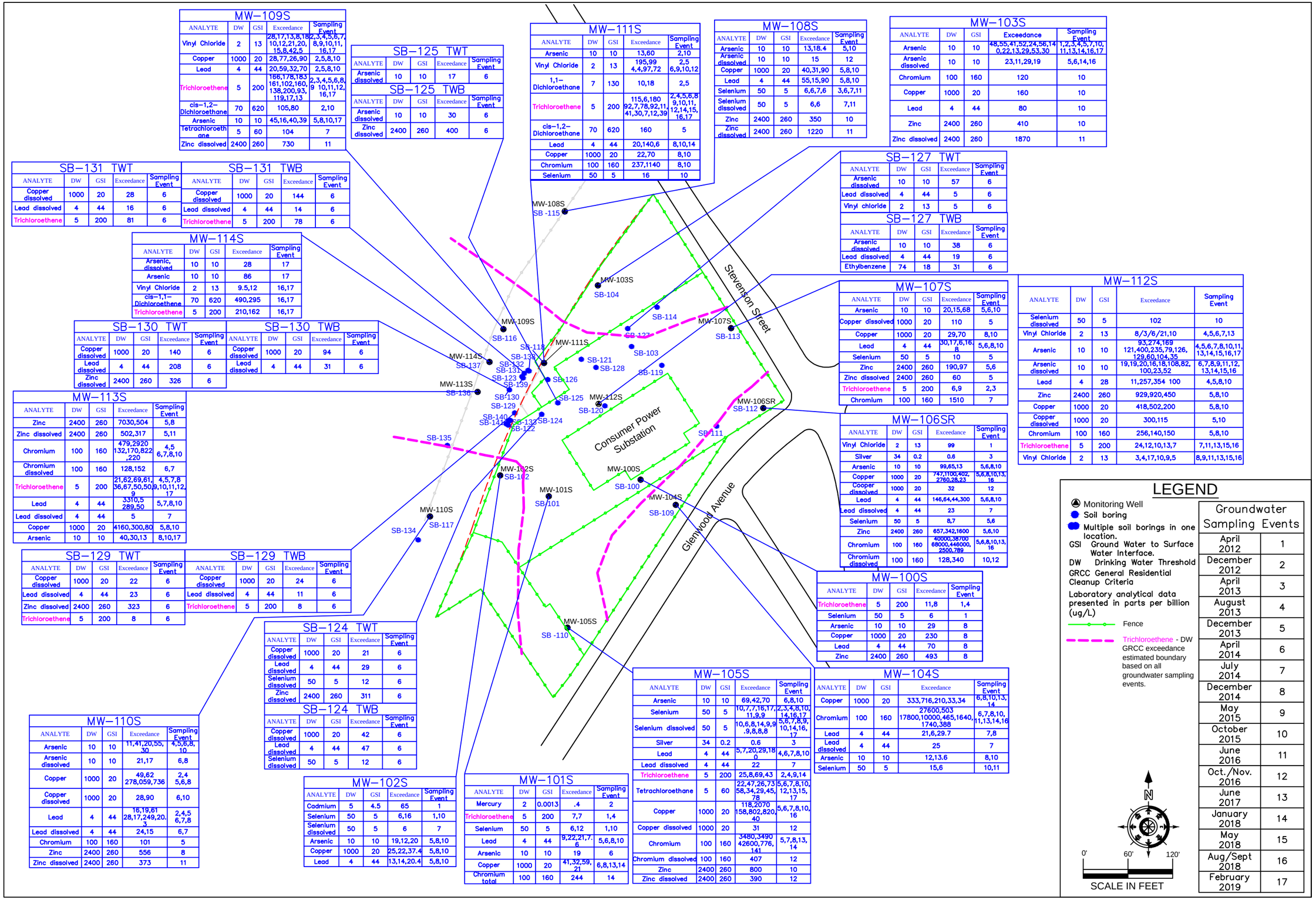
ANALYTE	DW	GSI	Exceedance	Sampling Event
Mercury	2	0.0013	.4	2
Trichloroethene	5	200	7,7	1,4
Selenium	50	5	6,12	1,10
Lead	4	44	9,22,21,7.6	5,6,8,10
Arsenic	10	10	19	6
Copper	1000	20	41,32,59,21	6,8,13,14
Chromium total	100	160	244	14

MW–105S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Arsenic	10	10	69,42,70	6,8,10
Selenium	50	5	10,7,7,16,17, 11,9,9	2,3,4,8,10, 14,16,17
Selenium dissolved	50	5	10,6,8,14,9,9 ,9,8,8,8	5,6,7,8,9, 10,14,16, 17
Silver	34	0.2	0.6	3
Lead	4	44	5,7,20,29,18 0	4,6,7,8,10
Lead dissolved	4	44	22	7
Trichloroethene	5	200	25,8,69,43	2,4,9,14
Tetrachloroethane	5	60	22,47,26,73 58,34,29,45, 78	5,6,7,8,10, 12,13,15, 17
Copper	1000	20	118,2070 158,802,820, 40	5,6,7,8,10, 16
Copper dissolved	1000	20	31	12
Chromium	100	160	3480,3490 42600,776, 141	5,7,8,13, 14
Chromium dissolved	100	160	407	12
Zinc	2400	260	800	10
Zinc dissolved	2400	260	390	12

MW–104S

ANALYTE	DW	GSI	Exceedance	Sampling Event
Copper	1000	20	333,716,210,33,34	6,8,10,13, 14
Chromium	100	160	27600,503 17800,10000,465,1640, 1740,388	6,7,8,10, 11,13,14,16
Lead	4	44	21,6,29.7	7,8
Lead dissolved	4	44	25	7
Arsenic	10	10	12,13.6	8,10
Selenium	50	5	15,6	10,11



LEGEND

- Monitoring Well
- Soil boring
- Multiple soil borings in one location.
- GSI Ground Water to Surface Water Interface.
- DW Drinking Water Threshold
- GRCC General Residential Cleanup Criteria
- Laboratory analytical data presented in parts per billion (ug/L)
- Fence
- Trichloroethene - DW GRCC exceedance estimated boundary based on all groundwater sampling events.

Groundwater Sampling Events

April 2012	1
December 2012	2
April 2013	3
August 2013	4
December 2013	5
April 2014	6
July 2014	7
December 2014	8
May 2015	9
October 2015	10
June 2016	11
Oct./Nov. 2016	12
June 2017	13
January 2018	14
May 2018	15
Aug/Sept 2018	16
February 2019	17

CHECKED BY:	MDS
DATE:	03/21/2019
FIGURE:	4
PROJECT:	11-4317-102

Summary of Drinking Water and Groundwater to Surface Water Interface Exceedances in Groundwater 2012 to 2019

Racer Flint West -12990
Flint West Industrial Land, Flint, Michigan

Applied EcoSystems, Inc.
Environmental Management, Consulting & Field Services
G-4300 South Saginaw Street, Burton, Michigan 48529
Phone: 810.715.2525; Fax: 810.715.2526

01/16/19	SB–139			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	21,000 3,440	18' 18'
Methylene Chloride	5	1,500	230 32	16' 18'
Vinyl chloride	40	260	ND 42	16' 18'
cis-1,2-Dichloroethene	1,400	12,000	1,800 3,440	16' 18'

04/22/14	SB–131			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	12,160	18'
Vinyl chloride	40	260	90	18'
cis-1,2-Dichloroethene	1,400	12,000	2,820	18'

12/11/2012	SB–116			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Vinyl Chloride	40	260	260	12–13'
cis-1,2-Dichloroethene	1,400	12,000	2,160	12–13'

7/10/2014	SB–132			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	29,500 / 13,700	11.5–12' 14.5–15'
Vinyl chloride	40	260	180 / 89	11.5–12' 14.5–15'
cis-1,2-Dichloroethene	1,400	12,000	2,200	11.5–12'

01/16/19	SB–138			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	2,880 2,300	15' 18'
Methylene Chloride	5	1,500	22 25.7	15' 18'
cis-1,2-Dichloroethene	1,400	12,000	470 550	15' 18'

12/11/2012	SB–118			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Vinyl Chloride	40	260	250	16–17'
cis-1,2-Dichloroethene	1,400	12,000	11,960	16–17'

03/13/2012	SB–104			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Benezene	100	4,000	210	7–8'

12/22/14	SB–137			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	4,250	18'

12/22/14	SB–137			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Vinyl chloride	40	260	56	20.5'

12/22/14	SB–136			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	8,760	19'

12/22/14	SB–136			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	9,390	20'

12/10/2012	SB–114			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	1,220	20–21'
Phenanthrene	56,000	2,100	2,700	7–8'

04/22/14	SB–130			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	6,080	18'
Vinyl chloride	40	260	73	18'
cis-1,2-Dichloroethene	1,400	12,000	6,380	18'

4/30/2013	SB–121			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	400	23–24'
Vinyl Chloride	40	260	110	23–24'
cis-1,2-Dichloroethene	1,400	12,000	2,970	23–24'

04/22/14	SB–129			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	6,170	18'

12/06/2012	SB–112			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Naphthalene	35,000	730	840	3.5–4.5'
1,2,4–Trimethylbenzene	2,100	570	600	3.5–4.5'
Vinyl Chloride	40	260	80	3.5–4.5'

01/16/19	SB–140			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	13,100 2,870	16' 19'
Methylene Chloride	5	1,500	260 30	16' 19'
cis-1,2-Dichloroethene	1,400	12,000	3,500 2,870	16' 19'

12/22/14	SB–135			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	7890.0	19'

12/22/14	SB–135			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	6540.0	21'

12/11/2012	SB–117			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	5,980	18–19'

12/22/14	SB–134			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	2,040	20'

01/16/19	SB–141			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	180 6,150 3,370	16' 18 19'
Methylene Chloride	5	1,500	27 25 26	16' 18 19'
cis-1,2-Dichloroethene	1,400	12,000	15 2,900 860	16' 18 19'

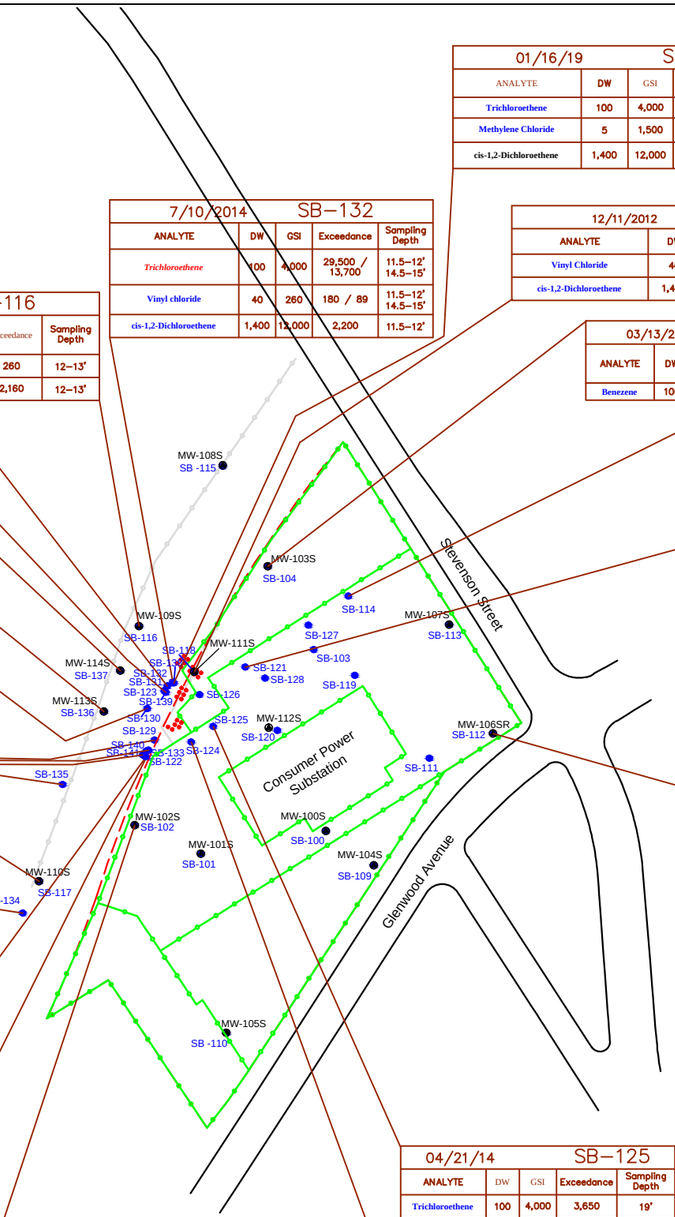
4/30/2013	SB–122			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	14,400	15–16'
cis-1,2-Dichloroethene	1,400	12,000	1,600	15–16'

7/10/2014	SB–133			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4000	11,680 / 10,860 7,520	16.5–17' 18–19' 19.5–20'
Vinyl Chloride	40	260	46	16.5–17'
cis-1,2-Dichloroethene	1,400	12,000	1,990	16.5–17'

3/08/2012	SB–102			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	330	6–7'

04/21/14	SB–125			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	3,650	19'

04/21/14	SB–124			
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	1,420	21'



LEGEND

- Monitoring Well
- Soil boring
- Multiple soil borings in one location.
- HRC Injection boring

Analyte Exceeds GSI and DW criteria

Analyte Exceeds DW criteria only

Analyte Exceeds GSI criteria only

Laboratory analytical data presented in parts per billion (ug/Kg)

Fence

0' 75' 150'

SCALE IN FEET

N

DATE:	03/21/2019	CHECKED BY:	MDS
PROJECT:	11-4317-102	FIGURE:	5

Summary of Drinking Water and GSI Exceedances in Soil
2012 - 2019

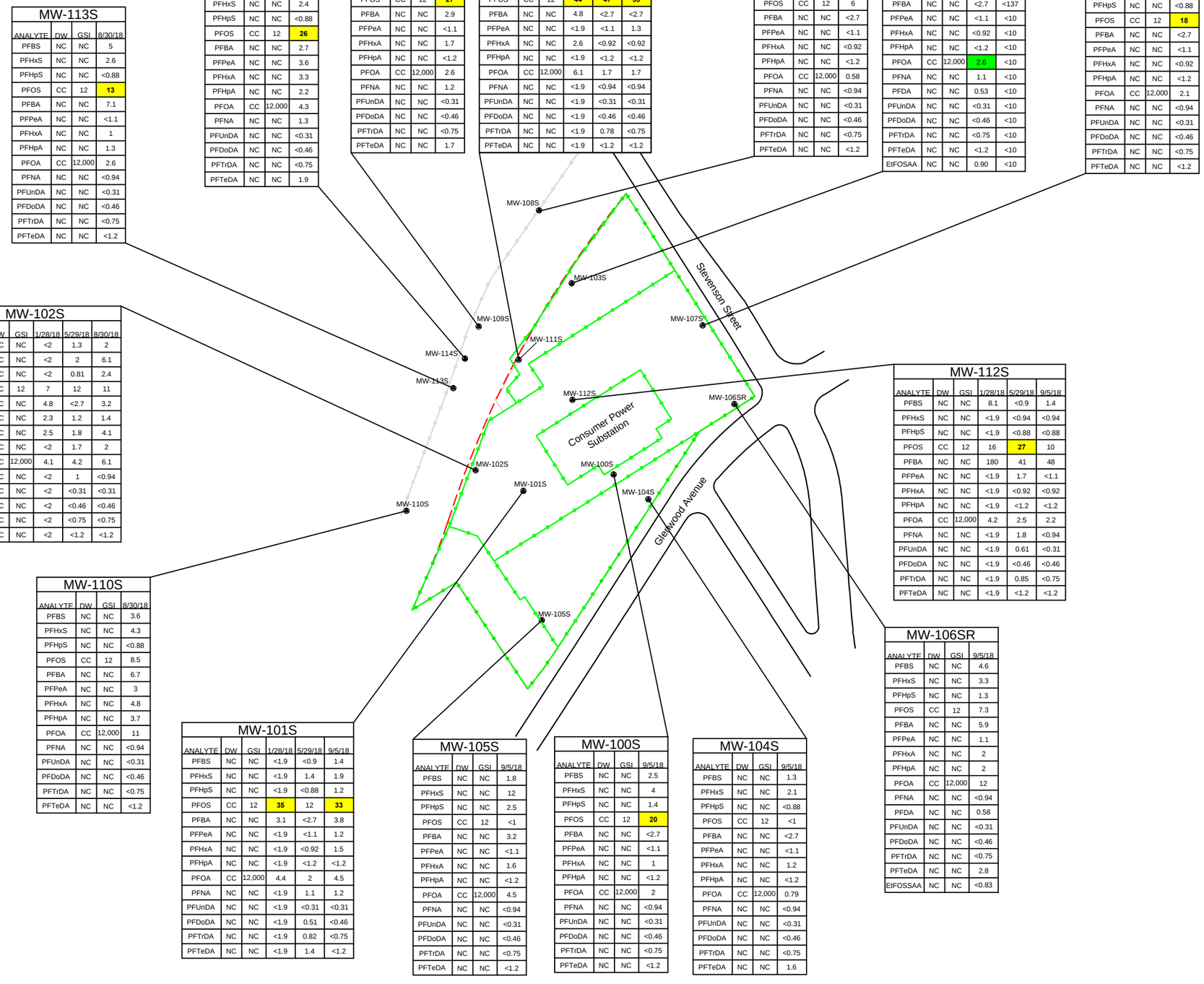
Racer Flint West -12990
Flint West Industrial Land, Flint, Michigan

Applied EcoSystems, Inc.
Environmental Management, Consulting & Field Services
G-4300 South Saginaw Street, Burton, Michigan 48529
Phone: 810.715.2525; Fax: 810.715.2526

PFOS-PFAS Groundwater Analytical Map 2018-2019

Racer Flint West -12990
Flint West Industrial Land, Flint, Michigan

CHECKED BY:	MDS
DATE:	02/25/2019
FIGURE:	6
PROJECT:	11-4317-102



MW-113S

ANALYTE	DW	GSI	8/30/18
PFBS	NC	NC	5
PFHxS	NC	NC	2.6
PFHpS	NC	NC	<0.88
PFOS	CC	12	13
PFBA	NC	NC	7.1
PFPeA	NC	NC	<1.1
PFHxA	NC	NC	1
PFHpA	NC	NC	1.3
PFOA	CC	12,000	2.6
PFNA	NC	NC	<0.94
PFUnDA	NC	NC	<0.31
PFDoDA	NC	NC	<0.46
PFTrDA	NC	NC	<0,75
PFTeDA	NC	NC	<1.2

MW-114S

ANALYTE	DW	GSI	9/5/18
PFBS	NC	NC	1.7
PFHxS	NC	NC	2.4
PFHpS	NC	NC	<0.88
PFOS	CC	12	26
PFBA	NC	NC	2.7
PFPeA	NC	NC	3.6
PFHxA	NC	NC	3.3
PFHpA	NC	NC	2.2
PFOA	CC	12,000	4.3
PFNA	NC	NC	1.3
PFUnDA	NC	NC	<0.31
PFDoDA	NC	NC	<0.46
PFTrDA	NC	NC	<0.75
PFTeDA	NC	NC	1.9

MW-109S

ANALYTE	DW	GSI	9/5/18
PFBS	NC	NC	2.9
PFHxS	NC	NC	3.2
PFHpS	NC	NC	2.6
PFOS	CC	12	27
PFBA	NC	NC	2.9
PFPeA	NC	NC	<1.1
PFHxA	NC	NC	1.7
PFHpA	NC	NC	<1.2
PFOA	CC	12,000	2.6
PFNA	NC	NC	1.2
PFUnDA	NC	NC	<0.31
PFDoDA	NC	NC	<0.46
PFTrDA	NC	NC	<0.75
PFTeDA	NC	NC	1.7

MW-111S

ANALYTE	DW	GSI	1/28/18	5/29/18	8/30/18
PFBS	NC	NC	<1.9	<0.9	2.4
PFHxS	NC	NC	1.9	1.6	3.8
PFHpS	NC	NC	<1.9	<0.88	<0.88
PFOS	CC	12	44	47	59
PFBA	NC	NC	4.8	<2.7	<2.7
PFPeA	NC	NC	<1.9	<1.1	1.3
PFHxA	NC	NC	2.6	<0.92	<0.92
PFHpA	NC	NC	<1.9	<1.2	<1.2
PFOA	CC	12,000	6.1	1.7	1.7
PFNA	NC	NC	<1.9	<0.94	<0.94
PFUnDA	NC	NC	<1.9	<0.31	<0.31
PFDoDA	NC	NC	<1.9	<0.46	<0.46
PFTrDA	NC	NC	<1.9	0.78	<0.75
PFTeDA	NC	NC	<1.9	<1.2	<1.2

MW-108S

ANALYTE	DW	GSI	8/30/18
PFBS	NC	NC	1.7
PFHxS	NC	NC	2.9
PFHpS	NC	NC	<0.88
PFOS	CC	12	6
PFBA	NC	NC	<2.7
PFPeA	NC	NC	<1.1
PFHxA	NC	NC	<0.92
PFHpA	NC	NC	<1.2
PFOA	CC	12,000	0.58
PFNA	NC	NC	<0.94
PFUnDA	NC	NC	<0.31
PFDoDA	NC	NC	<0.46
PFTrDA	NC	NC	<0.75
PFTeDA	NC	NC	<1.2

MW-103S

ANALYTE	DW	GSI	9/5/18	1/17/19
PFBS	NC	NC	2.2	<10
PFHxS	NC	NC	<0.94	<20
PFHpS	NC	NC	<0.88	<10
PFOS	CC	12	91	90
PFBA	NC	NC	<2.7	<137
PFPeA	NC	NC	<1.1	<10
PFHxA	NC	NC	<0.92	<10
PFHpA	NC	NC	<1.2	<10
PFOA	CC	12,000	2.6	<10
PFNA	NC	NC	1.1	<10
PFDA	NC	NC	0.53	<10
PFUnDA	NC	NC	<0.31	<10
PFDoDA	NC	NC	<0.46	<10
PFTrDA	NC	NC	<0.75	<10
PFTeDA	NC	NC	<1.2	<10
EtFOSAA	NC	NC	0.90	<10

MW-107S

ANALYTE	DW	GSI	8/30/18
PFBS	NC	NC	<0.90
PFHxS	NC	NC	2.7
PFHpS	NC	NC	<0.88
PFOS	CC	12	18
PFBA	NC	NC	<2.7
PFPeA	NC	NC	<1.1
PFHxA	NC	NC	<0.92
PFHpA	NC	NC	<1.2
PFOA	CC	12,000	2.1
PFNA	NC	NC	<0.94
PFUnDA	NC	NC	<0.31
PFDoDA	NC	NC	<0.46
PFTrDA	NC	NC	<0.75
PFTeDA	NC	NC	<1.2

MW-102S

ANALYTE	DW	GSI	1/28/18	5/29/18	8/30/18
PFBS	NC	NC	<2	1.3	2
PFHxS	NC	NC	<2	2	6.1
PFHpS	NC	NC	<2	0.81	2.4
PFOS	CC	12	7	12	11
PFBA	NC	NC	4.8	<2.7	3.2
PFPeA	NC	NC	2.3	1.2	1.4
PFHxA	NC	NC	2.5	1.8	4.1
PFHpA	NC	NC	<2	1.7	2
PFOA	CC	12,000	4.1	4.2	6.1
PFNA	NC	NC	<2	1	<0.94
PFUnDA	NC	NC	<2	<0.31	<0.31
PFDoDA	NC	NC	<2	<0.46	<0.46
PFTrDA	NC	NC	<2	<0.75	<0.75
PFTeDA	NC	NC	<2	<1.2	<1.2

MW-112S

ANALYTE	DW	GSI	1/28/18	5/29/18	9/5/18
PFBS	NC	NC	8.1	<0.9	1.4
PFHxS	NC	NC	<1.9	<0.94	<0.94
PFHpS	NC	NC	<1.9	<0.88	<0.88
PFOS	CC	12	16	27	10
PFBA	NC	NC	180	41	48
PFPeA	NC	NC	<1.9	1.7	<1.1
PFHxA	NC	NC	<1.9	<0.92	<0.92
PFHpA	NC	NC	<1.9	<1.2	<1.2
PFOA	CC	12,000	4.2	2.5	2.2
PFNA	NC	NC	<1.9	1.8	<0.94
PFUnDA	NC	NC	<1.9	0.61	<0.31
PFDoDA	NC	NC	<1.9	<0.46	<0.46
PFTrDA	NC	NC	<1.9	0.85	<0.75
PFTeDA	NC	NC	<1.9	<1.2	<1.2

MW-106SR

ANALYTE	DW	GSI	9/5/18
PFBS	NC	NC	4.6
PFHxS	NC	NC	3.3
PFHpS	NC	NC	1.3
PFOS	CC	12	7.3
PFBA	NC	NC	5.9
PFPeA	NC	NC	1.1
PFHxA	NC	NC	2
PFHpA	NC	NC	2
PFOA	CC	12,000	12
PFNA	NC	NC	<0.94
PFDA	NC	NC	0.58
PFUnDA	NC	NC	<0.31
PFDoDA	NC	NC	<0.46
PFTrDA	NC	NC	<0.75
PFTeDA	NC	NC	2.8
EtFOSSAA	NC	NC	<0.83

MW-110S

ANALYTE	DW	GSI	8/30/18
PFBS	NC	NC	3.6
PFHxS	NC	NC	4.3
PFHpS	NC	NC	<0.88
PFOS	CC	12	8.5
PFBA	NC	NC	6.7
PFPeA	NC	NC	3
PFHxA	NC	NC	4.8
PFHpA	NC	NC	3.7
PFOA	CC	12,000	11
PFNA	NC	NC	<0.94
PFUnDA	NC	NC	<0.31
PFDoDA	NC	NC	<0.46
PFTrDA	NC	NC	<0.75
PFTeDA	NC	NC	<1.2

MW-101S

ANALYTE	DW	GSI	1/28/18	5/29/18	9/5/18
PFBS	NC	NC	<1.9	<0.9	1.4
PFHxS	NC	NC	<1.9	1.4	1.9
PFHpS	NC	NC	<1.9	<0.88	1.2
PFOS	CC	12	35	12	33
PFBA	NC	NC	3.1	<2.7	3.8
PFPeA	NC	NC	<1.9	<1.1	1.2
PFHxA	NC	NC	<1.9	<0.92	1.5
PFHpA	NC	NC	<1.9	<1.2	<1.2
PFOA	CC	12,000	4.4	2	4.5
PFNA	NC	NC	<1.9	1.1	1.2
PFUnDA	NC	NC	<1.9	<0.31	<0.31
PFDoDA	NC	NC	<1.9	0.51	<0.46
PFTrDA	NC	NC	<1.9	0.82	<0.75
PFTeDA	NC	NC	<1.9	1.4	<1.2

MW-105S

ANALYTE	DW	GSI	9/5/18
PFBS	NC	NC	1.8
PFHxS	NC	NC	12
PFHpS	NC	NC	2.5
PFOS	CC	12	<1
PFBA	NC	NC	3.2
PFPeA	NC	NC	<1.1
PFHxA	NC	NC	1.6
PFHpA	NC	NC	<1.2
PFOA	CC	12,000	4.5
PFNA	NC	NC	<0.94
PFUnDA	NC	NC	<0.31
PFDoDA	NC	NC	<0.46
PFTrDA	NC	NC	<0.75
PFTeDA	NC	NC	<1.2

MW-100S

ANALYTE	DW	GSI	9/5/18
PFBS	NC	NC	2.5
PFHxS	NC	NC	4
PFHpS	NC	NC	1.4
PFOS	CC	12	20
PFBA	NC	NC	<2.7
PFPeA	NC	NC	<1.1
PFHxA	NC	NC	1
PFHpA	NC	NC	<1.2
PFOA	CC	12,000	2
PFNA	NC	NC	<0.94
PFUnDA	NC	NC	<0.31
PFDoDA	NC	NC	<0.46
PFTrDA	NC	NC	<0.75
PFTeDA	NC	NC	<1.2

MW-104S

ANALYTE	DW	GSI	9/5/18
PFBS	NC	NC	1.3
PFHxS	NC	NC	2.1
PFHpS	NC	NC	<0.88
PFOS	CC	12	<1
PFBA	NC	NC	<2.7
PFPeA	NC	NC	<1.1
PFHxA	NC	NC	1.2
PFHpA	NC	NC	<1.2
PFOA	CC	12,000	0.79
PFNA	NC	NC	<0.94
PFUnDA	NC	NC	<0.31
PFDoDA	NC	NC	<0.46
PFTrDA	NC	NC	<0.75
PFTeDA	NC	NC	1.6

LEGEND

Monitoring Well

DW = Drinking Water Threshold.

GSI = Ground Water to Surface Water Interface based on Rule 57.

NC = Insufficient data to develop criterion/no criterion.

CC = Combined PFOA and PFOS concentrations compared to 0.070 ppb (70 ppt) for the drinking water pathway.

= Compound exceeds GSI criteria

Concentrations presented in parts per trillion (ng/L).

Only detected constituents listed.

PFA Constiuents

Perfluorobutane sulfonic acid	(PFBS)
Perfluorohexane sulfonic acid	(PFHxS)
Perfluoroheptane sulfonic acid	(PFHpS)
Perfluorooctane sulfonic acid	(PFOS)
Perfluorobutanoic acid	(PFBA)
Perfluoropentanoic acid	(PFPeA)
Perfluorohexanoic acid	(PFHxA)
Perfluoroheptanoic acid	(PFHpA)
Perfluorooctanoic acid	(PFOA)
Perfluorononanoic acid	(PFNA)
Perfluoroundecanoic acid	(PFUnDA)
Perfluorododecanoic acid	(PFDoDA)
Perfluorotridecanoic acid	(PFTrDA)
Perfluorotetradecanoic acid	(PFTeDA)

Fence

N

0' 60' 120'

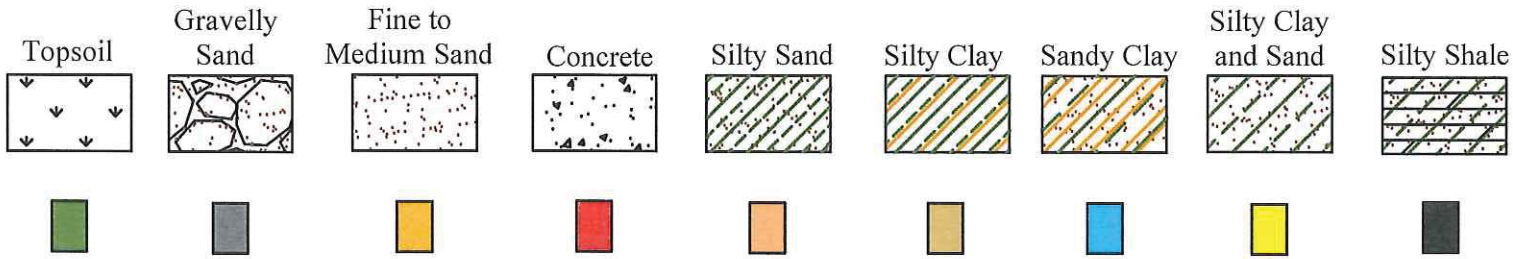
SCALE IN FEET

Applied EcoSystems, Inc.
Environmental Management, Consulting & Field Services
G-4300 South Saginaw Street, Burton, Michigan 48529
Phone: 810.715.2525; Fax: 810.715.2526

ATTACHMENTS

ATTACHMENT #1: CROSS SECTION DIAGRAMS

Cross Section Diagram Key



DW Residential Drinking Water Generic Cleanup Criteria

⊕ Monitoring Wells Installed by AE

GSI Groundwater Surface Water Interface Generic Cleanup Criteria GSI criteria calculation based on 257ppm total hardness in the Flint River

Soil and Groundwater analytical results are expressed as defined below;

Well Screen

Dissolved arsenic exceedance above DW and GSI GRCCs

Dissolved copper exceedance above GSI GRCCs

Dissolved lead exceedance above DW GRCCs

Dissolved chromium exceedance above DW GRCCs

Dissolved zinc exceedance above GSI GRCCs

Dissolved selenium exceedance above GSI GRCCs

TCE exceedance above DW GRCCs

TCE exceedance above DW and GSI GRCCs

Dissolved selenium exceedance above DW and GSI GRCCs

SCALE: None

Attachment: 1

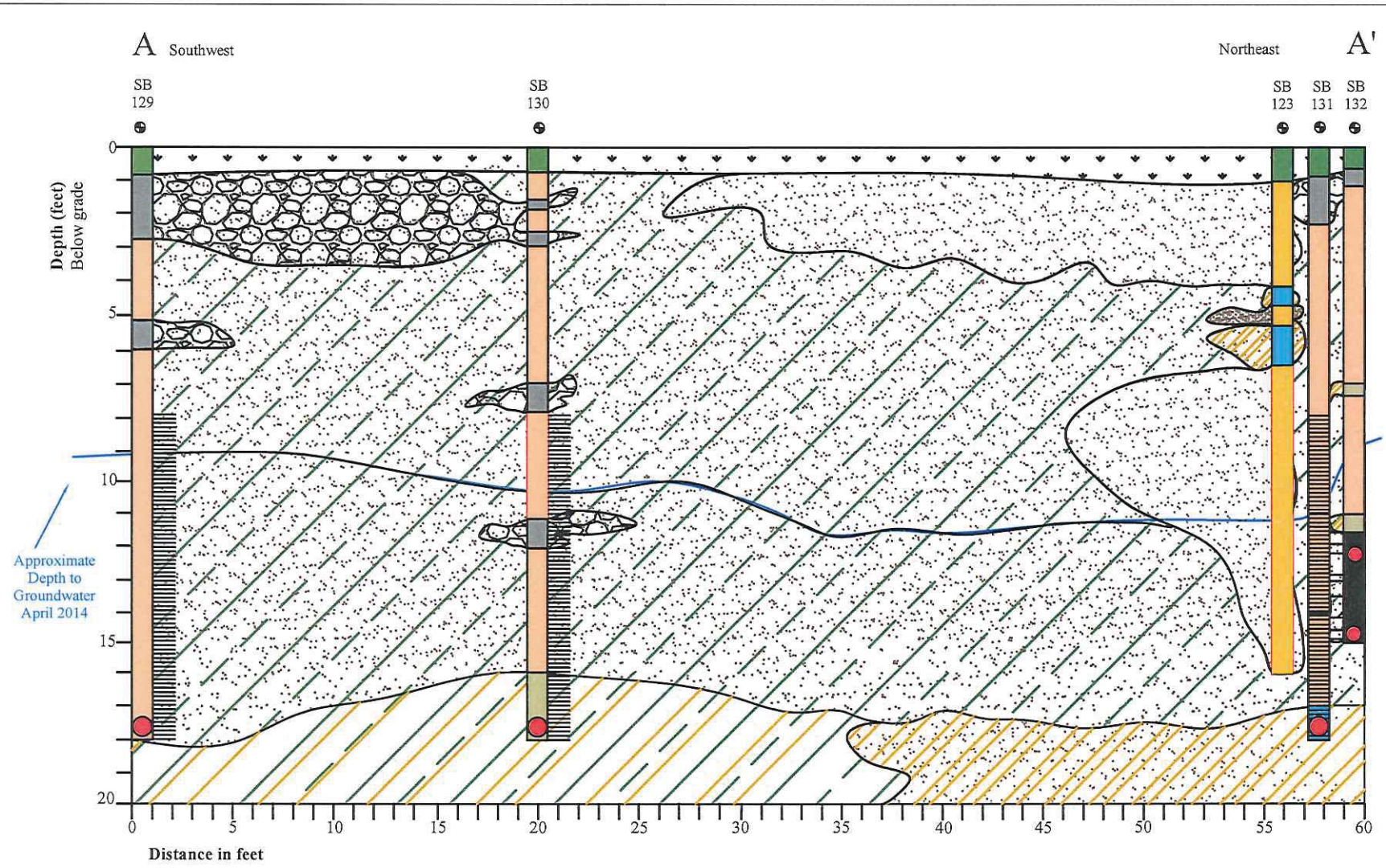
DATE: 2016

PROJECT: 11-4317-102

Cross Section Diagram Key

Racer Flint West - 12990
Flint West Industrial Land, Flint, MI

Applied EcoSystems, Inc.
Environmental Management, Consulting & Field Services
G-4300 South Saginaw Street, Burton, Michigan 48529
Phone: 810.715.2525; Fax: 810.715.2526

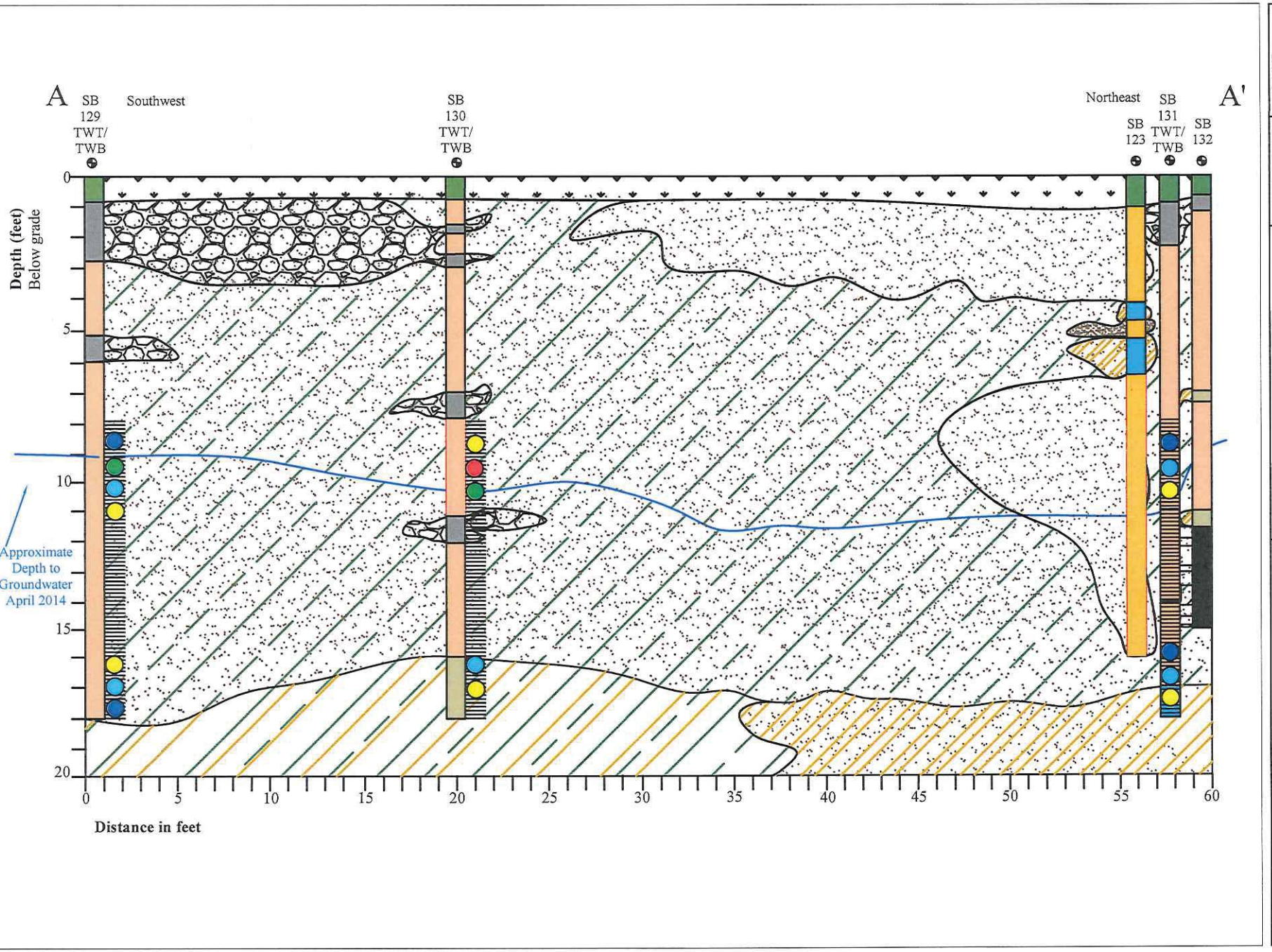


SCALE:	As Noted
Attachment:	1A (1)
DATE:	2016
PROJECT:	11-4317-102

Cross Section Diagram A - A'
TCE Exceedances in Soil

Racer Flint West - 12990
Flint West Industrial Land, Flint, MI

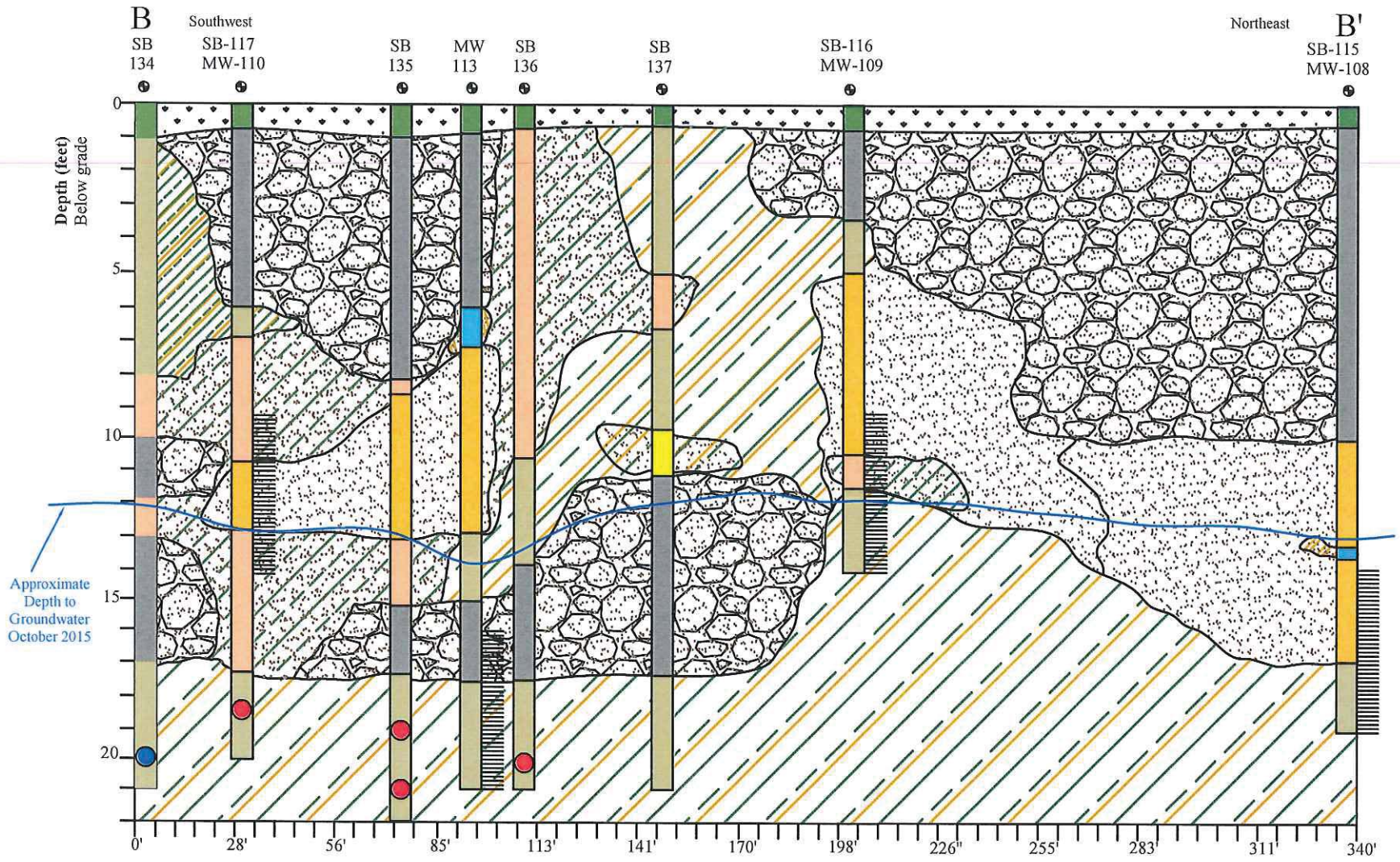
Applied EcoSystems, Inc.
Environmental Management, Consulting & Field Services
G-4300 South Saginaw Street, Burton, Michigan 48529
Phone: 810.715.2525; Fax: 810.715.2526



SCALE:	As Noted
Attachment:	1A (2)
DATE:	2015
PROJECT:	11-4317-102

Cross Section Diagram A - A'
Dissolved Metals and TCE Exceedances in Groundwater
Racer Flint West - 12990
Flint West Industrial Land, Flint, MI

Applied EcoSystems, Inc.
Environmental Management, Consulting & Field Services
G-4300 South Saginaw Street, Burton, Michigan 48529
Phone: 810.715.2525; Fax: 810.715.2526

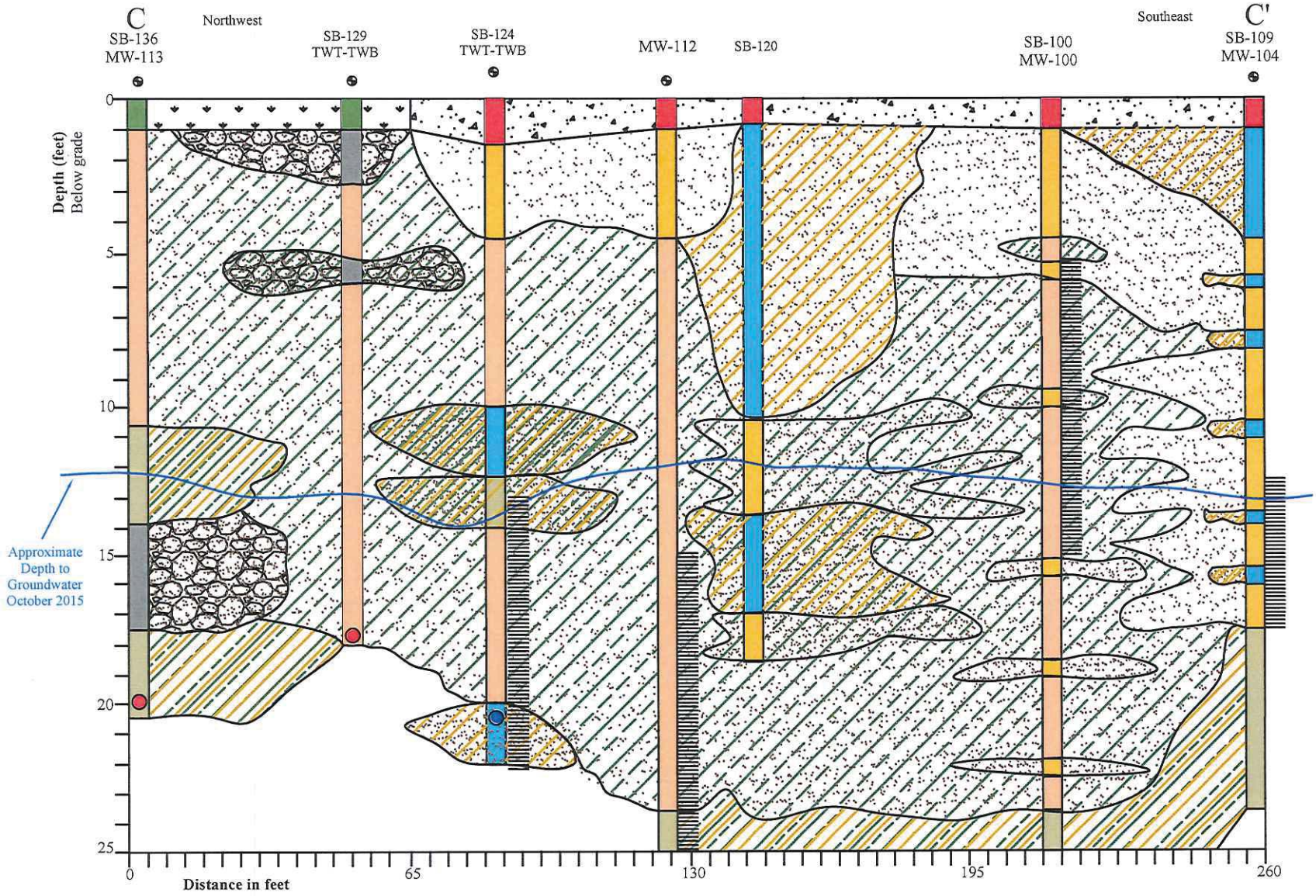


SCALE:	As Noted
DATE:	2015
Attachment:	1B (1)
PROJECT:	11-4317-102

Cross Section Diagram B - B'
TCE Exceedances in Soil

Racer Flint West - 12990
Flint West Industrial Land, Flint, MI

Applied EcoSystems, Inc.
Environmental Management, Consulting & Field Services
G-4300 South Saginaw Street, Burton, Michigan 48529
Phone: 810.715.2525; Fax: 810.715.2526



Cross Section Diagram C - C'
TCE Exceedances in Soil

Racer Flint West - 12990
Flint West Industrial Land, Flint, MI

DATE:	SCALE:
2016	As Noted
PROJECT:	**Attachment:**
11-4317-102	1C (1)

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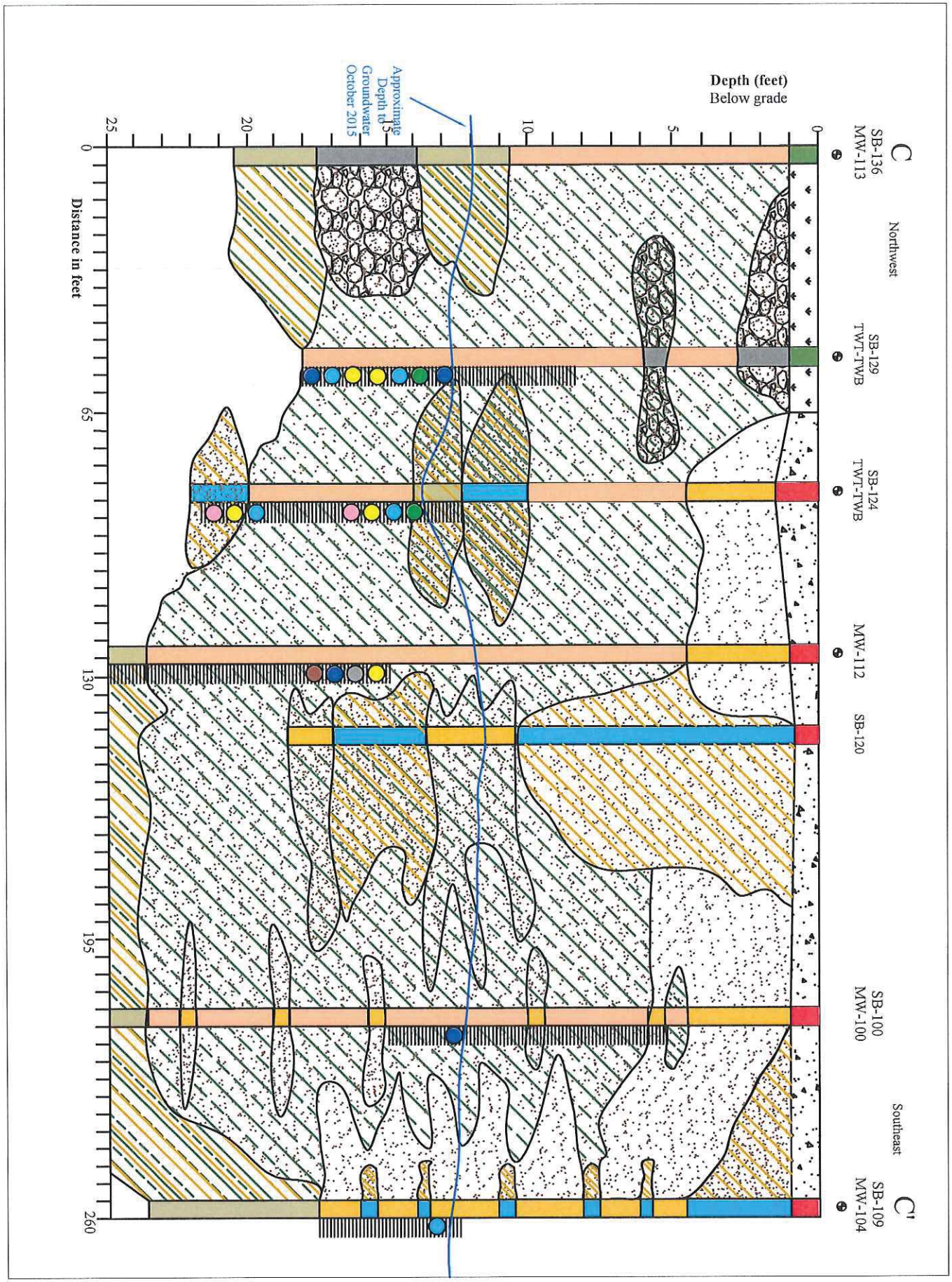
Environmental Management, Consulting & Field Services
G-4300 South Saginaw Street, Burton, Michigan 48529
Phone: 810.715.2525; Fax: 810.715.2526



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Cross Section Diagram C - C'
Dissolved Metals and TCE Exceedances in Groundwater
Racer Flint West - 12990
Flint West Industrial Land, Flint, MI

DATE:	SCALE:
2016	As Noted
PROJECT:	**Attachment:**
11-4317-102	1C (2)

ATTACHMENT #2: GROUNDWATER ANALYTICAL TABLES

Table 1
GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	SB124-TWT	SB125-TWT	SB127-TWT	SB129-TWT	SB130-TWT	SB131-TWT	SB124-TWB	SB125-TWB	SB127-TWB	SB129-TWB	SB130-TWB	SB131-TWB	Dup1	Dup2	Dup3
	Date Collected				4/3/14	4/3/14	3/29/14	4/3/14	4/3/14	4/3/14	4/3/14	3/29/14	3/29/14	3/29/14	3/29/14	4/3/14	3/29/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	3/29/14		
ANALYTE (ug/L)	**DW**	GSI																														
Arsenic (dissolved)	10	10					**11**			4				**21**		**19**				**17**	**57**	4	3	2	3	**30**	**38**						
Chromium (dissolved)	100	160	G			35		22	18					7	12		**128**	13			**147**	64	25	16			17	89	19	33	14		
Copper (dissolved)	1,000	20	G											28				21		5	22	140	28	42		12	24	94	144			
Lead (dissolved)	4	44	G											**24**				**29**		**5**	**23**	**208**	**16**	**47**	1	**19**	**11**	**31**	**14**			
Selenium (dissolved)	50	5							6	5		5						12				4		12				5	3			
Zinc (dissolved)	2,400	260	G		97		23	5		62	5	16	18	81	21	9	24	311	167	82	323	326	103	241	400	166	68	241	191	12		

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105SR	MW-106S	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	SB124-TWT	SB125-TWT	SB127-TWT	SB129-TWT	SB130-TWT	SB131-TWT	SB124-TWB	SB125-TWB	SB127-TWB	SB129-TWB	SB130-TWB	SB131-TWB	Dup1	Dup2	Dup3
	Date Collected																															
ANALYTE (ug/L)	**DW**	GSI																														
Acetone	730	1,700			1.13	2.36		0.88	1.82	3.58	3.82		1.22	2.11	0.72	5.17	0.93	5.7		9.1	5.7			10.3	66	25.8	5.9		5.8	1.06		
Methyl iodide	NC	NC																														
Carbon disulfide	800	NC																							0.86	0.4						
2 Butanone (MEK)	13,000	2,200			0.73	0.86		0.41	0.83	0.78	0.94					2.98								11.6	8.6						
Chloromethane	260	NC																					0.33		0.61						
Vinyl Chloride	2.0	13									0.64		**18**		**4**	**6**	0.45			**5**			2		2			2	**4**		
Chloroethane	430	1,100													0.6	1.13				1.07					0.77						
trichlorofluoromethane	2,600	NA																														
1,1-Dichloroethene	7.0	130											4		1	0.40				1					0.81				1		
Methylene Chloride	5.0	1,500																														
trans-1,2-Dichloroethene	100	1,500											0.92		0.24	0.23												0.28	0.26		
1,1-Dichloroethane	880	740									0.21		3.00		2	0.69	2.00						3.00					2.00	2.00		
cis-1,2-Dichloroethene	70	620									3		59		46	2	26			0.042	0.69	2	21			0.36	0.93	3.00	21.00	43.00		
Tetrahydrofuran	95	11,000																														
Chloroform	80	350						3.00				0.35	0.35		0.29								0.042					0.41	0.29		
1,1,1-Trichloroethane	200	89											0.48		0.75								0.72					0.71	0.73		
4-Methyl-2-pentanone (M	1800	1000000000														0.67				0.390					0.590	2.190						
2-Hexanone	1000	1000000000																		0.750				0.210	2.170	4.570						
Carbontetrachloride	5.0	45										2																				
Benzene	5.0	200									0.25									0.43	0.12			0.17	0.21	0.81	0.21	0.16	0.23			
Bromodichloromethane	80.0	NC						0.89																								
Trichloroethene	5.0	200			3	2					4		**102**		**92**	3	**23**				**8**	3	**81**	0.55			**8**	5	**78**	**86**		
Toluene	790	270								0.35	0.63							0.23		0.39	0.20			0.38	0.30	1.00	0.35	0.24	0.44			
Tetrachloroethene	5.0	60							**47**														0.180						0.17			
Chlorobenzene	100	25																														
Styrene	100	80																		0.43												
Ethylbenzene	74	18																						0.12	0.11	0.31			0.11			
Total Xylenes	280	41																								0.79						
1,2 -Dichlorobenzene	600	13																														
1,2,4-Trimethylbenzene	63	17																							0.22	0.31						
1,2,3-Trimethylbenzene	NC	NC								0.07	0.07														0.20	0.18						
Naphthalene	520	11																0.34		0.31				0.75	1.68	0.55						
2-Methylnaphthalene	260	19																0.51		0.40				0.47	0.88	0.47						

NOTES:

	Blank cells indicate no detectable concentrations
X	Exceeds DW criteria
X	Exceeds GSI criteria G
X	Exceeds both DW and GSI criteria
X	Compound also found in associated method blank, suggesting a laboratory artifact.
NC	Insufficient data to develop criterion/no criterion
G	Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River

Table 1
GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Dup1	Dup2	Dup3
	Date Collected			6/25/14	6/25/14	6/25/14	6/26/14	6/25/14	6/26/14	6/25/14	6/25/14	6/26/14	6/26/14	6/26/14	6/26/14	6/25/14	6/26/14			
ANALYTE (ug/L)	**DW**	GSI																		
Arsenic (dissolved)	10	10														**19**				
Chromium (dissolved)	100	160	G			51											**152**			
Copper (dissolved)	1,000	20	G														4			
Lead (dissolved)	4	44	G					**25**	**22**	**23**				**15**			**5**			
Selenium (dissolved)	50	5				**66**			8			6								
Zinc (dissolved)	2,400	260	G	5	11		10				5	7				8	13			

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105SR	MW-106S	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Dup1	Dup2	Dup3
	Date Collected			6/25/14	6/25/14	6/25/14	6/26/14	6/25/14	6/26/14	6/25/14	6/25/14	6/26/14	6/26/14	6/26/14	6/26/14	6/25/14	6/26/14			
ANALYTE (ug/L)	**DW**	GSI																		
Acetone	730	1,700		1.74	1.45	2.04	2.67	1.55	1.86	1.59	2.82	1.32	1.47	1.29	1.48	4.93	1.32			
Methyl iodide	NC	NC																		
Carbon disulfide	800	NC														0.42	0.36			
2 Butanone (MEK)	13,000	2,200									0.4	0.65	0.29		0.29	1.99				
Chloromethane	260	NC		0.32				0.34									0.29			
Vinyl Chloride	2.0	13											**10**			**21**	2			
Chloroethane	430	1,100														2.9				
trichlorofluoromethane	2,600	NA																		
1,1-Dichloroethene	7.0	130											4			2.00	0.39			
Methylene Chloride	5.0	1,500																		
trans-1,2-Dichloroethene	100	1,500											0.7			0.64	0.24			
1,1-Dichloroethane	880	740														1.00	3.00			
cis-1,2-Dichloroethene	70	620		0.62									3			7	59			
Tetrahydrofuran	95	11,000											70.0							
Chloroform	80	350						5.00		0.22		0.5	0.37				0.320			
1,1,1-Trichloroethane	200	89											0.50				1.00			
4-Methyl-2-pentanone (MI	1800	1000000000														0.83				
2-Hexanone	1000	1000000000														1.46				
Carbontetrachloride	5.0	45										2								
Benzene	5.0	200																		
Bromodichloromethane	80.0	NC						0.82												
Trichloroethene	5.0	200		5	1	3			**26**		2		**104**		2	**24**	**69**			
Toluene	790	270																		
Tetrachloroethene	5.0	60																		
Chlorobenzene	100	25																		
Styrene	100	80																		
Ethylbenzene	74	18																		
Total Xylenes	280	41																		
1,2 -Dichlorobenzene	600	13																		
1,2,4-Trimethylbenzene	63	17																		
1,2,3-Trimethylbenzene	NC	NC																		
Naphthalene	520	11																		
2-Methylnaphthalene	260	19																		

NOTES:

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RACER - Flint West #12990

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Dup1	Dup2
	Date Collected			12/22/14	12/22/14	11/18/14	12/22/14	11/18/14	11/18/14	11/18/14	11/18/14	11/20/14	11/20/14	11/18/14	11/20/14	11/18/14	11/20/14	11/18/14	11/20/14
ANALYTE (ug/L)	**DW**	**GSI**																	
Arsenic (dissolved)	10	10		**na**										**17**		**20**			
Arsenic	10	10		**29**	4	**12**	**na**	**12**	**42**	**13**	2	5	**16**	**55**	9	**400**	**40**	**11.00**	5.00
Cadmium (dissolved)	5	5	GX	**na**		**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Cadmium	5	5	GX	**6.90**		**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**	**na**
Chromium (dissolved)	100	160	G	**na**	**na**	7	**na**	9	6	15				7	7			10	
Chromium	100	160	GX	**na**	**na**	62	**na**	**17,800**	**42,600**	**68,000**	14	19	16	69	**237**	**140**	**822**	**14,000**	11
Copper (dissolved)	1,000	20	G	**na**			**na**												
Copper	1,000	20	GX	230	32	22	**na**	716	802	402	29	31	26	736	22	502	300	583	21
Lead (dissolved)	4	44	G	**na**			**na**												
Lead	4	44	GX	**70**	**21**	**14**	**na**	**6**	**29**	**44**	**6**	**15**	**32**	**249**	**20**	**354**	**289**	**5**	**23**
Selenium (dissolved)	50	5		**na**			**na**		14	5									
Selenium	50	5					**na**		16	5								6	
Zinc (dissolved)	2,400	260	G	**na**	66		**na**	28		15	9	13	11	25	34	9	23	36	43
Zinc	2,400	260	GX	493	74	33	**na**	29	52	210	27	222	47	556	36	920	504	23	75

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Dup1	Dup2
	Date Collected			12/22/14	12/22/14	11/18/14	12/22/14	11/18/14	11/18/14	11/18/14	11/18/14	11/20/14	11/20/14	11/18/14	11/20/14	11/18/14	11/20/14		
ANALYTE (ug/L)	**DW**	**GSI**																	
Acetone	730	1,700		1.83	2.77		**na**									42			
Methyl iodide	NC	NC					na												
Carbon disulfide	800	NC		0.29			**na**	0.70											
2 Butanone (MEK)	13,000	2,200		0.55			**na**									24			
Chloromethane	260	NC					**na**	0.27	0.35		0.33		0.53	0.58	0.88		0.48	0.58	
Vinyl Chloride	2.0	13					**na**				0.58		**12**			**3**			
Chloroethane	430	1,100					**na**									0.88			
trichlorofluoromethane	2,600	NA					**na**												
1,1-Dichloroethene	7.0	130					**na**						5						
Methylene Chloride	5.0	1,500					**na**												
trans-1,2-Dichloroethene	100	1,500					**na**						0.9						
1,1-Dichloroethane	880	740					**na**				0.71		1			0.76	0.47		
cis-1,2-Dichloroethene	70	620		1			**na**				2	0.57	45		1	3	9		0.56
Tetrahydrofuran	95	11,000					**na**												
Chloroform	80	350					**na**	3				2	0.18					3	2
1,1,1-Trichloroethane	200	89					**na**						0.37				0.29		
4-Methyl-2-pentanone (MIBK)	1800	1000000000					**na**									3.88			
2-Hexanone	1000	1000000000					**na**									12			
Carbontetrachloride	5.0	45					**na**					2							2
Benzene	5.0	200					**na**							0.12		0.29			
Bromodichloromethane	80.0	NC					**na**	0.54										0.46	
Trichloroethene	5.0	200		2	4	0.36	**na**				5		**160**		**7**		**61**	0.3	
Toluene	790	270					**na**							0.22		0.51			
Tetrachloroethene	5.0	60			0.23		**na**		**73**				0.2				0.20		
Chlorobenzene	100	25					**na**												
Styrene	100	80					**na**												
Ethylbenzene	74	18					**na**									0.17			
Total Xylenes	280	41					**na**												
1,2 -Dichlorobenzene	600	13					**na**												
1,2,4-Trimethylbenzene	63	17					**na**												
1,2,3-Trimethylbenzene	NC	NC					na												
Naphthalene	520	11					**na**												
2-Methylnaphthalene	260	19					**na**												

NOTES:

	Blank cells indicate no detectable concentrations
X	Exceeds DW criteria
X	Exceeds GSI criteria G =
X	Exceeds both DW and GSI criteria
X	Compound also found in associated method blank, suggesting a laboratory artifact.
NC	Insufficient data to develop criterion/no criterion
G	Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River
na	Sample not analyzed for this constituent

Table 1
GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Dup1	Dup2
	Date Collected			DRY	4/28/15	4/28/15	4/30/15	4/28/15	4/28/15	4/28/15	4/28/15	4/30/15	4/30/15	4/30/15	4/30/15	4/28/15	4/30/15	4/28/15	4/30/15
ANALYTE (ug/L)	**DW**	GSI																	
Arsenic (dissolved)	10	10					6									**16**			6
Arsenic	10	10			4		**23**			5				2	6	**277**	6		**20**
Chromium (dissolved)	100	160	G			22		5	8									10	
Chromium	100	160	G		17	24		**1590**	**829**	**58300**					29	9	73	16	
Copper (dissolved)	1000	20	G																
Copper	1000	20	G		31	9		40	13	306						14	12		
Lead (dissolved)	4	44	G																
Lead	4	44	G		**24**					**26**						**9**	**11**		
Selenium (dissolved)	50	5							9										
Selenium	50	5							9										
Zinc (dissolved)	2400	260	G		9			8		120		6			9	39	22	11	
Zinc	2400	260	G		9			8		133		6			9	39	22	11	
Final Field Turbidity Reading, before flitering stated in ug/L					785E+3	432E+3	595E+3	1010E+3	1105E+3	1694E+3	479E+3	453E+3	505E+3	585E+3	617E+3	829E+3	729E+3		
	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105SR	MW-106S	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Dup1	Dup2
	Date Collected			DRY	4/28/15	4/28/15	4/30/15	4/28/15	4/28/15	4/28/15	4/28/15	4/30/15	4/30/15	4/30/15	4/30/15	4/28/15	4/30/15	4/28/15	4/30/15
ANALYTE (ug/L)	**DW**	GSI																	
PNAs	varies	varies																	

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105SR	MW-106S	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Dup1	Dup2
	Date Collected			DRY	4/28/15	4/28/15	4/30/15	4/28/15	4/28/15	4/28/15	4/28/15	4/30/15	4/30/15	4/30/15	4/30/15	4/28/15	4/30/15	4/28/15	4/30/15
ANALYTE (ug/L)	**DW**	GSI																	
Acetone	730	1,700														10			
Methyl iodide	NC	NC																	
Carbon disulfide	800	NC								0.17						0.16			
2 Butanone (MEK)	13,000	2,200														6.6			
Chloromethane	260	NC			4	6	2	6	5	5	4	4	4	5	5	4	2		3
Vinyl Chloride	2.0	13									0.6		**21**		**4**	**4**	2		
Chloroethane	430	1,100					0.7									5			0.77
trichlorofluoromethane	2,600	NA																	
1,1-Dichloroethene	7.0	130											4		0.88				
Methylene Chloride	5.0	1,500																	
trans-1,2-Dichloroethene	100	1,500											1		0.99		0.26		
1,1-Dichloroethane	880	740									0.56		2		2	0.52	3		
cis-1,2-Dichloroethene	70	620									2		51		48	0.66	19		
Tetrahydrofuran	95	11,000																	
Chloroform	80	350						1		0.7		1	0.28		0.29	0.21	0.19		
1,1,1-Trichloroethane	200	89											0.51		0.36				
4-Methyl-2-pentanone (MIBK	1800	1E+09														1			
2-Hexanone	1000	1E+09														3			
Carbontetrachloride	5.0	45										2							
Benzene	5.0	200			0.26		0.23												0.25
Bromodichloromethane	80.0	NC																	
Trichloroethene	5.0	200			2	0.51					2		**138**		**78**	0.62	**36**		
Toluene	790	270			0.71					0.18									
Tetrachloroethene	5.0	60							**69**										
Chlorobenzene	100	25																	0.17
Styrene	100	80					0.15												0.21
Ethylbenzene	?	?																	
Total Xylenes	280	41																	
1,2 -Dichlorobenzene	?	?																	
1,2,4-Trimethylbenzene	63	17																	
1,2,3-Trimethylbenzene	NC	NC																	
Naphthalene	520	11																	
2-Methylnaphthalene	260	19																	

NOTES:

	Blank cells indicate no detectable concentrations
X	Exceeds DW criteria
X	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria
X	Compound also found in associated method blank, suggesting a laboratory artifact.
NC	Insufficient data to develop criterion/no criterion
G	Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River

Table 1
GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Trip Blank	Field Blank
	Date Collected			DRY	10/26/15	10/26/15	10/27/15	10/26/15	10/26/15	10/26/15	10/26/15	10/27/15	10/27/15	10/27/15	10/27/15	10/26/15	10/27/15	10/26/15	10/26/15
ANALYTE (ug/L)	**DW**	GSI																	
Arsenic (dissolved)	10	10		DRY			4							3.31	0.51	4	1.09		
Arsenic	10	10		DRY	4.3	**20**	**140**	**13.6**	**70**	**53**	**68**	**18.4**	**40**	**30**	**60**	**235**	**30**		
Chromium (dissolved)	100	160	G	DRY	2.39	7.1	0.51		23	**128**		0.67	0.5	0.66	4.35	0.57	0.76		
Chromium	100	160	G	DRY	49.1	90	**120**	**10,000**	16.2	**446,000**	29.5	70	70	16.4	**1,140**	**150**	**220**		
Copper (dissolved)	1000	20	G	DRY				1.04	1.89	1.5	4.88	2.28	7.11	12	2.85	115	3.13		
Copper	1000	20	G	DRY	14.42	37.44	160	210	820	**2,760**	70	90	90	90	70	200	80		
Lead (dissolved)	4	44	G	DRY				1.57		1.11						1.27			
Lead	4	44	G	DRY	**7.61**	**20.45**	**80**	**29.78**	**180**	**300**	**16.86**	**90**	**70**	**20.3**	**40**	**100**	**50**		
Selenium (dissolved)	50	5		DRY		1.3		1.9	9.9	4.6	2.2	1.4	2	***1.2***		**102**			
Selenium	50	5		DRY	12	16		15	17						***16***				
Zinc (dissolved)	2400	260	G	DRY	35	111	12	42	24	22	17	16	15	19	34	101	84		
Zinc	2400	260	G	DRY	40.3	100	410	160	800	1,600	110	350	230	70	140	450	170		
	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Trip Blank	Field Blank
	Date Collected			DRY	10/26/15	10/26/15	10/27/15	10/26/15	10/26/15	10/26/15	10/26/15	10/27/15	10/27/15	10/27/15	10/27/15	10/26/15	10/27/15	10/26/15	10/26/15
ANALYTE (ug/L)	**DW**	GSI																	
Acetone	730	1,700		DRY															
Methyl iodide	NC	NC		DRY															
Carbon disulfide	800	NC		DRY															
2 Butanone (MEK)	13,000	2,200		DRY			1.74											0.82	0.79
Chloromethane	260	NC		DRY															
Vinyl Chloride	2.0	13		DRY									**20**		**97**				
Chloroethane	430	1,100		DRY															
trichlorofluoromethane	2,600	NA		DRY															
1,1-Dichloroethene	7.0	130		DRY									5.3		4	0.76			
Methylene Chloride	5.0	1,500		DRY															
trans-1,2-Dichloroethene	100	1,500		DRY											1		0.27		
1,1-Dichloroethane	880	740		DRY									3.3		2		1		
cis-1,2-Dichloroethene	70	620		DRY							0.42	0.66	**80**		42	1	23		
Tetrahydrofuran	95	11,000		DRY															
Chloroform	80	350		DRY				2				3							
1,1,1-Trichloroethane	200	89		DRY											0.33		0.45		
4-Methyl-2-pentanone (MIBK)	1800	1000000000		DRY												1.09			
2-Hexanone	1000	1000000000		DRY												1.64			
Carbontetrachloride	5.0	45		DRY								3							
Benzene	5.0	200		DRY			0.21		0.26	0.22						0.2			
Bromodichloromethane	80.0	NC		DRY				0.65											
Trichloroethene	5.0	200		DRY	3	0.68		0.68			2	0.33	**200**		**92**		**67**		
Toluene	790	270		DRY					0.58	0.4	0.31					0.37			
Tetrachloroethene	5.0	60		DRY					**58**										
Chlorobenzene	100	25		DRY															
Styrene	100	80		DRY															
Ethylbenzene	74	18		DRY															
Total Xylenes	280	41		DRY															
1,2 -Dichlorobenzene	600	13		DRY															
1,2,4-Trimethylbenzene	63	17		DRY															
1,2,3-Trimethylbenzene	NC	NC		DRY															
Naphthalene	520	11		DRY															
2-Methylnaphthalene	260	19		DRY															

NOTES:

	Blank cells indicate no detectable concentrations
X	Exceeds DW criteria
X	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria
X	Compound also found in associated method blank, suggesting a laboratory artifact.
NC	Insufficient data to develop criterion/no criterion
G	Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River

Table 1
GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

As Erronously Labeled in May 23, 2016 Laboratory Report										MW-112	MW-113					MW-120										
	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Trip Blank	Field Blank	Trip Blank	Field Blank	Dup1	Trip Blank	Field Blank	Dup2	Dup3
	Date Collected			5/11/16	5/11/16	NS	6/8/16	6/1/16	NS	5/11/16	5/11/16	6/1/16	6/1/16	6/1/16	6/8/16	5/11/16	6/1/16	5/11/16	5/11/16	6/1/16	6/1/16	6/1/16	6/8/16	6/8/16	6/8/16	6/8/16
ANALYTE (ug/L)	**DW**	GSI																								
Arsenic (dissolved)	10	10				NS	6	1.65	NS				0.65	1.21	0.55	18	2.08									
Arsenic	10	10			3	NS	22	1.62	NS	3		0.96	5	3	1	79	9									
Chromium (dissolved)	100	160	G			NS	1.16	1.19	NS			1.42	1.17	1.77	3.33		1.73									
Chromium (total)	100	160	G	5	13	NS	1	465	NS	77	3	1.91	3.38	1.3	4		4.86									
Chromium VI (dissolved)	100	160				NS			NS																	
Chromium VI (total)	100	160		NA	NA	NS	NA		NS	NA				NA		NA	NA									
Copper (dissolved)	1000	20	G			NS	2.02	0.51	NS			2.32	6	1.49	1.25		0.73									
Copper	1000	20	G	4	7	NS	0.77	16	NS	7	3	1.95	8	0.74	1.38											
Lead (dissolved)	4	44	G			NS	0.278	0.764	NS			0.187	0.325	0.32	0.094	1	0.155									
Lead	4	44	G	2	3	NS	0.105	0.554	NS	2		0.785	2.6		0.5											
Selenium (dissolved)	50	5				NS			NS			6														
Selenium	50	5				NS		6	NS			6														
Zinc (dissolved)	2400	260	G	21		NS	1870	18	NS			1220	730	373	49	5	317									
Zinc	2400	260	G	11	22	NS	2.46	1.48	NS	12	7	6	10		2.95	7										
	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Trip Blank	Field Blank	Trip Blank	Field Blank	Dup2	Trip Blank	Field Blank	Dup3	Dup3
	Date Collected			5/11/16	5/11/16	NS	6/8/16	6/1/16	NS	5/11/16	5/11/16	6/1/16	6/1/16	6/1/16	6/8/16	5/11/16	6/1/16	5/11/16	5/11/16	6/1/16	6/1/16	6/1/16	6/8/16	6/8/16	6/8/16	6/8/16
ANALYTE (ug/L)	**DW**	GSI																								
Acetone	730	1,700		2.72	1.62	NS			NS	2.72	2.1		0.6	0.67		4.21			1.98		0.69					
Methyl iodide	NC	NC				NS			NS																	
Carbon disulfide	800	NC				NS			NS																	
2 Butanone (MEK)	13,000	2,200				NS			NS							1.36			0.37							
Chloromethane	260	NC				NS			NS																	
Vinyl Chloride	2.0	13				NS			NS				15			17										
Chloroethane	430	1,100				NS			NS							2.59										
trichlorofluoromethane	2,600	NA				NS			NS																	
1,1-Dichloroethene	7.0	130				NS			NS				3													
Methylene Chloride	5.0	1,500				NS			NS																	
trans-1,2-Dichloroethene	100	1,500				NS			NS				0.59			0.36										
1,1-Dichloroethane	880	740				NS			NS				1			1	3									
cis-1,2-Dichloroethene	70	620		0.34		NS			NS							3	30									
Tetrahydrofuran	95	11,000				NS			NS																	
Chloroform	80	350				NS		3	NS			1									0.490	3.000				
1,1,1-Trichloroethane	200	89				NS			NS				0.31				0.3									
4-Methyl-2-pentanone (MIBK)	1800	ID				NS			NS							0.3										
2-Hexanone	1000	ID				NS			NS							0.47										
Carbontetrachloride	5.0	45				NS			NS			2														
Benzene	5.0	200				NS			NS																	
Bromodichloromethane	80.0	NC				NS		0.74	NS													0.710				
Trichloroethene	5.0	200		4	2	NS			NS	4	0.26		93		11	12	50									
Toluene	790	270				NS			NS																	
Tetrachloroethene	5.0	60				NS			NS																	
Chlorobenzene	100	25				NS			NS																	
Styrene	100	80				NS			NS																	
Ethylbenzene	74	18				NS			NS																	
Total Xylenes	280	41				NS			NS																	
1,2 -Dichlorobenzene	600	13				NS			NS																	
1,2,4-Trimethylbenzene	63	17				NS			NS																	
1,2,3-Trimethylbenzene	NC	NC				NS			NS																	
Naphthalene	520	11				NS			NS																	
2-Methylnaphthalene	260	19				NS			NS																	
Diethyl ether	10 (E)	ID				NS			NS																	
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)				NS			NS																	
Acrylonitrile	2.6	2.0 (M); 1.2				NS			NS																	
Dichlorodifluoromethane	1,700	ID				NS			NS																	
Bromomethane	10	35				NS			NS																	
1,2-Dichloroethane	5.0 (A)	360 (X)				NS			NS																	
Trichloroethene	5.0 (A)	200 (X)				NS			NS																	
1,2-Dichloropropane	5.0 (A)	230 (X)				NS			NS																	
cis-1,3-Dichloropropene	NC	NC				NS			NS																	
trans-1,3-Dichloropropene	NC	NC				NS			NS																	
1,1,2-Trichloroethane	5.0 (A)	330 (X)				NS			NS																	
trans-1,4-Dichloro-2-butene	NC	NC				NS			NS																	
Dibromochloromethane	80 (A,W)	ID				NS			NS																	
1,2-Dibromoethane	NC	NC				NS			NS																	
1,1,1,2-Tetrachloroethane	77	ID				NS			NS																	
Isopropylbenzene	800	28				NS			NS																	
Bromoform	80 (A,W)	ID				NS			NS																	
1,1,2,2-Tetrachloroethane	8.5	78 (X)				NS			NS																	
1,2,3-Trichloropropane	42	NA				NS			NS																	
n-Propylbenzene	80	ID				NS			NS																	
Bromobenzene	18	NA				NS			NS																	
1,3,5-Trimethylbenzene	72 (E)	45				NS			NS																	
tert-Butylbenzene	80	ID				NS			NS																	
1,2,4-Trimethylbenzene	63 (E)	17				NS			NS																	
1,2,3-Trichlorobenzene	NC	NC				NS			NS																	

NOTES:

	Blank cells indicate no detectable concentrations
X	Exceeds DW criteria
X	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria
X	Compound also found in associated method blank, suggesting a laboratory artifact.
NC	Insufficient data to develop criterion/no criterion
G	Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S			Dup			Dup			
	Date Collected			10/27/16	10/27/16	11/1/16	10/31/16	11/1/16	11/1/16	10/27/16	10/27/16	10/31/16	10/31/16	10/31/16	10/31/16	10/27/16	10/31/16			10/27/16			10/31/16			
ANALYTE (ug/L)	DW	GSI																								
Arsenic (dissolved)	10	10				1.63			1.23		0.79	15			6	108	4			34						
Arsenic	10	10		1.69	0.7	4			6	0.93	1.05	52	1.26		11	265	17			259			2			
Chromium (dissolved)	100	160	G	0.95	20	6		24	407	340	0.18	0.56			0.41	2.41	2.86			0.59			0.64			
Chromium (total)	100	160	G	10	63	8	0.059	146	6540	619	19	1.31	0.62	6	2	9	22			6			1.38			
Chromium VI (dissolved)	100	160												14												
Chromium VI (total)	100	160																								
Copper (dissolved)	1000	20	G	0.91	4.31	2.20	0.99	2.22	31	32	1.25		6		6	6				3			0.86			
Copper	1000	20	G	5	18	1.41	1.1	4.16	203	64	2.46		6	1.85	6	10	2.94			6			1.63			
Lead (dissolved)	4	44	G	0.144	0.148	0.97	0.116		0.85	0.451			0.151	0.075	0.978	1.651				0.191			0.361			
Lead	4	44	G	2.32	0.895	1.33	0.306		3.00	0.632	0.35	0.161	0.479	0.523	1.3	5	2.855			3.000			0.928			
Selenium (dissolved)	50	5																								
Selenium	50	5																								
Zinc (dissolved)	2400	260	G	20.6	2.28	5	4.19		390	2.89	10	2.36	3.46		6	16	2.05			10			6			
Zinc	2400	260	G	12	5	6	2.35		1380	2	11		3.59	2.3	7	32	9			21			6			

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Trip Blank	Field Blank	Dup	Trip Blank	Field Blank	Dup			
	Date Collected			10/27/16	10/27/16	11/1/16	10/31/16	11/1/16	11/1/16	10/27/16	10/27/16	10/31/16	10/31/16	10/31/16	10/31/16	10/27/16	10/31/16	10/27/16	10/27/16	10/27/16	10/31/16	10/31/16	10/31/16			
ANALYTE (ug/L)	DW	GSI																								
Acetone	730	1,700														10										
Methyl Iodide	NC	NC																								
Carbon disulfide	800	NC																								
2 Butanone (MEK)	13,000	2,200																								
Chloromethano	260	NC																								
Vinyl Chloride	2.0	13											8		72	2				2						
Chloroethane	430	1,100														3				3						
Irichlorofluoromethane	2,600	NA																								
1,1-Dichloroethene	7.0	130											3		4											
Methylene Chloride	5.0	1,500																								
trans-1,2-Dichloroetheno	100	1,500																								
1,1-Dichloroethane	880	740											2		2											
cis-1,2-Dichloroethene	70	620									2		32		10	2	11			2						
Tetrahydrofuran	95	11,000																								
Chloroform	80	350						1				3											2			
1,1,1-Trichloroethane	200	89																								
4-Methyl-2-pentanono (MIBK)	1800	ID																								
2-Hexanone	1000	ID																								
Carbontetrachloride	5.0	45										2											1			
Benzene	5.0	200																								
Bromodichloromethane	80.0	NC																								
Trichloroethene	5.0	200		3	2						3		119		41	3	50			2						
Toluene	790	270																								
Tetrachloroethene	5.0	60							34																	
Chlorobenzene	100	25																								
Styrene	100	80																								
Ethylbenzene	74	18																								
Total Xylenes	280	41																								
1,2 -Dichlorobenzene	600	13																								
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Trichloroethene	5.0 (A)	200 (X)																								
1,2-Dichloropropane	5.0 (A)	230 (X)																								
cis-1,3-Dichloropropene	NC	NC																								
trans-1,3-Dichloropropene	NC	NC																								
1,1,2-Trichloroethano	5.0 (A)	330 (X)																								
trans-1,4-Dichloro-2-butene	NC	NC																								
Dibromochloromethane	80 (A,W)	ID																								
1,2-Dibromoethano	NC	NC																								
1,1,1,2-Tetrachloroethane	77	ID																								
Isopropylbenzene	800	28																								
Bromoform	80 (A,W)	ID																								
1,1,2,2-Tetrachloroethane	8.5	78 (X)																								
1,2,3-Trichloropropane	42	NA																								
n-Propylbenzene	80	ID																								
Bromobenzene	18	NA																								
1,3,5-Trimethylbenzene	72 (E)	45																								
tert-Butylbenzene	80	ID																								
1,2,4-Trimethylbenzene	63 (E)	17																								
1,2,3-Trichlorobenzeno	NC	NC																								

NOTES:

	Blank cells indicate no detectable concentrations
X	Exceeds DW criteria
X	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria
NC	Insufficient data to develop criterion/no criterion
G	Groundwator to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River
NS	No Sample
1	Filtered in lab
2	Filtered and preserved in lab
NA	Not analyzed due to turbidity

Derected Concentrations for compounds also found in the method blank that appear to be laboratory artifacts are not provided.

Table 1
GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990
As Erronously Labeled in May 23, 2016 Laboratory Report

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Trip Blank	Field Blank	Trip Blank	Field Blank	Dup1	Trip Blank	Field Blank	Dup2	Dup3
	Date Collected			NS	6/13/17	6/13/17	6/13/17	6/13/17	6/13/17	6/13/17	6/13/17	NS	NS	NS	6/13/17	6/13/17	NS	6/13/17	6/13/17			6/13/17				
ANALYTE (ug/L)	**DW**	GSI																								
Arsenic (dissolved)	10	10			0.85		9.00	0.41	0.64	0.58		**NS**	**NS**	**NS**	1.37	**82.00**	**NS**					**84.000**				
Arsenic	10	10			0.63	3.00	**13.00**	0.53	0.56	1.11	0.44	**NS**	**NS**	**NS**	1.45	**126.00**	**NS**					**123.000**				
Chromium (dissolved)	100	160	G		1.57	12.00	0.22	28.00	37.00	100.00	0.16	**NS**	**NS**	**NS**	2.69	0.34	**NS**					0.62				
Chromium (total)	100	160	G		21	72.00	1.50	**1640.00**	**776.00**	**2500.00**		**NS**	**NS**	**NS**	7.00	0.37	**NS**					0.7				
Chromium VI (dissolved)	100	160				8.00	0.86					**NS**	**NS**	**NS**			**NS**									
Chromium VI (total)	100	160				6.00						**NS**	**NS**	**NS**			**NS**									
Copper (dissolved)	1000	20	G		0.59	1.56	0.86	6.00	2.38	4.31	1.61	**NS**	**NS**	**NS**	1.34		**NS**					0.4				
Copper	1000	20	G		2.47	8.00	1.81	33.00	8.00	28.00	1.60	**NS**	**NS**	**NS**	1.38		**NS**					0.62				
Lead (dissolved)	4	44	G			0.15	0.09		0.06	0.18	0.13	**NS**	**NS**	**NS**	0.21	0.06	**NS**									
Lead	4	44	G		0.547	2.82	0.53	0.14	0.22	0.76	0.14	**NS**	**NS**	**NS**	0.96	0.08	**NS**					0.066				
Selenium (dissolved)	50	5										**NS**	**NS**	**NS**			**NS**									
Selenium	50	5										**NS**	**NS**	**NS**			**NS**									
Zinc (dissolved)	2400	260	G		1.69	2.09	2.48	3.13	5.00	2.20	4.41	**NS**	**NS**	**NS**	1.72	2.22	**NS**					2.25				
Zinc	2400	260	G		3.16	9.00	3.22	2.59	13.00	4.68	3.01	**NS**	**NS**	**NS**	2.54	4.07	**NS**					5				

	Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Trip Blank	Field Blank	Trip Blank	Field Blank	Dup1	Trip Blank	Field Blank	Dup3	Dup3
	Date Collected			6/13/17	6/13/17	6/13/17	6/13/17	6/13/17	6/13/17	6/13/17	6/13/17	NS	NS	NS	6/13/17	6/13/17	NS	6/13/17	6/13/17			6/13/17				
ANALYTE (ug/L)	**DW**	GSI																								
Acetone	730	1,700		**NS**	4.29	2.15	3.86	2.50	4.15	2.26	2.40	**NS**	**NS**	**NS**	4.31	5.87	**NS**	3.04	5.67			4.61				
Methyl iodide	NC	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
Carbon disulfide	800	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
2 Butanone (MEK)	13,000	2,200		**NS**	0.89							**NS**	**NS**	**NS**	0.80	2.00	**NS**		0.9			1.37				
Chloromethane	260	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
Vinyl Chloride	2.0	13		**NS**								**NS**	**NS**	**NS**		**10.00**	**NS**					**12**				
Chloroethane	430	1,100		**NS**								**NS**	**NS**	**NS**		1.59	**NS**					2.05				
trichlorofluoromethane	2,600	NA		**NS**	0.56							**NS**	**NS**	**NS**			**NS**									
1,1-Dichloroethene	7.0	130		**NS**								**NS**	**NS**	**NS**		1.00	**NS**					2				
Methylene Chloride	5.0	1,500		**NS**								**NS**	**NS**	**NS**		0.35	**NS**		0.31			0.41				
trans-1,2-Dichloroethene	100	1,500		**NS**								**NS**	**NS**	**NS**		0.39	**NS**					0.53				
1,1-Dichloroethane	880	740		**NS**								**NS**	**NS**	**NS**		1.00	**NS**					1				
cis-1,2-Dichloroethene	70	620		**NS**								**NS**	**NS**	**NS**		4.00	**NS**					6				
Tetrahydrofuran	95	11,000		**NS**								**NS**	**NS**	**NS**			**NS**									
Chloroform	80	350		**NS**				1.00				**NS**	**NS**	**NS**			**NS**		11.000							
1,1,1-Trichloroethane	200	89		**NS**								**NS**	**NS**	**NS**			**NS**									
4-Methyl-2-pentanone (MIBK)	1800	ID		**NS**							0.15	**NS**	**NS**	**NS**		0.75	**NS**									
2-Hexanone	1000	ID		**NS**								**NS**	**NS**	**NS**		0.97	**NS**									
Carbontetrachloride	5.0	45		**NS**								**NS**	**NS**	**NS**			**NS**									
Benzene	5.0	200		**NS**								**NS**	**NS**	**NS**		0.20	**NS**									
Bromodichloromethane	80.0	NC		**NS**				0.55				**NS**	**NS**	**NS**			**NS**		2.00							
Trichloroethene	5.0	200		**NS**	0.97	0.74					0.25	**NS**	**NS**	**NS**	3.00	**10.00**	**NS**					**15**				
Toluene	790	270		**NS**								**NS**	**NS**	**NS**			**NS**									
Tetrachloroethene	5.0	60		**NS**					**29.00**			**NS**	**NS**	**NS**			**NS**									
Chlorobenzene	100	25		**NS**								**NS**	**NS**	**NS**			**NS**									
Styrene	100	80		**NS**								**NS**	**NS**	**NS**			**NS**									
Ethylbenzene	74	18		**NS**								**NS**	**NS**	**NS**			**NS**									
Total Xylenes	280	41		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2 -Dichlorobenzene	600	13		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2,4-Trimethylbenzene	63	17		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2,3-Trimethylbenzene	NC	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
Naphthalene	520	11		**NS**								**NS**	**NS**	**NS**			**NS**									
2-Methylnaphthalene	260	19		**NS**								**NS**	**NS**	**NS**	**1.40**		**NS**									
Diethyl ether	10 (E)	ID		**NS**								**NS**	**NS**	**NS**			**NS**									
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)		**NS**								**NS**	**NS**	**NS**			**NS**									
Acrylonitrile	2.6	2.0 (M); 1.2		**NS**								**NS**	**NS**	**NS**			**NS**									
Dichlorodifluoromethane	1,700	ID		**NS**								**NS**	**NS**	**NS**			**NS**		0.32							
Bromomethane	10	35		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2-Dichloroethane	5.0 (A)	360 (X)		**NS**								**NS**	**NS**	**NS**			**NS**									
Trichloroethene	5.0 (A)	200 (X)		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2-Dichloropropane	5.0 (A)	230 (X)		**NS**								**NS**	**NS**	**NS**			**NS**									
cis-1,3-Dichloropropene	NC	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
trans-1,3-Dichloropropene	NC	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
1,1,2-Trichloroethane	5.0 (A)	330 (X)		**NS**								**NS**	**NS**	**NS**			**NS**									
trans-1,4-Dichloro-2-butene	NC	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
Dibromochloromethane	80 (A,W)	ID		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2-Dibromoethane	NC	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
1,1,1,2-Tetrachloroethane	77	ID		**NS**								**NS**	**NS**	**NS**			**NS**									
Isopropylbenzene	800	28		**NS**								**NS**	**NS**	**NS**			**NS**									
Bromoform	80 (A,W)	ID		**NS**								**NS**	**NS**	**NS**			**NS**									
1,1,2,2-Tetrachloroethane	8.5	78 (X)		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2,3-Trichloropropane	42	NA		**NS**								**NS**	**NS**	**NS**			**NS**									
n-Propylbenzene	80	ID		**NS**								**NS**	**NS**	**NS**	**0.30**		**NS**									
Bromobenzene	18	NA		**NS**								**NS**	**NS**	**NS**			**NS**									
1,3,5-Trimethylbenzene	72 (E)	45		**NS**								**NS**	**NS**	**NS**			**NS**									
tert-Butylbenzene	80	ID		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2,4-Trimethylbenzene	63 (E)	17		**NS**								**NS**	**NS**	**NS**			**NS**									
1,2,3-Trichlorobenzene	NC	NC		**NS**								**NS**	**NS**	**NS**			**NS**									
n-Butylbenzene	NC	NC		**NS**								**NS**	**NS**	**NS**	**0.270**		**NS**									

NOTES:

	Blank cells indicate no detectable concentrations	Blank cells indicate no detectable concentrations
X	Exceeds DW criteria	Exceeds DW criteria
X	Exceeds GSI criteria	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria	Exceeds both DW and GSI criteria
X	Compound also found in associated method blank, suggestin	Compound also found in associated method blank, suggesting a laboratory artifact.
NC	Insufficient data to develop criterion/no criterion	Insufficient data to develop criterion/no criterion
G	Groundwater to Surface Water Interface Criteria - calculated	Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID				MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Field Dupe	Trip Blank	Field Blank	Equip Blank
Date Collected				1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18
METALS ANALYTE (ug/L)	**DW**	GSI																				
Arsenic (dissolved)	10	10			2	1.094	**29**	<2	<2		0.548				4	**100**		**108**			
Arsenic	10	10			3	3	**34**	<2	<2		<2				10	**129**		**131**			
Chromium (dissolved)	100	160	G		41	9	<5	86	13		<5				37	1.217		0.537			
Chromium (total)	100	160	G		**244**	28	<5	**1,740**	**141**		<5				68	1.540		0.4368			
Chromium VI (dissolved)	100	160			<10	<10	<10	<10	<10		<10				<10	<10		<10			
Chromium VI (total)	100	160			<10	<10	<20	<10	<10		<10				<10	<20		<20			
Copper (dissolved)	1000	20	G		5	2.446	0.908	5	1.182		1.134				3.403	0.547		0.555			
Copper	1000	20	G		**21**	4.359	0.736	**34**	3.337		1.057				7	1.333		1.671			
Lead (dissolved)	4	44	G		1.836	1.058	<3	<3	<3		<3				2.084	<3		<3			
Lead	4	44	G		4	3	<3	0.739	<3		<3				**6**	<3		1.217			
Selenium (dissolved)	50	5			2	4	<5	2	**8**		1				1	1		1			
Selenium	50	5			2	4	<5	2	**11**		1				1	<5		1			
Zinc (dissolved)	2400	260	G		8	5	1.90	<5	2		2.24				7	2.480		2.5			
Zinc	2400	260	G		18	11	2.55	14	2.31		1.55				12	6		15			
VOC ANALYTE (ug/L)	**DW**	GSI																				
Acetone	730	1,700																		6.3	6.4
Methyl iodide	NC	NC																			
Carbon disulfide	800	NC																			
2 Butanone (MEK)	13,000	2,200																			
Chloromethane	260	NC																			
Vinyl Chloride	2.0	13					0.29				0.77					2		1			
Chloroethane	430	1,100																0.31			
trichlorofluoromethane	2,600	NA																			
1,1-Dichloroethene	7.0	130													0.31						
Methylene Chloride	5.0	1,500																			
trans-1,2-Dichloroethene	100	1,500													0.16						
1,1-Dichloroethane	880	740									0.97				2	0.70		0.75			
cis-1,2-Dichloroethene	70	620									2.00				51	3		2			
Tetrahydrofuran	95	11,000																			
Chloroform	80	350						2.00							0.24						
1,1,1-Trichloroethane	200	89																			
4-Methyl-2-pentanone (MIBK)	1800	ID																0.410			
2-Hexanone	1000	ID																0.95			
Carbon tetrachloride	5.0	45																			
Benzene	5.0	200					0.20				0.18										
Bromodichloromethane	80.0	NC						0.68													
Trichloroethene	5.0	200			3						5.00				**30**	2		0.83			
Toluene	790	270																			
Tetrachloroethene	5.0	60							**43**												
Chlorobenzene	100	25																			
Styrene	100	80																			

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

		Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Field Dupe	Trip Blank	Field Blank	Equip Blank
		Date Collected	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18
VOC ANALYTE (ug/L) {cont}	**DW**	GSI																		
Ethylbenzene	74	18																		
Total Xylenes	280	41																		
1,2 -Dichlorobenzene	600	13																		
1,3 -Dichlorobenzene	6.6	28		0.36	0.46	0.43		0.23						0.30	0.30		0.26			
1,2,4-Trimethylbenzene	63	17																		
1,2,3-Trimethylbenzene	NC	NC																		
Naphthalene	520	11																		
2-Methylnaphthalene	260	19																		
Diethyl ether	10 (E)	ID																		
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)																		
Acrylonitrile	2.6	2.0 (M); 1.2																		
Dichlorodifluoromethane	1,700	ID																		
Bromomethane	10	35																		
1,2-Dichloroethane	5.0 (A)	360 (X)																		
Trichloroethene	5.0 (A)	200 (X)																		
1,2-Dichloropropane	5.0 (A)	230 (X)																		
cis-1,3-Dichloropropene	NC	NC																		
trans-1,3-Dichloropropene	NC	NC																		
1,1,2-Trichloroethane	5.0 (A)	330 (X)																		
trans-1,4-Dichloro-2-butene	NC	NC																		
Dibromochloromethane	80 (A,W)	ID																		
1,2-Dibromoethane	NC	NC																		
1,1,1,2-Tetrachloroethane	77	ID																		
Isopropylbenzene	800	28																		
Bromoform	80 (A,W)	ID																		
1,1,2,2-Tetrachloroethane	8.5	78 (X)																		
1,2,3-Trichloropropane	42	NA																		
n-Propylbenzene	80	ID																		
Bromobenzene	18	NA																		
1,3,5-Trimethylbenzene	72 (E)	45																		
tert-Butylbenzene	80	ID																		
1,2,4-Trimethylbenzene	63 (E)	17																		
1,2,3-Trichlorobenzene	NC	NC																		
n-Butylbenzene	NC	NC																		
1,4-Dioxane (EPA8260)	7.2	2,800 (X)																		

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID			MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Field Dupe	Trip Blank	Field Blank	Equip Blank
Date Collected			1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18	1/28/18
PFA ANALYTE (ng/L)	**DW**	GSI																		
Perfluorobutanesulfonic acid (PFBS)	NC	NC														8.1		5.3			
Perfluorohexanesulfonic acid (PFHxS)	NC	NC													1.9						
Perfluoroheptanesulfonic Acid (PFHpS)	NC	NC																			
Perfluorooctanesulfonic acid (PFOS)	CC	12 (X)			35	7									44	16		16			
Perfluorodecanesulfonic acid (PFDS)	NC	NC																			
Perfluorobutanoic acid (PFBA)	NC	NC			3.1	4.8									4.8	180		180			
Perfluoropentanoic acid (PFPeA)	NC	NC				2.3															
Perfluorohexanoic acid (PFHxA)	NC	NC				2.5									2.6						
Perfluoroheptanoic acid (PFHpA)	NC	NC																			
Perfluorooctanoic acid (PFOA)	CC	12,000 (X)			4.4	4.1									6.1	4.2		4			
Perfluorononanoic acid (PFNA)	NC	NC																			
Perfluorodecanoic acid (PFDA)	NC	NC																			
Perfluoroundecanoic acid (PFUnA)	NC	NC																			
Perfluorododecanoic acid (PFDoA)	NC	NC																			
Perfluorotridecanoic Acid (PFTriA)	NC	NC																			
Perfluorotetradecanoic acid (PFTeA)	NC	NC																			
Perfluorooctane Sulfonamide (FOSA)	NC	NC																			

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

DW - Drinking Water Residential Generic Criteria.

GSI - Groundwater Surface Water Interface Generic Criteria per MDEQ Surface Water Division Rule 57.

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	**X**
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	**X**
Compound also found in associated method blank, suggesting a laboratory artifact.	**X**
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed due to turbidity	NA
Combined PFOA and PFOS concentrations compared to 0.070 ppb (70 ppt) for the drinking water pathway.	CC

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

				Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Field Dupe	Trip Blank	Field Blank	Equip Blank
				Date Collected	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18		5/29/18	5/29/18
METALS ANALYTE (ug/L)	**DW**	GSI			**DRY**				**DRY**		**DRY**		**NS**	**NS**	**NS**			**NS**	**MW-102S**			
Arsenic (dissolved)	10	10						1.41									**23**					
Arsenic	10	10						9									**60**					
Chromium (dissolved)	100	160	G			1.62	14	0.168		1.01		0.328				4.13	0.431		14			
Chromium (total)	100	160	G			2.64	14	0.276		44		0.208				4.17	0.296		14			0.095
Chromium VI (dissolved)	100	160																				
Chromium VI (total)	100	160																				
Copper (dissolved)	1000	20	G			0.381	0.498			0.816		1.73				0.611			0.469			
Copper	1000	20	G			0.748	0.341			1.78		1.43				2.42						
Lead (dissolved)	4	44	G																			
Lead	4	44	G			0.408		0.068		0.304		0.121				0.067	0.062					
Selenium (dissolved)	50	5																				
Selenium	50	5																				
Zinc (dissolved)	2400	260	G			6	8	7		8		12				15	8		9			
Zinc	2400	260	G			6	7	8		7		8				6	4.76		9			1.79
VOC ANALYTE (ug/L)	**DW**	GSI																				
Acetone	730	1,700				5	4.5	6.4		5.6						5.9	8.2		5.6	4.8		8.4
Methyl iodide	NC	NC																				
Carbon disulfide	800	NC																				
2 Butanone (MEK)	13,000	2,200																				
Chloromethane	260	NC																				
Vinyl Chloride	2.0	13															**9**					
Chloroethane	430	1,100																				
trichlorofluoromethane	2,600	NA																				
1,1-Dichloroethene	7.0	130															1					
Methylene Chloride	5.0	1,500															0.17					
trans-1,2-Dichloroethene	100	1,500															0.25					
1,1-Dichloroethane	880	740															1					
cis-1,2-Dichloroethene	70	620															3					
Tetrahydrofuran	95	11,000																			4.8	
Chloroform	80	350																				0.46
1,1,1-Trichloroethane	200	89																				
4-Methyl-2-pentanone (MIBK)	1800	ID																				
2-Hexanone	1000	ID																				
Carbon tetrachloride	5.0	38 (X)																				
Benzene	5.0	200															0.20					
Bromodichloromethane	80.0	NC																				
Trichloroethene	5.0	200				1	0.67									**7**	**13**		0.7			
Toluene	790	270					0.39															
Tetrachloroethene	5.0	60								**45**												
Chlorobenzene	100	25																				
Styrene	100	80																				

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

		Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Field Dupe	Trip Blank	Field Blank	Equip Blank
		Date Collected	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18		5/29/18	5/29/18
VOC ANALYTE (ug/L) {cont}	**DW**	GSI																		
Ethylbenzene	74	18																		
Total Xylenes	280	49																		
1,2 -Dichlorobenzene	600	13																		
1,3 -Dichlorobenzene	6.6	28				0.23														
1,2,4-Trimethylbenzene	63	17																		
1,2,3-Trimethylbenzene	NC	NC																		
Naphthalene	520	11			0.21															
2-Methylnaphthalene	260	19																		
Diethyl ether	10 (E)	ID																		
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)																		
Acrylonitrile	2.6	2.0 (M); 1.2																		
Dichlorodifluoromethane	1,700	ID																		
Bromomethane	10	4.2; [5(M)]																		
1,2-Dichloroethane	5.0 (A)	360 (X)																		
Trichloroethene	5.0 (A)	200 (X)																		
1,2-Dichloropropane	5.0 (A)	230 (X)																		
cis-1,3-Dichloropropene	NC	NC																		
trans-1,3-Dichloropropene	NC	NC																		
1,1,2-Trichloroethane	5.0 (A)	330 (X)																		
trans-1,4-Dichloro-2-butene	NC	NC																		
Dibromochloromethane	80 (A,W)	ID																		
1,2-Dibromoethane	NC	NC																		
1,1,1,2-Tetrachloroethane	77	ID																		
Isopropylbenzene	800	28																		
Bromoform	80 (A,W)	ID																		
1,1,2,2-Tetrachloroethane	8.5	78 (X)																		
1,2,3-Trichloropropane	42	NA																		
n-Propylbenzene	80	ID																		
Bromobenzene	18	NA																		
1,3,5-Trimethylbenzene	72 (E)	45																		
tert-Butylbenzene	80	ID																		
1,2,4-Trimethylbenzene	63 (E)	17																		
1,2,3-Trichlorobenzene	NC	NC																		
n-Butylbenzene	NC	NC																		
1,4-Dioxane (EPA SIM8270)	7.2	2,800 (X)														0.13		0.025	0.025		

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

		Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Field Dupe	Trip Blank	Field Blank	Equip Blank
		Date Collected	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18		5/29/18	5/29/18
PFA ANALYTE (ng/L)	**DW**	GSI																		
Perfluorobutane sulfonic acid (PFBS)	NC	NC			1.3												1.2			
Perfluoropentane sulfonic acid (PFPeS)	NC	NC																		
Perfluorohexane sulfonic acid (PFHxS)	NC	NC		1.4	2									1.6			2			
Perfluoroheptane sulfonic acid (PFHpS)	NC	NC			0.18												1.1			
Perfluorooctane sulfonic acid (PFOS)	CC	12 (X)		12	12									47	27		12			
Perfluorononane sulfonic acid (PFNS)	NC	NC																		
Perfluorodecane sulfonic acid (PFDS)	NC	NC																		
Perfluorobutanoic acid (PFBA)	NC	NC													41					
Perfluoropentanoic acid (PFPeA)	NC	NC			1.2										1.7					
Perfluorohexanoic acid (PFHxA)	NC	NC			1.8												2.5			
Perfluoroheptanoic acid (PFHpA)	NC	NC			1.7															
Perfluorooctanoic acid (PFOA)	CC	12,000 (X)		2	4.2									1.7	2.5		4.3			
Perfluorononanoic acid (PFNA)	NC	NC		1.1	1										1.8					
Perfluorodecanoic acid (PFDA)	NC	NC																		
Perfluoroundecanoic acid (PFUnDA)	NC	NC													0.61					
Perfluorododecanoic acid (PFDoDA)	NC	NC		0.51																
Perfluorotridecanoic acid (PFTrDA)	NC	NC		0.82										0.78	0.85				0.94	1.1
Perfluorotetradecanoic acid (PFTeDA)	NC	NC		1.4	1.2															
Perfluorooctane sulfonamide (FOSA)	NC	NC																		
N-Methyl perfluorooctane sulfonamidoacetic acid	NC	NC																		
N-Ethyl perfluorooctane sulfonamidoacetic acid	NC	NC																		
Fluorotelomer sulfonic acid (4:2 FTS)	NC	NC																		
Fluorotelomer sulfonic acid (6:2 FTS)	NC	NC																		
Fluorotelomer sulfonic acid (8:2 FTS)	NC	NC																		

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

DW - Drinking Water Residential Generic Criteria.

GSI - Groundwater Surface Water Interface Generic Criteria per MDEQ Surface Water Division Rule 57.

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	**X**
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	**X**
Compound also found in associated method blank, suggesting a laboratory artifact.	**X**
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed due to turbidity	NA
Combined PFOA and PFOS concentrations compared to 0.070 ppb (70 ppt) for the drinking water pathway.	CC

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

				Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	MW-114S	Field Dup (Dup-1)	Field Dup (Dup-2)	Trip Blank	Trip Blank	Field Blank	Field Blank (FB2)	Equip Blank	Equip Blank
				Date Collected	9/5/18	9/5/18	8/30/18	9/5/18	9/5/18	9/5/18	9/5/18	8/30/18	8/30/18	9/5/18	8/30/18	8/30/18	9/5/18	8/30/18	9/5/18	9/5/18	9/5/18	9/5/18	8/30/18	9/5/18	8/30/18	9/5/18	8/30/18	9/5/18
METALS ANALYTE (ug/L)	**DW**	GSI																		**MW-104S**	**MW-109S**						
Arsenic (dissolved)	10	10						**19**						4	1		**52**		1		3				1		1
Arsenic	10	10						**53**		1	1			5	3		**104**		2		5				1		1
Chromium (dissolved)	100	160	G		1				10	1	6				1	4		1	7	1							
Chromium (total)	100	160	G		2	6			**388**	62	**789**				1			1	9	13							
Chromium VI (dissolved)	100	160				1																					
Chromium VI	100	160														5			6								
Copper (dissolved)	1000	20	G	1	1	1		2	1	4	2	1	1	7	1		1	2	1								
Copper	1000	20	G		1	1		13	2	23	1	1	1		1		1	3	1								
Lead (dissolved)	4	44	G																								
Lead	4	44	G						1	1																	
Selenium (dissolved)	50	5		1	4	2	3	3	**8**	1		2	4		5	1		1	9	2				1		1
Selenium	50	5		2	4	4	4	3	**9**	5		4	1	3	2	3	3	3	6	2			1	1		1
Zinc (dissolved)	2400	260	G	2	4	3	1	3	2	2	4	3	3	5	6	2	5	4	1	2			2	2	1	1
Zinc	2400	260	G	3	2	5	2	5	2	6	2	4	5	3	2	4	5	3	1	2			1	1	1	1
VOC ANALYTE (ug/L)	**DW**	GSI																									
Acetone	730	1,700			2.55	2.72	5.20	0.81	1.12	0.63	0.61		2.32			4.98	2.11	18.6		2.75	5.13	4.54	1.26	7.48	1.74	7.35
Methyl iodide	NC	NC																									
Carbon disulfide	800	NC																									
2 Butanone (MEK)	13,000	2,200					1.14									1.09								0.32	2.48	
Chloromethane	260	NC																			1.92						
Vinyl Chloride	2.0	13											42			5		9.5		**41**							
Chloroethane	430	1,100																									
trichlorofluoromethane	2,600	NA																									
1,1-Dichloroethene	7.0	130											2			0.66											
Methylene Chloride	5.0	1,500																									
trans-1,2-Dichloroethene	100	1,500											0.7							0.66							
1,1-Dichloroethane	880	740											1		0.27	0.63		3.6		1							
cis-1,2-Dichloroethene	70	620		9							0.34		68		5	2		490	0.36	65							
Tetrahydrofuran	95	11,000																16									
Chloroform	80	350						1				1												0.4	0.4	0.3
1,1,1-Trichloroethane	200	89																									
4-Methyl-2-pentanone (MIBK)	1800	ID																									
2-Hexanone	1000	ID																									
Carbon tetrachloride	5.0	38 (X)										4															
Benzene	5.0	200					0.67																				
Bromodichloromethane	80.0	NC						0.5																	0.35		
Trichloroethene	5.0	200		4	4	0.39					1		17		12	7	1	210		17							
Toluene	790	270																									
Tetrachloroethene	5.0	60							40										40	0.22							
Chlorobenzene	100	25																									
Styrene	100	80																									

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

		Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	MW-114S	Field Dup (Dup-1)	Field Dup (Dup-2)	Trip Blank	Trip Blank	Field Blank	Field Blank (FB2)	Equip Blank	Equip Blank
		Date Collected	9/5/18	9/5/18	8/30/18	9/5/18	9/5/18	9/5/18	9/5/18	8/30/18	8/30/18	9/5/18	8/30/18	8/30/18	9/5/18	8/30/18	9/5/18	9/5/18	9/5/18	8/30/18	9/5/18	8/30/18	9/5/18	8/30/18	9/5/18
VOC ANALYTE (ug/L) {cont}	**DW**	GSI																							
Ethylbenzene	74	18																							
Total Xylenes	280	49																							
1,2 -Dichlorobenzene	600	13																							
1,3 -Dichlorobenzene	6.6	28																							
Naphthalene	520	11																							
2-Methylnaphthalene	260	19																	0.23						
Diethyl ether	10 (E)	ID																							
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)																							
Acrylonitrile	2.6	2.0 (M); 1.2																							
Dichlorodifluoromethane	1,700	ID																							
Bromomethane	10	4.2; [5(M)]																							
1,2-Dichloroethane	5.0 (A)	360 (X)																							
Trichloroethene	5.0 (A)	200 (X)																							
1,2-Dichloropropane	5.0 (A)	230 (X)																							
cis-1,3-Dichloropropene	NC	NC																							
trans-1,3-Dichloropropene	NC	NC																							
1,1,2-Trichloroethane	5.0 (A)	330 (X)																							
trans-1,4-Dichloro-2-butene	NC	NC																							
Dibromochloromethane	80 (A,W)	ID																							
1,2-Dibromoethane	NC	NC																							
1,1,1,2-Tetrachloroethane	77	ID																							
Isopropylbenzene	800	28																							
Bromoform	80 (A,W)	ID																							
1,1,2,2-Tetrachloroethane	8.5	78 (X)																							
1,2,3-Trichloropropane	42	NA																							
n-Propylbenzene	80	ID																							
Bromobenzene	18	NA																							
1,3,5-Trimethylbenzene	72 (E)	45																							
tert-Butylbenzene	80	ID																							
1,2,4-Trimethylbenzene	63 (E)	17																							
1,2,4-Trichlorobenzene	NC	NC																					0.21		
1,2,3-Trichlorobenzene	NC	NC																					0.21		
n-Butylbenzene	NC	NC																							

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

		Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	MW-114S	Field Dup (Dup-1)	Field Dup (Dup-2)	Trip Blank	Trip Blank	Field Blank	Field Blank (FB2)	Equip Blank	Equip Blank
		Date Collected	9/5/18	9/5/18	8/30/18	9/5/18	9/5/18	9/5/18	9/5/18	8/30/18	8/30/18	9/5/18	8/30/18	8/30/18	9/5/18	8/30/18	9/5/18	9/5/18	9/5/18	8/30/18	9/5/18	8/30/18	9/5/18	8/30/18	9/5/18
PFA ANALYTE (ng/L)	**DW**	GSI																							
Perfluorobutane sulfonic acid (PFBS)	NC	NC	2.5	1.4	2	2.2	1.3	1.8	4.6		1.7	2.9	3.6	2.4	1.4	5	1.7	2.3	1.7						
Perfluoropentane sulfonic acid (PFPeS)	NC	NC																							
Perfluorohexane sulfonic acid (PFHxS)	NC	NC	4	1.9	6.1		2.1	12	3.3	2.7	2.9	3.2	4.3	3.8		2.6	2.4	12	2.6						
Perfluoroheptane sulfonic acid (PFHpS)	NC	NC	1.4	1.2	2.4			2.5	1.3			2.6						2.1							
Perfluorooctane sulfonic acid (PFOS)	CC	12	20	33	11	91			7.3	18	6	27	8.5	59	10	13	26		30						
Perfluorononane sulfonic acid (PFNS)	NC	NC																							
Perfluorodecane sulfonic acid (PFDS)	NC	NC																							
Perfluorobutanoic acid (PFBA)	NC	NC		3.8	3.2			3.2	5.9			2.9	6.7		48	7.1	2.7		3.2						
Perfluoropentanoic acid (PFPeA)	NC	NC		1.2	1.4				1.1				3	1.3			3.6								
Perfluorohexanoic acid (PFHxA)	NC	NC	1	1.5	4.1		1.2	1.6	2			1.7	4.8			1	3.3	1.7			1.3		1.6		1.2
Perfluoroheptanoic acid (PFHpA)	NC	NC			2				2				3.7			1.3	3.3	2.4							
Perfluorooctanoic acid (PFOA)	CC	12,000	2	4.5	6.1	2.6	0.79	4.5	12	2.1	0.58	2.6	11	1.7	2.2	2.6	4.3	4.1	2.8						
Perfluorononanoic acid (PFNA)	NC	NC		1.2		1.1						1.2					1.3		1.1						
Perfluorodecanoic acid (PFDA)	NC	NC				0.53			0.58																
Perfluoroundecanoic acid (PFUnDA)	NC	NC																							
Perfluorododecanoic acid (PFDoDA)	NC	NC																							
Perfluorotridecanoic acid (PFTrDA)	NC	NC																							
Perfluorotetradecanoic acid (PFTeDA)	NC	NC					1.6		2.8			1.7					1.9				3.3		1.8	1.9	1.7
Perfluorooctane sulfonamide (FOSA)	NC	NC																					0.44		
N-Methyl perfluorooctane sulfonamidoacetic acid	NC	NC																							
N-Ethyl perfluorooctane sulfonamidoacetic acid	NC	NC				0.9																			
Fluorotelomer sulfonic acid (4:2 FTS)	NC	NC																							
Fluorotelomer sulfonic acid (6:2 FTS)	NC	NC																							
Fluorotelomer sulfonic acid (8:2 FTS)	NC	NC																							

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

DW - Drinking Water Residential Generic Criteria.

GSI - Groundwater Surface Water Interface Generic Criteria per MDEQ Surface Water Division Rule 57.

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	**X**
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	**X**
Compound also found in associated method blank, suggesting a laboratory artifact.	**X**
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed due to turbidity	NA
Combined PFOA and PFOS concentrations compared to 0.070 ppb (70 ppt) for the drinking water pathway.	CC

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID				MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	MW-114S	Field Dup (Dupe-1)	Field Dup (Dupe-2)	Trip Blank	Field Blank	Field Blank	Equip Blank
Date Collected				DRY	DRY	02/27/19	02/28/19	02/27/19	02/27/19	NS	02/27/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/27/19	02/28/19	02/28/19
METALS ANALYTE (ug/L)	**DW**	GSI																	**MW-112S**	**MW-114S**				
Arsenic (dissolved)	10	10					10				0.711	0.445	2	1.05	0.317	**35**	1.11	**28**	9	**20**				
Arsenic	10	10					**30**				0.33	0.265	**39**	1.952	0.759	**102**	**13**	**86**	0.101	**80**				
Chromium (dissolved)	100	160	G			2.604	0.103	0.105	1.711			0.155	0.246	0.172	4.979	0.357	1.61	0.172	0.436			0.131		0.052
Chromium (total)	100	160	G			4.664	0.251	43	65			0.354	0.6	0.522	4.651	0.507	13	0.258	0.417	0.412		0.175	0.748	0.655
Chromium VI (dissolved)	100	160																						
Chromium VI	100	160																						
Copper (dissolved)	1000	20	G			0.937		1.208	1.375		1.733	0.993		0.704	1.32		1.34	0.823		0.434		1.685	1.53	1.47
Copper	1000	20	G			0.679		1.871	2.247		1.124	0.979	0.381	0.963	0.691		3.06	1.92		2.25		2.092	1.59	1.24
Lead (dissolved)	4	44	G								0.706													
Lead	4	44	G									0.23	0.206				1.14	0.191		0.208				
Selenium (dissolved)	50	5				2		4	8			3												
Selenium	50	5				3		4	9			0												
Zinc (dissolved)	2400	260	G			7	3.45	1	5		11	6	3	3	7	4	8	4	3	3		4	6	7
Zinc	2400	260	G			1.482		0.892	1.577		7	2.24	2.19	1.61	0.776	0.774	13	3.98		5		1.814	2.27	0.962
VOC ANALYTE (ug/L)	**DW**	GSI																						
Acetone	730	1,700				7.88		8.1	6.7		7.8	7.6	9.51	9.07	8.79	12.41	11.34	33.8	11.74	35.1	6.99	7.3	9.10	9.36
Methyl iodide	NC	NC																						
Carbon disulfide	800	NC																						
2 Butanone (MEK)	13,000	2,200					3.13						0.34	0.3	0.33	1.61	1.95	11.1	1.63	11.9	0.64		0.78	0.77
Chloromethane	260	NC																						
Vinyl Chloride	2	13					0.64				0.88		**5**			2	1	**12**	2	**12**				
Chloroethane	430	1,100																						
trichlorofluoromethane	2,600	NA																						
1,1-Dichloroethene	7	130											0.6			0.41			0.38					
Methylene Chloride	5	1,500																						
trans-1,2-Dichloroethene	100	1,500											0.41					1.9		1.80				
1,1-Dichloroethane	880	740									0.55		0.97		0.76	0.82		3.2	0.79	3.5				
cis-1,2-Dichloroethene	70	620									2		9		13	2	2	**295**	1	**290**				
Tetrahydrofuran	95	11,000					2.3										1.9	11.1		11.9				
Chloroform	80	350						2				1			0.25									
1,1,1-Trichloroethane	200	89																		1.7				
4-Methyl-2-pentanone (MIBK)	1800	ID														0.31			0.38					
2-Hexanone	1000	ID																						
Carbon tetrachloride	5.0	38	X									2												
Benzene	5.0	200					1				0.24													
Bromodichloromethane	80.0	NC						0.25																
Trichloroethene	5.0	200									1	0.25	**13**		**39**	3	**9**	**162**	3	**163**				
Toluene	790	270					0.32																	
Tetrachloroethene	5.0	60							**78**															
Chlorobenzene	100	25					2																	
Styrene	100	80														0.58	0.28		0.64					

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

		Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	MW-114S	Field Dup (Dupe-1)	Field Dup (Dupe-2)	Trip Blank	Field Blank	Field Blank	Equip Blank
		Date Collected	DRY	DRY	02/27/19	02/28/19	02/27/19	02/27/19	NS	02/27/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/27/19	02/28/19	02/28/19
VOC ANALYTE (ug/L) {cont}	**DW**	GSI																					
Ethylbenzene	74	18																					
Total Xylenes	280	49																					
1,2 -Dichlorobenzene	600	13																					
1,3 -Dichlorobenzene	6.6	28																					
Naphthalene	520	11																					
2-Methylnaphthalene	260	19				0.18																	
Diethyl ether	10 (E)	ID																					
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)																					
Acrylonitrile	2.6	2.0 (M); 1.2																					
Dichlorodifluoromethane	1,700	ID																					
Bromomethane	10	4.2; [5(M)]																					
1,2-Dichloroethane	5.0 (A)	360 (X)																					
1,2-Dichloropropane	5.0 (A)	230 (X)																					
cis-1,3-Dichloropropene	NC	NC																					
trans-1,3-Dichloropropene	NC	NC																					
1,1,2-Trichloroethane	5.0 (A)	330 (X)																					
trans-1,4-Dichloro-2-butene	NC	NC																					
Dibromochloromethane	80 (A,W)	ID																					
1,2-Dibromoethane	NC	NC																					
1,1,1,2-Tetrachloroethane	77	ID																					
Isopropylbenzene	800	28																					
Bromoform	80 (A,W)	ID																					
1,1,2,2-Tetrachloroethane	8.5	78 (X)																					
1,2,3-Trichloropropane	42	NA																					
n-Propylbenzene	80	ID																					
Bromobenzene	18	NA																					
1,3,5-Trimethylbenzene	72 (E)	45																					
tert-Butylbenzene	80	ID																					
1,2,4-Trimethylbenzene	63 (E)	17																					
1,2,4-Trichlorobenzene	NC	NC																					
1,2,3-Trichlorobenzene	NC	NC																					
n-Butylbenzene	NC	NC																					

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

		Sample ID	MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	MW-114S	Field Dup (Dupe-1)	Field Dup (Dupe-2)	Trip Blank	Field Blank	Field Blank	Equip Blank
		Date Collected	DRY	DRY	02/27/19	02/28/19	02/27/19	02/27/19	NS	02/27/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/28/19	02/27/19	02/28/19	02/28/19
PFA ANALYTE (ng/L)	**DW**	GSI	**NS**	**NS**	**NS**	**01/17/19**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**01/17/19**	**NS**	**NS**	**NS**	**NS**	**NS**
Perfluorobutane sulfonic acid (PFBS)	NC	NC																					
Perfluoropentane sulfonic acid (PFPeS)	NC	NC																					
Perfluorohexane sulfonic acid (PFHxS)	NC	NC																					
Perfluoroheptane sulfonic acid (PFHpS)	NC	NC																					
Perfluorooctane sulfonic acid (PFOS)	CC	12				**90**												**90**					
Perfluorononane sulfonic acid (PFNS)	NC	NC																					
Perfluorodecane sulfonic acid (PFDS)	NC	NC																					
Perfluorobutanoic acid (PFBA)	NC	NC																					
Perfluoropentanoic acid (PFPeA)	NC	NC																					
Perfluorohexanoic acid (PFHxA)	NC	NC																					
Perfluoroheptanoic acid (PFHpA)	NC	NC																					
Perfluorooctanoic acid (PFOA)	CC	12,000																					
Perfluorononanoic acid (PFNA)	NC	NC																					
Perfluorodecanoic acid (PFDA)	NC	NC																					
Perfluoroundecanoic acid (PFUnDA)	NC	NC																					
Perfluorododecanoic acid (PFDoDA)	NC	NC																					
Perfluorotridecanoic acid (PFTrDA)	NC	NC																					
Perfluorotetradecanoic acid (PFTeDA)	NC	NC																					
Perfluorooctane sulfonamide (FOSA)	NC	NC																					
N-Methyl perfluorooctane sulfonamidoacetic acid	NC	NC																					
N-Ethyl perfluorooctane sulfonamidoacetic acid	NC	NC																					
Fluorotelomer sulfonic acid (4:2 FTS)	NC	NC																					
Fluorotelomer sulfonic acid (6:2 FTS)	NC	NC																					
Fluorotelomer sulfonic acid (8:2 FTS)	NC	NC																					

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

DW - Drinking Water Residential Generic Criteria.

GSI - Groundwater Surface Water Interface Generic Criteria per MDEQ Surface Water Division Rule 57.

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	**X**
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	**X**
Compound also found in associated method blank, suggesting a laboratory artifact.	**X**
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed due to turbidity	NA
Combined PFOA and PFOS concentrations compared to 0.070 ppb (70 ppt) for the drinking water pathway.	CC

ATTACHMENT #3: GROUNDWATER ANALYTICAL LABORATORY REPORT

Analytical Laboratory Report

Report ID: S98594.01(01)
Generated on 01/31/2019

Report to

Attention: Rodney Abke
Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S98594.01-S98594.10
Project: 11-4317-102
Collected Date: 01/16/2019
Submitted Date/Time: 01/17/2019 16:15
Sampled by: Rodney Abke
P.O. #: PO

Table of Contents

Maya Murshak
Technical Director

Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
SM2540B	Standard Method 2540 B 2011
SW5035A/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5035A Revision 1 July 2002

Sample Summary (10 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S98594.01	SB-138-15	Soil	01/16/19 09:20
S98594.02	SB-138-18	Soil	01/16/19 09:30
S98594.03	SB-139-16	Soil	01/16/19 09:45
S98594.04	SB-140-16	Soil	01/16/19 10:10
S98594.05	SB-140-19	Soil	01/16/19 10:20
S98594.06	SB-141-16	Soil	01/16/19 10:45
S98594.07	SB-141-18	Soil	01/16/19 10:55
S98594.08	SB-141-19	Soil	01/16/19 11:05
S98594.09	DUP-1	Soil	01/16/19 00:01
S98594.10	SB-139-18	Soil	01/16/19 09:55

Lab Sample ID: S98594.01
Sample Tag: SB-138-15
Collected Date/Time: 01/16/2019 09:20
Matrix: Soil
COC Reference: 106840

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.3	IR
1	40ml Glass	MeOH	Yes	4.3	IR

Inorganics

Method: SM2540B, Run Date: 01/19/19 12:15, Analyst: JBL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	80	1	1	%	1		

Organics - Volatiles

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 13:17, Analyst: WAT

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	300	15	ug/kg	74.4	60-29-7	
Acetone	Not detected	1,000	260	ug/kg	74.4	67-64-1	
Methyl iodide	Not detected	100	9.7	ug/kg	74.4	74-88-4	
Carbon disulfide	Not detected	400	14	ug/kg	74.4	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	300	12	ug/kg	74.4	1634-04-4	
Acrylonitrile	Not detected	100	20	ug/kg	74.4	107-13-1	
2-Butanone (MEK)	Not detected	1,100	180	ug/kg	74.4	78-93-3	
Dichlorodifluoromethane	Not detected	400	42	ug/kg	74.4	75-71-8	
Chloromethane	Not detected	400	27	ug/kg	74.4	74-87-3	
Vinyl chloride	Not detected	70	10	ug/kg	74.4	75-01-4	
Bromomethane	Not detected	300	36	ug/kg	74.4	74-83-9	
Chloroethane	Not detected	400	51	ug/kg	74.4	75-00-3	
Trichlorofluoromethane	Not detected	100	26	ug/kg	74.4	75-69-4	
1,1-Dichloroethene	Not detected	70	16	ug/kg	74.4	75-35-4	
Methylene chloride	22	100	13	ug/kg	74.4	75-09-2	JB
trans-1,2-Dichloroethene	Not detected	70	14	ug/kg	74.4	156-60-5	
1,1-Dichloroethane	Not detected	70	15	ug/kg	74.4	75-34-3	
cis-1,2-Dichloroethene	470	70	15	ug/kg	74.4	156-59-2	
Tetrahydrofuran*	174	1,000	96	ug/kg	74.4	109-99-9	JB
Chloroform	Not detected	70	11	ug/kg	74.4	67-66-3	
Bromochloromethane	Not detected	100	14	ug/kg	74.4	74-97-5	
1,1,1-Trichloroethane	Not detected	70	8.9	ug/kg	74.4	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	4,000	16	ug/kg	74.4	108-10-1	
2-Hexanone	Not detected	4,000	28	ug/kg	74.4	591-78-6	
Carbon tetrachloride	Not detected	70	16	ug/kg	74.4	56-23-5	
Benzene	Not detected	70	8.9	ug/kg	74.4	71-43-2	
1,2-Dichloroethane	Not detected	70	8.9	ug/kg	74.4	107-06-2	
Trichloroethene	2,880	70	13	ug/kg	74.4	79-01-6	
1,2-Dichloropropane	Not detected	70	11	ug/kg	74.4	78-87-5	
Bromodichloromethane	Not detected	100	8.9	ug/kg	74.4	75-27-4	
Dibromomethane	Not detected	400	7.4	ug/kg	74.4	74-95-3	
cis-1,3-Dichloropropene	Not detected	70	14	ug/kg	74.4	10061-01-5	
Toluene	Not detected	70	10	ug/kg	74.4	108-88-3	
trans-1,3-Dichloropropene	Not detected	70	9.7	ug/kg	74.4	10061-02-6	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S98594.01 (continued)
Sample Tag: SB-138-15

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 13:17, Analyst: WAT (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,1,2-Trichloroethane	Not detected	70	11	ug/kg	74.4	79-00-5	
Tetrachloroethene	Not detected	70	7.4	ug/kg	74.4	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	70	24	ug/kg	74.4	110-57-6	
Dibromochloromethane	Not detected	100	7.4	ug/kg	74.4	124-48-1	
1,2-Dibromoethane	Not detected	30	27	ug/kg	74.4	106-93-4	M
Chlorobenzene	Not detected	70	8.2	ug/kg	74.4	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	100	8.9	ug/kg	74.4	630-20-6	
Ethylbenzene	Not detected	70	10	ug/kg	74.4	100-41-4	
p,m-Xylene	Not detected	100	19	ug/kg	74.4		
o-Xylene	Not detected	70	13	ug/kg	74.4	95-47-6	
Styrene	Not detected	70	11	ug/kg	74.4	100-42-5	
Isopropylbenzene	Not detected	400	8.9	ug/kg	74.4	98-82-8	
Bromoform	Not detected	100	14	ug/kg	74.4	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	70	10	ug/kg	74.4	79-34-5	
1,2,3-Trichloropropane	Not detected	100	21	ug/kg	74.4	96-18-4	
n-Propylbenzene	Not detected	70	8.9	ug/kg	74.4	103-65-1	
Bromobenzene	Not detected	100	9.7	ug/kg	74.4	108-86-1	
1,3,5-Trimethylbenzene	Not detected	70	12	ug/kg	74.4	108-67-8	
tert-Butylbenzene	Not detected	70	9.7	ug/kg	74.4	98-06-6	
1,2,4-Trimethylbenzene	Not detected	70	13	ug/kg	74.4	95-63-6	
sec-Butylbenzene	Not detected	70	9.7	ug/kg	74.4	135-98-8	
p-Isopropyltoluene	Not detected	100	12	ug/kg	74.4	99-87-6	
1,3-Dichlorobenzene	Not detected	100	8.2	ug/kg	74.4	541-73-1	
1,4-Dichlorobenzene	Not detected	100	9.7	ug/kg	74.4	106-46-7	
1,2-Dichlorobenzene	Not detected	100	11	ug/kg	74.4	95-50-1	
1,2,3-Trimethylbenzene	Not detected	70	8.2	ug/kg	74.4	526-73-8	
n-Butylbenzene	Not detected	70	13	ug/kg	74.4	104-51-8	
Hexachloroethane	Not detected	400	22	ug/kg	74.4	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	400	48	ug/kg	74.4	96-12-8	
1,2,4-Trichlorobenzene	Not detected	490	11	ug/kg	74.4	120-82-1	
1,2,3-Trichlorobenzene	Not detected	490	13	ug/kg	74.4	87-61-6	
Naphthalene	Not detected	400	39	ug/kg	74.4	91-20-3	
2-Methylnaphthalene	Not detected	100	31	ug/kg	74.4	91-57-6	

M-Result reported to MDL not RDL

Lab Sample ID: S98594.02
Sample Tag: SB-138-18
Collected Date/Time: 01/16/2019 09:30
Matrix: Soil
COC Reference: 106840

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.3	IR
1	40ml Glass	MeOH	Yes	4.3	IR

Inorganics

Method: SM2540B, Run Date: 01/19/19 12:15, Analyst: JBL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	96	1	1	%	1		

Organics - Volatiles

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 13:37, Analyst: WAT

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	200	11	ug/kg	57.1	60-29-7	
Acetone	Not detected	1,000	200	ug/kg	57.1	67-64-1	
Methyl iodide	Not detected	100	7.4	ug/kg	57.1	74-88-4	
Carbon disulfide	Not detected	300	11	ug/kg	57.1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	200	9.1	ug/kg	57.1	1634-04-4	
Acrylonitrile	Not detected	100	15	ug/kg	57.1	107-13-1	
2-Butanone (MEK)	Not detected	860	140	ug/kg	57.1	78-93-3	
Dichlorodifluoromethane	Not detected	300	32	ug/kg	57.1	75-71-8	
Chloromethane	Not detected	300	21	ug/kg	57.1	74-87-3	
Vinyl chloride	Not detected	60	8.0	ug/kg	57.1	75-01-4	
Bromomethane	Not detected	200	27	ug/kg	57.1	74-83-9	
Chloroethane	Not detected	300	39	ug/kg	57.1	75-00-3	
Trichlorofluoromethane	Not detected	100	20	ug/kg	57.1	75-69-4	
1,1-Dichloroethene	Not detected	60	13	ug/kg	57.1	75-35-4	
Methylene chloride	25.7	100	9.7	ug/kg	57.1	75-09-2	JB
trans-1,2-Dichloroethene	13	60	11	ug/kg	57.1	156-60-5	J
1,1-Dichloroethane	Not detected	60	11	ug/kg	57.1	75-34-3	
cis-1,2-Dichloroethene	550	60	11	ug/kg	57.1	156-59-2	
Tetrahydrofuran*	121	1,000	74	ug/kg	57.1	109-99-9	JB
Chloroform	Not detected	60	8.6	ug/kg	57.1	67-66-3	
Bromochloromethane	Not detected	100	11	ug/kg	57.1	74-97-5	
1,1,1-Trichloroethane	7.4	60	6.9	ug/kg	57.1	71-55-6	J
4-Methyl-2-pentanone (MIBK)	Not detected	3,000	12	ug/kg	57.1	108-10-1	
2-Hexanone	Not detected	3,000	22	ug/kg	57.1	591-78-6	
Carbon tetrachloride	Not detected	60	13	ug/kg	57.1	56-23-5	
Benzene	Not detected	60	6.9	ug/kg	57.1	71-43-2	
1,2-Dichloroethane	Not detected	60	6.9	ug/kg	57.1	107-06-2	
Trichloroethene	2,300	60	10	ug/kg	57.1	79-01-6	
1,2-Dichloropropane	Not detected	60	8.6	ug/kg	57.1	78-87-5	
Bromodichloromethane	Not detected	100	6.9	ug/kg	57.1	75-27-4	
Dibromomethane	Not detected	300	5.7	ug/kg	57.1	74-95-3	
cis-1,3-Dichloropropene	Not detected	60	11	ug/kg	57.1	10061-01-5	
Toluene	Not detected	60	8.0	ug/kg	57.1	108-88-3	
trans-1,3-Dichloropropene	Not detected	60	7.4	ug/kg	57.1	10061-02-6	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S98594.02 (continued)
Sample Tag: SB-138-18

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 13:37, Analyst: WAT (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,1,2-Trichloroethane	Not detected	60	8.6	ug/kg	57.1	79-00-5	
Tetrachloroethene	Not detected	60	5.7	ug/kg	57.1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	60	18	ug/kg	57.1	110-57-6	
Dibromochloromethane	Not detected	100	5.7	ug/kg	57.1	124-48-1	
1,2-Dibromoethane	Not detected	20	20	ug/kg	57.1	106-93-4	M
Chlorobenzene	Not detected	60	6.3	ug/kg	57.1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	100	6.9	ug/kg	57.1	630-20-6	
Ethylbenzene	Not detected	60	8.0	ug/kg	57.1	100-41-4	
p,m-Xylene	Not detected	100	15	ug/kg	57.1		
o-Xylene	Not detected	60	10	ug/kg	57.1	95-47-6	
Styrene	Not detected	60	8.6	ug/kg	57.1	100-42-5	
Isopropylbenzene	Not detected	300	6.9	ug/kg	57.1	98-82-8	
Bromoform	Not detected	100	11	ug/kg	57.1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	60	8.0	ug/kg	57.1	79-34-5	
1,2,3-Trichloropropane	Not detected	100	16	ug/kg	57.1	96-18-4	
n-Propylbenzene	Not detected	60	6.9	ug/kg	57.1	103-65-1	
Bromobenzene	Not detected	100	7.4	ug/kg	57.1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	60	9.1	ug/kg	57.1	108-67-8	
tert-Butylbenzene	Not detected	60	7.4	ug/kg	57.1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	60	9.7	ug/kg	57.1	95-63-6	
sec-Butylbenzene	Not detected	60	7.4	ug/kg	57.1	135-98-8	
p-Isopropyltoluene	Not detected	100	9.1	ug/kg	57.1	99-87-6	
1,3-Dichlorobenzene	Not detected	100	6.3	ug/kg	57.1	541-73-1	
1,4-Dichlorobenzene	Not detected	100	7.4	ug/kg	57.1	106-46-7	
1,2-Dichlorobenzene	Not detected	100	8.6	ug/kg	57.1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	60	6.3	ug/kg	57.1	526-73-8	
n-Butylbenzene	Not detected	60	10	ug/kg	57.1	104-51-8	
Hexachloroethane	Not detected	300	17	ug/kg	57.1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	300	37	ug/kg	57.1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	380	8.6	ug/kg	57.1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	380	9.7	ug/kg	57.1	87-61-6	
Naphthalene	Not detected	300	30	ug/kg	57.1	91-20-3	
2-Methylnaphthalene	Not detected	100	24	ug/kg	57.1	91-57-6	

M-Result reported to MDL not RDL

Lab Sample ID: S98594.03
Sample Tag: SB-139-16
Collected Date/Time: 01/16/2019 09:45
Matrix: Soil
COC Reference: 106840

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.3	IR
1	40ml Glass	MeOH	Yes	4.3	IR

Inorganics

Method: SM2540B, Run Date: 01/19/19 12:15, Analyst: JBL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	78	1	1	%	1		

Organics - Volatiles

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 15:37, Analyst: WAT

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	3,000	160	ug/kg	800	60-29-7	Y
Acetone	Not detected	20,000	2,800	ug/kg	800	67-64-1	Y
Methyl iodide	Not detected	2,000	100	ug/kg	800	74-88-4	Y
Carbon disulfide	Not detected	4,000	150	ug/kg	800	75-15-0	Y
tert-Methyl butyl ether (MTBE)	Not detected	3,000	130	ug/kg	800	1634-04-4	Y
Acrylonitrile	Not detected	2,000	220	ug/kg	800	107-13-1	Y
2-Butanone (MEK)	Not detected	12,000	1,900	ug/kg	800	78-93-3	Y
Dichlorodifluoromethane	Not detected	4,000	450	ug/kg	800	75-71-8	Y
Chloromethane	Not detected	4,000	290	ug/kg	800	74-87-3	Y
Vinyl chloride	Not detected	800	110	ug/kg	800	75-01-4	Y
Bromomethane	Not detected	3,000	380	ug/kg	800	74-83-9	Y
Chloroethane	Not detected	4,000	550	ug/kg	800	75-00-3	Y
Trichlorofluoromethane	Not detected	2,000	280	ug/kg	800	75-69-4	Y
1,1-Dichloroethene	Not detected	800	180	ug/kg	800	75-35-4	Y
Methylene chloride	230	2,000	140	ug/kg	800	75-09-2	JBY
trans-1,2-Dichloroethene	Not detected	800	150	ug/kg	800	156-60-5	Y
1,1-Dichloroethane	Not detected	800	160	ug/kg	800	75-34-3	Y
cis-1,2-Dichloroethene	1,800	800	160	ug/kg	800	156-59-2	Y
Tetrahydrofuran*	1,800	20,000	1,000	ug/kg	800	109-99-9	JBY
Chloroform	Not detected	800	120	ug/kg	800	67-66-3	Y
Bromochloromethane	Not detected	2,000	150	ug/kg	800	74-97-5	Y
1,1,1-Trichloroethane	Not detected	800	96	ug/kg	800	71-55-6	Y
4-Methyl-2-pentanone (MIBK)	Not detected	40,000	170	ug/kg	800	108-10-1	Y
2-Hexanone	Not detected	40,000	300	ug/kg	800	591-78-6	Y
Carbon tetrachloride	Not detected	800	180	ug/kg	800	56-23-5	Y
Benzene	Not detected	800	96	ug/kg	800	71-43-2	Y
1,2-Dichloroethane	136	800	96	ug/kg	800	107-06-2	JY
Trichloroethene	21,000	800	140	ug/kg	800	79-01-6	Y
1,2-Dichloropropane	Not detected	800	120	ug/kg	800	78-87-5	Y
Bromodichloromethane	Not detected	2,000	96	ug/kg	800	75-27-4	Y
Dibromomethane	Not detected	4,000	80	ug/kg	800	74-95-3	Y
cis-1,3-Dichloropropene	Not detected	800	150	ug/kg	800	10061-01-5	Y
Toluene	Not detected	800	110	ug/kg	800	108-88-3	Y

Y-Elevated reporting limit due to high target concentration
J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S98594.03 (continued)
Sample Tag: SB-139-16

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 15:37, Analyst: WAT (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	800	100	ug/kg	800	10061-02-6	Y
1,1,2-Trichloroethane	Not detected	800	120	ug/kg	800	79-00-5	Y
Tetrachloroethene	Not detected	800	80	ug/kg	800	127-18-4	Y
trans-1,4-Dichloro-2-butene	Not detected	800	260	ug/kg	800	110-57-6	Y
Dibromochloromethane	Not detected	2,000	80	ug/kg	800	124-48-1	Y
1,2-Dibromoethane	Not detected	300	290	ug/kg	800	106-93-4	MY
Chlorobenzene	Not detected	800	88	ug/kg	800	108-90-7	Y
1,1,1,2-Tetrachloroethane	Not detected	2,000	96	ug/kg	800	630-20-6	Y
Ethylbenzene	Not detected	800	110	ug/kg	800	100-41-4	Y
p,m-Xylene	Not detected	2,000	210	ug/kg	800		Y
o-Xylene	Not detected	800	140	ug/kg	800	95-47-6	Y
Styrene	Not detected	800	120	ug/kg	800	100-42-5	Y
Isopropylbenzene	Not detected	4,000	96	ug/kg	800	98-82-8	Y
Bromoform	Not detected	2,000	150	ug/kg	800	75-25-2	Y
1,1,2,2-Tetrachloroethane	Not detected	800	110	ug/kg	800	79-34-5	Y
1,2,3-Trichloropropane	Not detected	2,000	220	ug/kg	800	96-18-4	Y
n-Propylbenzene	Not detected	800	96	ug/kg	800	103-65-1	Y
Bromobenzene	Not detected	2,000	100	ug/kg	800	108-86-1	Y
1,3,5-Trimethylbenzene	Not detected	800	130	ug/kg	800	108-67-8	Y
tert-Butylbenzene	Not detected	800	100	ug/kg	800	98-06-6	Y
1,2,4-Trimethylbenzene	Not detected	800	140	ug/kg	800	95-63-6	Y
sec-Butylbenzene	Not detected	800	100	ug/kg	800	135-98-8	Y
p-Isopropyltoluene	Not detected	2,000	130	ug/kg	800	99-87-6	Y
1,3-Dichlorobenzene	Not detected	2,000	88	ug/kg	800	541-73-1	Y
1,4-Dichlorobenzene	Not detected	2,000	100	ug/kg	800	106-46-7	Y
1,2-Dichlorobenzene	Not detected	2,000	120	ug/kg	800	95-50-1	Y
1,2,3-Trimethylbenzene	Not detected	800	88	ug/kg	800	526-73-8	Y
n-Butylbenzene	Not detected	800	140	ug/kg	800	104-51-8	Y
Hexachloroethane	Not detected	5,000	240	ug/kg	800	67-72-1	Y
1,2-Dibromo-3-chloropropane	Not detected	4,000	510	ug/kg	800	96-12-8	Y
1,2,4-Trichlorobenzene	Not detected	5,300	120	ug/kg	800	120-82-1	Y
1,2,3-Trichlorobenzene	Not detected	5,300	140	ug/kg	800	87-61-6	Y
Naphthalene	Not detected	4,000	420	ug/kg	800	91-20-3	Y
2-Methylnaphthalene	Not detected	2,000	340	ug/kg	800	91-57-6	Y

Y-Elevated reporting limit due to high target concentration
M-Result reported to MDL not RDL

Lab Sample ID: S98594.04
Sample Tag: SB-140-16
Collected Date/Time: 01/16/2019 10:10
Matrix: Soil
COC Reference: 106840

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.3	IR
1	40ml Glass	MeOH	Yes	4.3	IR

Inorganics

Method: SM2540B, Run Date: 01/19/19 12:15, Analyst: JBL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	78	1	1	%	1		

Organics - Volatiles

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 15:57, Analyst: WAT

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	3,000	160	ug/kg	793	60-29-7	Y
Acetone	Not detected	20,000	2,800	ug/kg	793	67-64-1	Y
Methyl iodide	Not detected	2,000	100	ug/kg	793	74-88-4	Y
Carbon disulfide	Not detected	4,000	150	ug/kg	793	75-15-0	Y
tert-Methyl butyl ether (MTBE)	Not detected	3,000	130	ug/kg	793	1634-04-4	Y
Acrylonitrile	Not detected	2,000	210	ug/kg	793	107-13-1	Y
2-Butanone (MEK)	2,300	12,000	1,900	ug/kg	793	78-93-3	JY
Dichlorodifluoromethane	Not detected	4,000	440	ug/kg	793	75-71-8	Y
Chloromethane	Not detected	4,000	290	ug/kg	793	74-87-3	Y
Vinyl chloride	Not detected	800	110	ug/kg	793	75-01-4	Y
Bromomethane	Not detected	3,000	380	ug/kg	793	74-83-9	Y
Chloroethane	Not detected	4,000	550	ug/kg	793	75-00-3	Y
Trichlorofluoromethane	Not detected	2,000	280	ug/kg	793	75-69-4	Y
1,1-Dichloroethene	Not detected	800	170	ug/kg	793	75-35-4	Y
Methylene chloride	260	2,000	130	ug/kg	793	75-09-2	JBY
trans-1,2-Dichloroethene	Not detected	800	150	ug/kg	793	156-60-5	Y
1,1-Dichloroethane	Not detected	800	160	ug/kg	793	75-34-3	Y
cis-1,2-Dichloroethene	3,500	800	160	ug/kg	793	156-59-2	Y
Tetrahydrofuran*	1,800	20,000	1,000	ug/kg	793	109-99-9	JBY
Chloroform	Not detected	800	120	ug/kg	793	67-66-3	Y
Bromochloromethane	Not detected	2,000	150	ug/kg	793	74-97-5	Y
1,1,1-Trichloroethane	Not detected	800	95	ug/kg	793	71-55-6	Y
4-Methyl-2-pentanone (MIBK)	Not detected	40,000	170	ug/kg	793	108-10-1	Y
2-Hexanone	Not detected	40,000	300	ug/kg	793	591-78-6	Y
Carbon tetrachloride	Not detected	800	170	ug/kg	793	56-23-5	Y
Benzene	Not detected	800	95	ug/kg	793	71-43-2	Y
1,2-Dichloroethane	Not detected	800	95	ug/kg	793	107-06-2	Y
Trichloroethene	13,100	800	140	ug/kg	793	79-01-6	Y
1,2-Dichloropropane	Not detected	800	120	ug/kg	793	78-87-5	Y
Bromodichloromethane	Not detected	2,000	95	ug/kg	793	75-27-4	Y
Dibromomethane	Not detected	4,000	79	ug/kg	793	74-95-3	Y
cis-1,3-Dichloropropene	Not detected	800	150	ug/kg	793	10061-01-5	Y

Y-Elevated reporting limit due to high target concentration
J-Estimated value less than reporting limit, but greater than MDL
B-Compound also found in associated method blank

Lab Sample ID: S98594.04 (continued)
Sample Tag: SB-140-16

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 15:57, Analyst: WAT (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Toluene	Not detected	800	110	ug/kg	793	108-88-3	Y
trans-1,3-Dichloropropene	Not detected	800	100	ug/kg	793	10061-02-6	Y
1,1,2-Trichloroethane	Not detected	800	120	ug/kg	793	79-00-5	Y
Tetrachloroethene	Not detected	800	79	ug/kg	793	127-18-4	Y
trans-1,4-Dichloro-2-butene	Not detected	800	250	ug/kg	793	110-57-6	Y
Dibromochloromethane	Not detected	2,000	79	ug/kg	793	124-48-1	Y
1,2-Dibromoethane	Not detected	300	290	ug/kg	793	106-93-4	MY
Chlorobenzene	Not detected	800	87	ug/kg	793	108-90-7	Y
1,1,1,2-Tetrachloroethane	Not detected	2,000	95	ug/kg	793	630-20-6	Y
Ethylbenzene	Not detected	800	110	ug/kg	793	100-41-4	Y
p,m-Xylene	Not detected	2,000	210	ug/kg	793		Y
o-Xylene	Not detected	800	140	ug/kg	793	95-47-6	Y
Styrene	Not detected	800	120	ug/kg	793	100-42-5	Y
Isopropylbenzene	Not detected	4,000	95	ug/kg	793	98-82-8	Y
Bromoform	Not detected	2,000	150	ug/kg	793	75-25-2	Y
1,1,2,2-Tetrachloroethane	Not detected	800	110	ug/kg	793	79-34-5	Y
1,2,3-Trichloropropane	Not detected	2,000	220	ug/kg	793	96-18-4	Y
n-Propylbenzene	Not detected	800	95	ug/kg	793	103-65-1	Y
Bromobenzene	Not detected	2,000	100	ug/kg	793	108-86-1	Y
1,3,5-Trimethylbenzene	Not detected	800	130	ug/kg	793	108-67-8	Y
tert-Butylbenzene	Not detected	800	100	ug/kg	793	98-06-6	Y
1,2,4-Trimethylbenzene	Not detected	800	130	ug/kg	793	95-63-6	Y
sec-Butylbenzene	Not detected	800	100	ug/kg	793	135-98-8	Y
p-Isopropyltoluene	Not detected	2,000	130	ug/kg	793	99-87-6	Y
1,3-Dichlorobenzene	Not detected	2,000	87	ug/kg	793	541-73-1	Y
1,4-Dichlorobenzene	Not detected	2,000	100	ug/kg	793	106-46-7	Y
1,2-Dichlorobenzene	Not detected	2,000	120	ug/kg	793	95-50-1	Y
1,2,3-Trimethylbenzene	Not detected	800	87	ug/kg	793	526-73-8	Y
n-Butylbenzene	Not detected	800	140	ug/kg	793	104-51-8	Y
Hexachloroethane	Not detected	5,000	240	ug/kg	793	67-72-1	Y
1,2-Dibromo-3-chloropropane	Not detected	4,000	510	ug/kg	793	96-12-8	Y
1,2,4-Trichlorobenzene	Not detected	5,200	120	ug/kg	793	120-82-1	Y
1,2,3-Trichlorobenzene	130	5,200	130	ug/kg	793	87-61-6	JY
Naphthalene	Not detected	4,000	410	ug/kg	793	91-20-3	Y
2-Methylnaphthalene	Not detected	2,000	330	ug/kg	793	91-57-6	Y

Y-Elevated reporting limit due to high target concentration
M-Result reported to MDL not RDL
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S98594.05
Sample Tag: SB-140-19
Collected Date/Time: 01/16/2019 10:20
Matrix: Soil
COC Reference: 106840

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.3	IR
1	40ml Glass	MeOH	Yes	4.3	IR

Inorganics

Method: SM2540B, Run Date: 01/19/19 12:15, Analyst: JBL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	82	1	1	%	1		

Organics - Volatiles

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 13:57, Analyst: WAT

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	300	15	ug/kg	74.1	60-29-7	
Acetone	Not detected	1,000	260	ug/kg	74.1	67-64-1	
Methyl iodide	Not detected	100	9.6	ug/kg	74.1	74-88-4	
Carbon disulfide	Not detected	400	14	ug/kg	74.1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	300	12	ug/kg	74.1	1634-04-4	
Acrylonitrile	Not detected	100	20	ug/kg	74.1	107-13-1	
2-Butanone (MEK)	Not detected	1,100	180	ug/kg	74.1	78-93-3	
Dichlorodifluoromethane	Not detected	400	41	ug/kg	74.1	75-71-8	
Chloromethane	Not detected	400	27	ug/kg	74.1	74-87-3	
Vinyl chloride	Not detected	70	10	ug/kg	74.1	75-01-4	
Bromomethane	Not detected	300	36	ug/kg	74.1	74-83-9	
Chloroethane	Not detected	400	51	ug/kg	74.1	75-00-3	
Trichlorofluoromethane	Not detected	100	26	ug/kg	74.1	75-69-4	
1,1-Dichloroethene	Not detected	70	16	ug/kg	74.1	75-35-4	
Methylene chloride	30	100	13	ug/kg	74.1	75-09-2	JB
trans-1,2-Dichloroethene	Not detected	70	14	ug/kg	74.1	156-60-5	
1,1-Dichloroethane	Not detected	70	15	ug/kg	74.1	75-34-3	
cis-1,2-Dichloroethene	150	70	15	ug/kg	74.1	156-59-2	
Tetrahydrofuran*	155	1,000	96	ug/kg	74.1	109-99-9	JB
Chloroform	Not detected	70	11	ug/kg	74.1	67-66-3	
Bromochloromethane	Not detected	100	14	ug/kg	74.1	74-97-5	
1,1,1-Trichloroethane	14.8	70	8.9	ug/kg	74.1	71-55-6	J
4-Methyl-2-pentanone (MIBK)	Not detected	4,000	16	ug/kg	74.1	108-10-1	
2-Hexanone	Not detected	4,000	28	ug/kg	74.1	591-78-6	
Carbon tetrachloride	Not detected	70	16	ug/kg	74.1	56-23-5	
Benzene	Not detected	70	8.9	ug/kg	74.1	71-43-2	
1,2-Dichloroethane	Not detected	70	8.9	ug/kg	74.1	107-06-2	
Trichloroethene	2,870	70	13	ug/kg	74.1	79-01-6	
1,2-Dichloropropane	Not detected	70	11	ug/kg	74.1	78-87-5	
Bromodichloromethane	Not detected	100	8.9	ug/kg	74.1	75-27-4	
Dibromomethane	Not detected	400	7.4	ug/kg	74.1	74-95-3	
cis-1,3-Dichloropropene	Not detected	70	14	ug/kg	74.1	10061-01-5	
Toluene	Not detected	70	10	ug/kg	74.1	108-88-3	
trans-1,3-Dichloropropene	Not detected	70	9.6	ug/kg	74.1	10061-02-6	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S98594.05 (continued)
Sample Tag: SB-140-19

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 13:57, Analyst: WAT (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,1,2-Trichloroethane	Not detected	70	11	ug/kg	74.1	79-00-5	
Tetrachloroethene	11.9	70	7.4	ug/kg	74.1	127-18-4	J
trans-1,4-Dichloro-2-butene	Not detected	70	24	ug/kg	74.1	110-57-6	
Dibromochloromethane	Not detected	100	7.4	ug/kg	74.1	124-48-1	
1,2-Dibromoethane	Not detected	30	27	ug/kg	74.1	106-93-4	M
Chlorobenzene	Not detected	70	8.2	ug/kg	74.1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	100	8.9	ug/kg	74.1	630-20-6	
Ethylbenzene	Not detected	70	10	ug/kg	74.1	100-41-4	
p,m-Xylene	Not detected	100	19	ug/kg	74.1		
o-Xylene	Not detected	70	13	ug/kg	74.1	95-47-6	
Styrene	Not detected	70	11	ug/kg	74.1	100-42-5	
Isopropylbenzene	Not detected	400	8.9	ug/kg	74.1	98-82-8	
Bromoform	Not detected	100	14	ug/kg	74.1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	70	10	ug/kg	74.1	79-34-5	
1,2,3-Trichloropropane	Not detected	100	21	ug/kg	74.1	96-18-4	
n-Propylbenzene	Not detected	70	8.9	ug/kg	74.1	103-65-1	
Bromobenzene	Not detected	100	9.6	ug/kg	74.1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	70	12	ug/kg	74.1	108-67-8	
tert-Butylbenzene	Not detected	70	9.6	ug/kg	74.1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	70	13	ug/kg	74.1	95-63-6	
sec-Butylbenzene	Not detected	70	9.6	ug/kg	74.1	135-98-8	
p-Isopropyltoluene	Not detected	100	12	ug/kg	74.1	99-87-6	
1,3-Dichlorobenzene	Not detected	100	8.2	ug/kg	74.1	541-73-1	
1,4-Dichlorobenzene	Not detected	100	9.6	ug/kg	74.1	106-46-7	
1,2-Dichlorobenzene	Not detected	100	11	ug/kg	74.1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	70	8.2	ug/kg	74.1	526-73-8	
n-Butylbenzene	Not detected	70	13	ug/kg	74.1	104-51-8	
Hexachloroethane	Not detected	400	22	ug/kg	74.1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	400	47	ug/kg	74.1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	490	11	ug/kg	74.1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	490	13	ug/kg	74.1	87-61-6	
Naphthalene	Not detected	400	39	ug/kg	74.1	91-20-3	
2-Methylnaphthalene	Not detected	100	31	ug/kg	74.1	91-57-6	

J-Estimated value less than reporting limit, but greater than MDL
M-Result reported to MDL not RDL

Lab Sample ID: S98594.06
Sample Tag: SB-141-16
Collected Date/Time: 01/16/2019 10:45
Matrix: Soil
COC Reference: 106840

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.3	IR
1	40ml Glass	MeOH	Yes	4.3	IR

Inorganics

Method: SM2540B, Run Date: 01/19/19 12:15, Analyst: JBL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	83	1	1	%	1		

Organics - Volatiles

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 14:18, Analyst: WAT

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	300	14	ug/kg	72.1	60-29-7	
Acetone	Not detected	1,000	250	ug/kg	72.1	67-64-1	
Methyl iodide	Not detected	100	9.4	ug/kg	72.1	74-88-4	
Carbon disulfide	Not detected	400	14	ug/kg	72.1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	300	12	ug/kg	72.1	1634-04-4	
Acrylonitrile	Not detected	100	19	ug/kg	72.1	107-13-1	
2-Butanone (MEK)	Not detected	1,100	170	ug/kg	72.1	78-93-3	
Dichlorodifluoromethane	Not detected	400	40	ug/kg	72.1	75-71-8	
Chloromethane	Not detected	400	26	ug/kg	72.1	74-87-3	
Vinyl chloride	Not detected	70	10	ug/kg	72.1	75-01-4	
Bromomethane	Not detected	300	35	ug/kg	72.1	74-83-9	
Chloroethane	Not detected	400	50	ug/kg	72.1	75-00-3	
Trichlorofluoromethane	Not detected	100	25	ug/kg	72.1	75-69-4	
1,1-Dichloroethene	Not detected	70	16	ug/kg	72.1	75-35-4	
Methylene chloride	27	100	12	ug/kg	72.1	75-09-2	JB
trans-1,2-Dichloroethene	Not detected	70	14	ug/kg	72.1	156-60-5	
1,1-Dichloroethane	Not detected	70	14	ug/kg	72.1	75-34-3	
cis-1,2-Dichloroethene	15	70	14	ug/kg	72.1	156-59-2	J
Tetrahydrofuran*	161	1,000	93	ug/kg	72.1	109-99-9	JB
Chloroform	Not detected	70	11	ug/kg	72.1	67-66-3	
Bromochloromethane	Not detected	100	14	ug/kg	72.1	74-97-5	
1,1,1-Trichloroethane	Not detected	70	8.7	ug/kg	72.1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	4,000	15	ug/kg	72.1	108-10-1	
2-Hexanone	Not detected	4,000	27	ug/kg	72.1	591-78-6	
Carbon tetrachloride	Not detected	70	16	ug/kg	72.1	56-23-5	
Benzene	Not detected	70	8.7	ug/kg	72.1	71-43-2	
1,2-Dichloroethane	Not detected	70	8.7	ug/kg	72.1	107-06-2	
Trichloroethene	180	70	13	ug/kg	72.1	79-01-6	
1,2-Dichloropropane	Not detected	70	11	ug/kg	72.1	78-87-5	
Bromodichloromethane	Not detected	100	8.7	ug/kg	72.1	75-27-4	
Dibromomethane	Not detected	400	7.2	ug/kg	72.1	74-95-3	
cis-1,3-Dichloropropene	Not detected	70	14	ug/kg	72.1	10061-01-5	
Toluene	Not detected	70	10	ug/kg	72.1	108-88-3	
trans-1,3-Dichloropropene	Not detected	70	9.4	ug/kg	72.1	10061-02-6	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S98594.06 (continued)
Sample Tag: SB-141-16

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 14:18, Analyst: WAT (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,1,2-Trichloroethane	Not detected	70	11	ug/kg	72.1	79-00-5	
Tetrachloroethene	Not detected	70	7.2	ug/kg	72.1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	70	23	ug/kg	72.1	110-57-6	
Dibromochloromethane	Not detected	100	7.2	ug/kg	72.1	124-48-1	
1,2-Dibromoethane	Not detected	30	26	ug/kg	72.1	106-93-4	M
Chlorobenzene	Not detected	70	7.9	ug/kg	72.1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	100	8.7	ug/kg	72.1	630-20-6	
Ethylbenzene	Not detected	70	10	ug/kg	72.1	100-41-4	
p,m-Xylene	Not detected	100	19	ug/kg	72.1		
o-Xylene	Not detected	70	13	ug/kg	72.1	95-47-6	
Styrene	Not detected	70	11	ug/kg	72.1	100-42-5	
Isopropylbenzene	Not detected	400	8.7	ug/kg	72.1	98-82-8	
Bromoform	Not detected	100	14	ug/kg	72.1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	70	10	ug/kg	72.1	79-34-5	
1,2,3-Trichloropropane	Not detected	100	20	ug/kg	72.1	96-18-4	
n-Propylbenzene	Not detected	70	8.7	ug/kg	72.1	103-65-1	
Bromobenzene	Not detected	100	9.4	ug/kg	72.1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	70	12	ug/kg	72.1	108-67-8	
tert-Butylbenzene	Not detected	70	9.4	ug/kg	72.1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	70	12	ug/kg	72.1	95-63-6	
sec-Butylbenzene	Not detected	70	9.4	ug/kg	72.1	135-98-8	
p-Isopropyltoluene	Not detected	100	12	ug/kg	72.1	99-87-6	
1,3-Dichlorobenzene	Not detected	100	7.9	ug/kg	72.1	541-73-1	
1,4-Dichlorobenzene	Not detected	100	9.4	ug/kg	72.1	106-46-7	
1,2-Dichlorobenzene	Not detected	100	11	ug/kg	72.1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	70	7.9	ug/kg	72.1	526-73-8	
n-Butylbenzene	Not detected	70	13	ug/kg	72.1	104-51-8	
Hexachloroethane	Not detected	400	22	ug/kg	72.1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	400	46	ug/kg	72.1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	480	11	ug/kg	72.1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	480	12	ug/kg	72.1	87-61-6	
Naphthalene	Not detected	400	37	ug/kg	72.1	91-20-3	
2-Methylnaphthalene	Not detected	100	30	ug/kg	72.1	91-57-6	

M-Result reported to MDL not RDL

Lab Sample ID: S98594.07
Sample Tag: SB-141-18
Collected Date/Time: 01/16/2019 10:55
Matrix: Soil
COC Reference: 106840

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.3	IR
1	40ml Glass	MeOH	Yes	4.3	IR

Inorganics

Method: SM2540B, Run Date: 01/19/19 12:15, Analyst: JBL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	81	1	1	%	1		

Organics - Volatiles

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 14:38, Analyst: WAT

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	300	15	ug/kg	74.3	60-29-7	
Acetone	Not detected	1,000	260	ug/kg	74.3	67-64-1	
Methyl iodide	Not detected	100	9.7	ug/kg	74.3	74-88-4	
Carbon disulfide	Not detected	400	14	ug/kg	74.3	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	300	12	ug/kg	74.3	1634-04-4	
Acrylonitrile	Not detected	100	20	ug/kg	74.3	107-13-1	
2-Butanone (MEK)	Not detected	1,100	180	ug/kg	74.3	78-93-3	
Dichlorodifluoromethane	Not detected	400	42	ug/kg	74.3	75-71-8	
Chloromethane	Not detected	400	27	ug/kg	74.3	74-87-3	
Vinyl chloride	Not detected	70	10	ug/kg	74.3	75-01-4	
Bromomethane	Not detected	300	36	ug/kg	74.3	74-83-9	
Chloroethane	Not detected	400	51	ug/kg	74.3	75-00-3	
Trichlorofluoromethane	Not detected	100	26	ug/kg	74.3	75-69-4	
1,1-Dichloroethene	Not detected	70	16	ug/kg	74.3	75-35-4	
Methylene chloride	25	100	13	ug/kg	74.3	75-09-2	JB
trans-1,2-Dichloroethene	Not detected	70	14	ug/kg	74.3	156-60-5	
1,1-Dichloroethane	Not detected	70	15	ug/kg	74.3	75-34-3	
cis-1,2-Dichloroethene	2,900	70	15	ug/kg	74.3	156-59-2	
Tetrahydrofuran*	170	1,000	96	ug/kg	74.3	109-99-9	JB
Chloroform	Not detected	70	11	ug/kg	74.3	67-66-3	
Bromochloromethane	Not detected	100	14	ug/kg	74.3	74-97-5	
1,1,1-Trichloroethane	Not detected	70	8.9	ug/kg	74.3	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	4,000	16	ug/kg	74.3	108-10-1	
2-Hexanone	Not detected	4,000	28	ug/kg	74.3	591-78-6	
Carbon tetrachloride	Not detected	70	16	ug/kg	74.3	56-23-5	
Benzene	Not detected	70	8.9	ug/kg	74.3	71-43-2	
1,2-Dichloroethane	Not detected	70	8.9	ug/kg	74.3	107-06-2	
Trichloroethene	6,150	70	13	ug/kg	74.3	79-01-6	
1,2-Dichloropropane	Not detected	70	11	ug/kg	74.3	78-87-5	
Bromodichloromethane	Not detected	100	8.9	ug/kg	74.3	75-27-4	
Dibromomethane	Not detected	400	7.4	ug/kg	74.3	74-95-3	
cis-1,3-Dichloropropene	Not detected	70	14	ug/kg	74.3	10061-01-5	
Toluene	Not detected	70	10	ug/kg	74.3	108-88-3	
trans-1,3-Dichloropropene	Not detected	70	9.7	ug/kg	74.3	10061-02-6	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S98594.07 (continued)
Sample Tag: SB-141-18

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 14:38, Analyst: WAT (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,1,2-Trichloroethane	Not detected	70	11	ug/kg	74.3	79-00-5	
Tetrachloroethene	Not detected	70	7.4	ug/kg	74.3	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	70	24	ug/kg	74.3	110-57-6	
Dibromochloromethane	Not detected	100	7.4	ug/kg	74.3	124-48-1	
1,2-Dibromoethane	Not detected	30	27	ug/kg	74.3	106-93-4	M
Chlorobenzene	Not detected	70	8.2	ug/kg	74.3	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	100	8.9	ug/kg	74.3	630-20-6	
Ethylbenzene	Not detected	70	10	ug/kg	74.3	100-41-4	
p,m-Xylene	Not detected	100	19	ug/kg	74.3		
o-Xylene	Not detected	70	13	ug/kg	74.3	95-47-6	
Styrene	Not detected	70	11	ug/kg	74.3	100-42-5	
Isopropylbenzene	Not detected	400	8.9	ug/kg	74.3	98-82-8	
Bromoform	Not detected	100	14	ug/kg	74.3	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	70	10	ug/kg	74.3	79-34-5	
1,2,3-Trichloropropane	Not detected	100	21	ug/kg	74.3	96-18-4	
n-Propylbenzene	Not detected	70	8.9	ug/kg	74.3	103-65-1	
Bromobenzene	Not detected	100	9.7	ug/kg	74.3	108-86-1	
1,3,5-Trimethylbenzene	Not detected	70	12	ug/kg	74.3	108-67-8	
tert-Butylbenzene	Not detected	70	9.7	ug/kg	74.3	98-06-6	
1,2,4-Trimethylbenzene	Not detected	70	13	ug/kg	74.3	95-63-6	
sec-Butylbenzene	Not detected	70	9.7	ug/kg	74.3	135-98-8	
p-Isopropyltoluene	Not detected	100	12	ug/kg	74.3	99-87-6	
1,3-Dichlorobenzene	Not detected	100	8.2	ug/kg	74.3	541-73-1	
1,4-Dichlorobenzene	Not detected	100	9.7	ug/kg	74.3	106-46-7	
1,2-Dichlorobenzene	Not detected	100	11	ug/kg	74.3	95-50-1	
1,2,3-Trimethylbenzene	Not detected	70	8.2	ug/kg	74.3	526-73-8	
n-Butylbenzene	Not detected	70	13	ug/kg	74.3	104-51-8	
Hexachloroethane	Not detected	400	22	ug/kg	74.3	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	400	48	ug/kg	74.3	96-12-8	
1,2,4-Trichlorobenzene	Not detected	490	11	ug/kg	74.3	120-82-1	
1,2,3-Trichlorobenzene	Not detected	490	13	ug/kg	74.3	87-61-6	
Naphthalene	Not detected	400	39	ug/kg	74.3	91-20-3	
2-Methylnaphthalene	Not detected	100	31	ug/kg	74.3	91-57-6	

M-Result reported to MDL not RDL

Lab Sample ID: S98594.08
Sample Tag: SB-141-19
Collected Date/Time: 01/16/2019 11:05
Matrix: Soil
COC Reference: 106840

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.3	IR
1	40ml Glass	MeOH	Yes	4.3	IR

Inorganics

Method: SM2540B, Run Date: 01/19/19 12:15, Analyst: JBL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	82	1	1	%	1		

Organics - Volatiles

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 14:58, Analyst: WAT

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	300	15	ug/kg	73.5	60-29-7	
Acetone	360	1,000	260	ug/kg	73.5	67-64-1	J
Methyl iodide	Not detected	100	9.6	ug/kg	73.5	74-88-4	
Carbon disulfide	Not detected	400	14	ug/kg	73.5	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	300	12	ug/kg	73.5	1634-04-4	
Acrylonitrile	Not detected	100	20	ug/kg	73.5	107-13-1	
2-Butanone (MEK)	Not detected	1,100	180	ug/kg	73.5	78-93-3	
Dichlorodifluoromethane	Not detected	400	41	ug/kg	73.5	75-71-8	
Chloromethane	Not detected	400	26	ug/kg	73.5	74-87-3	
Vinyl chloride	Not detected	70	10	ug/kg	73.5	75-01-4	
Bromomethane	Not detected	300	35	ug/kg	73.5	74-83-9	
Chloroethane	Not detected	400	51	ug/kg	73.5	75-00-3	
Trichlorofluoromethane	Not detected	100	26	ug/kg	73.5	75-69-4	
1,1-Dichloroethene	Not detected	70	16	ug/kg	73.5	75-35-4	
Methylene chloride	26	100	12	ug/kg	73.5	75-09-2	JB
trans-1,2-Dichloroethene	Not detected	70	14	ug/kg	73.5	156-60-5	
1,1-Dichloroethane	Not detected	70	15	ug/kg	73.5	75-34-3	
cis-1,2-Dichloroethene	860	70	15	ug/kg	73.5	156-59-2	
Tetrahydrofuran*	155	1,000	95	ug/kg	73.5	109-99-9	JB
Chloroform	Not detected	70	11	ug/kg	73.5	67-66-3	
Bromochloromethane	Not detected	100	14	ug/kg	73.5	74-97-5	
1,1,1-Trichloroethane	Not detected	70	8.8	ug/kg	73.5	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	4,000	15	ug/kg	73.5	108-10-1	
2-Hexanone	Not detected	4,000	28	ug/kg	73.5	591-78-6	
Carbon tetrachloride	Not detected	70	16	ug/kg	73.5	56-23-5	
Benzene	Not detected	70	8.8	ug/kg	73.5	71-43-2	
1,2-Dichloroethane	Not detected	70	8.8	ug/kg	73.5	107-06-2	
Trichloroethene	3,370	70	13	ug/kg	73.5	79-01-6	
1,2-Dichloropropane	Not detected	70	11	ug/kg	73.5	78-87-5	
Bromodichloromethane	Not detected	100	8.8	ug/kg	73.5	75-27-4	
Dibromomethane	Not detected	400	7.4	ug/kg	73.5	74-95-3	
cis-1,3-Dichloropropene	Not detected	70	14	ug/kg	73.5	10061-01-5	
Toluene	Not detected	70	10	ug/kg	73.5	108-88-3	

J-Estimated value less than reporting limit, but greater than MDL
B-Compound also found in associated method blank

Lab Sample ID: S98594.08 (continued)
Sample Tag: SB-141-19

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 14:58, Analyst: WAT (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	70	9.6	ug/kg	73.5	10061-02-6	
1,1,2-Trichloroethane	Not detected	70	11	ug/kg	73.5	79-00-5	
Tetrachloroethene	Not detected	70	7.4	ug/kg	73.5	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	70	24	ug/kg	73.5	110-57-6	
Dibromochloromethane	Not detected	100	7.4	ug/kg	73.5	124-48-1	
1,2-Dibromoethane	Not detected	30	26	ug/kg	73.5	106-93-4	M
Chlorobenzene	Not detected	70	8.1	ug/kg	73.5	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	100	8.8	ug/kg	73.5	630-20-6	
Ethylbenzene	Not detected	70	10	ug/kg	73.5	100-41-4	
p,m-Xylene	Not detected	100	19	ug/kg	73.5		
o-Xylene	Not detected	70	13	ug/kg	73.5	95-47-6	
Styrene	Not detected	70	11	ug/kg	73.5	100-42-5	
Isopropylbenzene	Not detected	400	8.8	ug/kg	73.5	98-82-8	
Bromoform	Not detected	100	14	ug/kg	73.5	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	70	10	ug/kg	73.5	79-34-5	
1,2,3-Trichloropropane	Not detected	100	21	ug/kg	73.5	96-18-4	
n-Propylbenzene	Not detected	70	8.8	ug/kg	73.5	103-65-1	
Bromobenzene	Not detected	100	9.6	ug/kg	73.5	108-86-1	
1,3,5-Trimethylbenzene	Not detected	70	12	ug/kg	73.5	108-67-8	
tert-Butylbenzene	Not detected	70	9.6	ug/kg	73.5	98-06-6	
1,2,4-Trimethylbenzene	Not detected	70	12	ug/kg	73.5	95-63-6	
sec-Butylbenzene	Not detected	70	9.6	ug/kg	73.5	135-98-8	
p-Isopropyltoluene	Not detected	100	12	ug/kg	73.5	99-87-6	
1,3-Dichlorobenzene	Not detected	100	8.1	ug/kg	73.5	541-73-1	
1,4-Dichlorobenzene	Not detected	100	9.6	ug/kg	73.5	106-46-7	
1,2-Dichlorobenzene	Not detected	100	11	ug/kg	73.5	95-50-1	
1,2,3-Trimethylbenzene	Not detected	70	8.1	ug/kg	73.5	526-73-8	
n-Butylbenzene	Not detected	70	13	ug/kg	73.5	104-51-8	
Hexachloroethane	Not detected	400	22	ug/kg	73.5	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	400	47	ug/kg	73.5	96-12-8	
1,2,4-Trichlorobenzene	Not detected	490	11	ug/kg	73.5	120-82-1	
1,2,3-Trichlorobenzene	Not detected	490	12	ug/kg	73.5	87-61-6	
Naphthalene	Not detected	400	38	ug/kg	73.5	91-20-3	
2-Methylnaphthalene	Not detected	100	31	ug/kg	73.5	91-57-6	

M-Result reported to MDL not RDL

Lab Sample ID: S98594.09
Sample Tag: DUP-1
Collected Date/Time: 01/16/2019 00:01
Matrix: Soil
COC Reference: 106840

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.3	IR
1	40ml Glass	MeOH	Yes	4.3	IR

Inorganics

Method: SM2540B, Run Date: 01/19/19 12:15, Analyst: JBL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	81	1	1	%	1		

Organics - Volatiles

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 16:17, Analyst: WAT

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	3,000	150	ug/kg	746	60-29-7	Y
Acetone	Not detected	10,000	2,600	ug/kg	746	67-64-1	Y
Methyl iodide	Not detected	1,000	97	ug/kg	746	74-88-4	Y
Carbon disulfide	Not detected	4,000	140	ug/kg	746	75-15-0	Y
tert-Methyl butyl ether (MTBE)	Not detected	3,000	120	ug/kg	746	1634-04-4	Y
Acrylonitrile	Not detected	1,000	200	ug/kg	746	107-13-1	Y
2-Butanone (MEK)	Not detected	11,000	1,800	ug/kg	746	78-93-3	Y
Dichlorodifluoromethane	Not detected	4,000	420	ug/kg	746	75-71-8	Y
Chloromethane	Not detected	4,000	270	ug/kg	746	74-87-3	Y
Vinyl chloride	Not detected	700	100	ug/kg	746	75-01-4	Y
Bromomethane	Not detected	3,000	360	ug/kg	746	74-83-9	Y
Chloroethane	Not detected	4,000	510	ug/kg	746	75-00-3	Y
Trichlorofluoromethane	Not detected	1,000	260	ug/kg	746	75-69-4	Y
1,1-Dichloroethene	Not detected	700	160	ug/kg	746	75-35-4	Y
Methylene chloride	210	1,000	130	ug/kg	746	75-09-2	JBY
trans-1,2-Dichloroethene	Not detected	700	140	ug/kg	746	156-60-5	Y
1,1-Dichloroethane	Not detected	700	150	ug/kg	746	75-34-3	Y
cis-1,2-Dichloroethene	1,000	700	150	ug/kg	746	156-59-2	Y
Tetrahydrofuran*	1,750	10,000	960	ug/kg	746	109-99-9	JBY
Chloroform	Not detected	700	110	ug/kg	746	67-66-3	Y
Bromochloromethane	Not detected	1,000	140	ug/kg	746	74-97-5	Y
1,1,1-Trichloroethane	Not detected	700	90	ug/kg	746	71-55-6	Y
4-Methyl-2-pentanone (MIBK)	Not detected	40,000	160	ug/kg	746	108-10-1	Y
2-Hexanone	Not detected	40,000	280	ug/kg	746	591-78-6	Y
Carbon tetrachloride	Not detected	700	160	ug/kg	746	56-23-5	Y
Benzene	Not detected	700	90	ug/kg	746	71-43-2	Y
1,2-Dichloroethane	Not detected	700	90	ug/kg	746	107-06-2	Y
Trichloroethene	16,300	700	130	ug/kg	746	79-01-6	Y
1,2-Dichloropropane	Not detected	700	110	ug/kg	746	78-87-5	Y
Bromodichloromethane	Not detected	1,000	90	ug/kg	746	75-27-4	Y
Dibromomethane	Not detected	4,000	75	ug/kg	746	74-95-3	Y
cis-1,3-Dichloropropene	Not detected	700	140	ug/kg	746	10061-01-5	Y
Toluene	Not detected	700	100	ug/kg	746	108-88-3	Y

Y-Elevated reporting limit due to high target concentration
J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S98594.09 (continued)
Sample Tag: DUP-1

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 16:17, Analyst: WAT (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	700	97	ug/kg	746	10061-02-6	Y
1,1,2-Trichloroethane	Not detected	700	110	ug/kg	746	79-00-5	Y
Tetrachloroethene	Not detected	700	75	ug/kg	746	127-18-4	Y
trans-1,4-Dichloro-2-butene	Not detected	700	240	ug/kg	746	110-57-6	Y
Dibromochloromethane	Not detected	1,000	75	ug/kg	746	124-48-1	Y
1,2-Dibromoethane	Not detected	300	270	ug/kg	746	106-93-4	MY
Chlorobenzene	Not detected	700	82	ug/kg	746	108-90-7	Y
1,1,1,2-Tetrachloroethane	Not detected	1,000	90	ug/kg	746	630-20-6	Y
Ethylbenzene	Not detected	700	100	ug/kg	746	100-41-4	Y
p,m-Xylene	Not detected	1,000	190	ug/kg	746		Y
o-Xylene	Not detected	700	130	ug/kg	746	95-47-6	Y
Styrene	Not detected	700	110	ug/kg	746	100-42-5	Y
Isopropylbenzene	Not detected	4,000	90	ug/kg	746	98-82-8	Y
Bromoform	Not detected	1,000	140	ug/kg	746	75-25-2	Y
1,1,2,2-Tetrachloroethane	Not detected	700	100	ug/kg	746	79-34-5	Y
1,2,3-Trichloropropane	Not detected	1,000	210	ug/kg	746	96-18-4	Y
n-Propylbenzene	Not detected	700	90	ug/kg	746	103-65-1	Y
Bromobenzene	Not detected	1,000	97	ug/kg	746	108-86-1	Y
1,3,5-Trimethylbenzene	Not detected	700	120	ug/kg	746	108-67-8	Y
tert-Butylbenzene	Not detected	700	97	ug/kg	746	98-06-6	Y
1,2,4-Trimethylbenzene	Not detected	700	130	ug/kg	746	95-63-6	Y
sec-Butylbenzene	Not detected	700	97	ug/kg	746	135-98-8	Y
p-Isopropyltoluene	Not detected	1,000	120	ug/kg	746	99-87-6	Y
1,3-Dichlorobenzene	Not detected	1,000	82	ug/kg	746	541-73-1	Y
1,4-Dichlorobenzene	Not detected	1,000	97	ug/kg	746	106-46-7	Y
1,2-Dichlorobenzene	Not detected	1,000	110	ug/kg	746	95-50-1	Y
1,2,3-Trimethylbenzene	Not detected	700	82	ug/kg	746	526-73-8	Y
n-Butylbenzene	Not detected	700	130	ug/kg	746	104-51-8	Y
Hexachloroethane	Not detected	4,000	220	ug/kg	746	67-72-1	Y
1,2-Dibromo-3-chloropropane	Not detected	4,000	480	ug/kg	746	96-12-8	Y
1,2,4-Trichlorobenzene	Not detected	4,900	110	ug/kg	746	120-82-1	Y
1,2,3-Trichlorobenzene	Not detected	4,900	130	ug/kg	746	87-61-6	Y
Naphthalene	Not detected	4,000	390	ug/kg	746	91-20-3	Y
2-Methylnaphthalene	Not detected	1,000	310	ug/kg	746	91-57-6	Y

Y-Elevated reporting limit due to high target concentration
M-Result reported to MDL not RDL

Lab Sample ID: S98594.10
Sample Tag: SB-139-18
Collected Date/Time: 01/16/2019 09:55
Matrix: Soil
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	4oz Glass	None	Yes	4.3	IR
1	40ml Glass	MeOH	Yes	4.3	IR

Inorganics

Method: SM2540B, Run Date: 01/19/19 12:15, Analyst: JBL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Solids*	75	1	1	%	1		

Organics - Volatiles

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 15:17, Analyst: WAT

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	300	17	ug/kg	85.4	60-29-7	
Acetone	430	2,000	300	ug/kg	85.4	67-64-1	J
Methyl iodide	Not detected	200	11	ug/kg	85.4	74-88-4	
Carbon disulfide	Not detected	400	16	ug/kg	85.4	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	300	14	ug/kg	85.4	1634-04-4	
Acrylonitrile	Not detected	200	23	ug/kg	85.4	107-13-1	
2-Butanone (MEK)	Not detected	1,300	200	ug/kg	85.4	78-93-3	
Dichlorodifluoromethane	Not detected	400	48	ug/kg	85.4	75-71-8	
Chloromethane	Not detected	400	31	ug/kg	85.4	74-87-3	
Vinyl chloride	42	90	12	ug/kg	85.4	75-01-4	J
Bromomethane	Not detected	300	41	ug/kg	85.4	74-83-9	
Chloroethane	Not detected	400	59	ug/kg	85.4	75-00-3	
Trichlorofluoromethane	Not detected	200	30	ug/kg	85.4	75-69-4	
1,1-Dichloroethene	63	90	19	ug/kg	85.4	75-35-4	J
Methylene chloride	32	200	15	ug/kg	85.4	75-09-2	JB
trans-1,2-Dichloroethene	200	90	16	ug/kg	85.4	156-60-5	
1,1-Dichloroethane	90	90	17	ug/kg	85.4	75-34-3	
cis-1,2-Dichloroethene	8,850	90	17	ug/kg	85.4	156-59-2	
Tetrahydrofuran*	180	2,000	110	ug/kg	85.4	109-99-9	JB
Chloroform	Not detected	90	13	ug/kg	85.4	67-66-3	
Bromochloromethane	Not detected	200	16	ug/kg	85.4	74-97-5	
1,1,1-Trichloroethane	Not detected	90	10	ug/kg	85.4	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	4,000	18	ug/kg	85.4	108-10-1	
2-Hexanone	Not detected	4,000	32	ug/kg	85.4	591-78-6	
Carbon tetrachloride	Not detected	90	19	ug/kg	85.4	56-23-5	
Benzene	20	90	10	ug/kg	85.4	71-43-2	J
1,2-Dichloroethane	Not detected	90	10	ug/kg	85.4	107-06-2	
Trichloroethene	3,440	90	15	ug/kg	85.4	79-01-6	
1,2-Dichloropropane	Not detected	90	13	ug/kg	85.4	78-87-5	
Bromodichloromethane	Not detected	200	10	ug/kg	85.4	75-27-4	
Dibromomethane	Not detected	400	8.5	ug/kg	85.4	74-95-3	
cis-1,3-Dichloropropene	Not detected	90	16	ug/kg	85.4	10061-01-5	
Toluene	Not detected	90	12	ug/kg	85.4	108-88-3	

J-Estimated value less than reporting limit, but greater than MDL
B-Compound also found in associated method blank

Lab Sample ID: S98594.10 (continued)
Sample Tag: SB-139-18

Volatile Organics 5035, Method: SW5035A/8260C, Run Date: 01/30/19 15:17, Analyst: WAT (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,3-Dichloropropene	Not detected	90	11	ug/kg	85.4	10061-02-6	
1,1,2-Trichloroethane	Not detected	90	13	ug/kg	85.4	79-00-5	
Tetrachloroethene	Not detected	90	8.5	ug/kg	85.4	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	90	27	ug/kg	85.4	110-57-6	
Dibromochloromethane	Not detected	200	8.5	ug/kg	85.4	124-48-1	
1,2-Dibromoethane	Not detected	30	30	ug/kg	85.4	106-93-4	M
Chlorobenzene	Not detected	90	9.4	ug/kg	85.4	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	200	10	ug/kg	85.4	630-20-6	
Ethylbenzene	Not detected	90	12	ug/kg	85.4	100-41-4	
p,m-Xylene	Not detected	200	22	ug/kg	85.4		
o-Xylene	Not detected	90	15	ug/kg	85.4	95-47-6	
Styrene	Not detected	90	13	ug/kg	85.4	100-42-5	
Isopropylbenzene	Not detected	400	10	ug/kg	85.4	98-82-8	
Bromoform	Not detected	200	16	ug/kg	85.4	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	90	12	ug/kg	85.4	79-34-5	
1,2,3-Trichloropropane	Not detected	200	24	ug/kg	85.4	96-18-4	
n-Propylbenzene	Not detected	90	10	ug/kg	85.4	103-65-1	
Bromobenzene	Not detected	200	11	ug/kg	85.4	108-86-1	
1,3,5-Trimethylbenzene	Not detected	90	14	ug/kg	85.4	108-67-8	
tert-Butylbenzene	Not detected	90	11	ug/kg	85.4	98-06-6	
1,2,4-Trimethylbenzene	Not detected	90	15	ug/kg	85.4	95-63-6	
sec-Butylbenzene	Not detected	90	11	ug/kg	85.4	135-98-8	
p-Isopropyltoluene	Not detected	200	14	ug/kg	85.4	99-87-6	
1,3-Dichlorobenzene	Not detected	200	9.4	ug/kg	85.4	541-73-1	
1,4-Dichlorobenzene	Not detected	200	11	ug/kg	85.4	106-46-7	
1,2-Dichlorobenzene	Not detected	200	13	ug/kg	85.4	95-50-1	
1,2,3-Trimethylbenzene	Not detected	90	9.4	ug/kg	85.4	526-73-8	
n-Butylbenzene	Not detected	90	15	ug/kg	85.4	104-51-8	
Hexachloroethane	Not detected	500	26	ug/kg	85.4	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	400	55	ug/kg	85.4	96-12-8	
1,2,4-Trichlorobenzene	Not detected	560	13	ug/kg	85.4	120-82-1	
1,2,3-Trichlorobenzene	Not detected	560	15	ug/kg	85.4	87-61-6	
Naphthalene	Not detected	400	44	ug/kg	85.4	91-20-3	
2-Methylnaphthalene	Not detected	200	36	ug/kg	85.4	91-57-6	

M-Result reported to MDL not RDL

Merit Laboratories Login Checklist

Lab Set ID: S98594
Client: APPLIED (Applied Ecosystems)
Project: 11-4317-102
Submitted: 01/17/2019 16:15 Login User: MMC

Attention: Rodney Abke
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 4.3
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[ ] Yes	[X] No	[ ] N/A	COC adequately filled out	Sample .10 not listed on COC
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

106840

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Rodney Abke
COMPANY: Applied EcoSystems
ADDRESS: 4300 S. Saginaw St
CITY: Burton STATE: MI ZIP CODE: 48529
PHONE NO.: 810-715-2525 FAX NO.: 810-715-2526
E-MAIL ADDRESS: rabke@appliedecosystems.com
P.O. NO.:
QUOTE NO.:

INVOICE TO

CONTACT NAME: Same ☐ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: 11-4317-102
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Rod Abke

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. FOR LAB USE ONLY	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs
98594.01	1-16-19	9:20	SB-138-15	S	2						X		X
.02	1-16-19	9:30	SB-138-18	S	2						X		X
.03	1-16-19	9:45	SB-139-16	S	2						X		X
.04	1-16-19	10:10	SB-140-16	S	2						X		X
.05	1-16-19	10:20	SB-140-19	S	2						X		X
.06	1-16-19	10:45	SB-141-16	S	2						X		X
.07	1-16-19	10:55	SB-141-18	S	2						X		X
.08	1-16-19	11:05	SB-141-19	S	2						X		X
.09	1-16-19	—	DUP-1	S	2						X		X
.10													

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Rod Abke, Applied Ecosystems (☒ Sampler)	DATE 1-17-19	TIME 15:20
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 1/17/19	TIME 15:20
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 1/17/19	TIME 16:15
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 1/17/19	TIME 1615

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 4.3

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S98590.01(01)
Generated on 02/06/2019

Report to

Attention: Rodney Abke
Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S98590.01-S98590.04
Project: 11-4317-102
Collected Date: 01/17/2019
Submitted Date/Time: 01/17/2019 16:15
Sampled by: Rodney Abke
P.O. #: PO

Table of Contents

Maya Murshak
Technical Director

Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
ASTMD7979-17M	ASTM Method D7979 - 17 Modified (Isotopic Dilution)

Parameter Summary

Parameter	Synonym	Cas #
PFBA	Perfluorobutanoic Acid	375-22-4
PFPeA	Perfluoropentanoic Acid	2706-90-3
4:2 FTSA	4:2 Fluorotelomer Sulfonic Acid	757124-72-4
PFHxA	Perfluorohexanoic Acid	307-24-4
PFBS	Perfluorobutane sulfonic Acid	375-73-5
PFHpA	Perfluoroheptanoic Acid	375-85-9
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4
6:2 FTSA	6:2 Fluorotelomer Sulfonic Acid	27619-97-2
PFOA	Perfluorooctanoic Acid	335-67-1
PFHxS	Perfluorohexane Sulfonic Acid	355-46-4
PFHxS-LN	Perfluorohexane Sulfonic Acid - LN	355-46-4-LN
PFHxS-BR	Perfluorohexane Sulfonic Acid - BR	355-46-4-BR
PFNA	Perfluorononanoic Acid	375-95-1
8:2 FTSA	8:2 Fluorotelomer Sulfonic Acid	39108-34-4
PFHpS	Perfluoroheptane Sulfonic Acid	375-92-8
PFDA	Perfluorodecanoic Acid	335-76-2
N-MeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9
EtFOSAA	N-Ethyl Perfluorooctane Sulfonamidoacetic Acid	2991-50-6
PFOS	Perfluorooctane Sulfonic Acid	1763-23-1
PFOS-LN	Perfluorooctane Sulfonic Acid - LN	1763-23-1-LN
PFOS-BR	Perfluorooctane Sulfonic Acid - BR	1763-23-1-BR
PFUnDA	Perfluoroundecanoic Acid	2058-94-8
PFNS	Perfluorononane Sulfonic Acid	474511-07-4
PFDoDA	Perfluorododecanoic Acid	307-55-1
PFDS	Perfluorodecane Sulfonic Acid	335-77-3
PFTrDA	Perfluorotridecanoic Acid	72629-94-8
FOSA	Perfluorooctane Sulfonamide	754-91-6
PFTeDA	Perfluorotetradecanoic Acid	376-06-7

Analytical Laboratory Report

Sample Summary (4 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S98590.01	MW-103S	Water	01/17/19 10:15
S98590.02	Dup-1	Water	01/17/19 10:15
S98590.03	Field Blank	Water	01/17/19 10:15
S98590.04	Trip Blank	Water	01/17/19 10:15

Analytical Laboratory Report

Lab Sample ID: S98590.01
Sample Tag: MW-103S
Collected Date/Time: 01/17/2019 10:15
Matrix: Water
COC Reference: 122403

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.1	IR

Organics

24 PFAs, Method: ASTMD7979-17M, Run Date: 02/01/19 00:41, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	137		ng/L	1.8587	375-22-4	X
PFPeA*	Not detected	10		ng/L	1.8587	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	1.8587	757124-72-4	
PFHxA*	Not detected	10		ng/L	1.8587	307-24-4	
PFBS*	Not detected	10		ng/L	1.8587	375-73-5	
PFHpA*	Not detected	10		ng/L	1.8587	375-85-9	
PFPeS*	Not detected	10		ng/L	1.8587	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	1.8587	27619-97-2	
PFOA*	Not detected	10		ng/L	1.8587	335-67-1	
PFHxS*	Not detected	10		ng/L	1.8587	355-46-4	
PFHxS-LN*	Not detected	10		ng/L	1.8587	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	1.8587	355-46-4-BR	
PFNA*	Not detected	10		ng/L	1.8587	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	1.8587	39108-34-4	
PFHpS*	Not detected	10		ng/L	1.8587	375-92-8	
PFDA*	Not detected	10		ng/L	1.8587	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	1.8587	2355-31-9	
EtFOSAA*	Not detected	10		ng/L	1.8587	2991-50-6	
PFOS*	90	10		ng/L	1.8587	1763-23-1	
PFOS-LN*	60	10		ng/L	1.8587	1763-23-1-LN	
PFOS-BR*	30	10		ng/L	1.8587	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	1.8587	2058-94-8	
PFNS*	Not detected	10		ng/L	1.8587	474511-07-4	
PFDoDA*	Not detected	10		ng/L	1.8587	307-55-1	
PFDS*	Not detected	10		ng/L	1.8587	335-77-3	
PFTrDA*	Not detected	10		ng/L	1.8587	72629-94-8	
FOSA*	Not detected	10		ng/L	1.8587	754-91-6	
PFTeDA*	Not detected	10		ng/L	1.8587	376-06-7	

X-Elevated reporting limit due to matrix interference

Analytical Laboratory Report

Lab Sample ID: S98590.02
Sample Tag: Dup-1
Collected Date/Time: 01/17/2019 10:15
Matrix: Water
COC Reference: 122403

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.1	IR

Organics

24 PFAs, Method: ASTMD7979-17M, Run Date: 02/01/19 01:20, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	129		ng/L	1.8622	375-22-4	X
PFPeA*	Not detected	10		ng/L	1.8622	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	1.8622	757124-72-4	I
PFHxA*	Not detected	10		ng/L	1.8622	307-24-4	
PFBS*	Not detected	10		ng/L	1.8622	375-73-5	
PFHpA*	Not detected	10		ng/L	1.8622	375-85-9	
PFPeS*	Not detected	10		ng/L	1.8622	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	1.8622	27619-97-2	I
PFOA*	Not detected	10		ng/L	1.8622	335-67-1	
PFHxS*	Not detected	10		ng/L	1.8622	355-46-4	
PFHxS-LN*	Not detected	10		ng/L	1.8622	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	1.8622	355-46-4-BR	
PFNA*	Not detected	10		ng/L	1.8622	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	1.8622	39108-34-4	
PFHpS*	Not detected	10		ng/L	1.8622	375-92-8	
PFDA*	Not detected	10		ng/L	1.8622	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	1.8622	2355-31-9	
EtFOSAA*	Not detected	10		ng/L	1.8622	2991-50-6	
PFOS*	90	10		ng/L	1.8622	1763-23-1	
PFOS-LN*	60	10		ng/L	1.8622	1763-23-1-LN	
PFOS-BR*	30	10		ng/L	1.8622	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	1.8622	2058-94-8	
PFNS*	Not detected	10		ng/L	1.8622	474511-07-4	
PFDoDA*	Not detected	10		ng/L	1.8622	307-55-1	
PFDS*	Not detected	10		ng/L	1.8622	335-77-3	
PFTrDA*	Not detected	10		ng/L	1.8622	72629-94-8	
FOSA*	Not detected	10		ng/L	1.8622	754-91-6	
PFTeDA*	Not detected	10		ng/L	1.8622	376-06-7	

X-Elevated reporting limit due to matrix interference
I-Matrix interference with internal standard

Analytical Laboratory Report

Lab Sample ID: S98590.03
Sample Tag: Field Blank
Collected Date/Time: 01/17/2019 10:15
Matrix: Water
COC Reference: 122403

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.1	IR

Organics

24 PFAs, Method: ASTMD7979-17M, Run Date: 02/01/19 01:59, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	20		ng/L	1.9724	375-22-4	
PFPeA*	Not detected	10		ng/L	1.9724	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	1.9724	757124-72-4	
PFHxA*	Not detected	10		ng/L	1.9724	307-24-4	
PFBS*	Not detected	10		ng/L	1.9724	375-73-5	
PFHpA*	Not detected	10		ng/L	1.9724	375-85-9	
PFPeS*	Not detected	10		ng/L	1.9724	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	1.9724	27619-97-2	
PFOA*	Not detected	10		ng/L	1.9724	335-67-1	
PFHxS*	Not detected	10		ng/L	1.9724	355-46-4	
PFHxS-LN*	Not detected	10		ng/L	1.9724	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	1.9724	355-46-4-BR	
PFNA*	Not detected	10		ng/L	1.9724	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	1.9724	39108-34-4	
PFHpS*	Not detected	10		ng/L	1.9724	375-92-8	
PFDA*	Not detected	10		ng/L	1.9724	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	1.9724	2355-31-9	
EtFOSAA*	Not detected	10		ng/L	1.9724	2991-50-6	
PFOS*	Not detected	10		ng/L	1.9724	1763-23-1	
PFOS-LN*	Not detected	10		ng/L	1.9724	1763-23-1-LN	
PFOS-BR*	Not detected	10		ng/L	1.9724	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	1.9724	2058-94-8	
PFNS*	Not detected	10		ng/L	1.9724	474511-07-4	
PFDoDA*	Not detected	10		ng/L	1.9724	307-55-1	
PFDS*	Not detected	10		ng/L	1.9724	335-77-3	
PFTrDA*	Not detected	10		ng/L	1.9724	72629-94-8	
FOSA*	Not detected	10		ng/L	1.9724	754-91-6	
PFTeDA*	Not detected	10		ng/L	1.9724	376-06-7	

Analytical Laboratory Report

Lab Sample ID: S98590.04
Sample Tag: Trip Blank
Collected Date/Time: 01/17/2019 10:15
Matrix: Water
COC Reference: 122403

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.1	IR

Organics

24 PFAs, Method: ASTMD7979-17M, Run Date: 02/01/19 02:18, Analyst: PL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	20		ng/L	1.9011	375-22-4	
PFPeA*	Not detected	10		ng/L	1.9011	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	1.9011	757124-72-4	
PFHxA*	Not detected	10		ng/L	1.9011	307-24-4	
PFBS*	Not detected	10		ng/L	1.9011	375-73-5	
PFHpA*	Not detected	10		ng/L	1.9011	375-85-9	
PFPeS*	Not detected	10		ng/L	1.9011	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	1.9011	27619-97-2	
PFOA*	Not detected	10		ng/L	1.9011	335-67-1	
PFHxS*	Not detected	10		ng/L	1.9011	355-46-4	
PFHxS-LN*	Not detected	10		ng/L	1.9011	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	1.9011	355-46-4-BR	
PFNA*	Not detected	10		ng/L	1.9011	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	1.9011	39108-34-4	
PFHpS*	Not detected	10		ng/L	1.9011	375-92-8	
PFDA*	Not detected	10		ng/L	1.9011	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	1.9011	2355-31-9	
EtFOSAA*	Not detected	10		ng/L	1.9011	2991-50-6	
PFOS*	Not detected	10		ng/L	1.9011	1763-23-1	
PFOS-LN*	Not detected	10		ng/L	1.9011	1763-23-1-LN	
PFOS-BR*	Not detected	10		ng/L	1.9011	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	1.9011	2058-94-8	
PFNS*	Not detected	10		ng/L	1.9011	474511-07-4	
PFDoDA*	Not detected	10		ng/L	1.9011	307-55-1	
PFDS*	Not detected	10		ng/L	1.9011	335-77-3	
PFTrDA*	Not detected	10		ng/L	1.9011	72629-94-8	
FOSA*	Not detected	10		ng/L	1.9011	754-91-6	
PFTeDA*	Not detected	10		ng/L	1.9011	376-06-7	

Merit Laboratories Login Checklist

Lab Set ID: S98590
Client: APPLIED (Applied Ecosystems)
Project: 11-4317-102
Submitted: 01/17/2019 16:15 Login User: SRS

Attention: Rodney Abke
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 4.1
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[ ] Yes	[ ] No	[X] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

122403

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Rodney Abke
COMPANY: Applied Eco Systems
ADDRESS: 6300 S. Saginaw Rd
CITY: Burton STATE: MI ZIP CODE: 48529
PHONE NO.: 810-715-1525 FAX NO.: 810-715-2524 P.O. NO.:
E-MAIL ADDRESS: rabke@appliedecosystem QUOTE NO.:

INVOICE TO

CONTACT NAME: Same ☐ SAME
COMPANY:
ADDRESS:
CITY STATE ZIP CODE
PHONE NO. E-MAIL ADDRESS

PROJECT NO./NAME: ~~11-43-17-102~~ 11-43-17-102
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Rodney Abke

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☒ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	Diss Metals	Total metals	TOC	Methane	PFC/PFA	Special Instructions
98590.01	1-17-19	10:15	MW-103S	W	3													X	metals include Ar, Cr (~~total~~) Hex-Cr, Cu Pb, Se, Zn, Fe, Mn
.02	1-17-19		DUP-1	W	3													X	
.03			Field Blank	W	2													X	
.04			trip Blank	W	2													X	
98591.01	1-17-19	8:00	FB	W	3		X						X						
.02	1-17-19	11:05	MW-111S	W	10		X	X	X				X	X	X	X	X		
.03	—	—	Trip Blank	W	1		X						X						
.04	1-17-19	12:10	MW-112S	W	10		X	X	X				X	X	X	X	X		
.05	1-17-19	13:10	MW-113S	W	10		X	X	X				X	X	X	X	X		
.06	1-17-19	13:51	MW-109S	W	10		X	X	X				X	X	X	X	X		
.07	1-17-19	14:30	MW-114S	W	10		X	X	X				X	X	X	X	X		
.08	1-17-19	—	DUP-2	W	10		X	X	X				X	X	X	X	X		

RELINQUISHED BY: SIGNATURE/ORGANIZATION ☒ Sampler DATE 1/17/19 TIME 15:20
RECEIVED BY: SIGNATURE/ORGANIZATION DATE 1/17/19 TIME 15:20
RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE 1/17/19 TIME 16:15
RECEIVED BY: SIGNATURE/ORGANIZATION DATE 1/17/19 TIME 16:15

RELINQUISHED BY: SIGNATURE/ORGANIZATION DATE TIME
RECEIVED BY: SIGNATURE/ORGANIZATION DATE TIME

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 4.1

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S98591.01(01)
Generated on 01/31/2019

Report to

Attention: Rodney Abke
Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S98591.01-S98591.08
Project: 11-4317-102
Collected Date: 01/17/2019
Submitted Date/Time: 01/17/2019 16:15
Sampled by: Rodney Abke
P.O. #: PO

Table of Contents

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
N/A	Not Applicable
RSK-175	RSK-175
SM3500-Cr B	Standard Method 3500 Cr B 2011
SM5310C	Standard Method 5310C 2011
SW3015A	SW 846 Method 3015A Revision 1 February 2007
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003

Analytical Laboratory Report

Sample Summary (8 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S98591.01	FB	Water	01/17/19 08:00
S98591.02	MW-111	Water	01/17/19 11:05
S98591.03	Trip Blank	Water	01/17/19 00:01
S98591.04	MW-112	Water	01/17/19 12:10
S98591.05	MW-113	Water	01/17/19 13:10
S98591.06	MW-109	Water	01/17/19 13:51
S98591.07	MW-114	Water	01/17/19 14:30
S98591.08	Dup-2	Water	01/17/19 00:01

Lab Sample ID: S98591.01
Sample Tag: FB
Collected Date/Time: 01/17/2019 08:00
Matrix: Water
COC Reference: 122403

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
3	40ml Glass	HCL	Yes	3.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	01/22/19 12:30	JML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 01/18/19 13:32, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	6.79	50	0.56	ug/L	1	67-64-1	J
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	0.78	25	0.26	ug/L	1	78-93-3	J
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.31	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.29	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.20	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.20	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.3	ug/L	1	109-99-9	
Chloroform	2	1	0.20	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.14	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.20	ug/L	1	56-23-5	
Benzene	Not detected	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.23	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.25	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	

J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S98591.01 (continued)
Sample Tag: FB

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 01/18/19 13:32, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	Not detected	1	0.18	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	0.20	5	0.16	ug/L	1	91-57-6	JB

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S98591.02
Sample Tag: MW-111
Collected Date/Time: 01/17/2019 11:05
Matrix: Water
COC Reference: 122403

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	3.9	IR
1	125ml Plastic	HNO3	Yes	3.9	IR
6	40ml Glass	HCL	Yes	3.9	IR
2	40ml Glass	H2SO4	Yes	3.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	01/22/19 12:30	JML	
Metal Digestion	Completed	SW3015A	01/22/19 11:30	CCM	
Metal Digestion	Completed	SW3015A	01/22/19 11:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 01/17/19 18:00, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 01/17/19 17:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Method: SM5310C, Run Date: 01/23/19 14:34, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	6.3	1	0.41	mg/L	1		

Metals

Method: E200.8, Run Date: 01/22/19 15:06, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	

Method: E200.8, Run Date: 01/22/19 15:04, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	

Method: E200.8, Run Date: 01/22/19 12:59, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.000808	0.002	0.000255	mg/L	5	7440-38-2	b
Chromium	0.005	0.005	0.0000950	mg/L	5	7440-47-3	
Copper	0.000752	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	0.08	0.02	0.00192	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese	0.012	0.005	0.000515	mg/L	5	7439-96-5	
Zinc	Not detected	0.005	0.000730	mg/L	5	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S98591.02 (continued)
Sample Tag: MW-111

Method: E200.8, Run Date: 01/22/19 13:06, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.000338	0.002	0.000255	mg/L	5	7440-38-2	b
Chromium, Dissolved	0.005	0.005	0.0000950	mg/L	5	7440-47-3	
Copper, Dissolved	0.000767	0.005	0.000375	mg/L	5	7440-50-8	b
Iron, Dissolved	0.03	0.02	0.00192	mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese, Dissolved	0.00128	0.005	0.000515	mg/L	5	7439-96-5	b
Zinc, Dissolved	0.00184	0.005	0.000730	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 01/18/19 16:06, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	5.92	50	0.56	ug/L	1	67-64-1	J
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	0.26	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.31	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.29	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.20	ug/L	1	156-60-5	
1,1-Dichloroethane	0.47	1	0.20	ug/L	1	75-34-3	J
cis-1,2-Dichloroethene	9	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.3	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.20	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.14	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.20	ug/L	1	56-23-5	
Benzene	Not detected	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	23	1	0.23	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.25	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	

b-Value detected less than reporting limit, but greater than MDL
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S98591.02 (continued)
Sample Tag: MW-111

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 01/18/19 16:06, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	Not detected	1	0.18	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.16	ug/L	1	91-57-6	

Organics

Method: RSK-175, Run Date: 01/28/19 18:12, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	Not detected	1.0	0.17	ug/L	1	74-82-8	O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S98591.03
Sample Tag: Trip Blank
Collected Date/Time: 01/17/2019 00:01
Matrix: Water
COC Reference: 122403

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	3.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	01/22/19 12:30	JML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 01/18/19 13:51, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	6.95	50	0.56	ug/L	1	67-64-1	J
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	0.26	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.31	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	0.46	5	0.29	ug/L	1	75-09-2	JB
trans-1,2-Dichloroethene	Not detected	1	0.20	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.20	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	2.3	90	1.3	ug/L	1	109-99-9	JB
Chloroform	Not detected	1	0.20	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.14	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.20	ug/L	1	56-23-5	
Benzene	Not detected	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.23	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.25	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	

J-Estimated value less than reporting limit, but greater than MDL
B-Compound also found in associated method blank

Lab Sample ID: S98591.03 (continued)
Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 01/18/19 13:51, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	Not detected	1	0.18	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.16	ug/L	1	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S98591.04
Sample Tag: MW-112
Collected Date/Time: 01/17/2019 12:10
Matrix: Water
COC Reference: 122403

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	3.9	IR
1	125ml Plastic	HNO3	Yes	3.9	IR
6	40ml Glass	HCL	Yes	3.9	IR
2	40ml Glass	H2SO4	Yes	3.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	01/22/19 12:30	JML	
Metal Digestion	Completed	SW3015A	01/22/19 11:30	CCM	
Metal Digestion	Completed	SW3015A	01/22/19 11:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 01/17/19 18:15, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 01/17/19 17:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Method: SM5310C, Run Date: 01/23/19 14:58, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	17.7	1	0.41	mg/L	1		

Metals

Method: E200.8, Run Date: 01/22/19 15:07, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	

Method: E200.8, Run Date: 01/22/19 15:06, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	

Method: E200.8, Run Date: 01/22/19 13:09, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.083	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.000206	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	Not detected	0.005	0.000375	mg/L	5	7440-50-8	
Iron	6.94	0.02	0.00192	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese	0.588	0.005	0.000515	mg/L	5	7439-96-5	
Zinc	Not detected	0.005	0.000730	mg/L	5	7440-66-6	

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S98591.04 (continued)
Sample Tag: MW-112

Method: E200.8, Run Date: 01/22/19 13:11, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.026	0.002	0.000255	mg/L	5	7440-38-2	
Chromium, Dissolved	0.000351	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper, Dissolved	Not detected	0.005	0.000375	mg/L	5	7440-50-8	
Iron, Dissolved	0.85	0.02	0.00192	mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese, Dissolved	0.608	0.005	0.000515	mg/L	5	7439-96-5	
Zinc, Dissolved	0.00461	0.005	0.000730	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 01/18/19 16:25, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	6.42	50	0.56	ug/L	1	67-64-1	J
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	0.45	25	0.26	ug/L	1	78-93-3	J
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	4	1	0.31	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	0.99	1	0.27	ug/L	1	75-35-4	J
Methylene chloride	Not detected	5	0.29	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	0.23	1	0.20	ug/L	1	156-60-5	J
1,1-Dichloroethane	1	1	0.20	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	6	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.3	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.20	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.14	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.20	ug/L	1	56-23-5	
Benzene	Not detected	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	11	1	0.23	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.25	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	

b-Value detected less than reporting limit, but greater than MDL
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S98591.04 (continued)
Sample Tag: MW-112

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 01/18/19 16:25, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	Not detected	1	0.18	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.16	ug/L	1	91-57-6	

Organics

Method: RSK-175, Run Date: 01/28/19 18:29, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	770	1.0	0.17	ug/L	1	74-82-8	O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S98591.05
Sample Tag: MW-113
Collected Date/Time: 01/17/2019 13:10
Matrix: Water
COC Reference: 122403

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	3.9	IR
1	125ml Plastic	HNO3	Yes	3.9	IR
6	40ml Glass	HCL	Yes	3.9	IR
2	40ml Glass	H2SO4	Yes	3.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	01/22/19 12:30	JML	
Metal Digestion	Completed	SW3015A	01/22/19 11:30	CCM	
Metal Digestion	Completed	SW3015A	01/22/19 11:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 01/17/19 18:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 01/17/19 17:35, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Method: SM5310C, Run Date: 01/23/19 15:21, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	5.4	1	0.41	mg/L	1		

Metals

Method: E200.8, Run Date: 01/22/19 15:09, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	

Method: E200.8, Run Date: 01/22/19 15:08, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	

Method: E200.8, Run Date: 01/22/19 13:14, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.021	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.007	0.005	0.0000950	mg/L	5	7440-47-3	
Copper	0.000413	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	4.07	0.02	0.00192	mg/L	5	7439-89-6	
Lead	0.000259	0.003	0.000190	mg/L	5	7439-92-1	b
Manganese	0.387	0.005	0.000515	mg/L	5	7439-96-5	
Zinc	0.00129	0.005	0.000730	mg/L	5	7440-66-6	b

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S98591.05 (continued)
Sample Tag: MW-113

Method: E200.8, Run Date: 01/22/19 13:16, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.010	0.002	0.000255	mg/L	5	7440-38-2	
Chromium, Dissolved	0.00335	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper, Dissolved	Not detected	0.005	0.000375	mg/L	5	7440-50-8	
Iron, Dissolved	0.83	0.02	0.00192	mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese, Dissolved	0.185	0.005	0.000515	mg/L	5	7439-96-5	
Zinc, Dissolved	0.00168	0.005	0.000730	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 01/18/19 16:44, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	6.63	50	0.56	ug/L	1	67-64-1	J
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	0.26	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	2	1	0.31	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.29	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.20	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.20	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	7	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.3	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.20	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.14	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.20	ug/L	1	56-23-5	
Benzene	Not detected	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	18	1	0.23	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.25	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	

b-Value detected less than reporting limit, but greater than MDL
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S98591.05 (continued)
Sample Tag: MW-113

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 01/18/19 16:44, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	Not detected	1	0.18	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.16	ug/L	1	91-57-6	

Organics

Method: RSK-175, Run Date: 01/28/19 18:46, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	Not detected	1.0	0.17	ug/L	1	74-82-8	O

O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S98591.06
Sample Tag: MW-109
Collected Date/Time: 01/17/2019 13:51
Matrix: Water
COC Reference: 122403

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	3.9	IR
1	125ml Plastic	HNO3	Yes	3.9	IR
6	40ml Glass	HCL	Yes	3.9	IR
2	40ml Glass	H2SO4	Yes	3.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	01/22/19 12:30	JML	
Metal Digestion	Completed	SW3015A	01/22/19 11:30	CCM	
Metal Digestion	Completed	SW3015A	01/22/19 11:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 01/17/19 18:25, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Method: SM3500-Cr B, Run Date: 01/17/19 17:45, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.05	0.02	mg/L	5	18540-29-9	

Method: SM5310C, Run Date: 01/23/19 15:44, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	5.5	1	0.41	mg/L	1		

Metals

Method: E200.8, Run Date: 01/22/19 13:23, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Iron	18.3	0.02	0.00960	mg/L	25	7439-89-6	

Method: E200.8, Run Date: 01/22/19 15:15, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	

Method: E200.8, Run Date: 01/22/19 15:14, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	

Method: E200.8, Run Date: 01/22/19 13:19, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.032	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.000161	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	Not detected	0.005	0.000375	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese	0.325	0.005	0.000515	mg/L	5	7439-96-5	
Zinc	0.00155	0.005	0.000730	mg/L	5	7440-66-6	b

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S98591.06 (continued)
Sample Tag: MW-109

Method: E200.8, Run Date: 01/22/19 13:25, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.005	0.002	0.000255	mg/L	5	7440-38-2	
Chromium, Dissolved	0.000258	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper, Dissolved	Not detected	0.005	0.000375	mg/L	5	7440-50-8	
Iron, Dissolved	0.15	0.02	0.00192	mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese, Dissolved	0.314	0.005	0.000515	mg/L	5	7439-96-5	
Zinc, Dissolved	0.00152	0.005	0.000730	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 01/18/19 17:03, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	5.81	50	0.56	ug/L	1	67-64-1	J
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	0.36	25	0.26	ug/L	1	78-93-3	J
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	3	1	0.31	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	0.37	1	0.27	ug/L	1	75-35-4	J
Methylene chloride	Not detected	5	0.29	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	0.36	1	0.20	ug/L	1	156-60-5	J
1,1-Dichloroethane	0.82	1	0.20	ug/L	1	75-34-3	J
cis-1,2-Dichloroethene	6	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.3	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.20	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.14	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.20	ug/L	1	56-23-5	
Benzene	Not detected	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	11	1	0.23	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.25	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	

b-Value detected less than reporting limit, but greater than MDL
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S98591.06 (continued)
Sample Tag: MW-109

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 01/18/19 17:03, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	Not detected	1	0.18	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.16	ug/L	1	91-57-6	

Organics

Method: RSK-175, Run Date: 01/28/19 19:21, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	450	1.0	0.17	ug/L	1	74-82-8	O

O-Analysis performed by outside laboratory. See attached report.

Analytical Laboratory Report

Lab Sample ID: S98591.07
Sample Tag: MW-114
Collected Date/Time: 01/17/2019 14:30
Matrix: Water
COC Reference: 122403

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	3.9	IR
1	125ml Plastic	HNO3	Yes	3.9	IR
6	40ml Glass	HCL	Yes	3.9	IR
2	40ml Glass	H2SO4	Yes	3.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	01/22/19 12:30	JML	
Metal Digestion	Completed	SW3015A	01/22/19 11:30	CCM	
Metal Digestion	Completed	SW3015A	01/22/19 11:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 01/17/19 18:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Method: SM3500-Cr B, Run Date: 01/17/19 17:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Method: SM5310C, Run Date: 01/23/19 16:06, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	9.7	1	0.41	mg/L	1		

Metals

Method: E200.8, Run Date: 01/22/19 15:16, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	

Method: E200.8, Run Date: 01/22/19 15:15, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	

Method: E200.8, Run Date: 01/22/19 13:28, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.077	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.000114	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.00174	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	5.81	0.02	0.00192	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese	0.993	0.005	0.000515	mg/L	5	7439-96-5	
Zinc	0.00127	0.005	0.000730	mg/L	5	7440-66-6	b

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S98591.07 (continued)
Sample Tag: MW-114

Method: E200.8, Run Date: 01/22/19 13:30, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.043	0.002	0.000255	mg/L	5	7440-38-2	
Chromium, Dissolved	0.000309	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper, Dissolved	0.000973	0.005	0.000375	mg/L	5	7440-50-8	b
Iron, Dissolved	1.54	0.02	0.00192	mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese, Dissolved	0.960	0.005	0.000515	mg/L	5	7439-96-5	
Zinc, Dissolved	0.00328	0.005	0.000730	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 01/21/19 15:30, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	50	2.5	ug/L	5	60-29-7	Y
Acetone	6.5	250	2.8	ug/L	5	67-64-1	JY
Methyl iodide	Not detected	5	1.3	ug/L	5	74-88-4	Y
Carbon disulfide	Not detected	30	1.2	ug/L	5	75-15-0	Y
tert-Methyl butyl ether (MTBE)	Not detected	30	0.95	ug/L	5	1634-04-4	Y
Acrylonitrile	Not detected	10	2.8	ug/L	5	107-13-1	Y
2-Butanone (MEK)	4.7	130	1.3	ug/L	5	78-93-3	JYB
Dichlorodifluoromethane	Not detected	30	2.5	ug/L	5	75-71-8	Y
Chloromethane	Not detected	30	1.3	ug/L	5	74-87-3	Y
Vinyl chloride	10	5	1.5	ug/L	5	75-01-4	Y
Bromomethane	Not detected	30	1.6	ug/L	5	74-83-9	Y
Chloroethane	Not detected	30	1.7	ug/L	5	75-00-3	Y
Trichlorofluoromethane	Not detected	5	1.6	ug/L	5	75-69-4	Y
1,1-Dichloroethene	Not detected	5	1.3	ug/L	5	75-35-4	Y
Methylene chloride	Not detected	30	1.4	ug/L	5	75-09-2	Y
trans-1,2-Dichloroethene	1.70	5	0.99	ug/L	5	156-60-5	JY
1,1-Dichloroethane	3.1	5	1.0	ug/L	5	75-34-3	JY
cis-1,2-Dichloroethene	292	5	1.3	ug/L	5	156-59-2	Y
Tetrahydrofuran*	9.1	450	6.3	ug/L	5	109-99-9	JY
Chloroform	Not detected	5	1.0	ug/L	5	67-66-3	Y
Bromochloromethane	Not detected	5	1.9	ug/L	5	74-97-5	Y
1,1,1-Trichloroethane	1.7	5	1.4	ug/L	5	71-55-6	JY
4-Methyl-2-pentanone (MIBK)	Not detected	250	0.71	ug/L	5	108-10-1	Y
2-Hexanone	Not detected	250	1.4	ug/L	5	591-78-6	Y
Carbon tetrachloride	Not detected	5	0.98	ug/L	5	56-23-5	Y
Benzene	Not detected	5	1.00	ug/L	5	71-43-2	Y
1,2-Dichloroethane	Not detected	5	0.78	ug/L	5	107-06-2	Y
Trichloroethene	225	5	1.2	ug/L	5	79-01-6	Y
1,2-Dichloropropane	Not detected	5	1.0	ug/L	5	78-87-5	Y
Bromodichloromethane	Not detected	5	1.1	ug/L	5	75-27-4	Y
Dibromomethane	Not detected	30	1.0	ug/L	5	74-95-3	Y
cis-1,3-Dichloropropene	Not detected	5	0.97	ug/L	5	10061-01-5	Y
Toluene	Not detected	5	1.2	ug/L	5	108-88-3	Y
trans-1,3-Dichloropropene	Not detected	5	1.3	ug/L	5	10061-02-6	Y
1,1,2-Trichloroethane	Not detected	5	1.4	ug/L	5	79-00-5	Y

b-Value detected less than reporting limit, but greater than MDL
Y-Elevated reporting limit due to high target concentration
J-Estimated value less than reporting limit, but greater than MDL
B-Compound also found in associated method blank

Lab Sample ID: S98591.07 (continued)
Sample Tag: MW-114

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 01/21/19 15:30, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Tetrachloroethene	Not detected	5	1.0	ug/L	5	127-18-4	Y
trans-1,4-Dichloro-2-butene	Not detected	5	1.00	ug/L	5	110-57-6	Y
Dibromochloromethane	Not detected	30	1.2	ug/L	5	124-48-1	Y
1,2-Dibromoethane	Not detected	5	1.5	ug/L	5	106-93-4	Y
Chlorobenzene	Not detected	5	0.84	ug/L	5	108-90-7	Y
1,1,1,2-Tetrachloroethane	Not detected	5	1.2	ug/L	5	630-20-6	Y
Ethylbenzene	Not detected	5	1.3	ug/L	5	100-41-4	Y
p,m-Xylene*	Not detected	10	2.1	ug/L	5		Y
o-Xylene	Not detected	5	1.3	ug/L	5	95-47-6	Y
Styrene	Not detected	5	0.89	ug/L	5	100-42-5	Y
Isopropylbenzene	Not detected	30	1.2	ug/L	5	98-82-8	Y
Bromoform	Not detected	5	1.1	ug/L	5	75-25-2	Y
1,1,2,2-Tetrachloroethane	Not detected	5	0.90	ug/L	5	79-34-5	Y
1,2,3-Trichloropropane	Not detected	5	1.6	ug/L	5	96-18-4	Y
n-Propylbenzene	Not detected	5	1.1	ug/L	5	103-65-1	Y
Bromobenzene	Not detected	5	1.3	ug/L	5	108-86-1	Y
1,3,5-Trimethylbenzene	Not detected	5	1.3	ug/L	5	108-67-8	Y
tert-Butylbenzene	Not detected	5	0.90	ug/L	5	98-06-6	Y
1,2,4-Trimethylbenzene	Not detected	5	1.1	ug/L	5	95-63-6	Y
sec-Butylbenzene	Not detected	5	1.2	ug/L	5	135-98-8	Y
p-Isopropyltoluene	Not detected	30	1.0	ug/L	5	99-87-6	Y
1,3-Dichlorobenzene	Not detected	5	1.2	ug/L	5	541-73-1	Y
1,4-Dichlorobenzene	Not detected	5	1.1	ug/L	5	106-46-7	Y
1,2-Dichlorobenzene	Not detected	5	1.4	ug/L	5	95-50-1	Y
1,2,3-Trimethylbenzene	Not detected	5	0.31	ug/L	5	526-73-8	Y
n-Butylbenzene	Not detected	5	1.1	ug/L	5	104-51-8	Y
Hexachloroethane	Not detected	30	1.1	ug/L	5	67-72-1	Y
1,2-Dibromo-3-chloropropane	Not detected	30	2.3	ug/L	5	96-12-8	Y
1,2,4-Trichlorobenzene	Not detected	30	0.96	ug/L	5	120-82-1	Y
1,2,3-Trichlorobenzene	Not detected	30	1.0	ug/L	5	87-61-6	Y
Naphthalene	Not detected	30	1.1	ug/L	5	91-20-3	Y
2-Methylnaphthalene	Not detected	30	0.82	ug/L	5	91-57-6	Y

Organics

Method: RSK-175, Run Date: 01/28/19 19:38, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	280	1.0	0.17	ug/L	1	74-82-8	O

Y-Elevated reporting limit due to high target concentration
O-Analysis performed by outside laboratory. See attached report.

Lab Sample ID: S98591.08
Sample Tag: Dup-2
Collected Date/Time: 01/17/2019 00:01
Matrix: Water
COC Reference: 122403

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	3.9	IR
1	125ml Plastic	HNO3	Yes	3.9	IR
6	40ml Glass	HCL	Yes	3.9	IR
2	40ml Glass	H2SO4	Yes	3.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	01/22/19 12:30	JML	
Metal Digestion	Completed	SW3015A	01/22/19 11:30	CCM	
Metal Digestion	Completed	SW3015A	01/22/19 11:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 01/17/19 18:35, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Method: SM3500-Cr B, Run Date: 01/17/19 17:55, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Method: SM5310C, Run Date: 01/23/19 16:29, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	11.0	1	0.41	mg/L	1		

Metals

Method: E200.8, Run Date: 01/22/19 13:44, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.073	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.000148	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.00211	0.005	0.000375	mg/L	5	7440-50-8	b
Iron	5.94	0.02	0.00192	mg/L	5	7439-89-6	
Lead	0.000223	0.003	0.000190	mg/L	5	7439-92-1	b
Manganese	0.985	0.005	0.000515	mg/L	5	7439-96-5	
Zinc	0.00166	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 01/22/19 13:47, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.035	0.002	0.000255	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.0000950	mg/L	5	7440-47-3	
Copper, Dissolved	0.000785	0.005	0.000375	mg/L	5	7440-50-8	b
Iron, Dissolved	0.36	0.02	0.00192	mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Manganese, Dissolved	0.979	0.005	0.000515	mg/L	5	7439-96-5	
Zinc, Dissolved	0.00290	0.005	0.000730	mg/L	5	7440-66-6	b

b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S98591.08 (continued)
Sample Tag: Dup-2

Method: E200.8, Run Date: 01/22/19 15:23, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 01/21/19 15:49, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	50	2.5	ug/L	5	60-29-7	Y
Acetone	7.2	250	2.8	ug/L	5	67-64-1	JY
Methyl iodide	Not detected	5	1.3	ug/L	5	74-88-4	Y
Carbon disulfide	Not detected	30	1.2	ug/L	5	75-15-0	Y
tert-Methyl butyl ether (MTBE)	Not detected	30	0.95	ug/L	5	1634-04-4	Y
Acrylonitrile	Not detected	10	2.8	ug/L	5	107-13-1	Y
2-Butanone (MEK)	5.1	130	1.3	ug/L	5	78-93-3	JYB
Dichlorodifluoromethane	Not detected	30	2.5	ug/L	5	75-71-8	Y
Chloromethane	Not detected	30	1.3	ug/L	5	74-87-3	Y
Vinyl chloride	11	5	1.5	ug/L	5	75-01-4	Y
Bromomethane	Not detected	30	1.6	ug/L	5	74-83-9	Y
Chloroethane	Not detected	30	1.7	ug/L	5	75-00-3	Y
Trichlorofluoromethane	Not detected	5	1.6	ug/L	5	75-69-4	Y
1,1-Dichloroethene	Not detected	5	1.3	ug/L	5	75-35-4	Y
Methylene chloride	Not detected	30	1.4	ug/L	5	75-09-2	Y
trans-1,2-Dichloroethene	1.70	5	0.99	ug/L	5	156-60-5	JY
1,1-Dichloroethane	3.2	5	1.0	ug/L	5	75-34-3	JY
cis-1,2-Dichloroethene	302	5	1.3	ug/L	5	156-59-2	Y
Tetrahydrofuran*	9.0	450	6.3	ug/L	5	109-99-9	JY
Chloroform	Not detected	5	1.0	ug/L	5	67-66-3	Y
Bromochloromethane	Not detected	5	1.9	ug/L	5	74-97-5	Y
1,1,1-Trichloroethane	1.6	5	1.4	ug/L	5	71-55-6	JY
4-Methyl-2-pentanone (MIBK)	Not detected	250	0.71	ug/L	5	108-10-1	Y
2-Hexanone	Not detected	250	1.4	ug/L	5	591-78-6	Y
Carbon tetrachloride	Not detected	5	0.98	ug/L	5	56-23-5	Y
Benzene	Not detected	5	1.00	ug/L	5	71-43-2	Y
1,2-Dichloroethane	Not detected	5	0.78	ug/L	5	107-06-2	Y
Trichloroethene	201	5	1.2	ug/L	5	79-01-6	Y
1,2-Dichloropropane	Not detected	5	1.0	ug/L	5	78-87-5	Y
Bromodichloromethane	Not detected	5	1.1	ug/L	5	75-27-4	Y
Dibromomethane	Not detected	30	1.0	ug/L	5	74-95-3	Y
cis-1,3-Dichloropropene	Not detected	5	0.97	ug/L	5	10061-01-5	Y
Toluene	Not detected	5	1.2	ug/L	5	108-88-3	Y
trans-1,3-Dichloropropene	Not detected	5	1.3	ug/L	5	10061-02-6	Y
1,1,2-Trichloroethane	Not detected	5	1.4	ug/L	5	79-00-5	Y
Tetrachloroethene	Not detected	5	1.0	ug/L	5	127-18-4	Y
trans-1,4-Dichloro-2-butene	Not detected	5	1.00	ug/L	5	110-57-6	Y
Dibromochloromethane	Not detected	30	1.2	ug/L	5	124-48-1	Y
1,2-Dibromoethane	Not detected	5	1.5	ug/L	5	106-93-4	Y
Chlorobenzene	Not detected	5	0.84	ug/L	5	108-90-7	Y
1,1,1,2-Tetrachloroethane	Not detected	5	1.2	ug/L	5	630-20-6	Y

Y-Elevated reporting limit due to high target concentration
J-Estimated value less than reporting limit, but greater than MDL
B-Compound also found in associated method blank

Lab Sample ID: S98591.08 (continued)
Sample Tag: Dup-2

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 01/21/19 15:49, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ethylbenzene	Not detected	5	1.3	ug/L	5	100-41-4	Y
p,m-Xylene*	Not detected	10	2.1	ug/L	5		Y
o-Xylene	Not detected	5	1.3	ug/L	5	95-47-6	Y
Styrene	Not detected	5	0.89	ug/L	5	100-42-5	Y
Isopropylbenzene	Not detected	30	1.2	ug/L	5	98-82-8	Y
Bromoform	Not detected	5	1.1	ug/L	5	75-25-2	Y
1,1,2,2-Tetrachloroethane	Not detected	5	0.90	ug/L	5	79-34-5	Y
1,2,3-Trichloropropane	Not detected	5	1.6	ug/L	5	96-18-4	Y
n-Propylbenzene	Not detected	5	1.1	ug/L	5	103-65-1	Y
Bromobenzene	Not detected	5	1.3	ug/L	5	108-86-1	Y
1,3,5-Trimethylbenzene	Not detected	5	1.3	ug/L	5	108-67-8	Y
tert-Butylbenzene	Not detected	5	0.90	ug/L	5	98-06-6	Y
1,2,4-Trimethylbenzene	Not detected	5	1.1	ug/L	5	95-63-6	Y
sec-Butylbenzene	Not detected	5	1.2	ug/L	5	135-98-8	Y
p-Isopropyltoluene	Not detected	30	1.0	ug/L	5	99-87-6	Y
1,3-Dichlorobenzene	Not detected	5	1.2	ug/L	5	541-73-1	Y
1,4-Dichlorobenzene	Not detected	5	1.1	ug/L	5	106-46-7	Y
1,2-Dichlorobenzene	Not detected	5	1.4	ug/L	5	95-50-1	Y
1,2,3-Trimethylbenzene	Not detected	5	0.31	ug/L	5	526-73-8	Y
n-Butylbenzene	Not detected	5	1.1	ug/L	5	104-51-8	Y
Hexachloroethane	Not detected	30	1.1	ug/L	5	67-72-1	Y
1,2-Dibromo-3-chloropropane	Not detected	30	2.3	ug/L	5	96-12-8	Y
1,2,4-Trichlorobenzene	Not detected	30	0.96	ug/L	5	120-82-1	Y
1,2,3-Trichlorobenzene	Not detected	30	1.0	ug/L	5	87-61-6	Y
Naphthalene	Not detected	30	1.1	ug/L	5	91-20-3	Y
2-Methylnaphthalene	Not detected	30	0.82	ug/L	5	91-57-6	Y

Organics

Method: RSK-175, Run Date: 01/28/19 19:55, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	290	1.0	0.17	ug/L	1	74-82-8	O

Y-Elevated reporting limit due to high target concentration
O-Analysis performed by outside laboratory. See attached report.

Merit Laboratories Login Checklist

Lab Set ID: S98591
Client: APPLIED (Applied Ecosystems)
Project: 11-4317-102
Submitted: 01/17/2019 16:15 Login User: SRS

Attention: Rodney Abke
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 4.0
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[X] Yes	[ ] No	[ ] N/A	Subcontracting needed? Subcontacted to:	Test America
Preservation					
10.	[ ] Yes	[X] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[X] Yes	[ ] No	[ ] N/A	Did any samples need to be preserved in the lab?	Dissolved metals will be filtered and preserved in-lab
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[X] Yes	[ ] No	[ ] N/A	Samples require laboratory filtration	Chromium 6 will be filtered in-lab
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[X] No	[ ] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S98591 Initials: SRS

Client: APPLIED (Applied Ecosystems)

Project: 11-4317-102

Submitted: 01/17/2019 16:15 Login User:

Attention: Rodney Abke
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Lab ID	125 ml Plastic HNO_3	250 ml Plastic HNO_3	1 L Plastic HNO_3	250 ml Plastic H_2SO_4	125 ml Amber H_2SO_4	32 oz Glass HCl	125 ml Plastic NaOH	125 ml Amber $PbCO_3$ NaOH	pH					Notes
									<2	>12	other	ml add	new pH	
S98591.02	X								X					
S98591.04	X								X					
S98591.05	X								X					
S98591.06	X								X					
S98591.07	X								X					
S98591.08	X								X					

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

122403

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Rodney Abke
COMPANY: Applied Eco Systems
ADDRESS: 6300 S. Saginaw Rd
CITY: Burton STATE: MI ZIP CODE: 48529
PHONE NO.: 810-715-2525 FAX NO.: 810-715-2526 P.O. NO.:
E-MAIL ADDRESS: rabke@appliedecosystem QUOTE NO.:

INVOICE TO

CONTACT NAME: Same ☐ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: ~~11-43-17-102~~ 11-43-17-102
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Rodney Abke

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☒ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	Diss Metals	Total metals	TOC	Methane	PFC/PFA	Special Instructions
98590.01	1-17-19	10:15	MW-103S	W	3													X	Metals Include Ar, Cr (~~Total~~) Hex-Cr, Cu Pb, Se, Zn, Fe, Mn
.02	1-17-19		DUP-1	W	3													X	
.03			Field Blank	W	2													X	
.04			trip Blank	W	2													X	
98591.01	1-17-19	8:00	FB	W	3		X						X						
.02	1-17-19	11:05	MW-111S	W	10		X	X	X				X	X	X	X	X		
.03	—	—	Trip Blank	W	1		X						X						
.04	1-17-19	12:10	MW-112S	W	10		X	X	X				X	X	X	X	X		
.05	1-17-19	13:10	MW-113S	W	10		X	X	X				X	X	X	X	X		
.06	1-17-19	13:51	MW-109S	W	10		X	X	X				X	X	X	X	X		
.07	1-17-19	14:30	MW-114S	W	10		X	X	X				X	X	X	X	X		
.08	1-17-19	—	DUP-2	W	10		X	X	X				X	X	X	X	X		

RELINQUISHED BY: SIGNATURE/ORGANIZATION ☒ Sampler	DATE 1/17/19	TIME 15:20	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE 1/17/19	TIME 15:20	
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE 1/17/19	TIME 16:15	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE 1/17/19	TIME 16:15	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME	

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 4.1

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

ANALYTICAL REPORT

Job Number: 190-18666-1

Job Description: S98591 - Methane

For:
Merit Laboratories
2680 E Lansing Drive
East Lansing, MI 48823

Attention: John Laverty

Approved for release.
Kris M Brooks
Project Manager II
1/30/2019 6:38 PM

Designee for
Sue Schafer, Project Manager II
4101 Shuffel Street NW, North Canton, OH, 44720
(810)229-2763
sue.schafer@testamericainc.com
01/30/2019
Revision: 1

cc: Barbara Ball

TestAmerica Laboratories, Inc.
TestAmerica Michigan 10448 Citation Drive, Suite 200, Brighton, MI 48116
Tel (810) 229-2763 Fax (810) 229-0000 www.testamericainc.com

Table of Contents

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Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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)

Job Narrative
190-18666-1
Revised

Comments
This report has been revised to report results to the MDL with J flags at the client's request.

Receipt
The samples were received on 1/18/2019 3:16 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 7.2° C.

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

Detection Summary

Client: Merit Laboratories
Project/Site: S98591 - Methane

TestAmerica Job ID: 190-18666-1

Client Sample ID: 98591.02 — Lab Sample ID: 190-18666-1

No Detections.

Client Sample ID: 98591.04 — Lab Sample ID: 190-18666-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	770		1.0	0.17	ug/L	1		RSK-175	Total/NA

Client Sample ID: 98591.05 — Lab Sample ID: 190-18666-3

No Detections.

Client Sample ID: 98591.06 — Lab Sample ID: 190-18666-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	450		1.0	0.17	ug/L	1		RSK-175	Total/NA

Client Sample ID: 98591.07 — Lab Sample ID: 190-18666-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	280		1.0	0.17	ug/L	1		RSK-175	Total/NA

Client Sample ID: 98591.08 — Lab Sample ID: 190-18666-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Methane	290		1.0	0.17	ug/L	1		RSK-175	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: 98591.02
Date Collected: 01/17/19 11:05
Date Received: 01/18/19 15:16

Lab Sample ID: 190-18666-1
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			01/28/19 18:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*97*		*60 - 140*		*01/28/19 18:12*	*1*

Client Sample ID: 98591.04
Date Collected: 01/17/19 12:10
Date Received: 01/18/19 15:16

Lab Sample ID: 190-18666-2
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**770**		1.0	0.17	ug/L			01/28/19 18:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*97*		*60 - 140*		*01/28/19 18:29*	*1*

Client Sample ID: 98591.05
Date Collected: 01/17/19 13:10
Date Received: 01/18/19 15:16

Lab Sample ID: 190-18666-3
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			01/28/19 18:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*97*		*60 - 140*		*01/28/19 18:46*	*1*

Client Sample ID: 98591.06
Date Collected: 01/17/19 13:51
Date Received: 01/18/19 15:16

Lab Sample ID: 190-18666-4
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**450**		1.0	0.17	ug/L			01/28/19 19:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*98*		*60 - 140*		*01/28/19 19:21*	*1*

Client Sample ID: 98591.07
Date Collected: 01/17/19 14:30
Date Received: 01/18/19 15:16

Lab Sample ID: 190-18666-5
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**280**		1.0	0.17	ug/L			01/28/19 19:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*99*		*60 - 140*		*01/28/19 19:38*	*1*

Client Sample ID: 98591.08
Date Collected: 01/17/19 00:01
Date Received: 01/18/19 15:16

Lab Sample ID: 190-18666-6
Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	290		1.0	0.17	ug/L			01/28/19 19:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*95*		*60 - 140*		*01/28/19 19:55*	*1*

Default Detection Limits

Client: Merit Laboratories
Project/Site: S98591 - Methane

TestAmerica Job ID: 190-18666-1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	RL	MDL	Units	Method
Methane	1.0	0.17	ug/L	RSK-175

Surrogate Summary

Client: Merit Laboratories
Project/Site: S98591 - Methane

TestAmerica Job ID: 190-18666-1

Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	TFE2 (60-140)								
190-18666-1	98591.02	97								
190-18666-2	98591.04	97								
190-18666-3	98591.05	97								
190-18666-4	98591.06	98								
190-18666-5	98591.07	99								
190-18666-6	98591.08	95								
LCS 240-365784/5	Lab Control Sample	102								
MB 240-365784/4	Method Blank	99								

Surrogate Legend

TFE = 1,1,1-Trifluoroethane

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 240-365784/4
Matrix: Water
Analysis Batch: 365784

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			01/28/19 14:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*99*		*60 - 140*		*01/28/19 14:45*	*1*

Lab Sample ID: LCS 240-365784/5
Matrix: Water
Analysis Batch: 365784

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			511	511		ug/L		100	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*102*		*60 - 140*

QC Association Summary

Client: Merit Laboratories
Project/Site: S98591 - Methane

TestAmerica Job ID: 190-18666-1

GC VOA

Analysis Batch: 365784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-18666-1	98591.02	Total/NA	Water	RSK-175	
190-18666-2	98591.04	Total/NA	Water	RSK-175	
190-18666-3	98591.05	Total/NA	Water	RSK-175	
190-18666-4	98591.06	Total/NA	Water	RSK-175	
190-18666-5	98591.07	Total/NA	Water	RSK-175	
190-18666-6	98591.08	Total/NA	Water	RSK-175	
MB 240-365784/4	Method Blank	Total/NA	Water	RSK-175	
LCS 240-365784/5	Lab Control Sample	Total/NA	Water	RSK-175	

Lab Chronicle

Client: Merit Laboratories
Project/Site: S98591 - Methane

TestAmerica Job ID: 190-18666-1

Client Sample ID: 98591.02
Date Collected: 01/17/19 11:05
Date Received: 01/18/19 15:16

Lab Sample ID: 190-18666-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	365784	01/28/19 18:12	BPM	TAL CAN

Client Sample ID: 98591.04
Date Collected: 01/17/19 12:10
Date Received: 01/18/19 15:16

Lab Sample ID: 190-18666-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	365784	01/28/19 18:29	BPM	TAL CAN

Client Sample ID: 98591.05
Date Collected: 01/17/19 13:10
Date Received: 01/18/19 15:16

Lab Sample ID: 190-18666-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	365784	01/28/19 18:46	BPM	TAL CAN

Client Sample ID: 98591.06
Date Collected: 01/17/19 13:51
Date Received: 01/18/19 15:16

Lab Sample ID: 190-18666-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	365784	01/28/19 19:21	BPM	TAL CAN

Client Sample ID: 98591.07
Date Collected: 01/17/19 14:30
Date Received: 01/18/19 15:16

Lab Sample ID: 190-18666-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	365784	01/28/19 19:38	BPM	TAL CAN

Client Sample ID: 98591.08
Date Collected: 01/17/19 00:01
Date Received: 01/18/19 15:16

Lab Sample ID: 190-18666-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	365784	01/28/19 19:55	BPM	TAL CAN

Laboratory References:

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

Accreditation/Certification Summary

Client: Merit Laboratories
Project/Site: S98591 - Methane

TestAmerica Job ID: 190-18666-1

Laboratory: TestAmerica Michigan

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
Michigan	State Program	5	57	05-05-20

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	04-30-19
Kentucky (UST)	State Program	4	58	02-23-19 *
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
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	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

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

Method Summary

Client: Merit Laboratories
Project/Site: S98591 - Methane

TestAmerica Job ID: 190-18666-1

Method	Method Description	Protocol	Laboratory
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN

Protocol References:

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

Laboratory References:

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

Sample Summary

Client: Merit Laboratories
Project/Site: S98591 - Methane

TestAmerica Job ID: 190-18666-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
190-18666-1	98591.02	Water	01/17/19 11:05	01/18/19 15:16
190-18666-2	98591.04	Water	01/17/19 12:10	01/18/19 15:16
190-18666-3	98591.05	Water	01/17/19 13:10	01/18/19 15:16
190-18666-4	98591.06	Water	01/17/19 13:51	01/18/19 15:16
190-18666-5	98591.07	Water	01/17/19 14:30	01/18/19 15:16
190-18666-6	98591.08	Water	01/17/19 00:01	01/18/19 15:16

GC VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Instrument ID: ZPID Analysis Batch Number: 364575

Lab Sample ID: STD 240-364575/3 IC Client Sample ID:

Date Analyzed: 01/18/19 09:32 Lab File ID: Z011803.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	1.18	Peak not integrated	grossmanl	01/18/19 11:58
Ethylene	1.88	Peak not integrated	grossmanl	01/18/19 11:58
Acetylene	2.00	Peak not integrated	grossmanl	01/18/19 11:58
Ethane	2.20	Peak not integrated	grossmanl	01/18/19 11:59
Propane	4.55	Peak not integrated	grossmanl	01/18/19 11:59

Lab Sample ID: STD 240-364575/4 IC Client Sample ID:

Date Analyzed: 01/18/19 09:49 Lab File ID: Z011804.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Acetylene	2.00	Peak not integrated	grossmanl	01/18/19 10:28

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
MEEP LCS_00012	01/25/19	01/11/19	DIWATER, Lot 1	43 mL	MEEP_00006	4.3 mL	Methane	511 ug/L
.MEEP_00006	02/08/19		LGC, Lot 986988		(Purchased Reagent)		Methane	5.11 mg/L
MEEP LCS_00014	02/19/19	01/28/19	DIWATER, Lot 1	43 mL	MEEP_00007	4.3 mL	Methane	511 ug/L
.MEEP_00007	04/20/19		LGC, Lot 997314		(Purchased Reagent)		Methane	5.11 mg/L
SAICALSURR_00015	07/13/20		SynQuest Laboratories, Inc., Lot 469800		(Purchased Reagent)		1,1,1-Trifluoroethane	11190 ug/L
SARSK2NDSRCE_00011	03/18/19		Air Liquide-Scott Specialty gases, Lot 403-120156		(Purchased Reagent)		Methane	6558 ug/L
SARSKHighCal_00004	12/11/22		AirGas Speciality-Gasco, Lot MBI-510-1		(Purchased Reagent)		Acetylene	10657 ug/L
							Ethane	12338 ug/L
							Ethylene	11518 ug/L
							Methane	6558 ug/L
							Propane	18027 ug/L
SARSKHIGHCALP_00010	12/11/22		AirGas Speciality, Lot MBI-510-1		(Purchased Reagent)		Methane	6558 ug/L
SARSKLOWCAL_00010	03/27/19		MATHESON TRI-GAS INC., Lot 109-56-13136		(Purchased Reagent)		Acetylene	1066 ug/L
							Ethane	1234 ug/L
							Ethylene	1152 ug/L
							Methane	656 ug/L
							Propane	1808 ug/L
SARSKSURR_00012	05/22/19		Matheson Trigas, Lot 9302603973		(Purchased Reagent)		1,1,1-Trifluoroethane	11190 ug/L

Method RSK-175

Dissolved Gases (GC) by Method RSK_175

FORM II
GC VOA SURROGATE RECOVERY

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Matrix: Water Level: Low

GC Column (1): HP-PLOT/Q ID: 0.53(mm)

Client Sample ID	Lab Sample ID	TFE1 #
98591.02	190-18666-1	97
98591.04	190-18666-2	97
98591.05	190-18666-3	97
98591.06	190-18666-4	98
98591.07	190-18666-5	99
98591.08	190-18666-6	95
	MB 240-365784/4	99
	LCS 240-365784/5	102

	QC LIMITS
TFE = 1,1,1-Trifluoroethane	60-140

Column to be used to flag recovery values

FORM II RSK-175

FORM III
GC VOA LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Matrix: Water Level: Low Lab File ID: Z0128005.D

Lab ID: LCS 240-365784/5 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
Methane	511	511	100	80-120	

Column to be used to flag recovery and RPD values

FORM III RSK-175

FORM IV
GC VOA METHOD BLANK SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: MB 240-365784/4

Matrix: Water Date Extracted:

Lab File ID:(1) Z0128004.D Lab File ID:(2)

Date Analyzed:(1) 01/28/2019 14:45 Date Analyzed:(2)

Instrument ID:(1) ZPID Instrument ID:(2)

GC Column:(1) HP-PLOT/Q ID: 0.53(mm) GC Column:(2) ID:

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
	LCS 240-365784/5	01/28/2019 15:03	
98591.02	190-18666-1	01/28/2019 18:12	
98591.04	190-18666-2	01/28/2019 18:29	
98591.05	190-18666-3	01/28/2019 18:46	
98591.06	190-18666-4	01/28/2019 19:21	
98591.07	190-18666-5	01/28/2019 19:38	
98591.08	190-18666-6	01/28/2019 19:55	

FORM VIII
GC VOA ANALYTICAL SEQUENCE

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Sample No.: CCVRT 240-365784/3 Date Analyzed: 01/28/2019 14:28

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm)

Lab File ID (Standard): Z0128003.D Heated Purge: (Y/N) N

Calibration ID: 49054

THE ANALYTICAL SEQUENCE OF BLANKS, SAMPLES, STANDARDS, MS/MSDs AND LCSs IS GIVEN BELOW:

				TFE		
				RT #		
CONTINUING CALIBRATION SURROGATE				3.34		
UPPER LIMIT				3.39		
LOWER LIMIT				3.29		
LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	LAB FILE ID			
CCVRT 240-365784/3		01/28/2019 14:28	Z0128003.D	3.34		
MB 240-365784/4		01/28/2019 14:45	Z0128004.D	3.34		
LCS 240-365784/5		01/28/2019 15:03	Z0128005.D	3.34		
190-18666-1	98591.02	01/28/2019 18:12	Z0128016.D	3.34		
190-18666-2	98591.04	01/28/2019 18:29	Z0128017.D	3.34		
190-18666-3	98591.05	01/28/2019 18:46	Z0128018.D	3.34		
CCV 240-365784/19		01/28/2019 19:04	Z0128019.D	3.34		
190-18666-4	98591.06	01/28/2019 19:21	Z0128020.D	3.34		
190-18666-5	98591.07	01/28/2019 19:38	Z0128021.D	3.34		
190-18666-6	98591.08	01/28/2019 19:55	Z0128022.D	3.34		
CCV 240-365784/23		01/28/2019 20:12	Z0128023.D	3.34		

TFE = 1,1,1-Trifluoroethane

TFE RT Limit = ± 0.05 minutes of surrogate RT

Column used to flag values outside QC limits

FORM VIII RSK-175

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-18666-1

SDG No.:

Client Sample ID: 98591.02 | Lab Sample ID: 190-18666-1

Matrix: Water | Lab File ID: Z0128016.D

Analysis Method: RSK-175 | Date Collected: 01/17/2019 11:05

Sample wt/vol: 23(mL) | Date Analyzed: 01/28/2019 18:12

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 365784 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
74-82-8	Methane	<0.17		1.0	0.17

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	97		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-18666-1

SDG No.:

Client Sample ID: 98591.04 | Lab Sample ID: 190-18666-2

Matrix: Water | Lab File ID: Z0128017.D

Analysis Method: RSK-175 | Date Collected: 01/17/2019 12:10

Sample wt/vol: 23(mL) | Date Analyzed: 01/28/2019 18:29

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 365784 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
74-82-8	Methane	770		1.0	0.17

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	97		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-18666-1

SDG No.:

Client Sample ID: 98591.05 | Lab Sample ID: 190-18666-3

Matrix: Water | Lab File ID: Z0128018.D

Analysis Method: RSK-175 | Date Collected: 01/17/2019 13:10

Sample wt/vol: 23(mL) | Date Analyzed: 01/28/2019 18:46

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 365784 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
74-82-8	Methane	<0.17		1.0	0.17

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	97		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-18666-1

SDG No.:

Client Sample ID: 98591.06 | Lab Sample ID: 190-18666-4

Matrix: Water | Lab File ID: Z0128020.D

Analysis Method: RSK-175 | Date Collected: 01/17/2019 13:51

Sample wt/vol: 23(mL) | Date Analyzed: 01/28/2019 19:21

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 365784 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
74-82-8	Methane	450		1.0	0.17

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	98		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-18666-1

SDG No.:

Client Sample ID: 98591.07 | Lab Sample ID: 190-18666-5

Matrix: Water | Lab File ID: Z0128021.D

Analysis Method: RSK-175 | Date Collected: 01/17/2019 14:30

Sample wt/vol: 23(mL) | Date Analyzed: 01/28/2019 19:38

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 365784 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
74-82-8	Methane	280		1.0	0.17

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	99		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-18666-1

SDG No.:

Client Sample ID: 98591.08 | Lab Sample ID: 190-18666-6

Matrix: Water | Lab File ID: Z0128022.D

Analysis Method: RSK-175 | Date Collected: 01/17/2019 00:01

Sample wt/vol: 23(mL) | Date Analyzed: 01/28/2019 19:55

Soil Aliquot Vol: | Dilution Factor: 1

Soil Extract Vol.: | GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: | Level: (low/med) Low

Analysis Batch No.: 365784 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
74-82-8	Methane	290		1.0	0.17

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	95		60-140

FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-18666-1 Analy Batch No.: 364575

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/18/2019 09:32 Calibration End Date: 01/18/2019 10:57 Calibration ID: 49053

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-364575/3	Z011803.D
Level 2	STD 240-364575/4	Z011804.D
Level 3	STD 240-364575/5	Z011805.D
Level 4	STD 240-364575/6	Z011806.D
Level 5	STD 240-364575/7	Z011807.D
Level 6	STD 240-364575/8	Z011808.D

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6					RT WINDOW	AVG RT
Methane	1.183	1.182	1.181	1.182	1.181	1.180					1.130 - 1.230	1.182
Ethylene	1.881	1.880	1.881	1.880	1.879	1.875					1.825 - 1.925	1.879
Acetylene	1.996	1.995	1.995	1.994	1.992	1.990					1.940 - 2.040	1.994
Ethane	2.203	2.202	2.201	2.202	2.199	2.193					1.993 - 2.393	2.200
Propane	4.550	4.550	4.550	4.549	4.546	4.528					4.478 - 4.578	4.546

FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Canton Job No.: 190-18666-1 Analy Batch No.: 364575

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/18/2019 09:32 Calibration End Date: 01/18/2019 10:57 Calibration ID: 49053

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-364575/3	Z011803.D
Level 2	STD 240-364575/4	Z011804.D
Level 3	STD 240-364575/5	Z011805.D
Level 4	STD 240-364575/6	Z011806.D
Level 5	STD 240-364575/7	Z011807.D
Level 6	STD 240-364575/8	Z011808.D

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3	LVL 4		B	M1	M2								
Methane	7681.9 6206.3	6265.9 6131.4	5868.5	5634.4	Ave		6298.06248				11.4		20.0			
Ethylene	4815.6 5693.0	5461.4 5513.9	5443.4	5274.4	Ave		5366.93992				5.6		20.0			
Acetylene	1920.3 3891.5	2549.0 3708.1	2858.4	3376.9	Ave		3050.71347				24.6		30.0			
Ethane	4950.4 5805.9	5400.9 5704.8	5474.4	5323.5	Ave		5443.32413				5.6		20.0			
Propane	4816.3 5894.3	5467.0 5845.3	5521.7	5363.5	Ave		5484.68669				7.1		20.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Canton Job No.: 190-18666-1 Analy Batch No.: 364575

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/18/2019 09:32 Calibration End Date: 01/18/2019 10:57 Calibration ID: 49053

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-364575/3	Z011803.D
Level 2	STD 240-364575/4	Z011804.D
Level 3	STD 240-364575/5	Z011805.D
Level 4	STD 240-364575/6	Z011806.D
Level 5	STD 240-364575/7	Z011807.D
Level 6	STD 240-364575/8	Z011808.D

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
		LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Methane	Ave	2191 26223550	12510	58583	562464	2654414	0.285 4277	2.00	9.98	99.8	428
Ethylene	Ave	2412 41418856	19148	95425	924622	4276433	0.501 7512	3.51	17.5	175	751
Acetylene	Ave	890 25772259	8270	46369	547795	2704663	0.463 6950	3.24	16.2	162	695
Ethane	Ave	2656 45903856	20284	102800	999666	4671700	0.537 8047	3.76	18.8	188	805
Propane	Ave	3786 68721662	30083	151920	1475661	6929746	0.786 11757	5.50	27.5	275	1176

Curve Type Legend:
Ave = Average

FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-18666-1 Analy Batch No.: 364575

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/18/2019 11:14 Calibration End Date: 01/18/2019 12:40 Calibration ID: 49054

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD1 240-364575/9	Z011809.D
Level 2	STD2 240-364575/10	Z011810.D
Level 3	STD3 240-364575/11	Z011811.D
Level 4	STD4 240-364575/12	Z011812.D
Level 5	STD5 240-364575/13	Z011813.D
Level 6	STD6 240-364575/14	Z011814.D

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6					RT WINDOW	AVG RT
1,1,1-Trifluoroethane	3.347	3.349	3.347	3.345	3.345	3.342					3.242 - 3.442	3.346

FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Canton Job No.: 190-18666-1 Analy Batch No.: 364575

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/18/2019 11:14 Calibration End Date: 01/18/2019 12:40 Calibration ID: 49054

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD1 240-364575/9	Z011809.D
Level 2	STD2 240-364575/10	Z011810.D
Level 3	STD3 240-364575/11	Z011811.D
Level 4	STD4 240-364575/12	Z011812.D
Level 5	STD5 240-364575/13	Z011813.D
Level 6	STD6 240-364575/14	Z011814.D

ANALYTE	CF				CURVE TYPE	COEFFICIENT			#	MIN CF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 5	LVL 2 LVL 6	LVL 3	LVL 4		B	M1	M2								
1,1,1-Trifluoroethane	2683.2 2715.1	2735.5 2738.9	2486.2	2725.8	Ave		2680.78007				3.6		30.0			

Note: The M1 coefficient is the same as Ave CF for an Ave curve type.

FORM VI
GC VOA BY EXTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Canton Job No.: 190-18666-1 Analy Batch No.: 364575

SDG No.:

Instrument ID: ZPID GC Column: HP-PLOT/Q ID: 0.53(mm) Heated Purge: (Y/N) N

Calibration Start Date: 01/18/2019 11:14 Calibration End Date: 01/18/2019 12:40 Calibration ID: 49054

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD1 240-364575/9	Z011809.D
Level 2	STD2 240-364575/10	Z011810.D
Level 3	STD3 240-364575/11	Z011811.D
Level 4	STD4 240-364575/12	Z011812.D
Level 5	STD5 240-364575/13	Z011813.D
Level 6	STD6 240-364575/14	Z011814.D

ANALYTE	CURVE TYPE	RESPONSE					CONCENTRATION (UG/L)				
		LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
1,1,1-Trifluoroethane	Ave	522170 26650209	931614	4233599	9283231	19814378	195 9730	341	1703	3406	7298

Curve Type Legend:

Ave = Average

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: ICV 240-364575/15 Calibration Date: 01/18/2019 12:57

Instrument ID: ZPID Calib Start Date: 01/18/2019 09:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 10:57

Lab File ID: Z011815.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methane	Ave	6298	5871		476	511	-6.8	20.0
Ethylene	Ave	5367	6055		521	462	12.8	20.0
Ethane	Ave	5443	6012		582	527	10.5	20.0
Propane	Ave	5485	6184		610	541	12.8	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: ICV 240-364575/15 Calibration Date: 01/18/2019 12:57

Instrument ID: ZPID Calib Start Date: 01/18/2019 09:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 10:57

Lab File ID: Z011815.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.18	1.13	1.23
Ethylene	1.88	1.83	1.93
Ethane	2.20	1.99	2.39
Propane	4.55	4.48	4.58

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: ICV 240-364575/15 Calibration Date: 01/18/2019 12:57

Instrument ID: ZPID Calib Start Date: 01/18/2019 11:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 12:40

Lab File ID: Z011815.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1,1-Trifluoroethane	Ave	2681	2613		9480	9730	-2.5	30.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: ICV 240-364575/15 Calibration Date: 01/18/2019 12:57

Instrument ID: ZPID Calib Start Date: 01/18/2019 11:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 12:40

Lab File ID: Z011815.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
1,1,1-Trifluoroethane	3.34	3.25	3.45

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: ICV 240-364575/17 Calibration Date: 01/18/2019 14:16

Instrument ID: ZPID Calib Start Date: 01/18/2019 09:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 10:57

Lab File ID: Z011817.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methane	Ave	6298	6085		275	285	-3.4	20.0
Ethylene	Ave	5367	5782		539	501	7.7	20.0
Acetylene	Ave	3051	3758		571	463	23.2	30.0
Ethane	Ave	5443	5912		583	536	8.6	20.0
Propane	Ave	5485	6012		859	784	9.6	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: ICV 240-364575/17 Calibration Date: 01/18/2019 14:16

Instrument ID: ZPID Calib Start Date: 01/18/2019 09:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 10:57

Lab File ID: Z011817.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.18	1.13	1.23
Ethylene	1.88	1.83	1.93
Acetylene	1.99	1.95	2.05
Ethane	2.20	2.00	2.40
Propane	4.55	4.50	4.60

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: ICV 240-364575/17 Calibration Date: 01/18/2019 14:16

Instrument ID: ZPID Calib Start Date: 01/18/2019 11:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 12:40

Lab File ID: Z011817.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1,1-Trifluoroethane	Ave	2681	2633		9080	9240	-1.8	30.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: ICV 240-364575/17 Calibration Date: 01/18/2019 14:16

Instrument ID: ZPID Calib Start Date: 01/18/2019 11:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 12:40

Lab File ID: Z011817.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
1,1,1-Trifluoroethane	3.34	3.24	3.44

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: CCVRT 240-365784/3 Calibration Date: 01/28/2019 14:28

Instrument ID: ZPID Calib Start Date: 01/18/2019 09:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 10:57

Lab File ID: Z0128003.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methane	Ave	6298	6970		316	285	10.7	20.0
Ethylene	Ave	5367	6652		621	501	24.0*	20.0
Acetylene	Ave	3051	4212		640	463	38.1*	30.0
Ethane	Ave	5443	6975		687	536	28.1*	20.0
Propane	Ave	5485	7342		1050	786	33.9*	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: CCVRT 240-365784/3 Calibration Date: 01/28/2019 14:28

Instrument ID: ZPID Calib Start Date: 01/18/2019 09:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 10:57

Lab File ID: Z0128003.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.18	1.13	1.23
Ethylene	1.88	1.83	1.93
Acetylene	1.99	1.94	2.04
Ethane	2.20	2.00	2.40
Propane	4.55	4.50	4.60

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: CCVRT 240-365784/3 Calibration Date: 01/28/2019 14:28

Instrument ID: ZPID Calib Start Date: 01/18/2019 11:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 12:40

Lab File ID: Z0128003.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1,1-Trifluoroethane	Ave	2681	2618		9030	9240	-2.4	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: CCVRT 240-365784/3 Calibration Date: 01/28/2019 14:28

Instrument ID: ZPID Calib Start Date: 01/18/2019 11:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 12:40

Lab File ID: Z0128003.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
1,1,1-Trifluoroethane	3.34	3.24	3.44

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: CCV 240-365784/19 Calibration Date: 01/28/2019 19:04

Instrument ID: ZPID Calib Start Date: 01/18/2019 09:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 10:57

Lab File ID: Z0128019.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methane	Ave	6298	7160		324	285	13.7	20.0
Ethylene	Ave	5367	6751		630	501	25.8*	20.0
Acetylene	Ave	3051	4221		641	463	38.4*	30.0
Ethane	Ave	5443	7109		701	536	30.6*	20.0
Propane	Ave	5485	7408		1060	786	35.1*	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: CCV 240-365784/19 Calibration Date: 01/28/2019 19:04

Instrument ID: ZPID Calib Start Date: 01/18/2019 09:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 10:57

Lab File ID: Z0128019.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.18	1.13	1.23
Ethylene	1.88	1.83	1.93
Acetylene	1.99	1.94	2.04
Ethane	2.20	2.00	2.40
Propane	4.55	4.50	4.60

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: CCV 240-365784/19 Calibration Date: 01/28/2019 19:04

Instrument ID: ZPID Calib Start Date: 01/18/2019 11:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 12:40

Lab File ID: Z0128019.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1,1-Trifluoroethane	Ave	2681	2549		8790	9240	-4.9	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: CCV 240-365784/19 Calibration Date: 01/28/2019 19:04

Instrument ID: ZPID Calib Start Date: 01/18/2019 11:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 12:40

Lab File ID: Z0128019.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
1,1,1-Trifluoroethane	3.34	3.24	3.44

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: CCV 240-365784/23 Calibration Date: 01/28/2019 20:12

Instrument ID: ZPID Calib Start Date: 01/18/2019 09:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 10:57

Lab File ID: Z0128023.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Methane	Ave	6298	6746		305	285	7.1	20.0
Ethylene	Ave	5367	6310		589	501	17.6	20.0
Acetylene	Ave	3051	4063		617	463	33.2*	30.0
Ethane	Ave	5443	6556		646	536	20.4*	20.0
Propane	Ave	5485	6764		969	786	23.3*	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: CCV 240-365784/23 Calibration Date: 01/28/2019 20:12

Instrument ID: ZPID Calib Start Date: 01/18/2019 09:32

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 10:57

Lab File ID: Z0128023.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.18	1.13	1.23
Ethylene	1.88	1.83	1.93
Acetylene	1.99	1.94	2.04
Ethane	2.20	2.00	2.40
Propane	4.55	4.50	4.60

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: CCV 240-365784/23 Calibration Date: 01/28/2019 20:12

Instrument ID: ZPID Calib Start Date: 01/18/2019 11:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 12:40

Lab File ID: Z0128023.D Conc. Units: ug/L Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE CF	CF	MIN CF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
1,1,1-Trifluoroethane	Ave	2681	2562		8830	9240	-4.4	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Lab Sample ID: CCV 240-365784/23 Calibration Date: 01/28/2019 20:12

Instrument ID: ZPID Calib Start Date: 01/18/2019 11:14

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 01/18/2019 12:40

Lab File ID: Z0128023.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
1,1,1-Trifluoroethane	3.34	3.24	3.44

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Client Sample ID: Lab Sample ID: MB 240-365784/4

Matrix: Water Lab File ID: Z0128004.D

Analysis Method: RSK-175 Date Collected:

Sample wt/vol: 23(mL) Date Analyzed: 01/28/2019 14:45

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 365784 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
74-82-8	Methane	<0.17		1.0	0.17

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	99		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Client Sample ID: Lab Sample ID: LCS 240-365784/5

Matrix: Water Lab File ID: Z0128005.D

Analysis Method: RSK-175 Date Collected:

Sample wt/vol: 23(mL) Date Analyzed: 01/28/2019 15:03

Soil Aliquot Vol: Dilution Factor: 1

Soil Extract Vol.: GC Column: HP-PLOT/Q ID: 0.53(mm)

% Moisture: Level: (low/med) Low

Analysis Batch No.: 365784 Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
74-82-8	Methane	511		1.0	0.17

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	102		60-140

GC VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Instrument ID: ZPID Start Date: 01/18/2019 09:32

Analysis Batch Number: 364575 End Date: 01/18/2019 14:16

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD 240-364575/3 IC		01/18/2019 09:32	1	Z011803.D	HP-PLOT/Q 0.53(mm)
STD 240-364575/4 IC		01/18/2019 09:49	1	Z011804.D	HP-PLOT/Q 0.53(mm)
STD 240-364575/5 IC		01/18/2019 10:06	1	Z011805.D	HP-PLOT/Q 0.53(mm)
STD 240-364575/6 IC		01/18/2019 10:23	1	Z011806.D	HP-PLOT/Q 0.53(mm)
STD 240-364575/7 IC		01/18/2019 10:40	1	Z011807.D	HP-PLOT/Q 0.53(mm)
STD 240-364575/8 IC		01/18/2019 10:57	1	Z011808.D	HP-PLOT/Q 0.53(mm)
STD1 240-364575/9 IC		01/18/2019 11:14	1	Z011809.D	HP-PLOT/Q 0.53(mm)
STD2 240-364575/10 IC		01/18/2019 11:31	1	Z011810.D	HP-PLOT/Q 0.53(mm)
STD3 240-364575/11 IC		01/18/2019 11:48	1	Z011811.D	HP-PLOT/Q 0.53(mm)
STD4 240-364575/12 IC		01/18/2019 12:05	1	Z011812.D	HP-PLOT/Q 0.53(mm)
STD5 240-364575/13 IC		01/18/2019 12:22	1	Z011813.D	HP-PLOT/Q 0.53(mm)
STD6 240-364575/14 IC		01/18/2019 12:40	1	Z011814.D	HP-PLOT/Q 0.53(mm)
ICV 240-364575/15		01/18/2019 12:57	1	Z011815.D	HP-PLOT/Q 0.53(mm)
CCV 240-364575/16		01/18/2019 13:14	1		HP-PLOT/Q 0.53(mm)
ICV 240-364575/17		01/18/2019 14:16	1	Z011817.D	HP-PLOT/Q 0.53(mm)

GC VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Instrument ID: ZPID Start Date: 01/28/2019 14:28

Analysis Batch Number: 365784 End Date: 01/28/2019 20:12

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVRT 240-365784/3		01/28/2019 14:28	1	Z0128003.D	HP-PLOT/Q 0.53(mm)
MB 240-365784/4		01/28/2019 14:45	1	Z0128004.D	HP-PLOT/Q 0.53(mm)
LCS 240-365784/5		01/28/2019 15:03	1	Z0128005.D	HP-PLOT/Q 0.53(mm)
ZZZZZ		01/28/2019 15:20	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		01/28/2019 15:37	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		01/28/2019 15:54	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		01/28/2019 16:11	5		HP-PLOT/Q 0.53(mm)
ZZZZZ		01/28/2019 16:29	5		HP-PLOT/Q 0.53(mm)
ZZZZZ		01/28/2019 16:46	5		HP-PLOT/Q 0.53(mm)
ZZZZZ		01/28/2019 17:03	5		HP-PLOT/Q 0.53(mm)
ZZZZZ		01/28/2019 17:20	5		HP-PLOT/Q 0.53(mm)
ZZZZZ		01/28/2019 17:38	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		01/28/2019 17:55	1		HP-PLOT/Q 0.53(mm)
190-18666-1		01/28/2019 18:12	1	Z0128016.D	HP-PLOT/Q 0.53(mm)
190-18666-2		01/28/2019 18:29	1	Z0128017.D	HP-PLOT/Q 0.53(mm)
190-18666-3		01/28/2019 18:46	1	Z0128018.D	HP-PLOT/Q 0.53(mm)
CCV 240-365784/19		01/28/2019 19:04	1	Z0128019.D	HP-PLOT/Q 0.53(mm)
190-18666-4		01/28/2019 19:21	1	Z0128020.D	HP-PLOT/Q 0.53(mm)
190-18666-5		01/28/2019 19:38	1	Z0128021.D	HP-PLOT/Q 0.53(mm)
190-18666-6		01/28/2019 19:55	1	Z0128022.D	HP-PLOT/Q 0.53(mm)
CCV 240-365784/23		01/28/2019 20:12	1	Z0128023.D	HP-PLOT/Q 0.53(mm)

RSK-175

GC VOA BATCH WORKSHEET

Lab Name: TestAmerica Canton Job No.: 190-18666-1

SDG No.:

Batch Number: 365784 Batch Start Date: 01/28/19 14:28 Batch Analyst: Matthews, Brandon

Batch Method: RSK-175 Batch End Date:

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	Initial pH	MEEP LCS 00014	SARSKHIGHCALP 00010	SARSKSURR 00012
CCVRT 240-365784/3		RSK-175		23 mL	23 mL	7 SU		1 mL	19 mL
MB 240-365784/4		RSK-175		23 mL	23 mL	7 SU			20 mL
LCS 240-365784/5		RSK-175		23 mL	23 mL	7 SU	23 mL		20 mL
190-18666-A-1	98591.02	RSK-175	T	23 mL	23 mL	<2 SU			20 mL
190-18666-C-2	98591.04	RSK-175	T	23 mL	23 mL	<2 SU			20 mL
190-18666-C-3	98591.05	RSK-175	T	23 mL	23 mL	<2 SU			20 mL
CCV 240-365784/19		RSK-175		23 mL	23 mL	7 SU		1 mL	19 mL
190-18666-B-4	98591.06	RSK-175	T	23 mL	23 mL	<2 SU			20 mL
190-18666-C-5	98591.07	RSK-175	T	23 mL	23 mL	<2 SU			20 mL
190-18666-C-6	98591.08	RSK-175	T	23 mL	23 mL	<2 SU			20 mL
CCV 240-365784/23		RSK-175		23 mL	23 mL	7 SU		1 mL	19 mL

Batch Notes	
pH Paper ID	3780294

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Subcontract Data

Shipping and Receiving Documents

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: John Laverty
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 FAX NO.: 517-332-4034 P.O. NO.:
E-MAIL ADDRESS: johnlaverty@meritlabs.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Julie Teague ☒ SAME
COMPANY: Merit Laboratories
ADDRESS: 2680 East Lansing Drive
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 517-332-0167 E-MAIL ADDRESS: juliet@meritlabs.com

PROJECT NO./NAME: S98591 SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☒ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES
Project Locations
☐ Detroit ☐ New York
☐ Other
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Methane
	1/17/19	1105	98591.02	W	3		3						✓
	1/17/19	1210	98591.04	W	3		3						✓
	1/17/19	1310	98591.05	W	3		3						✓
	1/17/19	1351	98591.06	W	3		3						✓
	1/17/19	1430	98591.07	W	3		3						✓
	1/17/19	0001	98591.08	W	3		3						✓

190-18666 Chain of Custody

** Subcontracted to
Test America

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐ Sampler	DATE 1/18/19	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 1/18/19	TIME 1516

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	

NOTES: TEMP. ON ARRIVAL

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

TestAmerica

Cooler/Sample Receipt

(AFTER HOURS receipt: complete grey areas. Place cooler in walk-in, place this form in Receiving in-box. Date/Time received: _____ Initials: _____)

❑ MSDS or Known Hazard Information Supplied by Client
❑ Bottle stickers applied ❑ ELEMENT comment entered ❑ MSDS COC scanned/emailed to EHS
❑ Discrepancies
❑ Short Hold
❑ Rush ❑24hr ❑2day ❑3day ❑5day ❑other

Client ID: Merit Labs
Work Order #: 190-18666
Receipt evaluation performed by - Initials: AMY Date: 1/18/19 Time: 15:27

Method of Shipment:
☒ Walk-In Client ❑ TestAmerica Field/Courier
❑ Other Client/3rd Party Courier _____
❑ Fed Ex Tracking # _____
❑ UPS Tracking # _____
❑ Other _____

Shipping Container Type:
❑ Cooler ❑ Box
☒ None ❑ Other _____

Packing Materials:
☒ Plastic Bags ❑ Foam
☒ Bubble Wrap ❑ Paper
❑ Packing Peanuts ❑ None
❑ Other _____

Custody Seals Intact:
❑ Yes ❑ No
☒ N/A (not used or required)

Cooling Materials:
❑ Ice (solid) ❑ Ice (Melted)
❑ Blue Ice ☒ None
❑ Other _____

Bacteriological Samples: Temp (°C) Corrected | Frozen: yes no | Received within 2 hours: yes no | Sample Flagged: yes no

C.F. -0.1

Receipt Temperatures ❑ Check if Additional Sheets Required

Thermometer ID	Observed (°C)	Corrected (°C)	Temp Blank	Sample Temp	Received on same day sampled?	Acceptable?*	Cooler ID	Note Affected Samples if temperature not acceptable
140252483			❑	❑	❑Yes ❑No	❑Yes ❑No		
140252496			❑	❑	❑Yes ❑No	❑Yes ❑No		
CP313207	7.9	7.2	❑	☒	❑Yes ❑No	❑Yes ❑No		

* Receipt temperatures are considered acceptable if the samples are received on the same day they were collected & show signs that the cooling process has started. Temperature acceptance for most tests is ≤6.0°C, but not frozen. For additional information, please refer to SOP DT-SCA-004 *Sample Receipt and Login, Attachment 2 – Holding Times, Preservation and Container Requirements*

Receipt Questions**	Y	N	n/a	"No" answers require additional comment
COC present & TA receipt signature, date, & time properly documented?	✓			
Containers & labels in good condition? *(unbroken, not leaking, appropriately filled, labels legible & attached)*	✓			
Appropriate containers used & adequate volume provided?	✓			Preserved Bottles Checked with pH Strips* Yes No
Number of sample containers match COC?	✓			
Samples received within hold time?	✓			
Samples submitted for GRO and Volatiles analyses (8260, 624, 524) received without headspace?	✓			
Was a Trip Blank received with VOA samples?		✓		
Were the samples free of any questionable physical conformities? For example, field duplicates or multiple bottles of the same sample do not significantly vary in appearance (color, proportion of solids, etc.)	✓			
Were the COC, bottle labels and all other items free of all other discrepancies or issues that would need to be addressed with the Project Manager and/or Client?				Temp > 6°C Samples appear to be water, not waste as indicated on COC

** May not be applicable if samples are not for compliance testing

* Excludes FOG, Volatiles TOC Vials

Client Contact Record
Contact via: ❑ Phone ❑ Email ❑ Other _____ Person Contacted: _____ Date/Time: _____
❑ Discrepancy allowance agreement is on record in the client project file
Discussion/Resolution:

Any additional documentation and clarification from client must be noted in the narrative and/or scanned into the COC directory

Reviewed by PM Signature: _____ Date: 1/18/19

WI Page 1 of 1

WI NO DT-SCA-WI-001 10
effective 06/11/12

TestAmerica Michigan
10448 Citation Drive Suite 200
Brighton, MI 48116
Phone (810) 229-2763 Fax (810) 229-0000

1.5/C1.5

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Schafer, Sue	Carrier Tracking No(s):	COC No: 190-21805.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: sue.schafer@testamericainc.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 190-18666-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 1/31/2019			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: S98591 - Methane	Project #: 19001249			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ (MOD) MEE Only	Total Number of containers	Special Instructions/Note:
			Preservation Code:						RSK
98591.02 (190-18666-1)	1/17/19	11:05 Eastern		Water			X	3	
98591.04 (190-18666-2)	1/17/19	12:10 Eastern		Water			X	3	
98591.05 (190-18666-3)	1/17/19	13:10 Eastern		Water			X	3	
98591.06 (190-18666-4)	1/17/19	13:51 Eastern		Water			X	3	
98591.07 (190-18666-5)	1/17/19	14:30 Eastern		Water			X	3	
98591.08 (190-18666-6)	1/17/19	00:01 Eastern		Water			X	3	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		1/18/19 15:35	TAC		1-19-19 940	TAC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 09/20/2016

TestAmerica Canton Sample Receipt Form/Narrative **Login # :** _____

Canton Facility

Client TA Michigan Site Name _____ Cooler unpacked by:

Cooler Received on 1-19-19 Opened on 1-19-19

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

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

TestAmerica Cooler # TA 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. 1.5 °C Corrected Cooler Temp. 1.5 °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? ● ⬅ Larger than this.	Yes No	NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____	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:

_____

_____

_____

_____

_____

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 Laboratory Report

Report ID: S99488.01(01)
Generated on 03/05/2019

Report to

Attention: Rodney Abke
Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S99488.01-S99488.05
Project: RACER Flint West #12990
Collected Date: 02/27/2019
Submitted Date/Time: 02/27/2019 16:25
Sampled by: Unknown
P.O. #: 795930

Table of Contents

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
N/A	Not Applicable
SM3500-Cr B	Standard Method 3500 Cr B 2011
SW3015A	SW 846 Method 3015A Revision 1 February 2007
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S99488.01	MW-104S	Groundwater	02/27/19 13:29
S99488.02	MW-105S	Groundwater	02/27/19 12:24
S99488.03	MW-102S	Groundwater	02/27/19 13:08
S99488.04	MW-107S	Groundwater	02/27/19 13:44
S99488.05	Field Blank	Water	02/27/19 12:10

Analytical Laboratory Report

Lab Sample ID: S99488.01
Sample Tag: MW-104S
Collected Date/Time: 02/27/2019 13:29
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.6	IR
1	125ml Plastic	HNO3	Yes	4.6	IR
3	40ml Glass	HCL	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/01/19 13:05	JML	
Metal Digestion	Completed	SW3015A	02/28/19 13:20	CCM	
Metal Digestion	Completed	SW3015A	02/28/19 13:20	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 02/27/19 17:40, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 02/27/19 17:35, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 02/28/19 15:20, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.043	0.005	0.0000950	mg/L	5	7440-47-3	
Copper	0.001871	0.005	0.000375	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Selenium	0.003985	0.005	0.00209	mg/L	5	7782-49-2	b
Zinc	0.000892	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 02/28/19 15:26, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000255	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.000105	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.001208	0.005	0.000375	mg/L	5	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Selenium, Dissolved	0.003795	0.005	0.00209	mg/L	5	7782-49-2	bf
Zinc, Dissolved	0.007	0.005	0.000730	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/28/19 15:41, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	8.1	50	4.0	ug/L	1	67-64-1	J

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S99488.01 (continued)
Sample Tag: MW-104S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/28/19 15:41, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.16	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	2	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	0.25	1	0.19	ug/L	1	75-27-4	J
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	

J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S99488.01 (continued)
Sample Tag: MW-104S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/28/19 15:41, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Lab Sample ID: S99488.02
Sample Tag: MW-105S
Collected Date/Time: 02/27/2019 12:24
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.6	IR
1	125ml Plastic	HNO3	Yes	4.6	IR
3	40ml Glass	HCL	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/01/19 13:05	JML	
Metal Digestion	Completed	SW3015A	02/28/19 13:20	CCM	
Metal Digestion	Completed	SW3015A	02/28/19 13:20	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 02/27/19 18:20, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 02/27/19 18:15, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 02/28/19 15:30, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.065	0.005	0.0000950	mg/L	5	7440-47-3	
Copper	0.002247	0.005	0.000375	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Selenium	0.009	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.001577	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 02/28/19 15:35, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000255	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.001711	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.001375	0.005	0.000375	mg/L	5	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Selenium, Dissolved	0.008	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.004719	0.005	0.000730	mg/L	5	7440-66-6	bf

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/28/19 16:01, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	6.7	50	4.0	ug/L	1	67-64-1	J

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S99488.02 (continued)
Sample Tag: MW-105S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/28/19 16:01, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.16	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	78	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	

Lab Sample ID: S99488.02 (continued)
Sample Tag: MW-105S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/28/19 16:01, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Lab Sample ID: S99488.03
Sample Tag: MW-102S
Collected Date/Time: 02/27/2019 13:08
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.6	IR
1	125ml Plastic	HNO3	Yes	4.6	IR
3	40ml Glass	HCL	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/01/19 13:05	JML	
Metal Digestion	Completed	SW3015A	02/28/19 13:20	CCM	
Metal Digestion	Completed	SW3015A	02/28/19 13:20	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 02/27/19 18:30, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 02/27/19 18:25, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 02/28/19 15:42, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.004664	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.000679	0.005	0.000375	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Selenium	0.002600	0.005	0.00209	mg/L	5	7782-49-2	b
Zinc	0.001482	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 02/28/19 15:48, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000255	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.002604	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.000937	0.005	0.000375	mg/L	5	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Selenium, Dissolved	0.002364	0.005	0.00209	mg/L	5	7782-49-2	bf
Zinc, Dissolved	0.007	0.005	0.000730	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 16:06, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	7.88	50	0.56	ug/L	1	67-64-1	JB

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab
J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99488.03 (continued)
Sample Tag: MW-102S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 16:06, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	0.26	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.31	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.29	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.20	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.20	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.3	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.20	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.14	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.20	ug/L	1	56-23-5	
Benzene	Not detected	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.23	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.25	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	Not detected	1	0.18	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	

Lab Sample ID: S99488.03 (continued)
Sample Tag: MW-102S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 16:06, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.16	ug/L	1	91-57-6	

Lab Sample ID: S99488.04
Sample Tag: MW-107S
Collected Date/Time: 02/27/2019 13:44
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.6	IR
1	125ml Plastic	HNO3	Yes	4.6	IR
3	40ml Glass	HCL	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/01/19 13:05	JML	
Metal Digestion	Completed	SW3015A	02/28/19 13:20	CCM	
Metal Digestion	Completed	SW3015A	02/28/19 13:20	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 02/27/19 18:40, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 02/27/19 18:35, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 02/28/19 15:54, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.000330	0.002	0.000255	mg/L	5	7440-38-2	b
Chromium	Not detected	0.005	0.0000950	mg/L	5	7440-47-3	
Copper	0.001124	0.005	0.000375	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.007	0.005	0.000730	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 02/28/19 15:59, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.000711	0.002	0.000255	mg/L	5	7440-38-2	bf
Chromium, Dissolved	Not detected	0.005	0.0000950	mg/L	5	7440-47-3	f
Copper, Dissolved	0.001723	0.005	0.000375	mg/L	5	7440-50-8	bf
Lead, Dissolved	0.000706	0.003	0.000190	mg/L	5	7439-92-1	bf
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.011	0.005	0.000730	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/28/19 16:42, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	7.8	50	4.0	ug/L	1	67-64-1	J

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S99488.04 (continued)
Sample Tag: MW-107S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/28/19 16:42, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	0.88	1	0.24	ug/L	1	75-01-4	J
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.16	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	0.55	1	0.15	ug/L	1	75-34-3	J
cis-1,2-Dichloroethene	2	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	0.24	1	0.11	ug/L	1	71-43-2	J
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	1	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	

J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S99488.04 (continued)
Sample Tag: MW-107S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/28/19 16:42, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Lab Sample ID: S99488.05
Sample Tag: Field Blank
Collected Date/Time: 02/27/2019 12:10
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.6	IR
1	125ml Plastic	HNO3	Yes	4.6	IR
3	40ml Glass	HCL	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/01/19 13:05	JML	
Metal Digestion	Completed	SW3015A	02/28/19 13:20	CCM	
Metal Digestion	Completed	SW3015A	02/28/19 13:20	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 02/27/19 18:50, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 02/27/19 18:45, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 02/28/19 16:04, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.000175	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.002092	0.005	0.000375	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.001814	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 02/28/19 16:09, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000255	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.000131	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.001685	0.005	0.000375	mg/L	5	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.003574	0.005	0.000730	mg/L	5	7440-66-6	bf

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/28/19 15:22, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone	7.3	50	4.0	ug/L	1	67-64-1	J

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S99488.05 (continued)
Sample Tag: Field Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/28/19 15:22, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methyl iodide	Not detected	1	0.24	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.13	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.25	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.38	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	3.3	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.57	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.20	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.24	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.18	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.21	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.28	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.16	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.14	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.15	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.27	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.35	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.19	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.19	ug/L	1	56-23-5	
Benzene	Not detected	1	0.11	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.17	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.29	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.18	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.19	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.45	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.17	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.17	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.20	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.34	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.13	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.26	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.20	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.12	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.16	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.10	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.42	ug/L	1		
o-Xylene	Not detected	1	0.16	ug/L	1	95-47-6	
Styrene	Not detected	1	0.13	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.12	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.35	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.27	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.54	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.12	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.15	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.18	ug/L	1	108-67-8	

Lab Sample ID: S99488.05 (continued)
Sample Tag: Field Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 02/28/19 15:22, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
tert-Butylbenzene	Not detected	1	0.14	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.16	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.16	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.19	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.20	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.18	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.14	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.17	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.35	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.48	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.24	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.25	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.18	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.21	ug/L	1	91-57-6	

Merit Laboratories Login Checklist

Lab Set ID: S99488
Client: APPLIED (Applied Ecosystems)
Project: RACER Flint West #12990
Submitted: 02/27/2019 16:25 Login User: MMC

Attention: Rodney Abke
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 4.6
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S99488 Initials: MMC

Client: APPLIED (Applied Ecosystems)

Project: RACER Flint West #12990

Submitted: 02/27/2019 16:25 Login User:

Attention: Rodney Abke
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Lab ID	125 ml Plastic HNO_3	250 ml Plastic HNO_3	1 L Plastic HNO_3	250 ml Plastic H_2SO_4	125 ml Amber H_2SO_4	32 oz Glass HCl	125 ml Plastic NaOH	125 ml Amber $PbCO_3$ NaOH	pH					Notes
									<2	>12	other	ml add	new pH	
S99488.01	X								X					
S99488.02	X								X					
S99488.03	X								X					
S99488.04	X								X					
S99488.05	X								X					

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Rodney Abke
COMPANY: Applied EcoSystems
ADDRESS: G-4300 South Saginaw Street
CITY: Burton | STATE: MI | ZIP CODE: 48529
PHONE NO.: 810-715-2525 | FAX NO.: 810-715-2526 | P.O. NO.: PO795930
E-MAIL ADDRESS: rabke@appliedecosystems.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: Monica Wallingford ☐SAME
COMPANY: Revitalizing Auto Communities Environmental Response (RACER) Trust
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: 313.486.2978 | E-MAIL ADDRESS: mwallingford@racertrust.org

PROJECT NO./NAME: RACER Flint West #12990 | SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER _____

DELIVERABLES REQUIRED ☒STD ☐LEVEL II ☐LEVEL III ☐LEVEL IV ☐EDD ☐OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☐NPDES
Project Locations: ☐Detroit ☐New York ☐Other _____
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	Metals, dissolved*	Metals, Total*	Special Instructions
19488.01	2-27	11:29	MW-104S	GW	5	1	3	1					X	X	X	* - Metals list incldues:
.02	2-27	12:24	MW-105S	GW	5	1	3	1					X	X	X	Ar, Cr-total, CR-Hex, Cu
.03	2-27	1:02	MW-102D	GW	5	1	3	1					X	X	X	Pb, Se, Zn
.04	2-27	1:44	MW-107S	GW	5	1	3	1					X	X	X	
.05	2-27		Field Blank	SW	5	1	3	1					X	X	X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐Sampler	DATE 2-27-19	TIME 3:31
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 2/27/19	TIME 7:30
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 2/27/19	TIME 16:25
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 2/27/19	TIME 1625

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

SEAL NO. | SEAL INTACT YES☐ NO☐ | INITIALS
SEAL NO. | SEAL INTACT YES☐ NO☐ | INITIALS

NOTES: TEMP. ON ARRIVAL 4.6

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S99533.01(01)
Generated on 03/14/2019

Report to

Attention: Rodney Abke
Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S99533.01-S99533.13
Project: RACER Flint West #12990
Collected Date: 02/28/2019
Submitted Date/Time: 02/28/2019 16:30
Sampled by: Unknown
P.O. #: 795930

Table of Contents

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
x	Preserved from bulk sample

Glossary of Abbreviations

Abbreviation	Description
RL/RDL	Reporting Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
SW	EPA SW 846 (Soil and Wastewater) Methods
E	EPA Methods
SM	Standard Methods
LN	Linear
BR	Branched

Method Summary

Method	Version
E200.8	EPA Method 200.8 Revision 5.4
N/A	Not Applicable
SM3500-Cr B	Standard Method 3500 Cr B 2011
SW3015A	SW 846 Method 3015A Revision 1 February 2007
SW5030C/8260C	SW 846 Method 8260C Revision 3 August 2006 / 5030C Revision 3 May 2003

Sample Summary (13 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S99533.01	MW-112S	Groundwater	02/28/19 09:28
S99533.02	MW-103S	Groundwater	02/28/19 10:39
S99533.03	MW-111S	Groundwater	02/28/19 11:25
S99533.04	MW-108S	Groundwater	02/28/19 11:58
S99533.05	MW-109S	Groundwater	02/28/19 12:33
S99533.06	MW-114S	Groundwater	02/28/19 13:08
S99533.07	MW-113S	Groundwater	02/28/19 13:48
S99533.08	MW-110S	Groundwater	02/28/19 14:27
S99533.09	Trip Blank	Water	02/28/19 00:01
S99533.10	Equipment Blank	Water	02/28/19 14:47
S99533.11	Field Blank	Water	02/28/19 00:01
S99533.12	Dupe 1	Groundwater	02/28/19 00:01
S99533.13	Dupe 2	Groundwater	02/28/19 00:01

Lab Sample ID: S99533.01
Sample Tag: MW-112S
Collected Date/Time: 02/28/2019 09:28
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.0	IR
1	125ml Plastic	HNO3	Yes	4.0	IR
3	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/05/19 14:04	JML	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/01/19 09:10, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	c

Method: SM3500-Cr B, Run Date: 03/01/19 08:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Metals

Method: E200.8, Run Date: 03/05/19 13:52, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.102	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.000507	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	Not detected	0.005	0.000375	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.000774	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 03/05/19 13:55, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.035	0.002	0.000255	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.000357	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	Not detected	0.005	0.000375	mg/L	5	7440-50-8	f
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.00431	0.005	0.000730	mg/L	5	7440-66-6	bf

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 16:25, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	12.41	50	0.56	ug/L	1	67-64-1	JB

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab
J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.01 (continued)
Sample Tag: MW-112S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 16:25, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	1.61	25	0.26	ug/L	1	78-93-3	JB
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	2	1	0.31	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	0.41	1	0.27	ug/L	1	75-35-4	J
Methylene chloride	Not detected	5	0.29	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.20	ug/L	1	156-60-5	
1,1-Dichloroethane	0.82	1	0.20	ug/L	1	75-34-3	J
cis-1,2-Dichloroethene	2	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.3	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.20	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	0.31	50	0.14	ug/L	1	108-10-1	J
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.20	ug/L	1	56-23-5	
Benzene	Not detected	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	3	1	0.23	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.25	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	0.58	1	0.18	ug/L	1	100-42-5	J
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.01 (continued)
Sample Tag: MW-112S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 16:25, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.16	ug/L	1	91-57-6	

Lab Sample ID: S99533.02
Sample Tag: MW-103S
Collected Date/Time: 02/28/2019 10:39
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.0	IR
1	125ml Plastic	HNO3	Yes	4.0	IR
3	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/05/19 14:04	JML	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/01/19 09:35, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	c

Method: SM3500-Cr B, Run Date: 03/01/19 09:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Metals

Method: E200.8, Run Date: 03/05/19 13:57, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.030	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.000251	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	Not detected	0.005	0.000375	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	Not detected	0.005	0.000730	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 03/05/19 14:00, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.010	0.002	0.000255	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.000103	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	Not detected	0.005	0.000375	mg/L	5	7440-50-8	f
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.00345	0.005	0.000730	mg/L	5	7440-66-6	bf

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/14/19 14:42, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	16.62	50	0.56	ug/L	1	67-64-1	JB

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab
J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.02 (continued)
Sample Tag: MW-103S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/14/19 14:42, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	3.13	25	0.26	ug/L	1	78-93-3	JB
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	0.64	1	0.31	ug/L	1	75-01-4	J
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.29	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.20	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.20	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	2.3	90	1.3	ug/L	1	109-99-9	JB
Chloroform	Not detected	1	0.20	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.14	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.20	ug/L	1	56-23-5	
Benzene	1	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.23	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	0.32	1	0.25	ug/L	1	108-88-3	J
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	2	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	Not detected	1	0.18	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.02 (continued)
Sample Tag: MW-103S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/14/19 14:42, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	0.18	5	0.16	ug/L	1	91-57-6	JB

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.03
Sample Tag: MW-111S
Collected Date/Time: 02/28/2019 11:25
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.0	IR
1	125ml Plastic	HNO3	Yes	4.0	IR
3	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/05/19 14:04	JML	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/01/19 09:45, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 03/01/19 09:40, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 03/05/19 14:03, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.000759	0.002	0.000255	mg/L	5	7440-38-2	b
Chromium	0.004651	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.000691	0.005	0.000375	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.000776	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 03/05/19 14:07, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.000317	0.002	0.000255	mg/L	5	7440-38-2	bf
Chromium, Dissolved	0.004979	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.00132	0.005	0.000375	mg/L	5	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.007	0.005	0.000730	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 17:03, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	8.79	50	0.56	ug/L	1	67-64-1	J

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S99533.03 (continued)
Sample Tag: MW-111S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 17:03, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	0.33	25	0.26	ug/L	1	78-93-3	J
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.31	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.29	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.20	ug/L	1	156-60-5	
1,1-Dichloroethane	0.76	1	0.20	ug/L	1	75-34-3	J
cis-1,2-Dichloroethene	13	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.3	ug/L	1	109-99-9	
Chloroform	0.25	1	0.20	ug/L	1	67-66-3	J
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.14	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.20	ug/L	1	56-23-5	
Benzene	Not detected	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	39	1	0.23	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.25	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	Not detected	1	0.18	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	

J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S99533.03 (continued)
Sample Tag: MW-111S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 17:03, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.16	ug/L	1	91-57-6	

Lab Sample ID: S99533.04
Sample Tag: MW-108S
Collected Date/Time: 02/28/2019 11:58
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.0	IR
1	125ml Plastic	HNO3	Yes	4.0	IR
3	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/05/19 14:04	JML	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/01/19 11:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 03/01/19 10:10, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 03/05/19 14:19, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.000265	0.002	0.000255	mg/L	5	7440-38-2	b
Chromium	0.000354	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.000979	0.005	0.000375	mg/L	5	7440-50-8	b
Lead	0.000230	0.003	0.000190	mg/L	5	7439-92-1	b
Selenium	0.00312	0.005	0.00209	mg/L	5	7782-49-2	b
Zinc	0.00224	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 03/05/19 14:21, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.000445	0.002	0.000255	mg/L	5	7440-38-2	bf
Chromium, Dissolved	0.000155	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.000993	0.005	0.000375	mg/L	5	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Selenium, Dissolved	0.00272	0.005	0.00209	mg/L	5	7782-49-2	bf
Zinc, Dissolved	0.006	0.005	0.000730	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 17:24, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	7.60	50	0.56	ug/L	1	67-64-1	JB

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab
J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.04 (continued)
Sample Tag: MW-108S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 17:24, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	0.26	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.31	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.29	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.20	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.20	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.3	ug/L	1	109-99-9	
Chloroform	1	1	0.20	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.14	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	2	1	0.20	ug/L	1	56-23-5	
Benzene	Not detected	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	0.25	1	0.23	ug/L	1	79-01-6	J
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.25	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	Not detected	1	0.18	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	

J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S99533.04 (continued)
Sample Tag: MW-108S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 17:24, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.16	ug/L	1	91-57-6	

Lab Sample ID: S99533.05
Sample Tag: MW-109S
Collected Date/Time: 02/28/2019 12:33
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.0	IR
1	125ml Plastic	HNO3	Yes	4.0	IR
3	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/05/19 14:04	JML	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/01/19 11:10, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	c

Method: SM3500-Cr B, Run Date: 03/01/19 10:15, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Metals

Method: E200.8, Run Date: 03/05/19 14:24, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.039	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.000600	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.000381	0.005	0.000375	mg/L	5	7440-50-8	b
Lead	0.000206	0.003	0.000190	mg/L	5	7439-92-1	b
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.00219	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 03/05/19 14:27, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.002	0.002	0.000255	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.000246	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	Not detected	0.005	0.000375	mg/L	5	7440-50-8	f
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.00277	0.005	0.000730	mg/L	5	7440-66-6	bf

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 17:42, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	9.51	50	0.56	ug/L	1	67-64-1	JB

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab
J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.05 (continued)
Sample Tag: MW-109S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 17:42, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	0.34	25	0.26	ug/L	1	78-93-3	JB
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	5	1	0.31	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	0.60	1	0.27	ug/L	1	75-35-4	J
Methylene chloride	Not detected	5	0.29	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	0.41	1	0.20	ug/L	1	156-60-5	J
1,1-Dichloroethane	0.97	1	0.20	ug/L	1	75-34-3	J
cis-1,2-Dichloroethene	9	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.3	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.20	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.14	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.20	ug/L	1	56-23-5	
Benzene	Not detected	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	13	1	0.23	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.25	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	Not detected	1	0.18	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.05 (continued)
Sample Tag: MW-109S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 17:42, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.16	ug/L	1	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S99533.06
Sample Tag: MW-114S
Collected Date/Time: 02/28/2019 13:08
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.0	IR
1	125ml Plastic	HNO3	Yes	4.0	IR
3	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/05/19 14:04	JML	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/01/19 11:15, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	c

Method: SM3500-Cr B, Run Date: 03/01/19 10:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Metals

Method: E200.8, Run Date: 03/05/19 14:30, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.086	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.000258	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.00192	0.005	0.000375	mg/L	5	7440-50-8	b
Lead	0.000191	0.003	0.000190	mg/L	5	7439-92-1	b
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.00398	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 03/05/19 14:33, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.028	0.002	0.000255	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.000172	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.000823	0.005	0.000375	mg/L	5	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.00398	0.005	0.000730	mg/L	5	7440-66-6	bf

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/14/19 15:39, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	50	2.5	ug/L	5	60-29-7	Y

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab
Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S99533.06 (continued)
Sample Tag: MW-114S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/14/19 15:39, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	33.8	250	2.8	ug/L	5	67-64-1	JBY
Methyl iodide	Not detected	5	1.3	ug/L	5	74-88-4	Y
Carbon disulfide	Not detected	30	1.2	ug/L	5	75-15-0	Y
tert-Methyl butyl ether (MTBE)	Not detected	30	0.95	ug/L	5	1634-04-4	Y
Acrylonitrile	Not detected	10	2.8	ug/L	5	107-13-1	Y
2-Butanone (MEK)	11.1	130	1.3	ug/L	5	78-93-3	JBY
Dichlorodifluoromethane	Not detected	30	2.5	ug/L	5	75-71-8	Y
Chloromethane	Not detected	30	1.3	ug/L	5	74-87-3	Y
Vinyl chloride	12	5	1.5	ug/L	5	75-01-4	Y
Bromomethane	Not detected	30	1.6	ug/L	5	74-83-9	Y
Chloroethane	Not detected	30	1.7	ug/L	5	75-00-3	Y
Trichlorofluoromethane	Not detected	5	1.6	ug/L	5	75-69-4	Y
1,1-Dichloroethene	Not detected	5	1.3	ug/L	5	75-35-4	Y
Methylene chloride	Not detected	30	1.4	ug/L	5	75-09-2	Y
trans-1,2-Dichloroethene	1.90	5	0.99	ug/L	5	156-60-5	JY
1,1-Dichloroethane	3.2	5	1.0	ug/L	5	75-34-3	JY
cis-1,2-Dichloroethene	295	5	1.3	ug/L	5	156-59-2	Y
Tetrahydrofuran*	11.1	450	6.3	ug/L	5	109-99-9	JBY
Chloroform	Not detected	5	1.0	ug/L	5	67-66-3	Y
Bromochloromethane	Not detected	5	1.9	ug/L	5	74-97-5	Y
1,1,1-Trichloroethane	Not detected	5	1.4	ug/L	5	71-55-6	Y
4-Methyl-2-pentanone (MIBK)	Not detected	250	0.71	ug/L	5	108-10-1	Y
2-Hexanone	Not detected	250	1.4	ug/L	5	591-78-6	Y
Carbon tetrachloride	Not detected	5	0.98	ug/L	5	56-23-5	Y
Benzene	Not detected	5	1.00	ug/L	5	71-43-2	Y
1,2-Dichloroethane	Not detected	5	0.78	ug/L	5	107-06-2	Y
Trichloroethene	162	5	1.2	ug/L	5	79-01-6	Y
1,2-Dichloropropane	Not detected	5	1.0	ug/L	5	78-87-5	Y
Bromodichloromethane	Not detected	5	1.1	ug/L	5	75-27-4	Y
Dibromomethane	Not detected	30	1.0	ug/L	5	74-95-3	Y
cis-1,3-Dichloropropene	Not detected	5	0.97	ug/L	5	10061-01-5	Y
Toluene	Not detected	5	1.2	ug/L	5	108-88-3	Y
trans-1,3-Dichloropropene	Not detected	5	1.3	ug/L	5	10061-02-6	Y
1,1,2-Trichloroethane	Not detected	5	1.4	ug/L	5	79-00-5	Y
Tetrachloroethene	Not detected	5	1.0	ug/L	5	127-18-4	Y
trans-1,4-Dichloro-2-butene	Not detected	5	1.00	ug/L	5	110-57-6	Y
Dibromochloromethane	Not detected	30	1.2	ug/L	5	124-48-1	Y
1,2-Dibromoethane	Not detected	5	1.5	ug/L	5	106-93-4	Y
Chlorobenzene	Not detected	5	0.84	ug/L	5	108-90-7	Y
1,1,1,2-Tetrachloroethane	Not detected	5	1.2	ug/L	5	630-20-6	Y
Ethylbenzene	Not detected	5	1.3	ug/L	5	100-41-4	Y
p,m-Xylene*	Not detected	10	2.1	ug/L	5		Y
o-Xylene	Not detected	5	1.3	ug/L	5	95-47-6	Y
Styrene	Not detected	5	0.89	ug/L	5	100-42-5	Y
Isopropylbenzene	Not detected	30	1.2	ug/L	5	98-82-8	Y
Bromoform	Not detected	5	1.1	ug/L	5	75-25-2	Y
1,1,2,2-Tetrachloroethane	Not detected	5	0.90	ug/L	5	79-34-5	Y
1,2,3-Trichloropropane	Not detected	5	1.6	ug/L	5	96-18-4	Y
n-Propylbenzene	Not detected	5	1.1	ug/L	5	103-65-1	Y

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S99533.06 (continued)
Sample Tag: MW-114S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/14/19 15:39, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bromobenzene	Not detected	5	1.3	ug/L	5	108-86-1	Y
1,3,5-Trimethylbenzene	Not detected	5	1.3	ug/L	5	108-67-8	Y
tert-Butylbenzene	Not detected	5	0.90	ug/L	5	98-06-6	Y
1,2,4-Trimethylbenzene	Not detected	5	1.1	ug/L	5	95-63-6	Y
sec-Butylbenzene	Not detected	5	1.2	ug/L	5	135-98-8	Y
p-Isopropyltoluene	Not detected	30	1.0	ug/L	5	99-87-6	Y
1,3-Dichlorobenzene	Not detected	5	1.2	ug/L	5	541-73-1	Y
1,4-Dichlorobenzene	Not detected	5	1.1	ug/L	5	106-46-7	Y
1,2-Dichlorobenzene	Not detected	5	1.4	ug/L	5	95-50-1	Y
1,2,3-Trimethylbenzene	Not detected	5	0.31	ug/L	5	526-73-8	Y
n-Butylbenzene	Not detected	5	1.1	ug/L	5	104-51-8	Y
Hexachloroethane	Not detected	30	1.1	ug/L	5	67-72-1	Y
1,2-Dibromo-3-chloropropane	Not detected	30	2.3	ug/L	5	96-12-8	Y
1,2,4-Trichlorobenzene	Not detected	30	0.96	ug/L	5	120-82-1	Y
1,2,3-Trichlorobenzene	Not detected	30	1.0	ug/L	5	87-61-6	Y
Naphthalene	Not detected	30	1.1	ug/L	5	91-20-3	Y
2-Methylnaphthalene	Not detected	30	0.82	ug/L	5	91-57-6	Y

Y-Elevated reporting limit due to high target concentration

Analytical Laboratory Report

Lab Sample ID: S99533.07
Sample Tag: MW-113S
Collected Date/Time: 02/28/2019 13:48
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.0	IR
1	125ml Plastic	HNO3	Yes	4.0	IR
3	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/05/19 14:04	JML	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/01/19 11:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	c

Method: SM3500-Cr B, Run Date: 03/01/19 10:25, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Metals

Method: E200.8, Run Date: 03/05/19 14:36, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.013	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.013	0.005	0.0000950	mg/L	5	7440-47-3	
Copper	0.00306	0.005	0.000375	mg/L	5	7440-50-8	b
Lead	0.00114	0.003	0.000190	mg/L	5	7439-92-1	b
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.013	0.005	0.000730	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 03/05/19 14:38, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.00111	0.002	0.000255	mg/L	5	7440-38-2	bf
Chromium, Dissolved	0.00161	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.00134	0.005	0.000375	mg/L	5	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.008	0.005	0.000730	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/14/19 15:01, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	11.34	50	0.56	ug/L	1	67-64-1	JB

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab
J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.07 (continued)
Sample Tag: MW-113S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/14/19 15:01, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	1.95	25	0.26	ug/L	1	78-93-3	JB
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	1	1	0.31	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.29	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.20	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.20	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	2	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	1.9	90	1.3	ug/L	1	109-99-9	JB
Chloroform	Not detected	1	0.20	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.14	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.20	ug/L	1	56-23-5	
Benzene	Not detected	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	9	1	0.23	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.25	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	0.28	1	0.18	ug/L	1	100-42-5	J
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.07 (continued)
Sample Tag: MW-113S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/14/19 15:01, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.16	ug/L	1	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S99533.08
Sample Tag: MW-110S
Collected Date/Time: 02/28/2019 14:27
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.0	IR
1	125ml Plastic	HNO3	Yes	4.0	IR
3	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/05/19 14:04	JML	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/01/19 11:25, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	c

Method: SM3500-Cr B, Run Date: 03/01/19 10:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Metals

Method: E200.8, Run Date: 03/05/19 14:43, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.001952	0.002	0.000255	mg/L	5	7440-38-2	b
Chromium	0.000522	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.000963	0.005	0.000375	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.00161	0.005	0.000730	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 03/05/19 14:45, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.00105	0.002	0.000255	mg/L	5	7440-38-2	bf
Chromium, Dissolved	0.000172	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.000704	0.005	0.000375	mg/L	5	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.00344	0.005	0.000730	mg/L	5	7440-66-6	bf

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 18:42, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	9.07	50	0.56	ug/L	1	67-64-1	JB

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab
J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.08 (continued)
Sample Tag: MW-110S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 18:42, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	0.30	25	0.26	ug/L	1	78-93-3	JB
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.31	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.29	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.20	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.20	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.3	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.20	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.14	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.20	ug/L	1	56-23-5	
Benzene	Not detected	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.23	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.25	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	Not detected	1	0.18	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.08 (continued)
Sample Tag: MW-110S

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 18:42, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.16	ug/L	1	91-57-6	

Lab Sample ID: S99533.09
Sample Tag: Trip Blank
Collected Date/Time: 02/28/2019 00:01
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/05/19 14:04	JML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 15:08, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	6.99	50	0.56	ug/L	1	67-64-1	JB
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	0.64	25	0.26	ug/L	1	78-93-3	JB
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.31	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.29	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.20	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.20	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.3	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.20	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.14	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.20	ug/L	1	56-23-5	
Benzene	Not detected	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.23	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.25	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.09 (continued)
Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 15:08, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	Not detected	1	0.18	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.16	ug/L	1	91-57-6	

Lab Sample ID: S99533.10
Sample Tag: Equipment Blank
Collected Date/Time: 02/28/2019 14:47
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.0	IR
1	125ml Plastic	HNO3	Yes	4.0	IR
3	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/05/19 14:04	JML	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/01/19 11:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 03/01/19 10:35, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 03/05/19 13:36, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000102	mg/L	2	7440-38-2	
Chromium	0.000655	0.005	0.0000380	mg/L	2	7440-47-3	b
Copper	0.00124	0.005	0.000150	mg/L	2	7440-50-8	b
Lead	Not detected	0.003	0.0000760	mg/L	2	7439-92-1	
Selenium	Not detected	0.005	0.000838	mg/L	2	7782-49-2	
Zinc	0.000962	0.005	0.000292	mg/L	2	7440-66-6	b

Method: E200.8, Run Date: 03/05/19 13:38, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000102	mg/L	2	7440-38-2	f
Chromium, Dissolved	0.000052	0.005	0.0000380	mg/L	2	7440-47-3	bf
Copper, Dissolved	0.00147	0.005	0.000150	mg/L	2	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.0000760	mg/L	2	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.000838	mg/L	2	7782-49-2	f
Zinc, Dissolved	0.007	0.005	0.000292	mg/L	2	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 15:27, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	9.36	50	0.56	ug/L	1	67-64-1	JB

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab
J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.10 (continued)
Sample Tag: Equipment Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 15:27, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	0.77	25	0.26	ug/L	1	78-93-3	JB
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.31	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.29	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.20	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.20	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.3	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.20	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.14	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.20	ug/L	1	56-23-5	
Benzene	Not detected	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.23	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.25	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	Not detected	1	0.18	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.10 (continued)
Sample Tag: Equipment Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 15:27, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.16	ug/L	1	91-57-6	

Lab Sample ID: S99533.11
Sample Tag: Field Blank
Collected Date/Time: 02/28/2019 00:01
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.0	IR
1	125ml Plastic	HNO3	Yes	4.0	IR
3	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/05/19 14:04	JML	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/01/19 11:40, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.004	mg/L	1	18540-29-9	c

Method: SM3500-Cr B, Run Date: 03/01/19 10:45, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.004	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 03/05/19 13:41, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000102	mg/L	2	7440-38-2	
Chromium	0.000748	0.005	0.0000380	mg/L	2	7440-47-3	b
Copper	0.00159	0.005	0.000150	mg/L	2	7440-50-8	b
Lead	Not detected	0.003	0.0000760	mg/L	2	7439-92-1	
Selenium	Not detected	0.005	0.000838	mg/L	2	7782-49-2	
Zinc	0.00227	0.005	0.000292	mg/L	2	7440-66-6	b

Method: E200.8, Run Date: 03/05/19 13:47, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000102	mg/L	2	7440-38-2	f
Chromium, Dissolved	Not detected	0.005	0.0000380	mg/L	2	7440-47-3	f
Copper, Dissolved	0.00153	0.005	0.000150	mg/L	2	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.0000760	mg/L	2	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.000838	mg/L	2	7782-49-2	f
Zinc, Dissolved	0.006	0.005	0.000292	mg/L	2	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 15:47, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	9.10	50	0.56	ug/L	1	67-64-1	JB

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab
J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.11 (continued)
Sample Tag: Field Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 15:47, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	0.78	25	0.26	ug/L	1	78-93-3	JB
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.31	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.27	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.29	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.20	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.20	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.3	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.20	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	50	0.14	ug/L	1	108-10-1	
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.20	ug/L	1	56-23-5	
Benzene	Not detected	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.23	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.25	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	Not detected	1	0.18	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.11 (continued)
Sample Tag: Field Blank

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 15:47, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.16	ug/L	1	91-57-6	

Lab Sample ID: S99533.12
Sample Tag: Dupe 1
Collected Date/Time: 02/28/2019 00:01
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.0	IR
1	125ml Plastic	HNO3	Yes	4.0	IR
3	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/05/19 14:04	JML	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/01/19 11:45, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	c

Method: SM3500-Cr B, Run Date: 03/01/19 10:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Metals

Method: E200.8, Run Date: 03/05/19 15:00, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.101	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.000417	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	Not detected	0.005	0.000375	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000190	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	Not detected	0.005	0.000730	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 03/05/19 15:08, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.009	0.002	0.000255	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.000436	0.005	0.0000950	mg/L	5	7440-47-3	bf
Copper, Dissolved	Not detected	0.005	0.000375	mg/L	5	7440-50-8	f
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.00343	0.005	0.000730	mg/L	5	7440-66-6	bf

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 19:01, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone	11.74	50	0.56	ug/L	1	67-64-1	JB

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab
J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.12 (continued)
Sample Tag: Dupe 1

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 19:01, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.24	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.19	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.57	ug/L	1	107-13-1	
2-Butanone (MEK)	1.63	25	0.26	ug/L	1	78-93-3	JB
Dichlorodifluoromethane	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.26	ug/L	1	74-87-3	
Vinyl chloride	2	1	0.31	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.34	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene	0.38	1	0.27	ug/L	1	75-35-4	J
Methylene chloride	Not detected	5	0.29	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.20	ug/L	1	156-60-5	
1,1-Dichloroethane	0.79	1	0.20	ug/L	1	75-34-3	J
cis-1,2-Dichloroethene	1	1	0.26	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.3	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.20	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.38	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.28	ug/L	1	71-55-6	
4-Methyl-2-pentanone (MIBK)	0.38	50	0.14	ug/L	1	108-10-1	J
2-Hexanone	Not detected	50	0.29	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.20	ug/L	1	56-23-5	
Benzene	Not detected	1	0.20	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.16	ug/L	1	107-06-2	
Trichloroethene	3	1	0.23	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.20	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.23	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.20	ug/L	1	74-95-3	
cis-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-01-5	
Toluene	Not detected	1	0.25	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.25	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.28	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.20	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.20	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.24	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.30	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.17	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.24	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.26	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.41	ug/L	1		
o-Xylene	Not detected	1	0.25	ug/L	1	95-47-6	
Styrene	0.64	1	0.18	ug/L	1	100-42-5	J
Isopropylbenzene	Not detected	5	0.25	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.22	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.18	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.33	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.23	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.27	ug/L	1	108-86-1	

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S99533.12 (continued)
Sample Tag: Dupe 1

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/01/19 19:01, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,3,5-Trimethylbenzene	Not detected	1	0.26	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.18	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.22	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.25	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.21	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.24	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.23	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.28	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	Not detected	1	0.061	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.22	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.21	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.47	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.19	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.20	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.16	ug/L	1	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S99533.13
Sample Tag: Dupe 2
Collected Date/Time: 02/28/2019 00:01
Matrix: Groundwater
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.0	IR
1	125ml Plastic	HNO3	Yes	4.0	IR
3	40ml Glass	HCL	Yes	4.0	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	03/05/19 14:04	JML	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	
Metal Digestion	Completed	SW3015A	03/05/19 12:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/01/19 11:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	c

Method: SM3500-Cr B, Run Date: 03/01/19 10:55, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.01	mg/L	2.5	18540-29-9	

Metals

Method: E200.8, Run Date: 03/05/19 15:11, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.080	0.002	0.000255	mg/L	5	7440-38-2	
Chromium	0.000412	0.005	0.0000950	mg/L	5	7440-47-3	b
Copper	0.00225	0.005	0.000375	mg/L	5	7440-50-8	b
Lead	0.000208	0.003	0.000190	mg/L	5	7439-92-1	b
Selenium	Not detected	0.005	0.00209	mg/L	5	7782-49-2	
Zinc	0.005	0.005	0.000730	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 03/05/19 15:13, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.020	0.002	0.000255	mg/L	5	7440-38-2	f
Chromium, Dissolved	Not detected	0.005	0.0000950	mg/L	5	7440-47-3	f
Copper, Dissolved	0.000434	0.005	0.000375	mg/L	5	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.000190	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00209	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.00271	0.005	0.000730	mg/L	5	7440-66-6	bf

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/14/19 16:17, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	50	2.5	ug/L	5	60-29-7	Y

c-Filtered in lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab
Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S99533.13 (continued)
Sample Tag: Dupe 2

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/14/19 16:17, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acetone	35.1	250	2.8	ug/L	5	67-64-1	JBY
Methyl iodide	Not detected	5	1.3	ug/L	5	74-88-4	Y
Carbon disulfide	Not detected	30	1.2	ug/L	5	75-15-0	Y
tert-Methyl butyl ether (MTBE)	Not detected	30	0.95	ug/L	5	1634-04-4	Y
Acrylonitrile	Not detected	10	2.8	ug/L	5	107-13-1	Y
2-Butanone (MEK)	11.9	130	1.3	ug/L	5	78-93-3	JBY
Dichlorodifluoromethane	Not detected	30	2.5	ug/L	5	75-71-8	Y
Chloromethane	Not detected	30	1.3	ug/L	5	74-87-3	Y
Vinyl chloride	12	5	1.5	ug/L	5	75-01-4	Y
Bromomethane	Not detected	30	1.6	ug/L	5	74-83-9	Y
Chloroethane	Not detected	30	1.7	ug/L	5	75-00-3	Y
Trichlorofluoromethane	Not detected	5	1.6	ug/L	5	75-69-4	Y
1,1-Dichloroethene	Not detected	5	1.3	ug/L	5	75-35-4	Y
Methylene chloride	Not detected	30	1.4	ug/L	5	75-09-2	Y
trans-1,2-Dichloroethene	1.80	5	0.99	ug/L	5	156-60-5	JY
1,1-Dichloroethane	3.5	5	1.0	ug/L	5	75-34-3	JY
cis-1,2-Dichloroethene	290	5	1.3	ug/L	5	156-59-2	Y
Tetrahydrofuran*	11.9	450	6.3	ug/L	5	109-99-9	JBY
Chloroform	Not detected	5	1.0	ug/L	5	67-66-3	Y
Bromochloromethane	Not detected	5	1.9	ug/L	5	74-97-5	Y
1,1,1-Trichloroethane	1.7	5	1.4	ug/L	5	71-55-6	JY
4-Methyl-2-pentanone (MIBK)	Not detected	250	0.71	ug/L	5	108-10-1	Y
2-Hexanone	Not detected	250	1.4	ug/L	5	591-78-6	Y
Carbon tetrachloride	Not detected	5	0.98	ug/L	5	56-23-5	Y
Benzene	Not detected	5	1.00	ug/L	5	71-43-2	Y
1,2-Dichloroethane	Not detected	5	0.78	ug/L	5	107-06-2	Y
Trichloroethene	163	5	1.2	ug/L	5	79-01-6	Y
1,2-Dichloropropane	Not detected	5	1.0	ug/L	5	78-87-5	Y
Bromodichloromethane	Not detected	5	1.1	ug/L	5	75-27-4	Y
Dibromomethane	Not detected	30	1.0	ug/L	5	74-95-3	Y
cis-1,3-Dichloropropene	Not detected	5	0.97	ug/L	5	10061-01-5	Y
Toluene	Not detected	5	1.2	ug/L	5	108-88-3	Y
trans-1,3-Dichloropropene	Not detected	5	1.3	ug/L	5	10061-02-6	Y
1,1,2-Trichloroethane	Not detected	5	1.4	ug/L	5	79-00-5	Y
Tetrachloroethene	Not detected	5	1.0	ug/L	5	127-18-4	Y
trans-1,4-Dichloro-2-butene	Not detected	5	1.00	ug/L	5	110-57-6	Y
Dibromochloromethane	Not detected	30	1.2	ug/L	5	124-48-1	Y
1,2-Dibromoethane	Not detected	5	1.5	ug/L	5	106-93-4	Y
Chlorobenzene	Not detected	5	0.84	ug/L	5	108-90-7	Y
1,1,1,2-Tetrachloroethane	Not detected	5	1.2	ug/L	5	630-20-6	Y
Ethylbenzene	Not detected	5	1.3	ug/L	5	100-41-4	Y
p,m-Xylene*	Not detected	10	2.1	ug/L	5		Y
o-Xylene	Not detected	5	1.3	ug/L	5	95-47-6	Y
Styrene	Not detected	5	0.89	ug/L	5	100-42-5	Y
Isopropylbenzene	Not detected	30	1.2	ug/L	5	98-82-8	Y
Bromoform	Not detected	5	1.1	ug/L	5	75-25-2	Y
1,1,2,2-Tetrachloroethane	Not detected	5	0.90	ug/L	5	79-34-5	Y
1,2,3-Trichloropropane	Not detected	5	1.6	ug/L	5	96-18-4	Y
n-Propylbenzene	Not detected	5	1.1	ug/L	5	103-65-1	Y

J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank Y-Elevated reporting limit due to high target concentration

Lab Sample ID: S99533.13 (continued)
Sample Tag: Dupe 2

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 03/14/19 16:17, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Bromobenzene	Not detected	5	1.3	ug/L	5	108-86-1	Y
1,3,5-Trimethylbenzene	Not detected	5	1.3	ug/L	5	108-67-8	Y
tert-Butylbenzene	Not detected	5	0.90	ug/L	5	98-06-6	Y
1,2,4-Trimethylbenzene	Not detected	5	1.1	ug/L	5	95-63-6	Y
sec-Butylbenzene	Not detected	5	1.2	ug/L	5	135-98-8	Y
p-Isopropyltoluene	Not detected	30	1.0	ug/L	5	99-87-6	Y
1,3-Dichlorobenzene	Not detected	5	1.2	ug/L	5	541-73-1	Y
1,4-Dichlorobenzene	Not detected	5	1.1	ug/L	5	106-46-7	Y
1,2-Dichlorobenzene	Not detected	5	1.4	ug/L	5	95-50-1	Y
1,2,3-Trimethylbenzene	Not detected	5	0.31	ug/L	5	526-73-8	Y
n-Butylbenzene	Not detected	5	1.1	ug/L	5	104-51-8	Y
Hexachloroethane	Not detected	30	1.1	ug/L	5	67-72-1	Y
1,2-Dibromo-3-chloropropane	Not detected	30	2.3	ug/L	5	96-12-8	Y
1,2,4-Trichlorobenzene	Not detected	30	0.96	ug/L	5	120-82-1	Y
1,2,3-Trichlorobenzene	Not detected	30	1.0	ug/L	5	87-61-6	Y
Naphthalene	Not detected	30	1.1	ug/L	5	91-20-3	Y
2-Methylnaphthalene	Not detected	30	0.82	ug/L	5	91-57-6	Y

Y-Elevated reporting limit due to high target concentration

Merit Laboratories Login Checklist

Lab Set ID: S99533
Client: APPLIED (Applied Ecosystems)
Project: RACER Flint West #12990
Submitted: 02/28/2019 16:30 Login User: MMC

Attention: Rodney Abke
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 4.0
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[ ] Yes	[X] No	[ ] N/A	COC adequately filled out	Dupe1/2 not listed on COC. Missing collection times
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[X] Yes	[ ] No	[ ] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[X] Yes	[ ] No	[ ] N/A	Did any samples need to be preserved in the lab?	Dissolved metals
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[X] Yes	[ ] No	[ ] N/A	Samples require laboratory filtration	Dissolved metals and dissolved Hex. Chromium
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

Corrective action for all exceptions is to call the client and to notify the project manager.

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S99533 Initials: MMC

Client: APPLIED (Applied Ecosystems)

Project: RACER Flint West #12990

Submitted: 02/28/2019 16:30 Login User:

Attention: Rodney Abke
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: rabke@appliedecosystems.com

Lab ID	125 ml Plastic HNO_3	250 ml Plastic HNO_3	1 L Plastic HNO_3	250 ml Plastic H_2SO_4	125 ml Amber H_2SO_4	32 oz Glass HCl	125 ml Plastic NaOH	125 ml Amber $PbCO_3$ NaOH	pH					Notes
									<2	>12	other	ml add	new pH	
S99533.01	X								X					
S99533.02	X								X					
S99533.03	X								X					
S99533.04	X								X					
S99533.05	X								X					
S99533.06	X								X					
S99533.07	X								X					
S99533.08	X								X					
S99533.10	X								X					
S99533.11	X								X					
S99533.12	X								X					
S99533.13	X								X					

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # _____ OF _____

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Rodney Abke
COMPANY: Applied EcoSystems
ADDRESS: G-4300 South Saginaw Street
CITY: Burton | STATE: MI | ZIP CODE: 48529
PHONE NO.: 810-715-2525 | FAX NO.: 810-715-2526 | P.O. NO.: PO795930
E-MAIL ADDRESS: rabke@appliedecosystems.com | QUOTE NO.:

INVOICE TO

CONTACT NAME: Monica Wallingford ☐SAME
COMPANY: Revitalizing Auto Communities Environmental Response (RACER) Trust
ADDRESS:
CITY: | STATE: | ZIP CODE:
PHONE NO.: 313.486.2978 | E-MAIL ADDRESS: mwallingford@racertrust.org

PROJECT NO./NAME: RACER Flint West #12990 | SAMPLER(S) - PLEASE PRINT/SIGN NAME

TURNAROUND TIME REQUIRED ☐1 DAY ☐2 DAYS ☐3 DAYS ☒STANDARD ☐OTHER _____

DELIVERABLES REQUIRED ☒STD ☐LEVEL II ☐LEVEL III ☐LEVEL IV ☐EDD ☐OTHER _____

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications: ☐OHIO VAP ☐Drinking Water ☐DoD ☐NPDES
Project Locations: ☐Detroit ☐New York ☐Other _____
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	Metals, dissolved*	Metals, Total*	
99533.01	2-28	9:24	MW-1125	GW	5	1	3	1					X	X	X	* - Metals list incldues:
.02	2-28	10:39	MW-1035	GW	5	1	3	1					X	X	X	Ar, Cr-total, CR-Hex, Cu
.03	2-28	11:25	MW-1115	GW	5	1	3	1					X	X	X	Pb, Se, Zn
.04	2-28	11:58	MW-1085	GW	5	1	3	1					X	X	X	
.05	2-28	12:33	MW-1095	GW	5	1	3	1					X	X	X	
.06	2-28	1:08	MW-1145	GW	5	1	3	1					X	X	X	
.07	2-28	1:48	MW-1135	GW	5	1	3	1					X	X	X	
.08	2-28	2:27	MW-1105	GW	5	1	3	1					X	X	X	
			~~Trip Blank~~	W	2		2						X	~~X~~	~~X~~	
09			Trip Blank	W	2		2						X			
.10	2-28	2:47	Equipment Blank	W	5	1	3	1					X	X	X	
.11/.12/.13			Field Blank	W	5	1	3	1					X	X	X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Joshua Hendrickson ☑Sampler	DATE: 2-28-19	TIME: 3:24	
RECEIVED BY: SIGNATURE/ORGANIZATION:	DATE: 2/28/19	TIME: 5:06	
RELINQUISHED BY: SIGNATURE/ORGANIZATION:	DATE: 2/28/19	TIME: 16:30	
RECEIVED BY: SIGNATURE/ORGANIZATION:	DATE: 2/28/19	TIME: 1630	

RELINQUISHED BY: SIGNATURE/ORGANIZATION:		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION:		DATE	TIME
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	

NOTES: TEMP. ON ARRIVAL 4.0

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

ATTACHMENT #4: SOIL ANALYTICAL TABLES

TABLE 3
SOIL ANALYTICAL DATA (Metals and Detected VOCs)
RACER - Flint West #12990

				Sample ID:	SB-122	SB-123	SB124-4	SB124-10	SB124-21	SB125-4	SB125-13	SB125-19	SB126-4	SB126-11	SB126-15	SB127-4	SB127-8	SB127-15	SB127-20	SB128-3	SB128-7	SB128-10
				Date Collected:	4/30/2013	4/30/2013	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14
				Depth:	15-16	5-6	4	10	21	4	13	19	4	11	15	4	8	15	20	3	7	10
ANALYTE (ug/kg)	**DW**	GSI																				
Arsenic	5,800	5,800	D&G=B			1,130	1,100	1,830	570	1,440	1,410	1,300	1,250	1,180	410	1,630	2,060	1,780	500	1,550	1,150
Chromium	18,000	18,000	D&G=B			1,220	1,460	3,350	2,050	3,260	4,240	1,220	2,920	2,870	1,980	2,560	4,540	610	1,460	2,860	5,890
Copper	5,800,000	120,000	GX			1,700	2,300	8,200	7,400	6,100	11,400	3,400	3,100	5,600	1,600	3,000	5,800	1,200	3,900	5,600	5,300
Lead	700,000	5,000,000	GX			2,510	3,120	7,580	13,800	5,100	8,590	2,280	3,790	5,470	4,710	5,740	7,330	950	6,250	11,400	6,950
Selenium	4,000	410	G=B					210			210			160							
Zinc	2,400,000	2,600,000	G=B			4,600	5,100	19,000	11,400	12,200	20,800	5,900	8,600	14,700	3,700	10,300	20,300	2,400	6,000	13,200	9,900
ANALYTE (ug/kg)	**DW**	GSI																				
2 Butanone (MEK)	260,000	44,000				45	71	56		165	79	82	150	75	46	66	148	126	44	123	127
Acetone	15,000	NC																			
Vinyl Chloride	40	260									23										
1,1-Dichloroethene	140	2,600																			
trans-1,2-Dichloroethene	2,000	30,000																			
1,1-Dichloroethane	18,000	15,000																			
Methylene chloride	5	1,500		**100**	**18**																
cis-1,2-Dichloroethene	1,400	12,000		**1,600**				58			350										
Tetrahydrofuran	1,900	220,000				170	190	190	150	180	180	140	190	210	190	190	170	190	150	150	140
Chloroform	1,600	7,000									16										
1,1,1-Trichloroethane	4,000	1,800									11										
Benzene	100	4,000																			
Trichloroethene	100	4,000		**14,400**	41			**1,420**			**3,650**										
Tetrachloroethene	100	1,200			18																
Toluene	16,000	5,400				11															
Ethylbenzene	1,500	360																			
Total Xylenes	5,600	820			39																
Isopropylbenzene	91,000	3,200			65															16	
n-Propylbenzene	1,600	NC																			
1,2 -Dichlorobenzene	14,000	280																		21	
1,2,4-Trimethylbenzene	2,100	570			37																
1,2,3-Trimethylbenzene	NC	NC			42.1															13.5	
1,3,5-Trimethylbenzene	72	45			29																
p-isopropyltoluene	NC	NC			93																
1,2,3-Trichlorobenzene	NC	NC																			
Naphthalene	35,000	730			210	10.8			14.4	17		13.7			12.9		14.3			345.7	46.9
2-Methylnaphthalene	57,000	4,200			345	10.2			14	39		13	19				30		10	820	46

NOTES:

	Blank cells indicate no detectable c
X	Exceeds DW criteria
X	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria
X	Compound also found in associated
NC	Insufficient data to develop criterion
GX	Interface Criteria - calculated based on 257ppm total hardness

TABLE 3
SOIL ANALYTICAL DATA (Metals and Detected VOCs)
RACER - Flint West #12990

			Sample ID:	SB129-4	SB129-8	SB129-18	SB130-4	SB130-10	SB130-18	SB131-4	SB131-10	SB131-18	SB132-12	SB132-15	SB133-17	SB133-19	SB133-20	SB134-18	SB134-20	SB135-19	SB135-21
			Date Collected:	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	7/10/14	7/10/14	7/10/14	7/10/14	7/10/14	12/22/14	12/22/14	12/22/14	12/22/14
			Depth:	4	8	18	4	10	18	4	10	18	12	15	17	19	20	18	20	19	21
ANALYTE (ug/kg)	**DW**	GSI																			
Arsenic	5,800	5,800	D&G=B	2,790	1,740	1,460	3,580	1,700	1,980	1,630	1,300	2,080						380	1,690	1,900	2,080
Chromium	18,000	18,000	D&G=B	2,550	4,080	4,730	3,090	1,150	2,770	1,640	2,800	2,620									
Copper	5,800,000	120,000	GX	13,000	3,600	7,200	17,700	1,700	9,800	8,500	3,100	7,900						4,500	3,000	4,000	3,900
Lead	700,000	5,000,000	GX	104,000	6,100	7,420	123,000	2,110	6,510	36,400	4,740	6,020						5,690	3,380	2,850	2,890
Selenium	4,000	410	G=B	130		150	140														
Zinc	2,400,000	2,600,000	G=B	21,300	13,100	19,200	51,800	5,800	18,000	16,800	13,600	18,600						5,900	19,500	17,500	15,300
ANALYTE (ug/kg)	**DW**	GSI																			
2 Butanone (MEK)	260,000	44,000		40	53	82	69	68	70	79	65	164									
Acetone	15,000	NC																			
Vinyl Chloride	40	260							**73**			**90**	**180**	**89**	**46**					14	
1,1-Dichloroethene	140	2,600							34			18									
trans-1,2-Dichloroethene	2,000	30,000							100			62			18					11	
1,1-Dichloroethane	18,000	15,000							69			35			13						
Methylene chloride	5	1,500																			
cis-1,2-Dichloroethene	1,400	12,000				300			**6,380**			**2,820**	**2,200**	1,200	**1,990**	530	270		120	1,100	800
Tetrahydrofuran	1,900	220,000		150	180	180	180	170	160	150	180	160	1,500	300	150	160	117				
Chloroform	1,600	7,000																			
1,1,1-Trichloroethane	4,000	1,800				33.40									25	35	18				8.7
Benzene	100	4,000							36												
Trichloroethene	100	4,000				**6,170**			**6,080**	28		**12,160**	**29,500**	**13,700**	**11,680**	**10,860**	**7,520**		**2,040**	**7,890**	**6,540**
Tetrachloroethene	100	1,200														17					
Toluene	16,000	5,400		13		19	31			45								70			
Ethylbenzene	1,500	360					15											16			
Total Xylenes	5,600	820		21			92			91								85			
Isopropylbenzene	91,000	3,200					13														
n-Propylbenzene	1,600	NC					16											14			
1,2 -Dichlorobenzene	14,000	280																			
1,2,4-Trimethylbenzene	2,100	570		14			24			22											
1,2,3-Trimethylbenzene	NC	NC					13.4			11.8											
1,3,5-Trimethylbenzene	72	45																			
p-isopropyltoluene	NC	NC																			
1,2,3-Trichlorobenzene	NC	NC																			
Naphthalene	35,000	730		39.5	12.5		51.5			100.3								36.6			
2-Methylnaphthalene	57,000	4,200		43			54.1			71.8					15	12	9.2	29			

NOTES:

	Blank cells indicate no detectable c
X	Exceeds DW criteria
X	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria
X	Compound also found in associated
NC	Insufficient data to develop criterion
GX	Interface Criteria - calculated based on 257ppm total hardness

TABLE 3
SOIL ANALYTICAL DATA (Metals and Detected VOCs)
RACER - Flint West #12990

				Sample ID:	SB136-19	SB136-21	SB137-18	SB137-20.5	SB138-15	SB138-18	SB139-16	DUP-1	SB139-18	SB140-16	SB140-19	SB141-16	SB141-18	SB141-19
				Date Collected:	12/22/14	12/22/14	12/22/14	12/22/14	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019
				Depth:	19	21	18	20.5	15	18	16	(SB139-16)	18	16	19	16	18	19
ANALYTE (ug/kg)	**DW**	GSI																
Arsenic	5,800	5,800	D&G=B	1,870	3,350	1,660	3,040											
Chromium	18,000	18,000	D&G=B															
Copper	5,800,000	120,000	GX	4,600	4,300	4,200	4,500											
Lead	700,000	5,000,000	GX	3,060	3,740	2,810	3,240											
Selenium	4,000	410	G=B															
Zinc	2,400,000	2,600,000	G=B	13,600	18,800	13,500	27,300											
ANALYTE (ug/kg)	**DW**	GSI																
2 Butanone (MEK)	260,000	44,000												2,300				
Acetone	15,000	NC											430					360
Vinyl Chloride	40	260					**56**						**42**					
1,1-Dichloroethene	140	2,600											63					
trans-1,2-Dichloroethene	2,000	30,000				14			13				200					
1,1-Dichloroethane	18,000	15,000											90					
Methylene chloride	5	1,500						**22**	**25.7**	**230**	**210**	**32**	**260**	**30**	**27**	**25**	**26**	
cis-1,2-Dichloroethene	1,400	12,000		340	450	670	290	470	550	**1,800**	1000	**8,850**	**3,500**	150	15	**2,900**	860	
Tetrahydrofuran	1,900	220,000						174	121	1,800	1750	180	1,800	155	161	170	155	
Chloroform	1,600	7,000																
1,1,1-Trichloroethane	4,000	1,800		12.5		20.5			7.4					14.8				
Benzene	100	4,000										20						
Trichloroethene	100	4,000		**8,760**	**9,390**	**4,250**		**2,880**	**2,300**	**21,000**	**16,300**	**3,440**	**13,100**	**2,870**	**180**	**6,150**	**3,370**	
Tetrachloroethene	100	1,200												11.9				
Toluene	16,000	5,400																
Ethylbenzene	1,500	360																
Total Xylenes	5,600	820																
Isopropylbenzene	91,000	3,200																
n-Propylbenzene	1,600	NC																
1,2 -Dichlorobenzene	14,000	280								136								
1,2,4-Trimethylbenzene	2,100	570																
1,2,3-Trimethylbenzene	NC	NC																
1,3,5-Trimethylbenzene	72	45																
p-isopropyltoluene	NC	NC																
1,2,3-Trichlorobenzene	NC	NC												130				
Naphthalene	35,000	730																
2-Methylnaphthalene	57,000	4,200																

NOTES:

	Blank cells indicate no detectable c
X	Exceeds DW criteria
X	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria
X	Compound also found in associated
NC	Insufficient data to develop criterion
GX	Interface Criteria - calculated based on 257ppm total hardness

ATTACHMENT #5: PRE AND POST HRC INJECTION ANALYTICAL RESULTS AND NATURAL ATTENUATION PARAMETERS

Applied *Eco*Systems, Inc.
Environmental Management, Consulting & Field Services

Applied EcoSystems, Inc.
Environmental Management, Consulting & Field Services

Table 5
Pre and Post HRC Injection Analytical Results and Natural Attenuation Parameters
Racer Flint West #12990, Flint, Michigan

Michigan Department of Environmental Quality Risk Based Screening Levels						Vinyl Chloride	Chloroethane	1,1-Dichloroethylene (1,1-DCE)	trans-1,2-Dichloroethylene (trans-1,2,-DCE)	1,1-Dichloroethane (1,1-DCA)	cis-1,2-Dichloroethylene (cis-1,2-DCE)	1,1,1-Trichloroethane	1,2-Dichloroethane (1,2-DCA)	Trichloroethylene (TCE)	Tetrachloroethylene (PCE)	Chromium, VI	Chromium, VI (Dissolved)	Arsenic	Arsenic (Dissolved)	Chromium, Total	Chromium, Total (Dissolved)	Copper	Copper (Dissolved)	Iron	Iron (Dissolved)	Lead	Lead (Dissolved)	Manganese	Manganese (Dissolved)	Selenium	Selenium (Dissolved)	Zinc	Zinc (Dissolved)	Total Organic Carbon	Methane	pH (from water quality meter)	Dissolved oxygen (mg/L) (from water quality meter)	Conductivity (mS/cmc) (from water quality meter)	Oxygen Reduction Potential (mV) (from water quality meter)
Drinking Water - Res						**2**	**430**	**7**	**100**	**880**	**70**	**200**	**5**	**5**	**5**	**100**	**100**	**10**	**10**	**100**	**100**	**1,000**	**1,000**	**300**	**300**	**4**	**4**	**50**	**50**	**50**	**50**	**2,400**	**2,400**	**NA**	**ID**	**NA**	**NA**	**NA**	**NA**
Groundwater Surface Water Interface						*13*	*1,100*	*130*	*1,500*	*740*	*620*	*89*	*360*	*200*	*60*	*160*	*160*	*10*	*10*	*11*	*11*	*20*	*20*	*NA*	*NA*	*44*	*44*	*4,500*	*4,500*	*5*	*5*	*260*	*260*	*NA*	*ID*	*NA*	*NA*	*NA*	*NA*
Sample Location	**TOC (feet)**	**DT NAPL (feet)**	**DTW (feet)**	**GW Elev (feet)**	**Sample Date**																																		
MW-109S	714.62	ND	11.21	703.41	**06/28/18**	**7**	<5	4	0.54	2	33	<1	<1	**66**	<1	NA	NA	0.396	0.538	<5	<5	1.36	0.483	40	30	0.111	<3	**817**	**807**	<5	<3	2.67	<5	4,100	70	7.19	0.99	0.775	-99.1
SI: 9-14' bgs	714.62	ND	12.84	701.78	**08/08/18**	***14***	<5	5	0.79	2	43	0.41	<1	**98**	0.19	<10	<10	0.572	1.179	0.151	<5	1.07	1.203	80	30	0.074	0.063	**1,040**	**1,010**	<5	<5	2.62	5	5,700	90	7.11	1.06	0.785	-42.9
Dist to IP: 51'	714.62	ND	10.69	703.93	**09/05/18**	***42***	<5	2	0.7	1	68	1	<1	**17**	<1	<10	<10	5	4	<5	<5	1	1	NA	NA	<3	<3	NA	NA	1	4	5	3	NA	NA	NA	NA	NA	NA
	714.62	ND	11.57	703.05	**10/16/18**	***26***	<0.34	0.74	0.62	1	42	<0.28	<0.30	**8**	<0.20	<20	<10	***28***	***21***	0.418	0.245	0.907	0.474	**14,500**	**9,710**	0.074	<0.055	**459**	**453**	<2.51	<2.51	2	4	24,100	200	7.54	3.62	NA	-165.3
	714.62	ND	12.01	702.61	**01/17/19**	**3**	<0.34	0.37	0.36	0.82	6	<0.28	<0.16	**11**	<0.20	<20	<10	***32***	5	0.161	0.258	<0.375	<0.375	**18,300**	150	<0.19	<0.19	**325**	**314**	<2.09	<2.09	2	2	5,500	450	7.38	1.08	0.715	32.3
	714.62	ND	11.71	702.91	**02/28/19**	**5**	<0.34	0.60	0.41	0.97	9	<0.28	<0.16	**13**	<0.20	<10	<10	***39***	2	0.6	0.246	0.381	<0.375	NA	NA	0.206	<0.375	NA	NA	<2.09	<2.09	2.19	2.77	NA	NA	7.77	0.57	0.807	-127.1
MW-111S	719.53	ND	13.14	706.39	**06/28/18**	<1	<5	<1	<1	<1	<1	<1	<1	**7**	<1	NA	NA	<2	<2	5	5	<5	0.911	9.71	12.7	<3	<3	0.877	1.847	<5	<5	7	2.42	9,900	<1	7.18	2.86	0.810	-120.7
SI: 9-14' bgs	719.53	ND	14.01	705.52	**08/08/18**	<1	<5	<1	<1	<1	0.95	<1	<1	**6**	<1	<10	<10	9	4	2.754	1.11	0.674	0.527	**2,830**	**850**	0.192	0.103	**385**	**321**	<5	<5	3.67	6	19,000	<1	7.09	1.12	0.847	-47.3
Dist to IP: 0'	719.53	ND	13.28	706.25	**08/30/18**	<1	<5	<1	<1	0.27	5	<1	<1	**12**	<1	<10	<10	<2	<2	5	4	1	1	NA	NA	<3	<3	NA	NA	2	5	2	6	NA	NA	7.52	0.97	0.796	8.1
	719.53	ND	13.48	706.05	**10/16/18**	<0.24	<0.21	<0.27	<0.14	0.19	4	<0.27	<0.17	**10**	<0.13	<4	<4	<0.385	<0.385	7	6	0.631	0.872	20	15	<0.055	<0.055	11	11	<1.38	<2.51	<1.38	<1.38	7,000	1,400	7.04	3.73	NA	93
	719.53	ND	14.29	705.24	**01/17/19**	<0.31	<0.34	<0.27	<0.20	0.47	9	<0.28	<0.16	**23**	<0.20	<4	<4	0.808	0.338	5	5	0.752	0.767	80	30	<0.19	<0.19	12	1.28	<2.09	<2.09	<0.73	1.84	6,300	280	6.99	2.68	0.726	186.1
	719.53	ND	14.01	705.52	**02/28/19**	<0.31	<0.34	<0.27	<0.27	0.76	13	<0.28	<0.16	**39**	<0.2	<4	<4	0.759	0.317	4.651	4.979	0.691	1.320	NA	NA	<0.19	<0.19	NA	NA	<2.09	<2.09	0.776	7	NA	NA	6.60	2.43	0.781	-4.9
MW-112S	720.00	ND	14.50	705.50	05/29/18	**9**	<5	1	0.25	1	3	<1	<1	**13**	<1	<1	<1	***60***	***23***	0.296	0.431	<5	<5	NA	NA	0.062	<3	NA	NA	<5	<5	4.76	8	NA	NA	7.05	1.05	0.709	-65.7
SI: 15-20' bgs	720.00	ND	14.72	705.28	**06/28/18**	**8**	0.62	1	0.21	0.92	2	<1	<1	**7**	<1	NA	NA	***52***	***29***	0.38	0.499	<5	<5	**5,150**	**2,320**	0.181	0.083	**258**	**263**	<5	<5	<5	3.49	22,000	1,600	7.39	0.60	0.672	-116.6
Dist to IP: 83'	720.00	ND	15.58	704.42	**08/14/18**	1	<5	<1	<1	0.57	0.82	<1	<1	1	<1	<5	<1	***104***	***78***	0.37	0.411	<5	0.453	**6,490**	**4,730**	0.084	0.097	**191**	**185**	<5	<5	2.05	5	36,000	1,300	7.33	1.35	0.725	17.1
(up gradient)	720.00	ND	14.75	705.25	**09/05/18**	**5**	<5	0.66	<1	0.63	2	<1	<1	**7**	<1	<20	<10	***104***	***52***	<5	<5	<5	<5	NA	NA	<3	<3	NA	NA	3	1	4	2	NA	NA	NA	NA	NA	NA
	720.00	ND	15.10	704.90	**10/16/18**	**3**	<0.21	0.78	0.17	0.71	2	<0.27	<0.17	**8**	<0.13	<10	<10	***75***	***39***	0.94	0.480	<0.29	<0.29	**5,670**	**3,380**	0.109	0.069	**250**	**233**	<2.51	<2.51	2	4.49	35,100	<0.17	7.23	0.77	NA	-87.7
	720.00	ND	16.63	703.37	**01/17/19**	**4**	<0.34	0.99	0.23	1	6	<0.28	<0.16	**11**	<0.20	<0.01	<0.01	***83***	***26***	0.206	0.351	<0.375	<0.375	**6,940**	**850**	<0.19	<0.19	**588**	**608**	<2.09	<2.09	<0.73	4.61	17,700	770	7.17	0.32	0.632	99.6
	720.00	ND	16.20	703.80	**02/28/19**	2	<0.34	0.41	<0.2	0.82	2	<0.28	0.82	3	<0.20	<10	<10	***102***	***35***	0.507	0.357	<0.375	<0.375	NA	NA	<0.19	<0.19	NA	NA	<2.09	<2.09	0.774	0.431	NA	NA	7.67	6.21	0.73	-104.1
MW-113S	714.00	ND	12.37	701.63	**06/28/18**	<1	<5	<1	<1	0.31	4	<1	<1	**28**	<1	NA	NA	6	3	4.5	1.97	6	<5	**2,290**	**1,220**	<3	<3	**58**	**55**	<5	<5	<5	<5	4,800	19	7.05	0.67	0.918	-108.6
SI: 8-13' bgs	714.00	ND	12.75	701.25	**08/08/18**	0.39	<5	<1	<1	<1	6	<1	<1	**13**	<1	<10	<10	***13***	6	5	1.209	0.524	<5	**3,830**	**790**	0.207	0.061	**100**	**108**	<5	<5	6	<5	7,500	19	6.93	1.06	0.831	-55.7
Dist to IP: 64'	714.00	ND	11.78	702.22	**08/30/18**	<1	<5	<1	<1	<1	<1	<1	<1	1	<1	<10	<10	<2	<2	1	1	1	1	NA	NA	<3	<3	NA	NA	3	<5	5	5	NA	NA	7.27	1.19	0.920	30.2
	714.00	ND	12.73	701.27	**10/16/18**	1	<0.21	<0.27	<0.14	<0.15	8	<0.27	<0.17	**21**	<0.13	<10	<10	7	6	***23***	***21***	0.876	0.29	**2,170**	**1,500**	<0.055	<0.055	**96**	**97**	<2.51	<2.51	<0.138	2	8,400	260	6.93	3.95	NA	-215.2
	714.00	ND	13.11	700.89	**01/17/19**	2	<0.34	<0.27	<0.20	<0.20	7	<0.28	<0.16	**18**	<0.20	<4	<4	***210***	10	7	3.35	0.413	<0.375	**4,070**	**830**	0.259	<0.19	**387**	**185**	<2.09	<2.09	1.29	1.68	5,400	<0.17	6.91	0.45	0.897	139.6
	714.00	ND	12.82	701.18	**02/28/19**	1	<0.34	<0.27	<0.20	<0.20	2	<0.28	<0.16	**9**	<0.20	<10	<10	***13***	1.11	***13***	1.61	3.060	1.340	NA	NA	1.140	1.340	NA	NA	<2.09	<2.09	13	8	NA	NA	7.03	2.45	0.998	-45.4
MW-114S		ND	9.05	-9.05	**08/08/18**	**9**	<30	<5	<5	3.1	**113**	2.3	<5	***348***	<5	0.105	0.106	<2	0.418	***102***	***102***	1.457	1.116	20	<20	0.169	<3	**288**	**225**	<5	<5	6	6	4,400	190	7.27	0.78	0.834	-36.3
SI: 7-12' bgs		ND	7.95	-7.95	**09/05/18**	**9.5**	<50	<10	<10	3.6	**490**	<10	<10	***210***	<10	6	<10	2	1	9	7	3	2	NA	NA	<3	<3	NA	NA	3	1	3	4	NA	NA	NA	NA	NA	NA
Dist to IP: 61'		ND	8.78	-8.78	**10/16/18**	**7**	<1.7	<1.3	1.9	2.5	**166**	<1.4	<0.78	**167**	<1	<4	<4	***23***	***16***	0.975	0.751	2.911	2.661	**620**	**460**	0.094	0.061	**2,060**	**1,990**	<2.51	<2.51	8	2.37	5,900	190	7.23	3.58	NA	-76.4
		ND	9.20	-9.20	**01/17/19**	**10**	<1.7	<1.3	1.7	3.1	**292**	1.7	<1	***225***	<1	<10	<10	***77***	***43***	0.114	0.309	1.740	0.973	**5,810**	**1,540**	<0.19	<0.19	**993**	**960**	<2.09	<2.09	1.27	3.28	9,700	280	7.26	0.17	0.762	55.1
		ND	8.92	-8.92	**02/28/19**	**12**	<1.7	<1.3	1.9	3.2	**295**	<1.4	<0.78	**162**	<1	<20	<20	***86***	***28***	0.258	0.172	1.920	0.823	NA	NA	0.191	<0.19	NA	NA	<2.09	<2.09	3.98	3.98	NA	NA	7.94	0.61	0.828	-134.5

Results in micrograms per liter (ug/L) except where otherwise noted.

See laboratory report for additional volatile organic compound analyzed.

Dist to IP = Distance to nearest HRC injection point.