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: October 16, 2018

SUBJECT: RACER Flint West Industrial Land (#12990)
Summary of Additional Site Investigation

CONTENTS:

1.0 Introduction……..2
2.0 Monitoring Activities Completed…….....3
3.0 Monitoring Results……...4
4.0 Proposed Additional Monitoring…….....6
5.0 Proposed Schedule……....6

FIGURES:

Figure 1: Site Location Map
Figure 2: Soil Boring and Well Location Map
Figure 3: Groundwater Contour Map – August 30, 2018
Figure 4: Summary of Drinking Water and GSI Exceedances in Groundwater (2012-2018)
Figure 5: Summary of Drinking Water and GSI Exceedances in Soil (2012-2014)
Figure 6: PFOS-PFAS Groundwater Analytical Map

ATTACHMENTS:

Attachment 1: Cross Section Diagrams
Attachment 2: Groundwater Analytical Tables (All investigations conducted by RACER to-date)
Attachment 3: Groundwater Analytical Laboratory Reports
Attachment 4: Soil Analytical Tables (All investigations conducted by RACER to-date)

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1.0 INTRODUCTION

Applied EcoSystems, Inc. (Applied EcoSystems) completed well redevelopment of on-site wells, routine monitoring of on-site wells, sampling of off-site wells on the adjoining Genesee County Parks (GCP) property (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), and pilot test Hydrogen Release Compound (HRC) injections into boreholes on- and off-site (as outlined in the Work Plan HRC Pilot Test and Addendum) for the RACER Trust Flint West Industrial Land - #12990 Site.

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 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 (except MW-108S, MW-109S, MW-110S, and MW-113S) were re-developed on May 16, 2018, using an electric submersible pump. Groundwater was pumped from each well until visually clear of sediment.
- All wells (except MW-108S, MW-109S, MW-110S, and MW-113S) were gauged. No NAPL was encountered.
- All wells (except MW-100S, MW-104S, MW-106SR, MW-108S, MW-109S, MW-110S, and MW-113S) were sampled on May 29, 2018. Samples were analyzed for volatile organic compounds (VOCs), and the following metals (total and dissolved): arsenic, chromium (total and hexavalent), copper, lead, selenium, and zinc. In addition, per- and ployfluoroalkyl substances (PFAS), including Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS), and 1,4-dioxane (8260 SIMS mode) analysis was conducted for groundwater samples collected from the following monitoring wells: MW-101S, MW-102S, MW-111S and MW-112S.
- All monitoring wells were sampled on August 30, 2018 or September 5, 2018. Samples were analyzed for VOCs, and the following metals (total and dissolved): arsenic, chromium (total and hexavalent), copper, lead, selenium, and zinc. In addition, PFAS, including PFOA and PFOS analysis was conducted for groundwater samples collected from all monitoring wells.

Analytical results of each sampling event are attached. A Soil Boring and Well Location Map is attached as Figure 2. A Groundwater Contour Map, prepared using the August 30, 2018 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.

HRC Pilot Test

- On June 28, 2018, prior to HRC injection, groundwater samples were collected from MW-109S, MW-111S, MW-112S and MW-113S and submitted to Merit Laboratories to 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 (ORP), pH, dissolved oxygen, and conductivity were measured with a meter in the field during sampling.

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- Injection of HRC associated with the pilot test was conducted on July 2 and 3, 2018 on the Site and the adjoining GCP property. A Geoprobe® direct-push track-mounted unit was used to complete the injection. An injection point was advanced into the subsurface at each boring location until bedrock was encountered, at approximately 20 feet below grade. The injection point was then retracted while the HRC was injected into a five-foot interval, using a grout pump. A total of 1,200 pounds of HRC were injected in equal volumes in 24 injection points at pressures of 600 to 1,000 pounds per square inch (psi). Approximately five gallons of potable water was injected through the drill tooling before and after injection of the HRC. The HRC was also preheated to approximately 140° F prior to injection.
- Groundwater samples were collected from monitoring wells MW-109S, MW-111S, MW-112S, MW-113S, and MW-114S on August 8 and 14, 2018. 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 1.

3.0 MONITORING RESULTS

Comparison of groundwater data 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 104 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, 100ug/L in January 2018). Total metals results are generally lower than previous sampling events and appear to have been influenced by turbidity and the turbidity decreased as a result of well redevelopment. The dissolved metals concentrations are considered to be more representative of site conditions for the purposes of this assessment.

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Table 1.0 – Dissolved Metals Exceedances in Groundwater

Well ID	Metal	Drinking Water Criterion	GSI Criterion	Result
MW-103S	Dissolved Arsenic	**10**	**10**	19
MW-105S	Dissolved Selenium	50	**5**	8
MW-112S	Dissolved Arsenic	**10**	**10**	52

- 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	40
MW-109S	Vinyl Chloride	**2**	**13**	42
MW-109S	Trichloroethene	**5**	200	17
MW-111S	Trichloroethene	**5**	200	12
MW-112S	Vinyl Chloride	**2**	13	5
MW-112S	Trichloroethene	**5**	200	7
MW-114S	Vinyl Chloride	**2**	13	9.5
MW-114S	cis-1,2-Dichloroethene	**70**	620	490
MW-114S	Trichloroethene	**5**	**200**	210

- All results are expressed in ug/L

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

No 1,4-dioxane was detected.

Various PFAS, including PFOA, and PFOS compounds were detected. The concentrations do not exceed the 70 ng/L combined drinking water cleanup criterion for PFOA and PFOS established by MDEQ on January 10, 2018. Detected concentrations of PFOA did not exceed the MDEQ's October 21, 2016 Rule 57 drinking water value of 12,000 ng/L for non-drinking water sources. Detected concentrations of PFOS ranged from 12 to 47 ng/L. The reported concentrations of PFOS in MW-111S and MW-112S exceed MDEQ's October 21, 2016 Rule 57 surface water quality value of 12 ng/L for non-drinking water sources.

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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 May 2018 and August/September 2018 groundwater monitoring event are included as Attachment 3. Overall contaminant concentrations appear to indicate a trend of decreasing concentrations of contaminants. Figure 4 illustrates the GSI and drinking water exceedances in groundwater identified in groundwater samples collected from 2012 through 2018. Figure 6 includes data boxes for PFAS results.

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

Figure 5 is a map showing a summary of drinking water and GSI exceedances in soil from 2012 through 2014. Tables, showing all soil analytical results for samples collected on behalf of RACER, are included as Attachment 4.

4.0 ADDITIONAL MONITORING

An additional round of groundwater monitoring was conducted in August/September, 2018, including all off-site wells. The samples were analyzed for VOCs and the following metals (total and dissolved); arsenic, chromium (total and hexavalent), copper, lead, selenium, and zinc. In addition, PFAS are being analyzed. As of the date of this report, PFAS results have not been received from the laboratory.

5.0 SCHEDULE:

Post-injection sampling/analysis, as outlined in the Work Plan and Work Plan Addendum, is scheduled to be conducted in October, 2018 and January, 2019.

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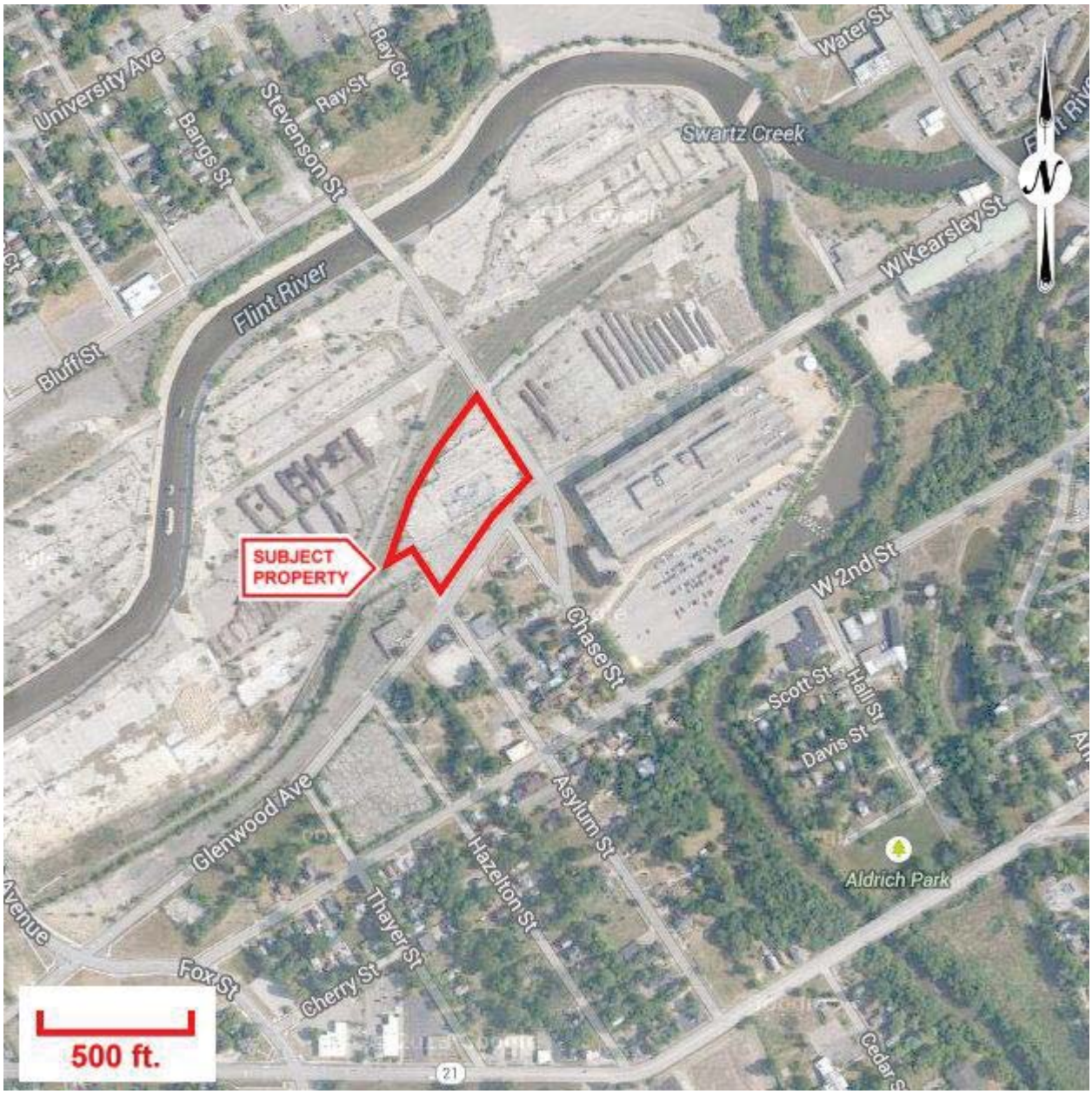
FIGURES

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.

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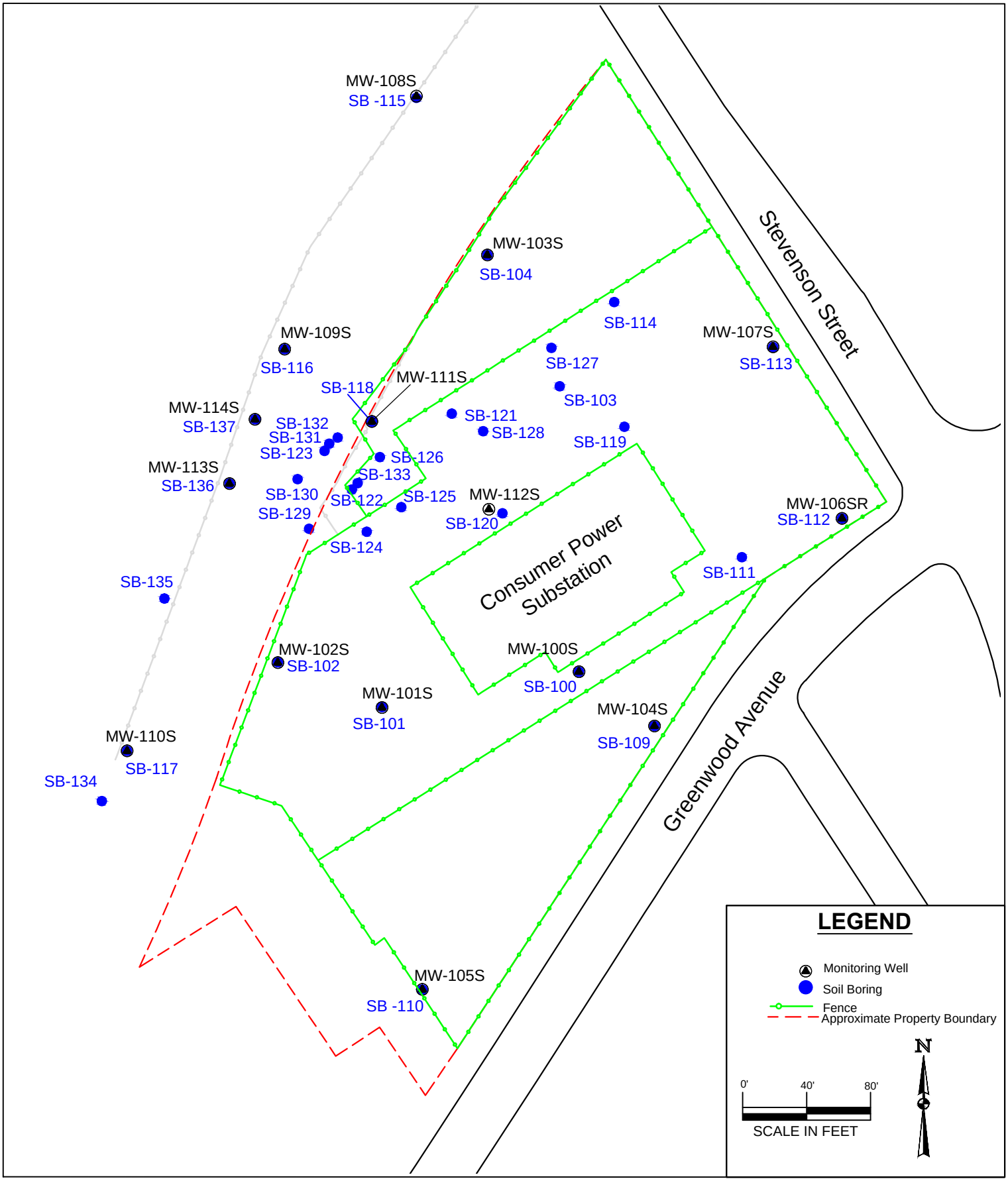

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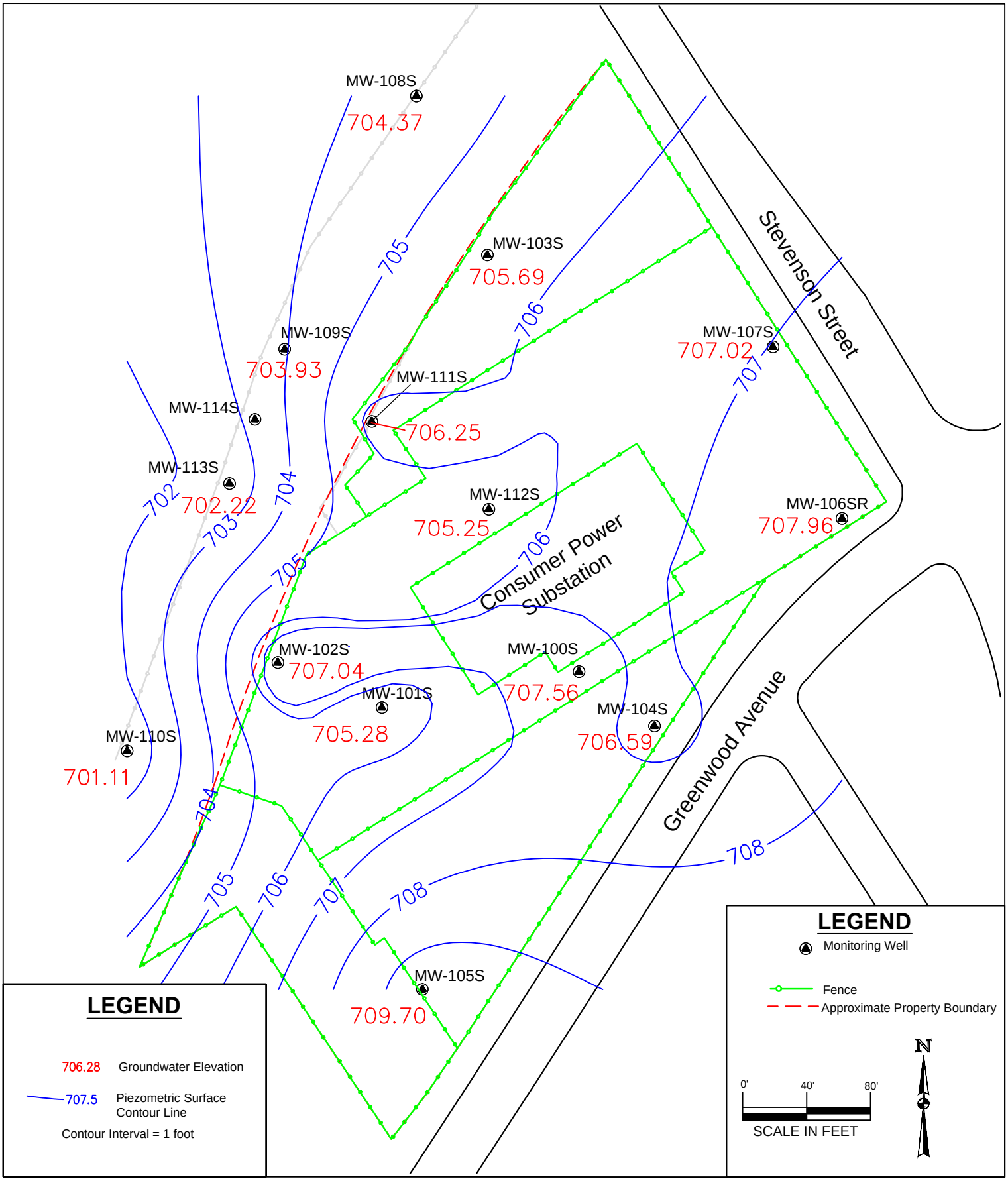
Soil Boring and Well Location Map

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

DATE:	CHECKED BY:
July 24, 2018	MDS
PROJECT:	**FIGURE:**
11-4317-102	2



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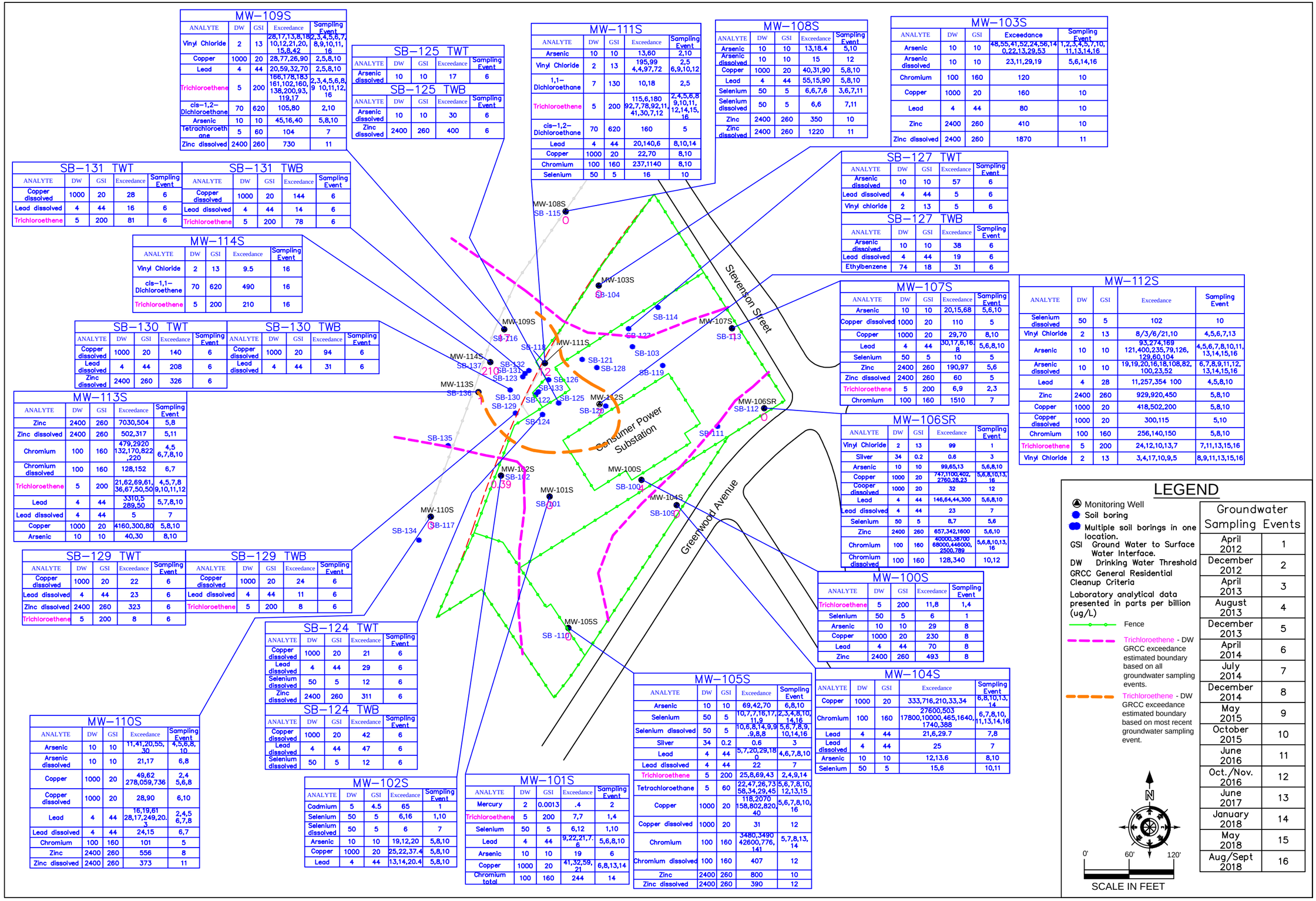
Groundwater Contour Map (August 30, 2018)

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

DATE:	CHECKED BY:
September 4, 2018	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	2,3,4,5,6,7,8,9,10,11,16
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	2,3,4,5,6,8,9,10,11,12,16
cis-1,2-Dichloroethane	70	620	105,80	2,10
Arsenic	10	10	45,16,40	5,8,10
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	2,4,5,6,8 9,10,11,12,14,15,16
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	48,55,41,52,24,56,14 0,22,13,29,53	1,2,3,4,5,7,10,11,13,14,16
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
Vinyl Chloride	2	13	9.5	16
cis-1,1-Dichloroethene	70	620	490	16
Trichloroethene	5	200	210	16

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

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	93,274,189 121,400,235,79,126,129,60,104	4,5,6,7,8,10,11,13,14,15,16
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	4,5,7,8 9,10,11,12
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	8,10

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

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

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-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	2,3,4,8,10,14,16
Selenium dissolved	50	5	10,6,8,14,9,9,9,8,8	5,6,7,8,9,10,14,16
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	5,6,7,8,10,12,13,15
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

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

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.
- Trichloroethene - DW GRCC exceedance estimated boundary based on most recent groundwater sampling event.

N

0' 60' 120'

SCALE IN FEET

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

DATE: August 15, 2018	CHECKED BY: MDS
PROJECT: 11-4317-102	FIGURE: 4

Summary of Drinking Water and Groundwater to Surface Water Interface Exceedances in Groundwater 2012 to 2018

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

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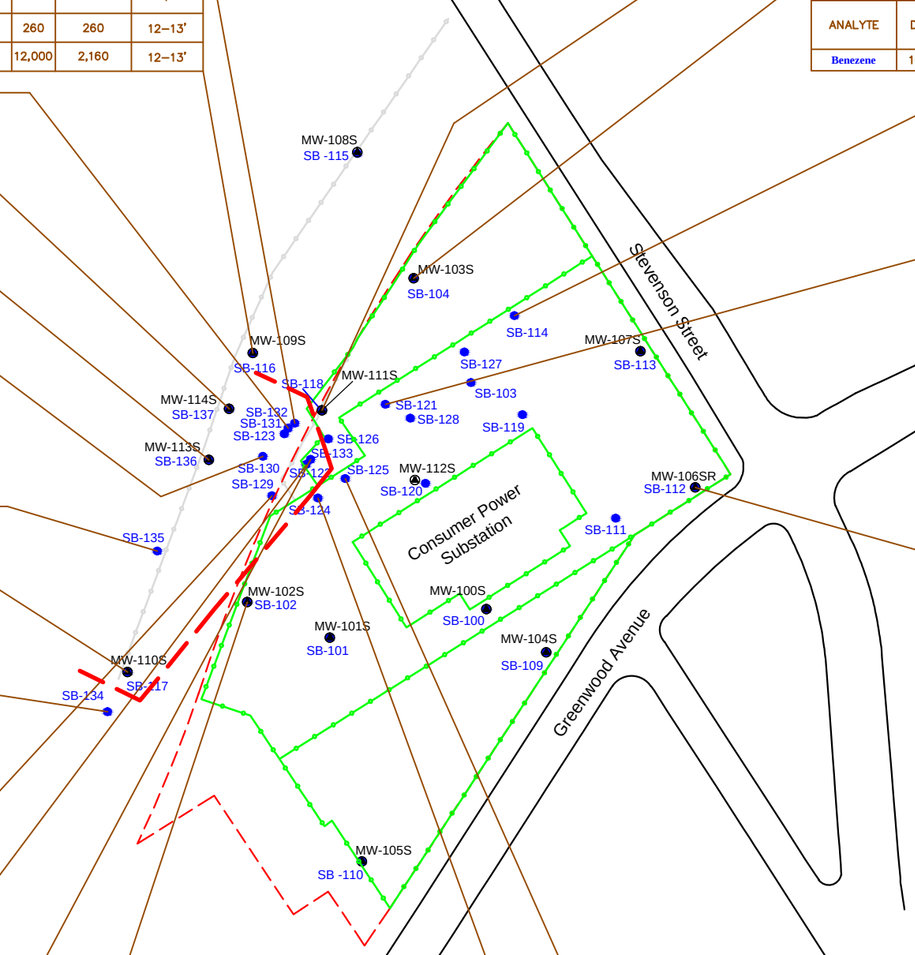

7/10/2014 SB–132				
ANALYTE	DW	GSI	Exceedance	Sampling Depth
Trichloroethene	100	4,000	29,500 / 13,700	11.5–12' 14.5–15'
Vinyl chloride	40	260	180 / 89	11.5–12' 14.5–15'
cis-1,2-Dichloroethene	1,400	12,000	2,200	11.5–12'

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'

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'

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'

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

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'

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'

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–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'

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'

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'

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

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.
- Analyte — Exceeds GSI and DW criteria
- Analyte — Exceeds DW criteria only
- Analyte — Exceeds GSI criteria only
- Approximate extent of TCE exceedances of GSI protection criteria

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

Fence

0' 60' 120'
SCALE IN FEET

N

DATE: July 23, 2018	CHECKED BY: MDS
PROJECT: 11-4317-102	FIGURE: 5

Summary of Drinking Water and GSI Exceedances in Soil 2012 - 2014

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

Applied EcoSystems, Inc.
Environmental Management, Consulting & Field Services
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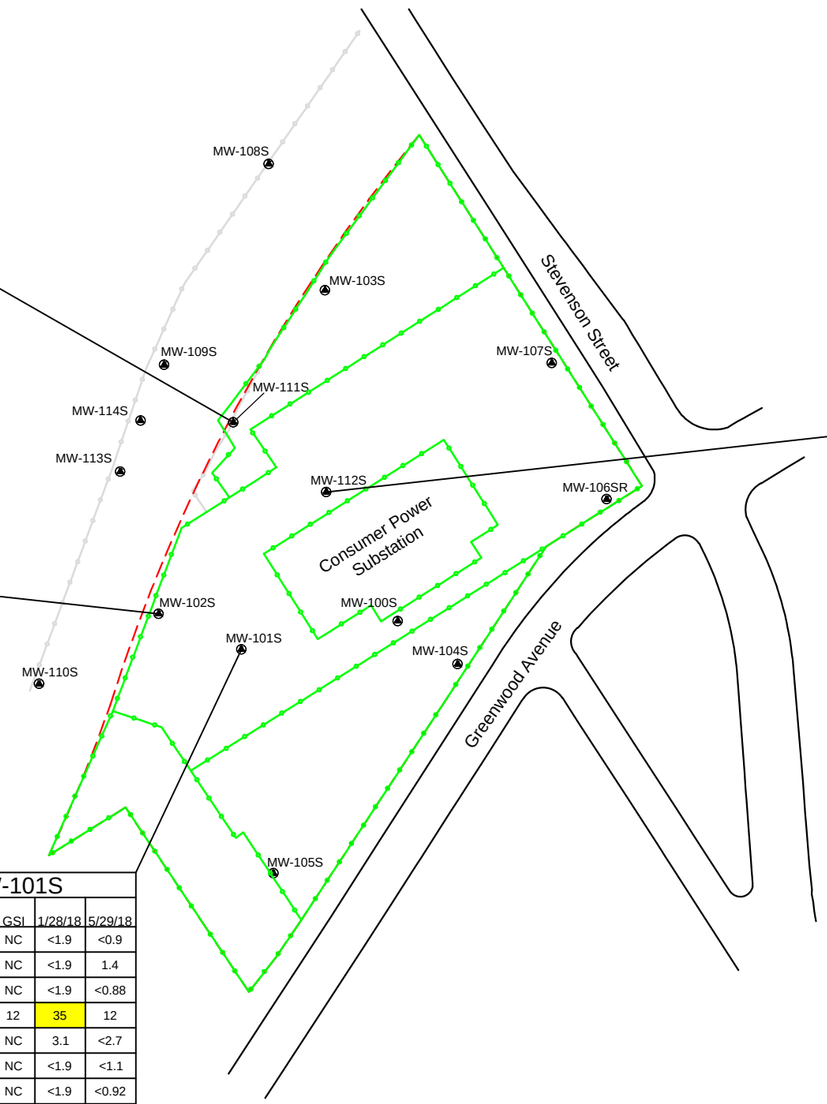
Phone: 810.715.2525; Fax: 810.715.2526

MW-111S

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



MW-112S

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

MW-102S

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

MW-101S

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

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 Constiunents

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

DATE: September 12, 2018	CHECKED BY: MDS
PROJECT: 11-4317-102	FIGURE: 6

PFOS-PFAS Groundwater Analytical Map

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

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ATTACHMENTS

ATTACHMENT #1: CROSS SECTION DIAGRAMS

Cross Section Diagram Key

	Topsoil	Gravelly Sand	Fine to Medium Sand	Concrete	Silty Sand	Silty Clay	Sandy Clay	Silty Clay and Sand	Silty Shale
Generalized Stratigraphy									
Borehole Stratigraphy									

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

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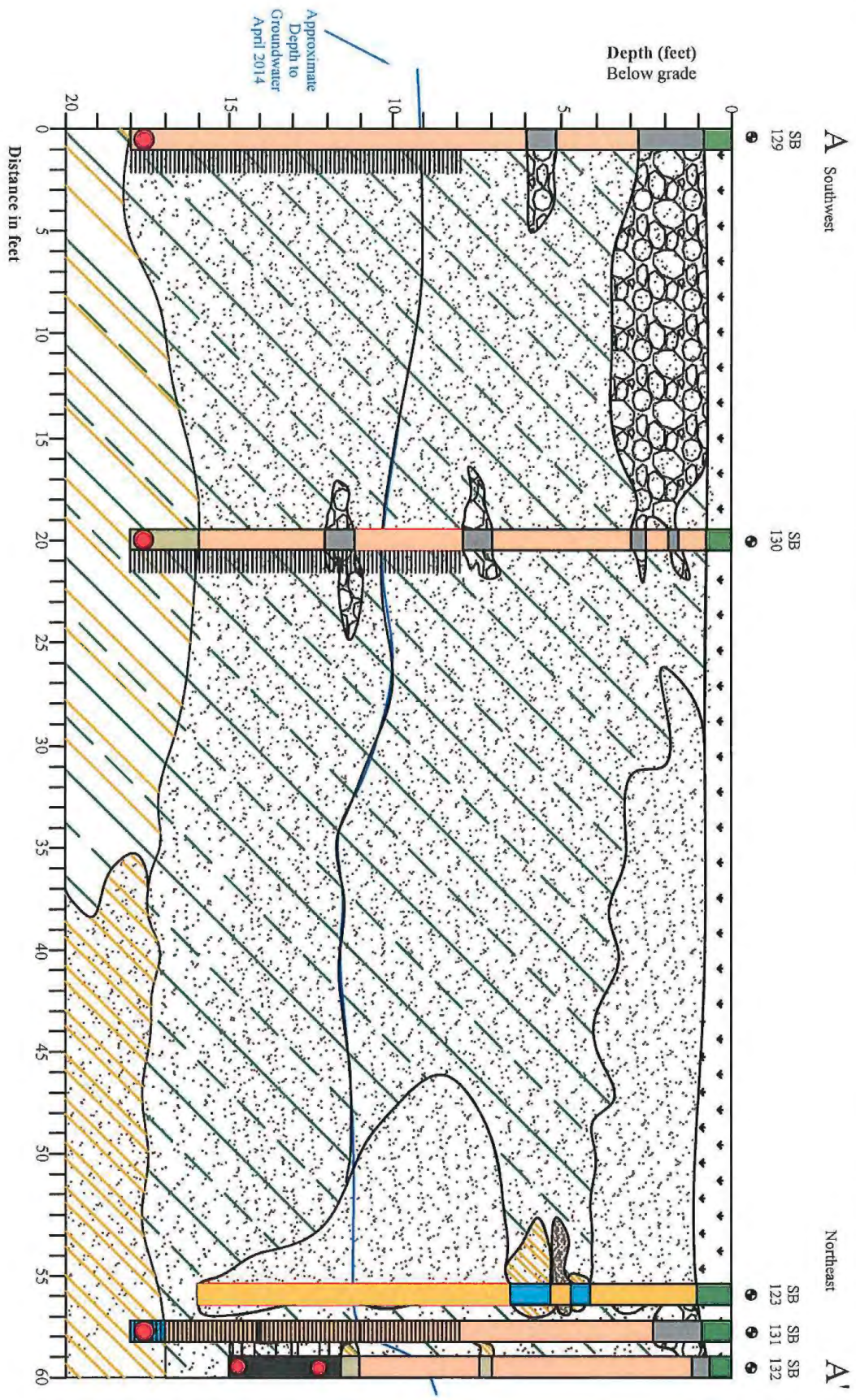

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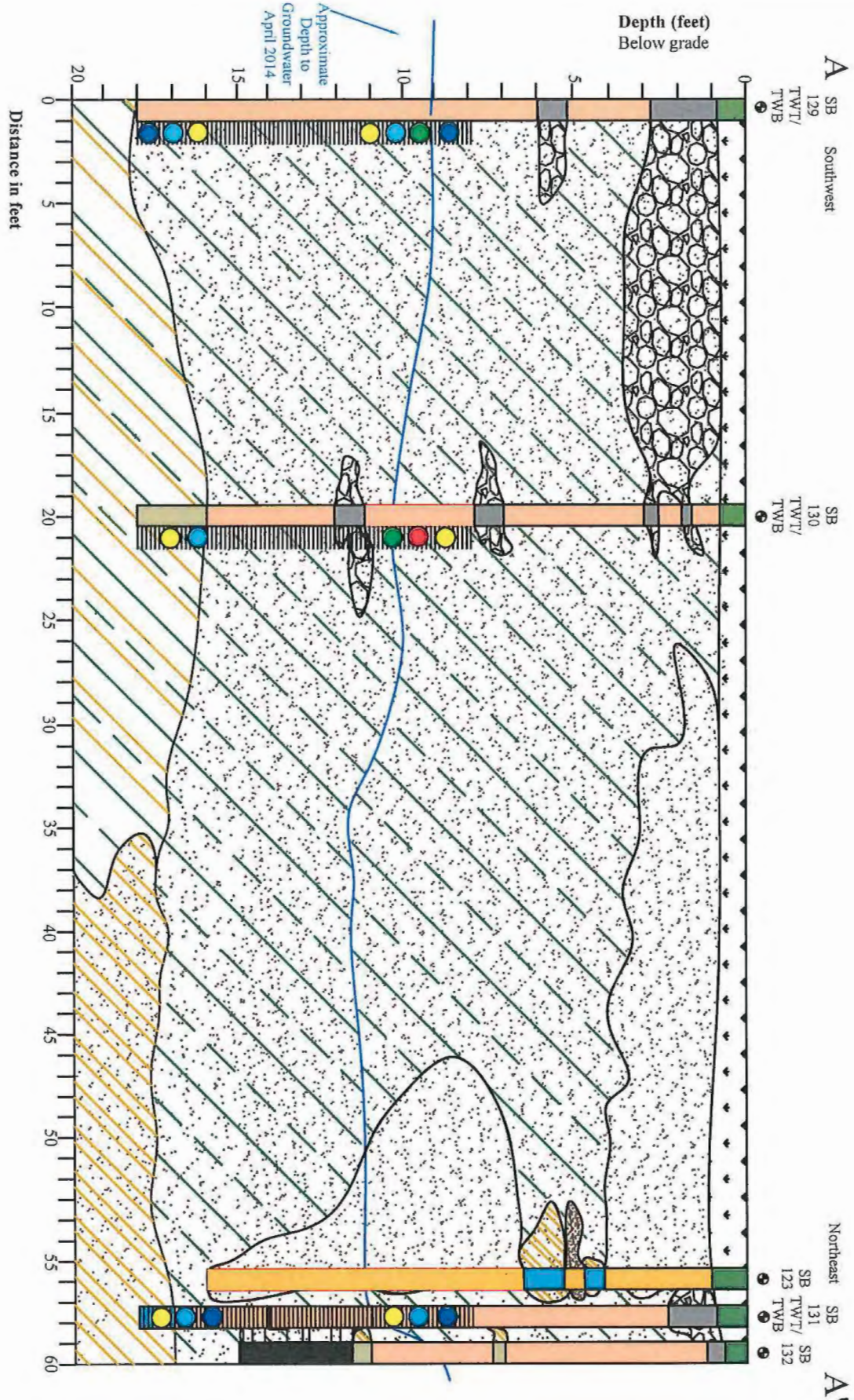
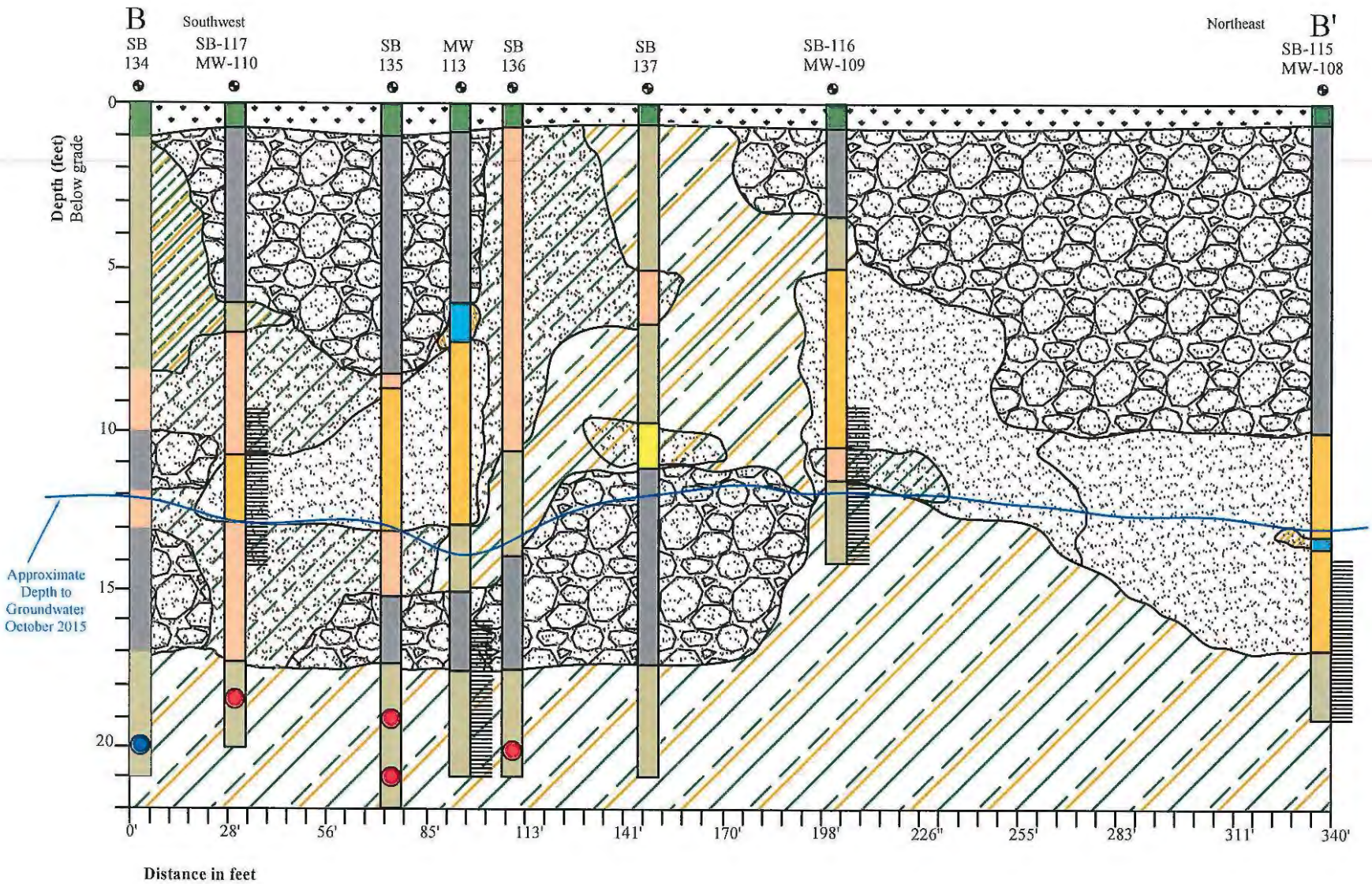
Cross Section Diagram A - A'
TCE Exceedances in Soil

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

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



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 A - A'*** ***Dissolved Metals and TCE Exceedances in Groundwater*** Racer Flint West - 12990 Flint West Industrial Land, Flint, MI	DATE: 2015	SCALE: As Noted
		PROJECT: 11-4317-102	Attachment: 1A (2)



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

Cross Section Diagram B - B'
TCE Exceedances in Soil

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

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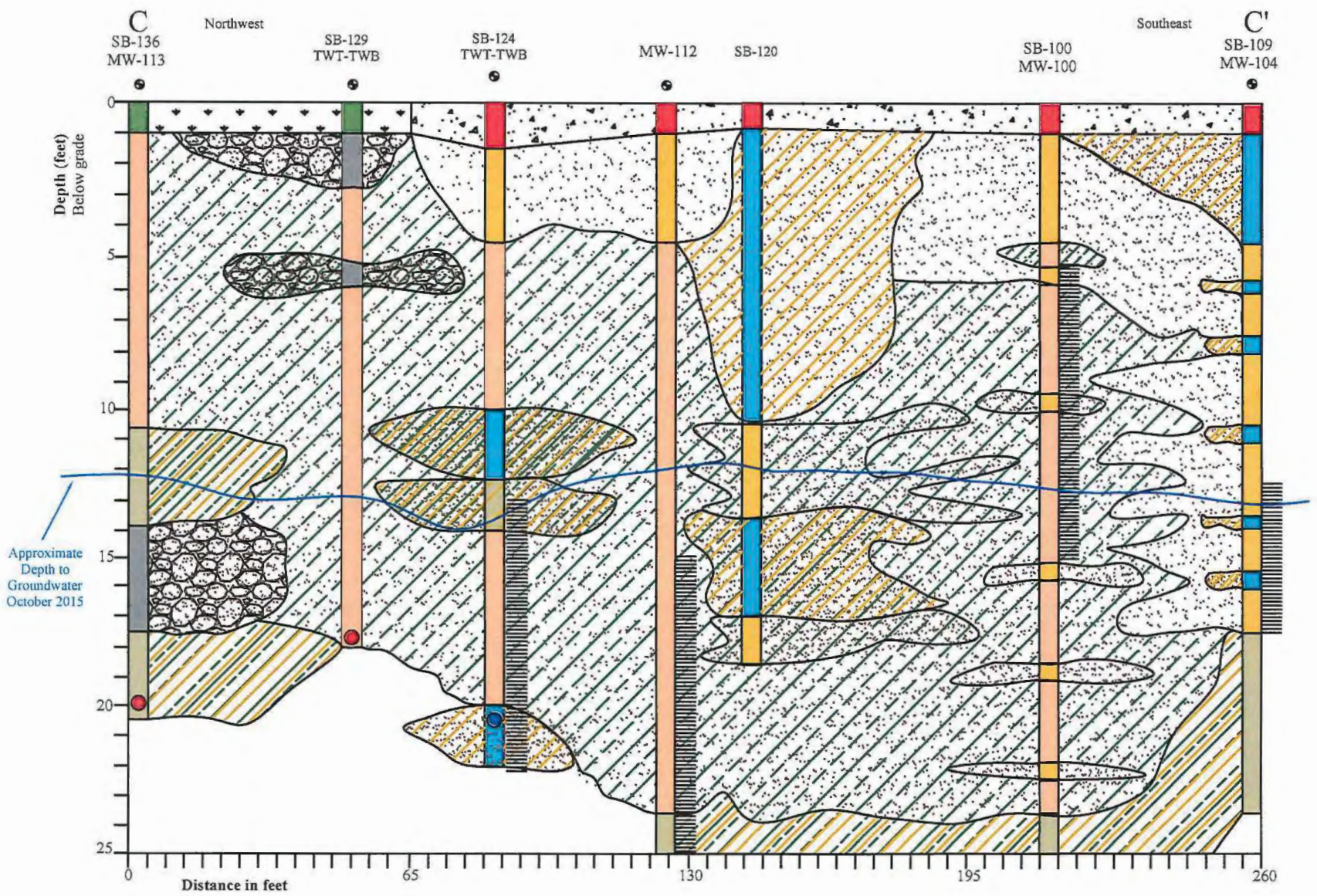

SCALE:	As Noted
Attachment:	1C (1)
DATE:	2016
PROJECT:	11-4317-102

Cross Section Diagram C - C'
TCE Exceedances in Soil

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

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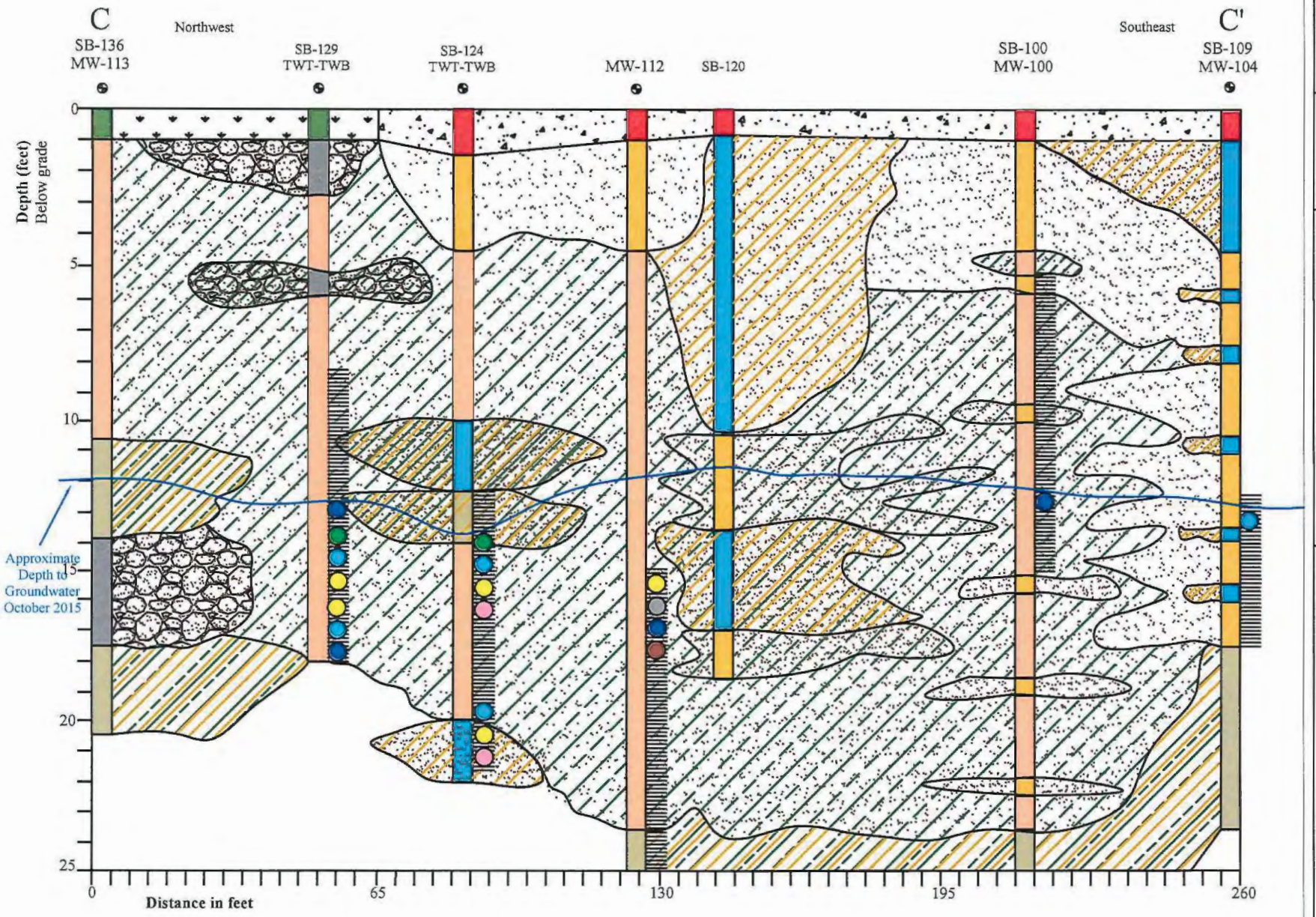

SCALE:	As Noted
Attachment:	1C (2)
DATE:	2016
PROJECT:	11-4317-102

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

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ATTACHMENT #2: GROUNDWATER ANALYTICAL TABLES

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

GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

	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				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	3/29/14		
ANALYTE (ug/L)	DW	GSI																														
Arsenic (dissolved)	10.00	10.00					11.00			4.00				21.00		19.00			17.00	57.00	4.00	3.00	2.00	3.00	30.00	38.00						
Chromium (dissolved)	100.00	160.00	G			35.00		22.00	18.00					7.00	12.00		128.00	13.00			147.00	64.00	25.00	16.00		17.00	89.00	19.00	33.00	14.00		
Copper (dissolved)	1,000.00	20.00	G											28.00				21.00		5.00	22.00	140.00	28.00	42.00		12.00	24.00	94.00	144.00			
Lead (dissolved)	4.00	28.00	G											24.00				29.00		5.00	23.00	208.00	16.00	47.00	1.00	19.00	11.00	31.00	14.00			
Selenium (dissolved)	50.00	5.00							6.00	5.00		5.00						12.00				4.00		12.00				5.00	3.00			
Zinc (dissolved)	2,400.00	26.00	G		97.00		23.00	5.00		62.00	5.00	16.00	18.00	81.00	21.00	9.00	24.00	311.00	167.00	82.00	323.00	326.00	103.00	241.00	400.00	166.00	68.00	241.00	191.00	12.00		

	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		0.19	0.20			0.38	0.30	1.10	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 residential and non-residential 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

GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

	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																		
Arsenic (dissolved)	10.00	10.00														19				
Chromium (dissolved)	100.00	160.00	G			51											152			
Copper (dissolved)	1,000.00	20.00	G														4			
Lead (dissolved)	4.00	28.00	G					25	22	23				15			5			
Selenium (dissolved)	50.00	5.00				66			8			6								
Zinc (dissolved)	2,400.00	26.00	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 (M	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:

	Blank cells indicate no detectable concentrations
X	Exceeds residential and non-residential 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

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			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)	10.00	10.00		na										17		20			
Arsenic	10.00	10.00		29	4	12	na	12	42	13	2	5	16	55	9	400	40	11.00	5.00
Cadmium (dissolved)	5.00	4.50	GX	na		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Cadmium	5.00	4.50	GX	6.90		na	na	na	na	na	na	na	na	na	na	na	na	na	na
Chromium (dissolved)	100.00	1,600.00	G	na	na	7	na	9	6	15				7	7			10	
Chromium	100.00	1,600.00	GX	na	na	62	na	17,800	42,600	68,000	14	19	16	69	237	140	822	14,000	11
Copper (dissolved)	1,000.00	20.00	G	na			na												
Copper	1,000.00	20.00	GX	230	32	22	na	716	802	402	29	31	26	736	22	502	300	583	21
Lead (dissolved)	4.00	44.00	G	na			na												
Lead	4.00	44.00	GX	70	21	14	na	6	29	44	6	15	32	249	20	354	289	5	23
Selenium (dissolved)	50.00	5.00		na			na		14	5									
Selenium	50.00	5.00					na		16	5								6	
Zinc (dissolved)	2,400.00	260.00	G	na	66		na	28		15	9	13	11	25	34	9	23	36	43
Zinc	2,400.00	260.00	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

GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

	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			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 (mg/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		

	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			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					
2-Hexanone	1000	1E+09														3				
Benzene	5.0	200			0.26		0.23												0.25	
Trichloroethene	5.0	200			2	0.51					2		138		78	0.62	36			
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 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

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	1E+09		DRY												1.09			
2-Hexanone	1000	1E+09		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

GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990
As Erroneously 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			0.38										
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
NS	No Sample
1	Filtered in lab
2	Filtered and preserved in lab
NA	Not analyzed due to turbidity

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			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		8	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																							
Chloromethane	260	NC																							
Vinyl Chloride	2.0	13										8		72	2				2						
Chloroethane	430	1,100													3				3						
trichlorofluoromethane	2,600	NA																							
1,1-Dichloroethene	7.0	130										3		4											
Methylene Chloride	5.0	1,500																							
trans-1,2-Dichloroethene	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-pentanone (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																							
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																							

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	Groundwater 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

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

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			5/11/16	5/11/16	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	26.00	1.60	NS	NS	NS	1.38		NS					0.62				
Lead (dissolved)	4	44	G			0.15	0.09		0.08	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	2.46	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	0.60	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			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
NS	No Sample	No Sample
1	Filtered in lab	Filtered in lab
2	Filtered and preserved in lab	Filtered and preserved in lab
NA	Not analyzed due to turbidity	Not analyzed due to turbidity

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
No Sample	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 (ng/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
No Sample	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	8/30/18	9/5/18	8/30/18	9/5/18	8/30/18	9/5/18
METALS ANALYTE (ng/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

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
No Sample	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

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

Table 1
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						Chloroethane	1,1-Dichloroethane (1,1-DCA)	1,2-Dichloroethane (1,2-DCA)	1,1-Dichloroethylene (1,1-DCE)	cis-1,2-Dichloroethylene (cis-1,2-DCE)	trans-1,2-Dichloroethylene (trans-1,2,-DCE)	1,1,1-Trichloroethane	Trichloroethylene (TCE)	Vinyl Chloride	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/cme) (from water quality meter)	Oxygen Reduction Potential (mV) (from water quality meter)
Drinking Water - Res						**430**	**880**	**5**	**7**	**70**	**100**	**200**	**5**	**2**	**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						*1,100*	*740*	*360*	*130*	*620*	*1,500*	*89*	*200*	*13*	*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**	<5	2	<1	4	33	1	<1	**66**	**7**	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	-99.10
SI: 9-14' bgs	714.62	ND	12.84	701.78	**08/08/18**	<5	2	<1	5	43	0.79	0.41	**98**	***14***	<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	-42.90
Dist to IP: 51'	714.62	ND	10.69	703.93	**09/05/18**	<5	1	<1	2	68	0.70	1	**17**	***42***	<10	<10	5	4	<5	<5	1	1	NA	NA	<3	<3	NA	NA	1	4	5	3	NA	NA	NA	NA	NA	NA
MW-111S	719.53	ND	13.14	706.39	**06/28/18**	<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	-120.70
SI: 9-14' bgs	719.53	ND	14.01	705.52	**08/08/18**	<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	-47.30
Dist to IP: 0'	719.53	ND	13.28	706.25	**08/30/18**	<5	0.27	<1	<1	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	8.10
MW-112S	720.00	ND	14.50	705.50	05/29/18	<5	1	<1	1	3	0.25	<1	**13**	**9**	<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	-65.70
SI: 15-20' bgs	720.00	ND	14.72	705.28	**06/28/18**	0.62	0.92	<1	1	2	0.21	<1	**7**	**8**	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	-116.60
Dist to IP: 83'	720.00	ND	15.58	704.42	**08/14/18**	<5	0.57	<1	<1	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	17.10
(up gradient)	720.00	ND	14.75	705.25	**09/05/18**	<5	0.63	<1	0.66	2	<1	<1	**7**	**5**	<20	<10	***104***	***52***	<5	<5	<5	<5	NA	NA	<3	<3	NA	NA	3	1	4	2	NA	NA	NA	NA	NA	NA
MW-113S	714.00	ND	12.37	701.63	**06/28/18**	<5	0.31	<1	<1	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	-108.60
SI: 8-13' bgs	714.00	ND	12.75	701.25	**08/08/18**	<5	<1	<1	<1	6	<1	<1	**13**	0.39	<10	<10	***13***	6	5.0	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	-55.70
Dist to IP: 64'	714.00	ND	11.78	702.22	**08/30/18**	<5	<1	<1	<1	<1	<1	<1	1	<1	<10	<10	<2	<2	1.0	1.000	1	1	NA	NA	<3	<3	NA	NA	3	<5	5	5	NA	NA	7.27	1.19	0.920	30.20
MW-114S			9.05	-9.05	**08/08/18**	<30	3.1	<5	<5	**113**	<5	2.3	***348***	**9**	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	-36.30
SI: 7-12' bgs			7.95	-7.95	**09/05/18**	<50	3.6	<10	<10	**490**	<10	<10	***210***	**9.5**	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'				--																																		

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.

ATTACHMENT #3: GROUNDWATER ANALYTICAL LABORATORY REPORT

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

Analytical Laboratory Report

Report ID: S90217.01(01)
Generated on 06/22/2018

Report to

Attention: Mike Smith
Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
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John Laverty (johnlaverty@meritlabs.com)
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Report Summary

Lab Sample ID(s): S90217.01-S90217.10
Project: RACER 11-4317-102
Collected Date: 05/29/2018
Submitted Date/Time: 05/30/2018 08:00
Sampled by: Unknown
P.O. #: PO

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

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.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
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/8260B	SW 846 Method 8260B Revision 2 December 1996 / 5030C Revision 3 May 2003

Analytical Laboratory Report

Sample Summary (10 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S90217.01	MW-107S	Liquid	05/29/18 14:35
S90217.02	MW-103S	Liquid	05/29/18 11:25
S90217.03	MW-105S	Liquid	05/29/18 15:20
S90217.04	MW-102S	Liquid	05/29/18 13:04
S90217.05	MW-101S	Liquid	05/29/18 12:25
S90217.06	MW-112S	Liquid	05/29/18 13:52
S90217.07	MW-111S	Liquid	05/29/18 10:46
S90217.08	Field Dup	Liquid	05/29/18 10:40
S90217.09	Equip Blank	Liquid	05/29/18 10:40
S90217.10	Trip Blank (TB)	Liquid	05/29/18 00:01

Analytical Laboratory Report

Lab Sample ID: S90217.01
Sample Tag: MW-107S
Collected Date/Time: 05/29/2018 14:35
Matrix: Liquid
COC Reference: 097630

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	125ml Plastic	None	Yes	4.2	IR
1	125ml Plastic	HNO3	Yes	4.2	IR
3	40ml Glass	HCL	Yes	4.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst
pH check for VOCs*	<2	N/A	06/12/18 13:10	JML
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM

Inorganics

Method: SM3500-Cr B, Run Date: 05/30/18 11:05, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	1

Method: SM3500-Cr B, Run Date: 05/30/18 10:05, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 06/06/18 10:22, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000385	mg/L	5	7440-38-2	
Chromium	0.000208	0.005	0.000150	mg/L	5	7440-47-3	b
Copper	0.00143	0.005	0.000290	mg/L	5	7440-50-8	b
Lead	0.000121	0.003	0.0000550	mg/L	5	7439-92-1	b
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	0.008	0.005	0.00138	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 06/06/18 10:34, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000385	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.000328	0.005	0.000150	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.00173	0.005	0.000290	mg/L	5	7440-50-8	bf
Lead, Dissolved	0.000072	0.003	0.0000550	mg/L	5	7439-92-1	bf
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.012	0.005	0.00138	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 14:52, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone*	Not detected	50	4.0	ug/L	1	67-64-1	

1-Sample filtered in-lab
b-Value detected less than reporting limit, but greater than MDL
f-Filtered and preserved in lab

Lab Sample ID: S90217.01 (continued)
Sample Tag: MW-107S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 14:52, Analyst: JGH (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: S90217.01 (continued)
Sample Tag: MW-107S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 14:52, Analyst: JGH (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	

Analytical Laboratory Report

Lab Sample ID: S90217.02
Sample Tag: MW-103S
Collected Date/Time: 05/29/2018 11:25
Matrix: Liquid
COC Reference: 097630

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	125ml Plastic	None	Yes	4.2	IR
1	125ml Plastic	HNO3	Yes	4.2	IR
3	40ml Glass	HCL	Yes	4.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst
pH check for VOCs*	<2	N/A	06/12/18 13:10	JML
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM

Inorganics

Method: SM3500-Cr B, Run Date: 05/30/18 11:10, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	1

Method: SM3500-Cr B, Run Date: 05/30/18 10:10, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 06/06/18 10:26, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.009	0.002	0.000385	mg/L	5	7440-38-2	
Chromium	0.000276	0.005	0.000150	mg/L	5	7440-47-3	b
Copper	Not detected	0.005	0.000290	mg/L	5	7440-50-8	
Lead	0.000068	0.003	0.0000550	mg/L	5	7439-92-1	b
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	0.008	0.005	0.00138	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 06/06/18 10:28, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.00141	0.002	0.000385	mg/L	5	7440-38-2	bf
Chromium, Dissolved	0.000168	0.005	0.000150	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.000500	0.005	0.000290	mg/L	5	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.0000550	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.007	0.005	0.00138	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 15:16, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone*	6.4	50	4.0	ug/L	1	67-64-1	J

1-Sample 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: S90217.02 (continued)
Sample Tag: MW-103S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 15:16, Analyst: JGH (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: S90217.02 (continued)
Sample Tag: MW-103S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 15:16, Analyst: JGH (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*	0.23	1	0.20	ug/L	1	541-73-1	J
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	

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

Analytical Laboratory Report

Lab Sample ID: S90217.03
Sample Tag: MW-105S
Collected Date/Time: 05/29/2018 15:20
Matrix: Liquid
COC Reference: 097630

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	125ml Plastic	None	Yes	4.2	IR
1	125ml Plastic	HNO3	Yes	4.2	IR
3	40ml Glass	HCL	Yes	4.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst
pH check for VOCs*	<2	N/A	06/12/18 13:10	JML
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM

Inorganics

Method: SM3500-Cr B, Run Date: 05/30/18 11:15, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	1

Method: SM3500-Cr B, Run Date: 05/30/18 10:15, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 06/06/18 10:36, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000385	mg/L	5	7440-38-2	
Chromium	0.044	0.005	0.000150	mg/L	5	7440-47-3	
Copper	0.00178	0.005	0.000290	mg/L	5	7440-50-8	b
Lead	0.000304	0.003	0.0000550	mg/L	5	7439-92-1	b
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	0.007	0.005	0.00138	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 06/06/18 10:39, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000385	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.00101	0.005	0.000150	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.000816	0.005	0.000290	mg/L	5	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.0000550	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.008	0.005	0.00138	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 15:36, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone*	5.6	50	4.0	ug/L	1	67-64-1	J

1-Sample 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: S90217.03 (continued)
Sample Tag: MW-105S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 15:36, Analyst: JGH (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*	45	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: S90217.03 (continued)
Sample Tag: MW-105S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 15:36, Analyst: JGH (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	

Analytical Laboratory Report

Lab Sample ID: S90217.04
Sample Tag: MW-102S
Collected Date/Time: 05/29/2018 13:04
Matrix: Liquid
COC Reference: 097630

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	125ml Plastic	None	Yes	4.2	IR
1	125ml Plastic	HNO3	Yes	4.2	IR
3	40ml Glass	HCL	Yes	4.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst
pH check for VOCs*	<2	N/A	06/12/18 13:10	JML
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM

Inorganics

Method: SM3500-Cr B, Run Date: 05/30/18 11:20, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	1

Method: SM3500-Cr B, Run Date: 05/30/18 10:20, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 06/06/18 10:40, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000385	mg/L	5	7440-38-2	
Chromium	0.014	0.005	0.000150	mg/L	5	7440-47-3	
Copper	0.000341	0.005	0.000290	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.0000550	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	0.007	0.005	0.00138	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 06/06/18 10:42, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000385	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.014	0.005	0.000150	mg/L	5	7440-47-3	f
Copper, Dissolved	0.000498	0.005	0.000290	mg/L	5	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.0000550	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.008	0.005	0.00138	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/12/18 13:13, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone*	4.5	50	4.0	ug/L	1	67-64-1	JB

1-Sample 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: S90217.04 (continued)
Sample Tag: MW-102S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/12/18 13:13, Analyst: JGH (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*	0.67	1	0.29	ug/L	1	79-01-6	J
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*	0.39	1	0.17	ug/L	1	108-88-3	JB
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	

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

Lab Sample ID: S90217.04 (continued)
Sample Tag: MW-102S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/12/18 13:13, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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	
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*	0.21	5	0.18	ug/L	1	91-20-3	JB
2-Methylnaphthalene*	Not detected	5	0.21	ug/L	1	91-57-6	

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

Analytical Laboratory Report

Lab Sample ID: S90217.05
Sample Tag: MW-101S
Collected Date/Time: 05/29/2018 12:25
Matrix: Liquid
COC Reference: 097631

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	125ml Plastic	None	Yes	4.2	IR
1	125ml Plastic	HNO3	Yes	4.2	IR
3	40ml Glass	HCL	Yes	4.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst
pH check for VOCs*	<2	N/A	06/12/18 13:10	JML
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM

Inorganics

Method: SM3500-Cr B, Run Date: 05/30/18 11:25, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	1

Method: SM3500-Cr B, Run Date: 05/30/18 10:25, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 06/06/18 10:43, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000385	mg/L	5	7440-38-2	
Chromium	0.00264	0.005	0.000150	mg/L	5	7440-47-3	b
Copper	0.000748	0.005	0.000290	mg/L	5	7440-50-8	b
Lead	0.000408	0.003	0.0000550	mg/L	5	7439-92-1	b
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	0.006	0.005	0.00138	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 06/06/18 11:04, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000385	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.00162	0.005	0.000150	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.000381	0.005	0.000290	mg/L	5	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.0000550	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.006	0.005	0.00138	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 16:18, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone*	5.0	50	4.0	ug/L	1	67-64-1	J

1-Sample 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: S90217.05 (continued)
Sample Tag: MW-101S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 16:18, Analyst: JGH (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*	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	
1,3,5-Trimethylbenzene*	Not detected	1	0.18	ug/L	1	108-67-8	

Lab Sample ID: S90217.05 (continued)
Sample Tag: MW-101S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 16:18, Analyst: JGH (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	

Analytical Laboratory Report

Lab Sample ID: S90217.06
Sample Tag: MW-112S
Collected Date/Time: 05/29/2018 13:52
Matrix: Liquid
COC Reference: 097631

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	125ml Plastic	None	Yes	4.2	IR
1	125ml Plastic	HNO3	Yes	4.2	IR
3	40ml Glass	HCL	Yes	4.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst
pH check for VOCs*	<2	N/A	06/12/18 13:10	JML
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM

Inorganics

Method: SM3500-Cr B, Run Date: 05/30/18 11:30, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	1

Method: SM3500-Cr B, Run Date: 05/30/18 10:30, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 06/06/18 11:09, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.060	0.002	0.000385	mg/L	5	7440-38-2	
Chromium	0.000296	0.005	0.000150	mg/L	5	7440-47-3	b
Copper	Not detected	0.005	0.000290	mg/L	5	7440-50-8	
Lead	0.000062	0.003	0.0000550	mg/L	5	7439-92-1	b
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	0.00476	0.005	0.00138	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 06/06/18 11:13, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.023	0.002	0.000385	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.000431	0.005	0.000150	mg/L	5	7440-47-3	bf
Copper, Dissolved	Not detected	0.005	0.000290	mg/L	5	7440-50-8	f
Lead, Dissolved	Not detected	0.003	0.0000550	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.008	0.005	0.00138	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 16:38, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone*	8.2	50	4.0	ug/L	1	67-64-1	J

1-Sample 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: S90217.06 (continued)
Sample Tag: MW-112S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 16:38, Analyst: JGH (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*	9	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*	1	1	0.27	ug/L	1	75-35-4	
Methylene chloride*	0.17	5	0.16	ug/L	1	75-09-2	J
trans-1,2-Dichloroethene*	0.25	1	0.14	ug/L	1	156-60-5	J
1,1-Dichloroethane*	1	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene*	3	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*	0.20	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*	13	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: S90217.06 (continued)
Sample Tag: MW-112S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 16:38, Analyst: JGH (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	

Analytical Laboratory Report

Lab Sample ID: S90217.07
Sample Tag: MW-111S
Collected Date/Time: 05/29/2018 10:46
Matrix: Liquid
COC Reference: 097632

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	125ml Plastic	None	Yes	4.2	IR
1	125ml Plastic	HNO3	Yes	4.2	IR
3	40ml Glass	HCL	Yes	4.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst
pH check for VOCs*	<2	N/A	06/12/18 13:10	JML
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM

Inorganics

Method: SM3500-Cr B, Run Date: 05/30/18 10:45, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	1

Method: SM3500-Cr B, Run Date: 05/30/18 09:45, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 06/06/18 11:15, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000385	mg/L	5	7440-38-2	
Chromium	0.00417	0.005	0.000150	mg/L	5	7440-47-3	b
Copper	0.00242	0.005	0.000290	mg/L	5	7440-50-8	b
Lead	0.000067	0.003	0.0000550	mg/L	5	7439-92-1	b
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	0.006	0.005	0.00138	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 06/06/18 11:19, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000385	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.00413	0.005	0.000150	mg/L	5	7440-47-3	bf
Copper, Dissolved	0.000611	0.005	0.000290	mg/L	5	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.0000550	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.015	0.005	0.00138	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 16:59, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone*	5.9	50	4.0	ug/L	1	67-64-1	J

1-Sample 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: S90217.07 (continued)
Sample Tag: MW-111S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 16:59, Analyst: JGH (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*	7	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: S90217.07 (continued)
Sample Tag: MW-111S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 16:59, Analyst: JGH (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	

Analytical Laboratory Report

Lab Sample ID: S90217.08
Sample Tag: Field Dup
Collected Date/Time: 05/29/2018 10:40
Matrix: Liquid
COC Reference: 097632

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	125ml Plastic	None	Yes	4.2	IR
1	125ml Plastic	HNO3	Yes	4.2	IR
3	40ml Glass	HCL	Yes	4.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst
pH check for VOCs*	<2	N/A	06/12/18 13:10	JML
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM

Inorganics

Method: SM3500-Cr B, Run Date: 05/30/18 10:40, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	1

Method: SM3500-Cr B, Run Date: 05/30/18 09:40, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 06/06/18 11:22, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000385	mg/L	5	7440-38-2	
Chromium	0.014	0.005	0.000150	mg/L	5	7440-47-3	
Copper	Not detected	0.005	0.000290	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.0000550	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	0.009	0.005	0.00138	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 06/06/18 11:23, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000385	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.014	0.005	0.000150	mg/L	5	7440-47-3	f
Copper, Dissolved	0.000469	0.005	0.000290	mg/L	5	7440-50-8	bf
Lead, Dissolved	Not detected	0.003	0.0000550	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.009	0.005	0.00138	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 17:19, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone*	5.6	50	4.0	ug/L	1	67-64-1	J

1-Sample filtered in-lab
f-Filtered and preserved in lab
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: S90217.08 (continued)
Sample Tag: Field Dup

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 17:19, Analyst: JGH (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*	0.70	1	0.29	ug/L	1	79-01-6	J
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: S90217.08 (continued)

Sample Tag: Field Dup

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 17:19, Analyst: JGH (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	

Analytical Laboratory Report

Lab Sample ID: S90217.09
Sample Tag: Equip Blank
Collected Date/Time: 05/29/2018 10:40
Matrix: Liquid
COC Reference: 097632

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	4.2	IR
1	125ml Plastic	None	Yes	4.2	IR
1	125ml Plastic	HNO3	Yes	4.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst
pH check for VOCs*	<2	N/A	06/12/18 13:10	JML
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM
Metal Digestion	Completed	SW3015A	06/12/18 13:10	CCM

Inorganics

Method: SM3500-Cr B, Run Date: 05/30/18 10:40, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	1

Method: SM3500-Cr B, Run Date: 05/30/18 09:35, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 06/06/18 10:56, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000154	mg/L	2	7440-38-2	
Chromium	0.000095	0.005	0.0000600	mg/L	2	7440-47-3	b
Copper	Not detected	0.005	0.000116	mg/L	2	7440-50-8	
Lead	Not detected	0.003	0.0000220	mg/L	2	7439-92-1	
Selenium	Not detected	0.005	0.00100	mg/L	2	7782-49-2	
Zinc	0.00179	0.005	0.000552	mg/L	2	7440-66-6	b

Method: E200.8, Run Date: 06/06/18 11:03, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000154	mg/L	2	7440-38-2	f
Chromium, Dissolved	Not detected	0.005	0.0000600	mg/L	2	7440-47-3	f
Copper, Dissolved	Not detected	0.005	0.000116	mg/L	2	7440-50-8	f
Lead, Dissolved	Not detected	0.003	0.0000220	mg/L	2	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00100	mg/L	2	7782-49-2	f
Zinc, Dissolved	Not detected	0.005	0.000552	mg/L	2	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 14:32, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone*	8.4	50	4.0	ug/L	1	67-64-1	J

1-Sample 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: S90217.09 (continued)
Sample Tag: Equip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 14:32, Analyst: JGH (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*	0.46	1	0.15	ug/L	1	67-66-3	J
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	

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

Lab Sample ID: S90217.09 (continued)

Sample Tag: Equip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 14:32, Analyst: JGH (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	

Analytical Laboratory Report

Lab Sample ID: S90217.10
Sample Tag: Trip Blank (TB)
Collected Date/Time: 05/29/2018 00:01
Matrix: Liquid
COC Reference: 097632

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst
pH check for VOCs*	<2	N/A	06/12/18 13:10	JML

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 14:11, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone*	4.8	50	4.0	ug/L	1	67-64-1	J
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*	4.8	90	1.2	ug/L	1	109-99-9	JB
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	

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

Lab Sample ID: S90217.10 (continued)
Sample Tag: Trip Blank (TB)

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 06/11/18 14:11, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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	
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, Inc.

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C.O.C. PAGE # 1 OF 3

097630

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Mike Smith
COMPANY: Applied Ecosystems
ADDRESS: G-4300 S. Saginaw St.
CITY: Burton STATE: MI ZIP CODE: 48529
PHONE NO.: 810-715-2525 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: msmith@appliedecosystems.com QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: RACER 11-4317-102
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	NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	Diss Metals	Total Metal	HBX Cr (Diss)	Hex Cr (Total)
90217.01	5-29	2:35	MW-107S		3		✓						✓				
	5-29	2:35	MW-107S		2	✓								✓		✓	
	5-29	2:35	MW-107S		1			✓							✓		✓
	5-29	11:25	MW-103S		3		✓						✓				
.02	5-29	11:25	MW-103S		2	✓								✓		✓	
	5-29	11:25	MW-103S		1			✓							✓		✓
	5-29	3:20	MW-105S		3		✓						✓				
.03	5-29	3:20	MW-105S		2	✓								✓		✓	
	5-29	3:20	MW-105S		1			✓							✓		✓
	5-29	1:04	MW-102S		3		✓						✓				
.04	5-29	1:04	MW-102S		2	✓								✓		✓	
	5-29	1:04	MW-102S		1			✓							✓		✓

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
Heather Dean ☑ Sampler	5:30pm 5-29-18	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME
[illegible]	5/29/18	5:30
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
[illegible]	5/29/18	6:20
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME
Merit fridge		

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
Merit fridge	5/30/18	800
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME
[illegible]	5/30/18	800

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 4.2

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

Rev. 5.18.12

Merit Laboratories, Inc.
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C.O.C. PAGE # 2 OF 3

097631

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Mike Smith
COMPANY: Applied Ecosystem
ADDRESS: G-4300 S. Saginaw St.
CITY: Burton STATE: MI ZIP CODE: 48529
PHONE NO.: 810-715-2525 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: RACER 11-4317-102
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	NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	Diss Metals	Total Metals	HBX Cr (Diss)	Hex Cr (Total)					
	~~5-29~~		~~MW-102S~~																			
	~~5-29~~		~~MW-102S~~																			
	5-29		MW-101S		3		✓						✓									
.05	5-29		MW-101S		2	✓								✓		✓						
	5-29		MW-101S		1			✓							✓		✓					
	~~5-29~~		~~MW-101S~~																			
	~~5-29~~		~~MW-101S~~																			
	5-29		MW-112S		3		✓						✓									
.06	5-29		MW-112S		2	✓								✓		✓						
	5-29		MW-112S		1			✓							✓		✓					
	~~5-29~~		~~MW-112S~~																			
	~~5-29~~		~~MW-112S~~																			

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
Heather Dean ☑ Sampler	5-29-18	5:30 pm
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME
[illegible]	5/29/18	5:30
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
[illegible]	5/29/18	6:10
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME
Merit fridge		

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
Merit fridge	5/30/18	800
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME
[illegible]	5/30/18	800

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 4.2

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

Rev. 5.18.12

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C.O.C. PAGE # 3 OF 3

097632

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Mike Smith
COMPANY: Applied Ecosystems
ADDRESS: 6-4300 S. Saginaw St.
CITY: Burton STATE: MI ZIP CODE: 48529
PHONE NO.: 810-715-2525 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: msmith@appliedecosystems.com QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: RACER 11-4317-102
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	Diss Metals	Total Metals	HBX Cr (Diss)	Hex Cr (Total)						
90217.07	5-29	10:46	MW-111S		6	✓	✓	✓					✓	✓	✓	✓	✓						
.08	5-29		Field Dup		6	✓	✓	✓					✓	✓	✓	✓	✓						
.09	5-29		Equip Blank		4	✓	✓	✓					✓	✓	✓	✓	✓						
.10	5-29		Trip Blank (TB)		4	✓	✓	✓					✓	✓	✓	✓	✓						

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Heather Dear ☑ Sampler	DATE: 5-29-18	TIME: 5:30pm	RELINQUISHED BY: SIGNATURE/ORGANIZATION: Merit fridge
RECEIVED BY: SIGNATURE/ORGANIZATION: [illegible]	DATE: 5/29/18	TIME: 5:30	RECEIVED BY: SIGNATURE/ORGANIZATION: [illegible]
RELINQUISHED BY: SIGNATURE/ORGANIZATION: [illegible]	DATE: 5/29/18	TIME: 6:30	SEAL NO. / SEAL INTACT YES ☐ NO ☐ / INITIALS
RECEIVED BY: SIGNATURE/ORGANIZATION: Merit Fridge	DATE	TIME	SEAL NO. / SEAL INTACT YES ☐ NO ☐ / INITIALS

DATE: 5/30/18	TIME: 800	
DATE: 5/30/18	TIME: 800	
NOTES:	TEMP. ON ARRIVAL: 4.2	

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

Rev. 5.18.12

ALS Environmental
ALS Group USA, Corp
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Kelso, WA 98626
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www.alsglobal.com

June 19, 2018

Analytical Report for Service Request No: K1805026

Mike Smith
Applied EcoSystems, Inc.
G-4300 South Saginaw Street
Burton, MI 48529

RE: RACER Flint West #12994 / 11-4317-102

Dear Mike,

Enclosed are the results of the sample(s) submitted to our laboratory May 30, 2018
For your reference, these analyses have been assigned our service request number **K1805026.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3275. You may also contact me via email at Chris.Leaf@ALSGlobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Chris Leaf
Project Manager

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Table of Contents

Acronyms
Qualifiers
State Certifications, Accreditations, And Licenses
Case Narrative
Chain of Custody
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLCMS
1,4-Dioxane by GC/MS

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Client: Applied EcoSystems, Inc.
Project: RACER Flint West #12994
Sample Matrix: Water

Service Request: K1805026
Date Received: 05/30/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier III deliverables including summary forms for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt:

Eight water samples were received for analysis at ALS Environmental on 05/30/2018. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4ºC upon receipt at the laboratory.

Semivolatiles by GC/MS:

No significant anomalies were noted with this analysis.

Organic LC:

Method PFC/537M, 06/06/2018: The upper control criterion was exceeded for 4:2 Fluorotelomer sulfonic acid (4:2 FTS) in Lab Control Sample (LCS) KQ1807475-03. The analyte in question was not detected above the Method Reporting Limit (MRL) in the associated field samples. The error associated with elevated recovery indicated a high bias. The sample data was not significantly affected. No further corrective action was appropriate.

Method PFC/537M, 06/06/2018: The upper control criterion was exceeded for 13C2-4:2 FTS and 13C2-6:2 FTS in sample MW-112S. The associated native analytes were not detected above the Method Reporting Limit (MRL) in this sample. Assuming the native analytes performed similar to the labeled analogs, the effect on the reported results was minimal. The quality of the sample data was not significantly affected. No further corrective action was appropriate.

Approved by _____ Date 06/19/2018

Chain of Custody

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Phone (360)577-7222 Fax (360)636-1068
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ALS Environmental

89832

CHAIN OF CUSTODY

89832

001

SR# K180 5026

COC Set 1 of 1

COC#

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: Racer Flint West #12994
Project Number: 11-4317-102
Project Manager: Mike Smith
Company: Applied EcoSystems, Inc.
Address: G-4300 South Saginaw St, Burton, Michigan
Phone #: 810-715-2525
email: msmith@appliedecosystems.com
Sampler Signature: Heather Dean
Sampler Printed Name: Heather Dean

CLIENT SAMPLE ID	LABID	SAMPLING Date	SAMPLING Time	Matrix	NUMBER OF CONTAINERS	7D 8270D / 1,4-Dioxane LL	14D PFC/537M / PFOA	1	2	3	4	5	Remarks
1. MW-101S		5/29/18	12:22	W	2	X	X						
2. MW-102S		5/29/18	13:08	W	2	X	X						
3. MW-111S		5/29/18	10:54	W	2	X	X						
4. MW-112S		5/29/18	14:02	W	2	X	X						
5. Field DUP		5/29/18		W	2	X	X						
6. Field Blank		5/29/18	10:30	W	2	X	X						
7. Equip Blank		5/29/18	15:30	W	2	X	X						
8. Trip Blank		5/29/18		W	2	X	X						
9.													
10.													

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required
X II. Report Dup., MS, MSD as required
___ III. CLP Like Summary (no raw data)
___ IV. Data Validation Report
___ V. EDD

Invoice Information

P.O.# 11-4317-102
Bill To: Applied EcoSystems, Inc.

Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other_____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Heather Dean	Signature: CODY GRAVES	Signature	Signature	Signature	Signature
Printed Name: Heather Dean	Printed Name: ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Applied EcoSystems, Inc.	Firm: 5/30/18 0805	Firm	Firm	Firm	Firm
Date/Time: 5:40pm 5/29/18	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

ALS

PC CL

Cooler Receipt and Preservation Form

Client Applied Ecosystem Service Request **K18** 05026

Received: 5-30-18 Opened: 5-30-18 By: DSP Unloaded: 5-30-18 By: DSP

1. Samples were received via? ***USPS*** ***Fed Ex*** ***UPS*** ***DHL*** ***PDX*** ***Courier*** ***Hand Delivered***
2. Samples were received in: (circle) ***Cooler*** ***Box*** ***Envelope*** ***Other*** _____ ***NA***
3. Were custody seals on coolers? NA Y N If yes, how many and where? 2 Top Front

   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Raw Cooler Temp	Corrected. Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
5.7	5.9	5.7	5.9	+0.2	356	89832	1Z 2R4 3A6 15 6568 2345	

4. Packing material: ***Inserts*** ***Baggies*** ***Bubble Wrap*** ***Gel Packs*** ***Wet Ice*** ***Dry Ice*** ***Sleeves*** _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA Y N

   If applicable, tissue samples were received: ***Frozen*** ***Partially Thawed*** ***Thawed***
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions:

CoC says Dioxane for Field Blank & Equip Blank but no bottles received for it.

7/25/16

Page ____ ***of*** ____

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

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ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18 12:22
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	MW-101S	**Units:**	ng/L
Lab Code:	K1805026-001	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkane Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	ND	U	4.5	0.90	1	06/06/18 14:31	6/5/18	
Perfluoropentane sulfonic acid (PFPeS)	ND	U	5.0	5.0	1	06/06/18 14:31	6/5/18	
Perfluorohexane sulfonic acid (PFHxS)	**1.4**	**J**	4.5	0.94	1	06/06/18 14:31	6/5/18	
Perfluoroheptane sulfonic acid (PFHpS)	ND	U	4.5	0.88	1	06/06/18 14:31	6/5/18	
Perfluorooctane sulfonic acid (PFOS)	**12**		4.5	1.0	1	06/06/18 14:31	6/5/18	
Perfluorononane sulfonic acid (PFNS)	ND	U	5.0	5.0	1	06/06/18 14:31	6/5/18	
Perfluorodecane sulfonic acid (PFDS)	ND	U	4.5	1.3	1	06/06/18 14:31	6/5/18	
Perfluoroalkane Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	ND	U	8.9	2.7	1	06/06/18 14:31	6/5/18	
Perfluoropentanoic acid (PFPeA)	ND	U	4.5	1.1	1	06/06/18 14:31	6/5/18	
Perfluorohexanoic acid (PFHxA)	ND	U	4.5	0.92	1	06/06/18 14:31	6/5/18	
Perfluoroheptanoic acid (PFHpA)	ND	U	4.5	1.2	1	06/06/18 14:31	6/5/18	
Perfluorooctanoic acid (PFOA)	**2.0**		1.8	0.46	1	06/06/18 14:31	6/5/18	
Perfluorononanoic acid (PFNA)	**1.1**	**J**	4.5	0.94	1	06/06/18 14:31	6/5/18	
Perfluorodecanoic acid (PFDA)	ND	U	4.5	0.52	1	06/06/18 14:31	6/5/18	
Perfluoroundecanoic acid (PFUnDA)	ND	U	4.5	0.31	1	06/06/18 14:31	6/5/18	
Perfluorododecanoic acid (PFDoDA)	**0.51**	**J**	4.5	0.46	1	06/06/18 14:31	6/5/18	
Perfluorotridecanoic acid (PFTrDA)	**0.82**	**J**	4.5	0.75	1	06/06/18 14:31	6/5/18	
Perfluorotetradecanoic acid (PFTeDA)	**1.4**	**J**	4.5	1.2	1	06/06/18 14:31	6/5/18	
Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	ND	U	4.5	0.35	1	06/06/18 14:31	6/5/18	
N-Methyl perfluorooctane sulfonamidoacetic acid	ND	U	8.0	4.2	1	06/06/18 14:31	6/5/18	
N-Ethyl perfluorooctane sulfonamidoacetic acid	ND	U	4.5	0.83	1	06/06/18 14:31	6/5/18	
(n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	ND	U	4.5	0.65	1	06/06/18 14:31	6/5/18	*
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	ND	U	4.5	1.2	1	06/06/18 14:31	6/5/18	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	ND	U	4.5	0.65	1	06/06/18 14:31	6/5/18	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18 12:22
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	MW-101S	**Units:**	ng/L
Lab Code:	K1805026-001	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	61	10 - 122	06/06/18 14:31	
18O2-PFHxS	71	26 - 144	06/06/18 14:31	
13C4-PFOS	79	27 - 142	06/06/18 14:31	
13C4-PFBA	80	37 - 151	06/06/18 14:31	
13C5-PFPeA	85	23 - 154	06/06/18 14:31	
13C2-PFHxA	82	27 - 155	06/06/18 14:31	
13C4-PFHpA	80	20 - 153	06/06/18 14:31	
13C4-PFOA	84	31 - 142	06/06/18 14:31	
13C5-PFNA	84	27 - 146	06/06/18 14:31	
13C2-PFDA	76	22 - 155	06/06/18 14:31	
13C2-PFUnDA	76	26 - 138	06/06/18 14:31	
13C2-PFDoDA	71	24 - 131	06/06/18 14:31	
13C2-PFTeDA	65	16 - 136	06/06/18 14:31	
13C8-FOSA	70	19 - 123	06/06/18 14:31	
D3-MeFOSAA	61	18 - 129	06/06/18 14:31	
D5-EtFOSAA	59	19 - 128	06/06/18 14:31	
13C2-4:2 FTS	75	50 - 150	06/06/18 14:31	
13C2-6:2 FTS	79	10 - 173	06/06/18 14:31	
13C2-8:2 FTS	78	10 - 190	06/06/18 14:31	

ALS Group USA, Corp.
dba ALS Environmental

Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18 13:08
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	MW-102S	**Units:**	ng/L
Lab Code:	K1805026-002	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkane Sulfonic Acids							
Perfluorobutane sulfonic acid (PFBS)	**1.3 J**	3.9	0.90	1	06/06/18 14:42	6/5/18	
Perfluoropentane sulfonic acid (PFPeS)	ND U	5.0	5.0	1	06/06/18 14:42	6/5/18	
Perfluorohexane sulfonic acid (PFHxS)	**2.0 J**	3.9	0.94	1	06/06/18 14:42	6/5/18	
Perfluoroheptane sulfonic acid (PFHpS)	**1.8 J**	3.9	0.88	1	06/06/18 14:42	6/5/18	
Perfluorooctane sulfonic acid (PFOS)	**12**	3.9	1.0	1	06/06/18 14:42	6/5/18	
Perfluorononane sulfonic acid (PFNS)	ND U	5.0	5.0	1	06/06/18 14:42	6/5/18	
Perfluorodecane sulfonic acid (PFDS)	ND U	4.0	1.3	1	06/06/18 14:42	6/5/18	
Perfluoroalkane Carboxylic Acids							
Perfluorobutanoic acid (PFBA)	ND U	8.0	2.7	1	06/06/18 14:42	6/5/18	
Perfluoropentanoic acid (PFPeA)	**1.2 J**	4.0	1.1	1	06/06/18 14:42	6/5/18	
Perfluorohexanoic acid (PFHxA)	**1.8 J**	3.9	0.92	1	06/06/18 14:42	6/5/18	
Perfluoroheptanoic acid (PFHpA)	**1.7 J**	4.0	1.2	1	06/06/18 14:42	6/5/18	
Perfluorooctanoic acid (PFOA)	**4.2**	1.6	0.46	1	06/06/18 14:42	6/5/18	
Perfluorononanoic acid (PFNA)	**1.0 J**	3.9	0.94	1	06/06/18 14:42	6/5/18	
Perfluorodecanoic acid (PFDA)	ND U	3.9	0.52	1	06/06/18 14:42	6/5/18	
Perfluoroundecanoic acid (PFUnDA)	ND U	3.9	0.31	1	06/06/18 14:42	6/5/18	
Perfluorododecanoic acid (PFDoDA)	ND U	3.9	0.46	1	06/06/18 14:42	6/5/18	
Perfluorotridecanoic acid (PFTrDA)	ND U	3.9	0.75	1	06/06/18 14:42	6/5/18	
Perfluorotetradecanoic acid (PFTeDA)	**1.2 J**	4.0	1.2	1	06/06/18 14:42	6/5/18	
Perfluoroalkyl Sulfonamides							
Perfluorooctane sulfonamide (FOSA)	ND U	3.9	0.35	1	06/06/18 14:42	6/5/18	
N-Methyl perfluorooctane sulfonamidoacetic acid	ND U	8.0	4.2	1	06/06/18 14:42	6/5/18	
N-Ethyl perfluorooctane sulfonamidoacetic acid	ND U	3.9	0.83	1	06/06/18 14:42	6/5/18	
(n:2) Fluorotelomer Sulfonic Acids							
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	ND U	3.9	0.65	1	06/06/18 14:42	6/5/18	*
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	ND U	4.0	1.2	1	06/06/18 14:42	6/5/18	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	ND U	3.9	0.65	1	06/06/18 14:42	6/5/18	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18 13:08
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	MW-102S	**Units:**	ng/L
Lab Code:	K1805026-002	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	60	10 - 122	06/06/18 14:42	
18O2-PFHxS	77	26 - 144	06/06/18 14:42	
13C4-PFOS	72	27 - 142	06/06/18 14:42	
13C4-PFBA	75	37 - 151	06/06/18 14:42	
13C5-PFPeA	80	23 - 154	06/06/18 14:42	
13C2-PFHxA	82	27 - 155	06/06/18 14:42	
13C4-PFHpA	82	20 - 153	06/06/18 14:42	
13C4-PFOA	77	31 - 142	06/06/18 14:42	
13C5-PFNA	76	27 - 146	06/06/18 14:42	
13C2-PFDA	69	22 - 155	06/06/18 14:42	
13C2-PFUnDA	64	26 - 138	06/06/18 14:42	
13C2-PFDoDA	59	24 - 131	06/06/18 14:42	
13C2-PFTeDA	57	16 - 136	06/06/18 14:42	
13C8-FOSA	63	19 - 123	06/06/18 14:42	
D3-MeFOSAA	55	18 - 129	06/06/18 14:42	
D5-EtFOSAA	50	19 - 128	06/06/18 14:42	
13C2-4:2 FTS	77	50 - 150	06/06/18 14:42	
13C2-6:2 FTS	72	10 - 173	06/06/18 14:42	
13C2-8:2 FTS	62	10 - 190	06/06/18 14:42	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18 10:54
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	MW-111S	**Units:**	ng/L
Lab Code:	K1805026-003	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkane Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	ND	U	3.9	0.90	1	06/06/18 14:52	6/5/18	
Perfluoropentane sulfonic acid (PFPeS)	ND	U	5.0	5.0	1	06/06/18 14:52	6/5/18	
Perfluorohexane sulfonic acid (PFHxS)	**1.6**	**J**	3.9	0.94	1	06/06/18 14:52	6/5/18	
Perfluoroheptane sulfonic acid (PFHpS)	ND	U	3.9	0.88	1	06/06/18 14:52	6/5/18	
Perfluorooctane sulfonic acid (PFOS)	**47**		3.9	1.0	1	06/06/18 14:52	6/5/18	
Perfluorononane sulfonic acid (PFNS)	ND	U	5.0	5.0	1	06/06/18 14:52	6/5/18	
Perfluorodecane sulfonic acid (PFDS)	ND	U	4.0	1.3	1	06/06/18 14:52	6/5/18	
Perfluoroalkane Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	ND	U	8.0	2.7	1	06/06/18 14:52	6/5/18	
Perfluoropentanoic acid (PFPeA)	ND	U	4.0	1.1	1	06/06/18 14:52	6/5/18	
Perfluorohexanoic acid (PFHxA)	ND	U	3.9	0.92	1	06/06/18 14:52	6/5/18	
Perfluoroheptanoic acid (PFHpA)	ND	U	4.0	1.2	1	06/06/18 14:52	6/5/18	
Perfluorooctanoic acid (PFOA)	**1.7**		1.6	0.46	1	06/06/18 14:52	6/5/18	
Perfluorononanoic acid (PFNA)	ND	U	3.9	0.94	1	06/06/18 14:52	6/5/18	
Perfluorodecanoic acid (PFDA)	ND	U	3.9	0.52	1	06/06/18 14:52	6/5/18	
Perfluoroundecanoic acid (PFUnDA)	ND	U	3.9	0.31	1	06/06/18 14:52	6/5/18	
Perfluorododecanoic acid (PFDoDA)	ND	U	3.9	0.46	1	06/06/18 14:52	6/5/18	
Perfluorotridecanoic acid (PFTrDA)	**0.78**	**J**	3.9	0.75	1	06/06/18 14:52	6/5/18	
Perfluorotetradecanoic acid (PFTeDA)	ND	U	4.0	1.2	1	06/06/18 14:52	6/5/18	
Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	ND	U	3.9	0.35	1	06/06/18 14:52	6/5/18	
N-Methyl perfluorooctane sulfonamidoacetic acid	ND	U	8.0	4.2	1	06/06/18 14:52	6/5/18	
N-Ethyl perfluorooctane sulfonamidoacetic acid	ND	U	3.9	0.83	1	06/06/18 14:52	6/5/18	
(n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	ND	U	3.9	0.65	1	06/06/18 14:52	6/5/18	*
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	ND	U	4.0	1.2	1	06/06/18 14:52	6/5/18	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	ND	U	3.9	0.65	1	06/06/18 14:52	6/5/18	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18 10:54
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	MW-111S	**Units:**	ng/L
Lab Code:	K1805026-003	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	55	10 - 122	06/06/18 14:52	
18O2-PFHxS	66	26 - 144	06/06/18 14:52	
13C4-PFOS	73	27 - 142	06/06/18 14:52	
13C4-PFBA	61	37 - 151	06/06/18 14:52	
13C5-PFPeA	57	23 - 154	06/06/18 14:52	
13C2-PFHxA	56	27 - 155	06/06/18 14:52	
13C4-PFHpA	61	20 - 153	06/06/18 14:52	
13C4-PFOA	66	31 - 142	06/06/18 14:52	
13C5-PFNA	81	27 - 146	06/06/18 14:52	
13C2-PFDA	73	22 - 155	06/06/18 14:52	
13C2-PFUnDA	73	26 - 138	06/06/18 14:52	
13C2-PFDoDA	62	24 - 131	06/06/18 14:52	
13C2-PFTeDA	57	16 - 136	06/06/18 14:52	
13C8-FOSA	67	19 - 123	06/06/18 14:52	
D3-MeFOSAA	52	18 - 129	06/06/18 14:52	
D5-EtFOSAA	53	19 - 128	06/06/18 14:52	
13C2-4:2 FTS	116	50 - 150	06/06/18 14:52	
13C2-6:2 FTS	161	10 - 173	06/06/18 14:52	
13C2-8:2 FTS	134	10 - 190	06/06/18 14:52	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18 14:02
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	MW-112S	**Units:**	ng/L
Lab Code:	K1805026-004	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkane Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	ND	U	3.9	0.90	1	06/06/18 15:03	6/5/18	
Perfluoropentane sulfonic acid (PFPeS)	ND	U	5.0	5.0	1	06/06/18 15:03	6/5/18	
Perfluorohexane sulfonic acid (PFHxS)	ND	U	3.9	0.94	1	06/06/18 15:03	6/5/18	
Perfluoroheptane sulfonic acid (PFHpS)	ND	U	3.9	0.88	1	06/06/18 15:03	6/5/18	
Perfluorooctane sulfonic acid (PFOS)	**27**		3.9	1.0	1	06/06/18 15:03	6/5/18	
Perfluorononane sulfonic acid (PFNS)	ND	U	5.0	5.0	1	06/06/18 15:03	6/5/18	
Perfluorodecane sulfonic acid (PFDS)	ND	U	4.0	1.3	1	06/06/18 15:03	6/5/18	
Perfluoroalkane Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	**41**		8.0	2.7	1	06/06/18 15:03	6/5/18	
Perfluoropentanoic acid (PFPeA)	**1.7**	**J**	4.0	1.1	1	06/06/18 15:03	6/5/18	
Perfluorohexanoic acid (PFHxA)	ND	U	3.9	0.92	1	06/06/18 15:03	6/5/18	
Perfluoroheptanoic acid (PFHpA)	ND	U	4.0	1.2	1	06/06/18 15:03	6/5/18	
Perfluorooctanoic acid (PFOA)	**2.5**		1.6	0.46	1	06/06/18 15:03	6/5/18	
Perfluorononanoic acid (PFNA)	**1.8**	**J**	3.9	0.94	1	06/06/18 15:03	6/5/18	
Perfluorodecanoic acid (PFDA)	ND	U	3.9	0.52	1	06/06/18 15:03	6/5/18	
Perfluoroundecanoic acid (PFUnDA)	**0.61**	**J**	3.9	0.31	1	06/06/18 15:03	6/5/18	
Perfluorododecanoic acid (PFDoDA)	ND	U	3.9	0.46	1	06/06/18 15:03	6/5/18	
Perfluorotridecanoic acid (PFTrDA)	**0.85**	**J**	3.9	0.75	1	06/06/18 15:03	6/5/18	
Perfluorotetradecanoic acid (PFTeDA)	ND	U	4.0	1.2	1	06/06/18 15:03	6/5/18	
Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	ND	U	3.9	0.35	1	06/06/18 15:03	6/5/18	
N-Methyl perfluorooctane sulfonamidoacetic acid	ND	U	8.0	4.2	1	06/06/18 15:03	6/5/18	
N-Ethyl perfluorooctane sulfonamidoacetic acid	ND	U	3.9	0.83	1	06/06/18 15:03	6/5/18	
(n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	ND	U	3.9	0.65	1	06/06/18 15:03	6/5/18	*
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	ND	U	4.0	1.2	1	06/06/18 15:03	6/5/18	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	ND	U	3.9	0.65	1	06/06/18 15:03	6/5/18	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18 14:02
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	MW-112S	**Units:**	ng/L
Lab Code:	K1805026-004	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	52	10 - 122	06/06/18 15:03	
18O2-PFHxS	51	26 - 144	06/06/18 15:03	
13C4-PFOS	49	27 - 142	06/06/18 15:03	
13C4-PFBA	62	37 - 151	06/06/18 15:03	
13C5-PFPeA	78	23 - 154	06/06/18 15:03	
13C2-PFHxA	69	27 - 155	06/06/18 15:03	
13C4-PFHpA	65	20 - 153	06/06/18 15:03	
13C4-PFOA	62	31 - 142	06/06/18 15:03	
13C5-PFNA	71	27 - 146	06/06/18 15:03	
13C2-PFDA	42	22 - 155	06/06/18 15:03	
13C2-PFUnDA	36	26 - 138	06/06/18 15:03	
13C2-PFDoDA	40	24 - 131	06/06/18 15:03	
13C2-PFTeDA	62	16 - 136	06/06/18 15:03	
13C8-FOSA	48	19 - 123	06/06/18 15:03	
D3-MeFOSAA	55	18 - 129	06/06/18 15:03	
D5-EtFOSAA	55	19 - 128	06/06/18 15:03	
13C2-4:2 FTS	165	50 - 150	06/06/18 15:03	*
13C2-6:2 FTS	212	10 - 173	06/06/18 15:03	*
13C2-8:2 FTS	148	10 - 190	06/06/18 15:03	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	Field DUP	**Units:**	ng/L
Lab Code:	K1805026-005	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkane Sulfonic Acids							
Perfluorobutane sulfonic acid (PFBS)	**1.2 J**	3.9	0.90	1	06/06/18 15:13	6/5/18	
Perfluoropentane sulfonic acid (PFPeS)	ND U	5.0	5.0	1	06/06/18 15:13	6/5/18	
Perfluorohexane sulfonic acid (PFHxS)	**2.0 J**	3.9	0.94	1	06/06/18 15:13	6/5/18	
Perfluoroheptane sulfonic acid (PFHpS)	**1.1 J**	3.9	0.88	1	06/06/18 15:13	6/5/18	
Perfluorooctane sulfonic acid (PFOS)	**12**	3.9	1.0	1	06/06/18 15:13	6/5/18	
Perfluorononane sulfonic acid (PFNS)	ND U	5.0	5.0	1	06/06/18 15:13	6/5/18	
Perfluorodecane sulfonic acid (PFDS)	ND U	4.0	1.3	1	06/06/18 15:13	6/5/18	
Perfluoroalkane Carboxylic Acids							
Perfluorobutanoic acid (PFBA)	ND U	8.0	2.7	1	06/06/18 15:13	6/5/18	
Perfluoropentanoic acid (PFPeA)	ND U	4.0	1.1	1	06/06/18 15:13	6/5/18	
Perfluorohexanoic acid (PFHxA)	**2.5 J**	3.9	0.92	1	06/06/18 15:13	6/5/18	
Perfluoroheptanoic acid (PFHpA)	ND U	4.0	1.2	1	06/06/18 15:13	6/5/18	
Perfluorooctanoic acid (PFOA)	**4.3**	1.6	0.46	1	06/06/18 15:13	6/5/18	
Perfluorononanoic acid (PFNA)	ND U	3.9	0.94	1	06/06/18 15:13	6/5/18	
Perfluorodecanoic acid (PFDA)	ND U	3.9	0.52	1	06/06/18 15:13	6/5/18	
Perfluoroundecanoic acid (PFUnDA)	ND U	3.9	0.31	1	06/06/18 15:13	6/5/18	
Perfluorododecanoic acid (PFDoDA)	ND U	3.9	0.46	1	06/06/18 15:13	6/5/18	
Perfluorotridecanoic acid (PFTrDA)	ND U	3.9	0.75	1	06/06/18 15:13	6/5/18	
Perfluorotetradecanoic acid (PFTeDA)	ND U	4.0	1.2	1	06/06/18 15:13	6/5/18	
Perfluoroalkyl Sulfonamides							
Perfluorooctane sulfonamide (FOSA)	ND U	3.9	0.35	1	06/06/18 15:13	6/5/18	
N-Methyl perfluorooctane sulfonamidoacetic acid	ND U	8.0	4.2	1	06/06/18 15:13	6/5/18	
N-Ethyl perfluorooctane sulfonamidoacetic acid	ND U	3.9	0.83	1	06/06/18 15:13	6/5/18	
(n:2) Fluorotelomer Sulfonic Acids							
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	ND U	3.9	0.65	1	06/06/18 15:13	6/5/18	*
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	ND U	4.0	1.2	1	06/06/18 15:13	6/5/18	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	ND U	3.9	0.65	1	06/06/18 15:13	6/5/18	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	Field DUP	**Units:**	ng/L
Lab Code:	K1805026-005	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	56	10 - 122	06/06/18 15:13	
18O2-PFHxS	65	26 - 144	06/06/18 15:13	
13C4-PFOS	64	27 - 142	06/06/18 15:13	
13C4-PFBA	65	37 - 151	06/06/18 15:13	
13C5-PFPeA	77	23 - 154	06/06/18 15:13	
13C2-PFHxA	78	27 - 155	06/06/18 15:13	
13C4-PFHpA	73	20 - 153	06/06/18 15:13	
13C4-PFOA	69	31 - 142	06/06/18 15:13	
13C5-PFNA	67	27 - 146	06/06/18 15:13	
13C2-PFDA	61	22 - 155	06/06/18 15:13	
13C2-PFUnDA	59	26 - 138	06/06/18 15:13	
13C2-PFDoDA	57	24 - 131	06/06/18 15:13	
13C2-PFTeDA	65	16 - 136	06/06/18 15:13	
13C8-FOSA	57	19 - 123	06/06/18 15:13	
D3-MeFOSAA	51	18 - 129	06/06/18 15:13	
D5-EtFOSAA	49	19 - 128	06/06/18 15:13	
13C2-4:2 FTS	77	50 - 150	06/06/18 15:13	
13C2-6:2 FTS	76	10 - 173	06/06/18 15:13	
13C2-8:2 FTS	66	10 - 190	06/06/18 15:13	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18 10:30
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	Field Blank	**Units:**	ng/L
Lab Code:	K1805026-006	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkane Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	ND	U	4.2	0.90	1	06/06/18 15:23	6/5/18	
Perfluoropentane sulfonic acid (PFPeS)	ND	U	5.0	5.0	1	06/06/18 15:23	6/5/18	
Perfluorohexane sulfonic acid (PFHxS)	ND	U	4.2	0.94	1	06/06/18 15:23	6/5/18	
Perfluoroheptane sulfonic acid (PFHpS)	ND	U	4.2	0.88	1	06/06/18 15:23	6/5/18	
Perfluorooctane sulfonic acid (PFOS)	ND	U	4.2	1.0	1	06/06/18 15:23	6/5/18	
Perfluorononane sulfonic acid (PFNS)	ND	U	5.0	5.0	1	06/06/18 15:23	6/5/18	
Perfluorodecane sulfonic acid (PFDS)	ND	U	4.2	1.3	1	06/06/18 15:23	6/5/18	
Perfluoroalkane Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	ND	U	8.5	2.7	1	06/06/18 15:23	6/5/18	
Perfluoropentanoic acid (PFPeA)	ND	U	4.2	1.1	1	06/06/18 15:23	6/5/18	
Perfluorohexanoic acid (PFHxA)	ND	U	4.2	0.92	1	06/06/18 15:23	6/5/18	
Perfluoroheptanoic acid (PFHpA)	ND	U	4.2	1.2	1	06/06/18 15:23	6/5/18	
Perfluorooctanoic acid (PFOA)	ND	U	1.7	0.46	1	06/06/18 15:23	6/5/18	
Perfluorononanoic acid (PFNA)	ND	U	4.2	0.94	1	06/06/18 15:23	6/5/18	
Perfluorodecanoic acid (PFDA)	ND	U	4.2	0.52	1	06/06/18 15:23	6/5/18	
Perfluoroundecanoic acid (PFUnDA)	ND	U	4.2	0.31	1	06/06/18 15:23	6/5/18	
Perfluorododecanoic acid (PFDoDA)	ND	U	4.2	0.46	1	06/06/18 15:23	6/5/18	
Perfluorotridecanoic acid (PFTrDA)	**0.94**	**J**	4.2	0.75	1	06/06/18 15:23	6/5/18	
Perfluorotetradecanoic acid (PFTeDA)	ND	U	4.2	1.2	1	06/06/18 15:23	6/5/18	
Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	ND	U	4.2	0.35	1	06/06/18 15:23	6/5/18	
N-Methyl perfluorooctane sulfonamidoacetic acid	ND	U	8.0	4.2	1	06/06/18 15:23	6/5/18	
N-Ethyl perfluorooctane sulfonamidoacetic acid	ND	U	4.2	0.83	1	06/06/18 15:23	6/5/18	
(n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	ND	U	4.2	0.65	1	06/06/18 15:23	6/5/18	*
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	ND	U	4.2	1.2	1	06/06/18 15:23	6/5/18	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	ND	U	4.2	0.65	1	06/06/18 15:23	6/5/18	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18 10:30
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	Field Blank	**Units:**	ng/L
Lab Code:	K1805026-006	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	59	10 - 122	06/06/18 15:23	
18O2-PFHxS	67	26 - 144	06/06/18 15:23	
13C4-PFOS	74	27 - 142	06/06/18 15:23	
13C4-PFBA	74	37 - 151	06/06/18 15:23	
13C5-PFPeA	87	23 - 154	06/06/18 15:23	
13C2-PFHxA	84	27 - 155	06/06/18 15:23	
13C4-PFHpA	77	20 - 153	06/06/18 15:23	
13C4-PFOA	77	31 - 142	06/06/18 15:23	
13C5-PFNA	75	27 - 146	06/06/18 15:23	
13C2-PFDA	70	22 - 155	06/06/18 15:23	
13C2-PFUnDA	69	26 - 138	06/06/18 15:23	
13C2-PFDoDA	65	24 - 131	06/06/18 15:23	
13C2-PFTeDA	70	16 - 136	06/06/18 15:23	
13C8-FOSA	65	19 - 123	06/06/18 15:23	
D3-MeFOSAA	63	18 - 129	06/06/18 15:23	
D5-EtFOSAA	63	19 - 128	06/06/18 15:23	
13C2-4:2 FTS	68	50 - 150	06/06/18 15:23	
13C2-6:2 FTS	73	10 - 173	06/06/18 15:23	
13C2-8:2 FTS	82	10 - 190	06/06/18 15:23	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18 15:30
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	Equip Blank	**Units:**	ng/L
Lab Code:	K1805026-007	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkane Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	ND	U	4.2	0.90	1	06/06/18 15:34	6/5/18	
Perfluoropentane sulfonic acid (PFPeS)	ND	U	5.0	5.0	1	06/06/18 15:34	6/5/18	
Perfluorohexane sulfonic acid (PFHxS)	ND	U	4.2	0.94	1	06/06/18 15:34	6/5/18	
Perfluoroheptane sulfonic acid (PFHpS)	ND	U	4.2	0.88	1	06/06/18 15:34	6/5/18	
Perfluorooctane sulfonic acid (PFOS)	ND	U	4.2	1.0	1	06/06/18 15:34	6/5/18	
Perfluorononane sulfonic acid (PFNS)	ND	U	5.0	5.0	1	06/06/18 15:34	6/5/18	
Perfluorodecane sulfonic acid (PFDS)	ND	U	4.2	1.3	1	06/06/18 15:34	6/5/18	
Perfluoroalkane Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	ND	U	8.5	2.7	1	06/06/18 15:34	6/5/18	
Perfluoropentanoic acid (PFPeA)	ND	U	4.2	1.1	1	06/06/18 15:34	6/5/18	
Perfluorohexanoic acid (PFHxA)	ND	U	4.2	0.92	1	06/06/18 15:34	6/5/18	
Perfluoroheptanoic acid (PFHpA)	ND	U	4.2	1.2	1	06/06/18 15:34	6/5/18	
Perfluorooctanoic acid (PFOA)	ND	U	1.7	0.46	1	06/06/18 15:34	6/5/18	
Perfluorononanoic acid (PFNA)	ND	U	4.2	0.94	1	06/06/18 15:34	6/5/18	
Perfluorodecanoic acid (PFDA)	ND	U	4.2	0.52	1	06/06/18 15:34	6/5/18	
Perfluoroundecanoic acid (PFUnDA)	ND	U	4.2	0.31	1	06/06/18 15:34	6/5/18	
Perfluorododecanoic acid (PFDoDA)	ND	U	4.2	0.46	1	06/06/18 15:34	6/5/18	
Perfluorotridecanoic acid (PFTrDA)	**1.1**	**J**	4.2	0.75	1	06/06/18 15:34	6/5/18	
Perfluorotetradecanoic acid (PFTeDA)	ND	U	4.2	1.2	1	06/06/18 15:34	6/5/18	
Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	ND	U	4.2	0.35	1	06/06/18 15:34	6/5/18	
N-Methyl perfluorooctane sulfonamidoacetic acid	ND	U	8.0	4.2	1	06/06/18 15:34	6/5/18	
N-Ethyl perfluorooctane sulfonamidoacetic acid	ND	U	4.2	0.83	1	06/06/18 15:34	6/5/18	
(n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	ND	U	4.2	0.65	1	06/06/18 15:34	6/5/18	*
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	ND	U	4.2	1.2	1	06/06/18 15:34	6/5/18	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	ND	U	4.2	0.65	1	06/06/18 15:34	6/5/18	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18 15:30
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	Equip Blank	**Units:**	ng/L
Lab Code:	K1805026-007	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	54	10 - 122	06/06/18 15:34	
18O2-PFHxS	64	26 - 144	06/06/18 15:34	
13C4-PFOS	77	27 - 142	06/06/18 15:34	
13C4-PFBA	69	37 - 151	06/06/18 15:34	
13C5-PFPeA	79	23 - 154	06/06/18 15:34	
13C2-PFHxA	80	27 - 155	06/06/18 15:34	
13C4-PFHpA	70	20 - 153	06/06/18 15:34	
13C4-PFOA	76	31 - 142	06/06/18 15:34	
13C5-PFNA	96	27 - 146	06/06/18 15:34	
13C2-PFDA	71	22 - 155	06/06/18 15:34	
13C2-PFUnDA	71	26 - 138	06/06/18 15:34	
13C2-PFDoDA	60	24 - 131	06/06/18 15:34	
13C2-PFTeDA	63	16 - 136	06/06/18 15:34	
13C8-FOSA	62	19 - 123	06/06/18 15:34	
D3-MeFOSAA	59	18 - 129	06/06/18 15:34	
D5-EtFOSAA	63	19 - 128	06/06/18 15:34	
13C2-4:2 FTS	68	50 - 150	06/06/18 15:34	
13C2-6:2 FTS	79	10 - 173	06/06/18 15:34	
13C2-8:2 FTS	86	10 - 190	06/06/18 15:34	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	Trip Blank	**Units:**	ng/L
Lab Code:	K1805026-008	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkane Sulfonic Acids							
Perfluorobutane sulfonic acid (PFBS)	ND U	4.2	0.90	1	06/06/18 15:44	6/5/18	
Perfluoropentane sulfonic acid (PFPeS)	ND U	5.0	5.0	1	06/06/18 15:44	6/5/18	
Perfluorohexane sulfonic acid (PFHxS)	ND U	4.2	0.94	1	06/06/18 15:44	6/5/18	
Perfluoroheptane sulfonic acid (PFHpS)	ND U	4.2	0.88	1	06/06/18 15:44	6/5/18	
Perfluorooctane sulfonic acid (PFOS)	ND U	4.2	1.0	1	06/06/18 15:44	6/5/18	
Perfluorononane sulfonic acid (PFNS)	ND U	5.0	5.0	1	06/06/18 15:44	6/5/18	
Perfluorodecane sulfonic acid (PFDS)	ND U	4.2	1.3	1	06/06/18 15:44	6/5/18	
Perfluoroalkane Carboxylic Acids							
Perfluorobutanoic acid (PFBA)	ND U	8.3	2.7	1	06/06/18 15:44	6/5/18	
Perfluoropentanoic acid (PFPeA)	ND U	4.2	1.1	1	06/06/18 15:44	6/5/18	
Perfluorohexanoic acid (PFHxA)	ND U	4.2	0.92	1	06/06/18 15:44	6/5/18	
Perfluoroheptanoic acid (PFHpA)	ND U	4.2	1.2	1	06/06/18 15:44	6/5/18	
Perfluorooctanoic acid (PFOA)	ND U	1.7	0.46	1	06/06/18 15:44	6/5/18	
Perfluorononanoic acid (PFNA)	ND U	4.2	0.94	1	06/06/18 15:44	6/5/18	
Perfluorodecanoic acid (PFDA)	ND U	4.2	0.52	1	06/06/18 15:44	6/5/18	
Perfluoroundecanoic acid (PFUnDA)	ND U	4.2	0.31	1	06/06/18 15:44	6/5/18	
Perfluorododecanoic acid (PFDoDA)	ND U	4.2	0.46	1	06/06/18 15:44	6/5/18	
Perfluorotridecanoic acid (PFTrDA)	ND U	4.2	0.75	1	06/06/18 15:44	6/5/18	
Perfluorotetradecanoic acid (PFTeDA)	ND U	4.2	1.2	1	06/06/18 15:44	6/5/18	
Perfluoroalkyl Sulfonamides							
Perfluorooctane sulfonamide (FOSA)	ND U	4.2	0.35	1	06/06/18 15:44	6/5/18	
N-Methyl perfluorooctane sulfonamidoacetic acid	ND U	8.0	4.2	1	06/06/18 15:44	6/5/18	
N-Ethyl perfluorooctane sulfonamidoacetic acid	ND U	4.2	0.83	1	06/06/18 15:44	6/5/18	
(n:2) Fluorotelomer Sulfonic Acids							
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	ND U	4.2	0.65	1	06/06/18 15:44	6/5/18	*
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	ND U	4.2	1.2	1	06/06/18 15:44	6/5/18	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	ND U	4.2	0.65	1	06/06/18 15:44	6/5/18	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	Trip Blank	**Units:**	ng/L
Lab Code:	K1805026-008	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	61	10 - 122	06/06/18 15:44	
18O2-PFHxS	73	26 - 144	06/06/18 15:44	
13C4-PFOS	73	27 - 142	06/06/18 15:44	
13C4-PFBA	73	37 - 151	06/06/18 15:44	
13C5-PFPeA	87	23 - 154	06/06/18 15:44	
13C2-PFHxA	82	27 - 155	06/06/18 15:44	
13C4-PFHpA	78	20 - 153	06/06/18 15:44	
13C4-PFOA	77	31 - 142	06/06/18 15:44	
13C5-PFNA	71	27 - 146	06/06/18 15:44	
13C2-PFDA	67	22 - 155	06/06/18 15:44	
13C2-PFUnDA	63	26 - 138	06/06/18 15:44	
13C2-PFDoDA	62	24 - 131	06/06/18 15:44	
13C2-PFTeDA	71	16 - 136	06/06/18 15:44	
13C8-FOSA	60	19 - 123	06/06/18 15:44	
D3-MeFOSAA	62	18 - 129	06/06/18 15:44	
D5-EtFOSAA	64	19 - 128	06/06/18 15:44	
13C2-4:2 FTS	65	50 - 150	06/06/18 15:44	
13C2-6:2 FTS	83	10 - 173	06/06/18 15:44	
13C2-8:2 FTS	79	10 - 190	06/06/18 15:44	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KQ1807475-04	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Perfluoroalkane Sulfonic Acids								
Perfluorobutane sulfonic acid (PFBS)	ND	U	5.0	0.90	1	06/06/18 14:10	6/5/18	
Perfluoropentane sulfonic acid (PFPeS)	ND	U	5.0	5.0	1	06/06/18 14:10	6/5/18	
Perfluorohexane sulfonic acid (PFHxS)	ND	U	5.0	0.94	1	06/06/18 14:10	6/5/18	
Perfluoroheptane sulfonic acid (PFHpS)	ND	U	5.0	0.88	1	06/06/18 14:10	6/5/18	
Perfluorooctane sulfonic acid (PFOS)	ND	U	5.0	1.0	1	06/06/18 14:10	6/5/18	
Perfluorononane sulfonic acid (PFNS)	ND	U	5.0	5.0	1	06/06/18 14:10	6/5/18	
Perfluorodecane sulfonic acid (PFDS)	ND	U	5.0	1.3	1	06/06/18 14:10	6/5/18	
Perfluoroalkane Carboxylic Acids								
Perfluorobutanoic acid (PFBA)	ND	U	10	2.7	1	06/06/18 14:10	6/5/18	
Perfluoropentanoic acid (PFPeA)	ND	U	5.0	1.1	1	06/06/18 14:10	6/5/18	
Perfluorohexanoic acid (PFHxA)	ND	U	5.0	0.92	1	06/06/18 14:10	6/5/18	
Perfluoroheptanoic acid (PFHpA)	ND	U	5.0	1.2	1	06/06/18 14:10	6/5/18	
Perfluorooctanoic acid (PFOA)	ND	U	2.0	0.46	1	06/06/18 14:10	6/5/18	
Perfluorononanoic acid (PFNA)	ND	U	5.0	0.94	1	06/06/18 14:10	6/5/18	
Perfluorodecanoic acid (PFDA)	ND	U	5.0	0.52	1	06/06/18 14:10	6/5/18	
Perfluoroundecanoic acid (PFUnDA)	ND	U	5.0	0.31	1	06/06/18 14:10	6/5/18	
Perfluorododecanoic acid (PFDoDA)	ND	U	5.0	0.46	1	06/06/18 14:10	6/5/18	
Perfluorotridecanoic acid (PFTrDA)	**0.79**	**J**	5.0	0.75	1	06/06/18 14:10	6/5/18	
Perfluorotetradecanoic acid (PFTeDA)	ND	U	5.0	1.2	1	06/06/18 14:10	6/5/18	
Perfluoroalkyl Sulfonamides								
Perfluorooctane sulfonamide (FOSA)	ND	U	5.0	0.35	1	06/06/18 14:10	6/5/18	
N-Methyl perfluorooctane sulfonamidoacetic acid	ND	U	8.0	4.2	1	06/06/18 14:10	6/5/18	
N-Ethyl perfluorooctane sulfonamidoacetic acid	ND	U	5.0	0.83	1	06/06/18 14:10	6/5/18	
(n:2) Fluorotelomer Sulfonic Acids								
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	ND	U	5.0	0.65	1	06/06/18 14:10	6/5/18	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	ND	U	5.0	1.2	1	06/06/18 14:10	6/5/18	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	ND	U	5.0	0.65	1	06/06/18 14:10	6/5/18	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/L
Lab Code:	KQ1807475-04	**Basis:**	NA

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Prep Method: EPA 3535A

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
13C3-PFBS	59	10 - 122	06/06/18 14:10	
18O2-PFHxS	64	26 - 144	06/06/18 14:10	
13C4-PFOS	78	27 - 142	06/06/18 14:10	
13C4-PFBA	71	37 - 151	06/06/18 14:10	
13C5-PFPeA	85	23 - 154	06/06/18 14:10	
13C2-PFHxA	76	27 - 155	06/06/18 14:10	
13C4-PFHpA	82	20 - 153	06/06/18 14:10	
13C4-PFOA	72	31 - 142	06/06/18 14:10	
13C5-PFNA	76	27 - 146	06/06/18 14:10	
13C2-PFDA	73	22 - 155	06/06/18 14:10	
13C2-PFUnDA	71	26 - 138	06/06/18 14:10	
13C2-PFDoDA	64	24 - 131	06/06/18 14:10	
13C2-PFTeDA	68	16 - 136	06/06/18 14:10	
13C8-FOSA	69	19 - 123	06/06/18 14:10	
D3-MeFOSAA	64	18 - 129	06/06/18 14:10	
D5-EtFOSAA	62	19 - 128	06/06/18 14:10	
13C2-4:2 FTS	67	50 - 150	06/06/18 14:10	
13C2-6:2 FTS	69	10 - 173	06/06/18 14:10	
13C2-8:2 FTS	75	10 - 190	06/06/18 14:10	

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994/11-4317-102
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Extraction Method: EPA 3535A

Surrogate	Control Limits	MW-101S K1805026-001	MW-102S K1805026-002	MW-111S K1805026-003
13C3-PFBS	10-122	61	60	55
18O2-PFHxS	26-144	71	77	66
13C4-PFOS	27-142	79	72	73
13C4-PFBA	37-151	80	75	61
13C5-PFPeA	23-154	85	80	57
13C2-PFHxA	27-155	82	82	56
13C4-PFHpA	20-153	80	82	61
13C4-PFOA	31-142	84	77	66
13C5-PFNA	27-146	84	76	81
13C2-PFDA	22-155	76	69	73
13C2-PFUnDA	26-138	76	64	73
13C2-PFDoDA	24-131	71	59	62
13C2-PFTeDA	16-136	65	57	57
13C8-FOSA	19-123	70	63	67
D3-MeFOSAA	18-129	61	55	52
D5-EtFOSAA	19-128	59	50	53
13C2-4:2 FTS	50-150	75	77	116
13C2-6:2 FTS	10-173	79	72	161
13C2-8:2 FTS	10-190	78	62	134

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994/11-4317-102
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Extraction Method: EPA 3535A

Surrogate	Control Limits	MW-112S K1805026-004	Field DUP K1805026-005	Field Blank K1805026-006
13C3-PFBS	10-122	52	56	59
18O2-PFHxS	26-144	51	65	67
13C4-PFOS	27-142	49	64	74
13C4-PFBA	37-151	62	65	74
13C5-PFPeA	23-154	78	77	87
13C2-PFHxA	27-155	69	78	84
13C4-PFHpA	20-153	65	73	77
13C4-PFOA	31-142	62	69	77
13C5-PFNA	27-146	71	67	75
13C2-PFDA	22-155	42	61	70
13C2-PFUnDA	26-138	36	59	69
13C2-PFDoDA	24-131	40	57	65
13C2-PFTeDA	16-136	62	65	70
13C8-FOSA	19-123	48	57	65
D3-MeFOSAA	18-129	55	51	63
D5-EtFOSAA	19-128	55	49	63
13C2-4:2 FTS	50-150	165*	77	68
13C2-6:2 FTS	10-173	212*	76	73
13C2-8:2 FTS	10-190	148	66	82

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994/11-4317-102
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Extraction Method: EPA 3535A

Surrogate	Control Limits	Equip Blank K1805026-007	Trip Blank K1805026-008	Method Blank KQ1807475-04
13C3-PFBS	10-122	54	61	59
18O2-PFHxS	26-144	64	73	64
13C4-PFOS	27-142	77	73	78
13C4-PFBA	37-151	69	73	71
13C5-PFPeA	23-154	79	87	85
13C2-PFHxA	27-155	80	82	76
13C4-PFHpA	20-153	70	78	82
13C4-PFOA	31-142	76	77	72
13C5-PFNA	27-146	96	71	76
13C2-PFDA	22-155	71	67	73
13C2-PFUnDA	26-138	71	63	71
13C2-PFDoDA	24-131	60	62	64
13C2-PFTeDA	16-136	63	71	68
13C8-FOSA	19-123	62	60	69
D3-MeFOSAA	18-129	59	62	64
D5-EtFOSAA	19-128	63	64	62
13C2-4:2 FTS	50-150	68	65	67
13C2-6:2 FTS	10-173	79	83	69
13C2-8:2 FTS	10-190	86	79	75

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994/11-4317-102
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M
Extraction Method: EPA 3535A

Surrogate	Control Limits	Lab Control Sample KQ1807475-03
13C3-PFBS	10-122	62
18O2-PFHxS	26-144	71
13C4-PFOS	27-142	80
13C4-PFBA	37-151	73
13C5-PFPeA	23-154	87
13C2-PFHxA	27-155	73
13C4-PFHpA	20-153	92
13C4-PFOA	31-142	71
13C5-PFNA	27-146	79
13C2-PFDA	22-155	76
13C2-PFUnDA	26-138	71
13C2-PFDoDA	24-131	65
13C2-PFTeDA	16-136	72
13C8-FOSA	19-123	73
D3-MeFOSAA	18-129	65
D5-EtFOSAA	19-128	65
13C2-4:2 FTS	50-150	67
13C2-6:2 FTS	10-173	75
13C2-8:2 FTS	10-190	77

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with an pound (#) indicate the control criteria is not acceptable.

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QA/QC Report

Client: Applied EcoSystems, Inc. **Service Request:**K1805026
Project: RACER Flint West #12994/11-4317-102 **Date Analyzed:**06/06/18 13:49

Internal Standard Area and RT SUMMARY
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

File ID: J:\LCMS06\Data\060618_b1\060618_006 **Lab Code:**KQ1807567-01
Instrument ID: K-LCMS-06 **Analysis Lot:**593759
Analysis Method: PFC/537M **Signal ID:**1

		D3-MeFOSA	
		Area	**RT**
	ICAL Result ==>	656,486	5.595
	Upper Limit ==>	1,312,972	6.60
	Lower Limit ==>	328,243	4.60
Associated Analyses			
Continuing Calibration Blank	KQ1807567-02	727647	5.602
Method Blank	KQ1807475-04	914589	5.607
Lab Control Sample	KQ1807475-03	881353	5.608
MW-101S	K1805026-001	840719	5.607
MW-102S	K1805026-002	826923	5.604
MW-111S	K1805026-003	918338	5.602
MW-112S	K1805026-004	1096264	5.608
Field DUP	K1805026-005	909196	5.605
Field Blank	K1805026-006	856557	5.605
Equip Blank	K1805026-007	917672	5.604
Trip Blank	K1805026-008	825118	5.601

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Analyzed:**	06/06/18
Sample Matrix:	Water	**Date Extracted:**	06/05/18

Lab Control Sample Summary
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method:	PFC/537M	**Units:**	ng/L
Prep Method:	EPA 3535A	**Basis:**	NA
		Analysis Lot:	593759

Lab Control Sample
KQ1807475-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	131	150	87 *	11-81
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	166	152	109	39-161
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	142	154	92	39-144
N-Ethyl perfluorooctane sulfonamidoacetic acid	175	160	109	40-166
N-Methyl perfluorooctane sulfonamidoacetic acid	155	160	97	48-162
Perfluorobutane sulfonic acid (PFBS)	132	142	93	48-164
Perfluorobutanoic acid (PFBA)	184	160	115	47-147
Perfluorodecane sulfonic acid (PFDS)	128	154	83	35-155
Perfluorodecanoic acid (PFDA)	189	160	118	54-139
Perfluorododecanoic acid (PFDoDA)	185	160	116	51-155
Perfluoroheptane sulfonic acid (PFHpS)	190	153	125	47-156
Perfluoroheptanoic acid (PFHpA)	167	160	104	46-153
Perfluorohexane sulfonic acid (PFHxS)	153	146	105	46-145
Perfluorohexanoic acid (PFHxA)	194	160	121	44-148
Perfluorononane sulfonic acid (PFNS)	143	154	93	70-130
Perfluorononanoic acid (PFNA)	176	160	110	47-155
Perfluorooctane sulfonamide (FOSA)	142	160	89	35-146
Perfluorooctane sulfonic acid (PFOS)	143	149	96	29-162
Perfluorooctanoic acid (PFOA)	197	160	123	52-147
Perfluoropentane sulfonic acid (PFPeS)	190	151	126	70-130
Perfluoropentanoic acid (PFPeA)	158	160	99	42-160
Perfluorotetradecanoic acid (PFTeDA)	152	160	95	47-169
Perfluorotridecanoic acid (PFTrDA)	168	160	105	45-160
Perfluoroundecanoic acid (PFUnDA)	188	160	118	53-141

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QA/QC Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Analyzed:**	06/06/18 14:10
Sample Matrix:	Water	**Date Extracted:**	06/05/18

Method Blank Summary
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Sample Name:	Method Blank	**Instrument ID:**	K-LCMS-06
Lab Code:	KQ1807475-04	**File ID:**	J:\LCMS06\Data\060618_b1\060618_008
Analysis Method:	PFC/537M	**Analysis Lot:**	593759
Prep Method:	EPA 3535A	**Extraction Lot:**	315244

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1807475-03	J:\LCMS06\Data\060618_b1\060618_009	06/06/18 14:21
MW-101S	K1805026-001	J:\LCMS06\Data\060618_b1\060618_010	06/06/18 14:31
MW-102S	K1805026-002	J:\LCMS06\Data\060618_b1\060618_011	06/06/18 14:42
MW-111S	K1805026-003	J:\LCMS06\Data\060618_b1\060618_012	06/06/18 14:52
MW-112S	K1805026-004	J:\LCMS06\Data\060618_b1\060618_013	06/06/18 15:03
Field DUP	K1805026-005	J:\LCMS06\Data\060618_b1\060618_014	06/06/18 15:13
Field Blank	K1805026-006	J:\LCMS06\Data\060618_b1\060618_015	06/06/18 15:23
Equip Blank	K1805026-007	J:\LCMS06\Data\060618_b1\060618_016	06/06/18 15:34
Trip Blank	K1805026-008	J:\LCMS06\Data\060618_b1\060618_017	06/06/18 15:44

ALS Group USA, Corp.
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QA/QC Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Analyzed:**	06/06/18 14:21
Sample Matrix:	Water	**Date Extracted:**	06/05/18

Lab Control Sample Summary
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Sample Name:	Lab Control Sample	**Instrument ID:**	K-LCMS-06
Lab Code:	KQ1807475-03	**File ID:**	J:\LCMS06\Data\060618_b1\060618_009
Analysis Method:	PFC/537M	**Analysis Lot:**	593759
Prep Method:	EPA 3535A	**Extraction Lot:**	315244

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1807475-04	J:\LCMS06\Data\060618_b1\060618_008	06/06/18 14:10
MW-101S	K1805026-001	J:\LCMS06\Data\060618_b1\060618_010	06/06/18 14:31
MW-102S	K1805026-002	J:\LCMS06\Data\060618_b1\060618_011	06/06/18 14:42
MW-111S	K1805026-003	J:\LCMS06\Data\060618_b1\060618_012	06/06/18 14:52
MW-112S	K1805026-004	J:\LCMS06\Data\060618_b1\060618_013	06/06/18 15:03
Field DUP	K1805026-005	J:\LCMS06\Data\060618_b1\060618_014	06/06/18 15:13
Field Blank	K1805026-006	J:\LCMS06\Data\060618_b1\060618_015	06/06/18 15:23
Equip Blank	K1805026-007	J:\LCMS06\Data\060618_b1\060618_016	06/06/18 15:34
Trip Blank	K1805026-008	J:\LCMS06\Data\060618_b1\060618_017	06/06/18 15:44

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994 **Calibration Date:** 5/31/2018

Initial Calibration Summary
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Calibration ID: KC1800231 **Signal ID:** 1
Instrument ID: K-LCMS-06

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800231-01	0.05 ppb ICAL	053118_107	05/31/2018 16:24
02	KC1800231-02	0.10 ppb ICAL	053118_108	05/31/2018 16:34
03	KC1800231-03	0.50 ppb ICAL	053118_109	05/31/2018 16:45
04	KC1800231-04	1.0 ppb ICAL	053118_110	05/31/2018 16:55
05	KC1800231-05	5.0 ppb ICAL	053118_111	05/31/2018 17:06
06	KC1800231-06	10.0 ppb ICAL	053118_112	05/31/2018 17:16
07	KC1800231-07	15.0 ppb ICAL	053118_113	05/31/2018 17:27

Analyte

13C2-4:2 FTS

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	0.9622	02	5	0.9109	03	5	0.9578	04	5	0.9008
05	5	0.8832	06	5	0.8606	07	5	0.8829			

13C2-6:2 FTS

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	0.5602	02	5	0.6419	03	5	0.6506	04	5	0.6374
05	5	0.6212	06	5	0.6024	07	5	0.6194			

13C2-8:2 FTS

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	0.4567	02	5	0.4519	03	5	0.4889	04	5	0.4923
05	5	0.4563	06	5	0.4315	07	5	0.4279			

13C2-PFDA

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	5.925	02	5	5.533	03	5	5.676	04	5	5.691
05	5	5.44	06	5	5.213	07	5	5.17			

13C2-PFDoDA

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	8.004	02	5	7.988	03	5	7.811	04	5	8.196
05	5	7.603	06	5	7.927	07	5	7.638			

13C2-PFHxA

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	5.974	02	5	6.576	03	5	6.682	04	5	6.17
05	5	6.357	06	5	6.08	07	5	6.041			

13C2-PFTeDA

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	6.129	02	5	5.71	03	5	5.845	04	5	6.17
05	5	5.548	06	5	5.481	07	5	5.361			

13C2-PFUnDA

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	6.297	02	5	6.226	03	5	6.436	04	5	6.309

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994 **Calibration Date:** 5/31/2018

Initial Calibration Summary
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Calibration ID: KC1800231 **Signal ID:** 1
Instrument ID: K-LCMS-06

Analyte

13C2-PFUnDA

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
05	5	6.179	06	5	5.966	07	5	5.817			

13C3-PFBS

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	1.418	02	5	1.399	03	5	1.422	04	5	1.439
05	5	1.385	06	5	1.306	07	5	1.338			

13C4-PFBA

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	3.948	02	5	3.829	03	5	4	04	5	3.987
05	5	3.88	06	5	3.751	07	5	3.876			

13C4-PFHpA

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	5.875	02	5	4.79	03	5	5.14	04	5	5.987
05	5	4.841	06	5	4.692	07	5	5.083			

13C4-PFOA

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	7.965	02	5	8.596	03	5	9.344	04	5	8.753
05	5	9.012	06	5	8.315	07	5	8.312			

13C4-PFOS

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	1.078	02	5	0.9444	03	5	0.9721	04	5	1.047
05	5	0.9143	06	5	0.9315	07	5	0.9213			

13C5-PFNA

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	6.289	02	5	5.669	03	5	5.907	04	5	6.409
05	5	5.666	06	5	5.481	07	5	5.443			

13C5-PFPeA

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	2.115	02	5	2.052	03	5	2.133	04	5	2.14
05	5	2.061	06	5	1.973	07	5	2.02			

13C8-FOSA

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	2.413	02	5	2.349	03	5	2.431	04	5	2.462
05	5	2.355	06	5	2.295	07	5	2.348			

18O2-PFHxS

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	0.9533	02	5	0.9375	03	5	1.085	04	5	1.066
05	5	1.044	06	5	0.9697	07	5	0.9947			

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994 **Calibration Date:** 5/31/2018

Initial Calibration Summary
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Calibration ID: KC1800231 **Signal ID:** 1
Instrument ID: K-LCMS-06

Analyte

4:2 Fluorotelomer sulfonic acid (4:2 FTS)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.046861	1.141	02	0.0937218	0.968	03	0.468609	0.9225	04	0.937218	0.925
05	4.68609	0.8128	06	9.37218	0.8369	07	14.0583	0.7497			

6:2 Fluorotelomer sulfonic acid (6:2 FTS)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.047558	1.123	02	0.0951168	0.8893	03	0.475584	0.9126	04	0.951168	0.8791
05	4.75584	0.7689	06	9.51168	0.774	07	14.26755	0.709			

8:2 Fluorotelomer sulfonic acid (8:2 FTS)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.048002	1.196	02	0.0960045	1.052	03	0.480022	1.029	04	0.960045	1.005
05	4.80022	0.9385	06	9.60045	0.9507	07	14.40067	0.8855			

D3-MeFOSAA

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	1.643	02	5	1.557	03	5	1.547	04	5	1.713
05	5	1.518	06	5	1.483	07	5	1.485			

D5-EtFOSAA

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	5	1.602	02	5	1.667	03	5	1.712	04	5	1.756
05	5	1.594	06	5	1.498	07	5	1.536			

N-Ethyl perfluorooctane sulfonamidoacetic acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.1	0.2628	03	0.5	0.3767	04	1	0.3812	05	5	0.3787
06	10	0.4028	07	15	0.3774						

N-Methyl perfluorooctane sulfonamidoacetic acid

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.05	0.599	02	0.1	0.4396	03	0.5	0.3974	04	1	0.5183
05	5	0.4435	06	10	0.4791	07	15	0.4651			

Perfluorobutane sulfonic acid (PFBS)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.088737	1.274	03	0.443685	1.374	04	0.88737	1.297	05	4.43685	1.217
06	8.8737	1.284	07	13.31055	1.222						

Perfluorobutanoic acid (PFBA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.1	1.177	03	0.5	1.124	04	1	1.065	05	5	0.9929
06	10	1.037	07	15	1.008						

Perfluorodecane sulfonic acid (PFDS)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.048233	1.005	02	0.0964667	0.831	03	0.482333	0.839	04	0.964667	0.8034
05	4.82333	0.7641	06	9.64667	0.7861	07	14.46998	0.7648			

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994 **Calibration Date:** 5/31/2018

Initial Calibration Summary
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Calibration ID: KC1800231 **Signal ID:** 1
Instrument ID: K-LCMS-06

Analyte

Perfluorodecanoic acid (PFDA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.05	1.456	02	0.1	1.093	03	0.5	0.7744	04	1	0.7548
05	5	0.7291	06	10	0.7648	07	15	0.7116			

Perfluorododecanoic acid (PFDoDA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.05	0.9371	02	0.1	0.6604	03	0.5	0.6254	04	1	0.5867
05	5	0.5364	06	10	0.5781	07	15	0.5268			

Perfluoroheptane sulfonic acid (PFHpS)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.0953438	0.4188	03	0.476719	0.6382	04	0.953438	0.5781	05	4.76719	0.6309
06	9.53438	0.662	07	14.3016	0.5835						

Perfluoroheptanoic acid (PFHpA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.05	2.695	02	0.1	1.855	03	0.5	1.562	04	1	1.439
05	5	1.319	06	10	1.423	07	15	1.352			

Perfluorohexane sulfonic acid (PFHxS)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.0913075	1	03	0.456538	0.9707	04	0.913075	0.959	05	4.56538	0.8165
06	9.13075	0.9259	07	13.69613	0.8614						

Perfluorohexanoic acid (PFHxA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.05	2.021	02	0.1	1.352	03	0.5	1.029	04	1	0.9515
05	5	0.8643	06	10	0.8825	07	15	0.8691			

Perfluorononane sulfonic acid (PFNS)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.096158	0.6038	03	0.480789	0.5774	04	0.961578	0.5521	05	4.807891	0.5724
06	9.615782	0.5107	07	14.42367	0.5026						

Perfluorononanoic acid (PFNA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.05	0.9404	02	0.1	1.023	03	0.5	0.8294	04	1	0.7761
05	5	0.7104	06	10	0.7535	07	15	0.7301			

Perfluorooctane sulfonamide (FOSA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.05	1.695	02	0.1	1.566	03	0.5	1.507	04	1	1.373
05	5	1.312	06	10	1.386	07	15	1.349			

Perfluorooctane sulfonic acid (PFOS)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.046461	0.7818	02	0.0929229	0.6413	03	0.464615	0.6746	04	0.929229	0.5739
05	4.64615	0.5799	06	9.29229	0.5705	07	13.93845	0.5694			

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994 **Calibration Date:** 5/31/2018

Initial Calibration Summary
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Calibration ID: KC1800231 **Signal ID:** 1
Instrument ID: K-LCMS-06

Analyte

Perfluorooctanoic acid (PFOA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.05	1.478	02	0.1	1.029	03	0.5	0.8102	04	1	0.7674
05	5	0.6697	06	10	0.7143	07	15	0.7425			

Perfluoropentane sulfonic acid (PFPeS)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.094092	0.581	03	0.470462	0.542	04	0.940923	0.5351	05	4.704616	0.4409
06	9.409233	0.4786	07	14.11384	0.4715						

Perfluoropentanoic acid (PFPeA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.05	10.82	02	0.1	6.468	03	0.5	3.663	04	1	3.244
05	5	2.74	06	10	2.924	07	15	2.791			

Perfluorotetradecanoic acid (PFTeDA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.05	1.041	02	0.1	0.6091	03	0.5	0.4132	04	1	0.3169
05	5	0.3038	06	10	0.3046	07	15	0.2877			

Perfluorotridecanoic acid (PFTrDA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
02	0.1	0.8434	03	0.5	0.8838	04	1	0.7616	05	5	0.7606
06	10	0.7752	07	15	0.7457						

Perfluoroundecanoic acid (PFUnDA)

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	0.05	1.416	02	0.1	1.047	03	0.5	0.7759	04	1	0.761
05	5	0.682	06	10	0.6993	07	15	0.6879			

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994 **Calibration Date:** 5/31/2018

Initial Calibration Summary
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Calibration ID: KC1800231 **Signal ID:** 1
Instrument ID: K-LCMS-06

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
13C2-4:2 FTS	SURR	Average RF	% RSD	4.3	≤20	0.9083	
13C2-6:2 FTS	SURR	Average RF	% RSD	4.9	≤20	0.619	
13C2-8:2 FTS	SURR	Average RF	% RSD	5.5	≤20	0.4579	
13C2-PFDA	SURR	Average RF	% RSD	4.9	≤20	5.521	
13C2-PFDoDA	SURR	Average RF	% RSD	2.7	≤20	7.881	
13C2-PFHxA	SURR	Average RF	% RSD	4.4	≤20	6.269	
13C2-PFTeDA	SURR	Average RF	% RSD	5.5	≤20	5.749	
13C2-PFUnDA	SURR	Average RF	% RSD	3.5	≤20	6.176	
13C3-PFBS	SURR	Average RF	% RSD	3.5	≤20	1.387	
13C4-PFBA	SURR	Average RF	% RSD	2.3	≤20	3.896	
13C4-PFHpA	SURR	Average RF	% RSD	10.1	≤20	5.201	
13C4-PFOA	SURR	Average RF	% RSD	5.4	≤20	8.614	
13C4-PFOS	SURR	Average RF	% RSD	6.7	≤20	0.9727	
13C5-PFNA	SURR	Average RF	% RSD	6.5	≤20	5.838	
13C5-PFPeA	SURR	Average RF	% RSD	3.0	≤20	2.071	
13C8-FOSA	SURR	Average RF	% RSD	2.5	≤20	2.379	
18O2-PFHxS	SURR	Average RF	% RSD	5.8	≤20	1.007	
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	TRG	Average RF	% RSD	14.0	≤20	0.9079	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	TRG	Average RF	% RSD	15.8	≤20	0.8651	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	TRG	Average RF	% RSD	10.0	≤20	1.008	
D3-MeFOSAA	SURR	Average RF	% RSD	5.5	≤20	1.564	
D5-EtFOSAA	SURR	Average RF	% RSD	5.7	≤20	1.624	
N-Ethyl perfluorooctane sulfonamidoacetic acid	TRG	Average RF	% RSD	13.8	≤20	0.3633	
N-Methyl perfluorooctane sulfonamidoacetic acid	TRG	Average RF	% RSD	13.7	≤20	0.4774	
Perfluorobutane sulfonic acid (PFBS)	TRG	Average RF	% RSD	4.5	≤20	1.278	
Perfluorobutanoic acid (PFBA)	TRG	Average RF	% RSD	6.7	≤20	1.068	
Perfluorodecane sulfonic acid (PFDS)	TRG	Average RF	% RSD	10.1	≤20	0.8277	
Perfluorodecanoic acid (PFDA)	TRG	Linear	R2	0.9989	≥0.99	0.8978	
Perfluorododecanoic acid (PFDoDA)	TRG	Linear	R2	0.9952	≥0.99	0.6358	
Perfluoroheptane sulfonic acid (PFHpS)	TRG	Average RF	% RSD	15.0	≤20	0.5852	
Perfluoroheptanoic acid (PFHpA)	TRG	Linear	R2	0.9973	≥0.99	1.664	

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QA/QC Report

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994 **Calibration Date:** 5/31/2018

Initial Calibration Summary
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Calibration ID: KC1800231 **Signal ID:** 1
Instrument ID: K-LCMS-06

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
Perfluorohexane sulfonic acid (PFHxS)	TRG	Average RF	% RSD	7.6	≤20	0.9223	
Perfluorohexanoic acid (PFHxA)	TRG	Linear	R2	0.9985	≥0.99	1.139	
Perfluorononane sulfonic acid (PFNS)	TRG	Average RF	% RSD	7.2	≤20	0.5532	
Perfluorononanoic acid (PFNA)	TRG	Average RF	% RSD	14.2	≤20	0.8232	
Perfluorooctane sulfonamide (FOSA)	TRG	Average RF	% RSD	9.5	≤20	1.456	
Perfluorooctane sulfonic acid (PFOS)	TRG	Average RF	% RSD	12.7	≤20	0.6273	
Perfluorooctanoic acid (PFOA)	TRG	Linear	R2	0.9984	≥0.99	0.8872	
Perfluoropentane sulfonic acid (PFPeS)	TRG	Average RF	% RSD	10.4	≤20	0.5082	
Perfluoropentanoic acid (PFPeA)	TRG	Linear	R2	0.9991	≥0.99	4.664	
Perfluorotetradecanoic acid (PFTeDA)	TRG	Linear	R2	0.9945	≥0.99	0.468	
Perfluorotridecanoic acid (PFTrDA)	TRG	Average RF	% RSD	7.0	≤20	0.7951	
Perfluoroundecanoic acid (PFUnDA)	TRG	Linear	R2	0.9993	≥0.99	0.8671	

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QA/QC Report

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994 **Calibration Date:** 5/31/2018

Initial Calibration Verification Summary
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Calibration ID: KC1800231 **Signal ID:** 1
Instrument ID: K-LCMS-06

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC1800231-08	1.0 ppb ICV	053118_115	05/31/2018 17:48

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
Perfluorobutane sulfonic acid (PFBS)	0.887	0.617	1.278E0	8.887E-1	-30.451	±30	Average RF
Perfluoropentane sulfonic acid (PFPeS)	0.941	1.03	5.082E-1	5.555E-1	9.31	±30	Average RF
Perfluorohexane sulfonic acid (PFHxS)	0.913	1.03	9.223E-1	1.038E0	12.59	±30	Average RF
Perfluoroheptane sulfonic acid (PFHpS)	0.953	1.23	5.852E-1	7.523E-1	28.55	±30	Average RF
Perfluorooctane sulfonic acid (PFOS)	0.929	0.874	6.273E-1	5.898E-1	-5.981	±30	Average RF
Perfluorononane sulfonic acid (PFNS)	0.962	1.02	5.532E-1	5.89E-1	6.48	±30	Average RF
Perfluorodecane sulfonic acid (PFDS)	0.965	1.08	8.277E-1	9.306E-1	12.43	±30	Average RF
Perfluorobutanoic acid (PFBA)	1.00	1.03	1.068E0	1.101E0	3.16	±30	Average RF
Perfluoropentanoic acid (PFPeA)	1.00	1.05	4.664E0	3.326E0	5.40	±30	Linear
Perfluorohexanoic acid (PFHxA)	1.00	1.11	1.139E0	1.025E0	10.83	±30	Linear
Perfluoroheptanoic acid (PFHpA)	1.00	1.03	1.664E0	1.462E0	2.67	±30	Linear
Perfluorooctanoic acid (PFOA)	1.00	1.11	8.872E-1	8.3E-1	10.88	±30	Linear
Perfluorononanoic acid (PFNA)	1.00	1.00	8.232E-1	8.258E-1	0.317	±30	Average RF
Perfluorodecanoic acid (PFDA)	1.00	1.08	8.978E-1	8.222E-1	8.18	±30	Linear
Perfluoroundecanoic acid (PFUnDA)	1.00	1.09	8.671E-1	7.916E-1	8.60	±30	Linear
Perfluorododecanoic acid (PFDoDA)	1.00	1.06	6.358E-1	5.993E-1	5.70	±30	Linear
Perfluorotridecanoic acid (PFTrDA)	1.00	1.12	7.951E-1	8.898E-1	11.91	±30	Average RF
Perfluorotetradecanoic acid (PFTeDA)	1.00	1.10	4.68E-1	3.6E-1	9.78	±30	Linear
Perfluorooctane sulfonamide (FOSA)	1.00	1.05	1.456E0	1.535E0	5.45	±30	Average RF
N-Methyl perfluorooctane sulfonamidoacetic acid	1.00	1.28	4.774E-1	6.109E-1	27.97	±30	Average RF
N-Ethyl perfluorooctane sulfonamidoacetic acid	1.00	1.14	3.633E-1	4.157E-1	14.43	±30	Average RF
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	0.937	0.926	9.079E-1	8.971E-1	-1.196	±30	Average RF
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	0.951	1.13	8.651E-1	1.024E0	18.31	±30	Average RF
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	0.960	0.925	1.008E0	9.714E-1	-3.644	±30	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
13C3-PFBS	5.00	5.11	1.387E0	1.418E0	2.28	±30	Average RF
18O2-PFHxS	5.00	5.52	1.007E0	1.112E0	10.43	±30	Average RF
13C4-PFOS	5.00	5.13	9.727E-1	9.972E-1	2.52	±30	Average RF
13C4-PFBA	5.00	5.01	3.896E0	3.905E0	0.229	±30	Average RF
13C5-PFPeA	5.00	5.10	2.071E0	2.112E0	2.03	±30	Average RF

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QA/QC Report

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994 **Calibration Date:** 5/31/2018

Initial Calibration Verification Summary
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Calibration ID: KC1800231 **Signal ID:** 1
Instrument ID: K-LCMS-06

Analyte Name	Expected	Result	Average RF	SSV RF	Rec.	Criteria	Curve Fit
13C2-PFHxA	5.00	4.96	6.269E0	6.216E0	-0.841	±30	Average RF
13C4-PFHpA	5.00	5.43	5.201E0	5.652E0	8.66	±30	Average RF
13C4-PFOA	5.00	5.07	8.614E0	8.73E0	1.35	±30	Average RF
13C5-PFNA	5.00	5.18	5.838E0	6.047E0	3.58	±30	Average RF
13C2-PFDA	5.00	5.07	5.521E0	5.602E0	1.47	±30	Average RF
13C2-PFUnDA	5.00	5.19	6.176E0	6.412E0	3.83	±30	Average RF
13C2-PFDoDA	5.00	5.41	7.881E0	8.526E0	8.18	±30	Average RF
13C2-PFTeDA	5.00	5.23	5.749E0	6.013E0	4.59	±30	Average RF
13C8-FOSA	5.00	5.03	2.379E0	2.394E0	0.629	±30	Average RF
D3-MeFOSAA	5.00	5.36	1.564E0	1.676E0	7.15	±30	Average RF
D5-EtFOSAA	5.00	5.34	1.624E0	1.733E0	6.76	±30	Average RF
13C2-4:2 FTS	5.00	5.17	9.083E-1	9.386E-1	3.33	±30	Average RF
13C2-6:2 FTS	5.00	5.28	6.19E-1	6.539E-1	5.63	±30	Average RF
13C2-8:2 FTS	5.00	5.39	4.579E-1	4.941E-1	7.90	±30	Average RF

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Analyzed:**	06/06/18 13:49

Continuing Calibration Verification (CCV) Summary
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method:	PFC/537M	**Calibration Date:**	5/31/2018
File ID:	J:\LCMS06\Data\060618_b1\060618_006	**Calibration ID:**	KC1800231
Signal ID:	1	**Analysis Lot:**	593759
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
Perfluorobutane sulfonic acid (PFBS)	0.887	0.904	1.2778	1.3021	102	NA	±30	Average RF
Perfluoropentane sulfonic acid (PFPeS)	0.941	0.981	0.5082	0.5299	104	NA	±30	Average RF
Perfluorohexane sulfonic acid (PFHxS)	0.913	0.905	0.9223	0.9141	99.1	NA	±30	Average RF
Perfluoroheptane sulfonic acid (PFHpS)	0.953	1.02	0.5852	0.6261	107	NA	±30	Average RF
Perfluorooctane sulfonic acid (PFOS)	0.929	0.902	0.6273	0.6086	97.0	NA	±30	Average RF
Perfluorononane sulfonic acid (PFNS)	0.962	0.980	0.5532	0.564	102	NA	±30	Average RF
Perfluorodecane sulfonic acid (PFDS)	0.965	0.894	0.8277	0.7668	92.6	NA	±30	Average RF
Perfluorobutanoic acid (PFBA)	1.00	1.01	1.0677	1.0833	101	NA	±30	Average RF
Perfluoropentanoic acid (PFPeA)	1.00	1.01	4.6636	3.212	101	1.3	±30	Linear
Perfluorohexanoic acid (PFHxA)	1.00	1.07	1.1386	0.9905	107	6.9	±30	Linear
Perfluoroheptanoic acid (PFHpA)	1.00	0.978	1.6637	1.3954	97.8	-2.2	±30	Linear
Perfluorooctanoic acid (PFOA)	1.00	1.06	0.8872	0.7954	106	6.1	±30	Linear
Perfluorononanoic acid (PFNA)	1.00	0.995	0.8232	0.8187	99.5	NA	±30	Average RF
Perfluorodecanoic acid (PFDA)	1.00	0.985	0.8978	0.7519	98.5	-1.5	±30	Linear
Perfluoroundecanoic acid (PFUnDA)	1.00	1.02	0.8671	0.7448	102	1.9	±30	Linear
Perfluorododecanoic acid (PFDoDA)	1.00	1.04	0.6358	0.5889	104	3.8	±30	Linear
Perfluorotridecanoic acid (PFTrDA)	1.00	1.05	0.7951	0.8356	105	NA	±30	Average RF
Perfluorotetradecanoic acid (PFTeDA)	1.00	1.03	0.468	0.3394	103	2.8	±30	Linear
Perfluorooctane sulfonamide (FOSA)	1.00	0.938	1.4555	1.3659	93.8	NA	±30	Average RF
N-Methyl perfluorooctane sulfonamidoacetic acid	1.00	0.964	0.4774	0.4604	96.4	NA	±30	Average RF
N-Ethyl perfluorooctane sulfonamidoacetic acid	1.00	1.09	0.3633	0.3968	109	NA	±30	Average RF
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	0.937	0.930	0.9079	0.9007	99.2	NA	±30	Average RF
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	0.951	1.11	0.8651	1.009	117	NA	±30	Average RF
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	0.960	0.983	1.0082	1.0326	102	NA	±30	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	Rec.	% Drift	Criteria	Curve Fit
13C3-PFBS	5.00	6.15	1.3868	1.7061	123	NA	±30	Average RF
18O2-PFHxS	5.00	5.97	1.0072	1.2018	119	NA	±30	Average RF
13C4-PFOS	5.00	6.26	0.9727	1.217	125	NA	±30	Average RF
13C4-PFBA	5.00	5.97	3.8958	4.653	119	NA	±30	Average RF
13C5-PFPeA	5.00	5.97	2.0705	2.4712	119	NA	±30	Average RF

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Analyzed:**	06/06/18 13:49

Continuing Calibration Verification (CCV) Summary
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method:	PFC/537M	**Calibration Date:**	5/31/2018
File ID:	J:\LCMS06\Data\060618_b1\060618_006	**Calibration ID:**	KC1800231
Signal ID:	1	**Analysis Lot:**	593759
		Units:	ng/mL

13C2-PFHxA	5.00	5.52	6.2687	6.9224	110	NA	±30	Average RF
13C4-PFHpA	5.00	6.49	5.2013	6.7463	130	NA	±30	Average RF
13C4-PFOA	5.00	5.52	8.6139	9.5161	110	NA	±30	Average RF
13C5-PFNA	5.00	6.12	5.8378	7.1483	122	NA	±30	Average RF
13C2-PFDA	5.00	6.12	5.5213	6.7595	122	NA	±30	Average RF
13C2-PFUnDA	5.00	6.25	6.1757	7.7227	125	NA	±30	Average RF
13C2-PFDoDA	5.00	5.78	7.881	9.1062	116	NA	±30	Average RF
13C2-PFTeDA	5.00	5.91	5.749	6.7935	118	NA	±30	Average RF
13C8-FOSA	5.00	5.99	2.379	2.8477	120	NA	±30	Average RF
D3-MeFOSAA	5.00	5.76	1.5637	1.8014	115	NA	±30	Average RF
D5-EtFOSAA	5.00	5.57	1.6235	1.8084	111	NA	±30	Average RF
13C2-4:2 FTS	5.00	5.24	0.9083	0.9512	105	NA	±30	Average RF
13C2-6:2 FTS	5.00	5.08	0.619	0.6295	102	NA	±30	Average RF
13C2-8:2 FTS	5.00	5.39	0.4579	0.4938	108	NA	±30	Average RF

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QA/QC Report

Client: Applied EcoSystems, Inc. **Service Request:**K1805026
Project: RACER Flint West #12994/11-4317-102

Analysis Run Log
Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Analysis Method: PFC/537M **Analysis Lot:**593759
Instrument ID:K-LCMS-06

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\LCMS06\Data\060618_b1\060618_006	Continuing Calibration Verification	KQ1807567-01	6/6/2018	13:49	
J:\LCMS06\Data\060618_b1\060618_007	Continuing Calibration Blank	KQ1807567-02	6/6/2018	14:00	
J:\LCMS06\Data\060618_b1\060618_008	Method Blank	KQ1807475-04	6/6/2018	14:10	
J:\LCMS06\Data\060618_b1\060618_009	Lab Control Sample	KQ1807475-03	6/6/2018	14:21	
J:\LCMS06\Data\060618_b1\060618_010	MW-101S	K1805026-001	6/6/2018	14:31	
J:\LCMS06\Data\060618_b1\060618_011	MW-102S	K1805026-002	6/6/2018	14:42	
J:\LCMS06\Data\060618_b1\060618_012	MW-111S	K1805026-003	6/6/2018	14:52	
J:\LCMS06\Data\060618_b1\060618_013	MW-112S	K1805026-004	6/6/2018	15:03	
J:\LCMS06\Data\060618_b1\060618_014	Field DUP	K1805026-005	6/6/2018	15:13	
J:\LCMS06\Data\060618_b1\060618_015	Field Blank	K1805026-006	6/6/2018	15:23	
J:\LCMS06\Data\060618_b1\060618_016	Equip Blank	K1805026-007	6/6/2018	15:34	
J:\LCMS06\Data\060618_b1\060618_017	Trip Blank	K1805026-008	6/6/2018	15:44	
J:\LCMS06\Data\060618_b1\060618_018	ZZZZZZZ	ZZZZZZZ	6/6/2018	15:55	
J:\LCMS06\Data\060618_b1\060618_019	ZZZZZZZ	ZZZZZZZ	6/6/2018	16:05	
J:\LCMS06\Data\060618_b1\060618_020	ZZZZZZZ	ZZZZZZZ	6/6/2018	16:16	
J:\LCMS06\Data\060618_b1\060618_021	ZZZZZZZ	ZZZZZZZ	6/6/2018	16:26	
J:\LCMS06\Data\060618_b1\060618_022	ZZZZZZZ	ZZZZZZZ	6/6/2018	16:37	
J:\LCMS06\Data\060618_b1\060618_023	ZZZZZZZ	ZZZZZZZ	6/6/2018	16:47	
J:\LCMS06\Data\060618_b1\060618_024	ZZZZZZZ	ZZZZZZZ	6/6/2018	16:58	
J:\LCMS06\Data\060618_b1\060618_025	ZZZZZZZ	ZZZZZZZ	6/6/2018	17:08	
J:\LCMS06\Data\060618_b1\060618_026	ZZZZZZZ	ZZZZZZZ	6/6/2018	17:19	
J:\LCMS06\Data\060618_b1\060618_027	ZZZZZZZ	ZZZZZZZ	6/6/2018	17:29	
J:\LCMS06\Data\060618_b1\060618_031	ZZZZZZZ	ZZZZZZZ	6/6/2018	18:11	
J:\LCMS06\Data\060618_b1\060618_032	ZZZZZZZ	ZZZZZZZ	6/6/2018	18:21	
J:\LCMS06\Data\060618_b1\060618_033	ZZZZZZZ	ZZZZZZZ	6/6/2018	18:32	

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Prep Summary Report

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994/11-4317-102
Sample Matrix: Water

Perfluorinated Sulfonic Acids and Perfluorinated Carboxylic Acids by HPLC/MS

Prep Method: EPA 3535A **Extraction Lot:** 315244
Analytical Method: PFC/537M **Extraction Date:** 06/05/18 08:17

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
MW-101S	K1805026-001	5/29/18	5/30/18	280.0000 mL	8 mL	
MW-102S	K1805026-002	5/29/18	5/30/18	320.0000 mL	8 mL	
MW-111S	K1805026-003	5/29/18	5/30/18	320.0000 mL	8 mL	
MW-112S	K1805026-004	5/29/18	5/30/18	320.0000 mL	8 mL	
Field DUP	K1805026-005	5/29/18	5/30/18	320.0000 mL	8 mL	
Field Blank	K1805026-006	5/29/18	5/30/18	295.0000 mL	8 mL	
Equip Blank	K1805026-007	5/29/18	5/30/18	295.0000 mL	8 mL	
Trip Blank	K1805026-008	5/29/18	5/30/18	300.0000 mL	8 mL	
Lab Control Sample	KQ1807475-03LCS	NA	NA	250 mL	8 mL	
Method Blank	KQ1807475-04MB	NA	NA	250 mL	8 mL	

1,4-Dioxane by GC/MS

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18 12:22
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	MW-101S	**Units:**	ug/L
Lab Code:	K1805026-001	**Basis:**	NA

1,4-Dioxane by GC/MS Low Level

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	ND U	0.040	0.016	1	06/07/18 19:57	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	87	48 - 118	06/07/18 19:57	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18 13:08
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	MW-102S	**Units:**	ug/L
Lab Code:	K1805026-002	**Basis:**	NA

1,4-Dioxane by GC/MS Low Level

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	ND U	0.040	0.016	1	06/07/18 20:15	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	86	48 - 118	06/07/18 20:15	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18 10:54
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	MW-111S	**Units:**	ug/L
Lab Code:	K1805026-003	**Basis:**	NA

1,4-Dioxane by GC/MS Low Level

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	ND U	0.040	0.016	1	06/07/18 20:33	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	77	48 - 118	06/07/18 20:33	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18 14:02
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	MW-112S	**Units:**	ug/L
Lab Code:	K1805026-004	**Basis:**	NA

1,4-Dioxane by GC/MS Low Level

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	**0.13**	0.040	0.016	1	06/07/18 20:52	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	79	48 - 118	06/07/18 20:52	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	Field DUP	**Units:**	ug/L
Lab Code:	K1805026-005	**Basis:**	NA

1,4-Dioxane by GC/MS Low Level

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	**0.025 J**	0.040	0.016	1	06/07/18 21:10	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	80	48 - 118	06/07/18 21:10	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	05/29/18
Sample Matrix:	Water	**Date Received:**	05/30/18 08:05
Sample Name:	Trip Blank	**Units:**	ug/L
Lab Code:	K1805026-008	**Basis:**	NA

1,4-Dioxane by GC/MS Low Level

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	**0.025** **J**	0.040	0.016	1	06/07/18 21:28	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	86	48 - 118	06/07/18 21:28	

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Analytical Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KQ1807478-03	**Basis:**	NA

1,4-Dioxane by GC/MS Low Level

Analysis Method: 8270D SIM
Prep Method: EPA 3535A

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
1,4-Dioxane	ND U	0.040	0.016	1	06/07/18 19:01	6/5/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	80	48 - 118	06/07/18 19:01	

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994/11-4317-102
Sample Matrix: Water

SURROGATE RECOVERY SUMMARY
1,4-Dioxane by GC/MS Low Level

Analysis Method: 8270D SIM
Extraction Method: EPA 3535A

Sample Name	Lab Code	1,4-Dioxane-d8 48-118
MW-101S	K1805026-001	87
MW-102S	K1805026-002	86
MW-111S	K1805026-003	77
MW-112S	K1805026-004	79
Field DUP	K1805026-005	80
Trip Blank	K1805026-008	86
Method Blank	KQ1807478-03	80
Lab Control Sample	KQ1807478-01	89
Duplicate Lab Control Sample	KQ1807478-02	82

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QA/QC Report

Client: Applied EcoSystems, Inc. **Service Request:**K1805026
Project: RACER Flint West #12994/11-4317-102 **Date Analyzed:**06/07/18 16:16

Internal Standard Area and RT SUMMARY
1,4-Dioxane by GC/MS Low Level

File ID: J:\MS26\DATA\060718\0607F004.D\ **Lab Code:**KQ1807673-02
Instrument ID: K-MS-26 **Analysis Lot:**594016
Analysis Method: 8270D SIM **Signal ID:**1

		1,4-Dichlorobenzene-d4	
		Area	**RT**
	ICAL Result ==>	46,493	5.21
	Upper Limit ==>	92,986	5.71
	Lower Limit ==>	23,247	4.71
Associated Analyses			
Method Blank	KQ1807478-03	40981	5.21
Lab Control Sample	KQ1807478-01	41846	5.21
Duplicate Lab Control Sample	KQ1807478-02	43671	5.21
MW-101S	K1805026-001	42933	5.21
MW-102S	K1805026-002	42233	5.21
MW-111S	K1805026-003	42600	5.21
MW-112S	K1805026-004	43537	5.21
Field DUP	K1805026-005	42964	5.21
Trip Blank	K1805026-008	40766	5.20

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QA/QC Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Analyzed:**	06/07/18
Sample Matrix:	Water	**Date Extracted:**	06/05/18

Duplicate Lab Control Sample Summary
1,4-Dioxane by GC/MS Low Level

Analysis Method:	8270D SIM	**Units:**	ug/L
Prep Method:	EPA 3535A	**Basis:**	NA
		Analysis Lot:	594016

	Lab Control Sample KQ1807478-01			Duplicate Lab Control Sample KQ1807478-02					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,4-Dioxane	0.886	1.00	89	0.819	1.00	82	52-111	8	30

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QA/QC Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Analyzed:**	06/07/18 19:01
Sample Matrix:	Water	**Date Extracted:**	06/05/18

Method Blank Summary
1,4-Dioxane by GC/MS Low Level

Sample Name:	Method Blank	**Instrument ID:**	K-MS-26
Lab Code:	KQ1807478-03	**File ID:**	J:\MS26\DATA\060718\0607F013.D\
Analysis Method:	8270D SIM	**Analysis Lot:**	594016
Prep Method:	EPA 3535A	**Extraction Lot:**	315249

This Method Blank applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	KQ1807478-01	J:\MS26\DATA\060718\0607F014.D\	06/07/18 19:20
Duplicate Lab Control Sample	KQ1807478-02	J:\MS26\DATA\060718\0607F015.D\	06/07/18 19:38
MW-101S	K1805026-001	J:\MS26\DATA\060718\0607F016.D\	06/07/18 19:57
MW-102S	K1805026-002	J:\MS26\DATA\060718\0607F017.D\	06/07/18 20:15
MW-111S	K1805026-003	J:\MS26\DATA\060718\0607F018.D\	06/07/18 20:33
MW-112S	K1805026-004	J:\MS26\DATA\060718\0607F019.D\	06/07/18 20:52
Field DUP	K1805026-005	J:\MS26\DATA\060718\0607F020.D\	06/07/18 21:10
Trip Blank	K1805026-008	J:\MS26\DATA\060718\0607F021.D\	06/07/18 21:28

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QA/QC Report

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Analyzed:**	06/07/18 19:20
Sample Matrix:	Water	**Date Extracted:**	06/05/18

Lab Control Sample Summary
1,4-Dioxane by GC/MS Low Level

Sample Name:	Lab Control Sample	**Instrument ID:**	K-MS-26
Lab Code:	KQ1807478-01	**File ID:**	J:\MS26\DATA\060718\0607F014.D\
Analysis Method:	8270D SIM	**Analysis Lot:**	594016
Prep Method:	EPA 3535A	**Extraction Lot:**	315249

This Lab Control Sample applies to the following analyses.

Sample Name	Lab Code	File ID	Date Analyzed
Method Blank	KQ1807478-03	J:\MS26\DATA\060718\0607F013.D\	06/07/18 19:01
Duplicate Lab Control Sample	KQ1807478-02	J:\MS26\DATA\060718\0607F015.D\	06/07/18 19:38
MW-101S	K1805026-001	J:\MS26\DATA\060718\0607F016.D\	06/07/18 19:57
MW-102S	K1805026-002	J:\MS26\DATA\060718\0607F017.D\	06/07/18 20:15
MW-111S	K1805026-003	J:\MS26\DATA\060718\0607F018.D\	06/07/18 20:33
MW-112S	K1805026-004	J:\MS26\DATA\060718\0607F019.D\	06/07/18 20:52
Field DUP	K1805026-005	J:\MS26\DATA\060718\0607F020.D\	06/07/18 21:10
Trip Blank	K1805026-008	J:\MS26\DATA\060718\0607F021.D\	06/07/18 21:28

Client: Applied EcoSystems, Inc. **Service Request:**K1805026
Project: RACER Flint West #12994/11-4317-102 **Date Analyzed:**06/07/18 15:57

Tune Summary
1,4-Dioxane by GC/MS Low Level

File ID: J:\MS26\DATA\060718\0607F003.D\ **Analytical Method:** 8270D SIM
Instrument ID: K-MS-26 **Analysis Lot:** 594016

Target Mass	Relative to Mass	Lower Limit %	Upper Limit %	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	10	80	18.97	480296	Pass
68	69	0	2	1.85	10929	Pass
69	198	0	100	23.30	589781	Pass
70	69	0	2	0.51	2983	Pass
127	198	10	80	38.06	963454	Pass
197	198	0	2	0.10	2554	Pass
198	442	30	100	82.11	2531720	Pass
199	198	5	9	6.72	170093	Pass
275	198	10	60	29.90	757056	Pass
365	442	1	50	2.81	86672	Pass
441	443	0.01	100	76.51	457130	Pass
442	442	100	100	100.00	3083264	Pass
443	442	15	24	19.38	597504	Pass

Sample Name	Lab Code	File ID:	Date Analyzed:	Q
Continuing Calibration Verification	KQ1807673-02	J:\MS26\DATA\060718\0607F004.D\	06/07/18 16:16	
Method Blank	KQ1807478-03	J:\MS26\DATA\060718\0607F013.D\	06/07/18 19:01	
Lab Control Sample	KQ1807478-01	J:\MS26\DATA\060718\0607F014.D\	06/07/18 19:20	
Duplicate Lab Control Sample	KQ1807478-02	J:\MS26\DATA\060718\0607F015.D\	06/07/18 19:38	
MW-101S	K1805026-001	J:\MS26\DATA\060718\0607F016.D\	06/07/18 19:57	
MW-102S	K1805026-002	J:\MS26\DATA\060718\0607F017.D\	06/07/18 20:15	
MW-111S	K1805026-003	J:\MS26\DATA\060718\0607F018.D\	06/07/18 20:33	
MW-112S	K1805026-004	J:\MS26\DATA\060718\0607F019.D\	06/07/18 20:52	
Field DUP	K1805026-005	J:\MS26\DATA\060718\0607F020.D\	06/07/18 21:10	
Trip Blank	K1805026-008	J:\MS26\DATA\060718\0607F021.D\	06/07/18 21:28	

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QA/QC Report

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994 **Calibration Date:** 5/22/2018

Initial Calibration Summary
1,4-Dioxane by GC/MS Low Level

Calibration ID: KC1800201 **Signal ID:** 1
Instrument ID: K-MS-26

#	Lab Code	Sample Name	File Location	Acquisition Date
01	KC1800201-01	1,4 DX ICAL 2.0ng/mL SVM58-93B	J:\MS26\DATA\052218\0522F006.D	05/22/2018 12:04
02	KC1800201-02	1,4 DX ICAL 4.0ng/mL SVM58-93C	J:\MS26\DATA\052218\0522F007.D	05/22/2018 12:22
03	KC1800201-03	1,4 DX ICAL 10.0ng/mL SVM58-93D	J:\MS26\DATA\052218\0522F008.D	05/22/2018 12:40
04	KC1800201-04	1,4 DX ICAL 20.0ng/mL SVM58-93E	J:\MS26\DATA\052218\0522F009.D	05/22/2018 12:59
05	KC1800201-05	1,4 DX ICAL 50.0ng/mL SVM58-93F	J:\MS26\DATA\052218\0522F010.D	05/22/2018 13:17
06	KC1800201-06	1,4 DX ICAL 100ng/mL SVM58-93G	J:\MS26\DATA\052218\0522F011.D	05/22/2018 13:35
07	KC1800201-07	1,4 DX ICAL 200ng/mL SVM58-93H	J:\MS26\DATA\052218\0522F012.D	05/22/2018 13:54

Analyte

1,4-Dioxane

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	0.3912	02	4.000	0.3887	03	10.000	0.4019	04	20.000	0.4209
05	50.000	0.4071	06	100.000	0.4222	07	200.000	0.4119			

1,4-Dioxane-d8

#	Amount	RF	#	Amount	RF	#	Amount	RF	#	Amount	RF
01	2.000	0.4527	02	4.000	0.4089	03	10.000	0.4073	04	20.000	0.4023
05	50.000	0.3955	06	100.000	0.3998	07	200.000	0.3955			

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994 **Calibration Date:** 5/22/2018

Initial Calibration Summary
1,4-Dioxane by GC/MS Low Level

Calibration ID: KC1800201 **Signal ID:** 1
Instrument ID: K-MS-26

		Calibration Evaluation				Calibration Evaluation	
Analyte Name	Compound Type	Fit Type	Eval	Eval Result	Control Criteria	Average RRF	Minimum RRF
1,4-Dioxane	TRG	Average RF	% RSD	3.3	≤20	0.4063	0.01
1,4-Dioxane-d8	SURR	Average RF	% RSD	4.9	≤20	0.4089	0.01

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QA/QC Report

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994 **Calibration Date:** 5/22/2018

Initial Calibration Verification Summary
1,4-Dioxane by GC/MS Low Level

Calibration ID: KC1800201 **Signal ID:** 1
Instrument ID: K-MS-26

#	Lab Code	Sample Name	File Location	Acquisition Date
08	KC1800201-08	1,4 DX ICV 20ng/mL SVM58-93I	J:\MS26\DATA\052218\0522F013.D	05/22/2018 14:12

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
1,4-Dioxane	20.0	20.5	4.063E-1	4.167E-1	2.57	±30	Average RF

Analyte Name	Expected	Result	Average RF	SSV RF	% D	Criteria	Curve Fit
1,4-Dioxane-d8	20.0	21.4	4.089E-1	4.372E-1	6.92	±30	Average RF

Client:	Applied EcoSystems, Inc.	**Service Request:**	K1805026
Project:	RACER Flint West #12994/11-4317-102	**Date Analyzed:**	06/07/18 16:16

Continuing Calibration Verification (CCV) Summary
1,4-Dioxane by GC/MS Low Level

Analysis Method:	8270D SIM	**Calibration Date:**	5/22/2018
File ID:	J:\MS26\DATA\060718\0607F004.D\	**Calibration ID:**	KC1800201
Signal ID:	1	**Analysis Lot:**	594016
		Units:	ng/mL

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,4-Dioxane	20.0	21.5	0.4063	0.4374	7.7	NA	±20	Average RF

Analyte Name	Expected	Result	Average RF	CCV RF	% D	% Drift	Criteria	Curve Fit
1,4-Dioxane-d8	20.0	19.1	0.4089	0.3902	-4.6	NA	±20	Average RF

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QA/QC Report

Client: Applied EcoSystems, Inc. **Service Request:**K1805026
Project: RACER Flint West #12994/11-4317-102

Analysis Run Log
1,4-Dioxane by GC/MS Low Level

Analysis Method: **Analysis Lot:**594016
Instrument ID:K-MS-26

Raw Data File	Sample Name	Lab Code	Date Analyzed	Time Analyzed	Q
J:\MS26\DATA\060718\0607F003.D\	ZZZZZZZ	ZZZZZZZ	6/7/2018	15:57:00	
J:\MS26\DATA\060718\0607F004.D\	Continuing Calibration Verification	KQ1807673-02	6/7/2018	16:16:00	
J:\MS26\DATA\060718\0607F005.D\	ZZZZZZZ	ZZZZZZZ	6/7/2018	16:34:00	
J:\MS26\DATA\060718\0607F006.D\	ZZZZZZZ	ZZZZZZZ	6/7/2018	16:53:00	
J:\MS26\DATA\060718\0607F007.D\	ZZZZZZZ	ZZZZZZZ	6/7/2018	17:11:00	
J:\MS26\DATA\060718\0607F008.D\	ZZZZZZZ	ZZZZZZZ	6/7/2018	17:30:00	
J:\MS26\DATA\060718\0607F009.D\	ZZZZZZZ	ZZZZZZZ	6/7/2018	17:48:00	
J:\MS26\DATA\060718\0607F010.D\	ZZZZZZZ	ZZZZZZZ	6/7/2018	18:06:00	
J:\MS26\DATA\060718\0607F011.D\	ZZZZZZZ	ZZZZZZZ	6/7/2018	18:25:00	
J:\MS26\DATA\060718\0607F012.D\	ZZZZZZZ	ZZZZZZZ	6/7/2018	18:43:00	
J:\MS26\DATA\060718\0607F013.D\	Method Blank	KQ1807478-03	6/7/2018	19:01:00	
J:\MS26\DATA\060718\0607F014.D\	Lab Control Sample	KQ1807478-01	6/7/2018	19:20:00	
J:\MS26\DATA\060718\0607F015.D\	Duplicate Lab Control Sample	KQ1807478-02	6/7/2018	19:38:00	
J:\MS26\DATA\060718\0607F016.D\	MW-101S	K1805026-001	6/7/2018	19:57:00	
J:\MS26\DATA\060718\0607F017.D\	MW-102S	K1805026-002	6/7/2018	20:15:00	
J:\MS26\DATA\060718\0607F018.D\	MW-111S	K1805026-003	6/7/2018	20:33:00	
J:\MS26\DATA\060718\0607F019.D\	MW-112S	K1805026-004	6/7/2018	20:52:00	
J:\MS26\DATA\060718\0607F020.D\	Field DUP	K1805026-005	6/7/2018	21:10:00	
J:\MS26\DATA\060718\0607F021.D\	Trip Blank	K1805026-008	6/7/2018	21:28:00	

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Prep Summary Report

Client: Applied EcoSystems, Inc. **Service Request:** K1805026
Project: RACER Flint West #12994/11-4317-102
Sample Matrix: Water

1,4-Dioxane by GC/MS Low Level

Prep Method: EPA 3535A **Extraction Lot:** 315249
Analytical Method: 8270D SIM **Extraction Date:** 06/05/18 09:30

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
MW-101S	K1805026-001	5/29/18	5/30/18	100 mL	2 mL	
MW-102S	K1805026-002	5/29/18	5/30/18	100 mL	2 mL	
MW-111S	K1805026-003	5/29/18	5/30/18	100 mL	2 mL	
MW-112S	K1805026-004	5/29/18	5/30/18	100 mL	2 mL	
Field DUP	K1805026-005	5/29/18	5/30/18	100 mL	2 mL	
Trip Blank	K1805026-008	5/29/18	5/30/18	100 mL	2 mL	
Lab Control Sample	KQ1807478-01LCS	NA	NA	100 mL	2 mL	
Duplicate Lab Control Sample	KQ1807478-02DLCS	NA	NA	100 mL	2 mL	
Method Blank	KQ1807478-03MB	NA	NA	100 mL	2 mL	

Analytical Laboratory Report

Report ID: S91291.01(02)
Generated on 08/01/2018
Replaces report S91291.01(01) generated on 08/01/2018

Report to

Attention: Mike Smith
Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: ae_mds@yahoo.com

Report produced by

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

Report Summary

Lab Sample ID(s): S91291.01-S91291.08
Project: 11-4317-102 / Racer #12990
Collected Date: 06/28/2018
Submitted Date/Time: 06/29/2018 15:00
Sampled by: Heather Dean
P.O. #: PO

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

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.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
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
9060	
E200.8	EPA Method 200.8 Revision 5.4
N/A	Not Applicable
RSK-175	RSK-175
SW3015A	SW 846 Method 3015A Revision 1 February 2007
SW5030C/8260B	SW 846 Method 8260B Revision 2 December 1996 / 5030C Revision 3 May 2003

Sample Summary (8 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S91291.01	MW-109S	Groundwater	06/28/18 12:10
S91291.02	MW-113S	Groundwater	06/28/18 13:15
S91291.03	MW-112S	Groundwater	06/28/18 14:35
S91291.04	MW-111S	Groundwater	06/28/18 15:45
S91291.05	Dup1	Groundwater	06/28/18 00:01
S91291.06	Equip Blank	Water	06/28/18 00:01
S91291.07	Field Blank	Water	06/28/18 00:01
S91291.08	TB	Water	06/28/18 00:01

Analytical Laboratory Report

Lab Sample ID: S91291.01
Sample Tag: MW-109S
Collected Date/Time: 06/28/2018 12:10
Matrix: Groundwater
COC Reference: 103839

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.7	IR
1	125ml Plastic	HNO3	Yes	4.7	IR
6	40ml Glass	HCL	Yes	4.7	IR
2	40ml Glass	H2SO4	Yes	4.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/05/18 15:30	JML	
Metal Digestion	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion (Replicate 01)	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion (Replicate 01)	Completed	SW3015A	07/05/18 15:30	CCM	

Inorganics

Method: 9060, Run Date: 07/23/18 14:45, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC*	4.1	1.0	0.50	mg/L	1		O

Metals

Method: E200.8, Run Date: 07/06/18 10:56, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese, Dissolved	0.807	0.005	0.000405	mg/L	5	7439-96-5	f

Method: E200.8, Run Date: 07/06/18 10:53, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese	0.817	0.005	0.000405	mg/L	5	7439-96-5	

Method: E200.8, Run Date: 07/20/18 12:57, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.000396	0.002	0.000385	mg/L	5	7440-38-2	b
Chromium	Not detected	0.005	0.000150	mg/L	5	7440-47-3	
Copper	0.00136	0.005	0.000290	mg/L	5	7440-50-8	b
Iron	0.04	0.02	0.00112	mg/L	5	7439-89-6	
Lead	0.000111	0.003	0.0000550	mg/L	5	7439-92-1	b
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	0.00267	0.005	0.00138	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 07/20/18 13:04, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.000538	0.002	0.000385	mg/L	5	7440-38-2	bf
Chromium, Dissolved	Not detected	0.005	0.000150	mg/L	5	7440-47-3	f
Copper, Dissolved	0.000483	0.005	0.000290	mg/L	5	7440-50-8	bf
Iron, Dissolved	0.03	0.02	0.00112	mg/L	5	7439-89-6	f

O-Analysis performed by outside laboratory. See attached report.
f-Filtered and preserved in lab
b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S91291.01 (continued)
Sample Tag: MW-109S

Method: E200.8, Run Date: 07/20/18 13:04, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead, Dissolved	Not detected	0.003	0.0000550	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	f
Zinc, Dissolved	Not detected	0.005	0.00138	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 07/03/18 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*	1.19	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)*	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*	7	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*	4	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*	0.54	1	0.20	ug/L	1	156-60-5	J
1,1-Dichloroethane*	2	1	0.20	ug/L	1	75-34-3	
cis-1,2-Dichloroethene*	33	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*	66	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	

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: S91291.01 (continued)
Sample Tag: MW-109S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 07/03/18 16:44, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: 07/12/18 00:58, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	70	1.0	0.17	ug/L	1	74-82-8	O

Other / Misc.

Method: , Run Date: 07/12/18 10:00, Analyst: BB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Subcontracting Shipped (Replicate 01)*	Test America				1		

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

Analytical Laboratory Report

Lab Sample ID: S91291.02
Sample Tag: MW-113S
Collected Date/Time: 06/28/2018 13:15
Matrix: Groundwater
COC Reference: 103839

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.7	IR
1	125ml Plastic	HNO3	Yes	4.7	IR
6	40ml Glass	HCL	Yes	4.7	IR
2	40ml Glass	H2SO4	Yes	4.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/05/18 15:30	JML	
Metal Digestion	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion (Replicate 01)	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion (Replicate 01)	Completed	SW3015A	07/05/18 15:30	CCM	

Inorganics

Method: 9060, Run Date: 07/23/18 15:43, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC*	4.8	1.0	0.50	mg/L	1		O

Metals

Method: E200.8, Run Date: 07/06/18 10:59, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese, Dissolved	0.055	0.005	0.000405	mg/L	5	7439-96-5	f

Method: E200.8, Run Date: 07/06/18 10:57, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese	0.058	0.005	0.000405	mg/L	5	7439-96-5	

Method: E200.8, Run Date: 07/20/18 13:07, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.006	0.002	0.000385	mg/L	5	7440-38-2	
Chromium	0.00450	0.005	0.000150	mg/L	5	7440-47-3	b
Copper	0.006	0.005	0.000290	mg/L	5	7440-50-8	
Iron	2.29	0.02	0.00112	mg/L	5	7439-89-6	
Lead	Not detected	0.003	0.0000550	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	Not detected	0.005	0.00138	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 07/20/18 13:09, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.003	0.002	0.000385	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.00197	0.005	0.000150	mg/L	5	7440-47-3	bf
Copper, Dissolved	Not detected	0.005	0.000290	mg/L	5	7440-50-8	f
Iron, Dissolved	1.22	0.02	0.00112	mg/L	5	7439-89-6	f

O-Analysis performed by outside laboratory. See attached report.
f-Filtered and preserved in lab
b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S91291.02 (continued)
Sample Tag: MW-113S

Method: E200.8, Run Date: 07/20/18 13:09, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead, Dissolved	Not detected	0.003	0.0000550	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	f
Zinc, Dissolved	Not detected	0.005	0.00138	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 07/03/18 17:04, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	1.58	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)*	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*	0.31	1	0.20	ug/L	1	75-34-3	J
cis-1,2-Dichloroethene*	4	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*	28	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	

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: S91291.02 (continued)
Sample Tag: MW-113S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 07/03/18 17:04, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: 07/12/18 01:15, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	19	1.0	0.17	ug/L	1	74-82-8	O

Other / Misc.

Method: , Run Date: 07/12/18 10:00, Analyst: BB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Subcontracting Shipped (Replicate 01)*	Test America				1		

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

Analytical Laboratory Report

Lab Sample ID: S91291.03
Sample Tag: MW-112S
Collected Date/Time: 06/28/2018 14:35
Matrix: Groundwater
COC Reference: 103839

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.7	IR
1	125ml Plastic	HNO3	Yes	4.7	IR
6	40ml Glass	HCL	Yes	4.7	IR
2	40ml Glass	H2SO4	Yes	4.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/05/18 15:30	JML	
Metal Digestion	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion (Replicate 01)	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion (Replicate 01)	Completed	SW3015A	07/05/18 15:30	CCM	

Inorganics

Method: 9060, Run Date: 07/23/18 16:01, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC*	22	1.0	0.50	mg/L	1		O

Metals

Method: E200.8, Run Date: 07/06/18 11:02, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese, Dissolved	0.263	0.005	0.000405	mg/L	5	7439-96-5	f

Method: E200.8, Run Date: 07/06/18 11:00, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese	0.258	0.005	0.000405	mg/L	5	7439-96-5	

Method: E200.8, Run Date: 07/20/18 13:23, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.051	0.002	0.000385	mg/L	5	7440-38-2	
Chromium	0.000380	0.005	0.000150	mg/L	5	7440-47-3	b
Copper	Not detected	0.005	0.000290	mg/L	5	7440-50-8	
Iron	5.15	0.02	0.00112	mg/L	5	7439-89-6	
Lead	0.000181	0.003	0.0000550	mg/L	5	7439-92-1	b
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	Not detected	0.005	0.00138	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 07/20/18 13:25, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.029	0.002	0.000385	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.000499	0.005	0.000150	mg/L	5	7440-47-3	bf
Copper, Dissolved	Not detected	0.005	0.000290	mg/L	5	7440-50-8	f
Iron, Dissolved	2.32	0.02	0.00112	mg/L	5	7439-89-6	f

O-Analysis performed by outside laboratory. See attached report.
f-Filtered and preserved in lab
b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S91291.03 (continued)
Sample Tag: MW-112S

Method: E200.8, Run Date: 07/20/18 13:25, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead, Dissolved	0.0000830	0.003	0.0000550	mg/L	5	7439-92-1	bf
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.00349	0.005	0.00138	mg/L	5	7440-66-6	bf

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 07/03/18 17:23, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	2.72	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)*	1.10	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*	8	1	0.31	ug/L	1	75-01-4	
Bromomethane*	Not detected	5	0.32	ug/L	1	74-83-9	
Chloroethane*	0.62	5	0.34	ug/L	1	75-00-3	J
Trichlorofluoromethane*	Not detected	1	0.33	ug/L	1	75-69-4	
1,1-Dichloroethene*	1	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*	0.21	1	0.20	ug/L	1	156-60-5	J
1,1-Dichloroethane*	0.92	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)*	0.20	50	0.14	ug/L	1	108-10-1	J
2-Hexanone*	0.32	50	0.29	ug/L	1	591-78-6	J
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*	7	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	

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: S91291.03 (continued)
Sample Tag: MW-112S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 07/03/18 17:23, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: 07/12/18 01:49, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	1,600	1.0	0.17	ug/L	1	74-82-8	O

Other / Misc.

Method: , Run Date: 07/12/18 10:00, Analyst: BB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Subcontracting Shipped (Replicate 01)*	Test America				1		

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

Analytical Laboratory Report

Lab Sample ID: S91291.04
Sample Tag: MW-111S
Collected Date/Time: 06/28/2018 15:45
Matrix: Groundwater
COC Reference: 103839

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.7	IR
1	125ml Plastic	HNO3	Yes	4.7	IR
6	40ml Glass	HCL	Yes	4.7	IR
2	40ml Glass	H2SO4	Yes	4.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/05/18 15:30	JML	
Metal Digestion	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion (Replicate 01)	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion (Replicate 01)	Completed	SW3015A	07/05/18 15:30	CCM	

Inorganics

Method: 9060, Run Date: 07/23/18 16:21, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC*	9.9	1.0	0.50	mg/L	1		O

Metals

Method: E200.8, Run Date: 07/06/18 11:11, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese, Dissolved	0.001847	0.005	0.000405	mg/L	5	7439-96-5	bf

Method: E200.8, Run Date: 07/06/18 11:10, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese	0.000877	0.005	0.000405	mg/L	5	7439-96-5	b

Method: E200.8, Run Date: 07/20/18 13:12, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000385	mg/L	5	7440-38-2	
Chromium	0.005	0.005	0.000150	mg/L	5	7440-47-3	
Copper	Not detected	0.005	0.000290	mg/L	5	7440-50-8	
Iron	0.00971	0.02	0.00112	mg/L	5	7439-89-6	b
Lead	Not detected	0.003	0.0000550	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	0.007	0.005	0.00138	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 07/20/18 13:14, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000385	mg/L	5	7440-38-2	f
Chromium, Dissolved	0.005	0.005	0.000150	mg/L	5	7440-47-3	f
Copper, Dissolved	0.000911	0.005	0.000290	mg/L	5	7440-50-8	bf
Iron, Dissolved	0.0127	0.02	0.00112	mg/L	5	7439-89-6	bf
Lead, Dissolved	Not detected	0.003	0.0000550	mg/L	5	7439-92-1	f

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL f-Filtered and preserved in lab

Lab Sample ID: S91291.04 (continued)
Sample Tag: MW-111S

Method: E200.8, Run Date: 07/20/18 13:14, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	f
Zinc, Dissolved	0.00242	0.005	0.00138	mg/L	5	7440-66-6	bf

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 07/03/18 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*	1.80	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)*	0.41	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*	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*	7	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	

f-Filtered and preserved in lab
b-Value detected less than reporting limit, but greater than MDL
J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S91291.04 (continued)
Sample Tag: MW-111S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 07/03/18 17:42, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: 07/12/18 02:06, 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

Other / Misc.

Method: , Run Date: 07/12/18 10:00, Analyst: BB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Subcontracting Shipped (Replicate 01)*	Test America				1		

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

Analytical Laboratory Report

Lab Sample ID: S91291.05
Sample Tag: Dup1
Collected Date/Time: 06/28/2018 00:01
Matrix: Groundwater
COC Reference: 103839

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.7	IR
1	125ml Plastic	HNO3	Yes	4.7	IR
6	40ml Glass	HCL	Yes	4.7	IR
2	40ml Glass	H2SO4	Yes	4.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/05/18 15:30	JML	
Metal Digestion	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion (Replicate 01)	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion (Replicate 01)	Completed	SW3015A	07/05/18 15:30	CCM	

Inorganics

Method: 9060, Run Date: 07/23/18 16:42, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC*	9.2	1.0	0.50	mg/L	1		O

Metals

Method: E200.8, Run Date: 07/06/18 11:15, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese, Dissolved	Not detected	0.005	0.000405	mg/L	5	7439-96-5	f

Method: E200.8, Run Date: 07/06/18 11:13, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese	0.001203	0.005	0.000405	mg/L	5	7439-96-5	b

Method: E200.8, Run Date: 07/20/18 13:27, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.000590	0.002	0.000385	mg/L	5	7440-38-2	b
Chromium	0.005	0.005	0.000150	mg/L	5	7440-47-3	
Copper	Not detected	0.005	0.000290	mg/L	5	7440-50-8	
Iron	0.00783	0.02	0.00112	mg/L	5	7439-89-6	b
Lead	Not detected	0.003	0.0000550	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	Not detected	0.005	0.00138	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 07/20/18 13:29, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.000397	0.002	0.000385	mg/L	5	7440-38-2	bf
Chromium, Dissolved	0.005	0.005	0.000150	mg/L	5	7440-47-3	f
Copper, Dissolved	Not detected	0.005	0.000290	mg/L	5	7440-50-8	f
Iron, Dissolved	0.00738	0.02	0.00112	mg/L	5	7439-89-6	bf

O-Analysis performed by outside laboratory. See attached report.
f-Filtered and preserved in lab
b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S91291.05 (continued)
Sample Tag: Dup1

Method: E200.8, Run Date: 07/20/18 13:29, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Lead, Dissolved	Not detected	0.003	0.0000550	mg/L	5	7439-92-1	f
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	f
Zinc, Dissolved	Not detected	0.005	0.00138	mg/L	5	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 07/03/18 18:01, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	1.42	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)*	0.31	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*	0.44	1	0.26	ug/L	1	156-59-2	J
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*	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	

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: S91291.05 (continued)
Sample Tag: Dup1

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 07/03/18 18:01, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: 07/12/18 02:23, 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

Other / Misc.

Method: , Run Date: 07/12/18 10:00, Analyst: BB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Subcontracting Shipped (Replicate 01)*	Test America				1		

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

Analytical Laboratory Report

Lab Sample ID: S91291.06
Sample Tag: Equip Blank
Collected Date/Time: 06/28/2018 00:01
Matrix: Water
COC Reference: 103839

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.7	IR
1	125ml Plastic	HNO3	Yes	4.7	IR
6	40ml Glass	HCL	Yes	4.7	IR
2	40ml Glass	H2SO4	Yes	4.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/05/18 15:30	JML	
Metal Digestion	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion (Replicate 01)	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion (Replicate 01)	Completed	SW3015A	07/05/18 15:30	CCM	

Inorganics

Method: 9060, Run Date: 07/23/18 17:01, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC*	Not detected	1.0	0.50	mg/L	1		O

Metals

Method: E200.8, Run Date: 07/06/18 10:49, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese, Dissolved	0.000835	0.005	0.000162	mg/L	2	7439-96-5	bf

Method: E200.8, Run Date: 07/06/18 10:47, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese	Not detected	0.005	0.000162	mg/L	2	7439-96-5	

Method: E200.8, Run Date: 07/20/18 12:48, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000154	mg/L	2	7440-38-2	
Chromium	0.000148	0.005	0.0000600	mg/L	2	7440-47-3	b
Copper	0.00141	0.005	0.000116	mg/L	2	7440-50-8	b
Iron	0.00943	0.02	0.000448	mg/L	2	7439-89-6	b
Lead	0.000151	0.003	0.0000220	mg/L	2	7439-92-1	b
Selenium	Not detected	0.005	0.00100	mg/L	2	7782-49-2	
Zinc	0.00436	0.005	0.000552	mg/L	2	7440-66-6	b

Method: E200.8, Run Date: 07/20/18 12:59, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000154	mg/L	2	7440-38-2	f
Chromium, Dissolved	0.0000940	0.005	0.0000600	mg/L	2	7440-47-3	bf
Copper, Dissolved	0.00119	0.005	0.000116	mg/L	2	7440-50-8	bf
Iron, Dissolved	0.00240	0.02	0.000448	mg/L	2	7439-89-6	bf
Lead, Dissolved	0.0000920	0.003	0.0000220	mg/L	2	7439-92-1	bf

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL f-Filtered and preserved in lab

Lab Sample ID: S91291.06 (continued)
Sample Tag: Equip Blank

Method: E200.8, Run Date: 07/20/18 12:59, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium, Dissolved	Not detected	0.005	0.00100	mg/L	2	7782-49-2	f
Zinc, Dissolved	0.00391	0.005	0.000552	mg/L	2	7440-66-6	bf

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 07/03/18 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*	1.33	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)*	0.29	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*	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	

f-Filtered and preserved in lab
b-Value detected less than reporting limit, but greater than MDL
J-Estimated value less than reporting limit, but greater than MDL B-Compound also found in associated method blank

Lab Sample ID: S91291.06 (continued)
Sample Tag: Equip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 07/03/18 16:25, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: 07/12/18 02:41, 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

Other / Misc.

Method: , Run Date: 07/12/18 10:00, Analyst: BB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Subcontracting Shipped (Replicate 01)*	Test America				1		

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

Analytical Laboratory Report

Lab Sample ID: S91291.07
Sample Tag: Field Blank
Collected Date/Time: 06/28/2018 00:01
Matrix: Water
COC Reference: 103839

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	None	Yes	4.7	IR
1	125ml Plastic	HNO3	Yes	4.7	IR
6	40ml Glass	HCL	Yes	4.7	IR
2	40ml Glass	H2SO4	Yes	4.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/05/18 15:30	JML	
Metal Digestion	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion (Replicate 01)	Completed	SW3015A	07/05/18 15:30	CCM	
Metal Digestion (Replicate 01)	Completed	SW3015A	07/05/18 15:30	CCM	

Inorganics

Method: 9060, Run Date: 07/23/18 17:56, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC*	Not detected	1.0	0.50	mg/L	1		O

Metals

Method: E200.8, Run Date: 07/06/18 10:51, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese, Dissolved	0.000208	0.005	0.000162	mg/L	2	7439-96-5	bf

Method: E200.8, Run Date: 07/06/18 10:48, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Manganese	Not detected	0.005	0.000162	mg/L	2	7439-96-5	

Method: E200.8, Run Date: 07/20/18 12:50, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.000160	0.002	0.000154	mg/L	2	7440-38-2	b
Chromium	0.0000920	0.005	0.0000600	mg/L	2	7440-47-3	b
Copper	Not detected	0.005	0.000116	mg/L	2	7440-50-8	
Iron	0.00683	0.02	0.000448	mg/L	2	7439-89-6	b
Lead	0.0000490	0.003	0.0000220	mg/L	2	7439-92-1	b
Selenium	Not detected	0.005	0.00100	mg/L	2	7782-49-2	
Zinc	Not detected	0.005	0.000552	mg/L	2	7440-66-6	

Method: E200.8, Run Date: 07/20/18 13:01, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000154	mg/L	2	7440-38-2	f
Chromium, Dissolved	Not detected	0.005	0.0000600	mg/L	2	7440-47-3	f
Copper, Dissolved	Not detected	0.005	0.000116	mg/L	2	7440-50-8	f
Iron, Dissolved	0.00495	0.02	0.000448	mg/L	2	7439-89-6	bf
Lead, Dissolved	Not detected	0.003	0.0000220	mg/L	2	7439-92-1	f

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL f-Filtered and preserved in lab

Lab Sample ID: S91291.07 (continued)
Sample Tag: Field Blank

Method: E200.8, Run Date: 07/20/18 13:01, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium, Dissolved	Not detected	0.005	0.00100	mg/L	2	7782-49-2	f
Zinc, Dissolved	Not detected	0.005	0.000552	mg/L	2	7440-66-6	f

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 07/03/18 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*	1.00	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)*	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	

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: S91291.07 (continued)
Sample Tag: Field Blank

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 07/03/18 16:06, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: 07/12/18 02:58, 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

Other / Misc.

Method: , Run Date: 07/12/18 10:00, Analyst: BB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Subcontracting Shipped (Replicate 01)*	Test America				1		

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

Analytical Laboratory Report

Lab Sample ID: S91291.08
Sample Tag: TB
Collected Date/Time: 06/28/2018 00:01
Matrix: Water
COC Reference: 103839

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	07/05/18 15:30	JML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 07/03/18 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*	3.40	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)*	0.34	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*	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: S91291.08 (continued)
Sample Tag: TB

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 07/03/18 15:47, 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*	0.26	5	0.16	ug/L	1	91-57-6	J

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

Merit Laboratories Login Checklist

Lab Set ID: S91291
Client: APPLIED (Applied Ecosystems)
Project: 11-4317-102 / Racer #12990
Submitted: 06/29/2018 15:00 Login User: MMC

Attention: Mike Smith
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: ae_mds@yahoo.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 4.7
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.	[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: S91291 Initials: MMC

Client: APPLIED (Applied Ecosystems)

Project: 11-4317-102 / Racer #12990

Submitted: 06/29/2018 15:00 Login User:

Attention: Mike Smith
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: ae_mds@yahoo.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	
S91291.01	X								X					
S91291.02	X								X					
S91291.03	X								X					
S91291.04	X								X					
S91291.05	X								X					
S91291.06	X								X					
S91291.07	X								X					

Prepared by Merit Laboratories

Merit Laboratories, Inc.

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C.O.C. PAGE # 1 OF 1

103839

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Mike Smith
COMPANY: Applied Eco Systems, Inc
ADDRESS: G-4300 S. Saginaw St.
CITY: Burton STATE: MI ZIP CODE: 48529
PHONE NO.: 810-715-2525 FAX NO.: 810-715-2526 P.O. NO.:
E-MAIL ADDRESS: MSmith@appliedecosystems.com 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 / Racer #12990
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Heather Dean

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 Flint, MI
Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	Manganese, Diss	Manganese, Total	Total Organic Carbon	Methane
91291.01	6/28/18	1210	MW-109S	GW		x	x	x	x				x	x	x	x	x
.02	6/28/18	1315	MW-113S	GW		x	x	x	x				x	x	x	x	x
.03	6/28/18	1435	MW-112S	GW		x	x	x	x				x	x	x	x	x
.04	6/28/18	1545	MW-111S	GW		x	x	x	x				X	X	X	X	X
.05	6/28/18		Dup 1	GW		X	X	X	X				X	X	X	X	X
.06	6/28/18		Equip Blank	GW		X	X	X	X				X	X	X	X	X
.07	6/28/18		Field Blank	GW		x	x	x	x				x	x	x	x	x
.08			TB	W			x						x				

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Heather Dean (Sampler) Heather Dean	DATE 6-28-18	TIME 1710
RECEIVED BY: SIGNATURE/ORGANIZATION	AE Fridge	DATE 6-28-18	TIME 1710
RELINQUISHED BY: SIGNATURE/ORGANIZATION	Heather Dean	DATE 6/29/18	TIME 13:15
RECEIVED BY: SIGNATURE/ORGANIZATION	[illegible]	DATE 6/29/18	TIME 13:15

RELINQUISHED BY: SIGNATURE/ORGANIZATION	[illegible]	DATE 6/29/18	TIME 15:00
RECEIVED BY: SIGNATURE/ORGANIZATION	[illegible]	DATE 6/29/18	TIME 1500

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

NOTES: TEMP. ON ARRIVAL 4.7

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

Rev. 5.18.12

ANALYTICAL REPORT

Job Number: 190-16732-1

Job Description: S91291 - Methane

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

Attention: John Laverty

Sue Schafer

Approved for release.
Sue Schafer
Project Manager II
7/13/2018 2:56 PM

Sue Schafer, Project Manager II
4101 Shuffel Street NW, North Canton, OH, 44720
(810)229-2763
sue.schafer@testamericainc.com
07/13/2018

cc: Barbara Ball
Julie Teague

Table of Contents

Cover Title Page 1

Data Summaries 4

Definitions 4

Case Narrative 5

Detection Summary 6

Client Sample Results 7

Default Detection Limits 9

Surrogate Summary 10

QC Sample Results 11

QC Association 12

Chronicle 13

Certification Summary 15

Method Summary 16

Sample Summary 17

Manual Integration Summary 18

Reagent Traceability 20

Organic Sample Data 21

GC VOA 21

Method RSK-175 21

Method RSK-175 QC Summary 22

Method RSK-175 Sample Data 27

Standards Data 34

Method RSK-175 ICAL Data 34

Method RSK-175 CCAL Data 43

Raw QC Data 51

Method RSK-175 Blank Data 51

Table of Contents

Method RSK-175 LCS/LCSD Data 52

Method RSK-175 Run Logs 54

Subcontracted Data 56

Shipping and Receiving Documents 57

Client Chain of Custody 58

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
190-16732-1

Comments
No additional comments.

Receipt
The samples were received on 7/2/2018 10:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 9.0º C.

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

Detection Summary

Client: Merit Laboratories
Project/Site: S91291 - Methane

TestAmerica Job ID: 190-16732-1

Client Sample ID: 91291.01 — Lab Sample ID: 190-16732-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Methane	70		1.0	0.17	ug/L	1		RSK-175	Total/NA

Client Sample ID: 91291.02 — Lab Sample ID: 190-16732-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Methane	19		1.0	0.17	ug/L	1		RSK-175	Total/NA

Client Sample ID: 91291.03 — Lab Sample ID: 190-16732-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Methane	1600		1.0	0.17	ug/L	1		RSK-175	Total/NA

Client Sample ID: 91291.04 — Lab Sample ID: 190-16732-4

No Detections.

Client Sample ID: 91291.05 — Lab Sample ID: 190-16732-5

No Detections.

Client Sample ID: 91291.06 — Lab Sample ID: 190-16732-6

No Detections.

Client Sample ID: 91291.07 — Lab Sample ID: 190-16732-7

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Merit Laboratories
Project/Site: S91291 - Methane

TestAmerica Job ID: 190-16732-1

Client Sample ID: 91291.01
Lab Sample ID: 190-16732-1
Date Collected: 06/28/18 12:10
Matrix: Ground Water
Date Received: 07/02/18 10:35

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	70		1.0	0.17	ug/L			07/12/18 00:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	121		60 - 140		07/12/18 00:58	1

Client Sample ID: 91291.02
Lab Sample ID: 190-16732-2
Date Collected: 06/28/18 13:15
Matrix: Ground Water
Date Received: 07/02/18 10:35

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	19		1.0	0.17	ug/L			07/12/18 01:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	119		60 - 140		07/12/18 01:15	1

Client Sample ID: 91291.03
Lab Sample ID: 190-16732-3
Date Collected: 06/28/18 14:35
Matrix: Ground Water
Date Received: 07/02/18 10:35

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	1600		1.0	0.17	ug/L			07/12/18 01:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	120		60 - 140		07/12/18 01:49	1

Client Sample ID: 91291.04
Lab Sample ID: 190-16732-4
Date Collected: 06/28/18 15:45
Matrix: Ground Water
Date Received: 07/02/18 10:35

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			07/12/18 02:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	115		60 - 140		07/12/18 02:06	1

Client Sample ID: 91291.05
Lab Sample ID: 190-16732-5
Date Collected: 06/28/18 00:01
Matrix: Ground Water
Date Received: 07/02/18 10:35

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			07/12/18 02:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	114		60 - 140		07/12/18 02:23	1

Client Sample Results

Client: Merit Laboratories
Project/Site: S91291 - Methane

TestAmerica Job ID: 190-16732-1

Client Sample ID: 91291.06

Lab Sample ID: 190-16732-6

Date Collected: 06/28/18 00:01
Date Received: 07/02/18 10:35

Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			07/12/18 02:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*121*		*60 - 140*		*07/12/18 02:41*	*1*

Client Sample ID: 91291.07

Lab Sample ID: 190-16732-7

Date Collected: 06/28/18 00:01
Date Received: 07/02/18 10:35

Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			07/12/18 02:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*121*		*60 - 140*		*07/12/18 02:58*	*1*

Default Detection Limits

Client: Merit Laboratories
Project/Site: S91291 - Methane

TestAmerica Job ID: 190-16732-1

Method: RSK-175 - Dissolved Gases (GC)

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

Surrogate Summary

Client: Merit Laboratories
Project/Site: S91291 - Methane

TestAmerica Job ID: 190-16732-1

Method: RSK-175 - Dissolved Gases (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	**Client Sample ID**	**TFE2 (60-140)**
190-16732-1	91291.01	121
190-16732-2	91291.02	119
190-16732-3	91291.03	120
190-16732-4	91291.04	115
190-16732-5	91291.05	114

Surrogate Legend

TFE = 1,1,1-Trifluoroethane

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)**
190-16732-6	91291.06	121
190-16732-7	91291.07	121
LCS 240-335725/29	Lab Control Sample	112
LCSD 240-335725/30	Lab Control Sample Dup	110
MB 240-335725/28	Method Blank	116

Surrogate Legend

TFE = 1,1,1-Trifluoroethane

QC Sample Results

Client: Merit Laboratories
Project/Site: S91291 - Methane

TestAmerica Job ID: 190-16732-1

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 240-335725/28
Matrix: Water
Analysis Batch: 335725

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			07/11/18 21:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*116*		*60 - 140*		*07/11/18 21:15*	*1*

Lab Sample ID: LCS 240-335725/29
Matrix: Water
Analysis Batch: 335725

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			285	296		ug/L		104	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*112*		*60 - 140*

Lab Sample ID: LCSD 240-335725/30
Matrix: Water
Analysis Batch: 335725

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane			285	301		ug/L		106	80 - 120	2	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,1,1-Trifluoroethane	*110*		*60 - 140*

QC Association Summary

Client: Merit Laboratories
Project/Site: S91291 - Methane

TestAmerica Job ID: 190-16732-1

GC VOA

Analysis Batch: 335725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-16732-1	91291.01	Total/NA	Ground Water	RSK-175	
190-16732-2	91291.02	Total/NA	Ground Water	RSK-175	
190-16732-3	91291.03	Total/NA	Ground Water	RSK-175	
190-16732-4	91291.04	Total/NA	Ground Water	RSK-175	
190-16732-5	91291.05	Total/NA	Ground Water	RSK-175	
190-16732-6	91291.06	Total/NA	Water	RSK-175	
190-16732-7	91291.07	Total/NA	Water	RSK-175	
MB 240-335725/28	Method Blank	Total/NA	Water	RSK-175	
LCS 240-335725/29	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 240-335725/30	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Lab Chronicle

Client: Merit Laboratories
Project/Site: S91291 - Methane

TestAmerica Job ID: 190-16732-1

Client Sample ID: 91291.01
Lab Sample ID: 190-16732-1
Date Collected: 06/28/18 12:10
Matrix: Ground Water
Date Received: 07/02/18 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	335725	07/12/18 00:58	BPM	TAL CAN

Client Sample ID: 91291.02
Lab Sample ID: 190-16732-2
Date Collected: 06/28/18 13:15
Matrix: Ground Water
Date Received: 07/02/18 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	335725	07/12/18 01:15	BPM	TAL CAN

Client Sample ID: 91291.03
Lab Sample ID: 190-16732-3
Date Collected: 06/28/18 14:35
Matrix: Ground Water
Date Received: 07/02/18 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	335725	07/12/18 01:49	BPM	TAL CAN

Client Sample ID: 91291.04
Lab Sample ID: 190-16732-4
Date Collected: 06/28/18 15:45
Matrix: Ground Water
Date Received: 07/02/18 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	335725	07/12/18 02:06	BPM	TAL CAN

Client Sample ID: 91291.05
Lab Sample ID: 190-16732-5
Date Collected: 06/28/18 00:01
Matrix: Ground Water
Date Received: 07/02/18 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	335725	07/12/18 02:23	BPM	TAL CAN

Client Sample ID: 91291.06
Lab Sample ID: 190-16732-6
Date Collected: 06/28/18 00:01
Matrix: Water
Date Received: 07/02/18 10:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	335725	07/12/18 02:41	BPM	TAL CAN

Lab Chronicle

Client: Merit Laboratories
Project/Site: S91291 - Methane

TestAmerica Job ID: 190-16732-1

Client Sample ID: 91291.07

Date Collected: 06/28/18 00:01
Date Received: 07/02/18 10:35

Lab Sample ID: 190-16732-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	335725	07/12/18 02:58	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: S91291 - Methane

TestAmerica Job ID: 190-16732-1

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	07-31-18 *
Kansas	NELAP	7	E-10336	01-31-19
Kentucky (UST)	State Program	4	58	02-23-19
Kentucky (WW)	State Program	4	98016	12-31-18
Minnesota	NELAP	5	039-999-348	12-31-18
Minnesota (Petrofund)	State Program	1	3506	07-31-18 *
Nevada	State Program	9	OH-000482008A	07-31-18 *
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	08-31-18 *
Texas	NELAP	6	T104704517-17-9	08-31-18 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18 *
Washington	State Program	10	C971	01-12-19
West Virginia DEP	State Program	3	210	12-31-18

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

Method Summary

Client: Merit Laboratories
Project/Site: S91291 - Methane

TestAmerica Job ID: 190-16732-1

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: S91291 - Methane

TestAmerica Job ID: 190-16732-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
190-16732-1	91291.01	Ground Water	06/28/18 12:10	07/02/18 10:35
190-16732-2	91291.02	Ground Water	06/28/18 13:15	07/02/18 10:35
190-16732-3	91291.03	Ground Water	06/28/18 14:35	07/02/18 10:35
190-16732-4	91291.04	Ground Water	06/28/18 15:45	07/02/18 10:35
190-16732-5	91291.05	Ground Water	06/28/18 00:01	07/02/18 10:35
190-16732-6	91291.06	Water	06/28/18 00:01	07/02/18 10:35
190-16732-7	91291.07	Water	06/28/18 00:01	07/02/18 10:35

GC VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-16732-1

SDG No.:

Instrument ID: ZPID Analysis Batch Number: 332070

Lab Sample ID: STD 240-332070/3 IC Client Sample ID:

Date Analyzed: 06/18/18 08:53 Lab File ID: Z0061803.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	1.19	Incomplete Integration	matthewsb	06/18/18 11:42
Ethylene	1.89	Incomplete Integration	matthewsb	06/18/18 11:42
Acetylene	2.00	Incomplete Integration	matthewsb	06/18/18 11:47
Ethane	2.21	Incomplete Integration	matthewsb	06/18/18 11:43
Propane	4.56	Incomplete Integration	matthewsb	06/18/18 11:43

Lab Sample ID: STD 240-332070/4 IC Client Sample ID:

Date Analyzed: 06/18/18 09:10 Lab File ID: Z0061804.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	1.19	Split Peak	matthewsb	06/18/18 11:00
Acetylene	2.00	Incomplete Integration	matthewsb	06/18/18 10:12

Lab Sample ID: STD 240-332070/6 IC Client Sample ID:

Date Analyzed: 06/18/18 09:45 Lab File ID: Z0061806.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Acetylene	2.00	Split Peak	matthewsb	06/18/18 11:45

Lab Sample ID: STD 240-332070/7 IC Client Sample ID:

Date Analyzed: 06/18/18 10:02 Lab File ID: Z0061807.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Acetylene	2.00	Split Peak	matthewsb	06/18/18 11:44

RSK-175

GC VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-16732-1

SDG No.:

Instrument ID: ZPID Analysis Batch Number: 332070

Lab Sample ID: STD 240-332070/8 IC Client Sample ID:

Date Analyzed: 06/18/18 10:20 Lab File ID: Z0061808.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	1.19	Incomplete Integration	matthewsb	06/18/18 10:59
Acetylene	2.00	Split Peak	matthewsb	06/18/18 11:45

RSK-175

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-16732-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
SAICALSURR_00012	10/03/18	Matheson Trigas, Lot 109-46-10609			(Purchased Reagent)		1,1,1-Trifluoroethane	172158 ug/L
SARSK2NDSRCE_00010	10/13/18	Air Liquide-Scott Specialty gases, Lot 403-120156			(Purchased Reagent)		Methane	6558 ug/L
SARSKHIGHCALP_00008	10/08/18	Matheson Trigas, Lot 109-66-14469			(Purchased Reagent)		Acetylene	10657 ug/L
							Ethane	12338 ug/L
							Ethylene	11518 ug/L
							Methane	6558 ug/L
							Propane	18077 ug/L
SARSKLOWCAL_00009	09/27/18	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_00011	11/22/18	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.: 190-16732-1

SDG No.:

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	TFE1 #
91291.01	190-16732-1	121
91291.02	190-16732-2	119
91291.03	190-16732-3	120
91291.04	190-16732-4	115
91291.05	190-16732-5	114
91291.06	190-16732-6	121
91291.07	190-16732-7	121
	MB 240-335725/28	116
	LCS 240-335725/29	112
	LCSD 240-335725/30	110

	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.: 190-16732-1

SDG No.:

Matrix: Water Level: Low Lab File ID: Z0071129.D

Lab ID: LCS 240-335725/29 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
Methane	285	296	104	80-120	

Column to be used to flag recovery and RPD values

FORM III RSK-175

FORM III
GC VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Canton Job No.: 190-16732-1

SDG No.:

Matrix: Water Level: Low Lab File ID: Z0071130.D

Lab ID: LCSD 240-335725/30 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Methane	285	301	106	2	35	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.: 190-16732-1

SDG No.:

Lab Sample ID: MB 240-335725/28

Matrix: Water Date Extracted:

Lab File ID:(1) Z0071128.D Lab File ID:(2)

Date Analyzed:(1) 07/11/2018 21:15 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 240-335725/29	07/11/2018 21:32	
	LCSD 240-335725/30	07/11/2018 21:49	
91291.01	190-16732-1	07/12/2018 00:58	
91291.02	190-16732-2	07/12/2018 01:15	
91291.03	190-16732-3	07/12/2018 01:49	
91291.04	190-16732-4	07/12/2018 02:06	
91291.05	190-16732-5	07/12/2018 02:23	
91291.06	190-16732-6	07/12/2018 02:41	
91291.07	190-16732-7	07/12/2018 02:58	

FORM VIII
GC VOA ANALYTICAL SEQUENCE

Lab Name: TestAmerica Canton Job No.: 190-16732-1

SDG No.:

Sample No.: CCVRT 240-335725/27 Date Analyzed: 07/11/2018 20:58

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

Lab File ID (Standard): Z0071127.D Heated Purge: (Y/N) N

Calibration ID: 45555

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

				TFE		
				RT #		
CONTINUING CALIBRATION SURROGATE				3.35		
UPPER LIMIT				3.40		
LOWER LIMIT				3.30		
LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	LAB FILE ID			
CCVRT 240-335725/27		07/11/2018 20:58	Z0071127.D	3.35		
MB 240-335725/28		07/11/2018 21:15	Z0071128.D	3.35		
LCS 240-335725/29		07/11/2018 21:32	Z0071129.D	3.35		
LCSD 240-335725/30		07/11/2018 21:49	Z0071130.D	3.35		
190-16732-1	91291.01	07/12/2018 00:58	Z0071141.D	3.35		
190-16732-2	91291.02	07/12/2018 01:15	Z0071142.D	3.35		
CCV 240-335725/43		07/12/2018 01:32	Z0071143.D	3.35		
190-16732-3	91291.03	07/12/2018 01:49	Z0071144.D	3.35		
190-16732-4	91291.04	07/12/2018 02:06	Z0071145.D	3.35		
190-16732-5	91291.05	07/12/2018 02:23	Z0071146.D	3.35		
190-16732-6	91291.06	07/12/2018 02:41	Z0071147.D	3.35		
190-16732-7	91291.07	07/12/2018 02:58	Z0071148.D	3.35		
CCV 240-335725/52		07/12/2018 04:06	Z0071152.D	3.35		

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.: 190-16732-1

SDG No.:

Client Sample ID: 91291.01 | Lab Sample ID: 190-16732-1

Matrix: Ground Water | Lab File ID: Z0071141.D

Analysis Method: RSK-175 | Date Collected: 06/28/2018 12:10

Sample wt/vol: 23(mL) | Date Analyzed: 07/12/2018 00:58

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.: 335725 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	70		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	121		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-16732-1

SDG No.:

Client Sample ID: 91291.02 | Lab Sample ID: 190-16732-2

Matrix: Ground Water | Lab File ID: Z0071142.D

Analysis Method: RSK-175 | Date Collected: 06/28/2018 13:15

Sample wt/vol: 23(mL) | Date Analyzed: 07/12/2018 01:15

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.: 335725 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	19		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	119		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-16732-1

SDG No.:

Client Sample ID: 91291.03 | Lab Sample ID: 190-16732-3

Matrix: Ground Water | Lab File ID: Z0071144.D

Analysis Method: RSK-175 | Date Collected: 06/28/2018 14:35

Sample wt/vol: 23(mL) | Date Analyzed: 07/12/2018 01:49

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.: 335725 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	1600		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	120		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-16732-1

SDG No.:

Client Sample ID: 91291.04 | Lab Sample ID: 190-16732-4

Matrix: Ground Water | Lab File ID: Z0071145.D

Analysis Method: RSK-175 | Date Collected: 06/28/2018 15:45

Sample wt/vol: 23(mL) | Date Analyzed: 07/12/2018 02:06

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.: 335725 | Units: ug/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	115		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-16732-1

SDG No.:

Client Sample ID: 91291.05 | Lab Sample ID: 190-16732-5

Matrix: Ground Water | Lab File ID: Z0071146.D

Analysis Method: RSK-175 | Date Collected: 06/28/2018 00:01

Sample wt/vol: 23(mL) | Date Analyzed: 07/12/2018 02:23

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.: 335725 | Units: ug/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	114		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-16732-1

SDG No.:

Client Sample ID: 91291.06 | Lab Sample ID: 190-16732-6

Matrix: Water | Lab File ID: Z0071147.D

Analysis Method: RSK-175 | Date Collected: 06/28/2018 00:01

Sample wt/vol: 23(mL) | Date Analyzed: 07/12/2018 02:41

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.: 335725 | Units: ug/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	121		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-16732-1

SDG No.:

Client Sample ID: 91291.07 | Lab Sample ID: 190-16732-7

Matrix: Water | Lab File ID: Z0071148.D

Analysis Method: RSK-175 | Date Collected: 06/28/2018 00:01

Sample wt/vol: 23(mL) | Date Analyzed: 07/12/2018 02:58

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.: 335725 | Units: ug/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	121		60-140

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

Lab Name: TestAmerica Canton Job No.: 190-16732-1 Analy Batch No.: 332070

SDG No.:

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

Calibration Start Date: 06/18/2018 08:53 Calibration End Date: 06/18/2018 10:20 Calibration ID: 45555

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-332070/3	Z0061803.D
Level 2	STD 240-332070/4	Z0061804.D
Level 3	STD 240-332070/5	Z0061805.D
Level 4	STD 240-332070/6	Z0061806.D
Level 5	STD 240-332070/7	Z0061807.D
Level 6	STD 240-332070/8	Z0061808.D

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6					RT WINDOW	AVG RT
Methane	1.185	1.186	1.186	1.184	1.185	1.185					1.135 - 1.235	1.185
Ethylene	1.885	1.885	1.884	1.884	1.883	1.880					1.830 - 1.930	1.884
Acetylene	2.000	2.000	1.999	1.998	1.998	1.995					1.945 - 2.045	1.998
Ethane	2.207	2.206	2.206	2.206	2.205	2.198					1.998 - 2.398	2.205
Propane	4.555	4.556	4.556	4.554	4.551	4.532					4.482 - 4.582	4.551
1,1,1-Trifluoroethane	3.354	3.355	3.352	3.351	3.348						3.252 - 3.452	3.352

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

Lab Name: TestAmerica Canton Job No.: 190-16732-1 Analy Batch No.: 332070

SDG No.:

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

Calibration Start Date: 06/18/2018 08:53 Calibration End Date: 06/18/2018 10:20 Calibration ID: 45555

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-332070/3	Z0061803.D
Level 2	STD 240-332070/4	Z0061804.D
Level 3	STD 240-332070/5	Z0061805.D
Level 4	STD 240-332070/6	Z0061806.D
Level 5	STD 240-332070/7	Z0061807.D
Level 6	STD 240-332070/8	Z0061808.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	7282.2 5561.5	6249.9 5513.0	5889.1	5770.1	Ave		6044.29415				10.9		20.0			
Ethylene	6624.5 5964.4	5960.5 5857.9	5827.0	5726.3	Ave		5993.41403				5.4		20.0			
Acetylene	2494.2 3606.7	2427.9 3574.8	2790.8	3206.7	Ave		3016.84656				17.3		30.0			
Ethane	7041.7 6329.9	6168.8 6267.0	6020.7	5967.3	Ave		6299.22755				6.2		20.0			
Propane	6701.5 6683.3	6072.4 6713.1	6073.3	6012.9	Ave		6376.09197				5.6		20.0			
1,1,1-Trifluoroethane	2336.7 1945.7	2237.2	2110.2	2217.2	Ave		2169.39000				6.9		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.: 190-16732-1 Analy Batch No.: 332070

SDG No.:

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

Calibration Start Date: 06/18/2018 08:53 Calibration End Date: 06/18/2018 10:20 Calibration ID: 45555

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-332070/3	Z0061803.D
Level 2	STD 240-332070/4	Z0061804.D
Level 3	STD 240-332070/5	Z0061805.D
Level 4	STD 240-332070/6	Z0061806.D
Level 5	STD 240-332070/7	Z0061807.D
Level 6	STD 240-332070/8	Z0061808.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	2077 23578965	12478	58789	576004	2378625	0.285 4277	2.00	9.98	99.8	428
Ethylene	Ave	3318 44002878	20898	102149	1003846	4480284	0.501 7512	3.51	17.5	175	751
Acetylene	Ave	1156 24845661	7877	45272	520180	2506714	0.463 6950	3.24	16.2	162	695
Ethane	Ave	3778 50427702	23168	113058	1120550	5093368	0.537 8047	3.76	18.8	188	805
Propane	Ave	5268 79143040	33414	167095	1654322	7879231	0.786 11789	5.50	27.5	275	1179
1,1,1-Trifluoroethane	Ave	699612	1172180	5528422	11617250	21845316	299	524	2620	5240	11228

Curve Type Legend:
Ave = Average

Calibration / Methane

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

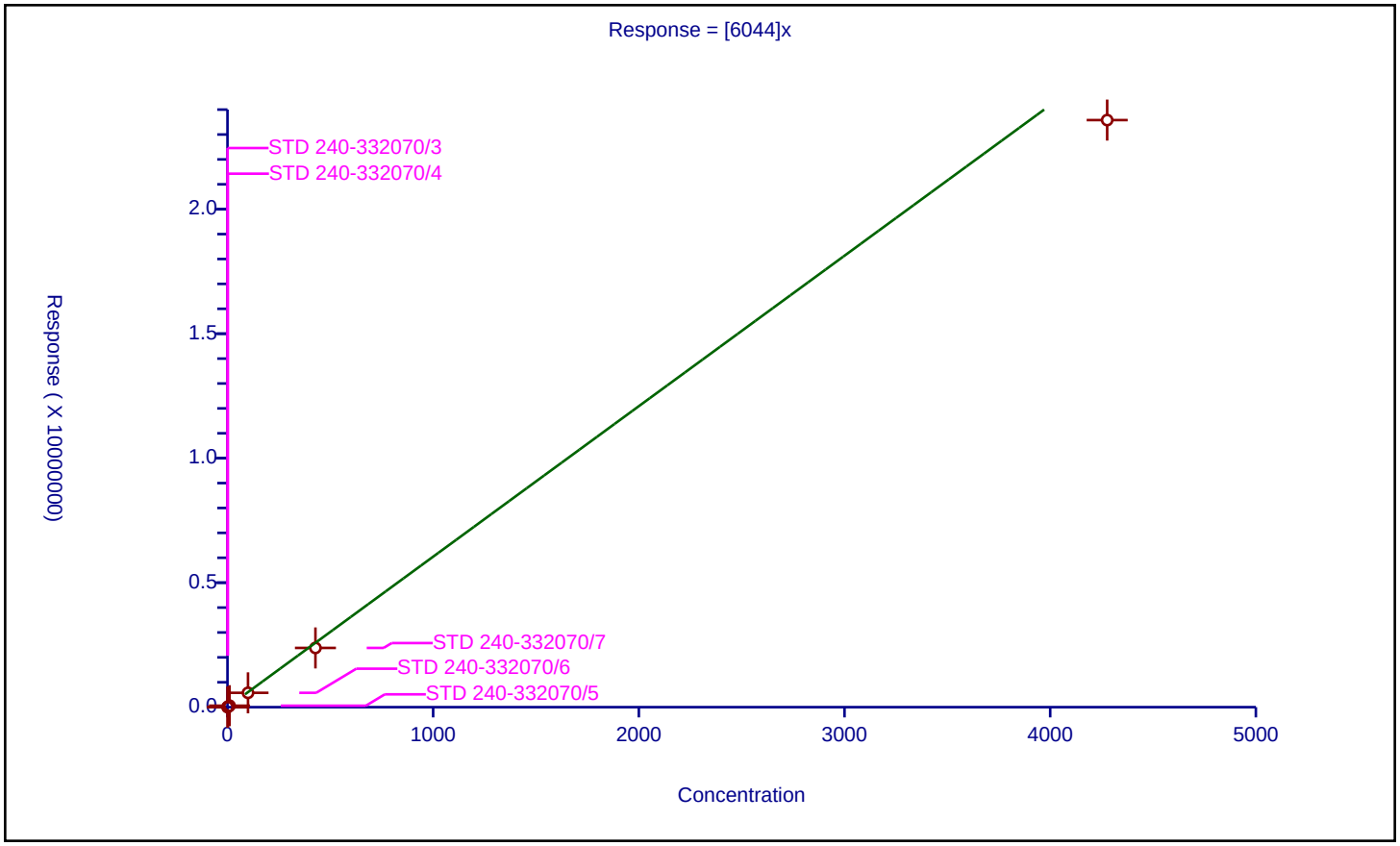
Curve Coefficients

Intercept:	0
Slope:	6044

Error Coefficients

Standard Error:	1020000
Relative Standard Error:	10.9
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	0.986

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	0.285217	2077.0			7282.164634	Y
2	STD 240-332070/4	1.996522	12478.0			6249.869338	Y
3	STD 240-332070/5	9.982609	58789.0			5889.141986	Y
4	STD 240-332070/6	99.826087	576004.0			5770.074913	Y
5	STD 240-332070/7	427.695652	2378625.0			5561.489783	Y
6	STD 240-332070/8	4276.956522	23578965.0			5513.024245	Y



Calibration / Ethylene

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

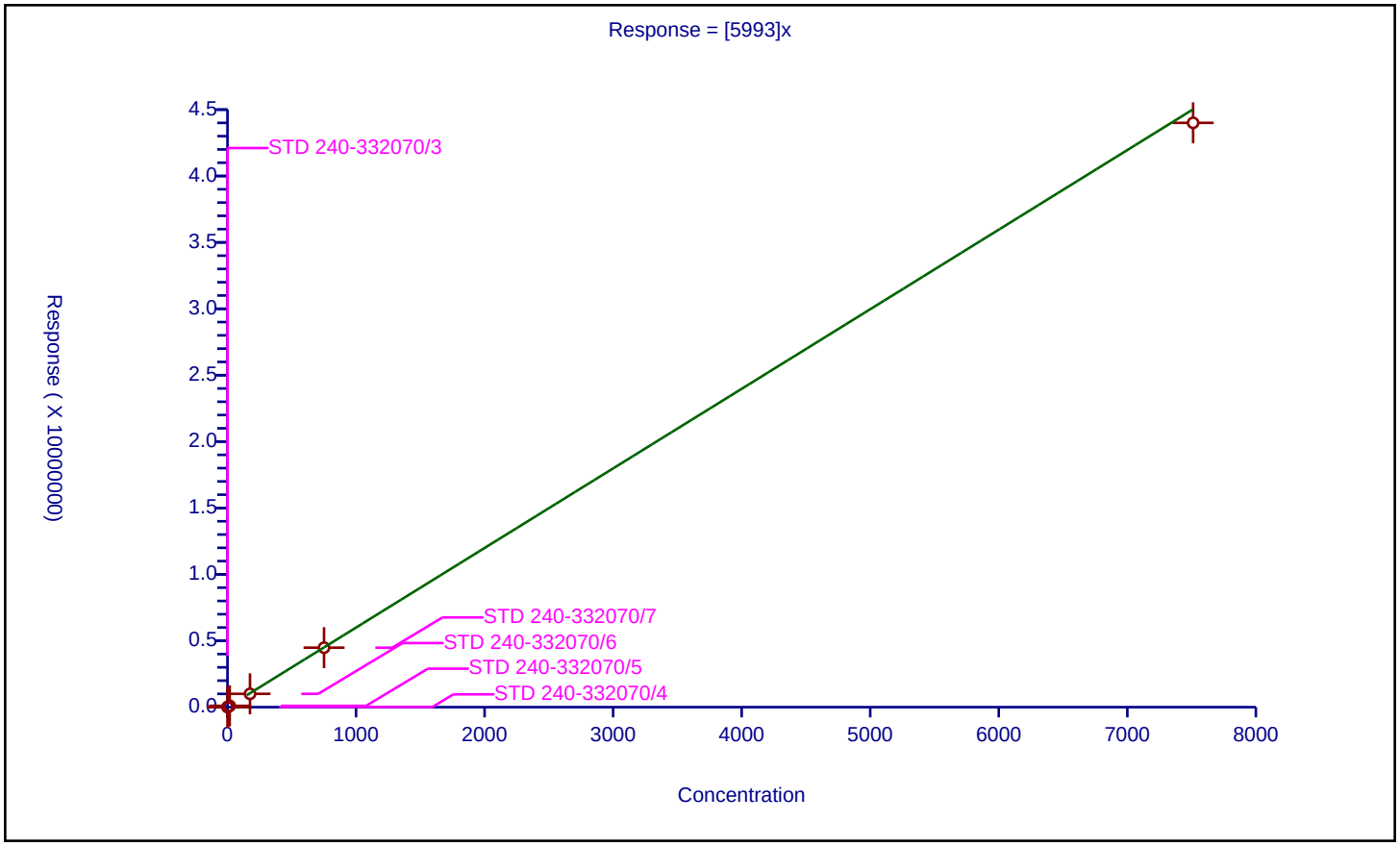
Curve Coefficients

Intercept:	0
Slope:	5993

Error Coefficients

Standard Error:	456000
Relative Standard Error:	5.4
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	0.997

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	0.50087	3318.0			6624.479167	Y
2	STD 240-332070/4	3.506087	20898.0			5960.491071	Y
3	STD 240-332070/5	17.530435	102149.0			5826.951885	Y
4	STD 240-332070/6	175.304348	1003846.0			5726.304067	Y
5	STD 240-332070/7	751.173913	4480284.0			5964.376454	Y
6	STD 240-332070/8	7511.73913	44002878.0			5857.881542	Y



Calibration / Acetylene

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

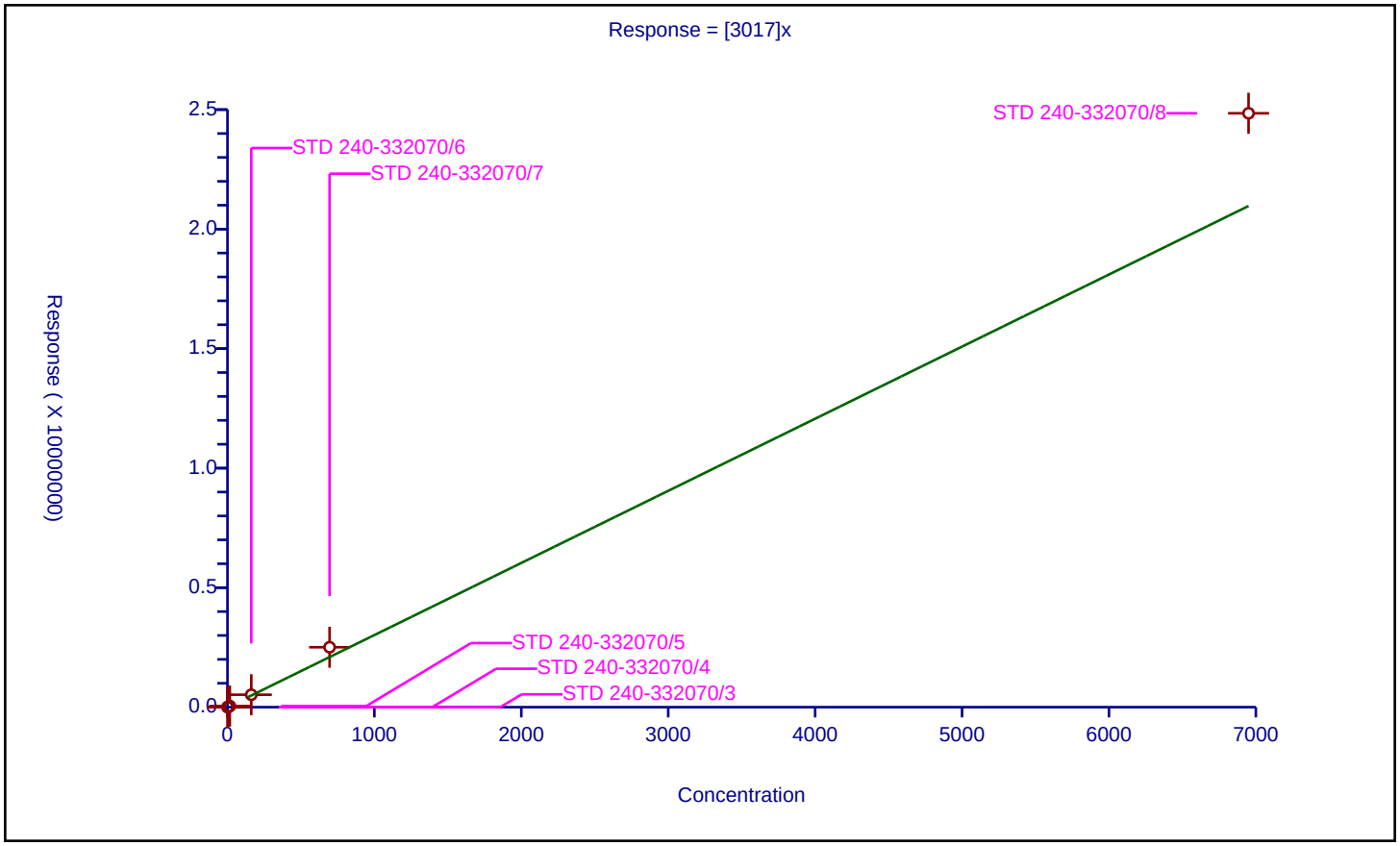
Curve Coefficients

Intercept:	0
Slope:	3017

Error Coefficients

Standard Error:	1740000
Relative Standard Error:	17.3
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	0.971

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	0.463478	1156.0			2494.183865	Y
2	STD 240-332070/4	3.244348	7877.0			2427.914768	Y
3	STD 240-332070/5	16.221739	45272.0			2790.822836	Y
4	STD 240-332070/6	162.217391	520180.0			3206.684535	Y
5	STD 240-332070/7	695.021739	2506714.0			3606.66992	Y
6	STD 240-332070/8	6950.217391	24845661.0			3574.803434	Y



Calibration / Ethane

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

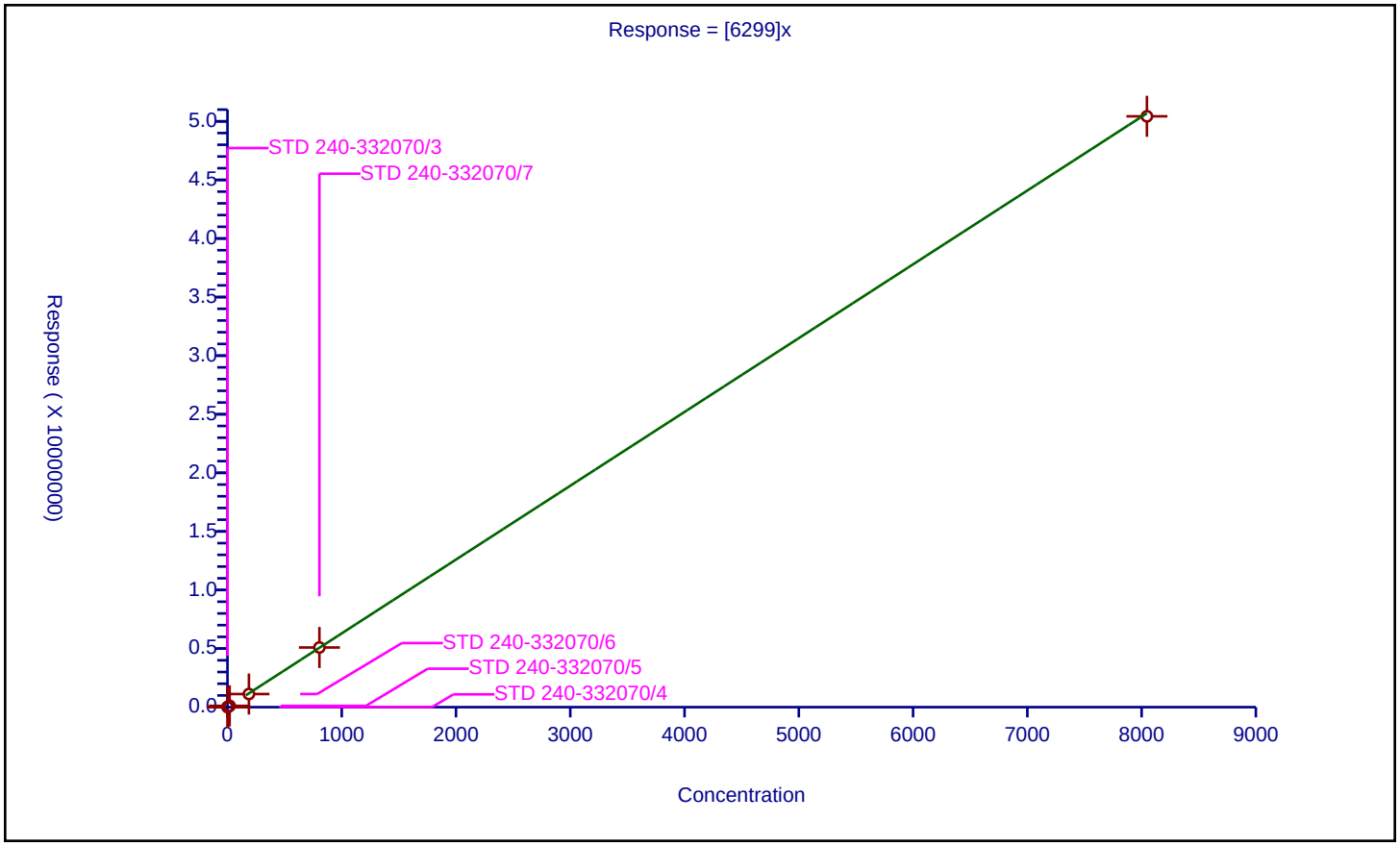
Curve Coefficients

Intercept:	0
Slope:	6299

Error Coefficients

Standard Error:	120000
Relative Standard Error:	6.2
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	0.996

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	0.536522	3778.0			7041.653161	Y
2	STD 240-332070/4	3.755652	23168.0			6168.835379	Y
3	STD 240-332070/5	18.778261	113058.0			6020.685344	Y
4	STD 240-332070/6	187.782609	1120550.0			5967.272517	Y
5	STD 240-332070/7	804.652174	5093368.0			6329.900254	Y
6	STD 240-332070/8	8046.521739	50427702.0			6267.018674	Y



Calibration / 1,1,1-Trifluoroethane

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

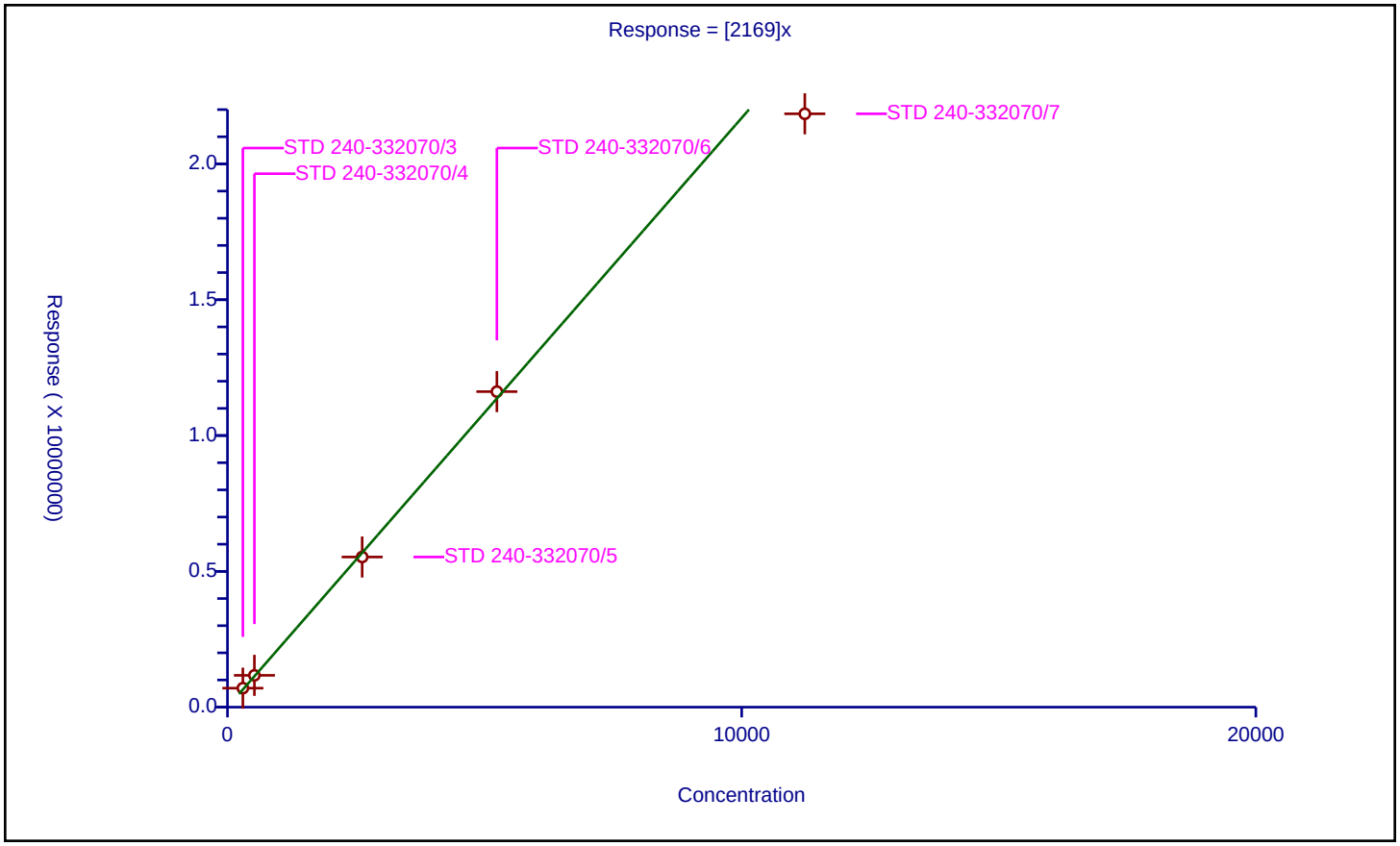
Curve Coefficients

Intercept:	0
Slope:	2169

Error Coefficients

Standard Error:	1260000
Relative Standard Error:	6.9
Correlation Coefficient:	0.996
Coefficient of Determination (Adjusted):	0.992

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	299.405217	699612.0			2336.672708	Y
2	STD 240-332070/4	523.95913	1172180.0			2237.159221	Y
3	STD 240-332070/5	2619.795652	5528422.0			2110.249322	Y
4	STD 240-332070/6	5239.591304	11617250.0			2217.205374	Y
5	STD 240-332070/7	11227.695652	21845316.0			1945.663356	Y



Calibration / Propane

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

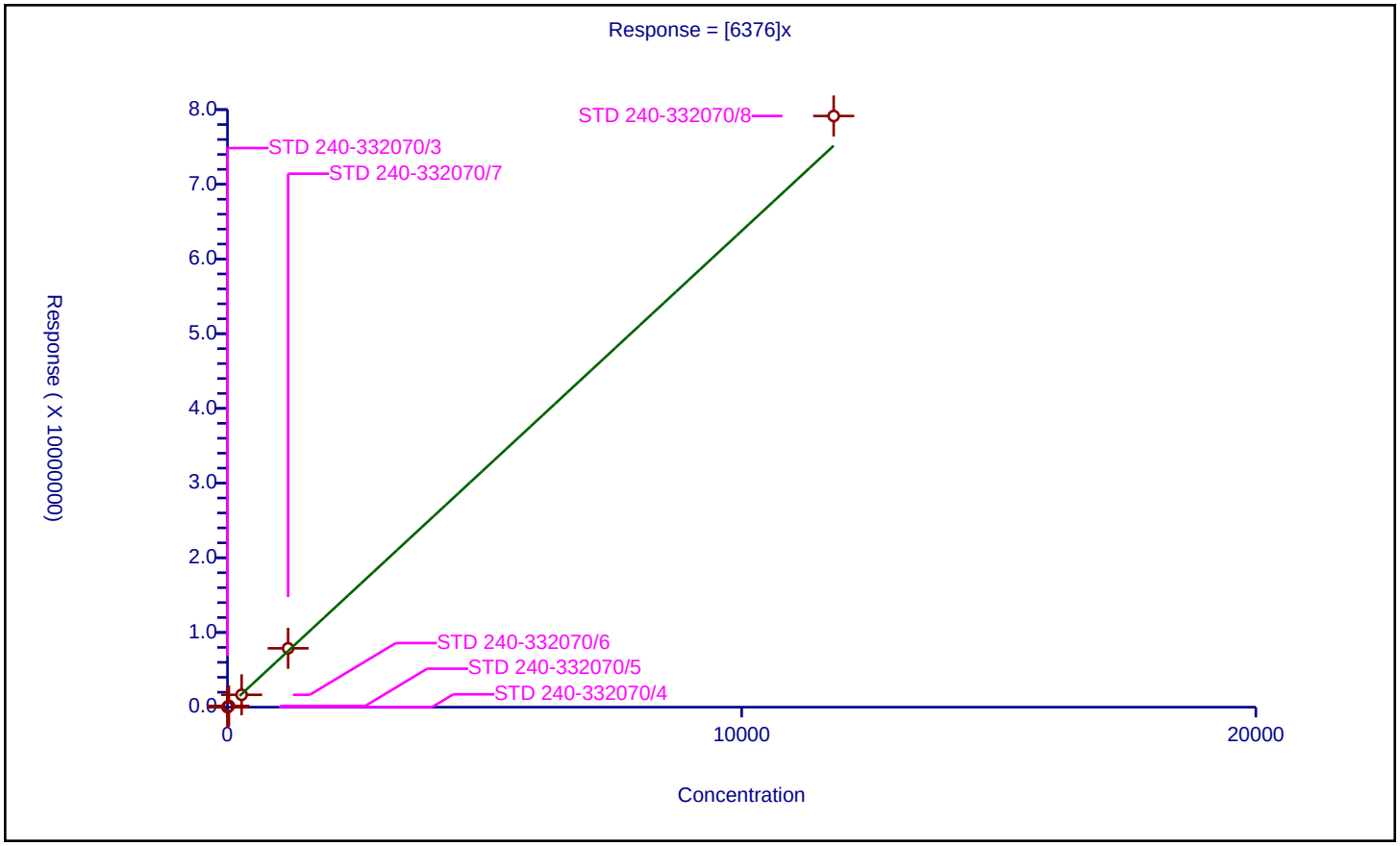
Curve Coefficients

Intercept:	0
Slope:	6376

Error Coefficients

Standard Error:	1780000
Relative Standard Error:	5.6
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	0.997

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	0.786087	5268.0			6701.548673	Y
2	STD 240-332070/4	5.502609	33414.0			6072.392541	Y
3	STD 240-332070/5	27.513043	167095.0			6073.301201	Y
4	STD 240-332070/6	275.130435	1654322.0			6012.864412	Y
5	STD 240-332070/7	1178.934783	7879231.0			6683.347642	Y
6	STD 240-332070/8	11789.347826	79143040.0			6713.09738	Y



FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-16732-1

SDG No.:

Lab Sample ID: ICV 240-332070/9 Calibration Date: 06/18/2018 10:38

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0061809.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	6044	5299		250	285	-12.3	20.0
Ethylene	Ave	5993	5712		477	501	-4.7	20.0
Acetylene	Ave	3017	3272		503	463	8.5	30.0
Ethane	Ave	6299	6090		519	536	-3.3	20.0
Propane	Ave	6376	6557		806	784	2.8	20.0
1,1,1-Trifluoroethane	Ave	2169	2622		11200	9240	20.9	30.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-16732-1

SDG No.:

Lab Sample ID: ICV 240-332070/9 Calibration Date: 06/18/2018 10:38

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0061809.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.18	1.14	1.24
Ethylene	1.88	1.83	1.93
Acetylene	2.00	1.95	2.05
Ethane	2.21	2.00	2.40
Propane	4.55	4.48	4.58
1,1,1-Trifluoroethane	3.35	3.25	3.45

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-16732-1

SDG No.:

Lab Sample ID: CCVRT 240-335725/27 Calibration Date: 07/11/2018 20:58

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0071127.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	6044	6350		300	285	5.1	20.0
Ethylene	Ave	5993	5819		486	501	-2.9	20.0
Acetylene	Ave	3017	3543		544	463	17.4	30.0
Ethane	Ave	6299	5978		509	536	-5.1	20.0
Propane	Ave	6376	5933		731	786	-7.0	20.0
1,1,1-Trifluoroethane	Ave	2169	2502		10700	9240	15.3	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-16732-1

SDG No.:

Lab Sample ID: CCVRT 240-335725/27 Calibration Date: 07/11/2018 20:58

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0071127.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.19	1.14	1.24
Ethylene	1.89	1.84	1.94
Acetylene	2.00	1.95	2.05
Ethane	2.21	2.01	2.41
Propane	4.55	4.50	4.60
1,1,1-Trifluoroethane	3.35	3.25	3.45

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-16732-1

SDG No.:

Lab Sample ID: CCV 240-335725/43 Calibration Date: 07/12/2018 01:32

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0071143.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	6044	6331		299	285	4.7	20.0
Ethylene	Ave	5993	5717		478	501	-4.6	20.0
Acetylene	Ave	3017	3565		548	463	18.2	30.0
Ethane	Ave	6299	5889		501	536	-6.5	20.0
Propane	Ave	6376	5745		708	786	-9.9	20.0
1,1,1-Trifluoroethane	Ave	2169	2410		10300	9240	11.1	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-16732-1

SDG No.:

Lab Sample ID: CCV 240-335725/43 Calibration Date: 07/12/2018 01:32

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0071143.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.19	1.14	1.24
Ethylene	1.89	1.84	1.94
Acetylene	2.00	1.95	2.05
Ethane	2.21	2.01	2.41
Propane	4.55	4.50	4.60
1,1,1-Trifluoroethane	3.35	3.25	3.45

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-16732-1

SDG No.:

Lab Sample ID: CCV 240-335725/52 Calibration Date: 07/12/2018 04:06

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0071152.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	6044	6105		288	285	1.0	20.0
Ethylene	Ave	5993	5545		463	501	-7.5	20.0
Acetylene	Ave	3017	3560		547	463	18.0	30.0
Ethane	Ave	6299	5632		480	536	-10.6	20.0
Propane	Ave	6376	5487		676	786	-13.9	20.0
1,1,1-Trifluoroethane	Ave	2169	2490		10600	9240	14.8	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-16732-1

SDG No.:

Lab Sample ID: CCV 240-335725/52 Calibration Date: 07/12/2018 04:06

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0071152.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.19	1.14	1.24
Ethylene	1.88	1.84	1.94
Acetylene	2.00	1.95	2.05
Ethane	2.21	2.01	2.41
Propane	4.55	4.50	4.60
1,1,1-Trifluoroethane	3.35	3.25	3.45

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-16732-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 240-335725/28

Matrix: Water | Lab File ID: Z0071128.D

Analysis Method: RSK-175 | Date Collected:

Sample wt/vol: 23(mL) | Date Analyzed: 07/11/2018 21:15

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.: 335725 | Units: ug/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	116		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-16732-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 240-335725/29

Matrix: Water | Lab File ID: Z0071129.D

Analysis Method: RSK-175 | Date Collected:

Sample wt/vol: 23(mL) | Date Analyzed: 07/11/2018 21:32

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.: 335725 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	296		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	112		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-16732-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCSD 240-335725/30

Matrix: Water | Lab File ID: Z0071130.D

Analysis Method: RSK-175 | Date Collected:

Sample wt/vol: 23(mL) | Date Analyzed: 07/11/2018 21:49

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.: 335725 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	301		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	110		60-140

GC VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Canton Job No.: 190-16732-1

SDG No.:

Instrument ID: ZPID Start Date: 06/18/2018 08:53

Analysis Batch Number: 332070 End Date: 06/18/2018 10:38

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD 240-332070/3 IC		06/18/2018 08:53	1	Z0061803.D	HP-PLOT/Q 0.53(mm)
STD 240-332070/4 IC		06/18/2018 09:10	1	Z0061804.D	HP-PLOT/Q 0.53(mm)
STD 240-332070/5 IC		06/18/2018 09:28	1	Z0061805.D	HP-PLOT/Q 0.53(mm)
STD 240-332070/6 IC		06/18/2018 09:45	1	Z0061806.D	HP-PLOT/Q 0.53(mm)
STD 240-332070/7 IC		06/18/2018 10:02	1	Z0061807.D	HP-PLOT/Q 0.53(mm)
STD 240-332070/8 IC		06/18/2018 10:20	1	Z0061808.D	HP-PLOT/Q 0.53(mm)
ICV 240-332070/9		06/18/2018 10:38	1	Z0061809.D	HP-PLOT/Q 0.53(mm)

RSK-175

GC VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Canton Job No.: 190-16732-1

SDG No.:

Instrument ID: ZPID Start Date: 07/11/2018 20:58

Analysis Batch Number: 335725 End Date: 07/12/2018 04:06

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVRT 240-335725/27		07/11/2018 20:58	1	Z0071127.D	HP-PLOT/Q 0.53(mm)
MB 240-335725/28		07/11/2018 21:15	1	Z0071128.D	HP-PLOT/Q 0.53(mm)
LCS 240-335725/29		07/11/2018 21:32	1	Z0071129.D	HP-PLOT/Q 0.53(mm)
LCSD 240-335725/30		07/11/2018 21:49	1	Z0071130.D	HP-PLOT/Q 0.53(mm)
ZZZZZ		07/11/2018 22:07	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/11/2018 22:24	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/11/2018 22:41	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/11/2018 22:58	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/11/2018 23:15	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/11/2018 23:32	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/11/2018 23:49	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/12/2018 00:07	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/12/2018 00:24	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/12/2018 00:41	1		HP-PLOT/Q 0.53(mm)
190-16732-1		07/12/2018 00:58	1	Z0071141.D	HP-PLOT/Q 0.53(mm)
190-16732-2		07/12/2018 01:15	1	Z0071142.D	HP-PLOT/Q 0.53(mm)
CCV 240-335725/43		07/12/2018 01:32	1	Z0071143.D	HP-PLOT/Q 0.53(mm)
190-16732-3		07/12/2018 01:49	1	Z0071144.D	HP-PLOT/Q 0.53(mm)
190-16732-4		07/12/2018 02:06	1	Z0071145.D	HP-PLOT/Q 0.53(mm)
190-16732-5		07/12/2018 02:23	1	Z0071146.D	HP-PLOT/Q 0.53(mm)
190-16732-6		07/12/2018 02:41	1	Z0071147.D	HP-PLOT/Q 0.53(mm)
190-16732-7		07/12/2018 02:58	1	Z0071148.D	HP-PLOT/Q 0.53(mm)
ZZZZZ		07/12/2018 03:15	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/12/2018 03:32	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		07/12/2018 03:49	1		HP-PLOT/Q 0.53(mm)
CCV 240-335725/52		07/12/2018 04:06	1	Z0071152.D	HP-PLOT/Q 0.53(mm)

RSK-175

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

C.O.C. PAGE # 1 OF 1

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: S91291 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

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	Special Instructions
	6/28/18	1210	91291.01	GW	3		3						✓	
	6/28/18	1315	91291.02	GW	3		3						✓	
	6/28/18	1435	91291.03	GW	3		3						✓	
	6/28/18	1545	91291.04	GW	3		3						✓	
	6/28/18	0001	91291.05	GW	3		3						✓	
	6/28/18	0001	91291.06	L	3		3						✓	
	6/28/18	0001	91291.07	L	3		3						✓	

190-16732 Chain of Custody

** Subcontracted to Test America

RELINQUISHED BY: SIGNATURE/ORGANIZATION ☐ Sampler	DATE 7-2-18	TIME 830	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE 7-2-18	TIME 830	
RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE 7-2-18	TIME 10:35	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE 7/2/18	TIME 10:35	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME	
RECEIVED BY: SIGNATURE/ORGANIZATION	DATE	TIME	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

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

Rev. 5.18.12

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt

(AFTER HOURS receipt- complete gray areas
Place cooler in walk-in, place this form in Receiving in-box. Date/Time rec'd _____ Initials _____

☐ MSDS or Known Hazard Information Supplied by Client
☐ Bottle stickers applied ☐ ELEMENT comment entered ☐ MSDS COC scanned emailed to EH&S

☐ Discrepancies Client ID Merit Laboratories

☐ Short Hold Work Order # 190-16732

☐ Rush ☐24hr ☐2day ☐3day ☐5day ☐other _____

Receipt evaluation performed by - Initials AMY Date 7/2/18 Time 10:50

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 Unknown

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 Unknown

Bacteriological Samples ; Temp (°C) Corrected — Frozen yes no — Received within 2 hours yes no — Sample Flagged yes no

☐ Check if Additional Sheets Required

Receipt Temperatures

C.F.	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		
0.0	140252476	9.0	9.0	☐	☑	☐Yes ☐No	☐Yes ☐No		
				☐	☐	☐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°

** 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.

[signature] 7/2/18

Reviewed by PM Signature Date

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

2-2/2-2

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: 190-19539.1
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 #: 190-16732-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 7/16/2018			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Merit Laboratories	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:

RSK

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:						
91291.01 (190-16732-1)	6/28/18	12:10 Eastern		Water			X	3	
91291.02 (190-16732-2)	6/28/18	13:15 Eastern		Water			X	3	
91291.03 (190-16732-3)	6/28/18	14:35 Eastern		Water			X	3	
91291.04 (190-16732-4)	6/28/18	15:45 Eastern		Water			X	3	
91291.05 (190-16732-5)	6/28/18	00:01 Eastern		Water			X	3	
91291.06 (190-16732-6)	6/28/18	00:01 Eastern		Water			X	3	
91291.07 (190-16732-7)	6/28/18	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 complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *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
Schafer	7/2/18 1600	TA	[illegible]	7/3/18 940	TAC

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 TH MI Site Name _____ Cooler unpacked by: SV

Cooler Received on 7/3/18 Opened on 7/3/18

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

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

TestAmerica Cooler # 1A 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 °C) Observed Cooler Temp. 2.2 °C Corrected Cooler Temp. 2.2 °C
   IR GUN #36 (CF -0.3°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
   ~~IR GUN # 627 (CF -1.3°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C~~
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
   -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
   -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# **HC740840**
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): _____.

WI-NC-099

ANALYTICAL REPORT

Job Number: 190-16799-1

Job Description: S91291 - TOC

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

Attention: John Laverty

Sue Schafer

Approved for release.
Sue Schafer
Project Manager II
7/25/2018 8:44 PM

Sue Schafer, Project Manager II
4101 Shuffel Street NW, North Canton, OH, 44720
(810)229-2763
sue.schafer@testamericainc.com
07/25/2018

cc: Barbara Ball

Table of Contents

Cover Title Page 1

Data Summaries 4

- Definitions 4
- Case Narrative 5
- Detection Summary 6
- Client Sample Results 7
- Default Detection Limits 9
- QC Sample Results 10
- QC Association 12
- Chronicle 13
- Certification Summary 15
- Method Summary 17
- Sample Summary 18
- Reagent Traceability 19

Inorganic Sample Data 20

- General Chemistry Data 20
  - Gen Chem Cover Page 21
  - Gen Chem Sample Data 22
  - Gen Chem QC Data 29
    - Gen Chem ICV/CCV 29
    - Gen Chem Blanks 31
    - Gen Chem MS/MSD/PDS 32
    - Gen Chem LCS/LCSD 34
  - Gen Chem MDL 36
  - Gen Chem Analysis Run Log 38
  - Gen Chem Prep Data 40

Table of Contents

Subcontracted Data 42
Shipping and Receiving Documents 43
Client Chain of Custody 44
Sample Receipt Checklist 47

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
190-16799-1

Comments
No additional comments.

Receipt
The samples were received on 7/12/2018 8:22 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.0º C.

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

Detection Summary

Client: Merit Laboratories
Project/Site: S91291 - TOC

TestAmerica Job ID: 190-16799-1

Client Sample ID: 91291.01 — Lab Sample ID: 190-16799-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	4.1		1.0	0.50	mg/L	1		9060A	Total/NA
Total Organic Carbon - Quad	4.1		1.0	0.50	mg/L	1		9060A	Total/NA

Client Sample ID: 91291.02 — Lab Sample ID: 190-16799-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	4.8		1.0	0.50	mg/L	1		9060A	Total/NA
Total Organic Carbon - Quad	4.8		1.0	0.50	mg/L	1		9060A	Total/NA

Client Sample ID: 91291.03 — Lab Sample ID: 190-16799-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	22		1.0	0.50	mg/L	1		9060A	Total/NA
Total Organic Carbon - Quad	22		1.0	0.50	mg/L	1		9060A	Total/NA

Client Sample ID: 91291.04 — Lab Sample ID: 190-16799-4

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	9.9		1.0	0.50	mg/L	1		9060A	Total/NA
Total Organic Carbon - Quad	9.9		1.0	0.50	mg/L	1		9060A	Total/NA

Client Sample ID: 91291.05 — Lab Sample ID: 190-16799-5

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	9.2		1.0	0.50	mg/L	1		9060A	Total/NA
Total Organic Carbon - Quad	9.2		1.0	0.50	mg/L	1		9060A	Total/NA

Client Sample ID: 91291.06 — Lab Sample ID: 190-16799-6

No Detections.

Client Sample ID: 91291.07 — Lab Sample ID: 190-16799-7

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Merit Laboratories
Project/Site: S91291 - TOC

TestAmerica Job ID: 190-16799-1

Client Sample ID: 91291.01 — Lab Sample ID: 190-16799-1

Date Collected: 06/28/18 12:10
Date Received: 07/12/18 08:22
Matrix: Ground Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	4.1		1.0	0.50	mg/L			07/23/18 14:45	1
Total Organic Carbon - Quad	4.1		1.0	0.50	mg/L			07/23/18 14:45	1

Client Sample ID: 91291.02 — Lab Sample ID: 190-16799-2

Date Collected: 06/28/18 13:15
Date Received: 07/12/18 08:22
Matrix: Ground Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	4.8		1.0	0.50	mg/L			07/23/18 15:43	1
Total Organic Carbon - Quad	4.8		1.0	0.50	mg/L			07/23/18 15:43	1

Client Sample ID: 91291.03 — Lab Sample ID: 190-16799-3

Date Collected: 06/28/18 14:35
Date Received: 07/12/18 08:22
Matrix: Ground Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	22		1.0	0.50	mg/L			07/23/18 16:01	1
Total Organic Carbon - Quad	22		1.0	0.50	mg/L			07/23/18 16:01	1

Client Sample ID: 91291.04 — Lab Sample ID: 190-16799-4

Date Collected: 06/28/18 15:45
Date Received: 07/12/18 08:22
Matrix: Ground Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	9.9		1.0	0.50	mg/L			07/23/18 16:21	1
Total Organic Carbon - Quad	9.9		1.0	0.50	mg/L			07/23/18 16:21	1

Client Sample ID: 91291.05 — Lab Sample ID: 190-16799-5

Date Collected: 06/28/18 00:01
Date Received: 07/12/18 08:22
Matrix: Ground Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	9.2		1.0	0.50	mg/L			07/23/18 16:42	1
Total Organic Carbon - Quad	9.2		1.0	0.50	mg/L			07/23/18 16:42	1

Client Sample ID: 91291.06 — Lab Sample ID: 190-16799-6

Date Collected: 06/28/18 00:01
Date Received: 07/12/18 08:22
Matrix: Ground Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			07/23/18 17:01	1
Total Organic Carbon - Quad	<0.50		1.0	0.50	mg/L			07/23/18 17:01	1

Client Sample Results

Client: Merit Laboratories
Project/Site: S91291 - TOC

TestAmerica Job ID: 190-16799-1

Client Sample ID: 91291.07

Date Collected: 06/28/18 00:01
Date Received: 07/12/18 08:22

Lab Sample ID: 190-16799-7

Matrix: Ground Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			07/23/18 17:56	1
Total Organic Carbon - Quad	<0.50		1.0	0.50	mg/L			07/23/18 17:56	1

Default Detection Limits

Client: Merit Laboratories
Project/Site: S91291 - TOC

TestAmerica Job ID: 190-16799-1

General Chemistry

Analyte	RL		Units	Method
Total Organic Carbon	1.0	0.50	mg/L	9060A
Total Organic Carbon - Quad	1.0	0.50	mg/L	9060A

QC Sample Results

Client: Merit Laboratories
Project/Site: S91291 - TOC

TestAmerica Job ID: 190-16799-1

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 680-532726/2
Matrix: Water
Analysis Batch: 532726

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.50		1.0	0.50	mg/L			07/23/18 13:10	1
Total Organic Carbon - Quad	<0.50		1.0	0.50	mg/L			07/23/18 13:10	1

Lab Sample ID: LCS 680-532726/3
Matrix: Water
Analysis Batch: 532726

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	20.0		mg/L		100	80 - 120
Total Organic Carbon - Quad	20.0	20.0		mg/L		100	80 - 120
TOC Result 1	20.0	19.6		mg/L		98	80 - 120
TOC Result 2	20.0	19.9		mg/L		100	80 - 120
TOC Result 3	20.0	20.3		mg/L		101	80 - 120
TOC Result 4	20.0	20.3		mg/L		101	80 - 120

Lab Sample ID: LCSD 680-532726/4
Matrix: Water
Analysis Batch: 532726

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	20.0	20.1		mg/L		100	80 - 120	0	25
Total Organic Carbon - Quad	20.0	20.1		mg/L		100	80 - 120	0	25
TOC Result 1	20.0	19.7		mg/L		99	80 - 120	1	25
TOC Result 2	20.0	20.0		mg/L		100	80 - 120	1	25
TOC Result 3	20.0	20.2		mg/L		101	80 - 120	0	25
TOC Result 4	20.0	20.4		mg/L		102	80 - 120	1	25

Lab Sample ID: 190-16799-1 MS
Matrix: Ground Water
Analysis Batch: 532726

Client Sample ID: 91291.01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	4.1		20.0	23.7		mg/L		98	80 - 120
Total Organic Carbon - Quad	4.1		20.0	23.7		mg/L		98	80 - 120
TOC Result 1	4.0		20.0	23.5		mg/L		97	80 - 120
TOC Result 2	4.1		20.0	23.5		mg/L		97	80 - 120
TOC Result 3	4.1		20.0	23.7		mg/L		98	80 - 120
TOC Result 4	4.1		20.0	24.2		mg/L		101	80 - 120

Lab Sample ID: 190-16799-1 MSD
Matrix: Ground Water
Analysis Batch: 532726

Client Sample ID: 91291.01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	4.1		20.0	23.6		mg/L		98	80 - 120	0	25
Total Organic Carbon - Quad	4.1		20.0	23.6		mg/L		98	80 - 120	0	25
TOC Result 1	4.0		20.0	23.1		mg/L		95	80 - 120	2	25
TOC Result 2	4.1		20.0	23.5		mg/L		97	80 - 120	0	25
TOC Result 3	4.1		20.0	23.9		mg/L		99	80 - 120	1	25

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 190-16799-1 MSD
Matrix: Ground Water
Analysis Batch: 532726

Client Sample ID: 91291.01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
TOC Result 4	4.1		20.0	24.2		mg/L		100	80 - 120	0	25

QC Association Summary

Client: Merit Laboratories
Project/Site: S91291 - TOC

TestAmerica Job ID: 190-16799-1

General Chemistry

Analysis Batch: 532726

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-16799-1	91291.01	Total/NA	Ground Water	9060A	
190-16799-2	91291.02	Total/NA	Ground Water	9060A	
190-16799-3	91291.03	Total/NA	Ground Water	9060A	
190-16799-4	91291.04	Total/NA	Ground Water	9060A	
190-16799-5	91291.05	Total/NA	Ground Water	9060A	
190-16799-6	91291.06	Total/NA	Ground Water	9060A	
190-16799-7	91291.07	Total/NA	Ground Water	9060A	
MB 680-532726/2	Method Blank	Total/NA	Water	9060A	
LCS 680-532726/3	Lab Control Sample	Total/NA	Water	9060A	
LCSD 680-532726/4	Lab Control Sample Dup	Total/NA	Water	9060A	
190-16799-1 MS	91291.01	Total/NA	Ground Water	9060A	
190-16799-1 MSD	91291.01	Total/NA	Ground Water	9060A	

Lab Chronicle

Client: Merit Laboratories
Project/Site: S91291 - TOC

TestAmerica Job ID: 190-16799-1

Client Sample ID: 91291.01
Lab Sample ID: 190-16799-1
Date Collected: 06/28/18 12:10
Matrix: Ground Water
Date Received: 07/12/18 08:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1	532726	07/23/18 14:45	KLD	TAL SAV

Client Sample ID: 91291.02
Lab Sample ID: 190-16799-2
Date Collected: 06/28/18 13:15
Matrix: Ground Water
Date Received: 07/12/18 08:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1	532726	07/23/18 15:43	KLD	TAL SAV

Client Sample ID: 91291.03
Lab Sample ID: 190-16799-3
Date Collected: 06/28/18 14:35
Matrix: Ground Water
Date Received: 07/12/18 08:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1	532726	07/23/18 16:01	KLD	TAL SAV

Client Sample ID: 91291.04
Lab Sample ID: 190-16799-4
Date Collected: 06/28/18 15:45
Matrix: Ground Water
Date Received: 07/12/18 08:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1	532726	07/23/18 16:21	KLD	TAL SAV

Client Sample ID: 91291.05
Lab Sample ID: 190-16799-5
Date Collected: 06/28/18 00:01
Matrix: Ground Water
Date Received: 07/12/18 08:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1	532726	07/23/18 16:42	KLD	TAL SAV

Client Sample ID: 91291.06
Lab Sample ID: 190-16799-6
Date Collected: 06/28/18 00:01
Matrix: Ground Water
Date Received: 07/12/18 08:22

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1	532726	07/23/18 17:01	KLD	TAL SAV

Lab Chronicle

Client: Merit Laboratories
Project/Site: S91291 - TOC

TestAmerica Job ID: 190-16799-1

Client Sample ID: 91291.07

Date Collected: 06/28/18 00:01
Date Received: 07/12/18 08:22

Lab Sample ID: 190-16799-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060A		1	532726	07/23/18 17:56	KLD	TAL SAV

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: Merit Laboratories
Project/Site: S91291 - TOC

TestAmerica Job ID: 190-16799-1

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 Savannah

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
	AFCEE		SAVLAB	
Alabama	State Program	4	41450	06-30-18 *
Alaska	State Program	10		06-30-18 *
Alaska (UST)	State Program	10	UST-104	09-22-19
ANAB	DoD ELAP		L2463	09-22-19
Arizona	State Program	9	AZ0808	12-14-18
Arkansas DEQ	State Program	6	88-0692	02-01-19
California	State Program	9	2939	06-30-18 *
Colorado	State Program	8	N/A	12-31-18
Connecticut	State Program	1	PH-0161	03-31-19
Florida	NELAP	4	E87052	06-30-19
GA Dept. of Agriculture	State Program	4	N/A	06-12-19
Georgia	State Program	4	N/A	06-30-18 *
Georgia	State Program	4	803	06-30-18 *
Guam	State Program	9	15-005r	04-17-19
Hawaii	State Program	9	N/A	06-30-18 *
Illinois	NELAP	5	200022	11-30-18
Indiana	State Program	5	N/A	06-30-18 *
Iowa	State Program	7	353	06-30-19
Kentucky (DW)	State Program	4	90084	12-31-18
Kentucky (UST)	State Program	4	18	06-30-18 *
Kentucky (WW)	State Program	4	90084	12-31-18 *
L-A-B	ISO/IEC 17025		L2463.01	09-22-19
Louisiana	NELAP	6	30690	06-30-18 *
Louisiana (DW)	NELAP	6	LA160019	12-31-18
Maine	State Program	1	GA00006	09-24-18 *
Maryland	State Program	3	250	12-31-18
Massachusetts	State Program	1	M-GA006	06-30-18 *
Michigan	State Program	5	9925	06-30-18 *
Mississippi	State Program	4	N/A	06-30-18 *
Nebraska	State Program	7	TestAmerica-Savannah	06-30-18 *
New Jersey	NELAP	2	GA769	06-30-18 *
New Mexico	State Program	6	N/A	06-30-18 *
New York	NELAP	2	10842	03-31-19
North Carolina (DW)	State Program	4	13701	07-31-18 *
North Carolina (WW/SW)	State Program	4	269	12-31-18
Oklahoma	State Program	6	9984	08-31-18 *
Pennsylvania	NELAP	3	68-00474	06-30-18 *
Puerto Rico	State Program	2	GA00006	12-31-18
South Carolina	State Program	4	98001	06-30-18 *
Tennessee	State Program	4	TN02961	06-30-19
Texas	NELAP	6	T104704185-16-9	11-30-18
Texas (DW)	State Program	1	T104704185	06-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-18 *

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

Laboratory: TestAmerica Savannah (Continued)

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
USDA	Federal		P330-17-00213	06-14-20 *
Virginia	NELAP	3	460161	06-14-19
Washington	State Program	10	C805	06-10-19
West Virginia (DW)	State Program	3	9950C	12-31-18
West Virginia DEP	State Program	3	094	06-30-18 *
Wisconsin	State Program	5	999819810	08-31-18 *
Wyoming	State Program	8	8TMS-L	06-30-16 *

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

Method Summary

Client: Merit Laboratories
Project/Site: S91291 - TOC

TestAmerica Job ID: 190-16799-1

Method	Method Description	Protocol	Laboratory
9060A	Organic Carbon, Total (TOC)	SW846	TAL SAV

Protocol References:

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

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Sample Summary

Client: Merit Laboratories
Project/Site: S91291 - TOC

TestAmerica Job ID: 190-16799-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
190-16799-1	91291.01	Ground Water	06/28/18 12:10	07/12/18 08:22
190-16799-2	91291.02	Ground Water	06/28/18 13:15	07/12/18 08:22
190-16799-3	91291.03	Ground Water	06/28/18 14:35	07/12/18 08:22
190-16799-4	91291.04	Ground Water	06/28/18 15:45	07/12/18 08:22
190-16799-5	91291.05	Ground Water	06/28/18 00:01	07/12/18 08:22
190-16799-6	91291.06	Ground Water	06/28/18 00:01	07/12/18 08:22
190-16799-7	91291.07	Ground Water	06/28/18 00:01	07/12/18 08:22

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Savannah Job No.: 190-16799-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
TOC LCS STOCK_00020	06/30/21	NSILAB Solutions, Lot 062017			(Purchased Reagent)		TOC Result 1	1000 mg/L
							TOC Result 2	1000 mg/L
							TOC Result 3	1000 mg/L
							TOC Result 4	1000 mg/L
							Total Organic Carbon	1000 mg/L
							Total Organic Carbon - Quad	1000 mg/L
TOC_CALSTD_6_00064	09/25/18	06/25/18	DI H20, Lot NONE	1000 mL	TOC CALSTK_00023	50 mL	TOC Result 1	50 mg/L
							TOC Result 2	50 mg/L
							TOC Result 3	50 mg/L
							TOC Result 4	50 mg/L
							Total Organic Carbon	50 mg/L
							Total Organic Carbon - Quad	50 mg/L
.TOC CALSTK_00023	02/11/19	CPI Intenrational, Lot 142628-4			(Purchased Reagent)		TOC Result 1	1000 mg/L
							TOC Result 2	1000 mg/L
							TOC Result 3	1000 mg/L
							TOC Result 4	1000 mg/L
							Total Organic Carbon	1000 mg/L
							Total Organic Carbon - Quad	1000 mg/L
TOC_LCS_00048	09/06/18	06/06/18	DI H20, Lot NONE	500 mL	TOC LCS STOCK_00020	10 mL	TOC Result 1	20 mg/L
							TOC Result 2	20 mg/L
							TOC Result 3	20 mg/L
							TOC Result 4	20 mg/L
							Total Organic Carbon	20 mg/L
							Total Organic Carbon - Quad	20 mg/L
.TOC LCS STOCK_00020	06/30/21	NSILAB Solutions, Lot 062017			(Purchased Reagent)		TOC Result 1	1000 mg/L
							TOC Result 2	1000 mg/L
							TOC Result 3	1000 mg/L
							TOC Result 4	1000 mg/L
							Total Organic Carbon	1000 mg/L
							Total Organic Carbon - Quad	1000 mg/L

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job Number: 190-16799-1

SDG No.:

Project: S91291 - TOC

Client Sample ID	Lab Sample ID
91291.01	190-16799-1
91291.02	190-16799-2
91291.03	190-16799-3
91291.04	190-16799-4
91291.05	190-16799-5
91291.06	190-16799-6
91291.07	190-16799-7

Comments:

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 91291.01
Lab Sample ID: 190-16799-1
Lab Name: TestAmerica Savannah
Job No.: 190-16799-1
SDG ID.:
Matrix: Ground Water
Date Sampled: 06/28/2018 12:10
Reporting Basis: WET
Date Received: 07/12/2018 08:22

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	4.1	1.0	mg/L			1	9060A
7440-44-0	Total Organic Carbon - Quad	4.1	1.0	mg/L			1	9060A

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 91291.02
Lab Sample ID: 190-16799-2
Lab Name: TestAmerica Savannah
Job No.: 190-16799-1
SDG ID.:
Matrix: Ground Water
Date Sampled: 06/28/2018 13:15
Reporting Basis: WET
Date Received: 07/12/2018 08:22

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	4.8	1.0	mg/L			1	9060A
7440-44-0	Total Organic Carbon - Quad	4.8	1.0	mg/L			1	9060A

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 91291.03
Lab Sample ID: 190-16799-3
Lab Name: TestAmerica Savannah
Job No.: 190-16799-1
SDG ID.:
Matrix: Ground Water
Date Sampled: 06/28/2018 14:35
Reporting Basis: WET
Date Received: 07/12/2018 08:22

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	22	1.0	mg/L			1	9060A
7440-44-0	Total Organic Carbon - Quad	22	1.0	mg/L			1	9060A

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 91291.04
Lab Sample ID: 190-16799-4
Lab Name: TestAmerica Savannah
Job No.: 190-16799-1
SDG ID.:
Matrix: Ground Water
Date Sampled: 06/28/2018 15:45
Reporting Basis: WET
Date Received: 07/12/2018 08:22

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	9.9	1.0	mg/L			1	9060A
7440-44-0	Total Organic Carbon - Quad	9.9	1.0	mg/L			1	9060A

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 91291.05
Lab Sample ID: 190-16799-5
Lab Name: TestAmerica Savannah
Job No.: 190-16799-1
SDG ID.:
Matrix: Ground Water
Date Sampled: 06/28/2018 00:01
Reporting Basis: WET
Date Received: 07/12/2018 08:22

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	9.2	1.0	mg/L			1	9060A
7440-44-0	Total Organic Carbon - Quad	9.2	1.0	mg/L			1	9060A

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 91291.06
Lab Sample ID: 190-16799-6
Lab Name: TestAmerica Savannah
Job No.: 190-16799-1
SDG ID.:
Matrix: Ground Water
Date Sampled: 06/28/2018 00:01
Reporting Basis: WET
Date Received: 07/12/2018 08:22

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	<0.50	1.0	mg/L			1	9060A
7440-44-0	Total Organic Carbon - Quad	<0.50	1.0	mg/L			1	9060A

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 91291.07
Lab Sample ID: 190-16799-7
Lab Name: TestAmerica Savannah
Job No.: 190-16799-1
SDG ID.:
Matrix: Ground Water
Date Sampled: 06/28/2018 00:01
Reporting Basis: WET
Date Received: 07/12/2018 08:22

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	<0.50	1.0	mg/L			1	9060A
7440-44-0	Total Organic Carbon - Quad	<0.50	1.0	mg/L			1	9060A

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-16799-1

SDG No.:

Analyst: KLD Batch Start Date: 07/16/2018

Reporting Units: mg/L Analytical Batch No.: 531838

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	ICV	13:16	Total Organic Carbon	20.3	20.0	101			TOC_LCS_00048

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-16799-1

SDG No.:

Analyst: KLD Batch Start Date: 07/23/2018

Reporting Units: mg/L Analytical Batch No.: 532726

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	CCV	12:49	Total Organic Carbon	49.2	50.0	98	90-110		TOC_CALSTD_6_00064
			Total Organic Carbon - Quad	49.2	50.0	98	90-110		TOC_CALSTD_6_00064
15	CCV	17:20	Total Organic Carbon	48.1	50.0	96	90-110		TOC_CALSTD_6_00064
			Total Organic Carbon - Quad	48.1	50.0	96	90-110		TOC_CALSTD_6_00064
16	CCB	17:41	Total Organic Carbon	<0.50					
			Total Organic Carbon - Quad	<0.50					
20	CCV	18:52	Total Organic Carbon	47.5	50.0	95	90-110		TOC_CALSTD_6_00064
			Total Organic Carbon - Quad	47.5	50.0	95	90-110		TOC_CALSTD_6_00064
21	CCB	19:12	Total Organic Carbon	<0.50					
			Total Organic Carbon - Quad	<0.50					

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

3-IN
METHOD BLANK
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-16799-1

SDG No.:

Method	Lab Sample ID	Analyte	Result	Qual	Units	RL	Dil
Batch ID: 532726 Date: 07/23/2018 13:10							
9060A	MB 680-532726/2	Total Organic Carbon	<0.50		mg/L	1.0	1
9060A	MB 680-532726/2	Total Organic Carbon - Quad	<0.50		mg/L	1.0	1
9060A	MB 680-532726/2	TOC Result 1	<0.50		mg/L	1.0	1
9060A	MB 680-532726/2	TOC Result 2	<0.50		mg/L	1.0	1
9060A	MB 680-532726/2	TOC Result 3	<0.50		mg/L	1.0	1
9060A	MB 680-532726/2	TOC Result 4	<0.50		mg/L	1.0	1

FORM III-IN

5-IN
MATRIX SPIKE SAMPLE RECOVERY
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-16799-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 532726 Date: 07/23/2018 15:03											
9060A	190-16799-1	Total Organic Carbon	4.1		mg/L						
9060A	190-16799-1 MS	Total Organic Carbon	23.7		mg/L	20.0	98	80-120			
9060A	190-16799-1	Total Organic Carbon - Quad	4.1		mg/L						
9060A	190-16799-1 MS	Total Organic Carbon - Quad	23.7		mg/L	20.0	98	80-120			
9060A	190-16799-1	TOC Result 1	4.0		mg/L						
9060A	190-16799-1 MS	TOC Result 1	23.5		mg/L	20.0	97	80-120			
9060A	190-16799-1	TOC Result 2	4.1		mg/L						
9060A	190-16799-1 MS	TOC Result 2	23.5		mg/L	20.0	97	80-120			
9060A	190-16799-1	TOC Result 3	4.1		mg/L						
9060A	190-16799-1 MS	TOC Result 3	23.7		mg/L	20.0	98	80-120			
9060A	190-16799-1	TOC Result 4	4.1		mg/L						
9060A	190-16799-1 MS	TOC Result 4	24.2		mg/L	20.0	101	80-120			

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM V-IN

5-IN
MATRIX SPIKE DUPLICATE SAMPLE RECOVERY
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-16799-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 532726 Date: 07/23/2018 15:21											
9060A	190-16799-1 MSD	Total Organic Carbon	23.6		mg/L	20.0	98	80-120	0	25	
9060A	190-16799-1 MSD	Total Organic Carbon - Quad	23.6		mg/L	20.0	98	80-120	0	25	
9060A	190-16799-1 MSD	TOC Result 1	23.1		mg/L	20.0	95	80-120	2	25	
9060A	190-16799-1 MSD	TOC Result 2	23.5		mg/L	20.0	97	80-120	0	25	
9060A	190-16799-1 MSD	TOC Result 3	23.9		mg/L	20.0	99	80-120	1	25	
9060A	190-16799-1 MSD	TOC Result 4	24.2		mg/L	20.0	100	80-120	0	25	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM V-IN

7A-IN
LAB CONTROL SAMPLE
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-16799-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 532726	Date: 07/23/2018 13:27										
						LCS Source: TOC_LCS_00048					
9060A	LCS 680-532726/3	Total Organic Carbon	20.0		mg/L	20.0	100	80-120	0	25	
9060A	LCS 680-532726/3	Total Organic Carbon - Quad	20.0		mg/L	20.0	100	80-120	0	25	
9060A	LCS 680-532726/3	TOC Result 1	19.6		mg/L	20.0	98	80-120	1	25	
9060A	LCS 680-532726/3	TOC Result 2	19.9		mg/L	20.0	100	80-120	1	25	
9060A	LCS 680-532726/3	TOC Result 3	20.3		mg/L	20.0	101	80-120	0	25	
9060A	LCS 680-532726/3	TOC Result 4	20.3		mg/L	20.0	101	80-120	1	25	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA-IN

7A-IN
LAB CONTROL SAMPLE DUPLICATE
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-16799-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 532726	Date: 07/23/2018 13:45										
						LCSD Source: TOC_LCS_00048					
9060A	LCSD 680-532726/4	Total Organic Carbon	20.1		mg/L	20.0	100	80-120	0	25	
9060A	LCSD 680-532726/4	Total Organic Carbon - Quad	20.1		mg/L	20.0	100	80-120	0	25	
9060A	LCSD 680-532726/4	TOC Result 1	19.7		mg/L	20.0	99	80-120	1	25	
9060A	LCSD 680-532726/4	TOC Result 2	20.0		mg/L	20.0	100	80-120	1	25	
9060A	LCSD 680-532726/4	TOC Result 3	20.2		mg/L	20.0	101	80-120	0	25	
9060A	LCSD 680-532726/4	TOC Result 4	20.4		mg/L	20.0	102	80-120	1	25	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA-IN

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job Number: 190-16799-1

SDG Number:

Matrix: Water Instrument ID: TOC7

Method: 9060A RL Date: 08/09/2016 12:16

Analyte	Wavelength/ Mass	RL (mg/L)	
Total Organic Carbon		1	
Total Organic Carbon - Quad		1	

FORM IX - IN

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job Number: 190-16799-1

SDG Number:

Matrix: Water Instrument ID: TOC7

Method: 9060A XMDL Date: 08/09/2016 12:16

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Total Organic Carbon		1	0.5
Total Organic Carbon - Quad		1	0.5

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-16799-1

SDG No.:

Instrument ID: TOC7 Analysis Method: 9060A

Start Date: 07/16/2018 13:16 End Date: 07/17/2018 00:20

Lab Sample Id	D/F	Type	Time	Analytes																								
				TOC	TOC1	TOC2	TOC3	TOC4																				
ICV 680-531838/1	1		13:16	X	X	X	X	X																				
CCV 680-531838/2			18:34																									
ZZZZZZ			18:55																									
ZZZZZZ			19:11																									
ZZZZZZ			19:29																									
ZZZZZZ			19:51																									
ZZZZZZ			20:09																									
ZZZZZZ			20:25																									
ZZZZZZ			20:41																									
ZZZZZZ			20:58																									
ZZZZZZ			21:16																									
ZZZZZZ			21:35																									
ZZZZZZ			21:54																									
ZZZZZZ			22:12																									
ZZZZZZ			22:29																									
CCV 680-531838/16			22:47																									
CCB 680-531838/17			23:08																									
ZZZZZZ			23:24																									
ZZZZZZ			23:41																									
CCV 680-531838/20			23:59																									
CCB 680-531838/21			00:20																									

Prep Types:
=

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-16799-1

SDG No.:

Instrument ID: TOC7 Analysis Method: 9060A

Start Date: 07/23/2018 12:49 End Date: 07/23/2018 19:12

Lab Sample Id	D/F	Type	Time	Analytes																								
				TOC	TOC1	TOC2	TOC3	TOC4	TOCQ																			
CCV 680-532726/1	1		12:49	X	X	X	X	X	X																			
MB 680-532726/2	1	T	13:10	X					X																			
LCS 680-532726/3	1	T	13:27	X	X	X	X	X	X																			
LCSD 680-532726/4	1	T	13:45	X	X	X	X	X	X																			
ZZZZZZ			14:04																									
ZZZZZZ			14:23																									
190-16799-1	1	T	14:45	X					X																			
190-16799-1 MS	1	T	15:03	X	X	X	X	X	X																			
190-16799-1 MSD	1	T	15:21	X	X	X	X	X	X																			
190-16799-2	1	T	15:43	X					X																			
190-16799-3	1	T	16:01	X					X																			
190-16799-4	1	T	16:21	X					X																			
190-16799-5	1	T	16:42	X					X																			
190-16799-6	1	T	17:01	X					X																			
CCV 680-532726/15	1		17:20	X	X	X	X	X	X																			
CCB 680-532726/16	1		17:41	X					X																			
190-16799-7	1	T	17:56	X					X																			
ZZZZZZ			18:15																									
ZZZZZZ			18:35																									
CCV 680-532726/20	1		18:52	X	X	X	X	X	X																			
CCB 680-532726/21	1		19:12	X					X																			

Prep Types:
T = Total/NA

FORM XIII-IN

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Savannah Job No.: 190-16799-1

SDG No.:

Batch Number: 531838 Batch Start Date: 07/16/18 13:16 Batch Analyst: Dudley, Kellie L

Batch Method: 9060A Batch End Date: 07/17/18 00:20

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	TOC_LCS 00048			
ICV 680-531838/1		9060A		40 mL	40 mL	40 mL			

Batch Notes	
Acid ID	50% H2SO4_00013
Pipette/Syringe/Dispenser ID	IC 15

Basis	Basis Description

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.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Savannah Job No.: 190-16799-1

SDG No.:

Batch Number: 532726 Batch Start Date: 07/23/18 12:49 Batch Analyst: Dudley, Kellie L

Batch Method: 9060A Batch End Date: 07/23/18 19:12

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	TOC LCS STOCK 00020	TOC_CALSTD_6 00064	TOC_LCS 00048	
CCV 680-532726/1		9060A		40 mL	40 mL		40 mL		
MB 680-532726/2		9060A		40 mL	40 mL				
LCS 680-532726/3		9060A		40 mL	40 mL			40 mL	
LCSD 680-532726/4		9060A		40 mL	40 mL			40 mL	
190-16799-A-1	91291.01	9060A	T	40 mL	40 mL				
190-16799-A-1 MS	91291.01	9060A	T	49 mL	50 mL	1 mL			
190-16799-A-1 MSD	91291.01	9060A	T	49 mL	50 mL	1 mL			
190-16799-A-2	91291.02	9060A	T	40 mL	40 mL				
190-16799-A-3	91291.03	9060A	T	40 mL	40 mL				
190-16799-B-4	91291.04	9060A	T	40 mL	40 mL				
190-16799-A-5	91291.05	9060A	T	40 mL	40 mL				
190-16799-B-6	91291.06	9060A	T	40 mL	40 mL				
CCV 680-532726/15		9060A		40 mL	40 mL		40 mL		
CCB 680-532726/16		9060A		40 mL	40 mL				
190-16799-B-7	91291.07	9060A	T	40 mL	40 mL				
CCV 680-532726/20		9060A		40 mL	40 mL		40 mL		
CCB 680-532726/21		9060A		40 mL	40 mL				

Batch Notes	
Acid ID	50% H2SO4_00013
Pipette/Syringe/Dispenser ID	IC 15

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

C.O.C. PAGE # 1 OF 1

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: S91291 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

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	TOC	Special Instructions
	6/28/18	1210	91291.01	GW	2				2				✓	
	6/28/18	1315	91291.02	GW	2				2				✓	
	6/28/18	1435	91291.03	GW	2				2				✓	
	6/28/18	1545	91291.04	GW	2				2				✓	
	6/28/18	0001	91291.05	GW	2				2				✓	
	6/28/18	0001	91291.06	GW	2				2				✓	
	6/28/18	0001	91291.07	GW	2				2				✓	

190-16799 Chain of Custody

** Subcontracted to TestAmerica

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐ Sampler	DATE 7/11/18	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 7/12/18	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 7/12/18	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	TAL MI	DATE 7/12/18	TIME 8:22

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

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 gray areas
Place cooler in walk-in, place this form in Receiving in-box. Date/Time rec'd _____ Initials _____

❑ MSDS or Known Hazard Information Supplied by Client
❑ Bottle stickers applied ❑ ELEMENT comment entered ❑ MSDS COC scanned/emailed to EH&S

❑ Discrepancies
❑ Short Hold
❑ Rush ❑24hr ❑2day ❑3day ❑5day ❑other _____

Client ID Merit Laboratories
Work Order # 190-16799

Receipt evaluation performed by - Initials AMY Date 7/12/18 Time 8:29

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

❑ Check if Additional Sheets Required

Receipt Temperatures

	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
C.F.	140252483			❑	❑	❑Yes ❑No	❑Yes ❑No		
0.0	140252476	4.0	4.0	❑	☒	❑Yes ❑No	☒Yes ❑No		
				❑	❑	❑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?	✓			

** 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 7/12/18 Date

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

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: 190-19608.1
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 #: 190-16799-1
Address: 5102 LaRoche Avenue, ,	Due Date Requested: 7/24/2018			
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404				
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #:			
Email:	WO #:			
Project Name: S91291 - TOC	Project #: 19001249			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	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)	9060A	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
91291.01 (190-16799-1)	6/28/18	12:10 Eastern		Water			X	2	
91291.02 (190-16799-2)	6/28/18	13:15 Eastern		Water			X	2	
91291.03 (190-16799-3)	6/28/18	14:35 Eastern		Water			X	2	
91291.04 (190-16799-4)	6/28/18	15:45 Eastern		Water			X	2	
91291.05 (190-16799-5)	6/28/18	00:01 Eastern		Water			X	2	
91291.06 (190-16799-6)	6/28/18	00:01 Eastern		Water			X	2	
91291.07 (190-16799-7)	6/28/18	00:01 Eastern		Water			X	2	

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 complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *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: [signature]	Date/Time: 7/12/18 1570	Company	Received by: POP	Date/Time: 7-13-18 830	Company TAI
Relinquished by:	Date/Time: 7-13 1800	Company 2/6	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: [signature]	Date/Time: 7/24/18 1000	Company TAAV

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: Merit Laboratories

Job Number: 190-16799-1

Login Number: 16799
List Number: 2
Creator: Jones, Tyre D

List Source: TestAmerica Savannah
List Creation: 07/14/18 01:03 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	N/A	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Analytical Laboratory Report

Report ID: S92745.01(01)
Generated on 09/04/2018

Report to

Attention: Mike Smith
Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: ae_mds@yahoo.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): S92745.01-S92745.08
Project: 11-4317-102
Collected Date: 08/08/2018
Submitted Date/Time: 08/08/2018 16:40
Sampled by: Heather Dean
P.O. #: PO

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

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.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
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/8260B	SW 846 Method 8260B Revision 2 December 1996 / 5030C Revision 3 May 2003

Analytical Laboratory Report

Sample Summary (8 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S92745.01	MW-109	Liquid	08/08/18 10:15
S92745.02	MW-114	Liquid	08/08/18 11:40
S92745.03	MW-113	Liquid	08/08/18 12:45
S92745.04	MW-111	Liquid	08/08/18 13:40
S92745.05	Field Blank	Liquid	08/08/18 00:01
S92745.06	Equip Blank	Liquid	08/08/18 00:01
S92745.07	Dup 1	Liquid	08/08/18 00:01
S92745.08	Trip Blank	Liquid	08/08/18 00:01

Analytical Laboratory Report

Lab Sample ID: S92745.01
Sample Tag: MW-109
Collected Date/Time: 08/08/2018 10:15
Matrix: Liquid
COC Reference: 113761

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
6	40ml Glass	HCL	Yes	4.6	IR
2	40ml Glass	H2SO4	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/10/18 14:30	ADS	
Metal Digestion	Completed	SW3015A	08/10/18 14:30	CCM	
Metal Digestion	Completed	SW3015A	08/10/18 14:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 08/08/18 17:40, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 08/08/18 17:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM5310C, Run Date: 08/29/18 12:35, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	5.7	1	0.5	mg/L	1		O

Metals

Method: E200.8, Run Date: 08/15/18 12:45, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.000572	0.002	0.000385	mg/L	5	7440-38-2	b
Chromium	0.000151	0.005	0.000150	mg/L	5	7440-47-3	b
Copper	0.001070	0.005	0.000290	mg/L	5	7440-50-8	b
Iron	0.08	0.02	0.00112	mg/L	5	7439-89-6	
Lead	0.000074	0.003	0.0000550	mg/L	5	7439-92-1	b
Manganese	1.04	0.005	0.000405	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	0.00262	0.005	0.00138	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 08/15/18 12:48, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.001179	0.002	0.000385	mg/L	5	7440-38-2	b
Chromium, Dissolved	Not detected	0.005	0.000150	mg/L	5	7440-47-3	
Copper, Dissolved	0.001203	0.005	0.000290	mg/L	5	7440-50-8	b
Iron, Dissolved	0.03	0.02	0.00112	mg/L	5	7439-89-6	
Lead, Dissolved	0.000063	0.003	0.0000550	mg/L	5	7439-92-1	b
Manganese, Dissolved	1.01	0.005	0.000405	mg/L	5	7439-96-5	

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S92745.01 (continued)
Sample Tag: MW-109

Method: E200.8, Run Date: 08/15/18 12:48, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc, Dissolved	0.005	0.005	0.00138	mg/L	5	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/09/18 16:09, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone*	Not detected	50	4.0	ug/L	1	67-64-1	
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*	14	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*	5	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*	0.79	1	0.14	ug/L	1	156-60-5	J
1,1-Dichloroethane*	2	1	0.15	ug/L	1	75-34-3	
cis-1,2-Dichloroethene*	43	1	0.21	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	1.2	ug/L	1	109-99-9	
Chloroform*	0.19	1	0.15	ug/L	1	67-66-3	J
Bromochloromethane*	Not detected	1	0.36	ug/L	1	74-97-5	
1,1,1-Trichloroethane*	0.41	1	0.27	ug/L	1	71-55-6	J
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*	98	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*	0.19	1	0.13	ug/L	1	127-18-4	J
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		

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

Lab Sample ID: S92745.01 (continued)
Sample Tag: MW-109

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/09/18 16:09, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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	
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	

Organics

Method: RSK-175, Run Date: 08/16/18 00:49, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	90	1	0.17	ug/L	1	74-82-8	O

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

Analytical Laboratory Report

Lab Sample ID: S92745.02
Sample Tag: MW-114
Collected Date/Time: 08/08/2018 11:40
Matrix: Liquid
COC Reference: 113761

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
6	40ml Glass	HCL	Yes	4.6	IR
2	40ml Glass	H2SO4	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/10/18 14:30	ADS	
Metal Digestion	Completed	SW3015A	08/10/18 14:30	CCM	
Metal Digestion	Completed	SW3015A	08/10/18 14:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 08/08/18 17:45, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	0.106	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 08/08/18 17:10, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	0.105	0.01	0.003	mg/L	1	18540-29-9	

Method: SM5310C, Run Date: 08/29/18 12:51, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	4.4	1	0.5	mg/L	1		O

Metals

Method: E200.8, Run Date: 08/15/18 12:50, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000385	mg/L	5	7440-38-2	
Chromium	0.102	0.005	0.000150	mg/L	5	7440-47-3	
Copper	0.001457	0.005	0.000290	mg/L	5	7440-50-8	b
Iron	0.02	0.02	0.00112	mg/L	5	7439-89-6	
Lead	0.000169	0.003	0.0000550	mg/L	5	7439-92-1	b
Manganese	0.288	0.005	0.000405	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	0.006	0.005	0.00138	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/18 12:52, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.000418	0.002	0.000385	mg/L	5	7440-38-2	b
Chromium, Dissolved	0.102	0.005	0.000150	mg/L	5	7440-47-3	
Copper, Dissolved	0.001116	0.005	0.000290	mg/L	5	7440-50-8	b
Iron, Dissolved	Not detected	0.02	0.00112	mg/L	5	7439-89-6	
Lead, Dissolved	Not detected	0.003	0.0000550	mg/L	5	7439-92-1	
Manganese, Dissolved	0.225	0.005	0.000405	mg/L	5	7439-96-5	

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S92745.02 (continued)
Sample Tag: MW-114

Method: E200.8, Run Date: 08/15/18 12:52, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc, Dissolved	0.006	0.005	0.00138	mg/L	5	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/10/18 16:56, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	50	2.5	ug/L	5	60-29-7	Y
Acetone*	9.3	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)*	1.5	130	1.3	ug/L	5	78-93-3	JY
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*	9	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*	Not detected	5	0.99	ug/L	5	156-60-5	Y
1,1-Dichloroethane*	3.1	5	1.0	ug/L	5	75-34-3	JY
cis-1,2-Dichloroethene*	113	5	1.3	ug/L	5	156-59-2	Y
Tetrahydrofuran*	Not detected	450	6.3	ug/L	5	109-99-9	Y
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*	2.3	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*	348	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

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: S92745.02 (continued)
Sample Tag: MW-114

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/10/18 16:56, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: 08/16/18 01:06, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	190	1	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.

Analytical Laboratory Report

Lab Sample ID: S92745.03
Sample Tag: MW-113
Collected Date/Time: 08/08/2018 12:45
Matrix: Liquid
COC Reference: 113761

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
6	40ml Glass	HCL	Yes	4.6	IR
2	40ml Glass	H2SO4	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/10/18 14:30	ADS	
Metal Digestion	Completed	SW3015A	08/10/18 14:30	CCM	
Metal Digestion	Completed	SW3015A	08/10/18 14:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 08/08/18 17:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 08/08/18 17:15, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM5310C, Run Date: 08/29/18 13:08, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	7.5	1	0.5	mg/L	1		O

Metals

Method: E200.8, Run Date: 08/15/18 12:54, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.013	0.002	0.000385	mg/L	5	7440-38-2	
Chromium	0.005	0.005	0.000150	mg/L	5	7440-47-3	
Copper	0.000524	0.005	0.000290	mg/L	5	7440-50-8	b
Iron	3.83	0.02	0.00112	mg/L	5	7439-89-6	
Lead	0.000207	0.003	0.0000550	mg/L	5	7439-92-1	b
Manganese	0.100	0.005	0.000405	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	0.006	0.005	0.00138	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/18 12:56, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.006	0.002	0.000385	mg/L	5	7440-38-2	
Chromium, Dissolved	0.001209	0.005	0.000150	mg/L	5	7440-47-3	b
Copper, Dissolved	Not detected	0.005	0.000290	mg/L	5	7440-50-8	
Iron, Dissolved	0.79	0.02	0.00112	mg/L	5	7439-89-6	
Lead, Dissolved	0.000061	0.003	0.0000550	mg/L	5	7439-92-1	b
Manganese, Dissolved	0.108	0.005	0.000405	mg/L	5	7439-96-5	

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S92745.03 (continued)
Sample Tag: MW-113

Method: E200.8, Run Date: 08/15/18 12:56, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc, Dissolved	Not detected	0.005	0.00138	mg/L	5	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/10/18 15:58, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	2.66	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)*	0.50	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*	0.39	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*	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*	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		

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

Lab Sample ID: S92745.03 (continued)
Sample Tag: MW-113

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/10/18 15:58, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: 08/16/18 01:24, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	19	1	0.17	ug/L	1	74-82-8	O

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

Analytical Laboratory Report

Lab Sample ID: S92745.04
Sample Tag: MW-111
Collected Date/Time: 08/08/2018 13:40
Matrix: Liquid
COC Reference: 113761

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
6	40ml Glass	HCL	Yes	4.6	IR
2	40ml Glass	H2SO4	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/10/18 14:30	ADS	
Metal Digestion	Completed	SW3015A	08/10/18 14:30	CCM	
Metal Digestion	Completed	SW3015A	08/10/18 14:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 08/08/18 17:55, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 08/08/18 17:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM5310C, Run Date: 08/29/18 13:24, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	19	1	0.5	mg/L	1		O

Metals

Method: E200.8, Run Date: 08/15/18 13:12, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.009	0.002	0.000385	mg/L	5	7440-38-2	
Chromium	0.002754	0.005	0.000150	mg/L	5	7440-47-3	b
Copper	0.000674	0.005	0.000290	mg/L	5	7440-50-8	b
Iron	2.83	0.02	0.00112	mg/L	5	7439-89-6	
Lead	0.000192	0.003	0.0000550	mg/L	5	7439-92-1	b
Manganese	0.385	0.005	0.000405	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	0.00367	0.005	0.00138	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 08/15/18 13:14, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.004	0.002	0.000385	mg/L	5	7440-38-2	
Chromium, Dissolved	0.001110	0.005	0.000150	mg/L	5	7440-47-3	b
Copper, Dissolved	0.000527	0.005	0.000290	mg/L	5	7440-50-8	b
Iron, Dissolved	0.85	0.02	0.00112	mg/L	5	7439-89-6	
Lead, Dissolved	0.000103	0.003	0.0000550	mg/L	5	7439-92-1	b
Manganese, Dissolved	0.321	0.005	0.000405	mg/L	5	7439-96-5	

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S92745.04 (continued)
Sample Tag: MW-111

Method: E200.8, Run Date: 08/15/18 13:14, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc, Dissolved	0.006	0.005	0.00138	mg/L	5	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/10/18 16:17, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	1.61	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)*	0.44	25	0.26	ug/L	1	78-93-3	J
Dichlorodifluoromethane*	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane*	0.44	5	0.26	ug/L	1	74-87-3	J
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*	0.95	1	0.26	ug/L	1	156-59-2	J
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*	6	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		

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

Lab Sample ID: S92745.04 (continued)
Sample Tag: MW-111

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/10/18 16:17, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: 08/16/18 01:41, Analyst: TA

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

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

Analytical Laboratory Report

Lab Sample ID: S92745.05
Sample Tag: Field Blank
Collected Date/Time: 08/08/2018 00:01
Matrix: Liquid
COC Reference: 113761

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
6	40ml Glass	HCL	Yes	4.6	IR
2	40ml Glass	H2SO4	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/10/18 14:30	ADS	
Metal Digestion	Completed	SW3015A	08/10/18 14:30	CCM	
Metal Digestion	Completed	SW3015A	08/10/18 14:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 08/08/18 18:00, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 08/08/18 17:25, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM5310C, Run Date: 08/29/18 13:43, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	Not detected	1	0.5	mg/L	1		O

Metals

Method: E200.8, Run Date: 08/15/18 12:26, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000154	mg/L	2	7440-38-2	
Chromium	0.000060	0.005	0.0000600	mg/L	2	7440-47-3	b
Copper	Not detected	0.005	0.000116	mg/L	2	7440-50-8	
Iron	Not detected	0.02	0.000448	mg/L	2	7439-89-6	
Lead	0.000046	0.003	0.0000220	mg/L	2	7439-92-1	b
Manganese	0.000258	0.005	0.000162	mg/L	2	7439-96-5	b
Selenium	Not detected	0.005	0.00100	mg/L	2	7782-49-2	
Zinc	Not detected	0.005	0.000552	mg/L	2	7440-66-6	

Method: E200.8, Run Date: 08/15/18 12:27, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000154	mg/L	2	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.0000600	mg/L	2	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.000116	mg/L	2	7440-50-8	
Iron, Dissolved	Not detected	0.02	0.000448	mg/L	2	7439-89-6	
Lead, Dissolved	0.000040	0.003	0.0000220	mg/L	2	7439-92-1	b
Manganese, Dissolved	0.000455	0.005	0.000162	mg/L	2	7439-96-5	b

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S92745.05 (continued)
Sample Tag: Field Blank

Method: E200.8, Run Date: 08/15/18 12:27, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium, Dissolved	Not detected	0.005	0.00100	mg/L	2	7782-49-2	
Zinc, Dissolved	0.00070	0.005	0.000552	mg/L	2	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/09/18 15:08, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone*	Not detected	50	4.0	ug/L	1	67-64-1	
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*	0.60	1	0.15	ug/L	1	67-66-3	J
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*	0.32	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	

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: S92745.05 (continued)
Sample Tag: Field Blank

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/09/18 15:08, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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	
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	

Organics

Method: RSK-175, Run Date: 08/16/18 01:58, Analyst: TA

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

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

Analytical Laboratory Report

Lab Sample ID: S92745.06
Sample Tag: Equip Blank
Collected Date/Time: 08/08/2018 00:01
Matrix: Liquid
COC Reference: 113761

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
6	40ml Glass	HCL	Yes	4.6	IR
2	40ml Glass	H2SO4	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/10/18 14:30	ADS	
Metal Digestion	Completed	SW3015A	08/10/18 14:30	CCM	
Metal Digestion	Completed	SW3015A	08/10/18 14:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 08/08/18 18:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 08/08/18 17:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM5310C, Run Date: 08/29/18 14:00, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	Not detected	1	0.5	mg/L	1		O

Metals

Method: E200.8, Run Date: 08/15/18 12:28, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000154	mg/L	2	7440-38-2	
Chromium	0.000081	0.005	0.0000600	mg/L	2	7440-47-3	b
Copper	Not detected	0.005	0.000116	mg/L	2	7440-50-8	
Iron	0.00790	0.02	0.000448	mg/L	2	7439-89-6	b
Lead	0.000058	0.003	0.0000220	mg/L	2	7439-92-1	b
Manganese	0.000399	0.005	0.000162	mg/L	2	7439-96-5	b
Selenium	Not detected	0.005	0.00100	mg/L	2	7782-49-2	
Zinc	0.00113	0.005	0.000552	mg/L	2	7440-66-6	b

Method: E200.8, Run Date: 08/15/18 12:29, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000154	mg/L	2	7440-38-2	
Chromium, Dissolved	0.000063	0.005	0.0000600	mg/L	2	7440-47-3	b
Copper, Dissolved	Not detected	0.005	0.000116	mg/L	2	7440-50-8	
Iron, Dissolved	0.00447	0.02	0.000448	mg/L	2	7439-89-6	b
Lead, Dissolved	0.000050	0.003	0.0000220	mg/L	2	7439-92-1	b
Manganese, Dissolved	0.000369	0.005	0.000162	mg/L	2	7439-96-5	b

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S92745.06 (continued)
Sample Tag: Equip Blank

Method: E200.8, Run Date: 08/15/18 12:29, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Selenium, Dissolved	Not detected	0.005	0.00100	mg/L	2	7782-49-2	
Zinc, Dissolved	0.00116	0.005	0.000552	mg/L	2	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/09/18 15:28, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone*	Not detected	50	4.0	ug/L	1	67-64-1	
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*	0.53	1	0.15	ug/L	1	67-66-3	J
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*	0.30	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	

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: S92745.06 (continued)
Sample Tag: Equip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/09/18 15:28, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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	
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	

Organics

Method: RSK-175, Run Date: 08/16/18 02:16, Analyst: TA

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

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

Analytical Laboratory Report

Lab Sample ID: S92745.07
Sample Tag: Dup 1
Collected Date/Time: 08/08/2018 00:01
Matrix: Liquid
COC Reference: 113761

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
6	40ml Glass	HCL	Yes	4.6	IR
1	125ml Plastic	HNO3	Yes	4.6	IR
1	125ml Plastic	NaOH	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/10/18 14:30	ADS	
Metal Digestion	Completed	SW3015A	08/10/18 14:30	CCM	
Metal Digestion	Completed	SW3015A	08/10/18 14:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 08/08/18 18:10, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 08/08/18 17:35, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 08/15/18 13:16, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.006	0.002	0.000385	mg/L	5	7440-38-2	
Chromium	0.003033	0.005	0.000150	mg/L	5	7440-47-3	b
Copper	0.000547	0.005	0.000290	mg/L	5	7440-50-8	b
Iron	2.10	0.02	0.00112	mg/L	5	7439-89-6	
Lead	0.000118	0.003	0.0000550	mg/L	5	7439-92-1	b
Manganese	0.337	0.005	0.000405	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	0.008	0.005	0.00138	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 08/15/18 13:18, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.005	0.002	0.000385	mg/L	5	7440-38-2	
Chromium, Dissolved	0.000874	0.005	0.000150	mg/L	5	7440-47-3	b
Copper, Dissolved	0.000507	0.005	0.000290	mg/L	5	7440-50-8	b
Iron, Dissolved	0.70	0.02	0.00112	mg/L	5	7439-89-6	
Lead, Dissolved	0.000068	0.003	0.0000550	mg/L	5	7439-92-1	b
Manganese, Dissolved	0.459	0.005	0.000405	mg/L	5	7439-96-5	
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc, Dissolved	0.00215	0.005	0.00138	mg/L	5	7440-66-6	b

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

Lab Sample ID: S92745.07 (continued)
Sample Tag: Dup 1

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/09/18 17:29, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone*	Not detected	50	4.0	ug/L	1	67-64-1	
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*	1	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*	7	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	

Lab Sample ID: S92745.07 (continued)

Sample Tag: Dup 1

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/09/18 17:29, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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	
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	

Organics

Method: RSK-175, Run Date: 08/16/18 02:33, Analyst: TA

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

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

Analytical Laboratory Report

Lab Sample ID: S92745.08
Sample Tag: Trip Blank
Collected Date/Time: 08/08/2018 00:01
Matrix: Liquid
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/10/18 14:30	ADS	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/09/18 14:47, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.27	ug/L	1	60-29-7	
Acetone*	9.2	50	4.0	ug/L	1	67-64-1	J
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*	1.88	5	0.20	ug/L	1	74-87-3	J
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*	0.25	5	0.16	ug/L	1	75-09-2	J
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	

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

Lab Sample ID: S92745.08 (continued)

Sample Tag: Trip Blank

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/09/18 14:47, Analyst: JGH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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	
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: S92745
Client: APPLIED (Applied Ecosystems)
Project: 11-4317-102
Submitted: 08/08/2018 16:40 Login User: SRS

Attention: Mike Smith
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: ae_mds@yahoo.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.	[ ] Yes	[X] No	[ ] N/A	COC adequately filled out	Trip Blank 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.	[X] Yes	[ ] No	[ ] N/A	Subcontracting needed? Subcontacted to:	Test America
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.	[X] Yes	[ ] No	[ ] N/A	Samples require laboratory filtration	Dissolved metals and chromium 6 to be filtered in-lab
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: S92745 Initials: SRS

Client: APPLIED (Applied Ecosystems)

Project: 11-4317-102

Submitted: 08/08/2018 16:40 Login User:

Attention: Mike Smith
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: ae_mds@yahoo.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	
S92745.01	X								X					
S92745.02	X								X					
S92745.03	X								X					
S92745.04	X								X					
S92745.05	X								X					
S92745.06	X								X					
S92745.07	X								X					

Prepared by Merit Laboratories

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

113761

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Mike Smith
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 P.O. NO.:
E-MAIL ADDRESS: msmith@appliedecosystems.com 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: Heather Dean

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

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	Diss. Metals	Total Metals	Total Organic Carbon	~~Metals~~	Methane					Special Instructions
92745.01	8/8/18	1015	MW-109		10	✓	✓	✓	✓				✓	✓	✓	✓		✓					Diss. Metals
.02	8.8.18	1140	MW-114		10	✓	✓	✓	✓				✓	✓	✓	✓		✓					include: Ar, Cr,
.03	8.8.18	1245	MW-113		10	✓	✓	✓	✓				✓	✓	✓	✓		✓					(total + Hex), Cu, Pb,
.04	8.8.18	1340	MW-111		10	✓	✓	✓	✓				✓	✓	✓	✓		✓					Se, Zn, Fe, Mn
.05	8.8.18		Field Blank		10	✓	✓	✓	✓				✓	✓	✓	✓		✓					
.06	8.8.18		Equip Blank		10	✓	✓	✓	✓				✓	✓	✓	✓		✓					Total Metals: Ar,
.07	8.8.18		Dup 1		10	✓	✓	✓	✓				✓	✓	✓	✓		✓					Cr (total + Hex), Cu,
																							Pb, Se, ~~P~~, Zn, Fe,
																							Mn.

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Heather Dean Heather Dean (Sampler)	DATE 8-8-18	TIME 1540
RECEIVED BY: SIGNATURE/ORGANIZATION	[illegible]	DATE 8/8/18	TIME 15:40
RELINQUISHED BY: SIGNATURE/ORGANIZATION	[illegible]	DATE 8/8/18	TIME 16:40
RECEIVED BY: SIGNATURE/ORGANIZATION	[illegible]	DATE 8/8/18	TIME 1640

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 REPORT

Job Number: 190-17134-2

Job Description: S92745

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

Attention: John Laverty

Approved for release.
Sue Schafer
Project Manager II
8/31/2018 10:37 PM

Sue Schafer, Project Manager II
4101 Shuffel Street NW, North Canton, OH, 44720
(810)229-2763
sue.schafer@testamericainc.com
08/31/2018

cc: Barbara Ball
Julie Teague

Table of Contents

Cover Title Page 1

Data Summaries 4

- Definitions 4
- Case Narrative 5
- Detection Summary 6
- Client Sample Results 7
- Default Detection Limits 8
- QC Sample Results 9
- QC Association 10
- Chronicle 11
- Certification Summary 12
- Method Summary 14
- Sample Summary 15
- Reagent Traceability 16

Inorganic Sample Data 17

- General Chemistry Data 17
  - Gen Chem Cover Page 18
  - Gen Chem Sample Data 19
  - Gen Chem QC Data 25
    - Gen Chem ICV/CCV 25
    - Gen Chem Blanks 27
    - Gen Chem LCS/LCSD 28
  - Gen Chem MDL 30
  - Gen Chem Analysis Run Log 32
  - Gen Chem Prep Data 34

Subcontracted Data 36

Table of Contents

Shipping and Receiving Documents 37

Client Chain of Custody 38

Sample Receipt Checklist 40

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
190-17134-2

Comments
No additional comments.

Receipt
The samples were received on 8/10/2018 12:58 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 9.0º C.

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

Detection Summary

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-2

Client Sample ID: 92745.01 — Lab Sample ID: 190-17134-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	5.7		1.0		mg/L	1		5310 B-2011	Total/NA

Client Sample ID: 92745.02 — Lab Sample ID: 190-17134-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	4.4		1.0		mg/L	1		5310 B-2011	Total/NA

Client Sample ID: 92745.03 — Lab Sample ID: 190-17134-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	7.5		1.0		mg/L	1		5310 B-2011	Total/NA

Client Sample ID: 92745.04 — Lab Sample ID: 190-17134-4

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	19		1.0		mg/L	1		5310 B-2011	Total/NA

Client Sample ID: 92745.05 — Lab Sample ID: 190-17134-5

No Detections.

Client Sample ID: 92745.06 — Lab Sample ID: 190-17134-6

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-2

Client Sample ID: 92745.01 — Lab Sample ID: 190-17134-1

Date Collected: 08/08/18 10:15
Date Received: 08/10/18 12:58
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	5.7		1.0		mg/L			08/29/18 12:35	1

Client Sample ID: 92745.02 — Lab Sample ID: 190-17134-2

Date Collected: 08/08/18 11:40
Date Received: 08/10/18 12:58
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	4.4		1.0		mg/L			08/29/18 12:51	1

Client Sample ID: 92745.03 — Lab Sample ID: 190-17134-3

Date Collected: 08/08/18 12:45
Date Received: 08/10/18 12:58
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	7.5		1.0		mg/L			08/29/18 13:08	1

Client Sample ID: 92745.04 — Lab Sample ID: 190-17134-4

Date Collected: 08/08/18 13:40
Date Received: 08/10/18 12:58
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	19		1.0		mg/L			08/29/18 13:24	1

Client Sample ID: 92745.05 — Lab Sample ID: 190-17134-5

Date Collected: 08/08/18 00:01
Date Received: 08/10/18 12:58
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<1.0		1.0		mg/L			08/29/18 13:43	1

Client Sample ID: 92745.06 — Lab Sample ID: 190-17134-6

Date Collected: 08/08/18 00:01
Date Received: 08/10/18 12:58
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<1.0		1.0		mg/L			08/29/18 14:00	1

Default Detection Limits

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-2

General Chemistry

Analyte	RL		Units	Method
Total Organic Carbon	1.0	0.50	mg/L	5310 B-2011

QC Sample Results

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-2

Method: 5310 B-2011 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 680-537671/3
Matrix: Water
Analysis Batch: 537671

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<1.0		1.0		mg/L			08/29/18 11:27	1

Lab Sample ID: LCS 680-537671/4
Matrix: Water
Analysis Batch: 537671

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			20.0	19.8		mg/L		99	80 - 120		
TOC Result 1			20.0	19.8		mg/L		99	80 - 120		
TOC Result 2			20.0	19.6		mg/L		98	80 - 120		
TOC Result 3			20.0	19.9		mg/L		100	80 - 120		
TOC Result 4			20.0	19.9		mg/L		99	80 - 120		

Lab Sample ID: LCSD 680-537671/5
Matrix: Water
Analysis Batch: 537671

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon			20.0	19.9		mg/L		99	80 - 120	0	25
TOC Result 1			20.0	19.9		mg/L		99	80 - 120	0	25
TOC Result 2			20.0	19.7		mg/L		98	80 - 120	1	25
TOC Result 3			20.0	20.0		mg/L		100	80 - 120	0	25
TOC Result 4			20.0	20.2		mg/L		101	80 - 120	2	25

QC Association Summary

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-2

General Chemistry

Analysis Batch: 537671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-17134-1	92745.01	Total/NA	Water	5310 B-2011	
190-17134-2	92745.02	Total/NA	Water	5310 B-2011	
190-17134-3	92745.03	Total/NA	Water	5310 B-2011	
190-17134-4	92745.04	Total/NA	Water	5310 B-2011	
190-17134-5	92745.05	Total/NA	Water	5310 B-2011	
190-17134-6	92745.06	Total/NA	Water	5310 B-2011	
MB 680-537671/3	Method Blank	Total/NA	Water	5310 B-2011	
LCS 680-537671/4	Lab Control Sample	Total/NA	Water	5310 B-2011	
LCSD 680-537671/5	Lab Control Sample Dup	Total/NA	Water	5310 B-2011	

Lab Chronicle

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-2

Client Sample ID: 92745.01 — Lab Sample ID: 190-17134-1

Date Collected: 08/08/18 10:15
Date Received: 08/10/18 12:58
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	5310 B-2011		1	537671	08/29/18 12:35	KLD	TAL SAV

Client Sample ID: 92745.02 — Lab Sample ID: 190-17134-2

Date Collected: 08/08/18 11:40
Date Received: 08/10/18 12:58
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	5310 B-2011		1	537671	08/29/18 12:51	KLD	TAL SAV

Client Sample ID: 92745.03 — Lab Sample ID: 190-17134-3

Date Collected: 08/08/18 12:45
Date Received: 08/10/18 12:58
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	5310 B-2011		1	537671	08/29/18 13:08	KLD	TAL SAV

Client Sample ID: 92745.04 — Lab Sample ID: 190-17134-4

Date Collected: 08/08/18 13:40
Date Received: 08/10/18 12:58
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	5310 B-2011		1	537671	08/29/18 13:24	KLD	TAL SAV

Client Sample ID: 92745.05 — Lab Sample ID: 190-17134-5

Date Collected: 08/08/18 00:01
Date Received: 08/10/18 12:58
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	5310 B-2011		1	537671	08/29/18 13:43	KLD	TAL SAV

Client Sample ID: 92745.06 — Lab Sample ID: 190-17134-6

Date Collected: 08/08/18 00:01
Date Received: 08/10/18 12:58
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	5310 B-2011		1	537671	08/29/18 14:00	KLD	TAL SAV

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-2

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 Savannah

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
	AFCEE		SAVLAB	
Alabama	State Program	4	41450	06-30-19
Alaska	State Program	10		06-30-19
Alaska (UST)	State Program	10	UST-104	09-22-19
ANAB	DoD ELAP		L2463	09-22-19
ANAB	ISO/IEC 17025		L2463.01	09-22-19
Arizona	State Program	9	AZ0808	12-14-18
Arkansas DEQ	State Program	6	88-0692	02-01-19
California	State Program	9	2939	06-30-19
Colorado	State Program	8	N/A	12-31-18
Connecticut	State Program	1	PH-0161	03-31-19
Florida	NELAP	4	E87052	06-30-19
GA Dept. of Agriculture	State Program	4	N/A	06-12-19
Georgia	State Program	4	803	06-30-19
Guam	State Program	9	15-005r	04-17-19
Hawaii	State Program	9	N/A	06-30-18 *
Illinois	NELAP	5	200022	11-30-18
Indiana	State Program	5	N/A	06-30-18 *
Iowa	State Program	7	353	06-30-19
Kentucky (DW)	State Program	4	90084	12-31-18
Kentucky (UST)	State Program	4	18	06-30-18 *
Kentucky (WW)	State Program	4	90084	12-31-18 *
Louisiana	NELAP	6	30690	06-30-18 *
Louisiana (DW)	NELAP	6	LA160019	12-31-18
Maine	State Program	1	GA00006	09-24-18 *
Maryland	State Program	3	250	12-31-18
Massachusetts	State Program	1	M-GA006	06-30-19
Michigan	State Program	5	9925	06-30-18 *
Mississippi	State Program	4	N/A	06-30-18 *
Nebraska	State Program	7	TestAmerica-Savannah	06-30-19
New Mexico	State Program	6	N/A	06-30-18 *
New York	NELAP	2	10842	03-31-19
North Carolina (WW/SW)	State Program	4	269	12-31-18
Oklahoma	State Program	6	9984	08-31-19
Pennsylvania	NELAP	3	68-00474	06-30-18 *
Puerto Rico	State Program	2	GA00006	12-31-18
Tennessee	State Program	4	TN02961	06-30-19
Texas	NELAP	6	T104704185-16-9	11-30-18
Texas (DW)	State Program	1	T104704185	06-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
Virginia	NELAP	3	460161	06-14-19
Washington	State Program	10	C805	06-10-19
West Virginia (DW)	State Program	3	9950C	12-31-18
West Virginia DEP	State Program	3	094	08-13-18 *

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

Laboratory: TestAmerica Savannah (Continued)

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
Wisconsin	State Program	5	999819810	08-31-18 *
Wyoming	State Program	8	8TMS-L	06-30-16 *

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

Method Summary

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-2

Method	Method Description	Protocol	Laboratory
5310 B-2011	Organic Carbon, Total (TOC)	SM	TAL SAV

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Sample Summary

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
190-17134-1	92745.01	Water	08/08/18 10:15	08/10/18 12:58
190-17134-2	92745.02	Water	08/08/18 11:40	08/10/18 12:58
190-17134-3	92745.03	Water	08/08/18 12:45	08/10/18 12:58
190-17134-4	92745.04	Water	08/08/18 13:40	08/10/18 12:58
190-17134-5	92745.05	Water	08/08/18 00:01	08/10/18 12:58
190-17134-6	92745.06	Water	08/08/18 00:01	08/10/18 12:58

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Savannah Job No.: 190-17134-2

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
TOC_CALSTD_6_00066	11/20/18	08/20/18	DI H20, Lot NONE	1000 mL	TOC CALSTK_00023	50 mL	TOC Result 1	50 mg/L
							TOC Result 2	50 mg/L
							TOC Result 3	50 mg/L
							TOC Result 4	50 mg/L
							Total Organic Carbon	50 mg/L
.TOC CALSTK_00023	02/11/19	CPI Intenrational, Lot 142628-4			(Purchased Reagent)		TOC Result 1	1000 mg/L
							TOC Result 2	1000 mg/L
							TOC Result 3	1000 mg/L
							TOC Result 4	1000 mg/L
							Total Organic Carbon	1000 mg/L
TOC_LCS_00049	10/18/18	07/18/18	DI H20, Lot NONE	500 mL	TOC LCS STOCK_00020	10 mL	TOC Result 1	20 mg/L
							TOC Result 2	20 mg/L
							TOC Result 3	20 mg/L
							TOC Result 4	20 mg/L
							Total Organic Carbon	20 mg/L
.TOC LCS STOCK_00020	06/30/21	NSILAB Solutions, Lot 062017			(Purchased Reagent)		TOC Result 1	1000 mg/L
							TOC Result 2	1000 mg/L
							TOC Result 3	1000 mg/L
							TOC Result 4	1000 mg/L
							Total Organic Carbon	1000 mg/L

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job Number: 190-17134-2

SDG No.:

Project: S92745

Client Sample ID	Lab Sample ID
92745.01	190-17134-1
92745.02	190-17134-2
92745.03	190-17134-3
92745.04	190-17134-4
92745.05	190-17134-5
92745.06	190-17134-6

Comments:

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 92745.01
Lab Sample ID: 190-17134-1
Lab Name: TestAmerica Savannah
Job No.: 190-17134-2
SDG ID.:
Matrix: Water
Date Sampled: 08/08/2018 10:15
Reporting Basis: WET
Date Received: 08/10/2018 12:58

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	5.7	1.0	mg/L			1	5310 B-2011

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 92745.02
Lab Sample ID: 190-17134-2
Lab Name: TestAmerica Savannah
Job No.: 190-17134-2
SDG ID.:
Matrix: Water
Date Sampled: 08/08/2018 11:40
Reporting Basis: WET
Date Received: 08/10/2018 12:58

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	4.4	1.0	mg/L			1	5310 B-2011

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 92745.03
Lab Sample ID: 190-17134-3
Lab Name: TestAmerica Savannah
Job No.: 190-17134-2
SDG ID.:
Matrix: Water
Date Sampled: 08/08/2018 12:45
Reporting Basis: WET
Date Received: 08/10/2018 12:58

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	7.5	1.0	mg/L			1	5310 B-2011

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 92745.04
Lab Sample ID: 190-17134-4
Lab Name: TestAmerica Savannah
Job No.: 190-17134-2
SDG ID.:
Matrix: Water
Date Sampled: 08/08/2018 13:40
Reporting Basis: WET
Date Received: 08/10/2018 12:58

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	19	1.0	mg/L			1	5310 B-2011

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 92745.05
Lab Sample ID: 190-17134-5
Lab Name: TestAmerica Savannah
Job No.: 190-17134-2
SDG ID.:
Matrix: Water
Date Sampled: 08/08/2018 00:01
Reporting Basis: WET
Date Received: 08/10/2018 12:58

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	<1.0	1.0	mg/L			1	5310 B-2011

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 92745.06
Lab Sample ID: 190-17134-6
Lab Name: TestAmerica Savannah
Job No.: 190-17134-2
SDG ID.:
Matrix: Water
Date Sampled: 08/08/2018 00:01
Reporting Basis: WET
Date Received: 08/10/2018 12:58

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	<1.0	1.0	mg/L			1	5310 B-2011

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17134-2

SDG No.:

Analyst: KLD Batch Start Date: 08/21/2018

Reporting Units: mg/L Analytical Batch No.: 536543

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	ICV	12:18	Total Organic Carbon	20.1	20.0	101			TOC_LCS_00049

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17134-2

SDG No.:

Analyst: KLD Batch Start Date: 08/29/2018

Reporting Units: mg/L Analytical Batch No.: 537671

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
2	CCV	11:07	Total Organic Carbon	49.0	50.0	98	90-110		TOC_CALSTD_6_00066
17	CCV	15:25	Total Organic Carbon	48.8	50.0	98	90-110		TOC_CALSTD_6_00066
18	CCB	15:45	Total Organic Carbon	<1.0					

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

3-IN
METHOD BLANK
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17134-2

SDG No.:

Method	Lab Sample ID	Analyte	Result	Qual	Units	RL	Dil
Batch ID: 537671 Date: 08/29/2018 11:27							
5310 B-2011	MB 680-537671/3	Total Organic Carbon	<1.0		mg/L	1.0	1
5310 B-2011	MB 680-537671/3	TOC Result 1	<1.0		mg/L	1.0	1
5310 B-2011	MB 680-537671/3	TOC Result 2	<1.0		mg/L	1.0	1
5310 B-2011	MB 680-537671/3	TOC Result 3	<1.0		mg/L	1.0	1
5310 B-2011	MB 680-537671/3	TOC Result 4	<1.0		mg/L	1.0	1

FORM III-IN

7A-IN
LAB CONTROL SAMPLE
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17134-2

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 537671	Date: 08/29/2018 11:43										
						LCS Source: TOC_LCS_00049					
5310 B-2011	LCS 680-537671/4	Total Organic Carbon	19.8		mg/L	20.0	99	80-120	0	25	
5310 B-2011	LCS 680-537671/4	TOC Result 1	19.8		mg/L	20.0	99	80-120	0	25	
5310 B-2011	LCS 680-537671/4	TOC Result 2	19.6		mg/L	20.0	98	80-120	1	25	
5310 B-2011	LCS 680-537671/4	TOC Result 3	19.9		mg/L	20.0	100	80-120	0	25	
5310 B-2011	LCS 680-537671/4	TOC Result 4	19.9		mg/L	20.0	99	80-120	2	25	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA-IN

7A-IN
LAB CONTROL SAMPLE DUPLICATE
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17134-2

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 537671	Date: 08/29/2018 11:59										
						LCSD Source: TOC_LCS_00049					
5310 B-2011	LCSD 680-537671/5	Total Organic Carbon	19.9		mg/L	20.0	99	80-120	0	25	
5310 B-2011	LCSD 680-537671/5	TOC Result 1	19.9		mg/L	20.0	99	80-120	0	25	
5310 B-2011	LCSD 680-537671/5	TOC Result 2	19.7		mg/L	20.0	98	80-120	1	25	
5310 B-2011	LCSD 680-537671/5	TOC Result 3	20.0		mg/L	20.0	100	80-120	0	25	
5310 B-2011	LCSD 680-537671/5	TOC Result 4	20.2		mg/L	20.0	101	80-120	2	25	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA-IN

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job Number: 190-17134-2

SDG Number:

Matrix: Water Instrument ID: TOC7

Method: 5310 B-2011 RL Date: 08/09/2016 12:16

Analyte	Wavelength/ Mass	RL (mg/L)	
Total Organic Carbon		1	

FORM IX - IN

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job Number: 190-17134-2

SDG Number:

Matrix: Water Instrument ID: TOC7

Method: 5310 B-2011 XMDL Date: 08/09/2016 12:16

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Total Organic Carbon		1	0.5

FORM IX - IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17134-2

SDG No.:

Instrument ID: TOC7 Analysis Method: 5310 B-2011

Start Date: 08/21/2018 12:18 End Date: 08/22/2018 05:31

Lab Sample Id	D/F	Type	Time	Analytes																								
				TOC	TOC1	TOC2	TOC3	TOC4																				
ICV 680-536543/1	1		12:18	X	X	X	X	X																				
CCV 680-536543/2			23:06																									
ZZZZZZ			23:27																									
ZZZZZZ			23:46																									
ZZZZZZ			00:04																									
ZZZZZZ			00:25																									
ZZZZZZ			00:41																									
ZZZZZZ			01:02																									
ZZZZZZ			01:20																									
ZZZZZZ			01:39																									
ZZZZZZ			02:01																									
ZZZZZZ			02:21																									
ZZZZZZ			02:41																									
ZZZZZZ			02:58																									
ZZZZZZ			03:17																									
ZZZZZZ			03:34																									
CCV 680-536543/17			03:52																									
CCB 680-536543/18			04:13																									
ZZZZZZ			04:31																									
ZZZZZZ			04:49																									
CCV 680-536543/21			05:11																									
CCB 680-536543/22			05:31																									

Prep Types:
=

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17134-2

SDG No.:

Instrument ID: TOC7 Analysis Method: 5310 B-2011

Start Date: 08/29/2018 10:52 End Date: 08/29/2018 16:55

Lab Sample Id	D/F	Type	Time	Analytes																								
				TOC	TOC1	TOC2	TOC3	TOC4																				
ZZZZZZ			10:52																									
CCV 680-537671/2	1		11:07	X	X	X	X	X																				
MB 680-537671/3	1	T	11:27	X																								
LCS 680-537671/4	1	T	11:43	X	X	X	X	X																				
LCSD 680-537671/5	1	T	11:59	X	X	X	X	X																				
ZZZZZZ			12:19																									
190-17134-1	1	T	12:35	X																								
190-17134-2	1	T	12:51	X																								
190-17134-3	1	T	13:08	X																								
190-17134-4	1	T	13:24	X																								
190-17134-5	1	T	13:43	X																								
190-17134-6	1	T	14:00	X																								
ZZZZZZ			14:16																									
ZZZZZZ			14:33																									
ZZZZZZ			14:50																									
ZZZZZZ			15:07																									
CCV 680-537671/17	1		15:25	X	X	X	X	X																				
CCB 680-537671/18	1		15:45	X																								
ZZZZZZ			16:01																									
ZZZZZZ			16:18																									
CCV 680-537671/21			16:36																									
CCB 680-537671/22			16:55																									

Prep Types:
T = Total/NA

FORM XIII-IN

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Savannah Job No.: 190-17134-2

SDG No.:

Batch Number: 536543 Batch Start Date: 08/21/18 12:18 Batch Analyst: Dudley, Kellie L

Batch Method: 5310 B-2011 Batch End Date: 08/22/18 05:31

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	TOC_LCS 00049			
ICV 680-536543/1		5310 B-2011		40 mL	40 mL	40 mL			

Batch Notes	
Acid ID	50% H2SO4_00013
Pipette/Syringe/Dispenser ID	IC 15

Basis	Basis Description

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.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Savannah Job No.: 190-17134-2

SDG No.:

Batch Number: 537671 Batch Start Date: 08/29/18 10:52 Batch Analyst: Dudley, Kellie L

Batch Method: 5310 B-2011 Batch End Date: 08/29/18 16:55

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	TOC_CALSTD_6 00066	TOC_LCS 00049		
CCV 680-537671/2		5310 B-2011		40 mL	40 mL	40 mL			
MB 680-537671/3		5310 B-2011		40 mL	40 mL				
LCS 680-537671/4		5310 B-2011		40 mL	40 mL		40 mL		
LCSD 680-537671/5		5310 B-2011		40 mL	40 mL		40 mL		
190-17134-E-1	92745.01	5310 B-2011	T	40 mL	40 mL				
190-17134-E-2	92745.02	5310 B-2011	T	40 mL	40 mL				
190-17134-D-3	92745.03	5310 B-2011	T	40 mL	40 mL				
190-17134-D-4	92745.04	5310 B-2011	T	40 mL	40 mL				
190-17134-D-5	92745.05	5310 B-2011	T	40 mL	40 mL				
190-17134-E-6	92745.06	5310 B-2011	T	40 mL	40 mL				
CCV 680-537671/17		5310 B-2011		40 mL	40 mL	40 mL			
CCB 680-537671/18		5310 B-2011		40 mL	40 mL				

Batch Notes	
Acid ID	50% H2SO4_00013
Pipette/Syringe/Dispenser ID	IC 15

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

C.O.C. PAGE # 1 OF 1

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: S92745 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

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	TOC Method SM5310C	Methane	Special Instructions
	8/8/18	1015	92745.01	L	5	3			2				✓	✓	
	8/8/18	1140	92745.02	L	5	3			2				✓	✓	
	8/8/18	1245	92745.03	L	5	3			2				✓	✓	
	8/8/18	1340	92745.04	L	5	3			2				✓	✓	
	8/8/18	0001	92745.05	L	5	3			2				✓	✓	
	8/8/18	0001	92745.06	L	5	3			2				✓	✓	

190-17134 Chain of Custody

** Subcontracted to TestAmerica

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐ Sampler	DATE 8/10/18	TIME 1200
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 8/10/18	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 8/10/18	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION TAR		DATE 8/10/18	TIME 1258

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	NOTES: TEMP. ON ARRIVAL
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	

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

Rev. 5.18.17

TestAmerica

Cooler/Sample Receipt

(AFTER HOURS receipt: complete gray areas. Place cooler in walk-in; place chain of custody 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 EH&S

❑ Discrepancies — Client ID: Merit

❑ Short Hold — Work Order #: 190-17134

❑ Rush ❑24hr ❑2day ❑3day ❑5day ❑other _____

Receipt evaluation performed by - Initials: TKH Date: 8/10/18 Time: 1515

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

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	9.0	9.0	❑	☑	❑Yes ☑No	❑Yes ❑No		
			❑	❑	❑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?		✓		Sample ID 92745.07 not listed on COC. Methane vials were HCl pres – COC says unpres

** 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: [signature] Date: 8/10/18

WI Page 1 of 1

WI No. DT-SCA-WI-001.15 effective 06/11/12

Login Sample Receipt Checklist

Client: Merit Laboratories

Job Number: 190-17134-2

Login Number: 17134
List Number: 2
Creator: Nobles, Terry G

List Source: TestAmerica Savannah
List Creation: 08/11/18 12:49 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

Job Number: 190-17134-1

Job Description: S92745

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

Attention: John Laverty

Sue Schafer

Approved for release.
Sue Schafer
Project Manager II
8/31/2018 10:31 PM

Sue Schafer, Project Manager II
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08/31/2018
Revision: 1

cc: Barbara Ball
Julie Teague

Table of Contents

Cover Title Page 1

Data Summaries 4

Definitions 4

Case Narrative 5

Detection Summary 6

Client Sample Results 7

Default Detection Limits 9

Surrogate Summary 10

QC Sample Results 11

QC Association 12

Chronicle 13

Certification Summary 15

Method Summary 16

Sample Summary 17

Manual Integration Summary 18

Reagent Traceability 20

Organic Sample Data 21

GC VOA 21

Method RSK-175 21

Method RSK-175 QC Summary 22

Method RSK-175 Sample Data 27

Standards Data 34

Method RSK-175 ICAL Data 34

Method RSK-175 CCAL Data 43

Raw QC Data 49

Method RSK-175 Blank Data 49

Table of Contents

Method RSK-175 LCS/LCSD Data 50

Method RSK-175 Run Logs 52

Inorganic Sample Data 54

General Chemistry Data 54

Gen Chem Cover Page 55

Gen Chem Sample Data 56

Gen Chem QC Data 62

Gen Chem ICV/CCV 62

Gen Chem Blanks 64

Gen Chem LCS/LCSD 65

Gen Chem MDL 67

Gen Chem Analysis Run Log 69

Gen Chem Prep Data 71

Subcontracted Data 73

Shipping and Receiving Documents 74

Client Chain of Custody 75

Sample Receipt Checklist 80

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
190-17134-1

Comments

Revised report to remove TOC by Method 9060 and remove RSK compounds not requested
No additional comments.

Receipt
The samples were received on 8/10/2018 12:58 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 9.0º C.

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

GC VOA
Method(s) RSK-175: 1,1,1-Trifluoroethane surrogate in the continuing calibration verifications (CCVRT, middle CCV and closing CCV) failed criteria at 22.9% D, 20.2% D and 20.1% D, respectively. All analytes of interest in the CCVs meet criteria and all of the samples meet surrogate criteria. After careful evaluation, the data is reported.: 92745.01 (190-17134-1), 92745.02 (190-17134-2), 92745.03 (190-17134-3), 92745.04 (190-17134-4), 92745.05 (190-17134-5), 92745.06 (190-17134-6) and 92745.07 (190-17134-7)

Method(s) RSK-175: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 240-341008.

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

Detection Summary

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-1

Client Sample ID: 92745.01 — Lab Sample ID: 190-17134-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Methane	90		1.0		ug/L	1		RSK-175	Total/NA

Client Sample ID: 92745.02 — Lab Sample ID: 190-17134-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Methane	190		1.0		ug/L	1		RSK-175	Total/NA

Client Sample ID: 92745.03 — Lab Sample ID: 190-17134-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Methane	19		1.0		ug/L	1		RSK-175	Total/NA

Client Sample ID: 92745.04 — Lab Sample ID: 190-17134-4

No Detections.

Client Sample ID: 92745.05 — Lab Sample ID: 190-17134-5

No Detections.

Client Sample ID: 92745.06 — Lab Sample ID: 190-17134-6

No Detections.

Client Sample ID: 92745.07 — Lab Sample ID: 190-17134-7

No Detections.

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-1

Client Sample ID: 92745.01
Lab Sample ID: 190-17134-1
Date Collected: 08/08/18 10:15
Matrix: Water
Date Received: 08/10/18 12:58

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	90		1.0	ug/L			08/16/18 00:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*119*		*60 - 140*		*08/16/18 00:49*	*1*

Client Sample ID: 92745.02
Lab Sample ID: 190-17134-2
Date Collected: 08/08/18 11:40
Matrix: Water
Date Received: 08/10/18 12:58

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	190		1.0	ug/L			08/16/18 01:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*119*		*60 - 140*		*08/16/18 01:06*	*1*

Client Sample ID: 92745.03
Lab Sample ID: 190-17134-3
Date Collected: 08/08/18 12:45
Matrix: Water
Date Received: 08/10/18 12:58

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	19		1.0	ug/L			08/16/18 01:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*119*		*60 - 140*		*08/16/18 01:24*	*1*

Client Sample ID: 92745.04
Lab Sample ID: 190-17134-4
Date Collected: 08/08/18 13:40
Matrix: Water
Date Received: 08/10/18 12:58

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<1.0		1.0	ug/L			08/16/18 01:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*118*		*60 - 140*		*08/16/18 01:41*	*1*

Client Sample ID: 92745.05
Lab Sample ID: 190-17134-5
Date Collected: 08/08/18 00:01
Matrix: Water
Date Received: 08/10/18 12:58

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<1.0		1.0	ug/L			08/16/18 01:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*121*		*60 - 140*		*08/16/18 01:58*	*1*

Client Sample Results

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-1

Client Sample ID: 92745.06

Lab Sample ID: 190-17134-6

Date Collected: 08/08/18 00:01

Matrix: Water

Date Received: 08/10/18 12:58

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	<1.0		1.0		ug/L			08/16/18 02:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*120*		*60 - 140*		*08/16/18 02:16*	*1*

Client Sample ID: 92745.07

Lab Sample ID: 190-17134-7

Date Collected: 08/08/18 00:00

Matrix: Water

Date Received: 08/10/18 12:58

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	<1.0		1.0		ug/L			08/16/18 02:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*119*		*60 - 140*		*08/16/18 02:33*	*1*

Default Detection Limits

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-1

Method: RSK-175 - Dissolved Gases (GC)

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

Surrogate Summary

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-1

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)**							
190-17134-1	92745.01	119							
190-17134-2	92745.02	119							
190-17134-3	92745.03	119							
190-17134-4	92745.04	118							
190-17134-5	92745.05	121							
190-17134-6	92745.06	120							
190-17134-7	92745.07	119							
LCS 240-341008/35	Lab Control Sample	121							
LCSD 240-341008/36	Lab Control Sample Dup	122							
MB 240-341008/34	Method Blank	122							

Surrogate Legend

TFE = 1,1,1-Trifluoroethane

QC Sample Results

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-1

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 240-341008/34
Matrix: Water
Analysis Batch: 341008

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	<1.0		1.0		ug/L			08/15/18 22:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*122*		*60 - 140*		*08/15/18 22:47*	*1*

Lab Sample ID: LCS 240-341008/35
Matrix: Water
Analysis Batch: 341008

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			285	286		ug/L		100	80 - 120		
Ethane			536	493		ug/L		92	80 - 120		
Ethylene			501	473		ug/L		95	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*121*		*60 - 140*

Lab Sample ID: LCSD 240-341008/36
Matrix: Water
Analysis Batch: 341008

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane			285	290		ug/L		102	80 - 120	1	35
Ethane			536	496		ug/L		93	80 - 120	1	35
Ethylene			501	477		ug/L		95	80 - 120	1	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,1,1-Trifluoroethane	*122*		*60 - 140*

QC Association Summary

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-1

GC VOA

Analysis Batch: 341008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-17134-1	92745.01	Total/NA	Water	RSK-175	
190-17134-2	92745.02	Total/NA	Water	RSK-175	
190-17134-3	92745.03	Total/NA	Water	RSK-175	
190-17134-4	92745.04	Total/NA	Water	RSK-175	
190-17134-5	92745.05	Total/NA	Water	RSK-175	
190-17134-6	92745.06	Total/NA	Water	RSK-175	
190-17134-7	92745.07	Total/NA	Water	RSK-175	
MB 240-341008/34	Method Blank	Total/NA	Water	RSK-175	
LCS 240-341008/35	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 240-341008/36	Lab Control Sample Dup	Total/NA	Water	RSK-175	

Lab Chronicle

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-1

Client Sample ID: 92745.01 — Lab Sample ID: 190-17134-1

Date Collected: 08/08/18 10:15
Date Received: 08/10/18 12:58
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	341008	08/16/18 00:49	SEM	TAL CAN

Client Sample ID: 92745.02 — Lab Sample ID: 190-17134-2

Date Collected: 08/08/18 11:40
Date Received: 08/10/18 12:58
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	341008	08/16/18 01:06	SEM	TAL CAN

Client Sample ID: 92745.03 — Lab Sample ID: 190-17134-3

Date Collected: 08/08/18 12:45
Date Received: 08/10/18 12:58
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	341008	08/16/18 01:24	SEM	TAL CAN

Client Sample ID: 92745.04 — Lab Sample ID: 190-17134-4

Date Collected: 08/08/18 13:40
Date Received: 08/10/18 12:58
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	341008	08/16/18 01:41	SEM	TAL CAN

Client Sample ID: 92745.05 — Lab Sample ID: 190-17134-5

Date Collected: 08/08/18 00:01
Date Received: 08/10/18 12:58
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	341008	08/16/18 01:58	SEM	TAL CAN

Client Sample ID: 92745.06 — Lab Sample ID: 190-17134-6

Date Collected: 08/08/18 00:01
Date Received: 08/10/18 12:58
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	341008	08/16/18 02:16	SEM	TAL CAN

Lab Chronicle

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-1

Client Sample ID: 92745.07

Date Collected: 08/08/18 00:00
Date Received: 08/10/18 12:58

Lab Sample ID: 190-17134-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	341008	08/16/18 02:33	SEM	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: S92745

TestAmerica Job ID: 190-17134-1

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	07-31-18 *
Kansas	NELAP	7	E-10336	01-31-19
Kentucky (UST)	State Program	4	58	02-23-19
Kentucky (WW)	State Program	4	98016	12-31-18
Minnesota	NELAP	5	039-999-348	12-31-18
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-19
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-17-9	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18 *
Washington	State Program	10	C971	01-12-19
West Virginia DEP	State Program	3	210	12-31-18

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

Method Summary

Client: Merit Laboratories
Project/Site: S92745

TestAmerica Job ID: 190-17134-1

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: S92745

TestAmerica Job ID: 190-17134-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
190-17134-1	92745.01	Water	08/08/18 10:15	08/10/18 12:58
190-17134-2	92745.02	Water	08/08/18 11:40	08/10/18 12:58
190-17134-3	92745.03	Water	08/08/18 12:45	08/10/18 12:58
190-17134-4	92745.04	Water	08/08/18 13:40	08/10/18 12:58
190-17134-5	92745.05	Water	08/08/18 00:01	08/10/18 12:58
190-17134-6	92745.06	Water	08/08/18 00:01	08/10/18 12:58
190-17134-7	92745.07	Water	08/08/18 00:00	08/10/18 12:58

GC VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-17134-1

SDG No.:

Instrument ID: ZPID Analysis Batch Number: 332070

Lab Sample ID: STD 240-332070/3 IC Client Sample ID:

Date Analyzed: 06/18/18 08:53 Lab File ID: Z0061803.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	1.19	Incomplete Integration	matthewsb	06/18/18 11:42
Ethylene	1.89	Incomplete Integration	matthewsb	06/18/18 11:42
Acetylene	2.00	Incomplete Integration	matthewsb	06/18/18 11:47
Ethane	2.21	Incomplete Integration	matthewsb	06/18/18 11:43
Propane	4.56	Incomplete Integration	matthewsb	06/18/18 11:43

Lab Sample ID: STD 240-332070/4 IC Client Sample ID:

Date Analyzed: 06/18/18 09:10 Lab File ID: Z0061804.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	1.19	Split Peak	matthewsb	06/18/18 11:00
Acetylene	2.00	Incomplete Integration	matthewsb	06/18/18 10:12

Lab Sample ID: STD 240-332070/6 IC Client Sample ID:

Date Analyzed: 06/18/18 09:45 Lab File ID: Z0061806.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Acetylene	2.00	Split Peak	matthewsb	06/18/18 11:45

Lab Sample ID: STD 240-332070/7 IC Client Sample ID:

Date Analyzed: 06/18/18 10:02 Lab File ID: Z0061807.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Acetylene	2.00	Split Peak	matthewsb	06/18/18 11:44

RSK-175

GC VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-17134-1

SDG No.:

Instrument ID: ZPID Analysis Batch Number: 332070

Lab Sample ID: STD 240-332070/8 IC Client Sample ID:

Date Analyzed: 06/18/18 10:20 Lab File ID: Z0061808.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	1.19	Incomplete Integration	matthewsb	06/18/18 10:59
Acetylene	2.00	Split Peak	matthewsb	06/18/18 11:45

RSK-175

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-17134-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
SAICALSURR_00012	10/03/18	Matheson Trigas, Lot 109-46-10609			(Purchased Reagent)		1,1,1-Trifluoroethane	172158 ug/L
SARSK2NDSRCE_00010	10/13/18	Air Liquide-Scott Specialty gases, Lot 403-120156			(Purchased Reagent)		Ethane	12338 ug/L
							Ethylene	11518 ug/L
							Methane	6558 ug/L
SARSKHIGHCALP_00008	10/08/18	Matheson Trigas, Lot 109-66-14469			(Purchased Reagent)		Acetylene	10657 ug/L
							Ethane	12338 ug/L
							Ethylene	11518 ug/L
							Methane	6558 ug/L
							Propane	18077 ug/L
SARSKLOWCAL_00009	09/27/18	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_00011	11/22/18	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.: 190-17134-1

SDG No.:

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	TFE1 #
92745.01	190-17134-1	119
92745.02	190-17134-2	119
92745.03	190-17134-3	119
92745.04	190-17134-4	118
92745.05	190-17134-5	121
92745.06	190-17134-6	120
92745.07	190-17134-7	119
	MB 240-341008/34	122
	LCS 240-341008/35	121
	LCSD 240-341008/36	122

	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.: 190-17134-1

SDG No.:

Matrix: Water Level: Low Lab File ID: Z0081535.D

Lab ID: LCS 240-341008/35 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
Methane	285	286	100	80-120	
Ethane	536	493	92	80-120	
Ethylene	501	473	95	80-120	

Column to be used to flag recovery and RPD values

FORM III RSK-175

FORM III
GC VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Canton Job No.: 190-17134-1

SDG No.:

Matrix: Water Level: Low Lab File ID: Z0081536.D

Lab ID: LCSD 240-341008/36 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Methane	285	290	102	1	35	80-120	
Ethane	536	496	93	1	35	80-120	
Ethylene	501	477	95	1	35	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.: 190-17134-1

SDG No.:

Lab Sample ID: MB 240-341008/34

Matrix: Water Date Extracted:

Lab File ID:(1) Z0081534.D Lab File ID:(2)

Date Analyzed:(1) 08/15/2018 22:47 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 240-341008/35	08/15/2018 23:04	
	LCSD 240-341008/36	08/15/2018 23:22	
92745.01	190-17134-1	08/16/2018 00:49	
92745.02	190-17134-2	08/16/2018 01:06	
92745.03	190-17134-3	08/16/2018 01:24	
92745.04	190-17134-4	08/16/2018 01:41	
92745.05	190-17134-5	08/16/2018 01:58	
92745.06	190-17134-6	08/16/2018 02:16	
92745.07	190-17134-7	08/16/2018 02:33	

FORM VIII
GC VOA ANALYTICAL SEQUENCE

Lab Name: TestAmerica Canton Job No.: 190-17134-1

SDG No.:

Sample No.: CCVRT 240-341008/33 Date Analyzed: 08/15/2018 22:30

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

Lab File ID (Standard): Z0081533.D Heated Purge: (Y/N) N

Calibration ID: 45555

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

				TFE		
				RT #		
CONTINUING CALIBRATION SURROGATE				3.35		
UPPER LIMIT				3.40		
LOWER LIMIT				3.30		
LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	LAB FILE ID			
CCVRT 240-341008/33		08/15/2018 22:30	Z0081533.D	3.35		
MB 240-341008/34		08/15/2018 22:47	Z0081534.D	3.35		
LCS 240-341008/35		08/15/2018 23:04	Z0081535.D	3.35		
LCSD 240-341008/36		08/15/2018 23:22	Z0081536.D	3.35		
190-17134-1	92745.01	08/16/2018 00:49	Z0081541.D	3.35		
190-17134-2	92745.02	08/16/2018 01:06	Z0081542.D	3.35		
190-17134-3	92745.03	08/16/2018 01:24	Z0081543.D	3.35		
190-17134-4	92745.04	08/16/2018 01:41	Z0081544.D	3.35		
190-17134-5	92745.05	08/16/2018 01:58	Z0081545.D	3.35		
190-17134-6	92745.06	08/16/2018 02:16	Z0081546.D	3.35		
190-17134-7	92745.07	08/16/2018 02:33	Z0081547.D	3.35		
CCV 240-341008/49		08/16/2018 03:07	Z0081549.D	3.35		

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.: 190-17134-1

SDG No.:

Client Sample ID: 92745.01 | Lab Sample ID: 190-17134-1

Matrix: Water | Lab File ID: Z0081541.D

Analysis Method: RSK-175 | Date Collected: 08/08/2018 10:15

Sample wt/vol: 23(mL) | Date Analyzed: 08/16/2018 00:49

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.: 341008 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	90		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	119		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-17134-1

SDG No.:

Client Sample ID: 92745.02 | Lab Sample ID: 190-17134-2

Matrix: Water | Lab File ID: Z0081542.D

Analysis Method: RSK-175 | Date Collected: 08/08/2018 11:40

Sample wt/vol: 23(mL) | Date Analyzed: 08/16/2018 01:06

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.: 341008 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	190		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	119		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-17134-1

SDG No.:

Client Sample ID: 92745.03 | Lab Sample ID: 190-17134-3

Matrix: Water | Lab File ID: Z0081543.D

Analysis Method: RSK-175 | Date Collected: 08/08/2018 12:45

Sample wt/vol: 23(mL) | Date Analyzed: 08/16/2018 01:24

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.: 341008 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	19		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	119		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-17134-1

SDG No.:

Client Sample ID: 92745.04 | Lab Sample ID: 190-17134-4

Matrix: Water | Lab File ID: Z0081544.D

Analysis Method: RSK-175 | Date Collected: 08/08/2018 13:40

Sample wt/vol: 23(mL) | Date Analyzed: 08/16/2018 01:41

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.: 341008 | Units: ug/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	118		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-17134-1

SDG No.:

Client Sample ID: 92745.05 | Lab Sample ID: 190-17134-5

Matrix: Water | Lab File ID: Z0081545.D

Analysis Method: RSK-175 | Date Collected: 08/08/2018 00:01

Sample wt/vol: 23(mL) | Date Analyzed: 08/16/2018 01:58

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.: 341008 | Units: ug/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	121		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-17134-1

SDG No.:

Client Sample ID: 92745.06 | Lab Sample ID: 190-17134-6

Matrix: Water | Lab File ID: Z0081546.D

Analysis Method: RSK-175 | Date Collected: 08/08/2018 00:01

Sample wt/vol: 23(mL) | Date Analyzed: 08/16/2018 02:16

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.: 341008 | Units: ug/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	120		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-17134-1

SDG No.:

Client Sample ID: 92745.07 | Lab Sample ID: 190-17134-7

Matrix: Water | Lab File ID: Z0081547.D

Analysis Method: RSK-175 | Date Collected: 08/08/2018 00:00

Sample wt/vol: 23(mL) | Date Analyzed: 08/16/2018 02:33

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.: 341008 | Units: ug/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	119		60-140

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

Lab Name: TestAmerica Canton Job No.: 190-17134-1 Analy Batch No.: 332070

SDG No.:

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

Calibration Start Date: 06/18/2018 08:53 Calibration End Date: 06/18/2018 10:20 Calibration ID: 45555

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-332070/3	Z0061803.D
Level 2	STD 240-332070/4	Z0061804.D
Level 3	STD 240-332070/5	Z0061805.D
Level 4	STD 240-332070/6	Z0061806.D
Level 5	STD 240-332070/7	Z0061807.D
Level 6	STD 240-332070/8	Z0061808.D

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6					RT WINDOW	AVG RT
Methane	1.185	1.186	1.186	1.184	1.185	1.185					1.135 - 1.235	1.185
Ethylene	1.885	1.885	1.884	1.884	1.883	1.880					1.830 - 1.930	1.884
Acetylene	2.000	2.000	1.999	1.998	1.998	1.995					1.945 - 2.045	1.998
Ethane	2.207	2.206	2.206	2.206	2.205	2.198					1.998 - 2.398	2.205
Propane	4.555	4.556	4.556	4.554	4.551	4.532					4.482 - 4.582	4.551
1,1,1-Trifluoroethane	3.354	3.355	3.352	3.351	3.348						3.252 - 3.452	3.352

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

Lab Name: TestAmerica Canton Job No.: 190-17134-1 Analy Batch No.: 332070

SDG No.:

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

Calibration Start Date: 06/18/2018 08:53 Calibration End Date: 06/18/2018 10:20 Calibration ID: 45555

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-332070/3	Z0061803.D
Level 2	STD 240-332070/4	Z0061804.D
Level 3	STD 240-332070/5	Z0061805.D
Level 4	STD 240-332070/6	Z0061806.D
Level 5	STD 240-332070/7	Z0061807.D
Level 6	STD 240-332070/8	Z0061808.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	7282.2 5561.5	6249.9 5513.0	5889.1	5770.1	Ave		6044.29415				10.9		20.0			
Ethylene	6624.5 5964.4	5960.5 5857.9	5827.0	5726.3	Ave		5993.41403				5.4		20.0			
Acetylene	2494.2 3606.7	2427.9 3574.8	2790.8	3206.7	Ave		3016.84656				17.3		30.0			
Ethane	7041.7 6329.9	6168.8 6267.0	6020.7	5967.3	Ave		6299.22755				6.2		20.0			
Propane	6701.5 6683.3	6072.4 6713.1	6073.3	6012.9	Ave		6376.09197				5.6		20.0			
1,1,1-Trifluoroethane	2336.7 1945.7	2237.2	2110.2	2217.2	Ave		2169.39000				6.9		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.: 190-17134-1 Analy Batch No.: 332070

SDG No.:

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

Calibration Start Date: 06/18/2018 08:53 Calibration End Date: 06/18/2018 10:20 Calibration ID: 45555

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-332070/3	Z0061803.D
Level 2	STD 240-332070/4	Z0061804.D
Level 3	STD 240-332070/5	Z0061805.D
Level 4	STD 240-332070/6	Z0061806.D
Level 5	STD 240-332070/7	Z0061807.D
Level 6	STD 240-332070/8	Z0061808.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	2077 23578965	12478	58789	576004	2378625	0.285 4277	2.00	9.98	99.8	428
Ethylene	Ave	3318 44002878	20898	102149	1003846	4480284	0.501 7512	3.51	17.5	175	751
Acetylene	Ave	1156 24845661	7877	45272	520180	2506714	0.463 6950	3.24	16.2	162	695
Ethane	Ave	3778 50427702	23168	113058	1120550	5093368	0.537 8047	3.76	18.8	188	805
Propane	Ave	5268 79143040	33414	167095	1654322	7879231	0.786 11789	5.50	27.5	275	1179
1,1,1-Trifluoroethane	Ave	699612	1172180	5528422	11617250	21845316	299	524	2620	5240	11228

Curve Type Legend:
Ave = Average

Calibration / Methane

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

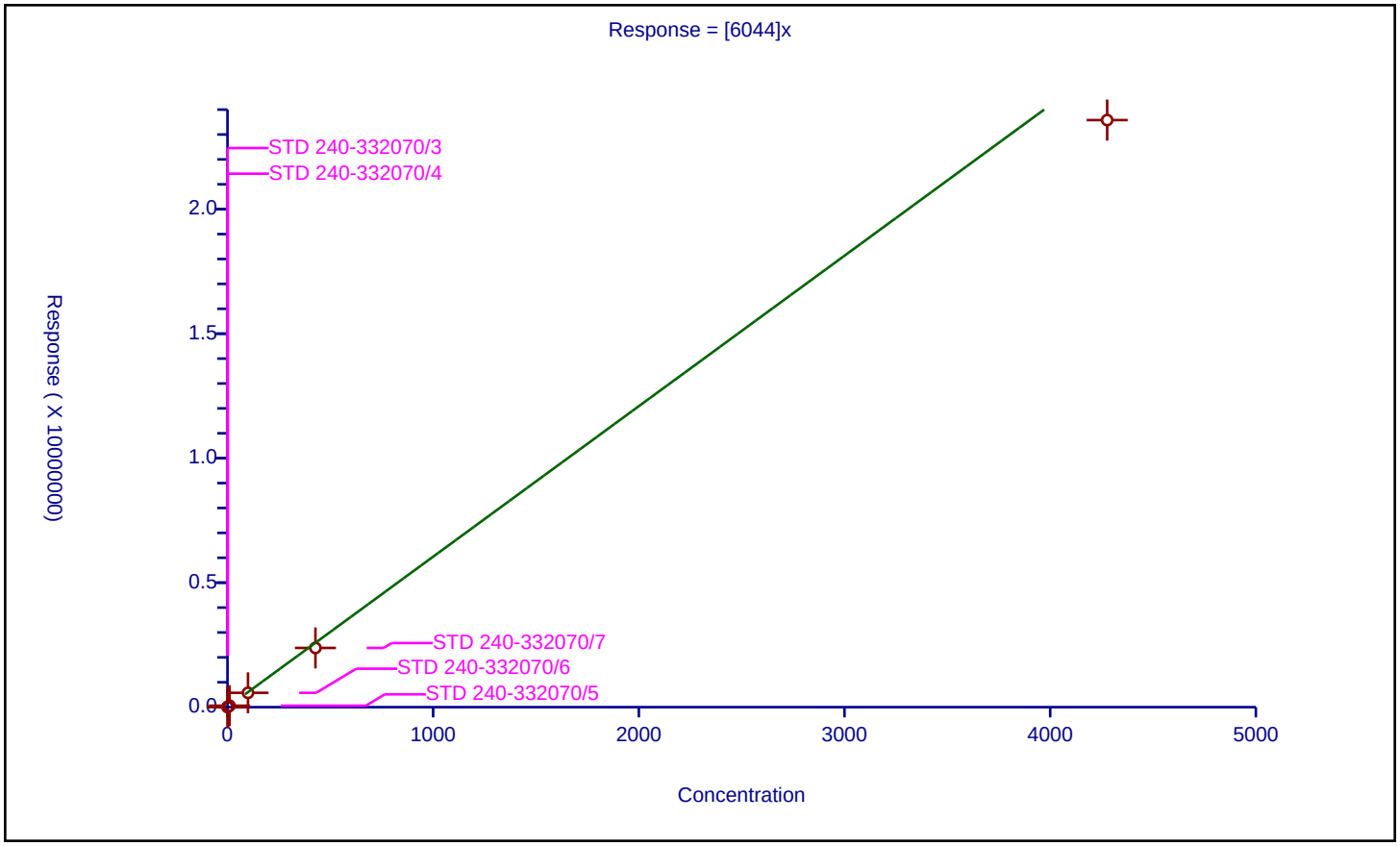
Curve Coefficients

Intercept:	0
Slope:	6044

Error Coefficients

Standard Error:	1020000
Relative Standard Error:	10.9
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	0.986

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	0.285217	2077.0			7282.164634	Y
2	STD 240-332070/4	1.996522	12478.0			6249.869338	Y
3	STD 240-332070/5	9.982609	58789.0			5889.141986	Y
4	STD 240-332070/6	99.826087	576004.0			5770.074913	Y
5	STD 240-332070/7	427.695652	2378625.0			5561.489783	Y
6	STD 240-332070/8	4276.956522	23578965.0			5513.024245	Y



Calibration / Ethylene

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

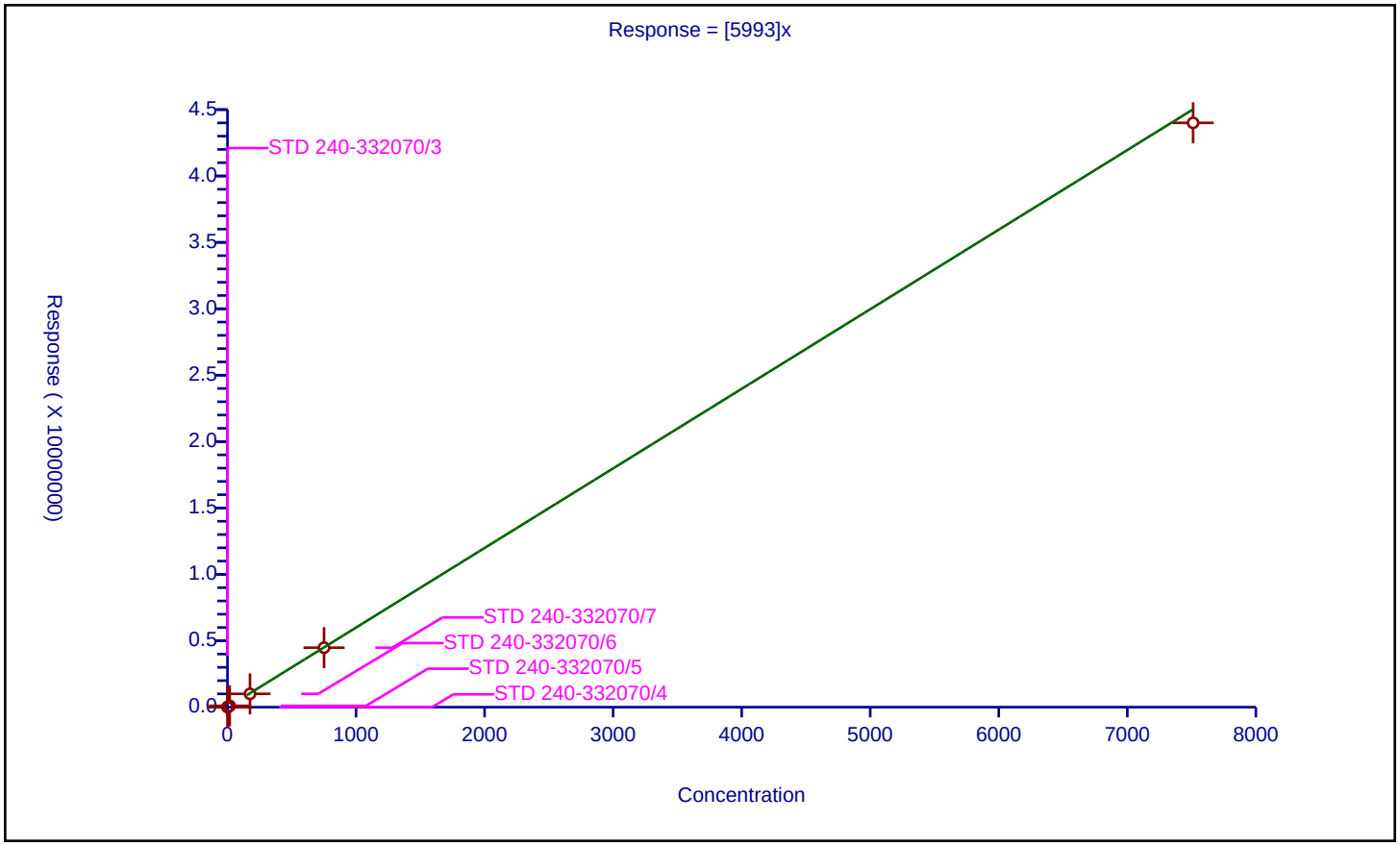
Curve Coefficients

Intercept:	0
Slope:	5993

Error Coefficients

Standard Error:	456000
Relative Standard Error:	5.4
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	0.997

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	0.50087	3318.0			6624.479167	Y
2	STD 240-332070/4	3.506087	20898.0			5960.491071	Y
3	STD 240-332070/5	17.530435	102149.0			5826.951885	Y
4	STD 240-332070/6	175.304348	1003846.0			5726.304067	Y
5	STD 240-332070/7	751.173913	4480284.0			5964.376454	Y
6	STD 240-332070/8	7511.73913	44002878.0			5857.881542	Y



Calibration / Acetylene

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

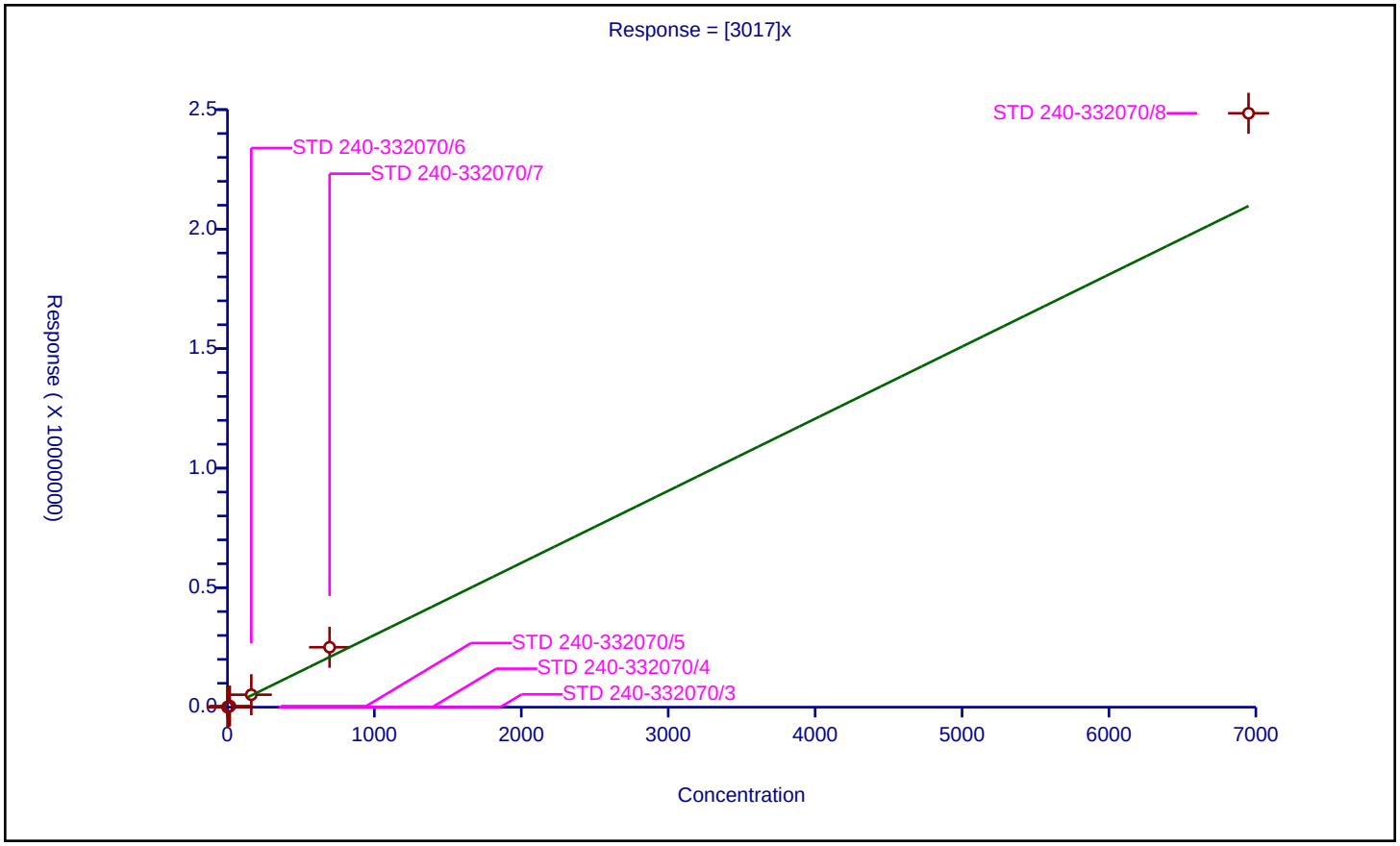
Curve Coefficients

Intercept:	0
Slope:	3017

Error Coefficients

Standard Error:	1740000
Relative Standard Error:	17.3
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	0.971

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	0.463478	1156.0			2494.183865	Y
2	STD 240-332070/4	3.244348	7877.0			2427.914768	Y
3	STD 240-332070/5	16.221739	45272.0			2790.822836	Y
4	STD 240-332070/6	162.217391	520180.0			3206.684535	Y
5	STD 240-332070/7	695.021739	2506714.0			3606.66992	Y
6	STD 240-332070/8	6950.217391	24845661.0			3574.803434	Y



Calibration / Ethane

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

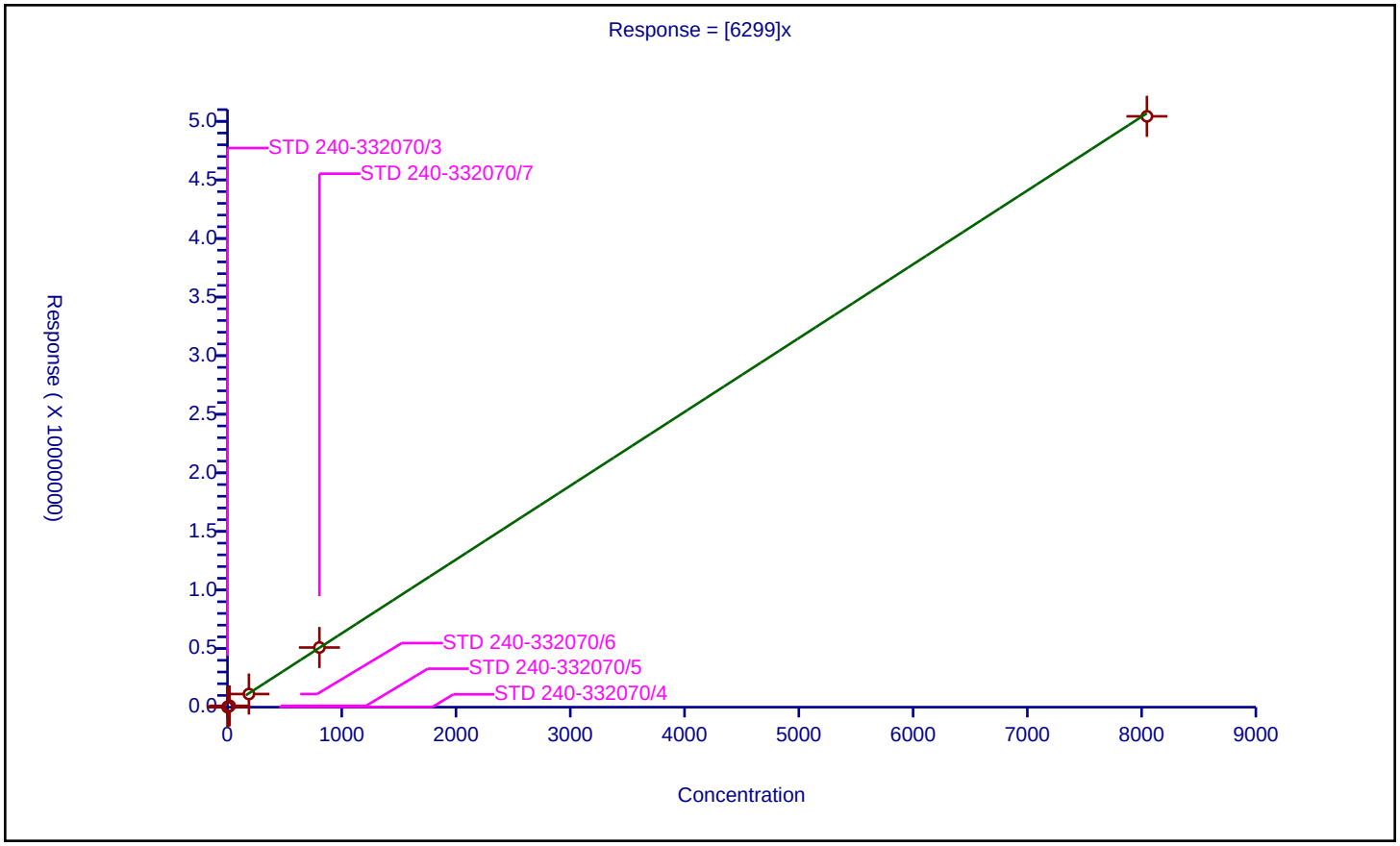
Curve Coefficients

Intercept:	0
Slope:	6299

Error Coefficients

Standard Error:	120000
Relative Standard Error:	6.2
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	0.996

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	0.536522	3778.0			7041.653161	Y
2	STD 240-332070/4	3.755652	23168.0			6168.835379	Y
3	STD 240-332070/5	18.778261	113058.0			6020.685344	Y
4	STD 240-332070/6	187.782609	1120550.0			5967.272517	Y
5	STD 240-332070/7	804.652174	5093368.0			6329.900254	Y
6	STD 240-332070/8	8046.521739	50427702.0			6267.018674	Y



Calibration / 1,1,1-Trifluoroethane

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

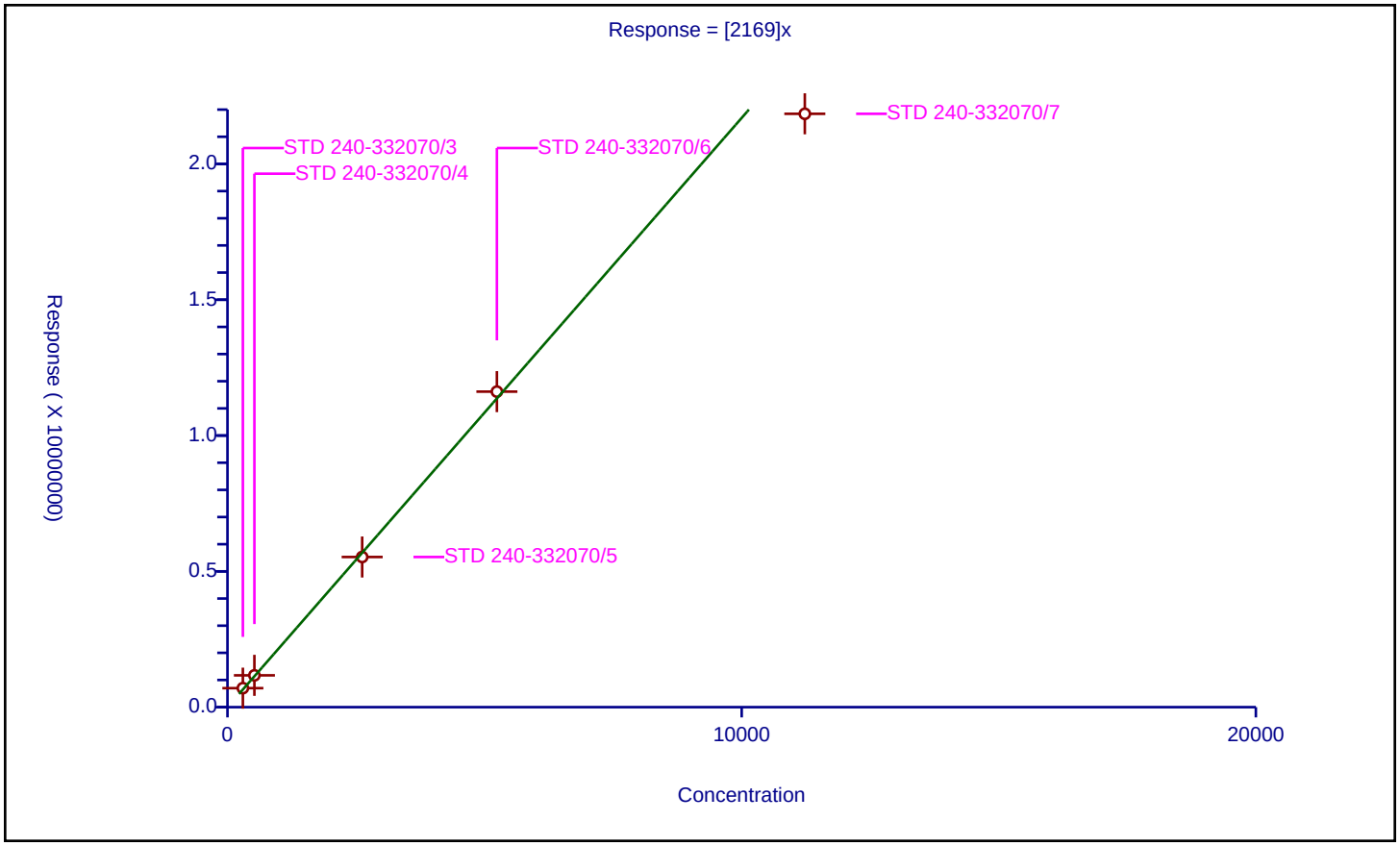
Curve Coefficients

Intercept:	0
Slope:	2169

Error Coefficients

Standard Error:	1260000
Relative Standard Error:	6.9
Correlation Coefficient:	0.996
Coefficient of Determination (Adjusted):	0.992

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	299.405217	699612.0			2336.672708	Y
2	STD 240-332070/4	523.95913	1172180.0			2237.159221	Y
3	STD 240-332070/5	2619.795652	5528422.0			2110.249322	Y
4	STD 240-332070/6	5239.591304	11617250.0			2217.205374	Y
5	STD 240-332070/7	11227.695652	21845316.0			1945.663356	Y



Calibration / Propane

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

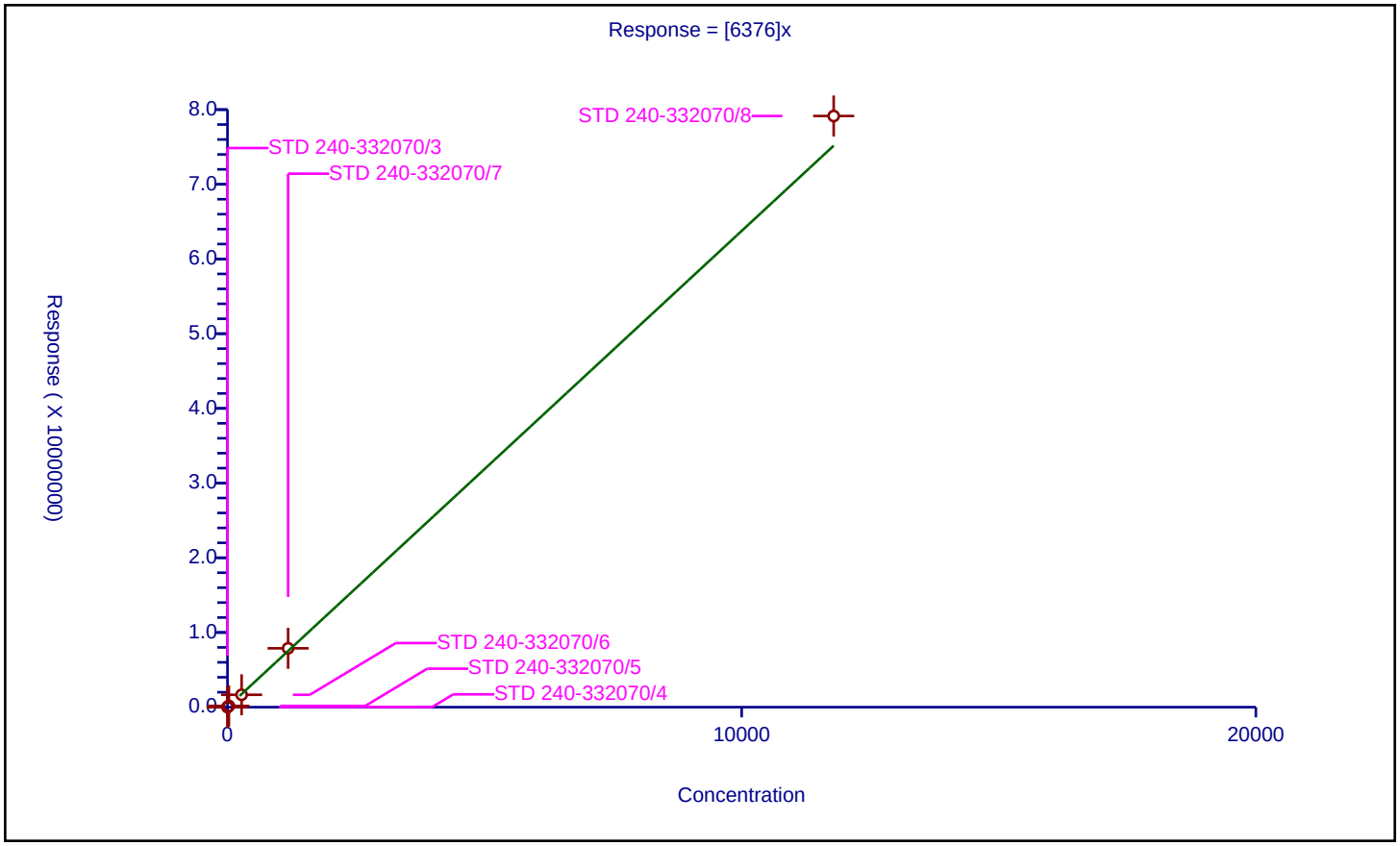
Curve Coefficients

Intercept:	0
Slope:	6376

Error Coefficients

Standard Error:	1780000
Relative Standard Error:	5.6
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	0.997

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	0.786087	5268.0			6701.548673	Y
2	STD 240-332070/4	5.502609	33414.0			6072.392541	Y
3	STD 240-332070/5	27.513043	167095.0			6073.301201	Y
4	STD 240-332070/6	275.130435	1654322.0			6012.864412	Y
5	STD 240-332070/7	1178.934783	7879231.0			6683.347642	Y
6	STD 240-332070/8	11789.347826	79143040.0			6713.09738	Y



FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-17134-1

SDG No.:

Lab Sample ID: ICV 240-332070/9 Calibration Date: 06/18/2018 10:38

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0061809.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	6044	5299		250	285	-12.3	20.0
Ethylene	Ave	5993	5712		477	501	-4.7	20.0
Acetylene	Ave	3017	3272		503	463	8.5	30.0
Ethane	Ave	6299	6090		519	536	-3.3	20.0
Propane	Ave	6376	6557		806	784	2.8	20.0
1,1,1-Trifluoroethane	Ave	2169	2622		11200	9240	20.9	30.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-17134-1

SDG No.:

Lab Sample ID: ICV 240-332070/9 Calibration Date: 06/18/2018 10:38

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0061809.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.18	1.14	1.24
Ethylene	1.88	1.83	1.93
Acetylene	2.00	1.95	2.05
Ethane	2.21	2.00	2.40
Propane	4.55	4.48	4.58
1,1,1-Trifluoroethane	3.35	3.25	3.45

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-17134-1

SDG No.:

Lab Sample ID: CCVRT 240-341008/33 Calibration Date: 08/15/2018 22:30

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0081533.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	6044	6110		288	285	1.1	20.0
Ethylene	Ave	5993	5679		474	501	-5.3	20.0
Acetylene	Ave	3017	3745		575	463	24.1	30.0
Ethane	Ave	6299	5781		492	536	-8.2	20.0
Propane	Ave	6376	5828		718	786	-8.6	20.0
1,1,1-Trifluoroethane	Ave	2169	2608		11100	9240	20.2*	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-17134-1

SDG No.:

Lab Sample ID: CCVRT 240-341008/33 Calibration Date: 08/15/2018 22:30

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0081533.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.19	1.14	1.24
Ethylene	1.89	1.84	1.94
Acetylene	2.00	1.95	2.05
Ethane	2.21	2.01	2.41
Propane	4.55	4.50	4.60
1,1,1-Trifluoroethane	3.35	3.25	3.45

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-17134-1

SDG No.:

Lab Sample ID: CCV 240-341008/49 Calibration Date: 08/16/2018 03:07

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0081549.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	6044	6103		288	285	1.0	20.0
Ethylene	Ave	5993	5636		471	501	-6.0	20.0
Acetylene	Ave	3017	3713		570	463	23.1	30.0
Ethane	Ave	6299	5731		488	536	-9.0	20.0
Propane	Ave	6376	5727		706	786	-10.2	20.0
1,1,1-Trifluoroethane	Ave	2169	2606		11100	9240	20.1*	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-17134-1

SDG No.:

Lab Sample ID: CCV 240-341008/49 Calibration Date: 08/16/2018 03:07

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0081549.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.19	1.14	1.24
Ethylene	1.89	1.84	1.94
Acetylene	2.00	1.95	2.05
Ethane	2.21	2.01	2.41
Propane	4.56	4.50	4.60
1,1,1-Trifluoroethane	3.35	3.25	3.45

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-17134-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 240-341008/34

Matrix: Water | Lab File ID: Z0081534.D

Analysis Method: RSK-175 | Date Collected:

Sample wt/vol: 23(mL) | Date Analyzed: 08/15/2018 22:47

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.: 341008 | Units: ug/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	122		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-17134-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 240-341008/35

Matrix: Water | Lab File ID: Z0081535.D

Analysis Method: RSK-175 | Date Collected:

Sample wt/vol: 23(mL) | Date Analyzed: 08/15/2018 23:04

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.: 341008 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	286		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	121		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-17134-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCSD 240-341008/36

Matrix: Water | Lab File ID: Z0081536.D

Analysis Method: RSK-175 | Date Collected:

Sample wt/vol: 23(mL) | Date Analyzed: 08/15/2018 23:22

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.: 341008 | Units: ug/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	122		60-140

GC VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Canton Job No.: 190-17134-1

SDG No.:

Instrument ID: ZPID Start Date: 06/18/2018 08:53

Analysis Batch Number: 332070 End Date: 06/18/2018 10:38

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD 240-332070/3 IC		06/18/2018 08:53	1	Z0061803.D	HP-PLOT/Q 0.53(mm)
STD 240-332070/4 IC		06/18/2018 09:10	1	Z0061804.D	HP-PLOT/Q 0.53(mm)
STD 240-332070/5 IC		06/18/2018 09:28	1	Z0061805.D	HP-PLOT/Q 0.53(mm)
STD 240-332070/6 IC		06/18/2018 09:45	1	Z0061806.D	HP-PLOT/Q 0.53(mm)
STD 240-332070/7 IC		06/18/2018 10:02	1	Z0061807.D	HP-PLOT/Q 0.53(mm)
STD 240-332070/8 IC		06/18/2018 10:20	1	Z0061808.D	HP-PLOT/Q 0.53(mm)
ICV 240-332070/9		06/18/2018 10:38	1	Z0061809.D	HP-PLOT/Q 0.53(mm)

RSK-175

GC VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Canton Job No.: 190-17134-1

SDG No.:

Instrument ID: ZPID Start Date: 08/15/2018 22:30

Analysis Batch Number: 341008 End Date: 08/16/2018 05:43

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVRT 240-341008/33		08/15/2018 22:30	1	Z0081533.D	HP-PLOT/Q 0.53(mm)
MB 240-341008/34		08/15/2018 22:47	1	Z0081534.D	HP-PLOT/Q 0.53(mm)
LCS 240-341008/35		08/15/2018 23:04	1	Z0081535.D	HP-PLOT/Q 0.53(mm)
LCSD 240-341008/36		08/15/2018 23:22	1	Z0081536.D	HP-PLOT/Q 0.53(mm)
ZZZZZ		08/15/2018 23:39	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/15/2018 23:57	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/16/2018 00:14	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/16/2018 00:32	1		HP-PLOT/Q 0.53(mm)
190-17134-1		08/16/2018 00:49	1	Z0081541.D	HP-PLOT/Q 0.53(mm)
190-17134-2		08/16/2018 01:06	1	Z0081542.D	HP-PLOT/Q 0.53(mm)
190-17134-3		08/16/2018 01:24	1	Z0081543.D	HP-PLOT/Q 0.53(mm)
190-17134-4		08/16/2018 01:41	1	Z0081544.D	HP-PLOT/Q 0.53(mm)
190-17134-5		08/16/2018 01:58	1	Z0081545.D	HP-PLOT/Q 0.53(mm)
190-17134-6		08/16/2018 02:16	1	Z0081546.D	HP-PLOT/Q 0.53(mm)
190-17134-7		08/16/2018 02:33	1	Z0081547.D	HP-PLOT/Q 0.53(mm)
ZZZZZ		08/16/2018 02:50	1		HP-PLOT/Q 0.53(mm)
CCV 240-341008/49		08/16/2018 03:07	1	Z0081549.D	HP-PLOT/Q 0.53(mm)
ZZZZZ		08/16/2018 03:25	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/16/2018 03:42	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/16/2018 03:59	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/16/2018 04:17	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/16/2018 04:34	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/16/2018 04:51	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/16/2018 05:08	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/16/2018 05:26	1		HP-PLOT/Q 0.53(mm)
CCV 240-341008/58		08/16/2018 05:43	1		HP-PLOT/Q 0.53(mm)

RSK-175

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job Number: 190-17134-1

SDG No.:

Project: S92745

Client Sample ID	Lab Sample ID
92745.01	190-17134-1
92745.02	190-17134-2
92745.03	190-17134-3
92745.04	190-17134-4
92745.05	190-17134-5
92745.06	190-17134-6

Comments:

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 92745.01
Lab Sample ID: 190-17134-1
Lab Name: TestAmerica Savannah
Job No.: 190-17134-1
SDG ID.:
Matrix: Water
Date Sampled: 08/08/2018 10:15
Reporting Basis: WET
Date Received: 08/10/2018 12:58

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	5.3	1.0	mg/L			1	9060A
7440-44-0	Total Organic Carbon - Quad	5.3	1.0	mg/L			1	9060A

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 92745.02
Lab Sample ID: 190-17134-2
Lab Name: TestAmerica Savannah
Job No.: 190-17134-1
SDG ID.:
Matrix: Water
Date Sampled: 08/08/2018 11:40
Reporting Basis: WET
Date Received: 08/10/2018 12:58

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	3.9	1.0	mg/L			1	9060A
7440-44-0	Total Organic Carbon - Quad	3.9	1.0	mg/L			1	9060A

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 92745.03
Lab Sample ID: 190-17134-3
Lab Name: TestAmerica Savannah
Job No.: 190-17134-1
SDG ID.:
Matrix: Water
Date Sampled: 08/08/2018 12:45
Reporting Basis: WET
Date Received: 08/10/2018 12:58

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	7.0	1.0	mg/L			1	9060A
7440-44-0	Total Organic Carbon - Quad	7.0	1.0	mg/L			1	9060A

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 92745.04
Lab Sample ID: 190-17134-4
Lab Name: TestAmerica Savannah
Job No.: 190-17134-1
SDG ID.:
Matrix: Water
Date Sampled: 08/08/2018 13:40
Reporting Basis: WET
Date Received: 08/10/2018 12:58

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	18	1.0	mg/L			1	9060A
7440-44-0	Total Organic Carbon - Quad	18	1.0	mg/L			1	9060A

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 92745.05
Lab Sample ID: 190-17134-5
Lab Name: TestAmerica Savannah
Job No.: 190-17134-1
SDG ID.:
Matrix: Water
Date Sampled: 08/08/2018 00:01
Reporting Basis: WET
Date Received: 08/10/2018 12:58

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	<1.0	1.0	mg/L			1	9060A
7440-44-0	Total Organic Carbon - Quad	<1.0	1.0	mg/L			1	9060A

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 92745.06
Lab Sample ID: 190-17134-6
Lab Name: TestAmerica Savannah
Job No.: 190-17134-1
SDG ID.:
Matrix: Water
Date Sampled: 08/08/2018 00:01
Reporting Basis: WET
Date Received: 08/10/2018 12:58

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	<1.0	1.0	mg/L			1	9060A
7440-44-0	Total Organic Carbon - Quad	<1.0	1.0	mg/L			1	9060A

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17134-1

SDG No.:

Analyst: KLD Batch Start Date: 08/15/2018

Reporting Units: mg/L Analytical Batch No.: 535619

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	ICV	08:43	Total Organic Carbon	19.6	20.0	98			TOC_LCS_00049

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17134-1

SDG No.:

Analyst: KLD Batch Start Date: 08/16/2018

Reporting Units: mg/L Analytical Batch No.: 535766

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	CCV	02:17	Total Organic Carbon	45.4	50.0	91	90-110		TOC_CALSTD_6_00065
			Total Organic Carbon - Quad	45.4	50.0	91	90-110		TOC_CALSTD_6_00065
15	CCV	06:33	Total Organic Carbon	45.6	50.0	91	90-110		TOC_CALSTD_6_00065
			Total Organic Carbon - Quad	45.6	50.0	91	90-110		TOC_CALSTD_6_00065
16	CCB	06:54	Total Organic Carbon	<1.0					
			Total Organic Carbon - Quad	<1.0					
27	CCV	10:23	Total Organic Carbon	45.4	50.0	91	90-110		TOC_CALSTD_6_00065
			Total Organic Carbon - Quad	45.4	50.0	91	90-110		TOC_CALSTD_6_00065
28	CCB	10:44	Total Organic Carbon	<1.0					
			Total Organic Carbon - Quad	<1.0					
31	CCV	11:36	Total Organic Carbon	45.3	50.0	91	90-110		TOC_CALSTD_6_00065
			Total Organic Carbon - Quad	45.3	50.0	91	90-110		TOC_CALSTD_6_00065
32	CCB	11:57	Total Organic Carbon	<1.0					
			Total Organic Carbon - Quad	<1.0					

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

3-IN
METHOD BLANK
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17134-1

SDG No.:

Method	Lab Sample ID	Analyte	Result	Qual	Units	RL	Dil
Batch ID: 535766 Date: 08/16/2018 02:38							
9060A	MB 680-535766/2	Total Organic Carbon	<1.0		mg/L	1.0	1
9060A	MB 680-535766/2	Total Organic Carbon - Quad	<1.0		mg/L	1.0	1
9060A	MB 680-535766/2	TOC Result 1	<1.0		mg/L	1.0	1
9060A	MB 680-535766/2	TOC Result 2	<1.0	^	mg/L	1.0	1
9060A	MB 680-535766/2	TOC Result 3	<1.0		mg/L	1.0	1
9060A	MB 680-535766/2	TOC Result 4	<1.0		mg/L	1.0	1

FORM III-IN

7A-IN
LAB CONTROL SAMPLE
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17134-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 535766	Date: 08/16/2018 02:54										
						LCS Source: TOC_LCS_00049					
9060A	LCS 680-535766/3	Total Organic Carbon	17.7		mg/L	20.0	88	80-120	1	25	
9060A	LCS 680-535766/3	Total Organic Carbon - Quad	17.7		mg/L	20.0	88	80-120	1	25	
9060A	LCS 680-535766/3	TOC Result 1	17.4		mg/L	20.0	87	80-120	1	25	
9060A	LCS 680-535766/3	TOC Result 2	17.5		mg/L	20.0	88	80-120	2	25	^
9060A	LCS 680-535766/3	TOC Result 3	17.7		mg/L	20.0	88	80-120	1	25	
9060A	LCS 680-535766/3	TOC Result 4	18.1		mg/L	20.0	90	80-120	2	25	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA-IN

7A-IN
LAB CONTROL SAMPLE DUPLICATE
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17134-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 535766	Date: 08/16/2018 03:12										
						LCSD Source: TOC_LCS_00049					
9060A	LCSD 680-535766/4	Total Organic Carbon	17.8		mg/L	20.0	89	80-120	1	25	
9060A	LCSD 680-535766/4	Total Organic Carbon - Quad	17.8		mg/L	20.0	89	80-120	1	25	
9060A	LCSD 680-535766/4	TOC Result 1	17.6		mg/L	20.0	88	80-120	1	25	
9060A	LCSD 680-535766/4	TOC Result 2	17.8		mg/L	20.0	89	80-120	2	25	^
9060A	LCSD 680-535766/4	TOC Result 3	17.9		mg/L	20.0	90	80-120	1	25	
9060A	LCSD 680-535766/4	TOC Result 4	17.8		mg/L	20.0	89	80-120	2	25	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA-IN

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job Number: 190-17134-1

SDG Number:

Matrix: Water Instrument ID: TOC7

Method: 9060A RL Date: 08/09/2016 12:16

Analyte	Wavelength/ Mass	RL (mg/L)	
Total Organic Carbon		1	
Total Organic Carbon - Quad		1	

FORM IX - IN

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job Number: 190-17134-1

SDG Number:

Matrix: Water Instrument ID: TOC7

Method: 9060A XMDL Date: 08/09/2016 12:16

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Total Organic Carbon		1	0.5
Total Organic Carbon - Quad		1	0.5

FORM IX - IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17134-1

SDG No.:

Instrument ID: TOC7 Analysis Method: 9060A

Start Date: 08/15/2018 08:43 End Date: 08/15/2018 15:27

Lab Sample Id	D/F	Type	Time	Analytes																								
				TOC	TOC1	TOC2	TOC3	TOC4																				
ICV 680-535619/1	1		08:43	X	X	X	X	X																				
ZZZZZZ			09:02																									
CCV 680-535619/3			09:18																									
ZZZZZZ			09:37																									
ZZZZZZ			09:55																									
ZZZZZZ			10:14																									
ZZZZZZ			10:32																									
ZZZZZZ			10:49																									
ZZZZZZ			11:06																									
ZZZZZZ			11:23																									
ZZZZZZ			11:42																									
ZZZZZZ			12:01																									
ZZZZZZ			12:18																									
ZZZZZZ			12:35																									
ZZZZZZ			12:56																									
ZZZZZZ			13:12																									
ZZZZZZ			13:32																									
CCV 680-535619/18			13:49																									
CCB 680-535619/19			14:17																									
ZZZZZZ			14:33																									
ZZZZZZ			14:50																									
CCV 680-535619/22			15:08																									
CCB 680-535619/23			15:27																									

Prep Types:
=

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17134-1

SDG No.:

Instrument ID: TOC7 Analysis Method: 9060A

Start Date: 08/16/2018 02:17 End Date: 08/16/2018 11:57

Lab Sample Id	D/F	Type	Time	Analytes																								
				TOC	TOC1	TOC2	TOC3	TOC4	TOCQ																			
CCV 680-535766/1	1		02:17	X	X	X	X	X	X																			
MB 680-535766/2	1	T	02:38	X					X																			
LCS 680-535766/3	1	T	02:54	X	X	X	X	X	X																			
LCSD 680-535766/4	1	T	03:12	X	X	X	X	X	X																			
ZZZZZZ			03:31																									
ZZZZZZ			03:49																									
ZZZZZZ			04:08																									
ZZZZZZ			04:29																									
ZZZZZZ			04:46																									
ZZZZZZ			05:05																									
ZZZZZZ			05:22																									
ZZZZZZ			05:40																									
ZZZZZZ			05:56																									
ZZZZZZ			06:14																									
CCV 680-535766/15	1		06:33	X	X	X	X	X	X																			
CCB 680-535766/16	1		06:54	X					X																			
ZZZZZZ			07:10																									
ZZZZZZ			07:30																									
ZZZZZZ			07:50																									
ZZZZZZ			08:08																									
ZZZZZZ			08:29																									
ZZZZZZ			08:50																									
190-17134-1	1	T	09:10	X					X																			
190-17134-2	1	T	09:30	X					X																			
190-17134-3	1	T	09:47	X					X																			
190-17134-4	1	T	10:05	X					X																			
CCV 680-535766/27	1		10:23	X	X	X	X	X	X																			
CCB 680-535766/28	1		10:44	X					X																			
190-17134-5	1	T	11:02	X					X																			
190-17134-6	1	T	11:19	X					X																			
CCV 680-535766/31	1		11:36	X	X	X	X	X	X																			
CCB 680-535766/32	1		11:57	X					X																			

Prep Types:
T = Total/NA

FORM XIII-IN

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Savannah Job No.: 190-17134-1

SDG No.:

Batch Number: 535619 Batch Start Date: 08/15/18 08:43 Batch Analyst: Dudley, Kellie L

Batch Method: 9060A Batch End Date: 08/15/18 15:27

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	TOC_LCS 00049			
ICV 680-535619/1		9060A		40 mL	40 mL	40 mL			

Batch Notes	
Acid ID	50% H2SO4_00013
Pipette/Syringe/Dispenser ID	IC 15

Basis	Basis Description

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.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Savannah Job No.: 190-17134-1

SDG No.:

Batch Number: 535766 Batch Start Date: 08/16/18 02:17 Batch Analyst: Dudley, Kellie L

Batch Method: 9060A Batch End Date: 08/16/18 11:57

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	TOC_CALSTD_6 00065	TOC_LCS 00049		
CCV 680-535766/1		9060A		40 mL	40 mL	40 mL			
MB 680-535766/2		9060A		40 mL	40 mL				
LCS 680-535766/3		9060A		40 mL	40 mL		40 mL		
LCSD 680-535766/4		9060A		40 mL	40 mL		40 mL		
CCV 680-535766/15		9060A		40 mL	40 mL	40 mL			
CCB 680-535766/16		9060A		40 mL	40 mL				
190-17134-E-1	92745.01	9060A	T	40 mL	40 mL				
190-17134-E-2	92745.02	9060A	T	40 mL	40 mL				
190-17134-D-3	92745.03	9060A	T	40 mL	40 mL				
190-17134-D-4	92745.04	9060A	T	40 mL	40 mL				
CCV 680-535766/27		9060A		40 mL	40 mL	40 mL			
CCB 680-535766/28		9060A		40 mL	40 mL				
190-17134-D-5	92745.05	9060A	T	40 mL	40 mL				
190-17134-E-6	92745.06	9060A	T	40 mL	40 mL				
CCV 680-535766/31		9060A		40 mL	40 mL	40 mL			
CCB 680-535766/32		9060A		40 mL	40 mL				

Batch Notes	
Acid ID	50% H2SO4_00013
Pipette/Syringe/Dispenser ID	IC 15

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

C.O.C. PAGE # 1 OF 1

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: S92745 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

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	TOC Method SM5310C	Methane	Special Instructions
	8/8/18	1015	92745.01	L	5	3			2				✓	✓	
	8/8/18	1140	92745.02	L	5	3			2				✓	✓	
	8/8/18	1245	92745.03	L	5	3			2				✓	✓	
	8/8/18	1340	92745.04	L	5	3			2				✓	✓	
	8/8/18	0001	92745.05	L	5	3			2				✓	✓	
	8/8/18	0001	92745.06	L	5	3			2				✓	✓	

190-17134 Chain of Custody

** Subcontracted to TestAmerica

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐ Sampler	DATE 8/10/18	TIME 1200
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 8/10/18	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 8/10/18	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION TAR		DATE 8/10/18	TIME 1258

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	NOTES: TEMP. ON ARRIVAL
SEAL NO.	SEAL INTACT YES☐ NO☐	INITIALS	

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

Rev. 5.18.17

TestAmerica

Cooler/Sample Receipt

(AFTER HOURS receipt: complete gray areas. Place cooler in walk-in, place this form in Receiving in-box. Date Time rec'd _____ Initials _____

☐ MSDS or Known Hazard Information Supplied by Client
☐ Bottle stickers applied ☐ ELEMENT comment entered ☐ MSDS COC scanned emailed to EH&S

☐ Discrepancies Client ID Merit

☐ Short Hold Work Order # 190-17134

☐ Rush ☐24hr ☐2day ☐3day ☐5day ☐other _____

Receipt evaluation performed by - Initials TKH Date 8/10/18 Time 1515

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

☐ Check if Additional Sheets Required

Receipt Temperatures

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		
140252476	9.0	9.0	☐	☑	☐Yes ☑No	☐Yes ☐No		
			☐	☐	☐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?		✓		Sample ID 92745.07 not listed on COC. Methane vials were HCl pres - COC says unpres

** 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

[signature] 8/10/18

Reviewed by PM Signature Date

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

2.0 | C2.0

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: 190-19985.1
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 #: 190-17134-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 8/23/2018			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Merit Laboratories	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:

RSK

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/ MEE Only	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
92745.01 (190-17134-1)	8/8/18	10:15 Eastern		Water			X	3	
92745.02 (190-17134-2)	8/8/18	11:40 Eastern		Water			X	3	
92745.03 (190-17134-3)	8/8/18	12:45 Eastern		Water			X	3	
92745.04 (190-17134-4)	8/8/18	13:40 Eastern		Water			X	3	
92745.05 (190-17134-5)	8/8/18	00:01 Eastern		Water			X	3	
92745.06 (190-17134-6)	8/8/18	00:01 Eastern		Water			X	3	
92745.07 (190-17134-7)	8/8/18	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 complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *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
[signature]	8/10/18/ 1604	TAL	[signature]	8.13.18 900	TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
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:

TestAmerica Canton Sample Receipt Form/Narrative **Login # :**_____
Canton Facility

Client MJ Site Name_____ Cooler unpacked by:

Cooler Received on 8-13-18 Opened on 8-13-18

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other_____

Receipt After-hours: Drop-off Date/Time_____ Storage Location_____

TestAmerica Cooler # _____ Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **+0** °C) Observed Cooler Temp. 2.0 °C Corrected Cooler Temp. 2.0 °C
   IR GUN #36 (CF **-0.3**°C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°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# **HC849161**
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): _____.

WI-NC-099

TestAmerica Michigan
10448 Citation Drive Suite 200
Brighton, MI 48116
Phone (810) 229-2763 Fax (810) 229-0000

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: 190-19986.1
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 #: 190-17134-1
Address: 5102 LaRoche Avenue, ,	Due Date Requested: 8/22/2018			
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404				
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #:			
Email:	WO #:			
Project Name: Merit Laboratories	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)	9060A	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
92745.01 (190-17134-1)	8/8/18	10:15 Eastern		Water			X	2	
92745.02 (190-17134-2)	8/8/18	11:40 Eastern		Water			X	2	
92745.03 (190-17134-3)	8/8/18	12:45 Eastern		Water			X	2	
92745.04 (190-17134-4)	8/8/18	13:40 Eastern		Water			X	2	
92745.05 (190-17134-5)	8/8/18	00:01 Eastern		Water			X	2	
92745.06 (190-17134-6)	8/8/18	00:01 Eastern		Water			X	2	

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 complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *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: [signature]	Date/Time: 8/10/18 16:03	Company: TAC	Received by: [signature]	Date/Time: 8-11-18 1006	Company: TASRV
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
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: 4.1/4.0		

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: Merit Laboratories

Job Number: 190-17134-1

Login Number: 17134
List Number: 2
Creator: Nobles, Terry G

List Source: TestAmerica Savannah
List Creation: 08/11/18 12:49 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Analytical Laboratory Report

Report ID: S93036.01(01)
Generated on 09/11/2018

Report to

Attention: Mike Smith
Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: ae_mds@yahoo.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): S93036.01
Project: 11-4317-102 Racer Flint
Collected Date: 08/14/2018
Submitted Date/Time: 08/14/2018 14:20
Sampled by: Unknown
P.O. #: PO

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

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.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
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/8260B	SW 846 Method 8260B Revision 2 December 1996 / 5030C Revision 3 May 2003

Analytical Laboratory Report

Sample Summary (1 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S93036.01	MW-112	Liquid	08/14/18 10:10

Analytical Laboratory Report

Lab Sample ID: S93036.01
Sample Tag: MW-112
Collected Date/Time: 08/14/2018 10:10
Matrix: Liquid
COC Reference: 113762

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	4.8	IR
1	125ml Plastic	HNO3	Yes	4.8	IR
6	40ml Glass	HCL	Yes	4.8	IR
2	40ml Glass	H2SO4	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	08/16/18 12:20	ADS	
Metal Digestion	Completed	SW3015A	08/16/18 12:20	CCM	
Metal Digestion	Completed	SW3015A	08/16/18 12:20	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 08/15/18 10:00, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	
Chromium VI	Not detected	0.05	0.015	mg/L	5	18540-29-9	

Method: SM5310C, Run Date: 08/22/18 09:11, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TOC	36	1.0	0.50	mg/L	1		O

Metals

Method: E200.8, Run Date: 08/15/18 13:20, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.104	0.002	0.000385	mg/L	5	7440-38-2	
Chromium	0.000373	0.005	0.000150	mg/L	5	7440-47-3	b
Copper	Not detected	0.005	0.000290	mg/L	5	7440-50-8	
Iron	6.49	0.02	0.00112	mg/L	5	7439-89-6	
Lead	0.000084	0.003	0.0000550	mg/L	5	7439-92-1	b
Manganese	0.191	0.005	0.000405	mg/L	5	7439-96-5	
Selenium	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc	0.00205	0.005	0.00138	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 08/15/18 13:23, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.078	0.002	0.000385	mg/L	5	7440-38-2	
Chromium, Dissolved	0.000411	0.005	0.000150	mg/L	5	7440-47-3	b
Copper, Dissolved	0.000453	0.005	0.000290	mg/L	5	7440-50-8	b
Iron, Dissolved	4.73	0.02	0.00112	mg/L	5	7439-89-6	
Lead, Dissolved	0.000097	0.003	0.0000550	mg/L	5	7439-92-1	b
Manganese, Dissolved	0.185	0.005	0.000405	mg/L	5	7439-96-5	
Selenium, Dissolved	Not detected	0.005	0.00251	mg/L	5	7782-49-2	
Zinc, Dissolved	0.005	0.005	0.00138	mg/L	5	7440-66-6	

O-Analysis performed by outside laboratory. See attached report.
b-Value detected less than reporting limit, but greater than MDL

Lab Sample ID: S93036.01 (continued)
Sample Tag: MW-112

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/15/18 14:04, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	3.04	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)*	0.77	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*	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*	0.57	1	0.20	ug/L	1	75-34-3	J
cis-1,2-Dichloroethene*	0.82	1	0.26	ug/L	1	156-59-2	J
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)*	0.17	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*	1	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	

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

Lab Sample ID: S93036.01 (continued)
Sample Tag: MW-112

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 08/15/18 14:04, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: 08/26/18 12:30, Analyst: TA

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methane in Water*	1,300	1.0	0.17	ug/L	1	74-82-8	O

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

Merit Laboratories Login Checklist

Lab Set ID: S93036
Client: APPLIED (Applied Ecosystems)
Project: 11-4317-102 Racer Flint
Submitted: 08/14/2018 14:20 Login User: SRS

Attention: Mike Smith
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: ae_mds@yahoo.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 4.8
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:	WaterTech and Test America
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	[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: S93036 Initials: SRS

Client: APPLIED (Applied Ecosystems)

Project: 11-4317-102 Racer Flint

Submitted: 08/14/2018 14:20 Login User:

Attention: Mike Smith
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: ae_mds@yahoo.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	
S93036.01	X								X					

Prepared by Merit Laboratories

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C.O.C. PAGE # 1 OF 1

113762

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Mike Smith
COMPANY: Applied EcoSystems
ADDRESS: 4300 Saginaw St
CITY: Burton STATE: MI ZIP CODE: 48529
PHONE NO.: 810-715-2525 FAX NO.: 810-715-2526 P.O. NO.:
E-MAIL ADDRESS: msmith@appliedecosystems.com 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 Racer/Flint 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

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 8260	Metals (Dissolved)	Metals (Total)	Total Organic Carbon	Methane	Special Instructions
93036.01	8.14.18	1010	MW-112		10	✓	✓	✓	✓				✓	✓	✓	✓	✓	

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Heather Dean ☑ Sampler	DATE: 8.14.18	TIME: 11:10	
RECEIVED BY: SIGNATURE/ORGANIZATION: AE Fridge	DATE: 8.14.18	TIME: 11:10	
RELINQUISHED BY: SIGNATURE/ORGANIZATION: Heather Dean	DATE: 8.14.18	TIME: 1300	
RECEIVED BY: SIGNATURE/ORGANIZATION: [illegible]	DATE: 8/14/18	TIME: 13:00	

RELINQUISHED BY: SIGNATURE/ORGANIZATION: [illegible]	DATE: 8/14/18	TIME: 14:20	
RECEIVED BY: SIGNATURE/ORGANIZATION: [illegible]	DATE: 8/14/18	TIME: 1420	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: 4.8
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	TEMP. ON ARRIVAL

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

Rev. 5.18.12

ANALYTICAL REPORT

Job Number: 190-17192-1

Job Description: S93036 - TOC/Methane

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

Attention: John Laverty

Sue Schafer

Approved for release.
Sue Schafer
Project Manager II
8/27/2018 4:09 PM

Sue Schafer, Project Manager II
4101 Shuffel Street NW, North Canton, OH, 44720
(810)229-2763
sue.schafer@testamericainc.com
08/27/2018

cc: Barbara Ball
Julie Teague

Table of Contents

Cover Title Page 1

Data Summaries 4

Definitions 4

Case Narrative 5

Detection Summary 6

Client Sample Results 7

Default Detection Limits 8

Surrogate Summary 9

QC Sample Results 10

QC Association 12

Chronicle 13

Certification Summary 14

Method Summary 16

Sample Summary 17

Manual Integration Summary 18

Reagent Traceability 21

Organic Sample Data 23

GC VOA 23

Method RSK-175 23

Method RSK-175 QC Summary 24

Method RSK-175 Sample Data 29

Standards Data 30

Method RSK-175 ICAL Data 30

Method RSK-175 CCAL Data 39

Raw QC Data 49

Method RSK-175 Blank Data 49

Table of Contents

Method RSK-175 LCS/LCSD Data 50

Method RSK-175 Run Logs 52

Inorganic Sample Data 55

General Chemistry Data 55

Gen Chem Cover Page 56

Gen Chem Sample Data 57

Gen Chem QC Data 58

Gen Chem ICV/CCV 58

Gen Chem Blanks 59

Gen Chem LCS/LCSD 60

Gen Chem MDL 62

Gen Chem Analysis Run Log 64

Gen Chem Prep Data 65

Subcontracted Data 66

Shipping and Receiving Documents 67

Client Chain of Custody 68

Sample Receipt Checklist 73

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)

Detection Summary

Client: Merit Laboratories
Project/Site: S93036 - TOC/Methane

TestAmerica Job ID: 190-17192-1

Client Sample ID: 93036.01 — Lab Sample ID: 190-17192-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Methane	1300		1.0		ug/L	1		RSK-175	Total/NA
Total Organic Carbon	36		1.0		mg/L	1		5310 B-2011	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Merit Laboratories
Project/Site: S93036 - TOC/Methane

TestAmerica Job ID: 190-17192-1

Client Sample ID: 93036.01

Date Collected: 08/14/18 10:10
Date Received: 08/16/18 11:15

Lab Sample ID: 190-17192-1

Matrix: Water

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	1300		1.0		ug/L			08/26/18 12:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*133*		*60 - 140*		*08/26/18 12:30*	*1*

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	36		1.0		mg/L			08/22/18 09:11	1

Default Detection Limits

Client: Merit Laboratories
Project/Site: S93036 - TOC/Methane

TestAmerica Job ID: 190-17192-1

Method: RSK-175 - Dissolved Gases (GC)

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

General Chemistry

Analyte	RL		Units	Method
Total Organic Carbon	1.0	0.50	mg/L	5310 B-2011

Surrogate Summary

Client: Merit Laboratories
Project/Site: S93036 - TOC/Methane

TestAmerica Job ID: 190-17192-1

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)**							
190-17192-1	93036.01	133							
LCS 240-342521/5	Lab Control Sample	124							
LCSD 240-342521/6	Lab Control Sample Dup	124							
MB 240-342521/4	Method Blank	121							

Surrogate Legend

TFE = 1,1,1-Trifluoroethane

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 240-342521/4
Matrix: Water
Analysis Batch: 342521

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Methane	<1.0		1.0		ug/L			08/26/18 11:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*121*		*60 - 140*		*08/26/18 11:21*	*1*

Lab Sample ID: LCS 240-342521/5
Matrix: Water
Analysis Batch: 342521

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			285	297		ug/L		104	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*124*		*60 - 140*

Lab Sample ID: LCSD 240-342521/6
Matrix: Water
Analysis Batch: 342521

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane			285	302		ug/L		106	80 - 120	2	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1,1,1-Trifluoroethane	*124*		*60 - 140*

Method: 5310 B-2011 - Organic Carbon, Total (TOC)

Lab Sample ID: MB 680-536544/2
Matrix: Water
Analysis Batch: 536544

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<1.0		1.0		mg/L			08/22/18 05:31	1

Lab Sample ID: LCS 680-536544/3
Matrix: Water
Analysis Batch: 536544

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon			20.0	19.6		mg/L		98	80 - 120		
TOC Result 1			20.0	19.4		mg/L		97	80 - 120		
TOC Result 2			20.0	19.4		mg/L		97	80 - 120		
TOC Result 3			20.0	20.0		mg/L		100	80 - 120		
TOC Result 4			20.0	20.1		mg/L		100	80 - 120		

Method: 5310 B-2011 - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCSD 680-536544/4
Matrix: Water
Analysis Batch: 536544

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

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon			20.0	20.4		mg/L		102	80 - 120	4	25
TOC Result 1			20.0	20.3		mg/L		102	80 - 120	5	25
TOC Result 2			20.0	20.2		mg/L		101	80 - 120	4	25
TOC Result 3			20.0	20.8		mg/L		104	80 - 120	4	25
TOC Result 4			20.0	20.4		mg/L		102	80 - 120	1	25

QC Association Summary

Client: Merit Laboratories
Project/Site: S93036 - TOC/Methane

TestAmerica Job ID: 190-17192-1

GC VOA

Analysis Batch: 342521

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-17192-1	93036.01	Total/NA	Water	RSK-175	
MB 240-342521/4	Method Blank	Total/NA	Water	RSK-175	
LCS 240-342521/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 240-342521/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	

General Chemistry

Analysis Batch: 536544

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
190-17192-1	93036.01	Total/NA	Water	5310 B-2011	
MB 680-536544/2	Method Blank	Total/NA	Water	5310 B-2011	
LCS 680-536544/3	Lab Control Sample	Total/NA	Water	5310 B-2011	
LCSD 680-536544/4	Lab Control Sample Dup	Total/NA	Water	5310 B-2011	

Lab Chronicle

Client: Merit Laboratories
Project/Site: S93036 - TOC/Methane

TestAmerica Job ID: 190-17192-1

Client Sample ID: 93036.01

Date Collected: 08/14/18 10:10
Date Received: 08/16/18 11:15

Lab Sample ID: 190-17192-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	342521	08/26/18 12:30	BPM	TAL CAN
Total/NA	Analysis	5310 B-2011		1	536544	08/22/18 09:11	KLD	TAL SAV

Laboratory References:

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

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Accreditation/Certification Summary

Client: Merit Laboratories
Project/Site: S93036 - TOC/Methane

TestAmerica Job ID: 190-17192-1

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	07-31-18 *
Kansas	NELAP	7	E-10336	01-31-19
Kentucky (UST)	State Program	4	58	02-23-19
Kentucky (WW)	State Program	4	98016	12-31-18
Minnesota	NELAP	5	039-999-348	12-31-18
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-19
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-17-9	08-31-18 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18 *
Washington	State Program	10	C971	01-12-19
West Virginia DEP	State Program	3	210	12-31-18

Laboratory: TestAmerica Savannah

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
	AFCEE		SAVLAB	
Alabama	State Program	4	41450	06-30-18 *
Alaska	State Program	10		06-30-19
Alaska (UST)	State Program	10	UST-104	09-22-19
ANAB	DoD ELAP		L2463	09-22-19
ANAB	ISO/IEC 17025		L2463.01	09-22-19
Arizona	State Program	9	AZ0808	12-14-18
Arkansas DEQ	State Program	6	88-0692	02-01-19
California	State Program	9	2939	06-30-19
Colorado	State Program	8	N/A	12-31-18
Connecticut	State Program	1	PH-0161	03-31-19
Florida	NELAP	4	E87052	06-30-19
GA Dept. of Agriculture	State Program	4	N/A	06-12-19
Georgia	State Program	4	803	06-30-19
Guam	State Program	9	15-005r	04-17-19
Hawaii	State Program	9	N/A	06-30-18 *
Illinois	NELAP	5	200022	11-30-18
Indiana	State Program	5	N/A	06-30-18 *
Iowa	State Program	7	353	06-30-19
Kentucky (DW)	State Program	4	90084	12-31-18

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

Laboratory: TestAmerica Savannah (Continued)

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
Kentucky (UST)	State Program	4	18	06-30-18 *
Kentucky (WW)	State Program	4	90084	12-31-18 *
Louisiana	NELAP	6	30690	06-30-18 *
Louisiana (DW)	NELAP	6	LA160019	12-31-18
Maine	State Program	1	GA00006	09-24-18 *
Maryland	State Program	3	250	12-31-18
Massachusetts	State Program	1	M-GA006	06-30-19
Michigan	State Program	5	9925	06-30-18 *
Mississippi	State Program	4	N/A	06-30-18 *
Nebraska	State Program	7	TestAmerica-Savannah	06-30-18 *
New Jersey	NELAP	2	GA769	06-30-18 *
New Mexico	State Program	6	N/A	06-30-18 *
New York	NELAP	2	10842	03-31-19
North Carolina (WW/SW)	State Program	4	269	12-31-18
Oklahoma	State Program	6	9984	08-31-18 *
Pennsylvania	NELAP	3	68-00474	06-30-18 *
Puerto Rico	State Program	2	GA00006	12-31-18
Tennessee	State Program	4	TN02961	06-30-19
Texas	NELAP	6	T104704185-16-9	11-30-18
Texas (DW)	State Program	1	T104704185	06-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
Virginia	NELAP	3	460161	06-14-19
Washington	State Program	10	C805	06-10-19
West Virginia (DW)	State Program	3	9950C	12-31-18
West Virginia DEP	State Program	3	094	08-13-18 *
Wisconsin	State Program	5	999819810	08-31-18 *
Wyoming	State Program	8	8TMS-L	06-30-16 *

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

Method Summary

Client: Merit Laboratories
Project/Site: S93036 - TOC/Methane

TestAmerica Job ID: 190-17192-1

Method	Method Description	Protocol	Laboratory
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
5310 B-2011	Organic Carbon, Total (TOC)	SM	TAL SAV

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
SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Sample Summary

Client: Merit Laboratories
Project/Site: S93036 - TOC/Methane

TestAmerica Job ID: 190-17192-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
190-17192-1	93036.01	Water	08/14/18 10:10	08/16/18 11:15

GC VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Instrument ID: ZPID Analysis Batch Number: 332070

Lab Sample ID: STD 240-332070/3 IC Client Sample ID:

Date Analyzed: 06/18/18 08:53 Lab File ID: Z0061803.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	1.19	Incomplete Integration	matthewsb	06/18/18 11:42
Ethylene	1.89	Incomplete Integration	matthewsb	06/18/18 11:42
Acetylene	2.00	Incomplete Integration	matthewsb	06/18/18 11:47
Ethane	2.21	Incomplete Integration	matthewsb	06/18/18 11:43
Propane	4.56	Incomplete Integration	matthewsb	06/18/18 11:43

Lab Sample ID: STD 240-332070/4 IC Client Sample ID:

Date Analyzed: 06/18/18 09:10 Lab File ID: Z0061804.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	1.19	Split Peak	matthewsb	06/18/18 11:00
Acetylene	2.00	Incomplete Integration	matthewsb	06/18/18 10:12

Lab Sample ID: STD 240-332070/6 IC Client Sample ID:

Date Analyzed: 06/18/18 09:45 Lab File ID: Z0061806.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Acetylene	2.00	Split Peak	matthewsb	06/18/18 11:45

Lab Sample ID: STD 240-332070/7 IC Client Sample ID:

Date Analyzed: 06/18/18 10:02 Lab File ID: Z0061807.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Acetylene	2.00	Split Peak	matthewsb	06/18/18 11:44

RSK-175

GC VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Instrument ID: ZPID Analysis Batch Number: 332070

Lab Sample ID: STD 240-332070/8 IC Client Sample ID:

Date Analyzed: 06/18/18 10:20 Lab File ID: Z0061808.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	1.19	Incomplete Integration	matthewsb	06/18/18 10:59
Acetylene	2.00	Split Peak	matthewsb	06/18/18 11:45

RSK-175

GC VOA MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Instrument ID: ZPID Analysis Batch Number: 341960

Lab Sample ID: CCVL 240-341960/7 Client Sample ID:

Date Analyzed: 08/22/18 12:26 Lab File ID: Z0082207.D GC Column: HP-PLOT/Q ID: 0.53(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Methane	1.19	Incomplete Integration	matthewsb	08/22/18 13:00
Ethylene	1.89	Incomplete Integration	matthewsb	08/22/18 13:01
Acetylene	2.00	Incomplete Integration	matthewsb	08/22/18 13:01
Ethane	2.21	Incomplete Integration	matthewsb	08/22/18 13:01

RSK-175

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
SAICALSURR_00012	10/03/18	Matheson Trigas, Lot 109-46-10609			(Purchased Reagent)		1,1,1-Trifluoroethane	172158 ug/L
SARSK2NDSRCE_00010	10/13/18	Air Liquide-Scott Specialty gases, Lot 403-120156			(Purchased Reagent)		Methane	6558 ug/L
SARSKHIGHCALP_00008	10/08/18	Matheson Trigas, Lot 109-66-14469			(Purchased Reagent)		Acetylene	10657 ug/L
							Ethane	12338 ug/L
							Ethylene	11518 ug/L
							Methane	6558 ug/L
							Propane	18077 ug/L
SARSKLOWCAL_00009	09/27/18	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_00011	11/22/18	Matheson Trigas, Lot 9302603973			(Purchased Reagent)		1,1,1-Trifluoroethane	11190 ug/L

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Savannah Job No.: 190-17192-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
TOC_CALSTD_6_00066	11/20/18	08/20/18	DI H20, Lot NONE	1000 mL	TOC CALSTK_00023	50 mL	TOC Result 1	50 mg/L
							TOC Result 2	50 mg/L
							TOC Result 3	50 mg/L
							TOC Result 4	50 mg/L
							Total Organic Carbon	50 mg/L
.TOC CALSTK_00023	02/11/19	CPI Intenrational, Lot 142628-4			(Purchased Reagent)		TOC Result 1	1000 mg/L
							TOC Result 2	1000 mg/L
							TOC Result 3	1000 mg/L
							TOC Result 4	1000 mg/L
							Total Organic Carbon	1000 mg/L
TOC_LCS_00049	10/18/18	07/18/18	DI H20, Lot NONE	500 mL	TOC LCS STOCK_00020	10 mL	TOC Result 1	20 mg/L
							TOC Result 2	20 mg/L
							TOC Result 3	20 mg/L
							TOC Result 4	20 mg/L
							Total Organic Carbon	20 mg/L
.TOC LCS STOCK_00020	06/30/21	NSILAB Solutions, Lot 062017			(Purchased Reagent)		TOC Result 1	1000 mg/L
							TOC Result 2	1000 mg/L
							TOC Result 3	1000 mg/L
							TOC Result 4	1000 mg/L
							Total Organic Carbon	1000 mg/L

Method RSK-175

Dissolved Gases (GC) by Method RSK_175

FORM II
GC VOA SURROGATE RECOVERY

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Matrix: Water Level: Low

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

Client Sample ID	Lab Sample ID	TFE1 #
93036.01	190-17192-1	133
	MB 240-342521/4	121
	LCS 240-342521/5	124
	LCSD 240-342521/6	124

	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.: 190-17192-1

SDG No.:

Matrix: Water Level: Low Lab File ID: Z0082605.D

Lab ID: LCS 240-342521/5 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC	QC LIMITS REC	#
Methane	285	297	104	80-120	

Column to be used to flag recovery and RPD values

FORM III RSK-175

FORM III
GC VOA LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Matrix: Water Level: Low Lab File ID: Z0082606.D

Lab ID: LCSD 240-342521/6 Client ID:

COMPOUND	SPIKE ADDED (ug/L)	LCSD CONCENTRATION (ug/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Methane	285	302	106	2	35	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.: 190-17192-1

SDG No.:

Lab Sample ID: MB 240-342521/4

Matrix: Water Date Extracted:

Lab File ID:(1) Z0082604.D Lab File ID:(2)

Date Analyzed:(1) 08/26/2018 11:21 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 240-342521/5	08/26/2018 11:38	
	LCSD 240-342521/6	08/26/2018 11:55	
93036.01	190-17192-1	08/26/2018 12:30	

FORM IV RSK-175

FORM VIII
GC VOA ANALYTICAL SEQUENCE

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Sample No.: CCVRT 240-342521/3 Date Analyzed: 08/26/2018 11:03

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

Lab File ID (Standard): Z0082603.D Heated Purge: (Y/N) N

Calibration ID: 45555

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

				TFE		
				RT #		
CONTINUING CALIBRATION SURROGATE				3.35		
UPPER LIMIT				3.40		
LOWER LIMIT				3.30		
LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	LAB FILE ID			
CCVRT 240-342521/3		08/26/2018 11:03	Z0082603.D	3.35		
MB 240-342521/4		08/26/2018 11:21	Z0082604.D	3.35		
LCS 240-342521/5		08/26/2018 11:38	Z0082605.D	3.35		
LCSD 240-342521/6		08/26/2018 11:55	Z0082606.D	3.35		
190-17192-1	93036.01	08/26/2018 12:30	Z0082608.D	3.35		
CCV 240-342521/19		08/26/2018 15:42	Z0082619.D	3.35		

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.: 190-17192-1

SDG No.:

Client Sample ID: 93036.01 | Lab Sample ID: 190-17192-1

Matrix: Water | Lab File ID: Z0082608.D

Analysis Method: RSK-175 | Date Collected: 08/14/2018 10:10

Sample wt/vol: 23(mL) | Date Analyzed: 08/26/2018 12:30

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.: 342521 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	1300		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	133		60-140

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

Lab Name: TestAmerica Canton Job No.: 190-17192-1 Analy Batch No.: 332070

SDG No.:

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

Calibration Start Date: 06/18/2018 08:53 Calibration End Date: 06/18/2018 10:20 Calibration ID: 45555

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-332070/3	Z0061803.D
Level 2	STD 240-332070/4	Z0061804.D
Level 3	STD 240-332070/5	Z0061805.D
Level 4	STD 240-332070/6	Z0061806.D
Level 5	STD 240-332070/7	Z0061807.D
Level 6	STD 240-332070/8	Z0061808.D

ANALYTE	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6					RT WINDOW	AVG RT
Methane	1.185	1.186	1.186	1.184	1.185	1.185					1.135 - 1.235	1.185
Ethylene	1.885	1.885	1.884	1.884	1.883	1.880					1.830 - 1.930	1.884
Acetylene	2.000	2.000	1.999	1.998	1.998	1.995					1.945 - 2.045	1.998
Ethane	2.207	2.206	2.206	2.206	2.205	2.198					1.998 - 2.398	2.205
Propane	4.555	4.556	4.556	4.554	4.551	4.532					4.482 - 4.582	4.551
1,1,1-Trifluoroethane	3.354	3.355	3.352	3.351	3.348						3.252 - 3.452	3.352

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

Lab Name: TestAmerica Canton Job No.: 190-17192-1 Analy Batch No.: 332070

SDG No.:

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

Calibration Start Date: 06/18/2018 08:53 Calibration End Date: 06/18/2018 10:20 Calibration ID: 45555

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-332070/3	Z0061803.D
Level 2	STD 240-332070/4	Z0061804.D
Level 3	STD 240-332070/5	Z0061805.D
Level 4	STD 240-332070/6	Z0061806.D
Level 5	STD 240-332070/7	Z0061807.D
Level 6	STD 240-332070/8	Z0061808.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	7282.2 5561.5	6249.9 5513.0	5889.1	5770.1	Ave		6044.29415				10.9		20.0			
Ethylene	6624.5 5964.4	5960.5 5857.9	5827.0	5726.3	Ave		5993.41403				5.4		20.0			
Acetylene	2494.2 3606.7	2427.9 3574.8	2790.8	3206.7	Ave		3016.84656				17.3		30.0			
Ethane	7041.7 6329.9	6168.8 6267.0	6020.7	5967.3	Ave		6299.22755				6.2		20.0			
Propane	6701.5 6683.3	6072.4 6713.1	6073.3	6012.9	Ave		6376.09197				5.6		20.0			
1,1,1-Trifluoroethane	2336.7 1945.7	2237.2	2110.2	2217.2	Ave		2169.39000				6.9		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.: 190-17192-1 Analy Batch No.: 332070

SDG No.:

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

Calibration Start Date: 06/18/2018 08:53 Calibration End Date: 06/18/2018 10:20 Calibration ID: 45555

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	STD 240-332070/3	Z0061803.D
Level 2	STD 240-332070/4	Z0061804.D
Level 3	STD 240-332070/5	Z0061805.D
Level 4	STD 240-332070/6	Z0061806.D
Level 5	STD 240-332070/7	Z0061807.D
Level 6	STD 240-332070/8	Z0061808.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	2077 23578965	12478	58789	576004	2378625	0.285 4277	2.00	9.98	99.8	428
Ethylene	Ave	3318 44002878	20898	102149	1003846	4480284	0.501 7512	3.51	17.5	175	751
Acetylene	Ave	1156 24845661	7877	45272	520180	2506714	0.463 6950	3.24	16.2	162	695
Ethane	Ave	3778 50427702	23168	113058	1120550	5093368	0.537 8047	3.76	18.8	188	805
Propane	Ave	5268 79143040	33414	167095	1654322	7879231	0.786 11789	5.50	27.5	275	1179
1,1,1-Trifluoroethane	Ave	699612	1172180	5528422	11617250	21845316	299	524	2620	5240	11228

Curve Type Legend:
Ave = Average

Calibration / Methane

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

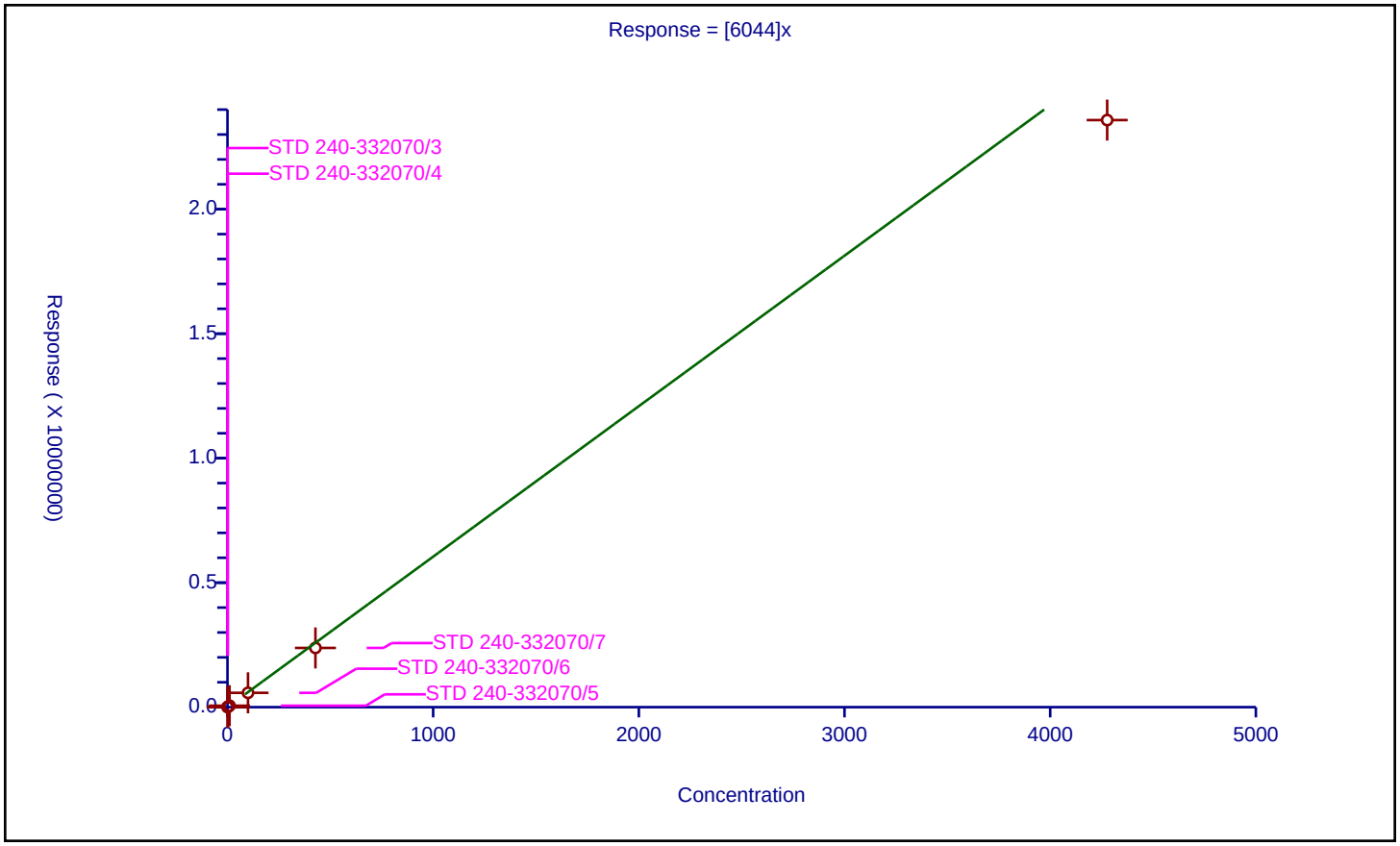
Curve Coefficients

Intercept:	0
Slope:	6044

Error Coefficients

Standard Error:	1020000
Relative Standard Error:	10.9
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	0.986

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	0.285217	2077.0			7282.164634	Y
2	STD 240-332070/4	1.996522	12478.0			6249.869338	Y
3	STD 240-332070/5	9.982609	58789.0			5889.141986	Y
4	STD 240-332070/6	99.826087	576004.0			5770.074913	Y
5	STD 240-332070/7	427.695652	2378625.0			5561.489783	Y
6	STD 240-332070/8	4276.956522	23578965.0			5513.024245	Y



Calibration / Ethylene

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

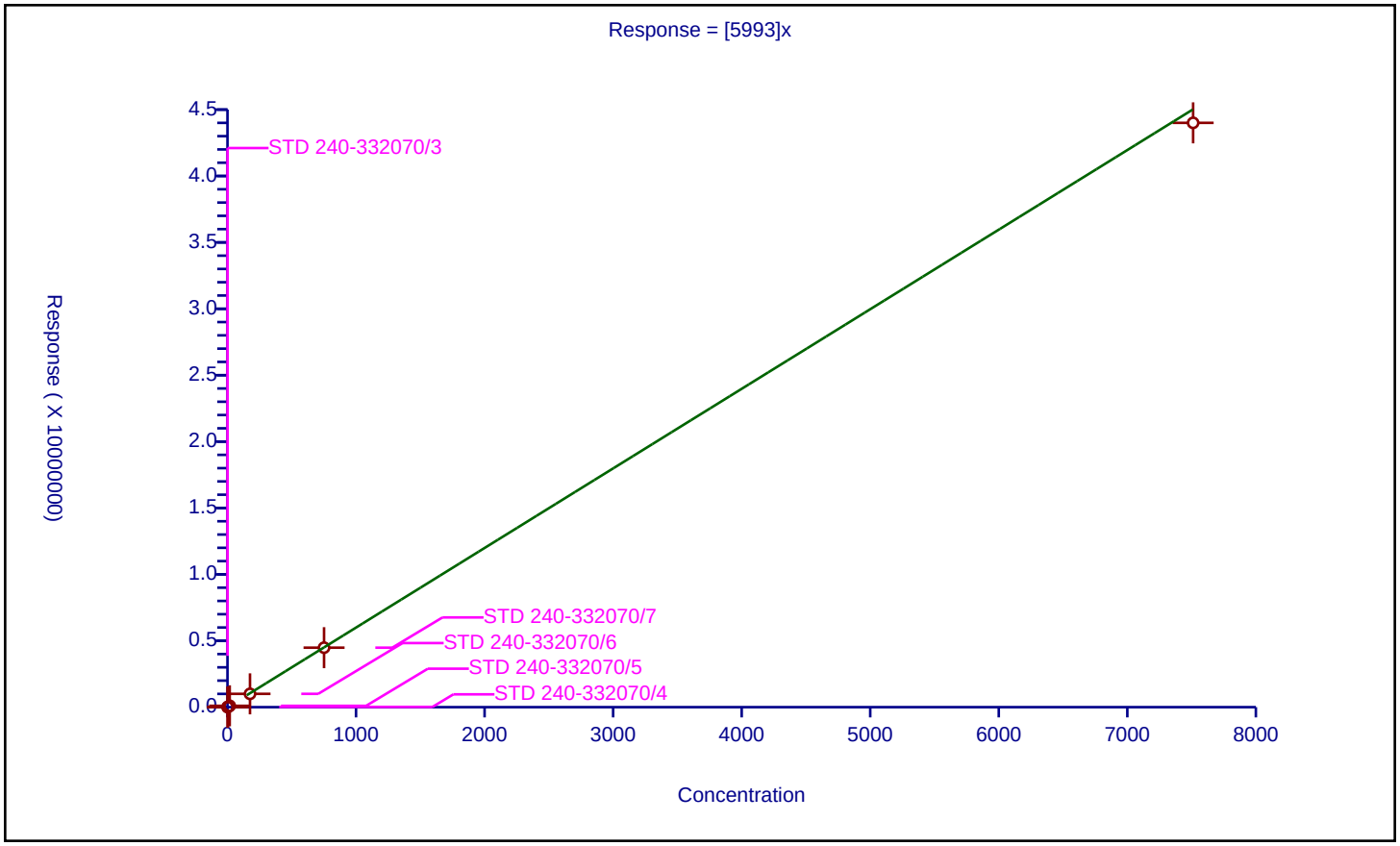
Curve Coefficients

Intercept:	0
Slope:	5993

Error Coefficients

Standard Error:	456000
Relative Standard Error:	5.4
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	0.997

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	0.50087	3318.0			6624.479167	Y
2	STD 240-332070/4	3.506087	20898.0			5960.491071	Y
3	STD 240-332070/5	17.530435	102149.0			5826.951885	Y
4	STD 240-332070/6	175.304348	1003846.0			5726.304067	Y
5	STD 240-332070/7	751.173913	4480284.0			5964.376454	Y
6	STD 240-332070/8	7511.73913	44002878.0			5857.881542	Y



Calibration / Acetylene

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

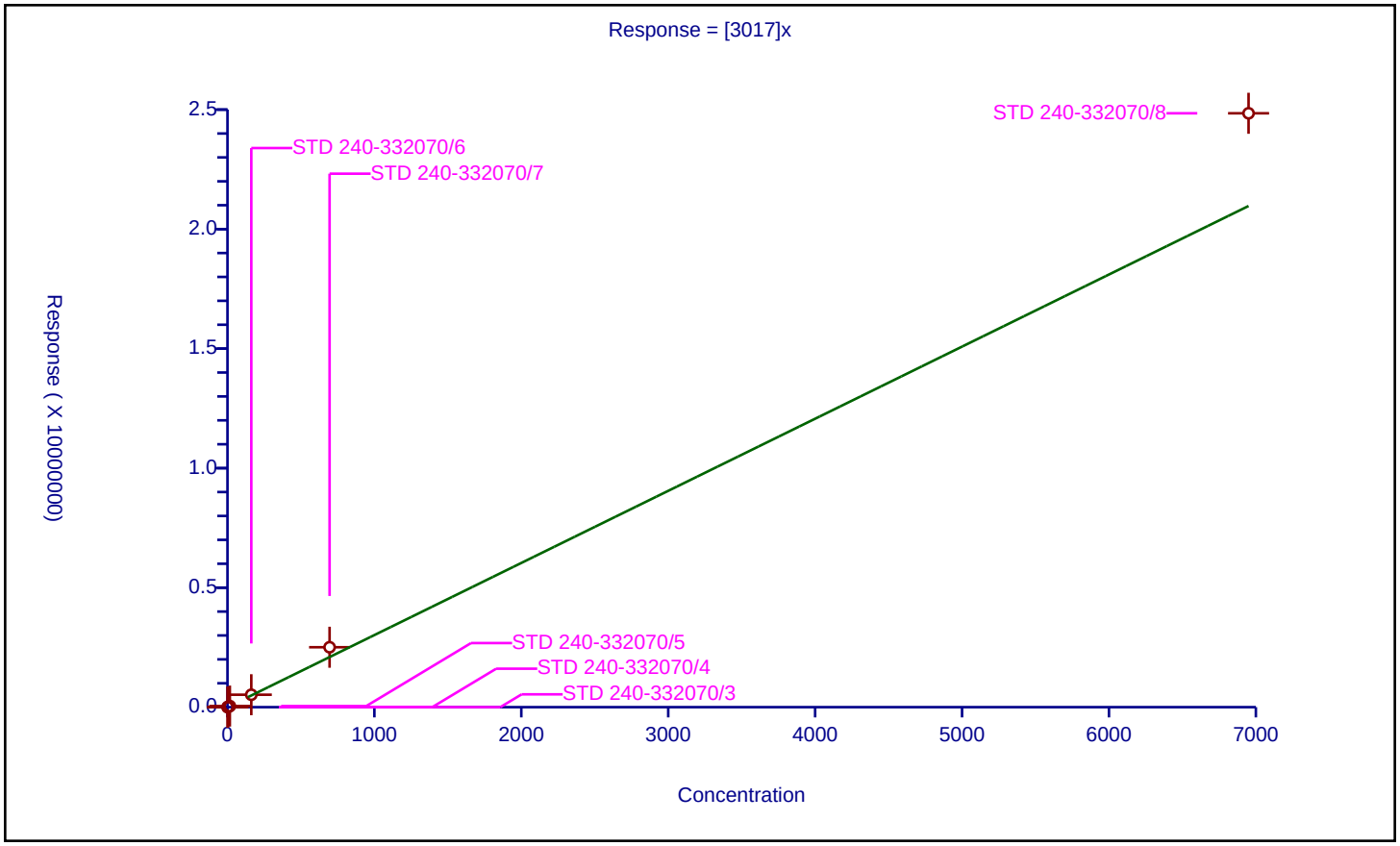
Curve Coefficients

Intercept:	0
Slope:	3017

Error Coefficients

Standard Error:	1740000
Relative Standard Error:	17.3
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	0.971

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	0.463478	1156.0			2494.183865	Y
2	STD 240-332070/4	3.244348	7877.0			2427.914768	Y
3	STD 240-332070/5	16.221739	45272.0			2790.822836	Y
4	STD 240-332070/6	162.217391	520180.0			3206.684535	Y
5	STD 240-332070/7	695.021739	2506714.0			3606.66992	Y
6	STD 240-332070/8	6950.217391	24845661.0			3574.803434	Y



Calibration / Ethane

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

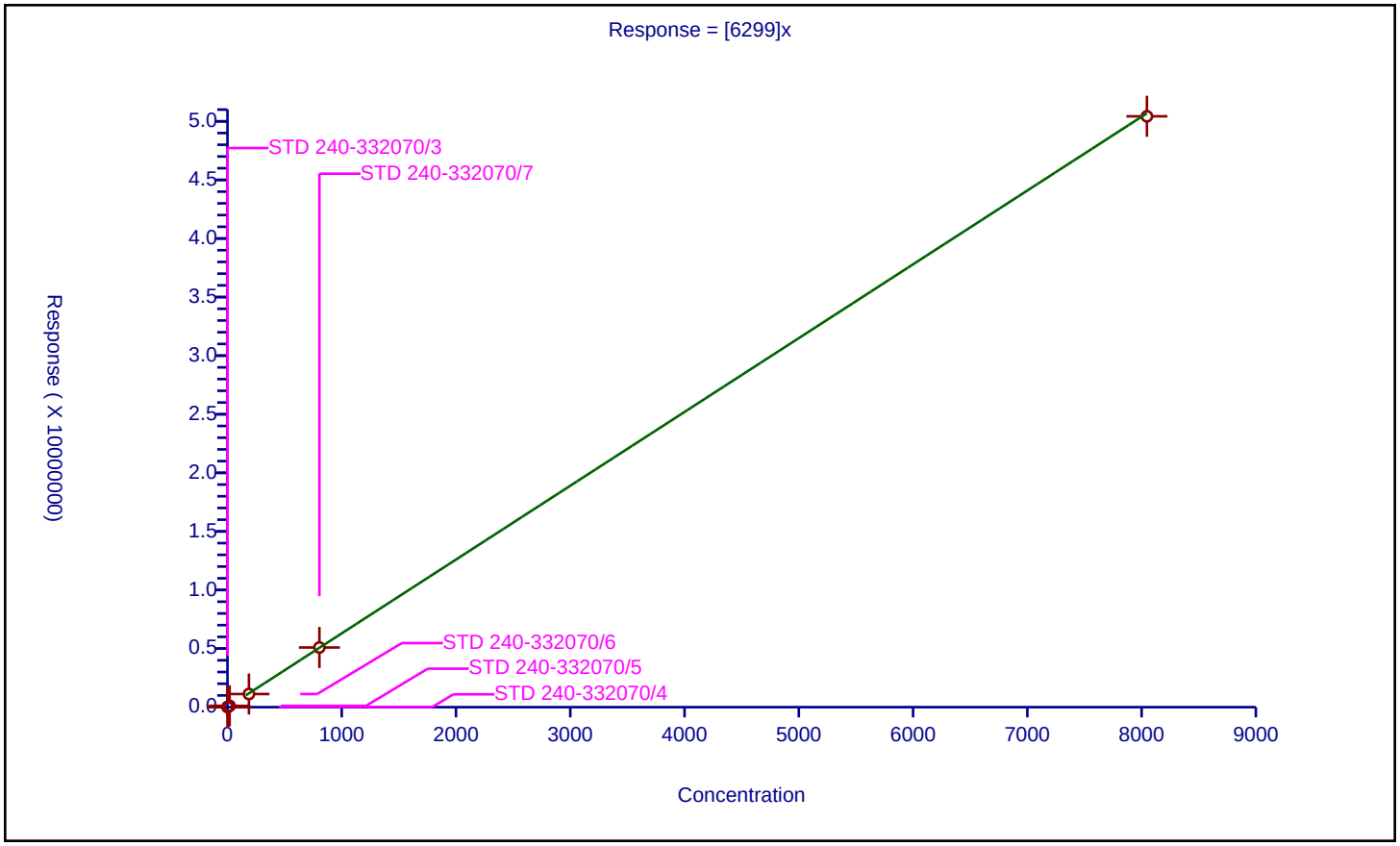
Curve Coefficients

Intercept:	0
Slope:	6299

Error Coefficients

Standard Error:	120000
Relative Standard Error:	6.2
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	0.996

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	0.536522	3778.0			7041.653161	Y
2	STD 240-332070/4	3.755652	23168.0			6168.835379	Y
3	STD 240-332070/5	18.778261	113058.0			6020.685344	Y
4	STD 240-332070/6	187.782609	1120550.0			5967.272517	Y
5	STD 240-332070/7	804.652174	5093368.0			6329.900254	Y
6	STD 240-332070/8	8046.521739	50427702.0			6267.018674	Y



Calibration / 1,1,1-Trifluoroethane

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

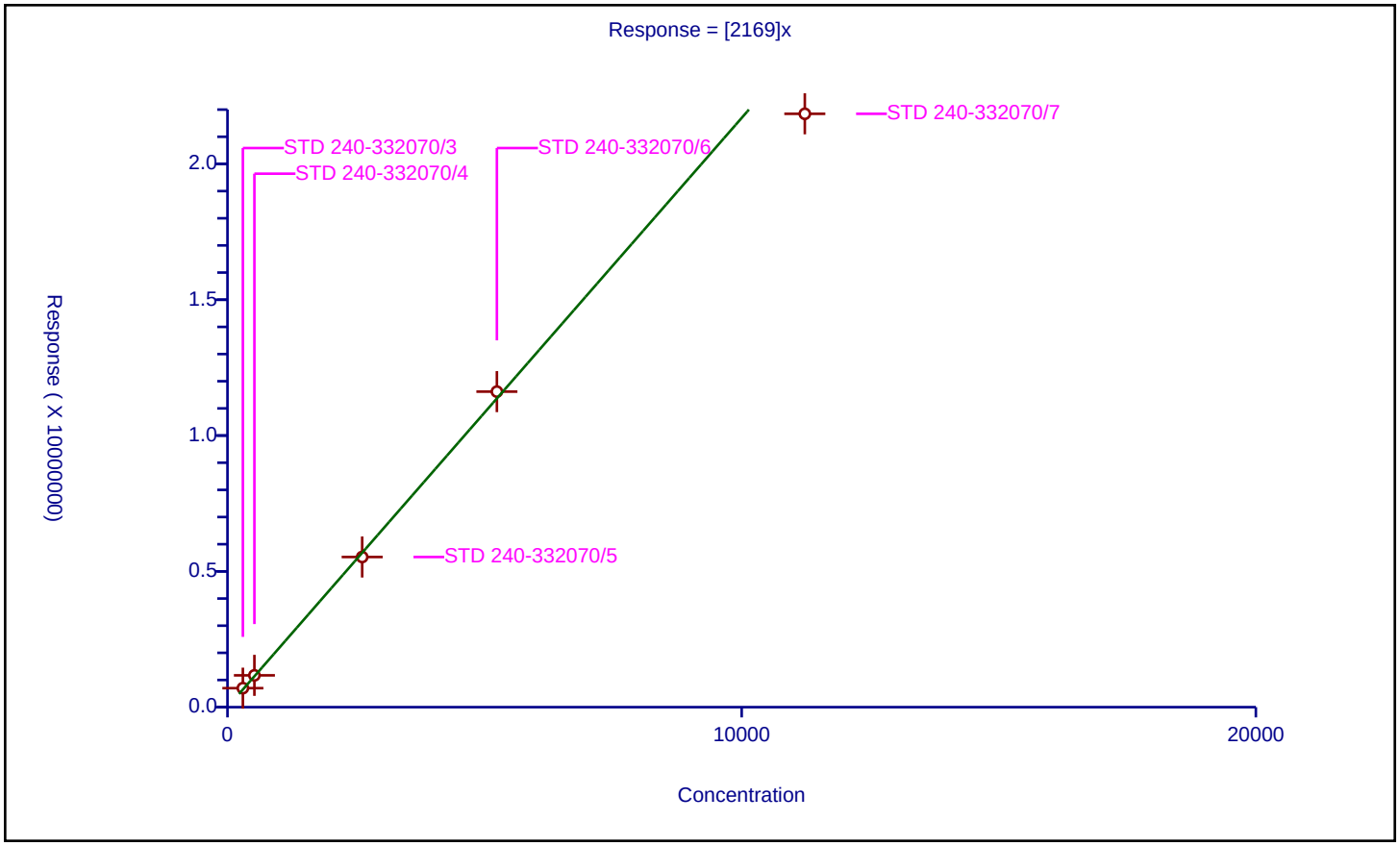
Curve Coefficients

Intercept:	0
Slope:	2169

Error Coefficients

Standard Error:	1260000
Relative Standard Error:	6.9
Correlation Coefficient:	0.996
Coefficient of Determination (Adjusted):	0.992

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	299.405217	699612.0			2336.672708	Y
2	STD 240-332070/4	523.95913	1172180.0			2237.159221	Y
3	STD 240-332070/5	2619.795652	5528422.0			2110.249322	Y
4	STD 240-332070/6	5239.591304	11617250.0			2217.205374	Y
5	STD 240-332070/7	11227.695652	21845316.0			1945.663356	Y



Calibration / Propane

Curve Type:	Average
Weighting:	Conc_Sq
Origin:	Force
Dependency:	Response
Calib Mode:	ESTD
Response Base:	
RF Rounding:	0

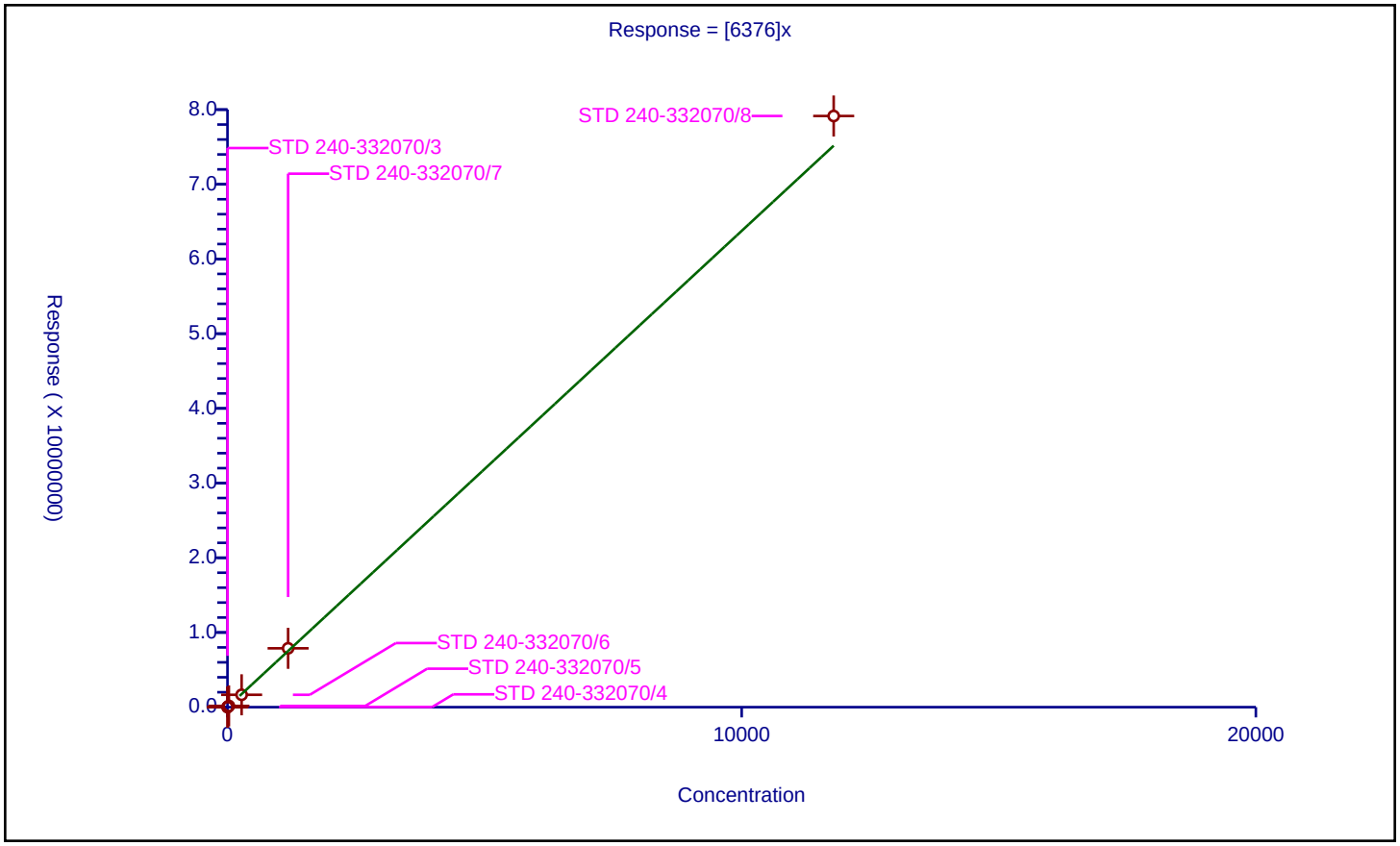
Curve Coefficients

Intercept:	0
Slope:	6376

Error Coefficients

Standard Error:	1780000
Relative Standard Error:	5.6
Correlation Coefficient:	1.000
Coefficient of Determination (Adjusted):	0.997

ID	Level	Concentration	Response	IS Amount	IS Response	RF	Used
1	STD 240-332070/3	0.786087	5268.0			6701.548673	Y
2	STD 240-332070/4	5.502609	33414.0			6072.392541	Y
3	STD 240-332070/5	27.513043	167095.0			6073.301201	Y
4	STD 240-332070/6	275.130435	1654322.0			6012.864412	Y
5	STD 240-332070/7	1178.934783	7879231.0			6683.347642	Y
6	STD 240-332070/8	11789.347826	79143040.0			6713.09738	Y



FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Lab Sample ID: ICV 240-332070/9 Calibration Date: 06/18/2018 10:38

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0061809.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	6044	5299		250	285	-12.3	20.0
Ethylene	Ave	5993	5712		477	501	-4.7	20.0
Acetylene	Ave	3017	3272		503	463	8.5	30.0
Ethane	Ave	6299	6090		519	536	-3.3	20.0
Propane	Ave	6376	6557		806	784	2.8	20.0
1,1,1-Trifluoroethane	Ave	2169	2622		11200	9240	20.9	30.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Lab Sample ID: ICV 240-332070/9 Calibration Date: 06/18/2018 10:38

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0061809.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.18	1.14	1.24
Ethylene	1.88	1.83	1.93
Acetylene	2.00	1.95	2.05
Ethane	2.21	2.00	2.40
Propane	4.55	4.48	4.58
1,1,1-Trifluoroethane	3.35	3.25	3.45

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Lab Sample ID: CCVH 240-341960/4 Calibration Date: 08/22/2018 11:34

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0082204.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	6044	5956		4210	4280	-1.5	20.0
Ethylene	Ave	5993	5505		6900	7510	-8.1	20.0
Acetylene	Ave	3017	3631		8370	6950	20.4	30.0
Ethane	Ave	6299	5694		7270	8050	-9.6	20.0
Propane	Ave	6376	5858		10800	11800	-8.1	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Lab Sample ID: CCVH 240-341960/4 Calibration Date: 08/22/2018 11:34

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0082204.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.19	1.14	1.24
Ethylene	1.88	1.84	1.94
Acetylene	2.00	1.95	2.05
Ethane	2.20	2.01	2.41
Propane	4.54	4.51	4.61

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Lab Sample ID: CCVL 240-341960/7 Calibration Date: 08/22/2018 12:26

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0082207.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	6044	7333		0.692	0.570	21.3	40.0
Ethylene	Ave	5993	6586		1.10	1.00	9.9	40.0
Acetylene	Ave	3017	2641		0.811	0.927	-12.5	40.0
Ethane	Ave	6299	6784		1.16	1.07	7.7	40.0
Propane	Ave	6376	6423		1.58	1.57	0.7	40.0
1,1,1-Trifluoroethane	Ave	2169	1408		194	299	-35.1	40.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Lab Sample ID: CCVL 240-341960/7 Calibration Date: 08/22/2018 12:26

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0082207.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.19	1.14	1.24
Ethylene	1.89	1.84	1.94
Acetylene	2.00	1.95	2.05
Ethane	2.21	2.01	2.41
Propane	4.56	4.51	4.61
1,1,1-Trifluoroethane	3.36	3.25	3.45

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Lab Sample ID: CCVRT 240-342521/3 Calibration Date: 08/26/2018 11:03

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0082603.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	6044	6496		306	285	7.5	20.0
Ethylene	Ave	5993	6064		507	501	1.2	20.0
Acetylene	Ave	3017	3760		577	463	24.6	30.0
Ethane	Ave	6299	6271		534	536	-0.5	20.0
Propane	Ave	6376	6450		795	786	1.2	20.0
1,1,1-Trifluoroethane	Ave	2169	2632		11200	9240	21.3*	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Lab Sample ID: CCVRT 240-342521/3 Calibration Date: 08/26/2018 11:03

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0082603.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.19	1.14	1.24
Ethylene	1.89	1.84	1.94
Acetylene	2.00	1.95	2.05
Ethane	2.21	2.01	2.41
Propane	4.55	4.50	4.60
1,1,1-Trifluoroethane	3.35	3.25	3.45

FORM VII
GC VOA CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Lab Sample ID: CCV 240-342521/19 Calibration Date: 08/26/2018 15:42

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0082619.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	6044	6760		319	285	11.8	20.0
Ethylene	Ave	5993	6291		526	501	5.0	20.0
Acetylene	Ave	3017	3958		608	463	31.2*	30.0
Ethane	Ave	6299	6499		553	536	3.2	20.0
Propane	Ave	6376	6638		818	786	4.1	20.0
1,1,1-Trifluoroethane	Ave	2169	2656		11300	9240	22.4*	20.0

FORM VII
GC VOA CONTINUING CALIBRATION RETENTION TIME SUMMARY

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Lab Sample ID: CCV 240-342521/19 Calibration Date: 08/26/2018 15:42

Instrument ID: ZPID Calib Start Date: 06/18/2018 08:53

GC Column: HP-PLOT/Q ID: 0.53(mm) Calib End Date: 06/18/2018 10:20

Lab File ID: Z0082619.D Heated Purge: (Y/N) N

Analyte	RT	RT WINDOW	
		FROM	TO
Methane	1.19	1.14	1.24
Ethylene	1.89	1.84	1.94
Acetylene	2.00	1.95	2.05
Ethane	2.21	2.01	2.41
Propane	4.55	4.50	4.60
1,1,1-Trifluoroethane	3.35	3.25	3.45

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-17192-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 240-342521/4

Matrix: Water | Lab File ID: Z0082604.D

Analysis Method: RSK-175 | Date Collected:

Sample wt/vol: 23(mL) | Date Analyzed: 08/26/2018 11:21

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.: 342521 | Units: ug/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	121		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-17192-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCS 240-342521/5

Matrix: Water | Lab File ID: Z0082605.D

Analysis Method: RSK-175 | Date Collected:

Sample wt/vol: 23(mL) | Date Analyzed: 08/26/2018 11:38

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.: 342521 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	297		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	124		60-140

FORM I
GC VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Canton | Job No.: 190-17192-1

SDG No.:

Client Sample ID: | Lab Sample ID: LCSD 240-342521/6

Matrix: Water | Lab File ID: Z0082606.D

Analysis Method: RSK-175 | Date Collected:

Sample wt/vol: 23(mL) | Date Analyzed: 08/26/2018 11:55

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.: 342521 | Units: ug/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL
74-82-8	Methane	302		1.0

CAS NO.	SURROGATE	%REC	Q	LIMITS
420-46-2	1,1,1-Trifluoroethane	124		60-140

GC VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Instrument ID: ZPID Start Date: 06/18/2018 08:53

Analysis Batch Number: 332070 End Date: 06/18/2018 10:38

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
STD 240-332070/3 IC		06/18/2018 08:53	1	Z0061803.D	HP-PLOT/Q 0.53(mm)
STD 240-332070/4 IC		06/18/2018 09:10	1	Z0061804.D	HP-PLOT/Q 0.53(mm)
STD 240-332070/5 IC		06/18/2018 09:28	1	Z0061805.D	HP-PLOT/Q 0.53(mm)
STD 240-332070/6 IC		06/18/2018 09:45	1	Z0061806.D	HP-PLOT/Q 0.53(mm)
STD 240-332070/7 IC		06/18/2018 10:02	1	Z0061807.D	HP-PLOT/Q 0.53(mm)
STD 240-332070/8 IC		06/18/2018 10:20	1	Z0061808.D	HP-PLOT/Q 0.53(mm)
ICV 240-332070/9		06/18/2018 10:38	1	Z0061809.D	HP-PLOT/Q 0.53(mm)

RSK-175

GC VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Instrument ID: ZPID Start Date: 08/22/2018 11:34

Analysis Batch Number: 341960 End Date: 08/22/2018 12:26

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVH 240-341960/4		08/22/2018 11:34	1	Z0082204.D	HP-PLOT/Q 0.53(mm)
CCVL 240-341960/7		08/22/2018 12:26	1	Z0082207.D	HP-PLOT/Q 0.53(mm)

RSK-175

GC VOA ANALYSIS RUN LOG

Lab Name: TestAmerica Canton Job No.: 190-17192-1

SDG No.:

Instrument ID: ZPID Start Date: 08/26/2018 11:03

Analysis Batch Number: 342521 End Date: 08/26/2018 15:42

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVRT 240-342521/3		08/26/2018 11:03	1	Z0082603.D	HP-PLOT/Q 0.53(mm)
MB 240-342521/4		08/26/2018 11:21	1	Z0082604.D	HP-PLOT/Q 0.53(mm)
LCS 240-342521/5		08/26/2018 11:38	1	Z0082605.D	HP-PLOT/Q 0.53(mm)
LCSD 240-342521/6		08/26/2018 11:55	1	Z0082606.D	HP-PLOT/Q 0.53(mm)
ZZZZZ		08/26/2018 12:13	1		HP-PLOT/Q 0.53(mm)
190-17192-1		08/26/2018 12:30	1	Z0082608.D	HP-PLOT/Q 0.53(mm)
ZZZZZ		08/26/2018 12:47	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/26/2018 13:05	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/26/2018 13:22	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/26/2018 13:40	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/26/2018 13:57	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/26/2018 14:15	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/26/2018 14:32	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/26/2018 14:50	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/26/2018 15:07	1		HP-PLOT/Q 0.53(mm)
ZZZZZ		08/26/2018 15:25	1		HP-PLOT/Q 0.53(mm)
CCV 240-342521/19		08/26/2018 15:42	1	Z0082619.D	HP-PLOT/Q 0.53(mm)

RSK-175

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job Number: 190-17192-1

SDG No.:

Project: S93036 - TOC/Methane

Client Sample ID	Lab Sample ID
93036.01	190-17192-1

Comments:

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: 93036.01
Lab Sample ID: 190-17192-1
Lab Name: TestAmerica Savannah
Job No.: 190-17192-1
SDG ID.:
Matrix: Water
Date Sampled: 08/14/2018 10:10
Reporting Basis: WET
Date Received: 08/16/2018 11:15

CAS No.	Analyte	Result	RL	Units	C	Q	DIL	Method
7440-44-0	Total Organic Carbon	36	1.0	mg/L			1	5310 B-2011

2-IN
CALIBRATION QUALITY CONTROL
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17192-1

SDG No.:

Analyst: KLD Batch Start Date: 08/22/2018

Reporting Units: mg/L Analytical Batch No.: 536544

Sample Number	QC Type	Time	Analyte	Result	Spike Amount	(%) Recovery	Limits	Qual	Reagent
1	CCV	05:11	Total Organic Carbon	50.8	50.0	102	90-110		TOC_CALSTD_6_00066
15	CCV	09:31	Total Organic Carbon	50.6	50.0	101	90-110		TOC_CALSTD_6_00066
16	CCB	09:49	Total Organic Carbon	<1.0					

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM II-IN

3-IN
METHOD BLANK
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17192-1

SDG No.:

Method	Lab Sample ID	Analyte	Result	Qual	Units	RL	Dil
Batch ID: 536544 Date: 08/22/2018 05:31							
5310 B-2011	MB 680-536544/2	Total Organic Carbon	<1.0		mg/L	1.0	1
5310 B-2011	MB 680-536544/2	TOC Result 1	<1.0		mg/L	1.0	1
5310 B-2011	MB 680-536544/2	TOC Result 2	<1.0		mg/L	1.0	1
5310 B-2011	MB 680-536544/2	TOC Result 3	<1.0		mg/L	1.0	1
5310 B-2011	MB 680-536544/2	TOC Result 4	<1.0		mg/L	1.0	1

FORM III-IN

7A-IN
LAB CONTROL SAMPLE
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17192-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 536544	Date: 08/22/2018 05:47										
						LCS Source: TOC_LCS_00049					
5310 B-2011	LCS 680-536544/3	Total Organic Carbon	19.6		mg/L	20.0	98	80-120	4	25	
5310 B-2011	LCS 680-536544/3	TOC Result 1	19.4		mg/L	20.0	97	80-120	5	25	
5310 B-2011	LCS 680-536544/3	TOC Result 2	19.4		mg/L	20.0	97	80-120	4	25	
5310 B-2011	LCS 680-536544/3	TOC Result 3	20.0		mg/L	20.0	100	80-120	4	25	
5310 B-2011	LCS 680-536544/3	TOC Result 4	20.1		mg/L	20.0	100	80-120	1	25	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA-IN

7A-IN
LAB CONTROL SAMPLE DUPLICATE
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17192-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 536544	Date: 08/22/2018 06:08										
						LCSD Source: TOC_LCS_00049					
5310 B-2011	LCSD 680-536544/4	Total Organic Carbon	20.4		mg/L	20.0	102	80-120	4	25	
5310 B-2011	LCSD 680-536544/4	TOC Result 1	20.3		mg/L	20.0	102	80-120	5	25	
5310 B-2011	LCSD 680-536544/4	TOC Result 2	20.2		mg/L	20.0	101	80-120	4	25	
5310 B-2011	LCSD 680-536544/4	TOC Result 3	20.8		mg/L	20.0	104	80-120	4	25	
5310 B-2011	LCSD 680-536544/4	TOC Result 4	20.4		mg/L	20.0	102	80-120	1	25	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA-IN

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job Number: 190-17192-1

SDG Number:

Matrix: Water Instrument ID: TOC7

Method: 5310 B-2011 RL Date: 08/09/2016 12:16

Analyte	Wavelength/ Mass	RL (mg/L)	
Total Organic Carbon		1	

FORM IX - IN

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job Number: 190-17192-1

SDG Number:

Matrix: Water Instrument ID: TOC7

Method: 5310 B-2011 XMDL Date: 08/09/2016 12:16

Analyte	Wavelength/ Mass	XRL (mg/L)	XMDL (mg/L)
Total Organic Carbon		1	0.5

FORM IX - IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: TestAmerica Savannah Job No.: 190-17192-1

SDG No.:

Instrument ID: TOC7 Analysis Method: 5310 B-2011

Start Date: 08/22/2018 05:11 End Date: 08/22/2018 09:49

Lab Sample Id	D/F	Type	Time	Analytes																								
				TOC	TOC1	TOC2	TOC3	TOC4																				
CCV 680-536544/1	1		05:11	X	X	X	X	X																				
MB 680-536544/2	1	T	05:31	X																								
LCS 680-536544/3	1	T	05:47	X	X	X	X	X																				
LCSD 680-536544/4	1	T	06:08	X	X	X	X	X																				
ZZZZZZ			06:27																									
ZZZZZZ			06:45																									
ZZZZZZ			07:03																									
ZZZZZZ			07:23																									
ZZZZZZ			07:41																									
ZZZZZZ			08:01																									
ZZZZZZ			08:18																									
ZZZZZZ			08:34																									
ZZZZZZ			08:51																									
190-17192-1	1	T	09:11	X																								
CCV 680-536544/15	1		09:31	X	X	X	X	X																				
CCB 680-536544/16	1		09:49	X																								

Prep Types:
T = Total/NA

FORM XIII-IN

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: TestAmerica Savannah Job No.: 190-17192-1

SDG No.:

Batch Number: 536544 Batch Start Date: 08/22/18 05:11 Batch Analyst: Dudley, Kellie L

Batch Method: 5310 B-2011 Batch End Date: 08/22/18 09:49

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	TOC_CALSTD_6 00066	TOC_LCS 00049		
CCV 680-536544/1		5310 B-2011		40 mL	40 mL	40 mL			
MB 680-536544/2		5310 B-2011		40 mL	40 mL				
LCS 680-536544/3		5310 B-2011		40 mL	40 mL		40 mL		
LCSD 680-536544/4		5310 B-2011		40 mL	40 mL		40 mL		
190-17192-B-1	93036.01	5310 B-2011	T	40 mL	40 mL				
CCV 680-536544/15		5310 B-2011		40 mL	40 mL	40 mL			
CCB 680-536544/16		5310 B-2011		40 mL	40 mL				

Batch Notes	
Acid ID	50% H2SO4_00013
Pipette/Syringe/Dispenser ID	IC 15

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

C.O.C. PAGE # 1 OF 1

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: S93036 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

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	TOC Method SM5310C	Methane	Special Instructions
	8/14/18	1010	93036.01	L	5	3			2				✓	✓	
															** Subcontracted to TestAmerica

190-17192 Chain of Custody

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☐ Sampler	DATE 8-16-18	TIME 8:50
RECEIVED BY: SIGNATURE/ORGANIZATION	Merit	DATE 8-16-18	TIME 8:50
RELINQUISHED BY: SIGNATURE/ORGANIZATION	Merit	DATE 8-16-18	TIME 11:15
RECEIVED BY: SIGNATURE/ORGANIZATION	TA	DATE 8/16/18	TIME 11:15

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

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

Rev. 5.18.12

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Cooler/Sample Receipt

(AFTER HOURS receipt- complete gray areas
Place cooler in walk-in, place this form in Receiving in-box. Date/Time rec'd _____ Initials _____

❑ MSDS or Known Hazard Information Supplied by Client
❑ Bottle stickers applied ❑ ELEMENT comment entered ❑ MSDS COC scanned/emailed to EH&S
❑ Discrepancies
❑ Short Hold
❑ Rush ❑24hr ❑2day ❑3day ❑5day ❑other _____

Client ID: Merit Labs
Work Order #: 190-17192

Receipt evaluation performed by - Initials: Amy Date: 8/16/18 Time: 11:20

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: Unknown

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: Unknown

Bacteriological Samples | Temp (°C) Corrected | Frozen yes no | Received within 2 hours yes no | Sample Flagged yes no

❑ Check if Additional Sheets Required

Receipt Temperatures

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
G.F. 140252483			❑	❑	❑Yes ❑No	❑Yes ❑No		
U.O 140252476	12.0	12.0	❑	☑	❑Yes ☑No	❑Yes ❑No		
			❑	❑	❑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

** 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: [signature] Date: 8/16/18

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

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: 190-20036.1
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 #: 190-17192-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 8/29/2018			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: S93036 - TOC/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:

RSK

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:						
93036.01 (190-17192-1)	8/14/18	10:10 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 complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *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
[signature]	8/16/18 / 1450	TAL	[signature]	8/17/18 900	TAL

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 MI Site Name_____ Cooler unpacked by:
Cooler Received on 8/17/18 Opened on 8/17/18
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other_____

Receipt After-hours: Drop-off Date/Time_____ Storage Location_____

TestAmerica Cooler # 1A 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 °C) Observed Cooler Temp. 3.4 °C Corrected Cooler Temp. 3.4 °C
   IR GUN #36 (CF -0.3°C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
   -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
   -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# **HC849161**
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):_____.

WI-NC-099

TestAmerica Michigan
10448 Citation Drive Suite 200
Brighton, MI 48116
Phone (810) 229-2763 Fax (810) 229-0000

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: 190-20037.1
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 #: 190-17192-1
Address: 5102 LaRoche Avenue, ,	Due Date Requested: 8/28/2018			
City: Savannah	TAT Requested (days):			
State, Zip: GA, 31404				
Phone: 912-354-7858(Tel) 912-352-0165(Fax)	PO #:			
Email:	WO #:			
Project Name: S93036 - TOC/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)	SM5310_TOC_B/ Organic Carbon, Total (TOC)	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
93036.01 (190-17192-1)	8/14/18	10:10 Eastern		Water			X	2	

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 complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *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: [signature]	Date/Time: 8/16/18 1615	Company	Received by: [signature]	Date/Time: 8-17-18 920	Company TASAV
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
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: 2.4/2.3		

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: Merit Laboratories

Job Number: 190-17192-1

Login Number: 17192
List Number: 3
Creator: Nobles, Terry G

List Source: TestAmerica Savannah
List Creation: 08/17/18 04:01 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Analytical Laboratory Report

Report ID: S93785.01(01)
Generated on 09/13/2018

Report to

Attention: Mike Smith
Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: ae_mds@yahoo.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): S93785.01-S93785.09
Project: 11-4317-102 Racer / Flint
Collected Date: 08/30/2018
Submitted Date/Time: 08/30/2018 16:20
Sampled by: Heather Dean
P.O. #: PO

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

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.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
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/8260B	SW 846 Method 8260B Revision 2 December 1996 / 5030C Revision 3 May 2003

Analytical Laboratory Report

Sample Summary (9 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S93785.01	MW-113	Liquid	08/30/18 09:30
S93785.02	MW-110	Liquid	08/30/18 10:30
S93785.03	MW-108	Liquid	08/30/18 11:10
S93785.04	MW-111	Liquid	08/30/18 12:10
S93785.05	MW-102	Liquid	08/30/18 13:10
S93785.06	MW-107	Liquid	08/30/18 14:00
S93785.07	FB (Field Blank)	Liquid	08/30/18 00:01
S93785.08	EB (Equip Blank)	Liquid	08/30/18 00:01
S93785.09	TB (Trip Blank)	Liquid	08/30/18 00:01

Analytical Laboratory Report

Lab Sample ID: S93785.01
Sample Tag: MW-113
Collected Date/Time: 08/30/2018 09:30
Matrix: Liquid
COC Reference: 102157

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	09/11/18 12:00	JML	
Metal Digestion	Completed	SW3015A	09/11/18 12:00	JRH	
Metal Digestion	Completed	SW3015A	09/11/18 12:00	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 08/30/18 18:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 08/30/18 17:55, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 12:15, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium	0.001	0.005	0.0000190	mg/L	5	7440-47-3	b
Copper	0.001	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium	0.003	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc	0.005	0.005	0.0000785	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 12:17, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium, Dissolved	0.001	0.005	0.0000190	mg/L	5	7440-47-3	b
Copper, Dissolved	0.001	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead, Dissolved	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium, Dissolved	Not detected	0.005	0.000286	mg/L	5	7782-49-2	
Zinc, Dissolved	0.005	0.005	0.0000785	mg/L	5	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 16:55, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	2.11	50	0.56	ug/L	1	67-64-1	JB
Methyl iodide*	Not detected	1	0.25	ug/L	1	74-88-4	

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

Lab Sample ID: S93785.01 (continued)
Sample Tag: MW-113

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 16:55, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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*	1	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	
tert-Butylbenzene*	Not detected	1	0.18	ug/L	1	98-06-6	

Lab Sample ID: S93785.01 (continued)
Sample Tag: MW-113

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 16:55, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: S93785.02
Sample Tag: MW-110
Collected Date/Time: 08/30/2018 10:30
Matrix: Liquid
COC Reference: 102157

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	09/11/18 12:00	JML	
Metal Digestion	Completed	SW3015A	09/11/18 12:00	JRH	
Metal Digestion	Completed	SW3015A	09/11/18 12:00	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 08/30/18 18:55, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 08/30/18 18:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 12:20, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.003	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium	0.001	0.005	0.0000190	mg/L	5	7440-47-3	b
Copper	Not detected	0.005	0.0000505	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium	0.003	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc	0.003	0.005	0.0000785	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 12:22, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.001	0.002	0.0000340	mg/L	5	7440-38-2	b
Chromium, Dissolved	0.001	0.005	0.0000190	mg/L	5	7440-47-3	b
Copper, Dissolved	0.007	0.005	0.0000505	mg/L	5	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium, Dissolved	Not detected	0.005	0.000286	mg/L	5	7782-49-2	
Zinc, Dissolved	0.005	0.005	0.0000785	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 17:14, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	Not detected	50	0.56	ug/L	1	67-64-1	
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	

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

Lab Sample ID: S93785.02 (continued)
Sample Tag: MW-110

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 17:14, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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	
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	

Lab Sample ID: S93785.02 (continued)

Sample Tag: MW-110

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 17:14, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: S93785.03
Sample Tag: MW-108
Collected Date/Time: 08/30/2018 11:10
Matrix: Liquid
COC Reference: 102157

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	09/11/18 12:00	JML	
Metal Digestion	Completed	SW3015A	09/11/18 12:00	JRH	
Metal Digestion	Completed	SW3015A	09/11/18 12:00	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 08/30/18 19:00, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 08/30/18 18:10, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 12:25, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium	Not detected	0.005	0.0000190	mg/L	5	7440-47-3	
Copper	0.001	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium	0.004	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc	0.004	0.005	0.0000785	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 12:27, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.0000190	mg/L	5	7440-47-3	
Copper, Dissolved	0.001	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead, Dissolved	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium, Dissolved	0.002	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc, Dissolved	0.003	0.005	0.0000785	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 17:33, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	Not detected	50	0.56	ug/L	1	67-64-1	
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	

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

Lab Sample ID: S93785.03 (continued)
Sample Tag: MW-108

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 17:33, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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*	4	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	
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	

Lab Sample ID: S93785.03 (continued)

Sample Tag: MW-108

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 17:33, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: S93785.04
Sample Tag: MW-111
Collected Date/Time: 08/30/2018 12:10
Matrix: Liquid
COC Reference: 102157

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	09/11/18 12:00	JML	
Metal Digestion	Completed	SW3015A	09/11/18 12:00	JRH	
Metal Digestion	Completed	SW3015A	09/11/18 12:00	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 08/30/18 19:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 08/30/18 18:25, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 12:32, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium	0.005	0.005	0.0000190	mg/L	5	7440-47-3	
Copper	0.001	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium	0.002	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc	0.002	0.005	0.0000785	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 12:34, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium, Dissolved	0.004	0.005	0.0000190	mg/L	5	7440-47-3	b
Copper, Dissolved	0.001	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead, Dissolved	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium, Dissolved	0.005	0.005	0.000286	mg/L	5	7782-49-2	
Zinc, Dissolved	0.006	0.005	0.0000785	mg/L	5	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 17:52, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	Not detected	50	0.56	ug/L	1	67-64-1	
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	

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

Lab Sample ID: S93785.04 (continued)
Sample Tag: MW-111

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 17:52, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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*	0.27	1	0.20	ug/L	1	75-34-3	J
cis-1,2-Dichloroethene*	5	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*	12	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	
tert-Butylbenzene*	Not detected	1	0.18	ug/L	1	98-06-6	

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

Lab Sample ID: S93785.04 (continued)
Sample Tag: MW-111

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 17:52, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: S93785.05
Sample Tag: MW-102
Collected Date/Time: 08/30/2018 13:10
Matrix: Liquid
COC Reference: 102157

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	09/11/18 12:00	JML	
Metal Digestion	Completed	SW3015A	09/11/18 12:00	JRH	
Metal Digestion	Completed	SW3015A	09/11/18 12:00	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 08/30/18 19:10, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 08/30/18 18:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 12:29, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium	0.006	0.005	0.0000190	mg/L	5	7440-47-3	
Copper	0.001	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium	0.004	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc	0.005	0.005	0.0000785	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 12:30, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium, Dissolved	0.001	0.005	0.0000190	mg/L	5	7440-47-3	b
Copper, Dissolved	0.001	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead, Dissolved	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium, Dissolved	0.002	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc, Dissolved	0.003	0.005	0.0000785	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 18:11, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	2.72	50	0.56	ug/L	1	67-64-1	JB
Methyl iodide*	Not detected	1	0.25	ug/L	1	74-88-4	

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

Lab Sample ID: S93785.05 (continued)
Sample Tag: MW-102

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 18:11, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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*	0.39	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	
1,3,5-Trimethylbenzene*	Not detected	1	0.26	ug/L	1	108-67-8	

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

Lab Sample ID: S93785.05 (continued)
Sample Tag: MW-102

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 18:11, 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	

Analytical Laboratory Report

Lab Sample ID: S93785.06
Sample Tag: MW-107
Collected Date/Time: 08/30/2018 14:00
Matrix: Liquid
COC Reference: 102157

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	09/11/18 12:00	JML	
Metal Digestion	Completed	SW3015A	09/11/18 12:00	JRH	
Metal Digestion	Completed	SW3015A	09/11/18 12:00	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 08/30/18 19:15, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 08/30/18 18:35, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 12:51, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium	Not detected	0.005	0.0000190	mg/L	5	7440-47-3	
Copper	0.001	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.000286	mg/L	5	7782-49-2	
Zinc	0.002	0.005	0.0000785	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 12:53, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.0000190	mg/L	5	7440-47-3	
Copper, Dissolved	0.002	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead, Dissolved	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium, Dissolved	Not detected	0.005	0.000286	mg/L	5	7782-49-2	
Zinc, Dissolved	0.004	0.005	0.0000785	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 18:30, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	0.61	50	0.56	ug/L	1	67-64-1	JB
Methyl iodide*	Not detected	1	0.25	ug/L	1	74-88-4	

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

Lab Sample ID: S93785.06 (continued)
Sample Tag: MW-107

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 18:30, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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*	0.34	1	0.26	ug/L	1	156-59-2	J
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*	1	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	

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

Lab Sample ID: S93785.06 (continued)
Sample Tag: MW-107

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 18:30, 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	

Analytical Laboratory Report

Lab Sample ID: S93785.07
Sample Tag: FB (Field Blank)
Collected Date/Time: 08/30/2018 00:01
Matrix: Liquid
COC Reference: 102157

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	09/11/18 12:00	JML	
Metal Digestion	Completed	SW3015A	09/11/18 12:00	JRH	
Metal Digestion	Completed	SW3015A	09/11/18 12:00	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 08/30/18 19:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 08/30/18 18:40, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 12:44, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.0000136	mg/L	2	7440-38-2	
Chromium	Not detected	0.005	0.00000760	mg/L	2	7440-47-3	
Copper	Not detected	0.005	0.0000202	mg/L	2	7440-50-8	
Lead	Not detected	0.003	0.00000600	mg/L	2	7439-92-1	
Selenium	0.001	0.005	0.000114	mg/L	2	7782-49-2	b
Zinc	0.001	0.005	0.0000314	mg/L	2	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 12:46, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.0000136	mg/L	2	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.00000760	mg/L	2	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.0000202	mg/L	2	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.00000600	mg/L	2	7439-92-1	
Selenium, Dissolved	Not detected	0.005	0.000114	mg/L	2	7782-49-2	
Zinc, Dissolved	0.002	0.005	0.0000314	mg/L	2	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 15:57, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	1.26	50	0.56	ug/L	1	67-64-1	JB
Methyl iodide*	Not detected	1	0.25	ug/L	1	74-88-4	

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

Lab Sample ID: S93785.07 (continued)
Sample Tag: FB (Field Blank)

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 15:57, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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	
tert-Butylbenzene*	Not detected	1	0.18	ug/L	1	98-06-6	

Lab Sample ID: S93785.07 (continued)

Sample Tag: FB (Field Blank)

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 15:57, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: S93785.08
Sample Tag: EB (Equip Blank)
Collected Date/Time: 08/30/2018 00:01
Matrix: Liquid
COC Reference: 102157

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	09/11/18 12:00	JML	
Metal Digestion	Completed	SW3015A	09/11/18 12:00	JRH	
Metal Digestion	Completed	SW3015A	09/11/18 12:00	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 08/30/18 19:25, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 08/30/18 18:45, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 12:48, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.0000136	mg/L	2	7440-38-2	
Chromium	Not detected	0.005	0.00000760	mg/L	2	7440-47-3	
Copper	Not detected	0.005	0.0000202	mg/L	2	7440-50-8	
Lead	Not detected	0.003	0.00000600	mg/L	2	7439-92-1	
Selenium	Not detected	0.005	0.000114	mg/L	2	7782-49-2	
Zinc	0.001	0.005	0.0000314	mg/L	2	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 12:49, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.0000136	mg/L	2	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.00000760	mg/L	2	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.0000202	mg/L	2	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.00000600	mg/L	2	7439-92-1	
Selenium, Dissolved	Not detected	0.005	0.000114	mg/L	2	7782-49-2	
Zinc, Dissolved	0.001	0.005	0.0000314	mg/L	2	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 16:16, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	1.74	50	0.56	ug/L	1	67-64-1	JB
Methyl iodide*	Not detected	1	0.25	ug/L	1	74-88-4	

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

Lab Sample ID: S93785.08 (continued)
Sample Tag: EB (Equip Blank)

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 16:16, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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)*	2.48	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*	0.40	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*	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*	0.35	1	0.23	ug/L	1	75-27-4	J
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	

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

Lab Sample ID: S93785.08 (continued)

Sample Tag: EB (Equip Blank)

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 16:16, 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	

Analytical Laboratory Report

Lab Sample ID: S93785.09
Sample Tag: TB (Trip Blank)
Collected Date/Time: 08/30/2018 00:01
Matrix: Liquid
COC Reference: 102157

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/11/18 12:00	JML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 16:36, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	5.13	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)*	Not detected	25	0.26	ug/L	1	78-93-3	
Dichlorodifluoromethane*	Not detected	5	0.50	ug/L	1	75-71-8	
Chloromethane*	1.92	5	0.26	ug/L	1	74-87-3	J
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: S93785.09 (continued)
Sample Tag: TB (Trip Blank)

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/10/18 16:36, 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	

Merit Laboratories Login Checklist

Lab Set ID: S93785
Client: APPLIED (Applied Ecosystems)
Project: 11-4317-102 Racer / Flint
Submitted: 08/30/2018 16:20 Login User: MMC

Attention: Mike Smith
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: ae_mds@yahoo.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.	[X] Yes	[ ] 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.	[X] Yes	[ ] 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: S93785 Initials: MMC

Client: APPLIED (Applied Ecosystems)

Project: 11-4317-102 Racer / Flint

Submitted: 08/30/2018 16:20 Login User:

Attention: Mike Smith
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: ae_mds@yahoo.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	
S93785.01	X								X					
S93785.02	X								X					
S93785.03	X								X					
S93785.04	X								X					
S93785.05	X								X					
S93785.06	X								X					
S93785.07	X								X					
S93785.08	X								X					

Prepared by Merit Laboratories

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

102157

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Mike Smith
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 P.O. NO.:
E-MAIL ADDRESS: msmith@appliedecosystems.com 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 Racer/Flint
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Heather Dean Heather Dean

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

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 8260	Metals (Diss.)	Metals (Total)	Special Instructions
9378501	8.30.18	9:30	MW-113		5	✓	✓	✓					✓	✓	✓	
.02	8.30.18	10:30	MW-110		5	✓	✓	✓					✓	✓	✓	
.03	8.30.18	11:10	MW-108		5	✓	✓	✓					✓	✓	✓	
.04	8.30.18	12:10	MW-111		5	✓	✓	✓					✓	✓	✓	
.05	8.30.18	13:10	MW-102		5	✓	✓	✓					✓	✓	✓	
.06	8.30.18	14:00	MW-107		5	✓	✓	✓					✓	✓	✓	
.07	8.30.18		FB (Field Blank)		5	✓	✓	✓					✓	✓	✓	
.08	8.30.18		EB (equip blank)		5	✓	✓	✓					✓	✓	✓	
.09	8.30.18		TB (trip blank)		1		✓						✓			

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
Heather Dean ☑ Sampler	8.30.18	15:00
RECEIVED BY: SIGNATURE/ORGANIZATION	8/30/18	15:10
RELINQUISHED BY: SIGNATURE/ORGANIZATION	8/30/18	16:20
RECEIVED BY: SIGNATURE/ORGANIZATION	8/30/18	1620

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: S93925.01(01)
Generated on 09/20/2018

Report to

Attention: Mike Smith
Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: ae_mds@yahoo.com

Report produced by

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2680 East Lansing Drive
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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): S93925.01-S93925.14
Project: 11-4317-102 Racer Flint
Collected Date: 09/05/2018
Submitted Date/Time: 09/05/2018 16:10
Sampled by: Heather Dean
P.O. #: PO

Table of Contents

Cover Page (Page 1)
General Report Notes (Page 2)
Report Narrative (Page 2)
Laboratory Certifications (Page 3)
Qualifier Descriptions (Page 3)
Glossary of Abbreviations (Page 3)
Method Summary (Page 4)
Sample Summary (Page 5)

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.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
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/8260B	SW 846 Method 8260B Revision 2 December 1996 / 5030C Revision 3 May 2003

Analytical Laboratory Report

Sample Summary (14 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S93925.01	MW-104S	Liquid	09/05/18 08:50
S93925.02	MW-105S	Liquid	09/05/18 09:35
S93925.03	MW-106S	Liquid	09/05/18 10:30
S93925.04	MW-100S	Liquid	09/05/18 11:05
S93925.05	MW-101S	Liquid	09/05/18 11:30
S93925.06	MW-112S	Liquid	09/05/18 11:58
S93925.07	MW-103S	Liquid	09/05/18 12:40
S93925.08	MW-114S	Liquid	09/05/18 13:25
S93925.09	MW-109S	Liquid	09/05/18 13:50
S93925.10	Dupe 1	Liquid	09/05/18 08:50
S93925.11	Dupe 2	Liquid	09/05/18 08:50
S93925.12	Field Blk (FB2)	Liquid	09/05/18 08:50
S93925.13	Equip Blk	Liquid	09/05/18 08:50
S93925.14	Trip Blk	Liquid	09/05/18 08:50

Analytical Laboratory Report

Lab Sample ID: S93925.01
Sample Tag: MW-104S
Collected Date/Time: 09/05/2018 08:50
Matrix: Liquid
COC Reference: 111771

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR
3	40ml Glass	HCL	Yes	4.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/17/18 11:55	JML	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 09/05/18 18:35, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 09/05/18 16:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.008	mg/L	2.5	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 13:18, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium	0.388	0.005	0.0000190	mg/L	5	7440-47-3	
Copper	0.013	0.005	0.0000505	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium	0.003	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc	0.005	0.005	0.0000785	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 13:20, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium, Dissolved	0.010	0.005	0.0000190	mg/L	5	7440-47-3	
Copper, Dissolved	0.002	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead, Dissolved	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium, Dissolved	0.003	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc, Dissolved	0.003	0.005	0.0000785	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 15:04, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	0.81	50	0.56	ug/L	1	67-64-1	JB
Methyl iodide*	Not detected	1	0.25	ug/L	1	74-88-4	

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

Lab Sample ID: S93925.01 (continued)
Sample Tag: MW-104S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 15:04, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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*	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*	0.50	1	0.23	ug/L	1	75-27-4	J
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	

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

Lab Sample ID: S93925.01 (continued)
Sample Tag: MW-104S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 15:04, 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	

Analytical Laboratory Report

Lab Sample ID: S93925.02
Sample Tag: MW-105S
Collected Date/Time: 09/05/2018 09:35
Matrix: Liquid
COC Reference: 111771

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR
3	40ml Glass	HCL	Yes	4.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/17/18 11:55	JML	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 09/05/18 17:45, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 09/05/18 17:00, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 13:21, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.001	0.002	0.0000340	mg/L	5	7440-38-2	b
Chromium	0.062	0.005	0.0000190	mg/L	5	7440-47-3	
Copper	0.002	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead	0.001	0.003	0.0000150	mg/L	5	7439-92-1	b
Selenium	0.009	0.005	0.000286	mg/L	5	7782-49-2	
Zinc	0.002	0.005	0.0000785	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 13:23, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium, Dissolved	0.001	0.005	0.0000190	mg/L	5	7440-47-3	b
Copper, Dissolved	0.001	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead, Dissolved	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium, Dissolved	0.008	0.005	0.000286	mg/L	5	7782-49-2	
Zinc, Dissolved	0.002	0.005	0.0000785	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 15:23, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	1.12	50	0.56	ug/L	1	67-64-1	JB
Methyl iodide*	Not detected	1	0.25	ug/L	1	74-88-4	

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

Lab Sample ID: S93925.02 (continued)
Sample Tag: MW-105S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 15:23, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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*	40	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	

Lab Sample ID: S93925.02 (continued)

Sample Tag: MW-105S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 15:23, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: S93925.03
Sample Tag: MW-106S
Collected Date/Time: 09/05/2018 10:30
Matrix: Liquid
COC Reference: 111771

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR
3	40ml Glass	HCL	Yes	4.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/17/18 11:55	JML	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 09/05/18 18:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 09/05/18 17:15, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.008	mg/L	2.5	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 13:25, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.001	0.002	0.0000340	mg/L	5	7440-38-2	b
Chromium	0.789	0.005	0.0000190	mg/L	5	7440-47-3	
Copper	0.023	0.005	0.0000505	mg/L	5	7440-50-8	
Lead	0.001	0.003	0.0000150	mg/L	5	7439-92-1	b
Selenium	0.005	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc	0.006	0.005	0.0000785	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 09/07/18 13:27, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium, Dissolved	0.006	0.005	0.0000190	mg/L	5	7440-47-3	
Copper, Dissolved	0.004	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead, Dissolved	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium, Dissolved	0.001	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc, Dissolved	0.002	0.005	0.0000785	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 15:42, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	0.63	50	0.56	ug/L	1	67-64-1	JB
Methyl iodide*	Not detected	1	0.25	ug/L	1	74-88-4	

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

Lab Sample ID: S93925.03 (continued)
Sample Tag: MW-106S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 15:42, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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	
tert-Butylbenzene*	Not detected	1	0.18	ug/L	1	98-06-6	

Lab Sample ID: S93925.03 (continued)

Sample Tag: MW-106S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 15:42, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: S93925.04
Sample Tag: MW-100S
Collected Date/Time: 09/05/2018 11:05
Matrix: Liquid
COC Reference: 111771

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR
3	40ml Glass	HCL	Yes	4.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/17/18 11:55	JML	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 09/05/18 18:55, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 09/05/18 17:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 13:28, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium	Not detected	0.005	0.0000190	mg/L	5	7440-47-3	
Copper	Not detected	0.005	0.0000505	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium	0.002	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc	0.003	0.005	0.0000785	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 13:30, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.0000190	mg/L	5	7440-47-3	
Copper, Dissolved	0.001	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead, Dissolved	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium, Dissolved	0.001	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc, Dissolved	0.002	0.005	0.0000785	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 16:02, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	Not detected	50	0.56	ug/L	1	67-64-1	
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	

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

Lab Sample ID: S93925.04 (continued)
Sample Tag: MW-100S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 16:02, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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*	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*	4	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	
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	

Lab Sample ID: S93925.04 (continued)
Sample Tag: MW-100S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 16:02, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: S93925.05
Sample Tag: MW-101S
Collected Date/Time: 09/05/2018 11:30
Matrix: Liquid
COC Reference: 111771

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR
3	40ml Glass	HCL	Yes	4.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/17/18 11:55	JML	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 09/05/18 19:10, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 09/05/18 17:25, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 13:32, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium	0.002	0.005	0.0000190	mg/L	5	7440-47-3	b
Copper	0.001	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium	0.004	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc	0.002	0.005	0.0000785	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 13:33, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium, Dissolved	0.001	0.005	0.0000190	mg/L	5	7440-47-3	b
Copper, Dissolved	0.001	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead, Dissolved	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium, Dissolved	0.004	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc, Dissolved	0.004	0.005	0.0000785	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 16:21, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	2.55	50	0.56	ug/L	1	67-64-1	JB
Methyl iodide*	Not detected	1	0.25	ug/L	1	74-88-4	

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

Lab Sample ID: S93925.05 (continued)
Sample Tag: MW-101S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 16:21, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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*	4	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	
tert-Butylbenzene*	Not detected	1	0.18	ug/L	1	98-06-6	

Lab Sample ID: S93925.05 (continued)
Sample Tag: MW-101S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 16:21, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: S93925.06
Sample Tag: MW-112S
Collected Date/Time: 09/05/2018 11:58
Matrix: Liquid
COC Reference: 111771

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR
3	40ml Glass	HCL	Yes	4.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/17/18 11:55	JML	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 09/05/18 19:15, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 09/05/18 17:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.02	0.008	mg/L	2.5	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 13:46, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.104	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium	Not detected	0.005	0.0000190	mg/L	5	7440-47-3	
Copper	Not detected	0.005	0.0000505	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium	0.003	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc	0.004	0.005	0.0000785	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 13:48, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.052	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.0000190	mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.0000505	mg/L	5	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium, Dissolved	0.001	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc, Dissolved	0.002	0.005	0.0000785	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 16:40, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	4.98	50	0.56	ug/L	1	67-64-1	JB
Methyl iodide*	Not detected	1	0.25	ug/L	1	74-88-4	

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

Lab Sample ID: S93925.06 (continued)
Sample Tag: MW-112S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 16:40, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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)*	1.09	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*	0.66	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*	0.63	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)*	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*	7	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	

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

Lab Sample ID: S93925.06 (continued)
Sample Tag: MW-112S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 16:40, 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	

Analytical Laboratory Report

Lab Sample ID: S93925.07
Sample Tag: MW-103S
Collected Date/Time: 09/05/2018 12:40
Matrix: Liquid
COC Reference: 111771

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR
3	40ml Glass	HCL	Yes	4.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/17/18 11:55	JML	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 09/05/18 19:20, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 09/05/18 17:35, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.05	0.015	mg/L	5	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 13:49, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.053	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium	Not detected	0.005	0.0000190	mg/L	5	7440-47-3	
Copper	Not detected	0.005	0.0000505	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium	0.004	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc	0.002	0.005	0.0000785	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 13:51, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.019	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.0000190	mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.0000505	mg/L	5	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium, Dissolved	0.003	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc, Dissolved	0.001	0.005	0.0000785	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 16:59, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	5.20	50	0.56	ug/L	1	67-64-1	JB
Methyl iodide*	Not detected	1	0.25	ug/L	1	74-88-4	

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

Lab Sample ID: S93925.07 (continued)
Sample Tag: MW-103S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 16:59, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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)*	1.14	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*	0.67	1	0.20	ug/L	1	71-43-2	J
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	

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

Lab Sample ID: S93925.07 (continued)
Sample Tag: MW-103S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 16:59, 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	

Analytical Laboratory Report

Lab Sample ID: S93925.08
Sample Tag: MW-114S
Collected Date/Time: 09/05/2018 13:25
Matrix: Liquid
COC Reference: 111771

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR
3	40ml Glass	HCL	Yes	4.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/17/18 11:55	JML	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 09/05/18 19:25, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 09/05/18 17:40, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	0.006	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 13:53, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.002	0.002	0.0000340	mg/L	5	7440-38-2	b
Chromium	0.009	0.005	0.0000190	mg/L	5	7440-47-3	
Copper	0.003	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium	0.003	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc	0.003	0.005	0.0000785	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 13:54, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.001	0.002	0.0000340	mg/L	5	7440-38-2	b
Chromium, Dissolved	0.007	0.005	0.0000190	mg/L	5	7440-47-3	
Copper, Dissolved	0.002	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead, Dissolved	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium, Dissolved	0.001	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc, Dissolved	0.004	0.005	0.0000785	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/19/18 00:39, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	100	5.0	ug/L	10	60-29-7	Y
Acetone*	18.6	500	5.6	ug/L	10	67-64-1	JBY

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: S93925.08 (continued)
Sample Tag: MW-114S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/19/18 00:39, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Methyl iodide*	Not detected	10	2.5	ug/L	10	74-88-4	Y
Carbon disulfide*	Not detected	50	2.4	ug/L	10	75-15-0	Y
tert-Methyl butyl ether (MTBE)*	Not detected	50	1.9	ug/L	10	1634-04-4	Y
Acrylonitrile*	Not detected	20	5.7	ug/L	10	107-13-1	Y
2-Butanone (MEK)*	Not detected	250	2.6	ug/L	10	78-93-3	Y
Dichlorodifluoromethane*	Not detected	50	5.0	ug/L	10	75-71-8	Y
Chloromethane*	Not detected	50	2.6	ug/L	10	74-87-3	Y
Vinyl chloride*	9.5	10	3.1	ug/L	10	75-01-4	JY
Bromomethane*	Not detected	50	3.2	ug/L	10	74-83-9	Y
Chloroethane*	Not detected	50	3.4	ug/L	10	75-00-3	Y
Trichlorofluoromethane*	Not detected	10	3.3	ug/L	10	75-69-4	Y
1,1-Dichloroethene*	Not detected	10	2.7	ug/L	10	75-35-4	Y
Methylene chloride*	Not detected	50	2.9	ug/L	10	75-09-2	Y
trans-1,2-Dichloroethene*	Not detected	10	2.0	ug/L	10	156-60-5	Y
1,1-Dichloroethane*	3.6	10	2.0	ug/L	10	75-34-3	JY
cis-1,2-Dichloroethene*	490	10	2.6	ug/L	10	156-59-2	Y
Tetrahydrofuran*	16	900	13	ug/L	10	109-99-9	JBY
Chloroform*	Not detected	10	2.0	ug/L	10	67-66-3	Y
Bromochloromethane*	Not detected	10	3.8	ug/L	10	74-97-5	Y
1,1,1-Trichloroethane*	Not detected	10	2.8	ug/L	10	71-55-6	Y
4-Methyl-2-pentanone (MIBK)*	Not detected	500	1.4	ug/L	10	108-10-1	Y
2-Hexanone*	Not detected	500	2.9	ug/L	10	591-78-6	Y
Carbon tetrachloride*	Not detected	10	2.0	ug/L	10	56-23-5	Y
Benzene*	Not detected	10	2.0	ug/L	10	71-43-2	Y
1,2-Dichloroethane*	Not detected	10	1.6	ug/L	10	107-06-2	Y
Trichloroethene*	210	10	2.3	ug/L	10	79-01-6	Y
1,2-Dichloropropane*	Not detected	10	2.0	ug/L	10	78-87-5	Y
Bromodichloromethane*	Not detected	10	2.3	ug/L	10	75-27-4	Y
Dibromomethane*	Not detected	50	2.0	ug/L	10	74-95-3	Y
cis-1,3-Dichloropropene*	Not detected	10	1.9	ug/L	10	10061-01-5	Y
Toluene*	Not detected	10	2.5	ug/L	10	108-88-3	Y
trans-1,3-Dichloropropene*	Not detected	10	2.5	ug/L	10	10061-02-6	Y
1,1,2-Trichloroethane*	Not detected	10	2.8	ug/L	10	79-00-5	Y
Tetrachloroethene*	Not detected	10	2.0	ug/L	10	127-18-4	Y
trans-1,4-Dichloro-2-butene*	Not detected	10	2.0	ug/L	10	110-57-6	Y
Dibromochloromethane*	Not detected	50	2.4	ug/L	10	124-48-1	Y
1,2-Dibromoethane*	Not detected	10	3.0	ug/L	10	106-93-4	Y
Chlorobenzene*	Not detected	10	1.7	ug/L	10	108-90-7	Y
1,1,1,2-Tetrachloroethane*	Not detected	10	2.4	ug/L	10	630-20-6	Y
Ethylbenzene*	Not detected	10	2.6	ug/L	10	100-41-4	Y
p,m-Xylene*	Not detected	20	4.1	ug/L	10		Y
o-Xylene*	Not detected	10	2.5	ug/L	10	95-47-6	Y
Styrene*	Not detected	10	1.8	ug/L	10	100-42-5	Y
Isopropylbenzene*	Not detected	50	2.5	ug/L	10	98-82-8	Y
Bromoform*	Not detected	10	2.2	ug/L	10	75-25-2	Y
1,1,2,2-Tetrachloroethane*	Not detected	10	1.8	ug/L	10	79-34-5	Y
1,2,3-Trichloropropane*	Not detected	10	3.3	ug/L	10	96-18-4	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: S93925.08 (continued)
Sample Tag: MW-114S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/19/18 00:39, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
n-Propylbenzene*	Not detected	10	2.3	ug/L	10	103-65-1	Y
Bromobenzene*	Not detected	10	2.7	ug/L	10	108-86-1	Y
1,3,5-Trimethylbenzene*	Not detected	10	2.6	ug/L	10	108-67-8	Y
tert-Butylbenzene*	Not detected	10	1.8	ug/L	10	98-06-6	Y
1,2,4-Trimethylbenzene*	Not detected	10	2.2	ug/L	10	95-63-6	Y
sec-Butylbenzene*	Not detected	10	2.5	ug/L	10	135-98-8	Y
p-Isopropyltoluene*	Not detected	50	2.1	ug/L	10	99-87-6	Y
1,3-Dichlorobenzene*	Not detected	10	2.4	ug/L	10	541-73-1	Y
1,4-Dichlorobenzene*	Not detected	10	2.3	ug/L	10	106-46-7	Y
1,2-Dichlorobenzene*	Not detected	10	2.8	ug/L	10	95-50-1	Y
1,2,3-Trimethylbenzene*	Not detected	10	0.61	ug/L	10	526-73-8	Y
n-Butylbenzene*	Not detected	10	2.2	ug/L	10	104-51-8	Y
Hexachloroethane*	Not detected	50	2.1	ug/L	10	67-72-1	Y
1,2-Dibromo-3-chloropropane*	Not detected	50	4.7	ug/L	10	96-12-8	Y
1,2,4-Trichlorobenzene*	Not detected	50	1.9	ug/L	10	120-82-1	Y
1,2,3-Trichlorobenzene*	Not detected	50	2.0	ug/L	10	87-61-6	Y
Naphthalene*	Not detected	50	2.1	ug/L	10	91-20-3	Y
2-Methylnaphthalene*	Not detected	50	1.6	ug/L	10	91-57-6	Y

Y-Elevated reporting limit due to high target concentration

Analytical Laboratory Report

Lab Sample ID: S93925.09
Sample Tag: MW-109S
Collected Date/Time: 09/05/2018 13:50
Matrix: Liquid
COC Reference: 111771

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR
3	40ml Glass	HCL	Yes	4.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/17/18 11:55	JML	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 09/05/18 19:30, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 09/05/18 17:45, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 13:56, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.005	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium	Not detected	0.005	0.0000190	mg/L	5	7440-47-3	
Copper	0.001	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium	0.001	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc	0.005	0.005	0.0000785	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 09/07/18 13:58, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.004	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.0000190	mg/L	5	7440-47-3	
Copper, Dissolved	0.001	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead, Dissolved	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium, Dissolved	0.004	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc, Dissolved	0.003	0.005	0.0000785	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 17:37, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	2.32	50	0.56	ug/L	1	67-64-1	JB
Methyl iodide*	Not detected	1	0.25	ug/L	1	74-88-4	

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

Lab Sample ID: S93925.09 (continued)
Sample Tag: MW-109S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 17:37, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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*	42	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*	2	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*	0.70	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*	68	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*	17	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	

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

Lab Sample ID: S93925.09 (continued)
Sample Tag: MW-109S

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 17:37, 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	

Analytical Laboratory Report

Lab Sample ID: S93925.10
Sample Tag: Dupe 1
Collected Date/Time: 09/05/2018 08:50
Matrix: Liquid
COC Reference: 111771

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR
3	40ml Glass	HCL	Yes	4.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/17/18 11:55	JML	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 09/05/18 19:35, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 09/05/18 17:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 14:39, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium	0.013	0.005	0.0000190	mg/L	5	7440-47-3	
Copper	0.001	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium	0.006	0.005	0.000286	mg/L	5	7782-49-2	
Zinc	0.001	0.005	0.0000785	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 14:41, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium, Dissolved	0.001	0.005	0.0000190	mg/L	5	7440-47-3	b
Copper, Dissolved	0.001	0.005	0.0000505	mg/L	5	7440-50-8	b
Lead, Dissolved	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium, Dissolved	0.009	0.005	0.000286	mg/L	5	7782-49-2	
Zinc, Dissolved	0.001	0.005	0.0000785	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 17:56, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	Not detected	50	0.56	ug/L	1	67-64-1	
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	

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

Lab Sample ID: S93925.10 (continued)
Sample Tag: Dupe 1

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 17:56, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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*	0.36	1	0.26	ug/L	1	156-59-2	J
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*	40	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	

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

Lab Sample ID: S93925.10 (continued)

Sample Tag: Dupe 1

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 17:56, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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: S93925.11
Sample Tag: Dupe 2
Collected Date/Time: 09/05/2018 08:50
Matrix: Liquid
COC Reference: 111771

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR
3	40ml Glass	HCL	Yes	4.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/17/18 11:55	JML	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 09/05/18 19:40, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 09/05/18 17:55, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 14:35, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.005	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium	Not detected	0.005	0.0000190	mg/L	5	7440-47-3	
Copper	Not detected	0.005	0.0000505	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium	0.002	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc	0.002	0.005	0.0000785	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 14:37, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.003	0.002	0.0000340	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.0000190	mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.0000505	mg/L	5	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.0000150	mg/L	5	7439-92-1	
Selenium, Dissolved	0.002	0.005	0.000286	mg/L	5	7782-49-2	b
Zinc, Dissolved	0.002	0.005	0.0000785	mg/L	5	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 18:15, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	2.75	50	0.56	ug/L	1	67-64-1	JB
Methyl iodide*	Not detected	1	0.25	ug/L	1	74-88-4	

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

Lab Sample ID: S93925.11 (continued)
Sample Tag: Dupe 2

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 18:15, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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*	41	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*	2	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*	0.66	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*	65	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*	17	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*	0.22	1	0.20	ug/L	1	127-18-4	J
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	

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

Lab Sample ID: S93925.11 (continued)

Sample Tag: Dupe 2

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 18:15, 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	

Analytical Laboratory Report

Lab Sample ID: S93925.12
Sample Tag: Field Blk (FB2)
Collected Date/Time: 09/05/2018 08:50
Matrix: Liquid
COC Reference: 111771

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR
3	40ml Glass	HCL	Yes	4.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/17/18 11:55	JML	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 09/05/18 19:45, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 09/05/18 18:00, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 14:27, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.001	0.002	0.0000136	mg/L	2	7440-38-2	b
Chromium	Not detected	0.005	0.00000760	mg/L	2	7440-47-3	
Copper	Not detected	0.005	0.0000202	mg/L	2	7440-50-8	
Lead	Not detected	0.003	0.00000600	mg/L	2	7439-92-1	
Selenium	0.001	0.005	0.000114	mg/L	2	7782-49-2	b
Zinc	0.001	0.005	0.0000314	mg/L	2	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 14:29, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.001	0.002	0.0000136	mg/L	2	7440-38-2	b
Chromium, Dissolved	Not detected	0.005	0.00000760	mg/L	2	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.0000202	mg/L	2	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.00000600	mg/L	2	7439-92-1	
Selenium, Dissolved	0.001	0.005	0.000114	mg/L	2	7782-49-2	b
Zinc, Dissolved	0.002	0.005	0.0000314	mg/L	2	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 14:07, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	7.48	50	0.56	ug/L	1	67-64-1	JB
Methyl iodide*	Not detected	1	0.25	ug/L	1	74-88-4	

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

Lab Sample ID: S93925.12 (continued)
Sample Tag: Field Blk (FB2)

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 14:07, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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)*	0.32	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*	0.40	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*	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	

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

Lab Sample ID: S93925.12 (continued)

Sample Tag: Field Blk (FB2)

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 14:07, 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*	0.21	5	0.19	ug/L	1	120-82-1	J
1,2,3-Trichlorobenzene*	0.21	5	0.20	ug/L	1	87-61-6	J
Naphthalene*	Not detected	5	0.21	ug/L	1	91-20-3	
2-Methylnaphthalene*	0.23	5	0.16	ug/L	1	91-57-6	J

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

Analytical Laboratory Report

Lab Sample ID: S93925.13
Sample Tag: Equip Blk
Collected Date/Time: 09/05/2018 08:50
Matrix: Liquid
COC Reference: 111772

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	250ml Plastic	None	Yes	4.3	IR
1	125ml Plastic	HNO3	Yes	4.3	IR
3	40ml Glass	HCL	Yes	4.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/17/18 11:55	JML	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	
Metal Digestion	Completed	SW3015A	09/17/18 11:55	JRH	

Inorganics

Method: SM3500-Cr B, Run Date: 09/05/18 19:50, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Method: SM3500-Cr B, Run Date: 09/05/18 18:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.01	0.003	mg/L	1	18540-29-9	

Metals

Method: E200.8, Run Date: 09/07/18 14:30, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.001	0.002	0.0000136	mg/L	2	7440-38-2	b
Chromium	Not detected	0.005	0.00000760	mg/L	2	7440-47-3	
Copper	Not detected	0.005	0.0000202	mg/L	2	7440-50-8	
Lead	Not detected	0.003	0.00000600	mg/L	2	7439-92-1	
Selenium	0.001	0.005	0.000114	mg/L	2	7782-49-2	b
Zinc	0.001	0.005	0.0000314	mg/L	2	7440-66-6	b

Method: E200.8, Run Date: 09/07/18 14:32, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.001	0.002	0.0000136	mg/L	2	7440-38-2	b
Chromium, Dissolved	Not detected	0.005	0.00000760	mg/L	2	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.0000202	mg/L	2	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.00000600	mg/L	2	7439-92-1	
Selenium, Dissolved	0.001	0.005	0.000114	mg/L	2	7782-49-2	b
Zinc, Dissolved	0.001	0.005	0.0000314	mg/L	2	7440-66-6	b

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 14:26, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	7.35	50	0.56	ug/L	1	67-64-1	JB
Methyl iodide*	Not detected	1	0.25	ug/L	1	74-88-4	

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

Lab Sample ID: S93925.13 (continued)
Sample Tag: Equip Blk

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 14:26, Analyst: JML (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
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*	0.30	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*	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	

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

Lab Sample ID: S93925.13 (continued)

Sample Tag: Equip Blk

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 14:26, 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	

Analytical Laboratory Report

Lab Sample ID: S93925.14
Sample Tag: Trip Blk
Collected Date/Time: 09/05/2018 08:50
Matrix: Liquid
COC Reference: 111772

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	4.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	09/17/18 11:55	JML	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 14:45, Analyst: JML

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether*	Not detected	10	0.50	ug/L	1	60-29-7	
Acetone*	4.54	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)*	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	

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

Lab Sample ID: S93925.14 (continued)
Sample Tag: Trip Blk

Volatile Organics - DEQ List, Method: SW5030C/8260B, Run Date: 09/13/18 14:45, 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	

Merit Laboratories Login Checklist

Lab Set ID: S93925
Client: APPLIED (Applied Ecosystems)
Project: 11-4317-102 Racer Flint
Submitted: 09/05/2018 16:10 Login User: SRS

Attention: Mike Smith
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: ae_mds@yahoo.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	Missing collection times for .10-.14. Analyses not checked .10-.12
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.	[X] Yes	[ ] No	[ ] N/A	Samples require laboratory filtration	Metals and Cr IV need to be filtered and preserved 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: S93925 Initials: SRS

Client: APPLIED (Applied Ecosystems)

Project: 11-4317-102 Racer Flint

Submitted: 09/05/2018 16:10 Login User:

Attention: Mike Smith
Address: Applied Ecosystems
G4300 S. Saginaw St.
Burton, MI 48529

Phone: 810-715-2525 FAX: 810-715-2526
Email: ae_mds@yahoo.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	
S93925.01	X								X					
S93925.02	X								X					
S93925.03	X								X					
S93925.04	X								X					
S93925.05	X								X					
S93925.06	X								X					
S93925.07	X								X					
S93925.08	X								X					
S93925.09	X								X					
S93925.10	X								X					
S93925.11	X								X					
S93925.12	X								X					
S93925.13	X								X					

Prepared by Merit Laboratories

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

111771

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Mike Smith
COMPANY: Applied EcoSystems
ADDRESS: G-4300 S. Saginaw St
CITY: Burton STATE: MI ZIP CODE: 48529
PHONE NO.: ~~810-280-715~~ FAX NO.: 810-715-2526
P.O. NO.:
E-MAIL ADDRESS: 810-715-2525 msmith@appliedecosystems.com
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 / Racer / Flint
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Heather Pean Heather Dean

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

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 8260	Diss. Metals	Total Metals	Special Instructions
93925.01	9.5.18	8:50	MW-104S		5	✓	✓	✓					✓	✓	✓	Diss Metals:
.02	9.5.18	9:35	MW-105S		5	✓	✓	✓					✓	✓	✓	+ Total Metals:
.03	9.5.18	10:30	MW-106S		5	✓	✓	✓					✓	✓	✓	↓
.04	9.5.18	11:05	MW-100S		5	✓	✓	✓					✓	✓	✓	(Ar, Cr-Total,
.05	9.5.18	11:30	MW-101S		5	✓	✓	✓					✓	✓	✓	Cr-Hex, Cu,
.06	9.5.18	11:58	MW-112S		5	✓	✓	✓					✓	✓	✓	Pb, Se, Zn)
.07	9.5.18	12:40	MW-103S		5	✓	✓	✓					✓	✓	✓	
.08	9.5.18	13:25	MW-114S		5	✓	✓	✓					✓	✓	✓	
.09	9.5.18	13:50	MW-109S		5	✓	✓	✓					✓	✓	✓	
.10	9.5.18		Dupe 1													
.11	9.5.18		Dupe 2													
.12	9.5.18		Field Blk (FB2)													

RELINQUISHED BY: SIGNATURE/ORGANIZATION: Heather Dean ☑ Sampler	DATE: 9-5-18	TIME: 15:00	RELINQUISHED BY: SIGNATURE/ORGANIZATION:
RECEIVED BY: SIGNATURE/ORGANIZATION: [illegible]	DATE: 9/5/18	TIME: 15:00	RECEIVED BY: SIGNATURE/ORGANIZATION:
RELINQUISHED BY: SIGNATURE/ORGANIZATION: [illegible]	DATE: 9/5/18	TIME: 16:10	SEAL NO. / SEAL INTACT YES ☐ NO ☐ / INITIALS
RECEIVED BY: SIGNATURE/ORGANIZATION: [illegible]	DATE: 9/5/18	TIME: 16:10	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

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 # 2 OF 2

111772

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Mike Smith
COMPANY: Applied EcoSystems
ADDRESS: 6-4300 S. Saginaw St.
CITY: Burton STATE: MI ZIP CODE: 48529
PHONE NO.: 810-715-2525 FAX NO.: 810-715-2526 P.O. NO.:
E-MAIL ADDRESS: msmith@appliedecosystems.com QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: 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

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs (8260)	Diss Metals	Total Metals	Special Instructions
93925.13	9.5.18		Equip Blk		5	✓	✓	✓					✓	✓	✓	
.14	9.5.18		Trip Blk		1		✓						✓			

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
Heather Dean ☑ Sampler	9.5.18	15:00
RECEIVED BY: SIGNATURE/ORGANIZATION	9/5/18	15:0
RELINQUISHED BY: SIGNATURE/ORGANIZATION	9/5/18	10:10
RECEIVED BY: SIGNATURE/ORGANIZATION	9/5/18	10:10

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

ATTACHMENT #4: SOIL ANALYTICAL TABLES

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

SOIL ANALYTICAL DATA (Metals and Detected VOCs)
RACER - Flint West #12990

	Sample ID			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	SB129-4	SB129-8	SB129-18	SB130-4	SB130-10	SB130-18	SB131-4	SB131-10	SB131-18
	Date Collected			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	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
ANALYTE (ug/kg)	**DW**	**GSI**																										
Arsenic	5,800.00	5,800.00	D&G=B	1,130.00	1,100.00	1,830.00	570.00	1,440.00	1,410.00	1,300.00	1,250.00	1,180.00	410.00	1,630.00	2,060.00	1,780.00	500.00	1,550.00	1,150.00	2,790.00	1,740.00	1,460.00	3,580.00	1,700.00	1,980.00	1,630.00	1,300.00	2,080.00
Chromium	18,000.00	18,000.00	D&G=B	1,220.00	1,460.00	3,350.00	2,050.00	3,260.00	4,240.00	1,220.00	2,920.00	2,870.00	1,980.00	2,560.00	4,540.00	610.00	1,460.00	2,860.00	5,890.00	2,550.00	4,080.00	4,730.00	3,090.00	1,150.00	2,770.00	1,640.00	2,800.00	2,620.00
Copper	5,800,000.00	120,000.00	GX	1,700.00	2,300.00	8,200.00	7,400.00	6,100.00	11,400.00	3,400.00	3,100.00	5,600.00	1,600.00	3,000.00	5,800.00	1,200.00	3,900.00	5,600.00	5,300.00	13,000.00	3,600.00	7,200.00	17,700.00	1,700.00	9,800.00	8,500.00	3,100.00	7,900.00
Lead	700,000.00	5,000,000.00	GX	2,510.00	3,120.00	7,580.00	13,800.00	5,100.00	8,590.00	2,280.00	3,790.00	5,470.00	4,710.00	5,740.00	7,330.00	950.00	6,250.00	11,400.00	6,950.00	104,000.00	6,100.00	7,420.00	123,000.00	2,110.00	6,510.00	36,400.00	4,740.00	6,020.00
Selenium	4,000.00	410.00	G=B			210.00			210.00			160.00								130.00		150.00	140.00					
Zinc	2,400,000.00	2,600,000.00	G=B	4,600.00	5,100.00	19,000.00	11,400.00	12,200.00	20,800.00	5,900.00	8,600.00	14,700.00	3,700.00	10,300.00	20,300.00	2,400.00	6,000.00	13,200.00	9,900.00	21,300.00	13,100.00	19,200.00	51,800.00	5,800.00	18,000.00	16,800.00	13,600.00	18,600.00
ANALYTE (ug/kg)	**DW**	**GSI**																										
2 Butanone (MEK)	260,000.00	44,000.00		45.00	71.00	56.00		165.00	79.00	82.00	150.00	75.00	46.00	66.00	148.00	126.00	44.00	123.00	127.00	40.00	53.00	82.00	69.00	68.00	70.00	79.00	65.00	164.00
Vinyl Chloride	40.00	260.00							23.00																73.00			90.00
1,1-Dichloroethene	140.00	2,000.00																							34.00			18.00
trans-1,2-Dichloroethene	2,000.00	30,000.00																							100.00			62.00
1,1-Dichloroethane	18,000.00	15,000.00																							89.00			35.00
cis-1,2-Dichloroethene	1,400.00	12,000.00				58.00			350.00													300.00			6,380.00			2,820.00
Tetrahydrofuran	1,900.00	220,000.00		170.00	190.00	190.00	150.00	180.00	180.00	140.00	190.00	210.00	190.00	190.00	170.00	190.00	150.00	150.00	140.00	150.00	180.00	180.00	180.00	170.00	160.00	150.00	180.00	160.00
Chloroform	1,600.00	7,000.00							16.00																			
1,1,1-Trichloroethane	4,000.00	1,800.00							11.00													33.40						
Benzene	100.00	4,000.00																							36.00			
Trichloroethene	100.00	4,000.00				1,420.00			3,650.00													6,170.00			6,080.00	28.00		12,160.00
Toluene	16,000.00	5,400.00		11.00																13.00		10.00	31.00			45.00		
Ethylbenzene	1,500.00	360.00																					15.00					
Total Xylenes	5,600.00	820.00																		21.00			92.00			91.00		
Isopropylbenzene	91,000.00	3,200.00																16.00					13.00					
n-Propylbenzene	1,600.00	NC																					16.00					
1,2 -Dichlorobenzene	14,000.00	280.00																21.00										
1,2,4-Trimethylbenzene	2,100.00	570.00																		14.00			24.00			22.00		
1,2,3-Trimethylbenzene	NC	NC																13.50					13.40			11.80		
Naphthalene	35,000.00	730.00		10.80			14.40	17.00		13.70			12.90		14.30			345.70	46.90	39.50	12.50		51.50			100.30		
2-Methylnaphthalene	57,000.00	4,200.00		10.20			14.00	39.00		13.00	19.00				30.00		10.00	820.00	46.00	43.00			54.10			71.80		

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
GX	Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River

SOIL ANALYTICAL DATA (Detected VOCs)
RACER - Flint West #12990

	Sample ID			SB132-12	SB132-15	SB133-17	SB133-19	SB133-20
	Date Collected			7/10/14	7/10/14	7/10/14	7/10/14	7/10/14
ANALYTE (ug/kg)	**DW**	GSI						
2 Butanone (MEK)	260,000.00	44,000.00						
Vinyl Chloride	40.00	260.00		**180**	**89**	**46**		
1,1-Dichloroethene	140.00	2,600.00						
trans-1,2-Dichloroethene	2,000.00	30,000.00				18.00		
1,1-Dichloroethane	18,000.00	15,000.00				13.00		
cis-1,2-Dichloroethene	1,400.00	12,000.00		**2200.00**	1200.00	**1990.00**	530.00	270.00
Tetrahydrofuran	1,900.00	220,000.00		1500.00	300.00	150.00	160.00	117.00
Chloroform	1,600.00	7,000.00						
1,1,1-Trichloroethane	4,000.00	1,800.00				24.90	35.20	17.80
Benzene	100.00	4,000.00						
Trichloroethene	100.00	4,000.00		**29500**	**13700**	**11680**	**10860**	**7520**
Tetrachloroethene	100.00	1,200.00					17	
Toluene	16,000.00	5,400.00						
Ethylbenzene	1,500.00	360.00						
Total Xylenes	5,600.00	820.00						
Isopropylbenzene	91,000.00	3,200.00						
n-Propylbenzene	1,600.00	NC						
1,2 -Dichlorobenzene	14,000.00	280.00						
1,2,4-Trimethylbenzene	2,100.00	570.00						
1,2,3-Trimethylbenzene	NC	NC						
Naphthalene	35,000.00	730.00						
2-Methylnaphthalene	57,000.00	4,200.00				15.00	12.00	9.20

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
GX	Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River

G

SOIL ANALYTICAL DATA
RACER - Flint West #12990

			Sample ID	SB134-18	SB135-19	SB136-19	SB137-18	SB134-20	SB135-21	SB136-21	SB137-20.5
			Date Collected	12/22/14	12/22/14	12/22/14	12/22/14	12/22/14	12/22/14	12/22/14	12/22/14
ANALYTE (ug/kg)	DW	GSI									
Arsenic	4,600	4,600		380	1,900	1,870	1,660	1,690	2,080	3,350	3,040
Cadmium	6,000	5,400	G								
Copper	5,800,000	120,000	G	4,500	4,000	4,600	4,200	3,000	3,900	4,300	4,500
Lead	700,000	7,700,000	G	5,690	2,850	3,060	2,810	3,380	2,890	3,740	3,240
Selenium	4,000	400									
Zinc	2,400,000	260,000	G	5,900	17,500	13,600	13,500	19,500	15,300	18,800	27,300
2 Butanone (MEK)	260,000	44,000									
Vinyl Chloride	40	260			14						56
1,1-Dichloroethene	140	2,600									
trans-1,2-Dichloroethene	2,000	30,000			10.9		14				
1,1-Dichloroethane	18,000	15,000									
cis-1,2-Dichloroethene	1,400	12,000			1,100	340	670	120	800	450	290
Tetrahydrofuran	1,900	220,000									
Chloroform	1,600	7,000									
1,1,1-Trichloroethane	4,000	1,800				12.5	20.5		8.7		
Benzene	100	4,000									
Trichloroethene	100	4,000			7,890	8,760	4,250	2,040	6,540	9,390	
Tetrachloroethene	100	1,200									
Toluene	16,000	5,400		70							
Ethylbenzene	1,500	360		16							
Total Xylenes	5,600	820		85							
Isopropylbenzene	91,000	3,200									
n-Propylbenzene	1,600	NC		14							
1,2 -Dichlorobenzene	14,000	280									
1,2,4-Trimethylbenzene	2,100	570									
1,2,3-Trimethylbenzene	NC	NC									
Naphthalene	35,000	730		36.6							
2-Methylnaphthalene	57,000	4,200		29							

NOTES:

	Blank cells indicate no detectable concentrations
X	Exceeds residential and non-residential DW criteria
X	Exceeds GSI criteria calculated based on 257ppm total hardness in the Flint River
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
GX	Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River