



SEMI-ANNUAL GROUNDWATER MONITORING DATA REPORT

TO: Tyler Jacobs, USEPA

CC: Shaun Shields, EGLE RRD
Brendan Mullen, RACER
Dave Favero, RACER

FROM: Rodney Abke & Mike Smith, Applied EcoSystems, Inc.

DATE: May 9, 2024

SUBJECT: RACER Flint West Industrial Land (#12990)
Semi-Annual Monitoring

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(All investigations conducted by RACER to-date)
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Applied *Eco*Systems, Inc.

Environmental Management, Consulting & Field Services

Attachment 4: Soil Analytical Tables (All investigations conducted by RACER to-date)

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1.0 INTRODUCTION

Since the previous Data Report (dated February 7, 2024), Applied EcoSystems, Inc. (Æ) conducted a routine groundwater monitoring event (gauging and sampling) on the RACER Flint West Industrial Land (Site) and the adjoining Genesee County Parks (GCP) property to the north on March 27 and 28, 2024. This report provides a summary and the results of that groundwater monitoring event.

A Site Location Map is included as Figure 1; and for reference, Site investigation locations are included in Figure 2. The Site consists of approximately three 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 of the Site and with a utility conduit shed on the southeast corner of the Site. 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.

2.0 MONITORING ACTIVITIES COMPLETED

Groundwater Monitoring¹

- o All monitoring wells were gauged for depth to water on March 27, 2024. A Groundwater Contour Map prepared using the March 27, 2024, groundwater elevation data is included as Figure 3 in Appendix A. For reference, previously submitted cross section diagrams showing soil types and groundwater elevations are included in Appendix B as Attachment 1.
- o A routine groundwater monitoring event was conducted on March 27 and 28, 2024.
- o Groundwater samples were collected from monitoring wells MW-103S, MW-104S, MW-106SR, MW-108S, MW-110S, MW-112S, MW-114S, and MW-117S¹ to be analyzed for Volatile Organic Compounds (VOCs), dissolved and total metals (arsenic, chromium [total], chromium VI, copper, lead, selenium, and zinc), and per- and polyfluoroalkyl substances (PFAS).

¹ A reduction in the number of wells sampled during the semi-annual sampling events was requested in the *November 2021 Subsurface Investigation* report dated January 27, 2022, submitted to USEPA. The request was approved by USEPA on March 4, 2022.

Analytical results are summarized in Appendix B as Attachment 2. Laboratory analytical reports for all monitoring activities are included in Appendix B as Attachment 3.

3.0 MONITORING RESULTS

Groundwater (Semiannual Sampling)

Comparison of groundwater data (March 27 and 28, 2024) to current EGLE Generic Residential and Non-Residential Cleanup Criteria (GR/NCC) dated October 12, 2024 indicates the following:

Metals: Dissolved Arsenic was detected above drinking water (DW) and/or groundwater to surface water interface (GSI) criteria as shown in the table below. The concentrations are consistent with expected regional conditions, do not appear to represent a plume, and are considered generally to be naturally occurring. Although EGLE has published state-wide and regional “background” concentrations for soils, no such values have been published for groundwater; however, the concentrations generally are consistent with concentrations encountered by Æ at other uncontaminated sites in the Flint area. The dissolved metals concentrations are considered to be more representative of Site conditions than total metal concentrations for the purposes of this assessment.

Table 1.0 – Dissolved Metals Exceedances in Groundwater

Well ID	Metal	Drinking Water Criterion	GSI Criterion	Result
MW-103S	Dissolved Arsenic	10	10	32
MW-112S	Dissolved Arsenic	10	10	23

- All results are expressed in µg/L.
- Groundwater Results in **red** indicate a criteria exceedance.

VOCs: Exceedances were present as follows:

Table 2.0 – VOCs Exceedances in Groundwater

Well ID	VOC	Drinking Water Criterion	GSI Criterion	Result
MW-112S	Vinyl Chloride	2	13	3
MW-114S	Trichloroethene	5	200	129

- All results are expressed in µg/L.
- Groundwater Results in **red** indicate a criteria exceedance.

PFAS: Detected concentrations of PFAS that have EGLE criteria did not exceed criteria in any sample, except for Perfluorooctane sulfonic acid (PFOS) concentrations exceeded drinking water criterion (16 ng/L) and/or GSI criteria (12 ng/L) in MW-103S and MW-114S. These results are similar to the previous PFAS results for the groundwater samples collected in September 2023.

A table of all groundwater sample analytical results for all groundwater samples collected on behalf of RACER is included in Appendix B as Attachment 2. Sample analytical results for the March 2024

sampling events are included in Appendix B as Attachment 3. Figure 4 illustrates the GSI and drinking water exceedances for VOCs and metals in groundwater identified in groundwater samples collected from 2017 through 2024. For reference, Figure 5 includes data boxes and exceedances identified in soil samples. Figure 6 includes data boxes and exceedances for PFAS results. Low-flow sampling forms for the March 2024 sampling event are included in Appendix D². The Laboratory Data Validation Report is included in Appendix E.

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

The primary Site-specific constituents of concern are TCE and vinyl chloride, which appear to be exhibiting natural attenuation. PFOS concentrations have decreased or remained stable.

4.0 LABORATORY DATA VALIDATION SUMMARY

On March 27 and 28, 2024, Æ collected groundwater samples from eight monitoring wells at the RACER Flint West Industrial Land site using USEPA low-stress sampling protocols. One duplicate sample, one field blank, and one matrix spike and duplicate were collected. Samples were collected in appropriate laboratory-provided bottles with laboratory-provided preservatives and were maintained on ice until delivery under complete chain-of-custody protocols to Merit Laboratories within appropriate holding times. No sample condition issues were identified in the field or upon laboratory receipt. Samples were analyzed by specified standard methods for VOCs, EGLE 28 PFAS, six total and dissolved metals, and total and dissolved chromium VI. Filtration and preservation for dissolved metals and for total and dissolved chromium VI were performed immediately upon laboratory receipt instead of during field collection.

Laboratory deliverables include six laboratory reports, six quality control reports, and chains-of-custody for each -- two each for PFAS and for VOCs and metals. Each laboratory report contained a case narrative, laboratory accreditation/certification information, laboratory contact information, analytical methods, and analyte reporting relative to method detection limits (MDLs) and reporting limits (RLs). Data qualifiers were identified and evaluated in this Laboratory Data Validation report. No samples were extracted or analyzed beyond their holding times.

All surrogate recoveries were within their allowable ranges for each surrogate compound, except Chromium VI (low), and 4:2FTSA (high), neither of which was commonly present in groundwater at the site and neither of which was detected in any of the field samples -- indicating satisfactory laboratory performance overall. Analysis of laboratory blank samples identified no indications of significant cross-contamination, with only a low level of Acrylonitrile, 2-Butanone (MEK), Tetrahydrofuran, and 4-Methyl-2-pentanone (MIBK) indicated. The equipment blank identified only

² The water quality meter software malfunctioned just prior to sampling of MW-112S, so complete log for that well was not available. A screenshot of the error is included in Appendix D.



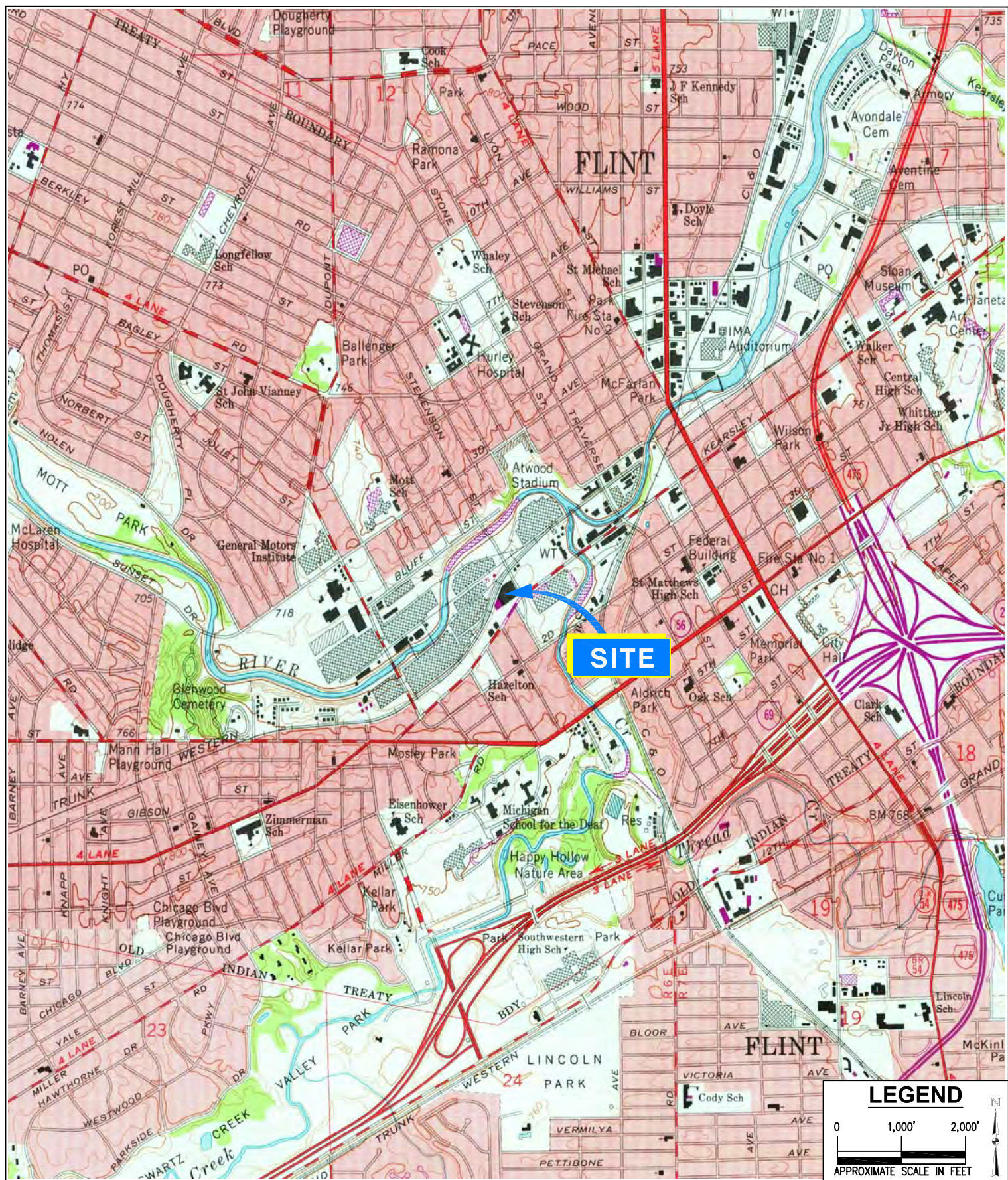
low concentrations of total and dissolved Arsenic and Chromium, Methylene Chloride, and Toluene exceeding their reporting limits. The field blank was determined to contain detectable concentrations of Total Copper and Chloroform exceeding RLs, but not MDLs. The trip blank was identified with a detectable concentration of Chloroform. Accordingly, no significant indications of cross-contamination were identified. Laboratory Control Spike (LCS) and LCS Duplicate analyses indicated the potential for Acrylonitrile, 2-Butanone (MEK), Tetrahydrofuran, or 4-Methyl-2-pentanone (MIBK) to be reported high. Matrix spikes and their duplicates indicated potential for PFAS analyte 4:2FTSA to be reported high, and for Chromium VI to be reported low. Of the potentially elevated analytes, none were detected in groundwater samples collected during this sampling event. No significant data qualifiers were identified in relation to the detected analyte concentrations.

Based on the assessment detailed in the foregoing QA/QC summary, the laboratory data summarized in Table 2 are considered acceptable within the specific qualifications noted herein.

6.0 SCHEDULE

The second 2024 semi-annual monitoring event will be scheduled in September 2024.





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Site Location Map

RACER Flint West #12990

Glenwood Avenue & Stevenson Street
Flint, Michigan

SOURCE: USGS FLINT SOUTH QUADRANGLE
(PROVISIONAL EDITION 1975)

DRAWING DATE:

04/06/2020

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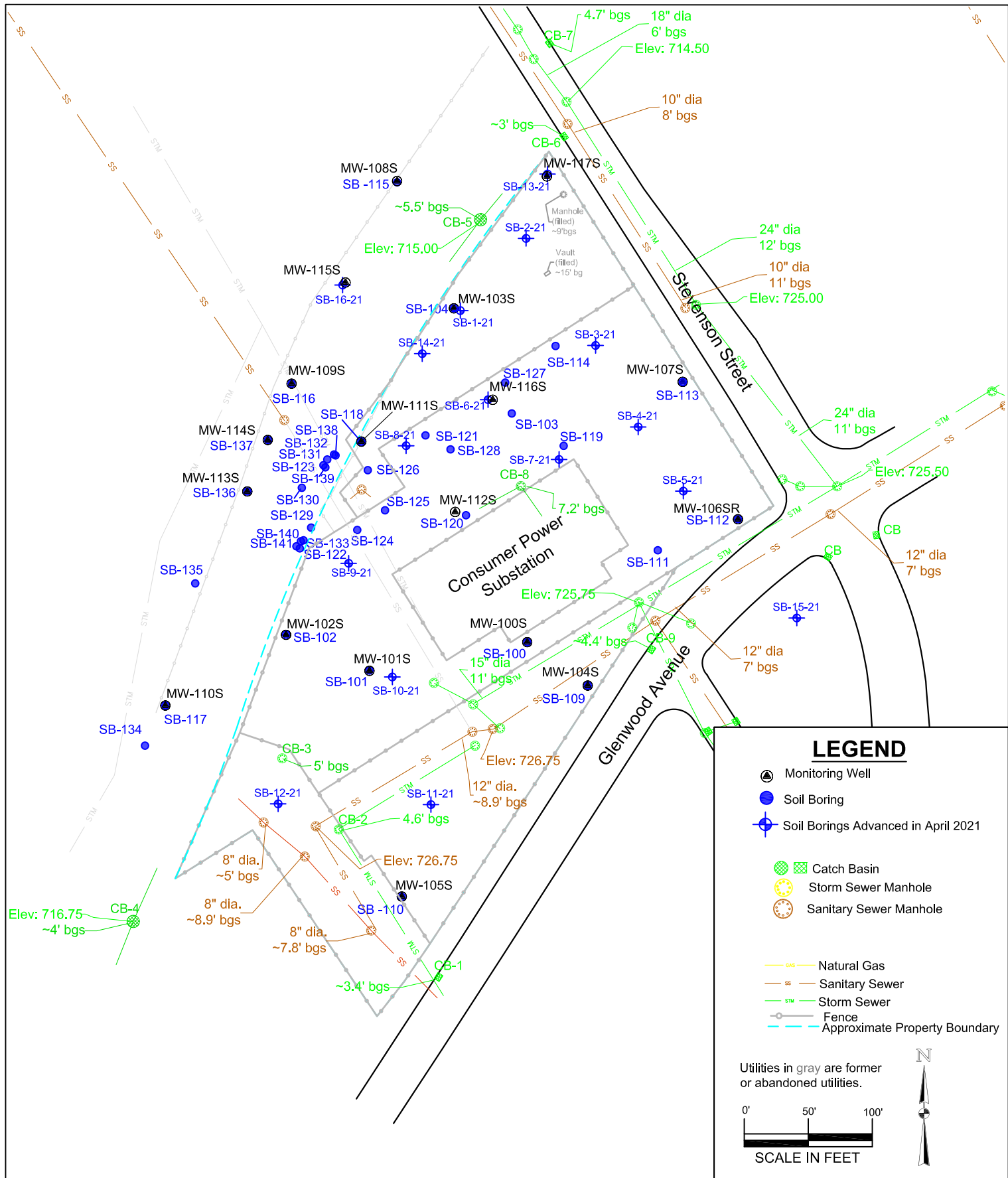
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PROJECT:

11-4317-102

FIGURE:

1



Applied *Eco*Systems, Inc.

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Site Map

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

DATE:

01/20/2022

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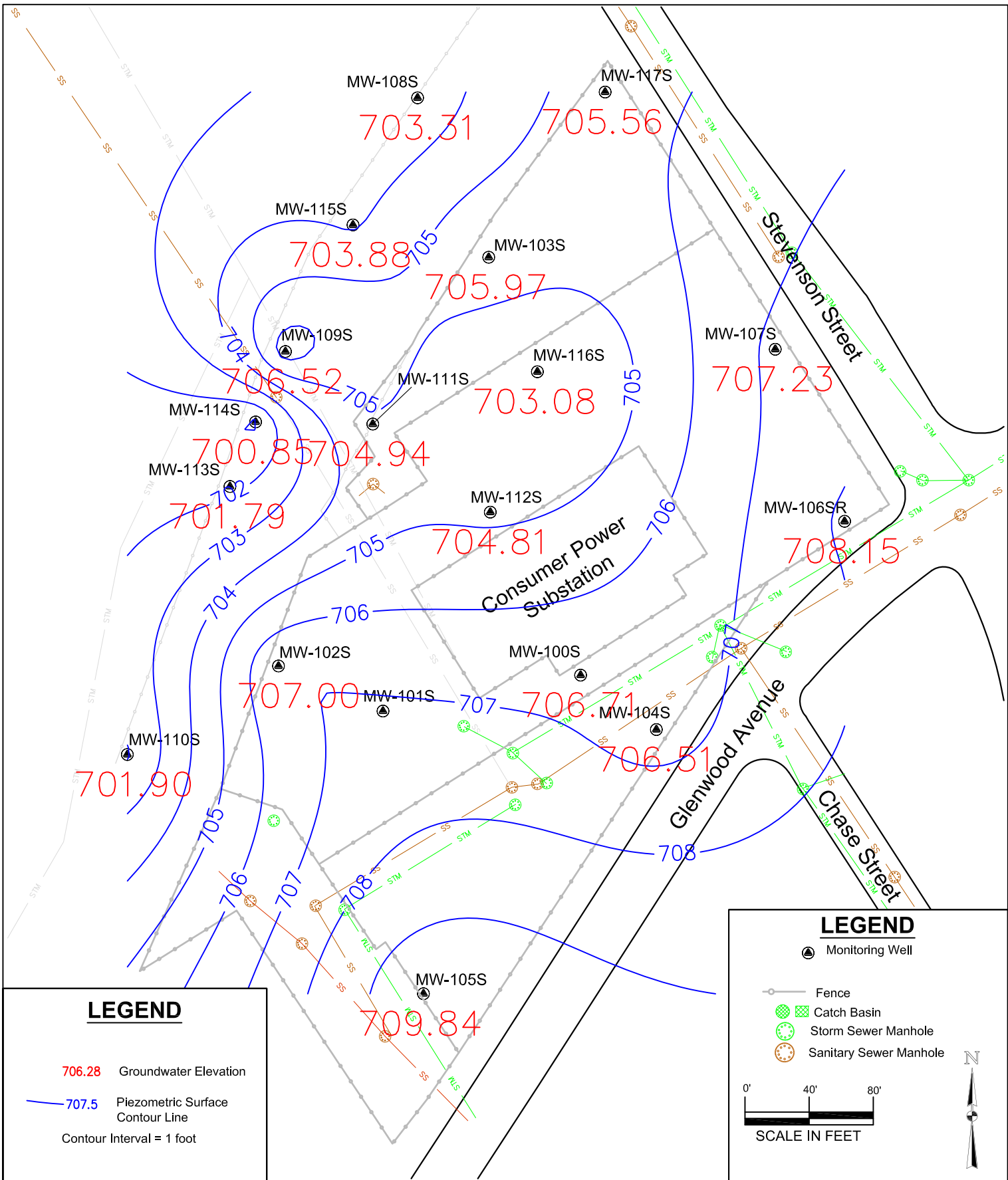
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PROJECT:

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FIGURE:

2



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

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

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

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

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

03/13/2012 SB-104					
ANALYTE	DW	GSI	Exceedance	Sampling Depth	
Benzene	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'	

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'	

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

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

12/22/14				SB-135	
ANALYTE	DW	GSI	Exceedance	Sampling Depth	
Trichloroethene	100	4,000	7890.0	19'	
12/22/14				SB-135	
ANALYTE	DW	GSI	Exceedance	Sampling Depth	
Trichloroethene	100	4,000	6540.0	21'	

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

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

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

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

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

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

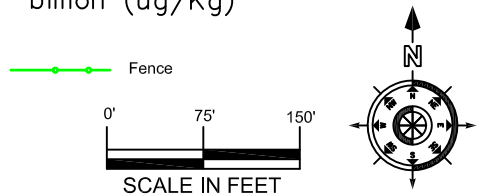
04/21/14 SB-125					
ANALYTE	DW	GSI	Exceedance	Sampling Depth	
Trichloroethene	100	4,000	3,650	19'	

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

LEGEND

- Monitoring Well
 - Soil boring
 - Multiple soil borings in one location.
 - HRC Injection boring
- Analyte Exceeds GSI and DW criteria
- Analyte Exceeds DW criteria only
- Analyte Exceeds GSI criteria only

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



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

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

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PROJECT:	11-4317-102
FIGURE:	5

MW-114S**														
ANALYTE	DW	GSI	9/5/18	2/27/20	8/19/20	3/3/21	9/16/21	3/16/22	9/13/22	3/21/23	9/14/23	3/27/24		
PFBS	420	NC	<9.5	<10	1.8	1.8	1.8	1.7	2.2	<2.0		1.8		
PFHxS	51	NC	<9.5	<10	2.3	1.8	1.5	<2.0	<1.8	1.5	<2.0	<2.0		
PFHxS-LN	NC	NC	<9.5	<10	1.6	NA	1.8	<2.0	<1.8	1.5	<2.0	<2.0		
PFHpS	NC	NC	<9.5	<10	<1.9	<2.0	<2.0	<2.0	<1.8	<2.0	<2.0	<2.0		
PFOS	16	12	31	31	29	22	21	16	30	17	14	13		
PFBA	NC	NC	<9.5	<20	<9.7	<10	<2.0	<9.8	<9.2	<10	<9.8	4.2		
PFPeA	NC	NC	<9.5	<10	1.1	<4.1	<2.0	<3.9	<3.7	3.4	2.8	1.8		
PFHxA	400,000	NC	<9.5	<10	<1.9	1.6	<2.0	1.7	<1.8	2.0	<2.4	1.5		
PFHpA	NC	NC	<9.5	<10	<1.9	<2.0	<2.0	<2.0	<1.8	1.3	<2.0	<2.0		
PFOA	8	12,000	<9.5	<10	1.8	<2.0	1.7	2.4	2.2	2.3	<2.0	1.2		
PFNA	6	NC	<9.5	<10	<1.9	<2.0	<2.0	<2.0	<1.8	0.95	<2.0	<2.0		
PFUnDA	NC	NC	<9.5	<10	<1.9	<2.0	<2.0	<2.0	<1.8	<2.0	<2.0	<2.0		
PFDoDA	NC	NC	<9.5	<10	<1.9	<2.0	<2.0	<2.0	<1.8	<2.0	<2.0	<2.0		
PFTDA	NC	NC	<9.5	<10	<1.9	<2.0	<2.0	<2.0	<1.8	<2.0	<2.0	<2.0		
PFTeDA	NC	NC	<9.5	<10	<1.9	<2.0	<2.0	<2.0	<1.8	<2.0	<2.0	<3.9		

MW-109S														
ANALYTE	DW	GSI	9/5/18	7/17/19	2/27/20	8/19/20	3/3/21	9/15/21						
PFBS	420	NC	2.9	<9.7	<9.9	2.7	2.2	1.6						
PFHxS	51	NC	3.2	<9.7	<9.9	2.5	1.9	1.9						
PFHxS-LN	NC	NC	<1.2	<9.7	<9.9	1.8	NA	<2.0						
PFHpS	NC	NC	2.6	<9.7	<9.9	<2.0	<1.9	<2.0						
PFOS	16	12	27	28	31	29	21	23						
PFBA	NC	NC	2.9	<19	5.5	<10	<9.7	<9.8						
PFPeA	NC	NC	<1.1	<9.7	<9.9	3.6	14	2.1						
PFHxA	400,000	NC	1.7	<9.7	1.4	3.2	7.6	<2.0						
PFHpA	NC	NC	<1.2	<9.7	<9.9	1.6	2	<2.0						
PFOA	8	12,000	2.6	<9.7	2.3	3.1	3.6	1.9						
PFNA	6	NC	1.2	<9.7	<9.9	<2.0	<1.9	<2.0						
PFUnDA	NC	NC	<0.31	<9.7	<9.9	<2.0	<1.9	<2.0						
PFDoDA	NC	NC	<0.46	<9.7	<9.9	<2.0	<1.9	<2.0						
PFTDA	NC	NC	<0.75	<9.7	<9.9	<2.0	<1.9	<2.0						
PFTeDA	NC	NC	1.7	<9.7	<9.9	<2.0	<1.9	<2.0						

MW-108S**														
ANALYTE	DW	GSI	7/17/19	9/13/22	3/21/23	9/14/23	3/27/24							
PFBS	420	NC	<9.7	1.5	1.1	<2.0	0.98							
PFHxS	51	NC	<9.7	2.3	1.8	2.8	<2.0							
PFHpS	NC	NC	<9.7	<1.8	<2.0	<2.0	<2.0							
PFOS	16	12	11	8.8	5.5	58	2.7							
PFBA	NC	NC	<19	<9.1	<9.8	<22	<10							
PFPeA	NC	NC	<9.7	<3.6	<3.9	<4.0	<4.0							
PFHxA	400,000	NC	<9.7	<1.8	<2.0	<2.0	<2.0							
PFHpA	NC	NC	<9.7	<1.8	0.98	<2.0	<2.0							
PFOA	8	12,000	<9.7	<1.8	<2.0	3.7	<2.0							
PFNA	6	NC	<9.7	<1.8	0.84	<2.0	<2.0							
PFUnDA	NC	NC	<9.7	<1.8	<2.0	<2.0	<2.0							
PFDoDA	NC	NC	<9.7	<1.8	<2.0	<2.0	<2.0							
PFTDA	NC	NC	<9.7	<1.8	<2.0	<2.0	<2.0							
PFTeDA	NC	NC	<9.7	<1.8	<2.0	<4.0	<4.0							

MW-115S				
ANALYTE	DW	GSI	11/18/23	
PFBS	420	NC	2.3	
PFOA	8	12,000	2.3	
PFHxS	51	NC	2.9	
PFOS	16	12	27	

MW-117S**														
ANALYTE	DW	GSI	3/16/22	9/13/22	3/21/23	9/14/23	9/14/23							
PFBA	NC	NC	<2.0	<2.0	3.0	<10	5.6							
PFPeA	NC	NC	<2.0	<2.0	0.98	<4.0	<4.0							
PFHxA	400,000	NC	<2.0	<2.0	1.3	<2.0	1.3							
PFBS	420	NC	<2.0	1.5	2.0	<2.0	1.6							
PFOA	8	12,000	<2.0	<2.0	3.2	2	1.2							
PFHxS	51	NC	<2.0	<2.0	1.4	<2.0	<2.0							
PFOS	16	12	<2.0	<2.0	1.9	3.1	2.8							

MW-103S**														
ANALYTE	DW	GSI	1/17/19	7/17/19	2/28/20	8/19/20	3/3/21	9/16/21	3/16/22	9/13/22	3/21/23	9/14/23	3/28/24	
PFBS	420	NC	<10	<9.4	<9.5	<2.0	1.6	<2.0	1.6	<1.9	1.7	<2.0	<1.9	
PFHxS	51	NC	<20	<9.4	2.7	2.2	5.9	5	2.1	<1.9	2.6	2.9	<1.9	
PFHxS-LN	NC	NC	<20	<9.4	<9.5	2.2	NA	3.1	2.1	<1.9	2.0	2.7	<1.9	
PFHpS	NC	NC	<10	<9.4	<9.5	<2.0	<2.2	<2.0	<2.0	<1.9	<1.9	<2.0	<1.9	
PFOS	16	12	90	93	84	120	91	46	74	73	9.9	58	63	
PFBA	NC	NC	<137	<19	<19	<10	<28	<16	<39	<190	<19	<26	<33	
PFPeA	NC	NC	<10	<9.4	<9.5	<4.0	<4.3	<3.9	<3.9	<3.8	<3.9	<3.8		
PFHxA	400,000	NC	<10	<9.4	<9.5	<2.0	<2.2	<2.0	<2.0	<5.7	<5.7	<2.0	<2.7	
PFHpA	NC	NC	<10	<9.4	<9.5	<2.0	<2.2	<2.0	<2.0	<1.9	<1.9	1.9	<1.9	
PFOA	8	12,000	<10	<9.4	<9.5	<2.0	<2.2	2.7	2.6	2.5	2.5	3.7	2.7	
PFNA	6	NC	<10	<9.4	<9.5	<2.0	<2.2	<2.0	<2.0	<1.9	<1.9	<2.0	<1.9	
PFDA	NC	NC	<10	<9.4	<9.5	<2.0	<2.2	<2.0	<2.0	<1.9	<1.9	<2.0	<1.9	
PFUnDA	NC	NC	<10	<9.4	<9.5	<2.0	<2.2	<2.0	<2.0	<1.9	<1.9	<2.0	<1.9	
PFDoDA	NC	NC	<10	<9.4	<9.5	<2.0	<2.2	<2.0	<2.0	<1.9	<1.9	<2.0	<1.9	
PFTDA	NC	NC	<10	<9.4	<9.5	<2.0	<2.2	<2.0	<2.0	<1.9	<1.9	<2.0	<1.9	
PFTeDA	NC	NC	<10	<9.4	<9.5	<2.0	<4.3	<3.9	<3.9	<1.9	<1.9	<3.9	<3.8	
EI/FOSSAA	NC	NC	<10	<9.4	<9.5	<2.0	<5.4	<3.9	<3.9	5.1	5.1	<3.9	<3.8	

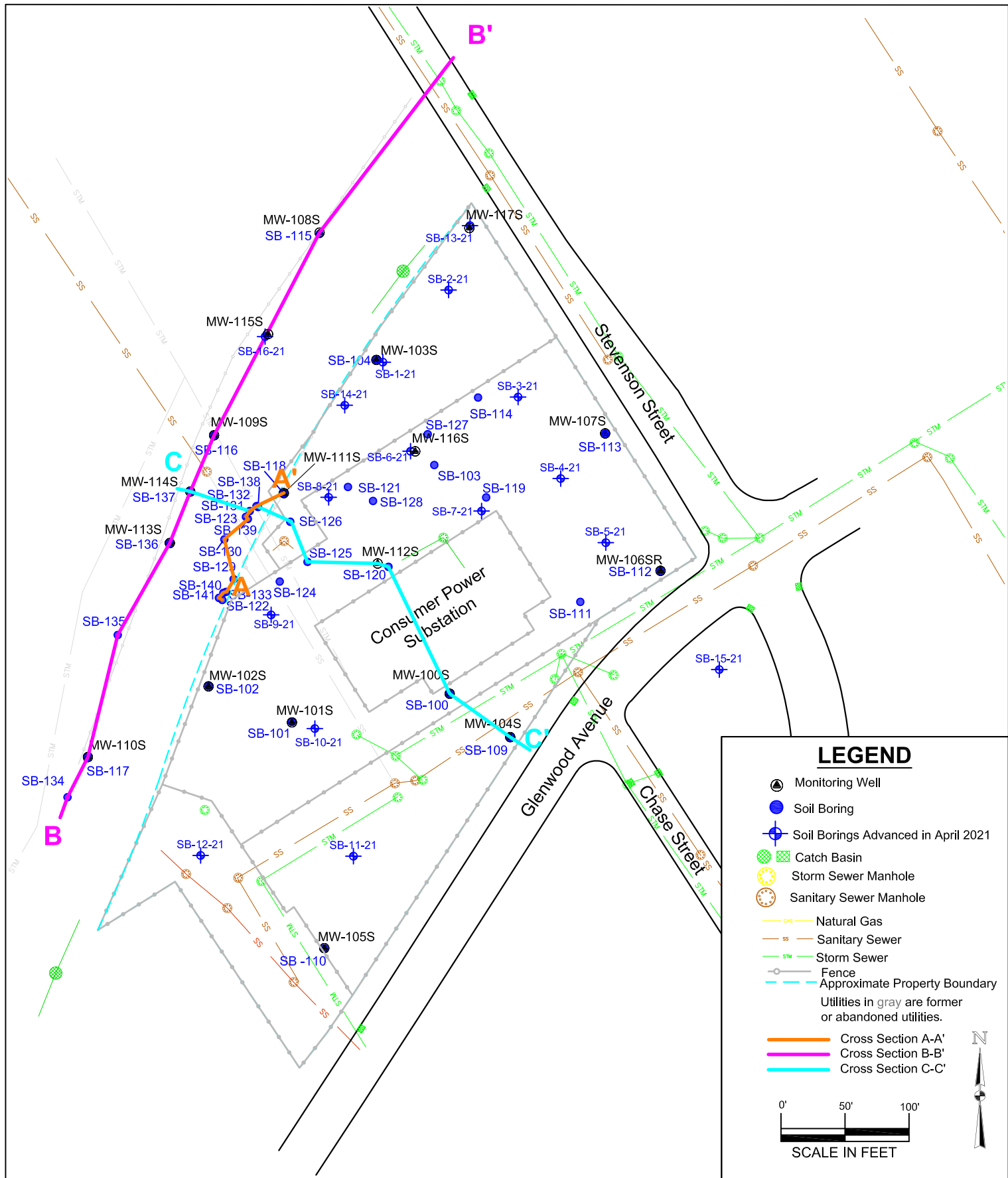
MW-111S														
ANALYTE	DW	GSI	1/28/18	5/29/18	8/30/18	7/17/19	2/27/20	8/19/20	3/3/21	9/16/21				
PFBS	420	NC	<1.9	<0.9	2.4	<9.6	<10	1.5	1.7	<2.0				
PFHxS	51	NC	1.9	1.6	3.8	<9.6	<10	1.9	<2.1	<2.0				
PFHpS	NC	NC	<1.9	<0.88	<0.88	<9.6	<10	<2.1	<2.1	<2.0				
PFOS	16	12	44	47	59	36	32	33	25	11				
PFBA	NC	NC	4.8	<2.7	<2.7	<9.6	<20	<10	<10	<2.0				
PFPeA	NC	NC	<1.9	<1.1	1.3	<9.6	<10	2.4	4.1	2.9				
PFHxA	400,000	NC	2.6	<0.92	<0.92	<9.6	<10	1.6	2.3	<2.0				
PFHpA	NC	NC	<1.9	<1.2	<1.2	<9.6	<10	<2.1	<2.1	<2.0				
PFOA	8	12,000	6.1	1.7	1.7	<9.6	<10	3	2.1	2				
PFNA	6	NC	<1.9	<0.94	<0.94	<9.6	<10	<2.1	<2.1	<2.0				
PFUnDA	NC	NC	<1.9	<0.31	<0.31	<9.6	<10	<2.1	<2.1	<2.0				
PFDoDA	NC	NC	<1.9	<0.46	<0.46	<9.6	<10	<2.1	<2.1	<2.0				
PFTDA	NC	NC	<1.9	0.78	<0.75	<9.6	<10	<2.1	<2.1	<2.0				
PFTeDA	NC	NC	<1.9	<1.2	<1.2	<9.6	<10	<2.1	<2.1	<2.0				

MW-113S														
ANALYTE	DW	GSI	8/30/18	7/17/19	2/27/20	8/19/20	3/3/21	8/15/21						
PFBS	420	NC	5	<9.5	<9.5	1.8	1.8	1.8						
PFHxS	51	NC	2.6	<9.5	<9.5	3.1	<2.0	1.8						
PFHxS-LN	NC	NC	<0.88	<9.5	<9.5	2.6	NA	<2.1						
PFHpS	NC	NC	<0.88	<9.5	<9.5	<1.9	<2.0	<2.1						
PFOs	16	12	13	20	6.2	26	12	23						
PFBA	NC	NC	7.1	<19	<19	<9.7	<10	<2.1						
PFPea	NC	NC	<1.1	<9.5	<9.5	1	<4.0	<2.1						
PFHxA	400,000	NC	1	<9.5	<9.5	<1.9	<2.0	<2.1						
PFHxA	NC	NC	1.3	<9.5	<9.5	<1.9	<2.0	<2.1						
PFOA	8	12,000	2.6	<9.5	<9.5	<1.9	<2.0	1.7						
PFNA	6	NC	<0.94	<9.5	<9.5	<1.9	<2.0	<2.1						
PFnDnA	NC	NC	<0.31	<9.5	<9.5	<1.9	<2.0	<2.1						
PFDoDA	NC	NC	<0.46	<9.5	<9.5	<1.9	<2.0	<2.1						
PFTeDA	NC	NC	<0.75	<9.5	<9.5	<1.9	<2.0	<2.1						
PFTeDA	NC	NC	<1.2	<9.5	<9.5	<1.9	<2.0	<2.1						



Applied *Eco*Systems, Inc.

Environmental Management, Consulting & Field Services



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 Locations Map

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

DATE:

11/30/2022

CHECKED BY:

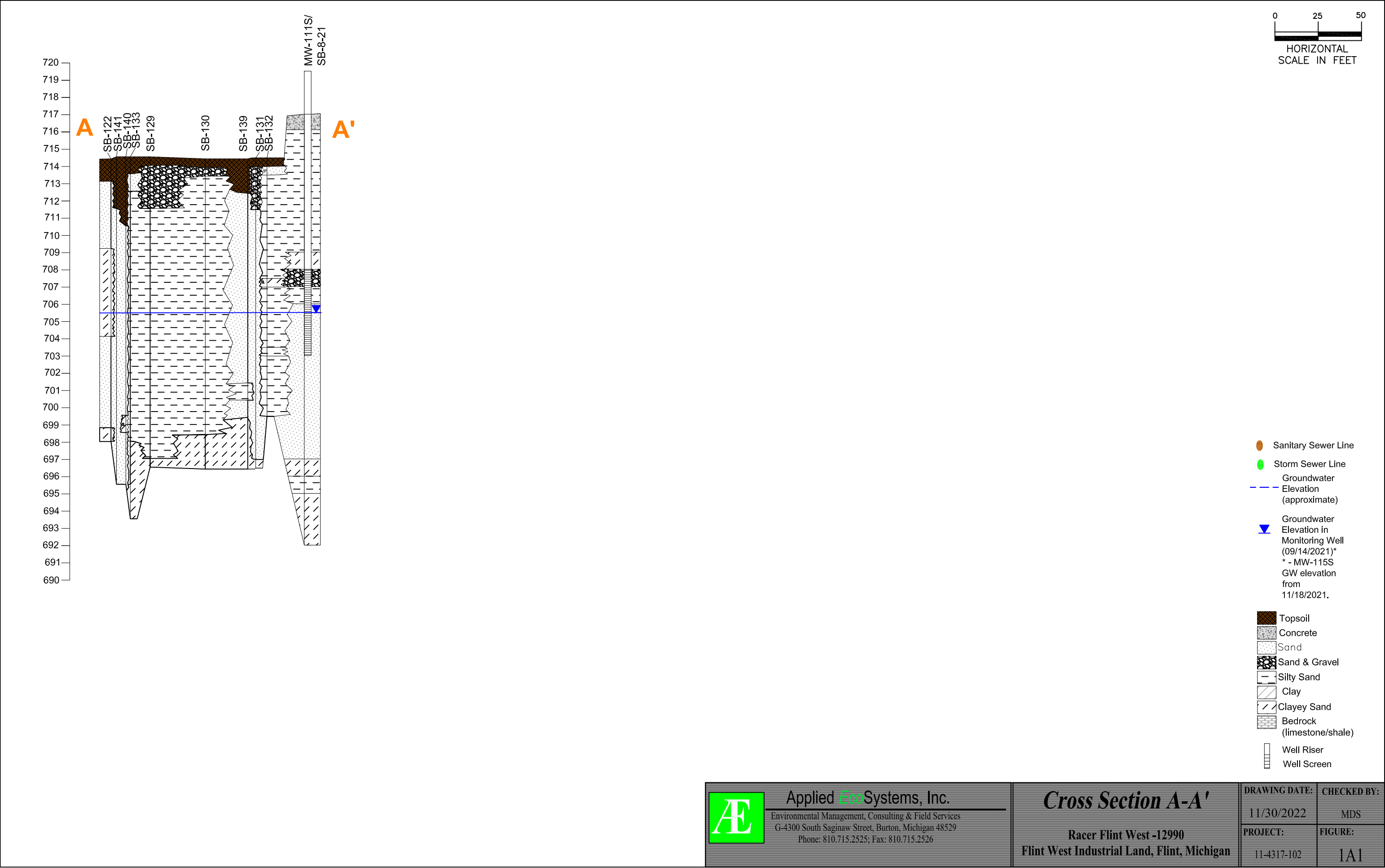
MDS

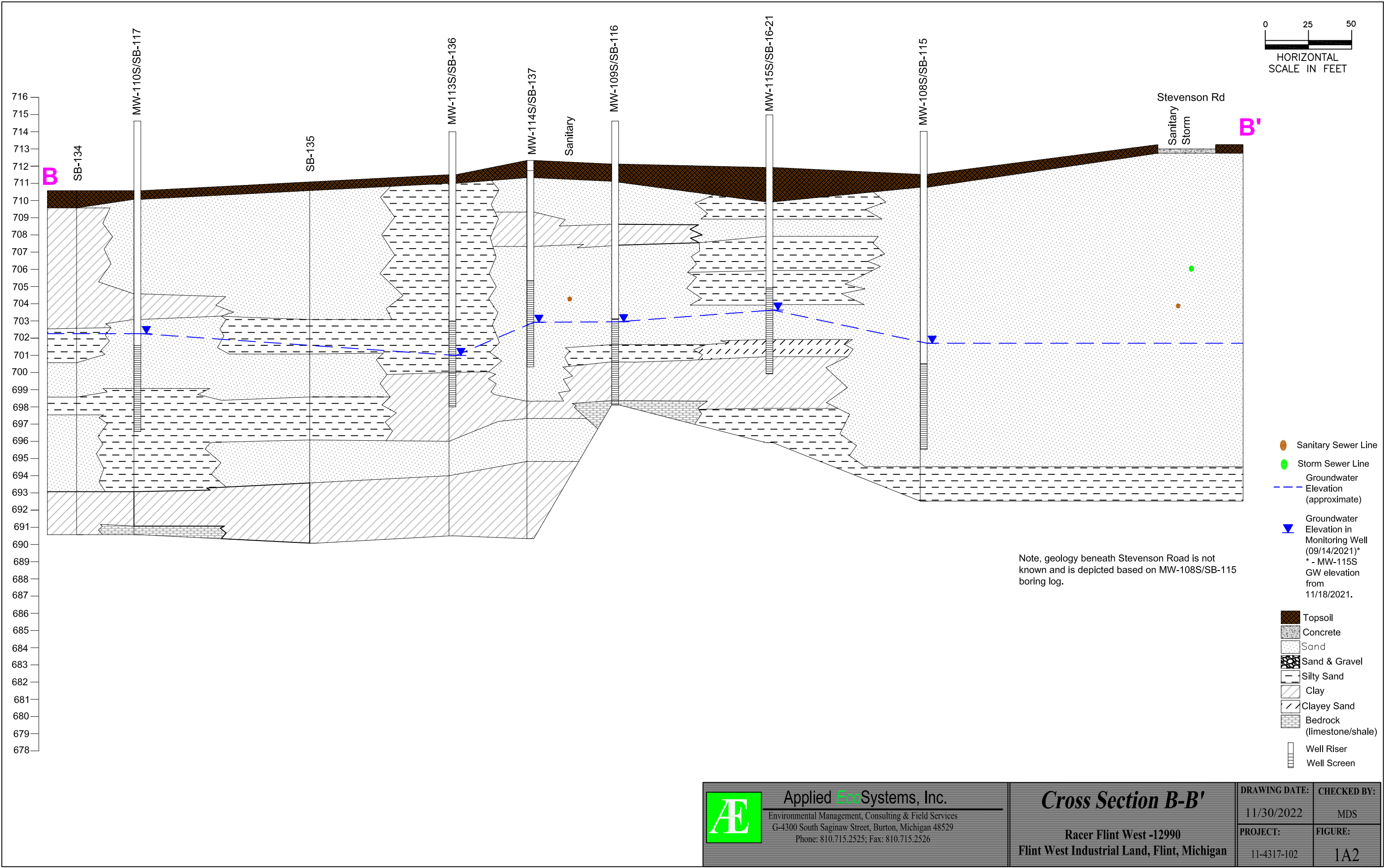
PROJECT:

11-4317-102

FIGURE:

1A0





 Applied <i>Eco</i>Systems, Inc. Environmental Management, Consulting & Field Services G-4300 South Saginaw Street, Burton, Michigan 48529 Phone: 810.715.2525; Fax: 810.715.2526	Cross Section B-B'		DRAWING DATE:	CHECKED BY:
	Racer Flint West -12990		11/30/2022	MDS
	Flint West Industrial Land, Flint, Michigan		PROJECT:	FIGURE:
			11-4317-102	1A2

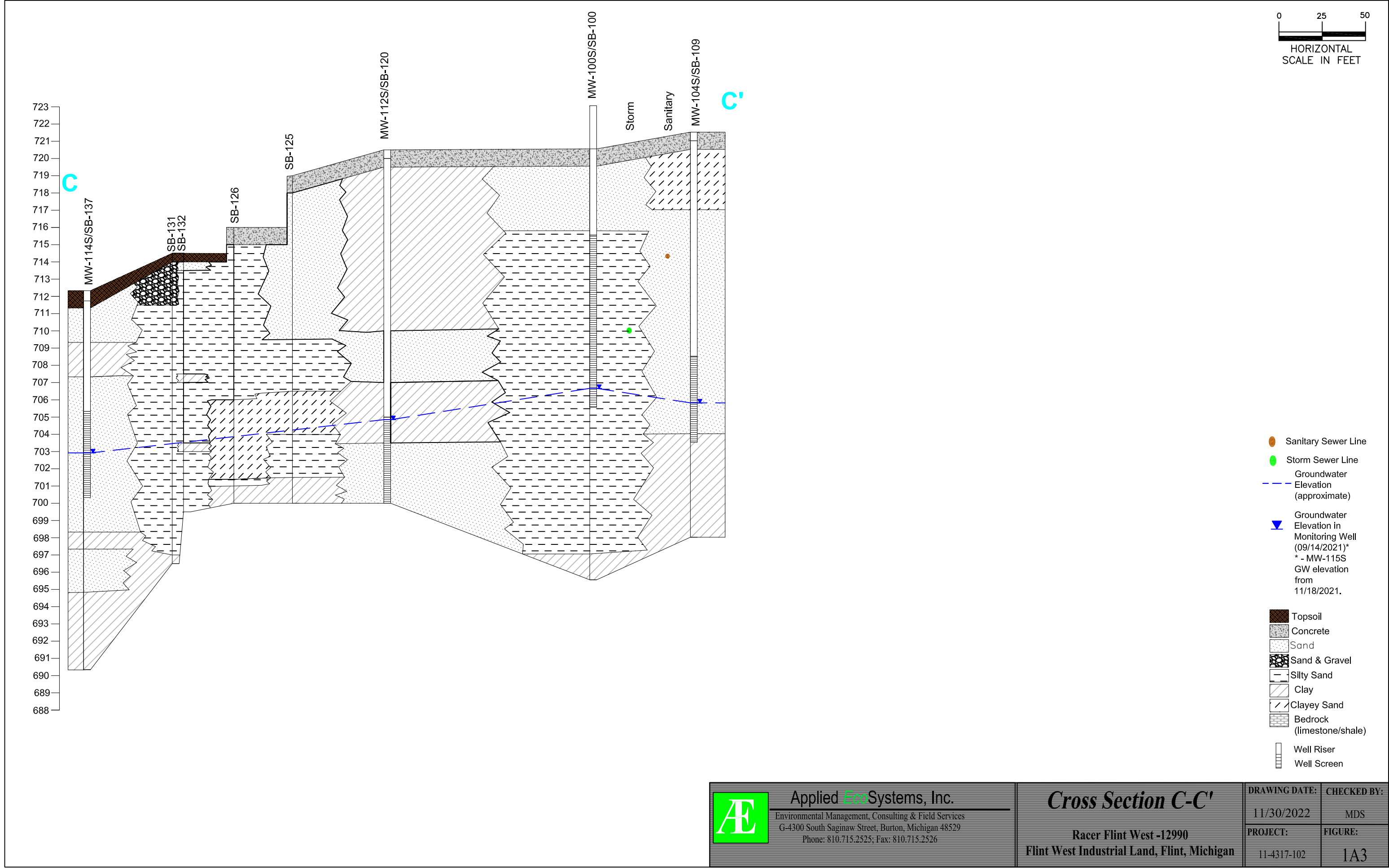


Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID				MW-103S	MW-104S	MW-106SR	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD
Date Collected				03/28/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/28/2024	03/27/2024	03/27/2024	03/28/2024	03/27/2024	03/28/2024	03/28/2024
METALS ANALYTE (ug/L)	DW	GSI										MW-114S					
Arsenic, Dissolved	10	10		32	<2	3	<2	2	23	10	<2	11	<2	<2	NA	34	31
Arsenic	10	10		45	<2	1.629	<2	3	64	16	<2	16	<2	<2	NA	44	44
Chromium VI, Dissolved	100	11		<20	<10	<10	<10	<20	<10	<10	<10	<10	<10	<10	NA	60	70
Chromium VI	100	11		<250	<10	<10	<10	<250	<50	<10	<10	<10	<10	<10	NA	4050	4300
Chromium, Dissolved	100	160	G	<5	<5	1.218	<5	<5	<5	<5	<5	<5	<5	<5	NA	<5	<5
Chromium	100	160	G	<5	60	598	<5	<5	<5	<5	22	<5	<5	<5	NA	<5	<5
Copper, Dissolved	1000	20	G	<5	1.156	<5	<5	<5	<5	<5	0.932	<5	<5	<5	NA	<5	<5
Copper	1000	20	G	<5	6	9	<5	1.039	6	1.073	1.674	1.186	<5	0.4	NA	<5	<5
Lead, Dissolved	4	44	G	<3	<3	<3	<3	<3	<3	0.74	<3	<3	<3	<3	NA	<3	<3
Lead	4	44	G	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	NA	<3	<3
Selenium, Dissolved	50	5		<5	5	<5	7	<5	<5	<5	<5	<5	<5	<5	NA	<5	<5
Selenium	50	5		<5	6	<5	7	<5	<5	<5	<5	<5	<5	<5	NA	<5	<5
Zinc, Dissolved	2400	260	G	<5	<5	<5	<5	<5	<5	15	<5	12	<5	<5	NA	<5	<5
Zinc	2400	260	G	<5	4.754	4.121	<5	<5	3.513	16	<5	15	<5	<5	NA	<5	<5
VOC ANALYTE (ug/L)	DW	GSI										MW-114S					
Acetone	730	1700		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	58	63
Acrylonitrile	2.6	2.0 (M); 1.2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	59	65
2-Butanone (MEK)	13000	2,200		<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	59	62
Benzene	5	200		0.25	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	53
n-Butylbenzene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	51
Bromobenzene	18	NA		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	53	53
Bromochloromethane	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	54
Bromodichloromethane	80	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	55
Bromoform	80 (A,W)	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	58
Bromomethane	10	4.2; [5(M)]		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	51	49
sec-Butylbenzene	230	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	51
tert-Butylbenzene	80	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	52
Carbon disulfide	800	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	55	54
Carbon tetrachloride	5	38	X	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	56	54
Chlorobenzene	100	25		0.33	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	53
Chloroethane	430	1,100		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	52	50
Chloroform	80	350		<1	<1	<1	0.87	<1	<1	<1	<1	<1	0.15	0.15	0.15	54	53
Chloromethane	260	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	51	51
1,1-Dichloroethane	880	740		<1	<1	<1	<1	<1	0.44	0.77	<1	0.8	<1	<1	<1	56	55
1,1-Dichloroethene	7	130		<1	<1	<1	<1	<1	0.35	0.34	<1	0.36	<1	<1	<1	54	52
1,2-Dibromo-3-chloropropane	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	54	60
1,2-Dibromoethane	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	57
1,2-Dichlorobenzene	600	13		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	53
1,2-Dichloroethane	5.0 (A)	360 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	53	53
1,2-Dichloropropane	5.0 (A)	230 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	54
1,3-Dichlorobenzene	6.6	28		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	53
1,4-Dichlorobenzene	75	17		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	53

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID				MW-103S	MW-104S	MW-106SR	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD
Date Collected				03/28/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/28/2024	03/27/2024	03/27/2024	03/28/2024	03/27/2024	03/28/2024	03/28/2024
VOC ANALYTE (ug/L)	DW	GSI										MW-114S					
cis-1,2-Dichloroethene	70	620		0.2	<1	<1	<1	<1	0.94	36	<1	36	<1	<1	<1	55	55
cis-1,3-Dichloropropene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	56	55
Dibromochloromethane	80 (A,W)	ID		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	56	58
Dibromomethane	230	NA		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	54	55
Dichlorodifluoromethane	1700	ID		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	50	49
Diethyl ether	10 (E)	ID		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	51	53
trans-1,2-Dichloroethene	100	1500		<1	<1	<1	<1	<1	<1	0.35	<1	0.35	<1	<1	<1	56	55
trans-1,3-Dichloropropene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	53
trans-1,4-Dichloro-2-butene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	45	55
Ethylbenzene	74	18		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	54
2-Hexanone	1000	ID		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	62	69
Hexachloroethane	21	6.7		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	51	49
p-Isopropyltoluene	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	52	50
Isopropylbenzene	800	28		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	53	52
VOC ANALYTE (ug/L) {cont}	DW	GSI		MW-114S													
2-Methylnaphthalene	260	19		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	56	60
4-Methyl-2-pentanone (MIBK)	1800	ID		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	60	67
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	55	58
Methyl iodide	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	51
Methylene chloride	5	1500		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	53	53
Naphthalene	520	11		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	60	63
n-Propylbenzene	80	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	52
Styrene	100	80		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	53	53
1,1,1,2-Tetrachloroethane	77	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	56	56
1,1,1-Trichloroethane	200	89		<1	<1	<1	<1	<1	<1	0.58	<1	0.59	<1	<1	<1	57	55
1,1,2,2-Tetrachloroethane	8.5	78 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	59
1,1,2-Trichloroethane	5.0 (A)	330 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	55
1,2,3-Trichlorobenzene	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	56	57
1,2,3-Trichloropropane	42	NA		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	59
1,2,3-Trimethylbenzene	NC	NC		0.33	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	52
1,2,4-Trichlorobenzene	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	55	54
1,2,4-Trimethylbenzene	63 (E)	17		0.29	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	52
1,3,5-Trimethylbenzene	72 (E)	45		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	53
Tetrachloroethene	5	60		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	53	51
Tetrahydrofuran	95	11000		<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	55.50	63.40
Toluene	790	270		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	52
Trichloroethene	5	200		<1	<1	<1	<1	<1	1	129	0.22	132	<1	<1	<1	54	53
Trichlorofluoromethane	2600	NA		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	51	50
Vinyl chloride	2	13		<1	<1	<1	<1	<1	3	2	<1	2	<1	<1	<1	52	51
o-Xylene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	53	53
p,m-Xylene	NC	NC		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	106	106
Xylenes, Total	280	49		<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	159	159

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID				MW-103S	MW-104S	MW-106SR	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD
Date Collected				03/28/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/28/2024	03/27/2024	03/27/2024	03/28/2024	03/27/2024	03/28/2024	03/28/2024
PFA ANALYTE (ng/L)	DW	GSI										MW-114S					
PFBA	NC	NC		<33	3.3	7.5	<10.0	<9.6	<27	4.2	5.8	4.4	<11	<9.7	<9.8	110	120
PFPeA	NC	NC		<3.8	<3.9	2.5	<4.0	<3.8	<4.1	1.8	<4.0	1.4	<4.2	<3.9	<3.9	100	97
4:2 FTS	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	96	87
PFHxA	400,000	NC		<2.7	<2.0	2.4	<2.0	<1.9	<2.9	1.5	1.3	1.4	<2.1	<1.9	<2.0	94	100
PFBS	420	NC		<1.9	2.5	4.3	0.98	2	<2.0	1.6	1.6	1.6	<2.1	<1.9	<2.0	85	90
PFHpA	NC	NC		<1.9	<2.0	1	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	100	100
PFPeS	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	94	97
6:2 FTS	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	100	99
PFOA	8	12,000		2.7	0.99	5.3	<2.0	0.78	<2.0	1.2	1.2	1.5	<2.1	<1.9	<2.0	85	84
PFHxS	51	NC		<1.9	<2.0	1.3	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	110	89
PFHxS-LN	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	89	73
PFHxS-BR	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	15	14
PFNA	6	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	84	99
8:2 FTS	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	85	92
PFHpS	NC	NC		<1.9	<2.0	0.9	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	100	98
PFDA	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	110	98
N-MeFOSAA	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	120	110
EtFOSAA	NC	NC		<3.8	<3.9	<4.0	<4.0	<3.8	<4.1	<3.9	<4.0	<4.0	<4.2	<3.9	<3.9	93	95
PFOS	16	12		63	<2.0	7.1	2.7	<1.9	7.1	13	2.8	15	<2.1	<1.9	<2.0	160	140
PFOS-LN	NC	NC		42	<2.0	1.9	<2.0	<1.9	3.7	4.9	<2.0	7.3	<2.1	<1.9	<2.0	110	99
PFOS-BR	NC	NC		20	<2.0	4.4	1.6	<1.9	2.6	6.7	<2.0	6.9	<2.1	<1.9	<2.0	50	43
PFUnDA	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	110	110
PFNS	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	100	92
PFDoDA	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	95	87
PFDS	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	110	95
PFTTrDA	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	110	100
FOSA	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	93	88
PFTeDA	NC	NC		<3.8	<3.9	<4.0	<4.0	<3.8	<4.1	<3.9	<4.0	<4.0	<4.2	<3.9	<3.9	86	82
11CI-PF3OUdS	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	110	94
9CI-PF3ONS	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	99	100
ADONA	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	95	96
HFPO-DA	NC	NC		<9.6	<9.8	<10.0	<10.0	<9.6	<10	<9.8	<10	<10.0	<11	<9.7	<9.8	96	110

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

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

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	X
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	X
Compound also found in associated method blank, suggesting a laboratory artifact.	X
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed	NA

PFAS criteria based on EGLE proposed drinking water criteria for selected PFAS compounds.

Perfluorobutanoic acid (PFBA)
Perfluoropentanoic acid (PFPeA)
Fluorotelomer sulfonic acid (4:2 FTS)
Perfluorohexanoic acid (PFHxA)
Perfluorobutane sulfonic acid (PFBS)
Perfluoroheptanoic acid (PFHpA)
Perfluoropentane sulfonic acid (PFPeS)
Fluorotelomer sulfonic acid (6:2 FTS)
Perfluorooctanoic acid (PFOA)
Perfluorohexane sulfonic acid (PFHxS)
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)
Perfluorononanoic acid (PFNA)
Fluorotelomer sulfonic acid (8:2 FTS)
Perfluoroheptane sulfonic acid (PFHpS)
Perfluorodecanoic acid (PFDA)

N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)
Perfluorooctane sulfonic acid (PFOS)
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)
Perfluoroundecanoic acid (PFUnDA)
Perfluorononane sulfonic acid (PFNS)
Perfluorododecanoic acid (PFDoDA)
Perfluorodecane sulfonic acid (PFDS)
Perfluorotridecanoic acid (PFTrDA)
Perfluorooctane sulfonamide (FOSA)
Perfluorotetradecanoic acid (PFTeDA)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)
4,8-dioxa-3H-perfluorononanoic acid (ADONA)
Hexafluoropropylene oxide dimer (HFPO-DA)

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID				MW-103S	MW-106SR	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD
Date Collected				09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023
METALS ANALYTE (ug/L)	DW	GSI									MW-114S					
Arsenic, Dissolved	10	10		13	2	1.347	3	34	8	1.618	9	1.224	0.576	NA	252	274
Arsenic	10	10		40	3	2	6	86	58	2	57	1.256	0.485	NA	313	319
Chromium VI, Dissolved	100	11		<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	NA	140	<50
Chromium VI	100	11		<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	NA	140	<50
Chromium, Dissolved	100	160	G	0.181	0.575	1.099	0.107	0.208	0.173	0.45	<5	<5	2.884	NA	250	273
Chromium	100	160	G	0.342	155	0.414	1.803	0.707	0.646	1610	0.624	0.098	0.119	NA	269	262
Copper, Dissolved	1000	20	G	<5	1	<5	0.51	<5	0.576	0.752	0.767	<5	<5	NA	243	246
Copper	1000	20	G	<5	2	<5	1.899	<5	2.507	67	2.374	<5	<5	NA	247	242
Lead, Dissolved	4	44	G	<3	<3	<3	<3	<3	<3	<3	<4	<3	<3	NA	240	239
Lead	4	44	G	<3	0.251	<3	0.729	0.204	1.477	0.753	1.459	<3	<3	NA	234	243
Selenium, Dissolved	50	5		<5	3.89	6	<5	<5	<5	<5	<5	<5	<5	NA	250	245
Selenium	50	5		<5	4.114	6	<5	<5	<5	<5	<5	<5	<5	NA	278	291
Zinc, Dissolved	2400	260	G	0.904	1.279	0.789	0.939	<5	14	<5	15	<5	<5	NA	236	271
Zinc	2400	260	G	<5	<5	1.573	2.266	14	30	2.789	27	<5	<5	NA	274	269
VOC ANALYTE (ug/L)	DW	GSI									MW-114S					
Acetone	730	1700		<50	<50	<50	<50	<50	<250	<50	<50	<50	<50	<50	55	54
Acrylonitrile	2.6	2.0 (M); 1.2		<2	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	53	56
2-Butanone (MEK)	13000	2,200		<25	<25	<25	<25	<25	<130	<25	<25	<25	<25	<25	50	55
Benzene	5	200		<1	<1	<1	<1	0.2	<5	<1	<1	<1	<1	<1	51	52
n-Butylbenzene	NC	NC		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	48	49
Bromobenzene	18	NA		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	53	52
Bromochloromethane	NC	NC		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	55	56
Bromodichloromethane	80	NC		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	53	54
Bromoform	80 (A,W)	ID		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	51	53
Bromomethane	10	4.2; [5(M)]		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	53	53
sec-Butylbenzene	230	ID		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	47	48
tert-Butylbenzene	80	ID		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	50	49
Carbon disulfide	800	NC		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	50	51
Carbon tetrachloride	5	38	X	<1	<1	3	<1	<1	<5	<1	<1	<1	<1	<1	50	51
Chlorobenzene	100	25		0.18	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	51	51
Chloroethane	430	1,100		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	49	50
Chloroform	80	350		<1	<1	1	<1	<1	<5	<1	<1	<1	<1	<1	52	53
Chloromethane	260	NC		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	49	51
1,1-Dichloroethane	880	740		<1	<1	<1	<1	0.68	1.15	<1	2	<1	<1	<1	52	53
1,1-Dichloroethene	7	130		<1	<1	<1	<1	1	<5	<1	0.78	<1	<1	<1	51	52
1,2-Dibromo-3-chloropropane	NC	NC		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	0.32	52	57
1,2-Dibromoethane	NC	NC		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	53	53
1,2-Dichlorobenzene	600	13		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	0.14	50	50
1,2-Dichloroethane	5.0 (A)	360 (X)		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	50	51
1,2-Dichloropropane	5.0 (A)	230 (X)		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	54	54
1,3-Dichlorobenzene	6.6	28		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	50	50
1,4-Dichlorobenzene	75	17		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	50	50

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID				MW-103S	MW-106SR	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD	
Date Collected				09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	
VOC ANALYTE (ug/L)	DW	GSI									MW-114S						
cis-1,2-Dichloroethene	70	620		<1	<1	<1	<1	3	63	<1	70	<1	<1	<1	54	54	
cis-1,3-Dichloropropene	NC	NC		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	54	56	
Dibromochloromethane	80 (A,W)	ID		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	54	54	
Dibromomethane	230	NA		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	54	57	
Dichlorodifluoromethane	1700	ID		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	42	42	
Diethyl ether	10 (E)	ID		<10	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	53	55	
trans-1,2-Dichloroethene	100	1500		<1	<1	<1	<1	0.3	<5	<1	0.64	<1	<1	<1	51	51	
trans-1,3-Dichloropropene	NC	NC		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	52	53	
trans-1,4-Dichloro-2-butene	NC	NC		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	41	44	
Ethylbenzene	74	18		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	50	49	
2-Hexanone	1000	ID		<50	<50	<50	<50	<50	<250	<50	<50	<50	<50	<50	53	60	
Hexachloroethane	21	6.7		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	51	52	
p-Isopropyltoluene	NC	NC		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	48	48	
Isopropylbenzene	800	28		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	50	49	
VOC ANALYTE (ug/L) {cont}	DW	GSI		MW-114S													
2-Methylnaphthalene	260	19		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	1.27	55	61
4-Methyl-2-pentanone (MIBK)	1800	ID		<50	<50	<50	<50	<50	<250	<50	<50	<50	<50	<50	52	55	
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	55	54	
Methyl iodide	NC	NC		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	53	55	
Methylene chloride	5	1500		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	1.08	53	53	
Naphthalene	520	11		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	0.55	54	57	
n-Propylbenzene	80	ID		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	51	50	
Styrene	100	80		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	52	51	
1,1,1,2-Tetrachloroethane	77	ID		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	54	54	
1,1,1-Trichloroethane	200	89		<1	<1	<1	<1	<1	<5	<1	1	<1	<1	<1	51	52	
1,1,2,2-Tetrachloroethane	8.5	78 (X)		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	51	53	
1,1,2-Trichloroethane	5.0 (A)	330 (X)		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	53	54	
1,2,3-Trichlorobenzene	NC	NC		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	0.57	54	56	
1,2,3-Trichloropropane	42	NA		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	50	53	
1,2,3-Trimethylbenzene	NC	NC		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	50	49	
1,2,4-Trichlorobenzene	NC	NC		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	53	54	
1,2,4-Trimethylbenzene	63 (E)	17		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	52	51	
1,3,5-Trimethylbenzene	72 (E)	45		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	51	51	
Tetrachloroethene	5	60		<1	<1	<1	<1	<1	<5	0.19	<1	<1	<1	<1	51	52	
Tetrahydrofuran	95	11000		<90	<90	<90	<90	<90	<450	<90	<90	5.9	<90	<90	46.80	48.40	
Toluene	790	270		<1	<1	<1	<1	<1	<5	<1	<1	<1	0.15	<1	51	52	
Trichloroethene	5	200		<1	<1	0.27	0.16	5	166	0.29	202	<1	<1	<1	51	51	
Trichlorofluoromethane	2600	NA		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	48	48	
Vinyl chloride	2	13		<1	<1	<1	<1	9	3.5	<1	5	<1	<1	<1	47	49	
o-Xylene	NC	NC		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	50	49	
p,m-Xylene	NC	NC		<2	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	101	98	
Xylenes, Total	280	49		<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	151	147	

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID				MW-103S	MW-106SR	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD
Date Collected				09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023	09/14/2023
PFA ANALYTE (ng/L)	DW	GSI									MW-114S					
PFBA	NC	NC		<26	<10	<22	21	<31	<9.9	<10.0	<9.9	<10	<10	<10	110	97
PFPeA	NC	NC		<3.9	1.5	<4.0	1.1	<3.9	2.6	<4.0	1.7	<4.1	<4.0	<4.1	94	93
4:2 FTS	NC	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	89	98
PFHxA	400,000	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.4	<2.0	<2.0	<2.1	<2.0	<2.0	120	110
PFBS	420	NC		<2.0	2.9	<2.0	5.4	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	110	110
PFHpA	NC	NC		1.9	1.8	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	100	94
PFPeS	NC	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	110	92
6:2 FTS	NC	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	110	96
PFOA	8	12,000		3.7	6.1	3.7	<1.9	<1.9	<2.0	2	1.9	<2.1	<2.0	<2.0	99	96
PFHxS	51	NC		2.9	<2.0	2.8	2.4	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	100	99
PFHxS-LN	NC	NC		2.7	<2.0	2.4	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	86	83
PFHxS-BR	NC	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	15	15
PFNA	6	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	110	96
8:2 FTS	NC	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	110	110
PFHpS	NC	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	89	89
PFDA	NC	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	90	100
N-MeFOSAA	NC	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	91	90
EtFOSAA	NC	NC		<3.9	<4.0	<4.0	<3.8	<3.9	<3.9	<4.0	<4.0	<4.1	<4.0	<4.1	88	94
PFOS	16	12		58	10	58	<1.9	10	14	3.1	14	<2.1	<2.0	<2.0	160	110
PFOS-LN	NC	NC		34	2.5	36	<1.9	4.9	7.2	<2.0	7.5	<2.1	<2.0	<2.0	110	70
PFOS-BR	NC	NC		22	8	21	<1.9	5.2	7.2	<2.0	6.7	<2.1	<2.0	<2.0	47	33
PFUnDA	NC	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	100	88
PFNS	NC	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	100	110
PFDoDA	NC	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	110	110
PFDS	NC	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	120	110
PFTrDA	NC	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	130	130
FOSA	NC	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	88	95
PFTeDA	NC	NC		<3.9	<4.0	<4.0	<3.8	<3.9	<3.9	<4.0	<4.0	<4.1	<4.0	<4.1	97	100
11CI-PF3OUdS	NC	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	100	99
9CI-PF3ONS	NC	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	110	110
ADONA	NC	NC		<2.0	<2.0	<2.0	<1.9	<1.9	<2.0	<2.0	<2.0	<2.1	<2.0	<2.0	99	94
HFPO-DA	NC	NC		<9.9	<10	<10	<1.9	<9.7	<2.0	<10.0	<2.0	<10	<2.0	<2.0	74	88

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

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

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	X
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	X
Compound also found in associated method blank, suggesting a laboratory artifact.	X
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed	NA

PFAS criteria based on EGLE proposed drinking water criteria for selected PFAS compounds.

Perfluorobutanoic acid (PFBA)
Perfluoropentanoic acid (PFPeA)
Fluorotelomer sulfonic acid (4:2 FTS)
Perfluorohexanoic acid (PFHxA)
Perfluorobutane sulfonic acid (PFBS)
Perfluoroheptanoic acid (PFHpA)
Perfluoropentane sulfonic acid (PFPeS)
Fluorotelomer sulfonic acid (6:2 FTS)
Perfluorooctanoic acid (PFOA)
Perfluorohexane sulfonic acid (PFHxS)
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)
Perfluorononanoic acid (PFNA)
Fluorotelomer sulfonic acid (8:2 FTS)
Perfluoroheptane sulfonic acid (PFHpS)
Perfluorodecanoic acid (PFDA)

N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)
Perfluorooctane sulfonic acid (PFOS)
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)
Perfluoroundecanoic acid (PFUnDA)
Perfluorononane sulfonic acid (PFNS)
Perfluorododecanoic acid (PFDoDA)
Perfluorodecane sulfonic acid (PFDS)
Perfluorotridecanoic acid (PFTrDA)
Perfluorooctane sulfonamide (FOSA)
Perfluorotetradecanoic acid (PFTeDA)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)
4,8-dioxa-3H-perfluorononanoic acid (ADONA)
Hexafluoropropylene oxide dimer (HFPO-DA)

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID				MW-103S	MW-104S	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD	
Date Collected				03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023
METALS ANALYTE (ug/L)	DW	GSI															
Arsenic, Dissolved	10	10		8	1.4	0.381	1.18	15	18	0.941	15	<2	<2	NA	256	263	
Arsenic	10	10		14	1.38	0.465	2	40	34	1.06	27	<2	<2	NA	271	277	
Chromium VI, Dissolved	100	11		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	NA	<10	<10	
Chromium VI	100	11		<0.25	<10	<10	<10	<10	<10	<10	<10	<10	<10	NA	3600	3380	
Chromium, Dissolved	100	160	G	0.204	0.502	0.27	0.39	0.401	0.182	1.27	0.139	<5	<5	NA	245	254	
Chromium	100	160	G	0.406	70	0.559	1.33	0.42	0.514	49	0.496	0.107	0.096	NA	249	247	
Copper, Dissolved	1000	20	G	<0.005	1.46	0.856	1.81	<5	0.379	1.13	2.29	0.16	0.558	NA	238	247	
Copper	1000	20	G	0.469	3.59	2.42	4.11	<5	1.56	2.16	1	<5	<5	NA	245	237	
Lead, Dissolved	4	44	G	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	NA	242	246	
Lead	4	44	G	<3	<3	0.508	0.743	<3	0.213	<3	0.38	<3	<3	NA	235	243	
Selenium, Dissolved	50	5		<5	<5	4.27	<5	<5	<5	<5	<5	<5	<5	NA	256	260	
Selenium	50	5		<5	2.45	6	<5	<5	<5	<5	<5	<5	<5	NA	269	283	
Zinc, Dissolved	2400	260	G	1.17	1.87	2.38	26	1.36	4.82	1.24	12	0.671	0.666	NA	246	256	
Zinc	2400	260	G	1.68	2.37	6	28	1.82	8	1.65	8	0.757	0.371	NA	260	261	
VOC ANALYTE (ug/L)	DW	GSI															
Acetone	730	1700		<50	<50	<50	<50	5.4	<250	<50	<50	11.4	5.5	<50	56	49.3	
Acrylonitrile	2.6	2.0 (M); 1.2		<2	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	54	57	
2-Butanone (MEK)	13000	2,200		<25	<25	<25	<25	<25	<130	<25	<25	<25	<25	<25	49	55	
Benzene	5	200		0.22	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	58	55	
n-Butylbenzene	NC	NC		0.2	<1	<1	<1	<1	0.55	<1	<1	<1	<1	<1	53	54	
Bromobenzene	18	NA		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	48	56	
Bromochloromethane	NC	NC		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	58	58	
Bromodichloromethane	80	NC		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	57	57	
Bromoform	80 (A,W)	ID		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	50	51	
Bromomethane	10	4.2; [5(M)]		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	65	52	
sec-Butylbenzene	230	ID		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	53	55	
tert-Butylbenzene	80	ID		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	48	54	
Carbon disulfide	800	NC		0.24	<5	<5	<5	0.23	<30	<5	<5	<5	<5	0.16	60	49	
Carbon tetrachloride	5	38	X	<1	<1	2	<1	<1	<5	<1	<1	<1	<1	<1	57	58	
Chlorobenzene	100	25		3	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	55	56	
Chloroethane	430	1,100		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	66	55	
Chloroform	80	350		<1	0.59	2	<1	<1	<5	<1	<1	<1	0.4	<1	57	56	
Chloromethane	260	NC		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	71	37.98	
1,1-Dichloroethane	880	740		<1	<1	<1	<1	0.35	1.3	<1	1	<1	<1	<1	57	55	
1,1-Dichloroethene	7	130		<1	<1	<1	<1	<1	0.9	<1	1	<1	<1	<1	59	55	
1,2-Dibromo-3-chloropropane	NC	NC		<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	60	56	
1,2-Dibromoethane	NC	NC		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	54	53	
1,2-Dichlorobenzene	600	13		0.27	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	55	58	
1,2-Dichloroethane	5.0 (A)	360 (X)		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	59	57	
1,2-Dichloropropane	5.0 (A)	230 (X)		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	57	71	
1,3-Dichlorobenzene	6.6	28		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	55	83	
1,4-Dichlorobenzene	75	17		<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	55	55	

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID			MW-103S	MW-104S	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD
Date Collected			03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023
VOC ANALYTE (ug/L)	DW	GSI													
cis-1,2-Dichloroethene	70	620	<1	<1	<1	<1	0.78	59	<1	70	<1	<1	<1	54	55
cis-1,3-Dichloropropene	NC	NC	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	59	56
Dibromochloromethane	80 (A,W)	ID	<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	54	72
Dibromomethane	230	NA	<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	59	78
Dichlorodifluoromethane	1700	ID	<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	71	56
Diethyl ether	10 (E)	ID	<10	<10	<10	<10	<10	<50	<10	<10	<10	<10	<10	61	55
trans-1,2-Dichloroethene	100	1500	<1	<1	<1	<1	<1	0.55	<1	0.57	<1	<1	<1	53	50
trans-1,3-Dichloropropene	NC	NC	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	56	57
trans-1,4-Dichloro-2-butene	NC	NC	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	45	111
Ethylbenzene	74	18	0.12	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	52	53
2-Hexanone	1000	ID	<50	<50	<50	<50	<50	<250	<50	<50	<50	<50	<50	57	70
Hexachloroethane	21	6.7	<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	58	53
p-Isopropyltoluene	NC	NC	0.11	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	54	59
Isopropylbenzene	800	28	<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	48	54
VOC ANALYTE (ug/L) {cont}	DW	GSI													
2-Methylnaphthalene	260	19	0.45	<5	<5	<5	<5	1.6	<5	<5	<5	<5	<5	58	59
4-Methyl-2-pentanone (MIBK)	1800	ID	<50	<50	<50	<50	0.55	<250	<50	<50	<50	<50	<50	55	56
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)	<5	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	56	52
Methyl iodide	NC	NC	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	58	51
Methylene chloride	5	1500	<5	<5	<5	<5	<5	<30	<5	<5	<5	0.47	<5	55	58
Naphthalene	520	11	0.21	<5	<5	<5	<5	0.65	<5	<5	<5	<5	<5	63	55
n-Propylbenzene	80	ID	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	48	53
Styrene	100	80	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	49	53
1,1,1,2-Tetrachloroethane	77	ID	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	53	51
1,1,1-Trichloroethane	200	89	<1	<1	<1	<1	<1	1.2	<1	0.93	<1	<1	<1	56	51
1,1,2,2-Tetrachloroethane	8.5	78 (X)	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	47	45
1,1,2-Trichloroethane	5.0 (A)	330 (X)	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	60	54
1,2,3-Trichlorobenzene	NC	NC	0.15	<5	<5	<5	<5	0.5	<5	<5	<5	<5	<5	60	51
1,2,3-Trichloropropane	42	NA	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	49	54
1,2,3-Trimethylbenzene	NC	NC	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	54	55
1,2,4-Trichlorobenzene	NC	NC	0.15	<5	<5	<5	<5	<30	<5	<5	<5	<5	<5	59	70
1,2,4-Trimethylbenzene	63 (E)	17	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	49	54
1,3,5-Trimethylbenzene	72 (E)	45	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	49	51
Tetrachloroethene	5	60	<1	<1	<1	<1	<1	<5	0.14	<1	<1	<1	<1	56	57
Tetrahydrofuran	95	11000	1.28	<90	<90	<90	<90	15.5	<90	<90	<90	5.8	1.9	47.49	54.00
Toluene	790	270	0.18	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	57	55
Trichloroethene	5	200	0.1	<1	<1	<1	1	173	<1	199	<1	<1	<1	58	52
Trichlorofluoromethane	2600	NA	<1	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	66	53
Vinyl chloride	2	13	<1	<1	<1	<1	0.83	3.95	<1	6	<1	<1	<1	70	49
o-Xylene	NC	NC	0.11	<1	<1	<1	<1	<5	<1	<1	<1	<1	<1	49	59
p,m-Xylene	NC	NC	0.22	<2	<2	<2	<2	<10	<2	<2	<2	<2	<2	104	55
Xylenes, Total	280	49	0.33	<3	<3	<3	<3	<15	<3	<3	<3	<3	<3	153	114

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RACER - Flint West # 12990

Sample ID			MW-103S	MW-104S	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD
Date Collected			03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023
PFA ANALYTE (ng/L)	DW	GSI													
Perfluorobutanoic acid (PFBA)	NC	NC	99	<9.8	<9.8	<10	<9.6	<10	3	<9.8	<10	<9.5	<9.7	<19	100
Perfluoropentanoic acid (PFPeA)	NC	NC	80	0.88	<3.9	<4.1	<3.8	3.4	0.98	3.5	<4.1	<3.8	<3.9	<3.8	89
Fluorotelomer sulfonic acid (4:2 FTS)	NC	NC	99	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<1.9	110
Perfluorohexanoic acid (PFHxA)	400,000	NC	82	0.61	<2.0	0.63	<1.9	2	1.3	2	<2.0	<1.9	<1.9	<1.9	93
Perfluorobutane sulfonic acid (PFBS)	420	NC	81	2	1.1	2.4	2	2.2	1.3	2	<2.0	<1.9	<1.9	1.7	85
Perfluoroheptanoic acid (PFHpA)	NC	NC	75	<2.0	0.98	<2.0	1.3	1.3	1.4	1.6	<2.0	<1.9	<1.9	<1.9	80
Perfluoropentane sulfonic acid (PFPeS)	NC	NC	77	0.98	<2.0	1	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<1.9	82
Fluorotelomer sulfonic acid (6:2 FTS)	NC	NC	100	<3.9	<3.9	<4.1	<3.8	<4.0	<2.0	<3.9	<4.1	<1.9	<1.9	<1.9	110
Perfluorooctanoic acid (PFOA)	8	12,000	79	<2.0	<2.0	<2.0	2.3	2.3	3.2	2.4	<2.0	<1.9	<1.9	<1.9	80
Perfluorohexane sulfonic acid (PFHxS)	51	NC	80	2.2	1.6	<2.0	1.3	1.5	1.4	1.3	<2.0	<1.9	<1.9	2.6	86
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	NC	NC	68	1.9	1.6	<2.0	1.3	1.5	<2.0	1.3	<2.0	<1.9	<1.9	2	74
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	NC	NC	9.4	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<1.9	12
Perfluorononanoic acid (PFNA)	6	NC	80	<2.0	0.84	<2.0	0.96	0.95	<2.0	0.99	<2.0	<1.9	<1.9	<1.9	83
Fluorotelomer sulfonic acid (8:2 FTS)	NC	NC	82	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<1.9	97
Perfluoroheptane sulfonic acid (PFHpS)	NC	NC	82	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<1.9	79
Perfluorodecanoic acid (PFDA)	NC	NC	76	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<1.9	80
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NC	NC	73	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<1.9	71
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	NC	NC	79	<3.9	<3.9	<4.1	<3.8	<4.0	<4.1	<3.9	<4.1	<3.8	<3.9	<3.8	89
Perfluorooctane sulfonic acid (PFOS)	16	12	91	<2.0	5.5	<2.0	13	17	1.9	15	<2.0	<1.9	<1.9	9.9	94
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NC	NC	63	<2.0	2	<2.0	6.4	9	<2.0	8.1	<2.0	<1.9	<1.9	5.8	64
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NC	NC	26	<2.0	4	<2.0	6.9	7.8	1.3	7.5	<2.0	<1.9	<1.9	4.1	29

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID				MW-103S	MW-104S	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD
Date Collected				03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023	03/21/2023
PFA ANALYTE (ng/L)	DW	GSI														
Perfluoroundecanoic acid (PFUnDA)	NC	NC		79	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<1.9	91
Perfluorononane sulfonic acid (PFNS)	NC	NC		77	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<1.9	78
Perfluorododecanoic acid (PFDoDA)	NC	NC		76	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<1.9	79
Perfluorodecane sulfonic acid (PFDS)	NC	NC		77	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<1.9	78
Perfluorotridecanoic acid (PFTrDA)	NC	NC		67	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<1.9	74
Perfluorooctane sulfonamide (FOSA)	NC	NC		84	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<1.9	86
Perfluorotetradecanoic acid (PFTeDA)	NC	NC		72	<3.9	<3.9	<4.1	<3.8	<4.0	<4.1	<3.9	<4.1	<3.8	<3.9	<3.8	82
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	NC	NC		91	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<1.9	91
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	NC	NC		83	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<1.9	91
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NC	NC		76	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<1.9	83
Hexafluoropropylene oxide dimer (HFPO-DA)	NC	NC		69	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<1.9	<1.9	<1.9	76

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

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

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	X
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	X
Compound also found in associated method blank, suggesting a laboratory artifact.	X
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed	NA

PFAS criteria based on EGLE proposed drinking water criteria for selected PFAS compounds.

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID			MW-103S	MW-104S	MW-106SR	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD	
Date Collected			09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	
METALS ANALYTE (ug/L)	DW	GSI									MW-114S						
Arsenic, Dissolved	10	10		20	1.779	1.625	0.565	0.968	45	45	0.716	48	0.282	<2	NA	285	290
Arsenic	10	10		57	4	2	0.332	2	97	127	2	176	<2	<2	NA	321	316
Chromium VI, Dissolved	100	11		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	NA	22	31
Chromium VI	100	11		<250	<50	<50	<10	<10	<10	<10	<10	<50	<10	<10	NA	200	196
Chromium, Dissolved	100	160	G	0.2	10	1.056	0.428	1.952	0.728	0.437	0.285	0.254	0.255	<5	NA	255	259
Chromium	100	160	G	0.969	17100	278	1.308	1.516	8	1.219	45	3.597	0.405	<5	NA	252	251
Copper, Dissolved	1000	20	G	<5	1.252	2	0.853	0.626	<5	0.459	3.762	0.529	<5	0.591	NA	251	253
Copper	1000	20	G	<5	129	7	0.747	0.914	<5	8	3.6	22	0.392	<5	NA	245	248
Iron, Dissolved	300	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead, Dissolved	4	44	G	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	NA	252	248
Lead	4	44	G	<3	0.297	0.271	<3	<3	<3	6	0.407	17	<3	<3	NA	241	252
Manganese, Dissolved	50	4500		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	4500		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium, Dissolved	50	5		<5	3.904	4.346	2.48	<5	<5	<5	<5	<5	<5	<5	NA	249	267
Selenium	50	5		<5	6	7	3.116	<5	<5	<5	<5	<5	<5	<5	NA	243	251
Zinc, Dissolved	2400	260	G	0.823	<5	2.639	2.316	1.812	<5	3.777	2.006	3.372	<5	<5	NA	263	262
Zinc	2400	260	G	<5	7	6	2.116	1.038	<5	32	1.893	100	<5	<5	NA	263	259
VOC ANALYTE (ug/L)	DW	GSI															
Acetone	730	1700		<50	<50	<50	<50	<50	6.5	<50	<50	4.7	<50	<50	<50	52	48.7
Acrylonitrile	2.6	2.0 (M); 1.2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	55	53
2-Butanone (MEK)	13000	2,200		<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	52	49
Benzene	5	200		1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	53	53
n-Butylbenzene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	54
Bromobenzene	18	NA		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	56	55
Bromochloromethane	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	51
Bromodichloromethane	80	NC		<1	0.28	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	53	53
Bromoform	80 (A,W)	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	59	58
Bromomethane	10	4.2; [5(M)]		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	51	51
sec-Butylbenzene	230	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	53
tert-Butylbenzene	80	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	53
Carbon disulfide	800	NC		<5	0.13	0.15	<5	<5	0.15	<5	<5	<5	<5	0.24	<5	50	50
Carbon tetrachloride	5	38	X	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	52	51
Chlorobenzene	100	25		2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	58	56
Chloroethane	430	1,100		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	49	49
Chloroform	80	350		<1	0.47	<1	2	<1	<1	<1	0.26	<1	2	1	<1	51	51
Chloromethane	260	NC		<5	<5	<5	<5	<5	<5	<5	0.12	<5	<5	0.32	<5	52	52
1,1-Dichloroethane	880	740		<1	<1	<1	<1	<1	0.69	2	<1	2	<1	<1	<1	51	50
1,1-Dichloroethene	7	130		<1	<1	<1	<1	<1	0.39	2	<1	2	<1	<1	<1	49	48
1,2-Dibromo-3-chloropropane	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	64	62
1,2-Dibromoethane	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	57	55
1,2-Dichlorobenzene	600	13		0.17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	56	55
1,2-Dichloroethane	5.0 (A)	360 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	51	51
1,2-Dichloropropane	5.0 (A)	230 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	51
1,3-Dichlorobenzene	6.6	28		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	55
1,4-Dichlorobenzene	75	17		0.13	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	55

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID				MW-103S	MW-104S	MW-106SR	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD	
Date Collected				09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022
VOC ANALYTE (ug/L)	DW	GSI																
cis-1,2-Dichloroethene	70	620		0.16	<1	<1	<1	<1	3	142	<1	136	<1	<1	<1	51	50	
cis-1,3-Dichloropropene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	54	
Dibromochloromethane	80 (A,W)	ID		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	58	56	
Dibromomethane	230	NA		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	54	54	
Dichlorodifluoromethane	1700	ID		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	52	51	
Diethyl ether	10 (E)	ID		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	51	50	
trans-1,2-Dichloroethene	100	1500		<1	<1	<1	<1	<1	0.17	0.95	<1	0.82	<1	<1	<1	50	49	
trans-1,3-Dichloropropene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	55	
trans-1,4-Dichloro-2-butene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	65	62	
Ethylbenzene	74	18		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	53	
2-Hexanone	1000	ID		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	61	57	
Hexachloroethane	21	6.7		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	60	58	
p-Isopropyltoluene	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	54	54	
Isopropylbenzene	800	28		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	55	53	
VOC ANALYTE (ug/L) {cont}	DW	GSI																
2-Methylnaphthalene	260	19		0.24	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.16	<5	77	84
4-Methyl-2-pentanone (MIBK)	1800	ID		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	59	56	
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	53	53	
Methyl iodide	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	51	
Methylene chloride	5	1500		<5	<5	<5	<5	<5	<5	<5	<5	<5	0.64	0.61	<5	52	52	
Naphthalene	520	11		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	63	64	
n-Propylbenzene	80	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	54	
Styrene	100	80		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	54	
1,1,1,2-Tetrachloroethane	77	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	56	55	
1,1,1-Trichloroethane	200	89		<1	<1	<1	<1	<1	<1	1	<1	1	<1	<1	<1	50	49	
1,1,2,2-Tetrachloroethane	8.5	78 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	57	56	
1,1,2-Trichloroethane	5.0 (A)	330 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	50	53	
1,2,3-Trichlorobenzene	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	58	62	
1,2,3-Trichloropropane	42	NA		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	58	56	
1,2,3-Trimethylbenzene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	56	55	
1,2,4-Trichlorobenzene	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	57	59	
1,2,4-Trimethylbenzene	63 (E)	17		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	56	54	
1,3,5-Trimethylbenzene	72 (E)	45		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	53	
Tetrachloroethene	5	60		<1	<1	<1	<1	<1	<1	<1	0.21	<1	<1	<1	<1	52	51	
Tetrahydrofuran	95	11000		<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	0.33	<90	49.11	47.82	
Toluene	790	270		0.16	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	51	
Trichloroethene	5	200		<1	<1	<1	<1	<1	7	252	1	219	<1	<1	<1	53	53	
Trichlorofluoromethane	2600	NA		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	53	52	
Vinyl chloride	2	13		0.74	<1	<1	<1	<1	2	14	<1	13	<1	<1	<1	53	54	
o-Xylene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	54	
p,m-Xylene	NC	NC		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	109	107	
Xylenes, Total	280	49		<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	164	161	

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RACER - Flint West # 12990

Sample ID			MW-103S	MW-104S	MW-106SR	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD
Date Collected			09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022
PFA ANALYTE (ng/L)	DW	GSI														
Perfluorobutanoic acid (PFBA)	NC	NC	<190	<9.5	<9.5	<9.1	<9.6	<28	<9.2	<10	<9.5	<9.7	<9.8	<10	330	300
Perfluoropentanoic acid (PFPeA)	NC	NC	<3.8	<3.8	1.8	<3.6	<3.8	<3.7	<3.7	<4.0	<3.8	<3.9	<3.9	<4.1	110	110
Fluorotelomer sulfonic acid (4:2 FTS)	NC	NC	<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	120	120
Perfluorohexanoic acid (PFHxA)	400,000	NC	<5.7	<1.9	2.5	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	110	90
Perfluorobutane sulfonic acid (PFBS)	420	NC	<1.9	1.6	4.3	1.5	1.7	1.4	1.7	1.5	1.5	<1.9	<2.0	<2.0	110	100
Perfluoroheptanoic acid (PFHpA)	NC	NC	<1.9	<1.9	2.1	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	94	110
Perfluoropentane sulfonic acid (PFPeS)	NC	NC	<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	100	99
Fluorotelomer sulfonic acid (6:2 FTS)	NC	NC	<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	92	100
Perfluorooctanoic acid (PFOA)	8	12,000	2.5	<1.9	13	<1.8	2.5	<1.8	2.2	<2.0	<1.9	<1.9	<2.0	<2.0	92	100
Perfluorohexane sulfonic acid (PFHxS)	51	NC	<1.9	1.7	1.9	2.3	2.5	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	120	110
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	NC	NC	<1.9	<1.9	1.6	1.5	1.6	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	97	94
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	NC	NC	<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	17	15
Perfluorononanoic acid (PFNA)	6	NC	<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	99	100
Fluorotelomer sulfonic acid (8:2 FTS)	NC	NC	<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	110	110
Perfluoroheptane sulfonic acid (PFHpS)	NC	NC	<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	120	99
Perfluorodecanoic acid (PFDA)	NC	NC	<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	130	99
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NC	NC	<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	100	96
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	NC	NC	5.1	<3.8	<3.8	<3.6	<3.8	<3.7	<3.7	<4.0	<3.8	<3.9	<3.9	<4.1	110	110
Perfluorooctane sulfonic acid (PFOS)	16	12	73	<1.9	16	8.8	5.6	5.8	30	<2.0	23	<1.9	<2.0	<2.0	200	190
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NC	NC	49	<1.9	4.3	2.5	<1.9	2.8	18	<2.0	14	<1.9	<2.0	<2.0	140	130
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NC	NC	20	<1.9	11	6.3	4.6	3	12	<2.0	9	<1.9	<2.0	<2.0	62	58

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID				MW-103S	MW-104S	MW-106SR	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD
Date Collected				09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022	09/13/2022
PFA ANALYTE (ng/L)	DW	GSI															
Perfluoroundecanoic acid (PFUnDA)	NC	NC		<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	95	88
Perfluorononane sulfonic acid (PFNS)	NC	NC		<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	110	100
Perfluorododecanoic acid (PFDoDA)	NC	NC		<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	99	93
Perfluorodecane sulfonic acid (PFDS)	NC	NC		<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	110	91
Perfluorotridecanoic acid (PFTrDA)	NC	NC		<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	84	86
Perfluorooctane sulfonamide (FOSA)	NC	NC		<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	99	88
Perfluorotetradecanoic acid (PFTeDA)	NC	NC		<3.8	<3.8	<3.8	<3.6	<3.8	<3.7	<3.7	<4.0	<3.8	<3.9	<3.9	<4.1	96	110
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	NC	NC		<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	90	81
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	NC	NC		<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	96	91
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NC	NC		<1.9	<1.9	<1.9	<1.8	<1.9	<1.8	<1.8	<2.0	<1.9	<1.9	<2.0	<2.0	110	110
Hexafluoropropylene oxide dimer (HFPO-DA)	NC	NC		<9.6	<9.5	<9.5	<9.1	<9.6	<9.2	<9.2	<10	<9.5	<9.7	<9.8	<10	110	88

1.59

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

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

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	X
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	X
Compound also found in associated method blank, suggesting a laboratory artifact.	X
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed	NA

PFAS criteria based on EGLE proposed drinking water criteria for selected PFAS compounds.

Table 2
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID			MW-103S	MW-104S	MW-106SR	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD	
Date Collected			03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022
METALS ANALYTE (ug/L)	DW	GSI									MW-116S						
Arsenic, Dissolved	10	10		8	0.423	0.616	<2	1.91	32	13	1.131	11	0.124	0.364	NA	250	268
Arsenic	10	10		39	0.872	1.593	1.122	9	89	52	0.597	49	<2	0.322	NA	298	298
Chromium VI, Dissolved	100	11		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	NA	<20	<20
Chromium VI	100	11		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	NA	<20	<20
Chromium, Dissolved	100	160	G	0.238	0.725	0.875	0.298	0.216	0.38	0.215	0.417	0.286	0.229	0.216	NA	245	260
Chromium	100	160	G	0.258	106	2,020	0.364	2.794	0.368	0.57	12	0.609	0.203	0.075	NA	257	249
Copper, Dissolved	1000	20	G	<5	0.441	1	0.505	<0.005	<0.005	<5	1.321	<5	<5	<5	NA	234	245
Copper	1000	20	G	<5	1.738	33	0.628	1.805	<0.005	3.007	2.285	3.227	0.161	<5	NA	246	245
Lead, Dissolved	4	44	G	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	NA	231	248
Lead	4	44	G	<3	<3	1.062	<3	0.99	<3	2.466	<3	2.637	<3	<3	NA	252	243
Manganese, Dissolved	50	4500		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	4500		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium, Dissolved	50	5		<5	3.52	3.6	3.13	<5	<5	<5	<5	<5	<5	<5	NA	249	271
Selenium	50	5		<5	3.7	3.78	3.16	<5	<5	<5	<5	<5	<5	<5	NA	272	281
Zinc, Dissolved	2400	260	G	1.75	1.968	10	2.015	6	1.144	12	1.719	13	0.44	0.461	NA	249	251
Zinc	2400	260	G	1.72	1.933	31	2.611	8	1.89	37	2.169	23	0.598	0.651	NA	263	262
VOC ANALYTE (ug/L)	DW	GSI															
Acetone	730	1700		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	14.6	<50	45	46.7
Acrylonitrile	2.6	2.0 (M); 1.2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	46	49
2-Butanone (MEK)	13000	2,200		<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	48	50
Benzene	5	200		0.54	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	46	43
n-Butylbenzene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	51
Bromobenzene	18	NA		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	51	49
Bromochloromethane	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	51	49
Bromodichloromethane	80	NC		<1	0.19	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	50	48
Bromoform	80 (A,W)	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	51	52
Bromomethane	10	4.2; [5(M)]		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	31	27
sec-Butylbenzene	230	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	52
tert-Butylbenzene	80	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	50	49
Carbon disulfide	800	NC		0.18	0.19	0.24	0.2	0.2	0.23	0.19	0.18	0.2	0.26	0.15	0.26	43	41
Carbon tetrachloride	5	38	X	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	45	43
Chlorobenzene	100	25		0.64	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	49	49
Chloroethane	430	1,100		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	29	27
Chloroform	80	350		<1	0.45	<1	0.8	<1	<1	0.14	0.25	0.14	<1	<1	<1	49	47
Chloromethane	260	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	35	34
1,1-Dichloroethane	880	740		<1	<1	<1	<1	<1	0.41	2	<1	2	<1	<1	<1	48	45
1,1-Dichloroethene	7	130		<1	<1	<1	<1	<1	0.38	1	<1	1	<1	<1	<1	43	41
1,2-Dibromo-3-chloropropane	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	76	84
1,2-Dibromoethane	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	53
1,2-Dichlorobenzene	600	13		<1	<1	<1	<1	<1	0.12	<1	<1	<1	<1	<1	<1	52	51
1,2-Dichloroethane	5.0 (A)	360 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	45	42
1,2-Dichloropropane	5.0 (A)	230 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	45	43
1,3-Dichlorobenzene	6.6	28		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	51
1,4-Dichlorobenzene	75	17		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	51	50

Table 2
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID				MW-103S	MW-104S	MW-106SR	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD	
Date Collected				03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	
VOC ANALYTE (ug/L)	DW	GSI																
cis-1,2-Dichloroethene	70	620		0.12	<1	<1	<1	<1	0.88	131	0.21	124	<1	<1	<1	50	47	
cis-1,3-Dichloropropene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	51	
Dibromochloromethane	80 (A,W)	ID		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	51	51	
Dibromomethane	230	NA		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	53	52	
Dichlorodifluoromethane	1700	ID		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	51	52	
Diethyl ether	10 (E)	ID		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	41	40	
trans-1,2-Dichloroethene	100	1500		<1	<1	<1	<1	<1	0.13	0.75	<1	0.67	<1	<1	<1	46	43	
trans-1,3-Dichloropropene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	58	54	
trans-1,4-Dichloro-2-butene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	35	36	
Ethylbenzene	74	18		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	49	47	
2-Hexanone	1000	ID		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	51	54	
Hexachloroethane	21	6.7		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	53	53	
p-Isopropyltoluene	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	52	51	
Isopropylbenzene	800	28		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	49	49	
VOC ANALYTE (ug/L) {cont}	DW	GSI																
2-Methylnaphthalene	260	19		0.3	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.11	0.26	<5	73	77
4-Methyl-2-pentanone (MIBK)	1800	ID		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	52	54
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	46	45
Methyl iodide	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	47	44
Methylene chloride	5	1500		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.12	0.22	44	42
Naphthalene	520	11		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.12	<5	57	60
n-Propylbenzene	80	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	51	49
Styrene	100	80		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	36	34
1,1,1,2-Tetrachloroethane	77	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	50	48
1,1,1-Trichloroethane	200	89		<1	<1	<1	<1	<1	<1	1	<1	1	<1	<1	<1	<1	46	44
1,1,2,2-Tetrachloroethane	8.5	78 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	49	51
1,1,2-Trichloroethane	5.0 (A)	330 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	51	49
1,2,3-Trichlorobenzene	NC	NC		0.14	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.2	<5	74	74
1,2,3-Trichloropropane	42	NA		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	49	50
1,2,3-Trimethylbenzene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	50
1,2,4-Trichlorobenzene	NC	NC		0.17	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.14	<5	74	74
1,2,4-Trimethylbenzene	63 (E)	17		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	39	37
1,3,5-Trimethylbenzene	72 (E)	45		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	48	47
Tetrachloroethene	5	60		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	58	56
Tetrahydrofuran	95	11000		<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	2.64	2.72	44.86	49.19
Toluene	790	270		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.12	<1	50	48
Trichloroethene	5	200		<1	0.21	<1	0.18	<1	1	172	1	162	<1	<1	<1	<1	50	47
Trichlorofluoromethane	2600	NA		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	37	36
Vinyl chloride	2	13		0.21	<1	<1	<1	<1	2	7	<1	6	<1	<1	<1	<1	33	31
o-Xylene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	48	46
p,m-Xylene	NC	NC		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	96	91
Xylenes, Total	280	49		<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	144	137	

Table 2
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID			MW-103S	MW-104S	MW-106SR	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD
Date Collected			03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022
PFA ANALYTE (ng/L)	DW	GSI														
Perfluorobutanoic acid (PFBA)	NC	NC	<39	NA	<9.7	NA	<9.8	<31	<9.8	<10	<10	<10	<10	<11	130	120
Perfluoropentanoic acid (PFPeA)	NC	NC	<3.9	NA	1.2	NA	<3.9	<4.1	<3.9	<4.0	<4.1	<4.0	<4.0	<4.2	120	110
Fluorotelomer sulfonic acid (4:2 FTS)	NC	NC	<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	110	100
Perfluorohexanoic acid (PFHxA)	400,000	NC	<2.0	NA	2	NA	<2.0	<2.1	1.7	<2.0	<2.1	<2.0	<2.0	<2.1	110	93
Perfluorobutane sulfonic acid (PFBS)	420	NC	1.6	NA	3.6	NA	2.3	1.5	1.5	<2.0	<2.1	<2.0	<2.0	<2.1	110	100
Perfluoroheptanoic acid (PFHpA)	NC	NC	<2.0	NA	2.2	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	96	99
Perfluoropentane sulfonic acid (PFPeS)	NC	NC	<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	120	100
Fluorotelomer sulfonic acid (6:2 FTS)	NC	NC	<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	100	110
Perfluorooctanoic acid (PFOA)	8	12,000	2.6	NA	15	NA	<2.0	<2.1	2.4	<2.0	<2.1	<2.0	<2.0	<2.1	110	93
Perfluorohexane sulfonic acid (PFHxS)	51	NC	2.1	NA	1.6	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	120	95
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	NC	NC	2.1	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	100	78
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	NC	NC	<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	16	15
Perfluorononanoic acid (PFNA)	6	NC	<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	110	83
Fluorotelomer sulfonic acid (8:2 FTS)	NC	NC	<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	87	110
Perfluoroheptane sulfonic acid (PFHpS)	NC	NC	<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	110	95
Perfluorodecanoic acid (PFDA)	NC	NC	<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	97	92
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NC	NC	<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	110	110
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	NC	NC	<3.9	NA	<3.9	NA	<3.9	<4.1	<3.9	<4.0	<4.1	<4.0	<4.0	<4.2	110	95
Perfluorooctane sulfonic acid (PFOS)	16	12	74	NA	11	NA	<2.0	10	16	<2.0	13	<2.0	<2.0	<2.1	160	170
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NC	NC	47	NA	3.3	NA	<2.0	4.9	6.8	<2.0	5	<2.0	<2.0	<2.1	110	110
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NC	NC	25	NA	7.8	NA	<2.0	5.6	9.6	<2.0	7.6	<2.0	<2.0	<2.1	51	52

Table 2
Groundwater Analytical Results
RACER - Flint West # 12990

Sample ID				MW-103S	MW-104S	MW-106SR	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS	MW-103S MSD
Date Collected				03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022	03/16/2022
PFA ANALYTE (ng/L)	DW	GSI															
Perfluoroundecanoic acid (PFUnDA)	NC	NC		<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	100	97
Perfluorononane sulfonic acid (PFNS)	NC	NC		<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	110	110
Perfluorododecanoic acid (PFDoDA)	NC	NC		<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	97	97
Perfluorodecane sulfonic acid (PFDS)	NC	NC		<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	110	110
Perfluorotridecanoic acid (PFTrDA)	NC	NC		<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	120	110
Perfluorooctane sulfonamide (FOSA)	NC	NC		<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	110	110
Perfluorotetradecanoic acid (PFTeDA)	NC	NC		<3.9	NA	<3.9	NA	<3.9	<4.1	<3.9	<4.0	<4.1	<4.0	<4.0	<4.2	130	110
PFA ANALYTE (ng/L) {cont}	DW	GSI															
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	NC	NC		<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	110	110
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	NC	NC		<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	110	100
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NC	NC		<2.0	NA	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.1	93	83
Hexafluoropropylene oxide dimer (HFPO-DA)	NC	NC		<3.9	NA	<3.9	NA	<3.9	<4.1	<3.9	<4.0	<4.1	<4.0	<4.0	<4.2	98	86

1.64

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

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

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	X
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	X
Compound also found in associated method blank, suggesting a laboratory artifact.	X
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed	NA

PFAS criteria based on EGLE proposed drinking water criteria for selected PFAS compounds.

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	Dupe1	Dupe 2	FB-1	EB-1	FB-2	EB-2	Trip Blank	MW-103S MS	MW-103S MSD		
Date Collected	09/14/2021	09/14/2021	09/14/2021	09/16/2021	09/14/2021	09/14/2021	09/14/2021	09/15/2021	09/15/2021	09/15/2021	09/15/2021	09/16/2021	09/15/2021	09/15/2021	09/15/2021	09/15/2021	09/15/2021	09/14/2021	09/14/2021	09/15/2021	09/15/2021	09/16/2021	09/16/2021	09/16/2021		
VOC ANALYTE (ug/L) {cont}	DW	GSI																								
2-Methylnaphthalene	260	19	<5	<5	<5	0.25	<5	0.11	<5	<5	<5	<5	<5	0.15	<5	<5	<50	<5	<5	0.21	0.15	<5	<5	0.25	64	66
4-Methyl-2-pentanone (MIBK)	1800	ID	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	0.31	<50	<500	<50	<50	<50	<50	<50	<50	<50	59	59	
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	56	55	
Methyl iodide	NC	NC	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	59	60	
Methylene chloride	5	1500	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5	0.55	<5	<5	<5	<5	0.16	53	55
Napthalene	520	11	<5	<5	<5	0.13	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5	0.1	<5	<5	<5	<5	0.14	62	62
n-Propylbenzene	80	ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	55	55	
Styrene	100	80	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	57	57
1,1,1,2-Tetrachloroethane	77	ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	56	57
1,1,1-Trichloroethane	200	89	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	1	<1	<1	<1	<1	<1	<1	54	55
1,1,2,2-Tetrachloroethane	8.5	78 (X)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	57	56
1,1,2-Trichloroethane	5.0 (A)	330 (X)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	57	57
1,2,3-Trichlorobenzene	NC	NC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	0.11	61	61
1,2,3-Trichloropropane	42	NA	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	56	57
1,2,3-Trimethylbenzene	NC	NC	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	52	52
1,2,4-Trichlorobenzene	NC	NC	<5	<5	<5	0.11	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5	<5	<5	<5	<5	<5	0.12	59	59
1,2,4-Trimethylbenzene	63 (E)	17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	58	58
1,3,5-Trimethylbenzene	72 (E)	45	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	58	57
Tetrachloroethene	5	60	<1	<1	<1	<1	<1	93	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	59	59
Tetrahydrofuran	95	11000	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<900	<90	<90	<90	<90	<90	<90	<90	<90	51.66	52.57
Toluene	790	270	<1	0.11	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	0.11	<1	<1	<1	<1	<1	<1	<1	56	57
Trichloroethene	5	200	14	3	0.67	<1	0.24	0.14	0.11	2	0.34	25	<1	16	4	29	200	4	226	0.11	<1	<1	<1	<1	54	55
Trichlorofluoromethane	2600	NA	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	50	51
Vinyl chloride	2	13	<1	<1	<1	<1	<1	<1	<1	<1	<1	11	<1	<1	4	1	9.3	4	11	<1	<1	<1	<1	<1	49	49
o-Xylene	NC	NC	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<1	<1	<1	<1	<1	<1	<1	55	55
p,m-Xylene	NC	NC	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<20	<2	<2	<2	<2	<2	<2	<2	<2	112	112
Xylenes, Total	280	49	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<30	<3	<3	<3	<3	<3	<3	<3	<3	167	167

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	Dupe1	Dupe 2	FB-1	EB-1	FB-2	EB-2	Trip Blank	MW-103S MS	MW-103S MSD
Date Collected			09/14/2021	09/14/2021	09/14/2021	09/16/2021	09/14/2021	09/14/2021	09/14/2021	09/15/2021	09/15/2021	09/15/2021	09/15/2021	09/16/2021	09/15/2021	09/15/2021	09/15/2021	09/15/2021	09/15/2021	09/14/2021	09/14/2021	09/15/2021	09/15/2021	09/16/2021	09/16/2021	09/16/2021
PFA ANALYTE (ng/L)	DW	GSI																								
Perfluorobutanoic acid (PFBA)	NC	NC	<9.8	<9.7	NA	<16	NA	NA	<9.6	19	NA	<9.8	<10	<9.8	<10	<10	<10	<10	<10	<9.6	<10	<10.0	<9.9	<10	120	110
Perfluoropentanoic acid (PFPeA)	NC	NC	1.1	2.6	NA	<3.9	NA	NA	3.3	<3.9	NA	2.1	1.5	2.9	<4.1	<4.1	<4.0	<4.0	<4.1	<3.8	<4.1	<4.0	<3.9	<4.1	92	88
Fluorotelomer sulfonic acid (4:2 FTS)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<1.9	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	100	93
Perfluorohexanoic acid (PFHxA)	400,000	NC	<2.0	2.1	NA	<2.0	NA	NA	3.8	<1.9	NA	<2.0	<2.1	<2.2	<2.0	<2.1	<2.2	<2.0	<2.4	<1.9	<2.0	<2.0	<2.0	<2.1	97	98
Perfluorobutane sulfonic acid (PFBS)	420	NC	1.6	<1.9	NA	<2.0	NA	NA	3.6	<1.9	NA	1.6	1.7	<2.0	<2.0	1.6	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	94	100
Perfluoroheptanoic acid (PFHpA)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	2.1	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	100	93
Perfluoropentane sulfonic acid (PFPeS)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<1.9	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	86	88
Fluorotelomer sulfonic acid (6:2 FTS)	NC	NC	<3.9	<3.9	NA	<3.9	NA	NA	<3.8	<3.9	NA	<3.9	<4.2	<3.9	<4.1	<4.1	<4.0	<4.0	<4.1	<3.8	<4.1	<4.0	<3.9	<4.1	84	97
Perfluorooctanoic acid (PFOA)	8	12,000	<2.0	5.5	NA	2.7	NA	NA	17	<1.9	NA	1.9	2.7	2	<2.0	1.7	1.7	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	99	92
Perfluorohexane sulfonic acid (PFHxS)	51	NC	<2.0	<1.9	NA	5	NA	NA	2.1	<1.9	NA	1.7	<2.1	<2.0	<2.0	1.8	2.5	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	120	100
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	NC	NC	<2.0	<1.9	NA	3.1	NA	NA	1.6	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	1.8	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	97	89
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<1.9	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	17	13
Perfluorononanoic acid (PFNA)	6	NC	<2.0	<1.9	NA	<2.0	NA	NA	<1.9	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	95	84
Fluorotelomer sulfonic acid (8:2 FTS)	NC	NC	<3.9	<3.9	NA	<3.9	NA	NA	<3.8	<3.9	NA	<3.9	<4.2	<3.9	<4.1	<4.1	<4.0	<4.0	<4.1	<3.8	<4.1	<4.0	<3.9	<4.1	95	83
Perfluoroheptane sulfonic acid (PFHpS)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	2.5	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	86	83
Perfluorodecanoic acid (PFDA)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<1.9	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	96	93
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<1.9	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	98	100
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	NC	NC	<3.9	<3.9	NA	<3.9	NA	NA	<3.8	<3.9	NA	<3.9	<4.2	<3.9	<4.1	<4.1	<4.0	<4.0	<4.1	<3.8	<4.1	<4.0	<3.9	<4.1	96	88
Perfluorooctane sulfonic acid (PFOS)	16	12	9.1	37	NA	46	NA	NA	18	6.6	NA	23	5.8	11	6.7	23	21	7.9	18	<1.9	<2.0	<2.0	<2.0	<2.1	140	130
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NC	NC	5.5	23	NA	24	NA	NA	2.8	4	NA	12	<2.1	6.3	3.5	10	12	3.9	11	<1.9	<2.0	<2.0	<2.0	<2.1	87	82
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NC	NC	3.8	13	NA	20	NA	NA	15	2.6	NA	11	4.5	4.5	3.3	13	8.7	4.1	7.4	<1.9	<2.0	<2.0	<2.0	<2.1	49	43
Perfluoroundecanoic acid (PFUnDA)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<1.9	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	100	93
Perfluorononane sulfonic acid (PFNS)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<1.9	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	92	80
Perfluorododecanoic acid (PFDoDA)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<1.9	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	97	92
Perfluorodecane sulfonic acid (PFDS)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<1.9	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	100	81
Perfluorotridecanoic acid (PFTrDA)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<1.9	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	110	100
Perfluorooctane sulfonamide (FOSA)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<1.9	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	97	86
Perfluorotetradecanoic acid (PFTeDA)	NC	NC	<3.9	<3.9	NA	<3.9	NA	NA	<3.8	<3.9	NA	<3.9	<4.2	<3.9	<4.1	<4.1	<4.0	<4.0	<4.1	<3.8	<4.1	<4.0	<3.9	<4.1	84	81

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	Dupe1	Dupe 2	FB-1	EB-1	FB-2	EB-2	Trip Blank	MW-103S MS	MW-103S MSD	
Date Collected				09/14/2021	09/14/2021	09/14/2021	09/16/2021	09/14/2021	09/14/2021	09/14/2021	09/15/2021	09/15/2021	09/15/2021	09/15/2021	09/15/2021	09/15/2021	09/15/2021	09/15/2021	09/15/2021	09/15/2021	09/15/2021	09/14/2021	09/14/2021	09/15/2021	09/15/2021	09/16/2021	09/16/2021	09/16/2021
PFA ANALYTE (ng/L) {cont}		DW	GSI																									
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		NC	NC		<2.0	<1.9	NA	<2.0	NA	NA	<1.9	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	110	95
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)		NC	NC		<2.0	<1.9	NA	<2.0	NA	NA	<1.9	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	100	89
4,8-dioxa-3H-perfluorononanoic acid (ADONA)		NC	NC		<2.0	<1.9	NA	<2.0	NA	NA	<1.9	<1.9	NA	<2.0	<2.1	<2.0	<2.0	<2.1	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.1	100	98
Hexafluoropropylene oxide dimer (HFPO-DA)		NC	NC		<9.8	<9.7	NA	<9.8	NA	NA	<9.6	<9.7	NA	<9.8	<10	<9.8	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	110	100

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

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

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	X
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	X
Compound also found in associated method blank, suggesting a laboratory artifact.	X
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed	NA

PFAS criteria based on EGLE proposed drinking water criteria for selected PFAS compounds.

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	Dupe1	Dupe-2	Field Blank	FB-2	Equip Blank	EB-2	Trip Blank	MW-109S MS	MW-109S MSD	
Date Collected			NA	03/03/2021	03/02/2021	03/03/2021	03/02/2021	03/02/2021	NA	03/02/2021	03/03/2021	03/03/2021	03/03/2021	03/03/2021	03/02/2021	03/03/2021	03/03/2021	03/02/2021	03/03/2021	03/02/2021	03/03/2021	03/02/2021	03/03/2021	03/03/2021	03/02/2021	03/02/2021	
METALS ANALYTE (ug/L)	DW	GSI	dry						dry									MW-112S	MW-114S								
Arsenic, Dissolved	10	10		NA	<2	<2	18	<2	<2	NA	0.441	<0.002	10	1.03	0.636	33	2	18	30	20	<2	<2	<2	0.114	NA	NA	NA
Arsenic	10	10		NA	9	0.318	37	0.493	0.423	NA	0.578	0.257	86	2	0.727	79	4	55	77	53	<2	<2	<2	<2	NA	NA	NA
Chromium, Dissolved	100	160	G	NA	4.09	2	0.212	3.14	0.779	NA	0.181	0.132	0.269	0.194	2.01	0.242	0.39	0.267	0.358	0.236	0.221	0.2	0.171	0.108	NA	NA	NA
Chromium	100	160	G	NA	351	15	0.229	1210	30	NA	<5	1.03	1.27	0.261	6	0.392	2.35	0.681	0.487	0.361	0.046	<5	<5	<5	NA	NA	NA
Chromium VI, Dissolved	100	11		NA	<10	<10	<10	<10	<10	NA	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<0.01	<0.01	<0.01	NA	NA	NA
Chromium VI	100	11		NA	<2	<10	<2	<10	<10	NA	<10	<10	<5	<10	<10	<5	<10	<20	<50	<20	<10	<0.01	<0.01	<0.01	NA	NA	NA
Copper, Dissolved	1000	20	G	NA	0.579	<5	<5	0.766	0.651	NA	0.517	0.665	<5	1.56	0.682	<5	0.504	0.461	<5	<5	<5	<5	<5	<5	NA	NA	NA
Copper	1000	20	G	NA	34	1.2	<5	30	1.28	NA	0.59	0.963	1.5	4.08	1.01	<5	1.02	2.64	<5	1.55	<5	<5	<5	<5	NA	NA	NA
Lead, Dissolved	4	44	G	NA	0.4	<3	<3	<3	<3	NA	<3	<3	<3	<3	<3	<3	<3	<3	<3	0.278	<3	<3	<3	<3	NA	NA	NA
Lead	4	44	G	NA	17	0.412	<3	<3	<3	NA	<3	<3	1.28	0.375	0.223	<3	0.449	1.51	<3	0.947	<3	<3	<3	<3	NA	NA	NA
Selenium, Dissolved	50	5		NA	<5	<5	<5	<5	<5	NA	<5	<5	<5	<5	<5	<5	3.59	<5	<5	<5	<5	<5	<5	<5	NA	NA	NA
Selenium	50	5		NA	<5	<5	<5	<5	<5	NA	<5	<5	<5	<5	<5	<5	4.45	<5	<5	<5	<5	<5	<5	<5	NA	NA	NA
Zinc, Dissolved	2400	260	G	NA	3.28	3.63	2.62	3.3	3.21	NA	10	5	2.92	22	4.98	2.13	5	6	2.44	5	0.816	0.595	0.599	1.53	NA	NA	NA
Zinc	2400	260	G	NA	75	3.09	2.28	2.44	1.81	NA	8	3.88	5	25	1.35	1.61	3.34	10	1.88	9	0.573	0.491	0.624	0.695	NA	NA	NA
VOC ANALYTE (ug/L)	DW	GSI																									
Acetone	730	1700		NA	<50	<50	<50	<50	<50	NA	<50	<50	<50	<50	<50	<50	<50	<500	<50	<500	<50	<50	<50	<50	<50	41.44	57
Acrylonitrile	2.6	2.0 (M); 1.2		NA	<2	<2	<2	<2	<2	NA	<2	<2	<2	<2	<2	<2	<2	<20	<2	<20	<2	<2	<2	<2	<2	58	60
2-Butanone (MEK)	13000	2,200		NA	<25	<25	<25	<25	<25	NA	<25	<25	<25	<25	<25	<25	<25	<250	<25	<250	<25	<25	<25	<25	<25	57	57
Benzene	5	200		NA	<1	<1	0.71	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	53	52
n-Butylbenzene	NC	NC		NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	44	43
Bromobenzene	18	NA		NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	53	51
Bromochloromethane	NC	NC		NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	59	57
Bromodichloromethane	80	NC		NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	58	56
Bromoform	80 (A,W)	ID		NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	57	56
Bromomethane	10	4.2; [5(M)]		NA	<5	<5	<5	<5	<5	NA	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	47	45
sec-Butylbenzene	230	ID		NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	44	44
tert-Butylbenzene	80	ID		NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	48	47
Carbon disulfide	800	NC		NA	<5	<5	<5	<5	<5	NA	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	55	53	
Carbon tetrachloride	5	38	X	NA	<1	<1	<1	<1	<1	NA	<1	2	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	52	51
Chlorobenzene	100	25		NA	<1	<1	4	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	51	50
Chloroethane	430	1,100		NA	<5	<5	<5	<5	<5	NA	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	0.49	45	45
Chloroform	80	350		NA	<1	<1	<1	1	<1	NA	<1	1	<1	0.34	<1	<1	<1	<10	<1	<10	0.3	<1	0.28	<1	<1	56	55
Chloromethane	260	NC		NA	<5	<5	<5	<5	<5	NA	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	40	40
1,1-Dichloroethane	880	740		NA	<1	<1	<1	<1	<1	NA	<1	<1	0.7	<1	1	1	<1	2.4	1	2.2	<1	<1	<1	<1	<1	56	54
1,1-Dichloroethene	7	130		NA	<1	<1	<1	<1	<1	NA	<1	<1	1	<1	0.6	0.75	<1	<10	0.82	<10	<1	<1	<1	<1	<1	56	54
1,2-Dibromo-3-chloropropane	NC	NC		NA	<5	<5	<5	<5	<5	NA	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	52	53
1,2-Dibromoethane	NC	NC		NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	54	54
1,2-Dichlorobenzene	600	13		NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	49	49
1,2-Dichloroethane	5.0 (A)	360 (X)		NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	53	52
1,2-Dichloropropane	5.0 (A)	230 (X)		NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	57	55
1,3-Dichlorobenzene	6.6	28		NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	47	47
1,4-Dichlorobenzene	75	17		NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	47	47
cis-1,2-Dichloroethene	70	620		NA	<1	<1	<1	<1	<1	NA	10	<1	15	<1	18	4	0.34	100	4	100	<1	<1	<1	<1	<1	65	63
cis-1,3-Dichloropropene	NC	NC		NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	58	56
Dibromochloromethane	80 (A,W)	ID		NA	<5	<5	<5	<5	<5	NA	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	56	55
Dibromomethane	230	NA		NA	<5	<5	<5	<5	<5	NA	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	58	57
Dichlorodifluoromethane	1700	ID		NA	<5	<5	<5	<5	<5	NA	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	<5	28	27
Diethyl ether	10 (E)	ID		NA	<10	<10	<10	<10	<10	NA	<10	<10	<10	<10	<10	<10	<100	<10	<100	<10	<10	<10	<10	<10	<10	63	61
trans-1,2-Dichloroethene	100	1500		NA	<1	<1	<1	<1	<1	NA	<1	<1	0.48	<1	<1	<1	<1	<10	0.24	<10	<1	<1	<1	<1	<1	54	52
trans-1,3-Dichloropropene	NC	NC		NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	60	57
trans-1,4-Dichloro-2-butene	NC	NC		NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	53	51
Ethylbenzene	74	18		NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<				

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	Dupe1	Dupe-2	Field Blank	FB-2	Equip Blank	EB-2	Trip Blank	MW-109S MS	MW-109S MSD
Date Collected			NA	03/03/2021	03/02/2021	03/03/2021	03/02/2021	03/02/2021	NA	03/02/2021	03/03/2021	03/03/2021	03/03/2021	03/03/2021	03/02/2021	03/03/2021	03/03/2021	03/02/2021	03/03/2021	03/02/2021	03/03/2021	03/02/2021	03/03/2021	03/03/2021	03/02/2021	03/02/2021
VOC ANALYTE (ug/L) {cont}	DW	GSI	MW-112S MW-114S																							
2-Methylnaphthalene	260	19	NA	<5	<5	<5	<5	<5	NA	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	60	60
4-Methyl-2-pentanone (MIBK)	1800	ID	NA	<50	<50	<50	<50	<50	NA	<50	<50	<50	<50	<50	<50	<50	<500	<50	<500	<50	<50	<50	<50	<50	56	57
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)	NA	<5	<5	<5	<5	<5	NA	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	60	59
Methyl iodide	NC	NC	NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	57	56
Methylene chloride	5	1500	NA	<5	<5	<5	<5	<5	NA	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	0.65	<5	0.62	<5	<5	58	56
Naphthalene	520	11	NA	<5	<5	<5	<5	<5	NA	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	54	54
n-Propylbenzene	80	ID	NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	48	47
Styrene	100	80	NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	52	51
1,1,1,2-Tetrachloroethane	77	ID	NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	52	52
1,1,1-Trichloroethane	200	89	NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	54	52
1,1,2,2-Tetrachloroethane	8.5	78 (X)	NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	55	55
1,1,2-Trichloroethane	5.0 (A)	330 (X)	NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	61	59
1,2,3-Trichlorobenzene	NC	NC	NA	<5	<5	<5	<5	<5	NA	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	55	55
1,2,3-Trichloropropane	42	NA	NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	53	53
1,2,3-Trimethylbenzene	NC	NC	NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	47	47
1,2,4-Trichlorobenzene	NC	NC	NA	<5	<5	<5	<5	<5	NA	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5	<5	53	52
1,2,4-Trimethylbenzene	63 (E)	17	NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	49	49
1,3,5-Trimethylbenzene	72 (E)	45	NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	49	49
Tetrachloroethene	5	60	NA	<1	<1	<1	<1	101	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	54	52
Tetrahydrofuran	95	11000	NA	<90	<90	<90	<90	<90	NA	<90	<90	<90	<90	<90	<90	<90	<900	<90	<900	<90	<90	<90	<90	<90	57	57.1
Toluene	790	270	NA	<1	<1	0.34	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	54	52
Trichloroethene	5	200	NA	2	<1	<1	<1	<1	NA	2	<1	23	<1	53	10	5	270	11	280	<1	<1	<1	<1	<1	67	65
Trichlorofluoromethane	2600	NA	NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	55	53
Vinyl chloride	2	13	NA	<1	<1	<1	<1	<1	NA	3	<1	8	<1	2	2	0.62	5.3	3	6.2	<1	<1	<1	<1	<1	49	48
o-Xylene	NC	NC	NA	<1	<1	<1	<1	<1	NA	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1	<1	50	49
p,m-Xylene	NC	NC	NA	<2	<2	<2	<2	<2	NA	<2	<2	<2	<2	<2	<2	<2	<20	<2	<20	<2	<2	<2	<2	<2	99	98
Xylenes, Total	280	49	NA	<3	<3	<3	<3	<3	NA	<3	<3	<3	<3	<3	<3	<3	<30	<3	<30	<3	<3	<3	<3	<3	149	147

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	Dupe1	Dupe-2	Field Blank	FB-2	Equip Blank	EB-2	Trip Blank	MW-109S MS	MW-109S MSD	
Date Collected			NA	03/03/2021	03/02/2021	03/03/2021	03/02/2021	03/02/2021	NA	03/02/2021	03/03/2021	03/03/2021	03/03/2021	03/03/2021	03/02/2021	03/03/2021	03/03/2021	03/02/2021	03/03/2021	03/02/2021	03/03/2021	03/02/2021	03/03/2021	03/02/2021	03/02/2021		
PFA ANALYTE (ng/L)	DW	GSI																MW-112S	MW-114S								
Perfluorobutanoic acid (PFBA)	NC	NC		NA	<10	NA	<28	NA	NA	NA	<10	NA	<9.7	<10.0	<10	<21	<10	<10	<20	<10	<10	<9.6	<10	<10	<9.8	110	110
Perfluoropentanoic acid (PFPeA)	NC	NC		NA	<4.1	NA	<4.3	NA	NA	NA	<4.2	NA	14	<4.0	4.1	<4.1	<4.0	<4.1	<3.9	1.6	<4.1	<3.8	<4.0	<4.1	<3.9	110	110
Fluorotelomer sulfonic acid (4:2 FTS)	NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	82	92
Perfluorohexanoic acid (PFHxA)	400,000	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	7.6	<2.0	2.3	<2.1	<2.0	1.6	<2.0	1.7	<2.1	<1.9	<2.0	<2.0	<2.0	100	110
Perfluorobutane sulfonic acid (PFBS)	420	NC		NA	1.9	NA	1.6	NA	NA	NA	1.5	NA	2.2	3	1.7	1.7	1.8	1.8	1.5	1.8	<2.1	<1.9	<2.0	<2.0	<2.0	100	110
Perfluoroheptanoic acid (PFHpA)	NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	2	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	93	100
Perfluoropentane sulfonic acid (PFPeS)	NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	99	110
Fluorotelomer sulfonic acid (6:2 FTS)	NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	100	100
Perfluorooctanoic acid (PFOA)	8	12,000		NA	2.5	NA	<2.2	NA	NA	NA	1.9	NA	3.6	<2.0	2.1	<2.1	<2.0	<2.0	<2.0	1.9	<2.1	<1.9	<2.0	<2.0	<2.0	94	100
Perfluorohexane sulfonic acid (PFHxS)	51	NC		NA	<2.1	NA	5.9	NA	NA	NA	2.9	NA	1.9	<2.0	<2.1	<2.1	<2.0	1.8	<2.0	1.8	<2.1	<1.9	<2.0	<2.0	<2.0	110	100
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	NC	NC		NA	<2.1	NA	3.4	NA	NA	NA	2.2	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	92	86
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	NC	NC		NA	<2.1	NA	2.6	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	16	16
Perfluorononanoic acid (PFNA)	6	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	110	110
Fluorotelomer sulfonic acid (8:2 FTS)	NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	80	81
Perfluoroheptane sulfonic acid (PFHpS)	NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	110	110
Perfluorodecanoic acid (PFDA)	NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	110	100
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	100	110
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	NC	NC		NA	<4.1	NA	<5.4	NA	NA	NA	<4.2	NA	<3.9	<4.0	<4.1	<4.1	<4.0	<4.1	<3.9	<4.1	<4.1	<3.8	<4.0	<4.1	<3.9	87	97
Perfluorooctane sulfonic acid (PFOS)	16	12		NA	25	NA	91	NA	NA	NA	16	NA	21	<2.0	25	9	12	22	9.5	25	<2.1	<1.9	<2.0	<2.0	<2.0	120	130
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NC	NC		NA	9.7	NA	65	NA	NA	NA	10	NA	8.7	<2.0	13	4	4.9	12	4.1	14	<2.1	<1.9	<2.0	<2.0	<2.0	79	79
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NC	NC		NA	15	NA	26	NA	NA	NA	5.4	NA	12	<2.0	11	4.5	6.5	9.8	5	10	<2.1	<1.9	<2.0	<2.0	<2.0	43	49
Perfluoroundecanoic acid (PFUnDA)	NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	94	110
Perfluorononane sulfonic acid (PFNS)	NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	89	110
Perfluorododecanoic acid (PFDoDA)	NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	95	96
Perfluorodecane sulfonic acid (PFDS)	NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	92	110
Perfluorotridecanoic acid (PFTTrDA)	NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	97	98
Perfluorooctane sulfonamide (FOSA)	NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	100	99
Perfluorotetradecanoic acid (PFTeDA)	NC	NC		NA	<4.1	NA	<4.3	NA	NA	NA	<4.2	NA	<3.9	<4.0	<4.1	<4.1	<4.0	<4.1	<3.9	<4.1	<4.1	<3.8	<4.0	<4.1	<3.9	100	100

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	Dupe1	Dupe-2	Field Blank	FB-2	Equip Blank	EB-2	Trip Blank	MW-109S MS	MW-109S MSD		
Date Collected				NA	03/03/2021	03/02/2021	03/03/2021	03/02/2021	03/02/2021	NA	03/02/2021	03/03/2021	03/03/2021	03/03/2021	03/03/2021	03/02/2021	03/03/2021	03/03/2021	03/02/2021	03/03/2021	03/02/2021	03/03/2021	03/02/2021	03/03/2021	03/03/2021	03/02/2021	03/02/2021		
PFA ANALYTE (ng/L) {cont}		DW	GSI																	MW-112S				MW-114S					
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	83	99	
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)		NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	89	110	
4,8-dioxa-3H-perfluorononanoic acid (ADONA)		NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	87	99	
Hexafluoropropylene oxide dimer (HFPO-DA)		NC	NC		NA	<2.1	NA	<2.2	NA	NA	NA	<2.1	NA	<1.9	<2.0	<2.1	<2.1	<2.0	<2.0	<2.0	<2.1	<2.1	<1.9	<2.0	<2.0	<2.0	81	84	

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

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

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	X
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	X
Compound also found in associated method blank, suggesting a laboratory artifact.	X
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed	NA

PFAS criteria based on EGLE proposed drinking water criteria for selected PFAS compounds.

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	Dupe #1	Dupe #2	Field Blank	Trip Blank	Equip Blank	Field Blank
Date Collected			08/18/2020	08/18/2020	08/18/2020	08/19/2020	08/18/2020	08/18/2020	08/18/2020	08/18/2020	08/19/2020	08/19/2020	08/19/2020	08/19/2020	08/18/2020	08/19/2020	08/19/2020	08/18/2020	08/19/2020	08/18/2020	08/18/2020	08/19/2020	08/19/2020
VOC ANALYTE (ug/L) {cont}	DW	GSI																					
																		MW-112S	MW-114S				
Ethylbenzene	74	18	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
Total Xylenes	280	49	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
p,m-Xylene			<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<20	<2	<20	<2	<2	<2	<2
o-Xylene			<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
Styrene	100	80	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
Isopropylbenzene	800	28	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
Bromoform	80 (A,W)	ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	8.5	78 (X)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
1,2,3-Trichloropropane	42	NA	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
n-Propylbenzene	80	ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
Bromobenzene	18	NA	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
1,3,5-Trimethylbenzene	72 (E)	45	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
tert-Butylbenzene	80	ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
1,2,4-Trimethylbenzene	63 (E)	17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
sec-Butylbenzene	230	ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
p-Isopropyltoluene	NC	NC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
1,3-Dichlorobenzene	6.6	28	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
1,4-Dichlorobenzene	75	17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
1,2-Dichlorobenzene	600	13	<1	<1	<1	0.13	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
1,2,3-Trimethylbenzene	NC	NC	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
n-Butylbenzene	NC	NC	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10	<1	<10	<1	<1	<1	<1
Hexachloroethane	21	6.7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	NC	NC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
1,2,4-Trichlorobenzene	NC	NC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
1,2,3-Trichlorobenzene	NC	NC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	0.1	<5	<5
Naphthalene	520	11	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	<5	<5	<5
2-Methylnaphthalene	260	19	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<50	<5	0.15	0.15	<5

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	Dupe #1	Dupe #2	Field Blank	Trip Blank	Equip Blank	Field Blank
Date Collected			08/18/2020	08/18/2020	08/18/2020	08/19/2020	08/18/2020	08/18/2020	08/18/2020	08/18/2020	08/19/2020	08/19/2020	08/19/2020	08/19/2020	08/18/2020	08/19/2020	08/19/2020	08/18/2020	08/19/2020	08/18/2020	08/18/2020	08/19/2020	08/19/2020
PFA ANALYTE (ng/L)	DW	GSI																MW-112S	MW-114S				
Perfluorobutanoic acid (PFBA)	NC	NC	<9.8	<9.7	NA	<10	NA	NA	<10	<10	NA	<10	<10.0	<10	<9.9	<9.7	<9.7	<10	<10	<9.8	<9.9	<9.9	<10
Perfluoropentanoic acid (PFPeA)	NC	NC	<3.9	1.9	NA	<4.0	NA	NA	3.1	<4.1	NA	3.6	1.1	2.4	<4.0	1	1.1	<4.1	1.1	<3.9	<3.9	<3.9	<4.1
Fluorotelomer sulfonic acid (4:2 FTS)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorohexanoic acid (PFHxA)	400,000	NC	<2.0	<1.9	NA	<2.0	NA	NA	3.7	<2.1	NA	3.2	<2.0	1.6	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorobutane sulfonic acid (PFBS)	420	NC	1.6	1.9	NA	<2.0	NA	NA	3.2	<2.1	NA	2.7	1.9	1.5	<2.0	1.8	1.8	1.8	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluoroheptanoic acid (PFHpA)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	3	<2.1	NA	1.5	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluoropentane sulfonic acid (PFPeS)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Fluorotelomer sulfonic acid (6:2 FTS)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorooctanoic acid (PFOA)	8	12,000	<2.0	3.2	NA	<2.0	NA	NA	11	<2.1	NA	3.1	2.8	3	<2.0	<1.9	1.8	<2.1	2.1	<2.0	<2.0	<2.0	<2.0
Perfluorohexane sulfonic acid (PFHxS)	51	NC	<2.0	1.9	NA	2.2	NA	NA	3.1	<2.1	NA	2.5	2	1.9	<2.0	3.1	2.3	<2.1	3.1	<2.0	<2.0	<2.0	<2.0
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	NC	NC	<2.0	1.6	NA	2.2	NA	NA	2.3	<2.1	NA	1.8	<2.0	<2.1	<2.0	2.6	1.6	<2.1	2.4	<2.0	<2.0	<2.0	<2.0
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorononanoic acid (PFNA)	6	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Fluorotelomer sulfonic acid (8:2 FTS)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluoroheptane sulfonic acid (PFHpS)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorodecanoic acid (PFDA)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	NC	NC	<3.9	<3.9	NA	<4.0	NA	NA	<4.0	<4.1	NA	<4.0	<4.0	<4.1	<4.0	<3.9	<3.9	<4.1	<4.1	<3.9	<3.9	<3.9	<4.1
Perfluorooctane sulfonic acid (PFOS)	16	12	18	30	NA	120	NA	NA	7.3	24	NA	29	5.9	33	11	26	29	13	36	<2.0	<2.0	<2.0	<2.0
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NC	NC	8.5	12	NA	81	NA	NA	<2.0	15	NA	15	<2.0	17	5.2	5.7	18	5.9	21	<2.0	<2.0	<2.0	<2.0
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NC	NC	8.9	18	NA	40	NA	NA	5.8	7.1	NA	13	4.5	15	4.9	19	12	5.8	14	<2.0	<2.0	<2.0	<2.0
Perfluoroundecanoic acid (PFUnDA)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorononane sulfonic acid (PFNS)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorododecanoic acid (PFDoDA)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorodecane sulfonic acid (PFDS)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorotridecanoic acid (PFTriDA)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorooctane sulfonamide (FOSA)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorotetradecanoic acid (PFTeDA)	NC	NC	<3.9	<3.9	NA	<4.0	NA	NA	<4.0	<4.1	NA	<4.0	<4.0	<4.1	<4.0	<3.9	<3.9	<4.1	<4.1	<3.9	<3.9	<3.9	<4.1

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	Dupe #1	Dupe #2	Field Blank	Trip Blank	Equip Blank	Field Blank
Date Collected			08/18/2020	08/18/2020	08/18/2020	08/19/2020	08/18/2020	08/18/2020	08/18/2020	08/18/2020	08/19/2020	08/19/2020	08/19/2020	08/19/2020	08/18/2020	08/19/2020	08/19/2020	08/18/2020	08/19/2020	08/18/2020	08/18/2020	08/19/2020	08/19/2020
PFA ANALYTE (ng/L) {cont}	DW	GSI																MW-112S	MW-114S				
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)	NC	NC	<2.0	<1.9	NA	<2.0	NA	NA	<2.0	<2.1	NA	<2.0	<2.0	<2.1	<2.0	<1.9	<1.9	<2.1	<2.0	<2.0	<2.0	<2.0	<2.0

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

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

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	X
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	X
Compound also found in associated method blank, suggesting a laboratory artifact.	X
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed due to turbidity	NA

PFAS criteria based on EGLE proposed drinking water criteria for selected PFAS compounds.

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-109	MW-110S	MW-111S	MW-112S	MW-113S	MW-114S	Dupe 1	Dupe 2	Field Blank	Equip Blank	Field Blank	Equipment Blank	Trip	Equip	Field
Date Collected			02/25/2020	02/25/2020	02/25/2020	02/28/2020	02/25/2020	02/25/2020	02/25/2020	02/25/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/25/2020	02/25/2020	02/27/2020	02/27/2020	02/28/2020	02/28/2020	02/28/2020
METALS ANALYTE (ug/L)	DW	GSI																MW-112S	MW-114S							
Arsenic, Dissolved	10	10		<0.002	<0.002	<0.002	4	<0.002	<0.002	<0.002	<0.002	0.257	9	0.518	<0.002	13	1.511	25	13	24	NA	NA	NA	NA	NA	NA
Arsenic	10	10		<0.002	<0.002	<0.002	46	<0.002	0.316	1.173	0.465	<0.002	69	2	0.998	41	3	62	43	69	NA	NA	NA	NA	NA	NA
Chromium, Dissolved	100	160	G	0.275	0.891	7	0.204	0.562	0.463	0.719	<0.005	0.295	0.138	0.312	6	0.214	0.518	13	0.39	<0.005	NA	NA	NA	NA	NA	NA
Chromium	100	160	G	0.42	2.753	6	0.388	16	280	764	0.185	0.431	1.767	0.862	6	0.349	6	0.97	0.356	1.084	NA	NA	NA	NA	NA	NA
Chromium VI, Dissolved	100	160		<0.005	<0.005	8	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	4	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA
Chromium VI	100	160		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	4	<0.025	<0.5	<0.5	<0.5	<0.025	<0.5	<0.5	<0.5	<0.5	NA	NA	NA	NA	NA
Copper, Dissolved	1000	20	G	0.405	<0.005	<0.005	<0.005	3.473	0.396	0.576	0.86	1.357	<0.005	<0.005	0.501	<0.005	0.492	0.751	0.391	0.611	NA	NA	NA	NA	NA	NA
Copper	1000	20	G	<0.005	0.698	0.516	0.528	9	6	14	0.996	0.564	<0.005	0.835	0.694	<0.005	0.973	6	<0.005	6	NA	NA	NA	NA	NA	NA
Lead, Dissolved	4	44	G	<0.003	<0.003	<0.003	0.208	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.584	<0.003	NA	NA	NA	NA	NA	NA
Lead	4	44	G	0.249	0.283	<0.003	<0.003	<0.003	<0.003	0.886	0.283	<0.003	<0.003	<0.003	0.242	0.339	<0.003	0.4	4	<0.003	4	NA	NA	NA	NA	NA
Selenium, Dissolved	50	5		<0.005	<0.005	<0.005	<0.005	<0.005	9	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA
Selenium	50	5		<0.005	<0.005	<0.005	<0.005	<0.005	9	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA	NA	NA	NA	NA
Zinc, Dissolved	2400	260	G	6	4.654	5	2.299	9	1.504	1.216	9	7	3.151	3.037	6	2.665	8	27	6	29	NA	NA	NA	NA	NA	NA
Zinc	2400	260	G	1.56	2.074	1.632	2.05	14	1.948	7	6	2.742	2.004	1.879	1.594	1.588	6	44	1.221	43	NA	NA	NA	NA	NA	NA
VOC ANALYTE (ug/L)	DW	GSI																MW-112S	MW-114S							
Diethyl ether	10 (E)	ID		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Acetone	730	1,700		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Methyl iodide	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Carbon disulfide	800	NC		<5	<5	<5	0.26	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.15	0.18	0.17
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Acrylonitrile	2.6	2.0 (M); 1.2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
2-Butanone (MEK)	13,000	2,200		<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25
Dichlorodifluoromethane	1,700	ID		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloromethane	260	NC		0.15	<5	<5	<5	<5	<5	<5	<5	<5	0.13	<5	<5	<5	0.44	<5	<5	<5	<5	<5	<5	<5	<5	<5
Vinyl chloride	2	13		<1	<1	<1	0.81	<1	<1	<1	<1	18	<1	<1	10	0.79	5	11	3	<1	<1	<1	<1	<1	<1	<1
Bromomethane	10	4.2; [5(M)]		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Chloroethane	430	1,100		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.39	<5	<5
Trichlorofluoromethane	2,600	NA		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	7	130		<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	1	<1	0.84	1	0.82	<1	<1	<1	<1	<1	<1	<1
Methylene chloride	5	1,500		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.11	<5	<5	<5	0.13	<5	0.43	0.41	0.36	0.76	0.22	0.36
trans-1,2-Dichloroethene	100	1,500		<1	<1	<1	<1	<1	<1	<1	<1	0.5	<1	<1	0.28	<1	0.78	0.24	0.83	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	880	740		<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1	0.99	<1	3	1	2	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	70	620		9	<1	<1	<1	<1	<1	0.11	<1	17	<1	0.35	3	0.44	127	3	125	<1	<1	<1	<1	<1	<1	<1
Tetrahydrofuran	95	11,000		<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	0.22	<90	<90	<90	<90	<90
Chloroform	80	350		<1	<1	<1	<1	0.71	<1	0.24	<1	0.81	<1	<1	<1	<1	<1	0.22	<1	0.23	<1	<1	<1	<1	<1	<1
Bromochloromethane	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	200	89		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	2	<1	<1	<1	<1	<1	<1	<1
4-Methyl-2-pentanone (MIBK)	1800	ID		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
2-Hexanone	1000	ID		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Carbon tetrachloride	5.0	38	X	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	5.0	200		<1	<1	<1	0.26	<1	<1	<1	<1	<1	<1	<1	0.2	<1	<1	<1	0.22	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	5.0 (A)	360 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	5.0	200		16	2	0.16	<1	<1	<1	<1	0.15	0.14	13	<1	6	6	7	335	6	350	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	5.0 (A)	230 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	80.0	NC		<1	<1	<1	<1	0.17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	230	NA		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	790	270		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	5.0 (A)	330 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	5.0	60		<1	<1	<1	<1	<1	78	<1	<1	<1	<1	<1	<1	<1	<1	0.2	<1	0.18	<1	<1	<1	<1		

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-109	MW-110S	MW-111S	MW-112S	MW-113S	MW-114S	Dupe 1	Dupe 2	Field Blank	Equip Blank	Field Blank	Equipment Blank	Trip	Equip	Field	
Date Collected			02/25/2020	02/25/2020	02/25/2020	02/28/2020	02/25/2020	02/25/2020	02/25/2020	02/25/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/25/2020	02/25/2020	02/27/2020	02/27/2020	02/28/2020	02/28/2020	02/28/2020
VOC ANALYTE (ug/L) {cont}	DW	GSI																									
Ethylbenzene	74	18		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Total Xylenes	280	49		<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	
p,m-Xylene				<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
o-Xylene				<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Styrene	100	80		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Isopropylbenzene	800	28		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Bromoform	80 (A,W)	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
1,1,2,2-Tetrachloroethane	8.5	78 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
1,2,3-Trichloropropane	42	NA		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
n-Propylbenzene	80	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Bromobenzene	18	NA		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
1,3,5-Trimethylbenzene	72 (E)	45		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
tert-Butylbenzene	80	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
1,2,4-Trimethylbenzene	63 (E)	17		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
sec-Butylbenzene	230	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
p-Isopropyltoluene	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
1,3-Dichlorobenzene	6.6	28		0.32	0.25	0.11	<1	0.37	0.26	0.23	0.26	0.13	0.1	0.14	0.21	0.19	0.17	<1	0.2	<1	<1	0.12	<1	<1	<1	<1	
1,4-Dichlorobenzene	75	17		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.13	<1	<1	
1,2-Dichlorobenzene	600	13		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0.15	<1	<1	0.11	<1	<1	<1	<1	<1	<1	<1	
1,2,3-Trimethylbenzene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
n-Butylbenzene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Hexachloroethane	21	6.7		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
1,2-Dibromo-3-chloropropane	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
1,2,4-Trichlorobenzene	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.18	0.13	0.12	
1,2,3-Trichlorobenzene	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.12	0.11	<5	<5	0.16	<5	<5	
Naphthalene	520	11		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.17	0.15	0.13	<5	<5	<5	<5	
2-Methylnaphthalene	260	19		<5	<5	0.1	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	0.18	0.15	0.12	<5	0.13	<5	<5	

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-109	MW-110S	MW-111S	MW-112S	MW-113S	MW-114S	Dupe 1	Dupe 2	Field Blank	Equip Blank	Field Blank	Equipment Blank	Trip	Equip	Field	
Date Collected			02/25/2020	02/25/2020	02/25/2020	02/28/2020	02/25/2020	02/25/2020	02/25/2020	02/25/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/27/2020	02/25/2020	02/25/2020	02/27/2020	02/27/2020	02/28/2020	02/28/2020	02/28/2020	
PFA ANALYTE (ng/L)	DW	GSI																									
Perfluorobutanoic acid (PFBA)	NC	NC		<20	<21	NA	<19	NA	NA	8.1	<19	NA	5.5	<19	<20	<19	<19	<20	<20	<19	<19	<19	<21	<19	<20	<19	<19
Perfluoropentanoic acid (PFPeA)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Fluorotelomer sulfonic acid (4:2 FTS)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluorohexanoic acid (PFHxA)	400,000	NC		<9.8	1.7	NA	<9.5	NA	NA	3.5	<9.6	NA	1.4	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluorobutane sulfonic acid (PFBS)	420	NC		2.7	2.3	NA	<9.5	NA	NA	4.5	1.9	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluoroheptanoic acid (PFHpA)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	2.8	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluoropentane sulfonic acid (PFPeS)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Fluorotelomer sulfonic acid (6:2 FTS)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluorooctanoic acid (PFOA)	8	12,000		<9.8	<10	NA	<9.5	NA	NA	8.7	<9.6	NA	2.3	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluorohexane sulfonic acid (PFHxS)	51	NC		<9.8	<10	NA	2.7	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	NC	NC		<9.8	<10	NA	3	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluorononanoic acid (PFNA)	6	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Fluorotelomer sulfonic acid (8:2 FTS)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluoroheptane sulfonic acid (PFHpS)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluorodecanoic acid (PFDA)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluorooctane sulfonic acid (PFOS)	16	12		20	21	NA	84	NA	NA	7.3	14	NA	31	<9.5	32	22	6.2	31	19	35	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NC	NC		7.4	7.8	NA	47	NA	NA	<10	6.8	NA	11	<9.5	14	9.1	<9.5	15	8.4	17	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NC	NC		12	12	NA	35	NA	NA	6.4	6	NA	19	<9.5	16	11	4.2	14	9.1	17	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluoroundecanoic acid (PFUnDA)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluorononane sulfonic acid (PFNS)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluorododecanoic acid (PFDoDA)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluorodecane sulfonic acid (PFDS)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluorotridecanoic acid (PFTrDA)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluorooctane sulfonamide (FOSA)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5
Perfluorotetradecanoic acid (PFTeDA)	NC	NC		<9.8	<10	NA	<9.5	NA	NA	<10	<9.6	NA	<9.9	<9.5	<10	<9.4	<9.5	<10	<10	<9.7	<9.6	<9.6	<10	<9.7	<10	<9.7	<9.5

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

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

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	X
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	X
Compound also found in associated method blank, suggesting a laboratory artifact.	X
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed due to turbidity	NA

PFAS criteria based on EGLE proposed drinking water criteria for selected PFAS compounds.

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	Dupe 1	Dupe 2	Equipment Blank	Equipment Blank	Field Blank	Field Blank	Trip Blank	Trip Blank
Date Collected			07/16/2019	07/16/2019	07/17/2019	07/17/2019	07/16/2019	07/16/2019	07/16/2019	07/16/2019	07/17/2019	07/17/2019	07/17/2019	07/17/2019	07/16/2019	07/17/2019	07/17/2019	07/16/2019	07/17/2019	07/16/2019	07/17/2019	07/16/2019	07/17/2019	07/16/2019	07/17/2019
VOC ANALYTE (ug/L) {cont}	DW	GSI																							
Ethylbenzene	74	18	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Total Xylenes	280	49	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3
Styrene	100	80	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Isopropylbenzene	800	28	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
Bromoform	80 (A,W)	ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	8.5	78 (X)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	42	NA	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
n-Propylbenzene	80	ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Bromobenzene	18	NA	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	72 (E)	45	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
tert-Butylbenzene	80	ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	63 (E)	17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
sec-Butylbenzene	230	ID	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
p-Isopropyltoluene	NC	NC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
1,3-Dichlorobenzene	6.6	28	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	75	17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	600	13	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
1,2,3-Trimethylbenzene	NC	NC	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
n-Butylbenzene	NC	NC	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<5	<1	<5	<1	<1	<1	<1	<1	<1
Hexachloroethane	21	6.7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane	NC	NC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	NC	NC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	NC	NC	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
Naphthalene	520	11	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	<5	<5	<5	<5	<5
2-Methylnaphthalene	260	19	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<30	<5	<30	<5	0.26	<5	0.22	<5	<5

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	Dupe 1	Dupe 2	Equipment Blank	Equipment Blank	Field Blank	Field Blank	Trip Blank	Trip Blank
Date Collected			07/16/2019	07/16/2019	07/17/2019	07/17/2019	07/16/2019	07/16/2019	07/16/2019	07/16/2019	07/17/2019	07/17/2019	07/17/2019	07/17/2019	07/16/2019	07/17/2019	07/17/2019	07/16/2019	07/17/2019	07/16/2019	07/17/2019	07/16/2019	07/17/2019	07/16/2019	07/17/2019
PFA ANALYTE (ng/L)	DW	GSI	NS	NS			NS	NS	NS	NS					NS			NS	MW-114S	NS			7/17/2019		7/17/2019
Perfluorobutanoic acid (PFBA)	NC	NC	NA	NA	<19	<19	NA	NA	NA	NA	<19	<19	20	<19	NA	<19	<19	NA	<19	NA	<19	NA	<20	NA	<19
Perfluoropentanoic acid (PFPeA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Fluorotelomer sulfonic acid (4:2 FTS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorohexanoic acid (PFHxA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorobutane sulfonic acid (PFBS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluoroheptanoic acid (PFHpA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluoropentane sulfonic acid (PFPeS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Fluorotelomer sulfonic acid (6:2 FTS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorooctanoic acid (PFOA)	CC	12,000	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorohexane sulfonic acid (PFHxS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorononanoic acid (PFNA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Fluorotelomer sulfonic acid (8:2 FTS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluoroheptane sulfonic acid (PFHpS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorodecanoic acid (PFDA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorooctane sulfonic acid (PFOS)	CC	12	NA	NA	11	93	NA	NA	NA	NA	11	28	<9.6	36	NA	20	31	NA	32	NA	<9.4	NA	<10	NA	<9.3
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)	NC	NC	NA	NA	<9.7	44	NA	NA	NA	NA	<9.7	12	<9.6	16	NA	<9.5	17	NA	16	NA	<9.4	NA	<10	NA	<9.3
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)	NC	NC	NA	NA	<9.7	48	NA	NA	NA	NA	<9.7	16	<9.6	21	NA	16	15	NA	16	NA	<9.4	NA	<10	NA	<9.3
Perfluoroundecanoic acid (PFUnDA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorononane sulfonic acid (PFNS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorododecanoic acid (PFDaDA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorodecane sulfonic acid (PFDS)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorotridecanoic acid (PFTriDA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorooctane sulfonamide (FOSA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3
Perfluorotetradecanoic acid (PFTeDA)	NC	NC	NA	NA	<9.7	<9.4	NA	NA	NA	NA	<9.7	<9.7	<9.6	<9.6	NA	<9.5	<9.5	NA	<9.5	NA	<9.4	NA	<10	NA	<9.3

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Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

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

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

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

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

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Groundwater Analytical Results
RACER - Flint West # 12990

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

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

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

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

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

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

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 (ug/L)		DW	GSI															MW-104S	MW-109S								
Arsenic (dissolved)		10	10				19					4	1		52		1		3				1		1		
Arsenic		10	10				53		1	1		5	3		104		2		5				1		1		
Chromium (dissolved)		100	160	G		1		10	1	6			1	4		1	7	1									
Chromium (total)		100	160	G		2	6		388	62	789		1			1	9	13									
Chromium VI (dissolved)		100	160			1																					
Chromium VI		100	160											5			6										
Copper (dissolved)		1000	20	G	1	1	1		2	1	4	2	1	1	7	1		1	2	1							
Copper		1000	20	G		1	1		13	2	23	1	1	1		1	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		
Zinc		2400	260	G	3	2	5	2	5	2	6	2	4	5	3	2	4	5	3	1	2		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																							
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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																							

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Groundwater Analytical Results
RACER - Flint West # 12990

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

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

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

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

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RACER - Flint West # 12990

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Date Collected			5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18	5/29/18		5/29/18	5/29/18
METALS ANALYTE (ug/L)	DW	GSI	DRY				DRY		DRY		NS	NS	NS			NS	MW-102S			
Arsenic (dissolved)	10	10				1.41									23					
Arsenic	10	10				9									60					
Chromium (dissolved)	100	160	G	1.62	14	0.168		1.01		0.328				4.13	0.431		14			
Chromium (total)	100	160	G	2.64	14	0.276		44		0.208				4.17	0.296		14			0.095
Chromium VI (dissolved)	100	160																		
Chromium VI (total)	100	160																		
Copper (dissolved)	1000	20	G	0.381	0.498			0.816		1.73				0.611			0.469			
Copper	1000	20	G	0.748	0.341			1.78		1.43				2.42						
Lead (dissolved)	4	44	G																	
Lead	4	44	G	0.408		0.068		0.304		0.121				0.067	0.062					
Selenium (dissolved)	50	5																		
Selenium	50	5																		
Zinc (dissolved)	2400	260	G	6	8	7		8		12				15	8		9			
Zinc	2400	260	G	6	7	8		7		8				6	4.76		9			1.79
VOC ANALYTE (ug/L)	DW	GSI																		
Acetone	730	1,700		5	4.5	6.4		5.6						5.9	8.2		5.6	4.8		8.4
Methyl iodide	NC	NC																		
Carbon disulfide	800	NC																		
2 Butanone (MEK)	13,000	2,200																		
Chloromethane	260	NC																		
Vinyl Chloride	2.0	13													9					
Chloroethane	430	1,100																		
trichlorofluoromethane	2,600	NA																		
1,1-Dichloroethene	7.0	130													1					
Methylene Chloride	5.0	1,500													0.17					
trans-1,2-Dichloroethene	100	1,500													0.25					
1,1-Dichloroethane	880	740													1					
cis-1,2-Dichloroethene	70	620													3					
Tetrahydrofuran	95	11,000																4.8		
Chloroform	80	350																		0.46
1,1,1-Trichloroethane	200	89																		
4-Methyl-2-pentanone (MIBK)	1800	ID																		
2-Hexanone	1000	ID																		
Carbon tetrachloride	5.0	38 (X)																		
Benzene	5.0	200													0.20					
Bromodichloromethane	80.0	NC																		
Trichloroethene	5.0	200		1	0.67									7	13		0.7			
Toluene	790	270			0.39															
Tetrachloroethene	5.0	60						45												
Chlorobenzene	100	25																		
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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			
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Bromomethane	10	4.2; [5(M)]																		
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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 (PFTTrDA)	NC	NC		0.82										0.78	0.85			0.94	1.1	
Perfluorotetradecanoic acid (PFTeDA)	NC	NC		1.4	1.2															
Perfluorooctane sulfonamide (FOSA)	NC	NC																		
N-Methyl perfluorooctane sulfonamidoacetic acid	NC	NC																		
N-Ethyl perfluorooctane sulfonamidoacetic acid	NC	NC																		
Fluorotelomer sulfonic acid (4:2 FTS)	NC	NC																		
Fluorotelomer sulfonic acid (6:2 FTS)	NC	NC																		
Fluorotelomer sulfonic acid (8:2 FTS)	NC	NC																		

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

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

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

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

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

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

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

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

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

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

NOTES:

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

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

Table 1
GROUNDWATER ANALYTICAL 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		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	NS								NS	NS	NS			NS									
Arsenic (dissolved)	10	10		0.85		9.00	0.41	0.64	0.58		NS	NS	NS	1.37	82.00	NS					84.000				
Arsenic	10	10		0.63	3.00	13.00	0.53	0.56	1.11	0.44	NS	NS	NS	1.45	126.00	NS					123.000				
Chromium (dissolved)	100	160	G	1.57	12.00	0.22	28.00	37.00	100.00	0.16	NS	NS	NS	2.69	0.34	NS					0.62				
Chromium (total)	100	160	G	21	72.00	1.50	1640.00	776.00	2500.00		NS	NS	NS	7.00	0.37	NS					0.7				
Chromium VI (dissolved)	100	160			8.00	0.86					NS	NS	NS			NS									
Chromium VI (total)	100	160			6.00						NS	NS	NS			NS									
Copper (dissolved)	1000	20	G	0.59	1.56	0.86	6.00	2.38	4.31	1.61	NS	NS	NS	1.34		NS					0.4				
Copper	1000	20	G	2.47	8.00	1.81	33.00	8.00	28.00	1.60	NS	NS	NS	1.38		NS					0.62				
Lead (dissolved)	4	44	G		0.15	0.09		0.06	0.18	0.13	NS	NS	NS	0.21	0.06	NS									
Lead	4	44	G	0.547	2.82	0.53	0.14	0.22	0.76	0.14	NS	NS	NS	0.96	0.08	NS					0.066				
Selenium (dissolved)	50	5									NS	NS	NS			NS									
Selenium	50	5									NS	NS	NS			NS									
Zinc (dissolved)	2400	260	G	1.69	2.09	2.48	3.13	5.00	2.20	4.41	NS	NS	NS	1.72	2.22	NS					2.25				
Zinc	2400	260	G	3.16	9.00	3.22	2.59	13.00	4.68	3.01	NS	NS	NS	2.54	4.07	NS					5				

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

NOTES:

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

Table 1
Groundwater Analytical Results
RACER - Flint West # 12990

	Sample ID		MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S			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		2	9	22		6			1.38			
Chromium VI (dissolved)	100	160											14												
Chromium VI (total)	100	160																							
Copper (dissolved)	1000	20	G	0.91	4.31	2.20	0.99	2.22	31	32	1.25		6	6	6				3			0.86			
Copper	1000	20	G	5	18	1.41	1.1	4.16	203	64	2.46		6	1.85	6	10	2.94		6			1.63			
Lead (dissolved)	4	44	G	0.144	0.148	0.97	0.116		0.85	0.451			0.151	0.075	0.978	1.651			0.191			0.361			
Lead	4	44	G	2.32	0.895	1.33	0.306		3.00	0.632	0.35	0.161	0.479	0.523	1.3	5	2.855		3.000			0.928			
Selenium (dissolved)	50	5																							
Selenium	50	5																							
Zinc (dissolved)	2400	260	G	20.6	2.28	5	4.19		390	2.89	10	2.36	3.46		6	16	2.05		10			6			
Zinc	2400	260	G	12	5	6	2.35		1380	2	11		3.59	2.3	7	32	9		21			6			

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

NOTES:	
X	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

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

Table 1																								
GROUNDWATER ANALYTICAL DATA																								
RACER - Flint West #12990																								
As 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		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				6	NS			6														
Zinc (dissolved)	2400	260	G	21	NS	1870	18	NS		1220	730	373	49	5	317									
Zinc	2400	260	G	11	22	NS	2.46	1.48	NS	12	7	6	10		2.95	7								
Sample ID		MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105S	MW-106SR	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Trip Blank	Field Blank	Trip Blank	Field Blank	Dup2	Trip Blank	Field Blank	Dup3	Dup3
Date Collected		5/11/16	5/11/16	NS	6/8/16	6/1/16	NS	5/11/16	5/11/16	6/1/16	6/1/16	6/1/16	6/8/16	5/11/16	6/1/16	5/11/16	5/11/16	6/1/16	6/1/16	6/1/16	6/8/16	6/8/16	6/8/16	6/8/16
ANALYTE (ug/L)		DW	GSI																					
Acetone	730	1,700		2.72	1.62	NS		NS	2.72	2.1		0.6	0.67		4.21		1.98		0.69					
Methyl iodide	NC	NC				NS		NS																
Carbon disulfide	800	NC				NS		NS																
2 Butanone (MEK)	13,000	2,200				NS		NS						1.36			0.37							
Chloromethane	260	NC				NS		NS																
Vinyl Chloride	2.0	13				NS		NS				15		17										
Chloroethane	430	1,100				NS		NS						2.59										
trichlorofluoromethane	2,600	NA				NS		NS																
1,1-Dichloroethene	7.0	130				NS		NS			3													
Methylene Chloride	5.0	1,500				NS		NS																
trans-1,2-Dichloroethene	100	1,500				NS		NS			0.59			0.36										
1,1-Dichloroethane	880	740				NS		NS			1			1	3									
cis-1,2-Dichloroethene	70	620	0.34			NS		NS						3	30									
Tetrahydrofuran	95	11,000				NS		NS																
Chloroform	80	350				NS	3	NS		1							0.490	3.000						
1,1,1-Trichloroethane	200	89				NS		NS			0.31				0.3									
4-Methyl-2-pentanone (MIBK)	1800	ID				NS		NS						0.3										
2-Hexanone	1000	ID				NS		NS						0.47										
Carbontetrachloride	5.0	45				NS		NS		2														
Benzene	5.0	200				NS		NS																
Bromodichloromethane	80.0	NC				NS	0.74	NS									0.710							
Trichloroethene	5.0	200	4	2		NS		NS	4	0.26		93		11	12	50								
Toluene	790	270				NS		NS																
Tetrachloroethene	5.0	60				NS		NS																
Chlorobenzene	100	25				NS		NS																
Styrene	100	80				NS		NS																
Ethylbenzene	74	18				NS		NS																
Total Xylenes	280	41				NS		NS																
1,2 -Dichlorobenzene	600	13				NS		NS																
1,2,4-Trimethylbenzene	63	17				NS		NS																
1,2,3-Trimethylbenzene	NC	NC				NS		NS																
Naphthalene	520	11				NS		NS																
2-Methylnaphthalene	260	19				NS		NS																
Diethyl ether	10 (E)	ID				NS		NS																
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)				NS		NS																
Acrylonitrile	2.6	2.0 (M); 1.2				NS		NS																
Dichlorodifluoromethane	1,700	ID				NS		NS																
Bromomethane	10	35				NS		NS																
1,2-Dichloroethane	5.0 (A)	360 (X)				NS		NS																
Trichloroethene	5.0 (A)	200 (X)				NS		NS																
1,2-Dichloropropane	5.0 (A)	230 (X)				NS		NS																
cis-1,3-Dichloropropene	NC	NC				NS		NS																
trans-1,3-Dichloropropene	NC	NC				NS		NS																
1,1,2-Trichloroethane	5.0 (A)	330 (X)				NS		NS																
trans-1,4-Dichloro-2-butene	NC	NC				NS		NS																
Dibromochloromethane	80 (A,W)	ID				NS		NS																
1,2-Dibromoethane	NC	NC				NS		NS																
1,1,1,2-Tetrachloroethane	77	ID				NS		NS																
Isopropylbenzene	800	28				NS		NS																
Bromoform	80 (A,W)	ID				NS		NS																
1,1,2,2-Tetrachloroethane	8.5	78 (X)				NS		NS																
1,2,3-Trichloropropane	42	NA				NS		NS																
n-Propylbenzene	80	ID				NS		NS																
Bromobenzene	18	NA				NS		NS																
1,3,5-Trimethylbenzene	72 (E)	45				NS		NS																
tert-Butylbenzene	80	ID				NS		NS																
1,2,4-Trimethylbenzene	63 (E)	17				NS		NS																
1,2,3-Trichlorobenzene	NC	NC				NS		NS																

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

Table 1
GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

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

NOTES:

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

Table 1
GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

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

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

NOTES:

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

Table 1
GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

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

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

Table 1
GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

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

	Sample ID		MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105SR	MW-106S	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	Dup1	Dup2	Dup3
	Date Collected		6/25/14	6/25/14	6/25/14	6/26/14	6/25/14	6/26/14	6/25/14	6/25/14	6/26/14	6/26/14	6/26/14	6/26/14	6/25/14	6/26/14			
ANALYTE (ug/L)	DW	GSI																	
Acetone	730	1,700		1.74	1.45	2.04	2.67	1.55	1.86	1.59	2.82	1.32	1.47	1.29	1.48	4.93	1.32		
Methyl iodide	NC	NC																	
Carbon disulfide	800	NC													0.42	0.36			
2 Butanone (MEK)	13,000	2,200								0.4	0.65	0.29		0.29	1.99				
Chloromethane	260	NC		0.32			0.34									0.29			
Vinyl Chloride	2.0	13										10			21	2			
Chloroethane	430	1,100													2.9				
trichlorofluoromethane	2,600	NA																	
1,1-Dichloroethene	7.0	130										4			2.00	0.39			
Methylene Chloride	5.0	1,500																	
trans-1,2-Dichloroethene	100	1,500										0.7			0.64	0.24			
1,1-Dichloroethane	880	740													1.00	3.00			
cis-1,2-Dichloroethene	70	620		0.62								3			7	59			
Tetrahydrofuran	95	11,000										70.0							
Chloroform	80	350					5.00		0.22		0.5	0.37				0.320			
1,1,1-Trichloroethane	200	89										0.50				1.00			
4-Methyl-2-pentanone (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 DW criteria
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X	Exceeds both DW and GSI criteria
X	Compound also found in associated method blank, suggesting a laboratory artifact.
NC	Insufficient data to develop criterion/no criterion
G	Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River

Table 1
GROUNDWATER ANALYTICAL DATA
RACER - Flint West #12990

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

	Sample ID		MW-100S	MW-101S	MW-102S	MW-103S	MW-104S	MW-105SR	MW-106S	MW-107S	MW-108S	MW-109S	MW-110S	MW-111S	MW-112S	MW-113S	SB124-TWT	SB125-TWT	SB127-TWT	SB129-TWT	SB130-TWT	SB131-TWT	SB124-TWB	SB125-TWB	SB127-TWB	SB129-TWB	SB130-TWB	SB131-TWB	Dup1	Dup2	Dup3	
	Date Collected																															
ANALYTE (ug/L)	DW	GSI																														
Acetone	730	1,700			1.13	2.36		0.88	1.82	3.58	3.82		1.22	2.11	0.72	5.17	0.93	5.7		9.1	5.7			10.3	66	25.8		5.9		5.8	1.06	
Methyl iodide	NC	NC																														
Carbon disulfide	800	NC																							0.86	0.4						
2 Butanone (MEK)	13,000	2,200			0.73	0.86		0.41	0.83	0.78	0.94					2.98									11.6	8.6						
Chloromethane	260	NC																														
Vinyl Chloride	2.0	13								0.64		18		4	6	0.45			5			2		0.33		0.61				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	10000000000													0.67					0.390				0.590	2.190							
2-Hexanone	1000	10000000000																		0.750			0.210	2.170	4.570							
Carbontetrachloride	5.0	45															2															
Benzene	5.0	200								0.25										0.43	0.12			0.17	0.21	0.81	0.21	0.16	0.23			
Bromodichloromethane	80.0	NC					0.89																									
Trichloroethene	5.0	200			3	2				4		102		92	3	23					8	3	81	0.55			8	5	78	86		
Toluene	790	270							0.35	0.63							0.23		0.39	0.20			0.38	0.30	1.00	0.35	0.24	0.44				
Tetrachloroethene	5.0	60						47														0.180						0.17				
Chlorobenzene	100	25																														
Styrene	100	80																	0.43													
Ethylbenzene	74	18																					0.12	0.11	0.31		0.11					
Total Xylenes	280	41																							0.79							
1,2 -Dichlorobenzene	600	13																														
1,2,4-Trimethylbenzene	63	17																							0.22	0.31						
1,2,3-Trimethylbenzene	NC	NC							0.07	0.07															0.20	0.18						
Naphthalene	520	11															0.34		0.31				0.75	1.68	0.55							
2-Methylnaphthalene	260	19															0.51		0.40				0.47	0.88	0.47							

NOTES:	
	Blank cells indicate no detectable concentrations
X	Exceeds DW criteria
X	Exceeds GSI criteria
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



Analytical Laboratory Report

Report ID: S60263.01(01)
Generated on 04/03/2024

Report to
Attention: Rodney Abke
Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525 FAX:
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John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary
Lab Sample ID(s): S60263.01-S60263.04
Project: RACER Flint West #12990
Collected Date(s): 03/27/2024
Submitted Date/Time: 03/27/2024 15:40
Sampled by: Unknown
P.O. #: PO1107477

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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

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, and 2-chloroethylvinyl ether 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.

Starred (*) analytes are not NY 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)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit <https://www.meritlabs.com/certifications>.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

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
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
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



Analytical Laboratory Report

Method Summary

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



Analytical Laboratory Report

Sample Summary (4 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S60263.01	Field Blank-1-240327	Water	03/27/24 10:27
S60263.02	MW-104S-240327	Water	03/27/24 12:05
S60263.03	MW-106SR-240327	Water	03/27/24 12:54
S60263.04	MW-112S-240327	Water	03/27/24 14:03



Analytical Laboratory Report

Lab Sample ID: S60263.01

Sample Tag: Field Blank-1-240327

Collected Date/Time: 03/27/2024 10:27

Matrix: Water

COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	None	Yes	2.8	IR
3	40ml Glass	HCL	Yes	2.8	IR
1	125ml Plastic	HNO3	Yes	2.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/03/24 11:10	ACK	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/27/24 17:20, Analyst: JKB

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

Method: SM3500-Cr B, Run Date: 03/27/24 16:50, Analyst: JKB

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

Metals

Method: E200.8, Run Date: 03/29/24 14:52, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000580	mg/L	2	7440-38-2	
Chromium	Not detected	0.005	0.000300	mg/L	2	7440-47-3	
Copper	Not detected	0.005	0.000320	mg/L	2	7440-50-8	
Lead	Not detected	0.003	0.000180	mg/L	2	7439-92-1	
Selenium	Not detected	0.005	0.00174	mg/L	2	7782-49-2	
Zinc	Not detected	0.005	0.00130	mg/L	2	7440-66-6	

Method: E200.8, Run Date: 03/29/24 14:53, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000580	mg/L	2	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.000300	mg/L	2	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.000320	mg/L	2	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.000180	mg/L	2	7439-92-1	
Selenium, Dissolved	Not detected	0.005	0.00174	mg/L	2	7782-49-2	
Zinc, Dissolved	Not detected	0.005	0.00130	mg/L	2	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 14:33, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.33	ug/L	1	60-29-7	
Acetone	Not detected	50	8.9	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.57	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.12	ug/L	1	1634-04-4	



Analytical Laboratory Report

Lab Sample ID: S60263.01 (continued)

Sample Tag: Field Blank-1-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 14:33, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acrylonitrile	Not detected	2	0.48	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	4.7	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.35	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.78	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.22	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.24	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.37	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.21	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.28	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.24	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.17	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.14	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.15	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	4.2	ug/L	1	109-99-9	
Chloroform	0.15	1	0.13	ug/L	1	67-66-3	J
Bromochloromethane	Not detected	1	0.17	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.21	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	0.61	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.17	ug/L	1	56-23-5	
Benzene	Not detected	1	0.14	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.12	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.14	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.16	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.29	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.16	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	0.13	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.21	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.19	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.49	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.22	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.20	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.13	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.17	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.15	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.33	ug/L	1		
o-Xylene	Not detected	1	0.19	ug/L	1	95-47-6	
Styrene	Not detected	1	0.16	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.17	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.17	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.30	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.22	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.19	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.22	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.23	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.26	ug/L	1	95-63-6	

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



Analytical Laboratory Report

Lab Sample ID: S60263.01 (continued)
Sample Tag: Field Blank-1-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 14:33, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
sec-Butylbenzene	Not detected	1	0.24	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.24	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.18	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.16	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	0.16	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.49	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.29	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.29	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.45	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.42	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.48	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.87	ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S60263.02

Sample Tag: MW-104S-240327

Collected Date/Time: 03/27/2024 12:05

Matrix: Water

COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	None	Yes	2.8	IR
3	40ml Glass	HCL	Yes	2.8	IR
1	125ml Plastic	HNO3	Yes	2.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/03/24 11:10	ACK	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/27/24 17:25, Analyst: JKB

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

Method: SM3500-Cr B, Run Date: 03/27/24 17:05, Analyst: JKB

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

Metals

Method: E200.8, Run Date: 03/29/24 14:56, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Chromium	0.060	0.005	0.000750	mg/L	5	7440-47-3	
Copper	0.006	0.005	0.000800	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium	0.006	0.005	0.00435	mg/L	5	7782-49-2	
Zinc	0.004754	0.005	0.00325	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 03/29/24 15:02, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper, Dissolved	0.001156	0.005	0.000800	mg/L	5	7440-50-8	b
Lead, Dissolved	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium, Dissolved	0.005	0.005	0.00435	mg/L	5	7782-49-2	
Zinc, Dissolved	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 15:43, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.33	ug/L	1	60-29-7	
Acetone	Not detected	50	8.9	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.57	ug/L	1	75-15-0	

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



Analytical Laboratory Report

Lab Sample ID: S60263.02 (continued)

Sample Tag: MW-104S-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 15:43, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
tert-Methyl butyl ether (MTBE)	Not detected	5	0.12	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.48	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	4.7	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.35	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.78	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.22	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.24	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.37	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.21	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.28	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.24	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.17	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.14	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.15	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	4.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.13	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.17	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.21	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	0.61	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.17	ug/L	1	56-23-5	
Benzene	Not detected	1	0.14	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.12	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.14	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.16	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.29	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.16	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	0.13	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.21	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.19	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.49	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.22	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.20	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.13	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.17	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.15	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.33	ug/L	1		
o-Xylene	Not detected	1	0.19	ug/L	1	95-47-6	
Styrene	Not detected	1	0.16	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.17	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.17	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.30	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.22	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.19	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.22	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.23	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.26	ug/L	1	95-63-6	



Analytical Laboratory Report

Lab Sample ID: S60263.02 (continued)
Sample Tag: MW-104S-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 15:43, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
sec-Butylbenzene	Not detected	1	0.24	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.24	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.18	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.16	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	0.16	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.49	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.29	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.29	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.45	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.42	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.48	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.87	ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S60263.03
Sample Tag: MW-106SR-240327
Collected Date/Time: 03/27/2024 12:54
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	None	Yes	2.8	IR
3	40ml Glass	HCL	Yes	2.8	IR
1	125ml Plastic	HNO3	Yes	2.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/03/24 11:10	ACK	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/27/24 17:30, Analyst: JKB

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

Method: SM3500-Cr B, Run Date: 03/27/24 17:10, Analyst: JKB

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

Metals

Method: E200.8, Run Date: 03/29/24 15:04, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.001629	0.002	0.00145	mg/L	5	7440-38-2	b
Chromium	0.598	0.005	0.000750	mg/L	5	7440-47-3	
Copper	0.009	0.005	0.000800	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc	0.004121	0.005	0.00325	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 03/29/24 15:07, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.003	0.002	0.00145	mg/L	5	7440-38-2	
Chromium, Dissolved	0.001218	0.005	0.000750	mg/L	5	7440-47-3	b
Copper, Dissolved	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium, Dissolved	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc, Dissolved	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 16:07, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.33	ug/L	1	60-29-7	
Acetone	Not detected	50	8.9	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.57	ug/L	1	75-15-0	

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



Analytical Laboratory Report

Lab Sample ID: S60263.03 (continued)

Sample Tag: MW-106SR-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 16:07, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
tert-Methyl butyl ether (MTBE)	Not detected	5	0.12	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.48	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	4.7	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.35	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.78	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.22	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.24	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.37	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.21	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.28	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.24	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.17	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.14	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.15	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	4.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.13	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.17	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.21	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	0.61	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.17	ug/L	1	56-23-5	
Benzene	Not detected	1	0.14	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.12	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.14	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.16	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.29	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.16	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	0.13	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.21	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.19	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.49	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.22	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.20	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.13	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.17	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.15	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.33	ug/L	1		
o-Xylene	Not detected	1	0.19	ug/L	1	95-47-6	
Styrene	Not detected	1	0.16	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.17	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.17	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.30	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.22	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.19	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.22	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.23	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.26	ug/L	1	95-63-6	



Analytical Laboratory Report

Lab Sample ID: S60263.03 (continued)
Sample Tag: MW-106SR-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 16:07, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
sec-Butylbenzene	Not detected	1	0.24	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.24	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.18	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.16	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	0.16	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.49	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.29	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.29	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.45	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.42	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.48	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.87	ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S60263.04

Sample Tag: MW-112S-240327

Collected Date/Time: 03/27/2024 14:03

Matrix: Water

COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	None	Yes	2.8	IR
3	40ml Glass	HCL	Yes	2.8	IR
1	125ml Plastic	HNO3	Yes	2.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/03/24 11:10	ACK	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/27/24 17:35, Analyst: JKB

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

Method: SM3500-Cr B, Run Date: 03/27/24 17:15, Analyst: JKB

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

Metals

Method: E200.8, Run Date: 03/29/24 15:09, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.064	0.002	0.00145	mg/L	5	7440-38-2	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper	0.006	0.005	0.000800	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc	0.003513	0.005	0.00325	mg/L	5	7440-66-6	b

Method: E200.8, Run Date: 03/29/24 15:11, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.023	0.002	0.00145	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium, Dissolved	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc, Dissolved	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 16:30, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.33	ug/L	1	60-29-7	
Acetone	Not detected	50	8.9	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.57	ug/L	1	75-15-0	

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



Analytical Laboratory Report

Lab Sample ID: S60263.04 (continued)

Sample Tag: MW-112S-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 16:30, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
tert-Methyl butyl ether (MTBE)	Not detected	5	0.12	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.48	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	4.7	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.35	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.78	ug/L	1	74-87-3	
Vinyl chloride	3	1	0.22	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.24	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.37	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.21	ug/L	1	75-69-4	
1,1-Dichloroethene	0.35	1	0.28	ug/L	1	75-35-4	J
Methylene chloride	Not detected	5	0.24	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.17	ug/L	1	156-60-5	
1,1-Dichloroethane	0.44	1	0.14	ug/L	1	75-34-3	J
cis-1,2-Dichloroethene	0.94	1	0.15	ug/L	1	156-59-2	J
Tetrahydrofuran*	Not detected	90	4.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.13	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.17	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.21	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	0.61	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.17	ug/L	1	56-23-5	
Benzene	Not detected	1	0.14	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.12	ug/L	1	107-06-2	
Trichloroethene	1	1	0.14	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.16	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.29	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.16	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	0.13	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.21	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.19	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.49	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.22	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.20	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.13	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.17	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.15	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.33	ug/L	1		
o-Xylene	Not detected	1	0.19	ug/L	1	95-47-6	
Styrene	Not detected	1	0.16	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.17	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.17	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.30	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.22	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.19	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.22	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.23	ug/L	1	98-06-6	

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



Analytical Laboratory Report

Lab Sample ID: S60263.04 (continued)
Sample Tag: MW-112S-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 16:30, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,4-Trimethylbenzene	Not detected	1	0.26	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.24	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.24	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.18	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.16	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	0.16	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.49	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.29	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.29	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.45	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.42	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.48	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.87	ug/L	1	91-57-6	

Merit Laboratories Login Checklist

Lab Set ID:S60263

Client:APPLIED (Applied Ecosystems)

Project: RACER Flint West #12990

Submitted:03/27/2024 15:40 Login User: PFD

Attention: Rodney Abke

Address: Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525

FAX:

Email: rabke@appliedecosystems.com

Selection	Description	Note
Sample Receiving		
01.	☒ Yes ☐ No ☐ N/A	Samples are received at 4C +/- 2C Thermometer # IR 2.8
02.	☒ Yes ☐ No ☐ N/A	Received on ice/ cooling process begun
03.	☐ Yes ☒ No ☐ N/A	Samples shipped
04.	☐ Yes ☒ No ☐ N/A	Samples left in 24 hr. drop box
05.	☐ Yes ☐ No ☒ N/A	Are there custody seals/tape or is the drop box locked
Chain of Custody		
06.	☒ Yes ☐ No ☐ N/A	COC adequately filled out
07.	☒ Yes ☐ No ☐ N/A	COC signed and relinquished to the lab
08.	☒ Yes ☐ No ☐ N/A	Sample tag on bottles match COC
09.	☐ Yes ☒ No ☐ N/A	Subcontracting needed? Subcontacted to:
Preservation		
10.	☒ Yes ☐ No ☐ N/A	Do sample have correct chemical preservation
11.	☒ Yes ☐ No ☐ N/A	Completed pH checks on preserved samples? (no VOAs)
12.	☒ Yes ☐ No ☐ N/A	Did any samples need to be preserved in the lab? Dissolved Metals
Bottle Conditions		
13.	☒ Yes ☐ No ☐ N/A	All bottles intact
14.	☒ Yes ☐ No ☐ N/A	Appropriate analytical bottles are used
15.	☒ Yes ☐ No ☐ N/A	Merit bottles used
16.	☒ Yes ☐ No ☐ N/A	Sufficient sample volume received
17.	☒ Yes ☐ No ☐ N/A	Samples require laboratory filtration Dissolved Metals
18.	☒ Yes ☐ No ☐ N/A	Samples submitted within holding time
19.	☐ Yes ☐ 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: S60263 Submitted: 03/27/2024 15:40

Client: APPLIED (Applied Ecosystems)

Project: RACER Flint West #12990

Initial Preservation Check: 03/27/2024 16:05 PFD

Preservation Recheck (E200.8): N/A

Attention: Rodney Abke

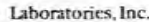
Address: Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525

FAX:

Email: rabke@appliedecosystems.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S60263.01	125ml Plastic HNO3	<2			
S60263.02	125ml Plastic HNO3	<2			
S60263.03	125ml Plastic HNO3	<2			
S60263.04	125ml Plastic HNO3	<2			



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C.O.C. PAGE # _____ OF _____

Rev. 5-18-12



Analytical Laboratory Report

Report ID: S60296.01(01)
Generated on 04/05/2024

Report to
Attention: Rodney Abke
Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

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

Report produced by
Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

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

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary
Lab Sample ID(s): S60296.01-S60296.06
Project: RACER Flint West #12990
Collected Date(s): 03/27/2024 - 03/28/2024
Submitted Date/Time: 03/28/2024 12:05
Sampled by: Unknown
P.O. #: PO1107477

Table of Contents

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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

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, and 2-chloroethylvinyl ether 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.

Starred (*) analytes are not NY 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)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit <https://www.meritlabs.com/certifications>.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

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
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
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



Analytical Laboratory Report

Method Summary

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



Analytical Laboratory Report

Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S60296.01	MW-117S-240327	Water	03/28/24 08:31
S60296.02	MW-103S-240327	Water	03/28/24 09:43
S60296.03	MS(MW-103S-240327)	Water	03/28/24 09:43
S60296.04	MSD(MW-103S-240327)	Water	03/28/24 09:43
S60296.05	EB-1-240327	Water	03/28/24 10:01
S60296.06	Trip Blank-240327	Water	03/27/24 09:00



Analytical Laboratory Report

Lab Sample ID: S60296.01

Sample Tag: MW-117S-240327

Collected Date/Time: 03/28/2024 08:31

Matrix: Water

COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	None	Yes	3.6	IR
3	40ml Glass	HCL	Yes	3.6	IR
1	125ml Plastic	HNO3	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/03/24 11:10	ACK	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/28/24 14:45, Analyst: JKB

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

Method: SM3500-Cr B, Run Date: 03/28/24 13:50, Analyst: JKB

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

Metals

Method: E200.8, Run Date: 03/29/24 15:14, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Chromium	0.022	0.005	0.000750	mg/L	5	7440-47-3	
Copper	0.001674	0.005	0.000800	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 03/29/24 15:16, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper, Dissolved	0.000932	0.005	0.000800	mg/L	5	7440-50-8	b
Lead, Dissolved	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium, Dissolved	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc, Dissolved	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 16:54, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.33	ug/L	1	60-29-7	
Acetone	Not detected	50	8.9	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.57	ug/L	1	75-15-0	

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



Analytical Laboratory Report

Lab Sample ID: S60296.01 (continued)

Sample Tag: MW-117S-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 16:54, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
tert-Methyl butyl ether (MTBE)	Not detected	5	0.12	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.48	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	4.7	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.35	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.78	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.22	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.24	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.37	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.21	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.28	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.24	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.17	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.14	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.15	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	4.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.13	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.17	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.21	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	0.61	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.17	ug/L	1	56-23-5	
Benzene	Not detected	1	0.14	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.12	ug/L	1	107-06-2	
Trichloroethene	0.22	1	0.14	ug/L	1	79-01-6	J
1,2-Dichloropropane	Not detected	1	0.16	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.29	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.16	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	0.13	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.21	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.19	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.49	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.22	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.20	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.13	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.17	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.15	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.33	ug/L	1		
o-Xylene	Not detected	1	0.19	ug/L	1	95-47-6	
Styrene	Not detected	1	0.16	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.17	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.17	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.30	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.22	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.19	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.22	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.23	ug/L	1	98-06-6	

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



Analytical Laboratory Report

Lab Sample ID: S60296.01 (continued)
Sample Tag: MW-117S-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 16:54, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,4-Trimethylbenzene	Not detected	1	0.26	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.24	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.24	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.18	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.16	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	0.16	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.49	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.29	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.29	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.45	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.42	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.48	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.87	ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S60296.02

Sample Tag: MW-103S-240327

Collected Date/Time: 03/28/2024 09:43

Matrix: Water

COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	None	Yes	3.6	IR
3	40ml Glass	HCL	Yes	3.6	IR
1	125ml Plastic	HNO3	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/04/24 11:24	ACK	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/28/24 14:50, Analyst: JKB

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

Method: SM3500-Cr B, Run Date: 03/28/24 14:05, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.25	0.1	mg/L	25	18540-29-9	

Metals

Method: E200.8, Run Date: 03/29/24 15:29, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.045	0.002	0.00145	mg/L	5	7440-38-2	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 03/29/24 15:32, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.032	0.002	0.00145	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium, Dissolved	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc, Dissolved	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/04/24 18:09, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.33	ug/L	1	60-29-7	
Acetone	Not detected	50	8.9	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.57	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.12	ug/L	1	1634-04-4	



Analytical Laboratory Report

Lab Sample ID: S60296.02 (continued)

Sample Tag: MW-103S-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/04/24 18:09, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acrylonitrile	Not detected	2	0.48	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	4.7	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.35	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.78	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.22	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.24	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.37	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.21	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.28	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.24	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.17	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.14	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	0.20	1	0.15	ug/L	1	156-59-2	J
Tetrahydrofuran*	Not detected	90	4.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.13	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.17	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.21	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	0.61	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.17	ug/L	1	56-23-5	
Benzene	0.25	1	0.14	ug/L	1	71-43-2	J
1,2-Dichloroethane	Not detected	1	0.12	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.14	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.16	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.29	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.16	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	0.13	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.21	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.19	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.49	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.22	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.20	ug/L	1	106-93-4	
Chlorobenzene	0.33	1	0.13	ug/L	1	108-90-7	J
1,1,1,2-Tetrachloroethane	Not detected	1	0.17	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.15	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.33	ug/L	1		
o-Xylene	Not detected	1	0.19	ug/L	1	95-47-6	
Styrene	Not detected	1	0.16	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.17	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.17	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.30	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.22	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.19	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.22	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.23	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	0.29	1	0.26	ug/L	1	95-63-6	J

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



Analytical Laboratory Report

Lab Sample ID: S60296.02 (continued)
Sample Tag: MW-103S-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/04/24 18:09, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
sec-Butylbenzene	Not detected	1	0.24	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.24	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.18	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.16	ug/L	1	106-46-7	
1,2-Dichlorobenzene	Not detected	1	0.13	ug/L	1	95-50-1	
1,2,3-Trimethylbenzene	0.33	1	0.16	ug/L	1	526-73-8	J
n-Butylbenzene	Not detected	1	0.49	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.29	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.29	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.45	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.42	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.48	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.87	ug/L	1	91-57-6	

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



Analytical Laboratory Report

Lab Sample ID: S60296.03

Sample Tag: MS(MW-103S-240327)

Collected Date/Time: 03/28/2024 09:43

Matrix: Water

COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	None	Yes	3.6	IR
3	40ml Glass	HCL	Yes	3.6	IR
1	125ml Plastic	HNO3	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/04/24 11:24	ACK	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/28/24 14:55, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	0.06	0.02	0.01	mg/L	2.5	18540-29-9	

Method: SM3500-Cr B, Run Date: 03/28/24 14:10, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	4.05	0.25	0.1	mg/L	25	18540-29-9	

Metals

Method: E200.8, Run Date: 03/29/24 15:35, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.044	0.002	0.00145	mg/L	5	7440-38-2	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 03/29/24 15:38, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.034	0.002	0.00145	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium, Dissolved	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc, Dissolved	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/04/24 22:22, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	51	10	0.33	ug/L	1	60-29-7	1
Acetone	58	50	8.9	ug/L	1	67-64-1	1
Methyl iodide	54	1	0.25	ug/L	1	74-88-4	1
Carbon disulfide	55	5	0.57	ug/L	1	75-15-0	1

1-Spiked at 50 ug/L



Analytical Laboratory Report

Lab Sample ID: S60296.03 (continued)

Sample Tag: MS(MW-103S-240327)

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/04/24 22:22, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
tert-Methyl butyl ether (MTBE)	55	5	0.12	ug/L	1	1634-04-4	1
Acrylonitrile	59	2	0.48	ug/L	1	107-13-1	1
2-Butanone (MEK)	59	25	4.7	ug/L	1	78-93-3	1
Dichlorodifluoromethane	50	5	0.35	ug/L	1	75-71-8	1
Chloromethane	51	5	0.78	ug/L	1	74-87-3	1
Vinyl chloride	52	1	0.22	ug/L	1	75-01-4	1
Bromomethane	51	5	0.24	ug/L	1	74-83-9	1
Chloroethane	52	5	0.37	ug/L	1	75-00-3	1
Trichlorofluoromethane	51	1	0.21	ug/L	1	75-69-4	1
1,1-Dichloroethene	54	1	0.28	ug/L	1	75-35-4	1
Methylene chloride	53	5	0.24	ug/L	1	75-09-2	1
trans-1,2-Dichloroethene	56	1	0.17	ug/L	1	156-60-5	1
1,1-Dichloroethane	56	1	0.14	ug/L	1	75-34-3	1
cis-1,2-Dichloroethene	55	1	0.15	ug/L	1	156-59-2	1
Tetrahydrofuran*	55.5	90	4.2	ug/L	1	109-99-9	1J
Chloroform	54	1	0.13	ug/L	1	67-66-3	1
Bromochloromethane	54	1	0.17	ug/L	1	74-97-5	1
1,1,1-Trichloroethane	57	1	0.21	ug/L	1	71-55-6	1
4-Methyl-2-pentanone (MIBK)	60	50	0.35	ug/L	1	108-10-1	1
2-Hexanone	62	50	0.61	ug/L	1	591-78-6	1
Carbon tetrachloride	56	1	0.17	ug/L	1	56-23-5	1
Benzene	54	1	0.14	ug/L	1	71-43-2	1
1,2-Dichloroethane	53	1	0.12	ug/L	1	107-06-2	1
Trichloroethene	54	1	0.14	ug/L	1	79-01-6	1
1,2-Dichloropropane	54	1	0.16	ug/L	1	78-87-5	1
Bromodichloromethane	55	1	0.29	ug/L	1	75-27-4	1
Dibromomethane	54	5	0.16	ug/L	1	74-95-3	1
cis-1,3-Dichloropropene	56	1	0.19	ug/L	1	10061-01-5	1
Toluene	54	1	0.13	ug/L	1	108-88-3	1
trans-1,3-Dichloropropene	52	1	0.19	ug/L	1	10061-02-6	1
1,1,2-Trichloroethane	54	1	0.21	ug/L	1	79-00-5	1
Tetrachloroethene	53	1	0.19	ug/L	1	127-18-4	1
trans-1,4-Dichloro-2-butene	45	1	0.49	ug/L	1	110-57-6	1
Dibromochloromethane	56	5	0.22	ug/L	1	124-48-1	1
1,2-Dibromoethane	55	1	0.20	ug/L	1	106-93-4	1
Chlorobenzene	52	1	0.13	ug/L	1	108-90-7	1
1,1,1,2-Tetrachloroethane	56	1	0.17	ug/L	1	630-20-6	1
Ethylbenzene	54	1	0.15	ug/L	1	100-41-4	1
p,m-Xylene*	106	2	0.33	ug/L	1		1
o-Xylene	53	1	0.19	ug/L	1	95-47-6	1
Styrene	53	1	0.16	ug/L	1	100-42-5	1
Isopropylbenzene	53	5	0.17	ug/L	1	98-82-8	1
Bromoform	55	1	0.17	ug/L	1	75-25-2	1
1,1,2,2-Tetrachloroethane	54	1	0.22	ug/L	1	79-34-5	1
1,2,3-Trichloropropane	54	1	0.30	ug/L	1	96-18-4	1
n-Propylbenzene	52	1	0.22	ug/L	1	103-65-1	1
Bromobenzene	53	1	0.19	ug/L	1	108-86-1	1
1,3,5-Trimethylbenzene	52	1	0.22	ug/L	1	108-67-8	1

1-Spiked at 50 ug/L

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



Analytical Laboratory Report

Lab Sample ID: S60296.03 (continued)
Sample Tag: MS(MW-103S-240327)

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/04/24 22:22, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
tert-Butylbenzene	52	1	0.23	ug/L	1	98-06-6	1
1,2,4-Trimethylbenzene	52	1	0.26	ug/L	1	95-63-6	1
sec-Butylbenzene	54	1	0.24	ug/L	1	135-98-8	1
p-Isopropyltoluene	52	5	0.24	ug/L	1	99-87-6	1
1,3-Dichlorobenzene	55	1	0.18	ug/L	1	541-73-1	1
1,4-Dichlorobenzene	54	1	0.16	ug/L	1	106-46-7	1
1,2-Dichlorobenzene	54	1	0.13	ug/L	1	95-50-1	1
1,2,3-Trimethylbenzene	54	1	0.16	ug/L	1	526-73-8	1
n-Butylbenzene	54	1	0.49	ug/L	1	104-51-8	1
Hexachloroethane	51	5	0.29	ug/L	1	67-72-1	1
1,2-Dibromo-3-chloropropane	54	5	0.29	ug/L	1	96-12-8	1
1,2,4-Trichlorobenzene	55	5	0.45	ug/L	1	120-82-1	1
1,2,3-Trichlorobenzene	56	5	0.42	ug/L	1	87-61-6	1
Naphthalene	60	5	0.48	ug/L	1	91-20-3	1
2-Methylnaphthalene	56	5	0.87	ug/L	1	91-57-6	1

1-Spiked at 50 ug/L



Analytical Laboratory Report

Lab Sample ID: S60296.04

Sample Tag: MSD(MW-103S-240327)

Collected Date/Time: 03/28/2024 09:43

Matrix: Water

COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	None	Yes	3.6	IR
3	40ml Glass	HCL	Yes	3.6	IR
1	125ml Plastic	HNO3	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/04/24 11:24	ACK	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/28/24 15:00, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI, Dissolved	0.07	0.02	0.01	mg/L	2.5	18540-29-9	

Method: SM3500-Cr B, Run Date: 03/28/24 14:15, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	4.30	0.25	0.1	mg/L	25	18540-29-9	

Metals

Method: E200.8, Run Date: 03/29/24 15:41, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.044	0.002	0.00145	mg/L	5	7440-38-2	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 03/29/24 15:43, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.031	0.002	0.00145	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium, Dissolved	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc, Dissolved	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/04/24 22:46, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	53	10	0.33	ug/L	1	60-29-7	1
Acetone	63	50	8.9	ug/L	1	67-64-1	1
Methyl iodide	51	1	0.25	ug/L	1	74-88-4	1
Carbon disulfide	54	5	0.57	ug/L	1	75-15-0	1

1-Spiked at 50 ug/L



Analytical Laboratory Report

Lab Sample ID: S60296.04 (continued)

Sample Tag: MSD(MW-103S-240327)

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/04/24 22:46, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
tert-Methyl butyl ether (MTBE)	58	5	0.12	ug/L	1	1634-04-4	1
Acrylonitrile	65	2	0.48	ug/L	1	107-13-1	1
2-Butanone (MEK)	62	25	4.7	ug/L	1	78-93-3	1
Dichlorodifluoromethane	49	5	0.35	ug/L	1	75-71-8	1
Chloromethane	51	5	0.78	ug/L	1	74-87-3	1
Vinyl chloride	51	1	0.22	ug/L	1	75-01-4	1
Bromomethane	49	5	0.24	ug/L	1	74-83-9	1
Chloroethane	50	5	0.37	ug/L	1	75-00-3	1
Trichlorofluoromethane	50	1	0.21	ug/L	1	75-69-4	1
1,1-Dichloroethene	52	1	0.28	ug/L	1	75-35-4	1
Methylene chloride	53	5	0.24	ug/L	1	75-09-2	1
trans-1,2-Dichloroethene	55	1	0.17	ug/L	1	156-60-5	1
1,1-Dichloroethane	55	1	0.14	ug/L	1	75-34-3	1
cis-1,2-Dichloroethene	55	1	0.15	ug/L	1	156-59-2	1
Tetrahydrofuran*	63.4	90	4.2	ug/L	1	109-99-9	1J
Chloroform	53	1	0.13	ug/L	1	67-66-3	1
Bromochloromethane	54	1	0.17	ug/L	1	74-97-5	1
1,1,1-Trichloroethane	55	1	0.21	ug/L	1	71-55-6	1
4-Methyl-2-pentanone (MIBK)	67	50	0.35	ug/L	1	108-10-1	1
2-Hexanone	69	50	0.61	ug/L	1	591-78-6	1
Carbon tetrachloride	54	1	0.17	ug/L	1	56-23-5	1
Benzene	53	1	0.14	ug/L	1	71-43-2	1
1,2-Dichloroethane	53	1	0.12	ug/L	1	107-06-2	1
Trichloroethene	53	1	0.14	ug/L	1	79-01-6	1
1,2-Dichloropropane	54	1	0.16	ug/L	1	78-87-5	1
Bromodichloromethane	55	1	0.29	ug/L	1	75-27-4	1
Dibromomethane	55	5	0.16	ug/L	1	74-95-3	1
cis-1,3-Dichloropropene	55	1	0.19	ug/L	1	10061-01-5	1
Toluene	52	1	0.13	ug/L	1	108-88-3	1
trans-1,3-Dichloropropene	53	1	0.19	ug/L	1	10061-02-6	1
1,1,2-Trichloroethane	55	1	0.21	ug/L	1	79-00-5	1
Tetrachloroethene	51	1	0.19	ug/L	1	127-18-4	1
trans-1,4-Dichloro-2-butene	55	1	0.49	ug/L	1	110-57-6	1
Dibromochloromethane	58	5	0.22	ug/L	1	124-48-1	1
1,2-Dibromoethane	57	1	0.20	ug/L	1	106-93-4	1
Chlorobenzene	53	1	0.13	ug/L	1	108-90-7	1
1,1,1,2-Tetrachloroethane	56	1	0.17	ug/L	1	630-20-6	1
Ethylbenzene	54	1	0.15	ug/L	1	100-41-4	1
p,m-Xylene*	106	2	0.33	ug/L	1		1
o-Xylene	53	1	0.19	ug/L	1	95-47-6	1
Styrene	53	1	0.16	ug/L	1	100-42-5	1
Isopropylbenzene	52	5	0.17	ug/L	1	98-82-8	1
Bromoform	58	1	0.17	ug/L	1	75-25-2	1
1,1,2,2-Tetrachloroethane	59	1	0.22	ug/L	1	79-34-5	1
1,2,3-Trichloropropane	59	1	0.30	ug/L	1	96-18-4	1
n-Propylbenzene	52	1	0.22	ug/L	1	103-65-1	1
Bromobenzene	53	1	0.19	ug/L	1	108-86-1	1
1,3,5-Trimethylbenzene	53	1	0.22	ug/L	1	108-67-8	1

1-Spiked at 50 ug/L

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



Analytical Laboratory Report

Lab Sample ID: S60296.04 (continued)
Sample Tag: MSD(MW-103S-240327)

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/04/24 22:46, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
tert-Butylbenzene	52	1	0.23	ug/L	1	98-06-6	1
1,2,4-Trimethylbenzene	52	1	0.26	ug/L	1	95-63-6	1
sec-Butylbenzene	51	1	0.24	ug/L	1	135-98-8	1
p-Isopropyltoluene	50	5	0.24	ug/L	1	99-87-6	1
1,3-Dichlorobenzene	53	1	0.18	ug/L	1	541-73-1	1
1,4-Dichlorobenzene	53	1	0.16	ug/L	1	106-46-7	1
1,2-Dichlorobenzene	53	1	0.13	ug/L	1	95-50-1	1
1,2,3-Trimethylbenzene	52	1	0.16	ug/L	1	526-73-8	1
n-Butylbenzene	51	1	0.49	ug/L	1	104-51-8	1
Hexachloroethane	49	5	0.29	ug/L	1	67-72-1	1
1,2-Dibromo-3-chloropropane	60	5	0.29	ug/L	1	96-12-8	1
1,2,4-Trichlorobenzene	54	5	0.45	ug/L	1	120-82-1	1
1,2,3-Trichlorobenzene	57	5	0.42	ug/L	1	87-61-6	1
Naphthalene	63	5	0.48	ug/L	1	91-20-3	1
2-Methylnaphthalene	60	5	0.87	ug/L	1	91-57-6	1

1-Spiked at 50 ug/L



Analytical Laboratory Report

Lab Sample ID: S60296.05
Sample Tag: EB-1-240327
Collected Date/Time: 03/28/2024 10:01
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	None	Yes	3.6	IR
3	40ml Glass	HCL	Yes	3.6	IR
1	125ml Plastic	HNO3	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/03/24 11:10	ACK	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/28/24 15:05, Analyst: JKB

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

Method: SM3500-Cr B, Run Date: 03/28/24 14:20, Analyst: JKB

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

Metals

Method: E200.8, Run Date: 03/29/24 15:25, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.000580	mg/L	2	7440-38-2	
Chromium	Not detected	0.005	0.000300	mg/L	2	7440-47-3	
Copper	0.000400	0.005	0.000320	mg/L	2	7440-50-8	b
Lead	Not detected	0.003	0.000180	mg/L	2	7439-92-1	
Selenium	Not detected	0.005	0.00174	mg/L	2	7782-49-2	
Zinc	Not detected	0.005	0.00130	mg/L	2	7440-66-6	

Method: E200.8, Run Date: 03/29/24 15:27, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.000580	mg/L	2	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.000300	mg/L	2	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.000320	mg/L	2	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.000180	mg/L	2	7439-92-1	
Selenium, Dissolved	Not detected	0.005	0.00174	mg/L	2	7782-49-2	
Zinc, Dissolved	Not detected	0.005	0.00130	mg/L	2	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 14:56, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.33	ug/L	1	60-29-7	
Acetone	Not detected	50	8.9	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.57	ug/L	1	75-15-0	

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



Analytical Laboratory Report

Lab Sample ID: S60296.05 (continued)

Sample Tag: EB-1-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 14:56, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
tert-Methyl butyl ether (MTBE)	Not detected	5	0.12	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.48	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	4.7	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.35	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.78	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.22	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.24	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.37	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.21	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.28	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.24	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.17	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.14	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.15	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	4.2	ug/L	1	109-99-9	
Chloroform	0.15	1	0.13	ug/L	1	67-66-3	JB
Bromochloromethane	Not detected	1	0.17	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.21	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	0.61	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.17	ug/L	1	56-23-5	
Benzene	Not detected	1	0.14	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.12	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.14	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.16	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.29	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.16	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	0.13	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.21	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.19	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.49	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.22	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.20	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.13	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.17	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.15	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.33	ug/L	1		
o-Xylene	Not detected	1	0.19	ug/L	1	95-47-6	
Styrene	Not detected	1	0.16	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.17	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.17	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.30	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.22	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.19	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.22	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.23	ug/L	1	98-06-6	

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: S60296.05 (continued)
Sample Tag: EB-1-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 14:56, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,4-Trimethylbenzene	Not detected	1	0.26	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.24	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.24	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.18	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.16	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	0.16	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.49	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.29	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.29	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.45	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.42	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.48	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.87	ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S60296.06
Sample Tag: Trip Blank-240327
Collected Date/Time: 03/27/2024 09:00
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/03/24 11:10	ACK	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 15:20, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.33	ug/L	1	60-29-7	
Acetone	Not detected	50	8.9	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.57	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.12	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.48	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	4.7	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.35	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.78	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.22	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.24	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.37	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.21	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.28	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.24	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.17	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.14	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.15	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	4.2	ug/L	1	109-99-9	
Chloroform	0.15	1	0.13	ug/L	1	67-66-3	JB
Bromochloromethane	Not detected	1	0.17	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.21	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	0.61	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.17	ug/L	1	56-23-5	
Benzene	Not detected	1	0.14	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.12	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.14	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.16	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.29	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.16	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	0.13	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.21	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.19	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



Analytical Laboratory Report

Lab Sample ID: S60296.06 (continued)
Sample Tag: Trip Blank-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 15:20, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
trans-1,4-Dichloro-2-butene	Not detected	1	0.49	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.22	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.20	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.13	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.17	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.15	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.33	ug/L	1		
o-Xylene	Not detected	1	0.19	ug/L	1	95-47-6	
Styrene	Not detected	1	0.16	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.17	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.17	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.30	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.22	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.19	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.22	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.23	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.26	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.24	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.24	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.18	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.16	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	0.16	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.49	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.29	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.29	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.45	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.42	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.48	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.87	ug/L	1	91-57-6	

Merit Laboratories Login Checklist

Lab Set ID:S60296

Client:APPLIED (Applied Ecosystems)

Project: RACER Flint West #12990

Submitted:03/28/2024 12:05 Login User: PFD

Attention: Rodney Abke

Address: Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525

FAX:

Email: rabke@appliedecosystems.com

Selection	Description	Note
Sample Receiving		
01. ☒ Yes ☐ No ☐ N/A	Samples are received at 4C +/- 2C	Thermometer # IR 3.6
02. ☒ Yes ☐ No ☐ N/A	Received on ice/ cooling process begun	
03. ☐ Yes ☒ No ☐ N/A	Samples shipped	
04. ☐ Yes ☒ No ☐ N/A	Samples left in 24 hr. drop box	
05. ☐ Yes ☐ No ☒ N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody		
06. ☒ Yes ☐ No ☐ N/A	COC adequately filled out	
07. ☒ Yes ☐ No ☐ N/A	COC signed and relinquished to the lab	
08. ☒ Yes ☐ No ☐ N/A	Sample tag on bottles match COC	
09. ☐ Yes ☒ No ☐ N/A	Subcontracting needed? Subcontacted to:	
Preservation		
10. ☒ Yes ☐ No ☐ N/A	Do sample have correct chemical preservation	
11. ☒ Yes ☐ No ☐ N/A	Completed pH checks on preserved samples? (no VOAs)	
12. ☒ Yes ☐ No ☐ N/A	Did any samples need to be preserved in the lab?	Dissolved Metals
Bottle Conditions		
13. ☒ Yes ☐ No ☐ N/A	All bottles intact	
14. ☒ Yes ☐ No ☐ N/A	Appropriate analytical bottles are used	
15. ☒ Yes ☐ No ☐ N/A	Merit bottles used	
16. ☒ Yes ☐ No ☐ N/A	Sufficient sample volume received	
17. ☒ Yes ☐ No ☐ N/A	Samples require laboratory filtration	Dissolved Metals
18. ☒ Yes ☐ No ☐ N/A	Samples submitted within holding time	
19. ☐ Yes ☒ 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: S60296 Submitted: 03/28/2024 12:05

Client: APPLIED (Applied Ecosystems)

Project: RACER Flint West #12990

Initial Preservation Check: 03/28/2024 12:22 PFD

Preservation Recheck (E200.8): N/A

Attention: Rodney Abke

Address: Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525

FAX:

Email: rabke@appliedecosystems.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S60296.01	125ml Plastic HNO3	<2			
S60296.02	125ml Plastic HNO3	<2			
S60296.03	125ml Plastic HNO3	<2			
S60296.04	125ml Plastic HNO3	<2			
S60296.05	125ml Plastic HNO3	<2			

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Rodney Abke			
COMPANY Applied EcoSystems			
ADDRESS G-4300 South Saginaw Street			
CITY Burton			STATE MI ZIP CODE 48529
PHONE NO. 810-715-2525		FAX NO. 810-715-2526	P.O. NO. PO1107477
E-MAIL ADDRESS rabke@appliedecosystems.com			QUOTE NO.

CONTACT NAME		Monica Wallingford		☐ SAME	
COMPANY					
Revitalizing Auto Communities Environmental Response (RACER) Trust					
ADDRESS					
CITY				STATE	
				ZIP CODE	
PHONE NO.				E-MAIL ADDRESS	
313.486.2978				mwallingford@racertrust.org	

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME	RACER Flint West #12990	SAMPLER(S) - PLEASE PRINT/SIGN NAME

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

DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☒ OTHER report to MDLs

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

Containers & Preservatives[illegible]

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

RELINQUISHED BY:			DATE	TIME
SIGNATURE/ORGANIZATION				
RECEIVED BY:			DATE	TIME
SIGNATURE/ORGANIZATION				
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL _____	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	3.6	

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

Rev. 5.18.12



Analytical Laboratory Report

Report ID: S60297.01(01)
Generated on 04/04/2024

Report to
Attention: Rodney Abke
Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

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

Report produced by
Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

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

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary
Lab Sample ID(s): S60297.01-S60297.04
Project: RACER Flint West #12990
Collected Date(s): 03/27/2024
Submitted Date/Time: 03/28/2024 12:05
Sampled by: Unknown
P.O. #: PO1107477

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- General Report Notes (Page 2)
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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

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, and 2-chloroethylvinyl ether 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.

Starred (*) analytes are not NY 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)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit <https://www.meritlabs.com/certifications>.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

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
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
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



Analytical Laboratory Report

Method Summary

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



Analytical Laboratory Report

Sample Summary (4 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S60297.01	MW-110S-240327	Water	03/27/24 15:35
S60297.02	MW-108S-240327	Water	03/27/24 16:32
S60297.03	MW-114S-240327	Water	03/27/24 17:24
S60297.04	Dup-1-1240327	Water	03/27/24 00:01



Analytical Laboratory Report

Lab Sample ID: S60297.01

Sample Tag: MW-110S-240327

Collected Date/Time: 03/27/2024 15:35

Matrix: Water

COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	None	Yes	3.6	IR
3	40ml Glass	HCL	Yes	3.6	IR
1	125ml Plastic	HNO3	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/03/24 11:10	ACK	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	
Metal Digestion	Completed	SW3015A	03/29/24 13:30	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/28/24 15:10, Analyst: JKB

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

Method: SM3500-Cr B, Run Date: 03/28/24 14:25, Analyst: JKB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium VI	Not detected	0.25	0.1	mg/L	25	18540-29-9	

Metals

Method: E200.8, Run Date: 03/29/24 15:46, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.003	0.002	0.00145	mg/L	5	7440-38-2	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper	0.001039	0.005	0.000800	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 03/29/24 15:48, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.002	0.002	0.00145	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium, Dissolved	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc, Dissolved	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 17:17, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.33	ug/L	1	60-29-7	
Acetone	Not detected	50	8.9	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.57	ug/L	1	75-15-0	

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



Analytical Laboratory Report

Lab Sample ID: S60297.01 (continued)

Sample Tag: MW-110S-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 17:17, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
tert-Methyl butyl ether (MTBE)	Not detected	5	0.12	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.48	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	4.7	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.35	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.78	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.22	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.24	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.37	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.21	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.28	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.24	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.17	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.14	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.15	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	4.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.13	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.17	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.21	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	0.61	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.17	ug/L	1	56-23-5	
Benzene	Not detected	1	0.14	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.12	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.14	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.16	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.29	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.16	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	0.13	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.21	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.19	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.49	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.22	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.20	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.13	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.17	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.15	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.33	ug/L	1		
o-Xylene	Not detected	1	0.19	ug/L	1	95-47-6	
Styrene	Not detected	1	0.16	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.17	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.17	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.30	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.22	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.19	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.22	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.23	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.26	ug/L	1	95-63-6	



Analytical Laboratory Report

Lab Sample ID: S60297.01 (continued)
Sample Tag: MW-110S-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 17:17, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
sec-Butylbenzene	Not detected	1	0.24	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.24	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.18	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.16	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	0.16	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.49	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.29	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.29	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.45	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.42	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.48	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.87	ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S60297.02

Sample Tag: MW-108S-240327

Collected Date/Time: 03/27/2024 16:32

Matrix: Water

COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	None	Yes	3.6	IR
3	40ml Glass	HCL	Yes	3.6	IR
1	125ml Plastic	HNO3	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/03/24 11:10	ACK	
Metal Digestion	Completed	SW3015A	03/29/24 14:15	CCM	
Metal Digestion	Completed	SW3015A	03/29/24 14:15	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/28/24 15:15, Analyst: JKB

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

Method: SM3500-Cr B, Run Date: 03/28/24 14:30, Analyst: JKB

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

Metals

Method: E200.8, Run Date: 03/29/24 15:58, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium	0.007	0.005	0.00435	mg/L	5	7782-49-2	
Zinc	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 03/29/24 16:03, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	Not detected	0.002	0.00145	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium, Dissolved	0.007	0.005	0.00435	mg/L	5	7782-49-2	
Zinc, Dissolved	Not detected	0.005	0.00325	mg/L	5	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 17:41, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.33	ug/L	1	60-29-7	
Acetone	Not detected	50	8.9	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.57	ug/L	1	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	5	0.12	ug/L	1	1634-04-4	



Analytical Laboratory Report

Lab Sample ID: S60297.02 (continued)

Sample Tag: MW-108S-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 17:41, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Acrylonitrile	Not detected	2	0.48	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	4.7	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.35	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.78	ug/L	1	74-87-3	
Vinyl chloride	Not detected	1	0.22	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.24	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.37	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.21	ug/L	1	75-69-4	
1,1-Dichloroethene	Not detected	1	0.28	ug/L	1	75-35-4	
Methylene chloride	Not detected	5	0.24	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	Not detected	1	0.17	ug/L	1	156-60-5	
1,1-Dichloroethane	Not detected	1	0.14	ug/L	1	75-34-3	
cis-1,2-Dichloroethene	Not detected	1	0.15	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	4.2	ug/L	1	109-99-9	
Chloroform	0.87	1	0.13	ug/L	1	67-66-3	JB
Bromochloromethane	Not detected	1	0.17	ug/L	1	74-97-5	
1,1,1-Trichloroethane	Not detected	1	0.21	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	0.61	ug/L	1	591-78-6	
Carbon tetrachloride	2	1	0.17	ug/L	1	56-23-5	
Benzene	Not detected	1	0.14	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.12	ug/L	1	107-06-2	
Trichloroethene	Not detected	1	0.14	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.16	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.29	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.16	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	0.13	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.21	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.19	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.49	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.22	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.20	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.13	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.17	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.15	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.33	ug/L	1		
o-Xylene	Not detected	1	0.19	ug/L	1	95-47-6	
Styrene	Not detected	1	0.16	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.17	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.17	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.30	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.22	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.19	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.22	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.23	ug/L	1	98-06-6	
1,2,4-Trimethylbenzene	Not detected	1	0.26	ug/L	1	95-63-6	

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: S60297.02 (continued)
Sample Tag: MW-108S-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 17:41, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
sec-Butylbenzene	Not detected	1	0.24	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.24	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.18	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.16	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	0.16	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.49	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.29	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.29	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.45	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.42	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.48	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.87	ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S60297.03

Sample Tag: MW-114S-240327

Collected Date/Time: 03/27/2024 17:24

Matrix: Water

COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	None	Yes	3.6	IR
3	40ml Glass	HCL	Yes	3.6	IR
1	125ml Plastic	HNO3	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/03/24 11:10	ACK	
Metal Digestion	Completed	SW3015A	03/29/24 14:15	CCM	
Metal Digestion	Completed	SW3015A	03/29/24 14:15	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/28/24 15:20, Analyst: JKB

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

Method: SM3500-Cr B, Run Date: 03/28/24 14:35, Analyst: JKB

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

Metals

Method: E200.8, Run Date: 03/29/24 16:06, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.016	0.002	0.00145	mg/L	5	7440-38-2	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper	0.001073	0.005	0.000800	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc	0.016	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 03/29/24 16:09, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.010	0.002	0.00145	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead, Dissolved	0.000740	0.003	0.000450	mg/L	5	7439-92-1	b
Selenium, Dissolved	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc, Dissolved	0.015	0.005	0.00325	mg/L	5	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 18:05, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.33	ug/L	1	60-29-7	
Acetone	Not detected	50	8.9	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.57	ug/L	1	75-15-0	

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



Analytical Laboratory Report

Lab Sample ID: S60297.03 (continued)

Sample Tag: MW-114S-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 18:05, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
tert-Methyl butyl ether (MTBE)	Not detected	5	0.12	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.48	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	4.7	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.35	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.78	ug/L	1	74-87-3	
Vinyl chloride	2	1	0.22	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.24	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.37	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.21	ug/L	1	75-69-4	
1,1-Dichloroethene	0.34	1	0.28	ug/L	1	75-35-4	J
Methylene chloride	Not detected	5	0.24	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	0.35	1	0.17	ug/L	1	156-60-5	J
1,1-Dichloroethane	0.77	1	0.14	ug/L	1	75-34-3	J
cis-1,2-Dichloroethene	36	1	0.15	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	4.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.13	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.17	ug/L	1	74-97-5	
1,1,1-Trichloroethane	0.58	1	0.21	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	0.61	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.17	ug/L	1	56-23-5	
Benzene	Not detected	1	0.14	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.12	ug/L	1	107-06-2	
Trichloroethene	129	1	0.14	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.16	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.29	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.16	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	0.13	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.21	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.19	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.49	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.22	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.20	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.13	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.17	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.15	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.33	ug/L	1		
o-Xylene	Not detected	1	0.19	ug/L	1	95-47-6	
Styrene	Not detected	1	0.16	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.17	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.17	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.30	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.22	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.19	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.22	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.23	ug/L	1	98-06-6	

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



Analytical Laboratory Report

Lab Sample ID: S60297.03 (continued)
Sample Tag: MW-114S-240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 18:05, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,4-Trimethylbenzene	Not detected	1	0.26	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.24	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.24	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.18	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.16	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	0.16	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.49	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.29	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.29	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.45	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.42	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.48	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.87	ug/L	1	91-57-6	



Analytical Laboratory Report

Lab Sample ID: S60297.04

Sample Tag: Dup-1-1240327

Collected Date/Time: 03/27/2024 00:01

Matrix: Water

COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125mL Plastic	None	Yes	3.6	IR
3	40ml Glass	HCL	Yes	3.6	IR
1	125ml Plastic	HNO3	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
pH check for VOCs*	<2	N/A	04/03/24 11:10	ACK	
Metal Digestion	Completed	SW3015A	03/29/24 14:15	CCM	
Metal Digestion	Completed	SW3015A	03/29/24 14:15	CCM	

Inorganics

Method: SM3500-Cr B, Run Date: 03/28/24 15:25, Analyst: JKB

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

Method: SM3500-Cr B, Run Date: 03/28/24 14:40, Analyst: JKB

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

Metals

Method: E200.8, Run Date: 03/29/24 16:12, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.016	0.002	0.00145	mg/L	5	7440-38-2	
Chromium	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper	0.001186	0.005	0.000800	mg/L	5	7440-50-8	b
Lead	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc	0.015	0.005	0.00325	mg/L	5	7440-66-6	

Method: E200.8, Run Date: 03/29/24 16:14, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic, Dissolved	0.011	0.002	0.00145	mg/L	5	7440-38-2	
Chromium, Dissolved	Not detected	0.005	0.000750	mg/L	5	7440-47-3	
Copper, Dissolved	Not detected	0.005	0.000800	mg/L	5	7440-50-8	
Lead, Dissolved	Not detected	0.003	0.000450	mg/L	5	7439-92-1	
Selenium, Dissolved	Not detected	0.005	0.00435	mg/L	5	7782-49-2	
Zinc, Dissolved	0.012	0.005	0.00325	mg/L	5	7440-66-6	

Organics - Volatiles

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 18:28, Analyst: NDK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Diethyl ether	Not detected	10	0.33	ug/L	1	60-29-7	
Acetone	Not detected	50	8.9	ug/L	1	67-64-1	
Methyl iodide	Not detected	1	0.25	ug/L	1	74-88-4	
Carbon disulfide	Not detected	5	0.57	ug/L	1	75-15-0	

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



Analytical Laboratory Report

Lab Sample ID: S60297.04 (continued)

Sample Tag: Dup-1-1240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 18:28, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
tert-Methyl butyl ether (MTBE)	Not detected	5	0.12	ug/L	1	1634-04-4	
Acrylonitrile	Not detected	2	0.48	ug/L	1	107-13-1	
2-Butanone (MEK)	Not detected	25	4.7	ug/L	1	78-93-3	
Dichlorodifluoromethane	Not detected	5	0.35	ug/L	1	75-71-8	
Chloromethane	Not detected	5	0.78	ug/L	1	74-87-3	
Vinyl chloride	2	1	0.22	ug/L	1	75-01-4	
Bromomethane	Not detected	5	0.24	ug/L	1	74-83-9	
Chloroethane	Not detected	5	0.37	ug/L	1	75-00-3	
Trichlorofluoromethane	Not detected	1	0.21	ug/L	1	75-69-4	
1,1-Dichloroethene	0.36	1	0.28	ug/L	1	75-35-4	J
Methylene chloride	Not detected	5	0.24	ug/L	1	75-09-2	
trans-1,2-Dichloroethene	0.35	1	0.17	ug/L	1	156-60-5	J
1,1-Dichloroethane	0.80	1	0.14	ug/L	1	75-34-3	J
cis-1,2-Dichloroethene	36	1	0.15	ug/L	1	156-59-2	
Tetrahydrofuran*	Not detected	90	4.2	ug/L	1	109-99-9	
Chloroform	Not detected	1	0.13	ug/L	1	67-66-3	
Bromochloromethane	Not detected	1	0.17	ug/L	1	74-97-5	
1,1,1-Trichloroethane	0.59	1	0.21	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	0.61	ug/L	1	591-78-6	
Carbon tetrachloride	Not detected	1	0.17	ug/L	1	56-23-5	
Benzene	Not detected	1	0.14	ug/L	1	71-43-2	
1,2-Dichloroethane	Not detected	1	0.12	ug/L	1	107-06-2	
Trichloroethene	132	1	0.14	ug/L	1	79-01-6	
1,2-Dichloropropane	Not detected	1	0.16	ug/L	1	78-87-5	
Bromodichloromethane	Not detected	1	0.29	ug/L	1	75-27-4	
Dibromomethane	Not detected	5	0.16	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	0.13	ug/L	1	108-88-3	
trans-1,3-Dichloropropene	Not detected	1	0.19	ug/L	1	10061-02-6	
1,1,2-Trichloroethane	Not detected	1	0.21	ug/L	1	79-00-5	
Tetrachloroethene	Not detected	1	0.19	ug/L	1	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	1	0.49	ug/L	1	110-57-6	
Dibromochloromethane	Not detected	5	0.22	ug/L	1	124-48-1	
1,2-Dibromoethane	Not detected	1	0.20	ug/L	1	106-93-4	
Chlorobenzene	Not detected	1	0.13	ug/L	1	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	1	0.17	ug/L	1	630-20-6	
Ethylbenzene	Not detected	1	0.15	ug/L	1	100-41-4	
p,m-Xylene*	Not detected	2	0.33	ug/L	1		
o-Xylene	Not detected	1	0.19	ug/L	1	95-47-6	
Styrene	Not detected	1	0.16	ug/L	1	100-42-5	
Isopropylbenzene	Not detected	5	0.17	ug/L	1	98-82-8	
Bromoform	Not detected	1	0.17	ug/L	1	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	1	0.22	ug/L	1	79-34-5	
1,2,3-Trichloropropane	Not detected	1	0.30	ug/L	1	96-18-4	
n-Propylbenzene	Not detected	1	0.22	ug/L	1	103-65-1	
Bromobenzene	Not detected	1	0.19	ug/L	1	108-86-1	
1,3,5-Trimethylbenzene	Not detected	1	0.22	ug/L	1	108-67-8	
tert-Butylbenzene	Not detected	1	0.23	ug/L	1	98-06-6	

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



Analytical Laboratory Report

Lab Sample ID: S60297.04 (continued)
Sample Tag: Dup-1-1240327

Volatile Organics - DEQ List, Method: SW5030C/8260C, Run Date: 04/02/24 18:28, Analyst: NDK (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
1,2,4-Trimethylbenzene	Not detected	1	0.26	ug/L	1	95-63-6	
sec-Butylbenzene	Not detected	1	0.24	ug/L	1	135-98-8	
p-Isopropyltoluene	Not detected	5	0.24	ug/L	1	99-87-6	
1,3-Dichlorobenzene	Not detected	1	0.18	ug/L	1	541-73-1	
1,4-Dichlorobenzene	Not detected	1	0.16	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	0.16	ug/L	1	526-73-8	
n-Butylbenzene	Not detected	1	0.49	ug/L	1	104-51-8	
Hexachloroethane	Not detected	5	0.29	ug/L	1	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	5	0.29	ug/L	1	96-12-8	
1,2,4-Trichlorobenzene	Not detected	5	0.45	ug/L	1	120-82-1	
1,2,3-Trichlorobenzene	Not detected	5	0.42	ug/L	1	87-61-6	
Naphthalene	Not detected	5	0.48	ug/L	1	91-20-3	
2-Methylnaphthalene	Not detected	5	0.87	ug/L	1	91-57-6	

Merit Laboratories Login Checklist

Lab Set ID:S60297

Client:APPLIED (Applied Ecosystems)

Project: RACER Flint West #12990

Submitted:03/28/2024 12:05 Login User: PFD

Attention: Rodney Abke

Address: Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525

FAX:

Email: rabke@appliedecosystems.com

Selection	Description	Note
Sample Receiving		
01.	☒ Yes ☐ No ☐ N/A	Samples are received at 4C +/- 2C Thermometer # IR 3.6
02.	☒ Yes ☐ No ☐ N/A	Received on ice/ cooling process begun
03.	☐ Yes ☒ No ☐ N/A	Samples shipped
04.	☐ Yes ☒ No ☐ N/A	Samples left in 24 hr. drop box
05.	☐ Yes ☐ No ☒ N/A	Are there custody seals/tape or is the drop box locked
Chain of Custody		
06.	☒ Yes ☐ No ☐ N/A	COC adequately filled out
07.	☒ Yes ☐ No ☐ N/A	COC signed and relinquished to the lab
08.	☒ Yes ☐ No ☐ N/A	Sample tag on bottles match COC
09.	☐ Yes ☒ No ☐ N/A	Subcontracting needed? Subcontacted to:
Preservation		
10.	☒ Yes ☐ No ☐ N/A	Do sample have correct chemical preservation
11.	☒ Yes ☐ No ☐ N/A	Completed pH checks on preserved samples? (no VOAs)
12.	☒ Yes ☐ No ☐ N/A	Did any samples need to be preserved in the lab? Dissolved Metals
Bottle Conditions		
13.	☒ Yes ☐ No ☐ N/A	All bottles intact
14.	☒ Yes ☐ No ☐ N/A	Appropriate analytical bottles are used
15.	☒ Yes ☐ No ☐ N/A	Merit bottles used
16.	☒ Yes ☐ No ☐ N/A	Sufficient sample volume received
17.	☒ Yes ☐ No ☐ N/A	Samples require laboratory filtration Dissolved Metals
18.	☒ Yes ☐ No ☐ N/A	Samples submitted within holding time
19.	☐ Yes ☒ 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: S60297 Submitted: 03/28/2024 12:05

Client: APPLIED (Applied Ecosystems)

Project: RACER Flint West #12990

Initial Preservation Check: 03/28/2024 12:22 PFD

Preservation Recheck (E200.8): N/A

Attention: Rodney Abke

Address: Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525

FAX:

Email: rabke@appliedecosystems.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S60297.01	125ml Plastic HNO3	<2			
S60297.02	125ml Plastic HNO3	<2			
S60297.03	125ml Plastic HNO3	<2			
S60297.04	125ml Plastic HNO3	<2			

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Rodney Abke			CONTACT NAME Monica Wallingford			☐ SAME						
COMPANY Applied EcoSystems			COMPANY Revitalizing Auto Communities Environmental Response (RACER) Trust									
ADDRESS G-4300 South Saginaw Street						ADDRESS						
CITY Burton			STATE MI		ZIP CODE 48529		CITY		STATE		ZIP CODE	
PHONE NO. 810-715-2525		FAX NO. 810-715-2526		P.O. NO. PO1107477		PHONE NO. 313.486.2978		E-MAIL ADDRESS mwallingford@racertrust.org				
E-MAIL ADDRESS rabke@appliedecosystems.com				QUOTE NO.		ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)						

PROJECT NO./NAME			SAMPLER(S) - PLEASE PRINT/SIGN NAME										VOCs			Metals, dissolved*			Metals, Total*			Certifications		
TURNAROUND TIME REQUIRED			DELIVERABLES REQUIRED										MATRIX			# Containers & Preservatives			Project Locations			Special Instructions		
☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER			☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☒ OTHER report to MDLs										GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIFE A=AIR W=WASTE			# Containers & Preservatives			☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES ☐ Detroit ☐ New York ☐ Other			Special Instructions		
MERIT LAB NO. FOR LAB USE ONLY	YEAR		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO ₃	H ₂ SO ₄	NaOH	MeOH	OTHER	VOCs	Metals, dissolved*	Metals, Total*									
	DATE	TIME																						
60297.01	3/12	15:35	MW-1105-240327	W	5	X	X	X					X	X	X								* - Metals list includes:	
.03	3/12	16:34	MW-1085-240327	W	5	V	X	X					X	X	X								As, Cr-total, CR-Hex, Cu	
.03	3/12	17:24	MW-1145-240327	W	5	X	X	X					X	X	X								Pb, Se, Zn	
																							report down to MCLs	
104	3/12	—	D-1-740327	W	5	X	X	X					X	X	X									

RELINQUISHED BY: SIGNATURE/ORGANIZATION	IB4 AB	DATE	TIME	RELINQUISHED BY: SIGNATURE/ORGANIZATION	IB4 AB	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	AB	DATE	TIME	RECEIVED BY: SIGNATURE/ORGANIZATION	AB	DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION	AF	DATE	TIME	RELINQUISHED BY: SIGNATURE/ORGANIZATION	AF	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	IB4 AB	DATE	TIME	RECEIVED BY: SIGNATURE/ORGANIZATION	IB4 AB	DATE	TIME

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

Rev. 5.18.12



Analytical Laboratory Report

Report ID: S60264.01(01)
Generated on 04/19/2024

Report to
Attention: Rodney Abke
Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

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

Report produced by
Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

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

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary
Lab Sample ID(s): S60264.01-S60264.04
Project: RACER Flint West #12990
Collected Date(s): 03/27/2024
Submitted Date/Time: 03/27/2024 15:40
Sampled by: Unknown
P.O. #: PO1107477

Table of Contents

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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

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, and 2-chloroethylvinyl ether 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.

Starred (*) analytes are not NY 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)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit <https://www.meritlabs.com/certifications>.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

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
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

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



Method Summary

Method	Version
ASTMD7979-19M	ASTM Method D7979 - 19 Modified (Isotopic Dilution)

Parameter Summary

Parameter	Synonym	Cas #
PFBA	Perfluorobutanoic Acid	375-22-4
PFPeA	Perfluoropentanoic Acid	2706-90-3
4:2 FTSA	4:2 Fluorotelomer Sulfonic Acid	757124-72-4
PFHxA	Perfluorohexanoic Acid	307-24-4
PFBS	Perfluorobutane sulfonic Acid	375-73-5
PFHpA	Perfluoroheptanoic Acid	375-85-9
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4
6:2 FTSA	6:2 Fluorotelomer Sulfonic Acid	27619-97-2
PFOA	Perfluorooctanoic Acid	335-67-1
PFHxS	Perfluorohexane Sulfonic Acid	355-46-4
PFHxS-LN	Perfluorohexane Sulfonic Acid - LN	355-46-4-LN
PFHxS-BR	Perfluorohexane Sulfonic Acid - BR	355-46-4-BR
PFNA	Perfluorononanoic Acid	375-95-1
8:2 FTSA	8:2 Fluorotelomer Sulfonic Acid	39108-34-4
PFHpS	Perfluoroheptane Sulfonic Acid	375-92-8
PFDA	Perfluorodecanoic Acid	335-76-2
N-MeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9
EtFOSAA	N-Ethyl Perfluorooctane Sulfonamidoacetic Acid	2991-50-6
PFOS	Perfluorooctane Sulfonic Acid	1763-23-1
PFOS-LN	Perfluorooctane Sulfonic Acid - LN	1763-23-1-LN
PFOS-BR	Perfluorooctane Sulfonic Acid - BR	1763-23-1-BR
PFUnDA	Perfluoroundecanoic Acid	2058-94-8
PFNS	Perfluorononane Sulfonic Acid	68259-12-1
PFDoDA	Perfluorododecanoic Acid	307-55-1
PFDS	Perfluorodecane Sulfonic Acid	335-77-3
PFTTrDA	Perfluorotridecanoic Acid	72629-94-8
FOSA	Perfluorooctane Sulfonamide	754-91-6
PFTeDA	Perfluorotetradecanoic Acid	376-06-7
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone1-sulfonic acid	756426-58-1
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4
HFPO-DA	Hexafluoropropylene oxide dimer	13252-13-6



Analytical Laboratory Report

Sample Summary (4 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S60264.01	FB-1-240327	Water	03/27/24 10:21
S60264.02	MW-104S-240327	Water	03/27/24 12:05
S60264.03	MW-106SR-240327	Water	03/27/24 13:01
S60264.04	MW-112S-240327	Water	03/27/24 13:56



Analytical Laboratory Report

Lab Sample ID: S60264.01
Sample Tag: FB-1-240327
Collected Date/Time: 03/27/2024 10:21
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.26/6.54/10	ASTMD7979-19M	04/08/24 12:00	SRP	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/08/24 20:49, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	11	2.1	ng/L	2.12	375-22-4	
PFPeA*	Not detected	4.2	1.3	ng/L	2.12	2706-90-3	
4:2 FTSA*	Not detected	2.1	0.21	ng/L	2.12	757124-72-4	
PFHxA*	Not detected	2.1	1.3	ng/L	2.12	307-24-4	
PFBS*	Not detected	2.1	0.64	ng/L	2.12	375-73-5	
PFHpA*	Not detected	2.1	0.85	ng/L	2.12	375-85-9	
PFPeS*	Not detected	2.1	1.9	ng/L	2.12	2706-91-4	
6:2 FTSA*	Not detected	2.1	1.1	ng/L	2.12	27619-97-2	
PFOA*	Not detected	2.1	0.85	ng/L	2.12	335-67-1	
PFHxS*	Not detected	2.1	1.1	ng/L	2.12	355-46-4	
PFHxS-LN*	Not detected	2.1	1.1	ng/L	2.12	355-46-4-LN	
PFHxS-BR*	Not detected	2.1	1.1	ng/L	2.12	355-46-4-BR	
PFNA*	Not detected	2.1	1.1	ng/L	2.12	375-95-1	
8:2 FTSA*	Not detected	2.1	1.3	ng/L	2.12	39108-34-4	
PFHpS*	Not detected	2.1	0.85	ng/L	2.12	375-92-8	
PFDA*	Not detected	2.1	1.3	ng/L	2.12	335-76-2	
N-MeFOSAA*	Not detected	2.1	1.1	ng/L	2.12	2355-31-9	
EtFOSAA*	Not detected	4.2	1.1	ng/L	2.12	2991-50-6	
PFOS*	Not detected	2.1	0.85	ng/L	2.12	1763-23-1	
PFOS-LN*	Not detected	2.1	0.85	ng/L	2.12	1763-23-1-LN	
PFOS-BR*	Not detected	2.1	0.85	ng/L	2.12	1763-23-1-BR	
PFUnDA*	Not detected	2.1	0.85	ng/L	2.12	2058-94-8	
PFNS*	Not detected	2.1	1.1	ng/L	2.12	68259-12-1	
PFDODA*	Not detected	2.1	0.64	ng/L	2.12	307-55-1	
PFDS*	Not detected	2.1	1.1	ng/L	2.12	335-77-3	
PFTTrDA*	Not detected	2.1	0.85	ng/L	2.12	72629-94-8	
FOSA*	Not detected	2.1	0.85	ng/L	2.12	754-91-6	
PFTeDA*	Not detected	4.2	0.64	ng/L	2.12	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.1	ng/L	2.12	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.1	ng/L	2.12	756426-58-1	
ADONA*	Not detected	2.1	0.64	ng/L	2.12	919005-14-4	
HFPO-DA*	Not detected	11	2.1	ng/L	2.12	13252-13-6	



Analytical Laboratory Report

Lab Sample ID: S60264.02
Sample Tag: MW-104S-240327
Collected Date/Time: 03/27/2024 12:05
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.19/6.55/11	ASTMD7979-19M	04/08/24 12:00	SRP	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/08/24 21:09, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	3.3	9.8	2.0	ng/L	1.95	375-22-4	J
PFPeA*	Not detected	3.9	1.2	ng/L	1.95	2706-90-3	
4:2 FTSA*	Not detected	2.0	0.20	ng/L	1.95	757124-72-4	
PFHxA*	Not detected	2.0	1.2	ng/L	1.95	307-24-4	
PFBS*	2.5	2.0	0.59	ng/L	1.95	375-73-5	
PFHpA*	Not detected	2.0	0.78	ng/L	1.95	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.95	2706-91-4	
6:2 FTSA*	Not detected	2.0	0.98	ng/L	1.95	27619-97-2	
PFOA*	0.99	2.0	0.78	ng/L	1.95	335-67-1	J
PFHxS*	Not detected	2.0	0.98	ng/L	1.95	355-46-4	
PFHxS-LN*	Not detected	2.0	0.98	ng/L	1.95	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	0.98	ng/L	1.95	355-46-4-BR	
PFNA*	Not detected	2.0	0.98	ng/L	1.95	375-95-1	
8:2 FTSA*	Not detected	2.0	1.2	ng/L	1.95	39108-34-4	
PFHpS*	Not detected	2.0	0.78	ng/L	1.95	375-92-8	
PFDA*	Not detected	2.0	1.2	ng/L	1.95	335-76-2	
N-MeFOSAA*	Not detected	2.0	0.98	ng/L	1.95	2355-31-9	
EtFOSAA*	Not detected	3.9	0.98	ng/L	1.95	2991-50-6	
PFOS*	Not detected	2.0	0.78	ng/L	1.95	1763-23-1	
PFOS-LN*	Not detected	2.0	0.78	ng/L	1.95	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	0.78	ng/L	1.95	1763-23-1-BR	
PFUnDA*	Not detected	2.0	0.78	ng/L	1.95	2058-94-8	
PFNS*	Not detected	2.0	0.98	ng/L	1.95	68259-12-1	
PFDODA*	Not detected	2.0	0.59	ng/L	1.95	307-55-1	
PFDS*	Not detected	2.0	0.98	ng/L	1.95	335-77-3	
PFTTrDA*	Not detected	2.0	0.78	ng/L	1.95	72629-94-8	
FOSA*	Not detected	2.0	0.78	ng/L	1.95	754-91-6	
PFTeDA*	Not detected	3.9	0.59	ng/L	1.95	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	0.98	ng/L	1.95	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	0.98	ng/L	1.95	756426-58-1	
ADONA*	Not detected	2.0	0.59	ng/L	1.95	919005-14-4	
HFPO-DA*	Not detected	9.8	2.0	ng/L	1.95	13252-13-6	

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



Analytical Laboratory Report

Lab Sample ID: S60264.03
Sample Tag: MW-106SR-240327
Collected Date/Time: 03/27/2024 13:01
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.08/6.56/11	ASTMD7979-19M	04/08/24 12:00	SRP	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/08/24 21:29, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	7.5	10.0	2.0	ng/L	1.99	375-22-4	J
PFPeA*	2.5	4.0	1.2	ng/L	1.99	2706-90-3	J
4:2 FTSA*	Not detected	2.0	0.20	ng/L	1.99	757124-72-4	
PFHxA*	2.4	2.0	1.2	ng/L	1.99	307-24-4	
PFBS*	4.3	2.0	0.60	ng/L	1.99	375-73-5	
PFHpA*	1.0	2.0	0.80	ng/L	1.99	375-85-9	J
PFPeS*	Not detected	2.0	1.8	ng/L	1.99	2706-91-4	
6:2 FTSA*	Not detected	2.0	1.00	ng/L	1.99	27619-97-2	
PFOA*	5.3	2.0	0.80	ng/L	1.99	335-67-1	
PFHxS*	1.3	2.0	1.00	ng/L	1.99	355-46-4	J
PFHxS-LN*	Not detected	2.0	1.00	ng/L	1.99	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.00	ng/L	1.99	355-46-4-BR	
PFNA*	Not detected	2.0	1.00	ng/L	1.99	375-95-1	
8:2 FTSA*	Not detected	2.0	1.2	ng/L	1.99	39108-34-4	
PFHpS*	0.90	2.0	0.80	ng/L	1.99	375-92-8	J
PFDA*	Not detected	2.0	1.2	ng/L	1.99	335-76-2	
N-MeFOSAA*	Not detected	2.0	1.00	ng/L	1.99	2355-31-9	
EtFOSAA*	Not detected	4.0	1.00	ng/L	1.99	2991-50-6	
PFOS*	7.1	2.0	0.80	ng/L	1.99	1763-23-1	
PFOS-LN*	1.9	2.0	0.80	ng/L	1.99	1763-23-1-LN	J
PFOS-BR*	4.4	2.0	0.80	ng/L	1.99	1763-23-1-BR	
PFUnDA*	Not detected	2.0	0.80	ng/L	1.99	2058-94-8	
PFNS*	Not detected	2.0	1.00	ng/L	1.99	68259-12-1	
PFDODA*	Not detected	2.0	0.60	ng/L	1.99	307-55-1	
PFDS*	Not detected	2.0	1.00	ng/L	1.99	335-77-3	
PFTTrDA*	Not detected	2.0	0.80	ng/L	1.99	72629-94-8	
FOSA*	Not detected	2.0	0.80	ng/L	1.99	754-91-6	
PFTeDA*	Not detected	4.0	0.60	ng/L	1.99	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.00	ng/L	1.99	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.00	ng/L	1.99	756426-58-1	
ADONA*	Not detected	2.0	0.60	ng/L	1.99	919005-14-4	
HFPO-DA*	Not detected	10.0	2.0	ng/L	1.99	13252-13-6	

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



Analytical Laboratory Report

Lab Sample ID: S60264.04
Sample Tag: MW-112S-240327
Collected Date/Time: 03/27/2024 13:56
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.93/6.54/11	ASTMD7979-19M	04/08/24 12:00	SRP	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/08/24 21:49, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	27	2.0	ng/L	2.04	375-22-4	X
PFPeA*	Not detected	4.1	1.2	ng/L	2.04	2706-90-3	
4:2 FTSA*	Not detected	2.0	0.20	ng/L	2.04	757124-72-4	
PFHxA*	Not detected	2.9	1.2	ng/L	2.04	307-24-4	X
PFBS*	Not detected	2.0	0.61	ng/L	2.04	375-73-5	
PFHpA*	Not detected	2.0	0.82	ng/L	2.04	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	2.04	2706-91-4	
6:2 FTSA*	Not detected	2.0	1.0	ng/L	2.04	27619-97-2	
PFOA*	Not detected	2.0	0.82	ng/L	2.04	335-67-1	
PFHxS*	Not detected	2.0	1.0	ng/L	2.04	355-46-4	
PFHxS-LN*	Not detected	2.0	1.0	ng/L	2.04	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.0	ng/L	2.04	355-46-4-BR	
PFNA*	Not detected	2.0	1.0	ng/L	2.04	375-95-1	
8:2 FTSA*	Not detected	2.0	1.2	ng/L	2.04	39108-34-4	
PFHpS*	Not detected	2.0	0.82	ng/L	2.04	375-92-8	
PFDA*	Not detected	2.0	1.2	ng/L	2.04	335-76-2	
N-MeFOSAA*	Not detected	2.0	1.0	ng/L	2.04	2355-31-9	
EtFOSAA*	Not detected	4.1	1.0	ng/L	2.04	2991-50-6	
PFOS*	7.1	2.0	0.82	ng/L	2.04	1763-23-1	
PFOS-LN*	3.7	2.0	0.82	ng/L	2.04	1763-23-1-LN	
PFOS-BR*	2.6	2.0	0.82	ng/L	2.04	1763-23-1-BR	
PFUnDA*	Not detected	2.0	0.82	ng/L	2.04	2058-94-8	
PFNS*	Not detected	2.0	1.0	ng/L	2.04	68259-12-1	
PFDODA*	Not detected	2.0	0.61	ng/L	2.04	307-55-1	
PFDS*	Not detected	2.0	1.0	ng/L	2.04	335-77-3	
PFTTrDA*	Not detected	2.0	0.82	ng/L	2.04	72629-94-8	
FOSA*	Not detected	2.0	0.82	ng/L	2.04	754-91-6	
PFTeDA*	Not detected	4.1	0.61	ng/L	2.04	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.0	ng/L	2.04	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.0	ng/L	2.04	756426-58-1	
ADONA*	Not detected	2.0	0.61	ng/L	2.04	919005-14-4	
HFPO-DA*	Not detected	10	2.0	ng/L	2.04	13252-13-6	

X-Elevated reporting limit due to matrix interference

Merit Laboratories Login Checklist

Lab Set ID:S60264

Client:APPLIED (Applied Ecosystems)

Project: RACER Flint West #12990

Submitted:03/27/2024 15:40 Login User: PFD

Attention: Rodney Abke

Address: Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525

FAX:

Email: rabke@appliedecosystems.com

Selection	Description	Note
Sample Receiving		
01.	☒ Yes ☐ No ☐ N/A	Samples are received at 4C +/- 2C Thermometer # IR 2.8
02.	☒ Yes ☐ No ☐ N/A	Received on ice/ cooling process begun
03.	☐ Yes ☒ No ☐ N/A	Samples shipped
04.	☐ Yes ☒ No ☐ N/A	Samples left in 24 hr. drop box
05.	☐ Yes ☐ No ☒ N/A	Are there custody seals/tape or is the drop box locked
Chain of Custody		
06.	☒ Yes ☐ No ☐ N/A	COC adequately filled out
07.	☒ Yes ☐ No ☐ N/A	COC signed and relinquished to the lab
08.	☒ Yes ☐ No ☐ N/A	Sample tag on bottles match COC
09.	☐ Yes ☒ No ☐ N/A	Subcontracting needed? Subcontacted to:
Preservation		
10.	☒ Yes ☐ No ☐ N/A	Do sample have correct chemical preservation
11.	☐ Yes ☐ No ☒ N/A	Completed pH checks on preserved samples? (no VOAs)
12.	☐ Yes ☒ No ☐ N/A	Did any samples need to be preserved in the lab?
Bottle Conditions		
13.	☒ Yes ☐ No ☐ N/A	All bottles intact
14.	☒ Yes ☐ No ☐ N/A	Appropriate analytical bottles are used
15.	☒ Yes ☐ No ☐ N/A	Merit bottles used
16.	☒ Yes ☐ No ☐ N/A	Sufficient sample volume received
17.	☐ Yes ☒ No ☐ N/A	Samples require laboratory filtration
18.	☒ Yes ☐ No ☐ N/A	Samples submitted within holding time
19.	☐ Yes ☐ 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: _____

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Rodney Abke			CONTACT NAME Monica Wallingford			☐ SAME						
COMPANY Applied EcoSystems			COMPANY Revitalizing Auto Communities Environmental Response (RACER) Trust									
ADDRESS G-4300 South Saginaw Street						ADDRESS						
CITY Burton			STATE MI		ZIP CODE 48529		CITY		STATE		ZIP CODE	
PHONE NO. 810-715-2525		FAX NO. 810-715-2526		P.O. NO. PO1107477		PHONE NO. 313.486.2978		E-MAIL ADDRESS mwallingford@racertrust.org				
E-MAIL ADDRESS rabke@appliedecosystems.com				QUOTE NO.		ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)						

[illegible]

RELINQUISHED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>	DATE 3/27/24	TIME 14:20	RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>	DATE 3/27/24	TIME 14:20	RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>	DATE 3/27/24	TIME 15:40	SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL 2.8
RECEIVED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>	DATE 3/27/24	TIME 15:40	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



Analytical Laboratory Report

Report ID: S60307.01(01)
Generated on 04/19/2024

Report to
Attention: Rodney Abke
Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

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

Report produced by
Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

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

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary
Lab Sample ID(s): S60307.01-S60307.06
Project: RACER Flint West #12990
Collected Date(s): 03/27/2024 - 03/28/2024
Submitted Date/Time: 03/28/2024 12:05
Sampled by: Unknown
P.O. #: PO1107477

Table of Contents

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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
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, and 2-chloroethylvinyl ether 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.
Starred (*) analytes are not NY 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)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.
For a specific list of accredited analytes, please feel free to contact the laboratory or visit <https://www.meritlabs.com/certifications>.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

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
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

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



Method Summary

Method	Version
ASTMD7979-19M	ASTM Method D7979 - 19 Modified (Isotopic Dilution)

Parameter Summary

Parameter	Synonym	Cas #
PFBA	Perfluorobutanoic Acid	375-22-4
PFPeA	Perfluoropentanoic Acid	2706-90-3
4:2 FTSA	4:2 Fluorotelomer Sulfonic Acid	757124-72-4
PFHxA	Perfluorohexanoic Acid	307-24-4
PFBS	Perfluorobutane sulfonic Acid	375-73-5
PFHpA	Perfluoroheptanoic Acid	375-85-9
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4
6:2 FTSA	6:2 Fluorotelomer Sulfonic Acid	27619-97-2
PFOA	Perfluorooctanoic Acid	335-67-1
PFHxS	Perfluorohexane Sulfonic Acid	355-46-4
PFHxS-LN	Perfluorohexane Sulfonic Acid - LN	355-46-4-LN
PFHxS-BR	Perfluorohexane Sulfonic Acid - BR	355-46-4-BR
PFNA	Perfluorononanoic Acid	375-95-1
8:2 FTSA	8:2 Fluorotelomer Sulfonic Acid	39108-34-4
PFHpS	Perfluoroheptane Sulfonic Acid	375-92-8
PFDA	Perfluorodecanoic Acid	335-76-2
N-MeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9
EtFOSAA	N-Ethyl Perfluorooctane Sulfonamidoacetic Acid	2991-50-6
PFOS	Perfluorooctane Sulfonic Acid	1763-23-1
PFOS-LN	Perfluorooctane Sulfonic Acid - LN	1763-23-1-LN
PFOS-BR	Perfluorooctane Sulfonic Acid - BR	1763-23-1-BR
PFUnDA	Perfluoroundecanoic Acid	2058-94-8
PFNS	Perfluorononane Sulfonic Acid	68259-12-1
PFDoDA	Perfluorododecanoic Acid	307-55-1
PFDS	Perfluorodecane Sulfonic Acid	335-77-3
PFTTrDA	Perfluorotridecanoic Acid	72629-94-8
FOSA	Perfluorooctane Sulfonamide	754-91-6
PFTeDA	Perfluorotetradecanoic Acid	376-06-7
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone1-sulfonic acid	756426-58-1
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4
HFPO-DA	Hexafluoropropylene oxide dimer	13252-13-6



Analytical Laboratory Report

Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S60307.01	MW-117S-240327	Water	03/28/24 08:28
S60307.02	MW-103S-240327	Water	03/28/24 09:28
S60307.03	MS (MW-103S-240327)	Water	03/28/24 09:28
S60307.04	MSD (MW-103S-240327)	Water	03/28/24 09:28
S60307.05	Trip Blank-240327	Water	03/27/24 09:00
S60307.06	EB-1-240327	Water	03/28/24 10:01



Analytical Laboratory Report

Lab Sample ID: S60307.01
Sample Tag: MW-117S-240327
Collected Date/Time: 03/28/2024 08:28
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.99/6.51/11	ASTMD7979-19M	04/08/24 12:00	SRP	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/08/24 23:09, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	5.8	10	2.0	ng/L	2.01	375-22-4	J
PFPeA*	Not detected	4.0	1.2	ng/L	2.01	2706-90-3	
4:2 FTSA*	Not detected	2.0	0.20	ng/L	2.01	757124-72-4	
PFHxA*	1.3	2.0	1.2	ng/L	2.01	307-24-4	J
PFBS*	1.6	2.0	0.60	ng/L	2.01	375-73-5	J
PFHpA*	Not detected	2.0	0.80	ng/L	2.01	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	2.01	2706-91-4	
6:2 FTSA*	Not detected	2.0	1.0	ng/L	2.01	27619-97-2	
PFOA*	1.2	2.0	0.80	ng/L	2.01	335-67-1	J
PFHxS*	Not detected	2.0	1.0	ng/L	2.01	355-46-4	
PFHxS-LN*	Not detected	2.0	1.0	ng/L	2.01	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.0	ng/L	2.01	355-46-4-BR	
PFNA*	Not detected	2.0	1.0	ng/L	2.01	375-95-1	
8:2 FTSA*	Not detected	2.0	1.2	ng/L	2.01	39108-34-4	
PFHpS*	Not detected	2.0	0.80	ng/L	2.01	375-92-8	
PFDA*	Not detected	2.0	1.2	ng/L	2.01	335-76-2	
N-MeFOSAA*	Not detected	2.0	1.0	ng/L	2.01	2355-31-9	
EtFOSAA*	Not detected	4.0	1.0	ng/L	2.01	2991-50-6	
PFOS*	2.8	2.0	0.80	ng/L	2.01	1763-23-1	
PFOS-LN*	Not detected	2.0	0.80	ng/L	2.01	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	0.80	ng/L	2.01	1763-23-1-BR	
PFUnDA*	Not detected	2.0	0.80	ng/L	2.01	2058-94-8	
PFNS*	Not detected	2.0	1.0	ng/L	2.01	68259-12-1	
PFDODA*	Not detected	2.0	0.60	ng/L	2.01	307-55-1	
PFDS*	Not detected	2.0	1.0	ng/L	2.01	335-77-3	
PFTTrDA*	Not detected	2.0	0.80	ng/L	2.01	72629-94-8	
FOSA*	Not detected	2.0	0.80	ng/L	2.01	754-91-6	
PFTeDA*	Not detected	4.0	0.60	ng/L	2.01	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.0	ng/L	2.01	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.0	ng/L	2.01	756426-58-1	
ADONA*	Not detected	2.0	0.60	ng/L	2.01	919005-14-4	
HFPO-DA*	Not detected	10	2.0	ng/L	2.01	13252-13-6	

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



Analytical Laboratory Report

Lab Sample ID: S60307.02
Sample Tag: MW-103S-240327
Collected Date/Time: 03/28/2024 09:28
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.26/6.53/11	ASTMD7979-19M	04/08/24 12:00	SRP	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/08/24 23:29, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	33	1.9	ng/L	1.92	375-22-4	X
PFPeA*	Not detected	3.8	1.2	ng/L	1.92	2706-90-3	
4:2 FTSA*	Not detected	1.9	0.19	ng/L	1.92	757124-72-4	
PFHxA*	Not detected	2.7	1.2	ng/L	1.92	307-24-4	X
PFBS*	Not detected	1.9	0.58	ng/L	1.92	375-73-5	
PFHpA*	Not detected	1.9	0.77	ng/L	1.92	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.92	2706-91-4	
6:2 FTSA*	Not detected	1.9	0.96	ng/L	1.92	27619-97-2	
PFOA*	2.7	1.9	0.77	ng/L	1.92	335-67-1	
PFHxS*	Not detected	1.9	0.96	ng/L	1.92	355-46-4	
PFHxS-LN*	Not detected	1.9	0.96	ng/L	1.92	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	0.96	ng/L	1.92	355-46-4-BR	
PFNA*	Not detected	1.9	0.96	ng/L	1.92	375-95-1	
8:2 FTSA*	Not detected	1.9	1.2	ng/L	1.92	39108-34-4	
PFHpS*	Not detected	1.9	0.77	ng/L	1.92	375-92-8	
PFDA*	Not detected	1.9	1.2	ng/L	1.92	335-76-2	
N-MeFOSAA*	Not detected	1.9	0.96	ng/L	1.92	2355-31-9	
EtFOSAA*	Not detected	3.8	0.96	ng/L	1.92	2991-50-6	
PFOS*	63	1.9	0.77	ng/L	1.92	1763-23-1	
PFOS-LN*	42	1.9	0.77	ng/L	1.92	1763-23-1-LN	
PFOS-BR*	20	1.9	0.77	ng/L	1.92	1763-23-1-BR	
PFUnDA*	Not detected	1.9	0.77	ng/L	1.92	2058-94-8	
PFNS*	Not detected	1.9	0.96	ng/L	1.92	68259-12-1	
PFDODA*	Not detected	1.9	0.58	ng/L	1.92	307-55-1	
PFDS*	Not detected	1.9	0.96	ng/L	1.92	335-77-3	
PFTTrDA*	Not detected	1.9	0.77	ng/L	1.92	72629-94-8	
FOSA*	Not detected	1.9	0.77	ng/L	1.92	754-91-6	
PFTeDA*	Not detected	3.8	0.58	ng/L	1.92	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	0.96	ng/L	1.92	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	0.96	ng/L	1.92	756426-58-1	
ADONA*	Not detected	1.9	0.58	ng/L	1.92	919005-14-4	
HFPO-DA*	Not detected	9.6	1.9	ng/L	1.92	13252-13-6	

X-Elevated reporting limit due to matrix interference



Analytical Laboratory Report

Lab Sample ID: S60307.03
Sample Tag: MS (MW-103S-240327)
Collected Date/Time: 03/28/2024 09:28
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.06/6.55/11	ASTMD7979-19M	04/08/24 12:00	SRP	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/08/24 23:49, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	110	10	2.0	ng/L	2	375-22-4	1
PFPeA*	100	4.0	1.2	ng/L	2	2706-90-3	1
4:2 FTSA*	96	2.0	0.20	ng/L	2	757124-72-4	1
PFHxA*	94	2.0	1.2	ng/L	2	307-24-4	1
PFBS*	85	2.0	0.60	ng/L	2	375-73-5	1
PFHpA*	100	2.0	0.80	ng/L	2	375-85-9	1
PFPeS*	94	2.0	1.8	ng/L	2	2706-91-4	1
6:2 FTSA*	100	2.0	1.0	ng/L	2	27619-97-2	1
PFOA*	85	2.0	0.80	ng/L	2	335-67-1	1
PFHxS*	110	2.0	1.0	ng/L	2	355-46-4	1
PFHxS-LN*	89	2.0	1.0	ng/L	2	355-46-4-LN	1
PFHxS-BR*	15	2.0	1.0	ng/L	2	355-46-4-BR	1
PFNA*	84	2.0	1.0	ng/L	2	375-95-1	1
8:2 FTSA*	85	2.0	1.2	ng/L	2	39108-34-4	1
PFHpS*	100	2.0	0.80	ng/L	2	375-92-8	1
PFDA*	110	2.0	1.2	ng/L	2	335-76-2	1
N-MeFOSAA*	120	2.0	1.0	ng/L	2	2355-31-9	1
EtFOSAA*	93	4.0	1.0	ng/L	2	2991-50-6	1
PFOS*	160	2.0	0.80	ng/L	2	1763-23-1	1
PFOS-LN*	110	2.0	0.80	ng/L	2	1763-23-1-LN	1
PFOS-BR*	50	2.0	0.80	ng/L	2	1763-23-1-BR	1
PFUnDA*	110	2.0	0.80	ng/L	2	2058-94-8	1
PFNS*	100	2.0	1.0	ng/L	2	68259-12-1	1
PFDODA*	95	2.0	0.60	ng/L	2	307-55-1	1
PFDS*	110	2.0	1.0	ng/L	2	335-77-3	1
PFTTrDA*	110	2.0	0.80	ng/L	2	72629-94-8	1
FOSA*	93	2.0	0.80	ng/L	2	754-91-6	1
PFTeDA*	86	4.0	0.60	ng/L	2	376-06-7	1
11Cl-PF3OUdS*	110	2.0	1.0	ng/L	2	763051-92-9	1
9Cl-PF3ONS*	99	2.0	1.0	ng/L	2	756426-58-1	1
ADONA*	95	2.0	0.60	ng/L	2	919005-14-4	1
HFPO-DA*	96	10	2.0	ng/L	2	13252-13-6	1

1-spiked @ 100ng/L



Analytical Laboratory Report

Lab Sample ID: S60307.04
Sample Tag: MSD (MW-103S-240327)
Collected Date/Time: 03/28/2024 09:28
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.14/6.53/11	ASTMD7979-19M	04/08/24 12:00	SRP	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/09/24 00:09, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	120	9.8	2.0	ng/L	1.96	375-22-4	1
PFPeA*	97	3.9	1.2	ng/L	1.96	2706-90-3	1
4:2 FTSA*	87	2.0	0.20	ng/L	1.96	757124-72-4	11
PFHxA*	100	2.0	1.2	ng/L	1.96	307-24-4	1
PFBS*	90	2.0	0.59	ng/L	1.96	375-73-5	1
PFHpA*	100	2.0	0.78	ng/L	1.96	375-85-9	1
PFPeS*	97	2.0	1.8	ng/L	1.96	2706-91-4	1
6:2 FTSA*	99	2.0	0.98	ng/L	1.96	27619-97-2	1
PFOA*	84	2.0	0.78	ng/L	1.96	335-67-1	1
PFHxS*	89	2.0	0.98	ng/L	1.96	355-46-4	1
PFHxS-LN*	73	2.0	0.98	ng/L	1.96	355-46-4-LN	1
PFHxS-BR*	14	2.0	0.98	ng/L	1.96	355-46-4-BR	1
PFNA*	99	2.0	0.98	ng/L	1.96	375-95-1	1
8:2 FTSA*	92	2.0	1.2	ng/L	1.96	39108-34-4	1
PFHpS*	98	2.0	0.78	ng/L	1.96	375-92-8	1
PFDA*	98	2.0	1.2	ng/L	1.96	335-76-2	1
N-MeFOSAA*	110	2.0	0.98	ng/L	1.96	2355-31-9	1
EtFOSAA*	95	3.9	0.98	ng/L	1.96	2991-50-6	1
PFOS*	140	2.0	0.78	ng/L	1.96	1763-23-1	1
PFOS-LN*	99	2.0	0.78	ng/L	1.96	1763-23-1-LN	1
PFOS-BR*	43	2.0	0.78	ng/L	1.96	1763-23-1-BR	1
PFUnDA*	110	2.0	0.78	ng/L	1.96	2058-94-8	1
PFNS*	92	2.0	0.98	ng/L	1.96	68259-12-1	1
PFDODA*	87	2.0	0.59	ng/L	1.96	307-55-1	1
PFDS*	95	2.0	0.98	ng/L	1.96	335-77-3	1
PFTTrDA*	100	2.0	0.78	ng/L	1.96	72629-94-8	1
FOSA*	88	2.0	0.78	ng/L	1.96	754-91-6	1
PFTeDA*	82	3.9	0.59	ng/L	1.96	376-06-7	1
11Cl-PF3OUdS*	94	2.0	0.98	ng/L	1.96	763051-92-9	1
9Cl-PF3ONS*	100	2.0	0.98	ng/L	1.96	756426-58-1	1
ADONA*	96	2.0	0.59	ng/L	1.96	919005-14-4	1
HFPO-DA*	110	9.8	2.0	ng/L	1.96	13252-13-6	1

1-spiked @ 98ng/L
I-Matrix interference with internal standard



Analytical Laboratory Report

Lab Sample ID: S60307.05
Sample Tag: Trip Blank-240327
Collected Date/Time: 03/27/2024 09:00
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.66/6.53/10	ASTMD7979-19M	04/08/24 12:00	SRP	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/09/24 00:29, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.8	2.0	ng/L	1.95	375-22-4	
PFPeA*	Not detected	3.9	1.2	ng/L	1.95	2706-90-3	
4:2 FTSA*	Not detected	2.0	0.20	ng/L	1.95	757124-72-4	
PFHxA*	Not detected	2.0	1.2	ng/L	1.95	307-24-4	
PFBS*	Not detected	2.0	0.59	ng/L	1.95	375-73-5	
PFHpA*	Not detected	2.0	0.78	ng/L	1.95	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.95	2706-91-4	
6:2 FTSA*	Not detected	2.0	0.98	ng/L	1.95	27619-97-2	
PFOA*	Not detected	2.0	0.78	ng/L	1.95	335-67-1	
PFHxS*	Not detected	2.0	0.98	ng/L	1.95	355-46-4	
PFHxS-LN*	Not detected	2.0	0.98	ng/L	1.95	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	0.98	ng/L	1.95	355-46-4-BR	
PFNA*	Not detected	2.0	0.98	ng/L	1.95	375-95-1	
8:2 FTSA*	Not detected	2.0	1.2	ng/L	1.95	39108-34-4	
PFHpS*	Not detected	2.0	0.78	ng/L	1.95	375-92-8	
PFDA*	Not detected	2.0	1.2	ng/L	1.95	335-76-2	
N-MeFOSAA*	Not detected	2.0	0.98	ng/L	1.95	2355-31-9	
EtFOSAA*	Not detected	3.9	0.98	ng/L	1.95	2991-50-6	
PFOS*	Not detected	2.0	0.78	ng/L	1.95	1763-23-1	
PFOS-LN*	Not detected	2.0	0.78	ng/L	1.95	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	0.78	ng/L	1.95	1763-23-1-BR	
PFUnDA*	Not detected	2.0	0.78	ng/L	1.95	2058-94-8	
PFNS*	Not detected	2.0	0.98	ng/L	1.95	68259-12-1	
PFDODA*	Not detected	2.0	0.59	ng/L	1.95	307-55-1	
PFDS*	Not detected	2.0	0.98	ng/L	1.95	335-77-3	
PFTTrDA*	Not detected	2.0	0.78	ng/L	1.95	72629-94-8	
FOSA*	Not detected	2.0	0.78	ng/L	1.95	754-91-6	
PFTeDA*	Not detected	3.9	0.59	ng/L	1.95	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	0.98	ng/L	1.95	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	0.98	ng/L	1.95	756426-58-1	
ADONA*	Not detected	2.0	0.59	ng/L	1.95	919005-14-4	
HFPO-DA*	Not detected	9.8	2.0	ng/L	1.95	13252-13-6	



Analytical Laboratory Report

Lab Sample ID: S60307.06
Sample Tag: EB-1-240327
Collected Date/Time: 03/28/2024 10:01
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.20/6.53/11	ASTMD7979-19M	04/08/24 12:00	SRP	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/09/24 00:49, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.7	1.9	ng/L	1.94	375-22-4	
PFPeA*	Not detected	3.9	1.2	ng/L	1.94	2706-90-3	
4:2 FTSA*	Not detected	1.9	0.19	ng/L	1.94	757124-72-4	
PFHxA*	Not detected	1.9	1.2	ng/L	1.94	307-24-4	
PFBS*	Not detected	1.9	0.58	ng/L	1.94	375-73-5	
PFHpA*	Not detected	1.9	0.78	ng/L	1.94	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.94	2706-91-4	
6:2 FTSA*	Not detected	1.9	0.97	ng/L	1.94	27619-97-2	
PFOA*	Not detected	1.9	0.78	ng/L	1.94	335-67-1	
PFHxS*	Not detected	1.9	0.97	ng/L	1.94	355-46-4	
PFHxS-LN*	Not detected	1.9	0.97	ng/L	1.94	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	0.97	ng/L	1.94	355-46-4-BR	
PFNA*	Not detected	1.9	0.97	ng/L	1.94	375-95-1	
8:2 FTSA*	Not detected	1.9	1.2	ng/L	1.94	39108-34-4	
PFHpS*	Not detected	1.9	0.78	ng/L	1.94	375-92-8	
PFDA*	Not detected	1.9	1.2	ng/L	1.94	335-76-2	
N-MeFOSAA*	Not detected	1.9	0.97	ng/L	1.94	2355-31-9	
EtFOSAA*	Not detected	3.9	0.97	ng/L	1.94	2991-50-6	
PFOS*	Not detected	1.9	0.78	ng/L	1.94	1763-23-1	
PFOS-LN*	Not detected	1.9	0.78	ng/L	1.94	1763-23-1-LN	
PFOS-BR*	Not detected	1.9	0.78	ng/L	1.94	1763-23-1-BR	
PFUnDA*	Not detected	1.9	0.78	ng/L	1.94	2058-94-8	
PFNS*	Not detected	1.9	0.97	ng/L	1.94	68259-12-1	
PFDODA*	Not detected	1.9	0.58	ng/L	1.94	307-55-1	
PFDS*	Not detected	1.9	0.97	ng/L	1.94	335-77-3	
PFTTrDA*	Not detected	1.9	0.78	ng/L	1.94	72629-94-8	
FOSA*	Not detected	1.9	0.78	ng/L	1.94	754-91-6	
PFTeDA*	Not detected	3.9	0.58	ng/L	1.94	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	0.97	ng/L	1.94	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	0.97	ng/L	1.94	756426-58-1	
ADONA*	Not detected	1.9	0.58	ng/L	1.94	919005-14-4	
HFPO-DA*	Not detected	9.7	1.9	ng/L	1.94	13252-13-6	

Merit Laboratories Login Checklist

Lab Set ID:S60307

Client:APPLIED (Applied Ecosystems)

Project: RACER Flint West #12990

Submitted:03/28/2024 12:05 Login User: MMC

Attention: Rodney Abke

Address: Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525

FAX:

Email: rabke@appliedecosystems.com

Selection	Description	Note
Sample Receiving		
01.	☒ Yes ☐ No ☐ N/A	Samples are received at 4C +/- 2C Thermometer # IR 3.6
02.	☒ Yes ☐ No ☐ N/A	Received on ice/ cooling process begun
03.	☐ Yes ☒ No ☐ N/A	Samples shipped
04.	☐ Yes ☒ No ☐ N/A	Samples left in 24 hr. drop box
05.	☐ Yes ☐ No ☒ N/A	Are there custody seals/tape or is the drop box locked
Chain of Custody		
06.	☒ Yes ☐ No ☐ N/A	COC adequately filled out
07.	☒ Yes ☐ No ☐ N/A	COC signed and relinquished to the lab
08.	☒ Yes ☐ No ☐ N/A	Sample tag on bottles match COC
09.	☐ Yes ☒ No ☐ N/A	Subcontracting needed? Subcontacted to:
Preservation		
10.	☒ Yes ☐ No ☐ N/A	Do sample have correct chemical preservation
11.	☐ Yes ☐ No ☒ N/A	Completed pH checks on preserved samples? (no VOAs)
12.	☐ Yes ☒ No ☐ N/A	Did any samples need to be preserved in the lab?
Bottle Conditions		
13.	☒ Yes ☐ No ☐ N/A	All bottles intact
14.	☒ Yes ☐ No ☐ N/A	Appropriate analytical bottles are used
15.	☒ Yes ☐ No ☐ N/A	Merit bottles used
16.	☒ Yes ☐ No ☐ N/A	Sufficient sample volume received
17.	☐ Yes ☒ No ☐ N/A	Samples require laboratory filtration
18.	☒ Yes ☐ No ☐ N/A	Samples submitted within holding time
19.	☐ Yes ☐ 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: _____

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Rodney Abke			
COMPANY Applied EcoSystems			
ADDRESS G-4300 South Saginaw Street			
CITY Burton			STATE MI ZIP CODE 48529
PHONE NO. 810-715-2525		FAX NO. 810-715-2526	P.O. NO. PO1107477
E-MAIL ADDRESS rabke@appliedecosystems.com			QUOTE NO.

CONTACT NAME		Monica Wallingford		☐ SAME	
COMPANY					
Revitalizing Auto Communities Environmental Response (RACER) Trust					
ADDRESS					
CITY				STATE	ZIP CODE
PHONE NO.		E-MAIL ADDRESS			
313.486.2978		mwallingford@racertrust.org			

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME	RACER Flint West #12990	SAMPLER(S) - PLEASE PRINT/SIGN NAME
TURNAROUND TIME REQUIRED	☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____	
DELIVERABLES REQUIRED	☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☒ OTHER <u>report to MDLs</u>	

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

Containers & Preservatives[illegible]

RELINQUISHED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>	☒ Sampler	DATE 3/28/27	TIME 11:00
RECEIVED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>		DATE 3/28/24	TIME 11:00
RELINQUISHED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>		DATE 3/28/24	TIME 11:00
RECEIVED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>		DATE 3/28/24	TIME 11:00

RELINQUISHED BY:			DATE	TIME
SIGNATURE/ORGANIZATION				
RECEIVED BY:			DATE	TIME
SIGNATURE/ORGANIZATION				
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL <u>3.6</u>	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS		

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



Analytical Laboratory Report

Report ID: S60309.01(01)
Generated on 04/19/2024

Report to
Attention: Rodney Abke
Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

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

Report produced by
Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

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

Contacts for report questions:
John Lavery (johnlavery@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary
Lab Sample ID(s): S60309.01-S60309.04
Project: RACER Flint West #12990
Collected Date(s): 03/27/2024
Submitted Date/Time: 03/28/2024 12:05
Sampled by: Unknown
P.O. #: PO1107477

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Maya Murshak
Technical Director



Analytical Laboratory Report

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.

Methods may be modified for improved performance.

Results reported on a dry weight basis where applicable.

'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).

When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.

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, and 2-chloroethylvinyl ether 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.

Starred (*) analytes are not NY 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)

PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."

Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

For a specific list of accredited analytes, please feel free to contact the laboratory or visit <https://www.meritlabs.com/certifications>.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations (For Reference Only)

Authority	Accreditation ID
Michigan DEQ	#9956
DOD ELAP & ISO/IEC 17025:2017	#69699 PJLA Testing
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

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
o	Associated EIS outside of control limits
p	Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak.
q	Qualifier ion ratio outside of control limits
x	Preserved from bulk sample

Glossary of Abbreviations

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



Method Summary

Method	Version
ASTMD7979-19M	ASTM Method D7979 - 19 Modified (Isotopic Dilution)

Parameter Summary

Parameter	Synonym	Cas #
PFBA	Perfluorobutanoic Acid	375-22-4
PFPeA	Perfluoropentanoic Acid	2706-90-3
4:2 FTSA	4:2 Fluorotelomer Sulfonic Acid	757124-72-4
PFHxA	Perfluorohexanoic Acid	307-24-4
PFBS	Perfluorobutane sulfonic Acid	375-73-5
PFHpA	Perfluoroheptanoic Acid	375-85-9
PFPeS	Perfluoropentane Sulfonic Acid	2706-91-4
6:2 FTSA	6:2 Fluorotelomer Sulfonic Acid	27619-97-2
PFOA	Perfluorooctanoic Acid	335-67-1
PFHxS	Perfluorohexane Sulfonic Acid	355-46-4
PFHxS-LN	Perfluorohexane Sulfonic Acid - LN	355-46-4-LN
PFHxS-BR	Perfluorohexane Sulfonic Acid - BR	355-46-4-BR
PFNA	Perfluorononanoic Acid	375-95-1
8:2 FTSA	8:2 Fluorotelomer Sulfonic Acid	39108-34-4
PFHpS	Perfluoroheptane Sulfonic Acid	375-92-8
PFDA	Perfluorodecanoic Acid	335-76-2
N-MeFOSAA	N-methyl perfluorooctanesulfonamidoacetic acid	2355-31-9
EtFOSAA	N-Ethyl Perfluorooctane Sulfonamidoacetic Acid	2991-50-6
PFOS	Perfluorooctane Sulfonic Acid	1763-23-1
PFOS-LN	Perfluorooctane Sulfonic Acid - LN	1763-23-1-LN
PFOS-BR	Perfluorooctane Sulfonic Acid - BR	1763-23-1-BR
PFUnDA	Perfluoroundecanoic Acid	2058-94-8
PFNS	Perfluorononane Sulfonic Acid	68259-12-1
PFDoDA	Perfluorododecanoic Acid	307-55-1
PFDS	Perfluorodecane Sulfonic Acid	335-77-3
PFTTrDA	Perfluorotridecanoic Acid	72629-94-8
FOSA	Perfluorooctane Sulfonamide	754-91-6
PFTeDA	Perfluorotetradecanoic Acid	376-06-7
11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	763051-92-9
9Cl-PF3ONS	9-chlorohexadecafluoro-3-oxanone1-sulfonic acid	756426-58-1
ADONA	4,8-dioxa-3H-perfluorononanoic acid	919005-14-4
HFPO-DA	Hexafluoropropylene oxide dimer	13252-13-6



Analytical Laboratory Report

Sample Summary (4 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S60309.01	MW-110S-240327	Water	03/27/24 15:35
S60309.02	MW-108S-240327	Water	03/27/24 16:29
S60309.03	MW-114S-240327	Water	03/27/24 17:19
S60309.04	Dup-1-240327	Water	03/27/24 00:01



Analytical Laboratory Report

Lab Sample ID: S60309.01
Sample Tag: MW-110S-240327
Collected Date/Time: 03/27/2024 15:35
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.28/6.52/11	ASTMD7979-19M	04/08/24 12:00	SRP	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/09/24 01:49, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.6	1.9	ng/L	1.91	375-22-4	
PFPeA*	Not detected	3.8	1.1	ng/L	1.91	2706-90-3	
4:2 FTSA*	Not detected	1.9	0.19	ng/L	1.91	757124-72-4	
PFHxA*	Not detected	1.9	1.1	ng/L	1.91	307-24-4	
PFBS*	2.0	1.9	0.57	ng/L	1.91	375-73-5	
PFHpA*	Not detected	1.9	0.76	ng/L	1.91	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.91	2706-91-4	
6:2 FTSA*	Not detected	1.9	0.96	ng/L	1.91	27619-97-2	
PFOA*	0.78	1.9	0.76	ng/L	1.91	335-67-1	J
PFHxS*	Not detected	1.9	0.96	ng/L	1.91	355-46-4	
PFHxS-LN*	Not detected	1.9	0.96	ng/L	1.91	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	0.96	ng/L	1.91	355-46-4-BR	
PFNA*	Not detected	1.9	0.96	ng/L	1.91	375-95-1	
8:2 FTSA*	Not detected	1.9	1.1	ng/L	1.91	39108-34-4	
PFHpS*	Not detected	1.9	0.76	ng/L	1.91	375-92-8	
PFDA*	Not detected	1.9	1.1	ng/L	1.91	335-76-2	
N-MeFOSAA*	Not detected	1.9	0.96	ng/L	1.91	2355-31-9	
EtFOSAA*	Not detected	3.8	0.96	ng/L	1.91	2991-50-6	
PFOS*	Not detected	1.9	0.76	ng/L	1.91	1763-23-1	
PFOS-LN*	Not detected	1.9	0.76	ng/L	1.91	1763-23-1-LN	
PFOS-BR*	Not detected	1.9	0.76	ng/L	1.91	1763-23-1-BR	
PFUnDA*	Not detected	1.9	0.76	ng/L	1.91	2058-94-8	
PFNS*	Not detected	1.9	0.96	ng/L	1.91	68259-12-1	
PFDODA*	Not detected	1.9	0.57	ng/L	1.91	307-55-1	
PFDS*	Not detected	1.9	0.96	ng/L	1.91	335-77-3	
PFTTrDA*	Not detected	1.9	0.76	ng/L	1.91	72629-94-8	
FOSA*	Not detected	1.9	0.76	ng/L	1.91	754-91-6	
PFTeDA*	Not detected	3.8	0.57	ng/L	1.91	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	0.96	ng/L	1.91	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	0.96	ng/L	1.91	756426-58-1	
ADONA*	Not detected	1.9	0.57	ng/L	1.91	919005-14-4	
HFPO-DA*	Not detected	9.6	1.9	ng/L	1.91	13252-13-6	

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



Analytical Laboratory Report

Lab Sample ID: S60309.02
Sample Tag: MW-108S-240327
Collected Date/Time: 03/27/2024 16:29
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.06/6.54/11	ASTMD7979-19M	04/08/24 12:00	SRP	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/09/24 02:09, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10.0	2.0	ng/L	1.99	375-22-4	
PFPeA*	Not detected	4.0	1.2	ng/L	1.99	2706-90-3	
4:2 FTSA*	Not detected	2.0	0.20	ng/L	1.99	757124-72-4	
PFHxA*	Not detected	2.0	1.2	ng/L	1.99	307-24-4	
PFBS*	0.98	2.0	0.60	ng/L	1.99	375-73-5	J
PFHpA*	Not detected	2.0	0.80	ng/L	1.99	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.99	2706-91-4	
6:2 FTSA*	Not detected	2.0	1.00	ng/L	1.99	27619-97-2	
PFOA*	Not detected	2.0	0.80	ng/L	1.99	335-67-1	
PFHxS*	Not detected	2.0	1.00	ng/L	1.99	355-46-4	
PFHxS-LN*	Not detected	2.0	1.00	ng/L	1.99	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.00	ng/L	1.99	355-46-4-BR	
PFNA*	Not detected	2.0	1.00	ng/L	1.99	375-95-1	
8:2 FTSA*	Not detected	2.0	1.2	ng/L	1.99	39108-34-4	
PFHpS*	Not detected	2.0	0.80	ng/L	1.99	375-92-8	
PFDA*	Not detected	2.0	1.2	ng/L	1.99	335-76-2	
N-MeFOSAA*	Not detected	2.0	1.00	ng/L	1.99	2355-31-9	
EtFOSAA*	Not detected	4.0	1.00	ng/L	1.99	2991-50-6	
PFOS*	2.7	2.0	0.80	ng/L	1.99	1763-23-1	
PFOS-LN*	Not detected	2.0	0.80	ng/L	1.99	1763-23-1-LN	
PFOS-BR*	1.6	2.0	0.80	ng/L	1.99	1763-23-1-BR	J
PFUnDA*	Not detected	2.0	0.80	ng/L	1.99	2058-94-8	
PFNS*	Not detected	2.0	1.00	ng/L	1.99	68259-12-1	
PFDODA*	Not detected	2.0	0.60	ng/L	1.99	307-55-1	
PFDS*	Not detected	2.0	1.00	ng/L	1.99	335-77-3	
PFTTrDA*	Not detected	2.0	0.80	ng/L	1.99	72629-94-8	
FOSA*	Not detected	2.0	0.80	ng/L	1.99	754-91-6	
PFTeDA*	Not detected	4.0	0.60	ng/L	1.99	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.00	ng/L	1.99	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.00	ng/L	1.99	756426-58-1	
ADONA*	Not detected	2.0	0.60	ng/L	1.99	919005-14-4	
HFPO-DA*	Not detected	10.0	2.0	ng/L	1.99	13252-13-6	

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



Analytical Laboratory Report

Lab Sample ID: S60309.03
Sample Tag: MW-114S-240327
Collected Date/Time: 03/27/2024 17:19
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.18/6.57/11	ASTMD7979-19M	04/08/24 12:00	SRP	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/09/24 02:29, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	4.2	9.8	2.0	ng/L	1.96	375-22-4	J
PFPeA*	1.8	3.9	1.2	ng/L	1.96	2706-90-3	J
4:2 FTSA*	Not detected	2.0	0.20	ng/L	1.96	757124-72-4	
PFHxA*	1.5	2.0	1.2	ng/L	1.96	307-24-4	J
PFBS*	1.6	2.0	0.59	ng/L	1.96	375-73-5	J
PFHpA*	Not detected	2.0	0.78	ng/L	1.96	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.96	2706-91-4	
6:2 FTSA*	Not detected	2.0	0.98	ng/L	1.96	27619-97-2	
PFOA*	1.2	2.0	0.78	ng/L	1.96	335-67-1	J
PFHxS*	Not detected	2.0	0.98	ng/L	1.96	355-46-4	
PFHxS-LN*	Not detected	2.0	0.98	ng/L	1.96	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	0.98	ng/L	1.96	355-46-4-BR	
PFNA*	Not detected	2.0	0.98	ng/L	1.96	375-95-1	
8:2 FTSA*	Not detected	2.0	1.2	ng/L	1.96	39108-34-4	
PFHpS*	Not detected	2.0	0.78	ng/L	1.96	375-92-8	
PFDA*	Not detected	2.0	1.2	ng/L	1.96	335-76-2	
N-MeFOSAA*	Not detected	2.0	0.98	ng/L	1.96	2355-31-9	
EtFOSAA*	Not detected	3.9	0.98	ng/L	1.96	2991-50-6	
PFOS*	13	2.0	0.78	ng/L	1.96	1763-23-1	
PFOS-LN*	4.9	2.0	0.78	ng/L	1.96	1763-23-1-LN	
PFOS-BR*	6.7	2.0	0.78	ng/L	1.96	1763-23-1-BR	
PFUnDA*	Not detected	2.0	0.78	ng/L	1.96	2058-94-8	
PFNS*	Not detected	2.0	0.98	ng/L	1.96	68259-12-1	
PFDODA*	Not detected	2.0	0.59	ng/L	1.96	307-55-1	
PFDS*	Not detected	2.0	0.98	ng/L	1.96	335-77-3	
PFTTrDA*	Not detected	2.0	0.78	ng/L	1.96	72629-94-8	
FOSA*	Not detected	2.0	0.78	ng/L	1.96	754-91-6	
PFTeDA*	Not detected	3.9	0.59	ng/L	1.96	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	0.98	ng/L	1.96	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	0.98	ng/L	1.96	756426-58-1	
ADONA*	Not detected	2.0	0.59	ng/L	1.96	919005-14-4	
HFPO-DA*	Not detected	9.8	2.0	ng/L	1.96	13252-13-6	

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



Analytical Laboratory Report

Lab Sample ID: S60309.04
Sample Tag: Dup-1-240327
Collected Date/Time: 03/27/2024 00:01
Matrix: Water
COC Reference:

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.05/6.53/11	ASTMD7979-19M	04/08/24 12:00	SRP	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/09/24 02:49, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	4.4	10.0	2.0	ng/L	1.99	375-22-4	J
PFPeA*	1.4	4.0	1.2	ng/L	1.99	2706-90-3	J
4:2 FTSA*	Not detected	2.0	0.20	ng/L	1.99	757124-72-4	
PFHxA*	1.4	2.0	1.2	ng/L	1.99	307-24-4	J
PFBS*	1.6	2.0	0.60	ng/L	1.99	375-73-5	J
PFHpA*	Not detected	2.0	0.80	ng/L	1.99	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.99	2706-91-4	
6:2 FTSA*	Not detected	2.0	1.00	ng/L	1.99	27619-97-2	
PFOA*	1.5	2.0	0.80	ng/L	1.99	335-67-1	J
PFHxS*	Not detected	2.0	1.00	ng/L	1.99	355-46-4	
PFHxS-LN*	Not detected	2.0	1.00	ng/L	1.99	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.00	ng/L	1.99	355-46-4-BR	
PFNA*	Not detected	2.0	1.00	ng/L	1.99	375-95-1	
8:2 FTSA*	Not detected	2.0	1.2	ng/L	1.99	39108-34-4	
PFHpS*	Not detected	2.0	0.80	ng/L	1.99	375-92-8	
PFDA*	Not detected	2.0	1.2	ng/L	1.99	335-76-2	
N-MeFOSAA*	Not detected	2.0	1.00	ng/L	1.99	2355-31-9	
EtFOSAA*	Not detected	4.0	1.00	ng/L	1.99	2991-50-6	
PFOS*	15	2.0	0.80	ng/L	1.99	1763-23-1	
PFOS-LN*	7.3	2.0	0.80	ng/L	1.99	1763-23-1-LN	
PFOS-BR*	6.9	2.0	0.80	ng/L	1.99	1763-23-1-BR	
PFUnDA*	Not detected	2.0	0.80	ng/L	1.99	2058-94-8	
PFNS*	Not detected	2.0	1.00	ng/L	1.99	68259-12-1	
PFDODA*	Not detected	2.0	0.60	ng/L	1.99	307-55-1	
PFDS*	Not detected	2.0	1.00	ng/L	1.99	335-77-3	
PFTTrDA*	Not detected	2.0	0.80	ng/L	1.99	72629-94-8	
FOSA*	Not detected	2.0	0.80	ng/L	1.99	754-91-6	
PFTeDA*	Not detected	4.0	0.60	ng/L	1.99	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.00	ng/L	1.99	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.00	ng/L	1.99	756426-58-1	
ADONA*	Not detected	2.0	0.60	ng/L	1.99	919005-14-4	
HFPO-DA*	Not detected	10.0	2.0	ng/L	1.99	13252-13-6	

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

Merit Laboratories Login Checklist

Lab Set ID:S60309

Client:APPLIED (Applied Ecosystems)

Project: RACER Flint West #12990

Submitted:03/28/2024 12:05 Login User: MMC

Attention: Rodney Abke

Address: Applied Ecosystems
G4300 S. Saginaw Street
Burton, MI 48529

Phone: 810-715-2525

FAX:

Email: rabke@appliedecosystems.com

Selection	Description	Note
Sample Receiving		
01.	☒ Yes ☐ No ☐ N/A	Samples are received at 4C +/- 2C Thermometer # IR 3.6
02.	☒ Yes ☐ No ☐ N/A	Received on ice/ cooling process begun
03.	☐ Yes ☒ No ☐ N/A	Samples shipped
04.	☐ Yes ☒ No ☐ N/A	Samples left in 24 hr. drop box
05.	☐ Yes ☐ No ☒ N/A	Are there custody seals/tape or is the drop box locked
Chain of Custody		
06.	☒ Yes ☐ No ☐ N/A	COC adequately filled out
07.	☒ Yes ☐ No ☐ N/A	COC signed and relinquished to the lab
08.	☒ Yes ☐ No ☐ N/A	Sample tag on bottles match COC
09.	☐ Yes ☒ No ☐ N/A	Subcontracting needed? Subcontracted to:
Preservation		
10.	☒ Yes ☐ No ☐ N/A	Do sample have correct chemical preservation
11.	☐ Yes ☐ No ☒ N/A	Completed pH checks on preserved samples? (no VOAs)
12.	☐ Yes ☒ No ☐ N/A	Did any samples need to be preserved in the lab?
Bottle Conditions		
13.	☒ Yes ☐ No ☐ N/A	All bottles intact
14.	☒ Yes ☐ No ☐ N/A	Appropriate analytical bottles are used
15.	☒ Yes ☐ No ☐ N/A	Merit bottles used
16.	☒ Yes ☐ No ☐ N/A	Sufficient sample volume received
17.	☐ Yes ☒ No ☐ N/A	Samples require laboratory filtration
18.	☒ Yes ☐ No ☐ N/A	Samples submitted within holding time
19.	☐ Yes ☐ 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: _____

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Rodney Abke			
COMPANY Applied EcoSystems			
ADDRESS G-4300 South Saginaw Street			
CITY Burton			STATE MI ZIP CODE 48529
PHONE NO. 810-715-2525		FAX NO. 810-715-2526	P.O. NO. PO1107477
E-MAIL ADDRESS rabke@appliedecosystems.com			QUOTE NO.

CONTACT NAME		Monica Wallingford		☐ SAME	
COMPANY					
Revitalizing Auto Communities Environmental Response (RACER) Trust					
ADDRESS					
CITY				STATE	ZIP CODE
PHONE NO.		E-MAIL ADDRESS			
313.486.2978		mwallingford@racertrust.org			

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME RACER Flint West #12990	SAMPLER(S) - PLEASE PRINT/SIGN NAME
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____	
DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☒ OTHER <u>report to MDLs</u>	

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

Containers & Preservatives

MERIT LAB NO. FOR LAB USE ONLY	YEAR		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO ₃	H ₂ SO ₄	NaOH	MeOH	OTHER	PFAS						☐ Other _____ Special Instructions	
	DATE	TIME																		
60309.01	3/27	15:25	MW-112-240327	W	3	1								X						** - 28 Compound List
.02	3/27	16:34	MW-1095-240327	W	3	X								X						
		19																		report down to MDLs
.03	3/27	17:14	MW-1145-240327	W	3	X								X						
.04	3/27	-	Dup-1- 240327	W	3	X								X						

RELINQUISHED BY:	JPH DC	DATE	TIME
SIGNATURE/ORGANIZATION		3/27/24	15:00
RECEIVED BY:	DE	DATE	TIME
SIGNATURE/ORGANIZATION		3/27/24	17:00
RELINQUISHED BY:	AC	DATE	TIME
SIGNATURE/ORGANIZATION		3/28/24	11:00
RECEIVED BY:	Sam	DATE	TIME
SIGNATURE/ORGANIZATION		3/28/24	11:00

REL INQUIRED BY: SIGNATURE/ORGANIZATION		DATE 3/28/07		TIME 18:00	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 3/28/07		TIME 12:05	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES:	TEMP. ON ARRIVAL _____ 36	
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



Quality Control Report

Report ID: QC-S60263-01
Generated on 04/04/2024

Report to

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

Phone: 810-715-2525 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S60263.01-S60263.04
Project: RACER Flint West #12990
Submitted Date/Time: 03/27/2024 15:40
Sampled by: Unknown
P.O. #: PO1107477

QC Report Sections

Cover Page (Page 1)
Analysis Summary (Pages 2-5)
Prep Batch Summary (Pages 6-7)
Surrogates per Lab Sample (Pages 8-11)
Surrogates per QC Sample (Page 12)
Batch QC Results (Pages 13-20)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S60263.01

Sample Tag: Field Blank-1-240327

Collected Date/Time: 03/27/2024 10:27

Matrix: Water

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI, Dissolved	SM3500-Cr B	03/27/24 17:20	CHR240327-W1	CHR240327-W1	No	BLK/LCS/MS/DUP
Chromium VI	SM3500-Cr B	03/27/24 16:50	CHR240327-W1	CHR240327-W1	No	BLK/LCS/MS/DUP
Metals						
Arsenic, Dissolved	E200.8	03/29/24 14:53	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Arsenic	E200.8	03/29/24 14:52	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	03/29/24 14:53	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium	E200.8	03/29/24 14:52	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	03/29/24 14:53	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper	E200.8	03/29/24 14:52	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	03/29/24 14:53	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead	E200.8	03/29/24 14:52	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium, Dissolved	E200.8	03/29/24 14:53	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium	E200.8	03/29/24 14:52	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	03/29/24 14:53	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc	E200.8	03/29/24 14:52	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 14:33	240402A7	VF240402W2	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60263.02

Sample Tag: MW-104S-240327

Collected Date/Time: 03/27/2024 12:05

Matrix: Water

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI, Dissolved	SM3500-Cr B	03/27/24 17:25	CHR240327-W1	CHR240327-W1	No	BLK/LCS/MS/DUP
Chromium VI	SM3500-Cr B	03/27/24 17:05	CHR240327-W1	CHR240327-W1	No	BLK/LCS/MS/DUP
Metals						
Arsenic, Dissolved	E200.8	03/29/24 15:02	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Arsenic	E200.8	03/29/24 14:56	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	03/29/24 15:02	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium	E200.8	03/29/24 14:56	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	03/29/24 15:02	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper	E200.8	03/29/24 14:56	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	03/29/24 15:02	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead	E200.8	03/29/24 14:56	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium, Dissolved	E200.8	03/29/24 15:02	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium	E200.8	03/29/24 14:56	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	03/29/24 15:02	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc	E200.8	03/29/24 14:56	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 15:43	240402A7	VF240402W2	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60263.03

Sample Tag: MW-106SR-240327

Collected Date/Time: 03/27/2024 12:54

Matrix: Water

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI, Dissolved	SM3500-Cr B	03/27/24 17:30	CHR240327-W1	CHR240327-W1	No	BLK/LCS/MS/DUP
Chromium VI	SM3500-Cr B	03/27/24 17:10	CHR240327-W1	CHR240327-W1	No	BLK/LCS/MS/DUP
Metals						
Arsenic, Dissolved	E200.8	03/29/24 15:07	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Arsenic	E200.8	03/29/24 15:04	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	03/29/24 15:07	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium	E200.8	03/29/24 15:04	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	03/29/24 15:07	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper	E200.8	03/29/24 15:04	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	03/29/24 15:07	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead	E200.8	03/29/24 15:04	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium, Dissolved	E200.8	03/29/24 15:07	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium	E200.8	03/29/24 15:04	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	03/29/24 15:07	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc	E200.8	03/29/24 15:04	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 16:07	240402A7	VF240402W2	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60263.04

Sample Tag: MW-112S-240327

Collected Date/Time: 03/27/2024 14:03

Matrix: Water

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI, Dissolved	SM3500-Cr B	03/27/24 17:35	CHR240327-W1	CHR240327-W1	No	BLK/LCS/MS/DUP
Chromium VI	SM3500-Cr B	03/27/24 17:15	CHR240327-W1	CHR240327-W1	No	BLK/LCS/MS/DUP
Metals						
Arsenic, Dissolved	E200.8	03/29/24 15:11	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Arsenic	E200.8	03/29/24 15:09	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	03/29/24 15:11	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium	E200.8	03/29/24 15:09	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	03/29/24 15:11	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper	E200.8	03/29/24 15:09	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	03/29/24 15:11	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead	E200.8	03/29/24 15:09	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium, Dissolved	E200.8	03/29/24 15:11	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium	E200.8	03/29/24 15:09	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	03/29/24 15:11	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc	E200.8	03/29/24 15:09	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 16:30	240402A7	VF240402W2	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Inorganics, Prep Batch ID: CHR240327-W1

Surrogates: No, QC Types: BLK/LCS/MS/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60263.01	Chromium VI, Dissolved	SM3500-Cr B	03/27/24 17:20	CHR240327-W1
S60263.01	Chromium VI	SM3500-Cr B	03/27/24 16:50	CHR240327-W1
S60263.02	Chromium VI, Dissolved	SM3500-Cr B	03/27/24 17:25	CHR240327-W1
S60263.02	Chromium VI	SM3500-Cr B	03/27/24 17:05	CHR240327-W1
S60263.03	Chromium VI, Dissolved	SM3500-Cr B	03/27/24 17:30	CHR240327-W1
S60263.03	Chromium VI	SM3500-Cr B	03/27/24 17:10	CHR240327-W1
S60263.04	Chromium VI, Dissolved	SM3500-Cr B	03/27/24 17:35	CHR240327-W1
S60263.04	Chromium VI	SM3500-Cr B	03/27/24 17:15	CHR240327-W1

Metals, Prep Batch ID: MTD-032924-7

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60263.01	Arsenic, Dissolved	E200.8	03/29/24 14:53	MT4-24-0329C
S60263.01	Arsenic	E200.8	03/29/24 14:52	MT4-24-0329C
S60263.01	Chromium, Dissolved	E200.8	03/29/24 14:53	MT4-24-0329C
S60263.01	Chromium	E200.8	03/29/24 14:52	MT4-24-0329C
S60263.01	Copper, Dissolved	E200.8	03/29/24 14:53	MT4-24-0329C
S60263.01	Copper	E200.8	03/29/24 14:52	MT4-24-0329C
S60263.01	Lead, Dissolved	E200.8	03/29/24 14:53	MT4-24-0329C
S60263.01	Lead	E200.8	03/29/24 14:52	MT4-24-0329C
S60263.01	Selenium, Dissolved	E200.8	03/29/24 14:53	MT4-24-0329C
S60263.01	Selenium	E200.8	03/29/24 14:52	MT4-24-0329C
S60263.01	Zinc, Dissolved	E200.8	03/29/24 14:53	MT4-24-0329C
S60263.01	Zinc	E200.8	03/29/24 14:52	MT4-24-0329C
S60263.02	Arsenic, Dissolved	E200.8	03/29/24 15:02	MT4-24-0329C
S60263.02	Arsenic	E200.8	03/29/24 14:56	MT4-24-0329C
S60263.02	Chromium, Dissolved	E200.8	03/29/24 15:02	MT4-24-0329C
S60263.02	Chromium	E200.8	03/29/24 14:56	MT4-24-0329C
S60263.02	Copper, Dissolved	E200.8	03/29/24 15:02	MT4-24-0329C
S60263.02	Copper	E200.8	03/29/24 14:56	MT4-24-0329C
S60263.02	Lead, Dissolved	E200.8	03/29/24 15:02	MT4-24-0329C
S60263.02	Lead	E200.8	03/29/24 14:56	MT4-24-0329C
S60263.02	Selenium, Dissolved	E200.8	03/29/24 15:02	MT4-24-0329C
S60263.02	Selenium	E200.8	03/29/24 14:56	MT4-24-0329C
S60263.02	Zinc, Dissolved	E200.8	03/29/24 15:02	MT4-24-0329C
S60263.02	Zinc	E200.8	03/29/24 14:56	MT4-24-0329C
S60263.03	Arsenic, Dissolved	E200.8	03/29/24 15:07	MT4-24-0329C
S60263.03	Arsenic	E200.8	03/29/24 15:04	MT4-24-0329C
S60263.03	Chromium, Dissolved	E200.8	03/29/24 15:07	MT4-24-0329C
S60263.03	Chromium	E200.8	03/29/24 15:04	MT4-24-0329C
S60263.03	Copper, Dissolved	E200.8	03/29/24 15:07	MT4-24-0329C
S60263.03	Copper	E200.8	03/29/24 15:04	MT4-24-0329C
S60263.03	Lead, Dissolved	E200.8	03/29/24 15:07	MT4-24-0329C
S60263.03	Lead	E200.8	03/29/24 15:04	MT4-24-0329C
S60263.03	Selenium, Dissolved	E200.8	03/29/24 15:07	MT4-24-0329C
S60263.03	Selenium	E200.8	03/29/24 15:04	MT4-24-0329C
S60263.03	Zinc, Dissolved	E200.8	03/29/24 15:07	MT4-24-0329C
S60263.03	Zinc	E200.8	03/29/24 15:04	MT4-24-0329C
S60263.04	Arsenic, Dissolved	E200.8	03/29/24 15:11	MT4-24-0329C
S60263.04	Arsenic	E200.8	03/29/24 15:09	MT4-24-0329C

QC Report - Prep Batch Summary

Metals, Prep Batch ID: MTD-032924-7 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60263.04	Chromium, Dissolved	E200.8	03/29/24 15:11	MT4-24-0329C
S60263.04	Chromium	E200.8	03/29/24 15:09	MT4-24-0329C
S60263.04	Copper, Dissolved	E200.8	03/29/24 15:11	MT4-24-0329C
S60263.04	Copper	E200.8	03/29/24 15:09	MT4-24-0329C
S60263.04	Lead, Dissolved	E200.8	03/29/24 15:11	MT4-24-0329C
S60263.04	Lead	E200.8	03/29/24 15:09	MT4-24-0329C
S60263.04	Selenium, Dissolved	E200.8	03/29/24 15:11	MT4-24-0329C
S60263.04	Selenium	E200.8	03/29/24 15:09	MT4-24-0329C
S60263.04	Zinc, Dissolved	E200.8	03/29/24 15:11	MT4-24-0329C
S60263.04	Zinc	E200.8	03/29/24 15:09	MT4-24-0329C

Organics - Volatiles, Prep Batch ID: VF240402W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60263.01	Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 14:33	240402A7
S60263.02	Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 15:43	240402A7
S60263.03	Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 16:07	240402A7
S60263.04	Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 16:30	240402A7

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60263.01

Sample Tag: Field Blank-1-240327

Collected Date/Time: 03/27/2024 10:27

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240402A7, Run Date: 04/02/2024 14:33, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		101.4	80.0	124.0
1,2-Dichloroethane-D4		99.0	72.0	125.0
Toluene-D8		97.8	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60263.02

Sample Tag: MW-104S-240327

Collected Date/Time: 03/27/2024 12:05

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240402A7, Run Date: 04/02/2024 15:43, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		101.5	80.0	124.0
1,2-Dichloroethane-D4		102.0	72.0	125.0
Toluene-D8		98.4	89.0	112.0

Lab Sample ID: S60263.03
Sample Tag: MW-106SR-240327
Collected Date/Time: 03/27/2024 12:54
Matrix: Water
COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List
Run in Batch: 240402A7, Run Date: 04/02/2024 16:07, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		103.8	80.0	124.0
1,2-Dichloroethane-D4		102.5	72.0	125.0
Toluene-D8		96.8	89.0	112.0

Lab Sample ID: S60263.04
Sample Tag: MW-112S-240327
Collected Date/Time: 03/27/2024 14:03
Matrix: Water
COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240402A7, Run Date: 04/02/2024 16:30, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		101.9	80.0	124.0
1,2-Dichloroethane-D4		100.5	72.0	125.0
Toluene-D8		97.9	89.0	112.0

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VF240402W2

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240402A7.BLKW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 13:46, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		102.1	80.0	124.0
1,2-Dichloroethane-D4		98.4	72.0	125.0
Toluene-D8		97.5	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:12, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		100.3	80.0	124.0
1,2-Dichloroethane-D4		110.0	72.0	125.0
Toluene-D8		98.6	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240402A7.LCSDW02A, Parent Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:35, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		97.6	80.0	124.0
1,2-Dichloroethane-D4		100.5	72.0	125.0
Toluene-D8		98.5	89.0	112.0

QC Report - Batch QC Results

Inorganics, Prep Batch ID: CHR240327-W1

Surrogates: No, QC Types: BLK/LCS/MS/DUP

Blank (BLK)

Lab Sample ID: CHR240327-W1.LRB1

Run in Batch: CHR240327-W1, Run Date: 03/27/2024 16:30, Prep Date: 03/27/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Chromium VI		ND	0.01	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: CHR240327-W1.LCS1

Run in Batch: CHR240327-W1, Run Date: 03/27/2024 16:45, Prep Date: 03/27/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Chromium VI		106	90	110

Matrix Spike (MS)

Lab Sample ID: CHR240327-W1.MS1, Parent Sample ID: S60263.01

Run in Batch: CHR240327-W1, Run Date: 03/27/2024 17:00, Prep Date: 03/27/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Chromium VI		107	80	120

Duplicate (DUP)

Lab Sample ID: CHR240327-W1.DP1, Parent Sample ID: S60263.01

Run in Batch: CHR240327-W1, Run Date: 03/27/2024 16:55, Prep Date: 03/27/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Chromium VI		<1	15

QC Report - Batch QC Results

Metals, Prep Batch ID: MTD-032924-7

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Blank (BLK)

Lab Sample ID: MT4-24-0329C.018.LRB

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 14:49, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Arsenic		ND	0.0004	mg/L
Chromium		ND	0.001	mg/L
Copper		ND	0.001	mg/L
Lead		ND	0.0006	mg/L
Selenium		ND	0.001	mg/L
Zinc		ND	0.001	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: MT4-24-0329C.017.LCS

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 14:48, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Arsenic		102	85	115
Chromium		98	85	115
Copper		98	85	115
Lead		100	85	115
Selenium		106	85	115
Zinc		100	85	115

Matrix Spike (MS)

Lab Sample ID: MT4-24-0329C.037.MS, Parent Sample ID: S60296.01

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 15:18, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		107	75	125
Chromium		108	75	125
Copper		102	75	125
Lead		101	75	125
Selenium		104	75	125
Zinc		103	75	125

Matrix Spike (MS)

Lab Sample ID: MT4-24-0329C.058.MS, Parent Sample ID: S60297.01

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 15:49, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		106	75	125
Chromium		101	75	125
Copper		93	75	125
Lead		95	75	125
Selenium		101	75	125
Zinc		96	75	125

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-24-0329C.038.MSD, Parent Sample ID: MT4-24-0329C.037.MS

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 15:19, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		110	75	125	3	20
Chromium		108	75	125	1	20

QC Report - Batch QC Results

Metals, Prep Batch ID: MTD-032924-7 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: MT4-24-0329C.038.MSD, Parent Sample ID: MT4-24-0329C.037.MS

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 15:19, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Copper		102	75	125	0	20
Lead		100	75	125	2	20
Selenium		107	75	125	3	20
Zinc		102	75	125	0	20

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-24-0329C.059.MSD, Parent Sample ID: MT4-24-0329C.058.MS

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 15:50, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		104	75	125	2	20
Chromium		98	75	125	3	20
Copper		95	75	125	2	20
Lead		95	75	125	0	20
Selenium		101	75	125	0	20
Zinc		97	75	125	1	20

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240402W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240402A7.BLKW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 13:46, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240402W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 240402A7.BLKW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 13:46, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:12, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		108.5	67.4	121.2
Acetone		101.1	29.9	161.5
Methyl iodide		108.0	68.8	116.4
Carbon disulfide		107.1	63.8	137.4
tert-Methyl butyl ether (MTBE)		115.2	73.2	122.4
Acrylonitrile		111.4	69.9	128.9
2-Butanone (MEK)		100.6	44.0	134.4
Dichlorodifluoromethane		104.5	10.0	222.8
Chloromethane		106.3	23.8	166.5
Vinyl chloride		101.5	43.5	149.1
Bromomethane		105.2	56.8	151.3
Chloroethane		103.0	53.4	149.4
Trichlorofluoromethane		97.7	59.7	151.8
1,1-Dichloroethene		99.0	69.6	139.4
Methylene chloride		111.6	73.3	121.1
trans-1,2-Dichloroethene		107.9	73.6	129.3
1,1-Dichloroethane		110.8	71.5	126.2
cis-1,2-Dichloroethene		111.6	76.6	122.1
Tetrahydrofuran		107.7	59.0	117.9
Chloroform		109.3	78.4	124.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240402W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:12, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		114.3	78.2	120.8
1,1,1-Trichloroethane		106.9	79.4	130.9
4-Methyl-2-pentanone (MIBK)		106.9	71.6	125.2
2-Hexanone		105.8	55.4	136.9
Carbon tetrachloride		103.5	72.6	133.0
Benzene		106.6	79.9	124.9
1,2-Dichloroethane		109.3	76.0	126.3
Trichloroethene		105.1	79.7	124.2
1,2-Dichloropropane		111.0	78.6	126.4
Bromodichloromethane		115.4	80.4	128.2
Dibromomethane		111.2	76.9	122.1
cis-1,3-Dichloropropene		119.8	79.8	129.9
Toluene		104.6	79.8	124.5
trans-1,3-Dichloropropene		112.0	74.0	131.3
1,1,2-Trichloroethane		109.9	78.7	123.1
Tetrachloroethene		100.4	74.5	124.5
trans-1,4-Dichloro-2-butene		116.8	68.6	135.4
Dibromochloromethane		118.7	74.6	127.2
1,2-Dibromoethane		112.0	70.3	133.7
Chlorobenzene		106.9	79.2	122.7
1,1,1,2-Tetrachloroethane		115.1	80.3	128.2
Ethylbenzene		105.4	79.5	129.1
p,m-Xylene		105.1	79.4	132.2
o-Xylene		106.3	80.2	131.0
Styrene		110.0	69.5	126.7
Isopropylbenzene		102.3	74.4	121.5
Bromoform		116.3	69.4	128.0
1,1,2,2-Tetrachloroethane		106.5	79.8	126.3
1,2,3-Trichloropropane		103.9	78.3	138.8
n-Propylbenzene		101.8	82.0	130.7
Bromobenzene		109.1	78.7	124.6
1,3,5-Trimethylbenzene		102.1	81.3	128.9
tert-Butylbenzene		101.1	80.7	128.9
1,2,4-Trimethylbenzene		105.0	81.4	130.8
sec-Butylbenzene		98.5	77.4	129.8
p-Isopropyltoluene		98.6	79.8	137.5
1,3-Dichlorobenzene		106.6	77.0	131.3
1,4-Dichlorobenzene		107.8	20.7	137.7
1,2-Dichlorobenzene		107.1	10.0	166.2
1,2,3-Trimethylbenzene		107.0	76.3	124.2
n-Butylbenzene		99.6	80.0	133.3
Hexachloroethane		98.4	23.8	138.1
1,2-Dibromo-3-chloropropane		98.1	21.2	189.4
1,2,4-Trichlorobenzene		108.3	27.4	143.4
1,2,3-Trichlorobenzene		107.5	75.4	131.4
Naphthalene		106.0	32.9	135.8

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240402W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:12, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		92.4	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240402A7.LCSDW02A, Parent Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:35, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		102.8	67.4	121.2	5.4	30.0
Acetone		99.3	29.9	161.5	1.9	30.0
Methyl iodide		103.6	68.8	116.4	4.2	30.0
Carbon disulfide		103.5	63.8	137.4	3.4	30.0
tert-Methyl butyl ether (MTBE)		109.7	73.2	122.4	4.9	30.0
Acrylonitrile		110.1	69.9	128.9	1.2	30.0
2-Butanone (MEK)		98.7	44.0	134.4	1.9	30.0
Dichlorodifluoromethane		98.5	10.0	222.8	5.9	30.0
Chloromethane		103.9	23.8	166.5	2.3	30.0
Vinyl chloride		97.9	43.5	149.1	3.6	30.0
Bromomethane		100.5	56.8	151.3	4.6	30.0
Chloroethane		99.3	53.4	149.4	3.7	30.0
Trichlorofluoromethane		94.3	59.7	151.8	3.5	30.0
1,1-Dichloroethene		96.3	69.6	139.4	2.8	30.0
Methylene chloride		105.3	73.3	121.1	5.8	30.0
trans-1,2-Dichloroethene		105.1	73.6	129.3	2.7	30.0
1,1-Dichloroethane		107.2	71.5	126.2	3.3	30.0
cis-1,2-Dichloroethene		106.4	76.6	122.1	4.8	30.0
Tetrahydrofuran		104.0	59.0	117.9	3.5	30.0
Chloroform		104.5	78.4	124.0	4.5	30.0
Bromochloromethane		106.9	78.2	120.8	6.7	30.0
1,1,1-Trichloroethane		103.6	79.4	130.9	3.1	30.0
4-Methyl-2-pentanone (MIBK)		106.4	71.6	125.2	0.5	30.0
2-Hexanone		103.1	55.4	136.9	2.5	30.0
Carbon tetrachloride		102.2	72.6	133.0	1.3	30.0
Benzene		103.7	79.9	124.9	2.8	30.0
1,2-Dichloroethane		105.2	76.0	126.3	3.8	30.0
Trichloroethene		103.0	79.7	124.2	2.0	30.0
1,2-Dichloropropane		107.3	78.6	126.4	3.3	30.0
Bromodichloromethane		109.9	80.4	128.2	4.9	30.0
Dibromomethane		107.4	76.9	122.1	3.4	30.0
cis-1,3-Dichloropropene		114.2	79.8	129.9	4.8	30.0
Toluene		102.0	79.8	124.5	2.5	30.0
trans-1,3-Dichloropropene		106.5	74.0	131.3	5.0	30.0
1,1,2-Trichloroethane		105.4	78.7	123.1	4.1	30.0
Tetrachloroethene		98.6	74.5	124.5	1.8	30.0
trans-1,4-Dichloro-2-butene		101.9	68.6	135.4	13.6	30.0
Dibromochloromethane		113.0	74.6	127.2	4.9	30.0
1,2-Dibromoethane		107.4	70.3	133.7	4.2	30.0
Chlorobenzene		102.0	79.2	122.7	4.7	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240402W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240402A7.LCSDW02A, Parent Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:35, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		110.2	80.3	128.2	4.4	30.0
Ethylbenzene		102.3	79.5	129.1	3.0	30.0
p,m-Xylene		102.3	79.4	132.2	2.7	30.0
o-Xylene		103.0	80.2	131.0	3.2	30.0
Styrene		105.6	69.5	126.7	4.1	30.0
Isopropylbenzene		100.1	74.4	121.5	2.2	30.0
Bromoform		112.1	69.4	128.0	3.7	30.0
1,1,2,2-Tetrachloroethane		103.0	79.8	126.3	3.3	30.0
1,2,3-Trichloropropane		100.1	78.3	138.8	3.8	30.0
n-Propylbenzene		99.6	82.0	130.7	2.2	30.0
Bromobenzene		103.3	78.7	124.6	5.5	30.0
1,3,5-Trimethylbenzene		100.2	81.3	128.9	1.9	30.0
tert-Butylbenzene		98.8	80.7	128.9	2.4	30.0
1,2,4-Trimethylbenzene		100.7	81.4	130.8	4.2	30.0
sec-Butylbenzene		101.5	77.4	129.8	3.0	30.0
p-Isopropyltoluene		101.0	79.8	137.5	2.4	30.0
1,3-Dichlorobenzene		106.3	77.0	131.3	0.3	30.0
1,4-Dichlorobenzene		105.1	20.7	137.7	2.6	30.0
1,2-Dichlorobenzene		105.7	10.0	166.2	1.3	30.0
1,2,3-Trimethylbenzene		107.4	76.3	124.2	0.4	30.0
n-Butylbenzene		103.2	80.0	133.3	3.6	30.0
Hexachloroethane		100.0	23.8	138.1	1.7	30.0
1,2-Dibromo-3-chloropropane		99.3	21.2	189.4	1.3	30.0
1,2,4-Trichlorobenzene		107.8	27.4	143.4	0.4	30.0
1,2,3-Trichlorobenzene		107.5	75.4	131.4	0.0	30.0
Naphthalene		105.3	32.9	135.8	0.7	30.0
2-Methylnaphthalene		95.4	25.5	165.5	3.1	30.0

REPORT TO

CONTACT NAME Rodney Abke			
COMPANY Applied EcoSystems			
ADDRESS G-4300 South Saginaw Street			
CITY Burton			STATE MI ZIP CODE 48529
PHONE NO. 810-715-2525		FAX NO. 810-715-2526	P.O. NO. PO1107477
E-MAIL ADDRESS rabke@appliedecosystems.com			QUOTE NO.

CHAIN OF CUSTODY RECORD

CONTACT NAME		Monica Wallingford		☐ SAME	
COMPANY					
Revitalizing Auto Communities Environmental Response (RACER) Trust					
ADDRESS					
CITY				STATE	ZIP CODE
PHONE NO.		E-MAIL ADDRESS			
313.486.2978		mwallingford@racertrust.org			

INVOICE TO

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME	RACER Flint West #12990	SAMPLER(S) - PLEASE PRINT/SIGN NAME
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____		
DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☒ OTHER <u>report to MDLs</u>		

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

Containers & Preservatives

Certifications

☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations

☐ Detroit ☐ New York☐ Other

Special Instructions

* - Metals list includes:
As, Cr-total, CR-Hex, C
Pb, Se, Zn

report down to MCLs

[illegible]

RELINQUISHED BY: SIGNATURE/ORGANIZATION	<i>J. H. [Signature]</i>	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>	3/6/04	14:00
RELINQUISHED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>	3/6/04	14:00

RELINQUISHED BY: SIGNATURE/ORGANIZATION			DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION			DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL _____ 2.8	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS		

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



Quality Control Report

Report ID: QC-S60296-01
Generated on 04/09/2024

Report to

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

Phone: 810-715-2525 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S60296.01-S60296.06
Project: RACER Flint West #12990
Submitted Date/Time: 03/28/2024 12:05
Sampled by: Unknown
P.O. #: PO1107477

QC Report Sections

Cover Page (Page 1)
Analysis Summary (Pages 2-7)
Prep Batch Summary (Pages 8-9)
Surrogates per Lab Sample (Pages 10-13)
Surrogates per QC Sample (Pages 14-16)
Batch QC Results (Pages 17-33)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S60296.01

Sample Tag: MW-117S-240327

Collected Date/Time: 03/28/2024 08:31

Matrix: Water

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI, Dissolved	SM3500-Cr B	03/28/24 14:45	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Chromium VI	SM3500-Cr B	03/28/24 13:50	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Metals						
Arsenic, Dissolved	E200.8	03/29/24 15:16	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Arsenic	E200.8	03/29/24 15:14	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	03/29/24 15:16	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium	E200.8	03/29/24 15:14	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	03/29/24 15:16	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper	E200.8	03/29/24 15:14	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	03/29/24 15:16	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead	E200.8	03/29/24 15:14	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium, Dissolved	E200.8	03/29/24 15:16	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium	E200.8	03/29/24 15:14	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	03/29/24 15:16	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc	E200.8	03/29/24 15:14	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 16:54	240402A7	VF240402W2	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60296.02

Sample Tag: MW-103S-240327

Collected Date/Time: 03/28/2024 09:43

Matrix: Water

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI, Dissolved	SM3500-Cr B	03/28/24 14:50	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Chromium VI	SM3500-Cr B	03/28/24 14:05	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Metals						
Arsenic, Dissolved	E200.8	03/29/24 15:32	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Arsenic	E200.8	03/29/24 15:29	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	03/29/24 15:32	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium	E200.8	03/29/24 15:29	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	03/29/24 15:32	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper	E200.8	03/29/24 15:29	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	03/29/24 15:32	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead	E200.8	03/29/24 15:29	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium, Dissolved	E200.8	03/29/24 15:32	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium	E200.8	03/29/24 15:29	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	03/29/24 15:32	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc	E200.8	03/29/24 15:29	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	04/04/24 18:09	240404A7	VF240404W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60296.03

Sample Tag: MS(MW-103S-240327)

Collected Date/Time: 03/28/2024 09:43

Matrix: Water

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI, Dissolved	SM3500-Cr B	03/28/24 14:55	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Chromium VI	SM3500-Cr B	03/28/24 14:10	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Metals						
Arsenic, Dissolved	E200.8	03/29/24 15:38	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Arsenic	E200.8	03/29/24 15:35	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	03/29/24 15:38	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium	E200.8	03/29/24 15:35	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	03/29/24 15:38	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper	E200.8	03/29/24 15:35	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	03/29/24 15:38	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead	E200.8	03/29/24 15:35	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium, Dissolved	E200.8	03/29/24 15:38	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium	E200.8	03/29/24 15:35	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	03/29/24 15:38	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc	E200.8	03/29/24 15:35	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	04/04/24 22:22	240404A7	VF240404W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60296.04

Sample Tag: MSD(MW-103S-240327)

Collected Date/Time: 03/28/2024 09:43

Matrix: Water

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI, Dissolved	SM3500-Cr B	03/28/24 15:00	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Chromium VI	SM3500-Cr B	03/28/24 14:15	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Metals						
Arsenic, Dissolved	E200.8	03/29/24 15:43	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Arsenic	E200.8	03/29/24 15:41	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	03/29/24 15:43	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium	E200.8	03/29/24 15:41	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	03/29/24 15:43	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper	E200.8	03/29/24 15:41	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	03/29/24 15:43	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead	E200.8	03/29/24 15:41	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium, Dissolved	E200.8	03/29/24 15:43	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium	E200.8	03/29/24 15:41	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	03/29/24 15:43	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc	E200.8	03/29/24 15:41	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	04/04/24 22:46	240404A7	VF240404W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60296.05

Sample Tag: EB-1-240327

Collected Date/Time: 03/28/2024 10:01

Matrix: Water

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI, Dissolved	SM3500-Cr B	03/28/24 15:05	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Chromium VI	SM3500-Cr B	03/28/24 14:20	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Metals						
Arsenic, Dissolved	E200.8	03/29/24 15:27	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Arsenic	E200.8	03/29/24 15:25	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	03/29/24 15:27	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium	E200.8	03/29/24 15:25	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	03/29/24 15:27	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper	E200.8	03/29/24 15:25	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	03/29/24 15:27	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead	E200.8	03/29/24 15:25	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium, Dissolved	E200.8	03/29/24 15:27	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium	E200.8	03/29/24 15:25	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	03/29/24 15:27	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc	E200.8	03/29/24 15:25	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 14:56	240402A7	VF240402W2	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60296.06
Sample Tag: Trip Blank-240327
Collected Date/Time: 03/27/2024 09:00
Matrix: Water
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 15:20	240402A7	VF240402W2	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Inorganics, Prep Batch ID: CHR240328-W1

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60296.01	Chromium VI, Dissolved	SM3500-Cr B	03/28/24 14:45	CHR240328-W1
S60296.01	Chromium VI	SM3500-Cr B	03/28/24 13:50	CHR240328-W1
S60296.02	Chromium VI, Dissolved	SM3500-Cr B	03/28/24 14:50	CHR240328-W1
S60296.02	Chromium VI	SM3500-Cr B	03/28/24 14:05	CHR240328-W1
S60296.03	Chromium VI, Dissolved	SM3500-Cr B	03/28/24 14:55	CHR240328-W1
S60296.03	Chromium VI	SM3500-Cr B	03/28/24 14:10	CHR240328-W1
S60296.04	Chromium VI, Dissolved	SM3500-Cr B	03/28/24 15:00	CHR240328-W1
S60296.04	Chromium VI	SM3500-Cr B	03/28/24 14:15	CHR240328-W1
S60296.05	Chromium VI, Dissolved	SM3500-Cr B	03/28/24 15:05	CHR240328-W1
S60296.05	Chromium VI	SM3500-Cr B	03/28/24 14:20	CHR240328-W1

Metals, Prep Batch ID: MTD-032924-7

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60296.01	Arsenic, Dissolved	E200.8	03/29/24 15:16	MT4-24-0329C
S60296.01	Arsenic	E200.8	03/29/24 15:14	MT4-24-0329C
S60296.01	Chromium, Dissolved	E200.8	03/29/24 15:16	MT4-24-0329C
S60296.01	Chromium	E200.8	03/29/24 15:14	MT4-24-0329C
S60296.01	Copper, Dissolved	E200.8	03/29/24 15:16	MT4-24-0329C
S60296.01	Copper	E200.8	03/29/24 15:14	MT4-24-0329C
S60296.01	Lead, Dissolved	E200.8	03/29/24 15:16	MT4-24-0329C
S60296.01	Lead	E200.8	03/29/24 15:14	MT4-24-0329C
S60296.01	Selenium, Dissolved	E200.8	03/29/24 15:16	MT4-24-0329C
S60296.01	Selenium	E200.8	03/29/24 15:14	MT4-24-0329C
S60296.01	Zinc, Dissolved	E200.8	03/29/24 15:16	MT4-24-0329C
S60296.01	Zinc	E200.8	03/29/24 15:14	MT4-24-0329C
S60296.02	Arsenic, Dissolved	E200.8	03/29/24 15:32	MT4-24-0329C
S60296.02	Arsenic	E200.8	03/29/24 15:29	MT4-24-0329C
S60296.02	Chromium, Dissolved	E200.8	03/29/24 15:32	MT4-24-0329C
S60296.02	Chromium	E200.8	03/29/24 15:29	MT4-24-0329C
S60296.02	Copper, Dissolved	E200.8	03/29/24 15:32	MT4-24-0329C
S60296.02	Copper	E200.8	03/29/24 15:29	MT4-24-0329C
S60296.02	Lead, Dissolved	E200.8	03/29/24 15:32	MT4-24-0329C
S60296.02	Lead	E200.8	03/29/24 15:29	MT4-24-0329C
S60296.02	Selenium, Dissolved	E200.8	03/29/24 15:32	MT4-24-0329C
S60296.02	Selenium	E200.8	03/29/24 15:29	MT4-24-0329C
S60296.02	Zinc, Dissolved	E200.8	03/29/24 15:32	MT4-24-0329C
S60296.02	Zinc	E200.8	03/29/24 15:29	MT4-24-0329C
S60296.03	Arsenic, Dissolved	E200.8	03/29/24 15:38	MT4-24-0329C
S60296.03	Arsenic	E200.8	03/29/24 15:35	MT4-24-0329C
S60296.03	Chromium, Dissolved	E200.8	03/29/24 15:38	MT4-24-0329C
S60296.03	Chromium	E200.8	03/29/24 15:35	MT4-24-0329C
S60296.03	Copper, Dissolved	E200.8	03/29/24 15:38	MT4-24-0329C
S60296.03	Copper	E200.8	03/29/24 15:35	MT4-24-0329C
S60296.03	Lead, Dissolved	E200.8	03/29/24 15:38	MT4-24-0329C
S60296.03	Lead	E200.8	03/29/24 15:35	MT4-24-0329C
S60296.03	Selenium, Dissolved	E200.8	03/29/24 15:38	MT4-24-0329C
S60296.03	Selenium	E200.8	03/29/24 15:35	MT4-24-0329C
S60296.03	Zinc, Dissolved	E200.8	03/29/24 15:38	MT4-24-0329C
S60296.03	Zinc	E200.8	03/29/24 15:35	MT4-24-0329C

QC Report - Prep Batch Summary

Metals, Prep Batch ID: MTD-032924-7 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60296.04	Arsenic, Dissolved	E200.8	03/29/24 15:43	MT4-24-0329C
S60296.04	Arsenic	E200.8	03/29/24 15:41	MT4-24-0329C
S60296.04	Chromium, Dissolved	E200.8	03/29/24 15:43	MT4-24-0329C
S60296.04	Chromium	E200.8	03/29/24 15:41	MT4-24-0329C
S60296.04	Copper, Dissolved	E200.8	03/29/24 15:43	MT4-24-0329C
S60296.04	Copper	E200.8	03/29/24 15:41	MT4-24-0329C
S60296.04	Lead, Dissolved	E200.8	03/29/24 15:43	MT4-24-0329C
S60296.04	Lead	E200.8	03/29/24 15:41	MT4-24-0329C
S60296.04	Selenium, Dissolved	E200.8	03/29/24 15:43	MT4-24-0329C
S60296.04	Selenium	E200.8	03/29/24 15:41	MT4-24-0329C
S60296.04	Zinc, Dissolved	E200.8	03/29/24 15:43	MT4-24-0329C
S60296.04	Zinc	E200.8	03/29/24 15:41	MT4-24-0329C
S60296.05	Arsenic, Dissolved	E200.8	03/29/24 15:27	MT4-24-0329C
S60296.05	Arsenic	E200.8	03/29/24 15:25	MT4-24-0329C
S60296.05	Chromium, Dissolved	E200.8	03/29/24 15:27	MT4-24-0329C
S60296.05	Chromium	E200.8	03/29/24 15:25	MT4-24-0329C
S60296.05	Copper, Dissolved	E200.8	03/29/24 15:27	MT4-24-0329C
S60296.05	Copper	E200.8	03/29/24 15:25	MT4-24-0329C
S60296.05	Lead, Dissolved	E200.8	03/29/24 15:27	MT4-24-0329C
S60296.05	Lead	E200.8	03/29/24 15:25	MT4-24-0329C
S60296.05	Selenium, Dissolved	E200.8	03/29/24 15:27	MT4-24-0329C
S60296.05	Selenium	E200.8	03/29/24 15:25	MT4-24-0329C
S60296.05	Zinc, Dissolved	E200.8	03/29/24 15:27	MT4-24-0329C
S60296.05	Zinc	E200.8	03/29/24 15:25	MT4-24-0329C

Organics - Volatiles, Prep Batch ID: VF240402W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60296.01	Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 16:54	240402A7
S60296.05	Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 14:56	240402A7
S60296.06	Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 15:20	240402A7

Organics - Volatiles, Prep Batch ID: VF240404W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60296.02	Volatile Organics - DEQ List	SW5030C/8260C	04/04/24 18:09	240404A7
S60296.03	Volatile Organics - DEQ List	SW5030C/8260C	04/04/24 22:22	240404A7
S60296.04	Volatile Organics - DEQ List	SW5030C/8260C	04/04/24 22:46	240404A7

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60296.01

Sample Tag: MW-117S-240327

Collected Date/Time: 03/28/2024 08:31

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240402A7, Run Date: 04/02/2024 16:54, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		102.6	80.0	124.0
1,2-Dichloroethane-D4		103.5	72.0	125.0
Toluene-D8		96.7	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60296.02

Sample Tag: MW-103S-240327

Collected Date/Time: 03/28/2024 09:43

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240404A7, Run Date: 04/04/2024 18:09, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		101.9	80.0	124.0
1,2-Dichloroethane-D4		103.4	72.0	125.0
Toluene-D8		97.5	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60296.05

Sample Tag: EB-1-240327

Collected Date/Time: 03/28/2024 10:01

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240402A7, Run Date: 04/02/2024 14:56, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		102.7	80.0	124.0
1,2-Dichloroethane-D4		107.5	72.0	125.0
Toluene-D8		98.0	89.0	112.0

Lab Sample ID: S60296.06
Sample Tag: Trip Blank-240327
Collected Date/Time: 03/27/2024 09:00
Matrix: Water
COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240402A7, Run Date: 04/02/2024 15:20, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		100.7	80.0	124.0
1,2-Dichloroethane-D4		98.7	72.0	125.0
Toluene-D8		97.1	89.0	112.0

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VF240402W2

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240402A7.BLKW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 13:46, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		102.1	80.0	124.0
1,2-Dichloroethane-D4		98.4	72.0	125.0
Toluene-D8		97.5	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:12, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		100.3	80.0	124.0
1,2-Dichloroethane-D4		110.0	72.0	125.0
Toluene-D8		98.6	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240402A7.LCSDW02A, Parent Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:35, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		97.6	80.0	124.0
1,2-Dichloroethane-D4		100.5	72.0	125.0
Toluene-D8		98.5	89.0	112.0

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VF240404W1

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240404A7.BLKW04A

Run in Batch: 240404A7, Run Date: 04/04/2024 14:13, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		103.5	80.0	124.0
1,2-Dichloroethane-D4		108.9	72.0	125.0
Toluene-D8		97.5	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240404A7.LCSW04A

Run in Batch: 240404A7, Run Date: 04/04/2024 12:38, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		98.6	80.0	124.0
1,2-Dichloroethane-D4		106.1	72.0	125.0
Toluene-D8		99.8	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240404A7.LCSDW04A, Parent Sample ID: 240404A7.LCSW04A

Run in Batch: 240404A7, Run Date: 04/04/2024 13:02, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		100.2	80.0	124.0
1,2-Dichloroethane-D4		107.6	72.0	125.0
Toluene-D8		97.8	89.0	112.0

Matrix Spike (MS)

Lab Sample ID: 240404A7.6029603M, Parent Sample ID: S60296.02

Run in Batch: 240404A7, Run Date: 04/04/2024 22:22, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		96.5	80.0	124.0
1,2-Dichloroethane-D4		99.7	72.0	125.0
Toluene-D8		98.3	89.0	112.0

Matrix Spike (MS)

Lab Sample ID: 240404A7.6039009M, Parent Sample ID: S60390.06

Run in Batch: 240404A7, Run Date: 04/04/2024 21:35, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		97.8	80.0	124.0
1,2-Dichloroethane-D4		100.1	72.0	125.0
Toluene-D8		98.9	89.0	112.0

QC Report - Surrogates per QC Sample

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240404A7.6029604N, Parent Sample ID: 240404A7.6029603M

Run in Batch: 240404A7, Run Date: 04/04/2024 22:46, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		100.7	80.0	124.0
1,2-Dichloroethane-D4		102.9	72.0	125.0
Toluene-D8		99.0	89.0	112.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240404A7.6039010N, Parent Sample ID: 240404A7.6039009M

Run in Batch: 240404A7, Run Date: 04/04/2024 21:58, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		99.6	80.0	124.0
1,2-Dichloroethane-D4		100.1	72.0	125.0
Toluene-D8		99.1	89.0	112.0

QC Report - Batch QC Results

Inorganics, Prep Batch ID: CHR240328-W1

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

Blank (BLK)

Lab Sample ID: CHR240328-W1.LRB1

Run in Batch: CHR240328-W1, Run Date: 03/28/2024 13:30, Prep Date: 03/28/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Chromium VI		ND	0.01	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: CHR240328-W1.LCS1

Run in Batch: CHR240328-W1, Run Date: 03/28/2024 13:45, Prep Date: 03/28/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Chromium VI		109	90	110

Matrix Spike (MS)

Lab Sample ID: CHR240328-W1.MS1, Parent Sample ID: S60296.02

Run in Batch: CHR240328-W1, Run Date: 03/28/2024 14:10, Prep Date: 03/28/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Chromium VI		80	80	120

Matrix Spike (MS)

Lab Sample ID: CHR240328-W1.MS2, Parent Sample ID: S60296.02

Run in Batch: CHR240328-W1, Run Date: 03/28/2024 14:55, Prep Date: 03/28/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Chromium VI	*	8	80	120

Matrix Spike Duplicate (MSD)

Lab Sample ID: CHR240328-W1.MSD1, Parent Sample ID: CHR240328-W1.MS1

Run in Batch: CHR240328-W1, Run Date: 03/28/2024 14:15, Prep Date: 03/28/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Chromium VI		86	80	120	6	15

Matrix Spike Duplicate (MSD)

Lab Sample ID: CHR240328-W1.MSD2, Parent Sample ID: CHR240328-W1.MS2

Run in Batch: CHR240328-W1, Run Date: 03/28/2024 15:00, Prep Date: 03/28/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Chromium VI	*	11	80	120	19	15

Duplicate (DUP)

Lab Sample ID: CHR240328-W1.DP1, Parent Sample ID: S60296.01

Run in Batch: CHR240328-W1, Run Date: 03/28/2024 13:55, Prep Date: 03/28/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Chromium VI		<1	15

QC Report - Batch QC Results

Metals, Prep Batch ID: MTD-032924-7

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Blank (BLK)

Lab Sample ID: MT4-24-0329C.018.LRB

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 14:49, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Arsenic		ND	0.0004	mg/L
Chromium		ND	0.001	mg/L
Copper		ND	0.001	mg/L
Lead		ND	0.0006	mg/L
Selenium		ND	0.001	mg/L
Zinc		ND	0.001	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: MT4-24-0329C.017.LCS

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 14:48, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Arsenic		102	85	115
Chromium		98	85	115
Copper		98	85	115
Lead		100	85	115
Selenium		106	85	115
Zinc		100	85	115

Matrix Spike (MS)

Lab Sample ID: MT4-24-0329C.037.MS, Parent Sample ID: S60296.01

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 15:18, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		107	75	125
Chromium		108	75	125
Copper		102	75	125
Lead		101	75	125
Selenium		104	75	125
Zinc		103	75	125

Matrix Spike (MS)

Lab Sample ID: MT4-24-0329C.058.MS, Parent Sample ID: S60297.01

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 15:49, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		106	75	125
Chromium		101	75	125
Copper		93	75	125
Lead		95	75	125
Selenium		101	75	125
Zinc		96	75	125

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-24-0329C.038.MSD, Parent Sample ID: MT4-24-0329C.037.MS

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 15:19, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		110	75	125	3	20
Chromium		108	75	125	1	20

QC Report - Batch QC Results

Metals, Prep Batch ID: MTD-032924-7 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: MT4-24-0329C.038.MSD, Parent Sample ID: MT4-24-0329C.037.MS

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 15:19, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Copper		102	75	125	0	20
Lead		100	75	125	2	20
Selenium		107	75	125	3	20
Zinc		102	75	125	0	20

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-24-0329C.059.MSD, Parent Sample ID: MT4-24-0329C.058.MS

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 15:50, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		104	75	125	2	20
Chromium		98	75	125	3	20
Copper		95	75	125	2	20
Lead		95	75	125	0	20
Selenium		101	75	125	0	20
Zinc		97	75	125	1	20

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240402W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240402A7.BLKW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 13:46, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

Organics - Volatiles, Prep Batch ID: VF240402W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 240402A7.BLKW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 13:46, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:12, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		108.5	67.4	121.2
Acetone		101.1	29.9	161.5
Methyl iodide		108.0	68.8	116.4
Carbon disulfide		107.1	63.8	137.4
tert-Methyl butyl ether (MTBE)		115.2	73.2	122.4
Acrylonitrile		111.4	69.9	128.9
2-Butanone (MEK)		100.6	44.0	134.4
Dichlorodifluoromethane		104.5	10.0	222.8
Chloromethane		106.3	23.8	166.5
Vinyl chloride		101.5	43.5	149.1
Bromomethane		105.2	56.8	151.3
Chloroethane		103.0	53.4	149.4
Trichlorofluoromethane		97.7	59.7	151.8
1,1-Dichloroethene		99.0	69.6	139.4
Methylene chloride		111.6	73.3	121.1
trans-1,2-Dichloroethene		107.9	73.6	129.3
1,1-Dichloroethane		110.8	71.5	126.2
cis-1,2-Dichloroethene		111.6	76.6	122.1
Tetrahydrofuran		107.7	59.0	117.9
Chloroform		109.3	78.4	124.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240402W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:12, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		114.3	78.2	120.8
1,1,1-Trichloroethane		106.9	79.4	130.9
4-Methyl-2-pentanone (MIBK)		106.9	71.6	125.2
2-Hexanone		105.8	55.4	136.9
Carbon tetrachloride		103.5	72.6	133.0
Benzene		106.6	79.9	124.9
1,2-Dichloroethane		109.3	76.0	126.3
Trichloroethene		105.1	79.7	124.2
1,2-Dichloropropane		111.0	78.6	126.4
Bromodichloromethane		115.4	80.4	128.2
Dibromomethane		111.2	76.9	122.1
cis-1,3-Dichloropropene		119.8	79.8	129.9
Toluene		104.6	79.8	124.5
trans-1,3-Dichloropropene		112.0	74.0	131.3
1,1,2-Trichloroethane		109.9	78.7	123.1
Tetrachloroethene		100.4	74.5	124.5
trans-1,4-Dichloro-2-butene		116.8	68.6	135.4
Dibromochloromethane		118.7	74.6	127.2
1,2-Dibromoethane		112.0	70.3	133.7
Chlorobenzene		106.9	79.2	122.7
1,1,1,2-Tetrachloroethane		115.1	80.3	128.2
Ethylbenzene		105.4	79.5	129.1
p,m-Xylene		105.1	79.4	132.2
o-Xylene		106.3	80.2	131.0
Styrene		110.0	69.5	126.7
Isopropylbenzene		102.3	74.4	121.5
Bromoform		116.3	69.4	128.0
1,1,2,2-Tetrachloroethane		106.5	79.8	126.3
1,2,3-Trichloropropane		103.9	78.3	138.8
n-Propylbenzene		101.8	82.0	130.7
Bromobenzene		109.1	78.7	124.6
1,3,5-Trimethylbenzene		102.1	81.3	128.9
tert-Butylbenzene		101.1	80.7	128.9
1,2,4-Trimethylbenzene		105.0	81.4	130.8
sec-Butylbenzene		98.5	77.4	129.8
p-Isopropyltoluene		98.6	79.8	137.5
1,3-Dichlorobenzene		106.6	77.0	131.3
1,4-Dichlorobenzene		107.8	20.7	137.7
1,2-Dichlorobenzene		107.1	10.0	166.2
1,2,3-Trimethylbenzene		107.0	76.3	124.2
n-Butylbenzene		99.6	80.0	133.3
Hexachloroethane		98.4	23.8	138.1
1,2-Dibromo-3-chloropropane		98.1	21.2	189.4
1,2,4-Trichlorobenzene		108.3	27.4	143.4
1,2,3-Trichlorobenzene		107.5	75.4	131.4
Naphthalene		106.0	32.9	135.8

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240402W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:12, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		92.4	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240402A7.LCSDW02A, Parent Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:35, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		102.8	67.4	121.2	5.4	30.0
Acetone		99.3	29.9	161.5	1.9	30.0
Methyl iodide		103.6	68.8	116.4	4.2	30.0
Carbon disulfide		103.5	63.8	137.4	3.4	30.0
tert-Methyl butyl ether (MTBE)		109.7	73.2	122.4	4.9	30.0
Acrylonitrile		110.1	69.9	128.9	1.2	30.0
2-Butanone (MEK)		98.7	44.0	134.4	1.9	30.0
Dichlorodifluoromethane		98.5	10.0	222.8	5.9	30.0
Chloromethane		103.9	23.8	166.5	2.3	30.0
Vinyl chloride		97.9	43.5	149.1	3.6	30.0
Bromomethane		100.5	56.8	151.3	4.6	30.0
Chloroethane		99.3	53.4	149.4	3.7	30.0
Trichlorofluoromethane		94.3	59.7	151.8	3.5	30.0
1,1-Dichloroethene		96.3	69.6	139.4	2.8	30.0
Methylene chloride		105.3	73.3	121.1	5.8	30.0
trans-1,2-Dichloroethene		105.1	73.6	129.3	2.7	30.0
1,1-Dichloroethane		107.2	71.5	126.2	3.3	30.0
cis-1,2-Dichloroethene		106.4	76.6	122.1	4.8	30.0
Tetrahydrofuran		104.0	59.0	117.9	3.5	30.0
Chloroform		104.5	78.4	124.0	4.5	30.0
Bromochloromethane		106.9	78.2	120.8	6.7	30.0
1,1,1-Trichloroethane		103.6	79.4	130.9	3.1	30.0
4-Methyl-2-pentanone (MIBK)		106.4	71.6	125.2	0.5	30.0
2-Hexanone		103.1	55.4	136.9	2.5	30.0
Carbon tetrachloride		102.2	72.6	133.0	1.3	30.0
Benzene		103.7	79.9	124.9	2.8	30.0
1,2-Dichloroethane		105.2	76.0	126.3	3.8	30.0
Trichloroethene		103.0	79.7	124.2	2.0	30.0
1,2-Dichloropropane		107.3	78.6	126.4	3.3	30.0
Bromodichloromethane		109.9	80.4	128.2	4.9	30.0
Dibromomethane		107.4	76.9	122.1	3.4	30.0
cis-1,3-Dichloropropene		114.2	79.8	129.9	4.8	30.0
Toluene		102.0	79.8	124.5	2.5	30.0
trans-1,3-Dichloropropene		106.5	74.0	131.3	5.0	30.0
1,1,2-Trichloroethane		105.4	78.7	123.1	4.1	30.0
Tetrachloroethene		98.6	74.5	124.5	1.8	30.0
trans-1,4-Dichloro-2-butene		101.9	68.6	135.4	13.6	30.0
Dibromochloromethane		113.0	74.6	127.2	4.9	30.0
1,2-Dibromoethane		107.4	70.3	133.7	4.2	30.0
Chlorobenzene		102.0	79.2	122.7	4.7	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240402W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240402A7.LCSDW02A, Parent Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:35, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		110.2	80.3	128.2	4.4	30.0
Ethylbenzene		102.3	79.5	129.1	3.0	30.0
p,m-Xylene		102.3	79.4	132.2	2.7	30.0
o-Xylene		103.0	80.2	131.0	3.2	30.0
Styrene		105.6	69.5	126.7	4.1	30.0
Isopropylbenzene		100.1	74.4	121.5	2.2	30.0
Bromoform		112.1	69.4	128.0	3.7	30.0
1,1,2,2-Tetrachloroethane		103.0	79.8	126.3	3.3	30.0
1,2,3-Trichloropropane		100.1	78.3	138.8	3.8	30.0
n-Propylbenzene		99.6	82.0	130.7	2.2	30.0
Bromobenzene		103.3	78.7	124.6	5.5	30.0
1,3,5-Trimethylbenzene		100.2	81.3	128.9	1.9	30.0
tert-Butylbenzene		98.8	80.7	128.9	2.4	30.0
1,2,4-Trimethylbenzene		100.7	81.4	130.8	4.2	30.0
sec-Butylbenzene		101.5	77.4	129.8	3.0	30.0
p-Isopropyltoluene		101.0	79.8	137.5	2.4	30.0
1,3-Dichlorobenzene		106.3	77.0	131.3	0.3	30.0
1,4-Dichlorobenzene		105.1	20.7	137.7	2.6	30.0
1,2-Dichlorobenzene		105.7	10.0	166.2	1.3	30.0
1,2,3-Trimethylbenzene		107.4	76.3	124.2	0.4	30.0
n-Butylbenzene		103.2	80.0	133.3	3.6	30.0
Hexachloroethane		100.0	23.8	138.1	1.7	30.0
1,2-Dibromo-3-chloropropane		99.3	21.2	189.4	1.3	30.0
1,2,4-Trichlorobenzene		107.8	27.4	143.4	0.4	30.0
1,2,3-Trichlorobenzene		107.5	75.4	131.4	0.0	30.0
Naphthalene		105.3	32.9	135.8	0.7	30.0
2-Methylnaphthalene		95.4	25.5	165.5	3.1	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240404W1

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: 240404A7.BLKW04A

Run in Batch: 240404A7, Run Date: 04/04/2024 14:13, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform	J*	0.1682	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240404W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK) (continued)

Lab Sample ID: 240404A7.BLKW04A

Run in Batch: 240404A7, Run Date: 04/04/2024 14:13, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene	J*	0.5272	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene	J*	1.0186	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240404A7.LCSW04A

Run in Batch: 240404A7, Run Date: 04/04/2024 12:38, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		108.0	67.4	121.2
Acetone		99.3	29.9	161.5
Methyl iodide		109.6	68.8	116.4
Carbon disulfide		105.2	63.8	137.4
tert-Methyl butyl ether (MTBE)		113.6	73.2	122.4
Acrylonitrile		112.3	69.9	128.9
2-Butanone (MEK)		97.9	44.0	134.4
Dichlorodifluoromethane		97.7	10.0	222.8
Chloromethane		104.1	23.8	166.5
Vinyl chloride		98.2	43.5	149.1
Bromomethane		103.7	56.8	151.3
Chloroethane		101.0	53.4	149.4
Trichlorofluoromethane		94.5	59.7	151.8
1,1-Dichloroethene		101.8	69.6	139.4
Methylene chloride		112.4	73.3	121.1
trans-1,2-Dichloroethene		108.3	73.6	129.3
1,1-Dichloroethane		112.3	71.5	126.2
cis-1,2-Dichloroethene		111.5	76.6	122.1
Tetrahydrofuran		103.9	59.0	117.9
Chloroform		110.1	78.4	124.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240404W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240404A7.LCSW04A

Run in Batch: 240404A7, Run Date: 04/04/2024 12:38, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		114.6	78.2	120.8
1,1,1-Trichloroethane		107.6	79.4	130.9
4-Methyl-2-pentanone (MIBK)		105.5	71.6	125.2
2-Hexanone		103.8	55.4	136.9
Carbon tetrachloride		103.4	72.6	133.0
Benzene		106.3	79.9	124.9
1,2-Dichloroethane		110.0	76.0	126.3
Trichloroethene		104.6	79.7	124.2
1,2-Dichloropropane		111.6	78.6	126.4
Bromodichloromethane		116.2	80.4	128.2
Dibromomethane		110.3	76.9	122.1
cis-1,3-Dichloropropene		118.8	79.8	129.9
Toluene		104.9	79.8	124.5
trans-1,3-Dichloropropene		111.2	74.0	131.3
1,1,2-Trichloroethane		109.5	78.7	123.1
Tetrachloroethene		98.3	74.5	124.5
trans-1,4-Dichloro-2-butene		96.6	68.6	135.4
Dibromochloromethane		114.7	74.6	127.2
1,2-Dibromoethane		106.5	70.3	133.7
Chlorobenzene		103.0	79.2	122.7
1,1,1,2-Tetrachloroethane		111.6	80.3	128.2
Ethylbenzene		101.2	79.5	129.1
p,m-Xylene		100.7	79.4	132.2
o-Xylene		102.7	80.2	131.0
Styrene		105.6	69.5	126.7
Isopropylbenzene		97.2	74.4	121.5
Bromoform		109.8	69.4	128.0
1,1,2,2-Tetrachloroethane		100.2	79.8	126.3
1,2,3-Trichloropropane		98.5	78.3	138.8
n-Propylbenzene		96.8	82.0	130.7
Bromobenzene		104.3	78.7	124.6
1,3,5-Trimethylbenzene		99.2	81.3	128.9
tert-Butylbenzene		96.5	80.7	128.9
1,2,4-Trimethylbenzene		99.6	81.4	130.8
sec-Butylbenzene		97.6	77.4	129.8
p-Isopropyltoluene		97.0	79.8	137.5
1,3-Dichlorobenzene		106.5	77.0	131.3
1,4-Dichlorobenzene		105.0	20.7	137.7
1,2-Dichlorobenzene		106.8	10.0	166.2
1,2,3-Trimethylbenzene		105.6	76.3	124.2
n-Butylbenzene		97.5	80.0	133.3
Hexachloroethane		97.7	23.8	138.1
1,2-Dibromo-3-chloropropane		94.8	21.2	189.4
1,2,4-Trichlorobenzene		104.0	27.4	143.4
1,2,3-Trichlorobenzene		103.5	75.4	131.4
Naphthalene		101.3	32.9	135.8

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240404W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240404A7.LCSW04A

Run in Batch: 240404A7, Run Date: 04/04/2024 12:38, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		86.1	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240404A7.LCSDW04A, Parent Sample ID: 240404A7.LCSW04A

Run in Batch: 240404A7, Run Date: 04/04/2024 13:02, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		104.8	67.4	121.2	3.0	30.0
Acetone		122.3	29.9	161.5	20.7	30.0
Methyl iodide		102.3	68.8	116.4	6.9	30.0
Carbon disulfide		100.9	63.8	137.4	4.2	30.0
tert-Methyl butyl ether (MTBE)		115.7	73.2	122.4	1.8	30.0
Acrylonitrile	*	131.4	69.9	128.9	15.6	30.0
2-Butanone (MEK)	*	136.6	44.0	134.4	33.1	30.0
Dichlorodifluoromethane		93.0	10.0	222.8	4.9	30.0
Chloromethane		100.2	23.8	166.5	3.9	30.0
Vinyl chloride		94.0	43.5	149.1	4.3	30.0
Bromomethane		94.2	56.8	151.3	9.6	30.0
Chloroethane		97.2	53.4	149.4	3.8	30.0
Trichlorofluoromethane		92.3	59.7	151.8	2.4	30.0
1,1-Dichloroethene		96.4	69.6	139.4	5.4	30.0
Methylene chloride		104.8	73.3	121.1	7.0	30.0
trans-1,2-Dichloroethene		104.4	73.6	129.3	3.6	30.0
1,1-Dichloroethane		106.0	71.5	126.2	5.7	30.0
cis-1,2-Dichloroethene		105.1	76.6	122.1	5.9	30.0
Tetrahydrofuran	*	134.5	59.0	117.9	25.7	30.0
Chloroform		104.0	78.4	124.0	5.7	30.0
Bromochloromethane		106.6	78.2	120.8	7.3	30.0
1,1,1-Trichloroethane		104.5	79.4	130.9	2.9	30.0
4-Methyl-2-pentanone (MIBK)	*	131.1	71.6	125.2	21.6	30.0
2-Hexanone		132.3	55.4	136.9	24.2	30.0
Carbon tetrachloride		102.1	72.6	133.0	1.3	30.0
Benzene		102.8	79.9	124.9	3.3	30.0
1,2-Dichloroethane		105.6	76.0	126.3	4.0	30.0
Trichloroethene		101.9	79.7	124.2	2.6	30.0
1,2-Dichloropropane		105.0	78.6	126.4	6.1	30.0
Bromodichloromethane		109.2	80.4	128.2	6.2	30.0
Dibromomethane		109.9	76.9	122.1	0.4	30.0
cis-1,3-Dichloropropene		111.3	79.8	129.9	6.5	30.0
Toluene		101.8	79.8	124.5	3.1	30.0
trans-1,3-Dichloropropene		106.9	74.0	131.3	4.0	30.0
1,1,2-Trichloroethane		109.8	78.7	123.1	0.3	30.0
Tetrachloroethene		97.0	74.5	124.5	1.3	30.0
trans-1,4-Dichloro-2-butene		128.3	68.6	135.4	28.1	30.0
Dibromochloromethane		118.0	74.6	127.2	2.8	30.0
1,2-Dibromoethane		116.0	70.3	133.7	8.5	30.0
Chlorobenzene		103.8	79.2	122.7	0.8	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240404W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240404A7.LCSDW04A, Parent Sample ID: 240404A7.LCSW04A

Run in Batch: 240404A7, Run Date: 04/04/2024 13:02, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		112.3	80.3	128.2	0.6	30.0
Ethylbenzene		104.6	79.5	129.1	3.3	30.0
p,m-Xylene		103.2	79.4	132.2	2.4	30.0
o-Xylene		104.8	80.2	131.0	2.0	30.0
Styrene		106.5	69.5	126.7	0.8	30.0
Isopropylbenzene		101.8	74.4	121.5	4.6	30.0
Bromoform		124.5	69.4	128.0	12.5	30.0
1,1,2,2-Tetrachloroethane		119.6	79.8	126.3	17.6	30.0
1,2,3-Trichloropropane		120.7	78.3	138.8	20.2	30.0
n-Propylbenzene		100.8	82.0	130.7	4.0	30.0
Bromobenzene		105.3	78.7	124.6	1.0	30.0
1,3,5-Trimethylbenzene		101.7	81.3	128.9	2.4	30.0
tert-Butylbenzene		101.2	80.7	128.9	4.8	30.0
1,2,4-Trimethylbenzene		102.9	81.4	130.8	3.3	30.0
sec-Butylbenzene		100.8	77.4	129.8	3.2	30.0
p-Isopropyltoluene		99.4	79.8	137.5	2.4	30.0
1,3-Dichlorobenzene		105.0	77.0	131.3	1.4	30.0
1,4-Dichlorobenzene		103.9	20.7	137.7	1.0	30.0
1,2-Dichlorobenzene		106.2	10.0	166.2	0.5	30.0
1,2,3-Trimethylbenzene		105.9	76.3	124.2	0.3	30.0
n-Butylbenzene		101.2	80.0	133.3	3.8	30.0
Hexachloroethane		99.2	23.8	138.1	1.5	30.0
1,2-Dibromo-3-chloropropane		121.4	21.2	189.4	24.6	30.0
1,2,4-Trichlorobenzene		108.6	27.4	143.4	4.3	30.0
1,2,3-Trichlorobenzene		114.7	75.4	131.4	10.3	30.0
Naphthalene		125.9	32.9	135.8	21.7	30.0
2-Methylnaphthalene	*	117.1	25.5	165.5	30.5	30.0

Matrix Spike (MS)

Lab Sample ID: 240404A7.6029603M, Parent Sample ID: S60296.02

Run in Batch: 240404A7, Run Date: 04/04/2024 22:22, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		101.8	67.4	121.2
Acetone		110.2	29.9	161.5
Methyl iodide		107.6	68.8	116.4
Carbon disulfide		110.4	63.8	137.4
tert-Methyl butyl ether (MTBE)		110.0	73.2	122.4
Acrylonitrile		117.9	69.9	128.9
2-Butanone (MEK)		116.2	44.0	134.4
Dichlorodifluoromethane		100.2	10.0	222.8
Chloromethane		103.0	23.8	166.5
Vinyl chloride		104.7	43.5	149.1
Bromomethane		101.7	56.8	151.3
Chloroethane		103.6	53.4	149.4
Trichlorofluoromethane		102.3	59.7	151.8
1,1-Dichloroethene		108.1	69.6	139.4

Organics - Volatiles, Prep Batch ID: VF240404W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 240404A7.6029603M, Parent Sample ID: S60296.02

Run in Batch: 240404A7, Run Date: 04/04/2024 22:22, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Methylene chloride		106.6	73.3	121.1
trans-1,2-Dichloroethene		111.4	73.6	129.3
1,1-Dichloroethane		111.3	71.5	126.2
cis-1,2-Dichloroethene		109.1	76.6	122.1
Tetrahydrofuran	J	110.9	59.0	117.9
Chloroform		107.0	78.4	124.0
Bromochloromethane		107.2	78.2	120.8
1,1,1-Trichloroethane		113.4	79.4	130.9
4-Methyl-2-pentanone (MIBK)		119.5	71.6	125.2
2-Hexanone		123.5	55.4	136.9
Carbon tetrachloride		112.2	72.6	133.0
Benzene		107.6	79.9	124.9
1,2-Dichloroethane		106.4	76.0	126.3
Trichloroethene		108.5	79.7	124.2
1,2-Dichloropropane		108.9	78.6	126.4
Bromodichloromethane		110.8	80.4	128.2
Dibromomethane		108.2	76.9	122.1
cis-1,3-Dichloropropene		111.4	79.8	129.9
Toluene		106.9	79.8	124.5
trans-1,3-Dichloropropene		104.2	74.0	131.3
1,1,2-Trichloroethane		107.3	78.7	123.1
Tetrachloroethene		105.3	74.5	124.5
trans-1,4-Dichloro-2-butene		90.5	68.6	135.4
Dibromochloromethane		111.8	74.6	127.2
1,2-Dibromoethane		109.7	70.3	133.7
Chlorobenzene		103.7	79.2	122.7
1,1,1,2-Tetrachloroethane		112.1	80.3	128.2
Ethylbenzene		107.4	79.5	129.1
p,m-Xylene		105.7	79.4	132.2
o-Xylene		105.8	80.2	131.0
Styrene		105.4	69.5	126.7
Isopropylbenzene		105.9	74.4	121.5
Bromoform		110.7	69.4	128.0
1,1,2,2-Tetrachloroethane		107.1	79.8	126.3
1,2,3-Trichloropropane		108.4	78.3	138.8
n-Propylbenzene		104.3	82.0	130.7
Bromobenzene		105.3	78.7	124.6
1,3,5-Trimethylbenzene		104.4	81.3	128.9
tert-Butylbenzene		103.9	80.7	128.9
1,2,4-Trimethylbenzene		103.4	81.4	130.8
sec-Butylbenzene		106.9	77.4	129.8
p-Isopropyltoluene		104.7	79.8	137.5
1,3-Dichlorobenzene		109.0	77.0	131.3
1,4-Dichlorobenzene		108.1	20.7	137.7
1,2-Dichlorobenzene		108.5	10.0	166.2
1,2,3-Trimethylbenzene		107.7	76.3	124.2

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240404W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike (MS) (continued)

Lab Sample ID: 240404A7.6029603M, Parent Sample ID: S60296.02

Run in Batch: 240404A7, Run Date: 04/04/2024 22:22, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
n-Butylbenzene		107.5	80.0	133.3
Hexachloroethane		102.6	23.8	138.1
1,2-Dibromo-3-chloropropane		108.8	21.2	189.4
1,2,4-Trichlorobenzene		109.1	27.4	143.4
1,2,3-Trichlorobenzene		111.0	75.4	131.4
Naphthalene		118.8	32.9	135.8
2-Methylnaphthalene		112.8	25.5	165.5

Matrix Spike (MS)

Lab Sample ID: 240404A7.6039009M, Parent Sample ID: S60390.06

Run in Batch: 240404A7, Run Date: 04/04/2024 21:35, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
tert-Methyl butyl ether (MTBE)		107.3	73.2	122.4
Benzene		107.5	79.9	124.9
Toluene		106.1	79.8	124.5
Ethylbenzene		106.0	79.5	129.1
1,3,5-Trimethylbenzene		101.4	81.3	128.9
1,2,4-Trimethylbenzene		100.5	81.4	130.8

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240404A7.6029604N, Parent Sample ID: 240404A7.6029603M

Run in Batch: 240404A7, Run Date: 04/04/2024 22:46, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		107.0	67.4	121.2	4.9	30.0
Acetone		121.9	29.9	161.5	9.7	30.0
Methyl iodide		102.0	68.8	116.4	5.3	30.0
Carbon disulfide		107.5	63.8	137.4	2.6	30.0
tert-Methyl butyl ether (MTBE)		115.1	73.2	122.4	4.6	30.0
Acrylonitrile	*	130.8	69.9	128.9	10.4	30.0
2-Butanone (MEK)		120.8	44.0	134.4	3.8	30.0
Dichlorodifluoromethane		98.1	10.0	222.8	2.2	30.0
Chloromethane		101.1	23.8	166.5	1.8	30.0
Vinyl chloride		101.7	43.5	149.1	2.9	30.0
Bromomethane		98.0	56.8	151.3	3.7	30.0
Chloroethane		100.2	53.4	149.4	3.4	30.0
Trichlorofluoromethane		99.4	59.7	151.8	2.9	30.0
1,1-Dichloroethene		103.5	69.6	139.4	4.3	30.0
Methylene chloride		106.1	73.3	121.1	0.5	30.0
trans-1,2-Dichloroethene		109.1	73.6	129.3	2.1	30.0
1,1-Dichloroethane		109.9	71.5	126.2	1.2	30.0
cis-1,2-Dichloroethene		108.8	76.6	122.1	0.4	30.0
Tetrahydrofuran	J*	126.9	59.0	117.9	13.4	30.0
Chloroform		106.8	78.4	124.0	0.2	30.0
Bromochloromethane		108.4	78.2	120.8	1.1	30.0
1,1,1-Trichloroethane		110.2	79.4	130.9	2.9	30.0
4-Methyl-2-pentanone (MIBK)	*	134.9	71.6	125.2	12.1	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240404W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: 240404A7.6029604N, Parent Sample ID: 240404A7.6029603M

Run in Batch: 240404A7, Run Date: 04/04/2024 22:46, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
2-Hexanone	*	137.3	55.4	136.9	10.6	30.0
Carbon tetrachloride		108.0	72.6	133.0	3.9	30.0
Benzene		105.5	79.9	124.9	2.0	30.0
1,2-Dichloroethane		106.0	76.0	126.3	0.4	30.0
Trichloroethene		106.6	79.7	124.2	1.7	30.0
1,2-Dichloropropane		107.2	78.6	126.4	1.6	30.0
Bromodichloromethane		109.8	80.4	128.2	0.9	30.0
Dibromomethane		109.8	76.9	122.1	1.4	30.0
cis-1,3-Dichloropropene		110.4	79.8	129.9	0.9	30.0
Toluene		104.1	79.8	124.5	2.7	30.0
trans-1,3-Dichloropropene		105.5	74.0	131.3	1.3	30.0
1,1,2-Trichloroethane		109.8	78.7	123.1	2.3	30.0
Tetrachloroethene		102.9	74.5	124.5	2.3	30.0
trans-1,4-Dichloro-2-butene		108.8	68.6	135.4	18.3	30.0
Dibromochloromethane		115.7	74.6	127.2	3.4	30.0
1,2-Dibromoethane		114.4	70.3	133.7	4.2	30.0
Chlorobenzene		104.4	79.2	122.7	0.7	30.0
1,1,1,2-Tetrachloroethane		111.2	80.3	128.2	0.9	30.0
Ethylbenzene		106.9	79.5	129.1	0.5	30.0
p,m-Xylene		105.7	79.4	132.2	0.0	30.0
o-Xylene		104.9	80.2	131.0	0.8	30.0
Styrene		106.7	69.5	126.7	1.3	30.0
Isopropylbenzene		104.2	74.4	121.5	1.6	30.0
Bromoform		116.1	69.4	128.0	4.7	30.0
1,1,2,2-Tetrachloroethane		117.0	79.8	126.3	8.8	30.0
1,2,3-Trichloropropane		118.8	78.3	138.8	9.2	30.0
n-Propylbenzene		104.2	82.0	130.7	0.1	30.0
Bromobenzene		106.4	78.7	124.6	1.1	30.0
1,3,5-Trimethylbenzene		104.8	81.3	128.9	0.4	30.0
tert-Butylbenzene		103.5	80.7	128.9	0.4	30.0
1,2,4-Trimethylbenzene		102.8	81.4	130.8	0.6	30.0
sec-Butylbenzene		102.6	77.4	129.8	4.0	30.0
p-Isopropyltoluene		100.4	79.8	137.5	4.2	30.0
1,3-Dichlorobenzene		105.7	77.0	131.3	3.1	30.0
1,4-Dichlorobenzene		105.9	20.7	137.7	2.0	30.0
1,2-Dichlorobenzene		106.0	10.0	166.2	2.3	30.0
1,2,3-Trimethylbenzene		103.4	76.3	124.2	4.0	30.0
n-Butylbenzene		102.5	80.0	133.3	4.8	30.0
Hexachloroethane		97.4	23.8	138.1	5.2	30.0
1,2-Dibromo-3-chloropropane		120.7	21.2	189.4	10.3	30.0
1,2,4-Trichlorobenzene		108.5	27.4	143.4	0.5	30.0
1,2,3-Trichlorobenzene		113.1	75.4	131.4	1.9	30.0
Naphthalene		125.5	32.9	135.8	5.4	30.0
2-Methylnaphthalene		118.9	25.5	165.5	5.3	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240404W1 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD)

Lab Sample ID: 240404A7.6039010N, Parent Sample ID: 240404A7.6039009M

Run in Batch: 240404A7, Run Date: 04/04/2024 21:58, Prep Date: 04/04/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
tert-Methyl butyl ether (MTBE)		109.5	73.2	122.4	2.0	30.0
Benzene		104.5	79.9	124.9	2.8	30.0
Toluene		103.6	79.8	124.5	2.5	30.0
Ethylbenzene		107.5	79.5	129.1	1.4	30.0
1,3,5-Trimethylbenzene		103.8	81.3	128.9	2.3	30.0
1,2,4-Trimethylbenzene		103.4	81.4	130.8	2.8	30.0

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME				Rodney Abke			
COMPANY				Applied EcoSystems			
ADDRESS							
G-4300 South Saginaw Street							
CITY						STATE	ZIP CODE
Burton						MI	48529
PHONE NO.			FAX NO.			P.O. NO.	
810-715-2525			810-715-2526			PO1107477	
E-MAIL ADDRESS						QUOTE NO.	
rabke@appliedecosystems.com							

CONTACT NAME		Monica Wallingford		☐ SAME	
COMPANY					
Revitalizing Auto Communities Environmental Response (RACER) Trust					
ADDRESS					
CITY				STATE	
				ZIP CODE	
PHONE NO.				E-MAIL ADDRESS	
313.486.2978				mwallingford@racertrust.org	

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME	RACER Flint West #12990	SAMPLER(S) - PLEASE PRINT/SIGN NAME

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

DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☒ OTHER report to MDLs

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

Containers & Preservatives[illegible]

RELINQUISHED BY: <i>DRR RB</i>	<i>25</i> Sampler	DATE	TIME
SIGNATURE/ORGANIZATION		<i>3/28/24</i>	<i>11:22</i>
RECEIVED BY:		DATE	TIME
SIGNATURE/ORGANIZATION <i>[Signature]</i>		<i>3/28/24</i>	<i>11:21</i>
RELINQUISHED BY:		DATE	TIME
SIGNATURE/ORGANIZATION <i>[Signature]</i>		<i>3/28/24</i>	<i>10:54</i>
RECEIVED BY:		DATE	TIME
SIGNATURE/ORGANIZATION <i>[Signature]</i>		<i>3/28/24</i>	<i>12:05</i>

RELINQUISHED BY:			DATE	TIME
SIGNATURE/ORGANIZATION				
RECEIVED BY:			DATE	TIME
SIGNATURE/ORGANIZATION				
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	3.6	

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

Rev. 5.18.12



Quality Control Report

Report ID: QC-S60297-01
Generated on 04/04/2024

Report to

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

Phone: 810-715-2525 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S60297.01-S60297.04
Project: RACER Flint West #12990
Submitted Date/Time: 03/28/2024 12:05
Sampled by: Unknown
P.O. #: PO1107477

QC Report Sections

Cover Page (Page 1)
Analysis Summary (Pages 2-5)
Prep Batch Summary (Pages 6-7)
Surrogates per Lab Sample (Pages 8-11)
Surrogates per QC Sample (Page 12)
Batch QC Results (Pages 13-21)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S60297.01

Sample Tag: MW-110S-240327

Collected Date/Time: 03/27/2024 15:35

Matrix: Water

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI, Dissolved	SM3500-Cr B	03/28/24 15:10	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Chromium VI	SM3500-Cr B	03/28/24 14:25	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Metals						
Arsenic, Dissolved	E200.8	03/29/24 15:48	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Arsenic	E200.8	03/29/24 15:46	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	03/29/24 15:48	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Chromium	E200.8	03/29/24 15:46	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	03/29/24 15:48	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Copper	E200.8	03/29/24 15:46	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	03/29/24 15:48	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Lead	E200.8	03/29/24 15:46	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium, Dissolved	E200.8	03/29/24 15:48	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Selenium	E200.8	03/29/24 15:46	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	03/29/24 15:48	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Zinc	E200.8	03/29/24 15:46	MT4-24-0329C	MTD-032924-7	No	BLK/LCS/MS/MSD
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 17:17	240402A7	VF240402W2	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60297.02

Sample Tag: MW-108S-240327

Collected Date/Time: 03/27/2024 16:32

Matrix: Water

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI, Dissolved	SM3500-Cr B	03/28/24 15:15	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Chromium VI	SM3500-Cr B	03/28/24 14:30	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Metals						
Arsenic, Dissolved	E200.8	03/29/24 16:03	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Arsenic	E200.8	03/29/24 15:58	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	03/29/24 16:03	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Chromium	E200.8	03/29/24 15:58	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	03/29/24 16:03	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Copper	E200.8	03/29/24 15:58	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	03/29/24 16:03	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Lead	E200.8	03/29/24 15:58	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Selenium, Dissolved	E200.8	03/29/24 16:03	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Selenium	E200.8	03/29/24 15:58	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	03/29/24 16:03	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Zinc	E200.8	03/29/24 15:58	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 17:41	240402A7	VF240402W2	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60297.03

Sample Tag: MW-114S-240327

Collected Date/Time: 03/27/2024 17:24

Matrix: Water

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI, Dissolved	SM3500-Cr B	03/28/24 15:20	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Chromium VI	SM3500-Cr B	03/28/24 14:35	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Metals						
Arsenic, Dissolved	E200.8	03/29/24 16:09	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Arsenic	E200.8	03/29/24 16:06	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	03/29/24 16:09	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Chromium	E200.8	03/29/24 16:06	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	03/29/24 16:09	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Copper	E200.8	03/29/24 16:06	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	03/29/24 16:09	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Lead	E200.8	03/29/24 16:06	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Selenium, Dissolved	E200.8	03/29/24 16:09	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Selenium	E200.8	03/29/24 16:06	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	03/29/24 16:09	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Zinc	E200.8	03/29/24 16:06	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 18:05	240402A7	VF240402W2	Yes	BLK/LCS/LCSD

QC Report - Analysis Summary

Lab Sample ID: S60297.04

Sample Tag: Dup-1-1240327

Collected Date/Time: 03/27/2024 00:01

Matrix: Water

COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Chromium VI, Dissolved	SM3500-Cr B	03/28/24 15:25	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Chromium VI	SM3500-Cr B	03/28/24 14:40	CHR240328-W1	CHR240328-W1	No	BLK/LCS/MS/MSD/DU
Metals						
Arsenic, Dissolved	E200.8	03/29/24 16:14	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Arsenic	E200.8	03/29/24 16:12	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Chromium, Dissolved	E200.8	03/29/24 16:14	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Chromium	E200.8	03/29/24 16:12	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Copper, Dissolved	E200.8	03/29/24 16:14	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Copper	E200.8	03/29/24 16:12	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Lead, Dissolved	E200.8	03/29/24 16:14	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Lead	E200.8	03/29/24 16:12	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Selenium, Dissolved	E200.8	03/29/24 16:14	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Selenium	E200.8	03/29/24 16:12	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Zinc, Dissolved	E200.8	03/29/24 16:14	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Zinc	E200.8	03/29/24 16:12	MT4-24-0329C	MTD-032924-8	No	BLK/LCS/MS/MSD
Organics - Volatiles						
Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 18:28	240402A7	VF240402W2	Yes	BLK/LCS/LCSD

QC Report - Prep Batch Summary

Inorganics, Prep Batch ID: CHR240328-W1

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60297.01	Chromium VI, Dissolved	SM3500-Cr B	03/28/24 15:10	CHR240328-W1
S60297.01	Chromium VI	SM3500-Cr B	03/28/24 14:25	CHR240328-W1
S60297.02	Chromium VI, Dissolved	SM3500-Cr B	03/28/24 15:15	CHR240328-W1
S60297.02	Chromium VI	SM3500-Cr B	03/28/24 14:30	CHR240328-W1
S60297.03	Chromium VI, Dissolved	SM3500-Cr B	03/28/24 15:20	CHR240328-W1
S60297.03	Chromium VI	SM3500-Cr B	03/28/24 14:35	CHR240328-W1
S60297.04	Chromium VI, Dissolved	SM3500-Cr B	03/28/24 15:25	CHR240328-W1
S60297.04	Chromium VI	SM3500-Cr B	03/28/24 14:40	CHR240328-W1

Metals, Prep Batch ID: MTD-032924-7

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60297.01	Arsenic, Dissolved	E200.8	03/29/24 15:48	MT4-24-0329C
S60297.01	Arsenic	E200.8	03/29/24 15:46	MT4-24-0329C
S60297.01	Chromium, Dissolved	E200.8	03/29/24 15:48	MT4-24-0329C
S60297.01	Chromium	E200.8	03/29/24 15:46	MT4-24-0329C
S60297.01	Copper, Dissolved	E200.8	03/29/24 15:48	MT4-24-0329C
S60297.01	Copper	E200.8	03/29/24 15:46	MT4-24-0329C
S60297.01	Lead, Dissolved	E200.8	03/29/24 15:48	MT4-24-0329C
S60297.01	Lead	E200.8	03/29/24 15:46	MT4-24-0329C
S60297.01	Selenium, Dissolved	E200.8	03/29/24 15:48	MT4-24-0329C
S60297.01	Selenium	E200.8	03/29/24 15:46	MT4-24-0329C
S60297.01	Zinc, Dissolved	E200.8	03/29/24 15:48	MT4-24-0329C
S60297.01	Zinc	E200.8	03/29/24 15:46	MT4-24-0329C

Metals, Prep Batch ID: MTD-032924-8

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60297.02	Arsenic, Dissolved	E200.8	03/29/24 16:03	MT4-24-0329C
S60297.02	Arsenic	E200.8	03/29/24 15:58	MT4-24-0329C
S60297.02	Chromium, Dissolved	E200.8	03/29/24 16:03	MT4-24-0329C
S60297.02	Chromium	E200.8	03/29/24 15:58	MT4-24-0329C
S60297.02	Copper, Dissolved	E200.8	03/29/24 16:03	MT4-24-0329C
S60297.02	Copper	E200.8	03/29/24 15:58	MT4-24-0329C
S60297.02	Lead, Dissolved	E200.8	03/29/24 16:03	MT4-24-0329C
S60297.02	Lead	E200.8	03/29/24 15:58	MT4-24-0329C
S60297.02	Selenium, Dissolved	E200.8	03/29/24 16:03	MT4-24-0329C
S60297.02	Selenium	E200.8	03/29/24 15:58	MT4-24-0329C
S60297.02	Zinc, Dissolved	E200.8	03/29/24 16:03	MT4-24-0329C
S60297.02	Zinc	E200.8	03/29/24 15:58	MT4-24-0329C
S60297.03	Arsenic, Dissolved	E200.8	03/29/24 16:09	MT4-24-0329C
S60297.03	Arsenic	E200.8	03/29/24 16:06	MT4-24-0329C
S60297.03	Chromium, Dissolved	E200.8	03/29/24 16:09	MT4-24-0329C
S60297.03	Chromium	E200.8	03/29/24 16:06	MT4-24-0329C
S60297.03	Copper, Dissolved	E200.8	03/29/24 16:09	MT4-24-0329C
S60297.03	Copper	E200.8	03/29/24 16:06	MT4-24-0329C
S60297.03	Lead, Dissolved	E200.8	03/29/24 16:09	MT4-24-0329C
S60297.03	Lead	E200.8	03/29/24 16:06	MT4-24-0329C
S60297.03	Selenium, Dissolved	E200.8	03/29/24 16:09	MT4-24-0329C
S60297.03	Selenium	E200.8	03/29/24 16:06	MT4-24-0329C

QC Report - Prep Batch Summary

Metals, Prep Batch ID: MTD-032924-8 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60297.03	Zinc, Dissolved	E200.8	03/29/24 16:09	MT4-24-0329C
S60297.03	Zinc	E200.8	03/29/24 16:06	MT4-24-0329C
S60297.04	Arsenic, Dissolved	E200.8	03/29/24 16:14	MT4-24-0329C
S60297.04	Arsenic	E200.8	03/29/24 16:12	MT4-24-0329C
S60297.04	Chromium, Dissolved	E200.8	03/29/24 16:14	MT4-24-0329C
S60297.04	Chromium	E200.8	03/29/24 16:12	MT4-24-0329C
S60297.04	Copper, Dissolved	E200.8	03/29/24 16:14	MT4-24-0329C
S60297.04	Copper	E200.8	03/29/24 16:12	MT4-24-0329C
S60297.04	Lead, Dissolved	E200.8	03/29/24 16:14	MT4-24-0329C
S60297.04	Lead	E200.8	03/29/24 16:12	MT4-24-0329C
S60297.04	Selenium, Dissolved	E200.8	03/29/24 16:14	MT4-24-0329C
S60297.04	Selenium	E200.8	03/29/24 16:12	MT4-24-0329C
S60297.04	Zinc, Dissolved	E200.8	03/29/24 16:14	MT4-24-0329C
S60297.04	Zinc	E200.8	03/29/24 16:12	MT4-24-0329C

Organics - Volatiles, Prep Batch ID: VF240402W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60297.01	Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 17:17	240402A7
S60297.02	Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 17:41	240402A7
S60297.03	Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 18:05	240402A7
S60297.04	Volatile Organics - DEQ List	SW5030C/8260C	04/02/24 18:28	240402A7

Lab Sample ID: S60297.01
Sample Tag: MW-110S-240327
Collected Date/Time: 03/27/2024 15:35
Matrix: Water
COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240402A7, Run Date: 04/02/2024 17:17, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		104.7	80.0	124.0
1,2-Dichloroethane-D4		109.4	72.0	125.0
Toluene-D8		97.4	89.0	112.0

Lab Sample ID: S60297.02
Sample Tag: MW-108S-240327
Collected Date/Time: 03/27/2024 16:32
Matrix: Water
COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List
Run in Batch: 240402A7, Run Date: 04/02/2024 17:41, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		101.8	80.0	124.0
1,2-Dichloroethane-D4		107.8	72.0	125.0
Toluene-D8		98.0	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60297.03

Sample Tag: MW-114S-240327

Collected Date/Time: 03/27/2024 17:24

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240402A7, Run Date: 04/02/2024 18:05, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		102.9	80.0	124.0
1,2-Dichloroethane-D4		101.4	72.0	125.0
Toluene-D8		97.4	89.0	112.0

QC Report - Surrogates per Lab Sample

Lab Sample ID: S60297.04

Sample Tag: Dup-1-1240327

Collected Date/Time: 03/27/2024 00:01

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: Volatile Organics - DEQ List

Run in Batch: 240402A7, Run Date: 04/02/2024 18:28, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		102.2	80.0	124.0
1,2-Dichloroethane-D4		101.3	72.0	125.0
Toluene-D8		96.9	89.0	112.0

QC Report - Surrogates per QC Sample

Organics - Volatiles, Prep Batch ID: VF240402W2

QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240402A7.BLKW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 13:46, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		102.1	80.0	124.0
1,2-Dichloroethane-D4		98.4	72.0	125.0
Toluene-D8		97.5	89.0	112.0

Laboratory Control Sample (LCS)

Lab Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:12, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		100.3	80.0	124.0
1,2-Dichloroethane-D4		110.0	72.0	125.0
Toluene-D8		98.6	89.0	112.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240402A7.LCSDW02A, Parent Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:35, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Surrogate	Flags	%Rec	LCL	UCL
4-Bromofluorobenzene		97.6	80.0	124.0
1,2-Dichloroethane-D4		100.5	72.0	125.0
Toluene-D8		98.5	89.0	112.0

QC Report - Batch QC Results

Inorganics, Prep Batch ID: CHR240328-W1

Surrogates: No, QC Types: BLK/LCS/MS/MSD/DUP

Blank (BLK)

Lab Sample ID: CHR240328-W1.LRB1

Run in Batch: CHR240328-W1, Run Date: 03/28/2024 13:30, Prep Date: 03/28/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Chromium VI		ND	0.01	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: CHR240328-W1.LCS1

Run in Batch: CHR240328-W1, Run Date: 03/28/2024 13:45, Prep Date: 03/28/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Chromium VI		109	90	110

Matrix Spike (MS)

Lab Sample ID: CHR240328-W1.MS1, Parent Sample ID: S60296.02

Run in Batch: CHR240328-W1, Run Date: 03/28/2024 14:10, Prep Date: 03/28/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Chromium VI		80	80	120

Matrix Spike (MS)

Lab Sample ID: CHR240328-W1.MS2, Parent Sample ID: S60296.02

Run in Batch: CHR240328-W1, Run Date: 03/28/2024 14:55, Prep Date: 03/28/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Chromium VI	*	8	80	120

Matrix Spike Duplicate (MSD)

Lab Sample ID: CHR240328-W1.MSD1, Parent Sample ID: CHR240328-W1.MS1

Run in Batch: CHR240328-W1, Run Date: 03/28/2024 14:15, Prep Date: 03/28/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Chromium VI		86	80	120	6	15

Matrix Spike Duplicate (MSD)

Lab Sample ID: CHR240328-W1.MSD2, Parent Sample ID: CHR240328-W1.MS2

Run in Batch: CHR240328-W1, Run Date: 03/28/2024 15:00, Prep Date: 03/28/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Chromium VI	*	11	80	120	19	15

Duplicate (DUP)

Lab Sample ID: CHR240328-W1.DP1, Parent Sample ID: S60296.01

Run in Batch: CHR240328-W1, Run Date: 03/28/2024 13:55, Prep Date: 03/28/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Chromium VI		<1	15

QC Report - Batch QC Results

Metals, Prep Batch ID: MTD-032924-7

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Blank (BLK)

Lab Sample ID: MT4-24-0329C.018.LRB

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 14:49, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Arsenic		ND	0.0004	mg/L
Chromium		ND	0.001	mg/L
Copper		ND	0.001	mg/L
Lead		ND	0.0006	mg/L
Selenium		ND	0.001	mg/L
Zinc		ND	0.001	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: MT4-24-0329C.017.LCS

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 14:48, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Arsenic		102	85	115
Chromium		98	85	115
Copper		98	85	115
Lead		100	85	115
Selenium		106	85	115
Zinc		100	85	115

Matrix Spike (MS)

Lab Sample ID: MT4-24-0329C.037.MS, Parent Sample ID: S60296.01

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 15:18, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		107	75	125
Chromium		108	75	125
Copper		102	75	125
Lead		101	75	125
Selenium		104	75	125
Zinc		103	75	125

Matrix Spike (MS)

Lab Sample ID: MT4-24-0329C.058.MS, Parent Sample ID: S60297.01

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 15:49, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		106	75	125
Chromium		101	75	125
Copper		93	75	125
Lead		95	75	125
Selenium		101	75	125
Zinc		96	75	125

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-24-0329C.038.MSD, Parent Sample ID: MT4-24-0329C.037.MS

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 15:19, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		110	75	125	3	20
Chromium		108	75	125	1	20

QC Report - Batch QC Results

Metals, Prep Batch ID: MTD-032924-7 (continued)

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: MT4-24-0329C.038.MSD, Parent Sample ID: MT4-24-0329C.037.MS

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 15:19, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Copper		102	75	125	0	20
Lead		100	75	125	2	20
Selenium		107	75	125	3	20
Zinc		102	75	125	0	20

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-24-0329C.059.MSD, Parent Sample ID: MT4-24-0329C.058.MS

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 15:50, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		104	75	125	2	20
Chromium		98	75	125	3	20
Copper		95	75	125	2	20
Lead		95	75	125	0	20
Selenium		101	75	125	0	20
Zinc		97	75	125	1	20

QC Report - Batch QC Results

Metals, Prep Batch ID: MTD-032924-8

Surrogates: No, QC Types: BLK/LCS/MS/MSD

Blank (BLK)

Lab Sample ID: MT4-24-0329C.063.LRB

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 15:56, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Arsenic		ND	0.0004	mg/L
Chromium		ND	0.001	mg/L
Copper		ND	0.001	mg/L
Lead		ND	0.0006	mg/L
Selenium		ND	0.001	mg/L
Zinc		ND	0.001	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: MT4-24-0329C.062.LCS

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 15:55, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Arsenic		102	85	115
Chromium		102	85	115
Copper		99	85	115
Lead		102	85	115
Selenium		100	85	115
Zinc		98	85	115

Matrix Spike (MS)

Lab Sample ID: MT4-24-0329C.076.MS, Parent Sample ID: S60297.04

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 16:16, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		100	75	125
Chromium		100	75	125
Copper		96	75	125
Lead		95	75	125
Selenium		100	75	125
Zinc		94	75	125

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-24-0329C.077.MSD, Parent Sample ID: MT4-24-0329C.076.MS

Run in Batch: MT4-24-0329C, Run Date: 03/29/2024 16:17, Prep Date: 03/29/2024, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		102	75	125	2	20
Chromium		100	75	125	1	20
Copper		96	75	125	1	20
Lead		96	75	125	1	20
Selenium		101	75	125	0	20
Zinc		95	75	125	1	20

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240402W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK)

Lab Sample ID: 240402A7.BLKW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 13:46, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Diethyl ether		ND	1.00	ug/l
Acetone		ND	10.00	ug/l
Methyl iodide		ND	1.00	ug/l
Carbon disulfide		ND	1.00	ug/l
tert-Methyl butyl ether (MTBE)		ND	1.00	ug/l
Acrylonitrile		ND	1.00	ug/l
2-Butanone (MEK)		ND	10.00	ug/l
Dichlorodifluoromethane		ND	1.00	ug/l
Chloromethane		ND	1.00	ug/l
Vinyl chloride		ND	1.00	ug/l
Bromomethane		ND	1.00	ug/l
Chloroethane		ND	1.00	ug/l
Trichlorofluoromethane		ND	1.00	ug/l
1,1-Dichloroethene		ND	1.00	ug/l
Methylene chloride		ND	1.00	ug/l
trans-1,2-Dichloroethene		ND	1.00	ug/l
1,1-Dichloroethane		ND	1.00	ug/l
cis-1,2-Dichloroethene		ND	1.00	ug/l
Tetrahydrofuran		ND	10.00	ug/l
Chloroform		ND	1.00	ug/l
Bromochloromethane		ND	1.00	ug/l
1,1,1-Trichloroethane		ND	1.00	ug/l
4-Methyl-2-pentanone (MIBK)		ND	10.00	ug/l
2-Hexanone		ND	10.00	ug/l
Carbon tetrachloride		ND	1.00	ug/l
Benzene		ND	1.00	ug/l
1,2-Dichloroethane		ND	1.00	ug/l
Trichloroethene		ND	1.00	ug/l
1,2-Dichloropropane		ND	1.00	ug/l
Bromodichloromethane		ND	1.00	ug/l
Dibromomethane		ND	1.00	ug/l
cis-1,3-Dichloropropene		ND	1.00	ug/l
Toluene		ND	1.00	ug/l
trans-1,3-Dichloropropene		ND	1.00	ug/l
1,1,2-Trichloroethane		ND	1.00	ug/l
Tetrachloroethene		ND	1.00	ug/l
trans-1,4-Dichloro-2-butene		ND	1.00	ug/l
Dibromochloromethane		ND	1.00	ug/l
1,2-Dibromoethane		ND	1.00	ug/l
Chlorobenzene		ND	1.00	ug/l
1,1,1,2-Tetrachloroethane		ND	1.00	ug/l
Ethylbenzene		ND	1.00	ug/l
p,m-Xylene		ND	2.00	ug/l
o-Xylene		ND	1.00	ug/l
Styrene		ND	1.00	ug/l
Isopropylbenzene		ND	1.00	ug/l

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240402W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Blank (BLK) (continued)

Lab Sample ID: 240402A7.BLKW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 13:46, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Bromoform		ND	1.00	ug/l
1,1,2,2-Tetrachloroethane		ND	1.00	ug/l
1,2,3-Trichloropropane		ND	1.00	ug/l
n-Propylbenzene		ND	1.00	ug/l
Bromobenzene		ND	1.00	ug/l
1,3,5-Trimethylbenzene		ND	1.00	ug/l
tert-Butylbenzene		ND	1.00	ug/l
1,2,4-Trimethylbenzene		ND	1.00	ug/l
sec-Butylbenzene		ND	1.00	ug/l
p-Isopropyltoluene		ND	1.00	ug/l
1,3-Dichlorobenzene		ND	1.00	ug/l
1,4-Dichlorobenzene		ND	1.00	ug/l
1,2-Dichlorobenzene		ND	1.00	ug/l
1,2,3-Trimethylbenzene		ND	1.00	ug/l
n-Butylbenzene		ND	1.00	ug/l
Hexachloroethane		ND	1.00	ug/l
1,2-Dibromo-3-chloropropane		ND	1.00	ug/l
1,2,4-Trichlorobenzene		ND	1.00	ug/l
1,2,3-Trichlorobenzene		ND	1.00	ug/l
Naphthalene		ND	1.00	ug/l
2-Methylnaphthalene		ND	1.00	ug/l

Laboratory Control Sample (LCS)

Lab Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:12, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Diethyl ether		108.5	67.4	121.2
Acetone		101.1	29.9	161.5
Methyl iodide		108.0	68.8	116.4
Carbon disulfide		107.1	63.8	137.4
tert-Methyl butyl ether (MTBE)		115.2	73.2	122.4
Acrylonitrile		111.4	69.9	128.9
2-Butanone (MEK)		100.6	44.0	134.4
Dichlorodifluoromethane		104.5	10.0	222.8
Chloromethane		106.3	23.8	166.5
Vinyl chloride		101.5	43.5	149.1
Bromomethane		105.2	56.8	151.3
Chloroethane		103.0	53.4	149.4
Trichlorofluoromethane		97.7	59.7	151.8
1,1-Dichloroethene		99.0	69.6	139.4
Methylene chloride		111.6	73.3	121.1
trans-1,2-Dichloroethene		107.9	73.6	129.3
1,1-Dichloroethane		110.8	71.5	126.2
cis-1,2-Dichloroethene		111.6	76.6	122.1
Tetrahydrofuran		107.7	59.0	117.9
Chloroform		109.3	78.4	124.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240402W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:12, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Bromochloromethane		114.3	78.2	120.8
1,1,1-Trichloroethane		106.9	79.4	130.9
4-Methyl-2-pentanone (MIBK)		106.9	71.6	125.2
2-Hexanone		105.8	55.4	136.9
Carbon tetrachloride		103.5	72.6	133.0
Benzene		106.6	79.9	124.9
1,2-Dichloroethane		109.3	76.0	126.3
Trichloroethene		105.1	79.7	124.2
1,2-Dichloropropane		111.0	78.6	126.4
Bromodichloromethane		115.4	80.4	128.2
Dibromomethane		111.2	76.9	122.1
cis-1,3-Dichloropropene		119.8	79.8	129.9
Toluene		104.6	79.8	124.5
trans-1,3-Dichloropropene		112.0	74.0	131.3
1,1,2-Trichloroethane		109.9	78.7	123.1
Tetrachloroethene		100.4	74.5	124.5
trans-1,4-Dichloro-2-butene		116.8	68.6	135.4
Dibromochloromethane		118.7	74.6	127.2
1,2-Dibromoethane		112.0	70.3	133.7
Chlorobenzene		106.9	79.2	122.7
1,1,1,2-Tetrachloroethane		115.1	80.3	128.2
Ethylbenzene		105.4	79.5	129.1
p,m-Xylene		105.1	79.4	132.2
o-Xylene		106.3	80.2	131.0
Styrene		110.0	69.5	126.7
Isopropylbenzene		102.3	74.4	121.5
Bromoform		116.3	69.4	128.0
1,1,2,2-Tetrachloroethane		106.5	79.8	126.3
1,2,3-Trichloropropane		103.9	78.3	138.8
n-Propylbenzene		101.8	82.0	130.7
Bromobenzene		109.1	78.7	124.6
1,3,5-Trimethylbenzene		102.1	81.3	128.9
tert-Butylbenzene		101.1	80.7	128.9
1,2,4-Trimethylbenzene		105.0	81.4	130.8
sec-Butylbenzene		98.5	77.4	129.8
p-Isopropyltoluene		98.6	79.8	137.5
1,3-Dichlorobenzene		106.6	77.0	131.3
1,4-Dichlorobenzene		107.8	20.7	137.7
1,2-Dichlorobenzene		107.1	10.0	166.2
1,2,3-Trimethylbenzene		107.0	76.3	124.2
n-Butylbenzene		99.6	80.0	133.3
Hexachloroethane		98.4	23.8	138.1
1,2-Dibromo-3-chloropropane		98.1	21.2	189.4
1,2,4-Trichlorobenzene		108.3	27.4	143.4
1,2,3-Trichlorobenzene		107.5	75.4	131.4
Naphthalene		106.0	32.9	135.8

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240402W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:12, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
2-Methylnaphthalene		92.4	25.5	165.5

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: 240402A7.LCSDW02A, Parent Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:35, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Diethyl ether		102.8	67.4	121.2	5.4	30.0
Acetone		99.3	29.9	161.5	1.9	30.0
Methyl iodide		103.6	68.8	116.4	4.2	30.0
Carbon disulfide		103.5	63.8	137.4	3.4	30.0
tert-Methyl butyl ether (MTBE)		109.7	73.2	122.4	4.9	30.0
Acrylonitrile		110.1	69.9	128.9	1.2	30.0
2-Butanone (MEK)		98.7	44.0	134.4	1.9	30.0
Dichlorodifluoromethane		98.5	10.0	222.8	5.9	30.0
Chloromethane		103.9	23.8	166.5	2.3	30.0
Vinyl chloride		97.9	43.5	149.1	3.6	30.0
Bromomethane		100.5	56.8	151.3	4.6	30.0
Chloroethane		99.3	53.4	149.4	3.7	30.0
Trichlorofluoromethane		94.3	59.7	151.8	3.5	30.0
1,1-Dichloroethene		96.3	69.6	139.4	2.8	30.0
Methylene chloride		105.3	73.3	121.1	5.8	30.0
trans-1,2-Dichloroethene		105.1	73.6	129.3	2.7	30.0
1,1-Dichloroethane		107.2	71.5	126.2	3.3	30.0
cis-1,2-Dichloroethene		106.4	76.6	122.1	4.8	30.0
Tetrahydrofuran		104.0	59.0	117.9	3.5	30.0
Chloroform		104.5	78.4	124.0	4.5	30.0
Bromochloromethane		106.9	78.2	120.8	6.7	30.0
1,1,1-Trichloroethane		103.6	79.4	130.9	3.1	30.0
4-Methyl-2-pentanone (MIBK)		106.4	71.6	125.2	0.5	30.0
2-Hexanone		103.1	55.4	136.9	2.5	30.0
Carbon tetrachloride		102.2	72.6	133.0	1.3	30.0
Benzene		103.7	79.9	124.9	2.8	30.0
1,2-Dichloroethane		105.2	76.0	126.3	3.8	30.0
Trichloroethene		103.0	79.7	124.2	2.0	30.0
1,2-Dichloropropane		107.3	78.6	126.4	3.3	30.0
Bromodichloromethane		109.9	80.4	128.2	4.9	30.0
Dibromomethane		107.4	76.9	122.1	3.4	30.0
cis-1,3-Dichloropropene		114.2	79.8	129.9	4.8	30.0
Toluene		102.0	79.8	124.5	2.5	30.0
trans-1,3-Dichloropropene		106.5	74.0	131.3	5.0	30.0
1,1,2-Trichloroethane		105.4	78.7	123.1	4.1	30.0
Tetrachloroethene		98.6	74.5	124.5	1.8	30.0
trans-1,4-Dichloro-2-butene		101.9	68.6	135.4	13.6	30.0
Dibromochloromethane		113.0	74.6	127.2	4.9	30.0
1,2-Dibromoethane		107.4	70.3	133.7	4.2	30.0
Chlorobenzene		102.0	79.2	122.7	4.7	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: VF240402W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: 240402A7.LCSDW02A, Parent Sample ID: 240402A7.LCSW02A

Run in Batch: 240402A7, Run Date: 04/02/2024 12:35, Prep Date: 04/02/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
1,1,1,2-Tetrachloroethane		110.2	80.3	128.2	4.4	30.0
Ethylbenzene		102.3	79.5	129.1	3.0	30.0
p,m-Xylene		102.3	79.4	132.2	2.7	30.0
o-Xylene		103.0	80.2	131.0	3.2	30.0
Styrene		105.6	69.5	126.7	4.1	30.0
Isopropylbenzene		100.1	74.4	121.5	2.2	30.0
Bromoform		112.1	69.4	128.0	3.7	30.0
1,1,2,2-Tetrachloroethane		103.0	79.8	126.3	3.3	30.0
1,2,3-Trichloropropane		100.1	78.3	138.8	3.8	30.0
n-Propylbenzene		99.6	82.0	130.7	2.2	30.0
Bromobenzene		103.3	78.7	124.6	5.5	30.0
1,3,5-Trimethylbenzene		100.2	81.3	128.9	1.9	30.0
tert-Butylbenzene		98.8	80.7	128.9	2.4	30.0
1,2,4-Trimethylbenzene		100.7	81.4	130.8	4.2	30.0
sec-Butylbenzene		101.5	77.4	129.8	3.0	30.0
p-Isopropyltoluene		101.0	79.8	137.5	2.4	30.0
1,3-Dichlorobenzene		106.3	77.0	131.3	0.3	30.0
1,4-Dichlorobenzene		105.1	20.7	137.7	2.6	30.0
1,2-Dichlorobenzene		105.7	10.0	166.2	1.3	30.0
1,2,3-Trimethylbenzene		107.4	76.3	124.2	0.4	30.0
n-Butylbenzene		103.2	80.0	133.3	3.6	30.0
Hexachloroethane		100.0	23.8	138.1	1.7	30.0
1,2-Dibromo-3-chloropropane		99.3	21.2	189.4	1.3	30.0
1,2,4-Trichlorobenzene		107.8	27.4	143.4	0.4	30.0
1,2,3-Trichlorobenzene		107.5	75.4	131.4	0.0	30.0
Naphthalene		105.3	32.9	135.8	0.7	30.0
2-Methylnaphthalene		95.4	25.5	165.5	3.1	30.0

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Rodney Abke			
COMPANY Applied EcoSystems			
ADDRESS G-4300 South Saginaw Street			
CITY Burton		STATE MI	ZIP CODE 48529
PHONE NO. 810-715-2525		FAX NO. 810-715-2526	P.O. NO. PO1107477
E-MAIL ADDRESS rabke@appliedecosystems.com			QUOTE NO.

CONTACT NAME		Monica Wallingford		☐ SAME	
COMPANY Revitalizing Auto Communities Environmental Response (RACER) Trust					
ADDRESS					
CITY				STATE	ZIP CODE
PHONE NO.		E-MAIL ADDRESS			
313.486.2978		mwallingford@racertrust.org			

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME	RACER Flint West #12990	SAMPLER(S) - PLEASE PRINT/SIGN NAME
TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____		
DELIVERABLES REQUIRED ☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☒ OTHER <u>report to MDLs</u>		

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

Containers & Preservatives

MERIT LAB NO. FOR LAB USE ONLY	YEAR		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO ₃	H ₂ SO ₄	NaOH	MeOH	OTHER	VOCs	Metals	Metals	☐ Other _____ Special Instructions	
	DATE	TIME															
60297.01	3/27	15:35	MW-1105-240327	W	5	X	X	X						X	X	X	* - Metals list includes:
.03	3/27	16:32	MW-1085-240327	W	5	V	X	X						V	X	X	As, Cr-total, CR-Hex, Cu
.03	3/27	17:24	MW-1145-240327	W	5	X	X	X						X	X	X	Pb, Se, Zn
																	report down to MCLs
.104	3/27	—	Duo-1-240327	W	5	X	X	X						X	X	X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	JB4 AB	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	AE	3/27/24	10:45
RELINQUISHED BY: SIGNATURE/ORGANIZATION	AF	DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	Don Armit	3/27/24	13:10
		DATE	TIME
		3/28/24	11:24
		DATE	TIME
		3/28/24	11:11

RELINQUISHED BY: SIGNATURE/ORGANIZATION		<i>[Signature]</i>		DATE 3/28/14	TIME 10:40
RECEIVED BY: SIGNATURE/ORGANIZATION		<i>[Signature]</i>		DATE 3/28/14	TIME 12:00
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES:	TEMP. ON ARRIVAL	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS		3.6	

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

Rev. 5.19.12



Quality Control Report

Report ID: QC-S60264-01
Generated on 04/19/2024

Report to

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

Phone: 810-715-2525 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S60264.01-S60264.04
Project: RACER Flint West #12990
Submitted Date/Time: 03/27/2024 15:40
Sampled by: Unknown
P.O. #: PO1107477

QC Report Sections

Cover Page (Page 1)
Analysis Summary (Pages 2-5)
Prep Batch Summary (Page 6)
Internal Standards per Lab Sample (Pages 7-10)
Internal Standards per QC Sample (Pages 11-15)
Batch QC Results (Pages 16-20)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S60264.01
Sample Tag: FB-1-240327
Collected Date/Time: 03/27/2024 10:21
Matrix: Water
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/08/24 20:49	AK240408	PF240408W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60264.02
Sample Tag: MW-104S-240327
Collected Date/Time: 03/27/2024 12:05
Matrix: Water
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/08/24 21:09	AK240408	PF240408W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60264.03
Sample Tag: MW-106SR-240327
Collected Date/Time: 03/27/2024 13:01
Matrix: Water
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/08/24 21:29	AK240408	PF240408W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60264.04
Sample Tag: MW-112S-240327
Collected Date/Time: 03/27/2024 13:56
Matrix: Water
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/08/24 21:49	AK240408	PF240408W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF240408W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60264.01	28 PFAs	ASTMD7979-19M	04/08/24 20:49	AK240408
S60264.02	28 PFAs	ASTMD7979-19M	04/08/24 21:09	AK240408
S60264.03	28 PFAs	ASTMD7979-19M	04/08/24 21:29	AK240408
S60264.04	28 PFAs	ASTMD7979-19M	04/08/24 21:49	AK240408

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60264.01

Sample Tag: FB-1-240327

Collected Date/Time: 03/27/2024 10:21

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK240408, Run Date: 04/08/2024 20:49, Matrix: WW, Dilution: 2.12

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		96.6	50.0	150.0
M2-6:2FTSA		92.4	50.0	150.0
M2-8:2FTSA		104.5	50.0	150.0
M2PFTeDA		97.2	12.0	218.0
M3PFBS		123.9	50.0	150.0
M3PFHxS		110.2	50.0	150.0
M4PFHpA		115.4	50.0	150.0
M5PFHxA		116.4	50.0	150.0
M5PFPeA		111.9	50.0	150.0
M6PFDA		99.1	50.0	150.0
M7PFUnDA		109.8	50.0	150.0
M8FOSA		104.9	50.0	150.0
M8PFOA		113.7	50.0	150.0
M8PFOS		114.0	50.0	150.0
M9-PFNA		121.5	50.0	150.0
MPFBA		115.1	50.0	150.0
MPFDoDA		112.5	50.0	150.0
d3N-MeFOSAA		107.7	50.0	150.0
d5EtFOSAA		112.1	50.0	150.0
MHFPO-DA		116.9	50.0	150.0
d-N-EtFOSA-M		107.1	50.0	150.0
d-N-MeFOSA-M		104.3	50.0	150.0
d7-N-MeFOSE-M		91.5	50.0	150.0
d9-N-EtFOSE-M		85.4	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60264.02

Sample Tag: MW-104S-240327

Collected Date/Time: 03/27/2024 12:05

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK240408, Run Date: 04/08/2024 21:09, Matrix: WW, Dilution: 1.95

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		83.5	50.0	150.0
M2-6:2FTSA		96.9	50.0	150.0
M2-8:2FTSA		106.0	50.0	150.0
M2PFTeDA		87.7	12.0	218.0
M3PFBS		111.9	50.0	150.0
M3PFHxS		114.7	50.0	150.0
M4PFHpA		101.5	50.0	150.0
M5PFHxA		109.8	50.0	150.0
M5PFPeA		113.8	50.0	150.0
M6PFDA		105.5	50.0	150.0
M7PFUnDA		106.1	50.0	150.0
M8FOSA		103.1	50.0	150.0
M8PFOA		111.4	50.0	150.0
M8PFOS		113.4	50.0	150.0
M9-PFNA		111.9	50.0	150.0
MPFBA		110.3	50.0	150.0
MPFDoDA		105.6	50.0	150.0
d3N-MeFOSAA		103.3	50.0	150.0
d5EtFOSAA		119.1	50.0	150.0
MHFPO-DA		108.7	50.0	150.0
d-N-EtFOSA-M		102.0	50.0	150.0
d-N-MeFOSA-M		103.9	50.0	150.0
d7-N-MeFOSE-M		92.9	50.0	150.0
d9-N-EtFOSE-M		76.0	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60264.03

Sample Tag: MW-106SR-240327

Collected Date/Time: 03/27/2024 13:01

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK240408, Run Date: 04/08/2024 21:29, Matrix: WW, Dilution: 1.99

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		84.8	50.0	150.0
M2-6:2FTSA		92.7	50.0	150.0
M2-8:2FTSA		94.4	50.0	150.0
M2PFTeDA		109.2	12.0	218.0
M3PFBS		127.4	50.0	150.0
M3PFHxS		116.9	50.0	150.0
M4PFHpA		108.0	50.0	150.0
M5PFHxA		103.1	50.0	150.0
M5PFPeA		118.6	50.0	150.0
M6PFDA		110.7	50.0	150.0
M7PFUnDA		107.7	50.0	150.0
M8FOSA		103.6	50.0	150.0
M8PFOA		117.7	50.0	150.0
M8PFOS		124.6	50.0	150.0
M9-PFNA		111.7	50.0	150.0
MPFBA		118.5	50.0	150.0
MPFDoDA		114.8	50.0	150.0
d3N-MeFOSAA		113.1	50.0	150.0
d5EtFOSAA		119.5	50.0	150.0
MHFPO-DA		113.7	50.0	150.0
d-N-EtFOSA-M		109.9	50.0	150.0
d-N-MeFOSA-M		108.4	50.0	150.0
d7-N-MeFOSE-M		101.6	50.0	150.0
d9-N-EtFOSE-M		89.7	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60264.04

Sample Tag: MW-112S-240327

Collected Date/Time: 03/27/2024 13:56

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK240408, Run Date: 04/08/2024 21:49, Matrix: WW, Dilution: 2.04

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		137.6	50.0	150.0
M2-6:2FTSA		138.2	50.0	150.0
M2-8:2FTSA		145.6	50.0	150.0
M2PFTeDA		108.5	12.0	218.0
M3PFBS		131.7	50.0	150.0
M3PFHxS		127.4	50.0	150.0
M4PFHpA		117.0	50.0	150.0
M5PFHxA		115.4	50.0	150.0
M5PFPeA		125.9	50.0	150.0
M6PFDA		116.8	50.0	150.0
M7PFUnDA		116.5	50.0	150.0
M8FOSA		123.3	50.0	150.0
M8PFOA		123.2	50.0	150.0
M8PFOS		123.7	50.0	150.0
M9-PFNA		120.8	50.0	150.0
MPFBA		126.8	50.0	150.0
MPFDoDA		117.4	50.0	150.0
d3N-MeFOSAA		127.8	50.0	150.0
d5EtFOSAA		134.4	50.0	150.0
MHFPO-DA		124.2	50.0	150.0
d-N-EtFOSA-M		108.5	50.0	150.0
d-N-MeFOSA-M		115.2	50.0	150.0
d7-N-MeFOSE-M		99.5	50.0	150.0
d9-N-EtFOSE-M		94.1	50.0	150.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: PF240408W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: AK240408.BLK240408

Run in Batch: AK240408, Run Date: 04/08/2024 16:28, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		99.1	50.0	150.0
M2-6:2FTSA		94.4	50.0	150.0
M2-8:2FTSA		109.0	50.0	150.0
M2PFTeDA		97.4	12.0	218.0
M3PFBS		119.0	50.0	150.0
M3PFHxS		115.4	50.0	150.0
M4PFHpA		101.5	50.0	150.0
M5PFHxA		103.5	50.0	150.0
M5PFPeA		111.8	50.0	150.0
M6PFDA		113.3	50.0	150.0
M7PFUnDA		100.8	50.0	150.0
M8FOSA		107.4	50.0	150.0
M8PFOA		114.7	50.0	150.0
M8PFOS		108.6	50.0	150.0
M9-PFNA		101.0	50.0	150.0
MPFBA		109.5	50.0	150.0
MPFDoDA		94.1	50.0	150.0
d3N-MeFOSAA		104.2	50.0	150.0
d5EtFOSAA		119.7	50.0	150.0
MHFPO-DA		101.4	50.0	150.0
d-N-EtFOSA-M		112.7	50.0	150.0
d-N-MeFOSA-M		102.0	50.0	150.0
d7-N-MeFOSE-M		89.5	50.0	150.0
d9-N-EtFOSE-M		84.4	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample (LCS)

Lab Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 15:48, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		94.8	50.0	150.0
M2-6:2FTSA		91.6	50.0	150.0
M2-8:2FTSA		114.5	50.0	150.0
M2PFTeDA		94.5	12.0	218.0
M3PFBS		110.2	50.0	150.0
M3PFHxS		113.4	50.0	150.0
M4PFHpA		102.9	50.0	150.0
M5PFHxA		96.0	50.0	150.0
M5PFPeA		98.8	50.0	150.0
M6PFDA		103.7	50.0	150.0
M7PFUnDA		98.2	50.0	150.0
M8FOSA		95.6	50.0	150.0
M8PFOA		96.8	50.0	150.0
M8PFOS		111.1	50.0	150.0
M9-PFNA		99.5	50.0	150.0
MPFBA		101.9	50.0	150.0
MPFDoDA		95.8	50.0	150.0
d3N-MeFOSAA		93.6	50.0	150.0
d5EtFOSAA		102.9	50.0	150.0
MHFPO-DA		95.5	50.0	150.0
d-N-EtFOSA-M		100.0	50.0	150.0
d-N-MeFOSA-M		100.9	50.0	150.0
d7-N-MeFOSE-M		88.0	50.0	150.0
d9-N-EtFOSE-M		79.3	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK240408.LCSD240408, Parent Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 16:08, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		98.8	50.0	150.0
M2-6:2FTSA		101.4	50.0	150.0
M2-8:2FTSA		100.8	50.0	150.0
M2PFTeDA		97.3	12.0	218.0
M3PFBS		121.5	50.0	150.0
M3PFHxS		109.4	50.0	150.0
M4PFHpA		106.5	50.0	150.0
M5PFHxA		103.4	50.0	150.0
M5PFPeA		106.2	50.0	150.0
M6PFDA		101.5	50.0	150.0
M7PFUnDA		101.5	50.0	150.0
M8FOSA		100.8	50.0	150.0
M8PFOA		106.8	50.0	150.0
M8PFOS		102.5	50.0	150.0
M9-PFNA		108.9	50.0	150.0
MPFBA		107.8	50.0	150.0
MPFDoDA		100.8	50.0	150.0
d3N-MeFOSAA		98.5	50.0	150.0
d5EtFOSAA		113.8	50.0	150.0
MHFPO-DA		103.8	50.0	150.0
d-N-EtFOSA-M		100.9	50.0	150.0
d-N-MeFOSA-M		100.7	50.0	150.0
d7-N-MeFOSE-M		86.2	50.0	150.0
d9-N-EtFOSE-M		81.5	50.0	150.0

QC Report - Internal Standards per QC Sample

Matrix Spike (MS)

Lab Sample ID: AK240408.6030703M, Parent Sample ID: S60307.02

Run in Batch: AK240408, Run Date: 04/08/2024 23:49, Prep Date: 04/08/2024, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		132.1	50.0	150.0
M2-6:2FTSA		129.1	50.0	150.0
M2-8:2FTSA		113.1	50.0	150.0
M2PFTeDA		107.7	12.0	218.0
M3PFBS		120.1	50.0	150.0
M3PFHxS		107.4	50.0	150.0
M4PFHpA		112.4	50.0	150.0
M5PFHxA		109.5	50.0	150.0
M5PFPeA		111.4	50.0	150.0
M6PFDA		106.7	50.0	150.0
M7PFUnDA		119.3	50.0	150.0
M8FOSA		107.5	50.0	150.0
M8PFOA		116.2	50.0	150.0
M8PFOS		112.5	50.0	150.0
M9-PFNA		126.7	50.0	150.0
MPFBA		117.7	50.0	150.0
MPFDoDA		116.7	50.0	150.0
d3N-MeFOSAA		106.2	50.0	150.0
d5EtFOSAA		135.0	50.0	150.0
MHFPO-DA		108.3	50.0	150.0
d-N-EtFOSA-M		109.5	50.0	150.0
d-N-MeFOSA-M		104.9	50.0	150.0
d7-N-MeFOSE-M		88.1	50.0	150.0
d9-N-EtFOSE-M		80.8	50.0	150.0

QC Report - Internal Standards per QC Sample

Matrix Spike Duplicate (MSD)

Lab Sample ID: AK240408.6030704N, Parent Sample ID: AK240408.6030703M

Run in Batch: AK240408, Run Date: 04/09/2024 00:09, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1.96

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	153.2	50.0	150.0
M2-6:2FTSA		126.3	50.0	150.0
M2-8:2FTSA		110.3	50.0	150.0
M2PFTeDA		102.8	12.0	218.0
M3PFBS		125.8	50.0	150.0
M3PFHxS		131.6	50.0	150.0
M4PFHpA		123.5	50.0	150.0
M5PFHxA		111.5	50.0	150.0
M5PFPeA		125.0	50.0	150.0
M6PFDA		119.2	50.0	150.0
M7PFUnDA		111.0	50.0	150.0
M8FOSA		121.4	50.0	150.0
M8PFOA		117.6	50.0	150.0
M8PFOS		129.9	50.0	150.0
M9-PFNA		113.6	50.0	150.0
MPFBA		120.2	50.0	150.0
MPFDoDA		117.8	50.0	150.0
d3N-MeFOSAA		116.5	50.0	150.0
d5EtFOSAA		146.3	50.0	150.0
MHFPO-DA		96.6	50.0	150.0
d-N-EtFOSA-M		104.6	50.0	150.0
d-N-MeFOSA-M		113.6	50.0	150.0
d7-N-MeFOSE-M		93.5	50.0	150.0
d9-N-EtFOSE-M		84.7	50.0	150.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF240408W2
 Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)
 Lab Sample ID: AK240408.BLK240408

Run in Batch: AK240408, Run Date: 04/08/2024 16:28, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	10	ng/l
PFMPA		ND	2	ng/l
FPrPA (3:3 FTCA)		ND	10	ng/l
PFPPrS		ND	2	ng/l
PFPeA		ND	4	ng/l
PFMBA		ND	2	ng/l
4:2 FTSA		ND	2	ng/l
NFDHA		ND	2	ng/l
PFHxA		ND	2	ng/l
PFBS		ND	2	ng/l
HFPO-DA		ND	10	ng/l
FPePA (5:3 FTCA)		ND	10	ng/l
PFEESA		ND	2	ng/l
PFHpA		ND	2	ng/l
PFPeS		ND	2	ng/l
ADONA		ND	2	ng/l
6:2 FTSA		ND	2	ng/l
PFBSA		ND	2	ng/l
PFOA		ND	2	ng/l
PFHxS-BR		ND	2	ng/l
PFHxS		ND	2	ng/l
PFHxS-LN		ND	2	ng/l
FHpPA (7:3 FTCA)		ND	10	ng/l
PFNA		ND	2	ng/l
PFECHS		ND	2	ng/l
8:2 FTSA		ND	2	ng/l
PFHpS		ND	2	ng/l
N-MeFOSAA		ND	2	ng/l
PFDA		ND	2	ng/l
PFOS		ND	2	ng/l
PFOS-BR		ND	2	ng/l
EtFOSAA		ND	4	ng/l
PFOS-LN		ND	2	ng/l
PFHxSA		ND	2	ng/l
PFUnDA		ND	2	ng/l
9CL-PF3ONS		ND	2	ng/l
PFNS		ND	2	ng/l
PFDoDA		ND	2	ng/l
PFDS		ND	2	ng/l
PFTTrDA		ND	2	ng/l
11CL-PF3OUdS		ND	2	ng/l
FOSA		ND	2	ng/l
PFTeDA		ND	4	ng/l
PFDOS		ND	6	ng/l
NMeFOSE		ND	4	ng/l
NMeFOSAM		ND	2	ng/l

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF240408W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK) (continued)

Lab Sample ID: AK240408.BLK240408

Run in Batch: AK240408, Run Date: 04/08/2024 16:28, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
NEtFOSE		ND	4	ng/l
NEtFOSAM		ND	2	ng/l

Laboratory Control Sample (LCS)

Lab Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 15:48, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		106.2	70.0	130.0
PFMPA		74.0	70.0	130.0
FPrPA (3:3 FTCA)		96.0	70.0	130.0
PFPPrS		97.4	70.0	130.0
PFPeA		98.6	70.0	130.0
PFMBA		78.8	70.0	130.0
4:2 FTSA		87.0	70.0	130.0
NFDHA		86.0	70.0	130.0
PFHxA		96.8	70.0	130.0
PFBS		89.6	70.0	130.0
HFPO-DA		98.0	70.0	130.0
FPePA (5:3 FTCA)		92.4	70.0	130.0
PFEESA		79.2	70.0	130.0
PFHpA		104.0	70.0	130.0
PFPeS		94.4	70.0	130.0
ADONA		101.4	70.0	130.0
6:2 FTSA		111.2	70.0	130.0
PFBSA		86.8	70.0	130.0
PFOA		89.6	70.0	130.0
PFHxS		86.2	70.0	130.0
FHpPA (7:3 FTCA)		97.0	70.0	130.0
PFNA		92.0	70.0	130.0
PFECHS		104.2	70.0	130.0
8:2 FTSA		77.8	70.0	130.0
PFHpS		96.8	70.0	130.0
N-MeFOSAA		113.8	70.0	130.0
PFDA		102.0	70.0	130.0
PFOS		103.0	70.0	130.0
EtFOSAA		99.0	70.0	130.0
PFHxSA		92.8	70.0	130.0
PFUnDA		113.6	70.0	130.0
9CL-PF3ONS		87.8	70.0	130.0
PFNS		99.8	70.0	130.0
PFDoDA		112.2	70.0	130.0
PFDS		95.8	70.0	130.0
PFTTrDA		111.6	70.0	130.0
11CL-PF3OUdS		97.6	70.0	130.0
FOSA		91.6	70.0	130.0
PFTeDA		86.4	70.0	130.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF240408W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 15:48, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFDOS		104.6	70.0	130.0
NMeFOSE		92.0	70.0	130.0
NMeFOSAM		90.8	70.0	130.0
NEtFOSE		97.6	70.0	130.0
NEtFOSAM		91.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK240408.LCSD240408, Parent Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 16:08, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		107.0	70.0	130.0	0.8	30.0
PFMPA		81.4	70.0	130.0	9.5	30.0
FPrPA (3:3 FTCA)		107.0	70.0	130.0	10.8	30.0
PFPPrS		89.2	70.0	130.0	8.8	30.0
PFPeA		97.6	70.0	130.0	1.0	30.0
PFMBA		84.4	70.0	130.0	6.9	30.0
4:2 FTSA		87.0	70.0	130.0	0.0	30.0
NFDHA		90.0	70.0	130.0	4.5	30.0
PFHxA		93.6	70.0	130.0	3.4	30.0
PFBS		88.4	70.0	130.0	1.3	30.0
HFPO-DA		93.8	70.0	130.0	4.4	30.0
FPePA (5:3 FTCA)		97.2	70.0	130.0	5.1	30.0
PFEESA		84.0	70.0	130.0	5.9	30.0
PFHpA		107.6	70.0	130.0	3.4	30.0
PFPeS		92.2	70.0	130.0	2.4	30.0
ADONA		96.6	70.0	130.0	4.8	30.0
6:2 FTSA		102.6	70.0	130.0	8.0	30.0
PFBSA		88.8	70.0	130.0	2.3	30.0
PFOA		86.0	70.0	130.0	4.1	30.0
PFHxS		93.4	70.0	130.0	8.0	30.0
FHpPA (7:3 FTCA)		96.4	70.0	130.0	0.6	30.0
PFNA		85.8	70.0	130.0	7.0	30.0
PFECHS		110.6	70.0	130.0	6.0	30.0
8:2 FTSA		93.6	70.0	130.0	18.4	30.0
PFHpS		105.4	70.0	130.0	8.5	30.0
N-MeFOSAA		123.0	70.0	130.0	7.8	30.0
PFDA		104.6	70.0	130.0	2.5	30.0
PFOS		114.2	70.0	130.0	10.3	30.0
EtFOSAA		99.2	70.0	130.0	0.2	30.0
PFHxSA		88.2	70.0	130.0	5.1	30.0
PFUnDA		100.2	70.0	130.0	12.5	30.0
9CL-PF3ONS		105.8	70.0	130.0	18.6	30.0
PFNS		111.2	70.0	130.0	10.8	30.0
PFDODA		97.4	70.0	130.0	14.1	30.0
PFDS		118.4	70.0	130.0	21.1	30.0
PFTTrDA		109.2	70.0	130.0	2.2	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF240408W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK240408.LCSD240408, Parent Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 16:08, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
11CL-PF3OUdS		113.6	70.0	130.0	15.2	30.0
FOSA		93.8	70.0	130.0	2.4	30.0
PFTeDA		86.8	70.0	130.0	0.5	30.0
PFDOS		118.0	70.0	130.0	12.0	30.0
NMeFOSE		100.6	70.0	130.0	8.9	30.0
NMeFOSAM		94.0	70.0	130.0	3.5	30.0
NEtFOSE		93.6	70.0	130.0	4.2	30.0
NEtFOSAM		92.4	70.0	130.0	0.7	30.0

Matrix Spike (MS)

Lab Sample ID: AK240408.6030703M, Parent Sample ID: S60307.02

Run in Batch: AK240408, Run Date: 04/08/2024 23:49, Prep Date: 04/08/2024, Matrix: WW, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL
PFBA		110.0	70.0	130.0
PFPeA		100.0	70.0	130.0
4:2 FTSA		96.0	70.0	130.0
PFHxA		94.0	70.0	130.0
PFBS		85.0	70.0	130.0
PFHpA		100.0	70.0	130.0
PFPeS		94.0	70.0	130.0
6:2 FTSA		100.0	70.0	130.0
PFOA		82.3	70.0	130.0
PFHxS		110.0	70.0	130.0
PFNA		84.0	70.0	130.0
8:2 FTSA		85.0	70.0	130.0
PFHpS		100.0	70.0	130.0
PFDA		110.0	70.0	130.0
N-MeFOSAA		120.0	70.0	130.0
EtFOSAA		93.0	70.0	130.0
PFOS		97.0	70.0	130.0
PFUnDA		110.0	70.0	130.0
PFNS		100.0	70.0	130.0
PFDoDA		95.0	70.0	130.0
PFDS		110.0	70.0	130.0
PFTTrDA		110.0	70.0	130.0
FOSA		93.0	70.0	130.0
PFTeDA		86.0	70.0	130.0
11CL-PF3OUdS		110.0	70.0	130.0
9CL-PF3ONS		99.0	70.0	130.0
ADONA		95.0	70.0	130.0
HFPO-DA		96.0	70.0	130.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF240408W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD)

Lab Sample ID: AK240408.6030704N, Parent Sample ID: AK240408.6030703M

Run in Batch: AK240408, Run Date: 04/09/2024 00:09, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1.96

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		122.4	70.0	130.0	8.7	30.0
PFPeA		99.0	70.0	130.0	3.0	30.0
4:2 FTSA		88.8	70.0	130.0	9.8	30.0
PFHxA		102.0	70.0	130.0	6.2	30.0
PFBS		91.8	70.0	130.0	5.7	30.0
PFHpA		102.0	70.0	130.0	0.0	30.0
PFPeS		99.0	70.0	130.0	3.1	30.0
6:2 FTSA		101.0	70.0	130.0	1.0	30.0
PFOA		83.0	70.0	130.0	1.2	30.0
PFHxS		90.8	70.0	130.0	21.1	30.0
PFNA		101.0	70.0	130.0	16.4	30.0
8:2 FTSA		93.9	70.0	130.0	7.9	30.0
PFHpS		100.0	70.0	130.0	2.0	30.0
PFDA		100.0	70.0	130.0	11.5	30.0
N-MeFOSAA		112.2	70.0	130.0	8.7	30.0
EtFOSAA		96.9	70.0	130.0	2.1	30.0
PFOS		78.6	70.0	130.0	13.3	30.0
PFUnDA		112.2	70.0	130.0	0.0	30.0
PFNS		93.9	70.0	130.0	8.3	30.0
PFDoDA		88.8	70.0	130.0	8.8	30.0
PFDS		96.9	70.0	130.0	14.6	30.0
PFTTrDA		102.0	70.0	130.0	9.5	30.0
FOSA		89.8	70.0	130.0	5.5	30.0
PFTeDA		83.7	70.0	130.0	4.8	30.0
11CL-PF3OUdS		95.9	70.0	130.0	15.7	30.0
9CL-PF3ONS		102.0	70.0	130.0	1.0	30.0
ADONA		98.0	70.0	130.0	1.0	30.0
HFPO-DA		112.2	70.0	130.0	13.6	30.0

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME Rodney Abke			CONTACT NAME Monica Wallingford			☐ SAME						
COMPANY Applied EcoSystems			COMPANY Revitalizing Auto Communities Environmental Response (RACER) Trust									
ADDRESS G-4300 South Saginaw Street						ADDRESS						
CITY Burton			STATE MI		ZIP CODE 48529		CITY		STATE		ZIP CODE	
PHONE NO. 810-715-2525		FAX NO. 810-715-2526		P.O. NO. PO1107477		PHONE NO. 313.486.2978		E-MAIL ADDRESS mwallingford@racertrust.org				
E-MAIL ADDRESS rabke@appliedecosystems.com				QUOTE NO.		ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)						

[illegible]

RELINQUISHED BY: SIGNATURE/ORGANIZATION	<i>J. Landry</i>	DATE 3/27/24	TIME 1400	RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>	DATE 3/28/24	TIME 1400	RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>	DATE 3/27/24	TIME 1540	SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL <i>2.8</i>
RECEIVED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>	DATE 3/27/24	TIME 1540	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



Quality Control Report

Report ID: QC-S60307-01
Generated on 04/19/2024

Report to

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

Phone: 810-715-2525 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S60307.01-S60307.06
Project: RACER Flint West #12990
Submitted Date/Time: 03/28/2024 12:05
Sampled by: Unknown
P.O. #: PO1107477

QC Report Sections

Cover Page (Page 1)
Analysis Summary (Pages 2-7)
Prep Batch Summary (Page 8)
Internal Standards per Lab Sample (Pages 9-12)
Internal Standards per QC Sample (Pages 13-17)
Batch QC Results (Pages 18-22)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S60307.01
Sample Tag: MW-117S-240327
Collected Date/Time: 03/28/2024 08:28
Matrix: Water
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/08/24 23:09	AK240408	PF240408W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60307.02
Sample Tag: MW-103S-240327
Collected Date/Time: 03/28/2024 09:28
Matrix: Water
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/08/24 23:29	AK240408	PF240408W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60307.03
Sample Tag: MS (MW-103S-240327)
Collected Date/Time: 03/28/2024 09:28
Matrix: Water
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/08/24 23:49	AK240408	PF240408W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60307.04
Sample Tag: MSD (MW-103S-240327)
Collected Date/Time: 03/28/2024 09:28
Matrix: Water
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/09/24 00:09	AK240408	PF240408W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60307.05
Sample Tag: Trip Blank-240327
Collected Date/Time: 03/27/2024 09:00
Matrix: Water
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/09/24 00:29	AK240408	PF240408W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60307.06
Sample Tag: EB-1-240327
Collected Date/Time: 03/28/2024 10:01
Matrix: Water
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/09/24 00:49	AK240408	PF240408W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF240408W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60307.01	28 PFAs	ASTMD7979-19M	04/08/24 23:09	AK240408
S60307.02	28 PFAs	ASTMD7979-19M	04/08/24 23:29	AK240408
S60307.03	28 PFAs	ASTMD7979-19M	04/08/24 23:49	AK240408
S60307.04	28 PFAs	ASTMD7979-19M	04/09/24 00:09	AK240408
S60307.05	28 PFAs	ASTMD7979-19M	04/09/24 00:29	AK240408
S60307.06	28 PFAs	ASTMD7979-19M	04/09/24 00:49	AK240408

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60307.01

Sample Tag: MW-117S-240327

Collected Date/Time: 03/28/2024 08:28

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK240408, Run Date: 04/08/2024 23:09, Matrix: WW, Dilution: 2.01

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		91.0	50.0	150.0
M2-6:2FTSA		98.2	50.0	150.0
M2-8:2FTSA		92.7	50.0	150.0
M2PFTeDA		96.5	12.0	218.0
M3PFBS		114.0	50.0	150.0
M3PFHxS		117.2	50.0	150.0
M4PFHpA		123.0	50.0	150.0
M5PFHxA		106.7	50.0	150.0
M5PFPeA		115.4	50.0	150.0
M6PFDA		111.8	50.0	150.0
M7PFUnDA		107.6	50.0	150.0
M8FOSA		104.6	50.0	150.0
M8PFOA		115.6	50.0	150.0
M8PFOS		110.0	50.0	150.0
M9-PFNA		115.2	50.0	150.0
MPFBA		116.5	50.0	150.0
MPFDoDA		108.3	50.0	150.0
d3N-MeFOSAA		105.4	50.0	150.0
d5EtFOSAA		106.8	50.0	150.0
MHFPO-DA		114.7	50.0	150.0
d-N-EtFOSA-M		106.8	50.0	150.0
d-N-MeFOSA-M		108.4	50.0	150.0
d7-N-MeFOSE-M		95.3	50.0	150.0
d9-N-EtFOSE-M		83.3	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60307.02

Sample Tag: MW-103S-240327

Collected Date/Time: 03/28/2024 09:28

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK240408, Run Date: 04/08/2024 23:29, Matrix: WW, Dilution: 1.92

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		120.8	50.0	150.0
M2-6:2FTSA		139.5	50.0	150.0
M2-8:2FTSA		107.4	50.0	150.0
M2PFTeDA		118.2	12.0	218.0
M3PFBS		116.3	50.0	150.0
M3PFHxS		120.8	50.0	150.0
M4PFHpA		105.9	50.0	150.0
M5PFHxA		103.9	50.0	150.0
M5PFPeA		118.6	50.0	150.0
M6PFDA		115.3	50.0	150.0
M7PFUnDA		126.6	50.0	150.0
M8FOSA		105.9	50.0	150.0
M8PFOA		108.5	50.0	150.0
M8PFOS		112.9	50.0	150.0
M9-PFNA		110.7	50.0	150.0
MPFBA		117.4	50.0	150.0
MPFDoDA		122.2	50.0	150.0
d3N-MeFOSAA		115.4	50.0	150.0
d5EtFOSAA		136.7	50.0	150.0
MHFPO-DA		106.3	50.0	150.0
d-N-EtFOSA-M		108.7	50.0	150.0
d-N-MeFOSA-M		108.3	50.0	150.0
d7-N-MeFOSE-M		89.8	50.0	150.0
d9-N-EtFOSE-M		85.9	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60307.05

Sample Tag: Trip Blank-240327

Collected Date/Time: 03/27/2024 09:00

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK240408, Run Date: 04/09/2024 00:29, Matrix: WW, Dilution: 1.95

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		108.0	50.0	150.0
M2-6:2FTSA		101.0	50.0	150.0
M2-8:2FTSA		112.6	50.0	150.0
M2PFTeDA		93.7	12.0	218.0
M3PFBS		128.4	50.0	150.0
M3PFHxS		138.0	50.0	150.0
M4PFHpA		128.1	50.0	150.0
M5PFHxA		110.8	50.0	150.0
M5PFPeA		118.2	50.0	150.0
M6PFDA		113.1	50.0	150.0
M7PFUnDA		108.9	50.0	150.0
M8FOSA		113.6	50.0	150.0
M8PFOA		115.2	50.0	150.0
M8PFOS		125.1	50.0	150.0
M9-PFNA		120.5	50.0	150.0
MPFBA		120.4	50.0	150.0
MPFDoDA		112.6	50.0	150.0
d3N-MeFOSAA		111.8	50.0	150.0
d5EtFOSAA		118.0	50.0	150.0
MHFPO-DA		115.8	50.0	150.0
d-N-EtFOSA-M		102.7	50.0	150.0
d-N-MeFOSA-M		107.4	50.0	150.0
d7-N-MeFOSE-M		92.3	50.0	150.0
d9-N-EtFOSE-M		88.0	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60307.06

Sample Tag: EB-1-240327

Collected Date/Time: 03/28/2024 10:01

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK240408, Run Date: 04/09/2024 00:49, Matrix: WW, Dilution: 1.94

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		94.6	50.0	150.0
M2-6:2FTSA		104.5	50.0	150.0
M2-8:2FTSA		104.3	50.0	150.0
M2PFTeDA		94.9	12.0	218.0
M3PFBS		114.4	50.0	150.0
M3PFHxS		113.8	50.0	150.0
M4PFHpA		110.0	50.0	150.0
M5PFHxA		101.2	50.0	150.0
M5PFPeA		111.1	50.0	150.0
M6PFDA		108.1	50.0	150.0
M7PFUnDA		101.9	50.0	150.0
M8FOSA		107.2	50.0	150.0
M8PFOA		117.0	50.0	150.0
M8PFOS		114.3	50.0	150.0
M9-PFNA		108.8	50.0	150.0
MPFBA		112.5	50.0	150.0
MPFDoDA		111.6	50.0	150.0
d3N-MeFOSAA		108.4	50.0	150.0
d5EtFOSAA		99.1	50.0	150.0
MHFPO-DA		105.1	50.0	150.0
d-N-EtFOSA-M		94.2	50.0	150.0
d-N-MeFOSA-M		99.9	50.0	150.0
d7-N-MeFOSE-M		83.2	50.0	150.0
d9-N-EtFOSE-M		83.9	50.0	150.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: PF240408W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: AK240408.BLK240408

Run in Batch: AK240408, Run Date: 04/08/2024 16:28, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		99.1	50.0	150.0
M2-6:2FTSA		94.4	50.0	150.0
M2-8:2FTSA		109.0	50.0	150.0
M2PFTeDA		97.4	12.0	218.0
M3PFBS		119.0	50.0	150.0
M3PFHxS		115.4	50.0	150.0
M4PFHpA		101.5	50.0	150.0
M5PFHxA		103.5	50.0	150.0
M5PFPeA		111.8	50.0	150.0
M6PFDA		113.3	50.0	150.0
M7PFUnDA		100.8	50.0	150.0
M8FOSA		107.4	50.0	150.0
M8PFOA		114.7	50.0	150.0
M8PFOS		108.6	50.0	150.0
M9-PFNA		101.0	50.0	150.0
MPFBA		109.5	50.0	150.0
MPFDoDA		94.1	50.0	150.0
d3N-MeFOSAA		104.2	50.0	150.0
d5EtFOSAA		119.7	50.0	150.0
MHFPO-DA		101.4	50.0	150.0
d-N-EtFOSA-M		112.7	50.0	150.0
d-N-MeFOSA-M		102.0	50.0	150.0
d7-N-MeFOSE-M		89.5	50.0	150.0
d9-N-EtFOSE-M		84.4	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample (LCS)

Lab Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 15:48, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		94.8	50.0	150.0
M2-6:2FTSA		91.6	50.0	150.0
M2-8:2FTSA		114.5	50.0	150.0
M2PFTeDA		94.5	12.0	218.0
M3PFBS		110.2	50.0	150.0
M3PFHxS		113.4	50.0	150.0
M4PFHpA		102.9	50.0	150.0
M5PFHxA		96.0	50.0	150.0
M5PFPeA		98.8	50.0	150.0
M6PFDA		103.7	50.0	150.0
M7PFUnDA		98.2	50.0	150.0
M8FOSA		95.6	50.0	150.0
M8PFOA		96.8	50.0	150.0
M8PFOS		111.1	50.0	150.0
M9-PFNA		99.5	50.0	150.0
MPFBA		101.9	50.0	150.0
MPFDoDA		95.8	50.0	150.0
d3N-MeFOSAA		93.6	50.0	150.0
d5EtFOSAA		102.9	50.0	150.0
MHFPO-DA		95.5	50.0	150.0
d-N-EtFOSA-M		100.0	50.0	150.0
d-N-MeFOSA-M		100.9	50.0	150.0
d7-N-MeFOSE-M		88.0	50.0	150.0
d9-N-EtFOSE-M		79.3	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK240408.LCSD240408, Parent Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 16:08, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		98.8	50.0	150.0
M2-6:2FTSA		101.4	50.0	150.0
M2-8:2FTSA		100.8	50.0	150.0
M2PFTeDA		97.3	12.0	218.0
M3PFBS		121.5	50.0	150.0
M3PFHxS		109.4	50.0	150.0
M4PFHpA		106.5	50.0	150.0
M5PFHxA		103.4	50.0	150.0
M5PFPeA		106.2	50.0	150.0
M6PFDA		101.5	50.0	150.0
M7PFUnDA		101.5	50.0	150.0
M8FOSA		100.8	50.0	150.0
M8PFOA		106.8	50.0	150.0
M8PFOS		102.5	50.0	150.0
M9-PFNA		108.9	50.0	150.0
MPFBA		107.8	50.0	150.0
MPFDoDA		100.8	50.0	150.0
d3N-MeFOSAA		98.5	50.0	150.0
d5EtFOSAA		113.8	50.0	150.0
MHFPO-DA		103.8	50.0	150.0
d-N-EtFOSA-M		100.9	50.0	150.0
d-N-MeFOSA-M		100.7	50.0	150.0
d7-N-MeFOSE-M		86.2	50.0	150.0
d9-N-EtFOSE-M		81.5	50.0	150.0

QC Report - Internal Standards per QC Sample

Matrix Spike (MS)

Lab Sample ID: AK240408.6030703M, Parent Sample ID: S60307.02

Run in Batch: AK240408, Run Date: 04/08/2024 23:49, Prep Date: 04/08/2024, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		132.1	50.0	150.0
M2-6:2FTSA		129.1	50.0	150.0
M2-8:2FTSA		113.1	50.0	150.0
M2PFTeDA		107.7	12.0	218.0
M3PFBS		120.1	50.0	150.0
M3PFHxS		107.4	50.0	150.0
M4PFHpA		112.4	50.0	150.0
M5PFHxA		109.5	50.0	150.0
M5PFPeA		111.4	50.0	150.0
M6PFDA		106.7	50.0	150.0
M7PFUnDA		119.3	50.0	150.0
M8FOSA		107.5	50.0	150.0
M8PFOA		116.2	50.0	150.0
M8PFOS		112.5	50.0	150.0
M9-PFNA		126.7	50.0	150.0
MPFBA		117.7	50.0	150.0
MPFDoDA		116.7	50.0	150.0
d3N-MeFOSAA		106.2	50.0	150.0
d5EtFOSAA		135.0	50.0	150.0
MHFPO-DA		108.3	50.0	150.0
d-N-EtFOSA-M		109.5	50.0	150.0
d-N-MeFOSA-M		104.9	50.0	150.0
d7-N-MeFOSE-M		88.1	50.0	150.0
d9-N-EtFOSE-M		80.8	50.0	150.0

QC Report - Internal Standards per QC Sample

Matrix Spike Duplicate (MSD)

Lab Sample ID: AK240408.6030704N, Parent Sample ID: AK240408.6030703M

Run in Batch: AK240408, Run Date: 04/09/2024 00:09, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1.96

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	153.2	50.0	150.0
M2-6:2FTSA		126.3	50.0	150.0
M2-8:2FTSA		110.3	50.0	150.0
M2PFTeDA		102.8	12.0	218.0
M3PFBS		125.8	50.0	150.0
M3PFHxS		131.6	50.0	150.0
M4PFHpA		123.5	50.0	150.0
M5PFHxA		111.5	50.0	150.0
M5PFPeA		125.0	50.0	150.0
M6PFDA		119.2	50.0	150.0
M7PFUnDA		111.0	50.0	150.0
M8FOSA		121.4	50.0	150.0
M8PFOA		117.6	50.0	150.0
M8PFOS		129.9	50.0	150.0
M9-PFNA		113.6	50.0	150.0
MPFBA		120.2	50.0	150.0
MPFDoDA		117.8	50.0	150.0
d3N-MeFOSAA		116.5	50.0	150.0
d5EtFOSAA		146.3	50.0	150.0
MHFPO-DA		96.6	50.0	150.0
d-N-EtFOSA-M		104.6	50.0	150.0
d-N-MeFOSA-M		113.6	50.0	150.0
d7-N-MeFOSE-M		93.5	50.0	150.0
d9-N-EtFOSE-M		84.7	50.0	150.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF240408W2
 Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: AK240408.BLK240408
 Run in Batch: AK240408, Run Date: 04/08/2024 16:28, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	10	ng/l
PFMPA		ND	2	ng/l
FPrPA (3:3 FTCA)		ND	10	ng/l
PFPPrS		ND	2	ng/l
PFPeA		ND	4	ng/l
PFMBA		ND	2	ng/l
4:2 FTSA		ND	2	ng/l
NFDHA		ND	2	ng/l
PFHxA		ND	2	ng/l
PFBS		ND	2	ng/l
HFPO-DA		ND	10	ng/l
FPePA (5:3 FTCA)		ND	10	ng/l
PFEESA		ND	2	ng/l
PFFHpA		ND	2	ng/l
PFPeS		ND	2	ng/l
ADONA		ND	2	ng/l
6:2 FTSA		ND	2	ng/l
PFBSA		ND	2	ng/l
PFOA		ND	2	ng/l
PFHxS-BR		ND	2	ng/l
PFHxS		ND	2	ng/l
PFHxS-LN		ND	2	ng/l
FHpPA (7:3 FTCA)		ND	10	ng/l
PFNA		ND	2	ng/l
PFECHS		ND	2	ng/l
8:2 FTSA		ND	2	ng/l
PFFHpS		ND	2	ng/l
N-MeFOSAA		ND	2	ng/l
PFDA		ND	2	ng/l
PFOS		ND	2	ng/l
PFOS-BR		ND	2	ng/l
EtFOSAA		ND	4	ng/l
PFOS-LN		ND	2	ng/l
PFHxSA		ND	2	ng/l
PFOuDA		ND	2	ng/l
9CL-PF3ONS		ND	2	ng/l
PFNS		ND	2	ng/l
PFDODA		ND	2	ng/l
PFDS		ND	2	ng/l
PFTTrDA		ND	2	ng/l
11CL-PF3OUdS		ND	2	ng/l
FOSA		ND	2	ng/l
PFTTeDA		ND	4	ng/l
PFDOS		ND	6	ng/l
NMeFOSE		ND	4	ng/l
NMeFOSAM		ND	2	ng/l

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF240408W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK) (continued)

Lab Sample ID: AK240408.BLK240408

Run in Batch: AK240408, Run Date: 04/08/2024 16:28, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
NEtFOSE		ND	4	ng/l
NEtFOSAM		ND	2	ng/l

Laboratory Control Sample (LCS)

Lab Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 15:48, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		106.2	70.0	130.0
PFMPA		74.0	70.0	130.0
FPrPA (3:3 FTCA)		96.0	70.0	130.0
PFPPrS		97.4	70.0	130.0
PFPeA		98.6	70.0	130.0
PFMBA		78.8	70.0	130.0
4:2 FTSA		87.0	70.0	130.0
NFDHA		86.0	70.0	130.0
PFHxA		96.8	70.0	130.0
PFBS		89.6	70.0	130.0
HFPO-DA		98.0	70.0	130.0
FPePA (5:3 FTCA)		92.4	70.0	130.0
PFEESA		79.2	70.0	130.0
PFHpA		104.0	70.0	130.0
PFPeS		94.4	70.0	130.0
ADONA		101.4	70.0	130.0
6:2 FTSA		111.2	70.0	130.0
PFBSA		86.8	70.0	130.0
PFOA		89.6	70.0	130.0
PFHxS		86.2	70.0	130.0
FHpPA (7:3 FTCA)		97.0	70.0	130.0
PFNA		92.0	70.0	130.0
PFECHS		104.2	70.0	130.0
8:2 FTSA		77.8	70.0	130.0
PFHpS		96.8	70.0	130.0
N-MeFOSAA		113.8	70.0	130.0
PFDA		102.0	70.0	130.0
PFOS		103.0	70.0	130.0
EtFOSAA		99.0	70.0	130.0
PFHxSA		92.8	70.0	130.0
PFUnDA		113.6	70.0	130.0
9CL-PF3ONS		87.8	70.0	130.0
PFNS		99.8	70.0	130.0
PFDoDA		112.2	70.0	130.0
PFDS		95.8	70.0	130.0
PFTTrDA		111.6	70.0	130.0
11CL-PF3OUdS		97.6	70.0	130.0
FOSA		91.6	70.0	130.0
PFTeDA		86.4	70.0	130.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF240408W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 15:48, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFDOS		104.6	70.0	130.0
NMeFOSE		92.0	70.0	130.0
NMeFOSAM		90.8	70.0	130.0
NEtFOSE		97.6	70.0	130.0
NEtFOSAM		91.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK240408.LCSD240408, Parent Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 16:08, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		107.0	70.0	130.0	0.8	30.0
PFMPA		81.4	70.0	130.0	9.5	30.0
FPrPA (3:3 FTCA)		107.0	70.0	130.0	10.8	30.0
PFPPrS		89.2	70.0	130.0	8.8	30.0
PFPeA		97.6	70.0	130.0	1.0	30.0
PFMBA		84.4	70.0	130.0	6.9	30.0
4:2 FTSA		87.0	70.0	130.0	0.0	30.0
NFDHA		90.0	70.0	130.0	4.5	30.0
PFHxA		93.6	70.0	130.0	3.4	30.0
PFBS		88.4	70.0	130.0	1.3	30.0
HFPO-DA		93.8	70.0	130.0	4.4	30.0
FPePA (5:3 FTCA)		97.2	70.0	130.0	5.1	30.0
PFEESA		84.0	70.0	130.0	5.9	30.0
PFHpA		107.6	70.0	130.0	3.4	30.0
PFPeS		92.2	70.0	130.0	2.4	30.0
ADONA		96.6	70.0	130.0	4.8	30.0
6:2 FTSA		102.6	70.0	130.0	8.0	30.0
PFBSA		88.8	70.0	130.0	2.3	30.0
PFOA		86.0	70.0	130.0	4.1	30.0
PFHxS		93.4	70.0	130.0	8.0	30.0
FHpPA (7:3 FTCA)		96.4	70.0	130.0	0.6	30.0
PFNA		85.8	70.0	130.0	7.0	30.0
PFECHS		110.6	70.0	130.0	6.0	30.0
8:2 FTSA		93.6	70.0	130.0	18.4	30.0
PFHpS		105.4	70.0	130.0	8.5	30.0
N-MeFOSAA		123.0	70.0	130.0	7.8	30.0
PFDA		104.6	70.0	130.0	2.5	30.0
PFOS		114.2	70.0	130.0	10.3	30.0
EtFOSAA		99.2	70.0	130.0	0.2	30.0
PFHxSA		88.2	70.0	130.0	5.1	30.0
PFUnDA		100.2	70.0	130.0	12.5	30.0
9CL-PF3ONS		105.8	70.0	130.0	18.6	30.0
PFNS		111.2	70.0	130.0	10.8	30.0
PFDODA		97.4	70.0	130.0	14.1	30.0
PFDS		118.4	70.0	130.0	21.1	30.0
PFTTrDA		109.2	70.0	130.0	2.2	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF240408W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK240408.LCSD240408, Parent Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 16:08, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
11CL-PF3OUdS		113.6	70.0	130.0	15.2	30.0
FOSA		93.8	70.0	130.0	2.4	30.0
PFTeDA		86.8	70.0	130.0	0.5	30.0
PFDOS		118.0	70.0	130.0	12.0	30.0
NMeFOSE		100.6	70.0	130.0	8.9	30.0
NMeFOSAM		94.0	70.0	130.0	3.5	30.0
NEtFOSE		93.6	70.0	130.0	4.2	30.0
NEtFOSAM		92.4	70.0	130.0	0.7	30.0

Matrix Spike (MS)

Lab Sample ID: AK240408.6030703M, Parent Sample ID: S60307.02

Run in Batch: AK240408, Run Date: 04/08/2024 23:49, Prep Date: 04/08/2024, Matrix: WW, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL
PFBA		110.0	70.0	130.0
PFPeA		100.0	70.0	130.0
4:2 FTSA		96.0	70.0	130.0
PFHxA		94.0	70.0	130.0
PFBS		85.0	70.0	130.0
PFHpA		100.0	70.0	130.0
PFPeS		94.0	70.0	130.0
6:2 FTSA		100.0	70.0	130.0
PFOA		82.3	70.0	130.0
PFHxS		110.0	70.0	130.0
PFNA		84.0	70.0	130.0
8:2 FTSA		85.0	70.0	130.0
PFHpS		100.0	70.0	130.0
PFDA		110.0	70.0	130.0
N-MeFOSAA		120.0	70.0	130.0
EtFOSAA		93.0	70.0	130.0
PFOS		97.0	70.0	130.0
PFUnDA		110.0	70.0	130.0
PFNS		100.0	70.0	130.0
PFDoDA		95.0	70.0	130.0
PFDS		110.0	70.0	130.0
PFTTrDA		110.0	70.0	130.0
FOSA		93.0	70.0	130.0
PFTeDA		86.0	70.0	130.0
11CL-PF3OUdS		110.0	70.0	130.0
9CL-PF3ONS		99.0	70.0	130.0
ADONA		95.0	70.0	130.0
HFPO-DA		96.0	70.0	130.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF240408W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD)

Lab Sample ID: AK240408.6030704N, Parent Sample ID: AK240408.6030703M

Run in Batch: AK240408, Run Date: 04/09/2024 00:09, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1.96

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		122.4	70.0	130.0	8.7	30.0
PFPeA		99.0	70.0	130.0	3.0	30.0
4:2 FTSA		88.8	70.0	130.0	9.8	30.0
PFHxA		102.0	70.0	130.0	6.2	30.0
PFBS		91.8	70.0	130.0	5.7	30.0
PFHpA		102.0	70.0	130.0	0.0	30.0
PFPeS		99.0	70.0	130.0	3.1	30.0
6:2 FTSA		101.0	70.0	130.0	1.0	30.0
PFOA		83.0	70.0	130.0	1.2	30.0
PFHxS		90.8	70.0	130.0	21.1	30.0
PFNA		101.0	70.0	130.0	16.4	30.0
8:2 FTSA		93.9	70.0	130.0	7.9	30.0
PFHpS		100.0	70.0	130.0	2.0	30.0
PFDA		100.0	70.0	130.0	11.5	30.0
N-MeFOSAA		112.2	70.0	130.0	8.7	30.0
EtFOSAA		96.9	70.0	130.0	2.1	30.0
PFOS		78.6	70.0	130.0	13.3	30.0
PFUnDA		112.2	70.0	130.0	0.0	30.0
PFNS		93.9	70.0	130.0	8.3	30.0
PFDoDA		88.8	70.0	130.0	8.8	30.0
PFDS		96.9	70.0	130.0	14.6	30.0
PFTTrDA		102.0	70.0	130.0	9.5	30.0
FOSA		89.8	70.0	130.0	5.5	30.0
PFTeDA		83.7	70.0	130.0	4.8	30.0
11CL-PF3OUdS		95.9	70.0	130.0	15.7	30.0
9CL-PF3ONS		102.0	70.0	130.0	1.0	30.0
ADONA		98.0	70.0	130.0	1.0	30.0
HFPO-DA		112.2	70.0	130.0	13.6	30.0

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME				Rodney Abke			
COMPANY				Applied EcoSystems			
ADDRESS				G-4300 South Saginaw Street			
CITY			STATE		MI		ZIP CODE
Burton							48529
PHONE NO.		FAX NO.		P.O. NO.			
810-715-2525		810-715-2526		PO1107477			
E-MAIL ADDRESS				QUOTE NO.			
rabke@appliedecosystems.com							

CONTACT NAME		Monica Wallingford		☐ SAME	
COMPANY					
Revitalizing Auto Communities Environmental Response (RACER) Trust					
ADDRESS					
CITY				STATE	ZIP CODE
PHONE NO.		E-MAIL ADDRESS			
313.486.2978		mwallingford@racetrust.org			

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME	RACER Flint West #12990	SAMPLER(S) - PLEASE PRINT/SIGN NAME
TURNAROUND TIME REQUIRED	☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____	
DELIVERABLES REQUIRED	☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☒ OTHER <u>report to MDIs</u>	

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

Containers & Preservatives[illegible][illegible]

RELINQUISHED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>	☒ Sampler	DATE 3/28/07	TIME 11:00
RECEIVED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>		DATE 3/28/07	TIME 11:00
RELINQUISHED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>		DATE 3/28/07	TIME 11:00
RECEIVED BY: SIGNATURE/ORGANIZATION	<i>[Signature]</i>		DATE 3/28/07	TIME 11:00

RELINQUISHED BY:			DATE	TIME
SIGNATURE/ORGANIZATION				
RECEIVED BY:			DATE	TIME
SIGNATURE/ORGANIZATION				
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL <u>3.6</u>	
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS		

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



Quality Control Report

Report ID: QC-S60309-01
Generated on 04/19/2024

Report to

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

Phone: 810-715-2525 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S60309.01-S60309.04
Project: RACER Flint West #12990
Submitted Date/Time: 03/28/2024 12:05
Sampled by: Unknown
P.O. #: PO1107477

QC Report Sections

Cover Page (Page 1)
Analysis Summary (Pages 2-5)
Prep Batch Summary (Page 6)
Internal Standards per Lab Sample (Pages 7-10)
Internal Standards per QC Sample (Pages 11-15)
Batch QC Results (Pages 16-20)

Report Flag Descriptions

*: QC result is outside of indicated control limits
W: Surrogate result not applicable due to sample dilution

I certify that this data package is in compliance with the terms and conditions of the program, and project, and contractual requirements both technically and for completeness. Release of the data contained in this hardcopy data package and its computer-readable data submitted has been authorized by the Quality Assurance Manager and his/her designee, as verified by the following signature.

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S60309.01
Sample Tag: MW-110S-240327
Collected Date/Time: 03/27/2024 15:35
Matrix: Water
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/09/24 01:49	AK240408	PF240408W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60309.02
Sample Tag: MW-108S-240327
Collected Date/Time: 03/27/2024 16:29
Matrix: Water
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/09/24 02:09	AK240408	PF240408W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60309.03
Sample Tag: MW-114S-240327
Collected Date/Time: 03/27/2024 17:19
Matrix: Water
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/09/24 02:29	AK240408	PF240408W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S60309.04
Sample Tag: Dup-1-240327
Collected Date/Time: 03/27/2024 00:01
Matrix: Water
COC Reference:

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	04/09/24 02:49	AK240408	PF240408W2	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF240408W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S60309.01	28 PFAs	ASTMD7979-19M	04/09/24 01:49	AK240408
S60309.02	28 PFAs	ASTMD7979-19M	04/09/24 02:09	AK240408
S60309.03	28 PFAs	ASTMD7979-19M	04/09/24 02:29	AK240408
S60309.04	28 PFAs	ASTMD7979-19M	04/09/24 02:49	AK240408

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60309.01

Sample Tag: MW-110S-240327

Collected Date/Time: 03/27/2024 15:35

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK240408, Run Date: 04/09/2024 01:49, Matrix: WW, Dilution: 1.91

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		90.3	50.0	150.0
M2-6:2FTSA		95.0	50.0	150.0
M2-8:2FTSA		95.4	50.0	150.0
M2PFTeDA		94.6	12.0	218.0
M3PFBS		120.5	50.0	150.0
M3PFHxS		122.2	50.0	150.0
M4PFHpA		110.3	50.0	150.0
M5PFHxA		99.5	50.0	150.0
M5PFPeA		117.2	50.0	150.0
M6PFDA		116.6	50.0	150.0
M7PFUnDA		99.8	50.0	150.0
M8FOSA		106.8	50.0	150.0
M8PFOA		110.1	50.0	150.0
M8PFOS		112.4	50.0	150.0
M9-PFNA		102.5	50.0	150.0
MPFBA		113.2	50.0	150.0
MPFDoDA		108.8	50.0	150.0
d3N-MeFOSAA		90.9	50.0	150.0
d5EtFOSAA		102.7	50.0	150.0
MHFPO-DA		105.1	50.0	150.0
d-N-EtFOSA-M		102.2	50.0	150.0
d-N-MeFOSA-M		98.9	50.0	150.0
d7-N-MeFOSE-M		82.6	50.0	150.0
d9-N-EtFOSE-M		79.2	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60309.02

Sample Tag: MW-108S-240327

Collected Date/Time: 03/27/2024 16:29

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK240408, Run Date: 04/09/2024 02:09, Matrix: WW, Dilution: 1.99

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		81.4	50.0	150.0
M2-6:2FTSA		93.0	50.0	150.0
M2-8:2FTSA		104.3	50.0	150.0
M2PFTeDA		105.5	12.0	218.0
M3PFBS		125.2	50.0	150.0
M3PFHxS		118.4	50.0	150.0
M4PFHpA		109.2	50.0	150.0
M5PFHxA		121.6	50.0	150.0
M5PFPeA		118.2	50.0	150.0
M6PFDA		117.2	50.0	150.0
M7PFUnDA		110.7	50.0	150.0
M8FOSA		109.8	50.0	150.0
M8PFOA		118.8	50.0	150.0
M8PFOS		112.7	50.0	150.0
M9-PFNA		129.4	50.0	150.0
MPFBA		119.8	50.0	150.0
MPFDoDA		119.8	50.0	150.0
d3N-MeFOSAA		117.1	50.0	150.0
d5EtFOSAA		123.9	50.0	150.0
MHFPO-DA		114.7	50.0	150.0
d-N-EtFOSA-M		106.7	50.0	150.0
d-N-MeFOSA-M		111.9	50.0	150.0
d7-N-MeFOSE-M		96.5	50.0	150.0
d9-N-EtFOSE-M		81.6	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60309.03

Sample Tag: MW-114S-240327

Collected Date/Time: 03/27/2024 17:19

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK240408, Run Date: 04/09/2024 02:29, Matrix: WW, Dilution: 1.96

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		94.1	50.0	150.0
M2-6:2FTSA		112.8	50.0	150.0
M2-8:2FTSA		105.0	50.0	150.0
M2PFTeDA		93.1	12.0	218.0
M3PFBS		125.7	50.0	150.0
M3PFHxS		124.4	50.0	150.0
M4PFHpA		118.4	50.0	150.0
M5PFHxA		107.7	50.0	150.0
M5PFPeA		117.1	50.0	150.0
M6PFDA		119.5	50.0	150.0
M7PFUnDA		117.2	50.0	150.0
M8FOSA		114.8	50.0	150.0
M8PFOA		131.8	50.0	150.0
M8PFOS		131.0	50.0	150.0
M9-PFNA		125.1	50.0	150.0
MPFBA		124.8	50.0	150.0
MPFDoDA		112.5	50.0	150.0
d3N-MeFOSAA		113.2	50.0	150.0
d5EtFOSAA		126.8	50.0	150.0
MHFPO-DA		128.4	50.0	150.0
d-N-EtFOSA-M		102.7	50.0	150.0
d-N-MeFOSA-M		111.6	50.0	150.0
d7-N-MeFOSE-M		96.4	50.0	150.0
d9-N-EtFOSE-M		90.4	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S60309.04

Sample Tag: Dup-1-240327

Collected Date/Time: 03/27/2024 00:01

Matrix: Water

COC Reference:

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK240408, Run Date: 04/09/2024 02:49, Matrix: WW, Dilution: 1.99

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		87.7	50.0	150.0
M2-6:2FTSA		105.0	50.0	150.0
M2-8:2FTSA		96.9	50.0	150.0
M2PFTeDA		99.4	12.0	218.0
M3PFBS		122.9	50.0	150.0
M3PFHxS		122.7	50.0	150.0
M4PFHpA		114.6	50.0	150.0
M5PFHxA		109.8	50.0	150.0
M5PFPeA		116.4	50.0	150.0
M6PFDA		112.7	50.0	150.0
M7PFUnDA		111.8	50.0	150.0
M8FOSA		109.8	50.0	150.0
M8PFOA		121.6	50.0	150.0
M8PFOS		112.3	50.0	150.0
M9-PFNA		118.4	50.0	150.0
MPFBA		119.8	50.0	150.0
MPFDoDA		114.2	50.0	150.0
d3N-MeFOSAA		110.9	50.0	150.0
d5EtFOSAA		109.1	50.0	150.0
MHFPO-DA		116.3	50.0	150.0
d-N-EtFOSA-M		114.2	50.0	150.0
d-N-MeFOSA-M		115.5	50.0	150.0
d7-N-MeFOSE-M		94.8	50.0	150.0
d9-N-EtFOSE-M		85.1	50.0	150.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: PF240408W2

QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: AK240408.BLK240408

Run in Batch: AK240408, Run Date: 04/08/2024 16:28, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		99.1	50.0	150.0
M2-6:2FTSA		94.4	50.0	150.0
M2-8:2FTSA		109.0	50.0	150.0
M2PFTeDA		97.4	12.0	218.0
M3PFBS		119.0	50.0	150.0
M3PFHxS		115.4	50.0	150.0
M4PFHpA		101.5	50.0	150.0
M5PFHxA		103.5	50.0	150.0
M5PFPeA		111.8	50.0	150.0
M6PFDA		113.3	50.0	150.0
M7PFUnDA		100.8	50.0	150.0
M8FOSA		107.4	50.0	150.0
M8PFOA		114.7	50.0	150.0
M8PFOS		108.6	50.0	150.0
M9-PFNA		101.0	50.0	150.0
MPFBA		109.5	50.0	150.0
MPFDoDA		94.1	50.0	150.0
d3N-MeFOSAA		104.2	50.0	150.0
d5EtFOSAA		119.7	50.0	150.0
MHFPO-DA		101.4	50.0	150.0
d-N-EtFOSA-M		112.7	50.0	150.0
d-N-MeFOSA-M		102.0	50.0	150.0
d7-N-MeFOSE-M		89.5	50.0	150.0
d9-N-EtFOSE-M		84.4	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample (LCS)

Lab Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 15:48, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		94.8	50.0	150.0
M2-6:2FTSA		91.6	50.0	150.0
M2-8:2FTSA		114.5	50.0	150.0
M2PFTeDA		94.5	12.0	218.0
M3PFBS		110.2	50.0	150.0
M3PFHxS		113.4	50.0	150.0
M4PFHpA		102.9	50.0	150.0
M5PFHxA		96.0	50.0	150.0
M5PFPeA		98.8	50.0	150.0
M6PFDA		103.7	50.0	150.0
M7PFUnDA		98.2	50.0	150.0
M8FOSA		95.6	50.0	150.0
M8PFOA		96.8	50.0	150.0
M8PFOS		111.1	50.0	150.0
M9-PFNA		99.5	50.0	150.0
MPFBA		101.9	50.0	150.0
MPFDoDA		95.8	50.0	150.0
d3N-MeFOSAA		93.6	50.0	150.0
d5EtFOSAA		102.9	50.0	150.0
MHFPO-DA		95.5	50.0	150.0
d-N-EtFOSA-M		100.0	50.0	150.0
d-N-MeFOSA-M		100.9	50.0	150.0
d7-N-MeFOSE-M		88.0	50.0	150.0
d9-N-EtFOSE-M		79.3	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK240408.LCSD240408, Parent Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 16:08, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		98.8	50.0	150.0
M2-6:2FTSA		101.4	50.0	150.0
M2-8:2FTSA		100.8	50.0	150.0
M2PFTeDA		97.3	12.0	218.0
M3PFBS		121.5	50.0	150.0
M3PFHxS		109.4	50.0	150.0
M4PFHpA		106.5	50.0	150.0
M5PFHxA		103.4	50.0	150.0
M5PFPeA		106.2	50.0	150.0
M6PFDA		101.5	50.0	150.0
M7PFUnDA		101.5	50.0	150.0
M8FOSA		100.8	50.0	150.0
M8PFOA		106.8	50.0	150.0
M8PFOS		102.5	50.0	150.0
M9-PFNA		108.9	50.0	150.0
MPFBA		107.8	50.0	150.0
MPFDoDA		100.8	50.0	150.0
d3N-MeFOSAA		98.5	50.0	150.0
d5EtFOSAA		113.8	50.0	150.0
MHFPO-DA		103.8	50.0	150.0
d-N-EtFOSA-M		100.9	50.0	150.0
d-N-MeFOSA-M		100.7	50.0	150.0
d7-N-MeFOSE-M		86.2	50.0	150.0
d9-N-EtFOSE-M		81.5	50.0	150.0

QC Report - Internal Standards per QC Sample

Matrix Spike (MS)

Lab Sample ID: AK240408.6030703M, Parent Sample ID: S60307.02

Run in Batch: AK240408, Run Date: 04/08/2024 23:49, Prep Date: 04/08/2024, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		132.1	50.0	150.0
M2-6:2FTSA		129.1	50.0	150.0
M2-8:2FTSA		113.1	50.0	150.0
M2PFTeDA		107.7	12.0	218.0
M3PFBS		120.1	50.0	150.0
M3PFHxS		107.4	50.0	150.0
M4PFHpA		112.4	50.0	150.0
M5PFHxA		109.5	50.0	150.0
M5PFPeA		111.4	50.0	150.0
M6PFDA		106.7	50.0	150.0
M7PFUnDA		119.3	50.0	150.0
M8FOSA		107.5	50.0	150.0
M8PFOA		116.2	50.0	150.0
M8PFOS		112.5	50.0	150.0
M9-PFNA		126.7	50.0	150.0
MPFBA		117.7	50.0	150.0
MPFDoDA		116.7	50.0	150.0
d3N-MeFOSAA		106.2	50.0	150.0
d5EtFOSAA		135.0	50.0	150.0
MHFPO-DA		108.3	50.0	150.0
d-N-EtFOSA-M		109.5	50.0	150.0
d-N-MeFOSA-M		104.9	50.0	150.0
d7-N-MeFOSE-M		88.1	50.0	150.0
d9-N-EtFOSE-M		80.8	50.0	150.0

QC Report - Internal Standards per QC Sample

Matrix Spike Duplicate (MSD)

Lab Sample ID: AK240408.6030704N, Parent Sample ID: AK240408.6030703M

Run in Batch: AK240408, Run Date: 04/09/2024 00:09, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1.96

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	153.2	50.0	150.0
M2-6:2FTSA		126.3	50.0	150.0
M2-8:2FTSA		110.3	50.0	150.0
M2PFTeDA		102.8	12.0	218.0
M3PFBS		125.8	50.0	150.0
M3PFHxS		131.6	50.0	150.0
M4PFHpA		123.5	50.0	150.0
M5PFHxA		111.5	50.0	150.0
M5PFPeA		125.0	50.0	150.0
M6PFDA		119.2	50.0	150.0
M7PFUnDA		111.0	50.0	150.0
M8FOSA		121.4	50.0	150.0
M8PFOA		117.6	50.0	150.0
M8PFOS		129.9	50.0	150.0
M9-PFNA		113.6	50.0	150.0
MPFBA		120.2	50.0	150.0
MPFDoDA		117.8	50.0	150.0
d3N-MeFOSAA		116.5	50.0	150.0
d5EtFOSAA		146.3	50.0	150.0
MHFPO-DA		96.6	50.0	150.0
d-N-EtFOSA-M		104.6	50.0	150.0
d-N-MeFOSA-M		113.6	50.0	150.0
d7-N-MeFOSE-M		93.5	50.0	150.0
d9-N-EtFOSE-M		84.7	50.0	150.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF240408W2

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK)

Lab Sample ID: AK240408.BLK240408

Run in Batch: AK240408, Run Date: 04/08/2024 16:28, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	10	ng/l
PFMPA		ND	2	ng/l
FPrPA (3:3 FTCA)		ND	10	ng/l
PFPPrS		ND	2	ng/l
PFPeA		ND	4	ng/l
PFMBA		ND	2	ng/l
4:2 FTSA		ND	2	ng/l
NFDHA		ND	2	ng/l
PFHxA		ND	2	ng/l
PFBS		ND	2	ng/l
HFPO-DA		ND	10	ng/l
FPePA (5:3 FTCA)		ND	10	ng/l
PFEESA		ND	2	ng/l
PFFHpA		ND	2	ng/l
PFPeS		ND	2	ng/l
ADONA		ND	2	ng/l
6:2 FTSA		ND	2	ng/l
PFBSA		ND	2	ng/l
PFOA		ND	2	ng/l
PFHxS-BR		ND	2	ng/l
PFHxS		ND	2	ng/l
PFHxS-LN		ND	2	ng/l
FHpPA (7:3 FTCA)		ND	10	ng/l
PFNA		ND	2	ng/l
PFECHS		ND	2	ng/l
8:2 FTSA		ND	2	ng/l
PFFHpS		ND	2	ng/l
N-MeFOSAA		ND	2	ng/l
PFDA		ND	2	ng/l
PFOS		ND	2	ng/l
PFOS-BR		ND	2	ng/l
EtFOSAA		ND	4	ng/l
PFOS-LN		ND	2	ng/l
PFHxSA		ND	2	ng/l
PFOuDA		ND	2	ng/l
9CL-PF3ONS		ND	2	ng/l
PFNS		ND	2	ng/l
PFDODA		ND	2	ng/l
PFDS		ND	2	ng/l
PFTTrDA		ND	2	ng/l
11CL-PF3OUdS		ND	2	ng/l
FOSA		ND	2	ng/l
PFTTeDA		ND	4	ng/l
PFDOS		ND	6	ng/l
NMeFOSE		ND	4	ng/l
NMeFOSAM		ND	2	ng/l

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF240408W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Blank (BLK) (continued)

Lab Sample ID: AK240408.BLK240408

Run in Batch: AK240408, Run Date: 04/08/2024 16:28, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
NEtFOSE		ND	4	ng/l
NEtFOSAM		ND	2	ng/l

Laboratory Control Sample (LCS)

Lab Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 15:48, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		106.2	70.0	130.0
PFMPA		74.0	70.0	130.0
FPrPA (3:3 FTCA)		96.0	70.0	130.0
PFPPrS		97.4	70.0	130.0
PFPeA		98.6	70.0	130.0
PFMBA		78.8	70.0	130.0
4:2 FTSA		87.0	70.0	130.0
NFDHA		86.0	70.0	130.0
PFHxA		96.8	70.0	130.0
PFBS		89.6	70.0	130.0
HFPO-DA		98.0	70.0	130.0
FPePA (5:3 FTCA)		92.4	70.0	130.0
PFEESA		79.2	70.0	130.0
PFHpA		104.0	70.0	130.0
PFPeS		94.4	70.0	130.0
ADONA		101.4	70.0	130.0
6:2 FTSA		111.2	70.0	130.0
PFBSA		86.8	70.0	130.0
PFOA		89.6	70.0	130.0
PFHxS		86.2	70.0	130.0
FHpPA (7:3 FTCA)		97.0	70.0	130.0
PFNA		92.0	70.0	130.0
PFECHS		104.2	70.0	130.0
8:2 FTSA		77.8	70.0	130.0
PFHpS		96.8	70.0	130.0
N-MeFOSAA		113.8	70.0	130.0
PFDA		102.0	70.0	130.0
PFOS		103.0	70.0	130.0
EtFOSAA		99.0	70.0	130.0
PFHxSA		92.8	70.0	130.0
PFUnDA		113.6	70.0	130.0
9CL-PF3ONS		87.8	70.0	130.0
PFNS		99.8	70.0	130.0
PFDoDA		112.2	70.0	130.0
PFDS		95.8	70.0	130.0
PFTTrDA		111.6	70.0	130.0
11CL-PF3OUdS		97.6	70.0	130.0
FOSA		91.6	70.0	130.0
PFTeDA		86.4	70.0	130.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF240408W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 15:48, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFDOS		104.6	70.0	130.0
NMeFOSE		92.0	70.0	130.0
NMeFOSAM		90.8	70.0	130.0
NEtFOSE		97.6	70.0	130.0
NEtFOSAM		91.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK240408.LCSD240408, Parent Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 16:08, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		107.0	70.0	130.0	0.8	30.0
PFMPA		81.4	70.0	130.0	9.5	30.0
FPrPA (3:3 FTCA)		107.0	70.0	130.0	10.8	30.0
PFPPrS		89.2	70.0	130.0	8.8	30.0
PFPeA		97.6	70.0	130.0	1.0	30.0
PFMBA		84.4	70.0	130.0	6.9	30.0
4:2 FTSA		87.0	70.0	130.0	0.0	30.0
NFDHA		90.0	70.0	130.0	4.5	30.0
PFHxA		93.6	70.0	130.0	3.4	30.0
PFBS		88.4	70.0	130.0	1.3	30.0
HFPO-DA		93.8	70.0	130.0	4.4	30.0
FPePA (5:3 FTCA)		97.2	70.0	130.0	5.1	30.0
PFEESA		84.0	70.0	130.0	5.9	30.0
PFHpA		107.6	70.0	130.0	3.4	30.0
PFPeS		92.2	70.0	130.0	2.4	30.0
ADONA		96.6	70.0	130.0	4.8	30.0
6:2 FTSA		102.6	70.0	130.0	8.0	30.0
PFBSA		88.8	70.0	130.0	2.3	30.0
PFOA		86.0	70.0	130.0	4.1	30.0
PFHxS		93.4	70.0	130.0	8.0	30.0
FHpPA (7:3 FTCA)		96.4	70.0	130.0	0.6	30.0
PFNA		85.8	70.0	130.0	7.0	30.0
PFECHS		110.6	70.0	130.0	6.0	30.0
8:2 FTSA		93.6	70.0	130.0	18.4	30.0
PFHpS		105.4	70.0	130.0	8.5	30.0
N-MeFOSAA		123.0	70.0	130.0	7.8	30.0
PFDA		104.6	70.0	130.0	2.5	30.0
PFOS		114.2	70.0	130.0	10.3	30.0
EtFOSAA		99.2	70.0	130.0	0.2	30.0
PFHxSA		88.2	70.0	130.0	5.1	30.0
PFUnDA		100.2	70.0	130.0	12.5	30.0
9CL-PF3ONS		105.8	70.0	130.0	18.6	30.0
PFNS		111.2	70.0	130.0	10.8	30.0
PFDODA		97.4	70.0	130.0	14.1	30.0
PFDS		118.4	70.0	130.0	21.1	30.0
PFTTrDA		109.2	70.0	130.0	2.2	30.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF240408W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK240408.LCSD240408, Parent Sample ID: AK240408.LCS240408

Run in Batch: AK240408, Run Date: 04/08/2024 16:08, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
11CL-PF3OUdS		113.6	70.0	130.0	15.2	30.0
FOSA		93.8	70.0	130.0	2.4	30.0
PFTeDA		86.8	70.0	130.0	0.5	30.0
PFDOS		118.0	70.0	130.0	12.0	30.0
NMeFOSE		100.6	70.0	130.0	8.9	30.0
NMeFOSAM		94.0	70.0	130.0	3.5	30.0
NEtFOSE		93.6	70.0	130.0	4.2	30.0
NEtFOSAM		92.4	70.0	130.0	0.7	30.0

Matrix Spike (MS)

Lab Sample ID: AK240408.6030703M, Parent Sample ID: S60307.02

Run in Batch: AK240408, Run Date: 04/08/2024 23:49, Prep Date: 04/08/2024, Matrix: WW, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL
PFBA		110.0	70.0	130.0
PFPeA		100.0	70.0	130.0
4:2 FTSA		96.0	70.0	130.0
PFHxA		94.0	70.0	130.0
PFBS		85.0	70.0	130.0
PFHpA		100.0	70.0	130.0
PFPeS		94.0	70.0	130.0
6:2 FTSA		100.0	70.0	130.0
PFOA		82.3	70.0	130.0
PFHxS		110.0	70.0	130.0
PFNA		84.0	70.0	130.0
8:2 FTSA		85.0	70.0	130.0
PFHpS		100.0	70.0	130.0
PFDA		110.0	70.0	130.0
N-MeFOSAA		120.0	70.0	130.0
EtFOSAA		93.0	70.0	130.0
PFOS		97.0	70.0	130.0
PFUnDA		110.0	70.0	130.0
PFNS		100.0	70.0	130.0
PFDoDA		95.0	70.0	130.0
PFDS		110.0	70.0	130.0
PFTTrDA		110.0	70.0	130.0
FOSA		93.0	70.0	130.0
PFTeDA		86.0	70.0	130.0
11CL-PF3OUdS		110.0	70.0	130.0
9CL-PF3ONS		99.0	70.0	130.0
ADONA		95.0	70.0	130.0
HFPO-DA		96.0	70.0	130.0

QC Report - Batch QC Results

Organics - Volatiles, Prep Batch ID: PF240408W2 (continued)

Surrogates: Yes, QC Types: BLK/LCS/LCSD/MS/MSD

Matrix Spike Duplicate (MSD)

Lab Sample ID: AK240408.6030704N, Parent Sample ID: AK240408.6030703M

Run in Batch: AK240408, Run Date: 04/09/2024 00:09, Prep Date: 04/08/2024, Matrix: WW, Dilution: 1.96

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		122.4	70.0	130.0	8.7	30.0
PFPeA		99.0	70.0	130.0	3.0	30.0
4:2 FTSA		88.8	70.0	130.0	9.8	30.0
PFHxA		102.0	70.0	130.0	6.2	30.0
PFBS		91.8	70.0	130.0	5.7	30.0
PFFHpA		102.0	70.0	130.0	0.0	30.0
PFPeS		99.0	70.0	130.0	3.1	30.0
6:2 FTSA		101.0	70.0	130.0	1.0	30.0
PFOA		83.0	70.0	130.0	1.2	30.0
PFHxS		90.8	70.0	130.0	21.1	30.0
PFNA		101.0	70.0	130.0	16.4	30.0
8:2 FTSA		93.9	70.0	130.0	7.9	30.0
PFFHpS		100.0	70.0	130.0	2.0	30.0
PFDA		100.0	70.0	130.0	11.5	30.0
N-MeFOSAA		112.2	70.0	130.0	8.7	30.0
EtFOSAA		96.9	70.0	130.0	2.1	30.0
PFOS		78.6	70.0	130.0	13.3	30.0
PFOUnDA		112.2	70.0	130.0	0.0	30.0
PFNS		93.9	70.0	130.0	8.3	30.0
PFDoDA		88.8	70.0	130.0	8.8	30.0
PFDS		96.9	70.0	130.0	14.6	30.0
PFTTrDA		102.0	70.0	130.0	9.5	30.0
FOSA		89.8	70.0	130.0	5.5	30.0
PFTeDA		83.7	70.0	130.0	4.8	30.0
11CL-PF3OUdS		95.9	70.0	130.0	15.7	30.0
9CL-PF3ONS		102.0	70.0	130.0	1.0	30.0
ADONA		98.0	70.0	130.0	1.0	30.0
HFPO-DA		112.2	70.0	130.0	13.6	30.0

REPORT TO

CHAIN OF CUSTODY RECORD

INVOICE TO

CONTACT NAME				Rodney Abke			
COMPANY				Applied EcoSystems			
ADDRESS							
G-4300 South Saginaw Street							
CITY						STATE	ZIP CODE
Burton						MI	48529
PHONE NO.			FAX NO.			P.O. NO.	
810-715-2525			810-715-2526			PO1107477	
E-MAIL ADDRESS						QUOTE NO.	
rabke@appliedecosystems.com							

CONTACT NAME		Monica Wallingford		☐ SAME	
COMPANY					
Revitalizing Auto Communities Environmental Response (RACER) Trust					
ADDRESS					
CITY				STATE	ZIP CODE
PHONE NO.		E-MAIL ADDRESS			
313.486.2978		mwallingford@racertrust.org			

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME	RACER Flint West #12990	SAMPLER(S) - PLEASE PRINT/SIGN NAME
TURNAROUND TIME REQUIRED	☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER _____	
DELIVERABLES REQUIRED	☐ STD ☒ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☒ OTHER <u>report to MDLs</u>	

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

Containers & Preservatives

MERIT LAB NO. FOR LAB USE ONLY	YEAR		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO ₃	H ₂ SO ₄	NaOH	MeOH	OTHER	PFAS						☐ Other _____ Special Instructions	
	DATE	TIME																		
60309.01	3/27	15:25	MW-112-240327	W	3	1								X						** - 28 Compound List
.02	3/27	16:34	MW-1095-240327	W	3	X								X						
		19																		report down to MDLs
.03	3/27	17:14	MW-1145-240327	W	3	X								X						
.04	3/27	-	Dup-1- 240327	W	3	X								X						

RELINQUISHED BY:	JPH DC	DATE	TIME
SIGNATURE/ORGANIZATION		3/27/24	13:00
RECEIVED BY:	DE	DATE	TIME
SIGNATURE/ORGANIZATION		3/27/24	17:00
RELINQUISHED BY:	AC	DATE	TIME
SIGNATURE/ORGANIZATION		3/28/24	11:00
RECEIVED BY:	Sam	DATE	TIME
SIGNATURE/ORGANIZATION		3/28/24	11:00

RELINQUISHED BY:		DATE		TIME	
SIGNATURE/ORGANIZATION		3/28/07		18:00	
RECEIVED BY:		DATE		TIME	
SIGNATURE/ORGANIZATION		3/28/07		12:05	
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

TABLE 2
SOIL ANALYTICAL DATA (Metals and Detected VOCs)
RACER - Flint West #12990

Sample ID:				SB-122	SB-123	SB124-4	SB124-10	SB124-21	SB125-4	SB125-13	SB125-19	SB126-4	SB126-11	SB126-15	SB127-4	SB127-8	SB127-15	SB127-20	SB128-3	SB128-7	SB128-10
Date Collected:				4/30/2013	4/30/2013	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14	4/21/14
Depth:				15-16	5-6	4	10	21	4	13	19	4	11	15	4	8	15	20	3	7	10
ANALYTE (ug/kg)	DW	GSI																			
Arsenic	5,800	5,800	D&G=B			1,130	1,100	1,830	570	1,440	1,410	1,300	1,250	1,180	410	1,630	2,060	1,780	500	1,550	1,150
Chromium	18,000	18,000	D&G=B			1,220	1,460	3,350	2,050	3,260	4,240	1,220	2,920	2,870	1,980	2,560	4,540	610	1,460	2,860	5,890
Copper	5,800,000	120,000	GX			1,700	2,300	8,200	7,400	6,100	11,400	3,400	3,100	5,600	1,600	3,000	5,800	1,200	3,900	5,600	5,300
Lead	700,000	5,000,000	GX			2,510	3,120	7,580	13,800	5,100	8,590	2,280	3,790	5,470	4,710	5,740	7,330	950	6,250	11,400	6,950
Selenium	4,000	410	G=B					210			210			160							
Zinc	2,400,000	2,600,000	G=B			4,600	5,100	19,000	11,400	12,200	20,800	5,900	8,600	14,700	3,700	10,300	20,300	2,400	6,000	13,200	9,900
ANALYTE (ug/kg)	DW	GSI																			
2 Butanone (MEK)	260,000	44,000				45	71	56		165	79	82	150	75	46	66	148	126	44	123	127
Acetone	15,000	NC																			
Vinyl Chloride	40	260								23											
1,1-Dichloroethene	140	2,600																			
trans-1,2-Dichloroethene	2,000	30,000																			
1,1-Dichloroethane	18,000	15,000																			
Methylene chloride	5	1,500		100	18																
cis-1,2-Dichloroethene	1,400	12,000		1,600				58			350										
Tetrahydrofuran	1,900	220,000				170	190	190	150	180	180	140	190	210	190	190	170	190	150	150	140
Chloroform	1,600	7,000									16										
1,1,1-Trichloroethane	4,000	1,800									11										
Benzene	100	4,000																			
Trichloroethene	100	4,000		14,400	41			1,420			3,650										
Tetrachloroethene	100	1,200			18																
Toluene	16,000	5,400				11															
Ethylbenzene	1,500	360																			
Total Xylenes	5,600	820			39																
Isopropylbenzene	91,000	3,200			65															16	
n-Propylbenzene	1,600	NC																			
1,2 -Dichlorobenzene	14,000	280																		21	
1,2,4-Trimethylbenzene	2,100	570			37																
1,2,3-Trimethylbenzene	NC	NC			42.1															13.5	
1,3,5-Trimethylbenzene	72	45			29																
p-isopropyltoluene	NC	NC			93																
1,2,3-Trichlorobenzene	NC	NC																			
Naphthalene	35,000	730			210	10.8			14.4	17		13.7			12.9		14.3			345.7	46.9
2-Methylnaphthalene	57,000	4,200			345	10.2			14	39		13	19			30		10	820		46

NOTES:

	Blank cells indicate no detectable concentration
X	Exceeds DW criteria
X	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria
X	Compound also found in associated groundwater
NC	Insufficient data to develop criterion
GX	Interface Criteria - calculated based on 257ppm total hardness

TABLE 2
SOIL ANALYTICAL DATA (Metals and Detected VOCs)
RACER - Flint West #12990

Sample ID:				SB129-4	SB129-8	SB129-18	SB130-4	SB130-10	SB130-18	SB131-4	SB131-10	SB131-18	SB132-12	SB132-15	SB133-17	SB133-19	SB133-20	SB134-18	SB134-20	SB135-19	SB135-21
Date Collected:				4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	4/22/14	7/10/14	7/10/14	7/10/14	7/10/14	7/10/14	12/22/14	12/22/14	12/22/14	12/22/14
Depth:				4	8	18	4	10	18	4	10	18	12	15	17	19	20	18	20	19	21
ANALYTE (ug/kg)		DW	GSI																		
Arsenic	5,800	5,800	D&G=B	2,790	1,740	1,460	3,580	1,700	1,980	1,630	1,300	2,080						380	1,690	1,900	2,080
Chromium	18,000	18,000	D&G=B	2,550	4,080	4,730	3,090	1,150	2,770	1,640	2,800	2,620									
Copper	5,800,000	120,000	GX	13,000	3,600	7,200	17,700	1,700	9,800	8,500	3,100	7,900						4,500	3,000	4,000	3,900
Lead	700,000	5,000,000	GX	104,000	6,100	7,420	123,000	2,110	6,510	36,400	4,740	6,020						5,690	3,380	2,850	2,890
Selenium	4,000	410	G=B	130		150	140														
Zinc	2,400,000	2,600,000	G=B	21,300	13,100	19,200	51,800	5,800	18,000	16,800	13,600	18,600						5,900	19,500	17,500	15,300
ANALYTE (ug/kg)		DW	GSI																		
2 Butanone (MEK)	260,000	44,000		40	53	82	69	68	70	79	65	164									
Acetone	15,000	NC																			
Vinyl Chloride	40	260							73			90	180	89	46					14	
1,1-Dichloroethene	140	2,600							34			18									
trans-1,2-Dichloroethene	2,000	30,000							100			62			18					11	
1,1-Dichloroethane	18,000	15,000							69			35			13						
Methylene chloride	5	1,500																			
cis-1,2-Dichloroethene	1,400	12,000				300			6,380			2,820	2,200	1,200	1,990	530	270		120	1,100	800
Tetrahydrofuran	1,900	220,000		150	180	180	180	170	160	150	180	160	1,500	300	150	160	117				
Chloroform	1,600	7,000																			
1,1,1-Trichloroethane	4,000	1,800				33.40										25	35	18			8.7
Benzene	100	4,000							36												
Trichloroethene	100	4,000				6,170			6,080	28		12,160	29,500	13,700	11,680	10,860	7,520		2,040	7,890	6,540
Tetrachloroethene	100	1,200														17					
Toluene	16,000	5,400		13		19	31			45								70			
Ethylbenzene	1,500	360					15											16			
Total Xylenes	5,600	820		21			92			91								85			
Isopropylbenzene	91,000	3,200					13														
n-Propylbenzene	1,600	NC					16											14			
1,2 -Dichlorobenzene	14,000	280																			
1,2,4-Trimethylbenzene	2,100	570		14			24			22											
1,2,3-Trimethylbenzene	NC	NC					13.4			11.8											
1,3,5-Trimethylbenzene	72	45																			
p-isopropyltoluene	NC	NC																			
1,2,3-Trichlorobenzene	NC	NC																			
Naphthalene	35,000	730		39.5	12.5		51.5			100.3								36.6			
2-Methylnaphthalene	57,000	4,200		43			54.1			71.8						15	12	9.2	29		

NOTES:	
	Blank cells indicate no detectable concentration
X	Exceeds DW criteria
X	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria
X	Compound also found in associated groundwater
NC	Insufficient data to develop criterion
GX	Interface Criteria - calculated based on 257ppm total hardness

TABLE 2
SOIL ANALYTICAL DATA (Metals and Detected VOCs)
RACER - Flint West #12990

Sample ID:				SB136-19	SB136-21	SB137-18	SB137-20.5	SB138-15	SB138-18	SB139-16	DUP-1	SB139-18	SB140-16	SB140-19	SB141-16	SB141-18	SB141-19
Date Collected:				12/22/14	12/22/14	12/22/14	12/22/14	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019	1/16/2019
Depth:				19	21	18	20.5	15	18	16	(SB139-16)	18	16	19	16	18	19
ANALYTE (ug/kg)	DW	GSI															
Arsenic	5,800	5,800	D&G=B	1,870	3,350	1,660	3,040										
Chromium	18,000	18,000	D&G=B														
Copper	5,800,000	120,000	GX	4,600	4,300	4,200	4,500										
Lead	700,000	5,000,000	GX	3,060	3,740	2,810	3,240										
Selenium	4,000	410	G=B														
Zinc	2,400,000	2,600,000	G=B	13,600	18,800	13,500	27,300										
ANALYTE (ug/kg)	DW	GSI															
2 Butanone (MEK)	260,000	44,000											2,300				
Acetone	15,000	NC										430					360
Vinyl Chloride	40	260					56					42					
1,1-Dichloroethene	140	2,600										63					
trans-1,2-Dichloroethene	2,000	30,000				14			13			200					
1,1-Dichloroethane	18,000	15,000										90					
Methylene chloride	5	1,500						22	25.7	230	210	32	260	30	27	25	26
cis-1,2-Dichloroethene	1,400	12,000		340	450	670	290	470	550	1,800	1000	8,850	3,500	150	15	2,900	860
Tetrahydrofuran	1,900	220,000						174	121	1,800	1750	180	1,800	155	161	170	155
Chloroform	1,600	7,000															
1,1,1-Trichloroethane	4,000	1,800		12.5		20.5			7.4					14.8			
Benzene	100	4,000										20					
Trichloroethene	100	4,000		8,760	9,390	4,250		2,880	2,300	21,000	16,300	3,440	13,100	2,870	180	6,150	3,370
Tetrachloroethene	100	1,200												11.9			
Toluene	16,000	5,400															
Ethylbenzene	1,500	360															
Total Xylenes	5,600	820															
Isopropylbenzene	91,000	3,200															
n-Propylbenzene	1,600	NC															
1,2 -Dichlorobenzene	14,000	280								136							
1,2,4-Trimethylbenzene	2,100	570															
1,2,3-Trimethylbenzene	NC	NC															
1,3,5-Trimethylbenzene	72	45															
p-isopropyltoluene	NC	NC															
1,2,3-Trichlorobenzene	NC	NC											130				
Naphthalene	35,000	730															
2-Methylnaphthalene	57,000	4,200															

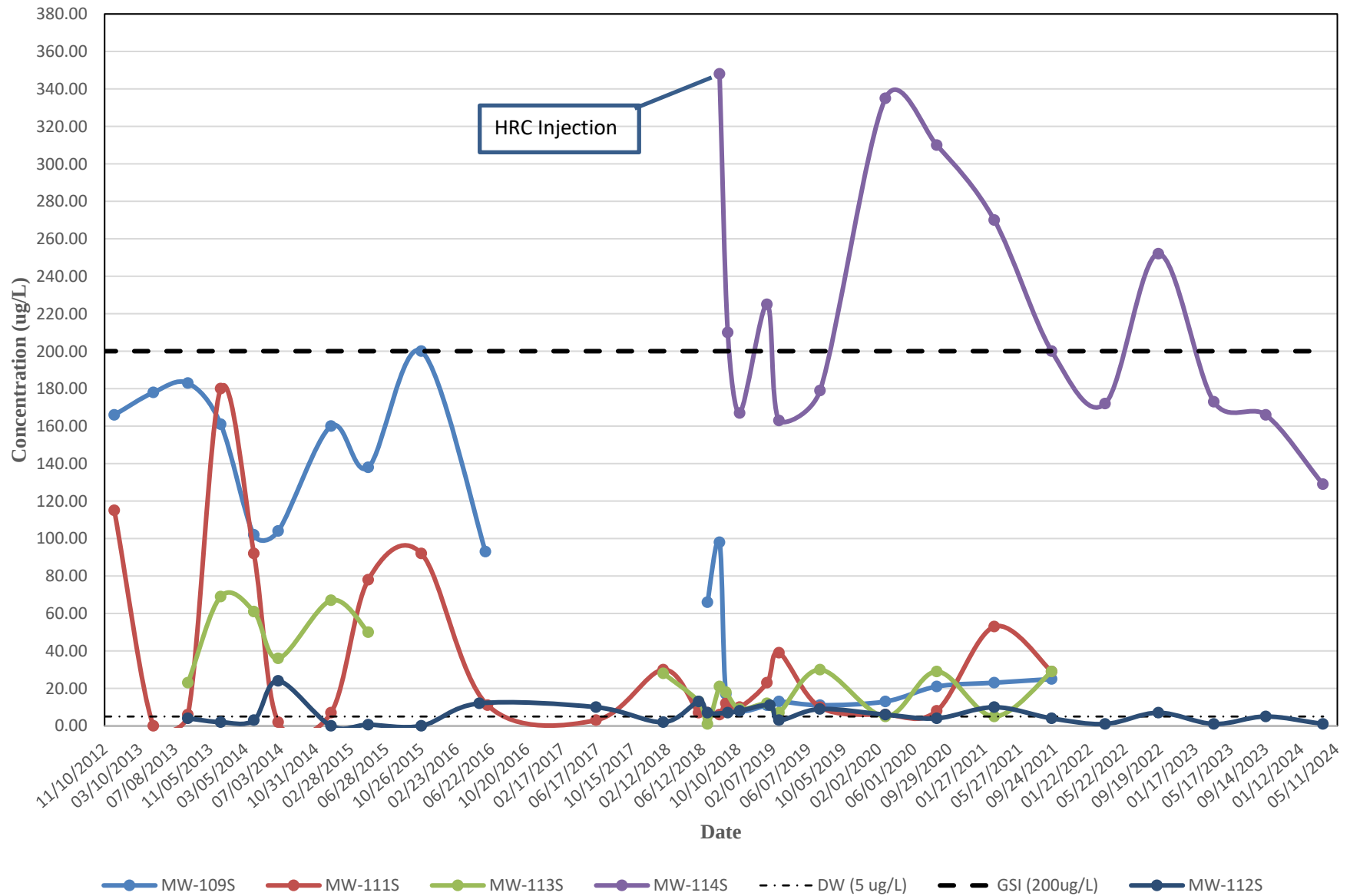
NOTES:	
	Blank cells indicate no detectable concentration
X	Exceeds DW criteria
X	Exceeds GSI criteria
X	Exceeds both DW and GSI criteria
X	Compound also found in associated groundwater
NC	Insufficient data to develop criterion
GX	Interface Criteria - calculated based on 257ppm total hardness



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Environmental Management, Consulting & Field Services

TCE in MW-109S, MW-111S, MW-112S, MW-113S, MW-114S (downgradient wells)





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Low-Flow Test Report:

Test Date / Time: 3/28/2024 8:49:40 AM
Project: MW-6 8678 (13)
Operator Name:

Location Name: MW-103S Latitude: 43.01264678420791 Longitude: -83.70296321191722	Estimated Total Volume Pumped: 93.15 ml Flow Cell Volume: 130 ml Final Flow Rate: 3 ml/min	Instrument Used: Aqua TROLL 500 Serial Number: 821578

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10 %	
3/28/2024 8:49 AM	00:00	7.11 pH	9.09 °C	209.35 µS/cm	0.50 mg/L	180.66 NTU	-10.4 mV	3.00 ml/min
3/28/2024 8:52 AM	03:00	7.11 pH	9.33 °C	51.34 µS/cm	0.17 mg/L	168.92 NTU	-42.4 mV	3.00 ml/min
3/28/2024 8:55 AM	06:00	7.13 pH	9.43 °C	3.23 µS/cm	0.12 mg/L	153.15 NTU	-69.5 mV	3.00 ml/min
3/28/2024 8:58 AM	09:00	7.15 pH	9.57 °C	550.66 µS/cm	0.09 mg/L	178.52 NTU	-77.6 mV	3.00 ml/min
3/28/2024 9:01 AM	12:00	7.17 pH	9.70 °C	358.73 µS/cm	0.08 mg/L	169.45 NTU	-85.0 mV	3.00 ml/min
3/28/2024 9:04 AM	15:00	7.17 pH	9.78 °C	57.59 µS/cm	0.08 mg/L	161.13 NTU	-89.9 mV	3.00 ml/min
3/28/2024 9:08 AM	19:03	7.18 pH	9.87 °C	297.04 µS/cm	0.13 mg/L	149.16 NTU	-93.8 mV	3.00 ml/min
3/28/2024 9:11 AM	22:03	7.20 pH	10.06 °C	719.26 µS/cm	0.13 mg/L	19.81 NTU	-97.0 mV	3.00 ml/min
3/28/2024 9:14 AM	25:03	7.21 pH	10.12 °C	673.41 µS/cm	0.16 mg/L	14.18 NTU	-98.1 mV	3.00 ml/min
3/28/2024 9:17 AM	28:03	7.22 pH	10.22 °C	689.26 µS/cm	0.18 mg/L	16.76 NTU	-99.0 mV	3.00 ml/min
3/28/2024 9:20 AM	31:03	7.22 pH	10.15 °C	570.10 µS/cm	0.19 mg/L	14.67 NTU	-99.6 mV	3.00 ml/min

Samples

Sample ID:	Description:
MW-103S-240327	
MS(MW-103S-240327)	
MSD(MW-103S-240327)	

Low-Flow Test Report:

Test Date / Time: 3/27/2024 11:29:55 AM
Project: MW-6 8678 (4)
Operator Name:

Location Name: MW-104S Latitude: 43.01171189156303 Longitude: -83.70202122687354	Estimated Total Volume Pumped: 90 ml Flow Cell Volume: 130 ml Final Flow Rate: 3 ml/min	Instrument Used: Aqua TROLL 500 Serial Number: 821578

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10 %	
3/27/2024 11:29 AM	00:00	7.46 pH	9.62 °C	1,861.9 µS/cm	3.16 mg/L	17.86 NTU	132.8 mV	3.00 ml/min
3/27/2024 11:32 AM	03:00	7.48 pH	9.97 °C	1,748.5 µS/cm	3.26 mg/L	20.21 NTU	133.0 mV	3.00 ml/min
3/27/2024 11:35 AM	06:00	7.48 pH	9.96 °C	1,744.1 µS/cm	3.38 mg/L	12.71 NTU	135.5 mV	3.00 ml/min
3/27/2024 11:38 AM	09:00	7.47 pH	10.20 °C	1,798.5 µS/cm	3.29 mg/L	15.30 NTU	138.0 mV	3.00 ml/min
3/27/2024 11:41 AM	12:00	7.47 pH	10.02 °C	1,824.4 µS/cm	3.26 mg/L	15.30 NTU	139.2 mV	3.00 ml/min
3/27/2024 11:44 AM	15:00	7.48 pH	10.10 °C	1,836.5 µS/cm	3.28 mg/L	20.79 NTU	140.3 mV	3.00 ml/min
3/27/2024 11:47 AM	18:00	7.47 pH	9.98 °C	1,833.1 µS/cm	3.31 mg/L	18.74 NTU	142.2 mV	3.00 ml/min
3/27/2024 11:50 AM	21:00	7.48 pH	9.93 °C	1,840.8 µS/cm	3.29 mg/L	20.52 NTU	143.5 mV	3.00 ml/min
3/27/2024 11:53 AM	24:00	7.48 pH	9.76 °C	1,864.1 µS/cm	3.28 mg/L	22.69 NTU	145.1 mV	3.00 ml/min
3/27/2024 11:56 AM	27:00	7.48 pH	9.77 °C	1,871.1 µS/cm	3.26 mg/L	14.44 NTU	146.5 mV	3.00 ml/min
3/27/2024 11:59 AM	30:00	7.48 pH	9.78 °C	1,862.7 µS/cm	3.29 mg/L	17.48 NTU	147.7 mV	3.00 ml/min

Samples

Sample ID:	Description:
MW-106S-240327	

Low-Flow Test Report:

Test Date / Time: 3/27/2024 12:30:59 PM
Project: MW-6 8678 (5)
Operator Name:

Location Name: MW-106SR Latitude: 43.011800878791064 Longitude: -83.7020103746108	Estimated Total Volume Pumped: 18 ml Flow Cell Volume: 130 ml Final Flow Rate: 3 ml/min	Instrument Used: Aqua TROLL 500 Serial Number: 821578

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10 %	
3/27/2024 12:30 PM	00:00	7.44 pH	9.46 °C	2,788.0 µS/cm	2.93 mg/L	3,713.3 NTU	157.0 mV	3.00 ml/min
3/27/2024 12:33 PM	03:00	7.48 pH	10.26 °C	2,322.2 µS/cm	2.72 mg/L	449.70 NTU	63.3 mV	3.00 ml/min
3/27/2024 12:36 PM	06:00	7.51 pH	10.56 °C	2,392.1 µS/cm	3.19 mg/L	144.43 NTU	52.0 mV	3.00 ml/min

Samples

Sample ID:	Description:
MW-106SR-240327	Well dry at about 7 minutes into low flow - left to recharge for 10 minutes and sampled

Low-Flow Test Report:

Test Date / Time: 3/27/2024 3:57:16 PM
Project: MW-6 8678 (9)
Operator Name:

Location Name: MW-108S Latitude: 43.01217455067625 Longitude: -83.7045961051504	Estimated Total Volume Pumped: 90 ml Flow Cell Volume: 130 ml Final Flow Rate: 3 ml/min	Instrument Used: Aqua TROLL 500 Serial Number: 821578

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10 %	
3/27/2024 3:57 PM	00:00	7.54 pH	8.44 °C	655.40 µS/cm	3.04 mg/L	262.46 NTU	6.3 mV	3.00 ml/min
3/27/2024 4:00 PM	03:00	7.50 pH	8.27 °C	637.46 µS/cm	2.65 mg/L	45.15 NTU	29.0 mV	3.00 ml/min
3/27/2024 4:03 PM	06:00	7.49 pH	8.07 °C	642.53 µS/cm	2.70 mg/L	36.01 NTU	32.9 mV	3.00 ml/min
3/27/2024 4:06 PM	09:00	7.48 pH	8.67 °C	631.81 µS/cm	2.81 mg/L	21.75 NTU	41.1 mV	3.00 ml/min
3/27/2024 4:09 PM	12:00	7.47 pH	9.07 °C	672.68 µS/cm	2.71 mg/L	6.86 NTU	56.8 mV	3.00 ml/min
3/27/2024 4:12 PM	15:00	7.46 pH	9.12 °C	676.15 µS/cm	2.81 mg/L	1.57 NTU	68.3 mV	3.00 ml/min
3/27/2024 4:15 PM	18:00	7.46 pH	8.97 °C	674.34 µS/cm	2.75 mg/L	0.84 NTU	77.1 mV	3.00 ml/min
3/27/2024 4:18 PM	21:00	7.46 pH	8.90 °C	673.70 µS/cm	2.57 mg/L	0.00 NTU	83.9 mV	3.00 ml/min
3/27/2024 4:21 PM	24:00	7.46 pH	8.84 °C	680.82 µS/cm	2.43 mg/L	0.00 NTU	88.7 mV	3.00 ml/min
3/27/2024 4:24 PM	27:00	7.46 pH	8.84 °C	674.61 µS/cm	2.13 mg/L	0.00 NTU	92.4 mV	3.00 ml/min
3/27/2024 4:27 PM	30:00	7.46 pH	8.85 °C	674.88 µS/cm	2.21 mg/L	0.00 NTU	95.9 mV	3.00 ml/min

Samples

Sample ID:	Description:
MW-108S-240327	

Low-Flow Test Report:

Test Date / Time: 3/27/2024 3:01:25 PM
Project: MW-6 8678 (8)
Operator Name:

Location Name: MW-110S Latitude: 43.011742257102284 Longitude: -83.70379991015194	Estimated Total Volume Pumped: 90 ml Flow Cell Volume: 130 ml Final Flow Rate: 3 ml/min	Instrument Used: Aqua TROLL 500 Serial Number: 821578

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10 %	
3/27/2024 3:01 PM	00:00	6.86 pH	8.37 °C	1,624.6 µS/cm	0.89 mg/L	605.07 NTU	10.2 mV	3.00 ml/min
3/27/2024 3:04 PM	03:00	6.83 pH	8.64 °C	1,587.4 µS/cm	0.13 mg/L	574.81 NTU	-15.6 mV	3.00 ml/min
3/27/2024 3:07 PM	06:00	6.84 pH	8.95 °C	1,570.2 µS/cm	0.14 mg/L	324.35 NTU	-24.6 mV	3.00 ml/min
3/27/2024 3:10 PM	09:00	6.84 pH	8.78 °C	1,569.7 µS/cm	0.16 mg/L	293.80 NTU	-26.5 mV	3.00 ml/min
3/27/2024 3:13 PM	12:00	6.85 pH	8.53 °C	1,570.8 µS/cm	0.19 mg/L	132.82 NTU	-31.3 mV	3.00 ml/min
3/27/2024 3:16 PM	15:00	6.86 pH	8.71 °C	1,568.2 µS/cm	0.21 mg/L	413.98 NTU	-34.3 mV	3.00 ml/min
3/27/2024 3:19 PM	18:00	6.86 pH	8.76 °C	1,565.7 µS/cm	0.20 mg/L	37.87 NTU	-36.3 mV	3.00 ml/min
3/27/2024 3:22 PM	21:00	6.86 pH	8.77 °C	1,562.9 µS/cm	0.21 mg/L	45.15 NTU	-41.4 mV	3.00 ml/min
3/27/2024 3:25 PM	24:00	6.87 pH	8.70 °C	1,569.8 µS/cm	0.25 mg/L	51.28 NTU	-44.0 mV	3.00 ml/min
3/27/2024 3:28 PM	27:00	6.87 pH	8.66 °C	1,559.3 µS/cm	0.24 mg/L	78.46 NTU	-45.0 mV	3.00 ml/min
3/27/2024 3:31 PM	30:00	6.87 pH	8.73 °C	1,550.1 µS/cm	0.24 mg/L	157.89 NTU	-48.1 mV	3.00 ml/min

Samples

Sample ID:	Description:
MW-110S-240327	

Unexpected Error

If the error persists, try restarting the app or call In-Situ Tech Support, available 24/7.

UnexpectedFunctionCodeException: Expected Function code: REPORT_SLAVE_ID, but received: READ_HOLDING_REGISTERS

OK

3.00	7.56	10.08	664.35	0.44	48.03
3.00	7.56	10.10	662.86	0.44	46.63
3.00	7.56	10.11	659.65	0.39	48.64
3.00	7.57	10.02	656.00	0.32	40.24
3.00	7.56	10.01	651.32	0.28	27.04

Rotate screen to view Live Readings

Low-Flow Test Report:

Test Date / Time: 3/27/2024 4:46:31 PM
Project: MW-6 8678 (11)
Operator Name:

Location Name: MW-114S Latitude: 43.012328676341006 Longitude: -83.70354449275207	Estimated Total Volume Pumped: 90 ml Flow Cell Volume: 130 ml Final Flow Rate: 3 ml/min	Instrument Used: Aqua TROLL 500 Serial Number: 821578

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10 %	
3/27/2024 4:46 PM	00:00	7.41 pH	8.43 °C	887.49 µS/cm	4.87 mg/L	37.15 NTU	95.6 mV	3.00 ml/min
3/27/2024 4:49 PM	03:00	7.40 pH	8.64 °C	884.41 µS/cm	4.85 mg/L	16.72 NTU	100.0 mV	3.00 ml/min
3/27/2024 4:52 PM	06:00	7.40 pH	8.66 °C	885.95 µS/cm	4.85 mg/L	12.61 NTU	104.9 mV	3.00 ml/min
3/27/2024 4:55 PM	09:00	7.39 pH	8.71 °C	884.67 µS/cm	4.74 mg/L	17.51 NTU	101.7 mV	3.00 ml/min
3/27/2024 4:58 PM	12:00	7.39 pH	8.73 °C	882.26 µS/cm	4.51 mg/L	7.86 NTU	94.6 mV	3.00 ml/min
3/27/2024 5:01 PM	15:00	7.39 pH	8.74 °C	878.83 µS/cm	4.15 mg/L	4.82 NTU	78.9 mV	3.00 ml/min
3/27/2024 5:04 PM	18:00	7.39 pH	8.78 °C	871.94 µS/cm	3.82 mg/L	6.05 NTU	66.7 mV	3.00 ml/min
3/27/2024 5:07 PM	21:00	7.39 pH	8.82 °C	867.71 µS/cm	3.35 mg/L	4.93 NTU	54.7 mV	3.00 ml/min
3/27/2024 5:10 PM	24:00	7.39 pH	8.79 °C	860.08 µS/cm	2.99 mg/L	3.25 NTU	45.8 mV	3.00 ml/min
3/27/2024 5:13 PM	27:00	7.39 pH	8.82 °C	854.19 µS/cm	2.69 mg/L	1.67 NTU	40.0 mV	3.00 ml/min
3/27/2024 5:16 PM	30:00	7.39 pH	8.89 °C	848.54 µS/cm	2.46 mg/L	3.01 NTU	34.0 mV	3.00 ml/min

Samples

Sample ID:	Description:
MW-114s-240327	

Low-Flow Test Report:

Test Date / Time: 3/28/2024 7:54:13 AM
Project: MW-6 8678 (12)
Operator Name:

Location Name: MW-117S Latitude: 43.01288340528177 Longitude: -83.70288632889022	Estimated Total Volume Pumped: 90 ml Flow Cell Volume: 130 ml Final Flow Rate: 3 ml/min	Instrument Used: Aqua TROLL 500 Serial Number: 821578

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Flow
		+/- 0.1	+/- 3 %	+/- 3 %	+/- 10 %	+/- 10 %	+/- 10 %	
3/28/2024 7:54 AM	00:00	7.51 pH	10.16 °C	550.48 µS/cm	5.68 mg/L	4,078.0 NTU	118.0 mV	3.00 ml/min
3/28/2024 7:57 AM	03:00	7.50 pH	9.51 °C	535.12 µS/cm	5.93 mg/L	415.66 NTU	73.7 mV	3.00 ml/min
3/28/2024 8:00 AM	06:00	7.51 pH	9.37 °C	472.49 µS/cm	5.99 mg/L	50.45 NTU	71.7 mV	3.00 ml/min
3/28/2024 8:03 AM	09:00	7.50 pH	9.10 °C	451.05 µS/cm	5.87 mg/L	49.72 NTU	76.9 mV	3.00 ml/min
3/28/2024 8:06 AM	12:00	7.50 pH	8.95 °C	451.88 µS/cm	5.93 mg/L	14.50 NTU	82.4 mV	3.00 ml/min
3/28/2024 8:09 AM	15:00	7.50 pH	8.81 °C	458.31 µS/cm	5.88 mg/L	15.48 NTU	87.8 mV	3.00 ml/min
3/28/2024 8:12 AM	18:00	7.49 pH	8.89 °C	454.07 µS/cm	5.87 mg/L	4.66 NTU	94.4 mV	3.00 ml/min
3/28/2024 8:15 AM	21:00	7.49 pH	8.91 °C	459.76 µS/cm	5.84 mg/L	2.12 NTU	99.3 mV	3.00 ml/min
3/28/2024 8:18 AM	24:00	7.48 pH	8.74 °C	451.16 µS/cm	5.87 mg/L	1.49 NTU	103.6 mV	3.00 ml/min
3/28/2024 8:21 AM	27:00	7.48 pH	8.79 °C	464.90 µS/cm	5.81 mg/L	2.26 NTU	106.0 mV	3.00 ml/min
3/28/2024 8:24 AM	30:00	7.47 pH	8.82 °C	465.56 µS/cm	5.87 mg/L	0.00 NTU	109.0 mV	3.00 ml/min

Samples

Sample ID:	Description:
MW-117S-240327	



Applied *Eco*Systems, Inc.

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Environmental Management, Consulting & Field Services

**LABORATORY DATA VALIDATION
MARCH 2024 BIENNIAL GROUNDWATER
SAMPLING EVENT**

**RACER Trust
Flint West Industrial Land (#12990)
Glenwood Avenue and Stevenson Street
Flint, Michigan**

May 9, 2024
Project # 11-4317-102

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

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Appendix A.....Figures

Figure 1: Site Location Map

Figure 2: Site Map with Sample Locations

Appendix B.....Tables

Table 1: Sample Collection and Analysis Summary

Table 2: Sample Analytical Results

Table 3: Analytical Methods and Holding Time Criteria

Table 4: Qualified Sample Results Due to Outlying MS/MSD Results

Table 5: Field Sample Duplicate Results and Relative Percent Differences (RPD)

Appendix C.....Laboratory Reports

Laboratory Analytical Reports

Laboratory Quality Control Reports

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Acronyms and Abbreviations

Æ	Applied EcoSystems, Inc.
ASTM International (ASTM)	
AAI	All Appropriate Inquiry
BER	Business Environmental Risk
CREC	Controlled Recognized Environmental Condition
DMC	De Minimis Condition(s)
ESA	Environmental Site Assessment
HREC	Historical Recognized Environmental Condition
PEC	Potential Environmental Concern
REC	Recognized Environmental Condition
VEC	Vapor Encroachment Condition
Buildings, Structures, and Materials	
ACBM	Asbestos Containing Building Material
ACM	Asbestos Containing Materials
AST	Aboveground Storage Tank
HVAC	Heating, Ventilation, and Air Conditioning Systems
LUST	Leaking Underground Storage Tank
ROW	Right-of-Way
UST	Underground Storage Tank
Federal Agencies	
EPA	Environmental Protection Agency
FEMA	Federal Emergency Management Agency
NRCS	Natural Resources Conservation Service
OSHA	Occupational Health and Safety Administration
SBA	Small Business Administration
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
Federal Environmental Regulations, Programs, and Databases	
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	CERCLA Information System
CESQG	Conditionally Exempt Small Quantity Generator
CFR	Code of Federal Regulations
CORRACTS	Resource Conservation and Recovery Act Corrective Action
CWA	Clean Water Act
ERNS	Emergency Response Notification System
FOIA	Freedom of Information Act
LQG	Large Quantity Generator
NESHAP	National Emission Standards for Hazardous Air Pollutants
NFRAP	No Further Remedial Action Planned
NPL	National Priority List
NRCS	Natural Resources Conservation Service
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
SEMS	Superfund Enterprise Management System
SQG	Small Quantity Generator
TSCA	Toxic Substances Control Act
TSD	Treatment, Storage and Disposal Facility

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Hazardous Substances and Petroleum Products	
BTEX	Benzene, Toluene, Ethyl Benzene, Xylenes
CVOCs	Chlorinated Volatile Organic Compounds
MTBE	Methyl Tertiary Butyl Ether
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethene, Tetrachloroethylene, Perchloroethene, Perchloroethylene, PERC
PFAS	Per- and Polyfluoroalkyl Substances, including PFOS, PFOA, and GenX
PNAs	Polynuclear Aromatics - also known as Polycyclic Aromatic Hydrocarbons (PAHs)
SVOCs	Semi-Volatile Organic Compounds
TCE	Trichloroethene, Trichloroethylene
TMBs	Trimethylbenzenes
VOCs	Volatile Organic Compounds
Mapping, Instruments and Units of Measurement	
bgs	Below Ground Surface
GIS	Geographic Information System
msl	Mean Sea Level
PID	Photoionization Detector
ppb	Parts Per Billion
ppb(v)	Parts Per Billion by Volume
ppm	Parts Per Million
ppm(v)	Parts Per Million by Volume
T/R/S	Township, Range, Section
µg/Kg	Micrograms per Kilogram
µg/L	Micrograms per Liter
ng/Kg	Nanograms per Kilogram
ng/L	Nanograms per Liter
Michigan-Specific	
BEA	Baseline Environmental Assessment
NREPA	Natural Resources and Environmental Protection Act
EGLE	Michigan Department of Environment, Great Lakes and Energy and its predecessors below:
MDEQ	Michigan Department of Environmental Quality
MDNRE	Michigan Department of Natural Resources and Environment
MDNR	Michigan Department of Natural Resources
LARA	Michigan Department of Licensing and Regulatory Affairs
GRCC	Generic Residential Cleanup Criteria (or Criterion)
DW/DWP	Drinking Water/Drinking Water Protection
DC	Direct Contact
F/E	Flammability/Explosivity Limit
GS/SSIP	Groundwater to Surface Water Interface/Groundwater to Surface Water Interface Protection
PI	Particulate Inhalation
VIA	Volatilization to Indoor Air
VOA	Volatilization to Outdoor Air
MI 10 Metals	Arsenic, Barium, Cadmium, Chromium, Copper, Lead, Mercury, Selenium, Silver, and Zinc
LGP	Leaded Gasoline Indicator Parameters (includes BTEX, TMBs and other compounds)
ULGP	Unleaded Gasoline Indicator Parameters (includes BTEX, MTBE, TMBs and other compounds)

1. INTRODUCTION

Applied EcoSystems, Inc. (Æ) was retained to conduct a validation review of the laboratory analytical data collected in support of the March 2024 bi-annual groundwater sampling event at the RACER Flint West #12990 Site in the City of Flint, Michigan. The sampling was performed in accordance with the requirements of the September 29, 2011 RCRA Administrative Order on Consent between the U.S. Environmental Protection Agency (USEPA) and RACER for the Flint West Site; and the Laboratory Data Validation was performed as part of the requirements of the April 1, 2021 project Quality Assurance Project Plan (QAPP).

Groundwater samples were submitted to Merit Laboratories, Inc., of East Lansing, Michigan. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. Samples were prepared at the laboratory in accordance with their standard operating procedures for groundwater processing. A summary of the analytical methodology is presented in Table 3.

Standard report deliverables were submitted by the laboratory to Æ. The final results and supporting quality assurance/quality control (QA/QC) data were assessed by Æ, as documented herein. Data evaluation was based on information obtained from the chain of custody forms, field notes, finished report forms, method blank data, duplicate data, and recovery data from surrogate spikes and laboratory control spikes (LCS) and matrix spikes (MS)/matrix spike duplicates (MSD).

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods reference in Table 3 in the April 1, 2021 project QAPP and in applicable guidance documents (hereafter identified as “Guidelines”), including:

- Michigan Department of Environment, Great Lakes, and Energy (EGLE) *Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Minimum Laboratory Analyte List*, updated March 8, 2021;
- Michigan Department of Environmental Quality (MDEQ), now EGLE, *Application of Target Detection Limits and Designated Analytical Methods*, dated March 2016 and modified April 2024;
- MDEQ, *General PFAS Sampling Guidance*, revised January 2024;
- USEPA, Superfund Contract Laboratory Program, National Functional Guidelines for Organic Superfund Methods Data Review (SOM02.4), EPA-540-R-2017-002, dated January 2017;
- USEPA, Superfund Contract Laboratory Program, National Functional Guidelines for Inorganic Superfund Methods Data Review (ISM02.4), EPA-540-R-2017-001, January 2017;
- USEPA, PFAS Methods and Guidance for Sampling and Analyzing Water and Other Environmental Media-Technical Brief, EPA/600/F-17-022h; and
- USEPA, Region 9, Laboratory Data Review for the Non-Chemist, dated October 2014.

1.1 Property Location and Description

Property Address:	Glenwood Avenue and Stephenson Street	
Municipality:	City of Flint, Michigan	
County:	Genesee	
T/R/S	T7N, R6E, S12	
Parcel ID:	40-13-177-002	
Land Area:	3.17 acres, per tax records.	

2. LABORATORY DELIVERABLES

Six (6) laboratory reports were received from Merit Laboratories for chains-of-custody prepared for groundwater samples collected by AÆ on March 27 and 28, 2024 – three for analysis of VOCs and dissolved and total metals (arsenic, chromium, chromium-hexavalent, copper, lead, selenium, and zinc) and three for analysis of PFAS. All laboratory reports were identified as Merit Laboratories' Level II deliverables, appropriate under USEPA guidelines for desktop review. Raw laboratory data (including GC/MS scans, instrument calibration data, etc.) were not included in the deliverables.

Deliverables included the Merit Laboratories Analytical Laboratory Reports and Quality Control Reports IDs listed following and included in Appendix C:

S60263.01,
S60296.01,
S60297.01,
S60264.01,
S60307.01,
S60309.01,
QC-S60263-01,
QC-S60296-01,
QC-S60297-01,
QC-S60297-01,
QC-S60307-01, and
QC-S60309-01.

3. DESKTOP LABORATORY DATA REVIEW

Deliverables were reviewed to verify that the following reporting information was documented fully. Where concerns were identified, limitations on data validity were evaluated based on the identified concerns.

All Analytical Laboratory Report cover sheets were signed by Maya Murshak, Technical Director of Merit Laboratories, Inc.

All Quality Control Report cover sheets were signed by Barbara Ball, Quality Assurance Manager of Merit Laboratories, Inc.

3.1 Case Narratives

The case narrative typically is a short summary statement about the analyses that commonly documents any significant concerns with the condition of received samples, analytical problems, or QA/QC concerns. All deliverables identified no conditions warranting narrative beyond general laboratory reporting information.

3.2 Laboratory Accreditation/Certification Information

The following laboratory certifications were identified on each Analytical Laboratory Report:

Authority	Certification ID
Michigan DEQ (EGLE)	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENA	#680
North Carolina DOH	#26702
Pennsylvania DEP	#68-05884
Wisconsin DNR	FID# 399147320

Details of laboratory certifications and accreditations are appended to the Project QAPP.

3.3 Laboratory Contact Information

Each Analytical Laboratory Report identifies the following laboratory contact information:

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)

3.4 Times Samples Collected, Received, Prepared, and Analyzed

Sample collection dates and times were tabulated in the Sample Summary of each Analytical Laboratory Report, identified in the header of each sample data report, and written on the chain of custody appended to each Report.

Times and dates of sample receipt were documented on the chain of custody appended to each Report but were not documented in the Sample Container/Preservation/Temperature summary for each sample data report.

Times and dates of sample extraction and preparation were documented in the Extraction/Prep. Summary for each sample data report.

Dates and times of sample analyses for each analytical method were documented in each sample data report.

No deviations from Guidelines were identified.

3.5 Laboratory Analytical Methods

Laboratory analytical methods were summarized in the Method Summary of each Analytical Laboratory Report and for each analyte group documented in each sample data report. Analytical methods used for this project were as follow:

Method	Version	Analytes
E200.8	EPA Method 200.8 Revision 5.4	Arsenic, chromium, copper, lead, selenium, zinc
SM3500-Cr B	Standard Method 3500 Cr B 2011	Chromium VI
SW3015A	SW 846 Method 3015A Revision 1 February 2007	Metals digestion
SW5030C/8260C	SW 846 8260C Revision 3 August 2006 5030C Revision 3 May 2003	VOCs
ASTMD7979-19M	ASTM Method D7979-19 Modified (Isotopic Dilution)	PFAS, EGLE 28 Parameters

3.6 Analyte Reporting

Analytes were reported to significant figures established by Method Detection Limits (MDLs).

Results not detected at or above the laboratory's MDL and Reporting Limit (RL) were identified as "Not Detected."

The laboratory reports identified detected results down to the laboratory's MDL for each analyte adjusted for specific sample dilutions, weights, and volumes. For metals, positive analyte detections less than the RL but greater than the MDL were indicated by "b" in Merit Analytical Laboratory Reports. For organic analytes, positive analyte detections less than the RL but greater than the MDL were qualified as estimates, indicated by "J" in Merit Analytical Laboratory Reports unless qualified otherwise in this report.

3.7 Holding Times and Sample Preservation

The sample holding time criteria for the analyses are summarized in Table 3. Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

The samples were properly preserved, delivered on ice, and received and stored at the laboratory at the required temperature (0-6° Celsius). Acid-preserved samples for total metals analysis were received at pH levels less than 2. Samples for dissolved metals analysis (including chromium VI) were filtered and preserved in the laboratory immediately upon receipt at the laboratory to limit potential for metals to be deposited to or leached from suspended solids in the samples. Laboratory filtration was documented on Analytical Laboratory Reports.

3.8 Units of Measurement

Units of measurement are identified on each sample report of the Analytical Laboratory Reports. Units for each analyte group are as follow:

Analyte Group	Units
Metals (including Cr VI)	milligrams per liter (mg/L)
VOCs	micrograms per liter (µg/L)
PFAS	nanograms per liter (ng/L)

Individual tables in project reports may identify concentrations equivalently in different units of measurement. Table 2 of this report identifies metals concentrations (including Cr VI) in micrograms per liter (µg/L) and identifies PFAS compounds in nanograms per liter (ng/L).

3.9 Detection/Reporting Limits

Each sample report of the Analytical Laboratory Reports individually tabulates the sample analytical result, Reporting Limit (RL), Method Detection Limit (MDL), and dilution factor. On Table 2, analytical results less than MDLs are identified as less than (<) the specified RL. Concentrations detected less than the RL but greater than the MDL are identified as the detected concentration qualified with a “b” flag, and estimated concentrations less than RL but greater than MDL are qualified with a “J” flag in the Merit Laboratory Analytical Reports.

3.10 Data Qualifiers

The Analytical Laboratory Reports tabulate the following qualifying flags:

Qualifier/Flag	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

Qualifier/Flag	Description
J	Estimated value less than reporting limit, but greater than MDLL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory, with separately 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
f	Filtered and preserved in lab
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

Of these qualifiers, the following were determined to be applicable to one or more sample laboratory results in Table 2:

Qualifier/Flag	Applicable Samples
b	MW-104S – dissolved Cr; Total Zn MW-106SR – Total As, Zn; Dissolved Cr MW-110S – Total Cu MW-114S – Total Cu; Dissolved Pb MW-117S – Total Cu; Dissolved Cu DUP-1 – Total Cu Equipment Blank (EB-1) – Total Cr
B	Equipment Blank (EB-1) – Chloroform Trip Blank – Chloroform
I	MSD MW-103S – 4:2 FTS
J	MW-103S – Benzene, Chlorobenzene, cis-1,2-Dichloroethene, 1,2,3-Trimethlybenzene, 1,2,4-Trimethlybenzene MW-104S – PFBA, PFOA MW-103S MS – Tetrahydrofuran MW-103S MSD – Tetrahydrofuran MW-106SR – PFBA, PFHpA, PFHpS, PFPeA, PFHxA, PFHxS, PFOS-LN MW-108S – Chloroform MW-110S – PFOA MW-114S – 1,1-Dichloroethane, 1,1-Dichloroethene, trans-1,2-Dichloroethene, 1,1,1-Trichloroethane, PFBA, PFPeA, PFHxA, PFBS, PFOS MW-117S – PFBA, PFHxA, PFBS, PFOA DUP-1 (MW-114S) – 1,1-Dichloroethane, 1,1-Dichloroethene, 1,1,1-trichloroethane, PFBA, PFPeA, PFHxA, PFBS, PFOA, Field Blank – Chloroform Equipment Blank (EB-1) – Chloroform

Qualifier/Flag	Applicable Samples
	Trip Blank – Chloroform
N	MW-108S - Chloroform
X	MW-103S – PFBA, PFHxA MW-108S – PFBS, PFS-BR MW-112S – PFBA, PFHxA

The qualifiers should be used by all data users to understand and appropriately apply the data.

3.11 Surrogate Recoveries

Surrogates are chemicals similar to the target analyte(s) in chemical composition and behavior that are not expected to be present in the sample(s). Surrogates are added to all environmental samples, blanks, and other QC samples in an analytical batch during the preparation stage for some organic analyses (including VOCs and PFAS in the subject laboratory analytical reports). Surrogates monitor analytical performance, especially extraction efficiency, purging efficiency (for volatiles), and possible matrix effects that MS/MSD spikes, which are added only to one sample per batch.

All surrogate recoveries identified in the laboratory analytical reports were within the percent recovery and allowable range listed for each surrogate compound, except the following:

Sample / Batch	Analyte	Recovery of Internal Standard
Matrix Spike (MS) / CHR240328-W1.MS2	Chromium VI	Low (8%)
Matrix Spike Duplicate (MSD)/ CHR240328-W1.MSD2	Chromium VI	Low (11%)
Matrix Spike Duplicate (MSD) / AK240408.6030704N	4:2FTSA	Elevated

3.12 Blank Analyses

Blanks are designated to measure cross-contamination in different parts of the sampling and analytical process.

3.12.1 Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All Method Blank (Trip Blank) analyses were non-detect (including PFAS), except as noted in Table 2 and summarized following:

Laboratory Report	Method Blank	Detected Analytes
S60296.01(01)	Trip Blank-240327 03/27/24 09:00	Chloroform <RL but >MDL

None of the VOCs in the Method Blank were Contaminants of Concern at the site, so none of these contaminants identified at low concentrations in the Trip Blank are considered to affect interpretations of the sample result comparisons to cleanup criteria.

3.12.2 Equipment Blank Analyses

Equipment blanks are designed to monitor the cleanliness of field equipment and the effectiveness of decontamination procedures if equipment is used for multiple sample collections.

For this study, laboratory equipment blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per batch.

All equipment blank analyses were non-detect (including for PFAS), except as noted in Table 2 and summarized following:

Laboratory Report	Equipment Blank	Detected Analytes
S60307.01(01)	Equip Blank (EB-1-240327) 03/28/24 10:01	Cu, Total <RL but >MDL Chloroform <RL but >MDL

Based on the equipment blanks, equipment was not considered to result in significant contributions to Contaminants of Concern at the RACER site. Detectable concentrations greater than MDLs but less than RLs are not likely to affect sample result comparisons to cleanup criteria.

3.12.3 Field Blank Analyses

Field Blanks are designated to measure cross-contamination that may occur during sample handling and transport, such as from a broken bottle in the sample ice chest.

All field blank analyses were non-detect (including PFAS), except as noted following:

Laboratory Report	Field Blank	Detected Analytes
S60263.01(01)	Field Blank-1-240327 (03/27/24 10:27)	Chloroform <RL but >MDL

Based on the field blanks, sample handling was not considered to result in detectable concentrations greater than RLs and not likely to affect sample result comparisons to cleanup criteria.

3.13 Laboratory Control Sample Spike Analyses

Laboratory Control Samples (LCS) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects.

For this study, LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS contained all analytes of interest. LCS recoveries were assessed per the “Guidelines.” All LCS recoveries were within the control limits demonstrating acceptable analytical accuracy except the following;

Sample / Batch	Analyte	Recovery of Internal Standard
Laboratory Control Sample / 240404A7.LCSDW04A	Acrylonitrile 2-Butanone (MEK) Tetrahydrofuran 4-Methyl-2-pentanone (MIBK)	Elevated Elevated Elevated Elevated
Laboratory Control Sample / 240404A7.6029604N	Acrylonitrile Tetrahydrofuran 4-Methyl-2-pentanone (MIBK) 2-Hexanone	Elevated Elevated Elevated Elevated

Of the analytes detected with elevated LCS results, only low concentrations have been detected historically at the site since June 2014, with none exceeding EGLE cleanup criteria.

3.14 Matrix Spike and Matrix Spike Duplicate Analyses

To evaluate the effects of sample matrices on the preparation process, measurement procedures, and accuracy of a particular analysis, selected field samples are spiked with a known concentration of the analyte of concern and analyzed as Matrix Spike (MS)/Matrix Spike Duplicate (MSD) samples. The Relative Percent Difference (RPD) between the MS and MSD is used to assess analytical precision.

If the original sample concentration is significantly greater than the spike concentration, or if sample is diluted five times or greater, the recovery is not assessed.

If only the MS or MSD recovery was outside of control limits, no qualification of the data was performed based on the acceptable recovery of the companion spike and the acceptable RPD.

MS/MSD analyses were performed as specified in Table 1.

The MS/MSD samples were spiked with analytes of interest, and the results were evaluated using the “Guidelines.” Table 4 presents the outlying matrix spike results. The associated sample data were qualified as estimated in the Merit Laboratory Analytical Reports. The remaining percent recoveries and RPD values were within the control limits criteria.

All of the matrix spikes and matrix spike duplicates were identified as falling within Control Limits except as summarized following:

- Matrix Spike Sample CHR240328-W1.MS1 reported a Chromium VI recovery of 80%, and a duplicate result of 86%, which are within acceptable % recovery and RPD control limits; however, Matrix Spike Sample CHR240328-W1-MS2 reported a Chromium VI recovery of

8% and a duplicate result of 11%, which fall outside % recovery and RPD control limits. Because all groundwater samples collected at the site were determined to contain no detectable Chromium VI but laboratory spiked samples were determined to contain acceptable concentrations of Chromium VI, no significant affect on sample results is indicated.

- Matrix Spike Sample AK240408.6030704N reported a 4:2FTSA recovery of 132.1% and a duplicate result of 153.2%. The latter recovery slightly exceeded the upper % recovery control limit recovery limit of 150%, suggesting a potential for slightly elevated detected concentrations of 4:2FTSA. Because detectable concentrations of 4:2FTSA were not identified in any of the groundwater samples collected at the site, the MS/MSD exceedance identified did not affect report conclusions.

The inferred associated matrix interferences were not considered to affect report conclusions.

3.15 Interferences

Interference is bias that is introduced because something in the sample interferes with the analytical system's ability to provide an accurate measurement. The interference may be physical (such as turbidity that could block light transmission in an analysis based on UV absorbance), chemical (a chemical similar to the analyte of interest may react with that analyte and affect instrument response), or spectroscopic (with the detector receiving an enhanced or suppressed signal due to an emission or absorbance by some other chemical or material in the matrix). Interferences can be possible or negative. Significant analytical interferences and their effects on the data are identified in the laboratory's case narrative.

No significant interferences were reported in the laboratory's case narratives. Additionally, no sample was reported as altered due to matrix interference.

3.16 Field Duplicate Sample Analyses

One field duplicate sample was collected for purposes of evaluating field QA/QC. The field duplicate sample was submitted "blind" to the laboratory,¹ as specified in Table 1 and on chains of custody. The RPDs associated with the duplicate sample must be less than 50 percent for water samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criteria is one times the RL value for water samples.

The field duplicate results shown in Table 5 were within acceptable agreement less than 50%, demonstrating acceptable sampling and analytical precision. .

3.18 Chain-of-Custody Forms

Each Merit Analytical Laboratory Report and Quality Control Report was accompanied by a copy of the appropriately executed chain of custody.

3.19 Laboratory Sample Receipt Checklist

Each Merit Analytical Laboratory Report is accompanied by a Merit Laboratories Login Checklist that documented sample conditions on receipt, chain of custody, preservation, and bottle conditions.

All samples were identified as received via courier pickup on ice at temperatures within 2-6 degrees Celsius and transferred to appropriate refrigeration.

All chains of custody were reported to be adequately filled out, signed, and matched sample labels provided.

No requirement for subcontract laboratory analyses was identified.

All bottles were identified as appropriate and supplied by Merit, intact, filled appropriately, and submitted within holding times.

All samples were received with appropriate preservation, except:

- Samples submitted for dissolved metals (including chromium VI) analyses on chains of custody for Merit Analytical Laboratory Reports S60263.01, S60296.01, and S60297.01 required laboratory filtration and preservation; however, the chains of custody did not specify such. The Login Checklist for S60263.01, S60296.01, and S60297.01 specified filtration and preservation for dissolved metals analysis. Laboratory records indicate that samples received under both chains of custody, however, were appropriately filtered and preserved immediately upon receipt at the laboratory.

4. FINDINGS, CONCLUSIONS, AND DATA LIMITATIONS

On March 27 and 28, 2024, AEC collected groundwater samples from eight monitoring wells at the RACER Flint West Industrial Land site using USEPA low-stress sampling protocols. One duplicate sample, one field blank, and one matrix spike and duplicate were collected. Samples were collected in appropriate laboratory-provided bottles with laboratory-provided preservatives and were maintained on ice until delivery under complete chain-of-custody protocols to Merit Laboratories within appropriate holding times. No sample condition issues were identified in the field or upon laboratory receipt. Samples were analyzed by specified standard methods for VOCs, EGLE 28 PFAS, six total and dissolved metals, and total and dissolved chromium VI. Filtration and preservation for dissolved metals and for total and dissolved chromium VI were performed immediately upon laboratory receipt instead of during field collection.

Laboratory deliverables include six laboratory reports, six quality control reports, and chains-of-custody for each -- two each for PFAS and for VOCs and metals. Each laboratory report contained a case narrative, laboratory accreditation/certification information, laboratory contact information, analytical methods, and analyte reporting relative to method detection limits (MDLs) and reporting limits (RLs). Data qualifiers were identified and evaluated in this Laboratory Data Validation report. No samples were extracted or analyzed beyond their holding times.

All surrogate recoveries were within their allowable ranges for each surrogate compound, except Chromium VI (low), and 4:2FTSA (high), neither of which was commonly present in groundwater at the site and neither of which was detected in any of the field samples -- indicating satisfactory laboratory performance overall. Analysis of laboratory blank samples identified no indications of significant cross-contamination, with only a low level of Acrylonitrile, 2-Butanone (MEK), Tetrahydrofuran, and 4-Methyl-2-pentanone (MIBK) indicated. The equipment blank identified only low concentrations of total and dissolved Arsenic and Chromium, Methylene Chloride, and Toluene exceeding their reporting limits. The field blank was determined to contain detectable concentrations of Total Copper and Chloroform exceeding RLs, but not MDLs. The trip blank was identified with a detectable concentration of Chloroform. Accordingly, no significant indications of cross-contamination were identified. Laboratory Control Spike (LCS) and LCS Duplicate analyses indicated the potential for Acrylonitrile, 2-Butanone (MEK), Tetrahydrofuran, or 4-Methyl-2-pentanone (MIBK) to be reported high. Matrix spikes and their duplicates indicated potential for PFAS analyte 4:2FTSA to be reported high, and for Chromium VI to be reported low. Of the potentially elevated analytes, none were detected in groundwater samples collected during this sampling event. No significant data qualifiers were identified in relation to the detected analyte concentrations.

Based on the assessment detailed in the foregoing QA/QC summary, the laboratory data summarized in Table 2 are considered acceptable within the specific qualifications noted herein.

5. SIGNATURES

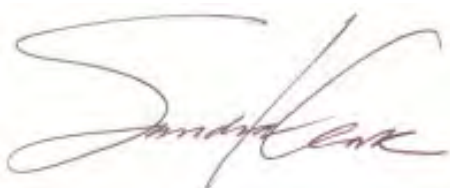
This report was prepared under the supervision of the following Environmental Professionals as defined in §312.10 of 40 CFR 312.



May 9, 2024

Michael D. Smith, Environmental Professional
Senior Technical Manager of Æ.

Date



May 9, 2024

Sandra K. Clark, Environmental Professional
President of Æ.

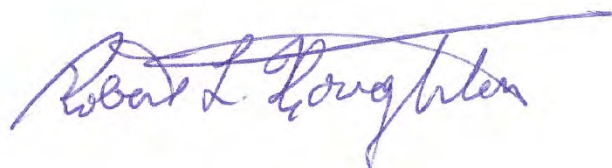
Date



May 9, 2024

Rodney Abke, CPG, LPG, Environmental Professional,
Æ Senior Geologist

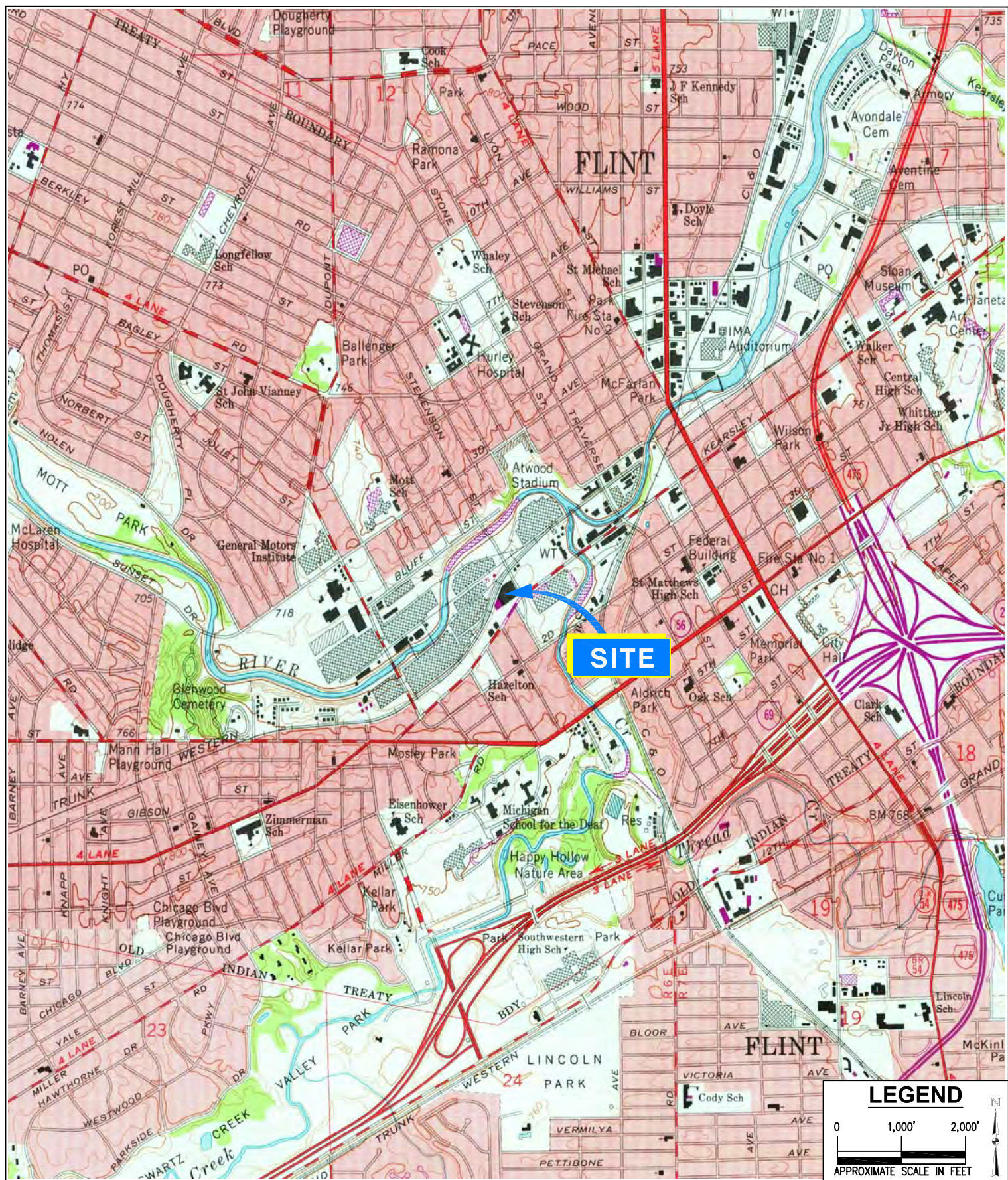
Date



May 9, 2024

Robert L. Houghton, Environmental Professional,
Æ Senior Technical Advisor,
Æ Quality Assurance Officer

Date



Applied EcoSystems, Inc.

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

Site Location Map

RACER Flint West #12990

Glenwood Avenue & Stevenson Street
Flint, Michigan

SOURCE: USGS FLINT SOUTH QUADRANGLE
(PROVISIONAL EDITION 1975)

DRAWING DATE:

04/06/2020

CHECKED BY:

MDS

PROJECT:

11-4317-102

FIGURE:

1



Table 1
Sample Collection and Analysis Summary
March 2024 Biannual Groundwater Sampling Event

Lab Sample ID	Field Sample ID (Location)	Matrix	Collection		Analytical Parameters			
			Date (mm/dd/yyyy)	Time (hr:min)	PFAS	VOCs	Total Metals	Dissolved Metals
S60263.01	Field Blank-1-240327	Groundwater	03/27/2024	10:27		X	X	X
S60263.02	MW-104S-240327	Groundwater	03/27/2024	12:05		X	X	X
S60263.03	MW-106SR-240327	Groundwater	03/27/2024	12:54		X	X	X
S60263.04	MW-112S-240327	Groundwater	03/27/2024	14:03		X	X	X
S60297.01	MW-110S-240327	Groundwater	03/27/2024	15:35		X	X	X
S60297.02	MW-108S-240327	Groundwater	03/27/2024	16:32		X	X	X
S60297.03	MW-114S-240327	Groundwater	03/27/2024	17:24		X	X	X
S60297.04	Dup-1-1240327	Groundwater	03/27/2024	00:01		X	X	X
S60296.01	MW-117S-240327	Groundwater	03/28/2024	08:31		X	X	X
S60296.02	MW-103S-240327	Groundwater	03/28/2024	09:43		X	X	X
S60296.03	MS(MW-103S-240327)	Groundwater	03/28/2024	09:43		X	X	X
S60296.04	MSD(MW-103S-240327)	Groundwater	03/28/2024	09:43		X	X	X
S60296.05	EB-1-240327	Groundwater	03/28/2024	10:01		X	X	X
S60296.06	Trip Blank-240327	Groundwater	03/28/2024	09:00		X	X	X
S60264.01	FB-1-240327	Groundwater	03/27/2024	10:21	X			
S60264.02	MW-104S-240327	Groundwater	03/27/2024	12:05	X			
S60264.03	MW-106SR-240327	Groundwater	03/27/2024	13:01	X			
S60264.04	MW-112S-240327	Groundwater	03/27/2024	13:56	X			
S60309.01	MW-110S-240327	Groundwater	03/27/2024	15:35	X			
S60309.02	MW-108S-240327	Groundwater	03/27/2024	16:29	X			
S60309.03	MW-114S-240327	Groundwater	03/27/2024	17:19	X			
S60309.04	Dup-1-240327	Groundwater	03/27/2024	00:01	X			
S60307.01	MW-117S-240327	Groundwater	03/28/2024	08:28	X			
S60307.02	MW-103S-240327	Groundwater	03/28/2024	09:28	X			
S60307.03	MS (MW-103S-240327)	Groundwater	03/28/2024	09:28	X			
S60307.04	MSD (MW-103S-240327)	Groundwater	03/28/2024	09:28	X			
S60307.05	Trip Blank-240327	Groundwater	03/27/2024	09:00	X			
S60307.06	EB-1-240327	Groundwater	03/28/2024	10:01	X			

Table 2
Groundwater Analytical Results (with Flags)
RACER - Flint West # 12990

Sample ID				MW-103S	MW-104S	MW-106SR	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS**	MW-103S MSD**
Date Collected				03/28/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/28/2024	03/27/2024	03/27/2024	03/28/2024	03/27/2024	03/28/2024	03/28/2024
METALS ANALYTE (ug/L)	DW	GSI										MW-114S					
Arsenic, Dissolved	10	10		32	<2	3	<2	2	23	10	<2	11	<2	<2	NA	34	31
Arsenic	10	10		45	<2	1.629 b	<2	3	64	16	<2	16	<2	<2	NA	44	44
Chromium VI, Dissolved	100	11		<20	<10	<10	<10	<20	<10	<10	<10	<10	<10	<10	NA	60	70
Chromium VI	100	11		<250	<10	<10	<10	<250	<50	<10	<10	<10	<10	<10	NA	4050	4300
Chromium, Dissolved	100	160	G	<5	<5	1.218 b	<5	<5	<5	<5	<5	<5	<5	<5	NA	<5	<5
Chromium	100	160	G	<5	60	598	<5	<5	<5	<5	22	<5	<5	<5	NA	<5	<5
Copper, Dissolved	1000	20	G	<5	1.156 b	<5	<5	<5	<5	<5	0.932 b	<5	<5	<5	NA	<5	<5
Copper	1000	20	G	<5	6	9	<5	1.039 b	6	1.073 b	1.674 b	1.186 b	<5	0.4 b	NA	<5	<5
Lead, Dissolved	4	44	G	<3	<3	<3	<3	<3	<3	0.74 b	<3	<3	<3	<3	NA	<3	<3
Lead	4	44	G	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	NA	<3	<3
Selenium, Dissolved	50	5		<5	5	<5	7	<5	<5	<5	<5	<5	<5	<5	NA	<5	<5
Selenium	50	5		<5	6	<5	7	<5	<5	<5	<5	<5	<5	<5	NA	<5	<5
Zinc, Dissolved	2400	260	G	<5	<5	<5	<5	<5	<5	15	<5	12	<5	<5	NA	<5	<5
Zinc	2400	260	G	<5	4.754 b	4.121 b	<5	<5	3.513	16	<5	15	<5	<5	NA	<5	<5
VOC ANALYTE (ug/L)	DW	GSI															
Acetone	730	1700		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	58	63
Acrylonitrile	2.6	2.0 (M); 1.2		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	59	65
2-Butanone (MEK)	13000	2,200		<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	<25	59	62
Benzene	5	200		0.25 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	53
n-Butylbenzene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	51
Bromobenzene	18	NA		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	53	53
Bromochloromethane	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	54
Bromodichloromethane	80	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	55
Bromoform	80 (A,W)	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	58
Bromomethane	10	4.2; [5(M)]		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	51	49
sec-Butylbenzene	230	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	51
tert-Butylbenzene	80	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	52
Carbon disulfide	800	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	55	54
Carbon tetrachloride	5	38	X	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	56	54
Chlorobenzene	100	25		0.33 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	53
Chloroethane	430	1,100		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	52	50
Chloroform	80	350		<1	<1	<1	0.87 JN	<1	<1	<1	<1	<1	0.15 J	0.15 JB	0.15 JB	54	53
Chloromethane	260	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	51	51
1,1-Dichloroethane	880	740		<1	<1	<1	<1	<1	0.44	0.77 J	<1	0.8 J	<1	<1	<1	56	55
1,1-Dichloroethene	7	130		<1	<1	<1	<1	<1	0.35	0.34 J	<1	0.36 J	<1	<1	<1	54	52
1,2-Dibromo-3-chloropropane	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	54	60
1,2-Dibromoethane	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	57
1,2-Dichlorobenzene	600	13		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	53
1,2-Dichloroethane	5.0 (A)	360 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	53	53
1,2-Dichloropropane	5.0 (A)	230 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	54
1,3-Dichlorobenzene	6.6	28		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	55	53
1,4-Dichlorobenzene	75	17		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	53

Table 2
Groundwater Analytical Results (with Flags)
RACER - Flint West # 12990

Sample ID				MW-103S	MW-104S	MW-106SR	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS**	MW-103S MSD**
Date Collected				03/28/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/28/2024	03/27/2024	03/27/2024	03/28/2024	03/27/2024	03/28/2024	03/28/2024
VOC ANALYTE (ug/L)	DW	GSI															
cis-1,2-Dichloroethene	70	620		0.2 J	<1	<1	<1	<1	0.94	36	<1	36	<1	<1	<1	55	55
cis-1,3-Dichloropropene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	56	55
Dibromochloromethane	80 (A,W)	ID		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	56	58
Dibromomethane	230	NA		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	54	55
Dichlorodifluoromethane	1700	ID		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	50	49
Diethyl ether	10 (E)	ID		<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	51	53
trans-1,2-Dichloroethene	100	1500		<1	<1	<1	<1	<1	<1	0.35 J	<1	0.35 J	<1	<1	<1	56	55
trans-1,3-Dichloropropene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	53
trans-1,4-Dichloro-2-butene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	45	55
Ethylbenzene	74	18		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	54
2-Hexanone	1000	ID		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	62	69
Hexachloroethane	21	6.7		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	51	49
p-Isopropyltoluene	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	52	50
Isopropylbenzene	800	28		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	53	52
VOC ANALYTE (ug/L) {cont}	DW	GSI															
2-Methylnaphthalene	260	19		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	56	60
4-Methyl-2-pentanone (MIBK)	1800	ID		<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	60	67
tert-Methyl butyl ether (MTBE)	40 (E)	7,100 (X)		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	55	58
Methyl iodide	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	51
Methylene chloride	5	1500		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	53	53
Naphthalene	520	11		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	60	63
n-Propylbenzene	80	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	52
Styrene	100	80		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	53	53
1,1,1,2-Tetrachloroethane	77	ID		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	56	56
1,1,1-Trichloroethane	200	89		<1	<1	<1	<1	<1	<1	0.58 J	<1	0.59 J	<1	<1	<1	57	55
1,1,2,2-Tetrachloroethane	8.5	78 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	59
1,1,2-Trichloroethane	5.0 (A)	330 (X)		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	55
1,2,3-Trichlorobenzene	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	56	57
1,2,3-Trichloropropane	42	NA		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	59
1,2,3-Trimethylbenzene	NC	NC		0.33 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	52
1,2,4-Trichlorobenzene	NC	NC		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	55	54
1,2,4-Trimethylbenzene	63 (E)	17		0.29 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	52
1,3,5-Trimethylbenzene	72 (E)	45		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	52	53
Tetrachloroethene	5	60		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	53	51
Tetrahydrofuran	95	11000		<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	<90	55.5 J	63.4 J
Toluene	790	270		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	54	52
Trichloroethene	5	200		<1	<1	<1	<1	<1	1	129	0.22 J	132	<1	<1	<1	54	53
Trichlorofluoromethane	2600	NA		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	51	50
Vinyl chloride	2	13		<1	<1	<1	<1	<1	3	2	<1	2	<1	<1	<1	52	51
o-Xylene	NC	NC		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	53	53
p,m-Xylene	NC	NC		<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	106	106
Xylenes, Total	280	49		<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	159	159

Table 2
Groundwater Analytical Results (with Flags)
RACER - Flint West # 12990

Sample ID				MW-103S	MW-104S	MW-106SR	MW-108S	MW-110S	MW-112S	MW-114S	MW-117S	Dupe1	FB-1	EB-1	Trip Blank	MW-103S MS**	MW-103S MSD**
Date Collected				03/28/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/27/2024	03/28/2024	03/27/2024	03/27/2024	03/28/2024	03/27/2024	03/28/2024	03/28/2024
PFA ANALYTE (ng/L)	DW	GSI															
PFBA	NC	NC		<33 X	3.3 J	7.5 J	<10.0	<9.6	<27 X	4.2 J	5.8 J	4.4 J	<11	<9.7	<9.8	110	120
PFPeA	NC	NC		<3.8	<3.9	2.5 J	<4.0	<3.8	<4.1	1.8 J	<4.0	1.4 J	<4.2	<3.9	<3.9	100	97
4:2 FTS	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	96	87 I
PFHxA	400,000	NC		<2.7 X	<2.0	2.4	<2.0	<1.9	<2.9 X	1.5 J	1.3 J	1.4 J	<2.1	<1.9	<2.0	94	100
PFBS	420	NC		<1.9	2.5	4.3	0.98 J	2	<2.0	1.6 J	1.6 J	1.6 J	<2.1	<1.9	<2.0	85	90
PFHpA	NC	NC		<1.9	<2.0	1 J	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	100	100
PFPeS	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	94	97
6:2 FTS	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	100	99
PFOA	8	12,000		2.7	0.99 J	5.3	<2.0	0.78 J	<2.0	1.2 J	1.2 J	1.5 J	<2.1	<1.9	<2.0	85	84
PFHxS	51	NC		<1.9	<2.0	1.3 J	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	110	89
PFHxS-LN	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	89	73
PFHxS-BR	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	15	14
PFNA	6	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	84	99
8:2 FTS	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	85	92
PFHpS	NC	NC		<1.9	<2.0	0.9 J	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	100	98
PFDA	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	110	98
N-MeFOSAA	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	120	110
EtFOSAA	NC	NC		<3.8	<3.9	<4.0	<4.0	<3.8	<4.1	<3.9	<4.0	<4.0	<4.2	<3.9	<3.9	93	95
PFOS	16	12		63	<2.0	7.1	2.7	<1.9	7.1	13	2.8	15	<2.1	<1.9	<2.0	160	140
PFOS-LN	NC	NC		42	<2.0	1.9 J	<2.0	<1.9	3.7	4.9	<2.0	7.3	<2.1	<1.9	<2.0	110	99
PFOS-BR	NC	NC		20	<2.0	4.4	1.6 J	<1.9	2.6	6.7	<2.0	6.9	<2.1	<1.9	<2.0	50	43
PFUnDA	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	110	110
PFNS	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	100	92
PFDoDA	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	95	87
PFDS	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	110	95
PFTTrDA	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	110	100
FOSA	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	93	88
PFTeDA	NC	NC		<3.8	<3.9	<4.0	<4.0	<3.8	<4.1	<3.9	<4.0	<4.0	<4.2	<3.9	<3.9	86	82
11CI-PF3OUdS	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	110	94
9CI-PF3ONS	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	99	100
ADONA	NC	NC		<1.9	<2.0	<2.0	<2.0	<1.9	<2.0	<2.0	<2.0	<2.0	<2.1	<1.9	<2.0	95	96
HFPO-DA	NC	NC		<9.6	<9.8	<10.0	<10.0	<9.6	<10	<9.8	<10	<10.0	<11	<9.7	<9.8	96	110

NOTES:

DW - Drinking Water Residential Generic Criteria.

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

Blank cells indicate no detectable concentrations	
Exceeds DW criteria	X
Exceeds GSI criteria	X
Exceeds both DW and GSI criteria	X
Compound also found in associated method blank, suggesting a laboratory artifact.	X
Insufficient data to develop criterion/no criterion	NC
Groundwater to Surface Water Interface Criteria - calculated based on 257ppm total hardness in the Flint River	G
Not Sampled	NS
Filtered in lab	1
Filtered and preserved in lab	2
Not analyzed	NA

PFAS criteria based on EGLE proposed drinking water criteria for selected PFAS compounds.

** - All VOCS for MS and MSD samples have the "1" flag - Spiked at 50 ug/L

Perfluorobutanoic acid (PFBA)
Perfluoropentanoic acid (PFPeA)
Fluorotelomer sulfonic acid (4:2 FTS)
Perfluorohexanoic acid (PFHxA)
Perfluorobutane sulfonic acid (PFBS)
Perfluoroheptanoic acid (PFHpA)
Perfluoropentane sulfonic acid (PFPeS)
Fluorotelomer sulfonic acid (6:2 FTS)
Perfluorooctanoic acid (PFOA)
Perfluorohexane sulfonic acid (PFHxS)
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)
Perfluorononanoic acid (PFNA)
Fluorotelomer sulfonic acid (8:2 FTS)
Perfluoroheptane sulfonic acid (PFHpS)
Perfluorodecanoic acid (PFDA)

N-Methyl perfluorooctane sulfonamidoacetic acid (N-MeFOSAA)
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)
Perfluorooctane sulfonic acid (PFOS)
Perfluorooctane Sulfonic Acid - LN (PFOS-LN)
Perfluorooctane Sulfonic Acid - BR (PFOS-BR)
Perfluoroundecanoic acid (PFUnDA)
Perfluorononane sulfonic acid (PFNS)
Perfluorododecanoic acid (PFDoDA)
Perfluorodecane sulfonic acid (PFDS)
Perfluorotridecanoic acid (PFTrDA)
Perfluorooctane sulfonamide (FOSA)
Perfluorotetradecanoic acid (PFTeDA)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)
4,8-dioxa-3H-perfluorononanoic acid (ADONA)
Hexafluoropropylene oxide dimer (HFPO-DA)

Table 3
Analytical Methods and Holding Time Criteria
March 2024 Biannual Groundwater Sampling Event
RACER Flint West #12990, Flint, Michigan

Parameter	Analytical Method	Matrix	Sample ID	Holding Time (days)				Approved Holding Time
				Collection Date/Time	Extraction Date/Time	Latest Analytical Date/Time	Actual Holding Time (days)	
VOCs	SW5030C /8260C	Water	Field Blank-1-240327	03/27/24 10:27		04/02/24 14:33	6.17	14 Days
		Groundwater	MW-104S-240327	03/27/24 12:05		04/02/24 15:43	6.15	
		Groundwater	MW-106SR-240327	03/27/24 12:54		04/02/24 16:07	6.13	
		Groundwater	MW-112S-240327	03/27/24 14:03		04/02/24 16:30	6.10	
		Groundwater	MW-117S-240327	03/28/24 08:31		04/02/24 16:54	5.35	
		Groundwater	MW-103S-240327	03/28/24 09:43		04/04/24 18:09	7.35	
		Groundwater	MS(MW-103S-240327)	03/28/24 09:43		04/04/24 22:22	7.53	
		Groundwater	MSD(MW-103S-240327)	03/28/24 09:43		04/04/24 22:46	7.54	
		Water	EB-1-240327	03/28/24 10:01		04/02/24 14:56	5.20	
		Water	Trip Blank-240327	03/27/24 09:00		04/02/24 15:20	6.26	
		Groundwater	MW-110S-240327	03/27/24 15:35		04/02/24 17:17	6.07	
		Groundwater	MW-108S-240327	03/27/24 16:32		04/02/24 17:41	6.05	
		Groundwater	MW-114S-240327	03/27/24 17:24		04/02/24 18:05	6.03	
		Groundwater	Dup-1-1240327	03/27/24 00:01		04/02/24 18:28	6.03	
Metals, Total	E200.8	Water	Field Blank-1-240327	03/27/24 10:27	03/29/24 13:30	03/29/24 14:52	2.18	180 Days
		Groundwater	MW-104S-240327	03/27/24 12:05	03/29/24 13:30	03/29/24 14:56	2.12	
		Groundwater	MW-106SR-240327	03/27/24 12:54	03/29/24 13:30	03/29/24 15:04	2.09	
		Groundwater	MW-112S-240327	03/27/24 14:03	03/29/24 13:30	03/29/24 15:09	2.05	
		Groundwater	MW-117S-240327	03/28/24 08:31	03/29/24 13:30	03/29/24 15:14	1.28	
		Groundwater	MW-103S-240327	03/28/24 09:43	03/29/24 13:30	03/29/24 15:29	1.24	
		Groundwater	MS(MW-103S-240327)	03/28/24 09:43	03/29/24 13:30	03/29/24 15:35	1.24	
		Groundwater	MSD(MW-103S-240327)	03/28/24 09:43	03/29/24 13:30	03/29/24 15:41	1.25	
		Water	EB-1-240327	03/28/24 10:01	03/29/24 13:30	03/29/24 15:25	1.22	
		Water	Trip Blank-240327	NA	NA	NA	NA	
		Groundwater	MW-110S-240327	03/27/24 15:35	03/29/24 13:30	03/29/24 15:46	2.01	
		Groundwater	MW-108S-240327	03/27/24 16:32	03/29/24 13:30	03/29/24 15:58	1.98	
		Groundwater	MW-114S-240327	03/27/24 17:24	03/29/24 13:30	03/29/24 16:06	1.95	
		Groundwater	Dup-1-1240327	03/27/24 00:01	03/29/24 13:30	03/29/24 16:14	1.95	
Chromium VI, Total	SM3500-Cr	Water	Field Blank-1-240327	03/27/24 10:27		03/27/24 16:50	0.27	24 Hours (1 Day)
		Groundwater	MW-104S-240327	03/27/24 12:05		03/27/24 17:05	0.21	
		Groundwater	MW-106SR-240327	03/27/24 12:54		03/27/24 17:10	0.18	
		Groundwater	MW-112S-240327	03/27/24 14:03		03/27/24 17:15	0.13	

Table 3
Analytical Methods and Holding Time Criteria
March 2024 Biannual Groundwater Sampling Event
RACER Flint West #12990, Flint, Michigan

Parameter	Analytical Method	Matrix	Sample ID	Holding Time (days)				Approved Holding Time
				Collection Date/Time	Extraction Date/Time	Latest Analytical Date/Time	Actual Holding Time (days)	
		Groundwater	MW-117S-240327	03/28/24 08:31		03/28/24 13:50	0.22	
		Groundwater	MW-103S-240327	03/28/24 09:43		03/28/24 14:05	0.18	
		Groundwater	MS(MW-103S-240327)	03/28/24 09:43		03/28/24 14:10	0.19	
		Groundwater	MSD(MW-103S-240327)	03/28/24 09:43		03/28/24 14:15	0.19	
		Water	EB-1-240327	03/28/24 10:01		03/28/24 14:20	0.18	
		Water	Trip Blank-240327	NA		NA	NA	
		Groundwater	MW-110S-240327	03/27/24 15:35		03/28/24 14:25	0.95	
		Groundwater	MW-108S-240327	03/27/24 16:32		03/28/24 14:30	0.92	
		Groundwater	MW-114S-240327	03/27/24 17:24		03/28/24 14:35	0.88	
		Groundwater	Dup-1-1240327	03/27/24 00:01		03/28/24 14:40	0.88	
Metals, Dissolved (As, Cr, Cu, Pb, Se, Zn)	E200.8	Water	Field Blank-1-240327	03/27/24 10:27	03/29/24 13:30	03/29/24 14:53	2.18	180 Days
		Groundwater	MW-104S-240327	03/27/24 12:05	03/29/24 13:30	03/29/24 15:02	2.12	
		Groundwater	MW-106SR-240327	03/27/24 12:54	03/29/24 13:30	03/29/24 15:07	2.09	
		Groundwater	MW-112S-240327	03/27/24 14:03	03/29/24 13:30	03/29/24 15:11	2.05	
		Groundwater	MW-117S-240327	03/28/24 08:31	03/29/24 13:30	03/29/24 15:16	1.28	
		Groundwater	MW-103S-240327	03/28/24 09:43	03/29/24 13:30	03/29/24 15:32	1.24	
		Groundwater	MS(MW-103S-240327)	03/28/24 09:43	03/29/24 13:30	03/29/24 15:38	1.25	
		Groundwater	MSD(MW-103S-240327)	03/28/24 09:43	03/29/24 13:30	03/29/24 15:41	1.25	
		Water	EB-1-240327	03/28/24 10:01	03/29/24 13:30	03/29/24 15:27	1.23	
		Water	Trip Blank-240327	NA	NA	NA	NA	
		Groundwater	MW-110S-240327	03/27/24 15:35	03/29/24 13:30	03/29/24 15:48	2.01	
		Groundwater	MW-108S-240327	03/27/24 16:32	03/29/24 13:30	03/29/24 16:03	1.98	
		Groundwater	MW-114S-240327	03/27/24 17:24	03/29/24 13:30	03/29/24 16:06	1.95	
		Groundwater	Dup-1-1240327	03/27/24 00:01	03/29/24 13:30	03/29/24 16:14	1.95	
Chromium VI, Dissolved	SM3500-Cr	Water	Field Blank-1-240327	03/27/24 10:27		03/27/24 17:20	0.29	24 Hours (1 Day)
		Groundwater	MW-104S-240327	03/27/24 12:05		03/27/24 17:25	0.22	
		Groundwater	MW-106SR-240327	03/27/24 12:54		03/27/24 17:30	0.19	
		Groundwater	MW-112S-240327	03/27/24 14:03		03/27/24 17:35	0.15	
		Groundwater	MW-117S-240327	03/28/24 08:31		03/28/24 14:45	0.26	
		Groundwater	MW-103S-240327	03/28/24 09:43		03/28/24 14:50	0.21	
		Groundwater	MS(MW-103S-240327)	03/28/24 09:43		03/28/24 14:55	0.22	
		Groundwater	MSD(MW-103S-240327)	03/28/24 09:43		03/28/24 15:00	0.22	
		Water	EB-1-240327	03/28/24 10:01		03/28/24 15:05	0.21	

Table 3
Analytical Methods and Holding Time Criteria
March 2024 Biannual Groundwater Sampling Event
RACER Flint West #12990, Flint, Michigan

Parameter	Analytical Method	Matrix	Sample ID	Holding Time (days)				Approved Holding Time
				Collection Date/Time	Extraction Date/Time	Latest Analytical Date/Time	Actual Holding Time (days)	
PFAS	ASTM D7979-19M	Water	Trip Blank-240327	NA		NA	NA	14 Days to Extract
		Groundwater	MW-110S-240327	03/27/24 15:35		03/28/24 15:10	0.98	
		Groundwater	MW-108S-240327	03/27/24 16:32		03/28/24 15:15	0.95	
		Groundwater	MW-114S-240327	03/27/24 17:24		03/28/24 15:20	0.91	
		Groundwater	Dup-1-1240327	03/27/24 00:01		03/28/24 15:25	0.91	
		Water	Field Blank-1-240327	03/27/24 10:21	04/08/24 12:00	04/08/24 20:49	12.44	28 to Analyze
		Groundwater	MW-104S-240327	03/27/24 12:05	04/08/24 12:00	04/08/24 21:09	12.38	
		Groundwater	MW-106SR-240327	03/27/24 13:01	04/08/24 12:00	04/08/24 21:29	12.35	
		Groundwater	MW-112S-240327	03/27/24 13:56	04/08/24 12:00	04/08/24 21:49	12.33	
		Groundwater	MW-117S-240327	03/28/24 08:28	04/08/24 12:00	04/08/24 23:09	11.61	
		Groundwater	MW-103S-240327	03/28/24 09:28	04/08/24 12:00	04/08/24 23:29	11.58	
		Groundwater	MS(MW-103S-240327)	03/28/24 09:28	04/08/24 12:00	04/08/24 23:49	11.60	
		Groundwater	MSD(MW-103S-240327)	03/28/24 09:28	04/08/24 12:00	04/09/24 00:09	11.61	
		Water	Trip Blank-240327	03/28/24 10:01	04/08/24 12:00	04/09/24 00:29	11.60	
		Water	EB-1-240327	03/27/24 09:00	04/08/24 12:00	04/09/24 00:49	12.66	
		Groundwater	MW-110S-240327	03/27/24 15:35	04/08/24 12:00	04/09/24 01:49	12.43	
		Groundwater	MW-108S-240327	03/27/24 16:29	04/08/24 12:00	04/09/24 02:09	12.40	
		Groundwater	MW-114S-240327	03/27/24 17:19	04/08/24 12:00	04/09/24 02:29	12.38	
		Groundwater	Dup-1-1240327	03/27/24 00:01	04/08/24 12:00	04/09/24 02:49	13.12	

Table 4

**Qualified Sample Results Due to Outlying MS/MSD Results
March 2024 Biannual Groundwater Sampling Event
RACER Flint West #12990, Flint, Michigan**

Analyte	Sample ID	MS % Recovery	MSD Replicate % Recovery	RPD (percent)	Control Limits		Associated Samples	Qualified Result(s)
					% Recovery	RPD		
Reports QC-S60263-01, QC-S60296-01, and QC-S60297-01								
Chromium VI	CHRS40328- W1.MS2	8	11	32	80-120	15	MW-103S, MW-104S, MW-106SR, MW-108S, MW-110S, MW-112S, MW-114S, MW117S, EB-1, FB-1	Potential low result. No Cr VI detected except in spiked samples. Likely no qualified results.
Reports QC-S60264-01, QC-S60307-01, and QC-S60309-01								
4:2 FTSA	AK240408- 6030704N	132.1	153.2	15	50.0-150.0	15	MW-103S, MW-104S, MW-106SR, MW-108S, MW-110S, MW-112S, MW-114S, MW117S, EB-1, FB-1	Potential high result. No 4:2 FTSA detected except in spiked samples. Likely no qualified results.

Table 5
Field Sample Duplicate Results and Relative Percent Differences (RPD)
March 2024 Biannual Groundwater Sampling Event
RACER Flint West #12990, Flint, Michigan

Analyte	MW-114S (Groundwater)			RPD (%)
	09/14/2023 15:00	Dup-1		
Arsenic, Dissolved	10	11		9.5
Arsenic	16	16		0.00
Chromium VI, Dissolved	<10	<10		---
Chromium VI	<10	<10		---
Chromium, Dissolved	<5	<5		---
Chromium	<5	<5		---
Copper, Dissolved	<5	<5		---
Copper	1.073 b	1.186 b		10.0
Lead, Dissolved	0.74 b	<3		---
Lead	<3	<3		---
Selenium, Dissolved	<5	<5		---
Selenium	<5	<5		---
Zinc, Dissolved	15	12		22.2
Zinc	16	15		6.5
Acetone	<50	<50		---
Acrylonitrile	<2	<2		---
2-Butanone (MEK)	<25	<25		---
Benzene	<1	<1		---
n-Butylbenzene	<1	<1		---
Bromobenzene	<1	<1		---
Bromochloromethane	<1	<1		---
Bromodichloromethane	<1	<1		---
Bromoform	<1	<1		---
Bromomethane	<5	<5		---
sec-Butylbenzene	<1	<1		---
tert-Butylbenzene	<1	<1		---
Carbon disulfide	<5	<5		---
Carbon tetrachloride	<1	<1		---
Chlorobenzene	<1	<1		---
Chloroethane	<5	<5		---
Chloroform	<1	<1		---
Chloromethane	<5	<5		---
1,1-Dichloroethane	0.77 J	0.8 J		3.8
1,1-Dichloroethene	0.34 J	0.36 J		5.7
1,2-Dibromo-3-chloropropane	<5	<5		---
1,2-Dibromoethane	<1	<1		---
1,2-Dichlorobenzene	<1	<1		---
1,2-Dichloroethane	<1	<1		---
1,2-Dichloropropane	<1	<1		---
1,3-Dichlorobenzene	<1	<1		---
1,4-Dichlorobenzene	<1	<1		---
cis-1,2-Dichloroethene	36	36		0.0
cis-1,3-Dichloropropene	<1	<1		---
Dibromochloromethane	<5	<5		---
Dibromomethane	<5	<5		---
Dichlorodifluoromethane	<5	<5		---
Diethyl ether	<10	<10		---
trans-1,2-Dichloroethene	0.35 J	0.35 J		0.0

Table 5
Field Sample Duplicate Results and Relative Percent Differences (RPD)
March 2024 Biannual Groundwater Sampling Event
RACER Flint West #12990, Flint, Michigan

Analyte	MW-114S (Groundwater)			RPD (%)
	09/14/2023 15:00	Dup-1		
trans-1,3-Dichloropropene	<1	<1		---
trans-1,4-Dichloro-2-butene	<1	<1		---
Ethylbenzene	<1	<1		---
2-Hexanone	<50	<50		---
Hexachloroethane	<5	<5		---
p-Isopropyltoluene	<5	<5		---
Isopropylbenzene	<5	<5		---
2-Methylnaphthalene	<5	<5		---
4-Methyl-2-pentanone (MIBK)	<50	<50		---
tert-Methyl butyl ether (MTBE)	<5	<5		---
Methyl iodide	<1	<1		---
Methylene chloride	<5	<5		---
Naphthalene	<5	<5		---
n-Propylbenzene	<1	<1		---
Styrene	<1	<1		---
1,1,1,2-Tetrachloroethane	<1	<1		---
1,1,1-Trichloroethane	0.58 J	0.59 J		1.7
1,1,2,2-Tetrachloroethane	<1	<1		---
1,1,2-Trichloroethane	<1	<1		---
1,2,3-Trichlorobenzene	<5	<5		---
1,2,3-Trichloropropane	<1	<1		---
1,2,3-Trimethylbenzene	<1	<1		---
1,2,4-Trichlorobenzene	<5	<5		---
1,2,4-Trimethylbenzene	<1	<1		---
1,3,5-Trimethylbenzene	<1	<1		---
Tetrachloroethene	<1	<1		---
Tetrahydrofuran	<90	<90		---
Toluene	<1	<1		---
Trichloroethene	129	132		2.3
Trichlorofluoromethane	<1	<1		---
Vinyl chloride	2	2		0.0
o-Xylene	<1	<1		---
p,m-Xylene	<2	<2		---
Xylenes, Total	<3	<3		---

Table 5
Field Sample Duplicate Results and Relative Percent Differences (RPD)
March 2024 Biannual Groundwater Sampling Event
RACER Flint West #12990, Flint, Michigan

Analyte	MW-114S (Groundwater)		
	09/14/2023 15:00	Dupe	RPD (%)
PFBA	4.2 J	4.4 J	4.7
PFPeA	1.8 J	1.4 J	25.0
4:2 FTSA	<2.0	<2.0	---
PFHxA	1.5 J	1.4 J	6.9
PFBS	1.6 J	1.6 J	0.0
PFHpA	<2.0	<2.0	---
PFPeS	<2.0	<2.0	---
6:2 FTSA	<2.0	<2.0	---
PFOA	1.2 J	1.5 J	22.2
PFHxS	<2.0	<2.0	---
PFHxS-LN	<2.0	<2.0	---
PFHxS-BR	<2.0	<2.0	---
PFNA	<2.0	<2.0	---
8:2 FTSA	<2.0	<2.0	---
PFHpS	<2.0	<2.0	---
PFDA	<2.0	<2.0	---
N-MeFOSAA	<2.0	<2.0	---
EtFOSAA	<3.9	<4.0	---
PFOS	13	15	14.3
PFOS-LN	4.9	7.3	39.3
PFOS-BR	6.7	6.9	2.9
PFUnDA	<2.0	<2.0	---
PFNS	<2.0	<2.0	---
PFDoDA	<2.0	<2.0	---
PFDS	<2.0	<2.0	---
PFTTrDA	<2.0	<2.0	---
FOSA	<2.0	<2.0	---
PFTeDA	<3.9	<4.0	---
11Cl-PF3OUdS	<2.0	<2.0	---
9Cl-PF3ONS	<2.0	<2.0	---
ADONA	<2.0	<2.0	---
HFPO-DA	<9.8	<10.0	---

NOTE: Since this validation report is included as an Appendix to the March 2024 Data Report, Copies of the laboratory reports are included in the March 2024 Data Report as Appendix B, Attachment 3 and are not duplicated here.