RAMBOLL

ENVIRONMENT
& HEALTH

Mr. Tom Hutchings
City of Flint Water Pollution
Water Pollution Control Facilities
G4652 Beecher Rd.
Flint, MI, 48532

RE: ***Discharge Permit Submittal– January 2021 through March 2021***
Permit No.: 6-08-04-04-GML1
FILE: 15388/1940100783/Docs

Dear **Mr. Hutchings:**

April 26, 2021

In accordance with requirements of the above referenced discharge permit, we are providing you with the following discharge information for the period January 1, 2021 to March 31, 2021 for the Coldwater Road Landfill facility, located at 6220 Horton Avenue, Flint, Michigan. In addition, we are reporting the performance of the per- and polyfluoroalkyl substances (PFAS) pretreatment system in this letter and will continue to do so as long as the pretreatment system is in operation.

- Periodic Report on Continued Compliance, certification
- Periodic Report on Continued Compliance Sample (Table 1)
- Daily Discharge Summary Table (Table 2)
- PFAS Sampling Results Table (Table 3)
- Analytical Reports provided by Merit Laboratories, Inc. for samples from the on-Site, above ground collection tank collected on March 3, 2021.
- Analytical Reports provided by Merit Laboratories, Inc. for samples from the on-Site, PFAS pretreatment system collected on March 18, 2021 and March 22, 2021 during the discharge of the liquids from the on-Site, above ground collection tank through the system.
- Copy of Chain-of-Custody forms.

Ramboll
3600 Green Court
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Ann Arbor, MI 48105
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T 734-761-4000
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The laboratory analytical results indicate concentrations in the effluent were below the Sewer Use Permit limits for the required monitoring parameters during the discharge period.

In addition, the PFAS analytical results for the effluent were non-detect and therefore were reduced below the current EGLE Part 4, Water Quality Standards, Rule 57 Water Quality Values. Therefore, the PFAS pretreatment system is operating as designed.

Breakthrough samples were collected from GAC vessels on March 18, 2021 and March 22, 2021 during the accumulation tank discharge. The influent sample collected on March 18, 2021 had a detection of 10,000 ng/L for PFOS. The highest detection from the primary GAC drum sample collected on March 22,

2021 was 46 ng/L for PFOS after 127 bed volumes (approximately 5,720 gallons). On March 22, 2021, PFOS was detected at a concentration of 2.2 ng/L in the secondary GAC drum.

During the start of the discharge, a leak was observed in the bottom of the new primary GAC drum (previously effluent drum). The leaking liquid was contained in the drum spill containment platform beneath the four GAC drums and pumped via a sump pump back into the accumulation tank during the discharge. The leaking drum caused the pressure in the system to decrease and reduced the flow rate on the last day of the discharge. The leaking drum will be replaced with new GAC drums for the next discharge, and the second and third drums used during this most recent discharge will become the primary and secondary drums, respectively for the approved four-drum pretreatment system.

At least one spare GAC drum is kept on site prior to each discharge to ensure that the discharge goes through four drums. This is not the first time a drum from the supplier has leaked during the discharge and we are currently researching whether it is an issue with the type of drums received from the supplier or corrosivity of the liquids being discharged that is causing the leaks.

Please call me at 313-333-0211 if you have any questions.

Yours sincerely,
RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.

Clifford S. Yantz
Managing Hydrogeologist
1943864 - MIDWEST EAST Resources 056

M 313.333.0211
Clifford.yantz@ramboll.com

cc: Mr. Kevin Forbes – Beecher Metropolitan District, Flint, MI
Mr. Jacob Runge – EGLE (via email)
Mr. David Favero – RACER Trust
Mr. Kevin Schneider – Ramboll

City of Flint
Industrial Pretreatment Program

Periodic Report on Continued Compliance

Company Name: RACER Trust, Coldwater Road
Street Address: 6220 Horton Avenue, Flint, Michigan
Permit Number: 6-08-04-04-GML1
Outfall Number: 001

Reporting Period: January 1, 2021 through March 31, 2021

Average Volume of Daily Discharge (during reporting period): 1,906.66 gallons
(Three One Day Events)

Complete the following:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Name of Authorized Representative: Clifford Yantz

Title of Authorized Representative: Managing Hydrogeologist, Ramboll Americas Engineering Solutions, Inc., As agent for the RACER Trust

Signature of Authorized Representative: Clifford Scott Yantz as agent for RACER Trust

Date Signed by Authorized Representative: 4/26/21

If required to implement a Toxic Organics Management Plan (TOMP), complete the following:

"Based on my inquiry of the person or persons directly responsible for managing compliance with the pretreatment standard for total toxic organics (TTO), I certify that, to the best of my knowledge and belief, no dumping of concentrated toxic organics into the wastewaters has occurred since filing of the last Periodic Report on Continued Compliance. I further certify that, this facility is implementing the toxic organic management plan submitted to the control authority."

Name of Authorized Representative: N/A

Title of Authorized Representative: N/A

Signature of Authorized Representative: N/A

Date Signed by Authorized Representative: N/A

TABLES

Table 1
Periodic Report on Continued Compliance
City of Flint Sewer User Self-Monitoring Report
Frist Quarter - 2021 - GSWVR Sample

RACER Trust - Coldwater Road Landfill Facility
Permit Number 6-08-04-04-GML1
6220 Horton Avenue

Analytical Parameter	Ammonia-N	BOD5	HEM	pH @ 25°C	Phosphorus	TSS
Units	mg/L	mg/L	mg/L	SU	mg/L	mg/L
Sampling Frequency	Per Batch	Per Batch	Per Batch	Per Batch	Per Batch	Per Batch
Sampling Procedure	Grab sample	Grab sample	Grab sample	Grab sample	Grab sample	Grab sample
Daily Maximum Limit	110	1196	100	NA	14	570
Maximum Limit	NA	NA	NA	10.5	NA	NA
Minimum Limit	NA	NA	NA	6	NA	NA
Test Result	0.76	<3	<2	7.36	0.02	21
Test Method	4500-NH3 D	10360	1664A	4500-H+ B	4500-PE	2540 D
Test Date	3/9/2021	3/9/2021	3/8/2021	3/3/2021	3/7/2021	3/4/2021
Sample Date	3/3/2021	3/3/2021	3/3/2021	3/3/2021	3/3/2021	3/3/2021
Sample Type	wastewater	wastewater	wastewater	wastewater	wastewater	wastewater
Test Result						
Test Method						
Test Date						
Sample Date						
Sample Type						
Test Result						
Test Method						
Test Date						
Sample Date						
Sample Type						
Average Daily Conc.						
No. of Samples						
Number of Limit Exceedances						

Table 1
Periodic Report on Continued Compliance
City of Flint Sewer User Self-Monitoring Report
Frist Quarter - 2021 - GSWVR Sample

RACER Trust - Coldwater Road Landfill Facility
Permit Number 6-08-04-04-GML1
6220 Horton Avenue

Analytical Parameter	Arsenic	Chromium	Copper	Mercury	Nickel	Zinc	Cyanide, available
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sampling Frequency	Per Batch	Per Batch	Per Batch	Per Batch	Per Batch	Per Batch	Per Batch
Sampling Procedure	Grab sample	Grab sample	Grab sample	Grab sample	Grab sample	Grab sample	Grab sample
Daily Maximum Limit	0.051	1.273	1.797	0.000012	0.543	2.626	0.165
Maximum Limit	NA	NA	NA	NA	NA	NA	NA
Minimum Limit	NA	NA	NA	NA	NA	NA	NA
Test Result	0.005	0.050	0.274	<0.0002	0.091	0.025	<0.002
Test Method	200.8	200.8	200.8	245.1	200.8	200.8	1677
Test Date	3/8/2021	3/8/2021	3/8/2021	3/4/2021	3/8/2021	3/8/2021	3/5/2021
Sample Date	3/3/2021	3/3/2021	3/3/2021	3/3/2021	3/3/2021	3/3/2021	3/3/2021
Sample Type	wastewater	wastewater	wastewater	wastewater	wastewater	wastewater	wastewater
Test Result							
Test Method							
Test Date							
Sample Date							
Sample Type							
Test Result							
Test Method							
Test Date							
Sample Date							
Sample Type							
Average Daily Conc.							
No. of Samples							
Number of Limit Exceedances							

TABLE 2
RACER Trust - Coldwater Road
Daily Discharge Summary Table
First Quarter 2021
6-08-04-04-GML1

Date	Beginning Flow Meter Reading	End Flow Meter Reading	Gallons Discharged	Begin Time of Discharge	End Time of Discharge	Average Flow (gal/min)	Temperature at Discharge (C)	(F)	pH
3/18/2021 - 3/19/2021	753,301	758,040	**4,739**	11:20 AM (3/18/21)	13:25 AM (3/19/21)	3.08	9.5	49.1	8.20
3/22/2021	758,040	759,021	**981**	8:45	17:30	1.87	9.6	49.3	7.40

Total Discharge Volume (3 Days): **5,720**
Average Discharge Volume (3 Days): **1,906.66**

NOTES :

TABLE 3
RACER Trust - Coldwater Road
Pre-and Polyfluroalkyl Substances (PFAS) Sampling Results - March 2021

Coldwater Road - PFAS Pretreatment System Samples

Perfluorinated Compound	Well/Sample ID: / Sample Date:	EGLE Drinking Water Maximum Contaminant Levels (MCLs)	EGLE Rule 57 Surface Water Quality Values - Non-Drinking Water	01-PRCC-21-INF (Influent Sample) 3/18/2021	01-PRCC-21-PRIM (Primary GAC Drum Sample) 3/18/2021	01-PRCC-21-PRIM-127 (Primary GAC Drum Sample after 127 Bed Volumes) 3/22/2021	01-PRCC-21-MID-1-127 (Secondary GAC Drum Sample after 127 Bed Volumes) 3/22/2021	01-PRCC-21-MID-2-127 (Tertiary GAC Drum Sample after 127 Bed Volumes) 3/22/2021	01-PRCC-21-EFF-127 (Effluent Sample after 127 Bed Volumes) 3/22/2021	FieldBlank-031821 (Field Blank) 3/18/2021	FieldBlank-122220 (Field Blank) 3/22/2021
Perfluorobutanoic Acid (PFBA)		--	--	<310 X	<11	<10	<10	<10	<9.9	<10	<10
Perfluoropentanoic Acid (PFPeA)		--	--	<4.2	<4.2	<4.0	<4.0	<4.0	<3.9	<4.2	<4.0
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)		--	--	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluorohexanoic Acid (PFHxA)		**400,000**	--	**55**	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluorobutane Sulfonic Acid (PFBS)		**420**	--	**110**	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluoroheptanoic Acid (PFHpA)		--	--	**31**	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluoropentane Sulfonic Acid (PFPeS)		--	--	**230**	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)		--	--	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluorooctanoic Acid (**PFOA**)		**8**	**12,000**	**77**	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluorohexane Sulfonic Acid (PFHxS)		**51**	--	**580**	<2.1	**2.4**	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)		--	--	**480**	<2.1	**1.6 J**	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)		--	--	**94**	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluorononanoic Acid (PFNA)		**6**	--	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)		--	--	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluoroheptane Sulfonic Acid (PFHpS)		--	--	**120**	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluorodecanoic Acid (PFDA)		--	--	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)		--	--	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)		--	--	<4.2	<4.2	<4.0	<4.0	<4.0	<3.9	<4.2	<4.0
Perfluorooctane Sulfonic Acid (**PFOS**)		**16**	**12**	**10,000**	**24**	**46**	**2.2**	<2.0	<2.0	<2.1	<2.0
Perfluorooctane Sulfonic Acid (**PFOS**-LN)		--	--	**6,600**	**19**	**23**	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluorooctane Sulfonic Acid (**PFOS**-BR)		--	--	**3,900**	**4.6**	**22**	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluoroundecanoic Acid (PFUnDA)		--	--	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluorononane Sulfonic Acid (PFNS)		--	--	**3.2**	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluorododecanoic Acid (PFDoDA)		--	--	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluorodecane Sulfonic Acid (PFDS)		--	--	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluorotridecanoic Acid (PFTrDA)		--	--	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluorooctane Sulfonamide (FOSA)		--	--	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
Perfluorotetradecanoic Acid (PFTeDA)		--	--	<4.2	<4.2	<4.0	<4.0	<4.0	<3.9	<4.2	<4.0
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		--	--	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)		--	--	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
4,8-dioxa-3H-perfluorononanoic acid (ADONA)		--	--	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)		**370**	--	<2.1	<2.1	<2.0	<2.0	<2.0	<2.0	<2.1	<2.0
Total Per-and Polyfluoroalkyl Substances		--	--	**11,206.2**	**24.0**	**48.4**	**2.2**	**0.0**	**0.0**	**0.0**	**0.0**

Notes
1) Detections in **bold**.
2) Concentrations in ng/L.
3) < = Not detected at specified reporting limit.
4) -- = Not analyzed/No criteria.
5) Dup = Duplicate sample.
6) Concentrations above the EGLE Drinking Water Maximum Contaminant Levels (MCLs) and/or Rule 57 Surface water quality values are highlighted in yellow.
7) Number after Prim (Primary GAC drum), Mid (Secondary GAC drum), and Eff (Effluent sample after tertiary GAC drum) samples equals number of GAC Bed volumes discharged through the pretreatment system at the time of sample collection. One bed volume equals 45 gallons.
8) I - Matrix interference with internal standard.
9) J - Estimated value less than reporting limit, but greater than MDL.
10) X - Elevated reporting limit due to matrix interference.

ANALYTICAL REPORTS

Analytical Laboratory Report

Report ID: S21902.01(01)+QC01
Generated on 03/10/2021

Report to

Attention: Clifford Yantz
Ramboll
2260 East Saginaw
East Lansing, MI 48823

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@ramboll.com

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S21902.01
Project: RACER Coldwater Rd.
Collected Date(s): 03/03/2021
Submitted Date/Time: 03/03/2021 12:45
Sampled by: Will Laughner
P.O. #: 12000277

Table of Contents

Maya Murshak
Technical Director

General Report Notes

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

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

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884

Qualifier Descriptions

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

Glossary of Abbreviations

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

Method Summary

Method	Version
E1664A	EPA Method 1664 Revision A February 1999
E200.8	EPA Method 200.8 Revision 5.4
E245.1	EPA Method 245.1 Revision 3.0
HACH 10360	HACH 10360
OIA-1677	EPA Method OIA-1677-09
SM2540D	Standard Method 2540 D 2011
SM2550B	Standard Method 2550 B 2011
SM4500-H+ B	Standard Method 4500 H + B 2011
SM4500-NH3 D	Standard Method 4500 NH3 D 2011
SM4500-PE	Standard Method 4500 P E 2011
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Sample Summary (1 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S21902.01	01-PRCC-21	Wastewater	03/03/21 10:42

Analytical Laboratory Report

Lab Sample ID: S21902.01
Sample Tag: 01-PRCC-21
Collected Date/Time: 03/03/2021 10:42
Matrix: Wastewater
COC Reference: 135729

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	3.6	IR
1	250ml Plastic	H2SO4	Yes	3.6	IR
1	125ml Amber	PbCO3/NaOH	Yes	3.6	IR
1	1L Plastic	None	Yes	3.6	IR
1	32oz Glass	HCL	Yes	3.6	IR
1	500ml Plastic	None	Yes	3.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	03/04/21 08:20	JRH	
TBOD5 - Set*	Completed	HACH 10360	03/04/21 10:00	ASB	
Metal Digestion	Completed	SW3015A	03/08/21 11:15	CCM	

Inorganics

Method: E1664A, Run Date: 03/08/21 16:05, Analyst: PTW

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Oil & Grease n-Hexane Extract.	Not detected	2		mg/L	1		

Method: HACH 10360, Run Date: 03/09/21 19:23, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TBOD5*	Not detected	3		mg/L	1.5		

Method: SM2540D, Run Date: 03/04/21 19:40, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	21	3		mg/L	1.00		

Method: SM2550B, Run Date: 03/03/21 10:42, Analyst: WL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Field Temperature*	48	1		oF	1		

Method: SM4500-H+ B, Run Date: 03/03/21 10:42, Analyst: WL

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Field pH*	7.36	0.01		STD Units	1		

Method: SM4500-NH3 D, Run Date: 03/09/21 18:44, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ammonia-N (Undistilled)	0.76	0.02	0.003	mg/L	1	7664-41-7	

Method: SM4500-PE, Run Date: 03/07/21 16:23, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Phosphorus	0.02	0.01	0.009	mg/L	1	7723-14-0	

Metals

Method: E200.8, Run Date: 03/08/21 12:58, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.005	0.002		mg/L	5	7440-38-2	

Lab Sample ID: S21902.01 (continued)
Sample Tag: 01-PRCC-21

Method: E200.8, Run Date: 03/08/21 12:58, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	0.050	0.005		mg/L	5	7440-47-3	
Copper	0.274	0.005		mg/L	5	7440-50-8	
Nickel	0.091	0.005		mg/L	5	7440-02-0	
Zinc	0.025	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 03/04/21 11:01, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Mercury	Not detected	0.0002		mg/L	1	7439-97-6	

Other / Misc.

Method: OIA-1677, Run Date: 03/05/21 14:38, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Available Cyanide	Not detected	0.002	0.0015	mg/L	1	57-12-5	

Quality Control Report

Report ID: S21902.01(01)+QC01
Generated on 03/10/2021

Report to

Attention: Clifford Yantz
Ramboll
2260 East Saginaw
East Lansing, MI 48823

Phone: 313-333-0211 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): S21902.01
Project: RACER Coldwater Rd.
Submitted Date/Time: 03/03/2021 12:45
Sampled by: Will Laughner
P.O. #: 12000277

QC Report Sections

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: S21902.01
Sample Tag: 01-PRCC-21
Collected Date/Time: 03/03/2021 10:42
Matrix: Wastewater
COC Reference: 135729

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Ammonia-N (Undistilled)	SM4500-NH3 D	03/09/21 18:44	AMN210309QC	AMN210309QC	No	BLK/LCS/MS/DUP
Oil & Grease n-Hexane Extract.	E1664A	03/08/21 16:05	OGHEX210308W1	OGHEX210308W1	No	BLK/LCS
TBOD5	HACH 10360	03/09/21 19:23	BOD210304	BOD210304	No	BLK/LCS/DUP
Total Phosphorus	SM4500-PE	03/07/21 16:23	PHS210307QC	PHS210307QC	No	BLK/LCS/MS/DUP
Total Suspended Solids	SM2540D	03/04/21 19:40	TSS210304	TSS210304	No	BLK/LCS/DUP
Metals						
Arsenic	E200.8	03/08/21 12:58	MT4-21-0308A	MTD-030821-2	No	BLK/LCS/MS/MSD/DU
Chromium	E200.8	03/08/21 12:58	MT4-21-0308A	MTD-030821-2	No	BLK/LCS/MS/MSD/DU
Copper	E200.8	03/08/21 12:58	MT4-21-0308A	MTD-030821-2	No	BLK/LCS/MS/MSD/DU
Mercury	E245.1	03/04/21 11:01	HG2-HG3-21-0304A	HGD-030421-1	No	BLK/LCS/MS/MSD
Nickel	E200.8	03/08/21 12:58	MT4-21-0308A	MTD-030821-2	No	BLK/LCS/MS/MSD/DU
Zinc	E200.8	03/08/21 12:58	MT4-21-0308A	MTD-030821-2	No	BLK/LCS/MS/MSD/DU
Other / Misc.						
Available Cyanide	OIA-1677	03/05/21 14:38	ACN210305-W1	ACN210305-W1	No	BLK/LCS/MS/MSD/DU

Inorganics, Prep Batch ID: AMN210309QC

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S21902.01	Ammonia-N (Undistilled)	SM4500-NH3 D	03/09/21 18:44	AMN210309QC

Inorganics, Prep Batch ID: BOD210304

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S21902.01	TBOD5	HACH 10360	03/09/21 19:23	BOD210304

Inorganics, Prep Batch ID: OGHEX210308W1

Surrogates: No, QC Types: BLK/LCS

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S21902.01	Oil & Grease n-Hexane Extract.	E1664A	03/08/21 16:05	OGHEX210308W1

Inorganics, Prep Batch ID: PHS210307QC

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S21902.01	Total Phosphorus	SM4500-PE	03/07/21 16:23	PHS210307QC

Inorganics, Prep Batch ID: TSS210304

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S21902.01	Total Suspended Solids	SM2540D	03/04/21 19:40	TSS210304

Metals, Prep Batch ID: HGD-030421-1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S21902.01	Mercury	E245.1	03/04/21 11:01	HG2-HG3-21-0304A

Metals, Prep Batch ID: MTD-030821-2

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S21902.01	Arsenic	E200.8	03/08/21 12:58	MT4-21-0308A
S21902.01	Chromium	E200.8	03/08/21 12:58	MT4-21-0308A
S21902.01	Copper	E200.8	03/08/21 12:58	MT4-21-0308A
S21902.01	Nickel	E200.8	03/08/21 12:58	MT4-21-0308A
S21902.01	Zinc	E200.8	03/08/21 12:58	MT4-21-0308A

Other / Misc., Prep Batch ID: ACN210305-W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S21902.01	Available Cyanide	OIA-1677	03/05/21 14:38	ACN210305-W1

Inorganics, Prep Batch ID: AMN210309QC

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

Blank (BLK)

Lab Sample ID: AMN210309QC.LRB1

Run in Batch: AMN210309QC, Run Date: 03/09/2021 10:45, Prep Date: 03/09/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Ammonia-N (Undistilled)		ND	0.02	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: AMN210309QC.LCS1

Run in Batch: AMN210309QC, Run Date: 03/09/2021 12:16, Prep Date: 03/09/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Ammonia-N (Undistilled)		107	90	110

Matrix Spike (MS)

Lab Sample ID: AMN210309QC.MS1, Parent Sample ID: S21928.03

Run in Batch: AMN210309QC, Run Date: 03/09/2021 13:40, Prep Date: 03/09/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Ammonia-N (Undistilled)		103	80	120

Duplicate (DUP)

Lab Sample ID: AMN210309QC.DP1, Parent Sample ID: S21928.01

Run in Batch: AMN210309QC, Run Date: 03/09/2021 13:11, Prep Date: 03/09/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Ammonia-N (Undistilled)		0.8	20

Inorganics, Prep Batch ID: BOD210304

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

Blank (BLK)

Lab Sample ID: BOD210304.LRB1

Run in Batch: BOD210304, Run Date: 03/09/2021 19:23, Prep Date: 03/09/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
TBOD5		ND	3	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: BOD210304.LCS1

Run in Batch: BOD210304, Run Date: 03/09/2021 19:23, Prep Date: 03/09/2021, Matrix: Liquid, Dilution: 15

Analyte	Flags	% Rec	LCL	UCL
TBOD5		99.9	50.7	166

Duplicate (DUP)

Lab Sample ID: BOD210304.DP1, Parent Sample ID: S21902.01

Run in Batch: BOD210304, Run Date: 03/09/2021 19:23, Prep Date: 03/09/2021, Matrix: Liquid, Dilution: 15

Analyte	Flags	RPD	RPD CL
TBOD5		NA	20

Duplicate (DUP)

Lab Sample ID: BOD210304.DP2, Parent Sample ID: S21909.02

Run in Batch: BOD210304, Run Date: 03/09/2021 19:23, Prep Date: 03/09/2021, Matrix: Liquid, Dilution: 60

Analyte	Flags	RPD	RPD CL
TBOD5		6.4	20

Inorganics, Prep Batch ID: OGHEX210308W1

Surrogates: No, QC Types: BLK/LCS

Blank (BLK)

Lab Sample ID: OGHEX210308W1.LRB3

Run in Batch: OGHEX210308W1, Run Date: 03/08/2021 16:04, Prep Date: 03/08/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Oil & Grease n-Hexane Extract.		ND	1	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: OGHEX210308W1.LCS1

Run in Batch: OGHEX210308W1, Run Date: 03/08/2021 16:04, Prep Date: 03/08/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Oil & Grease n-Hexane Extract.		110	78	114

Laboratory Control Sample (LCS)

Lab Sample ID: OGHEX210308W1.LCS2

Run in Batch: OGHEX210308W1, Run Date: 03/08/2021 16:04, Prep Date: 03/08/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Oil & Grease n-Hexane Extract.		95	78	114

Inorganics, Prep Batch ID: PHS210307QC

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

Blank (BLK)

Lab Sample ID: PHS210307QC.LRB1

Run in Batch: PHS210307QC, Run Date: 03/07/2021 12:24, Prep Date: 03/07/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Total Phosphorus		ND	0.01	mg/L

Blank (BLK)

Lab Sample ID: PHS210307QC.LRB2

Run in Batch: PHS210307QC, Run Date: 03/07/2021 12:31, Prep Date: 03/07/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Total Phosphorus		ND	0.01	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: PHS210307QC.LCS1

Run in Batch: PHS210307QC, Run Date: 03/07/2021 12:38, Prep Date: 03/07/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		94	90	110

Matrix Spike (MS)

Lab Sample ID: PHS210307QC.MS1, Parent Sample ID: S21834.01

Run in Batch: PHS210307QC, Run Date: 03/07/2021 17:04, Prep Date: 03/07/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		99	80	120

Duplicate (DUP)

Lab Sample ID: PHS210307QC.DP1, Parent Sample ID: S21932.01

Run in Batch: PHS210307QC, Run Date: 03/07/2021 16:59, Prep Date: 03/07/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Total Phosphorus		4.3	20

Inorganics, Prep Batch ID: TSS210304

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

Blank (BLK)

Lab Sample ID: TSS210304.LRB1

Run in Batch: TSS210304, Run Date: 03/04/2021 19:40, Prep Date: 03/04/2021, Matrix: Liquid, Dilution: 1.00

Analyte	Flags	Conc	RDL	Units
Total Suspended Solids		ND	3	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: TSS210304.LCS1

Run in Batch: TSS210304, Run Date: 03/04/2021 19:40, Prep Date: 03/04/2021, Matrix: Liquid, Dilution: 10.0

Analyte	Flags	% Rec	LCL	UCL
Total Suspended Solids		91.7	79.1	113

Duplicate (DUP)

Lab Sample ID: TSS210304.DP1, Parent Sample ID: S21930.01

Run in Batch: TSS210304, Run Date: 03/04/2021 19:40, Prep Date: 03/04/2021, Matrix: Liquid, Dilution: 4.00

Analyte	Flags	RPD	RPD CL
Total Suspended Solids		3.4	5

Metals, Prep Batch ID: HGD-030421-1

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

Blank (BLK)

Lab Sample ID: HG2-HG3-21-0304A.016

Run in Batch: HG2-HG3-21-0304A, Run Date: 03/04/2021 10:51, Prep Date: 03/04/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Mercury		ND	0.05	ug/L

Laboratory Control Sample (LCS)

Lab Sample ID: HG2-HG3-21-0304A.015

Run in Batch: HG2-HG3-21-0304A, Run Date: 03/04/2021 10:47, Prep Date: 03/04/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Mercury		109	85	115

Matrix Spike (MS)

Lab Sample ID: HG2-HG3-21-0304A.020, Parent Sample ID: S21802.02

Run in Batch: HG2-HG3-21-0304A, Run Date: 03/04/2021 10:58, Prep Date: 03/04/2021, Matrix: Liquid, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL
Mercury		94	80	120

Matrix Spike Duplicate (MSD)

Lab Sample ID: HG2-HG3-21-0304A.021, Parent Sample ID: HG2-HG3-21-0304A.020

Run in Batch: HG2-HG3-21-0304A, Run Date: 03/04/2021 11:00, Prep Date: 03/04/2021, Matrix: Liquid, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Mercury		103	80	120	10	20

Metals, Prep Batch ID: MTD-030821-2

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

Blank (BLK)

Lab Sample ID: MT4-21-0308A.021.LRB

Run in Batch: MT4-21-0308A, Run Date: 03/08/2021 12:40, Prep Date: 03/08/2021, 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
Nickel		ND	0.001	mg/L
Zinc		ND	0.001	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: MT4-21-0308A.019.LCS

Run in Batch: MT4-21-0308A, Run Date: 03/08/2021 12:30, Prep Date: 03/08/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Arsenic		111	85	115
Chromium		105	85	115
Copper		106	85	115
Nickel		108	85	115
Zinc		108	85	115

Matrix Spike (MS)

Lab Sample ID: MT4-21-0308A.043.MS, Parent Sample ID: S21905.01

Run in Batch: MT4-21-0308A, Run Date: 03/08/2021 13:18, Prep Date: 03/08/2021, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		112	75	125
Chromium		108	75	125
Copper		109	75	125
Nickel		109	75	125
Zinc		112	75	125

Matrix Spike (MS)

Lab Sample ID: MT4-21-0308A.070.MS, Parent Sample ID: S21855.01

Run in Batch: MT4-21-0308A, Run Date: 03/08/2021 13:59, Prep Date: 03/08/2021, Matrix: Liquid, Dilution: 25

Analyte	Flags	% Rec	LCL	UCL
Arsenic		122	75	125
Chromium		106	75	125
Copper		111	75	125
Nickel		110	75	125

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-21-0308A.044.MSD, Parent Sample ID: MT4-21-0308A.043.MS

Run in Batch: MT4-21-0308A, Run Date: 03/08/2021 13:19, Prep Date: 03/08/2021, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		116	75	125	3	20
Chromium		113	75	125	5	20
Copper		109	75	125	0	20
Nickel		114	75	125	5	20
Zinc		118	75	125	4	20

Other / Misc., Prep Batch ID: ACN210305-W1

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

Blank (BLK)

Lab Sample ID: ACN210305-W1.LRB1

Run in Batch: ACN210305-W1, Run Date: 03/05/2021 14:12, Prep Date: 03/05/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Available Cyanide		ND	0.002	mg/L

Blank (BLK)

Lab Sample ID: ACN210305-W1.LRB2

Run in Batch: ACN210305-W1, Run Date: 03/05/2021 14:50, Prep Date: 03/05/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Available Cyanide		ND	0.002	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: ACN210305-W1.LCS1

Run in Batch: ACN210305-W1, Run Date: 03/05/2021 14:16, Prep Date: 03/05/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Available Cyanide		95	88	109

Matrix Spike (MS)

Lab Sample ID: ACN210305-W1.MS1, Parent Sample ID: S21947.01

Run in Batch: ACN210305-W1, Run Date: 03/05/2021 14:30, Prep Date: 03/05/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Available Cyanide		84	82	130

Matrix Spike Duplicate (MSD)

Lab Sample ID: ACN210305-W1.MSD1, Parent Sample ID: ACN210305-W1.MS1

Run in Batch: ACN210305-W1, Run Date: 03/05/2021 14:32, Prep Date: 03/05/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Available Cyanide		84	82	130	0	15

Duplicate (DUP)

Lab Sample ID: ACN210305-W1.DP1, Parent Sample ID: S21947.01

Run in Batch: ACN210305-W1, Run Date: 03/05/2021 14:26, Prep Date: 03/05/2021, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Available Cyanide		<1	15

Merit Laboratories Login Checklist

Lab Set ID: S21902
Client: OBG02 (O'Brien & Gere Engineers, Inc. - East Lansing, MI)
Project: RACER Coldwater Rd.
Submitted: 03/03/2021 12:45 Login User: SRS

Attention: Clifford Yantz
Address: Ramboll
2260 East Saginaw
East Lansing, MI 48823

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@ramboll.com

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

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

Client Review By: _____ Date: _____

Merit Laboratories Bottle Preservation Check

Lab Set ID: S21902 Submitted: 03/03/2021 12:45

Client: OBG02 (O'Brien & Gere Engineers, Inc. - East Lansing, MI)

Project: RACER Coldwater Rd.

Initial Preservation Check: 03/03/2021 12:50 SRS

Preservation Recheck (E200.8): N/A

Attention: Clifford Yantz
Address: Ramboll
2260 East Saginaw
East Lansing, MI 48823

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@ramboll.com

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S21902.01	125ml Amber PbCO3/NaOH	>12			
S21902.01	125ml Plastic HNO3	<2			
S21902.01	250ml Plastic H2SO4	<2			
S21902.01	32oz Glass HCL	<2			

Merit Laboratories, Inc.

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

C.O.C. PAGE # 1 OF 1

135729

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz / Kevin Schneider
COMPANY: Ramboll
ADDRESS: 2260 East Saginaw
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 313-333-0211 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: clifford.yantz@ramboll.com / kevin.schneider@ramboll.com QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: RACER Coldwater Rd
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Will Laughner

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Total Metals	Available Cyanide	BOD / TSS	Ammonia - Nitrogen	Total Phosphorus	FOG (Hex - Ext)	Special Instructions
21902.01	3/3/21	10:42	01-PRCC-21	WW	6	2	1	1	1			1	X	X	X	X	X	X	Metals Ave: As, Cr, Cu, Hg, Ni, Zn
																			Analysis Per City of Flint including QC Report
																			Field pH: 7.36
																			Field Temp: 8.9°C

WEL

RELINQUISHED BY: SIGNATURE/ORGANIZATION	Ramboll ☒ Sampler	DATE 3/3/21	TIME 11:50	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 3/3/21	TIME 11:50	
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 3/3/21	TIME 14:45	
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 3/3/21	TIME 1245	

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

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

Rev. 5.18.1

Analytical Laboratory Report

Revised Report

Report ID: S22385.01(02)
Generated on 04/01/2021
Replaces report S22385.01(01) generated on 03/25/2021

Report to

Attention: Clifford Yantz
Ramboll Americas
2260 East Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@ramboll.com

Addtional Contacts: Kevin Schneider

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S22385.01-S22385.03
Project: RACER Coldwater Road
Collected Date(s): 03/18/2021
Submitted Date/Time: 03/18/2021 16:10
Sampled by: Kevin Schneider
P.O. #: 1940002628

Table of Contents

Maya Murshak
Technical Director

General Report Notes

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

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

Report Narrative

Sample .02 and .03 tags switched per cllient request

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884

Qualifier Descriptions

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

Glossary of Abbreviations

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

Method Summary

Method	Version
ASTMD7979-19M	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
PFTrDA	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

Sample Summary (3 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S22385.01	FieldBlank-031821	Liquid	03/18/21 10:18
S22385.02	01-PRCC-21-PRIM	Liquid	03/18/21 10:19
S22385.03	01-PRCC-21-INF	Liquid	03/18/21 10:25

Lab Sample ID: S22385.01
Sample Tag: FieldBlank-031821
Collected Date/Time: 03/18/2021 10:18
Matrix: Liquid
COC Reference: 125031

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.15/6.86/11	ASTMD7979-19M	03/19/21 15:00	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/20/21 02:13, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.08	375-22-4	
PFPeA*	Not detected	4.2	1.0	ng/L	2.08	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.7	ng/L	2.08	757124-72-4	
PFHxA*	Not detected	2.1	1.5	ng/L	2.08	307-24-4	
PFBS*	Not detected	2.1	1.5	ng/L	2.08	375-73-5	
PFHpA*	Not detected	2.1	1.5	ng/L	2.08	375-85-9	
PFPeS*	Not detected	2.1	1.9	ng/L	2.08	2706-91-4	
6:2 FTSA*	Not detected	2.1	2.1	ng/L	2.08	27619-97-2	
PFOA*	Not detected	2.1	1.7	ng/L	2.08	335-67-1	
PFHxS*	Not detected	2.1	1.7	ng/L	2.08	355-46-4	
PFHxS-LN*	Not detected	2.1	1.7	ng/L	2.08	355-46-4-LN	
PFHxS-BR*	Not detected	2.1	1.7	ng/L	2.08	355-46-4-BR	
PFNA*	Not detected	2.1	1.9	ng/L	2.08	375-95-1	
8:2 FTSA*	Not detected	2.1	1.0	ng/L	2.08	39108-34-4	
PFHpS*	Not detected	2.1	2.1	ng/L	2.08	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.08	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.08	2355-31-9	
EtFOSAA*	Not detected	4.2	2.1	ng/L	2.08	2991-50-6	
PFOS*	Not detected	2.1	2.0	ng/L	2.08	1763-23-1	
PFOS-LN*	Not detected	2.1	2.0	ng/L	2.08	1763-23-1-LN	
PFOS-BR*	Not detected	2.1	2.0	ng/L	2.08	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.5	ng/L	2.08	2058-94-8	
PFNS*	Not detected	2.1	1.5	ng/L	2.08	68259-12-1	
PFDoDA*	Not detected	2.1	1.7	ng/L	2.08	307-55-1	
PFDS*	Not detected	2.1	1.5	ng/L	2.08	335-77-3	
PFTrDA*	Not detected	2.1	1.2	ng/L	2.08	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.08	754-91-6	
PFTeDA*	Not detected	4.2	1.9	ng/L	2.08	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.08	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.5	ng/L	2.08	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.08	919005-14-4	
HFPO-DA*	Not detected	2.1	2.1	ng/L	2.08	13252-13-6	

Lab Sample ID: S22385.02
Sample Tag: 01-PRCC-21-PRIM
Collected Date/Time: 03/18/2021 10:19
Matrix: Liquid
COC Reference: 125031

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.75/7.05/12	ASTMD7979-19M	03/19/21 15:00	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/20/21 02:32, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	11	11	ng/L	2.11	375-22-4	
PFPeA*	Not detected	4.2	1.1	ng/L	2.11	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.7	ng/L	2.11	757124-72-4	
PFHxA*	Not detected	2.1	1.5	ng/L	2.11	307-24-4	
PFBS*	Not detected	2.1	1.5	ng/L	2.11	375-73-5	
PFHpA*	Not detected	2.1	1.5	ng/L	2.11	375-85-9	
PFPeS*	Not detected	2.1	1.9	ng/L	2.11	2706-91-4	
6:2 FTSA*	Not detected	2.1	2.1	ng/L	2.11	27619-97-2	
PFOA*	Not detected	2.1	1.7	ng/L	2.11	335-67-1	
PFHxS*	Not detected	2.1	1.7	ng/L	2.11	355-46-4	
PFHxS-LN*	Not detected	2.1	1.7	ng/L	2.11	355-46-4-LN	
PFHxS-BR*	Not detected	2.1	1.7	ng/L	2.11	355-46-4-BR	
PFNA*	Not detected	2.1	1.9	ng/L	2.11	375-95-1	
8:2 FTSA*	Not detected	2.1	1.1	ng/L	2.11	39108-34-4	
PFHpS*	Not detected	2.1	2.1	ng/L	2.11	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.11	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.11	2355-31-9	
EtFOSAA*	Not detected	4.2	2.1	ng/L	2.11	2991-50-6	
PFOS*	24	2.1	2.1	ng/L	2.11	1763-23-1	
PFOS-LN*	19	2.1	2.1	ng/L	2.11	1763-23-1-LN	
PFOS-BR*	4.6	2.1	2.1	ng/L	2.11	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.5	ng/L	2.11	2058-94-8	
PFNS*	Not detected	2.1	1.5	ng/L	2.11	68259-12-1	
PFDoDA*	Not detected	2.1	1.7	ng/L	2.11	307-55-1	
PFDS*	Not detected	2.1	1.5	ng/L	2.11	335-77-3	
PFTrDA*	Not detected	2.1	1.3	ng/L	2.11	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.11	754-91-6	
PFTeDA*	Not detected	4.2	1.9	ng/L	2.11	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.11	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.5	ng/L	2.11	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.11	919005-14-4	
HFPO-DA*	Not detected	2.1	2.1	ng/L	2.11	13252-13-6	

Lab Sample ID: S22385.03
Sample Tag: 01-PRCC-21-INF
Collected Date/Time: 03/18/2021 10:25
Matrix: Liquid
COC Reference: 125031

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.1	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.88/7.13/12	ASTMD7979-19M	03/19/21 15:00	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/22/21 12:35, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	310	10	ng/L	2.09	375-22-4	X
PFPeA*	Not detected	4.2	1.0	ng/L	2.09	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.7	ng/L	2.09	757124-72-4	
PFHxA*	55	2.1	1.5	ng/L	2.09	307-24-4	
PFBS*	110	2.1	1.5	ng/L	2.09	375-73-5	
PFHpA*	31	2.1	1.5	ng/L	2.09	375-85-9	
PFPeS*	230	2.1	1.9	ng/L	2.09	2706-91-4	
6:2 FTSA*	Not detected	2.1	2.1	ng/L	2.09	27619-97-2	
PFOA*	77	2.1	1.7	ng/L	2.09	335-67-1	
PFHxS*	580	2.1	1.7	ng/L	2.09	355-46-4	
PFHxS-LN*	480	2.1	1.7	ng/L	2.09	355-46-4-LN	
PFHxS-BR*	94	2.1	1.7	ng/L	2.09	355-46-4-BR	
PFNA*	Not detected	2.1	1.9	ng/L	2.09	375-95-1	
8:2 FTSA*	Not detected	2.1	1.0	ng/L	2.09	39108-34-4	
PFHpS*	120	2.1	2.1	ng/L	2.09	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.09	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.09	2355-31-9	
EtFOSAA*	Not detected	4.2	2.1	ng/L	2.09	2991-50-6	
PFOS*	10,000	2.1	2.0	ng/L	2.09	1763-23-1	
PFOS-LN*	6,600	2.1	2.0	ng/L	2.09	1763-23-1-LN	
PFOS-BR*	3,900	2.1	2.0	ng/L	2.09	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.5	ng/L	2.09	2058-94-8	
PFNS*	3.2	2.1	1.5	ng/L	2.09	68259-12-1	
PFDoDA*	Not detected	2.1	1.7	ng/L	2.09	307-55-1	
PFDS*	Not detected	2.1	1.5	ng/L	2.09	335-77-3	
PFTrDA*	Not detected	2.1	1.3	ng/L	2.09	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.09	754-91-6	
PFTeDA*	Not detected	4.2	1.9	ng/L	2.09	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.09	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.5	ng/L	2.09	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.09	919005-14-4	
HFPO-DA*	Not detected	2.1	2.1	ng/L	2.09	13252-13-6	

X-Elevated reporting limit due to matrix interference

Merit Laboratories Login Checklist

Lab Set ID: S22385
Client: OBG02 (Ramboll Americas - East Lansing, MI)
Project: RACER Coldwater Road
Submitted: 03/18/2021 16:10 Login User: MMC

Attention: Clifford Yantz
Address: Ramboll Americas
2260 East Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@ramboll.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 2.1
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

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

Client Review By: _____ Date: _____

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

C.O.C. PAGE # 1 OF 1

125031

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz / Kevin Schneider
COMPANY: Ramboll
ADDRESS: 2260 East Saginaw
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 313-333-0211 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: clifford.Yantz@Ramboll.com / Kevin.Schneider@Ramboll.com QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: RACER Coldwater Road
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (ASTM D7979)	Special Instructions
22385.01	3/18/21	1018	Field Blank-031821	L	1	1							X	low level Reporting
.02	3/18/21	1019	01-PRCC-21-INF	L	1	1							X	limit with
.03	3/18/21	1025	01-PRCC-21-PRIM	L	1	1							X	estimated values

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE	TIME
		3/18/21	1210
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		3/18/21	12:50
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		3/18/21	16:10
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		3/18/21	1610

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

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

NOTES: TEMP. ON ARRIVAL 2.1

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

Rev. 5.18.12

Quality Control Report

Report ID: QC-S22385-02
Generated on 04/01/2021

Report to

Attention: Clifford Yantz
Ramboll Americas
2260 East Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 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): S22385.01-S22385.03
Project: RACER Coldwater Road
Submitted Date/Time: 03/18/2021 16:10
Sampled by: Kevin Schneider
P.O. #: 1940002628

QC Report Sections

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

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S22385.01

Sample Tag: FieldBlank-031821

Collected Date/Time: 03/18/2021 10:18

Matrix: Liquid

COC Reference: 125031

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	03/20/21 02:13	AK210319	PF210319W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S22385.02
Sample Tag: 01-PRCC-21-PRIM
Collected Date/Time: 03/18/2021 10:19
Matrix: Liquid
COC Reference: 125031

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	03/20/21 02:32	AK210319	PF210319W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S22385.03
Sample Tag: 01-PRCC-21-INF
Collected Date/Time: 03/18/2021 10:25
Matrix: Liquid
COC Reference: 125031

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	03/22/21 12:35	AK210322	PF210319W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF210319W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S22385.01	28 PFAs	ASTMD7979-19M	03/20/21 02:13	AK210319
S22385.02	28 PFAs	ASTMD7979-19M	03/20/21 02:32	AK210319
S22385.03	28 PFAs	ASTMD7979-19M	03/22/21 12:35	AK210322

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S22385.01

Sample Tag: FieldBlank-031821

Collected Date/Time: 03/18/2021 10:18

Matrix: Liquid

COC Reference: 125031

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210319, Run Date: 03/20/2021 02:13, Matrix: WW, Dilution: 2.08

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**99.7**	50.0	150.0
M2-6:2FTSA		**112.5**	50.0	150.0
M2-8:2FTSA		**124.4**	50.0	150.0
M2PFTeDA		**147.4**	12.0	218.0
M3PFBS		**111.9**	50.0	150.0
M3PFHxS		**112.6**	50.0	150.0
M4PFHpA		**126.1**	50.0	150.0
M5PFHxA		**118.5**	50.0	150.0
M5PFPeA		**111.1**	50.0	150.0
M6PFDA		**125.5**	50.0	150.0
M7PFUnDA		**115.1**	50.0	150.0
M8FOSA		**116.8**	50.0	150.0
M8PFOA		**120.4**	50.0	150.0
M8PFOS		**115.9**	50.0	150.0
M9-PFNA		**126.8**	50.0	150.0
MPFBA		**81.6**	50.0	150.0
MPFDoDA		**125.1**	50.0	150.0
d3N-MeFOSAA		**130.8**	50.0	150.0
d5EtFOSAA		**126.5**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S22385.02

Sample Tag: 01-PRCC-21-PRIM

Collected Date/Time: 03/18/2021 10:19

Matrix: Liquid

COC Reference: 125031

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210319, Run Date: 03/20/2021 02:32, Matrix: WW, Dilution: 2.11

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**93.8**	50.0	150.0
M2-6:2FTSA		**93.6**	50.0	150.0
M2-8:2FTSA		**109.8**	50.0	150.0
M2PFTeDA		**137.7**	12.0	218.0
M3PFBS		**102.5**	50.0	150.0
M3PFHxS		**114.8**	50.0	150.0
M4PFHpA		**116.8**	50.0	150.0
M5PFHxA		**107.1**	50.0	150.0
M5PFPeA		**102.4**	50.0	150.0
M6PFDA		**123.3**	50.0	150.0
M7PFUnDA		**108.4**	50.0	150.0
M8FOSA		**113.4**	50.0	150.0
M8PFOA		**109.7**	50.0	150.0
M8PFOS		**115.3**	50.0	150.0
M9-PFNA		**110.7**	50.0	150.0
MPFBA		**102.0**	50.0	150.0
MPFDoDA		**123.7**	50.0	150.0
d3N-MeFOSAA		**103.8**	50.0	150.0
d5EtFOSAA		**125.4**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S22385.03

Sample Tag: 01-PRCC-21-INF

Collected Date/Time: 03/18/2021 10:25

Matrix: Liquid

COC Reference: 125031

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210322, Run Date: 03/22/2021 12:35, Matrix: WW, Dilution: 2.09

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**128.3**	50.0	150.0
M2-6:2FTSA		**100.3**	50.0	150.0
M2-8:2FTSA		**65.7**	50.0	150.0
M2PFTeDA		**118.9**	12.0	218.0
M3PFBS		**88.8**	50.0	150.0
M3PFHxS		**93.4**	50.0	150.0
M4PFHpA		**93.1**	50.0	150.0
M5PFHxA		**92.2**	50.0	150.0
M5PFPeA		**88.5**	50.0	150.0
M6PFDA		**93.8**	50.0	150.0
M7PFUnDA		**98.3**	50.0	150.0
M8FOSA		**101.8**	50.0	150.0
M8PFOA		**93.4**	50.0	150.0
M8PFOS		**88.3**	50.0	150.0
M9-PFNA		**90.4**	50.0	150.0
MPFBA		**56.9**	50.0	150.0
MPFDoDA		**103.1**	50.0	150.0
d3N-MeFOSAA		**111.1**	50.0	150.0
d5EtFOSAA		**98.4**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF210319W1

QC Types: BLK/LCS/LCSD/MS/DUP

Blank (BLK)

Lab Sample ID: AK210319.BLK210319

Run in Batch: AK210319, Run Date: 03/19/2021 20:02, Prep Date: 03/19/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**106.4**	50.0	150.0
M2-6:2FTSA		**112.8**	50.0	150.0
M2-8:2FTSA		**113.7**	50.0	150.0
M2PFTeDA		**103.2**	12.0	218.0
M3PFBS		**108.1**	50.0	150.0
M3PFHxS		**106.3**	50.0	150.0
M4PFHpA		**111.3**	50.0	150.0
M5PFHxA		**113.2**	50.0	150.0
M5PFPeA		**105.5**	50.0	150.0
M6PFDA		**113.4**	50.0	150.0
M7PFUnDA		**107.9**	50.0	150.0
M8FOSA		**109.9**	50.0	150.0
M8PFOA		**110.5**	50.0	150.0
M8PFOS		**116.8**	50.0	150.0
M9-PFNA		**104.9**	50.0	150.0
MPFBA		**104.5**	50.0	150.0
MPFDoDA		**108.3**	50.0	150.0
d3N-MeFOSAA		**107.0**	50.0	150.0
d5EtFOSAA		**109.9**	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK210319.LCS210319

Run in Batch: AK210319, Run Date: 03/19/2021 19:23, Prep Date: 03/19/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**102.7**	50.0	150.0
M2-6:2FTSA		**97.9**	50.0	150.0
M2-8:2FTSA		**117.1**	50.0	150.0
M2PFTeDA		**105.5**	12.0	218.0
M3PFBS		**100.1**	50.0	150.0
M3PFHxS		**101.6**	50.0	150.0
M4PFHpA		**105.4**	50.0	150.0
M5PFHxA		**111.8**	50.0	150.0
M5PFPeA		**105.2**	50.0	150.0
M6PFDA		**115.8**	50.0	150.0
M7PFUnDA		**96.3**	50.0	150.0
M8FOSA		**101.9**	50.0	150.0
M8PFOA		**105.3**	50.0	150.0
M8PFOS		**103.1**	50.0	150.0
M9-PFNA		**117.4**	50.0	150.0
MPFBA		**100.6**	50.0	150.0
MPFDoDA		**113.2**	50.0	150.0
d3N-MeFOSAA		**98.3**	50.0	150.0
d5EtFOSAA		**104.9**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK210319.LCSD210319, Parent Sample ID: AK210319.LCS210319

Run in Batch: AK210319, Run Date: 03/19/2021 19:43, Prep Date: 03/19/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**102.5**	50.0	150.0
M2-6:2FTSA		**103.8**	50.0	150.0
M2-8:2FTSA		**123.7**	50.0	150.0
M2PFTeDA		**101.6**	12.0	218.0
M3PFBS		**99.1**	50.0	150.0
M3PFHxS		**103.1**	50.0	150.0
M4PFHpA		**105.3**	50.0	150.0
M5PFHxA		**107.7**	50.0	150.0
M5PFPeA		**104.5**	50.0	150.0
M6PFDA		**113.0**	50.0	150.0
M7PFUnDA		**102.4**	50.0	150.0
M8FOSA		**107.9**	50.0	150.0
M8PFOA		**103.0**	50.0	150.0
M8PFOS		**106.8**	50.0	150.0
M9-PFNA		**110.0**	50.0	150.0
MPFBA		**101.5**	50.0	150.0
MPFDoDA		**108.7**	50.0	150.0
d3N-MeFOSAA		**104.0**	50.0	150.0
d5EtFOSAA		**105.6**	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK210319.2225201M, Parent Sample ID: S22252.01

Run in Batch: AK210319, Run Date: 03/19/2021 21:40, Prep Date: 03/19/2021, Matrix: WW, Dilution: 2.1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**94.4**	50.0	150.0
M2-6:2FTSA		**102.4**	50.0	150.0
M2-8:2FTSA		**110.0**	50.0	150.0
M2PFTeDA		**141.6**	12.0	218.0
M3PFBS		**109.1**	50.0	150.0
M3PFHxS		**104.2**	50.0	150.0
M4PFHpA		**115.2**	50.0	150.0
M5PFHxA		**115.6**	50.0	150.0
M5PFPeA		**109.9**	50.0	150.0
M6PFDA		**133.2**	50.0	150.0
M7PFUnDA		**111.1**	50.0	150.0
M8FOSA		**113.1**	50.0	150.0
M8PFOA		**111.6**	50.0	150.0
M8PFOS		**116.5**	50.0	150.0
M9-PFNA		**118.1**	50.0	150.0
MPFBA		**108.7**	50.0	150.0
MPFDoDA		**125.9**	50.0	150.0
d3N-MeFOSAA		**116.6**	50.0	150.0
d5EtFOSAA		**109.1**	50.0	150.0

Duplicate (DUP)

Lab Sample ID: AK210319.2225202D, Parent Sample ID: S22252.02

Run in Batch: AK210319, Run Date: 03/19/2021 22:19, Prep Date: 03/19/2021, Matrix: WW, Dilution: 2.01

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**91.5**	50.0	150.0
M2-6:2FTSA		**98.5**	50.0	150.0
M2-8:2FTSA		**113.5**	50.0	150.0
M2PFTeDA		**133.4**	12.0	218.0
M3PFBS		**105.6**	50.0	150.0
M3PFHxS		**109.8**	50.0	150.0
M4PFHpA		**115.6**	50.0	150.0
M5PFHxA		**113.0**	50.0	150.0
M5PFPeA		**108.0**	50.0	150.0
M6PFDA		**119.0**	50.0	150.0
M7PFUnDA		**108.0**	50.0	150.0
M8FOSA		**112.9**	50.0	150.0
M8PFOA		**107.6**	50.0	150.0
M8PFOS		**115.7**	50.0	150.0
M9-PFNA		**113.1**	50.0	150.0
MPFBA		**105.4**	50.0	150.0
MPFDoDA		**116.6**	50.0	150.0
d3N-MeFOSAA		**102.3**	50.0	150.0
d5EtFOSAA		**106.0**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF210319W1

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

Blank (BLK)

Lab Sample ID: AK210319.BLK210319

Run in Batch: AK210319, Run Date: 03/19/2021 20:02, Prep Date: 03/19/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	10	ng/l
PFPeA		ND	4	ng/l
4:2 FTSA		ND	2	ng/l
PFHxA		ND	2	ng/l
PFBS		ND	2	ng/l
PFHpA		ND	2	ng/l
PFPeS		ND	2	ng/l
6:2 FTSA		ND	2	ng/l
PFOA		ND	2	ng/l
PFHxS		ND	2	ng/l
PFHxS-LN		ND	2	ng/l
PFHxS-BR		ND	2	ng/l
PFNA		ND	2	ng/l
8:2 FTSA		ND	2	ng/l
PFHpS		ND	2	ng/l
PFDA		ND	2	ng/l
N-MeFOSAA		ND	2	ng/l
EtFOSAA		ND	4	ng/l
PFOS		ND	2	ng/l
PFOS-LN		ND	2	ng/l
PFOS-BR		ND	2	ng/l
PFUnDA		ND	2	ng/l
PFNS		ND	2	ng/l
PFDoDA		ND	2	ng/l
PFDS		ND	2	ng/l
PFTrDA		ND	2	ng/l
FOSA		ND	2	ng/l
PFTeDA		ND	4	ng/l
11CL-PF3OUdS		ND	2	ng/l
9CL-PF3ONS		ND	2	ng/l
ADONA		ND	2	ng/l
HFPO-DA		ND	2	ng/l

Laboratory Control Sample (LCS)

Lab Sample ID: AK210319.LCS210319

Run in Batch: AK210319, Run Date: 03/19/2021 19:23, Prep Date: 03/19/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		114.0	70.0	130.0
PFPeA		106.0	70.0	130.0
4:2 FTSA		92.1	70.0	130.0
PFHxA		95.9	70.0	130.0
PFBS		109.0	70.0	130.0
HFPO-DA		87.0	70.0	130.0
PFHpA		101.0	70.0	130.0
PFPeS		116.0	70.0	130.0
ADONA		90.9	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF210319W1 (continued)

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

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK210319.LCS210319

Run in Batch: AK210319, Run Date: 03/19/2021 19:23, Prep Date: 03/19/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
6:2 FTSA		108.0	70.0	130.0
PFOA		101.0	70.0	130.0
PFHxS		107.0	70.0	130.0
PFNA		96.2	70.0	130.0
8:2 FTSA		79.0	70.0	130.0
PFHpS		101.0	70.0	130.0
N-MeFOSAA		123.0	70.0	130.0
PFDA		105.0	70.0	130.0
EtFOSAA		98.8	70.0	130.0
PFOS		101.0	70.0	130.0
PFUnDA		108.0	70.0	130.0
9CL-PF3ONS		99.1	70.0	130.0
PFNS		97.0	70.0	130.0
PFDoDA		96.9	70.0	130.0
PFDS		103.0	70.0	130.0
PFTrDA		98.1	70.0	130.0
11CL-PF3OUdS		92.6	70.0	130.0
FOSA		113.0	70.0	130.0
PFTeDA		118.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK210319.LCSD210319, Parent Sample ID: AK210319.LCS210319

Run in Batch: AK210319, Run Date: 03/19/2021 19:43, Prep Date: 03/19/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		117.0	70.0	130.0	2.6	30.0
PFPeA		110.0	70.0	130.0	3.7	30.0
4:2 FTSA		92.5	70.0	130.0	0.4	30.0
PFHxA		104.0	70.0	130.0	8.1	30.0
PFBS		115.0	70.0	130.0	5.4	30.0
HFPO-DA		91.5	70.0	130.0	5.0	30.0
PFHpA		107.0	70.0	130.0	5.8	30.0
PFPeS		117.0	70.0	130.0	0.9	30.0
ADONA		99.4	70.0	130.0	8.9	30.0
6:2 FTSA		101.0	70.0	130.0	6.7	30.0
PFOA		109.0	70.0	130.0	7.6	30.0
PFHxS		111.0	70.0	130.0	3.7	30.0
PFNA		108.0	70.0	130.0	11.6	30.0
8:2 FTSA		80.2	70.0	130.0	1.5	30.0
PFHpS		113.0	70.0	130.0	11.2	30.0
N-MeFOSAA		110.0	70.0	130.0	11.2	30.0
PFDA		116.0	70.0	130.0	10.0	30.0
EtFOSAA		100.0	70.0	130.0	1.2	30.0
PFOS		107.0	70.0	130.0	5.8	30.0
PFUnDA		100.0	70.0	130.0	7.7	30.0
9CL-PF3ONS		104.0	70.0	130.0	4.8	30.0
PFNS		103.0	70.0	130.0	6.0	30.0

Organics - Volatiles, Prep Batch ID: PF210319W1 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK210319.LCSD210319, Parent Sample ID: AK210319.LCS210319

Run in Batch: AK210319, Run Date: 03/19/2021 19:43, Prep Date: 03/19/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFDoDA		102.0	70.0	130.0	5.1	30.0
PFDS		99.2	70.0	130.0	3.8	30.0
PFTrDA		102.0	70.0	130.0	3.9	30.0
11CL-PF3OUdS		84.7	70.0	130.0	8.9	30.0
FOSA		104.0	70.0	130.0	8.3	30.0
PFTeDA		118.0	70.0	130.0	0.0	30.0

Matrix Spike (MS)

Lab Sample ID: AK210319.2225201M, Parent Sample ID: S22252.01

Run in Batch: AK210319, Run Date: 03/19/2021 21:40, Prep Date: 03/19/2021, Matrix: WW, Dilution: 2.1

Analyte	Flags	% Rec	LCL	UCL
PFBA		123.8	70.0	130.0
PFPeA		114.3	70.0	130.0
4:2 FTSA		95.2	70.0	130.0
PFHxA		104.8	70.0	130.0
PFBS		123.8	70.0	130.0
PFHpA		104.8	70.0	130.0
PFPeS		123.8	70.0	130.0
6:2 FTSA		104.8	70.0	130.0
PFOA		114.3	70.0	130.0
PFHxS		121.9	70.0	130.0
PFNA		104.8	70.0	130.0
8:2 FTSA		79.0	70.0	130.0
PFHpS		123.8	70.0	130.0
PFDA		104.8	70.0	130.0
N-MeFOSAA		95.2	70.0	130.0
EtFOSAA		104.8	70.0	130.0
PFOS		95.2	70.0	130.0
PFUnDA		114.3	70.0	130.0
PFNS		104.8	70.0	130.0
PFDoDA		104.8	70.0	130.0
PFDS		95.2	70.0	130.0
PFTrDA		104.8	70.0	130.0
FOSA		114.3	70.0	130.0
PFTeDA		114.3	70.0	130.0
11CL-PF3OUdS		95.2	70.0	130.0
9CL-PF3ONS		104.8	70.0	130.0
ADONA		104.8	70.0	130.0
HFPO-DA		90.5	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK210319.2225202D, Parent Sample ID: S22252.02

Run in Batch: AK210319, Run Date: 03/19/2021 22:19, Prep Date: 03/19/2021, Matrix: WW, Dilution: 2.01

Analyte	Flags	RPD	RPD CL
PFBA		NC	30.0
PFPeA		NC	30.0

Organics - Volatiles, Prep Batch ID: PF210319W1 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: AK210319.2225202D, Parent Sample ID: S22252.02

Run in Batch: AK210319, Run Date: 03/19/2021 22:19, Prep Date: 03/19/2021, Matrix: WW, Dilution: 2.01

Analyte	Flags	RPD	RPD CL
4:2 FTSA		NC	30.0
PFHxA		NC	30.0
PFBS		NC	30.0
PFHpA		NC	30.0
PFPeS		NC	30.0
6:2 FTSA		NC	30.0
PFOA		NC	30.0
PFHxS		26.1	30.0
PFHxS-LN		28.0	30.0
PFHxS-BR		NC	30.0
PFNA		NC	30.0
8:2 FTSA		NC	30.0
PFHpS		NC	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0
EtFOSAA		NC	30.0
PFOS	*	30.8	30.0
PFOS-LN		NC	30.0
PFOS-BR		NC	30.0
PFUnDA		NC	30.0
PFNS		NC	30.0
PFDoDA		NC	30.0
PFDS		NC	30.0
PFTrDA		NC	30.0
FOSA		NC	30.0
PFTeDA		NC	30.0
11CL-PF3OUdS		NC	30.0
9CL-PF3ONS		NC	30.0
ADONA		NC	30.0
HFPO-DA		NC	30.0

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CHAIN OF CUSTODY RECORD

REPORT TO

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COMPANY: Ramboll
ADDRESS: 2260 East Saginaw
CITY: East Lansing STATE: MI ZIP CODE: 48823
PHONE NO.: 313-333-0211 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: clifford.Yantz@Ramboll.com / Kevin.Schneider@Ramboll.com QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: RACER Coldwater Road
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (ASTM D7979)	Special Instructions
22385.01	3/18/21	1018	Field Blank-031821	L	1	1							X	low level Reporting
.02	3/18/21	1019	01-PRCC-21-INF	L	1	1							X	limit with
.03	3/18/21	1025	01-PRCC-21-PRIM	L	1	1							X	estimated values

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE	TIME
		3/18/21	1210
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		3/18/21	12:50
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		3/18/21	16:10
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		3/18/21	1610

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

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

NOTES: TEMP. ON ARRIVAL 2.1

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S22484.01(01)
Generated on 03/30/2021

Report to

Attention: Clifford Yantz
Ramboll Americas
2260 East Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@ramboll.com

Addtional Contacts: Kevin Schneider

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S22484.01-S22484.05
Project: RACER Coldwater Road
Collected Date(s): 03/22/2021
Submitted Date/Time: 03/23/2021 15:30
Sampled by: Kevin Schneider
P.O. #: 1940002628

Table of Contents

Maya Murshak
Technical Director

General Report Notes

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

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

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

Authority	Certification ID
Michigan DEQ	#9956
DOD ELAP/ISO 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884

Qualifier Descriptions

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

Glossary of Abbreviations

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

Method Summary

Method	Version
ASTMD7979-19M	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
PFTrDA	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 (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S22484.01	FieldBlank-032221	Liquid	03/22/21 17:18
S22484.02	01-PRCC-21-EFF-127	Liquid	03/22/21 17:20
S22484.03	01-PRCC-21-MID-2-127	Liquid	03/22/21 17:22
S22484.04	01-PRCC-21-MID-1-127	Liquid	03/22/21 17:24
S22484.05	01-PRCC-21-PRIM-127	Liquid	03/22/21 17:26

Analytical Laboratory Report

Lab Sample ID: S22484.01
Sample Tag: FieldBlank-032221
Collected Date/Time: 03/22/2021 17:18
Matrix: Liquid
COC Reference: 131120

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.85/6.88/10	ASTMD7979-19M	03/24/21 12:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/24/21 18:57, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.01	375-22-4	
PFPeA*	Not detected	4.0	1.0	ng/L	2.01	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.01	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	2.01	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	2.01	375-73-5	
PFHpA*	Not detected	2.0	1.4	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	2.0	ng/L	2.01	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	2.01	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	2.01	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	2.01	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	2.01	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.01	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.01	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	2.01	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.01	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.01	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	2.01	2991-50-6	
PFOS*	Not detected	2.0	2.0	ng/L	2.01	1763-23-1	
PFOS-LN*	Not detected	2.0	2.0	ng/L	2.01	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	2.0	ng/L	2.01	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.01	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.01	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	2.01	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.01	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	2.01	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.01	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	2.01	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.01	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.01	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.01	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	2.01	13252-13-6	

Lab Sample ID: S22484.02
Sample Tag: 01-PRCC-21-EFF-127
Collected Date/Time: 03/22/2021 17:20
Matrix: Liquid
COC Reference: 131120

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	13.20/7.10/12	ASTMD7979-19M	03/24/21 12:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/24/21 19:17, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.9	9.9	ng/L	1.97	375-22-4	
PFPeA*	Not detected	3.9	0.99	ng/L	1.97	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.97	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	1.97	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	1.97	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	1.97	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.97	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	1.97	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	1.97	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	1.97	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	1.97	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.97	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.97	375-95-1	
8:2 FTSA*	Not detected	2.0	0.99	ng/L	1.97	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.97	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.97	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.97	2355-31-9	
EtFOSAA*	Not detected	3.9	2.0	ng/L	1.97	2991-50-6	
PFOS*	Not detected	2.0	1.9	ng/L	1.97	1763-23-1	
PFOS-LN*	Not detected	2.0	1.9	ng/L	1.97	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	1.9	ng/L	1.97	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.97	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.97	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	1.97	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.97	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	1.97	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.97	754-91-6	
PFTeDA*	Not detected	3.9	1.8	ng/L	1.97	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.97	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.97	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.97	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	1.97	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S22484.03
Sample Tag: 01-PRCC-21-MID-2-127
Collected Date/Time: 03/22/2021 17:22
Matrix: Liquid
COC Reference: 131120

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.05/7.06/10	ASTMD7979-19M	03/24/21 12:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/24/21 19:56, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2	375-22-4	
PFPeA*	Not detected	4.0	1.0	ng/L	2	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	2	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	2	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	2	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	2	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	2	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	2	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	2	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	2	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	2	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	2	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	2	2991-50-6	
PFOS*	Not detected	2.0	2.0	ng/L	2	1763-23-1	
PFOS-LN*	Not detected	2.0	2.0	ng/L	2	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	2.0	ng/L	2	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	2	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	2	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	2	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	2	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S22484.04
Sample Tag: 01-PRCC-21-MID-1-127
Collected Date/Time: 03/22/2021 17:24
Matrix: Liquid
COC Reference: 131120

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.01/7.03/10	ASTMD7979-19M	03/24/21 12:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/24/21 20:35, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.01	375-22-4	
PFPeA*	Not detected	4.0	1.0	ng/L	2.01	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.01	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	2.01	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	2.01	375-73-5	
PFHpA*	Not detected	2.0	1.4	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	2.0	ng/L	2.01	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	2.01	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	2.01	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	2.01	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	2.01	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.01	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.01	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	2.01	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.01	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.01	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	2.01	2991-50-6	
PFOS*	2.2	2.0	2.0	ng/L	2.01	1763-23-1	
PFOS-LN*	Not detected	2.0	2.0	ng/L	2.01	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	2.0	ng/L	2.01	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.01	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.01	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	2.01	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.01	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	2.01	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.01	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	2.01	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.01	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.01	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.01	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	2.01	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S22484.05
Sample Tag: 01-PRCC-21-PRIM-127
Collected Date/Time: 03/22/2021 17:26
Matrix: Liquid
COC Reference: 131120

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.5	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.58/7.05/11	ASTMD7979-19M	03/24/21 12:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/24/21 20:54, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10.0	10.0	ng/L	1.99	375-22-4	
PFPeA*	Not detected	4.0	1.00	ng/L	1.99	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.99	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	1.99	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	1.99	375-73-5	
PFHpA*	Not detected	2.0	1.4	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	2.0	ng/L	1.99	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	1.99	335-67-1	
PFHxS*	2.4	2.0	1.6	ng/L	1.99	355-46-4	
PFHxS-LN*	1.6	2.0	1.6	ng/L	1.99	355-46-4-LN	J
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.99	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.99	375-95-1	
8:2 FTSA*	Not detected	2.0	1.00	ng/L	1.99	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.99	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.99	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.99	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	1.99	2991-50-6	
PFOS*	46	2.0	2.0	ng/L	1.99	1763-23-1	
PFOS-LN*	23	2.0	2.0	ng/L	1.99	1763-23-1-LN	
PFOS-BR*	22	2.0	2.0	ng/L	1.99	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.99	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.99	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	1.99	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.99	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	1.99	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.99	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	1.99	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.99	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.99	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.99	919005-14-4	
HFPO-DA*	Not detected	2.0	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: S22484
Client: OBG02 (Ramboll Americas - East Lansing, MI)
Project: RACER Coldwater Road
Submitted: 03/23/2021 15:30 Login User: REJ

Attention: Clifford Yantz
Address: Ramboll Americas
2260 East Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 FAX:
Email: Clifford.Yantz@ramboll.com

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 2.5
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

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

Client Review By: _____ Date: _____

Merit Laboratories, Inc.

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

C.O.C. PAGE # 1 OF 1

131120

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz / Kevin Schneider
COMPANY: Ramboll
ADDRESS: 3600 Green Court Ste 750
CITY: Ann Arbor STATE: MI ZIP CODE: 48105
PHONE NO: 313-333-0211 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: clifford.yantz@Ramboll.com/kevin.schneider@Ramboll.com QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: RACER Coldwater Road
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (ASTM D7979)	Special Instructions
22484.01	3/22/21	1718	Field Blank-032221	L	1	1							X	low level Reporting
.02		1720	01-PRCC-21-EFF-127	L	3	3							X	limit with estimated
.03		1722	01-PRCC-21-MID-2-127	L	3	3							X	values
.04		1724	01-PRCC-21-MID-1-127	L	3	3							X	
.05		1726	01-PRCC-21-PRIM-127	L	3	3							X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	X Sampler	DATE 3/22/21	TIME 1530
RECEIVED BY: SIGNATURE/ORGANIZATION	Merit Secure Locker	DATE 3/22/21	TIME 1530
RELINQUISHED BY: SIGNATURE/ORGANIZATION	Merit	DATE 3/23/21	TIME 1520
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 3/23/21	TIME 1520

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

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

NOTES: TEMP. ON ARRIVAL 2.5

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

Rev. 5.18.12

Quality Control Report

Report ID: QC-S22484-01
Generated on 03/30/2021

Report to

Attention: Clifford Yantz
Ramboll Americas
2260 East Saginaw Street
East Lansing, MI 48823

Phone: 313-333-0211 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): S22484.01-S22484.05
Project: RACER Coldwater Road
Submitted Date/Time: 03/23/2021 15:30
Sampled by: Kevin Schneider
P.O. #: 1940002628

QC Report Sections

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

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S22484.01

Sample Tag: FieldBlank-032221

Collected Date/Time: 03/22/2021 17:18

Matrix: Liquid

COC Reference: 131120

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	03/24/21 18:57	AK210324	PF210324W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S22484.02
Sample Tag: 01-PRCC-21-EFF-127
Collected Date/Time: 03/22/2021 17:20
Matrix: Liquid
COC Reference: 131120

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	03/24/21 19:17	AK210324	PF210324W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S22484.03
Sample Tag: 01-PRCC-21-MID-2-127
Collected Date/Time: 03/22/2021 17:22
Matrix: Liquid
COC Reference: 131120

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	03/24/21 19:56	AK210324	PF210324W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S22484.04
Sample Tag: 01-PRCC-21-MID-1-127
Collected Date/Time: 03/22/2021 17:24
Matrix: Liquid
COC Reference: 131120

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	03/24/21 20:35	AK210324	PF210324W1	Yes	BLK/LCS/LCSD/MS/DU

Lab Sample ID: S22484.05

Sample Tag: 01-PRCC-21-PRIM-127

Collected Date/Time: 03/22/2021 17:26

Matrix: Liquid

COC Reference: 131120

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	03/24/21 20:54	AK210324	PF210324W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF210324W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S22484.01	28 PFAs	ASTMD7979-19M	03/24/21 18:57	AK210324
S22484.02	28 PFAs	ASTMD7979-19M	03/24/21 19:17	AK210324
S22484.03	28 PFAs	ASTMD7979-19M	03/24/21 19:56	AK210324
S22484.04	28 PFAs	ASTMD7979-19M	03/24/21 20:35	AK210324
S22484.05	28 PFAs	ASTMD7979-19M	03/24/21 20:54	AK210324

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S22484.01

Sample Tag: FieldBlank-032221

Collected Date/Time: 03/22/2021 17:18

Matrix: Liquid

COC Reference: 131120

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210324, Run Date: 03/24/2021 18:57, Matrix: WW, Dilution: 2.01

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**94.9**	50.0	150.0
M2-6:2FTSA		**91.8**	50.0	150.0
M2-8:2FTSA		**99.7**	50.0	150.0
M2PFTeDA		**126.0**	12.0	218.0
M3PFBS		**104.6**	50.0	150.0
M3PFHxS		**107.0**	50.0	150.0
M4PFHpA		**110.1**	50.0	150.0
M5PFHxA		**101.8**	50.0	150.0
M5PFPeA		**106.8**	50.0	150.0
M6PFDA		**116.3**	50.0	150.0
M7PFUnDA		**112.4**	50.0	150.0
M8FOSA		**108.8**	50.0	150.0
M8PFOA		**102.6**	50.0	150.0
M8PFOS		**101.0**	50.0	150.0
M9-PFNA		**110.1**	50.0	150.0
MPFBA		**104.8**	50.0	150.0
MPFDoDA		**101.2**	50.0	150.0
d3N-MeFOSAA		**140.9**	50.0	150.0
d5EtFOSAA		**102.5**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S22484.02

Sample Tag: 01-PRCC-21-EFF-127

Collected Date/Time: 03/22/2021 17:20

Matrix: Liquid

COC Reference: 131120

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210324, Run Date: 03/24/2021 19:17, Matrix: WW, Dilution: 1.97

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**85.3**	50.0	150.0
M2-6:2FTSA		**87.8**	50.0	150.0
M2-8:2FTSA		**85.6**	50.0	150.0
M2PFTeDA		**127.6**	12.0	218.0
M3PFBS		**102.5**	50.0	150.0
M3PFHxS		**100.8**	50.0	150.0
M4PFHpA		**100.9**	50.0	150.0
M5PFHxA		**101.7**	50.0	150.0
M5PFPeA		**98.9**	50.0	150.0
M6PFDA		**106.9**	50.0	150.0
M7PFUnDA		**102.2**	50.0	150.0
M8FOSA		**109.0**	50.0	150.0
M8PFOA		**101.6**	50.0	150.0
M8PFOS		**94.2**	50.0	150.0
M9-PFNA		**102.5**	50.0	150.0
MPFBA		**99.0**	50.0	150.0
MPFDoDA		**107.5**	50.0	150.0
d3N-MeFOSAA		**99.9**	50.0	150.0
d5EtFOSAA		**89.8**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S22484.03

Sample Tag: 01-PRCC-21-MID-2-127

Collected Date/Time: 03/22/2021 17:22

Matrix: Liquid

COC Reference: 131120

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210324, Run Date: 03/24/2021 19:56, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**86.8**	50.0	150.0
M2-6:2FTSA		**89.8**	50.0	150.0
M2-8:2FTSA		**93.3**	50.0	150.0
M2PFTeDA		**97.7**	12.0	218.0
M3PFBS		**102.7**	50.0	150.0
M3PFHxS		**95.9**	50.0	150.0
M4PFHpA		**96.2**	50.0	150.0
M5PFHxA		**95.3**	50.0	150.0
M5PFPeA		**99.3**	50.0	150.0
M6PFDA		**103.4**	50.0	150.0
M7PFUnDA		**91.6**	50.0	150.0
M8FOSA		**101.6**	50.0	150.0
M8PFOA		**93.9**	50.0	150.0
M8PFOS		**103.8**	50.0	150.0
M9-PFNA		**89.0**	50.0	150.0
MPFBA		**97.4**	50.0	150.0
MPFDoDA		**92.1**	50.0	150.0
d3N-MeFOSAA		**118.6**	50.0	150.0
d5EtFOSAA		**91.1**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S22484.04

Sample Tag: 01-PRCC-21-MID-1-127

Collected Date/Time: 03/22/2021 17:24

Matrix: Liquid

COC Reference: 131120

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210324, Run Date: 03/24/2021 20:35, Matrix: WW, Dilution: 2.01

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**82.9**	50.0	150.0
M2-6:2FTSA		**82.4**	50.0	150.0
M2-8:2FTSA		**81.2**	50.0	150.0
M2PFTeDA		**104.7**	12.0	218.0
M3PFBS		**98.1**	50.0	150.0
M3PFHxS		**95.1**	50.0	150.0
M4PFHpA		**99.9**	50.0	150.0
M5PFHxA		**93.7**	50.0	150.0
M5PFPeA		**96.0**	50.0	150.0
M6PFDA		**102.2**	50.0	150.0
M7PFUnDA		**95.1**	50.0	150.0
M8FOSA		**100.9**	50.0	150.0
M8PFOA		**93.5**	50.0	150.0
M8PFOS		**95.7**	50.0	150.0
M9-PFNA		**95.7**	50.0	150.0
MPFBA		**95.5**	50.0	150.0
MPFDoDA		**94.4**	50.0	150.0
d3N-MeFOSAA		**99.2**	50.0	150.0
d5EtFOSAA		**79.7**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S22484.05

Sample Tag: 01-PRCC-21-PRIM-127

Collected Date/Time: 03/22/2021 17:26

Matrix: Liquid

COC Reference: 131120

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK210324, Run Date: 03/24/2021 20:54, Matrix: WW, Dilution: 1.99

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**77.4**	50.0	150.0
M2-6:2FTSA		**82.5**	50.0	150.0
M2-8:2FTSA		**92.7**	50.0	150.0
M2PFTeDA		**129.3**	12.0	218.0
M3PFBS		**95.4**	50.0	150.0
M3PFHxS		**95.4**	50.0	150.0
M4PFHpA		**96.8**	50.0	150.0
M5PFHxA		**95.4**	50.0	150.0
M5PFPeA		**94.8**	50.0	150.0
M6PFDA		**103.2**	50.0	150.0
M7PFUnDA		**97.4**	50.0	150.0
M8FOSA		**102.3**	50.0	150.0
M8PFOA		**95.0**	50.0	150.0
M8PFOS		**91.2**	50.0	150.0
M9-PFNA		**91.8**	50.0	150.0
MPFBA		**94.5**	50.0	150.0
MPFDoDA		**104.5**	50.0	150.0
d3N-MeFOSAA		**99.9**	50.0	150.0
d5EtFOSAA		**88.9**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF210324W1

QC Types: BLK/LCS/LCSD/MS/DUP

Blank (BLK)

Lab Sample ID: AK210324.BLK210324

Run in Batch: AK210324, Run Date: 03/24/2021 18:18, Prep Date: 03/24/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**93.5**	50.0	150.0
M2-6:2FTSA		**97.9**	50.0	150.0
M2-8:2FTSA		**90.4**	50.0	150.0
M2PFTeDA		**100.8**	12.0	218.0
M3PFBS		**100.3**	50.0	150.0
M3PFHxS		**93.0**	50.0	150.0
M4PFHpA		**99.1**	50.0	150.0
M5PFHxA		**96.3**	50.0	150.0
M5PFPeA		**94.7**	50.0	150.0
M6PFDA		**97.8**	50.0	150.0
M7PFUnDA		**98.1**	50.0	150.0
M8FOSA		**102.0**	50.0	150.0
M8PFOA		**95.2**	50.0	150.0
M8PFOS		**93.3**	50.0	150.0
M9-PFNA		**92.2**	50.0	150.0
MPFBA		**95.2**	50.0	150.0
MPFDoDA		**95.0**	50.0	150.0
d3N-MeFOSAA		**103.7**	50.0	150.0
d5EtFOSAA		**91.0**	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK210324.LCS210324

Run in Batch: AK210324, Run Date: 03/24/2021 17:39, Prep Date: 03/24/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**90.5**	50.0	150.0
M2-6:2FTSA		**95.5**	50.0	150.0
M2-8:2FTSA		**91.8**	50.0	150.0
M2PFTeDA		**118.0**	12.0	218.0
M3PFBS		**97.6**	50.0	150.0
M3PFHxS		**95.5**	50.0	150.0
M4PFHpA		**86.1**	50.0	150.0
M5PFHxA		**93.2**	50.0	150.0
M5PFPeA		**95.5**	50.0	150.0
M6PFDA		**96.6**	50.0	150.0
M7PFUnDA		**93.6**	50.0	150.0
M8FOSA		**96.5**	50.0	150.0
M8PFOA		**85.3**	50.0	150.0
M8PFOS		**82.9**	50.0	150.0
M9-PFNA		**92.2**	50.0	150.0
MPFBA		**94.5**	50.0	150.0
MPFDoDA		**97.1**	50.0	150.0
d3N-MeFOSAA		**110.2**	50.0	150.0
d5EtFOSAA		**87.8**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK210324.LCSD210324, Parent Sample ID: AK210324.LCS210324

Run in Batch: AK210324, Run Date: 03/24/2021 17:58, Prep Date: 03/24/2021, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**91.2**	50.0	150.0
M2-6:2FTSA		**94.9**	50.0	150.0
M2-8:2FTSA		**87.7**	50.0	150.0
M2PFTeDA		**74.9**	12.0	218.0
M3PFBS		**95.7**	50.0	150.0
M3PFHxS		**90.0**	50.0	150.0
M4PFHpA		**93.4**	50.0	150.0
M5PFHxA		**89.8**	50.0	150.0
M5PFPeA		**96.3**	50.0	150.0
M6PFDA		**100.6**	50.0	150.0
M7PFUnDA		**93.9**	50.0	150.0
M8FOSA		**91.9**	50.0	150.0
M8PFOA		**89.5**	50.0	150.0
M8PFOS		**91.1**	50.0	150.0
M9-PFNA		**100.3**	50.0	150.0
MPFBA		**94.8**	50.0	150.0
MPFDoDA		**84.3**	50.0	150.0
d3N-MeFOSAA		**101.1**	50.0	150.0
d5EtFOSAA		**90.4**	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK210324.2248402M, Parent Sample ID: S22484.02

Run in Batch: AK210324, Run Date: 03/24/2021 19:36, Prep Date: 03/24/2021, Matrix: WW, Dilution: 1.97

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**86.0**	50.0	150.0
M2-6:2FTSA		**86.4**	50.0	150.0
M2-8:2FTSA		**91.8**	50.0	150.0
M2PFTeDA		**136.4**	12.0	218.0
M3PFBS		**108.3**	50.0	150.0
M3PFHxS		**109.0**	50.0	150.0
M4PFHpA		**102.8**	50.0	150.0
M5PFHxA		**100.2**	50.0	150.0
M5PFPeA		**102.2**	50.0	150.0
M6PFDA		**113.8**	50.0	150.0
M7PFUnDA		**106.8**	50.0	150.0
M8FOSA		**101.7**	50.0	150.0
M8PFOA		**102.5**	50.0	150.0
M8PFOS		**100.9**	50.0	150.0
M9-PFNA		**101.8**	50.0	150.0
MPFBA		**102.7**	50.0	150.0
MPFDoDA		**104.5**	50.0	150.0
d3N-MeFOSAA		**110.9**	50.0	150.0
d5EtFOSAA		**93.4**	50.0	150.0

Duplicate (DUP)

Lab Sample ID: AK210324.2248403D, Parent Sample ID: S22484.03

Run in Batch: AK210324, Run Date: 03/24/2021 20:15, Prep Date: 03/24/2021, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**84.9**	50.0	150.0
M2-6:2FTSA		**89.9**	50.0	150.0
M2-8:2FTSA		**99.1**	50.0	150.0
M2PFTeDA		**112.4**	12.0	218.0
M3PFBS		**101.6**	50.0	150.0
M3PFHxS		**99.8**	50.0	150.0
M4PFHpA		**104.4**	50.0	150.0
M5PFHxA		**93.3**	50.0	150.0
M5PFPeA		**99.7**	50.0	150.0
M6PFDA		**103.8**	50.0	150.0
M7PFUnDA		**99.7**	50.0	150.0
M8FOSA		**104.1**	50.0	150.0
M8PFOA		**93.6**	50.0	150.0
M8PFOS		**95.1**	50.0	150.0
M9-PFNA		**98.0**	50.0	150.0
MPFBA		**97.4**	50.0	150.0
MPFDoDA		**103.8**	50.0	150.0
d3N-MeFOSAA		**121.6**	50.0	150.0
d5EtFOSAA		**94.6**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF210324W1

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

Blank (BLK)

Lab Sample ID: AK210324.BLK210324

Run in Batch: AK210324, Run Date: 03/24/2021 18:18, Prep Date: 03/24/2021, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	10	ng/l
PFPeA		ND	4	ng/l
4:2 FTSA		ND	2	ng/l
PFHxA		ND	2	ng/l
PFBS		ND	2	ng/l
PFHpA		ND	2	ng/l
PFPeS		ND	2	ng/l
6:2 FTSA		ND	2	ng/l
PFOA		ND	2	ng/l
PFHxS		ND	2	ng/l
PFHxS-LN		ND	2	ng/l
PFHxS-BR		ND	2	ng/l
PFNA		ND	2	ng/l
8:2 FTSA		ND	2	ng/l
PFHpS		ND	2	ng/l
PFDA		ND	2	ng/l
N-MeFOSAA		ND	2	ng/l
EtFOSAA		ND	4	ng/l
PFOS		ND	2	ng/l
PFOS-LN		ND	2	ng/l
PFOS-BR		ND	2	ng/l
PFUnDA		ND	2	ng/l
PFNS		ND	2	ng/l
PFDoDA		ND	2	ng/l
PFDS		ND	2	ng/l
PFTrDA		ND	2	ng/l
FOSA		ND	2	ng/l
PFTeDA		ND	4	ng/l
11CL-PF3OUdS		ND	2	ng/l
9CL-PF3ONS		ND	2	ng/l
ADONA		ND	2	ng/l
HFPO-DA		ND	2	ng/l

Laboratory Control Sample (LCS)

Lab Sample ID: AK210324.LCS210324

Run in Batch: AK210324, Run Date: 03/24/2021 17:39, Prep Date: 03/24/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		119.0	70.0	130.0
PFPeA		116.0	70.0	130.0
4:2 FTSA		102.0	70.0	130.0
PFHxA		110.0	70.0	130.0
PFBS		110.0	70.0	130.0
HFPO-DA		110.0	70.0	130.0
PFHpA		129.0	70.0	130.0
PFPeS		117.0	70.0	130.0
ADONA		108.0	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF210324W1 (continued)

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

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK210324.LCS210324

Run in Batch: AK210324, Run Date: 03/24/2021 17:39, Prep Date: 03/24/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
6:2 FTSA		109.0	70.0	130.0
PFOA		129.0	70.0	130.0
PFHxS		114.0	70.0	130.0
PFNA		119.0	70.0	130.0
8:2 FTSA		101.0	70.0	130.0
PFHpS		108.0	70.0	130.0
N-MeFOSAA		93.4	70.0	130.0
PFDA		117.0	70.0	130.0
EtFOSAA		104.0	70.0	130.0
PFOS		124.0	70.0	130.0
PFUnDA		100.0	70.0	130.0
9CL-PF3ONS		111.0	70.0	130.0
PFNS		111.0	70.0	130.0
PFDoDA		108.0	70.0	130.0
PFDS		113.0	70.0	130.0
PFTrDA		99.4	70.0	130.0
11CL-PF3OUdS		110.0	70.0	130.0
FOSA		118.0	70.0	130.0
PFTeDA		104.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK210324.LCSD210324, Parent Sample ID: AK210324.LCS210324

Run in Batch: AK210324, Run Date: 03/24/2021 17:58, Prep Date: 03/24/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		119.0	70.0	130.0	0.0	30.0
PFPeA		114.0	70.0	130.0	1.7	30.0
4:2 FTSA		98.3	70.0	130.0	3.7	30.0
PFHxA		115.0	70.0	130.0	4.4	30.0
PFBS		118.0	70.0	130.0	7.0	30.0
HFPO-DA		99.3	70.0	130.0	10.2	30.0
PFHpA		109.0	70.0	130.0	16.8	30.0
PFPeS		123.0	70.0	130.0	5.0	30.0
ADONA		97.5	70.0	130.0	10.2	30.0
6:2 FTSA		112.0	70.0	130.0	2.7	30.0
PFOA		114.0	70.0	130.0	12.3	30.0
PFHxS		120.0	70.0	130.0	5.1	30.0
PFNA		114.0	70.0	130.0	4.3	30.0
8:2 FTSA		99.2	70.0	130.0	1.8	30.0
PFHpS		109.0	70.0	130.0	0.9	30.0
N-MeFOSAA		114.0	70.0	130.0	19.9	30.0
PFDA		108.0	70.0	130.0	8.0	30.0
EtFOSAA		104.0	70.0	130.0	0.0	30.0
PFOS		115.0	70.0	130.0	7.5	30.0
PFUnDA		110.0	70.0	130.0	9.5	30.0
9CL-PF3ONS		99.8	70.0	130.0	10.6	30.0
PFNS		102.0	70.0	130.0	8.5	30.0

Organics - Volatiles, Prep Batch ID: PF210324W1 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK210324.LCSD210324, Parent Sample ID: AK210324.LCS210324

Run in Batch: AK210324, Run Date: 03/24/2021 17:58, Prep Date: 03/24/2021, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFDoDA		111.0	70.0	130.0	2.7	30.0
PFDS		93.4	70.0	130.0	19.0	30.0
PFTrDA		93.3	70.0	130.0	6.3	30.0
11CL-PF3OUdS		98.2	70.0	130.0	11.3	30.0
FOSA		126.0	70.0	130.0	6.6	30.0
PFTeDA		114.0	70.0	130.0	9.2	30.0

Matrix Spike (MS)

Lab Sample ID: AK210324.2248402M, Parent Sample ID: S22484.02

Run in Batch: AK210324, Run Date: 03/24/2021 19:36, Prep Date: 03/24/2021, Matrix: WW, Dilution: 1.97

Analyte	Flags	% Rec	LCL	UCL
PFBA		111.7	70.0	130.0
PFPeA		111.7	70.0	130.0
4:2 FTSA		93.4	70.0	130.0
PFHxA		101.5	70.0	130.0
PFBS		101.5	70.0	130.0
PFHpA		101.5	70.0	130.0
PFPeS		111.7	70.0	130.0
6:2 FTSA		121.8	70.0	130.0
PFOA		101.5	70.0	130.0
PFHxS		101.5	70.0	130.0
PFNA		111.7	70.0	130.0
8:2 FTSA		99.5	70.0	130.0
PFHpS		101.5	70.0	130.0
PFDA		98.5	70.0	130.0
N-MeFOSAA		101.5	70.0	130.0
EtFOSAA		97.5	70.0	130.0
PFOS		111.7	70.0	130.0
PFUnDA		99.5	70.0	130.0
PFNS		111.7	70.0	130.0
PFDoDA		111.7	70.0	130.0
PFDS		97.5	70.0	130.0
PFTrDA		111.7	70.0	130.0
FOSA		121.8	70.0	130.0
PFTeDA		111.7	70.0	130.0
11CL-PF3OUdS		92.4	70.0	130.0
9CL-PF3ONS		99.5	70.0	130.0
ADONA		98.5	70.0	130.0
HFPO-DA		95.4	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK210324.2248403D, Parent Sample ID: S22484.03

Run in Batch: AK210324, Run Date: 03/24/2021 20:15, Prep Date: 03/24/2021, Matrix: WW, Dilution: 2

Analyte	Flags	RPD	RPD CL
PFBA		NC	30.0
PFPeA		NC	30.0

Organics - Volatiles, Prep Batch ID: PF210324W1 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: AK210324.2248403D, Parent Sample ID: S22484.03

Run in Batch: AK210324, Run Date: 03/24/2021 20:15, Prep Date: 03/24/2021, Matrix: WW, Dilution: 2

Analyte	Flags	RPD	RPD CL
4:2 FTSA		NC	30.0
PFHxA		NC	30.0
PFBS		NC	30.0
PFHpA		NC	30.0
PFPeS		NC	30.0
6:2 FTSA		NC	30.0
PFOA		NC	30.0
PFHxS		NC	30.0
PFHxS-LN		NC	30.0
PFHxS-BR		NC	30.0
PFNA		NC	30.0
8:2 FTSA		NC	30.0
PFHpS		NC	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0
EtFOSAA		NC	30.0
PFOS		NC	30.0
PFOS-LN		NC	30.0
PFOS-BR		NC	30.0
PFUnDA		NC	30.0
PFNS		NC	30.0
PFDoDA		NC	30.0
PFDS		NC	30.0
PFTrDA		NC	30.0
FOSA		NC	30.0
PFTeDA		NC	30.0
11CL-PF3OUdS		NC	30.0
9CL-PF3ONS		NC	30.0
ADONA		NC	30.0
HFPO-DA		NC	30.0

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C.O.C. PAGE # 1 OF 1

131120

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz / Kevin Schneider
COMPANY: Ramboll
ADDRESS: 3600 Green Court Ste 750
CITY: Ann Arbor STATE: MI ZIP CODE: 48105
PHONE NO: 313-333-0211 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: clifford.yantz@Ramboll.com/kevin.schneider@Ramboll.com QUOTE NO.:

INVOICE TO

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

PROJECT NO./NAME: RACER Coldwater Road
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (ASTM D7979)	Special Instructions
22484.01	3/22/21	1718	Field Blank-032221	L	1	1							X	low level Reporting
.02		1720	01-PRCC-21-EFF-127	L	3	3							X	limit with estimated
.03		1722	01-PRCC-21-MID-2-127	L	3	3							X	values
.04		1724	01-PRCC-21-MID-1-127	L	3	3							X	
.05		1726	01-PRCC-21-PRIM-127	L	3	3							X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	X Sampler	DATE 3/22/21	TIME 1530
RECEIVED BY: SIGNATURE/ORGANIZATION	Merit Secure Locker	DATE 3/22/21	TIME 1530
RELINQUISHED BY: SIGNATURE/ORGANIZATION	Merit	DATE 3/23/21	TIME 1520
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 3/23/21	TIME 1520

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

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

NOTES: TEMP. ON ARRIVAL 2.5

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

Rev. 5.18.12