RAMBOLL

ENVIRONMENT
& HEALTH

Ms. Tiffany Minder
Environmental Compliance Supervisor
City of Flint Water Pollution
Water Pollution Control Facilities
G4652 Beecher Rd.
Flint, MI, 48532

RE: ***Discharge Permit Submittal– July 2023 through September 2023***
Permit No.: 6-08-04-04-GML1
FILE: 1088190/1940103462/Docs

Dear **Ms. Minder:**

October 25 2023

In accordance with requirements of the above referenced discharge permit, we are providing you with the following discharge information for the period July 1, 2023 to September 30, 2023 for the Coldwater Road Landfill facility, located at 6220 Horton Avenue, Mount Morris, 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 August 9, 2023.
- Analytical Reports provided by Merit Laboratories, Inc. for samples from the on-Site, PFAS pretreatment system collected on August 30, 2023 and August 31, 2023 during the discharge of the liquids from the on-Site, above ground collection tank through the system.
- Copy of Chain-of-Custody forms.

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 sample were below the Sewer Use Permit limits and were 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 August 30, 2023 and August 31, 2023 during the accumulation tank discharge. The influent sample had a detection of 250 ng/L for perfluorooctane sulfonic acid (PFOS).

Ramboll
2090 Commonwealth Blvd.
Ann Arbor, MI 48105
USA

T 734-761-4000
F 734-761-2050
https://ramboll.com

PFOS was detected at a concentration 9.3 ng/l from the primary GAC vessel sample collected at the start of the discharge on August 30, 2023. In the samples collected just before discharge was discontinued, PFOS was detected at a concentration of 11 ng/l in the primary GAC vessel, at a concentration of 3.9 ng/l in the secondary GAC vessel, at a concentration of 2.7 ng/l in the tertiary (third) GAC vessel, and at a concentration of 2.9 ng/l in the quaternary (fourth) GAC vessel.

The GAC vessels will continue to be utilized for the next discharge event, and we will evaluate whether changing out the GAC in the primary vessel will be necessary following that discharge event. If it is determined that the primary GAC vessel should be changed out, then new GAC would be placed in the primary vessel and the system components would be changed so that the existing quaternary (fourth), tertiary (third), and secondary GAC vessels would be moved up in position making the primary vessel the new quaternary vessel (last vessel before discharge) for the approved four-vessel pretreatment system.

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

Yours sincerely,
RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.

Clifford S. Yantz
Project Manager

M 313.333.0211
Clifford.yantz@ramboll.com

cc: Mr. Kevin Forbes – Beecher Metropolitan District, Flint, MI
Ms. Nicole Sanabria – EGLE (via email)
Ms. Christina Hebert – EGLE (via email)
Ms. Oonagh McKenna – 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: July 1, 2023 through September 30, 2023

Average Volume of Daily Discharge (during reporting period): 1,752 gallons
(Two 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: Project Manager, Ramboll Americas Engineering Solutions, Inc., As agent for the RACER Trust

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

Date Signed by Authorized Representative: 10/25/23

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

Table 1
Periodic Report on Continued Compliance
City of Flint Sewer User Self-Monitoring Report
Third Quarter - 2023 - 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	**4.75**	**10.9**	**<2**	**7.89**	**0.06**	**4.3**
Test Method	4500-NH3 G	10360	1664A	4500-H+ B	4500-PE	2540 D
Test Date	8/14/2023	8/9/2023	8/15/2023	8/9/2023	8/12/2023	8/9/2023
Sample Date	8/9/2023	8/9/2023	8/9/2023	8/9/2023	8/9/2023	8/9/2023
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
Third Quarter - 2023 - 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**	**1.714**	**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	**0.013**	**0.038**	**0.661**	**<0.0002**	**0.183**	**0.009**	**0.002**
Test Method	E200.8	200.8	200.8	245.1	200.8	200.8	1677
Test Date	8/16/2023	8/16/2023	8/16/2023	8/11/2023	8/16/2023	8/16/2023	8/15/2023
Sample Date	8/9/2023	8/9/2023	8/9/2023	8/9/2023	8/9/2023	8/9/2023	8/9/2023
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
Third Quarter 2023
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
8/30/2023	0	--	--	4:30 pm (8/30/2023)	--	2.60	19.2	66.6	7.48
8/31/2023	--	3,503	**3,503**	--	2:07 pm (8/31/2023)	2.60	20.1	68.2	7.92

Total Discharge Volume: **3,503**
Average Discharge Volume (2 Days): **1,752**

NOTES : Discharge meter was found not to be recording during the discharge event. The total gallons discharged were calculated by a digital garden watering flow meter attached to the discharge hose as backup for the main discharge meter.
Accumulation tank discharged continuously from 4:30 p.m. on August 30, 2023 to 2:07 p.m. on August 31, 2023.

TABLE 3
RACER Trust - Coldwater Road
Pre-and Polyfluroalkyl Substances (PFAS) Sampling Results - October 2023

Coldwater Road - PFAS Pretreatment System Samples

Perfluorinated Compound	Well/Sample ID: / Sample Date:	Beecher Metropolitan District Sewer Use Permit - Discharge Pollutant Limitations and Monitoring Requirements	03-PRCC-23-INF (Influent Sample) 8/30/2023	03-PRCC-23-PRIM (Primary GAC Vessel Sample) 8/30/2023	03-PRCC-23-PRIM-78 (Primary GAC Vessel Sample after 78 Bed Volumes) 8/31/2023	03-PRCC-23-MID-1-78 (Secondary GAC Vessel Sample after 78 Bed Volumes) 8/31/2023	03-PRCC-23-MID-2-78 (Tertiary GAC Vessel Sample after 78 Bed Volumes) 8/31/2023	03-PRCC-23-EFF-78 (Effluent Sample after 78 Bed Volumes) 8/31/2023
Perfluorobutanoic Acid (PFBA)		--	<9.6	<9.8	<9.9	<10	<9.7	<10
Perfluoropentanoic Acid (PFPeA)		--	<3.8	<3.9	<4.0	<4.1	<3.9	<4.1
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)		--	<1.9 I	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluorohexanoic Acid (PFHxA)		**400,000**	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluorobutane Sulfonic Acid (PFBS)		**420**	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluoroheptanoic Acid (PFHpA)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluoropentane Sulfonic Acid (PFPeS)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluorooctanoic Acid (**PFOA**)		**8**	**1.7 J**	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluorohexane Sulfonic Acid (PFHxS)		**51**	**5.0**	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)		--	**3.9**	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluorononanoic Acid (PFNA)		**6**	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluoroheptane Sulfonic Acid (PFHpS)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluorodecanoic Acid (PFDA)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)		--	<3.8	<3.9	<4.0	<4.1	<3.9	<4.1
Perfluorooctane Sulfonic Acid (**PFOS**)		**16**	**250**	**9.3**	**11**	**3.9**	**2.7**	**2.9**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)		--	**190**	**7.9**	**5.4**	**3.1**	**2.7**	**2.3**
Perfluorooctane Sulfonic Acid (**PFOS**-BR)		--	**62**	<2.0	**5.6**	<2.1	<1.9	<2.0
Perfluoroundecanoic Acid (PFUnDA)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluorononane Sulfonic Acid (PFNS)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluorododecanoic Acid (PFDoDA)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluorodecane Sulfonic Acid (PFDS)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluorotridecanoic Acid (PFTrDA)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluorooctane Sulfonamide (FOSA)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluorotetradecanoic Acid (PFTeDA)		--	<3.8	<3.9	<4.0	<4.1	<3.9	<4.1
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
4,8-dioxa-3H-perfluorononanoic acid (ADONA)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)		--	<3.8	<3.9	<4.0	<4.1	<3.9	<4.1
3-Perfluoroheptyl propanoic acid (FHpPA (7:3 FTCA))		--	<3.8	<3.9	<4.0	<4.1	<3.9	<4.1
3-Perfluoroheptyl propanoic acid (FPePA (5:3 FTCA))		--	<3.8	<3.9	<4.0	<4.1	<3.9	<4.1
3-Perfluoroheptyl propanoic acid (FPrPA (3:3 FTCA))		--	<3.8	<3.9	<4.0	<4.1	<3.9	<4.1
Perfluorobutanesulfonamide (PFBSA)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
Perfluoro-4-ethylcyclohexanesulfonate (PFECHS)		--	**270**	**2.2**	**46**	<2.1	<1.9	<2.0
Perfluorohexanesulfonamide (PFHxSA)		--	<1.9	<2.0	<2.0	<2.1	<1.9	<2.0
Total Per-and Polyfluoroalkyl Substances		--	**526.7**	**11.5**	**57.0**	**3.9**	**2.7**	**2.9**

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) Beecher Metropolitan District Sewer Use Permit
Discharge Pollutant Limitations and Monitoring Requirements - October 15, 2021.
7) Concentrations above the discharge limit are highlighted in yellow.
8) Number after Prim (Primary GAC vessel), Mid (Secondary GAC vessel), and Eff (Effluent sample after tertiary GAC vessel) samples equals number of GAC Bed volumes discharged through the pretreatment system at the time of sample collection. One bed volume equals 45 gallons.
9) I - Matrix interference with internal standard.
10) J - Estimated value less than reporting limit, but greater than MDL.
11) X - Elevated reporting limit due to matrix interference.
12) QA/QC Samples were either not detected above the reporting limit or below the Beecher Metropolitan District Sewer Use Permit Discharge Limits.

Analytical Laboratory Report

Report ID: S51990.01(01)
Generated on 08/16/2023

Report to

Attention: Clifford Yantz
Ramboll
2090 Commonwealth Blvd.
Ann Arbor, MI 48105

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): S51990.01
Project: RACER Coldwater Road
Collected Date(s): 08/09/2023
Submitted Date/Time: 08/09/2023 13:30
Sampled by: Kevin Schneider
P.O. #: 1940006516 TASK 001

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).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
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.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

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

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
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
OIA-1677	EPA Method OIA-1677-09
SM2540D	Standard Method 2540 D 2015
SM2550B	Standard Method 2550 B 2011
SM4500-H+ B	Standard Method 4500 H + B 2011
SM4500-NH3 G	Standard Method 4500 NH3 G 2017
SM4500-PE	Standard Method 4500 P E 2011 / 4500 P B(5) 2011
SM5210B/HACH1036	Standard Method 5210 B 2016 / HACH 10360
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Analytical Laboratory Report

Sample Summary (1 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S51990.01	03-PRCC-23	Wastewater	08/09/23 10:20

Merit Laboratories, Inc.

Analytical Laboratory Report

Lab Sample ID: S51990.01
Sample Tag: 03-PRCC-23
Collected Date/Time: 08/09/2023 10:20
Matrix: Wastewater
COC Reference: 155558

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	1L Plastic	None	Yes	4.8	IR
1	125ml Plastic	HNO3	Yes	4.8	IR
1	500ml Plastic	None	Yes	4.8	IR
1	125ml Amber	PbCO3/NaOH	Yes	4.8	IR
1	32oz Glass	HCL	Yes	4.8	IR
1	250ml Plastic	H2SO4	Yes	4.8	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/11/23 12:57	CTV	
TBOD5 - Set*	Completed	SM5210B/HACH1036	08/09/23 15:30	SSM	
Metal Digestion	Completed	SW3015A	08/16/23 08:50	JRH	

Inorganics

Method: E1664A, Run Date: 08/15/23 10:00, Analyst: JW

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

Method: SM2540D, Run Date: 08/09/23 16:00, Analyst: MDG

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	4.3	3		mg/L	1		

Method: SM2550B, Run Date: 08/09/23 10:20, Analyst: KS

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Field Temperature*	73	1		oF	1		

Method: SM4500-H+ B, Run Date: 08/09/23 10:20, Analyst: KS

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Field pH*	7.89	0.01		STD Units	1		

Method: SM4500-NH3 G, Run Date: 08/14/23 16:14, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ammonia-N (Undistilled)*	4.75	1.00		mg/L	50	7664-41-7	

Method: SM4500-PE, Run Date: 08/12/23 16:18, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Phosphorus	0.06	0.01	0.009	mg/L	1	7723-14-0	

Method: SM5210B/HACH1036, Run Date: 08/14/23 14:40, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TBOD5*	10.9	3		mg/L	1.5		

Metals

Method: E200.8, Run Date: 08/16/23 11:55, Analyst: JRH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.013	0.002		mg/L	5	7440-38-2	

Lab Sample ID: S51990.01 (continued)
Sample Tag: 03-PRCC-23

Method: E200.8, Run Date: 08/16/23 11:55, Analyst: JRH (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	0.038	0.005		mg/L	5	7440-47-3	
Copper	0.661	0.005		mg/L	5	7440-50-8	
Nickel	0.183	0.005		mg/L	5	7440-02-0	
Zinc	0.009	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 08/11/23 14:58, Analyst: CTV

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: 08/15/23 10:04, Analyst: JDP

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Available Cyanide	0.002	0.002	0.0015	mg/L	1	57-12-5	

Merit Laboratories Login Checklist

Lab Set ID: S51990
Client: RAMBOLL (Ramboll Americas)
Project: RACER Coldwater Road
Submitted: 08/09/2023 13:30 Login User: BJB

Attention: Clifford Yantz
Address: Ramboll
2090 Commonwealth Blvd.
Ann Arbor, MI 48105

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 4.8
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] 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: S51990 Submitted: 08/09/2023 13:30

Client: RAMBOLL (Ramboll Americas)

Project: RACER Coldwater Road

Initial Preservation Check: 08/09/2023 14:08 BJB

Preservation Recheck (E200.8): N/A

Attention: Clifford Yantz
Address: Ramboll
2090 Commonwealth Blvd.
Ann Arbor, MI 48105

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

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S51990.01	125ml Amber PbCO3/NaOH	>12			
S51990.01	125ml Plastic HNO3	<2			
S51990.01	250ml Plastic H2SO4	<2			
S51990.01	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 155558

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz / Kevin Schneider
COMPANY: Ramboll
ADDRESS: 2090 Commonwealth Blvd
CITY: Ann Arbor STATE: MI ZIP CODE: 48116
PHONE NO.: CELL NO.: 313-333-0211
P.O. NO.: 1940006516 Task 001
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: 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: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=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)	COLLECTION DATE	COLLECTION 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	EOG (Hex - Ext)
51990.01	8/9/23	10:20	03-PRCC-23	WW	6	2	1	1	1			1	X	X	X	X	X	X

metals are: As, Cu, Cr, Hg, Ni, Zn

Analysis Per City of Flint including QC Report

Field temp: 22.5°C
Field pH: 7.89

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 8/9/23	TIME 1132
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 8/9/23	TIME 1:20
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 8/9/23	TIME 1310
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	Baxter Ball	DATE 8/9/2023	TIME 1330

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

NOTES: TEMP. ON ARRIVAL 4.8

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

Rev. 1.26.22

Quality Control Report

Report ID: QC-S51990-01
Generated on 08/16/2023

Report to

Attention: Clifford Yantz
Ramboll
2090 Commonwealth Blvd.
Ann Arbor, MI 48105

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): S51990.01
Project: RACER Coldwater Road
Submitted Date/Time: 08/09/2023 13:30
Sampled by: Kevin Schneider
P.O. #: 1940006516 TASK 001

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

QC Report - Analysis Summary

Lab Sample ID: S51990.01
Sample Tag: 03-PRCC-23
Collected Date/Time: 08/09/2023 10:20
Matrix: Wastewater
COC Reference: 155558

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Ammonia-N (Undistilled)	SM4500-NH3 G	08/14/23 16:14	AMN230814B	AMN230814B	No	BLK/LCS/MS/DUP
Oil & Grease n-Hexane Extract.	E1664A	08/15/23 10:00	OGHEX230815W2	OGHEX230815W2	No	BLK/LCS
TBOD5	SM5210B/HACH10360	08/14/23 14:40	BOD230809B	BOD230809B	No	BLK/LCS/DUP
Total Phosphorus	SM4500-PE	08/12/23 16:18	PHS230812QC	PHS230812QC	No	BLK/LCS/MS/DUP
Total Suspended Solids	SM2540D	08/09/23 16:00	TSS230809	TSS230809	No	BLK/LCS/DUP
Metals						
Arsenic	E200.8	08/16/23 11:55	MT5-23-0816A	MTD-081623-1	No	BLK/LCS/MS/MSD
Chromium	E200.8	08/16/23 11:55	MT5-23-0816A	MTD-081623-1	No	BLK/LCS/MS/MSD
Copper	E200.8	08/16/23 11:55	MT5-23-0816A	MTD-081623-1	No	BLK/LCS/MS/MSD
Mercury	E245.1	08/11/23 14:58	HG-23-0811A	HGD-081123-2	No	BLK/LCS/MS/MSD
Nickel	E200.8	08/16/23 11:55	MT5-23-0816A	MTD-081623-1	No	BLK/LCS/MS/MSD
Zinc	E200.8	08/16/23 11:55	MT5-23-0816A	MTD-081623-1	No	BLK/LCS/MS/MSD
Other / Misc.						
Available Cyanide	OIA-1677	08/15/23 10:04	ACN230815-W1	ACN230815-W1	No	BLK/LCS/MS/MSD/DU

QC Report - Prep Batch Summary

Inorganics, Prep Batch ID: AMN230814B

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S51990.01	Ammonia-N (Undistilled)	SM4500-NH3 G	08/14/23 16:14	AMN230814B

Inorganics, Prep Batch ID: BOD230809B

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S51990.01	TBOD5	SM5210B/HACH1038	08/14/23 14:40	BOD230809B

Inorganics, Prep Batch ID: OGHEX230815W2

Surrogates: No, QC Types: BLK/LCS

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S51990.01	Oil & Grease n-Hexane Extract.	E1664A	08/15/23 10:00	OGHEX230815W2

Inorganics, Prep Batch ID: PHS230812QC

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S51990.01	Total Phosphorus	SM4500-PE	08/12/23 16:18	PHS230812QC

Inorganics, Prep Batch ID: TSS230809

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S51990.01	Total Suspended Solids	SM2540D	08/09/23 16:00	TSS230809

Metals, Prep Batch ID: HGD-081123-2

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S51990.01	Mercury	E245.1	08/11/23 14:58	HG-23-0811A

Metals, Prep Batch ID: MTD-081623-1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S51990.01	Arsenic	E200.8	08/16/23 11:55	MT5-23-0816A
S51990.01	Chromium	E200.8	08/16/23 11:55	MT5-23-0816A
S51990.01	Copper	E200.8	08/16/23 11:55	MT5-23-0816A
S51990.01	Nickel	E200.8	08/16/23 11:55	MT5-23-0816A
S51990.01	Zinc	E200.8	08/16/23 11:55	MT5-23-0816A

Other / Misc., Prep Batch ID: ACN230815-W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S51990.01	Available Cyanide	OIA-1677	08/15/23 10:04	ACN230815-W1

Inorganics, Prep Batch ID: AMN230814B

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

Blank (BLK)

Lab Sample ID: AMN230814B.LRB1

Run in Batch: AMN230814B, Run Date: 08/14/2023 15:16, Prep Date: 08/14/2023, Matrix: Liquid, Dilution: 1

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

Laboratory Control Sample (LCS)

Lab Sample ID: AMN230814B.LCS1

Run in Batch: AMN230814B, Run Date: 08/14/2023 15:20, Prep Date: 08/14/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Ammonia-N (Undistilled)		96.0	90	110

Matrix Spike (MS)

Lab Sample ID: AMN230814B.MS1, Parent Sample ID: S52087.01

Run in Batch: AMN230814B, Run Date: 08/14/2023 15:38, Prep Date: 08/14/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Ammonia-N (Undistilled)		100.0	80	120

Duplicate (DUP)

Lab Sample ID: AMN230814B.DP1, Parent Sample ID: S52078.01

Run in Batch: AMN230814B, Run Date: 08/14/2023 16:32, Prep Date: 08/14/2023, Matrix: Liquid, Dilution: 50

Analyte	Flags	RPD	RPD CL
Ammonia-N (Undistilled)		2.7	20

Inorganics, Prep Batch ID: BOD230809B

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

Blank (BLK)

Lab Sample ID: BOD230809B.LRB1

Run in Batch: BOD230809B, Run Date: 08/14/2023 14:40, Prep Date: 08/14/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
TBOD5		ND	3	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: BOD230809B.LCS1

Run in Batch: BOD230809B, Run Date: 08/14/2023 14:40, Prep Date: 08/14/2023, Matrix: Liquid, Dilution: 30

Analyte	Flags	% Rec	LCL	UCL
TBOD5		98.3	51	166

Duplicate (DUP)

Lab Sample ID: BOD230809B.DP1, Parent Sample ID: S51970.03

Run in Batch: BOD230809B, Run Date: 08/14/2023 14:40, Prep Date: 08/14/2023, Matrix: Liquid, Dilution: 60

Analyte	Flags	RPD	RPD CL
TBOD5		6.3	20

Inorganics, Prep Batch ID: OGHEX230815W2

Surrogates: No, QC Types: BLK/LCS

Blank (BLK)

Lab Sample ID: OGHEX230815W2.LRB1

Run in Batch: OGHEX230815W2, Run Date: 08/15/2023 10:00, Prep Date: 08/15/2023, 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: OGHEX230815W2.LCS1

Run in Batch: OGHEX230815W2, Run Date: 08/15/2023 10:00, Prep Date: 08/15/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Oil & Grease n-Hexane Extract.		90	78	114

Laboratory Control Sample (LCS)

Lab Sample ID: OGHEX230815W2.LCS2

Run in Batch: OGHEX230815W2, Run Date: 08/15/2023 10:00, Prep Date: 08/15/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Oil & Grease n-Hexane Extract.		88	78	114

Inorganics, Prep Batch ID: PHS230812QC

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

Blank (BLK)

Lab Sample ID: PHS230812QC.LRB1

Run in Batch: PHS230812QC, Run Date: 08/12/2023 15:42, Prep Date: 08/12/2023, Matrix: Liquid, Dilution: 1

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

Blank (BLK)

Lab Sample ID: PHS230812QC.LRB2

Run in Batch: PHS230812QC, Run Date: 08/12/2023 15:49, Prep Date: 08/12/2023, Matrix: Liquid, Dilution: 1

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

Laboratory Control Sample (LCS)

Lab Sample ID: PHS230812QC.LCS1

Run in Batch: PHS230812QC, Run Date: 08/12/2023 15:56, Prep Date: 08/12/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		99	90	110

Matrix Spike (MS)

Lab Sample ID: PHS230812QC.MS1, Parent Sample ID: S51939.02

Run in Batch: PHS230812QC, Run Date: 08/12/2023 21:04, Prep Date: 08/12/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		99	80	120

Duplicate (DUP)

Lab Sample ID: PHS230812QC.DP1, Parent Sample ID: S51970.01

Run in Batch: PHS230812QC, Run Date: 08/12/2023 21:00, Prep Date: 08/12/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Total Phosphorus		13.1	20

Inorganics, Prep Batch ID: TSS230809

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

Blank (BLK)

Lab Sample ID: TSS230809.LRB1

Run in Batch: TSS230809, Run Date: 08/09/2023 16:00, Prep Date: 08/09/2023, Matrix: Liquid, Dilution: 1

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

Laboratory Control Sample (LCS)

Lab Sample ID: TSS230809.LCS1

Run in Batch: TSS230809, Run Date: 08/09/2023 16:00, Prep Date: 08/09/2023, Matrix: Liquid, Dilution: 10

Analyte	Flags	% Rec	LCL	UCL
Total Suspended Solids		94.0	81.9	111

Duplicate (DUP)

Lab Sample ID: TSS230809.DP1, Parent Sample ID: S51921.02

Run in Batch: TSS230809, Run Date: 08/09/2023 16:00, Prep Date: 08/09/2023, Matrix: Liquid, Dilution: 4

Analyte	Flags	RPD	RPD CL
Total Suspended Solids		0.4	10

Metals, Prep Batch ID: HGD-081123-2

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

Blank (BLK)

Lab Sample ID: HG-23-0811A.043.LRB

Run in Batch: HG-23-0811A, Run Date: 08/11/2023 14:28, Prep Date: 08/11/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Mercury		ND	0.20	ug/L

Laboratory Control Sample (LCS)

Lab Sample ID: HG-23-0811A.042.LCS

Run in Batch: HG-23-0811A, Run Date: 08/11/2023 14:25, Prep Date: 08/11/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Mercury		102	85	120

Matrix Spike (MS)

Lab Sample ID: HG-23-0811A.050.MS, Parent Sample ID: S51936.01

Run in Batch: HG-23-0811A, Run Date: 08/11/2023 14:51, Prep Date: 08/11/2023, Matrix: Liquid, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL
Mercury		109	80	120

Matrix Spike (MS)

Lab Sample ID: HG-23-0811A.060.MS, Parent Sample ID: S52075.06

Run in Batch: HG-23-0811A, Run Date: 08/11/2023 15:24, Prep Date: 08/11/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Mercury		105	80	120

Matrix Spike Duplicate (MSD)

Lab Sample ID: HG-23-0811A.051.MSD, Parent Sample ID: HG-23-0811A.050.MS

Run in Batch: HG-23-0811A, Run Date: 08/11/2023 14:54, Prep Date: 08/11/2023, Matrix: Liquid, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Mercury		108	80	120	1	20

Matrix Spike Duplicate (MSD)

Lab Sample ID: HG-23-0811A.061.MSD, Parent Sample ID: HG-23-0811A.060.MS

Run in Batch: HG-23-0811A, Run Date: 08/11/2023 15:27, Prep Date: 08/11/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Mercury		106	80	120	1	20

Metals, Prep Batch ID: MTD-081623-1

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

Blank (BLK)

Lab Sample ID: MT5-23-0816A.022.LRB

Run in Batch: MT5-23-0816A, Run Date: 08/16/2023 11:10, Prep Date: 08/16/2023, 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: MT5-23-0816A.020.LCS

Run in Batch: MT5-23-0816A, Run Date: 08/16/2023 11:06, Prep Date: 08/16/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Arsenic		108	85	115
Chromium		109	85	115
Copper		109	85	115
Nickel		110	85	115
Zinc		113	85	115

Matrix Spike (MS)

Lab Sample ID: MT5-23-0816A.034.MS, Parent Sample ID: S52095.02

Run in Batch: MT5-23-0816A, Run Date: 08/16/2023 11:37, Prep Date: 08/16/2023, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		104	75	125
Chromium		104	75	125
Copper		93	75	125
Nickel		100	75	125
Zinc		94	75	125

Matrix Spike (MS)

Lab Sample ID: MT5-23-0816A.049.MS, Parent Sample ID: S52061.01

Run in Batch: MT5-23-0816A, Run Date: 08/16/2023 12:06, Prep Date: 08/16/2023, Matrix: Liquid, Dilution: 25

Analyte	Flags	% Rec	LCL	UCL
Arsenic		109	75	125
Chromium		105	75	125
Copper		97	75	125
Nickel		102	75	125
Zinc		117	75	125

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT5-23-0816A.035.MSD, Parent Sample ID: MT5-23-0816A.034.MS

Run in Batch: MT5-23-0816A, Run Date: 08/16/2023 11:39, Prep Date: 08/16/2023, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		106	75	125	2	20
Chromium		104	75	125	1	20
Copper		95	75	125	2	20
Nickel		101	75	125	1	20
Zinc		97	75	125	2	20

Metals, Prep Batch ID: MTD-081623-1 (continued)

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

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT5-23-0816A.050.MSD, Parent Sample ID: MT5-23-0816A.049.MS

Run in Batch: MT5-23-0816A, Run Date: 08/16/2023 12:08, Prep Date: 08/16/2023, Matrix: Liquid, Dilution: 25

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		107	75	125	1	20
Chromium		103	75	125	2	20
Copper		98	75	125	1	20
Nickel		99	75	125	2	20
Zinc		96	75	125	4	20

Other / Misc., Prep Batch ID: ACN230815-W1

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

Blank (BLK)

Lab Sample ID: ACN230815-W1.LRB1

Run in Batch: ACN230815-W1, Run Date: 08/15/2023 09:24, Prep Date: 08/15/2023, Matrix: Liquid, Dilution: 1

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

Blank (BLK)

Lab Sample ID: ACN230815-W1.LRB2

Run in Batch: ACN230815-W1, Run Date: 08/15/2023 10:12, Prep Date: 08/15/2023, Matrix: Liquid, Dilution: 1

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

Laboratory Control Sample (LCS)

Lab Sample ID: ACN230815-W1.LCS1

Run in Batch: ACN230815-W1, Run Date: 08/15/2023 09:28, Prep Date: 08/15/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Available Cyanide		96	88	109

Matrix Spike (MS)

Lab Sample ID: ACN230815-W1.MS1, Parent Sample ID: S52026.01

Run in Batch: ACN230815-W1, Run Date: 08/15/2023 09:42, Prep Date: 08/15/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Available Cyanide		94	82	130

Matrix Spike Duplicate (MSD)

Lab Sample ID: ACN230815-W1.MSD1, Parent Sample ID: ACN230815-W1.MS1

Run in Batch: ACN230815-W1, Run Date: 08/15/2023 09:44, Prep Date: 08/15/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Available Cyanide		96	82	130	2	15

Duplicate (DUP)

Lab Sample ID: ACN230815-W1.DP1, Parent Sample ID: S52026.01

Run in Batch: ACN230815-W1, Run Date: 08/15/2023 09:38, Prep Date: 08/15/2023, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Available Cyanide		<1	15

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 155558

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz / Kevin Schneider
COMPANY: Ramboll
ADDRESS: 2090 Commonwealth Blvd
CITY: Ann Arbor STATE: MI ZIP CODE: 48116
PHONE NO.: CELL NO.: 313-333-0211
P.O. NO.: 1940006516 Task 001
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: 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: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=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)	COLLECTION DATE	COLLECTION 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	EOG (Hex - Ext)
51990.01	8/9/23	10:20	03-PRCC-23	WW	6	2	1	1	1			1	X	X	X	X	X	X

metals are: As, Cu, Cr, Hg, Ni, Zn

Analysis Per City of Flint including QC Report

Field temp: 22.5°C
Field pH: 7.89

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 8/9/23	TIME 1132
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 8/9/23	TIME 1:20
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 8/9/23	TIME 1310
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION	Baxter Ball	DATE 8/9/2023	TIME 1330

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

NOTES: TEMP. ON ARRIVAL 4.8

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

Rev. 1.26.22

Analytical Laboratory Report

Report ID: S52921.01(01)
Generated on 09/25/2023

Report to

Attention: Clifford Yantz
Ramboll Americas
2090 Commonwealth Blvd
Ann Arbor, MI 48105

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): S52921.01-S52921.07
Project: RACER Coldwater Road
Collected Date(s): 08/30/2023 - 08/31/2023
Submitted Date/Time: 09/01/2023 10:00
Sampled by: Kevin Schneider
P.O. #: 1940006516 TASK 37

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).
When MDL results are provided, then 'Not detected' indicates that parameter was not found at a level equal to or greater than the MDL.
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile, and 2-chloroethylvinyl ether need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
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.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.
All accreditations/certifications held by this laboratory are listed on page 3. Not all accreditations/certifications are applicable to this report.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Accreditations

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

Qualifier Descriptions

Qualifier	Description
!	Result is outside of stated limit criteria
B	Compound also found in associated method blank
E	Concentration exceeds calibration range
F	Analysis run outside of holding time
G	Estimated result due to extraction run outside of holding time
H	Sample submitted and run outside of holding time
I	Matrix interference with internal standard
J	Estimated value less than reporting limit, but greater than MDL
L	Elevated reporting limit due to low sample amount
M	Result reported to MDL not RDL
O	Analysis performed by outside laboratory. See attached report.
R	Preliminary result
S	Surrogate recovery outside of control limits
T	No correction for total solids
X	Elevated reporting limit due to matrix interference
Y	Elevated reporting limit due to high target concentration
b	Value detected less than reporting limit, but greater than MDL
e	Reported value estimated due to interference
j	Analyte also found in associated method blank
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
FHpPA (7:3 FTCA)	3-Perfluoroheptyl propanoic acid	812-70-4
FPePA (5:3 FTCA)	3-Perfluoropentyl propanoic acid	914637-49-3
FPrPA (3:3 FTCA)	3-Perfluoropropyl propanoic acid	356-02-5
PFBSA	Perfluorobutanesulfonamide	30334-69-1
PFECHS	Perfluoro-4-ethylcyclohexanesulfonate	67584-42-3
PFHxSA	Perfluorohexanesulfonamide	41997-13-1

Analytical Laboratory Report

Sample Summary (7 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S52921.01	03-PRCC-23-INF	Liquid	08/30/23 16:30
S52921.02	03-PRCC-23-PRIM	Liquid	08/30/23 16:40
S52921.03	03-PRCC-EFF-78	Liquid	08/31/23 12:06
S52921.04	03-PRCC-MID-2-78	Liquid	08/31/23 12:08
S52921.05	03-PRCC-MID-1-78	Liquid	08/31/23 12:10
S52921.06	03-PRCC-PRIM-78	Liquid	08/31/23 12:12
S52921.07	FIELD BLANK-083123-78	Liquid	08/31/23 12:04

Analytical Laboratory Report

Lab Sample ID: S52921.01
Sample Tag: 03-PRCC-23-INF
Collected Date/Time: 08/30/2023 16:30
Matrix: Liquid
COC Reference: 155543

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.25/6.53/11	ASTMD7979-19M	09/07/23 10:30	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 09/08/23 00:46, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.6	9.6	ng/L	1.92	375-22-4	
PFPeA*	Not detected	3.8	0.96	ng/L	1.92	2706-90-3	
4:2 FTSA*	Not detected	1.9	1.5	ng/L	1.92	757124-72-4	I
PFHxA*	Not detected	1.9	1.3	ng/L	1.92	307-24-4	
PFBS*	Not detected	1.9	1.3	ng/L	1.92	375-73-5	
PFHpA*	Not detected	1.9	1.3	ng/L	1.92	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.92	2706-91-4	
6:2 FTSA*	Not detected	1.9	1.9	ng/L	1.92	27619-97-2	
PFOA*	1.7	1.9	1.5	ng/L	1.92	335-67-1	J
PFHxS*	5.0	1.9	1.5	ng/L	1.92	355-46-4	
PFHxS-LN*	3.9	1.9	1.5	ng/L	1.92	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	1.5	ng/L	1.92	355-46-4-BR	
PFNA*	Not detected	1.9	1.7	ng/L	1.92	375-95-1	
8:2 FTSA*	Not detected	1.9	0.96	ng/L	1.92	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.92	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.92	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.92	2355-31-9	
EtFOSAA*	Not detected	3.8	1.9	ng/L	1.92	2991-50-6	
PFOS*	250	1.9	1.9	ng/L	1.92	1763-23-1	
PFOS-LN*	190	1.9	1.9	ng/L	1.92	1763-23-1-LN	
PFOS-BR*	62	1.9	1.9	ng/L	1.92	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.3	ng/L	1.92	2058-94-8	
PFNS*	Not detected	1.9	1.3	ng/L	1.92	68259-12-1	
PFDoDA*	Not detected	1.9	1.5	ng/L	1.92	307-55-1	
PFDS*	Not detected	1.9	1.3	ng/L	1.92	335-77-3	
PFTrDA*	Not detected	1.9	1.2	ng/L	1.92	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.92	754-91-6	
PFTeDA*	Not detected	3.8	1.7	ng/L	1.92	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.92	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.3	ng/L	1.92	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.92	919005-14-4	
HFPO-DA*	Not detected	3.8	1.9	ng/L	1.92	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	3.8	2.9	ng/L	1.92	812-70-4	
FPePA (5:3 FTCA)*	Not detected	3.8	2.1	ng/L	1.92	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	3.8	1.2	ng/L	1.92	356-02-5	

I-Matrix interference with internal standard
J-Estimated value less than reporting limit, but greater than MDL

Lab Sample ID: S52921.01 (continued)
Sample Tag: 03-PRCC-23-INF

34 PFAs, Method: ASTMD7979-19M, Run Date: 09/08/23 00:46, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBSA*	Not detected	1.9	1.2	ng/L	1.92	30334-69-1	
PFECHS*	270	1.9	1.2	ng/L	1.92	67584-42-3	
PFHxSA*	Not detected	1.9	0.96	ng/L	1.92	41997-13-1	

Analytical Laboratory Report

Lab Sample ID: S52921.02
Sample Tag: 03-PRCC-23-PRIM
Collected Date/Time: 08/30/2023 16:40
Matrix: Liquid
COC Reference: 155543

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.14/6.54/11	ASTMD7979-19M	09/07/23 10:30	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 09/08/23 01:05, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.8	9.8	ng/L	1.96	375-22-4	
PFPeA*	Not detected	3.9	0.98	ng/L	1.96	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.96	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	1.96	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	1.96	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	1.96	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.96	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	1.96	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	1.96	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	1.96	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	1.96	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.96	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.96	375-95-1	
8:2 FTSA*	Not detected	2.0	0.98	ng/L	1.96	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.96	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.96	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.96	2355-31-9	
EtFOSAA*	Not detected	3.9	2.0	ng/L	1.96	2991-50-6	
PFOS*	9.3	2.0	1.9	ng/L	1.96	1763-23-1	
PFOS-LN*	7.9	2.0	1.9	ng/L	1.96	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	1.9	ng/L	1.96	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.96	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.96	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	1.96	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.96	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	1.96	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.96	754-91-6	
PFTeDA*	Not detected	3.9	1.8	ng/L	1.96	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.96	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.96	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.96	919005-14-4	
HFPO-DA*	Not detected	3.9	2.0	ng/L	1.96	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	3.9	2.9	ng/L	1.96	812-70-4	
FPePA (5:3 FTCA)*	Not detected	3.9	2.2	ng/L	1.96	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	3.9	1.2	ng/L	1.96	356-02-5	
PFBSA*	Not detected	2.0	1.2	ng/L	1.96	30334-69-1	
PFECHS*	2.2	2.0	1.2	ng/L	1.96	67584-42-3	

Lab Sample ID: S52921.02 (continued)
Sample Tag: 03-PRCC-23-PRIM

34 PFAs, Method: ASTMD7979-19M, Run Date: 09/08/23 01:05, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFHxSA*	Not detected	2.0	0.98	ng/L	1.96	41997-13-1	

Lab Sample ID: S52921.03
Sample Tag: 03-PRCC-EFF-78
Collected Date/Time: 08/31/2023 12:06
Matrix: Liquid
COC Reference: 155543

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.96/6.54/11	ASTMD7979-19M	09/07/23 10:30	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 09/08/23 01:25, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.03	375-22-4	
PFPeA*	Not detected	4.1	1.0	ng/L	2.03	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.03	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	2.03	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	2.03	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	2.03	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	2.03	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	2.03	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	2.03	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	2.03	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	2.03	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	2.03	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.03	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.03	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	2.03	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.03	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.03	2355-31-9	
EtFOSAA*	Not detected	4.1	2.0	ng/L	2.03	2991-50-6	
PFOS*	2.9	2.0	2.0	ng/L	2.03	1763-23-1	
PFOS-LN*	2.3	2.0	2.0	ng/L	2.03	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	2.0	ng/L	2.03	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.03	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.03	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	2.03	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.03	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	2.03	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.03	754-91-6	
PFTeDA*	Not detected	4.1	1.8	ng/L	2.03	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.03	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.03	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.03	919005-14-4	
HFPO-DA*	Not detected	4.1	2.0	ng/L	2.03	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	4.1	3.0	ng/L	2.03	812-70-4	
FPePA (5:3 FTCA)*	Not detected	4.1	2.2	ng/L	2.03	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	4.1	1.2	ng/L	2.03	356-02-5	
PFBSA*	Not detected	2.0	1.2	ng/L	2.03	30334-69-1	
PFECHS*	Not detected	2.0	1.2	ng/L	2.03	67584-42-3	

Lab Sample ID: S52921.03 (continued)
Sample Tag: 03-PRCC-EFF-78

34 PFAs, Method: ASTMD7979-19M, Run Date: 09/08/23 01:25, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFHxSA*	Not detected	2.0	1.0	ng/L	2.03	41997-13-1	

Lab Sample ID: S52921.04
Sample Tag: 03-PRCC-MID-2-78
Collected Date/Time: 08/31/2023 12:08
Matrix: Liquid
COC Reference: 155543

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.25/6.55/11	ASTMD7979-19M	09/07/23 10:30	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 09/08/23 01:44, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.7	9.7	ng/L	1.93	375-22-4	
PFPeA*	Not detected	3.9	0.97	ng/L	1.93	2706-90-3	
4:2 FTSA*	Not detected	1.9	1.5	ng/L	1.93	757124-72-4	
PFHxA*	Not detected	1.9	1.4	ng/L	1.93	307-24-4	
PFBS*	Not detected	1.9	1.4	ng/L	1.93	375-73-5	
PFHpA*	Not detected	1.9	1.4	ng/L	1.93	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.93	2706-91-4	
6:2 FTSA*	Not detected	1.9	1.9	ng/L	1.93	27619-97-2	
PFOA*	Not detected	1.9	1.5	ng/L	1.93	335-67-1	
PFHxS*	Not detected	1.9	1.5	ng/L	1.93	355-46-4	
PFHxS-LN*	Not detected	1.9	1.5	ng/L	1.93	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	1.5	ng/L	1.93	355-46-4-BR	
PFNA*	Not detected	1.9	1.7	ng/L	1.93	375-95-1	
8:2 FTSA*	Not detected	1.9	0.97	ng/L	1.93	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.93	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.93	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.93	2355-31-9	
EtFOSAA*	Not detected	3.9	1.9	ng/L	1.93	2991-50-6	
PFOS*	2.7	1.9	1.9	ng/L	1.93	1763-23-1	
PFOS-LN*	2.7	1.9	1.9	ng/L	1.93	1763-23-1-LN	
PFOS-BR*	Not detected	1.9	1.9	ng/L	1.93	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.4	ng/L	1.93	2058-94-8	
PFNS*	Not detected	1.9	1.4	ng/L	1.93	68259-12-1	
PFDoDA*	Not detected	1.9	1.5	ng/L	1.93	307-55-1	
PFDS*	Not detected	1.9	1.4	ng/L	1.93	335-77-3	
PFTrDA*	Not detected	1.9	1.2	ng/L	1.93	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.93	754-91-6	
PFTeDA*	Not detected	3.9	1.7	ng/L	1.93	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.93	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.4	ng/L	1.93	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.93	919005-14-4	
HFPO-DA*	Not detected	3.9	1.9	ng/L	1.93	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	3.9	2.9	ng/L	1.93	812-70-4	
FPePA (5:3 FTCA)*	Not detected	3.9	2.1	ng/L	1.93	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	3.9	1.2	ng/L	1.93	356-02-5	
PFBSA*	Not detected	1.9	1.2	ng/L	1.93	30334-69-1	
PFECHS*	Not detected	1.9	1.2	ng/L	1.93	67584-42-3	

Lab Sample ID: S52921.04 (continued)
Sample Tag: 03-PRCC-MID-2-78

34 PFAs, Method: ASTMD7979-19M, Run Date: 09/08/23 01:44, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFHxSA*	Not detected	1.9	0.97	ng/L	1.93	41997-13-1	

Lab Sample ID: S52921.05
Sample Tag: 03-PRCC-MID-1-78
Collected Date/Time: 08/31/2023 12:10
Matrix: Liquid
COC Reference: 155543

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.40/6.55/12	ASTMD7979-19M	09/07/23 10:30	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 09/08/23 02:04, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.05	375-22-4	
PFPeA*	Not detected	4.1	1.0	ng/L	2.05	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.6	ng/L	2.05	757124-72-4	
PFHxA*	Not detected	2.1	1.4	ng/L	2.05	307-24-4	
PFBS*	Not detected	2.1	1.4	ng/L	2.05	375-73-5	
PFHpA*	Not detected	2.1	1.4	ng/L	2.05	375-85-9	
PFPeS*	Not detected	2.1	1.8	ng/L	2.05	2706-91-4	
6:2 FTSA*	Not detected	2.1	2.1	ng/L	2.05	27619-97-2	
PFOA*	Not detected	2.1	1.6	ng/L	2.05	335-67-1	
PFHxS*	Not detected	2.1	1.6	ng/L	2.05	355-46-4	
PFHxS-LN*	Not detected	2.1	1.6	ng/L	2.05	355-46-4-LN	
PFHxS-BR*	Not detected	2.1	1.6	ng/L	2.05	355-46-4-BR	
PFNA*	Not detected	2.1	1.8	ng/L	2.05	375-95-1	
8:2 FTSA*	Not detected	2.1	1.0	ng/L	2.05	39108-34-4	
PFHpS*	Not detected	2.1	2.1	ng/L	2.05	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.05	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.05	2355-31-9	
EtFOSAA*	Not detected	4.1	2.1	ng/L	2.05	2991-50-6	
PFOS*	3.9	2.1	2.0	ng/L	2.05	1763-23-1	
PFOS-LN*	3.1	2.1	2.0	ng/L	2.05	1763-23-1-LN	
PFOS-BR*	Not detected	2.1	2.0	ng/L	2.05	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.4	ng/L	2.05	2058-94-8	
PFNS*	Not detected	2.1	1.4	ng/L	2.05	68259-12-1	
PFDoDA*	Not detected	2.1	1.6	ng/L	2.05	307-55-1	
PFDS*	Not detected	2.1	1.4	ng/L	2.05	335-77-3	
PFTrDA*	Not detected	2.1	1.2	ng/L	2.05	72629-94-8	
FOSA*	Not detected	2.1	1.8	ng/L	2.05	754-91-6	
PFTeDA*	Not detected	4.1	1.8	ng/L	2.05	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.8	ng/L	2.05	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.4	ng/L	2.05	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.05	919005-14-4	
HFPO-DA*	Not detected	4.1	2.1	ng/L	2.05	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	4.1	3.1	ng/L	2.05	812-70-4	
FPePA (5:3 FTCA)*	Not detected	4.1	2.3	ng/L	2.05	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	4.1	1.2	ng/L	2.05	356-02-5	
PFBSA*	Not detected	2.1	1.2	ng/L	2.05	30334-69-1	
PFECHS*	Not detected	2.1	1.2	ng/L	2.05	67584-42-3	

Lab Sample ID: S52921.05 (continued)
Sample Tag: 03-PRCC-MID-1-78

34 PFAs, Method: ASTMD7979-19M, Run Date: 09/08/23 02:04, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFHxSA*	Not detected	2.1	1.0	ng/L	2.05	41997-13-1	

Lab Sample ID: S52921.06
Sample Tag: 03-PRCC-PRIM-78
Collected Date/Time: 08/31/2023 12:12
Matrix: Liquid
COC Reference: 155543

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.11/6.55/11	ASTMD7979-19M	09/07/23 10:30	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 09/08/23 02:43, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.9	9.9	ng/L	1.98	375-22-4	
PFPeA*	Not detected	4.0	0.99	ng/L	1.98	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.98	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	1.98	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	1.98	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	1.98	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.98	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	1.98	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	1.98	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	1.98	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	1.98	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.98	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.98	375-95-1	
8:2 FTSA*	Not detected	2.0	0.99	ng/L	1.98	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.98	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.98	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.98	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	1.98	2991-50-6	
PFOS*	11	2.0	1.9	ng/L	1.98	1763-23-1	
PFOS-LN*	5.4	2.0	1.9	ng/L	1.98	1763-23-1-LN	
PFOS-BR*	5.6	2.0	1.9	ng/L	1.98	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.98	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.98	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	1.98	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.98	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	1.98	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.98	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	1.98	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.98	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.98	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.98	919005-14-4	
HFPO-DA*	Not detected	4.0	2.0	ng/L	1.98	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	4.0	3.0	ng/L	1.98	812-70-4	
FPePA (5:3 FTCA)*	Not detected	4.0	2.2	ng/L	1.98	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	4.0	1.2	ng/L	1.98	356-02-5	
PFBSA*	Not detected	2.0	1.2	ng/L	1.98	30334-69-1	
PFECHS*	46	2.0	1.2	ng/L	1.98	67584-42-3	

Lab Sample ID: S52921.06 (continued)
Sample Tag: 03-PRCC-PRIM-78

34 PFAs, Method: ASTMD7979-19M, Run Date: 09/08/23 02:43, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFHxSA*	Not detected	2.0	0.99	ng/L	1.98	41997-13-1	

Analytical Laboratory Report

Lab Sample ID: S52921.07
Sample Tag: FIELD BLANK-083123-78
Collected Date/Time: 08/31/2023 12:04
Matrix: Liquid
COC Reference: 155543

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.04/6.57/11	ASTMD7979-19M	09/07/23 10:30	AB	

Organics

34 PFAs, Method: ASTMD7979-19M, Run Date: 09/08/23 03:03, 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	4.0	2.0	ng/L	2.01	13252-13-6	
FHpPA (7:3 FTCA)*	Not detected	4.0	3.0	ng/L	2.01	812-70-4	
FPePA (5:3 FTCA)*	Not detected	4.0	2.2	ng/L	2.01	914637-49-3	
FPrPA (3:3 FTCA)*	Not detected	4.0	1.2	ng/L	2.01	356-02-5	
PFBSA*	Not detected	2.0	1.2	ng/L	2.01	30334-69-1	
PFECHS*	Not detected	2.0	1.2	ng/L	2.01	67584-42-3	

Lab Sample ID: S52921.07 (continued)
Sample Tag: FIELD BLANK-083123-78

34 PFAs, Method: ASTMD7979-19M, Run Date: 09/08/23 03:03, Analyst: KCV (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFHxSA*	Not detected	2.0	1.0	ng/L	2.01	41997-13-1	

Merit Laboratories Login Checklist

Lab Set ID: S52921
Client: RAMBOLL (Ramboll Americas)
Project: RACER Coldwater Road
Submitted: 09/01/2023 10:00 Login User: PFD

Attention: Clifford Yantz
Address: Ramboll Americas
2090 Commonwealth Blvd
Ann Arbor, MI 48105

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.	[ ] 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

155543

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Kevin Schneider / Clifford Yantz
COMPANY: Ramboll
ADDRESS: 2090 Commonwealth Blvd
CITY: Ann Arbor STATE: MI ZIP CODE: 48105
PHONE NO.: 313-333-0211 CELL NO.:
P.O. NO.: 1940006516 Task 37
E-MAIL ADDRESS: Kevin.Schneider@Ramboll.com; Clifford.Yantz@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: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=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)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (1979)	Special Instructions
529210	8/30/23	1630	03-PRCC-23-INF	ww	3	3							X	Low level Reporting with estimated values
.02	8/30/23	1640	03-PRCC-23-PRIM	ww	3	3							X	
.03	8/31/23	1206	03-PRCC-23-EFF-78	ww	3	3							X	
.04	8/31/23	1208	03-PRCC-23-MID-2-78	ww	3	3							X	
.05	8/31/23	1210	03-PRCC-23-MID-1-78	ww	3	3							X	34 PFAS List
.06	8/31/23	1212	03-PRCC-23-PRIM-78	ww	3	3							X	
.07	8/31/23	1204	Field Blank-083123-78	L	1	1							X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 8/31/23	TIME 1730
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 8/31/23	TIME 1739
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 9/1/23	TIME 1010
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 9/1/23	TIME 1055

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 3.6

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

Rev. 1.26.22

Quality Control Report

Report ID: QC-S52921-01
Generated on 09/25/2023

Report to

Attention: Clifford Yantz
Ramboll Americas
2090 Commonwealth Blvd
Ann Arbor, MI 48105

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): S52921.01-S52921.07
Project: RACER Coldwater Road
Submitted Date/Time: 09/01/2023 10:00
Sampled by: Kevin Schneider
P.O. #: 1940006516 TASK 37

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: S52921.01
Sample Tag: 03-PRCC-23-INF
Collected Date/Time: 08/30/2023 16:30
Matrix: Liquid
COC Reference: 155543

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	09/08/23 00:46	AK230907B	PF230907W2	Yes	BLK/LCS/LCSD/MS/DU

Lab Sample ID: S52921.02

Sample Tag: 03-PRCC-23-PRIM

Collected Date/Time: 08/30/2023 16:40

Matrix: Liquid

COC Reference: 155543

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	09/08/23 01:05	AK230907B	PF230907W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S52921.03
Sample Tag: 03-PRCC-EFF-78
Collected Date/Time: 08/31/2023 12:06
Matrix: Liquid
COC Reference: 155543

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	09/08/23 01:25	AK230907B	PF230907W2	Yes	BLK/LCS/LCSD/MS/DU

Lab Sample ID: S52921.04

Sample Tag: 03-PRCC-MID-2-78

Collected Date/Time: 08/31/2023 12:08

Matrix: Liquid

COC Reference: 155543

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	09/08/23 01:44	AK230907B	PF230907W2	Yes	BLK/LCS/LCSD/MS/DU

Lab Sample ID: S52921.05

Sample Tag: 03-PRCC-MID-1-78

Collected Date/Time: 08/31/2023 12:10

Matrix: Liquid

COC Reference: 155543

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	09/08/23 02:04	AK230907B	PF230907W2	Yes	BLK/LCS/LCSD/MS/DU

Lab Sample ID: S52921.06

Sample Tag: 03-PRCC-PRIM-78

Collected Date/Time: 08/31/2023 12:12

Matrix: Liquid

COC Reference: 155543

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	09/08/23 02:43	AK230907B	PF230907W2	Yes	BLK/LCS/LCSD/MS/DU

Lab Sample ID: S52921.07

Sample Tag: FIELD BLANK-083123-78

Collected Date/Time: 08/31/2023 12:04

Matrix: Liquid

COC Reference: 155543

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
34 PFAs	ASTMD7979-19M	09/08/23 03:03	AK230907B	PF230907W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF230907W2

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S52921.01	34 PFAs	ASTMD7979-19M	09/08/23 00:46	AK230907B
S52921.02	34 PFAs	ASTMD7979-19M	09/08/23 01:05	AK230907B
S52921.03	34 PFAs	ASTMD7979-19M	09/08/23 01:25	AK230907B
S52921.04	34 PFAs	ASTMD7979-19M	09/08/23 01:44	AK230907B
S52921.05	34 PFAs	ASTMD7979-19M	09/08/23 02:04	AK230907B
S52921.06	34 PFAs	ASTMD7979-19M	09/08/23 02:43	AK230907B
S52921.07	34 PFAs	ASTMD7979-19M	09/08/23 03:03	AK230907B

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S52921.01

Sample Tag: 03-PRCC-23-INF

Collected Date/Time: 08/30/2023 16:30

Matrix: Liquid

COC Reference: 155543

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230907B, Run Date: 09/08/2023 00:46, Matrix: WW, Dilution: 1.92

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	**345.1**	50.0	150.0
M2-6:2FTSA		**86.7**	50.0	150.0
M2-8:2FTSA		**78.1**	50.0	150.0
M2PFTeDA		**107.2**	12.0	218.0
M3PFBS		**107.9**	50.0	150.0
M3PFHxS		**106.0**	50.0	150.0
M4PFHpA		**101.0**	50.0	150.0
M5PFHxA		**100.0**	50.0	150.0
M5PFPeA		**103.5**	50.0	150.0
M6PFDA		**100.3**	50.0	150.0
M7PFUnDA		**98.4**	50.0	150.0
M8FOSA		**110.0**	50.0	150.0
M8PFOA		**100.6**	50.0	150.0
M8PFOS		**98.9**	50.0	150.0
M9-PFNA		**94.5**	50.0	150.0
MPFBA		**99.8**	50.0	150.0
MPFDoDA		**90.8**	50.0	150.0
d3N-MeFOSAA		**105.1**	50.0	150.0
d5EtFOSAA		**95.0**	50.0	150.0
MHFPO-DA		**102.4**	50.0	150.0
d-N-EtFOSA-M		**110.5**	50.0	150.0
d-N-MeFOSA-M		**105.4**	50.0	150.0
d7-N-MeFOSE-M		**110.8**	50.0	150.0
d9-N-EtFOSE-M		**103.8**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S52921.02

Sample Tag: 03-PRCC-23-PRIM

Collected Date/Time: 08/30/2023 16:40

Matrix: Liquid

COC Reference: 155543

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230907B, Run Date: 09/08/2023 01:05, Matrix: WW, Dilution: 1.96

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**95.0**	50.0	150.0
M2-6:2FTSA		**81.9**	50.0	150.0
M2-8:2FTSA		**81.1**	50.0	150.0
M2PFTeDA		**100.2**	12.0	218.0
M3PFBS		**108.9**	50.0	150.0
M3PFHxS		**102.1**	50.0	150.0
M4PFHpA		**95.9**	50.0	150.0
M5PFHxA		**103.0**	50.0	150.0
M5PFPeA		**101.7**	50.0	150.0
M6PFDA		**108.2**	50.0	150.0
M7PFUnDA		**92.1**	50.0	150.0
M8FOSA		**98.5**	50.0	150.0
M8PFOA		**103.1**	50.0	150.0
M8PFOS		**97.3**	50.0	150.0
M9-PFNA		**94.6**	50.0	150.0
MPFBA		**101.6**	50.0	150.0
MPFDoDA		**87.0**	50.0	150.0
d3N-MeFOSAA		**107.4**	50.0	150.0
d5EtFOSAA		**101.9**	50.0	150.0
MHFPO-DA		**98.3**	50.0	150.0
d-N-EtFOSA-M		**106.9**	50.0	150.0
d-N-MeFOSA-M		**105.3**	50.0	150.0
d7-N-MeFOSE-M		**111.2**	50.0	150.0
d9-N-EtFOSE-M		**101.3**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S52921.03

Sample Tag: 03-PRCC-EFF-78

Collected Date/Time: 08/31/2023 12:06

Matrix: Liquid

COC Reference: 155543

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230907B, Run Date: 09/08/2023 01:25, Matrix: WW, Dilution: 2.03

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**87.0**	50.0	150.0
M2-6:2FTSA		**74.5**	50.0	150.0
M2-8:2FTSA		**76.6**	50.0	150.0
M2PFTeDA		**84.0**	12.0	218.0
M3PFBS		**107.7**	50.0	150.0
M3PFHxS		**119.0**	50.0	150.0
M4PFHpA		**100.7**	50.0	150.0
M5PFHxA		**101.1**	50.0	150.0
M5PFPeA		**98.0**	50.0	150.0
M6PFDA		**100.6**	50.0	150.0
M7PFUnDA		**101.6**	50.0	150.0
M8FOSA		**104.1**	50.0	150.0
M8PFOA		**99.7**	50.0	150.0
M8PFOS		**105.2**	50.0	150.0
M9-PFNA		**98.0**	50.0	150.0
MPFBA		**102.7**	50.0	150.0
MPFDoDA		**94.3**	50.0	150.0
d3N-MeFOSAA		**106.8**	50.0	150.0
d5EtFOSAA		**103.9**	50.0	150.0
MHFPO-DA		**104.9**	50.0	150.0
d-N-EtFOSA-M		**112.9**	50.0	150.0
d-N-MeFOSA-M		**103.2**	50.0	150.0
d7-N-MeFOSE-M		**110.5**	50.0	150.0
d9-N-EtFOSE-M		**96.8**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S52921.04

Sample Tag: 03-PRCC-MID-2-78

Collected Date/Time: 08/31/2023 12:08

Matrix: Liquid

COC Reference: 155543

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230907B, Run Date: 09/08/2023 01:44, Matrix: WW, Dilution: 1.93

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**88.6**	50.0	150.0
M2-6:2FTSA		**76.6**	50.0	150.0
M2-8:2FTSA		**78.7**	50.0	150.0
M2PFTeDA		**114.7**	12.0	218.0
M3PFBS		**108.3**	50.0	150.0
M3PFHxS		**108.4**	50.0	150.0
M4PFHpA		**97.3**	50.0	150.0
M5PFHxA		**103.9**	50.0	150.0
M5PFPeA		**102.4**	50.0	150.0
M6PFDA		**92.3**	50.0	150.0
M7PFUnDA		**100.5**	50.0	150.0
M8FOSA		**102.3**	50.0	150.0
M8PFOA		**97.0**	50.0	150.0
M8PFOS		**99.1**	50.0	150.0
M9-PFNA		**90.1**	50.0	150.0
MPFBA		**98.1**	50.0	150.0
MPFDoDA		**99.8**	50.0	150.0
d3N-MeFOSAA		**96.1**	50.0	150.0
d5EtFOSAA		**101.6**	50.0	150.0
MHFPO-DA		**105.0**	50.0	150.0
d-N-EtFOSA-M		**110.8**	50.0	150.0
d-N-MeFOSA-M		**105.7**	50.0	150.0
d7-N-MeFOSE-M		**110.3**	50.0	150.0
d9-N-EtFOSE-M		**94.6**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S52921.05

Sample Tag: 03-PRCC-MID-1-78

Collected Date/Time: 08/31/2023 12:10

Matrix: Liquid

COC Reference: 155543

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230907B, Run Date: 09/08/2023 02:04, Matrix: WW, Dilution: 2.05

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**94.7**	50.0	150.0
M2-6:2FTSA		**80.0**	50.0	150.0
M2-8:2FTSA		**85.9**	50.0	150.0
M2PFTeDA		**99.6**	12.0	218.0
M3PFBS		**104.3**	50.0	150.0
M3PFHxS		**101.6**	50.0	150.0
M4PFHpA		**101.6**	50.0	150.0
M5PFHxA		**103.4**	50.0	150.0
M5PFPeA		**102.8**	50.0	150.0
M6PFDA		**110.4**	50.0	150.0
M7PFUnDA		**97.9**	50.0	150.0
M8FOSA		**105.5**	50.0	150.0
M8PFOA		**109.8**	50.0	150.0
M8PFOS		**101.4**	50.0	150.0
M9-PFNA		**90.7**	50.0	150.0
MPFBA		**102.0**	50.0	150.0
MPFDoDA		**96.0**	50.0	150.0
d3N-MeFOSAA		**113.3**	50.0	150.0
d5EtFOSAA		**104.5**	50.0	150.0
MHFPO-DA		**106.0**	50.0	150.0
d-N-EtFOSA-M		**113.8**	50.0	150.0
d-N-MeFOSA-M		**106.0**	50.0	150.0
d7-N-MeFOSE-M		**107.7**	50.0	150.0
d9-N-EtFOSE-M		**99.1**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S52921.06

Sample Tag: 03-PRCC-PRIM-78

Collected Date/Time: 08/31/2023 12:12

Matrix: Liquid

COC Reference: 155543

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230907B, Run Date: 09/08/2023 02:43, Matrix: WW, Dilution: 1.98

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**92.8**	50.0	150.0
M2-6:2FTSA		**75.1**	50.0	150.0
M2-8:2FTSA		**85.8**	50.0	150.0
M2PFTeDA		**95.3**	12.0	218.0
M3PFBS		**99.6**	50.0	150.0
M3PFHxS		**108.8**	50.0	150.0
M4PFHpA		**97.4**	50.0	150.0
M5PFHxA		**100.8**	50.0	150.0
M5PFPeA		**105.5**	50.0	150.0
M6PFDA		**113.7**	50.0	150.0
M7PFUnDA		**102.3**	50.0	150.0
M8FOSA		**104.0**	50.0	150.0
M8PFOA		**101.8**	50.0	150.0
M8PFOS		**102.6**	50.0	150.0
M9-PFNA		**91.4**	50.0	150.0
MPFBA		**101.8**	50.0	150.0
MPFDoDA		**96.3**	50.0	150.0
d3N-MeFOSAA		**99.9**	50.0	150.0
d5EtFOSAA		**102.6**	50.0	150.0
MHFPO-DA		**102.2**	50.0	150.0
d-N-EtFOSA-M		**112.4**	50.0	150.0
d-N-MeFOSA-M		**108.5**	50.0	150.0
d7-N-MeFOSE-M		**116.7**	50.0	150.0
d9-N-EtFOSE-M		**105.4**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S52921.07

Sample Tag: FIELD BLANK-083123-78

Collected Date/Time: 08/31/2023 12:04

Matrix: Liquid

COC Reference: 155543

Organics - Volatiles, Analysis: 34 PFAs

Run in Batch: AK230907B, Run Date: 09/08/2023 03:03, Matrix: WW, Dilution: 2.01

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**102.8**	50.0	150.0
M2-6:2FTSA		**87.0**	50.0	150.0
M2-8:2FTSA		**96.9**	50.0	150.0
M2PFTeDA		**89.1**	12.0	218.0
M3PFBS		**112.8**	50.0	150.0
M3PFHxS		**101.0**	50.0	150.0
M4PFHpA		**107.1**	50.0	150.0
M5PFHxA		**98.9**	50.0	150.0
M5PFPeA		**110.6**	50.0	150.0
M6PFDA		**112.7**	50.0	150.0
M7PFUnDA		**102.4**	50.0	150.0
M8FOSA		**108.6**	50.0	150.0
M8PFOA		**107.1**	50.0	150.0
M8PFOS		**104.7**	50.0	150.0
M9-PFNA		**108.2**	50.0	150.0
MPFBA		**106.7**	50.0	150.0
MPFDoDA		**94.8**	50.0	150.0
d3N-MeFOSAA		**99.1**	50.0	150.0
d5EtFOSAA		**102.4**	50.0	150.0
MHFPO-DA		**104.2**	50.0	150.0
d-N-EtFOSA-M		**121.8**	50.0	150.0
d-N-MeFOSA-M		**109.6**	50.0	150.0
d7-N-MeFOSE-M		**110.6**	50.0	150.0
d9-N-EtFOSE-M		**103.8**	50.0	150.0

QC Report - Internal Standards per QC Sample

Organics - Volatiles, Prep Batch ID: PF230907W2

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

Blank (BLK)

Lab Sample ID: AK230907B.BLK230907A

Run in Batch: AK230907B, Run Date: 09/07/2023 23:47, Prep Date: 09/07/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**106.4**	50.0	150.0
M2-6:2FTSA		**89.2**	50.0	150.0
M2-8:2FTSA		**98.2**	50.0	150.0
M2PFTeDA		**98.1**	12.0	218.0
M3PFBS		**105.3**	50.0	150.0
M3PFHxS		**103.3**	50.0	150.0
M4PFHpA		**98.2**	50.0	150.0
M5PFHxA		**99.9**	50.0	150.0
M5PFPeA		**98.8**	50.0	150.0
M6PFDA		**104.3**	50.0	150.0
M7PFUnDA		**93.4**	50.0	150.0
M8FOSA		**101.6**	50.0	150.0
M8PFOA		**102.5**	50.0	150.0
M8PFOS		**101.6**	50.0	150.0
M9-PFNA		**97.4**	50.0	150.0
MPFBA		**102.3**	50.0	150.0
MPFDoDA		**92.7**	50.0	150.0
d3N-MeFOSAA		**99.9**	50.0	150.0
d5EtFOSAA		**99.0**	50.0	150.0
MHFPO-DA		**107.6**	50.0	150.0
d-N-EtFOSA-M		**111.3**	50.0	150.0
d-N-MeFOSA-M		**99.8**	50.0	150.0
d7-N-MeFOSE-M		**107.7**	50.0	150.0
d9-N-EtFOSE-M		**98.1**	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK230907B.LCS230907A

Run in Batch: AK230907B, Run Date: 09/07/2023 23:08, Prep Date: 09/07/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**97.0**	50.0	150.0
M2-6:2FTSA		**85.4**	50.0	150.0
M2-8:2FTSA		**99.2**	50.0	150.0
M2PFTeDA		**83.9**	12.0	218.0
M3PFBS		**101.5**	50.0	150.0
M3PFHxS		**100.8**	50.0	150.0
M4PFHpA		**94.0**	50.0	150.0
M5PFHxA		**90.4**	50.0	150.0
M5PFPeA		**100.0**	50.0	150.0
M6PFDA		**102.1**	50.0	150.0
M7PFUnDA		**94.6**	50.0	150.0
M8FOSA		**100.5**	50.0	150.0
M8PFOA		**101.0**	50.0	150.0
M8PFOS		**94.1**	50.0	150.0
M9-PFNA		**102.4**	50.0	150.0
MPFBA		**101.2**	50.0	150.0
MPFDoDA		**90.1**	50.0	150.0
d3N-MeFOSAA		**113.3**	50.0	150.0
d5EtFOSAA		**108.4**	50.0	150.0
MHFPO-DA		**106.8**	50.0	150.0
d-N-EtFOSA-M		**108.2**	50.0	150.0
d-N-MeFOSA-M		**101.1**	50.0	150.0
d7-N-MeFOSE-M		**100.5**	50.0	150.0
d9-N-EtFOSE-M		**102.9**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK230907B.LCSD230907A, Parent Sample ID: AK230907B.LCS230907A

Run in Batch: AK230907B, Run Date: 09/07/2023 23:28, Prep Date: 09/07/2023, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**103.8**	50.0	150.0
M2-6:2FTSA		**96.0**	50.0	150.0
M2-8:2FTSA		**84.5**	50.0	150.0
M2PFTeDA		**84.9**	12.0	218.0
M3PFBS		**106.6**	50.0	150.0
M3PFHxS		**118.0**	50.0	150.0
M4PFHpA		**102.0**	50.0	150.0
M5PFHxA		**104.7**	50.0	150.0
M5PFPeA		**102.2**	50.0	150.0
M6PFDA		**106.8**	50.0	150.0
M7PFUnDA		**96.1**	50.0	150.0
M8FOSA		**106.0**	50.0	150.0
M8PFOA		**102.3**	50.0	150.0
M8PFOS		**101.5**	50.0	150.0
M9-PFNA		**96.6**	50.0	150.0
MPFBA		**101.9**	50.0	150.0
MPFDoDA		**85.9**	50.0	150.0
d3N-MeFOSAA		**101.0**	50.0	150.0
d5EtFOSAA		**100.7**	50.0	150.0
MHFPO-DA		**107.9**	50.0	150.0
d-N-EtFOSA-M		**94.3**	50.0	150.0
d-N-MeFOSA-M		**91.1**	50.0	150.0
d7-N-MeFOSE-M		**107.9**	50.0	150.0
d9-N-EtFOSE-M		**101.4**	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK230907B.5306313M, Parent Sample ID: S53063.13

Run in Batch: AK230907B, Run Date: 09/08/2023 00:26, Prep Date: 09/07/2023, Matrix: WW, Dilution: 1.97

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	**172.9**	50.0	150.0
M2-6:2FTSA		**133.9**	50.0	150.0
M2-8:2FTSA		**129.8**	50.0	150.0
M2PFTeDA		**114.0**	12.0	218.0
M3PFBS		**105.7**	50.0	150.0
M3PFHxS		**106.0**	50.0	150.0
M4PFHpA		**108.7**	50.0	150.0
M5PFHxA		**105.8**	50.0	150.0
M5PFPeA		**109.6**	50.0	150.0
M6PFDA		**118.1**	50.0	150.0
M7PFUnDA		**115.2**	50.0	150.0
M8FOSA		**105.5**	50.0	150.0
M8PFOA		**111.2**	50.0	150.0
M8PFOS		**99.9**	50.0	150.0
M9-PFNA		**113.7**	50.0	150.0
MPFBA		**109.3**	50.0	150.0
MPFDoDA		**104.7**	50.0	150.0
d3N-MeFOSAA		**122.1**	50.0	150.0
d5EtFOSAA		**130.9**	50.0	150.0
MHFPO-DA		**99.5**	50.0	150.0
d-N-EtFOSA-M		**117.2**	50.0	150.0
d-N-MeFOSA-M		**107.3**	50.0	150.0
d7-N-MeFOSE-M		**107.3**	50.0	150.0
d9-N-EtFOSE-M		**109.2**	50.0	150.0

Duplicate (DUP)

Lab Sample ID: AK230907B.5292105D, Parent Sample ID: S52921.05

Run in Batch: AK230907B, Run Date: 09/08/2023 02:24, Prep Date: 09/07/2023, Matrix: WW, Dilution: 2.05

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**90.3**	50.0	150.0
M2-6:2FTSA		**85.2**	50.0	150.0
M2-8:2FTSA		**90.0**	50.0	150.0
M2PFTeDA		**107.8**	12.0	218.0
M3PFBS		**99.8**	50.0	150.0
M3PFHxS		**100.4**	50.0	150.0
M4PFHpA		**101.7**	50.0	150.0
M5PFHxA		**103.3**	50.0	150.0
M5PFPeA		**104.1**	50.0	150.0
M6PFDA		**103.6**	50.0	150.0
M7PFUnDA		**100.2**	50.0	150.0
M8FOSA		**102.3**	50.0	150.0
M8PFOA		**98.7**	50.0	150.0
M8PFOS		**98.8**	50.0	150.0
M9-PFNA		**100.2**	50.0	150.0
MPFBA		**100.1**	50.0	150.0
MPFDoDA		**97.5**	50.0	150.0
d3N-MeFOSAA		**96.0**	50.0	150.0
d5EtFOSAA		**104.9**	50.0	150.0
MHFPO-DA		**106.1**	50.0	150.0
d-N-EtFOSA-M		**113.5**	50.0	150.0
d-N-MeFOSA-M		**104.4**	50.0	150.0
d7-N-MeFOSE-M		**104.9**	50.0	150.0
d9-N-EtFOSE-M		**99.1**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF230907W2

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

Blank (BLK)

Lab Sample ID: AK230907B.BLK230907A

Run in Batch: AK230907B, Run Date: 09/07/2023 23:47, Prep Date: 09/07/2023, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFMPA		ND	1	ng/l
PFPrS		ND	1	ng/l
PFMBA		ND	1	ng/l
NFDHA		ND	1	ng/l
PFEESA		ND	1	ng/l
PFBA		ND	5	ng/l
PFPeA		ND	2	ng/l
4:2 FTSA		ND	1	ng/l
PFHxA		ND	1	ng/l
PFBS		ND	1	ng/l
PFHpA		ND	1	ng/l
PFPeS		ND	1	ng/l
6:2 FTSA		ND	1	ng/l
PFOA		ND	1	ng/l
PFHxS		ND	1	ng/l
PFHxS-LN		ND	1	ng/l
PFHxS-BR		ND	1	ng/l
PFNA		ND	1	ng/l
8:2 FTSA		ND	1	ng/l
PFHpS		ND	1	ng/l
PFDA		ND	1	ng/l
N-MeFOSAA		ND	1	ng/l
EtFOSAA		ND	2	ng/l
PFOS		ND	1	ng/l
PFOS-LN		ND	1	ng/l
PFOS-BR		ND	1	ng/l
PFUnDA		ND	1	ng/l
PFNS		ND	1	ng/l
PFDoDA		ND	1	ng/l
PFDS		ND	1	ng/l
PFTrDA		ND	1	ng/l
FOSA		ND	1	ng/l
PFTeDA		ND	2	ng/l
11CL-PF3OUdS		ND	1	ng/l
9CL-PF3ONS		ND	1	ng/l
ADONA		ND	1	ng/l
HFPO-DA		ND	1	ng/l
FHpPA (7:3 FTCA)		ND	2	ng/l
FPePA (5:3 FTCA)		ND	2	ng/l
FPrPA (3:3 FTCA)		ND	2	ng/l
PFBSA		ND	1	ng/l
PFECHS		ND	1	ng/l
PFHxSA		ND	1	ng/l

Organics - Volatiles, Prep Batch ID: PF230907W2 (continued)

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

Laboratory Control Sample (LCS)

Lab Sample ID: AK230907B.LCS230907A

Run in Batch: AK230907B, Run Date: 09/07/2023 23:08, Prep Date: 09/07/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		90.8	70.0	130.0
PFMPA		112.0	70.0	130.0
FPrPA (3:3 FTCA)		94.6	70.0	130.0
PFPrS		98.4	70.0	130.0
PFPeA		93.0	70.0	130.0
PFMBA		97.0	70.0	130.0
4:2 FTSA		105.4	70.0	130.0
NFDHA		91.8	70.0	130.0
PFHxA		108.2	70.0	130.0
PFBS		98.2	70.0	130.0
HFPO-DA		83.2	70.0	130.0
FPePA (5:3 FTCA)		110.2	70.0	130.0
PFEESA		111.2	70.0	130.0
PFHpA		98.6	70.0	130.0
ADONA		94.8	70.0	130.0
PFPeS		91.2	70.0	130.0
6:2 FTSA		102.6	70.0	130.0
PFBSA		94.8	70.0	130.0
PFOA		96.2	70.0	130.0
PFHxS		107.6	70.0	130.0
FHpPA (7:3 FTCA)		96.0	70.0	130.0
PFNA		99.6	70.0	130.0
8:2 FTSA		98.4	70.0	130.0
PFECHS		118.4	70.0	130.0
PFHpS		87.0	70.0	130.0
N-MeFOSAA		84.4	70.0	130.0
PFDA		103.8	70.0	130.0
EtFOSAA		77.2	70.0	130.0
PFOS		97.4	70.0	130.0
PFHxSA		94.4	70.0	130.0
PFUnDA		92.6	70.0	130.0
9CL-PF3ONS		108.4	70.0	130.0
PFNS		106.6	70.0	130.0
PFDoDA		95.0	70.0	130.0
PFDS		110.0	70.0	130.0
PFTrDA		124.6	70.0	130.0
FOSA		92.2	70.0	130.0
11CL-PF3OUdS		103.2	70.0	130.0
PFTeDA		109.6	70.0	130.0
PFDOS		111.4	70.0	130.0
NMeFOSE		96.0	70.0	130.0
NMeFOSAM		87.0	70.0	130.0
NEtFOSE		84.2	70.0	130.0
NEtFOSAM		87.8	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF230907W2 (continued)

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

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK230907B.LCSD230907A, Parent Sample ID: AK230907B.LCS230907A

Run in Batch: AK230907B, Run Date: 09/07/2023 23:28, Prep Date: 09/07/2023, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		93.2	70.0	130.0	2.6	30.0
PFMPA		104.8	70.0	130.0	6.6	30.0
FPrPA (3:3 FTCA)		102.6	70.0	130.0	8.1	30.0
PFPrS		93.8	70.0	130.0	4.8	30.0
PFPeA		90.0	70.0	130.0	3.3	30.0
PFMBA		104.0	70.0	130.0	7.0	30.0
4:2 FTSA		95.4	70.0	130.0	10.0	30.0
NFDHA		91.8	70.0	130.0	0.0	30.0
PFHxA		102.2	70.0	130.0	5.7	30.0
PFBS		100.2	70.0	130.0	2.0	30.0
HFPO-DA		95.8	70.0	130.0	14.1	30.0
FPePA (5:3 FTCA)		91.6	70.0	130.0	18.4	30.0
PFEESA		107.4	70.0	130.0	3.5	30.0
PFHpA		93.0	70.0	130.0	5.8	30.0
ADONA		96.0	70.0	130.0	1.3	30.0
PFPeS		88.0	70.0	130.0	3.6	30.0
6:2 FTSA		101.0	70.0	130.0	1.6	30.0
PFBSA		88.2	70.0	130.0	7.2	30.0
PFOA		101.0	70.0	130.0	4.9	30.0
PFHxS		88.6	70.0	130.0	19.4	30.0
FHpPA (7:3 FTCA)		89.2	70.0	130.0	7.3	30.0
PFNA		99.4	70.0	130.0	0.2	30.0
8:2 FTSA		110.8	70.0	130.0	11.9	30.0
PFECHS		119.2	70.0	130.0	0.7	30.0
PFHpS		75.0	70.0	130.0	14.8	30.0
N-MeFOSAA		92.2	70.0	130.0	8.8	30.0
PFDA		88.4	70.0	130.0	16.0	30.0
EtFOSAA		79.8	70.0	130.0	3.3	30.0
PFOS		98.4	70.0	130.0	1.0	30.0
PFHxSA		85.8	70.0	130.0	9.5	30.0
PFUnDA		103.2	70.0	130.0	10.8	30.0
9CL-PF3ONS		104.0	70.0	130.0	4.1	30.0
PFNS		98.4	70.0	130.0	8.0	30.0
PFDoDA		94.4	70.0	130.0	0.6	30.0
PFDS		105.8	70.0	130.0	3.9	30.0
PFTrDA	*	138.8	70.0	130.0	10.8	30.0
FOSA		84.8	70.0	130.0	8.4	30.0
11CL-PF3OUdS		97.0	70.0	130.0	6.2	30.0
PFTeDA		99.6	70.0	130.0	9.6	30.0
PFDOS		109.2	70.0	130.0	2.0	30.0
NMeFOSE		90.6	70.0	130.0	5.8	30.0
NMeFOSAM		88.4	70.0	130.0	1.6	30.0
NEtFOSE		87.2	70.0	130.0	3.5	30.0
NEtFOSAM		94.0	70.0	130.0	6.8	30.0

Organics - Volatiles, Prep Batch ID: PF230907W2 (continued)

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

Matrix Spike (MS)

Lab Sample ID: AK230907B.5306313M, Parent Sample ID: S53063.13

Run in Batch: AK230907B, Run Date: 09/08/2023 00:26, Prep Date: 09/07/2023, Matrix: WW, Dilution: 1.97

Analyte	Flags	% Rec	LCL	UCL
PFBA		98.5	70.0	130.0
PFPeA		82.2	70.0	130.0
4:2 FTSA		101.5	70.0	130.0
PFHxA		99.5	70.0	130.0
PFBS		96.9	70.0	130.0
PFHpA		89.3	70.0	130.0
PFPeS		89.3	70.0	130.0
6:2 FTSA		83.2	70.0	130.0
PFOA		84.3	70.0	130.0
PFHxS		99.5	70.0	130.0
PFNA		87.6	70.0	130.0
8:2 FTSA		100.5	70.0	130.0
PFHpS		87.3	70.0	130.0
PFDA		90.4	70.0	130.0
N-MeFOSAA		82.2	70.0	130.0
EtFOSAA		80.2	70.0	130.0
PFOS		96.4	70.0	130.0
PFUnDA		86.3	70.0	130.0
PFNS		111.7	70.0	130.0
PFDoDA		97.2	70.0	130.0
PFDS		111.7	70.0	130.0
PFTrDA	*	132.0	70.0	130.0
FOSA		90.4	70.0	130.0
PFTeDA		97.5	70.0	130.0
11CL-PF3OUdS		111.7	70.0	130.0
9CL-PF3ONS		111.7	70.0	130.0
ADONA		95.4	70.0	130.0
HFPO-DA		99.5	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK230907B.5292105D, Parent Sample ID: S52921.05

Run in Batch: AK230907B, Run Date: 09/08/2023 02:24, Prep Date: 09/07/2023, Matrix: WW, Dilution: 2.05

Analyte	Flags	RPD	RPD CL
PFBA		NC	30.0
PFPeA		NC	30.0
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

Organics - Volatiles, Prep Batch ID: PF230907W2 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: AK230907B.5292105D, Parent Sample ID: S52921.05

Run in Batch: AK230907B, Run Date: 09/08/2023 02:24, Prep Date: 09/07/2023, Matrix: WW, Dilution: 2.05

Analyte	Flags	RPD	RPD CL
8:2 FTSA		NC	30.0
PFHpS		NC	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0
EtFOSAA		NC	30.0
PFOS		14.3	30.0
PFOS-LN		14.9	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
FHpPA (7:3 FTCA)		NC	30.0
FPePA (5:3 FTCA)		NC	30.0
FPrPA (3:3 FTCA)		NC	30.0
PFBSA		NC	30.0
PFECHS		NC	30.0
PFHxSA		NC	30.0

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

155543

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Kevin Schneider / Clifford Yantz
COMPANY: Ramboll
ADDRESS: 2090 Commonwealth Blvd
CITY: Ann Arbor STATE: MI ZIP CODE: 48105
PHONE NO.: 313-333-0211 CELL NO.:
P.O. NO.: 1940006516 Task 37
E-MAIL ADDRESS: Kevin.Schneider@Ramboll.com; Clifford.Yantz@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: W=WATER GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR WS=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)	COLLECTION DATE	COLLECTION TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (1979)	Special Instructions
529210	8/30/23	1630	03-PRCC-23-INF	ww	3	3							X	Low level Reporting with estimated values
.02	8/30/23	1640	03-PRCC-23-PRIM	ww	3	3							X	
.03	8/31/23	1206	03-PRCC-23-EFF-78	ww	3	3							X	
.04	8/31/23	1208	03-PRCC-23-MID-2-78	ww	3	3							X	
.05	8/31/23	1210	03-PRCC-23-MID-1-78	ww	3	3							X	34 PFAS List
.06	8/31/23	1212	03-PRCC-23-PRIM-78	ww	3	3							X	
.07	8/31/23	1204	Field Blank-083123-78	L	1	1							X	

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 8/31/23	TIME 1730
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 8/31/23	TIME 1739
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 9/1/23	TIME 1010
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 9/1/23	TIME 1055

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 3.6

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

Rev. 1.26.22