RAMBOLL

ENVIRONMENT
& HEALTH

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

RE: ***Discharge Permit Submittal– January 2022 through March 2022***
Permit No.: 6-08-04-04-GML1
FILE: 1088190/1940102192/Docs

Dear **Mr. Hutchings:**

April 25, 2022

In accordance with requirements of the above referenced discharge permit, we are providing you with the following discharge information for the period January 1, 2022 to March 31, 2022 for the Coldwater Road Landfill facility, located at 6220 Horton Avenue, Flint, Michigan. In addition, we are reporting the performance of the per- and polyfluoroalkyl substances (PFAS) pretreatment system in this letter and will continue to do so as long as the pretreatment system is in operation.

Ramboll
2090 Commonwealth Blvd.
Ann Arbor, MI 48105
USA

T 734-761-4000
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- 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 February 16, 2022.
- Analytical Reports provided by Merit Laboratories, Inc. for samples from the on-Site, PFAS pretreatment system collected on March 10, 2022 and March 15, 2022 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 non-detect or below the Sewer Use Permit limits and therefore were reduced below the current EGLE Part 4, Water Quality Standards, Rule 57 Water Quality Values. Therefore, the PFAS pretreatment system is operating as designed.

Breakthrough samples were collected from GAC vessels on March 10, 2022 and March 15, 2022 during the accumulation tank discharge. The influent sample collected on March 10, 2022 had a detection of 3,300 ng/L for PFOS.

The highest PFOS detection from the primary GAC drum samples was detected at 200 ng/L in the sample collected on March 15, 2022. PFOS was detected at a concentration of 3.7 ng/L in the secondary GAC drum, at a concentration of 3.4 ng/L in the tertiary GAC drum, and at a concentration of 2.4 ng/L in the effluent GAC drum on March 15, 2022.

The primary GAC drum will be removed from the system before the next discharge event. A new GAC drum will be placed in the quaternary (fourth) GAC drum position and the existing quaternary, tertiary (third) and secondary GAC drums will be moved up in position for the approved four-drum pretreatment system.

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

Yours sincerely,
RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.

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

M 313.333.0211
Clifford.yantz@ramboll.com

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

City of Flint
Industrial Pretreatment Program

Periodic Report on Continued Compliance

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

Reporting Period: January 1, 2022 through March 31, 2022

Average Volume of Daily Discharge (during reporting period): 3,617 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: Managing Hydrogeologist, Ramboll Americas Engineering Solutions, Inc., As agent for the RACER Trust

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

Date Signed by Authorized Representative: 4/25/22

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
Frist Quarter - 2022 - 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	3.54	13.3	2	7.35	0.01	12
Test Method	4500-NH3 D	10360	1664A	4500-H+ B	4500-PE	2540 D
Test Date	2/18/2022	2/22/2022	2/22/2022	2/16/2022	2/17/2022	2/18/2022
Sample Date	2/16/2022	2/16/2022	2/16/2022	2/16/2022	2/16/2022	2/16/2022
Sample Type	wastewater	wastewater	wastewater	wastewater	wastewater	wastewater
Test Result						
Test Method						
Test Date						
Sample Date						
Sample Type						
Test Result						
Test Method						
Test Date						
Sample Date						
Sample Type						
Average Daily Conc.						
No. of Samples						
Number of Limit Exceedances						

Table 1
Periodic Report on Continued Compliance
City of Flint Sewer User Self-Monitoring Report
Frist Quarter - 2022 - GSWVR Sample

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

Analytical Parameter	Arsenic	Chromium	Copper	Mercury	Nickel	Zinc	Cyanide, available
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Sampling Frequency	Per Batch	Per Batch	Per Batch	Per Batch	Per Batch	Per Batch	Per Batch
Sampling Procedure	Grab sample	Grab sample	Grab sample	Grab sample	Grab sample	Grab sample	Grab sample
Daily Maximum Limit	0.051	1.273	1.797	0.000012	0.543	2.626	0.165
Maximum Limit	NA	NA	NA	NA	NA	NA	NA
Minimum Limit	NA	NA	NA	NA	NA	NA	NA
Test Result	0.006	0.073	0.363	<0.0002	0.121	0.027	<0.002
Test Method	200.8	200.8	200.8	245.1	200.8	200.8	1677
Test Date	2/18/2022	2/18/2022	2/18/2022	2/24/2022	2/18/2022	2/18/2022	2/18/2022
Sample Date	2/16/2022	2/16/2022	2/16/2022	2/16/2022	2/16/2022	2/16/2022	2/16/2022
Sample Type	wastewater	wastewater	wastewater	wastewater	wastewater	wastewater	wastewater
Test Result							
Test Method							
Test Date							
Sample Date							
Sample Type							
Test Result							
Test Method							
Test Date							
Sample Date							
Sample Type							
Average Daily Conc.							
No. of Samples							
Number of Limit Exceedances							

TABLE 2
RACER Trust - Coldwater Road
Daily Discharge Summary Table
First Quarter 2022
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)	Temperature at Discharge (F)	pH
3/10/2022 - 3/11/2022	769,940	773,512	**3,572**	4:22 PM (3/10/22)	10:15 AM (3/11/22)	3.32	7.4	45.3	9.50
3/14/2022 - 3/15/2022	773,512	777,173	**3,661**	4:30 PM (3/14/22)	10:04 AM (3/15/22)	3.47	8.7	47.7	7.44

Total Discharge Volume: **7,233**
Average Discharge Volume (2 Days): **3,617**

NOTES :

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TABLE 3
RACER Trust - Coldwater Road
Pre-and Polyfluroalkyl Substances (PFAS) Sampling Results - March 2022

Coldwater Road - PFAS Pretreatment System Samples

Perfluorinated Compound	Well/Sample ID: / Sample Date:	EGLE Part 201 Generic Cleanup Criteria and Screening Levels GSI	01-PRCC-22-INF (Influent Sample)	01-PRCC-22-PRIM (Primary GAC Drum Sample)	01-PRCC-22-PRIM-160 (Primary GAC Drum Sample after 160 Bed Volumes)	01-PRCC-22-MID-1-160 (Secondary GAC Drum Sample after 160 Bed Volumes)	01-PRCC-22-MID-2-160 (Tertiary GAC Drum Sample after 160 Bed Volumes)	01-PRCC-22-EFF-160 (Effluent Sample after 160 Bed Volumes)
			3/10/2022	*3/10/2022*	*3/15/2022*	*3/15/2022*	*3/15/2022*	*3/15/2022*
Perfluorobutanoic Acid (PFBA)		--	<50 X	<10	<13 X	<10	<10	<9.9
Perfluoropentanoic Acid (PFPeA)		--	**30**	<4.0	<4.0	<4.0	<4.0	<4.0
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)		--	<2.0 I	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorohexanoic Acid (PFHxA)		--	<20 X	<2.0	**3.6**	<2.0	<2.0	<2.0
Perfluorobutane Sulfonic Acid (PFBS)		--	**27**	<2.0	**2.2**	<2.0	<2.0	<2.0
Perfluoroheptanoic Acid (PFHpA)		--	**8.7**	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluoropentane Sulfonic Acid (PFPeS)		--	**54**	<2.0	**3.2**	<2.0	<2.0	<2.0
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)		--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorooctanoic Acid (**PFOA**)		**12,000**	**27**	<2.0	**2.0**	<2.0	<2.0	<2.0
Perfluorohexane Sulfonic Acid (PFHxS)		--	**160**	<2.0	**10**	<2.0	<2.0	<2.0
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)		--	**140**	<2.0	**7.9**	<2.0	<2.0	<2.0
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)		--	**23**	<2.0	**2.1**	<2.0	<2.0	<2.0
Perfluorononanoic Acid (PFNA)		--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)		--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluoroheptane Sulfonic Acid (PFHpS)		--	**49**	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorodecanoic Acid (PFDA)		--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)		--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)		--	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Perfluorooctane Sulfonic Acid (**PFOS**)		**12**	**3,300**	**6.7**	**200**	**3.7**	**3.4**	**2.4**
Perfluorooctane Sulfonic Acid (**PFOS**-LN)		--	**2,000**	**5.5**	**94**	**3.3**	**2.6**	<2.0
Perfluorooctane Sulfonic Acid (**PFOS**-BR)		--	**1,300**	<2.0	**100**	<2.0	<2.0	<2.0
Perfluoroundecanoic Acid (PFUnDA)		--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorononane Sulfonic Acid (PFNS)		--	**1.7 J**	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorododecanoic Acid (PFDoDA)		--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorodecane Sulfonic Acid (PFDS)		--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorotridecanoic Acid (PFTrDA)		--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorooctane Sulfonamide (FOSA)		--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Perfluorotetradecanoic Acid (PFTeDA)		--	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)		--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)		--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
4,8-dioxa-3H-perfluorononanoic acid (ADONA)		--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Hexafluoropropylene oxide dimer (HFPO-DA)		--	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Total Per-and Polyfluoroalkyl Substances		--	**3,657.4**	**6.7**	**221.0**	**3.7**	**3.4**	**2.4**

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) EGLE Part 201 Groundwater Generic Cleanup Criteria and Screening Levels, December 21, 2020.
6) Number after Prim (Primary GAC drum), Mid (Secondary GAC drum), and Eff (Effluent sample after tertiary GAC drum) samples equals number of GAC Bed volumes discharged through the pretreatment system at the time of sample collection. One bed volume equals 45 gallons.
7) I - Matrix interference with internal standard.
8) J - Estimated value less than reporting limit, but greater than MDL.
9) X - Elevated reporting limit due to matrix interference.

Analytical Laboratory Report

Report ID: S32945.01(01)
Generated on 02/25/2022

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): S32945.01
Project: RACER Coldwater Rd.
Collected Date(s): 02/16/2022
Submitted Date/Time: 02/16/2022 13:15
Sampled by: Kevin Schneider
P.O. #: 1940002628

Table of Contents

Maya Murshak
Technical Director

General Report Notes

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
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 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 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884
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
HACH 10360	HACH 10360
OIA-1677	EPA Method OIA-1677-09
SM2540D	Standard Method 2540 D 2011
SM2550B	Standard Method 2550 B 2011
SM4500-H+ B	Standard Method 4500 H + B 2011
SM4500-NH3 D	Standard Method 4500 NH3 D 2011
SM4500-PE	Standard Method 4500 P E 2011
SW3015A	SW 846 Method 3015A Revision 1 February 2007

Sample Summary (1 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S32945.01	01-PRCC-22	Wastewater	02/16/22 11:20

Analytical Laboratory Report

Lab Sample ID: S32945.01
Sample Tag: 01-PRCC-22
Collected Date/Time: 02/16/2022 11:20
Matrix: Wastewater
COC Reference: 141419

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	1L Plastic	None	Yes	5.2	IR
1	125ml Plastic	HNO3	Yes	5.2	IR
1	250ml Plastic	None	Yes	5.2	IR
1	125ml Amber	NaOH	Yes	5.2	IR
1	32oz Glass	HCL	Yes	5.2	IR
1	250ml Plastic	H2SO4	Yes	5.2	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	02/24/22 11:15	JRH	
TBOD5 - Set*	Completed	HACH 10360	02/17/22 13:45	PJH	
Metal Digestion	Completed	SW3015A	02/18/22 10:30	CCM	

Inorganics

Method: E1664A, Run Date: 02/22/22 09:00, Analyst: JW

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Oil & Grease n-Hexane Extract.	2	2		mg/L	1		

Method: HACH 10360, Run Date: 02/22/22 12:20, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TBOD5*	13.3	3		mg/L	1.5		

Method: SM2540D, Run Date: 02/18/22 18:00, Analyst: SSM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	12	3		mg/L	1		

Method: SM2550B, Run Date: 02/16/22 11:20, Analyst: KS

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

Method: SM4500-H+ B, Run Date: 02/16/22 11:20, Analyst: KS

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Field pH*	7.35	0.01		STD Units	1		

Method: SM4500-NH3 D, Run Date: 02/18/22 20:43, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ammonia-N (Undistilled)	3.54	0.04	0.006	mg/L	2	7664-41-7	

Method: SM4500-PE, Run Date: 02/17/22 16:34, Analyst: MJC

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

Metals

Method: E200.8, Run Date: 02/18/22 12:23, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.006	0.002		mg/L	5	7440-38-2	

Lab Sample ID: S32945.01 (continued)
Sample Tag: 01-PRCC-22

Method: E200.8, Run Date: 02/18/22 12:23, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	0.073	0.005		mg/L	5	7440-47-3	
Copper	0.363	0.005		mg/L	5	7440-50-8	
Nickel	0.121	0.005		mg/L	5	7440-02-0	
Zinc	0.027	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 02/24/22 15:59, Analyst: JRH

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

Other / Misc.

Method: OIA-1677, Run Date: 02/18/22 11:56, Analyst: JDP

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

Merit Laboratories Login Checklist

Lab Set ID: S32945
Client: OBG02 (Ramboll Americas)
Project: RACER Coldwater Rd.
Submitted: 02/16/2022 13:15 Login User: JRM

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 2.9
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: S32945 Submitted: 02/16/2022 13:15

Client: OBG02 (Ramboll Americas)

Project: RACER Coldwater Rd.

Initial Preservation Check: 02/16/2022 13:45 JRM

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
S32945.01	125ml Amber NaOH	>12			
S32945.01	125ml Plastic HNO3	<2			
S32945.01	250ml Plastic H2SO4	<2			
S32945.01	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

141419

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: 48105
PHONE NO.: 313-333-0211 FAX NO.:
P.O. NO.: 1940002628 (task1)
E-MAIL ADDRESS: Clifford.Yantz@Ramboll.com KSchneider@Ramboll.com QUOTE NO.:

INVOICE TO

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

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

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

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

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Total metals	Available Cyanide	BOD / TSS	Ammonia - Nitrogen	Total phosphorus	FOG (Hex - Ext)	Special Instructions
32945.01	2/16/22	1120	01 - PRCC - 22	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 8.6°C
																			Field pH 7.35

KBS

RELINQUISHED BY: SIGNATURE/ORGANIZATION	X Sampler	DATE	TIME
K Schneider		2/16/22	1145
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
[illegible]		2/16/22	1145
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
[illegible]		2/16/22	1315
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
Johanna Murray		2/16/22	1315

RELINQUISHED BY: SIGNATURE/ORGANIZATION			DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION			DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES:	TEMP. ON ARRIVAL 2.9
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS		

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

Rev. 5.18.12

Quality Control Report

Report ID: QC-S32945-01
Generated on 02/25/2022

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): S32945.01
Project: RACER Coldwater Rd.
Submitted Date/Time: 02/16/2022 13:15
Sampled by: Kevin Schneider
P.O. #: 1940002628

QC Report Sections

Report Flag Descriptions

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

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

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S32945.01
Sample Tag: 01-PRCC-22
Collected Date/Time: 02/16/2022 11:20
Matrix: Wastewater
COC Reference: 141419

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Ammonia-N (Undistilled)	SM4500-NH3 D	02/18/22 20:43	AMN220218QC	AMN220218QC	No	BLK/LCS/MS/DUP
Oil & Grease n-Hexane Extract.	E1664A	02/22/22 09:00	OGHEX220222W1	OGHEX220222W1	No	BLK/LCS
TBOD5	HACH 10360	02/22/22 12:20	BOD220217	BOD220217	No	BLK/LCS/DUP
Total Phosphorus	SM4500-PE	02/17/22 16:34	PHS220217QC	PHS220217QC	No	BLK/LCS/MS/DUP
Total Suspended Solids	SM2540D	02/18/22 18:00	TSS220218	TSS220218	No	BLK/LCS/DUP
Metals						
Arsenic	E200.8	02/18/22 12:23	MT4-22-0218A	MTD-021822-1	No	BLK/LCS/MS/MSD/DU
Chromium	E200.8	02/18/22 12:23	MT4-22-0218A	MTD-021822-1	No	BLK/LCS/MS/MSD/DU
Copper	E200.8	02/18/22 12:23	MT4-22-0218A	MTD-021822-1	No	BLK/LCS/MS/MSD/DU
Mercury	E245.1	02/24/22 15:59	HG-22-0224A	HGD-022422-3	No	BLK/LCS/MS/DUP
Nickel	E200.8	02/18/22 12:23	MT4-22-0218A	MTD-021822-1	No	BLK/LCS/MS/MSD/DU
Zinc	E200.8	02/18/22 12:23	MT4-22-0218A	MTD-021822-1	No	BLK/LCS/MS/MSD/DU
Other / Misc.						
Available Cyanide	OIA-1677	02/18/22 11:56	ACN220218-W1	ACN220218-W1	No	BLK/LCS/MS/MSD/DU

QC Report - Prep Batch Summary

Inorganics, Prep Batch ID: AMN220218QC

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S32945.01	Ammonia-N (Undistilled)	SM4500-NH3 D	02/18/22 20:43	AMN220218QC

Inorganics, Prep Batch ID: BOD220217

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S32945.01	TBOD5	HACH 10360	02/22/22 12:20	BOD220217

Inorganics, Prep Batch ID: OGHEX220222W1

Surrogates: No, QC Types: BLK/LCS

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S32945.01	Oil & Grease n-Hexane Extract.	E1664A	02/22/22 09:00	OGHEX220222W1

Inorganics, Prep Batch ID: PHS220217QC

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S32945.01	Total Phosphorus	SM4500-PE	02/17/22 16:34	PHS220217QC

Inorganics, Prep Batch ID: TSS220218

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S32945.01	Total Suspended Solids	SM2540D	02/18/22 18:00	TSS220218

Metals, Prep Batch ID: HGD-022422-3

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S32945.01	Mercury	E245.1	02/24/22 15:59	HG-22-0224A

Metals, Prep Batch ID: MTD-021822-1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S32945.01	Arsenic	E200.8	02/18/22 12:23	MT4-22-0218A
S32945.01	Chromium	E200.8	02/18/22 12:23	MT4-22-0218A
S32945.01	Copper	E200.8	02/18/22 12:23	MT4-22-0218A
S32945.01	Nickel	E200.8	02/18/22 12:23	MT4-22-0218A
S32945.01	Zinc	E200.8	02/18/22 12:23	MT4-22-0218A

Other / Misc., Prep Batch ID: ACN220218-W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S32945.01	Available Cyanide	OIA-1677	02/18/22 11:56	ACN220218-W1

Inorganics, Prep Batch ID: AMN220218QC

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

Blank (BLK)

Lab Sample ID: AMN220218QC.LRB1

Run in Batch: AMN220218QC, Run Date: 02/18/2022 11:18, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 1

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

Laboratory Control Sample (LCS)

Lab Sample ID: AMN220218QC.LCS1

Run in Batch: AMN220218QC, Run Date: 02/18/2022 12:25, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Ammonia-N (Undistilled)		98	90	110

Matrix Spike (MS)

Lab Sample ID: AMN220218QC.MS1, Parent Sample ID: S32872.01

Run in Batch: AMN220218QC, Run Date: 02/18/2022 12:51, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Ammonia-N (Undistilled)		101	80	120

Duplicate (DUP)

Lab Sample ID: AMN220218QC.DP1, Parent Sample ID: S32870.01

Run in Batch: AMN220218QC, Run Date: 02/18/2022 14:19, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Ammonia-N (Undistilled)		0.4	20

Inorganics, Prep Batch ID: BOD220217

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

Blank (BLK)

Lab Sample ID: BOD220217.LRB1

Run in Batch: BOD220217, Run Date: 02/22/2022 12:20, Prep Date: 02/22/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
TBOD5		ND	3	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: BOD220217.LCS1

Run in Batch: BOD220217, Run Date: 02/22/2022 12:20, Prep Date: 02/22/2022, Matrix: Liquid, Dilution: 20

Analyte	Flags	% Rec	LCL	UCL
TBOD5		100.0	50.8	166

Duplicate (DUP)

Lab Sample ID: BOD220217.DP1, Parent Sample ID: S32960.02

Run in Batch: BOD220217, Run Date: 02/22/2022 12:20, Prep Date: 02/22/2022, Matrix: Liquid, Dilution: 60

Analyte	Flags	RPD	RPD CL
TBOD5		2.6	20

Inorganics, Prep Batch ID: OGHEX220222W1

Surrogates: No, QC Types: BLK/LCS

Blank (BLK)

Lab Sample ID: OGHEX220222W1.LRB1

Run in Batch: OGHEX220222W1, Run Date: 02/22/2022 09:00, Prep Date: 02/22/2022, 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: OGHEX220222W1.LCS1

Run in Batch: OGHEX220222W1, Run Date: 02/22/2022 09:00, Prep Date: 02/22/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Oil & Grease n-Hexane Extract.		111	78	114

Laboratory Control Sample (LCS)

Lab Sample ID: OGHEX220222W1.LCS2

Run in Batch: OGHEX220222W1, Run Date: 02/22/2022 09:00, Prep Date: 02/22/2022, Matrix: Liquid, Dilution: 1

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

Inorganics, Prep Batch ID: PHS220217QC

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

Blank (BLK)

Lab Sample ID: PHS220217QC.LRB1

Run in Batch: PHS220217QC, Run Date: 02/17/2022 10:35, Prep Date: 02/17/2022, Matrix: Liquid, Dilution: 1

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

Blank (BLK)

Lab Sample ID: PHS220217QC.LRB2

Run in Batch: PHS220217QC, Run Date: 02/17/2022 10:46, Prep Date: 02/17/2022, Matrix: Liquid, Dilution: 1

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

Laboratory Control Sample (LCS)

Lab Sample ID: PHS220217QC.LCS1

Run in Batch: PHS220217QC, Run Date: 02/17/2022 10:53, Prep Date: 02/17/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		93	90	110

Matrix Spike (MS)

Lab Sample ID: PHS220217QC.MS1, Parent Sample ID: S32882.01

Run in Batch: PHS220217QC, Run Date: 02/17/2022 15:15, Prep Date: 02/17/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		96	80	120

Duplicate (DUP)

Lab Sample ID: PHS220217QC.DP1, Parent Sample ID: S32881.01

Run in Batch: PHS220217QC, Run Date: 02/17/2022 15:11, Prep Date: 02/17/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Total Phosphorus		9.4	20

Inorganics, Prep Batch ID: TSS220218

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

Blank (BLK)

Lab Sample ID: TSS220218.LRB1

Run in Batch: TSS220218, Run Date: 02/18/2022 18:00, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Total Suspended Solids		ND	1	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: TSS220218.LCS1

Run in Batch: TSS220218, Run Date: 02/18/2022 18:00, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 10

Analyte	Flags	% Rec	LCL	UCL
Total Suspended Solids		94.70	90	110

Duplicate (DUP)

Lab Sample ID: TSS220218.DP1, Parent Sample ID: S32965.01

Run in Batch: TSS220218, Run Date: 02/18/2022 18:00, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 2

Analyte	Flags	RPD	RPD CL
Total Suspended Solids		0	5

Metals, Prep Batch ID: HGD-022422-3

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

Blank (BLK)

Lab Sample ID: HG-22-0224A.052.LRB

Run in Batch: HG-22-0224A, Run Date: 02/24/2022 15:55, Prep Date: 02/24/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Mercury		ND	0.05	ug/L

Laboratory Control Sample (LCS)

Lab Sample ID: HG-22-0224A.051.LCS

Run in Batch: HG-22-0224A, Run Date: 02/24/2022 15:52, Prep Date: 02/24/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Mercury		101	85	115

Matrix Spike (MS)

Lab Sample ID: HG-22-0224A.056.MS, Parent Sample ID: S32980.01

Run in Batch: HG-22-0224A, Run Date: 02/24/2022 16:08, Prep Date: 02/24/2022, Matrix: Liquid, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL
Mercury		102	80	120

Matrix Spike (MS)

Lab Sample ID: HG-22-0224A.074.MS, Parent Sample ID: S33210.02

Run in Batch: HG-22-0224A, Run Date: 02/24/2022 17:08, Prep Date: 02/24/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Mercury		102	80	120

Duplicate (DUP)

Lab Sample ID: HG-22-0224A.055.DP, Parent Sample ID: S32980.01

Run in Batch: HG-22-0224A, Run Date: 02/24/2022 16:05, Prep Date: 02/24/2022, Matrix: Liquid, Dilution: 2

Analyte	Flags	RPD	RPD CL
Mercury		0	20

Duplicate (DUP)

Lab Sample ID: HG-22-0224A.073.DP, Parent Sample ID: S33210.02

Run in Batch: HG-22-0224A, Run Date: 02/24/2022 17:04, Prep Date: 02/24/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Mercury		0	20

Metals, Prep Batch ID: MTD-021822-1

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

Blank (BLK)

Lab Sample ID: MT4-22-0218A.021.LRB

Run in Batch: MT4-22-0218A, Run Date: 02/18/2022 12:11, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Arsenic		ND	0.0004	mg/L
Chromium		ND	0.001	mg/L
Copper		ND	0.001	mg/L
Nickel		ND	0.001	mg/L
Zinc		ND	0.001	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: MT4-22-0218A.019.LCS

Run in Batch: MT4-22-0218A, Run Date: 02/18/2022 11:58, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Arsenic		99	85	115
Chromium		99	85	115
Copper		102	85	115
Nickel		100	85	115
Zinc		100	85	115

Matrix Spike (MS)

Lab Sample ID: MT4-22-0218A.046.MS, Parent Sample ID: S32945.01

Run in Batch: MT4-22-0218A, Run Date: 02/18/2022 12:51, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		106	75	125
Chromium		102	75	125
Copper		94	75	125
Nickel		95	75	125
Zinc		104	75	125

Matrix Spike (MS)

Lab Sample ID: MT4-22-0218A.062.MS, Parent Sample ID: S32822.01

Run in Batch: MT4-22-0218A, Run Date: 02/18/2022 13:25, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 25

Analyte	Flags	% Rec	LCL	UCL
Arsenic		103	75	125
Chromium		102	75	125
Copper		98	75	125
Nickel		101	75	125
Zinc		106	75	125

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-22-0218A.047.MSD, Parent Sample ID: MT4-22-0218A.046.MS

Run in Batch: MT4-22-0218A, Run Date: 02/18/2022 12:52, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		106	75	125	0	20
Chromium		100	75	125	1	20
Copper		95	75	125	0	20
Nickel		96	75	125	1	20
Zinc		103	75	125	0	20

Other / Misc., Prep Batch ID: ACN220218-W1

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

Blank (BLK)

Lab Sample ID: ACN220218-W1.LRB1

Run in Batch: ACN220218-W1, Run Date: 02/18/2022 11:24, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 1

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

Blank (BLK)

Lab Sample ID: ACN220218-W1.LRB2

Run in Batch: ACN220218-W1, Run Date: 02/18/2022 12:08, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 1

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

Laboratory Control Sample (LCS)

Lab Sample ID: ACN220218-W1.LCS1

Run in Batch: ACN220218-W1, Run Date: 02/18/2022 11:28, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Available Cyanide		96	88	109

Matrix Spike (MS)

Lab Sample ID: ACN220218-W1.MS1, Parent Sample ID: S32919.01

Run in Batch: ACN220218-W1, Run Date: 02/18/2022 11:42, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Available Cyanide		108	82	130

Matrix Spike Duplicate (MSD)

Lab Sample ID: ACN220218-W1.MSD1, Parent Sample ID: ACN220218-W1.MS1

Run in Batch: ACN220218-W1, Run Date: 02/18/2022 11:44, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Available Cyanide		98	82	130	8	15

Duplicate (DUP)

Lab Sample ID: ACN220218-W1.DP1, Parent Sample ID: S32919.01

Run in Batch: ACN220218-W1, Run Date: 02/18/2022 11:38, Prep Date: 02/18/2022, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Available Cyanide		7	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

141419

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: 48105
PHONE NO.: 313-333-0211 FAX NO.:
P.O. NO.: 1940002628 (task1)
E-MAIL ADDRESS: Clifford.Yantz@Ramboll.com KSchneider@Ramboll.com QUOTE NO.:

INVOICE TO

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

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

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

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

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	Total metals	Available Cyanide	BOD / TSS	Ammonia - Nitrogen	Total phosphorus	FOG (Hex - Ext)	Special Instructions
32945.01	2/16/22	1120	01 - PRCC - 22	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 8.6°C
																			Field pH 7.35

KBS

RELINQUISHED BY: SIGNATURE/ORGANIZATION	X Sampler	DATE	TIME
K Schneider		2/16/22	1145
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
[illegible]		2/16/22	1145
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
[illegible]		2/16/22	1315
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
Johanna Murray		2/16/22	1315

RELINQUISHED BY: SIGNATURE/ORGANIZATION			DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION			DATE	TIME
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES:	TEMP. ON ARRIVAL 2.9
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS		

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S33776.01(01)
Generated on 03/31/2022

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): S33776.01-S33776.02
Project: RACER Coldwater Road
Collected Date(s): 03/10/2022
Submitted Date/Time: 03/11/2022 13:00
Sampled by: Kevin Schneider
P.O. #: 1940004462

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 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 17025	#69699
WBENC	#2005110032
Ohio VAP	#CL0002
Indiana DOH	#C-MI-07
New York NELAC	#11814
North Carolina DENR	#680
North Carolina DOH	#26702
Alaska CSLAP	#17-001
Pennsylvania DEP	#68-05884
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

Sample Summary (2 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S33776.01	01-PRCC-22-INF	Liquid	03/10/22 16:32
S33776.02	01-PRCC-22-PRIM	Liquid	03/10/22 16:40

Analytical Laboratory Report

Lab Sample ID: S33776.01
Sample Tag: 01-PRCC-22-INF
Collected Date/Time: 03/10/2022 16:32
Matrix: Liquid
COC Reference: 140152

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.50/7.04/11	ASTMD7979-19M	03/14/22 11:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/22/22 19:26, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	50	10	ng/L	2.01	375-22-4	X
PFPeA*	30	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	I
PFHxA*	Not detected	20	1.4	ng/L	2.01	307-24-4	X
PFBS*	27	2.0	1.4	ng/L	2.01	375-73-5	
PFHpA*	8.7	2.0	1.4	ng/L	2.01	375-85-9	
PFPeS*	54	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*	27	2.0	1.6	ng/L	2.01	335-67-1	
PFHxS*	160	2.0	1.6	ng/L	2.01	355-46-4	
PFHxS-LN*	140	2.0	1.6	ng/L	2.01	355-46-4-LN	
PFHxS-BR*	23	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*	49	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*	3,300	2.0	2.0	ng/L	2.01	1763-23-1	
PFOS-LN*	2,000	2.0	2.0	ng/L	2.01	1763-23-1-LN	
PFOS-BR*	1,300	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*	1.7	2.0	1.4	ng/L	2.01	68259-12-1	J
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	

X-Elevated reporting limit due to matrix interference
I-Matrix interference with internal standard
J-Estimated value less than reporting limit, but greater than MDL

Analytical Laboratory Report

Lab Sample ID: S33776.02
Sample Tag: 01-PRCC-22-PRIM
Collected Date/Time: 03/10/2022 16:40
Matrix: Liquid
COC Reference: 140152

Sample Containers

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

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.54/7.00/11	ASTMD7979-19M	03/14/22 11:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/22/22 19:46, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10.0	10.0	ng/L	1.99	375-22-4	
PFPeA*	Not detected	4.0	1.00	ng/L	1.99	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.99	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	1.99	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	1.99	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	1.99	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	1.99	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	1.99	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	1.99	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	1.99	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	1.99	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	1.99	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.99	375-95-1	
8:2 FTSA*	Not detected	2.0	1.00	ng/L	1.99	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.99	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.99	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.99	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	1.99	2991-50-6	
PFOS*	6.7	2.0	2.0	ng/L	1.99	1763-23-1	
PFOS-LN*	5.5	2.0	2.0	ng/L	1.99	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	2.0	ng/L	1.99	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.99	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.99	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	1.99	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.99	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	1.99	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.99	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	1.99	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.99	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.99	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.99	919005-14-4	
HFPO-DA*	Not detected	4.0	2.0	ng/L	1.99	13252-13-6	

Merit Laboratories Login Checklist

Lab Set ID: S33776
Client: OBG02 (Ramboll Americas)
Project: RACER Coldwater Road
Submitted: 03/11/2022 13:00 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 2.5
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] Yes	[ ] No	[X] N/A	Completed pH checks on preserved samples? (no VOAs)	
12.	[ ] Yes	[X] No	[ ] N/A	Did any samples need to be preserved in the lab?	
Bottle Conditions					
13.	[X] Yes	[ ] No	[ ] N/A	All bottles intact	
14.	[X] Yes	[ ] No	[ ] N/A	Appropriate analytical bottles are used	
15.	[X] Yes	[ ] No	[ ] N/A	Merit bottles used	
16.	[X] Yes	[ ] No	[ ] N/A	Sufficient sample volume received	
17.	[ ] Yes	[X] No	[ ] N/A	Samples require laboratory filtration	
18.	[X] Yes	[ ] No	[ ] N/A	Samples submitted within holding time	
19.	[ ] Yes	[ ] No	[X] N/A	Do water VOC or TOX bottles contain headspace	

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

Client Review By: _____ Date: _____

Merit Laboratories, Inc.

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

C.O.C. PAGE # 1 OF 1

140152

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: 48105
PHONE NO.: 313-333-0211 FAX NO.:
P.O. NO.: 1940004462 Task 37
E-MAIL ADDRESS: clifford.yantz@Ramboll.com / kevin.schneider@Ramboll.com
QUOTE NO.:

INVOICE TO

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

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

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (Table 4)	Special Instructions
337760.01	3/10/22	1632	01-PRCC-22-INF	L	3								X	Low Level
.02	3/10/22	1640	01-PRCC-22-PRIM	L	3								X	Reporting Limits with estimated values

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☑ Sampler	DATE	TIME
Melissa Klumpp / Ramboll		3/11/2022	11:30
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
[illegible]		3/11/22	11:30
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
[illegible]		3/11/22	13:00
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
[illegible]		3/11/22	1300

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

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

NOTES: TEMP. ON ARRIVAL 2.5

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

Rev. 5.18.12

Quality Control Report

Report ID: QC-S33776-01
Generated on 03/31/2022

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): S33776.01-S33776.02
Project: RACER Coldwater Road
Submitted Date/Time: 03/11/2022 13:00
Sampled by: Kevin Schneider
P.O. #: 1940004462

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: S33776.01
Sample Tag: 01-PRCC-22-INF
Collected Date/Time: 03/10/2022 16:32
Matrix: Liquid
COC Reference: 140152

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	03/22/22 19:26	DQ220322	PF220314W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S33776.02
Sample Tag: 01-PRCC-22-PRIM
Collected Date/Time: 03/10/2022 16:40
Matrix: Liquid
COC Reference: 140152

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	03/22/22 19:46	DQ220322	PF220314W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF220314W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S33776.01	28 PFAs	ASTMD7979-19M	03/22/22 19:26	DQ220322
S33776.02	28 PFAs	ASTMD7979-19M	03/22/22 19:46	DQ220322

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S33776.01

Sample Tag: 01-PRCC-22-INF

Collected Date/Time: 03/10/2022 16:32

Matrix: Liquid

COC Reference: 140152

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: DQ220322, Run Date: 03/22/2022 19:26, Matrix: WW, Dilution: 2.01

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	**197.6**	50.0	150.0
M2-6:2FTSA		**143.0**	50.0	150.0
M2-8:2FTSA		**86.4**	50.0	150.0
M2PFTeDA		**169.4**	12.0	218.0
M3PFBS		**115.2**	50.0	150.0
M3PFHxS		**108.9**	50.0	150.0
M4PFHpA		**108.7**	50.0	150.0
M5PFHxA		**110.2**	50.0	150.0
M5PFPeA		**104.4**	50.0	150.0
M6PFDA		**113.8**	50.0	150.0
M7PFUnDA		**125.3**	50.0	150.0
M8FOSA		**116.7**	50.0	150.0
M8PFOA		**120.8**	50.0	150.0
M8PFOS		**104.9**	50.0	150.0
M9-PFNA		**110.8**	50.0	150.0
MPFBA		**95.6**	50.0	150.0
MPFDoDA		**135.5**	50.0	150.0
d3N-MeFOSAA		**137.3**	50.0	150.0
d5EtFOSAA		**117.1**	50.0	150.0
MHFPO-DA		**99.6**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S33776.02

Sample Tag: 01-PRCC-22-PRIM

Collected Date/Time: 03/10/2022 16:40

Matrix: Liquid

COC Reference: 140152

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: DQ220322, Run Date: 03/22/2022 19:46, Matrix: WW, Dilution: 1.99

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**98.1**	50.0	150.0
M2-6:2FTSA		**99.4**	50.0	150.0
M2-8:2FTSA		**89.6**	50.0	150.0
M2PFTeDA		**168.4**	12.0	218.0
M3PFBS		**109.6**	50.0	150.0
M3PFHxS		**104.5**	50.0	150.0
M4PFHpA		**112.7**	50.0	150.0
M5PFHxA		**99.6**	50.0	150.0
M5PFPeA		**106.5**	50.0	150.0
M6PFDA		**109.8**	50.0	150.0
M7PFUnDA		**101.8**	50.0	150.0
M8FOSA		**109.5**	50.0	150.0
M8PFOA		**108.1**	50.0	150.0
M8PFOS		**105.3**	50.0	150.0
M9-PFNA		**98.0**	50.0	150.0
MPFBA		**108.4**	50.0	150.0
MPFDoDA		**117.6**	50.0	150.0
d3N-MeFOSAA		**136.9**	50.0	150.0
d5EtFOSAA		**110.2**	50.0	150.0
MHFPO-DA		**109.0**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF220314W1

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

Blank (BLK)

Lab Sample ID: DQ220316.BLK220314

Run in Batch: DQ220316, Run Date: 03/16/2022 14:07, Prep Date: 03/14/2022, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**108.1**	50.0	150.0
M2-6:2FTSA		**117.5**	50.0	150.0
M2-8:2FTSA		**99.0**	50.0	150.0
M2PFTeDA		**100.0**	12.0	218.0
M3PFBS		**95.8**	50.0	150.0
M3PFHxS		**94.3**	50.0	150.0
M4PFHpA		**98.4**	50.0	150.0
M5PFHxA		**95.3**	50.0	150.0
M5PFPeA		**99.7**	50.0	150.0
M6PFDA		**105.4**	50.0	150.0
M7PFUnDA		**107.9**	50.0	150.0
M8FOSA		**108.6**	50.0	150.0
M8PFOA		**96.1**	50.0	150.0
M8PFOS		**97.0**	50.0	150.0
M9-PFNA		**99.4**	50.0	150.0
MPFBA		**99.9**	50.0	150.0
MPFDoDA		**97.1**	50.0	150.0
d3N-MeFOSAA		**104.6**	50.0	150.0
d5EtFOSAA		**100.7**	50.0	150.0
MHFPO-DA		**92.7**	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample (LCS)

Lab Sample ID: DQ220316.LCS220303

Run in Batch: DQ220316, Run Date: 03/16/2022 17:49, Prep Date: 03/14/2022, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**94.6**	50.0	150.0
M2-6:2FTSA		**98.7**	50.0	150.0
M2-8:2FTSA		**92.4**	50.0	150.0
M2PFTeDA		**111.4**	12.0	218.0
M3PFBS		**101.4**	50.0	150.0
M3PFHxS		**98.7**	50.0	150.0
M4PFHpA		**94.8**	50.0	150.0
M5PFHxA		**94.7**	50.0	150.0
M5PFPeA		**100.8**	50.0	150.0
M6PFDA		**95.5**	50.0	150.0
M7PFUnDA		**103.0**	50.0	150.0
M8FOSA		**108.8**	50.0	150.0
M8PFOA		**97.4**	50.0	150.0
M8PFOS		**105.8**	50.0	150.0
M9-PFNA		**97.2**	50.0	150.0
MPFBA		**96.1**	50.0	150.0
MPFDoDA		**96.9**	50.0	150.0
d3N-MeFOSAA		**106.3**	50.0	150.0
d5EtFOSAA		**105.0**	50.0	150.0
MHFPO-DA		**92.8**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: DQ220316.LCSD220314, Parent Sample ID: DQ220316.LCS220303

Run in Batch: DQ220316, Run Date: 03/16/2022 18:09, Prep Date: 03/14/2022, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**91.8**	50.0	150.0
M2-6:2FTSA		**101.9**	50.0	150.0
M2-8:2FTSA		**91.9**	50.0	150.0
M2PFTeDA		**115.7**	12.0	218.0
M3PFBS		**98.6**	50.0	150.0
M3PFHxS		**105.2**	50.0	150.0
M4PFHpA		**86.8**	50.0	150.0
M5PFHxA		**99.4**	50.0	150.0
M5PFPeA		**99.1**	50.0	150.0
M6PFDA		**101.3**	50.0	150.0
M7PFUnDA		**96.8**	50.0	150.0
M8FOSA		**104.1**	50.0	150.0
M8PFOA		**107.0**	50.0	150.0
M8PFOS		**111.8**	50.0	150.0
M9-PFNA		**96.1**	50.0	150.0
MPFBA		**97.8**	50.0	150.0
MPFDoDA		**95.2**	50.0	150.0
d3N-MeFOSAA		**109.1**	50.0	150.0
d5EtFOSAA		**103.3**	50.0	150.0
MHFPO-DA		**89.8**	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: DQ220316.3357701M, Parent Sample ID: S33577.01

Run in Batch: DQ220316, Run Date: 03/16/2022 19:07, Prep Date: 03/14/2022, Matrix: WW, Dilution: 2.06

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**87.9**	50.0	150.0
M2-6:2FTSA		**96.0**	50.0	150.0
M2-8:2FTSA		**86.2**	50.0	150.0
M2PFTeDA		**119.9**	12.0	218.0
M3PFBS		**99.4**	50.0	150.0
M3PFHxS		**89.3**	50.0	150.0
M4PFHpA		**88.0**	50.0	150.0
M5PFHxA		**99.5**	50.0	150.0
M5PFPeA		**98.5**	50.0	150.0
M6PFDA		**108.6**	50.0	150.0
M7PFUnDA		**99.6**	50.0	150.0
M8FOSA		**102.1**	50.0	150.0
M8PFOA		**91.3**	50.0	150.0
M8PFOS		**100.7**	50.0	150.0
M9-PFNA		**91.7**	50.0	150.0
MPFBA		**98.6**	50.0	150.0
MPFDoDA		**99.0**	50.0	150.0
d3N-MeFOSAA		**98.0**	50.0	150.0
d5EtFOSAA		**93.4**	50.0	150.0
MHFPO-DA		**89.0**	50.0	150.0

Duplicate (DUP)

Lab Sample ID: DQ220316.3357702D, Parent Sample ID: S33577.02

Run in Batch: DQ220316, Run Date: 03/16/2022 19:46, Prep Date: 03/14/2022, Matrix: WW, Dilution: 2.01

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**91.5**	50.0	150.0
M2-6:2FTSA		**93.9**	50.0	150.0
M2-8:2FTSA		**90.6**	50.0	150.0
M2PFTeDA		**109.2**	12.0	218.0
M3PFBS		**99.7**	50.0	150.0
M3PFHxS		**88.9**	50.0	150.0
M4PFHpA		**88.5**	50.0	150.0
M5PFHxA		**98.5**	50.0	150.0
M5PFPeA		**100.5**	50.0	150.0
M6PFDA		**95.0**	50.0	150.0
M7PFUnDA		**100.7**	50.0	150.0
M8FOSA		**104.3**	50.0	150.0
M8PFOA		**97.9**	50.0	150.0
M8PFOS		**109.7**	50.0	150.0
M9-PFNA		**99.0**	50.0	150.0
MPFBA		**100.8**	50.0	150.0
MPFDoDA		**102.7**	50.0	150.0
d3N-MeFOSAA		**108.0**	50.0	150.0
d5EtFOSAA		**106.5**	50.0	150.0
MHFPO-DA		**93.7**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF220314W1

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

Blank (BLK)

Lab Sample ID: DQ220316.BLK220314

Run in Batch: DQ220316, Run Date: 03/16/2022 14:07, Prep Date: 03/14/2022, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	3	ng/l
PFMPA		ND	1	ng/l
FPrPA (3:3 FTCA)		ND	2.5	ng/l
PFPrS		ND	1	ng/l
PFPeA		ND	2	ng/l
PFMBA		ND	1	ng/l
4:2 FTSA		ND	1	ng/l
NFDHA		ND	1	ng/l
PFHxA		ND	1	ng/l
PFBS		ND	1	ng/l
HFPO-DA		ND	1	ng/l
FPePA (5:3 FTCA)		ND	2.5	ng/l
PFEESA		ND	1	ng/l
PFHpA		ND	1	ng/l
PFPeS		ND	1	ng/l
ADONA		ND	1	ng/l
6:2 FTSA		ND	1	ng/l
PFBSA		ND	1	ng/l
PFOA		ND	1	ng/l
PFHxS-BR		ND	1	ng/l
PFHxS		ND	1	ng/l
PFHxS-LN		ND	1	ng/l
FHpPA (7:3 FTCA)		ND	2.5	ng/l
PFNA		ND	1	ng/l
PFECHS		ND	1	ng/l
8:2 FTSA		ND	1	ng/l
PFHpS		ND	1	ng/l
N-MeFOSAA		ND	1	ng/l
PFDA		ND	1	ng/l
PFOS-BR		ND	1	ng/l
EtFOSAA		ND	1	ng/l
PFOS		ND	1	ng/l
PFOS-LN		ND	1	ng/l
PFHxSA		ND	1	ng/l
PFUnDA		ND	1	ng/l
9CL-PF3ONS		ND	1	ng/l
PFNS		ND	1	ng/l
PFDoDA		ND	1	ng/l
PFDS		ND	1	ng/l
PFTrDA		ND	1	ng/l
11CL-PF3OUdS		ND	1	ng/l
FOSA		ND	1	ng/l
PFTeDA		ND	1	ng/l

Organics - Volatiles, Prep Batch ID: PF220314W1 (continued)

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

Laboratory Control Sample (LCS)

Lab Sample ID: DQ220316.LCS220303

Run in Batch: DQ220316, Run Date: 03/16/2022 17:49, Prep Date: 03/14/2022, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		108.4	70.0	130.0
PFMPA		100.2	70.0	130.0
FPrPA (3:3 FTCA)		111.2	70.0	130.0
PFPrS		100.6	70.0	130.0
PFPeA		101.2	70.0	130.0
PFMBA		97.8	70.0	130.0
4:2 FTSA		98.6	70.0	130.0
NFDHA		99.6	70.0	130.0
PFHxA		105.2	70.0	130.0
PFBS		100.2	70.0	130.0
HFPO-DA		93.8	70.0	130.0
FPePA (5:3 FTCA)		126.0	70.0	130.0
PFEESA		100.2	70.0	130.0
PFHpA		99.4	70.0	130.0
PFPeS		96.4	70.0	130.0
ADONA		109.4	70.0	130.0
6:2 FTSA		104.2	70.0	130.0
PFBSA		100.2	70.0	130.0
PFOA		111.8	70.0	130.0
PFHxS		102.8	70.0	130.0
FHpPA (7:3 FTCA)		102.2	70.0	130.0
PFNA		100.0	70.0	130.0
PFECHS		86.2	70.0	130.0
8:2 FTSA		110.8	70.0	130.0
PFHpS		89.4	70.0	130.0
N-MeFOSAA		102.4	70.0	130.0
PFDA		96.4	70.0	130.0
EtFOSAA		104.8	70.0	130.0
PFOS		97.6	70.0	130.0
PFHxSA		95.2	70.0	130.0
PFUnDA		103.4	70.0	130.0
9CL-PF3ONS		105.2	70.0	130.0
PFNS		101.2	70.0	130.0
PFDoDA		112.6	70.0	130.0
PFDS		96.0	70.0	130.0
PFTrDA		107.6	70.0	130.0
11CL-PF3OUdS		101.6	70.0	130.0
FOSA		99.6	70.0	130.0
PFTeDA		101.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: DQ220316.LCSD220314, Parent Sample ID: DQ220316.LCS220303

Run in Batch: DQ220316, Run Date: 03/16/2022 18:09, Prep Date: 03/14/2022, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		103.8	70.0	130.0	4.3	30.0
PFMPA		95.0	70.0	130.0	5.3	30.0

Organics - Volatiles, Prep Batch ID: PF220314W1 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: DQ220316.LCSD220314, Parent Sample ID: DQ220316.LCS220303

Run in Batch: DQ220316, Run Date: 03/16/2022 18:09, Prep Date: 03/14/2022, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
FPrPA (3:3 FTCA)		119.6	70.0	130.0	7.3	30.0
PFPrS		101.8	70.0	130.0	1.2	30.0
PFPeA		103.6	70.0	130.0	2.3	30.0
PFMBA		87.0	70.0	130.0	11.7	30.0
4:2 FTSA		101.2	70.0	130.0	2.6	30.0
NFDHA		93.4	70.0	130.0	6.4	30.0
PFHxA		97.8	70.0	130.0	7.3	30.0
PFBS		109.4	70.0	130.0	8.8	30.0
HFPO-DA		95.6	70.0	130.0	1.9	30.0
FPePA (5:3 FTCA)		108.0	70.0	130.0	15.4	30.0
PFEESA		97.4	70.0	130.0	2.8	30.0
PFHpA		97.4	70.0	130.0	2.0	30.0
PFPeS		104.2	70.0	130.0	7.8	30.0
ADONA		112.2	70.0	130.0	2.5	30.0
6:2 FTSA		99.2	70.0	130.0	4.9	30.0
PFBSA		108.8	70.0	130.0	8.2	30.0
PFOA		103.6	70.0	130.0	7.6	30.0
PFHxS		94.8	70.0	130.0	8.1	30.0
FHpPA (7:3 FTCA)		100.4	70.0	130.0	1.8	30.0
PFNA		106.0	70.0	130.0	5.8	30.0
PFECHS		84.8	70.0	130.0	1.6	30.0
8:2 FTSA		104.0	70.0	130.0	6.3	30.0
PFHpS		86.2	70.0	130.0	3.6	30.0
N-MeFOSAA		100.4	70.0	130.0	2.0	30.0
PFDA		90.4	70.0	130.0	6.4	30.0
EtFOSAA		97.6	70.0	130.0	7.1	30.0
PFOS		93.2	70.0	130.0	4.6	30.0
PFHxSA		102.6	70.0	130.0	7.5	30.0
PFUnDA		124.0	70.0	130.0	18.1	30.0
9CL-PF3ONS		88.4	70.0	130.0	17.4	30.0
PFNS		99.6	70.0	130.0	1.6	30.0
PFDoDA		118.0	70.0	130.0	4.7	30.0
PFDS		88.4	70.0	130.0	8.2	30.0
PFTrDA		122.6	70.0	130.0	13.0	30.0
11CL-PF3OUdS		100.6	70.0	130.0	1.0	30.0
FOSA		110.0	70.0	130.0	9.9	30.0
PFTeDA		106.2	70.0	130.0	4.2	30.0

Matrix Spike (MS)

Lab Sample ID: DQ220316.3357701M, Parent Sample ID: S33577.01

Run in Batch: DQ220316, Run Date: 03/16/2022 19:07, Prep Date: 03/14/2022, Matrix: WW, Dilution: 2.06

Analyte	Flags	% Rec	LCL	UCL
PFBA		106.8	70.0	130.0
PFMPA		106.8	70.0	130.0
FPrPA (3:3 FTCA)		116.5	70.0	130.0
PFPrS		106.8	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF220314W1 (continued)

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

Matrix Spike (MS) (continued)

Lab Sample ID: DQ220316.3357701M, Parent Sample ID: S33577.01

Run in Batch: DQ220316, Run Date: 03/16/2022 19:07, Prep Date: 03/14/2022, Matrix: WW, Dilution: 2.06

Analyte	Flags	% Rec	LCL	UCL
PFPeA		106.8	70.0	130.0
PFMBA		97.1	70.0	130.0
4:2 FTSA		106.8	70.0	130.0
NFDHA		106.8	70.0	130.0
PFHxA		106.8	70.0	130.0
PFBS		106.8	70.0	130.0
HFPO-DA		97.1	70.0	130.0
FPePA (5:3 FTCA)		116.5	70.0	130.0
PFEESA		106.8	70.0	130.0
PFHpA		106.8	70.0	130.0
PFPeS		106.8	70.0	130.0
ADONA	*	135.9	70.0	130.0
6:2 FTSA		106.8	70.0	130.0
PFBSA		116.5	70.0	130.0
PFOA		126.2	70.0	130.0
PFHxS		116.5	70.0	130.0
FHpPA (7:3 FTCA)		116.5	70.0	130.0
PFNA		116.5	70.0	130.0
PFECHS		97.1	70.0	130.0
8:2 FTSA		106.8	70.0	130.0
PFHpS		106.8	70.0	130.0
N-MeFOSAA		106.8	70.0	130.0
PFDA		78.6	70.0	130.0
EtFOSAA		116.5	70.0	130.0
PFOS		106.8	70.0	130.0
PFHxSA		106.8	70.0	130.0
PFUnDA		106.8	70.0	130.0
9CL-PF3ONS		116.5	70.0	130.0
PFNS		116.5	70.0	130.0
PFDoDA		116.5	70.0	130.0
PFDS		106.8	70.0	130.0
PFTrDA		126.2	70.0	130.0
11CL-PF3OUdS		106.8	70.0	130.0
FOSA		116.5	70.0	130.0
PFTeDA		106.8	70.0	130.0

Duplicate (DUP)

Lab Sample ID: DQ220316.3357702D, Parent Sample ID: S33577.02

Run in Batch: DQ220316, Run Date: 03/16/2022 19:46, Prep Date: 03/14/2022, Matrix: WW, Dilution: 2.01

Analyte	Flags	RPD	RPD CL
PFBA		NC	30.0
PFMPA		NC	30.0
FPrPA (3:3 FTCA)		NC	30.0
PFPrS		NC	30.0
PFPeA		NC	30.0
PFMBA		NC	30.0

Organics - Volatiles, Prep Batch ID: PF220314W1 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: DQ220316.3357702D, Parent Sample ID: S33577.02

Run in Batch: DQ220316, Run Date: 03/16/2022 19:46, Prep Date: 03/14/2022, Matrix: WW, Dilution: 2.01

Analyte	Flags	RPD	RPD CL
4:2 FTSA		NC	30.0
NFDHA		NC	30.0
PFHxA		NC	30.0
PFBS		NC	30.0
HFPO-DA		NC	30.0
FPePA (5:3 FTCA)		NC	30.0
PFEESA		NC	30.0
PFHpA		NC	30.0
PFPeS		NC	30.0
ADONA		NC	30.0
6:2 FTSA		NC	30.0
PFBSA		NC	30.0
PFOA		NC	30.0
PFHxS-BR		NC	30.0
PFHxS		NC	30.0
PFHxS-LN		NC	30.0
FHpPA (7:3 FTCA)		NC	30.0
PFNA		NC	30.0
PFECHS		NC	30.0
8:2 FTSA		NC	30.0
PFHpS		NC	30.0
N-MeFOSAA		NC	30.0
PFDA		NC	30.0
PFOS-BR		NC	30.0
EtFOSAA		NC	30.0
PFOS		NC	30.0
PFOS-LN		NC	30.0
PFHxSA		NC	30.0
PFUnDA		NC	30.0
9CL-PF3ONS		NC	30.0
PFNS		NC	30.0
PFDoDA		NC	30.0
PFDS		NC	30.0
PFTrDA		NC	30.0
11CL-PF3OUdS		NC	30.0
FOSA		NC	30.0
PFTeDA		NC	30.0

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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: 48105
PHONE NO.: 313-333-0211 FAX NO.:
P.O. NO.: 1940004462 Task 37
E-MAIL ADDRESS: clifford.yantz@Ramboll.com / kevin.schneider@Ramboll.com
QUOTE NO.:

INVOICE TO

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

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

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (Table 4)	Special Instructions
337760.01	3/10/22	1632	01-PRCC-22-INF	L	3								X	Low Level
.02	3/10/22	1640	01-PRCC-22-PRIM	L	3								X	Reporting Limits with estimated values

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☑ Sampler	DATE	TIME
Melissa Klumpp / Ramboll		3/11/2022	11:30
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
[illegible]		3/11/22	11:30
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
[illegible]		3/11/22	13:00
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
[illegible]		3/11/22	1300

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

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

NOTES: TEMP. ON ARRIVAL 2.5

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S33936.01(01)
Generated on 04/07/2022

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

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John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S33936.01-S33936.04
Project: RACER Coldwater Road
Collected Date(s): 03/15/2022
Submitted Date/Time: 03/17/2022 10:00
Sampled by: Kevin Schneider
P.O. #: 1940004462

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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, acrylonitrile, and 2-chlorovinylethyl 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.
Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.
Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.
Wisconsin PFAs analysis: MDL = LOD; RL = LOQ. LOD and LOQ are adjusted for dilution.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

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

Sample Summary (4 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S33936.01	01-PRCC-22-EFF-160	Liquid	03/15/22 09:20
S33936.02	01-PRCC-22-MID-2-160	Liquid	03/15/22 09:22
S33936.03	01-PRCC-22-MID-1-160	Liquid	03/15/22 09:24
S33936.04	01-PRCC-22-PRIM-160	Liquid	03/15/22 09:26

Analytical Laboratory Report

Lab Sample ID: S33936.01
Sample Tag: 01-PRCC-22-EFF-160
Collected Date/Time: 03/15/2022 09:20
Matrix: Liquid
COC Reference: 142921

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.11/7.07/10	ASTMD7979-19M	03/23/22 14:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/24/22 14:21, 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*	2.4	2.0	1.9	ng/L	1.98	1763-23-1	
PFOS-LN*	Not detected	2.0	1.9	ng/L	1.98	1763-23-1-LN	
PFOS-BR*	Not detected	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	

Analytical Laboratory Report

Lab Sample ID: S33936.02
Sample Tag: 01-PRCC-22-MID-2-160
Collected Date/Time: 03/15/2022 09:22
Matrix: Liquid
COC Reference: 142921

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.60/7.12/11	ASTMD7979-19M	03/23/22 14:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/24/22 14:41, 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*	3.4	2.0	2.0	ng/L	2.01	1763-23-1	
PFOS-LN*	2.6	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	

Analytical Laboratory Report

Lab Sample ID: S33936.03
Sample Tag: 01-PRCC-22-MID-1-160
Collected Date/Time: 03/15/2022 09:24
Matrix: Liquid
COC Reference: 142921

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	13.05/7.10/12	ASTMD7979-19M	03/23/22 14:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/24/22 15:01, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.02	375-22-4	
PFPeA*	Not detected	4.0	1.0	ng/L	2.02	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.02	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	2.02	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	2.02	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	2.02	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	2.02	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	2.02	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	2.02	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	2.02	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	2.02	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	2.02	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.02	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.02	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	2.02	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.02	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.02	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	2.02	2991-50-6	
PFOS*	3.7	2.0	2.0	ng/L	2.02	1763-23-1	
PFOS-LN*	3.3	2.0	2.0	ng/L	2.02	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	2.0	ng/L	2.02	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.02	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.02	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	2.02	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.02	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	2.02	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.02	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	2.02	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.02	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.02	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.02	919005-14-4	
HFPO-DA*	Not detected	4.0	2.0	ng/L	2.02	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S33936.04
Sample Tag: 01-PRCC-22-PRIM-160
Collected Date/Time: 03/15/2022 09:26
Matrix: Liquid
COC Reference: 142921

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.6	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.60/7.06/11	ASTMD7979-19M	03/23/22 14:45	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/24/22 15:20, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	13	10.0	ng/L	1.99	375-22-4	X
PFPeA*	Not detected	4.0	1.00	ng/L	1.99	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	1.99	757124-72-4	
PFHxA*	3.6	2.0	1.4	ng/L	1.99	307-24-4	
PFBS*	2.2	2.0	1.4	ng/L	1.99	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	1.99	375-85-9	
PFPeS*	3.2	2.0	1.8	ng/L	1.99	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	1.99	27619-97-2	
PFOA*	2.0	2.0	1.6	ng/L	1.99	335-67-1	
PFHxS*	10	2.0	1.6	ng/L	1.99	355-46-4	
PFHxS-LN*	7.9	2.0	1.6	ng/L	1.99	355-46-4-LN	
PFHxS-BR*	2.1	2.0	1.6	ng/L	1.99	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	1.99	375-95-1	
8:2 FTSA*	Not detected	2.0	1.00	ng/L	1.99	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	1.99	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	1.99	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	1.99	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	1.99	2991-50-6	
PFOS*	200	2.0	2.0	ng/L	1.99	1763-23-1	
PFOS-LN*	94	2.0	2.0	ng/L	1.99	1763-23-1-LN	
PFOS-BR*	100	2.0	2.0	ng/L	1.99	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	1.99	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	1.99	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	1.99	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	1.99	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	1.99	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	1.99	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	1.99	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	1.99	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	1.99	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	1.99	919005-14-4	
HFPO-DA*	Not detected	4.0	2.0	ng/L	1.99	13252-13-6	

X-Elevated reporting limit due to matrix interference

Merit Laboratories Login Checklist

Lab Set ID: S33936
Client: OBG02 (Ramboll Americas)
Project: RACER Coldwater Road
Submitted: 03/17/2022 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 4.6
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[X] Yes	[ ] No	[ ] N/A	Do sample have correct chemical preservation	
11.	[ ] 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

142921

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: 48105
PHONE NO.: 313-333-0211 FAX NO.:
P.O. NO.: 1940004462 Task 37
E-MAIL ADDRESS: Clifford.Yantz@Ramboll.com / Kevin.Schneider@Ramboll.com
QUOTE NO.:

INVOICE TO

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

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

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (7979)	Special Instructions
33736.01	3/15/22	920	01-PRCC-22-Eff-160	L	3	3							X	Low level
.02	↓	922	01-PRCC-22-MID-2-160	L	3	3							X	Reporting limits
.03		924	01-PRCC-22-MID-1-160	L	3	3							X	with estimated
.04		926	01-PRCC-22-PRIM-160	L	3	3							X	values

PBS

RELINQUISHED BY: SIGNATURE/ORGANIZATION: X ☒ Sampler DATE: 3/17/22 TIME: 900
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: 3/17/22 TIME: 900

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: 3/17/22 TIME: 1000
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: 3/17/22 TIME: 1000

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

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

NOTES: TEMP. ON ARRIVAL 4.6

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

Rev. 5.18.12

Quality Control Report

Report ID: QC-S33936-01
Generated on 04/07/2022

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): S33936.01-S33936.04
Project: RACER Coldwater Road
Submitted Date/Time: 03/17/2022 10:00
Sampled by: Kevin Schneider
P.O. #: 1940004462

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: S33936.01
Sample Tag: 01-PRCC-22-EFF-160
Collected Date/Time: 03/15/2022 09:20
Matrix: Liquid
COC Reference: 142921

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	03/24/22 14:21	AK220324	PF220323W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S33936.02
Sample Tag: 01-PRCC-22-MID-2-160
Collected Date/Time: 03/15/2022 09:22
Matrix: Liquid
COC Reference: 142921

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	03/24/22 14:41	AK220324	PF220323W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S33936.03
Sample Tag: 01-PRCC-22-MID-1-160
Collected Date/Time: 03/15/2022 09:24
Matrix: Liquid
COC Reference: 142921

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	03/24/22 15:01	AK220324	PF220323W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Analysis Summary

Lab Sample ID: S33936.04
Sample Tag: 01-PRCC-22-PRIM-160
Collected Date/Time: 03/15/2022 09:26
Matrix: Liquid
COC Reference: 142921

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	03/24/22 15:20	AK220324	PF220323W1	Yes	BLK/LCS/LCSD/MS/MS

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF220323W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S33936.01	28 PFAs	ASTMD7979-19M	03/24/22 14:21	AK220324
S33936.02	28 PFAs	ASTMD7979-19M	03/24/22 14:41	AK220324
S33936.03	28 PFAs	ASTMD7979-19M	03/24/22 15:01	AK220324
S33936.04	28 PFAs	ASTMD7979-19M	03/24/22 15:20	AK220324

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S33936.01

Sample Tag: 01-PRCC-22-EFF-160

Collected Date/Time: 03/15/2022 09:20

Matrix: Liquid

COC Reference: 142921

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK220324, Run Date: 03/24/2022 14:21, Matrix: WW, Dilution: 1.98

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**117.3**	50.0	150.0
M2-6:2FTSA		**93.7**	50.0	150.0
M2-8:2FTSA		**133.9**	50.0	150.0
M2PFTeDA		**112.0**	12.0	218.0
M3PFBS		**109.9**	50.0	150.0
M3PFHxS		**99.3**	50.0	150.0
M4PFHpA		**105.8**	50.0	150.0
M5PFHxA		**102.8**	50.0	150.0
M5PFPeA		**112.3**	50.0	150.0
M6PFDA		**92.0**	50.0	150.0
M7PFUnDA		**100.4**	50.0	150.0
M8FOSA		**104.7**	50.0	150.0
M8PFOA		**93.4**	50.0	150.0
M8PFOS		**99.6**	50.0	150.0
M9-PFNA		**125.3**	50.0	150.0
MPFBA		**109.3**	50.0	150.0
MPFDoDA		**97.6**	50.0	150.0
d3N-MeFOSAA		**117.1**	50.0	150.0
d5EtFOSAA		**110.6**	50.0	150.0
MHFPO-DA		**83.1**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S33936.02

Sample Tag: 01-PRCC-22-MID-2-160

Collected Date/Time: 03/15/2022 09:22

Matrix: Liquid

COC Reference: 142921

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK220324, Run Date: 03/24/2022 14:41, Matrix: WW, Dilution: 2.01

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**115.8**	50.0	150.0
M2-6:2FTSA		**104.0**	50.0	150.0
M2-8:2FTSA		**118.2**	50.0	150.0
M2PFTeDA		**123.8**	12.0	218.0
M3PFBS		**105.3**	50.0	150.0
M3PFHxS		**84.0**	50.0	150.0
M4PFHpA		**99.2**	50.0	150.0
M5PFHxA		**98.9**	50.0	150.0
M5PFPeA		**108.9**	50.0	150.0
M6PFDA		**93.5**	50.0	150.0
M7PFUnDA		**102.8**	50.0	150.0
M8FOSA		**93.2**	50.0	150.0
M8PFOA		**93.4**	50.0	150.0
M8PFOS		**104.7**	50.0	150.0
M9-PFNA		**108.9**	50.0	150.0
MPFBA		**106.7**	50.0	150.0
MPFDoDA		**95.2**	50.0	150.0
d3N-MeFOSAA		**123.4**	50.0	150.0
d5EtFOSAA		**95.1**	50.0	150.0
MHFPO-DA		**91.4**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S33936.03
Sample Tag: 01-PRCC-22-MID-1-160
Collected Date/Time: 03/15/2022 09:24
Matrix: Liquid
COC Reference: 142921

Organics - Volatiles, Analysis: 28 PFAs
Run in Batch: AK220324, Run Date: 03/24/2022 15:01, Matrix: WW, Dilution: 2.02

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**107.7**	50.0	150.0
M2-6:2FTSA		**97.7**	50.0	150.0
M2-8:2FTSA		**135.0**	50.0	150.0
M2PFTeDA		**128.4**	12.0	218.0
M3PFBS		**107.6**	50.0	150.0
M3PFHxS		**104.9**	50.0	150.0
M4PFHpA		**98.6**	50.0	150.0
M5PFHxA		**101.2**	50.0	150.0
M5PFPeA		**108.8**	50.0	150.0
M6PFDA		**91.3**	50.0	150.0
M7PFUnDA		**104.2**	50.0	150.0
M8FOSA		**100.8**	50.0	150.0
M8PFOA		**101.8**	50.0	150.0
M8PFOS		**103.2**	50.0	150.0
M9-PFNA		**116.4**	50.0	150.0
MPFBA		**108.5**	50.0	150.0
MPFDoDA		**107.3**	50.0	150.0
d3N-MeFOSAA		**124.3**	50.0	150.0
d5EtFOSAA		**103.6**	50.0	150.0
MHFPO-DA		**97.8**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S33936.04

Sample Tag: 01-PRCC-22-PRIM-160

Collected Date/Time: 03/15/2022 09:26

Matrix: Liquid

COC Reference: 142921

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK220324, Run Date: 03/24/2022 15:20, Matrix: WW, Dilution: 1.99

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**128.7**	50.0	150.0
M2-6:2FTSA		**96.7**	50.0	150.0
M2-8:2FTSA		**121.3**	50.0	150.0
M2PFTeDA		**122.1**	12.0	218.0
M3PFBS		**101.3**	50.0	150.0
M3PFHxS		**89.8**	50.0	150.0
M4PFHpA		**93.9**	50.0	150.0
M5PFHxA		**100.2**	50.0	150.0
M5PFPeA		**105.7**	50.0	150.0
M6PFDA		**89.9**	50.0	150.0
M7PFUnDA		**98.4**	50.0	150.0
M8FOSA		**95.9**	50.0	150.0
M8PFOA		**100.9**	50.0	150.0
M8PFOS		**105.7**	50.0	150.0
M9-PFNA		**107.8**	50.0	150.0
MPFBA		**105.3**	50.0	150.0
MPFDoDA		**100.5**	50.0	150.0
d3N-MeFOSAA		**120.8**	50.0	150.0
d5EtFOSAA		**91.9**	50.0	150.0
MHFPO-DA		**81.0**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF220323W1

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

Blank (BLK)

Lab Sample ID: AK220324.BLK220323

Run in Batch: AK220324, Run Date: 03/24/2022 12:05, Prep Date: 03/23/2022, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**104.7**	50.0	150.0
M2-6:2FTSA		**85.7**	50.0	150.0
M2-8:2FTSA		**107.8**	50.0	150.0
M2PFTeDA		**115.8**	12.0	218.0
M3PFBS		**102.9**	50.0	150.0
M3PFHxS		**90.5**	50.0	150.0
M4PFHpA		**97.8**	50.0	150.0
M5PFHxA		**99.8**	50.0	150.0
M5PFPeA		**105.4**	50.0	150.0
M6PFDA		**90.3**	50.0	150.0
M7PFUnDA		**99.4**	50.0	150.0
M8FOSA		**98.5**	50.0	150.0
M8PFOA		**100.2**	50.0	150.0
M8PFOS		**93.6**	50.0	150.0
M9-PFNA		**108.2**	50.0	150.0
MPFBA		**104.1**	50.0	150.0
MPFDoDA		**108.5**	50.0	150.0
d3N-MeFOSAA		**113.0**	50.0	150.0
d5EtFOSAA		**95.6**	50.0	150.0
MHFPO-DA		**92.0**	50.0	150.0

QC Report - Internal Standards per QC Sample

Laboratory Control Sample (LCS)

Lab Sample ID: AK220324.LCS220323

Run in Batch: AK220324, Run Date: 03/24/2022 11:06, Prep Date: 03/23/2022, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**90.6**	50.0	150.0
M2-6:2FTSA		**79.7**	50.0	150.0
M2-8:2FTSA		**102.5**	50.0	150.0
M2PFTeDA		**110.9**	12.0	218.0
M3PFBS		**100.7**	50.0	150.0
M3PFHxS		**93.2**	50.0	150.0
M4PFHpA		**95.2**	50.0	150.0
M5PFHxA		**105.1**	50.0	150.0
M5PFPeA		**104.6**	50.0	150.0
M6PFDA		**87.5**	50.0	150.0
M7PFUnDA		**105.4**	50.0	150.0
M8FOSA		**101.4**	50.0	150.0
M8PFOA		**99.1**	50.0	150.0
M8PFOS		**97.2**	50.0	150.0
M9-PFNA		**113.9**	50.0	150.0
MPFBA		**70.6**	50.0	150.0
MPFDoDA		**106.5**	50.0	150.0
d3N-MeFOSAA		**114.6**	50.0	150.0
d5EtFOSAA		**95.1**	50.0	150.0
MHFPO-DA		**83.6**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK220324.LCSD220323R, Parent Sample ID: AK220324.LCS220323

Run in Batch: AK220324, Run Date: 03/24/2022 12:44, Prep Date: 03/23/2022, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**101.4**	50.0	150.0
M2-6:2FTSA		**89.0**	50.0	150.0
M2-8:2FTSA		**112.7**	50.0	150.0
M2PFTeDA		**128.0**	12.0	218.0
M3PFBS		**96.4**	50.0	150.0
M3PFHxS		**88.6**	50.0	150.0
M4PFHpA		**90.1**	50.0	150.0
M5PFHxA		**100.8**	50.0	150.0
M5PFPeA		**105.8**	50.0	150.0
M6PFDA		**90.5**	50.0	150.0
M7PFUnDA		**103.9**	50.0	150.0
M8FOSA		**98.8**	50.0	150.0
M8PFOA		**86.3**	50.0	150.0
M8PFOS		**105.6**	50.0	150.0
M9-PFNA		**106.4**	50.0	150.0
MPFBA		**102.5**	50.0	150.0
MPFDoDA		**103.5**	50.0	150.0
d3N-MeFOSAA		**116.4**	50.0	150.0
d5EtFOSAA		**92.0**	50.0	150.0
MHFPO-DA		**89.1**	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK220324.3393902RM, Parent Sample ID: S33939.01

Run in Batch: AK220324, Run Date: 03/25/2022 09:31, Prep Date: 03/23/2022, Matrix: WW, Dilution: 2.07

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	**242.7**	50.0	150.0
M2-6:2FTSA	*	**171.1**	50.0	150.0
M2-8:2FTSA		**123.8**	50.0	150.0
M2PFTeDA		**148.4**	12.0	218.0
M3PFBS		**79.4**	50.0	150.0
M3PFHxS		**98.6**	50.0	150.0
M4PFHpA		**104.4**	50.0	150.0
M5PFHxA		**95.1**	50.0	150.0
M5PFPeA		**86.3**	50.0	150.0
M6PFDA		**113.9**	50.0	150.0
M7PFUnDA		**106.1**	50.0	150.0
M8FOSA		**98.0**	50.0	150.0
M8PFOA		**102.7**	50.0	150.0
M8PFOS		**99.0**	50.0	150.0
M9-PFNA		**94.8**	50.0	150.0
MPFBA		**85.1**	50.0	150.0
MPFDoDA		**124.6**	50.0	150.0
d3N-MeFOSAA		**103.8**	50.0	150.0
d5EtFOSAA		**118.4**	50.0	150.0
MHFPO-DA		**83.6**	50.0	150.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: AK220324.3393903N, Parent Sample ID: AK220324.3393902RM

Run in Batch: AK220324, Run Date: 03/24/2022 16:19, Prep Date: 03/23/2022, Matrix: WW, Dilution: 2.04

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA	*	**286.4**	50.0	150.0
M2-6:2FTSA	*	**167.9**	50.0	150.0
M2-8:2FTSA	*	**176.4**	50.0	150.0
M2PFTeDA		**151.1**	12.0	218.0
M3PFBS		**112.0**	50.0	150.0
M3PFHxS		**103.0**	50.0	150.0
M4PFHpA		**100.6**	50.0	150.0
M5PFHxA		**107.9**	50.0	150.0
M5PFPeA		**112.0**	50.0	150.0
M6PFDA		**113.4**	50.0	150.0
M7PFUnDA		**128.9**	50.0	150.0
M8FOSA		**105.1**	50.0	150.0
M8PFOA		**117.4**	50.0	150.0
M8PFOS		**99.3**	50.0	150.0
M9-PFNA		**139.2**	50.0	150.0
MPFBA		**106.8**	50.0	150.0
MPFDoDA		**131.7**	50.0	150.0
d3N-MeFOSAA		**148.0**	50.0	150.0
d5EtFOSAA		**139.7**	50.0	150.0
MHFPO-DA		**96.3**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF220323W1

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

Blank (BLK)

Lab Sample ID: AK220324.BLK220323

Run in Batch: AK220324, Run Date: 03/24/2022 12:05, Prep Date: 03/23/2022, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
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

Laboratory Control Sample (LCS)

Lab Sample ID: AK220324.LCS220323

Run in Batch: AK220324, Run Date: 03/24/2022 11:06, Prep Date: 03/23/2022, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		101.0	70.0	130.0
PFPeA		95.4	70.0	130.0
4:2 FTSA		90.8	70.0	130.0
PFHxA		89.8	70.0	130.0
PFBS		96.2	70.0	130.0
HFPO-DA		94.4	70.0	130.0
PFHpA		99.4	70.0	130.0
PFPeS		112.4	70.0	130.0
ADONA		89.8	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF220323W1 (continued)

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

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK220324.LCS220323

Run in Batch: AK220324, Run Date: 03/24/2022 11:06, Prep Date: 03/23/2022, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
6:2 FTSA		119.2	70.0	130.0
PFOA		100.0	70.0	130.0
PFHxS		94.4	70.0	130.0
PFNA		82.8	70.0	130.0
8:2 FTSA		88.0	70.0	130.0
PFHpS		90.6	70.0	130.0
N-MeFOSAA		90.4	70.0	130.0
PFDA		98.2	70.0	130.0
EtFOSAA		113.0	70.0	130.0
PFOS		80.6	70.0	130.0
PFUnDA		104.8	70.0	130.0
9CL-PF3ONS		104.2	70.0	130.0
PFNS		107.4	70.0	130.0
PFDoDA		99.4	70.0	130.0
PFDS		111.2	70.0	130.0
PFTrDA		108.8	70.0	130.0
FOSA		97.2	70.0	130.0
11CL-PF3OUdS		104.4	70.0	130.0
PFTeDA		112.8	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK220324.LCSD220323R, Parent Sample ID: AK220324.LCS220323

Run in Batch: AK220324, Run Date: 03/24/2022 12:44, Prep Date: 03/23/2022, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		101.8	70.0	130.0	0.8	30.0
PFPeA		104.0	70.0	130.0	8.6	30.0
4:2 FTSA		102.6	70.0	130.0	12.2	30.0
PFHxA		101.2	70.0	130.0	11.9	30.0
PFBS		105.2	70.0	130.0	8.9	30.0
HFPO-DA		88.2	70.0	130.0	6.8	30.0
PFHpA		100.0	70.0	130.0	0.6	30.0
PFPeS		115.2	70.0	130.0	2.5	30.0
ADONA		95.6	70.0	130.0	6.3	30.0
6:2 FTSA		112.8	70.0	130.0	5.5	30.0
PFOA		128.6	70.0	130.0	25.0	30.0
PFHxS		107.0	70.0	130.0	12.5	30.0
PFNA		99.0	70.0	130.0	17.8	30.0
8:2 FTSA		95.8	70.0	130.0	8.5	30.0
PFHpS		104.4	70.0	130.0	14.2	30.0
N-MeFOSAA		99.0	70.0	130.0	9.1	30.0
PFDA		95.0	70.0	130.0	3.3	30.0
EtFOSAA		104.2	70.0	130.0	8.1	30.0
PFOS		78.6	70.0	130.0	2.5	30.0
PFUnDA		102.6	70.0	130.0	2.1	30.0
9CL-PF3ONS		91.8	70.0	130.0	12.7	30.0
PFNS		99.4	70.0	130.0	7.7	30.0

Organics - Volatiles, Prep Batch ID: PF220323W1 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK220324.LCSD220323R, Parent Sample ID: AK220324.LCS220323

Run in Batch: AK220324, Run Date: 03/24/2022 12:44, Prep Date: 03/23/2022, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFDoDA		107.4	70.0	130.0	7.7	30.0
PFDS		106.0	70.0	130.0	4.8	30.0
PFTrDA		122.0	70.0	130.0	11.4	30.0
FOSA		97.2	70.0	130.0	0.0	30.0
11CL-PF3OUdS		102.6	70.0	130.0	1.7	30.0
PFTeDA		125.6	70.0	130.0	10.7	30.0

Matrix Spike (MS)

Lab Sample ID: AK220324.3393902RM, Parent Sample ID: S33939.01

Run in Batch: AK220324, Run Date: 03/25/2022 09:31, Prep Date: 03/23/2022, Matrix: WW, Dilution: 2.07

Analyte	Flags	% Rec	LCL	UCL
PFBA		125.0	70.0	130.0
PFPeA		115.4	70.0	130.0
4:2 FTSA		105.8	70.0	130.0
PFHxA		105.8	70.0	130.0
PFBS		104.2	70.0	130.0
PFHpA		92.3	70.0	130.0
PFPeS		115.4	70.0	130.0
6:2 FTSA		96.2	70.0	130.0
PFOA		103.3	70.0	130.0
PFHxS		113.4	70.0	130.0
PFNA		105.8	70.0	130.0
8:2 FTSA		83.7	70.0	130.0
PFHpS		105.8	70.0	130.0
PFDA		93.3	70.0	130.0
N-MeFOSAA		105.8	70.0	130.0
EtFOSAA		105.8	70.0	130.0
PFOS		82.7	70.0	130.0
PFUnDA		96.2	70.0	130.0
PFNS		105.8	70.0	130.0
PFDoDA		93.3	70.0	130.0
PFDS		105.8	70.0	130.0
PFTrDA		115.4	70.0	130.0
FOSA		105.8	70.0	130.0
PFTeDA		125.0	70.0	130.0
11CL-PF3OUdS		105.8	70.0	130.0
9CL-PF3ONS		105.8	70.0	130.0
ADONA		89.4	70.0	130.0
HFPO-DA		94.2	70.0	130.0

Matrix Spike Duplicate (MSD)

Lab Sample ID: AK220324.3393903N, Parent Sample ID: AK220324.3393902RM

Run in Batch: AK220324, Run Date: 03/24/2022 16:19, Prep Date: 03/23/2022, Matrix: WW, Dilution: 2.04

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		117.6	70.0	130.0	8.0	30.0
PFPeA		107.8	70.0	130.0	8.7	30.0

Organics - Volatiles, Prep Batch ID: PF220323W1 (continued)

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

Matrix Spike Duplicate (MSD) (continued)

Lab Sample ID: AK220324.3393903N, Parent Sample ID: AK220324.3393902RM

Run in Batch: AK220324, Run Date: 03/24/2022 16:19, Prep Date: 03/23/2022, Matrix: WW, Dilution: 2.04

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
4:2 FTSA		98.0	70.0	130.0	9.5	30.0
PFHxA		91.2	70.0	130.0	16.7	30.0
PFBS		96.5	70.0	130.0	9.5	30.0
PFHpA		97.1	70.0	130.0	3.1	30.0
PFPeS		98.0	70.0	130.0	18.2	30.0
6:2 FTSA		107.8	70.0	130.0	9.5	30.0
PFOA		88.6	70.0	130.0	16.7	30.0
PFHxS		91.1	70.0	130.0	23.3	30.0
PFNA		81.4	70.0	130.0	28.0	30.0
8:2 FTSA		107.8	70.0	130.0	23.4	30.0
PFHpS		93.1	70.0	130.0	14.6	30.0
PFDA		90.2	70.0	130.0	5.3	30.0
N-MeFOSAA		107.8	70.0	130.0	0.0	30.0
EtFOSAA		93.1	70.0	130.0	14.6	30.0
PFOS		94.1	70.0	130.0	6.1	30.0
PFUnDA		95.1	70.0	130.0	3.0	30.0
PFNS		107.8	70.0	130.0	0.0	30.0
PFDoDA		95.1	70.0	130.0	0.0	30.0
PFDS		107.8	70.0	130.0	0.0	30.0
PFTrDA		107.8	70.0	130.0	8.7	30.0
FOSA		107.8	70.0	130.0	0.0	30.0
PFTeDA		107.8	70.0	130.0	16.7	30.0
11CL-PF3OUdS		107.8	70.0	130.0	0.0	30.0
9CL-PF3ONS		98.0	70.0	130.0	9.5	30.0
ADONA		81.4	70.0	130.0	11.4	30.0
HFPO-DA		84.3	70.0	130.0	13.0	30.0

Merit Laboratories, Inc.
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C.O.C. PAGE # 1 OF 1

142921

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: 48105
PHONE NO.: 313-333-0211 FAX NO.:
P.O. NO.: 1940004462 Task 37
E-MAIL ADDRESS: Clifford.Yantz@Ramboll.com / Kevin.Schneider@Ramboll.com
QUOTE NO.:

INVOICE TO

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

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

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (7979)	Special Instructions
33736.01	3/15/22	920	01-PRCC-22-Eff-160	L	3	3							X	Low level
.02	↓	922	01-PRCC-22-MID-2-160	L	3	3							X	Reporting limits
.03		924	01-PRCC-22-MID-1-160	L	3	3							X	with estimated
.04		926	01-PRCC-22-PRIM-160	L	3	3							X	values

PBS

RELINQUISHED BY: SIGNATURE/ORGANIZATION: X ☒ Sampler DATE: 3/17/22 TIME: 900
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: 3/17/22 TIME: 900

RELINQUISHED BY: SIGNATURE/ORGANIZATION: DATE: 3/17/22 TIME: 1000
RECEIVED BY: SIGNATURE/ORGANIZATION: DATE: 3/17/22 TIME: 1000

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

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

NOTES: TEMP. ON ARRIVAL 4.6

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

Rev. 5.18.12