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– October 2020 through December 2020***
Permit No.: 6-08-04-04-GML1
FILE: 15388/75178/Docs

Dear **Mr. Hutchings:**

January 22, 2021

In accordance with requirements of the above referenced discharge permit, we are providing you with the following discharge information for the period October 1, 2020 to December 31, 2020 for the Coldwater Road Landfill facility, located at 6220 Horton Avenue, Flint, Michigan. In addition, we are reporting the performance of the per- and polyfluoroalkyl substances (PFAS) pretreatment system in this letter and will continue to do so as long as the pretreatment system is in operation.

- Periodic Report on Continued Compliance, certification
- Periodic Report on Continued Compliance Sample (Table 1)
- Daily Discharge Summary Table (Table 2)
- PFAS Sampling Results Table (Table 3)
- Analytical Reports provided by Merit Laboratories, Inc. for samples from the on-Site, above ground collection tank collected on December 4, 2020.
- Analytical Reports provided by Merit Laboratories, Inc. for samples from the on-Site, PFAS pretreatment system collected on December 18, 2020 and December 22, 2020 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, PFAS analytical results for the effluent were non-detect, expect for perfluorooctane sulfonic acid (PFOS) which had a detection of 3.2 ng/L. Although there was a detection for PFOS in the effluent PFAS 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 December 18, 2020 and December 22, 2020 during the accumulation tank discharge. The influent sample collected on December 18, 2020 had a detection of 11,000 ng/L for PFOS.

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The highest detection from the primary GAC drum sample collected on December 22, 2020 was 110 ng/L for PFOS after 160 bed volumes (approximately 7,229 gallons). On December 22, 2020, PFOS was detected at a concentration of 6.5 ng/L in the secondary GAC drum, 4.6 ng/L in the tertiary GAC drum, and 3.2 ng/L in the effluent GAC drum. We are a little perplexed by the detection in the effluent considering that the secondary, tertiary, and effluent GAC drums were replaced this discharge. Therefore, we would like to keep the same GAC drums for the next discharge, but we would like to institute a more thorough flushing of the sample ports prior to sampling to make sure the low detections seen this event are not an artifact of the sampling method. We typically just open the valves to a low flow rate for sampling and allow them to flow for a little while and then collect the samples. We do this over a bucket and then discharge the water back into the tank so it can be treated. We would like to institute opening the 1 inch inside diameter valves for full flow to flush them completely out with a couple gallons of water and then back the valves off to a low flow rate for sampling. This should maintain the integrity of the sampling process.

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

Yours sincerely,
RAMBOLL AMERICAS ENGINEERING SOLUTIONS, INC.

Clifford S. Yantz
Senior 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: October 1, 2020 through December 31, 2020

Average Volume of Daily Discharge (during reporting period): 2,409.66 gallons
(Three One Day Events)

Complete the following:

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

Name of Authorized Representative: Clifford Yantz

Title of Authorized Representative: Senior 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: 1/22/21

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

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

Name of Authorized Representative: N/A

Title of Authorized Representative: N/A

Signature of Authorized Representative: N/A

Date Signed by Authorized Representative: N/A

TABLES

Table 1
Periodic Report on Continued Compliance
City of Flint Sewer User Self-Monitoring Report
Fourth Quarter - 2020 - 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	7.76	7.6	<2	8.01	0.03	7
Test Method	4500-NH3 D	10360	1664A	4500-H+ B	4500-PE	2540 D
Test Date	12/8/2020	12/9/2020	12/9/2020	12/4/2020	12/11/2020	12/10/2020
Sample Date	12/4/2020	12/4/2020	12/4/2020	12/4/2020	12/4/2020	12/4/2020
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
Fourth Quarter - 2020 - 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	0.015	0.048	0.768	<0.0002	0.191	0.023	<0.002
Test Method	200.8	200.8	200.8	245.1	200.8	200.8	1677
Test Date	12/8/2020	12/8/2020	12/8/2020	12/11/2020	12/8/2020	12/8/2020	12/8/2020
Sample Date	12/4/2020	12/4/2020	12/4/2020	12/4/2020	12/4/2020	12/4/2020	12/4/2020
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
Fourth Quarter 2020
6-08-04-04-GML1

Date	Beginning Flow Meter Reading	End Flow Meter Reading	Gallons Discharged	Begin Time of Discharge	End Time of Discharge	Average Flow (gal/min)	Temperature at Discharge (C)	(F)	pH
12/18/2020	746,072	747,903	**1,831**	7:52	16:20	3.60	8.9	48.0	10.33
12/21/2020 - 12/22/2020	747,903	753,301	**5,398**	7:58 AM (12/21/20)	9:35 AM (12/22/20)	3.51	8.6	47.5	7.78

Total Discharge Volume (3 Days): 7,229
Average Discharge Volume (3 Days): 2,409.66

NOTES :

TABLE 3
RACER Trust - Coldwater Road
Pre-and Polyfluroalkyl Substances (PFAS) Sampling Results - December 2020

Coldwater Road - PFAS Pretreatment System Samples

Perfluorinated Compound / Well/Sample ID: / Sample Date:	EGLE Drinking Water Maximum Contaminant Levels (MCLs)	EGLE Rule 57 Surface Water Quality Values - Non-Drinking Water	04-PRCC-20-INF (Influent Sample) 12/18/2020	04-PRCC-20-PRIM (Primary GAC Drum Sample) 12/18/2020	04-PRCC-20-PRIM-160 (Primary GAC Drum Sample after 160 Bed Volumes) 12/22/2020	04-PRCC-20-MID-1-160 (Secondary GAC Drum Sample after 160 Bed Volumes) 12/22/2020	04-PRCC-20-MID-2-160 (Tertiary GAC Drum Sample after 160 Bed Volumes) 12/22/2020	04-PRCC-20-EFF-160 (Effluent Sample after 160 Bed Volumes) 12/22/2020	FieldBlank-121820 (Field Blank) 12/18/2020	FieldBlank-122220 (Field Blank) 12/22/2020
Perfluorobutanoic Acid (PFBA)	--	--	<210 X	<9.6	<10	<10	<10	<9.9	<10	<11
Perfluoropentanoic Acid (PFPeA)	--	--	<160 X	<3.8	<4.1	<4.0	<4.1	<4.0	<4.1	<4.2
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)	--	--	<2.1 I	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluorohexanoic Acid (PFHxA)	**400,000**	--	**110**	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluorobutane Sulfonic Acid (PFBS)	**420**	--	**120**	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluoroheptanoic Acid (PFHpA)	--	--	**39**	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluoropentane Sulfonic Acid (PFPeS)	--	--	**260**	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)	--	--	<2.1 I	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluorooctanoic Acid (**PFOA**)	**8**	**12,000**	**100**	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluorohexane Sulfonic Acid (PFHxS)	**51**	--	**710**	<1.9	**5.5**	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)	--	--	**590**	<1.9	**4.1**	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)	--	--	**120**	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluorononanoic Acid (PFNA)	**6**	--	<2.1	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)	--	--	<2.1	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluoroheptane Sulfonic Acid (PFHpS)	--	--	**130**	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluorodecanoic Acid (PFDA)	--	--	<2.1	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)	--	--	<2.1	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)	--	--	<4.1	<3.8	<4.1	<4.0	<4.1	<4.0	<4.1	<4.2
Perfluorooctane Sulfonic Acid (**PFOS**)	**16**	**12**	**11,000**	**10**	**110**	**6.5**	**4.6**	**3.2**	<2.1	<2.1
Perfluorooctane Sulfonic Acid (**PFOS**-LN)	--	--	**6,800**	**8.5**	**58**	**4.9**	**3.7**	**2.7**	<2.1	<2.1
Perfluorooctane Sulfonic Acid (**PFOS**-BR)	--	--	**4,400**	<1.9	**53**	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluoroundecanoic Acid (PFUnDA)	--	--	<2.1	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluorononane Sulfonic Acid (PFNS)	--	--	**4.0**	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluorododecanoic Acid (PFDoDA)	--	--	<2.1	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluorodecane Sulfonic Acid (PFDS)	--	--	**1.6 J**	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluorotridecanoic Acid (PFTrDA)	--	--	<2.1	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluorooctane Sulfonamide (FOSA)	--	--	<2.1	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
Perfluorotetradecanoic Acid (PFTeDA)	--	--	<4.1	<3.8	<4.1	<4.0	<4.1	<4.0	<4.1	<4.2
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	--	--	<2.1	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
9-chlorohexadecafluoro-3-oxanone1-sulfonic acid (9Cl-PF3ONS)	--	--	<2.1	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	--	--	<2.1	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
Hexafluoropropylene oxide dimer (HFPO-DA)	**370**	--	<2.1	<1.9	<2.0	<2.0	<2.1	<2.0	<2.1	<2.1
Total Per-and Polyfluoroalkyl Substances	--	--	**12,474.6**	**10.0**	**115.5**	**6.5**	**4.6**	**3.2**	**0.0**	**0.0**

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

ANALYTICAL REPORTS

Analytical Laboratory Report

Report ID: S19702.01(01)+QC01
Generated on 12/14/2020

Report to

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

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

Addtional Contacts: Kevin Schneider

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S19702.01
Project: Racer Coldwater Rd
Collected Date(s): 12/04/2020
Submitted Date/Time: 12/04/2020 12:30
Sampled by: Kevin Schneider
P.O. #: 12000277

Table of Contents

Maya Murshak
Technical Director

General Report Notes

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

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

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

Qualifier Descriptions

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

Glossary of Abbreviations

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

Method Summary

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

Analytical Laboratory Report

Sample Summary (1 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S19702.01	04-PRCC-20	Wastewater	12/04/20 11:22

Analytical Laboratory Report

Lab Sample ID: S19702.01
Sample Tag: 04-PRCC-20
Collected Date/Time: 12/04/2020 11:22
Matrix: Wastewater
COC Reference: 125023

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	2.9	IR
1	250ml Plastic	H2SO4	Yes	2.9	IR
1	125ml Amber	PbCO3/NaOH	Yes	2.9	IR
1	1L Plastic	None	Yes	2.9	IR
1	32oz Glass	HCL	Yes	2.9	IR
1	500ml Plastic	None	Yes	2.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	12/11/20 09:15	JRH	
TBOD5 - Set*	Completed	HACH 10360	12/04/20 18:30	ASB	
Metal Digestion	Completed	SW3015A	12/08/20 10:50	CCM	

Inorganics

Method: E1664A, Run Date: 12/09/20 15:22, Analyst: PTW

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

Method: HACH 10360, Run Date: 12/09/20 16:39, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TBOD5*	7.6	3		mg/L	15		

Method: SM2540D, Run Date: 12/10/20 22:45, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	7	3		mg/L	1.33		

Method: SM2550B, Run Date: 12/04/20 11:22, Analyst: KS

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

Method: SM4500-H+ B, Run Date: 12/04/20 11:22, Analyst: KS

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Field pH*	8.01	0.01		STD Units	1		

Method: SM4500-NH3 D, Run Date: 12/08/20 14:09, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ammonia-N (Undistilled)	7.76	0.04	0.006	mg/L	2	7664-41-7	

Method: SM4500-PE, Run Date: 12/11/20 15:05, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Phosphorus	0.03	0.01	0.009	mg/L	1	7723-14-0	

Metals

Method: E200.8, Run Date: 12/08/20 13:56, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.015	0.002		mg/L	5	7440-38-2	

Lab Sample ID: S19702.01 (continued)
Sample Tag: 04-PRCC-20

Method: E200.8, Run Date: 12/08/20 13:56, Analyst: CCM (continued)

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	0.048	0.005		mg/L	5	7440-47-3	
Copper	0.768	0.005		mg/L	5	7440-50-8	
Nickel	0.191	0.005		mg/L	5	7440-02-0	
Zinc	0.023	0.005		mg/L	5	7440-66-6	

Method: E245.1, Run Date: 12/11/20 11:45, 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: 12/08/20 14:29, Analyst: JDP

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

Quality Control Report

Report ID: S19702.01(01)+QC01
Generated on 12/14/2020

Report to

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

Phone: 313-333-0211 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S19702.01
Project: Racer Coldwater Rd
Submitted Date/Time: 12/04/2020 12:30
Sampled by: Kevin Schneider
P.O. #: 12000277

QC Report Sections

Report Flag Descriptions

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

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

Barbara Ball
Quality Assurance Manager

QC Report - Analysis Summary

Lab Sample ID: S19702.01
Sample Tag: 04-PRCC-20
Collected Date/Time: 12/04/2020 11:22
Matrix: Wastewater
COC Reference: 125023

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Inorganics						
Ammonia-N (Undistilled)	SM4500-NH3 D	12/08/20 14:09	AMN201208QC	AMN201208QC	No	BLK/LCS/MS/DUP
Oil & Grease n-Hexane Extract.	E1664A	12/09/20 15:22	OGHEX201209W01	OGHEX201209W01	No	BLK/LCS
TBOD5	HACH 10360	12/09/20 16:39	BOD201204	BOD201204	No	BLK/LCS/DUP
Total Phosphorus	SM4500-PE	12/11/20 15:05	PHS201211QC	PHS201211QC	No	BLK/LCS/MS/DUP
Total Suspended Solids	SM2540D	12/10/20 22:45	TSS201210	TSS201210	No	BLK/LCS/DUP
Metals						
Arsenic	E200.8	12/08/20 13:56	MT4-20-1208A	MTD-120820-2	No	BLK/LCS/MS/MSD/DU
Chromium	E200.8	12/08/20 13:56	MT4-20-1208A	MTD-120820-2	No	BLK/LCS/MS/MSD/DU
Copper	E200.8	12/08/20 13:56	MT4-20-1208A	MTD-120820-2	No	BLK/LCS/MS/MSD/DU
Mercury	E245.1	12/11/20 11:45	HG2-HG3-20-1211A	HGD-121120-1	No	BLK/LCS/MS/MSD
Nickel	E200.8	12/08/20 13:56	MT4-20-1208A	MTD-120820-2	No	BLK/LCS/MS/MSD/DU
Zinc	E200.8	12/08/20 13:56	MT4-20-1208A	MTD-120820-2	No	BLK/LCS/MS/MSD/DU
Other / Misc.						
Available Cyanide	OIA-1677	12/08/20 14:29	ACN201208-W1	ACN201208-W1	No	BLK/LCS/MS/MSD/DU

QC Report - Prep Batch Summary

Inorganics, Prep Batch ID: AMN201208QC

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S19702.01	Ammonia-N (Undistilled)	SM4500-NH3 D	12/08/20 14:09	AMN201208QC

Inorganics, Prep Batch ID: BOD201204

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S19702.01	TBOD5	HACH 10360	12/09/20 16:39	BOD201204

Inorganics, Prep Batch ID: OGHEX201209W01

Surrogates: No, QC Types: BLK/LCS

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S19702.01	Oil & Grease n-Hexane Extract.	E1664A	12/09/20 15:22	OGHEX201209W01

Inorganics, Prep Batch ID: PHS201211QC

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S19702.01	Total Phosphorus	SM4500-PE	12/11/20 15:05	PHS201211QC

Inorganics, Prep Batch ID: TSS201210

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S19702.01	Total Suspended Solids	SM2540D	12/10/20 22:45	TSS201210

Metals, Prep Batch ID: HGD-121120-1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S19702.01	Mercury	E245.1	12/11/20 11:45	HG2-HG3-20-1211A

Metals, Prep Batch ID: MTD-120820-2

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S19702.01	Arsenic	E200.8	12/08/20 13:56	MT4-20-1208A
S19702.01	Chromium	E200.8	12/08/20 13:56	MT4-20-1208A
S19702.01	Copper	E200.8	12/08/20 13:56	MT4-20-1208A
S19702.01	Nickel	E200.8	12/08/20 13:56	MT4-20-1208A
S19702.01	Zinc	E200.8	12/08/20 13:56	MT4-20-1208A

Other / Misc., Prep Batch ID: ACN201208-W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S19702.01	Available Cyanide	OIA-1677	12/08/20 14:29	ACN201208-W1

Inorganics, Prep Batch ID: AMN201208QC

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

Blank (BLK)

Lab Sample ID: AMN201208QC.LRB1

Run in Batch: AMN201208QC, Run Date: 12/08/2020 10:24, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 1

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

Laboratory Control Sample (LCS)

Lab Sample ID: AMN201208QC.LCS1

Run in Batch: AMN201208QC, Run Date: 12/08/2020 11:46, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Ammonia-N (Undistilled)		109	90	110

Matrix Spike (MS)

Lab Sample ID: AMN201208QC.MS1, Parent Sample ID: S19611.01

Run in Batch: AMN201208QC, Run Date: 12/08/2020 13:10, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Ammonia-N (Undistilled)		96	80	120

Duplicate (DUP)

Lab Sample ID: AMN201208QC.DP1, Parent Sample ID: S19762.02

Run in Batch: AMN201208QC, Run Date: 12/08/2020 12:45, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Ammonia-N (Undistilled)		2.6	20

Inorganics, Prep Batch ID: BOD201204

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

Blank (BLK)

Lab Sample ID: BOD201204.LRB1

Run in Batch: BOD201204, Run Date: 12/09/2020 16:39, Prep Date: 12/09/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
TBOD5		ND	3	mg/L

Laboratory Control Sample (LCS)

Lab Sample ID: BOD201204.LCS1

Run in Batch: BOD201204, Run Date: 12/09/2020 16:39, Prep Date: 12/09/2020, Matrix: Liquid, Dilution: 15

Analyte	Flags	% Rec	LCL	UCL
TBOD5		104.9	50.7	166

Duplicate (DUP)

Lab Sample ID: BOD201204.DP1, Parent Sample ID: S19717.01

Run in Batch: BOD201204, Run Date: 12/09/2020 16:39, Prep Date: 12/09/2020, Matrix: Liquid, Dilution: 60

Analyte	Flags	RPD	RPD CL
TBOD5		1.0	20

Inorganics, Prep Batch ID: OGHEX201209W01

Surrogates: No, QC Types: BLK/LCS

Blank (BLK)

Lab Sample ID: OGHEX201209W01.LRB3

Run in Batch: OGHEX201209W01, Run Date: 12/09/2020 15:22, Prep Date: 12/09/2020, 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: OGHEX201209W01.LCS1

Run in Batch: OGHEX201209W01, Run Date: 12/09/2020 15:22, Prep Date: 12/09/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Oil & Grease n-Hexane Extract.		93	78	114

Laboratory Control Sample (LCS)

Lab Sample ID: OGHEX201209W01.LCS2

Run in Batch: OGHEX201209W01, Run Date: 12/09/2020 15:22, Prep Date: 12/09/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Oil & Grease n-Hexane Extract.		97	78	114

Inorganics, Prep Batch ID: PHS201211QC

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

Blank (BLK)

Lab Sample ID: PHS201211QC.LRB1

Run in Batch: PHS201211QC, Run Date: 12/11/2020 14:22, Prep Date: 12/11/2020, Matrix: Liquid, Dilution: 1

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

Blank (BLK)

Lab Sample ID: PHS201211QC.LRB2

Run in Batch: PHS201211QC, Run Date: 12/11/2020 14:29, Prep Date: 12/11/2020, Matrix: Liquid, Dilution: 1

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

Laboratory Control Sample (LCS)

Lab Sample ID: PHS201211QC.LCS1

Run in Batch: PHS201211QC, Run Date: 12/11/2020 14:35, Prep Date: 12/11/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		91	90	110

Matrix Spike (MS)

Lab Sample ID: PHS201211QC.MS1, Parent Sample ID: S19702.01

Run in Batch: PHS201211QC, Run Date: 12/11/2020 18:51, Prep Date: 12/11/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		93	80	120

Duplicate (DUP)

Lab Sample ID: PHS201211QC.DP1, Parent Sample ID: S19894.01

Run in Batch: PHS201211QC, Run Date: 12/11/2020 18:48, Prep Date: 12/11/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Total Phosphorus		8.4	20

Inorganics, Prep Batch ID: TSS201210

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

Blank (BLK)

Lab Sample ID: TSS201210.LRB1

Run in Batch: TSS201210, Run Date: 12/10/2020 22:45, Prep Date: 12/10/2020, Matrix: Liquid, Dilution: 1.00

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

Laboratory Control Sample (LCS)

Lab Sample ID: TSS201210.LCS1

Run in Batch: TSS201210, Run Date: 12/10/2020 22:45, Prep Date: 12/10/2020, Matrix: Liquid, Dilution: 10.0

Analyte	Flags	% Rec	LCL	UCL
Total Suspended Solids		97.8	81.4	112

Duplicate (DUP)

Lab Sample ID: TSS201210.DP1, Parent Sample ID: S19830.01

Run in Batch: TSS201210, Run Date: 12/10/2020 22:45, Prep Date: 12/10/2020, Matrix: Liquid, Dilution: 4.00

Analyte	Flags	RPD	RPD CL
Total Suspended Solids		0.3	5

Metals, Prep Batch ID: HGD-121120-1

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

Blank (BLK)

Lab Sample ID: HG2-HG3-20-1211A.016

Run in Batch: HG2-HG3-20-1211A, Run Date: 12/11/2020 11:36, Prep Date: 12/11/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Mercury		ND	0.05	ug/L

Laboratory Control Sample (LCS)

Lab Sample ID: HG2-HG3-20-1211A.015

Run in Batch: HG2-HG3-20-1211A, Run Date: 12/11/2020 11:34, Prep Date: 12/11/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Mercury		96	85	115

Matrix Spike (MS)

Lab Sample ID: HG2-HG3-20-1211A.027, Parent Sample ID: S19813.01

Run in Batch: HG2-HG3-20-1211A, Run Date: 12/11/2020 11:55, Prep Date: 12/11/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Mercury		114	80	120

Matrix Spike (MS)

Lab Sample ID: HG2-HG3-20-1211A.037, Parent Sample ID: S19842.17

Run in Batch: HG2-HG3-20-1211A, Run Date: 12/11/2020 12:13, Prep Date: 12/11/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Mercury		106	80	120

Matrix Spike Duplicate (MSD)

Lab Sample ID: HG2-HG3-20-1211A.028, Parent Sample ID: HG2-HG3-20-1211A.027

Run in Batch: HG2-HG3-20-1211A, Run Date: 12/11/2020 11:57, Prep Date: 12/11/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Mercury		117	80	120	3	20

Matrix Spike Duplicate (MSD)

Lab Sample ID: HG2-HG3-20-1211A.038, Parent Sample ID: HG2-HG3-20-1211A.037

Run in Batch: HG2-HG3-20-1211A, Run Date: 12/11/2020 12:15, Prep Date: 12/11/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Mercury		105	80	120	1	20

Metals, Prep Batch ID: MTD-120820-2

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

Blank (BLK)

Lab Sample ID: MT4-20-1208A.073.LRB

Run in Batch: MT4-20-1208A, Run Date: 12/08/2020 13:03, Prep Date: 12/08/2020, 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: MT4-20-1208A.071.LCS

Run in Batch: MT4-20-1208A, Run Date: 12/08/2020 12:53, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Arsenic		100	85	115
Chromium		104	85	115
Copper		104	85	115
Nickel		102	85	115
Zinc		101	85	115

Matrix Spike (MS)

Lab Sample ID: MT4-20-1208A.096.MS, Parent Sample ID: S19696.10

Run in Batch: MT4-20-1208A, Run Date: 12/08/2020 13:44, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		117	75	125
Chromium		113	75	125
Copper		108	75	125
Nickel		109	75	125
Zinc		114	75	125

Matrix Spike (MS)

Lab Sample ID: MT4-20-1208A.123.MS, Parent Sample ID: S19760.03

Run in Batch: MT4-20-1208A, Run Date: 12/08/2020 14:26, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		112	75	125
Chromium		110	75	125
Copper		104	75	125
Nickel		106	75	125
Zinc		115	75	125

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-20-1208A.097.MSD, Parent Sample ID: MT4-20-1208A.096.MS

Run in Batch: MT4-20-1208A, Run Date: 12/08/2020 13:45, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		120	75	125	2	20
Chromium		112	75	125	1	20
Copper		106	75	125	2	20
Nickel		109	75	125	0	20
Zinc		118	75	125	3	20

Metals, Prep Batch ID: MTD-120820-2 (continued)

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

Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-20-1208A.124.MSD, Parent Sample ID: MT4-20-1208A.123.MS

Run in Batch: MT4-20-1208A, Run Date: 12/08/2020 14:27, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		116	75	125	3	20
Chromium		112	75	125	2	20
Copper		111	75	125	6	20
Nickel		109	75	125	2	20
Zinc		118	75	125	3	20

Other / Misc., Prep Batch ID: ACN201208-W1

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

Blank (BLK)

Lab Sample ID: ACN201208-W1.LRB1

Run in Batch: ACN201208-W1, Run Date: 12/08/2020 14:19, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 1

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

Blank (BLK)

Lab Sample ID: ACN201208-W1.LRB2

Run in Batch: ACN201208-W1, Run Date: 12/08/2020 15:10, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 1

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

Laboratory Control Sample (LCS)

Lab Sample ID: ACN201208-W1.LCS1

Run in Batch: ACN201208-W1, Run Date: 12/08/2020 14:23, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Available Cyanide		94	88	109

Matrix Spike (MS)

Lab Sample ID: ACN201208-W1.MS1, Parent Sample ID: S19702.01

Run in Batch: ACN201208-W1, Run Date: 12/08/2020 14:35, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Available Cyanide		100	82	130

Matrix Spike Duplicate (MSD)

Lab Sample ID: ACN201208-W1.MSD1, Parent Sample ID: ACN201208-W1.MS1

Run in Batch: ACN201208-W1, Run Date: 12/08/2020 14:37, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Available Cyanide		98	82	130	2	15

Duplicate (DUP)

Lab Sample ID: ACN201208-W1.DP1, Parent Sample ID: S19702.01

Run in Batch: ACN201208-W1, Run Date: 12/08/2020 14:31, Prep Date: 12/08/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Available Cyanide		<1	15

Merit Laboratories Login Checklist

Lab Set ID: S19702
Client: OBG02 (Ramboll Americas - East Lansing, MI)
Project: Racer Coldwater Rd
Submitted: 12/04/2020 12:30 Login User: REJ

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

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

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 2.9
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: S19702 Submitted: 12/04/2020 12:30

Client: OBG02 (Ramboll Americas - East Lansing, MI)

Project: Racer Coldwater Rd

Initial Preservation Check: 12/04/2020 12:52 REJ

Preservation Recheck (E200.8): N/A

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

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

Sample ID	Bottle / Preservation	pH (Orig)	Add ml	pH (New)	Notes
S19702.01	125ml Amber PbCO3/NaOH	>12			
S19702.01	125ml Plastic HNO3	<2			
S19702.01	250ml Plastic H2SO4	<2			
S19702.01	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

125023

CHAIN OF CUSTODY RECORD

REPORT TO

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

INVOICE TO

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

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

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

DELIVERABLES REQUIRED ☐ STD X 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)
19702-01	12/4/20	1122	04-PRCC-20	WW	6	2	1	1	1			1	X	X	X	X	X	X

Metals Are:
As, Cr, Cu, Hg, Ni, Zn

Analysis per city of Flint including QC Report

Field pH: 8.01
Field Temp: 8.79

RELINQUISHED BY: SIGNATURE/ORGANIZATION	X Sampler	DATE 12/4/20	TIME 1142
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 12/4/20	TIME 1142
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 12/4/20	TIME 1830
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 12/4/20	TIME 1230

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 2.9

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S20215.01(01)
Generated on 01/14/2021

Report to

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

Phone: 313-333-0211 FAX:
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Addtional Contacts: Kevin Schneider

Report produced by

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

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

Report Summary

Lab Sample ID(s): S20215.01-S20215.03
Project: RACER Coldwater Road
Collected Date(s): 12/18/2020
Submitted Date/Time: 12/18/2020 16:55
Sampled by: Kevin Schneider
P.O. #: 12000277

Table of Contents

Maya Murshak
Technical Director

General Report Notes

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

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

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

Qualifier Descriptions

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

Glossary of Abbreviations

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

Method Summary

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

Parameter Summary

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

Analytical Laboratory Report

Sample Summary (3 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S20215.01	04-PRCC-20-INF	Wastewater	12/18/20 07:55
S20215.02	04-PRCC-20-PRIM	Wastewater	12/18/20 08:00
S20215.03	Field Blank-121820	Water	12/18/20 14:42

Analytical Laboratory Report

Lab Sample ID: S20215.01
Sample Tag: 04-PRCC-20-INF
Collected Date/Time: 12/18/2020 07:55
Matrix: Wastewater
COC Reference: 126038

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.74/6.89/12	ASTMD7979-19M	12/22/20 13:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 12/29/20 21:08, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	210	10	ng/L	2.05	375-22-4	X
PFPeA*	Not detected	160	1.0	ng/L	2.05	2706-90-3	X
4:2 FTSA*	Not detected	2.1	1.6	ng/L	2.05	757124-72-4	I
PFHxA*	110	2.1	1.4	ng/L	2.05	307-24-4	
PFBS*	120	2.1	1.4	ng/L	2.05	375-73-5	
PFHpA*	39	2.1	1.4	ng/L	2.05	375-85-9	
PFPeS*	260	2.1	1.8	ng/L	2.05	2706-91-4	
6:2 FTSA*	Not detected	2.1	2.1	ng/L	2.05	27619-97-2	I
PFOA*	100	2.1	1.6	ng/L	2.05	335-67-1	
PFHxS*	710	2.1	1.6	ng/L	2.05	355-46-4	
PFHxS-LN*	590	2.1	1.6	ng/L	2.05	355-46-4-LN	
PFHxS-BR*	120	2.1	1.6	ng/L	2.05	355-46-4-BR	
PFNA*	Not detected	2.1	1.8	ng/L	2.05	375-95-1	
8:2 FTSA*	Not detected	2.1	1.0	ng/L	2.05	39108-34-4	
PFHpS*	130	2.1	2.1	ng/L	2.05	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.05	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.05	2355-31-9	
EtFOSAA*	Not detected	4.1	2.1	ng/L	2.05	2991-50-6	
PFOS*	11,000	2.1	2.0	ng/L	2.05	1763-23-1	
PFOS-LN*	6,800	2.1	2.0	ng/L	2.05	1763-23-1-LN	
PFOS-BR*	4,400	2.1	2.0	ng/L	2.05	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.4	ng/L	2.05	2058-94-8	
PFNS*	4.0	2.1	1.4	ng/L	2.05	68259-12-1	
PFDoDA*	Not detected	2.1	1.6	ng/L	2.05	307-55-1	
PFDS*	1.6	2.1	1.4	ng/L	2.05	335-77-3	J
PFTrDA*	Not detected	2.1	1.2	ng/L	2.05	72629-94-8	
FOSA*	Not detected	2.1	1.8	ng/L	2.05	754-91-6	
PFTeDA*	Not detected	4.1	1.8	ng/L	2.05	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.8	ng/L	2.05	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.4	ng/L	2.05	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.05	919005-14-4	
HFPO-DA*	Not detected	2.1	2.1	ng/L	2.05	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: S20215.02
Sample Tag: 04-PRCC-20-PRIM
Collected Date/Time: 12/18/2020 08:00
Matrix: Wastewater
COC Reference: 126038

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.59/6.82/11	ASTMD7979-19M	12/22/20 13:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 12/28/20 22:55, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	9.6	9.6	ng/L	1.91	375-22-4	
PFPeA*	Not detected	3.8	0.96	ng/L	1.91	2706-90-3	
4:2 FTSA*	Not detected	1.9	1.5	ng/L	1.91	757124-72-4	
PFHxA*	Not detected	1.9	1.3	ng/L	1.91	307-24-4	
PFBS*	Not detected	1.9	1.3	ng/L	1.91	375-73-5	
PFHpA*	Not detected	1.9	1.3	ng/L	1.91	375-85-9	
PFPeS*	Not detected	1.9	1.7	ng/L	1.91	2706-91-4	
6:2 FTSA*	Not detected	1.9	1.9	ng/L	1.91	27619-97-2	
PFOA*	Not detected	1.9	1.5	ng/L	1.91	335-67-1	
PFHxS*	Not detected	1.9	1.5	ng/L	1.91	355-46-4	
PFHxS-LN*	Not detected	1.9	1.5	ng/L	1.91	355-46-4-LN	
PFHxS-BR*	Not detected	1.9	1.5	ng/L	1.91	355-46-4-BR	
PFNA*	Not detected	1.9	1.7	ng/L	1.91	375-95-1	
8:2 FTSA*	Not detected	1.9	0.96	ng/L	1.91	39108-34-4	
PFHpS*	Not detected	1.9	1.9	ng/L	1.91	375-92-8	
PFDA*	Not detected	1.9	1.9	ng/L	1.91	335-76-2	
N-MeFOSAA*	Not detected	1.9	1.9	ng/L	1.91	2355-31-9	
EtFOSAA*	Not detected	3.8	1.9	ng/L	1.91	2991-50-6	
PFOS*	10	1.9	1.9	ng/L	1.91	1763-23-1	
PFOS-LN*	8.5	1.9	1.9	ng/L	1.91	1763-23-1-LN	
PFOS-BR*	Not detected	1.9	1.9	ng/L	1.91	1763-23-1-BR	
PFUnDA*	Not detected	1.9	1.3	ng/L	1.91	2058-94-8	
PFNS*	Not detected	1.9	1.3	ng/L	1.91	68259-12-1	
PFDoDA*	Not detected	1.9	1.5	ng/L	1.91	307-55-1	
PFDS*	Not detected	1.9	1.3	ng/L	1.91	335-77-3	
PFTrDA*	Not detected	1.9	1.1	ng/L	1.91	72629-94-8	
FOSA*	Not detected	1.9	1.7	ng/L	1.91	754-91-6	
PFTeDA*	Not detected	3.8	1.7	ng/L	1.91	376-06-7	
11Cl-PF3OUdS*	Not detected	1.9	1.7	ng/L	1.91	763051-92-9	
9Cl-PF3ONS*	Not detected	1.9	1.3	ng/L	1.91	756426-58-1	
ADONA*	Not detected	1.9	1.9	ng/L	1.91	919005-14-4	
HFPO-DA*	Not detected	1.9	1.9	ng/L	1.91	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S20215.03
Sample Tag: Field Blank-121820
Collected Date/Time: 12/18/2020 14:42
Matrix: Water
COC Reference: 126038

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.3	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.17/6.86/11	ASTMD7979-19M	12/22/20 13:30	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 12/29/20 21:28, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.07	375-22-4	
PFPeA*	Not detected	4.1	1.0	ng/L	2.07	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.7	ng/L	2.07	757124-72-4	
PFHxA*	Not detected	2.1	1.4	ng/L	2.07	307-24-4	
PFBS*	Not detected	2.1	1.4	ng/L	2.07	375-73-5	
PFHpA*	Not detected	2.1	1.4	ng/L	2.07	375-85-9	
PFPeS*	Not detected	2.1	1.9	ng/L	2.07	2706-91-4	
6:2 FTSA*	Not detected	2.1	2.1	ng/L	2.07	27619-97-2	
PFOA*	Not detected	2.1	1.7	ng/L	2.07	335-67-1	
PFHxS*	Not detected	2.1	1.7	ng/L	2.07	355-46-4	
PFHxS-LN*	Not detected	2.1	1.7	ng/L	2.07	355-46-4-LN	
PFHxS-BR*	Not detected	2.1	1.7	ng/L	2.07	355-46-4-BR	
PFNA*	Not detected	2.1	1.9	ng/L	2.07	375-95-1	
8:2 FTSA*	Not detected	2.1	1.0	ng/L	2.07	39108-34-4	
PFHpS*	Not detected	2.1	2.1	ng/L	2.07	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.07	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.07	2355-31-9	
EtFOSAA*	Not detected	4.1	2.1	ng/L	2.07	2991-50-6	
PFOS*	Not detected	2.1	2.0	ng/L	2.07	1763-23-1	
PFOS-LN*	Not detected	2.1	2.0	ng/L	2.07	1763-23-1-LN	
PFOS-BR*	Not detected	2.1	2.0	ng/L	2.07	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.4	ng/L	2.07	2058-94-8	
PFNS*	Not detected	2.1	1.4	ng/L	2.07	68259-12-1	
PFDoDA*	Not detected	2.1	1.7	ng/L	2.07	307-55-1	
PFDS*	Not detected	2.1	1.4	ng/L	2.07	335-77-3	
PFTrDA*	Not detected	2.1	1.2	ng/L	2.07	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.07	754-91-6	
PFTeDA*	Not detected	4.1	1.9	ng/L	2.07	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.07	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.4	ng/L	2.07	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.07	919005-14-4	
HFPO-DA*	Not detected	2.1	2.1	ng/L	2.07	13252-13-6	

Merit Laboratories Login Checklist

Lab Set ID: S20215
Client: OBG02 (Ramboll Americas - East Lansing, MI)
Project: RACER Coldwater Road
Submitted: 12/18/2020 16:55 Login User: MMC

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

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

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 2.3
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[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.

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C.O.C. PAGE # 1 OF 1

126038

CHAIN OF CUSTODY RECORD

REPORT TO

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

MERIT LAB NO. FOR LAB USE ONLY	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (ASTM D 7979)
202150.01	12/18/20	755	04-PRCC-20-INF	ww	3	3							X
.02	12/18/20	800	04-PRCC-20-PRIM	ww	3	3							X
.03													

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions
ASTM D 7979
low level Reporting limit with estimated Values

Please Report Result from Field Blank-121820 from COC# 125027 in same cooler

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE	TIME
X		12/18/20	1545
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		12/18/20	1545
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		12/18/20	1654
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		12/18/2020	1655

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 2.3

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

Rev. 5.18.12

Quality Control Report

Report ID: QC-S20215-01
Generated on 01/14/2021

Report to

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

Phone: 313-333-0211 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S20215.01-S20215.03
Project: RACER Coldwater Road
Submitted Date/Time: 12/18/2020 16:55
Sampled by: Kevin Schneider
P.O. #: 12000277

QC Report Sections

Report Flag Descriptions

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

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

Barbara Ball

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S20215.01
Sample Tag: 04-PRCC-20-INF
Collected Date/Time: 12/18/2020 07:55
Matrix: Wastewater
COC Reference: 126038

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	12/29/20 21:08	AK201229	PF201222W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S20215.02
Sample Tag: 04-PRCC-20-PRIM
Collected Date/Time: 12/18/2020 08:00
Matrix: Wastewater
COC Reference: 126038

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	12/28/20 22:55	AK201228	PF201222W1	Yes	BLK/LCS/LCSD/MS/DU

Lab Sample ID: S20215.03

Sample Tag: Field Blank-121820

Collected Date/Time: 12/18/2020 14:42

Matrix: Water

COC Reference: 126038

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	12/29/20 21:28	AK201229	PF201222W1	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF201222W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S20215.01	28 PFAs	ASTMD7979-19M	12/29/20 21:08	AK201229
S20215.02	28 PFAs	ASTMD7979-19M	12/28/20 22:55	AK201228
S20215.03	28 PFAs	ASTMD7979-19M	12/29/20 21:28	AK201229

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S20215.01

Sample Tag: 04-PRCC-20-INF

Collected Date/Time: 12/18/2020 07:55

Matrix: Wastewater

COC Reference: 126038

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK201229, Run Date: 12/29/2020 21:08, Matrix: WW, Dilution: 2.05

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA	*	**297.6**	50.0	150.0
M2-6:2FTSA	*	**204.4**	50.0	150.0
M2-8:2FTSA		**95.9**	50.0	150.0
M2PFTeDA		**194.9**	12.0	218.0
M3PFBS		**118.6**	50.0	150.0
M3PFHxS		**116.7**	50.0	150.0
M4PFHpA		**110.9**	50.0	150.0
M5PFHxA		**108.6**	50.0	150.0
M5PFPeA		**81.6**	50.0	150.0
M6PFDA		**121.3**	50.0	150.0
M7PFUnDA		**123.1**	50.0	150.0
M8FOSA		**121.2**	50.0	150.0
M8PFOA		**123.2**	50.0	150.0
M8PFOS		**117.6**	50.0	150.0
M9-PFNA		**123.8**	50.0	150.0
MPFBA		**57.5**	50.0	150.0
MPFDoDA		**129.7**	50.0	150.0
d3N-MeFOSAA		**131.0**	50.0	150.0
d5EtFOSAA		**140.1**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S20215.02

Sample Tag: 04-PRCC-20-PRIM

Collected Date/Time: 12/18/2020 08:00

Matrix: Wastewater

COC Reference: 126038

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK201228, Run Date: 12/28/2020 22:55, Matrix: WW, Dilution: 1.91

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**119.5**	50.0	150.0
M2-6:2FTSA		**126.3**	50.0	150.0
M2-8:2FTSA		**123.1**	50.0	150.0
M2PFTeDA		**128.0**	12.0	218.0
M3PFBS		**124.1**	50.0	150.0
M3PFHxS		**124.5**	50.0	150.0
M4PFHpA		**114.9**	50.0	150.0
M5PFHxA		**105.7**	50.0	150.0
M5PFPeA		**107.8**	50.0	150.0
M6PFDA		**116.5**	50.0	150.0
M7PFUnDA		**121.5**	50.0	150.0
M8FOSA		**55.0**	50.0	150.0
M8PFOA		**116.6**	50.0	150.0
M8PFOS		**121.4**	50.0	150.0
M9-PFNA		**111.4**	50.0	150.0
MPFBA		**109.2**	50.0	150.0
MPFDoDA		**109.4**	50.0	150.0
d3N-MeFOSAA		**116.9**	50.0	150.0
d5EtFOSAA		**112.4**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S20215.03

Sample Tag: Field Blank-121820

Collected Date/Time: 12/18/2020 14:42

Matrix: Water

COC Reference: 126038

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK201229, Run Date: 12/29/2020 21:28, Matrix: WW, Dilution: 2.07

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**117.0**	50.0	150.0
M2-6:2FTSA		**104.8**	50.0	150.0
M2-8:2FTSA		**103.9**	50.0	150.0
M2PFTeDA		**141.3**	12.0	218.0
M3PFBS		**124.6**	50.0	150.0
M3PFHxS		**123.6**	50.0	150.0
M4PFHpA		**109.7**	50.0	150.0
M5PFHxA		**116.4**	50.0	150.0
M5PFPeA		**119.0**	50.0	150.0
M6PFDA		**114.7**	50.0	150.0
M7PFUnDA		**114.1**	50.0	150.0
M8FOSA		**111.4**	50.0	150.0
M8PFOA		**113.4**	50.0	150.0
M8PFOS		**123.8**	50.0	150.0
M9-PFNA		**117.5**	50.0	150.0
MPFBA		**117.9**	50.0	150.0
MPFDoDA		**123.6**	50.0	150.0
d3N-MeFOSAA		**115.5**	50.0	150.0
d5EtFOSAA		**109.5**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF201222W1

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

Blank (BLK)

Lab Sample ID: AK201229.BLK201222A

Run in Batch: AK201229, Run Date: 12/29/2020 19:50, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**117.9**	50.0	150.0
M2-6:2FTSA		**119.2**	50.0	150.0
M2-8:2FTSA		**112.9**	50.0	150.0
M2PFTeDA		**181.0**	12.0	218.0
M3PFBS		**121.3**	50.0	150.0
M3PFHxS		**122.2**	50.0	150.0
M4PFHpA		**117.3**	50.0	150.0
M5PFHxA		**124.3**	50.0	150.0
M5PFPeA		**123.1**	50.0	150.0
M6PFDA		**128.7**	50.0	150.0
M7PFUnDA		**138.4**	50.0	150.0
M8FOSA		**123.2**	50.0	150.0
M8PFOA		**131.6**	50.0	150.0
M8PFOS		**128.3**	50.0	150.0
M9-PFNA		**125.0**	50.0	150.0
MPFBA		**120.6**	50.0	150.0
MPFDoDA		**134.3**	50.0	150.0
d3N-MeFOSAA		**127.4**	50.0	150.0
d5EtFOSAA		**124.4**	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK201229.LCS201222A

Run in Batch: AK201229, Run Date: 12/29/2020 19:11, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**110.8**	50.0	150.0
M2-6:2FTSA		**113.5**	50.0	150.0
M2-8:2FTSA		**104.0**	50.0	150.0
M2PFTeDA		**148.4**	12.0	218.0
M3PFBS		**119.2**	50.0	150.0
M3PFHxS		**112.0**	50.0	150.0
M4PFHpA		**114.5**	50.0	150.0
M5PFHxA		**115.1**	50.0	150.0
M5PFPeA		**116.2**	50.0	150.0
M6PFDA		**119.0**	50.0	150.0
M7PFUnDA		**118.7**	50.0	150.0
M8FOSA		**121.3**	50.0	150.0
M8PFOA		**121.6**	50.0	150.0
M8PFOS		**124.2**	50.0	150.0
M9-PFNA		**118.9**	50.0	150.0
MPFBA		**116.0**	50.0	150.0
MPFDoDA		**116.3**	50.0	150.0
d3N-MeFOSAA		**116.8**	50.0	150.0
d5EtFOSAA		**122.7**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK201229.LCSD201222A, Parent Sample ID: AK201229.LCS201222A

Run in Batch: AK201229, Run Date: 12/29/2020 19:31, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**114.0**	50.0	150.0
M2-6:2FTSA		**121.0**	50.0	150.0
M2-8:2FTSA		**108.4**	50.0	150.0
M2PFTeDA		**174.7**	12.0	218.0
M3PFBS		**122.9**	50.0	150.0
M3PFHxS		**113.9**	50.0	150.0
M4PFHpA		**109.2**	50.0	150.0
M5PFHxA		**114.8**	50.0	150.0
M5PFPeA		**118.1**	50.0	150.0
M6PFDA		**130.4**	50.0	150.0
M7PFUnDA		**122.6**	50.0	150.0
M8FOSA		**119.4**	50.0	150.0
M8PFOA		**119.2**	50.0	150.0
M8PFOS		**114.3**	50.0	150.0
M9-PFNA		**123.4**	50.0	150.0
MPFBA		**116.0**	50.0	150.0
MPFDoDA		**128.2**	50.0	150.0
d3N-MeFOSAA		**115.5**	50.0	150.0
d5EtFOSAA		**121.9**	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK201228.2015601M, Parent Sample ID: S20156.01

Run in Batch: AK201228, Run Date: 12/28/2020 18:22, Prep Date: 12/22/2020, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**106.3**	50.0	150.0
M2-6:2FTSA		**122.8**	50.0	150.0
M2-8:2FTSA		**117.5**	50.0	150.0
M2PFTeDA		**106.4**	12.0	218.0
M3PFBS		**114.5**	50.0	150.0
M3PFHxS		**115.2**	50.0	150.0
M4PFHpA		**107.3**	50.0	150.0
M5PFHxA		**101.2**	50.0	150.0
M5PFPeA		**102.9**	50.0	150.0
M6PFDA		**109.9**	50.0	150.0
M7PFUnDA		**115.6**	50.0	150.0
M8FOSA		**52.4**	50.0	150.0
M8PFOA		**112.0**	50.0	150.0
M8PFOS		**116.4**	50.0	150.0
M9-PFNA		**109.1**	50.0	150.0
MPFBA		**105.4**	50.0	150.0
MPFDoDA		**97.6**	50.0	150.0
d3N-MeFOSAA		**106.1**	50.0	150.0
d5EtFOSAA		**109.8**	50.0	150.0

Duplicate (DUP)

Lab Sample ID: AK201228.2015602D, Parent Sample ID: S20156.02

Run in Batch: AK201228, Run Date: 12/28/2020 19:01, Prep Date: 12/22/2020, Matrix: WW, Dilution: 2.11

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**111.9**	50.0	150.0
M2-6:2FTSA		**130.5**	50.0	150.0
M2-8:2FTSA		**125.9**	50.0	150.0
M2PFTeDA		**137.4**	12.0	218.0
M3PFBS		**109.7**	50.0	150.0
M3PFHxS		**119.3**	50.0	150.0
M4PFHpA		**105.1**	50.0	150.0
M5PFHxA		**101.3**	50.0	150.0
M5PFPeA		**105.0**	50.0	150.0
M6PFDA		**115.5**	50.0	150.0
M7PFUnDA		**126.4**	50.0	150.0
M8FOSA		**58.5**	50.0	150.0
M8PFOA		**109.7**	50.0	150.0
M8PFOS		**117.3**	50.0	150.0
M9-PFNA		**109.4**	50.0	150.0
MPFBA		**107.1**	50.0	150.0
MPFDoDA		**108.7**	50.0	150.0
d3N-MeFOSAA		**115.0**	50.0	150.0
d5EtFOSAA		**112.4**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF201222W1

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

Blank (BLK)

Lab Sample ID: AK201229.BLK201222A

Run in Batch: AK201229, Run Date: 12/29/2020 19:50, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

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

Laboratory Control Sample (LCS)

Lab Sample ID: AK201229.LCS201222A

Run in Batch: AK201229, Run Date: 12/29/2020 19:11, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		109.0	70.0	130.0
PFPeA		104.0	70.0	130.0
4:2 FTSA		94.9	70.0	130.0
PFHxA		97.4	70.0	130.0
PFBS		102.0	70.0	130.0
HFPO-DA		79.2	70.0	130.0
PFHpA		90.8	70.0	130.0
PFPeS		109.0	70.0	130.0
ADONA		87.3	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF201222W1 (continued)

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

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK201229.LCS201222A

Run in Batch: AK201229, Run Date: 12/29/2020 19:11, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
6:2 FTSA		108.0	70.0	130.0
PFOA		96.6	70.0	130.0
PFHxS		104.0	70.0	130.0
PFNA		101.0	70.0	130.0
8:2 FTSA		85.1	70.0	130.0
PFHpS		97.5	70.0	130.0
N-MeFOSAA		105.0	70.0	130.0
PFDA		103.0	70.0	130.0
EtFOSAA		87.0	70.0	130.0
PFOS		96.6	70.0	130.0
PFUnDA		104.0	70.0	130.0
9CL-PF3ONS		93.4	70.0	130.0
PFNS		94.5	70.0	130.0
PFDoDA		102.0	70.0	130.0
PFDS		91.0	70.0	130.0
PFTrDA		95.4	70.0	130.0
FOSA		100.0	70.0	130.0
11CL-PF3OUdS		85.8	70.0	130.0
PFTeDA		106.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK201229.LCSD201222A, Parent Sample ID: AK201229.LCS201222A

Run in Batch: AK201229, Run Date: 12/29/2020 19:31, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		112.0	70.0	130.0	2.7	30.0
PFPeA		105.0	70.0	130.0	1.0	30.0
4:2 FTSA		93.7	70.0	130.0	1.3	30.0
PFHxA		97.3	70.0	130.0	0.1	30.0
PFBS		104.0	70.0	130.0	1.9	30.0
HFPO-DA		88.8	70.0	130.0	11.4	30.0
PFHpA		97.2	70.0	130.0	6.8	30.0
PFPeS		107.0	70.0	130.0	1.9	30.0
ADONA		98.3	70.0	130.0	11.9	30.0
6:2 FTSA		104.0	70.0	130.0	3.8	30.0
PFOA		103.0	70.0	130.0	6.4	30.0
PFHxS		105.0	70.0	130.0	1.0	30.0
PFNA		103.0	70.0	130.0	2.0	30.0
8:2 FTSA		84.4	70.0	130.0	0.8	30.0
PFHpS		108.0	70.0	130.0	10.2	30.0
N-MeFOSAA		118.0	70.0	130.0	11.7	30.0
PFDA		91.8	70.0	130.0	11.5	30.0
EtFOSAA		93.0	70.0	130.0	6.7	30.0
PFOS		111.0	70.0	130.0	13.9	30.0
PFUnDA		109.0	70.0	130.0	4.7	30.0
9CL-PF3ONS		101.0	70.0	130.0	7.8	30.0
PFNS		114.0	70.0	130.0	18.7	30.0

Organics - Volatiles, Prep Batch ID: PF201222W1 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK201229.LCSD201222A, Parent Sample ID: AK201229.LCS201222A

Run in Batch: AK201229, Run Date: 12/29/2020 19:31, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFDoDA		98.0	70.0	130.0	4.0	30.0
PFDS		108.0	70.0	130.0	17.1	30.0
PFTrDA		100.0	70.0	130.0	4.7	30.0
FOSA		104.0	70.0	130.0	3.9	30.0
11CL-PF3OUdS		103.0	70.0	130.0	18.2	30.0
PFTeDA		103.0	70.0	130.0	2.9	30.0

Matrix Spike (MS)

Lab Sample ID: AK201228.2015601M, Parent Sample ID: S20156.01

Run in Batch: AK201228, Run Date: 12/28/2020 18:22, Prep Date: 12/22/2020, Matrix: WW, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL
PFBA		126.0	70.0	130.0
PFPeA		118.0	70.0	130.0
4:2 FTSA		100.0	70.0	130.0
PFHxA		108.0	70.0	130.0
PFBS		117.4	70.0	130.0
PFHpA		107.0	70.0	130.0
PFPeS		120.0	70.0	130.0
6:2 FTSA		120.0	70.0	130.0
PFOA		110.0	70.0	130.0
PFHxS		110.0	70.0	130.0
PFNA		120.0	70.0	130.0
8:2 FTSA		93.0	70.0	130.0
PFHpS		110.0	70.0	130.0
PFDA		110.0	70.0	130.0
N-MeFOSAA		120.0	70.0	130.0
EtFOSAA		93.0	70.0	130.0
PFOS		120.0	70.0	130.0
PFUnDA		110.0	70.0	130.0
PFNS		110.0	70.0	130.0
PFDoDA		120.0	70.0	130.0
PFDS		110.0	70.0	130.0
PFTrDA		100.0	70.0	130.0
FOSA		120.0	70.0	130.0
PFTeDA		120.0	70.0	130.0
11CL-PF3OUdS		96.0	70.0	130.0
9CL-PF3ONS		100.0	70.0	130.0
ADONA		110.0	70.0	130.0
HFPO-DA		85.0	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK201228.2015602D, Parent Sample ID: S20156.02

Run in Batch: AK201228, Run Date: 12/28/2020 19:01, Prep Date: 12/22/2020, Matrix: WW, Dilution: 2.11

Analyte	Flags	RPD	RPD CL
PFBA		NC	30.0
PFPeA		NC	30.0

Organics - Volatiles, Prep Batch ID: PF201222W1 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: AK201228.2015602D, Parent Sample ID: S20156.02

Run in Batch: AK201228, Run Date: 12/28/2020 19:01, Prep Date: 12/22/2020, Matrix: WW, Dilution: 2.11

Analyte	Flags	RPD	RPD CL
4:2 FTSA		NC	30.0
PFHxA		13.3	30.0
PFBS		NC	30.0
PFHpA		NC	30.0
PFPeS		NC	30.0
6:2 FTSA		NC	30.0
PFOA		11.1	30.0
PFHxS		12.8	30.0
PFHxS-LN		NC	30.0
PFHxS-BR		NC	30.0
PFNA		NC	30.0
8:2 FTSA		NC	30.0
PFHpS		NC	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0
EtFOSAA		NC	30.0
PFOS		16.7	30.0
PFOS-LN		10.7	30.0
PFOS-BR		12.8	30.0
PFUnDA		NC	30.0
PFNS		NC	30.0
PFDoDA		NC	30.0
PFDS		NC	30.0
PFTrDA		NC	30.0
FOSA		NC	30.0
PFTeDA		NC	30.0
11CL-PF3OUdS		NC	30.0
9CL-PF3ONS		NC	30.0
ADONA		NC	30.0
HFPO-DA		NC	30.0

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

126038

CHAIN OF CUSTODY RECORD

REPORT TO

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

MERIT LAB NO. FOR LAB USE ONLY	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (ASTM D 7979)
202150.01	12/18/20	755	04-PRCC-20-INF	ww	3	3							X
.02	12/18/20	800	04-PRCC-20-PRIM	ww	3	3							X
.03													

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions
ASTM D 7979
low level Reporting limit with estimated Values

Please Report Result from Field Blank-121820 from COC# 125027 in same cooler

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE	TIME
X		12/18/20	1545
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		12/18/20	1545
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		12/18/20	1654
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		12/18/2020	1655

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 2.3

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

Rev. 5.18.12

Analytical Laboratory Report

Report ID: S20287.01(01)
Generated on 12/29/2020

Report to

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

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

Addtional Contacts: Kevin Schneider

Report produced by

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

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

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

Report Summary

Lab Sample ID(s): S20287.01-S20287.05
Project: RACER Coldwater Road
Collected Date(s): 12/22/2020
Submitted Date/Time: 12/22/2020 14:00
Sampled by: Kevin Schneider
P.O. #: 12000277

Table of Contents

Maya Murshak
Technical Director

General Report Notes

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

Limits for drinking water samples, are listed as the MCL Limits (Maximum Contaminant Level Concentrations)
PFAS requirement: Section 9.3.8 of U.S. EPA Method 537.1 states "If the method analyte(s) found in the Field Sample is present in the FRB at a concentration greater than 1/3 the MRL, then all samples collected with that FRB are invalid and must be recollected and reanalyzed."
Samples submitted without an accompanying FRB may not be acceptable for compliance purposes.

Report Narrative

There is no additional narrative for this analytical report

Laboratory Certifications

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

Qualifier Descriptions

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

Glossary of Abbreviations

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

Method Summary

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

Parameter Summary

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

Analytical Laboratory Report

Sample Summary (5 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S20287.01	FieldBlank-122220	Liquid	12/22/20 09:37
S20287.02	04-PRCC-20-EFF-160	Liquid	12/22/20 09:39
S20287.03	04-PRCC-20-MID-2-160	Liquid	12/22/20 09:43
S20287.04	04-PRCC-20-MID-1-160	Liquid	12/22/20 09:45
S20287.05	04-PRCC-20-PRIM-160	Liquid	12/22/20 09:48

Analytical Laboratory Report

Lab Sample ID: S20287.01
Sample Tag: FieldBlank-122220
Collected Date/Time: 12/22/2020 09:37
Matrix: Liquid
COC Reference: 125029

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.05/6.84/11	ASTMD7979-19M	12/22/20 15:00	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 12/24/20 02:37, Analyst: KCV

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

Lab Sample ID: S20287.02
Sample Tag: 04-PRCC-20-EFF-160
Collected Date/Time: 12/22/2020 09:39
Matrix: Liquid
COC Reference: 125029

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	13.13/7.08/12	ASTMD7979-19M	12/22/20 15:00	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 12/24/20 02:56, 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*	3.2	2.0	1.9	ng/L	1.98	1763-23-1	
PFOS-LN*	2.7	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	2.0	2.0	ng/L	1.98	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S20287.03
Sample Tag: 04-PRCC-20-MID-2-160
Collected Date/Time: 12/22/2020 09:43
Matrix: Liquid
COC Reference: 125029

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.38/7.05/11	ASTMD7979-19M	12/22/20 15:00	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 12/24/20 03:16, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.06	375-22-4	
PFPeA*	Not detected	4.1	1.0	ng/L	2.06	2706-90-3	
4:2 FTSA*	Not detected	2.1	1.6	ng/L	2.06	757124-72-4	
PFHxA*	Not detected	2.1	1.4	ng/L	2.06	307-24-4	
PFBS*	Not detected	2.1	1.4	ng/L	2.06	375-73-5	
PFHpA*	Not detected	2.1	1.4	ng/L	2.06	375-85-9	
PFPeS*	Not detected	2.1	1.9	ng/L	2.06	2706-91-4	
6:2 FTSA*	Not detected	2.1	2.1	ng/L	2.06	27619-97-2	
PFOA*	Not detected	2.1	1.6	ng/L	2.06	335-67-1	
PFHxS*	Not detected	2.1	1.6	ng/L	2.06	355-46-4	
PFHxS-LN*	Not detected	2.1	1.6	ng/L	2.06	355-46-4-LN	
PFHxS-BR*	Not detected	2.1	1.6	ng/L	2.06	355-46-4-BR	
PFNA*	Not detected	2.1	1.9	ng/L	2.06	375-95-1	
8:2 FTSA*	Not detected	2.1	1.0	ng/L	2.06	39108-34-4	
PFHpS*	Not detected	2.1	2.1	ng/L	2.06	375-92-8	
PFDA*	Not detected	2.1	2.1	ng/L	2.06	335-76-2	
N-MeFOSAA*	Not detected	2.1	2.1	ng/L	2.06	2355-31-9	
EtFOSAA*	Not detected	4.1	2.1	ng/L	2.06	2991-50-6	
PFOS*	4.6	2.1	2.0	ng/L	2.06	1763-23-1	
PFOS-LN*	3.7	2.1	2.0	ng/L	2.06	1763-23-1-LN	
PFOS-BR*	Not detected	2.1	2.0	ng/L	2.06	1763-23-1-BR	
PFUnDA*	Not detected	2.1	1.4	ng/L	2.06	2058-94-8	
PFNS*	Not detected	2.1	1.4	ng/L	2.06	68259-12-1	
PFDoDA*	Not detected	2.1	1.6	ng/L	2.06	307-55-1	
PFDS*	Not detected	2.1	1.4	ng/L	2.06	335-77-3	
PFTrDA*	Not detected	2.1	1.2	ng/L	2.06	72629-94-8	
FOSA*	Not detected	2.1	1.9	ng/L	2.06	754-91-6	
PFTeDA*	Not detected	4.1	1.9	ng/L	2.06	376-06-7	
11Cl-PF3OUdS*	Not detected	2.1	1.9	ng/L	2.06	763051-92-9	
9Cl-PF3ONS*	Not detected	2.1	1.4	ng/L	2.06	756426-58-1	
ADONA*	Not detected	2.1	2.1	ng/L	2.06	919005-14-4	
HFPO-DA*	Not detected	2.1	2.1	ng/L	2.06	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S20287.04
Sample Tag: 04-PRCC-20-MID-1-160
Collected Date/Time: 12/22/2020 09:45
Matrix: Liquid
COC Reference: 125029

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.50/7.03/11	ASTMD7979-19M	12/22/20 15:00	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 12/24/20 03:35, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.01	375-22-4	
PFPeA*	Not detected	4.0	1.0	ng/L	2.01	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.01	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	2.01	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	2.01	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	2.01	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	2.01	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	2.01	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	2.01	335-67-1	
PFHxS*	Not detected	2.0	1.6	ng/L	2.01	355-46-4	
PFHxS-LN*	Not detected	2.0	1.6	ng/L	2.01	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	2.01	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.01	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.01	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	2.01	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.01	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.01	2355-31-9	
EtFOSAA*	Not detected	4.0	2.0	ng/L	2.01	2991-50-6	
PFOS*	6.5	2.0	2.0	ng/L	2.01	1763-23-1	
PFOS-LN*	4.9	2.0	2.0	ng/L	2.01	1763-23-1-LN	
PFOS-BR*	Not detected	2.0	2.0	ng/L	2.01	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.01	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.01	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	2.01	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.01	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	2.01	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.01	754-91-6	
PFTeDA*	Not detected	4.0	1.8	ng/L	2.01	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.01	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.01	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.01	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	2.01	13252-13-6	

Analytical Laboratory Report

Lab Sample ID: S20287.05
Sample Tag: 04-PRCC-20-PRIM-160
Collected Date/Time: 12/22/2020 09:48
Matrix: Liquid
COC Reference: 125029

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	2.7	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.96/7.05/10	ASTMD7979-19M	12/22/20 15:00	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 12/24/20 03:55, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	10	10	ng/L	2.04	375-22-4	
PFPeA*	Not detected	4.1	1.0	ng/L	2.04	2706-90-3	
4:2 FTSA*	Not detected	2.0	1.6	ng/L	2.04	757124-72-4	
PFHxA*	Not detected	2.0	1.4	ng/L	2.04	307-24-4	
PFBS*	Not detected	2.0	1.4	ng/L	2.04	375-73-5	
PFHpA*	Not detected	2.0	1.4	ng/L	2.04	375-85-9	
PFPeS*	Not detected	2.0	1.8	ng/L	2.04	2706-91-4	
6:2 FTSA*	Not detected	2.0	2.0	ng/L	2.04	27619-97-2	
PFOA*	Not detected	2.0	1.6	ng/L	2.04	335-67-1	
PFHxS*	5.5	2.0	1.6	ng/L	2.04	355-46-4	
PFHxS-LN*	4.1	2.0	1.6	ng/L	2.04	355-46-4-LN	
PFHxS-BR*	Not detected	2.0	1.6	ng/L	2.04	355-46-4-BR	
PFNA*	Not detected	2.0	1.8	ng/L	2.04	375-95-1	
8:2 FTSA*	Not detected	2.0	1.0	ng/L	2.04	39108-34-4	
PFHpS*	Not detected	2.0	2.0	ng/L	2.04	375-92-8	
PFDA*	Not detected	2.0	2.0	ng/L	2.04	335-76-2	
N-MeFOSAA*	Not detected	2.0	2.0	ng/L	2.04	2355-31-9	
EtFOSAA*	Not detected	4.1	2.0	ng/L	2.04	2991-50-6	
PFOS*	110	2.0	2.0	ng/L	2.04	1763-23-1	
PFOS-LN*	58	2.0	2.0	ng/L	2.04	1763-23-1-LN	
PFOS-BR*	53	2.0	2.0	ng/L	2.04	1763-23-1-BR	
PFUnDA*	Not detected	2.0	1.4	ng/L	2.04	2058-94-8	
PFNS*	Not detected	2.0	1.4	ng/L	2.04	68259-12-1	
PFDoDA*	Not detected	2.0	1.6	ng/L	2.04	307-55-1	
PFDS*	Not detected	2.0	1.4	ng/L	2.04	335-77-3	
PFTrDA*	Not detected	2.0	1.2	ng/L	2.04	72629-94-8	
FOSA*	Not detected	2.0	1.8	ng/L	2.04	754-91-6	
PFTeDA*	Not detected	4.1	1.8	ng/L	2.04	376-06-7	
11Cl-PF3OUdS*	Not detected	2.0	1.8	ng/L	2.04	763051-92-9	
9Cl-PF3ONS*	Not detected	2.0	1.4	ng/L	2.04	756426-58-1	
ADONA*	Not detected	2.0	2.0	ng/L	2.04	919005-14-4	
HFPO-DA*	Not detected	2.0	2.0	ng/L	2.04	13252-13-6	

Merit Laboratories Login Checklist

Lab Set ID: S20287
Client: OBG02 (Ramboll Americas - East Lansing, MI)
Project: RACER Coldwater Road
Submitted: 12/22/2020 14:00 Login User: SRS

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

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

Selection				Description	Note
Sample Receiving					
01.	[X] Yes	[ ] No	[ ] N/A	Samples are received at 4C +/- 2C Thermometer #	IR 2.7
02.	[X] Yes	[ ] No	[ ] N/A	Received on ice/ cooling process begun	
03.	[ ] Yes	[X] No	[ ] N/A	Samples shipped	
04.	[ ] Yes	[X] No	[ ] N/A	Samples left in 24 hr. drop box	
05.	[ ] Yes	[ ] No	[X] N/A	Are there custody seals/tape or is the drop box locked	
Chain of Custody					
06.	[X] Yes	[ ] No	[ ] N/A	COC adequately filled out	
07.	[X] Yes	[ ] No	[ ] N/A	COC signed and relinquished to the lab	
08.	[X] Yes	[ ] No	[ ] N/A	Sample tag on bottles match COC	
09.	[ ] Yes	[X] No	[ ] N/A	Subcontracting needed? Subcontacted to:	
Preservation					
10.	[ ] Yes	[ ] No	[X] 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

125029

CHAIN OF CUSTODY RECORD

REPORT TO

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

INVOICE TO

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

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

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (ASTM D7979)	Special Instructions
20287.01	12/22/20	937	Field Blank-122220	QC	1	1							X	ASTM D7979
.02		939	04-PRCC-20-EFF-160	L	3	3							X	Low level reporting
.03		943	04-PRCC-20-MID-2-160	L	3	3							X	limit with estimated
.04		945	04-PRCC-20-MID-1-160	L	3	3							X	values
.05	↓	948	04-PRCC-20-PRIM-160	L	3	3							X	

KEEP

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 12/22/20	TIME 1146
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 12/22/20	TIME 11:14
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 12/22/20	TIME 1412
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 12/22/20	TIME 1400

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 2.7

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

Rev. 5.18.12

Quality Control Report

Report ID: QC-S20287-01
Generated on 01/05/2021

Report to

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

Phone: 313-333-0211 FAX:

Report Produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

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

Report Summary

Lab Sample ID(s): S20287.01-S20287.05
Project: RACER Coldwater Road
Submitted Date/Time: 12/22/2020 14:00
Sampled by: Kevin Schneider
P.O. #: 12000277

QC Report Sections

Report Flag Descriptions

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

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

Barbara Ball
Quality Assurance Manager

Lab Sample ID: S20287.01

Sample Tag: FieldBlank-122220

Collected Date/Time: 12/22/2020 09:37

Matrix: Liquid

COC Reference: 125029

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	12/24/20 02:37	AK201223	PF201222W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S20287.02
Sample Tag: 04-PRCC-20-EFF-160
Collected Date/Time: 12/22/2020 09:39
Matrix: Liquid
COC Reference: 125029

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	12/24/20 02:56	AK201223	PF201222W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S20287.03
Sample Tag: 04-PRCC-20-MID-2-160
Collected Date/Time: 12/22/2020 09:43
Matrix: Liquid
COC Reference: 125029

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	12/24/20 03:16	AK201223	PF201222W2	Yes	BLK/LCS/LCSD/MS/DU

Lab Sample ID: S20287.04

Sample Tag: 04-PRCC-20-MID-1-160

Collected Date/Time: 12/22/2020 09:45

Matrix: Liquid

COC Reference: 125029

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	12/24/20 03:35	AK201223	PF201222W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Analysis Summary

Lab Sample ID: S20287.05
Sample Tag: 04-PRCC-20-PRIM-160
Collected Date/Time: 12/22/2020 09:48
Matrix: Liquid
COC Reference: 125029

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
Organics - Volatiles						
28 PFAs	ASTMD7979-19M	12/24/20 03:55	AK201223	PF201222W2	Yes	BLK/LCS/LCSD/MS/DU

QC Report - Prep Batch Summary

Organics - Volatiles, Prep Batch ID: PF201222W2

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S20287.01	28 PFAs	ASTMD7979-19M	12/24/20 02:37	AK201223
S20287.02	28 PFAs	ASTMD7979-19M	12/24/20 02:56	AK201223
S20287.03	28 PFAs	ASTMD7979-19M	12/24/20 03:16	AK201223
S20287.04	28 PFAs	ASTMD7979-19M	12/24/20 03:35	AK201223
S20287.05	28 PFAs	ASTMD7979-19M	12/24/20 03:55	AK201223

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S20287.01

Sample Tag: FieldBlank-122220

Collected Date/Time: 12/22/2020 09:37

Matrix: Liquid

COC Reference: 125029

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK201223, Run Date: 12/24/2020 02:37, Matrix: WW, Dilution: 2.11

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**123.4**	50.0	150.0
M2-6:2FTSA		**115.7**	50.0	150.0
M2-8:2FTSA		**73.0**	50.0	150.0
M2PFTeDA		**140.1**	12.0	218.0
M3PFBS		**116.3**	50.0	150.0
M3PFHxS		**121.9**	50.0	150.0
M4PFHpA		**119.9**	50.0	150.0
M5PFHxA		**108.6**	50.0	150.0
M5PFPeA		**115.7**	50.0	150.0
M6PFDA		**109.8**	50.0	150.0
M7PFUnDA		**117.8**	50.0	150.0
M8FOSA		**118.5**	50.0	150.0
M8PFOA		**120.2**	50.0	150.0
M8PFOS		**132.0**	50.0	150.0
M9-PFNA		**120.1**	50.0	150.0
MPFBA		**113.5**	50.0	150.0
MPFDoDA		**127.9**	50.0	150.0
d3N-MeFOSAA		**125.6**	50.0	150.0
d5EtFOSAA		**126.0**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S20287.02

Sample Tag: 04-PRCC-20-EFF-160

Collected Date/Time: 12/22/2020 09:39

Matrix: Liquid

COC Reference: 125029

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK201223, Run Date: 12/24/2020 02:56, Matrix: WW, Dilution: 1.98

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**114.6**	50.0	150.0
M2-6:2FTSA		**115.5**	50.0	150.0
M2-8:2FTSA		**54.8**	50.0	150.0
M2PFTeDA		**95.0**	12.0	218.0
M3PFBS		**104.6**	50.0	150.0
M3PFHxS		**114.8**	50.0	150.0
M4PFHpA		**112.6**	50.0	150.0
M5PFHxA		**113.3**	50.0	150.0
M5PFPeA		**112.7**	50.0	150.0
M6PFDA		**96.9**	50.0	150.0
M7PFUnDA		**92.3**	50.0	150.0
M8FOSA		**105.1**	50.0	150.0
M8PFOA		**108.5**	50.0	150.0
M8PFOS		**104.6**	50.0	150.0
M9-PFNA		**109.4**	50.0	150.0
MPFBA		**112.3**	50.0	150.0
MPFDoDA		**92.0**	50.0	150.0
d3N-MeFOSAA		**92.8**	50.0	150.0
d5EtFOSAA		**96.4**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S20287.03

Sample Tag: 04-PRCC-20-MID-2-160

Collected Date/Time: 12/22/2020 09:43

Matrix: Liquid

COC Reference: 125029

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK201223, Run Date: 12/24/2020 03:16, Matrix: WW, Dilution: 2.06

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**123.4**	50.0	150.0
M2-6:2FTSA		**117.5**	50.0	150.0
M2-8:2FTSA		**74.9**	50.0	150.0
M2PFTeDA		**126.3**	12.0	218.0
M3PFBS		**112.5**	50.0	150.0
M3PFHxS		**121.1**	50.0	150.0
M4PFHpA		**122.2**	50.0	150.0
M5PFHxA		**112.1**	50.0	150.0
M5PFPeA		**115.2**	50.0	150.0
M6PFDA		**118.0**	50.0	150.0
M7PFUnDA		**111.6**	50.0	150.0
M8FOSA		**117.3**	50.0	150.0
M8PFOA		**119.2**	50.0	150.0
M8PFOS		**125.9**	50.0	150.0
M9-PFNA		**111.0**	50.0	150.0
MPFBA		**113.2**	50.0	150.0
MPFDoDA		**119.2**	50.0	150.0
d3N-MeFOSAA		**127.8**	50.0	150.0
d5EtFOSAA		**119.8**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S20287.04

Sample Tag: 04-PRCC-20-MID-1-160

Collected Date/Time: 12/22/2020 09:45

Matrix: Liquid

COC Reference: 125029

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK201223, Run Date: 12/24/2020 03:35, Matrix: WW, Dilution: 2.01

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**108.9**	50.0	150.0
M2-6:2FTSA		**104.0**	50.0	150.0
M2-8:2FTSA		**66.5**	50.0	150.0
M2PFTeDA		**156.6**	12.0	218.0
M3PFBS		**113.1**	50.0	150.0
M3PFHxS		**114.9**	50.0	150.0
M4PFHpA		**115.0**	50.0	150.0
M5PFHxA		**108.1**	50.0	150.0
M5PFPeA		**110.9**	50.0	150.0
M6PFDA		**109.6**	50.0	150.0
M7PFUnDA		**110.6**	50.0	150.0
M8FOSA		**114.7**	50.0	150.0
M8PFOA		**111.2**	50.0	150.0
M8PFOS		**127.2**	50.0	150.0
M9-PFNA		**118.0**	50.0	150.0
MPFBA		**109.8**	50.0	150.0
MPFDoDA		**125.2**	50.0	150.0
d3N-MeFOSAA		**114.8**	50.0	150.0
d5EtFOSAA		**117.6**	50.0	150.0

QC Report - Internal Standards per Lab Sample

Lab Sample ID: S20287.05

Sample Tag: 04-PRCC-20-PRIM-160

Collected Date/Time: 12/22/2020 09:48

Matrix: Liquid

COC Reference: 125029

Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: AK201223, Run Date: 12/24/2020 03:55, Matrix: WW, Dilution: 2.04

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**117.6**	50.0	150.0
M2-6:2FTSA		**111.8**	50.0	150.0
M2-8:2FTSA		**61.1**	50.0	150.0
M2PFTeDA		**161.3**	12.0	218.0
M3PFBS		**111.0**	50.0	150.0
M3PFHxS		**113.2**	50.0	150.0
M4PFHpA		**121.4**	50.0	150.0
M5PFHxA		**107.0**	50.0	150.0
M5PFPeA		**111.6**	50.0	150.0
M6PFDA		**115.0**	50.0	150.0
M7PFUnDA		**109.7**	50.0	150.0
M8FOSA		**116.6**	50.0	150.0
M8PFOA		**114.4**	50.0	150.0
M8PFOS		**113.1**	50.0	150.0
M9-PFNA		**115.0**	50.0	150.0
MPFBA		**110.1**	50.0	150.0
MPFDoDA		**120.7**	50.0	150.0
d3N-MeFOSAA		**117.0**	50.0	150.0
d5EtFOSAA		**113.6**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF201222W2

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

Blank (BLK)

Lab Sample ID: AK201222.BLK201222B

Run in Batch: AK201222, Run Date: 12/22/2020 22:40, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**105.1**	50.0	150.0
M2-6:2FTSA		**99.5**	50.0	150.0
M2-8:2FTSA		**82.5**	50.0	150.0
M2PFTeDA		**93.0**	12.0	218.0
M3PFBS		**103.6**	50.0	150.0
M3PFHxS		**103.2**	50.0	150.0
M4PFHpA		**92.3**	50.0	150.0
M5PFHxA		**105.7**	50.0	150.0
M5PFPeA		**104.0**	50.0	150.0
M6PFDA		**97.8**	50.0	150.0
M7PFUnDA		**103.9**	50.0	150.0
M8FOSA		**96.6**	50.0	150.0
M8PFOA		**112.9**	50.0	150.0
M8PFOS		**108.0**	50.0	150.0
M9-PFNA		**103.4**	50.0	150.0
MPFBA		**103.7**	50.0	150.0
MPFDoDA		**96.9**	50.0	150.0
d3N-MeFOSAA		**97.4**	50.0	150.0
d5EtFOSAA		**94.3**	50.0	150.0

Laboratory Control Sample (LCS)

Lab Sample ID: AK201222.LCS201222B

Run in Batch: AK201222, Run Date: 12/22/2020 22:01, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**100.3**	50.0	150.0
M2-6:2FTSA		**91.7**	50.0	150.0
M2-8:2FTSA		**100.1**	50.0	150.0
M2PFTeDA		**102.7**	12.0	218.0
M3PFBS		**91.8**	50.0	150.0
M3PFHxS		**91.6**	50.0	150.0
M4PFHpA		**92.5**	50.0	150.0
M5PFHxA		**97.3**	50.0	150.0
M5PFPeA		**94.2**	50.0	150.0
M6PFDA		**88.8**	50.0	150.0
M7PFUnDA		**97.2**	50.0	150.0
M8FOSA		**92.0**	50.0	150.0
M8PFOA		**98.5**	50.0	150.0
M8PFOS		**97.5**	50.0	150.0
M9-PFNA		**95.8**	50.0	150.0
MPFBA		**95.6**	50.0	150.0
MPFDoDA		**93.0**	50.0	150.0
d3N-MeFOSAA		**86.8**	50.0	150.0
d5EtFOSAA		**84.0**	50.0	150.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK201222.LCSD201222B, Parent Sample ID: AK201222.LCS201222B

Run in Batch: AK201222, Run Date: 12/22/2020 22:21, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**99.7**	50.0	150.0
M2-6:2FTSA		**98.8**	50.0	150.0
M2-8:2FTSA		**53.9**	50.0	150.0
M2PFTeDA		**75.2**	12.0	218.0
M3PFBS		**99.0**	50.0	150.0
M3PFHxS		**99.8**	50.0	150.0
M4PFHpA		**93.6**	50.0	150.0
M5PFHxA		**97.4**	50.0	150.0
M5PFPeA		**97.0**	50.0	150.0
M6PFDA		**99.0**	50.0	150.0
M7PFUnDA		**97.9**	50.0	150.0
M8FOSA		**90.7**	50.0	150.0
M8PFOA		**106.1**	50.0	150.0
M8PFOS		**96.6**	50.0	150.0
M9-PFNA		**99.6**	50.0	150.0
MPFBA		**96.4**	50.0	150.0
MPFDoDA		**86.2**	50.0	150.0
d3N-MeFOSAA		**88.9**	50.0	150.0
d5EtFOSAA		**89.2**	50.0	150.0

Matrix Spike (MS)

Lab Sample ID: AK201223.2021613M, Parent Sample ID: S20216.13

Run in Batch: AK201223, Run Date: 12/24/2020 00:20, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1.98

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		**122.2**	50.0	150.0
M2-6:2FTSA		**117.0**	50.0	150.0
M2-8:2FTSA		**68.2**	50.0	150.0
M2PFTeDA		**149.1**	12.0	218.0
M3PFBS		**110.1**	50.0	150.0
M3PFHxS		**110.7**	50.0	150.0
M4PFHpA		**115.2**	50.0	150.0
M5PFHxA		**107.0**	50.0	150.0
M5PFPeA		**113.0**	50.0	150.0
M6PFDA		**121.5**	50.0	150.0
M7PFUnDA		**114.2**	50.0	150.0
M8FOSA		**116.4**	50.0	150.0
M8PFOA		**111.8**	50.0	150.0
M8PFOS		**118.1**	50.0	150.0
M9-PFNA		**121.6**	50.0	150.0
MPFBA		**111.4**	50.0	150.0
MPFDoDA		**122.7**	50.0	150.0
d3N-MeFOSAA		**123.1**	50.0	150.0
d5EtFOSAA		**118.1**	50.0	150.0

Duplicate (DUP)

Lab Sample ID: AK201223.2021614D, Parent Sample ID: S20216.14

Run in Batch: AK201223, Run Date: 12/24/2020 00:59, Prep Date: 12/22/2020, Matrix: WW, Dilution: 2.08

Internal Standard	Flags	**%Rec**	LCL	UCL
M2-4:2FTSA		**118.9**	50.0	150.0
M2-6:2FTSA		**117.3**	50.0	150.0
M2-8:2FTSA		**65.3**	50.0	150.0
M2PFTeDA		**124.5**	12.0	218.0
M3PFBS		**113.8**	50.0	150.0
M3PFHxS		**112.1**	50.0	150.0
M4PFHpA		**116.5**	50.0	150.0
M5PFHxA		**106.8**	50.0	150.0
M5PFPeA		**111.4**	50.0	150.0
M6PFDA		**111.1**	50.0	150.0
M7PFUnDA		**106.9**	50.0	150.0
M8FOSA		**115.2**	50.0	150.0
M8PFOA		**107.7**	50.0	150.0
M8PFOS		**113.1**	50.0	150.0
M9-PFNA		**119.4**	50.0	150.0
MPFBA		**111.0**	50.0	150.0
MPFDoDA		**109.7**	50.0	150.0
d3N-MeFOSAA		**120.4**	50.0	150.0
d5EtFOSAA		**116.3**	50.0	150.0

Organics - Volatiles, Prep Batch ID: PF201222W2

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

Blank (BLK)

Lab Sample ID: AK201222.BLK201222B

Run in Batch: AK201222, Run Date: 12/22/2020 22:40, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

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

Laboratory Control Sample (LCS)

Lab Sample ID: AK201222.LCS201222B

Run in Batch: AK201222, Run Date: 12/22/2020 22:01, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		120.0	70.0	130.0
PFPeA		118.0	70.0	130.0
4:2 FTSA		102.0	70.0	130.0
PFHxA		108.0	70.0	130.0
PFBS		116.0	70.0	130.0
HFPO-DA		85.9	70.0	130.0
PFHpA		102.0	70.0	130.0
PFPeS		123.0	70.0	130.0
ADONA		105.0	70.0	130.0

Organics - Volatiles, Prep Batch ID: PF201222W2 (continued)

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

Laboratory Control Sample (LCS) (continued)

Lab Sample ID: AK201222.LCS201222B

Run in Batch: AK201222, Run Date: 12/22/2020 22:01, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
6:2 FTSA		115.0	70.0	130.0
PFOA		114.0	70.0	130.0
PFHxS		113.0	70.0	130.0
PFNA		103.0	70.0	130.0
8:2 FTSA		88.2	70.0	130.0
PFHpS		116.0	70.0	130.0
N-MeFOSAA		122.0	70.0	130.0
PFDA		110.0	70.0	130.0
EtFOSAA		112.0	70.0	130.0
PFOS		107.0	70.0	130.0
PFUnDA		102.0	70.0	130.0
9CL-PF3ONS		106.0	70.0	130.0
PFNS		110.0	70.0	130.0
PFDoDA		112.0	70.0	130.0
PFDS		100.0	70.0	130.0
PFTrDA		104.0	70.0	130.0
FOSA		115.0	70.0	130.0
11CL-PF3OUdS		96.5	70.0	130.0
PFTeDA		109.0	70.0	130.0

Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: AK201222.LCSD201222B, Parent Sample ID: AK201222.LCS201222B

Run in Batch: AK201222, Run Date: 12/22/2020 22:21, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		122.0	70.0	130.0	1.7	30.0
PFPeA		114.0	70.0	130.0	3.4	30.0
4:2 FTSA		104.0	70.0	130.0	1.9	30.0
PFHxA		111.0	70.0	130.0	2.7	30.0
PFBS		111.0	70.0	130.0	4.4	30.0
HFPO-DA		89.5	70.0	130.0	4.1	30.0
PFHpA		93.7	70.0	130.0	8.5	30.0
PFPeS		115.0	70.0	130.0	6.7	30.0
ADONA		99.2	70.0	130.0	5.7	30.0
6:2 FTSA		108.0	70.0	130.0	6.3	30.0
PFOA		107.0	70.0	130.0	6.3	30.0
PFHxS		107.0	70.0	130.0	5.5	30.0
PFNA		110.0	70.0	130.0	6.6	30.0
8:2 FTSA		97.4	70.0	130.0	9.9	30.0
PFHpS		104.0	70.0	130.0	10.9	30.0
N-MeFOSAA		118.0	70.0	130.0	3.3	30.0
PFDA		92.4	70.0	130.0	17.4	30.0
EtFOSAA		102.0	70.0	130.0	9.3	30.0
PFOS		112.0	70.0	130.0	4.6	30.0
PFUnDA		109.0	70.0	130.0	6.6	30.0
9CL-PF3ONS		108.0	70.0	130.0	1.9	30.0
PFNS		103.0	70.0	130.0	6.6	30.0

Organics - Volatiles, Prep Batch ID: PF201222W2 (continued)

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

Laboratory Control Sample Duplicate (LCSD) (continued)

Lab Sample ID: AK201222.LCSD201222B, Parent Sample ID: AK201222.LCS201222B

Run in Batch: AK201222, Run Date: 12/22/2020 22:21, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFDoDA		115.0	70.0	130.0	2.6	30.0
PFDS		102.0	70.0	130.0	2.0	30.0
PFTrDA		93.9	70.0	130.0	10.2	30.0
FOSA		127.0	70.0	130.0	9.9	30.0
11CL-PF3OUdS		96.5	70.0	130.0	0.0	30.0
PFTeDA		115.0	70.0	130.0	5.4	30.0

Matrix Spike (MS)

Lab Sample ID: AK201223.2021613M, Parent Sample ID: S20216.13

Run in Batch: AK201223, Run Date: 12/24/2020 00:20, Prep Date: 12/22/2020, Matrix: WW, Dilution: 1.98

Analyte	Flags	% Rec	LCL	UCL
PFBA		121.2	70.0	130.0
PFPeA		111.1	70.0	130.0
4:2 FTSA		101.0	70.0	130.0
PFHxA		111.1	70.0	130.0
PFBS		111.1	70.0	130.0
PFHpA		100.0	70.0	130.0
PFPeS		121.2	70.0	130.0
6:2 FTSA		111.1	70.0	130.0
PFOA		111.1	70.0	130.0
PFHxS		121.2	70.0	130.0
PFNA		101.0	70.0	130.0
8:2 FTSA		99.0	70.0	130.0
PFHpS		121.2	70.0	130.0
PFDA		98.0	70.0	130.0
N-MeFOSAA		97.0	70.0	130.0
EtFOSAA		100.0	70.0	130.0
PFOS		105.6	70.0	130.0
PFUnDA		101.0	70.0	130.0
PFNS		101.0	70.0	130.0
PFDoDA		99.0	70.0	130.0
PFDS		99.0	70.0	130.0
PFTrDA		101.0	70.0	130.0
FOSA		111.1	70.0	130.0
PFTeDA		111.1	70.0	130.0
11CL-PF3OUdS		101.0	70.0	130.0
9CL-PF3ONS		111.1	70.0	130.0
ADONA		111.1	70.0	130.0
HFPO-DA		96.0	70.0	130.0

Duplicate (DUP)

Lab Sample ID: AK201223.2021614D, Parent Sample ID: S20216.14

Run in Batch: AK201223, Run Date: 12/24/2020 00:59, Prep Date: 12/22/2020, Matrix: WW, Dilution: 2.08

Analyte	Flags	RPD	RPD CL
PFBA		NC	30.0
PFPeA		NC	30.0

Organics - Volatiles, Prep Batch ID: PF201222W2 (continued)

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

Duplicate (DUP) (continued)

Lab Sample ID: AK201223.2021614D, Parent Sample ID: S20216.14

Run in Batch: AK201223, Run Date: 12/24/2020 00:59, Prep Date: 12/22/2020, Matrix: WW, Dilution: 2.08

Analyte	Flags	RPD	RPD CL
4:2 FTSA		NC	30.0
PFHxA		NC	30.0
PFBS		8.2	30.0
PFHpA		NC	30.0
PFPeS		NC	30.0
6:2 FTSA		NC	30.0
PFOA		NC	30.0
PFHxS		NC	30.0
PFHxS-LN		NC	30.0
PFHxS-BR		NC	30.0
PFNA		NC	30.0
8:2 FTSA		NC	30.0
PFHpS		NC	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0
EtFOSAA		NC	30.0
PFOS		0.0	30.0
PFOS-LN		8.2	30.0
PFOS-BR		12.6	30.0
PFUnDA		NC	30.0
PFNS		NC	30.0
PFDoDA		NC	30.0
PFDS		NC	30.0
PFTrDA		NC	30.0
FOSA		NC	30.0
PFTeDA		NC	30.0
11CL-PF3OUdS		NC	30.0
9CL-PF3ONS		NC	30.0
ADONA		NC	30.0
HFPO-DA		NC	30.0

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C.O.C. PAGE # 1 OF 1

125029

CHAIN OF CUSTODY RECORD

REPORT TO

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

INVOICE TO

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

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

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

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

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	PFAS (ASTM D7979)	Special Instructions
20287.01	12/22/20	937	Field Blank-122220	QC	1	1							X	ASTM D7979
.02		939	04-PRCC-20-EFF-160	L	3	3							X	Low level reporting
.03		943	04-PRCC-20-MID-2-160	L	3	3							X	limit with estimated
.04		945	04-PRCC-20-MID-1-160	L	3	3							X	values
.05	↓	948	04-PRCC-20-PRIM-160	L	3	3							X	

KEEP

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒ Sampler	DATE 12/22/20	TIME 1146
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 12/22/20	TIME 11:14
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 12/22/20	TIME 1412
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE 12/22/20	TIME 1400

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 2.7

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

Rev. 5.18.12