

**Mr. Tom Hutchings**

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

RE: *Discharge Permit Submittal- January 2020 through March 2020*

*Permit No.: 6-08-04-04-GML1*

**FILE: 15388/75178/Docs**

Dear **Mr. Hutchings:**

In accordance with requirements of the above referenced discharge permit, we are providing you with the following discharge information for the period January 1, 2020 to March 31, 2020 for the Coldwater Road Landfill facility, located at 6220 Horton Avenue, Flint, Michigan. In addition, we have reported 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 and GSWVR Sample (Table 1)
- Daily Discharge Summary Table (Table 2)
- PFAS Sampling Results Table (Table 3)
- Analytical Reports provided by Merit Laboratories, Inc. for samples from the on-Site, above ground collection tank collected on March 11, 2020.
- Analytical Reports provided by Merit Laboratories, Inc. for samples from the on-Site, PFAS pretreatment system collected on March 25, 2020 and March 27, 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 were below the Sewer Use Permit limits for the parameters analyzed for the water discharged to the POTW during the discharge period.

In addition, the PFAS analytical results indicate that the PFAS pretreatment system reduced PFAS concentrations at or below the current EGLE Part 4, Water Quality Standards, Rule 57 Water Quality Values. Therefore, the PFAS pretreatment system is operating as designed.

Breakthrough samples were collected from GAC vessels on March 25, 2020 and March 27, 2020 during the accumulation tank discharge. The influent sample collected on March 25, 2020 had a detection of 10,000 ng/L for PFOS. The

April 21, 2020

Ramboll  
2260 E. Saginaw Street  
East Lansing, MI 48823  
USA

T 414-837-3607  
F 414-837-3608  
<https://ramboll.com>

highest detection from the primary GAC drum sample collected on March 25, 2020 had a detection of 13 ng/L for PFOS. PFOS was not detected in the samples collected from the secondary, tertiary, and effluent GAC drums on March 27, 2020. The primary GAC drum will remain in place for the next discharge event.

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

Yours sincerely



**Clifford S. Yantz**

Senior Hydrogeologist  
1943864 - MIDWEST EAST Resources 056

M 313.333.0211  
[Clifford.yantz@ramboll.com](mailto:Clifford.yantz@ramboll.com)

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

**City of Flint  
Industrial Pretreatment Program**

**Periodic Report on Continued Compliance**

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

Reporting Period: \_\_\_\_\_ January 1, 2020 through March 31, 2020 \_\_\_\_\_

Average Volume of Daily Discharge (during reporting period): 3,028 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, O'Brien & Gere Engineers, Inc.  
As agent for the RACER Trust

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

Date Signed by Authorized Representative: 4/21/2020

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**  
**First Quarter - 2020 - GSWVR Sample**

<b>RACER Trust - Coldwater Road Landfill Facility</b>						
<b>Permit Number 6-08-04-04-GML1</b>						
<b>6220 Horton Avenue</b>						
<b>Analytical Parameter</b>	<b>Ammonia-N</b>	<b>BOD5</b>	<b>HEM</b>	<b>pH @ 25°C</b>	<b>Phosphorus</b>	<b>TSS</b>
<b>Units</b>	mg/L	mg/L	mg/L	SU	mg/L	mg/L
<b>Sampling Frequency</b>	Per Batch	Per Batch	Per Batch	Per Batch	Per Batch	Per Batch
<b>Sampling Procedure</b>	Grab sample	Grab sample	Grab sample	Grab sample	Grab sample	Grab sample
<b>Daily Maximum Limit</b>	110	1196	100	NA	14	570
<b>Maximum Limit</b>	NA	NA	NA	10.5	NA	NA
<b>Minimum Limit</b>	NA	NA	NA	6	NA	NA
<b>Test Result</b>	1.98	3.9	<2	7.58	0.03	7
<b>Test Method</b>	4500-NH3 D	10360	1664A	4500-H+ B	4500-PE	2540 D
<b>Test Date</b>	3/12/2020	3/17/2020	3/26/2020	3/11/2020	3/13/2020	3/17/2020
<b>Sample Date</b>	3/11/2020	3/11/2020	3/11/2020	3/11/2020	3/11/2020	3/11/2020
<b>Sample Type</b>	wastewater	wastewater	wastewater	wastewater	wastewater	wastewater
<b>Test Result</b>						
<b>Test Method</b>						
<b>Test Date</b>						
<b>Sample Date</b>						
<b>Sample Type</b>						
<b>Test Result</b>						
<b>Test Method</b>						
<b>Test Date</b>						
<b>Sample Date</b>						
<b>Sample Type</b>						
<b>Average Daily Conc.</b>						
<b>No. of Samples</b>						
<b>Number of Limit Exceedances</b>						

**Table 1**  
**Periodic Report on Continued Compliance**  
**City of Flint Sewer User Self-Monitoring Report**  
**First Quarter - 2020 - GSWVR Sample**

<b>RACER Trust - Coldwater Road Landfill Facility</b>							
<b>Permit Number 6-08-04-04-GML1</b>							
<b>6220 Horton Avenue</b>							
<b>Analytical Parameter</b>	<b>Arsenic</b>	<b>Chromium</b>	<b>Copper</b>	<b>Mercury</b>	<b>Nickel</b>	<b>Zinc</b>	<b>Cyanide, available</b>
<b>Units</b>	<b>mg/L</b>	<b>mg/L</b>	<b>mg/L</b>	<b>mg/L</b>	<b>mg/L</b>	<b>mg/L</b>	<b>mg/L</b>
<b>Sampling Frequency</b>	<b>Per Batch</b>	<b>Per Batch</b>	<b>Per Batch</b>	<b>Per Batch</b>	<b>Per Batch</b>	<b>Per Batch</b>	<b>Per Batch</b>
<b>Sampling Procedure</b>	<b>Grab sample</b>	<b>Grab sample</b>	<b>Grab sample</b>	<b>Grab sample</b>	<b>Grab sample</b>	<b>Grab sample</b>	<b>Grab sample</b>
<b>Daily Maximum Limit</b>	<b>0.051</b>	<b>1.273</b>	<b>1.797</b>	<b>0.000012</b>	<b>0.543</b>	<b>2.626</b>	<b>0.165</b>
<b>Maximum Limit</b>	NA	NA	NA	NA	NA	NA	NA
<b>Minimum Limit</b>	NA	NA	NA	NA	NA	NA	NA
<b>Test Result</b>	<b>0.008</b>	<b>0.098</b>	<b>0.351</b>	<b>&lt;0.0002</b>	<b>0.107</b>	<b>0.015</b>	<b>&lt;0.002</b>
<b>Test Method</b>	200.8	200.8	200.8	245.1	200.8	200.8	1677
<b>Test Date</b>	3/13/2020	3/13/2020	3/13/2020	3/18/2020	3/13/2020	3/13/2020	3/12/2020
<b>Sample Date</b>	3/11/2020	3/11/2020	3/11/2020	3/11/2020	3/11/2020	3/11/2020	3/11/2020
<b>Sample Type</b>	wastewater	wastewater	wastewater	wastewater	wastewater	wastewater	wastewater
<b>Test Result</b>							
<b>Test Method</b>							
<b>Test Date</b>							
<b>Sample Date</b>							
<b>Sample Type</b>							
<b>Test Result</b>							
<b>Test Method</b>							
<b>Test Date</b>							
<b>Sample Date</b>							
<b>Sample Type</b>							
<b>Average Daily Conc.</b>							
<b>No. of Samples</b>							
<b>Number of Limit Exceedances</b>							



**TABLE 2**  
**RACER Trust - Coldwater Road**  
**Daily Discharge Summary Table**  
**First 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		pH
							(C)	(F)	
<b>3/25/2020 - 3/27/2020</b>	724,462	733,548	<b>9,086</b>	4:00 PM (3/25/20)	3:40 PM (3/27/20)	3.17	10.3	50.5	8.33

**Total Discharge Volume (3 Days): 9,086**  
**Average Discharge Volume (3 Days): 3,028**

NOTES :

**TABLE 3**  
**RACER Trust - Coldwater Road**  
**Pre-and Polyfluoroalkyl Substances (PFAS) Sampling Results - March 2020**

**Coldwater Road - PFAS Pretreatment System Samples**

Perfluorinated Compound	Well/Sample ID:	01-PRCC-20-INF (Influent Sample)	01-PRCC-20-PRIM (Primary GAC Drum Sample)	01-PRCC-20-PRIM-201 (Primary GAC Drum Sample after 201 Bed Volumes)	01-PRCC-20-MID-1-201 (Secondary GAC Drum Sample after 201 Bed Volumes)	01-PRCC-20-MID-2-201 (Tertiary GAC Drum Sample after 201 Bed Volumes)	01-PRCC-20-EFF-201 (Effluent Sample after 201 Bed Volumes)	Field Blank-032520 (Field Blank)	EGLE Draft Drinking Water Maximum Contaminant Levels (MCLs)
	Sample Date:	3/25/2020	3/25/2020	3/27/2020	3/27/2020	3/27/2020	3/27/2020	3/25/2020	
Perfluorobutanoic Acid (PFBA)		<21	<20	<20	<20	<20	<20	<20	--
Perfluoropentanoic Acid (PFPeA)		<31	<9.9	<9.8	<10	<9.8	<10	<10	--
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)		<10	<9.9	<9.8	<10	<9.8	<10	<10	--
Perfluorohexanoic Acid (PFHxA)		<b>38</b>	<9.9	<9.8	<10	<9.8	<10	<10	<b>400,000</b>
Perfluorobutane Sulfonic Acid (PFBS)		<b>38</b>	<9.9	<9.8	<10	<9.8	<10	<10	<b>420</b>
Perfluoroheptanoic Acid (PFHpA)		<b>19</b>	<9.9	<9.8	<10	<9.8	<10	<10	--
Perfluoropentane Sulfonic Acid (PFPeS)		<b>63</b>	<9.9	<9.8	<10	<9.8	<10	<10	--
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)		<10	<9.9	<9.8	<10	<9.8	<10	<10	--
Perfluorooctanoic Acid (PFOA)		<b>23</b>	<9.9	<9.8	<10	<9.8	<10	<10	<b>8</b>
Perfluorohexane Sulfonic Acid (PFHxS)		<b>260</b>	<9.9	<9.8	<10	<9.8	<10	<10	<b>51</b>
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)		<b>220</b>	<9.9	<9.8	<10	<9.8	<10	<10	--
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)		<b>40</b>	<9.9	<9.8	<10	<9.8	<10	<10	--
Perfluorononanoic Acid (PFNA)		<10	<9.9	<9.8	<10	<9.8	<10	<10	<b>6</b>
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)		<10	<9.9	<9.8	<10	<9.8	<10	<10	--
Perfluoroheptane Sulfonic Acid (PFHpS)		<b>64</b>	<9.9	<9.8	<10	<9.8	<10	<10	--
Perfluorodecanoic Acid (PFDA)		<10	<9.9	<9.8	<10	<9.8	<10	<10	--
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)		<10	<9.9	<9.8	<10	<9.8	<10	<10	--
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)		<21	<9.9	<20	<20	<20	<20	<10	--
Perfluorooctane Sulfonic Acid (PFOS)		<b>10,000</b>	<b>13</b>	<b>9.8</b>	<10	<9.8	<10	<10	<b>16</b>
Perfluorooctane Sulfonic Acid (PFOS-LN)		<b>6,400</b>	<b>12</b>	<9.8	<10	<9.8	<10	<10	--
Perfluorooctane Sulfonic Acid (PFOS-BR)		<b>3,200</b>	<9.9	<9.8	<10	<9.8	<10	<10	--
Perfluoroundecanoic Acid (PFUnDA)		<10	<9.9	<9.8	<10	<9.8	<10	<10	--
Perfluorononane Sulfonic Acid (PFNS)		<10	<9.9	<9.8	<10	<9.8	<10	<10	--
Perfluorododecanoic Acid (PFDoDA)		<10	<9.9	<9.8	<10	<9.8	<10	<10	--
Perfluorodecane Sulfonic Acid (PFDS)		<10	<9.9	<9.8	<10	<9.8	<10	<10	--
Perfluorotridecanoic Acid (PFTrDA)		<10	<9.9	<9.8	<10	<9.8	<10	<10	--
Perfluorooctane Sulfonamide (FOSA)		<10	<9.9	<9.8	<10	<9.8	<10	<10	--
Perfluorotetradecanoic Acid (PFTeDA)		<10	<9.9	<9.8	<10	<9.8	<10	<10	--
11-chloroicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF30UDS)		<10	<9.9	<9.8	<10	<9.8	<10	<10	--
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF30NS)		<10	<9.9	<9.8	<10	<9.8	<10	<10	--
4,8-dioxo-3H-perfluorononanoic acid (ADONA)		<10	<9.9	<9.8	<10	<9.8	<10	<10	--
Hexafluoropropylene oxide dimer (HFPO-DA)		<10	<9.9	<9.8	<10	<9.8	<10	<10	--
Combined PFOA - PFOS		<b>10,023</b>	<b>13.0</b>	<b>9.8</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	--
Total Other Per-and Polyfluoroalkyl Substances		<b>482</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	--

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 Draft Drinking Water Maximum Contaminant Levels (MCLs) 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.

ANALYTICAL REPORTS



# Analytical Laboratory Report

Report ID: S12605.01(01)+QC01  
Generated on 03/27/2020

## Report to

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Attention: Clifford Yantz  
O'Brien & Gere Engineers, Inc.  
2260 East Saginaw Street  
East Lansing, MI 48823

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

## Report produced by

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

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

## Contacts for report questions:

John Lavery (johnlavery@meritlabs.com)  
Barbara Ball (bball@meritlabs.com)

## Report Summary

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Lab Sample ID(s): S12605.01  
Project: RACER Coldwater Rd  
Collected Date(s): 03/11/2020  
Submitted Date/Time: 03/11/2020 13:35  
Sampled by: Kevin Schneider  
P.O. #: 11900504

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Maya Murshak  
Technical Director



# Analytical Laboratory Report

## General Report Notes

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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.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

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

## Report Narrative

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There is no additional narrative for this analytical report



# Analytical Laboratory 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

## 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



# Analytical Laboratory Report

## 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
S12605.01	01-PRCC-20	Wastewater	03/11/20 12:15



# Analytical Laboratory Report

Lab Sample ID: S12605.01

Sample Tag: 01-PRCC-20

Collected Date/Time: 03/11/2020 12:15

Matrix: Wastewater

COC Reference: 123468

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	2.5	IR
1	250ml Plastic	H2SO4	Yes	2.5	IR
1	125ml Amber	PbCO3/NaOH	Yes	2.5	IR
1	1L Plastic	None	Yes	2.5	IR
1	32oz Glass	HCL	Yes	2.5	IR
1	500ml Plastic	None	Yes	2.5	IR

### Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	03/17/20 12:00	JRH	
TBOD5 - Set*	Completed	HACH 10360	03/12/20 13:30	ASB	
Metal Digestion	Completed	SW3015A	03/13/20 09:30	CCM	

### Inorganics

Method: E1664A, Run Date: 03/26/20 11:00, Analyst: JL

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

Method: HACH 10360, Run Date: 03/17/20 11:33, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TBOD5*	3.9	3		mg/L	1.5		

Method: SM2540D, Run Date: 03/17/20 12:47, Analyst: ASB

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	7	3		mg/L	3.33		

Method: SM2550B, Run Date: 03/11/20 12:15, Analyst: KS

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Field Temperature*	49	1		oF	1		

Method: SM4500-H+ B, Run Date: 03/11/20 12:15, Analyst: KS

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Field pH*	7.58	0.01		STD Units	1		

Method: SM4500-NH3 D, Run Date: 03/12/20 21:19, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ammonia-N (Undistilled)	1.98	0.02	0.003	mg/L	1	7664-41-7	

Method: SM4500-PE, Run Date: 03/13/20 18:43, 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: 03/13/20 12:11, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.008	0.002		mg/L	5	7440-38-2	



# Analytical Laboratory Report

Lab Sample ID: S12605.01 (continued)

Sample Tag: 01-PRCC-20

**Method: E200.8, Run Date: 03/13/20 12:11, Analyst: CCM (continued)**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	0.098	0.005		mg/L	5	7440-47-3	
Copper	0.351	0.005		mg/L	5	7440-50-8	
Nickel	0.107	0.005		mg/L	5	7440-02-0	
Zinc	0.015	0.005		mg/L	5	7440-66-6	

**Method: E245.1, Run Date: 03/18/20 12:23, Analyst: JRH**

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

**Other / Misc.**

**Method: OIA-1677, Run Date: 03/12/20 13:52, 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: S12605.01(01)+QC01  
Generated on 03/27/2020

Report to

Attention: Clifford Yantz  
O'Brien & Gere Engineers, Inc.  
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): S12605.01  
Project: RACER Coldwater Rd  
Submitted Date/Time: 03/11/2020 13:35  
Sampled by: Kevin Schneider  
P.O. #: 11900504

QC Report Sections

Cover Page (Page 8)  
Analysis Summary (Page 9)  
Prep Batch Summary (Page 10)  
Batch QC Results (Pages 11-19)

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: S12605.01**

Sample Tag: 01-PRCC-20

Collected Date/Time: 03/11/2020 12:15

Matrix: Wastewater

COC Reference: 123468

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b><i>Inorganics</i></b>						
Ammonia-N (Undistilled)	SM4500-NH3 D	03/12/20 21:19	AMN200312QC	AMN200312QC	No	BLK/LCS/MS/DUP
Oil & Grease n-Hexane Extract.	E1664A	03/26/20 11:00	OGHEX200326W01	OGHEX200326W01	No	BLK/LCS
TBOD5	HACH 10360	03/17/20 11:33	BOD200312	BOD200312	No	BLK/LCS/DUP
Total Phosphorus	SM4500-PE	03/13/20 18:43	PHS200313QC	PHS200313QC	No	BLK/LCS/MS/DUP
Total Suspended Solids	SM2540D	03/17/20 12:47	TSS200317	TSS200317	No	BLK/LCS/DUP
<b><i>Metals</i></b>						
Arsenic	E200.8	03/13/20 12:11	MT4-20-0313A	MTD-031320-1	No	BLK/LCS/MS/MSD
Chromium	E200.8	03/13/20 12:11	MT4-20-0313A	MTD-031320-1	No	BLK/LCS/MS/MSD
Copper	E200.8	03/13/20 12:11	MT4-20-0313A	MTD-031320-1	No	BLK/LCS/MS/MSD
Mercury	E245.1	03/18/20 12:23	HG2-HG3-20-0318	AHGD-031720-2	No	BLK/LCS/MS/MSD
Nickel	E200.8	03/13/20 12:11	MT4-20-0313A	MTD-031320-1	No	BLK/LCS/MS/MSD
Zinc	E200.8	03/13/20 12:11	MT4-20-0313A	MTD-031320-1	No	BLK/LCS/MS/MSD
<b><i>Other / Misc.</i></b>						
Available Cyanide	OIA-1677	03/12/20 13:52	ACN200312-W2	ACN200312-W2	No	BLK/LCS/MS/MSD/DU

## QC Report - Prep Batch Summary

**Inorganics, Prep Batch ID: AMN200312QC**

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S12605.01	Ammonia-N (Undistilled)	SM4500-NH3 D	03/12/20 21:19	AMN200312QC

**Inorganics, Prep Batch ID: BOD200312**

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S12605.01	TBOD5	HACH 10360	03/17/20 11:33	BOD200312

**Inorganics, Prep Batch ID: OGHEX200326W01**

Surrogates: No, QC Types: BLK/LCS

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S12605.01	Oil & Grease n-Hexane Extract.	E1664A	03/26/20 11:00	OGHEX200326W01

**Inorganics, Prep Batch ID: PHS200313QC**

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S12605.01	Total Phosphorus	SM4500-PE	03/13/20 18:43	PHS200313QC

**Inorganics, Prep Batch ID: TSS200317**

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S12605.01	Total Suspended Solids	SM2540D	03/17/20 12:47	TSS200317

**Metals, Prep Batch ID: HGD-031720-2**

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S12605.01	Mercury	E245.1	03/18/20 12:23	HG2-HG3-20-0318A

**Metals, Prep Batch ID: MTD-031320-1**

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S12605.01	Arsenic	E200.8	03/13/20 12:11	MT4-20-0313A
S12605.01	Chromium	E200.8	03/13/20 12:11	MT4-20-0313A
S12605.01	Copper	E200.8	03/13/20 12:11	MT4-20-0313A
S12605.01	Nickel	E200.8	03/13/20 12:11	MT4-20-0313A
S12605.01	Zinc	E200.8	03/13/20 12:11	MT4-20-0313A

**Other / Misc., Prep Batch ID: ACN200312-W2**

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S12605.01	Available Cyanide	OIA-1677	03/12/20 13:52	ACN200312-W2

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: AMN200312QC

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

### Blank (BLK)

Lab Sample ID: AMN200312QC.LRB1

Run in Batch: AMN200312QC, Run Date: 03/12/2020 11:21, Prep Date: 03/12/2020, Matrix: Liquid, Dilution: 1

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

### Laboratory Control Sample (LCS)

Lab Sample ID: AMN200312QC.LCS1

Run in Batch: AMN200312QC, Run Date: 03/12/2020 12:31, Prep Date: 03/12/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Ammonia-N (Undistilled)		103	90	110

### Matrix Spike (MS)

Lab Sample ID: AMN200312QC.MS1, Parent Sample ID: S12457.01

Run in Batch: AMN200312QC, Run Date: 03/12/2020 13:17, Prep Date: 03/12/2020, Matrix: Solid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Ammonia-N (Undistilled)		92	80	120

### Matrix Spike (MS)

Lab Sample ID: AMN200312QC.MS2, Parent Sample ID: S12613.02

Run in Batch: AMN200312QC, Run Date: 03/12/2020 13:51, Prep Date: 03/12/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Ammonia-N (Undistilled)		92	80	120

### Duplicate (DUP)

Lab Sample ID: AMN200312QC.DP1, Parent Sample ID: S12457.01

Run in Batch: AMN200312QC, Run Date: 03/12/2020 13:12, Prep Date: 03/12/2020, Matrix: Solid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Ammonia-N (Undistilled)		15.4	20

### Duplicate (DUP)

Lab Sample ID: AMN200312QC.DP2, Parent Sample ID: S12613.01

Run in Batch: AMN200312QC, Run Date: 03/12/2020 13:35, Prep Date: 03/12/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Ammonia-N (Undistilled)		0.7	20

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: BOD200312

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

### Blank (BLK)

Lab Sample ID: BOD200312.LRB1

Run in Batch: BOD200312, Run Date: 03/17/2020 11:33, Prep Date: 03/17/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
TBOD5		ND	3	mg/L

### Blank (BLK)

Lab Sample ID: BOD200312.LRB2

Run in Batch: BOD200312, Run Date: 03/17/2020 11:33, Prep Date: 03/17/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
TBOD5		ND	3	mg/L

### Laboratory Control Sample (LCS)

Lab Sample ID: BOD200312.LCS1

Run in Batch: BOD200312, Run Date: 03/17/2020 11:33, Prep Date: 03/17/2020, Matrix: Liquid, Dilution: 20

Analyte	Flags	% Rec	LCL	UCL
TBOD5		101.3	51	166

### Laboratory Control Sample (LCS)

Lab Sample ID: BOD200312.LCS2

Run in Batch: BOD200312, Run Date: 03/17/2020 11:33, Prep Date: 03/17/2020, Matrix: Liquid, Dilution: 20

Analyte	Flags	% Rec	LCL	UCL
TBOD5		100.8	51	166

### Duplicate (DUP)

Lab Sample ID: BOD200312.DP1, Parent Sample ID: S12600.01

Run in Batch: BOD200312, Run Date: 03/17/2020 11:33, Prep Date: 03/17/2020, Matrix: Liquid, Dilution: 6

Analyte	Flags	RPD	RPD CL
TBOD5		0.9	20

### Duplicate (DUP)

Lab Sample ID: BOD200312.DP2, Parent Sample ID: S12613.01

Run in Batch: BOD200312, Run Date: 03/17/2020 11:33, Prep Date: 03/17/2020, Matrix: Liquid, Dilution: 60

Analyte	Flags	RPD	RPD CL
TBOD5		12.2	20

### Duplicate (DUP)

Lab Sample ID: BOD200312.DP3, Parent Sample ID: S12613.02

Run in Batch: BOD200312, Run Date: 03/17/2020 11:33, Prep Date: 03/17/2020, Matrix: Liquid, Dilution: 60

Analyte	Flags	RPD	RPD CL
TBOD5		3.4	20

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: OGHEX200326W01

Surrogates: No, QC Types: BLK/LCS

### Blank (BLK)

Lab Sample ID: OGHEX200326W01.LRB1

Run in Batch: OGHEX200326W01, Run Date: 03/26/2020 11:00, Prep Date: 03/26/2020, Matrix: Liquid, Dilution: 1

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

### Laboratory Control Sample (LCS)

Lab Sample ID: OGHEX200326W01.LCS1

Run in Batch: OGHEX200326W01, Run Date: 03/26/2020 11:00, Prep Date: 03/26/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Oil & Grease n-Hexane Extract.		106	78	114

### Laboratory Control Sample (LCS)

Lab Sample ID: OGHEX200326W01.LCS2

Run in Batch: OGHEX200326W01, Run Date: 03/26/2020 11:00, Prep Date: 03/26/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Oil & Grease n-Hexane Extract.		92	78	114

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: PHS200313QC

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

### Blank (BLK)

Lab Sample ID: PHS200313QC.LRB1

Run in Batch: PHS200313QC, Run Date: 03/13/2020 15:09, Prep Date: 03/13/2020, Matrix: Liquid, Dilution: 1

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

### Blank (BLK)

Lab Sample ID: PHS200313QC.LRB2

Run in Batch: PHS200313QC, Run Date: 03/13/2020 15:15, Prep Date: 03/13/2020, Matrix: Liquid, Dilution: 1

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

### Laboratory Control Sample (LCS)

Lab Sample ID: PHS200313QC.LCS1

Run in Batch: PHS200313QC, Run Date: 03/13/2020 15:22, Prep Date: 03/13/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		103	90	110

### Matrix Spike (MS)

Lab Sample ID: PHS200313QC.MS1, Parent Sample ID: S12603.01

Run in Batch: PHS200313QC, Run Date: 03/13/2020 19:13, Prep Date: 03/13/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		96	80	120

### Duplicate (DUP)

Lab Sample ID: PHS200313QC.DP1, Parent Sample ID: S12565.01

Run in Batch: PHS200313QC, Run Date: 03/13/2020 19:10, Prep Date: 03/13/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Total Phosphorus		2.4	20

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: TSS200317

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

### Blank (BLK)

Lab Sample ID: TSS200317.LRB1

Run in Batch: TSS200317, Run Date: 03/17/2020 12:47, Prep Date: 03/17/2020, Matrix: Liquid, Dilution: 1.00

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

### Laboratory Control Sample (LCS)

Lab Sample ID: TSS200317.LCS1

Run in Batch: TSS200317, Run Date: 03/17/2020 12:47, Prep Date: 03/17/2020, Matrix: Liquid, Dilution: 10.0

Analyte	Flags	% Rec	LCL	UCL
Total Suspended Solids		96.3	79.2	113

### Duplicate (DUP)

Lab Sample ID: TSS200317.DP1, Parent Sample ID: S12659.01

Run in Batch: TSS200317, Run Date: 03/17/2020 12:47, Prep Date: 03/17/2020, Matrix: Liquid, Dilution: 2.86

Analyte	Flags	RPD	RPD CL
Total Suspended Solids	*	19.0	5

**QC Report - Batch QC Results**

**Metals, Prep Batch ID: HGD-031720-2**

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

**Blank (BLK)**

Lab Sample ID: HG2-HG3-20-0318A.032

Run in Batch: HG2-HG3-20-0318A, Run Date: 03/18/2020 12:16, Prep Date: 03/17/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Mercury		ND	0.03	ug/L

**Laboratory Control Sample (LCS)**

Lab Sample ID: HG2-HG3-20-0318A.031

Run in Batch: HG2-HG3-20-0318A, Run Date: 03/18/2020 12:14, Prep Date: 03/17/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Mercury		100	85	115

**Matrix Spike (MS)**

Lab Sample ID: HG2-HG3-20-0318A.044, Parent Sample ID: S12562.01

Run in Batch: HG2-HG3-20-0318A, Run Date: 03/18/2020 12:38, Prep Date: 03/17/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Mercury		92	80	120

**Matrix Spike (MS)**

Lab Sample ID: HG2-HG3-20-0318A.057, Parent Sample ID: S12682.01

Run in Batch: HG2-HG3-20-0318A, Run Date: 03/18/2020 13:02, Prep Date: 03/17/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Mercury		88	80	120

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: HG2-HG3-20-0318A.045, Parent Sample ID: HG2-HG3-20-0318A.044

Run in Batch: HG2-HG3-20-0318A, Run Date: 03/18/2020 12:39, Prep Date: 03/17/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Mercury		92	80	120	1	20

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: HG2-HG3-20-0318A.058, Parent Sample ID: HG2-HG3-20-0318A.057

Run in Batch: HG2-HG3-20-0318A, Run Date: 03/18/2020 13:04, Prep Date: 03/17/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Mercury		88	80	120	0	20

## QC Report - Batch QC Results

### Metals, Prep Batch ID: MTD-031320-1

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

#### Blank (BLK)

Lab Sample ID: MT4-20-0313A.021.LRB

Run in Batch: MT4-20-0313A, Run Date: 03/13/2020 11:19, Prep Date: 03/13/2020, 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: MT4-20-0313A.019.LCS

Run in Batch: MT4-20-0313A, Run Date: 03/13/2020 11:06, Prep Date: 03/13/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Arsenic		106	85	115
Chromium		104	85	115
Copper		99	85	115
Nickel		100	85	115
Zinc		109	85	115

#### Matrix Spike (MS)

Lab Sample ID: MT4-20-0313A.042.MS, Parent Sample ID: S12600.01

Run in Batch: MT4-20-0313A, Run Date: 03/13/2020 11:56, Prep Date: 03/13/2020, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		109	75	125
Chromium		104	75	125
Copper		102	75	125
Nickel		100	75	125
Zinc		114	75	125

#### Matrix Spike (MS)

Lab Sample ID: MT4-20-0313A.068.MS, Parent Sample ID: S12607.01

Run in Batch: MT4-20-0313A, Run Date: 03/13/2020 12:32, Prep Date: 03/13/2020, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		116	75	125
Chromium		106	75	125
Copper		99	75	125
Nickel		101	75	125
Zinc		118	75	125

#### Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-20-0313A.043.MSD, Parent Sample ID: MT4-20-0313A.042.MS

Run in Batch: MT4-20-0313A, Run Date: 03/13/2020 11:57, Prep Date: 03/13/2020, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		110	75	125	1	20
Chromium		94	75	125	6	20
Copper		98	75	125	4	20
Nickel		95	75	125	5	20
Zinc		110	75	125	3	20

# QC Report - Batch QC Results

## Metals, Prep Batch ID: MTD-031320-1 (continued)

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

### Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-20-0313A.069.MSD, Parent Sample ID: MT4-20-0313A.068.MS

Run in Batch: MT4-20-0313A, Run Date: 03/13/2020 12:33, Prep Date: 03/13/2020, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		111	75	125	4	20
Chromium		102	75	125	5	20
Copper		99	75	125	0	20
Nickel		102	75	125	2	20
Zinc		114	75	125	3	20

## QC Report - Batch QC Results

**Other / Misc., Prep Batch ID: ACN200312-W2**

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

**Blank (BLK)**

Lab Sample ID: ACN200312-W2.LRB1

Run in Batch: ACN200312-W2, Run Date: 03/12/2020 13:42, Prep Date: 03/12/2020, Matrix: Liquid, Dilution: 1

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

**Blank (BLK)**

Lab Sample ID: ACN200312-W2.LRB2

Run in Batch: ACN200312-W2, Run Date: 03/12/2020 14:18, Prep Date: 03/12/2020, Matrix: Liquid, Dilution: 1

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

**Laboratory Control Sample (LCS)**

Lab Sample ID: ACN200312-W2.LCS1

Run in Batch: ACN200312-W2, Run Date: 03/12/2020 13:46, Prep Date: 03/12/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Available Cyanide		101	88	109

**Matrix Spike (MS)**

Lab Sample ID: ACN200312-W2.MS1, Parent Sample ID: S12605.01

Run in Batch: ACN200312-W2, Run Date: 03/12/2020 13:58, Prep Date: 03/12/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Available Cyanide		112	82	130

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: ACN200312-W2.MSD1, Parent Sample ID: ACN200312-W2.MS1

Run in Batch: ACN200312-W2, Run Date: 03/12/2020 14:00, Prep Date: 03/12/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Available Cyanide		114	82	130	2	15

**Duplicate (DUP)**

Lab Sample ID: ACN200312-W2.DP1, Parent Sample ID: S12605.01

Run in Batch: ACN200312-W2, Run Date: 03/12/2020 13:54, Prep Date: 03/12/2020, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Available Cyanide		<1	15

# Merit Laboratories Login Checklist

Lab Set ID:S12605

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

Project: RACER Coldwater Rd

Submitted:03/11/2020 13:35 Login User: MMC

Attention: Clifford Yantz

Address: O'Brien & Gere Engineers, Inc.  
2260 East Saginaw Street  
East Lansing, MI 48823

Phone: 313-333-0211 FAX:

Email: Clifford.Yantz@obg.com

Selection	Description	Note
<b>Sample Receiving</b>		
01.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Samples are received at 4C +/- 2C Thermometer # IR 2.5
02.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Received on ice/ cooling process begun
03.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Samples shipped
04.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Samples left in 24 hr. drop box
05.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Are there custody seals/tape or is the drop box locked
<b>Chain of Custody</b>		
06.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	COC adequately filled out
07.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	COC signed and relinquished to the lab
08.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Sample tag on bottles match COC
09.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Subcontracting needed? Subcontracted to:
<b>Preservation</b>		
10.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Do sample have correct chemical preservation
11.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Completed pH checks on preserved samples? (no VOAs)
12.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Did any samples need to be preserved in the lab?
<b>Bottle Conditions</b>		
13.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	All bottles intact
14.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Appropriate analytical bottles are used
15.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Merit bottles used
16.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Sufficient sample volume received
17.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Samples require laboratory filtration
18.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Samples submitted within holding time
19.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> 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: S12605

Initials: MMC

Attention: Clifford Yantz

Address: O'Brien & Gere Engineers, Inc.  
2260 East Saginaw Street  
East Lansing, MI 48823

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

Project: RACER Coldwater Rd

Submitted: 03/11/2020 13:35 Login User:

Phone: 313-333-0211

FAX:

Email: Clifford.Yantz@obg.com

Lab ID	125 ml Plastic HNO <sub>3</sub>	250 ml Plastic HNO <sub>3</sub>	1 L Plastic HNO <sub>3</sub>	250 ml Plastic H <sub>2</sub> SO <sub>4</sub>	125 ml Amber H <sub>2</sub> SO <sub>4</sub>	32 oz Glass HCl	125 ml Plastic NaOH	125 ml Amber PbCO <sub>3</sub> NaOH	pH					Notes
									<2	>12	other	ml add	new pH	
S12605.01	X								X					
S12605.01				X					X					
S12605.01						X			X					
S12605.01								X		X				



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 123468

**REPORT TO**

**CHAIN OF CUSTODY RECORD**

**INVOICE TO**

CONTACT NAME: Clifford Yantz  
 COMPANY: O'Brien & Gere Part of 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 QUOTE NO.: \_\_\_\_\_

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

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

PROJECT NO./NAME: RACER Coldwater Rd SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider  
 TURNAROUND TIME REQUIRED:  1 DAY  2 DAYS  3 DAYS  STANDARD  OTHER \_\_\_\_\_  
 DELIVERABLES REQUIRED:  STD  LEVEL II  LEVEL III  LEVEL IV  EDD  OTHER \_\_\_\_\_

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

# Containers & Preservatives

Total Metals	Available Cyanide	BOD/TSS	Ammonia-Nitrogen	Total Phosphorus	FOG (Hex-Ext)
1	X	X	X	X	X

Certifications  
 OHIO VAP  Drinking Water  
 DoD  NPDES  
 Project Locations  
 Detroit  New York  
 Other \_\_\_\_\_  
 Special Instructions

MERIT LAB NO. FOR LAB USE ONLY	YEAR		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives									
	DATE	TIME				NONE	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	MeOH	OTHER			
<u>12605.01</u>	<u>3/11/20</u>	<u>1215</u>	<u>01-PRCC-20</u>	<u>WW</u>	<u>6</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>

Metals Are:  
As, Cr, Cu, Hg, Ni, Zn  
 Analysis Per  
city of Flint  
 including QC Report  
 Field pH - 7.58  
 Field Temp - 9.6

RELINQUISHED BY: [Signature] ORG: ORG Sampler: X DATE: 3/11/20 TIME: 1230  
 RECEIVED BY: [Signature] DATE: 3/11/20 TIME: 12:30  
 RELINQUISHED BY: [Signature] DATE: 3/11/20 TIME: 13:35  
 RECEIVED BY: [Signature] DATE: 3/11/2020 TIME: 1335

RELINQUISHED BY: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_  
 RECEIVED BY: \_\_\_\_\_ DATE: \_\_\_\_\_ TIME: \_\_\_\_\_  
 SEAL NO. SEAL INTACT INITIALS NOTES: TEMP. ON ARRIVAL 2.5  
 YES  NO   
 SEAL NO. SEAL INTACT INITIALS  
 YES  NO



# Analytical Laboratory Report

Report ID: S13016.01(01)  
Generated on 04/02/2020

## Report to

---

Attention: Clifford Yantz  
O'Brien & Gere Engineers, Inc.  
2260 East Saginaw Street  
East Lansing, MI 48823

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

## Report produced by

---

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

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

## Contacts for report questions:

John Lavery (johnlavery@meritlabs.com)  
Barbara Ball (bball@meritlabs.com)

## Report Summary

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Lab Sample ID(s): S13016.01-S13016.07  
Project: RACER Coldwater Rd.  
Collected Date(s): 03/25/2020 - 03/27/2020  
Submitted Date/Time: 03/30/2020 08:00  
Sampled by: Kevin Schneider  
P.O. #: 11900504

## Table of Contents

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Maya Murshak  
Technical Director



# Analytical Laboratory Report

## General Report Notes

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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.

Report shall not be reproduced except in full, without the written approval of Merit Laboratories, Inc.

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

## Report Narrative

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There is no additional narrative for this analytical report



# Analytical Laboratory 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

## 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



# Analytical Laboratory Report

## Method Summary

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

## Parameter Summary

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

Sample ID	Sample Tag	Matrix	Collected Date/Time
S13016.01	Field Blank-032520	Liquid	03/25/20 16:00
S13016.02	01-PRCC-20-INF	Liquid	03/25/20 16:03
S13016.03	01-PRCC-20-PRIM	Liquid	03/25/20 16:12
S13016.04	01-PRCC-20-EFF-201	Liquid	03/27/20 14:44
S13016.05	01-PRCC-20-MID-2-201	Liquid	03/27/20 14:46
S13016.06	01-PRCC-20-MID-1-201	Liquid	03/27/20 14:48
S13016.07	01-PRCC-20-PRIM-201	Liquid	03/27/20 14:50



# Analytical Laboratory Report

Lab Sample ID: S13016.01

Sample Tag: Field Blank-032520

Collected Date/Time: 03/25/2020 16:00

Matrix: Liquid

COC Reference: 82408

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.9	IR

### Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.12/6.74/11	ASTMD7979	03/31/20 13:00	KCV	

### Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/31/20 23:07, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	20		ng/L	2.04	375-22-4	
PFPeA*	Not detected	10		ng/L	2.04	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	2.04	757124-72-4	
PFHxA*	Not detected	10		ng/L	2.04	307-24-4	
PFBS*	Not detected	10		ng/L	2.04	375-73-5	
PFHpA*	Not detected	10		ng/L	2.04	375-85-9	
PFPeS*	Not detected	10		ng/L	2.04	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	2.04	27619-97-2	
PFOA*	Not detected	10		ng/L	2.04	335-67-1	
PFHxS*	Not detected	10		ng/L	2.04	355-46-4	
PFHxS-LN*	Not detected	10		ng/L	2.04	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	2.04	355-46-4-BR	
PFNA*	Not detected	10		ng/L	2.04	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	2.04	39108-34-4	
PFHpS*	Not detected	10		ng/L	2.04	375-92-8	
PFDA*	Not detected	10		ng/L	2.04	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	2.04	2355-31-9	
EtFOSAA*	Not detected	20		ng/L	2.04	2991-50-6	
PFOS*	Not detected	10		ng/L	2.04	1763-23-1	
PFOS-LN*	Not detected	10		ng/L	2.04	1763-23-1-LN	
PFOS-BR*	Not detected	10		ng/L	2.04	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	2.04	2058-94-8	
PFNS*	Not detected	10		ng/L	2.04	68259-12-1	
PFDODA*	Not detected	10		ng/L	2.04	307-55-1	
PFDS*	Not detected	10		ng/L	2.04	335-77-3	
PFTTrDA*	Not detected	10		ng/L	2.04	72629-94-8	
FOSA*	Not detected	10		ng/L	2.04	754-91-6	
PFTeDA*	Not detected	10		ng/L	2.04	376-06-7	
11Cl-PF3OUdS*	Not detected	10		ng/L	2.04	763051-92-9	
9Cl-PF3ONS*	Not detected	10		ng/L	2.04	756426-58-1	
ADONA*	Not detected	10		ng/L	2.04	919005-14-4	
HFPO-DA*	Not detected	10		ng/L	2.04	13252-13-6	



# Analytical Laboratory Report

Lab Sample ID: S13016.02

Sample Tag: 01-PRCC-20-INF

Collected Date/Time: 03/25/2020 16:03

Matrix: Liquid

COC Reference: 82408

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.9	IR

Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.00/6.74/11	ASTMD7979	03/31/20 13:00	KCV	

Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/31/20 23:26, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	21		ng/L	2.09	375-22-4	
PFPeA*	Not detected	31		ng/L	2.09	2706-90-3	X
4:2 FTSA*	Not detected	10		ng/L	2.09	757124-72-4	
PFHxA*	38	10		ng/L	2.09	307-24-4	
PFBS*	38	10		ng/L	2.09	375-73-5	
PFHpA*	19	10		ng/L	2.09	375-85-9	
PFPeS*	63	10		ng/L	2.09	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	2.09	27619-97-2	
PFOA*	23	10		ng/L	2.09	335-67-1	
PFHxS*	260	10		ng/L	2.09	355-46-4	
PFHxS-LN*	220	10		ng/L	2.09	355-46-4-LN	
PFHxS-BR*	40	10		ng/L	2.09	355-46-4-BR	
PFNA*	Not detected	10		ng/L	2.09	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	2.09	39108-34-4	
PFHpS*	64	10		ng/L	2.09	375-92-8	
PFDA*	Not detected	10		ng/L	2.09	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	2.09	2355-31-9	
EtFOSAA*	Not detected	21		ng/L	2.09	2991-50-6	
PFOS*	10,000	10		ng/L	2.09	1763-23-1	
PFOS-LN*	6,400	10		ng/L	2.09	1763-23-1-LN	
PFOS-BR*	3,200	10		ng/L	2.09	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	2.09	2058-94-8	
PFNS*	Not detected	10		ng/L	2.09	68259-12-1	
PFDoDA*	Not detected	10		ng/L	2.09	307-55-1	
PFDS*	Not detected	10		ng/L	2.09	335-77-3	
PFTTrDA*	Not detected	10		ng/L	2.09	72629-94-8	
FOSA*	Not detected	10		ng/L	2.09	754-91-6	
PFTeDA*	Not detected	10		ng/L	2.09	376-06-7	
11Cl-PF3OUdS*	Not detected	10		ng/L	2.09	763051-92-9	
9Cl-PF3ONS*	Not detected	10		ng/L	2.09	756426-58-1	
ADONA*	Not detected	10		ng/L	2.09	919005-14-4	
HFPO-DA*	Not detected	10		ng/L	2.09	13252-13-6	

X-Elevated reporting limit due to matrix interference



# Analytical Laboratory Report

Lab Sample ID: S13016.03

Sample Tag: 01-PRCC-20-PRIM

Collected Date/Time: 03/25/2020 16:12

Matrix: Liquid

COC Reference: 82408

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.9	IR

### Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.31/6.72/11	ASTMD7979	03/31/20 13:00	KCV	

### Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 03/31/20 23:46, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	20		ng/L	1.97	375-22-4	
PFPeA*	Not detected	9.9		ng/L	1.97	2706-90-3	
4:2 FTSA*	Not detected	9.9		ng/L	1.97	757124-72-4	
PFHxA*	Not detected	9.9		ng/L	1.97	307-24-4	
PFBS*	Not detected	9.9		ng/L	1.97	375-73-5	
PFHpA*	Not detected	9.9		ng/L	1.97	375-85-9	
PFPeS*	Not detected	9.9		ng/L	1.97	2706-91-4	
6:2 FTSA*	Not detected	9.9		ng/L	1.97	27619-97-2	
PFOA*	Not detected	9.9		ng/L	1.97	335-67-1	
PFHxS*	Not detected	9.9		ng/L	1.97	355-46-4	
PFHxS-LN*	Not detected	9.9		ng/L	1.97	355-46-4-LN	
PFHxS-BR*	Not detected	9.9		ng/L	1.97	355-46-4-BR	
PFNA*	Not detected	9.9		ng/L	1.97	375-95-1	
8:2 FTSA*	Not detected	9.9		ng/L	1.97	39108-34-4	
PFHpS*	Not detected	9.9		ng/L	1.97	375-92-8	
PFDA*	Not detected	9.9		ng/L	1.97	335-76-2	
N-MeFOSAA*	Not detected	9.9		ng/L	1.97	2355-31-9	
EtFOSAA*	Not detected	20		ng/L	1.97	2991-50-6	
PFOS*	13	9.9		ng/L	1.97	1763-23-1	
PFOS-LN*	12	9.9		ng/L	1.97	1763-23-1-LN	
PFOS-BR*	Not detected	9.9		ng/L	1.97	1763-23-1-BR	
PFUnDA*	Not detected	9.9		ng/L	1.97	2058-94-8	
PFNS*	Not detected	9.9		ng/L	1.97	68259-12-1	
PFDODA*	Not detected	9.9		ng/L	1.97	307-55-1	
PFDS*	Not detected	9.9		ng/L	1.97	335-77-3	
PFTTrDA*	Not detected	9.9		ng/L	1.97	72629-94-8	
FOSA*	Not detected	9.9		ng/L	1.97	754-91-6	
PFTeDA*	Not detected	9.9		ng/L	1.97	376-06-7	
11Cl-PF3OUdS*	Not detected	9.9		ng/L	1.97	763051-92-9	
9Cl-PF3ONS*	Not detected	9.9		ng/L	1.97	756426-58-1	
ADONA*	Not detected	9.9		ng/L	1.97	919005-14-4	
HFPO-DA*	Not detected	9.9		ng/L	1.97	13252-13-6	



# Analytical Laboratory Report

Lab Sample ID: S13016.04

Sample Tag: 01-PRCC-20-EFF-201

Collected Date/Time: 03/27/2020 14:44

Matrix: Liquid

COC Reference: 82408

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.9	IR

### Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.77/6.76/10	ASTMD7979	03/31/20 13:00	KCV	

### Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/01/20 00:05, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	20		ng/L	2	375-22-4	
PFPeA*	Not detected	10		ng/L	2	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	2	757124-72-4	
PFHxA*	Not detected	10		ng/L	2	307-24-4	
PFBS*	Not detected	10		ng/L	2	375-73-5	
PFHpA*	Not detected	10		ng/L	2	375-85-9	
PFPeS*	Not detected	10		ng/L	2	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	2	27619-97-2	
PFOA*	Not detected	10		ng/L	2	335-67-1	
PFHxS*	Not detected	10		ng/L	2	355-46-4	
PFHxS-LN*	Not detected	10		ng/L	2	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	2	355-46-4-BR	
PFNA*	Not detected	10		ng/L	2	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	2	39108-34-4	
PFHpS*	Not detected	10		ng/L	2	375-92-8	
PFDA*	Not detected	10		ng/L	2	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	2	2355-31-9	
EtFOSAA*	Not detected	20		ng/L	2	2991-50-6	
PFOS*	Not detected	10		ng/L	2	1763-23-1	
PFOS-LN*	Not detected	10		ng/L	2	1763-23-1-LN	
PFOS-BR*	Not detected	10		ng/L	2	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	2	2058-94-8	
PFNS*	Not detected	10		ng/L	2	68259-12-1	
PFDODA*	Not detected	10		ng/L	2	307-55-1	
PFDS*	Not detected	10		ng/L	2	335-77-3	
PFTTrDA*	Not detected	10		ng/L	2	72629-94-8	
FOSA*	Not detected	10		ng/L	2	754-91-6	
PFTeDA*	Not detected	10		ng/L	2	376-06-7	
11Cl-PF3OUdS*	Not detected	10		ng/L	2	763051-92-9	
9Cl-PF3ONS*	Not detected	10		ng/L	2	756426-58-1	
ADONA*	Not detected	10		ng/L	2	919005-14-4	
HFPO-DA*	Not detected	10		ng/L	2	13252-13-6	



# Analytical Laboratory Report

Lab Sample ID: S13016.05

Sample Tag: 01-PRCC-20-MID-2-201

Collected Date/Time: 03/27/2020 14:46

Matrix: Liquid

COC Reference: 82408

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.9	IR

### Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	11.85/6.73/10	ASTMD7979	03/31/20 13:00	KCV	

### Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/01/20 00:25, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	20		ng/L	1.95	375-22-4	
PFPeA*	Not detected	9.8		ng/L	1.95	2706-90-3	
4:2 FTSA*	Not detected	9.8		ng/L	1.95	757124-72-4	
PFHxA*	Not detected	9.8		ng/L	1.95	307-24-4	
PFBS*	Not detected	9.8		ng/L	1.95	375-73-5	
PFHpA*	Not detected	9.8		ng/L	1.95	375-85-9	
PFPeS*	Not detected	9.8		ng/L	1.95	2706-91-4	
6:2 FTSA*	Not detected	9.8		ng/L	1.95	27619-97-2	
PFOA*	Not detected	9.8		ng/L	1.95	335-67-1	
PFHxS*	Not detected	9.8		ng/L	1.95	355-46-4	
PFHxS-LN*	Not detected	9.8		ng/L	1.95	355-46-4-LN	
PFHxS-BR*	Not detected	9.8		ng/L	1.95	355-46-4-BR	
PFNA*	Not detected	9.8		ng/L	1.95	375-95-1	
8:2 FTSA*	Not detected	9.8		ng/L	1.95	39108-34-4	
PFHpS*	Not detected	9.8		ng/L	1.95	375-92-8	
PFDA*	Not detected	9.8		ng/L	1.95	335-76-2	
N-MeFOSAA*	Not detected	9.8		ng/L	1.95	2355-31-9	
EtFOSAA*	Not detected	20		ng/L	1.95	2991-50-6	
PFOS*	Not detected	9.8		ng/L	1.95	1763-23-1	
PFOS-LN*	Not detected	9.8		ng/L	1.95	1763-23-1-LN	
PFOS-BR*	Not detected	9.8		ng/L	1.95	1763-23-1-BR	
PFUnDA*	Not detected	9.8		ng/L	1.95	2058-94-8	
PFNS*	Not detected	9.8		ng/L	1.95	68259-12-1	
PFDODA*	Not detected	9.8		ng/L	1.95	307-55-1	
PFDS*	Not detected	9.8		ng/L	1.95	335-77-3	
PFTTrDA*	Not detected	9.8		ng/L	1.95	72629-94-8	
FOSA*	Not detected	9.8		ng/L	1.95	754-91-6	
PFTeDA*	Not detected	9.8		ng/L	1.95	376-06-7	
11Cl-PF3OUdS*	Not detected	9.8		ng/L	1.95	763051-92-9	
9Cl-PF3ONS*	Not detected	9.8		ng/L	1.95	756426-58-1	
ADONA*	Not detected	9.8		ng/L	1.95	919005-14-4	
HFPO-DA*	Not detected	9.8		ng/L	1.95	13252-13-6	



# Analytical Laboratory Report

Lab Sample ID: S13016.06

Sample Tag: 01-PRCC-20-MID-1-201

Collected Date/Time: 03/27/2020 14:48

Matrix: Liquid

COC Reference: 82408

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.9	IR

### Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.16/6.71/11	ASTMD7979	03/31/20 13:00	KCV	

### Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/01/20 00:44, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	20		ng/L	2.02	375-22-4	
PFPeA*	Not detected	10		ng/L	2.02	2706-90-3	
4:2 FTSA*	Not detected	10		ng/L	2.02	757124-72-4	
PFHxA*	Not detected	10		ng/L	2.02	307-24-4	
PFBS*	Not detected	10		ng/L	2.02	375-73-5	
PFHpA*	Not detected	10		ng/L	2.02	375-85-9	
PFPeS*	Not detected	10		ng/L	2.02	2706-91-4	
6:2 FTSA*	Not detected	10		ng/L	2.02	27619-97-2	
PFOA*	Not detected	10		ng/L	2.02	335-67-1	
PFHxS*	Not detected	10		ng/L	2.02	355-46-4	
PFHxS-LN*	Not detected	10		ng/L	2.02	355-46-4-LN	
PFHxS-BR*	Not detected	10		ng/L	2.02	355-46-4-BR	
PFNA*	Not detected	10		ng/L	2.02	375-95-1	
8:2 FTSA*	Not detected	10		ng/L	2.02	39108-34-4	
PFHpS*	Not detected	10		ng/L	2.02	375-92-8	
PFDA*	Not detected	10		ng/L	2.02	335-76-2	
N-MeFOSAA*	Not detected	10		ng/L	2.02	2355-31-9	
EtFOSAA*	Not detected	20		ng/L	2.02	2991-50-6	
PFOS*	Not detected	10		ng/L	2.02	1763-23-1	
PFOS-LN*	Not detected	10		ng/L	2.02	1763-23-1-LN	
PFOS-BR*	Not detected	10		ng/L	2.02	1763-23-1-BR	
PFUnDA*	Not detected	10		ng/L	2.02	2058-94-8	
PFNS*	Not detected	10		ng/L	2.02	68259-12-1	
PFDODA*	Not detected	10		ng/L	2.02	307-55-1	
PFDS*	Not detected	10		ng/L	2.02	335-77-3	
PFTTrDA*	Not detected	10		ng/L	2.02	72629-94-8	
FOSA*	Not detected	10		ng/L	2.02	754-91-6	
PFTeDA*	Not detected	10		ng/L	2.02	376-06-7	
11Cl-PF3OUdS*	Not detected	10		ng/L	2.02	763051-92-9	
9Cl-PF3ONS*	Not detected	10		ng/L	2.02	756426-58-1	
ADONA*	Not detected	10		ng/L	2.02	919005-14-4	
HFPO-DA*	Not detected	10		ng/L	2.02	13252-13-6	



# Analytical Laboratory Report

Lab Sample ID: S13016.07

Sample Tag: 01-PRCC-20-PRIM-201

Collected Date/Time: 03/27/2020 14:50

Matrix: Liquid

COC Reference: 82408

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	3.9	IR

### Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Initial wt. (g) / Final wt. (g) / Volume (ml)*	12.42/6.80/11	ASTMD7979	03/31/20 13:00	KCV	

### Organics

28 PFAs, Method: ASTMD7979-19M, Run Date: 04/01/20 01:04, Analyst: KCV

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	20		ng/L	1.96	375-22-4	
PFPeA*	Not detected	9.8		ng/L	1.96	2706-90-3	
4:2 FTSA*	Not detected	9.8		ng/L	1.96	757124-72-4	
PFHxA*	Not detected	9.8		ng/L	1.96	307-24-4	
PFBS*	Not detected	9.8		ng/L	1.96	375-73-5	
PFHpA*	Not detected	9.8		ng/L	1.96	375-85-9	
PFPeS*	Not detected	9.8		ng/L	1.96	2706-91-4	
6:2 FTSA*	Not detected	9.8		ng/L	1.96	27619-97-2	
PFOA*	Not detected	9.8		ng/L	1.96	335-67-1	
PFHxS*	Not detected	9.8		ng/L	1.96	355-46-4	
PFHxS-LN*	Not detected	9.8		ng/L	1.96	355-46-4-LN	
PFHxS-BR*	Not detected	9.8		ng/L	1.96	355-46-4-BR	
PFNA*	Not detected	9.8		ng/L	1.96	375-95-1	
8:2 FTSA*	Not detected	9.8		ng/L	1.96	39108-34-4	
PFHpS*	Not detected	9.8		ng/L	1.96	375-92-8	
PFDA*	Not detected	9.8		ng/L	1.96	335-76-2	
N-MeFOSAA*	Not detected	9.8		ng/L	1.96	2355-31-9	
EtFOSAA*	Not detected	20		ng/L	1.96	2991-50-6	
PFOS*	9.8	9.8		ng/L	1.96	1763-23-1	
PFOS-LN*	Not detected	9.8		ng/L	1.96	1763-23-1-LN	
PFOS-BR*	Not detected	9.8		ng/L	1.96	1763-23-1-BR	
PFUnDA*	Not detected	9.8		ng/L	1.96	2058-94-8	
PFNS*	Not detected	9.8		ng/L	1.96	68259-12-1	
PFDODA*	Not detected	9.8		ng/L	1.96	307-55-1	
PFDS*	Not detected	9.8		ng/L	1.96	335-77-3	
PFTTrDA*	Not detected	9.8		ng/L	1.96	72629-94-8	
FOSA*	Not detected	9.8		ng/L	1.96	754-91-6	
PFTeDA*	Not detected	9.8		ng/L	1.96	376-06-7	
11Cl-PF3OUdS*	Not detected	9.8		ng/L	1.96	763051-92-9	
9Cl-PF3ONS*	Not detected	9.8		ng/L	1.96	756426-58-1	
ADONA*	Not detected	9.8		ng/L	1.96	919005-14-4	
HFPO-DA*	Not detected	9.8		ng/L	1.96	13252-13-6	

# Merit Laboratories Login Checklist

Lab Set ID:S13016

Attention: Clifford Yantz

Address: O'Brien & Gere Engineers, Inc.  
2260 East Saginaw Street  
East Lansing, MI 48823

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

Project: RACER Coldwater Rd.

Submitted:03/30/2020 08:00 Login User: BJB

Phone: 313-333-0211 FAX:

Email: Clifford.Yantz@obg.com

Selection	Description	Note
<b>Sample Receiving</b>		
01.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Samples are received at 4C +/- 2C Thermometer # IR 3.9
02.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Received on ice/ cooling process begun
03.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Samples shipped
04.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Samples left in 24 hr. drop box
05.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Are there custody seals/tape or is the drop box locked
<b>Chain of Custody</b>		
06.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	COC adequately filled out
07.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	COC signed and relinquished to the lab
08.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Sample tag on bottles match COC
09.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Subcontracting needed? Subcontracted to:
<b>Preservation</b>		
10.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Do sample have correct chemical preservation
11.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Completed pH checks on preserved samples? (no VOAs)
12.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Did any samples need to be preserved in the lab?
<b>Bottle Conditions</b>		
13.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	All bottles intact
14.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Appropriate analytical bottles are used
15.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Merit bottles used
16.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Sufficient sample volume received
17.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Samples require laboratory filtration
18.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Samples submitted within holding time
19.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	Do water VOC or TOX bottles contain headspace

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

Client Review By: \_\_\_\_\_ Date: \_\_\_\_\_



**REPORT TO**

**CHAIN OF CUSTODY RECORD**

**INVOICE TO**

CONTACT NAME Clifford Yantz  
 COMPANY O'Brien + Gere Part of 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 QUOTE NO. \_\_\_\_\_

CONTACT NAME  SAME  
 COMPANY \_\_\_\_\_  
 ADDRESS \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP CODE \_\_\_\_\_  
 PHONE NO. \_\_\_\_\_ E-MAIL ADDRESS \_\_\_\_\_

**ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)**

PROJECT NO./NAME RALER Coldwater Rd SAMPLER(S) - PLEASE PRINT/SIGN NAME Kevin Schaller  
 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

# Containers & Preservatives

Certifications  
 OHIO VAP  Drinking Water  
 DoD  NPDES  
 Project Locations  
 Detroit  New York  
 Other \_\_\_\_\_  
 Special Instructions

MERIT LAB NO. <small>FOR LAB USE ONLY</small>	YEAR		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	MeOH	OTHER	PFAS (ppm)							
	DATE	TIME																		
13016.01	3/25/20	1600	Field Blank -032520	L	1	1							X							
.02	↓	1603	01-PRCC-20-INF	L	3	3							X							
.03	↓	1612	01-PRCC-20-PRIM	L	3	3							X							
.04	3/27/20	1444	01-PRCC-20-EFF-201	L	3	3							X							
.05	↓	1446	01-PRCC-20-MID-2-201	L	3	3							X							
.06	↓	1448	01-PRCC-20-MID-1-201	L	3	3							X							
.07	↓	1450	01-PRCC-20-PRIM-201	L	3	3							X							

RELINQUISHED BY: [Signature] 03/27/20 1730 Sampler  
 RECEIVED BY: Merit Secure Locker 3/27/20 1730  
 RELINQUISHED BY: \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_  
 RECEIVED BY: \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_

RELINQUISHED BY: Merit Droppox 03/30/2020 0800  
 RECEIVED BY: Battle Ball 03/30/2020 0800  
 SEAL NO. \_\_\_\_\_ SEAL INTACT YES  NO  INITIALS \_\_\_\_\_ NOTES: TEMP. ON ARRIVAL 3.9  
 SEAL NO. \_\_\_\_\_ SEAL INTACT YES  NO  INITIALS \_\_\_\_\_



# Quality Control Report

Report ID: QC-S13016-01  
Generated on 04/06/2020

Report to

Attention: Clifford Yantz  
O'Brien & Gere Engineers, Inc.  
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): S13016.01-S13016.07  
Project: RACER Coldwater Rd.  
Submitted Date/Time: 03/30/2020 08:00  
Sampled by: Kevin Schneider  
P.O. #: 12000277

QC Report Sections

Cover Page (Page 1)  
Analysis Summary (Pages 2-8)  
Prep Batch Summary (Page 9)  
Internal Standards per Lab Sample (Pages 10-16)  
Internal Standards per QC Sample (Pages 17-19)  
Batch QC Results (Pages 20-23)

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: S13016.01**

Sample Tag: Field Blank-032520

Collected Date/Time: 03/25/2020 16:00

Matrix: Liquid

COC Reference: 82408

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b>Organics - Volatiles</b>						
28 PFAs	ASTMD7979-19M	03/31/20 23:07	DQ200331	PF200331W1	Yes	BLK/LCS/LCSD/MS/DU

# QC Report - Analysis Summary

Lab Sample ID: S13016.02

Sample Tag: 01-PRCC-20-INF

Collected Date/Time: 03/25/2020 16:03

Matrix: Liquid

COC Reference: 82408

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b>Organics - Volatiles</b>						
28 PFAs	ASTMD7979-19M	03/31/20 23:26	DQ200331	PF200331W1	Yes	BLK/LCS/LCSD/MS/DU

# QC Report - Analysis Summary

Lab Sample ID: S13016.03

Sample Tag: 01-PRCC-20-PRIM

Collected Date/Time: 03/25/2020 16:12

Matrix: Liquid

COC Reference: 82408

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b>Organics - Volatiles</b>						
28 PFAs	ASTMD7979-19M	03/31/20 23:46	DQ200331	PF200331W1	Yes	BLK/LCS/LCSD/MS/DU

# QC Report - Analysis Summary

**Lab Sample ID: S13016.04**

Sample Tag: 01-PRCC-20-EFF-201

Collected Date/Time: 03/27/2020 14:44

Matrix: Liquid

COC Reference: 82408

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b>Organics - Volatiles</b>						
28 PFAs	ASTMD7979-19M	04/01/20 00:05	DQ200331	PF200331W1	Yes	BLK/LCS/LCSD/MS/DU

# QC Report - Analysis Summary

**Lab Sample ID: S13016.05**

Sample Tag: 01-PRCC-20-MID-2-201

Collected Date/Time: 03/27/2020 14:46

Matrix: Liquid

COC Reference: 82408

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b>Organics - Volatiles</b>						
28 PFAs	ASTMD7979-19M	04/01/20 00:25	DQ200331	PF200331W1	Yes	BLK/LCS/LCSD/MS/DU

# QC Report - Analysis Summary

**Lab Sample ID: S13016.06**

Sample Tag: 01-PRCC-20-MID-1-201

Collected Date/Time: 03/27/2020 14:48

Matrix: Liquid

COC Reference: 82408

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b>Organics - Volatiles</b>						
28 PFAs	ASTMD7979-19M	04/01/20 00:44	DQ200331	PF200331W1	Yes	BLK/LCS/LCSD/MS/DU

# QC Report - Analysis Summary

Lab Sample ID: S13016.07

Sample Tag: 01-PRCC-20-PRIM-201

Collected Date/Time: 03/27/2020 14:50

Matrix: Liquid

COC Reference: 82408

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b>Organics - Volatiles</b>						
28 PFAs	ASTMD7979-19M	04/01/20 01:04	DQ200331	PF200331W1	Yes	BLK/LCS/LCSD/MS/DU

# QC Report - Prep Batch Summary

## Organics - Volatiles, Prep Batch ID: PF200331W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S13016.01	28 PFAs	ASTMD7979-19M	03/31/20 23:07	DQ200331
S13016.02	28 PFAs	ASTMD7979-19M	03/31/20 23:26	DQ200331
S13016.03	28 PFAs	ASTMD7979-19M	03/31/20 23:46	DQ200331
S13016.04	28 PFAs	ASTMD7979-19M	04/01/20 00:05	DQ200331
S13016.05	28 PFAs	ASTMD7979-19M	04/01/20 00:25	DQ200331
S13016.06	28 PFAs	ASTMD7979-19M	04/01/20 00:44	DQ200331
S13016.07	28 PFAs	ASTMD7979-19M	04/01/20 01:04	DQ200331

# QC Report - Internal Standards per Lab Sample

Lab Sample ID: S13016.01

Sample Tag: Field Blank-032520

Collected Date/Time: 03/25/2020 16:00

Matrix: Liquid

COC Reference: 82408

## Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: DQ200331, Run Date: 03/31/2020 23:07, Matrix: WW, Dilution: 2.04

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		105.5	50.0	150.0
M2-6:2FTSA		92.8	50.0	150.0
M2-8:2FTSA		91.8	50.0	150.0
M2PFTeDA		71.5	12.0	218.0
M3PFBS		99.2	50.0	150.0
M3PFHxS		101.9	50.0	150.0
M4PFHpA		103.4	50.0	150.0
M5PFHxA		102.6	50.0	150.0
M5PFPeA		103.5	50.0	150.0
M6PFDA		103.1	50.0	150.0
M7PFUnDA		91.2	50.0	150.0
M8FOSA		140.8	50.0	150.0
M8PFOA		99.5	50.0	150.0
M8PFOS		101.0	50.0	150.0
M9-PFNA		101.1	50.0	150.0
MPFBA		102.7	50.0	150.0
MPFDoDA		86.4	50.0	150.0
d3N-MeFOSAA		103.3	50.0	150.0
d5EtFOSAA		97.9	50.0	150.0

# QC Report - Internal Standards per Lab Sample

Lab Sample ID: S13016.02

Sample Tag: 01-PRCC-20-INF

Collected Date/Time: 03/25/2020 16:03

Matrix: Liquid

COC Reference: 82408

## Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: DQ200331, Run Date: 03/31/2020 23:26, Matrix: WW, Dilution: 2.09

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		59.0	50.0	150.0
M2-6:2FTSA		65.8	50.0	150.0
M2-8:2FTSA		70.6	50.0	150.0
M2PFTeDA		117.2	12.0	218.0
M3PFBS		96.3	50.0	150.0
M3PFHxS		89.0	50.0	150.0
M4PFHpA		102.6	50.0	150.0
M5PFHxA		103.2	50.0	150.0
M5PFPeA		100.7	50.0	150.0
M6PFDA		95.4	50.0	150.0
M7PFUnDA		93.6	50.0	150.0
M8FOSA		123.5	50.0	150.0
M8PFOA		99.6	50.0	150.0
M8PFOS		83.8	50.0	150.0
M9-PFNA		98.2	50.0	150.0
MPFBA		82.1	50.0	150.0
MPFDoDA		91.0	50.0	150.0
d3N-MeFOSAA		102.4	50.0	150.0
d5EtFOSAA		88.4	50.0	150.0

## QC Report - Internal Standards per Lab Sample

**Lab Sample ID: S13016.03**

Sample Tag: 01-PRCC-20-PRIM

Collected Date/Time: 03/25/2020 16:12

Matrix: Liquid

COC Reference: 82408

**Organics - Volatiles, Analysis: 28 PFAs**

Run in Batch: DQ200331, Run Date: 03/31/2020 23:46, Matrix: WW, Dilution: 1.97

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		<b>86.0</b>	50.0	150.0
M2-6:2FTSA		<b>91.6</b>	50.0	150.0
M2-8:2FTSA		<b>97.8</b>	50.0	150.0
M2PFTeDA		<b>133.7</b>	12.0	218.0
M3PFBS		<b>96.8</b>	50.0	150.0
M3PFHxS		<b>92.1</b>	50.0	150.0
M4PFHpA		<b>92.9</b>	50.0	150.0
M5PFHxA		<b>97.0</b>	50.0	150.0
M5PFPeA		<b>95.6</b>	50.0	150.0
M6PFDA		<b>93.8</b>	50.0	150.0
M7PFUnDA		<b>94.0</b>	50.0	150.0
M8FOSA		<b>119.4</b>	50.0	150.0
M8PFOA		<b>96.4</b>	50.0	150.0
M8PFOS		<b>99.4</b>	50.0	150.0
M9-PFNA		<b>97.0</b>	50.0	150.0
MPFBA		<b>92.2</b>	50.0	150.0
MPFDoDA		<b>103.8</b>	50.0	150.0
d3N-MeFOSAA		<b>105.6</b>	50.0	150.0
d5EtFOSAA		<b>111.7</b>	50.0	150.0

# QC Report - Internal Standards per Lab Sample

Lab Sample ID: S13016.04

Sample Tag: 01-PRCC-20-EFF-201

Collected Date/Time: 03/27/2020 14:44

Matrix: Liquid

COC Reference: 82408

## Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: DQ200331, Run Date: 04/01/2020 00:05, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		108.6	50.0	150.0
M2-6:2FTSA		122.5	50.0	150.0
M2-8:2FTSA		97.9	50.0	150.0
M2PFTeDA		114.6	12.0	218.0
M3PFBS		100.8	50.0	150.0
M3PFHxS		105.4	50.0	150.0
M4PFHpA		112.8	50.0	150.0
M5PFHxA		110.7	50.0	150.0
M5PFPeA		107.8	50.0	150.0
M6PFDA		115.0	50.0	150.0
M7PFUnDA		99.1	50.0	150.0
M8FOSA		130.2	50.0	150.0
M8PFOA		107.5	50.0	150.0
M8PFOS		103.1	50.0	150.0
M9-PFNA		112.0	50.0	150.0
MPFBA		107.9	50.0	150.0
MPFDoDA		103.4	50.0	150.0
d3N-MeFOSAA		99.7	50.0	150.0
d5EtFOSAA		107.4	50.0	150.0

# QC Report - Internal Standards per Lab Sample

Lab Sample ID: S13016.05

Sample Tag: 01-PRCC-20-MID-2-201

Collected Date/Time: 03/27/2020 14:46

Matrix: Liquid

COC Reference: 82408

## Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: DQ200331, Run Date: 04/01/2020 00:25, Matrix: WW, Dilution: 1.95

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		107.3	50.0	150.0
M2-6:2FTSA		114.5	50.0	150.0
M2-8:2FTSA		113.5	50.0	150.0
M2PFTeDA		99.2	12.0	218.0
M3PFBS		107.9	50.0	150.0
M3PFHxS		110.3	50.0	150.0
M4PFHpA		113.3	50.0	150.0
M5PFHxA		113.5	50.0	150.0
M5PFPeA		111.8	50.0	150.0
M6PFDA		104.3	50.0	150.0
M7PFUnDA		103.1	50.0	150.0
M8FOSA		135.1	50.0	150.0
M8PFOA		110.1	50.0	150.0
M8PFOS		97.8	50.0	150.0
M9-PFNA		118.6	50.0	150.0
MPFBA		108.3	50.0	150.0
MPFDoDA		95.9	50.0	150.0
d3N-MeFOSAA		112.1	50.0	150.0
d5EtFOSAA		131.7	50.0	150.0

# QC Report - Internal Standards per Lab Sample

Lab Sample ID: S13016.06

Sample Tag: 01-PRCC-20-MID-1-201

Collected Date/Time: 03/27/2020 14:48

Matrix: Liquid

COC Reference: 82408

## Organics - Volatiles, Analysis: 28 PFAs

Run in Batch: DQ200331, Run Date: 04/01/2020 00:44, Matrix: WW, Dilution: 2.02

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		96.7	50.0	150.0
M2-6:2FTSA		85.8	50.0	150.0
M2-8:2FTSA		88.1	50.0	150.0
M2PFTeDA		99.7	12.0	218.0
M3PFBS		90.2	50.0	150.0
M3PFHxS		93.7	50.0	150.0
M4PFHpA		96.6	50.0	150.0
M5PFHxA		95.9	50.0	150.0
M5PFPeA		94.7	50.0	150.0
M6PFDA		97.4	50.0	150.0
M7PFUnDA		87.7	50.0	150.0
M8FOSA		123.8	50.0	150.0
M8PFOA		96.7	50.0	150.0
M8PFOS		99.3	50.0	150.0
M9-PFNA		96.9	50.0	150.0
MPFBA		93.5	50.0	150.0
MPFDoDA		87.2	50.0	150.0
d3N-MeFOSAA		93.5	50.0	150.0
d5EtFOSAA		104.1	50.0	150.0

## QC Report - Internal Standards per Lab Sample

**Lab Sample ID: S13016.07**

Sample Tag: 01-PRCC-20-PRIM-201

Collected Date/Time: 03/27/2020 14:50

Matrix: Liquid

COC Reference: 82408

**Organics - Volatiles, Analysis: 28 PFAs**

Run in Batch: DQ200331, Run Date: 04/01/2020 01:04, Matrix: WW, Dilution: 1.96

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		<b>101.9</b>	50.0	150.0
M2-6:2FTSA		<b>88.2</b>	50.0	150.0
M2-8:2FTSA		<b>98.7</b>	50.0	150.0
M2PFTeDA		<b>117.2</b>	12.0	218.0
M3PFBS		<b>101.2</b>	50.0	150.0
M3PFHxS		<b>93.2</b>	50.0	150.0
M4PFHpA		<b>102.8</b>	50.0	150.0
M5PFHxA		<b>99.8</b>	50.0	150.0
M5PFPeA		<b>98.5</b>	50.0	150.0
M6PFDA		<b>94.7</b>	50.0	150.0
M7PFUnDA		<b>95.7</b>	50.0	150.0
M8FOSA		<b>136.8</b>	50.0	150.0
M8PFOA		<b>96.3</b>	50.0	150.0
M8PFOS		<b>103.1</b>	50.0	150.0
M9-PFNA		<b>103.4</b>	50.0	150.0
MPFBA		<b>98.2</b>	50.0	150.0
MPFDoDA		<b>96.6</b>	50.0	150.0
d3N-MeFOSAA		<b>97.5</b>	50.0	150.0
d5EtFOSAA		<b>88.3</b>	50.0	150.0

## QC Report - Internal Standards per QC Sample

**Organics - Volatiles, Prep Batch ID: PF200331W1**

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

### Blank (BLK)

Lab Sample ID: DQ200331.BLK200331

Run in Batch: DQ200331, Run Date: 03/31/2020 17:35, Prep Date: 03/31/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		99.6	50.0	150.0
M2-6:2FTSA		103.9	50.0	150.0
M2-8:2FTSA		94.2	50.0	150.0
M2PFTeDA		119.0	12.0	218.0
M3PFBS		99.9	50.0	150.0
M3PFHxS		95.7	50.0	150.0
M4PFHpA		97.9	50.0	150.0
M5PFHxA		103.2	50.0	150.0
M5PFPeA		103.5	50.0	150.0
M6PFDA		99.4	50.0	150.0
M7PFUnDA		89.3	50.0	150.0
M8FOSA		113.6	50.0	150.0
M8PFOA		99.5	50.0	150.0
M8PFOS		97.5	50.0	150.0
M9-PFNA		100.8	50.0	150.0
MPFBA		101.9	50.0	150.0
MPFDoDA		93.8	50.0	150.0
d3N-MeFOSAA		101.0	50.0	150.0
d5EtFOSAA		100.9	50.0	150.0

### Laboratory Control Sample (LCS)

Lab Sample ID: DQ200331.LCS200331RE

Run in Batch: DQ200331, Run Date: 04/01/2020 14:25, Prep Date: 03/31/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		102.7	50.0	150.0
M2-6:2FTSA		85.8	50.0	150.0
M2-8:2FTSA		88.1	50.0	150.0
M2PFTeDA		132.3	12.0	218.0
M3PFBS		98.7	50.0	150.0
M3PFHxS		97.4	50.0	150.0
M4PFHpA		96.6	50.0	150.0
M5PFHxA		96.1	50.0	150.0
M5PFPeA		95.5	50.0	150.0
M6PFDA		99.3	50.0	150.0
M7PFUnDA		93.4	50.0	150.0
M8FOSA		113.2	50.0	150.0
M8PFOA		97.2	50.0	150.0
M8PFOS		98.1	50.0	150.0
M9-PFNA		101.5	50.0	150.0
MPFBA		96.0	50.0	150.0
MPFDoDA		100.7	50.0	150.0
d3N-MeFOSAA		106.2	50.0	150.0
d5EtFOSAA		112.0	50.0	150.0

## QC Report - Internal Standards per QC Sample

### Laboratory Control Sample Duplicate (LCSD)

Lab Sample ID: DQ200331.LCSD200331RE, Parent Sample ID: DQ200331.LCS200331RE

Run in Batch: DQ200331, Run Date: 04/01/2020 14:45, Prep Date: 03/31/2020, Matrix: WW, Dilution: 1

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		88.0	50.0	150.0
M2-6:2FTSA		99.7	50.0	150.0
M2-8:2FTSA		91.8	50.0	150.0
M2PFTeDA		121.6	12.0	218.0
M3PFBS		92.2	50.0	150.0
M3PFHxS		93.9	50.0	150.0
M4PFHpA		96.9	50.0	150.0
M5PFHxA		92.0	50.0	150.0
M5PFPeA		91.9	50.0	150.0
M6PFDA		88.6	50.0	150.0
M7PFUnDA		86.6	50.0	150.0
M8FOSA		108.3	50.0	150.0
M8PFOA		96.7	50.0	150.0
M8PFOS		95.0	50.0	150.0
M9-PFNA		97.3	50.0	150.0
MPFBA		89.8	50.0	150.0
MPFDoDA		96.9	50.0	150.0
d3N-MeFOSAA		83.5	50.0	150.0
d5EtFOSAA		101.8	50.0	150.0

### Matrix Spike (MS)

Lab Sample ID: DQ200331.1302001M, Parent Sample ID: S13020.01

Run in Batch: DQ200331, Run Date: 04/01/2020 01:43, Prep Date: 03/31/2020, Matrix: WW, Dilution: 1.98

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		84.9	50.0	150.0
M2-6:2FTSA		106.4	50.0	150.0
M2-8:2FTSA		95.4	50.0	150.0
M2PFTeDA		121.2	12.0	218.0
M3PFBS		107.1	50.0	150.0
M3PFHxS		95.9	50.0	150.0
M4PFHpA		103.0	50.0	150.0
M5PFHxA		103.0	50.0	150.0
M5PFPeA		104.5	50.0	150.0
M6PFDA		102.4	50.0	150.0
M7PFUnDA		91.7	50.0	150.0
M8FOSA		136.3	50.0	150.0
M8PFOA		101.6	50.0	150.0
M8PFOS		97.1	50.0	150.0
M9-PFNA		105.7	50.0	150.0
MPFBA		103.2	50.0	150.0
MPFDoDA		102.2	50.0	150.0
d3N-MeFOSAA		95.6	50.0	150.0
d5EtFOSAA		104.9	50.0	150.0

## QC Report - Internal Standards per QC Sample

### Duplicate (DUP)

Lab Sample ID: DQ200331.1301604D, Parent Sample ID: S13016.04

Run in Batch: DQ200331, Run Date: 03/31/2020 22:47, Prep Date: 03/31/2020, Matrix: WW, Dilution: 2

Internal Standard	Flags	%Rec	LCL	UCL
M2-4:2FTSA		<b>87.9</b>	50.0	150.0
M2-6:2FTSA		<b>103.4</b>	50.0	150.0
M2-8:2FTSA		<b>82.4</b>	50.0	150.0
M2PFTeDA		<b>97.0</b>	12.0	218.0
M3PFBS		<b>93.1</b>	50.0	150.0
M3PFHxS		<b>90.6</b>	50.0	150.0
M4PFHpA		<b>97.1</b>	50.0	150.0
M5PFHxA		<b>94.8</b>	50.0	150.0
M5PFPeA		<b>98.2</b>	50.0	150.0
M6PFDA		<b>95.3</b>	50.0	150.0
M7PFUnDA		<b>82.8</b>	50.0	150.0
M8FOSA		<b>136.8</b>	50.0	150.0
M8PFOA		<b>95.8</b>	50.0	150.0
M8PFOS		<b>92.3</b>	50.0	150.0
M9-PFNA		<b>96.5</b>	50.0	150.0
MPFBA		<b>98.1</b>	50.0	150.0
MPFDoDA		<b>92.0</b>	50.0	150.0
d3N-MeFOSAA		<b>88.7</b>	50.0	150.0
d5EtFOSAA		<b>104.4</b>	50.0	150.0

## QC Report - Batch QC Results

### Organics - Volatiles, Prep Batch ID: PF200331W1

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

#### Blank (BLK)

Lab Sample ID: DQ200331.BLK200331

Run in Batch: DQ200331, Run Date: 03/31/2020 17:35, Prep Date: 03/31/2020, Matrix: WW, Dilution: 1

Analyte	Flags	Conc	RDL	Units
PFBA		ND	20.0	ng/l
PFPeA		ND	10.0	ng/l
4:2 FTSA		ND	10.0	ng/l
PFHxA		ND	10.0	ng/l
PFBS		ND	10.0	ng/l
HFPO-DA	*	3.4	1	ng/l
PFHpA		ND	10.0	ng/l
ADONA	*	3.16	1	ng/l
PFPeS		ND	10.0	ng/l
6:2 FTSA		ND	10.0	ng/l
PFOA		ND	10.0	ng/l
PFHxS-BR		ND	10.0	ng/l
PFHxS		ND	10.0	ng/l
PFHxS-LN		ND	10.0	ng/l
PFNA		ND	10.0	ng/l
8:2 FTSA		ND	10.0	ng/l
PFHpS		ND	10.0	ng/l
N-MeFOSAA		ND	10.0	ng/l
PFDA		ND	10.0	ng/l
PFOS-BR		ND	10.0	ng/l
EtFOSAA		ND	10.0	ng/l
PFOS		ND	10.0	ng/l
PFOS-LN		ND	10.0	ng/l
PFUnDA		ND	10.0	ng/l
9CL-PF3ONS	*	3.64	1	ng/l
PFNS		ND	10.0	ng/l
PFDoDA		ND	10.0	ng/l
PFDS		ND	10.0	ng/l
PFTTrDA		ND	10.0	ng/l
FOSA		ND	10.0	ng/l
11CL-PF3OUdS		ND	1	ng/l
PFTeDA		ND	10.0	ng/l

#### Laboratory Control Sample (LCS)

Lab Sample ID: DQ200331.LCS200331RE

Run in Batch: DQ200331, Run Date: 04/01/2020 14:25, Prep Date: 03/31/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
PFBA		88.4	70.0	130.0
PFPeA		93.7	70.0	130.0
4:2 FTSA		80.3	70.0	130.0
PFHxA		98.2	70.0	130.0
PFBS		94.2	70.0	130.0
HFPO-DA		105.0	70.0	130.0
PFHpA		90.5	70.0	130.0
ADONA		100.0	70.0	130.0
PFPeS		93.4	70.0	130.0

**QC Report - Batch QC Results**

**Organics - Volatiles, Prep Batch ID: PF200331W1 (continued)**

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

**Laboratory Control Sample (LCS) (continued)**

Lab Sample ID: DQ200331.LCS200331RE

Run in Batch: DQ200331, Run Date: 04/01/2020 14:25, Prep Date: 03/31/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
6:2 FTSA		102.0	70.0	130.0
PFOA		103.0	70.0	130.0
PFHxS		92.1	70.0	130.0
PFNA		91.3	70.0	130.0
8:2 FTSA		111.0	70.0	130.0
PFHpS		94.1	70.0	130.0
N-MeFOSAA		110.0	70.0	130.0
PFDA		94.3	70.0	130.0
EtFOSAA		86.6	70.0	130.0
PFOS		99.3	70.0	130.0
PFUnDA		83.7	70.0	130.0
9CL-PF3ONS		91.5	70.0	130.0
PFNS		98.3	70.0	130.0
PFDoDA		86.2	70.0	130.0
PFDS		86.8	70.0	130.0
PFTTrDA		101.0	70.0	130.0
FOSA		103.0	70.0	130.0
11CL-PF3OUdS		91.0	70.0	130.0
PFTeDA		87.1	70.0	130.0

**Laboratory Control Sample Duplicate (LCSD)**

Lab Sample ID: DQ200331.LCSD200331RE, Parent Sample ID: DQ200331.LCS200331RE

Run in Batch: DQ200331, Run Date: 04/01/2020 14:45, Prep Date: 03/31/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFBA		91.3	70.0	130.0	3.2	30.0
PFPeA		91.2	70.0	130.0	2.7	30.0
4:2 FTSA		90.9	70.0	130.0	12.4	30.0
PFHxA		99.4	70.0	130.0	1.2	30.0
PFBS		99.2	70.0	130.0	5.2	30.0
HFPO-DA		81.4	70.0	130.0	25.3	30.0
PFHpA		85.0	70.0	130.0	6.3	30.0
ADONA		94.1	70.0	130.0	6.1	30.0
PFPeS		88.9	70.0	130.0	4.9	30.0
6:2 FTSA		88.4	70.0	130.0	14.3	30.0
PFOA		102.0	70.0	130.0	1.0	30.0
PFHxS		95.4	70.0	130.0	3.5	30.0
PFNA		91.8	70.0	130.0	0.5	30.0
8:2 FTSA		83.6	70.0	130.0	28.2	30.0
PFHpS		91.3	70.0	130.0	3.0	30.0
N-MeFOSAA		103.0	70.0	130.0	6.6	30.0
PFDA		115.0	70.0	130.0	19.8	30.0
EtFOSAA		98.1	70.0	130.0	12.5	30.0
PFOS		94.0	70.0	130.0	5.5	30.0
PFUnDA		94.6	70.0	130.0	12.2	30.0
9CL-PF3ONS		85.6	70.0	130.0	6.7	30.0
PFNS		89.5	70.0	130.0	9.4	30.0

**QC Report - Batch QC Results**

**Organics - Volatiles, Prep Batch ID: PF200331W1 (continued)**

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

**Laboratory Control Sample Duplicate (LCSD) (continued)**

Lab Sample ID: DQ200331.LCSD200331RE, Parent Sample ID: DQ200331.LCS200331RE

Run in Batch: DQ200331, Run Date: 04/01/2020 14:45, Prep Date: 03/31/2020, Matrix: WW, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
PFDoDA		91.6	70.0	130.0	6.1	30.0
PFDS		83.9	70.0	130.0	3.4	30.0
PFTTrDA		98.7	70.0	130.0	2.3	30.0
FOSA		94.5	70.0	130.0	8.6	30.0
11CL-PF3OUdS		98.3	70.0	130.0	7.7	30.0
PFTeDA		92.5	70.0	130.0	6.0	30.0

**Matrix Spike (MS)**

Lab Sample ID: DQ200331.1302001M, Parent Sample ID: S13020.01

Run in Batch: DQ200331, Run Date: 04/01/2020 01:43, Prep Date: 03/31/2020, Matrix: WW, Dilution: 1.98

Analyte	Flags	% Rec	LCL	UCL
PFBA		77.8	70.0	130.0
PFPeA		80.9	70.0	130.0
4:2 FTSA		81.1	70.0	130.0
PFHxA		84.8	70.0	130.0
PFBS		79.3	70.0	130.0
PFHpA		75.6	70.0	130.0
PFPeS		75.2	70.0	130.0
6:2 FTSA		72.9	70.0	130.0
PFOA		81.4	70.0	130.0
PFHxS		93.8	70.0	130.0
PFNA		74.0	70.0	130.0
8:2 FTSA		91.9	70.0	130.0
PFHpS		84.5	70.0	130.0
PFDA		86.9	70.0	130.0
N-MeFOSAA		108.5	70.0	130.0
EtFOSAA		101.0	70.0	130.0
PFOS		83.8	70.0	130.0
PFUnDA		86.4	70.0	130.0
PFNS		84.7	70.0	130.0
PFDoDA		79.3	70.0	130.0
PFDS		83.3	70.0	130.0
PFTTrDA		92.2	70.0	130.0
FOSA		82.6	70.0	130.0
PFTeDA		75.7	70.0	130.0
11CL-PF3OUdS		93.4	70.0	130.0
9CL-PF3ONS		85.9	70.0	130.0
ADONA		85.8	70.0	130.0
HFPO-DA		81.7	70.0	130.0

**Duplicate (DUP)**

Lab Sample ID: DQ200331.1301604D, Parent Sample ID: S13016.04

Run in Batch: DQ200331, Run Date: 03/31/2020 22:47, Prep Date: 03/31/2020, Matrix: WW, Dilution: 2

Analyte	Flags	RPD	RPD CL
PFBA		NC	30.0
PFPeA		NC	30.0

# QC Report - Batch QC Results

## Organics - Volatiles, Prep Batch ID: PF200331W1 (continued)

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

### Duplicate (DUP) (continued)

Lab Sample ID: DQ200331.1301604D, Parent Sample ID: S13016.04

Run in Batch: DQ200331, Run Date: 03/31/2020 22:47, Prep Date: 03/31/2020, Matrix: WW, Dilution: 2

Analyte	Flags	RPD	RPD CL
4:2 FTSA		NC	30.0
PFHxA		NC	30.0
PFBS		NC	30.0
PFHpA		NC	30.0
PFPeS		NC	30.0
6:2 FTSA		NC	30.0
PFOA		NC	30.0
PFHxS		NC	30.0
PFHxS-LN		NC	30.0
PFHxS-BR		NC	30.0
PFNA		NC	30.0
8:2 FTSA		NC	30.0
PFHpS		NC	30.0
PFDA		NC	30.0
N-MeFOSAA		NC	30.0
EtFOSAA		NC	30.0
PFOS		NC	30.0
PFOS-LN		NC	30.0
PFOS-BR		NC	30.0
PFUnDA		NC	30.0
PFNS		NC	30.0
PFDoDA		NC	30.0
PFDS		NC	30.0
PFTTrDA		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



**REPORT TO**

**CHAIN OF CUSTODY RECORD**

**INVOICE TO**

CONTACT NAME **Clifford Yantz**  
 COMPANY **O'Brien + Gere Part of 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** QUOTE NO.

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

**ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)**

PROJECT NO./NAME **RALER Coldwater Rd** SAMPLER(S) - PLEASE PRINT/SIGN NAME **Kevin Schaller**  
 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

# Containers & Preservatives

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

MERIT LAB NO. <small>FOR LAB USE ONLY</small>	YEAR		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	NONE	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	MeOH	OTHER	PFAS (ppm)							
	DATE	TIME																		
13016.01	3/25/20	1600	Field Blank -032520	L	1	1							X							
.02	↓	1603	01-PRCC-20-INF	L	3	3							X							
.03	↓	1612	01-PRCC-20-PRIM	L	3	3							X							
.04	3/27/20	1444	01-PRCC-20-EFF-201	L	3	3							X							
.05	↓	1446	01-PRCC-20-MID-2-201	L	3	3							X							
.06	↓	1448	01-PRCC-20-MID-1-201	L	3	3							X							
.07	↓	1450	01-PRCC-20-PRIM-201	L	3	3							X							

RELINQUISHED BY: **[Signature]** **OSG** Sampler DATE **3/27/20** TIME **1730**  
 RECEIVED BY: **Merit Secure Locker** DATE **3/27/20** TIME **1730**

RELINQUISHED BY: **Merit Droppox** DATE **03/30/2020** TIME **0800**  
 RECEIVED BY: **Battle Ball** DATE **03/30/2020** TIME **0800**  
 SEAL NO. SEAL INTACT YES  NO  INITIALS  
 NOTES: TEMP. ON ARRIVAL **3.9**