

October 25, 2019

**Mr. Tom Hutchings**

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

RE: **Discharge Permit Submittal- July 2019 through September 2019**

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

FILE: 15388/72202/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 July 1, 2019 to September 30, 2019 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 August 6, 2019 and September 18, 2019.
- Analytical Reports provided by Merit Laboratories, Inc. for samples from the on-Site, PFAS pretreatment system collected on August 19, 2019, and August 20, 2019 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 MDEQ Part 4, Water Quality Standards, Rule 57 Water Quality Values. Therefore, the PFAS pretreatment system is operating as designed.

Breakthrough analysis samples were collected to evaluate the adsorption capacity of the first and second granular activated carbon (GAC) drums. The breakthrough analysis samples from the primary GAC drum indicate some breakthrough after just a short period of time, which increased over time, as indicated in the second and third samples collected on August 20, 2019, (the 107<sup>th</sup> and 164<sup>th</sup> bed volumes [approximately 4,815 and 7,380 gallons] sample).

The breakthrough analysis on the mid-fluent or secondary GAC drum, and the effluent sample (after the tertiary [third] GAC drum) at the end of discharge on August 20, 2019, at the 164<sup>th</sup> bed volume (7,380 gallons), did not indicate breakthrough. There was a detection of 12 ng/L in the effluent sample collected at the end of the



discharge at, but not above the EGLE Part 4, Water Quality Standards, Rule 57 Water Quality Value for non-drinking of 12 ng/L. The primary drum is still protecting the subsequent GAC drums from receiving the full influent PFAS concentrations in the tank liquids.

Due to the detection of 12 ng/L in the effluent sample and the amount of sediment in the discharge water (from the previously approved discharge) the primary and secondary drums were removed from the system and replaced with the tertiary (third) and quaternary (fourth) drums, respectively, and new GAC drums were placed in the tertiary and quaternary GAC drum positions within the approved four-drum pretreatment system to be used during subsequent discharge events.

The next discharge must be completed by November 18, 2019 in accordance with the RCRA 90-day rule. Therefore, to get the quarterly discharges to line up more closely to the calendar quarter and reset the RCRA 90-day clock, we collected an additional PRCC sample on September 18, 2019 during the third quarter 2019. We plan on conducting two discharges during the fourth quarter 2019, one in October 2019, using the September 18, 2019 data to reset the 90-day clock and an additional discharge will be conducted at the end of the fourth quarter 2019. We will conduct the sampling for the second discharge in the fourth quarter in December 2019. We have been conducting an additional discharge during a quarter about every couple years to reset the 90-day clock for year and will continue to do so; however, this is the first time that we conducted the sampling during one quarter and the discharge during the subsequent quarter. We appreciate your willingness to allow us to do this.

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

Very truly yours,

**O'BRIEN & GERE ENGINEERS, INC.**



Clifford S. Yantz  
Senior Hydrogeologist

cc: Mr. Kevin Forbes – Beecher Metropolitan District, Flint, MI  
Mr. Richard Conforti – MDEQ (via email)  
Mr. David Favero – RACER Trust  
Mr. Kevin Schneider – O'Brien & Gere

**City of Flint  
Industrial Pretreatment Program**

**Periodic Report on Continued Compliance**

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

Reporting Period: July 1, 2019 through September 30, 2019

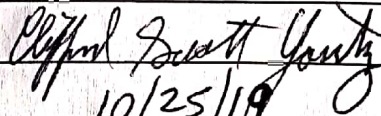
Average Volume of Daily Discharge (during reporting period): 3,700 gallons  
(Two One Day Events)

Complete the following:

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

Name of Authorized Representative: Clifford Yantz

Title of Authorized Representative: Senior Hydrogeologist, O'Brien & Gere Engineers, Inc.  
As agent for the RACER Trust

Signature of Authorized Representative: 

Date Signed by Authorized Representative: 10/25/19

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**  
**Third Quarter - 2019 - 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>	<b>mg/L</b>	<b>mg/L</b>	<b>mg/L</b>	<b>SU</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>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>Daily Maximum Limit</b>	<b>110</b>	<b>1196</b>	<b>100</b>	<b>NA</b>	<b>14</b>	<b>570</b>
<b>Maximum Limit</b>	NA	NA	NA	<b>10.5</b>	NA	NA
<b>Minimum Limit</b>	NA	NA	NA	<b>6</b>	NA	NA
<b>Test Result</b>	<b>4.7</b>	<b>4.2</b>	<b>&lt;2</b>	<b>7.3</b>	<b>0.03</b>	<b>4</b>
<b>Test Method</b>	4500-NH3 D	10360	1664A	4500-H+ B	4500-PE	2540 D
<b>Test Date</b>	8/9/2019	8/12/2019	8/8/2019	8/6/2019	8/8/2019	8/9/2019
<b>Sample Date</b>	8/6/2019	8/6/2019	8/6/2019	8/6/2019	8/6/2019	8/6/2019
<b>Sample Type</b>	wastewater	wastewater	wastewater	wastewater	wastewater	wastewater
<b>Test Result</b>	<b>4.59</b>	<b>23</b>	<b>&lt;2</b>	<b>7.1</b>	<b>0.04</b>	<b>14</b>
<b>Test Method</b>	4500-NH3 D	10360	1664A	4500-H+ B	4500-PE	2540 D
<b>Test Date</b>	9/19/2019	9/24/2019	9/25/2019	9/18/2019	9/19/2019	9/20/2019
<b>Sample Date</b>	9/18/2019	9/18/2019	9/18/2019	9/18/2019	9/18/2019	9/18/2019
<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>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**  
**Third Quarter - 2019 - 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>0.009</b>	<b>0.053</b>	<b>0.449</b>	<b>&lt;0.0002</b>	<b>0.165</b>	<b>0.02</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>	8/7/2019	8/7/2019	8/7/2019	8/13/2019	8/7/2019	8/7/2019	8/8/2019
<b>Sample Date</b>	8/6/2019	8/6/2019	8/6/2019	8/6/2019	8/6/2019	8/6/2019	8/6/2019
<b>Sample Type</b>	wastewater	wastewater	wastewater	wastewater	wastewater	wastewater	wastewater
<b>Test Result</b>	<b>0.004</b>	<b>0.025</b>	<b>0.340</b>	<b>&lt;0.0002</b>	<b>0.125</b>	<b>0.016</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>	9/19/2019	9/19/2019	9/19/2019	9/20/2019	9/19/2019	9/19/2019	9/19/2019
<b>Sample Date</b>	9/18/2019	9/18/2019	9/18/2019	9/18/2019	9/18/2019	9/18/2019	9/18/2019
<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>Average Daily Conc.</b>							
<b>No. of Samples</b>							
<b>Number of Limit Exceedances</b>							

**Table 2  
Coldwater Road Landfill  
Daily Discharge Summary Table  
Third Quarter - 2019  
6-08-04-04-GML1**

<b>Date</b>	<b>Beginning Flow Meter Reading</b>	<b>End Flow Meter Reading</b>	<b>Gallons Discharged</b>	<b>Begin Time of Discharge</b>	<b>End Time of Discharge</b>	<b>Average Flow (gal/min)</b>	<b>Temperature at Discharge</b>		<b>pH</b>
							<b>(C)</b>	<b>(F)</b>	
<b>8/19/2019</b>	708,216	713,030	<b>4,814</b>	9:15	9:30 AM (8/20/19)	3.30	22.7	72.9	7.40
<b>8/20/2019</b>	713,030	715,616	<b>2,586</b>	9:30	22:00	3.45	25.0	77.0	7.30

**Total Discharge Volume (2 Days): 7,400**  
**Average Discharge Volume (2 Days): 3,700**

NOTES :

**TABLE 3**  
**RACER Trust - Coldwater Road Landfill**  
**Per- and Polyfluoroalkyl Substances (PFAS) Sampling Results**

**Coldwater Road Landfill - PFAS Pretreatment System Samples**

Perfluorinated Compound	Well/Sample ID:	03-PRCC-19-Prim-20 (Primary GAC Drum Sample after 20 Bed Volumes)	03-PRCC-19-Prim-107 (Primary GAC Drum Sample after 107 Bed Volumes)	03-PRCC-19-Prim-164 (Primary GAC Drum Sample after 164 Bed Volumes)	03-PRCC-19-Mid-1- 107 (Secondary GAC Drum Sample after 107 Bed Volumes)	03-PRCC-19-Mid-1- 164 (Secondary GAC Drum Sample after 164 Bed Volumes)	03-PRCC-19-Mid-2- 164 (Tertiary GAC Drum Sample after 164 Bed Volumes)	03-PRCC-19-Eff-164 (Effluent Sample after 164 Bed Volumes)	Field Blank- 081919 (Field Blank)	
	Sample Date:	8/19/2019	8/19/2019	8/20/2019	8/20/2019	8/20/2019	8/20/2019	8/20/2019	8/19/2019	
Perfluorobutanoic Acid (PFBA)		<19	<19	<19	<19	<19	<20	<19	<20	<20
Perfluoropentanoic Acid (PFPeA)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
4:2 Fluorotelomer Sulfonic Acid (4:2 FTSA)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluorohexanoic Acid (PFHxA)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluorobutane Sulfonic Acid (PFBS)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluoroheptanoic Acid (PFHpA)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluoropentane Sulfonic Acid (PFPeS)		<9.5	<9.7	<b>11</b>	<9.6	<9.4	<9.8	<9.4	<9.8	<10
6:2 Fluorotelomer Sulfonic Acid (6:2 FTSA)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluorooctanoic Acid (PFOA)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluorohexane Sulfonic Acid (PFHxS)		<9.5	<9.7	<b>33</b>	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluorohexane Sulfonic Acid - LN (PFHxS-LN)		<9.5	<9.7	<b>27</b>	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluorohexane Sulfonic Acid - BR (PFHxS-BR)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluorononanoic Acid (PFNA)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
8:2 Fluorotelomer Sulfonic Acid (8:2 FTSA)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluoroheptane Sulfonic Acid (PFHpS)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluorodecanoic Acid (PFDA)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
N-methyl Perfluorooctanesulfonamidoacetic Acid (N-MeFOSAA)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
N-Ethyl Perfluorooctane Sulfonamidoacetic Acid (EtFOSAA)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluorooctane Sulfonic Acid (PFOS)		<b>84</b>	<b>130</b>	<b>750</b>	<b>360</b>	<9.4	<b>9.9</b>	<9.4	<b>12</b>	<10
Perfluorooctane Sulfonic Acid (PFOS-LN)		<b>69</b>	<b>72</b>	<b>430</b>	<b>210</b>	<9.4	<9.8	<9.4	<b>10</b>	<10
Perfluorooctane Sulfonic Acid (PFOS-BR)		<b>15</b>	<b>56</b>	<b>320</b>	<b>140</b>	<9.4	<9.8	<9.4	<9.8	<10
Perfluoroundecanoic Acid (PFUnDA)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluorononane Sulfonic Acid (PFNS)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluorododecanoic Acid (PFDoDA)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluorodecane Sulfonic Acid (PFDS)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluorotridecanoic Acid (PFTrDA)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluorooctane Sulfonamide (FOSA)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10
Perfluorotetradecanoic Acid (PFTeDA)		<9.5	<9.7	<9.5	<9.6	<9.4	<9.8	<9.4	<9.8	<10

**Notes**

- 1) Detections in **bold**.
- 2) Concentrations in ng/L.
- 3) < = Not detected at specified reporting limit.
- 4) -- = Not analyzed.
- 5) Concentrations above the MDEQ Part 4, Water Quality Standards, Rule 57 Water Quality Value for PFOS of 12 ng/L for non-drinking water are highlighted in yellow.
- 6) Number after Prim (Primary GAC drum), Mid (Secondary GAC drum), and Eff (Effluent sample after tertiary GAC drum) samples equals number of GAC Bed volumes discharged through the pretreatment system at the time of sample collection. One bed volume equals 45 gallons.



## Analytical Results



# Analytical Laboratory Report

Report ID: S05438.01(01)+QC01  
Generated on 08/13/2019

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

Lab Sample ID(s): S05438.01  
Project: RACER Coldwater Rd  
Collected Date(s): 08/06/2019  
Submitted Date/Time: 08/06/2019 15:55  
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
S05438.01	03-PRCC-19	Wastewater	08/06/19 10:50



# Analytical Laboratory Report

Lab Sample ID: S05438.01

Sample Tag: 03-PRCC-19

Collected Date/Time: 08/06/2019 10:50

Matrix: Wastewater

COC Reference: 123470

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	4.3	IR
1	250ml Plastic	H2SO4	Yes	4.3	IR
1	125ml Amber	PbCO3/NaOH	Yes	4.3	IR
2	1L Plastic	None	Yes	4.3	IR
1	32oz Glass	HCL	Yes	4.3	IR

**Extraction / Prep.**

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	08/13/19 10:00	JRH	
TBOD5 - Set*	Completed	HACH 10360	08/07/19 15:01	NAW	
Metal Digestion	Completed	SW3015A	08/07/19 10:00	CCM	

**Inorganics**

**Method: E1664A, Run Date: 08/08/19 17:00, 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: 08/12/19 16:40, Analyst: ASB**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TBOD5*	4.2	3		mg/L	1.5		

**Method: SM2540D, Run Date: 08/09/19 19:35, Analyst: ASB**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	4	3		mg/L	1.00		

**Method: SM2550B, Run Date: 08/06/19 10:50, Analyst: KS**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Field Temperature*	77	1		oF	1		

**Method: SM4500-H+ B, Run Date: 08/06/19 10:50, Analyst: KS**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Field pH*	7.3	0.1		STD Units	1		

**Method: SM4500-NH3 D, Run Date: 08/09/19 13:40, Analyst: MJC**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ammonia-N (Undistilled)	4.7	0.2	0.03	mg/L	10	7664-41-7	

**Method: SM4500-PE, Run Date: 08/08/19 18:23, 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: 08/07/19 12:15, Analyst: CCM**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.009	0.002		mg/L	5	7440-38-2	
Chromium	0.053	0.005		mg/L	5	7440-47-3	



# Analytical Laboratory Report

Lab Sample ID: S05438.01 (continued)

Sample Tag: 03-PRCC-19

**Method: E200.8, Run Date: 08/07/19 12:15, Analyst: CCM (continued)**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Copper	0.449	0.005		mg/L	5	7440-50-8	
Nickel	0.165	0.005		mg/L	5	7440-02-0	
Zinc	0.020	0.005		mg/L	5	7440-66-6	

**Method: E245.1, Run Date: 08/13/19 14:31, 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: 08/08/19 11:00, 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: S05438.01(01)+QC01  
Generated on 08/13/2019

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): S05438.01  
Project: RACER Coldwater Rd  
Submitted Date/Time: 08/06/2019 15:55  
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 11-18)

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: S05438.01**

Sample Tag: 03-PRCC-19

Collected Date/Time: 08/06/2019 10:50

Matrix: Wastewater

COC Reference: 123470

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b><i>Inorganics</i></b>						
Ammonia-N (Undistilled)	SM4500-NH3 D	08/09/19 13:40	AMN190809QC	AMN190809QC	No	BLK/LCS/MS/MSD/DU
Oil & Grease n-Hexane Extract.	E1664A	08/08/19 17:00	OGHEX190808W01	OGHEX190808W01	No	BLK/LCS
Total Phosphorus	SM4500-PE	08/08/19 18:23	PHS190808QC	PHS190808QC	No	BLK/LCS/MS/DUP
Total Suspended Solids	SM2540D	08/09/19 19:35	TSS190809A	TSS190809A	No	BLK/LCS/DUP
<b><i>Metals</i></b>						
Arsenic	E200.8	08/07/19 12:15	MT4-19-0807A	MTD-080719-1	No	BLK/LCS/MS/MSD
Chromium	E200.8	08/07/19 12:15	MT4-19-0807A	MTD-080719-1	No	BLK/LCS/MS/MSD
Copper	E200.8	08/07/19 12:15	MT4-19-0807A	MTD-080719-1	No	BLK/LCS/MS/MSD
Mercury	E245.1	08/13/19 14:31	HG2-19-0813A	HGD-081319-1	No	BLK/LCS/MS/MSD
Nickel	E200.8	08/07/19 12:15	MT4-19-0807A	MTD-080719-1	No	BLK/LCS/MS/MSD
Zinc	E200.8	08/07/19 12:15	MT4-19-0807A	MTD-080719-1	No	BLK/LCS/MS/MSD
<b><i>Other / Misc.</i></b>						
Available Cyanide	OIA-1677	08/08/19 11:00	ACN190808-W1	ACN190808-W1	No	BLK/LCS/MS/MSD/DU

## QC Report - Prep Batch Summary

### Inorganics, Prep Batch ID: AMN190809QC

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S05438.01	Ammonia-N (Undistilled)	SM4500-NH3 D	08/09/19 13:40	AMN190809QC

### Inorganics, Prep Batch ID: OGHEX190808W01

Surrogates: No, QC Types: BLK/LCS

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S05438.01	Oil & Grease n-Hexane Extract.	E1664A	08/08/19 17:00	OGHEX190808W01

### Inorganics, Prep Batch ID: PHS190808QC

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S05438.01	Total Phosphorus	SM4500-PE	08/08/19 18:23	PHS190808QC

### Inorganics, Prep Batch ID: TSS190809A

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S05438.01	Total Suspended Solids	SM2540D	08/09/19 19:35	TSS190809A

### Metals, Prep Batch ID: HGD-081319-1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S05438.01	Mercury	E245.1	08/13/19 14:31	HG2-19-0813A

### Metals, Prep Batch ID: MTD-080719-1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S05438.01	Arsenic	E200.8	08/07/19 12:15	MT4-19-0807A
S05438.01	Chromium	E200.8	08/07/19 12:15	MT4-19-0807A
S05438.01	Copper	E200.8	08/07/19 12:15	MT4-19-0807A
S05438.01	Nickel	E200.8	08/07/19 12:15	MT4-19-0807A
S05438.01	Zinc	E200.8	08/07/19 12:15	MT4-19-0807A

### Other / Misc., Prep Batch ID: ACN190808-W1

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S05438.01	Available Cyanide	OIA-1677	08/08/19 11:00	ACN190808-W1

## QC Report - Batch QC Results

**Inorganics, Prep Batch ID: AMN190809QC**

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

**Blank (BLK)**

Lab Sample ID: AMN190809QC.LRB1

Run in Batch: AMN190809QC, Run Date: 08/09/2019 10:27, Prep Date: 08/09/2019, Matrix: Liquid, Dilution: 1

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

**Laboratory Control Sample (LCS)**

Lab Sample ID: AMN190809QC.LCS1

Run in Batch: AMN190809QC, Run Date: 08/09/2019 11:39, Prep Date: 08/09/2019, Matrix: Liquid, Dilution: 1

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

**Matrix Spike (MS)**

Lab Sample ID: AMN190809QC.MS1, Parent Sample ID: S05482.02

Run in Batch: AMN190809QC, Run Date: 08/09/2019 12:51, Prep Date: 08/09/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Ammonia-N (Undistilled)		102	80	120

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: AMN190809QC.MSD1, Parent Sample ID: AMN190809QC.MS1

Run in Batch: AMN190809QC, Run Date: 08/09/2019 13:13, Prep Date: 08/09/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Ammonia-N (Undistilled)		102	80	120	1	15

**Duplicate (DUP)**

Lab Sample ID: AMN190809QC.DP1, Parent Sample ID: S05482.02

Run in Batch: AMN190809QC, Run Date: 08/09/2019 13:05, Prep Date: 08/09/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Ammonia-N (Undistilled)		1.6	20

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: OGHEX190808W01

Surrogates: No, QC Types: BLK/LCS

### Blank (BLK)

Lab Sample ID: OGHEX190808W01.LRB1

Run in Batch: OGHEX190808W01, Run Date: 08/08/2019 17:00, Prep Date: 08/08/2019, 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: OGHEX190808W01.LCS1

Run in Batch: OGHEX190808W01, Run Date: 08/08/2019 17:00, Prep Date: 08/08/2019, Matrix: Liquid, Dilution: 1

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

### Laboratory Control Sample (LCS)

Lab Sample ID: OGHEX190808W01.LCS2

Run in Batch: OGHEX190808W01, Run Date: 08/08/2019 17:00, Prep Date: 08/08/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Oil & Grease n-Hexane Extract.		85	78	114

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: PHS190808QC

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

### Blank (BLK)

Lab Sample ID: PHS190808QC.LRB1

Run in Batch: PHS190808QC, Run Date: 08/08/2019 14:16, Prep Date: 08/08/2019, Matrix: Liquid, Dilution: 1

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

### Blank (BLK)

Lab Sample ID: PHS190808QC.LRB2

Run in Batch: PHS190808QC, Run Date: 08/08/2019 14:22, Prep Date: 08/08/2019, Matrix: Liquid, Dilution: 1

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

### Laboratory Control Sample (LCS)

Lab Sample ID: PHS190808QC.LCS1

Run in Batch: PHS190808QC, Run Date: 08/08/2019 14:29, Prep Date: 08/08/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		98	90	110

### Matrix Spike (MS)

Lab Sample ID: PHS190808QC.MS1, Parent Sample ID: S05184.01

Run in Batch: PHS190808QC, Run Date: 08/08/2019 18:33, Prep Date: 08/08/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		102	80	120

### Duplicate (DUP)

Lab Sample ID: PHS190808QC.DP1, Parent Sample ID: S05457.01

Run in Batch: PHS190808QC, Run Date: 08/08/2019 18:30, Prep Date: 08/08/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Total Phosphorus		4.0	20

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: TSS190809A

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

### Blank (BLK)

Lab Sample ID: TSS190809A.LRB1

Run in Batch: TSS190809A, Run Date: 08/09/2019 19:35, Prep Date: 08/09/2019, Matrix: Liquid, Dilution: 1

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

### Laboratory Control Sample (LCS)

Lab Sample ID: TSS190809A.LCS1

Run in Batch: TSS190809A, Run Date: 08/09/2019 19:35, Prep Date: 08/09/2019, Matrix: Liquid, Dilution: 10.0

Analyte	Flags	% Rec	LCL	UCL
Total Suspended Solids		86.9	81.9	111

### Duplicate (DUP)

Lab Sample ID: TSS190809A.DP1, Parent Sample ID: S05435.04

Run in Batch: TSS190809A, Run Date: 08/09/2019 19:35, Prep Date: 08/09/2019, Matrix: 3, Dilution: 13.3

Analyte	Flags	RPD	RPD CL
Total Suspended Solids		0.6	5

# QC Report - Batch QC Results

## Metals, Prep Batch ID: HGD-081319-1

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

### Blank (BLK)

Lab Sample ID: HG2-19-0813A.017.LRB

Run in Batch: HG2-19-0813A, Run Date: 08/13/2019 13:34, Prep Date: 08/13/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Mercury		ND	0.03	ug/L

### Laboratory Control Sample (LCS)

Lab Sample ID: HG2-19-0813A.016.LCS

Run in Batch: HG2-19-0813A, Run Date: 08/13/2019 13:32, Prep Date: 08/13/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Mercury		101	85	115

### Matrix Spike (MS)

Lab Sample ID: HG2-19-0813A.042.MS, Parent Sample ID: S05523.01

Run in Batch: HG2-19-0813A, Run Date: 08/13/2019 14:38, Prep Date: 08/13/2019, Matrix: Liquid, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL
Mercury		103	80	120

### Matrix Spike Duplicate (MSD)

Lab Sample ID: HG2-19-0813A.043.MSD, Parent Sample ID: HG2-19-0813A.042.MS

Run in Batch: HG2-19-0813A, Run Date: 08/13/2019 14:40, Prep Date: 08/13/2019, Matrix: Liquid, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Mercury		106	80	120	2	20

## QC Report - Batch QC Results

### Metals, Prep Batch ID: MTD-080719-1

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

#### Blank (BLK)

Lab Sample ID: MT4-19-0807A.026.LRB

Run in Batch: MT4-19-0807A, Run Date: 08/07/2019 11:52, Prep Date: 08/07/2019, 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: MT4-19-0807A.024.LCS

Run in Batch: MT4-19-0807A, Run Date: 08/07/2019 11:48, Prep Date: 08/07/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Arsenic		106	85	115
Chromium		106	85	115
Copper		106	85	115
Nickel		107	85	115
Zinc		106	85	115

#### Matrix Spike (MS)

Lab Sample ID: MT4-19-0807A.048.MS, Parent Sample ID: S05335.01

Run in Batch: MT4-19-0807A, Run Date: 08/07/2019 12:33, Prep Date: 08/07/2019, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		102	75	125
Chromium		98	75	125
Copper		96	75	125
Nickel		99	75	125
Zinc		100	75	125

#### Matrix Spike (MS)

Lab Sample ID: MT4-19-0807A.073.MS, Parent Sample ID: S05446.01

Run in Batch: MT4-19-0807A, Run Date: 08/07/2019 13:15, Prep Date: 08/07/2019, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		98	75	125
Chromium		96	75	125
Copper		89	75	125
Nickel		91	75	125
Zinc		93	75	125

#### Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-19-0807A.049.MSD, Parent Sample ID: MT4-19-0807A.048.MS

Run in Batch: MT4-19-0807A, Run Date: 08/07/2019 12:34, Prep Date: 08/07/2019, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		100	75	125	2	20
Chromium		99	75	125	0	20
Copper		97	75	125	2	20
Nickel		98	75	125	1	20
Zinc		99	75	125	1	20

# QC Report - Batch QC Results

## Metals, Prep Batch ID: MTD-080719-1 (continued)

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

### Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-19-0807A.074.MSD, Parent Sample ID: MT4-19-0807A.073.MS

Run in Batch: MT4-19-0807A, Run Date: 08/07/2019 13:16, Prep Date: 08/07/2019, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		96	75	125	1	20
Chromium		98	75	125	2	20
Copper		89	75	125	0	20
Nickel		95	75	125	2	20
Zinc		92	75	125	1	20

**QC Report - Batch QC Results**

**Other / Misc., Prep Batch ID: ACN190808-W1**

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

**Blank (BLK)**

Lab Sample ID: ACN190808-W1.LRB1

Run in Batch: ACN190808-W1, Run Date: 08/08/2019 10:36, Prep Date: 08/08/2019, Matrix: Liquid, Dilution: 1

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

**Blank (BLK)**

Lab Sample ID: ACN190808-W1.LRB2

Run in Batch: ACN190808-W1, Run Date: 08/08/2019 11:04, Prep Date: 08/08/2019, Matrix: Liquid, Dilution: 1

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

**Laboratory Control Sample (LCS)**

Lab Sample ID: ACN190808-W1.LCS1

Run in Batch: ACN190808-W1, Run Date: 08/08/2019 10:40, Prep Date: 08/08/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Available Cyanide		98	88	109

**Matrix Spike (MS)**

Lab Sample ID: ACN190808-W1.MS1, Parent Sample ID: S05466.01

Run in Batch: ACN190808-W1, Run Date: 08/08/2019 10:50, Prep Date: 08/08/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Available Cyanide		102	82	130

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: ACN190808-W1.MSD1, Parent Sample ID: ACN190808-W1.MS1

Run in Batch: ACN190808-W1, Run Date: 08/08/2019 10:52, Prep Date: 08/08/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Available Cyanide		102	82	130	0	15

**Duplicate (DUP)**

Lab Sample ID: ACN190808-W1.DP1, Parent Sample ID: S05466.01

Run in Batch: ACN190808-W1, Run Date: 08/08/2019 10:48, Prep Date: 08/08/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Available Cyanide		<1	15

# Merit Laboratories Login Checklist

Lab Set ID:S05438

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:08/06/2019 15:55 Login User: SRS

Phone: 313-333-0211 FAX:

Email: Clifford.Yantz@obg.com

Selection	Description	Note
-----------	-------------	------

## Sample Receiving

- |     |  |  |
|-----|--|--|
| 01. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | Samples are received at 4C +/- 2C Thermometer # IR 4.6 |
| 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 |

## Chain of Custody

- |     |  |  |
|-----|--|--|
| 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: |

## Preservation

- |     |  |   |
|-----|--|---|
| 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?    |

## Bottle Conditions

- |     |  |   |
|-----|--|---|
| 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: S05438      Initials: SRS

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

Project: RACER Coldwater Rd

Submitted: 08/06/2019 15:55    Login User:

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

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	
S05438.01	X								X					
S05438.01				X					X					
S05438.01						X			X					
S05438.01								X		X				



2680 East Lansing Dr., East Lansing, MI 48823  
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 www.meritlabs.com

C.O.C. PAGE # 1 OF 1 123470

**REPORT TO**

**CHAIN OF CUSTODY RECORD**

**INVOICE TO**

CONTACT NAME Clifford Yantz  
 COMPANY O'Brien & Gere part of Ramboll  
 ADDRESS 2260 E Saginaw  
 CITY East Lansing STATE MI ZIP CODE 48823  
 PHONE NO. 313-333-0211 FAX NO. \_\_\_\_\_ P.O. NO. \_\_\_\_\_  
 E-MAIL ADDRESS clifford.yantz@obg.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

MERIT LAB NO. <small>FOR LAB USE ONLY</small>	YEAR		SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives							TOTAL Metals	Available Cyanide	BOD/TSS	Ammonia-Nitrogen	Total phosphorus	FOG (Hex-Ext)	Certifications	Project Locations	Special Instructions		
	DATE	TIME				NONE	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	MeOH	OTHER											
05438.01	8/6/19	1050	03-PRCC-19	ww	6	X	X	X	X	X	X	X	X	X	X	X	X				Metals - Are: As, Cr, Cu, Hg, Ni, Zn		
<i>LABS</i>																							
																		Analysis Per City of Flint - Including QC Report		Field pH: 7.3		Field Temp: 25°C	

RELINQUISHED BY: [Signature]  Sampler OBG DATE 8/6/19 TIME 11:09  
 RECEIVED BY: [Signature] DATE 8/6/19 TIME 11:09  
 RELINQUISHED BY: [Signature] DATE 8/6/19 TIME 15:55  
 RECEIVED BY: [Signature] DATE 8/6/19 TIME 15:55

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

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



# Analytical Laboratory Report

Report ID: S07248.01(01)+QC01  
Generated on 09/25/2019

## 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

---

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): S07248.01  
Project: RACER Coldwater Rd Landfill  
Collected Date(s): 09/18/2019  
Submitted Date/Time: 09/18/2019 12:55  
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
S07248.01	04-PRCC-19	Wastewater	09/18/19 11:00



# Analytical Laboratory Report

Lab Sample ID: S07248.01

Sample Tag: 04-PRCC-19

Collected Date/Time: 09/18/2019 11:00

Matrix: Wastewater

COC Reference: 123886

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	125ml Plastic	HNO3	Yes	3.9	IR
1	250ml Plastic	H2SO4	Yes	3.9	IR
1	125ml Amber	PbCO3/NaOH	Yes	3.9	IR
1	32oz Glass	None	Yes	3.9	IR
1	32oz Glass	HCL	Yes	3.9	IR
1	500ml Plastic	None	Yes	3.9	IR

### Extraction / Prep.

Parameter	Result	Method	Run Date	Analyst	Flags
Mercury Digestion	Completed	E245.1	09/20/19 09:30	JRH	
TBOD5 - Set*	Completed	HACH 10360	09/19/19 14:30	ASB	
Metal Digestion	Completed	SW3015A	09/19/19 09:20	CCM	

### Inorganics

Method: E1664A, Run Date: 09/25/19 14:36, 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: 09/24/19 15:06, Analyst: NAW

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
TBOD5*	23.0	3		mg/L	6		

Method: SM2540D, Run Date: 09/20/19 23:10, Analyst: DMK

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Suspended Solids	14	3		mg/L	2.5		

Method: SM2550B, Run Date: 09/18/19 11:00, Analyst: KS

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Field Temperature*	62	1		oF	1		

Method: SM4500-H+ B, Run Date: 09/18/19 11:00, Analyst: KS

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Field pH*	7.10	0.01		STD Units	1		

Method: SM4500-NH3 D, Run Date: 09/19/19 14:49, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Ammonia-N (Undistilled)	4.59	0.04	0.006	mg/L	2	7664-41-7	

Method: SM4500-PE, Run Date: 09/19/19 16:36, Analyst: MJC

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Total Phosphorus	0.04	0.01	0.009	mg/L	1	7723-14-0	

### Metals

Method: E200.8, Run Date: 09/19/19 11:18, Analyst: CCM

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Arsenic	0.004	0.002		mg/L	5	7440-38-2	



# Analytical Laboratory Report

Lab Sample ID: S07248.01 (continued)

Sample Tag: 04-PRCC-19

**Method: E200.8, Run Date: 09/19/19 11:18, Analyst: CCM (continued)**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
Chromium	0.025	0.005		mg/L	5	7440-47-3	
Copper	0.340	0.005		mg/L	5	7440-50-8	
Nickel	0.125	0.005		mg/L	5	7440-02-0	
Zinc	0.016	0.005		mg/L	5	7440-66-6	

**Method: E245.1, Run Date: 09/20/19 13:52, 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: 09/19/19 11:30, 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: S07248.01(01)+QC01  
Generated on 09/25/2019

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): S07248.01  
Project: RACER Coldwater Rd Landfill  
Submitted Date/Time: 09/18/2019 12:55  
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 11-18)

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: S07248.01**

Sample Tag: 04-PRCC-19

Collected Date/Time: 09/18/2019 11:00

Matrix: Wastewater

COC Reference: 123886

Analysis	Method	Run Date/Time	Batch ID	Prep ID	Surr	QC Types
<b><i>Inorganics</i></b>						
Ammonia-N (Undistilled)	SM4500-NH3 D	09/19/19 14:49	AMN190919QC	AMN190919QC	No	BLK/LCS/MS/DUP
Oil & Grease n-Hexane Extract.	E1664A	09/25/19 14:36	OGHEX190925W01	OGHEX190925W01	No	BLK/LCS
Total Phosphorus	SM4500-PE	09/19/19 16:36	PHS190919QC	PHS190919QC	No	BLK/LCS/MS/DUP
Total Suspended Solids	SM2540D	09/20/19 23:10	TSS190920	TSS190920	No	BLK/LCS/DUP
<b><i>Metals</i></b>						
Arsenic	E200.8	09/19/19 11:18	MT4-19-0919A	MTD-091919-1	No	BLK/LCS/MS/MSD
Chromium	E200.8	09/19/19 11:18	MT4-19-0919A	MTD-091919-1	No	BLK/LCS/MS/MSD
Copper	E200.8	09/19/19 11:18	MT4-19-0919A	MTD-091919-1	No	BLK/LCS/MS/MSD
Mercury	E245.1	09/20/19 13:52	HG2-19-0920A	HGD-092019-2	No	BLK/LCS/MS/MSD
Nickel	E200.8	09/19/19 11:18	MT4-19-0919A	MTD-091919-1	No	BLK/LCS/MS/MSD
Zinc	E200.8	09/19/19 11:18	MT4-19-0919A	MTD-091919-1	No	BLK/LCS/MS/MSD
<b><i>Other / Misc.</i></b>						
Available Cyanide	OIA-1677	09/19/19 11:30	ACN190919-W1	ACN190919-W1	No	BLK/LCS/MS/MSD/DU

## QC Report - Prep Batch Summary

**Inorganics, Prep Batch ID: AMN190919QC**

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S07248.01	Ammonia-N (Undistilled)	SM4500-NH3 D	09/19/19 14:49	AMN190919QC

**Inorganics, Prep Batch ID: OGHEX190925W01**

Surrogates: No, QC Types: BLK/LCS

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S07248.01	Oil & Grease n-Hexane Extract.	E1664A	09/25/19 14:36	OGHEX190925W01

**Inorganics, Prep Batch ID: PHS190919QC**

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S07248.01	Total Phosphorus	SM4500-PE	09/19/19 16:36	PHS190919QC

**Inorganics, Prep Batch ID: TSS190920**

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S07248.01	Total Suspended Solids	SM2540D	09/20/19 23:10	TSS190920

**Metals, Prep Batch ID: HGD-092019-2**

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S07248.01	Mercury	E245.1	09/20/19 13:52	HG2-19-0920A

**Metals, Prep Batch ID: MTD-091919-1**

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S07248.01	Arsenic	E200.8	09/19/19 11:18	MT4-19-0919A
S07248.01	Chromium	E200.8	09/19/19 11:18	MT4-19-0919A
S07248.01	Copper	E200.8	09/19/19 11:18	MT4-19-0919A
S07248.01	Nickel	E200.8	09/19/19 11:18	MT4-19-0919A
S07248.01	Zinc	E200.8	09/19/19 11:18	MT4-19-0919A

**Other / Misc., Prep Batch ID: ACN190919-W1**

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

Sample ID	Analysis	Method	Run Date/Time	Batch ID
S07248.01	Available Cyanide	OIA-1677	09/19/19 11:30	ACN190919-W1

## QC Report - Batch QC Results

### Inorganics, Prep Batch ID: AMN190919QC

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

#### Blank (BLK)

Lab Sample ID: AMN190919QC.LRB1

Run in Batch: AMN190919QC, Run Date: 09/19/2019 08:40, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 1

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

#### Laboratory Control Sample (LCS)

Lab Sample ID: AMN190919QC.LCS1

Run in Batch: AMN190919QC, Run Date: 09/19/2019 09:44, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Ammonia-N (Undistilled)		104	90	110

#### Matrix Spike (MS)

Lab Sample ID: AMN190919QC.MS1, Parent Sample ID: S07262.02

Run in Batch: AMN190919QC, Run Date: 09/19/2019 10:44, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 1

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

#### Matrix Spike (MS)

Lab Sample ID: AMN190919QC.MS2, Parent Sample ID: S06995.03

Run in Batch: AMN190919QC, Run Date: 09/19/2019 16:44, Prep Date: 09/19/2019, Matrix: solid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Ammonia-N (Undistilled)		94	80	120

#### Duplicate (DUP)

Lab Sample ID: AMN190919QC.DP1, Parent Sample ID: S07262.01

Run in Batch: AMN190919QC, Run Date: 09/19/2019 10:22, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Ammonia-N (Undistilled)		3.5	20

#### Duplicate (DUP)

Lab Sample ID: AMN190919QC.DP2, Parent Sample ID: S06695.01

Run in Batch: AMN190919QC, Run Date: 09/19/2019 16:15, Prep Date: 09/19/2019, Matrix: Solid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Ammonia-N (Undistilled)		0.2	20

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: OGHEX190925W01

Surrogates: No, QC Types: BLK/LCS

### Blank (BLK)

Lab Sample ID: OGHEX190925W01.LRB3

Run in Batch: OGHEX190925W01, Run Date: 09/25/2019 14:37, Prep Date: 09/25/2019, 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: OGHEX190925W01.LCS1

Run in Batch: OGHEX190925W01, Run Date: 09/25/2019 14:38, Prep Date: 09/25/2019, Matrix: Liquid, Dilution: 1

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

### Laboratory Control Sample (LCS)

Lab Sample ID: OGHEX190925W01.LCS2

Run in Batch: OGHEX190925W01, Run Date: 09/25/2019 14:38, Prep Date: 09/25/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Oil & Grease n-Hexane Extract.		105	78	114

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: PHS190919QC

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

### Blank (BLK)

Lab Sample ID: PHS190919QC.LRB1

Run in Batch: PHS190919QC, Run Date: 09/19/2019 13:14, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 1

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

### Blank (BLK)

Lab Sample ID: PHS190919QC.LRB2

Run in Batch: PHS190919QC, Run Date: 09/19/2019 13:21, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 1

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

### Laboratory Control Sample (LCS)

Lab Sample ID: PHS190919QC.LCS1

Run in Batch: PHS190919QC, Run Date: 09/19/2019 13:27, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		96	90	110

### Matrix Spike (MS)

Lab Sample ID: PHS190919QC.MS1, Parent Sample ID: S07026.01

Run in Batch: PHS190919QC, Run Date: 09/19/2019 17:06, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Total Phosphorus		96	80	120

### Duplicate (DUP)

Lab Sample ID: PHS190919QC.DP1, Parent Sample ID: S07058.01

Run in Batch: PHS190919QC, Run Date: 09/19/2019 17:03, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Total Phosphorus		2.5	20

# QC Report - Batch QC Results

## Inorganics, Prep Batch ID: TSS190920

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

### Blank (BLK)

Lab Sample ID: TSS190920.LRB1

Run in Batch: TSS190920, Run Date: 09/20/2019 23:10, Prep Date: 09/20/2019, Matrix: Liquid, Dilution: 1

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

### Laboratory Control Sample (LCS)

Lab Sample ID: TSS190920.LCS1

Run in Batch: TSS190920, Run Date: 09/20/2019 23:10, Prep Date: 09/20/2019, Matrix: Liquid, Dilution: 10

Analyte	Flags	% Rec	LCL	UCL
Total Suspended Solids		95.2	81.9	111

### Duplicate (DUP)

Lab Sample ID: TSS190920.DP1, Parent Sample ID: S07275.01

Run in Batch: TSS190920, Run Date: 09/20/2019 23:10, Prep Date: 09/20/2019, Matrix: Liquid, Dilution: 16.7

Analyte	Flags	RPD	RPD CL
Total Suspended Solids	*	17.1	5

# QC Report - Batch QC Results

## Metals, Prep Batch ID: HGD-092019-2

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

### Blank (BLK)

Lab Sample ID: HG2-19-0920A.043.LRB

Run in Batch: HG2-19-0920A, Run Date: 09/20/2019 13:14, Prep Date: 09/20/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	Conc	RDL	Units
Mercury		ND	0.03	ug/L

### Laboratory Control Sample (LCS)

Lab Sample ID: HG2-19-0920A.042.LCS

Run in Batch: HG2-19-0920A, Run Date: 09/20/2019 13:13, Prep Date: 09/20/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Mercury		100	85	115

### Matrix Spike (MS)

Lab Sample ID: HG2-19-0920A.052.MS, Parent Sample ID: S07138.01

Run in Batch: HG2-19-0920A, Run Date: 09/20/2019 13:31, Prep Date: 09/20/2019, Matrix: Soil, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL
Mercury		98	75	125

### Matrix Spike (MS)

Lab Sample ID: HG2-19-0920A.065.MS, Parent Sample ID: S07248.01

Run in Batch: HG2-19-0920A, Run Date: 09/20/2019 13:54, Prep Date: 09/20/2019, Matrix: Soil, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Mercury		94	75	125

### Matrix Spike Duplicate (MSD)

Lab Sample ID: HG2-19-0920A.053.MSD, Parent Sample ID: HG2-19-0920A.052.MS

Run in Batch: HG2-19-0920A, Run Date: 09/20/2019 13:32, Prep Date: 09/20/2019, Matrix: Soil, Dilution: 2

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Mercury		99	75	125	2	20

### Matrix Spike Duplicate (MSD)

Lab Sample ID: HG2-19-0920A.066.MSD, Parent Sample ID: HG2-19-0920A.065.MS

Run in Batch: HG2-19-0920A, Run Date: 09/20/2019 13:56, Prep Date: 09/20/2019, Matrix: Soil, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Mercury		96	75	125	3	20

## QC Report - Batch QC Results

### Metals, Prep Batch ID: MTD-091919-1

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

#### Blank (BLK)

Lab Sample ID: MT4-19-0919A.021.LRB

Run in Batch: MT4-19-0919A, Run Date: 09/19/2019 10:41, Prep Date: 09/19/2019, 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: MT4-19-0919A.019.LCS

Run in Batch: MT4-19-0919A, Run Date: 09/19/2019 10:37, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Arsenic		103	85	115
Chromium		100	85	115
Copper		97	85	115
Nickel		99	85	115
Zinc		100	85	115

#### Matrix Spike (MS)

Lab Sample ID: MT4-19-0919A.045.MS, Parent Sample ID: S06978.01

Run in Batch: MT4-19-0919A, Run Date: 09/19/2019 11:25, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		105	75	125
Chromium		104	75	125
Copper		97	75	125
Nickel		99	75	125
Zinc		98	75	125

#### Matrix Spike (MS)

Lab Sample ID: MT4-19-0919A.069.MS, Parent Sample ID: S07207.17

Run in Batch: MT4-19-0919A, Run Date: 09/19/2019 11:57, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL
Arsenic		105	75	125
Chromium		103	75	125
Copper		97	75	125
Nickel		100	75	125
Zinc		101	75	125

#### Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-19-0919A.046.MSD, Parent Sample ID: MT4-19-0919A.045.MS

Run in Batch: MT4-19-0919A, Run Date: 09/19/2019 11:26, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		102	75	125	3	20
Chromium		103	75	125	1	20
Copper		94	75	125	3	20
Nickel		101	75	125	1	20
Zinc		100	75	125	2	20

# QC Report - Batch QC Results

## Metals, Prep Batch ID: MTD-091919-1 (continued)

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

### Matrix Spike Duplicate (MSD)

Lab Sample ID: MT4-19-0919A.070.MSD, Parent Sample ID: MT4-19-0919A.069.MS

Run in Batch: MT4-19-0919A, Run Date: 09/19/2019 11:58, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 5

Analyte	Flags	% Rec	LCL	UCL	RPD	RPD CL
Arsenic		101	75	125	3	20
Chromium		103	75	125	0	20
Copper		97	75	125	0	20
Nickel		100	75	125	0	20
Zinc		103	75	125	2	20

**QC Report - Batch QC Results**

**Other / Misc., Prep Batch ID: ACN190919-W1**

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

**Blank (BLK)**

Lab Sample ID: ACN190919-W1.LRB1

Run in Batch: ACN190919-W1, Run Date: 09/19/2019 11:04, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 1

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

**Blank (BLK)**

Lab Sample ID: ACN190919-W1.LRB2

Run in Batch: ACN190919-W1, Run Date: 09/19/2019 11:34, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 1

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

**Laboratory Control Sample (LCS)**

Lab Sample ID: ACN190919-W1.LCS1

Run in Batch: ACN190919-W1, Run Date: 09/19/2019 11:08, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Available Cyanide		96	88	109

**Matrix Spike (MS)**

Lab Sample ID: ACN190919-W1.MS1, Parent Sample ID: S07125.01

Run in Batch: ACN190919-W1, Run Date: 09/19/2019 11:18, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	% Rec	LCL	UCL
Available Cyanide		94	82	130

**Matrix Spike Duplicate (MSD)**

Lab Sample ID: ACN190919-W1.MSD1, Parent Sample ID: ACN190919-W1.MS1

Run in Batch: ACN190919-W1, Run Date: 09/19/2019 11:20, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 1

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

**Duplicate (DUP)**

Lab Sample ID: ACN190919-W1.DP1, Parent Sample ID: S07125.01

Run in Batch: ACN190919-W1, Run Date: 09/19/2019 11:16, Prep Date: 09/19/2019, Matrix: Liquid, Dilution: 1

Analyte	Flags	RPD	RPD CL
Available Cyanide		<1	15

# Merit Laboratories Login Checklist

Lab Set ID:S07248

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

Project: RACER Coldwater Rd Landfill

Submitted:09/18/2019 12:55 Login User: SRS

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
-----------	-------------	------

### Sample Receiving

- |     |  |  |
|-----|--|--|
| 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 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 |

### Chain of Custody

- |     |  |  |
|-----|--|--|
| 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: |

### Preservation

- |     |  |   |
|-----|--|---|
| 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?    |

### Bottle Conditions

- |     |  |   |
|-----|--|---|
| 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: S07248

Initials: SRS

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 Landfill

Submitted: 09/18/2019 12:55 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	
S07248.01	X								X					
S07248.01				X					X					
S07248.01						X			X					
S07248.01								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

123886

**REPORT TO**

**CHAIN OF CUSTODY RECORD**

**INVOICE TO**

CONTACT NAME Clifford Yantz  
 COMPANY O'Brien & Gere Part of Ramboll  
 ADDRESS 2260 E 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 Landfill SAMPLER(S) - PLEASE PRINT/SIGN NAME Kevin Schneider KSK  
 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)
X	X	X	X	X	X

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	# Containers & Preservatives														
	DATE	TIME				NONE	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	MeOH	OTHER								
07248.01	9/18/19	1100	04-PRCC-19	ww	6	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
<i>KB'S</i>																				

Metals Are:  
 AS, Cr, Cu, Hg, Ni, Zn  
 Analysis Per  
 city of Flint  
 including QC Report  
 Field pH - 7.10  
 Field Temp - 62.3°F

RELINQUISHED BY: KSK obd (Sampler) DATE 9/18/19 TIME 12:00  
 RECEIVED BY: JNA Miller DATE 9/18/19 TIME 12:10  
 RELINQUISHED BY: JNA Miller DATE 9/18/19 TIME 12:19  
 RECEIVED BY: [Signature] DATE 9/18/19 TIME 12:55

RELINQUISHED BY: \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_  
 RECEIVED BY: \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_  
 SEAL NO. SEAL INTACT YES  NO  INITIALS \_\_\_\_\_  
 SEAL NO. SEAL INTACT YES  NO  INITIALS \_\_\_\_\_  
 NOTES: TEMP. ON ARRIVAL 5.9

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



**Analytical Results**  
(PFAS Treatment System Samples)



# Analytical Laboratory Report

Report ID: S06211.01(01)  
Generated on 08/29/2019

## Report to

---

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

Phone: 248-477-5701 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

---

Lab Sample ID(s): S06211.01-S06211.09  
Project: RACER Coldwater Rd  
Collected Date(s): 08/19/2019 - 08/20/2019  
Submitted Date/Time: 08/21/2019 14:35  
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
ASTMD7979-17M	ASTM Method D7979 - 17 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	474511-07-4
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



# Analytical Laboratory Report

## Sample Summary (9 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S06211.01	Field Blank-081919	Water	08/19/19 09:10
S06211.02	03-PRCC-19-Inf	Wastewater	08/19/19 09:20
S06211.03	03-PRCC-19-PRIM-20	Wastewater	08/19/19 13:55
S06211.04	03-PRCC-19-MID-1-107	Wastewater	08/20/19 09:40
S06211.05	03-PRCC-19-PRIM-107	Wastewater	08/20/19 09:42
S06211.06	03-PRCC-19-Eff-164	Wastewater	08/20/19 22:00
S06211.07	03-PRCC-19-MID-2-164	Wastewater	08/20/19 22:02
S06211.08	03-PRCC-19-MID-1-164	Wastewater	08/20/19 22:04
S06211.09	03-PRCC-19-PRIM-164	Wastewater	08/20/19 22:06



# Analytical Laboratory Report

Lab Sample ID: S06211.01

Sample Tag: Field Blank-081919

Collected Date/Time: 08/19/2019 09:10

Matrix: Water

COC Reference: 125009

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.2	IR

**Organics**

**24 PFAs, Method: ASTM D7979-17M, Run Date: 08/23/19 18:05, Analyst: JGH**

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	10		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	474511-07-4	
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	



# Analytical Laboratory Report

Lab Sample ID: S06211.02

Sample Tag: 03-PRCC-19-Inf

Collected Date/Time: 08/19/2019 09:20

Matrix: Wastewater

COC Reference: 125009

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.2	IR

**Organics**

24 PFAs, Method: ASTM D7979-17M, Run Date: 08/23/19 18:27, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19		ng/L	1.9	375-22-4	
PFPeA*	Not detected	9.5		ng/L	1.9	2706-90-3	
4:2 FTSA*	Not detected	9.5		ng/L	1.9	757124-72-4	
PFHxA*	Not detected	9.5		ng/L	1.9	307-24-4	
PFBS*	Not detected	9.5		ng/L	1.9	375-73-5	
PFHpA*	Not detected	9.5		ng/L	1.9	375-85-9	
PFPeS*	Not detected	9.5		ng/L	1.9	2706-91-4	
6:2 FTSA*	Not detected	9.5		ng/L	1.9	27619-97-2	
PFOA*	Not detected	9.5		ng/L	1.9	335-67-1	
PFHxS*	Not detected	9.5		ng/L	1.9	355-46-4	
PFHxS-LN*	Not detected	9.5		ng/L	1.9	355-46-4-LN	
PFHxS-BR*	Not detected	9.5		ng/L	1.9	355-46-4-BR	
PFNA*	Not detected	9.5		ng/L	1.9	375-95-1	
8:2 FTSA*	Not detected	9.5		ng/L	1.9	39108-34-4	
PFHpS*	Not detected	9.5		ng/L	1.9	375-92-8	
PFDA*	Not detected	9.5		ng/L	1.9	335-76-2	
N-MeFOSAA*	Not detected	9.5		ng/L	1.9	2355-31-9	I
EtFOSAA*	Not detected	9.5		ng/L	1.9	2991-50-6	
PFOS*	84	9.5		ng/L	1.9	1763-23-1	
PFOS-LN*	69	9.5		ng/L	1.9	1763-23-1-LN	
PFOS-BR*	15	9.5		ng/L	1.9	1763-23-1-BR	
PFUnDA*	Not detected	9.5		ng/L	1.9	2058-94-8	
PFNS*	Not detected	9.5		ng/L	1.9	474511-07-4	
PFDODA*	Not detected	9.5		ng/L	1.9	307-55-1	
PFDS*	Not detected	9.5		ng/L	1.9	335-77-3	
PFTTrDA*	Not detected	9.5		ng/L	1.9	72629-94-8	
FOSA*	Not detected	9.5		ng/L	1.9	754-91-6	
PFTeDA*	Not detected	9.5		ng/L	1.9	376-06-7	

I-Matrix interference with internal standard



# Analytical Laboratory Report

Lab Sample ID: S06211.03

Sample Tag: 03-PRCC-19-PRIM-20

Collected Date/Time: 08/19/2019 13:55

Matrix: Wastewater

COC Reference: 125009

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.2	IR

### Organics

24 PFAs, Method: ASTM D7979-17M, Run Date: 08/23/19 18:48, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19		ng/L	1.94	375-22-4	
PFPeA*	Not detected	9.7		ng/L	1.94	2706-90-3	
4:2 FTSA*	Not detected	9.7		ng/L	1.94	757124-72-4	
PFHxA*	Not detected	9.7		ng/L	1.94	307-24-4	
PFBS*	Not detected	9.7		ng/L	1.94	375-73-5	
PFHpA*	Not detected	9.7		ng/L	1.94	375-85-9	
PFPeS*	Not detected	9.7		ng/L	1.94	2706-91-4	
6:2 FTSA*	Not detected	9.7		ng/L	1.94	27619-97-2	
PFOA*	Not detected	9.7		ng/L	1.94	335-67-1	
PFHxS*	Not detected	9.7		ng/L	1.94	355-46-4	
PFHxS-LN*	Not detected	9.7		ng/L	1.94	355-46-4-LN	
PFHxS-BR*	Not detected	9.7		ng/L	1.94	355-46-4-BR	
PFNA*	Not detected	9.7		ng/L	1.94	375-95-1	
8:2 FTSA*	Not detected	9.7		ng/L	1.94	39108-34-4	
PFHpS*	Not detected	9.7		ng/L	1.94	375-92-8	
PFDA*	Not detected	9.7		ng/L	1.94	335-76-2	
N-MeFOSAA*	Not detected	9.7		ng/L	1.94	2355-31-9	
EtFOSAA*	Not detected	9.7		ng/L	1.94	2991-50-6	
PFOS*	130	9.7		ng/L	1.94	1763-23-1	
PFOS-LN*	72	9.7		ng/L	1.94	1763-23-1-LN	
PFOS-BR*	56	9.7		ng/L	1.94	1763-23-1-BR	
PFUnDA*	Not detected	9.7		ng/L	1.94	2058-94-8	
PFNS*	Not detected	9.7		ng/L	1.94	474511-07-4	
PFDoDA*	Not detected	9.7		ng/L	1.94	307-55-1	
PFDS*	Not detected	9.7		ng/L	1.94	335-77-3	
PFTTrDA*	Not detected	9.7		ng/L	1.94	72629-94-8	
FOSA*	Not detected	9.7		ng/L	1.94	754-91-6	
PFTeDA*	Not detected	9.7		ng/L	1.94	376-06-7	



# Analytical Laboratory Report

Lab Sample ID: S06211.04

Sample Tag: 03-PRCC-19-MID-1-107

Collected Date/Time: 08/20/2019 09:40

Matrix: Wastewater

COC Reference: 125009

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.2	IR

### Organics

24 PFAs, Method: ASTM7979-17M, Run Date: 08/23/19 19:09, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19		ng/L	1.87	375-22-4	
PFPeA*	Not detected	9.4		ng/L	1.87	2706-90-3	
4:2 FTSA*	Not detected	9.4		ng/L	1.87	757124-72-4	
PFHxA*	Not detected	9.4		ng/L	1.87	307-24-4	
PFBS*	Not detected	9.4		ng/L	1.87	375-73-5	
PFHpA*	Not detected	9.4		ng/L	1.87	375-85-9	
PFPeS*	Not detected	9.4		ng/L	1.87	2706-91-4	
6:2 FTSA*	Not detected	9.4		ng/L	1.87	27619-97-2	
PFOA*	Not detected	9.4		ng/L	1.87	335-67-1	
PFHxS*	Not detected	9.4		ng/L	1.87	355-46-4	
PFHxS-LN*	Not detected	9.4		ng/L	1.87	355-46-4-LN	
PFHxS-BR*	Not detected	9.4		ng/L	1.87	355-46-4-BR	
PFNA*	Not detected	9.4		ng/L	1.87	375-95-1	
8:2 FTSA*	Not detected	9.4		ng/L	1.87	39108-34-4	
PFHpS*	Not detected	9.4		ng/L	1.87	375-92-8	
PFDA*	Not detected	9.4		ng/L	1.87	335-76-2	
N-MeFOSAA*	Not detected	9.4		ng/L	1.87	2355-31-9	
EtFOSAA*	Not detected	9.4		ng/L	1.87	2991-50-6	
PFOS*	Not detected	9.4		ng/L	1.87	1763-23-1	
PFOS-LN*	Not detected	9.4		ng/L	1.87	1763-23-1-LN	
PFOS-BR*	Not detected	9.4		ng/L	1.87	1763-23-1-BR	
PFUnDA*	Not detected	9.4		ng/L	1.87	2058-94-8	
PFNS*	Not detected	9.4		ng/L	1.87	474511-07-4	
PFDODA*	Not detected	9.4		ng/L	1.87	307-55-1	
PFDS*	Not detected	9.4		ng/L	1.87	335-77-3	
PFTTrDA*	Not detected	9.4		ng/L	1.87	72629-94-8	
FOSA*	Not detected	9.4		ng/L	1.87	754-91-6	
PFTeDA*	Not detected	9.4		ng/L	1.87	376-06-7	



# Analytical Laboratory Report

Lab Sample ID: S06211.05

Sample Tag: 03-PRCC-19-PRIM-107

Collected Date/Time: 08/20/2019 09:42

Matrix: Wastewater

COC Reference: 125009

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.2	IR

### Organics

24 PFAs, Method: ASTM D7979-17M, Run Date: 08/23/19 19:30, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19		ng/L	1.89	375-22-4	
PFPeA*	Not detected	9.5		ng/L	1.89	2706-90-3	
4:2 FTSA*	Not detected	9.5		ng/L	1.89	757124-72-4	
PFHxA*	Not detected	9.5		ng/L	1.89	307-24-4	
PFBS*	Not detected	9.5		ng/L	1.89	375-73-5	
PFHpA*	Not detected	9.5		ng/L	1.89	375-85-9	
PFPeS*	11	9.5		ng/L	1.89	2706-91-4	
6:2 FTSA*	Not detected	9.5		ng/L	1.89	27619-97-2	
PFOA*	Not detected	9.5		ng/L	1.89	335-67-1	
PFHxS*	33	9.5		ng/L	1.89	355-46-4	
PFHxS-LN*	27	9.5		ng/L	1.89	355-46-4-LN	
PFHxS-BR*	Not detected	9.5		ng/L	1.89	355-46-4-BR	
PFNA*	Not detected	9.5		ng/L	1.89	375-95-1	
8:2 FTSA*	Not detected	9.5		ng/L	1.89	39108-34-4	
PFHpS*	Not detected	9.5		ng/L	1.89	375-92-8	
PFDA*	Not detected	9.5		ng/L	1.89	335-76-2	
N-MeFOSAA*	Not detected	9.5		ng/L	1.89	2355-31-9	
EtFOSAA*	Not detected	9.5		ng/L	1.89	2991-50-6	
PFOS*	750	9.5		ng/L	1.89	1763-23-1	
PFOS-LN*	430	9.5		ng/L	1.89	1763-23-1-LN	
PFOS-BR*	320	9.5		ng/L	1.89	1763-23-1-BR	
PFUnDA*	Not detected	9.5		ng/L	1.89	2058-94-8	
PFNS*	Not detected	9.5		ng/L	1.89	474511-07-4	
PFDODA*	Not detected	9.5		ng/L	1.89	307-55-1	
PFDS*	Not detected	9.5		ng/L	1.89	335-77-3	
PFTTrDA*	Not detected	9.5		ng/L	1.89	72629-94-8	
FOSA*	Not detected	9.5		ng/L	1.89	754-91-6	
PFTeDA*	Not detected	9.5		ng/L	1.89	376-06-7	



# Analytical Laboratory Report

Lab Sample ID: S06211.06

Sample Tag: 03-PRCC-19-Eff-164

Collected Date/Time: 08/20/2019 22:00

Matrix: Wastewater

COC Reference: 125009

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.2	IR

**Organics**

**24 PFAs, Method: ASTMD7979-17M, Run Date: 08/23/19 19:51, Analyst: JGH**

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	9.8		ng/L	1.95	2991-50-6	
PFOS*	12	9.8		ng/L	1.95	1763-23-1	
PFOS-LN*	10	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	474511-07-4	
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	



# Analytical Laboratory Report

Lab Sample ID: S06211.07

Sample Tag: 03-PRCC-19-MID-2-164

Collected Date/Time: 08/20/2019 22:02

Matrix: Wastewater

COC Reference: 125009

### Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.2	IR

### Organics

24 PFAs, Method: ASTM7979-17M, Run Date: 08/23/19 20:13, Analyst: JGH

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19		ng/L	1.87	375-22-4	
PFPeA*	Not detected	9.4		ng/L	1.87	2706-90-3	
4:2 FTSA*	Not detected	9.4		ng/L	1.87	757124-72-4	
PFHxA*	Not detected	9.4		ng/L	1.87	307-24-4	
PFBS*	Not detected	9.4		ng/L	1.87	375-73-5	
PFHpA*	Not detected	9.4		ng/L	1.87	375-85-9	
PFPeS*	Not detected	9.4		ng/L	1.87	2706-91-4	
6:2 FTSA*	Not detected	9.4		ng/L	1.87	27619-97-2	
PFOA*	Not detected	9.4		ng/L	1.87	335-67-1	
PFHxS*	Not detected	9.4		ng/L	1.87	355-46-4	
PFHxS-LN*	Not detected	9.4		ng/L	1.87	355-46-4-LN	
PFHxS-BR*	Not detected	9.4		ng/L	1.87	355-46-4-BR	
PFNA*	Not detected	9.4		ng/L	1.87	375-95-1	
8:2 FTSA*	Not detected	9.4		ng/L	1.87	39108-34-4	
PFHpS*	Not detected	9.4		ng/L	1.87	375-92-8	
PFDA*	Not detected	9.4		ng/L	1.87	335-76-2	
N-MeFOSAA*	Not detected	9.4		ng/L	1.87	2355-31-9	
EtFOSAA*	Not detected	9.4		ng/L	1.87	2991-50-6	
PFOS*	Not detected	9.4		ng/L	1.87	1763-23-1	
PFOS-LN*	Not detected	9.4		ng/L	1.87	1763-23-1-LN	
PFOS-BR*	Not detected	9.4		ng/L	1.87	1763-23-1-BR	
PFUnDA*	Not detected	9.4		ng/L	1.87	2058-94-8	
PFNS*	Not detected	9.4		ng/L	1.87	474511-07-4	
PFDODA*	Not detected	9.4		ng/L	1.87	307-55-1	
PFDS*	Not detected	9.4		ng/L	1.87	335-77-3	
PFTTrDA*	Not detected	9.4		ng/L	1.87	72629-94-8	
FOSA*	Not detected	9.4		ng/L	1.87	754-91-6	
PFTeDA*	Not detected	9.4		ng/L	1.87	376-06-7	



# Analytical Laboratory Report

Lab Sample ID: S06211.08

Sample Tag: 03-PRCC-19-MID-1-164

Collected Date/Time: 08/20/2019 22:04

Matrix: Wastewater

COC Reference: 125009

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.2	IR

**Organics**

**24 PFAs, Method: ASTM7979-17M, Run Date: 08/23/19 20:34, Analyst: JGH**

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	9.8		ng/L	1.96	2991-50-6	
PFOS*	9.9	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	474511-07-4	
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	



# Analytical Laboratory Report

Lab Sample ID: S06211.09

Sample Tag: 03-PRCC-19-PRIM-164

Collected Date/Time: 08/20/2019 22:06

Matrix: Wastewater

COC Reference: 125009

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	15ml Centrifuge Tube	None	Yes	4.2	IR

**Organics**

**24 PFAs, Method: ASTM7979-17M, Run Date: 08/23/19 20:55, Analyst: JGH**

Parameter	Result	RL	MDL	Units	Dilution	CAS#	Flags
PFBA*	Not detected	19		ng/L	1.92	375-22-4	
PFPeA*	Not detected	9.6		ng/L	1.92	2706-90-3	
4:2 FTSA*	Not detected	9.6		ng/L	1.92	757124-72-4	
PFHxA*	Not detected	9.6		ng/L	1.92	307-24-4	
PFBS*	Not detected	9.6		ng/L	1.92	375-73-5	
PFHpA*	Not detected	9.6		ng/L	1.92	375-85-9	
PFPeS*	Not detected	9.6		ng/L	1.92	2706-91-4	
6:2 FTSA*	Not detected	9.6		ng/L	1.92	27619-97-2	
PFOA*	Not detected	9.6		ng/L	1.92	335-67-1	
PFHxS*	Not detected	20		ng/L	1.92	355-46-4	X
PFHxS-LN*	Not detected	16		ng/L	1.92	355-46-4-LN	X
PFHxS-BR*	Not detected	9.6		ng/L	1.92	355-46-4-BR	
PFNA*	Not detected	9.6		ng/L	1.92	375-95-1	
8:2 FTSA*	Not detected	9.6		ng/L	1.92	39108-34-4	
PFHpS*	Not detected	9.6		ng/L	1.92	375-92-8	
PFDA*	Not detected	9.6		ng/L	1.92	335-76-2	
N-MeFOSAA*	Not detected	9.6		ng/L	1.92	2355-31-9	
EtFOSAA*	Not detected	9.6		ng/L	1.92	2991-50-6	
PFOS*	360	9.6		ng/L	1.92	1763-23-1	
PFOS-LN*	210	9.6		ng/L	1.92	1763-23-1-LN	
PFOS-BR*	140	9.6		ng/L	1.92	1763-23-1-BR	
PFUnDA*	Not detected	9.6		ng/L	1.92	2058-94-8	
PFNS*	Not detected	9.6		ng/L	1.92	474511-07-4	
PFDoDA*	Not detected	9.6		ng/L	1.92	307-55-1	
PFDS*	Not detected	9.6		ng/L	1.92	335-77-3	
PFTTrDA*	Not detected	9.6		ng/L	1.92	72629-94-8	
FOSA*	Not detected	9.6		ng/L	1.92	754-91-6	
PFTeDA*	Not detected	9.6		ng/L	1.92	376-06-7	

X-Elevated reporting limit due to matrix interference

# Merit Laboratories Login Checklist

Lab Set ID:S06211

Client:OBG02 (O'Brien & Gere Engineers, Inc.)

Project: RACER Coldwater Rd

Submitted:08/21/2019 14:35 Login User: MMC

Attention: Clifford Yantz

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

Phone: 248-477-5701 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 4.2
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 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: \_\_\_\_\_



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 Phone (517) 332-0167 Fax (517) 332-4034  
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C.O.C. PAGE # 1 OF 1

125009

**REPORT TO**

**CHAIN OF CUSTODY RECORD**

**INVOICE TO**

CONTACT NAME: Clifford Yantz  
 COMPANY: O'Brien & Gere Part of Ramboll  
 ADDRESS: 2260 E 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: KALER coldwater Rd SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schmitz  
 TURNAROUND TIME REQUIRED:  1 DAY  2 DAYS  3 DAYS  STANDARD  OTHER  
 DELIVERABLES REQUIRED:  STD  LEVEL II  LEVEL III  LEVEL IV  EDD  OTHER

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

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

# Containers & Preservatives

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 (7979)
	DATE	TIME											
06211.01	8/19/19	910	Field Blank - 081919	GL	1	X							X
.02	8/19/19	920	03-PRCC-19-Inf	ww	3	X							X
.03	8/19/19	1355	03-PRCC-19-Prim-20	ww	3	X							X
.04	8/20/19	946	03-PRCC-19-MID-1-107	ww	3	X							X
.05	8/20/19	942	03-PRCC-19-Prim-107	ww	3	X							X
.06	8/20/19	2000	03-PRCC-19-Eff-164	ww	3	X							X
.07	8/20/19	2002	03-PRCC-19-MID-2-164	ww	3	X							X
.08	8/20/19	2004	03-PRCC-19-MID-1-164	ww	3	X							X
<del>09 8/20/19 2006 03-PRCC-19-Prim-164</del>													
.09	8/20/19	2006	03-PRCC-19-Prim-164	ww	3	X							X

RELINQUISHED BY: [Signature] 086 X Sampler DATE: 8/21/19 TIME: 1135  
 RECEIVED BY: [Signature] DATE: 8/21/19 TIME: 1123  
 RELINQUISHED BY: [Signature] DATE: 8/21/19 TIME: 1422  
 RECEIVED BY: [Signature] DATE: 8/21/19 TIME: 1435

RELINQUISHED BY: DATE: TIME:  
 RECEIVED BY: DATE: TIME:  
 SEAL NO. SEAL INTACT YES  NO  INITIALS  
 SEAL NO. SEAL INTACT YES  NO  INITIALS  
 NOTES: TEMP. ON ARRIVAL: 4.2

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