October 15, 2019 Reference No. 012607

Ms. Tessy Jose
City of Detroit
Great Lakes Water Authority
Industrial Waste Control Division
303 S. Livernois Avenue
Detroit, Michigan 48209

Dear Ms. Jose:

Re: DWSD Semi Annual Report – SD6 94508
(March 2019 through August 2019)
12950 Eckles Road
Livonia, Michigan 48150
Permit No.: SD6 94508

GHD Services Inc. (GHD) is providing the attached documents for the reporting requirements of Special Discharge Permit SD6 94508 for the period of March 2019 through August 2019 for the RACER Eckles Road Site located at 12950 Eckles Road, Livonia, Michigan.

Special Discharge Permit SD6 94508 was issued in June 2011, renewed in June 2015 and June 2019, and is effective through January 31, 2020. A Permit Renewal/Reapplication form will be prepared later in 2019 for submittal to Great Lakes Water Authority (GLWA).

As previously discussed, RACER implemented a United States Environmental Protection Agency (U.S. EPA) approved remedial alternative consisting of in-situ chemical reduction (ISCR) of dissolved chromium and nickel through chemical injections into the impacted groundwater, essentially treating the groundwater in the subsurface. Full-scale ISCR injections were conducted in 2016 with follow-up targeted ISCR injections conducted in 2017. ISCR performance groundwater monitoring and evaluation were conducted through 2017 with supplemental groundwater samples collected in 2018 and 2019. A summary of groundwater sampling activities was provided to GLWA in a Memorandum dated August 30, 2019.

RACER temporarily ceased operations of the Groundwater Treatment System on December 20, 2018. The Groundwater Treatment System operations were ceased to evaluate groundwater elevations and potential future minimum dewatering requirements. RACER plans to continue to implement dewatering activities on an as-needed basis to prevent flooding until final portions of the remedial alternative can be implemented and approval to discontinue dewatering (and therefore discontinue discharge to the sanitary sewer system) can be obtained from U.S. EPA. If approval to discontinue dewatering is received from U.S. EPA then no discharge will be necessary and the existing Special Discharge Permit can be terminated.

It is noted that the schedule to obtain approval from U.S. EPA to discontinue groundwater extraction has been complicated by recent sampling results. As previously discussed, RACER collected groundwater samples to evaluate the potential presence of Per- and Polyfluoroalkyl Substances (PFAS) in groundwater at the Site. Based on detections of specific PFAS, the GWTP influent and effluent were also sampled for

the analysis of PFAS in June 2018 and August 2018. A summary of results was provided in the March 2018 to August 2018 Semi-Annual Report, and additional characterization activities were submitted to GLWA in memorandum dated August 30, 2019. A PFAS Best Management Program (BMP) Plan was submitted to GLWA in a memorandum dated March 15, 2019. Based on comments and provided by GLWA, a revised BMP was submitted to GLWA in a memorandum dated May 9, 2019. A revised Special Discharge Permit (SD6-94508) dated June 3, 2019 was issued by GLWA and is effective through January 31, 2020. The revised Special Discharge Permit included the following submittals:

Task	Target Completion Date
Summary of Laboratory Treatability Study	September 30, 2019
Summary of Groundwater Levels/Water Evaluation	September 30, 2019
Proposed Comprehensive PFAS Remedy	December 31, 2019

A summary of site characterization activities was submitted to GLWA in a memorandum dated August 30, 2019. A summary of the Additional Permeable Reactive Barrier Treatability Study was submitted on September 30, 2019 and an Area 1 Groundwater Elevation Monitoring Summary was submitted on September 30, 2019 to satisfy the special discharger permit requirements.

Section D: Reporting Requirements

- Reporting Period: July 1, 2019 to September 30, 2019.
- Dates of Sampling: April 25, 2019; April 30, 2019; May 8, 2019; May 15, 2019; May 23, 2019; May 29, 2019; June 5, 2019; and June 13, 2019. Laboratory analytical reports are attached.
- The groundwater treatment plant had a scheduled shut down for a one week period in May and for a one week period around the July 4th Holiday period.
- All samples were collected from the effluent sampling port of Tank T12.
- Total Monthly Discharges (gallons):
  - March 2019: 0
  - April 2019: 411,331
  - May 2019: 1,349,190
  - June 2019: 498,536
  - July 2019: 0
  - August 2019: 0
- Total Flow to Date (since 2000): 189,696,912 gallons.
- Signature of GHD's authorized representative who is knowledgeable of the remediation Site's discharge.

GHD certifies that the discharge complied with the permit discharge limits.

Please contact me at (248) 893-3400 if you require further information or clarification.

Sincerely,

GHD

Christopher J. Meincke, P.E.

CJM/ds/22

Encl.

cc: Dave Favero, RACER

SECTION D: REPORTING REQUIREMENTS/b) iii)
12950 Eckles Road
Livonia, MI 48150
Permit No.: SD6-94508
Maintenance Log - March 2019

Date	Inspection Visits	Changes or Replacements of Treatment System	Samples Taken	Quantites of Groundwater Discharged / Day - GAL	Notes
03/01/19	None	None			GWTP Shutdown Month of March
03/02/19	None	None			
03/03/19	None	None			
03/04/19	None	None			
03/05/19	None	None			
03/06/19	None	None			
03/07/19	None	None			
03/08/19	None	None			
03/09/19	None	None			
03/10/19	None	None			
03/11/19	None	None			
03/12/19	None	None			
03/13/19	None	None			
03/14/19	None	None			
03/15/19	None	None			
03/16/19	None	None			
03/17/19	None	None			
03/18/19	None	None			
03/19/19	None	None			
03/20/19	None	None			
03/21/19	None	None			
03/22/19	None	None			
03/23/19	None	None			
03/24/19	None	None			
03/25/19	None	None			
03/26/19	None	None			
03/27/19	None	None			
03/28/19	None	None			
03/29/19	None	None			
03/30/19	None	None			
03/31/19	None	None			
		Total Monthly Discharge (gal)		0	

SECTION D: REPORTING REQUIREMENTS/b) iii)
12950 Eckles Road
Livonia, MI 48150
Permit No.: SD6-94508
Maintenance Log - April 2019

Date	Inspection Visits	Changes or Replacements of Treatment System	Samples Taken	Quantites of Groundwater Discharged / Day - GAL	Notes
04/01/19	None	None			GWTP Shutdown Beginning of April
04/02/19	None	None			
04/03/19	None	None			
04/04/19	None	None			
04/05/19	None	None			
04/06/19	None	None			
04/07/19	None	None			
04/08/19	None	None			
04/09/19	None	None			
04/10/19	None	None			
04/11/19	None	None			
04/12/19	None	None			
04/13/19	None	None			
04/14/19	None	None			
04/15/19	None	None			
04/16/19	None	None			
04/17/19	None	None			
04/18/19	None	None			
04/19/19	None	None			
04/20/19	None	None			
04/21/19	None	None			
04/22/19	None	None			T-12 Flow Totalizer reset to zero
04/23/19	None	None		22,374	
04/24/19	None	None			No reading taken
04/25/19	None	None	WT-012607-042519-CM-001 WT-012607-042519-CM-002		No reading taken
04/26/19	None	None			No reading taken
04/27/19	None	None			No reading taken
04/28/19	None	None			No reading taken
04/29/19	None	None			No reading taken
04/30/19	None	None	WT-012607-043019-CM-001 WT-012607-043019-CM-002	388,956	
			Total Monthly Discharge (gal)	411,331	

SECTION D: REPORTING REQUIREMENTS/b) iii)
12950 Eckles Road
Livonia, MI 48150
Permit No.: SD6-94508
Maintenance Log - May 2019

Date	Inspection Visits	Changes or Replacements of Treatment System	Samples Taken	Quantites of Groundwater Discharged / Day - GAL	Notes
05/01/19	None	None		44,808	
05/02/19	None	None		62,527	
05/03/19	None	None		41,520	
05/04/19	None	None			
05/05/19	None	None			
05/06/19	None	None		154,200	
05/07/19	None	None		64,315	
05/08/19	None	None	WT-012607-050819-CM-001 WT-012607-050819-CM-002	52,538	
05/09/19	None	None		50,076	
05/10/19	None	None		48,272	
05/11/19	None	None			
05/12/19	None	None			
05/13/19	None	None		151,022	
05/14/19	None	None		43,970	
05/15/19	None	None	WT-012607-051519-CM-001 WT-012607-051519-CM-002	56,613	
05/16/19	None	None		32,374	
05/17/19	None	None		62,458	
05/18/19	None	None			
05/19/19	None	None			
05/20/19	None	None		1,096	
05/21/19	None	None			System shutdown - main control fuse
05/22/19	None	None		53,311	Fuse Replaced, System Restarted T-12 Flow Meter issue - estimated volume
05/23/19	None	None	WT-012607-052319-CM-001 EB-012607-052319-CM-002 WT-012607-052319-CM-003	45,748	
05/24/19	None	None		50,553	
05/25/19	None	None			
05/26/19	None	None			
05/27/19	None	None			Memorial Day
05/28/19	None	None		182,379	
05/29/19	None	None	WT-012607-052919-CM-001 W-012607-052919-CM-002 EB-012607-052919-CM-003 WT-012607-052919-CM-004	62,796	
05/30/19	None	None		50,304	
05/31/19	None	None		38,307	
			Total Monthly Discharge (gal)	1,349,190	

SECTION D: REPORTING REQUIREMENTS/b) iii)
12950 Eckles Road
Livonia, MI 48150
Permit No.: SD6-94508
Maintenance Log - June 2019

Date	Inspection Visits	Changes or Replacements of Treatment System	Samples Taken	Quantites of Groundwater Discharged / Day - GAL	Notes
06/01/19	None	None			
06/02/19	None	None			
06/03/19	None	None		16,550	
06/04/19	None	None			
06/05/19	None	None	WT-012607-060519-CM-001 WT-012607-060519-CM-002 W-012607-060519-CM-003	65,610	
06/06/19	None	None		45,985	
06/07/19	None	None		52,900	
06/08/19	None	None			
06/09/19	None	None			
06/10/19	None	None		128,267	
06/11/19	None	None		59,427	
06/12/19	None	None		48,853	
06/13/19	None	None	WT-012607-061319-CM-001 EB-012607-061319-CM-002 WT-012607-061319-CM-003	42,136	
06/14/19	None	None		38,808	GWTP Shutdown to Monitor GW Elevations
06/15/19	None	None			
06/16/19	None	None			
06/17/19	None	None			
06/18/19	None	None			
06/19/19	None	None			
06/20/19	None	None			
06/21/19	None	None			
06/22/19	None	None			
06/23/19	None	None			
06/24/19	None	None			
06/25/19	None	None			
06/26/19	None	None			
06/27/19	None	None			
06/28/19	None	None			
06/29/19	None	None			
06/30/19	None	None			
			Total Monthly Discharge (gal)	498,536	

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12950 Eckles Road
Livonia, MI 48150
Permit No.: SD6-94508
Maintenance Log - July 2019

Date	Inspection Visits	Changes or Replacements of Treatment System	Samples Taken	Quantites of Groundwater Discharged / Day - GAL	Notes
07/01/19	None	None			GWTP Shutdown Month of July
07/02/19	None	None			
07/03/19	None	None			
07/04/19	None	None			
07/05/19	None	None			
07/06/19	None	None			
07/07/19	None	None			
07/08/19	None	None			
07/09/19	None	None			
07/10/19	None	None			
07/11/19	None	None			
07/12/19	None	None			
07/13/19	None	None			
07/14/19	None	None			
07/15/19	None	None			
07/16/19	None	None			
07/17/19	None	None			
07/18/19	None	None			
07/19/19	None	None			
07/20/19	None	None			
07/21/19	None	None			
07/22/19	None	None			
07/23/19	None	None			
07/24/19	None	None			
07/25/19	None	None			
07/26/19	None	None			
07/27/19	None	None			
07/28/19	None	None			
07/29/19	None	None			
07/30/19	None	None			
07/31/19	None	None			
		Total Monthly Discharge (gal)		0	

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12950 Eckles Road
Livonia, MI 48150
Permit No.: SD6-94508
Maintenance Log - August 2019

Date	Inspection Visits	Changes or Replacements of Treatment System	Samples Taken	Quantites of Groundwater Discharged / Day - GAL	Notes
08/01/19	None	None			GWTP Shutdown Month of August
08/02/19	None	None			
08/03/19	None	None			
08/04/19	None	None			
08/05/19	None	None			
08/06/19	None	None			
08/07/19	None	None			
08/08/19	None	None			
08/09/19	None	None			
08/10/19	None	None			
08/11/19	None	None			
08/12/19	None	None			
08/13/19	None	None			
08/14/19	None	None			
08/15/19	None	None			
08/16/19	None	None			
08/17/19	None	None			
08/18/19	None	None			
08/19/19	None	None			
08/20/19	None	None			
08/21/19	None	None			
08/22/19	None	None			
08/23/19	None	None			
08/24/19	None	None			
08/25/19	None	None			
08/26/19	None	None			
08/27/19	None	None			
08/28/19	None	None			
08/29/19	None	None			
08/30/19	None	None			

Total Monthly Discharge (gal) 0

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12950 Eckles Road
Livonia, MI 48150
Permit No.: SD6-94508
Maintenance Log- ISCO Sample Analyses - March 2019

	Permit Limits	5-11.5	3.98 mg/L	N/A	2.77 mg/L	
DATE	SAMPLE DATE	pH	(mg/L) NICKEL	(mg/L) HEX Cr	(mg/L) TOTAL Cr	NOTES
3/1/2019	3/1/2019					System shut down for March
3/2/2019	3/2/2019					
3/3/2019	3/3/2019					
3/4/2019	3/4/2019					
3/5/2019	3/5/2019					
3/6/2019	3/6/2019					
3/7/2019	3/7/2019					
3/8/2019	3/8/2019					
3/9/2019	3/9/2019					
3/10/2019	3/10/2019					
3/11/2019	3/11/2019					
3/12/2019	3/12/2019					
3/13/2019	3/13/2019					
3/14/2019	3/14/2019					
3/15/2019	3/15/2019					
3/16/2019	3/16/2019					
3/17/2019	3/17/2019					
3/18/2019	3/18/2019					
3/19/2019	3/19/2019					
3/20/2019	3/20/2019					
3/21/2019	3/21/2019					
3/22/2019	3/22/2019					
3/23/2019	3/23/2019					
3/24/2019	3/24/2019					
3/25/2019	3/25/2019					
3/26/2019	3/26/2019					
3/27/2019	3/27/2019					
3/28/2019	3/28/2019					
3/29/2019	3/29/2019					
3/30/2019	3/30/2019					
3/31/2019	3/31/2019					

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12950 Eckles Road
Livonia, MI 48150
Permit No.: SD6-94508
Maintenance Log- ISCO Sample Analyses - April 2019

	Permit Limits	5-11.5	3.98 mg/L	N/A	2.77 mg/L	
DATE	SAMPLE DATE	pH	(mg/L) NICKEL	(mg/L) HEX Cr	(mg/L) TOTAL Cr	NOTES
4/1/2019	4/1/2019					System shut down for beginning of April
4/2/2019	4/2/2019					
4/3/2019	4/3/2019					
4/4/2019	4/4/2019					
4/5/2019	4/5/2019					
4/6/2019	4/6/2019					
4/7/2019	4/7/2019					
4/8/2019	4/8/2019					
4/9/2019	4/9/2019					
4/10/2019	4/10/2019					
4/11/2019	4/11/2019					
4/12/2019	4/12/2019					
4/13/2019	4/13/2019					
4/14/2019	4/14/2019					
4/15/2019	4/15/2019					
4/16/2019	4/16/2019					
4/17/2019	4/17/2019					
4/18/2019	4/18/2019					
4/19/2019	4/19/2019					
4/20/2019	4/20/2019					
4/21/2019	4/21/2019					
4/22/2019	4/22/2019					
4/23/2019	4/23/2019	7.37				
4/24/2019	4/24/2019	7.39	0.58	0.70	0.80	
4/25/2019	4/25/2019	7.32	0.49	0.90	1.00	
4/26/2019	4/26/2019	7.32	0.51	0.60	0.70	
4/27/2019	4/27/2019					
4/28/2019	4/28/2019					
4/29/2019	4/29/2019	7.31	0.48	0.70	0.80	
4/30/2019	4/30/2019	7.31				

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12950 Eckles Road
Livonia, MI 48150
Permit No.: SD6-94508
Maintenance Log- ISCO Sample Analyses - May 2019

	Permit Limits	5-11.5	3.98 mg/L	N/A	2.77 mg/L	
DATE	SAMPLE DATE	pH	(mg/L) NICKEL	(mg/L) HEX Cr	(mg/L) TOTAL Cr	NOTES
5/1/2019	5/1/2019	7.32	0.39	0.50	0.60	
5/2/2019	5/2/2019	7.30	0.32	0.50	0.60	
5/3/2019	5/3/2019	7.33	0.37	0.60	0.70	
5/4/2019	5/4/2019					
5/5/2019	5/5/2019					
5/6/2019	5/6/2019	7.31	0.38	0.60	0.70	
5/7/2019	5/7/2019	7.34	0.38	0.60	0.70	
5/8/2019	5/8/2019	7.31				
5/9/2019	5/9/2019	7.29	0.40	0.60	0.70	
5/10/2019	5/10/2019	7.31	0.30	0.60	0.70	
5/11/2019	5/11/2019					
5/12/2019	5/12/2019					
5/13/2019	5/13/2019	7.31	0.31	0.60	0.70	
5/14/2019	5/14/2019	7.31	0.40	0.60	0.70	
5/15/2019	5/15/2019	7.31				
5/16/2019	5/16/2019	7.33	0.38	0.70	0.80	
5/17/2019	5/17/2019	7.32				
5/18/2019	5/18/2019					
5/19/2019	5/19/2019					
5/20/2019	5/20/2019	7.25				
5/21/2019	5/21/2019					
5/22/2019	5/22/2019	7.29				
5/23/2019	5/23/2019	7.30	0.41	0.60	0.70	
5/24/2019	5/24/2019	7.32	0.47	0.50	0.60	
5/25/2019	5/25/2019					
5/26/2019	5/26/2019					
5/27/2019	5/27/2019					
5/28/2019	5/28/2019	7.30	0.43	0.70	0.80	
5/29/2019	5/29/2019	7.31	0.43	0.60	0.70	
5/30/2019	5/30/2019	7.31				
5/31/2019	5/31/2019	7.31				

SECTION D: REPORTING REQUIREMENTS/b) iii)
12950 Eckles Road
Livonia, MI 48150
Permit No.: SD6-94508
Maintenance Log- ISCO Sample Analyses - June 2019

	Permit Limits	5-11.5	3.98 mg/L	N/A	2.77 mg/L	
DATE	SAMPLE DATE	pH	(mg/L) NICKEL	(mg/L) HEX Cr	(mg/L) TOTAL Cr	NOTES
6/1/2019	6/1/2019					
6/2/2019	6/2/2019					
6/3/2019	6/3/2019	7.27	0.56	0.50	0.60	
6/4/2019	6/4/2019	7.30	0.41	0.70	0.80	
6/5/2019	6/5/2019	7.22				
6/6/2019	6/6/2019	7.29	0.41	0.70	0.80	
6/7/2019	6/7/2019	7.27				
6/8/2019	6/8/2019					
6/9/2019	6/9/2019					
6/10/2019	6/10/2019	7.28	0.39	0.70	0.80	
6/11/2019	6/11/2019	7.27	0.39	0.60	0.70	
6/12/2019	6/12/2019	7.27				
6/13/2019	6/13/2019	7.27	0.59	0.70	0.80	
6/14/2019	6/14/2019	7.30				GWTP Shutdown to Monitor GW Elevations
6/15/2019	6/15/2019					
6/16/2019	6/16/2019					
6/17/2019	6/17/2019					
6/18/2019	6/18/2019					
6/19/2019	6/19/2019					
6/20/2019	6/20/2019					
6/21/2019	6/21/2019					
6/22/2019	6/22/2019					
6/23/2019	6/23/2019					
6/24/2019	6/24/2019					
6/25/2019	6/25/2019					
6/26/2019	6/26/2019					
6/27/2019	6/27/2019					
6/28/2019	6/28/2019					
6/29/2019	6/29/2019					
6/30/2019	6/30/2019					

SECTION D: REPORTING REQUIREMENTS/b) iii)
12950 Eckles Road
Livonia, MI 48150
Permit No.: SD6-94508
Maintenance Log- ISCO Sample Analyses - July 2019

	Permit Limits	5-11.5	3.98 mg/L	N/A	2.77 mg/L	
DATE	SAMPLE DATE	pH	(mg/L) NICKEL	(mg/L) HEX Cr	(mg/L) TOTAL Cr	NOTES
7/1/2019	7/1/2019					GWTP Shut down month of July
7/2/2019	7/2/2019					
7/3/2019	7/3/2019					
7/4/2019	7/4/2019					
7/5/2019	7/5/2019					
7/6/2019	7/6/2019					
7/7/2019	7/7/2019					
7/8/2019	7/8/2019					
7/9/2019	7/9/2019					
7/10/2019	7/10/2019					
7/11/2019	7/11/2019					
7/12/2019	7/12/2019					
7/13/2019	7/13/2019					
7/14/2019	7/14/2019					
7/15/2019	7/15/2019					
7/16/2019	7/16/2019					
7/17/2019	7/17/2019					
7/18/2019	7/18/2019					
7/19/2019	7/19/2019					
7/20/2019	7/20/2019					
7/21/2019	7/21/2019					
7/22/2019	7/22/2019					
7/23/2019	7/23/2019					
7/24/2019	7/24/2019					
7/25/2019	7/25/2019					
7/26/2019	7/26/2019					
7/27/2019	7/27/2019					
7/28/2019	7/28/2019					
7/29/2019	7/29/2019					
7/30/2019	7/30/2019					
7/31/2019	7/31/2019					

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12950 Eckles Road
Livonia, MI 48150
Permit No.: SD6-94508
Maintenance Log- ISCO Sample Analyses - August 2019

	Permit Limits	5-11.5	3.98 mg/L	N/A	2.77 mg/L	
DATE	SAMPLE DATE	pH	(mg/L) NICKEL	(mg/L) HEX Cr	(mg/L) TOTAL Cr	NOTES
8/1/2019	8/1/2019					GWTP Shut down month of August
8/2/2019	8/2/2019					
8/3/2019	8/3/2019					
8/4/2019	8/4/2019					
8/5/2019	8/5/2019					
8/6/2019	8/6/2019					
8/7/2019	8/7/2019					
8/8/2019	8/8/2019					
8/9/2019	8/9/2019					
8/10/2019	8/10/2019					
8/11/2019	8/11/2019					
8/12/2019	8/12/2019					
8/13/2019	8/13/2019					
8/14/2019	8/14/2019					
8/15/2019	8/15/2019					
8/16/2019	8/16/2019					
8/17/2019	8/17/2019					
8/18/2019	8/18/2019					
8/19/2019	8/19/2019					
8/20/2019	8/20/2019					
8/21/2019	8/21/2019					
8/22/2019	8/22/2019					
8/23/2019	8/23/2019					
8/24/2019	8/24/2019					
8/25/2019	8/25/2019					
8/26/2019	8/26/2019					
8/27/2019	8/27/2019					
8/28/2019	8/28/2019					
8/29/2019	8/29/2019					
8/30/2019	8/30/2019					
8/31/2019	8/31/2019					

Attachment 1
April 25, 2019 Samples
WT-012607-042519-CM-001 (effluent)
WT-012607-042519-CM-002 (effluent)
Laboratory Analytical Reports

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-111607-1
Client Project/Site: 12607, RACER Eckles Rd

For:
GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle

Denise D Heckler

Authorized for release by:
5/13/2019 8:22:53 AM

Denise Heckler, Project Manager II
(330)966-9477
denise.heckler@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 240-111607-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-111607-1

Comments
No additional comments.

Receipt
The sample was received on 4/26/2019 10:15 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2º C.

GC Semi VOA
Method(s) 608.3: The following samples required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: WT-012607-042519-CM-001 (240-111607-1).4114491, 3800132, 4077785.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method(s) 200.7 Rev 4.4, 6010B: Some requested practical quantitation limits (PQLs) on the following samples fall below the laboratory's verified standard quantitation limit: WT-012607-042519-CM-001 (240-111607-1). The continuing calibration blanks and method blanks may not support the lower PQL.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method(s) 3520C, 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-379071.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111607-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111607-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-111607-1	WT-012607-042519-CM-001	Water	04/25/19 16:45	04/26/19 10:15

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111607-1

Client Sample ID: WT-012607-042519-CM-001 — Lab Sample ID: 240-111607-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chromium	1.7		0.050		mg/L	1		200.7 Rev 4.4	Total Recoverable
Nickel	0.95		0.010		mg/L	1		200.7 Rev 4.4	Total Recoverable
Cr (VI)	1.2		0.050		mg/L	10		3500-Cr B-2009	Total/NA
Total Suspended Solids	57		4.0		mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111607-1

Method	Method Description	Protocol	Laboratory
608.3	Polychlorinated Biphenyls (PCBs) (GC)	40CFR136A	TAL CAN
200.7 Rev 4.4	Metals (ICP)	EPA	TAL CAN
245.1	Mercury (CVAA)	EPA	TAL CAN
1664A	HEM and SGT-HEM	1664A	TAL CAN
3500-Cr B-2009	Chromium, Hexavalent	SM	TAL CAN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL CAN
200.7	Preparation, Total Recoverable Metals	EPA	TAL CAN
245.1	Preparation, Mercury	EPA	TAL CAN
608	Liquid-Liquid Extraction (Continuous)	40CFR136A	TAL CAN

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111607-1

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Client Sample ID: WT-012607-042519-CM-001
Date Collected: 04/25/19 16:45
Date Received: 04/26/19 10:15

Lab Sample ID: 240-111607-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.098	U	0.098		ug/L		05/01/19 09:24	05/03/19 08:34	1
Aroclor-1221	0.098	U	0.098		ug/L		05/01/19 09:24	05/03/19 08:34	1
Aroclor-1232	0.098	U	0.098		ug/L		05/01/19 09:24	05/03/19 08:34	1
Aroclor-1242	0.098	U	0.098		ug/L		05/01/19 09:24	05/03/19 08:34	1
Aroclor-1248	0.098	U	0.098		ug/L		05/01/19 09:24	05/03/19 08:34	1
Aroclor-1254	0.098	U	0.098		ug/L		05/01/19 09:24	05/03/19 08:34	1
Aroclor-1260	0.098	U	0.098		ug/L		05/01/19 09:24	05/03/19 08:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*48*		*10 - 114*	*05/01/19 09:24*	*05/03/19 08:34*	*1*
Tetrachloro-m-xylene	*54*		*15 - 131*	*05/01/19 09:24*	*05/03/19 08:34*	*1*

Client Sample Results

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111607-1

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Client Sample ID: WT-012607-042519-CM-001
Date Collected: 04/25/19 16:45
Date Received: 04/26/19 10:15

Lab Sample ID: 240-111607-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium	**1.7**		0.050		mg/L		04/29/19 14:00	04/30/19 20:55	1
Nickel	**0.95**		0.010		mg/L		04/29/19 14:00	04/30/19 20:55	1
Lead	0.050	U	0.050		mg/L		04/29/19 14:00	04/30/19 20:55	1
Zinc	0.020	U	0.020		mg/L		04/29/19 14:00	04/30/19 20:55	1

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111607-1

Method: 245.1 - Mercury (CVAA)

Client Sample ID: WT-012607-042519-CM-001
Date Collected: 04/25/19 16:45
Date Received: 04/26/19 10:15

Lab Sample ID: 240-111607-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020		mg/L		04/29/19 12:00	05/01/19 14:01	1

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111607-1

General Chemistry

Client Sample ID: WT-012607-042519-CM-001
Date Collected: 04/25/19 16:45
Date Received: 04/26/19 10:15

Lab Sample ID: 240-111607-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
HEM	4.8	U	4.8		mg/L			05/10/19 09:25	1
Cr (VI)	**1.2**		0.050		mg/L			04/26/19 13:35	10
Total Suspended Solids	**57**		4.0		mg/L			05/01/19 13:13	1

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111607-1

GC Semi VOA

Prep Batch: 379071

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111607-1	WT-012607-042519-CM-001	Total/NA	Water	608	
MB 240-379071/21-A	Method Blank	Total/NA	Water	608	
LCS 240-379071/22-A	Lab Control Sample	Total/NA	Water	608	

Analysis Batch: 379440

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111607-1	WT-012607-042519-CM-001	Total/NA	Water	608.3	379071
MB 240-379071/21-A	Method Blank	Total/NA	Water	608.3	379071
LCS 240-379071/22-A	Lab Control Sample	Total/NA	Water	608.3	379071

Metals

Prep Batch: 378619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111607-1	WT-012607-042519-CM-001	Total Recoverable	Water	200.7	
MB 240-378619/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 240-378619/2-A	Lab Control Sample	Total Recoverable	Water	200.7	

Prep Batch: 378626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111607-1	WT-012607-042519-CM-001	Total/NA	Water	245.1	
MB 240-378626/1-A	Method Blank	Total/NA	Water	245.1	
LCS 240-378626/2-A	Lab Control Sample	Total/NA	Water	245.1	

Analysis Batch: 378941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111607-1	WT-012607-042519-CM-001	Total Recoverable	Water	200.7 Rev 4.4	378619
MB 240-378619/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	378619
LCS 240-378619/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	378619

Analysis Batch: 379143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111607-1	WT-012607-042519-CM-001	Total/NA	Water	245.1	378626
MB 240-378626/1-A	Method Blank	Total/NA	Water	245.1	378626
LCS 240-378626/2-A	Lab Control Sample	Total/NA	Water	245.1	378626

General Chemistry

Analysis Batch: 378456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111607-1	WT-012607-042519-CM-001	Total/NA	Water	3500-Cr B-2009	
MB 240-378456/3	Method Blank	Total/NA	Water	3500-Cr B-2009	
LCS 240-378456/4	Lab Control Sample	Total/NA	Water	3500-Cr B-2009	

Analysis Batch: 379148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111607-1	WT-012607-042519-CM-001	Total/NA	Water	SM 2540D	
MB 240-379148/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 240-379148/2	Lab Control Sample	Total/NA	Water	SM 2540D	

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111607-1

General Chemistry

Analysis Batch: 380621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111607-1	WT-012607-042519-CM-001	Total/NA	Water	1664A	
MB 240-380621/1	Method Blank	Total/NA	Water	1664A	
LCS 240-380621/2	Lab Control Sample	Total/NA	Water	1664A	

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 240-379071/21-A
Matrix: Water
Analysis Batch: 379440

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 379071

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.10	U	0.10		ug/L		05/01/19 09:24	05/03/19 07:56	1
Aroclor-1221	0.10	U	0.10		ug/L		05/01/19 09:24	05/03/19 07:56	1
Aroclor-1232	0.10	U	0.10		ug/L		05/01/19 09:24	05/03/19 07:56	1
Aroclor-1242	0.10	U	0.10		ug/L		05/01/19 09:24	05/03/19 07:56	1
Aroclor-1248	0.10	U	0.10		ug/L		05/01/19 09:24	05/03/19 07:56	1
Aroclor-1254	0.10	U	0.10		ug/L		05/01/19 09:24	05/03/19 07:56	1
Aroclor-1260	0.10	U	0.10		ug/L		05/01/19 09:24	05/03/19 07:56	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*85*		*10 - 114*	*05/01/19 09:24*	*05/03/19 07:56*	*1*
Tetrachloro-m-xylene	*64*		*15 - 131*	*05/01/19 09:24*	*05/03/19 07:56*	*1*

Lab Sample ID: LCS 240-379071/22-A
Matrix: Water
Analysis Batch: 379440

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 379071

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor-1016			2.50	1.67		ug/L		67	50 - 140		
Aroclor-1260			2.50	2.20		ug/L		88	8 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*86*		*10 - 114*
Tetrachloro-m-xylene	*67*		*15 - 131*

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 240-378619/1-A
Matrix: Water
Analysis Batch: 378941

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 378619

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.050	U	0.050		mg/L		04/29/19 14:00	04/30/19 18:50	1
Nickel	0.010	U	0.010		mg/L		04/29/19 14:00	04/30/19 18:50	1
Lead	0.050	U	0.050		mg/L		04/29/19 14:00	04/30/19 18:50	1
Zinc	0.020	U	0.020		mg/L		04/29/19 14:00	04/30/19 18:50	1

Lab Sample ID: LCS 240-378619/2-A
Matrix: Water
Analysis Batch: 378941

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 378619

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium			0.200	0.192		mg/L		96	85 - 115		
Nickel			0.500	0.499		mg/L		100	85 - 115		
Lead			0.500	0.488		mg/L		98	85 - 115		
Zinc			0.500	0.509		mg/L		102	85 - 115		

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 240-378626/1-A
Matrix: Water
Analysis Batch: 379143

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 378626

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020		mg/L		04/29/19 12:00	05/01/19 13:03	1

Lab Sample ID: LCS 240-378626/2-A
Matrix: Water
Analysis Batch: 379143

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 378626

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.00500	0.00515		mg/L		103	85 - 115		

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 240-380621/1
Matrix: Water
Analysis Batch: 380621

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
HEM	5.0	U	5.0		mg/L			05/10/19 09:25	1

Lab Sample ID: LCS 240-380621/2
Matrix: Water
Analysis Batch: 380621

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HEM			40.0	33.70		mg/L		84	78 - 114		

Method: 3500-Cr B-2009 - Chromium, Hexavalent

Lab Sample ID: MB 240-378456/3
Matrix: Water
Analysis Batch: 378456

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0050	U	0.0050		mg/L			04/26/19 11:02	1

Lab Sample ID: LCS 240-378456/4
Matrix: Water
Analysis Batch: 378456

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Cr (VI)			0.250	0.276		mg/L		110	80 - 123		

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 240-379148/1
Matrix: Water
Analysis Batch: 379148

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	4.0	U	4.0		mg/L			05/01/19 13:13	1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCS 240-379148/2
Matrix: Water
Analysis Batch: 379148

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	75.7	78.0		mg/L		103	64 - 120

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111607-1

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	DCBP1 (10-114)	TCX1 (15-131)								
240-111607-1	WT-012607-042519-CM-001	48	54								
LCS 240-379071/22-A	Lab Control Sample	86	67								
MB 240-379071/21-A	Method Blank	85	64								

Surrogate Legend

DCBP = DCB Decachlorobiphenyl
TCX = Tetrachloro-m-xylene

Lab Chronicle

Client: GHD Services Inc.
Job ID: 240-111607-1
Project/Site: 12607, RACER Eckles Rd

Client Sample ID: WT-012607-042519-CM-001
Lab Sample ID: 240-111607-1

Date Collected: 04/25/19 16:45
Matrix: Water
Date Received: 04/26/19 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			379071	05/01/19 09:24	BMB	TAL CAN
Total/NA	Analysis	608.3		1	379440	05/03/19 08:34	LSH	TAL CAN
Total Recoverable	Prep	200.7			378619	04/29/19 14:00	SLD	TAL CAN
Total Recoverable	Analysis	200.7 Rev 4.4		1	378941	04/30/19 20:55	RKT	TAL CAN
Total/NA	Prep	245.1			378626	04/29/19 12:00	SLD	TAL CAN
Total/NA	Analysis	245.1		1	379143	05/01/19 14:01	AJC	TAL CAN
Total/NA	Analysis	1664A		1	380621	05/10/19 09:25	AMT	TAL CAN
Total/NA	Analysis	3500-Cr B-2009		10	378456	04/26/19 13:35	JESW	TAL CAN
Total/NA	Analysis	SM 2540D		1	379148	05/01/19 13:13	ACR	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-111607-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	04-30-19 *
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

MICHIGAN 190 2.4/C2.2

Chain of Custody Record 312866

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Chris Meincke	Site Contact:	Date: 4-25-19	COC No:
Company Name: GHD Services	Tel/Fax:	Lab Contact: D. Heckler	Carrier: Fedex	____ of ____ COCs
Address: 26850 Haggerty Rd	Analysis Turnaround Time			Sampler:
City/State/Zip: Farmington Hills, MI 48331	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 248-893-3400	TAT if different from Below ____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: RACER GWTP	☐ 1 week			
Site: Eckles Rd Site	☐ 2 days			Job / SDG No.:
PO# 012607-T01419-03	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PCBs	HEM	Metals	TSS, Cr VI	Sample Specific Notes:
WT-012607-042519-CM-001	4-25-19	16:45	G	WT	6			X	X	X	X	

240-111607 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: ____ Corr'd: ____ Therm ID No.: ____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	GHD	4-25-19 17:15	[signature]	ETA	4-26-19 1015
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

5/13/2019

TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 111607
Canton Facility

Client GHD Site Name _____ Cooler unpacked by: Ryan Cribley

Cooler Received on 4-26-19 Opened on 4-26-19 1015

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____

Packing material used: (Bubble Wrap) Foam (Plastic Bag) None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **-0.2** °C) Observed Cooler Temp. 2.4 °C Corrected Cooler Temp. 2.2 °C
   IR GUN #36 (CF **+0.7**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 (Yes) No
   -Were the seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   -Were tamper/custody seals intact and uncompromised? (Yes) No NA
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes (No)
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels be reconciled with the COC? (Yes) No
9. Were correct bottle(s) used for the test(s) indicated? (Yes) No
10. Sufficient quantity received to perform indicated analyses? (Yes) No
11. Are these work share samples? Yes (No)
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? (Yes) No NA pH Strip Lot# **HC984738**
13. Were VOAs on the COC? Yes (No)
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No (NA)
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes (No)
16. Was a LL Hg or Me Hg trip blank present? _____ Yes (No)

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: RC

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
WT-012607-042519-CM-001	240-111607-B-1	Plastic 500ml - with Nitric Acid	<2	_____	_____
WT-012607-042519-CM-001	240-111607-E-1	Amber Glass 1 liter - Sulfuric Acid	_____	_____	_____
WT-012607-042519-CM-001	240-111607-F-1	Amber Glass 1 liter - Sulfuric Acid	_____	_____	_____

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-111629-1
Client Project/Site: 12607, RACER Eckles Rd

For:
GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle

Denise D Heckler

Authorized for release by:
5/17/2019 9:07:38 AM

Denise Heckler, Project Manager II
(330)966-9477
denise.heckler@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111629-1

Job ID: 240-111629-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-111629-1

Comments
No additional comments.

Receipt
The sample was received on 4/26/2019 10:15 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0º C.

LCMS
Method(s) 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for M2-4:2 FTS in the following sample: WT-012607-042519-CM-002 (240-111629-1). The sample was re-analyzed with concurring results. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-293042.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111629-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
B	Compound was found in the blank and sample.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111629-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-111629-1	WT-012607-042519-CM-002	Water	04/25/19 16:40	04/26/19 10:15

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111629-1

Client Sample ID: WT-012607-042519-CM-002

Lab Sample ID: 240-111629-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	10	B	1.7	0.29	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.2		1.7	0.41	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.7		1.7	0.48	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.81	J	1.7	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	5.5		1.7	0.71	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.1	J	1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.2	I B	1.7	0.14	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	1.8	I	1.7	0.16	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	100	I	1.7	0.45	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.3	J I	1.7	0.25	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111629-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Method: 537 (modified) - Fluorinated Alkyl Substances

Client Sample ID: WT-012607-042519-CM-002
Date Collected: 04/25/19 16:40
Date Received: 04/26/19 10:15

Lab Sample ID: 240-111629-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**10**	**B**	1.7	0.29	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluoropentanoic acid (PFPeA)	**3.2**		1.7	0.41	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluorohexanoic acid (PFHxA)	**1.7**		1.7	0.48	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluoroheptanoic acid (PFHpA)	**0.81**	**J**	1.7	0.21	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluorooctanoic acid (PFOA)	**5.5**		1.7	0.71	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluorononanoic acid (PFNA)	1.7	U	1.7	0.22	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluorodecanoic acid (PFDA)	1.7	U	1.7	0.26	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluoroundecanoic acid (PFUnA)	1.7	U	1.7	0.91	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluorododecanoic acid (PFDoA)	1.7	U	1.7	0.46	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluorotridecanoic acid (PFTriA)	1.7	U	1.7	1.1	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluorotetradecanoic acid (PFTeA)	1.7	U	1.7	0.24	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluorobutanesulfonic acid (PFBS)	**1.1**	**J**	1.7	0.17	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluorohexanesulfonic acid (PFHxS)	**6.2**	**I B**	1.7	0.14	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluoroheptanesulfonic Acid (PFHpS)	**1.8**	**I**	1.7	0.16	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluorodecanesulfonic acid (PFDS)	1.7	U	1.7	0.27	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluorooctanesulfonic acid (PFOS)	**100**	**I**	1.7	0.45	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluorooctanesulfonamide (FOSA)	1.7	U	1.7	0.29	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluoropentanesulfonic acid (PFPeS)	**1.3**	**J I**	1.7	0.25	ng/L		05/08/19 07:08	05/14/19 15:40	1
Perfluorononanesulfonic acid (PFNS)	1.7	U	1.7	0.13	ng/L		05/08/19 07:08	05/14/19 15:40	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	17	U	17	2.6	ng/L		05/08/19 07:08	05/14/19 15:40	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	17	U	17	1.6	ng/L		05/08/19 07:08	05/14/19 15:40	1
4:2 FTS	17	U	17	4.3	ng/L		05/08/19 07:08	05/14/19 15:40	1
8:2 FTS	17	U	17	1.7	ng/L		05/08/19 07:08	05/14/19 15:40	1
6:2 FTS	17	U	17	1.7	ng/L		05/08/19 07:08	05/14/19 15:40	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*94*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
13C4 PFBA	*79*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
13C2 PFHxA	*91*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
13C4 PFOA	*100*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
13C5 PFNA	*116*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
13C2 PFDA	*117*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
13C2 PFUnA	*115*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
13C2 PFDoA	*115*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
13C2 PFTeDA	*105*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
13C3 PFBS	*94*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
18O2 PFHxS	*104*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
13C4 PFOS	*101*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
13C4 PFHpA	*105*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
13C5 PFPeA	*84*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
d3-NMeFOSAA	*131*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
d5-NEtFOSAA	*113*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
M2-8:2 FTS	*127*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
M2-4:2 FTS	*164*	*	*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*
M2-6:2 FTS	*125*		*25 - 150*	*05/08/19 07:08*	*05/14/19 15:40*	*1*

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111629-1

LCMS

Prep Batch: 293042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111629-1	WT-012607-042519-CM-002	Total/NA	Water	3535	
MB 320-293042/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-293042/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-293042/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 294368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111629-1	WT-012607-042519-CM-002	Total/NA	Water	537 (modified)	293042
MB 320-293042/1-A	Method Blank	Total/NA	Water	537 (modified)	293042
LCS 320-293042/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	293042
LCSD 320-293042/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	293042

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-293042/1-A
Matrix: Water
Analysis Batch: 294368

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 293042

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.707	J	2.0	0.35	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluoropentanoic acid (PFPeA)	2.0	U	2.0	0.49	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluorohexanoic acid (PFHxA)	2.0	U	2.0	0.58	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluoroheptanoic acid (PFHpA)	2.0	U	2.0	0.25	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluorooctanoic acid (PFOA)	2.0	U	2.0	0.85	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.27	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.31	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.55	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluorotridecanoic acid (PFTriA)	2.0	U	2.0	1.3	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.29	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.0	0.20	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluorohexanesulfonic acid (PFHxS)	0.315	J	2.0	0.17	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.32	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluorooctanesulfonic acid (PFOS)	2.0	U	2.0	0.54	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluorooctanesulfonamide (FOSA)	2.0	U	2.0	0.35	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluoropentanesulfonic acid (PFPeS)	2.0	U	2.0	0.30	ng/L		05/08/19 07:08	05/14/19 13:27	1
Perfluorononanesulfonic acid (PFNS)	2.0	U	2.0	0.16	ng/L		05/08/19 07:08	05/14/19 13:27	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.1	ng/L		05/08/19 07:08	05/14/19 13:27	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9	ng/L		05/08/19 07:08	05/14/19 13:27	1
4:2 FTS	20	U	20	5.2	ng/L		05/08/19 07:08	05/14/19 13:27	1
8:2 FTS	20	U	20	2.0	ng/L		05/08/19 07:08	05/14/19 13:27	1
6:2 FTS	20	U	20	2.0	ng/L		05/08/19 07:08	05/14/19 13:27	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*83*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
13C4 PFBA	*90*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
13C2 PFHxA	*94*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
13C4 PFOA	*96*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
13C5 PFNA	*95*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
13C2 PFDA	*102*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
13C2 PFUnA	*100*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
13C2 PFDoA	*98*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
13C2 PFTeDA	*96*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
13C3 PFBS	*90*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
18O2 PFHxS	*85*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
13C4 PFOS	*91*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
13C4 PFHpA	*90*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
13C5 PFPeA	*93*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
d3-NMeFOSAA	*95*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
d5-NEtFOSAA	*96*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
M2-8:2 FTS	*114*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
M2-4:2 FTS	*86*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*
M2-6:2 FTS	*99*		*25 - 150*	*05/08/19 07:08*	*05/14/19 13:27*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-293042/2-A
Matrix: Water
Analysis Batch: 294368

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293042

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	43.3		ng/L		108	70 - 130
Perfluoropentanoic acid (PFPeA)	40.0	39.0		ng/L		97	66 - 126
Perfluorohexanoic acid (PFHxA)	40.0	40.2		ng/L		100	66 - 126
Perfluoroheptanoic acid (PFHpA)	40.0	37.1		ng/L		93	66 - 126
Perfluorooctanoic acid (PFOA)	40.0	36.6		ng/L		92	64 - 124
Perfluorononanoic acid (PFNA)	40.0	40.7		ng/L		102	68 - 128
Perfluorodecanoic acid (PFDA)	40.0	40.4		ng/L		101	69 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	38.2		ng/L		95	60 - 120
Perfluorododecanoic acid (PFDoA)	40.0	37.8		ng/L		95	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	35.3		ng/L		88	72 - 132
Perfluorotetradecanoic acid (PFTeA)	40.0	39.1		ng/L		98	68 - 128
Perfluorobutanesulfonic acid (PFBS)	35.4	38.4		ng/L		109	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	36.4	36.3		ng/L		100	63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	36.8		ng/L		97	68 - 128
Perfluorodecanesulfonic acid (PFDS)	38.6	38.0		ng/L		99	68 - 128
Perfluorooctanesulfonic acid (PFOS)	37.1	36.3		ng/L		98	67 - 127
Perfluorooctanesulfonamide (FOSA)	40.0	45.7		ng/L		114	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	37.1		ng/L		99	70 - 130
Perfluorononanesulfonic acid (PFNS)	38.4	37.1		ng/L		97	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	36.3		ng/L		91	67 - 127
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	40.3		ng/L		101	65 - 125
4:2 FTS	37.4	35.0		ng/L		94	70 - 130
8:2 FTS	38.3	39.4		ng/L		103	67 - 127
6:2 FTS	37.9	35.1		ng/L		93	66 - 126

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*90*		*25 - 150*
13C4 PFBA	*99*		*25 - 150*
13C2 PFHxA	*96*		*25 - 150*
13C4 PFOA	*104*		*25 - 150*
13C5 PFNA	*110*		*25 - 150*
13C2 PFDA	*108*		*25 - 150*
13C2 PFUnA	*107*		*25 - 150*
13C2 PFDoA	*111*		*25 - 150*
13C2 PFTeDA	*102*		*25 - 150*
13C3 PFBS	*93*		*25 - 150*
18O2 PFHxS	*96*		*25 - 150*
13C4 PFOS	*101*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-293042/2-A
Matrix: Water
Analysis Batch: 294368

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293042

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFHpA	*108*		*25 - 150*
13C5 PFPeA	*102*		*25 - 150*
d3-NMeFOSAA	*114*		*25 - 150*
d5-NEtFOSAA	*102*		*25 - 150*
M2-8:2 FTS	*118*		*25 - 150*
M2-4:2 FTS	*120*		*25 - 150*
M2-6:2 FTS	*115*		*25 - 150*

Lab Sample ID: LCSD 320-293042/3-A
Matrix: Water
Analysis Batch: 294368

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 293042

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	41.0		ng/L		103	70 - 130	5	30
Perfluoropentanoic acid (PFPeA)			40.0	40.1		ng/L		100	66 - 126	3	30
Perfluorohexanoic acid (PFHxA)			40.0	39.3		ng/L		98	66 - 126	2	30
Perfluoroheptanoic acid (PFHpA)			40.0	38.6		ng/L		97	66 - 126	4	30
Perfluorooctanoic acid (PFOA)			40.0	41.1		ng/L		103	64 - 124	11	30
Perfluorononanoic acid (PFNA)			40.0	41.7		ng/L		104	68 - 128	2	30
Perfluorodecanoic acid (PFDA)			40.0	39.4		ng/L		98	69 - 129	3	30
Perfluoroundecanoic acid (PFUnA)			40.0	39.0		ng/L		97	60 - 120	2	30
Perfluorododecanoic acid (PFDoA)			40.0	42.3		ng/L		106	71 - 131	11	30
Perfluorotridecanoic acid (PFTriA)			40.0	39.0		ng/L		97	72 - 132	10	30
Perfluorotetradecanoic acid (PFTeA)			40.0	38.5		ng/L		96	68 - 128	2	30
Perfluorobutanesulfonic acid (PFBS)			35.4	35.9		ng/L		102	73 - 133	7	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	33.0		ng/L		91	63 - 123	9	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	37.9		ng/L		100	68 - 128	3	30
Perfluorodecanesulfonic acid (PFDS)			38.6	35.8		ng/L		93	68 - 128	6	30
Perfluorooctanesulfonic acid (PFOS)			37.1	36.8		ng/L		99	67 - 127	1	30
Perfluorooctanesulfonamide (FOSA)			40.0	46.2		ng/L		115	70 - 130	1	30
Perfluoropentanesulfonic acid (PFPeS)			37.5	35.0		ng/L		93	70 - 130	6	30
Perfluorononanesulfonic acid (PFNS)			38.4	37.0		ng/L		96	70 - 130	0	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	39.6		ng/L		99	67 - 127	9	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	42.0		ng/L		105	65 - 125	4	30
4:2 FTS			37.4	37.5		ng/L		100	70 - 130	7	30
8:2 FTS			38.3	38.8		ng/L		101	67 - 127	1	30
6:2 FTS			37.9	39.4		ng/L		104	66 - 126	12	30

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111629-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C8 FOSA	84		25 - 150
13C4 PFBA	94		25 - 150
13C2 PFHxA	92		25 - 150
13C4 PFOA	91		25 - 150
13C5 PFNA	102		25 - 150
13C2 PFDA	104		25 - 150
13C2 PFUnA	98		25 - 150
13C2 PFDoA	98		25 - 150
13C2 PFTeDA	99		25 - 150
13C3 PFBS	95		25 - 150
18O2 PFHxS	93		25 - 150
13C4 PFOS	96		25 - 150
13C4 PFHpA	95		25 - 150
13C5 PFPeA	96		25 - 150
d3-NMeFOSAA	100		25 - 150
d5-NEtFOSAA	95		25 - 150
M2-8:2 FTS	120		25 - 150
M2-4:2 FTS	97		25 - 150
M2-6:2 FTS	106		25 - 150

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111629-1

Client Sample ID: WT-012607-042519-CM-002

Date Collected: 04/25/19 16:40
Date Received: 04/26/19 10:15

Lab Sample ID: 240-111629-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			293042	05/08/19 07:08	MNV	TAL SAC
Total/NA	Analysis	537 (modified)		1	294368	05/14/19 15:40	S1M	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-111629-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Illinois	NELAP	5	200004	07-31-19 *
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
ANAB	DoD		L2468	01-20-21
ANAB	DOE		L2468.01	01-20-21
Arizona	State Program	9	AZ0708	08-11-19
Arkansas DEQ	State Program	6	88-0691	06-17-19
California	State Program	9	2897	01-31-20
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Georgia	State Program	4	N/A	01-28-19 *
Hawaii	State Program	9	N/A	01-29-20
Illinois	NELAP	5	200060	03-17-19 *
Kansas	NELAP	7	E-10375	10-31-19
Louisiana	NELAP	6	30612	06-30-19
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-20-20
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	04-01-20
Oregon	NELAP	10	4040	01-29-20
Pennsylvania	NELAP	3	68-01272	03-31-20
Texas	NELAP	6	T104704399	05-31-19
US Fish & Wildlife	Federal		LE148388-0	07-31-19
USDA	Federal		P330-18-00239	01-17-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-111629-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Sacramento (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
USEPA UCMR	Federal	1	CA00044	12-31-20
Utah	NELAP	8	CA00044	02-29-20
Vermont	State Program	1	VT-4040	04-16-20
Virginia	NELAP	3	460278	03-14-20 *
Washington	State Program	10	C581	05-05-19 *
West Virginia (DW)	State Program	3	9930C	12-31-19
Wyoming	State Program	8	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

1,2/C1,0

Chain of Custody Record 312936

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Chris Meincke	Site Contact:	Date: 4-25-19	COC No:
Company Name: GHD Services	Tel/Fax:	Lab Contact: D. Heckler	Carrier: Fedex	____ of ____ COCs
Address: 26850 Haggerty Rd	Analysis Turnaround Time			Sampler:
City/State/Zip: Farmington Hills, MI 48331	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 248-893-3400	TAT if different from Below ____			Walk-in Client:
Fax:	X 2 weeks			Lab Sampling:
Project Name: RACER GWTP	☐ 1 week			
Site: Eckles Rd Site	☐ 2 days			Job / SDG No.:
PO# 012607-T31419-001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PFAS	Sample Specific Notes:
WT-012607-042519-CM-002	4-25-19	16:40	G	WT	2		X	X	

240-111629 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: ____ Corr'd: ____ | Therm ID No.: ____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	GHD	4-25-19 7:15	[signature]	TK	4-26-19 1015
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
			[signature]		
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TestAmerica Canton Sample Receipt Form/Narrative **Login # : 111629**

Canton Facility

Client GHD Services Site Name _____ Cooler unpacked by:

Cooler Received on 4-26-19 Opened on 4-26-19

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 7A Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam (Plastic Bag) None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

☐ See Multiple Cooler Form

1. Cooler temperature upon receipt
   IR GUN# IR-8 (CF **-0.2** °C) Observed Cooler Temp. 1.2 °C Corrected Cooler Temp. 1.0 °C
   IR GUN #36 (CF **+0.7**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____	Yes (No)	
-Were the seals on the outside of the cooler(s) signed & dated?	Yes No (NA)	
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes (No)	
-Were tamper/custody seals intact and uncompromised?	(Yes) No NA	
3. Shippers' packing slip attached to the cooler(s)?	(Yes) No	
4. Did custody papers accompany the sample(s)?	(Yes) No	
5. Were the custody papers relinquished & signed in the appropriate place?	(Yes) No	
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes (No)	
7. Did all bottles arrive in good condition (Unbroken)?	(Yes) No	
8. Could all bottle labels be reconciled with the COC?	(Yes) No	
9. Were correct bottle(s) used for the test(s) indicated?	(Yes) No	
10. Sufficient quantity received to perform indicated analyses?	(Yes) No	
11. Are these work share samples?	Yes (No)	
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?	Yes No (NA) pH Strip Lot# **HC984738**	
13. Were VOAs on the COC?	(Yes) No	
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes No (NA)	
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes (No)	
16. Was a LL Hg or Me Hg trip blank present? _____	Yes (No)	

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: MS

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Heckler, Denise D	Carrier Tracking No(s):	COC No: 240-102647.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: denise.heckler@testamericainc.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-111629-1
Address: 880 Riverside Parkway,	Due Date Requested: 5/14/2019			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: 12607, RACER Eckles Rd	Project #: 24005880			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC (MOD) PFAS	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
WT-012607-042519-CM-002 (240-111629-1)	4/25/19	16:40 Eastern		Water			X	2	Has Add-ons

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by:	4/29 1500			30 April 19 0930	ETAW
Relinquished by:					
Relinquished by:					

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2-7°C

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-111629-1

Login Number: 111629
List Number: 2
Creator: Rosas, Jaime

List Source: Eurofins TestAmerica, Sacramento
List Creation: 04/30/19 05:40 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.7c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111629-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFHxA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)	PFDoA (25-150)
240-111629-1	WT-012607-042519-CM-002	94	79	91	100	116	117	115	115
LCS 320-293042/2-A	Lab Control Sample	90	99	96	104	110	108	107	111
LCSD 320-293042/3-A	Lab Control Sample Dup	84	94	92	91	102	104	98	98
MB 320-293042/1-A	Method Blank	83	90	94	96	95	102	100	98

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFTDA (25-150)	3C3-PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFHpA (25-150)	PFPeA (25-150)	-NMeFOSA (25-150)	-NEtFOSA (25-150)
240-111629-1	WT-012607-042519-CM-002	105	94	104	101	105	84	131	113
LCS 320-293042/2-A	Lab Control Sample	102	93	96	101	108	102	114	102
LCSD 320-293042/3-A	Lab Control Sample Dup	99	95	93	96	95	96	100	95
MB 320-293042/1-A	Method Blank	96	90	85	91	90	93	95	96

		Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	M282FTS (25-150)	M242FTS (25-150)	M262FTS (25-150)
240-111629-1	WT-012607-042519-CM-002	127	164 *	125
LCS 320-293042/2-A	Lab Control Sample	118	120	115
LCSD 320-293042/3-A	Lab Control Sample Dup	120	97	106
MB 320-293042/1-A	Method Blank	114	86	99

Surrogate Legend

PFOSA = 13C8 FOSA
PFBA = 13C4 PFBA
PFHxA = 13C2 PFHxA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
13C3-PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFHpA = 13C4 PFHpA
PFPeA = 13C5 PFPeA
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M282FTS = M2-8:2 FTS
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Sacramento

240-111629 Field Sheet

Job: _____

Tracking # 442234461997 SO / PO / FO / 2-Day / SAT / Ground / UPS / Courier / Drop Off / GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AK-2 / ~~AK-3~~ (-1.0°C) / AK-5 / AK-7 / HACCP / Other _____

Ice ~~Wet~~ Wet ~~Gel~~ _____ Other _____

Cooler Custody Seal: —

Sample Custody Seal: —

Cooler ID: _____

Temp: Observed 2.7°C Corrected 2.7°C

From: Temp Blank ☐ Sample ☒

NCM Filed: Yes ☐ No ☐

	Yes	No	NA
Perchlorate has headspace(1/3 bottle[1])?	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
CoC is complete w/o discrepancies?	☑	☐	☐
Samples received within holding time?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Cooler compromised/tampered with?	☐	☑	☐
Samples compromised/tampered with?	☐	☑	☐
Samples w/o discrepancies?	☑	☐	☐
Sample containers have legible labels?	☑	☐	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided.	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Zero headspace?[2]	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐
Sample temp OK?	☑	☐	☐
Sample out of temp?	☐	☑	☐

Initials: _____ Date: 30 April 19

[1]For a 250mL polyethylene container, filled no higher than the 200mL mark on the bottle.
[2]Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4").

Attachment 2
April 30, 2019 Samples
WT-012607-043019-CM-001 (effluent)
WT-012607-043019-CM-002 (effluent)
Laboratory Analytical Reports

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-111805-1
Client Project/Site: 12607, RACER Eckles Rd

For:
GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle

Denise D Heckler

Authorized for release by:
5/7/2019 3:55:37 PM

Denise Heckler, Project Manager II
(330)966-9477
denise.heckler@testamericainc.com

LINKS

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Have a Question? Ask The Expert

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111805-1

Job ID: 240-111805-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-111805-1

Comments
No additional comments.

Receipt
The sample was received on 5/1/2019 10:00 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.6º C.

Metals
Method(s) 200.7 Rev 4.4, 6010B: Some requested practical quantitation limits (PQLs) on the following samples fall below the laboratory's verified standard quantitation limit: WT-012607-043019-CM-001 (240-111805-1). The continuing calibration blanks and method blanks may not support the lower PQL.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111805-1

Qualifiers

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111805-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-111805-1	WT-012607-043019-CM-001	Water	04/30/19 16:30	05/01/19 10:00

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111805-1

Client Sample ID: WT-012607-043019-CM-001 — Lab Sample ID: 240-111805-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chromium	1.3		0.050		mg/L	1		200.7 Rev 4.4	Total Recoverable
Nickel	0.84		0.010		mg/L	1		200.7 Rev 4.4	Total Recoverable
Cr (VI)	1.4		0.025		mg/L	5		3500-Cr B-2009	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111805-1

Method	Method Description	Protocol	Laboratory
200.7 Rev 4.4	Metals (ICP)	EPA	TAL CAN
3500-Cr B-2009	Chromium, Hexavalent	SM	TAL CAN
200.7	Preparation, Total Recoverable Metals	EPA	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Client Sample Results

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111805-1

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Client Sample ID: WT-012607-043019-CM-001
Date Collected: 04/30/19 16:30
Date Received: 05/01/19 10:00

Lab Sample ID: 240-111805-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium	1.3		0.050		mg/L		05/02/19 14:00	05/03/19 15:09	1
Nickel	0.84		0.010		mg/L		05/02/19 14:00	05/03/19 15:09	1

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111805-1

General Chemistry

Client Sample ID: WT-012607-043019-CM-001
Date Collected: 04/30/19 16:30
Date Received: 05/01/19 10:00

Lab Sample ID: 240-111805-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	1.4		0.025		mg/L			05/01/19 13:30	5

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111805-1

Metals

Prep Batch: 379353

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111805-1	WT-012607-043019-CM-001	Total Recoverable	Water	200.7	
MB 240-379353/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 240-379353/2-A	Lab Control Sample	Total Recoverable	Water	200.7	

Analysis Batch: 379728

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111805-1	WT-012607-043019-CM-001	Total Recoverable	Water	200.7 Rev 4.4	379353
MB 240-379353/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	379353
LCS 240-379353/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	379353

General Chemistry

Analysis Batch: 379107

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111805-1	WT-012607-043019-CM-001	Total/NA	Water	3500-Cr B-2009	

QC Sample Results

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111805-1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 240-379353/1-A
Matrix: Water
Analysis Batch: 379728

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 379353

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.050	U	0.050		mg/L		05/02/19 14:00	05/03/19 12:12	1
Nickel	0.010	U	0.010		mg/L		05/02/19 14:00	05/03/19 12:12	1

Lab Sample ID: LCS 240-379353/2-A
Matrix: Water
Analysis Batch: 379728

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 379353

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium			0.200	0.182		mg/L		91	85 - 115		
Nickel			0.500	0.491		mg/L		98	85 - 115		

Lab Chronicle

Client: GHD Services Inc.
Job ID: 240-111805-1
Project/Site: 12607, RACER Eckles Rd

Client Sample ID: WT-012607-043019-CM-001
Lab Sample ID: 240-111805-1
Date Collected: 04/30/19 16:30
Matrix: Water
Date Received: 05/01/19 10:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	200.7			379353	05/02/19 14:00	SLD	TAL CAN
Total Recoverable	Analysis	200.7 Rev 4.4		1	379728	05/03/19 15:09	WKD	TAL CAN
Total/NA	Analysis	3500-Cr B-2009		5	379107	05/01/19 13:30	AMT	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-111805-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	04-30-19 *
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

1.8/C1.6

Chain of Custody Record

MICHIGAN 190

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Client Information	Sampler:	Lab PM: Heckler, Denise D	Carrier Tracking No(s):	COC No: 240-59612-21067.1
Client Contact: Ms. Ruth Mickle	Phone:	E-Mail: denise.heckler@testamericainc.com		Page: Page 1 of 1
Company: GHD Services Inc.		Analysis Requested		Job #:
Address: 26850 Haggerty Rd.	Due Date Requested:			Preservation Codes:
City: Farmington Hills	TAT Requested (days):			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: MI, 48331				
Phone:	PO #: 34023630			
Email: ruth.mickle@ghd.com effluent	WO #: 12607			
Project Name: 12607-weekly Influent, , RACER Eckles Rd	Project #: 24005880			
Site:	SSOW#: 12607-TOLY19-03			

240-111805 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	3500_CR_B - Chromium, Hexavalent	200.7 - Cr, Ni	Total Numl	Special Instructions/Note:
			Preservation Code:				N	D		
WT-012607-043019-CM-001	4-30-19	16:30	G	Water			X	X		E

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4-30-19 17:00			5-1-19 1000	TAC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Canton Sample Receipt Form/Narrative **Login # :** _____
Canton Facility

Client GHD Services Inc Site Name _____ Cooler unpacked by:

Cooler Received on 5-1-19 Opened on 5-1-19

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box Client Cooler (Box) Other _____

Packing material used: Bubble Wrap Foam (Plastic Bag) None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **-0.2** °C) Observed Cooler Temp. 1.8 °C Corrected Cooler Temp. 1.6 °C
   IR GUN #36 (CF **+0.7**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 (Yes) No
   -Were the seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   -Were tamper/custody seals intact and uncompromised? (Yes) No NA
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes (No)
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels be reconciled with the COC? (Yes) No
9. Were correct bottle(s) used for the test(s) indicated? (Yes) No
10. Sufficient quantity received to perform indicated analyses? (Yes) No
11. Are these work share samples? Yes (No)
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? (Yes) No NA pH Strip Lot# **HC984738**
13. Were VOAs on the COC? Yes (No)
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No (NA)
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes (No)
16. Was a LL Hg or Me Hg trip blank present? _____ Yes (No)

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
WT-012607-043019-CM-001	240-111805-B-1	Plastic 250ml - with Nitric Acid	<2	_____	_____

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ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-111818-1
Client Project/Site: 12607, RACER Eckles Rd

For:
GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle

Denise D Heckler

Authorized for release by:
5/15/2019 8:51:12 AM

Denise Heckler, Project Manager II
(330)966-9477
denise.heckler@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111818-1

Job ID: 240-111818-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-111818-1

Comments
No additional comments.

Receipt
The sample was received on 5/1/2019 10:00 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.6º C.

LCMS
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111818-1

Qualifiers

LCMS

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111818-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-111818-1	WT-012607-043019-CM-002	Water	04/30/19 16:25	05/01/19 10:00

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111818-1

Client Sample ID: WT-012607-043019-CM-002

Lab Sample ID: 240-111818-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	6.5		1.9	0.34	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	2.4		1.9	0.48	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.7	J	1.9	0.56	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.80	J	1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.1		1.9	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.33	J I	1.9	0.26	ng/L	1		537 (modified)	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.6	J	1.9	1.1	ng/L	1		537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	12		1.9	0.53	ng/L	1		537 (modified)	Total/NA
Perfluorotridecanoic acid (PFTriA)	11		1.9	1.3	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	3.0		1.9	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.89	J	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.5	I B	1.9	0.16	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	1.5	J I	1.9	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	95	I	1.9	0.52	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.99	J I	1.9	0.29	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111818-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Method: 537 (modified) - Fluorinated Alkyl Substances

Client Sample ID: WT-012607-043019-CM-002
Date Collected: 04/30/19 16:25
Date Received: 05/01/19 10:00

Lab Sample ID: 240-111818-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**6.5**		1.9	0.34	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluoropentanoic acid (PFPeA)	**2.4**		1.9	0.48	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluorohexanoic acid (PFHxA)	**1.7**	**J**	1.9	0.56	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluoroheptanoic acid (PFHpA)	**0.80**	**J**	1.9	0.24	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluorooctanoic acid (PFOA)	**4.1**		1.9	0.82	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluorononanoic acid (PFNA)	**0.33**	**J I**	1.9	0.26	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluorodecanoic acid (PFDA)	1.9	U	1.9	0.30	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluoroundecanoic acid (PFUnA)	**1.6**	**J**	1.9	1.1	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluorododecanoic acid (PFDoA)	**12**		1.9	0.53	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluorotridecanoic acid (PFTriA)	**11**		1.9	1.3	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluorotetradecanoic acid (PFTeA)	**3.0**		1.9	0.28	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluorobutanesulfonic acid (PFBS)	**0.89**	**J**	1.9	0.19	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluorohexanesulfonic acid (PFHxS)	**5.5**	**I B**	1.9	0.16	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluoroheptanesulfonic Acid (PFHpS)	**1.5**	**J I**	1.9	0.18	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluorodecanesulfonic acid (PFDS)	1.9	U	1.9	0.31	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluorooctanesulfonic acid (PFOS)	**95**	**I**	1.9	0.52	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluorooctanesulfonamide (FOSA)	1.9	U	1.9	0.34	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluoropentanesulfonic acid (PFPeS)	**0.99**	**J I**	1.9	0.29	ng/L		05/10/19 08:47	05/13/19 15:42	1
Perfluorononanesulfonic acid (PFNS)	1.9	U	1.9	0.16	ng/L		05/10/19 08:47	05/13/19 15:42	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	19	U	19	3.0	ng/L		05/10/19 08:47	05/13/19 15:42	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	19	U	19	1.8	ng/L		05/10/19 08:47	05/13/19 15:42	1
4:2 FTS	19	U	19	5.0	ng/L		05/10/19 08:47	05/13/19 15:42	1
8:2 FTS	19	U	19	1.9	ng/L		05/10/19 08:47	05/13/19 15:42	1
6:2 FTS	19	U	19	1.9	ng/L		05/10/19 08:47	05/13/19 15:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*81*		*25 - 150*	*05/10/19 08:47*	*05/13/19 15:42*	*1*
13C4 PFBA	*55*		*25 - 150*	*05/10/19 08:47*	*05/13/19 15:42*	*1*
13C2 PFHxA	*85*		*25 - 150*	*05/10/19 08:47*	*05/13/19 15:42*	*1*
13C4 PFOA	*96*		*25 - 150*	*05/10/19 08:47*	*05/13/19 15:42*	*1*
13C5 PFNA	*97*		*25 - 150*	*05/10/19 08:47*	*05/13/19 15:42*	*1*
13C2 PFDA	*98*		*25 - 150*	*05/10/19 08:47*	*05/13/19 15:42*	*1*
13C2 PFUnA	*95*		*25 - 150*	*05/10/19 08:47*	*05/13/19 15:42*	*1*
13C2 PFDoA	*92*		*25 - 150*	*05/10/19 08:47*	*05/13/19 15:42*	*1*
13C2 PFTeDA	*101*		*25 - 150*	*05/10/19 08:47*	*05/13/19 15:42*	*1*
13C3 PFBS	*88*		*25 - 150*	*05/10/19 08:47*	*05/13/19 15:42*	*1*
18O2 PFHxS	*92*		*25 - 150*	*05/10/19 08:47*	*05/13/19 15:42*	*1*
13C4 PFOS	*92*		*25 - 150*	*05/10/19 08:47*	*05/13/19 15:42*	*1*
13C4 PFHpA	*90*		*25 - 150*	*05/10/19 08:47*	*05/13/19 15:42*	*1*
13C5 PFPeA	*76*		*25 - 150*	*05/10/19 08:47*	*05/13/19 15:42*	*1*
d3-NMeFOSAA	*96*		*25 - 150*	*05/10/19 08:47*	*05/13/19 15:42*	*1*
d5-NEtFOSAA	*88*		*25 - 150*	*05/10/19 08:47*	*05/13/19 15:42*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Client Sample ID: WT-012607-043019-CM-002
Date Collected: 04/30/19 16:25
Date Received: 05/01/19 10:00

Lab Sample ID: 240-111818-1
Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	103		25 - 150	05/10/19 08:47	05/13/19 15:42	1
M2-4:2 FTS	144		25 - 150	05/10/19 08:47	05/13/19 15:42	1
M2-6:2 FTS	119		25 - 150	05/10/19 08:47	05/13/19 15:42	1

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111818-1

LCMS

Prep Batch: 293607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111818-1	WT-012607-043019-CM-002	Total/NA	Water	3535	
MB 320-293607/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-293607/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-293607/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 293857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-293607/1-A	Method Blank	Total/NA	Water	537 (modified)	293607
LCS 320-293607/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	293607
LCSD 320-293607/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	293607

Analysis Batch: 294158

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-111818-1	WT-012607-043019-CM-002	Total/NA	Water	537 (modified)	293607

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-293607/1-A
Matrix: Water
Analysis Batch: 293857

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 293607

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.0	U	2.0	0.35	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluoropentanoic acid (PFPeA)	2.0	U	2.0	0.49	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluorohexanoic acid (PFHxA)	2.0	U	2.0	0.58	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluoroheptanoic acid (PFHpA)	2.0	U	2.0	0.25	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluorooctanoic acid (PFOA)	2.0	U	2.0	0.85	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.27	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.31	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.55	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluorotridecanoic acid (PFTriA)	2.0	U	2.0	1.3	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.29	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.0	0.20	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluorohexanesulfonic acid (PFHxS)	0.289	J I	2.0	0.17	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.32	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluorooctanesulfonic acid (PFOS)	2.0	U	2.0	0.54	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluorooctanesulfonamide (FOSA)	2.0	U	2.0	0.35	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluoropentanesulfonic acid (PFPeS)	2.0	U	2.0	0.30	ng/L		05/10/19 08:47	05/11/19 18:12	1
Perfluorononanesulfonic acid (PFNS)	2.0	U	2.0	0.16	ng/L		05/10/19 08:47	05/11/19 18:12	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.1	ng/L		05/10/19 08:47	05/11/19 18:12	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9	ng/L		05/10/19 08:47	05/11/19 18:12	1
4:2 FTS	20	U	20	5.2	ng/L		05/10/19 08:47	05/11/19 18:12	1
8:2 FTS	20	U	20	2.0	ng/L		05/10/19 08:47	05/11/19 18:12	1
6:2 FTS	20	U	20	2.0	ng/L		05/10/19 08:47	05/11/19 18:12	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*84*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
13C4 PFBA	*91*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
13C2 PFHxA	*102*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
13C4 PFOA	*100*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
13C5 PFNA	*101*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
13C2 PFDA	*104*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
13C2 PFUnA	*95*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
13C2 PFDoA	*102*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
13C2 PFTeDA	*100*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
13C3 PFBS	*94*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
18O2 PFHxS	*88*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
13C4 PFOS	*91*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
13C4 PFHpA	*105*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
13C5 PFPeA	*98*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
d3-NMeFOSAA	*101*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
d5-NEtFOSAA	*99*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
M2-8:2 FTS	*96*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
M2-4:2 FTS	*100*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*
M2-6:2 FTS	*107*		*25 - 150*	*05/10/19 08:47*	*05/11/19 18:12*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-293607/2-A
Matrix: Water
Analysis Batch: 293857

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293607

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	42.2		ng/L		106	70 - 130
Perfluoropentanoic acid (PFPeA)	40.0	37.5		ng/L		94	66 - 126
Perfluorohexanoic acid (PFHxA)	40.0	39.0		ng/L		98	66 - 126
Perfluoroheptanoic acid (PFHpA)	40.0	38.6		ng/L		97	66 - 126
Perfluorooctanoic acid (PFOA)	40.0	38.4		ng/L		96	64 - 124
Perfluorononanoic acid (PFNA)	40.0	39.9		ng/L		100	68 - 128
Perfluorodecanoic acid (PFDA)	40.0	36.8		ng/L		92	69 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	36.4		ng/L		91	60 - 120
Perfluorododecanoic acid (PFDoA)	40.0	35.4		ng/L		88	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	37.0		ng/L		92	72 - 132
Perfluorotetradecanoic acid (PFTeA)	40.0	36.9		ng/L		92	68 - 128
Perfluorobutanesulfonic acid (PFBS)	35.4	34.2		ng/L		97	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.8		ng/L		98	63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	38.2		ng/L		100	68 - 128
Perfluorodecanesulfonic acid (PFDS)	38.6	36.0		ng/L		93	68 - 128
Perfluorooctanesulfonic acid (PFOS)	37.1	37.7		ng/L		102	67 - 127
Perfluorooctanesulfonamide (FOSA)	40.0	43.9		ng/L		110	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	35.6		ng/L		95	70 - 130
Perfluorononanesulfonic acid (PFNS)	38.4	39.3		ng/L		102	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	41.0		ng/L		102	67 - 127
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	37.7		ng/L		94	65 - 125
4:2 FTS	37.4	37.9		ng/L		101	70 - 130
8:2 FTS	38.3	38.6		ng/L		101	67 - 127
6:2 FTS	37.9	37.9		ng/L		100	66 - 126

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*79*		*25 - 150*
13C4 PFBA	*89*		*25 - 150*
13C2 PFHxA	*94*		*25 - 150*
13C4 PFOA	*95*		*25 - 150*
13C5 PFNA	*100*		*25 - 150*
13C2 PFDA	*103*		*25 - 150*
13C2 PFUnA	*95*		*25 - 150*
13C2 PFDoA	*99*		*25 - 150*
13C2 PFTeDA	*93*		*25 - 150*
13C3 PFBS	*95*		*25 - 150*
18O2 PFHxS	*86*		*25 - 150*
13C4 PFOS	*87*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-293607/2-A
Matrix: Water
Analysis Batch: 293857

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 293607

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFHpA	*100*		*25 - 150*
13C5 PFPeA	*99*		*25 - 150*
d3-NMeFOSAA	*98*		*25 - 150*
d5-NEtFOSAA	*95*		*25 - 150*
M2-8:2 FTS	*100*		*25 - 150*
M2-4:2 FTS	*99*		*25 - 150*
M2-6:2 FTS	*100*		*25 - 150*

Lab Sample ID: LCSD 320-293607/3-A
Matrix: Water
Analysis Batch: 293857

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 293607

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	41.8		ng/L		105	70 - 130	1	30
Perfluoropentanoic acid (PFPeA)			40.0	36.3		ng/L		91	66 - 126	3	30
Perfluorohexanoic acid (PFHxA)			40.0	37.4		ng/L		94	66 - 126	4	30
Perfluoroheptanoic acid (PFHpA)			40.0	38.1		ng/L		95	66 - 126	1	30
Perfluorooctanoic acid (PFOA)			40.0	38.0		ng/L		95	64 - 124	1	30
Perfluorononanoic acid (PFNA)			40.0	40.6		ng/L		102	68 - 128	2	30
Perfluorodecanoic acid (PFDA)			40.0	37.6		ng/L		94	69 - 129	2	30
Perfluoroundecanoic acid (PFUnA)			40.0	36.3		ng/L		91	60 - 120	0	30
Perfluorododecanoic acid (PFDoA)			40.0	36.0		ng/L		90	71 - 131	2	30
Perfluorotridecanoic acid (PFTriA)			40.0	37.5		ng/L		94	72 - 132	1	30
Perfluorotetradecanoic acid (PFTeA)			40.0	35.9		ng/L		90	68 - 128	3	30
Perfluorobutanesulfonic acid (PFBS)			35.4	35.9		ng/L		102	73 - 133	5	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	35.4		ng/L		97	63 - 123	1	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	38.7		ng/L		102	68 - 128	1	30
Perfluorodecanesulfonic acid (PFDS)			38.6	37.3		ng/L		97	68 - 128	4	30
Perfluorooctanesulfonic acid (PFOS)			37.1	37.2		ng/L		100	67 - 127	1	30
Perfluorooctanesulfonamide (FOSA)			40.0	43.7		ng/L		109	70 - 130	1	30
Perfluoropentanesulfonic acid (PFPeS)			37.5	36.2		ng/L		96	70 - 130	2	30
Perfluorononanesulfonic acid (PFNS)			38.4	38.9		ng/L		101	70 - 130	1	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	40.5		ng/L		101	67 - 127	1	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	36.8		ng/L		92	65 - 125	2	30
4:2 FTS			37.4	37.9		ng/L		102	70 - 130	0	30
8:2 FTS			38.3	38.0		ng/L		99	67 - 127	1	30
6:2 FTS			37.9	40.0		ng/L		106	66 - 126	5	30

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111818-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C8 FOSA	80		25 - 150
13C4 PFBA	91		25 - 150
13C2 PFHxA	94		25 - 150
13C4 PFOA	97		25 - 150
13C5 PFNA	95		25 - 150
13C2 PFDA	99		25 - 150
13C2 PFUnA	94		25 - 150
13C2 PFDoA	96		25 - 150
13C2 PFTeDA	92		25 - 150
13C3 PFBS	92		25 - 150
18O2 PFHxS	86		25 - 150
13C4 PFOS	86		25 - 150
13C4 PFHpA	99		25 - 150
13C5 PFPeA	101		25 - 150
d3-NMeFOSAA	98		25 - 150
d5-NEtFOSAA	99		25 - 150
M2-8:2 FTS	104		25 - 150
M2-4:2 FTS	101		25 - 150
M2-6:2 FTS	101		25 - 150

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111818-1

Client Sample ID: WT-012607-043019-CM-002

Date Collected: 04/30/19 16:25
Date Received: 05/01/19 10:00

Lab Sample ID: 240-111818-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			293607	05/10/19 08:47	MYV	TAL SAC
Total/NA	Analysis	537 (modified)		1	294158	05/13/19 15:42	S1M	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-111818-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	04-30-19 *
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
ANAB	DoD		L2468	01-20-21
Arizona	State Program	9	AZ0708	08-11-19
Arkansas DEQ	State Program	6	88-0691	06-17-19
California	State Program	9	2897	01-31-20
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Georgia	State Program	4	N/A	01-28-19 *
Hawaii	State Program	9	N/A	01-29-20
Illinois	NELAP	5	200060	03-17-19 *
Kansas	NELAP	7	E-10375	10-31-19
Louisiana	NELAP	6	30612	06-30-19
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-20-20
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	04-01-20
Oregon	NELAP	10	4040	01-29-20
Pennsylvania	NELAP	3	68-01272	03-31-20
Texas	NELAP	6	T104704399	05-31-19
US Fish & Wildlife	Federal		LE148388-0	07-31-19
USDA	Federal		P330-18-00239	01-17-21
USEPA UCMR	Federal	1	CA00044	12-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-111818-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Sacramento (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Utah	NELAP	8	CA00044	02-29-20
Vermont	State Program	1	VT-4040	04-16-20
Virginia	NELAP	3	460278	03-14-20 *
Washington	State Program	10	C581	05-05-19 *
West Virginia (DW)	State Program	3	9930C	12-31-19
Wyoming	State Program	8	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

3.8/C3.6

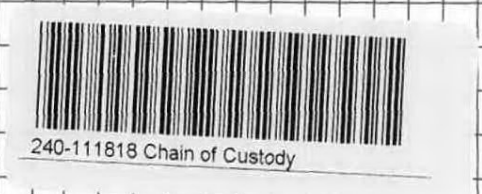
Chain of Custody Record 312937

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager:	Site Contact:	Date:	COC No:
Company Name: GHD Services	Tel/Fax:	Lab Contact:	Carrier:	_____ of _____ COCs
Address: 26850 Haggerty	Analysis Turnaround Time			Sampler:
City/State/Zip: Farmington Hills, MI 48331	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 248-893-3400	TAT if different from Below 15			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: RACER GWTP	☐ 1 week			
Site: Eckles Rd Site	☐ 2 days			Job / SDG No.:
PO# 012607-T31419-001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	PFAS	Sample Specific Notes:
WT-012607-043019-CM-002	4-30-19	16:25	G	WT	2	N	N	X	



Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	GHD	4-30-19 17:00	[signature]	ETA	5-1-19 1000
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 111806
Canton Facility

Client GHD Site Name

Cooler Received on 5-1-19 Opened on 5-1-19

Cooler unpacked by: Ryan Cribley

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # 7A Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam (Plastic Bag) None Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **-0.2** °C) Observed Cooler Temp. 3.8 °C Corrected Cooler Temp. 3.6 °C
   IR GUN #36 (CF **+0.7**°C) Observed Cooler Temp. ____ °C Corrected Cooler Temp. ____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 (Yes) No
   -Were the seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   -Were tamper/custody seals intact and uncompromised? (Yes) No NA
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes (No)
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels be reconciled with the COC? (Yes) No
9. Were correct bottle(s) used for the test(s) indicated? (Yes) No
10. Sufficient quantity received to perform indicated analyses? (Yes) No
11. Are these work share samples? Yes (No)
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No (NA) pH Strip Lot# **HC984738**
13. Were VOAs on the COC? Yes (No)
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No (NA)
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #____ Yes (No)
16. Was a LL Hg or Me Hg trip blank present? ____ Yes (No)

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM ____ Date ____ by ____ via Verbal Voice Mail Other

Concerning ____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: RL

18. SAMPLE CONDITION

Sample(s) ____ were received after the recommended holding time had expired.
Sample(s) ____ were received in a broken container.
Sample(s) ____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) ____ were further preserved in the laboratory.
Time preserved: ____ Preservative(s) added/Lot number(s): ____

VOA Sample Preservation - Date/Time VOAs Frozen: ____

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Heckler, Denise D	Carrier Tracking No(s):	COC No: 240-102802.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: denise.heckler@testamericainc.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-111818-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 5/13/2019			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: 12607, RACER Eckles Rd	Project #: 24005880			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC (MOD) PFAS	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
WT+012607-043019-CM-002 (240-111818-1)	4/30/19	16:25 Eastern		Water			X	2	Has Add-ons

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company		Date/Time	Company
Relinquished by:	5/1 1515		Received by:	2May19 0920	ETA WSAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 0.6°C

Ver: 01/16/2019

5/15/2019

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-111818-1

Login Number: 111818
List Number: 2
Creator: Rosas, Jaime

List Source: Eurofins TestAmerica, Sacramento
List Creation: 05/04/19 10:46 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.6c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-111818-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFHxA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)	PFDoA (25-150)
240-111818-1	WT-012607-043019-CM-002	81	55	85	96	97	98	95	92
LCS 320-293607/2-A	Lab Control Sample	79	89	94	95	100	103	95	99
LCSD 320-293607/3-A	Lab Control Sample Dup	80	91	94	97	95	99	94	96
MB 320-293607/1-A	Method Blank	84	91	102	100	101	104	95	102

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFTDA (25-150)	3C3-PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFHpA (25-150)	PFPeA (25-150)	d3-NMeFOSAA (25-150)	d5-NEtFOSAA (25-150)
240-111818-1	WT-012607-043019-CM-002	101	88	92	92	90	76	96	88
LCS 320-293607/2-A	Lab Control Sample	93	95	86	87	100	99	98	95
LCSD 320-293607/3-A	Lab Control Sample Dup	92	92	86	86	99	101	98	99
MB 320-293607/1-A	Method Blank	100	94	88	91	105	98	101	99

		Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	M282FTS (25-150)	M242FTS (25-150)	M262FTS (25-150)
240-111818-1	WT-012607-043019-CM-002	103	144	119
LCS 320-293607/2-A	Lab Control Sample	100	99	100
LCSD 320-293607/3-A	Lab Control Sample Dup	104	101	101
MB 320-293607/1-A	Method Blank	96	100	107

Surrogate Legend

PFOSA = 13C8 FOSA
PFBA = 13C4 PFBA
PFHxA = 13C2 PFHxA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
13C3-PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFHpA = 13C4 PFHpA
PFPeA = 13C5 PFPeA
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M282FTS = M2-8:2 FTS
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Sacramento

Sa

240-111818 Field Sheet

Job:_____

Tracking # 4422 3446 3864 SO / PO / FO / 2-Day / SAT / Ground / UPS / Courier / Drop Off / GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes:_____

Therm. ID: **AK-2 / AK-3 / AK-5 / AK-7 / HACCP / Other**_____ (-1.0℃)

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: —

Sample Custody Seal: —

Cooler ID: —

Temp: Observed 0.6 °C Corrected 0.6 °C

From: Temp Blank ☐ Sample ☑

NCM Filed: Yes ☐ No ☐

	Yes	No	NA
Perchlorate has headspace(1/3 bottle[1])?	☐	☐	☑
Alkalinity has no headspace?	☐	☐	☑
CoC is complete w/o discrepancies?	☑	☐	☐
Samples received within holding time?	☑	☐	☐
Sample preservatives verified?	☐	☐	☑
Cooler compromised/tampered with?	☐	☑	☐
Samples compromised/tampered with?	☐	☑	☐
Samples w/o discrepancies?	☑	☐	☐
Sample containers have legible labels?	☑	☐	☐
Containers are not broken or leaking?	☑	☐	☐
Sample date/times are provided.	☑	☐	☐
Appropriate containers are used?	☑	☐	☐
Sample bottles are completely filled?	☑	☐	☐
Zero headspace?[2]	☐	☐	☑
Multiphasic samples are not present?	☑	☐	☐
Sample temp OK?	☑	☐	☐
Sample out of temp?	☐	☑	☐

Initials: _____ Date: 2 May 19

[1]For a 250mL polyethylene container, filled no higher than the 200mL mark on the bottle.
[2]Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4").

Attachment 3
May 8, 2019 Samples
WT-012607-050819-CM-001 (effluent)
WT-012607-050819-CM-002 (effluent)
Laboratory Analytical Reports

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-112260-1
Client Project/Site: 12607, RACER Eckles Rd

For:
GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle

Denise D Heckler

Authorized for release by:
5/15/2019 8:42:40 AM

Denise Heckler, Project Manager II
(330)966-9477
denise.heckler@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112260-1

Job ID: 240-112260-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-112260-1

Comments
No additional comments.

Receipt
The sample was received on 5/9/2019 9:40 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6º C.

Metals
Method(s) 200.7 Rev 4.4, 6010B: Some requested practical quantitation limits (PQLs) on the following samples fall below the laboratory's verified standard quantitation limit: WT-012607-050819-CM-001 (240-112260-1). The continuing calibration blanks and method blanks may not support the lower PQL.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method(s) SM 3500 CR B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 240-380424 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112260-1

Qualifiers

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112260-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-112260-1	WT-012607-050819-CM-001	Water	05/08/19 16:15	05/09/19 09:40

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112260-1

Client Sample ID: WT-012607-050819-CM-001 — Lab Sample ID: 240-112260-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chromium	0.84		0.050		mg/L	1		200.7 Rev 4.4	Total Recoverable
Nickel	0.69		0.010		mg/L	1		200.7 Rev 4.4	Total Recoverable
Chromium, hexavalent	0.88		0.025		mg/L	5		3500-Cr B-2009	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112260-1

Method	Method Description	Protocol	Laboratory
200.7 Rev 4.4	Metals (ICP)	EPA	TAL CAN
3500-Cr B-2009	Chromium, Hexavalent	SM	TAL CAN
200.7	Preparation, Total Recoverable Metals	EPA	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Client Sample Results

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112260-1

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Client Sample ID: WT-012607-050819-CM-001
Date Collected: 05/08/19 16:15
Date Received: 05/09/19 09:40

Lab Sample ID: 240-112260-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.84		0.050		mg/L		05/10/19 14:00	05/13/19 19:46	1
Nickel	0.69		0.010		mg/L		05/10/19 14:00	05/13/19 19:46	1

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112260-1

General Chemistry

Client Sample ID: WT-012607-050819-CM-001
Date Collected: 05/08/19 16:15
Date Received: 05/09/19 09:40

Lab Sample ID: 240-112260-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.88		0.025		mg/L			05/09/19 11:07	5

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112260-1

Metals

Prep Batch: 380649

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112260-1	WT-012607-050819-CM-001	Total Recoverable	Water	200.7	
MB 240-380649/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 240-380649/2-A	Lab Control Sample	Total Recoverable	Water	200.7	

Analysis Batch: 380957

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112260-1	WT-012607-050819-CM-001	Total Recoverable	Water	200.7 Rev 4.4	380649
MB 240-380649/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	380649
LCS 240-380649/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	380649

General Chemistry

Analysis Batch: 380424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112260-1	WT-012607-050819-CM-001	Total/NA	Water	3500-Cr B-2009	
MB 240-380424/3	Method Blank	Total/NA	Water	3500-Cr B-2009	
LCS 240-380424/4	Lab Control Sample	Total/NA	Water	3500-Cr B-2009	

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 240-380649/1-A
Matrix: Water
Analysis Batch: 380957

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 380649

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.050	U	0.050		mg/L		05/10/19 14:00	05/13/19 18:30	1
Nickel	0.010	U	0.010		mg/L		05/10/19 14:00	05/13/19 18:30	1

Lab Sample ID: LCS 240-380649/2-A
Matrix: Water
Analysis Batch: 380957

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 380649

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium			0.200	0.195		mg/L		98	85 - 115		
Nickel			0.500	0.519		mg/L		104	85 - 115		

Method: 3500-Cr B-2009 - Chromium, Hexavalent

Lab Sample ID: MB 240-380424/3
Matrix: Water
Analysis Batch: 380424

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.0050	U	0.0050		mg/L			05/09/19 11:01	1

Lab Sample ID: LCS 240-380424/4
Matrix: Water
Analysis Batch: 380424

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent			0.250	0.255		mg/L		102	80 - 123		

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112260-1

Client Sample ID: WT-012607-050819-CM-001
Date Collected: 05/08/19 16:15
Date Received: 05/09/19 09:40

Lab Sample ID: 240-112260-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	200.7			380649	05/10/19 14:00	SLD	TAL CAN
Total Recoverable	Analysis	200.7 Rev 4.4		1	380957	05/13/19 19:46	WKD	TAL CAN
Total/NA	Analysis	3500-Cr B-2009		5	380424	05/09/19 11:07	BLW	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-112260-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	04-30-19 *
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

2.8/2.6

Chain of Custody Record

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Client Information	Sampler: C. Meincke	Lab PM: Heckler, Denise D	Carrier Tracking No(s):	COC No: 240-59616-21067.1
Client Contact: Ms. Ruth Mickle	Phone:	E-Mail: denise.heckler@testamericainc.com		Page: Page 1 of 1
Company: GHD Services Inc.				Job #:
Address: 26850 Haggerty Rd.	Due Date Requested:			
City: Farmington Hills	TAT Requested (days):			
State, Zip: MI, 48331				
Phone:	PO #: 34035413			
Email: ruth.mickle@ghd.com	WO #: 12607			
Project Name: 12607-weekly Influent, , RACER Eckles Rd effluent	Project #: 24005880			
Site:	SSOW#: 12607-TOL419-03			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	3500_CR_B - Chromium, Hexavalent	200.7 - Cr, Ni	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D		
WT-012607-050819-CM-001	5-8-19	16:15	G	Water			X	X		

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		5-8-19 17:00			5-9-19 940	TAE
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 112260
Canton Facility

Client GHD Site Name _____ Cooler unpacked by: MM

Cooler Received on 5-9-19 Opened on 5-9-19

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____

Packing material used: (Bubble Wrap) Foam (Plastic Bag) None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **-0.2** °C) Observed Cooler Temp. 2.8 °C Corrected Cooler Temp. 2.6 °C
   IR GUN #36 (CF **+0.7**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 (Yes) No
   -Were the seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   -Were tamper/custody seals intact and uncompromised? (Yes) No NA
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? (Yes) No
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels be reconciled with the COC? (Yes) No
9. Were correct bottle(s) used for the test(s) indicated? (Yes) No
10. Sufficient quantity received to perform indicated analyses? (Yes) No
11. Are these work share samples? Yes (No)
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? (Yes) No NA pH Strip Lot# **HC984738**
13. Were VOAs on the COC? Yes (No)
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No (NA)
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes (No)
16. Was a LL Hg or Me Hg trip blank present? _____ Yes (No)

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: MS

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
WT-012607-050819-CM-001	240-112260-B-1	Plastic 250ml - with Nitric Acid	<2	_____	_____

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ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-112304-1
Client Project/Site: 12607, RACER Eckles Rd

For:
GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle

Denise D Heckler

Authorized for release by:
5/24/2019 9:11:19 AM

Denise Heckler, Project Manager II
(330)966-9477
denise.heckler@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112304-1

Job ID: 240-112304-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-112304-1

Comments
No additional comments.

Receipt
The sample was received on 5/9/2019 9:40 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.2º C.

LCMS
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-295848.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112304-1

Qualifiers

LCMS

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112304-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-112304-1	WT-012607-050819-CM-002	Water	05/08/19 16:10	05/09/19 09:40	

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112304-1

Client Sample ID: WT-012607-050819-CM-002

Lab Sample ID: 240-112304-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	11	B	1.9	0.34	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	2.6		1.9	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2.1		1.9	0.56	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.84	J	1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.2		1.9	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.37	J I	1.9	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.1	J	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.1	I B	1.9	0.16	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	1.5	J I	1.9	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	86	I	1.9	0.52	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.87	J I	1.9	0.29	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112304-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Method: 537 (modified) - Fluorinated Alkyl Substances

Client Sample ID: WT-012607-050819-CM-002
Date Collected: 05/08/19 16:10
Date Received: 05/09/19 09:40

Lab Sample ID: 240-112304-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**11**	**B**	1.9	0.34	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluoropentanoic acid (PFPeA)	**2.6**		1.9	0.47	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluorohexanoic acid (PFHxA)	**2.1**		1.9	0.56	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluoroheptanoic acid (PFHpA)	**0.84**	**J**	1.9	0.24	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluorooctanoic acid (PFOA)	**4.2**		1.9	0.82	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluorononanoic acid (PFNA)	**0.37**	**J I**	1.9	0.26	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluorodecanoic acid (PFDA)	1.9	U	1.9	0.30	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluoroundecanoic acid (PFUnA)	1.9	U	1.9	1.1	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluorododecanoic acid (PFDoA)	1.9	U	1.9	0.53	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluorotridecanoic acid (PFTriA)	1.9	U	1.9	1.2	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluorotetradecanoic acid (PFTeA)	1.9	U	1.9	0.28	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluorobutanesulfonic acid (PFBS)	**1.1**	**J**	1.9	0.19	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluorohexanesulfonic acid (PFHxS)	**5.1**	**I B**	1.9	0.16	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluoroheptanesulfonic Acid (PFHpS)	**1.5**	**J I**	1.9	0.18	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluorodecanesulfonic acid (PFDS)	1.9	U	1.9	0.31	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluorooctanesulfonic acid (PFOS)	**86**	**I**	1.9	0.52	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluorooctanesulfonamide (FOSA)	1.9	U	1.9	0.34	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluoropentanesulfonic acid (PFPeS)	**0.87**	**J I**	1.9	0.29	ng/L		05/21/19 06:09	05/22/19 11:02	1
Perfluorononanesulfonic acid (PFNS)	1.9	U	1.9	0.15	ng/L		05/21/19 06:09	05/22/19 11:02	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	19	U	19	3.0	ng/L		05/21/19 06:09	05/22/19 11:02	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	19	U	19	1.8	ng/L		05/21/19 06:09	05/22/19 11:02	1
4:2 FTS	19	U	19	5.0	ng/L		05/21/19 06:09	05/22/19 11:02	1
8:2 FTS	19	U	19	1.9	ng/L		05/21/19 06:09	05/22/19 11:02	1
6:2 FTS	19	U	19	1.9	ng/L		05/21/19 06:09	05/22/19 11:02	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*89*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
13C4 PFBA	*66*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
13C2 PFHxA	*94*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
13C4 PFOA	*101*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
13C5 PFNA	*106*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
13C2 PFDA	*110*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
13C2 PFUnA	*105*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
13C2 PFDoA	*108*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
13C2 PFTeDA	*107*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
13C3 PFBS	*97*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
18O2 PFHxS	*106*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
13C4 PFOS	*104*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
13C4 PFHpA	*103*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
13C5 PFPeA	*87*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
d3-NMeFOSAA	*100*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
d5-NEtFOSAA	*103*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
M2-8:2 FTS	*110*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
M2-4:2 FTS	*138*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*
M2-6:2 FTS	*109*		*25 - 150*	*05/21/19 06:09*	*05/22/19 11:02*	*1*

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112304-1

LCMS

Prep Batch: 295848

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112304-1	WT-012607-050819-CM-002	Total/NA	Water	3535	
MB 320-295848/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-295848/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-295848/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 296100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 320-295848/1-A	Method Blank	Total/NA	Water	537 (modified)	295848
LCS 320-295848/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	295848
LCSD 320-295848/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	295848

Analysis Batch: 296156

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112304-1	WT-012607-050819-CM-002	Total/NA	Water	537 (modified)	295848

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-295848/1-A
Matrix: Water
Analysis Batch: 296100

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 295848

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.357	J	2.0	0.35	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluoropentanoic acid (PFPeA)	2.0	U	2.0	0.49	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluorohexanoic acid (PFHxA)	2.0	U	2.0	0.58	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluoroheptanoic acid (PFHpA)	2.0	U	2.0	0.25	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluorooctanoic acid (PFOA)	2.0	U	2.0	0.85	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.27	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.31	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.55	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluorotridecanoic acid (PFTriA)	2.0	U	2.0	1.3	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.29	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.0	0.20	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluorohexanesulfonic acid (PFHxS)	0.294	J	2.0	0.17	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.32	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluorooctanesulfonic acid (PFOS)	2.0	U	2.0	0.54	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluorooctanesulfonamide (FOSA)	2.0	U	2.0	0.35	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluoropentanesulfonic acid (PFPeS)	2.0	U	2.0	0.30	ng/L		05/21/19 06:09	05/22/19 06:39	1
Perfluorononanesulfonic acid (PFNS)	2.0	U	2.0	0.16	ng/L		05/21/19 06:09	05/22/19 06:39	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.1	ng/L		05/21/19 06:09	05/22/19 06:39	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9	ng/L		05/21/19 06:09	05/22/19 06:39	1
4:2 FTS	20	U	20	5.2	ng/L		05/21/19 06:09	05/22/19 06:39	1
8:2 FTS	20	U	20	2.0	ng/L		05/21/19 06:09	05/22/19 06:39	1
6:2 FTS	20	U	20	2.0	ng/L		05/21/19 06:09	05/22/19 06:39	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*91*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
13C4 PFBA	*98*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
13C2 PFHxA	*106*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
13C4 PFOA	*105*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
13C5 PFNA	*107*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
13C2 PFDA	*106*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
13C2 PFUnA	*99*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
13C2 PFDoA	*112*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
13C2 PFTeDA	*111*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
13C3 PFBS	*98*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
18O2 PFHxS	*99*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
13C4 PFOS	*96*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
13C4 PFHpA	*110*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
13C5 PFPeA	*105*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
d3-NMeFOSAA	*107*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
d5-NEtFOSAA	*109*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
M2-8:2 FTS	*100*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
M2-4:2 FTS	*93*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*
M2-6:2 FTS	*108*		*25 - 150*	*05/21/19 06:09*	*05/22/19 06:39*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-295848/2-A
Matrix: Water
Analysis Batch: 296100

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295848

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	42.2		ng/L		105	70 - 130
Perfluoropentanoic acid (PFPeA)	40.0	37.2		ng/L		93	66 - 126
Perfluorohexanoic acid (PFHxA)	40.0	38.2		ng/L		95	66 - 126
Perfluoroheptanoic acid (PFHpA)	40.0	38.5		ng/L		96	66 - 126
Perfluorooctanoic acid (PFOA)	40.0	37.6		ng/L		94	64 - 124
Perfluorononanoic acid (PFNA)	40.0	40.7		ng/L		102	68 - 128
Perfluorodecanoic acid (PFDA)	40.0	35.7		ng/L		89	69 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	38.5		ng/L		96	60 - 120
Perfluorododecanoic acid (PFDoA)	40.0	40.0		ng/L		100	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	37.1		ng/L		93	72 - 132
Perfluorotetradecanoic acid (PFTeA)	40.0	33.8		ng/L		84	68 - 128
Perfluorobutanesulfonic acid (PFBS)	35.4	34.7		ng/L		98	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.1		ng/L		96	63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	37.7		ng/L		99	68 - 128
Perfluorodecanesulfonic acid (PFDS)	38.6	37.5		ng/L		97	68 - 128
Perfluorooctanesulfonic acid (PFOS)	37.1	35.5		ng/L		96	67 - 127
Perfluorooctanesulfonamide (FOSA)	40.0	39.4		ng/L		98	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	36.5		ng/L		97	70 - 130
Perfluorononanesulfonic acid (PFNS)	38.4	38.3		ng/L		100	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	37.8		ng/L		94	67 - 127
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	39.4		ng/L		98	65 - 125
4:2 FTS	37.4	37.1		ng/L		99	70 - 130
8:2 FTS	38.3	39.1		ng/L		102	67 - 127
6:2 FTS	37.9	37.4		ng/L		99	66 - 126

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*88*		*25 - 150*
13C4 PFBA	*97*		*25 - 150*
13C2 PFHxA	*104*		*25 - 150*
13C4 PFOA	*102*		*25 - 150*
13C5 PFNA	*103*		*25 - 150*
13C2 PFDA	*105*		*25 - 150*
13C2 PFUnA	*101*		*25 - 150*
13C2 PFDoA	*107*		*25 - 150*
13C2 PFTeDA	*116*		*25 - 150*
13C3 PFBS	*98*		*25 - 150*
18O2 PFHxS	*95*		*25 - 150*
13C4 PFOS	*94*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-295848/2-A
Matrix: Water
Analysis Batch: 296100

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 295848

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFHpA	*109*		*25 - 150*
13C5 PFPeA	*104*		*25 - 150*
d3-NMeFOSAA	*103*		*25 - 150*
d5-NEtFOSAA	*104*		*25 - 150*
M2-8:2 FTS	*100*		*25 - 150*
M2-4:2 FTS	*94*		*25 - 150*
M2-6:2 FTS	*104*		*25 - 150*

Lab Sample ID: LCSD 320-295848/3-A
Matrix: Water
Analysis Batch: 296100

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 295848

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	40.6		ng/L		101	70 - 130	4	30
Perfluoropentanoic acid (PFPeA)			40.0	37.2		ng/L		93	66 - 126	0	30
Perfluorohexanoic acid (PFHxA)			40.0	36.9		ng/L		92	66 - 126	3	30
Perfluoroheptanoic acid (PFHpA)			40.0	39.9		ng/L		100	66 - 126	4	30
Perfluorooctanoic acid (PFOA)			40.0	36.3		ng/L		91	64 - 124	4	30
Perfluorononanoic acid (PFNA)			40.0	38.5		ng/L		96	68 - 128	5	30
Perfluorodecanoic acid (PFDA)			40.0	37.9		ng/L		95	69 - 129	6	30
Perfluoroundecanoic acid (PFUnA)			40.0	37.6		ng/L		94	60 - 120	2	30
Perfluorododecanoic acid (PFDoA)			40.0	37.3		ng/L		93	71 - 131	7	30
Perfluorotridecanoic acid (PFTriA)			40.0	34.2		ng/L		85	72 - 132	8	30
Perfluorotetradecanoic acid (PFTeA)			40.0	35.6		ng/L		89	68 - 128	5	30
Perfluorobutanesulfonic acid (PFBS)			35.4	35.3		ng/L		100	73 - 133	2	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	35.4		ng/L		97	63 - 123	1	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	39.8		ng/L		105	68 - 128	5	30
Perfluorodecanesulfonic acid (PFDS)			38.6	36.9		ng/L		96	68 - 128	2	30
Perfluorooctanesulfonic acid (PFOS)			37.1	35.3		ng/L		95	67 - 127	1	30
Perfluorooctanesulfonamide (FOSA)			40.0	40.9		ng/L		102	70 - 130	4	30
Perfluoropentanesulfonic acid (PFPeS)			37.5	37.4		ng/L		100	70 - 130	2	30
Perfluorononanesulfonic acid (PFNS)			38.4	38.9		ng/L		101	70 - 130	1	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	36.4		ng/L		91	67 - 127	4	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	38.1		ng/L		95	65 - 125	3	30
4:2 FTS			37.4	39.8		ng/L		107	70 - 130	7	30
8:2 FTS			38.3	37.5		ng/L		98	67 - 127	4	30
6:2 FTS			37.9	38.3		ng/L		101	66 - 126	3	30

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112304-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C8 FOSA	95		25 - 150
13C4 PFBA	100		25 - 150
13C2 PFHxA	107		25 - 150
13C4 PFOA	108		25 - 150
13C5 PFNA	107		25 - 150
13C2 PFDA	106		25 - 150
13C2 PFUnA	106		25 - 150
13C2 PFDoA	117		25 - 150
13C2 PFTeDA	105		25 - 150
13C3 PFBS	101		25 - 150
18O2 PFHxS	99		25 - 150
13C4 PFOS	97		25 - 150
13C4 PFHpA	110		25 - 150
13C5 PFPeA	110		25 - 150
d3-NMeFOSAA	109		25 - 150
d5-NEtFOSAA	110		25 - 150
M2-8:2 FTS	106		25 - 150
M2-4:2 FTS	100		25 - 150
M2-6:2 FTS	109		25 - 150

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112304-1

Client Sample ID: WT-012607-050819-CM-002
Date Collected: 05/08/19 16:10
Date Received: 05/09/19 09:40

Lab Sample ID: 240-112304-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			295848	05/21/19 06:09	MYV	TAL SAC
Total/NA	Analysis	537 (modified)		1	296156	05/22/19 11:02	S1M	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-112304-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Illinois	NELAP	5	200004	07-31-19 *
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
ANAB	DoD		L2468	01-20-21
ANAB	DOE		L2468.01	01-20-21
Arizona	State Program	9	AZ0708	08-11-19
Arkansas DEQ	State Program	6	88-0691	06-17-19
California	State Program	9	2897	01-31-20
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Georgia	State Program	4	N/A	01-28-19 *
Hawaii	State Program	9	N/A	01-29-20
Illinois	NELAP	5	200060	03-17-19 *
Kansas	NELAP	7	E-10375	10-31-19
Louisiana	NELAP	6	30612	06-30-19
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-20-20
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	04-01-20
Oregon	NELAP	10	4040	01-29-20
Pennsylvania	NELAP	3	68-01272	03-31-20
Texas	NELAP	6	T104704399	05-31-19
US Fish & Wildlife	Federal		LE148388-0	07-31-19
USDA	Federal		P330-18-00239	01-17-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-112304-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Sacramento (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
USEPA UCMR	Federal	1	CA00044	12-31-20
Utah	NELAP	8	CA00044	02-29-20
Vermont	State Program	1	VT-4040	04-16-20
Virginia	NELAP	3	460278	03-14-20 *
Washington	State Program	10	C581	05-05-19 *
West Virginia (DW)	State Program	3	9930C	12-31-19
Wyoming	State Program	8	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

3.4/3.2

Chain of Custody Record 319129

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager:	Site Contact:	Date: 5-8-19	COC No:
Company Name: GHD Services	Tel/Fax:	Lab Contact: D. Heckler	Carrier: Fed EX	____ of ____ COCs
Address: 26850 Haggerty	Analysis Turnaround Time			Sampler: Meincke
City/State/Zip: Farmington Hills, MI 48331	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 248-893-3400	TAT if different from Below 15			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: 12607-Eckles Rd	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
PO # 12607-T31419-001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PFAS	Sample Specific Notes:
WT-012607-050819-CM-002	5-8-19	16:10	G	WT	2		X		

240-112304 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	GHD	5-8-19/17:00		TA	5-9-19 940
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Page 17 of 21

5/24/2019

TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 112304
Canton Facility

Client GHD Site Name _____ Cooler unpacked by:

Cooler Received on 5-9-19 Opened on 5-9-19

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____

Packing material used: (Bubble Wrap) Foam Plastic Bag None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form

IR GUN# IR-8 (CF **-0.2** °C) Observed Cooler Temp. 3.4 °C Corrected Cooler Temp. 3.2 °C

IR GUN #36 (CF **+0.7**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	(Yes)	No
-Were the seals on the outside of the cooler(s) signed & dated?	(Yes)	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	(No)
-Were tamper/custody seals intact and uncompromised?	(Yes)	No NA
3. Shippers' packing slip attached to the cooler(s)?	(Yes)	No
4. Did custody papers accompany the sample(s)?	(Yes)	No
5. Were the custody papers relinquished & signed in the appropriate place?	(Yes)	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	(Yes)	No
7. Did all bottles arrive in good condition (Unbroken)?	(Yes)	No
8. Could all bottle labels be reconciled with the COC?	(Yes)	No
9. Were correct bottle(s) used for the test(s) indicated?	(Yes)	No
10. Sufficient quantity received to perform indicated analyses?	(Yes)	No
11. Are these work share samples?	Yes	(No)
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No (NA) pH Strip Lot# **HC984738**
13. Were VOAs on the COC?	Yes	(No)
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	No (NA)
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____	Yes	(No)
16. Was a LL Hg or Me Hg trip blank present? _____	Yes	(No)

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: RC

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.

Sample(s) _____ were received in a broken container.

Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Heckler, Denise D	Carrier Tracking No(s):	COC No: 240-103294.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: denise.heckler@testamericainc.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-112304-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 5/28/2019	Analysis Requested		Preservation Codes:
City: West Sacramento	TAT Requested (days):			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			Other:
Email:	WO #:			
Project Name: 12607, RACER Eckles Rd	Project #: 24005880			
Site:	SSOW#:			

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC (MOD) PFAS	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
WT-012607-050819-CM-002 (240-112304-1)	5/8/19	16:10 Eastern		Water			X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 5/9 1745	Company	Received by:	Date/Time: 5/10/19 925	Company ETA-SAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 5.7°C

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-112304-1

Login Number: 112304
List Number: 2
Creator: Nuval, Mark-Anthony M

List Source: Eurofins TestAmerica, Sacramento
List Creation: 05/13/19 03:27 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.7c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112304-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFHxA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)	PFDoA (25-150)
240-112304-1	WT-012607-050819-CM-002	89	66	94	101	106	110	105	108
LCS 320-295848/2-A	Lab Control Sample	88	97	104	102	103	105	101	107
LCSD 320-295848/3-A	Lab Control Sample Dup	95	100	107	108	107	106	106	117
MB 320-295848/1-A	Method Blank	91	98	106	105	107	106	99	112

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFTDA (25-150)	3C3-PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFHpA (25-150)	PFPeA (25-150)	d-NMeFOSAA (25-150)	d-NEtFOSAA (25-150)
240-112304-1	WT-012607-050819-CM-002	107	97	106	104	103	87	100	103
LCS 320-295848/2-A	Lab Control Sample	116	98	95	94	109	104	103	104
LCSD 320-295848/3-A	Lab Control Sample Dup	105	101	99	97	110	110	109	110
MB 320-295848/1-A	Method Blank	111	98	99	96	110	105	107	109

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M282FTS (25-150)	M242FTS (25-150)	M262FTS (25-150)					
240-112304-1	WT-012607-050819-CM-002	110	138	109					
LCS 320-295848/2-A	Lab Control Sample	100	94	104					
LCSD 320-295848/3-A	Lab Control Sample Dup	106	100	109					
MB 320-295848/1-A	Method Blank	100	93	108					

Surrogate Legend

PFOSA = 13C8 FOSA
PFBA = 13C4 PFBA
PFHxA = 13C2 PFHxA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
13C3-PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFHpA = 13C4 PFHpA
PFPeA = 13C5 PFPeA
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M282FTS = M2-8:2 FTS
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS

Attachment 4
May 15, 2019 Samples
WT-012607-051519-CM-001 (effluent)
WT-012607-051519-CM-002 (effluent)
Laboratory Analytical Reports

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-112698-1
Client Project/Site: 12607, RACER Eckles Rd

For:
GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle

Denise D Heckler

Authorized for release by:
5/31/2019 8:20:37 AM

Denise Heckler, Project Manager II
(330)966-9477
denise.heckler@testamericainc.com

LINKS

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Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112698-1

Job ID: 240-112698-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-112698-1

Comments
No additional comments.

Receipt
The sample was received on 5/16/2019 9:30 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8º C.

GC Semi VOA
Method(s) 608.3: The following samples required a copper clean-up to reduce matrix interferences caused by sulfur: WT-012607-051519-CM-001 (240-112698-1).4130147

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
Method(s) 200.7 Rev 4.4, 6010B: Some requested practical quantitation limits (PQLs) on the following samples fall below the laboratory's verified standard quantitation limit: WT-012607-051519-CM-001 (240-112698-1). The continuing calibration blanks and method blanks may not support the lower PQL.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112698-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112698-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-112698-1	WT-012607-051519-CM-001	Water	05/15/19 16:45	05/16/19 09:30	

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112698-1

Client Sample ID: WT-012607-051519-CM-001 — Lab Sample ID: 240-112698-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chromium	0.87		0.050		mg/L	1		200.7 Rev 4.4	Total Recoverable
Nickel	0.73		0.010		mg/L	1		200.7 Rev 4.4	Total Recoverable
Chromium, hexavalent	0.83		0.050		mg/L	10		3500-Cr B-2009	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112698-1

Method	Method Description	Protocol	Laboratory
608.3	Polychlorinated Biphenyls (PCBs) (GC)	40CFR136A	TAL CAN
200.7 Rev 4.4	Metals (ICP)	EPA	TAL CAN
245.1	Mercury (CVAA)	EPA	TAL CAN
1664A	HEM and SGT-HEM	1664A	TAL CAN
3500-Cr B-2009	Chromium, Hexavalent	SM	TAL CAN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL CAN
200.7	Preparation, Total Recoverable Metals	EPA	TAL CAN
245.1	Preparation, Mercury	EPA	TAL CAN
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	TAL CAN

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112698-1

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Client Sample ID: WT-012607-051519-CM-001
Date Collected: 05/15/19 16:45
Date Received: 05/16/19 09:30

Lab Sample ID: 240-112698-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.095	U	0.095		ug/L		05/17/19 10:22	05/21/19 23:01	1
Aroclor-1221	0.095	U	0.095		ug/L		05/17/19 10:22	05/21/19 23:01	1
Aroclor-1232	0.095	U	0.095		ug/L		05/17/19 10:22	05/21/19 23:01	1
Aroclor-1242	0.095	U	0.095		ug/L		05/17/19 10:22	05/21/19 23:01	1
Aroclor-1248	0.095	U	0.095		ug/L		05/17/19 10:22	05/21/19 23:01	1
Aroclor-1254	0.095	U	0.095		ug/L		05/17/19 10:22	05/21/19 23:01	1
Aroclor-1260	0.095	U	0.095		ug/L		05/17/19 10:22	05/21/19 23:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*52*		*10 - 114*	*05/17/19 10:22*	*05/21/19 23:01*	*1*
Tetrachloro-m-xylene	*63*		*15 - 131*	*05/17/19 10:22*	*05/21/19 23:01*	*1*

Client Sample Results

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112698-1

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Client Sample ID: WT-012607-051519-CM-001
Date Collected: 05/15/19 16:45
Date Received: 05/16/19 09:30

Lab Sample ID: 240-112698-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium	**0.87**		0.050		mg/L		05/17/19 14:00	05/21/19 20:49	1
Nickel	**0.73**		0.010		mg/L		05/17/19 14:00	05/21/19 20:49	1
Lead	0.050	U	0.050		mg/L		05/17/19 14:00	05/21/19 20:49	1
Zinc	0.020	U	0.020		mg/L		05/17/19 14:00	05/21/19 20:49	1

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112698-1

Method: 245.1 - Mercury (CVAA)

Client Sample ID: WT-012607-051519-CM-001
Date Collected: 05/15/19 16:45
Date Received: 05/16/19 09:30

Lab Sample ID: 240-112698-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020		mg/L		05/16/19 12:00	05/20/19 15:40	1

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112698-1

General Chemistry

Client Sample ID: WT-012607-051519-CM-001
Date Collected: 05/15/19 16:45
Date Received: 05/16/19 09:30

Lab Sample ID: 240-112698-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
HEM	4.7	U	4.7		mg/L			05/30/19 15:24	1
Chromium, hexavalent	**0.83**		0.050		mg/L			05/16/19 11:45	10
Total Suspended Solids	4.0	U	4.0		mg/L			05/21/19 13:13	1

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112698-1

GC Semi VOA

Prep Batch: 381843

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112698-1	WT-012607-051519-CM-001	Total/NA	Water	608	
MB 240-381843/21-A	Method Blank	Total/NA	Water	608	
LCS 240-381843/22-A	Lab Control Sample	Total/NA	Water	608	

Analysis Batch: 382321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112698-1	WT-012607-051519-CM-001	Total/NA	Water	608.3	381843
MB 240-381843/21-A	Method Blank	Total/NA	Water	608.3	381843
LCS 240-381843/22-A	Lab Control Sample	Total/NA	Water	608.3	381843

Metals

Prep Batch: 381631

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112698-1	WT-012607-051519-CM-001	Total/NA	Water	245.1	
MB 240-381631/1-A	Method Blank	Total/NA	Water	245.1	
LCS 240-381631/2-A	Lab Control Sample	Total/NA	Water	245.1	

Prep Batch: 381859

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112698-1	WT-012607-051519-CM-001	Total Recoverable	Water	200.7	
MB 240-381859/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 240-381859/2-A	Lab Control Sample	Total Recoverable	Water	200.7	

Analysis Batch: 382276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112698-1	WT-012607-051519-CM-001	Total/NA	Water	245.1	381631
MB 240-381631/1-A	Method Blank	Total/NA	Water	245.1	381631
LCS 240-381631/2-A	Lab Control Sample	Total/NA	Water	245.1	381631

Analysis Batch: 382507

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112698-1	WT-012607-051519-CM-001	Total Recoverable	Water	200.7 Rev 4.4	381859
MB 240-381859/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	381859
LCS 240-381859/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	381859

General Chemistry

Analysis Batch: 381632

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112698-1	WT-012607-051519-CM-001	Total/NA	Water	3500-Cr B-2009	
MB 240-381632/3	Method Blank	Total/NA	Water	3500-Cr B-2009	
LCS 240-381632/4	Lab Control Sample	Total/NA	Water	3500-Cr B-2009	

Analysis Batch: 382384

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112698-1	WT-012607-051519-CM-001	Total/NA	Water	SM 2540D	
MB 240-382384/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 240-382384/2	Lab Control Sample	Total/NA	Water	SM 2540D	

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112698-1

General Chemistry

Analysis Batch: 383683

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112698-1	WT-012607-051519-CM-001	Total/NA	Water	1664A	
MB 240-383683/24	Method Blank	Total/NA	Water	1664A	
LCS 240-383683/25	Lab Control Sample	Total/NA	Water	1664A	

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 240-381843/21-A
Matrix: Water
Analysis Batch: 382321

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 381843

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.10	U	0.10		ug/L		05/17/19 10:22	05/21/19 22:24	1
Aroclor-1221	0.10	U	0.10		ug/L		05/17/19 10:22	05/21/19 22:24	1
Aroclor-1232	0.10	U	0.10		ug/L		05/17/19 10:22	05/21/19 22:24	1
Aroclor-1242	0.10	U	0.10		ug/L		05/17/19 10:22	05/21/19 22:24	1
Aroclor-1248	0.10	U	0.10		ug/L		05/17/19 10:22	05/21/19 22:24	1
Aroclor-1254	0.10	U	0.10		ug/L		05/17/19 10:22	05/21/19 22:24	1
Aroclor-1260	0.10	U	0.10		ug/L		05/17/19 10:22	05/21/19 22:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*83*		*10 - 114*	*05/17/19 10:22*	*05/21/19 22:24*	*1*
Tetrachloro-m-xylene	*79*		*15 - 131*	*05/17/19 10:22*	*05/21/19 22:24*	*1*

Lab Sample ID: LCS 240-381843/22-A
Matrix: Water
Analysis Batch: 382321

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 381843

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor-1016			2.50	1.97		ug/L		79	50 - 140		
Aroclor-1260			2.50	2.06		ug/L		82	8 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*67*		*10 - 114*
Tetrachloro-m-xylene	*75*		*15 - 131*

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 240-381859/1-A
Matrix: Water
Analysis Batch: 382507

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 381859

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.050	U	0.050		mg/L		05/17/19 14:00	05/21/19 20:08	1
Nickel	0.010	U	0.010		mg/L		05/17/19 14:00	05/21/19 20:08	1
Lead	0.050	U	0.050		mg/L		05/17/19 14:00	05/21/19 20:08	1
Zinc	0.020	U	0.020		mg/L		05/17/19 14:00	05/21/19 20:08	1

Lab Sample ID: LCS 240-381859/2-A
Matrix: Water
Analysis Batch: 382507

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 381859

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium			0.200	0.205		mg/L		102	85 - 115		
Nickel			0.500	0.525		mg/L		105	85 - 115		
Lead			0.500	0.511		mg/L		102	85 - 115		
Zinc			0.500	0.550		mg/L		110	85 - 115		

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 240-381631/1-A
Matrix: Water
Analysis Batch: 382276

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 381631

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020		mg/L		05/16/19 12:00	05/20/19 14:12	1

Lab Sample ID: LCS 240-381631/2-A
Matrix: Water
Analysis Batch: 382276

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 381631

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.00500	0.00511		mg/L		102	85 - 115		

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 240-383683/24
Matrix: Water
Analysis Batch: 383683

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
HEM	5.0	U	5.0		mg/L			05/30/19 15:24	1

Lab Sample ID: LCS 240-383683/25
Matrix: Water
Analysis Batch: 383683

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
HEM			40.0	31.50		mg/L		79	78 - 114		

Method: 3500-Cr B-2009 - Chromium, Hexavalent

Lab Sample ID: MB 240-381632/3
Matrix: Water
Analysis Batch: 381632

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.0050	U	0.0050		mg/L			05/16/19 09:40	1

Lab Sample ID: LCS 240-381632/4
Matrix: Water
Analysis Batch: 381632

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent			0.250	0.248		mg/L		99	80 - 123		

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 240-382384/1
Matrix: Water
Analysis Batch: 382384

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	4.0	U	4.0		mg/L			05/21/19 13:13	1

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: LCS 240-382384/2
Matrix: Water
Analysis Batch: 382384

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	75.7	65.0		mg/L		86	64 - 120

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112698-1

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	DCBP1 (10-114)	TCX1 (15-131)								
240-112698-1	WT-012607-051519-CM-001	52	63								
LCS 240-381843/22-A	Lab Control Sample	67	75								
MB 240-381843/21-A	Method Blank	83	79								

Surrogate Legend

DCBP = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

Lab Chronicle

Client: GHD Services Inc.
Job ID: 240-112698-1
Project/Site: 12607, RACER Eckles Rd

Client Sample ID: WT-012607-051519-CM-001
Lab Sample ID: 240-112698-1

Date Collected: 05/15/19 16:45
Matrix: Water
Date Received: 05/16/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			381843	05/17/19 10:22	BMB	TAL CAN
Total/NA	Analysis	608.3		1	382321	05/21/19 23:01	LSH	TAL CAN
Total Recoverable	Prep	200.7			381859	05/17/19 14:00	MBB	TAL CAN
Total Recoverable	Analysis	200.7 Rev 4.4		1	382507	05/21/19 20:49	WKD	TAL CAN
Total/NA	Prep	245.1			381631	05/16/19 12:00	SLD	TAL CAN
Total/NA	Analysis	245.1		1	382276	05/20/19 15:40	AJC	TAL CAN
Total/NA	Analysis	1664A		1	383683	05/30/19 15:24	AMT	TAL CAN
Total/NA	Analysis	3500-Cr B-2009		10	381632	05/16/19 11:45	BLW	TAL CAN
Total/NA	Analysis	SM 2540D		1	382384	05/21/19 13:13	AMT	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-112698-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Illinois	NELAP	5	200004	07-31-19 *
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

MICHIGAN
190

4.0/3.8

Chain of Custody Record

312874

Tr:
Test

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Chris. Meincke	Site Contact: Ruth. Mickle	Date: 5-15-2019	COC No:
Company Name: GHD Services	Tel/Fax:	Lab Contact: D. Heckler	Carrier: FedEx	_____ of _____
Address: 26850 Haggerty	Analysis Turnaround Time			Sampler: Meinc
City/State/Zip: Farmington Hills, MI	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 248-893-3400	TAT if different from Below _____			Walk-in Client:
Fax:	☑ 2 weeks			Lab Sampling:
Project Name: PACER GWTP	☐ 1 week			
Site: Eckles Rd Site	☐ 2 days			Job / SDG No.:
PO# 012607 - T01419-03	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PCBs	HEM	Metals	TSS, Cr VI	Sample Specific Notes:
WT-012607-051519-CM-001	5-15-19	16:45	G	WT	6			X	X	X	X	

240-112698 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd:_____ Corr'd:_____		Therm ID No.:_____
Relinquished by:	Company: GHD	Date/Time: 5-15-19/1720	Received by:	Company: ETAC	Date/Time: 5-16-19 930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

5/31/2019

TestAmerica Canton Sample Receipt Form/Narrative **Login # : 112698**
Canton Facility

Client GHD Site Name

Cooler Received on 5-16-19 Opened on 5-16-19

Cooler unpacked by: MH

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # 14 Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **-0.2** °C) Observed Cooler Temp. 4.0 °C Corrected Cooler Temp. 3.8 °C
   IR GUN #36 (CF **+0.7**°C) Observed Cooler Temp. ____ °C Corrected Cooler Temp. ____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
   -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
   -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# **HC984738**
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # ____ Yes No
16. Was a LL Hg or Me Hg trip blank present? ____ Yes No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM ____ Date ____ by ____ via Verbal Voice Mail Other

Concerning ____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: DSD

18. SAMPLE CONDITION

Sample(s) ____ were received after the recommended holding time had expired.
Sample(s) ____ were received in a broken container.
Sample(s) ____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) ____ were further preserved in the laboratory.
Time preserved: ____ Preservative(s) added/Lot number(s): ____

VOA Sample Preservation - Date/Time VOAs Frozen: ____

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
WT-012607-051519-CM-001	240-112698-B-1	Plastic 500ml - with Nitric Acid	<2	_____	_____
WT-012607-051519-CM-001	240-112698-E-1	Amber Glass 1 liter - Sulfuric Acid	_____	_____	_____
WT-012607-051519-CM-001	240-112698-F-1	Amber Glass 1 liter - Sulfuric Acid	_____	_____	_____

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ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-112693-1
Client Project/Site: 12607, RACER Eckles Rd

For:
GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle

Denise D Heckler

Authorized for release by:
6/4/2019 9:28:48 AM

Denise Heckler, Project Manager II
(330)966-9477
denise.heckler@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112693-1

Job ID: 240-112693-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-112693-1

Comments
No additional comments.

Receipt
The sample was received on 5/16/2019 9:30 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8º C.

LCMS
Method(s) 537 (modified): Isotope Dilution Analyte (IDA) M2-4:2 FTS and M2-8:2 FTS recoveries are above the method recommended limit for the following sample: WT-012607-051519-CM-002 (240-112693-1). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries. The sample was re-analyzed with concurring results; therefore the data have been reported.

Method(s) 537 (modified): The following samples exhibited elevated noise or matrix interferences for Perfluorobutanoic acid (PFBA)and Perfluorohexanoic acid (PFHxA) causing elevation of the detection limit (EDL): WT-012607-051519-CM-002 (240-112693-1) . The reporting limit (RL) for the affected analytes has been raised to be equal to the EDL, and a "G" qualifier applied.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112693-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
B	Compound was found in the blank and sample.
G	The reported quantitation limit has been raised due to an exhibited elevated noise or matrix interference
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112693-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-112693-1	WT-012607-051519-CM-002	Water	05/15/19 16:40	05/16/19 09:30	

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112693-1

Client Sample ID: WT-012607-051519-CM-002 — Lab Sample ID: 240-112693-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	5.2		1.9	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.32	J I	1.9	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.2	J	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.2	I B	1.9	0.16	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	1.7	J I	1.9	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	94	I	1.9	0.52	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.79	J I	1.9	0.29	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112693-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Method: 537 (modified) - Fluorinated Alkyl Substances

Client Sample ID: WT-012607-051519-CM-002
Date Collected: 05/15/19 16:40
Date Received: 05/16/19 09:30

Lab Sample ID: 240-112693-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	9.7	U G	9.7	9.7	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluoropentanoic acid (PFPeA)	1.9	U	1.9	0.47	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluorohexanoic acid (PFHxA)	2.4	U G	2.4	2.4	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluoroheptanoic acid (PFHpA)	1.9	U	1.9	0.24	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluorooctanoic acid (PFOA)	**5.2**		1.9	0.82	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluorononanoic acid (PFNA)	1.9	U	1.9	0.26	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluorodecanoic acid (PFDA)	1.9	U	1.9	0.30	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluoroundecanoic acid (PFUnA)	1.9	U	1.9	1.1	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluorododecanoic acid (PFDoA)	1.9	U	1.9	0.53	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluorotridecanoic acid (PFTriA)	1.9	U	1.9	1.3	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluorotetradecanoic acid (PFTeA)	**0.32**	**J I**	1.9	0.28	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluorobutanesulfonic acid (PFBS)	**1.2**	**J**	1.9	0.19	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluorohexanesulfonic acid (PFHxS)	**5.2**	**I B**	1.9	0.16	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluoroheptanesulfonic Acid (PFHpS)	**1.7**	**J I**	1.9	0.18	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluorodecanesulfonic acid (PFDS)	1.9	U	1.9	0.31	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluorooctanesulfonic acid (PFOS)	**94**	**I**	1.9	0.52	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluorooctanesulfonamide (FOSA)	1.9	U	1.9	0.34	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluoropentanesulfonic acid (PFPeS)	**0.79**	**J I**	1.9	0.29	ng/L		05/24/19 06:11	05/26/19 08:38	1
Perfluorononanesulfonic acid (PFNS)	1.9	U	1.9	0.15	ng/L		05/24/19 06:11	05/26/19 08:38	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	19	U	19	3.0	ng/L		05/24/19 06:11	05/26/19 08:38	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	19	U	19	1.8	ng/L		05/24/19 06:11	05/26/19 08:38	1
4:2 FTS	19	U	19	5.0	ng/L		05/24/19 06:11	05/26/19 08:38	1
8:2 FTS	19	U	19	1.9	ng/L		05/24/19 06:11	05/26/19 08:38	1
6:2 FTS	19	U	19	1.9	ng/L		05/24/19 06:11	05/26/19 08:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*99*		*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*
13C4 PFBA	*76*		*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*
13C2 PFHxA	*94*		*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*
13C4 PFOA	*98*		*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*
13C5 PFNA	*100*		*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*
13C2 PFDA	*110*		*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*
13C2 PFUnA	*107*		*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*
13C2 PFDoA	*109*		*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*
13C2 PFTeDA	*103*		*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*
13C3 PFBS	*105*		*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*
18O2 PFHxS	*106*		*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*
13C4 PFOS	*102*		*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*
13C4 PFHpA	*98*		*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*
13C5 PFPeA	*78*		*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*
d3-NMeFOSAA	*108*		*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*
d5-NEtFOSAA	*111*		*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*
M2-8:2 FTS	*175*	*	*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*
M2-4:2 FTS	*163*	*	*25 - 150*	*05/24/19 06:11*	*05/26/19 08:38*	*1*

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112693-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Client Sample ID: WT-012607-051519-CM-002
Date Collected: 05/15/19 16:40
Date Received: 05/16/19 09:30

Lab Sample ID: 240-112693-1
Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	147		25 - 150	05/24/19 06:11	05/26/19 08:38	1

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112693-1

LCMS

Prep Batch: 296695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112693-1	WT-012607-051519-CM-002	Total/NA	Water	3535	
MB 320-296695/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-296695/2-A	Lab Control Sample	Total/NA	Water	3535	

Analysis Batch: 297006

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-112693-1	WT-012607-051519-CM-002	Total/NA	Water	537 (modified)	296695
MB 320-296695/1-A	Method Blank	Total/NA	Water	537 (modified)	296695
LCS 320-296695/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	296695

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-296695/1-A
Matrix: Water
Analysis Batch: 297006

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 296695

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.0	U	2.0	0.35	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluoropentanoic acid (PFPeA)	2.0	U	2.0	0.49	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluorohexanoic acid (PFHxA)	2.0	U	2.0	0.58	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluoroheptanoic acid (PFHpA)	2.0	U	2.0	0.25	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluorooctanoic acid (PFOA)	2.0	U	2.0	0.85	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.27	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.31	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.55	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluorotridecanoic acid (PFTriA)	2.0	U	2.0	1.3	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.29	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.0	0.20	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluorohexanesulfonic acid (PFHxS)	0.284	J	2.0	0.17	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.32	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluorooctanesulfonic acid (PFOS)	2.0	U	2.0	0.54	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluorooctanesulfonamide (FOSA)	2.0	U	2.0	0.35	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluoropentanesulfonic acid (PFPeS)	2.0	U	2.0	0.30	ng/L		05/24/19 06:11	05/26/19 05:25	1
Perfluorononanesulfonic acid (PFNS)	2.0	U	2.0	0.16	ng/L		05/24/19 06:11	05/26/19 05:25	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.1	ng/L		05/24/19 06:11	05/26/19 05:25	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9	ng/L		05/24/19 06:11	05/26/19 05:25	1
4:2 FTS	20	U	20	5.2	ng/L		05/24/19 06:11	05/26/19 05:25	1
8:2 FTS	20	U	20	2.0	ng/L		05/24/19 06:11	05/26/19 05:25	1
6:2 FTS	20	U	20	2.0	ng/L		05/24/19 06:11	05/26/19 05:25	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*85*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
13C4 PFBA	*97*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
13C2 PFHxA	*92*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
13C4 PFOA	*99*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
13C5 PFNA	*101*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
13C2 PFDA	*100*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
13C2 PFUnA	*104*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
13C2 PFDoA	*104*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
13C2 PFTeDA	*113*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
13C3 PFBS	*96*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
18O2 PFHxS	*95*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
13C4 PFOS	*102*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
13C4 PFHpA	*94*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
13C5 PFPeA	*96*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
d3-NMeFOSAA	*97*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
d5-NEtFOSAA	*103*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
M2-8:2 FTS	*116*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
M2-4:2 FTS	*116*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*
M2-6:2 FTS	*97*		*25 - 150*	*05/24/19 06:11*	*05/26/19 05:25*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-296695/2-A
Matrix: Water
Analysis Batch: 297006

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 296695

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	40.4		ng/L		101	70 - 130
Perfluoropentanoic acid (PFPeA)	40.0	38.2		ng/L		96	66 - 126
Perfluorohexanoic acid (PFHxA)	40.0	38.8		ng/L		97	66 - 126
Perfluoroheptanoic acid (PFHpA)	40.0	42.0		ng/L		105	66 - 126
Perfluorooctanoic acid (PFOA)	40.0	40.6		ng/L		102	64 - 124
Perfluorononanoic acid (PFNA)	40.0	41.0		ng/L		103	68 - 128
Perfluorodecanoic acid (PFDA)	40.0	42.5		ng/L		106	69 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	37.4		ng/L		93	60 - 120
Perfluorododecanoic acid (PFDoA)	40.0	40.6		ng/L		102	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	45.6		ng/L		114	72 - 132
Perfluorotetradecanoic acid (PFTeA)	40.0	37.6		ng/L		94	68 - 128
Perfluorobutanesulfonic acid (PFBS)	35.4	35.5		ng/L		100	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.3		ng/L		97	63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	39.2		ng/L		103	68 - 128
Perfluorodecanesulfonic acid (PFDS)	38.6	40.0		ng/L		104	68 - 128
Perfluorooctanesulfonic acid (PFOS)	37.1	35.9		ng/L		97	67 - 127
Perfluorooctanesulfonamide (FOSA)	40.0	46.6		ng/L		117	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	37.0		ng/L		99	70 - 130
Perfluorononanesulfonic acid (PFNS)	38.4	36.7		ng/L		96	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	38.5		ng/L		96	67 - 127
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	39.4		ng/L		98	65 - 125
4:2 FTS	37.4	36.6		ng/L		98	70 - 130
8:2 FTS	38.3	36.9		ng/L		96	67 - 127
6:2 FTS	37.9	39.4		ng/L		104	66 - 126

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*91*		*25 - 150*
13C4 PFBA	*101*		*25 - 150*
13C2 PFHxA	*99*		*25 - 150*
13C4 PFOA	*103*		*25 - 150*
13C5 PFNA	*107*		*25 - 150*
13C2 PFDA	*106*		*25 - 150*
13C2 PFUnA	*114*		*25 - 150*
13C2 PFDoA	*108*		*25 - 150*
13C2 PFTeDA	*117*		*25 - 150*
13C3 PFBS	*101*		*25 - 150*
18O2 PFHxS	*96*		*25 - 150*
13C4 PFOS	*104*		*25 - 150*

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112693-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-296695/2-A
Matrix: Water
Analysis Batch: 297006

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 296695

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFHpA	98		25 - 150
13C5 PFPeA	99		25 - 150
d3-NMeFOSAA	112		25 - 150
d5-NEtFOSAA	112		25 - 150
M2-8:2 FTS	109		25 - 150
M2-4:2 FTS	111		25 - 150
M2-6:2 FTS	100		25 - 150

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112693-1

Client Sample ID: WT-012607-051519-CM-002

Lab Sample ID: 240-112693-1

Date Collected: 05/15/19 16:40

Matrix: Water

Date Received: 05/16/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			296695	05/24/19 06:11	SK	TAL SAC
Total/NA	Analysis	537 (modified)		1	297006	05/26/19 08:38	P1N	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-112693-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Illinois	NELAP	5	200004	07-31-19 *
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19 *
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
ANAB	DoD		L2468	01-20-21
ANAB	DOE		L2468.01	01-20-21
Arizona	State Program	9	AZ0708	08-11-19
Arkansas DEQ	State Program	6	88-0691	06-17-19
California	State Program	9	2897	01-31-20
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Georgia	State Program	4	N/A	01-28-19 *
Hawaii	State Program	9	N/A	01-29-20
Illinois	NELAP	5	200060	03-17-19 *
Kansas	NELAP	7	E-10375	10-31-19
Louisiana	NELAP	6	30612	06-30-19
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-20-20
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	04-01-20
Oregon	NELAP	10	4040	01-29-20
Pennsylvania	NELAP	3	68-01272	03-31-20
Texas	NELAP	6	T104704399	05-31-19
US Fish & Wildlife	Federal		LE148388-0	07-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-112693-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Sacramento (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
USDA	Federal		P330-18-00239	01-17-21
USEPA UCMR	Federal	1	CA00044	12-31-20
Utah	NELAP	8	CA00044	02-29-20
Vermont	State Program	1	VT-4040	04-16-20
Virginia	NELAP	3	460278	03-14-20 *
Washington	State Program	10	C581	05-05-20
West Virginia (DW)	State Program	3	9930C	12-31-19
Wyoming	State Program	8	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Chain of Custody Record 312935

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THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: C. Meincke	Site Contact: Ruth Mickle	Date: 5-15-19	COC No:
Company Name: GHD Services	Tel/Fax:	Lab Contact: D. Heckler	Carrier: Fed ex	of COCs
Address: 26550 Hargerty	Analysis Turnaround Time			Sampler: Meincke
City/State/Zip: Farmington Hills MI 48331	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 248-893-3400	TAT if different from Below 15			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: 12607-Eccles Rd	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
PO# 12607-T31419-001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PFAS	Sample Specific Notes:
WT012607-051519-CM-002	5-15-19	16:40	G	WT	2			X	

240-112693 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	GHD	5-15-19/17:20	[signature]	ETAC	5/16/19 930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TestAmerica Canton Sample Receipt Form/Narrative **Login # : 112693**
Canton Facility

Client GHD Site Name

Cooler Received on 5-16-19 Opened on 5-16-19

Cooler unpacked by: MAT

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # 14 Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **-0.2** °C) Observed Cooler Temp. 4.0 °C Corrected Cooler Temp. 3.8 °C
   IR GUN #36 (CF **+0.7**°C) Observed Cooler Temp. ____ °C Corrected Cooler Temp. ____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3. Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5. Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7. Did all bottles arrive in good condition (Unbroken)?	Yes	No
8. Could all bottle labels be reconciled with the COC?	Yes	No
9. Were correct bottle(s) used for the test(s) indicated?	Yes	No
10. Sufficient quantity received to perform indicated analyses?	Yes	No
11. Are these work share samples?	Yes	No
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# **HC984738**
13. Were VOAs on the COC?	Yes	No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # ____	Yes	No
16. Was a LL Hg or Me Hg trip blank present? ____	Yes	No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM ____ Date ____ by ____ via Verbal Voice Mail Other

Concerning ____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: MS/BC

18. SAMPLE CONDITION

Sample(s) ____ were received after the recommended holding time had expired.
Sample(s) ____ were received in a broken container.
Sample(s) ____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) ____ were further preserved in the laboratory.
Time preserved: ____ Preservative(s) added/Lot number(s): ____

VOA Sample Preservation - Date/Time VOAs Frozen: ____

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Heckler, Denise D	Carrier Tracking No(s):	COC No: 240-103637.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: denise.heckler@testamericainc.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-112693-1
Address: 880 Riverside Parkway, .	Due Date Requested: 6/4/2019			Preservation Codes:
City: West Sacramento	TAT Requested (days):			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			Other:
Project Name: 12607, RACER Eckles Rd	Project #: 24005880			
Site:	SSOW#:			

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC (MOD) PFAS	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
WT-012607-051519-CM-002 (240-112693-1)	5/15/19	16:40 Eastern		Water			X	2	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification Unconfirmed	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)* ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by: Charles K	5-16-19 1516	240		17 May 19 0935	ETAWSAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.: —	Cooler Temperature(s) °C and Other Remarks: 1.3°C Corr 1.5°C

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-112693-1

Login Number: 112693
List Number: 2
Creator: Oropeza, Salvador

List Source: Eurofins TestAmerica, Sacramento
List Creation: 05/18/19 06:19 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.5c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-112693-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFOSA	PFBA	PFHxA	PFOA	PFNA	PFDA	PFUnA	PFDoA
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
240-112693-1	WT-012607-051519-CM-002	99	76	94	98	100	110	107	109
LCS 320-296695/2-A	Lab Control Sample	91	101	99	103	107	106	114	108
MB 320-296695/1-A	Method Blank	85	97	92	99	101	100	104	104

		Percent Isotope Dilution Recovery (Acceptance Limits)							
		PFTDA	3C3-PFBS	PFHxS	PFOS	PFHpA	PFPeA	-NMeFOSA	-NEtFOSA
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
240-112693-1	WT-012607-051519-CM-002	103	105	106	102	98	78	108	111
LCS 320-296695/2-A	Lab Control Sample	117	101	96	104	98	99	112	112
MB 320-296695/1-A	Method Blank	113	96	95	102	94	96	97	103

		Percent Isotope Dilution Recovery (Acceptance Limits)		
		M282FTS	M242FTS	M262FTS
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)
240-112693-1	WT-012607-051519-CM-002	175 *	163 *	147
LCS 320-296695/2-A	Lab Control Sample	109	111	100
MB 320-296695/1-A	Method Blank	116	116	97

Surrogate Legend

PFOSA = 13C8 FOSA
PFBA = 13C4 PFBA
PFHxA = 13C2 PFHxA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
13C3-PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFHpA = 13C4 PFHpA
PFPeA = 13C5 PFPeA
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M282FTS = M2-8:2 FTS
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS

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240-112693 Field Sheet

...cramento
...ing Notes

Job: _____

Tracking # 4422 3447 0031 SO / PO / FO / 2-Day / Ground / UPS / Courier / GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AK-9 Corr. Factor: + 0.2°C

Ice ___ Wet ✓ Gel ___ Other ___

Cooler Custody Seal: —

Sample Custody Seal: —

Cooler ID: —

Temp Observed: 1.3°C Corrected: 1.5°C

From: Temp Blank ☐ Sample ☐

NCM Filed: Yes ☐ No ☐

	Yes	No	NA
Perchlorate has headspace?	☐	☐	☐
Alkalinity has no headspace?	☐	☐	☐
CoC is complete w/o discrepancies?	☐	☐	☐
Samples received within holding time?	☐	☐	☐
Sample preservatives verified?	☐	☐	☐
Cooler compromised/tampered with?	☐	☐	☐
Samples compromised/tampered with?	☐	☐	☐
Samples w/o discrepancies?	☐	☐	☐
Sample containers have legible labels?	☐	☐	☐
Containers are not broken or leaking?	☐	☐	☐
Sample date/times are provided.	☐	☐	☐
Appropriate containers are used?	☐	☐	☐
Sample bottles are completely filled?	☐	☐	☐
Zero headspace?*	☐	☐	☐
Multiphasic samples are not present?	☐	☐	☐
Sample temp OK?	☐	☐	☐
Sample out of temp?	☐	☐	☐

Initials: _____ Date: 17 May 19

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

Attachment 5
May 23, 2019 Samples
WT-012607-052319-CM-001 (effluent)
EB-012607-052319-CM-002 (Eq. Blank)
WT-012607-052319-CM-003 (effluent)
Laboratory Analytical Reports

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ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-113240-1
Client Project/Site: 12607, RACER Eckles Rd

For:
GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle

Denise D Heckler

Authorized for release by:
6/10/2019 12:52:45 PM

Denise Heckler, Project Manager II
(330)966-9477
denise.heckler@testamericainc.com

LINKS

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Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 240-113240-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-113240-1

Comments
No additional comments.

Receipt
The samples were received on 5/24/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.6º C.

LCMS
Method(s) 537 (modified): The matrix spike / matrix spike duplicate (MS/MSD) recoveries for Perfluorodecanesulfonic acid (PFDS) and Perfluorononanesulfonic acid (PFNS) in preparation batch 320-298624 and analytical batch 320-298882 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 537 (modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for M2-4:2 FTS the following samples: WT-012607-052319-CM-001 (240-113240-1). The samples were re-analyzed with concurring results. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method(s) 537 (modified): The following sample exhibited elevated noise or matrix interferences for Perfluorobutanoic acid (PFBA) causing elevation of the reporting limit (RL): WT-012607-052319-CM-001 (240-113240-1) . The reporting limit (RL) for the affected analyte has been raised to be equal to the matrix, and a "G" qualifier applied.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113240-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
B	Compound was found in the blank and sample.
G	The reported quantitation limit has been raised due to an exhibited elevated noise or matrix interference
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113240-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-113240-1	WT-012607-052319-CM-001	Water	05/23/19 17:20	05/24/19 09:30	
240-113240-2	EB-012607-052319-CM-002	Water	05/23/19 17:15	05/24/19 09:30	

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113240-1

Client Sample ID: WT-012607-052319-CM-001 — Lab Sample ID: 240-113240-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	1.8	J	1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.1	J	1.9	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	5.2		1.9	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.36	J I	1.9	0.28	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.1	J	1.9	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.6	I B	1.9	0.16	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	1.9	I	1.9	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	100	I	1.9	0.51	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.92	J I	1.9	0.28	ng/L	1		537 (modified)	Total/NA

Client Sample ID: EB-012607-052319-CM-002 — Lab Sample ID: 240-113240-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.45	J B	1.9	0.33	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.3	J	1.9	0.55	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.24	J B	1.9	0.16	ng/L	1		537 (modified)	Total/NA
6:2 FTS	13	J	19	1.9	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113240-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113240-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Client Sample ID: WT-012607-052319-CM-001
Date Collected: 05/23/19 17:20
Date Received: 05/24/19 09:30

Lab Sample ID: 240-113240-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	19	U G	19	19	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluoropentanoic acid (PFPeA)	1.9	U	1.9	0.46	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluorohexanoic acid (PFHxA)	**1.8**	**J**	1.9	0.55	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluoroheptanoic acid (PFHpA)	**1.1**	**J**	1.9	0.24	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluorooctanoic acid (PFOA)	**5.2**		1.9	0.81	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluorononanoic acid (PFNA)	1.9	U	1.9	0.26	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluorodecanoic acid (PFDA)	1.9	U	1.9	0.29	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluoroundecanoic acid (PFUnA)	1.9	U	1.9	1.0	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluorododecanoic acid (PFDoA)	1.9	U	1.9	0.52	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluorotridecanoic acid (PFTriA)	1.9	U	1.9	1.2	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluorotetradecanoic acid (PFTeA)	**0.36**	**J I**	1.9	0.28	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluorobutanesulfonic acid (PFBS)	**1.1**	**J**	1.9	0.19	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluorohexanesulfonic acid (PFHxS)	**5.6**	**I B**	1.9	0.16	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluoroheptanesulfonic Acid (PFHpS)	**1.9**	**I**	1.9	0.18	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluorodecanesulfonic acid (PFDS)	1.9	U	1.9	0.30	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluorooctanesulfonic acid (PFOS)	**100**	**I**	1.9	0.51	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluorooctanesulfonamide (FOSA)	1.9	U	1.9	0.33	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluoropentanesulfonic acid (PFPeS)	**0.92**	**J I**	1.9	0.28	ng/L		06/03/19 06:17	06/07/19 03:41	1
Perfluorononanesulfonic acid (PFNS)	1.9	U	1.9	0.15	ng/L		06/03/19 06:17	06/07/19 03:41	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	19	U	19	2.9	ng/L		06/03/19 06:17	06/07/19 03:41	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	19	U	19	1.8	ng/L		06/03/19 06:17	06/07/19 03:41	1
4:2 FTS	19	U	19	4.9	ng/L		06/03/19 06:17	06/07/19 03:41	1
8:2 FTS	19	U	19	1.9	ng/L		06/03/19 06:17	06/07/19 03:41	1
6:2 FTS	19	U	19	1.9	ng/L		06/03/19 06:17	06/07/19 03:41	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*94*		*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*
13C4 PFBA	*77*		*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*
13C2 PFHxA	*91*		*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*
13C4 PFOA	*93*		*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*
13C5 PFNA	*105*		*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*
13C2 PFDA	*109*		*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*
13C2 PFUnA	*103*		*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*
13C2 PFDoA	*99*		*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*
13C2 PFTeDA	*121*		*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*
13C3 PFBS	*106*		*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*
18O2 PFHxS	*105*		*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*
13C4 PFOS	*95*		*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*
13C4 PFHpA	*93*		*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*
13C5 PFPeA	*73*		*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*
d3-NMeFOSAA	*95*		*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*
d5-NEtFOSAA	*102*		*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*
M2-8:2 FTS	*106*		*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*
M2-4:2 FTS	*172*	*	*25 - 150*	*06/03/19 06:17*	*06/07/19 03:41*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Client Sample ID: WT-012607-052319-CM-001
Date Collected: 05/23/19 17:20
Date Received: 05/24/19 09:30

Lab Sample ID: 240-113240-1
Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	124		25 - 150	06/03/19 06:17	06/07/19 03:41	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Client Sample ID: EB-012607-052319-CM-002
Date Collected: 05/23/19 17:15
Date Received: 05/24/19 09:30

Lab Sample ID: 240-113240-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.45**	**J B**	1.9	0.33	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluoropentanoic acid (PFPeA)	1.9	U	1.9	0.46	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluorohexanoic acid (PFHxA)	**1.3**	**J**	1.9	0.55	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluoroheptanoic acid (PFHpA)	1.9	U	1.9	0.24	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluorooctanoic acid (PFOA)	1.9	U	1.9	0.80	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluorononanoic acid (PFNA)	1.9	U	1.9	0.25	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluorodecanoic acid (PFDA)	1.9	U	1.9	0.29	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluoroundecanoic acid (PFUnA)	1.9	U	1.9	1.0	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluorododecanoic acid (PFDoA)	1.9	U	1.9	0.52	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluorotridecanoic acid (PFTriA)	1.9	U	1.9	1.2	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluorotetradecanoic acid (PFTeA)	1.9	U	1.9	0.27	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluorobutanesulfonic acid (PFBS)	1.9	U	1.9	0.19	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluorohexanesulfonic acid (PFHxS)	**0.24**	**J B**	1.9	0.16	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.9	U	1.9	0.18	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluorodecanesulfonic acid (PFDS)	1.9	U	1.9	0.30	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluorooctanesulfonic acid (PFOS)	1.9	U	1.9	0.51	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluorooctanesulfonamide (FOSA)	1.9	U	1.9	0.33	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluoropentanesulfonic acid (PFPeS)	1.9	U	1.9	0.28	ng/L		06/03/19 06:17	06/04/19 01:41	1
Perfluorononanesulfonic acid (PFNS)	1.9	U	1.9	0.15	ng/L		06/03/19 06:17	06/04/19 01:41	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	19	U	19	2.9	ng/L		06/03/19 06:17	06/04/19 01:41	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	19	U	19	1.8	ng/L		06/03/19 06:17	06/04/19 01:41	1
4:2 FTS	19	U	19	4.9	ng/L		06/03/19 06:17	06/04/19 01:41	1
8:2 FTS	19	U	19	1.9	ng/L		06/03/19 06:17	06/04/19 01:41	1
6:2 FTS	**13**	**J**	19	1.9	ng/L		06/03/19 06:17	06/04/19 01:41	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*82*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
13C4 PFBA	*83*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
13C2 PFHxA	*87*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
13C4 PFOA	*96*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
13C5 PFNA	*101*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
13C2 PFDA	*99*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
13C2 PFUnA	*108*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
13C2 PFDoA	*103*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
13C2 PFTeDA	*147*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
13C3 PFBS	*92*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
18O2 PFHxS	*86*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
13C4 PFOS	*93*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
13C4 PFHpA	*100*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
13C5 PFPeA	*85*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
d3-NMeFOSAA	*101*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
d5-NEtFOSAA	*108*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
M2-8:2 FTS	*109*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
M2-4:2 FTS	*145*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*
M2-6:2 FTS	*125*		*25 - 150*	*06/03/19 06:17*	*06/04/19 01:41*	*1*

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113240-1

LCMS

Prep Batch: 298624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113240-1	WT-012607-052319-CM-001	Total/NA	Water	3535	
240-113240-2	EB-012607-052319-CM-002	Total/NA	Water	3535	
MB 320-298624/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-298624/2-A	Lab Control Sample	Total/NA	Water	3535	

Analysis Batch: 298882

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113240-2	EB-012607-052319-CM-002	Total/NA	Water	537 (modified)	298624
MB 320-298624/1-A	Method Blank	Total/NA	Water	537 (modified)	298624
LCS 320-298624/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	298624

Analysis Batch: 299698

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113240-1	WT-012607-052319-CM-001	Total/NA	Water	537 (modified)	298624

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-298624/1-A
Matrix: Water
Analysis Batch: 298882

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 298624

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.472	J	2.0	0.35	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluoropentanoic acid (PFPeA)	2.0	U	2.0	0.49	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluorohexanoic acid (PFHxA)	2.0	U	2.0	0.58	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluoroheptanoic acid (PFHpA)	2.0	U	2.0	0.25	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluorooctanoic acid (PFOA)	2.0	U	2.0	0.85	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.27	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.31	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.55	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluorotridecanoic acid (PFTriA)	2.0	U	2.0	1.3	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.29	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.0	0.20	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluorohexanesulfonic acid (PFHxS)	0.331	J	2.0	0.17	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.32	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluorooctanesulfonic acid (PFOS)	2.0	U	2.0	0.54	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluorooctanesulfonamide (FOSA)	2.0	U	2.0	0.35	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluoropentanesulfonic acid (PFPeS)	2.0	U	2.0	0.30	ng/L		06/03/19 06:17	06/04/19 00:45	1
Perfluorononanesulfonic acid (PFNS)	2.0	U	2.0	0.16	ng/L		06/03/19 06:17	06/04/19 00:45	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.1	ng/L		06/03/19 06:17	06/04/19 00:45	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9	ng/L		06/03/19 06:17	06/04/19 00:45	1
4:2 FTS	20	U	20	5.2	ng/L		06/03/19 06:17	06/04/19 00:45	1
8:2 FTS	20	U	20	2.0	ng/L		06/03/19 06:17	06/04/19 00:45	1
6:2 FTS	20	U	20	2.0	ng/L		06/03/19 06:17	06/04/19 00:45	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*83*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*
13C4 PFBA	*84*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*
13C2 PFHxA	*94*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*
13C4 PFOA	*96*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*
13C5 PFNA	*105*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*
13C2 PFDA	*105*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*
13C2 PFUnA	*101*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*
13C2 PFDoA	*105*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*
13C2 PFTeDA	*114*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*
13C3 PFBS	*96*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*
18O2 PFHxS	*84*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*
13C4 PFOS	*96*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*
13C4 PFHpA	*96*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*
13C5 PFPeA	*94*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*
d3-NMeFOSAA	*97*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*
d5-NEtFOSAA	*104*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*
M2-8:2 FTS	*99*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*
M2-6:2 FTS	*114*		*25 - 150*	*06/03/19 06:17*	*06/04/19 00:45*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-298624/2-A
Matrix: Water
Analysis Batch: 298882

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 298624

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	40.8		ng/L		102	70 - 130
Perfluoropentanoic acid (PFPeA)	40.0	38.8		ng/L		97	66 - 126
Perfluorohexanoic acid (PFHxA)	40.0	40.9		ng/L		102	66 - 126
Perfluoroheptanoic acid (PFHpA)	40.0	37.6		ng/L		94	66 - 126
Perfluorooctanoic acid (PFOA)	40.0	38.7		ng/L		97	64 - 124
Perfluorononanoic acid (PFNA)	40.0	41.6		ng/L		104	68 - 128
Perfluorodecanoic acid (PFDA)	40.0	39.5		ng/L		99	69 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	39.0		ng/L		97	60 - 120
Perfluorododecanoic acid (PFDoA)	40.0	39.9		ng/L		100	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	42.0		ng/L		105	72 - 132
Perfluorotetradecanoic acid (PFTeA)	40.0	34.9		ng/L		87	68 - 128
Perfluorobutanesulfonic acid (PFBS)	35.4	38.7		ng/L		109	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.9		ng/L		96	63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	37.6		ng/L		99	68 - 128
Perfluorodecanesulfonic acid (PFDS)	38.6	39.0		ng/L		101	68 - 128
Perfluorooctanesulfonic acid (PFOS)	37.1	34.5		ng/L		93	67 - 127
Perfluorooctanesulfonamide (FOSA)	40.0	48.9		ng/L		122	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	37.5		ng/L		100	70 - 130
Perfluorononanesulfonic acid (PFNS)	38.4	36.2		ng/L		94	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	39.4		ng/L		99	67 - 127
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	40.9		ng/L		102	65 - 125
4:2 FTS	37.4	38.4		ng/L		103	70 - 130
8:2 FTS	38.3	40.5		ng/L		106	67 - 127
6:2 FTS	37.9	38.5		ng/L		102	66 - 126

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*89*		*25 - 150*
13C4 PFBA	*90*		*25 - 150*
13C2 PFHxA	*94*		*25 - 150*
13C4 PFOA	*100*		*25 - 150*
13C5 PFNA	*102*		*25 - 150*
13C2 PFDA	*106*		*25 - 150*
13C2 PFUnA	*105*		*25 - 150*
13C2 PFDoA	*106*		*25 - 150*
13C2 PFTeDA	*115*		*25 - 150*
13C3 PFBS	*93*		*25 - 150*
18O2 PFHxS	*90*		*25 - 150*
13C4 PFOS	*97*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-298624/2-A
Matrix: Water
Analysis Batch: 298882

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 298624

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFHpA	97		25 - 150
13C5 PFPeA	97		25 - 150
d3-NMeFOSAA	105		25 - 150
d5-NEtFOSAA	108		25 - 150
M2-8:2 FTS	107		25 - 150
M2-6:2 FTS	106		25 - 150

Lab Chronicle

Client: GHD Services Inc.
Job ID: 240-113240-1
Project/Site: 12607, RACER Eckles Rd

Client Sample ID: WT-012607-052319-CM-001
Lab Sample ID: 240-113240-1

Date Collected: 05/23/19 17:20
Matrix: Water
Date Received: 05/24/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			298624	06/03/19 06:17	MYV	TAL SAC
Total/NA	Analysis	537 (modified)		1	299698	06/07/19 03:41	S1M	TAL SAC

Client Sample ID: EB-012607-052319-CM-002
Lab Sample ID: 240-113240-2

Date Collected: 05/23/19 17:15
Matrix: Water
Date Received: 05/24/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			298624	06/03/19 06:17	MYV	TAL SAC
Total/NA	Analysis	537 (modified)		1	298882	06/04/19 01:41	S1M	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-113240-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Illinois	NELAP	5	200004	07-31-19 *
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19 *
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
ANAB	DoD		L2468	01-20-21
ANAB	DOE		L2468.01	01-20-21
Arizona	State Program	9	AZ0708	08-11-19
Arkansas DEQ	State Program	6	88-0691	06-17-20
California	State Program	9	2897	01-31-20
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Georgia	State Program	4	N/A	01-28-19 *
Hawaii	State Program	9	N/A	01-29-20
Illinois	NELAP	5	200060	03-17-19 *
Kansas	NELAP	7	E-10375	10-31-19
Louisiana	NELAP	6	30612	06-30-19
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-20-20
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	04-01-20
Oregon	NELAP	10	4040	01-29-20
Pennsylvania	NELAP	3	68-01272	03-31-20
Texas	NELAP	6	T104704399	05-31-20
US Fish & Wildlife	Federal		LE148388-0	07-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-113240-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Sacramento (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
USDA	Federal		P330-18-00239	01-17-21
USEPA UCMR	Federal	1	CA00044	12-31-20
Utah	NELAP	8	CA00044	02-29-20
Vermont	State Program	1	VT-4040	04-16-20
Virginia	NELAP	3	460278	03-14-20
Washington	State Program	10	C581	05-05-20
West Virginia (DW)	State Program	3	9930C	12-31-19
Wyoming	State Program	8	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

1.8/C1.6

Chain of Custody Record

319031

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Meincke	Site Contact:	Date: 5-23-19	COC No:
Company Name: GHD Services	Tel/Fax:	Lab Contact: D. Heckler	Carrier: FedEx	____ of ____ COCs
Address: 26850 Haggerty	Analysis Turnaround Time			Sampler:
City/State/Zip: Farmington Hills, MI 48331	X CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 248-893-3400	TAT if different from Below 15			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: RACER Eccles Rd	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
PO# 12607-T31419-001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PFAS	Sample Specific Notes:
WT-012607-052319-CM-001	5-23	17:20	G	WT	2			X	
ER-012607-052319-CM-002	5-23	17:15	G	W	1			X	

240-113240 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	GHD	5-23-18:00		ETA	5-24-19 950
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

6/10/2019

TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 113240
Canton Facility

Client GHD Site Name

Cooler Received on 5-24-19 Opened on 5-24-19 930

Cooler unpacked by: Ryan Cribley

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # 7 Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **-0.2** °C) Observed Cooler Temp. 1.8 °C Corrected Cooler Temp. 1.6 °C
   IR GUN #36 (CF **+0.7**°C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
   -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
   -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# **HC984738**
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: EC

18. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen:

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Heckler, Denise D	Carrier Tracking No(s):	COC No: 240-104028.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: denise.heckler@testamericainc.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-113240-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 6/12/2019			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: 12607, RACER Eckles Rd	Project #: 24005880			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC (MOD) PFAS	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
WT-012607-052319-CM-001 (240-113240-1)	5/23/19	17:20 Eastern		Water			X	2	
EB-012607-052319-CM-002 (240-113240-2)	5/23/19	17:15 Eastern		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Charles B	5-24-19 1504	240			
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 2.1 C

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-113240-1

Login Number: 113240
List Number: 2
Creator: Rosas, Jaime

List Source: Eurofins TestAmerica, Sacramento
List Creation: 05/25/19 05:56 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.1C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113240-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFHxA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)	PFDoA (25-150)
240-113240-1	WT-012607-052319-CM-001	94	77	91	93	105	109	103	99
240-113240-2	EB-012607-052319-CM-002	82	83	87	96	101	99	108	103
LCS 320-298624/2-A	Lab Control Sample	89	90	94	100	102	106	105	106
MB 320-298624/1-A	Method Blank	83	84	94	96	105	105	101	105

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFTDA (25-150)	3C3-PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFHpA (25-150)	PFPeA (25-150)	-NMeFOSA (25-150)	-NEtFOSA (25-150)
240-113240-1	WT-012607-052319-CM-001	121	106	105	95	93	73	95	102
240-113240-2	EB-012607-052319-CM-002	147	92	86	93	100	85	101	108
LCS 320-298624/2-A	Lab Control Sample	115	93	90	97	97	97	105	108
MB 320-298624/1-A	Method Blank	114	96	84	96	96	94	97	104

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	M282FTS (25-150)	M242FTS (25-150)	M262FTS (25-150)					
240-113240-1	WT-012607-052319-CM-001	106	172 *	124					
240-113240-2	EB-012607-052319-CM-002	109	145	125					
LCS 320-298624/2-A	Lab Control Sample	107		106					
MB 320-298624/1-A	Method Blank	99		114					

Surrogate Legend

PFOSA = 13C8 FOSA
PFBA = 13C4 PFBA
PFHxA = 13C2 PFHxA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
13C3-PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFHpA = 13C4 PFHpA
PFPeA = 13C5 PFPeA
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M282FTS = M2-8:2 FTS
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS

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amento
g Notes

Job: _____

Tracking # 4422 3447 2045 SAT SO / PO / FO / 2-Day / Ground / UPS / Courier / GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: W23C

Therm. ID: IR Corr. Factor: 0

Ice 0 Wet 0 Gel _____ Other _____

Cooler Custody Seal: —

Sample Custody Seal: —

Cooler ID: —

Temp Observed: 2.1 Corrected: 2.1

From: Temp Blank ☐ Sample ☒

NCM Filed: Yes ☐ No ☐

	Yes	No	NA
Perchlorate has headspace?	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
CoC is complete w/o discrepancies?	☒	☐	☐
Samples received within holding time?	☒	☐	☐
Sample preservatives verified?	☒	☐	☒ JC 5/25/19
Cooler compromised/tampered with?	☐	☒	☐
Samples compromised/tampered with?	☐	☒	☐
Samples w/o discrepancies?	☒	☐	☐
Sample containers have legible labels?	☒	☐	☐
Containers are not broken or leaking?	☒	☐	☐
Sample date/times are provided.	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☒	☐	☐
Zero headspace?*	☒	☐	☐
Multiphasic samples are not present?	☒	☐	☐
Sample temp OK?	☒	☐	☐
Sample out of temp?	☐	☒	☐

Initials: JC Date: 5/25/19

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

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ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-113231-1
Client Project/Site: 12607, RACER Eckles Rd

For:
GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle

Denise D Heckler

Authorized for release by:
5/31/2019 12:48:57 PM

Denise Heckler, Project Manager II
(330)966-9477
denise.heckler@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113231-1

Job ID: 240-113231-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-113231-1

Comments
No additional comments.

Receipt
The sample was received on 5/24/2019 9:30 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.6º C.

Metals
Method(s) 200.7 Rev 4.4, 6010B: Some requested practical quantitation limits (PQLs) on the following samples fall below the laboratory's verified standard quantitation limit: WT-012607-052319-CM-003 (240-113231-1). The continuing calibration blanks and method blanks may not support the lower PQL.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113231-1

Qualifiers

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113231-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-113231-1	WT-012607-052319-CM-003	Water	05/23/19 17:25	05/24/19 09:30	

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113231-1

Client Sample ID: WT-012607-052319-CM-003

Lab Sample ID: 240-113231-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chromium	0.97		0.050		mg/L	1		200.7 Rev 4.4	Total Recoverable
Nickel	0.78		0.010		mg/L	1		200.7 Rev 4.4	Total Recoverable
Chromium, hexavalent	0.90		0.050		mg/L	10		3500-Cr B-2009	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113231-1

Method	Method Description	Protocol	Laboratory
200.7 Rev 4.4	Metals (ICP)	EPA	TAL CAN
3500-Cr B-2009	Chromium, Hexavalent	SM	TAL CAN
200.7	Preparation, Total Recoverable Metals	EPA	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Client Sample Results

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113231-1

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Client Sample ID: WT-012607-052319-CM-003
Date Collected: 05/23/19 17:25
Date Received: 05/24/19 09:30

Lab Sample ID: 240-113231-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.97		0.050		mg/L		05/28/19 14:00	05/30/19 18:50	1
Nickel	0.78		0.010		mg/L		05/28/19 14:00	05/30/19 18:50	1

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113231-1

General Chemistry

Client Sample ID: WT-012607-052319-CM-003
Date Collected: 05/23/19 17:25
Date Received: 05/24/19 09:30

Lab Sample ID: 240-113231-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.90		0.050		mg/L			05/24/19 13:14	10

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113231-1

Metals

Prep Batch: 383342

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113231-1	WT-012607-052319-CM-003	Total Recoverable	Water	200.7	
MB 240-383342/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 240-383342/2-A	Lab Control Sample	Total Recoverable	Water	200.7	

Analysis Batch: 383776

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113231-1	WT-012607-052319-CM-003	Total Recoverable	Water	200.7 Rev 4.4	383342
MB 240-383342/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	383342
LCS 240-383342/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	383342

General Chemistry

Analysis Batch: 382981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113231-1	WT-012607-052319-CM-003	Total/NA	Water	3500-Cr B-2009	
MB 240-382981/3	Method Blank	Total/NA	Water	3500-Cr B-2009	
LCS 240-382981/4	Lab Control Sample	Total/NA	Water	3500-Cr B-2009	

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 240-383342/1-A
Matrix: Water
Analysis Batch: 383776

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 383342

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.050	U	0.050		mg/L		05/28/19 14:00	05/30/19 16:59	1
Nickel	0.010	U	0.010		mg/L		05/28/19 14:00	05/30/19 16:59	1

Lab Sample ID: LCS 240-383342/2-A
Matrix: Water
Analysis Batch: 383776

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 383342

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium			0.200	0.202		mg/L		101	85 - 115		
Nickel			0.500	0.497		mg/L		99	85 - 115		

Method: 3500-Cr B-2009 - Chromium, Hexavalent

Lab Sample ID: MB 240-382981/3
Matrix: Water
Analysis Batch: 382981

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.0050	U	0.0050		mg/L			05/24/19 09:52	1

Lab Sample ID: LCS 240-382981/4
Matrix: Water
Analysis Batch: 382981

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent			0.250	0.275		mg/L		110	80 - 123		

Lab Chronicle

Client: GHD Services Inc.
Job ID: 240-113231-1
Project/Site: 12607, RACER Eckles Rd

Client Sample ID: WT-012607-052319-CM-003
Lab Sample ID: 240-113231-1

Date Collected: 05/23/19 17:25
Matrix: Water
Date Received: 05/24/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	200.7			383342	05/28/19 14:00	SLD	TAL CAN
Total Recoverable	Analysis	200.7 Rev 4.4		1	383776	05/30/19 18:50	WKD	TAL CAN
Total/NA	Analysis	3500-Cr B-2009		10	382981	05/24/19 13:14	BLW	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-113231-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Illinois	NELAP	5	200004	07-31-19 *
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19 *
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

1,8/C1,6

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: C. Meincke	Lab PM: Heckler, Denise D	Carrier Tracking No(s):	COC No: 240-59615-21067.1
Client Contact: Ms. Ruth Mickle	Phone: 248-935-7346	E-Mail: denise.heckler@testamericainc.com		Page: Page 1 of 1
Company: GHD Services Inc.				Job #:
Address: 26850 Haggerty Rd.	Due Date Requested:			
City: Farmington Hills	TAT Requested (days): 10 Days			
State, Zip: MI, 48331				
Phone:	PO #: 34023630			
Email: ruth.mickle@ghd.com	WO #: 12607			
Project Name: 12607-weekly Influent, , RACER Eckles Rd	Project #: 24005880			
Site: RACER Eckles Rd	SSOW#: 012607-TOLY19-03			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	3500_CR_B - Chromium, Hexavalent	200.7 - Cr, Ni	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D		
WT-012607-052319-CM-003	5-23	17:25	G	Water			X	X		

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		5-23-19 18:00	GHD		5-24-19 930	ETA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

TestAmerica Canton Sample Receipt Form/Narrative **Login # : 113231**
Canton Facility

Client GHD Site Name

Cooler Received on 5-24-19 Opened on 5-24-19 930

Cooler unpacked by: Ryan Cribley

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # 7-17 Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **-0.2** °C) Observed Cooler Temp. 1.8 °C Corrected Cooler Temp. 1.6 °C
   IR GUN #36 (CF **+0.7**°C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
   -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
   -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# **HC984738**
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes No
16. Was a LL Hg or Me Hg trip blank present? Yes No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: Ryan

18. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen:

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
WT-012307-052319-CM-003	240-113231-B-1	Plastic 250ml - with Nitric Acid	<2	_____	_____

Attachment 6
May 29, 2019 Samples
WT-012607-052919-CM-001 (effluent)
W-012607-052919-CM-002 (influent)
EB-012607-052919-CM-003 (Eq. Blank)
WT-012607-052919-CM-004 (effluent)
Laboratory Analytical Reports

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-113432-1
Client Project/Site: 12607, RACER Eckles Rd

For:
GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle

Denise D Heckler

Authorized for release by:
6/10/2019 9:44:22 AM

Denise Heckler, Project Manager II
(330)966-9477
denise.heckler@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113432-1

Job ID: 240-113432-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-113432-1

Comments
No additional comments.

Receipt
The samples were received on 5/30/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.6º C.

LCMS
Method(s) 537 (modified): Isotope Dilution Analyte (IDA) M2-4:2 FTS recovery is above the method recommended limit for the following sample: WT-012607-052919-CM-001 (240-113432-1). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries. The sample was re-analyzed with concurring results

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113432-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
B	Compound was found in the blank and sample.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113432-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-113432-1	WT-012607-052919-CM-001	Water	05/29/19 16:40	05/30/19 09:30	
240-113432-2	WT-012607-052919-CM-002	Water	05/29/19 16:35	05/30/19 09:30	
240-113432-3	EB-012607-052919-CM-003	Water	05/29/19 16:30	05/30/19 09:30	

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113432-1

Client Sample ID: WT-012607-052919-CM-001 — Lab Sample ID: 240-113432-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	15		2.0	0.34	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2.2		2.0	0.57	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.2	J	2.0	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.9		2.0	0.83	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.3	J	2.0	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.6	I B	2.0	0.17	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	1.6	J I	2.0	0.19	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	89	I	2.0	0.53	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.1	J I	2.0	0.29	ng/L	1		537 (modified)	Total/NA

Client Sample ID: WT-012607-052919-CM-002 — Lab Sample ID: 240-113432-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	15		2.1	0.37	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	1.7	J	2.1	0.52	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.3	J	2.1	0.62	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.98	J	2.1	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.8		2.1	0.90	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.2	J	2.1	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.2	I B	2.1	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	1.5	J I	2.1	0.20	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	90	I	2.1	0.57	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.90	J I	2.1	0.32	ng/L	1		537 (modified)	Total/NA

Client Sample ID: EB-012607-052919-CM-003 — Lab Sample ID: 240-113432-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid (PFHxS)	0.25	J B	1.9	0.16	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113432-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113432-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Client Sample ID: WT-012607-052919-CM-001
Date Collected: 05/29/19 16:40
Date Received: 05/30/19 09:30

Lab Sample ID: 240-113432-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**15**		2.0	0.34	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluoropentanoic acid (PFPeA)	2.0	U	2.0	0.48	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluorohexanoic acid (PFHxA)	**2.2**		2.0	0.57	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluoroheptanoic acid (PFHpA)	**1.2**	**J**	2.0	0.24	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluorooctanoic acid (PFOA)	**4.9**		2.0	0.83	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.26	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.30	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.54	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluorotridecanoic acid (PFTriA)	2.0	U	2.0	1.3	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.28	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluorobutanesulfonic acid (PFBS)	**1.3**	**J**	2.0	0.20	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluorohexanesulfonic acid (PFHxS)	**5.6**	**I B**	2.0	0.17	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluoroheptanesulfonic Acid (PFHpS)	**1.6**	**J I**	2.0	0.19	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.31	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluorooctanesulfonic acid (PFOS)	**89**	**I**	2.0	0.53	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluorooctanesulfonamide (FOSA)	2.0	U	2.0	0.34	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluoropentanesulfonic acid (PFPeS)	**1.1**	**J I**	2.0	0.29	ng/L		06/03/19 05:54	06/03/19 23:41	1
Perfluorononanesulfonic acid (PFNS)	2.0	U	2.0	0.16	ng/L		06/03/19 05:54	06/03/19 23:41	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.0	ng/L		06/03/19 05:54	06/03/19 23:41	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9	ng/L		06/03/19 05:54	06/03/19 23:41	1
4:2 FTS	20	U	20	5.1	ng/L		06/03/19 05:54	06/03/19 23:41	1
8:2 FTS	20	U	20	2.0	ng/L		06/03/19 05:54	06/03/19 23:41	1
6:2 FTS	20	U	20	2.0	ng/L		06/03/19 05:54	06/03/19 23:41	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*84*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
13C4 PFBA	*72*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
13C2 PFHxA	*89*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
13C4 PFOA	*95*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
13C5 PFNA	*104*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
13C2 PFDA	*101*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
13C2 PFUnA	*109*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
13C2 PFDoA	*103*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
13C2 PFTeDA	*124*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
13C3 PFBS	*86*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
18O2 PFHxS	*85*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
13C4 PFOS	*94*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
13C4 PFHpA	*91*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
13C5 PFPeA	*70*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
d3-NMeFOSAA	*106*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
d5-NEtFOSAA	*107*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
M2-8:2 FTS	*108*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
M2-4:2 FTS	*157*	*	*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*
M2-6:2 FTS	*123*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:41*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Client Sample ID: WT-012607-052919-CM-002
Date Collected: 05/29/19 16:35
Date Received: 05/30/19 09:30

Lab Sample ID: 240-113432-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**15**		2.1	0.37	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluoropentanoic acid (PFPeA)	**1.7**	**J**	2.1	0.52	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluorohexanoic acid (PFHxA)	**1.3**	**J**	2.1	0.62	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluoroheptanoic acid (PFHpA)	**0.98**	**J**	2.1	0.27	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluorooctanoic acid (PFOA)	**4.8**		2.1	0.90	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluorononanoic acid (PFNA)	2.1	U	2.1	0.29	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluorodecanoic acid (PFDA)	2.1	U	2.1	0.33	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluoroundecanoic acid (PFUnA)	2.1	U	2.1	1.2	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluorododecanoic acid (PFDoA)	2.1	U	2.1	0.58	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluorotridecanoic acid (PFTriA)	2.1	U	2.1	1.4	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluorotetradecanoic acid (PFTeA)	2.1	U	2.1	0.31	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluorobutanesulfonic acid (PFBS)	**1.2**	**J**	2.1	0.21	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluorohexanesulfonic acid (PFHxS)	**5.2**	**I B**	2.1	0.18	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluoroheptanesulfonic Acid (PFHpS)	**1.5**	**J I**	2.1	0.20	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluorodecanesulfonic acid (PFDS)	2.1	U	2.1	0.34	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluorooctanesulfonic acid (PFOS)	**90**	**I**	2.1	0.57	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluorooctanesulfonamide (FOSA)	2.1	U	2.1	0.37	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluoropentanesulfonic acid (PFPeS)	**0.90**	**J I**	2.1	0.32	ng/L		06/03/19 05:54	06/03/19 23:49	1
Perfluorononanesulfonic acid (PFNS)	2.1	U	2.1	0.17	ng/L		06/03/19 05:54	06/03/19 23:49	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	21	U	21	3.3	ng/L		06/03/19 05:54	06/03/19 23:49	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	21	U	21	2.0	ng/L		06/03/19 05:54	06/03/19 23:49	1
4:2 FTS	21	U	21	5.5	ng/L		06/03/19 05:54	06/03/19 23:49	1
8:2 FTS	21	U	21	2.1	ng/L		06/03/19 05:54	06/03/19 23:49	1
6:2 FTS	21	U	21	2.1	ng/L		06/03/19 05:54	06/03/19 23:49	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*86*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
13C4 PFBA	*75*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
13C2 PFHxA	*92*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
13C4 PFOA	*96*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
13C5 PFNA	*106*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
13C2 PFDA	*109*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
13C2 PFUnA	*108*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
13C2 PFDoA	*103*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
13C2 PFTeDA	*137*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
13C3 PFBS	*95*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
18O2 PFHxS	*93*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
13C4 PFOS	*95*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
13C4 PFHpA	*94*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
13C5 PFPeA	*74*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
d3-NMeFOSAA	*94*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
d5-NEtFOSAA	*98*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
M2-8:2 FTS	*110*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
M2-4:2 FTS	*144*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*
M2-6:2 FTS	*113*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:49*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Client Sample ID: EB-012607-052919-CM-003
Date Collected: 05/29/19 16:30
Date Received: 05/30/19 09:30

Lab Sample ID: 240-113432-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.9	U	1.9	0.32	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluoropentanoic acid (PFPeA)	1.9	U	1.9	0.45	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluorohexanoic acid (PFHxA)	1.9	U	1.9	0.54	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluoroheptanoic acid (PFHpA)	1.9	U	1.9	0.23	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluorooctanoic acid (PFOA)	1.9	U	1.9	0.79	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluorononanoic acid (PFNA)	1.9	U	1.9	0.25	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluorodecanoic acid (PFDA)	1.9	U	1.9	0.29	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluoroundecanoic acid (PFUnA)	1.9	U	1.9	1.0	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluorododecanoic acid (PFDoA)	1.9	U	1.9	0.51	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluorotridecanoic acid (PFTriA)	1.9	U	1.9	1.2	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluorotetradecanoic acid (PFTeA)	1.9	U	1.9	0.27	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluorobutanesulfonic acid (PFBS)	1.9	U	1.9	0.19	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluorohexanesulfonic acid (PFHxS)	**0.25**	**J B**	1.9	0.16	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.9	U	1.9	0.18	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluorodecanesulfonic acid (PFDS)	1.9	U	1.9	0.30	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluorooctanesulfonic acid (PFOS)	1.9	U	1.9	0.50	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluorooctanesulfonamide (FOSA)	1.9	U	1.9	0.32	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluoropentanesulfonic acid (PFPeS)	1.9	U	1.9	0.28	ng/L		06/03/19 05:54	06/03/19 23:57	1
Perfluorononanesulfonic acid (PFNS)	1.9	U	1.9	0.15	ng/L		06/03/19 05:54	06/03/19 23:57	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	19	U	19	2.9	ng/L		06/03/19 05:54	06/03/19 23:57	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	19	U	19	1.8	ng/L		06/03/19 05:54	06/03/19 23:57	1
4:2 FTS	19	U	19	4.8	ng/L		06/03/19 05:54	06/03/19 23:57	1
8:2 FTS	19	U	19	1.9	ng/L		06/03/19 05:54	06/03/19 23:57	1
6:2 FTS	19	U	19	1.9	ng/L		06/03/19 05:54	06/03/19 23:57	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*85*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
13C4 PFBA	*86*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
13C2 PFHxA	*92*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
13C4 PFOA	*96*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
13C5 PFNA	*102*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
13C2 PFDA	*104*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
13C2 PFUnA	*107*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
13C2 PFDoA	*112*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
13C2 PFTeDA	*142*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
13C3 PFBS	*97*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
18O2 PFHxS	*84*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
13C4 PFOS	*93*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
13C4 PFHpA	*89*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
13C5 PFPeA	*91*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
d3-NMeFOSAA	*99*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
d5-NEtFOSAA	*108*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
M2-8:2 FTS	*116*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
M2-4:2 FTS	*102*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*
M2-6:2 FTS	*109*		*25 - 150*	*06/03/19 05:54*	*06/03/19 23:57*	*1*

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113432-1

LCMS

Prep Batch: 298621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113432-1	WT-012607-052919-CM-001	Total/NA	Water	3535	
240-113432-2	WT-012607-052919-CM-002	Total/NA	Water	3535	
240-113432-3	EB-012607-052919-CM-003	Total/NA	Water	3535	
MB 320-298621/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-298621/2-A	Lab Control Sample	Total/NA	Water	3535	

Analysis Batch: 298879

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113432-1	WT-012607-052919-CM-001	Total/NA	Water	537 (modified)	298621
240-113432-2	WT-012607-052919-CM-002	Total/NA	Water	537 (modified)	298621
240-113432-3	EB-012607-052919-CM-003	Total/NA	Water	537 (modified)	298621
MB 320-298621/1-A	Method Blank	Total/NA	Water	537 (modified)	298621
LCS 320-298621/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	298621

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113432-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-298621/1-A
Matrix: Water
Analysis Batch: 298879

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 298621

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.0	U	2.0	0.35	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluoropentanoic acid (PFPeA)	2.0	U	2.0	0.49	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluorohexanoic acid (PFHxA)	2.0	U	2.0	0.58	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluoroheptanoic acid (PFHpA)	2.0	U	2.0	0.25	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluorooctanoic acid (PFOA)	2.0	U	2.0	0.85	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.27	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.31	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.55	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluorotridecanoic acid (PFTriA)	2.0	U	2.0	1.3	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.29	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.0	0.20	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluorohexanesulfonic acid (PFHxS)	0.285	J	2.0	0.17	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.32	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluorooctanesulfonic acid (PFOS)	2.0	U	2.0	0.54	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluorooctanesulfonamide (FOSA)	2.0	U	2.0	0.35	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluoropentanesulfonic acid (PFPeS)	2.0	U	2.0	0.30	ng/L		06/03/19 05:54	06/03/19 20:44	1
Perfluorononanesulfonic acid (PFNS)	2.0	U	2.0	0.16	ng/L		06/03/19 05:54	06/03/19 20:44	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.1	ng/L		06/03/19 05:54	06/03/19 20:44	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9	ng/L		06/03/19 05:54	06/03/19 20:44	1
4:2 FTS	20	U	20	5.2	ng/L		06/03/19 05:54	06/03/19 20:44	1
8:2 FTS	20	U	20	2.0	ng/L		06/03/19 05:54	06/03/19 20:44	1
6:2 FTS	20	U	20	2.0	ng/L		06/03/19 05:54	06/03/19 20:44	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*85*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
13C4 PFBA	*88*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
13C2 PFHxA	*94*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
13C4 PFOA	*102*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
13C5 PFNA	*100*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
13C2 PFDA	*104*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
13C2 PFUnA	*107*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
13C2 PFDoA	*102*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
13C2 PFTeDA	*128*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
13C3 PFBS	*95*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
18O2 PFHxS	*88*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
13C4 PFOS	*101*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
13C4 PFHpA	*92*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
13C5 PFPeA	*97*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
d3-NMeFOSAA	*104*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
d5-NEtFOSAA	*107*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
M2-8:2 FTS	*119*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
M2-4:2 FTS	*112*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*
M2-6:2 FTS	*117*		*25 - 150*	*06/03/19 05:54*	*06/03/19 20:44*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-298621/2-A
Matrix: Water
Analysis Batch: 298879

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 298621

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	38.5		ng/L		96	70 - 130
Perfluoropentanoic acid (PFPeA)	40.0	37.4		ng/L		94	66 - 126
Perfluorohexanoic acid (PFHxA)	40.0	39.6		ng/L		99	66 - 126
Perfluoroheptanoic acid (PFHpA)	40.0	40.9		ng/L		102	66 - 126
Perfluorooctanoic acid (PFOA)	40.0	38.5		ng/L		96	64 - 124
Perfluorononanoic acid (PFNA)	40.0	41.4		ng/L		104	68 - 128
Perfluorodecanoic acid (PFDA)	40.0	39.6		ng/L		99	69 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	36.9		ng/L		92	60 - 120
Perfluorododecanoic acid (PFDoA)	40.0	38.8		ng/L		97	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	43.6		ng/L		109	72 - 132
Perfluorotetradecanoic acid (PFTeA)	40.0	36.3		ng/L		91	68 - 128
Perfluorobutanesulfonic acid (PFBS)	35.4	37.5		ng/L		106	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	36.4	33.3		ng/L		92	63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	35.6		ng/L		93	68 - 128
Perfluorodecanesulfonic acid (PFDS)	38.6	38.6		ng/L		100	68 - 128
Perfluorooctanesulfonic acid (PFOS)	37.1	33.3		ng/L		90	67 - 127
Perfluorooctanesulfonamide (FOSA)	40.0	46.1		ng/L		115	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	35.9		ng/L		96	70 - 130
Perfluorononanesulfonic acid (PFNS)	38.4	36.1		ng/L		94	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	39.7		ng/L		99	67 - 127
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	37.8		ng/L		94	65 - 125
4:2 FTS	37.4	35.6		ng/L		95	70 - 130
8:2 FTS	38.3	39.3		ng/L		102	67 - 127
6:2 FTS	37.9	39.1		ng/L		103	66 - 126

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*81*		*25 - 150*
13C4 PFBA	*85*		*25 - 150*
13C2 PFHxA	*96*		*25 - 150*
13C4 PFOA	*101*		*25 - 150*
13C5 PFNA	*100*		*25 - 150*
13C2 PFDA	*103*		*25 - 150*
13C2 PFUnA	*104*		*25 - 150*
13C2 PFDoA	*101*		*25 - 150*
13C2 PFTeDA	*115*		*25 - 150*
13C3 PFBS	*90*		*25 - 150*
18O2 PFHxS	*88*		*25 - 150*
13C4 PFOS	*94*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-298621/2-A
Matrix: Water
Analysis Batch: 298879

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 298621

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFHpA	93		25 - 150
13C5 PFPeA	93		25 - 150
d3-NMeFOSAA	98		25 - 150
d5-NEtFOSAA	107		25 - 150
M2-8:2 FTS	112		25 - 150
M2-4:2 FTS	108		25 - 150
M2-6:2 FTS	103		25 - 150

Lab Chronicle

Client: GHD Services Inc.
Job ID: 240-113432-1
Project/Site: 12607, RACER Eckles Rd

Client Sample ID: WT-012607-052919-CM-001
Lab Sample ID: 240-113432-1

Date Collected: 05/29/19 16:40
Matrix: Water
Date Received: 05/30/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			298621	06/03/19 05:54	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	298879	06/03/19 23:41	S1M	TAL SAC

Client Sample ID: WT-012607-052919-CM-002
Lab Sample ID: 240-113432-2

Date Collected: 05/29/19 16:35
Matrix: Water
Date Received: 05/30/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			298621	06/03/19 05:54	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	298879	06/03/19 23:49	S1M	TAL SAC

Client Sample ID: EB-012607-052919-CM-003
Lab Sample ID: 240-113432-3

Date Collected: 05/29/19 16:30
Matrix: Water
Date Received: 05/30/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			298621	06/03/19 05:54	KJP	TAL SAC
Total/NA	Analysis	537 (modified)		1	298879	06/03/19 23:57	S1M	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-113432-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Illinois	NELAP	5	200004	07-31-19 *
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19 *
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
ANAB	DoD		L2468	01-20-21
ANAB	DOE		L2468.01	01-20-21
Arizona	State Program	9	AZ0708	08-11-19
Arkansas DEQ	State Program	6	88-0691	06-17-20
California	State Program	9	2897	01-31-20
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Georgia	State Program	4	N/A	01-28-19 *
Hawaii	State Program	9	N/A	01-29-20
Illinois	NELAP	5	200060	03-17-19 *
Kansas	NELAP	7	E-10375	10-31-19
Louisiana	NELAP	6	30612	06-30-19
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-20-20
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	04-01-20
Oregon	NELAP	10	4040	01-29-20
Pennsylvania	NELAP	3	68-01272	03-31-20
Texas	NELAP	6	T104704399	05-31-20
US Fish & Wildlife	Federal		LE148388-0	07-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-113432-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Sacramento (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
USDA	Federal		P330-18-00239	01-17-21
USEPA UCMR	Federal	1	CA00044	12-31-20
Utah	NELAP	8	CA00044	02-29-20
Vermont	State Program	1	VT-4040	04-16-20
Virginia	NELAP	3	460278	03-14-20
Washington	State Program	10	C581	05-05-20
West Virginia (DW)	State Program	3	9930C	12-31-19
Wyoming	State Program	8	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

4.8/4.6

Chain of Custody Record 319395

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Meincke	Site Contact:	Date: 5-29-19	COC No:
Company Name: GHD Services	Tel/Fax:	Lab Contact: D. Heckler	Carrier: Fedex	____ of ____ COCs
Address: 26850 Haggerty	Analysis Turnaround Time			Sampler:
City/State/Zip: Farmington Hills, MI 48331	☐ CALENDAR DAYS ☒ WORKING DAYS			For Lab Use Only:
Phone: 248-893-3400	TAT if different from Below 15			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: RACER Eckles Road	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
PO# 012607-T31Y19-001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PFAS	Sample Specific Notes:
WT-012607-052919-CM-001	5-29-19	16:40	G	WT	1			X	
W-012607-052919-CM-002	↓	16:35	G	W	1			X	
EB-012607-052919-CM-003	↓	16:30	G	W	1			X	

240-113432 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	GHD	5-29-19 17:10	[signature]	ETA	5-30-19 930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

6/10/2019

TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 113432
Canton Facility

Client GHD Site Name

Cooler Received on 5-30-19 Opened on 5-30-19 936

Cooler unpacked by: Ryan Cribley

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # VA Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam (Plastic Bag) None Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **-0.2** °C) Observed Cooler Temp. 4.8 °C Corrected Cooler Temp. 4.6 °C
   IR GUN #36 (CF **+0.7**°C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 (Yes) No
   -Were the seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   -Were tamper/custody seals intact and uncompromised? (Yes) No NA
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes (No)
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels be reconciled with the COC? (Yes) No
9. Were correct bottle(s) used for the test(s) indicated? (Yes) No
10. Sufficient quantity received to perform indicated analyses? (Yes) No
11. Are these work share samples? Yes No
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? (Yes) No (NA) RX 5-30-19 pH Strip Lot# **HC984738**
13. Were VOAs on the COC? Yes (No)
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No (NA)
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes (No)
16. Was a LL Hg or Me Hg trip blank present? Yes (No)

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: RC

18. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen:

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Heckler, Denise D	Carrier Tracking No(s):	COC No: 240-104451.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: denise.heckler@testamericainc.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-113432-1
Address: 880 Riverside Parkway, ,	Due Date Requested: 6/17/2019			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: 12607, RACER Eckles Rd	Project #: 24005880			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC (MOD) PFAS	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
WT-012607-052919-CM-001 (240-113432-1)	5/29/19	16:40 Eastern		Water			X	1	
WT-012607-052919-CM-002 (240-113432-2)	5/29/19	16:35 Eastern		Water			X	1	
EB-012607-052919-CM-003 (240-113432-3)	5/29/19	16:30 Eastern		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	5/30/19. 1408	TAL-KNX	[signature]	5/31/19 920	TA SAC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.6

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-113432-1

Login Number: 113432
List Number: 2
Creator: Thompson, Sarah W

List Source: Eurofins TestAmerica, Sacramento
List Creation: 05/31/19 12:49 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.6c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113432-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFHxA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)	PFDoA (25-150)
240-113432-1	WT-012607-052919-CM-001	84	72	89	95	104	101	109	103
240-113432-2	WT-012607-052919-CM-002	86	75	92	96	106	109	108	103
240-113432-3	EB-012607-052919-CM-003	85	86	92	96	102	104	107	112
LCS 320-298621/2-A	Lab Control Sample	81	85	96	101	100	103	104	101
MB 320-298621/1-A	Method Blank	85	88	94	102	100	104	107	102

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFTDA (25-150)	3C3-PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFHpA (25-150)	PFPeA (25-150)	-NMeFOSA (25-150)	-NEtFOSA (25-150)
240-113432-1	WT-012607-052919-CM-001	124	86	85	94	91	70	106	107
240-113432-2	WT-012607-052919-CM-002	137	95	93	95	94	74	94	98
240-113432-3	EB-012607-052919-CM-003	142	97	84	93	89	91	99	108
LCS 320-298621/2-A	Lab Control Sample	115	90	88	94	93	93	98	107
MB 320-298621/1-A	Method Blank	128	95	88	101	92	97	104	107

		Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	M282FTS (25-150)	M242FTS (25-150)	M262FTS (25-150)
240-113432-1	WT-012607-052919-CM-001	108	157 *	123
240-113432-2	WT-012607-052919-CM-002	110	144	113
240-113432-3	EB-012607-052919-CM-003	116	102	109
LCS 320-298621/2-A	Lab Control Sample	112	108	103
MB 320-298621/1-A	Method Blank	119	112	117

Surrogate Legend

PFOSA = 13C8 FOSA
PFBA = 13C4 PFBA
PFHxA = 13C2 PFHxA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
13C3-PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFHpA = 13C4 PFHpA
PFPeA = 13C5 PFPeA
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M282FTS = M2-8:2 FTS
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS

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ramento
ıg Notes

240-113432 Field Sheet

Job:_ _

Tracking # 4422 3447 4368 SO / PO / FO / 2-Day / Ground / UPS / Courier / GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes:_____

Therm. ID: HACCP Corr. Factor: —

Ice x Wet x Gel _____ Other _____

Cooler Custody Seal: —

Sample Custody Seal: —

Cooler ID: —

Temp Observed: 1.6 Corrected: 1.6

From: Temp Blank ☐ Sample ☒

NCM Filed: Yes ☐ No ☐

	Yes	No	NA
Perchlorate has headspace?	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
CoC is complete w/o discrepancies?	☒	☐	☐
Samples received within holding time?	☒	☐	☐
Sample preservatives verified?	☐	☐	☒
Cooler compromised/tampered with?	☐	☒	☐
Samples compromised/tampered with?	☐	☒	☐
Samples w/o discrepancies?	☒	☐	☐
Sample containers have legible labels?	☒	☐	☐
Containers are not broken or leaking?	☒	☐	☐
Sample date/times are provided.	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☒	☐	☐
Zero headspace?*	☐	☐	☒
Multiphasic samples are not present?	☒	☐	☐
Sample temp OK?	☒	☐	☐
Sample out of temp?	☐	☒	☐

Initials: CT Date: 5/31/19

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

WZC

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ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-113426-1
Client Project/Site: 12607, RACER Eckles Rd

For:
GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle

Denise D Heckler

Authorized for release by:
6/5/2019 9:24:36 AM

Denise Heckler, Project Manager II
(330)966-9477
denise.heckler@testamericainc.com

LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113426-1

Job ID: 240-113426-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-113426-1

Comments
No additional comments.

Receipt
The sample was received on 5/30/2019 9:30 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.6º C.

Metals
Method(s) 200.7 Rev 4.4, 6010B: Some requested practical quantitation limits (PQLs) on the following samples fall below the laboratory's verified standard quantitation limit: WT-012607-052919-CM-004 (240-113426-1). The continuing calibration blanks and method blanks may not support the lower PQL.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113426-1

Qualifiers

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113426-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-113426-1	WT-012607-052919-CM-004	Water	05/29/19 16:45	05/30/19 09:30	

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113426-1

Client Sample ID: WT-012607-052919-CM-004 — Lab Sample ID: 240-113426-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chromium	0.96		0.050		mg/L	1		200.7 Rev 4.4	Total Recoverable
Nickel	0.78		0.010		mg/L	1		200.7 Rev 4.4	Total Recoverable
Chromium, hexavalent	0.90		0.050		mg/L	10		3500-Cr B-2009	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113426-1

Method	Method Description	Protocol	Laboratory
200.7 Rev 4.4	Metals (ICP)	EPA	TAL CAN
3500-Cr B-2009	Chromium, Hexavalent	SM	TAL CAN
200.7	Preparation, Total Recoverable Metals	EPA	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Client Sample Results

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113426-1

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Client Sample ID: WT-012607-052919-CM-004
Date Collected: 05/29/19 16:45
Date Received: 05/30/19 09:30

Lab Sample ID: 240-113426-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.96		0.050		mg/L		05/31/19 14:00	06/03/19 23:28	1
Nickel	0.78		0.010		mg/L		05/31/19 14:00	06/03/19 23:28	1

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113426-1

General Chemistry

Client Sample ID: WT-012607-052919-CM-004
Date Collected: 05/29/19 16:45
Date Received: 05/30/19 09:30

Lab Sample ID: 240-113426-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.90		0.050		mg/L			05/30/19 14:57	10

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113426-1

Metals

Prep Batch: 383872

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113426-1	WT-012607-052919-CM-004	Total Recoverable	Water	200.7	
MB 240-383872/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 240-383872/2-A	Lab Control Sample	Total Recoverable	Water	200.7	

Analysis Batch: 384399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113426-1	WT-012607-052919-CM-004	Total Recoverable	Water	200.7 Rev 4.4	383872
MB 240-383872/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	383872
LCS 240-383872/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	383872

General Chemistry

Analysis Batch: 383786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113426-1	WT-012607-052919-CM-004	Total/NA	Water	3500-Cr B-2009	
MB 240-383786/3	Method Blank	Total/NA	Water	3500-Cr B-2009	
LCS 240-383786/4	Lab Control Sample	Total/NA	Water	3500-Cr B-2009	

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113426-1

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 240-383872/1-A
Matrix: Water
Analysis Batch: 384399

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 383872

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.050	U	0.050		mg/L		05/31/19 14:00	06/03/19 21:00	1
Nickel	0.010	U	0.010		mg/L		05/31/19 14:00	06/03/19 21:00	1

Lab Sample ID: LCS 240-383872/2-A
Matrix: Water
Analysis Batch: 384399

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 383872

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium			0.200	0.179		mg/L		90	85 - 115		
Nickel			0.500	0.435		mg/L		87	85 - 115		

Method: 3500-Cr B-2009 - Chromium, Hexavalent

Lab Sample ID: MB 240-383786/3
Matrix: Water
Analysis Batch: 383786

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.0050	U	0.0050		mg/L			05/30/19 14:53	1

Lab Sample ID: LCS 240-383786/4
Matrix: Water
Analysis Batch: 383786

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent			0.250	0.270		mg/L		108	80 - 123		

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113426-1

Client Sample ID: WT-012607-052919-CM-004

Date Collected: 05/29/19 16:45
Date Received: 05/30/19 09:30

Lab Sample ID: 240-113426-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	200.7			383872	05/31/19 14:00	SLD	TAL CAN
Total Recoverable	Analysis	200.7 Rev 4.4		1	384399	06/03/19 23:28	KLC	TAL CAN
Total/NA	Analysis	3500-Cr B-2009		10	383786	05/30/19 14:57	BLW	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-113426-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Illinois	NELAP	5	200004	07-31-19 *
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	09-06-19 *
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

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Client Information	Sampler: Mickle	Lab PM: Heckler, Denise D	Carrier Tracking No(s):	COC No: 240-59617-21067.1
Client Contact: Ms. Ruth Mickle	Phone: 248-935-7346	E-Mail: denise.heckler@testamericainc.com		Page: Page 1 of 1
Company: GHD Services Inc.				Job #:

Address: 26850 Haggerty Rd.	Due Date Requested:		
City: Farmington Hills	TAT Requested (days): 10 Days		
State, Zip: MI, 48331	PO #: 34035413		
Phone:	WO #: 12607		
Email: ruth.mickle@ghd.com effluent	Project #: 24005880		
Project Name: 12607-weekly Influent, , RACER Eckles Rd	SSOW#: 012607-TO1Y19-03		
Site: RACER Eckles Rd			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	3500_CR_B - Chromium, Hexavalent	200.7 - Cr, Ni	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D		
WT-012607-052919-CM-004	5-29	16:45	G	Water			X	X		

240-113426 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company	Received by	Date/Time	Company
Relinquished by:	5-29-19/17:10	GHD		5-30-19 930	EVA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

TestAmerica Canton Sample Receipt Form/Narrative **Login # : 113426**
Canton Facility

Client GHD Site Name

Cooler Received on 5-30-19 Opened on 5-30-19 936

Cooler unpacked by: Ryan Cribley

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # VA Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam (Plastic Bag) None Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **-0.2** °C) Observed Cooler Temp. 4.8 °C Corrected Cooler Temp. 4.6 °C
   IR GUN #36 (CF **+0.7**°C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 (Yes) No
   -Were the seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   -Were tamper/custody seals intact and uncompromised? (Yes) No NA
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes (No)
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels be reconciled with the COC? (Yes) No
9. Were correct bottle(s) used for the test(s) indicated? (Yes) No
10. Sufficient quantity received to perform indicated analyses? (Yes) No
11. Are these work share samples? Yes No
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? (Yes) No NA pH Strip Lot# **HC984738**
13. Were VOAs on the COC? Yes (No)
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No (NA)
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes (No)
16. Was a LL Hg or Me Hg trip blank present? Yes (No)

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: RC

18. SAMPLE CONDITION

Sample(s) were received after the recommended holding time had expired.
Sample(s) were received in a broken container.
Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.
Time preserved: Preservative(s) added/Lot number(s):

VOA Sample Preservation - Date/Time VOAs Frozen:

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
WT-012607-052919-CM-004	240-113426-B-1	Plastic 250ml - with Nitric Acid	<2	_____	_____

Attachment 7
June 5, 2019 Samples
WT-012607-060519-CM-001 (effluent)
WT-012607-060519-CM-002 (effluent)
W-012607-060519-CM-003 (influent)
Laboratory Analytical Reports

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-113801-1
Client Project/Site: 12607, RACER Eckles Rd

For:
GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle

Denise D Heckler

Authorized for release by:
6/24/2019 9:54:07 AM

Denise Heckler, Project Manager II
(330)966-9477
denise.heckler@testamericainc.com

LINKS

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Have a Question? Ask The Expert

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Lab Chronicle 18
Certification Summary 19
Chain of Custody 20

Job ID: 240-113801-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-113801-1

Comments
No additional comments.

Receipt
The sample was received on 6/6/2019 9:30 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
Method(s) 200.7 Rev 4.4, 6010B: Some requested practical quantitation limits (PQLs) on the following samples fall below the laboratory's verified standard quantitation limit: WT-012607-060519-CM-001 (240-113801-1). The continuing calibration blanks and method blanks may not support the lower PQL.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method(s) 3510C, 608: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-385049.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113801-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113801-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-113801-1	WT-012607-060519-CM-001	Water	06/05/19 15:00	06/06/19 09:30	

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113801-1

Client Sample ID: WT-012607-060519-CM-001 — Lab Sample ID: 240-113801-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chromium	1.1		0.050		mg/L	1		200.7 Rev 4.4	Total Recoverable
Nickel	0.86		0.010		mg/L	1		200.7 Rev 4.4	Total Recoverable
Chromium, hexavalent	0.75		0.13		mg/L	25		3500-Cr B-2009	Total/NA
Total Suspended Solids	27		4.0		mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113801-1

Method	Method Description	Protocol	Laboratory
608.3	Polychlorinated Biphenyls (PCBs) (GC)	40CFR136A	TAL CAN
200.7 Rev 4.4	Metals (ICP)	EPA	TAL CAN
245.1	Mercury (CVAA)	EPA	TAL CAN
1664A	HEM and SGT-HEM	1664A	TAL CAN
3500-Cr B-2009	Chromium, Hexavalent	SM	TAL CAN
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL CAN
200.7	Preparation, Total Recoverable Metals	EPA	TAL CAN
245.1	Preparation, Mercury	EPA	TAL CAN
608	Liquid-Liquid Extraction (Separatory Funnel)	40CFR136A	TAL CAN

Protocol References:

1664A = EPA-821-98-002

40CFR136A = "Methods for Organic Chemical Analysis of Municipal Industrial Wastewater", 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions.

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113801-1

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Client Sample ID: WT-012607-060519-CM-001
Date Collected: 06/05/19 15:00
Date Received: 06/06/19 09:30

Lab Sample ID: 240-113801-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.095	U	0.095		ug/L		06/07/19 10:16	06/13/19 14:59	1
Aroclor-1221	0.095	U	0.095		ug/L		06/07/19 10:16	06/13/19 14:59	1
Aroclor-1232	0.095	U	0.095		ug/L		06/07/19 10:16	06/13/19 14:59	1
Aroclor-1242	0.095	U	0.095		ug/L		06/07/19 10:16	06/13/19 14:59	1
Aroclor-1248	0.095	U	0.095		ug/L		06/07/19 10:16	06/13/19 14:59	1
Aroclor-1254	0.095	U	0.095		ug/L		06/07/19 10:16	06/13/19 14:59	1
Aroclor-1260	0.095	U	0.095		ug/L		06/07/19 10:16	06/13/19 14:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*53*		*10 - 114*	*06/07/19 10:16*	*06/13/19 14:59*	*1*
Tetrachloro-m-xylene	*67*		*15 - 131*	*06/07/19 10:16*	*06/13/19 14:59*	*1*

Client Sample Results

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113801-1

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Client Sample ID: WT-012607-060519-CM-001
Date Collected: 06/05/19 15:00
Date Received: 06/06/19 09:30

Lab Sample ID: 240-113801-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium	**1.1**		0.050		mg/L		06/07/19 14:00	06/10/19 22:49	1
Nickel	**0.86**		0.010		mg/L		06/07/19 14:00	06/10/19 22:49	1
Lead	0.050	U	0.050		mg/L		06/07/19 14:00	06/10/19 22:49	1
Zinc	0.020	U	0.020		mg/L		06/07/19 14:00	06/10/19 22:49	1

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113801-1

Method: 245.1 - Mercury (CVAA)

Client Sample ID: WT-012607-060519-CM-001
Date Collected: 06/05/19 15:00
Date Received: 06/06/19 09:30

Lab Sample ID: 240-113801-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020		mg/L		06/07/19 12:00	06/11/19 12:40	1

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113801-1

General Chemistry

Client Sample ID: WT-012607-060519-CM-001
Date Collected: 06/05/19 15:00
Date Received: 06/06/19 09:30

Lab Sample ID: 240-113801-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
HEM	4.8	U	4.8		mg/L			06/21/19 13:50	1
Chromium, hexavalent	**0.75**		0.13		mg/L			06/06/19 14:12	25
Total Suspended Solids	**27**		4.0		mg/L			06/11/19 09:21	1

GC Semi VOA

Prep Batch: 385049

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113801-1	WT-012607-060519-CM-001	Total/NA	Water	608	
MB 240-385049/12-A	Method Blank	Total/NA	Water	608	
LCS 240-385049/13-A	Lab Control Sample	Total/NA	Water	608	
LCSD 240-385049/14-A	Lab Control Sample Dup	Total/NA	Water	608	

Analysis Batch: 385904

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113801-1	WT-012607-060519-CM-001	Total/NA	Water	608.3	385049
MB 240-385049/12-A	Method Blank	Total/NA	Water	608.3	385049
LCS 240-385049/13-A	Lab Control Sample	Total/NA	Water	608.3	385049
LCSD 240-385049/14-A	Lab Control Sample Dup	Total/NA	Water	608.3	385049

Metals

Prep Batch: 385070

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113801-1	WT-012607-060519-CM-001	Total Recoverable	Water	200.7	
MB 240-385070/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 240-385070/2-A	Lab Control Sample	Total Recoverable	Water	200.7	

Prep Batch: 385076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113801-1	WT-012607-060519-CM-001	Total/NA	Water	245.1	
MB 240-385076/1-A	Method Blank	Total/NA	Water	245.1	
LCS 240-385076/2-A	Lab Control Sample	Total/NA	Water	245.1	

Analysis Batch: 385516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113801-1	WT-012607-060519-CM-001	Total Recoverable	Water	200.7 Rev 4.4	385070
MB 240-385070/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	385070
LCS 240-385070/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	385070

Analysis Batch: 385715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113801-1	WT-012607-060519-CM-001	Total/NA	Water	245.1	385076
MB 240-385076/1-A	Method Blank	Total/NA	Water	245.1	385076
LCS 240-385076/2-A	Lab Control Sample	Total/NA	Water	245.1	385076

General Chemistry

Analysis Batch: 384857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113801-1	WT-012607-060519-CM-001	Total/NA	Water	3500-Cr B-2009	
MB 240-384857/3	Method Blank	Total/NA	Water	3500-Cr B-2009	
LCS 240-384857/4	Lab Control Sample	Total/NA	Water	3500-Cr B-2009	

Analysis Batch: 385537

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113801-1	WT-012607-060519-CM-001	Total/NA	Water	SM 2540D	
MB 240-385537/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 240-385537/2	Lab Control Sample	Total/NA	Water	SM 2540D	

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113801-1

General Chemistry

Analysis Batch: 387580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113801-1	WT-012607-060519-CM-001	Total/NA	Water	1664A	
MB 240-387580/1	Method Blank	Total/NA	Water	1664A	
LCS 240-387580/2	Lab Control Sample	Total/NA	Water	1664A	
240-113801-1 MS	WT-012607-060519-CM-001	Total/NA	Water	1664A	

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 240-385049/12-A
Matrix: Water
Analysis Batch: 385904

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 385049

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.10	U	0.10		ug/L		06/07/19 10:16	06/13/19 13:34	1
Aroclor-1221	0.10	U	0.10		ug/L		06/07/19 10:16	06/13/19 13:34	1
Aroclor-1232	0.10	U	0.10		ug/L		06/07/19 10:16	06/13/19 13:34	1
Aroclor-1242	0.10	U	0.10		ug/L		06/07/19 10:16	06/13/19 13:34	1
Aroclor-1248	0.10	U	0.10		ug/L		06/07/19 10:16	06/13/19 13:34	1
Aroclor-1254	0.10	U	0.10		ug/L		06/07/19 10:16	06/13/19 13:34	1
Aroclor-1260	0.10	U	0.10		ug/L		06/07/19 10:16	06/13/19 13:34	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCB Decachlorobiphenyl	*83*		*10 - 114*	*06/07/19 10:16*	*06/13/19 13:34*	*1*
Tetrachloro-m-xylene	*87*		*15 - 131*	*06/07/19 10:16*	*06/13/19 13:34*	*1*

Lab Sample ID: LCS 240-385049/13-A
Matrix: Water
Analysis Batch: 385904

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 385049

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Aroclor-1016			2.50	2.12		ug/L		85	50 - 140		
Aroclor-1260			2.50	1.95		ug/L		78	8 - 140		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCB Decachlorobiphenyl	*67*		*10 - 114*
Tetrachloro-m-xylene	*74*		*15 - 131*

Lab Sample ID: LCSD 240-385049/14-A
Matrix: Water
Analysis Batch: 385904

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 385049

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Aroclor-1016			2.50	2.00		ug/L		80	50 - 140	6	30
Aroclor-1260			2.50	1.86		ug/L		74	8 - 140	4	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCB Decachlorobiphenyl	*67*		*10 - 114*
Tetrachloro-m-xylene	*80*		*15 - 131*

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 240-385070/1-A
Matrix: Water
Analysis Batch: 385516

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 385070

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.050	U	0.050		mg/L		06/07/19 14:00	06/10/19 21:39	1
Nickel	0.010	U	0.010		mg/L		06/07/19 14:00	06/10/19 21:39	1
Lead	0.050	U	0.050		mg/L		06/07/19 14:00	06/10/19 21:39	1
Zinc	0.020	U	0.020		mg/L		06/07/19 14:00	06/10/19 21:39	1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: LCS 240-385070/2-A
Matrix: Water
Analysis Batch: 385516

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 385070

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	0.200	0.219		mg/L		110	85 - 115
Nickel	0.500	0.525		mg/L		105	85 - 115
Lead	0.500	0.475		mg/L		95	85 - 115
Zinc	0.500	0.498		mg/L		100	85 - 115

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 240-385076/1-A
Matrix: Water
Analysis Batch: 385715

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 385076

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020	mg/L		06/07/19 12:00	06/11/19 14:15	1

Lab Sample ID: LCS 240-385076/2-A
Matrix: Water
Analysis Batch: 385715

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 385076

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00492		mg/L		98	85 - 115

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 240-387580/1
Matrix: Water
Analysis Batch: 387580

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	5.0	U	5.0	mg/L			06/21/19 13:50	1

Lab Sample ID: LCS 240-387580/2
Matrix: Water
Analysis Batch: 387580

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM	40.0	38.00		mg/L		95	78 - 114

Lab Sample ID: 240-113801-1 MS
Matrix: Water
Analysis Batch: 387580

Client Sample ID: WT-012607-060519-CM-001
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
HEM	4.8	U	38.3	36.08		mg/L		90	78 - 114

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113801-1

Method: 3500-Cr B-2009 - Chromium, Hexavalent

Lab Sample ID: MB 240-384857/3
Matrix: Water
Analysis Batch: 384857

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.0050	U	0.0050		mg/L			06/06/19 10:49	1

Lab Sample ID: LCS 240-384857/4
Matrix: Water
Analysis Batch: 384857

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent			0.250	0.284		mg/L		114	80 - 123		

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 240-385537/1
Matrix: Water
Analysis Batch: 385537

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	4.0	U	4.0		mg/L			06/11/19 09:21	1

Lab Sample ID: LCS 240-385537/2
Matrix: Water
Analysis Batch: 385537

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			71.5	56.0		mg/L		78	64 - 120		

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113801-1

Method: 608.3 - Polychlorinated Biphenyls (PCBs) (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)											
Lab Sample ID	Client Sample ID	DCBP1 (10-114)	TCX1 (15-131)										
240-113801-1	WT-012607-060519-CM-001	53	67										
LCS 240-385049/13-A	Lab Control Sample	67	74										
LCSD 240-385049/14-A	Lab Control Sample Dup	67	80										
MB 240-385049/12-A	Method Blank	83	87										

Surrogate Legend

DCBP = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

Lab Chronicle

Client: GHD Services Inc.
Job ID: 240-113801-1
Project/Site: 12607, RACER Eckles Rd

Client Sample ID: WT-012607-060519-CM-001
Lab Sample ID: 240-113801-1

Date Collected: 06/05/19 15:00
Matrix: Water
Date Received: 06/06/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	608			385049	06/07/19 10:16	BMB	TAL CAN
Total/NA	Analysis	608.3		1	385904	06/13/19 14:59	LSH	TAL CAN
Total Recoverable	Prep	200.7			385070	06/07/19 14:00	MBB	TAL CAN
Total Recoverable	Analysis	200.7 Rev 4.4		1	385516	06/10/19 22:49	KLC	TAL CAN
Total/NA	Prep	245.1			385076	06/07/19 12:00	MBB	TAL CAN
Total/NA	Analysis	245.1		1	385715	06/11/19 12:40	WKD	TAL CAN
Total/NA	Analysis	1664A		1	387580	06/21/19 13:50	AMT	TAL CAN
Total/NA	Analysis	3500-Cr B-2009		25	384857	06/06/19 14:12	MMM	TAL CAN
Total/NA	Analysis	SM 2540D		1	385537	06/11/19 09:21	EHC	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-113801-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State		2927	02-23-20
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Florida	NELAP		E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19 *
Illinois	NELAP		004498	07-31-19
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New Jersey	NELAP		OH001	06-30-19
New York	NELAP	2	10975	03-31-20
New York	NELAP		10975	03-31-20
Ohio VAP	State Program	5	CL0024	06-05-21
Oregon	NELAP	10	4062	02-23-20
Oregon	NELAP		4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Pennsylvania	NELAP		68-00340	08-31-19
Texas	NELAP	6	T104704517-18-10	08-31-19 *
Texas	NELAP		T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

MICHIGAN
190

0-8/0-9

Chain of Custody Record

313410

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: C. Meincke	Site Contact: Ruth Muckle	Date: 6-5-19	COC No:
Company Name: GHD Services	Tel/Fax:	Lab Contact: D. Heckler	Carrier: FEDEX	_____ of _____ COCs
Address: 26850 Haggerty Rd	Analysis Turnaround Time			Sampler:
City/State/Zip: Farmington Hills, MI 48331	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 248-893-3400	TAT if different from Below _____			Walk-in Client:
Fax:	X 2 weeks			Lab Sampling:
Project Name: RACER Eckles Rd	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
PO# 012607-T01419-03	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PCBs	HEM	Metals	TSS, Cr VI	Sample Specific Notes:
WT-012607-060519-CM-001	6-5-19	1500	G	WT	6			X	X	X	X	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	GHD	6-5-19/16:00	[signature]	ETA	6-6-19 930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

6/24/2019

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # : 113801**
Canton Facility

Client GHD Serv. Site Name _____ Cooler unpacked by: Ryan Crubler

Cooler Received on 6-6-19 Opened on 6-6-19 930

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF +0.1 °C) Observed Cooler Temp. 0.8 °C Corrected Cooler Temp. 0.9 °C
   IR GUN #36 (CF +0.6°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 2 Yes No
   -Were the seals on the outside of the cooler(s) signed & dated? total Yes No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
   -Were tamper/custody seals intact and uncompromised? Yes No NA
3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels be reconciled with the COC? Yes No
9. Were correct bottle(s) used for the test(s) indicated? Yes No
10. Sufficient quantity received to perform indicated analyses? Yes No
11. Are these work share samples? Yes No
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC984738
13. Were VOAs on the COC? Yes No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
16. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: JR

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
WT-012607-060519-CM-001	240-113801-B-1	Plastic 500ml - with Nitric Acid	<2	_____	_____
WT-012607-060519-CM-001	240-113801-E-1	Amber Glass 1 liter - Sulfuric Acid	_____	_____	_____
WT-012607-060519-CM-001	240-113801-F-1	Amber Glass 1 liter - Sulfuric Acid	_____	_____	_____

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-113787-1
Client Project/Site: 12607, RACER Eckles Rd

For:
GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle

Denise D Heckler

Authorized for release by:
6/14/2019 8:26:20 AM

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Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113787-1

Job ID: 240-113787-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-113787-1

Comments
No additional comments.

Receipt
The samples were received on 6/6/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.9º C.

LCMS
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-300432.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113787-1

Qualifiers

LCMS

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113787-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-113787-1	WT-012607-060519-CM-002	Water	06/05/19 14:55	06/06/19 09:30	
240-113787-2	W-012607-060519-CM-003	Water	06/05/19 14:50	06/06/19 09:30	

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113787-1

Client Sample ID: WT-012607-060519-CM-002 — Lab Sample ID: 240-113787-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	7.8		1.8	0.32	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.0		1.8	0.78	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.32	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.2	J	1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.3	I B	1.8	0.16	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	1.7	J I	1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	100	I	1.8	0.50	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.0	J I	1.8	0.28	ng/L	1		537 (modified)	Total/NA

Client Sample ID: W-012607-060519-CM-003 — Lab Sample ID: 240-113787-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	7.7		1.9	0.33	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.1		1.9	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.4	I B	1.9	0.16	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	1.6	J I	1.9	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	99	I	1.9	0.50	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.1	J I	1.9	0.28	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113787-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Method: 537 (modified) - Fluorinated Alkyl Substances

Client Sample ID: WT-012607-060519-CM-002
Date Collected: 06/05/19 14:55
Date Received: 06/06/19 09:30

Lab Sample ID: 240-113787-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**7.8**		1.8	0.32	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluoropentanoic acid (PFPeA)	1.8	U	1.8	0.45	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluorohexanoic acid (PFHxA)	1.8	U	1.8	0.54	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluoroheptanoic acid (PFHpA)	1.8	U	1.8	0.23	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluorooctanoic acid (PFOA)	**4.0**		1.8	0.78	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluorononanoic acid (PFNA)	1.8	U	1.8	0.25	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluorodecanoic acid (PFDA)	1.8	U	1.8	0.29	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluoroundecanoic acid (PFUnA)	1.8	U	1.8	1.0	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluorododecanoic acid (PFDoA)	1.8	U	1.8	0.51	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluorotridecanoic acid (PFTriA)	1.8	U	1.8	1.2	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluorotetradecanoic acid (PFTeA)	**0.32**	**J**	1.8	0.27	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluorobutanesulfonic acid (PFBS)	**1.2**	**J**	1.8	0.18	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluorohexanesulfonic acid (PFHxS)	**5.3**	**I B**	1.8	0.16	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluoroheptanesulfonic Acid (PFHpS)	**1.7**	**J I**	1.8	0.18	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluorodecanesulfonic acid (PFDS)	1.8	U	1.8	0.30	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluorooctanesulfonic acid (PFOS)	**100**	**I**	1.8	0.50	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluorooctanesulfonamide (FOSA)	1.8	U	1.8	0.32	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluoropentanesulfonic acid (PFPeS)	**1.0**	**J I**	1.8	0.28	ng/L		06/11/19 06:16	06/12/19 15:52	1
Perfluorononanesulfonic acid (PFNS)	1.8	U	1.8	0.15	ng/L		06/11/19 06:16	06/12/19 15:52	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	18	U	18	2.9	ng/L		06/11/19 06:16	06/12/19 15:52	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	18	U	18	1.8	ng/L		06/11/19 06:16	06/12/19 15:52	1
4:2 FTS	18	U	18	4.8	ng/L		06/11/19 06:16	06/12/19 15:52	1
8:2 FTS	18	U	18	1.8	ng/L		06/11/19 06:16	06/12/19 15:52	1
6:2 FTS	18	U	18	1.8	ng/L		06/11/19 06:16	06/12/19 15:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*84*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*
13C4 PFBA	*61*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*
13C2 PFHxA	*85*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*
13C4 PFOA	*95*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*
13C5 PFNA	*95*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*
13C2 PFDA	*103*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*
13C2 PFUnA	*96*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*
13C2 PFDoA	*90*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*
13C2 PFTeDA	*134*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*
13C3 PFBS	*85*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*
18O2 PFHxS	*101*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*
13C4 PFOS	*95*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*
13C4 PFHpA	*96*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*
13C5 PFPeA	*55*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*
d3-NMeFOSAA	*87*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*
d5-NEtFOSAA	*89*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*
M2-8:2 FTS	*100*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*
M2-4:2 FTS	*142*		*25 - 150*	*06/11/19 06:16*	*06/12/19 15:52*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Client Sample ID: WT-012607-060519-CM-002
Date Collected: 06/05/19 14:55
Date Received: 06/06/19 09:30

Lab Sample ID: 240-113787-1
Matrix: Water

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-6:2 FTS	103		25 - 150	06/11/19 06:16	06/12/19 15:52	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Client Sample ID: W-012607-060519-CM-003
Date Collected: 06/05/19 14:50
Date Received: 06/06/19 09:30

Lab Sample ID: 240-113787-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**7.7**		1.9	0.33	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluoropentanoic acid (PFPeA)	1.9	U	1.9	0.46	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluorohexanoic acid (PFHxA)	1.9	U	1.9	0.54	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluoroheptanoic acid (PFHpA)	1.9	U	1.9	0.23	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluorooctanoic acid (PFOA)	**4.1**		1.9	0.79	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluorononanoic acid (PFNA)	1.9	U	1.9	0.25	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluorodecanoic acid (PFDA)	1.9	U	1.9	0.29	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluoroundecanoic acid (PFUnA)	1.9	U	1.9	1.0	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluorododecanoic acid (PFDoA)	1.9	U	1.9	0.51	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluorotridecanoic acid (PFTriA)	1.9	U	1.9	1.2	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluorotetradecanoic acid (PFTeA)	1.9	U	1.9	0.27	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluorobutanesulfonic acid (PFBS)	1.9	U	1.9	0.19	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluorohexanesulfonic acid (PFHxS)	**6.4**	**I B**	1.9	0.16	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluoroheptanesulfonic Acid (PFHpS)	**1.6**	**J I**	1.9	0.18	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluorodecanesulfonic acid (PFDS)	1.9	U	1.9	0.30	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluorooctanesulfonic acid (PFOS)	**99**	**I**	1.9	0.50	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluorooctanesulfonamide (FOSA)	1.9	U	1.9	0.33	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluoropentanesulfonic acid (PFPeS)	**1.1**	**J I**	1.9	0.28	ng/L		06/11/19 06:16	06/11/19 21:56	1
Perfluorononanesulfonic acid (PFNS)	1.9	U	1.9	0.15	ng/L		06/11/19 06:16	06/11/19 21:56	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	19	U	19	2.9	ng/L		06/11/19 06:16	06/11/19 21:56	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	19	U	19	1.8	ng/L		06/11/19 06:16	06/11/19 21:56	1
4:2 FTS	19	U	19	4.9	ng/L		06/11/19 06:16	06/11/19 21:56	1
8:2 FTS	19	U	19	1.9	ng/L		06/11/19 06:16	06/11/19 21:56	1
6:2 FTS	19	U	19	1.9	ng/L		06/11/19 06:16	06/11/19 21:56	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*81*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
13C4 PFBA	*62*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
13C2 PFHxA	*82*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
13C4 PFOA	*93*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
13C5 PFNA	*102*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
13C2 PFDA	*96*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
13C2 PFUnA	*92*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
13C2 PFDoA	*87*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
13C2 PFTeDA	*113*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
13C3 PFBS	*95*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
18O2 PFHxS	*99*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
13C4 PFOS	*103*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
13C4 PFHpA	*94*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
13C5 PFPeA	*60*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
d3-NMeFOSAA	*77*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
d5-NEtFOSAA	*77*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
M2-8:2 FTS	*95*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
M2-4:2 FTS	*135*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*
M2-6:2 FTS	*104*		*25 - 150*	*06/11/19 06:16*	*06/11/19 21:56*	*1*

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113787-1

LCMS

Prep Batch: 300432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113787-1	WT-012607-060519-CM-002	Total/NA	Water	3535	
240-113787-2	W-012607-060519-CM-003	Total/NA	Water	3535	
MB 320-300432/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-300432/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-300432/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 300693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113787-2	W-012607-060519-CM-003	Total/NA	Water	537 (modified)	300432
MB 320-300432/1-A	Method Blank	Total/NA	Water	537 (modified)	300432
LCS 320-300432/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	300432
LCSD 320-300432/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	300432

Analysis Batch: 300929

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-113787-1	WT-012607-060519-CM-002	Total/NA	Water	537 (modified)	300432

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-300432/1-A
Matrix: Water
Analysis Batch: 300693

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 300432

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.0	U	2.0	0.35	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluoropentanoic acid (PFPeA)	2.0	U	2.0	0.49	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluorohexanoic acid (PFHxA)	2.0	U	2.0	0.58	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluoroheptanoic acid (PFHpA)	2.0	U	2.0	0.25	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluorooctanoic acid (PFOA)	2.0	U	2.0	0.85	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.27	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.31	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.55	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluorotridecanoic acid (PFTriA)	2.0	U	2.0	1.3	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.29	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.0	0.20	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluorohexanesulfonic acid (PFHxS)	0.324	J	2.0	0.17	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.32	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluorooctanesulfonic acid (PFOS)	2.0	U	2.0	0.54	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluorooctanesulfonamide (FOSA)	2.0	U	2.0	0.35	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluoropentanesulfonic acid (PFPeS)	2.0	U	2.0	0.30	ng/L		06/11/19 06:16	06/11/19 20:52	1
Perfluorononanesulfonic acid (PFNS)	2.0	U	2.0	0.16	ng/L		06/11/19 06:16	06/11/19 20:52	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.1	ng/L		06/11/19 06:16	06/11/19 20:52	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9	ng/L		06/11/19 06:16	06/11/19 20:52	1
4:2 FTS	20	U	20	5.2	ng/L		06/11/19 06:16	06/11/19 20:52	1
8:2 FTS	20	U	20	2.0	ng/L		06/11/19 06:16	06/11/19 20:52	1
6:2 FTS	20	U	20	2.0	ng/L		06/11/19 06:16	06/11/19 20:52	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*83*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
13C4 PFBA	*97*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
13C2 PFHxA	*99*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
13C4 PFOA	*97*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
13C5 PFNA	*101*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
13C2 PFDA	*98*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
13C2 PFUnA	*97*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
13C2 PFDoA	*93*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
13C2 PFTeDA	*114*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
13C3 PFBS	*97*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
18O2 PFHxS	*92*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
13C4 PFOS	*96*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
13C4 PFHpA	*98*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
13C5 PFPeA	*97*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
d3-NMeFOSAA	*83*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
d5-NEtFOSAA	*81*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
M2-8:2 FTS	*93*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
M2-4:2 FTS	*90*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*
M2-6:2 FTS	*85*		*25 - 150*	*06/11/19 06:16*	*06/11/19 20:52*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-300432/2-A
Matrix: Water
Analysis Batch: 300693

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300432

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	41.7		ng/L		104	70 - 130
Perfluoropentanoic acid (PFPeA)	40.0	38.6		ng/L		96	66 - 126
Perfluorohexanoic acid (PFHxA)	40.0	40.5		ng/L		101	66 - 126
Perfluoroheptanoic acid (PFHpA)	40.0	37.1		ng/L		93	66 - 126
Perfluorooctanoic acid (PFOA)	40.0	36.7		ng/L		92	64 - 124
Perfluorononanoic acid (PFNA)	40.0	37.6		ng/L		94	68 - 128
Perfluorodecanoic acid (PFDA)	40.0	37.9		ng/L		95	69 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	40.3		ng/L		101	60 - 120
Perfluorododecanoic acid (PFDoA)	40.0	36.1		ng/L		90	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	40.8		ng/L		102	72 - 132
Perfluorotetradecanoic acid (PFTeA)	40.0	36.5		ng/L		91	68 - 128
Perfluorobutanesulfonic acid (PFBS)	35.4	35.6		ng/L		101	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	36.4	32.9		ng/L		90	63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	37.1		ng/L		97	68 - 128
Perfluorodecanesulfonic acid (PFDS)	38.6	34.3		ng/L		89	68 - 128
Perfluorooctanesulfonic acid (PFOS)	37.1	33.5		ng/L		90	67 - 127
Perfluorooctanesulfonamide (FOSA)	40.0	43.8		ng/L		110	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	36.1		ng/L		96	70 - 130
Perfluorononanesulfonic acid (PFNS)	38.4	35.5		ng/L		93	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	34.4		ng/L		86	67 - 127
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	40.1		ng/L		100	65 - 125
4:2 FTS	37.4	32.2		ng/L		86	70 - 130
8:2 FTS	38.3	34.1		ng/L		89	67 - 127
6:2 FTS	37.9	33.9		ng/L		89	66 - 126

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*80*		*25 - 150*
13C4 PFBA	*100*		*25 - 150*
13C2 PFHxA	*98*		*25 - 150*
13C4 PFOA	*97*		*25 - 150*
13C5 PFNA	*102*		*25 - 150*
13C2 PFDA	*104*		*25 - 150*
13C2 PFUnA	*94*		*25 - 150*
13C2 PFDoA	*95*		*25 - 150*
13C2 PFTeDA	*116*		*25 - 150*
13C3 PFBS	*98*		*25 - 150*
18O2 PFHxS	*99*		*25 - 150*
13C4 PFOS	*102*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-300432/2-A
Matrix: Water
Analysis Batch: 300693

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 300432

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFHpA	*101*		*25 - 150*
13C5 PFPeA	*100*		*25 - 150*
d3-NMeFOSAA	*81*		*25 - 150*
d5-NEtFOSAA	*79*		*25 - 150*
M2-8:2 FTS	*98*		*25 - 150*
M2-4:2 FTS	*93*		*25 - 150*
M2-6:2 FTS	*94*		*25 - 150*

Lab Sample ID: LCSD 320-300432/3-A
Matrix: Water
Analysis Batch: 300693

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 300432

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	41.8		ng/L		105	70 - 130	0	30
Perfluoropentanoic acid (PFPeA)			40.0	36.0		ng/L		90	66 - 126	7	30
Perfluorohexanoic acid (PFHxA)			40.0	38.6		ng/L		96	66 - 126	5	30
Perfluoroheptanoic acid (PFHpA)			40.0	38.7		ng/L		97	66 - 126	4	30
Perfluorooctanoic acid (PFOA)			40.0	37.0		ng/L		92	64 - 124	1	30
Perfluorononanoic acid (PFNA)			40.0	35.6		ng/L		89	68 - 128	5	30
Perfluorodecanoic acid (PFDA)			40.0	37.6		ng/L		94	69 - 129	1	30
Perfluoroundecanoic acid (PFUnA)			40.0	37.7		ng/L		94	60 - 120	7	30
Perfluorododecanoic acid (PFDoA)			40.0	34.5		ng/L		86	71 - 131	5	30
Perfluorotridecanoic acid (PFTriA)			40.0	38.7		ng/L		97	72 - 132	5	30
Perfluorotetradecanoic acid (PFTeA)			40.0	37.1		ng/L		93	68 - 128	2	30
Perfluorobutanesulfonic acid (PFBS)			35.4	35.5		ng/L		100	73 - 133	0	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	31.8		ng/L		87	63 - 123	3	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	36.1		ng/L		95	68 - 128	3	30
Perfluorodecanesulfonic acid (PFDS)			38.6	35.1		ng/L		91	68 - 128	2	30
Perfluorooctanesulfonic acid (PFOS)			37.1	34.1		ng/L		92	67 - 127	2	30
Perfluorooctanesulfonamide (FOSA)			40.0	42.1		ng/L		105	70 - 130	4	30
Perfluoropentanesulfonic acid (PFPeS)			37.5	35.7		ng/L		95	70 - 130	1	30
Perfluorononanesulfonic acid (PFNS)			38.4	35.8		ng/L		93	70 - 130	1	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	35.9		ng/L		90	67 - 127	4	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	36.9		ng/L		92	65 - 125	8	30
4:2 FTS			37.4	32.6		ng/L		87	70 - 130	1	30
8:2 FTS			38.3	34.2		ng/L		89	67 - 127	0	30
6:2 FTS			37.9	35.8		ng/L		94	66 - 126	5	30

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113787-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C8 FOSA	76		25 - 150
13C4 PFBA	90		25 - 150
13C2 PFHxA	87		25 - 150
13C4 PFOA	89		25 - 150
13C5 PFNA	93		25 - 150
13C2 PFDA	92		25 - 150
13C2 PFUnA	86		25 - 150
13C2 PFDoA	89		25 - 150
13C2 PFTeDA	106		25 - 150
13C3 PFBS	90		25 - 150
18O2 PFHxS	90		25 - 150
13C4 PFOS	94		25 - 150
13C4 PFHpA	89		25 - 150
13C5 PFPeA	92		25 - 150
d3-NMeFOSAA	76		25 - 150
d5-NEtFOSAA	79		25 - 150
M2-8:2 FTS	82		25 - 150
M2-4:2 FTS	80		25 - 150
M2-6:2 FTS	84		25 - 150

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113787-1

Client Sample ID: WT-012607-060519-CM-002

Lab Sample ID: 240-113787-1

Date Collected: 06/05/19 14:55

Matrix: Water

Date Received: 06/06/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			300432	06/11/19 06:16	MNV	TAL SAC
Total/NA	Analysis	537 (modified)		1	300929	06/12/19 15:52	S1M	TAL SAC

Client Sample ID: W-012607-060519-CM-003

Lab Sample ID: 240-113787-2

Date Collected: 06/05/19 14:50

Matrix: Water

Date Received: 06/06/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			300432	06/11/19 06:16	MNV	TAL SAC
Total/NA	Analysis	537 (modified)		1	300693	06/11/19 21:56	GMK	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-113787-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Illinois	NELAP	5	200004	07-31-19 *
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New York	NELAP	2	10975	03-31-20
Ohio VAP	State Program	5	CL0024	06-05-21
Oregon	NELAP	10	4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-18-10	08-31-19 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
ANAB	DoD		L2468	01-20-21
ANAB	DOE		L2468.01	01-20-21
Arizona	State Program	9	AZ0708	08-11-19
Arkansas DEQ	State Program	6	88-0691	06-17-20
California	State Program	9	2897	01-31-20
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Hawaii	State Program	9	N/A	01-29-20
Illinois	NELAP	5	200060	03-17-19 *
Kansas	NELAP	7	E-10375	10-31-19
Louisiana	NELAP	6	30612	06-30-19
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-20-20
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	04-01-20
Oregon	NELAP	10	4040	01-29-20
Pennsylvania	NELAP	3	68-01272	03-31-20
Texas	NELAP	6	T104704399	05-31-20
US Fish & Wildlife	Federal		LE148388-0	07-31-19
USDA	Federal		P330-18-00239	01-17-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-113787-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Sacramento (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
USEPA UCMR	Federal	1	CA00044	12-31-20
Utah	NELAP	8	CA00044	02-29-20
Vermont	State Program	1	VT-4040	04-16-20
Virginia	NELAP	3	460278	03-14-20
Washington	State Program	10	C581	05-05-20
West Virginia (DW)	State Program	3	9930C	12-31-19
Wyoming	State Program	8	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Chain of Custody Record 319394

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Meincke	Site Contact: R. Mickle	Date: 6-5-19	COC No:
Company Name: GHD Services	Tel/Fax:	Lab Contact: D. Heckler	Carrier: FEDEX	____ of ____ COCs
Address: 26850 Haggerty	Analysis Turnaround Time			Sampler:
City/State/Zip: Farmington Hills, MI 48331	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 248-893-3400	TAT if different from Below 15			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: RACER Eckles Rd	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
PO# 12607-T31419-001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PFAS	Sample Specific Notes:
WT-012607-060519-CM-002	6-5-19	14:55	G	WT	1			X	
W-012607-060519-CM-003	6-5-19	14:50	G	W	1			X	

240-113787 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____

	Company	Date/Time	Received by	Company	Date/Time
Relinquished by:	GHD	6-5-19/16:00		ETA	6-6-19 930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Eurofins TestAmerica Canton Sample Receipt Form/Narrative Login # : 113787
Canton Facility

Client GHD Serv. Site Name _____ Cooler unpacked by: Ryan Crabler

Cooler Received on 6-6-19 Opened on 6-6-19 930

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____

Packing material used: (Bubble Wrap) Foam (Plastic Bag) None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF +0.1 °C) Observed Cooler Temp. 0.8 °C Corrected Cooler Temp. 0.9 °C
   IR GUN #36 (CF +0.6°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 2 total (Yes) No
   -Were the seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   -Were tamper/custody seals intact and uncompromised? (Yes) No NA
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes (No)
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels be reconciled with the COC? (Yes) No
9. Were correct bottle(s) used for the test(s) indicated? (Yes) No
10. Sufficient quantity received to perform indicated analyses? (Yes) No
11. Are these work share samples? Yes No
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No (NA) pH Strip Lot# HC984738
13. Were VOAs on the COC? (Yes) No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No (NA)
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes (No)
16. Was a LL Hg or Me Hg trip blank present? _____ Yes (No)

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: SK

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Heckler, Denise D	Carrier Tracking No(s):	COC No: 240-104722.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: denise.heckler@testamericainc.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-113787-1
Address: 880 Riverside Parkway,	Due Date Requested: 6/18/2019			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: 12607, RACER Eckles Rd	Project #: 24005880			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC (MOD) PFAS	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
WT-012607-060519-CM-002 (240-113787-1)	6/5/19	14:55 Eastern		Water			X	1	
W-012607-060519-CM-003 (240-113787-2)	6/5/19	14:50 Eastern		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by: Charles Ko	6-6-19 1623	240		7 June 19 920	ETA WSac
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.: —	Cooler Temperature(s) °C and Other Remarks: 1.1°C corr 1.3°C

Ver: 01/16/2019

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6/14/2019

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-113787-1

Login Number: 113787
List Number: 2
Creator: Thompson, Sarah W

List Source: Eurofins TestAmerica, Sacramento
List Creation: 06/08/19 07:49 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.3c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-113787-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFHxA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)	PFDoA (25-150)
240-113787-1	WT-012607-060519-CM-002	84	61	85	95	95	103	96	90
240-113787-2	W-012607-060519-CM-003	81	62	82	93	102	96	92	87
LCS 320-300432/2-A	Lab Control Sample	80	100	98	97	102	104	94	95
LCSD 320-300432/3-A	Lab Control Sample Dup	76	90	87	89	93	92	86	89
MB 320-300432/1-A	Method Blank	83	97	99	97	101	98	97	93

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFTDA (25-150)	3C3-PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFHpA (25-150)	PFPeA (25-150)	d3-NMeFOSAA (25-150)	d5-NEtFOSAA (25-150)
240-113787-1	WT-012607-060519-CM-002	134	85	101	95	96	55	87	89
240-113787-2	W-012607-060519-CM-003	113	95	99	103	94	60	77	77
LCS 320-300432/2-A	Lab Control Sample	116	98	99	102	101	100	81	79
LCSD 320-300432/3-A	Lab Control Sample Dup	106	90	90	94	89	92	76	79
MB 320-300432/1-A	Method Blank	114	97	92	96	98	97	83	81

		Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	M282FTS (25-150)	M242FTS (25-150)	M262FTS (25-150)
240-113787-1	WT-012607-060519-CM-002	100	142	103
240-113787-2	W-012607-060519-CM-003	95	135	104
LCS 320-300432/2-A	Lab Control Sample	98	93	94
LCSD 320-300432/3-A	Lab Control Sample Dup	82	80	84
MB 320-300432/1-A	Method Blank	93	90	85

Surrogate Legend

PFOSA = 13C8 FOSA
PFBA = 13C4 PFBA
PFHxA = 13C2 PFHxA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
13C3-PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFHpA = 13C4 PFHpA
PFPeA = 13C5 PFPeA
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M282FTS = M2-8:2 FTS
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS

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240-113787 Field Sheet

Job: _____

Tracking # 4422 3447 6647 SO / PO / FO / 2-Day / Ground / UPS / Courier / GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: _____

Therm. ID: AK-9 Corr. Factor: +0.2°C

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: —

Sample Custody Seal: —

Cooler ID: —

Temp Observed: 1.1°C Corrected: 1.3°C

From: Temp Blank ☐ Sample ☐

NCM Filed: Yes ☐ No ☐

	Yes	No	NA
Perchlorate has headspace?	☐	☐	☐ —
Alkalinity has no headspace?	☐	☐	☐ —
CoC is complete w/o discrepancies?	☐	☐	☐
Samples received within holding time?	☐	☐	☐
Sample preservatives verified?	☐	☐	☐
Cooler compromised/tampered with?	☐	☐	☐
Samples compromised/tampered with?	☐	☐	☐
Samples w/o discrepancies?	☐	☐	☐
Sample containers have legible labels?	☐	☐	☐
Containers are not broken or leaking?	☐	☐	☐
Sample date/times are provided.	☐	☐	☐
Appropriate containers are used?	☐	☐	☐
Sample bottles are completely filled?	☐	☐	☐
Zero headspace?*	☐	☐	☐
Multiphasic samples are not present?	☐	☐	☐
Sample temp OK?	☐	☐	☐
Sample out of temp?	☐	☐	☐

Initials: _____ Date: 7 Jun 19

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

WZC

Attachment 8
June 13, 2019 Samples
WT-012607-061319-CM-001 (effluent)
EB-012607-061319-CM-002 (Eq. Blank)
WT-012607-061319-CM-003 (effluent)
Laboratory Analytical Reports

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ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-114351-1
Client Project/Site: 12607, RACER Eckles Rd

For:
GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle

Denise D Heckler

Authorized for release by:
6/28/2019 12:31:33 PM

Denise Heckler, Project Manager II
(330)966-9477
denise.heckler@testamericainc.com

LINKS

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Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114351-1

Job ID: 240-114351-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-114351-1

Comments
No additional comments.

Receipt
The samples were received on 6/14/2019 9:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.1º C.

LCMS
Method(s) 537 (modified): The “I” qualifier means the transition mass ratio for the indicated analyte was outside of the established ratio limits. The qualitative identification of the analyte has/have some degree of uncertainty. However, analyst judgement was used to positively identify the analyte.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 320-303136

Method(s) 3535: The following samples: WT-012607-061319-CM-001 (240-114351-1) in preparation batch 320-303136 before extraction, were observed to be a yellow color.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114351-1

Qualifiers

LCMS

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114351-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-114351-1	WT-012607-061319-CM-001	Water	06/13/19 15:35	06/14/19 09:35	
240-114351-2	EB-012607-061319-CM-002	Water	06/13/19 15:40	06/14/19 09:35	

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114351-1

Client Sample ID: WT-012607-061319-CM-001 — Lab Sample ID: 240-114351-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	5.2		1.7	0.30	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.9		1.7	0.72	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.2	J	1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	91	I	1.7	0.46	ng/L	1		537 (modified)	Total/NA

Client Sample ID: EB-012607-061319-CM-002 — Lab Sample ID: 240-114351-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.37	J	1.8	0.32	ng/L	1		537 (modified)	Total/NA
Perfluorotetradecanoic acid (PFTeA)	0.43	J	1.8	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.23	J B	1.8	0.15	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114351-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Method: 537 (modified) - Fluorinated Alkyl Substances

Client Sample ID: WT-012607-061319-CM-001
Date Collected: 06/13/19 15:35
Date Received: 06/14/19 09:35

Lab Sample ID: 240-114351-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**5.2**		1.7	0.30	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluoropentanoic acid (PFPeA)	1.7	U	1.7	0.41	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluorohexanoic acid (PFHxA)	1.7	U	1.7	0.49	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluoroheptanoic acid (PFHpA)	1.7	U	1.7	0.21	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluorooctanoic acid (PFOA)	**3.9**		1.7	0.72	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluorononanoic acid (PFNA)	1.7	U	1.7	0.23	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluorodecanoic acid (PFDA)	1.7	U	1.7	0.26	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluoroundecanoic acid (PFUnA)	1.7	U	1.7	0.93	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluorododecanoic acid (PFDoA)	1.7	U	1.7	0.46	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluorotridecanoic acid (PFTriA)	1.7	U	1.7	1.1	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluorotetradecanoic acid (PFTeA)	1.7	U	1.7	0.25	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluorobutanesulfonic acid (PFBS)	**1.2**	**J**	1.7	0.17	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluorohexanesulfonic acid (PFHxS)	1.7	U	1.7	0.14	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.7	U	1.7	0.16	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluorodecanesulfonic acid (PFDS)	1.7	U	1.7	0.27	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluorooctanesulfonic acid (PFOS)	**91**	**I**	1.7	0.46	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluorooctanesulfonamide (FOSA)	1.7	U	1.7	0.30	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluoropentanesulfonic acid (PFPeS)	1.7	U	1.7	0.25	ng/L		06/23/19 08:53	06/26/19 15:35	1
Perfluorononanesulfonic acid (PFNS)	1.7	U	1.7	0.14	ng/L		06/23/19 08:53	06/26/19 15:35	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	17	U	17	2.6	ng/L		06/23/19 08:53	06/26/19 15:35	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	17	U	17	1.6	ng/L		06/23/19 08:53	06/26/19 15:35	1
4:2 FTS	17	U	17	4.4	ng/L		06/23/19 08:53	06/26/19 15:35	1
8:2 FTS	17	U	17	1.7	ng/L		06/23/19 08:53	06/26/19 15:35	1
6:2 FTS	17	U	17	1.7	ng/L		06/23/19 08:53	06/26/19 15:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*95*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
13C4 PFBA	*58*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
13C2 PFHxA	*84*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
13C4 PFOA	*100*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
13C5 PFNA	*105*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
13C2 PFDA	*108*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
13C2 PFUnA	*94*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
13C2 PFDoA	*99*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
13C2 PFTeDA	*115*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
13C3 PFBS	*103*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
18O2 PFHxS	*108*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
13C4 PFOS	*105*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
13C4 PFHpA	*100*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
13C5 PFPeA	*66*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
d3-NMeFOSAA	*100*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
d5-NEtFOSAA	*110*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
M2-8:2 FTS	*110*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
M2-4:2 FTS	*131*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*
M2-6:2 FTS	*109*		*25 - 150*	*06/23/19 08:53*	*06/26/19 15:35*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Client Sample ID: EB-012607-061319-CM-002
Date Collected: 06/13/19 15:40
Date Received: 06/14/19 09:35

Lab Sample ID: 240-114351-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.37**	**J**	1.8	0.32	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluoropentanoic acid (PFPeA)	1.8	U	1.8	0.44	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluorohexanoic acid (PFHxA)	1.8	U	1.8	0.52	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluoroheptanoic acid (PFHpA)	1.8	U	1.8	0.23	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluorooctanoic acid (PFOA)	1.8	U	1.8	0.77	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluorononanoic acid (PFNA)	1.8	U	1.8	0.24	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluorodecanoic acid (PFDA)	1.8	U	1.8	0.28	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluoroundecanoic acid (PFUnA)	1.8	U	1.8	0.99	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluorododecanoic acid (PFDoA)	1.8	U	1.8	0.50	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluorotridecanoic acid (PFTriA)	1.8	U	1.8	1.2	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluorotetradecanoic acid (PFTeA)	**0.43**	**J**	1.8	0.26	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluorobutanesulfonic acid (PFBS)	1.8	U	1.8	0.18	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluorohexanesulfonic acid (PFHxS)	**0.23**	**J B**	1.8	0.15	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluoroheptanesulfonic Acid (PFHpS)	1.8	U	1.8	0.17	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluorodecanesulfonic acid (PFDS)	1.8	U	1.8	0.29	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluorooctanesulfonic acid (PFOS)	1.8	U	1.8	0.49	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluorooctanesulfonamide (FOSA)	1.8	U	1.8	0.32	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluoropentanesulfonic acid (PFPeS)	1.8	U	1.8	0.27	ng/L		06/23/19 08:53	06/25/19 01:27	1
Perfluorononanesulfonic acid (PFNS)	1.8	U	1.8	0.14	ng/L		06/23/19 08:53	06/25/19 01:27	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	18	U	18	2.8	ng/L		06/23/19 08:53	06/25/19 01:27	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	18	U	18	1.7	ng/L		06/23/19 08:53	06/25/19 01:27	1
4:2 FTS	18	U	18	4.7	ng/L		06/23/19 08:53	06/25/19 01:27	1
8:2 FTS	18	U	18	1.8	ng/L		06/23/19 08:53	06/25/19 01:27	1
6:2 FTS	18	U	18	1.8	ng/L		06/23/19 08:53	06/25/19 01:27	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*83*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
13C4 PFBA	*96*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
13C2 PFHxA	*95*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
13C4 PFOA	*95*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
13C5 PFNA	*93*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
13C2 PFDA	*102*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
13C2 PFUnA	*102*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
13C2 PFDoA	*105*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
13C2 PFTeDA	*111*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
13C3 PFBS	*104*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
18O2 PFHxS	*105*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
13C4 PFOS	*90*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
13C4 PFHpA	*102*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
13C5 PFPeA	*94*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
d3-NMeFOSAA	*87*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
d5-NEtFOSAA	*86*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
M2-8:2 FTS	*105*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
M2-4:2 FTS	*145*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*
M2-6:2 FTS	*144*		*25 - 150*	*06/23/19 08:53*	*06/25/19 01:27*	*1*

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114351-1

LCMS

Prep Batch: 303136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-114351-1	WT-012607-061319-CM-001	Total/NA	Water	3535	
240-114351-2	EB-012607-061319-CM-002	Total/NA	Water	3535	
MB 320-303136/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-303136/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-303136/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 303431

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-114351-2	EB-012607-061319-CM-002	Total/NA	Water	537 (modified)	303136
MB 320-303136/1-A	Method Blank	Total/NA	Water	537 (modified)	303136
LCS 320-303136/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	303136
LCSD 320-303136/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	303136

Analysis Batch: 303907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-114351-1	WT-012607-061319-CM-001	Total/NA	Water	537 (modified)	303136

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-303136/1-A
Matrix: Water
Analysis Batch: 303431

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 303136

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.0	U	2.0	0.35	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluoropentanoic acid (PFPeA)	2.0	U	2.0	0.49	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluorohexanoic acid (PFHxA)	2.0	U	2.0	0.58	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluoroheptanoic acid (PFHpA)	2.0	U	2.0	0.25	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluorooctanoic acid (PFOA)	2.0	U	2.0	0.85	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluorononanoic acid (PFNA)	2.0	U	2.0	0.27	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluorodecanoic acid (PFDA)	2.0	U	2.0	0.31	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluoroundecanoic acid (PFUnA)	2.0	U	2.0	1.1	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluorododecanoic acid (PFDoA)	2.0	U	2.0	0.55	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluorotridecanoic acid (PFTriA)	2.0	U	2.0	1.3	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluorotetradecanoic acid (PFTeA)	2.0	U	2.0	0.29	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluorobutanesulfonic acid (PFBS)	2.0	U	2.0	0.20	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluorohexanesulfonic acid (PFHxS)	0.345	J	2.0	0.17	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluoroheptanesulfonic Acid (PFHpS)	2.0	U	2.0	0.19	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluorodecanesulfonic acid (PFDS)	2.0	U	2.0	0.32	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluorooctanesulfonic acid (PFOS)	2.0	U	2.0	0.54	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluorooctanesulfonamide (FOSA)	2.0	U	2.0	0.35	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluoropentanesulfonic acid (PFPeS)	2.0	U	2.0	0.30	ng/L		06/23/19 08:53	06/25/19 00:55	1
Perfluorononanesulfonic acid (PFNS)	2.0	U	2.0	0.16	ng/L		06/23/19 08:53	06/25/19 00:55	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	20	U	20	3.1	ng/L		06/23/19 08:53	06/25/19 00:55	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	20	U	20	1.9	ng/L		06/23/19 08:53	06/25/19 00:55	1
4:2 FTS	20	U	20	5.2	ng/L		06/23/19 08:53	06/25/19 00:55	1
8:2 FTS	20	U	20	2.0	ng/L		06/23/19 08:53	06/25/19 00:55	1
6:2 FTS	20	U	20	2.0	ng/L		06/23/19 08:53	06/25/19 00:55	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*80*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
13C4 PFBA	*95*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
13C2 PFHxA	*99*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
13C4 PFOA	*94*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
13C5 PFNA	*93*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
13C2 PFDA	*100*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
13C2 PFUnA	*97*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
13C2 PFDoA	*102*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
13C2 PFTeDA	*94*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
13C3 PFBS	*102*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
18O2 PFHxS	*107*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
13C4 PFOS	*91*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
13C4 PFHpA	*98*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
13C5 PFPeA	*101*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
d3-NMeFOSAA	*83*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
d5-NEtFOSAA	*87*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
M2-8:2 FTS	*117*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
M2-4:2 FTS	*137*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*
M2-6:2 FTS	*150*		*25 - 150*	*06/23/19 08:53*	*06/25/19 00:55*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-303136/2-A
Matrix: Water
Analysis Batch: 303431

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 303136

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	41.3		ng/L		103	70 - 130
Perfluoropentanoic acid (PFPeA)	40.0	34.7		ng/L		87	66 - 126
Perfluorohexanoic acid (PFHxA)	40.0	37.0		ng/L		92	66 - 126
Perfluoroheptanoic acid (PFHpA)	40.0	37.8		ng/L		95	66 - 126
Perfluorooctanoic acid (PFOA)	40.0	37.8		ng/L		94	64 - 124
Perfluorononanoic acid (PFNA)	40.0	36.8		ng/L		92	68 - 128
Perfluorodecanoic acid (PFDA)	40.0	36.5		ng/L		91	69 - 129
Perfluoroundecanoic acid (PFUnA)	40.0	40.0		ng/L		100	60 - 120
Perfluorododecanoic acid (PFDoA)	40.0	38.5		ng/L		96	71 - 131
Perfluorotridecanoic acid (PFTriA)	40.0	34.9		ng/L		87	72 - 132
Perfluorotetradecanoic acid (PFTeA)	40.0	35.2		ng/L		88	68 - 128
Perfluorobutanesulfonic acid (PFBS)	35.4	34.5		ng/L		98	73 - 133
Perfluorohexanesulfonic acid (PFHxS)	36.4	29.6		ng/L		81	63 - 123
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	38.1		ng/L		100	68 - 128
Perfluorodecanesulfonic acid (PFDS)	38.6	35.7		ng/L		93	68 - 128
Perfluorooctanesulfonic acid (PFOS)	37.1	34.3		ng/L		92	67 - 127
Perfluorooctanesulfonamide (FOSA)	40.0	45.4		ng/L		114	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	37.5	35.4		ng/L		94	70 - 130
Perfluorononanesulfonic acid (PFNS)	38.4	32.8		ng/L		86	70 - 130
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	36.9		ng/L		92	67 - 127
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	36.4		ng/L		91	65 - 125
4:2 FTS	37.4	41.4		ng/L		111	70 - 130
8:2 FTS	38.3	37.7		ng/L		98	67 - 127
6:2 FTS	37.9	31.2		ng/L		82	66 - 126

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*77*		*25 - 150*
13C4 PFBA	*89*		*25 - 150*
13C2 PFHxA	*91*		*25 - 150*
13C4 PFOA	*90*		*25 - 150*
13C5 PFNA	*94*		*25 - 150*
13C2 PFDA	*91*		*25 - 150*
13C2 PFUnA	*88*		*25 - 150*
13C2 PFDoA	*92*		*25 - 150*
13C2 PFTeDA	*84*		*25 - 150*
13C3 PFBS	*101*		*25 - 150*
18O2 PFHxS	*104*		*25 - 150*
13C4 PFOS	*91*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-303136/2-A
Matrix: Water
Analysis Batch: 303431

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 303136

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFHpA	*92*		*25 - 150*
13C5 PFPeA	*97*		*25 - 150*
d3-NMeFOSAA	*80*		*25 - 150*
d5-NEtFOSAA	*81*		*25 - 150*
M2-8:2 FTS	*91*		*25 - 150*
M2-4:2 FTS	*111*		*25 - 150*
M2-6:2 FTS	*133*		*25 - 150*

Lab Sample ID: LCSD 320-303136/3-A
Matrix: Water
Analysis Batch: 303431

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 303136

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			40.0	41.5		ng/L		104	70 - 130	0	30
Perfluoropentanoic acid (PFPeA)			40.0	37.6		ng/L		94	66 - 126	8	30
Perfluorohexanoic acid (PFHxA)			40.0	39.1		ng/L		98	66 - 126	6	30
Perfluoroheptanoic acid (PFHpA)			40.0	37.3		ng/L		93	66 - 126	1	30
Perfluorooctanoic acid (PFOA)			40.0	39.0		ng/L		98	64 - 124	3	30
Perfluorononanoic acid (PFNA)			40.0	37.8		ng/L		95	68 - 128	3	30
Perfluorodecanoic acid (PFDA)			40.0	38.7		ng/L		97	69 - 129	6	30
Perfluoroundecanoic acid (PFUnA)			40.0	39.4		ng/L		98	60 - 120	2	30
Perfluorododecanoic acid (PFDoA)			40.0	40.4		ng/L		101	71 - 131	5	30
Perfluorotridecanoic acid (PFTriA)			40.0	36.7		ng/L		92	72 - 132	5	30
Perfluorotetradecanoic acid (PFTeA)			40.0	37.1		ng/L		93	68 - 128	5	30
Perfluorobutanesulfonic acid (PFBS)			35.4	33.9		ng/L		96	73 - 133	2	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	32.4		ng/L		89	63 - 123	9	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	40.3		ng/L		106	68 - 128	5	30
Perfluorodecanesulfonic acid (PFDS)			38.6	34.0		ng/L		88	68 - 128	5	30
Perfluorooctanesulfonic acid (PFOS)			37.1	35.1		ng/L		94	67 - 127	2	30
Perfluorooctanesulfonamide (FOSA)			40.0	42.5		ng/L		106	70 - 130	7	30
Perfluoropentanesulfonic acid (PFPeS)			37.5	33.0		ng/L		88	70 - 130	7	30
Perfluorononanesulfonic acid (PFNS)			38.4	34.3		ng/L		89	70 - 130	4	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)			40.0	41.3		ng/L		103	67 - 127	11	30
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)			40.0	40.0		ng/L		100	65 - 125	10	30
4:2 FTS			37.4	37.5		ng/L		100	70 - 130	10	30
8:2 FTS			38.3	40.2		ng/L		105	67 - 127	6	30
6:2 FTS			37.9	29.4		ng/L		78	66 - 126	6	30

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114351-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	Limits
13C8 FOSA	81		25 - 150
13C4 PFBA	90		25 - 150
13C2 PFHxA	93		25 - 150
13C4 PFOA	87		25 - 150
13C5 PFNA	96		25 - 150
13C2 PFDA	92		25 - 150
13C2 PFUnA	82		25 - 150
13C2 PFDoA	89		25 - 150
13C2 PFTeDA	84		25 - 150
13C3 PFBS	102		25 - 150
18O2 PFHxS	97		25 - 150
13C4 PFOS	91		25 - 150
13C4 PFHpA	95		25 - 150
13C5 PFPeA	92		25 - 150
d3-NMeFOSAA	74		25 - 150
d5-NEtFOSAA	75		25 - 150
M2-8:2 FTS	92		25 - 150
M2-4:2 FTS	130		25 - 150
M2-6:2 FTS	135		25 - 150

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114351-1

Client Sample ID: WT-012607-061319-CM-001

Lab Sample ID: 240-114351-1

Date Collected: 06/13/19 15:35

Matrix: Water

Date Received: 06/14/19 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			303136	06/23/19 08:53	HJA	TAL SAC
Total/NA	Analysis	537 (modified)		1	303907	06/26/19 15:35	S1M	TAL SAC

Client Sample ID: EB-012607-061319-CM-002

Lab Sample ID: 240-114351-2

Date Collected: 06/13/19 15:40

Matrix: Water

Date Received: 06/14/19 09:35

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			303136	06/23/19 08:53	HJA	TAL SAC
Total/NA	Analysis	537 (modified)		1	303431	06/25/19 01:27	S1M	TAL SAC

Laboratory References:

TAL SAC = Eurofins TestAmerica, Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-114351-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State		2927	02-23-20
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Florida	NELAP		E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19 *
Illinois	NELAP		004498	07-31-19
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-20
New Jersey	NELAP		OH001	06-30-19
New York	NELAP	2	10975	03-31-20
New York	NELAP		10975	03-31-20
Ohio VAP	State Program	5	CL0024	06-05-21
Oregon	NELAP	10	4062	02-23-20
Oregon	NELAP		4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Pennsylvania	NELAP		68-00340	08-31-19
Texas	NELAP	6	T104704517-18-10	08-31-19 *
Texas	NELAP		T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Virginia	NELAP		010101	09-14-19
Washington	State		C971	01-12-20
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-114351-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
ANAB	DoD		L2468	01-20-21
ANAB	DOE		L2468.01	01-20-21
Arizona	State Program	9	AZ0708	08-11-19
Arkansas DEQ	State Program	6	88-0691	06-17-20
California	State Program	9	2897	01-31-20
Colorado	State Program	8	CA00044	08-31-19
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-19
Hawaii	State Program	9	N/A	01-29-20
Illinois	NELAP	5	200060	03-17-19 *
Kansas	NELAP	7	E-10375	10-31-19
Louisiana	NELAP	6	30612	06-30-20
Maine	State Program	1	CA0004	04-14-20
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-19
New Hampshire	NELAP	1	2997	04-20-20
New Jersey	NELAP	2	CA005	06-30-19
New York	NELAP	2	11666	04-01-20
Oregon	NELAP	10	4040	01-29-20
Oregon	NELAP		4040	01-29-20
Pennsylvania	NELAP	3	68-01272	03-31-20
Pennsylvania	NELAP		68-01272	03-31-20
Texas	NELAP	6	T104704399	05-31-20
US Fish & Wildlife	Federal		LE148388-0	07-31-19
USDA	Federal		P330-18-00239	01-17-21
USEPA UCMR	Federal	1	CA00044	12-31-20
Utah	NELAP	8	CA00044	02-29-20
Vermont	State Program	1	VT-4040	04-16-20
Virginia	NELAP	3	460278	03-14-20
Washington	State Program	10	C581	05-05-20
West Virginia (DW)	State Program	3	9930C	12-31-19
Wyoming	State Program	8	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Chain of Custody Record 319128

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

2.0/C21

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Meincke	Site Contact: R. Mickle	Date: 6-13-19	COC No:
Company Name: GHD Services	Tel/Fax:	Lab Contact: D. Hecker	Carrier: Fedex	____ of ____ COCs
Address: 26850 Haggerty	Analysis Turnaround Time			Sampler:
City/State/Zip: Farmington Hills, MI 48331	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 248-893-3400	TAT if different from Below 15			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: RACER, Eckles Rd	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
PO# 012607-T31419-001	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PFAS	Sample Specific Notes:
WT-012607-061319-CM-001	6-13	15:35	G	WT	1			X	
EB-012607-061319-CM-002	6-13	15:40	G	W	1			X	

240-114351 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ | Therm ID No.:_____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	GHD	6-13/16:15	[signature]	ETA	6-14-19 935
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Eurofins TestAmerica Canton Sample Receipt Form/Narrative Login # : 440351
Canton Facility

Client GHD Services Site Name _____ Cooler unpacked by: Ryan Crabley

Cooler Received on 6-14-19 Opened on 6-14-19 935

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # _____ Foam Box Client Cooler Box Other _____

Packing material used: (Bubble Wrap) Foam (Plastic Bag) None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **+0.1** °C) Observed Cooler Temp. 2.0 °C Corrected Cooler Temp. 2.1 °C
   IR GUN #36 (CF **+0.6**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 (Yes) No
   -Were the seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   -Were tamper/custody seals intact and uncompromised? (Yes) No NA
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes (No)
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels be reconciled with the COC? (Yes) No
9. Were correct bottle(s) used for the test(s) indicated? (Yes) No
10. Sufficient quantity received to perform indicated analyses? (Yes) No
11. Are these work share samples? Yes (No)
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? Yes No (NA) pH Strip Lot# **HC984738**
13. Were VOAs on the COC? Yes (No)
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No (NA)
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes (No)
16. Was a LL Hg or Me Hg trip blank present? _____ Yes (No)

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by:

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone: 330-497-9396 Fax: 330-497-0772

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Heckler, Denise D	Carrier Tracking No(s):	COC No: 240-105310.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: denise.heckler@testamericainc.com	State of Origin: Michigan	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-114351-1
Address: 880 Riverside Parkway,	Due Date Requested: 7/2/2019			
City: West Sacramento	TAT Requested (days):			
State, Zip: CA, 95605				
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:			
Email:	WO #:			
Project Name: 12607, RACER Eckles Rd	Project #: 24005880			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_PFC (MOD) PFAS	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
WT-012607-061319-CM-001 (240-114351-1)	6/13/19	15:35 Eastern		Water			X	1	
EB-012607-061319-CM-002 (240-114351-2)	6/13/19	15:40 Eastern		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	RCK	6-17-19-1405		Jaime Rosas	6/18/19 915	ETALSPAC
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 1.8

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-114351-1

Login Number: 114351
List Number: 2
Creator: Rosas, Jaime

List Source: Eurofins TestAmerica, Sacramento
List Creation: 06/19/19 04:03 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.8C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114351-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFHxA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)	PFDoA (25-150)
240-114351-1	WT-012607-061319-CM-001	95	58	84	100	105	108	94	99
240-114351-2	EB-012607-061319-CM-002	83	96	95	95	93	102	102	105
LCS 320-303136/2-A	Lab Control Sample	77	89	91	90	94	91	88	92
LCSD 320-303136/3-A	Lab Control Sample Dup	81	90	93	87	96	92	82	89
MB 320-303136/1-A	Method Blank	80	95	99	94	93	100	97	102

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFTDA (25-150)	3C3-PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFHpA (25-150)	PFPeA (25-150)	-NMeFOSA (25-150)	-NEtFOSA (25-150)
240-114351-1	WT-012607-061319-CM-001	115	103	108	105	100	66	100	110
240-114351-2	EB-012607-061319-CM-002	111	104	105	90	102	94	87	86
LCS 320-303136/2-A	Lab Control Sample	84	101	104	91	92	97	80	81
LCSD 320-303136/3-A	Lab Control Sample Dup	84	102	97	91	95	92	74	75
MB 320-303136/1-A	Method Blank	94	102	107	91	98	101	83	87

		Percent Isotope Dilution Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	M282FTS (25-150)	M242FTS (25-150)	M262FTS (25-150)
240-114351-1	WT-012607-061319-CM-001	110	131	109
240-114351-2	EB-012607-061319-CM-002	105	145	144
LCS 320-303136/2-A	Lab Control Sample	91	111	133
LCSD 320-303136/3-A	Lab Control Sample Dup	92	130	135
MB 320-303136/1-A	Method Blank	117	137	150

Surrogate Legend

PFOSA = 13C8 FOSA
PFBA = 13C4 PFBA
PFHxA = 13C2 PFHxA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
13C3-PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
PFHpA = 13C4 PFHpA
PFPeA = 13C5 PFPeA
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M282FTS = M2-8:2 FTS
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS

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Sacramento Sample Receiving Notes

Job: 240-114351 Field Sheet

Tracking # 4422 3448 0424 SO (PO) FO / 2-Day / Ground / UPS / CDO / Courier

GSO / OnTrac / Goldstreak / USPS / Other _____

Use this form to record Sample Custody Seal, Cooler Custody Seal, Temperature & corrected Temperature & other observations. File in the job folder with the COC.

Notes: TR79B

Therm. ID: IR Corr. Factor: NA

Ice ✓ Wet ✓ Gel _____ Other _____

Cooler Custody Seal: —

Sample Custody Seal: —

Cooler ID: —

Temp Observed: 1.8 Corrected: 1.8

From: Temp Blank ☐ Sample ☑

NCM Filed: Yes ☐ No ☐

	Yes	No	NA
Perchlorate has headspace?	☐	☐	☒
Alkalinity has no headspace?	☐	☐	☒
CoC is complete w/o discrepancies?	☒	☐	☐
Samples received within holding time?	☒	☐	☐
Sample preservatives verified?	☐	☐	☒
Cooler compromised/tampered with?	☐	☒	☐
Samples compromised/tampered with?	☐	☒	☐
Samples w/o discrepancies?	☒	☐	☐
Sample containers have legible labels?	☒	☐	☐
Containers are not broken or leaking?	☒	☐	☐
Sample date/times are provided.	☒	☐	☐
Appropriate containers are used?	☒	☐	☐
Sample bottles are completely filled?	☒	☐	☐
Zero headspace?*	☒	☐	☐
Multiphasic samples are not present?	☒	☐	☐
Sample temp OK?	☒	☐	☐
Sample out of temp?	☐	☒	☐

Initials: JB Date: 6/18/19

*Containers requiring zero headspace have no headspace, or bubble < 6 mm (1/4")

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ANALYTICAL REPORT

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

Laboratory Job ID: 240-114358-1
Client Project/Site: 12607, RACER Eckles Rd

For:
GHD Services Inc.
26850 Haggerty Rd.
Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle

Denise D Heckler

Authorized for release by:
6/19/2019 10:33:13 AM

Denise Heckler, Project Manager II
(330)966-9477
denise.heckler@testamericainc.com

LINKS

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Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Case Narrative

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114358-1

Job ID: 240-114358-1

Laboratory: Eurofins TestAmerica, Canton

Narrative

Job Narrative
240-114358-1

Comments
No additional comments.

Receipt
The sample was received on 6/14/2019 9:35 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.1º C.

Metals
Method(s) 200.7 Rev 4.4, 6010B: Some requested practical quantitation limits (PQLs) on the following samples fall below the laboratory's verified standard quantitation limit: WT-012607-061319-CM-003 (240-114358-1). The continuing calibration blanks and method blanks may not support the lower PQL.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114358-1

Qualifiers

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114358-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
240-114358-1	WT-012607-061319-CM-003	Water	06/13/19 15:45	06/14/19 09:35	

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114358-1

Client Sample ID: WT-012607-061319-CM-003 — Lab Sample ID: 240-114358-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chromium	0.94		0.050		mg/L	1		200.7 Rev 4.4	Total Recoverable
Nickel	0.81		0.010		mg/L	1		200.7 Rev 4.4	Total Recoverable
Chromium, hexavalent	0.85		0.050		mg/L	10		3500-Cr B-2009	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114358-1

Method	Method Description	Protocol	Laboratory
200.7 Rev 4.4	Metals (ICP)	EPA	TAL CAN
3500-Cr B-2009	Chromium, Hexavalent	SM	TAL CAN
200.7	Preparation, Total Recoverable Metals	EPA	TAL CAN

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Client Sample Results

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114358-1

Method: 200.7 Rev 4.4 - Metals (ICP) - Total Recoverable

Client Sample ID: WT-012607-061319-CM-003
Date Collected: 06/13/19 15:45
Date Received: 06/14/19 09:35

Lab Sample ID: 240-114358-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.94		0.050		mg/L		06/15/19 14:00	06/18/19 04:41	1
Nickel	0.81		0.010		mg/L		06/15/19 14:00	06/18/19 04:41	1

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114358-1

General Chemistry

Client Sample ID: WT-012607-061319-CM-003
Date Collected: 06/13/19 15:45
Date Received: 06/14/19 09:35

Lab Sample ID: 240-114358-1
Matrix: Water

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.85		0.050		mg/L			06/14/19 13:40	10

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114358-1

Metals

Prep Batch: 386379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-114358-1	WT-012607-061319-CM-003	Total Recoverable	Water	200.7	
MB 240-386379/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 240-386379/2-A	Lab Control Sample	Total Recoverable	Water	200.7	
240-114358-1 MS	WT-012607-061319-CM-003	Total Recoverable	Water	200.7	
240-114358-1 MSD	WT-012607-061319-CM-003	Total Recoverable	Water	200.7	

Analysis Batch: 386719

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-114358-1	WT-012607-061319-CM-003	Total Recoverable	Water	200.7 Rev 4.4	386379
MB 240-386379/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	386379
LCS 240-386379/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	386379
240-114358-1 MS	WT-012607-061319-CM-003	Total Recoverable	Water	200.7 Rev 4.4	386379
240-114358-1 MSD	WT-012607-061319-CM-003	Total Recoverable	Water	200.7 Rev 4.4	386379

General Chemistry

Analysis Batch: 386195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-114358-1	WT-012607-061319-CM-003	Total/NA	Water	3500-Cr B-2009	
MB 240-386195/3	Method Blank	Total/NA	Water	3500-Cr B-2009	
LCS 240-386195/4	Lab Control Sample	Total/NA	Water	3500-Cr B-2009	

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 240-386379/1-A
Matrix: Water
Analysis Batch: 386719

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 386379

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.050	U	0.050		mg/L		06/15/19 14:00	06/18/19 03:36	1
Nickel	0.010	U	0.010		mg/L		06/15/19 14:00	06/18/19 03:36	1

Lab Sample ID: LCS 240-386379/2-A
Matrix: Water
Analysis Batch: 386719

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 386379

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium			1.00	0.966		mg/L		97	85 - 115		
Nickel			1.00	1.02		mg/L		102	85 - 115		

Lab Sample ID: 240-114358-1 MS
Matrix: Water
Analysis Batch: 386719

Client Sample ID: WT-012607-061319-CM-003
Prep Type: Total Recoverable
Prep Batch: 386379

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium	0.94		1.00	1.90		mg/L		96	75 - 125		
Nickel	0.81		1.00	1.86		mg/L		105	75 - 125		

Lab Sample ID: 240-114358-1 MSD
Matrix: Water
Analysis Batch: 386719

Client Sample ID: WT-012607-061319-CM-003
Prep Type: Total Recoverable
Prep Batch: 386379

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chromium	0.94		1.00	1.88		mg/L		95	75 - 125	1	20
Nickel	0.81		1.00	1.83		mg/L		102	75 - 125	2	20

Method: 3500-Cr B-2009 - Chromium, Hexavalent

Lab Sample ID: MB 240-386195/3
Matrix: Water
Analysis Batch: 386195

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chromium, hexavalent	0.0050	U	0.0050		mg/L			06/14/19 09:05	1

Lab Sample ID: LCS 240-386195/4
Matrix: Water
Analysis Batch: 386195

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chromium, hexavalent			0.250	0.244		mg/L		98	80 - 123		

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 12607, RACER Eckles Rd

Job ID: 240-114358-1

Client Sample ID: WT-012607-061319-CM-003
Date Collected: 06/13/19 15:45
Date Received: 06/14/19 09:35

Lab Sample ID: 240-114358-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	200.7			386379	06/15/19 14:00	SLD	TAL CAN
Total Recoverable	Analysis	200.7 Rev 4.4		1	386719	06/18/19 04:41	WKD	TAL CAN
Total/NA	Analysis	3500-Cr B-2009		10	386195	06/14/19 13:40	BLW	TAL CAN

Laboratory References:

TAL CAN = Eurofins TestAmerica, Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 240-114358-1
Project/Site: 12607, RACER Eckles Rd

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State		2927	02-23-20
California	State Program	9	2927	02-23-20
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19 *
Florida	NELAP		E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19 *
Illinois	NELAP		004498	07-31-19
Iowa	State Program	7	421	06-01-21
Kansas	NELAP	7	E-10336	04-30-20
Kentucky (UST)	State Program	4	58	02-23-20
Kentucky (WW)	State Program	4	98016	12-31-19
Minnesota	NELAP	5	039-999-348	12-31-19 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19 *
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19 *
New Jersey	NELAP		OH001	06-30-19
New York	NELAP	2	10975	03-31-20
New York	NELAP		10975	03-31-20
Ohio VAP	State Program	5	CL0024	06-05-21
Oregon	NELAP	10	4062	02-23-20
Oregon	NELAP		4062	02-23-20
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Pennsylvania	NELAP		68-00340	08-31-19
Texas	NELAP	6	T104704517-18-10	08-31-19 *
Texas	NELAP		T104704517-18-10	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19 *
Washington	State Program	10	C971	01-12-20 *
West Virginia DEP	State Program	3	210	12-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

2.0 | C21

Chain of Custody Record

MICHIGAN 190

eurofins | Environment Testing TestAmerica

Client Information	Sampler: Meincke	Lab PM: Heckler, Denise D	Carrier Tracking No(s):	COC No: 240-59613-21067.1
Client Contact: Ms. Ruth Mickle	Phone: 248-935-7346	E-Mail: denise.heckler@testamericainc.com		Page: Page 1 of 1
Company: GHD Services Inc.				Job #:

Address: 26850 Haggerty Rd.	Due Date Requested:
City: Farmington Hills	TAT Requested (days): 10 days
State, Zip: MI, 48331	
Phone:	PO #: 34023630
Email: ruth.mickle@ghd.com	WO #: 12607
Project Name: 12607-weekly Influent, , RACER Eckles Rd	Project #: 24005880
Site:	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	3500_CR_B - Chromium, Hexavalent	200.7 - Cr, Ni	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D		
WT-012607-061319-CM-003	6-13-19	15:45	G	Water			X	X		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	[signature]	6-13-19/16:15	GHD	[signature]	6-14-19 935	ETA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica Canton Sample Receipt Form/Narrative Login # : 114358
Canton Facility

Client GHD Services Site Name _____ Cooler unpacked by: Ryan Crisley

Cooler Received on 6-14-19 Opened on 6-14-19 935

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # _____ Foam Box Client Cooler Box Other _____

Packing material used: (Bubble Wrap) Foam (Plastic Bag) None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **+0.1** °C) Observed Cooler Temp. 2.0 °C Corrected Cooler Temp. 2.1 °C
   IR GUN #36 (CF **+0.6**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 (Yes) No
   -Were the seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   -Were tamper/custody seals intact and uncompromised? (Yes) No NA
3. Shippers' packing slip attached to the cooler(s)? (Yes) No
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes (No)
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels be reconciled with the COC? (Yes) No
9. Were correct bottle(s) used for the test(s) indicated? (Yes) No
10. Sufficient quantity received to perform indicated analyses? (Yes) No
11. Are these work share samples? Yes (No)
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? (Yes) No NA pH Strip Lot# **HC984738**
13. Were VOAs on the COC? Yes (No)
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No (NA)
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes (No)
16. Was a LL Hg or Me Hg trip blank present? _____ Yes (No)

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: RC

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
WT-012607-061319-CM-003	240-114358-B-1	Plastic 250ml - with Nitric Acid	<2	_____	_____