



September 29, 2017

Reference No. 012607

Ms. Tessy Jose
City of Detroit
Water and Sewerage Department
Industrial Waste Control Division
303 S. Livernois Avenue
Detroit, Michigan 48209

Dear Ms. Jose:

**Re: DWSD Semi Annual Report – SD6 94508
(March 2017 through August 2017)
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 2017 through August 2017 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 is effective through June 30, 2019.

RACER has been implementing United States Environmental Protection Agency (U.S. EPA) approved pilot studies to evaluate remedial alternatives for the reduction of dissolved chromium and nickel concentrations in site groundwater. Based on these pilot studies and as approved by U.S. EPA, RACER implemented a 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. ISCR performance groundwater monitoring and evaluation is currently underway.

The current City of Detroit Water and Sewerage Department (DWSD) Special Discharge Permit effluent limits for the groundwater treatment plant (GWTP) are 3.98 mg/L for nickel and 2.77 mg/L for total chromium. It is noted that recent GWTP influent concentrations have averaged between 2 to 4 mg/L for nickel and 3 to 6 mg/L for total chromium since December 2016 based on laboratory analysis performed monthly. If groundwater concentrations and the GWTP influent concentrations can be reduced to below Special Discharge Permit effluent limits through targeted and full-scale chemical injections into the impacted groundwater in the vicinity of the French drain, RACER believes it will allow for modification of existing GWTP operation, while still meeting effluent limits and continuing to implement dewatering activities until final portions of the remedial alternative can be implemented and approval to discontinue dewatering (and therefore discharge to the sanitary sewer system) can be obtained from U.S. EPA. Influent testing will continue with field test kits weekly and laboratory analysis monthly in order to obtain data to allow for evaluation of any trends in nickel and chromium concentrations in the influent, and once influent concentrations are consistently below the Special Discharge Permit requirements, the GWTP operations may be modified. Effluent testing will continue as required by the Special Discharge Permit. If approval to discontinue dewatering is received from U.S. EPA then no discharge will be necessary and



the existing Discharge Permit can be terminated. The conceptual schedule for receiving approval from U.S. EPA to discontinue dewatering activities through the groundwater extraction system and hence the need for operating and discharging to the sanitary sewer system is in 2018.

Section D: Reporting Requirements

- Reporting Period: March 1, 2017 to August 30, 2017.
- Dates of Sampling: March 8, 2017; April 19, 2017; May 24, 2017; June 28, 2017; July 12, 2017; and August 2, 2017.
- GHD notified GLWA on June 7, 2017 that the groundwater treatment plant was shutdown due to failure of an actuated ball valve associated with the sand filter. The ball valve was replaced and the groundwater treatment plant was restarted on June 12, 2017. The groundwater treatment plant was then shutdown on June 13, 2017 due to an acid feed pump malfunction. The pump was repaired and the groundwater treatment plant was restarted on June 19, 2017.
- All samples were collected from the effluent sampling port of Tank T12.
- Total Monthly Discharges (gallons):
 - March 2017: 533,679
 - April 2017: 493,661
 - May 2017: 687,721
 - June 2017: 487,759
 - July 2017: 471,170
 - August 2017: 407,751
- Total Flow to Date (since 2000): 178,567,253 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 (734) 453-5123 if you require further information or clarification.

Sincerely,

GHD

Christopher J. Meincke, P.E.

CJM/ds/15/Det.

Encl.

cc: Dave Favero, RACER

SECTION D: REPORTING REQUIREMENTS/b) iii)**12950 Eckles Road****Livonia, MI 48150****Permit No.: SD6-94508****Maintenance Log - March 2017**

Date	Inspection Visits	Changes or Replacements of Treatment System	Samples Taken	Quantities of Groundwater Discharged / Day - GAL	Notes
03/01/17	None	None	On-Site	143	
03/02/17	None	None	On-Site	40,186	
03/03/17	None	None	On-Site	37,028	
03/04/17	None	None			
03/05/17	None	None			
03/06/17	None	None			
03/07/17	None	None			
03/08/17	None	None	On-Site & Sampled	261	System shutdown - awaiting polymer delivery
03/09/17	None	None			
03/10/17	None	None			
03/11/17	None	None			
03/12/17	None	None			
03/13/17	None	None	On-Site	0	
03/14/17	None	None	On-Site	79,716	
03/15/17	None	None	On-Site	39,725	
03/16/17	None	None	On-Site	33,358	
03/17/17	None	None	On-Site	5,345	
03/18/17	None	None			
03/19/17	None	None			
03/20/17	None	None	On-Site	0	
03/21/17	None	None	On-Site	46,258	
03/22/17	None	None	On-Site	35,737	
03/23/17	None	None	On-Site	30,331	
03/24/17	None	None	On-Site	35,752	
03/25/17	None	None			
03/26/17	None	None			
03/27/17	None	None	On-Site	300	
03/28/17	None	None	On-Site	45,143	
03/29/17	None	None	On-Site	38,446	
03/30/17	None	None	On-Site	29,142	
03/31/17	None	None	On-Site	36,808	

Total Monthly Discharge (gal)

533,679

SECTION D: REPORTING REQUIREMENTS/b) iii)**12950 Eckles Road****Livonia, MI 48150****Permit No.: SD6-94508****Maintenance Log - April 2017**

Date	Inspection Visits	Changes or Replacements of Treatment System	Samples Taken	Quantities of Groundwater Discharged / Day - GAL	Notes
04/01/17	None	None			
04/02/17	None	None			
04/03/17	None	None	On-Site	1,116	
04/04/17	None	None	On-Site	29,705	
04/05/17	None	None	On-Site	40,729	
04/06/17	None	None	On-Site	39,184	
04/07/17	None	None			
04/08/17	None	None			
04/09/17	None	None			
04/10/17	None	None	On-Site	960	
04/11/17	None	None	On-Site	33,479	
04/12/17	None	None	On-Site	39,313	
04/13/17	None	None	On-Site	32,874	
04/14/17	None	None			
04/15/17	None	None			
04/16/17	None	None			
04/17/17	None	None	On-Site	250	
04/18/17	None	None	On-Site	45,856	
04/19/17	None	None	On-Site & Sampled	24,938	
04/20/17	None	None	On-Site	34,452	
04/21/17	None	None	On-Site	30,902	
04/22/17	None	None			
04/23/17	None	None			
04/24/17	None	None	On-Site	1,019	
04/25/17	None	None	On-Site	42,812	
04/26/17	None	None	On-Site	31,873	
04/27/17	None	None	On-Site	21,393	
04/28/17	None	None	On-Site	42,806	
04/29/17	None	None			
04/30/17	None	None			

Total Monthly Discharge (gal)

493,661

SECTION D: REPORTING REQUIREMENTS/b) iii)**12950 Eckles Road****Livonia, MI 48150****Permit No.: SD6-94508****Maintenance Log - May 2017**

Date	Inspection Visits	Changes or Replacements of Treatment System	Samples Taken	Quantities of Groundwater Discharged / Day - GAL	Notes
05/01/16	None	None	On-Site	1,202	
05/02/16	None	None	On-Site	31,681	
05/03/16	None	None	On-Site	34,665	
05/04/16	None	None	On-Site	27,131	
05/05/16	None	None	On-Site	29,627	
05/06/16	None	None			
05/07/16	None	None			
05/08/16	None	None	On-Site	1,639	
05/09/16	None	None	On-Site	52,308	
05/10/16	None	None	On-Site	70,143	
05/11/16	None	None	On-Site	52,077	
05/12/16	None	None	On-Site	59,563	
05/13/16	None	None			
05/14/16	None	None			
05/15/16	None	None	On-Site	268	
05/16/16	None	None	On-Site	68,802	
05/17/16	None	None	On-Site	38,737	
05/18/16	None	None	On-Site	32,692	
05/19/16	None	None	On-Site	31,766	
05/20/16	None	None			
05/21/16	None	None			
05/22/16	None	None	On-Site	914	
05/23/16	None	None	On-Site	43,961	
05/24/16	None	None	On-Site & Sampled	21,161	
05/25/16	None	None	On-Site	31,766	
05/26/16	None	None			System down for Memorial weekend
05/27/16	None	None			
05/28/16	None	None			
05/29/16	None	None			System down for Memorial weekend
05/30/16	None	None	On-Site	2,151	
05/31/16	None	None	On-Site	55,467	

Total Monthly Discharge (gal)

687,721

SECTION D: REPORTING REQUIREMENTS/b) iii)**12950 Eckles Road****Livonia, MI 48150****Permit No.: SD6-94508****Maintenance Log - June 2017**

Date	Inspection Visits	Changes or Replacements of Treatment System	Samples Taken	Quantities of Groundwater Discharged / Day - GAL	Notes
06/01/17	None	None			System down - mag lime feed system down
06/02/17	None	None			System down - mag lime feed system down
06/03/17	None	None			System down - mag lime feed system down
06/04/17	None	None			System down - mag lime feed system down
06/05/17	None	None			System down - Sand Filter Actuated Ball Valve
06/06/17	None	None			System down - Sand Filter Actuated Ball Valve
06/07/17	None	None			System down - Sand Filter Actuated Ball Valve
06/08/17	None	None			System down - Sand Filter Actuated Ball Valve
06/09/17	None	None			System down - Sand Filter Actuated Ball Valve
06/10/17	None	None			System down - Sand Filter Actuated Ball Valve
06/11/17	None	None			System down - Sand Filter Actuated Ball Valve
06/12/17	None	None	On-Site	4,779	
06/13/17	None	None	On-Site	8,429	System down High ORP Alarm, acid feed pump not working
06/14/17	None	None			System down High ORP Alarm, acid feed pump not working
06/15/17	None	None			System down High ORP Alarm, acid feed pump not working
06/16/17	None	None			System down High ORP Alarm, acid feed pump not working
06/17/17	None	None			
06/18/17	None	None			
06/19/17	None	None	On-Site	7,397	
06/20/17	None	None	On-Site	75,153	
06/21/17	None	None	On-Site	50,348	
06/22/17	None	None	On-Site	62,158	
06/23/17	None	None			
06/24/17	None	None			
06/25/17	None	None			
06/26/17	None	None	On-Site	161	
06/27/17	None	None	On-Site	84,849	
06/28/17	None	None	On-Site & Sampled	70,597	
06/29/17	None	None	On-Site	69,397	
06/30/17	None	None	On-Site	54,491	

Total Monthly Discharge (gal)

487,759

SECTION D: REPORTING REQUIREMENTS/b) iii)**12950 Eckles Road****Livonia, MI 48150****Permit No.: SD6-94508****Maintenance Log - July 2017**

Date	Inspection Visits	Changes or Replacements of Treatment System	Samples Taken	Quantities of Groundwater Discharged / Day - GAL	Notes
07/01/17	None	None			
07/02/17	None	None			
07/03/17	None	None			
07/04/17	None	None			
07/05/17	None	None	On-Site	2,786	
07/06/17	None	None	On-Site	75,091	
07/07/17	None	None	On-Site	30,008	out of mag lime
07/08/17	None	None			
07/09/17	None	None			
07/10/17	None	None			
07/11/17	None	None	On-Site	5,619	Mag lime delivery
07/12/17	None	None	On-Site & Sampled	38,430	
07/13/17	None	None	On-Site	28,651	
07/14/17	None	None	On-Site	31,151	
07/15/17	None	None			
07/16/17	None	None			
07/17/17	None	None	On-Site	244	
07/18/17	None	None	On-Site	80,170	
07/19/17	None	None	On-Site	24,297	
07/20/17	None	None	On-Site	2,323	
07/21/17	None	None	On-Site	31,677	
07/22/17	None	None			
07/23/17	None	None			
07/24/17	None	None	On-Site	244	
07/25/17	None	None	On-Site	42,221	
07/26/17	None	None	On-Site	26,939	
07/27/17	None	None	On-Site	24,716	
07/28/17	None	None	On-Site	26,284	
07/29/17	None	None			
07/30/17	None	None			
07/31/17	None	None	On-Site	319	

Total Monthly Discharge (gal)

471,170

SECTION D: REPORTING REQUIREMENTS/b) iii)**12950 Eckles Road****Livonia, MI 48150****Permit No.: SD6-94508****Maintenance Log - August 2017**

Date	Inspection Visits	Changes or Replacements of Treatment System	Samples Taken	Quantities of Groundwater Discharged / Day - GAL	Notes
08/01/17	None	None	On-Site	65,281	
08/02/17	None	None	On-Site & Sampled	45,656	
08/03/17	None	None	On-Site	29,802	
08/04/17	None	None	On-Site	25,906	
08/05/17	None	None			
08/06/17	None	None			
08/07/17	None	None			Scheduled Shutdown
08/08/17	None	None			Scheduled Shutdown
08/09/17	None	None			Scheduled Shutdown
08/10/17	None	None			Scheduled Shutdown
08/11/17	None	None			Scheduled Shutdown
08/12/17	None	None			
08/13/17	None	None			
08/14/17	None	None	On-Site	1,836	
08/15/17	None	None	On-Site	44,976	
08/16/17	None	None	On-Site	20,914	
08/17/17	None	None	On-Site	4,723	
08/18/17	None	None	On-Site	24,048	
08/19/17	None	None			
08/20/17	None	None			
08/21/17	None	None	On-Site	8,679	
08/22/17	None	None	On-Site	25,013	
08/23/17	None	None	On-Site	21,963	
08/24/17	None	None	On-Site	26,786	
08/25/17	None	None			
08/26/17	None	None			
08/27/17	None	None			
08/28/17	None	None	On-Site	0	
08/29/17	None	None	On-Site	28,460	
08/30/17	None	None	On-Site	9,847	
08/31/17	None	None	On-Site	23,861	

Total Monthly Discharge (gal)

407,751

SECTION D: REPORTING REQUIREMENTS/b) iii)
12950 Eckles Road
Livonia, MI 48150
Permit No.: SD6-94508
Maintenance Log- ISCO Sample Analyses - March 2017

	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
3/1/2017	3/1/2017	7.82	0.01	0.00	0.05	
3/2/2017	3/2/2017	9.46	0.01	0.00	0.05	
3/3/2017	3/3/2017	9.38	0.01	0.00	0.05	
3/4/2017	3/4/2017					
3/5/2017	3/5/2017					
3/6/2017	3/6/2017					System down - low on mag lime
3/7/2017	3/7/2017					System down - low on mag lime
3/8/2017	3/8/2017	7.91	0.01	0.00	0.05	System down - out of ploymer
3/9/2017	3/9/2017					System down - out of ploymer
3/10/2017	3/10/2017					System down - out of ploymer
3/11/2017	3/11/2017					
3/12/2017	3/12/2017					
3/13/2017	3/13/2017	8.11	0.01	0.00	0.05	
3/14/2017	3/14/2017	9.19	0.05	0.00	0.05	
3/15/2017	3/15/2017	9.16	0.05	0.00	0.10	
3/16/2017	3/16/2017	9.13	0.05	0.00	0.10	
3/17/2017	3/17/2017	8.64	0.05	0.00	0.10	System down - low pH T-5
3/18/2017	3/18/2017					
3/19/2017	3/19/2017					
3/20/2017	3/20/2017	7.90	0.05	0.00	0.05	
3/21/2017	3/21/2017	9.24	0.01	0.00	0.05	
3/22/2017	3/22/2017	9.33	0.01	0.00	0.05	
3/23/2017	3/23/2017	9.33	0.05	0.00	0.05	
3/24/2017	3/24/2017	9.24	0.01	0.00	0.05	
3/25/2017	3/25/2017					
3/26/2017	3/26/2017					
3/27/2017	3/27/2017	9.14	0.01	0.00	0.05	
3/28/2017	3/28/2017	9.46	0.05	0.00	0.05	
3/29/2017	3/29/2017	9.38	0.01	0.00	0.05	
3/30/2017	3/30/2017	9.42	0.01	0.00	0.05	
3/31/2017	3/31/2017	9.41	0.01	0.00	0.05	

SECTION D: REPORTING REQUIREMENTS/b) iii)
12950 Eckles Road
Livonia, MI 48150
Permit No.: SD6-94508
Maintenance Log- ISCO Sample Analyses - April 2017

	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
4/1/2017	4/1/2017					
4/2/2017	4/2/2017					
4/3/2017	4/3/2017	8.08	0.01	0.00	0.05	
4/4/2017	4/4/2017	9.17	0.01	0.00	0.05	
4/5/2017	4/5/2017	9.28	0.01	0.00	0.05	
4/6/2017	4/6/2017	9.12	0.10	0.00	0.20	
4/7/2017	4/7/2017					
4/8/2017	4/8/2017					
4/9/2017	4/9/2017					
4/10/2017	4/10/2017	7.80	0.05	0.00	0.10	
4/11/2017	4/11/2017	9.23	0.01	0.00	0.05	
4/12/2017	4/12/2017	9.17	0.02	0.00	0.05	
4/13/2017	4/13/2017	9.11	0.03	0.00	0.05	
4/14/2017	4/14/2017					
4/15/2017	4/15/2017					
4/16/2017	4/16/2017					
4/17/2017	4/17/2017	7.89	0.02	0.00	0.05	
4/18/2017	4/18/2017	9.26	0.02	0.00	0.05	
4/19/2017	4/19/2017	9.23	0.02	0.00	0.05	
4/20/2017	4/20/2017	9.19	0.03	0.00	0.05	
4/21/2017	4/21/2017	9.14	0.02	0.00	0.05	
4/22/2017	4/22/2017					
4/23/2017	4/23/2017					
4/24/2017	4/24/2017	8.21	0.01	0.00	0.05	
4/25/2017	4/25/2017	9.20	0.02	0.00	0.05	
4/26/2017	4/26/2017	9.17	0.02	0.00	0.05	
4/27/2017	4/27/2017	9.16	0.02	0.00	0.05	
4/28/2017	4/28/2017	9.07	0.04	0.00	0.05	
4/29/2017	4/29/2017					
4/30/2017	4/30/2017					

SECTION D: REPORTING REQUIREMENTS/b) iii)
12950 Eckles Road
Livonia, MI 48150
Permit No.: SD6-94508
Maintenance Log- ISCO Sample Analyses - May 2017

	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
5/1/2017	5/1/2017	8.47	0.02	0.00	0.05	
5/2/2017	5/2/2017	9.16	0.02	0.00	0.05	
5/3/2017	5/3/2017	9.13	0.01	0.00	0.05	
5/4/2017	5/4/2017	9.11	0.02	0.00	0.05	
5/5/2017	5/5/2017	9.08	0.02	0.00	0.05	
5/6/2017	5/6/2017					
5/7/2017	5/7/2017					
5/8/2017	5/8/2017	8.33	0.01	0.00	0.05	
5/9/2017	5/9/2017	8.98	0.02	0.00	0.05	
5/10/2017	5/10/2017	8.94	0.01	0.00	0.05	
5/11/2017	5/11/2017	8.92	0.06	0.00	0.10	
5/12/2017	5/12/2017	8.89	0.03	0.00	0.05	
5/13/2017	5/13/2017					
5/14/2017	5/14/2017					
5/15/2017	5/15/2017	7.74	0.05	0.00	0.05	
5/16/2017	5/16/2017	9.06	0.10	0.00	0.20	
5/17/2017	5/17/2017	8.99	0.05	0.00	0.10	
5/18/2017	5/18/2017	8.93	0.05	0.00	0.10	
5/19/2017	5/19/2017	8.90	0.05	0.00	0.10	
5/20/2017	5/20/2017					
5/21/2017	5/21/2017					
5/22/2017	5/22/2017	8.01	0.04	0.00	0.05	
5/23/2017	5/23/2017	8.96	0.02	0.00	0.05	
5/24/2017	5/24/2017	8.93	0.02	0.00	0.05	
5/25/2017	5/25/2017	8.88	0.03	0.00	0.05	
5/26/2017	5/26/2017					System down for Memorial weekend
5/27/2017	5/27/2017					
5/28/2017	5/28/2017					
5/29/2017	5/29/2017					System down for Memorial weekend
5/30/2017	5/30/2017	8.05	0.02	0.00	0.05	
5/31/2017	5/31/2017	8.92	0.02	0.00	0.05	

SECTION D: REPORTING REQUIREMENTS/b) iii)
12950 Eckles Road
Livonia, MI 48150
Permit No.: SD6-94508
Maintenance Log- ISCO Sample Analyses - June 2017

	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
6/1/2017	6/1/2017					System down - mag lime fed pump down
6/2/2017	6/2/2017					System down - mag lime fed pump down
6/3/2017	6/3/2017					System down - mag lime fed pump down
6/4/2017	6/4/2017					System down - mag lime fed pump down
6/5/2017	6/5/2017					System down - Sand Filter Actuated Ball Valve
6/6/2017	6/6/2017					System down - Sand Filter Actuated Ball Valve
6/7/2017	6/7/2017					System down - Sand Filter Actuated Ball Valve
6/8/2017	6/8/2017					System down - Sand Filter Actuated Ball Valve
6/9/2017	6/9/2017					System down - Sand Filter Actuated Ball Valve
6/10/2017	6/10/2017					System down - Sand Filter Actuated Ball Valve
6/11/2017	6/11/2017					System down - Sand Filter Actuated Ball Valve
6/12/2017	6/12/2017	8.01	0.05	0.00	0.10	
6/13/2017	6/13/2017	8.62	0.04	0.00	0.05	System down - High ORP Alarm, acid feed pump not working
6/14/2017	6/14/2017					System down - High ORP Alarm, acid feed pump not working
6/15/2017	6/15/2017					System down - High ORP Alarm, acid feed pump not working
6/16/2017	6/16/2017					System down - High ORP Alarm, acid feed pump not working
6/17/2017	6/17/2017					
6/18/2017	6/18/2017					
6/19/2017	6/19/2017	8.73	0.02	0.00	0.05	
6/20/2017	6/20/2017	8.94	0.10	0.00	0.20	
6/21/2017	6/21/2017	8.97	0.10	0.00	0.25	
6/22/2017	6/22/2017	8.98	0.05	0.00	0.10	
6/23/2017	6/23/2017					
6/24/2017	6/24/2017					
6/25/2017	6/25/2017					
6/26/2017	6/26/2017	8.14	0.03	0.00	0.05	
6/27/2017	6/27/2017	8.78	0.02	0.00	0.05	
6/28/2017	6/28/2017	8.95	0.02	0.00	0.05	
6/29/2017	6/29/2017	8.97	0.04	0.00	0.05	
6/30/2017	6/30/2017	8.65	0.02	0.00	0.05	

SECTION D: REPORTING REQUIREMENTS/b) iii)
12950 Eckles Road
Livonia, MI 48150
Permit No.: SD6-94508
Maintenance Log- ISCO Sample Analyses - July 2017

	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
7/1/2017	7/1/2017					
7/2/2017	7/2/2017					
7/3/2017	7/3/2017					
7/4/2017	7/4/2017					
7/5/2017	7/5/2017	8.12	0.02	0.00	0.05	
7/6/2017	7/6/2017	8.75	0.02	0.00	0.05	
7/7/2017	7/7/2017	8.70	0.02	0.00	0.05	
7/8/2017	7/8/2017					
7/9/2017	7/9/2017					
7/10/2017	7/10/2017					
7/11/2017	7/11/2017	7.80	0.01	0.00	0.05	Mag lime delivery
7/12/2017	7/12/2017	9.60	0.02	0.00	0.05	
7/13/2017	7/13/2017	9.44	0.01	0.00	0.05	
7/14/2017	7/14/2017	9.22	0.04	0.00	0.10	
7/15/2017	7/15/2017					
7/16/2017	7/16/2017					
7/17/2017	7/17/2017	8.30	0.02	0.00	0.05	
7/18/2017	7/18/2017	9.70	0.05	1.50	1.50	
7/19/2017	7/19/2017	9.36	0.02	0.00	0.05	
7/20/2017	7/20/2017	8.76	0.02	0.00	0.05	System down High ORP
7/21/2017	7/21/2017	9.19	0.02	0.00	0.05	
7/22/2017	7/22/2017					
7/23/2017	7/23/2017					
7/24/2017	7/24/2017	8.11	0.02	0.00	0.05	
7/25/2017	7/25/2017	9.24	0.04	0.00	0.10	
7/26/2017	7/26/2017	9.24	0.04	0.00	0.10	
7/27/2017	7/27/2017	9.18	0.05	0.00	0.10	
7/28/2017	7/28/2017	9.12	0.05	0.00	0.15	
7/29/2017	7/29/2017					
7/30/2017	7/30/2017					
7/31/2017	7/31/2017	8.19	0.05	0.00	0.10	

SECTION D: REPORTING REQUIREMENTS/b) iii)**12950 Eckles Road****Livonia, MI 48150****Permit No.: SD6-94508****Maintenance Log- ISCO Sample Analyses - August 2017**

	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
8/1/2017	8/1/2017	9.50	0.20	0.00	0.05	
8/2/2017	8/2/2017	9.74	0.04	0.00	0.05	
8/3/2017	8/3/2017	7.84	0.03	0.00	0.05	
8/4/2017	8/4/2017	9.80	0.04	0.00	0.10	
8/5/2017	8/5/2017					
8/6/2017	8/6/2017					
8/7/2017	8/7/2017					Scheduled Shutdown
8/8/2017	8/8/2017					Scheduled Shutdown
8/9/2017	8/9/2017					Scheduled Shutdown
8/10/2017	8/10/2017					Scheduled Shutdown
8/11/2017	8/11/2017					Scheduled Shutdown
8/12/2017	8/12/2017					
8/13/2017	8/13/2017					
8/14/2017	8/14/2017	7.72	0.02	0.00	0.05	
8/15/2017	8/15/2017	9.26	0.04	0.00	0.10	
8/16/2017	8/16/2017	9.32	0.06	0.00	0.10	
8/17/2017	8/17/2017	9.02	0.05	0.00	0.10	
8/18/2017	8/18/2017	9.15	0.05	0.00	0.10	
8/19/2017	8/19/2017					
8/20/2017	8/20/2017					
8/21/2017	8/21/2017	8.81	0.02	0.00	0.05	
8/22/2017	8/22/2017	9.22	0.04	0.00	0.10	
8/23/2017	8/23/2017	9.28	0.03	0.00	0.05	
8/24/2017	8/24/2017	9.36	0.03	0.00	0.05	
8/25/2017	8/25/2017					
8/26/2017	8/26/2017					
8/27/2017	8/27/2017					
8/28/2017	8/28/2017	7.98	0.03	0.00	0.05	
8/29/2017	8/29/2017	9.30	0.02	0.00	0.05	
8/30/2017	8/30/2017	7.94	0.03	0.00	0.05	
8/31/2017	8/31/2017	9.34	0.02	0.00	0.05	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-76483-1

Client Project/Site: 12607-021, RACER Eckles Rd

For:

GHD Services Inc.

14496 Sheldon Road, Suite 200

Plymouth, Michigan 48170

Attn: Rawa Fleisher



Authorized for release by:

3/20/2017 1:45:06 PM

Denise Heckler, Project Manager II

(330)966-9477

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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: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-76483-1

Job ID: 240-76483-1

Laboratory: TestAmerica Canton

Narrative

Job Narrative 240-76483-1

Comments

No additional comments.

Receipt

The sample was received on 3/9/2017 9:40 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3° C.

GC Semi VOA

Method(s) 608: The laboratory control sample (LCS) for preparation batch 240-270429 and analytical batch 240-270939 recovered outside acceptance limits for Aroclor 1016. There was insufficient sample to perform a re-extraction or re-analysis; therefore, the data have been reported.

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-012607-030817-EE-001 (240-76483-1)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 additional analytical or quality issues were noted, other than those described above or 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 240-270011.

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: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-76483-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
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.
α	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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-76483-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-76483-1	WT-012607-030817-EE-001	Water	03/08/17 15:15	03/09/17 09:40

1

2

3

4

5

6

7

8

9

10

11

12

13

14

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-76483-1

Client Sample ID: WT-012607-030817-EE-001

Lab Sample ID: 240-76483-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.25		0.050	mg/L	1		200.7 Rev 4.4	Total
Nickel	0.069		0.010	mg/L	1		200.7 Rev 4.4	Recoverable
Total Suspended Solids	7.0		4.0	mg/L	1		SM 2540D	Total
								Recoverable
								Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Method Summary

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-76483-1

Method	Method Description	Protocol	Laboratory
608	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

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

Client Sample Results

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-76483-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Client Sample ID: WT-012607-030817-EE-001

Date Collected: 03/08/17 15:15

Date Received: 03/09/17 09:40

Lab Sample ID: 240-76483-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.095	U *	0.095	ug/L		03/14/17 08:22	03/17/17 06:16	1
Aroclor-1221	0.095	U	0.095	ug/L		03/14/17 08:22	03/17/17 06:16	1
Aroclor-1232	0.095	U	0.095	ug/L		03/14/17 08:22	03/17/17 06:16	1
Aroclor-1242	0.095	U	0.095	ug/L		03/14/17 08:22	03/17/17 06:16	1
Aroclor-1248	0.095	U	0.095	ug/L		03/14/17 08:22	03/17/17 06:16	1
Aroclor-1254	0.095	U	0.095	ug/L		03/14/17 08:22	03/17/17 06:16	1
Aroclor-1260	0.095	U	0.095	ug/L		03/14/17 08:22	03/17/17 06:16	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	55		10 - 114			03/14/17 08:22	03/17/17 06:16	1
Tetrachloro-m-xylene	56		15 - 131			03/14/17 08:22	03/17/17 06:16	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-76483-1

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

Client Sample ID: WT-012607-030817-EE-001

Date Collected: 03/08/17 15:15

Date Received: 03/09/17 09:40

Lab Sample ID: 240-76483-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.25		0.050	mg/L		03/10/17 13:11	03/13/17 18:49	1
Nickel	0.069		0.010	mg/L		03/10/17 13:11	03/13/17 18:49	1
Lead	0.050	U	0.050	mg/L		03/10/17 13:11	03/13/17 18:49	1
Zinc	0.020	U	0.020	mg/L		03/10/17 13:11	03/13/17 18:49	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-76483-1

Method: 245.1 - Mercury (CVAA)

Client Sample ID: WT-012607-030817-EE-001

Date Collected: 03/08/17 15:15

Date Received: 03/09/17 09:40

Lab Sample ID: 240-76483-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020	mg/L		03/10/17 14:00	03/14/17 15:14	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-76483-1

General Chemistry

Client Sample ID: WT-012607-030817-EE-001

Date Collected: 03/08/17 15:15

Date Received: 03/09/17 09:40

Lab Sample ID: 240-76483-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	4.7	U	4.7	mg/L			03/15/17 09:08	1
Cr (VI)	0.0050	U	0.0050	0.0043 mg/L			03/09/17 09:56	1
Total Suspended Solids	7.0		4.0	mg/L			03/10/17 10:53	1

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-76483-1

GC Semi VOA

Prep Batch: 270429

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-76483-1	WT-012607-030817-EE-001	Total/NA	Water	3520C	
MB 240-270429/17-A	Method Blank	Total/NA	Water	3520C	
LCS 240-270429/18-A	Lab Control Sample	Total/NA	Water	3520C	

Analysis Batch: 270939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-76483-1	WT-012607-030817-EE-001	Total/NA	Water	608	270429
MB 240-270429/17-A	Method Blank	Total/NA	Water	608	270429
LCS 240-270429/18-A	Lab Control Sample	Total/NA	Water	608	270429

Metals

Prep Batch: 270102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-76483-1	WT-012607-030817-EE-001	Total Recoverable	Water	200.7	
MB 240-270102/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 240-270102/2-A	Lab Control Sample	Total Recoverable	Water	200.7	

Prep Batch: 270103

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-76483-1	WT-012607-030817-EE-001	Total/NA	Water	245.1	
MB 240-270103/1-A	Method Blank	Total/NA	Water	245.1	
LCS 240-270103/2-A	Lab Control Sample	Total/NA	Water	245.1	

Analysis Batch: 270355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-76483-1	WT-012607-030817-EE-001	Total Recoverable	Water	200.7 Rev 4.4	270102
MB 240-270102/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	270102
LCS 240-270102/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	270102

Analysis Batch: 270581

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-76483-1	WT-012607-030817-EE-001	Total/NA	Water	245.1	270103
MB 240-270103/1-A	Method Blank	Total/NA	Water	245.1	270103
LCS 240-270103/2-A	Lab Control Sample	Total/NA	Water	245.1	270103

General Chemistry

Analysis Batch: 269868

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-76483-1	WT-012607-030817-EE-001	Total/NA	Water	3500-Cr B-2009	
MB 240-269868/27	Method Blank	Total/NA	Water	3500-Cr B-2009	
MB 240-269868/3	Method Blank	Total/NA	Water	3500-Cr B-2009	
LCS 240-269868/28	Lab Control Sample	Total/NA	Water	3500-Cr B-2009	
LCS 240-269868/4	Lab Control Sample	Total/NA	Water	3500-Cr B-2009	

Analysis Batch: 270057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-76483-1	WT-012607-030817-EE-001	Total/NA	Water	SM 2540D	
MB 240-270057/1	Method Blank	Total/NA	Water	SM 2540D	

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QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-76483-1

General Chemistry (Continued)

Analysis Batch: 270057 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-270057/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 270650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-76483-1	WT-012607-030817-EE-001	Total/NA	Water	1664A	
MB 240-270650/1	Method Blank	Total/NA	Water	1664A	
LCS 240-270650/2	Lab Control Sample	Total/NA	Water	1664A	

QC Sample Results

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-76483-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 240-270429/17-A

Matrix: Water

Analysis Batch: 270939

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 270429

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.10	U	0.10	ug/L		03/14/17 08:22	03/17/17 10:59	1
Aroclor-1221	0.10	U	0.10	ug/L		03/14/17 08:22	03/17/17 10:59	1
Aroclor-1232	0.10	U	0.10	ug/L		03/14/17 08:22	03/17/17 10:59	1
Aroclor-1242	0.10	U	0.10	ug/L		03/14/17 08:22	03/17/17 10:59	1
Aroclor-1248	0.10	U	0.10	ug/L		03/14/17 08:22	03/17/17 10:59	1
Aroclor-1254	0.10	U	0.10	ug/L		03/14/17 08:22	03/17/17 10:59	1
Aroclor-1260	0.10	U	0.10	ug/L		03/14/17 08:22	03/17/17 10:59	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	53		10 - 114	03/14/17 08:22	03/17/17 10:59	1
Tetrachloro-m-xylene	54		15 - 131	03/14/17 08:22	03/17/17 10:59	1

Lab Sample ID: LCS 240-270429/18-A

Matrix: Water

Analysis Batch: 270939

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 270429

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor-1016	2.50	1.22	*	ug/L		49	50 - 114
Aroclor-1260	2.50	1.22		ug/L		49	8 - 127

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	52		10 - 114
Tetrachloro-m-xylene	50		15 - 131

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 240-270102/1-A

Matrix: Water

Analysis Batch: 270355

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 270102

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.050	U	0.050	mg/L		03/10/17 13:11	03/13/17 13:12	1
Nickel	0.010	U	0.010	mg/L		03/10/17 13:11	03/13/17 13:12	1
Lead	0.050	U	0.050	mg/L		03/10/17 13:11	03/13/17 13:12	1
Zinc	0.020	U	0.020	mg/L		03/10/17 13:11	03/13/17 13:12	1

Lab Sample ID: LCS 240-270102/2-A

Matrix: Water

Analysis Batch: 270355

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 270102

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	0.200	0.191		mg/L		96	85 - 115
Nickel	0.500	0.484		mg/L		97	85 - 115
Lead	0.500	0.481		mg/L		96	85 - 115
Zinc	0.500	0.483		mg/L		97	85 - 115

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-76483-1

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 240-270103/1-A
Matrix: Water
Analysis Batch: 270581

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 270103

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020	mg/L	-	03/10/17 14:00	03/14/17 14:56	1

Lab Sample ID: LCS 240-270103/2-A
Matrix: Water
Analysis Batch: 270581

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 270103

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 240-270650/1
Matrix: Water
Analysis Batch: 270650

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	-		03/15/17 09:08	1

Lab Sample ID: LCS 240-270650/2
Matrix: Water
Analysis Batch: 270650

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	39.10		mg/L	-	98	78 - 114

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

Lab Sample ID: MB 240-269868/27
Matrix: Water
Analysis Batch: 269868

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	0.0043 mg/L	-		03/09/17 09:48	1

Lab Sample ID: MB 240-269868/3
Matrix: Water
Analysis Batch: 269868

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	0.0043 mg/L	-		03/09/17 09:36	1

Lab Sample ID: LCS 240-269868/28
Matrix: Water
Analysis Batch: 269868

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	0.262		mg/L	-	105	80 - 123

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-76483-1

Method: 3500-Cr B-2009 - Chromium, Hexavalent (Continued)

Lab Sample ID: LCS 240-269868/4

Matrix: Water

Analysis Batch: 269868

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	0.262		mg/L		105	80 - 123

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

Lab Sample ID: MB 240-270057/1

Matrix: Water

Analysis Batch: 270057

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			03/10/17 10:53	1

Lab Sample ID: LCS 240-270057/2

Matrix: Water

Analysis Batch: 270057

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	20.7	19.0		mg/L		92	64 - 120

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-76483-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCB2 (10-114)	TCX2 (15-131)
240-76483-1	WT-012607-030817-EE-001	55	56
LCS 240-270429/18-A	Lab Control Sample	52	50
MB 240-270429/17-A	Method Blank	53	54

Surrogate Legend

DCB = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-76483-1

Client Sample ID: WT-012607-030817-EE-001

Lab Sample ID: 240-76483-1

Date Collected: 03/08/17 15:15

Matrix: Water

Date Received: 03/09/17 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			270429	03/14/17 08:22	KEH	TAL CAN
Total/NA	Analysis	608		1	270939	03/17/17 06:16	KMG	TAL CAN
Total Recoverable	Prep	200.7			270102	03/10/17 13:11	AJC	TAL CAN
Total Recoverable	Analysis	200.7 Rev 4.4		1	270355	03/13/17 18:49	KLC	TAL CAN
Total/NA	Prep	245.1			270103	03/10/17 14:00	AJC	TAL CAN
Total/NA	Analysis	245.1		1	270581	03/14/17 15:14	WKD	TAL CAN
Total/NA	Analysis	1664A		1	270650	03/15/17 09:08	JESW	TAL CAN
Total/NA	Analysis	3500-Cr B-2009		1	269868	03/09/17 09:56	LCN	TAL CAN
Total/NA	Analysis	SM 2540D		1	270057	03/10/17 10:53	JESW	TAL CAN

Laboratory References:

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

Certification Summary

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-76483-1

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Certification ID	Expiration Date
California	State Program	9	2927	04-30-17 *
Connecticut	State Program	1	PH-0590	12-31-17
Florida	NELAP	4	E87225	06-30-17 *
Illinois	NELAP	5	200004	07-31-17 *
Kansas	NELAP	7	E-10336	03-31-17 *
Kentucky (UST)	State Program	4	58	02-23-18
Kentucky (VW)	State Program	4	98016	12-31-17
Minnesota	NELAP	5	039-999-348	12-31-17
Minnesota (Petrofund)	State Program	1	3506	07-31-17 *
Nevada	State Program	9	OH-000482008A	07-31-17 *
New Jersey	NELAP	2	OH001	06-30-17 *
New York	NELAP	2	10975	03-31-17 *
Ohio VAP	State Program	5	CL0024	09-14-17
Oregon	NELAP	10	4062	02-23-18
Pennsylvania	NELAP	3	68-00340	08-31-17
Texas	NELAP	6	T104704517-15-5	08-31-17
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-17
Washington	State Program	10	C971	01-12-18
West Virginia DEP	State Program	3	210	12-31-16 *
Wisconsin	State Program	5	999518190	08-31-17

* Certification renewal pending - certification considered valid.

TestAmerica Canton

24005880

2101023

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

Company Name: GHD Services		Client Contact		Project Manager:		Site Contact: Raven BioScience		Date: 3/17/17		COC No.:	
Address:		City/State/Zip:		Tel/Fax:		Lab Contact: Danette Kelly		Carrier: Fed Ex		SAMPLER:	
Phone:		Fax:		Analysis Turnaround Time		For Lab Use Only:		Walk-in Client:		COCs	
Project Name: RACER GWP Luvone		Site: Livonia MI		PO # 12607-021-TO1416-R1		Job / SDG No.:		Lab Sampling:		Sample Specific Notes:	
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.	
WT-012607-030017-EE-001		3/17/17		3:15pm		C		WT		6	
Filtered Sample (Y/N)		Perform MS / MSD (Y/N)		PCRs		Metals		TSS, Cu (C)		Effluent	
Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4= HNO3, 5= NaOH, 6= Other		1		3		4		1			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)											
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ 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: Ed Egall		Company: GHD		Date/Time: 3/17/17		Received by: TA		Company: TA		Date/Time: 3.17.17 940	
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 # : 40483

Canton Facility

Client 640 Site Name _____

Cooler unpacked by: _____

Cooler Received on 3-9-17 Opened on 3-9-17

FedEx: 1st Grd Exp UPS FAS Stetson 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

☐ See Multiple Cooler Form

- Cooler temperature upon receipt
IR GUN# IR-8 (CF -0.3 °C) Observed Cooler Temp. 2.6 °C Corrected Cooler Temp. 2.3 °C
IR GUN #36 (CF +0.3 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

- Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
-Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA
-Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No

- Shippers' packing slip attached to the cooler(s)? Yes No

- Did custody papers accompany the sample(s)? Yes No

- Were the custody papers relinquished & signed in the appropriate place? Yes No

- Was/were the person(s) who collected the samples clearly identified on the COC? Yes No

- Did all bottles arrive in good condition (Unbroken)? Yes No

- Could all bottle labels be reconciled with the COC? Yes No

- Were correct bottle(s) used for the test(s) indicated? Yes No

- Sufficient quantity received to perform indicated analyses? Yes No

- Are these work share samples? Yes No

If yes, Questions 11-15 have been checked at the originating laboratory.

- Were sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC682547

- Were VOAs on the COC? Yes No

- Were air bubbles >6 mm in any VOA vials? Yes No NA

- Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No

- Was a LL Hg or Me Hg trip blank present? Yes No

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

Concerning _____

14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: _____

15. 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)

16. SAMPLE PRESERVATION

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

Temperature readings: _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
WT-012607-030817-EE-001	240-76483-B-1	Plastic 500ml - with Nitric Acid	<2	_____	_____
WT-012607-030817-EE-001	240-76483-E-1	Amber Glass 1 liter - Sulfuric Acid	_____	_____	_____
WT-012607-030817-EE-001	240-76483-F-1	Amber Glass 1 liter - Sulfuric Acid	_____	_____	_____

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-78377-1

Client Project/Site: 12607-021, RACER Eckles Rd

For:

GHD Services Inc.

2055 Niagara Falls Blvd., Suite 3

Niagara Falls, New York 14304

Attn: Sheri Finn



Authorized for release by:

5/2/2017 1:58:54 PM

Denise Heckler, Project Manager II

(330)966-9477

denise.heckler@testamericainc.com

LINKS

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results through

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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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Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-78377-1

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.
α	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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Case Narrative

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-78377-1

Job ID: 240-78377-1

Laboratory: TestAmerica Canton

Narrative

Job Narrative 240-78377-1

Comments

No additional comments.

Receipt

The sample was received on 4/20/2017 9:20 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.1° C.

GC Semi VOA

Method(s) 608: The following sample required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: WT-012607-041917-EE-001 (240-78377-1).2992227, 2596993, 2719940.

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-012607-041917-EE-001 (240-78377-1). 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) 1664A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 240-276974 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.

Organic Prep

Method(s) 3520C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-275694.

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

Method Summary

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-78377-1

Method	Method Description	Protocol	Laboratory
608	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

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

Sample Summary

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-78377-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-78377-1	WT-012607-041917-EE-001	Water	04/19/17 14:30	04/20/17 09:20

Detection Summary

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-78377-1

Client Sample ID: WT-012607-041917-EE-001

Lab Sample ID: 240-78377-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Nickel	0.078		0.010	mg/L	1		200.7 Rev 4.4	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Client Sample Results

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-78377-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Client Sample ID: WT-012607-041917-EE-001

Date Collected: 04/19/17 14:30

Date Received: 04/20/17 09:20

Lab Sample ID: 240-78377-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.096	U	0.096	ug/L		04/21/17 09:06	04/24/17 21:21	1
Aroclor-1221	0.096	U	0.096	ug/L		04/21/17 09:06	04/24/17 21:21	1
Aroclor-1232	0.096	U	0.096	ug/L		04/21/17 09:06	04/24/17 21:21	1
Aroclor-1242	0.096	U	0.096	ug/L		04/21/17 09:06	04/24/17 21:21	1
Aroclor-1248	0.096	U	0.096	ug/L		04/21/17 09:06	04/24/17 21:21	1
Aroclor-1254	0.096	U	0.096	ug/L		04/21/17 09:06	04/24/17 21:21	1
Aroclor-1260	0.096	U	0.096	ug/L		04/21/17 09:06	04/24/17 21:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	46		10 - 114	04/21/17 09:06	04/24/17 21:21	1
Tetrachloro-m-xylene	39		15 - 131	04/21/17 09:06	04/24/17 21:21	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-78377-1

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

Client Sample ID: WT-012607-041917-EE-001

Date Collected: 04/19/17 14:30

Date Received: 04/20/17 09:20

Lab Sample ID: 240-78377-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.050	U	0.050	mg/L		04/21/17 14:00	04/23/17 01:33	1
Nickel	0.078		0.010	mg/L		04/21/17 14:00	04/23/17 01:33	1
Lead	0.050	U	0.050	mg/L		04/21/17 14:00	04/23/17 01:33	1
Zinc	0.020	U	0.020	mg/L		04/21/17 14:00	04/23/17 01:33	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-78377-1

Method: 245.1 - Mercury (CVAA)

Client Sample ID: WT-012607-041917-EE-001

Date Collected: 04/19/17 14:30

Date Received: 04/20/17 09:20

Lab Sample ID: 240-78377-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020	mg/L		04/21/17 14:00	04/24/17 14:40	1

Client Sample Results

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-78377-1

General Chemistry

Client Sample ID: WT-012607-041917-EE-001

Date Collected: 04/19/17 14:30

Date Received: 04/20/17 09:20

Lab Sample ID: 240-78377-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	4.8	U	4.8	mg/L			05/01/17 13:49	1
Cr (VI)	0.0050	U	0.0050	mg/L			04/20/17 11:00	1
Total Suspended Solids	4.0	U	4.0	mg/L			04/24/17 09:26	1

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-78377-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCB1 (10-114)	TCX1 (15-131)
240-78377-1	WT-012607-041917-EE-001	46	39
LCS 240-275694/9-A	Lab Control Sample	73	64
MB 240-275694/8-A	Method Blank	68	57

Surrogate Legend

DCB = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

QC Sample Results

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-78377-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 240-275694/8-A

Matrix: Water

Analysis Batch: 276021

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 275694

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.10	U	0.10	ug/L		04/21/17 09:06	04/24/17 20:43	1
Aroclor-1221	0.10	U	0.10	ug/L		04/21/17 09:06	04/24/17 20:43	1
Aroclor-1232	0.10	U	0.10	ug/L		04/21/17 09:06	04/24/17 20:43	1
Aroclor-1242	0.10	U	0.10	ug/L		04/21/17 09:06	04/24/17 20:43	1
Aroclor-1248	0.10	U	0.10	ug/L		04/21/17 09:06	04/24/17 20:43	1
Aroclor-1254	0.10	U	0.10	ug/L		04/21/17 09:06	04/24/17 20:43	1
Aroclor-1260	0.10	U	0.10	ug/L		04/21/17 09:06	04/24/17 20:43	1
Surrogate	%Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	68		10 - 114			04/21/17 09:06	04/24/17 20:43	1
Tetrachloro-m-xylene	57		15 - 131			04/21/17 09:06	04/24/17 20:43	1

Lab Sample ID: LCS 240-275694/9-A

Matrix: Water

Analysis Batch: 276021

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 275694

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor-1016	2.50	1.72		ug/L		69	50 - 114
Aroclor-1260	2.50	2.04		ug/L		82	8 - 127
Surrogate	%Recovery	LCS Qualifier	Limits				
DCB Decachlorobiphenyl	73		10 - 114				
Tetrachloro-m-xylene	64		15 - 131				

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 240-275713/1-A

Matrix: Water

Analysis Batch: 275842

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 275713

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.050	U	0.050	mg/L		04/21/17 14:00	04/23/17 00:22	1
Nickel	0.010	U	0.010	mg/L		04/21/17 14:00	04/23/17 00:22	1
Lead	0.050	U	0.050	mg/L		04/21/17 14:00	04/23/17 00:22	1
Zinc	0.020	U	0.020	mg/L		04/21/17 14:00	04/23/17 00:22	1

Lab Sample ID: LCS 240-275713/2-A

Matrix: Water

Analysis Batch: 275842

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 275713

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	0.200	0.207		mg/L		103	85 - 115
Nickel	0.500	0.514		mg/L		103	85 - 115
Lead	0.500	0.507		mg/L		101	85 - 115
Zinc	0.500	0.525		mg/L		105	85 - 115

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-78377-1

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 240-275718/1-A
Matrix: Water
Analysis Batch: 275972

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 275718

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020	mg/L		04/21/17 14:00	04/24/17 14:13	1

Lab Sample ID: LCS 240-275718/2-A
Matrix: Water
Analysis Batch: 275972

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 275718

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00495		mg/L		99	85 - 115

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 240-276974/1
Matrix: Water
Analysis Batch: 276974

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			05/01/17 13:49	1

Lab Sample ID: LCS 240-276974/2
Matrix: Water
Analysis Batch: 276974

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	38.50		mg/L		96	78 - 114

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

Lab Sample ID: MB 240-275520/3
Matrix: Water
Analysis Batch: 275520

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			04/20/17 09:47	1

Lab Sample ID: LCS 240-275520/4
Matrix: Water
Analysis Batch: 275520

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	0.249		mg/L		100	80 - 123

TestAmerica Canton

QC Sample Results

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-78377-1

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

Lab Sample ID: MB 240-275916/1

Matrix: Water

Analysis Batch: 275916

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	-		04/24/17 09:26	1

Lab Sample ID: LCS 240-275916/2

Matrix: Water

Analysis Batch: 275916

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	20.7	18.0		mg/L	-	87	64 - 120

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-78377-1

GC Semi VOA

Prep Batch: 275694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-78377-1	WT-012607-041917-EE-001	Total/NA	Water	3520C	
MB 240-275694/8-A	Method Blank	Total/NA	Water	3520C	
LCS 240-275694/9-A	Lab Control Sample	Total/NA	Water	3520C	

Analysis Batch: 276021

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-78377-1	WT-012607-041917-EE-001	Total/NA	Water	608	275694
MB 240-275694/8-A	Method Blank	Total/NA	Water	608	275694
LCS 240-275694/9-A	Lab Control Sample	Total/NA	Water	608	275694

Metals

Prep Batch: 275713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-78377-1	WT-012607-041917-EE-001	Total Recoverable	Water	200.7	
MB 240-275713/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 240-275713/2-A	Lab Control Sample	Total Recoverable	Water	200.7	

Prep Batch: 275718

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-78377-1	WT-012607-041917-EE-001	Total/NA	Water	245.1	
MB 240-275718/1-A	Method Blank	Total/NA	Water	245.1	
LCS 240-275718/2-A	Lab Control Sample	Total/NA	Water	245.1	

Analysis Batch: 275842

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-78377-1	WT-012607-041917-EE-001	Total Recoverable	Water	200.7 Rev 4.4	275713
MB 240-275713/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	275713
LCS 240-275713/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	275713

Analysis Batch: 275972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-78377-1	WT-012607-041917-EE-001	Total/NA	Water	245.1	275718
MB 240-275718/1-A	Method Blank	Total/NA	Water	245.1	275718
LCS 240-275718/2-A	Lab Control Sample	Total/NA	Water	245.1	275718

General Chemistry

Analysis Batch: 275520

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-78377-1	WT-012607-041917-EE-001	Total/NA	Water	3500-Cr B-2009	
MB 240-275520/3	Method Blank	Total/NA	Water	3500-Cr B-2009	
LCS 240-275520/4	Lab Control Sample	Total/NA	Water	3500-Cr B-2009	

Analysis Batch: 275916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-78377-1	WT-012607-041917-EE-001	Total/NA	Water	SM 2540D	
MB 240-275916/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 240-275916/2	Lab Control Sample	Total/NA	Water	SM 2540D	

TestAmerica Canton

QC Association Summary

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-78377-1

General Chemistry (Continued)

Analysis Batch: 276974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-78377-1	WT-012607-041917-EE-001	Total/NA	Water	1664A	
MB 240-276974/1	Method Blank	Total/NA	Water	1664A	
LCS 240-276974/2	Lab Control Sample	Total/NA	Water	1664A	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-78377-1

Client Sample ID: WT-012607-041917-EE-001

Lab Sample ID: 240-78377-1

Date Collected: 04/19/17 14:30

Matrix: Water

Date Received: 04/20/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			275694	04/21/17 09:06	CS	TAL CAN
Total/NA	Analysis	608		1	276021	04/24/17 21:21	LSH	TAL CAN
Total Recoverable	Prep	200.7			275713	04/21/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	200.7 Rev 4.4		1	275842	04/23/17 01:33	KLC	TAL CAN
Total/NA	Prep	245.1			275718	04/21/17 14:00	AJC	TAL CAN
Total/NA	Analysis	245.1		1	275972	04/24/17 14:40	DTN	TAL CAN
Total/NA	Analysis	1664A		1	276974	05/01/17 13:49	CL	TAL CAN
Total/NA	Analysis	3500-Cr B-2009		1	275520	04/20/17 11:00	JESW	TAL CAN
Total/NA	Analysis	SM 2540D		1	275916	04/24/17 09:26	JMB	TAL CAN

Laboratory References:

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

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: 12607-021, RACER Eckles Rd

TestAmerica Job ID: 240-78377-1

Laboratory: 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	04-30-17 *
Connecticut	State Program	1	PH-0590	12-31-17
Florida	NELAP	4	E87225	06-30-17 *
Illinois	NELAP	5	200004	07-31-17 *
Kansas	NELAP	7	E-10336	01-31-18
Kentucky (UST)	State Program	4	58	02-23-18
Kentucky (WW)	State Program	4	98016	12-31-17
Minnesota	NELAP	5	039-999-348	12-31-17
Minnesota (Petrofund)	State Program	1	3506	07-31-17 *
Nevada	State Program	9	OH-000482008A	07-31-17 *
New Jersey	NELAP	2	OH001	06-30-17 *
New York	NELAP	2	10975	03-31-18
Ohio VAP	State Program	5	CL0024	09-14-17
Oregon	NELAP	10	4062	02-23-18
Pennsylvania	NELAP	3	68-00340	08-31-17 *
Texas	NELAP	6	T104704517-15-5	08-31-17 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-17
Washington	State Program	10	C971	01-12-18
West Virginia DEP	State Program	3	210	12-31-16 *
Wisconsin	State Program	5	999518190	08-31-17 *

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

TestAmerica Canton

Company Name: GHD Services Inc		Client Contact		Project Manager:		Site Contact: C. Mancini		Date: 4/19/17		COC No: 1 of 1 COCs	
Address:		City/State/Zip:		Tel/Fax:		Lab Contact: D. Heckler		Carrier: FedEx		Sampler:	
Phone:		Fax:		Analysis Turnaround Time		For Lab Use Only:		Walk-in Client:		Lab Sampling:	
Project Name: RACER GWTP Livonia		Site: Livonia MI		PO # 12607-024-T01Y06-R1		TAT if different from Below		Job / SDG No.:		Sample Specific Notes:	
Sample Identification		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.	
WT-012607-041917-EE-001		4/19/17		1430		C		WT		6	
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 ☐		Return to Client ☐ Disposal by Lab ☒ Archive for ☐ Months		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Special Instructions/QC Requirements & Comments:		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:		Date/Time:	
Relinquished by: Ed Egan		Company: GHD		Date/Time: 4/19/17 1530		Received by: TA		Company: TA		Date/Time: 4-20-17 920	
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:		Date/Time:	

Temperature readings: _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
WT-012607-041917-EE-001	240-78377-B-1	Plastic 500ml - with Nitric Acid	<2	_____	_____
WT-012607-041917-EE-001	240-78377-E-1	Amber Glass 1 liter - Sulfuric Acid	_____	_____	_____
WT-012607-041917-EE-001	240-78377-F-1	Amber Glass 1 liter - Sulfuric Acid	_____	_____	_____

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-79989-1

Client Project/Site: 12607, RACER Eckles Rd

For:

GHD Services Inc.

14496 Sheldon Road, Suite 200

Plymouth, Michigan 48170

Attn: Ms. Ruth Mickle



Authorized for release by:

6/6/2017 8:31:16 AM

Denise Heckler, Project Manager II

(330)966-9477

denise.heckler@testamericainc.com

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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

TestAmerica Job ID: 240-79989-1

Job ID: 240-79989-1

Laboratory: TestAmerica Canton

Narrative

Job Narrative 240-79989-1

Comments

No additional comments.

Receipt

The sample was received on 5/25/2017 9:25 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.9° 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-012607-052417-EE-001 (240-79989-1). 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 240-280802.

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

TestAmerica Job ID: 240-79989-1

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.
α	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

TestAmerica Job ID: 240-79989-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-79989-1	WT-012607-052417-EE-001	Water	05/24/17 14:30	05/25/17 09:25

Detection Summary

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

TestAmerica Job ID: 240-79989-1

Client Sample ID: WT-012607-052417-EE-001

Lab Sample ID: 240-79989-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.14		0.050	mg/L	1		200.7 Rev 4.4	Total
Nickel	0.19		0.010	mg/L	1		200.7 Rev 4.4	Recoverable
Total Suspended Solids	16		4.0	mg/L	1		SM 2540D	Total
								Recoverable
								Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Method Summary

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

TestAmerica Job ID: 240-79989-1

Method	Method Description	Protocol	Laboratory
608	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

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 = 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

TestAmerica Job ID: 240-79989-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Client Sample ID: WT-012607-052417-EE-001

Date Collected: 05/24/17 14:30

Date Received: 05/25/17 09:25

Lab Sample ID: 240-79989-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.095	U	0.095	ug/L		05/30/17 09:24	06/02/17 02:10	1
Aroclor-1221	0.095	U	0.095	ug/L		05/30/17 09:24	06/02/17 02:10	1
Aroclor-1232	0.095	U	0.095	ug/L		05/30/17 09:24	06/02/17 02:10	1
Aroclor-1242	0.095	U	0.095	ug/L		05/30/17 09:24	06/02/17 02:10	1
Aroclor-1248	0.095	U	0.095	ug/L		05/30/17 09:24	06/02/17 02:10	1
Aroclor-1254	0.095	U	0.095	ug/L		05/30/17 09:24	06/02/17 02:10	1
Aroclor-1260	0.095	U	0.095	ug/L		05/30/17 09:24	06/02/17 02:10	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	62		10 - 114			05/30/17 09:24	06/02/17 02:10	1
Tetrachloro-m-xylene	61		15 - 131			05/30/17 09:24	06/02/17 02:10	1

Client Sample Results

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

TestAmerica Job ID: 240-79989-1

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

Client Sample ID: WT-012607-052417-EE-001

Date Collected: 05/24/17 14:30

Date Received: 05/25/17 09:25

Lab Sample ID: 240-79989-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.14		0.050	mg/L		05/26/17 14:00	05/30/17 10:52	1
Nickel	0.19		0.010	mg/L		05/26/17 14:00	05/30/17 10:52	1
Lead	0.050	U	0.050	mg/L		05/26/17 14:00	05/30/17 10:52	1
Zinc	0.020	U	0.020	mg/L		05/26/17 14:00	05/30/17 10:52	1

Client Sample Results

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

TestAmerica Job ID: 240-79989-1

Method: 245.1 - Mercury (CVAA)

Client Sample ID: WT-012607-052417-EE-001

Date Collected: 05/24/17 14:30

Date Received: 05/25/17 09:25

Lab Sample ID: 240-79989-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020	mg/L		05/26/17 14:00	05/31/17 10:26	1

Client Sample Results

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

TestAmerica Job ID: 240-79989-1

General Chemistry

Client Sample ID: WT-012607-052417-EE-001

Date Collected: 05/24/17 14:30

Date Received: 05/25/17 09:25

Lab Sample ID: 240-79989-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	4.7	U	4.7	mg/L			06/05/17 09:51	1
Cr (VI)	0.0050	U	0.0050	mg/L			05/25/17 10:40	1
Total Suspended Solids	16		4.0	mg/L			05/30/17 15:27	1

QC Association Summary

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

TestAmerica Job ID: 240-79989-1

GC Semi VOA

Prep Batch: 280802

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-79989-1	WT-012607-052417-EE-001	Total/NA	Water	3520C	
MB 240-280802/13-A	Method Blank	Total/NA	Water	3520C	
LCS 240-280802/14-A	Lab Control Sample	Total/NA	Water	3520C	

Analysis Batch: 281236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-79989-1	WT-012607-052417-EE-001	Total/NA	Water	608	280802
MB 240-280802/13-A	Method Blank	Total/NA	Water	608	280802
LCS 240-280802/14-A	Lab Control Sample	Total/NA	Water	608	280802

Metals

Prep Batch: 280563

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-79989-1	WT-012607-052417-EE-001	Total Recoverable	Water	200.7	
MB 240-280563/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 240-280563/2-A	Lab Control Sample	Total Recoverable	Water	200.7	
240-79989-1 MS	WT-012607-052417-EE-001	Total Recoverable	Water	200.7	
240-79989-1 MSD	WT-012607-052417-EE-001	Total Recoverable	Water	200.7	

Prep Batch: 280565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-79989-1	WT-012607-052417-EE-001	Total/NA	Water	245.1	
MB 240-280565/1-A	Method Blank	Total/NA	Water	245.1	
LCS 240-280565/2-A	Lab Control Sample	Total/NA	Water	245.1	

Analysis Batch: 280964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-79989-1	WT-012607-052417-EE-001	Total Recoverable	Water	200.7 Rev 4.4	280563
MB 240-280563/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	280563
LCS 240-280563/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	280563
240-79989-1 MS	WT-012607-052417-EE-001	Total Recoverable	Water	200.7 Rev 4.4	280563
240-79989-1 MSD	WT-012607-052417-EE-001	Total Recoverable	Water	200.7 Rev 4.4	280563

Analysis Batch: 281067

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-79989-1	WT-012607-052417-EE-001	Total/NA	Water	245.1	280565
MB 240-280565/1-A	Method Blank	Total/NA	Water	245.1	280565
LCS 240-280565/2-A	Lab Control Sample	Total/NA	Water	245.1	280565

General Chemistry

Analysis Batch: 280419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-79989-1	WT-012607-052417-EE-001	Total/NA	Water	3500-Cr B-2009	
MB 240-280419/3	Method Blank	Total/NA	Water	3500-Cr B-2009	
LCS 240-280419/4	Lab Control Sample	Total/NA	Water	3500-Cr B-2009	
240-79989-1 MS	WT-012607-052417-EE-001	Total/NA	Water	3500-Cr B-2009	
240-79989-1 MSD	WT-012607-052417-EE-001	Total/NA	Water	3500-Cr B-2009	

TestAmerica Canton

QC Association Summary

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

TestAmerica Job ID: 240-79989-1

General Chemistry (Continued)

Analysis Batch: 280911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-79989-1	WT-012607-052417-EE-001	Total/NA	Water	SM 2540D	
MB 240-280911/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 240-280911/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 281625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-79989-1	WT-012607-052417-EE-001	Total/NA	Water	1664A	
MB 240-281625/1	Method Blank	Total/NA	Water	1664A	
LCS 240-281625/2	Lab Control Sample	Total/NA	Water	1664A	

QC Sample Results

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

TestAmerica Job ID: 240-79989-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 240-280802/13-A

Matrix: Water

Analysis Batch: 281236

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 280802

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.10	U	0.10	ug/L		05/30/17 09:24	06/02/17 03:08	1
Aroclor-1221	0.10	U	0.10	ug/L		05/30/17 09:24	06/02/17 03:08	1
Aroclor-1232	0.10	U	0.10	ug/L		05/30/17 09:24	06/02/17 03:08	1
Aroclor-1242	0.10	U	0.10	ug/L		05/30/17 09:24	06/02/17 03:08	1
Aroclor-1248	0.10	U	0.10	ug/L		05/30/17 09:24	06/02/17 03:08	1
Aroclor-1254	0.10	U	0.10	ug/L		05/30/17 09:24	06/02/17 03:08	1
Aroclor-1260	0.10	U	0.10	ug/L		05/30/17 09:24	06/02/17 03:08	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	92		10 - 114	05/30/17 09:24	06/02/17 03:08	1
Tetrachloro-m-xylene	78		15 - 131	05/30/17 09:24	06/02/17 03:08	1

Lab Sample ID: LCS 240-280802/14-A

Matrix: Water

Analysis Batch: 281236

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 280802

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor-1016	2.50	1.91		ug/L		76	50 - 114
Aroclor-1260	2.50	2.21		ug/L		89	8 - 127

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	109		10 - 114
Tetrachloro-m-xylene	90		15 - 131

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 240-280563/1-A

Matrix: Water

Analysis Batch: 280964

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 280563

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.050	U	0.050	mg/L		05/26/17 14:00	05/30/17 10:43	1
Nickel	0.010	U	0.010	mg/L		05/26/17 14:00	05/30/17 10:43	1
Lead	0.050	U	0.050	mg/L		05/26/17 14:00	05/30/17 10:43	1
Zinc	0.020	U	0.020	mg/L		05/26/17 14:00	05/30/17 10:43	1

Lab Sample ID: LCS 240-280563/2-A

Matrix: Water

Analysis Batch: 280964

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 280563

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chromium	0.200	0.206		mg/L		103	85 - 115
Nickel	0.500	0.509		mg/L		102	85 - 115
Lead	0.500	0.503		mg/L		101	85 - 115
Zinc	0.500	0.516		mg/L		103	85 - 115

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QC Sample Results

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

TestAmerica Job ID: 240-79989-1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 240-79989-1 MS

Matrix: Water

Analysis Batch: 280964

Client Sample ID: WT-012607-052417-EE-001

Prep Type: Total Recoverable

Prep Batch: 280563

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Chromium	0.14		0.200	0.349		mg/L		102	75 - 125
Nickel	0.19		0.500	0.712		mg/L		105	75 - 125
Lead	0.050	U	0.500	0.507		mg/L		101	75 - 125
Zinc	0.020	U	0.500	0.529		mg/L		106	75 - 125

Lab Sample ID: 240-79989-1 MSD

Matrix: Water

Analysis Batch: 280964

Client Sample ID: WT-012607-052417-EE-001

Prep Type: Total Recoverable

Prep Batch: 280563

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chromium	0.14		0.200	0.344		mg/L		99	75 - 125	1	20
Nickel	0.19		0.500	0.705		mg/L		104	75 - 125	1	20
Lead	0.050	U	0.500	0.504		mg/L		101	75 - 125	1	20
Zinc	0.020	U	0.500	0.525		mg/L		105	75 - 125	1	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 240-280565/1-A

Matrix: Water

Analysis Batch: 281067

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 280565

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020	mg/L		05/26/17 14:00	05/31/17 10:13	1

Lab Sample ID: LCS 240-280565/2-A

Matrix: Water

Analysis Batch: 281067

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 280565

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00500	0.00507		mg/L		101	85 - 115

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 240-281625/1

Matrix: Water

Analysis Batch: 281625

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			06/05/17 09:51	1

Lab Sample ID: LCS 240-281625/2

Matrix: Water

Analysis Batch: 281625

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
HEM	40.0	37.10		mg/L		93	78 - 114

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-79989-1

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

Lab Sample ID: MB 240-280419/3

Matrix: Water

Analysis Batch: 280419

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			05/25/17 10:39	1

Lab Sample ID: LCS 240-280419/4

Matrix: Water

Analysis Batch: 280419

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	0.271		mg/L		108	80 - 123

Lab Sample ID: 240-79989-1 MS

Matrix: Water

Analysis Batch: 280419

Client Sample ID: WT-012607-052417-EE-001

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.0050	U	0.250	0.139		mg/L		54	31 - 151

Lab Sample ID: 240-79989-1 MSD

Matrix: Water

Analysis Batch: 280419

Client Sample ID: WT-012607-052417-EE-001

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cr (VI)	0.0050	U	0.250	0.136		mg/L		53	31 - 151	2	20

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

Lab Sample ID: MB 240-280911/1

Matrix: Water

Analysis Batch: 280911

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			05/30/17 15:27	1

Lab Sample ID: LCS 240-280911/2

Matrix: Water

Analysis Batch: 280911

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	59.1	47.0		mg/L		80	64 - 120

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Surrogate Summary

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

TestAmerica Job ID: 240-79989-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCB1 (10-114)	TCX1 (15-131)
240-79989-1	WT-012607-052417-EE-001	62	61
LCS 240-280802/14-A	Lab Control Sample	109	90
MB 240-280802/13-A	Method Blank	92	78

Surrogate Legend

DCB = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

Lab Chronicle

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

TestAmerica Job ID: 240-79989-1

Client Sample ID: WT-012607-052417-EE-001

Lab Sample ID: 240-79989-1

Date Collected: 05/24/17 14:30

Matrix: Water

Date Received: 05/25/17 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			280802	05/30/17 09:24	CS	TAL CAN
Total/NA	Analysis	608		1	281236	06/02/17 02:10	LSH	TAL CAN
Total Recoverable	Prep	200.7			280563	05/26/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	200.7 Rev 4.4		1	280964	05/30/17 10:52	KLC	TAL CAN
Total/NA	Prep	245.1			280565	05/26/17 14:00	AJC	TAL CAN
Total/NA	Analysis	245.1		1	281067	05/31/17 10:26	DTN	TAL CAN
Total/NA	Analysis	1664A		1	281625	06/05/17 09:51	JESW	TAL CAN
Total/NA	Analysis	3500-Cr B-2009		1	280419	05/25/17 10:40	CL	TAL CAN
Total/NA	Analysis	SM 2540D		1	280911	05/30/17 15:27	MM	TAL CAN

Laboratory References:

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 240-79989-1

Laboratory: 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	02-23-18
Connecticut	State Program	1	PH-0590	12-31-17
Florida	NELAP	4	E87225	06-30-17 *
Illinois	NELAP	5	200004	07-31-17 *
Kansas	NELAP	7	E-10336	01-31-18
Kentucky (UST)	State Program	4	58	02-23-18
Kentucky (WW)	State Program	4	98016	12-31-17
Minnesota	NELAP	5	039-999-348	12-31-17
Minnesota (Petrofund)	State Program	1	3506	07-31-17 *
Nevada	State Program	9	OH-000482008A	07-31-17 *
New Jersey	NELAP	2	OH001	06-30-17 *
New York	NELAP	2	10975	03-31-18
Ohio VAP	State Program	5	CL0024	09-14-17
Oregon	NELAP	10	4062	02-23-18
Pennsylvania	NELAP	3	68-00340	08-31-17 *
Texas	NELAP	6	T104704517-15-5	08-31-17 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-17
Washington	State Program	10	C971	01-12-18
West Virginia DEP	State Program	3	210	12-31-17
Wisconsin	State Program	5	999518190	08-31-17 *

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

TestAmerica Canton

TestAmerica Canton Sample Receipt Form/Narrative

 Login # : 7009
Canton Facility

 Client GHD Site Name _____ Cooler unpacked by: [Signature]

 Cooler Received on 5-25-17 Opened on 5-25-17

 FedEx: 1st Grd ☒ 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 ☐
☐ See Multiple Cooler Form

1. Cooler temperature upon receipt

IR GUN# IR-8 (CF -0.4 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

 IR GUN #36 (CF +0°C) Observed Cooler Temp. 2.9 °C Corrected Cooler Temp. 2.9 °C

 2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 2 Yes ☒ No ☐

 -Were custody seals on the outside of the cooler(s) signed & dated? Yes ☒ No ☐ NA

 -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes ☒ No ☐

 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 11-15 have been checked at the originating laboratory.

 11. Were sample(s) at the correct pH upon receipt? Yes ☒ No ☐ NA pH Strip Lot# HC697954

 12. Were VOAs on the COC? Yes ☒ No ☐

 13. Were air bubbles >6 mm in any VOA vials?  Larger than this. Yes ☒ No ☐ NA

 14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes ☒ No ☐

 15. Was a LL Hg or Me Hg trip blank present? Yes ☒ No ☐

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

Concerning _____

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: _____

17. 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)

18. SAMPLE PRESERVATION

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

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

Temperature readings: _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container</u> <u>pH</u>	<u>Preservative</u> <u>Added (mls)</u>	<u>Lot #</u>
WT-012607-052417-EE-001	240-79989-B-1	Plastic 500ml - with Nitric Acid	<2	_____	_____
WT-012607-052417-EE-001	240-79989-E-1	Amber Glass 1 liter - Sulfuric Acid	_____	_____	_____
WT-012607-052417-EE-001	240-79989-F-1	Amber Glass 1 liter - Sulfuric Acid	_____	_____	_____

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-81702-1

Client Project/Site: 12607, RACER Eckles Rd

For:

GHD Services Inc.

14496 Sheldon Road, Suite 200

Plymouth, Michigan 48170

Attn: Ms. Ruth Mickle



Authorized for release by:

7/13/2017 7:42:46 AM

Denise Heckler, Project Manager II

(330)966-9477

denise.heckler@testamericainc.com

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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

TestAmerica Job ID: 240-81702-1

Job ID: 240-81702-1

Laboratory: TestAmerica Canton

Narrative

Job Narrative 240-81702-1

Comments

No additional comments.

Receipt

The sample was received on 6/29/2017 9:20 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.5° C.

GC Semi VOA

Method(s) 608: The following samples required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: WT-012607-062817-EE-001 (240-81702-1). 3128384, 2596995, 2719942.

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-012607-062817-EE-001 (240-81702-1). 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) 7196A, SM 3500 CR B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 240-285356 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.

Organic Prep

Method(s) 3520C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-285524.

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

TestAmerica Job ID: 240-81702-1

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
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits
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.
α	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

TestAmerica Job ID: 240-81702-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-81702-1	WT-012607-062817-EE-001	Water	06/28/17 15:15	06/29/17 09:20

Detection Summary

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

TestAmerica Job ID: 240-81702-1

Client Sample ID: WT-012607-062817-EE-001

Lab Sample ID: 240-81702-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.096		0.050	mg/L	1		200.7 Rev 4.4	Total
Nickel	0.38		0.010	mg/L	1		200.7 Rev 4.4	Recoverable
Total Suspended Solids	15		4.0	mg/L	1		SM 2540D	Total
								Recoverable
								Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Method Summary

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

TestAmerica Job ID: 240-81702-1

Method	Method Description	Protocol	Laboratory
608	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

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 = 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

TestAmerica Job ID: 240-81702-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Client Sample ID: WT-012607-062817-EE-001

Date Collected: 06/28/17 15:15

Date Received: 06/29/17 09:20

Lab Sample ID: 240-81702-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.096	U	0.096	ug/L		07/07/17 12:45	07/10/17 13:06	1
Aroclor-1221	0.096	U	0.096	ug/L		07/07/17 12:45	07/10/17 13:06	1
Aroclor-1232	0.096	U	0.096	ug/L		07/07/17 12:45	07/10/17 13:06	1
Aroclor-1242	0.096	U	0.096	ug/L		07/07/17 12:45	07/10/17 13:06	1
Aroclor-1248	0.096	U	0.096	ug/L		07/07/17 12:45	07/10/17 13:06	1
Aroclor-1254	0.096	U	0.096	ug/L		07/07/17 12:45	07/10/17 13:06	1
Aroclor-1260	0.096	U	0.096	ug/L		07/07/17 12:45	07/10/17 13:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	61		10 - 114			07/07/17 12:45	07/10/17 13:06	1
Tetrachloro-m-xylene	56		15 - 131			07/07/17 12:45	07/10/17 13:06	1

Client Sample Results

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

TestAmerica Job ID: 240-81702-1

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

Client Sample ID: WT-012607-062817-EE-001

Date Collected: 06/28/17 15:15

Date Received: 06/29/17 09:20

Lab Sample ID: 240-81702-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.096		0.050	mg/L		06/30/17 14:00	07/05/17 16:47	1
Nickel	0.38		0.010	mg/L		06/30/17 14:00	07/05/17 16:47	1
Lead	0.050	U	0.050	mg/L		06/30/17 14:00	07/05/17 16:47	1
Zinc	0.020	U	0.020	mg/L		06/30/17 14:00	07/05/17 16:47	1

Client Sample Results

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

TestAmerica Job ID: 240-81702-1

Method: 245.1 - Mercury (CVAA)

Client Sample ID: WT-012607-062817-EE-001

Date Collected: 06/28/17 15:15

Date Received: 06/29/17 09:20

Lab Sample ID: 240-81702-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020	mg/L		06/30/17 14:00	06/30/17 16:44	1

Client Sample Results

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

TestAmerica Job ID: 240-81702-1

General Chemistry

Client Sample ID: WT-012607-062817-EE-001

Date Collected: 06/28/17 15:15

Date Received: 06/29/17 09:20

Lab Sample ID: 240-81702-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	4.8	U	4.8	mg/L			07/12/17 08:26	1
Cr (VI)	0.0050	U F1 F2	0.0050	mg/L			06/29/17 10:55	1
Total Suspended Solids	15		4.0	mg/L			07/03/17 09:45	1

QC Association Summary

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

TestAmerica Job ID: 240-81702-1

GC Semi VOA

Prep Batch: 286320

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-81702-1	WT-012607-062817-EE-001	Total/NA	Water	3520C	
MB 240-286320/14-A	Method Blank	Total/NA	Water	3520C	
LCS 240-286320/15-A	Lab Control Sample	Total/NA	Water	3520C	

Analysis Batch: 286523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-81702-1	WT-012607-062817-EE-001	Total/NA	Water	608	286320
MB 240-286320/14-A	Method Blank	Total/NA	Water	608	286320
LCS 240-286320/15-A	Lab Control Sample	Total/NA	Water	608	286320

Metals

Prep Batch: 285548

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-81702-1	WT-012607-062817-EE-001	Total Recoverable	Water	200.7	
MB 240-285548/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 240-285548/2-A	Lab Control Sample	Total Recoverable	Water	200.7	

Prep Batch: 285558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-81702-1	WT-012607-062817-EE-001	Total/NA	Water	245.1	
MB 240-285558/1-A	Method Blank	Total/NA	Water	245.1	
LCS 240-285558/2-A	Lab Control Sample	Total/NA	Water	245.1	

Analysis Batch: 285610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-81702-1	WT-012607-062817-EE-001	Total/NA	Water	245.1	285558
MB 240-285558/1-A	Method Blank	Total/NA	Water	245.1	285558
LCS 240-285558/2-A	Lab Control Sample	Total/NA	Water	245.1	285558

Analysis Batch: 285825

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-285548/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	285548
LCS 240-285548/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	285548

Analysis Batch: 285941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-81702-1	WT-012607-062817-EE-001	Total Recoverable	Water	200.7 Rev 4.4	285548

General Chemistry

Analysis Batch: 285356

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-81702-1	WT-012607-062817-EE-001	Total/NA	Water	3500-Cr B-2009	
MB 240-285356/3	Method Blank	Total/NA	Water	3500-Cr B-2009	
LCS 240-285356/4	Lab Control Sample	Total/NA	Water	3500-Cr B-2009	
240-81702-1 MS	WT-012607-062817-EE-001	Total/NA	Water	3500-Cr B-2009	
240-81702-1 MSD	WT-012607-062817-EE-001	Total/NA	Water	3500-Cr B-2009	

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QC Association Summary

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

TestAmerica Job ID: 240-81702-1

General Chemistry (Continued)

Analysis Batch: 285769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-81702-1	WT-012607-062817-EE-001	Total/NA	Water	SM 2540D	
MB 240-285769/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 240-285769/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 286821

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-81702-1	WT-012607-062817-EE-001	Total/NA	Water	1664A	
MB 240-286821/1	Method Blank	Total/NA	Water	1664A	
LCS 240-286821/2	Lab Control Sample	Total/NA	Water	1664A	

QC Sample Results

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

TestAmerica Job ID: 240-81702-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 240-286320/14-A

Matrix: Water

Analysis Batch: 286523

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 286320

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.10	U	0.10	ug/L		07/07/17 12:45	07/10/17 13:25	1
Aroclor-1221	0.10	U	0.10	ug/L		07/07/17 12:45	07/10/17 13:25	1
Aroclor-1232	0.10	U	0.10	ug/L		07/07/17 12:45	07/10/17 13:25	1
Aroclor-1242	0.10	U	0.10	ug/L		07/07/17 12:45	07/10/17 13:25	1
Aroclor-1248	0.10	U	0.10	ug/L		07/07/17 12:45	07/10/17 13:25	1
Aroclor-1254	0.10	U	0.10	ug/L		07/07/17 12:45	07/10/17 13:25	1
Aroclor-1260	0.10	U	0.10	ug/L		07/07/17 12:45	07/10/17 13:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	85		10 - 114	07/07/17 12:45	07/10/17 13:25	1
Tetrachloro-m-xylene	69		15 - 131	07/07/17 12:45	07/10/17 13:25	1

Lab Sample ID: LCS 240-286320/15-A

Matrix: Water

Analysis Batch: 286523

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 286320

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Aroclor-1016	2.50	1.61		ug/L		64	50 - 114
Aroclor-1260	2.50	1.75		ug/L		70	8 - 127

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	88		10 - 114
Tetrachloro-m-xylene	74		15 - 131

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 240-285548/1-A

Matrix: Water

Analysis Batch: 285825

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 285548

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.050	U	0.050	mg/L		06/30/17 14:00	07/04/17 00:13	1
Nickel	0.010	U	0.010	mg/L		06/30/17 14:00	07/04/17 00:13	1
Lead	0.050	U	0.050	mg/L		06/30/17 14:00	07/04/17 00:13	1
Zinc	0.020	U	0.020	mg/L		06/30/17 14:00	07/04/17 00:13	1

Lab Sample ID: LCS 240-285548/2-A

Matrix: Water

Analysis Batch: 285825

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 285548

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	0.524		mg/L		105	85 - 115
Lead	0.500	0.506		mg/L		101	85 - 115
Zinc	0.500	0.526		mg/L		105	85 - 115

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-81702-1

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 240-285558/1-A
Matrix: Water
Analysis Batch: 285610

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 285558

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020	mg/L		06/30/17 14:00	06/30/17 16:13	1

Lab Sample ID: LCS 240-285558/2-A
Matrix: Water
Analysis Batch: 285610

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 285558

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00426		mg/L		85	85 - 115

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 240-286821/1
Matrix: Water
Analysis Batch: 286821

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			07/12/17 08:26	1

Lab Sample ID: LCS 240-286821/2
Matrix: Water
Analysis Batch: 286821

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	39.00		mg/L		97	78 - 114

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

Lab Sample ID: MB 240-285356/3
Matrix: Water
Analysis Batch: 285356

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			06/29/17 10:52	1

Lab Sample ID: LCS 240-285356/4
Matrix: Water
Analysis Batch: 285356

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	0.245		mg/L		98	80 - 123

Lab Sample ID: 240-81702-1 MS
Matrix: Water
Analysis Batch: 285356

Client Sample ID: WT-012607-062817-EE-001
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.0050	U F1 F2	0.250	0.0261	F1	mg/L		10	31 - 151

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-81702-1

Method: 3500-Cr B-2009 - Chromium, Hexavalent (Continued)

Lab Sample ID: 240-81702-1 MSD

Matrix: Water

Analysis Batch: 285356

Client Sample ID: WT-012607-062817-EE-001

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cr (VI)	0.0050	U F1 F2	0.250	0.0144	F1 F2	mg/L	—	6	31 - 151	58	20

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

Lab Sample ID: MB 240-285769/1

Matrix: Water

Analysis Batch: 285769

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	—		07/03/17 09:45	1

Lab Sample ID: LCS 240-285769/2

Matrix: Water

Analysis Batch: 285769

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	59.1	52.0		mg/L	—	88	64 - 120

Surrogate Summary

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

TestAmerica Job ID: 240-81702-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCB2 (10-114)	TCX2 (15-131)
240-81702-1	WT-012607-062817-EE-001	61	56
LCS 240-286320/15-A	Lab Control Sample	88	74
MB 240-286320/14-A	Method Blank	85	69

Surrogate Legend

DCB = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

Lab Chronicle

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

TestAmerica Job ID: 240-81702-1

Client Sample ID: WT-012607-062817-EE-001

Lab Sample ID: 240-81702-1

Date Collected: 06/28/17 15:15

Matrix: Water

Date Received: 06/29/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			286320	07/07/17 12:45	CS	TAL CAN
Total/NA	Analysis	608		1	286523	07/10/17 13:06	KMG	TAL CAN
Total Recoverable	Prep	200.7			285548	06/30/17 14:00	WKD	TAL CAN
Total Recoverable	Analysis	200.7 Rev 4.4		1	285941	07/05/17 16:47	KLC	TAL CAN
Total/NA	Prep	245.1			285558	06/30/17 14:00	WKD	TAL CAN
Total/NA	Analysis	245.1		1	285610	06/30/17 16:44	DTN	TAL CAN
Total/NA	Analysis	1664A		1	286821	07/12/17 08:26	BLW	TAL CAN
Total/NA	Analysis	3500-Cr B-2009		1	285356	06/29/17 10:55	JESW	TAL CAN
Total/NA	Analysis	SM 2540D		1	285769	07/03/17 09:45	CL	TAL CAN

Laboratory References:

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 240-81702-1

Laboratory: 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	02-23-18
Connecticut	State Program	1	PH-0590	12-31-17
Florida	NELAP	4	E87225	06-30-18
Illinois	NELAP	5	200004	07-31-17 *
Kansas	NELAP	7	E-10336	01-31-18
Kentucky (UST)	State Program	4	58	02-23-18
Kentucky (WW)	State Program	4	98016	12-31-17
Minnesota	NELAP	5	039-999-348	12-31-17
Minnesota (Petrofund)	State Program	1	3506	07-31-17 *
Nevada	State Program	9	OH-000482008A	07-31-17 *
New Jersey	NELAP	2	OH001	06-30-18
New York	NELAP	2	10975	03-31-18
Ohio VAP	State Program	5	CL0024	09-14-17 *
Oregon	NELAP	10	4062	02-23-18
Pennsylvania	NELAP	3	68-00340	08-31-17 *
Texas	NELAP	6	T104704517-15-5	08-31-17 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-17 *
Washington	State Program	10	C971	01-12-18
West Virginia DEP	State Program	3	210	12-31-17
Wisconsin	State Program	5	999518190	08-31-17 *

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

TestAmerica Canton

TestAmerica Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116
Phone: 810.229.2763 Fax:

1.5/C1.5
MICHIGAN
190

Chain of Custody Record
2405880

163475

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

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

Client Contact Company Name: GHI Address: 14496 Sheldahl Suite 200 City/State/Zip: Plymouth MI 48170 Phone: (734) 453-5123 Fax:		Project Manager: Chris Meindke Tell/Fax:		Site Contact: E. Geyer Lab Contact: D. Hedeker		Date: 6/22/17 Carrier: FedEx		COC No: 1 of 2 COCs	
Project Name: RACED GWP Livene Site: Livonia MI P O #		Analysis Turnaround Time ☐ CALENDAR DAYS ☐ WORKING DAYS TAT if different from Below ☒ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day STD		Sample Type (C=Comp, G=Grab) C		Matrix WTG		# of Cont.	
Sample Identification 12601-10117-01 WT-012607-062217-EE-001		Sample Date 6/22/17		Sample Time 1515		C		WTG	
Sample Specific Notes: Effluent		Filtered Sample (Y/N)		Perform MS/MSD (Y/N)		PCBS HCB Metal TSS, BOD, COD		Sample Specific Notes: Effluent	
Barcode 240-81702 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		☐ 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:		Cor'd:		Therm ID No.:	
Relinquished by: E. Geyer		Company: GHI		Date/Time: 6/22/17		Company: TAC		Date/Time: 6/24/17	
Relinquished by:		Company:		Date/Time:		Company:		Date/Time:	
Relinquished by:		Company:		Date/Time:		Company:		Date/Time:	

TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 81702

Client GHD Site Name Raur Cooler unpacked by: DSD
 Cooler Received on 06/29/17 Opened on 06/29/17
 FedEx: 1st Grd ☒ 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

- ☐ See Multiple Cooler Form
- Cooler temperature upon receipt
 IR GUN# IR-8 (CF -0.4 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #36 (CF +0 °C) Observed Cooler Temp. 1.5 °C Corrected Cooler Temp. 1.5 °C
 - Were custody seals on the outside of the cooler(s)? If Yes Quantity _____ Yes No
 -Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes ☒ No
 - Shippers' packing slip attached to the cooler(s)? Yes No
 - Did custody papers accompany the sample(s)? Yes No
 - Were the custody papers relinquished & signed in the appropriate place? Yes No
 - Was/were the person(s) who collected the samples clearly identified on the COC? Yes ☒ No
 - Did all bottles arrive in good condition (Unbroken)? Yes No
 - Could all bottle labels be reconciled with the COC? Yes No
 - Were correct bottle(s) used for the test(s) indicated? Yes No
 - Sufficient quantity received to perform indicated analyses? Yes No
 - Are these work share samples? Yes ☒ No
 If yes, Questions 11-15 have been checked at the originating laboratory.
 - Were sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC697954
 - Were VOAs on the COC? Yes ☒ No
 - Were air bubbles >6 mm in any VOA vials? ☒ Larger than this. Yes No NA
 - Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
 - Was a LL Hg or Me Hg trip blank present? Yes No
- Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
- Concerning _____

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: _____

17. 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)

18. SAMPLE PRESERVATION

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

Temperature readings: _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
WT-012607-062817-EE-001	240-81702-B-1	Plastic 500ml - with Nitric Acid	<2	_____	_____
WT-012607-062817-EE-001	240-81702-E-1	Amber Glass 1 liter - Sulfuric Acid	_____	_____	_____
WT-012607-062817-EE-001	240-81702-F-1	Amber Glass 1 liter - Sulfuric Acid	_____	_____	_____

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-82245-1

Client Project/Site: 12607, RACER Eckles Rd

For:

GHD Services Inc.

26850 Haggerty Rd.

Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle



Authorized for release by:

7/28/2017 4:00:31 PM

Denise Heckler, Project Manager II

(330)966-9477

denise.heckler@testamericainc.com

LINKS

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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

TestAmerica Job ID: 240-82245-1

Job ID: 240-82245-1

Laboratory: TestAmerica Canton

Narrative

Job Narrative 240-82245-1

Comments

TSS was analyzed past the holding time due to analyst error.

Receipt

The sample was received on 7/13/2017 10:15 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.7° 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-012607-071217-EE-001 (240-82245-1). 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 240-287517.

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

TestAmerica Job ID: 240-82245-1

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.
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

TestAmerica Job ID: 240-82245-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-82245-1	WT-012607-071217-EE-001	Water	07/12/17 15:15	07/13/17 10:15

Detection Summary

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

TestAmerica Job ID: 240-82245-1

Client Sample ID: WT-012607-071217-EE-001

Lab Sample ID: 240-82245-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.058		0.050	mg/L	1		200.7 Rev 4.4	Total
Nickel	0.095		0.010	mg/L	1		200.7 Rev 4.4	Recoverable
Total Suspended Solids	12	H	4.0	mg/L	1		SM 2540D	Total Recoverable Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Method Summary

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

TestAmerica Job ID: 240-82245-1

Method	Method Description	Protocol	Laboratory
608	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

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 = 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

TestAmerica Job ID: 240-82245-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Client Sample ID: WT-012607-071217-EE-001

Date Collected: 07/12/17 15:15

Date Received: 07/13/17 10:15

Lab Sample ID: 240-82245-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.096	U	0.096	ug/L		07/17/17 13:24	07/20/17 13:51	1
Aroclor-1221	0.096	U	0.096	ug/L		07/17/17 13:24	07/20/17 13:51	1
Aroclor-1232	0.096	U	0.096	ug/L		07/17/17 13:24	07/20/17 13:51	1
Aroclor-1242	0.096	U	0.096	ug/L		07/17/17 13:24	07/20/17 13:51	1
Aroclor-1248	0.096	U	0.096	ug/L		07/17/17 13:24	07/20/17 13:51	1
Aroclor-1254	0.096	U	0.096	ug/L		07/17/17 13:24	07/20/17 13:51	1
Aroclor-1260	0.096	U	0.096	ug/L		07/17/17 13:24	07/20/17 13:51	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	57		10 - 114			07/17/17 13:24	07/20/17 13:51	1
Tetrachloro-m-xylene	50		15 - 131			07/17/17 13:24	07/20/17 13:51	1

Client Sample Results

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

TestAmerica Job ID: 240-82245-1

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

Client Sample ID: WT-012607-071217-EE-001

Date Collected: 07/12/17 15:15

Date Received: 07/13/17 10:15

Lab Sample ID: 240-82245-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.058		0.050	mg/L		07/14/17 14:00	07/17/17 20:44	1
Nickel	0.095		0.010	mg/L		07/14/17 14:00	07/17/17 20:44	1
Lead	0.050	U	0.050	mg/L		07/14/17 14:00	07/17/17 20:44	1
Zinc	0.020	U	0.020	mg/L		07/14/17 14:00	07/17/17 20:44	1

Client Sample Results

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

TestAmerica Job ID: 240-82245-1

Method: 245.1 - Mercury (CVAA)

Client Sample ID: WT-012607-071217-EE-001

Date Collected: 07/12/17 15:15

Date Received: 07/13/17 10:15

Lab Sample ID: 240-82245-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020	mg/L	—	07/14/17 14:00	07/17/17 15:49	1

Client Sample Results

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

TestAmerica Job ID: 240-82245-1

General Chemistry

Client Sample ID: WT-012607-071217-EE-001

Date Collected: 07/12/17 15:15

Date Received: 07/13/17 10:15

Lab Sample ID: 240-82245-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	4.7	U	4.7	mg/L			07/25/17 08:13	1
Cr (VI)	0.0050	U	0.0050	mg/L			07/13/17 14:26	1
Total Suspended Solids	12	H	4.0	mg/L			07/28/17 10:08	1

QC Association Summary

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

TestAmerica Job ID: 240-82245-1

GC Semi VOA

Prep Batch: 287517

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-82245-1	WT-012607-071217-EE-001	Total/NA	Water	3520C	
MB 240-287517/21-A	Method Blank	Total/NA	Water	3520C	
LCS 240-287517/22-A	Lab Control Sample	Total/NA	Water	3520C	

Analysis Batch: 287940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-82245-1	WT-012607-071217-EE-001	Total/NA	Water	608	287517
MB 240-287517/21-A	Method Blank	Total/NA	Water	608	287517
LCS 240-287517/22-A	Lab Control Sample	Total/NA	Water	608	287517

Metals

Prep Batch: 287201

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-82245-1	WT-012607-071217-EE-001	Total Recoverable	Water	200.7	
MB 240-287201/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 240-287201/2-A	Lab Control Sample	Total Recoverable	Water	200.7	

Prep Batch: 287203

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-82245-1	WT-012607-071217-EE-001	Total/NA	Water	245.1	
MB 240-287203/1-A	Method Blank	Total/NA	Water	245.1	
LCS 240-287203/2-A	Lab Control Sample	Total/NA	Water	245.1	

Analysis Batch: 287604

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-82245-1	WT-012607-071217-EE-001	Total Recoverable	Water	200.7 Rev 4.4	287201
MB 240-287201/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	287201
LCS 240-287201/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	287201

Analysis Batch: 287626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-82245-1	WT-012607-071217-EE-001	Total/NA	Water	245.1	287203
MB 240-287203/1-A	Method Blank	Total/NA	Water	245.1	287203
LCS 240-287203/2-A	Lab Control Sample	Total/NA	Water	245.1	287203

General Chemistry

Analysis Batch: 287058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-82245-1	WT-012607-071217-EE-001	Total/NA	Water	3500-Cr B-2009	
MB 240-287058/3	Method Blank	Total/NA	Water	3500-Cr B-2009	
LCS 240-287058/4	Lab Control Sample	Total/NA	Water	3500-Cr B-2009	

Analysis Batch: 288539

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-82245-1	WT-012607-071217-EE-001	Total/NA	Water	1664A	
MB 240-288539/1	Method Blank	Total/NA	Water	1664A	
LCS 240-288539/2	Lab Control Sample	Total/NA	Water	1664A	

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QC Association Summary

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

TestAmerica Job ID: 240-82245-1

General Chemistry (Continued)

Analysis Batch: 289097

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-82245-1	WT-012607-071217-EE-001	Total/NA	Water	SM 2540D	
MB 240-289097/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 240-289097/2	Lab Control Sample	Total/NA	Water	SM 2540D	

QC Sample Results

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

TestAmerica Job ID: 240-82245-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 240-287517/21-A

Matrix: Water

Analysis Batch: 287940

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 287517

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.10	U	0.10	ug/L		07/17/17 13:24	07/20/17 07:22	1
Aroclor-1221	0.10	U	0.10	ug/L		07/17/17 13:24	07/20/17 07:22	1
Aroclor-1232	0.10	U	0.10	ug/L		07/17/17 13:24	07/20/17 07:22	1
Aroclor-1242	0.10	U	0.10	ug/L		07/17/17 13:24	07/20/17 07:22	1
Aroclor-1248	0.10	U	0.10	ug/L		07/17/17 13:24	07/20/17 07:22	1
Aroclor-1254	0.10	U	0.10	ug/L		07/17/17 13:24	07/20/17 07:22	1
Aroclor-1260	0.10	U	0.10	ug/L		07/17/17 13:24	07/20/17 07:22	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	81		10 - 114	07/17/17 13:24	07/20/17 07:22	1
Tetrachloro-m-xylene	69		15 - 131	07/17/17 13:24	07/20/17 07:22	1

Lab Sample ID: LCS 240-287517/22-A

Matrix: Water

Analysis Batch: 287940

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 287517

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Aroclor-1016	2.50	1.33		ug/L		53	50 - 114
Aroclor-1260	2.50	1.57		ug/L		63	8 - 127

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	78		10 - 114
Tetrachloro-m-xylene	64		15 - 131

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 240-287201/1-A

Matrix: Water

Analysis Batch: 287604

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 287201

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.050	U	0.050	mg/L		07/14/17 14:00	07/17/17 19:15	1
Nickel	0.010	U	0.010	mg/L		07/14/17 14:00	07/17/17 19:15	1
Lead	0.050	U	0.050	mg/L		07/14/17 14:00	07/17/17 19:15	1
Zinc	0.020	U	0.020	mg/L		07/14/17 14:00	07/17/17 19:15	1

Lab Sample ID: LCS 240-287201/2-A

Matrix: Water

Analysis Batch: 287604

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 287201

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Chromium	0.200	0.196		mg/L		98	85 - 115
Nickel	0.500	0.496		mg/L		99	85 - 115
Lead	0.500	0.479		mg/L		96	85 - 115
Zinc	0.500	0.508		mg/L		102	85 - 115

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QC Sample Results

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

TestAmerica Job ID: 240-82245-1

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 240-287203/1-A
Matrix: Water
Analysis Batch: 287626

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 287203

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020	mg/L		07/14/17 14:00	07/17/17 15:12	1

Lab Sample ID: LCS 240-287203/2-A
Matrix: Water
Analysis Batch: 287626

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 287203

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00548		mg/L		110	85 - 115

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 240-288539/1
Matrix: Water
Analysis Batch: 288539

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			07/25/17 08:13	1

Lab Sample ID: LCS 240-288539/2
Matrix: Water
Analysis Batch: 288539

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	36.40		mg/L		91	78 - 114

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

Lab Sample ID: MB 240-287058/3
Matrix: Water
Analysis Batch: 287058

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			07/13/17 11:34	1

Lab Sample ID: LCS 240-287058/4
Matrix: Water
Analysis Batch: 287058

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	0.237		mg/L		95	80 - 123

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-82245-1

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

Lab Sample ID: MB 240-289097/1

Matrix: Water

Analysis Batch: 289097

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			07/28/17 10:08	1

Lab Sample ID: LCS 240-289097/2

Matrix: Water

Analysis Batch: 289097

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	59.1	53.0		mg/L		90	64 - 120

Surrogate Summary

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

TestAmerica Job ID: 240-82245-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCB1 (10-114)	TCX1 (15-131)
240-82245-1	WT-012607-071217-EE-001	57	50
LCS 240-287517/22-A	Lab Control Sample	78	64
MB 240-287517/21-A	Method Blank	81	69

Surrogate Legend

DCB = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

Lab Chronicle

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

TestAmerica Job ID: 240-82245-1

Client Sample ID: WT-012607-071217-EE-001

Lab Sample ID: 240-82245-1

Date Collected: 07/12/17 15:15

Matrix: Water

Date Received: 07/13/17 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			287517	07/17/17 13:24	CS	TAL CAN
Total/NA	Analysis	608		1	287940	07/20/17 13:51	LSH	TAL CAN
Total Recoverable	Prep	200.7			287201	07/14/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	200.7 Rev 4.4		1	287604	07/17/17 20:44	KLC	TAL CAN
Total/NA	Prep	245.1			287203	07/14/17 14:00	AJC	TAL CAN
Total/NA	Analysis	245.1		1	287626	07/17/17 15:49	DTN	TAL CAN
Total/NA	Analysis	1664A		1	288539	07/25/17 08:13	BLW	TAL CAN
Total/NA	Analysis	3500-Cr B-2009		1	287058	07/13/17 14:26	CL	TAL CAN
Total/NA	Analysis	SM 2540D		1	289097	07/28/17 10:08	JMB	TAL CAN

Laboratory References:

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 240-82245-1

Laboratory: 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	02-23-18
Connecticut	State Program	1	PH-0590	12-31-17 *
Florida	NELAP	4	E87225	06-30-18
Illinois	NELAP	5	200004	07-31-18
Kansas	NELAP	7	E-10336	01-31-18 *
Kentucky (UST)	State Program	4	58	02-23-18
Kentucky (WW)	State Program	4	98016	12-31-17 *
Minnesota	NELAP	5	039-999-348	12-31-17 *
Minnesota (Petrofund)	State Program	1	3506	07-31-17 *
Nevada	State Program	9	OH-000482008A	07-31-17 *
New Jersey	NELAP	2	OH001	06-30-18
New York	NELAP	2	10975	03-31-18
Ohio VAP	State Program	5	CL0024	09-14-17 *
Oregon	NELAP	10	4062	02-23-18
Pennsylvania	NELAP	3	68-00340	08-31-17 *
Texas	NELAP	6	T104704517-15-5	08-31-17 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-17 *
Washington	State Program	10	C971	01-12-18 *
West Virginia DEP	State Program	3	210	12-31-17 *
Wisconsin	State Program	5	999518190	08-31-17 *

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

TestAmerica Canton

7/28/2017

TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 82745

Client GHD Site Name Racer Cooler unpacked by: DDO
 Cooler Received on 07/13/17 Opened on 07/13/17
 FedEx: 1st Grd ☒ Exp ☐ UPS ☐ FAS ☐ Clipper ☐ Client Drop Off ☐ TestAmerica Courier ☐ Other ☐

Receipt After-hours: Drop-off Date/Time

TestAmerica Cooler # _____ Foam Box ☒ Client Cooler ☒ Box ☐ Other ☐
 Packing material used: Bubble Wrap Foam ☐ Plastic Bag ☐ None ☐
 COOLANT: Wet Ice Blue Ice ☐ Dry Ice ☐ Water ☐ ☐ See Multiple Cooler Form

1. Cooler temperature upon receipt
 IR GUN# IR-8 (CF -0.4 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #36 (CF +0°C) Observed Cooler Temp. 4.7 °C Corrected Cooler Temp. 4.7 °C
2. Were custody seals on the outside of the cooler(s)? If Yes Quantity _____ Yes ☒ No ☐
 -Were custody seals on the outside of the cooler(s) signed & dated? Yes ☒ No ☐
 -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes ☒ No ☐
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?
 If yes, Questions 11-15 have been checked at the originating laboratory. Yes ☒ No ☐ NA ☐ pH Strip Lot# HC697954
11. Were sample(s) at the correct pH upon receipt? Yes ☒ No ☐ NA ☐
12. Were VOAs on the COC? Yes ☒ No ☐ NA ☐
13. Were air bubbles >6 mm in any VOA vials? ☒ Larger than this. Yes ☒ No ☐ NA ☐
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes ☒ No ☐
15. Was a LL Hg or Me Hg trip blank present? Yes ☒ No ☐

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

Concerning _____

Samples processed by: _____

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

17. 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)

18. SAMPLE PRESERVATION

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

Ref: SOP NC-SC-0005, Sample Receiving

\\tacorp\corp\QA\QA_Facilities\Canton-QA\Document-Management\Work-Instruction\Word Version Work Instructions\WI-NC-099-052317 Cooler Receipt Form.doc djl

Temperature readings: _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
WT-012607-071217-EE-001	240-82245-B-1	Plastic 500ml - with Nitric Acid	<2	_____	_____
WT-012607-071217-EE-001	240-82245-E-1	Amber Glass 1 liter - Sulfuric Acid	_____	_____	_____
WT-012607-071217-EE-001	240-82245-F-1	Amber Glass 1 liter - Sulfuric Acid	_____	_____	_____

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-83208-1

Client Project/Site: 12607, RACER Eckles Rd

For:

GHD Services Inc.

26850 Haggerty Rd.

Farmington Hills, Michigan 48331

Attn: Ms. Ruth Mickle



Authorized for release by:

8/13/2017 5:28:45 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

TestAmerica Job ID: 240-83208-1

Job ID: 240-83208-1

Laboratory: TestAmerica Canton

Narrative

Job Narrative 240-83208-1

Comments

No additional comments.

Receipt

The sample was received on 8/3/2017 9:10 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.1° C.

GC Semi VOA

Method(s) 608: The following samples required a tetrabutylammonium sulfite (TBA) clean-up to reduce matrix interferences caused by sulfur: WT-012607-080217-EE-001 (240-83208-1). 3154649, 2596995, 3141112.

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

Metals

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

General Chemistry

Method(s) 7196A, SM 3500 CR B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for analytical batch 240-289827 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.

Organic Prep

Method(s) 3520C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 240-289955.

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

TestAmerica Job ID: 240-83208-1

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
F1	MS and/or MSD Recovery is outside acceptance limits.
U	Indicates the analyte was analyzed for but not detected.
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL. The data are considered valid because the absolute difference is less than the RL.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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

TestAmerica Job ID: 240-83208-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-83208-1	WT-012607-080217-EE-001	Water	08/02/17 14:00	08/03/17 09:10

1

2

3

4

5

6

7

8

9

10

11

12

13

14

Detection Summary

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

TestAmerica Job ID: 240-83208-1

Client Sample ID: WT-012607-080217-EE-001

Lab Sample ID: 240-83208-1

Analyte	Result	Qualifier	RL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.12		0.050	mg/L	1		200.7 Rev 4.4	Total
Nickel	0.16		0.010	mg/L	1		200.7 Rev 4.4	Recoverable
Total Suspended Solids	17		4.0	mg/L	1		SM 2540D	Total
								Recoverable
								Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

Method Summary

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

TestAmerica Job ID: 240-83208-1

Method	Method Description	Protocol	Laboratory
608	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

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 = 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

TestAmerica Job ID: 240-83208-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Client Sample ID: WT-012607-080217-EE-001

Date Collected: 08/02/17 14:00

Date Received: 08/03/17 09:10

Lab Sample ID: 240-83208-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.10	U	0.10	ug/L		08/04/17 09:07	08/07/17 22:47	1
Aroclor-1221	0.10	U	0.10	ug/L		08/04/17 09:07	08/07/17 22:47	1
Aroclor-1232	0.10	U	0.10	ug/L		08/04/17 09:07	08/07/17 22:47	1
Aroclor-1242	0.10	U	0.10	ug/L		08/04/17 09:07	08/07/17 22:47	1
Aroclor-1248	0.10	U	0.10	ug/L		08/04/17 09:07	08/07/17 22:47	1
Aroclor-1254	0.10	U	0.10	ug/L		08/04/17 09:07	08/07/17 22:47	1
Aroclor-1260	0.10	U	0.10	ug/L		08/04/17 09:07	08/07/17 22:47	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	37		10 - 114			08/04/17 09:07	08/07/17 22:47	1
Tetrachloro-m-xylene	39		15 - 131			08/04/17 09:07	08/07/17 22:47	1

Client Sample Results

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

TestAmerica Job ID: 240-83208-1

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

Client Sample ID: WT-012607-080217-EE-001

Date Collected: 08/02/17 14:00

Date Received: 08/03/17 09:10

Lab Sample ID: 240-83208-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.12		0.050	mg/L		08/04/17 14:00	08/07/17 19:34	1
Nickel	0.16		0.010	mg/L		08/04/17 14:00	08/07/17 19:34	1
Lead	0.050	U	0.050	mg/L		08/04/17 14:00	08/07/17 19:34	1
Zinc	0.020	U	0.020	mg/L		08/04/17 14:00	08/07/17 19:34	1

Client Sample Results

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

TestAmerica Job ID: 240-83208-1

Method: 245.1 - Mercury (CVAA)

Client Sample ID: WT-012607-080217-EE-001

Date Collected: 08/02/17 14:00

Date Received: 08/03/17 09:10

Lab Sample ID: 240-83208-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020	mg/L		08/04/17 14:00	08/04/17 18:22	1

Client Sample Results

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

TestAmerica Job ID: 240-83208-1

General Chemistry

Client Sample ID: WT-012607-080217-EE-001

Date Collected: 08/02/17 14:00

Date Received: 08/03/17 09:10

Lab Sample ID: 240-83208-1

Matrix: Water

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
HEM	5.1	U	5.1	mg/L			08/10/17 09:13	1
Cr (VI)	0.0050	U F1	0.0050	mg/L			08/03/17 11:13	1
Total Suspended Solids	17		4.0	mg/L			08/07/17 13:05	1

QC Association Summary

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

TestAmerica Job ID: 240-83208-1

GC Semi VOA

Prep Batch: 289955

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-83208-1	WT-012607-080217-EE-001	Total/NA	Water	3520C	
MB 240-289955/3-A	Method Blank	Total/NA	Water	3520C	
LCS 240-289955/4-A	Lab Control Sample	Total/NA	Water	3520C	

Analysis Batch: 290252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-83208-1	WT-012607-080217-EE-001	Total/NA	Water	608	289955
MB 240-289955/3-A	Method Blank	Total/NA	Water	608	289955
LCS 240-289955/4-A	Lab Control Sample	Total/NA	Water	608	289955

Metals

Prep Batch: 289978

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-83208-1	WT-012607-080217-EE-001	Total Recoverable	Water	200.7	
MB 240-289978/1-A	Method Blank	Total Recoverable	Water	200.7	
LCS 240-289978/2-A	Lab Control Sample	Total Recoverable	Water	200.7	
240-83208-1 MS	WT-012607-080217-EE-001	Total Recoverable	Water	200.7	
240-83208-1 MSD	WT-012607-080217-EE-001	Total Recoverable	Water	200.7	

Prep Batch: 289981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-83208-1	WT-012607-080217-EE-001	Total/NA	Water	245.1	
MB 240-289981/1-A	Method Blank	Total/NA	Water	245.1	
LCS 240-289981/2-A	Lab Control Sample	Total/NA	Water	245.1	
240-83208-1 MS	WT-012607-080217-EE-001	Total/NA	Water	245.1	
240-83208-1 MSD	WT-012607-080217-EE-001	Total/NA	Water	245.1	

Analysis Batch: 290127

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-83208-1	WT-012607-080217-EE-001	Total/NA	Water	245.1	289981
MB 240-289981/1-A	Method Blank	Total/NA	Water	245.1	289981
LCS 240-289981/2-A	Lab Control Sample	Total/NA	Water	245.1	289981
240-83208-1 MS	WT-012607-080217-EE-001	Total/NA	Water	245.1	289981
240-83208-1 MSD	WT-012607-080217-EE-001	Total/NA	Water	245.1	289981

Analysis Batch: 290153

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-83208-1	WT-012607-080217-EE-001	Total Recoverable	Water	200.7 Rev 4.4	289978
MB 240-289978/1-A	Method Blank	Total Recoverable	Water	200.7 Rev 4.4	289978
LCS 240-289978/2-A	Lab Control Sample	Total Recoverable	Water	200.7 Rev 4.4	289978
240-83208-1 MS	WT-012607-080217-EE-001	Total Recoverable	Water	200.7 Rev 4.4	289978
240-83208-1 MSD	WT-012607-080217-EE-001	Total Recoverable	Water	200.7 Rev 4.4	289978

General Chemistry

Analysis Batch: 289827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-83208-1	WT-012607-080217-EE-001	Total/NA	Water	3500-Cr B-2009	
MB 240-289827/3	Method Blank	Total/NA	Water	3500-Cr B-2009	

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QC Association Summary

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

TestAmerica Job ID: 240-83208-1

General Chemistry (Continued)

Analysis Batch: 289827 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-289827/4	Lab Control Sample	Total/NA	Water	3500-Cr B-2009	
240-83208-1 MS	WT-012607-080217-EE-001	Total/NA	Water	3500-Cr B-2009	
240-83208-1 MSD	WT-012607-080217-EE-001	Total/NA	Water	3500-Cr B-2009	

Analysis Batch: 290204

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-83208-1	WT-012607-080217-EE-001	Total/NA	Water	SM 2540D	
MB 240-290204/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 240-290204/2	Lab Control Sample	Total/NA	Water	SM 2540D	
240-83208-1 DU	WT-012607-080217-EE-001	Total/NA	Water	SM 2540D	

Analysis Batch: 290633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-83208-1	WT-012607-080217-EE-001	Total/NA	Water	1664A	
MB 240-290633/1	Method Blank	Total/NA	Water	1664A	
LCS 240-290633/2	Lab Control Sample	Total/NA	Water	1664A	

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QC Sample Results

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

TestAmerica Job ID: 240-83208-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Lab Sample ID: MB 240-289955/3-A

Matrix: Water

Analysis Batch: 290252

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 289955

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Aroclor-1016	0.10	U	0.10	ug/L		08/04/17 09:07	08/07/17 21:13	1
Aroclor-1221	0.10	U	0.10	ug/L		08/04/17 09:07	08/07/17 21:13	1
Aroclor-1232	0.10	U	0.10	ug/L		08/04/17 09:07	08/07/17 21:13	1
Aroclor-1242	0.10	U	0.10	ug/L		08/04/17 09:07	08/07/17 21:13	1
Aroclor-1248	0.10	U	0.10	ug/L		08/04/17 09:07	08/07/17 21:13	1
Aroclor-1254	0.10	U	0.10	ug/L		08/04/17 09:07	08/07/17 21:13	1
Aroclor-1260	0.10	U	0.10	ug/L		08/04/17 09:07	08/07/17 21:13	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl	74		10 - 114	08/04/17 09:07	08/07/17 21:13	1
Tetrachloro-m-xylene	65		15 - 131	08/04/17 09:07	08/07/17 21:13	1

Lab Sample ID: LCS 240-289955/4-A

Matrix: Water

Analysis Batch: 290252

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 289955

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Aroclor-1016	2.50	1.33		ug/L		53	50 - 114
Aroclor-1260	2.50	2.27		ug/L		91	8 - 127

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCB Decachlorobiphenyl	68		10 - 114
Tetrachloro-m-xylene	59		15 - 131

Method: 200.7 Rev 4.4 - Metals (ICP)

Lab Sample ID: MB 240-289978/1-A

Matrix: Water

Analysis Batch: 290153

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 289978

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.050	U	0.050	mg/L		08/04/17 14:00	08/07/17 19:26	1
Nickel	0.010	U	0.010	mg/L		08/04/17 14:00	08/07/17 19:26	1
Lead	0.050	U	0.050	mg/L		08/04/17 14:00	08/07/17 19:26	1
Zinc	0.020	U	0.020	mg/L		08/04/17 14:00	08/07/17 19:26	1

Lab Sample ID: LCS 240-289978/2-A

Matrix: Water

Analysis Batch: 290153

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 289978

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Chromium	0.200	0.214		mg/L		107	85 - 115
Nickel	0.500	0.535		mg/L		107	85 - 115
Lead	0.500	0.518		mg/L		104	85 - 115
Zinc	0.500	0.546		mg/L		109	85 - 115

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QC Sample Results

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

TestAmerica Job ID: 240-83208-1

Method: 200.7 Rev 4.4 - Metals (ICP) (Continued)

Lab Sample ID: 240-83208-1 MS

Matrix: Water

Analysis Batch: 290153

Client Sample ID: WT-012607-080217-EE-001

Prep Type: Total Recoverable

Prep Batch: 289978

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits	%Rec.
Chromium	0.12		0.200	0.330		mg/L		104	75 - 125	
Nickel	0.16		0.500	0.688		mg/L		107	75 - 125	
Lead	0.050	U	0.500	0.488		mg/L		97	75 - 125	
Zinc	0.020	U	0.500	0.540		mg/L		108	75 - 125	

Lab Sample ID: 240-83208-1 MSD

Matrix: Water

Analysis Batch: 290153

Client Sample ID: WT-012607-080217-EE-001

Prep Type: Total Recoverable

Prep Batch: 289978

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chromium	0.12		0.200	0.330		mg/L		104	75 - 125	0	20
Nickel	0.16		0.500	0.689		mg/L		107	75 - 125	0	20
Lead	0.050	U	0.500	0.486		mg/L		97	75 - 125	0	20
Zinc	0.020	U	0.500	0.539		mg/L		108	75 - 125	0	20

Method: 245.1 - Mercury (CVAA)

Lab Sample ID: MB 240-289981/1-A

Matrix: Water

Analysis Batch: 290127

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 289981

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	U	0.00020	mg/L		08/04/17 14:00	08/04/17 18:18	1

Lab Sample ID: LCS 240-289981/2-A

Matrix: Water

Analysis Batch: 290127

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 289981

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00500	0.00542		mg/L		108	85 - 115

Lab Sample ID: 240-83208-1 MS

Matrix: Water

Analysis Batch: 290127

Client Sample ID: WT-012607-080217-EE-001

Prep Type: Total/NA

Prep Batch: 289981

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits	%Rec.
Mercury	0.00020	U	0.00100	0.00111		mg/L		111	70 - 130	

Lab Sample ID: 240-83208-1 MSD

Matrix: Water

Analysis Batch: 290127

Client Sample ID: WT-012607-080217-EE-001

Prep Type: Total/NA

Prep Batch: 289981

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	0.00020	U	0.00100	0.00103		mg/L		103	70 - 130	7	20

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-83208-1

Method: 1664A - HEM and SGT-HEM

Lab Sample ID: MB 240-290633/1

Matrix: Water

Analysis Batch: 290633

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			08/10/17 09:13	1

Lab Sample ID: LCS 240-290633/2

Matrix: Water

Analysis Batch: 290633

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	43.00		mg/L		108	78 - 114

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

Lab Sample ID: MB 240-289827/3

Matrix: Water

Analysis Batch: 289827

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			08/03/17 11:07	1

Lab Sample ID: LCS 240-289827/4

Matrix: Water

Analysis Batch: 289827

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	0.280		mg/L		112	80 - 123

Lab Sample ID: 240-83208-1 MS

Matrix: Water

Analysis Batch: 289827

Client Sample ID: WT-012607-080217-EE-001

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.0050	U F1	0.250	0.0050	U F1	mg/L		0	31 - 151

Lab Sample ID: 240-83208-1 MSD

Matrix: Water

Analysis Batch: 289827

Client Sample ID: WT-012607-080217-EE-001

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cr (VI)	0.0050	U F1	0.250	0.0050	U F1	mg/L		0	31 - 151	NC	20

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

Lab Sample ID: MB 240-290204/1

Matrix: Water

Analysis Batch: 290204

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			08/07/17 13:05	1

TestAmerica Canton

QC Sample Results

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

TestAmerica Job ID: 240-83208-1

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

Lab Sample ID: LCS 240-290204/2

Matrix: Water

Analysis Batch: 290204

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	20.7	20.0		mg/L		97	64 - 120

Lab Sample ID: 240-83208-1 DU

Matrix: Water

Analysis Batch: 290204

Client Sample ID: WT-012607-080217-EE-001

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	17		19.0	F5	mg/L		11	10

Surrogate Summary

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

TestAmerica Job ID: 240-83208-1

Method: 608 - Polychlorinated Biphenyls (PCBs) (GC)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCB2 (10-114)	TCX2 (15-131)
240-83208-1	WT-012607-080217-EE-001	37	39
LCS 240-289955/4-A	Lab Control Sample	68	59
MB 240-289955/3-A	Method Blank	74	65

Surrogate Legend

DCB = DCB Decachlorobiphenyl

TCX = Tetrachloro-m-xylene

Lab Chronicle

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

TestAmerica Job ID: 240-83208-1

Client Sample ID: WT-012607-080217-EE-001

Lab Sample ID: 240-83208-1

Date Collected: 08/02/17 14:00

Matrix: Water

Date Received: 08/03/17 09:10

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3520C			289955	08/04/17 09:07	KEH	TAL CAN
Total/NA	Analysis	608		1	290252	08/07/17 22:47	KMG	TAL CAN
Total Recoverable	Prep	200.7			289978	08/04/17 14:00	AJC	TAL CAN
Total Recoverable	Analysis	200.7 Rev 4.4		1	290153	08/07/17 19:34	KLC	TAL CAN
Total/NA	Prep	245.1			289981	08/04/17 14:00	AJC	TAL CAN
Total/NA	Analysis	245.1		1	290127	08/04/17 18:22	DTN	TAL CAN
Total/NA	Analysis	1664A		1	290633	08/10/17 09:13	JESW	TAL CAN
Total/NA	Analysis	3500-Cr B-2009		1	289827	08/03/17 11:13	MM	TAL CAN
Total/NA	Analysis	SM 2540D		1	290204	08/07/17 13:05	MM	TAL CAN

Laboratory References:

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 240-83208-1

Laboratory: 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	02-23-18
Connecticut	State Program	1	PH-0590	12-31-17 *
Florida	NELAP	4	E87225	06-30-18
Illinois	NELAP	5	200004	07-31-18
Kansas	NELAP	7	E-10336	01-31-18 *
Kentucky (UST)	State Program	4	58	02-23-18
Kentucky (WW)	State Program	4	98016	12-31-17 *
Minnesota	NELAP	5	039-999-348	12-31-17 *
Minnesota (Petrofund)	State Program	1	3506	07-31-17 *
Nevada	State Program	9	OH-000482008A	07-31-18
New Jersey	NELAP	2	OH001	06-30-18
New York	NELAP	2	10975	03-31-18
Ohio VAP	State Program	5	CL0024	09-14-17 *
Oregon	NELAP	10	4062	02-23-18
Pennsylvania	NELAP	3	68-00340	08-31-17 *
Texas	NELAP	6	T104704517-15-5	08-31-17 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-17 *
Washington	State Program	10	C971	01-12-18 *
West Virginia DEP	State Program	3	210	12-31-17 *
Wisconsin	State Program	5	999518190	08-31-17 *

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

TestAmerica Canton

TestAmerica Michigan
10448 Citation Drive
Suite 200
Brighton, MI 48116
Phone: 810.229.2763 Fax: 412.963.2470

MICHIGAN
190

Chain of Custody Record 221508

TestAmerica

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

TAL-8210 (0713)

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

Client Contact		Project Manager: Chris Meloncello		Site Contact: E. Engnell		Date: 8/2/17		COC No: 1 of 2 COCs	
Company Name: GHD		Tel/Fax:		Lab Contact: D. Heald		Carrier: FedEx		Sampler:	
Address: 26850 Haggerty Rd		Analysis Turnaround Time		Perform MS/MSD (Y/N)		Walk-In Client:		For Lab Use Only:	
City/State/Zip: Farmington Hills MI 48331		☐ CALENDAR DAYS ☐ WORKING DAYS		Filtered Sample (Y/N)		Lab Sampling:		Lab Sampling:	
Phone:		TAT if different from Below		Matrix		Job / SDG No.: 2400 5880		Sample Specific Notes:	
Fax:		☒ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day		# of Cont.		STO		Effluent	
Project Name: RACER GWTP LUDWIG		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)			
Site: Ludwiga, MI		9/24/14W		C		WT 6			
PO # 12607-T01X17-01		Sample Identification		WT - 012607-680217-EE-04					
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 Special Instructions/QC Requirements & Comments:									
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)									
☐ Return to Client ☒ Disposal by Lab ☐ Archive for Months									
Custody Seals Intact: ☐ Yes ☐ No		Custody Seal No.:		Cooler Temp. (°C): Obs'd:		Corr'd:		Therm ID No.:	
Relinquished by: E. Engnell		Company: GHD		Date/Time: 8/2/17 1500		Company: Tax		Date/Time: 8/13/17 910	
Relinquished by:		Company:		Date/Time:		Company:		Date/Time:	
Relinquished by:		Company:		Date/Time:		Company:		Date/Time:	

TestAmerica Canton Sample Receipt Form/Narrative
Canton Facility

Login # : 83208

Client GHD Site Name Racer Cooler unpacked by: QSO
 Cooler Received on 08/03/17 Opened on 08/03/17
 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 -0.4 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
 IR GUN #36 (CF +0 °C) Observed Cooler Temp. 2.1 °C Corrected Cooler Temp. 2.1 °C
 2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
 -Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA
 -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
 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
 12. Were sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC697954
 13. Were VOAs on the COC? Yes No
 13. Were air bubbles >6 mm in any VOA vials?  Larger than this. Yes No NA
 14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
 15. Was a LL Hg or Me Hg trip blank present? Yes No
- Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
 Concerning _____

16. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

17. 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)

18. SAMPLE PRESERVATION

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

Temperature readings: _____

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container</u> <u>pH</u>	<u>Preservative</u> <u>Added (mls)</u>	<u>Lot #</u>
WT-012607-080217-EE-001	240-83208-B-1	Plastic 500ml - with Nitric Acid	<2	_____	_____
WT-012607-080217-EE-001	240-83208-E-1	Amber Glass 1 liter Wide - Sulfuric	_____	_____	_____
WT-012607-080217-EE-001	240-83208-F-1	Amber Glass 1 liter Wide - Sulfuric	_____	_____	_____