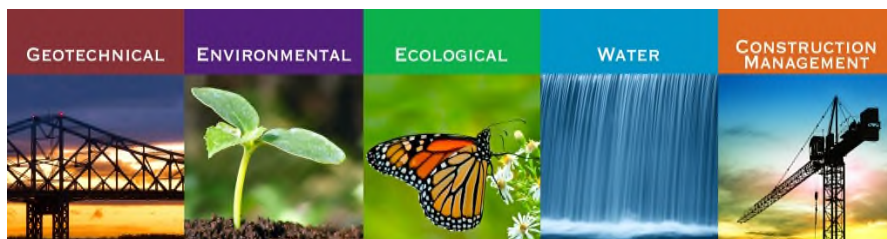




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RESULTS OF MAY 2016 GROUNDWATER SAMPLING

BCP SITE #C932138

GM COMPONENTS HOLDINGS, LLC

200 Upper Mountain Road

Lockport, New York

September 2016

File No. 21.0056546.00



PREPARED FOR:

New York State Department of Environmental
Conservation

GZA GeoEnvironmental of New York

535 Washington Street | Buffalo, NY 14203

716-685-2300

26 Offices Nationwide

www.gza.com

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GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION
MANAGEMENT

GZA GeoEnvironmental of NY
535 Washington Street
11th Floor
Buffalo, NY 14203
T: 716.685.2300
F: 716.685.3629
www.gza.com



VIA EMAIL

September 30, 2016
File No: 21.0056546.00

Mr. Glenn May, CPG
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 9
270 Michigan Ave.
Buffalo, NY 14203-2915

RE: Results of May 2016 Groundwater Sampling
BCP Site # C932138
GM Components Holdings, LLC
200 Upper Mountain Road
Lockport, NY 14094

Dear Glenn:

GZA GeoEnvironmental of New York (GZA) is pleased to provide the attached Results of May 2016 Groundwater Sampling.

This report is based on the annual groundwater sampling event for BCP Site # C932138. The data contained in this report is from the May 2016 sampling round.

We hope this report satisfies your present needs. If you need any additional site-specific information, please contact Jim Richert at 716-844-7048.

Sincerely,

GZA GEOENVIRONMENTAL OF NEW YORK

Peter Nyznyk
Project Geologist

James J. Richert, P.G.
Senior Project Manager

Bart Klettke, P.E.
Principal



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1.0 INTRODUCTION AND BACKGROUND

On behalf of GM Components Holdings LLC (GMCH), GZA GeoEnvironmental of New York (GZA) has prepared this report to summarize the results of the May 2016 groundwater sampling event conducted at Brownfield Cleanup Program (BCP) Site No. C932138 at the GMCH facility located at 200 Upper Mountain Road in Lockport, New York. The groundwater sampling event was conducted from May 4 through May 19, 2016 and included a total of 25 monitoring wells (see Figure 1). Eleven wells are in proximity of Building 7 (MW-7-1, 7-2, 7-3, 7-4, 7-5, 7-6, 7-7, 7-8, 7-A-6, 7-C-2, and 7-P-1). Eight wells are in proximity of Building 8 (MW-6-1, 6-2, 6-F-8, 8-1, 8-2, 8-3, 8-4, and 8-003-B) and six wells are in proximity of Building 10 (MW-10-1, 10-2, 10-3, 9-101-A, 9-12, and TK-6). Groundwater elevation data was also collected during the sampling event. Figure 2 depicts the groundwater contour map generated from water level measurements collected on May 4, 2016.

GMCH entered into three Brownfield Cleanup Agreements (BCAs) with the New York State Department of Environmental Conservation (NYSDEC) which were executed in May 2010. A BCP Remedial Investigation (RI) was conducted at Buildings 7, 8, and 10 BCP Sites from December 2010 through spring 2011, in accordance with the NYSDEC approved RI Work Plans for the three sites. The BCP Remedial Investigation Reports (RIRs; Haley & Aldrich/GZA, November 2011) for Buildings 7, 8 and 10 were approved by NYSDEC in letters dated November 29, 2011.

The BCP Site for Building 7 (BCP Site #C932138) was consolidated with former BCP Sites C932139 (Building 8) and C932140 (Building 10) under BCP Site C932138. BCP agreements for Sites C932139 and C932140 have been withdrawn from the BCP. BCP Site consolidation of the three individual sites into one BCP Site was approved by the NYSDEC in June of 2014.

GMCH has been voluntarily collecting groundwater samples from the BCP Site(s) annually since the RI was completed. Groundwater samples were collected and analyzed for compounds of concern (COCs)¹ and monitored natural attenuation (MNA) parameters as identified in the Delphi Harrison Thermal Systems Site (Registry Site #932113, referred to as the "Delphi Site"), Site Management Plan² (SMP). The SMP was developed to provide annual sampling and reporting requirements for the Delphi Site located in the eastern portion of the GMCH facility and property owned by Mahle Behr Troy Inc. and downgradient of Building 7, 8 and 10. The SMP was approved by NYSDEC in a letter dated October 13, 2011 and was the basis for developing the groundwater monitoring protocol for the three BCP Sites.

2.0 GROUNDWATER MONITORING AND SAMPLING

The May 2016 groundwater monitoring and sampling event was conducted with the sampling techniques consistent with those described in the Delphi Site SMP and BCP RI Work Plans. The analytical parameters utilized were consistent with those described in the Delphi Site SMP. In addition to the MNA parameters identified in the SMP, carbon dioxide (CO₂), ethane, and ethene were included in the parameter list for this sampling event. These parameters were added to assist with the evaluation of the total organic carbon (TOC) fate and transport within the formation.

¹ The five COCs are trichloroethylene, tetrachloroethylene, *cis*-1,2-dichloroethene, *trans*-1,2-dichloroethylene, and vinyl chloride.

² "Delphi Harrison Thermal Systems Site, Niagara County, New York, Site Management Plan, NYSDEC Site Number 9-32-113" dated October, 2011. Prepared for GM Components Holdings, LLC by GZA.



METHODOLOGY

The groundwater monitoring and sampling was performed using low-flow sampling techniques with a peristaltic pump, disposable polyethylene tubing and a water quality meter with a flow-through cell to collect water quality field parameters.

Groundwater pumping rates used during purging and sampling varied at the monitoring locations in order to establish a relatively stable water level. Once a stable water level was established within the monitoring well, flow rates were maintained during the sampling period. Samples were collected for analysis after field-measured parameters stabilized.

It should be noted that a stable water level could not be established in three monitoring wells (MW-7-4, MW-7-8, and MW-8-3). These wells were purged to dry-like conditions and allowed to recharge until the water level recovered to within 85% of the water level measured prior to sampling.

Analytical Parameters

Field Measured Parameters: temperature, specific conductance, pH, turbidity, dissolved oxygen (DO) and oxidation reduction potential (ORP).

Compounds of Concern: tetrachloroethylene (PCE), trichloroethylene (TCE), *cis*-1,2-dichloroethylene (*cis*-DCE), *trans*-1,2-dichloroethylene (*trans*-DCE) and vinyl chloride (VC).

Natural Attenuation Parameters: methane, iron, magnesium, manganese, ammonia, alkalinity, total organic carbon (TOC), chloride, nitrate, nitrite, sulfate, sulfide, carbon dioxide, ethane, and ethene.

Table 1 provides a summary of the groundwater sample analytical results. The Monitoring Well Observations & Groundwater Sampling Logs are included in Appendix A. A summary of the previous sampling event results of the COCs are included in Appendix B. A Data Quality Assessment and Verification Report prepared by GHD is provided in Appendix C and the Analytical Data Reports prepared by Test America Laboratory are included in Appendix F. Appendix D contains a table with the strength of evidence scorecard for natural attenuation at the individual monitoring well locations. The anaerobic biodegradation screening tables were developed by Wiedemeier *et. al.*, 1998³, to evaluate the MNA performance data. Appendix E contains a Well Condition Summary Table.

3.0 ANALYTICAL RESULTS AND DISCUSSION

Building 7

Eleven monitoring wells were sampled in association with Building 7 (MW-7-1, -7-2, -7-3, -7-4, -7-5, -7-6, -7-7, -7-8, -7-A-6, -7-C-2, and -7-P-1; see Figure 1). The analytical results for the Building 7 monitoring wells are summarized in Table 1 while Appendix D contains the evaluation of the MNA data. A discussion of the results (COC and MNA findings) at the individual monitoring well locations is provided after the summary for Building 7.

³ Wiedemeier, T.H., Swanson, M.A., Moutoux, D.E., Gordon, E.K., Wilson, J.T., Wilson, B.H., Kampbell, D.H., Haas, P.E., Miller, R.N., Hansen, J.E., and Chapelle, F.H., 1998, Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water, EPA/600/R-98/128, 78 p.



Potential Source Area

The 2016 results for the two potential source area wells, MW-7-7 and MW-7-A-6, indicated that the COCs were detected at concentrations illustrating adequate and limited evidence for anaerobic biodegradation respectively. Evidence for anaerobic biodegradation at MW-7-7 and MW-7-A-6, is indicated by the increase of daughter compounds TCE, 1,2 DCE (*cis*-DCE and *trans*-DCE), to VC which is indicative of natural attenuation.

Mid-Plume Area

The 2016 results for the four mid-plume monitoring wells (MW-7-P-1, MW-7-5, MW-7-6, and MW-7-C-2) indicate limited evidence (MW-7-5, MW-7-C-2, and MW-7-6), and adequate evidence (MW-7-P-1) for anaerobic biodegradation. The COC concentrations from these four wells are one to four orders of magnitude lower than the COC concentrations detected in the upgradient potential source areas at MW-7-A-6 and MW-7-7.

Downgradient Area

The Building 7 down-gradient wells include wells MW-7-1R, MW-7-2, MW-7-3 and MW-7-4. Monitoring wells MW-7-1R, and MW-7-2, are located along the GMCH property perimeters and the COC concentrations were below the practical quantitation limits (PQLs), which are below their respective Class GA criteria⁴. Well MW-7-4, also located along the property perimeter, contained PCE at a concentration of 11 ppb when sampled on May 13, 2016. This detection of PCE in this well was the first since sampling of the well began in 2008. Because of this anomalous detection of PCE during the May sampling event, this well was re-sampled on July 29, 2016. The July sample contained an estimated concentration of 0.69 ppb of PCE, well below the concentrations detected in May and the Class GA groundwater standard of 5.0 ppb. COCs were detected at MW-7-3 (12.5 ppb total COCs). This well is located approximately 600 feet west and upgradient of the GMCH eastern property boundary. The down-gradient well locations indicate there is a five to seven orders of magnitude decrease from the up-gradient potential source area well concentrations. Groundwater with COCs at concentrations above Class GA groundwater standards does not appear to be migrating from the GMCH property (see Figure 3).

Conclusion

Indicators that natural attenuation is occurring include:

- significant decrease in COC concentrations from the potential source area to mid-plume and eventually to below PQLs at the downgradient eastern property line;
- the presence of daughter compounds 1,2-DCE and VC in the mid-point (MW-7-6) and downgradient portions (MW-7-3) of the plume;
- concentrations of COCs at the eastern and southeastern downgradient property line are below method detection limits; and
- limited to strong evidence of reductive dechlorination occurring in the Building 7 wells in the potential source and mid-plume area based on the anaerobic biodegradation screening table (Appendix D).

⁴ NYSDEC Class GA Groundwater criteria presented in the Division of Water Technical and Operational Guidance Series (TOGS 1.1.), dated October 1993, reissued June 1998, errata January 1999, April 2000 Addendum and June 2004 Addendum (Class GA).



Building 7 Individual Well Discussions

MW-7-1R: The COC results were below PQLs, which are less than Class GA criteria, consistent with the 2011 through 2015 sample results.

MW-7-2: The results were below PQLs, which are less than the Class GA criteria; and are consistent with the 2007, 2008 2011, 2013, 2014 and 2015 sampling results. The only COC detected to date at this location was TCE detected in 2012 at a concentration of 4 parts per billion (ppb).

The MNA data indicates there is inadequate evidence for anaerobic biodegradation. However, COCs have been either below PQLs or Class GA criteria at this downgradient location and this is not considered a concern.

MW-7-3: VC and 1,2-DCE were the only compounds detected at this location. A significant reduction in concentration has occurred in VC and 1,2-DCE. The detected concentration of VC is above its respective Class GA criterion. PCE and TCE concentrations have been below PQLs since 2007 when the well was first installed.

The MNA data indicates there is adequate evidence for anaerobic biodegradation at this downgradient location. Anaerobic conditions will further enhance the degradation of the breakdown product compounds 1,2-DCE and VC which have been the only COCs detected since 2011 at this location.

MW-7-4: Analytical results of the May 13, 2016 sampling of MW-7-4 showed that PCE was detected at 11 ppb, which is above the Class GA criteria of 5.0 ppb for this COC. Historically, the results for this well were below PQLs and below the Class GA criteria. Because of the anomalous detection of PCE in this well, MW-7-4 was resampled on July 29, 2016. The results of the resampling showed a much lower concentration of PCE at 0.69 ppb, well below the groundwater standard. The only other historical detection in this well was TCE, detected in 2012 at a concentration of 3.6 ppb.

The MNA data indicates there is inadequate evidence for anaerobic biodegradation at this well location. However, COCs always have been either below PQLs or Class GA criteria at this downgradient location.

MW-7-5: The results indicate similar PCE, TCE, and 1,2-DCE concentrations as the 2015 results. The concentrations detected for these three compounds exceed their respective Class GA criteria. VC concentration was below its PQL since 2012.

The MNA data indicates there is limited evidence for anaerobic biodegradation at this mid-plume location.

MW-7-6: The results show a moderate increase in concentrations of the COCs since the 2015 sampling event. VC concentrations have steadily decreased in concentration since 2013. The detected COCs concentrations exceed their respective Class GA criteria.

The MNA data indicates there is limited evidence for anaerobic biodegradation at this mid-plume location.

MW-7-7: The results indicate an increase in concentration of PCE from the 2015 sampling event. Concentrations of breakdown products TCE, *cis*-DCE, and VC have increased in concentration since 2013.

The MNA data indicates there is adequate evidence for anaerobic biodegradation at this potential source area location.



MW-7-8: The results indicate a decrease in PCE, 1,2-DCE and VC concentrations and an increase TCE. The detected concentrations of these COCs are above their respective Class GA criteria.

The MNA data indicates there is adequate evidence of anaerobic biodegradation at this location.

MW-7-A-6: Concentration results for TCE and 1,2-DCE have decreased since 2014. PCE increased in concentration from the 2015 sampling event. VC has been below the PQLS, which is below the respective Class GA criteria since 2015. The concentrations of the COCs are above their respective Class GA criteria.

Although the COCs are at their highest concentrations within the Building 7 study area, the MNA data indicates there is limited evidence for anaerobic biodegradation at this location.

MW-7-C-2: PCE and TCE have never been detected at this location at concentrations above method detection limits. The results for 1,2-DCE have steadily increased since first sampled in 2011, to the current 540 ppb. VC has increased in concentration since the 2014 sampling event and is above the Class GA standard.

The MNA data indicates there is limited evidence for anaerobic biodegradation at this mid-plume location.

MW-7-P-1: Concentrations for 1,2-DCE and VC continue on a generally decreasing trend sampling began in 2006. VC concentrations were slightly above the respective Class GA standard of 2.0 ppb. 1,2 DCE is slightly below it standard of 5.0 ppb. The results for PCE and TCE have been historically below PQLs, which is less than their respective Class GA criteria.

The MNA data indicates there is adequate evidence for anaerobic biodegradation at this mid-plume location.

Building 8

Eight monitoring wells were sampled in association with Building 8 (MW-6-1, -6-2, -6-F-8, -8-1, -8-2, -8-3, -8-4, and -8-003-B; see Figure 1). The analytical results for the Building 8 monitoring wells are summarized in Table 1 and Appendix D contains the evaluation of the MNA data. A discussion of the results (COC and MNA findings) at the individual monitoring well locations is provided after the summary for Building 8.

The highest COC concentrations have consistently been detected in wells MW-8-2 (5,523 ppb) and MW-8-003-B (152.2 ppb). The concentrations of COCs detected at both of these locations have shown significant decreases since 2014. The MNA data indicates there is limited anaerobic biodegradation. However, 1,2-DCE is generally the COC detected at the highest concentration in locations where COCs are detected, indicating reductive dechlorination of the parent compound (TCE) is occurring at Building 8.

Groundwater associated with Building 8 is migrating towards the east (downgradient) in the area of the Delphi Harrison Thermal Systems (DHTS) site easement area and a portion of the Mahle property outside the easement area (see Figure 2). Natural attenuation processes are reducing the COC contamination to non-detectable levels or below the NYSDEC Class GA criteria along Upper Mountain Road (see Figure 3). Consistent with past sampling events, no VOCs were detected above the PQL at monitoring wells MW-6-1 and MW-6-2 located east of Building 8 along Upper Mountain Road and north of the DHTS site easement area. Therefore, it does not appear that contaminated groundwater is migrating beyond Upper Mountain Road.



Building 8 Individual Well Discussions

MW-6-1: The results for the COCs were below PQLs, which is less than the Class GA criteria. This is consistent with analytical results back to 2007 and the MNA data indicates there is limited evidence for anaerobic biodegradation.

MW-6-2: The results for the COCs were below PQLs, which is less than the Class GA criteria, consistent with analytical results back to August 2008. Note that TCE was detected twice prior to August 2008: at 25 ppb during the November 2007 sampling event and at 4.2 ppb during the April 2008 sampling event. No COCs have been detected above PQLs in this well since April 2008. The MNA data indicates there is limited evidence for anaerobic biodegradation.

MW-6-F-8: The results for the COCs were below PQLs, which is less than the Class GA criteria, consistent with analytical results back to 2008. The MNA data indicates there is limited evidence for anaerobic biodegradation. However, COCs have never been detected above PQLs in this well.

MW-8-1: 1,2-DCE was detected in 2011, 2012, 2014, and 2016 at concentrations below the Class GA criteria of 5 ug/l. The detected concentrations of DCE in all four years were below 1 ppb.

The MNA data indicates there is limited evidence for anaerobic biodegradation. We note that the breakdown product compound *cis*-DCE has been the only COC detected and aerobic conditions will further enhance biodegradation.

MW-8-2: The 2016 results for TCE, 1,2-DCE, and VC indicate an increase in concentration since 2015. The detected concentrations of these compounds has been above their respective Class GA standards. The 2016 results for PCE was below the PQL, which is less than the Class GA criteria. PCE was detected in 2015 for the first time at a concentration (10 ppb) above its Class GA criteria of 5 ppb. The MNA data indicates there is limited evidence for anaerobic biodegradation at this location.

MW-8-3: 2016 results for TCE and 1,2-DCE increased in concentration above Class GA criteria. PCE and VC were below their respective PQLs which are less than the Class GA criteria. The MNA data indicates there is limited evidence for anaerobic biodegradation.

MW-8-4: 2016 results for TCE, 1,2-DCE and VC are comparable with the 2015 results. The detected concentrations of these compounds are above their respective Class GA standards. PCE has not be detected in this well since sampling began in 2011.

The MNA data indicates there is limited evidence for anaerobic biodegradation.

MW-8-003-B: The 2016 results for TCE and PCE indicate an increase in concentration since 2015. The detected concentration of these compounds has been above their respective Class GA criteria. VC has been below the PQL since 2015. The concentration of 1,2-DCE has decreased in concentration since 2015 but remains above the Class GA groundwater standard. The MNA data indicates there is limited evidence for anaerobic biodegradation.



Building 10

Six monitoring wells were sampled in association with Building 10 (Bldg 10 MW-1, MW-10-2, MW-10-3, MW-9-101A, MW-9-12, and TK-6; see Figure 1) in May 2016. The analytical results for the Building 10 monitoring wells are summarized in Table 1 and Appendix D contains the evaluation of the MNA data. A discussion of the results (COC and MNA findings) at the individual monitoring well locations is provided after the summary for Building 10.

The MNA data from the six wells sampled at Bldg 10 indicate there is at best, limited evidence for anaerobic biodegradation. However, 1,2-DCE is the COC detected at the highest concentrations at downgradient well MW-10-2 within the Building 10 area. This is indicative that intrinsic reductive dechlorination is occurring down-gradient of Building 10.

Groundwater elevations measured at the wells near Building 10 indicate that groundwater is generally migrating in an easterly direction. Another source of COCs is present in the groundwater downgradient (east) of Building 10 associated with Building 7. However, natural attenuation appears to be occurring and reducing the COC to non-detectable levels at the GMCH Facility downgradient property line (see Figure 3).

Building 10 Individual Well Discussions

MW-9-101A: No COCs were detected in the sample collected from this well in May 2016. Previously in May 2013 results indicated that PCE (11 ppb) and TCE (1.7 ppb) were detected in this well for the first time since 2006 and the highest total COC concentrations detected at this location to date. The detected concentration of PCE was above its Class GA criteria. In 2014, 2015 and 2016 PCE, TCE, 1,2-DCE and VC were all below PQLs, which are less than their Class GA criteria.

The MNA data from MW-9-101A for May 2016 continues to indicate there is inadequate evidence for anaerobic biodegradation. This is not considered a concern as this location is the furthest upgradient well monitored as part of the BCP Site and results have generally been below PQLs and Class GA criteria.

Bldg 10-MW-1: The PCE and TCE concentrations detected in the May 2016 sampling event are slightly higher since the 2015 sampling event and within the same order of magnitude since sampling of this well began in 2007. The 1,2-DCE and VC results were below PQLs from 2012 through 2016 which are below the Class GA criteria.

The MNA data from Bldg 10 MW-1 for May 2016 indicates there is limited evidence for anaerobic biodegradation. However, the results at Building 10 downgradient wells, MW-10-2 and MW-10-3, indicated a decrease in the parent COC concentrations from Bldg 10 MW-1 and elevated 1,2-DCE concentrations at MW-10-2 and MW-10-3 indicating reductive dechlorination is occurring.

MW-10-2: The results of all COCs indicate an increase in concentration from 2015 but all are within the range detected since sampling began at this location in 2011. The detected concentrations of the COCs are all above their respective Class GA criteria.

The MNA data indicates there is limited evidence for anaerobic biodegradation. However, as mentioned above, the parent compound (PCE) concentrations are much less than that of the daughter compound (1,2-DCE), indicating that reductive dechlorination processes are active at this location.



MW-10-3: The results of TCE, PCE and 1,2-DCE show a decrease in concentrations for May 2016 as compared to 2015. The detected concentrations of TCE and PCE are above their respective Class GA criteria.

The MNA data indicates there is inadequate evidence for anaerobic biodegradation, however the daughter compound concentrations for 1,2-DCE historically have been higher than that of the parent COC (PCE) at this location, indicating that reductive dechlorination processes are active at this location.

4.0 GROUNDWATER MONITORING CONCLUSIONS AND RECOMMENDATIONS

Results of the May 2016 groundwater monitoring indicate that groundwater impacts remain limited to the spatial limits of the BCP, and the DHTS Site. (Figure 3). Impacted groundwater from Building 8 is migrating southeast towards the DHTS Site easement area and Mahle property. Impacted groundwater from Buildings 7 and 10 are generally migrating in an easterly direction from the source areas identified. However, contaminated groundwater does not appear to be migrating beyond Upper Mountain Road as the monitoring wells along the west side of Upper Mountain Road do not exhibit concentrations of COCs above the PQLs, or Class GA standards. The four downgradient wells (from north to south) are: MW-6-2, MW-6-1, MW-7-2 and MW-7-4. (Figure 1). Well MW-7-1R is located near the southern property line and does not exhibit concentrations of COCs above the PQLs, which are below the Class GA criteria. We also note that downgradient monitoring wells, MW-11 and MW-13, from the Delphi Site, do not show concentrations of COCs above the laboratory detection limits. Therefore, the results from the Building 7, Building 8, and Delphi Site downgradient wells indicate the plume is stable.

Although there is limited to adequate evidence for anaerobic biodegradation at well locations where the COCs have been detected, it does not appear that contaminated groundwater is migrating beyond Upper Mountain Road.

RECOMMENDATIONS

Since the May, 2016 annual sampling event, a Decision Document (DD) was issued by the Department on June 14, 2016. The DD obligated GMCH to implement the Site remedy. The Site remedy includes groundwater remediation by the in-situ application of chemical reducing agents. These reducing agents are intended to destroy the mass of the COC in the soil and bedrock matrix, reduce the volume of impacted groundwater, and enhance the biological degradation of the COC dissolved in downgradient groundwater. The in-situ chemical reducing (ISCR) agent was injected into remedial injection wells in June of 2016. The agent injected included enhanced zero valent iron which was comprised of a mixture of zero valent iron (ZVI) and an emulsified organic carbon substrate. Post-injection groundwater sampling of select wells is being conducted at 30-day, 60-day, 90-day, and 180-day intervals from the completion of the remedial injection program to measure the effects and progress of the injection remedy. Results of these post-remedial monitoring events are in addition to the Site-wide groundwater monitoring program and will be reported to the Department under separate cover.

GZA recommends continuing the annual groundwater sampling event in the spring of 2017, including the same 25 wells sampled in 2016 and using the methodologies outlined in the Site Management Plan for the BCP Site, which is anticipated to be finalized and approved by the Department by the end of 2016.



TABLES

Table 1
Summary of Groundwater Sample Analytical Results
GMCH Lockport Site
Buildings 7, 8 10
Site No. C932138

Sample Location Sample Date	Class GA Criteria	BUILDING 7 AREA WELLS																					
		MW-7-1R 5/10/2016		MW-7-2 5/10/2016		MW-7-3 5/10/2016		MW-7-4 5/13/2016		MW-7-5 5/11/2016		MW-7-6 5/11/2016		MW-7-7 5/12/2016		MW-7-8 5/13/2016		MW-7-A-6 5/12/2016		MW-7-C-2 5/11/2016		MW-7-P-1 5/13/2016	
		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q		Q	
VOC Compounds of Concern (ug/L)																							
cis-1,2-Dichloroethene	5	<0.81		<0.81		2.6		<0.81		370		520		26,000		81		28,000		540		<0.81	
Tetrachloroethene	5	<0.36		<0.36		<0.36		0.69	J	7,000	F1	640		84,000		95		170,000		<1.8		<0.36	
trans-1,2-dichloroethene	5	<0.90		<0.90		<0.90		<0.90		<90		<9.0		<900		<1.8		<4500		<4.5		2.7	
Trichloroethene	5	<0.46		<0.46		<0.46		<0.46		610		320		7,500		59		17,000		<2.3		<0.46	
Vinyl Chloride	2	<0.90		<0.90		9.9		<0.90		<90		26		4,900		3.6		<5000		60		2.9	
Total VOCs	2	0		0		12.5		0.69		7,980		1,506		122,400		238.6		215,000		600		5.6	
Field Parameters																							
Temperature (Deg. C)	NV	13.8		11.7		12.8		12.1		12.6		11.5		13.9		16.40		13.2		13.3		21.3	
Specific Conductance (mS/cm)	NV	5.61		0.95		20.09		1.46		13.92		12.55		9.48		9.34		3.32		2.66		25.24	
Dissolved Oxygen (mg/L)	NV	0.36		1.33		0.17		4.46		0.19		0.3		0.09		2.16		0.16		0.16		0.29	
Oxygen Reduction Potential (mv)	NV	39.6		51.7		-38.9		148.9		125.1		16.2		-218.8		-14.6		1.6		-56.5		-108.3	
pH (std. units)	NV	7.05		7.45		6.8		7.89		6.83		7.17		9.12		7.33		6.98		7.02		6.39	
Turbidity (NTUs)	NV	1.89		1.62		1.76		1.27		3.99		2.87		12.9		12		4.31		2.44		3.71	
Inorganics (mg/L)																							
Iron	0.3	0.077		<0.019		2.2		0.18		0.059		0.055		0.55		19.1		0.29		0.61		109	
Magnesium	35 ^{Note 4}	100		32.7		195		30.2		159		80.6		209	^	250		115	^	160		604	
Manganese	NV	0.27		0.0034		0.23		0.0047		1.2	B^	0.19	B^	0.066	B	0.4		1	B	0.37	B^	9.5	
Potassium	NV	5.5		1.2		35.6		1.9		5.4		9.7		41.8		52.3		3.1		7.9		47.3	
Sodium	20	704		67.2		3,680		183		2,200		2,390		1,340.0		1,300.0		336.0		152.0		253	
Miscellaneous Water Quality Parameters																							
Methane (ug/L)	NV	5.3		<1.0		71		<1.0		3.3	J	33		460		18		440		89.0		7,500	
Ethane (ug/L)	NV	<1.5		<1.5		2.7	J	<1.5		<1.5		2	J	<15		<1.5		<30		<1.5		<150	
Ethene (ug/L)	NV	<1.5		<1.5		1.6	J	<1.5		<1.5		<1.5		320		<1.5		45	J	<1.5		<150	
Carbon Dioxide (ug/L)	NV	62,000		25,000		87,000		25,000		100,000		46,000		<1000		5,900		100,000		60,000		130,000	
Total Organic Carbon (mg/L)	NV	1.7	B	1.5	B	2.4	B	1.2		3	B	2.1	B	6.3		0.65	J	8.4		2	B	0.59	J
Alkalinity (mg/L)	NV	334		318		382	B	360	B	367		337		106		102.0	B	528		319		112	B
Ammonia (mg/L)	NV	<0.0090		<0.0090		2.2		<0.0090		<0.0090		0.02		2.30		0.8		0.014	J	0.14		139	
Chloride (mg/L)	NV	1,630		120		6,840		241		4,690		4,110		3,000		3,270		780		264		6,220	
Nitrate (mg/L)	NV	0.026	J	<0.020		<0.020		0.041	J	1.90	J	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020	
Nitrite (mg/L)	NV	<0.020		<0.020		<0.020		<0.020		0.047		<0.020		<0.020		<0.020		<0.020		<0.020		<0.020	
Sulfate (mg/L)	NV	113		26.1		835		35.5	J	278	J	238	J	345		273		53.6		841		<17.5	
Sulfide (mg/L)	NV	<0.052		<0.052		0.23		<0.052		<0.052		<0.052		1.1		<0.052		<0.052		<0.052		<0.10	

- Notes:
- Only compounds detected in one or more of the groundwater samples are presented in this table.
 - "<" indicates compound was not detected above the method detection limit.
 - Analytical testing completed by TestAmerica in Amherst, New York.
 - Criteria is a guidance value.
 - Laboratory qualifiers: B = compound was found in the blank and sample; J = result is less than the RL but greater than or equal to the MDL and the concentration is an approximation; * - LCS or LCSD exceeds the control limits. E = Results exceeded calibration range. F1 = MS and/or MSD Recovery is outside acceptance limits. F2 = MS/MSD RPD exceeds control limits. ^ = Instrument related quality control is outside of acceptable range.
 - mg/L = parts per million; ug/L = parts per billion
 - NYSDEC Class GA Groundwater Criteria as promulgated in 6 NYCRR 703; Table 1 in Technical and Operational Guidance Series (1.1.1): Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, dated October 1993; revised June 1998; errata dated January 1999; addendum dated April 2000.
 - NV = no value, NT = not tested.
 - Shaded concentrations exceed Class GA criteria.
 - Concentrations shown for MW-9-101A are the higher of its initial run or its respective duplicate.
 - MW-7-4 resampled on 7-29-2016 for VOCs. Lower concentration reported for PCE.

Table 1
Summary of Groundwater Sample Analytical Results
GMCH Lockport Site
Buildings 7, 8 10
Site No. C932138

Sample Location Sample Date		Class GA Criteria	BUILDING 8 AREA WELLS										BUILDING 10 AREA WELLS									
			MW-6-1 5/9/2016	MW-6-2 5/9/2016	MW-6-F-8 5/9/2016	MW-8-1 5/16/2016	MW-8-2 5/17/2016	MW-8-3 5/18/2016	MW-8-4 5/9/2016	MW-8-003-B 5/16/2016	MW-9-101A 5/18/2016	MW-9-12 5/19/2016	TK-6 5/19/2016	BLDG-10-MW-1 5/19/2016	MW-10-2 5/17/2016	MW-10-3 5/18/2016						
			Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q					
VOC Compounds of Concern (ug/L)																						
cis-1,2-Dichloroethene	5	<0.81	<0.81	<0.81	0.9 J	5,200	3.4	42	9.2	<1.6	<0.81	<0.81	<1,600	1,500	7.2							
Tetrachloroethene	5	<0.36	<0.36	<0.36	<0.36	<0.36	<0.72	<0.36	120	<0.72	<0.36	<0.36	140,000 F1	590	3.4							
trans-1,2-dichloroethene	5	<0.90	<0.90	<0.90	<0.90	16	<1.8	<0.90	<1.8	<1.8	<0.90	<0.90	<1,800	20	<0.90							
Trichloroethene	5	<0.46	<0.46	<0.46	<0.46	47	3.9	7.1	23	<0.92	<0.46	<0.46	2,700	200	3.0							
Vinyl Chloride	2	<0.90	<0.90	<0.90	<0.90	260	<1.8	16	<1.8	<1.8	<0.90	<0.90	<1,800 F1	62	<0.90							
Total VOCs	2	0	0	0	0.9	5,523	7.3	65.1	152.2	0	0	0	142,700	2,372	13.6							
Field Parameters																						
Temperature (Deg. C)	NV	10.1	10.7	12.5	14.3	18.8	20.1	12.7	13	14.1	13.2	13.8	19.2	13.1	10.5							
Specific Conductance (mS/cm)	NV	3.27	4.24	9.08	5.9	1.82	6.66	11.59	3.99	5.91	2.23	3.45	2.65	6.15	1.81							
Dissolved Oxygen (mg/L)	NV	0.18	0.69	0.13	0.32	0.23	2.02	1.28	0.76	1.32	0.22	2.93	0.87	0.34	0.62							
Oxygen Reduction Potential (mv)	NV	-102.4	132.7	81.3	-250.7	-125.9	-87.7	-44.1	92.7	103.4	-12.9	97.3	-47.2	-26.7	68.6							
pH (std. units)	NV	7.02	7.17	7.04	7.17	7.3	7.07	7.12	8.28	7.22	7.47	7.51	6.91	7.3	7.58							
Turbidity (NTUs)	NV	20.3	1.52	0.67	5.81	1.11	2.91	3.12	5.21	2.65	7.42	1.3	1.71	1.78	2.79							
Inorganics (mg/L)																						
Iron	0.3	14.3 B	<0.050	<0.019	0.046 J	0.041 J	0.084	3.1 B	0.24	0.072	0.23	<0.019	1.3 ^	0.046 J	<0.019							
Magnesium	35 ^{Note 4}	49	42.4	163	131	41.6	50.5	89.8	5.9	125	23	36.1	101	75.9	33.6							
Manganese	NV	1.9 B	0.062 B	0.21 B	0.15	0.02 B	6.8	0.45 B	0.23	0.0065	0.23 B	0.001 J B ^	0.46 B ^	0.065 B	0.0013 J							
Potassium	NV	1.8	4.1	4.1	20.5	15.1	472	12.1	2.9	14.4	3.8	0.84	5.6	10.3	7.7							
Sodium	20	382 ^	556 ^	1,380 ^	730	234	352	2,330 ^	858	746	337	566	123	1,020	184							
Miscellaneous Water Quality Parameters																						
Methane (ug/L)	NV	14.0	<1.0	4.7	31	96	82	65	<1.0	1.2 J	<1.0	<1.0	12	56	<1.0							
Ethane (ug/L)	NV	<1.5	<1.5	<1.5	3.5 J	1.7 J	13	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5							
Ethene (ug/L)	NV	<1.5	<1.5	<1.5	<1.5	4.4 J	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5							
Carbon Dioxide (ug/L)	NV	110,000	55,000	57,000	60,000	32,000	100,000	17,000	2,000	26,000	13,000	22,000	62,000	34,000	8,400							
Total Organic Carbon (mg/L)	NV	4.5 B	2.5 B	1.3 B	0.91 J	1.4	6.1	2.1 B	2.8	4.0	1.5	0.95 J	3.6	1.5	1.2							
Alkalinity (mg/L)	NV	424	398	391	301 B	365 B	329 B	144	185 B	224 B	199 B	341 B	311 B	303 B	167 B							
Ammonia (mg/L)	NV	0.36	<0.0090	<0.0090	1.1	0.67	3.3	0.24	<0.0090	0.24	<0.0090	0.020	0.20	0.26	<0.0090							
Chloride (mg/L)	NV	814	1,080	2,750	1,420	290	1,960	4,540	1,160	1,040	303	838	586	1,680	297							
Nitrate (mg/L)	NV	<0.020	0.041 J	0.13	<0.020	<0.020	0.039 J	0.052	0.64	5.3	<0.020	1.0	<0.020	0.13	0.89							
Nitrite (mg/L)	NV	<0.020	<0.020	<0.020	<0.020	0.13	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020							
Sulfate (mg/L)	NV	40.8	107	302 J	734	157	58.4 J B	298 J	80.7	1,660 B	40.3 B	218 B	274 B	238	225 B							
Sulfide (mg/L)	NV	<0.052	<0.052	<0.052	4.6	0.12	<0.052	<0.052	<0.052	<0.52	<0.052	<0.052	<0.052 F1	<0.052	<0.052							

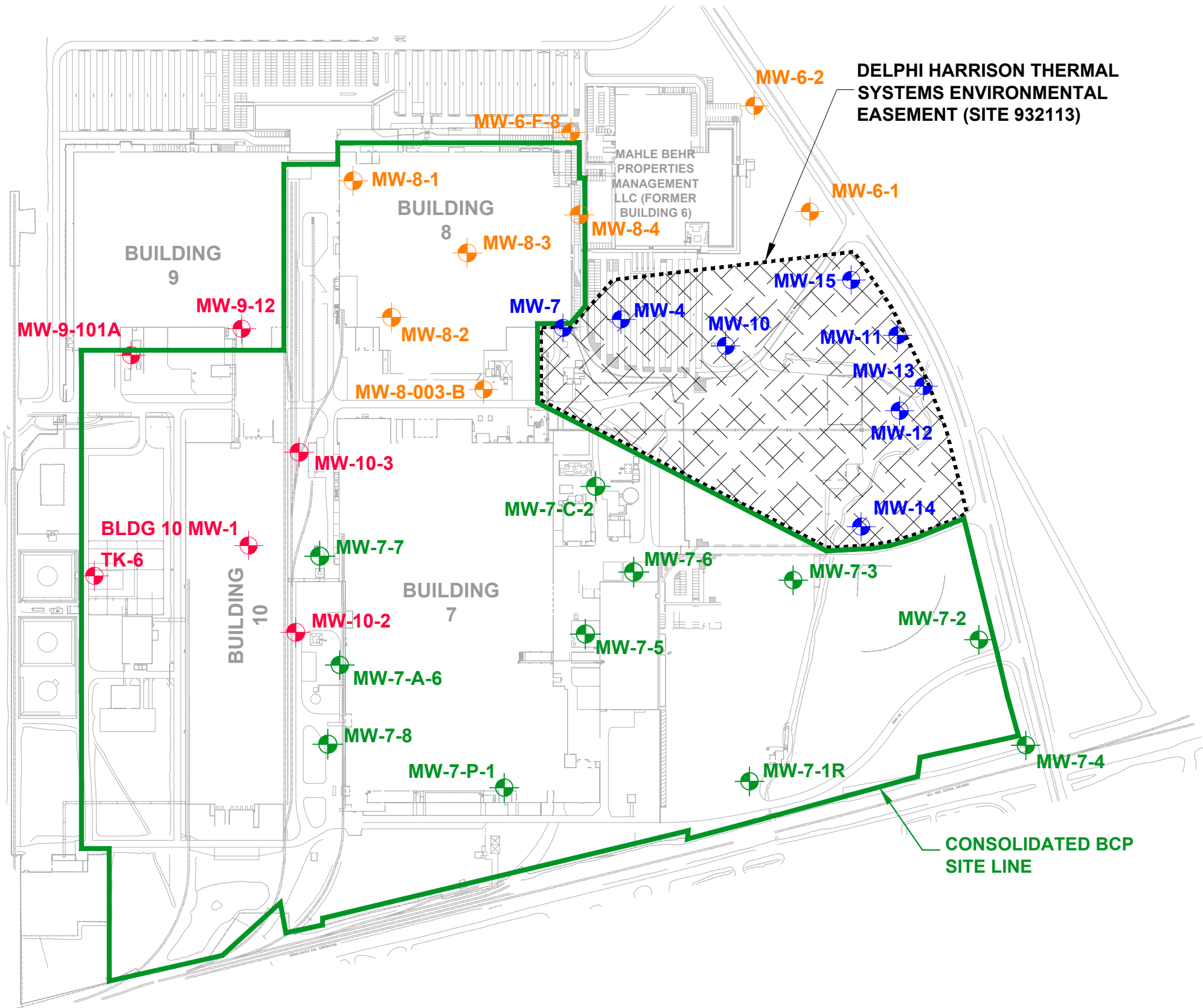
Notes:

- Only compounds detected in one or more of the groundwater samples are presented in this table.
- "<" indicates compound was not detected above the method detection limit.
- Analytical testing completed by TestAmerica in Amherst, New York.
- Criteria is a guidance value.
- Laboratory qualifiers: B = compound was found in the blank and sample; J = result is less than the RL but greater than or equal to the MDL and the concentration is an approximation; * - LCS or LCSD exceeds the control limits. E = Results exceeded calibration range. F1 = MS and/or MSD Recovery is outside acceptance limits. F2 = MS/MSD RPD exceeds control limits. ^ = Instrument related quality control is outside of acceptable range.
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- NV = no value, NT = not tested.
- Shaded concentrations exceed Class GA criteria.
- Concentrations shown for MW-9-101A are the higher of its initial run or its respective duplicate.
- MW-7-4 resampled on 7-29-2016 for VOCs. Lower concentration result reported for PCE.



FIGURES

©2015 - GZA GeoEnvironmental, Inc. GZA-K:\PROJECTS\56500s\56546 GM Component LLC\BCP Sites Annual Low Flow Samp\May 2016\Fig 1 & 3.dwg [FIGURE 1] September 30, 2016 - 11:23am daniel.wulf



LEGEND:

- MW-11** APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELLS WITHIN THE DELPHI HARRISON THERMAL SYSTEMS SITE
- MW-7-2** APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELLS ASSOCIATED WITH BUILDING 7
- MW-6-1** APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELLS ASSOCIATED WITH BUILDING 8
- MW-10-2** APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELLS ASSOCIATED WITH BUILDING 10

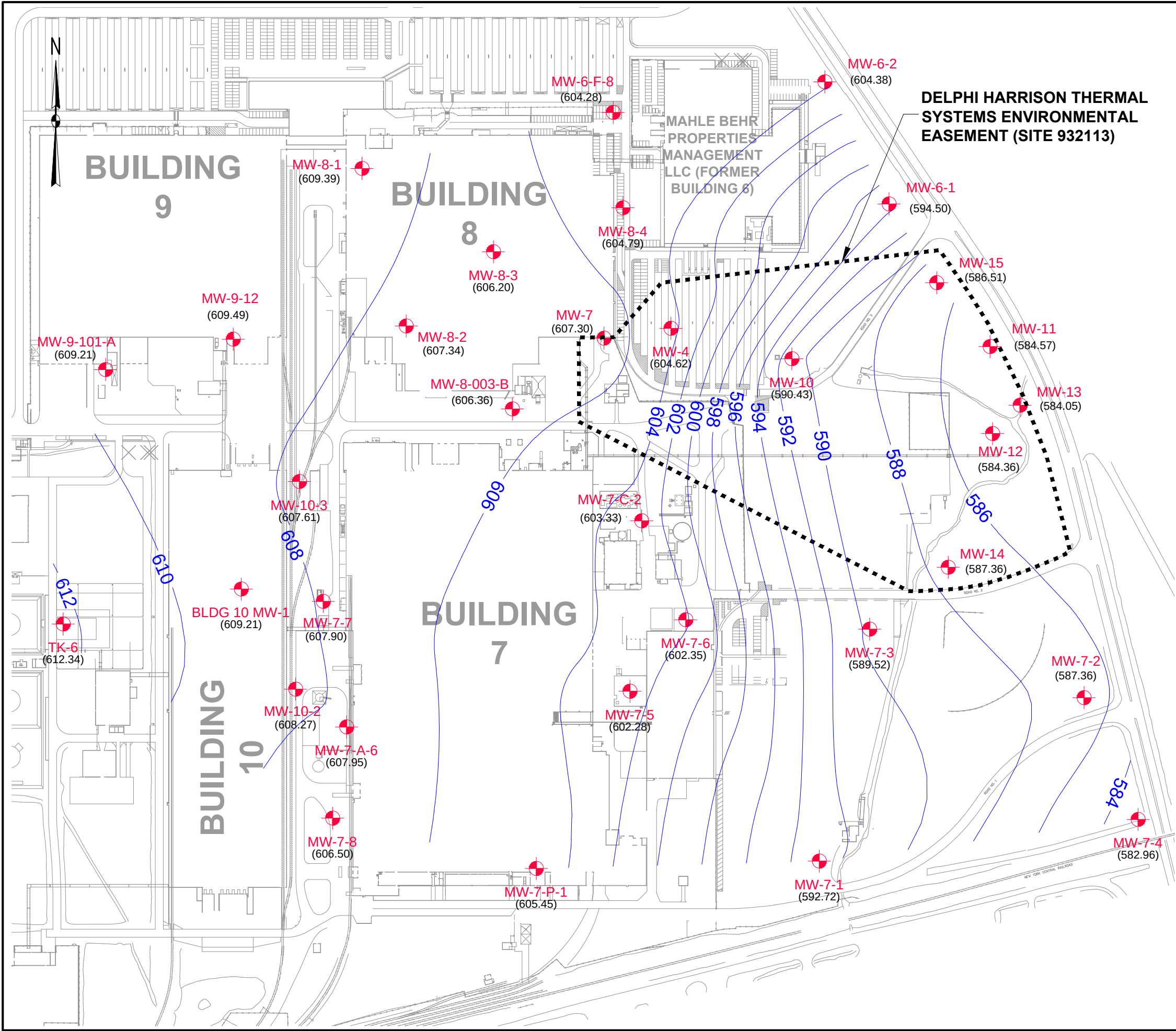
NOTES:

1. BASE MAP ADAPTED FROM A DRAWING PROVIDED BY DELPHI THERMAL AND INTERIOR SYSTEMS SEPT. 2007.
2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.



NO.		ISSUE/DESCRIPTION	BY	DATE
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GM COMPONENTS HOLDINGS, LLC LOCKPORT, NEW YORK FACILITY				
2016 BCP SITE ANNUAL GROUNDWATER MONITORING SITE PLAN				
PREPARED BY:  GZA GeoEnvironmental of N.Y. Engineers and Scientists www.gza.com		PREPARED FOR: GMCH LOCKPORT FACILITY 200 UPPER MOUNTAIN ROAD LOCKPORT, NEW YORK		
PROJ MGR: JJR	REVIEWED BY: TB	CHECKED BY: BAK	FIGURE NO	
DESIGNED BY: DEW	DRAWN BY: DEW	SCALE: SHOWN	1	
DATE: SEPTEMBER 2016	PROJECT NO. 21.0056546.20	REVISION NO.	SHEET NO. 1 OF 3	

© 2016 - GZA GeoEnvironmental, Inc. GZA-K:\PROJECTS\56500s\56546 GM Component LLC\BCP Sites Annual Low Flow Samp\May 2016\Fig 2.dwg [Figure 2] September 30, 2016 - 11:24am daniel.wulf



LEGEND:



MW-6-1
(594.50)

APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELLS WITHIN THE DELPHI HARRISON THERMAL SYSTEMS SITE SAMPLED MAY 2016 WITH GROUNDWATER ELEVATION (FEET) MEASURED ON MAY 4, 2016.



GROUNDWATER CONTOUR (FEET)

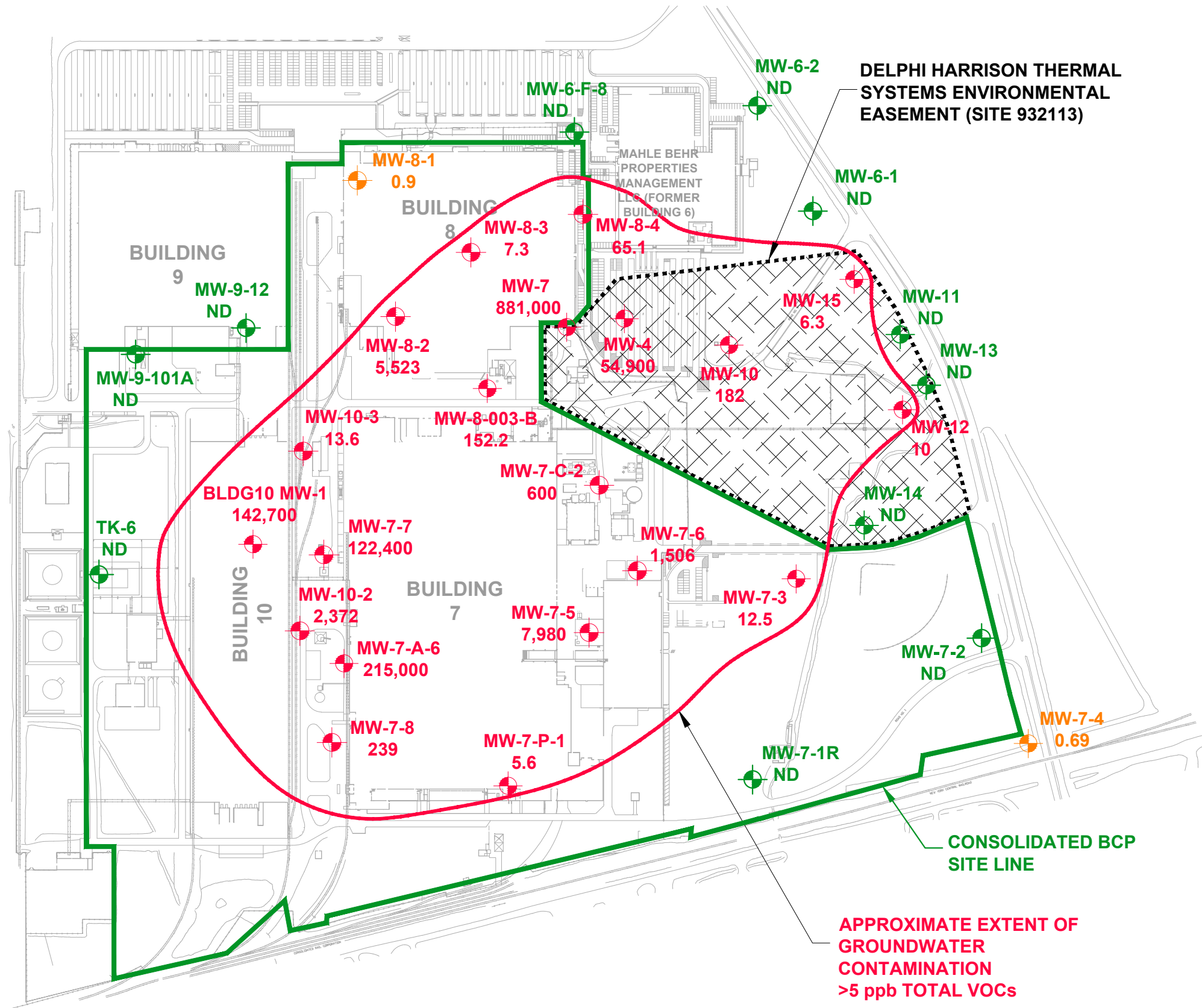
NOTES:

1. BASE MAP ADAPTED FROM A DRAWING PROVIDED BY DELPHI THERMAL AND INTERIOR SYSTEMS SEPT. 2007.
2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.
3. GROUNDWATER CONTOURS PLOTTED BASED UPON MAY 4, 2016 GROUNDWATER MEASUREMENTS



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GM COMPONENTS HOLDINGS, LLC LOCKPORT, NEW YORK FACILITY				
2016 BCP SITE ANNUAL GROUNDWATER MONITORING SITEWIDE GROUNDWATER CONTOUR MAP				
PREPARED BY:  GZA GeoEnvironmental of N.Y. Engineers and Scientists www.gza.com			PREPARED FOR: GMCH LOCKPORT FACILITY 200 UPPER MOUNTAIN ROAD LOCKPORT, NEW YORK	
PROJ MGR: JJR	REVIEWED BY: TB	CHECKED BY: BAK	FIGURE NO.	
DESIGNED BY: DEW	DRAWN BY: DEW	SCALE: SHOWN	2	
DATE: SEPTEMBER 2016	PROJECT NO. 21.0056546.20	REVISION NO.	SHEET NO. 2 OF 3	

© 2015 - GZA GeoEnvironmental, Inc. GZA-K:\PROJECTS\56500s\56546 GM Component LLC\BCP Sites Annual Low Flow Samp\May 2016\Fig 1 & 3.dwg [FIGURE 3] September 30, 2016 - 11:24am daniel.wulf



LEGEND:



MW-6-2
ND

APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELLS WITH NON-DETECT LEVELS FOR CHLORINATED SOLVENTS



MW-7-4
0.69

APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELLS WITH CHLORINATED SOLVENT LEVELS MEASURING LESS THAN 5 PARTS PER BILLION (ppb)



MW-15
6.3

APPROXIMATE LOCATION AND DESIGNATION OF MONITORING WELLS WITH CHLORINATED SOLVENT LEVELS MEASURING GREATER THAN 5 PARTS PER BILLION (ppb)

NOTES:

1. BASE MAP ADAPTED FROM A DRAWING PROVIDED BY DELPHI THERMAL AND INTERIOR SYSTEMS SEPT. 2007.
2. THE SIZE AND LOCATION OF EXISTING SITE FEATURES SHOULD BE CONSIDERED APPROXIMATE.
3. GROUNDWATER SAMPLES COLLECTED IN MAY 2016

0 200 400 800
SCALE IN FEET

NO.		ISSUE/DESCRIPTION	BY	DATE
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GM COMPONENTS HOLDINGS, LLC LOCKPORT FACILITY				
2016 BCP SITE ANNUAL GROUNDWATER MONITORING EXTENT OF CHLORINATED SOLVENT CONTAMINATION				
PREPARED BY: GZA GeoEnvironmental of N.Y. Engineers and Scientists www.gza.com		PREPARED FOR: GM COMPONENTS HOLDINGS, LLC 200 UPPER MOUNTAIN ROAD LOCKPORT, NEW YORK		
PROJ MGR: JJR	REVIEWED BY: TB	CHECKED BY: BAK	FIGURE NO	
DESIGNED BY: DEW	DRAWN BY: DEW	SCALE: SHOWN	3	
DATE: SEPTEMBER 2016	PROJECT NO. 21.0056546.20	REVISION NO.	SHEET NO. 3 OF 3	



APPENDIX A

MONITORING WELL OBSERVATIONS AND GROUNDWATER SAMPLING LOGS

SAMPLE COLLECTION DATA SHEET - GROUNDWATER SAMPLING PROGRAM

PROJECT NAME GMCH BCD SITE PROJECT NO. 56546.00

SAMPLING CREW MEMBERS P. Nyznyk SUPERVISOR T. Berman

DATE OF SAMPLE COLLECTION 5/10/15 - 5/13/16

[Note: For 2" dia. well, 1 ft. = 0.14 gal (imp) or 0.16 gal (us)]

Sample I.D. Number	Well No.	Measuring Point Elev. (ft. AMSL)	Bottom Depth (ft. btoc)	Water Depth (ft. btoc)	Water Elevation (ft. AMSL)	Well Volume (gallons)	Bailer Volume No. Bails	Volume Purged (gallons)	Field pH	Field Temp.	Field Cond.	Time	Sample Description & Analysis
MW-7-4 051316	MW-7-4	593.53	21.34	10.57	582.96	1.7		1.0	7.91	12.1	149.9	0805	VOL, MNA
MW-7-2 051016	MW-7-2	592.87	21.91	5.21	581.36	2.7		1.0	7.45	11.7	0.95	1355	VOL, MNA
MW-7-3 051616	MW-7-3	594.04	24.78	3.51	590.53	3.4		1.4	6.80	12.0	20.09	1020	VOL, MNA
MW-7-1 051016	MW-7-1	597.67	22.66	4.24	593.43	3.0		0.7	7.05	13.8	5.01	1200	VOL, MNA
MW-7-C-2 051116	MW-7-C-2	609.42	24.08	5.63	603.79	3.0		0.9	7.02	13.3	2.66	0845	VOL, MNA
MW-7-6 051116	MW-7-6	606.30	16.41	3.95	602.35	2.0		0.7	7.17	11.5	2.55	1100	VOL, MNA
MW-7-5 051116	MW-7-5	610.96	21.82	8.68	602.28	2.1		0.6	6.83	12.6	13.92	1235	VOL, MNA
MW-7-8 051316	MW-7-8	610.92	19.61	4.42	606.56	2.4		2.8	7.33	16.4	9.54	0930	VOL, MNA

Additional Comments:

Copies to:

FMG MODIFICATIONS MUST BE ACCOMPANIED BY A REVISION REQUEST FORM APPROVED BY THE PROJECT MANAGER

PROJECT NAME	GACH	BGP	SITE
SAMPLING CREW MEMBERS	P. Nymu		
DATE OF SAMPLE COLLECTION	5/10/15 - 5/13/16		
PROJECT NO.	56546.00		
SUPERVISOR	J. Behlen		

[Note: For 2" dia. well, 1 ft. = 0.14 gal (imp) or 0.16 gal (us)]

Sample I.D. Number	Well No.	Measuring Point Elev. (ft. AMSL)	Bottom Depth (ft. btoc)	Water Depth (ft. btoc)	Water Elevation (ft. AMSL)	Well Volume (gallons)	Bailer Volume No. Bails	Volume Purged (gallons)	Field pH	Field Temp.	Field Cond.	Time	Sample Description & Analysis
MW-7-A-6 051216	MW-7-A-6	—	14.01	2.77	—	1.8	/	1.1	6.98	13.2	332	1020	VOC MNA
MW-7-7 051216	MW-7-7	615.09	13.69	2.33	607.90	1.8	/	2.7	9.48	13.9	948	1310	VOC MNA
MW-7-F-1 051316	MW-7-F-1	—	19.89	91.64	—	1.6	/	6.5	6.39	21.3	2524	1110	VOC MNA
						/	/						
						/	/						
						/	/						
						/	/						
						/	/						

Additional Comments:

Copies to:

EMG MODIFICATIONS MUST BE ACCOMPANIED BY A REVISION REQUEST FORM APPROVED BY THE PROJECT MANAGER

WELL PURGING FIELD INFORMATION FORM

JOB# 56546-00

SITE/PROJECT NAME: _____

WELL# MW-7-1

WELL PURGING INFORMATION

051016

PURGE DATE
(MM/DD/YY)

051016

SAMPLE DATE
(MM/DD/YY)

1130

WATER VOLUME USED
(LITERS/GALLONS)

1107

WATER VOLUME USED
(LITERS/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT (CIRCLE ONE) SAMPLING EQUIPMENT (CIRCLE ONE)

PURGING DEVICE B 1. SLUDGE/SILT PUMP 2. PERISTALTIC PUMP 3. WATERBUMP
SAMPLING DEVICE B 1. SLUDGE/SILT PUMP 2. PERISTALTIC PUMP 3. WATERBUMP
PURGING DEVICE E 1. PERISTALTIC PUMP 2. PERISTALTIC PUMP 3. PERISTALTIC PUMP
SAMPLING DEVICE E 1. PERISTALTIC PUMP 2. PERISTALTIC PUMP 3. PERISTALTIC PUMP
PURGING DEVICE E 1. PERISTALTIC PUMP 2. PERISTALTIC PUMP 3. PERISTALTIC PUMP
SAMPLING DEVICE E 1. PERISTALTIC PUMP 2. PERISTALTIC PUMP 3. PERISTALTIC PUMP

FILTERING DEVICES 0.45 1 1. INLINE FILTERS 2. PRESSURE 3. VACUUM

FIELD MEASUREMENTS

WELL ELEVATION 59767 (m) GROUNDWATER ELEVATION 59343 (m)
DEPTH TO WATER 424 (m) WELL DEPTH 2266 (m)

pH TURBIDITY CONDUCTIVITY ORP DO SAMPLE TEMPERATURE
1. 7.0 0.1 100 0.1 10.0
2. 7.0 0.1 100 0.1 10.0
3. 7.0 0.1 100 0.1 10.0
4. 7.0 0.1 100 0.1 10.0
5. 7.0 0.1 100 0.1 10.0

FIELD COMMENTS

SAMPLE ACCEPTABLE Clear WATER 0-5 WEATHER SE CLOUDS Partly cloudy

FOR CITY OF LOS ANGELES, THE CITY ENGINEER HAS REVIEWED THIS REPORT AND APPROVES IT.

5/10/16

Pete Myznych

Signature

FOR MR. DEPUTY CITY ENGINEER, THE CITY ENGINEER HAS REVIEWED THIS REPORT AND APPROVES IT.

WELL PURGING FIELD INFORMATION FORM

JOB# 56546-00

SITE/PROJECT NAME:

WELL# MW-7-2

WELL PURGING INFORMATION

0510116

PURGE DATE
(MM/DD/YY)

0510116

SAMPLE DATE
(MM/DD/YY)

11271

WATER VOL IN/ASUG
(LITERS/GALLONS)

1110

WATER VOL OUT/ASUG
(LITERS/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT (CIRCLE ONE) SAMPLING EQUIPMENT (CIRCLE ONE)

PURGING DEVICE	B	A. AIRLIFT PUMP	D. GAS-LIFT PUMP	E. TOWER	X
		B. PERMEABILITY TUBE	F. PERMEABILITY TUBE	G. WATERBATH	
SAMPLING DEVICE	B	A. AIRLIFT PUMP	D. GAS-LIFT PUMP	E. TOWER	X
		B. PERMEABILITY TUBE	F. PERMEABILITY TUBE	G. WATERBATH	
PURGING DEVICE	E	A. AIRLIFT PUMP	D. GAS-LIFT PUMP	E. TOWER	X
		B. PERMEABILITY TUBE	F. PERMEABILITY TUBE	G. WATERBATH	
SAMPLING DEVICE	E	A. AIRLIFT PUMP	D. GAS-LIFT PUMP	E. TOWER	X
		B. PERMEABILITY TUBE	F. PERMEABILITY TUBE	G. WATERBATH	
PURGING DEVICE	E	A. AIRLIFT PUMP	D. GAS-LIFT PUMP	E. TOWER	X
		B. PERMEABILITY TUBE	F. PERMEABILITY TUBE	G. WATERBATH	
SAMPLING DEVICE	E	A. AIRLIFT PUMP	D. GAS-LIFT PUMP	E. TOWER	X
		B. PERMEABILITY TUBE	F. PERMEABILITY TUBE	G. WATERBATH	

FILTERING DEVICES 0.15 ☐ A. INTAKE SCREENS ☐ B. PRESSURE ☐ C. VACUUM

FIELD MEASUREMENTS

WELL ELEVATION 59257 (m, ft)

GROUNDWATER ELEVATION 58736 (m, ft)

DEPTH TO WATER 521 (m, ft)

WELL DEPTH 2191 (m, ft)

pH	TURBIDITY	CONDUCTIVITY	ORP	DO	SAMPLE TEMPERATURE
(mV)	(ntu)	(µmS/cm) AT 25°C	(mV)	(mg/L)	(°C)
(mV)	(ntu)	(µmS/cm) AT 25°C	(mV)	(mg/L)	(°C)
(mV)	(ntu)	(µmS/cm) AT 25°C	(mV)	(mg/L)	(°C)
(mV)	(ntu)	(µmS/cm) AT 25°C	(mV)	(mg/L)	(°C)
(mV)	(ntu)	(µmS/cm) AT 25°C	(mV)	(mg/L)	(°C)

FIELD COMMENTS

SAMPLE APPROPRIATE Clear None Clear Clear
 WEATHER/CLIMATE 0-5 SE Partly Cloudy
 SPECIFIC COMMENTS

5/10/16

Pete Myrnyk

Signature

FOR INFORMATION PURPOSES ONLY, DO NOT SIGN BY A PERSON REQUESTED FOR SIGNATURE BY THE PROJECT MANAGER

WELL PURGING FIELD INFORMATION FORM

SITE/PROJECT NAME: _____

JOB# 56546-00

WELL# MW-7-3

WELL PURGING INFORMATION

0510116

PURGE DATE
(MM/DD/YY)

0510116

SAMPLE DATE
(MM/DD/YY)

1134

WATER VOL. IN VASING
(LITERS/GAL)

114

WATER VOL. MEASURED
(LITERS/GAL)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT (CIRCLE ONE) SAMPLING EQUIPMENT (CIRCLE ONE)

PURGING DEVICE	<u>D</u>	A. SUBMERGIBLE PUMP	D. GAS-LIFT PUMP	E. JARLES	X
		B. PORTABILITY PUMP	F. PERISTALTIC PUMP	H. WATERBATH	
SAMPLING DEVICE	<u>B</u>	G. HYDRO PUMP	I. BUBBLE TITL		
PURGING DEVICE	<u>E</u>	J. PERISTALTIC	K. POLYURETHANE		
		L. PERISTALTIC	M. POLYURETHANE		
SAMPLING DEVICE	<u>E</u>	N. POLYURETHANE			
PURGING DEVICE	<u>E</u>	O. PERISTALTIC	P. POLYURETHANE	Q. SILICONE	X
		R. PERISTALTIC	S. POLYURETHANE	T. COMBINATION	
SAMPLING DEVICE	<u>E</u>	U. PERISTALTIC	V. POLYURETHANE	W. POLYURETHANE	X

FILTERING DEVICES 0.45 A. IN LINE DISPOSABLE B. PRESSURE C. VACUUM

FIELD MEASUREMENTS

WELL ELEVATION	<u>1594.04</u>	(ft./m)	GROUNDWATER ELEVATION	<u>1590.53</u>	(ft./m)
DEPTH TO WATER	<u>3.51</u>	(ft./m)	WELL DEPTH	<u>24.76</u>	(ft./m)
pH	<u>7.0</u>	(ft./m)	TURBIDITY	<u>0.1</u>	(ft./m)
CONDUCTIVITY	<u>100</u>	(ft./m)	ORP	<u>100</u>	(ft./m)
DC	<u>100</u>	(ft./m)	SAMPLE TEMPERATURE	<u>100</u>	(ft./m)

FIELD COMMENTS

SAMPLE ACCEPTABLE Good Slight Sulfur odor Clear Clear
 WEATHER/ WIND DIRECTION 0-5 SE Partly cloudy
 SPECIFIC COMMENTS _____

FOR EACH FIELD SAMPLING EVENT, THE USER SHALL SIGN AND DATE WITH APPLICABLE CIRCUMSTANCES

5/10/16

Pete M. M. M.

Signature

FOR THE USER, THE SIGNATURE OF THE USER SHALL BE A REQUIREMENT FOR THE PROJECT MANAGER

Project Page

Project Name: GCH BCD SITE
Ref. No.: 56546.00

Date: 5/12/16
Personnel: P. 24/12

Measuring Well-Being

Well No.: MW-7-9

Screen Length (ft): 9-19 = 10

Measurement Point:

Depth-to-Pump Intake (ft) (m)

Constructed Well Depth (ft):

Well Diameter, D (in): 7

Measured Well Depth (ft):

Well Screen Volume, V_s (mL)²: 176

Depth of Sediment (ft):

Initial Depth to Water (ft): 10.57

[illegible]

Notes

(4) The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.

The well screen volume will be based on a 5-foot screen length. $V_s = \pi(D/2)^2(5 \times 12)(2.54)$

The drawdown from the initial water level should not exceed 0.3 ft.

Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be churning, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). $Nu.$ of Well Screen Volumes Purged = V_{wp}/V_s .

WELL PURGING FIELD INFORMATION FORM

JOB# 56546-00

SITE/PROJECT NAME: _____

WELL# MW-7-4

WELL PURGING INFORMATION

05110116

PURGE DATE
(MM/DD/YY)

05111116

SAMPLE DATE
(MM/DD/YY)

117

WATER VOL IN VESSEL
(LITERS/GALLONS)

18

WATER VOL IN VESSEL
(LITERS/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT (CIRCLE ONE)

SAMPLING EQUIPMENT (CIRCLE ONE)

PURGING DEVICE	<u>B</u>	1. AIRLIFT PUMP	2. PERISTALTIC PUMP	3. WATER PUMP	4. OTHER
SAMPLING DEVICE	<u>B</u>	1. PERISTALTIC PUMP	2. WATER PUMP	3. OTHER	
PURGING DEVICE	<u>E</u>	1. AIRLIFT PUMP	2. PERISTALTIC PUMP	3. WATER PUMP	4. OTHER
SAMPLING DEVICE	<u>E</u>	1. PERISTALTIC PUMP	2. WATER PUMP	3. OTHER	
PURGING DEVICE	<u>E</u>	1. AIRLIFT PUMP	2. PERISTALTIC PUMP	3. WATER PUMP	4. OTHER
SAMPLING DEVICE	<u>E</u>	1. PERISTALTIC PUMP	2. WATER PUMP	3. OTHER	

FILTERING DEVICES (CIRCLE ONE)

1. INTAKE FILTERS 2. PRESSURE 3. VACUUM

FIELD MEASUREMENTS

WELL ELEVATION	<u>593.53</u>	(m)	GROUNDWATER ELEVATION	<u>582.96</u>	(m)
DEPTH TO WATER	<u>10.57</u>	(m)	WELL DEPTH	<u>21.34</u>	(m)
pH	<u>7.0</u>		TEMPERATURE	<u>18</u>	(°C)
TURBIDITY	<u>0.5</u>	(NTU)	DO	<u>8.5</u>	(mg/L)
CONDUCTIVITY	<u>150</u>	(µS/cm)			
ORP	<u>150</u>	(mV)			

FIELD COMMENTS

WATER QUALITY: Good TSS: None Color: Clear Turbidity: Clear

WATER TEMPERATURE: 18 DO: 8.5 pH: 7.0

SPECIFIC COMMENTS: Partly cloudy

PRINTED NAME (LAST, FIRST, MIDDLE) _____

DATE 5/13/16

SIGNATURE Pete Mrazek

PRINTED NAME (LAST, FIRST, MIDDLE) _____

FOR MORE INFORMATION, CONTACT THE PROJECT MANAGER BY A REMOTE REQUEST FOR INFORMATION FROM THE PROJECT MANAGER

WELL PURGING FIELD INFORMATION FORM

SITE/PROJECT NAME: _____

JOB# 56546-00

WELL# MW-7-5

WELL PURGING INFORMATION

051116

PURGE DATE
(MM/DD/YY)

051116

SAMPLE DATE
(MM/DD/YY)

1120

WATER VOL IN VOLUME
(LITRES/GALLONS)

06

WELL VOL IN VOLUME
(LITRES/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT (CHECK ALL THAT APPLY)

SAMPLING EQUIPMENT (CHECK ALL THAT APPLY)

(CIRCLE ONE)

(CIRCLE ONE)

PURGING DEVICE	<u>B</u>	1. AIRLIFT PUMP	2. PERISTALTIC PUMP	3. WATERLIFT	X	OTHER (SPECIFY)
SAMPLING DEVICE	<u>B</u>	4. PERISTALTIC PUMP	5. WATERLIFT	6. OTHER (SPECIFY)	X	OTHER (SPECIFY)
PURGING DEVICE	<u>E</u>	7. PERISTALTIC PUMP	8. WATERLIFT	9. OTHER (SPECIFY)	X	OTHER (SPECIFY)
SAMPLING DEVICE	<u>E</u>	10. PERISTALTIC PUMP	11. WATERLIFT	12. OTHER (SPECIFY)	X	OTHER (SPECIFY)
PURGING DEVICE	<u>E</u>	13. PERISTALTIC PUMP	14. WATERLIFT	15. OTHER (SPECIFY)	X	OTHER (SPECIFY)
SAMPLING DEVICE	<u>E</u>	16. PERISTALTIC PUMP	17. WATERLIFT	18. OTHER (SPECIFY)	X	OTHER (SPECIFY)

FILTERING DEVICES (CIRCLE ONE)

FIELD MEASUREMENTS

WELL ELEVATION 610.96 (m)

GROUNDWATER ELEVATION 602.29 (m)

DEPTH TO WATER 0.68 (m)

WELL DEPTH 21.82 (m)

pH	TURBIDITY	CONDUCTIVITY	ORP	DO	SAMPLE TEMPERATURE
<u>7.0</u>	<u>0.0</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>7.0</u>	<u>0.0</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>7.0</u>	<u>0.0</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>7.0</u>	<u>0.0</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
<u>7.0</u>	<u>0.0</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>

FIELD COMMENTS

SAMPLE COMMENTS: Good DATE: None LOCATION: None TIME: Clear

WEATHER: Clear WIND: 0.6 DIRECTION: NE SPEED: 20-30 km/h

SPECIFIC COMMENTS: _____

DATE: 5/11/16 SIGNATURE: Peter Muzay

FOR MR. OR MR. MRS. (NAME) OF THE WELL, OWNED BY A REVENUE REQUEST PURCHASED FROM THE PROJECT, ALL WORK

Project Data:

Project Name: GMCH BCP SITE
Ref. No.: 56546.00

Date: 5/11/16

Personnel: P. 2-17 A/M

Mining Well Data

Well No.: NW-7-6

Screen Length (ft): 99-16.9 = 7

Measurement Point:

Depth to Pump Intake (ft): 13

Constructed Well Depth (ft):

Well Diameter, D (in): 2

Measured Well Depth (ft):

WellScreen Volume V (mL)⁽²⁾

Depth of Sediment (ft):

Initial Depth to Water (ft):

[illegible]

Notes:

The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.

The well screen volume will be based on a 5-foot screen length, $V_s = \pi^2(D/2)^2(5/12)(2.54)$

The drawdown from the initial water level should not exceed 0.3 ft.

Purging will continue until stabilization is achieved or until 20 well-screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). N_{wv} of Well Screen Volumes Purged = V_p / V_{sv} .

WELL PURGING FIELD INFORMATION FORM

JOB# 56546.00

SITE/PROJECT NAME: _____

WELL# MW-7-6

WELL PURGING INFORMATION

651116

PURGE DATE
(MM/DD/YY)

051116

SAMPLE DATE
(MM/DD/YY)

1120

WATER VOL. IN/USING
(LITERS/GALLONS)

107

WATER VOL. DUMPED
(LITERS/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT (SEE PAGE 2) _____ SAMPLING EQUIPMENT (DEDICATED) _____
(CIRCLE ONE)

PURGING DEVICE	<u>B</u>	A - AIRLIFT PUMP	D - GAS-LIFT PUMP	E - JET PUMP	F - _____
SAMPLING DEVICE	<u>B</u>	G - PERMEATE PUMP	H - PL. P. PUMP	I - WATERBATH	J - _____
PURGING DEVICE	<u>E</u>	K - PERMEATE PUMP	L - _____	M - _____	N - _____
SAMPLING DEVICE	<u>E</u>	O - STAINLESS STEEL	P - POLYETHYLENE	Q - _____	R - _____
PURGING DEVICE	<u>E</u>	S - TEFLOON	T - POLYETHYLENE	U - SILICONE	V - _____
SAMPLING DEVICE	<u>E</u>	W - TEFLOON	X - POLYETHYLENE	Y - COMBINATION	Z - _____

(SEE PAGE 2)

FILTERING DEVICES 0.5 _____ A - INLINE DISPOSABLE B - PRESSURE C - VACUUM

FIELD MEASUREMENTS

WELL ELEVATION 60630 (m)

GROUNDWATER ELEVATION 60235 (m)

DEPTH TO WATER 395 (m)

WELL DEPTH 1641 (m)

pH	TURBIDITY	CONDUCTIVITY	ORP	DO	SAMPLE TEMPERATURE
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

FIELD COMMENTS

WATER APPEARANCE GOOD TASTE NONE COLOR clear ODOOR clear
 WEATHER 0-6 WIND NE PRESSURE Sunny
 SPECIFIC COMMENTS _____

FOR REPORT THIS SAMPLE MUST BE IDENTIFIED BY AN INDIVIDUAL WITH SIGNATURE AND PRINTED NAME

5/11/16

Pete Njengah

[Signature]

FOR ALL INFORMATION AND SIGNATURES, REQUEST FOR INFORMATION FROM THE PROJECT MANAGER

OVN-306.2

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: G.M.C.H. 300 SITE
 Ref. No.: 56546.00

Date: 5/12/16
 Personnel: P. MYZWAYN

Monitoring Well Data:

Well No.: MW-7-7

Measurement Point:

702

Constructed Well Depth (ft):

22.7

Measured Well Depth (ft):

13.69

Depth of Sediment (ft):

Screen Length (ft): 12.7-22.7 = 10

Depth to Pump Intake (ft): 15

Well Diameter, D (in): 2

Well Screen Volume, V_s (mL): 1.95

Initial Depth to Water (ft): 2.33

Drawdown

Pumping

Rate

from Initial

Water Level

Temperature

Conductivity

ORP

DO

Turbidity

Volume

No. of Well

Time

(mL/min)

Depth to

Water

pH

$^{\circ}\text{C}$

(mS/cm)

(mV)

(mg/L)

(NTU)

(mL)

Purged

1112

1245

1260

1300

1305

1310

2.00

4.95

4.95

4.95

4.95

0

1245

1260

1300

1305

1310

13.5

5.33

-68.0

7.34

80.8

0

0

1245

1260

1300

1305

1310

14.0

9.14

-195.0

0.10

32.5

2.1

2.1

1245

1260

1300

1305

1310

13.5

9.35

-209.0

0.12

26.7

2.2

2.2

1245

1260

1300

1305

1310

13.7

9.40

-225.3

0.09

14.4

2.5

2.5

1245

1260

1300

1305

1310

13.7

9.53

-219.9

0.09

13.2

2.6

2.6

1245

1260

1300

1305

1310

13.9

9.48

-218.5

0.09

12.9

2.7

2.7

1245

1260

1300

1305

1310

1245

1260

1300

1305

1310

1245

1260

1300

1305

1310

1245

1260

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1310

1245

1260

1300

1305

1310

1245

1260

1300

1305

1310

1245

1260

1300

1305

1310

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 5-foot screen length. $V_s = \pi (D/2)^2 (5-12) (2.54)^3$
- (3) The drawdown from the initial water level should not exceed 0.3 ft.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged = V_p/V_s .

WELL PURGING FIELD INFORMATION FORM

SITE/PROJECT NAME: _____

JOB# 56546-00

WELL# MW-7-7

WELL PURGING INFORMATION

PURGE DATE 05/21/06

TIME 09:00

SAMPLE SIZE 0.5 L

WELL DEPTH 10.0

WATER VOL IN WELLS 1.0

WATER VOL IN WELLS 1.0

WATER VOL IN WELLS 1.0

WATER VOL IN WELLS 1.0

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT PERKINS & WILMINGTON

WELL DEPTH 10.0

SAMPLING EQUIPMENT DEBATELLE

WELL DEPTH 10.0

PURGING DEVICE	B	SLUDGE/SPEEDED	D. SLURRY PUMP	E. WATER	N
SAMPLING DEVICE	B	SLUDGE/SPEEDED	F. SLURRY PUMP	G. WATER	N
PURGING DEVICE	E	SLUDGE/SPEEDED	H. SLURRY PUMP	I. WATER	N
SAMPLING DEVICE	E	SLUDGE/SPEEDED	J. SLURRY PUMP	K. WATER	N
PURGING DEVICE	E	SLUDGE/SPEEDED	L. SLURRY PUMP	M. WATER	N
SAMPLING DEVICE	E	SLUDGE/SPEEDED	N. SLURRY PUMP	O. WATER	N

FILTERING DEVICES 0.45 ☐ A. INLINE FILTERS ☐ B. PRESSURE ☐ C. VACUUM

FIELD MEASUREMENTS

WELL ELEVATION	610.24	(m)	GROUNDWATER ELEVATION	607.90	(m)
DEPTH TO WATER	2.33	(m)	WELL DEPTH	13.69	(m)
pH	7.0		TURBIDITY	0.0	
CONDUCTIVITY	0.0		ORP	0.0	
DO	0.0		SAMPLE TEMPERATURE	0.0	

FIELD COMMENTS

SAMPLE APPROPRIATE Good Solvent Clear Clear
 WEATHER AND FLOW 0.6 mph SE
 SPECIFIC COMMENTS

5/21/06 Paul Nyrn Paul Nyrn

FOR MORE INFORMATION, CONTACT THE PROJECT MANAGER BY A REQUEST FOR INFORMATION (RFI) TO THE PROJECT MANAGER

QUM-7.6PDM

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Date:

Project Name: GACH BCD SITE
Ref. No.: 56546.00

Date: 5/12/16
Personnel: P. N. Z. M. J. N.

Monitoring Well Data:

Well No.: MW-7-8

Measurement Point: T02

Constructed Well Depth (ft): 19.7

Measured Well Depth (ft): 19.61

Depth of Sediment (ft):

Screen Length (ft): 12.7 = 19.7 - 7

Depth to Pump Intake (ft): 14

Well Diameter, D (in): 2

Well Screen Volume, V_s (mL): 2.48

Initial Depth to Water (ft): 4.42

Drawdown

Time	Pumping Rate (mL/min)	Depth to Water (ft)	Drawdown from Initial Water Level (ft)	pH	Temperature °C	Conductivity (µS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Volume Purged, V_p (mL)	No. of Well Screen Volumes Purged ⁽⁴⁾
0747		9.87		6.97	11.7	10.14	-78.7	0.77	17.1	0	
0752		5.56		6.97	11.6	9.74	-66.3	0.29	56.0	0.2	
0757		6.87		6.74	11.4	9.45	-52.7	0.19	75.9	0.5	
0807		6.86		6.71	11.5	9.37	-43.0	0.17	81.4	0.9	
0812		9.85		6.44	11.5	9.27	15.4	0.26	29.4	1.1	
0817		10.67		6.33	11.6	9.25	7.0	0.33	41.1	1.4	
0822		11.27		6.51	11.3	9.36	-56.5	0.37	90.2	1.9	
0827		12.31		6.75	11.2	9.39	-95.7	0.24	76.9	2.2	
0832		13.62		7.04	11.2	9.82	-121.8	0.17	93	1.8	
0835	DRY @ 14'										
0930		7.32		7.32	16.4	9.34	-14.6	2.16	12		

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 5-foot screen length: $V_s = \pi^2 (D/2)^2 (5'12") (2.54)^3$
- (3) The drawdown from the initial water level should not exceed 0.3 ft.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged = V_p / V_s .

WELL PURGING FIELD INFORMATION FORM

SITE/PROJECT NAME: _____

JOB# 56546 . 00

WELL# MW-7-8

WELL PURGING INFORMATION

0511216

PURGE DATE
MM/DD/YY

0511319

SAMPLES DATES
MM/DD/YY

1124

WATER VOL IN/OUT (GAL)
(LITERS/GALLONS)

129

WATER VOL IN/OUT (GAL)
(LITERS/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT (CIRCLE ONE) SAMPLING EQUIPMENT (CIRCLE ONE)

PURGING DEVICE	<u>B</u>	1. SUBMERGIBLE PUMP	2. SURFACE PUMP	3. TOWER	4. OTHER
SAMPLING DEVICE	<u>B</u>	1. SUBMERGIBLE PUMP	2. SURFACE PUMP	3. TOWER	4. OTHER
PURGING DEVICE	<u>E</u>	1. SUBMERGIBLE PUMP	2. SURFACE PUMP	3. TOWER	4. OTHER
SAMPLING DEVICE	<u>E</u>	1. SUBMERGIBLE PUMP	2. SURFACE PUMP	3. TOWER	4. OTHER
PURGING DEVICE	<u>E</u>	1. SUBMERGIBLE PUMP	2. SURFACE PUMP	3. TOWER	4. OTHER
SAMPLING DEVICE	<u>E</u>	1. SUBMERGIBLE PUMP	2. SURFACE PUMP	3. TOWER	4. OTHER

FILTERING DEVICES 0.15 A. INFILTRATION RATE B. REVERSE C. VALUABLE

FIELD MEASUREMENTS

WELL ELEVATION	<u>61092</u>	(ft./m)	GROUNDWATER ELEVATION	<u>60650</u>	(ft./m)
DEPTH TO WATER	<u>442</u>	(ft./m)	WELL DEPTH	<u>981</u>	(ft./m)
pH	<u>7.0</u>		TURBIDITY	<u>0.0</u>	
CONDUCTIVITY	<u>125</u>	µmhos/cm	ORP	<u>100</u>	mV
DO	<u>1.0</u>	mg/L	SAMPLE TEMPERATURE	<u>15</u>	°C

FIELD COMMENTS

SAMPLES ACCEPTABLE Good WEATHER 0-17 SW cloudy

5/13/16

Pete Nyman

FOR MORE INFORMATION, PLEASE CONTACT THE REGIONAL OFFICE OR THE PROJECT MANAGER.

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Date: 5/13/16
Personnel: P. A.

Depth of Sediment (ft).

Screen Length (ft):
Depth to Pump Intake (ft)⁽¹⁾:
Well Diameter, D (in):
Well Screen Volume, V_s (mL)⁽²⁾:
Initial Depth to Water (ft):

Discussion

[illegible]

The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.

(2) The well screen volume will be based on a 5-foot screen length. $V_s = \pi^*(D/2)^2(5 \times 12) \times (2.54)^3$

(3) The drawdown from the initial water level should not exceed 0.3 ft.

(4) Purging will continue until stabilization is achieved or until 20 well-screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). N_{wv} of Well-Screen Volumes Purged = V_p/V_{wv} .

0.0 ppm

Project Name: GMC14 BCP SITE
Ref. No.: 56546.00

Date: 5/11/16
Personnel: P. MYZAK

Well No.: MW-7-C-Z

Measurement Point:

Screen Length (ft):

Depth to Pump Intake (ft) (a)

Constructed Well Depth (ft):

Well Diameter, D (in):

Measured Well Depth (ft):

Well Screen Volume: V (m³)⁽²⁾.

Depth of Sediment (ft):

Initial Depth to Water (ft.)

[illegible]

The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.

- The well screen volume will be based on a 5-foot screen length. $V_s = \pi^2 D / 2^2 = (5/12)^2 (2.54)^4$

- The drawdown from the initial water level should not exceed 0.3 ft.

- Purging will continue until stabilization is achieved or until 20 well-screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged = V_p / V_a .

WELL PURGING FIELD INFORMATION FORM

JOB# 56546.00

SITE/PROJECT NAME: _____

WELL# MW-7-C2

WELL PURGING INFORMATION

051116

PURGE DATE
(MM/DD/YY)

051716

SAMPLE DATE
(MM/DD/YY)

30

WATER VOLUME USED
(LITERS/GALLONS)

09

WELL VOLUME USED
(LITERS/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT (CHECK ONE) SAMPLING EQUIPMENT (CHECK ONE)

PURGING DEVICE	☒ B	1. SUBMERSED PUMP	2. SHALLOW PUMP	3. WATERBUMP	4. OTHER (SPECIFY)
SAMPLING DEVICE	☒ B	1. SUBMERSED PUMP	2. SHALLOW PUMP	3. WATERBUMP	4. OTHER (SPECIFY)
PURGING DEVICE	☒ E	1. SUBMERSED PUMP	2. SHALLOW PUMP	3. WATERBUMP	4. OTHER (SPECIFY)
SAMPLING DEVICE	☒ E	1. SUBMERSED PUMP	2. SHALLOW PUMP	3. WATERBUMP	4. OTHER (SPECIFY)
PURGING DEVICE	☒ E	1. SUBMERSED PUMP	2. SHALLOW PUMP	3. WATERBUMP	4. OTHER (SPECIFY)
SAMPLING DEVICE	☒ E	1. SUBMERSED PUMP	2. SHALLOW PUMP	3. WATERBUMP	4. OTHER (SPECIFY)

FILTERING DEVICES 0.15 ☐ A. INTAKE DISINFECTANT ☐ B. PRESSURE ☐ C. VACUUM

FIELD MEASUREMENTS

WELL ELEVATION	609.42	(m)	GROUNDWATER ELEVATION	603.79	(m)
DEPTH TO WATER	5.62	(m)	WELL DEPTH	2.98	(m)
pH			TEMPERATURE		
TURBIDITY			DO		
CONDUCTIVITY			SAMPLE TEMPERATURE		
ORP					

FIELD COMMENTS

SAMPLE COMMENTS: Good None Clear Clear
 WEATHER CONDITIONS: 0-6 NE Sunny
 SPECIFIC COMMENTS:

5/11/16

Peter M. Wright

Signature

THIS FORM IS THE PROPERTY OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY. IT IS TO BE RETURNED TO THE AGENCY WITH THE PROJECT RECORDS.

WELL PURGING FIELD INFORMATION FORM

SITE/PROJECT NAME: _____

JOB# 56546 . 00

WELL# MW-7-A-6

WELL PURGING INFORMATION

051216

PURGE DATE
(MM/DD/YY)

051216

SAMPLE DATE
(MM/DD/YY)

1118

WATER VOL BY ASSOC
(LITERS/GALLONS)

111

WATER VOL BY ASSOC
(LITERS/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT (CHECK ALL THAT APPLY)

☒ AIRLIFT PUMP

SAMPLING EQUIPMENT (CHECK ALL THAT APPLY)

☒ AIRLIFT PUMP

PURGING DEVICE B A. SUBMERGIBLE PUMP B. SURFACE PUMP C. WATER TRAP

SAMPLING DEVICE B A. SUBMERGIBLE PUMP B. SURFACE PUMP C. WATER TRAP

PURGING DEVICE E A. PERISTALTIC B. PERISTALTIC C. PERISTALTIC

SAMPLING DEVICE E A. PERISTALTIC B. PERISTALTIC C. PERISTALTIC

PURGING DEVICE E A. PERISTALTIC B. PERISTALTIC C. PERISTALTIC

SAMPLING DEVICE E A. PERISTALTIC B. PERISTALTIC C. PERISTALTIC

FILTERING DEVICES 0.15 ☐ A. INLINE FILTERS B. PRESSURE C. MANUAL

FIELD MEASUREMENTS

WELL ELEVATION 111 (ft.)

GROUNDWATER ELEVATION 111 (ft.)

DEPTH TO WATER 277 (ft.)

WELL DEPTH 1140 (ft.)

pH	TURBIDITY	CONDUCTIVITY	ORP	DO	SAMPLE TEMPERATURE
<u>7.5</u>	<u>0.0</u>	<u>1200</u>	<u>100</u>	<u>1.0</u>	<u>15.0</u>
<u>7.5</u>	<u>0.0</u>	<u>1200</u>	<u>100</u>	<u>1.0</u>	<u>15.0</u>
<u>7.5</u>	<u>0.0</u>	<u>1200</u>	<u>100</u>	<u>1.0</u>	<u>15.0</u>
<u>7.5</u>	<u>0.0</u>	<u>1200</u>	<u>100</u>	<u>1.0</u>	<u>15.0</u>
<u>7.5</u>	<u>0.0</u>	<u>1200</u>	<u>100</u>	<u>1.0</u>	<u>15.0</u>

FIELD COMMENTS

SAMPLE QUALITY Good Solvent Clear Clear

WEATHER 0-8 mph SE Sunny

SPECIFIC COMMENTS

IF ANY OF THE FOLLOWING ARE CHECKED, THE WELL IS BEING USED FOR A PURPOSE OTHER THAN THE ONE FOR WHICH IT WAS DESIGNED

5/12/16

Pete Myznyk

[Signature]

THIS FORM IS THE PROPERTY OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY AND IS TO BE RETURNED TO THE PROJECT MANAGER

SAMPLE COLLECTION DATA SHEET - GROUNDWATER SAMPLING PROGRAM

PROJECT NAME GMCH BCP SITE PROJECT NO. 56546

SAMPLING CREW MEMBERS P. NYZUJKA SUPERVISOR T. Bohlen

DATE OF SAMPLE COLLECTION 5/9/16 - 5/10/16

[Note: For 2" dia. well, 1 ft. = 0.14 gal (imp) or 0.16 gal (us)]

Sample I.D. Number	Well No.	Measuring Point Elev. (ft. AMSL)	Bottom Depth (ft. btoc)	Water Depth (ft. btoc)	Water Elevation (ft. AMSL)	Well Volume (gallons)	Bailer Volume No. Bails	Volume Purged (gallons)	Field pH	Field Temp.	Field Cond.	Time	Sample Description & Analysis
MW-6-2 050916	MW-6-2	609.33	26.22	4.95	604.38	3.4		1.1	7.17	10.7	4.24	0935	VOC, MNA
MW-6-1 050916	MW-6-1	598.23	18.86	3.73	594.50	2.4		1.4	7.02	10.1	3.27	1055	VOC, MNA
MW-8-4 050916	MW-8-4	613.42	21.89	8.22	605.20	2.2		1.1	7.12	12.7	11.59	1250	VOC, MNA
MW-6-F-B 050916	MW-6-F-B	613.22	14.42	7.98	605.24	1.0		0.9	7.04	12.5	9.08	1420	VOC, MNA
MW-8-003-B 051616	MW-8-003-B	610.94	14.87	4.58	606.36	1.6		1.0	8.28	13.0	3.99	1230	VOC, MNA
MW-8-1 051616	MW-8-1	615.11	22.67	5.72	609.39	2.7		0.5	7.17	14.3	5.90	1405	VOC, MNA
MW-8-3 051816	MW-8-3	615.06	22.05	8.86	606.2	2.1		2.8	7.07	20.1	6.66	1345	VOC, MNA
MW-8-2 051716	MW-8-2	615.14	22.76	7.80	607.34	2.2		1.2	7.30	18.8	1.82	0955	VOC, MNA

Additional Comments:

Copies to:

FMG MODIFICATIONS MUST BE ACCOMPANIED BY A REVISION REQUEST FORM APPROVED BY THE PROJECT MANAGER

GVM 0.0 ppm

Project Name: GACH BCP SITE
Ref. No.: 56546-06

Date: 5/19/16
 Personnel: P. Allen

Well No.: MW-6-1

Measurement Point:

Screen Length (ft): 7-17 = 10

Depth to Pump Intake (ft):

Constructed Well Depth (ft):

Well Diameter, D (in):

Measured Well Depth (ft):

Well Screen Volume: V. (mL)⁽²⁾.

Depth of Sediment (ft):

Initial Depth to Water (ft): 3.73[illegible]

Notes

The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.

The wall screen volume will be based on a 5-foot screen length. $V = \pi(D/2)^2(5.12)(2.54)$

The drawdown from the initial water level should not exceed 0.3 ft.

Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be churning, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). Ntu of Well Screen Volumes Purged = V_p/V_s .

WELL PURGING FIELD INFORMATION FORM

SITE/PROJECT NAME: _____

JOB# 56546 - 00

WELL# MW - 6 - 1

WELL PURGING INFORMATION

050916

PURGE DATE
(MM/DD/YY)

050916

SAMPLE DATE
(MM/DD/YY)

1124

WATER VOL IN/ASAC
(LITERS/GALLONS)

1124

WATER VOL IN/ASAC
(LITERS/GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT (CIRCLE ONE)

SAMPLING EQUIPMENT (CIRCLE ONE)

PURGING DEVICE B 1-AUTOMATIC PUMP 2-SAMPLER 3-FAIRBANKS

SAMPLING DEVICE B 1-ROCKET PUMP 2-ROCKET PUMP 3-ROCKET PUMP

PURGING DEVICE E 1-ROCKET PUMP 2-ROCKET PUMP 3-ROCKET PUMP

SAMPLING DEVICE E 1-ROCKET PUMP 2-ROCKET PUMP 3-ROCKET PUMP

PURGING DEVICE E 1-ROCKET PUMP 2-ROCKET PUMP 3-ROCKET PUMP

SAMPLING DEVICE E 1-ROCKET PUMP 2-ROCKET PUMP 3-ROCKET PUMP

FILTERING DEVICES 0.15 1 1-INTAKE SCREEN 2-PRESSURE 3-VACUUM

FIELD MEASUREMENTS

WELL ELEVATION 59823

(ft)

GROUNDEWATER ELEVATION 59750

(ft)

DEPTH TO WATER 373

(ft)

WELL DEPTH 1886

(ft)

pH	TURBIDITY	CONDUCTIVITY	ORP	DO	SAMPLE TEMPERATURE
7.00	0.00	1000	100	100	100
7.00	0.00	1000	100	100	100
7.00	0.00	1000	100	100	100
7.00	0.00	1000	100	100	100
7.00	0.00	1000	100	100	100

FIELD COMMENTS

WATER CLARITY Clear None Clear Clear
 WATER TASTE 0.5 MW 0.5 0.5
 SPECIFIC COMMENTS _____

PROPERTY OF THE COMPANY. IT IS TO BE USED ONLY FOR THE PROJECT WITH APPLICABLE FIELD PROTOCOLS.

5/9/16

Pete Nyman

Pete Nyman

FOR MR. [NAME] [ADDRESS] [CITY] [STATE] [ZIP] REQUEST FOR A REPORT FROM THE PROJECT ALUMNI

Project 10047

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Name: GMCH BCP SITE
Ref. No.: 565960.00

Date: 5/9/16
Personnel: D. NYZHUH

Monitoring Well Data:

Well No.: MW-6-2

Measurement Point:

Constructed Well Depth (ft):	29 "

Measured Well Depth (ft)

Depth of Settlement (ft.)

Screen Length (ft): $14.6 - 26.6 = 10$

Depth-to-Pump Intake (ft) (d)

Well Diameter, D (in)

Well Screen Volume: V (in l³).

Initial Death to Water (%)

[illegible]

Notes

The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above dry sediment accumulated at the well bottom.

The well screen volume will be based on a 5-foot screen length. $V = \pi(D/2)^2(5') = 2.54'$

The drawdown from the initial water level should not exceed 0.3 ft.

Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purging remains visually turbid and appears to be cleaning, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). N_{wv} of Well Screen Volumes Purged = V_p/V_{wv} .

WELL PURGING FIELD INFORMATION FORM

SITE/PROJECT NAME: _____

JOB# 56546 - 00

WELL# MW - 6 - 2

WELL PURGING INFORMATION

050916

PURGE DATE
INITIALS

050916

SAMPLE DATE
INITIALS

34

WATER VOL. IN/SEC
LITERS/GAL

11

WATER VOL. IN/SEC
LITERS/GAL

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT: PERMANENT / SINGLE USE
SAMPLING EQUIPMENT: DEDICATED / (A BULK ONE)

PURGING DEVICE: B A. SUBMERGIBLE PUMP D. SHUT OFF PUMP G. TAILER X. _____

SAMPLING DEVICE: B B. PERMANENT PUMP F. PERMANENT PUMP H. WATERBATH X. _____

PURGING DEVICE: E C. SHUT OFF PUMP I. TAILER X. _____

SAMPLING DEVICE: E D. PERMANENT PUMP J. TAILER X. _____

PURGING DEVICE: E E. SHUT OFF PUMP K. TAILER X. _____

SAMPLING DEVICE: E F. PERMANENT PUMP L. TAILER X. _____

PURGING DEVICE: E G. SHUT OFF PUMP M. TAILER X. _____

SAMPLING DEVICE: E H. PERMANENT PUMP N. TAILER X. _____

PURGING DEVICE: E I. SHUT OFF PUMP O. TAILER X. _____

SAMPLING DEVICE: E J. PERMANENT PUMP P. TAILER X. _____

PURGING DEVICES: A. INITIAL PURGE B. PRESSURE C. VACUUM

FIELD MEASUREMENTS

WELL ELEVATION: 60933

GROUNDWATER ELEVATION: 60438

DEPTH TO WATER: 495

WELL DEPTH: 2622

pH: _____ TURBIDITY: _____ CONDUCTIVITY: _____ ORP: _____ DO: _____ SAMPLE TEMPERATURE: _____

FIELD COMMENTS

SAMPLE QUALITY: Good
OVERALL COMMENTS: 0-5
SPECIFIC COMMENTS: _____

PRINTED: THIS SAMPLE WAS TAKEN FROM THE WELL WITH AVAILABLE EQUIPMENT

5/7/16

Peter Myznych

FOR MORE INFORMATION, CONTACT THE PROJECT MANAGER BY ARIAS REQUEST FORM (A) OR ARIAS PROJECT MANAGER

JOB# 56546 . 00

WELL# MW- 6-F- B

0	5	0	9	1	6

PLATE 10

0	5	0	9	1	6

$\Delta_{\text{H}} = \frac{\partial H}{\partial t} + (\nabla u)^\top \nabla H$

Year	Percentage (%)
1950	7.0
1955	7.5
1960	8.0
1965	8.5
1970	9.0
1975	9.5
1980	10.0
1985	10.5
1990	11.0
1995	11.5
2000	12.0
2005	12.5
2010	13.0
2015	13.5
2020	14.0
2025	14.5
2030	15.0
2035	15.5
2040	16.0
2045	16.5
2050	17.0

1. MAX VOL 150 VDC
UTPES/CAJ 0-1

Condition	No feedback (%)	Feedback (%)	Feedback + correction (%)
A	10	30	85
B	15	40	80
C	20	45	85
D	15	40	80
E	10	30	85

1. *Effect of pH on the adsorption of Pb(II) by the adsorbent*

THREAT EQUIPMENT	THREAT TYPE	SAMPLED EQUIPMENT	SAMPLED TYPE
	VEHICLE ONE		VEHICLE ONE

PURCHASING OFFICE

B

ALABAMA STATE POLICE D - ALBANY COUNTY S - TALLADEGA

SAMPLING DEVICE	DATE	TIME	LOCATION	WIND DIRECTION	WIND SPEED	WAVE HEIGHT	WAVE PERIOD	WAVE DIRECTION	WAVE SLOPE	WAVE TYPE	WAVE STATE	WAVE COLOR	WAVE TEMPERATURE	WAVE HUMIDITY	WAVE PRESSURE	WAVE VIBRATION	WAVE NOISE	WAVE LIGHT	WAVE SOUND	WAVE TASTE	WAVE SMELL	WAVE TOUCH	WAVE FEEL	WAVE TASTE	WAVE SMELL	WAVE TOUCH	WAVE FEEL	
1	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

SPRING DEVICE	E	1-1-1-1	1-1-1-1	1-1-1-1

SAMPLING DEVICE | E |

PURCHING DEVICE	E	PERSON	1. NO. 100000000	2. 500000000	X

[illegible]

FILTERING DEVICES 045	A. IN-LINE FILTERS 045	B. PRESSURE	C. VACUUM

WELL ELEVATION

		6	1	3	2	2

 (03.12)

(123, 45)

GROUNDWATER 10-16-81-1214

ELEVATION

1986-1987

DEPTH TO WATER

				7	9	8

 102 17

103 273

WELL DEPTH: 11442 (ft)

WELL DEPT 71

(256) 888

pkz

FLR311M15

CONDUCTIVITY

ORF

00

SAMPLE PREPARATION

WIND DIRECTION Clear WIND SPEED None AIR TEMP Clear REL. HUM. Clear
 VISIBILITY 0.5 CLOUDS None PRECIPITATION None COMMENTS Partly cloudy

1-RTY 701-VICTOR L. P. - 214 RICHMOND AVE. DUBLIN, OHIO 43017

5/7/16

Peter Muznyk

[Handwritten signature]

1976年, 奥本海默(Oppenheimer)和布洛姆(Bloom)首次提出, 在核磁共振谱中, 如果存在顺磁性物质, 则其磁矩会干扰核磁共振信号, 导致信号失真。因此, 在核磁共振谱中, 顺磁性物质的存在是一个重要的干扰因素。

BVM 0.072W

Project Name: GACH BCD
Ref. No.: 56546 00

Date: 5/16/16
Personnel: P. N. N. N. N.

Well No.: MW-8-1

Measurement Point:

Screen Length (ft): 7

Depth to Pump Intake (ft): 17

Constructed Well Depth (ft):

Well Diameter, D (m): 2

Measured Well Depth (ft):

Well Screen Volume, V_2 (mL)⁽²⁾ 171

Depth of Sediment (ft):

Initial Depth to Water (ft): 5.72

[illegible]

The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.

The well screen volume will be based on a 5-foot screen length. $V_{\text{sp}} = \pi(D/2)^2(5.12')(2.54')$

The drawdown from the initial water level should not exceed 0.3 ft.

Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clumping, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged = V_p/V_s .

WELL PURGING FIELD INFORMATION FORM

SITE/PROJECT NAME: _____

JOB# 56546 - 00

WELL# MW - 8 - 1

WELL PURGING INFORMATION

05116116

PURGE DATE
(MM/DD/YY)

05116116

SAMPLES
(MIN/DAYS)

111271

WATER VOLUME AS LUG
(LITERS/GAL) (L/G)

111051

WATER VOLUME AS LUG
(LITERS/GAL) (L/G)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT DEGRATED Y N
(A B C D E F G H I J K L M N O P Q R S T U V W X Y Z)

PURGING DEVICE B A SUBMERGIBLE PUMP C D SUBMERGIBLE PUMP E F SUBMERGIBLE PUMP G H SUBMERGIBLE PUMP I J SUBMERGIBLE PUMP K L SUBMERGIBLE PUMP M N SUBMERGIBLE PUMP O P SUBMERGIBLE PUMP Q R SUBMERGIBLE PUMP S T SUBMERGIBLE PUMP U V SUBMERGIBLE PUMP W X SUBMERGIBLE PUMP Y Z SUBMERGIBLE PUMP

SAMPLING DEVICE B A SUBMERGIBLE PUMP C D SUBMERGIBLE PUMP E F SUBMERGIBLE PUMP G H SUBMERGIBLE PUMP I J SUBMERGIBLE PUMP K L SUBMERGIBLE PUMP M N SUBMERGIBLE PUMP O P SUBMERGIBLE PUMP Q R SUBMERGIBLE PUMP S T SUBMERGIBLE PUMP U V SUBMERGIBLE PUMP W X SUBMERGIBLE PUMP Y Z SUBMERGIBLE PUMP

PURGING DEVICE E A SUBMERGIBLE PUMP C D SUBMERGIBLE PUMP E F SUBMERGIBLE PUMP G H SUBMERGIBLE PUMP I J SUBMERGIBLE PUMP K L SUBMERGIBLE PUMP M N SUBMERGIBLE PUMP O P SUBMERGIBLE PUMP Q R SUBMERGIBLE PUMP S T SUBMERGIBLE PUMP U V SUBMERGIBLE PUMP W X SUBMERGIBLE PUMP Y Z SUBMERGIBLE PUMP

SAMPLING DEVICE E A SUBMERGIBLE PUMP C D SUBMERGIBLE PUMP E F SUBMERGIBLE PUMP G H SUBMERGIBLE PUMP I J SUBMERGIBLE PUMP K L SUBMERGIBLE PUMP M N SUBMERGIBLE PUMP O P SUBMERGIBLE PUMP Q R SUBMERGIBLE PUMP S T SUBMERGIBLE PUMP U V SUBMERGIBLE PUMP W X SUBMERGIBLE PUMP Y Z SUBMERGIBLE PUMP

PURGING DEVICE E A SUBMERGIBLE PUMP C D SUBMERGIBLE PUMP E F SUBMERGIBLE PUMP G H SUBMERGIBLE PUMP I J SUBMERGIBLE PUMP K L SUBMERGIBLE PUMP M N SUBMERGIBLE PUMP O P SUBMERGIBLE PUMP Q R SUBMERGIBLE PUMP S T SUBMERGIBLE PUMP U V SUBMERGIBLE PUMP W X SUBMERGIBLE PUMP Y Z SUBMERGIBLE PUMP

SAMPLING DEVICE E A SUBMERGIBLE PUMP C D SUBMERGIBLE PUMP E F SUBMERGIBLE PUMP G H SUBMERGIBLE PUMP I J SUBMERGIBLE PUMP K L SUBMERGIBLE PUMP M N SUBMERGIBLE PUMP O P SUBMERGIBLE PUMP Q R SUBMERGIBLE PUMP S T SUBMERGIBLE PUMP U V SUBMERGIBLE PUMP W X SUBMERGIBLE PUMP Y Z SUBMERGIBLE PUMP

PURGING DEVICE E A SUBMERGIBLE PUMP C D SUBMERGIBLE PUMP E F SUBMERGIBLE PUMP G H SUBMERGIBLE PUMP I J SUBMERGIBLE PUMP K L SUBMERGIBLE PUMP M N SUBMERGIBLE PUMP O P SUBMERGIBLE PUMP Q R SUBMERGIBLE PUMP S T SUBMERGIBLE PUMP U V SUBMERGIBLE PUMP W X SUBMERGIBLE PUMP Y Z SUBMERGIBLE PUMP

SAMPLING DEVICE E A SUBMERGIBLE PUMP C D SUBMERGIBLE PUMP E F SUBMERGIBLE PUMP G H SUBMERGIBLE PUMP I J SUBMERGIBLE PUMP K L SUBMERGIBLE PUMP M N SUBMERGIBLE PUMP O P SUBMERGIBLE PUMP Q R SUBMERGIBLE PUMP S T SUBMERGIBLE PUMP U V SUBMERGIBLE PUMP W X SUBMERGIBLE PUMP Y Z SUBMERGIBLE PUMP

FILTERING DEVICES 0.45 A INLINE FILTER B PRESSURE C VACUUM

FIELD MEASUREMENTS

WELL ELEVATION 61511 (m) GROUNDWATER ELEVATION 60939 (m)

DEPTH TO WATER 2267 (m) WELL DEPTH 572 (m)

pH TURBIDITY CONDUCTIVITY ORP DO SAMPLE TEMPERATURE

FIELD COMMENTS

SAMPLE ADAPTATION Good Aqueous Clear Clear
VENTILATED AND DRY 0.12 W PRESSURE 0.12 PRESSURE 0.12
SPECIFIC COMMENTS

PRINTED DATE SAMPLED 5/16/16

5/16/16

Peter M. Smith

Peter M. Smith

FOR MORE INFORMATION, CONTACT THE PROJECT MANAGER BY A REMOTE REQUEST FOR INFORMATION (RFI) OR BY THE PROJECT MANAGER

Project Data:

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Name: GACH BCP SIZE
Ref. No: 56546.00

Date: 5/17/16
Personnel: P. W. Y. Z. A. V. H.

— 2000 —

Well No.: MW-8-7

Measurement Point:

 Constructed Well Depth (ft): |

Measured Well Depth (ft):

Depth of Sediment (ft).

Screen Length (in):

Depth to Pump Intake (ft)^(a)

Well Diameter, D (in):

Well Screen Volume V (ml) (2)

Initial Death to Water (D)

[illegible]

אשר

- 1) The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.
- 2) The well screen volume will be based on a 5-foot screen length, $V_s = \pi^2 (D/2)^2 (5/12) (2.54)^3$
- 3) The drawdown from the initial water level should not exceed 0.3 ft.
- 4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). N_{20} of Well Screen Volumes Purged = V_D / V_s .

WELL PURGING FIELD INFORMATION FORM

SITE/PROJECT NAME: _____

JOB# 56546-00

WELL# MW-0-2

WELL PURGING INFORMATION

0517116

PURGE DATE
(MM/DD/YY)

0517116

SAMPLE DATE
(MM/DD/YY)

11124

WATER VOLUME USED
(GALLONS)

11113

WELL VOLUME
(GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT: _____ DEDICATED: ☒ YES ☐ NO
(SEE NOTE)

PURGING DEVICE: B 1. ALUMINUM PUMP 2. GAS LIFT PUMP 3. OTHER: _____

SAMPLING DEVICE: B 4. PERMEATE PUMP 5. PERMEATE PUMP 6. WATERBURY

PURGING DEVICE: B 7. OTHER: _____ 8. POLYETHYLENE 9. OTHER: _____

SAMPLING DEVICE: E 10. POLYETHYLENE 11. OTHER: _____

PURGING DEVICE: E 12. OTHER: _____ 13. POLYETHYLENE 14. OTHER: _____

SAMPLING DEVICE: E 15. OTHER: _____ 16. POLYETHYLENE 17. OTHER: _____

FILTERING DEVICES: 0.45 18. INLINE FILTERS: ☐ 19. PRESSURE: ☐ 20. VACUUM: ☐

FIELD MEASUREMENTS

WELL ELEVATION: 615.14 (m)

GROUNDEWATER ELEVATION: 607.34 (m)

DEPTH TO WATER: 78.0 (m)

WELL DEPTH: 22.76 (m)

pH	TURBIDITY	CONDUCTIVITY	ORP	DO	SAMPLE TEMPERATURE
<u>7.0</u>	<u>0.0</u>	<u>1000</u>	<u>100</u>	<u>1.0</u>	<u>15.0</u>
<u>7.0</u>	<u>0.0</u>	<u>1000</u>	<u>100</u>	<u>1.0</u>	<u>15.0</u>
<u>7.0</u>	<u>0.0</u>	<u>1000</u>	<u>100</u>	<u>1.0</u>	<u>15.0</u>
<u>7.0</u>	<u>0.0</u>	<u>1000</u>	<u>100</u>	<u>1.0</u>	<u>15.0</u>
<u>7.0</u>	<u>0.0</u>	<u>1000</u>	<u>100</u>	<u>1.0</u>	<u>15.0</u>

FIELD COMMENTS

SAMPLE QUALITY: Good 21. Scaph 22. Yellow 23. Clear
WEATHER: 0.5 24. N 25. Cloudy
SPECIFIC COMMENTS: _____

PRINTED NAME OF SAMPLER: _____

DATE: 5/17/16

NAME: Pete Nyman

SIGNATURE: _____

THIS FORM IS A SAMPLE OF THE FORMS USED BY A REVISION REQUEST FOR A FORM BY THE PROJECT MANAGER

GUM - 0.0 ppm

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: GMCH BCD SITE
 Ref. No.: 56546.00

Date: 5/17/16
 Personnel: P. N. P. N.

Monitoring Well Data:

Well No.: MW-8-3

Measurement Point: TCR

Constructed Well Depth (ft): 22.4

Measured Well Depth (ft): 22.05

Depth of Sediment (ft):

Screen Length (ft): 7

Depth to Pump Intake (ft): 19

Well Diameter, D (in): 2

Well Screen Volume, V_s (mL): 2.15

Initial Depth to Water (ft): 8.80

Drawdown

Time	Pumping Rate (mL/min)	Depth to Water (ft)	Drawdown from Initial Water Level (ft)	pH	Temperature °C	Conductivity (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)	Volume Purged, V_p (mL)	No. of Well Screen Volumes Purged ⁽⁴⁾
1338		9.30		7.00	20.4	7.56	-93.7	1.27	3.06	0	
1350		12.48		7.12	20.2	6.59	-16.7	1.17	4.12	0.9	
1355		13.77		7.01	20.2	6.61	-28.9	1.27	3.90	1.1	
1400		15.38		7.05	20.2	6.55	-60.6	2.60	3.77	1.4	
1405		16.09		7.01	20.2	6.56	-69.1	2.27	3.09	1.9	
1410		17.10		6.89	20.2	6.62	-71.3	2.66	3.21	2.1	
1415		18.08		7.00	20.3	6.94	-79.7	2.39	3.36	2.5	
1418	<u>dry</u>	~19.0								2.8	
1345	<u>SAMPLED</u>			7.07	20.1	6.66	-87.7	2.02	2.91		

Notes:

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 5-foot screen length. $V_s = \pi (D/2)^2 (5 \times 12) (2.54)^3$
- (3) The drawdown from the initial water level should not exceed 0.3 ft.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged = V_p / V_s .

WELL PURGING FIELD INFORMATION FORM

SITE/PROJECT NAME: _____

JOB# 56546.00

WELL# MW-8-3

WELL PURGING INFORMATION

051616

PURGE DATE
(MM/DD/YY)

051716

SAMPLE DATE
(MM/DD/YY)

1121

WATER VOL IN (GAL)
(LITERS/GAL 3.78)

120

WATER VOL OUT (GAL)
(LITERS/GAL 3.78)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT: PERK AINER ☒ RIGLE ONE ☒ SAMPLING EQUIPMENT: DEDICATED ☒ ☐ (SHOULDER)

PURGING DEVICE: ☒ B ☐ A ☐ C ☐ D ☐ E ☐ F ☐ G ☐ H ☐ I ☐ J ☐ K ☐ L ☐ M ☐ N ☐ O ☐ P ☐ Q ☐ R ☐ S ☐ T ☐ U ☐ V ☐ W ☐ X ☐ Y ☐ Z ☐ AA ☐ AB ☐ AC ☐ AD ☐ AE ☐ AF ☐ AG ☐ AH ☐ AI ☐ AJ ☐ AK ☐ AL ☐ AM ☐ AN ☐ AO ☐ AP ☐ AQ ☐ AR ☐ AS ☐ AT ☐ AU ☐ AV ☐ AW ☐ AX ☐ AY ☐ AZ ☐ BA ☐ BB ☐ BC ☐ BD ☐ BE ☐ BF ☐ BG ☐ BH ☐ BI ☐ BJ ☐ BK ☐ BL ☐ BM ☐ BN ☐ BO ☐ BP ☐ BQ ☐ BR ☐ BS ☐ BT ☐ BU ☐ BV ☐ BW ☐ BX ☐ BY ☐ BZ ☐ CA ☐ CB ☐ CC ☐ CD ☐ CE ☐ CF ☐ CG ☐ CH ☐ CI ☐ CJ ☐ CK ☐ CL ☐ CM ☐ CN ☐ CO ☐ CP ☐ CQ ☐ CR ☐ CS ☐ CT ☐ CU ☐ CV ☐ CW ☐ CX ☐ CY ☐ CZ ☐ DA ☐ DB ☐ DC ☐ DD ☐ DE ☐ DF ☐ DG ☐ DH ☐ DI ☐ DJ ☐ DK ☐ DL ☐ DM ☐ DN ☐ DO ☐ DP ☐ DQ ☐ DR ☐ DS ☐ DT ☐ DU ☐ DV ☐ DW ☐ DX ☐ DY ☐ DZ ☐ EA ☐ EB ☐ EC ☐ ED ☐ EE ☐ EF ☐ EG ☐ EH ☐ EI ☐ EJ ☐ EK ☐ EL ☐ EM ☐ EN ☐ EO ☐ EP ☐ EQ ☐ ER ☐ ES ☐ ET ☐ EU ☐ EV ☐ EW ☐ EX ☐ EY ☐ EZ ☐ FA ☐ FB ☐ FC ☐ FD ☐ FE ☐ FF ☐ FG ☐ FH ☐ FI ☐ FJ ☐ FK ☐ FL ☐ FM ☐ FN ☐ FO ☐ FP ☐ FQ ☐ FR ☐ FS ☐ FT ☐ FU ☐ FV ☐ FW ☐ FX ☐ FY ☐ FZ ☐ GA ☐ GB ☐ GC ☐ GD ☐ GE ☐ GF ☐ GG ☐ GH ☐ GI ☐ GJ ☐ GK ☐ GL ☐ GM ☐ GN ☐ GO ☐ GP ☐ GQ ☐ GR ☐ GS ☐ GT ☐ GU ☐ GV ☐ GW ☐ GX ☐ GY ☐ GZ ☐ HA ☐ HB ☐ HC ☐ HD ☐ HE ☐ HF ☐ HG ☐ HH ☐ HI ☐ HJ ☐ HK ☐ HL ☐ HM ☐ HN ☐ HO ☐ HP ☐ HQ ☐ HR ☐ HS ☐ HT ☐ HU ☐ HV ☐ HW ☐ HX ☐ HY ☐ HZ ☐ IA ☐ IB ☐ IC ☐ ID ☐ IE ☐ IF ☐ IG ☐ IH ☐ II ☐ IJ ☐ IK ☐ IL ☐ IM ☐ IN ☐ IO ☐ IP ☐ IQ ☐ IR ☐ IS ☐ IT ☐ IU ☐ IV ☐ IW ☐ IX ☐ IY ☐ IZ ☐ JA ☐ JB ☐ JC ☐ JD ☐ JE ☐ JF ☐ JG ☐ JH ☐ JI ☐ JJ ☐ JK ☐ JL ☐ JM ☐ JN ☐ JO ☐ JP ☐ JQ ☐ JR ☐ JS ☐ JT ☐ JU ☐ JV ☐ JW ☐ JX ☐ JY ☐ JZ ☐ KA ☐ KB ☐ KC ☐ KD ☐ KE ☐ KF ☐ KG ☐ KH ☐ KI ☐ KJ ☐ KL ☐ KM ☐ KN ☐ KO ☐ KP ☐ KQ ☐ KR ☐ KS ☐ KT ☐ KU ☐ KV ☐ KW ☐ KX ☐ KY ☐ KZ ☐ LA ☐ LB ☐ LC ☐ LD ☐ LE ☐ LF ☐ LG ☐ LH ☐ LI ☐ LJ ☐ LK ☐ LL ☐ LM ☐ LN ☐ LO ☐ LP ☐ LQ ☐ LR ☐ LS ☐ LT ☐ LU ☐ LV ☐ LW ☐ LX ☐ LY ☐ LZ ☐ MA ☐ MB ☐ MC ☐ MD ☐ ME ☐ MF ☐ MG ☐ MH ☐ MI ☐ MJ ☐ MK ☐ ML ☐ MM ☐ MN ☐ MO ☐ MP ☐ MQ ☐ MR ☐ MS ☐ MT ☐ MU ☐ MV ☐ MW ☐ MX ☐ MY ☐ MZ ☐ NA ☐ NB ☐ NC ☐ ND ☐ NE ☐ NF ☐ NG ☐ NH ☐ NI ☐ NJ ☐ NK ☐ NL ☐ NM ☐ NO ☐ NP ☐ NQ ☐ NR ☐ NS ☐ NT ☐ NU ☐ NV ☐ NW ☐ NX ☐ NY ☐ NZ ☐ OA ☐ OB ☐ OC ☐ OD ☐ OE ☐ OF ☐ OG ☐ OH ☐ OI ☐ OJ ☐ OK ☐ OL ☐ OM ☐ ON ☐ OO ☐ OP ☐ OQ ☐ OR ☐ OS ☐ OT ☐ OU ☐ OV ☐ OW ☐ OX ☐ OY ☐ OZ ☐ PA ☐ PB ☐ PC ☐ PD ☐ PE ☐ PF ☐ PG ☐ PH ☐ PI ☐ PJ ☐ PK ☐ PL ☐ PM ☐ PN ☐ PO ☐ PP ☐ PQ ☐ PR ☐ PS ☐ PT ☐ PU ☐ PV ☐ PW ☐ PX ☐ PY ☐ PZ ☐ QA ☐ QB ☐ QC ☐ QD ☐ QE ☐ QF ☐ QG ☐ QH ☐ QI ☐ QJ ☐ QK ☐ QL ☐ QM ☐ QN ☐ QO ☐ QP ☐ QQ ☐ QR ☐ QS ☐ QT ☐ QU ☐ QV ☐ QW ☐ QX ☐ QY ☐ QZ ☐ RA ☐ RB ☐ RC ☐ RD ☐ RE ☐ RF ☐ RG ☐ RH ☐ RI ☐ RJ ☐ RK ☐ RL ☐ RM ☐ RN ☐ RO ☐ RP ☐ RQ ☐ RR ☐ RS ☐ RT ☐ RU ☐ RV ☐ RW ☐ RX ☐ RY ☐ RZ ☐ SA ☐ SB ☐ SC ☐ SD ☐ SE ☐ SF ☐ SG ☐ SH ☐ SI ☐ SJ ☐ SK ☐ SL ☐ SM ☐ SN ☐ SO ☐ SP ☐ SQ ☐ SR ☐ SS ☐ ST ☐ SU ☐ SV ☐ SW ☐ SX ☐ SY ☐ SZ ☐ TA ☐ TB ☐ TC ☐ TD ☐ TE ☐ TF ☐ TG ☐ TH ☐ TI ☐ TJ ☐ TK ☐ TL ☐ TM ☐ TN ☐ TO ☐ TP ☐ TQ ☐ TR ☐ TS ☐ TT ☐ TU ☐ TV ☐ TW ☐ TX ☐ TY ☐ TZ ☐ UA ☐ UB ☐ UC ☐ UD ☐ UE ☐ UF ☐ UG ☐ UH ☐ UI ☐ UJ ☐ UK ☐ UL ☐ UM ☐ UN ☐ UO ☐ UP ☐ UQ ☐ UR ☐ US ☐ UT ☐ UY ☐ UZ ☐ VA ☐ VB ☐ VC ☐ VD ☐ VE ☐ VF ☐ VG ☐ VH ☐ VI ☐ VJ ☐ VK ☐ VL ☐ VM ☐ VN ☐ VO ☐ VP ☐ VQ ☐ VR ☐ VS ☐ VT ☐ VU ☐ VV ☐ VW ☐ VX ☐ VY ☐ VZ ☐ WA ☐ WB ☐ WC ☐ WD ☐ WE ☐ WF ☐ WG ☐ WH ☐ WI ☐ WJ ☐ WK ☐ WL ☐ WM ☐ WN ☐ WO ☐ WP ☐ WQ ☐ WR ☐ WS ☐ WT ☐ WY ☐ WZ ☐ XA ☐ XB ☐ XC ☐ XD ☐ XE ☐ XF ☐ XG ☐ XH ☐ XI ☐ XJ ☐ XK ☐ XL ☐ XM ☐ XN ☐ XO ☐ XP ☐ XQ ☐ XR ☐ XS ☐ XT ☐ XU ☐ XV ☐ XW ☐ XX ☐ XY ☐ XZ ☐ YA ☐ YB ☐ YC ☐ YD ☐ YE ☐ YF ☐ YG ☐ YH ☐ YI ☐ YJ ☐ YK ☐ YL ☐ YM ☐ YN ☐ YO ☐ YP ☐ YQ ☐ YR ☐ YS ☐ YT ☐ YU ☐ YV ☐ YW ☐ YX ☐ YY ☐ YZ ☐ ZA ☐ ZB ☐ ZC ☐ ZD ☐ ZE ☐ ZF ☐ ZG ☐ ZH ☐ ZI ☐ ZJ ☐ ZK ☐ ZL ☐ ZM ☐ ZN ☐ ZO ☐ ZP ☐ ZQ ☐ ZR ☐ ZS ☐ ZT ☐ ZU ☐ ZV ☐ ZW ☐ ZX ☐ ZY ☐ ZZ

PURGING DEVICE: ☒ B ☐ A ☐ C ☐ D ☐ E ☐ F ☐ G ☐ H ☐ I ☐ J ☐ K ☐ L ☐ M ☐ N ☐ O ☐ P ☐ Q ☐ R ☐ S ☐ T ☐ U ☐ V ☐ W ☐ X ☐ Y ☐ Z ☐ AA ☐ AB ☐ AC ☐ AD ☐ AE ☐ AF ☐ AG ☐ AH ☐ AI ☐ AJ ☐ AK ☐ AL ☐ AM ☐ AN ☐ AO ☐ AP ☐ AQ ☐ AR ☐ AS ☐ AT ☐ AU ☐ AV ☐ AW ☐ AX ☐ AY ☐ AZ ☐ BA ☐ BB ☐ BC ☐ BD ☐ BE ☐ BF ☐ BG ☐ BH ☐ BI ☐ BJ ☐ BK ☐ BL ☐ BM ☐ BN ☐ BO ☐ BP ☐ BQ ☐ BR ☐ BS ☐ BT ☐ BU ☐ BV ☐ BW ☐ BX ☐ BY ☐ BZ ☐ CA ☐ CB ☐ CC ☐ CD ☐ CE ☐ CF ☐ CG ☐ CH ☐ CI ☐ CJ ☐ CK ☐ CL ☐ CM ☐ CN ☐ CO ☐ CP ☐ CQ ☐ CR ☐ CS ☐ CT ☐ CU ☐ CV ☐ CW ☐ CX ☐ CY ☐ CZ ☐ DA ☐ DB ☐ DC ☐ DD ☐ DE ☐ DF ☐ DG ☐ DH ☐ DI ☐ DJ ☐ DK ☐ DL ☐ DM ☐ DN ☐ DO ☐ DP ☐ DQ ☐ DR ☐ DS ☐ DT ☐ DU ☐ DV ☐ DW ☐ DX ☐ DY ☐ DZ ☐ EA ☐ EB ☐ EC ☐ ED ☐ EE ☐ EF ☐ EG ☐ EH ☐ EI ☐ EJ ☐ EK ☐ EL ☐ EM ☐ EN ☐ EO ☐ EP ☐ EQ ☐ ER ☐ ES ☐ ET ☐ EU ☐ EV ☐ EW ☐ EX ☐ EY ☐ EZ ☐ FA ☐ FB ☐ FC ☐ FD ☐ FE ☐ FF ☐ FG ☐ FH ☐ FI ☐ FJ ☐ FK ☐ FL ☐ FM ☐ FN ☐ FO ☐ FP ☐ FQ ☐ FR ☐ FS ☐ FT ☐ FU ☐ FV ☐ FW ☐ FX ☐ FY ☐ FZ ☐ GA ☐ GB ☐ GC ☐ GD ☐ GE ☐ GF ☐ GG ☐ GH ☐ GI ☐ GJ ☐ GK ☐ GL ☐ GM ☐ GN ☐ GO ☐ GP ☐ GQ ☐ GR ☐ GS ☐ GT ☐ GU ☐ GV ☐ GW ☐ GX ☐ GY ☐ GZ ☐ HA ☐ HB ☐ HC ☐ HD ☐ HE ☐ HF ☐ HG ☐ HH ☐ HI ☐ HJ ☐ HK ☐ HL ☐ HM ☐ HN ☐ HO ☐ HP ☐ HQ ☐ HR ☐ HS ☐ HT ☐ HU ☐ HV ☐ HW ☐ HX ☐ HY ☐ HZ ☐ IA ☐ IB ☐ IC ☐ ID ☐ IE ☐ IF ☐ IG ☐ IH ☐ II ☐ IJ ☐ IK ☐ IL ☐ IM ☐ IN ☐ IO ☐ IP ☐ IQ ☐ IR ☐ IS ☐ IT ☐ IU ☐ IV ☐ IW ☐ IX ☐ IY ☐ IZ ☐ JA ☐ JB ☐ JC ☐ JD ☐ JE ☐ JF ☐ JG ☐ JH ☐ JI ☐ JJ ☐ JK ☐ JL ☐ JM ☐ JN ☐ JO ☐ JP ☐ JQ ☐ JR ☐ JS ☐ JT ☐ JU ☐ JV ☐ JW ☐ JX ☐ JY ☐ JZ ☐ KA ☐ KB ☐ KC ☐ KD ☐ KE ☐ KF ☐ KG ☐ KH ☐ KI ☐ KJ ☐ KL ☐ KM ☐ KN ☐ KO ☐ KP ☐ KQ ☐ KR ☐ KS ☐ KT ☐ KU ☐ KV ☐ KW ☐ KX ☐ KY ☐ KZ ☐ LA ☐ LB ☐ LC ☐ LD ☐ LE ☐ LF ☐ LG ☐ LH ☐ LI ☐ LJ ☐ LK ☐ LL ☐ LM ☐ LN ☐ LO ☐ LP ☐ LQ ☐ LR ☐ LS ☐ LT ☐ LU ☐ LV ☐ LW ☐ LX ☐ LY ☐ LZ ☐ MA ☐ MB ☐ MC ☐ MD ☐ ME ☐ MF ☐ MG ☐ MH ☐ MI ☐ MJ ☐ MK ☐ ML ☐ MM ☐ MN ☐ MO ☐ MP ☐ MQ ☐ MR ☐ MS ☐ MT ☐ MU ☐ MV ☐ MW ☐ MX ☐ MY ☐ MZ ☐ NA ☐ NB ☐ NC ☐ ND ☐ NE ☐ NF ☐ NG ☐ NH ☐ NI ☐ NJ ☐ NK ☐ NL ☐ NM ☐ NO ☐ NP ☐ NQ ☐ NR ☐ NS ☐ NT ☐ NU ☐ NV ☐ NW ☐ NX ☐ NY ☐ NZ ☐ OA ☐ OB ☐ OC ☐ OD ☐ OE ☐ OF ☐ OG ☐ OH ☐ OI ☐ OJ ☐ OK ☐ OL ☐ OM ☐ ON ☐ OO ☐ OP ☐ OQ ☐ OR ☐ OS ☐ OT ☐ OU ☐ OV ☐ OW ☐ OX ☐ OY ☐ OZ ☐ PA ☐ PB ☐ PC ☐ PD ☐ PE ☐ PF ☐ PG ☐ PH ☐ PI ☐ PJ ☐ PK ☐ PL ☐ PM ☐ PN ☐ PO ☐ PP ☐ PQ ☐ PR ☐ PS ☐ PT ☐ PU ☐ PV ☐ PW ☐ PX ☐ PY ☐ PZ ☐ QA ☐ QB ☐ QC ☐ QD ☐ QE ☐ QF ☐ QG ☐ QH ☐ QI ☐ QJ ☐ QK ☐ QL ☐ QM ☐ QN ☐ QO ☐ QP ☐ QQ ☐ QR ☐ QS ☐ QT ☐ QU ☐ QV ☐ QW ☐ QX ☐ QY ☐ QZ ☐ RA ☐ RB ☐ RC ☐ RD ☐ RE ☐ RF ☐ RG ☐ RH ☐ RI ☐ RJ ☐ RK ☐ RL ☐ RM ☐ RN ☐ RO ☐ RP ☐ RQ ☐ RR ☐ RS ☐ RT ☐ RU ☐ RV ☐ RW ☐ RX ☐ RY ☐ RZ ☐ SA ☐ SB ☐ SC ☐ SD ☐ SE ☐ SF ☐ SG ☐ SH ☐ SI ☐ SJ ☐ SK ☐ SL ☐ SM ☐ SN ☐ SO ☐ SP ☐ SQ ☐ SR ☐ SS ☐ ST ☐ SU ☐ SV ☐ SW ☐ SX ☐ SY ☐ SZ ☐ TA ☐ TB ☐ TC ☐ TD ☐ TE ☐ TF ☐ TG ☐ TH ☐ TI ☐ TJ ☐ TK ☐ TL ☐ TM ☐ TN ☐ TO ☐ TP ☐ TQ ☐ TR ☐ TS ☐ TT ☐ TU ☐ TV ☐ TW ☐ TX ☐ TY ☐ TZ ☐ UA ☐ UB ☐ UC ☐ UD ☐ UE ☐ UF ☐ UG ☐ UH ☐ UI ☐ UJ ☐ UK ☐ UL ☐ UM ☐ UN ☐ UO ☐ UP ☐ UQ ☐ UR ☐ US ☐ UT ☐ UY ☐ UZ ☐ VA ☐ VB ☐ VC ☐ VD ☐ VE ☐ VF ☐ VG ☐ VH ☐ VI ☐ VJ ☐ VK ☐ VL ☐ VM ☐ VN ☐ VO ☐ VP ☐ VQ ☐ VR ☐ VS ☐ VT ☐ VU ☐ VV ☐ VW ☐ VX ☐ VY ☐ VZ ☐ WA ☐ WB ☐ WC ☐ WD ☐ WE ☐ WF ☐ WG ☐ WH ☐ WI ☐ WJ ☐ WK ☐ WL ☐ WM ☐ WN ☐ WO ☐ WP ☐ WQ ☐ WR ☐ WS ☐ WT ☐ WY ☐ WZ ☐ XA ☐ XB ☐ XC ☐ XD ☐ XE ☐ XF ☐ XG ☐ XH ☐ XI ☐ XJ ☐ XK ☐ XL ☐ XM ☐ XN ☐ XO ☐ XP ☐ XQ ☐ XR ☐ XS ☐ XT ☐ XU ☐ XV ☐ XW ☐ XX ☐ XY ☐ XZ ☐ YA ☐ YB ☐ YC ☐ YD ☐ YE ☐ YF ☐ YG ☐ YH ☐ YI ☐ YJ ☐ YK ☐ YL ☐ YM ☐ YN ☐ YO ☐ YP ☐ YQ ☐ YR ☐ YS ☐ YT ☐ YU ☐ YV ☐ YW ☐ YX ☐ YY ☐ YZ ☐ ZA ☐ ZB ☐ ZC ☐ ZD ☐ ZE ☐ ZF ☐ ZG ☐ ZH ☐ ZI ☐ ZJ ☐ ZK ☐ ZL ☐ ZM ☐ ZN ☐ ZO ☐ ZP ☐ ZQ ☐ ZR ☐ ZS ☐ ZT ☐ ZU ☐ ZV ☐ ZW ☐ ZX ☐ ZY ☐ ZZ

PURGING DEVICE: ☒ B ☐ A ☐ C ☐ D ☐ E ☐ F ☐ G ☐ H ☐ I ☐ J ☐ K ☐ L ☐ M ☐ N ☐ O ☐ P ☐ Q ☐ R ☐ S ☐ T ☐ U ☐ V ☐ W ☐ X ☐ Y ☐ Z ☐ AA ☐ AB ☐ AC ☐ AD ☐ AE ☐ AF ☐ AG ☐ AH ☐ AI ☐ AJ ☐ AK ☐ AL ☐ AM ☐ AN ☐ AO ☐ AP ☐ AQ ☐ AR ☐ AS ☐ AT ☐ AU ☐ AV ☐ AW ☐ AX ☐ AY ☐ AZ ☐ BA ☐ BB ☐ BC ☐ BD ☐ BE ☐ BF ☐ BG ☐ BH ☐ BI ☐ BJ ☐ BK ☐ BL ☐ BM ☐ BN ☐ BO ☐ BP ☐ BQ ☐ BR ☐ BS ☐ BT ☐ BU ☐ BV ☐ BW ☐ BX ☐ BY ☐ BZ ☐ CA ☐ CB ☐ CC ☐ CD ☐ CE ☐ CF ☐ CG ☐ CH ☐ CI ☐ CJ ☐ CK ☐ CL ☐ CM ☐ CN ☐ CO ☐ CP ☐ CQ ☐ CR ☐ CS ☐ CT ☐ CU ☐ CV ☐ CW ☐ CX ☐ CY ☐ CZ ☐ DA ☐ DB ☐ DC ☐ DD ☐ DE ☐ DF ☐ DG ☐ DH ☐ DI ☐ DJ ☐ DK ☐ DL ☐ DM ☐ DN ☐ DO ☐ DP ☐ DQ ☐ DR ☐ DS ☐ DT ☐ DU ☐ DV ☐ DW ☐ DX ☐ DY ☐ DZ ☐ EA ☐ EB ☐ EC ☐ ED ☐ EE ☐ EF ☐ EG ☐ EH ☐ EI ☐ EJ ☐ EK ☐ EL ☐ EM ☐ EN ☐ EO ☐ EP ☐ EQ ☐ ER ☐ ES ☐ ET ☐ EU ☐ EV ☐ EW ☐ EX ☐ EY ☐ EZ ☐ FA ☐ FB ☐ FC ☐ FD ☐ FE ☐ FF ☐ FG ☐ FH ☐ FI ☐ FJ ☐ FK ☐ FL ☐ FM ☐ FN ☐ FO ☐ FP ☐ FQ ☐ FR ☐ FS ☐ FT ☐ FU ☐ FV ☐ FW ☐ FX ☐ FY ☐ FZ ☐ GA ☐ GB ☐ GC ☐ GD ☐ GE ☐ GF ☐ GG ☐ GH ☐ GI ☐ GJ ☐ GK ☐ GL ☐ GM ☐ GN ☐ GO ☐ GP ☐ GQ ☐ GR ☐ GS ☐ GT ☐ GU ☐ GV ☐ GW ☐ GX ☐ GY ☐ GZ ☐ HA ☐ HB ☐ HC ☐ HD ☐ HE ☐ HF ☐ HG ☐ HH ☐ HI ☐ HJ ☐ HK ☐ HL ☐ HM

WELL PURGING FIELD INFORMATION FORM

SITE/PROJECT NAME: _____

JOB# 56546-06

WELL# MW-8-4

WELL PURGING INFORMATION

050916

PURGE DATE
(MM/DD/YY)

050916

SAMPLE DATE
(MM/DD/YY)

1122

INTERVAL IN FEET
(LITERS/GAL)

11

TIME IN HOURS
(LITERS/GAL)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT (SEE PAGE 1)

(CIRCLE ONE)

SAMPLING EQUIPMENT (CIRCLE ONE)

(CIRCLE ONE)

PURGING DEVICE	B	1. SUBMERGED PUMP	2. AIR LIFT PUMP	3. SUCKER ROD	X
		4. PERMEABILITY PUMP	5. PUMP/COMP	6. WATERBATH	
SAMPLING DEVICE	B	7. BUBBLER PUMP	8. DIPLE BOTTLE		X
PURGING DEVICE	E	9. DIVER	10. PUMP		X
		11. STEAMLESS TIE	12. POLYETHYLENE		
SAMPLING DEVICE	E	13. POLYPROPYLENE			X
PURGING DEVICE	E	14. PUMP	15. POLYETHYLENE	16. SUCKER ROD	X
		17. PUMP	18. POLYETHYLENE	19. COMBINATION	
SAMPLING DEVICE	E	20. PUMP		21. TEFZON/POLYPROPYLENE	X

FILTERING DEVICES 0.15 ☐ A. INFINE DISPOSABLE B. PERMANENT C. VACUUM

FIELD MEASUREMENTS

WELL ELEVATION 61342 (m)

GROUNDEWATER ELEVATION 60520 (m)

DEPTH TO WATER 822 (m)

WELL DEPTH 2189 (m)

pH	TURBIDITY	CONDUCTIVITY	ORP	DO	SAMPLE TEMPERATURE
6.0	0.0	0.0	0.0	0.0	0.0
6.0	0.0	0.0	0.0	0.0	0.0
6.0	0.0	0.0	0.0	0.0	0.0
6.0	0.0	0.0	0.0	0.0	0.0
6.0	0.0	0.0	0.0	0.0	0.0

FIELD COMMENTS

SAMPLE APPROPRIATE? Good None Clear Clear
 WEATHER AND TIME 0-5 NW Sunny
 SPECIFIC COMMENTS _____

PRINTED, FOLIO-SIZED, AND REPRODUCED BY THE U.S. GEOLOGICAL SURVEY

5/9/16

Date: N. N. N.

SR. SURV.

FOR MORE INFORMATION, CONTACT THE U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION, 1225 NORTH MOUNTAIN AVENUE, MENLO PARK, CA 94025

QUM 1.00PM

Project Name: GMP-BP SITE
Ref. No: 56546.00

Date: 5/16/16
Personnel: P. N. J. A. V. K.

Well No.: MW-8-003 B

Well No.:	MW-8-003 B	Screen Length (ft):	
Measurement Point:	TC E	Depth to Pump Intake (ft):	
Constructed Well Depth (ft):	15	Well Diameter, D (in):	
Measured Well Depth (ft):	14.87	Well Screen Volume, V_s (mL):	
Depth of Sediment (ft):		Initial Depth to Water (ft):	

Direktoren

[illegible]

The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.

- The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.
- The well screen volume will be based on a 5-foot screen length. $V_s = \pi (D/2)^2 (5 \cdot 12) (2.54)^3$
- The drawdown from the initial water level should not exceed 0.3 ft.
- Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). N_{tr} of Well Screen Volumes Purged = V_p / V_s .

SAMPLE COLLECTION DATA SHEET - GROUNDWATER SAMPLING PROGRAM

PROJECT NAME G-MCH BCD SITE PROJECT NO. 56546.00

SAMPLING CREW MEMBERS P. Nyman SUPERVISOR T. Bolea

DATE OF SAMPLE COLLECTION 5/17/16 - 5/19/16

[Note: For 2" dia. well, 1 ft. = 0.14 gal (imp) or 0.16 gal (us)]

Sample I.D. Number	Well No.	Measuring Point Elev. (ft. AMSL)	Bottom Depth (ft. btoc)	Water Depth (ft. btoc)	Water Elevation (ft. AMSL)	Well Volume (gallons)	Bailer Volume No. Bails	Volume Purged (gallons)	Field pH	Field Temp.	Field Cond.	Time	Sample Description & Analysis
MW-10-2 051716	MW-10-2	611.26	16.02	2.99	608.27	2.1	/	1.1	7.30	13.1	6.15	1200	VOC, MNA
MW-10-3 051816	MW-10-3	610.40	15.40	2.79	607.61	2.0	/	0.9	7.58	10.5	1.81	0930	VOC, MNA
MW-9-12 051916	MW-9-12	614.92	15.39	5.43	609.49	1.6	/	1.9	7.47	13.2	2.23	0855	VOC, MNA
MW-9-101-A 051816	MW-9-101-A	615.00	17.25	4.32	610.68	1.3	/	1.0	7.22	14.1	5.91	1120	VOC, MNA
TK-6 051916	TK-6	621.69	13.24	9.35	612.34	2.5	/	0.7	7.51	13.8	3.45	1045	VOC, MNA
BLDG 10 MW-1 051916	BLDG 10 MW-1	615.05	15.42	5.72	609.29	1.5	/	0.8	6.91	19.2	2.65	1240	VOC, MNA

Additional Comments:

Copies to:

FWG MODIFICATIONS MUST BE ACCOMPANIED BY A REVISION REQUEST FORM APPROVED BY THE PROJECT MANAGER

Project Name:

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Name:

NAME _____
 RDP CITY _____

Ref. No.:

Date: 2016/05/15

Personnel: Personnel

Monitoring Well Data:

Well No.:

TX-6

Measurement Point:

T02

Constructed Well Depth (ft):

10

Measured Well Depth (ft)

13 31

Depth of Sediment (ft):

712.

Screen / another diff.

Death-to-Pump Intake ($f^{(u)}$):

Well Diameter: 10 (in):

4.

Well Screen Volume V (ml g^{-1}),

2

Initial Depth to Water (ft)

$$\frac{2}{9} \div \frac{3}{9}$$
[illegible]

NOTES

- The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.
- The well screen volume will be based on a 5-foot screen length. $V_s = \pi (D/2)^2 (5/12) (2.54)^3$
- The drawdown from the initial water level should not exceed 0.3 ft.
- Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged = V_P / V_s .

JOB#	5	6	5	4	6	-	0	0

WELL#	T	15	-	6					

6	5	1	9	1	6

10	5	1	9	1	6

2.5

1128 VOL 25: 45, 1C
JTF55-CAJ 8-7

11107

$\lim_{n \rightarrow \infty} \frac{1}{n} \sum_{k=1}^n f\left(\frac{k}{n}\right) = \int_0^1 f(x) dx$
 $\lim_{n \rightarrow \infty} \frac{1}{n} \sum_{k=1}^n f\left(\frac{k}{n}\right) = \int_0^1 f(x) dx$

TESTING EQUIPMENT	TRUCKS	TRUCKS	SAMPLING EQUIPMENT	DECKLETS
(CHECK ONE)	(CHECK ONE)	(CHECK ONE)	(CHECK ONE)	(CHECK ONE)

FIRING DEVICE 13 : ALKALINE BATTERY D. 14. LITHIUM A. 15. LEAD N. _____

SAMPLING DEVICE	B	READER PLAT	100 PLS/HR	2-

TURNING DEVICE

SAMPLING DEVICE	E	ANALYZER	N

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466

[illegible]

-----SPP (T):-----SAMPLING OTHER SPEC (R):

DATE OF BIRTH (DDMMYY) 16/2/1969

9135

GROUNDWATER 1 1 1 6 1 1 2 3 1 4 1

ELEVATION 0127

WIND DEPTH 324

pH	TURBIDITY	CONDUCTIVITY	ORP	DO	SAMPLE TEMPERATURE

NAME: JOHN J. JONES GRADE: Good NONE: None CLEAR: Clear CLEAR: Clear

WEATHER AND TIDE: Vpn. No. 0-5 Date: SW Period: 1:00 - 1:15 PM Partly Cloudy

SPECIFIC COMMENTS

THE UNIVERSITY OF CHICAGO PRESS • 530 North Dearborn Street, Chicago, IL 60610 • U.S.A. and U.K. 1997

5/19/16

Peter M. M. M.

[Signature]

[illegible]

0.1 ppm

Project Data:

১৫.০০	১৫.০০

Date: 5/19/16
Personnel: P. Myzhu

Well No.: MW-9-12

TGR

1542

21

12,39

Screen Length (ft):
Depth to Pump Intake (ft)⁽¹⁾:
Well Diameter, D (in):
Well Screen Volume, V_s (mL)⁽²⁾:
Initial Depth to Water (ft):

[illegible]

The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.

- The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.
- The well screen volume will be based on a 5-foot screen length. $V_{PS} = 1\pi (D/2)^2 (5-12) \times (2.54)^3$
- The drawdown from the initial water level should not exceed 0.3 ft.
- Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged = V_P / V_{PS} .

Project Definition:

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Name: GACH BCD SIZE
Ref. No.: 56546.00

Date: 5/18/10
Personnel: P. A. - A. A.

Monitoring Well Data:

Well No.: MW-9-101-A

Screen Length (ft): 5

Measurement Point: 70/2

Depth to Pump Intake (ft)^(a)

Constructed Well Depth (ft): 12.54

Well Diameter, D (in):

Measured Well Depth (ft): 1775

Well Screen Volume, V_w (ml)^(c)

Depth of Sediment (ft):

Initial Depth to Water (ft):

[illegible]

Notes:

- The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.
- The well screen volume will be based on a 5-foot screen length. $V_{sp} = \pi(D/2)^2(5.12)(2.54)^3$
- The drawdown from the initial water level should not exceed 0.3 ft.
- Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged = V_{sp}/V_d .

WELL PURGING FIELD INFORMATION FORM

SITE/PROJECT NAME: _____

JOB# 56546-00

WELL# MW-9-101-A

WELL PURGING INFORMATION			
PURGE DATE (MM/DD/YY)	SAMPLE DATE (MM/DD/YY)	WATER VOL IN/ASLC (LITRES/GALLONS)	WATER VOL OUT/ASLC (LITRES/GALLONS)
<u>05/18/16</u>	<u>05/18/16</u>	<u>13</u>	<u>10</u>

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT (CHECK ALL THAT APPLY) (CIRCLE ONE) SAMPLING EQUIPMENT (CIRCLE ONE)

PURGING DEVICE	<u>B</u>	A. ELECTRIC PUMP	D. GAS LIFT PUMP	E. OTHER	N=	PURGING OTHER (SPECIFY)
SAMPLING DEVICE	<u>B</u>	C. PERISTALTIC PUMP	F. PLASTIC BOTTLE	G. WATERBAG	N=	SAMPLING OTHER (SPECIFY)
PURGING DEVICE	<u>E</u>	H. OTHER	I. OTHER	J. OTHER	N=	PURGING OTHER (SPECIFY)
SAMPLING DEVICE	<u>E</u>	K. OTHER	L. OTHER	M. OTHER	N=	SAMPLING OTHER (SPECIFY)
PURGING DEVICE	<u>E</u>	N. OTHER	O. OTHER	P. OTHER	N=	PURGING OTHER (SPECIFY)
SAMPLING DEVICE	<u>E</u>	Q. OTHER	R. OTHER	S. OTHER	N=	SAMPLING OTHER (SPECIFY)

FILTERING DEVICES (CIRCLE ONE) A. INTAKE SCREENS B. PRE-FILTER C. VACUUM

FIELD MEASUREMENTS					
WELL ELEVATION (m)	<u>615.00</u>	GROUNDWATER ELEVATION (m)	<u>610.68</u>	WELL DEPTH (m)	<u>12.25</u>
DEPTH TO WATER (m)	<u>4.32</u>				
pH	<u>7.0</u>	TURBIDITY (NTU)	<u>0.0</u>	CONDUCTIVITY (µS/cm)	<u>125</u>
ORP (mV)	<u>250</u>	DO (%)	<u>100</u>	SAMPLE TEMPERATURE (°C)	<u>18</u>

FIELD COMMENTS

SAMPLE QUALITY: Good COLOR: None TASTE: Clear SMELL: Clear

WEATHER: 0-10 mph WIND DIRECTION: NE WIND SPEED: 10 mph

SPECIFIC COMMENTS: _____

DATE: 5/18/16 BY: Peter Nyman SIGNATURE: _____

FOR MORE INFORMATION, CONTACT THE PROJECT MANAGER AT THE PROJECT SITE.

Project Data:

MONITORING WELL. RECORD FOR LOW-FLOW PURGING

Project Name: G MCH BCP SITE
Ref. No.: 565460.00

Date: 5/17/16
 Personnel: P. N. N. N.

Monitoring Well Data:

Well No.: MW-10-Z

Screen Length (ft): $9.8 - 16.8 = 7$

Measurement Point: TOR

Depth to Pump Intake (ft)^(u): 14

Constructed Well Depth (ft): 16.80

Measured Well Depth (ft): 16.03

Well Screen Volume V (in ft³)

Depth of Sediment (ft)

Initial Depth to Water (ft): 2.90

[illegible]

Notes:

The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.

The well screen volume will be based on a 3-foot screen length. $V_w = \pi (D/2)^2 (5.12)(2.54)^3$

The drawdown from the initial water level should not exceed 0.3 ft.

Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be churning, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged = V_p/V_s .

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Name: GMC1+ BCD SITE
Ref. No.: 56546.00

Date: 5/12/16
Personnel: D. Adams

Well No.: MW-10-3

Screen Length (ft): 8.9 - 15.8 = 7

Measurement Point: T1

Death to Pump Intake ($f_t^{(d)}$):

Constructed Well Depth (ft): 15.80

Well Diameter, D (in): 2

Measured Well Depth (ft): 18.45

Well Screen Volume: Vol. 1 (1972), 200

Depth of Sediment (ft):

Initial Density to Water (ft)

[illegible]

2742

- The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.
- The well screen volume will be based on a 5-foot screen length. $V_{\text{SP}} = \pi (D/2)^2 (5/12) (2.54)^3$
- The drawdown from the initial water level should not exceed 0.3 ft.
- Furging will continue until stabilization is achieved or until 20 well screen volumes have been furged (unless purge water remains visually turbid and appears to be churning, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Furged = $V_{\text{SP}} / V_{\text{qs}}$.

WELL PURGING FIELD INFORMATION FORM

SITE/PROJECT NAME: _____

JOB# 56546 . 00

WELL# MW-10-3

WELL PURGING INFORMATION

051816

PURGE DATE
(MM/DD/YY)

051816

SAMPLE DATE
(MM/DD/YY)

11210

WATER VOL. IN/ASAC
(LITERS/GAL)

11019

WATER VOL. OUT/ASAC
(LITERS/GAL)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT (CIRCLE ONE) ☒ PERCUSSION ☐ AIR LIFT ☐ SUBMERSIBLE PUMP ☐ OTHER (SPECIFY) _____
SAMPLING EQUIPMENT (CIRCLE ONE) ☒ PERCUSSION ☐ AIR LIFT ☐ SUBMERSIBLE PUMP ☐ OTHER (SPECIFY) _____

PURGING DEVICE	<u>D</u>	A. AIR LIFT PUMP	B. AIR LIFT PUMP	C. AIR LIFT PUMP	X	OTHER (SPECIFY) _____
SAMPLING DEVICE	<u>B</u>	D. SUBMERSIBLE PUMP	E. SUBMERSIBLE PUMP	F. SUBMERSIBLE PUMP	X	OTHER (SPECIFY) _____
PURGING DEVICE	<u>E</u>	G. PERCUSSION	H. PERCUSSION	I. PERCUSSION	X	OTHER (SPECIFY) _____
SAMPLING DEVICE	<u>E</u>	J. PERCUSSION	K. PERCUSSION	L. PERCUSSION	X	OTHER (SPECIFY) _____
PURGING DEVICE	<u>E</u>	M. PERCUSSION	N. PERCUSSION	O. PERCUSSION	X	OTHER (SPECIFY) _____
SAMPLING DEVICE	<u>E</u>	P. PERCUSSION	Q. PERCUSSION	R. PERCUSSION	X	OTHER (SPECIFY) _____

FILTERING DEVICES 0.45 ☐ 1. INLINE FILTER ☐ 2. PRESSURE ☐ 3. VACUUM ☐

FIELD MEASUREMENTS

WELL ELEVATION	<u>61040</u>	(m)	GROUNDWATER ELEVATION	<u>61040</u>	(m)
DEPTH TO WATER	<u>279</u>	(m)	WELL DEPTH	<u>11540</u>	(m)
pH	<u>7.0</u>	TURBIDITY	<u>0.10</u>	CONDUCTIVITY	<u>150</u>
ORP	<u>100</u>	DO	<u>10.0</u>	SAMPLE TEMPERATURE	<u>15.0</u>

FIELD COMMENTS

WATER QUALITY Good None Clear Clear
 WEATHER AND FACING 0-10 NE Partly Cloudy
 SPECIFIC COMMENTS _____

DATE 5/18/16 TIME Pete Nyman SIGNATURE [Signature]

FOR MR. THE ABOVE SAID WELL WAS MONITORED BY A RES. SUB. REQUESTED BY THE PROJECT ALLIANCE

История

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Name: GML+ BCP SITE

Ref. No: 56546.00

Date: 5/19/16

Personnel: P. Muzay

Monitoring Well Data:

Well No.: BLDG-10 NW-1

Measurement Point:	TOZ
1	100
2	100
3	100
4	100
5	100
6	100
7	100
8	100
9	100
10	100
11	100
12	100
13	100
14	100
15	100
16	100
17	100
18	100
19	100
20	100
21	100
22	100
23	100
24	100
25	100
26	100
27	100
28	100
29	100
30	100
31	100
32	100
33	100
34	100
35	100
36	100
37	100
38	100
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41	100
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76	100
77	100
78	100
79	100
80	100
81	100
82	100
83	100
84	100
85	100
86	100
87	100
88	100
89	100
90	100
91	100
92	100
93	100
94	100
95	100
96	100
97	100
98	100
99	100
100	100

Constructed Well Depth (ft):

Measured Well Depth (ft):

Depth of Sediment (ft):

Screen Length (ft): 11 - 16 - 5

Depth to Pump Intake (ft)⁽¹⁾: 12

Well Diameter, D (in):

Well Screen Volume V (ml) (2) 271

Initial Depth to Water (ft) = 5.70

[illegible]

Notes

- (1) The pump intake will be placed at the well screen mid-point or at a minimum of 2 ft above any sediment accumulated at the well bottom.
- (2) The well screen volume will be based on a 3-foot screen length. $V_s = \pi^2 (D/2)^2 (5/12)^2 (2.54)^3$
- (3) The drawdown from the initial water level should not exceed 0.3 ft.
- (4) Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be claying, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing). No. of Well Screen Volumes Purged = V_p/V_s .

WELL PURGING FIELD INFORMATION FORM

JOB# 56546-00

SITE/PROJECT NAME: _____

WELL# B06-10 MW

WELL PURGING INFORMATION

05/19/16

PURGE DATE
(MM/DD/YY)

05/19/16

SAMPLE DATE
(MM/DD/YY)

115

WATER VOLUME ASSED
(GALLONS)

108

WATER VOLUME ASSED
(GALLONS)

PURGING AND SAMPLING EQUIPMENT

PURGING EQUIPMENT (CIRCLE ONE) SAMPLING EQUIPMENT (CIRCLE ONE)

PURGING DEVICE	<u>B</u>	1. AIRLIFT PUMP	2. PERISTALTIC PUMP	3. OTHER	4. OTHER
SAMPLING DEVICE	<u>B</u>	1. BLADDER PUMP	2. OTHER	3. OTHER	4. OTHER
PURGING DEVICE	<u>E</u>	1. PERISTALTIC PUMP	2. PERISTALTIC PUMP	3. OTHER	4. OTHER
SAMPLING DEVICE	<u>E</u>	1. PERISTALTIC PUMP	2. PERISTALTIC PUMP	3. OTHER	4. OTHER
PURGING DEVICE	<u>E</u>	1. PERISTALTIC PUMP	2. PERISTALTIC PUMP	3. OTHER	4. OTHER
SAMPLING DEVICE	<u>E</u>	1. PERISTALTIC PUMP	2. PERISTALTIC PUMP	3. OTHER	4. OTHER

FILTERING DEVICES: 0.5 ☐ 1. INLINE DISPOSABLE ☐ 2. PRESSURE ☐ 3. VACUUM

FIELD MEASUREMENTS

WELL ELEVATION: 615.05 (m) GROUNDWATER ELEVATION: 609.29 (m)

DEPTH TO WATER: 57.6 (m) WELL DEPTH: 154.2 (m)

pH	TURBIDITY	CONDUCTIVITY	ORP	DO	SAMPLE TEMPERATURE
<u>7.0</u>	<u>1.0</u>	<u>100</u>	<u>100</u>	<u>1.0</u>	<u>15</u>
<u>7.0</u>	<u>1.0</u>	<u>100</u>	<u>100</u>	<u>1.0</u>	<u>15</u>
<u>7.0</u>	<u>1.0</u>	<u>100</u>	<u>100</u>	<u>1.0</u>	<u>15</u>
<u>7.0</u>	<u>1.0</u>	<u>100</u>	<u>100</u>	<u>1.0</u>	<u>15</u>
<u>7.0</u>	<u>1.0</u>	<u>100</u>	<u>100</u>	<u>1.0</u>	<u>15</u>

FIELD COMMENTS

WATER QUALITY: Good 0.5 Solvent SW clean clean
 WEATHER: 0.5 SW clean Partly
 SPECIFIC COMMENTS: cloudy

WELL# B06-10 MW

5/19/16

Peter M. M. M.

Signature

FOR MORE INFORMATION, CONTACT THE PROJECT MANAGER BY A NEW YORK REQUEST FORM AT 1-800-457-7777



APPENDIX B

PREVIOUS ANALYTICAL RESULTS AND GRAPHS

MW-7-1R Groundwater Data

GM Components Holdings, LLC
Lockport, New York

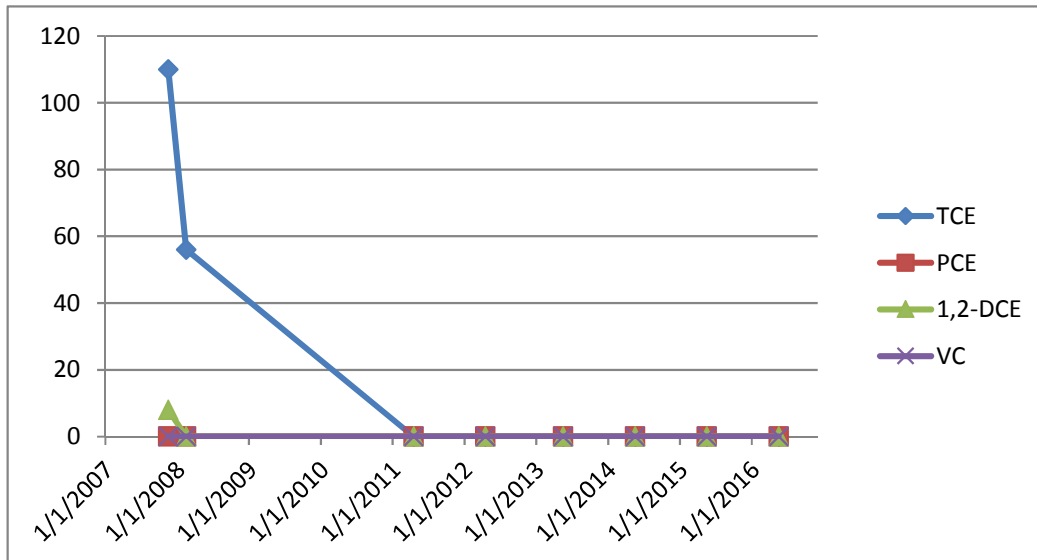
Date	TCE	PCE	1,2-DCE	VC
11/30/2007	110	<	8	<
2/20/2008	56	<	<	<
4/27/2011	<	<	<	<
4/27/2012	<	<	<	<
5/6/2013	<	<	<	<
5/27/2014	<	<	<	<
5/11/2015	<	<	<	<
5/10/2016	<	<	<	<

Notes:

Results are provided in parts per billion (ppb)

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.

< = non-detect laboratory result



MW-7-2 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

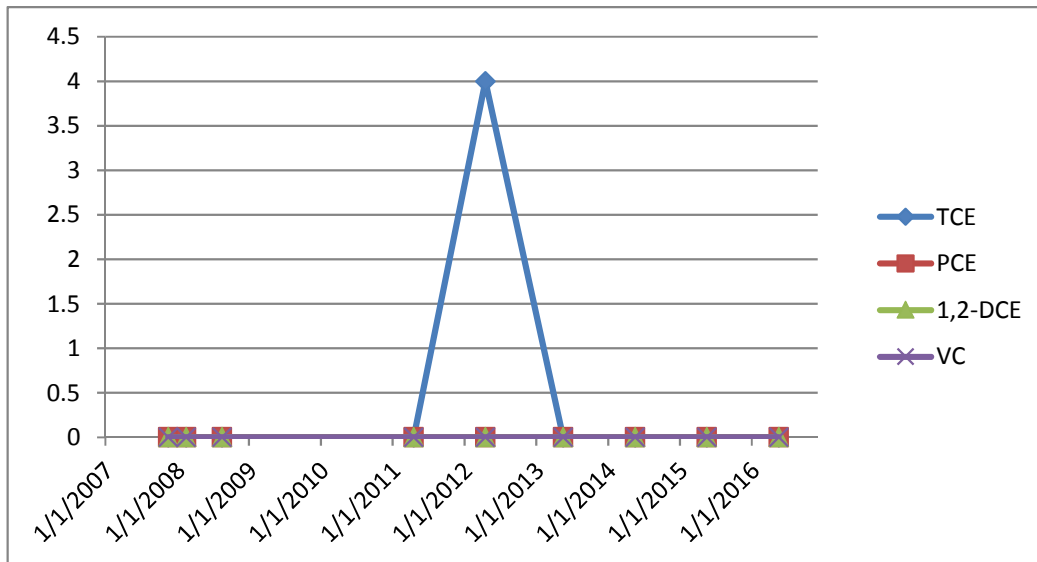
Date	TCE	PCE	1,2-DCE	VC
11/29/2007	<	<	<	<
2/20/2008	<	<	<	<
8/8/2008	<	<	<	<
4/27/2011	<	<	<	<
4/26/2012	4	<	<	<
5/6/2013	<	<	<	<
5/23/2014	<	<	<	<
5/12/2015	<	<	<	<
5/10/2016	<	<	<	<

Notes:

Results are provided in parts per billion (ppb)

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.

< = non-detect laboratory result



MW-7-3 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

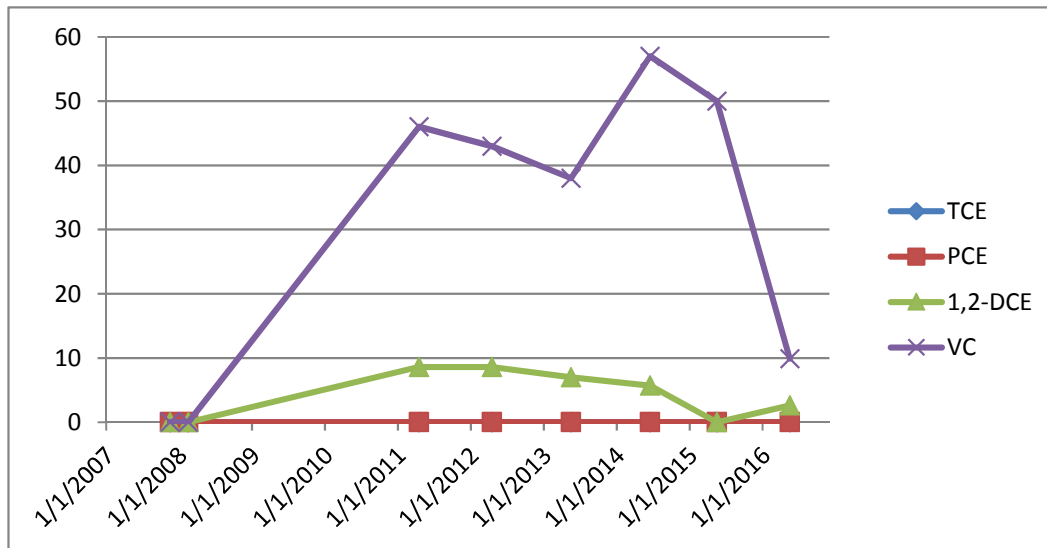
Date	TCE	PCE	1,2-DCE	VC
11/29/2007	<	<	<	<
2/20/2008	<	<	<	<
4/27/2011	<	<	8.6	46
4/27/2012	<	<	8.6	43
5/6/2013	<	<	7	38
6/3/2014	<	<	5.7	57
5/11/2015	<	<	<	50
5/10/2016	<	<	2.6	9.9

Notes:

Results are provided in parts per billion (ppb)

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.

< = non-detect laboratory result



MW-7-4 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

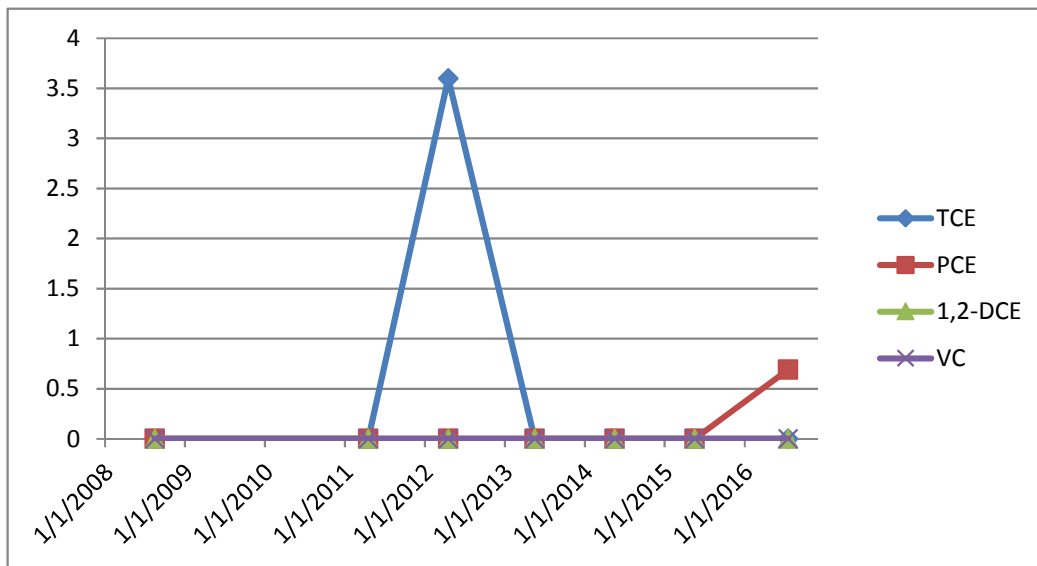
Date	TCE	PCE	1,2-DCE	VC
8/14/2008	<	<	<	<
4/27/2011	<	<	<	<
4/27/2012	3.6	<	<	<
5/7/2013	<	<	<	<
5/23/2014	<	<	<	<
5/11/2015	<	<	<	<
7/29/2016	<	0.69	<	<

Notes:

Results are provided in parts per billion (ppb)

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.

< = non-detect laboratory result



MW-7-5 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

Date	TCE	PCE	1,2-DCE	VC
4/28/2011	890	8900	687	5.8
4/30/2012	760	8700	640	<
5/7/2013	1200	11000	1000	<
5/27/2014	580	5200	440	<
5/18/2015	580	5400	460	<
5/11/2016	610	7000	370	<

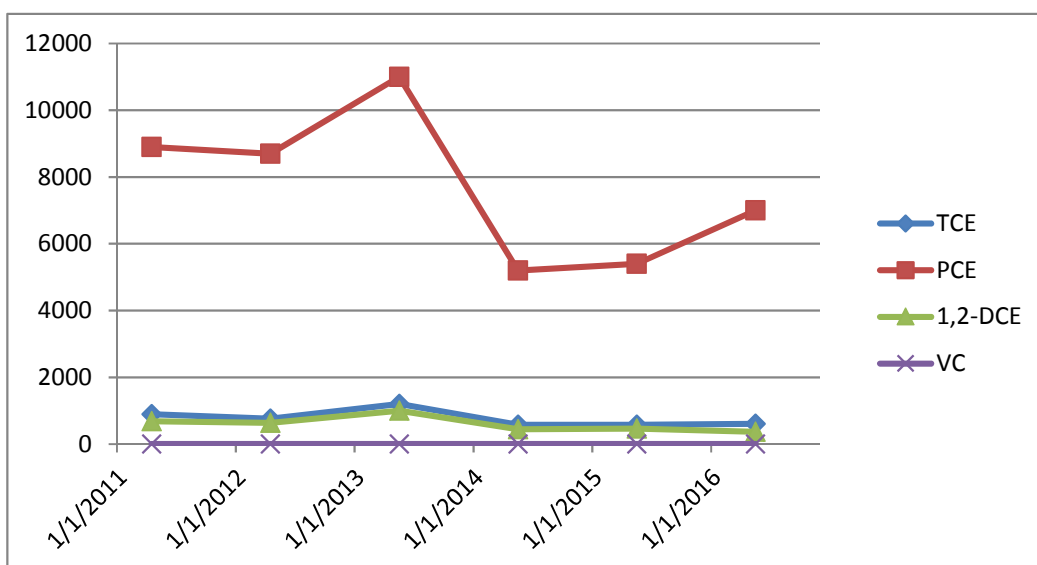
Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.

Results for 4/28/2011 and 5/27/2014 are the higher of the sample or its repetitive duplicate sample.



MW-7-6 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

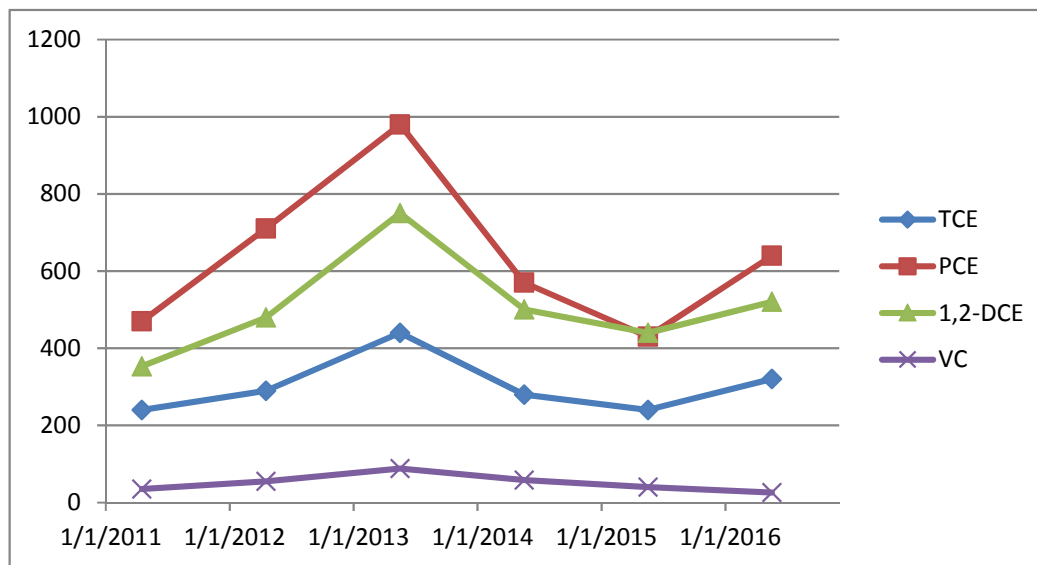
Date	TCE	PCE	1,2-DCE	VC
4/27/2011	240	470	353	35
4/30/2012	290	710	480	55
5/7/2013	440	980	750	88
5/28/2014	280	570	500	58
5/15/2015	240	430	440	40
5/11/2016	320	640	520	26

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



MW-7-7 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

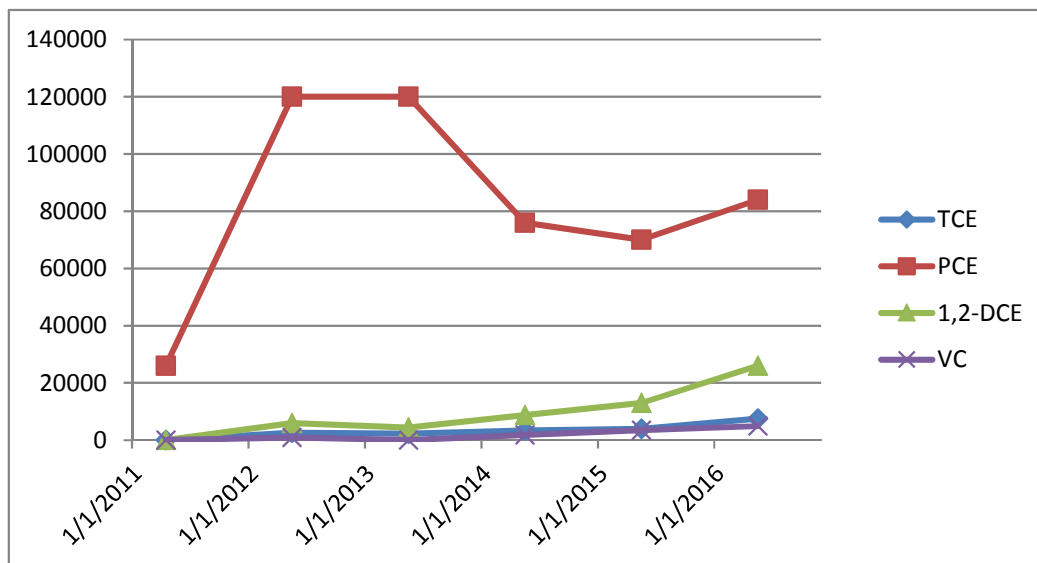
Date	TCE	PCE	1,2-DCE	VC
4/28/2011	<	26,000	<	<
5/1/2012	2,600	120,000	6,000	960
5/8/2013	2,300	120,000	4,400	<
5/29/2014	3,400	76,000	8,700	1,800
5/12/2015	3,900	70,000	13,000	3,500
5/12/2016	7,500	84,000	26,000	4,900

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



MW-7-8 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

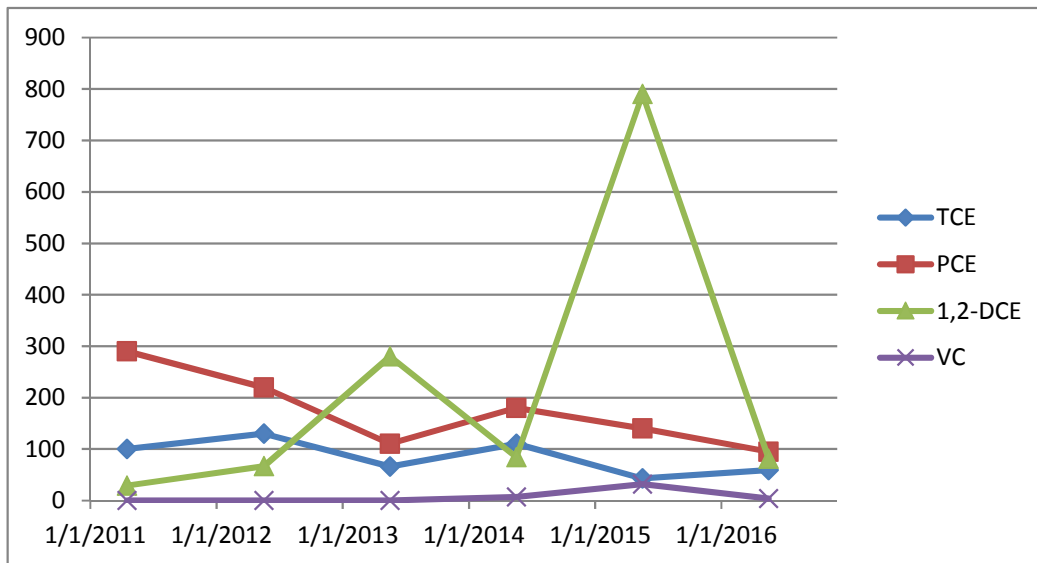
Date	TCE	PCE	1,2-DCE	VC
4/28/2011	100	290	29	<
5/2/2012	130	220	67	<
5/8/2013	66	110	280	<
5/29/2014	110	180	84	7.1
5/18/2015	43	140	790	32
5/13/2016	59	95	81	3.6

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



MW-7-A-6 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

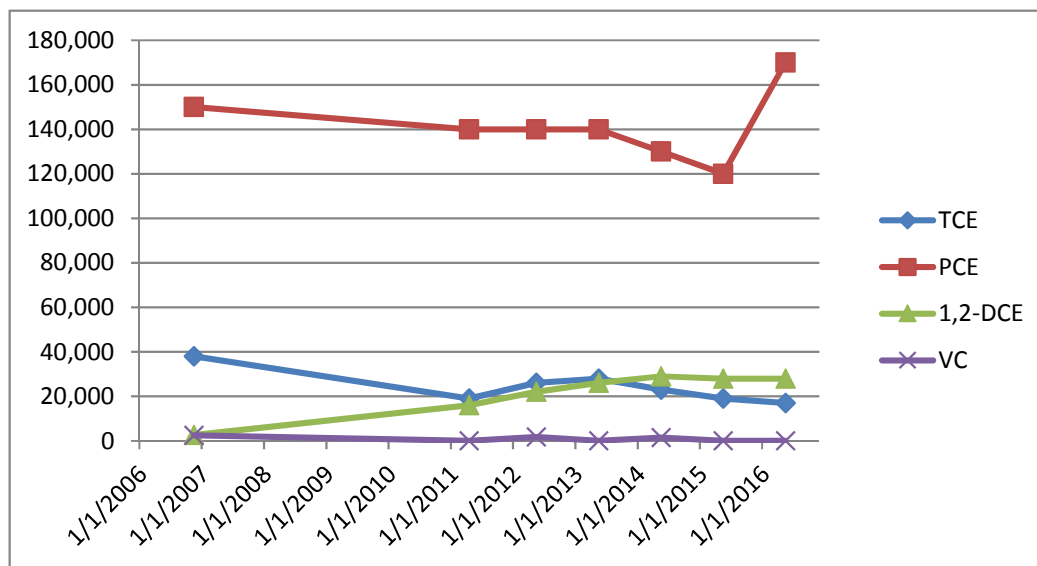
Date	TCE	PCE	1,2-DCE	VC
11/10/2006	38,000	150,000	2,600	2,500
4/28/2011	19,000	140,000	16,000	<
5/1/2012	26,000	140,000	22,000	1,800
5/8/2013	28,000	140,000	26,000	<
5/30/2014	23,000	130,000	29,000	1,500
5/15/2015	19,000	120,000	28,000	<
5/12/2016	17,000	170,000	28,000	<

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



MW-7-C-2 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

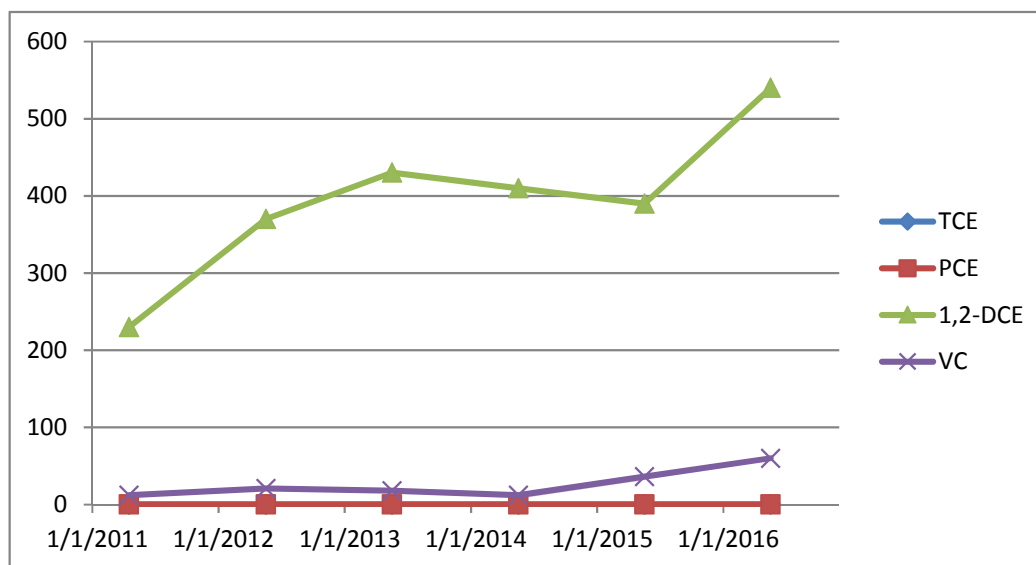
Date	TCE	PCE	1,2-DCE	VC
4/29/2011	<	<	230	12
5/3/2012	<	<	370	21
5/7/2013	<	<	430	18
5/28/2014	<	<	410	12
5/15/2015	<	<	390	36
5/11/2016	<	<	540	60

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



MW-7-P-1 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

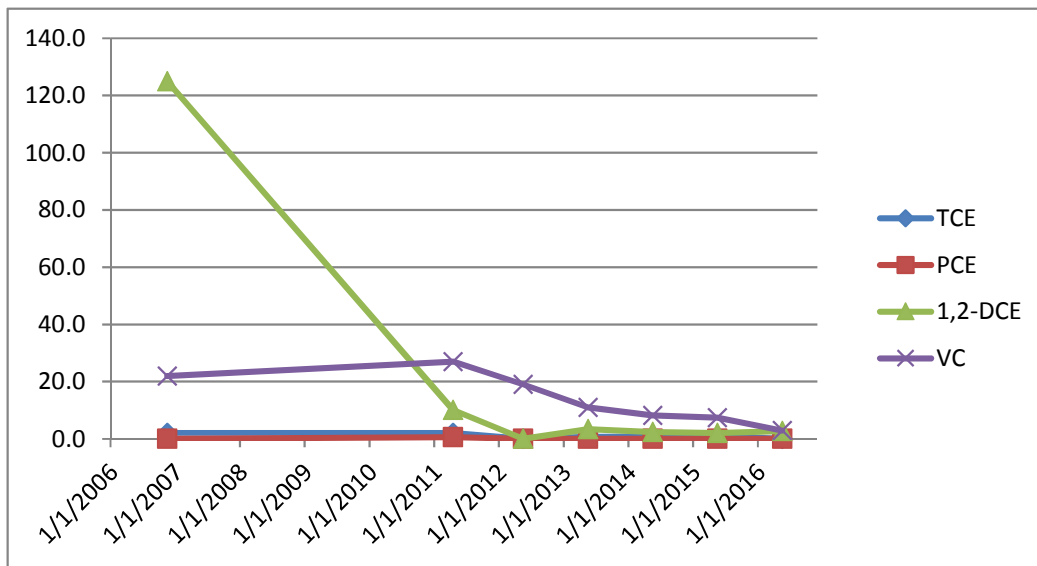
Date	TCE	PCE	1,2-DCE	VC
11/14/2006	2.1	<	125	22
4/29/2011	2	0.6	10	27
5/3/2012	<	<	<	19
5/7/2013	0.74	<	3.4	11
5/16/2014	0.78	<	2.4	8.2
5/26/2015	0.93	<	2	7.4
5/13/2016	<	<	2.7	2.9

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



MW-6-1 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

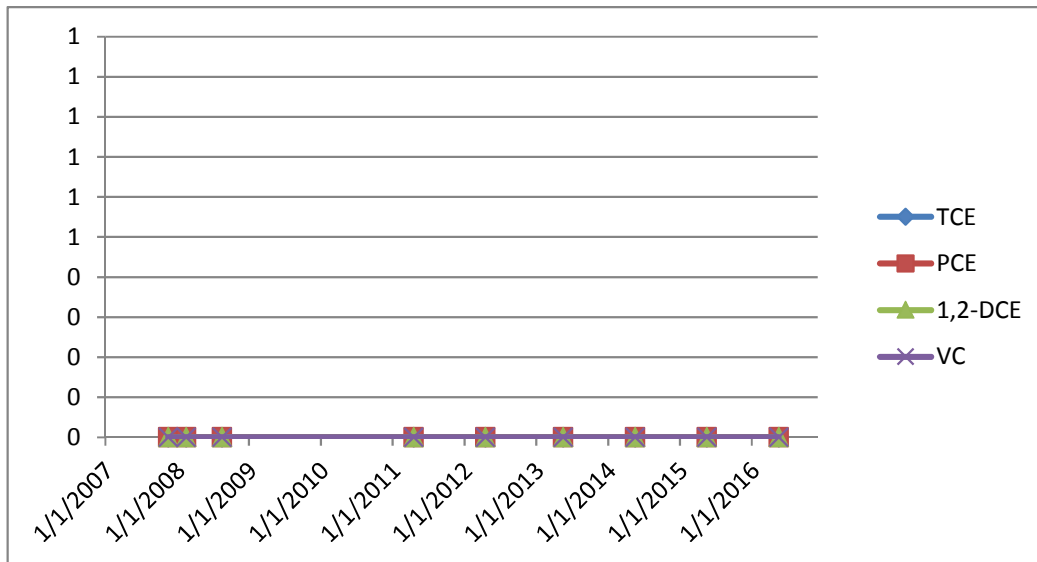
Date	TCE	PCE	1,2-DCE	VC
11/30/2007	<	<	<	<
2/20/2008	<	<	<	<
8/14/2008	<	<	<	<
4/27/2011	<	<	<	<
4/25/2012	<	<	<	<
5/14/2013	<	<	<	<
5/14/2014	<	<	<	<
5/13/2015	<	<	<	<
5/9/2016	<	<	<	<

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



MW-6-2 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

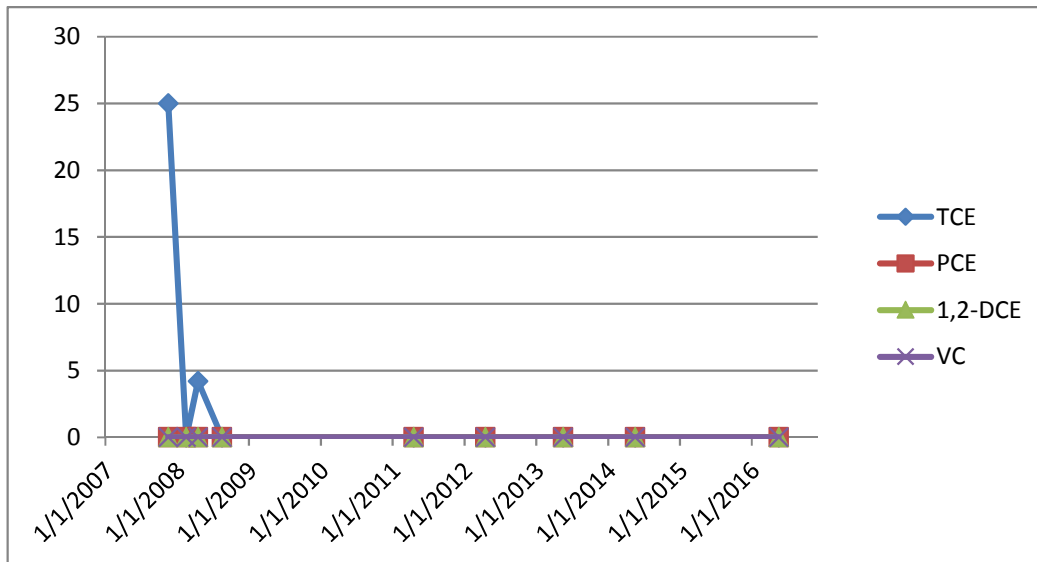
Date	TCE	PCE	1,2-DCE	VC
11/29/2007	25	<	<	<
2/20/2008	<	<	<	<
4/15/2008	4.2	<	<	<
8/14/2008	<	<	<	<
4/27/2011	<	<	<	<
4/25/2012	<	<	<	<
5/14/2013	<	<	<	<
5/14/2014	<	<	<	<
5/9/2016	<	<	<	<

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



MW-6-F-8 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

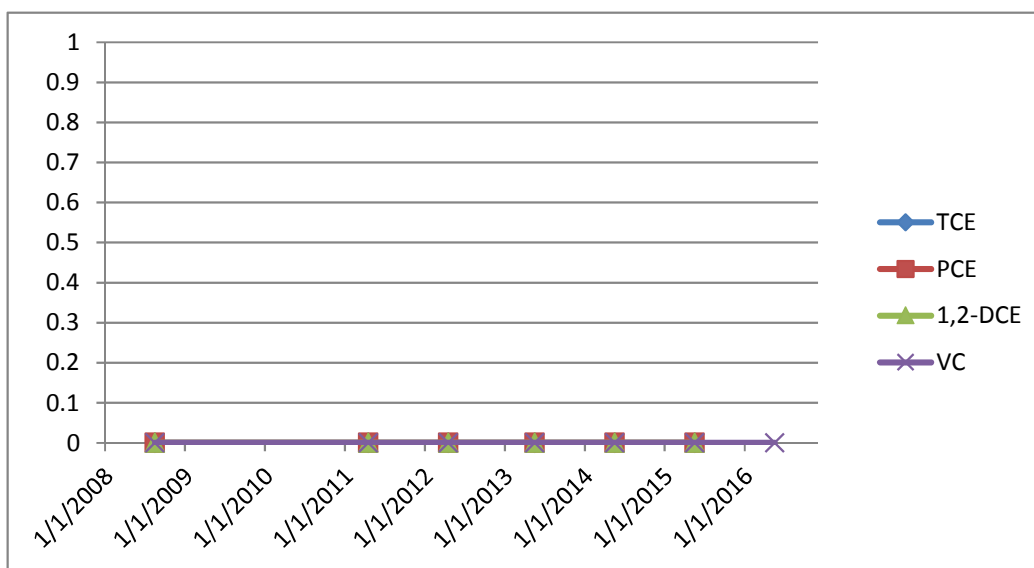
Date	TCE	PCE	1,2-DCE	VC
8/13/2008	<	<	<	<
4/27/2011	<	<	<	<
4/25/2012	<	<	<	<
5/14/2013	<	<	<	<
5/30/2014	<	<	<	<
5/14/2015	<	<	<	<
5/9/2016	<	<	<	<

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



MW-8-1 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

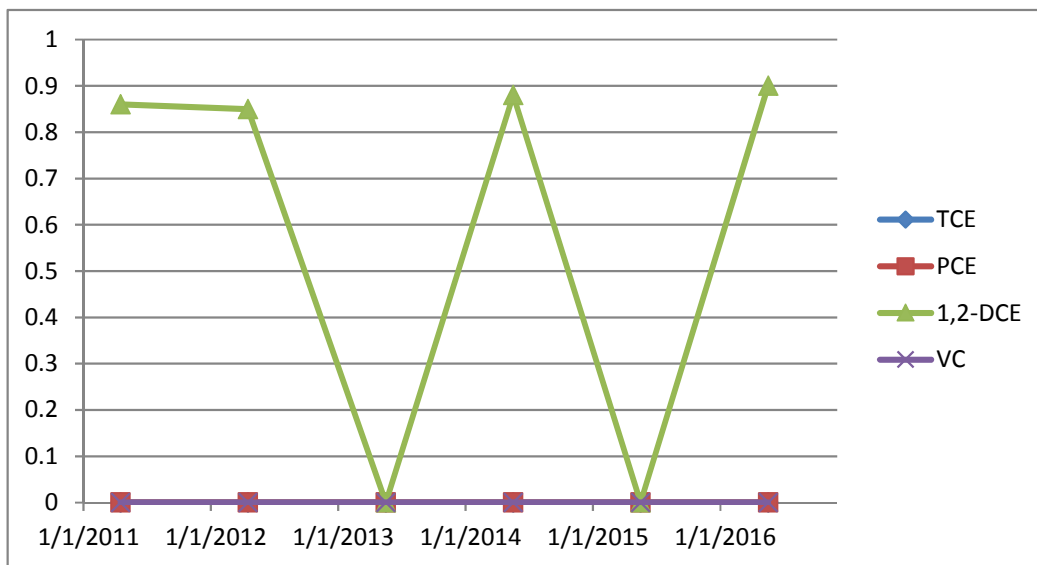
Date	TCE	PCE	1,2-DCE	VC
4/29/2011	<	<	0.86	<
4/30/2012	<	<	0.85	<
5/13/2013	<	<	<	<
5/15/2014	<	<	0.88	<
5/22/2015	<	<	<	<
5/16/2016	<	<	0.9	<

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



MW-8-2 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

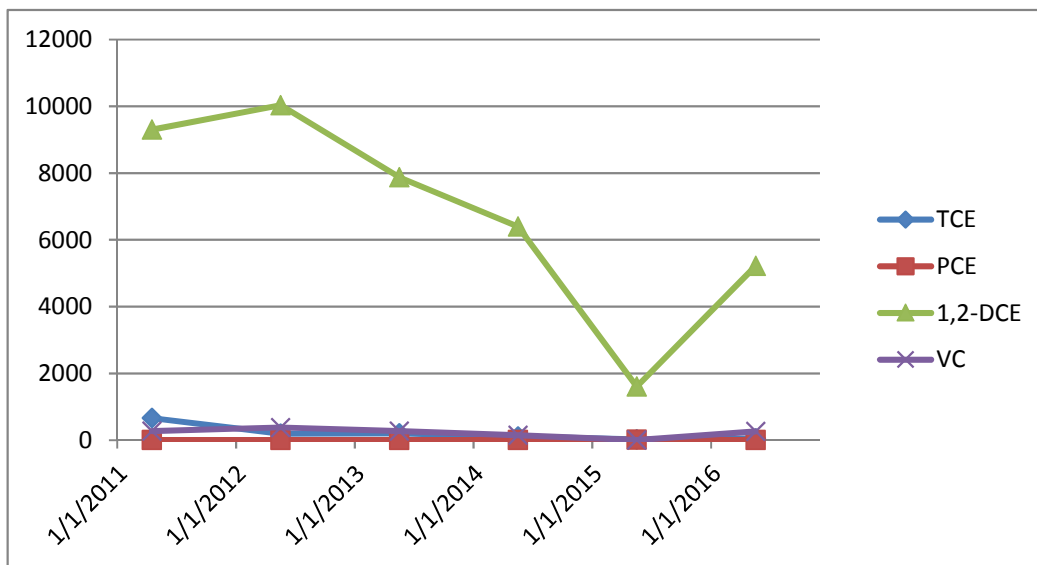
Date	TCE	PCE	1,2-DCE	VC
4/29/2011	660	<	9,300	270
5/3/2012	190	<	10,034	380
5/13/2013	200	<	7,877	270
5/16/2014	110	<	6400	150
5/22/2015	24	10	1,600	<
5/17/2016	47	<	5,216	260

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



MW-8-3 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

Date	TCE	PCE	1,2-DCE	VC
5/2/2011	9.3	1.9	5	<
5/1/2012	5.9	0.84	5.3	<
5/14/2013	0.78	0.49	3	<
5/16/2014	<	<	2.2	<
5/21/2015	<	<	1.8	<
5/18/2016	3.9	<	3.4	<

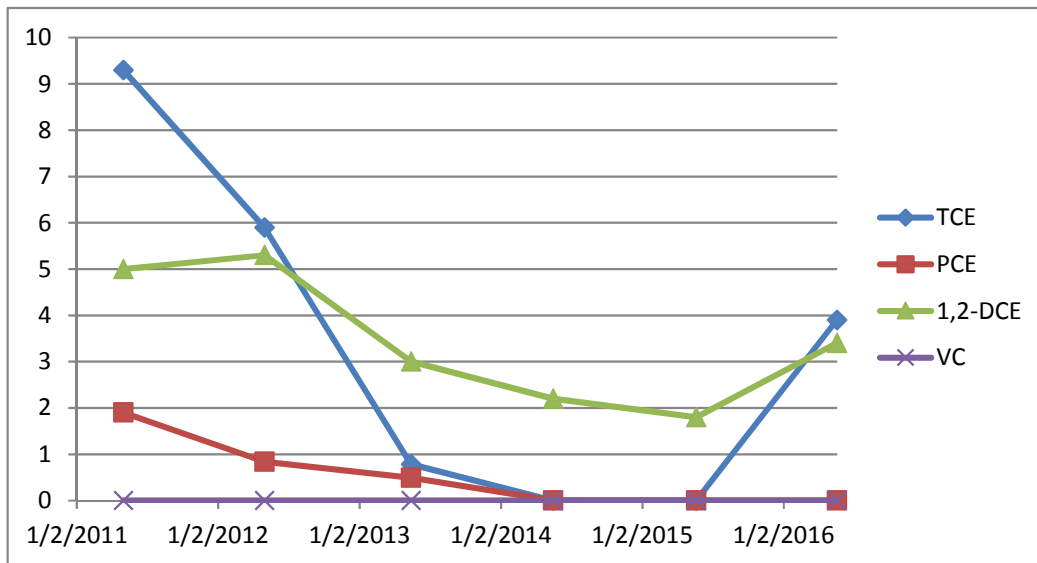
Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

Results from 5/2/2011 are the higher of the sample or its respective duplicate sample.

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



MW-8-4 Groundwater Data
Building 8 BCP Site
GM Components Holdings, LLC
Lockport, New York

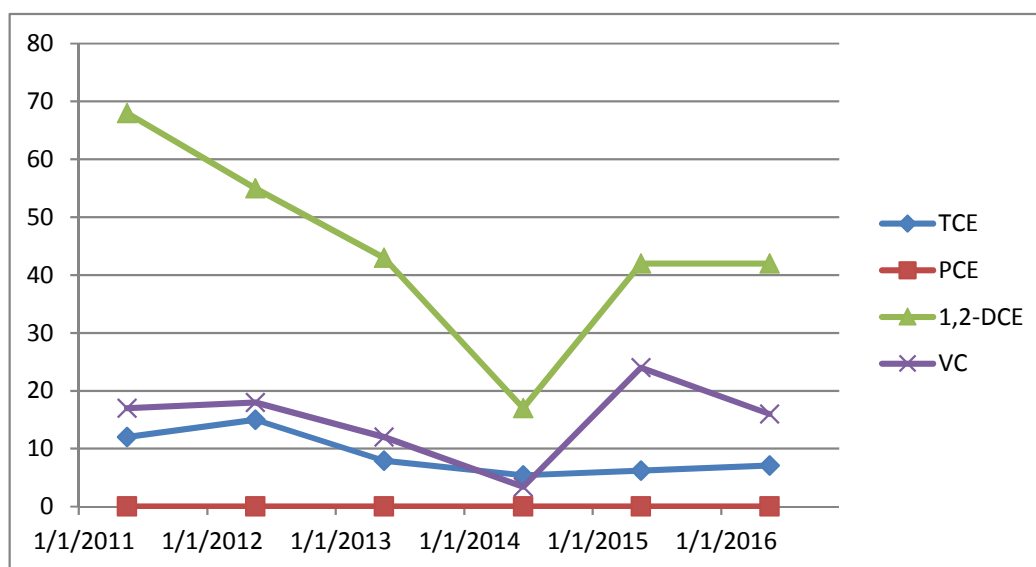
Date	TCE	PCE	1,2-DCE	VC
5/2/2011	12	<	68	17
5/1/2012	15	<	55	18
5/13/2013	7.9	<	43	12
6/2/2014	5.4	<	17	3.4
5/12/2015	6.2	<	42	24
5/9/2016	7.1	<	42	16

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



MW-8-003-B Groundwater Data

GM Components Holdings, LLC
Lockport, New York

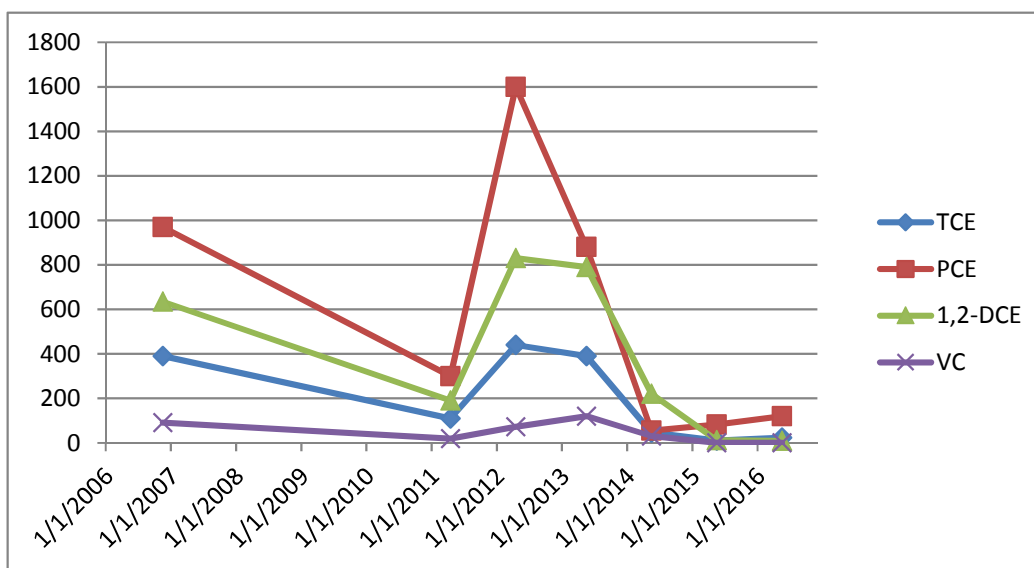
Date	TCE	PCE	1,2-DCE	VC
11/11/2006	390	970	635	91
4/28/2011	110	300	190	19
4/30/2012	440	1,600	830	73
5/10/2013	390	880	790	120
5/29/2014	46	55	220	31
5/14/2015	10	83	12	<
5/16/2016	23	120	9.2	<

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



MW-9-101A Groundwater Data

GM Components Holdings, LLC
Lockport, New York

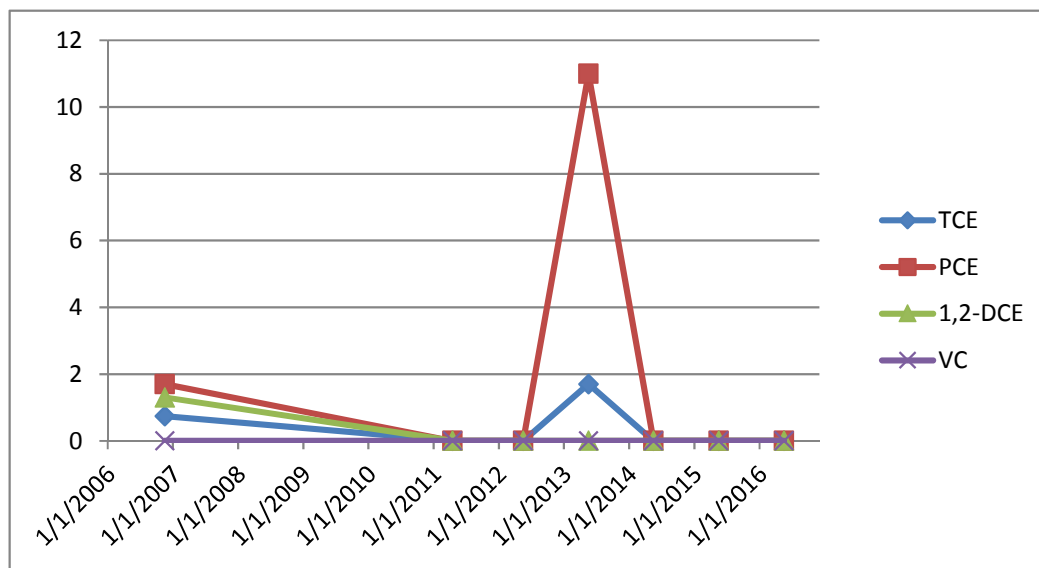
Date	TCE	PCE	1,2-DCE	VC
11/10/2006	0.74	1.7	1.3	<
4/28/2011	<	<	<	<
5/3/2012	<	<	<	<
5/13/2013	1.7	11	<	<
5/22/2014	<	<	<	<
5/21/2015	<	<	<	<
5/18/2016	<	<	<	<

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



MW-9-12 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

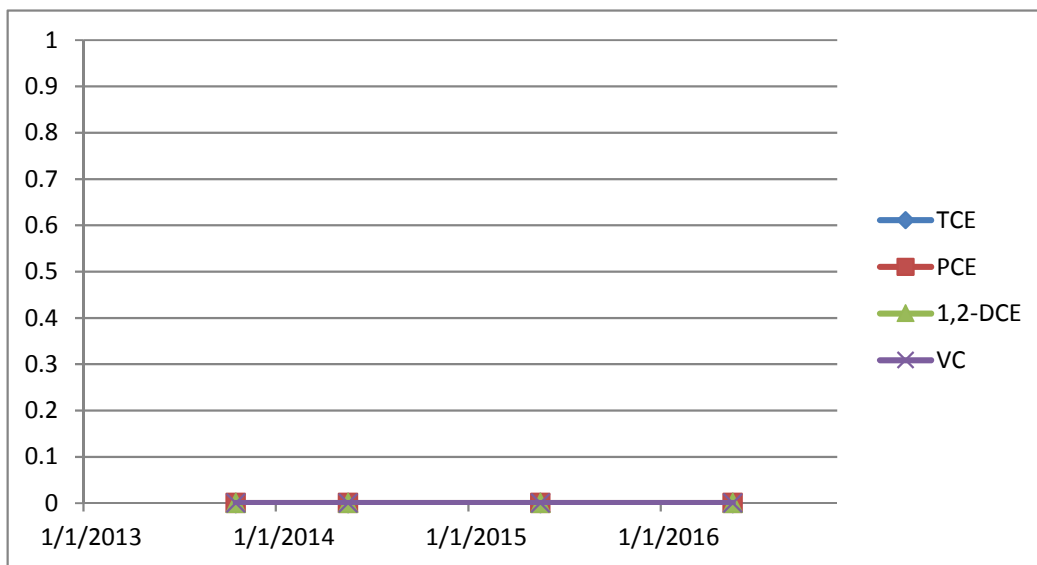
Date	TCE	PCE	1,2-DCE	VC
10/1/2013	<	<	<	<
5/21/2014	<	<	<	<
5/21/2015	<	<	<	<
5/19/2016	<	<	<	<

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



TK-6 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

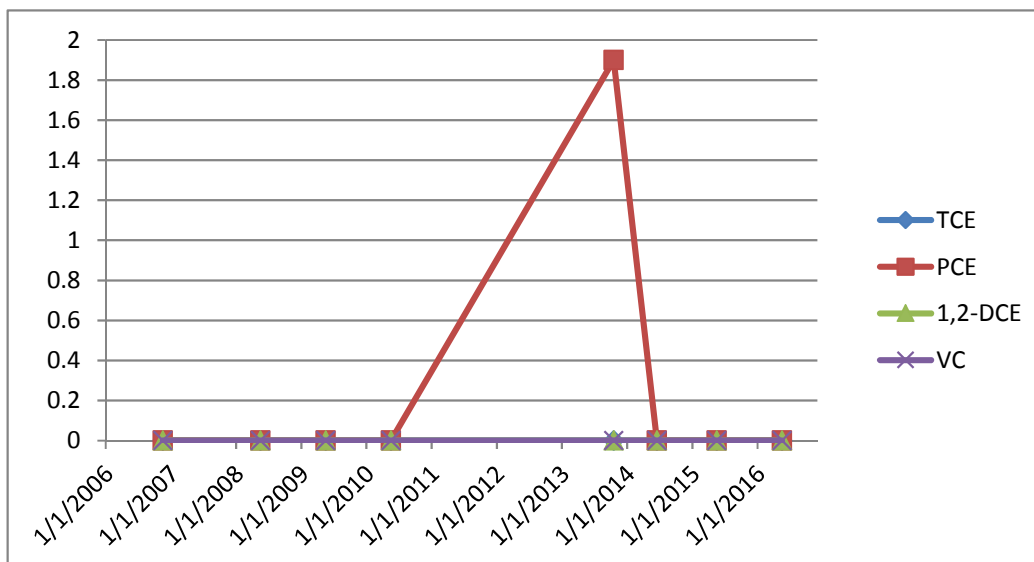
Date	TCE	PCE	1,2-DCE	VC
11/8/2006	<	<	<	<
5/6/2008	<	<	<	<
5/6/2009	<	<	<	<
5/7/2010	<	<	<	<
10/7/2013	<	1.9	<	<
6/2/2014	<	<	<	<
5/20/2015	<	<	<	<
5/19/2016	<	<	<	<

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



Bldg 10-MW-1 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

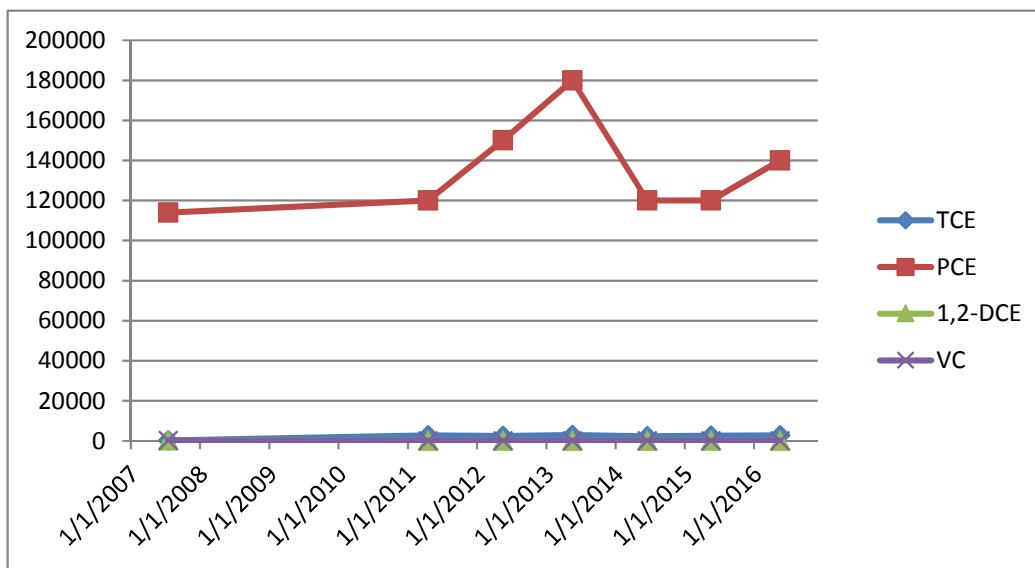
Date	TCE	PCE	1,2-DCE	VC
7/18/2007	200	114,000	235	220
4/29/2011	2,800	120,000	16	100
5/2/2012	2,500	150,000	<	<
5/9/2013	3,000	180,000	<	<
6/3/2014	2300	120000	<	<
5/26/2015	2,600	120,000	<	<
5/19/2016	2,700	140,000	<	<

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



MW-10-2 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

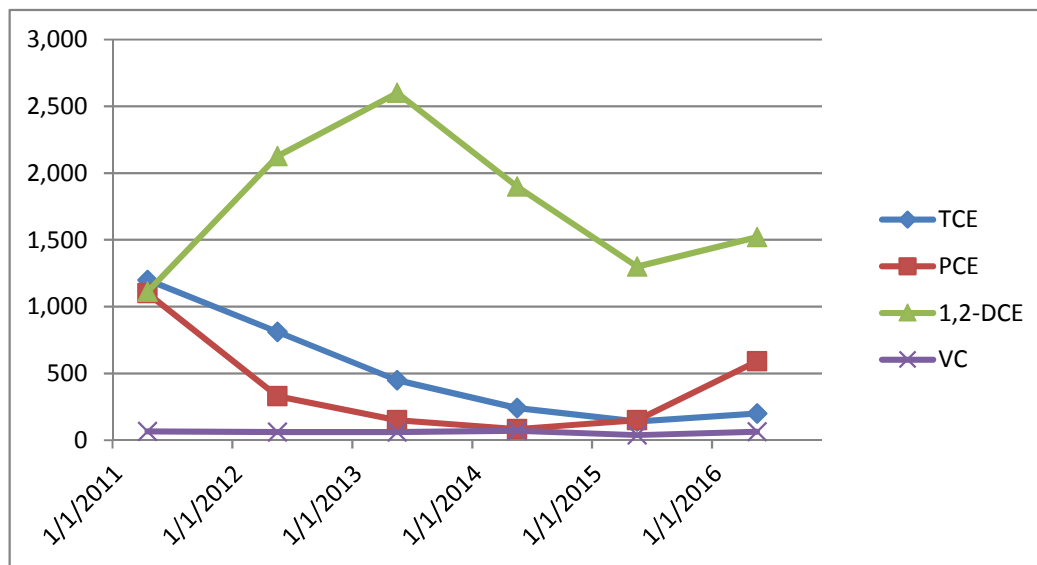
Date	TCE	PCE	1,2-DCE	VC
4/29/2011	1,200	1,100	1,110	66
5/2/2012	810	330	2,126	60
5/9/2013	450	150	2,600	60
5/22/2014	240	83	1900	70
5/19/2015	140	150	1,300	38
5/17/2016	200	590	1,520	62

Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.



MW-10-3 Groundwater Data

GM Components Holdings, LLC
Lockport, New York

Date	TCE	PCE	1,2-DCE	VC
4/29/2011	6	13	11	<
5/2/2012	7	14	14	<
5/9/2013	24	24	38	1.4
5/22/2014	9	14	11	<
5/20/2015	7.2	13	10	<
5/18/2016	3	3.4	7.2	<

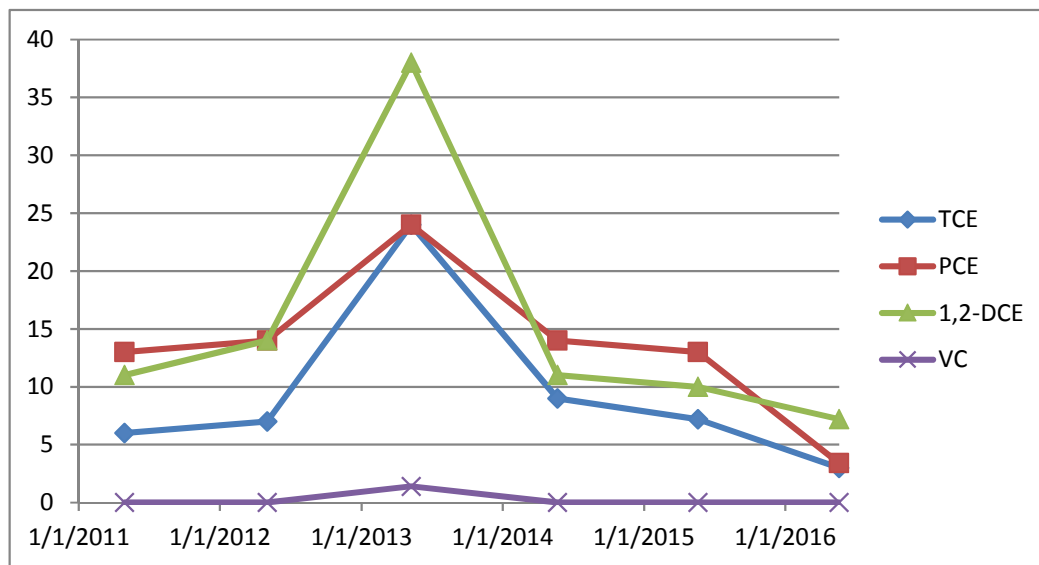
Notes:

Results are provided in parts per billion (ppb)

< = non-detect laboratory result

Results on 4/29/2011 are the higher of the sample or its respective duplicate sample.

1,2 DCE value includes total cis-1,2 DCE and trans 1,2 DCE.





APPENDIX C

DATA QUALITY ASSESSMENT AND VERIFICATION REPORT



Memorandum

August 23, 2016

To: Denis Conley [dconley@haleyaldrich.com]

Ref. No.: 058507-256028

From: Kathy Willy/adh/172

Tel: 716-205-1942

CC: Claire Mondello [cmondello@haleyaldrich.com],
Tom Bohlen [thomas.bohlen@gza.com]

**Subject: Analytical Results and Reduced Validation
Annual Groundwater Monitoring
General Motors Corporation
Lockport, New York
May-June 2016**

1. Introduction

This document details a reduced validation of analytical results for groundwater samples collected in support of the Annual Groundwater Monitoring at the General Motors Corporation (GM) Lockport site during May and June 2016. Samples were submitted to TestAmerica Laboratories, Inc., located in Amherst, New York. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Standard GHD report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, recovery data from surrogate spikes/laboratory control samples (LCS)/matrix spikes (MS).

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the documents entitled:

- i) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", United States Environmental Protection Agency (USEPA) 540/R-99-008, October 1999
- ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review", USEPA 540-R-10-011, January 2010

Items i) and ii) will subsequently be referred to as the "Guidelines" in this Memorandum.



2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All samples were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

For this study, laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation with the exception of some low concentrations of sulfate and manganese. Associated samples with concentrations similar to that found in the method blank were qualified as non-detect. A summary of qualified results is presented in Table 4.

4. Surrogate Spike Recoveries - Organic Analyses

In accordance with the method employed, all samples, blanks, and QC samples analyzed for volatile organic compounds (VOCs) are spiked with surrogate compounds prior to sample analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for VOC determinations were spiked with the appropriate number of surrogate compounds prior to sample analysis.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries met the above criteria.

5. Laboratory Control Sample Analyses

LCS and/or laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS/LCSD were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.



Organic Analyses

The LCS/LCSD contained all compounds of interest. All LCS recoveries and RPDs were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision.

Inorganic Analyses

The LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS recoveries and RPDs were within the control limits, demonstrating acceptable analytical accuracy and precision.

6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of sample matrices on the distillation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed.

MS/MSD analyses were performed as specified in the methods.

Organic Analyses

The MS/MSD samples were spiked with all compounds of interest. All percent recoveries and RPD values were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision.

Inorganic Analyses

The MS/MSD samples were spiked with the analytes of interest, and the results were evaluated using the "Guidelines". All percent recoveries and RPD values were within the control limits, demonstrating acceptable analytical accuracy and precision.

7. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample and two field duplicate sample sets.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, one trip blank was submitted to the laboratory for VOC analysis. All results were non-detect for the compounds of interest.

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, two field duplicate samples were collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 percent for water samples. If the reported concentration in either the



investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criterion is one times the RL value for water samples.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

8. Analyte Reporting

The laboratory reported detected results down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were qualified as estimated (J) in Table 2 unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the RL in Table 2.

9. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable with the specific qualifications noted herein.

Table 1

Sample Collection and Analysis Summary
Annual Groundwater Monitoring
General Motors Corporation
Lockport, New York
May-June 2016

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters											Comments
					Hydrogen Chloride, Sulfate	Ammonia-N	Nitrate (N), Nitrite (N)	Dissolved Gases	Alkalinity	Sulfide	Select Metals	Select VOCs	TOC	Volatile Fatty Acids		
MW-15-050416	MW-15	Groundwater	05/04/2016	17:19	x	x	x	x	x	x	x	x	x	x	x	Trip Blank
TRIP BLANK	--	Water	05/04/2016	--									x			
MW-4-050516	MW-4	Groundwater	05/05/2016	09:30	x	x	x	x	x	x	x	x	x	x	x	
MW-10-050516	MW-10	Groundwater	05/05/2016	11:50	x	x	x	x	x	x	x	x	x	x	x	
MW-11-050516	MW-11	Groundwater	05/05/2016	14:20	x	x	x	x	x	x	x	x	x	x	x	
MW-13-050516	MW-13	Groundwater	05/05/2016	16:10	x	x	x	x	x	x	x	x	x	x	x	
MW-12-050616	MW-12	Groundwater	05/06/2016	11:15	x	x	x	x	x	x	x	x	x	x	x	
MW-14-050616	MW-14	Groundwater	05/06/2016	08:45	x	x	x	x	x	x	x	x	x	x	x	
TRIP BLANK	--	Water	05/06/2016	--									x			Trip Blank
MW-6-1 050916	MW-6-1	Groundwater	05/09/2016	10:55		x	x	x	x	x	x	x	x	x		
MW-6-2 050916	MW-6-2	Groundwater	05/09/2016	09:35		x	x	x	x	x	x	x	x	x		
MW-6-F-8 050916	MW-6-F-8	Groundwater	05/09/2016	14:20		x	x	x	x	x	x	x	x	x		
MW-8-4 050916	MW-8-4	Groundwater	05/09/2016	12:50		x	x	x	x	x	x	x	x	x		
TRIP BLANK	--	Water	05/09/2016	--									x			Trip Blank
MW-7-1 051016	MW-7-1	Groundwater	05/10/2016	12:00		x	x	x	x	x	x	x	x	x		
MW-7-2 051016	MW-7-2	Groundwater	05/10/2016	13:55		x	x	x	x	x	x	x	x	x		
MW-7-3 051016	MW-7-3	Groundwater	05/10/2016	10:20		x	x	x	x	x	x	x	x	x		
TRIP BLANK	--	Water	05/10/2016	--									x			
MW-7-5 051116	MW-7-5	Groundwater	05/11/2016	12:35		x	x	x	x	x	x	x	x	x		
MW-7-6 051116	MW-7-6	Groundwater	05/11/2016	11:00		x	x	x	x	x	x	x	x	x		
MW-7-C-2 051116	MW-7-C-2	Groundwater	05/11/2016	08:45		x	x	x	x	x	x	x	x	x		
TRIP BLANK	--	Water	05/11/2016	--									x			
MW-7-7 051216	MW-7-7	Groundwater	05/12/2016	13:10		x	x	x	x	x	x	x	x	x		
MW-7-A-6 051216	MW-7-A-6	Groundwater	05/12/2016	10:20		x	x	x	x	x	x	x	x	x		
TRIP BLANK	-	Water	05/12/2016	--									x			Trip Blank

Table 1

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General Motors Corporation
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May-June 2016

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments
					Hydrogen Chloride, Sulfate	Ammonia-N	Nitrate (N), Nitrite (N)	Dissolved Gases	Alkalinity	Sulfide	Select Metals	Select VOCs	TOC	Volatile Fatty Acids	
MW-7-4 051316	MW-7-4	Groundwater	05/13/2016	08:05	x	x	x	x	x	x	x	x	x	x	
MW-7-8 051316	MW-7-8	Groundwater	05/13/2016	09:30	x	x	x	x	x	x	x	x	x	x	
MW-7-P-1 051316	MW-7-P-1	Groundwater	05/13/2016	11:10	x	x	x	x	x	x	x	x	x	x	
TRIP BLANK	--	Water	05/13/2016	--									x		Trip Blank
MW-8-1 051616	MW-8-1	Groundwater	05/16/2016	14:05	x	x	x	x	x	x	x	x	x	x	
MW-8-003-B 051616	MW-8-003-B	Groundwater	05/16/2016	12:30	x	x	x	x	x	x	x	x	x	x	
TRIP BLANK	--	Water	05/16/2016	--									x		Trip Blank
MW-7 051716	MW-7	Groundwater	05/17/2016	13:00	x	x	x	x	x	x	x	x	x	x	
MW-8-2 051716	MW-8-2	Groundwater	05/17/2016	09:55	x	x	x	x	x	x	x	x	x	x	
MW-10-2 051716	MW-10-2	Groundwater	05/17/2016	12:00	x	x	x	x	x	x	x	x	x	x	
TRIP BLANK	--	Water	05/17/2016	--									x		Trip Blank
MW-8-3 051816	MW-8-3	Groundwater	05/18/2016	13:45	x	x	x	x	x	x	x	x	x	x	
MW-9-101-A 051816	MW-9-101-A	Groundwater	05/18/2016	11:20	x	x	x	x	x	x	x	x	x	x	
DUPE-1 051816	MW-9-101-A	Groundwater	05/18/2016	00:00	x	x	x	x	x	x	x	x	x	x	Field duplicate of sample MW-9-101-A 051816
MW-10-3 051816	MW-10-3	Groundwater	05/18/2016	09:30	x	x	x	x	x	x	x	x	x	x	
TRIP BLANK	--	Water	05/18/2016	--									x		Trip Blank
BLDG 10 MW-1 051916	BLDG-10-MW-1	Groundwater	05/19/2016	12:40	x	x	x	x	x	x	x	x	x	x	
MW-9-12 051916	MW-9-12	Groundwater	05/19/2016	08:55	x	x	x	x	x	x	x	x	x	x	
TK-6 051916	TK-6	Groundwater	05/19/2016	10:45	x	x	x	x	x	x	x	x	x	x	
TRIP BLANK	--	Water	05/19/2016	--									x		Trip Blank
IP-08 053116	IP-08	Groundwater	05/31/2016	13:20	x			x			x	x	x		
IP-15 053116	IP-15	Groundwater	05/31/2016	14:50	x			x			x	x	x		
DUPE 053116	IP-15	Groundwater	05/31/2016	14:50	x			x			x	x	x		Field duplicate of sample IP-15 053116
MW-7-7 053116	MW-7-7	Groundwater	05/31/2016	11:40	x			x			x	x	x		
TRIP BLANK	--	Water	05/31/2016	--									x		Trip Blank

Table 1

Sample Collection and Analysis Summary
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May-June 2016

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters										Comments
					Hydrogen Chloride, Sulfate Ammonia-N	Nitrate (N), Nitrite (N)	Dissolved Gases	Alkalinity	Sulfide	Select Metals	Select VOCs	TOC	Volatile Fatty Acids		
IP-19 060116	IP-19	Groundwater	06/01/2016	12:55	x		x			x	x	x			
IP-21 060116	IP-21	Groundwater	06/01/2016	11:20	x		x			x	x	x			
MW-7-A-6 060116	MW-7-A-6	Groundwater	06/01/2016	09:25	x		x			x	x	x			
TRIP BLANK	--	Water	06/01/2016	09:00								x		Trip Blank	

Notes:

VOCs - Volatile Organic Compounds

TOC - Total Organic Carbon

-- - Not applicable

Table 2

**Analytical Results Summary
Annual Groundwater Monitoring
General Motors Corporation
Lockport, New York
May-June 2016**

Location ID: Sample Name: Sample Date:		BLDG-10-MW-1 BLDG 10 MW-1 051916 05/19/2016	IP-08 IP-08 053116 05/31/2016	IP-15 IP-15 053116 05/31/2016	IP-15 DUPE 053116 05/31/2016 Duplicate	IP-19 IP-19 060116 06/01/2016	IP-21 IP-21 060116 06/01/2016	MW-4 MW-4-050516 05/05/2016	MW-6-1 MW-6-1 050916 05/09/2016
Parameters	Unit								
Volatile Organic Compounds									
cis-1,2-Dichloroethene	µg/L	2000 U	6500	120	120	11000	6200	23000	1.0 U
Tetrachloroethene	µg/L	140000	130000	450	460	70000	140000	500 U	1.0 U
trans-1,2-Dichloroethene	µg/L	2000 U	33	5.0 U	5.0 U	46	27	500 U	1.0 U
Trichloroethene	µg/L	2700	4600	120	120	17000	69000	29000	1.0 U
Vinyl chloride	µg/L	2000 U	610	5.0 U	5.0 U	1100	340	2900	1.0 U
Metals									
Iron	mg/L	1.3	7.7	3.5	3.4	4.4	3.2	0.50	14.3
Iron (dissolved)	mg/L	--	3.6	0.61	0.64	2.9	1.2	--	--
Magnesium	mg/L	101	--	--	--	--	--	51.9	49.0
Manganese	mg/L	0.46	0.63	0.23	0.23	0.97	0.27	0.26	1.9
Manganese (dissolved)	mg/L	--	0.58	0.21	0.21	0.89	0.24	--	--
Potassium	mg/L	5.6	--	--	--	--	--	14.1	1.8
Sodium	mg/L	123	--	--	--	--	--	695	382
Dissolved Gases									
Hydrogen	nM	--	--	--	--	--	--	17	--
Carbon dioxide	µg/L	62000	--	--	--	--	--	30000	110000
Ethane	µg/L	7.5 U	38 U	7.5 U	7.5 U	150 U	380 U	38 U	7.5 U
Ethene	µg/L	7.0 U	11 J	7.0 U	7.0 U	140 U	350 U	33 J	7.0 U
Methane	µg/L	12	32	34	33	210	320	79	14
Wet Chemistry									
2-Hydroxypropanoic acid	mg/L	--	--	--	--	--	--	1.0 U	--
Acetic acid	mg/L	--	--	--	--	--	--	1.0 U	--
Alkalinity, total (as CaCO ₃)	mg/L	311	--	--	--	--	--	283	424
Ammonia-N	mg/L	0.20	--	--	--	--	--	1.2	0.36
Butanoic acid	mg/L	--	--	--	--	--	--	1.0 U	--
Chloride	mg/L	586	2670	5210	5220	883	1070	1240	814
Formic acid	mg/L	--	--	--	--	--	--	1.0 U	--
Nitrate (as N)	mg/L	0.050 U	--	--	--	--	--	0.050 U	0.050 U
Nitrite (as N)	mg/L	0.050 U	--	--	--	--	--	0.050 U	0.050 U
Propionic acid	mg/L	--	--	--	--	--	--	1.0 U	--

Table 2

**Analytical Results Summary
Annual Groundwater Monitoring
General Motors Corporation
Lockport, New York
May-June 2016**

Location ID:		BLDG-10-MW-1	IP-08	IP-15	IP-15	IP-19	IP-21	MW-4	MW-6-1
Sample Name:		BLDG 10 MW-1 051916	IP-08 053116	IP-15 053116	DUPE 053116	IP-19 060116	IP-21 060116	MW-4-050516	MW-6-1 050916
Sample Date:		05/19/2016	05/31/2016	05/31/2016	05/31/2016 Duplicate	06/01/2016	06/01/2016	05/05/2016	05/09/2016
Parameters	Unit								
Wet Chemistry-Continued									
Pyruvic acid	mg/L	--	--	--	--	--	--	1.0 U	--
Sulfate	mg/L	274	200 U	400 U	400 U	73.4	153	262	40.8
Sulfide	mg/L	0.10 U	--	--	--	--	--	0.10 U	0.10 U
Total organic carbon (TOC)	mg/L	3.6	3.3	1.2	1.2	7.1	3.0	2.2	4.5

Table 2

**Analytical Results Summary
Annual Groundwater Monitoring
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May-June 2016**

Location ID:		MW-6-2	MW-6-F-8	MW-7	MW-7-1	MW-7-2	MW-7-3	MW-7-4
Sample Name:		MW-6-2 050916	MW-6-F-8 050916	MW-7 051716	MW-7-1 051016	MW-7-2 051016	MW-7-3 051016	MW-7-4 051316
Sample Date:		05/09/2016	05/09/2016	05/17/2016	05/10/2016	05/10/2016	05/10/2016	05/13/2016
Parameters	Unit							
Volatile Organic Compounds								
cis-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	51000	1.0 U	1.0 U	2.6	1.0 U
Tetrachloroethene	µg/L	1.0 U	1.0 U	10000 U	1.0 U	1.0 U	1.0 U	11
trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	10000 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	1.0 U	1.0 U	830000	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	µg/L	1.0 U	1.0 U	10000 U	1.0 U	1.0 U	9.9	1.0 U
Metals								
Iron	mg/L	0.050 U	0.050 U	0.095	0.077	0.050 U	2.2	0.18
Iron (dissolved)	mg/L	--	--	--	--	--	--	--
Magnesium	mg/L	42.4	163	43.2	100	32.7	195	30.2
Manganese	mg/L	0.062	0.21	0.014	0.27	0.0034	0.23	0.0047
Manganese (dissolved)	mg/L	--	--	--	--	--	--	--
Potassium	mg/L	4.1	4.1	11.0	5.5	1.2	35.6	1.9
Sodium	mg/L	556	1380	186	704	67.2	3680	183
Dissolved Gases								
Hydrogen	nM	--	--	--	--	--	--	--
Carbon dioxide	µg/L	55000	57000	20000	62000	25000	87000	25000
Ethane	µg/L	7.5 U	7.5 U	23	7.5 U	7.5 U	2.7 J	7.5 U
Ethene	µg/L	7.0 U	7.0 U	130	7.0 U	7.0 U	1.6 J	7.0 U
Methane	µg/L	4.0 U	4.7	40	5.3	4.0 U	71	4.0 U
Wet Chemistry								
2-Hydroxypropanoic acid	mg/L	--	--	--	--	--	--	--
Acetic acid	mg/L	--	--	--	--	--	--	--
Alkalinity, total (as CaCO ₃)	mg/L	398	391	261	334	318	382	360
Ammonia-N	mg/L	0.020 U	0.020 U	0.61	0.020 U	0.020 U	2.2	0.020 U
Butanoic acid	mg/L	--	--	--	--	--	--	--
Chloride	mg/L	1080	2750	268	1630	120	6840	241
Formic acid	mg/L	--	--	--	--	--	--	--
Nitrate (as N)	mg/L	0.041 J	0.13	0.050 U	0.026 J	0.050 U	0.050 U	0.041 J
Nitrite (as N)	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Propionic acid	mg/L	--	--	--	--	--	--	--

Table 2

**Analytical Results Summary
Annual Groundwater Monitoring
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Location ID:		MW-6-2	MW-6-F-8	MW-7	MW-7-1	MW-7-2	MW-7-3	MW-7-4
Sample Name:		MW-6-2 050916	MW-6-F-8 050916	MW-7 051716	MW-7-1 051016	MW-7-2 051016	MW-7-3 051016	MW-7-4 051316
Sample Date:		05/09/2016	05/09/2016	05/17/2016	05/10/2016	05/10/2016	05/10/2016	05/13/2016
Parameters	Unit							
Wet Chemistry-Continued								
Pyruvic acid	mg/L	--	--	--	--	--	--	--
Sulfate	mg/L	107	302 J	177	113	26.1	835	35.5 J
Sulfide	mg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.23	0.10 U
Total organic carbon (TOC)	mg/L	2.5	1.3	6.5	1.7	1.5	2.4	1.2

Table 2

**Analytical Results Summary
Annual Groundwater Monitoring
General Motors Corporation
Lockport, New York
May-June 2016**

Location ID:		MW-7-5	MW-7-6	MW-7-7	MW-7-7	MW-7-8	MW-7-A-6	MW-7-A-6
Sample Name:		MW-7-5 051116	MW-7-6 051116	MW-7-7 051216	MW-7-7 053116	MW-7-8 051316	MW-7-A-6 051216	MW-7-A-6 060116
Sample Date:		05/11/2016	05/11/2016	05/12/2016	05/31/2016	05/13/2016	05/12/2016	06/01/2016
Parameters	Unit							
Volatile Organic Compounds								
cis-1,2-Dichloroethene	µg/L	370	520	26000	26000	81	28000	30000
Tetrachloroethene	µg/L	7000	640	84000	81000	95	170000	140000
trans-1,2-Dichloroethene	µg/L	100 U	10 U	1000 U	1000 U	2.0 U	5000 U	5000 U
Trichloroethene	µg/L	610	320	7500	6900	59	17000	16000
Vinyl chloride	µg/L	100 U	26	4900	5400	3.6	5000 U	5000 U
Metals								
Iron	mg/L	0.059	0.055	0.55	0.94	19.1	0.29	0.71
Iron (dissolved)	mg/L	--	--	--	0.050 U	--	--	0.21
Magnesium	mg/L	159	80.6	209	--	250	115	--
Manganese	mg/L	1.2	0.19	0.066	0.048	0.40	1.0	1.1
Manganese (dissolved)	mg/L	--	--	--	0.029	--	--	1.0
Potassium	mg/L	5.4	9.7	41.8	--	52.3	3.1	--
Sodium	mg/L	2200	2390	1340	--	1300	336	--
Dissolved Gases								
Hydrogen	nM	--	--	--	--	--	--	--
Carbon dioxide	µg/L	100000	46000	2000 U	--	5900	100000	--
Ethane	µg/L	7.5 U	2.0 J	75 U	150 U	7.5 U	150 U	380 U
Ethene	µg/L	7.0 U	7.0 U	320	170	7.0 U	45 J	350 U
Methane	µg/L	3.3 J	33	460	190	18	440	530
Wet Chemistry								
2-Hydroxypropanoic acid	mg/L	--	--	--	--	--	--	--
Acetic acid	mg/L	--	--	--	--	--	--	--
Alkalinity, total (as CaCO ₃)	mg/L	367	337	106	--	102	528	--
Ammonia-N	mg/L	0.020 U	0.020	2.3	--	0.80	0.014 J	--
Butanoic acid	mg/L	--	--	--	--	--	--	--
Chloride	mg/L	4690	4110	3000	3310	3270	780	949
Formic acid	mg/L	--	--	--	--	--	--	--
Nitrate (as N)	mg/L	1.9	0.050 U	0.050 U	--	0.050 U	0.050 U	--
Nitrite (as N)	mg/L	0.047 J	0.050 U	0.050 U	--	0.050 U	0.050 U	--
Propionic acid	mg/L	--	--	--	--	--	--	--

Table 2

**Analytical Results Summary
Annual Groundwater Monitoring
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May-June 2016**

Location ID:	MW-7-5	MW-7-6	MW-7-7	MW-7-7	MW-7-8	MW-7-A-6	MW-7-A-6
Sample Name:	MW-7-5 051116	MW-7-6 051116	MW-7-7 051216	MW-7-7 053116	MW-7-8 051316	MW-7-A-6 051216	MW-7-A-6 060116
Sample Date:	05/11/2016	05/11/2016	05/12/2016	05/31/2016	05/13/2016	05/12/2016	06/01/2016

Parameters**Unit****Wet Chemistry-Continued**

Pyruvic acid	mg/L	--	--	--	--	--	--	--
Sulfate	mg/L	278 J	238 J	345	415	273	53.6	69.9
Sulfide	mg/L	0.10 U	0.10 U	1.1	--	0.10 U	0.10 U	--
Total organic carbon (TOC)	mg/L	3.0	2.1	6.3	6.5	0.65 J	8.4	8.6

Table 2

**Analytical Results Summary
Annual Groundwater Monitoring
General Motors Corporation
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Location ID:		MW-7-C-2	MW-7-P-1	MW-8-1	MW-8-2	MW-8-3	MW-8-003-B	MW-8-4
Sample Name:		MW-7-C-2 051116	MW-7-P-1 051316	MW-8-1 051616	MW-8-2 051716	MW-8-3 051816	MW-8-003-B 051616	MW-8-4 050916
Sample Date:		05/11/2016	05/13/2016	05/16/2016	05/17/2016	05/18/2016	05/16/2016	05/09/2016
Parameters	Unit							
Volatile Organic Compounds								
cis-1,2-Dichloroethene	µg/L	540	1.0 U	0.90 J	5200	3.4	9.2	42
Tetrachloroethene	µg/L	5.0 U	1.0 U	1.0 U	1.0 U	2.0 U	120	1.0 U
trans-1,2-Dichloroethene	µg/L	5.0 U	2.7	1.0 U	16	2.0 U	2.0 U	1.0 U
Trichloroethene	µg/L	5.0 U	1.0 U	1.0 U	47	3.9	23	7.1
Vinyl chloride	µg/L	60	2.9	1.0 U	260	2.0 U	2.0 U	16
Metals								
Iron	mg/L	0.61	109	0.046 J	0.041 J	0.084	0.24	3.1
Iron (dissolved)	mg/L	--	--	--	--	--	--	--
Magnesium	mg/L	160	604	131	41.6	50.5	5.9	89.8
Manganese	mg/L	0.37	9.5	0.15	0.020	6.8	0.23	0.45
Manganese (dissolved)	mg/L	--	--	--	--	--	--	--
Potassium	mg/L	7.9	47.3	20.5	15.1	472	2.9	12.1
Sodium	mg/L	152	253	730	234	352	858	2330
Dissolved Gases								
Hydrogen	nM	--	--	--	--	--	--	--
Carbon dioxide	µg/L	60000	130000	60000	32000	100000	2000	17000
Ethane	µg/L	7.5 U	750 U	3.5 J	1.7 J	13	7.5 U	7.5 U
Ethene	µg/L	7.0 U	700 U	7.0 U	4.4 J	7.0 U	7.0 U	7.0 U
Methane	µg/L	89	7500	31	96	82	4.0 U	65
Wet Chemistry								
2-Hydroxypropanoic acid	mg/L	--	--	--	--	--	--	--
Acetic acid	mg/L	--	--	--	--	--	--	--
Alkalinity, total (as CaCO ₃)	mg/L	319	112	301	365	329	185	144
Ammonia-N	mg/L	0.14	139	1.1	0.67	3.3	0.020 U	0.24
Butanoic acid	mg/L	--	--	--	--	--	--	--
Chloride	mg/L	264	6220	1420	290	1960	1160	4540
Formic acid	mg/L	--	--	--	--	--	--	--
Nitrate (as N)	mg/L	0.050 U	0.050 U	0.050 U	0.050 U	0.039 J	0.64	0.052
Nitrite (as N)	mg/L	0.050 U	0.050 U	0.050 U	0.13	0.050 U	0.050 U	0.050 U
Propionic acid	mg/L	--	--	--	--	--	--	--

Table 2

**Analytical Results Summary
Annual Groundwater Monitoring
General Motors Corporation
Lockport, New York
May-June 2016**

Location ID:		MW-7-C-2	MW-7-P-1	MW-8-1	MW-8-2	MW-8-3	MW-8-003-B	MW-8-4
Sample Name:		MW-7-C-2 051116	MW-7-P-1 051316	MW-8-1 051616	MW-8-2 051716	MW-8-3 051816	MW-8-003-B 051616	MW-8-4 050916
Sample Date:		05/11/2016	05/13/2016	05/16/2016	05/17/2016	05/18/2016	05/16/2016	05/09/2016
Parameters	Unit							
Wet Chemistry-Continued								
Pyruvic acid	mg/L	--	--	--	--	--	--	--
Sulfate	mg/L	841	100 U	734	157	100 U	80.7	298 J
Sulfide	mg/L	0.10 U	0.20 U	4.6	0.12	0.10 U	0.10 U	0.10 U
Total organic carbon (TOC)	mg/L	2.0	0.59 J	0.91 J	1.4	6.1	2.8	2.1

Table 2

**Analytical Results Summary
Annual Groundwater Monitoring
General Motors Corporation
Lockport, New York
May-June 2016**

Location ID: Sample Name: Sample Date:		MW-9-12 MW-9-12 051916 05/19/2016	MW-9-101-A MW-9-101-A 051816 05/18/2016	MW-9-101-A DUPE-1 051816 05/18/2016 Duplicate	MW-10 MW-10-050516 05/05/2016	MW-10-2 MW-10-2 051716 05/17/2016	MW-10-3 MW-10-3 051816 05/18/2016	MW-11 MW-11-050516 05/05/2016
Parameters	Unit							
Volatile Organic Compounds								
cis-1,2-Dichloroethene	µg/L	1.0 U	2.0 U	2.0 U	120	1500	7.2	1.0 U
Tetrachloroethene	µg/L	1.0 U	2.0 U	2.0 U	2.0 U	590	3.4	1.0 U
trans-1,2-Dichloroethene	µg/L	1.0 U	2.0 U	2.0 U	2.0 U	20	1.0 U	1.0 U
Trichloroethene	µg/L	1.0 U	2.0 U	2.0 U	41	200	3.0	1.0 U
Vinyl chloride	µg/L	1.0 U	2.0 U	2.0 U	21	62	1.0 U	1.0 U
Metals								
Iron	mg/L	0.23	0.072	0.050 U	0.050 U	0.046 J	0.050 U	0.64
Iron (dissolved)	mg/L	--	--	--	--	--	--	--
Magnesium	mg/L	23.0	125	122	38.5	75.9	33.6	38.2
Manganese	mg/L	0.23	0.0065	0.0060	1.1	0.065	0.0013 J	0.13
Manganese (dissolved)	mg/L	--	--	--	--	--	--	--
Potassium	mg/L	3.8	14.1	14.4	3.6	10.3	7.7	8.5
Sodium	mg/L	337	746	719	1120	1020	184	144
Dissolved Gases								
Hydrogen	nM	--	--	--	11	--	--	1.1
Carbon dioxide	µg/L	13000	25000	26000	45000	34000	8400	14000
Ethane	µg/L	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U
Ethene	µg/L	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U
Methane	µg/L	4.0 U	4.0 U	1.2 J	15	56	4.0 U	21
Wet Chemistry								
2-Hydroxypropanoic acid	mg/L	--	--	--	1.0 U	--	--	1.0 U
Acetic acid	mg/L	--	--	--	1.0 U	--	--	1.0 U
Alkalinity, total (as CaCO ₃)	mg/L	199	222	224	314	303	167	262
Ammonia-N	mg/L	0.020 U	0.077	0.24	0.020 U	0.26	0.020 U	0.020 U
Butanoic acid	mg/L	--	--	--	1.0 U	--	--	1.0 U
Chloride	mg/L	303	1030	1040	1770	1680	297	237
Formic acid	mg/L	--	--	--	1.0 U	--	--	1.0 U
Nitrate (as N)	mg/L	0.050 U	5.2	5.3	0.092	0.13	0.89	0.20
Nitrite (as N)	mg/L	0.050 U	0.050 U	0.050 U	0.028 J	0.050 U	0.050 U	0.050 U
Propionic acid	mg/L	--	--	--	1.0 U	--	--	1.0 U

Table 2

**Analytical Results Summary
Annual Groundwater Monitoring
General Motors Corporation
Lockport, New York
May-June 2016**

Location ID:		MW-9-12	MW-9-101-A	MW-9-101-A	MW-10	MW-10-2	MW-10-3	MW-11
Sample Name:		MW-9-12 051916	MW-9-101-A 051816	DUPE-1 051816	MW-10-050516	MW-10-2 051716	MW-10-3 051816	MW-11-050516
Sample Date:		05/19/2016	05/18/2016	05/18/2016 Duplicate	05/05/2016	05/17/2016	05/18/2016	05/05/2016
Parameters	Unit							
Wet Chemistry-Continued								
Pyruvic acid	mg/L	--	--	--	10.0 U	--	--	1.0 U
Sulfate	mg/L	40.3	1640	1660	328	238	225	123
Sulfide	mg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Total organic carbon (TOC)	mg/L	1.5	4.0	4.0	4.4	1.5	1.2	1.7

Table 2

**Analytical Results Summary
Annual Groundwater Monitoring
General Motors Corporation
Lockport, New York
May-June 2016**

Location ID: Sample Name: Sample Date:		MW-12 MW-12-050616 05/06/2016	MW-13 MW-13-050516 05/05/2016	MW-14 MW-14-050616 05/06/2016	MW-15 MW-15-050416 05/04/2016	TK-6 TK-6 051916 05/19/2016	TRIP BLANK TRIP BLANK 05/04/2016	TRIP BLANK TRIP BLANK 05/06/2016	TRIP BLANK TRIP BLANK 05/09/2016
Parameters	Unit								
Volatile Organic Compounds									
cis-1,2-Dichloroethene	µg/L	5.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U	5.6	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	1.0 U	1.0 U	1.0 U	0.68 J	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	µg/L	4.9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Metals									
Iron	mg/L	2.5	5.6	0.17	0.050 U	0.050 U	--	--	--
Iron (dissolved)	mg/L	--	--	--	--	--	--	--	--
Magnesium	mg/L	51.0	55.8	55.4	41.5	36.1	--	--	--
Manganese	mg/L	4.3	4.6	0.34	0.18	0.0030 U	--	--	--
Manganese (dissolved)	mg/L	--	--	--	--	--	--	--	--
Potassium	mg/L	3.4	9.8	3.2	3.5	0.84	--	--	--
Sodium	mg/L	974	969	760	334	566	--	--	--
Dissolved Gases									
Hydrogen	nM	1.4	14	14	1.0	--	--	--	--
Carbon dioxide	µg/L	45000	49000	30000	63000	22000	--	--	--
Ethane	µg/L	7.5 U	7.5 U	7.5 U	7.5 U	7.5 U	--	--	--
Ethene	µg/L	7.0 U	7.0 U	7.0 U	7.0 U	7.0 U	--	--	--
Methane	µg/L	86	1.1 J	36	4.0 U	4.0 U	--	--	--
Wet Chemistry									
2-Hydroxypropanoic acid	mg/L	1.0 U	1.0 U	1.0 U	1.0 U	--	--	--	--
Acetic acid	mg/L	1.0 U	1.0 U	1.0 U	1.0 U	--	--	--	--
Alkalinity, total (as CaCO ₃)	mg/L	289	326	402	459	341	--	--	--
Ammonia-N	mg/L	1.1	0.54	0.078	0.020 U	0.020 U	--	--	--
Butanoic acid	mg/L	1.0 U	1.0 U	1.0 U	1.0 U	--	--	--	--
Chloride	mg/L	2010	1830	1350	597	838	--	--	--
Formic acid	mg/L	1.0 U	1.0 U	1.0 U	1.0 U	--	--	--	--
Nitrate (as N)	mg/L	0.12	0.060	0.050 U	0.19	1.0	--	--	--
Nitrite (as N)	mg/L	0.023 J	0.027 J	0.050 U	0.050 U	0.050 U	--	--	--
Propionic acid	mg/L	1.0 U	1.0 U	1.0 U	1.0 U	--	--	--	--

Table 2

**Analytical Results Summary
Annual Groundwater Monitoring
General Motors Corporation
Lockport, New York
May-June 2016**

Location ID:		MW-12	MW-13	MW-14	MW-15	TK-6	TRIP BLANK	TRIP BLANK	TRIP BLANK
Sample Name:		MW-12-050616	MW-13-050516	MW-14-050616	MW-15-050416	TK-6 051916	TRIP BLANK	TRIP BLANK	TRIP BLANK
Sample Date:		05/06/2016	05/05/2016	05/06/2016	05/04/2016	05/19/2016	05/04/2016	05/06/2016	05/09/2016
Parameters	Unit								
Wet Chemistry-Continued									
Pyruvic acid	mg/L	1.0 U	10.0 U	1.0 U	1.0 U	--	--	--	--
Sulfate	mg/L	80.3 J	257	52.1	71.6	218	--	--	--
Sulfide	mg/L	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	--	--	--
Total organic carbon (TOC)	mg/L	3.7	3.6	2.3	2.4	0.95 J	--	--	--

Table 2

**Analytical Results Summary
Annual Groundwater Monitoring
General Motors Corporation
Lockport, New York
May-June 2016**

Location ID:		TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
Sample Name:		TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
Sample Date:		05/10/2016	05/11/2016	05/12/2016	05/13/2016	05/16/2016	05/18/2016	05/19/2016	05/31/2016	06/01/2016
Parameters	Unit									
Volatile Organic Compounds										
cis-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2
Tetrachloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.43 J	9.2
trans-1,2-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.49 J	1.0 U	1.0 U	3.8
Vinyl chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Metals										
Iron	mg/L	--	--	--	--	--	--	--	--	--
Iron (dissolved)	mg/L	--	--	--	--	--	--	--	--	--
Magnesium	mg/L	--	--	--	--	--	--	--	--	--
Manganese	mg/L	--	--	--	--	--	--	--	--	--
Manganese (dissolved)	mg/L	--	--	--	--	--	--	--	--	--
Potassium	mg/L	--	--	--	--	--	--	--	--	--
Sodium	mg/L	--	--	--	--	--	--	--	--	--
Dissolved Gases										
Hydrogen	nM	--	--	--	--	--	--	--	--	--
Carbon dioxide	µg/L	--	--	--	--	--	--	--	--	--
Ethane	µg/L	--	--	--	--	--	--	--	--	--
Ethene	µg/L	--	--	--	--	--	--	--	--	--
Methane	µg/L	--	--	--	--	--	--	--	--	--
Wet Chemistry										
2-Hydroxypropanoic acid	mg/L	--	--	--	--	--	--	--	--	--
Acetic acid	mg/L	--	--	--	--	--	--	--	--	--
Alkalinity, total (as CaCO3)	mg/L	--	--	--	--	--	--	--	--	--
Ammonia-N	mg/L	--	--	--	--	--	--	--	--	--
Butanoic acid	mg/L	--	--	--	--	--	--	--	--	--
Chloride	mg/L	--	--	--	--	--	--	--	--	--
Formic acid	mg/L	--	--	--	--	--	--	--	--	--
Nitrate (as N)	mg/L	--	--	--	--	--	--	--	--	--
Nitrite (as N)	mg/L	--	--	--	--	--	--	--	--	--
Propionic acid	mg/L	--	--	--	--	--	--	--	--	--

Table 2

**Analytical Results Summary
Annual Groundwater Monitoring
General Motors Corporation
Lockport, New York
May-June 2016**

Location ID:	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
Sample Name:	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK	TRIP BLANK
Sample Date:	05/10/2016	05/11/2016	05/12/2016	05/13/2016	05/16/2016	05/18/2016	05/19/2016	05/31/2016	06/01/2016	

Parameters**Unit****Wet Chemistry-Continued**

Pyruvic acid	mg/L	--	--	--	--	--	--	--	--	--
Sulfate	mg/L	--	--	--	--	--	--	--	--	--
Sulfide	mg/L	--	--	--	--	--	--	--	--	--
Total organic carbon (TOC)	mg/L	--	--	--	--	--	--	--	--	--

Notes:

U - Not detected at the associated reporting limit

J - Estimated concentration

-- - Not applicable

Table 3

**Analytical Methods
Annual Groundwater Monitoring
General Motors Corporation
Lockport, New York
May-June 2016**

Parameter	Method	Matrix	Holding Time	
			Collection to Extraction (Days)	Collection or Extraction to Analysis (Days)
TCL VOC	SW-846 8260	Water	--	14
TOC	SW 846 9060	Water	--	28
Sulfide	EPA 376.1	Water	--	7
Total Nitrogen (as ammonia)	EPA 350.1	Water	--	28
Chloride, Sulfate	EPA 300	Water	--	28
Nitrite, Nitrate	EPA 353.2	Water	--	48 hours
Alkalinity	SM 2320	Water	--	14
Methane, Ethane, Ethene, Carbon dioxide	RSK 175	Water	--	14
Hydrogen	AM20GAX	Water	--	14
Select Metals	SW-846 6010B	Water	--	180

Notes:

TCL - Target Compound List
VOCs - Volatile Organic Compounds
TOC - Total Organic Carbon
-- - Not applicable

Method References:

SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions
SM - "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions
EPA - "Methods for Chemical Analysis of Water and Wastes", USEPA-600/4-79-020, March 1983 with subsequent revisions
RSK 175 - EPA Internal Standard Operating Procedure #175 dated 8/11/94 by Bryan Newell at the USEPA R.S. Kerr Laboratory
AM20GAX - Microseeps Labs In-house Method for Dissolved Gases
USEPA - United States Environmental Protection Agency

Table 4

Qualified Sample Results Due to Analyte Concentrations in the Method Blanks
Annual Groundwater Monitoring
General Motors Corporation
Lockport, New York
May-June 2016

Parameter	Analyte	Analysis Date (mm/dd/yyyy)	Blank Result *	Sample ID	Original Result	Qualified Result	Units
General Chemistry	Sulfate	05/20/2016	0.497 J	MW-8-3 051816	58.4 J	100 U	mg/L
General Chemistry	Sulfate	06/02/2016	0.907 J	IP-08 053116	145 J	200 U	mg/L
				IP-15 053116	254 J	400 U	mg/L
				DUPE 053116	252 J	400 U	mg/L
Metals	Manganese	05/19/2016	0.000550 J	TK-6 051916	0.0010 J	0.0030 U	mg/L

Notes:

- * - Blank result adjusted for sample factors where applicable
- U - Not detected at the associated reporting limit
- J - Estimated concentration



APPENDIX D

ANAEROBIC BIODEGRADATION SCREENING TABLES

EPA cVOC MONITORED NATURAL ATTENUATION RANKING SYSTEM

Strength of Evidence Scorecard
Delphi Harrison Thermal Systems Site
GM Component Holdings, LLC
Lockport, New York

Analysis	Concentration in Most Contaminated Zone	Value	MW-7-1	MW-7-2	MW-7-3	MW-7-4	MW-7-5	MW-7-6	MW-7-7	MW-7-8	MW-7-A-6	MW-7-C-2	MW-7-P-1	MW-6-1	MW-6-2	MW-6-F-8	MW-8-1	MW-8-2	MW-8-3	MW-8-4	MW-8-003-B	MW-9-101A	MW-9-12	TK-6	MW-10-1	MW-10-2	MW-10-3	
DO	<0.5 mg/L	3	3	3	3	0	3	3	3	3	3	3	3	3	3	3	3	3	0	0	0	0	3	0	0	3	0	
DO	>5 mg/l	-3																										
Nitrate	<1 mg/L	2	2	0	2	2	0	0	2	0	0	0	2	0	2	2	0	2	2	2	2	2	0	2	0	0	2	0
Iron II	>1 mg/l	2	0	0	2	0	0	0	0	2	0	0	2	2	0	0	0	0	0	2	0	0	0	0	2	0	0	
Sulfate	<20 mg/L	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Sulfide	>1 mg/L	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	
Methane	<0.5 mg/L	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Methane	>0.5 mg/L	3																										
ORP	<50 mV	1	1	0	1	0	0	1	2	1	1	1	2	2	0	0	2	2	1	1	0	0	1	0	1	1	0	
ORP	<-100 mV	2																										
pH	5< pH <9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
pH	5> pH >10	-2																										
TOC	>20 mg/L	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Temp	> 20°C	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	
Carbon Dioxide	>2 times background (15,000)	1	1	0	1	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	1	0
Alkalinity	>2 times background (356)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Chloride	>2 times background (2,195)	2	0	0	2	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	
Hydrogen	>1 nM	3																										
Hydrogen	<1nM	0																										
Volatile Fatty Acids	>0.1 mg/L	2																										
BTEX	>0.1 mg/L	2																										
PCE		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TCE	If Daughter Product	2	0	0	0	0	2	2	2	2	2	0	0	0	0	0	0	0	2	2	2	2	0	0	0	2	2	2
DCE	If Daughter Product	2	0	0	2	0	2	2	2	2	2	2	0	0	0	0	2	2	2	2	2	2	0	0	0	0	2	2
VC	If Daughter Product	2	0	0	2	0	0	2	2	2	0	2	2	0	0	0	0	2	0	2	0	0	0	0	0	0	2	0
1,1,1-TCA		0																										
DCA	If Daughter Product	2																										
Carbon Tetrachloride		0																										
Chloroethane	If Daughter Product	2																										
Ethene/Ethane	>0.01 mg/L or	2	0	0	0	0	0	3	3	3	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	
	>0.1 mg/L	3																										
Chloroform	If Daughter Product	2																										
Dichloromethane	If Daughter Product	2																										
		SCORE	7	3	15	2	10	14	19	15	12	9	20	8	6	6	11	14	11	13	6	0	6	0	6	13	4	
Scoring Interpretation																												
0 to 5	Inadequate evidence for anaerobic biodegradation* of chlorinated organics																											
6 to 14	Limited evidence for anaerobic biodegradation* of chlorinated organics																											
15 to 20	Adequate evidence for anaerobic biodegradation* of chlorinated organics																											
>20	Strong evidence for anaerobic biodegradation* of chlorinated organics																											
*reductive dechlorination																												
Values Taken from EPA Document EPA/600/R-98/128, Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water , 1998, Table 2.3 and Table 2.4																												

- Notes:
1. ND=not detected
2. NT=not tested



APPENDIX E

TABLE E-1 WELL CONDITION SURVEY

TABLE E-1
WELL CONDITION SURVEY
GMCH LOCKPORT/DELPHI HARRISON SITE
MAY 2015

Date	Well ID	Surface Completion Type	Condition of Well Label	Outer Casing Condition	Surface Seal Condition (Gasket)	Lock Present?	Lock Condition	Condition of Drainage Pad (Concrete)	Well Paint Condition	PID Reading (ppm)	Depth to Product	Depth to Water	Product Thickness	Well Depth to Bottom	Well Bottom Condition	Inner Riser Condition	Inner Riser Size & Type	Riser Cap Present?	Riser Cap Type	Comments/Notes
4-May-16	MW-6-2	Stick-Up	Faded	Good	Good	Yes	Good	Good	None	0		3.66		26.22	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-6-1	Stick-Up	Faded	Good	Good	Yes	Good	Good	None	0		3.36		18.86	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-15	Stick-Up	Gone	Good	Good	Yes	Good	Broken	None	0		7.52		16.95	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-11	Stick-Up	Gone	Good	Good	Yes	Good	Good	None	0		5.52		25.21	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-13	Flush Mount	None	--		Yes	Good	Good	None	0		4.87		14.16	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-14	Stick-Up	Gone	Good	Good	Yes	Good	Broken	None	0		5.31		21.40	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-12	Stick-Up	Gone	Good	Good	Yes	Good	Good	None	0		6.38		16.45	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-7-3	Flush Mount	None	--	Good	No	--	Good	None	0		3.59		24.78	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-7-1	Flush Mount	None	--	Good	No	--	Good	None	0.0		4.01		22.66	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-7-2	Stick-Up	Faded	Good	Good	Yes	Good	Good	None	0.0		4.63		21.91	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-7-4	Stick-Up	None	Good	Good	Yes	Good	Good	None	0.0		11.55		21.34	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-4	Stick-Up	None	Good	Good	Yes	Good	Good	None	33.2		8.43		34.97	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-10	Stick-Up	None	Good	Good	No	--	None	Good	0.0		14.15		23.82	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-8-4	Flush Mount	None	--	Good	No	--	Good	None	0.0		8.01		21.89	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-8-2	Flush Mount	None	--	Good	No	--	Good	None	1.9		7.46		22.76	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-8-3	Flush Mount	None	--	Good	No	--	Good	None	0.0		8.36		22.05	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-8-1	Flush Mount	None	+	Good	No	--	Good	None	0.0		5.51		22.67	Soft	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-8-003-B	Flush Mount	None	--	Good	No	--	Good	None	1.0		4.49		14.87	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-7-C-2	Flush Mount	None	--	Good	No	--	Good	None	0.0		5.16		24.08	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-7-6	Flush Mount	None	--	Good	No	--	Cracked	None	0.0		3.73		16.41	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-7-5	Flush Mount	None	--	Good	No	--	Cracked	None	21.3		8.17		21.82	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-7-P-1	Flush Mount	None	--	Good	No	--	Good	None	2.0		9.35		19.89	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-7-8	Flush Mount	None	--	Good	No	--	Good	None	7.6		5.01		19.61	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-7-A-6	Flush Mount	None	--	Good	No	--	Good	None	823.6		2.68		14.01	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-10-2	Flush Mount	None	--	Gone	No	--	Gone	None	5.0		2.84		16.02	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-7-7	Flush Mount	None	--	Gone	No	--	Gone	None	306.2		3.24		13.69	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-10-3	Flush Mount	None	--	Good	No	--	Good	None	0.5		2.76		15.40	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-9-101-A	Flush Mount	None	--	Good	No	--	Good	None	0.0		4.13		12.25	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-9-12	Flush Mount	None	--	Good	No	--	Good	Good	0.1		5.11		15.39	Hard	OK	2" PVC	Yes	J-Plug	
4-May-16	TK-6	Stick-Up	Good	Good	Good	Yes	--	Good	Good	0.0		8.49		13.24	Relatively hard	OK	4" PVC	Yes	J-Plug	
4-May-16	BLDG10 MW-1	Flush Mount	None	--	Good	No	--	None	Good	665.2		5.49		15.42	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-7	Stick-Up	None	Good	Good	Yes	--	Good	None	385.2		6.67		27.39	Relatively hard	OK	2" PVC	Yes	J-Plug	
4-May-16	MW-6-F-8	Flush Mount	None	--	Good	No	--	Good	None	0.0		7.73		14.42	Relatively hard	OK	2" PVC	Yes	J-Plug	
	MW-9	Stick-Up															2" PVC			Well not inspected or sampled in May 2016
	MW-5	Stick-Up															2" PVC			Well not inspected or sampled in May 2016
	MW-6-F-7	Flush Mount															2" PVC			Well not inspected or sampled in May 2016
	MW-6-F-9	Flush Mount															2" PVC			Well not inspected or sampled in May 2016
	TK-1	Stick-Up															2" SS			Well not inspected or sampled in May 2016
	TK-2	Stick-Up															2" SS			Well not inspected or sampled in May 2016
	TK-3	Stick-Up															4" PVC			Well not inspected or sampled in May 2016
	TK-4	Stick-Up															4" PVC			Well not inspected or sampled in May 2016
	TK-5	Stick-Up															4" PVC			Well not inspected or sampled in May 2016
	MW-8	Stick-Up															2" PVC			Well not inspected or sampled in May 2016
	MW-3	Stick-Up															2" PVC			Well not inspected or sampled in May 2016
	MW-3 S/D	Stick-Up															2" PVC			Well not inspected or sampled in May 2016
	MW-6	Stick-Up															2" PVC			Well not inspected or sampled in May 2016

*Measurements taken from top of riser unless otherwise noted



APPENDIX F

TESTAMERICA ANALYTICAL LABORATORY REPORTS

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-99838-1

Client Project/Site: 058507, GM-Lockport Groundwater
Sampling

For:

GHD Services Inc.

2055 Niagara Falls Blvd., Suite 3

Niagara Falls, New York 14304

Attn: Kathleen Willy



Authorized for release by:

5/20/2016 10:24:44 AM

Rebecca Jones, Project Management Assistant I

rebecca.jones@testamericainc.com

Designee for

Melissa Deyo, Project Manager I

(716)504-9874

melissa.deyo@testamericainc.com

LINKS

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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.

TestAmerica Job ID: 480-99838-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Qualifiers

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

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: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99838-1

Job ID: 480-99838-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-99838-1

Receipt

The samples were received on 5/9/2016 3:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6° C.

Receipt Exceptions

The container label for the following samples did not match the information listed on the Chain-of-Custody (COC): MW-6-2 050916 (480-99838-1), MW-6-1 050916 (480-99838-2), MW-8-4 050916 (480-99838-3), MW-6-F-B 050916 (480-99838-4) and TRIP BLANK (480-99838-5). The client sample ID's do not have sample dates and times recorded. Samples were logged in per COC.

GC/MS VOA

Method(s) 8260C: The continuing calibration verification (CCV) analyzed in 480-302154 was outside the method criteria for the following analyte(s): Vinyl chloride As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

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

HPLC/IC

Method(s) 300.0: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-6-2 050916 (480-99838-1), MW-6-1 050916 (480-99838-2), MW-8-4 050916 (480-99838-3) and MW-6-F-B 050916 (480-99838-4). Elevated reporting limits (RLs) are provided.

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

GC VOA

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

Metals

Method(s) 6010C: The Low Level Continuing Calibration Verification (CCVL 480-301140/38) contained Total Sodium above the upper quality control limit. All reported samples MW-6-2 050916 (480-99838-1), MW-6-1 050916 (480-99838-2), MW-8-4 050916 (480-99838-3) and MW-6-F-B 050916 (480-99838-4) associated with this CCVL were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCVL; therefore, re-analysis of samples was not performed.

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.

Detection Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99838-1

Client Sample ID: MW-6-2 050916

Lab Sample ID: 480-99838-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Carbon Dioxide (TCD)	55000		2000	1000	ug/L		1		RSK-175	Total/NA
Magnesium	42.4		0.20	0.043	mg/L		1		6010C	Total/NA
Manganese	0.062	B	0.0030	0.00040	mg/L		1		6010C	Total/NA
Potassium	4.1		0.50	0.10	mg/L		1		6010C	Total/NA
Sodium	556	^	1.0	0.32	mg/L		1		6010C	Total/NA
Chloride	1080		10.0	5.6	mg/L		20		300.0	Total/NA
Sulfate	107		40.0	7.0	mg/L		20		300.0	Total/NA
Nitrate	0.041	J	0.050	0.020	mg/L		1		353.2	Total/NA
Total Organic Carbon	2.5	B	1.0	0.43	mg/L		1		9060A	Total/NA
Total Alkalinity	398		5.0	0.79	mg/L		1		SM 2320B	Total/NA

Client Sample ID: MW-6-1 050916

Lab Sample ID: 480-99838-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Carbon Dioxide (TCD)	110000		4000	2000	ug/L		2		RSK-175	Total/NA
Methane	14		4.0	1.0	ug/L		1		RSK-175	Total/NA
Iron	14.3	B	0.050	0.019	mg/L		1		6010C	Total/NA
Magnesium	49.0		0.20	0.043	mg/L		1		6010C	Total/NA
Manganese	1.9	B	0.0030	0.00040	mg/L		1		6010C	Total/NA
Potassium	1.8		0.50	0.10	mg/L		1		6010C	Total/NA
Sodium	382	^	1.0	0.32	mg/L		1		6010C	Total/NA
Chloride	814		10.0	5.6	mg/L		20		300.0	Total/NA
Sulfate	40.8		40.0	7.0	mg/L		20		300.0	Total/NA
Ammonia	0.36		0.020	0.0090	mg/L		1		350.1	Total/NA
Total Organic Carbon	4.5	B	1.0	0.43	mg/L		1		9060A	Total/NA
Total Alkalinity	424		5.0	0.79	mg/L		1		SM 2320B	Total/NA

Client Sample ID: MW-8-4 050916

Lab Sample ID: 480-99838-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	42		1.0	0.81	ug/L		1		8260C	Total/NA
Trichloroethene	7.1		1.0	0.46	ug/L		1		8260C	Total/NA
Vinyl chloride	16		1.0	0.90	ug/L		1		8260C	Total/NA
Carbon Dioxide (TCD)	17000		2000	1000	ug/L		1		RSK-175	Total/NA
Methane	65		4.0	1.0	ug/L		1		RSK-175	Total/NA
Iron	3.1	B	0.050	0.019	mg/L		1		6010C	Total/NA
Magnesium	89.8		0.20	0.043	mg/L		1		6010C	Total/NA
Manganese	0.45	B	0.0030	0.00040	mg/L		1		6010C	Total/NA
Potassium	12.1		0.50	0.10	mg/L		1		6010C	Total/NA
Sodium	2330	^	1.0	0.32	mg/L		1		6010C	Total/NA
Chloride	4540		100	56.4	mg/L		200		300.0	Total/NA
Sulfate	298	J	400	69.8	mg/L		200		300.0	Total/NA
Ammonia	0.24		0.020	0.0090	mg/L		1		350.1	Total/NA
Nitrate	0.052		0.050	0.020	mg/L		1		353.2	Total/NA
Total Organic Carbon	2.1	B	1.0	0.43	mg/L		1		9060A	Total/NA
Total Alkalinity	144		5.0	0.79	mg/L		1		SM 2320B	Total/NA

Client Sample ID: MW-6-F-B 050916

Lab Sample ID: 480-99838-4

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Detection Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-99838-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Client Sample ID: MW-6-F-B 050916 (Continued)

Lab Sample ID: 480-99838-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon Dioxide (TCD)	57000		2000	1000	ug/L	1		RSK-175	Total/NA
Methane	4.7		4.0	1.0	ug/L	1		RSK-175	Total/NA
Magnesium	163		0.20	0.043	mg/L	1		6010C	Total/NA
Manganese	0.21	B	0.0030	0.00040	mg/L	1		6010C	Total/NA
Potassium	4.1		0.50	0.10	mg/L	1		6010C	Total/NA
Sodium	1380	^	1.0	0.32	mg/L	1		6010C	Total/NA
Chloride	2750		100	56.4	mg/L	200		300.0	Total/NA
Sulfate	302	J	400	69.8	mg/L	200		300.0	Total/NA
Nitrate	0.13		0.050	0.020	mg/L	1		353.2	Total/NA
Total Organic Carbon	1.3	B	1.0	0.43	mg/L	1		9060A	Total/NA
Total Alkalinity	391		5.0	0.79	mg/L	1		SM 2320B	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-99838-5

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99838-1

Client Sample ID: MW-6-2 050916

Lab Sample ID: 480-99838-1

Date Collected: 05/09/16 09:35

Matrix: Water

Date Received: 05/09/16 15:45

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/17/16 03:47	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/17/16 03:47	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/17/16 03:47	1
Trichloroethene	ND		1.0	0.46	ug/L			05/17/16 03:47	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/17/16 03:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		66 - 137		05/17/16 03:47	1
4-Bromofluorobenzene (Surr)	92		73 - 120		05/17/16 03:47	1
Toluene-d8 (Surr)	96		71 - 126		05/17/16 03:47	1
Dibromofluoromethane (Surr)	93		60 - 140		05/17/16 03:47	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	55000		2000	1000	ug/L			05/18/16 19:00	1
Ethane	ND		7.5	1.5	ug/L			05/11/16 11:42	1
Ethene	ND		7.0	1.5	ug/L			05/11/16 11:42	1
Methane	ND		4.0	1.0	ug/L			05/11/16 11:42	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.050	0.019	mg/L		05/10/16 07:25	05/10/16 17:51	1
Magnesium	42.4		0.20	0.043	mg/L		05/10/16 07:25	05/10/16 17:51	1
Manganese	0.062	B	0.0030	0.00040	mg/L		05/10/16 07:25	05/10/16 17:51	1
Potassium	4.1		0.50	0.10	mg/L		05/10/16 07:25	05/10/16 17:51	1
Sodium	556	^	1.0	0.32	mg/L		05/10/16 07:25	05/10/16 17:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1080		10.0	5.6	mg/L			05/11/16 08:02	20
Sulfate	107		40.0	7.0	mg/L			05/11/16 08:02	20
Ammonia	ND		0.020	0.0090	mg/L			05/11/16 16:02	1
Nitrate	0.041	J	0.050	0.020	mg/L			05/10/16 11:05	1
Nitrite	ND		0.050	0.020	mg/L			05/10/16 11:05	1
Total Organic Carbon	2.5	B	1.0	0.43	mg/L			05/11/16 14:25	1
Total Alkalinity	398		5.0	0.79	mg/L			05/10/16 11:57	1
Sulfide	ND		0.10	0.052	mg/L			05/11/16 06:55	1

Client Sample ID: MW-6-1 050916

Lab Sample ID: 480-99838-2

Date Collected: 05/09/16 10:55

Matrix: Water

Date Received: 05/09/16 15:45

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/17/16 04:11	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/17/16 04:11	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/17/16 04:11	1
Trichloroethene	ND		1.0	0.46	ug/L			05/17/16 04:11	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/17/16 04:11	1

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99838-1

Client Sample ID: MW-6-1 050916

Lab Sample ID: 480-99838-2

Date Collected: 05/09/16 10:55

Matrix: Water

Date Received: 05/09/16 15:45

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		66 - 137		05/17/16 04:11	1
4-Bromofluorobenzene (Surr)	96		73 - 120		05/17/16 04:11	1
Toluene-d8 (Surr)	100		71 - 126		05/17/16 04:11	1
Dibromofluoromethane (Surr)	91		60 - 140		05/17/16 04:11	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	110000		4000	2000	ug/L			05/18/16 19:13	2
Ethane	ND		7.5	1.5	ug/L			05/11/16 11:59	1
Ethene	ND		7.0	1.5	ug/L			05/11/16 11:59	1
Methane	14		4.0	1.0	ug/L			05/11/16 11:59	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	14.3	B	0.050	0.019	mg/L		05/10/16 07:25	05/10/16 17:54	1
Magnesium	49.0		0.20	0.043	mg/L		05/10/16 07:25	05/10/16 17:54	1
Manganese	1.9	B	0.0030	0.00040	mg/L		05/10/16 07:25	05/10/16 17:54	1
Potassium	1.8		0.50	0.10	mg/L		05/10/16 07:25	05/10/16 17:54	1
Sodium	382	^	1.0	0.32	mg/L		05/10/16 07:25	05/10/16 17:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	814		10.0	5.6	mg/L			05/11/16 08:10	20
Sulfate	40.8		40.0	7.0	mg/L			05/11/16 08:10	20
Ammonia	0.36		0.020	0.0090	mg/L			05/11/16 16:03	1
Nitrate	ND		0.050	0.020	mg/L			05/10/16 11:06	1
Nitrite	ND		0.050	0.020	mg/L			05/10/16 11:06	1
Total Organic Carbon	4.5	B	1.0	0.43	mg/L			05/11/16 16:39	1
Total Alkalinity	424		5.0	0.79	mg/L			05/10/16 12:19	1
Sulfide	ND		0.10	0.052	mg/L			05/11/16 06:55	1

Client Sample ID: MW-8-4 050916

Lab Sample ID: 480-99838-3

Date Collected: 05/09/16 12:50

Matrix: Water

Date Received: 05/09/16 15:45

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	42		1.0	0.81	ug/L			05/17/16 15:54	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/17/16 15:54	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/17/16 15:54	1
Trichloroethene	7.1		1.0	0.46	ug/L			05/17/16 15:54	1
Vinyl chloride	16		1.0	0.90	ug/L			05/17/16 15:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		66 - 137		05/17/16 15:54	1
4-Bromofluorobenzene (Surr)	89		73 - 120		05/17/16 15:54	1
Toluene-d8 (Surr)	97		71 - 126		05/17/16 15:54	1
Dibromofluoromethane (Surr)	104		60 - 140		05/17/16 15:54	1

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99838-1

Client Sample ID: MW-8-4 050916

Lab Sample ID: 480-99838-3

Date Collected: 05/09/16 12:50

Matrix: Water

Date Received: 05/09/16 15:45

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	17000		2000	1000	ug/L			05/18/16 20:07	1
Ethane	ND		7.5	1.5	ug/L			05/11/16 12:17	1
Ethene	ND		7.0	1.5	ug/L			05/11/16 12:17	1
Methane	65		4.0	1.0	ug/L			05/11/16 12:17	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	3.1	B	0.050	0.019	mg/L		05/10/16 07:25	05/10/16 17:58	1
Magnesium	89.8		0.20	0.043	mg/L		05/10/16 07:25	05/10/16 17:58	1
Manganese	0.45	B	0.0030	0.00040	mg/L		05/10/16 07:25	05/10/16 17:58	1
Potassium	12.1		0.50	0.10	mg/L		05/10/16 07:25	05/10/16 17:58	1
Sodium	2330	^	1.0	0.32	mg/L		05/10/16 07:25	05/10/16 17:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4540		100	56.4	mg/L			05/11/16 08:18	200
Sulfate	298	J	400	69.8	mg/L			05/11/16 08:18	200
Ammonia	0.24		0.020	0.0090	mg/L			05/11/16 16:04	1
Nitrate	0.052		0.050	0.020	mg/L			05/10/16 12:17	1
Nitrite	ND		0.050	0.020	mg/L			05/10/16 12:17	1
Total Organic Carbon	2.1	B	1.0	0.43	mg/L			05/11/16 17:07	1
Total Alkalinity	144		5.0	0.79	mg/L			05/10/16 12:25	1
Sulfide	ND		0.10	0.052	mg/L			05/11/16 06:55	1

Client Sample ID: MW-6-F-B 050916

Lab Sample ID: 480-99838-4

Date Collected: 05/09/16 14:20

Matrix: Water

Date Received: 05/09/16 15:45

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/17/16 04:59	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/17/16 04:59	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/17/16 04:59	1
Trichloroethene	ND		1.0	0.46	ug/L			05/17/16 04:59	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/17/16 04:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		66 - 137		05/17/16 04:59	1
4-Bromofluorobenzene (Surr)	92		73 - 120		05/17/16 04:59	1
Toluene-d8 (Surr)	98		71 - 126		05/17/16 04:59	1
Dibromofluoromethane (Surr)	95		60 - 140		05/17/16 04:59	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	57000		2000	1000	ug/L			05/18/16 19:39	1
Ethane	ND		7.5	1.5	ug/L			05/11/16 12:34	1
Ethene	ND		7.0	1.5	ug/L			05/11/16 12:34	1
Methane	4.7		4.0	1.0	ug/L			05/11/16 12:34	1

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99838-1

Client Sample ID: MW-6-F-B 050916

Lab Sample ID: 480-99838-4

Date Collected: 05/09/16 14:20

Matrix: Water

Date Received: 05/09/16 15:45

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.050	0.019	mg/L		05/10/16 07:25	05/10/16 18:01	1
Magnesium	163		0.20	0.043	mg/L		05/10/16 07:25	05/10/16 18:01	1
Manganese	0.21	B	0.0030	0.00040	mg/L		05/10/16 07:25	05/10/16 18:01	1
Potassium	4.1		0.50	0.10	mg/L		05/10/16 07:25	05/10/16 18:01	1
Sodium	1380	^	1.0	0.32	mg/L		05/10/16 07:25	05/10/16 18:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2750		100	56.4	mg/L			05/11/16 08:27	200
Sulfate	302	J	400	69.8	mg/L			05/11/16 08:27	200
Ammonia	ND		0.020	0.0090	mg/L			05/11/16 16:05	1
Nitrate	0.13		0.050	0.020	mg/L			05/10/16 12:18	1
Nitrite	ND		0.050	0.020	mg/L			05/10/16 12:18	1
Total Organic Carbon	1.3	B	1.0	0.43	mg/L			05/11/16 17:34	1
Total Alkalinity	391		5.0	0.79	mg/L			05/10/16 12:33	1
Sulfide	ND		0.10	0.052	mg/L			05/11/16 06:55	1

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-99838-5

Date Collected: 05/09/16 08:00

Matrix: Water

Date Received: 05/09/16 15:45

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/17/16 05:23	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/17/16 05:23	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/17/16 05:23	1
Trichloroethene	ND		1.0	0.46	ug/L			05/17/16 05:23	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/17/16 05:23	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		66 - 137					05/17/16 05:23	1
4-Bromofluorobenzene (Surr)	96		73 - 120					05/17/16 05:23	1
Toluene-d8 (Surr)	102		71 - 126					05/17/16 05:23	1
Dibromofluoromethane (Surr)	96		60 - 140					05/17/16 05:23	1

TestAmerica Buffalo

Surrogate Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-99838-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (66-137)	BFB (73-120)	TOL (71-126)	DBFM (60-140)
480-99838-1	MW-6-2 050916	105	92	96	93
480-99838-2	MW-6-1 050916	102	96	100	91
480-99838-3	MW-8-4 050916	102	89	97	104
480-99838-4	MW-6-F-B 050916	107	92	98	95
480-99838-5	TRIP BLANK	107	96	102	96
LCS 480-302054/5	Lab Control Sample	102	95	98	93
LCS 480-302154/4	Lab Control Sample	101	96	100	104
MB 480-302054/9	Method Blank	109	95	102	94
MB 480-302154/7	Method Blank	102	89	98	105

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99838-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-302054/9

Matrix: Water

Analysis Batch: 302054

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/17/16 00:43	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/17/16 00:43	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/17/16 00:43	1
Trichloroethene	ND		1.0	0.46	ug/L			05/17/16 00:43	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/17/16 00:43	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		66 - 137		05/17/16 00:43	1
4-Bromofluorobenzene (Surr)	95		73 - 120		05/17/16 00:43	1
Toluene-d8 (Surr)	102		71 - 126		05/17/16 00:43	1
Dibromofluoromethane (Surr)	94		60 - 140		05/17/16 00:43	1

Lab Sample ID: LCS 480-302054/5

Matrix: Water

Analysis Batch: 302054

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	25.0	24.3		ug/L		97	74 - 124
Tetrachloroethene	25.0	22.6		ug/L		91	74 - 122
trans-1,2-Dichloroethene	25.0	23.3		ug/L		93	73 - 127
Trichloroethene	25.0	24.3		ug/L		97	74 - 123
Vinyl chloride	25.0	24.5		ug/L		98	65 - 133

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		66 - 137
4-Bromofluorobenzene (Surr)	95		73 - 120
Toluene-d8 (Surr)	98		71 - 126
Dibromofluoromethane (Surr)	93		60 - 140

Lab Sample ID: MB 480-302154/7

Matrix: Water

Analysis Batch: 302154

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/17/16 12:20	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/17/16 12:20	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/17/16 12:20	1
Trichloroethene	ND		1.0	0.46	ug/L			05/17/16 12:20	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/17/16 12:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		66 - 137		05/17/16 12:20	1
4-Bromofluorobenzene (Surr)	89		73 - 120		05/17/16 12:20	1
Toluene-d8 (Surr)	98		71 - 126		05/17/16 12:20	1
Dibromofluoromethane (Surr)	105		60 - 140		05/17/16 12:20	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99838-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 480-302154/4

Matrix: Water

Analysis Batch: 302154

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	25.0	25.3		ug/L		101	74 - 124
Tetrachloroethene	25.0	23.6		ug/L		95	74 - 122
trans-1,2-Dichloroethene	25.0	24.5		ug/L		98	73 - 127
Trichloroethene	25.0	24.0		ug/L		96	74 - 123
Vinyl chloride	25.0	28.7		ug/L		115	65 - 133

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		66 - 137
4-Bromofluorobenzene (Surr)	96		73 - 120
Toluene-d8 (Surr)	100		71 - 126
Dibromofluoromethane (Surr)	104		60 - 140

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 480-301110/3

Matrix: Water

Analysis Batch: 301110

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	ND		7.5	1.5	ug/L			05/11/16 08:22	1
Ethene	ND		7.0	1.5	ug/L			05/11/16 08:22	1
Methane	ND		4.0	1.0	ug/L			05/11/16 08:22	1

Lab Sample ID: LCS 480-301110/4

Matrix: Water

Analysis Batch: 301110

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	14.6	15.8		ug/L		108	79 - 120
Ethene	13.6	15.3		ug/L		113	78 - 115
Methane	7.77	7.95		ug/L		102	71 - 118

Lab Sample ID: LCSD 480-301110/5

Matrix: Water

Analysis Batch: 301110

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	14.6	14.0		ug/L		96	79 - 120	12	50
Ethene	13.6	13.7		ug/L		100	78 - 115	11	50
Methane	7.77	7.22		ug/L		93	71 - 118	10	50

Lab Sample ID: MB 440-331284/26

Matrix: Water

Analysis Batch: 331284

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	ND		2000	1000	ug/L			05/18/16 17:39	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99838-1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 440-331284/24

Matrix: Water

Analysis Batch: 331284

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon Dioxide (TCD)	11500	10900		ug/L		95	80 - 120

Lab Sample ID: LCSD 440-331284/25

Matrix: Water

Analysis Batch: 331284

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon Dioxide (TCD)	11500	11300		ug/L		99	80 - 120	4	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-300829/1-A

Matrix: Water

Analysis Batch: 301140

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 300829

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.0340	J	0.050	0.019	mg/L		05/10/16 07:25	05/10/16 17:10	1
Magnesium	ND		0.20	0.043	mg/L		05/10/16 07:25	05/10/16 17:10	1
Manganese	0.000540	J	0.0030	0.00040	mg/L		05/10/16 07:25	05/10/16 17:10	1
Potassium	ND		0.50	0.10	mg/L		05/10/16 07:25	05/10/16 17:10	1
Sodium	ND		1.0	0.32	mg/L		05/10/16 07:25	05/10/16 17:10	1

Lab Sample ID: LCS 480-300829/2-A

Matrix: Water

Analysis Batch: 301140

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 300829

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	10.11		mg/L		101	80 - 120
Magnesium	10.0	10.19		mg/L		102	80 - 120
Manganese	0.200	0.196		mg/L		98	80 - 120
Potassium	10.0	9.96		mg/L		100	80 - 120
Sodium	10.0	9.99		mg/L		100	80 - 120

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 480-301064/4

Matrix: Water

Analysis Batch: 301064

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.28	mg/L			05/11/16 07:38	1
Sulfate	ND		2.0	0.35	mg/L			05/11/16 07:38	1

Lab Sample ID: LCS 480-301064/3

Matrix: Water

Analysis Batch: 301064

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.82		mg/L		104	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99838-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 480-301064/3

Matrix: Water

Analysis Batch: 301064

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	50.88		mg/L		102	90 - 110

Lab Sample ID: 480-99838-4 MS

Matrix: Water

Analysis Batch: 301064

Client Sample ID: MW-6-F-B 050916

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2750		5000	7655		mg/L		98	81 - 120
Sulfate	302	J	5000	5023		mg/L		94	80 - 120

Lab Sample ID: 480-99838-4 MSD

Matrix: Water

Analysis Batch: 301064

Client Sample ID: MW-6-F-B 050916

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	2750		5000	7741		mg/L		100	81 - 120	1	20
Sulfate	302	J	5000	4974		mg/L		93	80 - 120	1	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 480-301270/27

Matrix: Water

Analysis Batch: 301270

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/11/16 16:12	1

Lab Sample ID: MB 480-301270/3

Matrix: Water

Analysis Batch: 301270

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/11/16 15:51	1

Lab Sample ID: MB 480-301270/51

Matrix: Water

Analysis Batch: 301270

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/11/16 16:32	1

Lab Sample ID: LCS 480-301270/28

Matrix: Water

Analysis Batch: 301270

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.990		mg/L		99	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99838-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: LCS 480-301270/4

Matrix: Water

Analysis Batch: 301270

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.990		mg/L		99	90 - 110

Lab Sample ID: LCS 480-301270/52

Matrix: Water

Analysis Batch: 301270

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.988		mg/L		99	90 - 110

Method: 353.2 - Nitrogen, Nitrite

Lab Sample ID: MB 480-300949/13

Matrix: Water

Analysis Batch: 300949

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite	ND		0.050	0.020	mg/L			05/10/16 12:14	1

Lab Sample ID: LCS 480-300949/14

Matrix: Water

Analysis Batch: 300949

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite	1.50	1.54		mg/L		103	90 - 110

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 480-301327/28

Matrix: Water

Analysis Batch: 301327

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.477	J	1.0	0.43	mg/L			05/11/16 05:04	1

Lab Sample ID: MB 480-301327/52

Matrix: Water

Analysis Batch: 301327

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.531	J	1.0	0.43	mg/L			05/11/16 15:46	1

Lab Sample ID: LCS 480-301327/29

Matrix: Water

Analysis Batch: 301327

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	61.36		mg/L		102	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99838-1

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCS 480-301327/53

Matrix: Water

Analysis Batch: 301327

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	61.58		mg/L		103	90 - 110

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 480-301012/7

Matrix: Water

Analysis Batch: 301012

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	ND		5.0	0.79	mg/L			05/10/16 11:43	1

Lab Sample ID: LCS 480-301012/8

Matrix: Water

Analysis Batch: 301012

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	100	97.37		mg/L		97	90 - 110

Lab Sample ID: 480-99838-1 MS

Matrix: Water

Analysis Batch: 301012

Client Sample ID: MW-6-2 050916

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	398		100	458.4		mg/L		60	60 - 140

Lab Sample ID: 480-99838-1 DU

Matrix: Water

Analysis Batch: 301012

Client Sample ID: MW-6-2 050916

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Alkalinity	398		401.2		mg/L		0.7	20

Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 480-301114/3

Matrix: Water

Analysis Batch: 301114

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.10	0.052	mg/L			05/11/16 06:55	1

Lab Sample ID: LCS 480-301114/4

Matrix: Water

Analysis Batch: 301114

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.670	0.703		mg/L		105	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99838-1

Method: SM 4500 S2 D - Sulfide, Total (Continued)

Lab Sample ID: 480-99838-1 MS

Matrix: Water

Analysis Batch: 301114

Client Sample ID: MW-6-2 050916

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND		0.500	0.448		mg/L		90	90 - 110

Lab Sample ID: 480-99838-1 MSD

Matrix: Water

Analysis Batch: 301114

Client Sample ID: MW-6-2 050916

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND		0.500	0.448		mg/L		90	90 - 110	0	20

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99838-1

GC/MS VOA

Analysis Batch: 302054

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99838-1	MW-6-2 050916	Total/NA	Water	8260C	
480-99838-2	MW-6-1 050916	Total/NA	Water	8260C	
480-99838-4	MW-6-F-B 050916	Total/NA	Water	8260C	
480-99838-5	TRIP BLANK	Total/NA	Water	8260C	
LCS 480-302054/5	Lab Control Sample	Total/NA	Water	8260C	
MB 480-302054/9	Method Blank	Total/NA	Water	8260C	

Analysis Batch: 302154

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99838-3	MW-8-4 050916	Total/NA	Water	8260C	
LCS 480-302154/4	Lab Control Sample	Total/NA	Water	8260C	
MB 480-302154/7	Method Blank	Total/NA	Water	8260C	

GC VOA

Analysis Batch: 301110

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99838-1	MW-6-2 050916	Total/NA	Water	RSK-175	
480-99838-2	MW-6-1 050916	Total/NA	Water	RSK-175	
480-99838-3	MW-8-4 050916	Total/NA	Water	RSK-175	
480-99838-4	MW-6-F-B 050916	Total/NA	Water	RSK-175	
LCS 480-301110/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-301110/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 480-301110/3	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 331284

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99838-1	MW-6-2 050916	Total/NA	Water	RSK-175	
480-99838-2	MW-6-1 050916	Total/NA	Water	RSK-175	
480-99838-3	MW-8-4 050916	Total/NA	Water	RSK-175	
480-99838-4	MW-6-F-B 050916	Total/NA	Water	RSK-175	
LCS 440-331284/24	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 440-331284/25	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 440-331284/26	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 300829

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99838-1	MW-6-2 050916	Total/NA	Water	3005A	
480-99838-2	MW-6-1 050916	Total/NA	Water	3005A	
480-99838-3	MW-8-4 050916	Total/NA	Water	3005A	
480-99838-4	MW-6-F-B 050916	Total/NA	Water	3005A	
LCS 480-300829/2-A	Lab Control Sample	Total/NA	Water	3005A	
MB 480-300829/1-A	Method Blank	Total/NA	Water	3005A	

Analysis Batch: 301140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99838-1	MW-6-2 050916	Total/NA	Water	6010C	300829
480-99838-2	MW-6-1 050916	Total/NA	Water	6010C	300829

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99838-1

Metals (Continued)

Analysis Batch: 301140 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99838-3	MW-8-4 050916	Total/NA	Water	6010C	300829
480-99838-4	MW-6-F-B 050916	Total/NA	Water	6010C	300829
LCS 480-300829/2-A	Lab Control Sample	Total/NA	Water	6010C	300829
MB 480-300829/1-A	Method Blank	Total/NA	Water	6010C	300829

General Chemistry

Analysis Batch: 300949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99838-3	MW-8-4 050916	Total/NA	Water	353.2	
480-99838-4	MW-6-F-B 050916	Total/NA	Water	353.2	
LCS 480-300949/14	Lab Control Sample	Total/NA	Water	353.2	
MB 480-300949/13	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 300953

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99838-1	MW-6-2 050916	Total/NA	Water	353.2	
480-99838-2	MW-6-1 050916	Total/NA	Water	353.2	

Analysis Batch: 300954

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99838-1	MW-6-2 050916	Total/NA	Water	353.2	
480-99838-2	MW-6-1 050916	Total/NA	Water	353.2	

Analysis Batch: 300955

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99838-3	MW-8-4 050916	Total/NA	Water	353.2	
480-99838-4	MW-6-F-B 050916	Total/NA	Water	353.2	

Analysis Batch: 301012

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99838-1	MW-6-2 050916	Total/NA	Water	SM 2320B	
480-99838-1 DU	MW-6-2 050916	Total/NA	Water	SM 2320B	
480-99838-1 MS	MW-6-2 050916	Total/NA	Water	SM 2320B	
480-99838-2	MW-6-1 050916	Total/NA	Water	SM 2320B	
480-99838-3	MW-8-4 050916	Total/NA	Water	SM 2320B	
480-99838-4	MW-6-F-B 050916	Total/NA	Water	SM 2320B	
LCS 480-301012/8	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 480-301012/7	Method Blank	Total/NA	Water	SM 2320B	

Analysis Batch: 301064

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99838-1	MW-6-2 050916	Total/NA	Water	300.0	
480-99838-2	MW-6-1 050916	Total/NA	Water	300.0	
480-99838-3	MW-8-4 050916	Total/NA	Water	300.0	
480-99838-4	MW-6-F-B 050916	Total/NA	Water	300.0	
480-99838-4 MS	MW-6-F-B 050916	Total/NA	Water	300.0	
480-99838-4 MSD	MW-6-F-B 050916	Total/NA	Water	300.0	
LCS 480-301064/3	Lab Control Sample	Total/NA	Water	300.0	
MB 480-301064/4	Method Blank	Total/NA	Water	300.0	

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99838-1

General Chemistry (Continued)

Analysis Batch: 301114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99838-1	MW-6-2 050916	Total/NA	Water	SM 4500 S2 D	
480-99838-1 MS	MW-6-2 050916	Total/NA	Water	SM 4500 S2 D	
480-99838-1 MSD	MW-6-2 050916	Total/NA	Water	SM 4500 S2 D	
480-99838-2	MW-6-1 050916	Total/NA	Water	SM 4500 S2 D	
480-99838-3	MW-8-4 050916	Total/NA	Water	SM 4500 S2 D	
480-99838-4	MW-6-F-B 050916	Total/NA	Water	SM 4500 S2 D	
LCS 480-301114/4	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	
MB 480-301114/3	Method Blank	Total/NA	Water	SM 4500 S2 D	

Analysis Batch: 301270

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99838-1	MW-6-2 050916	Total/NA	Water	350.1	
480-99838-2	MW-6-1 050916	Total/NA	Water	350.1	
480-99838-3	MW-8-4 050916	Total/NA	Water	350.1	
480-99838-4	MW-6-F-B 050916	Total/NA	Water	350.1	
LCS 480-301270/28	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-301270/4	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-301270/52	Lab Control Sample	Total/NA	Water	350.1	
MB 480-301270/27	Method Blank	Total/NA	Water	350.1	
MB 480-301270/3	Method Blank	Total/NA	Water	350.1	
MB 480-301270/51	Method Blank	Total/NA	Water	350.1	

Analysis Batch: 301327

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99838-1	MW-6-2 050916	Total/NA	Water	9060A	
480-99838-2	MW-6-1 050916	Total/NA	Water	9060A	
480-99838-3	MW-8-4 050916	Total/NA	Water	9060A	
480-99838-4	MW-6-F-B 050916	Total/NA	Water	9060A	
LCS 480-301327/29	Lab Control Sample	Total/NA	Water	9060A	
LCS 480-301327/53	Lab Control Sample	Total/NA	Water	9060A	
MB 480-301327/28	Method Blank	Total/NA	Water	9060A	
MB 480-301327/52	Method Blank	Total/NA	Water	9060A	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99838-1

Client Sample ID: MW-6-2 050916

Date Collected: 05/09/16 09:35

Date Received: 05/09/16 15:45

Lab Sample ID: 480-99838-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	302054	05/17/16 03:47	GTG	TAL BUF
Total/NA	Analysis	RSK-175		1	331284	05/18/16 19:00	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	301110	05/11/16 11:42	TRG	TAL BUF
Total/NA	Prep	3005A			300829	05/10/16 07:25	CMM	TAL BUF
Total/NA	Analysis	6010C		1	301140	05/10/16 17:51	AMH	TAL BUF
Total/NA	Analysis	300.0		20	301064	05/11/16 08:02	CAV	TAL BUF
Total/NA	Analysis	350.1		1	301270	05/11/16 16:02	CEA	TAL BUF
Total/NA	Analysis	353.2		1	300953	05/10/16 11:05	LED	TAL BUF
Total/NA	Analysis	353.2		1	300954	05/10/16 11:05	LED	TAL BUF
Total/NA	Analysis	9060A		1	301327	05/11/16 14:25	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	301012	05/10/16 11:57	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	301114	05/11/16 06:55	LAW	TAL BUF

Client Sample ID: MW-6-1 050916

Date Collected: 05/09/16 10:55

Date Received: 05/09/16 15:45

Lab Sample ID: 480-99838-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	302054	05/17/16 04:11	GTG	TAL BUF
Total/NA	Analysis	RSK-175		2	331284	05/18/16 19:13	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	301110	05/11/16 11:59	TRG	TAL BUF
Total/NA	Prep	3005A			300829	05/10/16 07:25	CMM	TAL BUF
Total/NA	Analysis	6010C		1	301140	05/10/16 17:54	AMH	TAL BUF
Total/NA	Analysis	300.0		20	301064	05/11/16 08:10	CAV	TAL BUF
Total/NA	Analysis	350.1		1	301270	05/11/16 16:03	CEA	TAL BUF
Total/NA	Analysis	353.2		1	300953	05/10/16 11:06	LED	TAL BUF
Total/NA	Analysis	353.2		1	300954	05/10/16 11:06	LED	TAL BUF
Total/NA	Analysis	9060A		1	301327	05/11/16 16:39	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	301012	05/10/16 12:19	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	301114	05/11/16 06:55	LAW	TAL BUF

Client Sample ID: MW-8-4 050916

Date Collected: 05/09/16 12:50

Date Received: 05/09/16 15:45

Lab Sample ID: 480-99838-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	302154	05/17/16 15:54	GVF	TAL BUF
Total/NA	Analysis	RSK-175		1	331284	05/18/16 20:07	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	301110	05/11/16 12:17	TRG	TAL BUF
Total/NA	Prep	3005A			300829	05/10/16 07:25	CMM	TAL BUF
Total/NA	Analysis	6010C		1	301140	05/10/16 17:58	AMH	TAL BUF

TestAmerica Buffalo

Lab Chronicle

Client: GHD Services Inc.

TestAmerica Job ID: 480-99838-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		200	301064	05/11/16 08:18	CAV	TAL BUF
Total/NA	Analysis	350.1		1	301270	05/11/16 16:04	CEA	TAL BUF
Total/NA	Analysis	353.2		1	300949	05/10/16 12:17	LED	TAL BUF
Total/NA	Analysis	353.2		1	300955	05/10/16 12:17	LED	TAL BUF
Total/NA	Analysis	9060A		1	301327	05/11/16 17:07	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	301012	05/10/16 12:25	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	301114	05/11/16 06:55	LAW	TAL BUF

Client Sample ID: MW-6-F-B 050916

Lab Sample ID: 480-99838-4

Date Collected: 05/09/16 14:20

Matrix: Water

Date Received: 05/09/16 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	302054	05/17/16 04:59	GTG	TAL BUF
Total/NA	Analysis	RSK-175		1	331284	05/18/16 19:39	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	301110	05/11/16 12:34	TRG	TAL BUF
Total/NA	Prep	3005A			300829	05/10/16 07:25	CMM	TAL BUF
Total/NA	Analysis	6010C		1	301140	05/10/16 18:01	AMH	TAL BUF
Total/NA	Analysis	300.0		200	301064	05/11/16 08:27	CAV	TAL BUF
Total/NA	Analysis	350.1		1	301270	05/11/16 16:05	CEA	TAL BUF
Total/NA	Analysis	353.2		1	300949	05/10/16 12:18	LED	TAL BUF
Total/NA	Analysis	353.2		1	300955	05/10/16 12:18	LED	TAL BUF
Total/NA	Analysis	9060A		1	301327	05/11/16 17:34	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	301012	05/10/16 12:33	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	301114	05/11/16 06:55	LAW	TAL BUF

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-99838-5

Date Collected: 05/09/16 08:00

Matrix: Water

Date Received: 05/09/16 15:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	302054	05/17/16 05:23	GTG	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Certification Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-99838-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Laboratory: TestAmerica Buffalo

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	03-31-17

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-16
Arizona	State Program	9	AZ0671	10-13-16
California	LA Cty Sanitation Districts	9	10256	01-31-17 *
California	State Program	9	CA ELAP 2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-17
Hawaii	State Program	9	N/A	01-29-17
Kansas	NELAP Secondary AB	7	E-10420	07-31-16
Nevada	State Program	9	CA015312016-2	07-31-16
New Mexico	State Program	6	N/A	01-29-17
Northern Mariana Islands	State Program	9	MP0002	01-29-16 *
Oregon	NELAP	10	4028	01-29-17
USDA	Federal		P330-09-00080	07-08-18
Washington	State Program	10	C900	09-03-16

* Certification renewal pending - certification considered valid.

TestAmerica Buffalo

Method Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-99838-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL IRV
RSK-175	Dissolved Gases (GC)	RSK	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
350.1	Nitrogen, Ammonia	MCAWW	TAL BUF
353.2	Nitrogen, Nitrite	MCAWW	TAL BUF
353.2	Nitrate	EPA	TAL BUF
9060A	Organic Carbon, Total (TOC)	SW846	TAL BUF
SM 2320B	Alkalinity	SM	TAL BUF
SM 4500 S2 D	Sulfide, Total	SM	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

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

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

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Sample Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-99838-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-99838-1	MW-6-2 050916	Water	05/09/16 09:35	05/09/16 15:45
480-99838-2	MW-6-1 050916	Water	05/09/16 10:55	05/09/16 15:45
480-99838-3	MW-8-4 050916	Water	05/09/16 12:50	05/09/16 15:45
480-99838-4	MW-6-F-B 050916	Water	05/09/16 14:20	05/09/16 15:45
480-99838-5	TRIP BLANK	Water	05/09/16 08:00	05/09/16 15:45

10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record



480-99838 Chain of Custody

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)			Lab PM: Deyo, Melissa L		Chain of Custody			
Client Contact: Shipping/Receiving			Phone:		480-29249.1			
Company: TestAmerica Laboratories, Inc.			E-Mail: melissa.deyo@testamericainc.com		Page 1 of 1			
Address: 30 Community Drive, Suite 11, South Burlington VT, 05403			Due Date Requested: 5/19/2016			Analysis Requested		
Phone: 802-860-1990(Tel) 802-860-1919(Fax)			TAT Requested (days):			Job #: 480-99838-1		
Email:			PO #:			Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)		
Project Name: 058507, GM-Lockport Groundwater Sampling			Project #: 48004014			Other:		
Site:			SSOW#:			Special Instructions/Note:		
Sample Identification - Client ID (Lab ID)			Field Filtered Sample (Yes or No)			Total Number of Containers		
MW-6-2 050916 (480-99838-1)			X			X		
MW-6-1 050916 (480-99838-2)			X			X		
MW-8-4 050916 (480-99838-3)			X			X		
MW-6-F-B 050916 (480-99838-4)			X			X		
Possible Hazard Identification			Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			Archive For _____ Months		
Unconfirmed			Return To Client			Disposal By Lab		
Deliverable Requested: I, II, III, IV, Other (specify)			Special Instructions/QC Requirements:			Special Instructions/QC Requirements:		
Empty Kit Relinquished by:			Date:			Time:		
Relinquished by:			Date:			Time:		
Relinquished by:			Date:			Time:		
Relinquished by:			Date:			Time:		
Custody Seals Intact:			Custody Seal No.:			Cooler Temperature(s) °C and Other Remarks:		
Δ Yes Δ No								

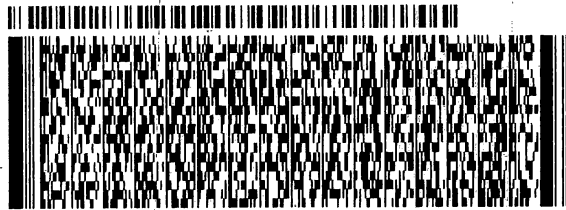
ORIGIN ID:DKKA (716) 691-2600
CHAR BRONSON
TEST AMERICA
10 HAZELWOOD

AMHERST, NY 14228
UNITED STATES US

SHIP DATE: 10MAY16
ACTWGT: 10.2 LB
CAD: 846654/CAFE2912
DIMS: 15x13x10 IN

BILL RECIPIENT

TO **SAMPLE MGT.**
TA BURLINGTON
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990 REF: BURLINGTON
DEPT: SAMPLE CONTROL



FedEx
Express



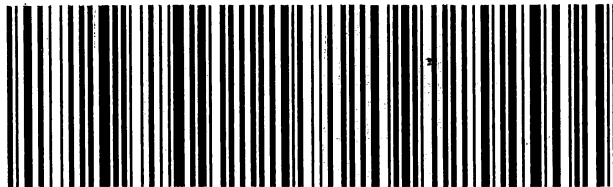
J151315081301uv

TRK# 5657 0120 1384
0201

WED - 11 MAY 3:00P
STANDARD OVERNIGHT

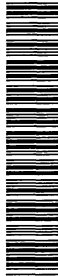
NC BTVA

05403
VT-US BTV



Part # 156146V-434 RIT2 12/15

Chain of Custody Record

[illegible]

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-99838-1

Login Number: 99838

List Source: TestAmerica Buffalo

List Number: 1

Creator: Williams, Christopher S

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GZA
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-99838-1

Login Number: 99838

List Number: 3

Creator: Salas, Margarita

List Source: TestAmerica Irvine

List Creation: 05/13/16 12:55 PM

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

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-99900-1

Client Project/Site: 058507, GM-Lockport Groundwater
Sampling

For:

GHD Services Inc.

2055 Niagara Falls Blvd., Suite 3

Niagara Falls, New York 14304

Attn: Kathleen Willy



Authorized for release by:

5/20/2016 3:06:35 PM

Rebecca Jones, Project Management Assistant I

rebecca.jones@testamericainc.com

Designee for

Melissa Deyo, Project Manager I

(716)504-9874

melissa.deyo@testamericainc.com

LINKS

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results through

TotalAccess

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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.

TestAmerica Job ID: 480-99900-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Qualifiers

GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99900-1

Job ID: 480-99900-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-99900-1

Receipt

The samples were received on 5/10/2016 3:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6° C.

GC/MS VOA

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

HPLC/IC

Method(s) 300.0: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW 7-3 051016 (480-99900-1), MW 7-1 051016 (480-99900-2) and MW 7-2 051016 (480-99900-3). Elevated reporting limits (RLs) are provided.

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

GC VOA

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

Metals

Method(s) 6010C: The Low Level Continuing Calibration Verification (CCVL 480-301386/94) contained Total Potassium above the upper quality control limit. All reported samples (LCS 480-301067/2-A), (LCSD 480-301067/3-A) and (MB 480-301067/1-A) associated with this CCVL were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCVL; therefore, re-analysis of samples was not performed.

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.

Detection Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99900-1

Client Sample ID: MW 7-3 051016

Lab Sample ID: 480-99900-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	2.6		1.0	0.81	ug/L	1			8260C	Total/NA
Vinyl chloride	9.9		1.0	0.90	ug/L	1			8260C	Total/NA
Carbon Dioxide (TCD)	87000		4000	2000	ug/L	2			RSK-175	Total/NA
Ethane	2.7	J	7.5	1.5	ug/L	1			RSK-175	Total/NA
Ethene	1.6	J	7.0	1.5	ug/L	1			RSK-175	Total/NA
Methane	71		4.0	1.0	ug/L	1			RSK-175	Total/NA
Iron	2.2		0.050	0.019	mg/L	1			6010C	Total/NA
Magnesium	195		0.20	0.043	mg/L	1			6010C	Total/NA
Manganese	0.23		0.0030	0.00040	mg/L	1			6010C	Total/NA
Potassium	35.6		0.50	0.10	mg/L	1			6010C	Total/NA
Sodium	3680		1.0	0.32	mg/L	1			6010C	Total/NA
Chloride	6840		100	56.4	mg/L	200			300.0	Total/NA
Sulfate	835		400	69.8	mg/L	200			300.0	Total/NA
Ammonia	2.2		0.040	0.018	mg/L	2			350.1	Total/NA
Total Organic Carbon	2.4	B	1.0	0.43	mg/L	1			9060A	Total/NA
Total Alkalinity	382	B	5.0	0.79	mg/L	1			SM 2320B	Total/NA
Sulfide	0.23		0.10	0.052	mg/L	1			SM 4500 S2 D	Total/NA

Client Sample ID: MW 7-1 051016

Lab Sample ID: 480-99900-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Carbon Dioxide (TCD)	62000		2000	1000	ug/L	1			RSK-175	Total/NA
Methane	5.3		4.0	1.0	ug/L	1			RSK-175	Total/NA
Iron	0.077		0.050	0.019	mg/L	1			6010C	Total/NA
Magnesium	100		0.20	0.043	mg/L	1			6010C	Total/NA
Manganese	0.27		0.0030	0.00040	mg/L	1			6010C	Total/NA
Potassium	5.5		0.50	0.10	mg/L	1			6010C	Total/NA
Sodium	704		1.0	0.32	mg/L	1			6010C	Total/NA
Chloride	1630		25.0	14.1	mg/L	50			300.0	Total/NA
Sulfate	113		100	17.5	mg/L	50			300.0	Total/NA
Nitrate	0.026	J	0.050	0.020	mg/L	1			353.2	Total/NA
Total Organic Carbon	1.7	B	1.0	0.43	mg/L	1			9060A	Total/NA
Total Alkalinity	334		5.0	0.79	mg/L	1			SM 2320B	Total/NA

Client Sample ID: MW 7-2 051016

Lab Sample ID: 480-99900-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Carbon Dioxide (TCD)	25000		2000	1000	ug/L	1			RSK-175	Total/NA
Magnesium	32.7		0.20	0.043	mg/L	1			6010C	Total/NA
Manganese	0.0034		0.0030	0.00040	mg/L	1			6010C	Total/NA
Potassium	1.2		0.50	0.10	mg/L	1			6010C	Total/NA
Sodium	67.2		1.0	0.32	mg/L	1			6010C	Total/NA
Chloride	120		2.5	1.4	mg/L	5			300.0	Total/NA
Sulfate	26.1		10.0	1.7	mg/L	5			300.0	Total/NA
Total Organic Carbon	1.5	B	1.0	0.43	mg/L	1			9060A	Total/NA
Total Alkalinity	318		5.0	0.79	mg/L	1			SM 2320B	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-99900-4

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99900-1

Client Sample ID: MW 7-3 051016

Lab Sample ID: 480-99900-1

Date Collected: 05/10/16 10:20

Matrix: Water

Date Received: 05/10/16 15:00

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	2.6		1.0	0.81	ug/L			05/18/16 23:35	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/18/16 23:35	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/18/16 23:35	1
Trichloroethene	ND		1.0	0.46	ug/L			05/18/16 23:35	1
Vinyl chloride	9.9		1.0	0.90	ug/L			05/18/16 23:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	115		66 - 137		05/18/16 23:35	1
4-Bromofluorobenzene (Surr)	97		73 - 120		05/18/16 23:35	1
Toluene-d8 (Surr)	97		71 - 126		05/18/16 23:35	1
Dibromofluoromethane (Surr)	114		60 - 140		05/18/16 23:35	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	87000		4000	2000	ug/L			05/19/16 13:55	2
Ethane	2.7	J	7.5	1.5	ug/L			05/11/16 13:57	1
Ethene	1.6	J	7.0	1.5	ug/L			05/11/16 13:57	1
Methane	71		4.0	1.0	ug/L			05/11/16 13:57	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	2.2		0.050	0.019	mg/L		05/11/16 07:42	05/11/16 23:51	1
Magnesium	195		0.20	0.043	mg/L		05/11/16 07:42	05/11/16 23:51	1
Manganese	0.23		0.0030	0.00040	mg/L		05/11/16 07:42	05/11/16 23:51	1
Potassium	35.6		0.50	0.10	mg/L		05/11/16 07:42	05/11/16 23:51	1
Sodium	3680		1.0	0.32	mg/L		05/11/16 07:42	05/11/16 23:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6840		100	56.4	mg/L			05/11/16 21:26	200
Sulfate	835		400	69.8	mg/L			05/11/16 21:26	200
Ammonia	2.2		0.040	0.018	mg/L			05/11/16 18:25	2
Nitrate	ND		0.050	0.020	mg/L			05/10/16 19:01	1
Nitrite	ND		0.050	0.020	mg/L			05/10/16 19:01	1
Total Organic Carbon	2.4	B	1.0	0.43	mg/L			05/13/16 04:23	1
Total Alkalinity	382	B	5.0	0.79	mg/L			05/11/16 18:37	1
Sulfide	0.23		0.10	0.052	mg/L			05/11/16 06:55	1

Client Sample ID: MW 7-1 051016

Lab Sample ID: 480-99900-2

Date Collected: 05/10/16 12:00

Matrix: Water

Date Received: 05/10/16 15:00

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/19/16 00:02	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/19/16 00:02	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/19/16 00:02	1
Trichloroethene	ND		1.0	0.46	ug/L			05/19/16 00:02	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/19/16 00:02	1

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99900-1

Client Sample ID: MW 7-1 051016

Lab Sample ID: 480-99900-2

Date Collected: 05/10/16 12:00

Matrix: Water

Date Received: 05/10/16 15:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		66 - 137		05/19/16 00:02	1
4-Bromofluorobenzene (Surr)	98		73 - 120		05/19/16 00:02	1
Toluene-d8 (Surr)	97		71 - 126		05/19/16 00:02	1
Dibromofluoromethane (Surr)	114		60 - 140		05/19/16 00:02	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	62000		2000	1000	ug/L			05/19/16 14:11	1
Ethane	ND		7.5	1.5	ug/L			05/11/16 14:14	1
Ethene	ND		7.0	1.5	ug/L			05/11/16 14:14	1
Methane	5.3		4.0	1.0	ug/L			05/11/16 14:14	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.077		0.050	0.019	mg/L		05/11/16 07:42	05/11/16 23:54	1
Magnesium	100		0.20	0.043	mg/L		05/11/16 07:42	05/11/16 23:54	1
Manganese	0.27		0.0030	0.00040	mg/L		05/11/16 07:42	05/11/16 23:54	1
Potassium	5.5		0.50	0.10	mg/L		05/11/16 07:42	05/11/16 23:54	1
Sodium	704		1.0	0.32	mg/L		05/11/16 07:42	05/11/16 23:54	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1630		25.0	14.1	mg/L			05/11/16 21:34	50
Sulfate	113		100	17.5	mg/L			05/11/16 21:34	50
Ammonia	ND		0.020	0.0090	mg/L			05/11/16 16:57	1
Nitrate	0.026	J	0.050	0.020	mg/L			05/10/16 19:06	1
Nitrite	ND		0.050	0.020	mg/L			05/10/16 19:06	1
Total Organic Carbon	1.7	B	1.0	0.43	mg/L			05/13/16 07:31	1
Total Alkalinity	334		5.0	0.79	mg/L			05/11/16 19:08	1
Sulfide	ND		0.10	0.052	mg/L			05/11/16 06:55	1

Client Sample ID: MW 7-2 051016

Lab Sample ID: 480-99900-3

Date Collected: 05/10/16 13:55

Matrix: Water

Date Received: 05/10/16 15:00

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/19/16 00:29	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/19/16 00:29	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/19/16 00:29	1
Trichloroethene	ND		1.0	0.46	ug/L			05/19/16 00:29	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/19/16 00:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	117		66 - 137		05/19/16 00:29	1
4-Bromofluorobenzene (Surr)	99		73 - 120		05/19/16 00:29	1
Toluene-d8 (Surr)	95		71 - 126		05/19/16 00:29	1
Dibromofluoromethane (Surr)	114		60 - 140		05/19/16 00:29	1

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99900-1

Client Sample ID: MW 7-2 051016

Lab Sample ID: 480-99900-3

Date Collected: 05/10/16 13:55

Matrix: Water

Date Received: 05/10/16 15:00

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	25000		2000	1000	ug/L			05/19/16 14:25	1
Ethane	ND		7.5	1.5	ug/L			05/11/16 14:32	1
Ethene	ND		7.0	1.5	ug/L			05/11/16 14:32	1
Methane	ND		4.0	1.0	ug/L			05/11/16 14:32	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.050	0.019	mg/L		05/11/16 07:42	05/11/16 23:58	1
Magnesium	32.7		0.20	0.043	mg/L		05/11/16 07:42	05/11/16 23:58	1
Manganese	0.0034		0.0030	0.00040	mg/L		05/11/16 07:42	05/11/16 23:58	1
Potassium	1.2		0.50	0.10	mg/L		05/11/16 07:42	05/11/16 23:58	1
Sodium	67.2		1.0	0.32	mg/L		05/11/16 07:42	05/11/16 23:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	120		2.5	1.4	mg/L			05/11/16 21:42	5
Sulfate	26.1		10.0	1.7	mg/L			05/11/16 21:42	5
Ammonia	ND		0.020	0.0090	mg/L			05/11/16 16:58	1
Nitrate	ND		0.050	0.020	mg/L			05/10/16 19:07	1
Nitrite	ND		0.050	0.020	mg/L			05/10/16 19:07	1
Total Organic Carbon	1.5	B	1.0	0.43	mg/L			05/13/16 07:58	1
Total Alkalinity	318		5.0	0.79	mg/L			05/11/16 19:16	1
Sulfide	ND		0.10	0.052	mg/L			05/11/16 06:55	1

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-99900-4

Date Collected: 05/10/16 08:00

Matrix: Water

Date Received: 05/10/16 15:00

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/19/16 00:56	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/19/16 00:56	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/19/16 00:56	1
Trichloroethene	ND		1.0	0.46	ug/L			05/19/16 00:56	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/19/16 00:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	118		66 - 137		05/19/16 00:56	1
4-Bromofluorobenzene (Surr)	100		73 - 120		05/19/16 00:56	1
Toluene-d8 (Surr)	95		71 - 126		05/19/16 00:56	1
Dibromofluoromethane (Surr)	115		60 - 140		05/19/16 00:56	1

TestAmerica Buffalo

Surrogate Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-99900-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (66-137)	BFB (73-120)	TOL (71-126)	DBFM (60-140)
480-99900-1	MW 7-3 051016	115	97	97	114
480-99900-2	MW 7-1 051016	113	98	97	114
480-99900-3	MW 7-2 051016	117	99	95	114
480-99900-4	TRIP BLANK	118	100	95	115
LCS 480-302519/4	Lab Control Sample	113	102	99	115
MB 480-302519/6	Method Blank	116	101	97	115

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99900-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-302519/6

Matrix: Water

Analysis Batch: 302519

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/18/16 22:50	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/18/16 22:50	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/18/16 22:50	1
Trichloroethene	ND		1.0	0.46	ug/L			05/18/16 22:50	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/18/16 22:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	116		66 - 137		05/18/16 22:50	1
4-Bromofluorobenzene (Surr)	101		73 - 120		05/18/16 22:50	1
Toluene-d8 (Surr)	97		71 - 126		05/18/16 22:50	1
Dibromofluoromethane (Surr)	115		60 - 140		05/18/16 22:50	1

Lab Sample ID: LCS 480-302519/4

Matrix: Water

Analysis Batch: 302519

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	25.0	24.2		ug/L		97	74 - 124
Tetrachloroethene	25.0	23.5		ug/L		94	74 - 122
trans-1,2-Dichloroethene	25.0	24.0		ug/L		96	73 - 127
Trichloroethene	25.0	24.8		ug/L		99	74 - 123
Vinyl chloride	25.0	23.7		ug/L		95	65 - 133

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	113		66 - 137
4-Bromofluorobenzene (Surr)	102		73 - 120
Toluene-d8 (Surr)	99		71 - 126
Dibromofluoromethane (Surr)	115		60 - 140

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 480-301111/7

Matrix: Water

Analysis Batch: 301111

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	ND		7.5	1.5	ug/L			05/11/16 10:04	1
Ethene	ND		7.0	1.5	ug/L			05/11/16 10:04	1
Methane	ND		4.0	1.0	ug/L			05/11/16 10:04	1

Lab Sample ID: LCS 480-301111/8

Matrix: Water

Analysis Batch: 301111

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	14.6	16.5		ug/L		113	79 - 120
Ethene	13.6	15.4		ug/L		113	78 - 115

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99900-1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 480-301111/8

Matrix: Water

Analysis Batch: 301111

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	7.77	8.56		ug/L		110	71 - 118

Lab Sample ID: LCSD 480-301111/9

Matrix: Water

Analysis Batch: 301111

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	14.6	15.6		ug/L		107	79 - 120	6	50
Ethene	13.6	14.4		ug/L		106	78 - 115	7	50
Methane	7.77	8.12		ug/L		105	71 - 118	5	50

Lab Sample ID: MB 440-331454/8

Matrix: Water

Analysis Batch: 331454

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	ND		2000	1000	ug/L			05/19/16 12:58	1

Lab Sample ID: LCS 440-331454/4

Matrix: Water

Analysis Batch: 331454

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon Dioxide (TCD)	11500	10800		ug/L		93	80 - 120

Lab Sample ID: LCSD 440-331454/5

Matrix: Water

Analysis Batch: 331454

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon Dioxide (TCD)	11500	10700		ug/L		93	80 - 120	1	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-301067/1-A

Matrix: Water

Analysis Batch: 301386

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 301067

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.050	0.019	mg/L		05/11/16 07:42	05/11/16 23:07	1
Magnesium	ND		0.20	0.043	mg/L		05/11/16 07:42	05/11/16 23:07	1
Manganese	ND		0.0030	0.00040	mg/L		05/11/16 07:42	05/11/16 23:07	1
Potassium	ND	^	0.50	0.10	mg/L		05/11/16 07:42	05/11/16 23:07	1
Sodium	ND		1.0	0.32	mg/L		05/11/16 07:42	05/11/16 23:07	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99900-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-301067/2-A

Matrix: Water

Analysis Batch: 301386

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 301067

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	10.25		mg/L		103	80 - 120
Magnesium	10.0	10.35		mg/L		103	80 - 120
Manganese	0.200	0.201		mg/L		100	80 - 120
Potassium	10.0	9.95	^	mg/L		99	80 - 120
Sodium	10.0	9.89		mg/L		99	80 - 120

Lab Sample ID: LCSD 480-301067/3-A

Matrix: Water

Analysis Batch: 301386

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 301067

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Iron	10.0	10.13		mg/L		101	80 - 120	1	20
Magnesium	10.0	10.24		mg/L		102	80 - 120	1	20
Manganese	0.200	0.207		mg/L		103	80 - 120	3	20
Potassium	10.0	9.96	^	mg/L		100	80 - 120	0	20
Sodium	10.0	9.88		mg/L		99	80 - 120	0	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 480-301155/4

Matrix: Water

Analysis Batch: 301155

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.28	mg/L			05/11/16 21:10	1
Sulfate	ND		2.0	0.35	mg/L			05/11/16 21:10	1

Lab Sample ID: LCS 480-301155/3

Matrix: Water

Analysis Batch: 301155

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.96		mg/L		104	90 - 110
Sulfate	50.0	50.95		mg/L		102	90 - 110

Lab Sample ID: 480-99900-3 MS

Matrix: Water

Analysis Batch: 301155

Client Sample ID: MW 7-2 051016

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	120		125	247.2		mg/L		102	81 - 120
Sulfate	26.1		125	152.3		mg/L		101	80 - 120

Lab Sample ID: 480-99900-3 MSD

Matrix: Water

Analysis Batch: 301155

Client Sample ID: MW 7-2 051016

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	120		125	247.8		mg/L		102	81 - 120	0	20

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99900-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 480-99900-3 MSD

Matrix: Water

Analysis Batch: 301155

Client Sample ID: MW 7-2 051016

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	26.1		125	153.2		mg/L		102	80 - 120	1	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 480-301270/147

Matrix: Water

Analysis Batch: 301270

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/11/16 17:57	1

Lab Sample ID: MB 480-301270/171

Matrix: Water

Analysis Batch: 301270

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/11/16 18:18	1

Lab Sample ID: MB 480-301270/27

Matrix: Water

Analysis Batch: 301270

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/11/16 16:12	1

Lab Sample ID: MB 480-301270/51

Matrix: Water

Analysis Batch: 301270

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/11/16 16:32	1

Lab Sample ID: MB 480-301270/75

Matrix: Water

Analysis Batch: 301270

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/11/16 16:53	1

Lab Sample ID: LCS 480-301270/148

Matrix: Water

Analysis Batch: 301270

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.987		mg/L		99	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99900-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: LCS 480-301270/172

Matrix: Water

Analysis Batch: 301270

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.989		mg/L		99	90 - 110

Lab Sample ID: LCS 480-301270/28

Matrix: Water

Analysis Batch: 301270

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.990		mg/L		99	90 - 110

Lab Sample ID: LCS 480-301270/52

Matrix: Water

Analysis Batch: 301270

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.988		mg/L		99	90 - 110

Lab Sample ID: LCS 480-301270/76

Matrix: Water

Analysis Batch: 301270

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.985		mg/L		99	90 - 110

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 480-301820/28

Matrix: Water

Analysis Batch: 301820

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.538	J	1.0	0.43	mg/L			05/13/16 05:43	1

Lab Sample ID: MB 480-301820/4

Matrix: Water

Analysis Batch: 301820

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.566	J	1.0	0.43	mg/L			05/12/16 18:55	1

Lab Sample ID: MB 480-301820/52

Matrix: Water

Analysis Batch: 301820

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.576	J	1.0	0.43	mg/L			05/13/16 16:34	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99900-1

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCS 480-301820/29

Matrix: Water

Analysis Batch: 301820

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	61.09		mg/L		102	90 - 110

Lab Sample ID: LCS 480-301820/5

Matrix: Water

Analysis Batch: 301820

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	62.13		mg/L		104	90 - 110

Lab Sample ID: LCS 480-301820/53

Matrix: Water

Analysis Batch: 301820

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	62.21		mg/L		104	90 - 110

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 480-301375/30

Matrix: Water

Analysis Batch: 301375

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	ND		5.0	0.79	mg/L			05/11/16 18:55	1

Lab Sample ID: MB 480-301375/7

Matrix: Water

Analysis Batch: 301375

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	1.15	J	5.0	0.79	mg/L			05/11/16 15:27	1

Lab Sample ID: LCS 480-301375/31

Matrix: Water

Analysis Batch: 301375

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	100	101.3		mg/L		101	90 - 110

Lab Sample ID: LCS 480-301375/8

Matrix: Water

Analysis Batch: 301375

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	100	102.2		mg/L		102	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99900-1

Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 480-301114/3

Matrix: Water

Analysis Batch: 301114

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.10	0.052	mg/L			05/11/16 06:55	1

Lab Sample ID: LCS 480-301114/4

Matrix: Water

Analysis Batch: 301114

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.670	0.703		mg/L		105	90 - 110

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99900-1

GC/MS VOA

Analysis Batch: 302519

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99900-1	MW 7-3 051016	Total/NA	Water	8260C	
480-99900-2	MW 7-1 051016	Total/NA	Water	8260C	
480-99900-3	MW 7-2 051016	Total/NA	Water	8260C	
480-99900-4	TRIP BLANK	Total/NA	Water	8260C	
LCS 480-302519/4	Lab Control Sample	Total/NA	Water	8260C	
MB 480-302519/6	Method Blank	Total/NA	Water	8260C	

GC VOA

Analysis Batch: 301111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99900-1	MW 7-3 051016	Total/NA	Water	RSK-175	
480-99900-2	MW 7-1 051016	Total/NA	Water	RSK-175	
480-99900-3	MW 7-2 051016	Total/NA	Water	RSK-175	
LCS 480-301111/8	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-301111/9	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 480-301111/7	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 331454

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99900-1	MW 7-3 051016	Total/NA	Water	RSK-175	
480-99900-2	MW 7-1 051016	Total/NA	Water	RSK-175	
480-99900-3	MW 7-2 051016	Total/NA	Water	RSK-175	
LCS 440-331454/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 440-331454/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 440-331454/8	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 301067

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99900-1	MW 7-3 051016	Total/NA	Water	3005A	
480-99900-2	MW 7-1 051016	Total/NA	Water	3005A	
480-99900-3	MW 7-2 051016	Total/NA	Water	3005A	
LCS 480-301067/2-A	Lab Control Sample	Total/NA	Water	3005A	
LCSD 480-301067/3-A	Lab Control Sample Dup	Total/NA	Water	3005A	
MB 480-301067/1-A	Method Blank	Total/NA	Water	3005A	

Analysis Batch: 301386

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99900-1	MW 7-3 051016	Total/NA	Water	6010C	301067
480-99900-2	MW 7-1 051016	Total/NA	Water	6010C	301067
480-99900-3	MW 7-2 051016	Total/NA	Water	6010C	301067
LCS 480-301067/2-A	Lab Control Sample	Total/NA	Water	6010C	301067
LCSD 480-301067/3-A	Lab Control Sample Dup	Total/NA	Water	6010C	301067
MB 480-301067/1-A	Method Blank	Total/NA	Water	6010C	301067

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99900-1

General Chemistry

Analysis Batch: 301045

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99900-1	MW 7-3 051016	Total/NA	Water	353.2	
480-99900-2	MW 7-1 051016	Total/NA	Water	353.2	
480-99900-3	MW 7-2 051016	Total/NA	Water	353.2	

Analysis Batch: 301046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99900-1	MW 7-3 051016	Total/NA	Water	353.2	
480-99900-2	MW 7-1 051016	Total/NA	Water	353.2	
480-99900-3	MW 7-2 051016	Total/NA	Water	353.2	

Analysis Batch: 301114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99900-1	MW 7-3 051016	Total/NA	Water	SM 4500 S2 D	
480-99900-2	MW 7-1 051016	Total/NA	Water	SM 4500 S2 D	
480-99900-3	MW 7-2 051016	Total/NA	Water	SM 4500 S2 D	
LCS 480-301114/4	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	
MB 480-301114/3	Method Blank	Total/NA	Water	SM 4500 S2 D	

Analysis Batch: 301155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99900-1	MW 7-3 051016	Total/NA	Water	300.0	
480-99900-2	MW 7-1 051016	Total/NA	Water	300.0	
480-99900-3	MW 7-2 051016	Total/NA	Water	300.0	
480-99900-3 MS	MW 7-2 051016	Total/NA	Water	300.0	
480-99900-3 MSD	MW 7-2 051016	Total/NA	Water	300.0	
LCS 480-301155/3	Lab Control Sample	Total/NA	Water	300.0	
MB 480-301155/4	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 301270

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99900-1	MW 7-3 051016	Total/NA	Water	350.1	
480-99900-2	MW 7-1 051016	Total/NA	Water	350.1	
480-99900-3	MW 7-2 051016	Total/NA	Water	350.1	
LCS 480-301270/148	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-301270/172	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-301270/28	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-301270/52	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-301270/76	Lab Control Sample	Total/NA	Water	350.1	
MB 480-301270/147	Method Blank	Total/NA	Water	350.1	
MB 480-301270/171	Method Blank	Total/NA	Water	350.1	
MB 480-301270/27	Method Blank	Total/NA	Water	350.1	
MB 480-301270/51	Method Blank	Total/NA	Water	350.1	
MB 480-301270/75	Method Blank	Total/NA	Water	350.1	

Analysis Batch: 301375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99900-1	MW 7-3 051016	Total/NA	Water	SM 2320B	
480-99900-2	MW 7-1 051016	Total/NA	Water	SM 2320B	
480-99900-3	MW 7-2 051016	Total/NA	Water	SM 2320B	
LCS 480-301375/31	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 480-301375/8	Lab Control Sample	Total/NA	Water	SM 2320B	

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-99900-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

General Chemistry (Continued)

Analysis Batch: 301375 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-301375/30	Method Blank	Total/NA	Water	SM 2320B	
MB 480-301375/7	Method Blank	Total/NA	Water	SM 2320B	

Analysis Batch: 301820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99900-1	MW 7-3 051016	Total/NA	Water	9060A	
480-99900-2	MW 7-1 051016	Total/NA	Water	9060A	
480-99900-3	MW 7-2 051016	Total/NA	Water	9060A	
LCS 480-301820/29	Lab Control Sample	Total/NA	Water	9060A	
LCS 480-301820/5	Lab Control Sample	Total/NA	Water	9060A	
LCS 480-301820/53	Lab Control Sample	Total/NA	Water	9060A	
MB 480-301820/28	Method Blank	Total/NA	Water	9060A	
MB 480-301820/4	Method Blank	Total/NA	Water	9060A	
MB 480-301820/52	Method Blank	Total/NA	Water	9060A	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99900-1

Client Sample ID: MW 7-3 051016

Date Collected: 05/10/16 10:20

Date Received: 05/10/16 15:00

Lab Sample ID: 480-99900-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	302519	05/18/16 23:35	CDC	TAL BUF
Total/NA	Analysis	RSK-175		2	331454	05/19/16 13:55	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	301111	05/11/16 13:57	TRG	TAL BUF
Total/NA	Prep	3005A			301067	05/11/16 07:42	CMM	TAL BUF
Total/NA	Analysis	6010C		1	301386	05/11/16 23:51	AMH	TAL BUF
Total/NA	Analysis	300.0		200	301155	05/11/16 21:26	CAV	TAL BUF
Total/NA	Analysis	350.1		2	301270	05/11/16 18:25	CEA	TAL BUF
Total/NA	Analysis	353.2		1	301045	05/10/16 19:01	CEA	TAL BUF
Total/NA	Analysis	353.2		1	301046	05/10/16 19:01	CEA	TAL BUF
Total/NA	Analysis	9060A		1	301820	05/13/16 04:23	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	301375	05/11/16 18:37	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	301114	05/11/16 06:55	LAW	TAL BUF

Client Sample ID: MW 7-1 051016

Date Collected: 05/10/16 12:00

Date Received: 05/10/16 15:00

Lab Sample ID: 480-99900-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	302519	05/19/16 00:02	CDC	TAL BUF
Total/NA	Analysis	RSK-175		1	331454	05/19/16 14:11	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	301111	05/11/16 14:14	TRG	TAL BUF
Total/NA	Prep	3005A			301067	05/11/16 07:42	CMM	TAL BUF
Total/NA	Analysis	6010C		1	301386	05/11/16 23:54	AMH	TAL BUF
Total/NA	Analysis	300.0		50	301155	05/11/16 21:34	CAV	TAL BUF
Total/NA	Analysis	350.1		1	301270	05/11/16 16:57	CEA	TAL BUF
Total/NA	Analysis	353.2		1	301045	05/10/16 19:06	CEA	TAL BUF
Total/NA	Analysis	353.2		1	301046	05/10/16 19:06	CEA	TAL BUF
Total/NA	Analysis	9060A		1	301820	05/13/16 07:31	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	301375	05/11/16 19:08	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	301114	05/11/16 06:55	LAW	TAL BUF

Client Sample ID: MW 7-2 051016

Date Collected: 05/10/16 13:55

Date Received: 05/10/16 15:00

Lab Sample ID: 480-99900-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	302519	05/19/16 00:29	CDC	TAL BUF
Total/NA	Analysis	RSK-175		1	331454	05/19/16 14:25	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	301111	05/11/16 14:32	TRG	TAL BUF
Total/NA	Prep	3005A			301067	05/11/16 07:42	CMM	TAL BUF
Total/NA	Analysis	6010C		1	301386	05/11/16 23:58	AMH	TAL BUF

TestAmerica Buffalo

Lab Chronicle

Client: GHD Services Inc.

TestAmerica Job ID: 480-99900-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5	301155	05/11/16 21:42	CAV	TAL BUF
Total/NA	Analysis	350.1		1	301270	05/11/16 16:58	CEA	TAL BUF
Total/NA	Analysis	353.2		1	301045	05/10/16 19:07	CEA	TAL BUF
Total/NA	Analysis	353.2		1	301046	05/10/16 19:07	CEA	TAL BUF
Total/NA	Analysis	9060A		1	301820	05/13/16 07:58	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	301375	05/11/16 19:16	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	301114	05/11/16 06:55	LAW	TAL BUF

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-99900-4

Date Collected: 05/10/16 08:00

Matrix: Water

Date Received: 05/10/16 15:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	302519	05/19/16 00:56	CDC	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Certification Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-99900-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Laboratory: TestAmerica Buffalo

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	03-31-17

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-16
Arizona	State Program	9	AZ0671	10-13-16
California	LA Cty Sanitation Districts	9	10256	01-31-17 *
California	State Program	9	CA ELAP 2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-17
Hawaii	State Program	9	N/A	01-29-17
Kansas	NELAP Secondary AB	7	E-10420	07-31-16
Nevada	State Program	9	CA015312016-2	07-31-16
New Mexico	State Program	6	N/A	01-29-17
Northern Mariana Islands	State Program	9	MP0002	01-29-16 *
Oregon	NELAP	10	4028	01-29-17
USDA	Federal		P330-09-00080	07-08-18
Washington	State Program	10	C900	09-03-16

* Certification renewal pending - certification considered valid.

TestAmerica Buffalo

Method Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-99900-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL IRV
RSK-175	Dissolved Gases (GC)	RSK	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
350.1	Nitrogen, Ammonia	MCAWW	TAL BUF
353.2	Nitrogen, Nitrite	MCAWW	TAL BUF
353.2	Nitrate	EPA	TAL BUF
9060A	Organic Carbon, Total (TOC)	SW846	TAL BUF
SM 2320B	Alkalinity	SM	TAL BUF
SM 4500 S2 D	Sulfide, Total	SM	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

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

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

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Sample Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-99900-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-99900-1	MW 7-3 051016	Water	05/10/16 10:20	05/10/16 15:00
480-99900-2	MW 7-1 051016	Water	05/10/16 12:00	05/10/16 15:00
480-99900-3	MW 7-2 051016	Water	05/10/16 13:55	05/10/16 15:00
480-99900-4	TRIP BLANK	Water	05/10/16 08:00	05/10/16 15:00

Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record



480-99900 Chain of Custody

Carrier Tracking No(s):	
Lab PM:	Devo, Melissa L
Sampler:	Pete Nyzymn
Phone:	517-5768
E-Mail:	melissa.devo@testamericainc.com
Client Information Client Contact: Mr. Tom Bohlen	

[illegible]

Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

[illegible]

Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

[illegible]

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-99900-1

Login Number: 99900

List Source: TestAmerica Buffalo

List Number: 1

Creator: Wallace, Cameron

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GZA
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-99900-1

Login Number: 99900

List Source: TestAmerica Irvine

List Number: 2

List Creation: 05/13/16 12:55 PM

Creator: Salas, Margarita

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Received Voas broken Sample #1,2,3
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-99991-1

Client Project/Site: 058507, GM-Lockport Groundwater
Sampling

For:

GHD Services Inc.

2055 Niagara Falls Blvd., Suite 3

Niagara Falls, New York 14304

Attn: Kathleen Willy



Authorized for release by:

5/23/2016 10:27:23 AM

Rebecca Jones, Project Management Assistant I

rebecca.jones@testamericainc.com

Designee for

Melissa Deyo, Project Manager I

(716)504-9874

melissa.deyo@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
E	Result exceeded calibration range.

GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.

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: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Job ID: 480-99991-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-99991-1

Receipt

The samples were received on 5/11/2016 2:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4° C.

Receipt Exceptions

ICOC's to workshare TestAmerica's has incorrect ID as the sample ID was not corrected until after the ICOC's were generated and received by said labs.

GC/MS VOA

Method(s) 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW 7-C-2 051116 (480-99991-1), MW 7-6 051116 (480-99991-2), MW 7-5 051116 (480-99991-3), (480-99991-N-3 MS) and (480-99991-N-3 MSD). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW 7-C-2 051116 (480-99991-1). Elevated reporting limits (RLs) are provided.

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

HPLC/IC

Method(s) 300.0, SM 4110B: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW 7-C-2 051116 (480-99991-1), MW 7-6 051116 (480-99991-2) and MW 7-5 051116 (480-99991-3). Elevated reporting limits (RLs) are provided.

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

GC VOA

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

Metals

Method(s) 6010C: The Low Level Continuing Calibration Verification (CCVL 480-301578/49) contained Total Manganese above the upper quality control limit. All reported samples MW 7-C-2 051116 (480-99991-1), MW 7-6 051116 (480-99991-2) and MW 7-5 051116 (480-99991-3) associated with this CCVL were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCVL; therefore, re-analysis of samples was not performed.

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.

Detection Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Client Sample ID: MW 7-C-2 051116

Lab Sample ID: 480-99991-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Vinyl chloride	60		5.0	4.5	ug/L	5			8260C	Total/NA
cis-1,2-Dichloroethene - DL	540		10	8.1	ug/L	10			8260C	Total/NA
Carbon Dioxide (TCD)	60000		2000	1000	ug/L	1			RSK-175	Total/NA
Methane	89		4.0	1.0	ug/L	1			RSK-175	Total/NA
Iron	0.61		0.050	0.019	mg/L	1			6010C	Total/NA
Magnesium	160		0.20	0.043	mg/L	1			6010C	Total/NA
Manganese	0.37	B ^	0.0030	0.00040	mg/L	1			6010C	Total/NA
Potassium	7.9		0.50	0.10	mg/L	1			6010C	Total/NA
Sodium	152		1.0	0.32	mg/L	1			6010C	Total/NA
Chloride	264		10.0	5.6	mg/L	20			300.0	Total/NA
Sulfate	841		40.0	7.0	mg/L	20			300.0	Total/NA
Ammonia	0.14		0.020	0.0090	mg/L	1			350.1	Total/NA
Total Organic Carbon	2.0	B	1.0	0.43	mg/L	1			9060A	Total/NA
Total Alkalinity	319		5.0	0.79	mg/L	1			SM 2320B	Total/NA

Client Sample ID: MW 7-6 051116

Lab Sample ID: 480-99991-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	520		10	8.1	ug/L	10			8260C	Total/NA
Tetrachloroethene	640		10	3.6	ug/L	10			8260C	Total/NA
Trichloroethene	320		10	4.6	ug/L	10			8260C	Total/NA
Vinyl chloride	26		10	9.0	ug/L	10			8260C	Total/NA
Carbon Dioxide (TCD)	46000		2000	1000	ug/L	1			RSK-175	Total/NA
Ethane	2.0	J	7.5	1.5	ug/L	1			RSK-175	Total/NA
Methane	33		4.0	1.0	ug/L	1			RSK-175	Total/NA
Iron	0.055		0.050	0.019	mg/L	1			6010C	Total/NA
Magnesium	80.6		0.20	0.043	mg/L	1			6010C	Total/NA
Manganese	0.19	B ^	0.0030	0.00040	mg/L	1			6010C	Total/NA
Potassium	9.7		0.50	0.10	mg/L	1			6010C	Total/NA
Sodium	2390		1.0	0.32	mg/L	1			6010C	Total/NA
Chloride	4110		100	56.4	mg/L	200			300.0	Total/NA
Sulfate	238	J	400	69.8	mg/L	200			300.0	Total/NA
Ammonia	0.020		0.020	0.0090	mg/L	1			350.1	Total/NA
Total Organic Carbon	2.1	B	1.0	0.43	mg/L	1			9060A	Total/NA
Total Alkalinity	337		5.0	0.79	mg/L	1			SM 2320B	Total/NA

Client Sample ID: MW 7-5 051116

Lab Sample ID: 480-99991-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	370		100	81	ug/L	100			8260C	Total/NA
Tetrachloroethene	7000	F1	100	36	ug/L	100			8260C	Total/NA
Trichloroethene	610		100	46	ug/L	100			8260C	Total/NA
Carbon Dioxide (TCD)	100000		4000	2000	ug/L	2			RSK-175	Total/NA
Methane	3.3	J	4.0	1.0	ug/L	1			RSK-175	Total/NA
Iron	0.059		0.050	0.019	mg/L	1			6010C	Total/NA
Magnesium	159		0.20	0.043	mg/L	1			6010C	Total/NA
Manganese	1.2	B ^	0.0030	0.00040	mg/L	1			6010C	Total/NA
Potassium	5.4		0.50	0.10	mg/L	1			6010C	Total/NA
Sodium	2200		1.0	0.32	mg/L	1			6010C	Total/NA
Chloride	4690		100	56.4	mg/L	200			300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Detection Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Client Sample ID: MW 7-5 051116 (Continued)

Lab Sample ID: 480-99991-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	278	J	400	69.8	mg/L	200		300.0	Total/NA
Nitrate	1.9		0.050	0.020	mg/L	1		353.2	Total/NA
Nitrite	0.047	J	0.050	0.020	mg/L	1		353.2	Total/NA
Total Organic Carbon	3.0	B	1.0	0.43	mg/L	1		9060A	Total/NA
Total Alkalinity	367		5.0	0.79	mg/L	1		SM 2320B	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-99991-4

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Client Sample ID: MW 7-C-2 051116

Lab Sample ID: 480-99991-1

Date Collected: 05/11/16 08:45

Matrix: Water

Date Received: 05/11/16 14:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	ND		5.0	1.8	ug/L			05/19/16 11:44	5
trans-1,2-Dichloroethene	ND		5.0	4.5	ug/L			05/19/16 11:44	5
Trichloroethene	ND		5.0	2.3	ug/L			05/19/16 11:44	5
Vinyl chloride	60		5.0	4.5	ug/L			05/19/16 11:44	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		66 - 137		05/19/16 11:44	5
4-Bromofluorobenzene (Surr)	93		73 - 120		05/19/16 11:44	5
Toluene-d8 (Surr)	93		71 - 126		05/19/16 11:44	5
Dibromofluoromethane (Surr)	86		60 - 140		05/19/16 11:44	5

Method: 8260C - Volatile Organic Compounds by GC/MS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	540		10	8.1	ug/L			05/19/16 23:03	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		66 - 137		05/19/16 23:03	10
4-Bromofluorobenzene (Surr)	100		73 - 120		05/19/16 23:03	10
Toluene-d8 (Surr)	98		71 - 126		05/19/16 23:03	10
Dibromofluoromethane (Surr)	94		60 - 140		05/19/16 23:03	10

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	60000		2000	1000	ug/L			05/19/16 15:24	1
Ethane	ND		7.5	1.5	ug/L			05/12/16 11:15	1
Ethene	ND		7.0	1.5	ug/L			05/12/16 11:15	1
Methane	89		4.0	1.0	ug/L			05/12/16 11:15	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.61		0.050	0.019	mg/L		05/12/16 07:50	05/12/16 19:19	1
Magnesium	160		0.20	0.043	mg/L		05/12/16 07:50	05/12/16 19:19	1
Manganese	0.37	B ^	0.0030	0.00040	mg/L		05/12/16 07:50	05/12/16 19:19	1
Potassium	7.9		0.50	0.10	mg/L		05/12/16 07:50	05/12/16 19:19	1
Sodium	152		1.0	0.32	mg/L		05/12/16 07:50	05/12/16 19:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	264		10.0	5.6	mg/L			05/12/16 22:58	20
Sulfate	841		40.0	7.0	mg/L			05/12/16 22:58	20
Ammonia	0.14		0.020	0.0090	mg/L			05/12/16 11:49	1
Nitrate	ND		0.050	0.020	mg/L			05/11/16 21:07	1
Nitrite	ND		0.050	0.020	mg/L			05/11/16 21:07	1
Total Organic Carbon	2.0	B	1.0	0.43	mg/L			05/13/16 11:07	1
Total Alkalinity	319		5.0	0.79	mg/L			05/12/16 11:23	1
Sulfide	ND		0.10	0.052	mg/L			05/12/16 14:00	1

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Client Sample ID: MW 7-6 051116

Lab Sample ID: 480-99991-2

Date Collected: 05/11/16 11:00

Matrix: Water

Date Received: 05/11/16 14:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	520		10	8.1	ug/L			05/19/16 12:07	10
Tetrachloroethene	640		10	3.6	ug/L			05/19/16 12:07	10
trans-1,2-Dichloroethene	ND		10	9.0	ug/L			05/19/16 12:07	10
Trichloroethene	320		10	4.6	ug/L			05/19/16 12:07	10
Vinyl chloride	26		10	9.0	ug/L			05/19/16 12:07	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		66 - 137		05/19/16 12:07	10
4-Bromofluorobenzene (Surr)	90		73 - 120		05/19/16 12:07	10
Toluene-d8 (Surr)	91		71 - 126		05/19/16 12:07	10
Dibromofluoromethane (Surr)	85		60 - 140		05/19/16 12:07	10

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	46000		2000	1000	ug/L			05/19/16 15:37	1
Ethane	2.0	J	7.5	1.5	ug/L			05/12/16 11:32	1
Ethene	ND		7.0	1.5	ug/L			05/12/16 11:32	1
Methane	33		4.0	1.0	ug/L			05/12/16 11:32	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.055		0.050	0.019	mg/L		05/12/16 07:50	05/12/16 19:22	1
Magnesium	80.6		0.20	0.043	mg/L		05/12/16 07:50	05/12/16 19:22	1
Manganese	0.19	B ^	0.0030	0.00040	mg/L		05/12/16 07:50	05/12/16 19:22	1
Potassium	9.7		0.50	0.10	mg/L		05/12/16 07:50	05/12/16 19:22	1
Sodium	2390		1.0	0.32	mg/L		05/12/16 07:50	05/12/16 19:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4110		100	56.4	mg/L			05/12/16 23:06	200
Sulfate	238	J	400	69.8	mg/L			05/12/16 23:06	200
Ammonia	0.020		0.020	0.0090	mg/L			05/12/16 11:50	1
Nitrate	ND		0.050	0.020	mg/L			05/11/16 18:59	1
Nitrite	ND		0.050	0.020	mg/L			05/11/16 18:59	1
Total Organic Carbon	2.1	B	1.0	0.43	mg/L			05/13/16 11:35	1
Total Alkalinity	337		5.0	0.79	mg/L			05/12/16 11:30	1
Sulfide	ND		0.10	0.052	mg/L			05/12/16 14:00	1

Client Sample ID: MW 7-5 051116

Lab Sample ID: 480-99991-3

Date Collected: 05/11/16 12:35

Matrix: Water

Date Received: 05/11/16 14:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	370		100	81	ug/L			05/19/16 12:30	100
Tetrachloroethene	7000	F1	100	36	ug/L			05/19/16 12:30	100
trans-1,2-Dichloroethene	ND		100	90	ug/L			05/19/16 12:30	100
Trichloroethene	610		100	46	ug/L			05/19/16 12:30	100
Vinyl chloride	ND		100	90	ug/L			05/19/16 12:30	100

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Client Sample ID: MW 7-5 051116

Lab Sample ID: 480-99991-3

Date Collected: 05/11/16 12:35

Matrix: Water

Date Received: 05/11/16 14:30

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		66 - 137		05/19/16 12:30	100
4-Bromofluorobenzene (Surr)	94		73 - 120		05/19/16 12:30	100
Toluene-d8 (Surr)	96		71 - 126		05/19/16 12:30	100
Dibromofluoromethane (Surr)	84		60 - 140		05/19/16 12:30	100

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	100000		4000	2000	ug/L	-		05/19/16 17:08	2
Ethane	ND		7.5	1.5	ug/L			05/12/16 11:50	1
Ethene	ND		7.0	1.5	ug/L			05/12/16 11:50	1
Methane	3.3	J	4.0	1.0	ug/L			05/12/16 11:50	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.059		0.050	0.019	mg/L	-	05/12/16 07:50	05/12/16 19:26	1
Magnesium	159		0.20	0.043	mg/L		05/12/16 07:50	05/12/16 19:26	1
Manganese	1.2	B ^	0.0030	0.00040	mg/L		05/12/16 07:50	05/12/16 19:26	1
Potassium	5.4		0.50	0.10	mg/L		05/12/16 07:50	05/12/16 19:26	1
Sodium	2200		1.0	0.32	mg/L		05/12/16 07:50	05/12/16 19:26	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4690		100	56.4	mg/L	-		05/12/16 23:14	200
Sulfate	278	J	400	69.8	mg/L			05/12/16 23:14	200
Ammonia	ND		0.020	0.0090	mg/L			05/12/16 11:51	1
Nitrate	1.9		0.050	0.020	mg/L			05/11/16 19:00	1
Nitrite	0.047	J	0.050	0.020	mg/L			05/11/16 21:07	1
Total Organic Carbon	3.0	B	1.0	0.43	mg/L			05/13/16 12:02	1
Total Alkalinity	367		5.0	0.79	mg/L			05/12/16 11:44	1
Sulfide	ND	F1	0.10	0.052	mg/L			05/12/16 14:00	1

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-99991-4

Date Collected: 05/11/16 08:00

Matrix: Water

Date Received: 05/11/16 14:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L	-		05/19/16 12:53	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/19/16 12:53	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/19/16 12:53	1
Trichloroethene	ND		1.0	0.46	ug/L			05/19/16 12:53	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/19/16 12:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		66 - 137		05/19/16 12:53	1
4-Bromofluorobenzene (Surr)	93		73 - 120		05/19/16 12:53	1
Toluene-d8 (Surr)	94		71 - 126		05/19/16 12:53	1
Dibromofluoromethane (Surr)	85		60 - 140		05/19/16 12:53	1

TestAmerica Buffalo

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (66-137)	BFB (73-120)	TOL (71-126)	DBFM (60-140)
480-99991-1	MW 7-C-2 051116	84	93	93	86
480-99991-1 - DL	MW 7-C-2 051116	90	100	98	94
480-99991-2	MW 7-6 051116	85	90	91	85
480-99991-3	MW 7-5 051116	81	94	96	84
480-99991-3 MS	MW 7-5 051116	83	100	97	88
480-99991-3 MSD	MW 7-5 051116	81	102	97	85
480-99991-4	TRIP BLANK	83	93	94	85
LCS 480-302589/5	Lab Control Sample	77	95	95	82
LCS 480-302723/5	Lab Control Sample	85	103	101	89
MB 480-302589/7	Method Blank	80	92	94	84
MB 480-302723/7	Method Blank	88	94	94	91

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-302589/7

Matrix: Water

Analysis Batch: 302589

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/19/16 10:52	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/19/16 10:52	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/19/16 10:52	1
Trichloroethene	ND		1.0	0.46	ug/L			05/19/16 10:52	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/19/16 10:52	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	80		66 - 137		05/19/16 10:52	1
4-Bromofluorobenzene (Surr)	92		73 - 120		05/19/16 10:52	1
Toluene-d8 (Surr)	94		71 - 126		05/19/16 10:52	1
Dibromofluoromethane (Surr)	84		60 - 140		05/19/16 10:52	1

Lab Sample ID: LCS 480-302589/5

Matrix: Water

Analysis Batch: 302589

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	25.0	22.5		ug/L		90	74 - 124
Tetrachloroethene	25.0	26.8		ug/L		107	74 - 122
trans-1,2-Dichloroethene	25.0	24.4		ug/L		98	73 - 127
Trichloroethene	25.0	22.8		ug/L		91	74 - 123
Vinyl chloride	25.0	25.3		ug/L		101	65 - 133

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	77		66 - 137
4-Bromofluorobenzene (Surr)	95		73 - 120
Toluene-d8 (Surr)	95		71 - 126
Dibromofluoromethane (Surr)	82		60 - 140

Lab Sample ID: 480-99991-3 MS

Matrix: Water

Analysis Batch: 302589

Client Sample ID: MW 7-5 051116

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	370		2500	2830		ug/L		99	74 - 124
Tetrachloroethene	7000	F1	2500	10500	E F1	ug/L		139	74 - 122
trans-1,2-Dichloroethene	ND		2500	2610		ug/L		105	73 - 127
Trichloroethene	610		2500	3180		ug/L		103	74 - 123
Vinyl chloride	ND		2500	2600		ug/L		104	65 - 133

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		66 - 137
4-Bromofluorobenzene (Surr)	100		73 - 120
Toluene-d8 (Surr)	97		71 - 126
Dibromofluoromethane (Surr)	88		60 - 140

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 480-99991-3 MSD

Matrix: Water

Analysis Batch: 302589

Client Sample ID: MW 7-5 051116

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
cis-1,2-Dichloroethene	370		2500	2700		ug/L		93	74 - 124	5	15
Tetrachloroethene	7000	F1	2500	10000	E	ug/L		121	74 - 122	4	20
trans-1,2-Dichloroethene	ND		2500	2430		ug/L		97	73 - 127	7	20
Trichloroethene	610		2500	2960		ug/L		94	74 - 123	7	16
Vinyl chloride	ND		2500	2430		ug/L		97	65 - 133	7	15

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	81		66 - 137
4-Bromofluorobenzene (Surr)	102		73 - 120
Toluene-d8 (Surr)	97		71 - 126
Dibromofluoromethane (Surr)	85		60 - 140

Lab Sample ID: MB 480-302723/7

Matrix: Water

Analysis Batch: 302723

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/19/16 20:55	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/19/16 20:55	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/19/16 20:55	1
Trichloroethene	ND		1.0	0.46	ug/L			05/19/16 20:55	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/19/16 20:55	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		66 - 137		05/19/16 20:55	1
4-Bromofluorobenzene (Surr)	94		73 - 120		05/19/16 20:55	1
Toluene-d8 (Surr)	94		71 - 126		05/19/16 20:55	1
Dibromofluoromethane (Surr)	91		60 - 140		05/19/16 20:55	1

Lab Sample ID: LCS 480-302723/5

Matrix: Water

Analysis Batch: 302723

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	25.0	23.9		ug/L		96	74 - 124
Tetrachloroethene	25.0	28.3		ug/L		113	74 - 122
trans-1,2-Dichloroethene	25.0	24.8		ug/L		99	73 - 127
Trichloroethene	25.0	24.3		ug/L		97	74 - 123
Vinyl chloride	25.0	26.4		ug/L		105	65 - 133

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	85		66 - 137
4-Bromofluorobenzene (Surr)	103		73 - 120
Toluene-d8 (Surr)	101		71 - 126
Dibromofluoromethane (Surr)	89		60 - 140

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 480-301355/3

Matrix: Water

Analysis Batch: 301355

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	ND		7.5	1.5	ug/L			05/12/16 08:31	1
Ethene	ND		7.0	1.5	ug/L			05/12/16 08:31	1
Methane	ND		4.0	1.0	ug/L			05/12/16 08:31	1

Lab Sample ID: LCS 480-301355/4

Matrix: Water

Analysis Batch: 301355

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	14.6	16.6		ug/L		114	79 - 120
Ethene	13.6	15.4		ug/L		113	78 - 115
Methane	7.77	8.65		ug/L		111	71 - 118

Lab Sample ID: LCSD 480-301355/5

Matrix: Water

Analysis Batch: 301355

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	14.6	15.6		ug/L		107	79 - 120	6	50
Ethene	13.6	14.3		ug/L		105	78 - 115	8	50
Methane	7.77	8.23		ug/L		106	71 - 118	5	50

Lab Sample ID: MB 440-331454/8

Matrix: Water

Analysis Batch: 331454

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	ND		2000	1000	ug/L			05/19/16 12:58	1

Lab Sample ID: LCS 440-331454/4

Matrix: Water

Analysis Batch: 331454

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon Dioxide (TCD)	11500	10800		ug/L		93	80 - 120

Lab Sample ID: LCSD 440-331454/5

Matrix: Water

Analysis Batch: 331454

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon Dioxide (TCD)	11500	10700		ug/L		93	80 - 120	1	20

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-301301/1-A

Matrix: Water

Analysis Batch: 301578

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 301301

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.050	0.019	mg/L		05/12/16 07:50	05/12/16 18:01	1
Magnesium	ND		0.20	0.043	mg/L		05/12/16 07:50	05/12/16 18:01	1
Manganese	0.00135	J	0.0030	0.00040	mg/L		05/12/16 07:50	05/12/16 18:01	1
Potassium	ND		0.50	0.10	mg/L		05/12/16 07:50	05/12/16 18:01	1
Sodium	ND		1.0	0.32	mg/L		05/12/16 07:50	05/12/16 18:01	1

Lab Sample ID: LCS 480-301301/2-A

Matrix: Water

Analysis Batch: 301578

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 301301

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	10.18		mg/L		102	80 - 120
Magnesium	10.0	10.45		mg/L		105	80 - 120
Manganese	0.200	0.206		mg/L		103	80 - 120
Potassium	10.0	10.34		mg/L		103	80 - 120
Sodium	10.0	10.27		mg/L		103	80 - 120

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 480-301453/30

Matrix: Water

Analysis Batch: 301453

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.28	mg/L			05/12/16 21:20	1
Sulfate	ND		2.0	0.35	mg/L			05/12/16 21:20	1

Lab Sample ID: LCS 480-301453/29

Matrix: Water

Analysis Batch: 301453

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.02		mg/L		102	90 - 110
Sulfate	50.0	50.03		mg/L		100	90 - 110

Lab Sample ID: 480-99991-3 MS

Matrix: Water

Analysis Batch: 301453

Client Sample ID: MW 7-5 051116

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	4690		5000	9708		mg/L		100	81 - 120
Sulfate	278	J	5000	5207		mg/L		99	80 - 120

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 480-301438/3

Matrix: Water

Analysis Batch: 301438

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/12/16 11:37	1

Lab Sample ID: LCS 480-301438/4

Matrix: Water

Analysis Batch: 301438

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	1.01		mg/L		101	90 - 110

Method: 353.2 - Nitrogen, Nitrite

Lab Sample ID: MB 480-301283/27

Matrix: Water

Analysis Batch: 301283

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite	ND		0.050	0.020	mg/L			05/11/16 21:05	1

Lab Sample ID: LCS 480-301283/28

Matrix: Water

Analysis Batch: 301283

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite	1.50	1.54		mg/L		103	90 - 110

Lab Sample ID: 480-99991-3 MS

Matrix: Water

Analysis Batch: 301283

Client Sample ID: MW 7-5 051116

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite	0.047	J	1.00	1.05		mg/L		100	90 - 110

Lab Sample ID: 480-99991-3 DU

Matrix: Water

Analysis Batch: 301283

Client Sample ID: MW 7-5 051116

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrite	0.047	J	0.0475	J	mg/L		0.6	20

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 480-301820/28

Matrix: Water

Analysis Batch: 301820

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.538	J	1.0	0.43	mg/L			05/13/16 05:43	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: MB 480-301820/52

Matrix: Water

Analysis Batch: 301820

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.576	J	1.0	0.43	mg/L	-		05/13/16 16:34	1

Lab Sample ID: LCS 480-301820/29

Matrix: Water

Analysis Batch: 301820

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	61.09		mg/L	-	102	90 - 110

Lab Sample ID: LCS 480-301820/53

Matrix: Water

Analysis Batch: 301820

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	62.21		mg/L	-	104	90 - 110

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 480-301509/30

Matrix: Water

Analysis Batch: 301509

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	ND		5.0	0.79	mg/L	-		05/12/16 13:12	1

Lab Sample ID: MB 480-301509/7

Matrix: Water

Analysis Batch: 301509

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	ND		5.0	0.79	mg/L	-		05/12/16 10:44	1

Lab Sample ID: LCS 480-301509/31

Matrix: Water

Analysis Batch: 301509

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	100	103.0		mg/L	-	103	90 - 110

Lab Sample ID: LCS 480-301509/8

Matrix: Water

Analysis Batch: 301509

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	100	107.7		mg/L	-	108	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 480-301499/3

Matrix: Water

Analysis Batch: 301499

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.10	0.052	mg/L			05/12/16 14:00	1

Lab Sample ID: LCS 480-301499/4

Matrix: Water

Analysis Batch: 301499

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.750	0.681		mg/L		91	90 - 110

Lab Sample ID: 480-99991-3 MS

Matrix: Water

Analysis Batch: 301499

Client Sample ID: MW 7-5 051116

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND	F1	0.500	0.362	F1	mg/L		72	90 - 110

Lab Sample ID: 480-99991-3 MSD

Matrix: Water

Analysis Batch: 301499

Client Sample ID: MW 7-5 051116

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND	F1	0.500	0.367	F1	mg/L		73	90 - 110	2	20

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

GC/MS VOA

Analysis Batch: 302589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99991-1	MW 7-C-2 051116	Total/NA	Water	8260C	
480-99991-2	MW 7-6 051116	Total/NA	Water	8260C	
480-99991-3	MW 7-5 051116	Total/NA	Water	8260C	
480-99991-3 MS	MW 7-5 051116	Total/NA	Water	8260C	
480-99991-3 MSD	MW 7-5 051116	Total/NA	Water	8260C	
480-99991-4	TRIP BLANK	Total/NA	Water	8260C	
LCS 480-302589/5	Lab Control Sample	Total/NA	Water	8260C	
MB 480-302589/7	Method Blank	Total/NA	Water	8260C	

Analysis Batch: 302723

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99991-1 - DL	MW 7-C-2 051116	Total/NA	Water	8260C	
LCS 480-302723/5	Lab Control Sample	Total/NA	Water	8260C	
MB 480-302723/7	Method Blank	Total/NA	Water	8260C	

GC VOA

Analysis Batch: 301355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99991-1	MW 7-C-2 051116	Total/NA	Water	RSK-175	
480-99991-2	MW 7-6 051116	Total/NA	Water	RSK-175	
480-99991-3	MW 7-5 051116	Total/NA	Water	RSK-175	
LCS 480-301355/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-301355/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 480-301355/3	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 331454

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99991-1	MW 7-C-2 051116	Total/NA	Water	RSK-175	
480-99991-2	MW 7-6 051116	Total/NA	Water	RSK-175	
480-99991-3	MW 7-5 051116	Total/NA	Water	RSK-175	
LCS 440-331454/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 440-331454/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 440-331454/8	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 301301

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99991-1	MW 7-C-2 051116	Total/NA	Water	3005A	
480-99991-2	MW 7-6 051116	Total/NA	Water	3005A	
480-99991-3	MW 7-5 051116	Total/NA	Water	3005A	
LCS 480-301301/2-A	Lab Control Sample	Total/NA	Water	3005A	
MB 480-301301/1-A	Method Blank	Total/NA	Water	3005A	

Analysis Batch: 301578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99991-1	MW 7-C-2 051116	Total/NA	Water	6010C	301301
480-99991-2	MW 7-6 051116	Total/NA	Water	6010C	301301
480-99991-3	MW 7-5 051116	Total/NA	Water	6010C	301301

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Metals (Continued)

Analysis Batch: 301578 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-301301/2-A	Lab Control Sample	Total/NA	Water	6010C	301301
MB 480-301301/1-A	Method Blank	Total/NA	Water	6010C	301301

General Chemistry

Analysis Batch: 301283

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99991-3	MW 7-5 051116	Total/NA	Water	353.2	
480-99991-3 DU	MW 7-5 051116	Total/NA	Water	353.2	
480-99991-3 MS	MW 7-5 051116	Total/NA	Water	353.2	
LCS 480-301283/28	Lab Control Sample	Total/NA	Water	353.2	
MB 480-301283/27	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 301286

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99991-1	MW 7-C-2 051116	Total/NA	Water	353.2	
480-99991-2	MW 7-6 051116	Total/NA	Water	353.2	
480-99991-3	MW 7-5 051116	Total/NA	Water	353.2	

Analysis Batch: 301288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99991-1	MW 7-C-2 051116	Total/NA	Water	353.2	
480-99991-2	MW 7-6 051116	Total/NA	Water	353.2	

Analysis Batch: 301438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99991-1	MW 7-C-2 051116	Total/NA	Water	350.1	
480-99991-2	MW 7-6 051116	Total/NA	Water	350.1	
480-99991-3	MW 7-5 051116	Total/NA	Water	350.1	
LCS 480-301438/4	Lab Control Sample	Total/NA	Water	350.1	
MB 480-301438/3	Method Blank	Total/NA	Water	350.1	

Analysis Batch: 301453

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99991-1	MW 7-C-2 051116	Total/NA	Water	300.0	
480-99991-2	MW 7-6 051116	Total/NA	Water	300.0	
480-99991-3	MW 7-5 051116	Total/NA	Water	300.0	
480-99991-3 MS	MW 7-5 051116	Total/NA	Water	300.0	
LCS 480-301453/29	Lab Control Sample	Total/NA	Water	300.0	
MB 480-301453/30	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 301499

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99991-1	MW 7-C-2 051116	Total/NA	Water	SM 4500 S2 D	
480-99991-2	MW 7-6 051116	Total/NA	Water	SM 4500 S2 D	
480-99991-3	MW 7-5 051116	Total/NA	Water	SM 4500 S2 D	
480-99991-3 MS	MW 7-5 051116	Total/NA	Water	SM 4500 S2 D	
480-99991-3 MSD	MW 7-5 051116	Total/NA	Water	SM 4500 S2 D	
LCS 480-301499/4	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	
MB 480-301499/3	Method Blank	Total/NA	Water	SM 4500 S2 D	

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

General Chemistry (Continued)

Analysis Batch: 301509

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99991-1	MW 7-C-2 051116	Total/NA	Water	SM 2320B	
480-99991-2	MW 7-6 051116	Total/NA	Water	SM 2320B	
480-99991-3	MW 7-5 051116	Total/NA	Water	SM 2320B	
LCS 480-301509/31	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 480-301509/8	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 480-301509/30	Method Blank	Total/NA	Water	SM 2320B	
MB 480-301509/7	Method Blank	Total/NA	Water	SM 2320B	

Analysis Batch: 301820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-99991-1	MW 7-C-2 051116	Total/NA	Water	9060A	
480-99991-2	MW 7-6 051116	Total/NA	Water	9060A	
480-99991-3	MW 7-5 051116	Total/NA	Water	9060A	
LCS 480-301820/29	Lab Control Sample	Total/NA	Water	9060A	
LCS 480-301820/53	Lab Control Sample	Total/NA	Water	9060A	
MB 480-301820/28	Method Blank	Total/NA	Water	9060A	
MB 480-301820/52	Method Blank	Total/NA	Water	9060A	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Client Sample ID: MW 7-C-2 051116

Date Collected: 05/11/16 08:45

Date Received: 05/11/16 14:30

Lab Sample ID: 480-99991-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		5	302589	05/19/16 11:44	GVF	TAL BUF
Total/NA	Analysis	8260C	DL	10	302723	05/19/16 23:03	SWO	TAL BUF
Total/NA	Analysis	RSK-175		1	331454	05/19/16 15:24	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	301355	05/12/16 11:15	TRG	TAL BUF
Total/NA	Prep	3005A			301301	05/12/16 07:50	CMM	TAL BUF
Total/NA	Analysis	6010C		1	301578	05/12/16 19:19	AMH	TAL BUF
Total/NA	Analysis	300.0		20	301453	05/12/16 22:58	CAV	TAL BUF
Total/NA	Analysis	350.1		1	301438	05/12/16 11:49	CEA	TAL BUF
Total/NA	Analysis	353.2		1	301286	05/11/16 21:07	JJK	TAL BUF
Total/NA	Analysis	353.2		1	301288	05/11/16 21:07	JJK	TAL BUF
Total/NA	Analysis	9060A		1	301820	05/13/16 11:07	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	301509	05/12/16 11:23	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	301499	05/12/16 14:00	MDL	TAL BUF

Client Sample ID: MW 7-6 051116

Date Collected: 05/11/16 11:00

Date Received: 05/11/16 14:30

Lab Sample ID: 480-99991-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		10	302589	05/19/16 12:07	GVF	TAL BUF
Total/NA	Analysis	RSK-175		1	331454	05/19/16 15:37	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	301355	05/12/16 11:32	TRG	TAL BUF
Total/NA	Prep	3005A			301301	05/12/16 07:50	CMM	TAL BUF
Total/NA	Analysis	6010C		1	301578	05/12/16 19:22	AMH	TAL BUF
Total/NA	Analysis	300.0		200	301453	05/12/16 23:06	CAV	TAL BUF
Total/NA	Analysis	350.1		1	301438	05/12/16 11:50	CEA	TAL BUF
Total/NA	Analysis	353.2		1	301286	05/11/16 18:59	JJK	TAL BUF
Total/NA	Analysis	353.2		1	301288	05/11/16 18:59	JJK	TAL BUF
Total/NA	Analysis	9060A		1	301820	05/13/16 11:35	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	301509	05/12/16 11:30	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	301499	05/12/16 14:00	MDL	TAL BUF

Client Sample ID: MW 7-5 051116

Date Collected: 05/11/16 12:35

Date Received: 05/11/16 14:30

Lab Sample ID: 480-99991-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		100	302589	05/19/16 12:30	GVF	TAL BUF
Total/NA	Analysis	RSK-175		2	331454	05/19/16 17:08	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	301355	05/12/16 11:50	TRG	TAL BUF

TestAmerica Buffalo

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Client Sample ID: MW 7-5 051116

Lab Sample ID: 480-99991-3

Date Collected: 05/11/16 12:35

Matrix: Water

Date Received: 05/11/16 14:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			301301	05/12/16 07:50	CMM	TAL BUF
Total/NA	Analysis	6010C		1	301578	05/12/16 19:26	AMH	TAL BUF
Total/NA	Analysis	300.0		200	301453	05/12/16 23:14	CAV	TAL BUF
Total/NA	Analysis	350.1		1	301438	05/12/16 11:51	CEA	TAL BUF
Total/NA	Analysis	353.2		1	301286	05/11/16 19:00	JJK	TAL BUF
Total/NA	Analysis	353.2		1	301283	05/11/16 21:07	JJK	TAL BUF
Total/NA	Analysis	9060A		1	301820	05/13/16 12:02	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	301509	05/12/16 11:44	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	301499	05/12/16 14:00	MDL	TAL BUF

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-99991-4

Date Collected: 05/11/16 08:00

Matrix: Water

Date Received: 05/11/16 14:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	302589	05/19/16 12:53	GVF	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Certification Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-99991-1

Laboratory: TestAmerica Buffalo

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	03-31-17

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-16
Arizona	State Program	9	AZ0671	10-13-16
California	LA Cty Sanitation Districts	9	10256	01-31-17 *
California	State Program	9	CA ELAP 2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-17
Hawaii	State Program	9	N/A	01-29-17
Kansas	NELAP Secondary AB	7	E-10420	07-31-16
Nevada	State Program	9	CA015312016-2	07-31-16
New Mexico	State Program	6	N/A	01-29-17
Northern Mariana Islands	State Program	9	MP0002	01-29-17
Oregon	NELAP	10	4028	01-29-17
USDA	Federal		P330-09-00080	07-08-18
Washington	State Program	10	C900	09-03-16

* Certification renewal pending - certification considered valid.

TestAmerica Buffalo

Method Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-99991-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL IRV
RSK-175	Dissolved Gases (GC)	RSK	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
350.1	Nitrogen, Ammonia	MCAWW	TAL BUF
353.2	Nitrogen, Nitrite	MCAWW	TAL BUF
353.2	Nitrate	EPA	TAL BUF
9060A	Organic Carbon, Total (TOC)	SW846	TAL BUF
SM 2320B	Alkalinity	SM	TAL BUF
SM 4500 S2 D	Sulfide, Total	SM	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

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

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

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Sample Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-99991-1

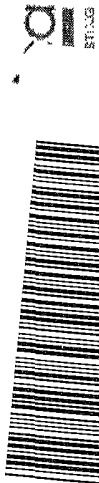
Project/Site: 058507, GM-Lockport Groundwater Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-99991-1	MW 7-C-2 051116	Water	05/11/16 08:45	05/11/16 14:30
480-99991-2	MW 7-6 051116	Water	05/11/16 11:00	05/11/16 14:30
480-99991-3	MW 7-5 051116	Water	05/11/16 12:35	05/11/16 14:30
480-99991-4	TRIP BLANK	Water	05/11/16 08:00	05/11/16 14:30

TestAmerica Buffalo

10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record



Client Information Client Contact: Mr. Tom Bohlen Address: 535 Washington Street 11th Floor City: Buffalo State, Zip: NY, 14203 Phone: 4065906 Email: thomas.bohlen@gza.com Project Name: 056507, GM-Loopport Groundwater Sampling Site:		Lab PM: Deyo, Melissa L E-Mail: melissa.deyo@testamericainc.com Phone: 517-5708 Carrier Ti:		Page 5 of 6 Job #:	
Analysis Requested Due Date Requested: TAT Requested (days): PO #: 4065906 WO #: 256028 Project #: 48004014 SSOW#:		Analysis Requested RSK_175 - Standard VFA Compounds RSK_175 - CO2 - Carbon dioxide 8260C - PCE, TCE, DCE (trans and cis), Vinyl Chloride Perform MS/MSD (Yes or No) Field Filtered Sample (Yes or No) RSK_175 - Metals - Fe, Mn, Mg, K & Na 350.1 - Ammonia 300.0 - 28D - Anions (Chloride & Sulfate) RSK_175 - Methane, Ethane & Ethene 9060A - Total Organic Carbon SM4600 - S2_D - Sulfide 353.2, 353.2, Nitrite, Nitrate, Calc 2320B - Total Alkalinity Total Number of Containers:			
Sample Identification Sample ID: MW-7-C-2 051116 Sample ID: MW-7-0 051116 Sample ID: MW-7-5 051116 Sample ID: TRIP BLANK Sample Date: 5/11/16 Sample Time: 0845 Sample Type: G Matrix: Water Preservation Code:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Z - other (specify) Other:			
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months			
Empty Kit Relinquished by: Relinquished by: [Signature] Relinquished by: [Signature] Relinquished by: [Signature]		Special Instructions/QC Requirements: Method of Shipment:			
Date: 5/11/16 1430 Date: 5/11/16 1430 Date: 5/11/16 1430		Date: 5-11-16 1430 Date: 5-11-16 1430 Date: 5-11-16 1430			
Company: GZA Company: GZA Company: GZA		Company: GZA Company: GZA Company: GZA			
Custody Seal Intact: Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks: #1 2.4			

TestAmerica Buffalo

10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

Client Information
 Client Contact: Mr. Tom Bohlen
 Company: GZA GeoEnvironmental, Inc.
 Address: 535 Washington Street 11th Floor
 City: Buffalo
 State, Zip: NY, 14203
 Phone: 4065908
 Email: thomas.bohlen@gza.com
 Project Name: 058507, GM-Lockport Groundwater Sampling
 Site: SSO#

Lab P/N: Devo, Melissa L
 E-Mail: melissa.devo@testamericainc.com
 Carrier T1
 Date Requested: 5/11/16
 TAT Requested (days):

Page 0000
 Job #:

Analysis Requested										Job #.
Due Date Requested:										
City:										
State, Zip:										
Phone:										
Email:										
Project Name:										
Site:										
Sample Identification										
Sample Date										
Sample Time										
Sample Type (C=Comp, G=grab)										
Matrix (W=water, S=soil, O=other)										
Field Filtered Sample (Yes or No)										
8260C - PCB, TCE, DCE (trans and cis), Vinyl Chloride										
RSK_175_CO2 - Carbon dioxide										
VFA_1G - Standard VFA Compounds										
300.0_20D - Antions (Chloride & Sulfate)										
350.1 - Ammonia										
6010C - Metals - Fe, Mn, Mg, K & Na										
RSK_175 - Methane, Ethane & Ethene										
8080A - Total Organic Carbon										
SM4600_S2_D - Sulfide										
353.2, 353.2 Nitrite, Nitrate, Calc										
2320B - Total Alkalinity										
Total Number of Containers										
Special Instructions/Note:										
MW-7-6-2 051116										
MW-7-6 051116										
MW-7-5 051116										
TRAP BLANK										

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological
 Deliverable Requested: I, II, III, IV, Other (specify)

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Special Instructions/QC Requirements:

Empty Kit Relinquished by: _____ Date: _____
 Relinquished by: _____ Date/Time: 5/11/16 1430 Company: GZA
 Relinquished by: _____ Date/Time: _____ Company: _____
 Relinquished by: _____ Date/Time: _____ Company: _____

Custody Seals Intact: ☐ Yes ☐ No
 Custody Seal No.: #1 2.4
 Cooler Temperature(s) °C and Other Remarks: #1 2.4

Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

[illegible]

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-99991-1

Login Number: 99991

List Source: TestAmerica Buffalo

List Number: 1

Creator: Wallace, Cameron

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GZA
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-99991-1

Login Number: 99991

List Number: 2

Creator: Salas, Margarita

List Source: TestAmerica Irvine

List Creation: 05/13/16 12:55 PM

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Recieved 1 of 3 Voas broken Sample#1
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-100072-1

Client Project/Site: 058507, GM-Lockport Groundwater
Sampling

For:

GHD Services Inc.

2055 Niagara Falls Blvd., Suite 3

Niagara Falls, New York 14304

Attn: Kathleen Willy



Authorized for release by:

5/24/2016 3:28:54 PM

Rebecca Jones, Project Management Assistant I

rebecca.jones@testamericainc.com

Designee for

Melissa Deyo, Project Manager I

(716)504-9874

melissa.deyo@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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.

TestAmerica Job ID: 480-100072-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Qualifiers

GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, 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: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100072-1

Job ID: 480-100072-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-100072-1

Receipt

The samples were received on 5/12/2016 3:35 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.0° C.

GC/MS VOA

Method(s) 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-7-A-6 051216 (480-100072-1) and MW-7-7 051216 (480-100072-2). Elevated reporting limits (RLs) are provided.

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

HPLC/IC

Method(s) 300.0, SM 4110B: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-7-A-6 051216 (480-100072-1) and MW-7-7 051216 (480-100072-2). Elevated reporting limits (RLs) are provided.

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

GC VOA

Method(s) RSK-175: The matrix spike / matrix spike duplicate / sample duplicate (MS/MSD/DUP) precision for analytical batch 480-301593 was outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) precision was within acceptance limits. Also, the parent sample and MS/MSD samples were in different sample vials.

Method(s) RSK-175: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-7-7 051216 (480-100072-2). Elevated reporting limits (RLs) are provided.

Method(s) RSK-175: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-7-A-6 051216 (480-100072-1). Elevated reporting limits (RLs) are provided.

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

Metals

Method(s) 6010C: The Low Level Continuing Calibration Verification (CCVL 480-302143/14) contained Total Iron above the upper quality control limit. All reported samples (LCS 480-301572/2-A) and (MB 480-301572/1-A) associated with this CCVL were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCVL; therefore, re-analysis of samples was not performed.

Method(s) 6010C: The continuing calibration blank (CCB 480-302143/25) for analytical batch 480-302143 contained Total Magnesium above the reporting limit (RL). All reported samples associated with this CCB, MW-7-A-6 051216 (480-100072-1), MW-7-7 051216 (480-100072-2), (LCS 480-301572/2-A) and (MB 480-301572/1-A), were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

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

General Chemistry

Method(s) SM 4500 S2 D: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-7-7 051216 (480-100072-2). Elevated reporting limits (RLs) are provided.

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

Detection Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100072-1

Client Sample ID: MW-7-A-6 051216

Lab Sample ID: 480-100072-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	28000		5000	4100	ug/L	5000		8260C	Total/NA
Tetrachloroethene	170000		5000	1800	ug/L	5000		8260C	Total/NA
Trichloroethene	17000		5000	2300	ug/L	5000		8260C	Total/NA
Carbon Dioxide (TCD)	100000		4000	2000	ug/L	2		RSK-175	Total/NA
Ethene	45	J	140	30	ug/L	20		RSK-175	Total/NA
Methane	440		80	20	ug/L	20		RSK-175	Total/NA
Iron	0.29		0.050	0.019	mg/L	1		6010C	Total/NA
Magnesium	115	^	0.20	0.043	mg/L	1		6010C	Total/NA
Manganese	1.0	B	0.0030	0.00040	mg/L	1		6010C	Total/NA
Potassium	3.1		0.50	0.10	mg/L	1		6010C	Total/NA
Sodium	336		1.0	0.32	mg/L	1		6010C	Total/NA
Chloride	780		10.0	5.6	mg/L	20		300.0	Total/NA
Sulfate	53.6		40.0	7.0	mg/L	20		300.0	Total/NA
Ammonia	0.014	J	0.020	0.0090	mg/L	1		350.1	Total/NA
Total Organic Carbon	8.4		1.0	0.43	mg/L	1		9060A	Total/NA
Total Alkalinity	528		5.0	0.79	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-7-7 051216

Lab Sample ID: 480-100072-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	26000		1000	810	ug/L	1000		8260C	Total/NA
Tetrachloroethene	84000		1000	360	ug/L	1000		8260C	Total/NA
Trichloroethene	7500		1000	460	ug/L	1000		8260C	Total/NA
Vinyl chloride	4900		1000	900	ug/L	1000		8260C	Total/NA
Ethene	320		70	15	ug/L	10		RSK-175	Total/NA
Methane	460		40	10	ug/L	10		RSK-175	Total/NA
Iron	0.55		0.050	0.019	mg/L	1		6010C	Total/NA
Magnesium	209	^	0.20	0.043	mg/L	1		6010C	Total/NA
Manganese	0.066	B	0.0030	0.00040	mg/L	1		6010C	Total/NA
Potassium	41.8		0.50	0.10	mg/L	1		6010C	Total/NA
Sodium	1340		1.0	0.32	mg/L	1		6010C	Total/NA
Chloride	3000		50.0	28.2	mg/L	100		300.0	Total/NA
Sulfate	345		200	34.9	mg/L	100		300.0	Total/NA
Ammonia	2.3		0.040	0.018	mg/L	2		350.1	Total/NA
Total Organic Carbon	6.3		1.0	0.43	mg/L	1		9060A	Total/NA
Total Alkalinity	106		5.0	0.79	mg/L	1		SM 2320B	Total/NA
Sulfide	1.1		1.0	0.52	mg/L	10		SM 4500 S2 D	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-100072-3

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100072-1

Client Sample ID: MW-7-A-6 051216

Lab Sample ID: 480-100072-1

Date Collected: 05/12/16 10:20

Matrix: Water

Date Received: 05/12/16 15:35

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	28000		5000	4100	ug/L			05/19/16 13:42	5000
Tetrachloroethene	170000		5000	1800	ug/L			05/19/16 13:42	5000
trans-1,2-Dichloroethene	ND		5000	4500	ug/L			05/19/16 13:42	5000
Trichloroethene	17000		5000	2300	ug/L			05/19/16 13:42	5000
Vinyl chloride	ND		5000	4500	ug/L			05/19/16 13:42	5000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	121		66 - 137		05/19/16 13:42	5000
4-Bromofluorobenzene (Surr)	103		73 - 120		05/19/16 13:42	5000
Toluene-d8 (Surr)	99		71 - 126		05/19/16 13:42	5000
Dibromofluoromethane (Surr)	119		60 - 140		05/19/16 13:42	5000

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	100000		4000	2000	ug/L			05/20/16 15:36	2
Ethane	ND		150	30	ug/L			05/16/16 09:40	20
Ethene	45	J	140	30	ug/L			05/16/16 09:40	20
Methane	440		80	20	ug/L			05/16/16 09:40	20

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.29		0.050	0.019	mg/L		05/13/16 08:20	05/17/16 13:00	1
Magnesium	115	^	0.20	0.043	mg/L		05/13/16 08:20	05/16/16 18:45	1
Manganese	1.0	B	0.0030	0.00040	mg/L		05/13/16 08:20	05/16/16 18:45	1
Potassium	3.1		0.50	0.10	mg/L		05/13/16 08:20	05/16/16 18:45	1
Sodium	336		1.0	0.32	mg/L		05/13/16 08:20	05/16/16 18:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	780		10.0	5.6	mg/L			05/16/16 18:55	20
Sulfate	53.6		40.0	7.0	mg/L			05/16/16 18:55	20
Ammonia	0.014	J	0.020	0.0090	mg/L			05/14/16 11:40	1
Nitrate	ND		0.050	0.020	mg/L			05/12/16 20:12	1
Nitrite	ND		0.050	0.020	mg/L			05/12/16 20:12	1
Total Organic Carbon	8.4		1.0	0.43	mg/L			05/17/16 03:09	1
Total Alkalinity	528		5.0	0.79	mg/L			05/13/16 17:55	1
Sulfide	ND		0.10	0.052	mg/L			05/15/16 12:15	1

Client Sample ID: MW-7-7 051216

Lab Sample ID: 480-100072-2

Date Collected: 05/12/16 13:10

Matrix: Water

Date Received: 05/12/16 15:35

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	26000		1000	810	ug/L			05/19/16 14:09	1000
Tetrachloroethene	84000		1000	360	ug/L			05/19/16 14:09	1000
trans-1,2-Dichloroethene	ND		1000	900	ug/L			05/19/16 14:09	1000
Trichloroethene	7500		1000	460	ug/L			05/19/16 14:09	1000
Vinyl chloride	4900		1000	900	ug/L			05/19/16 14:09	1000

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100072-1

Client Sample ID: MW-7-7 051216

Lab Sample ID: 480-100072-2

Date Collected: 05/12/16 13:10

Matrix: Water

Date Received: 05/12/16 15:35

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	120		66 - 137		05/19/16 14:09	1000
4-Bromofluorobenzene (Surr)	102		73 - 120		05/19/16 14:09	1000
Toluene-d8 (Surr)	100		71 - 126		05/19/16 14:09	1000
Dibromofluoromethane (Surr)	115		60 - 140		05/19/16 14:09	1000

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	ND		2000	1000	ug/L			05/20/16 14:06	1
Ethane	ND		75	15	ug/L			05/13/16 13:27	10
Ethene	320		70	15	ug/L			05/13/16 13:27	10
Methane	460		40	10	ug/L			05/13/16 13:27	10

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.55		0.050	0.019	mg/L		05/13/16 08:20	05/17/16 13:04	1
Magnesium	209	A	0.20	0.043	mg/L		05/13/16 08:20	05/16/16 18:48	1
Manganese	0.066	B	0.0030	0.00040	mg/L		05/13/16 08:20	05/16/16 18:48	1
Potassium	41.8		0.50	0.10	mg/L		05/13/16 08:20	05/16/16 18:48	1
Sodium	1340		1.0	0.32	mg/L		05/13/16 08:20	05/16/16 18:48	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3000		50.0	28.2	mg/L			05/16/16 19:03	100
Sulfate	345		200	34.9	mg/L			05/16/16 19:03	100
Ammonia	2.3		0.040	0.018	mg/L			05/14/16 12:37	2
Nitrate	ND		0.050	0.020	mg/L			05/12/16 20:13	1
Nitrite	ND		0.050	0.020	mg/L			05/12/16 20:13	1
Total Organic Carbon	6.3		1.0	0.43	mg/L			05/17/16 03:39	1
Total Alkalinity	106		5.0	0.79	mg/L			05/13/16 18:01	1
Sulfide	1.1		1.0	0.52	mg/L			05/15/16 12:15	10

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-100072-3

Date Collected: 05/12/16 09:00

Matrix: Water

Date Received: 05/12/16 15:35

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/19/16 14:36	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/19/16 14:36	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/19/16 14:36	1
Trichloroethene	ND		1.0	0.46	ug/L			05/19/16 14:36	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/19/16 14:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		66 - 137		05/19/16 14:36	1
4-Bromofluorobenzene (Surr)	101		73 - 120		05/19/16 14:36	1
Toluene-d8 (Surr)	100		71 - 126		05/19/16 14:36	1
Dibromofluoromethane (Surr)	120		60 - 140		05/19/16 14:36	1

TestAmerica Buffalo

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100072-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (66-137)	BFB (73-120)	TOL (71-126)	DBFM (60-140)
480-100072-1	MW-7-A-6 051216	121	103	99	119
480-100072-2	MW-7-7 051216	120	102	100	115
480-100072-3	TRIP BLANK	119	101	100	120
LCS 480-302595/4	Lab Control Sample	117	106	102	116
MB 480-302595/6	Method Blank	117	102	100	116

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100072-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-302595/6

Matrix: Water

Analysis Batch: 302595

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/19/16 11:32	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/19/16 11:32	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/19/16 11:32	1
Trichloroethene	ND		1.0	0.46	ug/L			05/19/16 11:32	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/19/16 11:32	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	117		66 - 137		05/19/16 11:32	1
4-Bromofluorobenzene (Surr)	102		73 - 120		05/19/16 11:32	1
Toluene-d8 (Surr)	100		71 - 126		05/19/16 11:32	1
Dibromofluoromethane (Surr)	116		60 - 140		05/19/16 11:32	1

Lab Sample ID: LCS 480-302595/4

Matrix: Water

Analysis Batch: 302595

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	25.0	25.5		ug/L		102	74 - 124
Tetrachloroethene	25.0	26.7		ug/L		107	74 - 122
trans-1,2-Dichloroethene	25.0	26.4		ug/L		105	73 - 127
Trichloroethene	25.0	26.7		ug/L		107	74 - 123
Vinyl chloride	25.0	25.5		ug/L		102	65 - 133

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	117		66 - 137
4-Bromofluorobenzene (Surr)	106		73 - 120
Toluene-d8 (Surr)	102		71 - 126
Dibromofluoromethane (Surr)	116		60 - 140

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 480-301593/6

Matrix: Water

Analysis Batch: 301593

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	ND		7.5	1.5	ug/L			05/13/16 09:33	1
Ethene	ND		7.0	1.5	ug/L			05/13/16 09:33	1
Methane	ND		4.0	1.0	ug/L			05/13/16 09:33	1

Lab Sample ID: LCS 480-301593/7

Matrix: Water

Analysis Batch: 301593

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	14.6	16.9		ug/L		116	79 - 120
Ethene	13.6	15.6		ug/L		115	78 - 115

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100072-1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 480-301593/7

Matrix: Water

Analysis Batch: 301593

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	7.77	8.69		ug/L		112	71 - 118

Lab Sample ID: LCSD 480-301593/8

Matrix: Water

Analysis Batch: 301593

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	14.6	15.6		ug/L		107	79 - 120	8	50
Ethene	13.6	14.7		ug/L		108	78 - 115	6	50
Methane	7.77	7.93		ug/L		102	71 - 118	9	50

Lab Sample ID: MB 480-301904/3

Matrix: Water

Analysis Batch: 301904

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	ND		7.5	1.5	ug/L			05/16/16 08:33	1
Ethene	ND		7.0	1.5	ug/L			05/16/16 08:33	1
Methane	ND		4.0	1.0	ug/L			05/16/16 08:33	1

Lab Sample ID: LCS 480-301904/4

Matrix: Water

Analysis Batch: 301904

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	14.6	14.7		ug/L		101	79 - 120
Ethene	13.6	13.8		ug/L		102	78 - 115
Methane	7.77	7.45		ug/L		96	71 - 118

Lab Sample ID: LCSD 480-301904/5

Matrix: Water

Analysis Batch: 301904

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	14.6	14.3		ug/L		98	79 - 120	3	50
Ethene	13.6	13.5		ug/L		99	78 - 115	3	50
Methane	7.77	7.28		ug/L		94	71 - 118	2	50

Lab Sample ID: MB 440-331720/8

Matrix: Water

Analysis Batch: 331720

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	ND		2000	1000	ug/L			05/20/16 13:07	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100072-1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 440-331720/4

Matrix: Water

Analysis Batch: 331720

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon Dioxide (TCD)	11500	11500		ug/L		100	80 - 120

Lab Sample ID: LCSD 440-331720/5

Matrix: Water

Analysis Batch: 331720

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon Dioxide (TCD)	11500	11600		ug/L		101	80 - 120	1	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-301572/1-A

Matrix: Water

Analysis Batch: 302143

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 301572

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND	^	0.050	0.019	mg/L		05/13/16 08:20	05/16/16 18:21	1
Magnesium	ND		0.20	0.043	mg/L		05/13/16 08:20	05/16/16 18:21	1
Manganese	0.000600	J	0.0030	0.00040	mg/L		05/13/16 08:20	05/16/16 18:21	1
Potassium	ND		0.50	0.10	mg/L		05/13/16 08:20	05/16/16 18:21	1
Sodium	ND		1.0	0.32	mg/L		05/13/16 08:20	05/16/16 18:21	1

Lab Sample ID: LCS 480-301572/2-A

Matrix: Water

Analysis Batch: 302143

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 301572

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	10.14	^	mg/L		101	80 - 120
Magnesium	10.0	10.30		mg/L		103	80 - 120
Manganese	0.200	0.197		mg/L		98	80 - 120
Potassium	10.0	10.28		mg/L		103	80 - 120
Sodium	10.0	10.10		mg/L		101	80 - 120

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 480-301941/30

Matrix: Water

Analysis Batch: 301941

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.28	mg/L			05/16/16 15:07	1
Sulfate	ND		2.0	0.35	mg/L			05/16/16 15:07	1

Lab Sample ID: MB 480-301941/56

Matrix: Water

Analysis Batch: 301941

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.28	mg/L			05/16/16 18:39	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100072-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 480-301941/56

Matrix: Water

Analysis Batch: 301941

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	ND		2.0	0.35	mg/L			05/16/16 18:39	1

Lab Sample ID: LCS 480-301941/29

Matrix: Water

Analysis Batch: 301941

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	50.86		mg/L		102	90 - 110
Sulfate	50.0	50.48		mg/L		101	90 - 110

Lab Sample ID: LCS 480-301941/55

Matrix: Water

Analysis Batch: 301941

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.06		mg/L		102	90 - 110
Sulfate	50.0	50.38		mg/L		101	90 - 110

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 480-301792/27

Matrix: Water

Analysis Batch: 301792

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/14/16 11:28	1

Lab Sample ID: MB 480-301792/3

Matrix: Water

Analysis Batch: 301792

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/14/16 11:07	1

Lab Sample ID: MB 480-301792/51

Matrix: Water

Analysis Batch: 301792

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/14/16 11:49	1

Lab Sample ID: MB 480-301792/99

Matrix: Water

Analysis Batch: 301792

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/14/16 12:31	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100072-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: LCS 480-301792/100

Matrix: Water

Analysis Batch: 301792

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	1.01		mg/L		101	90 - 110

Lab Sample ID: LCS 480-301792/28

Matrix: Water

Analysis Batch: 301792

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	1.02		mg/L		102	90 - 110

Lab Sample ID: LCS 480-301792/4

Matrix: Water

Analysis Batch: 301792

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	1.02		mg/L		102	90 - 110

Lab Sample ID: LCS 480-301792/52

Matrix: Water

Analysis Batch: 301792

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	1.01		mg/L		101	90 - 110

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 480-302414/6

Matrix: Water

Analysis Batch: 302414

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.43	mg/L			05/16/16 18:34	1

Lab Sample ID: LCS 480-302414/7

Matrix: Water

Analysis Batch: 302414

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	63.94		mg/L		107	90 - 110

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 480-301944/30

Matrix: Water

Analysis Batch: 301944

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	ND		5.0	0.79	mg/L			05/13/16 17:19	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100072-1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: MB 480-301944/7

Matrix: Water

Analysis Batch: 301944

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	ND		5.0	0.79	mg/L			05/13/16 15:04	1

Lab Sample ID: LCS 480-301944/31

Matrix: Water

Analysis Batch: 301944

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	100	100.9		mg/L		101	90 - 110

Lab Sample ID: LCS 480-301944/8

Matrix: Water

Analysis Batch: 301944

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	100	96.34		mg/L		96	90 - 110

Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 480-301850/3

Matrix: Water

Analysis Batch: 301850

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.10	0.052	mg/L			05/15/16 12:15	1

Lab Sample ID: LCS 480-301850/4

Matrix: Water

Analysis Batch: 301850

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.750	0.697		mg/L		93	90 - 110

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100072-1

GC/MS VOA

Analysis Batch: 302595

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100072-1	MW-7-A-6 051216	Total/NA	Water	8260C	
480-100072-2	MW-7-7 051216	Total/NA	Water	8260C	
480-100072-3	TRIP BLANK	Total/NA	Water	8260C	
LCS 480-302595/4	Lab Control Sample	Total/NA	Water	8260C	
MB 480-302595/6	Method Blank	Total/NA	Water	8260C	

GC VOA

Analysis Batch: 301593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100072-2	MW-7-7 051216	Total/NA	Water	RSK-175	
LCS 480-301593/7	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-301593/8	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 480-301593/6	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 301904

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100072-1	MW-7-A-6 051216	Total/NA	Water	RSK-175	
LCS 480-301904/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-301904/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 480-301904/3	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 331720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100072-1	MW-7-A-6 051216	Total/NA	Water	RSK-175	
480-100072-2	MW-7-7 051216	Total/NA	Water	RSK-175	
LCS 440-331720/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 440-331720/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 440-331720/8	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 301572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100072-1	MW-7-A-6 051216	Total/NA	Water	3005A	
480-100072-2	MW-7-7 051216	Total/NA	Water	3005A	
LCS 480-301572/2-A	Lab Control Sample	Total/NA	Water	3005A	
MB 480-301572/1-A	Method Blank	Total/NA	Water	3005A	

Analysis Batch: 302143

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100072-1	MW-7-A-6 051216	Total/NA	Water	6010C	301572
480-100072-2	MW-7-7 051216	Total/NA	Water	6010C	301572
LCS 480-301572/2-A	Lab Control Sample	Total/NA	Water	6010C	301572
MB 480-301572/1-A	Method Blank	Total/NA	Water	6010C	301572

Analysis Batch: 302242

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100072-1	MW-7-A-6 051216	Total/NA	Water	6010C	301572
480-100072-2	MW-7-7 051216	Total/NA	Water	6010C	301572

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100072-1

General Chemistry

Analysis Batch: 301542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100072-1	MW-7-A-6 051216	Total/NA	Water	353.2	
480-100072-2	MW-7-7 051216	Total/NA	Water	353.2	

Analysis Batch: 301545

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100072-1	MW-7-A-6 051216	Total/NA	Water	353.2	
480-100072-2	MW-7-7 051216	Total/NA	Water	353.2	

Analysis Batch: 301792

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100072-1	MW-7-A-6 051216	Total/NA	Water	350.1	
480-100072-2	MW-7-7 051216	Total/NA	Water	350.1	
LCS 480-301792/100	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-301792/28	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-301792/4	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-301792/52	Lab Control Sample	Total/NA	Water	350.1	
MB 480-301792/27	Method Blank	Total/NA	Water	350.1	
MB 480-301792/3	Method Blank	Total/NA	Water	350.1	
MB 480-301792/51	Method Blank	Total/NA	Water	350.1	
MB 480-301792/99	Method Blank	Total/NA	Water	350.1	

Analysis Batch: 301850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100072-1	MW-7-A-6 051216	Total/NA	Water	SM 4500 S2 D	
480-100072-2	MW-7-7 051216	Total/NA	Water	SM 4500 S2 D	
LCS 480-301850/4	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	
MB 480-301850/3	Method Blank	Total/NA	Water	SM 4500 S2 D	

Analysis Batch: 301941

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100072-1	MW-7-A-6 051216	Total/NA	Water	300.0	
480-100072-2	MW-7-7 051216	Total/NA	Water	300.0	
LCS 480-301941/29	Lab Control Sample	Total/NA	Water	300.0	
LCS 480-301941/55	Lab Control Sample	Total/NA	Water	300.0	
MB 480-301941/30	Method Blank	Total/NA	Water	300.0	
MB 480-301941/56	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 301944

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100072-1	MW-7-A-6 051216	Total/NA	Water	SM 2320B	
480-100072-2	MW-7-7 051216	Total/NA	Water	SM 2320B	
LCS 480-301944/31	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 480-301944/8	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 480-301944/30	Method Blank	Total/NA	Water	SM 2320B	
MB 480-301944/7	Method Blank	Total/NA	Water	SM 2320B	

Analysis Batch: 302414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100072-1	MW-7-A-6 051216	Total/NA	Water	9060A	
480-100072-2	MW-7-7 051216	Total/NA	Water	9060A	
LCS 480-302414/7	Lab Control Sample	Total/NA	Water	9060A	

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100072-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

General Chemistry (Continued)

Analysis Batch: 302414 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-302414/6	Method Blank	Total/NA	Water	9060A	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100072-1

Client Sample ID: MW-7-A-6 051216

Date Collected: 05/12/16 10:20

Date Received: 05/12/16 15:35

Lab Sample ID: 480-100072-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		5000	302595	05/19/16 13:42	NMD1	TAL BUF
Total/NA	Analysis	RSK-175		2	331720	05/20/16 15:36	EI	TAL IRV
Total/NA	Analysis	RSK-175		20	301904	05/16/16 09:40	TRG	TAL BUF
Total/NA	Prep	3005A			301572	05/13/16 08:20	CMM	TAL BUF
Total/NA	Analysis	6010C		1	302143	05/16/16 18:45	AMH	TAL BUF
Total/NA	Prep	3005A			301572	05/13/16 08:20	CMM	TAL BUF
Total/NA	Analysis	6010C		1	302242	05/17/16 13:00	AMH	TAL BUF
Total/NA	Analysis	300.0		20	301941	05/16/16 18:55	CAV	TAL BUF
Total/NA	Analysis	350.1		1	301792	05/14/16 11:40	ZRJ	TAL BUF
Total/NA	Analysis	353.2		1	301542	05/12/16 20:12	CLT	TAL BUF
Total/NA	Analysis	353.2		1	301545	05/12/16 20:12	CLT	TAL BUF
Total/NA	Analysis	9060A		1	302414	05/17/16 03:09	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	301944	05/13/16 17:55	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	301850	05/15/16 12:15	MDL	TAL BUF

Client Sample ID: MW-7-7 051216

Date Collected: 05/12/16 13:10

Date Received: 05/12/16 15:35

Lab Sample ID: 480-100072-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1000	302595	05/19/16 14:09	NMD1	TAL BUF
Total/NA	Analysis	RSK-175		1	331720	05/20/16 14:06	EI	TAL IRV
Total/NA	Analysis	RSK-175		10	301593	05/13/16 13:27	TRG	TAL BUF
Total/NA	Prep	3005A			301572	05/13/16 08:20	CMM	TAL BUF
Total/NA	Analysis	6010C		1	302143	05/16/16 18:48	AMH	TAL BUF
Total/NA	Prep	3005A			301572	05/13/16 08:20	CMM	TAL BUF
Total/NA	Analysis	6010C		1	302242	05/17/16 13:04	AMH	TAL BUF
Total/NA	Analysis	300.0		100	301941	05/16/16 19:03	CAV	TAL BUF
Total/NA	Analysis	350.1		2	301792	05/14/16 12:37	ZRJ	TAL BUF
Total/NA	Analysis	353.2		1	301542	05/12/16 20:13	CLT	TAL BUF
Total/NA	Analysis	353.2		1	301545	05/12/16 20:13	CLT	TAL BUF
Total/NA	Analysis	9060A		1	302414	05/17/16 03:39	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	301944	05/13/16 18:01	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		10	301850	05/15/16 12:15	MDL	TAL BUF

Client Sample ID: TRIP BLANK

Date Collected: 05/12/16 09:00

Date Received: 05/12/16 15:35

Lab Sample ID: 480-100072-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	302595	05/19/16 14:36	NMD1	TAL BUF

TestAmerica Buffalo

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100072-1

Laboratory References:
TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600
TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

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Certification Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100072-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Laboratory: TestAmerica Buffalo

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	03-31-17

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-16
Arizona	State Program	9	AZ0671	10-13-16
California	LA Cty Sanitation Districts	9	10256	01-31-17 *
California	State Program	9	CA ELAP 2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-17
Hawaii	State Program	9	N/A	01-29-17
Kansas	NELAP Secondary AB	7	E-10420	07-31-16
Nevada	State Program	9	CA015312016-2	07-31-16
New Mexico	State Program	6	N/A	01-29-17
Northern Mariana Islands	State Program	9	MP0002	01-29-17
Oregon	NELAP	10	4028	01-29-17
USDA	Federal		P330-09-00080	07-08-18
Washington	State Program	10	C900	09-03-16

* Certification renewal pending - certification considered valid.

TestAmerica Buffalo

Method Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100072-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL IRV
RSK-175	Dissolved Gases (GC)	RSK	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
350.1	Nitrogen, Ammonia	MCAWW	TAL BUF
353.2	Nitrate	EPA	TAL BUF
353.2	Nitrogen, Nitrite	MCAWW	TAL BUF
9060A	Organic Carbon, Total (TOC)	SW846	TAL BUF
SM 2320B	Alkalinity	SM	TAL BUF
SM 4500 S2 D	Sulfide, Total	SM	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

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

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

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Sample Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100072-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-100072-1	MW-7-A-6 051216	Water	05/12/16 10:20	05/12/16 15:35
480-100072-2	MW-7-7 051216	Water	05/12/16 13:10	05/12/16 15:35
480-100072-3	TRIP BLANK	Water	05/12/16 09:00	05/12/16 15:35

[illegible]

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-100072-1

Login Number: 100072

List Source: TestAmerica Buffalo

List Number: 1

Creator: Kolb, Chris M

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	gza
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-100072-1

Login Number: 100072

List Source: TestAmerica Irvine

List Number: 2

List Creation: 05/14/16 01:33 PM

Creator: Garcia, Veronica G

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

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-100134-1

Client Project/Site: 058507, GM-Lockport Groundwater
Sampling

For:

GHD Services Inc.

2055 Niagara Falls Blvd., Suite 3

Niagara Falls, New York 14304

Attn: Kathleen Willy



Authorized for release by:

5/26/2016 9:31:29 AM

Rebecca Jones, Project Management Assistant I

rebecca.jones@testamericainc.com

Designee for

Melissa Deyo, Project Manager I

(716)504-9874

melissa.deyo@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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.

TestAmerica Job ID: 480-100134-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Qualifiers

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

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: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100134-1

Job ID: 480-100134-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-100134-1

Receipt

The samples were received on 5/13/2016 12:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.9° C.

GC/MS VOA

Method(s) 8260C: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW 7-8 051316 (480-100134-2). Elevated reporting limits (RLs) are provided.

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

HPLC/IC

Method(s) 300.0: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW 7-4 051316 (480-100134-1), MW 7-8 051316 (480-100134-2) and MW 7-P-1 051316 (480-100134-3). Elevated reporting limits (RLs) are provided.

Method(s) 300.0: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW 7-P-1 051316 (480-100134-3). Elevated reporting limits (RLs) are provided.

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

GC VOA

Method(s) RSK-175: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW 7-P-1 051316 (480-100134-3). Elevated reporting limits (RLs) are provided.

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) SM 4500 S2 D: The following sample was diluted due to the nature of the sample matrix: MW 7-P-1 051316 (480-100134-3). Elevated reporting limits (RLs) are provided.

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

Detection Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100134-1

Client Sample ID: MW 7-4 051316

Lab Sample ID: 480-100134-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	11		1.0	0.36	ug/L	1		8260C	Total/NA
Carbon Dioxide (TCD)	25000		2000	1000	ug/L	1		RSK-175	Total/NA
Iron	0.18		0.050	0.019	mg/L	1		6010C	Total/NA
Magnesium	30.2		0.20	0.043	mg/L	1		6010C	Total/NA
Manganese	0.0047		0.0030	0.00040	mg/L	1		6010C	Total/NA
Potassium	1.9		0.50	0.10	mg/L	1		6010C	Total/NA
Sodium	183		1.0	0.32	mg/L	1		6010C	Total/NA
Chloride	241		10.0	5.6	mg/L	20		300.0	Total/NA
Sulfate	35.5	J	40.0	7.0	mg/L	20		300.0	Total/NA
Nitrate	0.041	J	0.050	0.020	mg/L	1		353.2	Total/NA
Total Organic Carbon	1.2		1.0	0.43	mg/L	1		9060A	Total/NA
Total Alkalinity	360	B	5.0	0.79	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW 7-8 051316

Lab Sample ID: 480-100134-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	81		2.0	1.6	ug/L	2		8260C	Total/NA
Tetrachloroethene	95		2.0	0.72	ug/L	2		8260C	Total/NA
Trichloroethene	59		2.0	0.92	ug/L	2		8260C	Total/NA
Vinyl chloride	3.6		2.0	1.8	ug/L	2		8260C	Total/NA
Carbon Dioxide (TCD)	5900		2000	1000	ug/L	1		RSK-175	Total/NA
Methane	18		4.0	1.0	ug/L	1		RSK-175	Total/NA
Iron	19.1		0.050	0.019	mg/L	1		6010C	Total/NA
Magnesium	250		0.20	0.043	mg/L	1		6010C	Total/NA
Manganese	0.40		0.0030	0.00040	mg/L	1		6010C	Total/NA
Potassium	52.3		0.50	0.10	mg/L	1		6010C	Total/NA
Sodium	1300		1.0	0.32	mg/L	1		6010C	Total/NA
Chloride	3270		50.0	28.2	mg/L	100		300.0	Total/NA
Sulfate	273		200	34.9	mg/L	100		300.0	Total/NA
Ammonia	0.80		0.020	0.0090	mg/L	1		350.1	Total/NA
Total Organic Carbon	0.65	J	1.0	0.43	mg/L	1		9060A	Total/NA
Total Alkalinity	102	B	5.0	0.79	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW 7-P-1 051316

Lab Sample ID: 480-100134-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
trans-1,2-Dichloroethene	2.7		1.0	0.90	ug/L	1		8260C	Total/NA
Vinyl chloride	2.9		1.0	0.90	ug/L	1		8260C	Total/NA
Carbon Dioxide (TCD)	130000		4000	2000	ug/L	2		RSK-175	Total/NA
Methane	7500		400	100	ug/L	100		RSK-175	Total/NA
Iron	109		0.050	0.019	mg/L	1		6010C	Total/NA
Magnesium	604		1.0	0.22	mg/L	5		6010C	Total/NA
Manganese	9.5		0.0030	0.00040	mg/L	1		6010C	Total/NA
Potassium	47.3		0.50	0.10	mg/L	1		6010C	Total/NA
Sodium	253		1.0	0.32	mg/L	1		6010C	Total/NA
Chloride	6220		250	141	mg/L	500		300.0	Total/NA
Ammonia	139		2.0	0.90	mg/L	100		350.1	Total/NA
Total Organic Carbon	0.59	J	1.0	0.43	mg/L	1		9060A	Total/NA
Total Alkalinity	112	B	5.0	0.79	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Detection Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100134-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-100134-4

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100134-1

Client Sample ID: MW 7-4 051316

Lab Sample ID: 480-100134-1

Date Collected: 05/13/16 08:05

Matrix: Water

Date Received: 05/13/16 12:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/21/16 00:19	1
Tetrachloroethene	11		1.0	0.36	ug/L			05/21/16 00:19	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/21/16 00:19	1
Trichloroethene	ND		1.0	0.46	ug/L			05/21/16 00:19	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/21/16 00:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	117		66 - 137		05/21/16 00:19	1
4-Bromofluorobenzene (Surr)	102		73 - 120		05/21/16 00:19	1
Toluene-d8 (Surr)	99		71 - 126		05/21/16 00:19	1
Dibromofluoromethane (Surr)	115		60 - 140		05/21/16 00:19	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	25000		2000	1000	ug/L			05/24/16 17:46	1
Ethane	ND		7.5	1.5	ug/L			05/16/16 17:56	1
Ethene	ND		7.0	1.5	ug/L			05/16/16 17:56	1
Methane	ND		4.0	1.0	ug/L			05/16/16 17:56	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.18		0.050	0.019	mg/L		05/16/16 08:20	05/16/16 23:42	1
Magnesium	30.2		0.20	0.043	mg/L		05/16/16 08:20	05/16/16 23:42	1
Manganese	0.0047		0.0030	0.00040	mg/L		05/16/16 08:20	05/16/16 23:42	1
Potassium	1.9		0.50	0.10	mg/L		05/16/16 08:20	05/16/16 23:42	1
Sodium	183		1.0	0.32	mg/L		05/16/16 08:20	05/16/16 23:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	241		10.0	5.6	mg/L			05/17/16 01:42	20
Sulfate	35.5	J	40.0	7.0	mg/L			05/17/16 01:42	20
Ammonia	ND		0.020	0.0090	mg/L			05/16/16 19:25	1
Nitrate	0.041	J	0.050	0.020	mg/L			05/14/16 11:08	1
Nitrite	ND		0.050	0.020	mg/L			05/14/16 11:08	1
Total Organic Carbon	1.2		1.0	0.43	mg/L			05/17/16 13:15	1
Total Alkalinity	360	B	5.0	0.79	mg/L			05/16/16 16:14	1
Sulfide	ND		0.10	0.052	mg/L			05/15/16 12:15	1

Client Sample ID: MW 7-8 051316

Lab Sample ID: 480-100134-2

Date Collected: 05/13/16 09:30

Matrix: Water

Date Received: 05/13/16 12:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	81		2.0	1.6	ug/L			05/21/16 23:50	2
Tetrachloroethene	95		2.0	0.72	ug/L			05/21/16 23:50	2
trans-1,2-Dichloroethene	ND		2.0	1.8	ug/L			05/21/16 23:50	2
Trichloroethene	59		2.0	0.92	ug/L			05/21/16 23:50	2
Vinyl chloride	3.6		2.0	1.8	ug/L			05/21/16 23:50	2

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100134-1

Client Sample ID: MW 7-8 051316

Lab Sample ID: 480-100134-2

Date Collected: 05/13/16 09:30

Matrix: Water

Date Received: 05/13/16 12:30

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		66 - 137		05/21/16 23:50	2
4-Bromofluorobenzene (Surr)	109		73 - 120		05/21/16 23:50	2
Toluene-d8 (Surr)	98		71 - 126		05/21/16 23:50	2
Dibromofluoromethane (Surr)	96		60 - 140		05/21/16 23:50	2

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	5900		2000	1000	ug/L			05/24/16 17:33	1
Ethane	ND		7.5	1.5	ug/L			05/16/16 22:01	1
Ethene	ND		7.0	1.5	ug/L			05/16/16 22:01	1
Methane	18		4.0	1.0	ug/L			05/16/16 22:01	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	19.1		0.050	0.019	mg/L		05/16/16 08:20	05/16/16 23:45	1
Magnesium	250		0.20	0.043	mg/L		05/16/16 08:20	05/16/16 23:45	1
Manganese	0.40		0.0030	0.00040	mg/L		05/16/16 08:20	05/16/16 23:45	1
Potassium	52.3		0.50	0.10	mg/L		05/16/16 08:20	05/16/16 23:45	1
Sodium	1300		1.0	0.32	mg/L		05/16/16 08:20	05/16/16 23:45	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3270		50.0	28.2	mg/L			05/17/16 01:50	100
Sulfate	273		200	34.9	mg/L			05/17/16 01:50	100
Ammonia	0.80		0.020	0.0090	mg/L			05/16/16 19:26	1
Nitrate	ND		0.050	0.020	mg/L			05/14/16 11:12	1
Nitrite	ND		0.050	0.020	mg/L			05/14/16 11:12	1
Total Organic Carbon	0.65	J	1.0	0.43	mg/L			05/17/16 14:12	1
Total Alkalinity	102	B	5.0	0.79	mg/L			05/16/16 16:31	1
Sulfide	ND		0.10	0.052	mg/L			05/15/16 12:15	1

Client Sample ID: MW 7-P-1 051316

Lab Sample ID: 480-100134-3

Date Collected: 05/13/16 11:10

Matrix: Water

Date Received: 05/13/16 12:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/21/16 01:13	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/21/16 01:13	1
trans-1,2-Dichloroethene	2.7		1.0	0.90	ug/L			05/21/16 01:13	1
Trichloroethene	ND		1.0	0.46	ug/L			05/21/16 01:13	1
Vinyl chloride	2.9		1.0	0.90	ug/L			05/21/16 01:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	122		66 - 137		05/21/16 01:13	1
4-Bromofluorobenzene (Surr)	106		73 - 120		05/21/16 01:13	1
Toluene-d8 (Surr)	100		71 - 126		05/21/16 01:13	1
Dibromofluoromethane (Surr)	122		60 - 140		05/21/16 01:13	1

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100134-1

Client Sample ID: MW 7-P-1 051316

Lab Sample ID: 480-100134-3

Date Collected: 05/13/16 11:10

Matrix: Water

Date Received: 05/13/16 12:30

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	130000		4000	2000	ug/L			05/24/16 18:03	2
Ethane	ND		750	150	ug/L			05/16/16 22:18	100
Ethene	ND		700	150	ug/L			05/16/16 22:18	100
Methane	7500		400	100	ug/L			05/16/16 22:18	100

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	109		0.050	0.019	mg/L		05/16/16 08:20	05/16/16 23:49	1
Magnesium	604		1.0	0.22	mg/L		05/16/16 08:20	05/16/16 23:53	5
Manganese	9.5		0.0030	0.00040	mg/L		05/16/16 08:20	05/16/16 23:49	1
Potassium	47.3		0.50	0.10	mg/L		05/16/16 08:20	05/16/16 23:49	1
Sodium	253		1.0	0.32	mg/L		05/16/16 08:20	05/16/16 23:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6220		250	141	mg/L			05/17/16 01:58	500
Sulfate	ND		100	17.5	mg/L			05/17/16 20:20	50
Ammonia	139		2.0	0.90	mg/L			05/17/16 15:51	100
Nitrate	ND		0.050	0.020	mg/L			05/14/16 11:13	1
Nitrite	ND		0.050	0.020	mg/L			05/14/16 11:13	1
Total Organic Carbon	0.59	J	1.0	0.43	mg/L			05/17/16 15:10	1
Total Alkalinity	112	B	5.0	0.79	mg/L			05/16/16 16:37	1
Sulfide	ND		0.20	0.10	mg/L			05/15/16 12:15	2

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-100134-4

Date Collected: 05/13/16 07:30

Matrix: Water

Date Received: 05/13/16 12:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/21/16 01:41	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/21/16 01:41	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/21/16 01:41	1
Trichloroethene	ND		1.0	0.46	ug/L			05/21/16 01:41	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/21/16 01:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	123		66 - 137		05/21/16 01:41	1
4-Bromofluorobenzene (Surr)	104		73 - 120		05/21/16 01:41	1
Toluene-d8 (Surr)	101		71 - 126		05/21/16 01:41	1
Dibromofluoromethane (Surr)	121		60 - 140		05/21/16 01:41	1

TestAmerica Buffalo

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100134-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (66-137)	BFB (73-120)	TOL (71-126)	DBFM (60-140)
480-100134-1	MW 7-4 051316	117	102	99	115
480-100134-2	MW 7-8 051316	95	109	98	96
480-100134-3	MW 7-P-1 051316	122	106	100	122
480-100134-4	TRIP BLANK	123	104	101	121
LCS 480-302946/5	Lab Control Sample	115	107	102	117
LCS 480-303035/4	Lab Control Sample	96	108	98	96
MB 480-302946/7	Method Blank	119	106	102	119
MB 480-303035/6	Method Blank	101	108	99	101

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100134-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-302946/7

Matrix: Water

Analysis Batch: 302946

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/20/16 23:38	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/20/16 23:38	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/20/16 23:38	1
Trichloroethene	ND		1.0	0.46	ug/L			05/20/16 23:38	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/20/16 23:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		66 - 137		05/20/16 23:38	1
4-Bromofluorobenzene (Surr)	106		73 - 120		05/20/16 23:38	1
Toluene-d8 (Surr)	102		71 - 126		05/20/16 23:38	1
Dibromofluoromethane (Surr)	119		60 - 140		05/20/16 23:38	1

Lab Sample ID: LCS 480-302946/5

Matrix: Water

Analysis Batch: 302946

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	25.0	24.1		ug/L		96	74 - 124
Tetrachloroethene	25.0	24.6		ug/L		99	74 - 122
trans-1,2-Dichloroethene	25.0	24.1		ug/L		96	73 - 127
Trichloroethene	25.0	24.7		ug/L		99	74 - 123
Vinyl chloride	25.0	26.1		ug/L		105	65 - 133

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	115		66 - 137
4-Bromofluorobenzene (Surr)	107		73 - 120
Toluene-d8 (Surr)	102		71 - 126
Dibromofluoromethane (Surr)	117		60 - 140

Lab Sample ID: MB 480-303035/6

Matrix: Water

Analysis Batch: 303035

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/21/16 23:23	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/21/16 23:23	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/21/16 23:23	1
Trichloroethene	ND		1.0	0.46	ug/L			05/21/16 23:23	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/21/16 23:23	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		66 - 137		05/21/16 23:23	1
4-Bromofluorobenzene (Surr)	108		73 - 120		05/21/16 23:23	1
Toluene-d8 (Surr)	99		71 - 126		05/21/16 23:23	1
Dibromofluoromethane (Surr)	101		60 - 140		05/21/16 23:23	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100134-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 480-303035/4

Matrix: Water

Analysis Batch: 303035

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	25.0	22.0		ug/L		88	74 - 124
Tetrachloroethene	25.0	23.2		ug/L		93	74 - 122
trans-1,2-Dichloroethene	25.0	22.9		ug/L		91	73 - 127
Trichloroethene	25.0	24.2		ug/L		97	74 - 123
Vinyl chloride	25.0	20.3		ug/L		81	65 - 133

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	96		66 - 137
4-Bromofluorobenzene (Surr)	108		73 - 120
Toluene-d8 (Surr)	98		71 - 126
Dibromofluoromethane (Surr)	96		60 - 140

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 480-302044/3

Matrix: Water

Analysis Batch: 302044

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	ND		7.5	1.5	ug/L			05/16/16 17:04	1
Ethene	ND		7.0	1.5	ug/L			05/16/16 17:04	1
Methane	ND		4.0	1.0	ug/L			05/16/16 17:04	1

Lab Sample ID: LCS 480-302044/4

Matrix: Water

Analysis Batch: 302044

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	14.6	14.7		ug/L		101	79 - 120
Ethene	13.6	13.9		ug/L		102	78 - 115
Methane	7.77	7.43		ug/L		96	71 - 118

Lab Sample ID: LCSD 480-302044/5

Matrix: Water

Analysis Batch: 302044

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	14.6	14.4		ug/L		99	79 - 120	2	50
Ethene	13.6	13.7		ug/L		101	78 - 115	1	50
Methane	7.77	7.31		ug/L		94	71 - 118	2	50

Lab Sample ID: MB 440-332392/8

Matrix: Water

Analysis Batch: 332392

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	ND		2000	1000	ug/L			05/24/16 13:05	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100134-1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 440-332392/4

Matrix: Water

Analysis Batch: 332392

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon Dioxide (TCD)	11500	11400		ug/L		99	80 - 120

Lab Sample ID: LCSD 440-332392/5

Matrix: Water

Analysis Batch: 332392

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon Dioxide (TCD)	11500	11400		ug/L		99	80 - 120	0	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-301883/1-A

Matrix: Water

Analysis Batch: 302118

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 301883

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.050	0.019	mg/L		05/16/16 08:20	05/16/16 22:17	1
Magnesium	ND		0.20	0.043	mg/L		05/16/16 08:20	05/16/16 22:17	1
Manganese	ND		0.0030	0.00040	mg/L		05/16/16 08:20	05/16/16 22:17	1
Potassium	ND		0.50	0.10	mg/L		05/16/16 08:20	05/16/16 22:17	1
Sodium	ND		1.0	0.32	mg/L		05/16/16 08:20	05/16/16 22:17	1

Lab Sample ID: LCS 480-301883/2-A

Matrix: Water

Analysis Batch: 302118

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 301883

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	9.80		mg/L		98	80 - 120
Magnesium	10.0	10.22		mg/L		102	80 - 120
Manganese	0.200	0.199		mg/L		99	80 - 120
Potassium	10.0	9.86		mg/L		99	80 - 120
Sodium	10.0	9.94		mg/L		99	80 - 120

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 480-302016/30

Matrix: Water

Analysis Batch: 302016

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.28	mg/L			05/17/16 01:09	1
Sulfate	ND		2.0	0.35	mg/L			05/17/16 01:09	1

Lab Sample ID: LCS 480-302016/29

Matrix: Water

Analysis Batch: 302016

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	52.46		mg/L		105	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100134-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 480-302016/29

Matrix: Water

Analysis Batch: 302016

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	52.28		mg/L		105	90 - 110

Lab Sample ID: 480-100134-3 MS

Matrix: Water

Analysis Batch: 302016

Client Sample ID: MW 7-P-1 051316

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	6220		12500	18820		mg/L		101	81 - 120

Lab Sample ID: 480-100134-3 MSD

Matrix: Water

Analysis Batch: 302016

Client Sample ID: MW 7-P-1 051316

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	6220		12500	18910		mg/L		101	81 - 120	0	20

Lab Sample ID: MB 480-302186/30

Matrix: Water

Analysis Batch: 302186

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.28	mg/L			05/17/16 17:45	1
Sulfate	ND		2.0	0.35	mg/L			05/17/16 17:45	1

Lab Sample ID: MB 480-302186/4

Matrix: Water

Analysis Batch: 302186

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.28	mg/L			05/17/16 12:43	1
Sulfate	ND		2.0	0.35	mg/L			05/17/16 12:43	1

Lab Sample ID: LCS 480-302186/29

Matrix: Water

Analysis Batch: 302186

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	50.82		mg/L		102	90 - 110
Sulfate	50.0	52.18		mg/L		104	90 - 110

Lab Sample ID: LCS 480-302186/3

Matrix: Water

Analysis Batch: 302186

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	50.20		mg/L		100	90 - 110
Sulfate	50.0	52.21		mg/L		104	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100134-1

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 480-302068/3

Matrix: Water

Analysis Batch: 302068

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/16/16 19:12	1

Lab Sample ID: LCS 480-302068/4

Matrix: Water

Analysis Batch: 302068

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	1.00		mg/L		100	90 - 110

Lab Sample ID: MB 480-302272/3

Matrix: Water

Analysis Batch: 302272

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/17/16 15:36	1

Lab Sample ID: MB 480-302272/51

Matrix: Water

Analysis Batch: 302272

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/17/16 16:19	1

Lab Sample ID: LCS 480-302272/4

Matrix: Water

Analysis Batch: 302272

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.980		mg/L		98	90 - 110

Lab Sample ID: LCS 480-302272/52

Matrix: Water

Analysis Batch: 302272

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.978		mg/L		98	90 - 110

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 480-302414/30

Matrix: Water

Analysis Batch: 302414

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.43	mg/L			05/17/16 06:00	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100134-1

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: LCS 480-302414/31

Matrix: Water

Analysis Batch: 302414

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	63.96		mg/L		107	90 - 110

Lab Sample ID: 480-100134-2 MS

Matrix: Water

Analysis Batch: 302414

Client Sample ID: MW 7-8 051316

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	0.65	J	20.0	16.44		mg/L		79	54 - 131

Lab Sample ID: 480-100134-1 DU

Matrix: Water

Analysis Batch: 302414

Client Sample ID: MW 7-4 051316

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	1.2		1.16		mg/L		4	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 480-302151/7

Matrix: Water

Analysis Batch: 302151

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	2.90	J	5.0	0.79	mg/L			05/16/16 15:28	1

Lab Sample ID: LCS 480-302151/8

Matrix: Water

Analysis Batch: 302151

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	100	98.14		mg/L		98	90 - 110

Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 480-301850/3

Matrix: Water

Analysis Batch: 301850

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.10	0.052	mg/L			05/15/16 12:15	1

Lab Sample ID: LCS 480-301850/4

Matrix: Water

Analysis Batch: 301850

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.750	0.697		mg/L		93	90 - 110

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100134-1

GC/MS VOA

Analysis Batch: 302946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100134-1	MW 7-4 051316	Total/NA	Water	8260C	
480-100134-3	MW 7-P-1 051316	Total/NA	Water	8260C	
480-100134-4	TRIP BLANK	Total/NA	Water	8260C	
LCS 480-302946/5	Lab Control Sample	Total/NA	Water	8260C	
MB 480-302946/7	Method Blank	Total/NA	Water	8260C	

Analysis Batch: 303035

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100134-2	MW 7-8 051316	Total/NA	Water	8260C	
LCS 480-303035/4	Lab Control Sample	Total/NA	Water	8260C	
MB 480-303035/6	Method Blank	Total/NA	Water	8260C	

GC VOA

Analysis Batch: 302044

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100134-1	MW 7-4 051316	Total/NA	Water	RSK-175	
480-100134-2	MW 7-8 051316	Total/NA	Water	RSK-175	
480-100134-3	MW 7-P-1 051316	Total/NA	Water	RSK-175	
LCS 480-302044/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-302044/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 480-302044/3	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 332392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100134-1	MW 7-4 051316	Total/NA	Water	RSK-175	
480-100134-2	MW 7-8 051316	Total/NA	Water	RSK-175	
480-100134-3	MW 7-P-1 051316	Total/NA	Water	RSK-175	
LCS 440-332392/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 440-332392/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 440-332392/8	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 301883

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100134-1	MW 7-4 051316	Total/NA	Water	3005A	
480-100134-2	MW 7-8 051316	Total/NA	Water	3005A	
480-100134-3	MW 7-P-1 051316	Total/NA	Water	3005A	
LCS 480-301883/2-A	Lab Control Sample	Total/NA	Water	3005A	
MB 480-301883/1-A	Method Blank	Total/NA	Water	3005A	

Analysis Batch: 302118

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100134-1	MW 7-4 051316	Total/NA	Water	6010C	301883
480-100134-2	MW 7-8 051316	Total/NA	Water	6010C	301883
480-100134-3	MW 7-P-1 051316	Total/NA	Water	6010C	301883
480-100134-3	MW 7-P-1 051316	Total/NA	Water	6010C	301883
LCS 480-301883/2-A	Lab Control Sample	Total/NA	Water	6010C	301883
MB 480-301883/1-A	Method Blank	Total/NA	Water	6010C	301883

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100134-1

General Chemistry

Analysis Batch: 301800

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100134-1	MW 7-4 051316	Total/NA	Water	353.2	
480-100134-2	MW 7-8 051316	Total/NA	Water	353.2	
480-100134-3	MW 7-P-1 051316	Total/NA	Water	353.2	

Analysis Batch: 301801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100134-1	MW 7-4 051316	Total/NA	Water	353.2	
480-100134-2	MW 7-8 051316	Total/NA	Water	353.2	
480-100134-3	MW 7-P-1 051316	Total/NA	Water	353.2	

Analysis Batch: 301850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100134-1	MW 7-4 051316	Total/NA	Water	SM 4500 S2 D	
480-100134-2	MW 7-8 051316	Total/NA	Water	SM 4500 S2 D	
480-100134-3	MW 7-P-1 051316	Total/NA	Water	SM 4500 S2 D	
LCS 480-301850/4	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	
MB 480-301850/3	Method Blank	Total/NA	Water	SM 4500 S2 D	

Analysis Batch: 302016

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100134-1	MW 7-4 051316	Total/NA	Water	300.0	
480-100134-2	MW 7-8 051316	Total/NA	Water	300.0	
480-100134-3	MW 7-P-1 051316	Total/NA	Water	300.0	
480-100134-3 MS	MW 7-P-1 051316	Total/NA	Water	300.0	
480-100134-3 MSD	MW 7-P-1 051316	Total/NA	Water	300.0	
LCS 480-302016/29	Lab Control Sample	Total/NA	Water	300.0	
MB 480-302016/30	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 302068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100134-1	MW 7-4 051316	Total/NA	Water	350.1	
480-100134-2	MW 7-8 051316	Total/NA	Water	350.1	
LCS 480-302068/4	Lab Control Sample	Total/NA	Water	350.1	
MB 480-302068/3	Method Blank	Total/NA	Water	350.1	

Analysis Batch: 302151

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100134-1	MW 7-4 051316	Total/NA	Water	SM 2320B	
480-100134-2	MW 7-8 051316	Total/NA	Water	SM 2320B	
480-100134-3	MW 7-P-1 051316	Total/NA	Water	SM 2320B	
LCS 480-302151/8	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 480-302151/7	Method Blank	Total/NA	Water	SM 2320B	

Analysis Batch: 302186

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100134-3	MW 7-P-1 051316	Total/NA	Water	300.0	
LCS 480-302186/29	Lab Control Sample	Total/NA	Water	300.0	
LCS 480-302186/3	Lab Control Sample	Total/NA	Water	300.0	
MB 480-302186/30	Method Blank	Total/NA	Water	300.0	
MB 480-302186/4	Method Blank	Total/NA	Water	300.0	

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100134-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

General Chemistry (Continued)

Analysis Batch: 302272

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100134-3	MW 7-P-1 051316	Total/NA	Water	350.1	
LCS 480-302272/4	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-302272/52	Lab Control Sample	Total/NA	Water	350.1	
MB 480-302272/3	Method Blank	Total/NA	Water	350.1	
MB 480-302272/51	Method Blank	Total/NA	Water	350.1	

Analysis Batch: 302414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100134-1	MW 7-4 051316	Total/NA	Water	9060A	
480-100134-1 DU	MW 7-4 051316	Total/NA	Water	9060A	
480-100134-2	MW 7-8 051316	Total/NA	Water	9060A	
480-100134-2 MS	MW 7-8 051316	Total/NA	Water	9060A	
480-100134-3	MW 7-P-1 051316	Total/NA	Water	9060A	
LCS 480-302414/31	Lab Control Sample	Total/NA	Water	9060A	
MB 480-302414/30	Method Blank	Total/NA	Water	9060A	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100134-1

Client Sample ID: MW 7-4 051316

Lab Sample ID: 480-100134-1

Date Collected: 05/13/16 08:05

Matrix: Water

Date Received: 05/13/16 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	302946	05/21/16 00:19	CDC	TAL BUF
Total/NA	Analysis	RSK-175		1	332392	05/24/16 17:46	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	302044	05/16/16 17:56	TRG	TAL BUF
Total/NA	Prep	3005A			301883	05/16/16 08:20	CMM	TAL BUF
Total/NA	Analysis	6010C		1	302118	05/16/16 23:42	AMH	TAL BUF
Total/NA	Analysis	300.0		20	302016	05/17/16 01:42	CAV	TAL BUF
Total/NA	Analysis	350.1		1	302068	05/16/16 19:25	CEA	TAL BUF
Total/NA	Analysis	353.2		1	301800	05/14/16 11:08	ELR	TAL BUF
Total/NA	Analysis	353.2		1	301801	05/14/16 11:08	ELR	TAL BUF
Total/NA	Analysis	9060A		1	302414	05/17/16 13:15	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	302151	05/16/16 16:14	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	301850	05/15/16 12:15	MDL	TAL BUF

Client Sample ID: MW 7-8 051316

Lab Sample ID: 480-100134-2

Date Collected: 05/13/16 09:30

Matrix: Water

Date Received: 05/13/16 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		2	303035	05/21/16 23:50	JWG	TAL BUF
Total/NA	Analysis	RSK-175		1	332392	05/24/16 17:33	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	302044	05/16/16 22:01	TRG	TAL BUF
Total/NA	Prep	3005A			301883	05/16/16 08:20	CMM	TAL BUF
Total/NA	Analysis	6010C		1	302118	05/16/16 23:45	AMH	TAL BUF
Total/NA	Analysis	300.0		100	302016	05/17/16 01:50	CAV	TAL BUF
Total/NA	Analysis	350.1		1	302068	05/16/16 19:26	CEA	TAL BUF
Total/NA	Analysis	353.2		1	301800	05/14/16 11:12	ELR	TAL BUF
Total/NA	Analysis	353.2		1	301801	05/14/16 11:12	ELR	TAL BUF
Total/NA	Analysis	9060A		1	302414	05/17/16 14:12	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	302151	05/16/16 16:31	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	301850	05/15/16 12:15	MDL	TAL BUF

Client Sample ID: MW 7-P-1 051316

Lab Sample ID: 480-100134-3

Date Collected: 05/13/16 11:10

Matrix: Water

Date Received: 05/13/16 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	302946	05/21/16 01:13	CDC	TAL BUF
Total/NA	Analysis	RSK-175		2	332392	05/24/16 18:03	EI	TAL IRV
Total/NA	Analysis	RSK-175		100	302044	05/16/16 22:18	TRG	TAL BUF
Total/NA	Prep	3005A			301883	05/16/16 08:20	CMM	TAL BUF
Total/NA	Analysis	6010C		1	302118	05/16/16 23:49	AMH	TAL BUF

TestAmerica Buffalo

Lab Chronicle

Client: GHD Services Inc.

TestAmerica Job ID: 480-100134-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			301883	05/16/16 08:20	CMM	TAL BUF
Total/NA	Analysis	6010C		5	302118	05/16/16 23:53	AMH	TAL BUF
Total/NA	Analysis	300.0		500	302016	05/17/16 01:58	CAV	TAL BUF
Total/NA	Analysis	300.0		50	302186	05/17/16 20:20	CAV	TAL BUF
Total/NA	Analysis	350.1		100	302272	05/17/16 15:51	CLT	TAL BUF
Total/NA	Analysis	353.2		1	301800	05/14/16 11:13	ELR	TAL BUF
Total/NA	Analysis	353.2		1	301801	05/14/16 11:13	ELR	TAL BUF
Total/NA	Analysis	9060A		1	302414	05/17/16 15:10	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	302151	05/16/16 16:37	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		2	301850	05/15/16 12:15	MDL	TAL BUF

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-100134-4

Date Collected: 05/13/16 07:30

Matrix: Water

Date Received: 05/13/16 12:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	302946	05/21/16 01:41	CDC	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Certification Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100134-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Laboratory: TestAmerica Buffalo

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	03-31-17

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-16
Arizona	State Program	9	AZ0671	10-13-16
California	LA Cty Sanitation Districts	9	10256	01-31-17 *
California	State Program	9	CA ELAP 2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-17
Hawaii	State Program	9	N/A	01-29-17
Kansas	NELAP Secondary AB	7	E-10420	07-31-16
Nevada	State Program	9	CA015312016-2	07-31-16
New Mexico	State Program	6	N/A	01-29-17
Northern Mariana Islands	State Program	9	MP0002	01-29-17
Oregon	NELAP	10	4028	01-29-17
USDA	Federal		P330-09-00080	07-08-18
Washington	State Program	10	C900	09-03-16

* Certification renewal pending - certification considered valid.

TestAmerica Buffalo

Method Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100134-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL IRV
RSK-175	Dissolved Gases (GC)	RSK	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
350.1	Nitrogen, Ammonia	MCAWW	TAL BUF
353.2	Nitrogen, Nitrite	MCAWW	TAL BUF
353.2	Nitrate	EPA	TAL BUF
9060A	Organic Carbon, Total (TOC)	SW846	TAL BUF
SM 2320B	Alkalinity	SM	TAL BUF
SM 4500 S2 D	Sulfide, Total	SM	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

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

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

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Sample Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100134-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-100134-1	MW 7-4 051316	Water	05/13/16 08:05	05/13/16 12:30
480-100134-2	MW 7-8 051316	Water	05/13/16 09:30	05/13/16 12:30
480-100134-3	MW 7-P-1 051316	Water	05/13/16 11:10	05/13/16 12:30
480-100134-4	TRIP BLANK	Water	05/13/16 07:30	05/13/16 12:30

TestAmerica Buffalo

10 Hazelwood Drive
Amherst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

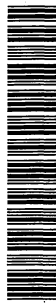
Chain of Custody Record



480-100134 Chain of Custody

Client Information		Lab PIV:		Carrier Tracking No(s):		Analysis Requested		Special Instructions/Note:										
Sampler: Pete Nyzinski Phone: 517-5708		Devo, Melissa L E-Mail: melissa.devo@testamericainc.com		Page 7 of 8 Job #:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Z - other (specify)		Special Instructions/Note:										
Company: GZA GeoEnvironmental, Inc. Address: 535 Washington Street 11th Floor City: Buffalo State, Zip: NY, 14203 Phone: 4085906 Email: thomas.bohlen@gza.com Project Name: 058507, GM-Lockport Groundwater Sampling Site:		Due Date Requested: TAT Requested (days):		Field Filtered Sample (Yes or No) 8260C - PCE, TCE, DCE (trans and cis), Vinyl Chloride RSK_176 - CO2 - Carbon dioxide VFA_1C - Standard VFA Compounds 300_0_2SD - Anions (Chloride & Sulfate) 350_1 - Ammonia 6010C - Metals - Fe, Mn, Mg, K & Na RSK_176 - Methane, Ethane & Ethene 9060A - Total Organic Carbon SM4500_S2_D - Sulfide 353_2_353_2_Nitrite, Nitrate, Calc		Total Number of Containers		Special Instructions/Note:										
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, S-solid, G-Gravel, etc.)	Preservation Code	Field Filtered Sample (Yes or No)	8260C - PCE, TCE, DCE (trans and cis), Vinyl Chloride	RSK_176 - CO2 - Carbon dioxide	VFA_1C - Standard VFA Compounds	300_0_2SD - Anions (Chloride & Sulfate)	350_1 - Ammonia	6010C - Metals - Fe, Mn, Mg, K & Na	RSK_176 - Methane, Ethane & Ethene	9060A - Total Organic Carbon	SM4500_S2_D - Sulfide	353_2_353_2_Nitrite, Nitrate, Calc	Total Number of Containers	Special Instructions/Note:
MW-7-4 051316	5/13/16	0805	G	Water		N	X	X	X	X	X	X	X	X	X	X	X	
MW-7-8 051316	5/13/16	0930	G	Water		N	X	X	X	X	X	X	X	X	X	X	X	
MW-7-P-1 051316	5/13/16	1110	G	Water		N	X	X	X	X	X	X	X	X	X	X	X	
TRIP BLANK	5/13/16	0730	G	Water		N	X											
				Water														
				Water														
				Water														
				Water														
				Water														
				Water														
				Water														
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological Deliverable Requested: I, II, III, IV, Other (specify)																		
Empty Kit Relinquished by:																		
Relinquished by:																		
Relinquished by:																		
Relinquished by:																		
Date/Time: 5/13/16 1230 Date/Time: 5/13/16 1230 Date/Time: 5/13/16 1230 Date/Time: 5/13/16 1230																		
Company: GZA Company: GZA Company: GZA Company: GZA																		
Custody Seal No.																		
Custody Seal Intact Yes No																		

Chain of Custody Record



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

[illegible]

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-100134-1

Login Number: 100134

List Source: TestAmerica Buffalo

List Number: 1

Creator: Wallace, Cameron

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GZA
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-100134-1

Login Number: 100134

List Number: 2

Creator: Ornelas, Olga

List Source: TestAmerica Irvine

List Creation: 05/17/16 01:29 PM

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

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-100200-1

Client Project/Site: 058507, GM-Lockport Groundwater
Sampling

For:

GHD Services Inc.

2055 Niagara Falls Blvd., Suite 3

Niagara Falls, New York 14304

Attn: Kathleen Willy



Authorized for release by:

5/24/2016 5:51:37 PM

Rebecca Jones, Project Management Assistant I

rebecca.jones@testamericainc.com

Designee for

Melissa Deyo, Project Manager I

(716)504-9874

melissa.deyo@testamericainc.com

LINKS

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results through

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100200-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100200-1

Job ID: 480-100200-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-100200-1

Receipt

The samples were received on 5/16/2016 3:50 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.0° C.

GC/MS VOA

Method(s) 8260C: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-8-003-B 051616 (480-100200-1). Elevated reporting limits (RLs) are provided.

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

HPLC/IC

Method(s) 300.0: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-8-003-B 051616 (480-100200-1) and MW-8-1 051616 (480-100200-2). Elevated reporting limits (RLs) are provided.

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

GC VOA

Method(s) RSK-175: The following samples were diluted to bring the concentration of target analytes within the calibration range: (480-100212-S-1), (480-100212-R-1 MS) and (480-100212-S-1 MSD). Elevated reporting limits (RLs) are provided.

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

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

Detection Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100200-1

Client Sample ID: MW-8-003-B 051616

Lab Sample ID: 480-100200-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	9.2		2.0	1.6	ug/L	2			8260C	Total/NA
Tetrachloroethene	120		2.0	0.72	ug/L	2			8260C	Total/NA
Trichloroethene	23		2.0	0.92	ug/L	2			8260C	Total/NA
Carbon Dioxide (TCD)	2000		2000	1000	ug/L	1			RSK-175	Total/NA
Iron	0.24		0.050	0.019	mg/L	1			6010C	Total/NA
Magnesium	5.9		0.20	0.043	mg/L	1			6010C	Total/NA
Manganese	0.23		0.0030	0.00040	mg/L	1			6010C	Total/NA
Potassium	2.9		0.50	0.10	mg/L	1			6010C	Total/NA
Sodium	858		1.0	0.32	mg/L	1			6010C	Total/NA
Chloride	1160		10.0	5.6	mg/L	20			300.0	Total/NA
Sulfate	80.7		40.0	7.0	mg/L	20			300.0	Total/NA
Nitrate	0.64		0.050	0.020	mg/L	1			353.2	Total/NA
Total Organic Carbon	2.8		1.0	0.43	mg/L	1			9060A	Total/NA
Total Alkalinity	185	B	5.0	0.79	mg/L	1			SM 2320B	Total/NA

Client Sample ID: MW-8-1 051616

Lab Sample ID: 480-100200-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	0.90	J	1.0	0.81	ug/L	1			8260C	Total/NA
Carbon Dioxide (TCD)	60000		2000	1000	ug/L	1			RSK-175	Total/NA
Ethane	3.5	J	7.5	1.5	ug/L	1			RSK-175	Total/NA
Methane	31		4.0	1.0	ug/L	1			RSK-175	Total/NA
Iron	0.046	J	0.050	0.019	mg/L	1			6010C	Total/NA
Magnesium	131		0.20	0.043	mg/L	1			6010C	Total/NA
Manganese	0.15		0.0030	0.00040	mg/L	1			6010C	Total/NA
Potassium	20.5		0.50	0.10	mg/L	1			6010C	Total/NA
Sodium	730		1.0	0.32	mg/L	1			6010C	Total/NA
Chloride	1420		25.0	14.1	mg/L	50			300.0	Total/NA
Sulfate	734		100	17.5	mg/L	50			300.0	Total/NA
Ammonia	1.1		0.020	0.0090	mg/L	1			350.1	Total/NA
Total Organic Carbon	0.91	J	1.0	0.43	mg/L	1			9060A	Total/NA
Total Alkalinity	301	B	5.0	0.79	mg/L	1			SM 2320B	Total/NA
Sulfide	4.6		1.0	0.52	mg/L	10			SM 4500 S2 D	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-100200-3

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100200-1

Client Sample ID: MW-8-003-B 051616

Lab Sample ID: 480-100200-1

Date Collected: 05/16/16 12:30

Matrix: Water

Date Received: 05/16/16 15:50

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	9.2		2.0	1.6	ug/L			05/21/16 02:08	2
Tetrachloroethene	120		2.0	0.72	ug/L			05/21/16 02:08	2
trans-1,2-Dichloroethene	ND		2.0	1.8	ug/L			05/21/16 02:08	2
Trichloroethene	23		2.0	0.92	ug/L			05/21/16 02:08	2
Vinyl chloride	ND		2.0	1.8	ug/L			05/21/16 02:08	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	120		66 - 137		05/21/16 02:08	2
4-Bromofluorobenzene (Surr)	103		73 - 120		05/21/16 02:08	2
Toluene-d8 (Surr)	100		71 - 126		05/21/16 02:08	2
Dibromofluoromethane (Surr)	125		60 - 140		05/21/16 02:08	2

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	2000		2000	1000	ug/L			05/20/16 14:36	1
Ethane	ND		7.5	1.5	ug/L			05/17/16 09:35	1
Ethene	ND		7.0	1.5	ug/L			05/17/16 09:35	1
Methane	ND		4.0	1.0	ug/L			05/17/16 09:35	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.24		0.050	0.019	mg/L		05/17/16 07:42	05/18/16 22:02	1
Magnesium	5.9		0.20	0.043	mg/L		05/17/16 07:42	05/18/16 22:02	1
Manganese	0.23		0.0030	0.00040	mg/L		05/17/16 07:42	05/18/16 22:02	1
Potassium	2.9		0.50	0.10	mg/L		05/17/16 07:42	05/18/16 22:02	1
Sodium	858		1.0	0.32	mg/L		05/17/16 07:42	05/18/16 22:02	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1160		10.0	5.6	mg/L			05/18/16 15:09	20
Sulfate	80.7		40.0	7.0	mg/L			05/18/16 15:09	20
Ammonia	ND		0.020	0.0090	mg/L			05/17/16 16:10	1
Nitrate	0.64		0.050	0.020	mg/L			05/17/16 18:42	1
Nitrite	ND		0.050	0.020	mg/L			05/17/16 18:42	1
Total Organic Carbon	2.8		1.0	0.43	mg/L			05/18/16 22:14	1
Total Alkalinity	185	B	5.0	0.79	mg/L			05/18/16 14:39	1
Sulfide	ND		0.10	0.052	mg/L			05/19/16 11:57	1

Client Sample ID: MW-8-1 051616

Lab Sample ID: 480-100200-2

Date Collected: 05/16/16 14:05

Matrix: Water

Date Received: 05/16/16 15:50

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	0.90	J	1.0	0.81	ug/L			05/21/16 02:35	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/21/16 02:35	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/21/16 02:35	1
Trichloroethene	ND		1.0	0.46	ug/L			05/21/16 02:35	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/21/16 02:35	1

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100200-1

Client Sample ID: MW-8-1 051616

Lab Sample ID: 480-100200-2

Date Collected: 05/16/16 14:05

Matrix: Water

Date Received: 05/16/16 15:50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	125		66 - 137		05/21/16 02:35	1
4-Bromofluorobenzene (Surr)	104		73 - 120		05/21/16 02:35	1
Toluene-d8 (Surr)	100		71 - 126		05/21/16 02:35	1
Dibromofluoromethane (Surr)	123		60 - 140		05/21/16 02:35	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	60000		2000	1000	ug/L			05/20/16 15:07	1
Ethane	3.5	J	7.5	1.5	ug/L			05/17/16 11:20	1
Ethene	ND		7.0	1.5	ug/L			05/17/16 11:20	1
Methane	31		4.0	1.0	ug/L			05/17/16 11:20	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.046	J	0.050	0.019	mg/L		05/17/16 07:42	05/18/16 22:06	1
Magnesium	131		0.20	0.043	mg/L		05/17/16 07:42	05/18/16 22:06	1
Manganese	0.15		0.0030	0.00040	mg/L		05/17/16 07:42	05/18/16 22:06	1
Potassium	20.5		0.50	0.10	mg/L		05/17/16 07:42	05/18/16 22:06	1
Sodium	730		1.0	0.32	mg/L		05/17/16 07:42	05/18/16 22:06	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1420		25.0	14.1	mg/L			05/18/16 15:17	50
Sulfate	734		100	17.5	mg/L			05/18/16 15:17	50
Ammonia	1.1		0.020	0.0090	mg/L			05/17/16 16:11	1
Nitrate	ND		0.050	0.020	mg/L			05/17/16 15:50	1
Nitrite	ND		0.050	0.020	mg/L			05/17/16 15:50	1
Total Organic Carbon	0.91	J	1.0	0.43	mg/L			05/18/16 22:43	1
Total Alkalinity	301	B	5.0	0.79	mg/L			05/18/16 14:46	1
Sulfide	4.6		1.0	0.52	mg/L			05/19/16 11:57	10

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-100200-3

Date Collected: 05/16/16 08:00

Matrix: Water

Date Received: 05/16/16 15:50

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/21/16 03:02	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/21/16 03:02	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/21/16 03:02	1
Trichloroethene	ND		1.0	0.46	ug/L			05/21/16 03:02	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/21/16 03:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	121		66 - 137		05/21/16 03:02	1
4-Bromofluorobenzene (Surr)	103		73 - 120		05/21/16 03:02	1
Toluene-d8 (Surr)	100		71 - 126		05/21/16 03:02	1
Dibromofluoromethane (Surr)	122		60 - 140		05/21/16 03:02	1

TestAmerica Buffalo

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100200-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (66-137)	BFB (73-120)	TOL (71-126)	DBFM (60-140)
480-100200-1	MW-8-003-B 051616	120	103	100	125
480-100200-2	MW-8-1 051616	125	104	100	123
480-100200-3	TRIP BLANK	121	103	100	122
LCS 480-302946/5	Lab Control Sample	115	107	102	117
MB 480-302946/7	Method Blank	119	106	102	119

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100200-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-302946/7

Matrix: Water

Analysis Batch: 302946

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/20/16 23:38	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/20/16 23:38	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/20/16 23:38	1
Trichloroethene	ND		1.0	0.46	ug/L			05/20/16 23:38	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/20/16 23:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	119		66 - 137		05/20/16 23:38	1
4-Bromofluorobenzene (Surr)	106		73 - 120		05/20/16 23:38	1
Toluene-d8 (Surr)	102		71 - 126		05/20/16 23:38	1
Dibromofluoromethane (Surr)	119		60 - 140		05/20/16 23:38	1

Lab Sample ID: LCS 480-302946/5

Matrix: Water

Analysis Batch: 302946

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	25.0	24.1		ug/L		96	74 - 124
Tetrachloroethene	25.0	24.6		ug/L		99	74 - 122
trans-1,2-Dichloroethene	25.0	24.1		ug/L		96	73 - 127
Trichloroethene	25.0	24.7		ug/L		99	74 - 123
Vinyl chloride	25.0	26.1		ug/L		105	65 - 133

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	115		66 - 137
4-Bromofluorobenzene (Surr)	107		73 - 120
Toluene-d8 (Surr)	102		71 - 126
Dibromofluoromethane (Surr)	117		60 - 140

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 480-302125/3

Matrix: Water

Analysis Batch: 302125

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	ND		7.5	1.5	ug/L			05/17/16 08:29	1
Ethene	ND		7.0	1.5	ug/L			05/17/16 08:29	1
Methane	ND		4.0	1.0	ug/L			05/17/16 08:29	1

Lab Sample ID: LCS 480-302125/4

Matrix: Water

Analysis Batch: 302125

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	14.6	15.3		ug/L		105	79 - 120
Ethene	13.6	14.5		ug/L		107	78 - 115

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100200-1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 480-302125/4

Matrix: Water

Analysis Batch: 302125

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	7.77	8.16		ug/L		105	71 - 118

Lab Sample ID: LCSD 480-302125/5

Matrix: Water

Analysis Batch: 302125

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	14.6	16.4		ug/L		113	79 - 120	7	50
Ethene	13.6	15.1		ug/L		111	78 - 115	4	50
Methane	7.77	8.90		ug/L		115	71 - 118	9	50

Lab Sample ID: MB 440-331720/8

Matrix: Water

Analysis Batch: 331720

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	ND		2000	1000	ug/L			05/20/16 13:07	1

Lab Sample ID: LCS 440-331720/4

Matrix: Water

Analysis Batch: 331720

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon Dioxide (TCD)	11500	11500		ug/L		100	80 - 120

Lab Sample ID: LCSD 440-331720/5

Matrix: Water

Analysis Batch: 331720

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon Dioxide (TCD)	11500	11600		ug/L		101	80 - 120	1	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-302114/1-A

Matrix: Water

Analysis Batch: 302788

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 302114

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.050	0.019	mg/L		05/17/16 07:42	05/19/16 15:47	1
Magnesium	ND		0.20	0.043	mg/L		05/17/16 07:42	05/19/16 15:47	1
Manganese	ND		0.0030	0.00040	mg/L		05/17/16 07:42	05/19/16 15:47	1
Potassium	ND		0.50	0.10	mg/L		05/17/16 07:42	05/19/16 15:47	1
Sodium	ND		1.0	0.32	mg/L		05/17/16 07:42	05/19/16 15:47	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100200-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-302114/2-A

Matrix: Water

Analysis Batch: 302614

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 302114

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	10.27		mg/L		103	80 - 120
Magnesium	10.0	10.67		mg/L		107	80 - 120
Manganese	0.200	0.208		mg/L		104	80 - 120
Potassium	10.0	10.44		mg/L		104	80 - 120
Sodium	10.0	10.37		mg/L		104	80 - 120

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 480-302322/30

Matrix: Water

Analysis Batch: 302322

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.28	mg/L			05/18/16 13:21	1
Sulfate	ND		2.0	0.35	mg/L			05/18/16 13:21	1

Lab Sample ID: LCS 480-302322/29

Matrix: Water

Analysis Batch: 302322

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.77		mg/L		104	90 - 110
Sulfate	50.0	48.85		mg/L		98	90 - 110

Lab Sample ID: 480-100200-2 MS

Matrix: Water

Analysis Batch: 302322

Client Sample ID: MW-8-1 051616

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	1420		1250	2632		mg/L		97	81 - 120
Sulfate	734		1250	1889		mg/L		92	80 - 120

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 480-302272/27

Matrix: Water

Analysis Batch: 302272

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/17/16 15:58	1

Lab Sample ID: MB 480-302272/3

Matrix: Water

Analysis Batch: 302272

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/17/16 15:36	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100200-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: MB 480-302272/51

Matrix: Water

Analysis Batch: 302272

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/17/16 16:19	1

Lab Sample ID: LCS 480-302272/28

Matrix: Water

Analysis Batch: 302272

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.977		mg/L		98	90 - 110

Lab Sample ID: LCS 480-302272/4

Matrix: Water

Analysis Batch: 302272

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.980		mg/L		98	90 - 110

Lab Sample ID: LCS 480-302272/52

Matrix: Water

Analysis Batch: 302272

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.978		mg/L		98	90 - 110

Method: 353.2 - Nitrogen, Nitrite

Lab Sample ID: MB 480-302289/3

Matrix: Water

Analysis Batch: 302289

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite	ND		0.050	0.020	mg/L			05/17/16 18:40	1

Lab Sample ID: LCS 480-302289/4

Matrix: Water

Analysis Batch: 302289

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite	1.50	1.56		mg/L		104	90 - 110

Lab Sample ID: 480-100200-1 MS

Matrix: Water

Analysis Batch: 302289

Client Sample ID: MW-8-003-B 051616

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite	ND		1.00	1.03		mg/L		103	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100200-1

Method: 353.2 - Nitrogen, Nitrite (Continued)

Lab Sample ID: 480-100200-1 DU

Matrix: Water

Analysis Batch: 302289

Client Sample ID: MW-8-003-B 051616

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Nitrite	ND		ND		mg/L		NC	20

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 480-302927/6

Matrix: Water

Analysis Batch: 302927

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.43	mg/L			05/18/16 16:33	1

Lab Sample ID: LCS 480-302927/7

Matrix: Water

Analysis Batch: 302927

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	63.91		mg/L		107	90 - 110

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 480-302598/30

Matrix: Water

Analysis Batch: 302598

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	0.960	J	5.0	0.79	mg/L			05/18/16 15:45	1

Lab Sample ID: MB 480-302598/7

Matrix: Water

Analysis Batch: 302598

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	0.920	J	5.0	0.79	mg/L			05/18/16 13:03	1

Lab Sample ID: LCS 480-302598/31

Matrix: Water

Analysis Batch: 302598

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	100	96.73		mg/L		97	90 - 110

Lab Sample ID: LCS 480-302598/8

Matrix: Water

Analysis Batch: 302598

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	100	98.54		mg/L		99	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100200-1

Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 480-302671/3

Matrix: Water

Analysis Batch: 302671

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.10	0.052	mg/L			05/19/16 11:57	1

Lab Sample ID: LCS 480-302671/4

Matrix: Water

Analysis Batch: 302671

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.750	0.765		mg/L		102	90 - 110

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100200-1

GC/MS VOA

Analysis Batch: 302946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100200-1	MW-8-003-B 051616	Total/NA	Water	8260C	
480-100200-2	MW-8-1 051616	Total/NA	Water	8260C	
480-100200-3	TRIP BLANK	Total/NA	Water	8260C	
LCS 480-302946/5	Lab Control Sample	Total/NA	Water	8260C	
MB 480-302946/7	Method Blank	Total/NA	Water	8260C	

GC VOA

Analysis Batch: 302125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100200-1	MW-8-003-B 051616	Total/NA	Water	RSK-175	
480-100200-2	MW-8-1 051616	Total/NA	Water	RSK-175	
LCS 480-302125/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-302125/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 480-302125/3	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 331720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100200-1	MW-8-003-B 051616	Total/NA	Water	RSK-175	
480-100200-2	MW-8-1 051616	Total/NA	Water	RSK-175	
LCS 440-331720/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 440-331720/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 440-331720/8	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 302114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100200-1	MW-8-003-B 051616	Total/NA	Water	3005A	
480-100200-2	MW-8-1 051616	Total/NA	Water	3005A	
LCS 480-302114/2-A	Lab Control Sample	Total/NA	Water	3005A	
MB 480-302114/1-A	Method Blank	Total/NA	Water	3005A	

Analysis Batch: 302614

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100200-1	MW-8-003-B 051616	Total/NA	Water	6010C	302114
480-100200-2	MW-8-1 051616	Total/NA	Water	6010C	302114
LCS 480-302114/2-A	Lab Control Sample	Total/NA	Water	6010C	302114

Analysis Batch: 302788

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-302114/1-A	Method Blank	Total/NA	Water	6010C	302114

General Chemistry

Analysis Batch: 302272

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100200-1	MW-8-003-B 051616	Total/NA	Water	350.1	
480-100200-2	MW-8-1 051616	Total/NA	Water	350.1	
LCS 480-302272/28	Lab Control Sample	Total/NA	Water	350.1	

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100200-1

General Chemistry (Continued)

Analysis Batch: 302272 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-302272/4	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-302272/52	Lab Control Sample	Total/NA	Water	350.1	
MB 480-302272/27	Method Blank	Total/NA	Water	350.1	
MB 480-302272/3	Method Blank	Total/NA	Water	350.1	
MB 480-302272/51	Method Blank	Total/NA	Water	350.1	

Analysis Batch: 302289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100200-1	MW-8-003-B 051616	Total/NA	Water	353.2	
480-100200-1 DU	MW-8-003-B 051616	Total/NA	Water	353.2	
480-100200-1 MS	MW-8-003-B 051616	Total/NA	Water	353.2	
LCS 480-302289/4	Lab Control Sample	Total/NA	Water	353.2	
MB 480-302289/3	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 302298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100200-1	MW-8-003-B 051616	Total/NA	Water	353.2	
480-100200-2	MW-8-1 051616	Total/NA	Water	353.2	

Analysis Batch: 302299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100200-2	MW-8-1 051616	Total/NA	Water	353.2	

Analysis Batch: 302322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100200-1	MW-8-003-B 051616	Total/NA	Water	300.0	
480-100200-2	MW-8-1 051616	Total/NA	Water	300.0	
480-100200-2 MS	MW-8-1 051616	Total/NA	Water	300.0	
LCS 480-302322/29	Lab Control Sample	Total/NA	Water	300.0	
MB 480-302322/30	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 302598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100200-1	MW-8-003-B 051616	Total/NA	Water	SM 2320B	
480-100200-2	MW-8-1 051616	Total/NA	Water	SM 2320B	
LCS 480-302598/31	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 480-302598/8	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 480-302598/30	Method Blank	Total/NA	Water	SM 2320B	
MB 480-302598/7	Method Blank	Total/NA	Water	SM 2320B	

Analysis Batch: 302671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100200-1	MW-8-003-B 051616	Total/NA	Water	SM 4500 S2 D	
480-100200-2	MW-8-1 051616	Total/NA	Water	SM 4500 S2 D	
LCS 480-302671/4	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	
MB 480-302671/3	Method Blank	Total/NA	Water	SM 4500 S2 D	

Analysis Batch: 302927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100200-1	MW-8-003-B 051616	Total/NA	Water	9060A	
480-100200-2	MW-8-1 051616	Total/NA	Water	9060A	

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100200-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

General Chemistry (Continued)

Analysis Batch: 302927 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-302927/7	Lab Control Sample	Total/NA	Water	9060A	
MB 480-302927/6	Method Blank	Total/NA	Water	9060A	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100200-1

Client Sample ID: MW-8-003-B 051616

Lab Sample ID: 480-100200-1

Date Collected: 05/16/16 12:30

Matrix: Water

Date Received: 05/16/16 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		2	302946	05/21/16 02:08	CDC	TAL BUF
Total/NA	Analysis	RSK-175		1	331720	05/20/16 14:36	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	302125	05/17/16 09:35	TRG	TAL BUF
Total/NA	Prep	3005A			302114	05/17/16 07:42	BAE	TAL BUF
Total/NA	Analysis	6010C		1	302614	05/18/16 22:02	AMH	TAL BUF
Total/NA	Analysis	300.0		20	302322	05/18/16 15:09	CAV	TAL BUF
Total/NA	Analysis	350.1		1	302272	05/17/16 16:10	CLT	TAL BUF
Total/NA	Analysis	353.2		1	302298	05/17/16 18:42	JJK	TAL BUF
Total/NA	Analysis	353.2		1	302289	05/17/16 18:42	JJK	TAL BUF
Total/NA	Analysis	9060A		1	302927	05/18/16 22:14	MRF	TAL BUF
Total/NA	Analysis	SM 2320B		1	302598	05/18/16 14:39	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	302671	05/19/16 11:57	LED	TAL BUF

Client Sample ID: MW-8-1 051616

Lab Sample ID: 480-100200-2

Date Collected: 05/16/16 14:05

Matrix: Water

Date Received: 05/16/16 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	302946	05/21/16 02:35	CDC	TAL BUF
Total/NA	Analysis	RSK-175		1	331720	05/20/16 15:07	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	302125	05/17/16 11:20	TRG	TAL BUF
Total/NA	Prep	3005A			302114	05/17/16 07:42	BAE	TAL BUF
Total/NA	Analysis	6010C		1	302614	05/18/16 22:06	AMH	TAL BUF
Total/NA	Analysis	300.0		50	302322	05/18/16 15:17	CAV	TAL BUF
Total/NA	Analysis	350.1		1	302272	05/17/16 16:11	CLT	TAL BUF
Total/NA	Analysis	353.2		1	302298	05/17/16 15:50	JJK	TAL BUF
Total/NA	Analysis	353.2		1	302299	05/17/16 15:50	JJK	TAL BUF
Total/NA	Analysis	9060A		1	302927	05/18/16 22:43	MRF	TAL BUF
Total/NA	Analysis	SM 2320B		1	302598	05/18/16 14:46	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		10	302671	05/19/16 11:57	LED	TAL BUF

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-100200-3

Date Collected: 05/16/16 08:00

Matrix: Water

Date Received: 05/16/16 15:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	302946	05/21/16 03:02	CDC	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TestAmerica Buffalo

Certification Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100200-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Laboratory: TestAmerica Buffalo

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	03-31-17

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-16
Arizona	State Program	9	AZ0671	10-13-16
California	LA Cty Sanitation Districts	9	10256	01-31-17 *
California	State Program	9	CA ELAP 2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-17
Hawaii	State Program	9	N/A	01-29-17
Kansas	NELAP Secondary AB	7	E-10420	07-31-16
Nevada	State Program	9	CA015312016-2	07-31-16
New Mexico	State Program	6	N/A	01-29-17
Northern Mariana Islands	State Program	9	MP0002	01-29-17
Oregon	NELAP	10	4028	01-29-17
USDA	Federal		P330-09-00080	07-08-18
Washington	State Program	10	C900	09-03-16

* Certification renewal pending - certification considered valid.

TestAmerica Buffalo

Method Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100200-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL IRV
RSK-175	Dissolved Gases (GC)	RSK	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
350.1	Nitrogen, Ammonia	MCAWW	TAL BUF
353.2	Nitrogen, Nitrite	MCAWW	TAL BUF
353.2	Nitrate	EPA	TAL BUF
9060A	Organic Carbon, Total (TOC)	SW846	TAL BUF
SM 2320B	Alkalinity	SM	TAL BUF
SM 4500 S2 D	Sulfide, Total	SM	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

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

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

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Sample Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100200-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-100200-1	MW-8-003-B 051616	Water	05/16/16 12:30	05/16/16 15:50
480-100200-2	MW-8-1 051616	Water	05/16/16 14:05	05/16/16 15:50
480-100200-3	TRIP BLANK	Water	05/16/16 08:00	05/16/16 15:50

Chain of Custody Record

Client Information Company: GZA GeoEnvironmental, Inc. Address: 535 Washington Street 11th Floor City: Buffalo State, Zip: NY, 14203 Phone: 4065906 Email: thomas.bohlen@gza.com Project Name: 058507, GM-Lockport Groundwater Sampling Site:		Sampler: Peter Nyzanin Lab PM: Deyo, Melissa L Phone: 517-5708 E-Mail: melissa.deyo@testamericainc.com		Carner Tracking No(s): 480-82597-20280.8 Page: Page 8 of 8 Job #:	
Due Date Requested: TAT Requested (days): PO #: MO #: Project #: SSOW#:		Analysis Requested Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - Ash/O2 P - Na2O/S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)			
Sample Identification Sample ID: MW-8-003-B 051616 Sample Type: (C=Comp, G=grab) Sample Date: 5/16/16 Sample Time: 1230 Matrix: (Water, Solid, Other)		Field Filtered Sample (Yes or No) 8260C - PCE, TCE, DCE (trans and cis), Vinyl Chloride RSK_175_CO2 - Carbon dioxide VFA_1C - Standard VFA Compounds 300.0_2SD - Anions (Chloride & Sulfate) 350.1 - Ammonia 6010C - Metals - Fe, Mn, Mg, K & Na RSK_175 - Methane, Ethane & Ethene 9060A - Total Organic Carbon SM4600_S2_D - Sulfide 353.2, 353.2, Nitrite, Nitrate, Calc 2320B - Total Alkalinity Total Number of Containers:			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months		Special Instructions/QC Requirements:			
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological		Date: 5/16/16 1550 Company: GZA			
Relinquished by: [Signature] Relinquished by: [Signature] Relinquished by: [Signature]		Date/Time: 5/16/16 1550 Company: GZA Date/Time: 5/16/16 1550 Company: GZA Date/Time: 5/16/16 1550 Company: GZA			
Custody Seals Intact: Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks: 3.0			

Client Information (Sub Contract Lab) Client Contact: Shipping/Receiving Company:		Sampler: Lab PM: Deyo, Melissa L E-Mail: melissa.deyo@testamericainc.com	Carrier Tracking No(s): COC No: 480-29386.1 Page: Page 1 of 1 Job #: 480-100200-1
TestAmerica Laboratories, Inc Address: 17461 Derian Ave, Suite 100, City: Irvine State, Zip: CA, 92614-5817 Phone: 949-261-1022(Tel) 949-260-3297(Fax) Email: Project Name: 058507, GM-Lockport Groundwater Sampling Site:		Analysis Requested Due Date Requested: 5/26/2016 TAT Requested (days): PO #: WO #: Project #: 48004014 SSOW#:	
Sample Identification - Client ID (Lab ID)		Matrix (Water, Soil, Solid, On-waste, Air)	Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anichlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:
Sample Date Sample Time Sample Type (C=Comp, G=grab) Preservation Code	Field Filtered Sample (Yes or No) RSK, 175, CO2 Carbon dioxide Perform MS/MSD (Yes or No)	Total Number of Containers	Special Instructions/Note:
MW-8-003-B 051616 (480-100200-1) MW-8-1 051616 (480-100200-2)	5/16/16 12:30 Eastern 14:05 Eastern Water Water	3 3	Special Instructions/Note:
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months			
Special Instructions/QC Requirements:			
Empty Kit Relinquished by:		Method of Shipment: Fed-Ex 5657 0120 1796	
Relinquished by: [Signature] Date/Time: 5/17/16 1700		Received by: [Signature] Date/Time: 5/18/16 9:45	
Relinquished by:		Received by:	
Relinquished by:		Received by:	
Custody Seals Intact:		Cooler Temperature(s) °C and Other Remarks: (4) 4.6/4.3 IR-7	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-100200-1

Login Number: 100200

List Source: TestAmerica Buffalo

List Number: 1

Creator: Williams, Christopher S

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GZA
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-100200-1

Login Number: 100200

List Number: 2

Creator: Ornelas, Olga

List Source: TestAmerica Irvine

List Creation: 05/18/16 01:49 PM

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-100253-1

Client Project/Site: 058507, GM-Lockport Groundwater
Sampling

Revision: 2

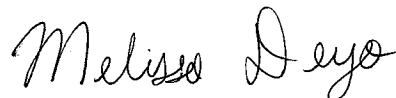
For:

GHD Services Inc.

2055 Niagara Falls Blvd., Suite 3

Niagara Falls, New York 14304

Attn: Kathleen Willy



Authorized for release by:

7/12/2016 1:53:37 PM

Melissa Deyo, Project Manager I

(716)504-9874

melissa.deyo@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100253-1

Qualifiers

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100253-1

Job ID: 480-100253-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-100253-1

Revision I

This report was revised to reported sample MW-7 051716 in a separate report.

Receipt

The samples were received on 5/17/2016 3:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.9° C.

GC/MS VOA

Method(s) 8260C: The following sample was diluted to bring the concentration of target analytes within the calibration range: MW-7 051716 (480-100253-3). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The continuing calibration verification (CCV) analyzed in batch 480-303038 was outside the method criteria for the following analyte(s): Vinyl chloride. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

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

HPLC/IC

Method(s) 300.0: The following sample was reported with elevated reporting limits for all analytes: MW-7 051716 (480-100253-3). The samples were analyzed at a dilution based on conductivity screening results.

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

GC VOA

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

Metals

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

General Chemistry

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

Detection Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100253-1

Client Sample ID: MW-7 051716

Lab Sample ID: 480-100253-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	51000		10000	8100	ug/L	10000		8260C	Total/NA
Trichloroethene	830000		10000	4600	ug/L	10000		8260C	Total/NA
Carbon Dioxide (TCD)	20000		2000	1000	ug/L	1		RSK-175	Total/NA
Ethane	23		7.5	1.5	ug/L	1		RSK-175	Total/NA
Ethene	130		7.0	1.5	ug/L	1		RSK-175	Total/NA
Methane	40		4.0	1.0	ug/L	1		RSK-175	Total/NA
Iron	0.095		0.050	0.019	mg/L	1		6010C	Total/NA
Magnesium	43.2		0.20	0.043	mg/L	1		6010C	Total/NA
Manganese	0.014	B	0.0030	0.00040	mg/L	1		6010C	Total/NA
Potassium	11.0		0.50	0.10	mg/L	1		6010C	Total/NA
Sodium	186		1.0	0.32	mg/L	1		6010C	Total/NA
Chloride	268		5.0	2.8	mg/L	10		300.0	Total/NA
Sulfate	177		20.0	3.5	mg/L	10		300.0	Total/NA
Ammonia	0.61		0.020	0.0090	mg/L	1		350.1	Total/NA
Total Organic Carbon	6.5		1.0	0.43	mg/L	1		9060A	Total/NA
Total Alkalinity	261	B	5.0	0.79	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100253-1

Client Sample ID: MW-7 051716

Lab Sample ID: 480-100253-3

Date Collected: 05/17/16 13:00

Matrix: Water

Date Received: 05/17/16 15:15

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	51000		10000	8100	ug/L			05/23/16 23:32	10000
Tetrachloroethene	ND		10000	3600	ug/L			05/23/16 23:32	10000
trans-1,2-Dichloroethene	ND		10000	9000	ug/L			05/23/16 23:32	10000
Trichloroethene	830000		10000	4600	ug/L			05/23/16 23:32	10000
Vinyl chloride	ND		10000	9000	ug/L			05/23/16 23:32	10000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		66 - 137		05/23/16 23:32	10000
4-Bromofluorobenzene (Surr)	90		73 - 120		05/23/16 23:32	10000
Toluene-d8 (Surr)	95		71 - 126		05/23/16 23:32	10000
Dibromofluoromethane (Surr)	88		60 - 140		05/23/16 23:32	10000

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	20000		2000	1000	ug/L			05/25/16 18:40	1
Ethane	23		7.5	1.5	ug/L			05/18/16 10:31	1
Ethene	130		7.0	1.5	ug/L			05/18/16 10:31	1
Methane	40		4.0	1.0	ug/L			05/18/16 10:31	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.095		0.050	0.019	mg/L		05/21/16 09:05	05/23/16 22:55	1
Magnesium	43.2		0.20	0.043	mg/L		05/18/16 09:13	05/20/16 04:20	1
Manganese	0.014	B	0.0030	0.00040	mg/L		05/18/16 09:13	05/20/16 04:20	1
Potassium	11.0		0.50	0.10	mg/L		05/18/16 09:13	05/20/16 04:20	1
Sodium	186		1.0	0.32	mg/L		05/18/16 09:13	05/20/16 04:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	268		5.0	2.8	mg/L			05/18/16 20:10	10
Sulfate	177		20.0	3.5	mg/L			05/18/16 20:10	10
Ammonia	0.61		0.020	0.0090	mg/L			05/18/16 15:43	1
Nitrate	ND		0.050	0.020	mg/L			05/17/16 21:29	1
Nitrite	ND		0.050	0.020	mg/L			05/17/16 21:29	1
Total Organic Carbon	6.5		1.0	0.43	mg/L			05/19/16 13:25	1
Total Alkalinity	261	B	5.0	0.79	mg/L			05/18/16 16:13	1
Sulfide	ND		0.10	0.052	mg/L			05/19/16 11:57	1

TestAmerica Buffalo

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100253-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	12DCE (66-137)	BFB (73-120)	TOL (71-126)	DBFM (60-140)
480-100253-3	MW-7 051716	85	90	95	88
LCS 480-303236/5	Lab Control Sample	77	98	100	85
MB 480-303236/7	Method Blank	85	91	97	90

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100253-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-303236/7

Matrix: Water

Analysis Batch: 303236

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/23/16 21:14	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/23/16 21:14	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/23/16 21:14	1
Trichloroethene	ND		1.0	0.46	ug/L			05/23/16 21:14	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/23/16 21:14	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		66 - 137		05/23/16 21:14	1
4-Bromofluorobenzene (Surr)	91		73 - 120		05/23/16 21:14	1
Toluene-d8 (Surr)	97		71 - 126		05/23/16 21:14	1
Dibromofluoromethane (Surr)	90		60 - 140		05/23/16 21:14	1

Lab Sample ID: LCS 480-303236/5

Matrix: Water

Analysis Batch: 303236

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	25.0	22.5		ug/L		90	74 - 124
Tetrachloroethene	25.0	29.3		ug/L		117	74 - 122
trans-1,2-Dichloroethene	25.0	25.3		ug/L		101	73 - 127
Trichloroethene	25.0	23.5		ug/L		94	74 - 123
Vinyl chloride	25.0	26.5		ug/L		106	65 - 133

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	77		66 - 137
4-Bromofluorobenzene (Surr)	98		73 - 120
Toluene-d8 (Surr)	100		71 - 126
Dibromofluoromethane (Surr)	85		60 - 140

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 480-302347/3

Matrix: Water

Analysis Batch: 302347

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	ND		7.5	1.5	ug/L			05/18/16 08:33	1
Ethene	ND		7.0	1.5	ug/L			05/18/16 08:33	1
Methane	ND		4.0	1.0	ug/L			05/18/16 08:33	1

Lab Sample ID: LCS 480-302347/4

Matrix: Water

Analysis Batch: 302347

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	14.6	16.2		ug/L		111	79 - 120
Ethene	13.6	15.3		ug/L		113	78 - 115

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100253-1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 480-302347/4
Matrix: Water
Analysis Batch: 302347

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	7.77	8.64		ug/L		111	71 - 118

Lab Sample ID: LCSD 480-302347/5
Matrix: Water
Analysis Batch: 302347

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	14.6	15.0		ug/L		103	79 - 120	8	50
Ethene	13.6	13.9		ug/L		103	78 - 115	9	50
Methane	7.77	8.02		ug/L		103	71 - 118	7	50

Lab Sample ID: MB 440-332666/8
Matrix: Water
Analysis Batch: 332666

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	ND		2000	1000	ug/L			05/25/16 12:55	1

Lab Sample ID: LCS 440-332666/4
Matrix: Water
Analysis Batch: 332666

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon Dioxide (TCD)	11500	11100		ug/L		96	80 - 120

Lab Sample ID: LCSD 440-332666/5
Matrix: Water
Analysis Batch: 332666

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon Dioxide (TCD)	11500	11200		ug/L		98	80 - 120	1	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-302344/1-A
Matrix: Water
Analysis Batch: 302789

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 302344

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Magnesium	ND		0.20	0.043	mg/L		05/18/16 09:13	05/20/16 03:19	1
Manganese	0.00105	J	0.0030	0.00040	mg/L		05/18/16 09:13	05/20/16 03:19	1
Potassium	ND		0.50	0.10	mg/L		05/18/16 09:13	05/20/16 03:19	1
Sodium	ND		1.0	0.32	mg/L		05/18/16 09:13	05/20/16 03:19	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100253-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-302344/2-A

Matrix: Water

Analysis Batch: 302789

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 302344

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Magnesium	10.0	10.57		mg/L		106	80 - 120
Manganese	0.200	0.207		mg/L		103	80 - 120
Potassium	10.0	10.31		mg/L		103	80 - 120
Sodium	10.0	10.22		mg/L		102	80 - 120

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 480-302449/30

Matrix: Water

Analysis Batch: 302449

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.28	mg/L			05/18/16 19:54	1
Sulfate	ND		2.0	0.35	mg/L			05/18/16 19:54	1

Lab Sample ID: LCS 480-302449/29

Matrix: Water

Analysis Batch: 302449

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.50		mg/L		103	90 - 110
Sulfate	50.0	48.52		mg/L		97	90 - 110

Lab Sample ID: 480-100253-3 MS

Matrix: Water

Analysis Batch: 302449

Client Sample ID: MW-7 051716

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	268		250	514.7		mg/L		99	81 - 120
Sulfate	177		250	409.4		mg/L		93	80 - 120

Lab Sample ID: 480-100253-3 MSD

Matrix: Water

Analysis Batch: 302449

Client Sample ID: MW-7 051716

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	268		250	518.4		mg/L		100	81 - 120	1	20
Sulfate	177		250	412.7		mg/L		94	80 - 120	1	20

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 480-302513/123

Matrix: Water

Analysis Batch: 302513

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/18/16 17:13	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100253-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: MB 480-302513/3

Matrix: Water

Analysis Batch: 302513

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/18/16 15:28	1

Lab Sample ID: LCS 480-302513/124

Matrix: Water

Analysis Batch: 302513

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.997		mg/L		100	90 - 110

Lab Sample ID: LCS 480-302513/4

Matrix: Water

Analysis Batch: 302513

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	0.999		mg/L		100	90 - 110

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 480-302927/30

Matrix: Water

Analysis Batch: 302927

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.43	mg/L			05/19/16 03:58	1

Lab Sample ID: MB 480-302927/6

Matrix: Water

Analysis Batch: 302927

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.43	mg/L			05/18/16 16:33	1

Lab Sample ID: LCS 480-302927/31

Matrix: Water

Analysis Batch: 302927

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	64.26		mg/L		107	90 - 110

Lab Sample ID: LCS 480-302927/7

Matrix: Water

Analysis Batch: 302927

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	63.91		mg/L		107	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100253-1

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 480-302598/30

Matrix: Water

Analysis Batch: 302598

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	0.960	J	5.0	0.79	mg/L	-		05/18/16 15:45	1

Lab Sample ID: MB 480-302598/7

Matrix: Water

Analysis Batch: 302598

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	0.920	J	5.0	0.79	mg/L	-		05/18/16 13:03	1

Lab Sample ID: LCS 480-302598/31

Matrix: Water

Analysis Batch: 302598

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	100	96.73		mg/L	-	97	90 - 110

Lab Sample ID: LCS 480-302598/8

Matrix: Water

Analysis Batch: 302598

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	100	98.54		mg/L	-	99	90 - 110

Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 480-302671/3

Matrix: Water

Analysis Batch: 302671

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.10	0.052	mg/L	-		05/19/16 11:57	1

Lab Sample ID: LCS 480-302671/4

Matrix: Water

Analysis Batch: 302671

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.750	0.765		mg/L	-	102	90 - 110

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100253-1

GC/MS VOA

Analysis Batch: 303236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100253-3	MW-7 051716	Total/NA	Water	8260C	
LCS 480-303236/5	Lab Control Sample	Total/NA	Water	8260C	
MB 480-303236/7	Method Blank	Total/NA	Water	8260C	

GC VOA

Analysis Batch: 302347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100253-3	MW-7 051716	Total/NA	Water	RSK-175	
LCS 480-302347/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-302347/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 480-302347/3	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 332666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100253-3	MW-7 051716	Total/NA	Water	RSK-175	
LCS 440-332666/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 440-332666/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 440-332666/8	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 302344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100253-3	MW-7 051716	Total/NA	Water	3005A	
LCS 480-302344/2-A	Lab Control Sample	Total/NA	Water	3005A	
MB 480-302344/1-A	Method Blank	Total/NA	Water	3005A	

Analysis Batch: 302789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100253-3	MW-7 051716	Total/NA	Water	6010C	302344
LCS 480-302344/2-A	Lab Control Sample	Total/NA	Water	6010C	302344
MB 480-302344/1-A	Method Blank	Total/NA	Water	6010C	302344

Prep Batch: 302901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100253-3	MW-7 051716	Total/NA	Water	3005A	

Analysis Batch: 303329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100253-3	MW-7 051716	Total/NA	Water	6010C	302901

General Chemistry

Analysis Batch: 302298

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100253-3	MW-7 051716	Total/NA	Water	353.2	

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100253-1

General Chemistry (Continued)

Analysis Batch: 302299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100253-3	MW-7 051716	Total/NA	Water	353.2	

Analysis Batch: 302449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100253-3	MW-7 051716	Total/NA	Water	300.0	
480-100253-3 MS	MW-7 051716	Total/NA	Water	300.0	
480-100253-3 MSD	MW-7 051716	Total/NA	Water	300.0	
LCS 480-302449/29	Lab Control Sample	Total/NA	Water	300.0	
MB 480-302449/30	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 302513

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100253-3	MW-7 051716	Total/NA	Water	350.1	
LCS 480-302513/124	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-302513/4	Lab Control Sample	Total/NA	Water	350.1	
MB 480-302513/123	Method Blank	Total/NA	Water	350.1	
MB 480-302513/3	Method Blank	Total/NA	Water	350.1	

Analysis Batch: 302598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100253-3	MW-7 051716	Total/NA	Water	SM 2320B	
LCS 480-302598/31	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 480-302598/8	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 480-302598/30	Method Blank	Total/NA	Water	SM 2320B	
MB 480-302598/7	Method Blank	Total/NA	Water	SM 2320B	

Analysis Batch: 302671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100253-3	MW-7 051716	Total/NA	Water	SM 4500 S2 D	
LCS 480-302671/4	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	
MB 480-302671/3	Method Blank	Total/NA	Water	SM 4500 S2 D	

Analysis Batch: 302927

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100253-3	MW-7 051716	Total/NA	Water	9060A	
LCS 480-302927/31	Lab Control Sample	Total/NA	Water	9060A	
LCS 480-302927/7	Lab Control Sample	Total/NA	Water	9060A	
MB 480-302927/30	Method Blank	Total/NA	Water	9060A	
MB 480-302927/6	Method Blank	Total/NA	Water	9060A	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100253-1

Client Sample ID: MW-7 051716

Date Collected: 05/17/16 13:00

Date Received: 05/17/16 15:15

Lab Sample ID: 480-100253-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		10000	303236	05/23/16 23:32	GVF	TAL BUF
Total/NA	Analysis	RSK-175		1	332666	05/25/16 18:40	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	302347	05/18/16 10:31	TRG	TAL BUF
Total/NA	Prep	3005A			302344	05/18/16 09:13	BAE	TAL BUF
Total/NA	Analysis	6010C		1	302789	05/20/16 04:20	AMH	TAL BUF
Total/NA	Prep	3005A			302901	05/21/16 09:05	BAE	TAL BUF
Total/NA	Analysis	6010C		1	303329	05/23/16 22:55	TRB	TAL BUF
Total/NA	Analysis	300.0		10	302449	05/18/16 20:10	CAV	TAL BUF
Total/NA	Analysis	350.1		1	302513	05/18/16 15:43	CEA	TAL BUF
Total/NA	Analysis	353.2		1	302298	05/17/16 21:29	JJK	TAL BUF
Total/NA	Analysis	353.2		1	302299	05/17/16 21:29	JJK	TAL BUF
Total/NA	Analysis	9060A		1	302927	05/19/16 13:25	MRF	TAL BUF
Total/NA	Analysis	SM 2320B		1	302598	05/18/16 16:13	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	302671	05/19/16 11:57	LED	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Certification Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100253-1

Laboratory: TestAmerica Buffalo

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	03-31-17

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-17
Arizona	State Program	9	AZ0671	10-13-16
California	LA Cty Sanitation Districts	9	10256	01-31-17 *
California	State Program	9	CA ELAP 2706	06-30-18
Guam	State Program	9	Cert. No. 12.002r	01-23-17
Hawaii	State Program	9	N/A	01-29-17
Kansas	NELAP Secondary AB	7	E-10420	07-31-16 *
Nevada	State Program	9	CA015312016-2	07-31-16 *
New Mexico	State Program	6	N/A	01-29-17
Northern Mariana Islands	State Program	9	MP0002	01-29-17
Oregon	NELAP	10	4028	01-29-17
USDA	Federal		P330-09-00080	07-08-18
Washington	State Program	10	C900	09-03-16

* Certification renewal pending - certification considered valid.

TestAmerica Buffalo

Method Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100253-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL IRV
RSK-175	Dissolved Gases (GC)	RSK	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
350.1	Nitrogen, Ammonia	MCAWW	TAL BUF
353.2	Nitrate	EPA	TAL BUF
353.2	Nitrogen, Nitrite	MCAWW	TAL BUF
9060A	Organic Carbon, Total (TOC)	SW846	TAL BUF
SM 2320B	Alkalinity	SM	TAL BUF
SM 4500 S2 D	Sulfide, Total	SM	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

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

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

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Sample Summary

Client: GHD Services Inc.

Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100253-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-100253-3	MW-7 051716	Water	05/17/16 13:00	05/17/16 15:15

Chain of Custody Record



stAmerica

DISCUSSION

[illegible]

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-100253-1

Login Number: 100253

List Source: TestAmerica Buffalo

List Number: 1

Creator: Conway, Curtis R

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	True	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-100253-1

Login Number: 100253

List Number: 2

Creator: Ornelas, Olga

List Source: TestAmerica Irvine

List Creation: 05/19/16 12:09 PM

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

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-100321-1

Client Project/Site: 058507, GM-Lockport Groundwater
Sampling

For:

GHD Services Inc.

2055 Niagara Falls Blvd., Suite 3

Niagara Falls, New York 14304

Attn: Kathleen Willy



Authorized for release by:

5/31/2016 11:53:14 AM

Rebecca Jones, Project Management Assistant I

rebecca.jones@testamericainc.com

Designee for

Melissa Deyo, Project Manager I

(716)504-9874

melissa.deyo@testamericainc.com

LINKS

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www.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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Definitions/Glossary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Job ID: 480-100321-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-100321-1

Receipt

The samples were received on 5/18/2016 3:05 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.6° C.

GC/MS VOA

Method(s) 8260C: The following volatiles samples were diluted due to foaming at the time of purging during the original sample analysis: MW-9-101-A 051816 (480-100321-2), MW-8-3 051816 (480-100321-3) and DUPE-1 051816 (480-100321-4). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The following volatile sample was analyzed with significant headspace in the sample vial: TRIP BLANK (480-100321-5). Significant headspace is defined as a bubble greater than 6 mm in diameter.

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

HPLC/IC

Method(s) 300.0: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-10-3 051816 (480-100321-1), MW-9-101-A 051816 (480-100321-2), MW-8-3 051816 (480-100321-3) and DUPE-1 051816 (480-100321-4). Elevated reporting limits (RLs) are provided.

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

GC VOA

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

Metals

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

General Chemistry

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

Detection Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Client Sample ID: MW-10-3 051816

Lab Sample ID: 480-100321-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	7.2		1.0	0.81	ug/L	1		8260C	Total/NA
Tetrachloroethene	3.4		1.0	0.36	ug/L	1		8260C	Total/NA
Trichloroethene	3.0		1.0	0.46	ug/L	1		8260C	Total/NA
Carbon Dioxide (TCD)	8400		2000	1000	ug/L	1		RSK-175	Total/NA
Magnesium	33.6		0.20	0.043	mg/L	1		6010C	Total/NA
Manganese	0.0013	J	0.0030	0.00040	mg/L	1		6010C	Total/NA
Potassium	7.7		0.50	0.10	mg/L	1		6010C	Total/NA
Sodium	184		1.0	0.32	mg/L	1		6010C	Total/NA
Chloride	297		5.0	2.8	mg/L	10		300.0	Total/NA
Sulfate	225	B	20.0	3.5	mg/L	10		300.0	Total/NA
Nitrate	0.89		0.050	0.020	mg/L	1		353.2	Total/NA
Total Organic Carbon	1.2		1.0	0.43	mg/L	1		9060A	Total/NA
Total Alkalinity	167	B	5.0	0.79	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-9-101-A 051816

Lab Sample ID: 480-100321-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon Dioxide (TCD)	25000		2000	1000	ug/L	1		RSK-175	Total/NA
Iron	0.072		0.050	0.019	mg/L	1		6010C	Total/NA
Magnesium	125		0.20	0.043	mg/L	1		6010C	Total/NA
Manganese	0.0065		0.0030	0.00040	mg/L	1		6010C	Total/NA
Potassium	14.1		0.50	0.10	mg/L	1		6010C	Total/NA
Sodium	746		1.0	0.32	mg/L	1		6010C	Total/NA
Chloride	1030		25.0	14.1	mg/L	50		300.0	Total/NA
Sulfate	1640	B	100	17.5	mg/L	50		300.0	Total/NA
Ammonia	0.077		0.020	0.0090	mg/L	1		350.1	Total/NA
Nitrate	5.2		0.050	0.020	mg/L	1		353.2	Total/NA
Total Organic Carbon	4.0		1.0	0.43	mg/L	1		9060A	Total/NA
Total Alkalinity	222	B	5.0	0.79	mg/L	1		SM 2320B	Total/NA

Client Sample ID: MW-8-3 051816

Lab Sample ID: 480-100321-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
cis-1,2-Dichloroethene	3.4		2.0	1.6	ug/L	2		8260C	Total/NA
Trichloroethene	3.9		2.0	0.92	ug/L	2		8260C	Total/NA
Carbon Dioxide (TCD)	100000		4000	2000	ug/L	2		RSK-175	Total/NA
Ethane	13		7.5	1.5	ug/L	1		RSK-175	Total/NA
Methane	82		4.0	1.0	ug/L	1		RSK-175	Total/NA
Iron	0.084		0.050	0.019	mg/L	1		6010C	Total/NA
Magnesium	50.5		0.20	0.043	mg/L	1		6010C	Total/NA
Manganese	6.8		0.0030	0.00040	mg/L	1		6010C	Total/NA
Potassium	472		0.50	0.10	mg/L	1		6010C	Total/NA
Sodium	352		1.0	0.32	mg/L	1		6010C	Total/NA
Chloride	1960		25.0	14.1	mg/L	50		300.0	Total/NA
Sulfate	58.4	J B	100	17.5	mg/L	50		300.0	Total/NA
Ammonia	3.3		0.040	0.018	mg/L	2		350.1	Total/NA
Nitrate	0.039	J	0.050	0.020	mg/L	1		353.2	Total/NA
Total Organic Carbon	6.1		1.0	0.43	mg/L	1		9060A	Total/NA
Total Alkalinity	329	B	5.0	0.79	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Detection Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Client Sample ID: DUPE-1 051816

Lab Sample ID: 480-100321-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Carbon Dioxide (TCD)	26000		2000	1000	ug/L	1		RSK-175	Total/NA
Methane	1.2	J	4.0	1.0	ug/L	1		RSK-175	Total/NA
Magnesium	122		0.20	0.043	mg/L	1		6010C	Total/NA
Manganese	0.0060		0.0030	0.00040	mg/L	1		6010C	Total/NA
Potassium	14.4		0.50	0.10	mg/L	1		6010C	Total/NA
Sodium	719		1.0	0.32	mg/L	1		6010C	Total/NA
Chloride	1040		25.0	14.1	mg/L	50		300.0	Total/NA
Sulfate	1660	B	100	17.5	mg/L	50		300.0	Total/NA
Ammonia	0.24		0.020	0.0090	mg/L	1		350.1	Total/NA
Nitrate	5.3		0.050	0.020	mg/L	1		353.2	Total/NA
Total Organic Carbon	4.0		1.0	0.43	mg/L	1		9060A	Total/NA
Total Alkalinity	224	B	5.0	0.79	mg/L	1		SM 2320B	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-100321-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trichloroethene	0.49	J	1.0	0.46	ug/L	1		8260C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Client Sample ID: MW-10-3 051816

Lab Sample ID: 480-100321-1

Date Collected: 05/18/16 09:30

Matrix: Water

Date Received: 05/18/16 15:05

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	7.2		1.0	0.81	ug/L			05/24/16 01:26	1
Tetrachloroethene	3.4		1.0	0.36	ug/L			05/24/16 01:26	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/24/16 01:26	1
Trichloroethene	3.0		1.0	0.46	ug/L			05/24/16 01:26	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/24/16 01:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		66 - 137		05/24/16 01:26	1
4-Bromofluorobenzene (Surr)	88		73 - 120		05/24/16 01:26	1
Toluene-d8 (Surr)	93		71 - 126		05/24/16 01:26	1
Dibromofluoromethane (Surr)	88		60 - 140		05/24/16 01:26	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	8400		2000	1000	ug/L			05/26/16 14:09	1
Ethane	ND		7.5	1.5	ug/L			05/19/16 11:34	1
Ethene	ND		7.0	1.5	ug/L			05/19/16 11:34	1
Methane	ND		4.0	1.0	ug/L			05/19/16 11:34	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.050	0.019	mg/L		05/19/16 08:55	05/19/16 17:49	1
Magnesium	33.6		0.20	0.043	mg/L		05/19/16 08:55	05/19/16 17:49	1
Manganese	0.0013	J	0.0030	0.00040	mg/L		05/19/16 08:55	05/19/16 17:49	1
Potassium	7.7		0.50	0.10	mg/L		05/19/16 08:55	05/19/16 17:49	1
Sodium	184		1.0	0.32	mg/L		05/19/16 08:55	05/19/16 17:49	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	297		5.0	2.8	mg/L			05/20/16 05:23	10
Sulfate	225	B	20.0	3.5	mg/L			05/20/16 05:23	10
Ammonia	ND		0.020	0.0090	mg/L			05/19/16 17:08	1
Nitrate	0.89		0.050	0.020	mg/L			05/18/16 21:43	1
Nitrite	ND		0.050	0.020	mg/L			05/18/16 21:43	1
Total Organic Carbon	1.2		1.0	0.43	mg/L			05/24/16 21:05	1
Total Alkalinity	167	B	5.0	0.79	mg/L			05/18/16 21:43	1
Sulfide	ND		0.10	0.052	mg/L			05/19/16 11:57	1

Client Sample ID: MW-9-101-A 051816

Lab Sample ID: 480-100321-2

Date Collected: 05/18/16 11:20

Matrix: Water

Date Received: 05/18/16 15:05

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		2.0	1.6	ug/L			05/24/16 01:49	2
Tetrachloroethene	ND		2.0	0.72	ug/L			05/24/16 01:49	2
trans-1,2-Dichloroethene	ND		2.0	1.8	ug/L			05/24/16 01:49	2
Trichloroethene	ND		2.0	0.92	ug/L			05/24/16 01:49	2
Vinyl chloride	ND		2.0	1.8	ug/L			05/24/16 01:49	2

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Client Sample ID: MW-9-101-A 051816

Lab Sample ID: 480-100321-2

Date Collected: 05/18/16 11:20

Matrix: Water

Date Received: 05/18/16 15:05

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		66 - 137		05/24/16 01:49	2
4-Bromofluorobenzene (Surr)	86		73 - 120		05/24/16 01:49	2
Toluene-d8 (Surr)	94		71 - 126		05/24/16 01:49	2
Dibromofluoromethane (Surr)	91		60 - 140		05/24/16 01:49	2

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	25000		2000	1000	ug/L			05/26/16 14:24	1
Ethane	ND		7.5	1.5	ug/L			05/19/16 11:52	1
Ethene	ND		7.0	1.5	ug/L			05/19/16 11:52	1
Methane	ND		4.0	1.0	ug/L			05/19/16 11:52	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.072		0.050	0.019	mg/L		05/19/16 08:55	05/19/16 17:52	1
Magnesium	125		0.20	0.043	mg/L		05/19/16 08:55	05/19/16 17:52	1
Manganese	0.0065		0.0030	0.00040	mg/L		05/19/16 08:55	05/19/16 17:52	1
Potassium	14.1		0.50	0.10	mg/L		05/19/16 08:55	05/19/16 17:52	1
Sodium	746		1.0	0.32	mg/L		05/19/16 08:55	05/19/16 17:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1030		25.0	14.1	mg/L			05/20/16 05:37	50
Sulfate	1640	B	100	17.5	mg/L			05/20/16 05:37	50
Ammonia	0.077		0.020	0.0090	mg/L			05/19/16 17:09	1
Nitrate	5.2		0.050	0.020	mg/L			05/18/16 21:45	1
Nitrite	ND		0.050	0.020	mg/L			05/18/16 21:45	1
Total Organic Carbon	4.0		1.0	0.43	mg/L			05/22/16 19:08	1
Total Alkalinity	222	B	5.0	0.79	mg/L			05/18/16 21:49	1
Sulfide	ND		0.10	0.052	mg/L			05/19/16 11:57	1

Client Sample ID: MW-8-3 051816

Lab Sample ID: 480-100321-3

Date Collected: 05/18/16 13:45

Matrix: Water

Date Received: 05/18/16 15:05

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	3.4		2.0	1.6	ug/L			05/24/16 02:11	2
Tetrachloroethene	ND		2.0	0.72	ug/L			05/24/16 02:11	2
trans-1,2-Dichloroethene	ND		2.0	1.8	ug/L			05/24/16 02:11	2
Trichloroethene	3.9		2.0	0.92	ug/L			05/24/16 02:11	2
Vinyl chloride	ND		2.0	1.8	ug/L			05/24/16 02:11	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		66 - 137		05/24/16 02:11	2
4-Bromofluorobenzene (Surr)	88		73 - 120		05/24/16 02:11	2
Toluene-d8 (Surr)	93		71 - 126		05/24/16 02:11	2
Dibromofluoromethane (Surr)	92		60 - 140		05/24/16 02:11	2

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Client Sample ID: MW-8-3 051816

Lab Sample ID: 480-100321-3

Date Collected: 05/18/16 13:45

Matrix: Water

Date Received: 05/18/16 15:05

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	100000		4000	2000	ug/L			05/26/16 17:34	2
Ethane	13		7.5	1.5	ug/L			05/19/16 12:09	1
Ethene	ND		7.0	1.5	ug/L			05/19/16 12:09	1
Methane	82		4.0	1.0	ug/L			05/19/16 12:09	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.084		0.050	0.019	mg/L		05/19/16 08:55	05/19/16 17:56	1
Magnesium	50.5		0.20	0.043	mg/L		05/19/16 08:55	05/19/16 17:56	1
Manganese	6.8		0.0030	0.00040	mg/L		05/19/16 08:55	05/19/16 17:56	1
Potassium	472		0.50	0.10	mg/L		05/19/16 08:55	05/19/16 17:56	1
Sodium	352		1.0	0.32	mg/L		05/19/16 08:55	05/19/16 17:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1960		25.0	14.1	mg/L			05/20/16 05:52	50
Sulfate	58.4	J B	100	17.5	mg/L			05/20/16 05:52	50
Ammonia	3.3		0.040	0.018	mg/L			05/19/16 18:37	2
Nitrate	0.039	J	0.050	0.020	mg/L			05/18/16 20:27	1
Nitrite	ND		0.050	0.020	mg/L			05/18/16 20:27	1
Total Organic Carbon	6.1		1.0	0.43	mg/L			05/22/16 20:07	1
Total Alkalinity	329	B	5.0	0.79	mg/L			05/18/16 21:56	1
Sulfide	ND		0.10	0.052	mg/L			05/19/16 11:57	1

Client Sample ID: DUPE-1 051816

Lab Sample ID: 480-100321-4

Date Collected: 05/18/16 00:00

Matrix: Water

Date Received: 05/18/16 15:05

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		2.0	1.6	ug/L			05/24/16 02:34	2
Tetrachloroethene	ND		2.0	0.72	ug/L			05/24/16 02:34	2
trans-1,2-Dichloroethene	ND		2.0	1.8	ug/L			05/24/16 02:34	2
Trichloroethene	ND		2.0	0.92	ug/L			05/24/16 02:34	2
Vinyl chloride	ND		2.0	1.8	ug/L			05/24/16 02:34	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		66 - 137		05/24/16 02:34	2
4-Bromofluorobenzene (Surr)	89		73 - 120		05/24/16 02:34	2
Toluene-d8 (Surr)	95		71 - 126		05/24/16 02:34	2
Dibromofluoromethane (Surr)	89		60 - 140		05/24/16 02:34	2

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	26000		2000	1000	ug/L			05/26/16 14:55	1
Ethane	ND		7.5	1.5	ug/L			05/19/16 12:27	1
Ethene	ND		7.0	1.5	ug/L			05/19/16 12:27	1
Methane	1.2	J	4.0	1.0	ug/L			05/19/16 12:27	1

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Client Sample ID: DUPE-1 051816

Lab Sample ID: 480-100321-4

Date Collected: 05/18/16 00:00

Matrix: Water

Date Received: 05/18/16 15:05

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.050	0.019	mg/L		05/19/16 08:55	05/19/16 18:00	1
Magnesium	122		0.20	0.043	mg/L		05/19/16 08:55	05/19/16 18:00	1
Manganese	0.0060		0.0030	0.00040	mg/L		05/19/16 08:55	05/19/16 18:00	1
Potassium	14.4		0.50	0.10	mg/L		05/19/16 08:55	05/19/16 18:00	1
Sodium	719		1.0	0.32	mg/L		05/19/16 08:55	05/19/16 18:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1040		25.0	14.1	mg/L			05/20/16 06:07	50
Sulfate	1660	B	100	17.5	mg/L			05/20/16 06:07	50
Ammonia	0.24		0.020	0.0090	mg/L			05/19/16 17:11	1
Nitrate	5.3		0.050	0.020	mg/L			05/18/16 21:46	1
Nitrite	ND		0.050	0.020	mg/L			05/18/16 21:46	1
Total Organic Carbon	4.0		1.0	0.43	mg/L			05/22/16 20:37	1
Total Alkalinity	224	B	5.0	0.79	mg/L			05/18/16 22:03	1
Sulfide	ND		0.10	0.052	mg/L			05/19/16 11:57	1

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-100321-5

Date Collected: 05/18/16 08:00

Matrix: Water

Date Received: 05/18/16 15:05

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/24/16 02:57	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/24/16 02:57	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/24/16 02:57	1
Trichloroethene	0.49	J	1.0	0.46	ug/L			05/24/16 02:57	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/24/16 02:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		66 - 137		05/24/16 02:57	1
4-Bromofluorobenzene (Surr)	89		73 - 120		05/24/16 02:57	1
Toluene-d8 (Surr)	93		71 - 126		05/24/16 02:57	1
Dibromofluoromethane (Surr)	90		60 - 140		05/24/16 02:57	1

TestAmerica Buffalo

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (66-137)	BFB (73-120)	TOL (71-126)	DBFM (60-140)
480-100321-1	MW-10-3 051816	83	88	93	88
480-100321-2	MW-9-101-A 051816	84	86	94	91
480-100321-3	MW-8-3 051816	87	88	93	92
480-100321-4	DUPE-1 051816	82	89	95	89
480-100321-5	TRIP BLANK	84	89	93	90
LCS 480-303236/5	Lab Control Sample	77	98	100	85
MB 480-303236/7	Method Blank	85	91	97	90

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-303236/7

Matrix: Water

Analysis Batch: 303236

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/23/16 21:14	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/23/16 21:14	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/23/16 21:14	1
Trichloroethene	ND		1.0	0.46	ug/L			05/23/16 21:14	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/23/16 21:14	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		66 - 137		05/23/16 21:14	1
4-Bromofluorobenzene (Surr)	91		73 - 120		05/23/16 21:14	1
Toluene-d8 (Surr)	97		71 - 126		05/23/16 21:14	1
Dibromofluoromethane (Surr)	90		60 - 140		05/23/16 21:14	1

Lab Sample ID: LCS 480-303236/5

Matrix: Water

Analysis Batch: 303236

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	25.0	22.5		ug/L		90	74 - 124
Tetrachloroethene	25.0	29.3		ug/L		117	74 - 122
trans-1,2-Dichloroethene	25.0	25.3		ug/L		101	73 - 127
Trichloroethene	25.0	23.5		ug/L		94	74 - 123
Vinyl chloride	25.0	26.5		ug/L		106	65 - 133

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	77		66 - 137
4-Bromofluorobenzene (Surr)	98		73 - 120
Toluene-d8 (Surr)	100		71 - 126
Dibromofluoromethane (Surr)	85		60 - 140

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 480-302578/3

Matrix: Water

Analysis Batch: 302578

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	ND		7.5	1.5	ug/L			05/19/16 08:37	1
Ethene	ND		7.0	1.5	ug/L			05/19/16 08:37	1
Methane	ND		4.0	1.0	ug/L			05/19/16 08:37	1

Lab Sample ID: LCS 480-302578/4

Matrix: Water

Analysis Batch: 302578

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	14.6	15.4		ug/L		106	79 - 120
Ethene	13.6	14.2		ug/L		105	78 - 115

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 480-302578/4

Matrix: Water

Analysis Batch: 302578

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	7.77	8.12		ug/L		104	71 - 118

Lab Sample ID: LCSD 480-302578/5

Matrix: Water

Analysis Batch: 302578

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	14.6	15.4		ug/L		106	79 - 120	0	50
Ethene	13.6	14.0		ug/L		103	78 - 115	2	50
Methane	7.77	8.21		ug/L		106	71 - 118	1	50

Lab Sample ID: MB 440-332918/8

Matrix: Water

Analysis Batch: 332918

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	ND		2000	1000	ug/L			05/26/16 13:00	1

Lab Sample ID: LCS 440-332918/4

Matrix: Water

Analysis Batch: 332918

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon Dioxide (TCD)	11500	11000		ug/L		95	80 - 120

Lab Sample ID: LCSD 440-332918/5

Matrix: Water

Analysis Batch: 332918

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon Dioxide (TCD)	11500	10900		ug/L		95	80 - 120	1	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-302565/1-A

Matrix: Water

Analysis Batch: 302790

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 302565

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.050	0.019	mg/L		05/19/16 08:55	05/19/16 16:23	1
Magnesium	ND		0.20	0.043	mg/L		05/19/16 08:55	05/19/16 16:23	1
Manganese	ND		0.0030	0.00040	mg/L		05/19/16 08:55	05/19/16 16:23	1
Potassium	ND		0.50	0.10	mg/L		05/19/16 08:55	05/19/16 16:23	1
Sodium	ND		1.0	0.32	mg/L		05/19/16 08:55	05/19/16 16:23	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 480-302565/2-A

Matrix: Water

Analysis Batch: 302790

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 302565

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	9.91		mg/L		99	80 - 120
Magnesium	10.0	10.31		mg/L		103	80 - 120
Manganese	0.200	0.201		mg/L		100	80 - 120
Potassium	10.0	9.91		mg/L		99	80 - 120
Sodium	10.0	9.89		mg/L		99	80 - 120

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 480-302646/30

Matrix: Water

Analysis Batch: 302646

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.28	mg/L			05/20/16 02:57	1
Sulfate	0.497	J	2.0	0.35	mg/L			05/20/16 02:57	1

Lab Sample ID: LCS 480-302646/29

Matrix: Water

Analysis Batch: 302646

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	52.36		mg/L		105	90 - 110
Sulfate	50.0	50.83		mg/L		102	90 - 110

Lab Sample ID: 480-100321-4 MS

Matrix: Water

Analysis Batch: 302646

Client Sample ID: DUPE-1 051816

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	1040		1250	2318		mg/L		102	81 - 120
Sulfate	1660	B	1250	2927		mg/L		102	80 - 120

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 480-302734/27

Matrix: Water

Analysis Batch: 302734

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/19/16 17:27	1

Lab Sample ID: MB 480-302734/3

Matrix: Water

Analysis Batch: 302734

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/19/16 17:06	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Method: 350.1 - Nitrogen, Ammonia (Continued)

Lab Sample ID: MB 480-302734/51

Matrix: Water

Analysis Batch: 302734

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/19/16 17:48	1

Lab Sample ID: MB 480-302734/75

Matrix: Water

Analysis Batch: 302734

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/19/16 18:09	1

Lab Sample ID: MB 480-302734/99

Matrix: Water

Analysis Batch: 302734

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/19/16 18:30	1

Lab Sample ID: LCS 480-302734/100

Matrix: Water

Analysis Batch: 302734

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	1.01		mg/L		101	90 - 110

Lab Sample ID: LCS 480-302734/28

Matrix: Water

Analysis Batch: 302734

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	1.02		mg/L		102	90 - 110

Lab Sample ID: LCS 480-302734/4

Matrix: Water

Analysis Batch: 302734

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	1.02		mg/L		102	90 - 110

Lab Sample ID: LCS 480-302734/52

Matrix: Water

Analysis Batch: 302734

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	1.02		mg/L		102	90 - 110

Lab Sample ID: LCS 480-302734/76

Matrix: Water

Analysis Batch: 302734

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	1.02		mg/L		102	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Method: 353.2 - Nitrogen, Nitrite

Lab Sample ID: MB 480-302535/3

Matrix: Water

Analysis Batch: 302535

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite	ND		0.050	0.020	mg/L			05/18/16 21:40	1

Lab Sample ID: LCS 480-302535/4

Matrix: Water

Analysis Batch: 302535

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite	1.50	1.52		mg/L		101	90 - 110

Lab Sample ID: 480-100321-1 MS

Matrix: Water

Analysis Batch: 302535

Client Sample ID: MW-10-3 051816

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite	ND		1.00	0.985		mg/L		99	90 - 110

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 480-303285/30

Matrix: Water

Analysis Batch: 303285

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.43	mg/L			05/23/16 03:47	1

Lab Sample ID: MB 480-303285/6

Matrix: Water

Analysis Batch: 303285

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.43	mg/L			05/22/16 16:16	1

Lab Sample ID: LCS 480-303285/31

Matrix: Water

Analysis Batch: 303285

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	62.65		mg/L		104	90 - 110

Lab Sample ID: LCS 480-303285/7

Matrix: Water

Analysis Batch: 303285

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	61.82		mg/L		103	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Method: 9060A - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 480-100321-2 MS

Matrix: Water

Analysis Batch: 303285

Client Sample ID: MW-9-101-A 051816

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	4.0		20.0	16.03		mg/L		60	54 - 131

Lab Sample ID: MB 480-303722/33

Matrix: Water

Analysis Batch: 303722

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.43	mg/L			05/25/16 06:02	1

Lab Sample ID: MB 480-303722/9

Matrix: Water

Analysis Batch: 303722

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.43	mg/L			05/24/16 18:43	1

Lab Sample ID: LCS 480-303722/10

Matrix: Water

Analysis Batch: 303722

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	64.03		mg/L		107	90 - 110

Lab Sample ID: LCS 480-303722/34

Matrix: Water

Analysis Batch: 303722

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	64.22		mg/L		107	90 - 110

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 480-302598/54

Matrix: Water

Analysis Batch: 302598

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	1.41	J	5.0	0.79	mg/L			05/18/16 18:45	1

Lab Sample ID: MB 480-302598/7

Matrix: Water

Analysis Batch: 302598

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	0.920	J	5.0	0.79	mg/L			05/18/16 13:03	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: MB 480-302598/78

Matrix: Water

Analysis Batch: 302598

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	0.960	J	5.0	0.79	mg/L	-		05/18/16 21:30	1

Lab Sample ID: LCS 480-302598/55

Matrix: Water

Analysis Batch: 302598

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	100	96.67		mg/L	-	97	90 - 110

Lab Sample ID: LCS 480-302598/79

Matrix: Water

Analysis Batch: 302598

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	100	102.3		mg/L	-	102	90 - 110

Lab Sample ID: LCS 480-302598/8

Matrix: Water

Analysis Batch: 302598

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	100	98.54		mg/L	-	99	90 - 110

Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 480-302671/27

Matrix: Water

Analysis Batch: 302671

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.10	0.052	mg/L	-		05/19/16 11:57	1

Lab Sample ID: LCS 480-302671/28

Matrix: Water

Analysis Batch: 302671

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.750	0.684		mg/L	-	91	90 - 110

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

GC/MS VOA

Analysis Batch: 303236

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100321-1	MW-10-3 051816	Total/NA	Water	8260C	
480-100321-2	MW-9-101-A 051816	Total/NA	Water	8260C	
480-100321-3	MW-8-3 051816	Total/NA	Water	8260C	
480-100321-4	DUPE-1 051816	Total/NA	Water	8260C	
480-100321-5	TRIP BLANK	Total/NA	Water	8260C	
LCS 480-303236/5	Lab Control Sample	Total/NA	Water	8260C	
MB 480-303236/7	Method Blank	Total/NA	Water	8260C	

GC VOA

Analysis Batch: 302578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100321-1	MW-10-3 051816	Total/NA	Water	RSK-175	
480-100321-2	MW-9-101-A 051816	Total/NA	Water	RSK-175	
480-100321-3	MW-8-3 051816	Total/NA	Water	RSK-175	
480-100321-4	DUPE-1 051816	Total/NA	Water	RSK-175	
LCS 480-302578/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-302578/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 480-302578/3	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 332918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100321-1	MW-10-3 051816	Total/NA	Water	RSK-175	
480-100321-2	MW-9-101-A 051816	Total/NA	Water	RSK-175	
480-100321-3	MW-8-3 051816	Total/NA	Water	RSK-175	
480-100321-4	DUPE-1 051816	Total/NA	Water	RSK-175	
LCS 440-332918/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 440-332918/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 440-332918/8	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 302565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100321-1	MW-10-3 051816	Total/NA	Water	3005A	
480-100321-2	MW-9-101-A 051816	Total/NA	Water	3005A	
480-100321-3	MW-8-3 051816	Total/NA	Water	3005A	
480-100321-4	DUPE-1 051816	Total/NA	Water	3005A	
LCS 480-302565/2-A	Lab Control Sample	Total/NA	Water	3005A	
MB 480-302565/1-A	Method Blank	Total/NA	Water	3005A	

Analysis Batch: 302790

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100321-1	MW-10-3 051816	Total/NA	Water	6010C	302565
480-100321-2	MW-9-101-A 051816	Total/NA	Water	6010C	302565
480-100321-3	MW-8-3 051816	Total/NA	Water	6010C	302565
480-100321-4	DUPE-1 051816	Total/NA	Water	6010C	302565
LCS 480-302565/2-A	Lab Control Sample	Total/NA	Water	6010C	302565
MB 480-302565/1-A	Method Blank	Total/NA	Water	6010C	302565

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

General Chemistry

Analysis Batch: 302535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100321-1	MW-10-3 051816	Total/NA	Water	353.2	
480-100321-1 MS	MW-10-3 051816	Total/NA	Water	353.2	
480-100321-2	MW-9-101-A 051816	Total/NA	Water	353.2	
480-100321-4	DUPE-1 051816	Total/NA	Water	353.2	
LCS 480-302535/4	Lab Control Sample	Total/NA	Water	353.2	
MB 480-302535/3	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 302540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100321-1	MW-10-3 051816	Total/NA	Water	353.2	
480-100321-2	MW-9-101-A 051816	Total/NA	Water	353.2	
480-100321-3	MW-8-3 051816	Total/NA	Water	353.2	
480-100321-4	DUPE-1 051816	Total/NA	Water	353.2	

Analysis Batch: 302541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100321-3	MW-8-3 051816	Total/NA	Water	353.2	

Analysis Batch: 302598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100321-1	MW-10-3 051816	Total/NA	Water	SM 2320B	
480-100321-2	MW-9-101-A 051816	Total/NA	Water	SM 2320B	
480-100321-3	MW-8-3 051816	Total/NA	Water	SM 2320B	
480-100321-4	DUPE-1 051816	Total/NA	Water	SM 2320B	
LCS 480-302598/55	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 480-302598/79	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 480-302598/8	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 480-302598/54	Method Blank	Total/NA	Water	SM 2320B	
MB 480-302598/7	Method Blank	Total/NA	Water	SM 2320B	
MB 480-302598/78	Method Blank	Total/NA	Water	SM 2320B	

Analysis Batch: 302646

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100321-1	MW-10-3 051816	Total/NA	Water	300.0	
480-100321-2	MW-9-101-A 051816	Total/NA	Water	300.0	
480-100321-3	MW-8-3 051816	Total/NA	Water	300.0	
480-100321-4	DUPE-1 051816	Total/NA	Water	300.0	
480-100321-4 MS	DUPE-1 051816	Total/NA	Water	300.0	
LCS 480-302646/29	Lab Control Sample	Total/NA	Water	300.0	
MB 480-302646/30	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 302671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100321-1	MW-10-3 051816	Total/NA	Water	SM 4500 S2 D	
480-100321-2	MW-9-101-A 051816	Total/NA	Water	SM 4500 S2 D	
480-100321-3	MW-8-3 051816	Total/NA	Water	SM 4500 S2 D	
480-100321-4	DUPE-1 051816	Total/NA	Water	SM 4500 S2 D	
LCS 480-302671/28	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	
MB 480-302671/27	Method Blank	Total/NA	Water	SM 4500 S2 D	

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

General Chemistry (Continued)

Analysis Batch: 302734

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100321-1	MW-10-3 051816	Total/NA	Water	350.1	
480-100321-2	MW-9-101-A 051816	Total/NA	Water	350.1	
480-100321-3	MW-8-3 051816	Total/NA	Water	350.1	
480-100321-4	DUPE-1 051816	Total/NA	Water	350.1	
LCS 480-302734/100	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-302734/28	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-302734/4	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-302734/52	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-302734/76	Lab Control Sample	Total/NA	Water	350.1	
MB 480-302734/27	Method Blank	Total/NA	Water	350.1	
MB 480-302734/3	Method Blank	Total/NA	Water	350.1	
MB 480-302734/51	Method Blank	Total/NA	Water	350.1	
MB 480-302734/75	Method Blank	Total/NA	Water	350.1	
MB 480-302734/99	Method Blank	Total/NA	Water	350.1	

Analysis Batch: 303285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100321-2	MW-9-101-A 051816	Total/NA	Water	9060A	
480-100321-2 MS	MW-9-101-A 051816	Total/NA	Water	9060A	
480-100321-3	MW-8-3 051816	Total/NA	Water	9060A	
480-100321-4	DUPE-1 051816	Total/NA	Water	9060A	
LCS 480-303285/31	Lab Control Sample	Total/NA	Water	9060A	
LCS 480-303285/7	Lab Control Sample	Total/NA	Water	9060A	
MB 480-303285/30	Method Blank	Total/NA	Water	9060A	
MB 480-303285/6	Method Blank	Total/NA	Water	9060A	

Analysis Batch: 303722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100321-1	MW-10-3 051816	Total/NA	Water	9060A	
LCS 480-303722/10	Lab Control Sample	Total/NA	Water	9060A	
LCS 480-303722/34	Lab Control Sample	Total/NA	Water	9060A	
MB 480-303722/33	Method Blank	Total/NA	Water	9060A	
MB 480-303722/9	Method Blank	Total/NA	Water	9060A	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Client Sample ID: MW-10-3 051816

Date Collected: 05/18/16 09:30

Date Received: 05/18/16 15:05

Lab Sample ID: 480-100321-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	303236	05/24/16 01:26	GVF	TAL BUF
Total/NA	Analysis	RSK-175		1	332918	05/26/16 14:09	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	302578	05/19/16 11:34	TRG	TAL BUF
Total/NA	Prep	3005A			302565	05/19/16 08:55	TAS	TAL BUF
Total/NA	Analysis	6010C		1	302790	05/19/16 17:49	SLB	TAL BUF
Total/NA	Analysis	300.0		10	302646	05/20/16 05:23	CAV	TAL BUF
Total/NA	Analysis	350.1		1	302734	05/19/16 17:08	CEA	TAL BUF
Total/NA	Analysis	353.2		1	302540	05/18/16 21:43	CLT	TAL BUF
Total/NA	Analysis	353.2		1	302535	05/18/16 21:43	CLT	TAL BUF
Total/NA	Analysis	9060A		1	303722	05/24/16 21:05	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	302598	05/18/16 21:43	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	302671	05/19/16 11:57	LED	TAL BUF

Client Sample ID: MW-9-101-A 051816

Date Collected: 05/18/16 11:20

Date Received: 05/18/16 15:05

Lab Sample ID: 480-100321-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		2	303236	05/24/16 01:49	GVF	TAL BUF
Total/NA	Analysis	RSK-175		1	332918	05/26/16 14:24	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	302578	05/19/16 11:52	TRG	TAL BUF
Total/NA	Prep	3005A			302565	05/19/16 08:55	TAS	TAL BUF
Total/NA	Analysis	6010C		1	302790	05/19/16 17:52	SLB	TAL BUF
Total/NA	Analysis	300.0		50	302646	05/20/16 05:37	CAV	TAL BUF
Total/NA	Analysis	350.1		1	302734	05/19/16 17:09	CEA	TAL BUF
Total/NA	Analysis	353.2		1	302540	05/18/16 21:45	CLT	TAL BUF
Total/NA	Analysis	353.2		1	302535	05/18/16 21:45	CLT	TAL BUF
Total/NA	Analysis	9060A		1	303285	05/22/16 19:08	EKB	TAL BUF
Total/NA	Analysis	SM 2320B		1	302598	05/18/16 21:49	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	302671	05/19/16 11:57	LED	TAL BUF

Client Sample ID: MW-8-3 051816

Date Collected: 05/18/16 13:45

Date Received: 05/18/16 15:05

Lab Sample ID: 480-100321-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		2	303236	05/24/16 02:11	GVF	TAL BUF
Total/NA	Analysis	RSK-175		2	332918	05/26/16 17:34	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	302578	05/19/16 12:09	TRG	TAL BUF
Total/NA	Prep	3005A			302565	05/19/16 08:55	TAS	TAL BUF
Total/NA	Analysis	6010C		1	302790	05/19/16 17:56	SLB	TAL BUF

TestAmerica Buffalo

Lab Chronicle

Client: GHD Services Inc.

TestAmerica Job ID: 480-100321-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		50	302646	05/20/16 05:52	CAV	TAL BUF
Total/NA	Analysis	350.1		2	302734	05/19/16 18:37	CEA	TAL BUF
Total/NA	Analysis	353.2		1	302540	05/18/16 20:27	CLT	TAL BUF
Total/NA	Analysis	353.2		1	302541	05/18/16 20:27	CLT	TAL BUF
Total/NA	Analysis	9060A		1	303285	05/22/16 20:07	EKB	TAL BUF
Total/NA	Analysis	SM 2320B		1	302598	05/18/16 21:56	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	302671	05/19/16 11:57	LED	TAL BUF

Client Sample ID: DUPE-1 051816

Lab Sample ID: 480-100321-4

Date Collected: 05/18/16 00:00

Matrix: Water

Date Received: 05/18/16 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		2	303236	05/24/16 02:34	GVF	TAL BUF
Total/NA	Analysis	RSK-175		1	332918	05/26/16 14:55	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	302578	05/19/16 12:27	TRG	TAL BUF
Total/NA	Prep	3005A			302565	05/19/16 08:55	TAS	TAL BUF
Total/NA	Analysis	6010C		1	302790	05/19/16 18:00	SLB	TAL BUF
Total/NA	Analysis	300.0		50	302646	05/20/16 06:07	CAV	TAL BUF
Total/NA	Analysis	350.1		1	302734	05/19/16 17:11	CEA	TAL BUF
Total/NA	Analysis	353.2		1	302540	05/18/16 21:46	CLT	TAL BUF
Total/NA	Analysis	353.2		1	302535	05/18/16 21:46	CLT	TAL BUF
Total/NA	Analysis	9060A		1	303285	05/22/16 20:37	EKB	TAL BUF
Total/NA	Analysis	SM 2320B		1	302598	05/18/16 22:03	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	302671	05/19/16 11:57	LED	TAL BUF

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-100321-5

Date Collected: 05/18/16 08:00

Matrix: Water

Date Received: 05/18/16 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	303236	05/24/16 02:57	GVF	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Certification Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100321-1

Laboratory: TestAmerica Buffalo

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	03-31-17

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-16
Arizona	State Program	9	AZ0671	10-13-16
California	LA Cty Sanitation Districts	9	10256	01-31-17 *
California	State Program	9	CA ELAP 2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-17
Hawaii	State Program	9	N/A	01-29-17
Kansas	NELAP Secondary AB	7	E-10420	07-31-16
Nevada	State Program	9	CA015312016-2	07-31-16
New Mexico	State Program	6	N/A	01-29-17
Northern Mariana Islands	State Program	9	MP0002	01-29-17
Oregon	NELAP	10	4028	01-29-17
USDA	Federal		P330-09-00080	07-08-18
Washington	State Program	10	C900	09-03-16

* Certification renewal pending - certification considered valid.

TestAmerica Buffalo

Method Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100321-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL IRV
RSK-175	Dissolved Gases (GC)	RSK	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
350.1	Nitrogen, Ammonia	MCAWW	TAL BUF
353.2	Nitrogen, Nitrite	MCAWW	TAL BUF
353.2	Nitrate	EPA	TAL BUF
9060A	Organic Carbon, Total (TOC)	SW846	TAL BUF
SM 2320B	Alkalinity	SM	TAL BUF
SM 4500 S2 D	Sulfide, Total	SM	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

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

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

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Sample Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100321-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-100321-1	MW-10-3 051816	Water	05/18/16 09:30	05/18/16 15:05
480-100321-2	MW-9-101-A 051816	Water	05/18/16 11:20	05/18/16 15:05
480-100321-3	MW-8-3 051816	Water	05/18/16 13:45	05/18/16 15:05
480-100321-4	DUPE-1 051816	Water	05/18/16 00:00	05/18/16 15:05
480-100321-5	TRIP BLANK	Water	05/18/16 08:00	05/18/16 15:05

Chain of Custody Record

[illegible]

[illegible]

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-100321-1

Login Number: 100321

List Number: 1

Creator: Kolb, Chris M

List Source: TestAmerica Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GZA
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-100321-1

Login Number: 100321

List Number: 2

Creator: Ornelas, Olga

List Source: TestAmerica Irvine

List Creation: 05/19/16 12:09 PM

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

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-100408-1

Client Project/Site: 058507, GM-Lockport Groundwater
Sampling

For:

GHD Services Inc.

2055 Niagara Falls Blvd., Suite 3

Niagara Falls, New York 14304

Attn: Kathleen Willy



Authorized for release by:

6/2/2016 4:36:57 PM

Rebecca Jones, Project Management Assistant I

rebecca.jones@testamericainc.com

Designee for

Melissa Deyo, Project Manager I

(716)504-9874

melissa.deyo@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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Definitions/Glossary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100408-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.

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: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100408-1

Job ID: 480-100408-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-100408-1

Receipt

The samples were received on 5/19/2016 2:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8° C.

GC/MS VOA

Method(s) 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: BLDG 10 MW-1 051916 (480-100408-3), (480-100408-I-3 MS) and (480-100408-I-3 MSD). Elevated reporting limits (RLs) are provided.

Method(s) 8260C: The continuing calibration verification (CCV) associated with batch 480-303224 recovered above the upper control limit for Vinyl chloride. The samples associated with this CCV were non-detect for the affected analytes; therefore, the data has been reported. The following samples are impacted: MW-9-12 051916 (480-100408-1), TK-6 051916 (480-100408-2), BLDG 10 MW-1 051916 (480-100408-3) and TRIP BLANK (480-100408-4).

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

HPLC/IC

Method(s) 300.0: The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-9-12 051916 (480-100408-1), TK-6 051916 (480-100408-2) and BLDG 10 MW-1 051916 (480-100408-3). Elevated reporting limits (RLs) are provided.

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

GC VOA

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

Metals

Method(s) 6010C: The Low Level Continuing Calibration Verification (CCVL 480-303319/42) contained Total Iron and Manganese outside the control limits. All reported samples TK-6 051916 (480-100408-2) and BLDG 10 MW-1 051916 (480-100408-3) associated with this CCVL were either below the laboratory's standard reporting limit for these analytes or contained these analytes at concentrations greater than 10X the values found in the CCVL; therefore, re-analysis of samples was not performed.

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.

Detection Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100408-1

Client Sample ID: MW-9-12 051916

Lab Sample ID: 480-100408-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Carbon Dioxide (TCD)	13000		2000	1000	ug/L		1		RSK-175	Total/NA
Iron	0.23		0.050	0.019	mg/L		1		6010C	Total/NA
Magnesium	23.0		0.20	0.043	mg/L		1		6010C	Total/NA
Manganese	0.23	B	0.0030	0.00040	mg/L		1		6010C	Total/NA
Potassium	3.8		0.50	0.10	mg/L		1		6010C	Total/NA
Sodium	337		1.0	0.32	mg/L		1		6010C	Total/NA
Chloride	303		5.0	2.8	mg/L		10		300.0	Total/NA
Sulfate	40.3	B	20.0	3.5	mg/L		10		300.0	Total/NA
Total Organic Carbon	1.5		1.0	0.43	mg/L		1		9060A	Total/NA
Total Alkalinity	199	B	5.0	0.79	mg/L		1		SM 2320B	Total/NA

Client Sample ID: TK-6 051916

Lab Sample ID: 480-100408-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Carbon Dioxide (TCD)	22000		2000	1000	ug/L		1		RSK-175	Total/NA
Magnesium	36.1		0.20	0.043	mg/L		1		6010C	Total/NA
Manganese	0.0010	J B ^	0.0030	0.00040	mg/L		1		6010C	Total/NA
Potassium	0.84		0.50	0.10	mg/L		1		6010C	Total/NA
Sodium	566		1.0	0.32	mg/L		1		6010C	Total/NA
Chloride	838		10.0	5.6	mg/L		20		300.0	Total/NA
Sulfate	218	B	40.0	7.0	mg/L		20		300.0	Total/NA
Nitrate	1.0		0.050	0.020	mg/L		1		353.2	Total/NA
Total Organic Carbon	0.95	J	1.0	0.43	mg/L		1		9060A	Total/NA
Total Alkalinity	341	B	5.0	0.79	mg/L		1		SM 2320B	Total/NA

Client Sample ID: BLDG 10 MW-1 051916

Lab Sample ID: 480-100408-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Tetrachloroethene	140000	F1	2000	720	ug/L		2000		8260C	Total/NA
Trichloroethene	2700		2000	920	ug/L		2000		8260C	Total/NA
Carbon Dioxide (TCD)	62000		2000	1000	ug/L		1		RSK-175	Total/NA
Methane	12		4.0	1.0	ug/L		1		RSK-175	Total/NA
Iron	1.3	^	0.050	0.019	mg/L		1		6010C	Total/NA
Magnesium	101		0.20	0.043	mg/L		1		6010C	Total/NA
Manganese	0.46	B ^	0.0030	0.00040	mg/L		1		6010C	Total/NA
Potassium	5.6		0.50	0.10	mg/L		1		6010C	Total/NA
Sodium	123		1.0	0.32	mg/L		1		6010C	Total/NA
Chloride	586		10.0	5.6	mg/L		20		300.0	Total/NA
Sulfate	274	B	40.0	7.0	mg/L		20		300.0	Total/NA
Ammonia	0.20		0.020	0.0090	mg/L		1		350.1	Total/NA
Total Organic Carbon	3.6		1.0	0.43	mg/L		1		9060A	Total/NA
Total Alkalinity	311	B	5.0	0.79	mg/L		1		SM 2320B	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-100408-4

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100408-1

Client Sample ID: MW-9-12 051916

Lab Sample ID: 480-100408-1

Date Collected: 05/19/16 08:55

Matrix: Water

Date Received: 05/19/16 14:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/23/16 22:25	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/23/16 22:25	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/23/16 22:25	1
Trichloroethene	ND		1.0	0.46	ug/L			05/23/16 22:25	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/23/16 22:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	117		66 - 137		05/23/16 22:25	1
4-Bromofluorobenzene (Surr)	108		73 - 120		05/23/16 22:25	1
Toluene-d8 (Surr)	97		71 - 126		05/23/16 22:25	1
Dibromofluoromethane (Surr)	116		60 - 140		05/23/16 22:25	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	13000		2000	1000	ug/L			06/01/16 15:51	1
Ethane	ND		7.5	1.5	ug/L			05/20/16 11:24	1
Ethene	ND		7.0	1.5	ug/L			05/20/16 11:24	1
Methane	ND		4.0	1.0	ug/L			05/20/16 11:24	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.23		0.050	0.019	mg/L		05/20/16 08:55	05/24/16 10:38	1
Magnesium	23.0		0.20	0.043	mg/L		05/20/16 08:55	05/23/16 20:36	1
Manganese	0.23	B	0.0030	0.00040	mg/L		05/20/16 08:55	05/24/16 10:38	1
Potassium	3.8		0.50	0.10	mg/L		05/20/16 08:55	05/23/16 20:36	1
Sodium	337		1.0	0.32	mg/L		05/20/16 08:55	05/23/16 20:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	303		5.0	2.8	mg/L			05/21/16 00:58	10
Sulfate	40.3	B	20.0	3.5	mg/L			05/21/16 00:58	10
Ammonia	ND		0.020	0.0090	mg/L			05/20/16 15:29	1
Nitrate	ND		0.050	0.020	mg/L			05/19/16 19:00	1
Nitrite	ND		0.050	0.020	mg/L			05/19/16 19:00	1
Total Organic Carbon	1.5		1.0	0.43	mg/L			05/25/16 13:43	1
Total Alkalinity	199	B	5.0	0.79	mg/L			05/19/16 20:51	1
Sulfide	ND		0.10	0.052	mg/L			05/23/16 15:23	1

Client Sample ID: TK-6 051916

Lab Sample ID: 480-100408-2

Date Collected: 05/19/16 10:45

Matrix: Water

Date Received: 05/19/16 14:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/23/16 22:50	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/23/16 22:50	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/23/16 22:50	1
Trichloroethene	ND		1.0	0.46	ug/L			05/23/16 22:50	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/23/16 22:50	1

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100408-1

Client Sample ID: TK-6 051916

Lab Sample ID: 480-100408-2

Date Collected: 05/19/16 10:45

Matrix: Water

Date Received: 05/19/16 14:30

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		66 - 137		05/23/16 22:50	1
4-Bromofluorobenzene (Surr)	94		73 - 120		05/23/16 22:50	1
Toluene-d8 (Surr)	97		71 - 126		05/23/16 22:50	1
Dibromofluoromethane (Surr)	109		60 - 140		05/23/16 22:50	1

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	22000		2000	1000	ug/L			06/01/16 16:03	1
Ethane	ND		7.5	1.5	ug/L			05/20/16 11:42	1
Ethene	ND		7.0	1.5	ug/L			05/20/16 11:42	1
Methane	ND		4.0	1.0	ug/L			05/20/16 11:42	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND	^	0.050	0.019	mg/L		05/20/16 08:55	05/23/16 20:39	1
Magnesium	36.1		0.20	0.043	mg/L		05/20/16 08:55	05/23/16 20:39	1
Manganese	0.0010	J B ^	0.0030	0.00040	mg/L		05/20/16 08:55	05/23/16 20:39	1
Potassium	0.84		0.50	0.10	mg/L		05/20/16 08:55	05/23/16 20:39	1
Sodium	566		1.0	0.32	mg/L		05/20/16 08:55	05/23/16 20:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	838		10.0	5.6	mg/L			05/21/16 01:13	20
Sulfate	218	B	40.0	7.0	mg/L			05/21/16 01:13	20
Ammonia	ND		0.020	0.0090	mg/L			05/20/16 15:30	1
Nitrate	1.0		0.050	0.020	mg/L			05/19/16 21:50	1
Nitrite	ND		0.050	0.020	mg/L			05/19/16 21:50	1
Total Organic Carbon	0.95	J	1.0	0.43	mg/L			05/25/16 14:12	1
Total Alkalinity	341	B	5.0	0.79	mg/L			05/19/16 20:58	1
Sulfide	ND		0.10	0.052	mg/L			05/23/16 15:23	1

Client Sample ID: BLDG 10 MW-1 051916

Lab Sample ID: 480-100408-3

Date Collected: 05/19/16 12:40

Matrix: Water

Date Received: 05/19/16 14:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		2000	1600	ug/L			05/23/16 23:16	2000
Tetrachloroethene	140000	F1	2000	720	ug/L			05/23/16 23:16	2000
trans-1,2-Dichloroethene	ND		2000	1800	ug/L			05/23/16 23:16	2000
Trichloroethene	2700		2000	920	ug/L			05/23/16 23:16	2000
Vinyl chloride	ND	F1	2000	1800	ug/L			05/23/16 23:16	2000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		66 - 137		05/23/16 23:16	2000
4-Bromofluorobenzene (Surr)	93		73 - 120		05/23/16 23:16	2000
Toluene-d8 (Surr)	94		71 - 126		05/23/16 23:16	2000
Dibromofluoromethane (Surr)	105		60 - 140		05/23/16 23:16	2000

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100408-1

Client Sample ID: BLDG 10 MW-1 051916

Lab Sample ID: 480-100408-3

Date Collected: 05/19/16 12:40

Matrix: Water

Date Received: 05/19/16 14:30

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	62000		2000	1000	ug/L			06/01/16 16:16	1
Ethane	ND		7.5	1.5	ug/L			05/20/16 11:59	1
Ethene	ND		7.0	1.5	ug/L			05/20/16 11:59	1
Methane	12		4.0	1.0	ug/L			05/20/16 11:59	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	1.3	^	0.050	0.019	mg/L		05/20/16 08:55	05/23/16 20:42	1
Magnesium	101		0.20	0.043	mg/L		05/20/16 08:55	05/23/16 20:42	1
Manganese	0.46	B ^	0.0030	0.00040	mg/L		05/20/16 08:55	05/23/16 20:42	1
Potassium	5.6		0.50	0.10	mg/L		05/20/16 08:55	05/23/16 20:42	1
Sodium	123		1.0	0.32	mg/L		05/20/16 08:55	05/23/16 20:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	586		10.0	5.6	mg/L			05/21/16 01:27	20
Sulfate	274	B	40.0	7.0	mg/L			05/21/16 01:27	20
Ammonia	0.20		0.020	0.0090	mg/L			05/20/16 15:31	1
Nitrate	ND		0.050	0.020	mg/L			05/19/16 19:02	1
Nitrite	ND		0.050	0.020	mg/L			05/19/16 19:02	1
Total Organic Carbon	3.6		1.0	0.43	mg/L			05/25/16 14:41	1
Total Alkalinity	311	B	5.0	0.79	mg/L			05/19/16 21:05	1
Sulfide	ND	F1	0.10	0.052	mg/L			05/23/16 15:23	1

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-100408-4

Date Collected: 05/19/16 08:00

Matrix: Water

Date Received: 05/19/16 14:30

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/23/16 23:41	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/23/16 23:41	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/23/16 23:41	1
Trichloroethene	ND		1.0	0.46	ug/L			05/23/16 23:41	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/23/16 23:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	111		66 - 137		05/23/16 23:41	1
4-Bromofluorobenzene (Surr)	92		73 - 120		05/23/16 23:41	1
Toluene-d8 (Surr)	99		71 - 126		05/23/16 23:41	1
Dibromofluoromethane (Surr)	106		60 - 140		05/23/16 23:41	1

TestAmerica Buffalo

Surrogate Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100408-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (66-137)	BFB (73-120)	TOL (71-126)	DBFM (60-140)
480-100408-1	MW-9-12 051916	117	108	97	116
480-100408-2	TK-6 051916	106	94	97	109
480-100408-3	BLDG 10 MW-1 051916	104	93	94	105
480-100408-3 MS	BLDG 10 MW-1 051916	98	104	102	100
480-100408-3 MSD	BLDG 10 MW-1 051916	100	103	101	100
480-100408-4	TRIP BLANK	111	92	99	106
LCS 480-303224/5	Lab Control Sample	97	96	101	97
MB 480-303224/7	Method Blank	108	97	80	108

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100408-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-303224/7

Matrix: Water

Analysis Batch: 303224

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			05/23/16 20:05	1
Tetrachloroethene	ND		1.0	0.36	ug/L			05/23/16 20:05	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			05/23/16 20:05	1
Trichloroethene	ND		1.0	0.46	ug/L			05/23/16 20:05	1
Vinyl chloride	ND		1.0	0.90	ug/L			05/23/16 20:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		66 - 137		05/23/16 20:05	1
4-Bromofluorobenzene (Surr)	97		73 - 120		05/23/16 20:05	1
Toluene-d8 (Surr)	80		71 - 126		05/23/16 20:05	1
Dibromofluoromethane (Surr)	108		60 - 140		05/23/16 20:05	1

Lab Sample ID: LCS 480-303224/5

Matrix: Water

Analysis Batch: 303224

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	25.0	23.9		ug/L		96	74 - 124
Tetrachloroethene	25.0	24.4		ug/L		98	74 - 122
trans-1,2-Dichloroethene	25.0	23.7		ug/L		95	73 - 127
Trichloroethene	25.0	23.3		ug/L		93	74 - 123
Vinyl chloride	25.0	20.0		ug/L		80	65 - 133

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	97		66 - 137
4-Bromofluorobenzene (Surr)	96		73 - 120
Toluene-d8 (Surr)	101		71 - 126
Dibromofluoromethane (Surr)	97		60 - 140

Lab Sample ID: 480-100408-3 MS

Matrix: Water

Analysis Batch: 303224

Client Sample ID: BLDG 10 MW-1 051916

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	ND		50000	47500		ug/L		95	74 - 124
Tetrachloroethene	140000	F1	50000	177000		ug/L		83	74 - 122
trans-1,2-Dichloroethene	ND		50000	46400		ug/L		93	73 - 127
Trichloroethene	2700		50000	47800		ug/L		90	74 - 123
Vinyl chloride	ND	F1	50000	32500		ug/L		65	65 - 133

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		66 - 137
4-Bromofluorobenzene (Surr)	104		73 - 120
Toluene-d8 (Surr)	102		71 - 126
Dibromofluoromethane (Surr)	100		60 - 140

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100408-1

Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: 480-100408-3 MSD

Matrix: Water

Analysis Batch: 303224

Client Sample ID: BLDG 10 MW-1 051916

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
cis-1,2-Dichloroethene	ND		50000	47400		ug/L		95	74 - 124	0	15
Tetrachloroethene	140000	F1	50000	169000	F1	ug/L		68	74 - 122	4	20
trans-1,2-Dichloroethene	ND		50000	46200		ug/L		92	73 - 127	1	20
Trichloroethene	2700		50000	47600		ug/L		90	74 - 123	0	16
Vinyl chloride	ND	F1	50000	31400	F1	ug/L		63	65 - 133	3	15
MSD MSD											
Surrogate	%Recovery	Qualifier	Limits								
1,2-Dichloroethane-d4 (Surr)	100		66 - 137								
4-Bromofluorobenzene (Surr)	103		73 - 120								
Toluene-d8 (Surr)	101		71 - 126								
Dibromofluoromethane (Surr)	100		60 - 140								

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 480-302816/3

Matrix: Water

Analysis Batch: 302816

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	ND		7.5	1.5	ug/L			05/20/16 08:44	1
Ethene	ND		7.0	1.5	ug/L			05/20/16 08:44	1
Methane	ND		4.0	1.0	ug/L			05/20/16 08:44	1

Lab Sample ID: LCS 480-302816/4

Matrix: Water

Analysis Batch: 302816

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	14.6	15.1		ug/L		103	79 - 120		
Ethene	13.6	14.4		ug/L		106	78 - 115		
Methane	7.77	7.67		ug/L		99	71 - 118		

Lab Sample ID: LCSD 480-302816/5

Matrix: Water

Analysis Batch: 302816

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	14.6	14.8		ug/L		102	79 - 120	2	50
Ethene	13.6	14.2		ug/L		105	78 - 115	1	50
Methane	7.77	7.60		ug/L		98	71 - 118	1	50

Lab Sample ID: MB 440-333782/8

Matrix: Water

Analysis Batch: 333782

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Carbon Dioxide (TCD)	ND		2000	1000	ug/L			06/01/16 12:58	1

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100408-1

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 440-333782/4

Matrix: Water

Analysis Batch: 333782

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Carbon Dioxide (TCD)	11500	11500		ug/L		100	80 - 120

Lab Sample ID: LCSD 440-333782/5

Matrix: Water

Analysis Batch: 333782

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Carbon Dioxide (TCD)	11500	11500		ug/L		100	80 - 120	0	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 480-302798/1-A

Matrix: Water

Analysis Batch: 303319

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 302798

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	ND		0.050	0.019	mg/L		05/20/16 08:55	05/23/16 19:31	1
Magnesium	ND		0.20	0.043	mg/L		05/20/16 08:55	05/23/16 19:31	1
Manganese	0.000550	J	0.0030	0.00040	mg/L		05/20/16 08:55	05/23/16 19:31	1
Potassium	ND		0.50	0.10	mg/L		05/20/16 08:55	05/23/16 19:31	1
Sodium	ND		1.0	0.32	mg/L		05/20/16 08:55	05/23/16 19:31	1

Lab Sample ID: LCS 480-302798/2-A

Matrix: Water

Analysis Batch: 303319

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 302798

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	10.0	10.20		mg/L		102	80 - 120
Magnesium	10.0	10.59		mg/L		106	80 - 120
Manganese	0.200	0.203		mg/L		102	80 - 120
Potassium	10.0	10.15		mg/L		101	80 - 120
Sodium	10.0	10.08		mg/L		101	80 - 120

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 480-302869/30

Matrix: Water

Analysis Batch: 302869

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.50	0.28	mg/L			05/20/16 21:48	1
Sulfate	0.614	J	2.0	0.35	mg/L			05/20/16 21:48	1

Lab Sample ID: LCS 480-302869/29

Matrix: Water

Analysis Batch: 302869

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	53.88		mg/L		108	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100408-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 480-302869/29

Matrix: Water

Analysis Batch: 302869

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	52.04		mg/L		104	90 - 110

Method: 350.1 - Nitrogen, Ammonia

Lab Sample ID: MB 480-302916/27

Matrix: Water

Analysis Batch: 302916

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/20/16 15:49	1

Lab Sample ID: MB 480-302916/3

Matrix: Water

Analysis Batch: 302916

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia	ND		0.020	0.0090	mg/L			05/20/16 15:28	1

Lab Sample ID: LCS 480-302916/28

Matrix: Water

Analysis Batch: 302916

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	1.04		mg/L		104	90 - 110

Lab Sample ID: LCS 480-302916/4

Matrix: Water

Analysis Batch: 302916

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ammonia	1.00	1.04		mg/L		104	90 - 110

Method: 353.2 - Nitrogen, Nitrite

Lab Sample ID: MB 480-302752/27

Matrix: Water

Analysis Batch: 302752

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite	ND		0.050	0.020	mg/L			05/19/16 21:37	1

Lab Sample ID: LCS 480-302752/28

Matrix: Water

Analysis Batch: 302752

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite	1.50	1.59		mg/L		106	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100408-1

Method: 353.2 - Nitrogen, Nitrite (Continued)

Lab Sample ID: 480-100408-2 MS

Matrix: Water

Analysis Batch: 302752

Client Sample ID: TK-6 051916

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrite	ND		1.00	1.08		mg/L		108	90 - 110

Method: 9060A - Organic Carbon, Total (TOC)

Lab Sample ID: MB 480-303722/33

Matrix: Water

Analysis Batch: 303722

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		1.0	0.43	mg/L			05/25/16 06:02	1

Lab Sample ID: LCS 480-303722/34

Matrix: Water

Analysis Batch: 303722

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	60.0	64.22		mg/L		107	90 - 110

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 480-302814/30

Matrix: Water

Analysis Batch: 302814

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	0.930	J	5.0	0.79	mg/L			05/19/16 20:33	1

Lab Sample ID: MB 480-302814/7

Matrix: Water

Analysis Batch: 302814

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity	1.33	J	5.0	0.79	mg/L			05/19/16 18:09	1

Lab Sample ID: LCS 480-302814/31

Matrix: Water

Analysis Batch: 302814

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	100	96.01		mg/L		96	90 - 110

Lab Sample ID: LCS 480-302814/8

Matrix: Water

Analysis Batch: 302814

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity	100	96.82		mg/L		97	90 - 110

TestAmerica Buffalo

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100408-1

Method: SM 4500 S2 D - Sulfide, Total

Lab Sample ID: MB 480-303212/3

Matrix: Water

Analysis Batch: 303212

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		0.10	0.052	mg/L			05/23/16 15:23	1

Lab Sample ID: LCS 480-303212/4

Matrix: Water

Analysis Batch: 303212

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	0.750	0.683		mg/L		91	90 - 110

Lab Sample ID: 480-100408-3 MS

Matrix: Water

Analysis Batch: 303212

Client Sample ID: BLDG 10 MW-1 051916

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND	F1	0.500	0.371	F1	mg/L		74	90 - 110

Lab Sample ID: 480-100408-3 MSD

Matrix: Water

Analysis Batch: 303212

Client Sample ID: BLDG 10 MW-1 051916

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND	F1	0.500	0.376	F1	mg/L		75	90 - 110	1	20

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100408-1

GC/MS VOA

Analysis Batch: 303224

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100408-1	MW-9-12 051916	Total/NA	Water	8260C	
480-100408-2	TK-6 051916	Total/NA	Water	8260C	
480-100408-3	BLDG 10 MW-1 051916	Total/NA	Water	8260C	
480-100408-3 MS	BLDG 10 MW-1 051916	Total/NA	Water	8260C	
480-100408-3 MSD	BLDG 10 MW-1 051916	Total/NA	Water	8260C	
480-100408-4	TRIP BLANK	Total/NA	Water	8260C	
LCS 480-303224/5	Lab Control Sample	Total/NA	Water	8260C	
MB 480-303224/7	Method Blank	Total/NA	Water	8260C	

GC VOA

Analysis Batch: 302816

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100408-1	MW-9-12 051916	Total/NA	Water	RSK-175	
480-100408-2	TK-6 051916	Total/NA	Water	RSK-175	
480-100408-3	BLDG 10 MW-1 051916	Total/NA	Water	RSK-175	
LCS 480-302816/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 480-302816/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 480-302816/3	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 333782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100408-1	MW-9-12 051916	Total/NA	Water	RSK-175	
480-100408-2	TK-6 051916	Total/NA	Water	RSK-175	
480-100408-3	BLDG 10 MW-1 051916	Total/NA	Water	RSK-175	
LCS 440-333782/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 440-333782/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 440-333782/8	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 302798

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100408-1	MW-9-12 051916	Total/NA	Water	3005A	
480-100408-2	TK-6 051916	Total/NA	Water	3005A	
480-100408-3	BLDG 10 MW-1 051916	Total/NA	Water	3005A	
LCS 480-302798/2-A	Lab Control Sample	Total/NA	Water	3005A	
MB 480-302798/1-A	Method Blank	Total/NA	Water	3005A	

Analysis Batch: 303319

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100408-1	MW-9-12 051916	Total/NA	Water	6010C	302798
480-100408-2	TK-6 051916	Total/NA	Water	6010C	302798
480-100408-3	BLDG 10 MW-1 051916	Total/NA	Water	6010C	302798
LCS 480-302798/2-A	Lab Control Sample	Total/NA	Water	6010C	302798
MB 480-302798/1-A	Method Blank	Total/NA	Water	6010C	302798

Analysis Batch: 303370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100408-1	MW-9-12 051916	Total/NA	Water	6010C	302798

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100408-1

General Chemistry

Analysis Batch: 302752

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100408-2	TK-6 051916	Total/NA	Water	353.2	
480-100408-2 MS	TK-6 051916	Total/NA	Water	353.2	
LCS 480-302752/28	Lab Control Sample	Total/NA	Water	353.2	
MB 480-302752/27	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 302761

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100408-1	MW-9-12 051916	Total/NA	Water	353.2	
480-100408-2	TK-6 051916	Total/NA	Water	353.2	
480-100408-3	BLDG 10 MW-1 051916	Total/NA	Water	353.2	

Analysis Batch: 302762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100408-1	MW-9-12 051916	Total/NA	Water	353.2	
480-100408-3	BLDG 10 MW-1 051916	Total/NA	Water	353.2	

Analysis Batch: 302814

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100408-1	MW-9-12 051916	Total/NA	Water	SM 2320B	
480-100408-2	TK-6 051916	Total/NA	Water	SM 2320B	
480-100408-3	BLDG 10 MW-1 051916	Total/NA	Water	SM 2320B	
LCS 480-302814/31	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 480-302814/8	Lab Control Sample	Total/NA	Water	SM 2320B	
MB 480-302814/30	Method Blank	Total/NA	Water	SM 2320B	
MB 480-302814/7	Method Blank	Total/NA	Water	SM 2320B	

Analysis Batch: 302869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100408-1	MW-9-12 051916	Total/NA	Water	300.0	
480-100408-2	TK-6 051916	Total/NA	Water	300.0	
480-100408-3	BLDG 10 MW-1 051916	Total/NA	Water	300.0	
LCS 480-302869/29	Lab Control Sample	Total/NA	Water	300.0	
MB 480-302869/30	Method Blank	Total/NA	Water	300.0	

Analysis Batch: 302916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100408-1	MW-9-12 051916	Total/NA	Water	350.1	
480-100408-2	TK-6 051916	Total/NA	Water	350.1	
480-100408-3	BLDG 10 MW-1 051916	Total/NA	Water	350.1	
LCS 480-302916/28	Lab Control Sample	Total/NA	Water	350.1	
LCS 480-302916/4	Lab Control Sample	Total/NA	Water	350.1	
MB 480-302916/27	Method Blank	Total/NA	Water	350.1	
MB 480-302916/3	Method Blank	Total/NA	Water	350.1	

Analysis Batch: 303212

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100408-1	MW-9-12 051916	Total/NA	Water	SM 4500 S2 D	
480-100408-2	TK-6 051916	Total/NA	Water	SM 4500 S2 D	
480-100408-3	BLDG 10 MW-1 051916	Total/NA	Water	SM 4500 S2 D	
480-100408-3 MS	BLDG 10 MW-1 051916	Total/NA	Water	SM 4500 S2 D	
480-100408-3 MSD	BLDG 10 MW-1 051916	Total/NA	Water	SM 4500 S2 D	

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100408-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

General Chemistry (Continued)

Analysis Batch: 303212 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 480-303212/4	Lab Control Sample	Total/NA	Water	SM 4500 S2 D	
MB 480-303212/3	Method Blank	Total/NA	Water	SM 4500 S2 D	

Analysis Batch: 303722

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-100408-1	MW-9-12 051916	Total/NA	Water	9060A	
480-100408-2	TK-6 051916	Total/NA	Water	9060A	
480-100408-3	BLDG 10 MW-1 051916	Total/NA	Water	9060A	
LCS 480-303722/34	Lab Control Sample	Total/NA	Water	9060A	
MB 480-303722/33	Method Blank	Total/NA	Water	9060A	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-100408-1

Client Sample ID: MW-9-12 051916

Date Collected: 05/19/16 08:55

Date Received: 05/19/16 14:30

Lab Sample ID: 480-100408-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	303224	05/23/16 22:25	GTG	TAL BUF
Total/NA	Analysis	RSK-175		1	333782	06/01/16 15:51	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	302816	05/20/16 11:24	TRG	TAL BUF
Total/NA	Prep	3005A			302798	05/20/16 08:55	TAS	TAL BUF
Total/NA	Analysis	6010C		1	303319	05/23/16 20:36	LMH	TAL BUF
Total/NA	Prep	3005A			302798	05/20/16 08:55	TAS	TAL BUF
Total/NA	Analysis	6010C		1	303370	05/24/16 10:38	LMH	TAL BUF
Total/NA	Analysis	300.0		10	302869	05/21/16 00:58	CAV	TAL BUF
Total/NA	Analysis	350.1		1	302916	05/20/16 15:29	ZRJ	TAL BUF
Total/NA	Analysis	353.2		1	302761	05/19/16 19:00	CLT	TAL BUF
Total/NA	Analysis	353.2		1	302762	05/19/16 19:00	CLT	TAL BUF
Total/NA	Analysis	9060A		1	303722	05/25/16 13:43	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	302814	05/19/16 20:51	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	303212	05/23/16 15:23	KMF	TAL BUF

Client Sample ID: TK-6 051916

Date Collected: 05/19/16 10:45

Date Received: 05/19/16 14:30

Lab Sample ID: 480-100408-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	303224	05/23/16 22:50	GTG	TAL BUF
Total/NA	Analysis	RSK-175		1	333782	06/01/16 16:03	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	302816	05/20/16 11:42	TRG	TAL BUF
Total/NA	Prep	3005A			302798	05/20/16 08:55	TAS	TAL BUF
Total/NA	Analysis	6010C		1	303319	05/23/16 20:39	LMH	TAL BUF
Total/NA	Analysis	300.0		20	302869	05/21/16 01:13	CAV	TAL BUF
Total/NA	Analysis	350.1		1	302916	05/20/16 15:30	ZRJ	TAL BUF
Total/NA	Analysis	353.2		1	302761	05/19/16 21:50	CLT	TAL BUF
Total/NA	Analysis	353.2		1	302752	05/19/16 21:50	CLT	TAL BUF
Total/NA	Analysis	9060A		1	303722	05/25/16 14:12	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	302814	05/19/16 20:58	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	303212	05/23/16 15:23	KMF	TAL BUF

Client Sample ID: BLDG 10 MW-1 051916

Date Collected: 05/19/16 12:40

Date Received: 05/19/16 14:30

Lab Sample ID: 480-100408-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		2000	303224	05/23/16 23:16	GTG	TAL BUF
Total/NA	Analysis	RSK-175		1	333782	06/01/16 16:16	EI	TAL IRV
Total/NA	Analysis	RSK-175		1	302816	05/20/16 11:59	TRG	TAL BUF

TestAmerica Buffalo

Lab Chronicle

Client: GHD Services Inc.

TestAmerica Job ID: 480-100408-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3005A			302798	05/20/16 08:55	TAS	TAL BUF
Total/NA	Analysis	6010C		1	303319	05/23/16 20:42	LMH	TAL BUF
Total/NA	Analysis	300.0		20	302869	05/21/16 01:27	CAV	TAL BUF
Total/NA	Analysis	350.1		1	302916	05/20/16 15:31	ZRJ	TAL BUF
Total/NA	Analysis	353.2		1	302761	05/19/16 19:02	CLT	TAL BUF
Total/NA	Analysis	353.2		1	302762	05/19/16 19:02	CLT	TAL BUF
Total/NA	Analysis	9060A		1	303722	05/25/16 14:41	DLG	TAL BUF
Total/NA	Analysis	SM 2320B		1	302814	05/19/16 21:05	KMF	TAL BUF
Total/NA	Analysis	SM 4500 S2 D		1	303212	05/23/16 15:23	KMF	TAL BUF

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-100408-4

Date Collected: 05/19/16 08:00

Matrix: Water

Date Received: 05/19/16 14:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	303224	05/23/16 23:41	GTG	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Certification Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100408-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Laboratory: TestAmerica Buffalo

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	03-31-17

Laboratory: TestAmerica Irvine

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	CA01531	06-30-16
Arizona	State Program	9	AZ0671	10-13-16
California	LA Cty Sanitation Districts	9	10256	01-31-17 *
California	State Program	9	CA ELAP 2706	06-30-16
Guam	State Program	9	Cert. No. 12.002r	01-23-17
Hawaii	State Program	9	N/A	01-29-17
Kansas	NELAP Secondary AB	7	E-10420	07-31-16
Nevada	State Program	9	CA015312016-2	07-31-16
New Mexico	State Program	6	N/A	01-29-17
Northern Mariana Islands	State Program	9	MP0002	01-29-17
Oregon	NELAP	10	4028	01-29-17
USDA	Federal		P330-09-00080	07-08-18
Washington	State Program	10	C900	09-03-16

* Certification renewal pending - certification considered valid.

TestAmerica Buffalo

Method Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100408-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF
RSK-175	Dissolved Gases (GC)	RSK	TAL IRV
RSK-175	Dissolved Gases (GC)	RSK	TAL BUF
6010C	Metals (ICP)	SW846	TAL BUF
300.0	Anions, Ion Chromatography	MCAWW	TAL BUF
350.1	Nitrogen, Ammonia	MCAWW	TAL BUF
353.2	Nitrate	EPA	TAL BUF
353.2	Nitrogen, Nitrite	MCAWW	TAL BUF
9060A	Organic Carbon, Total (TOC)	SW846	TAL BUF
SM 2320B	Alkalinity	SM	TAL BUF
SM 4500 S2 D	Sulfide, Total	SM	TAL BUF

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

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

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

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL IRV = TestAmerica Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

Sample Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-100408-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-100408-1	MW-9-12 051916	Water	05/19/16 08:55	05/19/16 14:30
480-100408-2	TK-6 051916	Water	05/19/16 10:45	05/19/16 14:30
480-100408-3	BLDG 10 MW-1 051916	Water	05/19/16 12:40	05/19/16 14:30
480-100408-4	TRIP BLANK	Water	05/19/16 08:00	05/19/16 14:30

Chain of Custody Record

Client Information Client Contact: Mr. Tom Bohlen Company: GZA GeoEnvironmental, Inc. Address: 535 Washington Street 11th Floor City: Buffalo State, Zip: NY, 14203 Phone: 517-5706 Email: thomas.bohlen@gza.com Project Name: 058507, GM-Lothrop Groundwater Sampling Site:		Analysis Requested Due Date Requested: TAT Requested (days): PO #: 4065906 WO #: 256028 Project #: 48004014 SSOW#:		Lab PM: Deyo, Melissa L. E-Mail: melissa.deyo@testamericainc.com Job #:	
Sample Identification		Sample Type (C=comp, G=grab) Preservation Code:		Matrix (H-water, S-solid, O-unknown, BT-tissue, A-air)	
MW-9-12 051916 TK-6 051916 BLDG 10 MW-1 051916 TRIP BLANK		Sample Date 5/19/16 5/19/16 5/19/16 5/19/16		Sample Time 0855 1045 1240 0800	
Special Instructions/Note:		Field Filtered Sample (Yes or No) RSK_175_CO2 - Carbon dioxide RSK_175_CO2 - Standard VFA Compounds 300_28D - Anions (Chloride & Sulfate) 350_1 - Ammonia 6010C - Metals - Fe, Mn, Mg, K & Na RSK_175 - Methane, Ethane & Ethene 9060A - Total Organic Carbon 353_2_353_2_Nitrite, Nitrate, Calc 2320B - Total Alkalinity Total Number of Containers			
Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Z - other (specify) Other:		Special Instructions/Note:			

Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant Deliverable Requested: I, II, III, IV, Other (specify)		☐ Poison B ☐ Unknown ☐ Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months	
Special Instructions/QC Requirements:					
Empty Kit Relinquished by:		Date:		Method of Shipment:	
Relinquished by:		Date/Time: 5/19/16 1430		Received by:	
Relinquished by:		Date/Time:		Received by:	
Relinquished by:		Date/Time:		Received by:	
Custody Seals Intact:		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-100408-1

Login Number: 100408

List Source: TestAmerica Buffalo

List Number: 1

Creator: Kolb, Chris M

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	gza
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-100408-1

Login Number: 100408

List Number: 2

Creator: Ornelas, Olga

List Source: TestAmerica Irvine

List Creation: 05/20/16 11:23 AM

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Buffalo

10 Hazelwood Drive

Amherst, NY 14228-2298

Tel: (716)691-2600

TestAmerica Job ID: 480-103841-1

Client Project/Site: 058507, GM-Lockport Groundwater
Sampling

For:

GHD Services Inc.

2055 Niagara Falls Blvd., Suite 3

Niagara Falls, New York 14304

Attn: Kathleen Willy



Authorized for release by:

8/8/2016 12:09:59 PM

Rebecca Jones, Project Management Assistant I

rebecca.jones@testamericainc.com

Designee for

Melissa Deyo, Project Manager I

(716)504-9874

melissa.deyo@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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.

TestAmerica Job ID: 480-103841-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-103841-1

Job ID: 480-103841-1

Laboratory: TestAmerica Buffalo

Narrative

Job Narrative 480-103841-1

Receipt

The samples were received on 7/29/2016 8:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.9° C.

GC/MS VOA

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

Detection Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-103841-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Client Sample ID: MW-7-4

Lab Sample ID: 480-103841-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	0.69	J	1.0	0.36	ug/L	1		8260C	Total/NA

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-103841-2

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Buffalo

Client Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-103841-1

Client Sample ID: MW-7-4

Lab Sample ID: 480-103841-1

Date Collected: 07/29/16 07:45

Matrix: Water

Date Received: 07/29/16 08:10

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			08/05/16 11:19	1
Tetrachloroethene	0.69	J	1.0	0.36	ug/L			08/05/16 11:19	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			08/05/16 11:19	1
Trichloroethene	ND		1.0	0.46	ug/L			08/05/16 11:19	1
Vinyl chloride	ND		1.0	0.90	ug/L			08/05/16 11:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		77 - 120		08/05/16 11:19	1
4-Bromofluorobenzene (Surr)	114		73 - 120		08/05/16 11:19	1
Toluene-d8 (Surr)	97		80 - 120		08/05/16 11:19	1
Dibromofluoromethane (Surr)	109		75 - 123		08/05/16 11:19	1

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-103841-2

Date Collected: 07/29/16 07:40

Matrix: Water

Date Received: 07/29/16 08:10

Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			08/05/16 11:43	1
Tetrachloroethene	ND		1.0	0.36	ug/L			08/05/16 11:43	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			08/05/16 11:43	1
Trichloroethene	ND		1.0	0.46	ug/L			08/05/16 11:43	1
Vinyl chloride	ND		1.0	0.90	ug/L			08/05/16 11:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		77 - 120		08/05/16 11:43	1
4-Bromofluorobenzene (Surr)	114		73 - 120		08/05/16 11:43	1
Toluene-d8 (Surr)	97		80 - 120		08/05/16 11:43	1
Dibromofluoromethane (Surr)	112		75 - 123		08/05/16 11:43	1

TestAmerica Buffalo

Surrogate Summary

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-103841-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (77-120)	BFB (73-120)	TOL (80-120)	DBFM (75-123)
480-103841-1	MW-7-4	102	114	97	109
480-103841-2	TRIP BLANK	108	114	97	112
LCS 480-314603/4	Lab Control Sample	102	113	95	107
MB 480-314603/6	Method Blank	99	112	98	105

Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

QC Sample Results

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-103841-1

Method: 8260C - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 480-314603/6

Matrix: Water

Analysis Batch: 314603

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
cis-1,2-Dichloroethene	ND		1.0	0.81	ug/L			08/05/16 10:40	1
Tetrachloroethene	ND		1.0	0.36	ug/L			08/05/16 10:40	1
trans-1,2-Dichloroethene	ND		1.0	0.90	ug/L			08/05/16 10:40	1
Trichloroethene	ND		1.0	0.46	ug/L			08/05/16 10:40	1
Vinyl chloride	ND		1.0	0.90	ug/L			08/05/16 10:40	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		77 - 120		08/05/16 10:40	1
4-Bromofluorobenzene (Surr)	112		73 - 120		08/05/16 10:40	1
Toluene-d8 (Surr)	98		80 - 120		08/05/16 10:40	1
Dibromofluoromethane (Surr)	105		75 - 123		08/05/16 10:40	1

Lab Sample ID: LCS 480-314603/4

Matrix: Water

Analysis Batch: 314603

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	25.0	23.8		ug/L		95	74 - 124
Tetrachloroethene	25.0	23.8		ug/L		95	74 - 122
trans-1,2-Dichloroethene	25.0	23.5		ug/L		94	73 - 127
Trichloroethene	25.0	26.8		ug/L		107	74 - 123
Vinyl chloride	25.0	22.5		ug/L		90	65 - 133

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	102		77 - 120
4-Bromofluorobenzene (Surr)	113		73 - 120
Toluene-d8 (Surr)	95		80 - 120
Dibromofluoromethane (Surr)	107		75 - 123

TestAmerica Buffalo

QC Association Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-103841-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

GC/MS VOA

Analysis Batch: 314603

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-103841-1	MW-7-4	Total/NA	Water	8260C	
480-103841-2	TRIP BLANK	Total/NA	Water	8260C	
MB 480-314603/6	Method Blank	Total/NA	Water	8260C	
LCS 480-314603/4	Lab Control Sample	Total/NA	Water	8260C	

Lab Chronicle

Client: GHD Services Inc.
Project/Site: 058507, GM-Lockport Groundwater Sampling

TestAmerica Job ID: 480-103841-1

Client Sample ID: MW-7-4

Date Collected: 07/29/16 07:45

Date Received: 07/29/16 08:10

Lab Sample ID: 480-103841-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	314603	08/05/16 11:19	RRS	TAL BUF

Client Sample ID: TRIP BLANK

Date Collected: 07/29/16 07:40

Date Received: 07/29/16 08:10

Lab Sample ID: 480-103841-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	314603	08/05/16 11:43	RRS	TAL BUF

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Certification Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-103841-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Laboratory: TestAmerica Buffalo

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
New York	NELAP	2	10026	03-31-17

Method Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-103841-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL BUF

Protocol References:

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

Laboratory References:

TAL BUF = TestAmerica Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

Sample Summary

Client: GHD Services Inc.

TestAmerica Job ID: 480-103841-1

Project/Site: 058507, GM-Lockport Groundwater Sampling

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-103841-1	MW-7-4	Water	07/29/16 07:45	07/29/16 08:10
480-103841-2	TRIP BLANK	Water	07/29/16 07:40	07/29/16 08:10

TestAmerica Buffalo

10 Hazelwood Drive
Airmirst, NY 14228-2298
Phone (716) 691-2600 Fax (716) 691-7991

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING



Client Information Client Contact: Kathleen Willy Company: GHD Services Inc. Address: 2055 Niagara Falls Blvd., Suite 3 City: Niagara Falls State, Zip: NY, 14304 Phone: 34008191 Email: kathleen.willy@ghd.com Project #: 058507, GM-Lockport Groundwater Sampling Site:		Sampler: Deyo, Melissa L. Lab PM: melissa.deyo@testamericainc.com Phone: (716) 517-5708 Job #: 480-103841 COC	
Due Date Requested: TAT Requested (days): PO #: 34008191 WO #: 256029 Project #: 48004014 SSOW#:		Analysis Requested: 9060A - Total Organic Carbon 8260C - PCB, PCE, DCE (trans and cis), Vinyl Chloride RSK_175 - Methane 6010C - Dissolved Metals - Fe 6010C - Metals - Fe, Mn, Mg, K & Na 300.0, 280 - Anions (Chloride & Sulfate) Perform MS/MSD (Yes or No) Field Filtered Sample (Yes or No)	
Sample Identification Sample ID: MW-7-4 Sample Type: TRIP BLANK Sample Date: 7-29-16 Sample Time: 0745 Sample Time: 0740 Matrix: Water Matrix: ↓ Sample Type (C=Comp, G=Grab): G Sample Type (C=Comp, G=Grab): G Preservation Code:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amshlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Z - other (specify) Other:	
Special Instructions/Note: Total Number of Containers:		Special Instructions/Note: Total Number of Containers:	
Possible Hazard Identification ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological Deliverable Requested: I, II, III, IV, Other (specify)			
Empty Kit Relinquished by:		Date: 7-29-16 0810 Company: GZA	
Relinquished by:		Date/Time: 7-29-16 0810 Company: 180	
Relinquished by:		Date/Time:	
Relinquished by:		Date/Time:	
Custody Seal No.:		3.9 #1	

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 480-103841-1

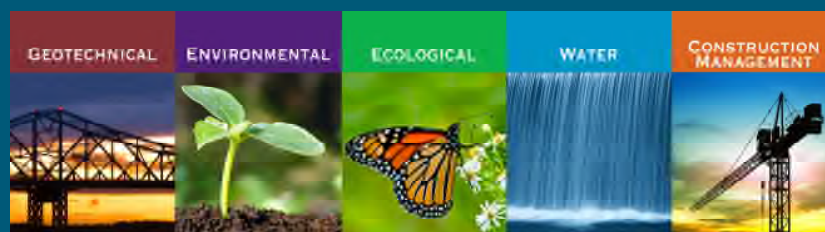
Login Number: 103841

List Source: TestAmerica Buffalo

List Number: 1

Creator: Williams, Christopher S

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	GZA
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	



GZA GeoEnvironmental, Inc.