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June 2022

Spring 2022 Annual Groundwater Monitoring Report, Former Carborundum Company, Hyde Park Facility
Town of Niagara, Niagara County, NY
NYSDEC Site No. 932036

Submitted to:

New York State Department of Environmental Conservation
Division of Hazardous Waste Remediation
270 Michigan Avenue
Buffalo, NY 14203

On behalf of:

Elm Holdings Inc.

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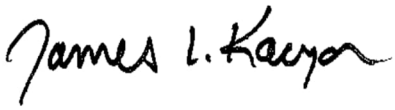

Reviewed By James L. Kaczor, P.G.

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1.0 Introduction

This Spring 2022 Annual Groundwater Monitoring Report summarizes the groundwater monitoring activities completed at the Former Carborundum Company, Hyde Park Facility (Site) in the Town of Niagara, New York (see Figure 1 – Project Location Plan). This report provides the results from the recent Spring 2022 annual monitoring event conducted from May 10 to 12, 2022, with a comparison to previous results. The annual groundwater monitoring is conducted on an alternating spring (even years)/fall (odd years) schedule and includes the collection of groundwater samples for the analysis of chlorinated volatile organic compounds (CVOCs) and natural attenuation parameters.

This work was completed in accordance with the groundwater monitoring work plan (DE&S 2000) for Operable Unit 2 (OU2), approved by the New York State Department of Environmental Conservation (NYSDEC), correspondence from NYSDEC dated September 28, 2005 (NYSDEC 2005), April 8, 2014 (NYSDEC 2014) and October 6, 2018 (NYSDEC 2018), and letters to NYSDEC dated August 20, 2013 (Parsons 2013) and April 3, 2014 (Parsons 2014).

The scope of the Spring 2022 annual groundwater monitoring program included:

- Collection of water level measurements from overburden and bedrock monitoring wells, injection wells, and performance monitoring wells;
- Purging of select overburden and bedrock monitoring wells and collection of field measurements of pH, temperature, specific conductivity, oxidation/reduction potential (ORP), dissolved oxygen (DO), and turbidity;
- Collection of groundwater samples from select overburden and bedrock monitoring wells for specific CVOC analyses; and,
- Collection of groundwater samples from select overburden and bedrock monitoring wells for analysis of natural attenuation parameters to aid in remedial action optimization (RAO) evaluations.

Figure 2 – Site Plan presents monitoring well locations, injection well locations, performance monitoring well locations, and site features.

2.0 Site Remedial Summary

The following section briefly summarizes the remedial work completed at the Site. Primary tasks included excavation and off-site disposal of impacted soil in 1999 and 2002, emulsified vegetable oil substrate injections in 2008, 2009, 2011 and 2013, and associated performance groundwater monitoring events. Terra Systems, Inc. (TSI) SRS®-SD was used for all overburden injections, SRS®-FR was used for all bedrock injections, and TSI-DC® bioaugmentation culture was used for microorganism bioaugmentation. Additional detail regarding Site background and remedial summaries are presented in event-specific performance reports and Five-Year Review Reports.

The following is a timeline of key remedial actions and associated groundwater monitoring:

Task	Start & Completion Date
1999 On-Site Soil (OU1) Interim Remedial Action	
Borehole Investigation and Test-Pit Pre-characterization of Soils	September 1998 – April 1999
Excavation of contaminated onsite soils and verification sampling.	May – August 1999
2000 Off-Site Soil (OU3) Interim Remedial Action	
OU3 Investigation -Extent of Contamination	August 2001
Excavation of contaminated offsite soils, and some remaining onsite soils and verification sampling.	December 2002
Initial Groundwater Monitoring Program (OU2)	
Post-Excavation Groundwater Sampling.	Year 1: October 1999; October 2000; Year 2: May 2001; November 2001; Year 3: May 2002; October 2002; Year 4: May 2003; November 2003; Year 5: May 2004; October 2004; Fall 2005: November 2005 Spring 2006: May 2006

Task	Start & Completion Date
	Fall 2007: October/November 2007 Spring 2008: April 2008
2008 Injection Event	
Baseline Performance Monitoring	August 2008
Overburden Substrate Injection (INJ-1 and INJ-2)	September 4 – 5, 2008
Overburden Bioaugmentation (INJ-1 and INJ-2)	October 21 – 22, 2008
Performance Groundwater Monitoring	October 2008, December 2008, January 2009, March 2009
2009 Injection Event	
Baseline Groundwater Monitoring	October 2009
Bedrock Substrate Injections (INJ-3 and INJ-4)	November 11 – 12, 2009
Overburden Substrate Injections (INJ-1 and INJ-2)	November 17 – 18, 2009
Overburden and Bedrock Bioaugmentation (INJ-1 through INJ-4)	December 17 – 22, 2009
Performance Groundwater Monitoring	December 2009, February 2010, March-April 2010, May 2010, November 2010
2011 Injection Event	
Overburden Injection Well Installation (INJ-5U, INJ-5L, INJ-6U, INJ-6L, INJ-7, INJ-8, INJ-9, INJ-10)	October 6 – 20, 2011
Baseline Sampling	October 20 – November 7, 2011
Overburden Substrate Injections and Bioaugmentation (INJ-1, INJ-2, INJ-5U, INJ-5L, INJ-6U, INJ-6L, INJ-7, INJ-8, INJ-9, INJ-10)	November 11 – December 13, 2011
3-month Performance Sampling	March 12 – 15, 2012
6-month Performance Sampling	June 11 – 18, 2012

Task	Start & Completion Date
12-month Performance Sampling	November 26 – 30, 2012
2013 Injection Event	
Overburden and Bedrock Substrate Injections and Bioaugmentation (INJ-1, INJ-2, INJ-3, INJ-4, MW-16B, MW-18B, INJ-9, INJ-10)	September 9 – October 1, 2013
Tracer Dye Injections (MW-16B, MW-18B)	September 19 – 24, 2013
Tracer Dye Sampling	September 20, 2013 – January 17, 2014
3-month Performance Sampling	January 13 – 20, 2014
6-month Performance Sampling	March 30 – April 3, 2014
12-month Performance Sampling	October 8 – 14, 2014
Annual Groundwater Monitoring Events (OU2)	
Groundwater Sampling (Alternating Spring/Fall)	November 16 – 20, 2015; April 19 – 22, 2016; September 11–14, 2017; April 23 – 26, 2018; June 14, 2018; December 3 – 5, 2019; March 18 – 20, 2020; December 6 – 8, 2021 May 10 – 12, 2022

3.0 Groundwater Monitoring Program Summary

The Spring 2022 annual groundwater monitoring program included water level measurements, groundwater sampling at 17 well locations, and submission of groundwater samples for analysis of CVOCs and natural attenuation parameters. Quality assurance/quality control (QA/QC) samples, including one field duplicate, one matrix spike/matrix spike duplicate sample, and three trip blanks were also collected and submitted for analysis. Table 1 presents a summary of groundwater sample locations and associated QA/QC samples.

3.1 Groundwater Elevation Measurements

Water levels were measured from May 10 to 12, 2022 in the monitoring wells, injection wells, and performance monitoring wells relative to the top of the inner well casing using an electronic water level tape accurate to 0.01 foot (ft). The depth to water was measured in each well from a surveyed point on the casing. The water levels were then converted to elevations presented as feet above mean sea level (ft AMSL, NAVD 88 datum). The groundwater elevations were used to construct groundwater elevation contour maps in both the overburden and bedrock zones. Table 2 provides a summary of the groundwater level measurements and calculated groundwater elevations. Figure 3 presents overburden groundwater potentiometric surface contours and Figure 4 presents bedrock groundwater potentiometric contours. Section 4.1 presents a discussion of groundwater elevations and flow directions.

3.2 Groundwater Sampling

The locations of the 17 monitoring wells sampled are shown in Figure 2. Wells were sampled following the methodology outlined in the groundwater monitoring work plan and approved revisions per subsequent correspondence with NYSDEC. A list of wells, dates sampled, sample IDs, and purge volumes is provided in Table 1. A copy of the groundwater sampling logs is provided in Appendix A.

During purging, groundwater was monitored for temperature, specific conductivity, pH, DO, ORP, and turbidity. An aliquot of the groundwater sample was tested in the field for alkalinity, carbon dioxide, ferrous iron, and hydrogen sulfide using Hach™ test kits. Table 3 presents a summary of the groundwater sampling field parameter results.

The 17 monitoring wells were purged following low-flow procedures with dedicated tubing and a peristaltic pump. MW-12A was found to be destroyed during the Fall 2019 sampling event and therefore was not sampled. All samples for chemical analyses were hand-delivered to Eurofins TestAmerica Laboratories, Inc., (ETAL) in Amherst, New York under secure chain-of-custody (COC). ETAL Amherst transferred the samples to ETAL, Canton, Ohio which performed the analyses. Both ETAL locations are New York State Department of Health Environmental Laboratory Approval Program certified laboratories.

Table 4 provides a summary of sample collection and analysis specifications for each analysis type including sample containers, preservation methods, analytical methods, and other quality control information.

Table 5 presents a summary of scheduled analyses for each well sampled. Samples from each well were analyzed for select CVOCs, including tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (DCE), trans-1,2-DCE, 1,1-DCE, 1,1-dichloroethane (DCA), 1,1,1-trichloroethane (TCA), vinyl chloride (VC), and chloroethane. In addition, samples from 13 wells consisting six overburden and bedrock well pairs and one bedrock well (MW-12B) were analyzed for natural attenuation evaluation parameters, consisting of:

- dissolved iron;
- methane, ethane, and ethene;
- total chloride, sulfate, and sulfide; and,
- total organic carbon (TOC), biological oxygen demand (BOD), chemical oxygen demand (COD), nitrate, and nitrite.

The six well pairs chosen for these additional analyses are located within, upgradient, downgradient, and side gradient of the source area, and consist of MW-5A and -5B, MW-7A and -7B, MW-10A and -10B, MW-16A and -16B, MW-17A and -17B, and MW-18A and -18B. A seventh well pair, MW-12A and MW-12B, has historically also been sampled; but, in Fall 2019 MW-12A was found destroyed and only MW-12B could be sampled in Fall 2019, Spring 2020, Fall 2021 and Spring 2022.

Well MW-17B was also analyzed for per- and polyfluoroalkyl substances (PFAS) by USEPA Method 537-Modified. The duplicate sample from MW-17B and the rinse blank were also analyzed for PFAS.

Purge water and decontamination water were contained and staged in a secure area onsite in a 300-gallon holding tank for later characterization and proper disposal.

3.3 Data Validation

Analytical results for samples collected from May 10 to 12, 2022 were reviewed by AECOM for usability with respect to the following requirements:

- Work Plan and associated correspondence;
- NYSDEC Analytical Services Protocol (ASP); and,
- USEPA Region II Standard Operating Procedures (SOPs).

The data submitted by the laboratory have been reviewed and validated. The analytical data were found to be acceptable in terms of deliverable completeness, accuracy, precision, representativeness, completeness and comparability. Data validation was performed in accordance with the most current editions of the USEPA Region II SOPs and NYSDEC ASP for organic and inorganic data review.

Analytical holding times, laboratory control sample recoveries, laboratory method blanks, matrix spike/matrix spike duplicate (MS/MSD) precision and accuracy for designated spiked project samples, and surrogate recoveries associated with project samples, were considered acceptable with the following exceptions:

Due to a laboratory login error the following samples were analyzed outside of the hold time for nitrate and nitrite: MW- 7A, MW- 7B, MW-12B, MW-16A, MW-16B, MW-17A, MW-17B, MW-18A, MW-18B, and RB-051222 The results for nitrate and nitrite in these samples have been qualified ‘UJ’ due to the hold time exceedance.

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The percent recoveries of the nitrate-nitrite MS/MSD performed on sample MW-5B was above the lower QC limit. The nitrate-nitrite results in this sample have been qualified ‘J’.

Samples MW-12B and MW-6 were analyzed several times for VOCs due to instrument failures. The final dilution for VC was taken from the VOC vial that had been used to check the preservation. The results for VC in these samples have been qualified as estimated ‘J’ since the analysis was performed on a vial that was previously opened.

Perfluorooctanesulfonic acid (PFOS) were detected in the laboratory blank at a concentration below the reporting limit (RL). PFOS was also detected in the rinse blank at a concentration greater than the RL. Since the concentration of PFOS in sample MW-17B was greater than the RL but less than 10x the rinse blank value,the result has been qualified ‘J+’.

Several samples for CVOC analysis were diluted due to the presence of high concentrations of target compounds. All of these samples had detections for one or more of the target compounds. The reporting limits for the non-detect compounds are elevated due to the dilutions utilized.

All sample analyses were found to be compliant with the method criteria, except where previously noted. Those results qualified ‘UJ’ (estimated quantitation limit), ‘J’ (estimated result), or ‘J-’ (estimated, biased low) during the data review are considered conditionally usable. All other sample results are usable as reported.

A copy of the data usability summary report (DUSR) for groundwater samples is included in Appendix B.

4.0 Groundwater Monitoring Program Summary

4.1 Groundwater Elevations and Flow Directions

A summary of groundwater elevation monitoring data for the Spring 2022 annual event is provided in Table 2, including New York State Plane Coordinate System location coordinates, top of casing elevation, depth to water and calculated groundwater elevations for the monitoring wells, injection wells, and performance monitoring wells.

Figure 3 presents an overburden groundwater contour map based on the April 29, 2022 water level data. Overburden groundwater was measured at elevations between 595.39 ft AMSL (MW-3A) in the northeast portion of the Site to 585.91 ft AMSL (MW-14A) in the southwest corner of the Site. In general, groundwater flow is from northeast to southwest. Overall, overburden groundwater in the central portion of the site exhibited little change in gradient. Gradients and flow directions were more defined in both the northeast and southwest corners of the site.

Figure 4 presents a bedrock groundwater potentiometric surface contour map based on the April 29, 2022 water level data. Bedrock groundwater elevations ranged from 590.31 ft AMSL (MW-19B) on the west side of the Site to 588.48 ft AMSL (MW-11B) in the southwest corner of the Site. MW-8B in the northeast corner of the Site and MW-1B in the southeast corner, with groundwater elevations of 590.28 ft AMSL and 590.30 ft AMSL, respectively, were almost as high as the maximum elevation at MW-19B. The general bedrock groundwater flow direction is southwesterly towards Hyde Park Boulevard and Rhode Island Avenue, consistent with historical observations of groundwater flow. Overall, the gradient is shallow. MW-15 was not measured on April 29, 2022 due to health and safety concerns (traffic and road access in Hyde Park Boulevard); MW-15 was last measured during its most recent 5-year sampling event on June 14, 2018 at 587.31 ft AMSL, consistent with the southwesterly gradient observed on April 29, 2022.

Downward vertical gradients were observed more commonly in overburden/bedrock well pairs in the north, east and central portions of the Site; upward vertical gradients were observed more commonly in well pairs in the south/southwest portion of the Site.

4.2 Data Summary

Groundwater samples collected during the Spring 2022 annual groundwater monitoring program were submitted to the analytical laboratory for select CVOC analysis and other parameters as discussed in Section 3.2 and as summarized on Tables 4 and 5. Field measurements for the sampling program are provided in Table 3. A summary of the Spring 2022 analytical laboratory data is provided in Table 6. Figure 5 presents select CVOC concentrations in overburden groundwater for 2000 and 2009 through 2022 and Figure 6 presents select CVOC concentrations in bedrock groundwater for the same period. Analytical data results from monitoring well samples for the period October 2007 through May 2022 are included in Appendix C.

Comments are noted below for wells where concentrations or trends varied from recent and historical monitoring data.

4.2.1 Long-term Bioremediation Results

Figure 7 and Figure 8 illustrate the long-term time-series plots for total CVOCs at source area and downgradient wells, respectively. In Figure 7 and Figure 8, the overburden and bedrock wells are presented on separate plots for clarity. These plots indicate the improvement in groundwater conditions that has occurred as the result of enhanced bioremediation activities.

In overburden source area wells, MW-7A displayed a CVOC concentration decrease of two orders of magnitude as a of result of the enhanced bioremediation injections, but concentrations have increased somewhat since 2016. May 2022 CVOC concentrations in well MW-7A represent a decrease from December 2021. CVOC concentrations in well MW-16A have fluctuated over time, while concentrations in MW-17A have decreased steadily. Bedrock source area wells, including MW-7B MW-16B and MW-17B, have generally shown concentration decreases following the enhanced bioremediation injections (Figure 7). However, concentrations in MW-16B and MW-17B have increased somewhat since 2020.

Bioremediation injections from 2008 to 2013 were also intended to decrease total CVOCs in downgradient wells over time. Downgradient overburden well concentrations have remained fairly consistent since 2000. Downgradient wells MW-12B, MW-14B, and MW-15 exhibited slowly decreasing levels of total CVOC concentrations prior to injections, followed by significant decreases of approximately two orders of magnitude relative to pre-2008 total CVOC concentrations. MW-12B has shown some rebounding in total CVOCs after the conclusion of the bioremediation injections, driven mainly by 1,2-DCE, and VC, although MW-12B has been steady since 2016. MW-13B total CVOC concentrations continue to slowly decrease. (Figure 8).

4.2.2 CVOC Results

Groundwater samples from 17 monitoring wells (6 overburden and 11 bedrock) were collected and analyzed for CVOCs. Overall, concentrations of CVOCs at most of the sample locations have decreased or remained stable since 2000. Over the past few sampling events, there are select locations that have shown a slight increase from post-injection low results for TCE degradation products DCE and/or VC (MW-5B, MW-7A, MW-10B, MW-12B, and MW-16A). The overall total CVOC reductions are due to both natural attenuation and enhanced biodegradation that included four rounds of vegetable oil substrate injections in 2008, 2009, 2011, and 2013.

Appendix D presents graphs of long-term trends for overburden and bedrock wells in the current sampling program. The time-series plots typically show gradual decreasing trends in TCE and DCE, and in some cases, stable trends, followed by significant decreases in concentrations following injection events. Most of these plots show stable VC concentrations prior to the injections, followed by significant decreases after the injections, and a slight increase of DCE degradation product VC in the most recent rounds of sampling in the wells mentioned above.

4.2.2.1 Overburden Results

Figure 5 shows a summary of the overburden well CVOC analytical results from the Spring 2022 annual sampling program, the data from the most recent thirteen previous annual sampling programs, and data from 2000 as a reference point. The results for the six overburden groundwater samples were generally consistent with previous rounds of monitoring and long-term trends. Historical data is presented in tabulated form in Appendix C and trend plots of historical data are presented in Appendix D. Key observations are listed below.

Overburden Source Area Wells:

TCE was detected in MW-7A slightly above groundwater standards[1] in Fall 2021, but was not detected in Spring 2022. Concentrations of DCE, VC, TCA and chloroethane at MW-7A were above groundwater standards (Appendices C & D). MW-7A is in an area that exhibited the highest CVOC concentrations in shallow groundwater prior to the first injection and is within the area that was targeted during the emulsified vegetable oil substrate injections in 2008, 2009, 2011 and 2013. MW-7A will continue to be monitored as a part of the annual sampling program.

MW-16A was targeted in the November 2011 injection event to address VC concentrations, but only a negligible amount of substrate was injected due to low permeability of the soils. Concentrations of TCE and DCA have been below groundwater standards since 2007. DCE has been below 10 micrograms per liter (µg/L) since 2012 and remained so in the Spring 2022 results. The VC concentration (290 µg/L) was higher than the previous year (Fall 2021) but still much lower than Spring 2020 when VC was detected at a historical high (560 µg/L) (Appendices C & D). VC is a degradation product of TCE via DCE. MW-16A will continue to be monitored as a part of the annual sampling program.

MW-17A is an overburden well in the area of targeted bedrock injections in 2009 and 2013. TCE, DCE, VC, and DCA concentrations were consistent with recent historical data. Since 2009, TCE has been reduced to non-detect, DCE (36 µg/L) has steadily decreased to less than one-quarter the 2000 concentration (230 µg/L), while VC (83 µg/L) has increased as compared to its pre-injection concentration (18 µg/L) and has been more stable recently. Reductive dechlorination is likey responsible for the decrease in DCE and accompanying noted production of VC and ethene. MW-17A will continue to be monitored as a part of the annual sampling program.

Overburden Downgradient Wells:

MW-5A, located south of the east end of the former facility building, showed sporadic increases and decreases in DCE and VC before and after substrate injections in 2009, 2011, and 2013 (Figure 9). This trend continued in Spring 2022 where concentrations of DCE, VC, and DCA increased slightly from Fall 2021 but remained within the mid-range of the historical average (Appendices C & D). There appears to be a direct relationship between degradation product concentrations and water level fluctuations in MW-5A. Furthermore, there is a consistent upward hydraulic gradient between the bedrock and overburden zones at this location. MW-5A will continue to be monitored as a part of the annual sampling program.

MW-10A, located central to and south of the former facility building, showed DCE and VC concentrations similar to the previous few sampling events (Appendices C & D). TCE decreased to an estimated 8.7 µg/L, above the groundwater standard (5 µg/L). Both DCE and VC decreased from the Fall 2021 concentrations. DCA has been non-detect since 2016. Groundwater elevation measurements indicate an upward hydraulic gradient between MW-10A and MW-10B (from bedrock to overburden), consistent with past results. MW-10A will continue to be monitored as a part of the annual sampling program.

[1] NYSDEC Technical & Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations and revisions

MW-12A, located west of the former facility building along Hyde Park Boulevard, was found destroyed during the Fall 2019 sampling event and no sample has been collected at that location since Spring 2018.

MW-18A, located east of the former facility building, showed DCA below groundwater standards consistent with recent events. TCE (34 µg/L) and DCE (54 µg/L) were at similar concentrations as compared to concentrations observed from 2010 through 2021 (Figure 5 and Appendices C & D). MW-18A will continue to be monitored as a part of the annual sampling program.

4.2.2.2 Bedrock Results

Figure 6 shows a summary of the bedrock well CVOC analytical results from the Spring 2022 annual sampling program, data from the most recent thirteen previous annual sampling events, and data from 2000 as a reference point. Historical data is presented in tabulated form in Appendix C and trend plots of historical data are presented in Appendix D. Key observations are listed below.

Bedrock Source Area Wells:

Significant reductions in DCE and VC concentrations have been observed in MW-6 relative to 2000 concentrations, which were measured prior to bioremediation injections in the area of MW-7A in 2008. Since 2009, DCE has steadily decreased (85 µg/L in 2009 to 12 µg/L in 2022) and has remained stable over the last several sampling events, ranging between 10 µg/L and 13 µg/L since 2018. VC (61 µg/L in 2022) decreased from 98 µg/L observed in Fall 2021 and has fluctuated for the past several years. The reduction of DCE to the current result with a generally stable VC concentration indicates natural attenuation is continuing to occur, although the rate of reduction of VC is less than that of DCE. TCE and DCA have consistently been non-detect or detected at an estimated concentration below the groundwater standard since 2000. MW-6 will continue to be monitored as a part of the annual sampling program to monitor progress of attenuation of DCE and VC.

Significant reductions in DCE and VC concentrations have been observed in MW-7B relative to 2000 concentrations, which were measured prior to bioremediation injections in the area of MW-7A in 2008. TCE and DCA concentrations have been below groundwater standard since 2012. The DCE concentration (1.9 µg/L) was also below standard this round. The VC concentration (12 µg/L) was below the concentrations of the last two events (Spring 2020 and Fall 2021). VC has fluctuated between 10 µg/L and 18 µg/L since 2016. MW-7B will continue to be monitored as a part of the annual sampling program to monitor progress of attenuation of VC.

TCE, DCE, and VC concentrations increased at MW-16B in early 2012 and 2013 after injections were performed at overburden injection wells (INJ-6L, INJ-7 and INJ-8) in the vicinity of MW-16A in October 2011. TCE concentrations decreased in 2013 and have remained below groundwater standard since that time. DCE and VC concentrations remained elevated through 2015 and then sharply decreased in 2016, with DCE below the groundwater standard and VC only slightly above groundwater standard since 2016. The Spring 2022 DCE (13 µg/L) and VC (23 µg/L) concentrations increased and are the highest observed at this location since 2015, but are approximately two orders of magnitude below historical high concentrations. (Figure 6 and Appendices C & D). MW-16B will continue to be monitored as a part of the annual sampling program to monitor progress of attenuation of VC.

The TCE concentration in MW-17B has been non-detect for more than 10 years except for an estimated value in 2017 (0.68 J µg/L). DCE increased to above standard in Fall 2021 (31 µg/L) and decreased slightly in Spring 2022 to 28 µg/L (Figure 6). The VC concentration decreased over the course of the

bioremediation injections from 69 µg/L in 2000 to 0.88 µg/L in April 2016 but increased to 20 µg/L in Fall 2021 and to 23 µg/L in Spring 2022. MW-17B is located within the area of the bedrock bioremediation injections performed in November 2009 and September 2013 and was the location of the highest CVOCs in bedrock prior to bioremediation activities. MW-17B will continue to be monitored as part of the annual sampling program to monitor progress of attenuation of VC.

MW-19B is located east of the main facility in the area remediated as part of Operable Unit 1. Concentrations of TCE and DCA have been below groundwater standards from 2012 through Spring 2022. Concentrations of DCE and VC showed a decrease relative to Spring 2020 and Fall 2021, and have been relatively stable for the last 5 years. MW-19B will continue to be monitored as a part of the annual sampling program.

Bedrock Downgradient Wells:

At MW-5B, TCE has consistently been non-detect or detected at an estimated concentration near the reporting limit since 2000, indicating this area is not a source area for TCE. Total concentrations of DCE and VC have remained relatively constant since 2009, with a slightly decreasing trend of DCE accompanied by an increasing trend of VC, indicating ongoing reductive dechlorination (Appendices C & D). In Spring 2022 DCE decreased slightly from Fall 2021 (40 µg/L) to 35 µg/L and VC decreased as well from 140 µg/L to 71 µg/L. MW-5B will continue to be monitored as a part of the annual sampling program.

At MW-10B, TCE has consistently been non-detect since 2009, indicating this area is not a source area for TCE. In addition, DCA has consistently been non-detect or detected at a concentration near the reporting limit and below groundwater standard since 2000. DCE and VC concentrations have remained relatively constant since 2009 (Appendices C & D). DCE increased to 320 µg/L in Spring 2022, while VC decreased to 140 µg/L. MW-10B will continue to be monitored as a part of the annual sampling program.

At downgradient location MW-12B, TCE has consistently been non-detect or detected at an estimated concentration near the reporting limit since 2000, indicating this area is not a source area for TCE. In addition, DCA has consistently been non-detect or detected at a concentration near the reporting limit and below groundwater standard since 2000. Significant reductions in DCE and VC concentrations have been observed in MW-12B relative to concentrations measured prior to bioremediation injections in the vicinity of MW-17B in 2009. Concentrations of DCE and VC increased following injections in the vicinity of MW-17B in 2013 and have remained relatively stable since 2016 (Appendices C & D). In Spring 2022, both DCE decreased from 73 J µg/l in Fall 2021 to 52 µg/L, while VC increased from 49 DJ µg/L to 73 µg/L, respectively, suggesting active reductive dechlorination. MW-12B will continue to be monitored as a part of the annual sampling program to monitor attenuation of DCE and VC.

TCE, DCE, and VC concentrations in downgradient well MW-13B have steadily decreased since prior to the bioremediation injections (Figure 8 and Appendices C & D). Including Spring 2022 data, DCE concentrations have been fluctuating slightly above the groundwater standard since the injections. In Spring 2022 the DCE concentration of 4.1 µg/L was below the standard (5 µg/L). The VC concentration remains slightly above groundwater standard for Spring 2022 (5.2 µg/L), but below pre-injection levels. MW-13B will continue to be monitored as part of the annual sampling program.

Significant reductions in TCE, DCE, and VC concentrations have also been observed in downgradient well MW-14B relative to concentrations measured prior to bioremediation injections (Figure 8 and Appendices C & D). Including Spring 2022 data, TCE, DCE, and DCA concentrations have been below

groundwater standards since 2011. Except for a September 2017 VC concentration of 2.9 µg/L, VC concentrations have been below groundwater standards since August 2013; the VC concentration in Spring 2022 (1.1 µg/L) was again below groundwater standard. It is recommended that MW-14B continue to be monitored as part of the annual sampling program to monitor for perimeter concentrations of constituents of concern.

MW-15 is currently sampled every five years. The well was last sampled on June 14, 2018. Consistent with prior results, TCE and DCA concentrations were below groundwater standard. DCE and VC concentrations increased above groundwater standards (5.2 µg/L for DCE and 16 µg/L for VC), similar to May 2010 concentrations.

At MW-18B, TCE and DCA have consistently been non-detect at the reporting limit since 2009. DCE and VC concentrations have fluctuated since 2009, with historical lows occurring in October 2014 following enhanced bioremediation injections at MW-18B in September 2013. DCE and VC showed increases in April 2016 and September 2017, followed by decreases through Spring 2020 and an increase in Fall 2021. The Spring 2022 results show that both DCE and VC decreased (38 µg/L for DCE and 59 µg/L for VC) from the Fall 2021 results (47 µg/l and 80 µg/L, respectively) (Appendices C & D). MW-18B will continue to be monitored as a part of the annual sampling program to monitor progress of attenuation of DCE and VC.

4.2.3 Attenuation Monitoring Results

As part of the ongoing groundwater sampling program, natural attenuation parameters have been sampled during each monitoring event (see Table 5 and Appendix C). The results for Spring 2022 were generally consistent with previous monitoring events, with the following exceptions:

- TOC concentrations maintained a decreasing trend in several wells from 2016 through 2022. These decreases are in areas targeted during the 2013 injections and represent continued depletion of the injected carbon substrate. TOC decreases over this period are observed in overburden wells including MW-7A, and MW-16A, and bedrock wells MW-7B, MW-16B, MW-18B with all values similar to last year's results. TOC concentrations in these wells have decreased to the point where they are near pre-injection concentrations. TOC concentrations greater than 20 mg/L are considered favorable to reductive dechlorination and the highest observed in Spring 2022 was 7.4 mg/L in MW-7A.
- Decreases in BOD and COD levels were observed in wells (MW-4A, MW-17A, MW-12B. MW-10B, MW-16A, MW-17A and MW-18A) following injections. Similar to TOC, this may represent continued depletion of the 2013 injectate. Spring 2022 saw moderate increases to COD in MW-7B, MW-16B, MW-17B and MW-7A.
- From 2016 through 2022, chloride concentrations decreased in overburden wells MW-7A, MW10A, MW-17A, MW-18A, and bedrock well MW-17B. Since chloride is produced during reductive dichlorination of CVOCs, this may indicate that anaerobic biodegradation processes are ongoing, but may be slowing to pre-injection rates in the areas targeted during the 2013 injections. Chloride in these and other wells have remained fairly stable over the last few sampling rounds. The presence of chloride in several other wells suggests biodegradation is ongoing.
- Ethene is the final degradation product of TCE, providing solid evidence of substantial biodegradation. From 2014 to 2015, increases in ethene concentrations at wells MW-10B, MW-16A, and MW-16B were noted. Ethene concentrations for MW-10B and MW-16B in 2016 through 2022 are noted to be lower in each location as compared to 2015 levels. Several wells

had ethene concentrations that were either stable or fluctuated somewhat following the injections. The presence of ethene is an indication that biodegradation through VC is continuing. Some fluctuations were observed in recent years for some wells, such as MW-16A where in the last 3 years the values were 49 µg/L (2019), 270 µg/L (2020), 77 µg/L (2021), and 160 µg/L (2022).

- Elevated methane concentrations (>20 mg/L) were noted in several wells following the site injections, indicating an environment conducive to anaerobic biodegradation. As of 2022, only MW-17B and MW-18B are above 20 mg/L. MW-7A, MW-16B and MW-17A are currently less than 20 mg/L but still elevated since the injections.

Overall, the environmental conditions and Site-wide long-term changes in concentrations indicate that the enhanced biodegradation program has been effective and natural attenuation is an ongoing, active process.

4.2.4 Emerging Contaminants Results

The Spring 2022 groundwater sample from MW-17B was analyzed for PFAS compounds (Table 7). Perfluorooctanesufonic acid (PFOS) was detected at an estimated 10 nanograms per liter (ng/L). PFOS was not detected in the duplicate sample, but was detected in the rinse blank at 5.1 ng/L. Since the sample concentration is greater than the blank concentration, the detection is qualified with a “J+” and is considered estimated. The NYSDEC 2021 Draft Guidance Value for PFOS is 2.7 ng/L. When sampled in October 2018, PFOS was not detected in MW-17B. Perfluoroocanoic acid (PFOA) was detected in MW-17B at 14 ng/L, which exceeds the Guidance Value of 6.7 µg/L. This is very similar to the October 2018 concentration of 15 ng/L. Several other PFAS compounds were detected in MW-17B for which NYSDEC has not published Guidance Values.

5.0 Conclusions and Recommendations

The following conclusions and recommendations were developed following the Spring 2022 groundwater monitoring event:

Conclusions:

CVOC concentrations have steadily declined in the overburden and bedrock groundwater over the past 22 years, with more recent substantial declines related to the 2008, 2009, 2011, and 2013 bioremediation injections.

MW-7A, located in the area of the vegetable oil substrate injections conducted in September 2008, November 2009, November 2011, and September 2013, continued to show decreased levels of CVOCs compared to pre-injection levels, with some increases in degradation products DCE, and VC this round. VC is also gradually increasing or stable in other wells (i.e., MW-6, MW 10A/B, MW-16A, MW-17A). Fluctuations in concentrations of CVOC degradation products at MW-5A appear to have a direct relationship with water level fluctuations and are consistent with historical concentrations following substrate injections. Overall, overburden groundwater CVOC concentrations in 2022 were generally consistent with the previous sampling program results.

Bedrock groundwater CVOC concentrations generally showed declines in response to the previous substrate injections. Notably, CVOC concentrations decreased substantially in several downgradient bedrock monitoring wells since 2009. TCE was non-detect in all bedrock wells sampled. This trend will continue to be monitored.

Groundwater samples for natural attenuation monitoring have been collected since October 2000 and continue to indicate that natural attenuation processes are active. The results for Spring 2022 were generally consistent with recent monitoring events.

Natural anaerobic biodegradation of TCE, which was occurring at the Site prior to 2008, was substantially enhanced by the bioremediation injection program conducted over multiple years. The enhanced bioremediation injections effectively contributed to the observed decreasing concentration trends, and ongoing natural attenuation processes continue to improve groundwater quality at the Site.

PFOS was detected at an estimated concentration of 10 ng/L and PFOA was detected at 14 ng/L, exceeding their respective Guidance Values. Several other PFAS compounds for which no Guidance Values have been published were also detected.

Recommendations:

The annual groundwater monitoring program should be continued, although it is recommended that well MW-19B be eliminated from the monitoring program as CVOC concentrations there have remained low and stable for several years. Based on its location and contaminant history, the data obtained from MW-19B indicates remedial actions in the area of the well have created an improved and stable CVOC environment and does not benefit the monitoring program. . At present, CVOCs within the source area and downgradient of that area have decreased as a result of remedial measures including emulsified

vegetable oil substrate injections in 2008, 2009, 2011 and 2013. Terra Systems, Inc. (TSI) SRS®-SD was used for all overburden injections, SRS®-FR was used for all bedrock injections, and TSI-DC® bioaugmentation culture was used for microorganism bioaugmentation. The substrate and bioaugmentation injections have been successful in decreasing levels of chlorinated VOCs in both overburden and bedrock groundwater in the injection areas. Due largely to flow in bedrock fractures, the CVOC decreases have also been observed downgradient of the injection areas and in offsite wells, and to date, offsite CVOC concentrations have not rebounded. The remedial goal stated in the OU-2 Record of Decision is to "Reduce, to the extent practicable, off-site migration of groundwater that does not attain NYSDEC Class GA Ambient Water Quality Criteria." Since off-site VOC concentrations have been reduced to below or near the NYSDEC Class GA Ambient Water Quality Standards, this goal has been attained. If, in the future, downgradient and/or offsite VOC levels increase to pre-injection levels, the need will re-evaluate the need for additional injections will be re-evaluated. A Draft Site Management Plan (SMP) for the Hyde Park Site was submitted to NYSDEC on March 31, 2022. Continued sampling for PFAS compounds is not warranted at this time.

6.0 References

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NYSDEC, 2014. Letter to Mr. William Barber (BP) from Michael Hinton (NYSDEC) re: Carborundum Globar Site No. 932036, Town of Niagara, Niagara County, New York. Proposed Revision to Annual Sampling MW-15. NYSDEC, April 8, 2014.

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NYSDEC, 2021. Draft Addendum to June 1998Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 30, 2021.

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Tables

Table 1
Summary of Groundwater Sampling
Spring 2022 Monitoring Event
Former Carborundum Company, Hyde Park Facility
Niagara, New York

Well ID	Date Sampled	Sample ID	Volume Purged (gallons)
MW-5A	10-May-22	MW-5A	4.0
MW-5B	10-May-22	MW-5B, MS, MSD	3.0
MW-6	11-May-22	MW-6	3.5
MW-7A	12-May-22	MW-7A	3.0
MW-7B	12-May-22	MW-7B	3.0
MW-10A	10-May-22	MW-10A, FD-051022[(2)]	4.0
MW-10B	10-May-22	MW-10B	8.0
MW-12B	11-May-22	MW-12B	5.0
MW-13B	11-May-22	MW-13B	4.0
MW-14B	11-May-22	MW-14B	2.5
MW-15[(1)]	NA	NA	NA
MW-16A	11-May-22	MW-16A	2.5
MW-16B	11-May-22	MW-16B	5.0
MW-17A	12-May-22	MW-17A	6.5
MW-17B	12-May-22	MW-17B	15.5
MW-18A	11-May-22	MW-18A	2.5
MW-18B	11-May-22	MW-18B	6.5
MW-19B	12-May-22	MW-19B	5.5

Note:
(1) MW-15 is to be sampled every 5 years in accordance with NYSDEC approval on April 8, 2014, and is to be sampled next in 2023.
(3) FD-051022 is a field duplicate of MW-10A.
MS - Matrix Spike
MSD - Matrix Spike Duplicate
NA - Not Applicable (see Note 1)

Table 2
Water Level Measurements
Spring 2022 Monitoring Event
Former Carborundum Company, Hyde Park Facility
Niagara, New York

Well ID	Elevation Top of Casing	Easting	Northing	4/29/2022	
				Depth to Water	Groundwater Elevation
PMW-1	596.62	1028372.30	1136886.30	6.56	590.06
PMW-2	595.98	1028371.76	1136875.49	5.43	590.55
PMW-3	596.59	1028379.73	1136882.30	5.80	590.79
PMW-4	597.05	1028384.66	1136909.84	6.82	590.23
PMW-5	592.65	1028308.62	1136764.72	3.35	589.30
PMW-6	592.44	1028310.46	1136747.77	3.49	588.95
PMW-7	592.93	1028325.51	1136758.05	3.89	589.04
PMW-8	593.11	1028352.65	1136824.51	3.81	589.30
PMW-9	592.45	1028282.58	1136689.24	3.19	589.26
INJ-1	596.66	1028382.45	1136887.25	6.23	590.43
INJ-2	595.89	1028374.60	1136890.69	6.20	589.69
INJ-3	592.87	1028313.28	1136774.48	3.61	589.26
INJ-4	593.26	1028332.65	1136771.29	3.79	589.47
INJ-5U	596.08	1028365.66	1136878.92	4.93	591.15
INJ-5L	596.00	1028365.66	1136878.92	6.51	589.49
INJ-6U	596.96	1028376.98	1136868.99	5.17	591.79
INJ-6L	595.97	1028376.98	1136868.99	6.14	589.83
INJ-7	592.76	1028409.44	1136837.46	2.43	590.33
INJ-8	592.98	1028418.16	1136832.59	3.45	589.53
INJ-9	591.62	1028023.50	1136898.15	2.60	589.02
INJ-10	591.49	1028032.17	1136890.90	2.13	589.36
MW-1A	597.56	1028606.44	1136554.99	7.22	590.34
MW-1B	597.64	1028611.01	1136554.66	7.34	590.30
MW-2A	595.73	1028335.27	1136881.61	4.60	591.13
MW-2B	595.80	1028337.09	1136888.34	6.39	589.41
MW-3A	599.94	1028627.22	1136895.86	4.55	595.39
MW-3B	599.70	1028624.57	1136899.80	9.64	590.06
MW-4A	591.60	1028027.77	1136890.77	2.64	588.96
MW-4B	591.49	1028023.72	1136890.65	1.62	589.87
MW-5A	597.91	1028256.93	1136567.66	9.04	588.87
MW-5B	597.79	1028256.86	1136562.36	8.65	589.14
MW-6	595.51	1028293.24	1136889.98	6.20	589.31
MW-7A	596.59	1028379.67	1136889.32	6.12	590.47
MW-7B	596.66	1028377.01	1136884.33	6.82	589.84
MW-8	599.63	1028584.29	1136897.91	9.35	590.28
MW-10A	596.87	1028134.19	1136571.96	8.14	588.73
MW-10B	596.71	1028129.79	1136571.87	7.52	589.19

Table 2
Water Level Measurements
Spring 2022 Monitoring Event
Former Carborundum Company, Hyde Park Facility
Niagara, New York

Well ID	Elevation Top of Casing	Easting	Northing	4/29/2022	
				Depth to Water	Groundwater Elevation
MW-11A	595.48	1027992.43	1136576.28	7.51	587.97
MW-11B	595.57	1027996.44	1136575.71	7.09	588.48
MW-12A[1]	590.79	1027887.31	1136654.88	NA	NA
MW-12B	590.89	1027886.62	1136658.22	1.72	589.17
MW-13A	595.18	1028202.92	1136517.75	6.40	588.78
MW-13B	594.73	1028199.59	1136517.64	6.03	588.70
MW-14A	592.97	1027954.11	1136524.76	7.06	585.91
MW-14B	592.85	1027951.17	1136524.55	4.24	588.61
MW-15[2]	591.44	1027851.99	1136475.97	NA	NA
MW-16A	591.64	1028415.02	1136829.41	2.87	588.77
MW-16B	592.38	1028414.66	1136826.44	2.31	590.07
MW-17A	593.13	1028319.92	1136765.00	2.58	590.55
MW-17B	592.92	1028319.47	1136763.41	3.65	589.27
MW-18A	593.78	1028377.39	1136661.13	4.06	589.72
MW-18B	593.43	1028375.07	1136659.79	4.08	589.35
MW-19A	594.95	1028610.90	1136747.48	4.09	590.86
MW-19B	594.65	1028611.64	1136749.89	4.34	590.31

Note:
NA - Not Available.
1. Well MW-12A discovered destroyed during Fall 2019 sampling event.
2. MW-15 is to be sampled every 5 years in accordance with NYSDEC approval on April 8, 2014 and is to be sampled next in 2023. A water level will be obtained at that time.

Table 3
Groundwater Sampling Field Parameter Results
Spring 2022 Sampling Event
Former Carborundum Company, Hyde Park Facility
Niagara, New York

Monitoring Well ID	Sample Date	Temperature (deg C)	Specific Conductivity (mS/cm)	Dissolved Oxygen + (mg/L)	pH (standard units)	ORP (mV)	Turbidity (NTU)	Alkalinity (mg/L)	Carbon Dioxide (mg/L)	Ferrous Iron (mg/L)	Hydrogen Sulfide (mg/L)
MW-5A	5/10/2022	16.3	0.836	0.44	7.48	42.1	1.90	240	30	0.00	0.0
MW-5B	5/10/2022	14.1	1.470	3.52	8.32	47.2	53.4	340	55	0.14	0.0
MW-6	5/11/2022	13.0	1.548	0.41	7.03	-270.5	2.58	360	40	0.00	0.7
MW-7A	5/12/2022	12.6	1.101	0.37	6.88	-224.8	4.59	605	60	0.67	0.7
MW-7B	5/12/2022	13.3	1.451	0.33	6.99	-192.6	1.95	300	45	0.03	0.7
MW-10A	5/10/2022	13.4	1.370	3.27	7.55	-14.6	3.61	340	35	0.69	0.0
MW-10B	5/10/2022	13.0	1.380	2.02	6.99	-69.8	1.56	360	45	0.15	0.0
MW-12B	5/11/2022	11.3	1.439	0.29	7.05	-40.9	2.08	300	45	0.03	0.2
MW-13B	5/11/2022	12.9	2.290	0.34	7.28	-59.3	20.5	240	25	0.19	0.0
MW-14B	5/11/2022	16.1	1.781	0.87	7.02	-193.0	4.87	340	40	0.04	3.0
MW-16A	5/11/2022	11.0	2.792	0.42	6.99	57.9	4.06	440	90	0.04	0.0
MW-16B	5/11/2022	12.2	1.374	0.21	7.18	-324.3	6.49	340	55	0.05	>5.0
MW-17A	5/12/2022	12.3	0.876	0.52	7.34	-103.0	2.46	445	30	0.66	0.0
MW-17B	5/12/2022	14.5	1.052	0.21	6.74	-300.4	6.85	480	100	0.29	>5.0
MW-18A	5/11/2022	13.5	0.987	0.22	7.08	-114.8	1.89	380	40	1.65	0.0
MW-18B	5/11/2022	14.1	1.075	0.47	6.79	-311.6	2.45	400	90	0.05	>5.0
MW-19B	5/12/2022	13.5	1.224	0.35	6.76	-163.6	1.67	300.0	35	0.42	0.5

Notes:

- Not Measured
+ Elevated dissolved oxygen readings in some cases conflict with negative oxidation/reduction potential readings.
mS/cm - milliSiemen per centimeter
mg/L - milligram per liter
mV - millivolt
NTU - nephelometric turbidity unit
ORP - oxidation-reduction potential

Table 4
Summary of Analytical Specifications
Spring 2022 Monitoring Event
Former Carborundum Company, Hyde Park Facility
Niagara, New York

Sample Type	Container Type	Sample Volume	Preservation Method	Max. Holding Time	Analytical Method
Constituents of Concern					
Select VOCs	40 mL glass vial with septum top	3x40 mL	Hydrochloric acid, Cool 4◦C	14 days	SW846 Method 8260C
Natural Attenuation Parameters					
Methane, Ethene, Ethane, Propane	40 mL glass vial with septum top	3x40 mL	Hydrochloric acid, Cool 4◦C	14 days	USEPA RSK175
TOC	40 mL glass vial with septum top	2x40 mL	Sulfuric acid, Cool 4˚C	28 days	USEPA 5310C
BOD	1000 mL plastic	1000 mL	None, Cool 4◦C	48 hours	USEPA 5120B
COD	250 mL plastic	250 mL	Sulfuric Acid,Cool 4◦C	28 days	USEPA 410.4
Dissolved Iron	500 mL plastic	500 mL	Nitric Acid, Cool 4◦C	6 months	USEPA 6010C
Chloride, Sulfate; Nitrate, Nitrite	500 mL plastic	500 mL	None, Cool 4◦C	28 days; 48 hours	USEPA 300.0 USEPA 353.2
Sulfide	500 mL plastic	500 mL	Sodium hydroxide and zinc acetate, Cool 4◦C	7 days	Standard Method (SM) 4500-S2

Notes:

VOC - volatile organic compound
TOC - total organic carbon
BOD - biological oxygen demand
COD - chemical oxygen demand
mL - milliliter
Alkalinity, carbon dioxide, ferrous iron and hydrogen sulfide were analyzed for in the field using Hach™ test kits.

Table 5
Sample Matrix
Spring 2022 Monitoring Event
Former Carborundum Company, Hyde Park Facility
Niagara, New York

Location	Unit	VOCs[A/] (SW8260C)	Methane, Ethane, Ethene (RSKSOP-175mod) [B/]	Chloride, Sulfate (300.0)	Total Organic Carbon (5310C)	BOD (5120B), COD (410.4)	Dissolved Iron (6010C)	Nitrate (353.2), Nitrite (353.2)	Sulfide (SM 4500-S2)	Well Head Analysis [C/]	Field Analyses (Hach kits) [D/]	PFAS (537 mod)	1,4-Dioxane (SW8270D SIM)
Existing Site Investigation Monitoring Wells													
MW-5A	overburden	1	1	1	1	1	1	1	1	1	1		
MW-5B	bedrock	1	1	1	1	1	1	1	1	1	1		
MW-6	bedrock	1								1	1		
MW-7A	overburden	1	1	1	1	1	1	1	1	1	1		
MW-7B	bedrock	1	1	1	1	1	1	1	1	1	1		
MW-10A	overburden	1	1	1	1	1	1	1	1	1	1		
MW-10B	bedrock	1	1	1	1	1	1	1	1	1	1		
MW-12A	overburden	Well Destroyed											
MW-12B	bedrock	1	1	1	1	1	1	1	1	1	1		
MW-13B	bedrock	1								1	1		
MW-14B	bedrock	1								1	1		
MW-15[(1)]	bedrock												
MW-16A	overburden	1	1	1	1	1	1	1	1	1	1		
MW-16B	bedrock	1	1	1	1	1	1	1	1	1	1		
MW-17A	overburden	1	1	1	1	1	1	1	1	1	1		
MW-17B	bedrock	1	1	1	1	1	1	1	1	1	1	1	1
MW-18A	overburden	1	1	1	1	1	1	1	1	1	1		
MW-18B	bedrock	1	1	1	1	1	1	1	1	1	1		
MW-19B	bedrock	1								1	1		

QA/QC

Matrix spike/matrix spike duplicate pairs and field duplicates were collected at a rate of 5%.

Name field duplicates blind, using FD followed by the date followed by the matrix and a numerical identifier in sequence for each duplicate sample collected for that day (e.g., FD-GW-060322).

Notes:

(1) MW-15 to be sampled every 5 years as approved by DEC in April 2014. Next sample event is in 2023.

Sampling for MW-15 requires permit from the Department of Transportation (DOT), Niagara County Residency (716) 438-2396.

[A/] VOCs (volatile organic compounds): tetrachloroethene, trichloroethene, cis-1,2-dichloroethene, trans-1,2- dichloroethene, 1,1-dichloroethene, 1,1-dichloroethane, 1-1-1-,trichloroethane, vinyl chloride, and chloroethane.

[B/] Analytical method for dissolved gases will be a laboratory-specific standard operating procedure (RSK-175).

[C/] Well head analyses include dissolved oxygen, oxidation-reduction potential, pH, temperature, electrical conductivity, turbidity and visual appearance.

[D/] Field analyses include alkalinity, carbon dioxide, hydrogen sulfide, and ferrous iron.

BOD - biological oxygen demand

COD - chemical oxygen demand

PFAs - Per- and Polyfluoroalkyl Substances

Table 6
Monitoring Well Groundwater Analytical Result Summary - Spring 2022
Former Carborundum Company, Hyde Park Facility
Niagara, New York

Parameter	Criteria[1,2]	MW- 5A	MW- 5B	MW- 6	MW- 7A	MW- 7B	MW-10A	MW-10B	MW-12B	MW-13B
Valatile Organic Compounds										
PCE (µg/L)	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13 U	6.3 U	1.0 U	1.0 U
TCE (µg/L)	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.7 J	6.3 U	1.0 U	1.0 U
Cis-1,2-DCE (µg/L)	5	78	35	12	17	1.9	540	320	52	4.1
Trans-1,2-DCE (µg/L)	5	0.62 J	1.0 U	1.0 U	1.0 U	1.0 U	13 U	6.3 U	1.0 U	1.0 U
1,1-DCE (µg/L)	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13 U	6.3 U	1.0 U	1.0 U
Vinyl Chloride (µg/L)	2	70 D	71 D	61 DJ	33	12	85	140	73 DJ	5.2
1,1,1-Trichloroethane (µg/L)	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13 U	6.3 U	1.0 U	1.0 U
1,1-Dichloroethane (µg/L)	5	1.9	1.0 U	1.0 U	76 D	1.0 U	13 U	6.3 U	0.48 J	1.0 U
Chloroethane (µg/L)	5	1.0 U	1.0 U	1.0 U	16	1.0 U	13 U	6.3 U	1.0 U	1.0 U
Dissolved Metals										
Dissolved Iron (mg/L)	--	0.200 U	0.14 J	NA	0.95	0.200 U	0.84	0.19 J	0.200 U	NA
Dissolved Gases										
Ethane (µg/L)	--	32	0.68 J	NA	53	0.61 J	2.2	1.1	0.91 J	NA
Ethene (µg/L)	--	32	3.2	NA	46	3.4	20	25	6.2	NA
Methane (µg/L)	--	2100	250	NA	13000 D	170	1800	2100	360	NA
Propane (µg/L)	--	0.81 J	0.94 J	NA	1.0 U	1.0 U	1.0 U	3.2	0.90 J	NA
Miscellaneous Parameters										
BOD (mg/L)	--	6.0 U	12 U	NA	6.7	6.0 U	6.0 U	12 U	6.0 U	NA
COD (mg/L)	--	6.8 J	9.5 J	NA	39	16	2.8 J	11	13	NA
TOC (mg/L)	--	1.0 U	2.6	NA	7.4	3	1.0 U	2.9	2.8	NA
Chloride (mg/L)	250	85	140	NA	11	170	160	140	180	NA
Sulfate (mg/L)	250	77	200	NA	120	270	140	220	220	NA
Sulfide (mg/L)	0.05	1.0 U	1.0 U	NA	3.1	0.73 J	1.0 U	1.0 U	1.0 U	NA
Nitrate (mg/L)	10	0.24	0.25 U	NA	0.10 UJ	0.10 UJ	0.25 U	0.25 U	0.10 UJ	NA
Nitrite (mg/L)	1	0.10 U	0.25 U	NA	0.050 UJ	0.050 UJ	0.25 U	0.25 U	0.050 UJ	NA
Nitrate-Nitrite (mg/L)	--	0.18	0.066 J	NA	0.050 UJ	0.050 UJ	0.094	0.037 J	0.050 U	NA

See Page 2 of 2 for notes.

Table 6
Monitoring Well Groundwater Analytical Result Summary - Spring 2022
Former Carborundum Company, Hyde Park Facility
Niagara, New York

Parameter	Criteria[(1)]	MW-14B	MW-16A	MW-16B	MW-17A	MW-17B	MW-18A	MW-18B	MW-19B	MW-10A (Duplicate)
Valatile Organic Compounds										
PCE (µg/L)	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13 U
TCE (µg/L)	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	34	1.0 U	1.0 U	8.9 J
Cis-1,2-DCE (µg/L)	5	1.0 U	8.1	13	36	28	54	38	1.5	550
Trans-1,2-DCE (µg/L)	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.87 J	1.0 U	1.0 U	13 U
1,1-DCE (µg/L)	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	13 U
Vinyl Chloride (µg/L)	2	1.1	290 D	23	83 D	23	5.7	59	1.1	84
1,1,1-Trichloroethane (µg/L)	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13 U
1,1-Dichloroethane (µg/L)	5	1.0 U	1.0 U	1.0 U	11	8.2	4.1	1.0 U	1.0 U	13 U
Chloroethane (µg/L)	5	1.0 U	1.0 U	1.0 U	1.0 U	2.2	1.0 U	1.0 U	1.0 U	13 U
Dissolved Metals										
Dissolved Iron (mg/L)	--	NA	0.200 U	0.200 U	0.72	0.42	1.9	0.17 J	NA	0.84
Dissolved Gases										
Ethane (µg/L)	--	NA	2.6	5.9	15	31	1.5	3.2	NA	2.1
Ethene (µg/L)	--	NA	160	24	20	21	1.4	15	NA	20
Methane (µg/L)	--	NA	320	11000 D	16000 D	29000 D	5800 D	21000 D	NA	1,700
Propane (µg/L)	--	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U
Miscellaneous Parameters										
BOD (mg/L)	--	NA	6.0 U	16	5.5	8.9	2.4	16	NA	6.0 U
COD (mg/L)	--	NA	18	36	8.8 J	26	6.8 J	39	NA	6.8 J
TOC (mg/L)	--	NA	6.4	4	2.4	4.5	1.1	4.5	NA	1.0 U
Chloride (mg/L)	250	NA	160	130	31	120	51	100	NA	160
Sulfate (mg/L)	250	NA	850	250	56	130	130	220	NA	130
Sulfide (mg/L)	0.05	NA	1.0 U	7.3	1.0 U	6.7	1.0 U	9.9	NA	1.0 U
Nitrate (mg/L)	10	NA	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	0.10 UJ	NA	0.25 U
Nitrite (mg/L)	1	NA	0.050 UJ	0.050 UJ	0.050 UJ	0.050 U	0.050 UJ	0.050 UJ	NA	0.050 U
Nitrate-Nitrite (mg/L)	--	NA	0.050 U	0.050 U	0.050 UJ	0.050 U	0.050 U	0.050 U	NA	0.049 J

Notes:
(1) NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, April 2000, Glass GA.
(2) Bold concentrations exceed criteria.
J = The reported concentration is an estimated value.
J- = The reported concentration is an estmated value biased low.
D = Result reported from a secondary dilution analysis.
U = Not detected above the reporting limit.
UJ = Not detected. The reporting limit is an estimated value.
NA - Not Analyzed

µg/L - micrograms per liter
mg/L - milligrams per liter
PCE - tetrachlorethene
TCE- trichloroethene
DCE - dichloroethene

BOD - biological oxygen demand
COD - chemical oxygen demand
TOC - total organic carbon

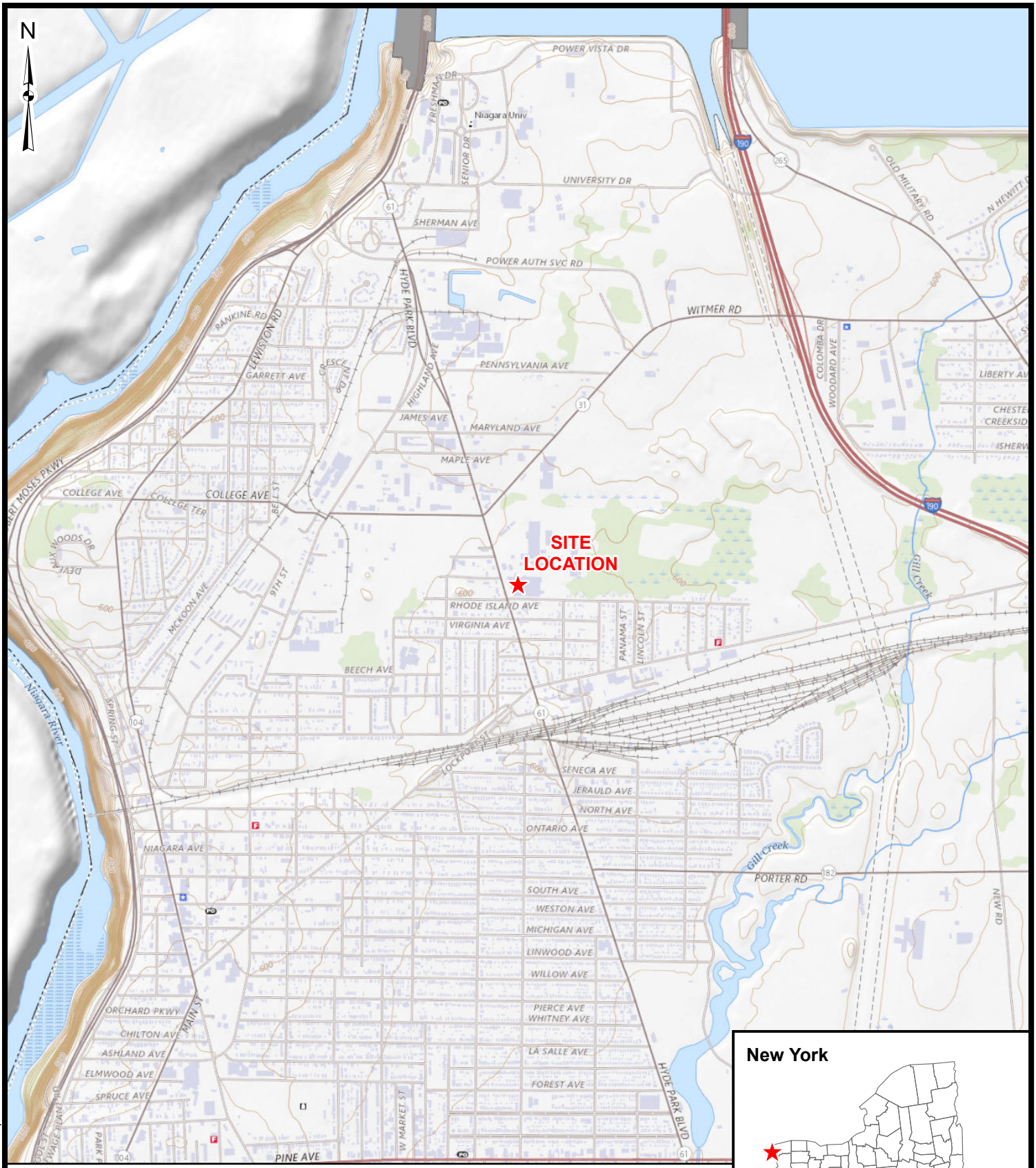
Table 7

Monitoring Well Groundwater Emerging Contaminants Analytical Result Summary - Spring 2022
Former Carborundum Company, Hyde Park Facility
Niagara, New York

Group	Method/Parameter	Standard/ Drinking Water Health Advisory	Guidance Values NYSDEC 2021 TOGS 1.1.1 Draft Addendum[3]	Units	MW-17B	MW-17B (Duplicate)	Rinse Blank RB-051222
	SW846-8270D SIM						
	1,4-Dioxane	5[1]	0.35	ug/L	**0.93**	**0.94**	0.10 U
Group	**EPA 537 Modified, Perfluorinated Alkyl Acids (PFOAs)**						
Perfluoroalkyl sultonates	Perfluorobutanesulfonic acid (PFBS)	NA	NA	ng/L	0.18 U	0.23 J	0.19 U
	Perfluorohexanesulfonic acid (PFHxS)	NA	NA	ng/L	1.2 J	0.53 J	0.53 U
	Perfluoroheptanesulfonic Acid (PFHpS)	NA	NA	ng/L	0.17 U	0.17 U	0.18 U
	Perfluorooctanesulfonic acid (PFOS)	70[2]	2.7	ng/L	**10 J+**	0.49 U	**5.1 B**
	Perfluorodecanesulfonic acid (PFDS)	NA	NA	ng/L	0.29 U	0.29 U	0.30 U
Perfluoroalkyl carboxylates	Perfluorobutanoic acid (PFBA)	NA	NA	ng/L	5.9	6.0	2.2 U
	Perfluoropentanoic acid (PFPeA)	NA	NA	ng/L	3.2	3.5	0.46 U
	Perfluorohexanoic acid (PFHxA)	NA	NA	ng/L	4.0	3.4	0.54 U
	Perfluoroheptanoic acid (PFHpA)	NA	NA	ng/L	1.7 J	1.6 J	0.23 U
	Perfluorooctanoic acid (PFOA)	70[2]	6.7	ng/L	**14**	**15**	0.79 U
	Perfluorononanoic acid (PFNA)	NA	NA	ng/L	1.7 J	0.24 U	0.98 J
	Perfluorodecanoic acid (PFDA)	NA	NA	ng/L	0.28 U	0.28 U	0.29 U
	Perfluoroundecanoic acid (PFUnA)	NA	NA	ng/L	1.0 U	0.99 U	1.0 U
	Perfluorododecanoic acid(PFDoA)	NA	NA	ng/L	0.50 U	0.5 U	0.51 U
	Perfluorotridecanoic acid (PFTriA)	NA	NA	ng/L	1.2 U	1.2 U	1.2 U
	Perfluorotetradecanoic acid (PFTeA)	NA	NA	ng/L	0.67 U	0.66 U	0.68 U
Fluorinated Telomer Sulfonates	1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	NA	NA	ng/L	2.3 U	2.3 U	2.3 U
	1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	NA	NA	ng/L	0.89 J	0.41 U	0.46 J
Perfluorooctanesulfonamide	Perfluorooctanesulfonamide (PFOSA)	NA	NA	ng/L	0.89 U	0.88 U	0.91 U
Perfluorooctanesulfonamidoacetic acids	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	NA	NA	ng/L	1.1 U	1.1 U	1.1 U
	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NA	NA	ng/L	1.2 U	1.2 U	1.2 U
--	Sum of PFOS AND PFOA concentrations	70[2]	NA	ng/L	24	15	5.1

Notes:
1 - Principal organic standard. NYSDEC Technical Operational and Guidance Series (TOGS) 1.1.1, Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, June 1998.
2 - USEPA health advisory level (https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos).
3 - Draft 2021 addendum to TOGS 1.1.1 for PFOA/PFOS and 1,4-dioxane (https://www.dec.ny.gov/chemical/122803.html).
ug/L - micrograms per liter (parts per billion)
ng/L - nanograms per liter (parts per trillion)
Bold - result exceeds the Draft 20201 TOGS 1.1.1 addendum guidance value.
J - Result is less than the reporting limit (RL) but greater than or equal to the Method Detection Limit (MDL) and the concentration is an approximate value. (+ biased high)
U - not detected above the method detection limit shown.
NS - Not sampled.

Figures



Source: USGS The National Map Service;
1:24,000-scale USGS Topographic Map,
Lewiston, 2019
Niagara Falls, 2019

2,000 0 2,000 Feet

AECOM

FORMER CARBORUNDUM COMPANY
TOWN OF NIAGARA, NEW YORK
SITE LOCATION

FIGURE 1

J:\Projects\60481767_BPIP\MISC\GIS\Hyde Park\Maps\SITE LOCATION.mxd 3/3/2022

N

KANTHAL-GLOBAR BUILDING

BRICK BLDG

HYDE PARK BOULEVARD

RHODE ISLAND AVENUE

INJ- 9
INJ-10
MW- 4B
MW- 4A
MW-12B
MW-12A
MW-11A
MW-11B
MW-14B
MW-14A
MW-15
MW-10B
MW-10A
MW-13B
MW-13A
MW- 6
MW- 2B
MW- 2A
PMW- 4
INJ- 2
PMW- 1
INJ- 5L
INJ- 5U
PMW- 2
MW- 7A
INJ- 1
MW- 7B
PMW- 3
INJ- 6L
INJ- 6U
INJ- 7
INJ- 8
MW-16A
MW-16B
PMW- 8
INJ- 3
MW-17A
INJ- 4
PMW- 5
MW-17B
PMW- 7
PMW- 6
PMW- 9
MW-18A
MW-18B
MW- 5A
MW- 5B
MW- 8
MW- 3B
MW- 3A
MW- 9
MW-19B
MW-19A
MW- 1A
MW- 1B

Legend

- Injection Well
- Monitoring Well
- Monitoring Well in the Monitoring Program
- Monitoring Well (Destroyed/Abandoned)
- Performance Monitoring Well
- Fence Line
- Approximate Site Boundary

Notes: MW-9 was abandoned on May 28, 1999 by Earth Dimensions, Inc.;
MW-12A was discovered destroyed in December 2019
Source: ESRI World Imagery

60 0 60 Feet

FORMER CARBORUNDUM COMPANY
TOWN OF NIAGARA, NEW YORK
SITE PLAN

AECOM

FIGURE 2

J:\Projects\60481767_BPIPO\MSC\GIS\Hyde Park\Maps\SMP 2022\02 SITE PLAN.mxd 3/25/2022

N

INJ- 9, 589.02
INJ-10, 589.36
MW-4A, 588.96
INJ- 2, 589.69
PMW- 4, 590.23
PMW- 1, 590.06
MW- 7A, 590.47
MW- 2A, 591.13
INJ- 1, 590.43
INJ- 5U, 591.15
PMW- 3, 590.79
INJ- 5L, 589.49
INJ- 6U, 591.79
PMW- 2, 590.55
INJ- 6L, 589.83
INJ- 7, 590.33
INJ- 8, 589.53
MW-16A, 588.77
MW- 3A, 595.39
KANTHAL-GLOBAR BUILDING
MW-17A, 590.55
MW-19A, 590.86
BRICK BLDG
MW-18A, 589.72
MW-11A, 587.97
MW-10A, 588.73
MW- 5A, 588.87
MW- 1A, 590.34
MW-13A, 588.78
MW-14A, 585.91
HYDE PARK BOULEVARD
RHODE ISLAND AVENUE
595
594
593
592
591
590
589
588
587
586

Legend

- Injection Well
- Monitoring Well
- Performance Monitoring Well
- Groundwater Flow Direction
- Groundwater Elevation Contour
- Fence Line

Source: ESRI World Imagery

60 0 60 Feet

FORMER CARBORUNDUM COMPANY
TOWN OF NIAGARA, NEW YORK
GROUNDWATER CONTOURS
OVERBURDEN WELLS (APRIL 29, 2022)

AECOM

FIGURE 3

L:\DCS\Projects\60481767_BPIPO\MISC\GIS\Hyde Park\Maps\2022\GROUNDWATER CONTOURS - OVERBURDEN.mxd 6/9/2022

N

MW- 4B, 589.87

MW- 6, 589.31

MW- 2B, 589.41

MW- 7B, 589.84

MW- 8, 590.28

MW- 3B, 590.06

MW-16B, 590.07

PMW- 8, 589.30

KANTHAL-GLOBAR BUILDING

MW-17B, 589.27

INJ- 3, 589.26

INJ- 4, 589.47

PMW- 5, 589.30

PMW- 7, 589.04

PMW- 6, 588.95

MW-19B, 590.31

BRICK BLDG

PMW- 9, 589.26

MW-12B, 589.17

MW-18B, 589.35

MW-11B, 588.48

MW-10B, 589.19

MW- 5B, 589.14

MW- 1B, 590.30

MW-14B, 588.61

MW-13B, 588.70

589.8 589.7 589.6 589.5 589.4 589.3 589.2 589.1 589.0 588.9 588.8 588.7 588.6 588.5 588.8 589.0 589.1 589.2 589.3 589.4 588.5 588.6 588.7 588.8 588.9 589.0 589.1 589.2 590.1 590.2 590.3 590.3 590.0 590.1 590.2

HYDE PARK BOULEVARD

RHODE ISLAND AVENUE

Legend

- Injection Well
- Monitoring Well
- Performance Monitoring Well
- Groundwater Flow Direction
- Groundwater Elevation Contour
- Fence Line

Source: ESRI World Imagery

60 0 60 Feet

FORMER CARBORUNDUM COMPANY
TOWN OF NIAGARA, NEW YORK
GROUNDWATER CONTOURS
BEDROCK WELLS (APRIL 29, 2022)

AECOM

FIGURE 4

L:\DCS\Projects\60481767_BPIPO\MISC\GIS\Hyde Park\Maps\2022\GROUNDWATER CONTOURS - BEDROCK.mxd 6/9/2022

MW-3A	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	0.43 J	5 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCE	1.5 J	5 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VC	2 U	2 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCA	5 U	5 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

MW-2A	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	5 U	5 U	1 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCE	1.2 J	5 U	5 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VC	2 U	1.3 J	1.2 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCA	13 J	26	18	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

MW-4A	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	2.8 J	130	94	160	7.5	4.2 J	1.2	1.2	3.4	1.3	0.44 J	NS	NS	NS	NS
DCE	74	115.7	254.9	150	140	31	3.7	1.3	2.8	0.68 J	1.1	NS	NS	NS	NS
VC	45	41	45	73	20	11	4.1	1.1	1.1	2.6	0.96 J	NS	NS	NS	NS
DCA	4.6 J	17	21	18	5.4	1.3 J	0.5 U	1	1.4	1.4	1.8	NS	NS	NS	NS

MW-7A	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	1200	1.8 J	1 U	1 U	1.2 J	1 U	0.5 U	0.5 U	0.5 U	0.66 U	1.7 U	0.25 U	0.20 U	7.3	1 U
DCE	4800	210	65	20	3.8 J	3.9 J	3	1.5	1.9	26	46	21 J	50	150	17
VC	220	150	50	19	1 U	2.2 J	1	3.1	3.7	33	42	35 J	45	150	33
DCA	1000	49	33	22	9.1	15	12	11	12	61 J	140	69	59	90	76 D

MW-16A	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	NS	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	3.3 U	0.33 U	0.6 J	1.3 U	2.3 U	1 U
DCE	NS	8.2	10	11	8.4	8.5	5.9	9.1	6.5	7.3 J	1.4	3.6 J	8.7 J	8.2	8.1
VC	NS	75	180	340	110	300	140	250	18	190	33	120	560	260	290 D
DCA	NS	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	2.5 U	0.25 U	0.68 U	2.1 U	1.9 U	1 U

MW-17A	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	115	22	15	11	5.3	3.1 J	0.62 J	0.5 U	0.5 U	1.7 U	1.7 U	0.20 U	0.20 U	1.8 U	1 U
DCE	230	180	210	160	140	180	150	160	110	120	59	50	38	48	36
VC	18	25	27	30	25	45	49	86	89	120	91	83	78	110	83 D
DCA	59	30	20	26	21	22	16	18	15	17	11	13	12	13	11

MW-19A	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	1.7 J	5 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCE	33	3.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VC	2 U	2.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCA	5 U	5 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

MW-12A	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	2.6 J	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.33 U	0.33 U	NS	NS	NS	NS
DCE	540	64	16	19	19	22	8.9	1.6	9.5	21	16	NS	NS	NS	NS
VC	49	38	16	16	13	14	6.8	9.6	8.8	13	9.2	NS	NS	NS	NS
DCA	5.9	2.7	1.6 J	1.8 J	1.8 J	1.9 J	0.89 J	0.7 J	1.1	1.6	0.91 J	NS	NS	NS	NS

MW-11A	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	5 U	5 U	1 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCE	1.3 J	5 U	1.9 J	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VC	2 U	2 U	3.2 J	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCA	5 U	5 U	1 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

MW-18A	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	36	25	25	23	21	25	27	38	37	29	36	32	34	0.92 U	34
DCE	47	43	51	42	56	58	43	53	51	58	42	43	46	47	54
VC	4.4	7	2.6 J	8.4	2.4 J	3.4 J	0.86 J	2.3	0.62 J	1.8 J	1.1	0.97 J	1.1 J	80	5.7
DCA	5.6	4.7 J	4.2 J	4.7 J	4.2 J	4.9 J	3.6	4.7	4.3	5.0	3.7	3.6	3.7	0.76 U	4.1

MW-10A	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	5 U	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.57 J	6.6 U	6.6 U	5 J	7.6	13 J	8.7 J
DCE	1200	409.4	397.6	630	620	580	560	710	960 D	590	540	500	570	650	540
VC	86	140	140	250	170	130	95	130	83	130	94	130	130	180	85
DCA	25	6.4	5.7	7.7	7	5.6	4.4	5.3	5.4	5.0 UJ	5.0 U	4.3 U	3.4 U	9.5 U	13 U

MW-5A	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	1.3 J	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.66 U	4.1 U	0.47 J	0.52 J	0.46 U	1 U
DCE	320	5.9	110.97	5.7	88	110	240	150	340 D	61	250	10	130	52	78
VC	42	1.8	84	3.3 J	82	190	300	140	340 D	68	310	13	180	62	70 D
DCA	2.1 J	5 U	1 U	1 U	1 U	1.3 U	3.3	1.4	4.2	0.88 J	3.3 J	0.17 J	2.5 J	1.0	1.9

MW-1A	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	5 U	1 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCE	2.4 J	1 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VC	0.44 J	1 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCA	5 UJ	1 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

MW-13A	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	5 U	5 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCE	5 U	5 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VC	2 U	2 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCA	5 U	5 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

MW-14A	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	5 U	5 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCE	1.6 J	1.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VC	0.37 J	2.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCA	5 U	5 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Legend

- Monitoring Well
- Fence Line

LOCATION ID — DATE

	MW-1A	2000
TRICHLOROETHENE	TCE	5 U
CIS 1,2-DICHLOROETHENE	DCE	2.4 J
VINYL CHLORIDE	VC	0.44 J
1,1-DICHLOROETHANE	DCA	5 UJ

RESULT

Notes:
1. Units are shown in µg/L
2. NS = Not Sampled
3. D = Result reported from a secondary dilution analysis.
4. J = The reported concentration is an estimated value.
5. U = Not detected above the reported method detection limit.
6. UJ = Not detected. The reported method detection limit is an estimated value.
7. Monitoring well MW-12A was found destroyed in December 2019.

Source: ESRI World Imagery

60 0 60 Feet

FORMER CARBORUNDUM COMPANY TOWN OF NIAGARA, NEW YORK VOC CONCENTRATIONS IN OVERBURDEN GROUNDWATER (2000 - 2022)

AECOM

FIGURE 5

L:\DCS\Projects\60481767_BPIPO\MISC\GIS\Hyde ParkMaps\2022\GROUNDWATER VOC - OVERBURDEN.mxd 6/16/2022

MW-4B	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	3.2 J	5 U	1 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCE	39	9.7	2.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VC	35	9.5	12	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCA	3.2 J	5 U	1 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

MW-3B	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	5 U	5 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCE	4.8 J	1.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VC	2.3	2.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCA	5	5 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

MW-8	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	5 U	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.33 U	0.33 U	NS	NS	NS	NS
DCE	5.55	2.1	2.3	1.9 J	1.6 J	1.7 J	1.6	1.7	1.9	1.7	1.9	NS	NS	NS	NS
VC	1.9 J	2.6	2.2	2.1 J	1.1 J	1.8 J	1.5	1.9	1.8	1.4	1.6	NS	NS	NS	NS
DCA	5 U	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.25 U	0.25 U	NS	NS	NS	NS

MW-7B	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-17	Dec-19	Mar-20	Dec-21	May-22
TCE	5 U	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.33 U	0.33 U	0.10 U	0.10 U	0.46 U	1 U
DCE	84	7.3	4.5 J	6	1.6 J	1.2 J	0.5 U	1.2	0.82 J	2.2	2.2	1.3	5.4	1.5	1.9
VC	39	24	31	25	9.2	75	5.5	6.1	10	18	17	10	18	18	12
DCA	5 U	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.25 U	0.25 U	0.17 U	0.17 U	0.38 U	1 U

MW-6	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	5 U	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	1.7 U	0.33 U	0.10 U	0.10 U	0.92 U	1 U
DCE	560	85	39	33	30	24	18	20	18	16	12	10	11	13	12
VC	91	69	48	57	47	42	39	57	59	79	48	78	72	98	61 DJ
DCA	0.28 J	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	1.3 U	0.25 U	0.17 U	0.17 U	0.76 U	1 U

MW-2B	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	0.44 J	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.33 U	0.33 U	NS	NS	NS	NS
DCE	260	9.1	3.7 J	1.8 J	2.7 J	2.3 J	1	0.87 J	0.95 J	0.77 J	1.3	NS	NS	NS	NS
VC	92	16	7.6 J	2.6 J	8.6	4 J	2.2	3.4	2.2	1.8	2.6	NS	NS	NS	NS
DCA	5 UJ	5 U	1 U	1 U	1 U	1 U	0.92 J	0.65 J	0.96 J	0.50 J	0.25 U	NS	NS	NS	NS

MW-16B	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	0.97 J	5 U	1 U	1 U	74	2.2 J	2.5 U	4.8	0.5 U	0.33 U	0.33 U	0.10 U	0.10 U	0.46 U	1 U
DCE	130	511.8	81	27	4700	600	2300	1100	0.5 U	0.30 U	0.63 J	1	0.60 J	2.1	13
VC	35	130	48	43	600	610	2000	780	4.3	2.6	4.6	6.7	2.9	6.5	23
DCA	5 U	5 U	1 U	1 U	4 J	1 J	3.4 J	6.6	2	0.39 J	0.25 U	0.17 U	0.17 U	0.38 U	1 U

MW-17B	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	22	3.1 J	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.68 J	0.33 U	0.10 U	0.10 U	1.7 U	1 U
DCE	1000	280	8.5	19	20	35	1.3	0.5 U	0.5 U	10	4.9	11	1.4	31	28
VC	69	69	9.6	27	18	40	2.1	0.8 J	0.88 J	12	7.9	14	2.6	20	23
DCA	5.4	26	45	48	43	38	8.2	1.5	1.7	6.3 J	4.5	4.3	4.5	7.3	8.2

MW-12B	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	5 U	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.66 U	0.83 U	0.25 U	0.20 U	0.46 UJ	1 U
DCE	210	2.6	11	0.98 J	5.6	43	57	13	73	52	62	65	51	73 J-	52
VC	77	2 U	1 U	1 U	10	73	75	9.1	59	110	73	94	85	49 DJ-	73 DJ
DCA	2.3 J	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.66 J	0.63 U	0.43 U	0.41 J	0.40 J-	0.48 J

MW-19B	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	2.4 J	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.33 U	0.33 U	0.10 U	0.10 U	0.46 U	1 U
DCE	41	68	2.1	8.7	2.3 J	2.1 J	2.9	1.8	1.1	1.6	24	1.4	11	1.8	1.5
VC	6.3	7.2	2.1 J	3.3 J	1.6 J	1.2 J	0.65 J	1	1.1	1.5	5.0	1.2	2.3	1.5	1.1
DCA	5 U	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.25 UJ	0.25 U	0.17 U	0.17 U	0.38 U	1 U

MW-18B	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	7.7	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	6.6 U	0.83 U	0.20 U	0.20 U	0.92 U	1 U
DCE	690	62	69	150	110	120	43	35	90	380	69	56	32	47	38
VC	90	220	190	220	140	190	71	40	120	210	92	70	51	80	59
DCA	5 U	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	5.0 UJ	0.63 U	0.34 U	0.34 U	0.76 U	1 U

MW-11B	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	5 U	1 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.33 U	0.33 U	NS	NS	NS	NS
DCE	590	56	1.9 J	2.2 J	1 U	0.8 U	0.5 U	0.56 J	0.54 J	1.1	0.65 J	NS	NS	NS	NS
VC	81	48	7.4	4.6 J	6.1	1.4 J	1.2	1.7	9.7	6.5	1.9	NS	NS	NS	NS
DCA	3.5 J	U	1.3 J	1.8 J	1.4 J	1.9 J	2	1	1.7	0.95 J	1.9	NS	NS	NS	NS

MW-10B	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	68	1 U	1 U	2 U	1 U	1 U	0.5 U	0.5 U	0.5 U	3.3 U	2.6 U	2.0 U	0.50 U	4.6 U	6.3 U
DCE	1800	370	220	960	280	230	190	190	220	360	210	420	210	220	320
VC	95	150	83	180	110	120	22	190	6.1	270	12	180	23	370	140
DCA	1.2 J	1 U	1 U	2 U	1 U	1 U	0.5 U	0.9 J	0.59 J	2.5 UJ	2.0 U	3.4 U	0.85 U	3.8 U	6.3 U

MW-5B	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	2.6 J	5 U	1.1 J	1 U	1 U	1 U	0.97 J	0.58 J	0.5 U	1.7 U	0.33 U	0.20 U	0.20 U	0.92 U	1 U
DCE	420	39	36	48	33	32	19	34	32	36	32	32	26	40	35
VC	45	37	39	63	34	44	33	63	71	91	78	90	68	140	71 D
DCA	1.1 J	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	1.3 U	0.30 J	0.34 U	0.34 U	0.76 U	1 U

MW-1B	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	5 U	1 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCE	4.7 J	0.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VC	3.8	1.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DCA	1.5 J	1 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

MW-13B	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	12	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.33 U	0.33 U	0.19 J	0.10 U	0.92 U	1 U
DCE	310	88	46	17	27	8.6	19	18	9.9	22	7.8	16	1.6	3.7	4.1
VC	40	68	47	24	57	48	15	21	12	38	9.7	21	2.0	6.4	5.2
DCA	0.91 J	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.25 UJ	0.25 U	0.17 J	0.17 U	0.76 U	1 U

MW-14B	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	5 U	5 U	1 U	1 U	1 U	1 U	0.5 U	0.5 U	0.5 U	0.33 U	0.33 U	0.10 U	0.10 U	0.46 U	1 U
DCE	300	64	16	4.1 J	1.5 J	0.8 U	0.67 J	0.95 J	0.94 J	0.92 J	0.72 J	0.37 J	1.0 U	0.81 U	1 U
VC	110	86	33	5.4	5.4	1.5 J	1.2	1.5	1.2	2.9	1.3	0.7 J	1.0	1.9	1.1
DCA	0.61 J	5 U	1 U	1 U	1 U	1 U	0.5 U	0.53 J	0.5 U	0.43 J	0.34 J	0.19 J	0.24 J	0.38 U	1 U

MW-15	2000	Oct-09	May-10	Oct-11	Jun-12	Aug-13	Apr-14	Nov-15	Apr-16	Sep-17	Apr-18	Dec-19	Mar-20	Dec-21	May-22
TCE	5 U	5 U	1 U	1 U	1 U	1 U	NS	NS	NS	NS	0.10 UJ	NS	NS	NS	NS
DCE	400	57.1	5.9	32	0.8 U	0.8 U	NS	NS	NS	NS	5.2	NS	NS	NS	NS
VC	120	82	17	52	1.8 J	2 J	NS	NS	NS	NS	16	NS	NS	NS	NS
DCA	0.95 J	2	1.3 J	1.4 J	1.2 J	1 U	NS	NS	NS	NS	1.1	NS	NS	NS	NS

Legend

- Monitoring Well
- Fence Line

LOCATION ID	DATE
MW-1B	2000
TRICHLOROETHENE — TCE	5 U
CIS 1,2-DICHLOROETHENE — DCE	4.7 J
VINYL CHLORIDE — VC	3.8
1,1-DICHLOROETHANE — DCA	1.5 J
	RESULT

Notes:
1. Units are shown in µg/L
2. NS = Not Sampled
3. D = Result reported from a secondary dilution analysis.
4. J = The reported concentration is an estimated value.
5. J- = The reported concentration is an estimated value with low bias.
6. U = Not detected above the reported method detection limit.
7. UJ = Not detected. The reported method detection limit is an estimated value.

Source: ESRI World Imagery

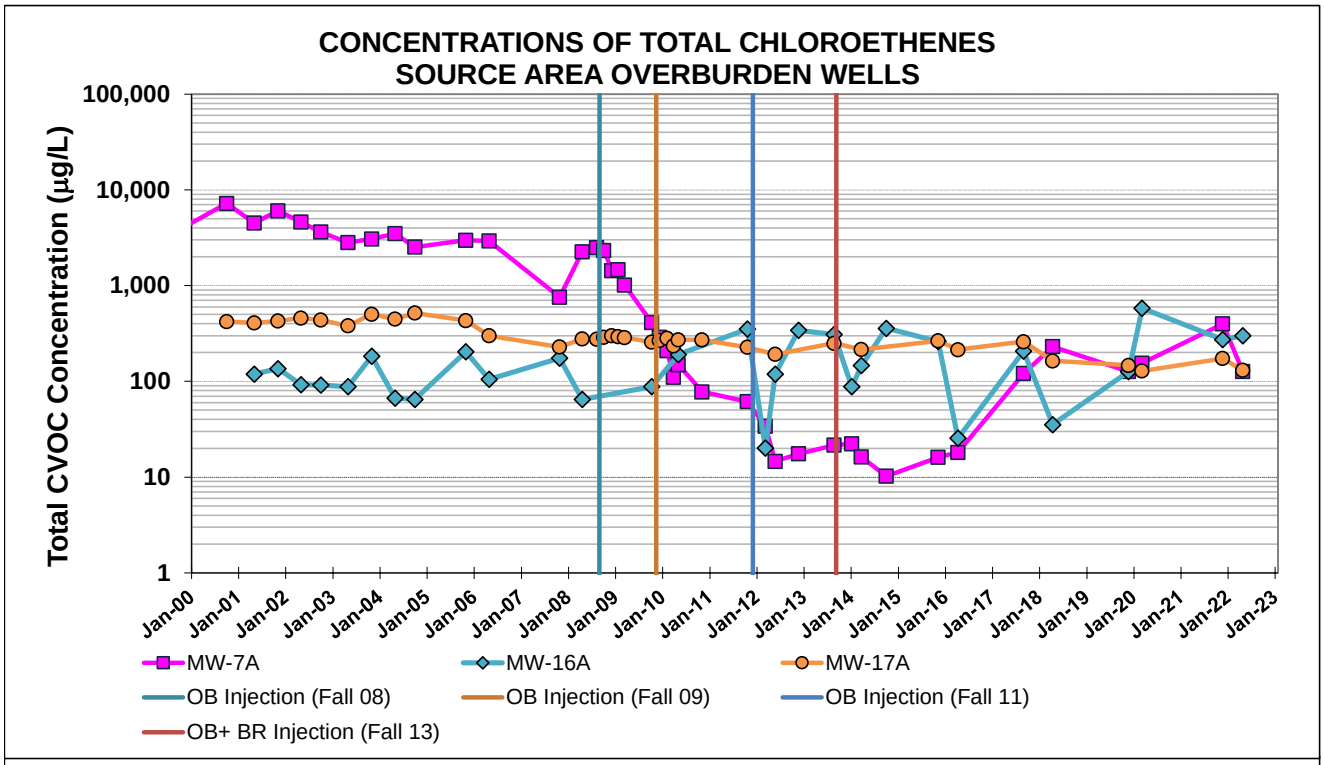
60 0 60 Feet

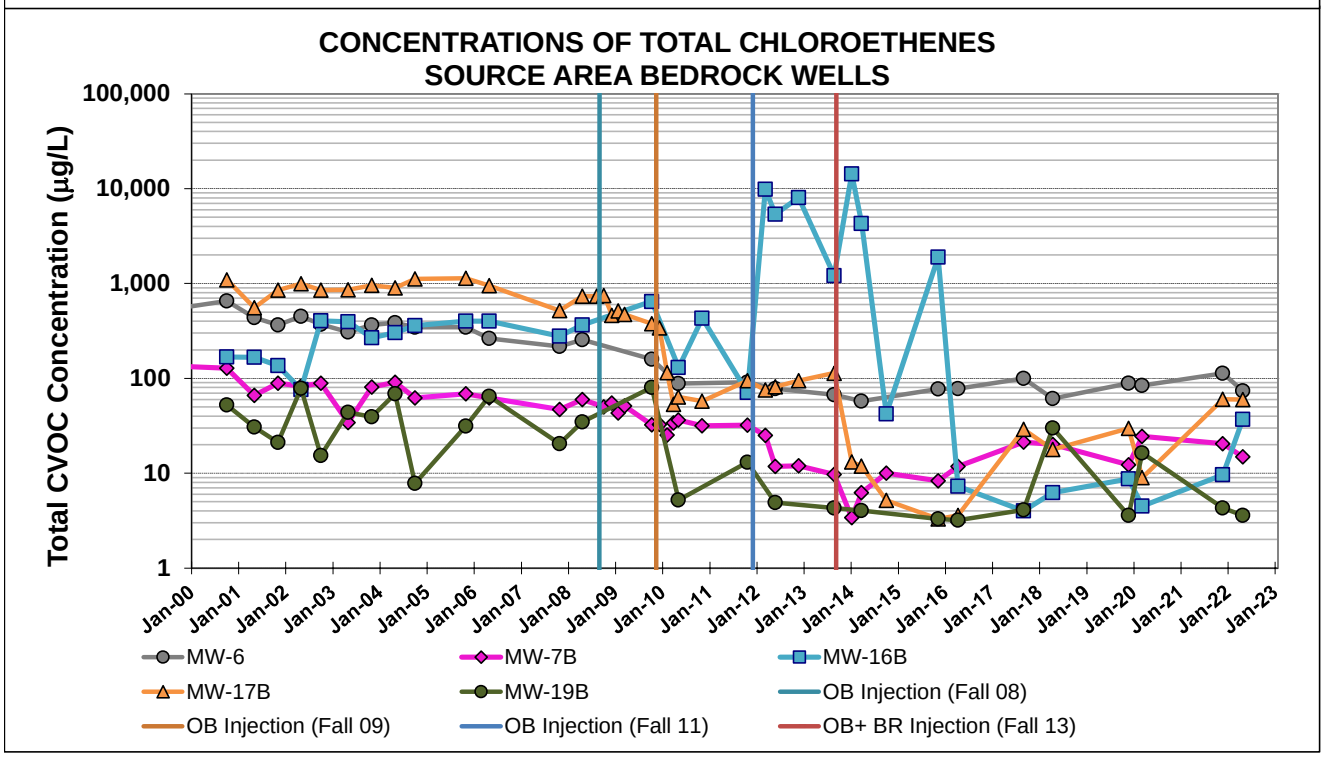
FORMER CARBORUNDUM COMPANY TOWN OF NIAGARA, NEW YORK VOC CONCENTRATIONS IN BEDROCK GROUNDWATER (2000 - 2022)

AECOM

FIGURE 6

L:\DCS\Projects\60481767 BP\PO\MISC\GIS\Hyde Park\Maps\2022\GROUNDWATER VOC - BEDROCK.mxd 6/16/2022





Note:
Total CVOC Concentration is the sum of TCE, cis-1,2-DCE, VC, and DCA concentrations.

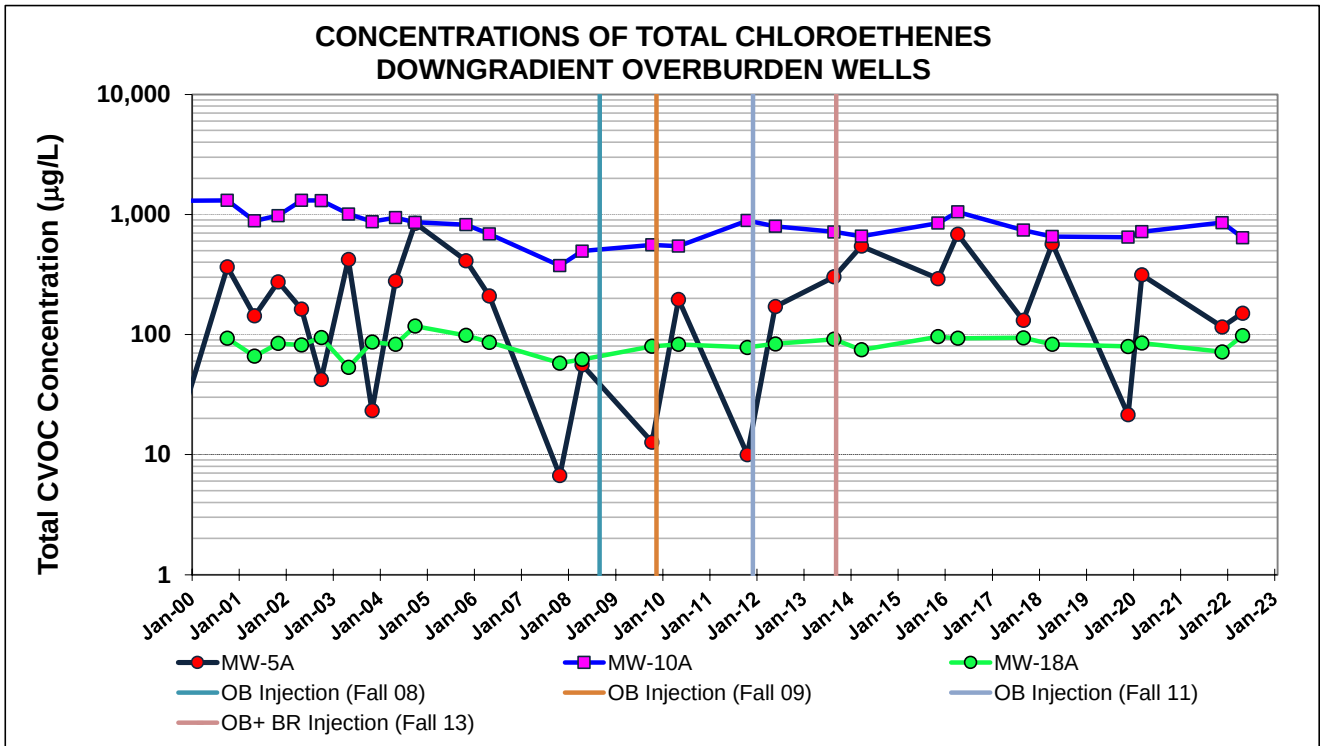
FIGURE 7

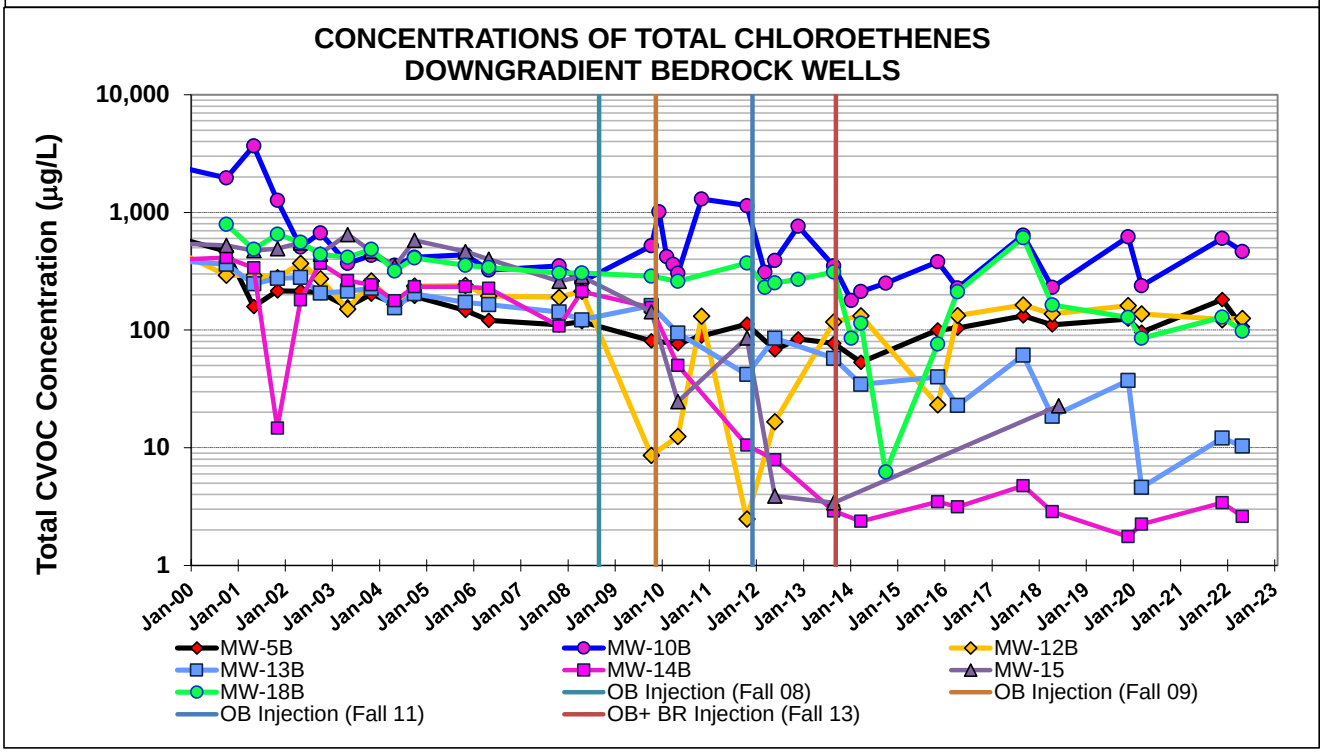
FORMER CARBORUNDUM COMPANY

LONG TERM TRENDS OF TOTAL CHLORINATED ETHENES IN SOURCE AREA OVERBURDEN AND BEDROCK WELLS

AECOM

1 John James Audubon Parkway, Amherst, NY 14228





Note:
Total CVOC Concentration is the sum of TCE, cis-1,2-DCE, VC, and DCA concentrations.

FIGURE 8

FORMER CARBORUNDUM COMPANY

LONG TERM TRENDS OF TOTAL CHLORINATED ETHENES IN DOWNGRADIENT OVERBURDEN AND BEDROCK WELLS

AECOM

1 John James Audubon Parkway, Amherst, NY 14228

Appendix A

Groundwater Sampling Logs

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

bp

Site Name: IP-BP Hyde Park

Well ID: MW-5A

Well Diameter: 2"

Samplers:
A. M. Kropovitch

Weather:
75F, Hot, slight breeze

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data:

Method: Low Flow | **Date:** 05/10/22 | **Time:** 1250 (hhmm)

Initial Depth to Water (feet below top of PVC): 9.12

Depth to Bottom (feet below top of PVC): 21.5

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
1255	9.12	200	0.0	14.1	0.857	1.46	7.41	-0.7	88.8	
1300	9.93	201	0.3	13.9	0.830	0.44	7.29	14.1	18.8	Turb. has bubbles; clear
1305	9.92	202	0.5	14.3		0.45	7.35	21.8	17.7	
1310	9.52	203	0.8	14.6	0.803	0.49	7.41	15.2	18.0	
1315	9.42	204	1.1	15.4	0.805	0.44	7.38	29.6	7.20	
1320	9.44	205	1.3	15.9	0.818	0.46	7.45	30.7	4.64	
1325	9.42	206	1.6	15.9	0.819	0.46	7.46	36.6	2.11	
1330	9.42	207	1.9	16.3	0.822	0.45	7.46	35.4	3.61	
1335	9.42	208	2.2	16.5	0.827	0.44	7.46	38.6	2.70	
1340	9.42	209	2.4	16.5	0.830	0.44	7.48	36.2	2.39	
1345	9.42	210	2.7	16.7	0.834	0.44	7.48	38.4	2.07	
1350	9.42	211	3.0	16.7	0.834	0.43	7.44	39.0	2.66	
1355	9.42	212	3.3	17.0	0.836	0.44	7.47	37.1	1.58	
1400	9.42	213	3.6	16.6	0.839	0.44	7.47	37.4	2.76	
1405	9.42	214	3.8	16.3	0.836	0.44	7.48	42.1	1.90	

Sample Collection Method: Peristaltic Pump | **Date:** 05/10/22 | **Time:** 1405 | **Total Volume of Water Purged:** 4.0 gallons

Hach Test Kits

Alkalinity (mg/L)	240
Carbon Dioxide (mg/L)	30
Ferrous Iron (mg/L)	0.00
Hydrogen Sulfide (mg/L)	0.0
1 Well Volume	2.1

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☑	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☑	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☑	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☑	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☑	1-1000 mL plastic	unpreserved	5210B
COD	☑	1-250 mL plastic	H2SO4	410.4
Sulfide	☑	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

bp

Site Name: IP-BP Hyde Park

Well ID: MW-5B

Well Diameter: 2"

Samplers: E. Au

Weather: 75F, Sunny

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data:

Method: Low Flow | **Date:** 05/10/22 | **Time:** 1247 (hhmm)

Initial Depth to Water: 8.67 feet below top of PVC

Depth to Bottom: 39.5

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
1250	9.14	300	0.0	14.0	1.58	11.30	10.85	115.7	56.7	
1255	9.40	250	0.3	13.8	2.84	8.17	11.35	72.3	47.2	
1300	9.30	250	0.7	13.9		6.20	9.42	100.3	42.4	
1305	9.30	250	1.0	13.9	1.46	5.86	9.17	100.5	32.3	
1310	9.30	250	1.3	13.9	1.48	5.06	8.81	90.8	21.3	
1315	9.30	250	1.7	13.9	1.48	4.61	8.66	78.4	21.4	
1320	9.30	250	2.0	13.9	1.48	4.09	8.50	71.7	24.4	
1325	9.30	250	2.3	13.9	1.48	4.01	8.54	68.4	27.5	
1330	9.30	250	2.6	14.0	1.48	3.86	8.52	63.7	30.9	
1335	9.30	250	3.0	14.0	1.47	3.64	8.46	54.6	34.9	
1340	9.30	250	3.3	14.1	1.47	3.52	8.32	47.2	53.4	

Sample Collection Method: Peristaltic Pump | **Date:** 05/10/22 | **Time:** 1340 | **Total Volume of Water Purged:** 3.0 gallons

Hach Test Kits

Alkalinity (mg/L)	340
Carbon Dioxide (mg/L)	55
Ferrous Iron (mg/L)	0.14
Hydrogen Sulfide (mg/L)	0.0
1 Well Volume	5.2

MS/MSD collected.

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☑	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☑	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☑	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☑	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☑	1-1000 mL plastic	unpreserved	5210B
COD	☑	1-250 mL plastic	H2SO4	410.4
Sulfide	☑	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

bp

Site Name: IP-BP Hyde Park	**Well ID:** MW-6	**Well Diameter:** 2"

Samplers:
A. M. Kropovitch

Weather:
78F, Sunny, Hot

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data:

Method: Low Flow | **Date:** 05/11/22 | **Time:** 1330

Initial Depth to Water	Depth to Bottom
6.35 feet below top of PVC	43.00

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
1340	6.41	350	0.0	13.8	1.567	3.85	7.31	-228.9	2.93	
1345	6.45	350	0.5	13.0	1.542	0.87	7.08	-252.6	5.37	
1350	6.45	350	0.9	12.8		0.68	6.97	-263.1	3.22	
1355	6.43	350	1.4	12.9	1.549	0.55	7.07	-267.8	2.72	
1400	6.43	350	1.8	12.8	1.549	0.48	7.07	-270.0	2.58	
1405	6.42	350	2.3	13.0	1.550	0.47	7.06	-270.1	2.64	
1410	6.44	350	2.8	13.1	1.548	0.46	7.04	-270.0	2.37	
1415	6.35	350	3.2	13.1	14.549	0.43	7.03	-270.5	2.87	
1420	6.44	350	3.7	13.0	1.548	0.41	7.03	-270.5	2.58	

Sample Collection Method: Peristaltic Pump | **Date:** 05/11/22 | **Time:** 1420 | **Total Volume of Water Purged:** 3.5 gallons

Hach Test Kits

Alkalinity (mg/L)	360
Carbon Dioxide (mg/L)	40
Ferrous Iron (mg/L)	0
Hydrogen Sulfide (mg/L)	0.7
1 Well Volume	6.2

VOCs only

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☐	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☐	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☐	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☐	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☐	1-1000 mL plastic	unpreserved	5210B
COD	☐	1-250 mL plastic	H2SO4	410.4
Sulfide	☐	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

bp

Site Name:	Well ID:	Well Diameter:
IP-BP Hyde Park	MW-7A	2"

Samplers: T. Urban

Weather: 80F, Sunny, calm

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data:

Method: Low Flow | Date: 05/12/22 | Time: 11:55

Initial Depth to Water (feet below top of PVC)	Depth to Bottom (feet below top of PVC)
6.32	21.85

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
1155	6.32	260	0.0	12.0	1.129	2.48	7.83	-159.9	15.5	
1200	8.62	260	0.3	12.2	1.116	3.14	7.27	-171.3	7.37	
1205	9.55	260	0.7	12.5		1.12	7.02	-712.6	4.7	
1210	10.22	260	1.0	12.3	1.107	0.80	7.01	-175.7	4.97	
1215	10.71	260	1.4	12.4	1.103	0.64	6.97	-179.3	4.98	
1220	11.02	260	1.7	12.6	1.102	0.59	6.95	-186.7	5.14	
1225	11.38	260	2.1	12.5	1.099	0.47	6.91	-202.2	5.06	
1230	11.50	260	2.4	12.6	1.098	0.41	6.91	-218.9	5.56	
1235	11.62	260	2.7	12.6	1.098	0.38	6.89	-222.7	4.91	
1240	11.68	260	3.1	12.6	1.101	0.37	6.88	-224.8	4.59	

Sample Collection Method: Peristaltic Pump | **Date:** 15/12/22 | **Time:** 1240 | **Total Volume of Water Purged:** 3 gallons

Hach Test Kits

Alkalinity (mg/L)	605
Carbon Dioxide (mg/L)	60
Ferrous Iron (mg/L)	0.67
Hydrogen Sulfide (mg/L)	0.7
1 Well Volume	2.6

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☑	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☑	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☑	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☑	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☑	1-1000 mL plastic	unpreserved	5210B
COD	☑	1-250 mL plastic	H2SO4	410.4
Sulfide	☑	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

bp

Site Name:	Well ID:	Well Diameter:
IP-BP Hyde Park	MW-7B	2"

Samplers: T. Urban

Weather: 75-85F, Sunny, calm

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data:

Method: Low Flow | Date: 05/12/22 | Time: 1050 (hhmm)

Initial Depth to Water	Depth to Bottom
7.00 feet below top of PVC	43.43

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
1050	7.00	250	0.0	13.0	1.515	2.85	7.84	-158.0	8.64	
1055	7.20	250	0.3	13.3	1.481	2.11	7.32	-146.7	7.93	
1100	7.20	250	0.7	12.9		0.88	7.17	-156.2	5.11	
1105	7.20	250	1.0	13.7	1.461	0.58	7.06	-173.3	3.41	
1110	7.20	250	1.3	13.3	1.465	0.48	7.06	-178.6	3.97	
1115	7.20	250	1.7	13.3	1.458	0.42	7.03	-182.3	5.33	
1120	7.20	250	2.0	13.1	1.456	0.36	7.02	-186.4	3.08	
1125	7.20	250	2.3	13.1	1.456	0.35	7.01	-189.0	2.65	
1130	7.20	250	2.6	13.2	1.454	0.34	7.00	-190.5	2.51	
1135	7.20	250	3.0	13.3	1.451	0.33	6.99	-192.6	1.95	

Sample Collection Method: Peristaltic Pump | **Date:** 05/12/22 | **Time:** 1135 | **Total Volume of Water Purged:** 3 Gallons

Hach Test Kits

Alkalinity (mg/L)	300
Carbon Dioxide (mg/L)	45
Ferrous Iron (mg/L)	0.03
Hydrogen Sulfide (mg/L)	0.7
1 Well Volume	6.2

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☑	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☑	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☑	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☑	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☑	1-1000 mL plastic	unpreserved	5210B
COD	☑	1-250 mL plastic	H2SO4	410.4
Sulfide	☑	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

bp

Site Name:	Well ID:	Well Diameter:
IP-BP Hyde Park	MW-10A	2"

Samplers: E. Au

Weather: 70F, Sunny

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data:

Method: Low Flow | Date: 05/10/22 | Time: 0935 (hhmm)

Initial Depth to Water (feet below top of PVC)	Depth to Bottom (feet below top of PVC)
8.28	20.82

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
935	8.48	250	0.0	13.3	1.42	2.38	7.77	70.2	15.4	
945	8.48	250	0.3	13.0	1.37	1.02	7.68	38.9	12.8	
950	8.50	250	0.7	13.0		1.05	7.63	18.5	11.8	
955	8.50	250	1.0	12.8	1.36	0.87	7.61	9.7	5.48	
1000	8.50	250	1.3	13.0	1.37	0.83	7.60	0.6	4.34	
1005	8.50	250	1.7	13.0	1.36	0.85	7.59	-0.6	5.73	
1010	8.50	250	2.0	13.0	1.36	0.83	7.58	-3.8	3.7	
1015	8.50	250	2.3	13.3	1.36	0.91	7.52	-8.9	3.87	
1020	8.50	250	2.6	13.5	1.36	1.09	7.58	-13.6	4.94	
1025	8.50	250	3.0	13.3	1.36	1.48	7.50	-10.3	12.80	
1030	8.50	250	3.3	13.4	1.37	2.54	7.55	-12.2	3.84	
1035	8.50	251	3.6	13.5	1.37	3.04	7.54	-16.1	3.4	
1040	8.50	252	4.0	13.4	1.37	3.27	7.55	-14.6	3.61	

Sample Collection Method: Peristaltic Pump | **Date:** 05/10/22 | **Time:** 1040 | **Total Volume of Water Purged:** 4 gallons

Hach Test Kits

Alkalinity (mg/L)	340
Carbon Dioxide (mg/L)	35
Ferrous Iron (mg/L)	0.69
Hydrogen Sulfide (mg/L)	0.0
1 Well Volume	2.1

Duplicated FD-051022 collected at this location. Time listed as 1020 hours.

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☑	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☑	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☑	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☑	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☑	1-1000 mL plastic	unpreserved	5210B
COD	☑	1-250 mL plastic	H2SO4	410.4
Sulfide	☑	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

bp

Site Name:	Well ID:	Well Diameter:
IP-BP Hyde Park	MW-10B	4"

Samplers:
A. M. Kropovitch

Weather:
64F, Sunny

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data:

Method: Low Flow | Date: 05/10/22 | Time: 0950 (hhmm)

Initial Depth to Water	Depth to Bottom
7.51 feet below top of PVC	38.8

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
0950	7.51	250	0.0	12.6	1.514	1.50	6.98	-20.6	1.67	
0955	7.82	250	0.3	12.5	1.511	1.33	6.96	-26.7	1.55	
1000	7.80	250	0.7	12.5		2.80	6.99	-41.5	1.53	
1005	7.54	250	1.0	12.5	1.503	2.31	6.98	-45.9	1.8	
1010	7.52	250	1.3	12.4	1.492	2.16	7.02	-50.0	1.61	
1015	7.54	250	1.7	12.6	1.478	2.02	7.03	-56.0	1.5	
1025	7.62	400	2.2	12.6	1.469	1.94	6.99	-62.1	1.58	skipped 1020 reading
1030	7.56	400	2.7	12.6	1.455	1.98	6.99	-61.7	1.76	
1035	7.54	400	3.2	12.6	1.448	2.18	7.02	-64.0	1.35	
1040	7.60	400	3.8	12.6	1.431	2.07	6.98	-62.9	1.76	
1045	7.55	400	4.3	12.7	1.413	2.35	7.00	-65.3	1.60	
1050	7.55	400	4.8	12.7	1.419	2.25	7.00	-64.1	1.64	
1055	7.61	400	5.3	12.7	1.405	2.40	7.00	-69.1	1.36	
1100	7.60	400	5.9	12.9	1.392	2.17	6.99	-68.4	1.7	
1105	7.60	400	6.4	13.0	1.380	2.02	6.99	-69.8	1.56	

Sample Collection Method: Peristaltic Pump | **Date:** 05/10/22 | **Time:** 1105 | **Total Volume of Water Purged:** 8 Gallons

Hach Test Kits

Alkalinity (mg/L)	360
Carbon Dioxide (mg/L)	45
Ferrous Iron (mg/L)	0.15
Hydrogen Sulfide (mg/L)	0.0
1 Well Volume	20

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☑	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☑	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☑	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☑	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☑	1-1000 mL plastic	unpreserved	5210B
COD	☑	1-250 mL plastic	H2SO4	410.4
Sulfide	☑	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

bp

Site Name:	Well ID:	Well Diameter:
IP-BP Hyde Park	MW-12B	4"

Samplers: T. Urban

Weather: 60-85F, Sunny, calm

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data:

Method: Low Flow | Date: 05/11/22 | Time: 0840 (hhmm)

Initial Depth to Water	Depth to Bottom
1.82	30.40

feet below top of PVC

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
0840	1.82	300	0.0	11.3	1.375	3.31	6.19	118.2	12.4	
0845	1.82	300	0.4	11.3	1.436	0.59	6.75	42.0	3.87	
0850	1.82	300	0.8	11.3		0.48	6.83	22.8	2.17	
0855	1.82	300	1.2	11.2	1.434	0.39	6.94	-0.5	1.89	
0900	1.82	300	1.6	11.2	1.437	0.36	6.97	-9.1	3.07	
0905	1.82	300	2.0	11.2	1.437	0.34	6.99	-17.6	2.70	
0910	1.82	300	2.4	11.2	1.437	0.33	7.00	-21.6	2.07	
0915	1.82	300	2.8	11.3	1.437	0.32	7.01	-26.2	2.06	
0920	1.82	300	3.2	11.3	1.436	0.31	7.02	-29.5	2.18	
0925	1.82	300	3.6	11.3	1.436	0.30	7.03	-33.0	1.82	
0930	1.82	300	4.0	11.3	1.437	0.29	7.04	-35.5	2.09	
0935	1.82	300	4.4	11.3	1.438	0.29	7.05	-38.7	1.74	
0940	1.82	300	4.8	11.3	1.439	0.29	7.05	-40.9	2.08	

Sample Collection Method: Peristaltic Pump | **Date:** 05/11/22 | **Time:** 0940 | **Total Volume of Water Purged:** 5 gallons

Hach Test Kits

Alkalinity (mg/L)	300
Carbon Dioxide (mg/L)	45
Ferrous Iron (mg/L)	0.03
Hydrogen Sulfide (mg/L)	0.2
1 Well Volume	4.9

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☑	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☑	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☑	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☑	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☑	1-1000 mL plastic	unpreserved	5210B
COD	☑	1-250 mL plastic	H2SO4	410.4
Sulfide	☑	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

Site Name: IP-BP Hyde Park

Well ID: MW-13B

Well Diameter: 2"

Samplers: T. Urban

Weather: 70-80F, Sunny, calm

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data:

Method: Low Flow | **Date:** 05/11/22 | **Time:** 1025 (hhmm)

Initial Depth to Water (feet below top of PVC): 6.15

Depth to Bottom (feet below top of PVC): 36.55

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
1025	6.15	380	0.0	12.9	2.379	0.64	7.50	-128.5	overrange	
1030	6.83	380	0.5	12.4	2.295	0.45	7.37	-101.7	95.9	
1035	6.77	380	1.0	12.6		0.41	7.35	-94.2	93.8	
1040	6.72	380	1.5	12.7	2.267	0.38	7.33	-83.8	92.1	
1045	6.65	380	2.0	12.8	2.270	0.38	7.32	-76.6	67.3	
1050	6.77	380	2.5	12.7	2.283	0.33	7.30	-69.4	62.4	
1055	6.77	380	3.0	12.7	2.284	0.33	7.29	-65.2	47.5	
1100	6.77	380	3.5	12.7	2.286	0.33	7.28	-61.0	31.1	
1105	6.77	380	4.0	12.9	2.290	0.34	7.28	-59.3	20.5	

Sample Collection Method: Peristaltic Pump | **Date:** 05/11/22 | **Time:** 1105 | **Total Volume of Water Purged:** 4 Gallons

Hach Test Kits

Alkalinity (mg/L)	240
Carbon Dioxide (mg/L)	25
Ferrous Iron (mg/L)	0.19
Hydrogen Sulfide (mg/L)	0.0
1 Well Volume	5.2

VOCs only.

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☐	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☐	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☐	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☐	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☐	1-1000 mL plastic	unpreserved	5210B
COD	☐	1-250 mL plastic	H2SO4	410.4
Sulfide	☐	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

Site Name: IP-BP Hyde Park

Well ID: MW-14B

Well Diameter: 2"

Samplers:
E. Au
A. M. Kropovitch

Weather: 57F, Sunny

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data:

Method: Low Flow | **Date:** 12/07/21 | **Time:** 1117 (hhmm)

Initial Depth to Water (feet below top of PVC): 4.18

Depth to Bottom (feet below top of PVC): 31.10

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
845	4.18	200	0.0	14.3	1.636	1.62	6.85	-82.5	5.69	faint odor
850	5.10	200	0.3	14.2	1.775	0.65	6.72	-124.7	7.56	water clear with grey floaters
855	4.96	200	0.5	14.8		0.39	6.91	-147.0	9.71	
900	5.00	200	0.8	14.5	1.782	0.33	6.96	-159.0	7.04	
905	5.00	200	1.1	14.5	1.778	0.29	6.91	-163.9	7.41	
910	5.00	200	1.3	14.8	1.787	0.27	6.90	-174.0	5.27	
915	5.00	200	1.6	14.8	1.784	0.33	6.94	-177.5	5.2	
920	5.00	200	1.8	15.2	1.787	0.77	6.96	-183.6	4.77	
925	5.00	200	2.1	15.5	1.786	0.94	6.99	-187.2	6.57	
930	4.80	200	2.4	16.1	1.781	0.87	7.02	-193.0	4.87	

Sample Collection Method: Peristaltic Pump | **Date:** 12/07/21 | **Time:** 1203 | **Total Volume of Water Purged:** 2.5 Gallons

Hach Test Kits

Alkalinity (mg/L)	340
Carbon Dioxide (mg/L)	40
Ferrous Iron (mg/L)	0.04
Hydrogen Sulfide (mg/L)	3.0
1 Well Volume	4.8

VOCs only

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☐	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☐	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☐	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☐	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☐	1-1000 mL plastic	unpreserved	5210B
COD	☐	1-250 mL plastic	H2SO4	410.4
Sulfide	☐	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

bp

Site Name: IP-BP Hyde Park

Well ID: MW-16A

Well Diameter: 2"

Samplers: T. Urban

Weather: 75-80F, Sunny, calm

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data:

Method: Low Flow | **Date:** 05/11/22 | **Time:** 1150 (hhmm)

Initial Depth to Water 2.70 feet below top of PVC | **Depth to Bottom** 19.25

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
1150	2.70	250	0.0	11.8	2.824	1.09	7.88	30.7	12.3	
1155	5.26	250	0.3	11.0	2.805	0.59	7.15	32.1	4.93	
1200	7.85	250	0.7	10.7		0.47	7.03	42.6	3.67	
1205	10.00	250	1.0	10.8	2.798	0.46	7.01	47.7	2.02	
1210	10.75	250	1.3	10.8	2.800	0.51	7.02	50.8	6.99	
1215	11.51	250	1.7	10.9	2.804	0.57	7.03	52.3	5.87	
1220	12.90	250	2.0	10.8	2.799	0.45	7.00	54.9	5.12	
1225	13.70	250	2.3	10.9	2.797	0.44	6.99	56.1	4.36	
1230	15.00	250	2.6	11.0	2.792	0.42	6.99	57.9	4.06	

Sample Collection Method: Peristaltic Pump | **Date:** 05/11/22 | **Time:** 1230 | **Total Volume of Water Purged:** 2.5 Gallons

Hach Test Kits

Alkalinity (mg/L)	440
Carbon Dioxide (mg/L)	90
Ferrous Iron (mg/L)	0.04
Hydrogen Sulfide (mg/L)	0.0
1 Well Volume	2.8

Well drawing down; otherwise stable. Grab sampled.

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☑	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☑	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☑	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☑	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☑	1-1000 mL plastic	unpreserved	5210B
COD	☑	1-250 mL plastic	H2SO4	410.4
Sulfide	☑	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

Site Name: IP-BP Hyde Park

Well ID: MW-16B

Well Diameter: 2"

Samplers: T. Urban

Weather: 80F, Sunny, calm

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data:

Method: Low Flow | **Date:** 05/11/22 | **Time:** 1300 (hhmm)

Initial Depth to Water: 2.50 feet below top of PVC | **Depth to Bottom:** 39.12

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
1300	2.50	400	0.0	11.8	1.244	0.70	7.57	-143.6	10.70	
1305	2.70	400	0.5	11.8	1.240	0.58	7.41	-202.8	20.8	
1310	2.75	400	1.1	11.9		0.32	7.28	-249.2	24.1	
1315	2.80	400	1.6	12.2	1.145	0.28	7.29	-273.2	25.7	
1320	2.82	400	2.1	12.2	1.180	0.26	7.28	-286.7	16.2	
1325	2.80	400	2.6	12.3	1.253	0.25	7.24	-297.2	14.7	
1330	2.80	400	3.2	12.3	1.324	0.23	7.23	-311.7	13.0	
1335	2.80	400	3.7	12.3	1.352	0.22	7.23	-320.7	10.82	
1340	2.80	400	4.2	12.3	1.366	0.21	7.21	-324.7	6.84	
1345	2.80	400	4.8	12.1	1.369	0.21	7.20	-324.6	5.50	
1350	2.80	400	5.3	12.2	1.374	0.21	7.18	-324.3	6.49	

Sample Collection Method: Peristaltic Pump | **Date:** 05/11/22 | **Time:** 1350 | **Total Volume of Water Purged:** 5 Gallons

Hach Test Kits

Alkalinity (mg/L)	340
Carbon Dioxide (mg/L)	55
Ferrous Iron (mg/L)	0.05
Hydrogen Sulfide (mg/L)	>5.0
1 Well Volume	6.2

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☑	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☑	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☑	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☑	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☑	1-1000 mL plastic	unpreserved	5210B
COD	☑	1-250 mL plastic	H2SO4	410.4
Sulfide	☑	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

Site Name: IP-BP Hyde Park

Well ID: MW-17A

Well Diameter: 2"

Samplers:
E. Au
A. M. Kropovitch

Weather: 59F, Sunny

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data:

Method: Low Flow

Date: 05/12/22 **Time:** 0845 (hhmm)

Initial Depth to Water 3.16 feet below top of PVC

Depth to Bottom 16.15

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
0845	3.52	300	0.0	12.5	0.971	6.57	7.33	-43.3	6.12	
0850	3.74	300	0.4	12.0	0.968	2.24	7.13	-59.1	7.72	
0855	3.90	300	0.8	11.9		1.21	7.12	-67.8	10.47	
0900	4.04	300	1.2	12.0	0.950	1.22	7.15	-76.8	5.79	
0905	4.09	300	1.6	12.0	0.938	1.41	7.19	-82.1	7.19	
0910	4.12	300	2.0	12.0	0.927	1.20	7.21	-85.0	6.52	
0915	4.15	300	2.4	12.0	0.920	0.99	7.24	-89.8	4.89	
0920	4.20	300	2.8	12.1	0.911	0.86	7.23	-91.9	5.11	
0925	4.25	300	3.2	12.0	0.900	0.76	7.23	-92.9	3.48	
0930	4.30	300	3.6	12.1	0.893	0.68	7.22	-95.0	4.33	
0935	4.27	300	4.0	12.3	0.890	0.59	7.31	-99.4	3.43	
0940	4.27	300	4.4	12.4	0.886	0.56	7.32	-101.3	2.8	
0945	4.27	300	4.8	12.4	0.881	0.53	7.34	-102.8	2.43	
0950	4.29	300	5.2	12.3	0.876	0.52	7.34	-103.0	2.46	

Sample Collection Method: Peristaltic Pump **Date:** 05/12/22 **Time:** 0950

Total Volume of Water Purged: 6.5 Gallons

Hach Test Kits

Alkalinity (mg/L)	445
Carbon Dioxide (mg/L)	30
Ferrous Iron (mg/L)	0.66
Hydrogen Sulfide (mg/L)	0.0
1 Well Volume	2.2

Rinse Blank collected @ 1015. RB-051222

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☑	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☑	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☑	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☑	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☑	1-1000 mL plastic	unpreserved	5210B
COD	☑	1-250 mL plastic	H2SO4	410.4
Sulfide	☑	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

bp

Site Name:	Well ID:	Well Diameter:
IP-BP Hyde Park	MW-17B	2"

Samplers:
E. Au
A. M. Kropovitch

Weather:
75F, Sunny

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data:

Method: Low Flow | Date: 05/12/22 | Time: 1145 (hhmm)

Initial Depth to Water	Depth to Bottom
3.82	30.92

feet below top of PVC

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
1145	3.90	350	0.0	15.2	1.180	4.28	6.68	-135.0	655	gray, cloudy, strong odor
1150	3.91	350	0.5	14.8	1.134	1.57	6.45	-145.7	33.0	
1155	3.92	350	0.9	14.8		0.99	6.52	-166.1	50.0	
1200	3.94	350	1.4	14.7	1.050	0.70	6.45	-196.0	49.0	
1205	3.94	350	1.8	15.1	1.038	0.57	6.88	-216.1	33.9	
1210	3.98	400	2.4	15.2	0.994	0.54	6.79	-223.9	28.6	
1215	3.98	400	2.9	14.1	0.923	0.50	6.80	-248.8	29.1	
1220	3.98	400	3.4	14.0	0.876	0.45	6.70	-251.6	14.9	
1225	3.98	400	4.0	14.2	0.878	0.48	6.64	-248.7	22.4	
1230	4.00	400	4.5	14.3	0.914	0.41	6.60	-250.3	17.8	
1235	5.00	400	5.0	14.1	0.885	0.41	6.71	-240.0	19.4	
1240	6.00	400	5.5	14.4	0.912	0.42	6.59	-251.0	15.4	
1245	7.00	400	6.1	14.3	0.955	0.38	6.67	-257.1	11.6	
1250	8.00	400	6.6	14.4	0.944	0.32	6.77	-256.6	8.20	
1255	9.00	400	7.1	14.5	0.928	0.37	6.69	-264.0	8.84	

Sample Collection Method: Peristaltic Pump | **Date:** 05/12/22 | **Time:** 1410 | **Total Volume of Water Purged:** 15.5 gallons

Hach Test Kits

Alkalinity (mg/L)	480
Carbon Dioxide (mg/L)	100
Ferrous Iron (mg/L)	0.29
Hydrogen Sulfide (mg/L)	>5.0
1 Well Volume	4.6

Well off gassing after start of pumping inside the water column.
FD-051222
Time listed as 0000

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☑	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☑	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☑	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☑	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☑	1-1000 mL plastic	unpreserved	5210B
COD	☑	1-250 mL plastic	H2SO4	410.4
Sulfide	☑	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

bp

Site Name:	Well ID:	Well Diameter:
IP-BP Hyde Park	MW-17B	2"

Samplers:
E. Au
A. M. Kropovitch

Weather:
75F, Sunny

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data:

Method: Low Flow | Date: 05/12/22 | Time: 1145 (hhmm)

Initial Depth to Water	Depth to Bottom
3.82	30.92

feet below top of PVC

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
1300	4.00	400	7.6	14.5	0.932	0.29	6.67	-273.0	7.02	
1305	4.00	400	8.2	14.4	0.991	0.28	6.70	-280.7	9.68	
1310	4.00	400	8.7	14.6		0.28	6.68	-287.3	12.8	
1315	4.00	400	9.2	14.4	1.065	0.25	6.72	-282.2	8.55	
1320	4.00	400	9.7	14.3	1.022	0.28	6.76	-291.3	14.5	
1325	4.00	400	10.3	14.3	1.018	0.24	6.64	-293.3	15.2	
1330	4.00	400	10.8	14.2	1.026	0.24	6.71	-292.3	9.80	
1335	4.00	400	11.3	14.4	1.032	0.24	6.75	-391.7	13.0	
1340	4.00	400	11.9	14.3	1.025	0.23	6.80	-292.8	8.20	
1345	4.00	400	12.4	14.3	1.042	0.24	6.82	-290.7	7.27	
1350	4.00	400	12.9	14.6	1.047	0.23	6.79	-294.5	9.43	
1355	4.00	400	13.4	14.5	1.041	0.23	6.77	-299.7	7.08	
1400	4.00	400	14.0	14.6	1.045	0.22	6.73	-299.4	5.89	
1405	4.00	400	14.5	14.6	1.047	0.23	6.74	-300.0	6.63	
1410	4.00	400	15.0	14.5	1.052	0.21	6.74	-300.4	6.85	

Sample Collection Method: Peristaltic Pump | **Date:** 05/12/22 | **Time:** 1410 | **Total Volume of Water Purged:** 15.5 gallons

Hach Test Kits

Alkalinity (mg/L)	480
Carbon Dioxide (mg/L)	100
Ferrous Iron (mg/L)	0.29
Hydrogen Sulfide (mg/L)	>5.0
1 Well Volume	4.6

Well off gassing after start of pumping inside the water column.
FD-051222
Time listed as 0000

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☑	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☑	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☑	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☑	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☑	1-1000 mL plastic	unpreserved	5210B
COD	☑	1-250 mL plastic	H2SO4	410.4
Sulfide	☑	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

bp

Site Name: IP-BP Hyde Park	**Well ID:** MW-18A	**Well Diameter:** 2"

Samplers:
E. Au
A. M. Kropovitch

Weather:
70F, Sunny

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data: feet below top of PVC

Method: Low Flow | **Date:** 05/11/22 | **Time:** 1035 (hhmm) | **Initial Depth to Water:** 4.02 | **Depth to Bottom:** 17.76

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
1040	4.31	150	0.0	14.4	1.002	0.44	7.18	-90.3	5.91	
1050	4.59	200	0.3	14.2	1.003	0.21	7.07	-106.1	1.91	skipped 1045 reading
1055	4.66	200	0.5	14.1		0.16	7.07	-111.1	2.33	
1100	4.79	200	0.8	14.3	1.001	0.13	7.07	-115.0	2.06	
1105	4.88	200	1.1	14.2	0.999	0.14	7.08	-115.6	1.63	
1110	4.95	200	1.3	14.3	1.002	0.15	7.09	-117.7	2.07	
1115	5.01	200	1.6	14.0	0.999	0.14	7.08	-114.8	1.72	
1120	5.02	200	1.8	14.4	0.991	0.13	7.51	-124.3	1.46	
1125	5.02	200	2.1	14.1	0.992	0.22	7.12	-118.5	1.76	
1130	5.10	200	2.4	14.2	0.989	0.22	7.05	-115.8	2.07	
1135	5.24	200	2.6	13.5	0.987	0.22	7.08	-114.8	1.89	

Sample Collection Method: Peristaltic Pump | **Date:** 05/11/22 | **Time:** 1135 | **Total Volume of Water Purged:** 2.5 Gallons

Hach Test Kits

Alkalinity (mg/L)	380
Carbon Dioxide (mg/L)	40
Ferrous Iron (mg/L)	1.65
Hydrogen Sulfide (mg/L)	0.0
1 Well Volume	2.3

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☑	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☑	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☑	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☑	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☑	1-1000 mL plastic	unpreserved	5210B
COD	☑	1-250 mL plastic	H2SO4	410.4
Sulfide	☑	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

bp

Site Name:	Well ID:	Well Diameter:
IP-BP Hyde Park	MW-18B	2"

Samplers:
E. Au
A. M. Kropovitch

Weather:
75F, Sunny

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data: feet below top of PVC

Method:	Date:	Time: (hhmm)	Initial Depth to Water	Depth to Bottom
Low Flow	05/11/22	1201	4.27	37.73

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
1202	4.51	400	0.0	13.9	0.388	0.57	6.95	-137.3	4.52	clar with black flecks
1207	4.65	400	0.5	13.6	0.647	0.09	6.65	-192.5	5.27	sulfer odor
1212	4.72	400	1.1	13.7		-0.01	6.59	-217.9	5.38	
1217	4.75	400	1.6	13.8	0.958	0.01	6.61	-238.0	4.36	
1222	4.75	400	2.1	13.8	1.028	0.16	6.60	-237.8	5.49	
1227	4.75	400	2.6	13.7	1.029	0.93	6.64	-242.0	3.73	
1232	4.75	400	3.2	13.8	1.079	0.74	6.65	-252.3	3.27	
1237	4.68	350	3.6	14.2	1.133	0.71	6.70	-260.1	2.9	
1242	4.67	350	4.1	14.2	1.114	0.66	6.69	-275.8	3.73	
1247	4.67	350	4.6	14.1	1.130	0.61	6.71	-281.3	2.75	
1252	4.67	350	5.0	14.0	1.098	0.57	6.70	-286.7	2.42	
1257	4.67	350	5.5	14.0	1.078	0.55	6.71	-287.3	2.73	
1302	4.67	350	5.9	14.1	1.085	0.50	6.68	-290.8	2.81	
1307	4.67	350	6.4	14.1	1.075	0.47	6.79	-311.6	2.45	

Sample Collection Method:	Date:	Time:	Total Volume of Water Purged:
Peristaltic Pump	05/11/22	1307	6.5 gallons

Hach Test Kits

Alkalinity (mg/L)	400
Carbon Dioxide (mg/L)	90
Ferrous Iron (mg/L)	0.05
Hydrogen Sulfide (mg/L)	> 5
1 Well Volume	5.7

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☑	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☑	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☑	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☑	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☑	1-1000 mL plastic	unpreserved	5210B
COD	☑	1-250 mL plastic	H2SO4	410.4
Sulfide	☑	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

bp

Site Nam	Well ID:	Well Diameter:
IP-BP Hyde Park	MW-19B	2"

Samplers:
T. Urban

Weather:
75-85F, Sunny, calm

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data:

Method:	Date:	Time: (hhmm)	Initial Depth to Water	Depth to Bottom
Low Flow	05/12/22	0835	4.59 feet below top of PVC	37.65 feet below top of PVC

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
0835	4.59	210	0.0	12.7	0.603	3.45	6.80	173.0	41.6	
0840	4.66	210	0.3	12.7	0.458	2.92	6.73	142.3	12.1	
0845	4.66	210	0.6	12.7		2.63	6.69	126.8	10.2	
0850	4.66	210	0.8	12.8	0.522	2.47	6.64	103.5	8.06	
0855	4.66	210	1.1	13.0	0.593	2.19	6.62	85.0	6.63	
0900	4.66	210	1.4	13.1	0.652	2.01	6.61	58.2	6.08	
0905	4.66	210	1.7	13.1	0.695	1.83	6.59	34.4	5.62	
0910	4.66	210	1.9	13.2	0.777	1.62	6.59	-3.5	5.43	
0915	4.66	210	2.2	13.1	0.980	1.03	6.56	-63.3	3.66	
0920	4.66	210	2.5	13.1	1.051	0.82	6.55	-80.0	2.55	
0925	4.66	210	2.8	13.2	1.092	0.68	6.57	-93.3	2.36	
0930	4.66	210	3.1	13.3	1.135	0.57	6.58	-106.6	2.87	
0935	4.66	210	3.3	13.3	1.168	0.51	6.59	-114.8	3.82	
0940	4.66	210	3.6	13.4	1.173	0.46	6.61	-123.5	4.01	
0945	4.70	210	3.9	13.4	1.188	0.42	6.63	-132.1	2.23	

Sample Collection Method:	Date:	Time:	Total Volume of Water Purged:
Peristaltic Pump	05/12/22	1015	5.5 gallons

Hach Test Kits

Alkalinity (mg/L)	300
Carbon Dioxide (mg/L)	35
Ferrous Iron (mg/L)	0.42
Hydrogen Sulfide (mg/L)	0.5
1 Well Volume	5.6

VOCs only.

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☐	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☐	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☐	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☐	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☐	1-1000 mL plastic	unpreserved	5210B
COD	☐	1-250 mL plastic	H2SO4	410.4
Sulfide	☐	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

AECOM

GROUNDWATER SAMPLING LOG

Low Flow Sampling Record

bp

Site Nam	Well ID:	Well Diameter:
IP-BP Hyde Park	MW-19B	2"

Samplers: T. Urban

Weather: 75-85F, Sunny, calm

Water Volume Calculation

1 inch= 0.041	6 inch= 1.4
1.5 inch= 0.092	8 inch= 2.5
2 inch= 0.163	10 inch= 4
4 inch= 0.64	

= (Total Depth of Well - Depth to Water) × Casing volume per foot

Acceptance Criteria:

Temp	3%
pH	± 0.1 unit
Sp. Cond.	3%
ORP	± 10mV
DO	10%
Turbidity	<50 NTU
Drawdown	<0.3'

Purging Data:

Method:	Date:	Time: (hhmm)	Initial Depth to Water	Depth to Bottom
Low Flow	05/12/22	0835	4.59 feet below top of PVC	37.65

Time (hhmm)	DTW (ft)	Pump Rate (ml/min)	Volume (gal.)	Temp (C°)	Sp. Cond (ms/cm)	DO (mg/L)	pH	ORP (mV)	Turb (NTU)	Comments:
0950	4.70	210	4.2	13.5	1.196	0.40	6.60	-139.9	1.9	
0955	4.70	210	4.5	13.4	1.203	0.38	6.68	-145.3	1.73	
1000	4.70	210	4.7	13.4		0.37	6.71	-152.0	1.6	
1005	4.70	210	5.0	13.5	1.216	0.36	6.74	-157.3	1.93	
1010	4.70	210	5.3	13.4	1.222	0.36	6.75	-159.9	1.6	
1015	4.70	210	5.6	13.5	1.224	0.35	6.76	-163.6	1.67	

Sample Collection Method:	Date:	Time:	Total Volume of Water Purged:
Peristaltic Pump	05/12/22	1015	5.5 gallons

Hach Test Kits

Alkalinity (mg/L)	300
Carbon Dioxide (mg/L)	35
Ferrous Iron (mg/L)	0.42
Hydrogen Sulfide (mg/L)	0.5
1 Well Volume	5.6

VOCs only.

Sample Set

Parameter		Bottle	Pres.	Method
VOCs	☑	3-40 mL glass vial	HCL	EPA 8260C
Dissolved Iron	☐	1-250 mL plastic (field filtered)	HNO3	6010C
TOC	☐	2-40mL glass vial	H2SO4	5310C
M.E.E.P.	☐	3-40 mL glass vial	HCL	RSK-175 mod
Nitrate/Nitrite/ Chloride/Sulfate	☐	1-500mL plastic	unpreserved	300, 353.2 300.0_28D
BOD	☐	1-1000 mL plastic	unpreserved	5210B
COD	☐	1-250 mL plastic	H2SO4	410.4
Sulfide	☐	1-500mL plastic	NaOH/Zn Acetate	4500-S2-F

Appendix B

Data Usability Summary Report

DATA USABILITY SUMMARY REPORT

FORMER CARBORUNDUM COMPANY
HYDE PARK FACILITY
TOWN OF NIAGARA, NIAGARA COUNTY, NY
SITE ID 932036

Analyses Performed by:

EUROFINS CANTON/BUFFALO/SACRAMENTO
BARBERTON, OHO/AMHERST, NEW YORK/SACRAMENTO, CALIFORNIA

Prepared by:

AECOM
ONE JOHN JAMES AUDUBON PARKWAY, SUITE 210
AMHERST, NY 14228

JUNE 2022

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TABLES
(Following Text)

ATTACHMENTS

I. INTRODUCTION

This Data Usability Summary Report (DUSR) has been prepared following the guidelines provided in New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation *DER-10, Technical Guidance for Site Investigation and Remediation, Appendix 2B - Guidance for Data Deliverables and the Development of Data Usability Summary Reports*, May 2010. Discussed in this DUSR are the analytical data for seventeen (17) groundwater samples, two (2) field duplicate, one (1) matrix spike/matrix spike duplicate (MS/MSD pair), one (1) rinse blank (RB), and three (3) trip blanks collected on May 10-12, 2022.

The samples were collected at the former Carborundum Company, Hyde Park Facility site (Site ID Number 932036), located in the Town of Niagara, Niagara County, NY and sent to Eurofins Canton, Buffalo, and Sacramento for analysis. Eurofins is a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certified laboratory.

II. ANALYTICAL METHODOLOGIES AND DATA VALIDATION PROCEDURES

The groundwater samples were analyzed for the following parameters (not all samples were analyzed for all parameters/analytes):

Parameter	**Method Number**
Select Chlorinated Volatile Organic Compounds (CVOCs)*	SW8260D
1,4-Dioxane	SW8270D SIM
Per- and Polyfluoroalkyl Substances (PFASs)	Method 537-Modified
Dissolved Gases (methane, ethane, and ethene, propane)	RSK SOP-175
Dissolved Iron	6010C
Anions (Chloride, Nitrate, Nitrite, and Sulfate)	EPA 300.0
Nitrate-Nitrite	EPA 353.2
Biochemical Oxygen Demand (BOD_5)	SM 5210B
Chemical Oxygen Demand	EPA 410.4
Sulfide	SM 4500-S2E
Total Organic Carbon	SM 5310C

Notes:

* 1,1,1-Trichloroethane, 1,1-dichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, chloroethane, tetrachloroethene, trichloroethene, and vinyl chloride.

A limited data validation was performed on the samples in accordance with the guidelines in the following USEPA Region II documents:

- *Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B & 8260C*, SOP HW-24, Revision 4, October 2014;
- Validating Semivolatile Organic Compounds by Gas Chromatography/Mass Spectrometry, SW-846 Method 8270D, SOP HW-22, Rev. 5, December 2010;
- Data Review Guidelines for the analysis of PFAS in Non-Potable Water and Solids. Sampling, Analysis, and Assessment Of Per- and Polyfluoroalkyl Substances (PFASs) Under NYSDEC Part 375 Remedial Programs, Appendix I - January 2021.
- *ICP-AES Data Validation*, SOP HW-3a, Rev. 1, September 2016; and
- *Mercury and Cyanide Data Validation*, SOP HW-3c, Rev. 1, September 2016.

The limited data review included a review of: completeness of all required deliverables; holding times; QC results [blanks, instrument tunes, calibration standards, MS/MSD recoveries, duplicate precision, and laboratory control sample (LCS) recoveries] to determine if the data are within the protocol-required QC limits and specifications; a determination that all samples were analyzed using established and agreed upon analytical protocols; an evaluation of the raw data to confirm the results provided in the data summary sheets; and a review of laboratory data qualifiers.

Qualifications applied to the data during the limited data validation include 'UJ' (estimated quantitation limit), 'J' (estimated result), and 'J+' (estimated result, biased high). Definitions of USEPA data qualifiers are presented at the end of this text. The validated analytical results are presented on Table 1 and Table 2. Documentation supporting the qualification of data is presented in Attachment A. Only analytical deviations affecting data usability are discussed in this report.

III. DATA DELIVERABLE COMPLETENESS

Full deliverable data packages (i.e., NYSDEC ASP Category B or equivalent) were provided by the laboratory (where applicable) and included all reporting forms and raw data necessary to fully evaluate and verify the reported analytical results.

IV. SAMPLE RECEIPT/PRESERVATION/HOLDING TIMES

All samples were received by the laboratory intact, properly preserved, and under proper chain-of-custody (COC) with the following exceptions.

One of the sulfuric acid preserved vials for sample MW-5B was received broken by the laboratory. The data was not impacted since the laboratory used one of the spare vials.

All samples were analyzed within the required holding times (HT) with the following exceptions.

Due to a laboratory login error the following samples were analyzed outside of the HT for nitrite and nitrate: MW- 7A, MW- 7B, MW-12B, MW-16A, MW-16B, MW-17A, MW-17B, MW-18A, MW-18B, and RB-051222 The results for nitrite and nitrate in these samples have been qualified 'UJ' due to the HT exceedance.

V. NON-CONFORMANCES

Instrument Calibration

The percent differences (%D) between the initial calibration (ICAL) average relative response factors (RRF) and the RRFs in the continuing calibration (CCAL) standards were greater than 20% for VOC vinyl chloride and showed a decreasing response (low bias). The non-detect results for VC in field QC sample TB-051122 was qualified 'UJ'.

Matrix Spike/Matrix Spike Duplicate

The percent recovery (%R) of the nitrate-nitrite MSD performed on sample MW-5B was above the upper QC limit. The %R in the MS was acceptable. The detected result for nitrate-nitrite in this sample has been qualified 'J'.

Laboratory Method Blank/Rinse Blank

Total organic carbon (TOC) was detected in the RB at a concentration greater than the method detection limit (MDL) but less than the reporting limit (RL). The results for TOC in samples MW-5A, MW-10A, and FD-051022 (MW-10A) have been qualified 'U' at the RL due to the blank contamination.

PFCs 8:2 fluorotelomer sulfonate (82FTS) and perfluorononanoic acid (PFNA) were detected in the RB at a concentration greater than the MDL but less than the RL. The detected results for these compounds have been qualified 'U' at the RL in sample MW-17B.

Perfluorooctanesulfonic acid (PFOS) were detected in the laboratory blank at a concentration below the RL. PFOS was also detected in the RB at a concentration greater than the RL. Since the concentration of PFOS in sample MW-17B was greater than the RL but less than 10x the RB value, the result has been qualified 'J+'.

Support documentation is presented in Attachment A.

VI. SAMPLE RESULTS AND REPORTING

Field duplicates were collected at location MW-10A and MW-17B, the FDs exhibited good field and analytical precision.

All sample results were reported in accordance with method requirements and were adjusted for sample volume (where applicable). Results reported below the QL, but greater than the MDL, are qualified 'J' by the laboratory. Those results being reported from a secondary dilution have been qualified 'D'.

Several samples for the VOA analysis were diluted due to the presence of high concentrations of target compounds. All of these samples had detections for one or more of the target compounds. The reporting limits for the non-detect compounds are elevated due to the dilutions utilized.

Samples MW-12B and MW-6 were analyzed several times for VOCs due to instrument failures. The final dilution for vinyl chloride (VC) was taken from the VOC vial that had been used to check the preservation. The results for VC in these samples have been qualified as estimated 'J' since the analysis was performed on a vial that was previously opened.

VII. SUMMARY

All sample analyses were found to be compliant with the method criteria, except where previously noted. Those results qualified 'UJ' (estimated QL), 'J' (estimated result), or 'J+' (estimated, biased high) during the data review are considered conditionally usable. All other sample results are usable as reported. AECOM does not recommend the re-collection of any samples at this time.

Prepared By: Ann Marie Kropovitch, Chemist **Date:** 6/20/22

Reviewed By: George E. Kisluk, Senior Chemist **Date:** 6/20/22

DEFINITIONS OF USEPA REGION II/ DATA QUALIFIERS

U – The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

J- – The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample, but biased low.

UJ – The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R – The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

D – The sample results are reported from a secondary dilution.

TABLE 1
VALIDATED GROUNDWATER SAMPLE ANALYTICAL RESULTS
HYDE PARK FACILITY

Location ID		MW- 5A	MW- 5B	MW- 6	MW- 7A	MW- 7B
Sample ID		MW- 5A	MW- 5B	MW- 6	MW- 7A	MW- 7B
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/10/22	05/10/22	05/11/22	05/12/22	05/12/22
Parameter	**Units**					
Volatile Organic Compounds						
1,1,1-Trichloroethane	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	UG/L	1.9	1.0 U	1.0 U	76 D	1.0 U
1,1-Dichloroethene	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (cis)	UG/L	78	35	12	17	1.9
1,2-Dichloroethene (trans)	UG/L	0.62 J	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	UG/L	1.0 U	1.0 U	1.0 U	16	1.0 U
Tetrachloroethene	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	UG/L	70 D	71 D	61 DJ	33	12
Dissolved Gases						
Ethane	UG/L	32	0.68 J	NA	53	0.61 J
Ethene	UG/L	32	3.2	NA	46	3.4
Methane	UG/L	2,100	250	NA	13,000 D	170
Propane	UG/L	0.81 J	0.94 J	NA	1.0 U	1.0 U
Semivolatile Organic Compounds						
1,4-Dioxane	UG/L	NA	NA	NA	NA	NA
Dissolved Metals						
Iron, Dissolved	UG/L	200 U	140 J	NA	950	200 U
Miscellaneous Parameters						
Biochemical Oxygen Demand (BOD)	MG/L	6.0 U	12 U	NA	6.7	6.0 U
Chemical Oxygen Demand (COD)	MG/L	6.8 J	9.5 J	NA	39	16
Chloride	MG/L	85	140	NA	11	170
Nitrate-Nitrite	MG/L	0.18	0.066 J	NA	0.050 U	0.050 U

Flags assigned during chemistry validation are shown.

Made By: a\AMK 6/20/22
Checked By: GEK 6/20/22

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE ANALYTICAL RESULTS
HYDE PARK FACILITY

Location ID		MW- 5A	MW- 5B	MW- 6	MW- 7A	MW- 7B
Sample ID		MW- 5A	MW- 5B	MW- 6	MW- 7A	MW- 7B
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/10/22	05/10/22	05/11/22	05/12/22	05/12/22
Parameter	Units					
Miscellaneous Parameters						
Nitrate-Nitrogen	MG/L	0.24	0.25 U	NA	0.10 UJ	0.10 UJ
Nitrite-Nitrogen	MG/L	0.10 U	0.25 U	NA	0.050 UJ	0.050 UJ
Sulfate (as SO4)	MG/L	77	200	NA	120	270
Sulfide	MG/L	1.0 U	1.0 U	NA	3.1	0.73 J
Total Organic Carbon (TOC)	MG/L	1.0 U	2.6	NA	7.4	3.0

Flags assigned during chemistry validation are shown.

Made By: a\AMK 6/20/22
Checked By: GEK 6/20/22

Detection Limits shown are PQL

Advanced Selection: AMK-TEMP
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Printed: 6/20/2022 11:16:56 AM
[LOGDATE] > #1/1/2022# AND [LOCID] <> 'FIELDQC' AND [PRCCODE] <> 'PFC'

TABLE 1
VALIDATED GROUNDWATER SAMPLE ANALYTICAL RESULTS
HYDE PARK FACILITY

Location ID		MW-10A	MW-10A	MW-10B	MW-12B	MW-13B
Sample ID		FD-051022	MW-10A	MW-10B	MW-12B	MW-13B
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/10/22	05/10/22	05/10/22	05/11/22	05/11/22
Parameter	Units	Field Duplicate (1-1)				
Volatile Organic Compounds						
1,1,1-Trichloroethane	UG/L	13 U	13 U	6.3 U	1.0 U	1.0 U
1,1-Dichloroethane	UG/L	13 U	13 U	6.3 U	0.48 J	1.0 U
1,1-Dichloroethene	UG/L	13 U	13 U	6.3 U	1.0 U	1.0 U
1,2-Dichloroethene (cis)	UG/L	550	540	320	52	4.1
1,2-Dichloroethene (trans)	UG/L	13 U	13 U	6.3 U	1.0 U	1.0 U
Chloroethane	UG/L	13 U	13 U	6.3 U	1.0 U	1.0 U
Tetrachloroethene	UG/L	13 U	13 U	6.3 U	1.0 U	1.0 U
Trichloroethene	UG/L	8.9 J	8.7 J	6.3 U	1.0 U	1.0 U
Vinyl chloride	UG/L	84	85	140	73 DJ	5.2
Dissolved Gases						
Ethane	UG/L	2.1	2.2	1.1	0.91 J	NA
Ethene	UG/L	20	20	25	6.2	NA
Methane	UG/L	1,700	1,800	2,100	360	NA
Propane	UG/L	1.0 U	1.0 U	3.2	0.90 J	NA
Semivolatile Organic Compounds						
1,4-Dioxane	UG/L	NA	NA	NA	NA	NA
Dissolved Metals						
Iron, Dissolved	UG/L	840	840	190 J	200 U	NA
Miscellaneous Parameters						
Biochemical Oxygen Demand (BOD)	MG/L	6.0 U	6.0 U	12 U	6.0 U	NA
Chemical Oxygen Demand (COD)	MG/L	6.8 J	2.8 J	11	13	NA
Chloride	MG/L	160	160	140	180	NA
Nitrate-Nitrite	MG/L	0.049 J	0.094	0.037 J	0.050 U	NA

Flags assigned during chemistry validation are shown.

Made By: a\AMK 6/20/22
Checked By: GEK 6/20/22

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE ANALYTICAL RESULTS
HYDE PARK FACILITY

Location ID		MW-10A	MW-10A	MW-10B	MW-12B	MW-13B
Sample ID		FD-051022	MW-10A	MW-10B	MW-12B	MW-13B
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/10/22	05/10/22	05/10/22	05/11/22	05/11/22
Parameter	Units	Field Duplicate (1-1)				
Miscellaneous Parameters						
Nitrate-Nitrogen	MG/L	0.25 U	0.25 U	0.25 U	0.10 UJ	NA
Nitrite-Nitrogen	MG/L	0.25 U	0.25 U	0.25 U	0.050 UJ	NA
Sulfate (as SO4)	MG/L	130	140	220	220	NA
Sulfide	MG/L	1.0 U	1.0 U	1.0 U	1.0 U	NA
Total Organic Carbon (TOC)	MG/L	1.0 U	1.0 U	2.9	2.8	NA

Flags assigned during chemistry validation are shown.

Made By: a\AMK 6/20/22
Checked By: GEK 6/20/22

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[LOGDATE] > #1/1/2022# AND [LOCID] <> 'FIELDQC' AND [PRCCODE] <> 'PFC'

TABLE 1
VALIDATED GROUNDWATER SAMPLE ANALYTICAL RESULTS
HYDE PARK FACILITY

Location ID		MW-14B	MW-16A	MW-16B	MW-17A	MW-17B
Sample ID		MW-14B	MW-16A	MW-16B	MW-17A	FD-051222
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/11/22	05/11/22	05/11/22	05/12/22	05/12/22
Parameter	Units					Field Duplicate (1-1)
Volatile Organic Compounds						
1,1,1-Trichloroethane	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	NA
1,1-Dichloroethane	UG/L	1.0 U	1.0 U	1.0 U	11	NA
1,1-Dichloroethene	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	NA
1,2-Dichloroethene (cis)	UG/L	1.0 U	8.1	13	36	NA
1,2-Dichloroethene (trans)	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	NA
Chloroethane	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	NA
Tetrachloroethene	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	NA
Trichloroethene	UG/L	1.0 U	1.0 U	1.0 U	1.0 U	NA
Vinyl chloride	UG/L	1.1	290 D	23	83 D	NA
Dissolved Gases						
Ethane	UG/L	NA	2.6	5.9	15	NA
Ethene	UG/L	NA	160	24	20	NA
Methane	UG/L	NA	320	11,000 D	16,000 D	NA
Propane	UG/L	NA	1.0 U	1.0 U	1.0 U	NA
Semivolatile Organic Compounds						
1,4-Dioxane	UG/L	NA	NA	NA	NA	0.94
Dissolved Metals						
Iron, Dissolved	UG/L	NA	200 U	200 U	720	NA
Miscellaneous Parameters						
Biochemical Oxygen Demand (BOD)	MG/L	NA	6.0 U	16	5.5	NA
Chemical Oxygen Demand (COD)	MG/L	NA	18	36	8.8 J	NA
Chloride	MG/L	NA	160	130	31	NA
Nitrate-Nitrite	MG/L	NA	0.050 U	0.050 U	0.050 U	NA

Flags assigned during chemistry validation are shown.

Made By: a\AMK 6/20/22
Checked By: GEK 6/20/22

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE ANALYTICAL RESULTS
HYDE PARK FACILITY

Location ID		MW-14B	MW-16A	MW-16B	MW-17A	MW-17B
Sample ID		MW-14B	MW-16A	MW-16B	MW-17A	FD-051222
Matrix		Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-	-
Date Sampled		05/11/22	05/11/22	05/11/22	05/12/22	05/12/22
Parameter	Units					Field Duplicate (1-1)
Miscellaneous Parameters						
Nitrate-Nitrogen	MG/L	NA	0.10 UJ	0.10 UJ	0.10 UJ	NA
Nitrite-Nitrogen	MG/L	NA	0.050 UJ	0.050 UJ	0.050 UJ	NA
Sulfate (as SO4)	MG/L	NA	850	250	56	NA
Sulfide	MG/L	NA	1.0 U	7.3	1.0 U	NA
Total Organic Carbon (TOC)	MG/L	NA	6.4	4.0	2.4	NA

Flags assigned during chemistry validation are shown.

Made By: a\AMK 6/20/22
Checked By: GEK 6/20/22

Detection Limits shown are PQL

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[LOGDATE] > #1/1/2022# AND [LOCID] <> 'FIELDQC' AND [PRCCODE] <> 'PFC'

TABLE 1
VALIDATED GROUNDWATER SAMPLE ANALYTICAL RESULTS
HYDE PARK FACILITY

Location ID		MW-17B	MW-18A	MW-18B	MW-19B
Sample ID		MW-17B	MW-18A	MW-18B	MW-19B
Matrix		Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-
Date Sampled		05/12/22	05/11/22	05/11/22	05/12/22
Parameter	**Units**				
Volatile Organic Compounds					
1,1,1-Trichloroethane	UG/L	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	UG/L	8.2	4.1	1.0 U	1.0 U
1,1-Dichloroethene	UG/L	1.0 U	1.2	1.0 U	1.0 U
1,2-Dichloroethene (cis)	UG/L	28	54	38	1.5
1,2-Dichloroethene (trans)	UG/L	1.0 U	0.87 J	1.0 U	1.0 U
Chloroethane	UG/L	2.2	1.0 U	1.0 U	1.0 U
Tetrachloroethene	UG/L	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	UG/L	1.0 U	34	1.0 U	1.0 U
Vinyl chloride	UG/L	23	5.7	59	1.1
Dissolved Gases					
Ethane	UG/L	31	1.5	3.2	NA
Ethene	UG/L	21	1.4	15	NA
Methane	UG/L	29,000 D	5,800 D	21,000 D	NA
Propane	UG/L	1.0 U	1.0 U	1.0 U	NA
Semivolatile Organic Compounds					
1,4-Dioxane	UG/L	0.93	NA	NA	NA
Dissolved Metals					
Iron, Dissolved	UG/L	420	1,900	170 J	NA
Miscellaneous Parameters					
Biochemical Oxygen Demand (BOD)	MG/L	8.9	2.4	16	NA
Chemical Oxygen Demand (COD)	MG/L	26	6.8 J	39	NA
Chloride	MG/L	120	51	100	NA
Nitrate-Nitrite	MG/L	0.050 U	0.050 U	0.050 U	NA

Flags assigned during chemistry validation are shown.

Made By: a\AMK 6/20/22
Checked By: GEK 6/20/22

Detection Limits shown are PQL

TABLE 1
VALIDATED GROUNDWATER SAMPLE ANALYTICAL RESULTS
HYDE PARK FACILITY

Location ID		MW-17B	MW-18A	MW-18B	MW-19B
Sample ID		MW-17B	MW-18A	MW-18B	MW-19B
Matrix		Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)		-	-	-	-
Date Sampled		05/12/22	05/11/22	05/11/22	05/12/22
Parameter	Units				
Miscellaneous Parameters					
Nitrate-Nitrogen	MG/L	0.10 UJ	0.10 UJ	0.10 UJ	NA
Nitrite-Nitrogen	MG/L	0.050 U	0.050 UJ	0.050 UJ	NA
Sulfate (as SO4)	MG/L	130	130	220	NA
Sulfide	MG/L	6.7	1.0 U	9.9	NA
Total Organic Carbon (TOC)	MG/L	4.5	1.1	4.5	NA

Flags assigned during chemistry validation are shown.

Made By: a\AMK 6/20/22
Checked By: GEK 6/20/22

Detection Limits shown are PQL

Advanced Selection: AMK-TEMP
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[LOGDATE] > #1/1/2022# AND [LOCID] <> 'FIELDQC' AND [PRCCODE] <> 'PFC'

TABLE 1
VALIDATED GROUNDWATER SAMPLE ANALYTICAL RESULTS
HYDE PARK FACILITY

Location ID		MW-17B	MW-17B
Sample ID		FD-051222	MW-17B
Matrix		Groundwater	Groundwater
Depth Interval (ft)		-	-
Date Sampled		05/12/22	05/12/22
Parameter	**Units**	Field Duplicate (1-1)	
Per- and Polyfluoroalkyl Substances			
6:2 Fluorotelomer sulfonate (62FTS)	NG/L	2.3 U	2.3 U
8:2 Fluorotelomer sulfonate (82FTS)	NG/L	0.41 U	1.8 U
N-Ethyl perfluorooctanesulfonamidoacetic acid (NETFOSAA)	NG/L	1.2 U	1.2 U
N-Methyl perfluorooctanesulfonamidoacetic acid (NMEFOSAA)	NG/L	1.1 U	1.1 U
Perfluoro-1-heptanesulfonate (PFHPS)	NG/L	0.17 U	0.17 U
Perfluorobutanesulfonic acid (PFBS)	NG/L	0.23 J	0.18 U
Perfluorobutanoic acid (PFBA)	NG/L	6.0	5.9
Perfluorodecane sulfonate (PFDS)	NG/L	0.29 U	0.29 U
Perfluorodecanoic acid (PFDA)	NG/L	0.28 U	0.28 U
Perfluorododecanoic acid (PFDoA)	NG/L	0.50 U	0.50 U
Perfluoroheptanoic acid (PFHpA)	NG/L	1.6 J	1.7 J
Perfluorohexanesulfonic acid (PFHxS)	NG/L	0.53 J	1.2 J
Perfluorohexanoic acid (PFHxA)	NG/L	3.4	4.0
Perfluorononanoic acid (PFNA)	NG/L	0.24 U	1.8 U
Perfluorooctane sulfonamide (FOSA)	NG/L	0.88 U	0.89 U
Perfluorooctanesulfonic acid (PFOS)	NG/L	0.49 U	10 J+
Perfluorooctanoic acid (PFOA)	NG/L	15	14
Perfluoropentanoic acid (PFPA)	NG/L	3.5	3.2
Perfluorotetradecanoic acid (PFTeA)	NG/L	0.66 U	0.67 U
Perfluorotridecanoic acid (PFTriA)	NG/L	1.2 U	1.2 U
Perfluoroundecanoic acid (PFUnA)	NG/L	0.99 U	1.0 U

Flags assigned during chemistry validation are shown.

Made By: a\AMK 6/20/22
Checked By: GEK 6/20/22

Detection Limits shown are MDL

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TABLE 2
VALIDATED FIELD QC SAMPLE ANLAYTICAL RESULTS
HYDE PARK FACILITY

Location ID		FIELDQC	FIELDQC	FIELDQC	FIELDQC
Sample ID		TB-051022	TB-051122	RB-051222	TB-051222
Matrix		Water Quality	Water Quality	Water Quality	Water Quality
Depth Interval (ft)		-	-	-	-
Date Sampled		05/10/22	05/11/22	05/12/22	05/12/22
Parameter	**Units**	Trip Blank (1-1)	Trip Blank (1-1)	Rinse Blank (1-1)	Trip Blank (1-1)
Volatile Organic Compounds					
1,1,1-Trichloroethane	UG/L	0.48 U	0.48 U	0.48 U	0.48 U
1,1-Dichloroethane	UG/L	0.47 U	0.47 U	0.47 U	0.47 U
1,1-Dichloroethene	UG/L	0.49 U	0.49 U	0.49 U	0.49 U
1,2-Dichloroethene (cis)	UG/L	0.46 U	0.46 U	0.46 U	0.46 U
1,2-Dichloroethene (trans)	UG/L	0.51 U	0.51 U	0.51 U	0.51 U
Chloroethane	UG/L	0.83 U	0.83 U	0.83 U	0.83 U
Tetrachloroethene	UG/L	0.44 U	0.44 U	0.44 U	0.44 U
Trichloroethene	UG/L	0.44 U	0.44 U	0.44 U	0.44 U
Vinyl chloride	UG/L	0.45 U	0.45 UJ	0.45 U	0.45 U
Dissolved Gases					
Ethane	UG/L	NA	NA	0.29 U	NA
Ethene	UG/L	NA	NA	0.27 U	NA
Methane	UG/L	NA	NA	0.17 U	NA
Propane	UG/L	NA	NA	0.38 U	NA
Semivolatile Organic Compounds					
1,4-Dioxane	UG/L	NA	NA	0.10 U	NA
Dissolved Metals					
Iron, Dissolved	UG/L	NA	NA	83 U	NA
Miscellaneous Parameters					
Biochemical Oxygen Demand (BOD)	MG/L	NA	NA	2.0 U	NA
Chemical Oxygen Demand (COD)	MG/L	NA	NA	1.8 U	NA
Chloride	MG/L	NA	NA	0.28 U	NA
Nitrate-Nitrite	MG/L	NA	NA	0.020 U	NA

Flags assigned during chemistry validation are shown.

Made By: a\AMK 6/20/22
Checked By: GEK 6/20/22

Detection Limits shown are MDL

TABLE 2
VALIDATED FIELD QC SAMPLE ANLAYTICAL RESULTS
HYDE PARK FACILITY

Location ID		FIELDQC	FIELDQC	FIELDQC	FIELDQC
Sample ID		TB-051022	TB-051122	RB-051222	TB-051222
Matrix		Water Quality	Water Quality	Water Quality	Water Quality
Depth Interval (ft)		-	-	-	-
Date Sampled		05/10/22	05/11/22	05/12/22	05/12/22
Parameter	Units	Trip Blank (1-1)	Trip Blank (1-1)	Rinse Blank (1-1)	Trip Blank (1-1)
Miscellaneous Parameters					
Nitrate-Nitrogen	MG/L	NA	NA	0.036 UJ	NA
Nitrite-Nitrogen	MG/L	NA	NA	0.020 UJ	NA
Sulfate (as SO4)	MG/L	NA	NA	0.35 U	NA
Sulfide	MG/L	NA	NA	0.58 U	NA
Total Organic Carbon (TOC)	MG/L	NA	NA	0.50 J	NA
Per- and Polyfluoroalkyl Substances					
6:2 Fluorotelomer sulfonate (62FTS)	NG/L	NA	NA	2.3 U	NA
8:2 Fluorotelomer sulfonate (82FTS)	NG/L	NA	NA	0.46 J	NA
N-Ethyl perfluorooctanesulfonamidoacetic acid (NETFOSAA)	NG/L	NA	NA	1.2 U	NA
N-Methyl perfluorooctanesulfonamidoacetic acid (NMEFOSAA)	NG/L	NA	NA	1.1 U	NA
Perfluoro-1-heptanesulfonate (PFHPS)	NG/L	NA	NA	0.18 U	NA
Perfluorobutanesulfonic acid (PFBS)	NG/L	NA	NA	0.19 U	NA
Perfluorobutanoic acid (PFBA)	NG/L	NA	NA	2.2 U	NA
Perfluorodecane sulfonate (PFDS)	NG/L	NA	NA	0.30 U	NA
Perfluorodecanoic acid (PFDA)	NG/L	NA	NA	0.29 U	NA
Perfluorododecanoic acid (PFDoA)	NG/L	NA	NA	0.51 U	NA
Perfluoroheptanoic acid (PFHpA)	NG/L	NA	NA	0.23 U	NA
Perfluorohexanesulfonic acid (PFHxS)	NG/L	NA	NA	0.53 U	NA
Perfluorohexanoic acid (PFHxA)	NG/L	NA	NA	0.54 U	NA
Perfluorononanoic acid (PFNA)	NG/L	NA	NA	0.98 J	NA
Perfluorooctane sulfonamide (FOSA)	NG/L	NA	NA	0.91 U	NA
Perfluorooctanesulfonic acid (PFOS)	NG/L	NA	NA	5.1	NA
Perfluorooctanoic acid (PFOA)	NG/L	NA	NA	0.79 U	NA

Flags assigned during chemistry validation are shown.

Made By: a\AMK 6/20/22
Checked By: GEK 6/20/22

Detection Limits shown are MDL

TABLE 2
VALIDATED FIELD QC SAMPLE ANLAYTICAL RESULTS
HYDE PARK FACILITY

Location ID		FIELDQC	FIELDQC	FIELDQC	FIELDQC
Sample ID		TB-051022	TB-051122	RB-051222	TB-051222
Matrix		Water Quality	Water Quality	Water Quality	Water Quality
Depth Interval (ft)		-	-	-	-
Date Sampled		05/10/22	05/11/22	05/12/22	05/12/22
Parameter	Units	Trip Blank (1-1)	Trip Blank (1-1)	Rinse Blank (1-1)	Trip Blank (1-1)
Per- and Polyfluoroalkyl Substances					
Perfluoropentanoic acid (PFPA)	NG/L	NA	NA	0.46 U	NA
Perfluorotetradecanoic acid (PFTeA)	NG/L	NA	NA	0.68 U	NA
Perfluorotridecanoic acid (PFTriA)	NG/L	NA	NA	1.2 U	NA
Perfluoroundecanoic acid (PFUnA)	NG/L	NA	NA	1.0 U	NA

Flags assigned during chemistry validation are shown.

Made By: a\AMK 6/20/22
Checked By: GEK 6/20/22

Detection Limits shown are MDL

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[LOGDATE] > #1/1/2022# AND [LOCID] = 'FIELDQC'

ATTACHMENT A

SUPPORT DOCUMENTATION

2.5/2.5

Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: BP IPO
BP/ARC Facility No: BP Hyde Park
Req Due Date (mm/dd/yy):
Lab Work Order Number:
Rush TAT: Yes ____ No X

Lab Name:	Test America (Canton, OH)	BP/ARC Facility Address:	3425 Hyde Park Blvd	Consultant/Contractor:	AECOM
Lab Address:	4101 Shuffel Street NW, North Canton, OH 44720	City, State, ZIP Code:	Niagara, NY 14305	Consultant/Contractor Project No:	60481767.105.22.02H
Lab PM:	Lab Contact: Opal Johnson	Lead Regulatory Agency:	NYSDEC	Address:	1 John James Audubon Pkwy Ste 210, Amherst, NY 14228
Lab Phone:	330-497-9396 / 330-497-0772	California Global ID No.:		Consultant/Contractor PM:	James Kaczor
Lab Shipping Accnt:		Enfos Proposal No:		Phone:	716-923-1300
Lab Bottle Order No:		Accounting Mode:	Provision ____ OOC-BU ____ OOC-RM ____	Email EDD To:	James.Kaczor@aecom.com
Other Info:		Stage:	Activity:	Invoice To:	BP/ARC ____ Contractor X

BP/ARC EBM:
EBM Phone:
EBM Email:

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Lab No	Sample Description	Date	Time	Soil / Solid	Water / Liquid	Air / Vapor		Total Number of Containers	Unpreserved	HNO3	HCl	NaOH/Zn-acetate	H2SO4 H2SO4		8260C -VOCs	SM-4500_S2_F -Sulfide	410.4 - COD	RSK 175 - Diss Gases, Methane, Ethane, Ethene	5310 C - TOC	5210-BOD (TA-Buffalo)	300, 353.2, nitrate, nitrite, nitrate-nitrite 300.0_28D chloride, sulfate (TA - Buffalo)	6010C - Dissolved Iron (field filtered)		
	MW-10A	5/10/22	1040		X			13	2	1	6	1	3		X	X	X	X	X	X	X	X		
	FD-051022	5/10/22	1020		X			13	2	1	6	1	3		X	X	X	X	X	X	X	X		
	MW-10B	5/10/22	1105		X			13	2	1	6	1	3		X	X	X	X	X	X	X	X		
	MW-5A	5/10/22	1405		X			13	2	1	6	1	3		X	X	X	X	X	X	X	X		
	MW-5B	5/10/22	1340		X			13	2	1	6	1	3		X	X	X	X	X	X	X	X		
	MW-5B_MS	5/10/22	1340		X			13	2	1	6	1	3		X	X	X	X	X	X	X	X		
	MW-5B_MSD	5/10/22	1340		X			13	2	1	6	1	3		X	X	X	X	X	X	X	X		
	TB-051022	5/10/22	—		X			1			1				1									

Matrix | No. Containers / Preservative | Requested Analyses

Report Type & QC Level
Standard ____
Full Data Package ____

Comments
Note: If sample not collected, indicate "No Sample" in comments and single-strike out sample description.

240-166329 Chain of Custody

Sampler's Name:	Emily Au / Tom Urban	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company:	AECOM						
Shipment Method:	Dropoff at TA Buffalo, NY	Ship Date:	S/11/22	1700		5/11/22	1530
Shipment Tracking No:						5-12-22	930

Special Instructions: PO #143920 Line 3: TA Buffalo to ship to TA Canton except short hold bottles 5210-BOD, 300, 353.2, 300.0_28D :

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: _____ °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

06/08/2022

CASE NARRATIVE

Client: AECOM

Project: BP Hyde Park

Report Number: 240-166329-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins Canton attests to the validity of the laboratory data generated by Eurofins facilities reported herein. All analyses performed by Eurofins facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The EPA Method 300.0 Anions, EPA Method 353.2 Nitrogen-Nitrite, EPA Method 353.2 Nitrate-Nitrite as Nitrogen, and SM 5210B Biochemical Oxygen Demand analyses were performed at the Eurofins Buffalo laboratory.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

This laboratory report is confidential and is intended for the sole use of Eurofins and its client.

RECEIPT

The samples were received on 5/10/2022 3:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.0º C, 2.5º C and 2.8º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Samples MW-10A (240-166329-1), FD-051022 (240-166329-2), MW-10B (240-166329-3), MW-5A (240-166329-4), MW-5B (240-166329-5) and TB-051022 (240-166329-6) were analyzed for Volatile organic compounds (GC/MS) in accordance with EPA SW-846 Method 8260D. The samples were analyzed on 05/18/2022 and 05/20/2022.

Samples MW-10A (240-166329-1)[12.5X], FD-051022 (240-166329-2)[12.5X], MW-10B (240-166329-3)[6.25X], MW-5A (240-166329-4) [2X] and MW-5B (240-166329-5)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

DISSOLVED GASES

Samples MW-10A (240-166329-1), FD-051022 (240-166329-2), MW-10B (240-166329-3), MW-5A (240-166329-4) and MW-5B (240-166329-5) were analyzed for dissolved gases in accordance with RSK_175. The samples were analyzed on 05/13/2022.

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

DISSOLVED METALS (ICP)

Samples MW-10A (240-166329-1), FD-051022 (240-166329-2), MW-10B (240-166329-3), MW-5A (240-166329-4) and MW-5B (240-166329-5) were analyzed for dissolved metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/13/2022 and analyzed on 05/16/2022.

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

ANIONS

Samples MW-10A (240-166329-1), FD-051022 (240-166329-2), MW-10B (240-166329-3), MW-5A (240-166329-4) and MW-5B (240-166329-5) were analyzed for anions in accordance with EPA Method 300.0. The samples were analyzed on 05/11/2022.

Samples MW-10A (240-166329-1)[5X], FD-051022 (240-166329-2)[5X], MW-10B (240-166329-3)[5X], MW-5A (240-166329-4)[2X] and MW-5B (240-166329-5)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The following samples were diluted to bring the concentration of target analytes within the calibration range: MW-10A (240-166329-1), FD-051022 (240-166329-2), MW-10B (240-166329-3), MW-5A (240-166329-4) and MW-5B (240-166329-5). Elevated reporting limits (RLs) are provided.

The following samples were diluted due to the abundance of non-target analytes: MW-10A (240-166329-1), FD-051022 (240-166329-2), MW-10B (240-166329-3), MW-5A (240-166329-4) and MW-5B (240-166329-5). 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.

ANIONS

Samples MW-10A (240-166329-1), FD-051022 (240-166329-2), MW-10B (240-166329-3), MW-5A (240-166329-4) and MW-5B (240-166329-5) were analyzed for anions in accordance with EPA Method 300.0. The samples were analyzed on 05/11/2022.

Samples MW-10A (240-166329-1)[5X], FD-051022 (240-166329-2)[5X], MW-10B (240-166329-3)[5X], MW-5A (240-166329-4)[2X] and MW-5B (240-166329-5)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

NITROGEN-NITRITE

Samples MW-10A (240-166329-1), FD-051022 (240-166329-2), MW-10B (240-166329-3), MW-5A (240-166329-4) and MW-5B (240-166329-5) were analyzed for Nitrogen-Nitrite in accordance with EPA Method 353.2. The samples were analyzed on 05/11/2022.

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

NITRATE-NITRITE AS NITROGEN

Samples MW-10A (240-166329-1), FD-051022 (240-166329-2), MW-10B (240-166329-3), MW-5A (240-166329-4) and MW-5B (240-166329-5) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 05/16/2022, 05/17/2022 and 05/23/2022.

Nitrate Nitrite as N failed the recovery criteria high for the MSD of sample MW-5B MSDMSD (240-166329-5) in batch 480-626424.

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

CHEMICAL OXYGEN DEMAND

Samples MW-10A (240-166329-1), FD-051022 (240-166329-2), MW-10B (240-166329-3), MW-5A (240-166329-4) and MW-5B (240-166329-5) were analyzed for chemical oxygen demand in accordance with EPA Method 410.4. The samples were analyzed on 05/16/2022.

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

BIOCHEMICAL OXYGEN DEMAND

Samples MW-10A (240-166329-1), FD-051022 (240-166329-2), MW-10B (240-166329-3), MW-5A (240-166329-4) and MW-5B (240-166329-5) were analyzed for Biochemical oxygen demand in accordance with SM 5210B. The samples were analyzed on 05/11/2022.

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

TOTAL ORGANIC CARBON

Samples MW-10A (240-166329-1), FD-051022 (240-166329-2), MW-10B (240-166329-3), MW-5A (240-166329-4) and MW-5B (240-166329-5) were analyzed for total organic carbon in accordance with SM 5310. The samples were analyzed on 06/07/2022.

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

SULFIDE

Samples MW-10A (240-166329-1), FD-051022 (240-166329-2), MW-10B (240-166329-3), MW-5A (240-166329-4) and MW-5B (240-166329-5) were analyzed for sulfide in accordance with SM 4500 S2 E. The samples were analyzed on 05/13/2022.

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

5-IN
MATRIX SPIKE SAMPLE RECOVERY
GENERAL CHEMISTRY

Lab Name: Eurofins Buffalo Job No.: 240-166329-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 625574 Date: 05/12/2022 00:12											
300.0	240-166329-5	Chloride	140		mg/L						
300.0	240-166329-5 MS	Chloride	360		mg/L	251	89	81-120			
300.0	240-166329-5	Sulfate	200		mg/L						
300.0	240-166329-5 MS	Sulfate	429		mg/L	250	91	80-120			
Batch ID: 625577 Date: 05/12/2022 00:12											
300.0	240-166329-5	Nitrate as N	ND		mg/L						
300.0	240-166329-5 MS	Nitrate as N	24.2		mg/L	25.1	97	80-120			
Batch ID: 625688 Date: 05/11/2022 22:12											
353.2	240-166329-5	Nitrite as N	ND		mg/L						
353.2	240-166329-5 MS	Nitrite as N	0.962		mg/L	1.00	96	90-110			
Batch ID: 626424 Date: 05/17/2022 09:53											
353.2	240-166329-5	Nitrate Nitrite as N	0.066		mg/L						F1
353.2	240-166329-5 MS	Nitrate Nitrite as N	1.09		mg/L	1.00	102	90-110			
Batch ID: 625696 Date: 05/11/2022 19:00											
SM 5210B	240-166329-5	Biochemical Oxygen Demand	ND		mg/L						
SM 5210B	240-166329-5 MS	Biochemical Oxygen Demand	196		mg/L	198	99	51-143			

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM V-IN

5-IN
MATRIX SPIKE DUPLICATE SAMPLE RECOVERY
GENERAL CHEMISTRY

Lab Name: Eurofins Buffalo Job No.: 240-166329-1

SDG No.:

Matrix: Water

Method	Lab Sample ID	Analyte	Result	C	Unit	Spike Amount	Pct. Rec.	Limits	RPD	RPD Limit	Q
Batch ID: 625574 Date: 05/12/2022 00:30											
300.0	240-166329-5 MSD	Chloride	361		mg/L	251	89	81-120	0	15	
300.0	240-166329-5 MSD	Sulfate	433		mg/L	250	93	80-120	1	15	
Batch ID: 625577 Date: 05/12/2022 00:30											
300.0	240-166329-5 MSD	Nitrate as N	24.2		mg/L	25.1	96	80-120	0	15	
Batch ID: 625688 Date: 05/11/2022 22:14											
353.2	240-166329-5 MSD	Nitrite as N	0.976		mg/L	1.00	98	90-110	1	20	
Batch ID: 626424 Date: 05/17/2022 09:54											
353.2	240-166329-5 MSD	Nitrate Nitrite as N	1.18		mg/L	1.00	111	90-110	8	20	F1
Batch ID: 625696 Date: 05/11/2022 19:00											
SM 5210B	240-166329-5 MSD	Biochemical Oxygen Demand	223		mg/L	396	56	51-143	13	20	

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM V-IN

Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Project Name: BP IPO
BP/ARC Facility No: BP Hyde Park
Req Due Date (mm/dd/yy):
Rush TAT: Yes ___ No X
Lab Work Order Number:

Lab Name:	Test America (Canton, OH)	BP/ARC Facility Address:	3425 Hyde Park Blvd	Consultant/Contractor:	AECOM
Lab Address:	4101 Shuffel Street NW, North Canton, OH 44720	City, State, ZIP Code:	Niagara, NY 14305	Consultant/Contractor Project No:	60481767.105.22.02H
Lab PM:	Lab Contact: Opal Johnson	Lead Regulatory Agency:	NYSDEC	Address:	1 John James Audubon Pkwy Ste 210, Amherst, NY 14228
Lab Phone:	330-497-9396 / 330-497-0772	California Global ID No.:		Consultant/Contractor PM:	James Kaczor
Lab Shipping Accnt:		Enfos Proposal No:		Phone:	716-923-1300
Lab Bottle Order No:		Accounting Mode:	Provision ___ OOC-BU ___ OOC-RM ___	Email EDD To:	James.Kaczor@aecom.com
Other Info:		Stage:	Activity:	Invoice To:	BP/ARC ___ Contractor X
BP/ARC EBM:					
EBM Phone:					
EBM Email:					

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor	Matrix:	No. Containers / Preservative: Total Number of Containers	Unpreserved	HNO3	HCl	NaoH/Zn-acetate	~~H3PO4~~ H2SO4		Requested Analyses: 8260C -VOCs	SM-4500_S2_F -Sulfide	410.4 - COD	RSK 175 - Diss Gases, Methane, Ethane, Ethene	5310 C - TOC	5210-BOD (TA-Buffalo)	300, 353.2, nitrate, nitrite, nitrate-nitrite 300.0_28D chloride, sulfate (TA - Buffalo)	6010C - Dissloved Iron (field filtered)			Report Type & QC Level
	MW-13B	5/11/22	1105		X			3	~~2~~		3				X										Standard ___
	MW-14B	5/11/22	0935		X			3			3				X										Full Data Package ___
	MW-12B	5/11/22	0940		X			13	2	1	6	1	3		X	X	X	X	X	X	X	X			Comments
	MW-18A	5/11/22	1135		X			13	2	1	6	1	3		X	X	X	X	X	X	X	X			Note: If sar... Sample" in... and initial ... "No ... e out ...cription.
	MW-18B	5/11/22	1307		X			13	2	1	6	1	3		X	X	X	X	X	X	X	X			
	MW-6B	5/11/22	1420		X			3			3				X										
	MW-16A	5/11/22	1230		X			13	2	1	6	1	3		X	X	X	X	X	X	X	X			
	MW-16B	5/11/22	1350		X			13	2	1	6	1	3		X	X	X	X	X	X	X	X			
	TB-051122	5/11/22	-		X			1			1				X										

240-166491 Chain of Custody

Page 1580 of 1563

Sampler's Name:	Emily Au, T. Urban, A.M. Krupnitch	Relinquished By / Affiliation	Date	Time
Sampler's Company:	AECOM			
Shipment Method:	Dropoff at TA Buffalo, NY — Ship Date:			
Shipment Tracking No:				

Accepted By / Affiliation	Date	Time
ES TAS	5/11	1518

Special Instructions: PO #143920 Line 3: TA Buffalo to ship to TA Canton except short hold bottles 5210-BOD, 300, 353.2, 300.0_28D : 11 3.1 # ICE

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: ___ °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

5/18/2022

CASE NARRATIVE

Client: AECOM

Project: BP Hyde Park

Report Number: 240-166491-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins Canton attests to the validity of the laboratory data generated by Eurofins facilities reported herein. All analyses performed by Eurofins facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The EPA Method 353.2 Nitrate-Nitrite as Nitrogen, EPA Method 353.2 Nitrogen-Nitrite, and SM 5210B Biochemical Oxygen Demand analyses were performed at the Eurofins Buffalo laboratory.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

This laboratory report is confidential and is intended for the sole use of Eurofins and its client.

RECEIPT

The samples were received on 5/12/2022 3:18 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 0.2º C, 1.4º C and 3.1º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Samples MW-13B (240-166491-1), MW-14B (240-166491-2), MW-12B (240-166491-3), MW-18A (240-166491-4), MW-18B (240-166491-5), MW-6B (240-166491-6), MW-16A (240-166491-7), MW-16B (240-166491-8) and TB-051122 (240-166491-9) were analyzed for Volatile organic compounds (GC/MS) in accordance with EPA SW-846 Method 8260D. The samples were analyzed on 05/23/2022, 05/24/2022 and 05/25/2022.

Samples MW-12B (240-166491-3)[2X], MW-6B (240-166491-6)[2X] and MW-16A (240-166491-7)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

The continuing calibration verification (CCV) analyzed in batch 240-527520 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. TB-051122 (240-166491-9) and (CCVIS 240-527520/3)

Sample MW-12B (240-166491-3) and MW-6B (240-166491-6) had to be re-run multiple times because of instrument problems and this consumed a large amount of sample. Therefore, it was necessary to use the vial opened for preservation confirmation for the final analysis for Vinyl Chloride only. Data is reported.

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

DISSOLVED GASES

Samples MW-12B (240-166491-3), MW-18A (240-166491-4), MW-18B (240-166491-5), MW-16A (240-166491-7) and MW-16B (240-166491-8) were analyzed for dissolved gases in accordance with RSK_175. The samples were analyzed on 05/19/2022 and 05/20/2022.

Samples MW-18A (240-166491-4)[10X], MW-18B (240-166491-5)[20X] and MW-16B (240-166491-8)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

DISSOLVED METALS (ICP)
Samples MW-12B (240-166491-3), MW-18A (240-166491-4), MW-18B (240-166491-5), MW-16A (240-166491-7) and MW-16B (240-166491-8) were analyzed for dissolved metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/16/2022 and analyzed on 05/17/2022.

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

ANIONS
Samples MW-12B (240-166491-3), MW-18A (240-166491-4), MW-18B (240-166491-5), MW-16A (240-166491-7) and MW-16B (240-166491-8) were analyzed for anions in accordance with EPA Method 300.0. The samples were analyzed on 05/16/2022 and 05/17/2022.

The following sample(s) was analyzed outside of analytical holding time due to samples arriving from Buffalo without being logged in first and a shelf location was not assigned until after arrival: : MW-12B (240-166491-3), MW-18A (240-166491-4), MW-18B (240-166491-5), MW-16A (240-166491-7) and MW-16B (240-166491-8).

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

ANIONS
Samples MW-12B (240-166491-3), MW-18A (240-166491-4), MW-18B (240-166491-5), MW-16A (240-166491-7) and MW-16B (240-166491-8) were analyzed for anions in accordance with EPA Method 300.0. The samples were analyzed on 05/16/2022 and 05/17/2022.

Samples MW-12B (240-166491-3)[5X], MW-18B (240-166491-5)[5X], MW-16A (240-166491-7)[10X] and MW-16B (240-166491-8)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

NITRATE-NITRITE AS NITROGEN
Samples MW-12B (240-166491-3), MW-18A (240-166491-4), MW-18B (240-166491-5), MW-16A (240-166491-7) and MW-16B (240-166491-8) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 05/19/2022.

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

NITROGEN-NITRITE
Samples MW-12B (240-166491-3), MW-18A (240-166491-4), MW-18B (240-166491-5), MW-16A (240-166491-7) and MW-16B (240-166491-8) were analyzed for Nitrogen-Nitrite in accordance with EPA Method 353.2. The samples were analyzed on 05/14/2022.

The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for analytical batch 480-626155 recovered outside control limits for the following analytes: <AffectedAnalytes>. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

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

CHEMICAL OXYGEN DEMAND
Samples MW-12B (240-166491-3), MW-18A (240-166491-4), MW-18B (240-166491-5), MW-16A (240-166491-7) and MW-16B (240-166491-8) were analyzed for chemical oxygen demand in accordance with EPA Method 410.4. The samples were analyzed on 05/18/2022.

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

BIOCHEMICAL OXYGEN DEMAND
Samples MW-12B (240-166491-3), MW-18A (240-166491-4), MW-18B (240-166491-5), MW-16A (240-166491-7) and MW-16B (240-166491-8) were analyzed for Biochemical oxygen demand in accordance with SM 5210B. The samples were analyzed on 05/12/2022 and 05/13/2022.

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

TOTAL ORGANIC CARBON
Samples MW-12B (240-166491-3), MW-18A (240-166491-4), MW-18B (240-166491-5), MW-16A (240-166491-7) and MW-16B (240-166491-8) were analyzed for total organic carbon in accordance with SM 5310. The samples were analyzed on 06/06/2022 and 06/07/2022.

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

SULFIDE

Samples MW-12B (240-166491-3), MW-18A (240-166491-4), MW-18B (240-166491-5), MW-16A (240-166491-7) and MW-16B (240-166491-8) were analyzed for sulfide in accordance with SM 4500 S2 E. The samples were analyzed on 05/18/2022.

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

FORM V
GC/MS VOA INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Eurofins Canton Job No.: 240-166491-1

SDG No.:

Lab File ID: BFB1538.D BFB Injection Date: 05/23/2022

Instrument ID: A3UX16 BFB Injection Time: 12:10

Analysis Batch No.: 527520

M/E	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
50	15.0 - 40.0 % of mass 95	16.5	
75	30.0 - 60.0 % of mass 95	45.3	
95	Base Peak, 100% relative abundance	100.0	
96	5.0 - 9.0 % of mass 95	6.4	
173	Less than 2.0 % of mass 174	0.0	(0.0) 1
174	Greater than 50% of mass 95	79.2	
175	5.0 - 9.0 % of mass 174	5.7	(7.2) 1
176	95.0 - 101.0 % of mass 174	76.2	(96.2) 1
177	5.0 - 9.0 % of mass 176	4.8	(6.3) 2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
	CCVIS 240-527520/3	uxm143102a.D	05/23/2022	12:33
	CCV 240-527520/4	uxm143103.D	05/23/2022	12:58
	LCS 240-527520/5	uxm143104.D	05/23/2022	13:22
	MB 240-527520/8	uxm143107.D	05/23/2022	14:36
MW-13B	240-166491-1	uxm143108.D	05/23/2022	15:01
MW-14B	240-166491-2	uxm143109.D	05/23/2022	15:26
MW-12B	240-166491-3	uxm143110.D	05/23/2022	15:51
MW-18A	240-166491-4	uxm143111.D	05/23/2022	16:15
MW-18B	240-166491-5	uxm143112.D	05/23/2022	16:40
MW-6B	240-166491-6	uxm143113.D	05/23/2022	17:05
MW-16A	240-166491-7	uxm143114.D	05/23/2022	17:30
MW-16B	240-166491-8	uxm143115.D	05/23/2022	17:55
TB-051122	240-166491-9	uxm143116.D	05/23/2022	18:20

FORM VII
GC/MS VOA CONTINUING CALIBRATION DATA

Lab Name: Eurofins Canton Job No.: 240-166491-1

SDG No.:

Lab Sample ID: CCVIS 240-527520/3 Calibration Date: 05/23/2022 12:33

Instrument ID: A3UX16 Calib Start Date: 05/05/2022 11:34

GC Column: DB-624 ID: 0.18(mm) Calib End Date: 05/05/2022 14:25

Lab File ID: uxm143102a.D Conc. Units: ng/uL Heated Purge: (Y/N) N

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Dichlorodifluoromethane	Ave	0.2633	0.2780	0.1000	0.0211	0.0200	5.6	20.0
Chloromethane	Ave	0.3294	0.2477	0.1000	0.0150	0.0200	-24.8*	20.0
Vinyl chloride	Ave	0.3677	0.2799	0.1000	0.0152	0.0200	-23.9*	20.0
Butadiene	Ave	0.3549	0.2774		0.0156	0.0200	-21.8*	20.0
Bromomethane	Ave	0.1988	0.1327	0.0500	0.0133	0.0200	-33.3*	20.0
Chloroethane	Ave	0.1980	0.1893	0.0500	0.0191	0.0200	-4.4	20.0
Dichlorofluoromethane	Ave	0.4474	0.4383		0.0196	0.0200	-2.0	20.0
Trichlorofluoromethane	Ave	0.3798	0.3440	0.1000	0.0181	0.0200	-9.4	20.0
Ethyl ether	Ave	0.1772	0.1857		0.0210	0.0200	4.8	20.0
Acrolein	Ave	0.0308	0.0313		0.101	0.100	1.4	20.0
1,1-Dichloroethene	Ave	0.1981	0.2116	0.1000	0.0214	0.0200	6.8	20.0
1,1,2-Trichloro-1,2,2-trifluoroethane	Ave	0.1644	0.1777	0.0500	0.0216	0.0200	8.1	20.0
Acetone	Lin1		0.0216	0.0100	0.0352	0.0400	-12.1	50.0
Iodomethane	Ave	0.2866	0.2089		0.0146	0.0200	-27.1*	20.0
Carbon disulfide	Ave	0.6513	0.7601	0.1000	0.0233	0.0200	16.7	20.0
Methyl acetate	Ave	0.2008	0.1576	0.1000	0.0314	0.0400	-21.5	50.0
3-Chloro-1-propene	Ave	0.3290	0.3700		0.0225	0.0200	12.5	20.0
Methylene Chloride	Lin1		0.2493	0.1000	0.0192	0.0200	-4.0	50.0
2-Methyl-2-propanol	Ave	0.0263	0.0192		0.146	0.200	-26.9*	20.0
Acrylonitrile	Ave	0.0965	0.0955		0.198	0.200	-1.1	20.0
Methyl tert-butyl ether	Ave	0.6561	0.6064	0.1000	0.0185	0.0200	-7.6	20.0
trans-1,2-Dichloroethene	Ave	0.2425	0.2493	0.1000	0.0206	0.0200	2.8	20.0
Hexane	Ave	0.3393	0.4058		0.0239	0.0200	19.6	20.0
Vinyl acetate	Ave	0.3441	0.4360		0.0253	0.0200	26.7*	20.0
1,1-Dichloroethane	Ave	0.4248	0.4527	0.2000	0.0213	0.0200	6.6	20.0
2-Butanone (MEK)	Ave	0.0326	0.0252	0.0100	0.0309	0.0400	-22.8	50.0
cis-1,2-Dichloroethene	Ave	0.2667	0.2694	0.1000	0.0202	0.0200	1.0	20.0
2,2-Dichloropropane	Ave	0.3368	0.3546		0.0211	0.0200	5.3	20.0
Chlorobromomethane	Ave	0.1303	0.1240		0.0190	0.0200	-4.9	20.0
Tetrahydrofuran	Ave	0.0739	0.0653		0.0353	0.0400	-11.7	20.0
Chloroform	Ave	0.4306	0.4171	0.2000	0.0194	0.0200	-3.2	20.0
1,1,1-Trichloroethane	Ave	0.3617	0.3517	0.1000	0.0194	0.0200	-2.8	20.0
Cyclohexane	Ave	0.3851	0.4643	0.1000	0.0241	0.0200	20.6*	20.0
1,1-Dichloropropene	Ave	0.3319	0.3484		0.0210	0.0200	5.0	20.0
Carbon tetrachloride	Ave	0.3082	0.2943	0.1000	0.0191	0.0200	-4.5	20.0
Isobutyl alcohol	Ave	0.0084	0.0069		0.412	0.500	-17.5	20.0
Benzene	Ave	1.000	1.042	0.5000	0.0208	0.0200	4.2	20.0
1,2-Dichloroethane	Ave	0.3333	0.3040	0.1000	0.0182	0.0200	-8.8	20.0
n-Heptane	Lin1		0.2188		0.0208	0.0200	4.1	20.0
Trichloroethene	Ave	0.2612	0.2516	0.1500	0.0193	0.0200	-3.7	20.0

2.5/2.5

Laboratory Management Program LaMP Chain of Custody Record

Page 1 of 1

BP/ARC Project Name: BP IPO **Req Due Date (mm/dd/yy):** **Rush TAT:** Yes ___ No X

BP/ARC Facility No: BP Hyde Park **Lab Work Order Number:**

Lab Name:	Test America (Canton, OH)	BP/ARC Facility Address:	3425 Hyde Park Blvd	Consultant/Contractor:	AECOM
Lab Address:	4101 Shuffel Street NW, North Canton, OH 44720	City, State, ZIP Code:	Niagara, NY 14305	Consultant/Contractor Project No:	60481767.105.22.02H
Lab PM:	Lab Contact: Opal Johnson	Lead Regulatory Agency:	NYSDEC	Address:	1 John James Audubon Pkwy Ste 210, Amherst, NY 14228
Lab Phone:	330-497-9396 / 330-497-0772	California Global ID No:		Consultant/Contractor PM:	James Kaczor
Lab Shipping Accnt:		Enfos Proposal No:		Phone:	716-923-1300
Lab Bottle Order No:		Accounting Mode:	Provision ___ OOC-BU ___ OOC-RM ___	Email EDD To:	James.Kaczor@aecom.com
Other Info:		Stage:	Activity:	Invoice To:	BP/ARC ___ Contractor X

BP/ARC EBM:

EBM Phone:

EBM Email:

Page 3227 of 3238	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor		No. Containers / Preservative: Total Number of Containers	Unpreserved	HNO3	HCl	NaOH/Zn-acetate	~~H2SO4~~ H2SO4	Requested Analyses: 8260C -VOCs	SM-4500_S2_F -Sulfide	410.4 - COD	RSK 175 - Diss Gases, Methane, Ethane, Ethene	5310 C - TOC	5210-BOD (TA-Buffalo)	300, 353.2, nitrate, nitrite, nitrate-nitrite 300.0_28D chloride, sulfate (TA - Buffalo)	6010C - Dissolved Iron (field filtered)	1,4-Dioxane	PFAS
	MW-19B	5/12/22	1015		X			3			3			X									
	MW-7A	5/12/22	1240		X			13	6	1	6	1	3	X	X	X	X	X	X	X	X		
	MW-7B	5/12/22	1135		X			13	6	1	6	1	3	X	X	X	X	X	X	X	X		
	MW-17A	5/12/22	0950		X			13	6	1	6	1	3	X	X	X	X	X	X	X	X		
	MW-17B	5/12/22	1410		X			17	6	1	6	1	3	X	X	X	X	X	X	X	X	X	X
	RB-051222	5/12/22	1015		X			17	6	1	6	1	3	X	X	X	X	X	X	X	X	X	X
	FD-051222	5/12/22	0000		X			4	4													X	X
	TB-051222	5/12/22	—		X			2			2			X									

Report Type & QC Level

Standard ___

Full Data Package ___

Comments

Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.

240-166554 Chain of Custody

Sampler's Name:	E. Au, T. Urban, A. M. Krpovitch	**Relinquished By / Affiliation**	**Date**	**Time**
Sampler's Company:	AECOM			
Shipment Method:	Dropoff at TA Buffalo, NY	Ship Date:		
Shipment Tracking No:				

Accepted By / Affiliation	**Date**	**Time**
	5/13/22	1700
	5/14	8:00

Special Instructions: PO #143920 Line 3: TA Buffalo to ship to TA Canton except short hold bottles 5210-BOD, 300, 353.2, 300.0_28D :

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: _____ °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

06/08/2022

CASE NARRATIVE

Client: AECOM

Project: BP Hyde Park

Report Number: 240-166554-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins Canton attests to the validity of the laboratory data generated by Eurofins facilities reported herein. All analyses performed by Eurofins facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The SOP WS-OC-0025 Perfluorinated Hydrocarbons analysis was performed at the Eurofins Sacramento laboratory.

The SW846 Method 8270D Isotope Dilution by 8270 SIM, EPA Method 353.2 Nitrate-Nitrite as Nitrogen, EPA Method 353.2 Nitrogen-Nitrite, and SM 5210B Biochemical Oxygen Demand analyses were performed at the Eurofins Buffalo laboratory.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

This laboratory report is confidential and is intended for the sole use of Eurofins and its client.

RECEIPT

The samples were received on 5/12/2022 3:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 7 coolers at receipt time were 0.1º C, 2.4º C, 2.5º C, 2.8º C, 3.0º C, 3.3º C and 3.7º C.

VOLATILE ORGANIC COMPOUNDS (GC/MS)

Samples MW-19B (240-166554-1), MW-7A (240-166554-2), MW-7B (240-166554-3), MW-17A (240-166554-4), MW-17B (240-166554-5), RB-051222 (240-166554-6) and TB-051222 (240-166554-8) were analyzed for Volatile organic compounds (GC/MS) in accordance with EPA SW-846 Method 8260D. The samples were analyzed on 05/23/2022, 05/24/2022 and 05/25/2022.

Samples MW-7A (240-166554-2)[2X] and MW-17A (240-166554-4)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

ISOTOPE DILUTION BY 8270 SIM

Samples MW-17B (240-166554-5), RB-051222 (240-166554-6) and FD-051222 (240-166554-7) were analyzed for Isotope Dilution by 8270 SIM in accordance with SW846 Method 8270D. The samples were prepared on 05/17/2022 and analyzed on 05/18/2022.

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

DISSOLVED GASES

Samples MW-7A (240-166554-2), MW-7B (240-166554-3), MW-17A (240-166554-4), MW-17B (240-166554-5) and RB-051222 (240-166554-6) were analyzed for dissolved gases in accordance with RSK_175. The samples were analyzed on 05/19/2022 and 05/20/2022.

Samples MW-7A (240-166554-2)[10X], MW-17A (240-166554-4)[10X] and MW-17B (240-166554-5)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

PERFLUORINATED HYDROCARBONS
Samples MW-17B (240-166554-5), RB-051222 (240-166554-6) and FD-051222 (240-166554-7) were analyzed for Perfluorinated Hydrocarbons in accordance with SOP WS-OC-0025. The samples were prepared on 05/19/2022 and analyzed on 05/21/2022.

Perfluorooctanesulfonic acid (PFOS) was detected in method blank MB 320-588952/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Method 3535: The following samples in preparation batch 320-588952 were yellow in color prior to extraction. MW-17B (240-166554-5)

Method: 3535 PFC-W
Matrix: Aqueous

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

DISSOLVED METALS (ICP)
Samples MW-7A (240-166554-2), MW-7B (240-166554-3), MW-17A (240-166554-4), MW-17B (240-166554-5) and RB-051222 (240-166554-6) were analyzed for dissolved metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 05/17/2022 and analyzed on 05/18/2022.

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

ANIONS
Samples MW-7A (240-166554-2), MW-7B (240-166554-3), MW-17A (240-166554-4), MW-17B (240-166554-5) and RB-051222 (240-166554-6) were analyzed for anions in accordance with EPA Method 300.0. The samples were analyzed on 05/17/2022.

The following sample(s) was analyzed outside of analytical holding time due to samples arriving from Buffalo without being logged in first and a shelf location was not assigned until after arrival: MW-7A (240-166554-2), MW-7B (240-166554-3), MW-17A (240-166554-4), MW-17B (240-166554-5) and RB-051222 (240-166554-6).

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

ANIONS
Samples MW-7A (240-166554-2), MW-7B (240-166554-3), MW-17A (240-166554-4), MW-17B (240-166554-5) and RB-051222 (240-166554-6) were analyzed for anions in accordance with EPA Method 300.0. The samples were analyzed on 05/17/2022.

Sample MW-7B (240-166554-3)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

NITRATE-NITRITE AS NITROGEN
Samples MW-7A (240-166554-2), MW-7B (240-166554-3), MW-17A (240-166554-4), MW-17B (240-166554-5) and RB-051222 (240-166554-6) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 05/14/2022.

The following sample(s) was received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: : MW-7A (240-166554-2), MW-7B (240-166554-3), MW-17A (240-166554-4) and RB-051222 (240-166554-6).3535

Nitrate Nitrite as N failed the recovery criteria high for the MS of sample MW-7BMS (240-166554-3) in batch 480-626150.

Nitrate Nitrite as N failed the recovery criteria high for the MSD of sample 480-197889-2 in batch 480-626150.

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

NITROGEN-NITRITE
Samples MW-7A (240-166554-2), MW-7B (240-166554-3), MW-17A (240-166554-4), MW-17B (240-166554-5) and RB-051222 (240-166554-6) were analyzed for Nitrogen-Nitrite in accordance with EPA Method 353.2. The samples were analyzed on 05/14/2022.

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

CHEMICAL OXYGEN DEMAND
Samples MW-7A (240-166554-2), MW-7B (240-166554-3), MW-17A (240-166554-4), MW-17B (240-166554-5) and RB-051222 (240-166554-6) were analyzed for chemical oxygen demand in accordance with EPA Method 410.4. The samples were analyzed on 05/18/2022.

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

BIOCHEMICAL OXYGEN DEMAND

Samples MW-7A (240-166554-2), MW-7B (240-166554-3), MW-17A (240-166554-4), MW-17B (240-166554-5) and RB-051222 (240-166554-6) were analyzed for Biochemical oxygen demand in accordance with SM 5210B. The samples were analyzed on 05/13/2022.

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

TOTAL ORGANIC CARBON

Samples MW-7A (240-166554-2), MW-7B (240-166554-3), MW-17A (240-166554-4), MW-17B (240-166554-5) and RB-051222 (240-166554-6) were analyzed for total organic carbon in accordance with SM 5310. The samples were analyzed on 06/07/2022.

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

SULFIDE

Samples MW-7A (240-166554-2), MW-7B (240-166554-3), MW-17A (240-166554-4), MW-17B (240-166554-5) and RB-051222 (240-166554-6) were analyzed for sulfide in accordance with SM 4500 S2 E. The samples were analyzed on 05/18/2022.

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

FORM IV
PFAS METHOD BLANK SUMMARY

Lab Name: Eurofins Sacramento Job No.: 240-166554-1

SDG No.:

Lab File ID: 2022.05.20_A15_PFC+_AA_046.d Lab Sample ID: MB 320-588952/1-A

Matrix: Water Date Extracted: 05/19/2022 13:59

Instrument ID: A15 Date Analyzed: 05/21/2022 02:20

Level:(Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-588952/2-A	2022.05.20_A15_PFC+_AA_047.d	05/21/2022 02:30
	LCSD 320-588952/3-A	2022.05.20_A15_PFC+_AA_048.d	05/21/2022 02:40
FD-051222	240-166554-7	2022.05.20_A15_PFC+_AA_049.d	05/21/2022 02:50
RB-051222	240-166554-6	2022.05.20_A15_PFC+_AA_050.d	05/21/2022 03:00
MW-17B	240-166554-5	2022.05.20_A15_PFC+_AA_051.d	05/21/2022 03:10

FORM I
PFAS ORGANICS ANALYSIS DATA SHEET

Lab Name: Eurofins Sacramento | Job No.: 240-166554-1

SDG No.:

Client Sample ID: | Lab Sample ID: MB 320-588952/1-A

Matrix: Water | Lab File ID: 2022.05.20_A15_PFC+_AA_046.d

Analysis Method: 537 (modified) | Date Collected:

Extraction Method: 3535 | Date Extracted: 05/19/2022 13:59

Sample wt/vol: 250.0(mL) | Date Analyzed: 05/21/2022 02:20

Con. Extract Vol.: 10.0(mL) | Dilution Factor: 1

Injection Volume: 20(uL) | GC Column: Gemini C18 3x50 ID: 3(mm)

% Moisture: % Solids: | GPC Cleanup:(Y/N) N

Cleanup Factor:

Analysis Batch No.: 589964 | Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
375-22-4	Perfluorobutanoic acid (PFBA)	ND		5.0	2.4
2706-90-3	Perfluoropentanoic acid (PFPeA)	ND		2.0	0.49
307-24-4	Perfluorohexanoic acid (PFHxA)	ND		2.0	0.58
375-85-9	Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.25
335-67-1	Perfluorooctanoic acid (PFOA)	ND		2.0	0.85
375-95-1	Perfluorononanoic acid (PFNA)	ND		2.0	0.27
335-76-2	Perfluorodecanoic acid (PFDA)	ND		2.0	0.31
2058-94-8	Perfluoroundecanoic acid (PFUnA)	ND		2.0	1.1
307-55-1	Perfluorododecanoic acid (PFDoA)	ND		2.0	0.55
72629-94-8	Perfluorotridecanoic acid (PFTriA)	ND		2.0	1.3
376-06-7	Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.73
375-73-5	Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.20
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.57
375-92-8	Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.19
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	0.990	J	2.0	0.54
335-77-3	Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.32
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND		2.0	0.98
2355-31-9	N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		5.0	1.2
2991-50-6	N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		5.0	1.3
27619-97-2	6:2 FTS	ND		5.0	2.5
39108-34-4	8:2 FTS	ND		2.0	0.46

Appendix C

Monitoring Well Analytical Data Summary, 2007 to 2022

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW- 1A

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/31/2007	5 U	5 U	5 U	5 U	5 U	2 U				5 U	5 U	5 U									
4/23/2008	5 U	5 U	5 U	5 U	5 U	2 U	1 U	1 U	2.6	5 U	5 U	5 U		2 U	6.02	1.53	112	109	1 U	0.05 U	0.05 U
10/27/2009	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	30	5 U	5 U	5 U		1.7 U	16.5 J	2	140 J	141	0.16 U	0 R	0.05 U

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U Analyte was not detected above the reporting limit.
UJ The analyte was not detected. The reporting limit is an approximate value.
J- Indicates estimated value, biased low.
J+ Indicates estimated value, biased high.
D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW- 1B

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/30/2007	5 U	5 U	11	5 U	5 U	16	0.36 J	0.97 J	160	5 U	5 U	5 U		2 U	5 UJ	4.23	97.6	301	1 U		
4/23/2008	5 U	5 U	1.2 J	5 U	5 U	1.9 J	1 U	1 U	64	5 U	0.71 J	5 U		2 U	13	4.06	70	181	1 U	0.05 U	0.05 U
10/27/2009	5 U	5 U	1.3 J	5 U	5 U	1.7 J	5 U	5 U	59	5 U	5 U	5 U		1.6 U	32.5 J	4.5	71.8 J	218	0.16 U	0 R	0.05 U

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MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW- 2A

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
11/1/2007	5 U	0.91 J	9.8	5 U	5 U	1.9 J				5 U	7.1	4.9 J									
4/28/2008	5 U	5 U	0.38 J	5 U	2.4 J	2 U				2 J	14	1.2 J									
10/28/2009	5 U	5 U	5 U	5 U	6	1.3 J				7.6	26	1.2 J									
5/11/2010	5 U	5 U	5 U	5 U	4.3 J	1.2 J	5 U	5 U	30	4.9 J	18	1.7 J									

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MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW- 2B

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
11/1/2007	5 U	5 U	48	5 U	5 U	59				5 U	5 U	5 U									
4/28/2008	5 U	5 U	41	5 U	5 U	62				5 U	5 U	5 U									
10/28/2009	5 U	5 U	9.1	5 U	5 U	16				5 U	5 U	5 U									
5/11/2010	5 U	5 U	3.7 J	5 U	5 U	7.6	1.9 J	55	2300	5 U	5 U	5 U									
10/20/2011	5 U	5 U	1.8 J	5 U	5 U	2.6 J				5 U	5 U	5 U									
6/13/2012	5 U	5 U	2.7 J	5 U	5 U	8.6				5 U	5 U	5 U									
8/30/2013	5 U	5 U	2.3 J	5 U	5 U	4 J				5 U	5 U	5 U									
4/3/2014	1 U	1 U	1	0.72 J	1 U	2.2				1 UJ	0.92 J	1 U									
11/20/2015	1 U	1 U	0.87 J	0.56 J	1 U	3.4				1 U	0.65 J	1 U									
4/19/2016	1.0 U	1.0 U	0.95 J	1.0 U	1.0 U	2.2				1.0 U	0.96 J	1.0 U									
9/12/2017	1.0 U	1.0 U	0.77 J	1.0 U	1.0 U	1.8				1.0 U	0.5 J	1.0 U									
4/25/2018	1.0 U	1.0 U	1.3	1.0 U	1.0 U	2.6				1.0 U	1.0 U	1.0 U									

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MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW- 3A

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/31/2007	5 U	5 U	0.9 J	5 U	5 U	2 U	0.54 J	1 U	6	5 U	5 U	5 U		2 U	19 J	3.21	16.4	319	3.64		
4/24/2008	5 U	0.21 J	0.71 J	5 U	5 U	2 U	1 U	1 U	12	5 U	5 U	5 U		2 U	6.92	2.89	0.2 U	292	1 U	0.05 U	0.05 U
8/12/2008	5 U	5 U	0.89 J	5 U	5 U	5 U	5 U	5 U	25	5 U	5 U					2.6	17.6	318			
10/6/2008	5 U	1.9 J	11	5 U	5 U	5 U	5 U	5 U	19 J	5 U	5 U	5 U				2.3	19.4 J	347			
12/8/2008	5 U	1.4 J	5 U	5 U	5 U	5 U	5 U	5 U	7.7 J	5 U	5 U	5 U				4.9	23.3	444			
1/26/2009	5 U	5 U	1 J	5 U	5 U	5 U	5 U	5 U	7.3 J	5 U	5 U	5 U									
3/16/2009	5 U	5 U	0.99 J	5 U	5 U	5 U	5 U	5 U	5 J	5 U	5 U	5 U				3.7	27.3	334			
10/27/2009	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	14 J	5 U	5 U	5 U		1.9 U	25.6 J	2.2	15.9 J	250	0.16 U	0 R	0.05 U

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MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW- 3B

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/31/2007	5 U	5 U	1.9 J	5 U	5 U	2.2	1 U	1 U	220	5 U	5 U	5 U		2 U	5 UJ	3.19	134	395	1 U		
4/25/2008	5 U	5 U	2.1 J	5 U	5 U	2.2	0.6 J	1 U	180	5 U	5 U	5 U		4.17	14.1	3.64	132	333	1 U	0.05 U	0.05 U
10/27/2009	5 U	5 U	1.5 J	5 U	5 U	2.9 J	5 U	5 U	170	5 U	5 U	5 U		2.2 U	16.5 J	3.8	121 J	254	0.9	0 R	0.05 U

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MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW- 4A

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/31/2007	5 U	34	200	3.2 J	1.8 J	56	0.55 J	5.6	130	5 U	12	5 U		2 U	5 UJ	1.87	106	242	1 U		
4/29/2008	5 U	34	200	3.1 J	1.6 J	53	0.55 J	5.6	130	5 U	15	5 U		2 U	6.62	1.52	117	231	1 U	0.05 U	0.05 U
11/3/2009	5 U	130	110	5.7	2.5 J	41	5 U	4.6 J	83	5 U	17	5 U		2.6 U	50 U	1.7 J	97.1	244	0.16 U	0.1 U	0.05 U
5/14/2010	5 U	94	250	4.9 J	2.6 J	45	5 U	5.7	110	5 U	21	5 U		2.1 U	50 U	1.8	109	249	0.16 U	0.1 U	0.05 U
10/25/2011	5 U	160	150	8.1	3.8 J	73	5 U	12	170	5 U	18	5 U	0.0146 J	3.1 U	50 U	2.1	95.9 J	263 J	0.16 U	0.1 U	0.05 U
3/14/2012																					
3/15/2012	50 UJ	65 J	97 J	9.5 J	50 UJ	14 J	5.7	20	1200	50 UJ	18 J	50 UJ	0.0523 J			999	160	46.3			
6/12/2012	5 U	7.5	140	2.9 J	0.81 J	20	5 U	3.9 J	3700	5 U	5.4	7.8	3.22		1350	434	89.8	5 U		0.1 U	0.05 U
6/13/2012																			0.34		
6/25/2012														796							
11/29/2012	5 U	5.5	120	4.2 J	0.92 J	39	5 U	48	7900	5 U	3.6 J	21	4.85			397	37.8	5 U			
9/3/2013	5 U	4.2 J	31	3.5 J	5 U	11	1.4 J	60 J	11000	5 U	1.3 J	17		551 J	1040 J	251	82.9	1.6 J	0.074 J	0.1 UJ	0.05 U
1/22/2014	5 U	1.1 J	7.5	2.4 J	5 U	7.2	5 U	65	22000	5 U	5 U	12	39.4			362	87.3	5 U	0.16 U		
4/3/2014	1 U	1.2	3.7	2.1	1 U	4.1	4.2 J	47	25000	1 U	1 U	12	36.2	342	640	205	99	5 U	0.17	0.1 UJ	0.018 J
10/14/2014	1 U	0.57 J	5.3	2.2	1 U	5.8	3.5 J	56	19000 J	1 UJ	1.1	9.1	57.6			159	83.8	2.5 J	0.16 U		
11/18/2015	1 U	1.2	1.3	1 U	1 U	1.1	5.2	18	17000	1 U	1	3	14.5	70.6	443	36.6	123	5.6	0.085 J	0.1 U	0.05 U
4/21/2016	1.0 U	3.4	2.8	1.0 U	1.0 U	1.1	4.3 J	8.6	26000 D	1.0 U	1.4	3	9.67	34.3	181	20.4	179	7.6	0.069 J	0.10 U	0.050 U
9/11/2017	1.0 U	1.3	0.68 J	1.0 U	1.0 UJ	2.6	3.9	5.5	5400 D	1.0 U	1.4	2.7	11	27	48	17	26	2.1 J	1.0 U	0.25 U	0.050 UJ
4/23/2018	1.0 U	0.44 J	1.1	0.51 J	1.0 U	0.96 J	10 U	10 U	21000	1.0 U	1.8	2.5	14	7.6	23	7.2	110	3.7 J	1.0 U	0.25 U	0.050 UJ

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D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW- 4B

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/31/2007	5 U	5 U	23	5 U	5 U	11	0.39 J	0.39 J	200	5 U	1.4 J	5 U		2 U	5.52 J	3.15	152	316	2.59		
4/29/2008	5 U	5 U	12	5 U	5 U	13	0.43 J	0.66 J	260	5 U	5 U	5 U		2 U	8.98	3.29	152	247	1 U	0.05 U	0.05 U
11/3/2009	5 U	5 U	9.7	5 U	5 U	9.5	5 U	5 U	140	5 U	5 U	5 U		3 U	25.6 J	2.9 J	190	267	0.16 J	0.1 U	0.05 U
5/14/2010	5 U	5 U	2.8 J	5 U	5 U	12	5 U	5 U	160	5 U	5 U	5 U		2.7 U	13.3 J	3.4	165	305	0.16 U	0.1 U	0.05 U
1/16/2014	5 U	5 U	11	5 U	5 U	15	5 U	2.8 J	150	5 U	1.1 J	5 U	0.459			3.9	142	298 J+	0.16 U		

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MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW- 5A

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/29/2007															5 UJ						
10/30/2007	5 U	0.59 J	2.6 J	5 U	5 U	2 U	1 U	1 U	0.74 J	5 U	5 U	5 U		2 U		1.14	569	172	1 U		
4/22/2008	5 U	0.47 J	37	0.35 J	5 U	16	2	4.7	22	5 U	5 U	5 U		2 U	12.2	1.44	542	164	1 U	0.613	0.05 U
10/29/2009	5 U	5 U	5.9	5 U	5 U	1.8 J	5 U	5 U	5.5 J	5 U	5 U	5 U		1.7 U	23.3 J	1.1	263	148 J	0.16 U	0.85	0.05 U
5/13/2010	5 U	5 U	110	0.97 J	5 U	84	1.8 J	45	100	5 U	5 U	5 U		1.6 U	15.6 J	1.3	188	126	0.16 U	0.7	0.05 U
10/21/2011	5 U	5 U	5.7	5 U	5 U	3.3 J	5 U	1.5 J	9.6 J	5 U	5 U	5 U	0.0265 J	3.1 U	50 U	1.5	204	164	0.16 U	0.75	0.05 U
6/12/2012	5 U	5 U	88	1 J	5 U	82	2.8 J	34	130	5 U	5 U	1 J	0.2 U	3.2 U	50 U	0.98 J	120	116	0.16 U	0.57	0.05 U
8/28/2013	5 U	5 U	110	1.4 J	5 U	190	9.5	100	460	5 U	1.3 J	5 U		4.3 U	50 U	1.2	106 J	91.7	0.16 U	0.35	0.05 U
4/2/2014	1 U	1 U	240	2.3	1 U	300	16	110	1100	1 UJ	3.3	2.1	0.4 U	4.1 U	50 U	2.3	128 J-	63.3 J+	0.16 U	0.13	0.05 U
11/17/2015	1 U	1 U	150	1.6	1 U	140	5.4	39	2000	1 U	1.4	1.5	0.4 U		50 U	1 U	102	102	0.16 U	0.61	0.05 U
11/20/2015														6 U							
4/19/2016	1.0 U	1.0 U	340 D	5.4	1.0 U	340 D	12	87	7500	1.0 U	4.2	1.0 U	0.400 U	7.3	24.4 J	1.2	151	70.2	0.10 U	0.56	0.050 U
9/13/2017	2.0 U	2.0 U	61	0.74 J	2.0 U	68	2.1	9.8	460	2.0 U	0.88 J	2.0 U	0.100 U	2.0 U	12	0.76 J	69	99	1.0 U	0.25 U	0.050 U
4/24/2018	13 U	13 U	250	13 U	13 U	310	18	69	4200	13 U	3.3 J	13 U	0.200 U	4	4.2 J	1.5	120	60	1.0 U	0.13 J	0.050 UJ
12/3/2019	1.0 U	0.47 J	9.5	1.0 U	1.0 U	11	2.1	3.7	140	1.0 U	1.0 U	1.0 U	0.20 U	2.0 U	4.1 J	0.68 J	89	97	1.0 U	0.59	
3/18/2020	5.0 U	0.52 J	130	1.2 J	5.0 U	180	38	47	2600	5.0 U	2.5 J	5.0 U	0.2 U	1.3 J	12	1.2	130	67	1.0 U	0.098 J	0.10 U
12/6/2021	1.0 U	1.0 U	52	1.0 U	1.0 U	62	7.2 J	7.1	470	1.0 U	1	0.6 J	0.05 U	2.0 U	17	1.5	76	87	1.0 U	0.47	0.10 U
5/10/2022	1.0 U	1.0 U	78	0.62 J	1.0 U	70 D	32	32	2100	1.0 U	1.9	1.0 U	0.2 U	6.0 U	6.8 J	1.0 U	85	77	1.0 U	0.24	0.10 U

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D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW- 5B

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/29/2007	5 U	0.76 J	61	0.66 J	5 U	49	1 U	0.6 J	86	5 U	0.38 J	5 U		2 U	5 UJ	4.26	83.2	230	1 U		
4/22/2008	5 U	0.51 J	58	0.5 J	5 U	57	0.37 J	0.76 J	80	5 U	5 U	5 U		2 U	9.57	4.49	81	223	1.94	0.05 U	0.05 U
10/29/2009	5 U	5 U	39	5 U	5 U	37	5 U	5 U	50	5 U	5 U	5 U		1.7 U	14.2 J	4.9	112	229 J	0.16 U	0.1 U	0.05 U
5/13/2010	5 U	1.1 J	36	5 U	5 U	39	5 U	5 U	63	5 U	5 U	5 U		1.2 U	15.6 J	4.7	98.5	234	0.16 U	0.1 U	0.05 U
11/9/2010	5 U	5 U	43	5 U	5 U	45	5 U	1.1 J	81	5 U	5 U	5 U				4.1	111	254			
10/21/2011	5 U	5 U	48	5 U	5 U	63	5 U	5 U	72	5 U	5 U	5 U	0.0196 J	2.5 U	17.9 J	4.9	130	358	0.16 U	0.1 U	0.05 U
6/13/2012	5 U	5 U	33	5 U	5 U	34	5 U	5 U	50	5 U	5 U	5 U	0.2 U	3.7 U	33.3 J	3.4	187	255	0.16 U	0.1 U	0.05 U
11/30/2012	5 U	5 U	39	5 U	5 U	44	5 U	5 U	66	5 U	5 U	5 U				3	166	267			
8/28/2013	5 U	5 U	32	5 U	5 U	44	5 U	5 U	41	5 U	5 U	5 U		2.8 U	15.6 J	4.5	119 J	299	0.16 U	0.1 U	0.05 U
4/3/2014	1 U	1	16	1 U	1 U	29	5 U	5 U	63	1 UJ	1 U	1 U	0.379 J	4.4 U	50 U	5.3	100	240	0.16 U	0.1 UJ	0.05 U
11/17/2015	1 U	0.58 J	34	1 U	1 U	65	5 U	2.3 J	120	1 U	1 U	1 U	0.502	5.1 U	17.5 J	3.1	117	251	0.16 U	0.1 U	0.05 U
4/19/2016	1.0 U	1.0 U	32	1.0 U	1.0 U	71	5.0 U	1.6 J	86	1.0 U	1.0 U	1.0 U	0.332 J	3.3 U	24.4 J	3	166	259	0.10 U	0.10 U	0.050 U
9/13/2017	5.0 U	5.0 U	36	5.0 U	5.0 U	91	0.50 U	2.2	110	5.0 U	5.0 U	5.0 U	0.54	2.0 U	17	3.4	110	240	1.0 U	0.50 U	0.050 U
4/24/2018	1.0 U	1.0 U	32	1.0 U	1.0 U	78	1.0 U	3.3	160	1.0 U	0.3 J	1.0 U	0.4	2.0 U	8.3 J	3.6	110	240	1.0 U	0.25 UJ	0.050 UJ
12/3/2019	2.0 U	2.0 U	32	2.0 U	2.0 U	90	0.66 J	4.8	270	2.0 U	2.0 U	2.0 U	0.41	2.0 U	9.4 J	3.3	110	240	1.1	0.25 U	
3/18/2020	2.0 U	2.0 U	26	2.0 U	2.0 U	68	1.0 U	2.9	160	2.0 U	2.0 U	2.0 U	0.37	2.0 U	10	3.2	140	220	1.0 U	0.50 U	0.10 U
12/6/2021	2.0 U	2.0 U	40	2.0 U	2.0 U	140	7.5 U	2.4 J	300	2.0 U	2.0 U	2.0 U	0.24	2.0 U	35	4.5	120	230	1.0 U	0.25 U	0.25 U
5/10/2022	1.0 U	1.0 U	35	1.0 U	1.0 U	71 D	0.68 J	3.2	250	1.0 U	1.0 U	1.0 U	0.14 J	12 U	9.5 J	2.6	140	200	1.0 U	0.25 U	0.25 U

J Indicates an estimated value.
U Analyte was not detected above the reporting limit.
UJ The analyte was not detected. The reporting limit is an approximate value.
J- Indicates estimated value, biased low.
J+ Indicates estimated value, biased high.
D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW- 6

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
11/1/2007	5 U	5 U	130	0.52 J	5 U	82				5 U	5 U	5 U									
4/29/2008	5 U	5 U	150	0.39 J	5 U	100				5 U	5 U	5 U									
10/30/2009	5 U	5 U	85	5 U	5 U	69				5 U	5 U	5 U									
5/12/2010	5 U	5 U	39	5 U	5 U	48	5 U	23	310	5 U	5 U	5 U		3.6 U	22.4 J	3.9	140 J	217	3.4	0.1 U	0.05 U
10/20/2011	5 U	5 U	33	5 U	5 U	57				5 U	5 U	5 U									
6/13/2012	5 U	5 U	30	5 U	5 U	47				5 U	5 U	5 U									
8/30/2013	5 U	5 U	24	5 U	5 U	42				5 U	5 U	5 U									
4/3/2014	1 U	1 U	18	1 U	1 U	39				1 U	1 U	1 U									
11/20/2015	1 U	1 U	20	1 U	1 U	57				1 U	1 U	1 U									
4/21/2016	1.0 U	1.0 U	18	1.0 U	1.0 U	59				1.0 U	1.0 U	1.0 U									
9/12/2017	5.0 U	5.0 U	16	5.0 U	5.0 U	79				5.0 U	5.0 U	5.0 U									
4/26/2018	1.0 U	1.0 U	12	1.0 U	1.0 U	48				1.0 U	1.0 U	1.0 U									
12/4/2019	1.0 U	1.0 U	10	1.0 U	1.0 U	78				1.0 U	1.0 U	1.0 U									
3/19/2020	1.0 U	1.0 U	11	1.0 U	1.0 U	72				1.0 U	1.0 U	1.0 U									
12/8/2021	2.0 U	2.0 U	13	2.0 U	2.0 U	98				2.0 U	2.0 U	2.0 U									
5/11/2022	1.0 U	1.0 U	12	1.0 U	1.0 U	61 DJ				1.0 U	1.0 U	1.0 U									

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U Analyte was not detected above the reporting limit.
UJ The analyte was not detected. The reporting limit is an approximate value.
J- Indicates estimated value, biased low.
J+ Indicates estimated value, biased high.
D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW- 7A

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
11/1/2007	25 U	36	580	25 U	9 J	60	0.95 J	8.5	10	25 U	80	25 U		2 U	7.97 J	2.74	21	250	1 U		
4/28/2008	5 U	210	1700	6.1 J	24	130	0.44 J	5.3	8.6	1.3 J	220	5 U		2 U	5.42	2.23	17.3	210	1 U	0.05 U	0.24
8/13/2008	13 U	270	1800	5.9 J	34	130	5 U	7.2	21	4.1 J	280					3.2	22.3	282			
10/8/2008	5 U	58	1800	3.5 J	25	210	5 U	12	21 J	5 U	250	5 U				143	21.3 J	60.4			
12/9/2008	10 U	4.3 J	1100	1.7 J	9.6 J	180	5 U	27	24	10 U	150	10 U				25.1	24.1	295			
1/27/2009	5 U	3.2 J	840	2.4 J	7.6	390	5 U	51	110	5 U	230	5 U									
3/17/2009	5 U	2.9 J	620	1.5 J	3.6 J	250	5 U	69	210	5 U	140	5 U				8.8	25	253			
10/15/2009	5 U	2.7 J	120	5 U	5 U	240	5 U	110	760	5 U	56	5 U				4.7	21.1	228			
10/30/2009	5 U	1.8 J	210	5 U	5 U	150	5 U	51	260	5 U	49	5 U		4.2 U	23.3 J	3.2	21.8	233 J	2.2	0.1 U	0.05 U
11/18/2009																1150					
12/14/2009	5 U	5 U	140	5 U	5 U	100	5.1	100	1900	5 U	47	5 U				207	23.3 J	56.2 J			
2/9/2010	5 U	5 U	77	5 U	5 U	84	1.1 J	92	1200	5 U	48	5 U				40.1 J	24.1	87.6			
4/1/2010	5 U	5 U	22	5 U	5 U	49				5 UJ	39	5 U									
5/6/2010	5 U	5 U	65	5 U	5 U	50	5 U	5 U	15 U	5 U	33	5 U				95.5	20.9 J	52.2 J			
11/10/2010	5 U	5 U	44	5 U	5 U	18	43 J	65 J	16000	5 U	15	23				261	26.7	31.8			
10/27/2011	5 U	5 U	20	5 U	5 U	19	57	25	20000	5 U	22	13	0.115 J			25.1	28.7	57.1			
3/14/2012	25 U	25 U	11 J	25 U	25 U	25 U	20	8	6700	25 U	18 J	15 J	4.09			1380	34.3	5			
6/14/2012	5 U	1.2 J	3.8 J	5 U	5 U	5 U	5.8	3.3 J	6300	5 U	9.1	22	3.6			573	24.3	5 U			
11/28/2012	5 U	5 U	2.7 J	5 U	5 U	1.3 J	10	1.1 J	16000	5 U	13	16	0.691			204	26.2	5.7			
8/30/2013	5 U	5 U	3.9 J	5 U	5 U	2.2 J	11	3.5 J	13000	5 U	15	7.8		277 J	576	151	26	8.7	0.16 J	0.1 U	0.05 U
1/15/2014	5 U	5 U	4 J	5 U	5 U	1.8 J	8.4	2.7 J	17000	5 U	16	13	39.4			1340	50.4 J+	5 U	0.34		
4/2/2014	1 U	1 U	3	1 U	1 U	1	6.3	1.2 J	20000	1 U	12	16	22.9	589	1250	453	25.5	2.3 J	0.067 J	0.1 U	0.05 U
10/9/2014	1 U	1 U	0.92 J	1 U	1 U	0.94 J	4.7 J	5 U	16000	1 U	8.1	11	14.1			132	27.9	4 J	0.11 J		
11/19/2015	1 U	1 U	1.5	1 U	1 U	3.1	2.8 J	1.1 J	5900	1 U	11	4.8	7.85	99.3	293 J-	84.3	24.6	20.2	0.22	0.1 U	0.05 U
4/20/2016	1.0 U	1.0 U	1.9	1.0 U	1.0 U	3.7	4 J	1.3 J	16000 D	1.0 U	12	4.2	2.18	62	217	50.1	27.4	5.1	0.5	0.10 U	0.050 U
9/12/2017	2.0 U	2.0 U	26	2.0 U	2.0 U	33	2.9	4.1	3400 D	2.0 U	61 J	19	1.7	61	170	52	25	93	1.0 U	0.25 U	0.050 UJ
4/25/2018	5.0 U	5.0 U	46	5.0 U	5.0 U	42	61	63	14000	5.0 U	140	23	0.55	9.2 J	97	32	25	56	1.1	0.25 U	0.027 J
12/4/2019	2.5 U	2.5 U	21 J	2.5 U	2.5 U	35 J	95	25	13000 D	2.5 U	69	44	1.5	14 J-	42	17	12	70	1.0 U	0.25 U	
3/19/2020	2.0 U	2.0 U	50	2.0 U	2.0 U	45	80	20	16000 D	2.0 U	59	23	0.91		36	12	8	82	2.1	0.50 UJ	0.10 UJ
12/8/2021	4.0 U	7.3	150	4.0 U	4.0 U	150	170 U	150 U	13000	4.0 U	90	16	1.5	7.9	36	14	14	89	0.8 J	0.25 U	0.25 U
5/12/2022	1.0 U	1.0 U	17	1.0 U	1.0 U	33	53	46	13000 D	1.0 U	76 D	16	0.95	6.7	39	7.4	11	120	3.1	0.10 UJ	0.050 UJ

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J- Indicates estimated value, biased low.
J+ Indicates estimated value, biased high.
D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW- 7B

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
11/1/2007	5 U	5 U	11	5 U	5 U	31	0.31 J	1.9	220	5 U	5 U	5 U		2 U	6.58 J	3.41	157	298	1 U		
4/28/2008	5 U	5 U	10	5 U	5 U	45	0.44 J	2.8	230	5 U	5 U	5 U		2 U	11.6	3.45	130	278	1 U	0.05 U	0.05 U
10/7/2008	5 UJ	5 UJ	19 J	5 UJ	5 UJ	29 J	5 U	3.1 J	220 J	5 UJ	5 UJ	5 UJ				5	164 J	271			
12/9/2008	5 U	5 U	21	5 U	5 U	33	5 U	4.1 J	250	5 U	5 U	5 U				9	153	384			
1/27/2009	5 U	5 U	13	5 U	5 U	29	5 U	3.3 J	220	5 U	5 U	5 U									
3/17/2009	5 U	5 U	20	5 U	5 U	30	5 U	2.1 J	150	5 U	5 U	5 U				5.3	179	296			
10/15/2009	5 U	5 U	7.1	5 U	5 U	39	5 U	3.3 J	340	5 U	5 U	5 U				6.4	146	250			
10/30/2009	5 U	5 U	7.3	5 U	5 U	24				5 U	5 U	5 U									
12/14/2009	5 U	5 U	7.7	5 U	5 U	24	5 U	3.6 J	260	5 U	5 U	5 U				26.8	171 J	220 J			
2/9/2010	5 U	5 U	3.2 J	5 U	5 U	21	5 U	6.1	650	5 U	5 U	5 U				13.9 J	157	248			
3/31/2010	5 U	5 U	3.8 J	5 U	5 U	29				5 U	5 U	5 U									
5/6/2010	5 U	5 U	4.5 J	5 U	5 U	31	5 U	5 U	15 U	5 U	5 U	5 U				60.6	130 J	244 J			
11/11/2010	5 U	5 U	6.7	5 U	5 U	24	5 U	4.2 J	1200	5 U	5 U	5 U				17.5	168	239			
10/26/2011	5 U	5 U	6	5 U	5 U	25	5 U	3.6 J	3400	5 U	5 U	5 U	0.0747 J			8.4	168	218 J			
3/15/2012	50 U	50 U	50 U	50 U	50 U	11 J	5 U	9.3	4500	50 U	50 U	50 U	0.0443 J			68.1	153	122			
6/14/2012	5 U	5 U	1.6 J	5 U	5 U	9.2	5 U	7.9	2400	5 U	5 U	5 U	0.2 U			19.3	150	143			
11/27/2012	5 U	5 U	1.5 J	5 U	5 U	9.5	5 U	11	3300	5 U	5 U	5 U	0.2 U			8.7	173	178			
9/3/2013	5 U	5 U	1.2 J	5 U	5 U	7.5	5 U	11	6400	5 U	5 U	5 U		17.4	95 J	11.5	146 J	139	10.3	0.1 UJ	0.05 U
1/13/2014	5 U	5 U	5 U	5 U	5 U	2 J	5 U	9.4	18000	5 U	5 U	5 U	0.4 U			70.1	145	61.7	47.9		
4/2/2014	1 U	1 U	1 U	1 U	1 U	5.5	5 U	11	19000	1 U	1 U	1 U	0.4 U	366	772	132	136	117	33.3	1 U	0.026 J
10/10/2014	1 U	1 U	1.5	1 U	1 U	8	5 U	7	13000	1 U	1 U	1 U	0.4 U			22.2	164	129	22.6		
11/23/2015	1 U	1 U	1.2	1 U	1 U	6.1	5 U	4.3 J	11000	1 U	1 U	1 U	0.4 U	22.2	97.8	10.8	189	146	20.4	0.1 U	0.05 U
4/20/2016	1.0 U	1.0 U	0.82 J	1.0 U	1.0 U	10	5.0 U	5.6	5000 D	1.0 U	1.0 U	1.0 U	0.400 U	27.1	142	6.9	172	162	16.5	0.10 U	0.050 U
9/12/2017	1.0 U	1.0 U	2.2	1.0 U	1.0 U	18	0.50 U	1.9	370	1.0 U	1.0 U	1.0 U	0.100 U	9.6	41	4.8	170	180	1.1	0.25 U	0.050 UJ
4/25/2018	1.0 U	1.0 U	2.2	1.0 U	1.0 U	17	1.0 U	6.4	240	1.0 U	1.0 U	1.0 U	0.200 U	2	29	4.7	140	260	1.0 U	0.25 U	0.050 U
12/3/2019	1.0 U	1.0 U	1.3	1.0 U	1.0 U	10	0.58 J	3.3	290	1.0 U	1.0 U	1.0 U	0.20 U	2.0 U	12	3.3	180	190	7.1	0.25 U	
3/19/2020	1.0 U	1.0 U	5.4	1.0 U	1.0 U	18	1.0 U	6.4	230	1.0 U	1.0 U	1.0 U	0.2 U		11	3.2	130	260	1.7	0.50 UJ	0.10 UJ
12/8/2021	1.0 U	1.0 U	1.5	1.0 U	1.0 U	18	7.5 U	7.0 U	160	1.0 U	1.0 U	1.0 U	0.05 U	2.0 U	10 U	4.6	240	200	0.8 J	0.25 U	0.25 U
5/12/2022	1.0 U	1.0 U	1.9	1.0 U	1.0 U	12	0.61 J	3.4	170	1.0 U	1.0 U	1.0 U	0.2 U	6.0 U	16	3	170	270	0.73 J	0.10 UJ	0.050 UJ

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U Analyte was not detected above the reporting limit.
UJ The analyte was not detected. The reporting limit is an approximate value.
J- Indicates estimated value, biased low.
J+ Indicates estimated value, biased high.
D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW- 8

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/31/2007	5 U	5 U	2.2 J	5 U	5 U	1.8 J				5 U	5 U	5 U									
4/25/2008	5 U	5 U	2.5 J	5 U	5 U	2.6				5 U	5 U	5 U									
11/2/2009	5 U	5 U	2.1 J	5 U	5 U	2.6 J				5 U	5 U	5 U									
5/12/2010	5 U	5 U	2.3 J	5 U	5 U	2.2 J	5 U	5 U	140	5 U	5 U	5 U									
10/24/2011	5 U	5 U	1.9 J	5 U	5 U	2.1 J				5 U	5 U	5 U									
6/12/2012	5 U	5 U	1.6 J	5 U	5 U	1.1 J				5 U	5 U	5 U									
8/30/2013	5 U	5 U	1.7 J	5 U	5 U	1.8 J				5 U	5 U	5 U									
4/3/2014	1 U	1 U	1.6	1 U	1 U	1.5				1 U	1 U	1 U									
11/23/2015	1 U	1 U	1.7	1 U	1 U	1.9				1 U	1 U	1 U									
4/22/2016	1.0 U	1.0 U	1.9	1.0 U	1.0 U	1.8				1.0 U	1.0 U	1.0 U									
9/13/2017	1.0 U	1.0 U	1.7	1.0 U	1.0 U	1.4				1.0 U	1.0 U	1.0 U									
4/23/2018	1.0 U	1.0 U	1.9	1.0 U	1.0 U	1.6				1.0 U	1.0 U	1.0 U									

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UJ The analyte was not detected. The reporting limit is an approximate value.
J- Indicates estimated value, biased low.
J+ Indicates estimated value, biased high.
D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-10A

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/29/2007	5 U	5 U	300	12	0.68 J	67	0.52 J	4.6	19	5 U	4.5 J	5 U		2 U	8.32 J	1.93	815	332	1 U		
4/22/2008	5 U	5 U	390	10	1.6 J	97	4.4	11	60	5 U	5.8	5 U		2 U	10.1	2.99	884	294	1 U	0.05 U	0.05 U
10/29/2009	5 U	5 U	400	9.4	1.5 J	140	5 U	10	38	5 U	6.4	5 U		1.8 U	46.2 J	1.6	903	279 J	0.16 U	0.1 U	0.05 U
5/11/2010	5 U	5 U	390	7.6	1.3 J	140	5 U	17	71	5 U	5.7	5 U		1.7 U	38.4 J	1.5	784	250	0.16 U	0.1 U	0.05 U
10/25/2011	5 U	5 U	630	11	1.2 J	250	5 U	29	66	5 U	7.7	5 U	0.0808 J	2.8 U	27 J	1.9	770 J	254 J	0.16 U	0.1 U	0.05 U
6/13/2012	5 U	5 U	620	13	1 J	170	1.5 J	43	120	5 U	7	5 U	0.2 U	3.2 U	31 J	0.98 J	621	264	0.16 U	0.1 U	0.05 U
8/29/2013	5 U	5 U	570	9.9	5 U	130	5 U	28	130	5 U	5.6	5 U		2.9 UJ	27 J	1.8	481	193	0.16 U	0.1 U	0.05 U
4/2/2014	1 U	1 U	560	8	0.6 J	95	5 U	24	170	1 UJ	4.4	1 U	0.719	3.9 U	17.2 J	2	438 J-	228 J+	0.16 U	0.1 U	0.05 U
11/18/2015	1 U	1 U	710	9.1	0.52 J	130	5 U	17	220	1 U	5.3	1 U	1.81	2.9 U	22.1 J	0.87 J	434	170	0.16 U	0.1 U	0.05 U
4/19/2016	1.0 U	0.57 J	960 D	12	0.71 J	83	5.0 U	6.4	88	1.0 U	5.4	1.0 U	0.831	3.4 U	33.6 J	0.9 J	523	216	0.10 U	0.10 U	0.050 U
9/13/2017	20 U	20 U	590	6.8 J	20 U	130	0.38 J	11	400	20 U	20 UJ	20 U	1.4	2.0 U	13	1.1	310	170	1.0 U	0.50 U	0.050 U
4/25/2018	20 U	20 U	540	20 U	20 U	94	1.0 U	12	640	20 U	20 U	20 U	1.2	2.0 U	10	1.4	260	160	1.0 U	0.25 U	0.050 U
12/4/2019	25 U	5 J	500	25 U	25 U	130	2.4	36	2000	25 U	25 U	25 U	1.1	2.0 UJ	4.2 J	1.4	200	150	1.0 U	0.25 U	
3/18/2020	20 U	7.6 J	570	4.4 J	20 U	130	2.7	34	2400	20 U	20 U	20 U	0.88	2.0 U	8.3 J	1.4	190	120	1.0 U	0.50 U	0.10 U
12/6/2021	25 U	13 J	650	25 U	25 U	180	7.5 U	14	880	25 U	25 U	25 U	1.4	2.0 U	26	2	220	150	1.0 U	0.25 U	0.25 U
5/10/2022	13 U	8.7 J	540	13 U	13 U	85	2.2	20	1800	13 U	13 U	13 U	0.84	6.0 U	2.8 J	1.0 U	160	140	1.0 U	0.25 U	0.25 U

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J+ Indicates estimated value, biased high.
D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-10B

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/29/2007	5 U	0.7 J	220	1.9 J	0.38 J	130	0.43 J	1.5	100	5 U	0.69 J	5 U		2 U	5 UJ	3.81	226	236	1 U		
4/22/2008	5 U	0.46 J	180	1.3 J	5 U	76	0.48 J	1 J	96	5 U	0.54 J	5 U		2 U	12.7	4.22	87.4	198	1 U	0.05 U	0.05 U
4/23/2008																					
10/16/2009	5 U	5 U	420	3.1 J	5 U	120	5 U	2.7 J	110	5 U	5 U	5 U				3.8	121	239			
10/29/2009	5 U	5 U	370	3.8 J	5 U	150	5 U	2.2 J	94	5 U	5 U	5 U		2.1 U	16.5 J	4.6	107	245 J	0.16 U	0.1 U	0.05 U
12/16/2009	5 U	5 U	750	9	5 U	260	5 U	12	110	5 U	5 U	5 U				4.2	123 J	268 J			
2/10/2010	5 U	5 U	300	4 J	5 U	120	5 U	3.7 J	92	5 U	5 U	5 U				4.2 J	87.5	253			
3/30/2010	5 U	5 U	270	3.1 J	5 U	90				5 U	5 U	5 U									
5/6/2010	5 U	5 U	220	2 J	5 U	83	5 U	5 U	15 U	5 U	5 U	5 U		3.5 U	50 U	4.9	89.5 J	244 J	0.071 J	0.1 U	0.05 U
11/9/2010	5 U	5 U	1100	13	1.9 J	200	1.8 J	13	130	5 U	5 U	5 U				3.2	272	225			
10/26/2011	10 U	10 U	960	11	1.8 J	180	2.7 J	24	300	10 U	10 U	10 U	0.0459 J	3.5 U	13.4 J	3.4	189	259 J	0.16 U	0.1 U	0.05 U
3/12/2012	5 U	5 U	260	3 J	5 U	49	5 U	1.2 J	53	5 U	5 U	5 U	0.2 U			3.8	104	245			
6/14/2012	5 U	5 U	280	1.7 J	5 U	110	5 U	5.7	120	5 U	5 U	5 U	0.2 U	3.3 U	12.9 J	3.8	141	261	0.16 U	0.1 U	0.05 U
11/27/2012	5 U	5 U	630	5.8	5 U	130	5 U	11	160	5 U	5 U	5 U	0.2 U			3	194	265			
8/29/2013	5 U	5 U	230	1.5 J	5 U	120	5 U	9.2	220	5 U	5 U	5 U		3.1 UJ	24.7 J	2	156	246	0.16 U	0.1 U	0.05 U
1/17/2014	5 U	5 U	150	5 U	5 U	27	5 U	2 J	38	5 U	5 U	5 U	0.0884 J			7.9	128	250	0.16 U		
4/2/2014	1 U	1 U	190	0.7 J	1 U	22	5 U	2.3 J	38	1 U	1 U	1 U	0.076 J	3.2 U	50 U	4.8	133	256	0.16 U	0.1 U	0.05 U
10/14/2014	1 U	1 U	160	1 U	1 U	89	1.1 J	210	1100	1 UJ	1 U	1 U	0.05 J			5	137	215	1.3		
11/16/2015	1 U	1 U	190	0.68 J	1 U	190	2.1 J	190	2900	1 U	0.9 J	1 U	0.4 U	6 U	17.5 J	3	145	207	0.71	0.1 U	0.05 U
4/19/2016	1.0 U	1.0 U	220	1.1	1.0 U	6.1	5.0 U	5.0 U	9.1	1.0 U	1.0 U	1.0 U	0.400 U	3.6 U	26.7 J	2.9	160	272	0.10 U	0.087 J	0.050 U
9/13/2017	10 U	10 U	360	10 U	10 U	270	4.5	130	3900	10 U	10 UJ	10 U	0.24	2.0 U	17	3.2	150	230	1.0 U	0.50 U	0.050 U
4/25/2018	8.0 U	8.0 U	210	8.0 U	8.0 U	12	1.0 U	1.0 U	25	8.0 U	8.0 U	8.0 U	0.14 J	2.4 UJ	10 U	3.6	130	240	1.0 U	0.25 U	0.050 U
12/4/2019	20 U	20 U	420	4 J	20 U	180	1.8	27	1500	20 U	20 U	20 U	0.68	2.0 U	10 U	3	220	260	1.0 U	0.25 U	
3/18/2020	5.0 U	5.0 U	210	5.0 U	5.0 U	23	1.0 U	1.9	78	5.0 U	5.0 U	5.0 U	0.086 J	2.0 U	12	3.2	140	230	1.0 U	0.50 U	0.10 U
12/6/2021	10 U	10 U	220	10 U	10 U	370	170 U	150 U	1900	10 U	10 U	10 U	0.33	2.0 U	40	4.6	140	220	1.0 U	0.25 U	0.25 U
5/10/2022	6.3 U	6.3 U	320	6.3 U	6.3 U	140	1.1	25	2100	6.3 U	6.3 U	6.3 U	0.19 J	12 U	11	2.9	140	220	1.0 U	0.25 U	0.25 U

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J+ Indicates estimated value, biased high.
D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-11A

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/29/2007	5 U	5 U	5 U	5 U	5 U	2 U				5 U	5 U	5 U									
4/22/2008	5 U	5 U	5 U	5 U	5 U	0.7 J				5 U	5 U	5 U									
10/30/2009	5 U	5 U	5 U	5 U	5 U	5 U				5 U	5 U	5 U									
5/11/2010	5 U	5 U	5 U	5 U	5 U	3.2 J	5 U	5 U	51	5 U	5 U	5 U									

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D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-11B

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/29/2007	5 U	5 U	140	1 J	5 U	80				5 U	0.39 J	5 U									
4/22/2008	5 U	5 U	100	0.77 J	5 U	64				5 U	5 U	5 U									
3/18/2009																3.8					
10/16/2009	5 U	5 U	64	5 U	5 U	73	5 U	14	170	5 U	5 U	5 U				3.4	172	221			
10/30/2009	5 U	5 U	56	5 U	5 U	48	5 U	15	150	5 U	5 U	5 U		1.8 U	21 J	3.4	165	207 J	0.3	0.1 U	0.05 U
12/16/2009	5 U	5 U	5.3	5 U	5 U	17	5 U	81	190	5 U	5 U	5 U				7.4	148 J	221 J			
2/10/2010	5 U	5 U	2.3 J	5 U	5 U	11	5 U	130	760	5 U	5 U	5 U				11.7 J	146	50.2			
3/30/2010	5 U	5 U	2.1 J	5 U	5 U	7.1				5 U	5 U	5 U									
5/6/2010	5 U	5 U	1.9 J	5 U	5 U	7.4	5 U	5 U	15 U	5 U	1.3 J	5 U		64.7 J	132	14.1	114 J	101 J	48.3	0.1 U	0.05 U
11/9/2010	5 U	5 U	1.4 J	5 U	5 U	4.3 J	5 U	57	1100	5 U	1.2 J	5 U				3.9	125	208			
10/26/2011	5 U	5 U	2.2 J	5 U	5 U	4.6 J	5 U	90	1500	5 U	1.8 J	5 U	0.0859 J	8.9	31.5 J	3.8	157	245 J	8.5	0.043 J	0.05 U
3/12/2012	5 U	5 U	1.4 J	5 U	5 U	6.7	1.3 J	72	5200	5 U	1.5 J	5 U	0.0711 J			9.5	117	118			
6/14/2012	5 U	5 U	1.8 J	5 U	5 U	6.1	2.6 J	110	7400	5 U	1.4 J	5 U	0.2 U	32	76.5	4.3	121	135	44.4	0.1 U	0.05 U
11/27/2012	5 U	5 U	0.83 J	5 U	5 U	2.5 J	3.9 J	130	6800	5 U	1.4 J	5 U	0.2 U			3.9	143	164			
8/29/2013	5 U	5 U	5 U	5 U	5 U	1.4 J				5 U	1.9 J	5 U									
1/14/2014	5 U	5 U	5 U	1.1 J	5 U	1.2 J	4 J	260	10000	5 U	2.5 J	5 U	0.4 U			8	141	120	23.8		
4/2/2014	1 U	1 U	1 U	0.92 J	1 U	1.2	3.5 J	280	8300	1 U	2	1 U	0.4 U			5.2	141	158	27.8		
10/14/2014	1 U	1 U	1 U	0.66 J	1 U	2.5	1.4 J	86	4200	1 UJ	1.2	1 U	0.4 U			5.3	143	160	11.1		
11/17/2015	1 U	1 U	0.56 J	0.57 J	1 U	1.7				1 U	1	1 U									
4/22/2016	1.0 U	1.0 U	0.54 J	0.76 J	1.0 U	9.7				1.0 U	1.7	1.0 U									
9/14/2017	1.0 U	1.0 U	1.1	1.0 U	1.0 U	6.5				1.0 U	0.95 J	1.0 U									
4/24/2018	1.0 U	1.0 U	0.65 J	0.74 J	1.0 U	1.9				1.0 U	1.9	1.0 U									

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D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-12A

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/29/2007	5 U	5 U	150	1.3 J	0.49 J	39				5 U	3.2 J	5 U									
4/22/2008	5 U	5 U	130	1 J	0.32 J	23				5 U	2 J	5 U									
11/2/2009	5 U	5 U	64	5 U	5 U	38				5 U	2.7 J	5 U									
5/11/2010	5 U	5 U	16	5 U	5 U	16	5 U	14	140	5 U	1.6 J	5 U									
10/20/2011	5 U	5 U	19	5 U	5 U	16				5 U	1.8 J	5 U									
6/13/2012	5 U	5 U	19	5 U	5 U	13				5 U	1.8 J	5 U									
8/29/2013	5 U	5 U	22	5 U	5 U	14	5.6	7.2	210	5 U	1.9 J	5 U		4.4 U	311	5.5	80.7	204	0.16 U	0.1 U	0.05 U
4/3/2014	1 U	1 U	8.9	1 U	1 U	6.8	5 U	2.4 J	140	1 U	0.89 J	1 U	0.962	4.7 U	15 J	5.6	69	179	0.16 U	0.14 J-	0.05 U
11/17/2015	1 U	1 U	1.6	1 U	1 U	9.6	5 U	5 U	140	1 U	0.7 J	1 U	2.27	3.8 U	26.7 J	7.7	63.6	119	0.079 J	0.1 U	0.05 U
4/22/2016	1.0 U	1.0 U	9.5	1.0 U	1.0 U	8.8	5.0 U	1.8 J	170	1.0 U	1.1	1.0 U	0.847	3.4 UJ	19.8 J	3.4	96	192	0.10 U	0.10 U	0.050 U
9/14/2017	1.0 U	1.0 U	21	0.34 J	1.0 U	13	0.31 J	2.7	210	1.0 U	1.6	1.0 U	1.5	2.0 U	49	4.2	330	650	1.0 U	1.0 U	0.050 U
4/24/2018	1.0 U	1.0 U	16	1.0 U	1.0 U	9.2	1.0 U	2	200	1.0 U	0.91 J	1.0 U	0.6	2.0 U	11	3.9	82	190	1.0 U	0.25 UJ	0.050 UJ

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D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-12B

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/29/2007	5 U	5 U	110	1 J	5 U	76				5 U	1.8 J	5 U									
4/21/2008	5 U	5 U	140	1.6 J	0.31 J	70				5 U	1.6 J	5 U									
11/2/2009	5 U	5 U	2.6 J	5 U	5 U	5 U				5 U	5 U	5 U									
5/11/2010	5 U	5 U	11	5 U	5 U	5 U	5 U	5 U	15 U	5 U	5 U	5 U									
11/9/2010	5 U	5 U	59	5 U	5 U	71	1.2 J	3.3 J	120	5 U	5 U	5 U				3.2	149	312			
10/20/2011	5 U	5 U	0.98 J	5 U	5 U	5 U				5 U	5 U	5 U									
6/13/2012	5 U	5 U	5.6	5 U	5 U	10				5 U	5 U	5 U									
8/29/2013	5 U	5 U	45	5 U	5 U	73	5 U	15	160	5 U	5 U	5 U		4.2 U	17.9 J	4.1	143	230	0.093 J	0.1 U	0.05 U
4/3/2014	1 U	1 U	57	1 U	1 U	75	5 U	9.7	190	1 U	1 U	1 U	0.4 U	4.1 U	50 U	5.4	149	201	0.16 U	0.1 UJ	0.05 U
11/16/2015	1 U	1 U	13	1 U	1 U	9.1	5 U	5 U	25	1 U	1 U	1 U	0.111 J	4.7 U	22.1 J	9.2	148	244	0.16 U	0.2 J+	0.039 J
4/22/2016	1.0 U	1.0 U	73	1.0 U	1.0 U	59	5.0 U	2.6 J	200	1.0 U	1.0 U	1.0 U	0.0618 J	3.5 UJ	19.8 J	3	177	204	0.10 U	0.10 U	0.050 U
9/14/2017	2.0 U	2.0 U	52	2.0 U	2.0 U	110	0.45 J	3.9	140	2.0 U	0.66 J	2.0 U	0.032 J	2.0 U	17	2.7	280	530	1.0 U	0.50 U	0.050 U
4/25/2018	2.5 U	2.5 U	62	2.5 U	2.5 U	73	1.0 U	4.4	340	2.5 U	2.5 U	2.5 U	0.027 J	2.0 U	12	3.5	150	190	1.0 U	0.25 U	0.050 U
12/5/2019	2.5 U	2.5 U	65	2.5 U	2.5 U	94	0.89 J	5.3	210	2.5 U	2.5 U	2.5 U	0.20 U	2.0 U	10 U	2.8	150	240	1.0 U	0.25 U	
3/19/2020	2.0 U	2.0 U	51	2.0 U	2.0 U	85	1.0 U	5.9	410	2.0 U	0.41 J	2.0 U	0.2 U		7.3 J	3.1	150	220	0.67 J	0.50 UJ	0.10 UJ
12/7/2021	1.0 UJ	1.0 UJ	73 J-	1.0 UJ	1.0 UJ	49 DJ-	7.5 U	4.1 J	330	1.0 UJ	0.4 J-	1.0 UJ	0.048 J	2.0 U	100	6.3	77	72	1.0 U	0.24	0.050 U
5/11/2022	1.0 U	1.0 U	52	1.0 U	1.0 U	73 DJ	0.91 J	6.2	360	1.0 U	0.48 J	1.0 U	0.2 U	6.0 U	13	2.8	180	220	1.0 U	0.10 UJ	0.050 UJ

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J+ Indicates estimated value, biased high.
D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-13A

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/30/2007	5 U	5 U	5 U	5 U	5 U	2 U				5 U	5 U	5 U									
4/29/2008																					
10/29/2009	5 U	5 U	5 U	5 U	5 U	5 U				5 U	5 U	5 U									

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D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-13B

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/30/2007	5 U	0.78 J	82	1.1 J	5 U	59				5 U	0.61 J	5 U									
4/24/2008	5 U	0.65 J	65	0.51 J	5 U	56				5 U	0.48 J	5 U									
10/29/2009	5 U	5 U	88	5 U	5 U	68				5 U	5 U	5 U									
5/13/2010	5 U	5 U	46	5 U	5 U	47	5 U	1 J	65	5 U	5 U	5 U									
10/21/2011	5 U	5 U	17	5 U	5 U	24				5 U	5 U	5 U									
6/13/2012	5 U	5 U	27	5 U	5 U	57				5 U	5 U	5 U									
8/30/2013	5 U	5 U	8.6	5 U	5 U	48				5 U	5 U	5 U									
4/3/2014	1 U	1 U	19	1 U	1 U	15				1 UJ	1 U	1 U									
11/17/2015	1 U	1 U	18	1 U	1 U	21				1 U	1 U	1 U									
4/21/2016	1.0 U	1.0 U	9.9	1.0 U	1.0 U	12				1.0 U	1.0 U	1.0 U									
9/13/2017	1.0 U	1.0 U	22	1.0 U	1.0 U	38				1.0 U	1.0 UJ	1.0 U									
4/24/2018	1.0 U	1.0 U	7.8	1.0 U	1.0 U	9.7				1.0 U	1.0 U	1.0 U									
12/3/2019	1.0 U	0.19 J	16	1.0 U	1.0 U	21				1.0 U	0.17 J	1.0 U									
3/19/2020	1.0 U	1.0 U	1.6	1.0 U	1.0 U	2				1.0 U	1.0 U	1.0 U									
12/6/2021	2.0 U	2.0 U	3.7	2.0 U	2.0 U	6.4				2.0 U	2.0 U	2.0 U									
5/11/2022	1.0 U	1.0 U	4.1	1.0 U	1.0 U	5.2				1.0 U	1.0 U	1.0 U									

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R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-14A

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/30/2007	5 U	5 U	1.6 J	5 U	5 U	2.4				5 U	5 U	5 U									
4/24/2008	5 U	5 U	1.5 J	5 U	5 U	1.6 J	0.64 J	1 U	15	5 U	5 U	5 U		2 U	18.8	5.38	68	118	1 U	0.05 U	0.05 U
10/29/2009	5 U	5 U	1.4 J	5 U	5 U	2.7 J	5 U	5 U	17	5 U	5 U	5 U		1.4 U	21 J	4.2	63.9	150 J	0.16 U	0.28	0.05 U

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MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-14B

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/30/2007	5 U	5 U	56	0.42 J	5 U	49	2 U	2 U	110	5 U	0.6 J	5 U		2 U	6.58 J	4.07	119	263	1 U		
4/24/2008	5 U	5 U	120	0.81 J	5 U	90	1 U	1.5 J	170	5 U	0.41 J	5 U		2 U	10.1	2.95	136	222	1 U	0.05 U	0.05 U
10/29/2009	5 U	5 U	64	5 U	5 U	86	5 U	2.2 J	130	5 U	5 U	5 U		2.1 U	23.3 J	3.5	133	310 J	0.5	0.1 U	0.05 U
5/13/2010	5 U	5 U	16	5 U	5 U	33	100 U	170	3400	5 U	5 U	5 U		53.6	137	14.6	143	103	46.9	0.1 U	0.05 U
10/24/2011	5 U	5 U	4.1 J	5 U	5 U	5.4	5 U	66	690	5 U	5 U	5 U	0.0264 J	5.2 U	36 J	7	260	274	3	0.1 U	0.05 U
6/13/2012	5 U	5 U	1.5 J	5 U	5 U	5.4	2.2 J	91	9100	5 U	5 U	5 U	0.027 J	33	117	10.2	241	126	48.2	0.1 U	0.05 U
8/29/2013	5 U	5 U	5 U	5 U	5 U	1.5 J				5 U	5 U	5 U									
4/3/2014	1 U	1 U	0.67 J	1 U	1 U	1.2				1 UJ	1 U	1 U									
11/18/2015	1 U	1 U	0.95 J	1 U	1 U	1.5				1 U	0.53 J	1 U									
4/21/2016	1.0 U	1.0 U	0.94 J	1.0 U	1.0 U	1.2				1.0 U	1.0 U	1.0 U									
9/14/2017	1.0 U	1.0 U	0.92 J	1.0 U	1.0 U	2.9				1.0 U	0.43 J	1.0 U									
4/24/2018	1.0 U	1.0 U	0.72 J	1.0 U	1.0 U	1.3				1.0 U	0.34 J	1.0 U									
12/5/2019	1.0 U	1.0 U	0.37 J	1.0 U	1.0 U	0.7 J				1.0 U	0.19 J	1.0 U									
3/18/2020	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1				1.0 U	0.24 J	1.0 U									
12/7/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.9				1.0 U	1.0 U	1.0 U									
5/11/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1				1.0 U	1.0 U	1.0 U									

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R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-15

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/30/2007	5 U	5 U	170	1.7 J	5 U	86				5 U	0.66 J	5 U									
4/23/2008	5 U	5 U	190	1.5 J	5 U	93				5 U	0.58 J	0.38 J									
11/3/2009	5 U	5 U	56	1.1 J	5 U	82				5 U	2 J	5 U									
5/12/2010	5 U	5 U	5.9	5 U	5 U	17	1.1 J	140	1300	5 U	1.3 J	5 U									
10/21/2011	5 U	5 U	32	1.3 J	5 U	52				5 U	1.4 J	5 U									
6/14/2012	5 U	5 U	5 U	5 U	5 U	1.8 J				5 U	1.2 J	5 U									
8/29/2013	5 U	5 U	5 U	5 U	5 U	2 J				5 U	5 U	5 U									
6/14/2018	1.0 U	1.0 UJ	5.2	0.62 J	1.0 U	16				1.0 U	1.1	1.0 U									

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R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-16A

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/31/2007	5 U	0.39 J	12	5 U	5 U	160	0.87 J	15	18	5 U	5 U	5 U		2 U	23.2 J	6.93	278	981	1.2		
4/25/2008	5 U	0.39 J	9	5 U	5 U	53	1 U	0.62 J	4.5	5 U	5 U	5 U		2 U	20.4	6.5	209	1020	1 U	0.05 U	0.05 U
10/27/2009	5 U	5 U	8.2	5 U	5 U	75	5 U	4.7 J	11 J	5 U	5 U	5 U		1.7 U	41.6 J	7.2	247 J	1060	0.16 U	0 R	0.05 U
5/11/2010	5 U	5 U	10	5 U	5 U	180	5 U	20	20	5 U	5 U	5 U		2 U	40.7 J	7	260	1040	0.16 U	0.1 U	0.05 U
10/27/2011	5 U	5 U	11	5 U	5 U	340	5 U	44	33	5 U	5 U	5 U	0.0424 J		31.5 J	6.9	266	1130	0.16 U	0.1 U	0.05 UJ
3/14/2012																					
3/15/2012	5 U	5 U	7.2	5 U	5 U	12	5 U	1.3 J	15 U	5 U	5 U	5 U	0.044 J			8.1	245	1110			
6/14/2012	5 U	5 U	8.4	5 U	5 U	110	5 U	11	8.7 J	5 U	5 U	5 U	0.2 U	5.4	26.5 J	9.5	237	1100			
11/29/2012	5 U	5 U	10	5 U	5 U	330	1.2 J	79	40	5 U	5 U	5 U	0.2 U			7.7	255	1100			
8/29/2013	5 U	5 U	8.5	5 U	5 U	300	1.1 J	72	29	5 U	5 U	5 U		3.8 U	31.5 J	8.2	252	1080	0.16 U	0.1 U	0.05 U
1/15/2014	5 U	5 U	9	5 U	5 U	78	5 U	6.4	5 U	5 U	5 U	5 U	0.4 U			9.5	190 J+	812 J+	0.16 U		
4/2/2014	1 U	1 U	5.9	1 U	1 U	140	5 U	20	5 U	1 U	1 U	1 U	0.4 U	4.4 U	24.1 J	7.3	214	898	0.16 U	0.1 U	0.14
10/14/2014	1 U	1 U	8.6	1 U	1 U	350	5 U	52	9.5	1 UJ	1 U	1 U	0.491			9.1	221	958	0.16 U		
11/20/2015	1 U	1 U	9.1	1 U	1 U	250	1.2 J	95	49	1 U	1 U	1 U	0.4 U	5.2 U	33.6 J	6.5	290	1080	0.16 U	0.1 U	0.05 U
4/20/2016	1.0 U	1.0 U	6.5	1.0 U	1.0 U	18	5.0 U	1.1 J	5.0 U	1.0 U	1.0 U	1.0 U	0.400 U	2.9 U	33.6 J	6.2	907	1140	0.10 U	0.14	0.050 U
9/12/2017	10 U	10 U	7.3 J	10 U	10 U	190	0.47 J	33	28	10 U	10 U	10 U	0.100 U	2.0 U	28	6.4	250	1000	1.0 U	0.50 U	0.050 UJ
4/26/2018	1.0 U	1.0 U	1.4	1.0 U	1.0 U	33	1.0 U	13	12	1.0 U	1.0 U	1.0 U	0.026 J	2.0 U	17 J	5.8	48	190	1.0 U	0.21 J	0.050 U
12/3/2019	4.0 U	0.6 J	3.6 J	4.0 U	4.0 U	120	1	49	77	4.0 U	4.0 U	4.0 U	0.20 U	2.0 U	18	6.1	170	810	1.0 U	0.50 U	
3/20/2020	13 U	13 U	8.7 J	13 U	13 U	560	3.1	270	290	13 U	13 U	13 U	0.43	2.0 U	17	6.7	210	1000	1.0 U	1.0 U	0.10 U
12/7/2021	5.0 U	5.0 U	8.2	5.0 U	5.0 U	260	7.5 U	77	160	5.0 U	5.0 U	5.0 U	0.024 J	2.0 U	52	11	190	930	1.0 U	0.42	0.050 U
5/11/2022	1.0 U	1.0 U	8.1	1.0 U	1.0 U	290 D	2.6	160	320	1.0 U	1.0 U	1.0 U	0.2 U	6.0 U	18	6.4	160	850	1.0 U	0.10 UJ	0.050 UJ

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R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-16B

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/31/2007	5 U	5 U	210	0.88 J	5 U	63	1 U	3.7	190	5 U	5 U	5 U		2 U	5 UJ	3.7	114	269			
11/29/2007																			1 U		
4/25/2008	5 U	0.25 J	280	1.4 J	0.33 J	86	0.7 J	3.1	220	5 U	0.22 J	5 U		2 U	10.1	3.81	106	264	1.1	0.05 U	0.05 U
10/27/2009	5 U	5 U	510	1.8 J	5 U	130	5 U	3.2 J	150	5 U	5 U	5 U		1.8 U	18.8 J	3.7	120 J	286	0.22	0 R	0.05 U
5/11/2010	5 U	5 U	81	5 U	5 U	48	5 U	2.3 J	150	5 U	5 U	5 U		2.1 U	15.6 J	3.8	105	247	0.3	0.1 U	0.05 U
11/8/2010	5 U	5 U	320	1.4 J	5 U	110	5 U	5 U	120	5 U	5 U	5 U				3.7	114	264			
10/25/2011	5 U	5 U	27	5 U	5 U	43	5 U	3.8 J	140	5 U	5 U	5 U	0.2 U	2.6 U	50 U	3.5	134 J	303 J	0.38	0.1 U	0.05 U
3/15/2012	50 U	45 J	9000	36 J	23 J	830	3.1 J	73	2400	50 U	50 U	50 U	0.0585 J			17.5	78.4	96.6			
6/13/2012	10 U	74	4700	19	15	600	2.5 J	74	2600	10 U	4 J	2.6 J	0.2 U	24.6	65.1	4.1	81.5	165	33.1	0.1 U	0.05 U
11/27/2012	50 U	430	6800	24 J	29 J	820	5.6	190	3600	50 U	50 U	50 U	0.0908 J			3.5	82.8	191			
8/28/2013	5 U	2.2 J	600	5.2	2.4 J	610	5 U	75	670	5 U	1 J	5 U		5.1 U	15.6 J	3.8	90.1 J	219	1.1	0.1 U	0.05 U
1/14/2014	25 U	25 U	8800	53	17 J	5500	15	1500	18000	25 U	15 J	25 U	0.214 J			194	44.8	5 U	50.9		
4/3/2014	5 U	5 U	2300	16	5.5	2000	11	700	16000	5 U	3.4 J	5 U	0.0956 J	140	253	69.2	26.9	17.7	38.3	0.1 UJ	0.05 U
10/13/2014	1 U	1 U	17	8.8	1 U	22	13	610	21000	1 U	2.9	1 U	0.372 J			211	43.3	21.6	17.2		
11/20/2015	1 U	4.8	1100	22	2.2	780	40	920	24000	1 U	6.6	1 U	0.4 U	105	215	47.3	70.6	4.2	36.5	0.1 U	0.05 UJ
4/20/2016	1.0 U	1.0 U	1.0 U	6.8	1.0 U	4.3	17	300	31000 D	1.0 U	2	1.0 U	0.400 U	62.4	201	26.5	73.8	8.2	50.5	0.10 U	0.050 U
9/12/2017	1.0 U	1.0 U	1.0 U	0.44 J	1.0 U	2.6	15	34	8200 D	1.0 U	0.39 J	1.0 U	0.100 U	39	99	6.8	120	120	29	0.25 U	0.050 UJ
4/26/2018	1.0 U	1.0 U	0.63 J	1.0 U	1.0 U	4.6	1.0 U	2.8	9900 D	1.0 U	1.0 U	1.0 U	0.200 U	13	49	5.7	120	230	6.9	0.25 U	0.050 U
12/3/2019	1.0 U	1.0 U	1	1.0 U	1.0 U	6.7	4.2	17	9300 D	1.0 U	1.0 U	1.0 U	0.20 U	14	25	4	110	220	9.5	0.25 U	
3/20/2020	1.0 U	1.0 U	0.6 J	1.0 U	1.0 U	2.9	1.5	1.1	14000 D	1.0 U	1.0 U	1.0 U	0.048 J	17	32	3.4	120	250	13	0.50 U	0.10 U
12/7/2021	1.0 U	1.0 U	2.1	1.0 U	1.0 U	6.5	170 U	150 U	8000	1.0 U	1.0 U	1.0 U	0.54	6.4	16	7.2	130	230	4.8	0.050 U	0.050 U
5/11/2022	1.0 U	1.0 U	13	1.0 U	1.0 U	23	5.9	24	11000 D	1.0 U	1.0 U	1.0 U	0.2 U	16	36	4	130	250	7.3	0.10 UJ	0.050 UJ

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J+ Indicates estimated value, biased high.
D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-17A

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
11/1/2007	5 U	38	160	1.9 J	10	12	1 U	0.42 J	60	5 U	19	5 U		2 U	11.4 J	2.51	1400	134	1 U		
4/28/2008	5 U	29	200	1.5 J	9.1	28	1 U	1.5	77	5 U	20	5 U		2 U	11	2.2	1120	153	1 U	0.05 U	0.05 U
8/12/2008	5 U	40	190	2.5 J	11	24	5 U	1.5 J	120	5 U	21					2.4	1250	168			
10/7/2008	5 U	43	200	3.5 J	13	23	5 U	1.3 J	120 J	5 U	23	5 U				2.2	1270 J	165			
12/10/2008	5 U	39	210	2.2 J	12	27	5 U	1.1 J	65	5 U	25	5 U				2.2	1070	161			
1/26/2009	5 U	32	210	2.1 J	11	29	5 U	1.4 J	88	5 U	23	5 U									
3/16/2009	5 U	29	210	2.5 J	12	28	5 U	1.4 J	78	5 U	20	5 U				2.3	1220	170			
10/20/2009	5 U	24	200	2.2 J	14	24	5 U	5 U	120	5 U	29	5 U				3.1	1080 J	198 J			
10/28/2009	5 U	22	180	1.6 J	14	25	5 U	5 U	97	5 U	30	5 U		1.9 U	59.9 J	2.9	1130 J	192	0.16 U	0 R	0.05 U
12/11/2009	5 U	11	200	1.4 J	13	29	5 U	5 U	100	5 U	28	5 U				3.1	1060 J	217 J			
2/9/2010	5 U	14	210	1.3 J	11	34	5 U	5 U	110	5 U	24	5 U				3.7 J	962	194			
3/30/2010	5 U	11	180	1.7 J	10	24				5 U	20	5 U									
5/6/2010	5 U	15	210	1.4 J	11	27	5 U	5 U	15 U	5 U	20	5 U		3.6 U	29.3 J	2.9	729 J	196 J	0.16 U	0.1 U	0.05 U
11/11/2010	5 U	16	200	1.9 J	13	28	1.5 J	8.5	2100	5 U	27	5 U				3.1	661	195			
10/24/2011	5 U	11	160	1.2 J	12	30	11	3.2 J	4900	5 U	26	5 U	0.2 U	5.1	33.8 J	3.9	1010	189	0.16 U	0.1 U	0.05 U
6/12/2012	5 U	5.3	140	1.2 J	8.1	25	12	3.1 J	8500	5 U	21	5 U	0.2 U	5.9	28.8 J	4.4	484	172	0.16 U	0.1 U	0.05 U
8/28/2013	5 U	3.1 J	180	5 U	6.3	45	11	8.8	12000	5 U	22	5 U		9.8	27 J	3.8	318 J	151	0.16 U	0.1 U	0.05 U
4/3/2014	1 U	0.62 J	150	1 U	3.6	49	14	17	18000	1 UJ	16	1 U	2.14	8.5	49.3 J	5.1	277	145	0.16 U	0.1 UJ	0.05 U
11/18/2015	1 U	1 U	160	1 U	1 U	86	12	11	15000	1 U	18	1 U	1.45	7.3	15.2 J	3	167	114	0.16 U	0.1 U	0.05 U
4/20/2016	1.0 U	1.0 U	110	1.0 U	1.0 U	89	7.4	11	15000 D	1.0 U	15	1.0 U	0.955	7.8	26.7 J	3.2	161	131	0.10 U	0.10 U	0.050 U
9/12/2017	5.0 U	5.0 U	120	5.0 U	5.0 U	120	5.5	8.4	3700 D	5.0 U	17	5.0 U	0.92	3.4	17	3	82	97	1.0 U	0.25 U	0.050 UJ
4/25/2018	5.0 U	5.0 U	59	5.0 U	5.0 U	91	10 U	10 U	13000	5.0 U	11	5.0 U	1	4.8 J	19	3.7	92	100	1.0 U	0.25 U	0.050 U
12/5/2019	2.0 U	2.0 U	50	2.0 U	2.0 U	83	11	17	9400 D	2.0 U	13	2.0 U	0.55	4.2	10 U	2.8	57	67	1.0 U	0.25 U	
3/19/2020	2.0 U	2.0 U	38	2.0 U	2.0 U	78	17	21	17000 D	2.0 U	12	2.0 U	0.7		7.6 J	2.7	53	70	1.0 U	0.50 UJ	0.10 UJ
12/8/2021	4.0 U	4.0 U	48	4.0 U	4.0 U	110	9.4	14	12000	4.0 U	13	4.0 U	0.69	6.0 U	52	4.1	32	55	1.0 U	0.25 U	0.25 U
5/12/2022	1.0 U	1.0 U	36	1.0 U	1.0 U	83 D	15	20	16000 D	1.0 U	11	1.0 U	0.72	5.5	8.8 J	2.4	31	56	1.0 U	0.10 UJ	0.050 UJ

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D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-17B

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
11/1/2007	5 U	4 J	440	3.4 J	3.4 J	64	0.66 J	2.8	180	5 U	9.3	5 U		2 U	9.7 J	3.31	431	209	1 U		
4/28/2008	5 U	4.6 J	630	8.5	5.5	82	0.53 J	4	160	5 U	17	5 U		2 U	10.4	3.06	475	211	1 U	0.05 U	0.05 U
10/8/2008	5 U	3.3 J	600	5.9	4.4 J	120	5 U	6.6	170 J	5 U	22	5 U				55.7	561 J	169			
12/10/2008	5 U	2.6 J	260	3.1 J	2.9 J	170	5 U	33	120	5 U	28	5 U				3	802	180			
1/26/2009	5 U	2.1 J	280	4.2 J	3.1 J	210	5 U	61	130	5 U	24	5 U									
3/17/2009	5 U	1.6 J	270	3.6 J	3.2 J	180	5 U	71	180	5 U	22	5 U				3.5	631	275			
10/20/2009	5 U	4.2 J	280 J	2.4 J	4.5 J	73	3 J	22	120	5 U	29	5 U				3	768 J	204 J			
10/28/2009	5 U	3.1 J	280	2.2 J	3.1 J	69	2 J	14	89	5 U	26	5 U		2.2 U	53.1 J	3.1	720 J	195	0.1 J	0 R	0.05 U
12/11/2009	5 U	2.2 J	170	2.4 J	5 U	160	2.4 J	130	300	5 U	8.4	5 U				264	171 J	18.3 J			
2/9/2010	5 U	1.2 J	31	1.8 J	5 U	52	4.2 J	190	4400	5 U	31	5 U				122 J	727	32.2			
3/30/2010	5 U	5 U	5.9	1.7 J	5 U	10				5 U	37	5 U									
5/6/2010	5 U	5 U	8.5	1.4 J	5 U	9.6	5 U	5 U	15 U	5 U	45	5 U		157 J	219	12.7	883 J	49.7 J	14.3	0.1 U	0.05 U
11/10/2010	5 U	5 U	8.1	0.86 J	5 U	8.8	16	110	4200	5 U	40	5 U				4.5	981	118			
10/26/2011	5 U	5 U	19	0.82 J	5 U	27	70	81	15000	5 U	48	1.4 J	0.102 J	5.7	45.1 J	3.2	966	154 J	4.5	0.1 U	0.05 U
3/13/2012	5 U	5 U	14	1.1 J	5 U	15	44	83	18000	5 U	46	1.3 J	0.0442 J			10.9	682	118			
6/12/2012	5 U	5 U	20	0.82 J	5 U	18	45	72	23000	5 U	43	1.5 J	0.19 J	9.6	49.2 J	3.8	739	116	11.6	0.1 U	0.05 U
11/27/2012	5 U	5 U	28 J	5 U	5 U	31	41	79	19000	5 U	35 J	5 U	0.172 J			3.2	669	130			
8/28/2013	5 U	5 U	35	5 U	5 U	40	29	56	19000	5 U	38	5 U		12.7	40.6 J	3.6	521 J	138	1.2	0.1 U	0.05 U
1/15/2014	5 U	5 U	1.8 J	1.5 J	5 U	2.9 J	7.2	52	19000	5 U	7.9	11	54.8			454	351 J+	5 U	6.3		
4/1/2014	1 U	1 U	1.3	0.73 J	1 U	2.1	13	34	20000	1 U	8.2	7.4	16.6	139	228	55.1	288	6.9	8.2 J-	0.1 U	0.016 J
10/14/2014	1 U	1 U	0.52 J	0.71 J	1 U	1.1	8.3	17	16000	1 UJ	3.3	8.2	15.5			38.4	386	5 U	4.1		
11/18/2015	1 U	1 U	1 U	1 U	1 U	0.8 J	8.5	8.9	14000	1 U	1.5	7.9	13.4	17.6	102	18.8	374	2.5 J	1.4	0.1 U	0.05 U
4/21/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.88 J	8	7	18000 D	1.0 U	1.7	6.7	17.3	20.4	103	25	327	7.2	1	0.10 U	0.050 U
9/12/2017	1.0 U	0.68 J	10	0.45 J	1.0 U	12	3.5	4.6	6800	1.0 U	6.3 J	7.6	5.3	6.2	78	17	210	47	0.73 J	0.50 U	0.050 UJ
4/25/2018	1.0 U	1.0 U	4.9	0.39 J	1.0 U	7.9	19	27	22000	1.0 U	4.5	3.7	4.7	6.8	89	20	170	45	2.1	0.25 U	0.039 J
12/5/2019	1.0 U	1.0 U	11	0.28 J	1.0 U	14	24	17	27000 D	1.0 U	4.3	6.6	3.1	9.7 J-	19	5.9	140	67	2.3	0.25 U	
3/19/2020	1.0 U	1.0 U	1.4	1.0 U	1.0 U	2.6	23	6.5	33000 D	1.0 U	4.5	8.9	4.1		21	5.4	110	39	2.9	0.50 UJ	0.10 UJ
12/8/2021	4.0 U	4.0 U	31	4.0 U	4.0 U	20	170 U	150 U	26000	4.0 U	7.3	2.9 J	0.94	16	13	12	130	90	5.6	0.25 U	0.25 U
5/12/2022	1.0 U	1.0 U	28	1.0 U	1.0 U	23	31	21	29000 D	1.0 U	8.2	2.2	0.42	8.9	26	4.5	120	130	6.7	0.10 UJ	0.050 U

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D Result reported from a secondary dilution analysis.
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MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-18A

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
11/1/2007	5 U	22	25	0.46 J	0.58 J	6.7	0.38 J	1 U	17	5 U	4.1 J	5 U		2 U	5 UJ	1.79	74.2	125	1 U		
4/28/2008	5 U	25	31	0.44 J	0.8 J	2.1 J	1 U	1 U	16	5 U	3.8 J	5 U		2 U	5 U	1.56	79.6	133	1 U	0.05 U	0.05 U
10/27/2009	5 U	25	43	5 U	0.93 J	7	5 U	5 U	23	5 U	4.7 J	5 U		1.4 U	14.2 J	1.5	90.2 J	130	0.16 U	0 R	0.05 U
5/12/2010	5 U	25	51	5 U	1.1 J	2.6 J	5 U	5 U	13 J	5 U	4.2 J	5 U		1.6 U	50 U	2.1	104 J	132	0.16 U	0.1 U	0.05 U
10/24/2011	5 U	23	42	5 U	0.9 J	8.4	5 U	5 U	19	5 U	4.7 J	5 U	0.0478 J	2.1 U	50 U	1.8	293	156	0.16 U	0.1 U	0.05 U
6/12/2012	5 U	21	56	0.94 J	1.1 J	2.4 J	5 U	5 U	11 J	5 U	4.2 J	5 U	0.2 U	3.1 U	50 U	1	108	129	0.16 U	0.1 U	0.05 U
8/27/2013	5 U	25	58	0.87 J	0.98 J	3.4 J	5 U	5 U	10	5 UJ	4.9 J	5 U		6.2	50 U	2.1	118	138	0.16 U	0.1 U	0.05 U
4/2/2014	1 U	27	43	0.76 J	0.9 J	0.86 J	5 U	5 U	3.4 J	1 UJ	3.6	1 U	0.89	3.3 U	50 U	2.4	106 J-	124 J+	0.16 U	0.1 U	0.05 U
11/18/2015	1 U	38	51	0.73 J	1.1	2.3	5 U	5 U	11 J	1 U	4.5	1 U	1.5	2.8 U	50 U	1.2	113	118	0.16 U	0.1 U	0.05 U
4/20/2016	1.0 U	37	51	0.83 J	0.99 J	0.62 J	5.0 U	5.0 U	5.2	1.0 U	4.3	1.0 U	0.463	4.2 U	19.8 J	1.4	233	144	0.10 U	0.10 U	0.050 U
9/13/2017	2.0 U	29	58	0.8 J	1 J	1.8 J	0.50 U	0.50 U	5.3	2.0 U	5	2.0 U	1.2	2.0 U	12	1.3	86	120	1.0 U	0.25 U	0.050 U
4/26/2018	1.0 U	36	42	0.61 J	0.88 J	1.1	1.0 U	1.0 U	13	1.0 U	3.7	1.0 U	0.99	2.0 U	12	1.5	81	130	1.0 U	0.25 U	0.050 U
12/4/2019	2.0 U	32	43	0.66 J	0.93 J	0.97 J	0.36 J	1.0 U	9.2	2.0 U	3.6	2.0 U	0.9	2.0 U	10 U	1.3	67	130	1.0 U	0.25 U	
3/19/2020	2.0 U	34	46	0.81 J	0.87 J	1.1 J	1.0 U	1.0 U	17	2.0 U	3.7	2.0 U	0.99		4.1 J	1.3	65	130	1.0 U	0.50 UJ	0.10 UJ
12/7/2021	1.0 UJ	23 J-	43 J-	1.0 UJ	0.49 J-	2.3 J-	7.5 U	7.0 U	4000	1.0 UJ	3.3 J-	1.0 UJ	1.4	2.0 U	45	2.2	53	120	1.0 U	0.050 U	0.050 U
5/11/2022	1.0 U	34	54	0.87 J	1.2	5.7	1.5	1.4	5800 D	1.0 U	4.1	1.0 U	1.9	2.4	6.8 J	1.1	51	130	1.0 U	0.10 UJ	0.050 UJ

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MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-18B

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
11/1/2007	5 U	5 U	160	0.9 J	5 U	140		2.1	120	5 U	5 U	5 U		2 U	5 UJ	4.09	80.9	261			
11/29/2007																			1 U		
4/28/2008	5 U	5 U	120	0.73 J	5 U	180	0.74 J	2.4	150	5 U	5 U	5 U		2 U	9.86	3.74	88.1	270	1 U	0.05 U	0.05 U
10/27/2009	5 U	5 U	62	5 U	5 U	220	5 U	2.3 J	120	5 U	5 U	5 U		1.7 U	23.3 J	4.1	93.8 J	296	0.16 U	0 R	0.05 U
5/12/2010	5 U	5 U	69	5 U	5 U	190	5 U	2.4 J	130	5 U	5 U	5 U									
10/25/2011	5 U	5 U	150	0.9 J	5 U	220	5 U	4 J	120	5 U	5 U	5 U	0.0657 J	2.4 U	50 U	3.9	114 J	305 J	0.16 U	0.1 U	0.05 U
3/14/2012	5 U	5 U	59	5 U	5 U	170	5 U	2.3 J	96	5 U	5 U	5 U	0.0423 J			3.5	102	281			
6/12/2012	5 U	5 U	110	5 U	5 U	140	5 U	3.6 J	110	5 U	5 U	5 U	0.2 U	3.5 U	50 U	4	102	268	0.16 U	0.1 U	0.05 U
11/28/2012	5 U	5 U	89	5 U	5 U	180	5 U	5.2	150	5 U	5 U	5 U	0.2 U			4.2	106	284			
8/15/2013	0.96 J	5 U	120	5 U	5 U	190				5 U	5 U	5 U							0.16 U		
8/27/2013	5 U	5 U	110	5 U	5 U	190	5 U	5.3	170	5 UJ	5 U	5 U		2.8 U	17.9 J	4.9	106	284	0.16 U	0.1 U	0.05 U
1/17/2014	5 U	5 U	28	5 U	5 U	56	3.2 J	41	5000	5 U	5 U	5 U	5.97			941	91.1	55.1	17.3		
1/21/2014																					
4/2/2014	1 U	1 U	43	1 U	1 U	71	3.8 J	33	13000	1 UJ	1 U	1 U	2.91	889 J	1340	427	79.3 J-	86.1 J+	7.7	0.1 U	0.05 U
10/13/2014	1 U	1 U	1.1	1 U	1 U	4.6	4 J	11	18000	1 U	1 U	1 U	8.37			166	34.9	3.8 J	2.8		
11/18/2015	1 U	1 U	35	1 U	1 U	40	3.5 J	15	18000	1 U	1 U	1 U	2.54	35.7	167	41.5	62.2	70.9	1.5	0.1 U	0.05 U
4/21/2016	1.0 U	1.0 U	90	1.0 U	1.0 U	120	2.8 J	16	19000 D	1.0 U	1.0 U	1.0 U	0.893	22.1	88.7	21.7	122	189	4.8	0.10 U	0.050 U
9/13/2017	20 U	20 U	380	20 U	20 U	210	6.8	38	5000 D	20 U	20 UJ	20 U	0.52	23	99	11	110	140	7.3	0.50 U	0.050 U
4/26/2018	2.5 U	2.5 U	69	2.5 U	2.5 U	92	2	12	17000 D	2.5 U	2.5 U	2.5 U	0.41	17	71	12	97	130	10	0.25 U	0.050 U
12/4/2019	2.0 U	2.0 U	56	2.0 U	2.0 U	70	2.3	9.9	24000 D	2.0 U	2.0 U	2.0 U	0.35	35 J-	49	8.8	96	130	13	0.25 U	
3/19/2020	2.0 U	2.0 U	32	2.0 U	2.0 U	51	2.5	29	24000 D	2.0 U	2.0 U	2.0 U	0.23		53	7.2	100	170	16	0.50 UJ	0.10 UJ
12/7/2021	2.0 U	2.0 U	47	2.0 U	2.0 U	80	170 U	150 U	13000	2.0 U	2.0 U	2.0 U	0.32	14	39	6	98	190	8	0.050 U	0.050 U
5/11/2022	1.0 U	1.0 U	38	1.0 U	1.0 U	59	3.2	15	21000 D	1.0 U	1.0 U	1.0 U	0.17 J	16	39	4.5	100	220	9.9	0.10 UJ	0.050 UJ

J Indicates an estimated value.
U Analyte was not detected above the reporting limit.
UJ The analyte was not detected. The reporting limit is an approximate value.
J- Indicates estimated value, biased low.
J+ Indicates estimated value, biased high.
D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

Well ID: MW-19A

Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/31/2007	5 U	5 U	4.2 J	5 U	5 U	4				5 U	5 U	5 U									
4/24/2008	5 U	5 U	3.2 J	5 U	5 U	1.2 J				5 U	5 U	5 U									
11/2/2009	5 U	5 U	3.7 J	5 U	5 U	2.8 J				5 U	5 U	5 U									

J Indicates an estimated value.
U Analyte was not detected above the reporting limit.
UJ The analyte was not detected. The reporting limit is an approximate value.
J- Indicates estimated value, biased low.
J+ Indicates estimated value, biased high.
D Result reported from a secondary dilution analysis.
R The sample results are rejected.

MONITORING WELL GROUNDWATER ANALYTICAL RESULT SUMMARY
HYDE PARK FACILITY
NIAGARA, NEW YORK

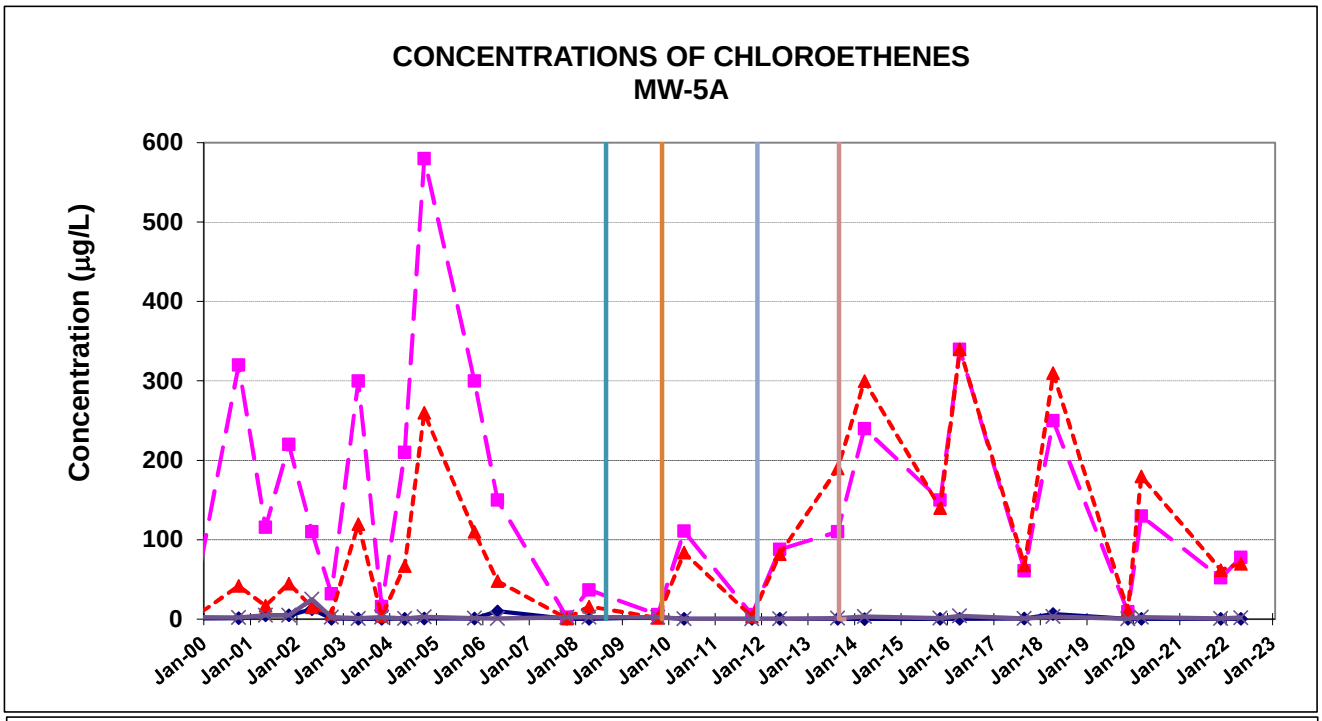
Well ID: MW-19B

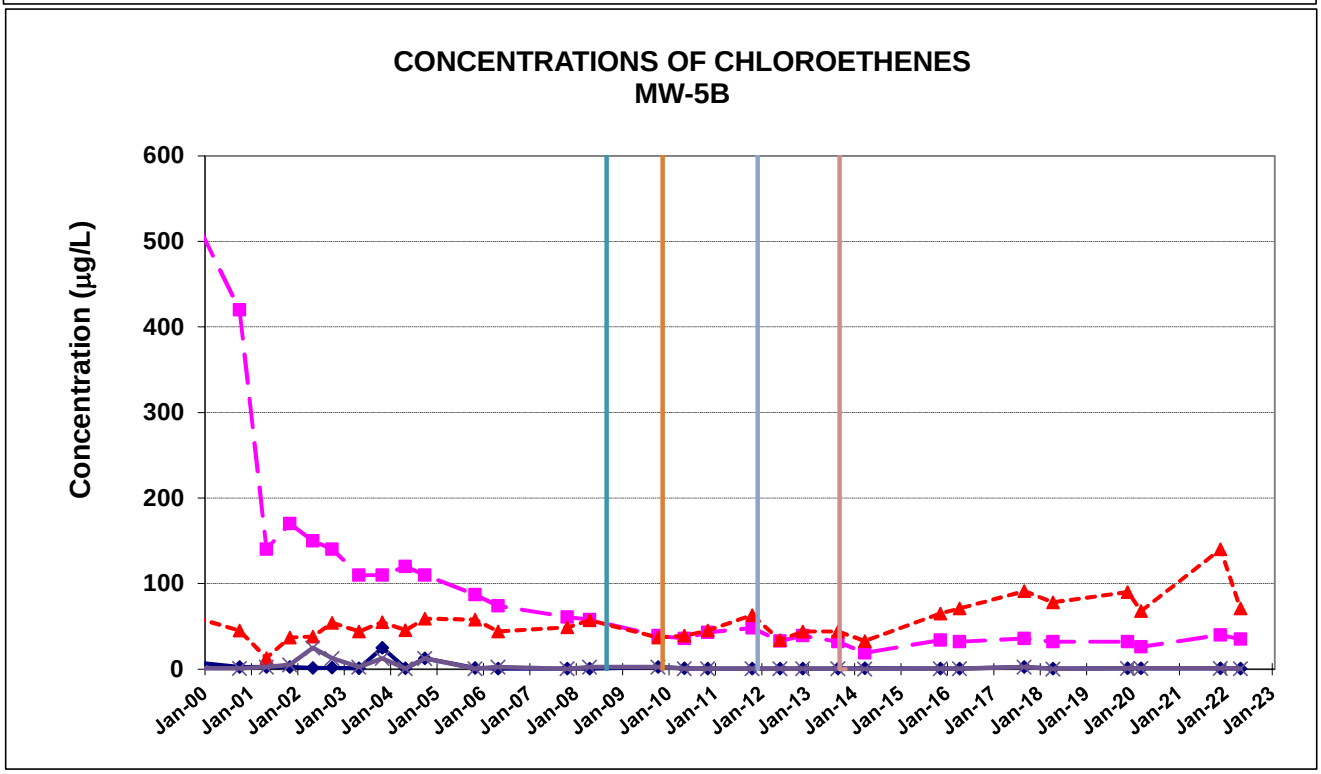
Date	PCE (µg/L)	TCE (µg/L)	Cis-1,2-DCE (µg/L)	Trans-1,2-DCE (µg/L)	1,1-DCE (µg/L)	Vinyl Chloride (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Methane (µg/L)	1,1,1-Trichloroethane (µg/L)	1,1-Dichloroethane (µg/L)	Chloroethane (µg/L)	Dissolved Iron (mg/L)	BOD (mg/L)	COD (mg/L)	TOC (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Nitrate (mg/L)	Nitrite (mg/L)
10/31/2007	5 U	5 U	12	5 U	5 U	3.4				5 U	5 U	5 U									
4/24/2008	5 U	5 U	24	5 U	5 U	5.8				5 U	5 U	5 U									
11/2/2009	5 U	5 U	68	5 U	5 U	7.2				5 U	5 U	5 U									
5/12/2010	5 U	5 U	2.1 J	5 U	5 U	2.1 J	5 U	5 U	160	5 U	5 U	5 U									
10/20/2011	5 U	5 U	8.7	5 U	5 U	3.3 J				5 U	5 U	5 U									
6/12/2012	5 U	5 U	2.3 J	5 U	5 U	1.6 J				5 U	5 U	5 U									
8/28/2013	5 U	5 U	2.1 J	5 U	5 U	1.2 J				5 U	5 U	5 U									
4/2/2014	1 U	1 U	2.9	1 U	1 U	0.65 J				1 U	1 U	1 U									
11/17/2015	1 U	1 U	1.8	1 U	1 U	1				1 U	1 U	1 U									
4/19/2016	1.0 U	1.0 U	1.1	1.0 U	1.0 U	1.1				1.0 U	1.0 U	1.0 U									
9/13/2017	1.0 U	1.0 U	1.6	1.0 U	1.0 U	1.5				1.0 U	1.0 UJ	1.0 U									
4/23/2018	1.0 U	1.0 U	24	1.0 U	1.0 U	5				1.0 U	1.0 U	1.0 U									
12/4/2019	1.0 U	1.0 U	1.4	1.0 U	1.0 U	1.2				1.0 U	1.0 U	1.0 U									
3/20/2020	1.0 U	1.0 U	11	1.0 U	1.0 U	2.3				1.0 U	1.0 U	1.0 U									
12/7/2021	1.0 U	1.0 U	1.8	1.0 U	1.0 U	1.5				1.0 U	1.0 U	1.0 U									
5/12/2022	1.0 U	1.0 U	1.5	1.0 U	1.0 U	1.1				1.0 U	1.0 U	1.0 U									

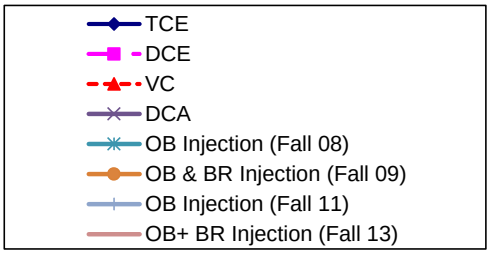
J Indicates an estimated value.
U Analyte was not detected above the reporting limit.
UJ The analyte was not detected. The reporting limit is an approximate value.
J- Indicates estimated value, biased low.
J+ Indicates estimated value, biased high.
D Result reported from a secondary dilution analysis.
R The sample results are rejected.

Appendix D

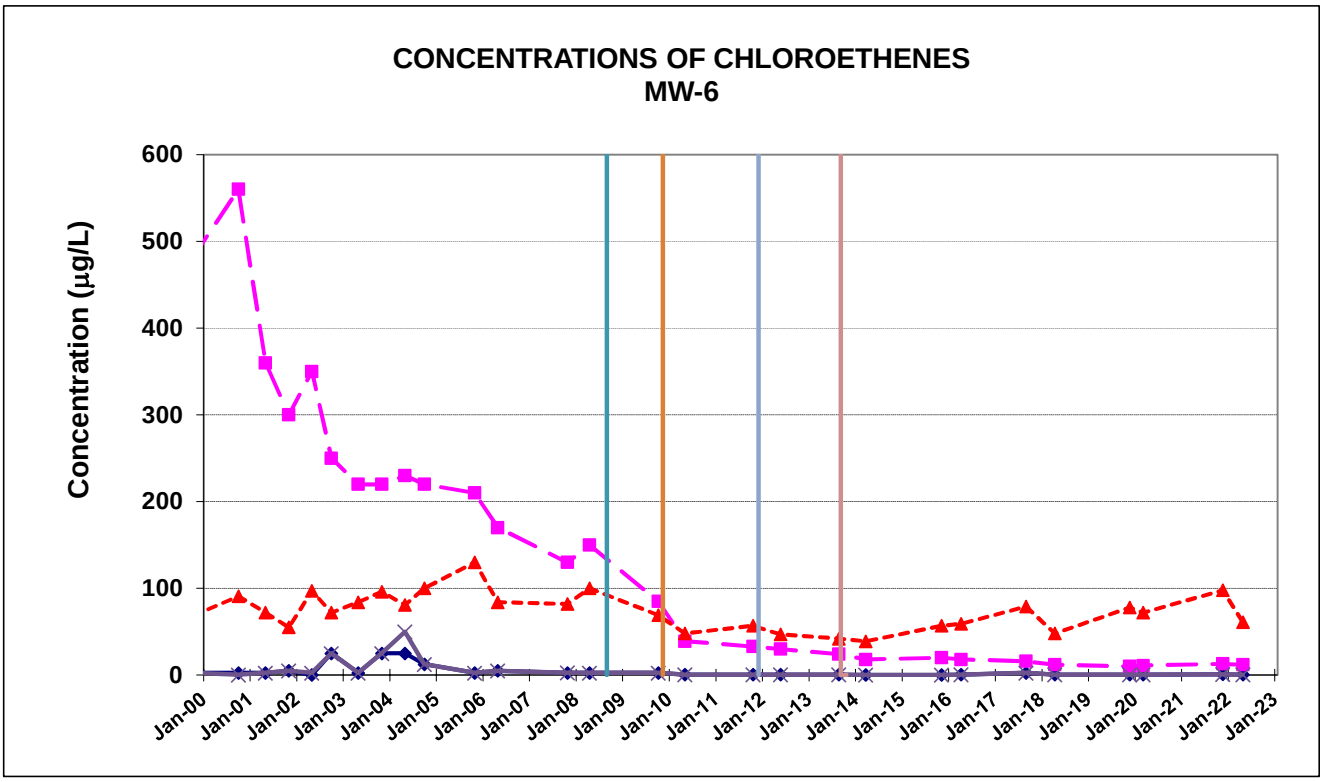
Long-Term Trend Graphs of Chlorinated Ethenes in Monitoring Wells, 2000-2022







FORMER CARBORUNDUM COMPANY
LONG TERM TRENDS OF CHLORINATED ETHENES IN WELLS MW-5A AND MW-5B
AECOM
1 John James Audubon Parkway, Amherst, NY 14228



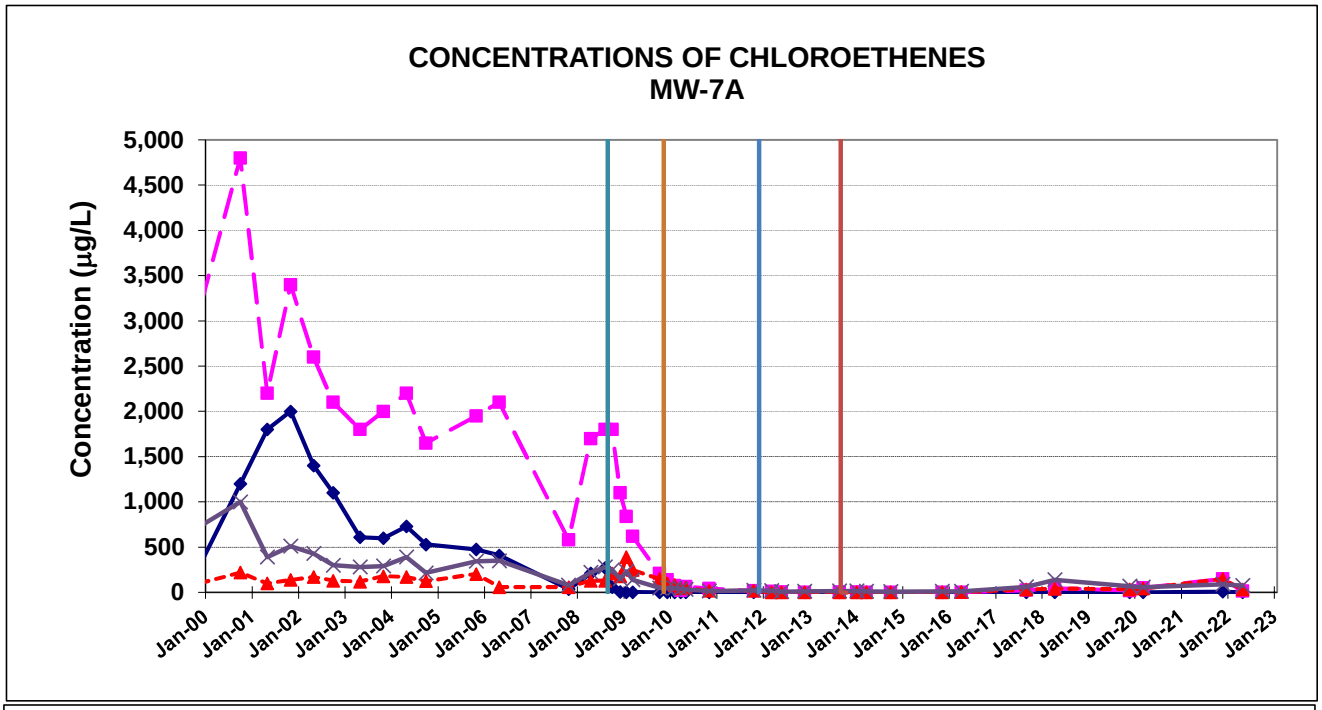
TCE
DCE
VC
DCA
OB Injection (Fall 08)
OB & BR Injection (Fall 09)
OB Injection (Fall 11)
OB+ BR Injection (Fall 13)

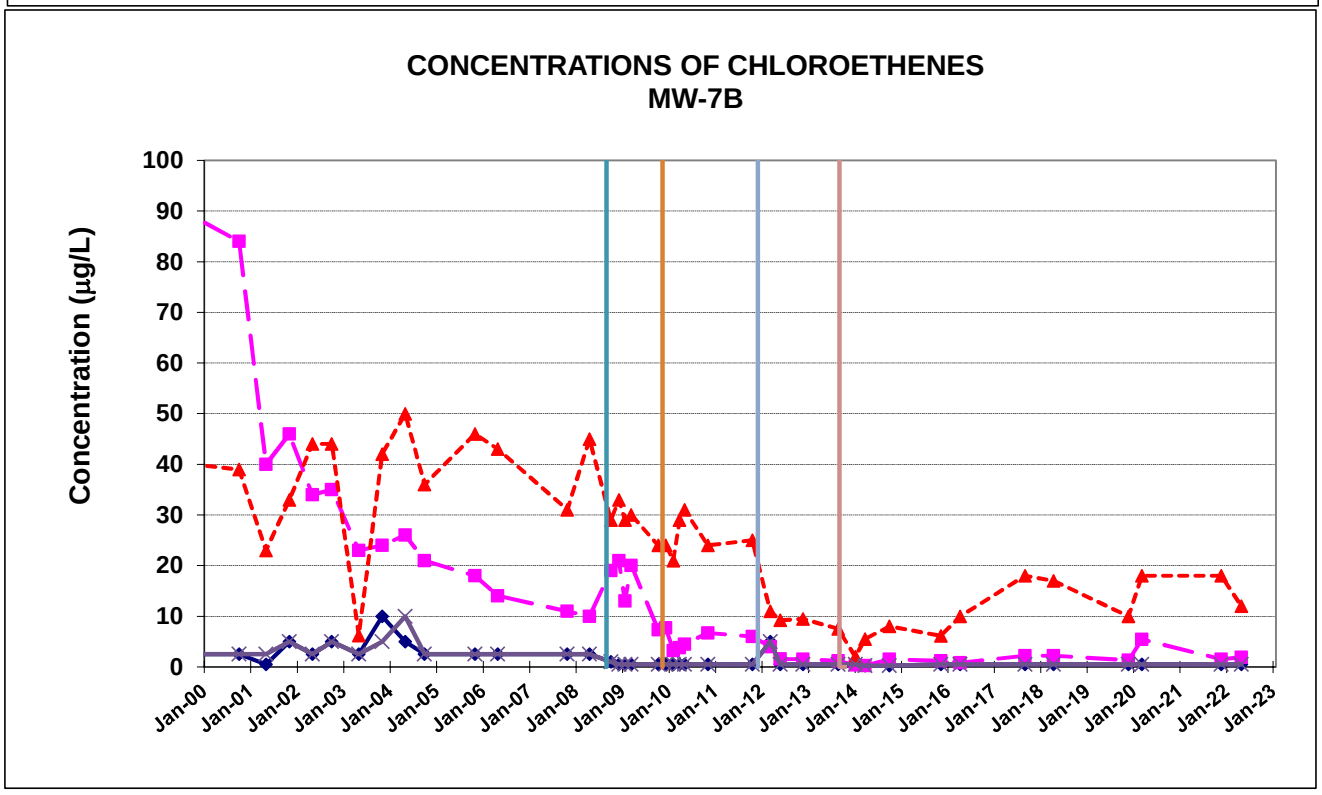
FORMER CARBORUNDUM COMPANY

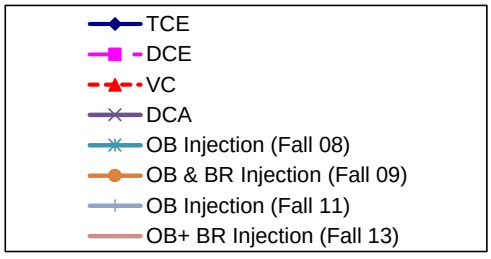
LONG TERM TRENDS OF CHLORINATED ETHENES IN WELL MW-6

AECOM

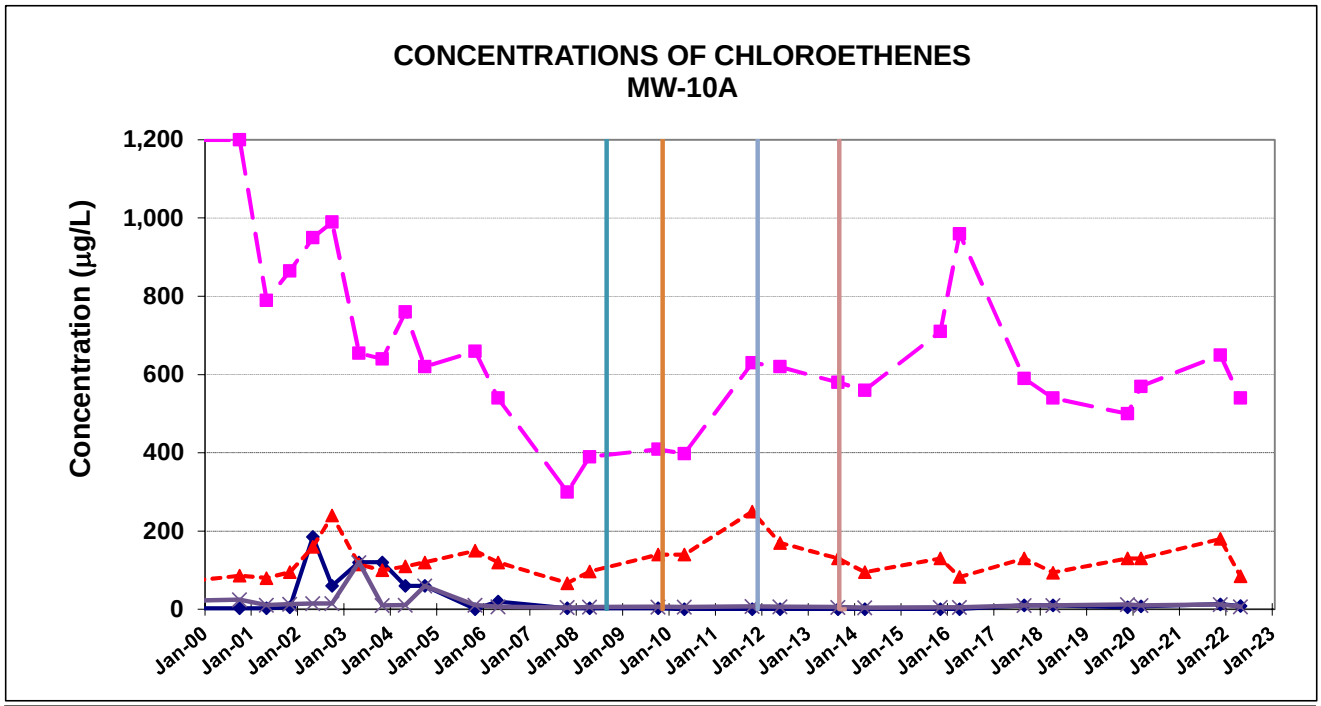
1 John James Audubon Parkway, Amherst, NY 14228

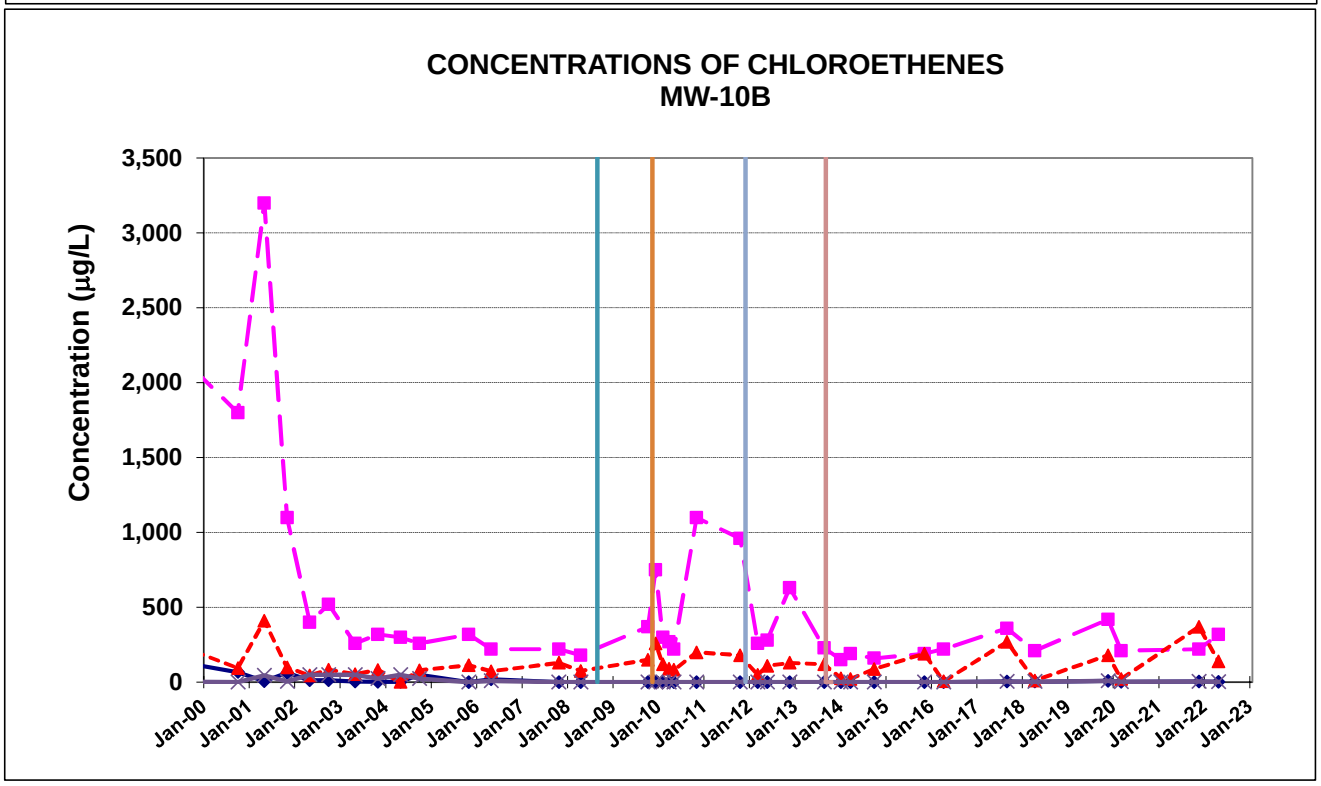


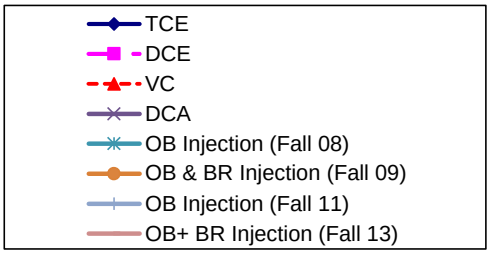




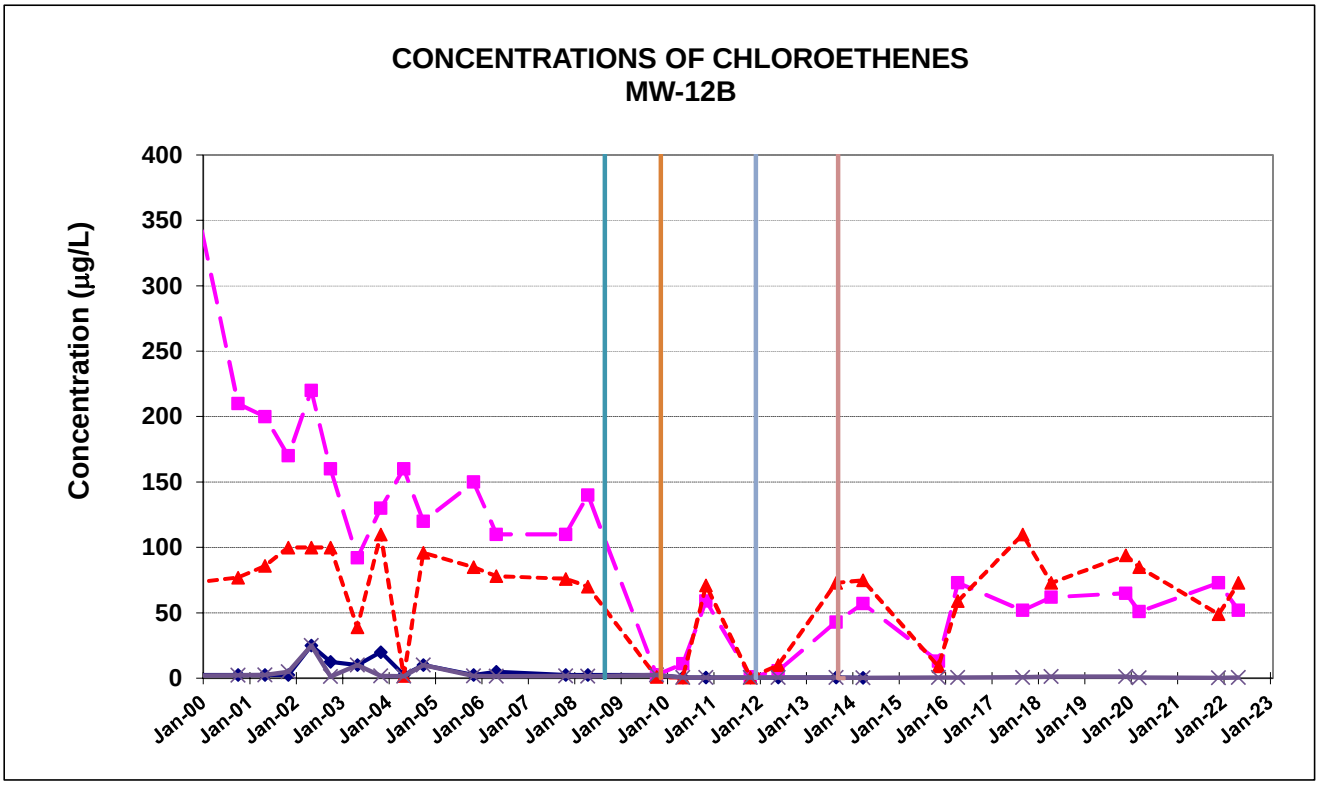
FORMER CARBORUNDUM COMPANY
LONG TERM TRENDS OF CHLORINATED ETHENES IN WELLS MW-7A AND MW-7B
AECOM
1 John James Audubon Parkway, Amherst, NY 14228







FORMER CARBORUNDUM COMPANY
LONG TERM TRENDS OF CHLORINATED ETHENES IN WELLS MW-10A AND MW-10B
AECOM
1 John James Audubon Parkway, Amherst, NY 14228



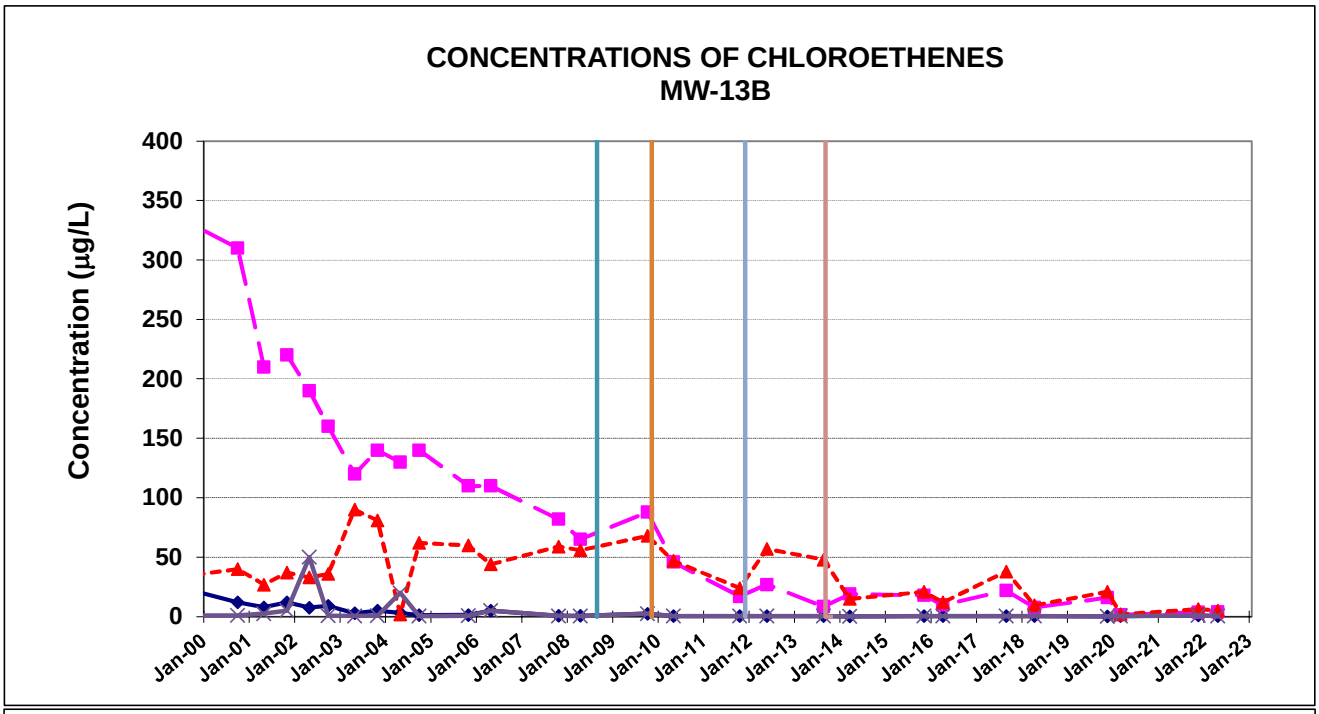
TCE
DCE
VC
DCA
OB Injection (Fall 08)
OB & BR Injection (Fall 09)
OB Injection (Fall 11)
OB+ BR Injection (Fall 13)

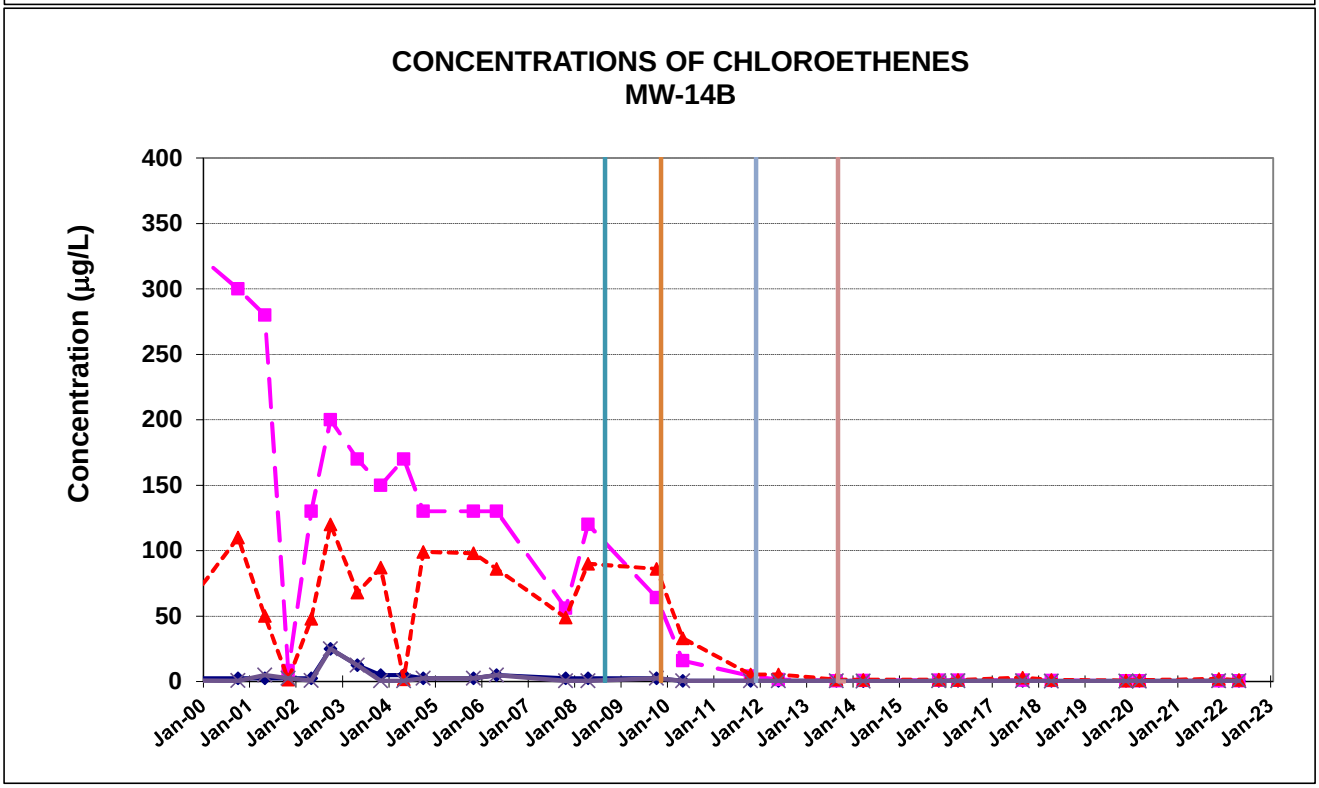
FORMER CARBORUNDUM COMPANY

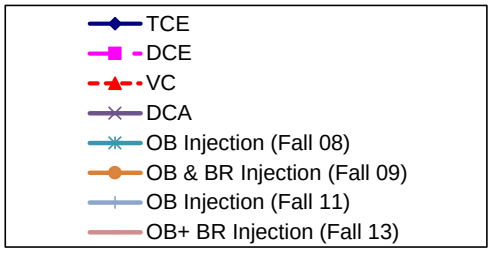
LONG TERM TRENDS OF CHLORINATED ETHENES IN WELL MW-12B

AECOM

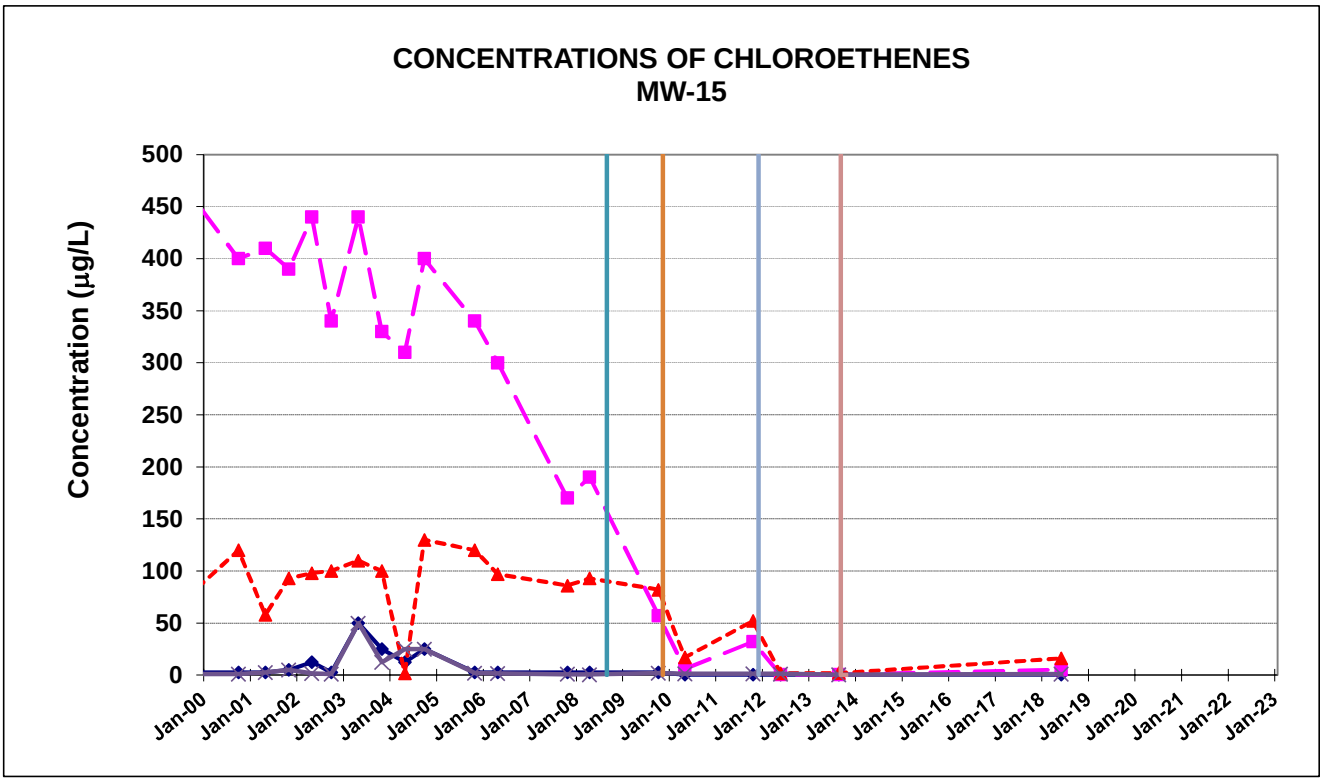
1 John James Audubon Parkway, Amherst, NY 14228







FORMER CARBORUNDUM COMPANY
LONG TERM TRENDS OF CHLORINATED ETHENES IN WELLS MW-13B AND MW-14B
AECOM
1 John James Audubon Parkway, Amherst, NY 14228



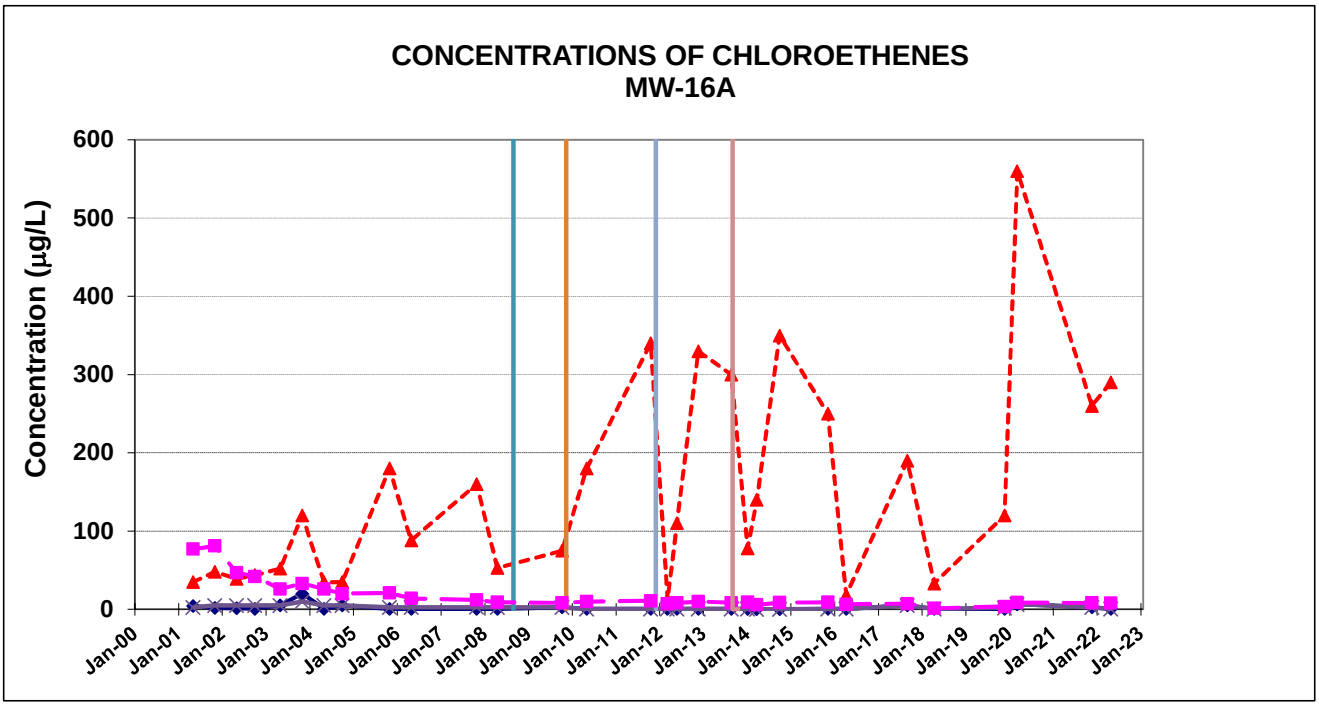
TCE
DCE
VC
DCA
OB Injection (Fall 08)
OB & BR Injection (Fall 09)
OB Injection (Fall 11)
OB+ BR Injection (Fall 13)

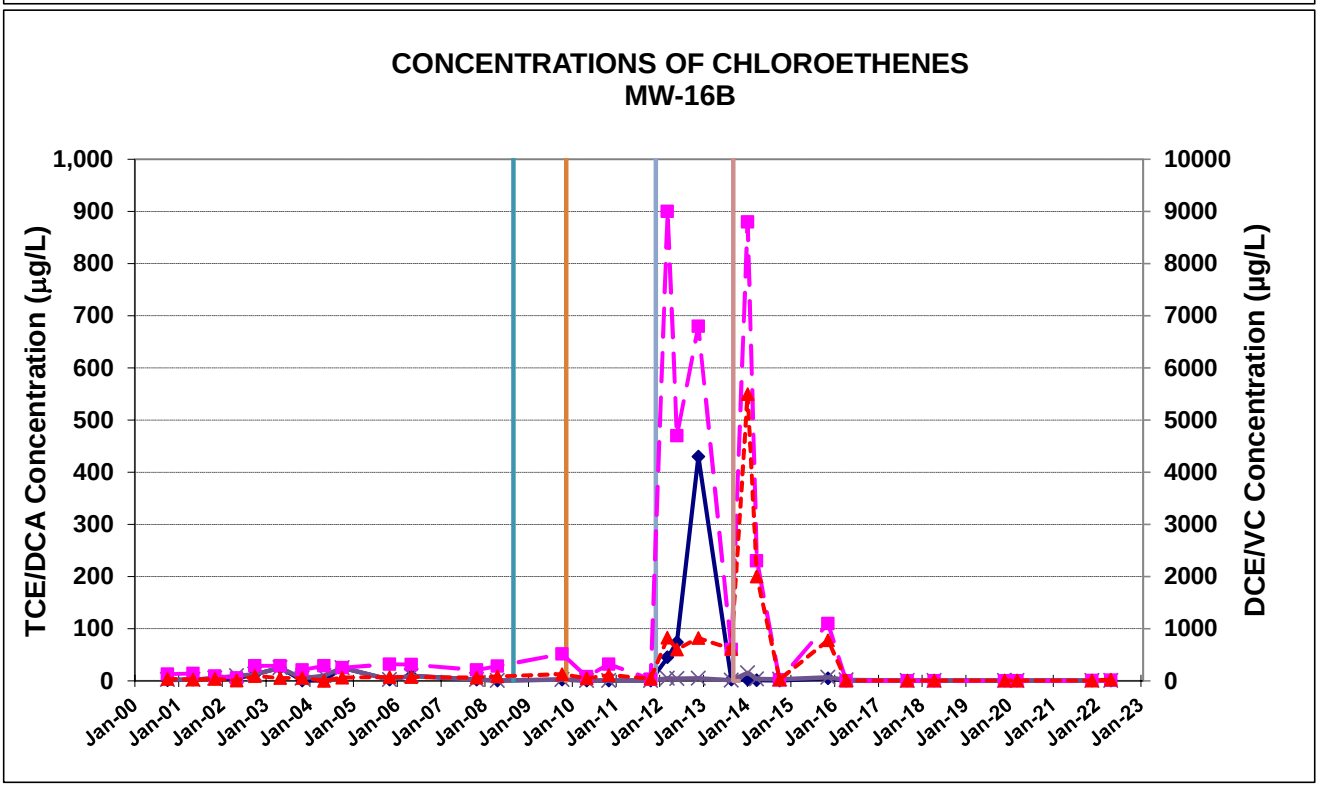
FORMER CARBORUNDUM COMPANY

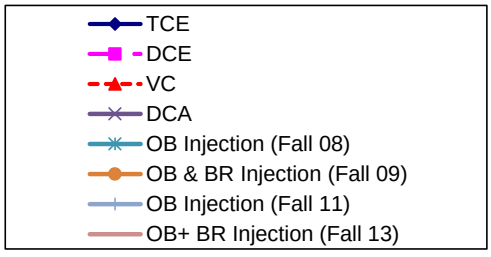
LONG TERM TRENDS OF CHLORINATED ETHENES IN WELL MW-15

AECOM

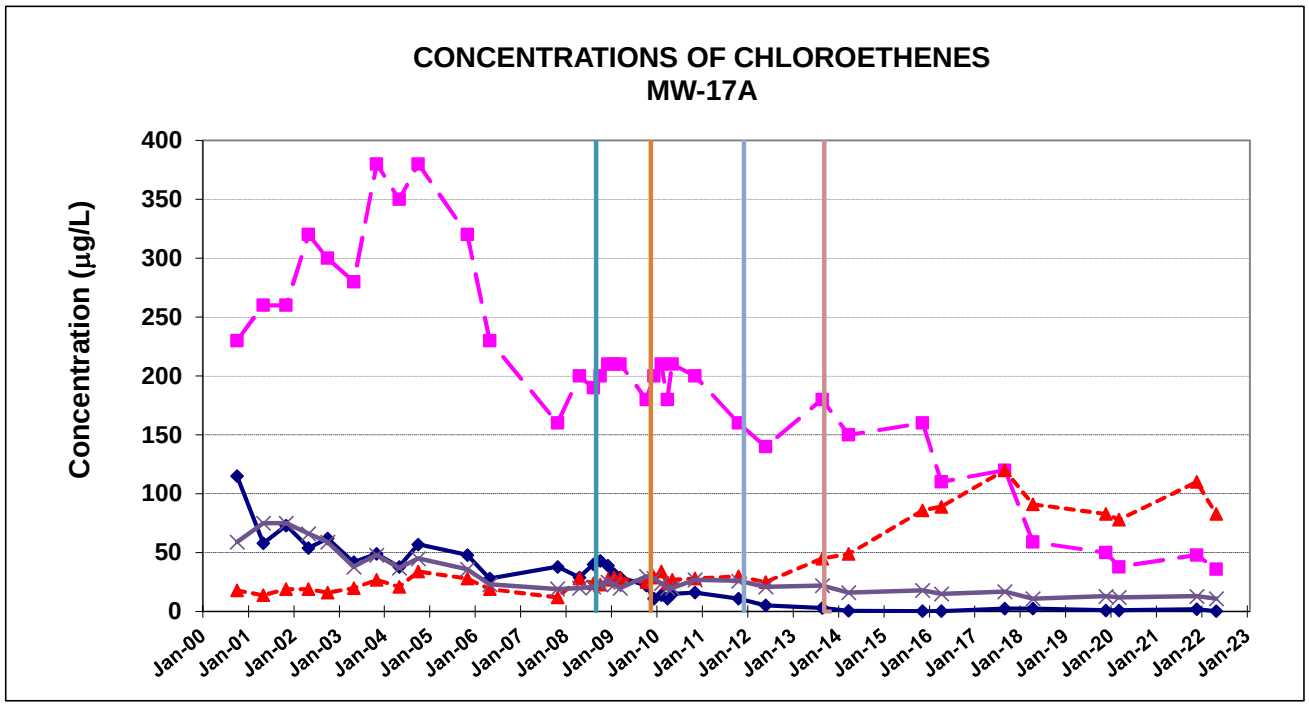
1 John James Audubon Parkway, Amherst, NY 14228

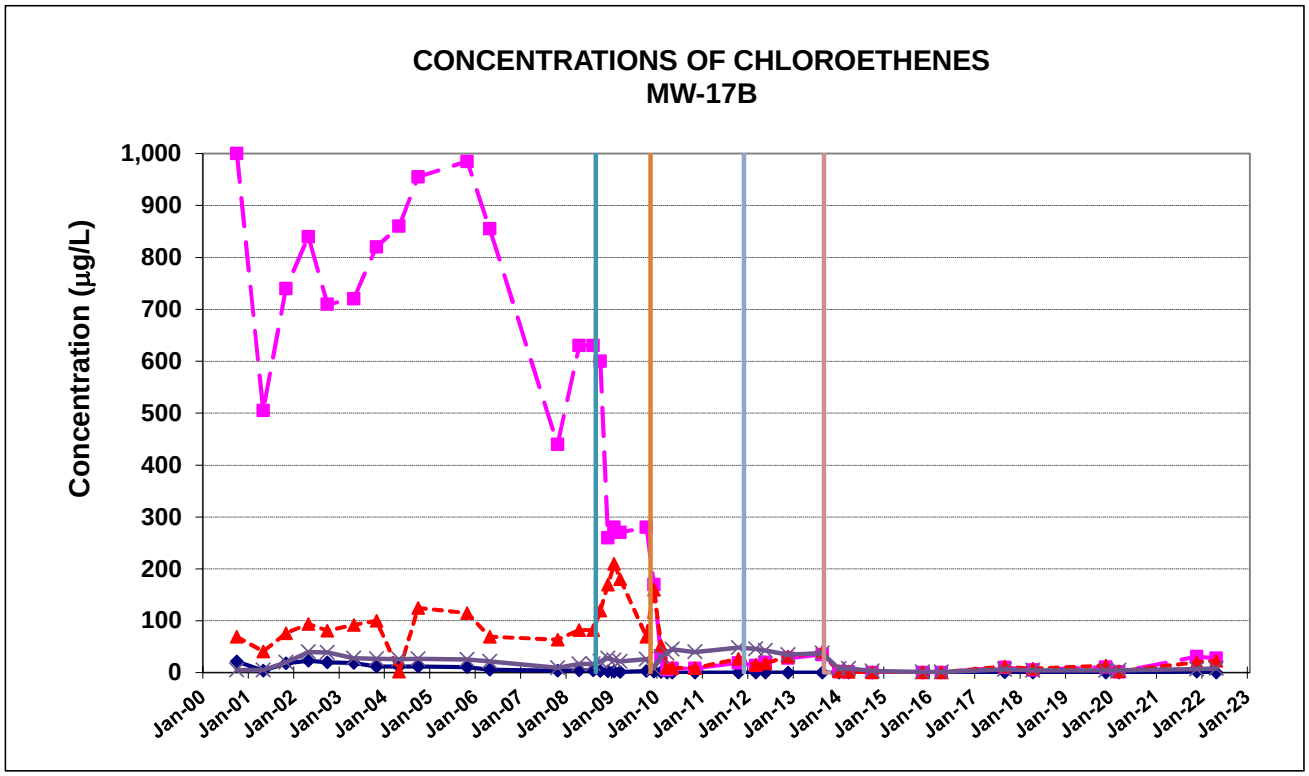


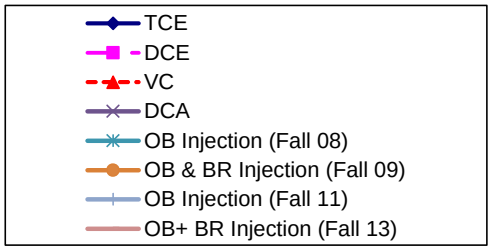




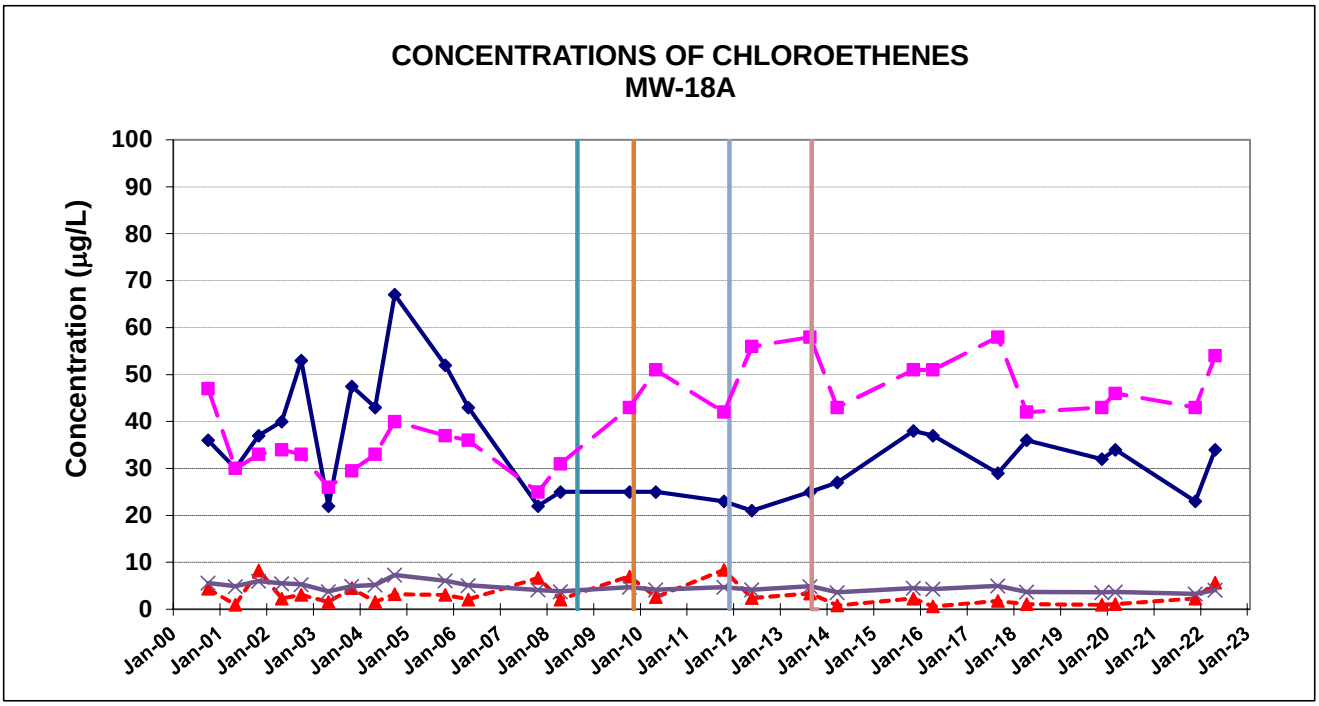
FORMER CARBORUNDUM COMPANY
LONG TERM TRENDS OF CHLORINATED ETHENES IN WELLS MW-16A AND MW-16B
AECOM
1 John James Audubon Parkway, Amherst, NY 14228

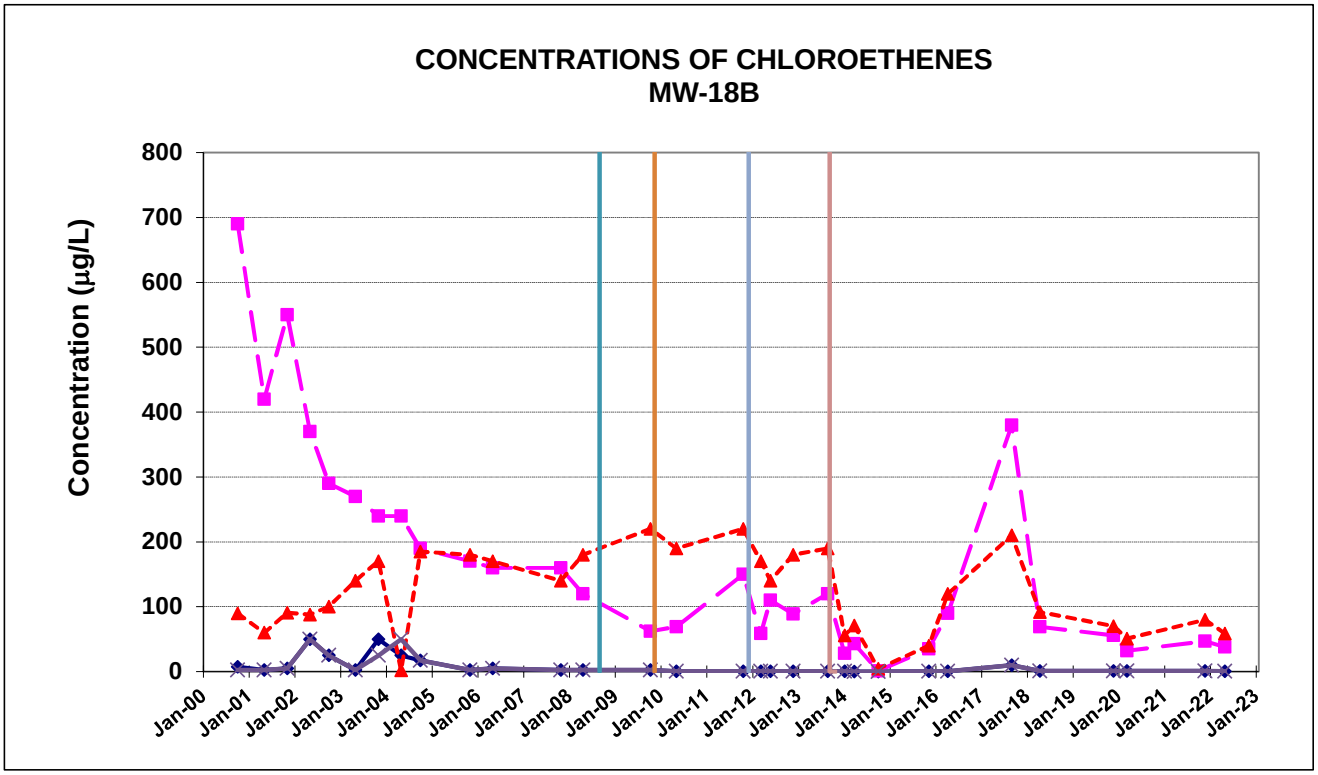


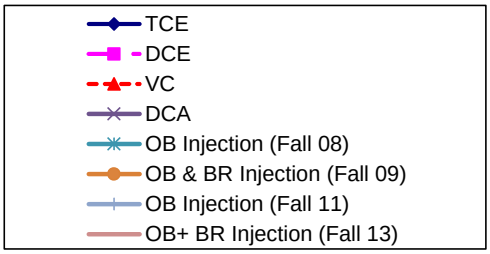




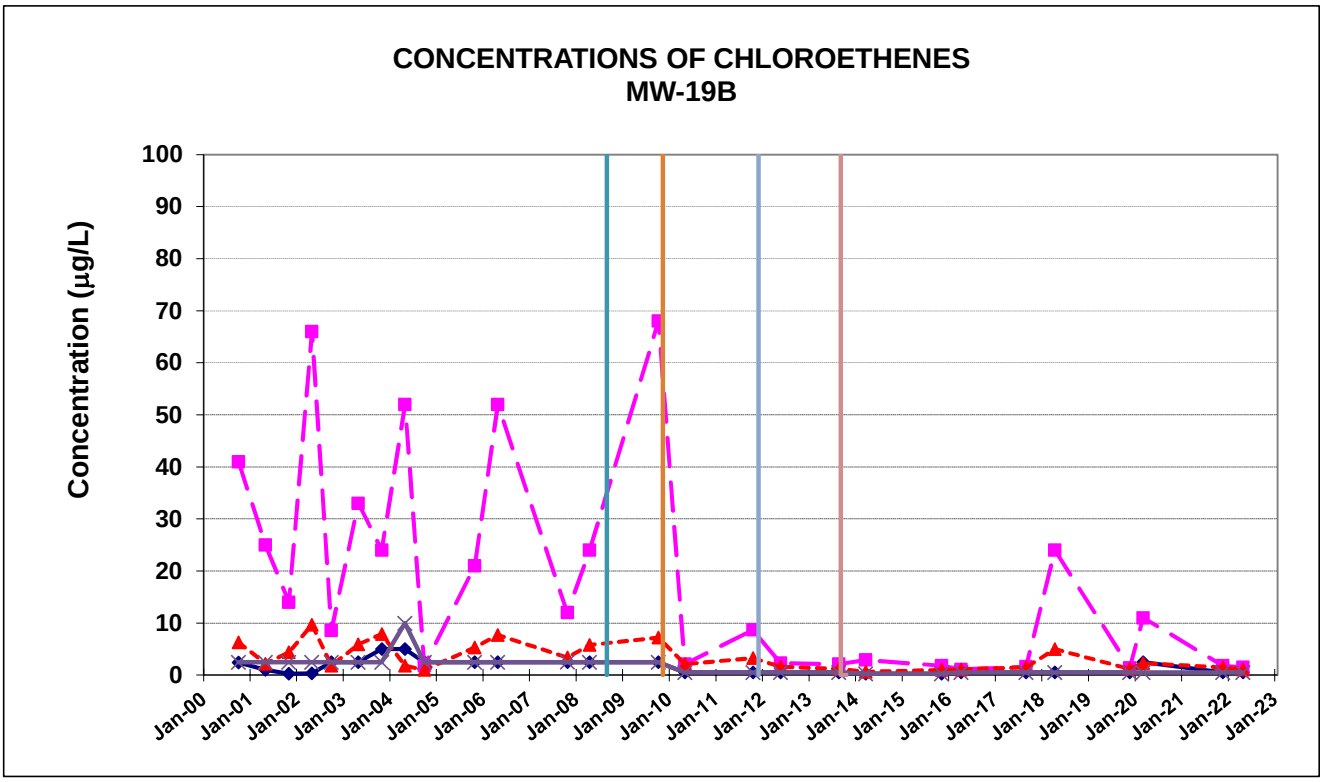
FORMER CARBORUNDUM COMPANY
LONG TERM TRENDS OF CHLORINATED ETHENES IN WELLS MW-17A AND MW-17B
AECOM
1 John James Audubon Parkway, Amherst, NY 14228







FORMER CARBORUNDUM COMPANY
LONG TERM TRENDS OF CHLORINATED ETHENES IN WELLS MW-18A AND MW-18B
AECOM
1 John James Audubon Parkway, Amherst, NY 14228



TCE
DCE
VC
DCA
OB Injection (Fall 08)
OB & BR Injection (Fall 09)
OB Injection (Fall 11)
OB+ BR Injection (Fall 13)

FORMER CARBORUNDUM COMPANY

LONG TERM TRENDS OF CHLORINATED ETHENES IN WELL MW-19B

AECOM

1 John James Audubon Parkway, Amherst, NY 14228