PERIODIC REVIEW REPORT
JULY 2020 – DECEMBER 2020

FORMER PAULSEN-HOLBROOK SITE
ALBANY, NEW YORK 12205

NYSDEC Site No. 401046
Work Assignment No. D009812-04.30

Prepared for:

NEW YORK STATE OF OPPORTUNITY. Department of Environmental Conservation

Division of Environmental Remediation
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JANUARY 2021

TRC Project No. 386554

TABLE OF CONTENTS

TABLE OF CONTENTS (CONT.)

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF ACRONYMS AND ABBREVIATIONS

AMSL	Above mean sea level
CCA	Chromium Copper Arsenate
COCs	Contaminants of concern
DER	Department of Environmental Remediation
DUSRs	Data Usability Summary Report
EC	Engineering Control
EDD	Electronic Data Deliverable
EE	Environmental Easement
Eurofins/TestAmerica	Eurofins/TestAmerica Laboratories of Amherst, New York
FS	Feasibility Study
GWMR	Groundwater Monitoring Report
IC	Institutional Control
IHWDS	Inactive Hazardous Waste Disposal Site
ISSS	In-situ soil stabilization
NTUs	nephelometric turbidity units
NYSDEC	New York State Department of Environmental Conservation
NYSDEC DER-10	NYSDEC DER-10, Technical Guidance for Site Investigation and Remediation
NYSDOH	New York State Department of Health
OU	Operable Unit
PRPs	Potentially Responsible Parties
PRR	Periodic Review Report
QA/QC	Quality assurance/quality control
QAPP	Quality Assurance Project Plan
RAOs	Remedial action objectives
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
ROD	Record of Decision
ROW	Right-of-Way
Site	Former Paulsen-Holbrook Site
SM	Site management
SMP	Site Management Plan
TAL	Target Analyte List
USEPA	United States Environmental Protection Agency
VCP	Voluntary Cleanup Program
WA	Work Assignment

Executive Summary

Category	Summary/Results
Engineering Controls	• Cover system over excavation and ISSS areas • Perimeter fence along the rail line ROW • Monitoring wells • Stormwater management system
Institutional Controls	• ROD – OU 1 (2010) • ROD – OU 2 (2014) • SMP (2017) • EE (2016)
Site Classification	Class 2 IHWDS
Site Management Plan	SMP Rev. No. 1 – December 2014 SMP Rev. No. 2 – December 2017
Certification/Reporting Period	The SMP (2017) requires a GWMR annually for five years following completion of the remedy. The SMP (2017) requires an annual PRR following issuance of a Certificate of Completion. The date of the most recent GWMR is January 2015.
Inspection	**Frequency**
Site Inspection	Annual
Monitoring	**Frequency**
Groundwater and Stormwater	Annual
Prior PRR/GWMR Recommendations	The January 2015 GWMR recommended the installation of one off-Site monitoring well located southwest of the soil excavation and treatment area. Per the 2017 SMP, off-Site monitoring well PHMW-04S was installed on July 29, 2015.
Site Management Activities (July 2020 to October 2020) - TRC	Site management activities from July to October 2020 included one Site inspection, one round of groundwater level measurements, one sampling event, and one re-attempted stormwater sampling event. • 09/30/2020: Site Inspection. Fifteen of the 18 monitoring wells were gauged. One monitoring well was dry upon gauging. Three monitoring wells could not be located. Four monitoring wells were sampled. • 10/01/2020: Ten monitoring wells were sampled. A stormwater sample could not be collected as water was not observed at the outfall or nearest upgradient catch basin. • 10/13/2020: Collection of a stormwater sample during a rain event was re-attempted. A sample could not be collected due to an insufficient amount of flow at the outfall.

Category	Summary/Results
Significant Findings or Concerns	1. Arsenic was detected above Class GA Values in groundwater samples collected from four monitoring wells (ML-2R, ML-03, ML-04, and PHMW-01). 2. Chromium was detected above Class GA Values in groundwater samples collected from two monitoring wells (ML-2R and ML-04). 3. Copper was either not detected above laboratory quantitation limits or detected below Class GA Values in all groundwater samples collected for analysis.
Recommendations	1. The Site inspection frequency should continue annually and following severe weather events (as needed) to certify that the ICs/ECs are functioning as intended. A site inspection report should be completed following each inspection event. 2. It is recommended that the December 2017 SMP requirement that groundwater samples be analyzed for TAL metals be amended to the CCA specific metals. 3. It is recommended that the groundwater and stormwater sampling frequency be reduced from annually to biennially. 4. Based on historically low COC concentrations in downgradient monitoring well ML-15 and upgradient monitoring wells ML-06, ML-07, ML-08, ML-09, ML-10, and ML-11, it is recommended that future groundwater monitoring at these locations be discontinued. 5. It is recommended that the December 2017 SMP requirement for the collection of groundwater samples by USEPA low-flow methods be made optional to allow the use of no-purge sampling technologies. 6. It is recommended that the December 2017 SMP PRR frequency be reduced from annually to every four years. 7. It is recommended that the GWMR requirement be reduced from annually to biennially. During reporting years where both a GWMR and PRR are required, a GWMR will not be submitted. 8. The December 2017 SMP should be revised to reflect the above changes/modifications, if the changes are acceptable to the NYSDEC.

1.0 Introduction

This Periodic Review Report (PRR) has been prepared for the Former Paulsen-Holbrook Site (the Site) and covers the period July 2020 through December 2020. This PRR was prepared in accordance with the New York State Department of Environmental Conservation (NYSDEC) Department of Environmental Remediation (DER) Work Assignment (WA) No. D009812-04 Notice to Proceed dated February 27, 2020, the NYSDEC-approved amended Scope of Work dated July 20, 2020 (WA No. D009812-04.30) and NYSDEC DER-10, Technical Guidance for Site Investigation and Remediation (NYSDEC DER-10). This PRR discusses the site management (SM) activities and results from those activities, performed by TRC during the referenced reporting period. Documents pertaining to activities completed by others were not available for review and are incorporated only by reference where applicable. The Site and applicable remedial program information is summarized below.

Site Information			
Site Name:	Former Paulsen-Holbrook	**NYSDEC Site No:**	401046
Site Location:	54 Railroad Ave., Albany, Albany County, NY	**Remedial Program:**	State Superfund Program
Site Type:	Commercial	**Classification:**	02
Parcel Identification(s):	012689 53.5-4-24 (50 Railroad Ave.), 013089 53.05-1-15 (54 Railroad Ave.), 013089 53.05-1-14 (60 Railroad Ave.)	**Parcel Acreage / EE Acreage:**	0.16 (50 Railroad Ave.), 3.10 (54 Railroad Ave.), 3.70 (60 Railroad Ave.) / ± 6.88
Selected Remedy:	Excavation and cover system, southern perimeter fence at the CSX ROW, groundwater monitoring, ISSS, groundwater treatment, stormwater system	**Site COC(s):**	• Metals
Current Remedial Program Phase:	Post RA Site Monitoring; Site Management	**Institutional Controls:**	• ROD – OU-1 (2010) • ROD – OU-2 (2014) • EE (2016) • SMP (2017)
Post-Remediation Monitoring and Sampling Frequency:	Annual – Groundwater and stormwater sampling Annual – Site inspection	**Engineering Controls:**	Cover system, southern fence at the CSX ROW, monitoring wells, stormwater system
Monitoring Well Network:	18 Monitoring Wells	**Required Reporting**	GWMR – Annual for the first five years following completion of remedial construction then at a frequency determined by the NYSDEC. PRR – Annual following issuance of the Certificate of Completion.

1.1 Site Location, Ownership, and Description

The Site is located at 54 Railroad Avenue, approximately 4.5 miles northwest of downtown Albany, Albany County, New York. Refer to **Figure 1**, Site Location Map. The Site is a ± 0.5-acre portion of three individual parcels totaling ± 6.96 acres, listed on the Albany County Tax Maps as follows:

- 50 Railroad Avenue, Colonie, Albany County, New York – Section 53.5, Block 04, Lot 24, 0.16 acres
- 54 Railroad Avenue, Guilderland, Albany County, New York – Section 53.05, Block 01, Lot 15, 3.10 acres
- 60 Railroad Avenue, Guilderland, Albany County, New York – Section 53.05, Block 01, Lot 14, 3.70 acres

For the purposes of this report, "the Site" includes the three parcels listed above. The current owner of the three parcels is listed as Albany Miron Lumber Corporation in the Albany County Tax Records. The Site has been reportedly unoccupied since at least 2002.

Site features include three abandoned warehouses, an in-situ soil stabilization (ISSS) monolith approximately 0.22-acres in size, a drainage swale, chain link fence, a stormwater management system consisting of 13 catch basins and 1 outfall, and concrete foundations from former structures. Access to the Site is from the north at Railroad Avenue.

The Site is bounded to the north by Railroad Avenue followed by commercial properties; to the east and west by commercial properties; and to the south by a rail line and associated right-of-way (ROW), followed by undeveloped land utilized by the Albany Department of Public Works. Patroon Creek is located approximately 600 feet south of the Site and flows to the east-southeast. A Site layout map showing the referenced features is provided on **Figure 2**.

1.2 Investigation/Remedial History

Various lumber companies occupied the Site and ran wood treatment operations from the early 1950s until sometime before 1978. Wood was treated by pressure treating with chromated copper arsenate (CCA), a solution comprised of chromic acid, cupric oxide, and arsenic pentoxide. In 1965, an estimated 2,000 to 3,000 gallons of CCA was released when a pressure vessel containing the solution, was opened before the liquid was pumped out. Soil contamination resulted from spills and excess CCA solution dripping off the wood in addition to exposure of pressure-treated lumber to precipitation and subsequent runoff. As a result, soil and groundwater underlying the Site became contaminated with residual wood treatment compounds. According to historical aerial photography, as reported by others, the building containing the pressure vessel

was removed sometime between 1982 and 1985. The foundation and slab of the containment building, now covered with soil, still exists in the south-central portion of the Site.

The property owner initially entered into the Voluntary Cleanup Program (VCP) in December 1998 to investigate the Site. The Site was investigated under the name of Albany Miron, but the volunteer never submitted an acceptable Remedial Action Work Plan (RAWP). After a number of investigations and lawsuits between the former operators and owners, the potentially responsible parties (PRPs) entered into a dispute resolution with the NYSDEC. The PRPs ultimately settled with the NYSDEC in March 2007 and signed a consent order which included a cash-out settlement. As part of the consent order, the Voluntary Cleanup agreement was terminated, and the Site was referred to the New York State Superfund Program to complete the remedial program.

The following investigations and actions were carried out under the VCP:

- Soil investigation completed in 1999.
- Baseline investigation completed in 2001.
- Site Investigation Report and Proposed Soils Remediation Plan completed in 2003.
- Phase I Groundwater Investigation completed in 2003.
- Supplemental Site Investigation and Focused Feasibility Study completed in 2005.

Between June 2008 and July 2009, a remedial investigation (RI) was conducted at the Site to determine the nature and extent of contamination and evaluate alternatives for addressing significant threats to human health and the environment. Major findings of the RI included:

- Site waste and source areas were identified as the area around the former containment building, which housed the pressure vessel, and the loading/unloading area.
- Based on groundwater sampling of 14 on-Site and 2 off-Site monitoring wells, the primary contaminants of concern (COCs) were identified as arsenic, copper, and chromium.
- Based on soil sampling completed around the Site, the primary COCs were identified as arsenic, copper, and chromium around the former containment building, lumber loading/unloading area, and southern drainage swale.
- Based on surface water samples collected from Patroon Creek, no Site-related COCs were identified.
- Based on sediment samples collected from Patroon Creek, no Site-related COCs were identified.

Based on the results of the RI and associated Feasibility Study (FS), the NYSDEC selected ISSS with in-situ groundwater source treatment as the major remedy components for the Site. These remedial actions were completed from 2012 to 2013.

In December 2014, a Site Management Plan (SMP) was developed and implemented to manage the Site's institutional controls/engineering controls (ICs/ECs). In December 2017, the SMP was updated (Rev. 2), however it is unclear what portions of the SMP were revised.

A detailed Site history, including the dates and descriptions of significant events, and a Custodial Record detailing available Site reports, are included in **Appendix A**.

1.3 Regulatory Requirements/Cleanup Goals

The 2012 to 2013 remedial action removed the highly-contaminated waste, solidified in-place select soils, treated groundwater through in-situ chemical injection activities, and consolidated remaining soil below an engineered cap. On-Site groundwater in the vicinity of the ISSS and chemical injection area exhibits elevated concentrations of select metals.

A summary of the remedial action objectives (RAOs), as found in the March 2010 Record of Decision (ROD), include the following:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with contaminated groundwater.

RAOs for Environmental Protection

- Restore the groundwater aquifer to meet ambient groundwater quality criteria, to the extent practicable.
- Prevent the discharge of contaminated groundwater to surface water.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in the groundwater or surface water contamination.
- Prevent impacts to biota from ingestion/direct contact with soil/waste material causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

2.0 Institutional and Engineering Control Plan Compliance

2.1 Institutional Controls

The Former Paulsen-Holbrook Site is managed under the New York State Superfund Program. The Site's inclusion on the Registry of Inactive Hazardous Waste Disposal Sites (IHWDS), RODs (OU-1 and OU-2), Environmental Easement (EE), and Site SMP act as ICs.

The December 2017 SMP defines the following ICs for the Site:

- Completion of a periodic certificate of institutional and engineering controls in accordance with 6 NYCRR Part 375-1.8 (h)(3).
- Land use is subject to local zoning laws, the remedy allows the use and development of the controlled property for commercial and industrial use.
- The use of groundwater as a source of potable or process water is restricted without the use of necessary water quality treatment as determined by the NYSDEC, New York State Department of Health (NYSDOH), or Albany County Department of Health.
- Prohibits agricultural or vegetable gardens on the controlled property.
- Requires compliance with the NYSDEC-approved SMP.

2.2 Engineering Controls

The December 2017 SMP defines the following ECs for the Site:

- Perimeter fencing.
- Monitoring wells.
- Stormwater management system.
- Cover system.

3.0 Monitoring and Sampling Plan Compliance

The December 2017 SMP was prepared to manage remaining on-Site contamination and ensure that the remedy remains effective. The December 2017 SMP specifies the following Site monitoring and sampling activities:

Summary of December 2017 SMP Site Monitoring and Sampling Plan			
Site Management Activity	**Frequency**	**Location**	**Laboratory Analysis**
Site Inspection	Annual	Site Properties	Not Applicable
Groundwater Sampling	Annual	• ML-01 • ML-2R • ML-03 • ML-04 • ML-06 • ML-07 • ML-08 • ML-09 • ML-10 • ML-11 • ML-14 • ML-15 • PHMW-01 • PHMW-02D • PHMW-02S • PHMW-03D • PHMW-03S • PHMW-04S	• TAL Metals by USEPA Method 6010/7470 for total fractions. Dissolved fractions are required if samples exceed 50 NTUs upon collection.
Stormwater Sampling	Annual	Southern Outfall	• Arsenic, Chromium, and Copper by USEPA Method 8260 for total fractions. Dissolved fractions are required if samples exceed 50 NTUs upon collection.
Groundwater / Stormwater and Site Inspection Report	Annually for the first 5 years following remedial construction.	Not Applicable	Not Applicable
PRR	Annually following issuance of the Certificate of Completion	Not Applicable	Not Applicable

Notes:
TAL – Target Analyte List.
USEPA – United States Environmental Protection Agency.
NTUs – Nephelometric Turbidity Units.

3.1 Site Inspection

In September and October 2020, concurrent with groundwater sampling activities, TRC performed an annual Site inspection in accordance with the SMP. The Site inspection included an evaluation of the current Site use, condition of the cover system, vegetation, monitoring wells, access gates, roads, stormwater system, etc.

A summary of September and October 2020 Site Management activities are provided in the table below:

Summary of Site Management Activities September and October 2020		
Site Management Activity	**Summary of Results**	**Maintenance/Corrective Measure**
Cover system, southern perimeter fence, and general conditions	During the September and October 2020 field activities, the cover system appeared to be dry, stable, and in good condition. The southern perimeter fence, adjacent to the rail line ROW, appeared to be in good condition with no visible indications of damage or excess wear. At the time of the inspection, a large amount of overgrowth was observed throughout the Site.	No routine maintenance or corrective measures needed at this time.
Drainage	During the September and October 2020 inspections, the Site culvert and catch basins appeared to be in good condition, containing no vegetation that would inhibit stormwater flow. No noticeable areas of active erosion were observed.	No routine maintenance or corrective measures needed at this time.
Monitoring well network	In September and October 2020, 15 of 18 monitoring wells were located. All located monitoring wells, including protective casings and covers, were observed to be in good condition. TRC was unable to locate monitoring wells ML-09, ML-11, and PHMW-3S.	All monitoring wells were found to be locked. TRC cut and replaced locks to all accessed monitoring wells.
Groundwater gauging and sampling	On September 29 and October 1, 2020, 14 monitoring wells were gauged and sampled utilizing USEPA low-flow sampling methods. Monitoring well ML-08 was dry at the time of sampling, and therefore, a groundwater samples was not collected. Monitoring wells ML-09, ML-11, and PHMW-03S could not be located at the time of sampling.	No routine maintenance or corrective measures needed at this time.
Storm water sampling	On September 29, October 1, and October 13, the southern off-site outfall was found to be dry, and therefore, a stormwater sample was not collected.	No routine maintenance or corrective measures needed at this time.

Field activity reports, photographic logs, and monitoring well inspection logs from September and October 2020 inspection and sampling activities can be found in **Appendix B**.

3.2 Groundwater Monitoring Summary

3.2.1 Groundwater Gauging

On September 29, 2020, prior to groundwater sample collection, all wells were gauged for depth to groundwater to determine groundwater flow direction. The number of gauged monitoring wells, measured groundwater elevation range, and inferred groundwater flow direction is presented in the table below:

September 2020 Hydrogeologic Summary
Number of Gauged Wells
15 (including 1 dry)
Groundwater Elevation Range
Lowest groundwater elevation: 225.84 feet AMSL (ML-15) Highest groundwater elevation: 237.01 feet AMSL (ML-06)
Inferred Groundwater Flow Direction
Southeast and Southwest

Notes:
AMSL – above mean sea level.

A table summarizing the groundwater gauging measurements for all monitoring wells is provided as **Table 1**. A groundwater contour map showing the flow direction can be found on **Figure 3**.

3.2.2 Groundwater Monitoring

TRC collected groundwater samples from 14 of the 18 monitoring wells utilizing United States Environmental Protection Agency (USEPA) low-flow sampling techniques. Monitoring well ML-08 was dry upon gauging, and therefore, groundwater samples could not be collected. Monitoring wells ML-09, ML-11, and PHMW-03S could not be located during the field event. Groundwater sampling logs are presented in **Appendix C**.

All 14 groundwater samples, in addition to quality assurance/quality control (QA/QC) samples collected at the frequencies specified in TRC's July 2020 Generic Quality Assurance Project Plan (QAPP), were submitted to the NYSDEC callout laboratory, Eurofins/TestAmerica Laboratories of Amherst, New York (Eurofins/TestAmerica), for analysis of arsenic, chromium, and copper by USEPA Method 6010. As all groundwater samples were below 50 nephelometric turbidity units (NTUs) upon stabilization, no dissolved phase samples were collected.

A summary of the monitoring well construction details and applicable September to October 2020 groundwater sampling information is presented in the table below:

Summary of Groundwater Monitoring and Sampling Activities						
	Monitoring Well Details			Sept.-Oct. 2020 Groundwater Sampling Event		
Well ID	Northing	Easting	Screen Zone (ft. bgs)	DTW (ft. below TOC)	Analysis	Notes
ML-01	1407459.9176	674271.5521	6.0 – 16.0	16.85	Ar, Cr, Cu	
ML-2R	1407419.4747	674198.9544	15.0 – 25.0	16.86	Ar, Cr, Cu	
ML-03	1407440.7488	674157.3019	17.0 – 27.0	17.82	Ar, Cr, Cu	
ML-04	1407355.5145	574259.3045	12.5 – 22.5	16.85	Ar, Cr, Cu	
ML-06	1407636.4140	674399.0165	10.0 – 20.0	12.75	Ar, Cr, Cu	
ML-07	1407554.5636	674393.9344	NA	14.39	Ar, Cr, Cu	
ML-08	1407493.9200	674370.86	23.5 – 35.5	Dry	NS	Well was dry and not sampled.
ML-09	1407432.2643	674377.9266	20.0 – 30.0	UTL	NS	Well could not be located
ML-10	1407587.7103	674239.7905	47.0 – 52.0	15.04	Ar, Cr, Cu	
ML-11	1407506.9245	674449.1413	NA	UTL	NS	Well could not be located
ML-14	1407320.8248	674318.6869	7.0 – 17.0	16.78	Ar, Cr, Cu	
ML-15	1406749.4281	674595.4719	17.0 – 22.0	16.10	Ar, Cr, Cu	
PHMW-01	1407377.044	674220.246	17.5 – 40.0	18.45	Ar, Cr, Cu	
PHMW-02D	1407128.125	674190.355	30.0 – 40.0	18.75	Ar, Cr, Cu	
PHMW-02S	1407126.931	674195.606	10.0 – 22.50	18.80	Ar, Cr, Cu	
PHMW-03D	1406929.677	674457.527	30.0 – 40.0	14.91	Ar, Cr, Cu	
PHMW-03S	1406932.383	674464.28	17.0 – 22.0	UTL	NS	Well could not be located
PHMW-04S	1407286.6284	673961.3741	NA	15.82	Ar, Cr, Cu	

Notes:

Ar, Cr, Cu – Arsenic, chromium, copper.

NS – Not sampled.

NA – Not available, well construction could not be located in historical documents.

DTW – Depth to water.

Ft. – Feet.

bgs – below ground surface.

TOC – Top of casing.

UTL – Unable to locate.

A table with well construction details is provided in **Appendix A**.

3.2.3 Groundwater Analytical Results

A summary of groundwater analytical data for arsenic, chromium, and copper can be found in **Table 2**. The data usability summary report (DUSR) (for the associated Analytical Services Protocol Category B laboratory reports) can be found in **Appendix D**. Detected compounds exceeding their respective NYSDEC Class GA Values are illustrated on **Figure 3**. Isoconcentration contour maps, utilizing the September 29 to October 1, 2020 analytical data were prepared for arsenic, chromium, and copper, and can be found on **Figures 4**, **5**, and **6**, respectively. Concentration trend line graphs for monitoring wells containing primary CCA compounds (arsenic, chromium, and copper) and consistently exceeding Class GA Values (ML-2R, ML-04, ML-14, and PHMW-01) are provided in **Appendix E**.

An exceedance summary of the September 29 to October 1, 2020 groundwater analytical results is outlined below:

Exceedance Summary of Laboratory Analytical Results in Groundwater
September 29 to October 1, 2020

Constituent	Class GA Value*	Concentration Range (µg/L)	Location with Highest Detection	Frequency Exceeding Class GA Value
Metals, total				
Arsenic	25	ND – 6,500	ML-2R	4/14
Chromium	50	ND – 170	ML-04	2/14
Copper	200	ND – 87	ML-03	0/14

Notes:
ND – Not detected above the specified quantitation limit
µg/L – micrograms per liter
* - NYSDEC Ambient Water Quality Standards and Guidance Values for Class GA water, June 1998 with the April 2000 Addendum

3.3 Stormwater Monitoring

3.3.1 Stormwater Sampling

On September 29, October 1, and October 13, 2020, the southern off-Site outfall was found to be dry, and therefore, a stormwater sample was not collected during this reporting period. It should also be noted that the approximate precipitation amount recorded for October 13, 2020 in the Albany area was 0.21 inches.

4.0 Conclusions and Recommendations

4.1 Conclusions

- Based on the groundwater elevation measurements collected in September 2020, inferred groundwater flow is to the southeast toward Patroon Creek. This is consistent with historical reporting.
- The Site metal COCs in groundwater are arsenic, chromium, and copper. Based on the information presented in **Table 2** and **Appendix E**, the following conclusions are made regarding concentrations of these groundwater contaminants:
  - Metal COCs were either not detected above laboratory quantitation limits or were detected at concentrations below their respective Class GA Values in all upgradient (ML-01, ML-06, ML-07, and ML-10), one cross gradient (ML-14), and all downgradient (ML-15, PHMW-02S, PHMW-02D, PHMW-03S, PHMW-03D, and PHMW-04S) monitoring wells.
  - Metal COCs, particularly arsenic, were detected above Class GA Values in all monitoring wells located within the historical 2013 groundwater treatment area (ML-2R, ML-03, ML-04, and PHMW-01).
  - In comparison with the 2014 historical groundwater monitoring data, Class GA Value exceeding metal COCs have generally remained within the same order of magnitude, with the exception of ML-2R. In September 2020, Chromium was detected in ML-2R at a concentration of 63 ug/L, exceeding its respective Class GA Value of 50 ug/L, and has increased from the October 2014 sampling event concentration of 3.4 ug/L.
  - Although metal COC exceedances are present within the historical on-Site groundwater treatment area, impacts do not appear to extend off-Site as shown by the analytical results for the downgradient monitoring wells. This is consistent with historical groundwater sampling results.
- Site and groundwater use are consistent with the restrictions set forth in the OU-1 and OU-2 RODs and December 2017 SMP.
- The remedy continued to be protective of human health and the environment during this reporting period.

4.2 Recommendations

- It is recommended that the Site inspections continue annually and following severe weather events (as needed) to certify that the ICs/ECs are functioning as intended. A site inspection report should be completed following each inspection event.
- It is recommended that the December 2017 SMP requirement that groundwater samples be analyzed for TAL metals be amended to the CCA-specific metals arsenic, chromium, and copper.
- It is recommended that the groundwater and stormwater sampling frequency be reduced from annually to biennially.

- Based on historically low COC concentrations, it is recommended that the December 2017 SMP requirement for groundwater sampling of downgradient monitoring well ML-15 and upgradient monitoring wells ML-06, ML-07, ML-08, ML-09, ML-10, and ML-11 be discontinued. Water level measurements should continue to be collected from these wells during the biennial groundwater monitoring events to determine groundwater flow direction.
- It is recommended that the December 2017 SMP requirement for the collection of groundwater samples by USEPA low-flow methods be made optional to allow for the use of no-purge sampling technologies. Use of no-purge sampling technologies will be evaluated prior to the scheduled groundwater sampling event and implemented pending approval of the NYSDEC Project Manager.
- It is recommended that the December 2017 SMP PRR frequency be reduced from annually to every four years.
- It is recommended that the GWMR requirement be reduced from annually to biennially. During reporting years where both a GWMR and PRR are required, a GWMR will not be submitted.
- The December 2017 SMP should be revised to reflect the above changes/modifications, if the changes are acceptable to the NYSDEC.

5.0 Certification of Engineering and Institutional Controls

For each institutional or engineering control identified for the Site, I certify that all of the following statements are true:

- The institutional and/or engineering control employed at this Site is unchanged from the date the control was put in place, or last approved by DER;
- Nothing has occurred that would impair the ability of such control to protect public health and the environment; and,
- Nothing has occurred that would constitute a violation or failure to comply with any Site Management Plan for this control.

TRC Engineers, Inc.

Prepared By: _____
Justin King
Project Manager

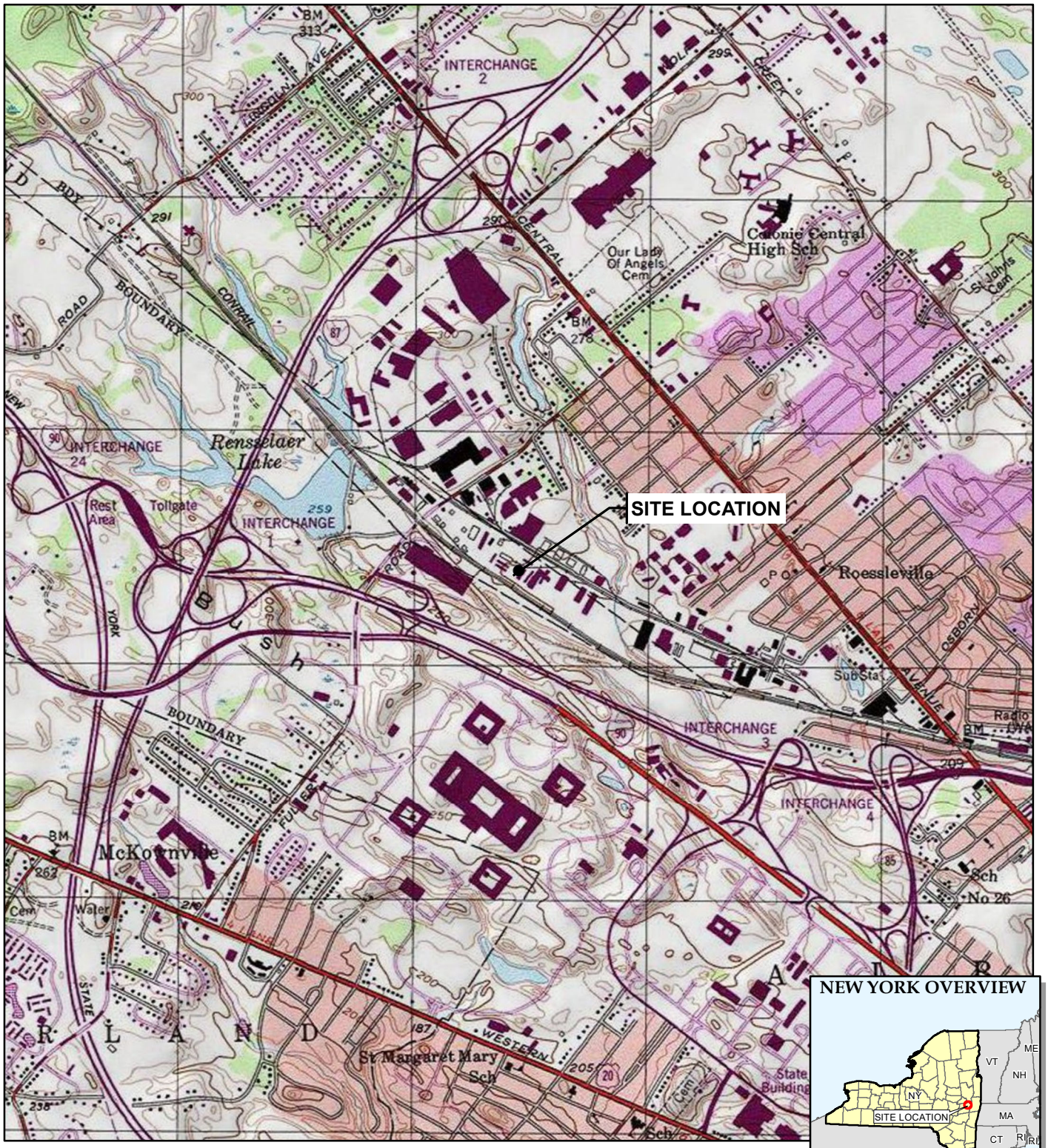
Reviewed By: _____
James J. Magda, P.G.
Senior Technical Reviewer

6.0 Future Site Activities

Based on the recommendations provided in **Section 4.0**, the following site management activities will be completed during the next PRR reporting period (January 2021 to December 2024):

- Site Inspections – Annual (next scheduled: Q3 2021, Q3 2022, Q3 2023, and Q3 2024)
- Groundwater and Stormwater Sampling – Biennial (next scheduled: Q3 2022 and Q3 2024)
- GWMR – Biennial (next scheduled: Q4 2022)
- PRR – Every 4 years (next scheduled: Q4 2024)

FIGURES



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES. ALBANY QUAD

1 " = 2,000 '
1:24,000

0 2,000 4,000 FEET

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PROJECT:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER PAULSEN HOLBROOK SITE - SITE NO. 401046
ALBANY, NEW YORK

TITLE:

SITE LOCATION MAP

DRAWN BY:	M. OPEL
CHECKED BY:	J. KING
APPROVED BY:	J. MAGDA
DATE:	DECEMBER 2020
PROJ. NO.:	386554.0000
FILE:	Figure1_SiteLoc.mxd

FIGURE 1

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TRC - GIS

- Tax Parcel Boundary
- Groundwater Injection Area (February to March 2013)
- In-Situ Soil Stabilization Area (March to April 2013)
- Monitoring Well
- Abandoned Well

Notes:
Tax parcel boundaries, groundwater injection and in-situ soil stabilization areas, and well locations are approximate.
Aerial imagery provided through the ESRI World Imagery (Clarity) map service.

0 75 150 Feet
1 " = 125 '
1:1,500

PROJECT:
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER PAULSEN HOLBROOK SITE (SITE NO. 401046)
ALBANY, NEW YORK

TITLE:
SITE LAYOUT MAP

DRAWN BY:	M. OPEL	PROJ NO.:	386554.0000
CHECKED BY:	J. KING		
APPROVED BY:	J. MAGDA		**FIGURE 2**
DATE:	DECEMBER 2020		

TRC
10 MAXWELL DRIVE, SUITE 200
CLIFTON PARK, NY 12065
PHONE: 518.348.1190
WWW.TRCCOMPANIES.COM

FILE NO.: V2_Fig02_SiteLayout.mxd

Plot Date: 10/29/2020, 16:25:38 PM by MOPEL -- LAYOUT: ANSI B(11"x17")
Path: S:\1-PROJECTS\NYSDEC\386554_PaulsenHolbrook\V2_Fig02_SiteLayout.mxd

TRC - GIS

Location	
ANALYTE	**GWQS**
Metals	ug/L
Arsenic	25
Chromium	50

ML-03	
Metals	ug/L
Arsenic	75

ML-2R	
Metals	ug/L
Arsenic	6,500
Chromium	63

PHMW-01	
Metals	ug/L
Arsenic	1,800

ML-04	
Metals	ug/L
Arsenic	1,200
Chromium	170

- Tax Parcel Boundary
- Groundwater Injection Area (February to March 2013)
- In-Situ Soil Stabilization Area (March to April 2013)
- Monitoring Well
- Abandoned Well
- Groundwater Elevation Contour (1' Intervals)
- Inferred Groundwater Flow Direction

Notes:

Tax parcel boundaries, groundwater injection and in-situ soil stabilization areas, and well locations are approximate.
ug/L - micrograms per liter
NE - No measuring point elevation
UTL - Unable to locate
GWQS - Groundwater Water Quality Standard: NYSDEC TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values, Class GA, June 1998.
*Wells PHMW-01, PHMW-02D, and PHMW-03D have not been included in the groundwater contours as they are screened at deeper depths.
Groundwater surface elevations were collected on September 30, 2020.
All groundwater samples were collected from September 30 to October 1, 2020.
All groundwater samples were analyzed for arsenic, chromium, and copper.
Elevation datum: feet Above Mean Sea Level (AMSL).
Aerial imagery provided through the ESRI World Imagery (Clarity) map service.

For figure clarity:
1) Constituents not shown were either not detected or did not exceed their respective GWQS.
2) Laboratory analytical data qualifers have been omitted, refer to the summary data tables for qualifiers.

0 75 150 Feet
1 " = 125 '
1:1,500

PROJECT:
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER PAULSEN HOLBROOK SITE (SITE NO. 401046)
ALBANY, NEW YORK

TITLE:
GROUNDWATER MONITORING MAP (SEPTEMBER - OCTOBER 2020)

DRAWN BY:	M. OPEL	PROJ NO.:	386554.0000
CHECKED BY:	J. KING		
APPROVED BY:	J. MAGDA		**FIGURE 3**
DATE:	DECEMBER 2020		

TRC
10 MAXWELL DRIVE, SUITE 200
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PHONE: 518.348.1190
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FILE NO.: V2_Fig03_GW.mxd

Plot Date: 10/30/2020, 14:35:13 PM by MOPEL -- LAYOUT: ANSI B(11"x17")
Path: S:\1-PROJECTS\NYSDEC\386554_PaulsenHolbrook\V2_Fig03_GW.mxd

TRC - GIS

Tax Parcel Boundary

Groundwater Injection Area (February to March 2013)

In-Situ Soil Stabilization Area (March to April 2013)

Monitoring Well

Abandoned Well

Concentration Range - Arsenic (ug/L)

- ND - 2.5
- 2.6 - 25
- 26 - 250
- 251 - 2,500
- 2,501+

Notes:

Tax parcel boundaries, groundwater injection and in-situ soil stabilization areas, and well locations are approximate.
All groundwater samples were collected from September 30 to October 1, 2020.
All concentrations are in ug/L.
ND - Not detected at the laboratory quantification limit.
ug/L - Micrograms per liter.
UTL- Unable to locate during groundwater sampling event.
Aerial imagery provided through the ESRI World Imagery (Clarity) map service.

For figure clarity, laboratory analytical data qualifiers have been omitted. Refer to the summary data table for qualifiers.

NYSDEC Class GA Value for arsenic is 25 ug/L.

0 75 150 Feet

1 " = 125 '
1:1,500

PROJECT:
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER PAULSEN HOLBROOK SITE (SITE NO. 401046)
ALBANY, NEW YORK

TITLE:
GROUNDWATER ISOCONCENTRATION MAP ARSENIC (SEPTEMBER-OCTOBER 2020)

DRAWN BY:	M. OPEL	PROJ NO.:	386554.0000
CHECKED BY:	J. KING		
APPROVED BY:	J. MAGDA		**FIGURE 4**
DATE:	DECEMBER 2020		

TRC
10 MAXWELL DRIVE, SUITE 200
CLIFTON PARK, NY 12065
PHONE: 518.348.1190
WWW.TRCCOMPANIES.COM

FILE NO.: V2_Fig04_Arsenic.mxd

Plot Date: 12/9/2020, 10:31:08 AM by MOPEL – LAYOUT: ANSI B(11"x17")
Path: S:\1-PROJECTS\NYSDEC\386554_PaulsenHolbrook\V2_Fig04_Arsenic.mxd

Tax Parcel Boundary

Groundwater Injection Area (February to March 2013)

In-Situ Soil Stabilization Area (March to April 2013)

Monitoring Well

Abandoned Well

Concentration Range - Chromium (ug/L)

ND - 5

6 - 50

51 - 200

Notes:

Tax parcel boundaries, groundwater injection and in-situ soil stabilization areas, and well locations are approximate.

All groundwater samples were collected from September 30 to October 1, 2020.

All concentrations are in ug/L.

ND - Not detected at the laboratory quantification limit.

ug/L - Micrograms per liter.

UTL- Unable to locate during groundwater sampling event.

For figure clarity, laboratory analytical data qualifiers have been omitted. Refer to the summary data table for qualifiers.

Aerial imagery provided through the ESRI World Imagery (Clarity) map service.

The NYSDEC Class GA Value for chromium is 50 ug/L.

0 75 150 Feet

1 " = 125 '

1:1,500

PROJECT:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER PAULSEN HOLBROOK SITE (SITE NO. 401046)
ALBANY, NEW YORK

TITLE:

GROUNDWATER ISOCONCENTRATION MAP CHROMIUM (SEPTEMBER-OCTOBER 2020)

DRAWN BY:	M. OPEL	PROJ NO.:	386554.0000
CHECKED BY:	J. KING		
APPROVED BY:	N. KRANES		**FIGURE 5**
DATE:	DECEMBER 2020		

TRC

10 MAXWELL DRIVE, SUITE 200
CLIFTON PARK, NY 12065
PHONE: 518.348.1190
WWW.TRCCOMPANIES.COM

FILE NO.: V2_Fig05_Chromium.mxd

TRC - GIS

Plot Date: 12/9/2020, 10:34:33 AM by MOPEL -- LAYOUT: ANSI B (11"x17")

Path: S:\1-PROJECTS\NYSDEC\386554_PaulsenHolbrook\V2_Fig05_Chromium.mxd

TRC - GIS

Tax Parcel Boundary

Groundwater Injection Area (February to March 2013)

In-Situ Soil Stabilization Area (March to April 2013)

Monitoring Well

Abandoned Well

Concentration Range - Copper (ug/L)

ND - 5

6 - 50

51 - 500

Notes:

Tax parcel boundaries, groundwater injection and in-situ soil stabilization areas, and well locations are approximate.

All groundwater samples were collected from September 30 to October 1, 2020.

All concentrations are in ug/L.

ND - Not detected at the laboratory quantification limit.

ug/L - Micrograms per liter.

UTL- Unable to locate during groundwater sampling event.

For figure clarity, laboratory analytical data qualifiers have been omitted. Refer to the summary data table for qualifiers.

Aerial imagery provided through the ESRI World Imagery (Clarity) map service.

The NYSDEC Class GA Value for copper is 200 ug/L.

0 75 150 Feet

1 " = 125 '

1:1,500

PROJECT:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
FORMER PAULSEN HOLBROOK SITE (SITE NO. 401046)
ALBANY, NEW YORK

TITLE:

GROUNDWATER ISOCONCENTRATION MAP COPPER (SEPTEMBER-OCTOBER 2020)

DRAWN BY:	M. OPEL	PROJ NO.:	386554.0000
CHECKED BY:	J. KING		
APPROVED BY:	N. KRANES		**FIGURE 6**
DATE:	DECEMBER 2020		

TRC

10 MAXWELL DRIVE, SUITE 200
CLIFTON PARK, NY 12065
PHONE: 518.348.1190
WWW.TRCCOMPANIES.COM

FILE NO.: V2_Fig06_Copper.mxd

Plot Date: 12/9/2020, 10:36:56 AM by MOPEL -- LAYOUT: ANSI B(11"x17")
Path: S:\1-PROJECTS\NYSDEC\386554_PaulsenHolbrook\V2_Fig06_Copper.mxd

TABLES

Table 1
Summary of Depth to Water Measurements and Groundwater Elevations
New York State Department of Environmental Conservation
Former Paulsen Holbrook (Site No. 401046)
Albany, New York

Well ID	Coordinates (Northing / Easting)	TOC Elevation (feet AMSL)	Depth to Water (feet below TOC)	Depth to Bottom (feet below TOC)	Groundwater Elevation (feet AMSL)
ML-01	1407459.9176 / 674271.5521	250.97	16.85	18.90	234.12
ML-2R	1407419.4747 / 674198.9544	249.08	16.86	27.56	232.22
ML-03	1407440.7488 / 674157.3019	249.34	17.82	27.83	231.52
ML-04	1407355.5145 / 674259.3045	249.91	16.85	22.78	233.06
ML-06	1407636.4140 / 674399.0165	249.76	12.75	16.00	237.01
ML-07	1407554.5636 / 674393.9344	249.16	14.39	16.33	234.77
ML-08	1407493.9200 / 674370.8600	249.27	DRY	DRY	NA
ML-09	1407432.2643 / 674377.9266	247.80	UTL	UTL	NA
ML-10	1407587.7103 / 674239.7905	251.13	15.04	17.97	236.09
ML-11	1407506.9245 / 674449.1413	248.03	UTL	UTL	NA
ML-14	1407320.8248 / 674318.6869	249.03	16.78	19.53	232.25
ML-15	1406749.4281 / 674595.4719	241.94	16.10	27.48	225.84
PHMW-01	1407377.0440 / 674220.2460	249.97	18.45	42.32	231.52
PHMW-02D	1407128.1250 / 674190.3550	250.58	18.75	42.84	231.83
PHMW-02S	1407126.9310 / 674195.6060	250.61	18.80	22.69	231.81
PHMW-03D	1406929.677 / 674457.527	241.08	14.91	41.84	226.17
PHMW-03S	1406932.383 / 674464.28	238.55	UTL	UTL	NA
PHMW-04S	1407286.6284 / 673961.3741	No Elevation	15.82	27.48	NA

Notes
All wells were gauged on September 30, 2020
AMSL : Above Mean Sea Level
ID : Identification
TOC : Top of Casing
NA : Not Applicable
UTL : Unable to Locate

Table 2
Summary of Groundwater Analytical Results - September and October 2020
New York State Department of Environmental Conservation
Former Paulsen Holbrook (Site No. 401046)
Albany, New York

Sample Location:		ML-01		ML-2R	ML-03	ML-04	ML-06	ML-07	ML-10
Sample Name:		PH-ML-01	PH-ML-DUP	PH-ML-2R	PH-ML-03	PH-ML-04	PH-ML-06	PH-ML-07	PH-ML-10
Laboratory Sample Identification:		480-175899-11	480-175899-12	480-175899-4	480-175899-3	480-175899-14	480-175899-1	480-175899-2	480-175899-10
Sample Date:		10/01/2020	10/01/2020	09/30/2020	09/30/2020	10/01/2020	09/30/2020	09/30/2020	10/01/2020
Analyte	**GA Value***	**Results (ug/L)**							
Metals, total									
Arsenic	25	15 UJ	15 UJ	**6,500 J**	**75 J**	**1,200 J**	15 UJ	15 UJ	15 UJ
Chromium	50	1.3 J	1.6 J	**63 J**	4.8 J	**170 J**	2.0 J	4.0 UJ	3.4 J
Copper	200	10 UJ	10 UJ	80 J	87 J	10 UJ	10 UJ	10 UJ	3.5 J

Sample Location:		ML-14	ML-15	PHMW-01	PHMW-02D	PHMW-02S	PHMW-03D	PHMW-04S
Sample Name:		PH-ML-14	PH-ML-15	PH-PHMW-01	PH-PHMW-02D	PH-PHMW-02S	PH-PHMW-03D	PH-PHMW-04S
Laboratory Sample Identification:		480-175899-15	480-175899-5	480-175899-13	480-175899-6	480-175899-7	480-175899-8	480-175899-9
Sample Date:		10/01/2020	10/01/2020	10/01/2020	10/01/2020	10/01/2020	10/01/2020	10/01/2020
Analyte	**GA Value***	**Results (ug/L)**						
Metals, total								
Arsenic	25	15 UJ	6.7 J	**1,800 J**	15 UJ	15 UJ	15 UJ	15 UJ
Chromium	50	33 J	4.0 UJ	4.0 UJ	1.0 J	1.6 J	4.0 UJ	4.0 UJ
Copper	200	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ

Notes:
ug/L - micrograms per liter.
J - Estimated value.
UJ - Estimated non-detect.
Bold - Value exceeds the listed GA Value.
* - NYSDEC Ambient Water Quality Standards and Guidance Values for Class GA Water, June 1998 with the April 2000 Addendum.

APPENDIX A

SITE HISTORY

FORMER PAULSEN-HOLBROOK SITE (NYSDEC SITE NO. 401046)

Date	Description
Early 1950s – 1978	Various lumber companies occupying the property ran wood treatment operations. Wood was treated by pressure treating with chromated copper arsenate (CCA), a solution consisting of chromic acid, cupric oxide, and arsenic pentoxide.
1965	An estimated 2,000 to 3,000 gallon release of CCA occurred when a pressure vessel was opened before the liquid was pumped out.
1970 – 1985	According to aerial photography, various buildings were demolished on the property.
July and August 1989	Under the New York State Department of Environmental Conservation (NYSDEC) Voluntary Cleanup Program (VCP), three shallow test pits were excavated and four soil samples were collected and analyzed. Results showed arsenic, copper, and chromium in the soil around the former treatment facility (Burns, 1989).
August 1996	Five monitoring wells were installed (ML-1 through ML-5). The sample results showed chromium, copper, and arsenic in groundwater (Chazen, 1997).
December 1996	Under the NYSDEC VCP, shallow test pits were excavated to determine subsurface conditions. Petroleum compounds were found in the soil used to backfill the foundation of the former treatment facility, and chromium, copper, and arsenic were found in soil adjacent to the facility (Chazen, 1998).
December 1996 – May 2000	An air sparge and soil vapor extraction (AS/SVE) system was operated at the site along with routine groundwater sampling from four groundwater monitoring wells installed in November and December 1996 (ML-6 through ML-9). These remedial actions were conducted in response to a gasoline contaminant plume that was identified during the closure of two underground storage tanks (USTs) at the site in October 1996. Groundwater samples collected from December 1996 through 2000 indicated significant reductions in concentration of benzene, toluene, ethylbenzene, xylenes (collectively BTEX), and methyl tertiary butyl ether (MTBE). NYSDEC Spill No, 96-09128 was closed in May 2000 (Chazen, 2000).
March 1999	Sixteen boreholes were drilling in a limited subsurface investigation around the former pressure treatment facility and 13 soil samples were collected from the upper six-feet interval. Samples were analyzed for arsenic, chromium, and copper. The results showed widespread contamination of the soil with arsenic, chromium, and copper (Chazen, 1999)
October 2001	Seventeen soil borings were drilled during a baseline investigation and 11 soil samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and metals. No VOCs or PCBs were detected in the samples analyzed. Several of the soil samples collected had concentrations that exceeded a proposed cleanup criterion of 200 milligrams per kilogram (mg/kg) for arsenic, chromium, and copper. Abandoned monitoring well ML-2 (abandoned some time prior to November 1998) was replaced and was reportedly the only well with water in it when groundwater samples were collected during this investigation. Concentrations of several metals including antimony, arsenic, chromium, and copper detected in groundwater samples exceeded the respective groundwater standards (CRA, 2003).

February 2003	Conestoga-Rovers & Associates (CRA) issued a Site Investigation Report and Proposed Soils Remediation Plan, which consolidated information from the previous investigations and proposed a 200 mg/kg arsenic soil cleanup target with no groundwater treatment (CRA, 2003).
2003	Phase I (May) and Phase II (November) Groundwater Investigations were conducted during which five on-site (ML-10 through ML-14) and two off-site (ML-15 and ML-16) monitoring wells were installed. Groundwater samples were collected from all site monitoring wells except ML-6 and ML-7. Concentrations of arsenic, chromium, and/or copper that exceeded groundwater quality standards were detected in all but monitoring wells ML-11, ML-12, ML-15, and ML-16 (CRA, 2003a and CRA, 2003b).
September – October 2004	Sterling Environmental Engineering (Sterling) conducted a supplemental site investigation. Sterling sampled 12 on-site monitoring wells and investigated surface soil using X-ray fluorescence spectrometry (XRF). The XRF investigation identified a wide area around the former lumber treatment building contaminated with arsenic. In the 2005 Supplemental Site Investigation and Focused Feasibility Study Report, Sterling recommended a low permeability cap and institutional controls (Sterling, 2005).
March 2007	The NYSDEC settled with the responsible parties and the site was subsequently referred to the State Inactive Hazardous Waste Disposal Site Program.
June 2008 – July 2009	A remedial investigation (RI) was performed and included a large soil boring program (71 borings) and investigated subsurface soils with an XRF analyzer. Additionally, surface and subsurface soil, groundwater, surface water, and sediment samples were collected and submitted for laboratory analysis. Results of the RI indicated that the primary contaminants of concern (COCs) in site soil and groundwater were arsenic, chromium, and copper. Surface water and sediment samples collected from the downgradient Patroon Creek did not indicate the presence of Site COCs. Sediment collected from an offsite discharge pipe exceeded Unrestricted Use SCOs for Site COCs (Malcom Pirnie, July 2009).
December 2009	A feasibility study (FS) was issued and recommended several remedial alternatives to address Site contamination (Malcom Pirnie, December 2009).
March 2010	The NYSDEC issued a ROD and selected in-situ soil stabilization (ISSS), building demolition, and groundwater treatment via chemical injection to remediate on-Site CCA impacts (later deemed Operable Unit (OU) 1).
November 2010	During pre-design sampling, additional soil contamination was found extending off-Site in the drainage swale between the Site and southern railroad tracks (later deemed OU 2).
September 2012 – December 2013	Remedial actions, in accordance with the selected remedies found in the March 2010 ROD, were completed (Arcadis, December 2017).
November 2012 – May 2013	Additional soil sampling performed in OU 2 found CCA impacts to surface soils extending at various distances east and west of the Site (Arcadis, October 2013).
February 2014	A focused FS (FFS) was issued and recommended several remedial alternatives to address off-Site contamination (Arcadis, February 2014).
March 2014	The NYSDEC issued a ROD for OU 2 and selected excavation, cover system, and perimeter fencing to address surface soil CCA impacts.
May 2015 – September 2015	Remedial actions, in accordance with the selected remedies found in the March 2014 ROD, were completed (Arcadis, December 2017).

Monitoring Well Construction Summary
New York State Department of Environmental Conservation
Former Paulsen Holbrook (Site No. 401046)
Albany, New York

Well ID	Installation Date	Well Dia. (inches)	Well Material	Total Depth (feet bgs)	*Screen*			*Elevation (feet AMSL)*		*Location*	
					Top (feet bgs)	Bottom (feet bgs)	Length (feet)	Top of Casing	Measuring Point	Northing	Easting
ML-01	1/7/2013	2	PVC	16	6.00	16.00	10.00	249.38	250.97	1407459.9176	674271.5521
ML-2R	4/17/2013	2	PVC	25	15.00	25.00	10.00	249.59	249.08	1407419.4747	674198.9544
ML-03	4/17/2013	2	PVC	17	17.00	27.00	10.00	249.79	249.34	1407440.7488	674157.3019
ML-04	1/18/2013	2	PVC	22.5	12.50	22.50	10.00	247.94	249.91	1407355.5145	574259.3045
ML-05	pre-2009 RI	NA	NA	17	7.00	17.00	10.00	247.29	246.83	1407333.7239	674291.116
ML-06	pre-2009 RI	2	PVC	15.93	10.00	20.00	10.00	249.86	249.76	1407636.4140	674399.0165
ML-07	pre-2009 RI	2	PVC	NA	NA	NA	NA	249.34	249.16	1407554.5636	674393.9344
ML-08	pre-2009 RI	2	PVC	15.06	23.50	35.50	12.00	249.32	249.27	1407493.9200	674370.86
ML-09	pre-2009 RI	2	PVC	14.57	20.00	30.00	10.00	247.95	247.80	1407432.2643	674377.9266
ML-10	pre-2009 RI	2	PVC	17.82	47.00	52.00	5.00	251.52	251.13	1407587.7103	674239.7905
ML-11	pre-2009 RI	NA	NA	NA	NA	NA	NA	248.39	248.03	1407506.9245	674449.1413
ML-12	pre-2009 RI	NA	NA	21.0	23.50	35.50	12.00	250.38	249.97	1407468.4542	674113.3429
ML-13	pre-2009 RI	NA	NA	18.0	20.00	30.00	10.00	249.30	248.88	1407372.4153	674230.8058
ML-14	1/18/2013	2	PVC	17.0	7.00	17.00	10.00	246.80	249.30	1407320.8248	674318.6869
ML-15	pre-2009 RI	2	PVC	28.23	17.00	22.00	5.00	242.14	241.94	1406749.4281	674595.4719
PHMW-01	1/8/2013	2	PVC	40.0	17.50	40.00	22.50	250.16	249.97	1407377.0440	674220.2460
PHMW-02D	1/11/2013	2	PVC	40.0	30.00	40.00	10.00	250.80	250.58	1407128.1250	674190.3550
PHMW-02S	1/11/2013	2	PVC	22.5	10.00	22.50	12.50	250.92	250.61	1407126.9310	674195.6060
PHMW-03D	1/14/2013	2	PVC	40.0	30.00	40.00	10.00	241.75	241.08	1406929.6770	674457.527
PHMW-03S*	11/21/2008	2	PVC	20.0	17.00	22.00	5.00	NA	238.55	1406932.383	674464.28
PHMW-04S	7/29/2015	2	PVC	25.0	NA	NA	NA	247.03	NA	1407286.6284	673961.3741

Notes
AMSL : Above mean sea level.
feet bgs : Feet below ground surface.
Grey : Abandoned or destroyed.
PVC : Polyvinyl chloride.
NA : Not Available.
* : ML-16 was renamed aas PHMW-03S.

CUSTODIAL RECORD

PERTINENT SITE DOCUMENTS

FORMER PAULSEN-HOLBROOK (NYSDEC SITE NO. 401046)

Burns, Richard H.,P.E., *Report on Potential Environmental Concerns*, 54 Railroad Avenue, Town of Colonie, Albany County, New York, August 1989

The Chazen Companies, *Remediation System Pilot Study*, Miron-Paulsen Site, 1997

The Chazen Companies, *Voluntary Clean-Up Work Plan,* Former Paulsen-Holbrook Lumber Pressure Treating Site, December 1998

The Chazen Companies, *Sampling & Investigation Work Plan,* Former Paulsen-Holbrook Lumber Pressure Treating Site, November 1999

The Chazen Companies, *Water Quality Monitoring, Spill No. 96-09128 STIP R4-116*, Miron-Paulsen Site, May 2000

Conestoga-Rovers & Associates, *Soils Remediation Work Plan*, Albany Miron Lumber, October 2002

Conestoga-Rovers & Associates, *Site Investigation Report and Proposed Soils Remediation Plan*, Albany Miron Lumber, February 2003

Conestoga-Rovers & Associates, *Technical Memorandum, Phase 2 Groundwater Investigation Results*, Albany Miron Lumber Corporation, December 2003

New York State Department of Environmental Conservation & Albany Miron Lumber Corp., *Order on Consent*, February 2007

Malcom Pirnie, Inc., *Immediate Activation Work Assignment Work Plan*, Former Paulsen-Holbrook Site, June 2008

Malcom Pirnie, Inc., *Remedial Investigation Report*, Former Paulsen-Holbrook Site, July 2009

Malcom Pirnie, Inc., *Feasibility Study*, Former Paulsen-Holbrook Site, December 2009

New York State Department of Environmental Conservation, *Proposed Remedial Action Plan*, Former Paulsen-Holbrook Site, February 2010

New York State Department of Environmental Conservation, *Record of Decision*, Former Paulsen-Holbrook Site, March 2010

Arcadis-US, Inc., *Remedial Investigation Report – Operable Unit 2*, Former Paulsen-Holbrook Site, October 2013

New York State Department of Environmental Conservation, *Proposed Remedial Action Plan – Operable Unit 2*, Former Paulsen-Holbrook Site, February 2014

Arcadis-US, Inc., *Focused Feasibility Study – Operable Unit 2*, Former Paulsen-Holbrook Site, February 2014

Arcadis-US, Inc., *2014 Site Monitoring Report*, Former Paulsen-Holbrook Site, January 2015

New York State Department of Environmental Conservation, *Environmental Easement Package*, Former Paulsen-Holbrook Site, June 2016

Arcadis-US, Inc., *Final Engineering Report*, Former Paulsen-Holbrook Site, December 2017

Arcadis-US, Inc., *Site Management Plan*, Former Paulsen-Holbrook Site, December 2017

APPENDIX B

DAILY INSPECTION REPORT

Report No. 01 **Former Paulsen-Holbrook - NYSDEC Site No. 401046** Date: 9/30/20

NYSDEC Division of Environmental Remediation	**NYSDEC Contract No. D009812** Superintendent: Andrew Fishman NYSDEC PM: Brianna Scharf Consultant PM: Justin King Consultant Site Inspectors: Andrew Fishman and Lexi Lill
Site Location: Albany, New York	

Weather Conditions				
General Description	Rain	AM	Clear	PM
Temperature	50's	AM	60's	PM
Wind	2-5 mph	AM	5-10 mph	PM

Health & Safety **If any box below is checked "Yes", provide explanation under "Health & Safety Comments".**			
Were there any changes to the Health & Safety Plan?	*Yes	No X	NA
Were there any exceedances of the perimeter air monitoring reported on this date?	*Yes	No X	NA
Were there any nuisance issues reported/observed on this date?	*Yes	No X	NA

Health & Safety Comments

No injuries or accidents to note. Main concerns include: overgrowth and biological hazards, uneven ground, and slips, trips and falls

Summary of Work Performed	Arrived at site:	08:00	Departed Site:	17:30

TRC arrived on site and began gauging monitoring wells. ML-08, ML-11, and PHMW-03S were not found. The site and all other wells were in satisfactory condition. TRC completed sampling on ML-06, ML-07, ML-03, and ML-2R. TRC will continue sampling the remaining wells tomorrow.

Equipment/Material Tracking **If any box below is checked "Yes", provide explanation under "Material Tracking Comments".**			
Were there any vehicles which did not display proper D.O.T numbers and placards?	*Yes	No X	NA
Were there any vehicles which were not tarped?	* Yes	No X	NA
Were there any vehicles which were not decontaminated prior to exiting the work site?	* Yes	No	NA X

Personnel and Equipment

Individual	Company	Trade	Total Hours
Andrew Fishman	TRC	Contractor	9.5
Lexie Lill	TRC	Contractor	9.5
Alexis Martin	Ambient Environmental, Inc.	Owner's Consultant	2

Report No. 01 **Former Paulsen-Holbrook - NYSDEC Site No. 401046** Date: 9/30/20

Equipment Description	Contractor/Vendor	Quantity	Used
MiniRAE	Pine Services	1	8
Horiba U-52	Pine Services	2	2
Peri Pump	Pine Services	2	2
Water Level Meter	Pine Services	2	8

Material Description	Imported/ Delivered to Site	Exported off Site	Waste Profile (If Applicable)	Source or Disposal Facility (If Applicable)	Daily Loads	Daily Weight (tons)*

*On-Site scale for off-site shipment, delivery ticket for material received

Equipment/Material Tracking Comments:

Visitors to Site

Name	Representing	Entered Exclusion/CRZ Zone	
		Yes	No
		Yes	No
		Yes	No
		Yes	No
		Yes	No
		Yes	No
		Yes	No
		Yes	No
		Yes	No

Site Representatives

Name	Representing

Project Schedule Comments

Issues Pending

Interaction with Public, Property Owners, Media, etc.

Include (insert) figures with markups showing location of work and job progress

Site Photographs (Descriptions Below)

View of the existing building on site. Looking SE.

Photo of overgrown lot. Looking East.

Photo of PHMW-02D and PHMW-02S.

Photo of ML-15.

Site Inspector(s): Andrew Fishman

Date: 9/30/2020

DAILY HEALTH CHECKLIST

Is social distancing being practiced?	Yes ☒	No ☐
Is the tail gate safety meeting held outdoors?	Yes ☒	No ☐
Are remote/call in job meetings being held in lieu of meeting in person where possible?	Yes ☒	No ☐
Were personal protective gloves, masks, and eye protection being used?	Yes ☒	No ☐
Are sanitizing wipes, wash stations or spray available?	Yes ☒	No ☐
Have any workers/visitors been excluded based on close contact with individuals diagnosed with COVID-19, have recently traveled to restricted areas or countries, or are symptomatic (fever, chills, cough/shortness of breath)?	Yes ☐	No ☒
Comments:		

REMEDIAL ACTIVITIES AT PROPERTIES

1. Have anyone at this location been tested and confirmed to have COVID-19?	Yes ☐	No ☒
2. Is anyone at this location isolated or quarantined for COVID-19?	Yes ☐	No ☒
3. Has anyone at this location had contact with anyone known to have COVID-19 in the past 14 days?	Yes ☐	No ☒
4. Does anyone at this location have any symptoms of a respiratory infection (e.g., cough, sore throat, fever, or shortness of breath)?	Yes ☐	No ☒
5. Does the Department and its contractors have your permission to enter the property at this time?	Yes ☐	No ☒
If Yes to any of 1-4 above: • If it is not critical that service/entry be carried out immediately and can be postponed until the risk of COVID-19 is lower, or can be accomplished remotely/without entry, postpone or conduct service without entry. • If it is critical that service/entry be carried out immediately, advise occupants that as a precaution and for our own protection, project personnel will be donning appropriate PPE* (including respiratory protection) - and do so prior to entry.	Yes ☐	No ☐
Comments:		

NUISANCE CHECKLIST

Were there any community complaints related to work on this date?	Yes ☐	No ☒	N/A☐
Were there any odors detected on this date?	Yes ☐	No ☒	N/A☐
Was noise outside specification and/or above background on this date?	Yes ☐	No ☒	N/A☐
Were vibration readings outside specification and/or above background on this date?	Yes ☐	No ☐	N/A☒
Any visible dust observed beyond the work perimeter on this date?	Yes ☐	No ☒	N/A☐
Any visible contrast (turbidity) beyond engineering controls observed on this date?	Yes ☐	No ☒	N/A☐
Was turbidity checked at the Montauk Highway outfall?	AM ☐	PM ☐	N/A☒
Were any property owners NOT provided advance notice for work performed on this property on this date?	Yes ☐	No ☐	N/A☒
Was the temporary fabric structure closed at the end of the day?	Yes ☐	No ☐	N/A☒
Has Contractor failed to protect all foundations and structures adjacent to and adjoining the site which are affected by the excavations or other operations connected with performance of the Work?	Yes ☐	No ☐	N/A☒
If yes, has Contractor been notified?	Yes ☐	No ☐	N/A☐
Comments:			

Report No. 02 **Former Paulsen-Holbrook - NYSDEC Site No. _401046**_Date: 10/01/20________

NYSDEC Division of Environmental Remediation					**NYSDEC Contract No. D009812** Superintendent: Andrew Fishman NYSDEC PM: Brianna Scharf Consultant PM: Justin King Consultant Site Inspectors: Andrew Fishman and Lexi Lill
Site Location: Albany, New York					
Weather Conditions					
General Description	Clear	AM	Clear	PM	
Temperature	50's	AM	60's	PM	
Wind	0-5 mph	AM	5-10 mph	PM	

Health & Safety
If any box below is checked "Yes", provide explanation under "Health & Safety Comments".

Were there any changes to the Health & Safety Plan?	*Yes	No X	NA
Were there any exceedances of the perimeter air monitoring reported on this date?	*Yes	No X	NA
Were there any nuisance issues reported/observed on this date?	*Yes	No X	NA

Health & Safety Comments

No injuries or accidents to note. Main concerns include: overgrowth and biological hazards, uneven ground, and slips, trips and falls

Summary of Work Performed	Arrived at site:	08:00	Departed Site:	15:00

TRC arrived on site and began sampling wells. Wells ML-01, ML-04, ML-10, ML-14, ML-15, PHMW-01, PHMW-02S, PHMW-02D, PHMW-03D, and PHMW-04S were sampled. TRC attempted to sample the stormwater outfall, but there was no flow to the culvert pipe or closest catch basin.

Equipment/Material Tracking
If any box below is checked "Yes", provide explanation under "Material Tracking Comments".

Were there any vehicles which did not display proper D.O.T numbers and placards?	*Yes	No X	NA
Were there any vehicles which were not tarped?	* Yes	No X	NA
Were there any vehicles which were not decontaminated prior to exiting the work site?	* Yes	No	NA X

Personnel and Equipment

Individual	Company	Trade	Total Hours
Andrew Fishman	TRC	Contractor	7
Lexie Lill	TRC	Contractor	7

Equipment Description	Contractor/Vendor	Quantity	Used
MiniRAE	Pine Services	1	7
Horiba U-52	Pine Services	2	7
Peri Pump	Pine Services	2	7
Water Level Meter	Pine Services	2	7

Material Description	Imported/ Delivered to Site	Exported off Site	Waste Profile (If Applicable)	Source or Disposal Facility (If Applicable)	Daily Loads	Daily Weight (tons)*

*On-Site scale for off-site shipment, delivery ticket for material received

Equipment/Material Tracking Comments:

Visitors to Site

Name	Representing	Entered Exclusion/CRZ Zone	
		Yes	No
		Yes	No
		Yes	No
		Yes	No
		Yes	No
		Yes	No
		Yes	No
		Yes	No
		Yes	No

Site Representatives

Name	Representing

Project Schedule Comments

Issues Pending

Interaction with Public, Property Owners, Media, etc.

Include (insert) figures with markups showing location of work and job progress

Site Photographs (Descriptions Below)

TRC sampling ML-15.

TRC sampling PHMW-02D.

Photo of catch basin nearest outfall location

Site Inspector(s): Andrew Fishman

Date: 10/01/2020

DAILY HEALTH CHECKLIST

Is social distancing being practiced?	Yes ☒	No ☐
Is the tail gate safety meeting held outdoors?	Yes ☒	No ☐
Are remote/call in job meetings being held in lieu of meeting in person where possible?	Yes ☒	No ☐
Were personal protective gloves, masks, and eye protection being used?	Yes ☒	No ☐
Are sanitizing wipes, wash stations or spray available?	Yes ☒	No ☐
Have any workers/visitors been excluded based on close contact with individuals diagnosed with COVID-19, have recently traveled to restricted areas or countries, or are symptomatic (fever, chills, cough/shortness of breath)?	Yes ☐	No ☒
Comments:		

REMEDIAL ACTIVITIES AT PROPERTIES

1. Have anyone at this location been tested and confirmed to have COVID-19?	Yes ☐	No ☒
2. Is anyone at this location isolated or quarantined for COVID-19?	Yes ☐	No ☒
3. Has anyone at this location had contact with anyone known to have COVID-19 in the past 14 days?	Yes ☐	No ☒
4. Does anyone at this location have any symptoms of a respiratory infection (e.g., cough, sore throat, fever, or shortness of breath)?	Yes ☐	No ☒
5. Does the Department and its contractors have your permission to enter the property at this time?	Yes ☐	No ☒
If Yes to any of 1-4 above: • If it is not critical that service/entry be carried out immediately and can be postponed until the risk of COVID-19 is lower, or can be accomplished remotely/without entry, postpone or conduct service without entry. • If it is critical that service/entry be carried out immediately, advise occupants that as a precaution and for our own protection, project personnel will be donning appropriate PPE* (including respiratory protection) - and do so prior to entry.	Yes ☐	No ☐
Comments:		

NUISANCE CHECKLIST

Were there any community complaints related to work on this date?	Yes ☐	No ☒	N/A☐
Were there any odors detected on this date?	Yes ☐	No ☒	N/A☐
Was noise outside specification and/or above background on this date?	Yes ☐	No ☒	N/A☐
Were vibration readings outside specification and/or above background on this date?	Yes ☐	No ☐	N/A☒
Any visible dust observed beyond the work perimeter on this date?	Yes ☐	No ☒	N/A☐
Any visible contrast (turbidity) beyond engineering controls observed on this date?	Yes ☐	No ☒	N/A☐
Was turbidity checked at the Montauk Highway outfall?	AM ☐	PM ☐	N/A☒
Were any property owners NOT provided advance notice for work performed on this property on this date?	Yes ☐	No ☐	N/A☒
Was the temporary fabric structure closed at the end of the day?	Yes ☐	No ☐	N/A☒
Has Contractor failed to protect all foundations and structures adjacent to and adjoining the site which are affected by the excavations or other operations connected with performance of the Work?	Yes ☐	No ☐	N/A☒
If yes, has Contractor been notified?	Yes ☐	No ☐	N/A☐
Comments:			

Report No. 03 **Former Paulsen-Holbrook - NYSDEC Site No. _401046_** Date: 10/13/20________

NYSDEC
Division of Environmental Remediation

NYSDEC Contract No. D009812

Superintendent: Andrew Fishman

NYSDEC PM: Brianna Scharf

Consultant PM: Justin King

Consultant Site Inspectors: Andrew Fishman

Site Location: Albany, New York

Weather Conditions				
General Description	Rain	AM	Rain	PM
Temperature	50's	AM	50's	PM
Wind	0-5 mph	AM	5-10 mph	PM

Health & Safety
If any box below is checked "Yes", provide explanation under "Health & Safety Comments".

Were there any changes to the Health & Safety Plan?	*Yes	No X	NA
Were there any exceedances of the perimeter air monitoring reported on this date?	*Yes	No X	NA
Were there any nuisance issues reported/observed on this date?	*Yes	No X	NA

Health & Safety Comments

No injuries or accidents to note. Main concerns include: overgrowth and biological hazards, uneven ground, and slips, trips and falls

Summary of Work Performed	Arrived at site:	08:00	Departed Site:	09:30

TRC arrived on site and attempted to sample the culvert/outfall. A sample was not collected due to insufficient flow through the culvert.

Equipment/Material Tracking
If any box below is checked "Yes", provide explanation under "Material Tracking Comments".

Were there any vehicles which did not display proper D.O.T numbers and placards?	*Yes	No X	NA
Were there any vehicles which were not tarped?	* Yes	No X	NA
Were there any vehicles which were not decontaminated prior to exiting the work site?	* Yes	No	NA X

Personnel and Equipment

Individual	Company	Trade	Total Hours
Andrew Fishman	TRC	Contractor	1.5

Equipment Description	Contractor/Vendor	Quantity	Used

Material Description	Imported/ Delivered to Site	Exported off Site	Waste Profile (If Applicable)	Source or Disposal Facility (If Applicable)	Daily Loads	Daily Weight (tons)*
*On-Site scale for off-site shipment, delivery ticket for material received						

Equipment/Material Tracking Comments:

Visitors to Site

Name	Representing	Entered Exclusion/CRZ Zone	
		Yes	No
		Yes	No
		Yes	No
		Yes	No
		Yes	No
		Yes	No

Site Representatives

Name	Representing

Project Schedule Comments

Issues Pending

Interaction with Public, Property Owners, Media, etc.

Include (insert) figures with markups showing location of work and job progress

Site Photographs (Descriptions Below)

View of culvert/outfall area

Closer view of culvert

Photo of site

Photo of site

Site Inspector(s): Andrew Fishman

Date: 10/13/2020

DAILY HEALTH CHECKLIST

Is social distancing being practiced?	Yes ☒	No ☐
Is the tail gate safety meeting held outdoors?	Yes ☒	No ☐
Are remote/call in job meetings being held in lieu of meeting in person where possible?	Yes ☒	No ☐
Were personal protective gloves, masks, and eye protection being used?	Yes ☒	No ☐
Are sanitizing wipes, wash stations or spray available?	Yes ☒	No ☐
Have any workers/visitors been excluded based on close contact with individuals diagnosed with COVID-19, have recently traveled to restricted areas or countries, or are symptomatic (fever, chills, cough/shortness of breath)?	Yes ☐	No ☒
Comments:		

REMEDIAL ACTIVITIES AT PROPERTIES

1. Have anyone at this location been tested and confirmed to have COVID-19?	Yes ☐	No ☒
2. Is anyone at this location isolated or quarantined for COVID-19?	Yes ☐	No ☒
3. Has anyone at this location had contact with anyone known to have COVID-19 in the past 14 days?	Yes ☐	No ☒
4. Does anyone at this location have any symptoms of a respiratory infection (e.g., cough, sore throat, fever, or shortness of breath)?	Yes ☐	No ☒
5. Does the Department and its contractors have your permission to enter the property at this time?	Yes ☐	No ☒
If Yes to any of 1-4 above: • If it is not critical that service/entry be carried out immediately and can be postponed until the risk of COVID-19 is lower, or can be accomplished remotely/without entry, postpone or conduct service without entry. • If it is critical that service/entry be carried out immediately, advise occupants that as a precaution and for our own protection, project personnel will be donning appropriate PPE* (including respiratory protection) - and do so prior to entry.	Yes ☐	No ☐
Comments:		

NUISANCE CHECKLIST

Were there any community complaints related to work on this date?	Yes ☐	No ☒	N/A☐
Were there any odors detected on this date?	Yes ☐	No ☒	N/A☐
Was noise outside specification and/or above background on this date?	Yes ☐	No ☒	N/A☐
Were vibration readings outside specification and/or above background on this date?	Yes ☐	No ☐	N/A☒
Any visible dust observed beyond the work perimeter on this date?	Yes ☐	No ☒	N/A☐
Any visible contrast (turbidity) beyond engineering controls observed on this date?	Yes ☐	No ☒	N/A☐
Was turbidity checked at the Montauk Highway outfall?	AM ☐	PM ☐	N/A☒
Were any property owners NOT provided advance notice for work performed on this property on this date?	Yes ☐	No ☐	N/A☒
Was the temporary fabric structure closed at the end of the day?	Yes ☐	No ☐	N/A☒
Has Contractor failed to protect all foundations and structures adjacent to and adjoining the site which are affected by the excavations or other operations connected with performance of the Work?	Yes ☐	No ☐	N/A☒
If yes, has Contractor been notified?	Yes ☐	No ☐	N/A☐
Comments:			

ARCADIS

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Former Paulsen-Holbrook PROJECT NUMBER: 386554.0000.0000

DATE OF INSPECTION: 9/30/2020 INSPECTOR: Lexie Lill

WELL DESIGNATION: ML-01

WELL LOCATION: On-site

Outward Appearance

Flushmount Diameter	_____ inches	N/A [X]		
Approximate Stickup Height	1.5 feet	N/A [ ]		
Integrity of Protective Casing	Describe: In good condition, slightly rusted.			
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____	
Protective Casing Width or Dia.	4 inches			
Weep Hole in Protective Casing	Yes [ ]	No [X]		
Surface Seal/Apron Material	Cement [X]	Bentonite [ ]	Not apparent [ ]	Other _____
Integrity of Surface Seal/Apron	Describe: In good condition.			
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]		
Bollards Present?	Yes [ ]	No [X]	Describe: _____	
Well ID. Visible?	Yes [ ]	No [X]	Describe: _____	
Lock Present and Functional?	Yes [X]	No [ ]	Describe: Had to break lock to sample, replaced lock.	
Photograph Taken? Photo #	Yes [X]	No [ ]	Describe: Photo # 20200930_124917514_iOS	

Inner Appearance

Integrity of Well Casing	Describe: In good condition.			
Integrity of Cap Seal	Describe: In good condition.			
Surface Water in Casing?	Yes [ ]	No [X]	Describe: _____	
Well Casing Diameter	2 inches			
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]	
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X]	None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [ ]	None [X]	
Evidence of Double Casing?	Yes [ ]	No [X]	Describe: _____	

Downhole

Odor	Yes [ ]	No [X]	Describe: _____	
PID Reading	1.8 ppm			
Depth to Water (to top of casing)	16.85 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01)	N/A [X]
Total Well Depth (to top of casing)	18.9 feet (nearest 0.1)			
Sediment (Hard/Soft Bottom)	Describe: Unknown			

Additional Comments:

ARCADIS

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Former Paulsen-Holbrook PROJECT NUMBER: 386554.0000.0000

DATE OF INSPECTION: 9/30/2020 INSPECTOR: Lexie Lill

WELL DESIGNATION: ML-2R

WELL LOCATION: On-site

Outward Appearance

Flushmount Diameter	_____ inches	N/A [X]	
Approximate Stickup Height	2 feet	N/A [ ]	
Integrity of Protective Casing	Describe: In satisfactory condition, slightly rusted.		
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____
Protective Casing Width or Dia.	4 inches		
Weep Hole in Protective Casing	Yes [ ]	No [X]	
Surface Seal/Apron Material	Cement [X]	Bentonite [ ]	Not apparent [ ] Other _____
Integrity of Surface Seal/Apron	Describe: In good condition.		
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]	
Bollards Present?	Yes [ ]	No [X]	Describe: _____
Well ID. Visible?	Yes [ ]	No [X]	Describe: _____
Lock Present and Functional?	Yes [X]	No [ ]	Describe: Had to break lock to sample, replaced lock.
Photograph Taken? Photo #	Yes [X]	No [ ]	Describe: Photo # 20200930_125513950_iOS

Inner Appearance

Integrity of Well Casing	Describe: In good condition.		
Integrity of Cap Seal	Describe: In good condition.		
Surface Water in Casing?	Yes [ ]	No [X]	Describe: _____
Well Casing Diameter	2 inches		
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X] None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [ ]	None [X]
Evidence of Double Casing?	Yes [ ]	No [X]	Describe: _____

Downhole

Odor	Yes [ ]	No [X]	Describe: _____
PID Reading	51.0 ppm		
Depth to Water (to top of casing)	16.86 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01) N/A [X]
Total Well Depth (to top of casing)	27.6 feet (nearest 0.1)		
Sediment (Hard/Soft Bottom)	Describe: Unknown		

Additional Comments:

ARCADIS

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Former Paulsen-Holbrook PROJECT NUMBER: 386554.0000.0000

DATE OF INSPECTION: 9/30/2020 INSPECTOR: Lexie Lill

WELL DESIGNATION: ML-03

WELL LOCATION: On-site

Outward Appearance

Flushmount Diameter	_____ inches	N/A [X]		
Approximate Stickup Height	3 feet	N/A [ ]		
Integrity of Protective Casing	Describe: In satisfactory condition, slightly rusted.			
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____	
Protective Casing Width or Dia.	6 inches			
Weep Hole in Protective Casing	Yes [ ]	No [X]		
Surface Seal/Apron Material	Cement [X]	Bentonite [ ]	Not apparent [ ]	Other _____
Integrity of Surface Seal/Apron	Describe: In good condition.			
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]		
Bollards Present?	Yes [ ]	No [X]	Describe: _____	
Well ID. Visible?	Yes [ ]	No [X]	Describe: _____	
Lock Present and Functional?	Yes [X]	No [ ]	Describe: Had to break lock to sample, replaced lock.	
Photograph Taken? Photo #	Yes [X]	No [ ]	Describe: Photo # 20200930_125542054_iOS	

Inner Appearance

Integrity of Well Casing	Describe: In good condition.			
Integrity of Cap Seal	Describe: In good condition.			
Surface Water in Casing?	Yes [ ]	No [X]	Describe: _____	
Well Casing Diameter	2 inches			
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]	
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X]	None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [ ]	None [X]	
Evidence of Double Casing?	Yes [ ]	No [X]	Describe: _____	

Downhole

Odor	Yes [ ]	No [X]	Describe: _____	
PID Reading	46.1 ppm			
Depth to Water (to top of casing)	17.82 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01)	N/A [X]
Total Well Depth (to top of casing)	27.8 feet (nearest 0.1)			
Sediment (Hard/Soft Bottom)	Describe: Unknown			

Additional Comments:

ARCADIS

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Former Paulsen-Holbrook PROJECT NUMBER: 386554.0000.0000

DATE OF INSPECTION: 9/30/2020 INSPECTOR: Lexie Lill

WELL DESIGNATION: ML-04

WELL LOCATION: On-site

Outward Appearance

Flushmount Diameter	_____ inches	N/A [X]		
Approximate Stickup Height	1.5 feet	N/A [ ]		
Integrity of Protective Casing	Describe: In good condition, slightly rusted.			
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____	
Protective Casing Width or Dia.	4 inches			
Weep Hole in Protective Casing	Yes [ ]	No [X]		
Surface Seal/Apron Material	Cement [X]	Bentonite [ ]	Not apparent [ ]	Other _____
Integrity of Surface Seal/Apron	Describe: In good condition.			
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]		
Bollards Present?	Yes [ ]	No [X]	Describe:	
Well ID. Visible?	Yes [ ]	No [X]	Describe:	
Lock Present and Functional?	Yes [ ]	No [X]	Describe:	
Photograph Taken? Photo #	Yes [X]	No [ ]	Describe:	Photo # 20200930_125354598_iOS

Inner Appearance

Integrity of Well Casing	Describe: In satisfactory condition.			
Integrity of Cap Seal	Describe: In good condition.			
Surface Water in Casing?	Yes [ ]	No [X]	Describe:	
Well Casing Diameter	2 inches			
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]	
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X]	None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [ ]	None [X]	
Evidence of Double Casing?	Yes [ ]	No [X]	Describe:	

Downhole

Odor	Yes [ ]	No [X]	Describe:	
PID Reading	0.0 ppm			
Depth to Water (to top of casing)	16.85 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01)	N/A [X]
Total Well Depth (to top of casing)	22.8 feet (nearest 0.1)			
Sediment (Hard/Soft Bottom)	Describe: Unknown			

Additional Comments:

ARCADIS

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Former Paulsen-Holbrook PROJECT NUMBER: 386554.0000.0000

DATE OF INSPECTION: 9/30/2020 INSPECTOR: Lexie Lill

WELL DESIGNATION: ML-06

WELL LOCATION: On-site

Outward Appearance

Flushmount Diameter	6 inches	N/A [ ]		
Approximate Stickup Height	_____ feet	N/A [X]		
Integrity of Protective Casing	Describe: In good condition.			
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____	
Protective Casing Width or Dia.	N/A inches			
Weep Hole in Protective Casing	Yes [ ]	No [X]		
Surface Seal/Apron Material	Cement [ ]	Bentonite [ ]	Not apparent [X]	Other _____
Integrity of Surface Seal/Apron	Describe: In good condition.			
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]		
Bollards Present?	Yes [ ]	No [X]	Describe:	
Well ID. Visible?	Yes [ ]	No [X]	Describe:	
Lock Present and Functional?	Yes [ ]	No [X]	Describe:	No lock present.
Photograph Taken? Photo #	Yes [X]	No [ ]	Describe:	Photo # 20200930_133243912_iOS

Inner Appearance

Integrity of Well Casing	Describe: In good condition.			
Integrity of Cap Seal	Describe: In good condition.			
Surface Water in Casing?	Yes [ ]	No [X]	Describe:	
Well Casing Diameter	1.5 inches			
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]	
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X]	None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [ ]	None [X]	
Evidence of Double Casing?	Yes [ ]	No [X]	Describe:	

Downhole

Odor	Yes [ ]	No [X]	Describe:	
PID Reading	11.1 ppm			
Depth to Water (to top of casing)	12.75 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01)	N/A [X]
Total Well Depth (to top of casing)	16.0 feet (nearest 0.1)			
Sediment (Hard/Soft Bottom)	Describe: Unknown			

Additional Comments:

ARCADIS

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Former Paulsen-Holbrook PROJECT NUMBER: 386554.0000.0000

DATE OF INSPECTION: 9/30/2020 INSPECTOR: Lexie Lill

WELL DESIGNATION: ML-07

WELL LOCATION: On-site

Outward Appearance

Flushmount Diameter	6 inches	N/A [ ]		
Approximate Stickup Height	_____ feet	N/A [X]		
Integrity of Protective Casing	Describe: N/A			
Protective Casing Material	Steel [ ]	Stainless Steel [ ]	Other N/A	
Protective Casing Width or Dia.	N/A inches			
Weep Hole in Protective Casing	Yes [ ]	No [X]		
Surface Seal/Apron Material	Cement [ ]	Bentonite [ ]	Not apparent [ ]	Other N/A
Integrity of Surface Seal/Apron	Describe: N/A			
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]		
Bollards Present?	Yes [ ]	No [X]	Describe:	
Well ID. Visible?	Yes [ ]	No [X]	Describe:	
Lock Present and Functional?	Yes [ ]	No [X]	Describe:	No lock present.
Photograph Taken? Photo #	Yes [X]	No [ ]	Describe:	Photo # 20200930_130730905_iOS

Inner Appearance

Integrity of Well Casing	Describe: In good condition.			
Integrity of Cap Seal	Describe: No well cover present.			
Surface Water in Casing?	Yes [ ]	No [X]	Describe:	
Well Casing Diameter	1.5 inches			
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]	
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X]	None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [ ]	None [X]	
Evidence of Double Casing?	Yes [ ]	No [X]	Describe:	

Downhole

Odor	Yes [ ]	No [X]	Describe:	
PID Reading	13.8 ppm			
Depth to Water (to top of casing)	14.39 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01)	N/A [X]
Total Well Depth (to top of casing)	16.3 feet (nearest 0.1)			
Sediment (Hard/Soft Bottom)	Describe: Unknown			

Additional Comments:

ARCADIS

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Former Paulsen-Holbrook PROJECT NUMBER: 386554.0000.0000

DATE OF INSPECTION: 9/30/2020 INSPECTOR: Lexie Lill

WELL DESIGNATION: ML-10

WELL LOCATION: On-site

Outward Appearance

Flushmount Diameter	8 inches	N/A [ ]		
Approximate Stickup Height	_____ feet	N/A [X]		
Integrity of Protective Casing	Describe: In good condition.			
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____	
Protective Casing Width or Dia.	N/A inches			
Weep Hole in Protective Casing	Yes [ ]	No [X]		
Surface Seal/Apron Material	Cement [X]	Bentonite [ ]	Not apparent [ ]	Other _____
Integrity of Surface Seal/Apron	Describe: Cement has slight cracking.			
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]		
Bollards Present?	Yes [ ]	No [X]	Describe:	
Well ID. Visible?	Yes [ ]	No [X]	Describe:	
Lock Present and Functional?	Yes [ ]	No [X]	Describe:	
Photograph Taken? Photo #	Yes [X]	No [ ]	Describe:	Photo # 20200930_131605208_iOS

Inner Appearance

Integrity of Well Casing	Describe: In good condition.			
Integrity of Cap Seal	Describe: In good condition.			
Surface Water in Casing?	Yes [ ]	No [X]	Describe:	
Well Casing Diameter	2 inches			
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]	
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X]	None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [ ]	None [X]	
Evidence of Double Casing?	Yes [ ]	No [X]	Describe:	

Downhole

Odor	Yes [ ]	No [X]	Describe:	
PID Reading	0.0 ppm			
Depth to Water (to top of casing)	15.04 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01)	N/A [X]
Total Well Depth (to top of casing)	18.0 feet (nearest 0.1)			
Sediment (Hard/Soft Bottom)	Describe: Unknown			

Additional Comments:

ARCADIS

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Former Paulsen-Holbrook PROJECT NUMBER: 386554.0000.0000

DATE OF INSPECTION: 9/30/2020 INSPECTOR: Lexie Lill

WELL DESIGNATION: ML-14

WELL LOCATION: On-site

Outward Appearance

Flushmount Diameter	_____ inches	N/A [X]		
Approximate Stickup Height	3 feet	N/A [ ]		
Integrity of Protective Casing	Describe: In good condition, slightly rusted.			
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____	
Protective Casing Width or Dia.	6 inches			
Weep Hole in Protective Casing	Yes [ ]	No [X]		
Surface Seal/Apron Material	Cement [X]	Bentonite [ ]	Not apparent [ ]	Other _____
Integrity of Surface Seal/Apron	Describe: In good condition.			
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]		
Bollards Present?	Yes [ ]	No [X]	Describe: _____	
Well ID. Visible?	Yes [ ]	No [X]	Describe: _____	
Lock Present and Functional?	Yes [X]	No [ ]	Describe: Had to break lock to sample, replaced lock.	
Photograph Taken? Photo #	Yes [X]	No [ ]	Describe: Photo # 20200930_125257739_iOS	

Inner Appearance

Integrity of Well Casing	Describe: In good condition.			
Integrity of Cap Seal	Describe: In good condition.			
Surface Water in Casing?	Yes [ ]	No [X]	Describe: _____	
Well Casing Diameter	2 inches			
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]	
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X]	None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [ ]	None [X]	
Evidence of Double Casing?	Yes [ ]	No [X]	Describe: _____	

Downhole

Odor	Yes [ ]	No [X]	Describe: _____	
PID Reading	0.0 ppm			
Depth to Water (to top of casing)	16.78 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01)	N/A [X]
Total Well Depth (to top of casing)	19.5 feet (nearest 0.1)			
Sediment (Hard/Soft Bottom)	Describe: Unknown			

Additional Comments:

ARCADIS

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Former Paulsen-Holbrook PROJECT NUMBER: 386554.0000.0000

DATE OF INSPECTION: 9/30/2020 INSPECTOR: Lexie Lill

WELL DESIGNATION: ML-15

WELL LOCATION: Off-site

Outward Appearance

Flushmount Diameter	10 inches	N/A [ ]		
Approximate Stickup Height	_____ feet	N/A [X]		
Integrity of Protective Casing	Describe: In satisfactory condition.			
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____	
Protective Casing Width or Dia.	10 inches			
Weep Hole in Protective Casing	Yes [ ]	No [X]		
Surface Seal/Apron Material	Cement [ ]	Bentonite [ ]	Not apparent [X]	Other _____
Integrity of Surface Seal/Apron	Describe: In satisfactory condition.			
Surface Drainage	Away from Wellhead [ ]	Toward Wellhead [X]		
Bollards Present?	Yes [ ]	No [X]	Describe:	
Well ID. Visible?	Yes [ ]	No [X]	Describe:	
Lock Present and Functional?	Yes [ ]	No [X]	Describe:	
Photograph Taken? Photo #	Yes [X]	No [ ]	Describe:	20200930_205603125_iOS

Inner Appearance

Integrity of Well Casing	Describe: In good condition.			
Integrity of Cap Seal	Describe: In good condition.			
Surface Water in Casing?	Yes [ ]	No [X]	Describe:	
Well Casing Diameter	2 inches			
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]	
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X]	None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [ ]	None [X]	
Evidence of Double Casing?	Yes [ ]	No [X]	Describe:	

Downhole

Odor	Yes [ ]	No [X]	Describe:	
PID Reading	7.6 ppm			
Depth to Water (to top of casing)	17.82 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01)	N/A [X]
Total Well Depth (to top of casing)	28.2 feet (nearest 0.1)			
Sediment (Hard/Soft Bottom)	Describe: Unknown			

Additional Comments:

ARCADIS

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Former Paulsen-Holbrook PROJECT NUMBER: 386554.0000.0000

DATE OF INSPECTION: 9/30/2020 INSPECTOR: Lexie Lill

WELL DESIGNATION: PHMW-01

WELL LOCATION: On-site

Outward Appearance

Flushmount Diameter	_____ inches	N/A [X]		
Approximate Stickup Height	2 feet	N/A [ ]		
Integrity of Protective Casing	Describe: In good condition.			
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____	
Protective Casing Width or Dia.	4 inches			
Weep Hole in Protective Casing	Yes [ ]	No [X]		
Surface Seal/Apron Material	Cement [X]	Bentonite [ ]	Not apparent [ ]	Other _____
Integrity of Surface Seal/Apron	Describe: In good condition.			
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]		
Bollards Present?	Yes [ ]	No [X]	Describe: _____	
Well ID. Visible?	Yes [ ]	No [X]	Describe: _____	
Lock Present and Functional?	Yes [X]	No [ ]	Describe: Had to break lock to sample, replaced lock.	
Photograph Taken? Photo #	Yes [X]	No [ ]	Describe: 20200930_125450680_iOS	

Inner Appearance

Integrity of Well Casing	Describe: In good condition.			
Integrity of Cap Seal	Describe: In good condition.			
Surface Water in Casing?	Yes [ ]	No [X]	Describe: _____	
Well Casing Diameter	2 inches			
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]	
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X]	None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [ ]	None [X]	
Evidence of Double Casing?	Yes [ ]	No [X]	Describe: _____	

Downhole

Odor	Yes [ ]	No [X]	Describe: _____	
PID Reading	2.4 ppm			
Depth to Water (to top of casing)	18.45 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01)	N/A [X]
Total Well Depth (to top of casing)	42.3 feet (nearest 0.1)			
Sediment (Hard/Soft Bottom)	Describe: Unknown			

Additional Comments:

ARCADIS

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Former Paulsen-Holbrook PROJECT NUMBER: 386554.0000.0000

DATE OF INSPECTION: 9/30/2020 INSPECTOR: Lexie Lill

WELL DESIGNATION: PHMW-02D

WELL LOCATION: Off-site

Outward Appearance

Flushmount Diameter	_____ inches	N/A [X]		
Approximate Stickup Height	3 feet	N/A [ ]		
Integrity of Protective Casing	Describe: In good condition.			
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____	
Protective Casing Width or Dia.	4 inches			
Weep Hole in Protective Casing	Yes [ ]	No [X]		
Surface Seal/Apron Material	Cement [X]	Bentonite [ ]	Not apparent [ ]	Other _____
Integrity of Surface Seal/Apron	Describe: In good condition.			
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]		
Bollards Present?	Yes [ ]	No [X]	Describe: _____	
Well ID. Visible?	Yes [ ]	No [X]	Describe: _____	
Lock Present and Functional?	Yes [X]	No [ ]	Describe: Had to break lock to sample, replaced lock.	
Photograph Taken? Photo #	Yes [X]	No [ ]	Describe: 20200930_163027617_iOS	

Inner Appearance

Integrity of Well Casing	Describe: In good condition.			
Integrity of Cap Seal	Describe: In good condition.			
Surface Water in Casing?	Yes [ ]	No [X]	Describe: _____	
Well Casing Diameter	2 inches			
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]	
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X]	None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [ ]	None [X]	
Evidence of Double Casing?	Yes [ ]	No [X]	Describe: _____	

Downhole

Odor	Yes [ ]	No [X]	Describe: _____	
PID Reading	0.0 ppm			
Depth to Water (to top of casing)	18.75 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01)	N/A [X]
Total Well Depth (to top of casing)	42.8 feet (nearest 0.1)			
Sediment (Hard/Soft Bottom)	Describe: Unknown			

Additional Comments:

ARCADIS

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Former Paulsen-Holbrook PROJECT NUMBER: 386554.0000.0000

DATE OF INSPECTION: 9/30/2020 INSPECTOR: Lexie Lill

WELL DESIGNATION: PHMW-02S

WELL LOCATION: Off-site

Outward Appearance

Flushmount Diameter	_____ inches	N/A [X]		
Approximate Stickup Height	4 feet	N/A [ ]		
Integrity of Protective Casing	Describe: In satisfactory condition, slightly rusted.			
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____	
Protective Casing Width or Dia.	4 inches			
Weep Hole in Protective Casing	Yes [ ]	No [X]		
Surface Seal/Apron Material	Cement [X]	Bentonite [ ]	Not apparent [ ]	Other _____
Integrity of Surface Seal/Apron	Describe: In good condition.			
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]		
Bollards Present?	Yes [ ]	No [X]	Describe:	
Well ID. Visible?	Yes [ ]	No [X]	Describe:	
Lock Present and Functional?	Yes [X]	No [ ]	Describe:	Had to break lock to sample, replaced lock.
Photograph Taken? Photo #	Yes [X]	No [ ]	Describe:	20200930_163027617_iOS

Inner Appearance

Integrity of Well Casing	Describe: In good condition.			
Integrity of Cap Seal	Describe: In good condition.			
Surface Water in Casing?	Yes [ ]	No [X]	Describe:	
Well Casing Diameter	2 inches			
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]	
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X]	None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [ ]	None [X]	
Evidence of Double Casing?	Yes [ ]	No [X]	Describe:	

Downhole

Odor	Yes [ ]	No [X]	Describe:
PID Reading	0.0 ppm		
Depth to Water (to top of casing)	18.80 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01) N/A [X]
Total Well Depth (to top of casing)	22.7 feet (nearest 0.1)		
Sediment (Hard/Soft Bottom)	Describe: Unknown		

Additional Comments:

ARCADIS

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Former Paulsen-Holbrook PROJECT NUMBER: 386554.0000.0000

DATE OF INSPECTION: 9/30/2020 INSPECTOR: Lexie Lill

WELL DESIGNATION: PHMW-03D

WELL LOCATION: Off-site

Outward Appearance

Flushmount Diameter	_____ inches	N/A [X]		
Approximate Stickup Height	3 feet	N/A [ ]		
Integrity of Protective Casing	Describe: In satisfactory condition, slightly rusted.			
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____	
Protective Casing Width or Dia.	4 inches			
Weep Hole in Protective Casing	Yes [ ]	No [X]		
Surface Seal/Apron Material	Cement [ ]	Bentonite [ ]	Not apparent [X]	Other _____
Integrity of Surface Seal/Apron	Describe: N/A			
Surface Drainage	Away from Wellhead [ ]	Toward Wellhead [X]		
Bollards Present?	Yes [ ]	No [X]	Describe: _____	
Well ID. Visible?	Yes [ ]	No [X]	Describe: _____	
Lock Present and Functional?	Yes [X]	No [ ]	Describe: Had to break lock to sample, replaced lock.	
Photograph Taken? Photo #	Yes [X]	No [ ]	Describe: 20200930_164448691_iOS	

Inner Appearance

Integrity of Well Casing	Describe: In good condition.			
Integrity of Cap Seal	Describe: In good condition.			
Surface Water in Casing?	Yes [ ]	No [X]	Describe: _____	
Well Casing Diameter	2 inches			
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]	
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X]	None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [ ]	None [X]	
Evidence of Double Casing?	Yes [ ]	No [X]	Describe: _____	

Downhole

Odor	Yes [ ]	No [X]	Describe: _____	
PID Reading	0.0 ppm			
Depth to Water (to top of casing)	14.91 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01)	N/A [X]
Total Well Depth (to top of casing)	41.8 feet (nearest 0.1)			
Sediment (Hard/Soft Bottom)	Describe: Unknown			

Additional Comments:

ARCADIS

GROUNDWATER MONITORING WELL INSPECTION

SITE/PROJECT NAME: Former Paulsen-Holbrook PROJECT NUMBER: 386554.0000.0000

DATE OF INSPECTION: 9/30/2020 INSPECTOR: Lexie Lill

WELL DESIGNATION: PHMW-04S

WELL LOCATION: Off-site

Outward Appearance

Flushmount Diameter	_____ inches	N/A [X]		
Approximate Stickup Height	3 feet	N/A [ ]		
Integrity of Protective Casing	Describe: In good condition, slightly rusted.			
Protective Casing Material	Steel [X]	Stainless Steel [ ]	Other _____	
Protective Casing Width or Dia.	4 inches			
Weep Hole in Protective Casing	Yes [ ]	No [X]		
Surface Seal/Apron Material	Cement [ ]	Bentonite [ ]	Not apparent [X]	Other _____
Integrity of Surface Seal/Apron	Describe: N/A			
Surface Drainage	Away from Wellhead [X]	Toward Wellhead [ ]		
Bollards Present?	Yes [ ]	No [X]	Describe: _____	
Well ID. Visible?	Yes [ ]	No [X]	Describe: _____	
Lock Present and Functional?	Yes [X]	No [ ]	Describe: Had to break lock to sample, replaced lock.	
Photograph Taken? Photo #	Yes [X]	No [ ]	Describe: 20200930_155337284_iOS	

Inner Appearance

Integrity of Well Casing	Describe: In good condition.			
Integrity of Cap Seal	Describe: In good condition.			
Surface Water in Casing?	Yes [ ]	No [X]	Describe: _____	
Well Casing Diameter	2 inches			
Well Casing Material	PVC [X]	Steel [ ]	Stainless Steel [ ]	
Inner Cap	Threaded [ ]	Slip [ ]	Expansion Plug [X]	None [ ]
Reference/Measuring Point	Groove [ ]	Indelible Mark [ ]	None [X]	
Evidence of Double Casing?	Yes [ ]	No [X]	Describe: _____	

Downhole

Odor	Yes [ ]	No [X]	Describe: _____	
PID Reading	0.0 ppm			
Depth to Water (to top of casing)	15.82 feet (nearest 0.01)	Depth to LNAPL	_____ feet (nearest 0.01)	N/A [X]
Total Well Depth (to top of casing)	27.5 feet (nearest 0.1)			
Sediment (Hard/Soft Bottom)	Describe: Unknown			

Additional Comments:

APPENDIX C

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Paulsen-Holbrook
PROJECT NUMBER	386554.0000.0000
SAMPLE ID	PH-ML-01
SAMPLE TIME	10:25
LOCATION ID	ML-01
DATE	10/1/2020
START TIME	10:00
END TIME	10:30
SITE NAME/NUMBER	401046
PAGE	1 OF 1

WELL DIAMETER (INCHES) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [X] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

INITIAL DTW (BMP)	17.28 FT	**FINAL DTW (BMP)**	17.59 FT	**PROT. CASING STICKUP (AGS)**	- FT	**TOC/TOR DIFFERENCE**	- FT
WELL DEPTH (BMP)	18.9 FT	**SCREEN LENGTH**	FT	**PID AMBIENT AIR**	PPM	**REFILL TIMER SETTING**	- SEC
WATER COLUMN	1.62 FT	**DRAWDOWN VOLUME** (final DTW - initial DTW X well diam. squared X 0.041)	0.028 GAL	**PID WELL MOUTH**	PPM	**DISCHARGE TIMER SETTING**	- SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	0.27 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	0.78 GAL	**DRAWDOWN/ TOTAL PURGED**		**PRESSURE TO PUMP**	- PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
10:00	**BEGIN PURGING**									
10:05	17.34	150	18.97	0.721	5.85	3.11	3.2	53	18	
10:10	17.37	150	18.88	0.717	5.76	2.67	1.3	60	18	
10:15	17.4	150	18.8	0.717	5.74	2.5	0	60	18	
10:20	17.45	150	18.73	0.718	5.71	2.51	0.0	59	18	

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

19	**0.718**	**5.7**	**2.5**	**0**	**60**	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] _____
- [ ] WATTERA
- [ ] OTHER _____
- [ ] OTHER _____

DECON FLUIDS USED
- [ ] LIQUINOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [X] SILICON TUBING
- [ ] TEFLON TUBING
- [ ] TEFLON LINED TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER _____
- [ ] OTHER _____

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] TEFLON BLADDER
- [ ] OTHER _____
- [ ] OTHER _____
- [ ] OTHER _____

EQUIPMENT USED
- [X] WL METER Heron
- [X] PID MiniRAE 3000
- [X] WQ METER Horiba U-52
- [X] TURB. METER Horiba U-52
- [X] PUMP Pine Peri Pump
- [ ] OTHER _____
- [ ] FILTERS NO. ____ TYPE _____

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	Arsenic, chromium, copper	6010C	No	Nitric Acid	250 ml	Yes	Dup, MS/MSD	See COC

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED — YES [ ] NO [X]

NO-PURGE METHOD UTILIZED — YES [ ] NO [ ]

NUMBER OF GALLONS GENERATED: 0.78

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signature: Lexie Lill Print Name: Lexie Lill

Checked By: Justin King Date: 11/9/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Paulsen-Holbrook
PROJECT NUMBER	386554.0000.0000
SAMPLE ID	PH-ML-2R
SAMPLE TIME	16:15
LOCATION ID	ML-2R
DATE	9/30/2020
START TIME	15:30
END TIME	16:15
SITE NAME/NUMBER	401046
PAGE	1 OF 1

WELL DIAMETER (INCHES) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [X] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

INITIAL DTW (BMP)	18.02 FT	**FINAL DTW (BMP)**	22.8 FT	**PROT. CASING STICKUP (AGS)**	- FT	**TOC/TOR DIFFERENCE**	- FT
WELL DEPTH (BMP)	27.71 FT	**SCREEN LENGTH**	FT	**PID AMBIENT AIR**	PPM	**REFILL TIMER SETTING**	- SEC
WATER COLUMN	9.69 FT	**DRAWDOWN VOLUME** (final DTW - initial DTW X well diam. squared X 0.041)	0.784 GAL	**PID WELL MOUTH**	PPM	**DISCHARGE TIMER SETTING**	- SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	1.59 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	2.60 GAL	**DRAWDOWN/ TOTAL PURGED**		**PRESSURE TO PUMP**	- PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
15:30	**BEGIN PURGING**									
15:45	22.1	250	22.34	1.14	8	2.98	28.7	-254	25	
15:50	22.4	250	22.4	1.13	8.01	2.93	26.7	-257	25	
15:55	22.5	250	22.44	1.12	8.04	3	30.2	-272	25	
16:00	22.5	250	22.44	1.13	8.07	2.87	28.4	-276	25	
16:05	22.4	250	22.32	1.14	8.08	2.76	26.6	-273	25	
16:10	22.8	250	22.3	1.14	8.05	2.81	26.4	-273	25	

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

22	**1.14**	**8.1**	**2.8**	**26.4**	**-270**	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] _____
- [ ] WATTERA
- [ ] OTHER _____
- [ ] OTHER _____

DECON FLUIDS USED
- [ ] LIQUINOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [X] SILICON TUBING
- [ ] TEFLON TUBING
- [ ] TEFLON LINED TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER _____
- [ ] OTHER _____

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] TEFLON BLADDER
- [ ] OTHER _____
- [ ] OTHER _____
- [ ] OTHER _____

EQUIPMENT USED
- [X] WL METER Heron
- [X] PID MiniRAE 3000
- [X] WQ METER Horiba U-52
- [X] TURB. METER Horiba U-52
- [X] PUMP Pine Peri Pump
- [ ] OTHER _____
- [ ] FILTERS NO. ____ TYPE _____

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	Arsenic, chromium, copper	6010C	No	Nitric Acid	250 ml	Yes		See COC

PURGE OBSERVATIONS

	YES	NO
PURGE WATER CONTAINERIZED	[ ]	[X]
NO-PURGE METHOD UTILIZED	[ ]	[ ]

NUMBER OF GALLONS GENERATED: 2.60

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signatur: Lexie Lill

Print Name: Lexie Lill

Checked By: Justin King

Date: 11/9/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Paulsen-Holbrook
PROJECT NUMBER	386554.0000.0000
SAMPLE ID	PH-ML-03
SAMPLE TIME	15:25
LOCATION ID	ML-03
DATE	9/30/2020
START TIME	14:15
END TIME	15:20
SITE NAME/NUMBER	401046
PAGE	1 OF 1

WELL DIAMETER (INCHES) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [X] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

INITIAL DTW (BMP)	19.53 FT	**FINAL DTW (BMP)**	18.18 FT	**PROT. CASING STICKUP (AGS)**	- FT	**TOC/TOR DIFFERENCE**	- FT
WELL DEPTH (BMP)	27.83 FT	**SCREEN LENGTH**	FT	**PID AMBIENT AIR**	0.0 PPM	**REFILL TIMER SETTING**	- SEC
WATER COLUMN	8.3 FT	**DRAWDOWN VOLUME** (final DTW - initial DTW X well diam. squared X 0.041)	-0.221 GAL	**PID WELL MOUTH**	36.7 PPM	**DISCHARGE TIMER SETTING**	- SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	1.36 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	3.58 GAL	**DRAWDOWN/ TOTAL PURGED**		**PRESSURE TO PUMP**	- PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
14:15	**BEGIN PURGING**									
14:30	18.11	250	19.61	0.65	10.09	10.36	80.2	-116	25	
14:35	18.13	250	19.53	0.567	9.65	8.16	78.6	-119	25	
14:40	18.14	250	19.26	0.532	9.36	7.89	74.5	-117	25	
14:45	18.2	250	18.93	0.515	8.91	6.95	69.3	-118	25	
14:50	18.22	250	19.08	0.508	8.65	9.27	62.7	-111	25	
15:55	18.23	250	19.59	0.49	7.93	6.2	67.7	-104	25	
15:00	18.23	250	19.58	0.478	7.55	5.94	67.2	-105	25	
15:05	18.24	250	19.45	0.475	7.31	5.7	39.3	-114	25	
15:10	18.18	250	19.51	0.474	7.24	5.68	27.6	-122	25	
15:15	18.17	250	19.55	0.471	7.28	5.65	22.9	-114	25	
15:20	18.18	250	19.53	0.464	7.28	5.64	30.4	-116	25	
FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])										
			20	**0.464**	**7.3**	**5.6**	**30.4**	**-120**		

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] WATTERA
- [ ] OTHER
- [ ] OTHER

DECON FLUIDS USED
- [ ] LIQUINOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER

TUBING/PUMP/BLADDER MATERIALS
- [X] SILICON TUBING
- [ ] TEFLON TUBING
- [ ] TEFLON LINED TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER
- [ ] OTHER

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] TEFLON BLADDER
- [ ] OTHER
- [ ] OTHER
- [ ] OTHER

EQUIPMENT USED
- [X] WL METER Heron
- [X] PID MiniRAE 3000
- [X] WQ METER Horiba U-52
- [X] TURB. METER Horiba U-52
- [X] PUMP Pine Peri Pump
- [ ] OTHER
- [ ] FILTERS NO. TYPE

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	Arsenic, chromium, copper	6010C	No	Nitric Acid	250 ml	Yes		See COC

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED: YES [ ] NO [X]

NO-PURGE METHOD UTILIZED: YES [ ] NO [ ]

NUMBER OF GALLONS GENERATED: 3.58

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signatur: Lexie Lill

Print Name: Lexie Lill

Checked By: Justin King

Date: 11/9/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Paulsen-Holbrook
PROJECT NUMBER	386554.0000.0000
SAMPLE ID	PH-ML-04
SAMPLE TIME	12:55

LOCATION ID	ML-04
DATE	10/1/2020
START TIME	12:10
END TIME	13:00
SITE NAME/NUMBER	401046
PAGE	1 OF 1

WELL DIAMETER (INCHES) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [X] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

INITIAL DTW (BMP)	17.11 FT	**FINAL DTW (BMP)**	17.42 FT	**PROT. CASING STICKUP (AGS)**	- FT	**TOC/TOR DIFFERENCE**	- FT
WELL DEPTH (BMP)	22.78 FT	**SCREEN LENGTH**	FT	**PID AMBIENT AIR**	PPM	**REFILL TIMER SETTING**	- SEC
WATER COLUMN	5.67 FT	**DRAWDOWN VOLUME** (final DTW - initial DTW X well diam. squared X 0.041)	0.051 GAL	**PID WELL MOUTH**	PPM	**DISCHARGE TIMER SETTING**	- SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	0.93 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	2.60 GAL	**DRAWDOWN/ TOTAL PURGED**		**PRESSURE TO PUMP**	- PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
12:10	**BEGIN PURGING**									
12:15	17.15	250	18.09	0.384	6.48	3	20.8	-40	20	
12:20	17.18	250	18.15	0.383	6.46	2.01	9.8	-44	20	
12:25	17.23	250	18.3	0.383	6.43	1.7	5.7	-40	20	
12:30	17.26	250	18.25	0.383	6.41	1.67	3.6	-36	20	
12:35	17.3	250	18.35	0.383	6.4	1.68	1.6	-31	20	
12:40	17.35	250	18.16	0.382	6.41	1.67	0.8	-27	20	
12:45	17.39	250	18.3	0.385	6.41	1.74	0.8	-25	20	
12:50	17.42	250	18.33	0.386	6.41	1.77	0	-23	20	

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

18	**0.386**	**6.4**	**1.8**	**0**	**-23**	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	DECON FLUIDS USED	TUBING/PUMP/BLADDER MATERIALS		EQUIPMENT USED	
[X] PERISTALTIC	[ ] LIQUINOX	[X] SILICON TUBING	[ ] S. STEEL PUMP MATERIAL	[X] WL METER	Heron
[ ] SUBMERSIBLE	[ ] DEIONIZED WATER	[ ] TEFLON TUBING	[ ] PVC PUMP MATERIAL	[X] PID	MiniRAE 3000
[ ] BLADDER	[ ] POTABLE WATER	[ ] TEFLON LINED TUBING	[ ] GEOPROBE SCREEN	[X] WQ METER	Horiba U-52
[ ] _____	[ ] NITRIC ACID	[X] HDPE TUBING	[ ] TEFLON BLADDER	[X] TURB. METER	Horiba U-52
[ ] WATTERA	[ ] HEXANE	[ ] LDPE TUBING	[ ] OTHER	[X] PUMP	Pine Peri Pump
[ ] OTHER	[ ] METHANOL	[ ] OTHER	[ ] OTHER	[ ] OTHER	
[ ] OTHER	[ ] OTHER	[ ] OTHER	[ ] OTHER	[ ] FILTERS	NO. TYPE

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	Arsenic, chromium, copper	6010C	No	Nitric Acid	250 ml	Yes		See COC

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED — YES [ ] NO [X]

NO-PURGE METHOD UTILIZED — YES [ ] NO [ ]

NUMBER OF GALLONS GENERATED: 2.60

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signature: Lexie Lill Print Name: Lexie Lill

Checked By: Justin King Date: 11/9/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Paulsen-Holbrook
PROJECT NUMBER	386554.0000.0000
SAMPLE ID	PH-ML-06
SAMPLE TIME	14:45

LOCATION ID	ML-06
DATE	9/30/2020
START TIME	13:55
END TIME	14:50
SITE NAME/NUMBER	401046
PAGE	1 OF 1

WELL DIAMETER (INCHES) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [X] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

INITIAL DTW (BMP)	12.75 FT	**FINAL DTW (BMP)**	13.08 FT	**PROT. CASING STICKUP (AGS)**	- FT	**TOC/TOR DIFFERENCE**	- FT
WELL DEPTH (BMP)	16 FT	**SCREEN LENGTH**	FT	**PID AMBIENT AIR**	PPM	**REFILL TIMER SETTING**	- SEC
WATER COLUMN	3.25 FT	**DRAWDOWN VOLUME** (final DTW - initial DTW X well diam. squared X 0.041)	0.054 GAL	**PID WELL MOUTH**	PPM	**DISCHARGE TIMER SETTING**	- SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	0.53 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	1.76 GAL	**DRAWDOWN/ TOTAL PURGED**		**PRESSURE TO PUMP**	- PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
13:55	**BEGIN PURGING**									
14:00	12.79	150	21.42	1.29	5.87	14.82	20	110	15	
14:05	12.85	150	21.37	1.33	5.86	13.94	37.2	110	15	
14:10	12.9	150	21.55	1.32	5.87	13.22	21.7	110	15	
14:15	12.93	150	21.15	1.32	5.88	14.84	18.6	113	15	
14:20	12.97	150	21.35	1.33	5.88	12.13	17.0	113	15	
14:25	13	150	21.51	1.34	5.88	11.64	10.2	112	15	
14:30	13.03	250	21.01	1.33	5.88	11.33	8.5	114	15	
14:35	13.05	250	20.68	1.38	5.88	9.93	8.3	116	15	
14:40	13.08	250	20.61	1.4	5.89	9.54	6.9	117	15	

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

	21	**1.4**	**5.9**	**9.5**	**6.9**	**-120**

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] _____
- [ ] WATTERA
- [ ] OTHER _____
- [ ] OTHER _____

DECON FLUIDS USED
- [ ] LIQUINOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [X] SILICON TUBING
- [ ] TEFLON TUBING
- [ ] TEFLON LINED TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER _____
- [ ] OTHER _____

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] TEFLON BLADDER
- [ ] OTHER _____
- [ ] OTHER _____
- [ ] OTHER _____

EQUIPMENT USED
- [X] WL METER Heron
- [X] PID MiniRAE 3000
- [X] WQ METER Horiba U-52
- [X] TURB. METER Horiba U-52
- [X] PUMP Pine Peri Pump
- [ ] OTHER _____
- [ ] FILTERS NO. ____ TYPE _____

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	Arsenic, chromium, copper	6010C	No	Nitric Acid	250 ml	Yes		See COC

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED — YES [ ] NO [X]

NO-PURGE METHOD UTILIZED — YES [ ] NO [ ]

NUMBER OF GALLONS GENERATED: 1.76

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signatur: Lexie Lill

Print Name: Lexie Lill

Checked By: Justin King

Date: 11/9/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Paulsen-Holbrook
PROJECT NUMBER	386554.0000.0000
SAMPLE ID	PH-ML-07
SAMPLE TIME	16:15

LOCATION ID	ML-07
DATE	9/30/2020
START TIME	15:40
END TIME	16:20
SITE NAME/NUMBER	401046
PAGE	1 OF 1

WELL DIAMETER (INCHES) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [X] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

INITIAL DTW (BMP)	14.39 FT	**FINAL DTW (BMP)**	15.4 FT	**PROT. CASING STICKUP (AGS)**	- FT	**TOC/TOR DIFFERENCE**	- FT
WELL DEPTH (BMP)	16.33 FT	**SCREEN LENGTH**	FT	**PID AMBIENT AIR**	PPM	**REFILL TIMER SETTING**	- SEC
WATER COLUMN	1.94 FT	**DRAWDOWN VOLUME** (final DTW - initial DTW X well diam. squared X 0.041)	0.166 GAL	**PID WELL MOUTH**	PPM	**DISCHARGE TIMER SETTING**	- SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	0.32 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	1.95 GAL	**DRAWDOWN/ TOTAL PURGED**		**PRESSURE TO PUMP**	- PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
15:40	**BEGIN PURGING**									
15:45	15.14	250	19.42	0.352	7	5.82	24.2	-140	15	
15:50	15.23	250	18.79	0.351	6.18	4.52	18.5	-131	15	
15:55	15.26	250	18.3	0.35	6.13	3.89	4.3	-128	15	
16:00	15.33	250	17.89	0.348	6.06	3.48	0.0	-124	15	
16:05	15.35	250	17.78	0.346	6	3.56	0.0	-119	15	
16:10	15.4	250	17.8	0.345	5.93	3.48	0.0	-113	15	

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

18	**0.345**	**5.9**	**3.5**	**0**	**-110**	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] _____
- [ ] WATTERA
- [ ] OTHER _____
- [ ] OTHER _____

DECON FLUIDS USED
- [ ] LIQUINOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [X] SILICON TUBING
- [ ] TEFLON TUBING
- [ ] TEFLON LINED TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER _____
- [ ] OTHER _____

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] TEFLON BLADDER
- [ ] OTHER _____
- [ ] OTHER _____
- [ ] OTHER _____

EQUIPMENT USED
- [X] WL METER Heron
- [X] PID MiniRAE 3000
- [X] WQ METER Horiba U-52
- [X] TURB. METER Horiba U-52
- [X] PUMP Pine Peri Pump
- [ ] OTHER _____
- [ ] FILTERS NO. ____ TYPE _____

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	Arsenic, chromium, copper	6010C	No	Nitric Acid	250 ml	Yes		See COC

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED — YES [ ] NO [X]

NUMBER OF GALLONS GENERATED: 1.95

NO-PURGE METHOD UTILIZED — YES [ ] NO [ ]

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signature: Lexie Lill Print Name: Lexie Lill

Checked By: Justin King Date: 11/9/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Paulsen-Holbrook
PROJECT NUMBER	386554.0000.0000
SAMPLE ID	PH-ML-10
SAMPLE TIME	9:25

LOCATION ID	ML-10
DATE	10/1/2020
START TIME	8:50
END TIME	9:30
SITE NAME/NUMBER	401046
PAGE	1 OF 1

WELL DIAMETER (INCHES) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [X] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

INITIAL DTW (BMP)	15.04 FT	**FINAL DTW (BMP)**	15.85 FT	**PROT. CASING STICKUP (AGS)**	- FT	**TOC/TOR DIFFERENCE**	- FT
WELL DEPTH (BMP)	17.97 FT	**SCREEN LENGTH**	FT	**PID AMBIENT AIR**	PPM	**REFILL TIMER SETTING**	- SEC
WATER COLUMN	2.93 FT	**DRAWDOWN VOLUME** (final DTW - initial DTW X well diam. squared X 0.041)	0.133 GAL	**PID WELL MOUTH**	PPM	**DISCHARGE TIMER SETTING**	- SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	0.48 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	1.95 GAL	**DRAWDOWN/ TOTAL PURGED**		**PRESSURE TO PUMP**	- PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
8:50	**BEGIN PURGING**									
8:55	15.59	250	17.82	0.646	6.59	3.79	0	-124	15	
9:00	15.66	250	17.87	0.613	6.56	3.23	2.8	-122	15	
9:05	15.69	250	17.88	0.606	6.51	3.09	7.7	-109	15	
9:10	15.75	250	18.02	0.627	6.5	3.02	9,6	-99	15	
9:15	15.82	250	17.92	0.618	6.51	3.04	8.2	-93	15	
9:20	15.85	250	17.88	0.614	6.51	2.98	9.1	-89	15	

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

18	**0.614**	**6.5**	**3**	**9.1**	**-89**	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] _____
- [ ] WATTERA
- [ ] OTHER _____
- [ ] OTHER _____

DECON FLUIDS USED
- [ ] LIQUINOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [X] SILICON TUBING
- [ ] TEFLON TUBING
- [ ] TEFLON LINED TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER _____
- [ ] OTHER _____

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] TEFLON BLADDER
- [ ] OTHER _____
- [ ] OTHER _____
- [ ] OTHER _____

EQUIPMENT USED
- [X] WL METER Heron
- [X] PID MiniRAE 3000
- [X] WQ METER Horiba U-52
- [X] TURB. METER Horiba U-52
- [X] PUMP Pine Peri Pump
- [ ] OTHER _____
- [ ] FILTERS NO. ____ TYPE _____

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	Arsenic, chromium, copper	6010C	No	Nitric Acid	250 ml	Yes		See COC

PURGE OBSERVATIONS

	YES	NO
PURGE WATER CONTAINERIZED	[ ]	[X]
NO-PURGE METHOD UTILIZED	[ ]	[ ]

NUMBER OF GALLONS GENERATED: 1.95

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signature: Lexie Lill Print Name: Lexie Lill

Checked By: Justin King Date: 11/9/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Paulsen-Holbrook
PROJECT NUMBER	386554.0000.0000
SAMPLE ID	PH-ML-14
SAMPLE TIME	14:05
LOCATION ID	ML-14
DATE	10/1/2020
START TIME	13:20
END TIME	14:10
SITE NAME/NUMBER	401046
PAGE	1 OF 1

WELL DIAMETER (INCHES) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [X] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

INITIAL DTW (BMP)	16.82 FT	**FINAL DTW (BMP)**	17.27 FT	**PROT. CASING STICKUP (AGS)**	- FT	**TOC/TOR DIFFERENCE**	- FT
WELL DEPTH (BMP)	19.53 FT	**SCREEN LENGTH**	FT	**PID AMBIENT AIR**	PPM	**REFILL TIMER SETTING**	- SEC
WATER COLUMN	2.71 FT	**DRAWDOWN VOLUME** (final DTW - initial DTW X well diam. squared X 0.041)	0.074 GAL	**PID WELL MOUTH**	PPM	**DISCHARGE TIMER SETTING**	- SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	0.44 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	2.60 GAL	**DRAWDOWN/ TOTAL PURGED**		**PRESSURE TO PUMP**	- PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
13:20	**BEGIN PURGING**									
13:25	16.95	250	19.99	0.344	6.16	7.41	28.7	8	18	
13:30	17.04	250	20.54	0.336	6.15	6.91	31.6	-17	18	
13:35	17.07	250	20.84	0.334	6.2	3.51	29.6	-31	18	
13:40	17.1	250	21.3	0.329	6.15	3.03	29.8	-29	18	
13:45	17.14	250	21.59	0.327	6.13	2.64	28.9	-24	18	
13:50	17.18	250	22.25	0.321	6.1	1.32	26.4	-20	18	
13:55	17.23	250	22.19	0.322	6.08	1.3	26.5	-18	18	
14:00	17.27	250	22.01	0.322	6.07	1.28	25.8	-17	18	

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

22	**0.322**	**6.1**	**1.3**	**25.8**	**-17**	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP	DECON FLUIDS USED	TUBING/PUMP/BLADDER MATERIALS		EQUIPMENT USED	
[X] PERISTALTIC	[ ] LIQUINOX	[X] SILICON TUBING	[ ] S. STEEL PUMP MATERIAL	[X] WL METER	Heron
[ ] SUBMERSIBLE	[ ] DEIONIZED WATER	[ ] TEFLON TUBING	[ ] PVC PUMP MATERIAL	[X] PID	MiniRAE 3000
[ ] BLADDER	[ ] POTABLE WATER	[ ] TEFLON LINED TUBING	[ ] GEOPROBE SCREEN	[X] WQ METER	Horiba U-52
	[ ] NITRIC ACID	[X] HDPE TUBING	[ ] TEFLON BLADDER	[X] TURB. METER	Horiba U-52
[ ] WATTERA	[ ] HEXANE	[ ] LDPE TUBING	[ ] OTHER	[X] PUMP	Pine Peri Pump
[ ] OTHER	[ ] METHANOL	[ ] OTHER	[ ] OTHER	[ ] OTHER	
[ ] OTHER	[ ] OTHER	[ ] OTHER	[ ] OTHER	[ ] FILTERS	NO. TYPE

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	Arsenic, chromium, copper	6010C	No	Nitric Acid	250 ml	Yes		See COC

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED — YES [ ] NO [X]

NUMBER OF GALLONS GENERATED: 2.60

NO-PURGE METHOD UTILIZED — YES [ ] NO [ ]

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signature: Lexie Lill Print Name: Lexie Lill

Checked By: Justin King Date: 11/9/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Paulsen-Holbrook
PROJECT NUMBER	386554.0000.0000
SAMPLE ID	PH-ML-15
SAMPLE TIME	9:45
LOCATION ID	ML-15
DATE	10/1/2020
START TIME	9:00
END TIME	9:45
SITE NAME/NUMBER	401046
PAGE	1 OF 1

WELL DIAMETER (INCHES) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [X] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

INITIAL DTW (BMP)	17.82 FT	**FINAL DTW (BMP)**	17.98 FT	**PROT. CASING STICKUP (AGS)**	- FT	**TOC/TOR DIFFERENCE**	- FT
WELL DEPTH (BMP)	28.16 FT	**SCREEN LENGTH**	FT	**PID AMBIENT AIR**	0.0 PPM	**REFILL TIMER SETTING**	- SEC
WATER COLUMN	10.34 FT	**DRAWDOWN VOLUME** (final DTW - initial DTW X well diam. squared X 0.041)	0.026 GAL	**PID WELL MOUTH**	7.6 PPM	**DISCHARGE TIMER SETTING**	- SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	1.70 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	3.51 GAL	**DRAWDOWN/ TOTAL PURGED**		**PRESSURE TO PUMP**	- PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
9:00	**BEGIN PURGING**									
9:15	18.12	300	12.44	0.454	7.51	6.66	48.5	10	25	
9:20	17.98	200	12.56	0.461	7.46	5.8	45	-6	25	
9:25	17.97	200	12.58	0.462	7.44	5.33	25.4	-18	25	
9:30	17.96	200	12.65	0.459	7.44	4.84	23.1	-21	25	
9:35	17.96	200	12.68	0.461	7.41	4.38	15.8	-23	25	
9:40	17.97	200	12.68	0.46	7.41	4.52	13.0	-25	25	
9:45	17.98	200	12.7	0.458	7.42	4.46	10.8	-27	25	

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

	13	**0.458**	**7.4**	**4.5**	**10.8**	**-27**

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] _____
- [ ] WATTERA
- [ ] OTHER _____
- [ ] OTHER _____

DECON FLUIDS USED
- [ ] LIQUINOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [X] SILICON TUBING
- [ ] TEFLON TUBING
- [ ] TEFLON LINED TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER _____
- [ ] OTHER _____

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] TEFLON BLADDER
- [ ] OTHER _____
- [ ] OTHER _____
- [ ] OTHER _____

EQUIPMENT USED
- [X] WL METER Heron
- [X] PID MiniRAE 3000
- [X] WQ METER Horiba U-52
- [X] TURB. METER Horiba U-52
- [X] PUMP Pine Peri Pump
- [ ] OTHER _____
- [ ] FILTERS NO. ____ TYPE _____

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	Arsenic, chromium, copper	6010C	No	Nitric Acid	250 ml	Yes		See COC

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED — YES [ ] NO [X]

NO-PURGE METHOD UTILIZED — YES [ ] NO [ ]

NUMBER OF GALLONS GENERATED: 3.51

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signature: Lexie Lill Print Name: Lexie Lill

Checked By: Justin King Date: 11/9/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Paulsen-Holbrook
PROJECT NUMBER	386554.0000.0000
SAMPLE ID	PH-PHMW-01
SAMPLE TIME	11:50

LOCATION ID	PHMW-01
DATE	10/1/2020
START TIME	11:15
END TIME	11:55
SITE NAME/NUMBER	401046
PAGE	1 OF 1

WELL DIAMETER (INCHES) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [X] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

INITIAL DTW (BMP)	18.54 FT	**FINAL DTW (BMP)**	18.8 FT	**PROT. CASING STICKUP (AGS)**	- FT	**TOC/TOR DIFFERENCE**	- FT
WELL DEPTH (BMP)	42.32 FT	**SCREEN LENGTH**	FT	**PID AMBIENT AIR**	0.0 PPM	**REFILL TIMER SETTING**	- SEC
WATER COLUMN	23.78 FT	**DRAWDOWN VOLUME** (final DTW - initial DTW X well diam. squared X 0.041)	0.043 GAL	**PID WELL MOUTH**	7.6 PPM	**DISCHARGE TIMER SETTING**	- SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	3.90 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	1.95 GAL	**DRAWDOWN/ TOTAL PURGED**		**PRESSURE TO PUMP**	- PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
11:15	**BEGIN PURGING**									
11:20	18.6	250	17.62	0.683	6.78	2.04	5.8	-210	30	
11:25	18.63	250	17.3	0.664	6.82	1.57	0.6	-216	30	
11:30	18.67	250	17.08	0.65	6.79	2.22	0.2	-218	30	
11:35	18.72	250	17.13	0.639	6.78	1.4	0.0	-219	30	
11:40	18.75	250	17.11	0.638	6.77	1.34	0.0	-219	30	
11:45	18.8	250	17.13	0.632	6.77	1.29	0.0	-219	30	

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

17	**0.632**	**6.8**	**1.3**	**0**	**-220**	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] _____
- [ ] WATTERA
- [ ] OTHER _____
- [ ] OTHER _____

DECON FLUIDS USED
- [ ] LIQUINOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [X] SILICON TUBING
- [ ] TEFLON TUBING
- [ ] TEFLON LINED TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER _____
- [ ] OTHER _____

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] TEFLON BLADDER
- [ ] OTHER _____
- [ ] OTHER _____
- [ ] OTHER _____

EQUIPMENT USED
- [X] WL METER Heron
- [X] PID MiniRAE 3000
- [X] WQ METER Horiba U-52
- [X] TURB. METER Horiba U-52
- [X] PUMP Pine Peri Pump
- [ ] OTHER _____
- [ ] FILTERS NO. ____ TYPE _____

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	Arsenic, chromium, copper	6010C	No	Nitric Acid	250 ml	Yes		See COC

PURGE OBSERVATIONS

	YES	NO
PURGE WATER CONTAINERIZED	[ ]	[X]
NO-PURGE METHOD UTILIZED	[ ]	[ ]

NUMBER OF GALLONS GENERATED: 1.95

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signature: Lexie Lill Print Name: Lexie Lill

Checked By: Justin King Date: 11/9/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Paulsen-Holbrook
PROJECT NUMBER	386554.0000.0000
SAMPLE ID	PH-PHMW-02S
SAMPLE TIME	11:40
LOCATION ID	PHMW-02S
DATE	10/1/2020
START TIME	11:05
END TIME	11:40
SITE NAME/NUMBER	401046
PAGE	1 OF 1

WELL DIAMETER (INCHES) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [X] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

INITIAL DTW (BMP)	18.86 FT	**FINAL DTW (BMP)**	18.99 FT	**PROT. CASING STICKUP (AGS)**	- FT	**TOC/TOR DIFFERENCE**	- FT
WELL DEPTH (BMP)	22.68 FT	**SCREEN LENGTH**	FT	**PID AMBIENT AIR**	PPM	**REFILL TIMER SETTING**	- SEC
WATER COLUMN	3.82 FT	**DRAWDOWN VOLUME** (final DTW - initial DTW X well diam. squared X 0.041)	0.021 GAL	**PID WELL MOUTH**	PPM	**DISCHARGE TIMER SETTING**	- SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	0.63 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	2.28 GAL	**DRAWDOWN/ TOTAL PURGED**		**PRESSURE TO PUMP**	- PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
11:05	**BEGIN PURGING**									
11:20	19.15	250	15.54	0.852	6.81	3.68	116	33	20	
11:25	19.05	200	15.74	0.856	6.8	3.75	25.8	31	20	
11:30	18.97	200	15.94	0.857	6.8	3.76	5.4	32	20	
11:35	18.98	200	16.26	0.863	6.8	3.82	2.5	35	20	
11:40	18.99	200	16.32	0.869	6.8	3.85	1.5	35	20	

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

16	**0.869**	**6.8**	**3.9**	**1.5**	**35**	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] _____
- [ ] WATTERA
- [ ] OTHER _____
- [ ] OTHER _____

DECON FLUIDS USED
- [ ] LIQUINOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [X] SILICON TUBING
- [ ] TEFLON TUBING
- [ ] TEFLON LINED TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER _____
- [ ] OTHER _____

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] TEFLON BLADDER
- [ ] OTHER _____
- [ ] OTHER _____
- [ ] OTHER _____

EQUIPMENT USED
- [X] WL METER Heron
- [X] PID MiniRAE 3000
- [X] WQ METER Horiba U-52
- [X] TURB. METER Horiba U-52
- [X] PUMP Pine Peri Pump
- [ ] OTHER _____
- [ ] FILTERS NO. ____ TYPE _____

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	Arsenic, chromium, copper	6010C	No	Nitric Acid	250 ml	Yes		See COC

PURGE OBSERVATIONS

	YES	NO
PURGE WATER CONTAINERIZED	[ ]	[X]
NO-PURGE METHOD UTILIZED	[ ]	[ ]

NUMBER OF GALLONS GENERATED: 2.28

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signature: Lexie Lill Print Name: Lexie Lill

Checked By: Justin King Date: 11/9/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Paulsen-Holbrook
PROJECT NUMBER	386554.0000.0000
SAMPLE ID	PH-PHMW-02D
SAMPLE TIME	12:45
LOCATION ID	PHMW-02D
DATE	10/1/2020
START TIME	12:00
END TIME	12:45
SITE NAME/NUMBER	401046
PAGE	1 OF 1

WELL DIAMETER (INCHES) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [X] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

INITIAL DTW (BMP)	18.8 FT	**FINAL DTW (BMP)**	18.85 FT	**PROT. CASING STICKUP (AGS)**	- FT	**TOC/TOR DIFFERENCE**	- FT
WELL DEPTH (BMP)	42.22 FT	**SCREEN LENGTH**	FT	**PID AMBIENT AIR**	PPM	**REFILL TIMER SETTING**	- SEC
WATER COLUMN	23.42 FT	**DRAWDOWN VOLUME** (final DTW - initial DTW X well diam. squared X 0.041)	0.008 GAL	**PID WELL MOUTH**	PPM	**DISCHARGE TIMER SETTING**	- SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	3.84 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	2.93 GAL	**DRAWDOWN/ TOTAL PURGED**		**PRESSURE TO PUMP**	- PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
12:00	**BEGIN PURGING**									
12:15	18.84	250	16.07	1.49	7.39	15	6.5	30	35	
12:20	18.84	250	16.17	1.49	7.39	13.86	5.2	29	35	
12:25	18.84	250	16.78	1.48	7.39	10.66	4.4	13	35	
12:30	18.85	250	17.01	1.47	7.39	10.07	2.0	0	35	
12:35	18.85	250	16.93	1.48	7.39	9.45	0.6	-17	35	
12:40	18.85	250	16.91	1.48	7.39	9.07	0.4	-21	35	
12:45	18.85	250	16.89	1.48	7.39	8.99	0	-23	35	
FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])			**17**	**1.48**	**7.4**	**9**	**0**	**-23**		

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] _____
- [ ] WATTERA
- [ ] OTHER _____
- [ ] OTHER _____

DECON FLUIDS USED
- [ ] LIQUINOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [X] SILICON TUBING
- [ ] TEFLON TUBING
- [ ] TEFLON LINED TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER _____
- [ ] OTHER _____

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] TEFLON BLADDER
- [ ] OTHER _____
- [ ] OTHER _____
- [ ] OTHER _____

EQUIPMENT USED
- [X] WL METER Heron
- [X] PID MiniRAE 3000
- [X] WQ METER Horiba U-52
- [X] TURB. METER Horiba U-52
- [X] PUMP Pine Peri Pump
- [ ] OTHER _____
- [ ] FILTERS NO. ____ TYPE _____

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	Arsenic, chromium, copper	6010C	No	Nitric Acid	250 ml	Yes		See COC

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED — YES [ ] NO [X]

NUMBER OF GALLONS GENERATED: 2.93

NO-PURGE METHOD UTILIZED — YES [ ] NO [ ]

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signature: Lexie Lill Print Name: Lexie Lill

Checked By: Justin King Date: 11/9/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Paulsen-Holbrook
PROJECT NUMBER	386554.0000.0000
SAMPLE ID	PH-PHMW-03D
SAMPLE TIME	10:45

LOCATION ID	PHMW-03D
DATE	10/1/2020
START TIME	10:05
END TIME	10:45
SITE NAME/NUMBER	401046
PAGE	1 OF 1

WELL DIAMETER (INCHES) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [X] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

INITIAL DTW (BMP)	16.55 FT	**FINAL DTW (BMP)**	16.29 FT	**PROT. CASING STICKUP (AGS)**	- FT	**TOC/TOR DIFFERENCE**	- FT
WELL DEPTH (BMP)	41.89 FT	**SCREEN LENGTH**	FT	**PID AMBIENT AIR**	PPM	**REFILL TIMER SETTING**	- SEC
WATER COLUMN	25.34 FT	**DRAWDOWN VOLUME** (final DTW - initial DTW X well diam. squared X 0.041)	-0.043 GAL	**PID WELL MOUTH**	PPM	**DISCHARGE TIMER SETTING**	- SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	4.16 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	2.60 GAL	**DRAWDOWN/ TOTAL PURGED**		**PRESSURE TO PUMP**	- PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
10:05	**BEGIN PURGING**									
10:20	16.5	250	13.12	1.3	7.39	4.34	31.7	-118	35	
10:25	16.44	250	13.15	1.3	7.4	4.08	33.3	-110	35	
10:30	16.33	250	13.27	1.28	7.4	4.08	41.1	-102	35	
10:35	16.3	250	13.29	1.28	7.4	3.92	1.9	-94	35	
10:40	16.3	250	13.31	1.28	7.4	4.02	1.9	-89	35	
10:45	16.29	250	13.32	1.28	7.41	3.97	1.4	-88	35	

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

	13	**1.3**	**7.4**	**4**	**1.4**	**-88**

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] _____
- [ ] WATTERA
- [ ] OTHER _____
- [ ] OTHER _____

DECON FLUIDS USED
- [ ] LIQUINOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [X] SILICON TUBING
- [ ] TEFLON TUBING
- [ ] TEFLON LINED TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER _____
- [ ] OTHER _____

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] TEFLON BLADDER
- [ ] OTHER _____
- [ ] OTHER _____
- [ ] OTHER _____

EQUIPMENT USED
- [X] WL METER Heron
- [X] PID MiniRAE 3000
- [X] WQ METER Horiba U-52
- [X] TURB. METER Horiba U-52
- [X] PUMP Pine Peri Pump
- [ ] OTHER _____
- [ ] FILTERS NO. ____ TYPE _____

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	Arsenic, chromium, copper	6010C	No	Nitric Acid	250 ml	Yes		See COC

PURGE OBSERVATIONS

PURGE WATER CONTAINERIZED — YES [ ] NO [X]

NO-PURGE METHOD UTILIZED — YES [ ] NO [ ]

NUMBER OF GALLONS GENERATED: 2.60

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signature: Lexie Lill Print Name: Lexie Lill

Checked By: Justin King Date: 11/9/2020

LOW FLOW GROUNDWATER SAMPLING RECORD

PROJECT NAME	Former Paulsen-Holbrook
PROJECT NUMBER	386554.0000.0000
SAMPLE ID	PH-PHMW-04S
SAMPLE TIME	13:35

LOCATION ID	PHMW-04S
DATE	10/1/2020
START TIME	13:00
END TIME	13:35
SITE NAME/NUMBER	401046
PAGE	1 OF 1

WELL DIAMETER (INCHES) [ ] 1 [X] 2 [ ] 4 [ ] 6 [ ] 8 [ ] OTHER

TUBING ID (INCHES) [ ] 1/8 [X] 1/4 [ ] 3/8 [ ] 1/2 [ ] 5/8 [ ] OTHER

MEASUREMENT POINT (MP) [ ] TOP OF RISER (TOR) [X] TOP OF CASING (TOC) [ ] OTHER

WELL INTEGRITY

	YES	NO	N/A
CAP			
CASING			
LOCKED			
COLLAR			

INITIAL DTW (BMP)	16.1 FT	**FINAL DTW (BMP)**	15.96 FT	**PROT. CASING STICKUP (AGS)**	- FT	**TOC/TOR DIFFERENCE**	- FT
WELL DEPTH (BMP)	27.48 FT	**SCREEN LENGTH**	FT	**PID AMBIENT AIR**	PPM	**REFILL TIMER SETTING**	- SEC
WATER COLUMN	11.38 FT	**DRAWDOWN VOLUME** (final DTW - initial DTW X well diam. squared X 0.041)	-0.023 GAL	**PID WELL MOUTH**	PPM	**DISCHARGE TIMER SETTING**	- SEC
CALCULATED GAL/VOL (column X well diameter squared X 0.041)	1.87 GAL	**TOTAL VOL. PURGED** (mL per minute X total minutes X 0.00026 gal/mL)	2.73 GAL	**DRAWDOWN/ TOTAL PURGED**		**PRESSURE TO PUMP**	- PSI

FIELD PARAMETERS WITH PROGRAM STABILIZATION CRITERIA (AS LISTED IN THE QAPP)

TIME 3-5 Minutes	DTW (FT) 0.0-0.33 ft Drawdown	PURGE RATE (mL/min)	TEMP. (°C) (+/- 3 degrees)	SP. CONDUCTANCE (mS/cm) (+/- 3%)	pH (units) (+/- 0.1 units)	DISS. O_2 (mg/L) (+/- 10%)	TURBIDITY (ntu) (+/- 10% <10 ntu)	REDOX (mv) (+/- 10 mv)	PUMP INTAKE DEPTH (ft)	COMMENTS
13:00	**BEGIN PURGING**									
13:15	15.95	300	14.34	0.64	7.11	3.77	0	11	25	
13:20	15.95	300	14.29	0.641	7.1	3.67	0	6	25	
13:25	15.95	300	14.16	0.642	7.1	3.67	0	-1	25	
13:30	15.96	300	14.26	0.641	7.07	3.89	0.0	-6	25	
13:35	15.96	300	14.29	0.641	7.07	3.74	0.0	-8	25	

FINAL STABILIZED FIELD PARAMETERS (to appropriate significant figures[SF])

14	**0.641**	**7.1**	**3.7**	**0**	**-8**	

TEMP.: nearest degree (ex. 10.1 = 10)
COND.: 3 SF max (ex. 3333 = 3330, 0.696 = 0.696)
pH: nearest tenth (ex. 5.53 = 5.5)
DO: nearest tenth (ex. 3.51 = 3.5)
TURB: 3 SF max, nearest tenth (6.19 = 6.2, 101 = 101)
ORP: 2 SF (44.1 = 44, 191 = 190)

EQUIPMENT DOCUMENTATION

TYPE OF PUMP
- [X] PERISTALTIC
- [ ] SUBMERSIBLE
- [ ] BLADDER
- [ ] _____
- [ ] WATTERA
- [ ] OTHER _____
- [ ] OTHER _____

DECON FLUIDS USED
- [ ] LIQUINOX
- [ ] DEIONIZED WATER
- [ ] POTABLE WATER
- [ ] NITRIC ACID
- [ ] HEXANE
- [ ] METHANOL
- [ ] OTHER _____

TUBING/PUMP/BLADDER MATERIALS
- [X] SILICON TUBING
- [ ] TEFLON TUBING
- [ ] TEFLON LINED TUBING
- [X] HDPE TUBING
- [ ] LDPE TUBING
- [ ] OTHER _____
- [ ] OTHER _____

- [ ] S. STEEL PUMP MATERIAL
- [ ] PVC PUMP MATERIAL
- [ ] GEOPROBE SCREEN
- [ ] TEFLON BLADDER
- [ ] OTHER _____
- [ ] OTHER _____
- [ ] OTHER _____

EQUIPMENT USED
- [X] WL METER Heron
- [X] PID MiniRAE 3000
- [X] WQ METER Horiba U-52
- [X] TURB. METER Horiba U-52
- [X] PUMP Pine Peri Pump
- [ ] OTHER _____
- [ ] FILTERS NO. ____ TYPE _____

ANALYTICAL PARAMETERS

	PARAMETER	METHOD NUMBER	FIELD FILTERED	PRESERVATION METHOD	VOLUME REQUIRED	SAMPLE COLLECTED	QC COLLECTED	SAMPLE BOTTLE ID NUMBERS
X	Arsenic, chromium, copper	6010C	No	Nitric Acid	250 ml	Yes		See COC

PURGE OBSERVATIONS

	YES	NO
PURGE WATER CONTAINERIZED	[ ]	[X]
NO-PURGE METHOD UTILIZED	[ ]	[ ]

NUMBER OF GALLONS GENERATED: 2.73

If yes, purged approximately 1 standing volume prior to sampling or _____mL for this sample location.

SKETCH/NOTES

Sampler Signatur: Lexie Lill Print Name: Lexie Lill

Checked By: Justin King Date: 11/9/2020

APPENDIX D

Data Usability Summary Report

Site: SMP B Former Paulsen - Holbrooke
Laboratory: Eurofins TestAmerica Buffalo – Amherst, NY
SDG No.: 480-175899-1
Parameters: Metals / Arsenic, Chromium, Copper
Data Reviewer: Amy Bass/TRC
Peer Reviewer: Elizabeth Denly/TRC
Date: October 15, 2020

Sample Reviewed and Evaluation Summary

15 / Groundwater: PH-ML-01, PH-ML-2R, PH-ML-03, PH-ML-04, PH-ML-06, PH-ML-07, PH-ML-10, PH-ML-14, PH-ML-15, PH-PHMW-01, PH-PHMW-02D, PH-PHMW-02S, PH-PHMW-03D, PH-PHMW-04S, PH-ML-DUP[1]

[1]Field duplicate for PH-ML-01

The above-listed groundwater samples were collected on September 30 and October 1, 2020, and were analyzed for metals by SW-846 Method 6010C.

The data validation was performed in accordance with *USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review (EPA-540-R-2017-001),* January 2017, modified for the SW-846 methodologies utilized.

The data were evaluated based on the following parameters:

	•	Overall Evaluation of Data and Potential Usability Issues
*	•	Data Completeness
*	•	Holding Times and Sample Preservation
*	•	Initial and Continuing Calibrations
	•	Interference Check Sample (ICS) Results
*	•	Blanks
	•	Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
NA	•	Laboratory Duplicate Results
*	•	Serial Dilution Results
*	•	Laboratory Control Sample (LCS) Results
*	•	Field Duplicate Results
	•	Sample Results and Reported Quantitation Limits (QLs)

*	-	All criteria were met.
NA	-	Laboratory duplicates were not associated with this sample set.

Overall Evaluation of Data and Potential Usability Issues

All results are usable for project objectives. Qualifications applied to the data as a result of sampling error were not required. Qualifications applied to the data as a result of analytical error are discussed below.

- Potential uncertainty exists for select metals results that were detected between the method detection limit (MDL) and QL. These results were qualified as estimated (J) by the laboratory. These results can be used for project objectives as estimated values, which may have a minor impact on the data usability.

- The positive and nondetect results for arsenic, chromium, and copper in all samples were qualified as estimated (J/UJ) due to low MS recoveries and MS/MSD variability. These results can be used for project objectives as estimated values and as nondetects with estimated QLs, which may have a minor impact on the data usability.

Data Completeness

The data package was a complete Level IV data deliverable package.

Holding Times and Sample Preservation

All holding time and sample preservation method criteria were met for the metals analyses.

Initial and Continuing Calibrations

All initial calibration coefficients were >0.995, as applicable. The initial calibration verification and continuing calibration verification percent recoveries (%Rs) met the method acceptance limits for the metals analyses. The low-level check standard %Rs met the quality control (QC) acceptance limits of 70-130%.

ICS Results

All analytes recovered within the acceptance limits (80-120%) in the ICSAB sample analyses. Arsenic and chromium were detected as negative interference in one or more ICSA analyses, at levels (absolute value) exceeding the MDL but below the QL. The interferent metals (aluminum, calcium, iron and magnesium) are not included in the reported analytes; therefore, ICS interferences were not evaluated further in this sample set.

Blanks

Target analytes were not detected in the laboratory method blanks or in the initial and continuing calibration blanks.

MS/MSD Results

MS/MSD and post-digestion spike (PDS) analyses for metals were performed using sample PH-ML-01. Qualification of the data is not required in the case of nonconformances when the sample concentration is >4x the spike concentration; thus, these results were not evaluated or summarized in this report. The table below summarizes the MS %Rs and MS/MSD relative percent differences (RPDs) that did not meet the acceptance criteria (75-125% for MS/MSD and PDS %Rs; ≤20% for the RPD), the associated samples, and the resulting validation actions. All MSD and PDS %Rs met the acceptance criteria.

MS/MSD Sample ID	Analyte	MS %R	MSD %R	RPD	Validation Action
PH-ML-01	Arsenic	68	-	42	The positive and nondetect results for these analytes were qualified as estimated (J/UJ) in the associated samples.
	Chromium	64	-	42	
	Copper	67	-	41	
Associated samples: PH-ML-01, PHL-ML-2R, PH-ML-03, PH-ML-04, PH-ML-06, PH-ML-07, PH-ML-10, PH-ML-14, PH-ML-15, PH-PHMW-01, PH-PHMW-02D, PH-PHMW-02S, PH-PHMW-03D, PH-PHMW-04S, PH-ML-DUP					

MS/MSD Sample ID	Analyte	MS %R	MSD %R	RPD	Validation Action
-: Met criteria					

Laboratory Duplicate Results

Laboratory duplicate analyses were not performed on any samples in this data set.

Serial Dilution Results

Serial dilution analysis was performed using sample PH-ML-01. No analytes were detected at >50× the MDL in sample PH-ML-01; therefore, the serial dilution results are not applicable and were not calculated by the laboratory.

LCS Results

The %Rs met the laboratory acceptance criteria in the LCS analyses.

Field Duplicate Results

The field duplicate pair PH-ML-01 and PH-ML-DUP was submitted with this sample set. Only chromium was detected. The chromium concentrations in PH-ML-01 (0.0013 J mg/L) and PH-ML-DUP (0.0016 J mg/L) are <5× the QL of 0.0040 mg/L, and the absolute difference between the results (0.0003 mg/L) is ≤QL; therefore, criteria are met, and no qualification is required.

Sample Results and Reported Quantitation Limits

Select metal results were reported between the MDL and QL. These results were qualified as estimated (J) by the laboratory.

Sample calculations were spot-checked; there were no errors noted.

Dilution (2-fold) was performed for the arsenic analysis in sample PH-ML-2R to bring the concentration within the range of calibration. No other dilutions were associated with the metals analyses in this sample set.

QUALIFIED FORM 1s

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: PH-ML-06 Lab Sample ID: 480-175899-1

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-175899-1

SDG ID.:

Matrix: Water Date Sampled: 09/30/2020 14:45

Reporting Basis: WET Date Received: 10/02/2020 08:00

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	ND	0.015	0.0056	mg/L		UJ	1	6010C
7440-47-3	Chromium	0.0020	0.0040	0.0010	mg/L	J	J	1	6010C
7440-50-8	Copper	ND	0.010	0.0016	mg/L		UJ	1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: PH-ML-07 Lab Sample ID: 480-175899-2

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-175899-1

SDG ID.:

Matrix: Water Date Sampled: 09/30/2020 16:15

Reporting Basis: WET Date Received: 10/02/2020 08:00

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	ND	0.015	0.0056	mg/L		UJ	1	6010C
7440-47-3	Chromium	ND	0.0040	0.0010	mg/L		UJ	1	6010C
7440-50-8	Copper	ND	0.010	0.0016	mg/L		UJ	1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: PH-ML-03 Lab Sample ID: 480-175899-3

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-175899-1

SDG ID.:

Matrix: Water Date Sampled: 09/30/2020 15:25

Reporting Basis: WET Date Received: 10/02/2020 08:00

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	0.075	0.015	0.0056	mg/L		J	1	6010C
7440-47-3	Chromium	0.0048	0.0040	0.0010	mg/L		J	1	6010C
7440-50-8	Copper	0.087	0.010	0.0016	mg/L		J	1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: PH-ML-2R
Lab Sample ID: 480-175899-4
Lab Name: Eurofins TestAmerica, Buffalo
Job No.: 480-175899-1
SDG ID.:
Matrix: Water
Date Sampled: 09/30/2020 16:15
Reporting Basis: WET
Date Received: 10/02/2020 08:00

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	6.5	0.030	0.011	mg/L		J	2	6010C
7440-47-3	Chromium	0.063	0.0040	0.0010	mg/L		J	1	6010C
7440-50-8	Copper	0.080	0.010	0.0016	mg/L		J	1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: PH-ML-15 Lab Sample ID: 480-175899-5

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-175899-1

SDG ID.:

Matrix: Water Date Sampled: 10/01/2020 09:45

Reporting Basis: WET Date Received: 10/02/2020 08:00

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	0.0067	0.015	0.0056	mg/L	J	J	1	6010C
7440-47-3	Chromium	ND	0.0040	0.0010	mg/L		UJ	1	6010C
7440-50-8	Copper	ND	0.010	0.0016	mg/L		UJ	1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: PH-PHMW-02D
Lab Sample ID: 480-175899-6
Lab Name: Eurofins TestAmerica, Buffalo
Job No.: 480-175899-1
SDG ID.:
Matrix: Water
Date Sampled: 10/01/2020 12:45
Reporting Basis: WET
Date Received: 10/02/2020 08:00

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	ND	0.015	0.0056	mg/L		UJ	1	6010C
7440-47-3	Chromium	0.0010	0.0040	0.0010	mg/L	J	J	1	6010C
7440-50-8	Copper	ND	0.010	0.0016	mg/L		UJ	1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: PH-PHMW-02S
Lab Sample ID: 480-175899-7
Lab Name: Eurofins TestAmerica, Buffalo
Job No.: 480-175899-1
SDG ID.:
Matrix: Water
Date Sampled: 10/01/2020 11:40
Reporting Basis: WET
Date Received: 10/02/2020 08:00

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	ND	0.015	0.0056	mg/L		UJ	1	6010C
7440-47-3	Chromium	0.0016	0.0040	0.0010	mg/L	J	J	1	6010C
7440-50-8	Copper	ND	0.010	0.0016	mg/L		UJ	1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: PH-PHMW-03D
Lab Sample ID: 480-175899-8
Lab Name: Eurofins TestAmerica, Buffalo
Job No.: 480-175899-1
SDG ID.:
Matrix: Water
Date Sampled: 10/01/2020 10:45
Reporting Basis: WET
Date Received: 10/02/2020 08:00

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	ND	0.015	0.0056	mg/L		UJ	1	6010C
7440-47-3	Chromium	ND	0.0040	0.0010	mg/L		UJ	1	6010C
7440-50-8	Copper	ND	0.010	0.0016	mg/L		UJ	1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: PH-PHMW-04S
Lab Sample ID: 480-175899-9
Lab Name: Eurofins TestAmerica, Buffalo
Job No.: 480-175899-1
SDG ID.:
Matrix: Water
Date Sampled: 10/01/2020 13:35
Reporting Basis: WET
Date Received: 10/02/2020 08:00

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	ND	0.015	0.0056	mg/L		UJ	1	6010C
7440-47-3	Chromium	ND	0.0040	0.0010	mg/L		UJ	1	6010C
7440-50-8	Copper	ND	0.010	0.0016	mg/L		UJ	1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: PH-ML-10 Lab Sample ID: 480-175899-10

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-175899-1

SDG ID.:

Matrix: Water Date Sampled: 10/01/2020 09:25

Reporting Basis: WET Date Received: 10/02/2020 08:00

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	ND	0.015	0.0056	mg/L		UJ	1	6010C
7440-47-3	Chromium	0.0034	0.0040	0.0010	mg/L	J	J	1	6010C
7440-50-8	Copper	0.0035	0.010	0.0016	mg/L	J	J	1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: PH-ML-01 Lab Sample ID: 480-175899-11

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-175899-1

SDG ID.:

Matrix: Water Date Sampled: 10/01/2020 10:25

Reporting Basis: WET Date Received: 10/02/2020 08:00

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	ND	0.015	0.0056	mg/L	UJ	~~F1 F2~~	1	6010C
7440-47-3	Chromium	0.0013	0.0040	0.0010	mg/L	~~J~~ J	~~F1 F2~~	1	6010C
7440-50-8	Copper	ND	0.010	0.0016	mg/L	UJ	~~F1 F2~~	1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: PH-ML-DUP
Lab Sample ID: 480-175899-12
Lab Name: Eurofins TestAmerica, Buffalo
Job No.: 480-175899-1
SDG ID.:
Matrix: Water
Date Sampled: 10/01/2020 13:30
Reporting Basis: WET
Date Received: 10/02/2020 08:00

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	ND	0.015	0.0056	mg/L		UJ	1	6010C
7440-47-3	Chromium	0.0016	0.0040	0.0010	mg/L	J	J	1	6010C
7440-50-8	Copper	ND	0.010	0.0016	mg/L		UJ	1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: PH-PHMW-01 Lab Sample ID: 480-175899-13

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-175899-1

SDG ID.:

Matrix: Water Date Sampled: 10/01/2020 11:50

Reporting Basis: WET Date Received: 10/02/2020 08:00

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	1.8	0.015	0.0056	mg/L		J	1	6010C
7440-47-3	Chromium	ND	0.0040	0.0010	mg/L		UJ	1	6010C
7440-50-8	Copper	ND	0.010	0.0016	mg/L		UJ	1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: PH-ML-04 Lab Sample ID: 480-175899-14

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-175899-1

SDG ID.:

Matrix: Water Date Sampled: 10/01/2020 12:55

Reporting Basis: WET Date Received: 10/02/2020 08:00

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	1.2	0.015	0.0056	mg/L		J	1	6010C
7440-47-3	Chromium	0.17	0.0040	0.0010	mg/L		J	1	6010C
7440-50-8	Copper	ND	0.010	0.0016	mg/L		UJ	1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: PH-ML-14 Lab Sample ID: 480-175899-15

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-175899-1

SDG ID.:

Matrix: Water Date Sampled: 10/01/2020 14:05

Reporting Basis: WET Date Received: 10/02/2020 08:00

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	ND	0.015	0.0056	mg/L		UJ	1	6010C
7440-47-3	Chromium	0.033	0.0040	0.0010	mg/L		J	1	6010C
7440-50-8	Copper	ND	0.010	0.0016	mg/L		UJ	1	6010C

QC NONCONFORMANCE DOCUMENTATION

4A-IN

INTERFERENCE CHECK STANDARD

METALS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-175899-1

SDG No.:

Lab Sample ID: ICSA 480-552976/8 Instrument ID: ICAP1

Lab File ID: I1100720A-10.asc ICS Source: MEI_MSS_ICSA_00020

Concentration Units: mg/L

Analyte	MDL	QL	True Solution A	Found Solution A	Percent Recovery
Arsenic	0.00555	0.015		**-0.0127**	
Aluminum			*500*	*498*	*100*
Antimony				*-0.0159*	
Beryllium				*0.0001*	
Boron				*-0.0004*	
Cadmium				*0.0002*	
Calcium			*500*	*466*	*93*
Chromium				*0.0014*	
Cobalt				*0.0001*	
Copper				*0.0004*	
Iron			*200*	*188*	*94*
Lead				*-0.0040*	
Lithium				*0.0052*	
Magnesium			*500*	*503*	*101*
Manganese				*-0.0014*	
Molybdenum				*-0.0005*	
Nickel				*0.0002*	
Potassium				*0.151*	
Selenium				*0.0047*	
Silicon				*-0.0368*	
Silver				*-0.0011*	
Sodium				*0.0888*	
Sulfur				*-0.185*	
Thallium				*-0.0018*	
Tin				*0.0000*	
Titanium				*0.0029*	
Vanadium				*-0.0019*	
Zinc				*0.0026*	

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

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, Buffalo Job No.: 480-175899-1

SDG No.:

Lab Sample ID: ICSA 480-552620/8 Instrument ID: ICAP2

Lab File ID: I2100520A-2.asc ICS Source: MEI_MSS_ICSA_00020

Concentration Units: mg/L

Analyte	MDL	True Solution A QL	Found Solution A	Percent Recovery
Arsenic	0.0055	0.015	**-0.0063**	
Chromium	0.001	0.004	**-0.0024**	
Copper	0.0016	0.01	**-0.0006**	
Aluminum		*500*	*506*	*101*
Antimony			*-0.0146*	
Beryllium			*-0.0001*	
Boron			*-0.0002*	
Cadmium			*0.0013*	
Calcium		*500*	*478*	*96*
Cobalt			*0.0001*	
Iron		*200*	*188*	*94*
Lead			*-0.0015*	
Lithium			*-0.0057*	
Magnesium		*500*	*508*	*102*
Manganese			*-0.0011*	
Molybdenum			*-0.0057*	
Nickel			*-0.0019*	
Potassium			*-0.0152*	
Selenium			*-0.0032*	
Silicon			*-0.0246*	
Silver			*0.0021*	
Sodium			*0.0606*	
Sulfur			*-0.119*	
Thallium			*0.0003*	
Tin			*0.0004*	
Titanium			*0.0025*	
Vanadium			*0.0023*	
Zinc			*0.0012*	

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

FORM IVA-IN

5A-IN

MATRIX SPIKE SAMPLE RECOVERY

METALS

Client ID: PH-ML-01 MS | Lab ID: 480-175899-11 MS

Lab Name: Eurofins TestAmerica, Buffalo | Job No.: 480-175899-1

SDG No.:

Matrix: Water | Concentration Units: mg/L

% Solids:

Analyte	SSR	C	Sample Result (SR)	C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Arsenic	0.135		ND		0.200	68	75-125	F1	6010C
Chromium	0.129		0.0013	J	0.200	64	75-125	F1	6010C
Copper	0.134		ND		0.200	67	75-125	F1	6010C

SSR = Spiked Sample Result

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

FORM VA - IN

5A-IN

MATRIX SPIKE DUPLICATE SAMPLE RECOVERY

METALS

Client ID: PH-ML-01 MSD

Lab ID: 480-175899-11 MSD

Lab Name: Eurofins TestAmerica, Buffalo

Job No.: 480-175899-1

SDG No.:

Matrix: Water

Concentration Units: mg/L

% Solids:

Analyte	(SDR) C		Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Arsenic	0.207		0.200	104	75-125	42	20	F2	6010C
Chromium	0.197		0.200	98	75-125	42	20	F2	6010C
Copper	0.203		0.200	102	75-125	41	20	F2	6010C

SDR = Sample Duplicate Result

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

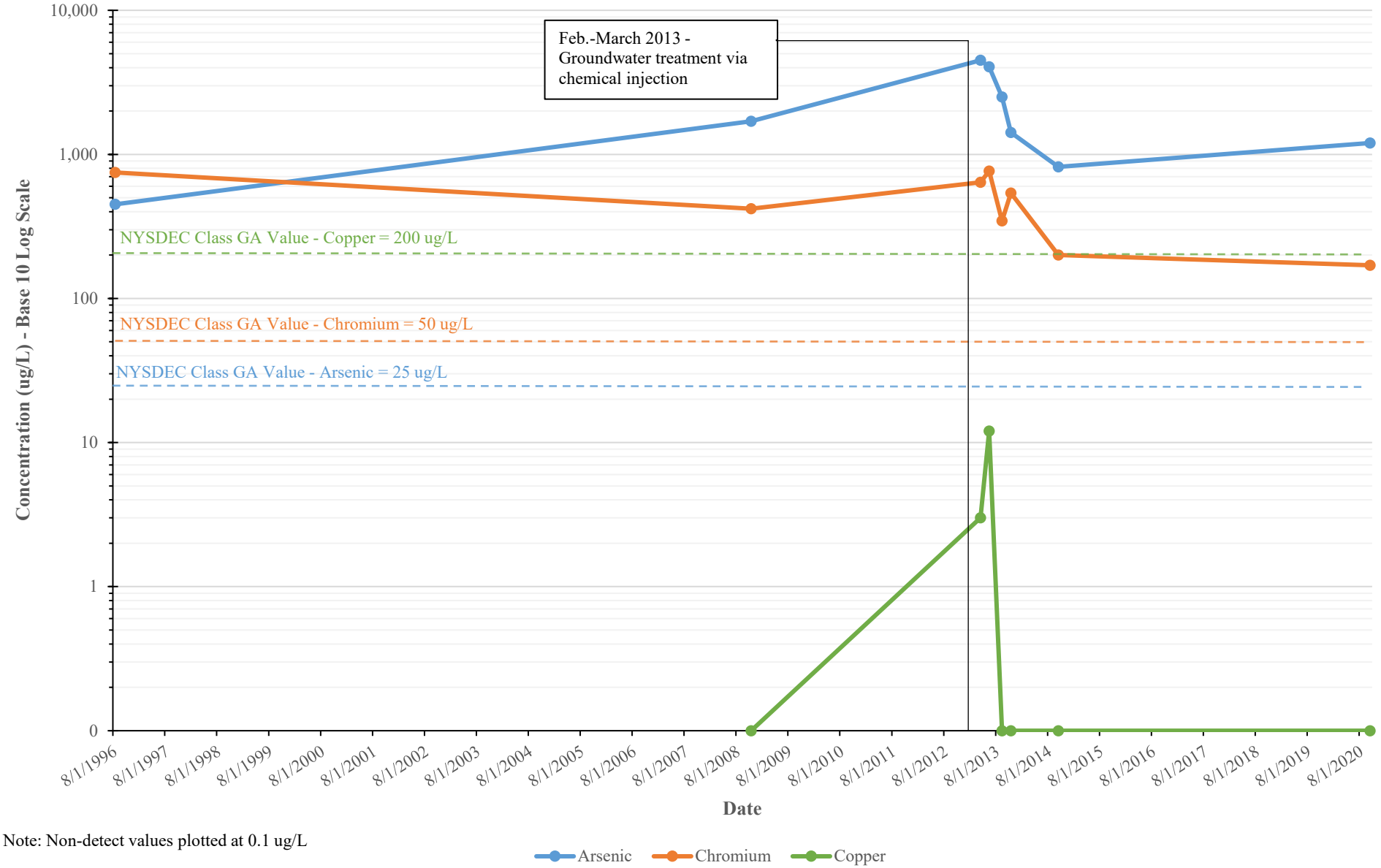
FORM VD - IN

APPENDIX E

Figure E-1
Monitoring Well Concentration Trends over Time: ML-2R
Former Paulsen-Holbrook Site (NYSDEC Site No. 401046)

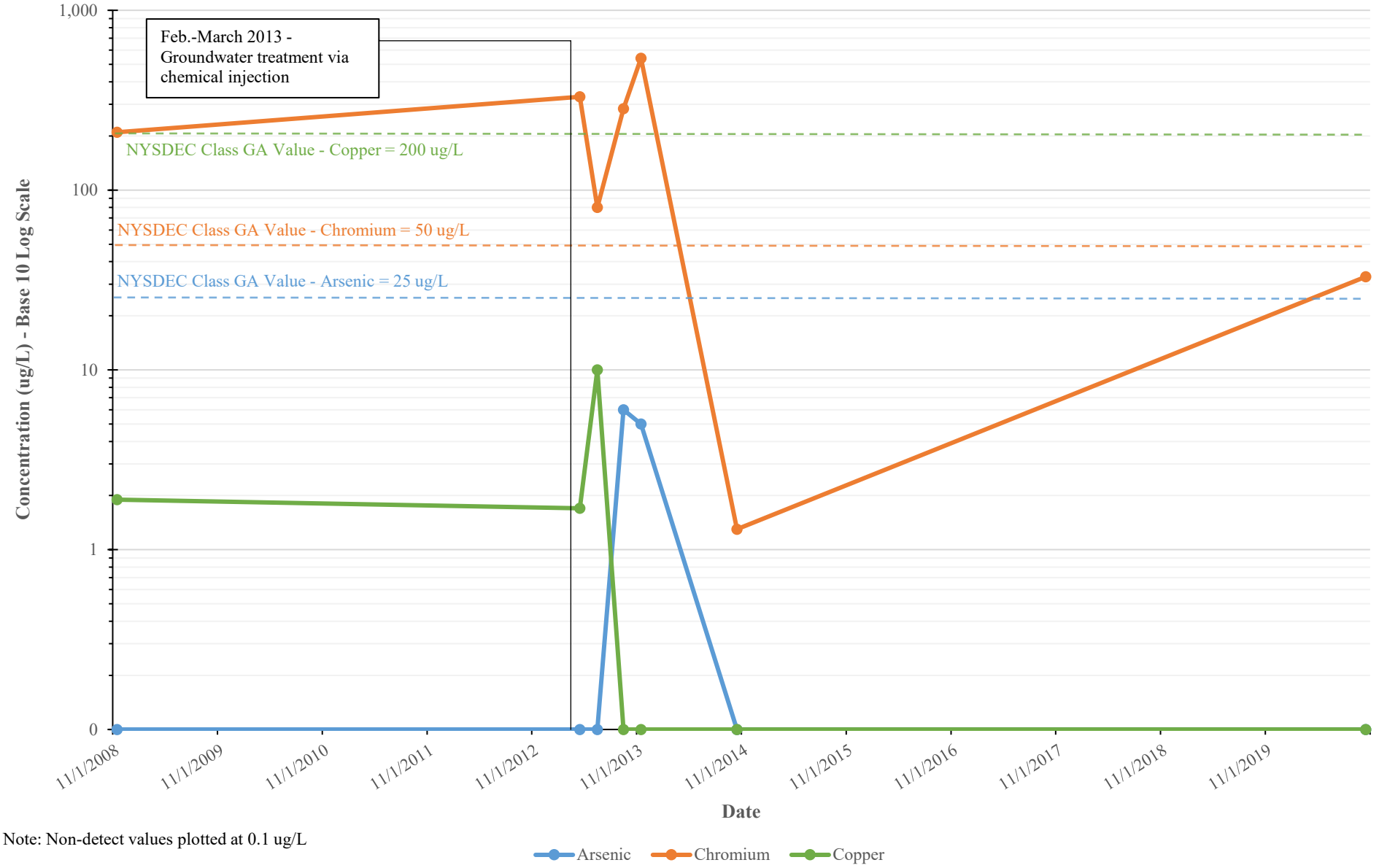
Note: Non-detect values plotted at 0.1 ug/L

Figure E-2
Monitoring Well Concentration Trends over Time: ML-04
Former Paulsen-Holbrook Site (NYSDEC Site No. 401046)



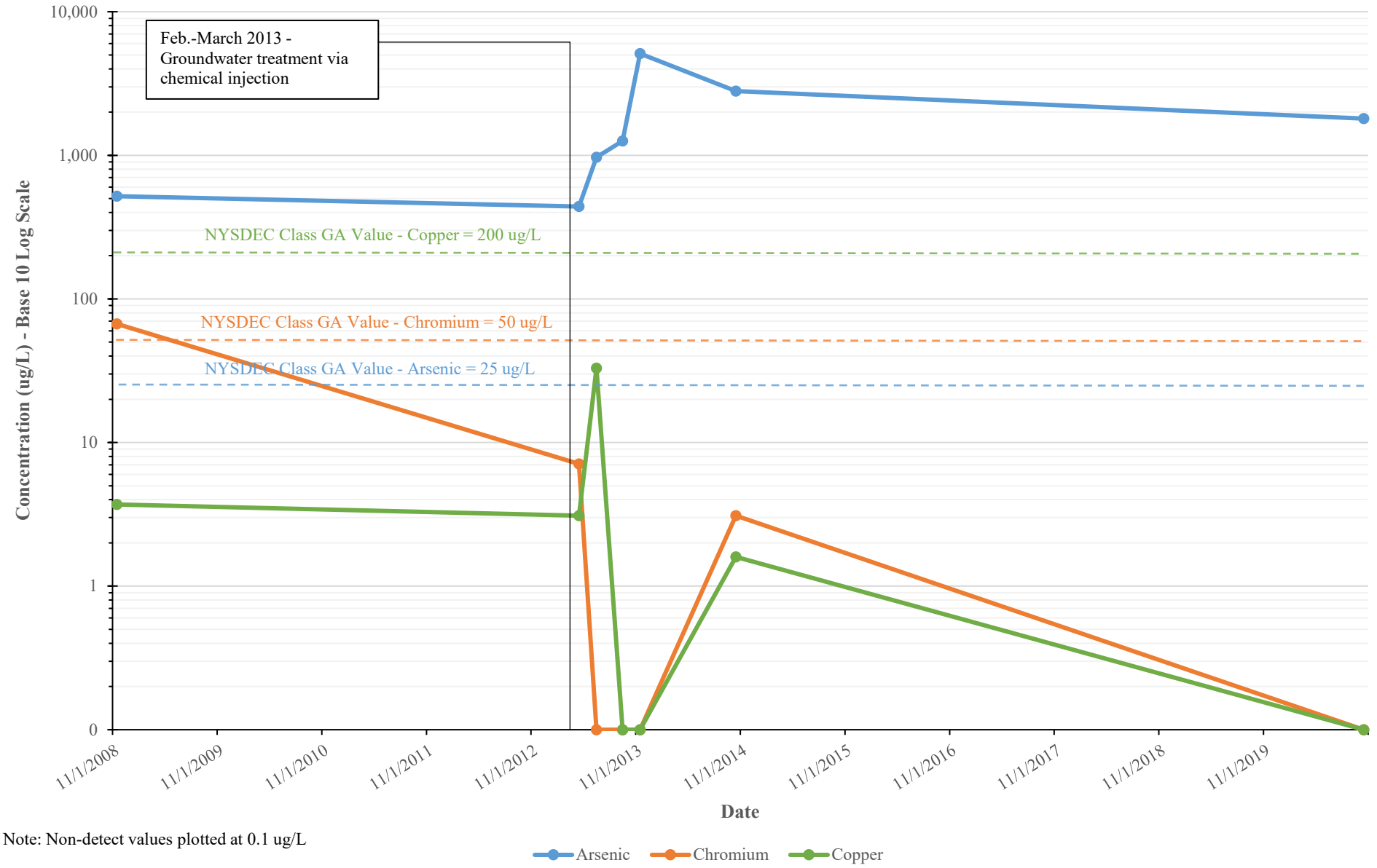
Note: Non-detect values plotted at 0.1 ug/L

Figure E-3
Monitoring Well Concentration Trends over Time: ML-14
Former Paulsen-Holbrook Site (NYSDEC Site No. 401046)



Note: Non-detect values plotted at 0.1 ug/L

Figure E-4
Monitoring Well Concentration Trends over Time: PHMW-01
Former Paulsen-Holbrook Site (NYSDEC Site No. 401046)



Note: Non-detect values plotted at 0.1 ug/L