Honeywell

Construction Completion Report

Shallow Groundwater IRM
Oak Materials Fluorglas Division – John Street Site
NYSDEC Site Number 442049
Hoosick Falls, NY

7 March 2022

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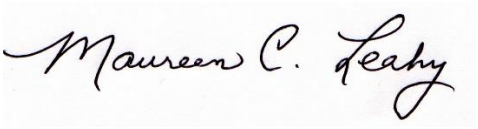

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Acronyms and Abbreviations

Name	Description
1,1,1-TCA	1,1,1-trichloroethane
bgs	below ground surface
$CaCl_2$	Calcium Chloride
CCR	Construction Completion Report
CVOCs	Chlorinated Volatile Organic Compounds
DNAPL	Dense non-aqueous phase liquid
DER	Division of Environmental Remediation
DO	Dissolved Oxygen
DPT	Direct Push Technology
ERM	ERM Consulting and Engineering, Inc.
f_{oc}	Fraction of Organic Carbon
gpm	gallons per minute
Honeywell	Honeywell International Inc.
IDW	Investigation-Derived Waste
ISCR	In-situ Chemical Reduction
IRM	Interim Remedial Measure
ISMP	Interim Site Management Plan
µg/L	Micrograms per Liter
µm	Microns
mg/L	Milligrams per Liter
ng/L	Nanograms per Liter
NYCRR	New York Codes, Rules and Regulations
NYS	New York State
NYSAWQS	New York State Ambient Water Quality Standards
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
ORP	Oxygen Reduction Potential
PFAS	Per- and Polyfluoroalkyl Substances
lbs	pounds
PFOA	Perfluorooctanoic acid
PDI	Pre-Design Investigation
PVC	Polyvinyl Chloride
QAPP	Quality Assurance Project Plan
RSS	Regenesis Remedial Service
RI	Remedial Investigation
SC	Site Characterization
SMP	Site Management Plan
SpC	Specific Conductivity
SSC	Sub-Surface Clearance Procedures
TCE	Trichloroethene
TOC	Total Organic Carbon
TOP	Total Oxidizable Precursor
USEPA	United States Environmental Protection Agency
WP	Work Plan
ZVI	Zero Valent Iron

1. PROJECT BACKGROUND

In November 2019, an Interim Remedial Measure (IRM) permeable barrier system was deployed to control the migration of chlorinated volatile organic compounds (CVOCs) in shallow groundwater at the Former Oak Materials John Street Site (**Figures 1 and 2**) in the Village of Hoosick Falls, Rensselaer County, New York. This Construction Completion Report (CCR) summarizes the background information/basis for design, documents the construction and post-installation performance monitoring results, and presents a proposed interim site management plan (ISMP) for operation, maintenance, and continued performance monitoring of the Shallow Groundwater IRM. The purpose of this CCR is to fulfill the requirements stated in Section 5.8 of "Department of Environmental Remediation (DER)-10 / Technical Guidance for Site Investigation and Remediation" (NYSDEC, 2010).

1.1 Administrative Summary

Honeywell International Inc. (Honeywell) entered into an Order on Consent and Administrative Settlement with the New York State Department of Environmental Conservation (NYSDEC) dated 3 June 2016 (the Order; Index Number +CO 4-20160415-79) for the Former Oak Materials John Street Site (the Site) (No. 442049) (NYSDEC, 2016).

In 2016, initial Site Characterization (SC) work was performed in accordance with the NYSDEC-approved SC Field Sampling and Analysis Plan (ERM, 2016). CVOCs were detected (primarily trichloroethene (TCE) and 1,1,1-trichloroethane (1,1,1-TCA)) in on-site and off-site soil and groundwater.

In 2017, it was determined that an IRM should be undertaken to address the CVOC impacts to groundwater leaving the Site. In support of developing/designing an IRM, pre-design investigation (PDI) activities and studies were undertaken during 2018 for delineation of CVOCs in on-site shallow soil and groundwater and to determine the physical characteristics of the shallow subsurface environment at the Site pursuant to the 16 March 2018 Final Shallow Groundwater IRM Pre-Design Investigative and Treatability Study Work Plan (ERM, 2018).

To control the migration of CVOCs in shallow groundwater, an IRM was designed and implemented. The IRM is a permeable barrier using a mixture of PlumeStop, a colloidal carbon material similar to activated carbon, to adsorb CVOCs and retard their migration, and Zero-Valent iron (ZVI) to enhance degradation of CVOCs within the barrier. The IRM was implemented during 2019 in accordance with the 18 June 2019 Final Shallow Groundwater IRM Work Plan with approved modifications (ERM, 2019a; 2019d, 2019e).

On a parallel track, the Final SC Report was approved by NYSDEC on 8 July 2019 (ERM, 2019b). Follow-on Remedial Investigation (RI) work commenced in 2018 following interim work scope approvals and final approval of the RI Work Plan (Honeywell, 2018 & ERM, 2019c) and is ongoing.

1.2 Pre-Design Investigation Results

The 2018 PDI activities were performed in support of an IRM to address transport of CVOCs off-site in shallow groundwater. The PDI was designed to delineate CVOC impacts in the subsurface and collect information to evaluate the viability of physical, chemical and biological technologies for treatment of the primary CVOCs (TCE and 1,1,1-TCA). All PDI data resulting from the field investigations and pre-design bench-top laboratory studies are reported in the 2019 Shallow Groundwater IRM Work Plan and are summarized below, along with relevant information collected during the SC and RI activities.

1.2.1 Geology and Hydrogeology

The shallow unconsolidated geologic materials consist of the following:

- An upper shallow layer of fine-grained alluvium (predominantly silt and clay) deposited in the Hoosic River valley;
- A coarse-grained alluvium, consisting predominantly of sand and gravel, with lesser amounts of silt also deposited in the Hoosic River valley; and
- A clay and silt unit deposited in glacial and post-glacial lakes that is laterally continuous across the Site.

Groundwater occurs in both the overburden deposits and bedrock beneath the Site. The water table surface is encountered in the alluvium unit above the clay and silt unit at depths of approximately 6 to 14 feet below ground surface (bgs). Groundwater flow within this unit is controlled primarily by areal topography and is northward toward the Hoosic River. The clay and silt is a 40+-foot thick low-permeability unit separating the shallow groundwater table from deeper overburden deposits.

1.2.2 Soil and Groundwater PDI Results

Forty-six (46) soil borings and 12 groundwater monitoring wells were installed with the screens set in the silt-clay unit during the 2018 PDI to delineate the extent of VOCs in the shallow sand and gravel and silt-clay units beneath the Site.

All borings extended to a minimum depth of 20 feet. Each boring was advanced until five continuous feet of soil exhibiting headspace readings of less than one part per million by volume (ppmv), as measured with a photoionization detector (PID), were encountered. The wells were installed in the 12 soil borings where field screening with a PID indicated readings of 10 ppmv or greater and the screens were set to straddle the high PID intervals. If PID readings of 10 ppmv were not observed, a well was not installed. The locations of these borings and wells are shown in **Figure 3**. Soil boring/well construction logs are presented in **Appendix A**. Soil and groundwater samples collected during the PDI were analyzed for CVOCs and Per- and Polyfluoroalkyl Substances (PFAS).

Salient results from the PDI are illustrated in **Figures 4 through 8**. The results indicate good horizontal and vertical delineation of VOCs in the shallow sand and gravel and silt-clay units. The sampling results indicate the majority of the CVOC mass is present in the silt-clay unit, where the CVOC mass is generally located several feet below the top of the silt-clay, and the vertical extent of CVOC mass generally limited to less than 20 feet bgs. There is limited CVOC mass present in soil and groundwater within the overlying sand and gravel unit.

Two areas of CVOC impact were identified near JS-MW-001 and JS-MW-003 (northern and center portions of the Site) as shown in **Figures 5 through 7**.

Analytical results of a dense non-aqueous phase liquid (DNAPL) detected in three adjacent temporary monitoring wells, JS-TMWs -033, -038 & -039 indicate that the primary constituent is TCE. Numerous soil boring and wells are located in close proximity to these three wells. DNAPL was not detected in the surrounding soil borings or wells screened in the silt-clay indicating good delineation around this localized pocket of mass.

1.2.3 Pre-Design Studies

Pre-design studies were conducted to provide information in support of technology selection and design for the shallow groundwater IRM the results of which are reported in the 2019 Shallow Groundwater IRM Work Plan. Pre-design studies included:

- Total Oxidizable Precursor (TOP) Assay
- Infiltration Testing
- Slug Testing
- Soil Mixability Results

- Oxidation Treatability Study Results
- Microbial and Geochemical Analyses

1.2.4 Summary

Based on the SC and PDI results, the following findings were noted:

- The water table surface is encountered in a shallow sand and gravel unit at depths of approximately 6 to 14 feet bgs, groundwater flow in this unit is controlled primarily by areal topography and is northward toward the Hoosic River.
- Shallow groundwater in the sand and gravel unit is a likely source of CVOCs to indoor air in buildings to the north of the Site.
- Limited CVOC mass is present in soil and groundwater within this shallow sand and gravel unit.
- This unit is very permeable and amenable to injection-based technologies.
- Former foundations, metal and concrete are present which need to be considered for an IRM implementation.
- The extent of CVOC in shallow media was well-delineated and the majority of the CVOC mass is present in the clay and silt unit with the vertical extent of CVOC mass generally limited to less than 20 feet bgs.
- CVOC mass is generally located several feet below the top of the silt-clay.
- This unit appears to represent an aquitard separating the shallow groundwater table from deeper overburden deposits beneath the clay and silt.
- This unit has low permeability and is unlikely to be amenable to injection-based technologies.
- The surface of silt-clay beneath the Site is not flat, with up to nine feet relief observed resulting in variable groundwater saturated thickness.
- The DNAPL in the silt-clay unit is well-delineated and limited to a localized pocket of mass.

Although the majority of the mass of CVOCs is in the slit-clay unit, migration of CVOCs in shallow groundwater in the sand and gravel unit is a potential source of CVOCs to indoor air in nearby buildings. The sand and gravel unit is also easily accessible and amenable to implementation of a number of technologies, which limit disruption to the surrounding residences and businesses.

Based on these factors, the shallow sand and groundwater unit was chosen for implementation of the IRM. A technology evaluation was performed and a permeable barrier using PlumeStop was chosen for implementation to control off-site migration of CVOCs in shallow groundwater.

1.3 IRM Technology Evaluation & Selection

After completion of the PDI activities, a technology screen was conducted to select an appropriate technology for IRM implementation with the goal of reducing off-site CVOC migration in shallow groundwater within the sand and gravel layer. The screening evaluated barrier and source treatment technologies, and considered whether the technology could be implemented in the shallow sand and gravel aquifer.

Full details of the IRM technology evaluation and selection process are discussed in the 2019 Shallow Groundwater IRM Work Plan. A summary is presented below that lists the technologies considered, notes some of the key site-specific considerations and the criteria used to select the IRM technology/approach.

2. DESIGN AND IMPLEMENTATION OF IRM

The IRM described in this document provides a permeable barrier to reduce the migration of CVOCs in shallow groundwater off-site to the north of the John Street Site. The barrier was implemented by the injection of a mixture of PlumeStop and ZVI (Section 2.1.1) into the shallow aquifer through a series of injection points near the northern property boundary of the Site. Within the barrier, CVOCs are removed from groundwater primarily by enhanced adsorption with a lesser contribution by degradation.

2.1 Design of Permeable Treatment Barrier

The injection locations are shown in **Figure 9;** 25 injection points were aligned in four offset rows (7, 6, 6 & 6 points and spaced approximately 12 feet apart). The design length of the permeable barrier is approximately 65 feet to cover the accessible portions of the northern property boundary of the Site and extend into Village right-of-ways. Points were adjusted from the proposed locations based on subsurface clearance results and access limitations.

Access/subsurface clearance considerations along the eastern portion of the Site boundary included subsurface structures including a sewer line owned by the Village and the footers of the concrete channel of Woods Brook. Access is also limited due to a setback from the NYSDEC-owned property around the Woods Brook channel. The average vertical treatment thickness is approximately eight feet and extends from the water table down to the top of clay.

2.1.1 Remedial Reagents

The permeable barrier was created by injecting reagents known as PlumeStop and ZVI, and then a calcium chloride solution to stabilize the dispersion of the PlumeStop/ZVI mixture.

PlumeStop: A product supplied by Regenesis Remedial Services (RSS), is a colloidal activated carbon in water that binds to the soil matrix and adsorbs CVOCs, similar to activated carbon. The activated carbon particles are 1 to 2 microns (µm) in diameter and suspended in water. PlumeStop is injected as a liquid, which moves with groundwater until it sorbs/coats the soil particles with a very thin layer of carbon. As with activated carbon used in ex-situ groundwater treatment, PlumeStop sorbs CVOCs and other organic compounds into the carbon coating. In the case of CVOCs, which are amenable to abiotic and biotic degradation, the sorbed CVOCs may also be removed through these degradation processes within the PlumeStop treatment zone.

ZVI: The addition of ZVI, also supplied by RSS, is to enhance abiotic and biotic degradation of CVOCs by inducing reducing conditions within the aquifer. The ZVI is an in-situ chemical reduction (ISCR) reagent that promotes the destruction of CVOCs. Addition of ZVI will reduce the mass of TCE adsorbed to PlumeStop carbon particles which will increase the useful lifetime of PlumeStop.

Calcium Chloride ($CaCl_2$): is an ionic compound of calcium and chlorine that is injected into the ground following injection of the PlumeStop/ZVI mixture to break down the dispersion polymer PlumeStop is coated with to prevent PlumeStop from dispersing outside the desired treatment area.

Since these reagents are stable and stay in-place, they are able to continue to treat CVOC mass that may back diffuse from the silt-clay layer. Disruption to the community was expected to be limited since implementation would only take one to two weeks, and no operation and maintenance is required as long as the barriers continue to remove CVOC mass from groundwater.

2.1.2 Design Reagent Mass

The required mass of the remedial reagents was estimated based on:

- Mass flux of CVOCs in groundwater through the treatment zone;

- Mass flux of other organic compounds (for example, PFAS) that can compete with CVOCs for sorption sites on the carbon;
- Groundwater seepage velocity;
- Natural fraction of organic carbon (f_{oc}) within the aquifer;
- Volume of the treatment barrier; and
- Barrier longevity of up to 20 years.

Based on Site data, the requirements for the remedial reagents for the permeable barrier were:

- PlumeStop – 10,800 pounds (lbs)
- ZVI – 2,000 lbs

Additional information on the calculations is provided in the design work plan and modification (ERM, 2019a; 2019c).

2.2 Installation of Monitoring Points

2.2.1 Installation of Performance Monitoring Wells

Prior to implementation of the IRM, six (6) new performance monitoring wells (IRM-TW-001 to -006) were installed for performance monitoring at the locations shown on **Figure 10** with screen intervals in the shallow sand and gravel. Relative to the northerly groundwater flow direction and the permeable barrier zone location, IRM-TW-001 and -002 were located upgradient, IRM-TW-003 and -004 were located within and IRM-TW-005 and -006 were located immediately downgradient of the permeable barrier zone. A seventh well had been planned to be located between IRM-TW-005 and -006 but a large subsurface concrete obstruction was encountered during the subsurface clearance of the boring location, and further efforts to locate a well in this vicinity were abandoned.

Soil boring/well construction logs are presented in **Appendix A**. The new well locations were surveyed by a New York licensed land surveyor.

2.2.2 Installation of Soil Vapor Monitoring Points

Three (3) soil vapor monitoring points (JS-GWIRMVAP-01 to -003) were installed at the locations shown on **Figure 10**, one upgradient and two downgradient relative to groundwater flow direction.

Each soil vapor monitoring point was constructed by driving stainless steel rods equipped with a detachable stainless steel sampling point to a depth of approximately 3 to 4 feet below ground surface, or a minimum of one foot above groundwater. Dedicated Nylaflow® tubing was attached to each sampling point. Boreholes were backfilled with glass beads to a minimum of 6 inches above the soil vapor sampling point. The remainder of the annular space was filled with bentonite chips and immediately hydrated with PFAS-free water.

2.3 Implementation of Barrier

2.3.1 Mobilization

The injection event to implement the barrier occurred during the week of 11 November 2019. The remedial reagents were delivered to the Site in advance of the injection event and were securely stored within the locked security fence. PlumeStop was delivered in 2,000-lb totes and 400-lb drums on pallets and ZVI in 500-lb drums and 50-lb pails on pallets.

Prior to injection, the PlumeStop and ZVI were mixed together and diluted with potable water to a concentration of 18,000 milligrams per liter (mg/L) PlumeStop in an injection trailer with mixing equipment supplied by RSS. Mixing water was provided by hydrant located150 feet off-site. RRS used a dual batch mixing system with 325-gallon tanks and pumped product using a positive displacement electrically powered pump.

2.3.2 Reagent Injection

The PlumeStop/ZVI mixture was injected using Direct Push Technology (DPT) techniques utilizing a Geoprobe® track rig with 1.5-inch injection rods with retractable stainless-steel injection screen (3 or 4-foot length) and 1.5" expendable tips.

The injection configuration included 25 injection points aligned in four off-set rows and spaced approximately 12 feet apart (**Figures 9 and 10**). Injections were completed by pumping on up to four injection points at a time using the RRS injection trailer manifold system. Injections began at the bottom of the injection interval (7-15 ft. bgs). The drive rods were retracted slowly as the reagent mixture was injected to allow for the appropriate quantity of reagent to be injected into each vertical foot of aquifer being treated.

Injection pressures were kept between 0 and 20 psi at the request of ERM field personnel. Injection flow rates were observed generally between 2.2 and 5.49 gallons per minute (gpm) with an average of 3.63 gpm.

Upon completion of injections each borehole was backfilled with sodium bentonite chips to seal boring.

A total of 7,713 gallons of PlumeStop and ZVI mixture was applied as an 18,000 mg/L activated carbon solution; a total of 10,800 pounds of PlumeStop and 2,000 pounds of ZVI was applied in the area. A full summary of the PlumeStop and ZVI injection program is presented in **Table 1**.

2.3.3 Reagent Fixing

Following PlumeStop/ZVI injections, RRS applied calcium chloride ($CaCl_2$) by mixing the reagent with water and injecting through 10 direct push borings using the same equipment and methods used for the PlumeStop/ZVI injections (above).

Numbered $CaCl_2$ injection locations are shown in **Figure 11**. A total of 2,500 gallons of $CaCl_2$ was mixed and applied as a 23,425 mg/L solution, with a total of 2,000 pounds applied in the area. A full summary of the $CaCl_2$ injection program is presented in **Table 2**.

2.3.4 Post-Injection Carbon Concentrations

The six (6) performance monitoring wells were sampled and tested for concentration of carbon at completion of injections as an indicator of the mixture distribution in the subsurface. Carbon was observed in all six monitoring wells, including those upgradient and downgradient of the barrier. The carbon analytical results are summarized in **Table 3** below. While a carbon concentration goal had not been specified, the highest concentrations were detected in wells within and immediately upgradient of the barrier and the lowest concentrations were detected in wells downgradient of the barrier.

Table 3 – Performance Monitoring Well Post-Injection Carbon Concentrations

Well #	Location Relative to barrier	Day Sampled	Approximate Concentration of Carbon (parts per million)
IRM-TW-001	Upgradient	11/15/19	7,500
IRM-TW-002	Upgradient	11/15/19	8,000
IRM-TW-003	Within	11/15/19	8,300
IRM-TW-004	Within	11/15/19	1,500
IRM-TW-005	Downgradient	11/15/19	50
IRM-TW-006	Downgradient	11/15/19	1,200

3. OPERATION, MAINTENANCE AND MONITORING

3.1 Performance Monitoring Program

The performance monitoring program to evaluate the effectiveness of the IRM included a baseline sampling event prior to the injection event, monthly sampling for three months after the injection, followed by three quarterly sampling events. Because of restrictions in 2020 through 2021 due to the COVID pandemic, the quarterly events were delayed. **Table 4** summarizes the scope of the performance monitoring program. Note that "IRM-TW" and "A" designated wells are constructed with screens straddling or just below the water table in the shallow sand and gravel, and "B" designated wells are constructed with screens below the clay unit near the top of the underlying deep sand and gravel unit.

3.1.1 Groundwater

All groundwater sampling was performed using low flow well purging and included PFAS sampling considerations. The samples were stored on ice and transported under chain-of-custody procedures to Eurofins TestAmerica, a New York State Department of Health (NYSDOH)-approved environmental laboratory, for analysis of the following parameters:

- VOCs by USEPA 8260;
- PFAS by USEPA Method 537 Revision 1.1 modified;
- Total Organic Carbon (TOC) by Lloyd Kahn method;
- pH by Standard Method 9045D; and
- Dissolved gases (methane, ethane, and ethene) at selected events.

The performance monitoring program groundwater analytical data are summarized in **Table 5**.

3.1.2 Soil Vapor

Baseline and post-injection soil vapor samples were collected from the three (3) soil vapor monitoring points (JS-GWIRMVAP-001, -002, and -0033) (**Figure 10**) at baseline, seven months, and 15 months after the IRM implementation using Summa canisters over a 24-hour period. An outdoor ambient air sample was also collected upwind during each soil vapor sampling event. The samples were analyzed for VOCs by USEPA Method TO-15.

The soil vapor data are summarized in **Table 6**.

3.2 Operation & Maintenance of the Barrier

The barrier operates passively and during the first 15 months of operation, the barrier controlled migration of CVOCs from the Site and no maintenance (i.e., reinjection of PlumeStop) was required, as discussed in Section 4.0. No repairs or other maintenance have thus far been required for the groundwater monitoring wells associated with performance monitoring of the IRM.

3.3 Removal of Dense Non-Aqueous Phase Liquid (DNAPL)

DNAPL was detected in and purged from adjacent temporary monitoring wells JS-TMW-033, -038 and -039 using a peristaltic pump with dedicated tubing in October 2019, January 2020, and October of 2020.

During each removal event, surrounding wells screened in the silty-clay layer were checked for the presence of DNAPL but it was not detected in any new wells confirming that this area remains a localized pocket of DNAPL contaminant mass. All recovered DNAPL was packaged, labeled as hazardous waste and disposed of as an F002 hazardous waste consistent with established waste disposal practices for all investigative derived waste (IDW) and remedial waste generated from the Site. A summary of the volumes removed by well is presented in **Table 7** below.

Table 7 – DNAPL Removal Summary

Well #	Date & Recovered Volume In Milliliters		
	10/16/2019	01/30/2020	10/28/2020
JS-TMW-033	35	125	815
JS-TMW-038	930	85	850
JS-TMW-039	1389	1300	850

4. EVALUATION OF PERFORMANCE MONITORING RESULTS

Shallow groundwater sampling results from the six (6) performance monitoring wells and permanent groundwater monitoring wells located upgradient, within and downgradient of the permeable barrier zone confirm that the IRM is operating as designed and effectively removing CVOCs from shallow groundwater. In addition, the IRM is removing PFAS from shallow groundwater.

4.1 CVOCs in Groundwater

TCE concentrations in shallow groundwater in the performance monitoring wells (IRM-TWs 001-006) and permanent groundwater monitoring wells (JS-MWs 001A, 001B, 002A, 003A and 003B) are plotted for the baseline sampling event and the first 15 months of post-injection monitoring events on **Figures 12 and 13**, respectively. Note that "IRM-TW" and "A" designated wells are constructed with screens straddling or just below the water table in the shallow sand and gravel, and "B" designated wells are constructed with screens below the silt-clay unit near the top of the underlying deep sand and gravel unit. The plots in Figures 12 and 13 show that TCE concentrations in groundwater samples collected from wells upgradient of the permeable barrier zone either remained similar to baseline concentrations or fluctuated over the 15-month period.

Initial baseline TCE concentrations in groundwater samples collected from wells within and immediately downgradient of the permeable barrier zone were as high as 270 micrograms per liter (μg/L). The groundwater sampling data plots show that TCE concentrations at these well locations plus upgradient well IRM-TW-002 significantly dropped to near or below the detection limits during the first month and have remained below the New York State Ambient Water Quality Standard (NYSAWQS) of 5 μg/L for Class GA (potable use) groundwater through February of 2021 (15 months). Similar results are observed for other CVOCs such as cis-1,2-dichloroethene and 1,1,1-trichloroethane where concentrations dropped and remain below or just slightly above their respective 5 μg/L NYSAWQS. The observed drop in VOC concentrations at the location of upgradient well IRM-TW-002 indicate that the injections reached this area.

Data from off-Site shallow wells OS-MW-025A and -026A did not show any discernable trend in CVOC concentrations and were not plotted. Very low-levels of CVOCs have been detected in the wells and they are sidegradient/downgradient at distances of ~200 feet where it is likely too soon to observe significant effects of the IRM.

CVOC concentrations in OS-MW-031A were not plotted but have shown a consistent decreasing trend from 877 J μg/L in December 2019 to 13.84 J μg/L in February 2021.

The dissolved gases data (ethene) do not indicate any discernable concentration trends that can be attributed to operation of the IRM.

4.2 PFAS in Groundwater

Baseline and the first 15 months of post-injection monitoring of PFOA concentrations in shallow groundwater in the performance monitoring wells and permanent groundwater monitoring wells are plotted on **Figures 14 and 15**, respectively.

Initial baseline PFOA concentrations in groundwater samples collected from wells within and immediately downgradient of the permeable barrier zone were as high as 2,800 nanograms per liter (ng/L). The plots show that PFOA concentrations in groundwater decreased to near or below the detection limit one month after the injection and have remained at those levels through February of 2021 (15 months). Similar reductions were achieved for other PFAS.

Data from off-Site shallow wells OS-MW-025A and -026A did not show any discernable trend in PFAS/PFOA concentrations and were not plotted. These wells are sidegradient/downgradient at distances of ~200 feet where it is likely too soon to observe significant effects of the IRM.

PFAS/PFOA concentrations in OS-MW-031A were not plotted but have shown a consistent decreasing trend from 1,000 J ng/L in December 2019 to 310 μg/L in February 2021.

4.3 Soil Vapor

Soil vapor sample results (**Table 6)** indicate CVOC concentrations fluctuated in soil vapor during the 15-month period but no discernable concentration trends that can be attributed to operation of the IRM are noted.

On-Site construction activities early in 2020 and/or changes in groundwater levels may have contributed to the temporary increase in CVOC soil vapor concentrations observed in the June 2020 samples. CVOC soil vapor concentrations have since declined based on the February 2021 sample results.

5. RECOMMENDATIONS & INTERIM SITE MANAGEMENT PLAN

The groundwater performance monitoring results demonstrate that the permeable barrier IRM is effectively meeting its goal to reduce the migration of CVOCs in shallow groundwater from the Site to the north of the Site. It is recommended that the IRM continue to operate with the current groundwater performance monitoring program to verify continued efficacy until such time a final remedy is selected and implemented at the Site. Presented below is ISMP that focuses on continued operation of the permeable barrier IRM. A Site Management Plan (SMP) will be prepared and submitted to NYSDEC for approval following selection and implementation of a final remedy for the Site.

The barrier operates passively and, therefore, IRM Site management activities are limited to:

- Continued groundwater performance monitoring;
- Inspection and maintenance of the performance monitoring wells listed in Section 5.1;
- Regularly checking temporary monitoring wells JS-TMW-033, -038 and -039 and nearby surrounding wells screened in the silt-clay for the presence of DNAPL, and the recovery thereof if present;
- Repairs or other maintenance to the groundwater monitoring wells associated with performance monitoring of the IRM; and
- IRM progress reporting.

5.1 IRM Monitoring

Per the IRM design work plan and **Table 4**, groundwater sampling will be conducted annually at select wells to continue to monitor the performance of the barrier. The following wells will be included in the future annual monitoring program:

- JS-MW-001A, -002A and -003A;
- JS-TMW-001, -002, -003, -004, -005, and -006, and
- OS-MW-025A, -026A and -0031A.

The samples will be analyzed for VOCs, PFAS, TOC and pH using analytical methods specified in Section 3.1 or current updates to those methods at the time of sampling.

If increasing concentrations of CVOCs are observed, NYSDEC will be informed and potential follow-up actions will be discussed.

If significant breakthrough of CVOCs is observed, reinjection of PlumeStop will be considered in consultation with NYSDEC.

5.2 Quarterly Removal of DNAPL

Temporary monitoring wells JS-TMW-033, -038 and -039 and nearby surrounding wells screened in the silty-clay will be checked for the presence of DNAPL on a quarterly basis (March, June, September and December). If a measurable volume is present, the DNAPL will be purged from each well using a peristaltic pump with dedicated tubing.

All recovered DNAPL will be packaged, labeled as hazardous waste, and disposed of as F002 hazardous waste consistent with established waste disposal practices for all IDW and remedial waste generated from the Site.

5.3 Groundwater Monitoring Wells

During each groundwater sampling event, the field sampling team will complete Well Assessment Checklist for each well sampled and take a photograph of each well top to ensure continued integrity and function for long-term groundwater level/quality monitoring. The results thereof will

then be evaluated by the Site Manager to determine maintenance actions (well top repairs and/or redevelopment) by a qualified subcontractor.

If measured total well depths indicate sediment accumulation filling more than 25% of the well screen interval, those wells will be vacuumed and redeveloped using the airlift redevelopment methodology. Compressors used for well vacuuming/redevelopment activities must be outfitted with oil vapor filters on the air discharge to the downhole airlift assembly. Standard redevelopment monitoring methodologies will be followed that will include measurements of turbidity, temperature, pH, specific conductivity (SpC), dissolved oxygen (DO) and oxidation-reduction potential (ORP).

NYSDEC and NYSDOH will be provided advance notice of such activities and the results thereof will be reported in the Monthly Progress Reports.

5.4 IRM Progress Reporting

Activities associated with the IRM (e.g., groundwater sampling, DNAPL removal, well maintenance, etc.) will continue to be included in the Former Oak Materials John Street monthly progress reports that are submitted to the NYSDEC Project Manager and the New York State Department of Health Project Manager.

6. REFERENCES

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ERM, 2019b. Final Site Characterization Report. Former Oak Materials Fluorglas Division–John Street: Town of Hoosick and Village of Hoosick Falls, Rensselaer County, New York. ERM Consulting and Engineering, Inc., Melville, 8 July 2019.

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ERM, 2019e. Shallow Groundwater Interim Remedial Measure – Injection Design Modification Approval Request. November 4, 2019.

NYSDEC, 1992. Sampling Guidelines and Protocols: Technologies Background and Quality Control/Quality Assurance for the NYSDEC Spill Response Program. Division of Spills Management, Albany, September 1992.

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USDA, 2017. Natural Resources Conservation Service Web Soil Survey for Rensselaer County, New York.

TABLES

Table 1
Shallow Groundwater IRM PlumeStop/ZVI Injection Summary - November 2019
John Street Site, Hoosick Falls, New York

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of PlumeStop/ZVI Injected			Total Gallons Per Location	Total Pounds of PlumeStop Injected Per Location	Pounds of S- Micro ZVI Per Location	Injection Tooling	Comments
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval					
INJ-1	11/12/2019	9:30	15-11	0	3.64	0.00	153.49	153.49	309	433	80	4-Foot Screen	
	11/12/2019	10:46	11-7	0	3.73	153.49	309.08	155.59					
INJ-2	11/12/2019	12:05	15-11	6	3.56	0.00	152.76	152.76	310	434	80	4-Foot Screen	
	11/12/2019	13:00	11-7	0	3.61	152.76	309.73	156.97					
INJ-3	11/11/2019	14:32	15-11	5	3.21	0.00	152.46	152.46	309	433	80	4-Foot Screen	Slight surfacing around rod, stopped with bentonite
	11/11/2019	15:12	11-7	0	3.04	152.46	309.13	156.67					
INJ-4	11/12/2019	9:40	15-11	10	3.43	0.00	151.46	151.46	309	433	80	4-Foot Screen	
	11/12/2019	10:51	11-7	10	3.56	151.46	309.46	158.00					
INJ-5	11/12/2019	14:08	15-11	10	3.62	0.00	154.26	154.26	309	433	80	4-Foot Screen	
	11/12/2019	14:56	11-7	0	3.48	154.26	309.06	154.80					
INJ-6	11/12/2019	12:05	15-11	20	3.42	0.00	154.76	154.76	308	432	80	4-Foot Screen	
	11/12/2019	13:00	11-7	12	3.58	154.76	308.26	153.50					
INJ-7	11/12/2019	14:07	15-11	18	3.46	0.00	150.26	150.26	309	433	80	4-Foot Screen	
	11/12/2019	14:52	11-7	10	3.62	150.26	309.18	158.92					
INJ-8	11/13/2019	13:30	15-11	0	3.55	0.00	139.46	139.46	309	433	80	4-Foot Screen	Surfacing from around rod/ tracking under frozen ground.
	11/13/2019	14:50	11-7	5	3.46	139.46	309.41	169.95					Slight seep, source not found
INJ-9	11/13/2019	11:15	15-11	20	4.08	0.00	153.49	153.49	345	484	90	4-Foot Screen	
	11/13/2019	12:09	11-7	10	3.43	153.49	345.37	191.88					
INJ-10	11/13/2019	11:14	15-11	0	3.63	0.00	157.41	157.41	226	316	59	4-Foot Screen	
	11/13/2019	11:41	11-7	0	3.56	157.41	225.62	68.21					Surfacing from 1' off rod. Abandoned. Volume to INJ-9,
INJ-11	11/13/2019	11:11	15-11	10	3.44	0.00	154.08	154.08	347	486	90	4-Foot Screen	
	11/13/2019	12:09	11-7	8	3.67	154.08	347.28	193.20					
INJ-12	11/12/2019	16:10	15-11	10	3.56	0.00	154.26	154.26	309	433	80	4-Foot Screen	Rod left in ground overnight
	11/13/2019	10:02	11-7	8	3.53	154.26	309.27	155.01					
INJ-13	11/12/2019	16:10	15-11	12	3.51	0.00	153.79	153.79	309	433	80	4-Foot Screen	Rod left in ground overnight
	11/13/2019	10:04	11-7	18	3.67	153.79	309.33	155.54					
INJ-14	11/13/2019	12:54	15-13	20	3.63	0.00	75.86	75.86	309	432	80	3-Foot Screen	Slight seep, source not found
	11/13/2019	13:50	13-10	0	3.61	75.86	194.38	118.52					
	11/13/2019	14:50	10-7	0	2.69	194.38	308.86	114.48					
INJ-15	11/15/2019	12:41	15-11	10	5.26	0.00	157.35	157.35	303	424	79	4-Foot Screen	
	11/15/2019	13:50	11-7	0	5.49	157.35	302.96	145.61					
INJ-16	11/13/2019	13:40	15-11	10	3.49	0.00	154.39	154.39	309	433	80	4-Foot Screen	Slight seep, source not found
	11/13/2019	14:34	11-7	0	2.73	154.39	309.46	155.07					
INJ-17	11/13/2019	15:40	15-11	10	4.20	0.00	136.43	136.43	309	432	80	4-Foot Screen	Refusal at 4'
	11/14/2019	8:36	15-11	11	3.83	0.00	16.43	16.43					
	11/14/2019	9:25	11-7	0	3.62	16.43	172.38	155.95					
INJ-18	11/13/2019	15:40	15-11	18	3.26	0.00	110.59	110.59	309	433	80	4-Foot Screen	
	11/14/2019	8:41	15-11	11	3.76	0.00	42.59	42.59					
	11/14/2019	9:40	11-7	10	2.68	42.59	198.56	155.97					
INJ-19	11/13/2019	15:40	15-13	20	2.16	0.00	75.86	75.86	309	433	80	3-Foot Screen	
	11/14/2019	9:07	13-10	12	2.92	0.00	113.96	113.96					
	11/14/2019	9:47	10-7	10	2.16	113.96	233.46	119.50					
INJ-20	11/14/2019	13:55	15-11	15	3.96	0.00	156.37	156.37	309	433	80	Expendable Tip	
	11/14/2019	15:19	11-7	10	4.31	156.37	309.48	153.11					
INJ-21	11/14/2019	13:55	15-11	10	3.83	0.00	149.39	149.39	309	433	80	4-Foot Screen	Surfacing around rod, tightened rod to stop
	11/14/2019	15:14	11-7	5	4.22	149.39	309.28	159.89					
INJ-22	11/14/2019	13:55	15-11	15	3.84	0.00	160.49	160.49	309	433	80	4-Foot Screen	Refusal at 5'. Moved 2', Refusal at 4'. Moved 2' upgradient
	11/14/2019	15:10	11-7	10	4.22	160.49	308.96	148.47					
INJ-23	11/14/2019	10:50	15-13	16	3.81	0.00	77.39	77.39	371	520	96	3-Foot Screen	
	11/14/2019	11:46	13-10	18	3.46	77.39	196.37	118.98					IRMTW-2 surfacing in well
	11/14/2019	12:52	10-7	12	4.72	196.37	371.26	174.89					
INJ-24	11/14/2019	11:13	15-11	20	3.38	0.00	154.68	154.68	186	260	48	4-Foot Screen	
	11/14/2019	11:28	11-7	14	3.29	154.68	185.69	31.01					Surfacing 8" from rod. Unnable to stop. Redistribute to INJ-
INJ-25	11/14/2019	11:08	15-11	15	3.96	0.00	152.67	152.67	369	517	96	4-Foot Screen	
	11/14/2019	12:52	11-7	0	5.24	152.67	369.28	216.61					

Total Gallons	Total Lbs. PlumeStop Mix	Total Lbs. of S- Micro ZVI
7,713	10,800	2,000

ZVI= Zero valent iron **PSI = Pounds per square inch**
gal = Gallons **gpm = Gallons per minute**

Table 2
Shallow Groundwater IRM Calcium Chloride Injection Summary - November 2019
John Street Site, Hoosick Falls, New York

Injection Point	Date	Time	Injection Depth (feet)	Injection Pressure (psi)	Flow Rate (gpm)	Volume of Calcium Chloride Injected			Total Gallons Per Location	Pounds of Calcium Chloride Injected Per Location	Comments	Injection Tooling
						Beginning Flow Meter (gal)	Ending Flow Meter (gal)	Gallons Injected Per Interval				
INJ-26	11/15/2019	9:21	15-11	0	3.52	0.00	126.10	126.10	250	200		Expendable Tip
	11/15/2019	9:51	11-7	0	4.10	126.10	250.36	124.26				
INJ-27	11/15/2019	10:46	15-11	0	3.98	0.00	125.38	125.38	250	200		Expendable Tip
	11/15/2019	11:18	11-7	0	4.21	125.38	249.76	124.38				
INJ-28	11/15/2019	10:45	15-11	0	4.23	0.00	124.86	124.86	250	200		Expendable Tip
	11/15/2019	11:20	11-7	0	3.98	124.86	249.61	124.75				
INJ-29	11/15/2019	12:18	15-11	20	3.38	0.00	125.36	125.36	250	200		Expendable Tip
	11/15/2019	13:40	11-7	0	3.33	125.36	249.53	124.17				
INJ-30	11/15/2019	13:45	15-11	10	4.96	0.00	128.35	128.35	250	200		Expendable Tip
	11/15/2019	14:12	11-7	0	4.89	128.35	250.16	121.81				
INJ-31	11/15/2019	9:24	15-11	15	3.84	0.00	125.36	125.36	250	200		Expendable Tip
	11/15/2019	9:54	11-7	0	9.98	125.36	249.86	124.50				
INJ-32	11/15/2019	9:22	15-11	0	3.86	0.00	123.86	123.86	250	200		Expendable Tip
	11/15/2019	9:49	11-7	0	4.13	123.86	250.07	126.21				
INJ-33	11/15/2019	10:48	15-11	20	4.10	0.00	125.08	125.08	250	200		Expendable Tip
	11/15/2019	11:15	11-7	0	4.18	125.08	250.49	125.41				
INJ-34	11/15/2019	12:16	15-11	10	3.55	0.00	124.97	124.97	250	200		Expendable Tip
	11/15/2019	12:57	11-7	0	3.76	124.97	250.35	125.38			Surfacing through old boring.	
INJ-35	11/15/2019	12:14	15-11	10	3.63	0.00	124.38	124.38	250	200		Expendable Tip
	11/15/2019	12:03	11-7	0	3.39	124.38	249.96	125.58				

Total Gallons:	Total Lbs. CaCl
2,500	2,000

PSI = Pounds per square inch
gal = Gallons
gpm = Gallons per minute

Table 4
Shallow Groundwater IRM Performance Monitoring Plan
John Street Site, Hoosick Falls, New York

Sampling Location	Sampled Aquifer	Location Relative to Barrier	Methods/Work Scope Summary	Sampling Method	Performance Monitoring Sampling Events							
					Baseline	Month 1	Month 2	Month 3	Month 6	Month 9	Month 12	Annually until Final Remedy Note 1
IRM-TW-001	Shallow overburden	Immediately upgradient	Monitor influent concentrations to the treatment zone	Low-flow Sampling	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH
IRM-TW-002	Shallow overburden	Immediately upgradient	Monitor influent concentrations to the treatment zone	Low-flow Sampling	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH
IRM-TW-003	Shallow overburden	Within treatment zone	Monitor concentrations within the treatement zone and assess breakthrough	Low-flow Sampling	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH
IRM-TW-004	Shallow overburden	Within treatment zone	Monitor concentrations within the treatement zone and assess breakthrough	Low-flow Sampling	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH
IRM-TW-005	Shallow overburden	Immediately downgradient	Monitor effluent concentrations from the treatment zone and assess breakthrough	Low-flow Sampling	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH
IRM-TW-006	Shallow overburden	Immediately downgradient	Monitor effluent concentrations from the treatment zone and assess breakthrough	Low-flow Sampling	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH, dissolved gases	VOCs, PFAS, TOC, pH
JS-MW-001A	Shallow overburden	Within treatment zone	Monitor concentrations within the treatement zone and assess breakthrough	Low-flow Sampling	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	na	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH
JS-MW-001B	Deep overburden	Within treatment zone	Assess potential effects on the lower overburden aquifer	Low-flow Sampling	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	na	na	VOCs, PFAS, TOC, pH	na	VOCs, PFAS, TOC, pH	na
JS-MW-002A	Shallow overburden	Upgradient	Monitor influent concentrations to the treatment zone	Low-flow Sampling	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	na	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH
JS-MW-003A	Shallow overburden	Upgradient	Monitor influent concentrations to the treatment zone	Low-flow Sampling	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	na	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH
JS-MW-003B	Deep overburden	Upgradient	Assess potential effects on the lower overburden aquifer	Low-flow Sampling	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	na	na	VOCs, PFAS, TOC, pH	na	VOCs, PFAS, TOC, pH	na
OS-MW-025A	Shallow overburden	Downgradient /cross-gradient	Monitor effectiveness	Low-flow Sampling	VOCs, PFAS, TOC, pH	na	na	na	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH
OS-MW-026A	Shallow overburden	Downgradient /cross-gradient	Monitor effectiveness	Low-flow Sampling	VOCs, PFAS, TOC, pH	na	na	na	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH
OS-MW-031A	Shallow overburden	Downgradient	Monitor effectiveness	Low-flow Sampling	VOCs, PFAS, TOC, pH	na	na	na	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH	VOCs, PFAS, TOC, pH

Abbreviations:
PFAS - Perfluorinated Alkyl Substances (21 PFAS analytes as listed in the text)
VOCs - Volatile Organic Compounds
TOC = Total Organic Carbon by the Lloyd Kahn method
Dissolved gases - methane, ethene, ethane
Notes:
1. The wells selected for annual sampling after the first year are based on currently available information.
Field Parameters including turbidity, temperature, pH, Specific Conductance (SpC), Dissolved Oxygen (DO), and Oxidation-Reduction Potential (ORP) will be collected at every sampling event.

Table 5
IRM Performance Monitoring Groundwater Sample Results
John Street Site, Hoosick Falls, New York

Type	Analyte	Result Unit	NYS Standard	Location ID	IRM-TW-001	IRM-TW-001	IRM-TW-001	IRM-TW-001	IRM-TW-001	IRM-TW-001	IRM-TW-001	IRM-TW-001	IRM-TW-001	IRM-TW-001	IRM-TW-002	IRM-TW-002	IRM-TW-002	IRM-TW-002	IRM-TW-002	IRM-TW-002	IRM-TW-002	IRM-TW-003	IRM-TW-003	IRM-TW-003	IRM-TW-003	IRM-TW-003	IRM-TW-003	IRM-TW-003	IRM-TW-003
				Sample Type	N	N	N	FD	N	FD	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N
				Sample Date	10/10/2019 5:35:00 PM	12/17/2019 5:00:00 PM	1/21/2020 10:15:00 AM	1/21/2020 12:00:00 PM	3/25/2020 12:05:00 PM	3/25/2020 10:00:00 AM	6/22/2020 1:10:00 PM	6/22/2020 12:00:00 PM	10/21/2020 1:35:00 PM	2/2/2021 1:15:00 PM	10/11/2019 10:30:00 AM	12/18/2019 9:35:00 AM	1/20/2020 4:45:00 PM	3/25/2020 12:00:00 PM	6/23/2020 12:30:00 PM	10/21/2020 2:00:00 PM	2/3/2021 11:00:00 AM	10/10/2019 3:00:00 PM	12/17/2019 1:20:00 PM	1/21/2020 9:30:00 AM	3/27/2020 1:20:00 PM	6/23/2020 11:25:00 AM	10/21/2020 10:10:00 AM	10/21/2020 9:00:00 AM	2/2/2021 3:30:00 PM
				Sample ID	IRM-TW-001(10102019)	IRM-TW-001(12172019)-B6	IRM-TW-001(01212020)	DUP(01212020)	IRM-TW-001 (03252020)	DUP (03252020)	IRM-TW-001(06222020)-B1	DUP(06222020)	IRM-TW-001(10212020)	IRM-TW-001 (02022021)	IRM-TW-002(10112019)	IRM-TW-002(12182019)-B6	IRM-TW-002(01202020)	IRM-TW-002(03252020)	IRM-TW-002(06232020)-B1	IRM-TW-002(10212020)	IRM-TW-002 (02032021)	IRM-TW-003(10102019)	IRM-TW-003(12172019)-B6	IRM-TW-003(01212020)	IRM-TW-003(03272020)-B6	IRM-TW-003(06232020)-B1	IRM-TW-003(10212020)	IRM-DUP(10212020)	IRM-TW-003 (02022021)
				Validated	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	N
Ethene	Ethene	µg/L	-		7 U	-	-	-	-	-	6.1 J	8	-	7 U	7 U	-	-	-	6.7 J	-	9	7 U	-	-	-	5.3 J	-	-	7 U
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/l	100		1.6 J	1 J	0.81 J	0.79 J	1.2 J	1.3 J	1.7 J	1.9	2.1	0.81 J	1.9	0.2 U	0.19 U	0.19 U	0.26 J	0.63 J	0.3 J	2.1	0.19 U	0.19 U	0.2 U	0.18 U	0.23 J	0.23 J	0.29 J
	Perfluorobutanoic Acid	ng/l	100		2.3	3.8	2.4 U	2.2 U	4.6 U	5 U	2.4 U	2.5 U	3.6 J	2.1 U	2.5	6.5	2.3 U	2.2 U	2.7 U	4.5	2.2 J	3.9	5.4	2.9 U	5	5.9 U	5.5	5.5	2.4 J
	Perfluorodecane Sulfonic Acid	ng/l	100		0.3 U	0.3 U	0.3 U	0.3 U	0.29 U	0.29 U	0.29 U	0.29 U	0.26 U	0.28 U	0.3 U	0.32 U	0.3 U	0.3 U	0.29 U	0.27 U	0.3 U	0.29 U	0.31 U	0.3 U	0.31 U	0.28 U	0.26 U	0.26 U	0.29 U
	Perfluorodecanoic acid (PFDA)	ng/l	100		1.6 J	0.29 U	0.29 U	0.29 U	0.28 U	0.28 U	0.28 U	0.28 U	0.31 J	0.41 J	1.5 J	0.31 U	0.29 U	0.29 U	0.28 U	0.29 J	0.29 U	0.65 J	0.3 U	0.29 U	0.3 U	0.27 U	0.25 U	0.25 U	0.28 U
	Perfluorododecanoic acid (PFDoA)	ng/l	100		0.51 U	0.52 U	0.52 U	0.52 U	0.49 U	0.5 U	0.5 U	0.5 U	0.45 U	0.48 U	0.51 U	0.55 U	0.51 U	0.51 U	0.5 U	0.47 U	0.51 U	0.5 U	0.53 U	0.51 U	0.54 U	0.48 U	0.45 U	0.45 U	0.49 U
	Perfluoroheptane Sulfonate (PFHPS)	ng/l	100		0.18 U	0.18 U	0.18 U	0.18 U	0.17 U	0.17 U	0.17 U	0.17 U	0.16 U	0.16 U	0.18 U	0.19 U	0.18 U	0.18 U	0.17 U	0.16 U	0.18 U	0.17 U	0.18 U	0.18 U	0.19 U	0.17 U	0.16 U	0.15 U	0.17 U
	Perfluoroheptanoic acid (PFHpA)	ng/l	100		9.2	7.6	5.3	5	8	8.6	3.8	4.2	6.7	4.6	7.2	0.25 U	0.36 J	0.23 U	0.25 U	0.35 J	0.31 J	20	0.24 U	0.23 U	0.24 U	0.34 U	0.24 J	0.27 J	0.37 J
	Perfluorohexanesulfonic acid (PFHxS)	ng/l	100		0.7 U	0.38 U	0.41 U	0.4 U	0.41 U	0.41 U	0.43 U	0.52 U	0.59 J	0.49 U	0.61 U	0.31 U	0.28 U	0.26 U	0.37 U	0.49 U	0.53 U	0.69 U	0.27 U	0.29 U	0.35 U	0.31 U	0.47 U	0.46 U	0.51 U
	Perfluorohexanoic acid (PFHxA)	ng/l	100		5.4	5.6	3.6 U	3.9 U	6.9	7.2	4.5	4.6	5.1	3.2	3.9	0.58 U	0.67 U	0.58 J	1.1 J	1.7	0.98 J	13	0.64 J	0.91 U	1 J	1.5 J	1.1 J	0.99 J	0.95 J
	Perfluorononanoic acid (PFNA)	ng/l	100		1.1 J	0.42 J	0.54 J	0.54 J	0.49 J	0.54 J	0.4 J	0.34 J	0.43 J	0.67 J	1.4 J	0.27 U	0.25 U	0.25 U	0.24 U	0.23 U	0.25 U	1.2 J	0.26 U	0.25 U	0.26 U	0.24 U	0.22 U	0.22 U	0.24 U
	Perfluorooctane Sulfonamide (FOSA)	ng/l	100		0.35 J	0.33 U	0.33 U	0.33 U	0.31 U	0.32 U	0.39 U	0.49 U	0.81 U	0.85 U	0.32 U	0.35 U	0.33 U	0.35 U	0.32 U	0.84 U	0.91 U	1.2 J	0.34 U	0.33 U	0.94 U	0.31 U	0.8 U	1.5 J	0.88 U
	Perfluorooctanesulfonic acid (PFOS)	ng/l	10		2.6 U	0.51 U	0.77 J	0.78 J	1 J	0.93 J	0.75 J	0.7 J	1 J	1.8	2.2	0.54 U	0.5 U	0.5 U	0.49 U	0.46 U	0.5 U	2.4 U	0.52 U	0.51 U	0.53 U	0.47 U	0.44 U	0.44 U	0.91 J
	Perfluorooctanoic acid (PFOA)	ng/l	10		330	720 J	420	400	450 J	480 J	200	200	270	330	270	7.3	21	6.6	5.3	6.8	8.5	880 J	3.7	2.3	1.6 J	5	3.5	3.5	9
	Perfluoropentanoic Acid (PFPeA)	ng/l	100		1.5 J	3.5	2	1.9	4.9	5.1	1.3 J	1.5 J	2.2	1.6 J	1.4 J	3.1	1 J	1.1 J	0.82 J	1.8	1.1 J	3.6	4.6	2	2.8 U	2.6	4.3	4.4	1.9
	Perfluorotetradecanoic acid (PFTA)	ng/l	100		0.27 U	0.27 U	0.27 U	0.27 U	0.26 U	0.26 U	0.26 U	0.26 U	0.6 U	0.63 U	0.27 U	0.29 U	0.27 U	0.27 U	0.26 U	0.62 U	0.68 U	0.61 J	0.28 U	0.27 U	0.28 U	0.25 U	0.6 U	0.59 U	0.66 U
	Perfluorotridecanoic Acid (PFTriA)	ng/l	100		1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.1 U	1.1 U	1.2 U	1.3 U	1.2 U	1.2 U	1.2 U	1.1 U	1.2 U	1.2 U	1.3 U	1.2 U	1.3 U	1.1 U	1.1 U	1.1 U	1.2 U
	Perfluoroundecanoic Acid (PFUnA)	ng/l	100		1 U	1 U	1 U	1 U	0.99 U	1 U	1 U	1 U	0.91 U	0.95 U	1 U	1.1 U	1 U	1 U	0.99 U	0.94 J	1 U	1 U	1.1 U	1 U	1.1 U	0.96 U	0.9 U	0.89 U	0.99 U
	NEtFOSAA	ng/l	100		1.8 U	1.8 U	1.8 U	1.8 U	1.7 U	1.7 U	1.7 U	1.7 U	1.1 U	1.1 U	1.8 U	1.9 U	1.8 U	1.8 U	1.7 U	1.1 U	1.2 U	1.7 U	1.8 U	1.8 U	1.9 U	1.7 U	1.1 U	1.1 U	1.2 U
	NMeFOSAA	ng/l	100		2.9 U	2.9 U	2.9 U	2.9 U	2.8 U	2.8 U	2.8 U	2.8 U	0.99 U	1 U	2.9 U	3.1 U	2.9 U	2.9 U	2.8 U	1 U	1.1 U	2.8 U	3 U	2.9 U	3 U	2.7 U	0.98 U	0.97 U	1.1 U
	SODIUM 1H,1H,2H,2H-PERFLUORODECANE SI	ng/l	100		1.8 U	1.9 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	0.38 U	0.4 U	1.8 U	2 U	1.9 U	1.9 U	1.8 U	0.39 U	0.43 U	1.8 U	1.9 U	1.9 U	2 U	1.8 U	0.38 U	0.37 U	0.41 U
	SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SI	ng/l	100		1.8 U	1.9 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	2.1 U	3.7 J	1.8 U	2 U	1.9 U	1.9 U	2.8 J	2.1 U	2.3 U	1.8 U	1.9 U	1.9 U	2 U	1.8 U	2 U	2 U	2.2 U
CVOCs	Tetrachloroethene (PCE)	µg/L	5		0.77 J	1 U	1 U	1 U	20 U	20 U	2 U	5 U	1 U	1 U	0.87 J	1 U	1 U	1 U	1 U	1 U	1 U	1.9 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	Trichloroethene (TCE)	µg/L	5		56	2.3	15	16	1600	1700	430	420	170	120	42	0.63 J	0.46 J	0.62 J	0.42 J	1 U	1 U	270	1.2	1.1	0.62 J	0.7 J	0.4 J	0.42 J	0.32 J
	cis-1,2-Dichloroethene	µg/L	5		3.9	2.8	4.9	4.8	19 J	19 J	10	7.5	5.4	4.2	3.1	1 U	1 U	1 U	1 U	0.35 J	0.28 J	26	1 U	1 U	1 U	0.76 J	2.6	2.7	2.1
	Vinyl Chloride	µg/L	2		1 U	1 U	1 U	1 U	20 U	20 U	0.42 J	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,1-Trichloroethane	µg/L	5		3.7	1 U	1 U	1 U	4900	5700	940	980	370	110	4.3	1 U	1 U	0.37 J	1 U	4.2	2.4	6.7	1 U	1 U	1	0.28 J	2.6	2.5	3
	1,1-Dichloroethane	µg/L	5		1 U	1 U	1 U	1 U	570	550	230	190	44	11	1 U	1 U	1 U	1 U	1 U	0.65 J	0.83 J	5 U	1 U	0.4 J	1 U	0.49 J	0.9 J	0.9 J	0.91 J
	1,1-Dichloroethene	µg/L	5		1 U	1 U	1 U	1 U	20 U	5.4 J	2.1	1.8 J	1.4	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Type	Analyte	Result Unit	NYS Standard	Location ID	IRM-TW-004	IRM-TW-004	IRM-TW-004	IRM-TW-004	IRM-TW-004	IRM-TW-004	IRM-TW-004	IRM-TW-004	IRM-TW-004	IRM-TW-005	IRM-TW-005	IRM-TW-005	IRM-TW-005	IRM-TW-005	IRM-TW-005	IRM-TW-005	IRM-TW-006	IRM-TW-006	IRM-TW-006	IRM-TW-006	IRM-TW-006	IRM-TW-006	IRM-TW-006	IRM-TW-006
				Sample Type	N	N	FD	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	FD	N
				Sample Date	10/10/2019 12:10:00 PM	12/17/2019 4:40:00 PM	12/17/2019 12:00:00 PM	1/20/2020 2:10:00 PM	3/25/2020 2:35:00 PM	6/22/2020 4:00:00 PM	10/20/2020 4:55:00 PM	2/2/2021 1:15:00 PM	2/2/2021 12:00:00 PM	10/9/2019 8:35:00 AM	10/10/2019 8:35:00 AM	12/17/2019 2:25:00 PM	1/20/2020 4:45:00 PM	1/21/2020 8:45:00 AM	3/27/2020 10:50:00 AM	10/21/2020 8:40:00 AM	10/9/2019 5:15:00 PM	12/17/2019 3:00:00 PM	1/20/2020 12:41:00 PM	3/27/2020 11:55:00 AM	6/23/2020 4:15:00 PM	10/20/2020 3:35:00 PM	10/20/2020 9:00:00 AM	2/2/2021 9:25:00 AM
				Sample ID	IRM-TW-004(10102019)	IRM-TW-004(12172019)-B1	DUP(12172019)-B1	IRM-TW-004(01202020)	IRM-TW-004 (03252020)	IRM-TW-004(06222020)-B1	IRM-TW-004(10202020)	IRM-TW-004 (02022021)	DUP (02022021)	IRM-TW-005(10092019)	IRM-TW-005(10102019)	IRM-TW-005(12172019)-B6	IRM-TW-005(01202020)	IRM-TW-005(01212020)	IRM-TW-005(03272020)-B6	IRM-TW-005(10212020)	IRM-TW-006(10092019)	IRM-TW-006(12172019)-B6	IRM-TW-006(01202020)	IRM-TW-006(03272020)-B6	IRM-TW-006(06232020)-B1	IRM-TW-006(10202020)	IRM-TW-006(02022021)	
				Validated	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N
Ethene	Ethene	µg/L	-		7 U	-	-	-	-	-	-	7 U	7 U	7 U	-	-	-	-	-	-	7 U	-	-	-	2 J	-	7 U
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/l	100		1.6 J	0.19 U	0.19 U	0.18 U	0.18 U	0.18 U	0.17 U	0.18 U	0.2 J	-	1.4 J	0.19 U	-	0.2 U	0.18 U	0.18 U	1.5 J	0.22 J	0.2 J	0.17 U	0.18 U	0.17 U	0.17 J
	Perfluorobutanoic Acid	ng/l	100		3.4	4.6	4.7	2.7 U	3.9 U	3.3 U	4.5	2.1 U	2 U	-	4.9	4.5	-	4.3	6.3	8.2	3.4	4.2	2.8 U	2	4.5 U	3 J	2 J
	Perfluorodecane Sulfonic Acid	ng/l	100		0.29 U	0.31 U	0.31 U	0.29 U	0.29 U	0.29 U	0.27 U	0.28 U	0.27 U	-	0.3 U	0.3 U	-	0.32 U	0.29 U	0.29 U	0.3 U	0.3 U	0.3 U	0.28 U	0.29 U	0.27 U	0.26 U
	Perfluorodecanoic acid (PFDA)	ng/l	100		1.4 J	0.3 U	0.3 U	0.29 U	0.28 U	0.28 U	0.26 U	0.27 U	0.26 U	-	1.2 J	0.29 U	-	0.31 U	0.29 U	0.28 U	2	0.29 U	0.29 U	0.27 U	0.28 U	0.26 U	0.25 U
	Perfluorododecanoic acid (PFDoA)	ng/l	100		0.5 U	0.53 U	0.53 U	0.51 U	0.5 U	0.49 U	0.46 U	0.48 U	0.47 U	-	0.52 U	0.52 U	-	0.54 U	0.51 U	0.49 U	0.52 U	0.52 U	0.52 U	0.48 U	0.5 U	0.46 U	0.45 U
	Perfluoroheptane Sulfonate (PFHPS)	ng/l	100		0.17 U	0.18 U	0.18 U	0.17 U	0.17 U	0.17 U	0.16 U	0.17 U	0.16 U	-	0.18 U	0.18 U	-	0.19 U	0.17 U	0.17 U	0.18 U	0.18 U	0.18 U	0.17 U	0.17 U	0.16 U	0.15 U
	Perfluoroheptanoic acid (PFHpA)	ng/l	100		11	0.24 U	0.24 U	0.23 U	0.23 U	0.22 U	0.21 U	0.22 U	0.21 U	-	17	0.24 U	-	0.25 U	0.46 J	0.22 U	23	1.1 J	0.28 J	0.48 J	0.62 U	0.21 U	0.24 J
	Perfluorohexanesulfonic acid (PFHxS)	ng/l	100		0.75 U	0.29 U	0.25 U	0.25 U	0.28 U	0.23 U	0.48 U	0.5 U	0.48 U	-	1 U	0.26 U	-	0.3 U	0.31 U	0.51 U	0.7 U	0.34 U	0.31 U	0.27 U	0.23 U	0.47 U	0.46 U
	Perfluorohexanoic acid (PFHxA)	ng/l	100		6.1	0.56 U	0.56 U	0.53 U	0.53 U	0.52 U	0.48 U	0.51 U	0.49 U	-	10	0.55 U	-	0.57 U	0.58 J	0.52 U	8.1	0.91 J	0.55 U	0.51 U	0.53 U	0.48 U	0.5 J
	Perfluorononanoic acid (PFNA)	ng/l	100		1.5 J	0.26 U	0.26 U	0.25 U	0.25 U	0.24 U	0.23 U	0.24 U	0.23 U	-	1.9	0.25 U	-	0.27 U	0.25 U	0.24 U	7.8	0.41 J	0.26 U	0.27 J	0.25 U	0.22 U	0.22 U
	Perfluorooctane Sulfonamide (FOSA)	ng/l	100		0.32 U	0.34 U	0.34 U	0.32 U	0.32 U	0.6 U	0.82 U	0.86 U	0.83 U	-	0.33 U	0.33 U	-	0.35 U	1.4 U	0.88 U	0.77 J	0.33 U	0.33 U	0.79 U	0.32 U	0.82 U	0.8 U
	Perfluorooctanesulfonic acid (PFOS)	ng/l	10		3.9 U	0.52 U	0.52 U	0.5 U	0.5 U	0.49 U	0.45 U	0.48 U	0.46 U	-	2.6 U	0.51 U	-	0.53 U	0.5 U	0.48 U	4.9	0.52 J	0.51 U	0.47 U	0.49 U	0.45 U	0.44 UTHT
	Perfluorooctanoic acid (PFOA)	ng/l	10		550 J	2.6	1.4 J	1.2 J	1.9	2.9 U	1.3 J	1.7 J	1.7	-	1800 J	1.5 J	-	4.3	33	9.9	2800 J	89	9.1	28	44	4.1	7
	Perfluoropentanoic Acid (PFPeA)	ng/l	100		3.3	2.8	3	1.3 J	1.1 J	0.61 J	2.4	0.8 J	0.82 J	-	5.5	1.4 J	-	0.65 J	2.2 U	1.2 J	3.6	2.1	1.9	1 U	1.5 J	0.74 J	0.99 J
	Perfluorotetradecanoic acid (PFTA)	ng/l	100		0.26 U	0.28 U	0.28 U	0.27 U	0.27 U	0.26 U	0.61 U	0.64 U	0.62 U	-	0.28 U	0.27 U	-	0.29 U	0.27 U	0.65 U	0.27 U	0.28 J	0.28 U	0.25 U	0.27 U	0.61 U	0.59 U
	Perfluorotridecanoic Acid (PFTriA)	ng/l	100		1.2 U	1.3 U	1.3 U	1.2 U	1.2 U	1.2 U	1.1 U	1.1 U	1.1 U	-	1.2 U	1.2 U	-	1.3 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.1 U	1.2 U	1.1 U	1.5 J
	Perfluoroundecanoic Acid (PFUnA)	ng/l	100		1 U	1.1 U	1.1 U	1 U	1 U	0.99 U	0.92 U	0.97 U	0.94 U	-	1 U	1 U	-	1.1 U	1 U	0.98 U	1 U	1 U	1 U	0.96 U	1 U	0.92 U	0.89 U
	NEtFOSAA	ng/l	100		1.7 U	1.8 U	1.8 U	1.7 U	1.7 U	1.7 U	1.1 U	1.1 U	1.1 U	-	1.8 U	1.8 U	-	1.9 U	1.7 U	1.2 U	1.8 U	1.8 U	1.8 U	1.7 U	1.7 U	1.1 U	1.1 U
	NMeFOSAA	ng/l	100		2.8 U	3 U	3 U	2.9 U	2.8 U	2.8 U	1 U	1.1 U	1 U	-	3 U	2.9 U	-	3.1 U	2.9 U	1.1 U	2.9 U	2.9 U	2.9 U	2.7 U	2.8 U	1 U	0.98 U
	SODIUM 1H,1H,2H,2H-PERFLUORODECANE SI	ng/l	100		1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	0.38 U	0.41 U	0.39 U	-	1.9 U	1.9 U	-	2 U	1.8 U	0.41 U	1.9 U	1.9 U	1.9 U	1.7 U	1.8 U	0.38 U	0.37 UTHT
	SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SI	ng/l	100		1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	2.1 U	2.2 U	2.1 U	-	1.9 U	1.9 U	-	2 U	1.8 U	2.2 U	1.9 U	1.9 U	1.9 U	1.7 U	1.8 U	2.1 U	2 U
CVOCs	Tetrachloroethene (PCE)	µg/L	5		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.5 J	-	1 U	1 U	-	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U
	Trichloroethene (TCE)	µg/L	5		200	1 U	1 U	1 U	0.52 J	1 U	1 U	1 U	1 U	99	-	2	1.5	-	3.3	2.8	200	0.98 J	0.51 J	0.77 J	1.3	0.56 J	4.8
	cis-1,2-Dichloroethene	µg/L	5		22	1 U	1 U	1 U	0.67 J	0.49 J	1.4	2.4	2.5	8.4	-	1 U	1 U	-	0.55 J	0.76 J	11	1 U	1 U	0.37 J	0.26 J	0.81 J	2.3
	Vinyl Chloride	µg/L	2		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	-	1 U	1 U	-	1 U	1 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U
	1,1,1-Trichloroethane	µg/L	5		6.4	1 U	1 U	1 U	1 U	1 U	5.6	5.9	15	-	1 U	1 U	-	0.73 J	2.9	66	22	6.1	7.8	7.6	7.2	26
	1,1-Dichloroethane	µg/L	5		2.2 J	1 U	1 U	1 U	1 U	0.33 J	1.4	1.5	1.5	1.3 J	-	1 U	1 U	-	1 U	1 U	5 U	0.46 J	1 U	0.26 J	1 U	0.68 J	1.1
	1,1-Dichloroethene	µg/L	5		5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	-	1 U	1 U	-	1 U	1 U	1.9 J	1 U	1 U	1 U	1 U	1 U	1 U

Table 5
IRM Performance Monitoring Groundwater Sample Results
John Street Site, Hoosick Falls, New York

Type	Analyte	Result Unit	NYS Standard	Location ID	JS-MW-001A	JS-MW-001A	JS-MW-001A	JS-MW-001A	JS-MW-001A	JS-MW-001A	JS-MW-001A	JS-MW-001A	JS-MW-001B	JS-MW-001B	JS-MW-001B	JS-MW-001B	JS-MW-001B	JS-MW-001B	JS-MW-002A	JS-MW-002A	JS-MW-002A	JS-MW-002A	JS-MW-002A	JS-MW-002A	JS-MW-002A
				Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
				Sample Date	10/10/2019 11:10:00 AM	10/22/2019 12:48:00 PM	12/17/2019 11:40:00 AM	3/26/2020 11:10:00 AM	6/22/2020 5:30:00 PM	10/21/2020 3:20:00 PM	12/8/2020 5:05:00 PM	2/2/2021 9:15:00 AM	10/10/2019 3:30:00 PM	10/22/2019 12:10:00 PM	12/17/2019 9:40:00 AM	6/22/2020 4:45:00 PM	12/10/2020 4:45:00 PM	2/2/2021 11:20:00 AM	10/9/2019 3:05:00 PM	10/23/2019 10:50:00 AM	12/17/2019 9:15:00 AM	3/25/2020 1:50:00 PM	6/24/2020 9:30:00 AM	10/21/2020 4:25:00 PM	2/3/2021 3:05:00 PM
				Sample ID	JS-MW-001A(10102019)	JS-MW-001A(10222019)-B1	JS-MW-001A(12172019)-B1	JS MW-001A (03262020)	JS-MW-001A(06222020)-B1	JS-MW-001A(10212020)	JS-MW-001A(12082020)-B2	JS-MW-001A (02022021)	JS-MW-001B(10102019)	JS-MW-001B(10222019)-B1	JS-MW-001B(12172019)-B1	JS-MW-001B(06222020)-B1	JS-MW-001B(12102020)-B5	JS-MW-001B (02022021)	JS-MW-002A(10092019)	JS-MW-002A(10232019)-B2	JS-MW-002A(12172019)-B2	JS-MW-002A (03252020)	JS-MW-002A(06242020)-B2	JS-MW-002A(10212020)	JS-MW-002A (02032021)
				Validated	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	N
Ethene	Ethene	µg/L	-		7 U	-	-	-	-	-	-	7 U	7 U	-	-	-	-	7 U	7 U	-	-	-	-	-	-
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/l	100		**1.7 J**	**2.5**	**0.23 J**	0.18 U	0.18 U	0.17 U	**0.25 J**	**0.2 J**	**1.7 J**	**1.7 J**	**2.1**	**1.7 J**	1.7 U	**1.2 J**	**1.6 J**	**1.7 J**	**1.1 J**	**1.2 J**	**2.6**	**2.5**	**1.1 J**
PFAS	Perfluorobutanoic Acid	ng/l	100		**2.7**	**5.5**	**4.4**	5.8 U	5 U	**3.7 J**	**2.3 J**	**2.2 J**	**4.4**	**5.4**	**4.3**	5.6 U	21 U	**5**	**2.5**	**4.4**	**4.5**	3.8 U	2.7 U	**3.5 J**	**2.3 J**
PFAS	Perfluorodecane Sulfonic Acid	ng/l	100		0.29 U	0.28 U	0.31 U	0.29 U	0.28 U	0.28 U	0.28 U	0.27 U	0.29 U	0.29 U	0.3 U	0.29 U	2.8 U	0.29 U	0.3 U	0.28 U	0.31 U	0.29 U	0.29 U	0.27 U	0.28 U
PFAS	Perfluorodecanoic acid (PFDA)	ng/l	100		**1.8**	**3.2 J**	0.31 U	0.28 U	0.28 U	0.27 U	0.27 U	0.26 U	**2**	**2.1**	**1.9**	**1.7 J**	2.7 U	**1.7 J**	**3.1**	**4.4**	**16**	**5.3**	**4.2**	**1.9**	**3.2**
PFAS	Perfluorododecanoic acid (PFDoA)	ng/l	100		0.51 U	0.48 U	0.54 U	0.49 U	0.49 U	0.47 U	0.48 U	0.47 U	0.49 U	0.5 U	0.51 U	0.49 U	4.8 U	0.5 U	0.51 U	0.49 U	0.54 U	0.5 U	0.5 U	0.47 U	0.49 U
PFAS	Perfluoroheptane Sulfonate (PFHPS)	ng/l	100		0.17 U	0.16 U	0.19 U	0.17 U	0.17 U	0.16 U	0.17 U	0.16 U	0.17 U	0.17 U	0.18 U	0.17 U	1.7 U	0.17 U	0.18 U	0.17 U	0.19 U	0.17 U	0.17 U	0.16 U	0.17 U
PFAS	Perfluoroheptanoic acid (PFHpA)	ng/l	100		**10**	**39**	0.25 U	0.22 U	0.22 U	0.22 U	0.22 U	0.21 U	**38**	**35**	**36**	**22**	**14 J**	**14**	**8.2**	**19**	**23**	**11**	**6.5**	**8.3**	**5.3**
PFAS	Perfluorohexanesulfonic acid (PFHxS)	ng/l	100		0.7 U	0.89 U	0.3 U	0.26 U	0.25 U	0.49 U	0.5 U	**0.62 J**	0.89 U	0.9 U	0.81 U	0.85 U	5 U	**0.68 J**	0.72 U	0.78 U	0.65 U	0.48 U	0.75 U	**0.77 J**	**0.54 J**
PFAS	Perfluorohexanoic acid (PFHxA)	ng/l	100		**5.2**	**18**	0.57 U	0.52 U	**0.59 J**	**1 J**	**0.7 J**	**0.86 J**	**19**	**17**	**17**	**14**	**9.5 J**	**8.9**	**4.8**	**9.8**	**14**	7.5 U	**4**	**5.9**	**3.7**
PFAS	Perfluorononanoic acid (PFNA)	ng/l	100		**2.3**	**5.1 J**	0.27 U	0.24 U	0.24 U	0.23 U	**0.34 J**	0.23 U	**9.8**	**8.7**	**8.3**	**5.4**	**5 J**	**3.9**	**1.9**	**13**	**21**	**7**	**2**	**1.6 J**	**2.5**
PFAS	Perfluorooctane Sulfonamide (FOSA)	ng/l	100		0.32 U	0.3 U	**0.61 J**	0.33 U	0.31 U	0.84 U	0.86 U	0.83 U	0.31 U	**0.34 J**	0.33 U	0.31 U	8.5 U	0.9 U	**0.38 J**	**0.78 J**	0.34 U	0.58 U	0.41 U	**3.2**	**0.92 J**
PFAS	Perfluorooctanesulfonic acid (PFOS)	ng/l	10		4.4 U	**5.2 J**	0.53 U	0.48 U	0.48 U	0.47 U	0.47 U	**0.91 J**	3.7 UJ	**3.2 J**	**3.5 J**	**3**	4.7 U	**3**	**2.4**	**3.1**	**4.5**	**2.2**	**1.9**	**2.7 J**	**3.5**
PFAS	Perfluorooctanoic acid (PFOA)	ng/l	10		**680 J**	**4700 J**	**17**	**3.7**	0.9 U	**2.6**	**4.9**	**2.7**	**3400 J**	**4400 J**	**3500 J**	**1900 J**	**1400 J**	**1300**	**450 J**	**1500 J**	**2300 J**	**840 J**	**290**	**380 J**	**280**
PFAS	Perfluoropentanoic Acid (PFPeA)	ng/l	100		**2.6**	**6.2**	**2.4**	**1.4 J**	**1.4 J**	**1.5 J**	**1 J**	**1.1 J**	**5.7**	**6.1**	**5.8**	**5.3**	4.3 U	**3.5**	**1.8 J**	**3.7**	**4.9**	**3.1**	**1.5 J**	**2.7**	**1.9**
PFAS	Perfluorotetradecanoic acid (PFTA)	ng/l	100		0.27 U	0.25 U	0.29 U	**0.56 J**	0.26 U	0.63 U	0.64 U	0.62 U	0.26 U	**0.37 J**	0.27 U	0.26 U	6.4 U	0.67 U	**0.31 J**	0.26 U	0.28 U	0.26 U	0.26 U	0.63 U	0.64 U
PFAS	Perfluorotridecanoic Acid (PFTriA)	ng/l	100		1.2 U	1.1 U	1.3 U	1.2 U	1.2 U	1.1 U	1.1 U	1.1 U	1.2 U	1.2 U	1.2 U	1.2 U	11 U	1.2 U	1.2 U	1.2 U	1.3 U	1.2 U	1.2 U	1.1 U	1.1 U
PFAS	Perfluoroundecanoic Acid (PFUnA)	ng/l	100		1 U	0.95 U	1.1 U	0.99 U	0.98 U	0.95 U	0.96 U	0.93 U	0.98 U	1 U	1 U	0.99 U	9.6 U	1 U	1 U	0.98 U	1.1 U	1 U	1 U	0.94 U	0.97 U
PFAS	NEtFOSAA	ng/l	100		1.7 U	1.6 U	1.9 U	1.7 U	1.7 U	1.1 U	1.1 U	1.1 U	1.7 U	1.7 U	1.8 U	1.7 U	11 U	1.2 U	1.8 U	1.7 U	1.9 U	1.7 U	1.7 U	1.1 U	1.1 U
PFAS	NMeFOSAA	ng/l	100		2.8 U	2.7 U	3.1 U	2.8 U	2.8 U	1 U	1.1 U	1 U	2.8 U	2.8 U	2.9 U	2.8 U	10 U	1.1 U	2.9 U	2.8 U	3 U	2.8 U	2.8 U	1 U	1.1 U
PFAS	SODIUM 1H,1H,2H,2H-PERFLURODECANE SU	ng/l	100		1.8 U	1.7 U	2 U	1.8 U	1.8 U	0.4 U	0.4 U	0.39 U	1.8 U	1.8 U	1.9 U	1.8 U	4 U	0.42 U	1.9 U	1.8 U	2 U	1.8 U	1.8 U	0.39 U	**0.61 J**
PFAS	SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SU	ng/l	100		1.8 U	1.7 U	2 U	1.8 U	1.8 U	2.2 U	2.2 U	2.1 U	1.8 U	1.8 U	1.9 U	**3.6 J**	22 U	2.3 U	1.9 U	1.8 U	2 U	1.8 U	**5 J**	2.1 U	2.2 U
CVOCs	Tetrachloroethene (PCE)	µg/L	5		**0.73 J**	2 U	2 U	1 U	1 U	1 U	1 U	1 U	25 U	20 U	40 U	5 U	5 U	5 U	1 U	1 U	2 U	**0.37 J**	1 U	**0.68 J**	**0.37 J**
CVOCs	Trichloroethene (TCE)	µg/L	5		**130**	**110**	2 U	**0.33 J**	1 U	1 U	**0.36 J**	1 U	**960**	**1500**	**1400**	**860**	**990**	**820**	**28**	**23**	**8.4**	**17**	**9.7**	**35**	**19**
CVOCs	cis-1,2-Dichloroethene	µg/L	5		**11**	**8.7**	2 U	**0.32 J**	1 U	1 U	**1.3**	**0.31 J**	25 U	**25**	40 U	**13**	**19**	**15**	**3.9**	**3.4**	**2.2**	**2.2**	**5.1**	**4**	**2.1**
CVOCs	Vinyl Chloride	µg/L	2		2 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	25 U	20 U	40 U	5 U	**1.6 J**	5 U	**1.3**	**1.5**	2 U	**0.24 J**	**1.4**	**0.48 J**	**0.33 J**
CVOCs	1,1,1-Trichloroethane	µg/L	5		**5.4**	**7.5**	2 U	1 U	1 U	1 U	**0.46 J**	1 U	**100**	**170**	**150**	**1200**	**500**	**300**	**2.3**	1 U	2 U	**1.1**	**110**	**56**	**63**
CVOCs	1,1-Dichloroethane	µg/L	5		2 U	2 U	2 U	1 U	1 U	1 U	**1.1**	**0.28 J**	**53**	**89**	**87**	**56**	**87**	**62**	**0.96 J**	**0.85 J**	2 U	**0.49 J**	**93**	**79**	**83**
CVOCs	1,1-Dichloroethene	µg/L	5		2 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	**19 J**	**30**	**29 J**	**16**	**25**	**15**	1 U	1 U	2 U	1 U	1 U	**0.36 J**	1 U

Type	Analyte	Result Unit	NYS Standard	Location ID	JS-MW-003A	JS-MW-003A	JS-MW-003A	JS-MW-003A	JS-MW-003A	JS-MW-003A	JS-MW-003A	JS-MW-003A	JS-MW-003A	JS-MW-003B	JS-MW-003B	JS-MW-003B	JS-MW-003B	JS-MW-003B	JS-MW-003B	JS-MW-003B	JS-MW-003B	JS-MW-003B	JS-MW-003B
				Sample Type	N	FD	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
				Sample Date	10/9/2019 12:00:00 PM	10/9/2019 12:00:00 PM	10/22/2019 10:00:00 AM	12/18/2019 10:00:00 AM	3/25/2020 3:00:00 PM	6/23/2020 2:08:00 PM	10/21/2020 3:10:00 PM	12/9/2020 10:30:00 AM	2/3/2021 1:15:00 PM	10/9/2019 12:10:00 PM	10/22/2019 4:50:00 PM	10/22/2019 12:00:00 PM	12/17/2019 2:30:00 PM	12/17/2019 2:30:00 PM	6/23/2020 4:08:00 PM	12/9/2020 1:00:00 PM	2/3/2021 11:45:00 AM
				Sample ID	JS-MW-003A(10092019)	DUP(10092019)	JS-MW-003A(10222019)-B1	JS-MW-003A(12182019)-B1	JS-MW-003A (03252020)	JS-MW-003A(06232020)-B1	JS-MW-003A(10212020)	JS-MW-003A(12092020)-B3	JS-MW-003A (02032021)	JS-MW-003B(10092019)	JS-MW-003B(10222019)-B1	JS-MW-003B(10222019)-B1	JS-MW-003B(12172019)-B1	JS-MW-003B(12172019)-B1-RS	JS-MW-003B(06232020)-B1	JS-MW-003B(12092020)-B3	JS-MW-003B (02032021)
				Validated	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N
Ethene	Ethene	µg/L	-		7 U	7 U	-	-	-	-	-	-	-	7 U	-	-	-	-	-	-	-	-
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/l	100		**1.6 J**	**1.5 J**	**1.5 J**	**1.1 J**	**1.2 J**	**4.2**	**1.7**	**0.83 J**	**1 J**	**1.6 J**	**1.6 J**	**1.5 J**	**1.4 J**	-	**1.5 J**	**1.2 J**	**1.3 J**
PFAS	Perfluorobutanoic Acid	ng/l	100		**2.1**	**2.2**	3.5 U	**1.5 J**	1.6 U	3.2 U	**2.3 J**	2.2 U	2.1 U	**4.4**	**5.6**	**4.8**	**4.3**	-	4.7 U	**4 J**	**4.1 J**
PFAS	Perfluorodecane Sulfonic Acid	ng/l	100		0.29 U	0.3 U	0.29 U	0.3 U	0.29 U	0.29 U	0.26 U	0.29 U	0.29 U	0.3 U	0.28 U	0.28 U	0.31 U	-	0.28 U	0.31 U	0.28 U
PFAS	Perfluorodecanoic acid (PFDA)	ng/l	100		0.28 U	0.29 U	0.28 U	0.29 U	0.28 U	0.28 U	0.25 U	0.28 U	0.28 U	0.29 U	0.28 U	0.27 U	0.3 U	-	0.27 U	0.3 U	0.28 U
PFAS	Perfluorododecanoic acid (PFDoA)	ng/l	100		0.5 U	0.52 U	0.5 U	0.51 U	0.5 U	0.49 U	0.45 U	0.5 U	0.49 U	0.51 U	0.49 U	0.48 U	0.53 U	-	0.49 U	0.53 U	0.49 U
PFAS	Perfluoroheptane Sulfonate (PFHPS)	ng/l	100		0.17 U	0.18 U	0.17 U	0.18 U	0.17 U	0.17 U	0.16 U	0.17 U	0.17 U	0.18 U	0.17 U	0.17 U	0.18 U	-	0.17 U	0.18 U	0.17 U
PFAS	Perfluoroheptanoic acid (PFHpA)	ng/l	100		**5.5**	**5.9**	**8.2**	**4.9**	**2.8**	**7.3**	**5.8**	**2.9**	**2.3**	**26**	**26**	**26**	**27**	-	**26**	**24**	**22**
PFAS	Perfluorohexanesulfonic acid (PFHxS)	ng/l	100		0.7 U	0.64 U	0.79 U	0.53 U	0.45 U	1.1 U	**0.65 J**	0.52 U	0.51 U	1 U	0.92 U	1 U	0.98 U	-	0.87 U	**0.84 J**	**0.86 J**
PFAS	Perfluorohexanoic acid (PFHxA)	ng/l	100		**2.9**	**2.9**	**4.2**	**2.6**	1.9 U	**4.1**	**4**	**2.1**	**1.9**	**17**	**17**	**17**	**18**	-	**20**	**15**	**16**
PFAS	Perfluorononanoic acid (PFNA)	ng/l	100		**0.43 J**	**0.37 J**	0.24 U	**0.38 J**	**0.28 J**	**0.44 J**	**0.5 J**	0.25 U	0.24 U	**1.3 J**	**1.2 J**	**1.4 J**	**1.2 J**	-	**0.83 J**	**0.38 J**	**0.88 J**
PFAS	Perfluorooctane Sulfonamide (FOSA)	ng/l	100		**0.9 J**	**0.97 J**	0.6 U	0.33 U	0.5 U	0.58 U	0.8 U	0.89 U	**0.91 J**	**0.58 J**	0.31 U	0.31 U	0.34 U	-	0.33 U	0.94 U	0.87 U
PFAS	Perfluorooctanesulfonic acid (PFOS)	ng/l	10		**2.1**	**2.2**	**2**	**1.3 J**	**1 J**	**1.6 J**	**2.2 J**	**1.4 J**	**1 J**	**1.1 J**	**1 J**	**1.1 J**	**1.3 J**	-	**1.1 J**	0.52 U	0.48 U
PFAS	Perfluorooctanoic acid (PFOA)	ng/l	10		**170**	**160**	**220**	**140**	**83**	**210**	**180**	**91**	**69**	**1200 J**	**1200 J**	**1200 J**	**1000 J**	-	**910 J**	**750 J**	**680**
PFAS	Perfluoropentanoic Acid (PFPeA)	ng/l	100		**1.1 J**	**1 J**	**1.7 J**	**1.1 J**	**1.1 J**	**1.1 J**	**1.9**	**1.1 J**	**1 J**	**5.8**	**6.1**	**5.9**	**5.3**	-	**5**	**4.5**	**4.5**
PFAS	Perfluorotetradecanoic acid (PFTA)	ng/l	100		0.26 U	0.27 U	0.26 U	0.27 U	0.26 U	0.26 U	0.6 U	0.66 U	0.65 U	0.27 U	0.26 U	0.26 U	0.28 U	-	0.26 U	0.7 U	0.65 U
PFAS	Perfluorotridecanoic Acid (PFTriA)	ng/l	100		1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.1 U	1.2 U	1.2 U	1.2 U	1.2 U	1.1 U	1.3 U	-	1.2 U	1.3 U	1.2 U
PFAS	Perfluoroundecanoic Acid (PFUnA)	ng/l	100		0.99 U	1 U	0.99 U	1 U	0.99 U	0.98 U	0.9 U	1 U	0.98 U	1 U	0.98 U	0.97 U	1.1 U	-	0.97 U	1.1 U	0.98 U
PFAS	NEtFOSAA	ng/l	100		1.7 U	1.8 U	1.7 U	1.8 U	1.7 U	1.7 U	1.1 U	1.2 U	1.2 U	1.8 U	1.7 U	1.7 U	1.8 U	-	1.7 U	1.3 U	1.2 U
PFAS	NMeFOSAA	ng/l	100		2.8 U	2.9 U	2.8 U	2.9 U	2.8 U	2.8 U	0.99 U	1.1 U	1.1 U	2.9 U	2.8 U	2.7 U	3 U	-	2.7 U	1.2 U	1.1 U
PFAS	SODIUM 1H,1H,2H,2H-PERFLUORODECANE SU	ng/l	100		1.8 U	1.9 U	1.8 U	1.9 U	1.8 U	1.8 U	0.38 U	0.42 U	0.41 U	1.9 U	1.8 U	1.8 U	1.9 U	-	1.8 U	0.44 U	0.41 U
PFAS	SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SU	ng/l	100		1.8 U	1.9 U	1.8 U	1.9 U	1.8 U	1.8 U	2.1 U	2.3 U	2.2 U	1.9 U	1.8 U	1.8 U	1.9 U	-	1.8 U	2.4 U	2.2 U
CVOCs	Tetrachloroethene (PCE)	µg/L	5		**0.39 J**	**0.42 J**	**0.69 J**	1 U	**0.27 J**	**0.35 J**	**0.67 J**	**0.45 J**	1 U	2000 U	500 U	500 U	400 U	100 U	100 U	100 U	50 U
CVOCs	Trichloroethene (TCE)	µg/L	5		**3.3**	**3.2**	**3.8**	**2.3**	**1.7**	**2.2**	**3.4**	**2.3**	**30**	**41000**	**44000 J**	**19000 J**	**38000**	**31000**	**28000**	**33000**	**40000**
CVOCs	cis-1,2-Dichloroethene	µg/L	5		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2000 U	500 U	500 U	400 U	100 U	**23 J**	**34 J**	**24 J**
CVOCs	Vinyl Chloride	µg/L	2		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2000 U	500 U	500 U	400 U	100 U	100 U	100 U	50 U
CVOCs	1,1,1-Trichloroethane	µg/L	5		1 U	1 U	1 U	1 U	**0.27 J**	**0.32 J**	**0.33 J**	1 U	1 U	2000 U	500 U	500 U	400 U	**37 J**	100 U	**76 J**	**39 J**
CVOCs	1,1-Dichloroethane	µg/L	5		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2000 U	500 U	500 U	400 U	**86 J**	**100**	**100**	**80**
CVOCs	1,1-Dichloroethene	µg/L	5		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2000 U	500 U	500 U	400 U	100 U	**38 J**	**51 J**	**32 J**

Table 5
IRM Performance Monitoring Groundwater Sample Results
John Street Site, Hoosick Falls, New York

Type	Analyte	Result Unit	NYS Standard	Location ID	OS-MW-025A	OS-MW-025A	OS-MW-025A	OS-MW-025A	OS-MW-025A	OS-MW-026A	OS-MW-026A	OS-MW-026A	OS-MW-026A	OS-MW-026A	OS-MW-031A	OS-MW-031A	OS-MW-031A	OS-MW-031A	OS-MW-031A	OS-MW-031A
				Sample Type	N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N	N
				Sample Date	10/10/2019 9:25:00 AM	10/24/2019 10:05:00 AM	6/23/2020 3:20:00 PM	10/21/2020 1:55:00 PM	2/3/2021 1:45:00 PM	12/18/2019 12:20:00 PM	12/18/2019 12:00:00 PM	6/24/2020 9:50:00 AM	10/21/2020 11:30:00 AM	2/3/2021 12:55:00 PM	10/9/2019 8:30:00 AM	12/18/2019 3:50:00 PM	3/26/2020 3:45:00 PM	6/24/2020 10:55:00 AM	10/21/2020 9:50:00 AM	2/3/2021 11:05:00 AM
				Sample ID	OS-MW-025A (10102019)	OS-MW-025A(10242019)-B2	OS-MW-025A(06232020)-B2	OS-MW-025A(10212020)	OS-MW-025A (02032021)	OS-MW-026A(12182019)-B6	DUP(12182019)-B6	OS-MW-026A(06242020)-B2	OS-MW-026A(10212020)	OS-MW-026A (02032021)	OS-MW-031A (10092019)	OS-MW-031A(12182019)-B1	OS-MW-031A(03262020)-B1	OS-MW-031A(06242020)-B1	OS-MW-031A(10212020)	OS-MW-031A (02032021)
				Validated	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N
Ethene	Ethene	µg/L	-		7 U	-	-	-	-	7 U	7 U	-	-	-	7 U	7 U	7 U	-	-	-
PFAS	Perfluorobutanesulfonic acid (PFBS)	ng/l	100		**1.8**	**3.1**	**2.5**	**3.6**	**2.7**	**8.1**	**8**	**9.6**	**6.1**	**10**	**2.6**	**4.1**	**2.8**	**2.9**	**4.7**	**2.9**
	Perfluorobutanoic Acid	ng/l	100		**3.3**	3 U	4.4 U	**4.4**	**2.9 J**	**6.5**	**6.4**	**6.5**	**4.6**	**5.6**	**3.5**	**4.7**	**4.8**	5.2 U	**4.9**	**6.5**
	Perfluorodecane Sulfonic Acid	ng/l	100		0.29 U	0.29 U	0.31 U	0.27 U	0.25 U	0.29 U	0.29 U	0.28 U	0.29 U	0.29 U	0.3 U	0.29 U	0.28 U	0.28 U	0.27 U	0.29 U
	Perfluorodecanoic acid (PFDA)	ng/l	100		0.29 U	0.28 U	0.3 U	0.26 U	0.25 U	0.28 U	0.29 U	0.27 U	0.28 U	0.28 U	0.29 U	0.28 U	0.27 U	0.27 U	0.26 U	0.28 U
	Perfluorododecanoic acid (PFDoA)	ng/l	100		0.51 U	0.49 U	0.53 U	0.47 U	0.44 U	0.5 U	0.51 U	0.48 U	0.5 U	0.5 U	0.51 U	0.5 U	0.49 U	0.48 U	0.47 U	0.49 U
	Perfluoroheptane Sulfonate (PFHPS)	ng/l	100		0.18 U	0.17 U	0.18 U	0.16 U	0.15 U	**0.19 J**	0.18 U	**0.2 J**	0.17 U	0.17 U	0.18 U	0.17 U	0.17 U	0.16 U	0.16 U	0.17 U
	Perfluoroheptanoic acid (PFHpA)	ng/l	100		**7.7**	**7.1**	**12**	**8.1**	**6.2**	**22**	**21**	**15**	**13**	**13**	**8.2**	**15**	**13**	**18**	**15**	**10**
	Perfluorohexanesulfonic acid (PFHxS)	ng/l	100		0.79 U	0.87 U	1.1 U	**1.2 J**	**0.89 J**	2.3 U	2.4 U	2.2 U	**3.3**	**2.4**	1.7 U	1.1 U	1.4 U	2.2 U	**2.9**	**2.2**
	Perfluorohexanoic acid (PFHxA)	ng/l	100		**5.9**	**5.6**	**9.1**	**6.9**	**4.4**	**18**	**17**	**15**	**11**	**11**	**7.3**	**9.2**	**9.6**	**15**	**11**	**9.9**
	Perfluorononanoic acid (PFNA)	ng/l	100		**0.93 J**	**0.89 J**	**0.76 J**	**0.97 J**	**0.6 J**	**1.3 J**	**1.2 J**	**1 J**	**0.99 J**	**1 J**	**0.85 J**	**1.9**	**1.2 J**	**1.1 J**	**1.1 J**	**0.85 J**
	Perfluorooctane Sulfonamide (FOSA)	ng/l	100		**0.38 J**	**0.37 J**	0.35 U	0.84 U	0.78 U	**1.8**	**4.1**	**7.2**	0.89 U	**4.3**	**9.8**	**1 J**	**15**	**8.4**	**3.6**	**15**
	Perfluorooctanesulfonic acid (PFOS)	ng/l	10		4.6 U	**4.7 J**	**4.7 J**	**4.8 J**	**3.1 I**	**9.2**	**8.9**	**8.4**	**8.8**	**9.8**	**3.9**	**5.2 J**	**5.6**	**4.3**	**6.7**	**4.6**
	Perfluorooctanoic acid (PFOA)	ng/l	10		**340**	**340**	**410 J**	**340**	**230**	**630 J**	**600 J**	**560 J**	**510 J**	**390**	**280**	**1000 J**	**490 J**	**540 J**	**520 J**	**310**
	Perfluoropentanoic Acid (PFPeA)	ng/l	100		**2.1**	**2.8**	**3.7**	**4.1**	**1.9**	**8.7**	**8.5**	**7.8**	**6**	**6.3**	**4.5**	**6.7**	**5.5**	**5.8**	**6**	**8.4**
	Perfluorotetradecanoic acid (PFTA)	ng/l	100		0.27 U	0.26 U	0.28 U	0.62 U	0.58 U	0.26 U	0.27 U	0.25 U	0.66 U	0.66 U	0.27 U	0.26 U	0.26 U	0.25 U	0.62 U	0.66 U
	Perfluorotridecanoic Acid (PFTriA)	ng/l	100		1.2 U	1.2 U	1.2 U	1.1 U	1 U	1.2 U	1.2 U	1.1 U	1.2 U	1.2 U	1.2 U	1.2 U	1.1 U	1.1 U	1.1 U	1.2 U
	Perfluoroundecanoic Acid (PFUnA)	ng/l	100		1 U	0.98 U	1.1 U	0.94 U	0.87 U	1 U	1 U	0.97 U	1 U	1 U	1 U	1 U	0.97 U	0.95 U	0.93 U	0.99 U
	NEtFOSAA	ng/l	100		1.8 U	1.7 U	1.8 U	1.1 U	1 U	1.7 U	1.8 U	1.7 U	1.2 U	1.2 U	1.8 U	1.7 U	1.7 U	1.6 U	1.1 U	1.2 U
	NMeFOSAA	ng/l	100		2.9 U	2.8 U	3 U	1 U	0.95 U	2.8 U	2.9 U	2.7 U	1.1 U	1.1 U	2.9 U	2.8 U	2.7 U	2.7 U	1 U	1.1 U
	SODIUM 1H,1H,2H,2H-PERFLUORODECANE SI	ng/l	100		1.8 U	1.8 U	1.9 U	0.39 U	0.37 U	1.8 U	1.8 U	1.8 U	0.42 U	0.42 U	1.8 U	1.8 U	1.8 U	1.7 U	0.39 U	0.41 U
	SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SI	ng/l	100		1.8 U	1.8 U	1.9 U	2.1 U	2 U	1.8 U	1.8 U	1.8 U	2.3 U	2.3 U	1.8 U	1.8 U	1.8 U	1.7 U	2.1 U	2.2 U
CVOCs	Tetrachloroethene (PCE)	µg/L	5		**0.75 J**	1 U	**0.61 J**	**0.64 J**	**0.5 J**	1 U	1 U	1 U	1 U	1 U	1 U	20 U	**0.27 J**	1 U	1 U	1 U
	Trichloroethene (TCE)	µg/L	5		**2 J**	**2.6**	**2**	**4.5**	**1.8**	1 U	1 U	**0.63 J**	**0.53 J**	1 U	**14**	**83**	**34**	**18**	**12**	**7.5**
	cis-1,2-Dichloroethene	µg/L	5		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	**0.77 J**	**0.67 J**	**0.28 J**	**0.34 J**
	Vinyl Chloride	µg/L	2		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	1 UJ	1 U	1 U	1 U
	1,1,1-Trichloroethane	µg/L	5		**1.6 J**	**2.6 J**	**2**	**6.3**	**3.3**	1 U	1 U	1 U	1 U	1 U	**1.2**	**780**	**240**	**95**	**7.6**	**6**
	1,1-Dichloroethane	µg/L	5		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	**14 J**	**4**	**1.1**	**0.28 J**	1 U
	1,1-Dichloroethene	µg/L	5		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	20 U	**1.1**	**0.47 J**	1 U	1 U

Notes and Abbreviations
ng/L - nanograms per liter
µg/L - micrograms per liter
U - Compound not detected
J - Estimated value
N - Primary sample
FD - Field duplicate sample
na - Sample not analyzed for this parameter
Bold value indicates detected value

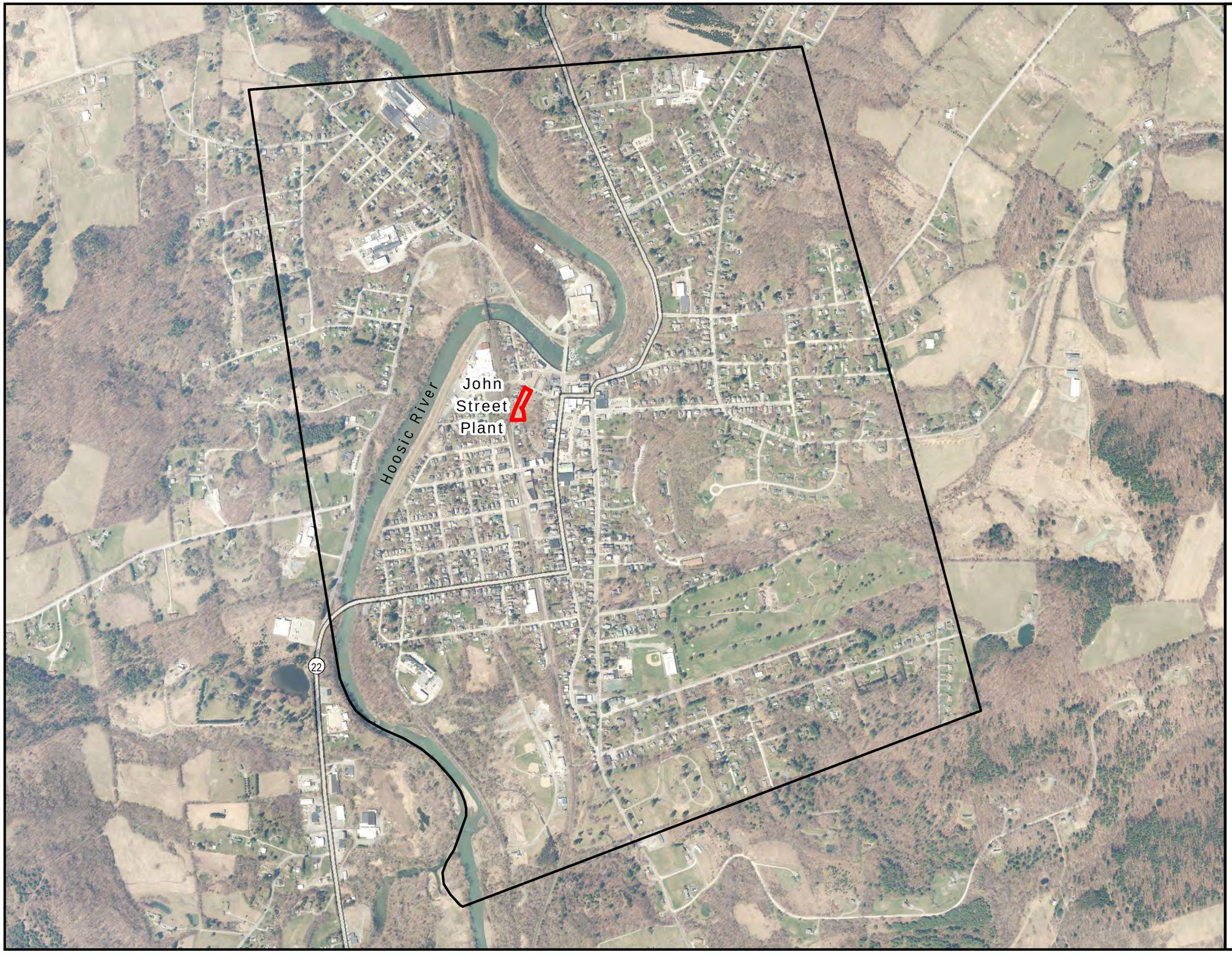
Exceedance of NYS PFAS Drinking Water Standard
Exceedance of NYS GA Standard: NYSDEC TOGS111 - Standards listed are the New York State Department of Environmental Conservation (NYSDEC) Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1 values for Class GA groundwater.

Table 6
IRM Performance Monitoring Vapor Sample Results
John Street Site, Hoosick Falls, New York

Location ID	Location ID	JS-GWIRMVAP-01	JS-GWIRMVAP-02	JS-GWIRMVAP-03	JS-GWIRMVAP-03	JS-GWIRMOA-01	JS-GWIRMVAP-01	JS-GWIRMVAP-02	JS-GWIRMVAP-03	JS-GWIRMVAP-03	JS-GWIRMOA-01	JS-GWIRMVAP-01	JS-GWIRMVAP-02	JS-GWIRMVAP-03	JS-GWIRMOA-01
Sample Date	Sample Date	10/25/2019 12:05:00 PM	10/25/2019 12:10:00 PM	10/25/2019 12:00:00 PM	10/25/2019 12:01:00 PM	10/25/2019 10:33:00 AM	6/24/2020 8:25:00 AM	6/24/2020 1:47:00 PM	6/24/2020 8:29:00 AM	6/24/2020 11:20:00 AM	6/24/2020 11:58:00 AM	2/4/2021 11:50:00 AM	2/3/2021 2:33:00 PM	2/3/2021 2:24:00 PM	2/3/2021 3:05:00 PM
	Validated - Y/N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Sample Type	Sample Type	N	N	N	FD	N	N	N	N	FD	N	N	N	N	N
	Location Description	SOIL VAPOR	SOIL VAPOR	SOIL VAPOR	SOIL VAPOR	Outdoor Ambient Air	SOIL VAPOR	SOIL VAPOR	SOIL VAPOR	SOIL VAPOR	Outdoor Ambient Air	SOIL VAPOR	SOIL VAPOR	SOIL VAPOR	Outdoor Ambient Air
Analyte	**Units**														
1,1,1-Trichloroethane (TCA)	µg/m^3	**3000**	**980**	**2600**	**2600**	**0.23 J**	**6.4**	**21000**	**270000**	**420000**	**0.72**	2.7 U	**1200**	**140000**	0.44 U
1,1,2,2-Tetrachloroethane	µg/m^3	49 U	6.9 U	14 U	11 U	0.55 U	0.55 U	190 U	2500 U	2800 U	0.55 U	3.3 U	14 U	3100 U	0.55 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	µg/m^3	**7.8 J**	**1.3 J**	**2.5 J**	**2.1 J**	**0.63**	**0.52 J**	210 U	2800 U	3100 U	**0.45 J**	**0.53 J**	15 U	3400 U	**0.51 J**
1,1,2-Trichloroethane	µg/m^3	**4.2 J**	**0.81 J**	**1.2 J**	**1.6 J**	**0.067 J**	0.44 U	150 U	2000 U	2200 U	0.44 U	2.7 U	11 U	2400 U	0.44 U
1,1-Dichloroethane	µg/m^3	**4.6 J**	**2 J**	**19**	**27**	**0.044 J**	0.32 U	110 U	1500 U	1600 U	0.32 U	2 U	8.1 U	1800 U	0.32 U
1,1-Dichloroethene	µg/m^3	**4 J**	**3.4**	**1.9 J**	**3.3**	**0.036 J**	0.16 U	54 U	730 U	800 U	0.16 U	0.96 U	4 U	890 U	0.16 U
1,2,3-Trichloropropane	µg/m^3	110 U	15 U	30 U	24 U	1.2 U	1.2 U	410 U	5600 U	6100 U	1.2 U	7.3 U	30 U	6700 U	1.2 U
1,2-Dichlorobenzene	µg/m^3	43 U	6 U	12 U	9.6 U	0.48 U	0.48 U	160 U	2200 U	2400 U	0.48 U	2.9 U	12 U	2700 U	0.48 U
1,2-Dichloroethane	µg/m^3	29 U	**2.6 J**	**1.3 J**	**1.4 J**	**0.098 J**	**0.053 J**	110 U	1500 U	1600 U	**0.043 J**	**0.87 J**	8.1 U	1800 U	**0.079 J**
1,2-Dichloropropane	µg/m^3	33 U	4.6 U	9.2 U	7.4 U	**0.074 J**	0.37 U	130 U	1700 U	1900 U	0.37 U	2.2 U	9.2 U	2100 U	0.37 U
1,2-Dichlorotetrafluoroethane	µg/m^3	50 U	**1.1 J**	14 U	11 U	**0.19 J**	0.56 U	190 U	2600 U	2800 U	**0.084 J**	3.4 U	14 U	3100 U	0.56 U
1,3-Dichlorobenzene	µg/m^3	43 U	6 U	12 U	9.6 U	0.48 U	0.48 U	160 U	2200 U	2400 U	0.48 U	2.9 U	12 U	2700 U	0.48 U
1,4-Dichlorobenzene	µg/m^3	43 U	6 U	12 U	9.6 U	0.48 U	0.48 U	160 U	2200 U	2400 U	0.48 U	2.9 U	12 U	2700 U	0.48 U
Allyl Chloride (3-Chloropropene)	µg/m^3	22 U	3.1 U	6.3 U	5 U	0.25 U	0.25 U	86 U	1200 U	1300 U	0.25 U	1.5 U	6.3 U	1400 U	0.25 U
Bromodichloromethane	µg/m^3	48 U	6.7 U	13 U	11 U	0.54 U	0.54 U	180 U	2500 U	2700 U	0.54 U	3.3 U	13 U	3000 U	0.54 U
Carbon Disulfide	µg/m^3	**10 J**	**20**	**8.6 J**	**9.3 J**	**0.087 J**	**2.1**	210 U	2900 U	3100 U	**3.9**	**15**	**1.8 J**	**400 J**	0.62 U
Carbon Tetrachloride	µg/m^3	**5.1 J**	**2.2 J**	**17**	**23**	**0.54**	**0.41**	77 U	1000 U	1100 U	**0.37**	**0.39 J**	5.7 U	1300 U	**0.47**
Chlorobenzene	µg/m^3	33 U	**0.57 J**	**0.84 J**	**0.86 J**	**0.055 J**	0.37 U	130 U	1700 U	1900 U	0.37 U	2.2 U	**0.73 J**	2100 U	0.37 U
Chlorodifluoromethane	µg/m^3	25 U	3.5 U	7.1 U	**1.9 J**	**1.4**	**1**	97 U	1300 U	1400 U	**1**	**0.9 J**	7.1 U	1600 U	**0.97**
Chloroethane	µg/m^3	19 U	2.6 U	5.3 U	4.2 U	0.21 U	**0.096 J**	72 U	970 U	1100 U	0.21 U	1.3 U	5.3 U	1200 U	0.21 U
Chloroform	µg/m^3	**12 J**	**2 J**	**8.4 J**	**11**	**0.16 J**	**0.16 J**	130 U	1800 U	2000 U	**0.11 J**	**0.21 J**	**0.86 J**	2200 U	**0.094 J**
Chloromethane	µg/m^3	37 U	**1.8 J**	10 U	8.3 U	**1.2**	**1.2**	140 U	1900 U	2100 U	**1**	**1.8 J**	10 U	2300 U	**1.4**
Cis-1,2-Dichloroethylene	µg/m^3	14 U	**0.85 J**	**2.8 J**	**3.4**	**0.044 J**	0.16 U	54 U	730 U	800 U	0.16 U	0.96 U	4 U	890 U	0.16 U
Cis-1,3-Dichloropropene	µg/m^3	**9.4 J**	**1.4 J**	**2.6 J**	**2.2 J**	**0.12 J**	0.36 U	120 U	1700 U	1800 U	0.36 U	2.2 U	9.1 U	2000 U	0.36 U
Dibromochloromethane	µg/m^3	**6.1 J**	**0.77 J**	17 U	**1.2 J**	**0.078 J**	0.68 U	230 U	3100 U	3400 U	0.68 U	4.1 UJ	17 UJ	3800 UJ	0.68 UJ
Dichlorodifluoromethane	µg/m^3	**6.6 J**	**4.3 J**	**4.5 J**	**4.6 J**	**2.9**	**1.1**	140 U	1800 U	2000 U	**0.94**	**1.1 J**	**2.4 J**	2200 U	**1.4**
Methylene Chloride	µg/m^3	**89 J**	**17 J**	**26 J**	**22 J**	3.3 U	2.2 U	480 U	**3000 J**	**3100 J**	4.2 U	8.4 U	35 U	7800 U	1.4 U
Tetrachloroethylene (PCE)	µg/m^3	**60**	**8.8**	**8.8 J**	**12**	**0.25 J**	**0.14 J**	**98 J**	2500 U	2700 U	**0.08 J**	**1 J**	**19**	3000 U	0.54 U
Toluene	µg/m^3	41 U	**40**	11 U	**13**	**3.6**	**0.55**	150 U	2100 U	2300 U	**0.63**	**26**	11 U	2500 U	**0.81**
Trans-1,2-Dichloroethene	µg/m^3	**4.8 J**	**0.72 J**	**2.7 J**	**2.7 J**	**0.031 J**	0.32 U	110 U	1500 U	1600 U	0.32 U	1.9 U	7.9 U	1800 U	0.32 U
Trans-1,3-Dichloropropene	µg/m^3	33 U	4.5 U	9.1 U	**0.88 J**	**0.045 J**	0.36 U	120 U	1700 U	1800 U	0.36 U	2.2 U	9.1 U	2000 U	0.36 U
Trichloroethylene (TCE)	µg/m^3	**4400**	**340**	**960**	**1500**	**1.1**	**1.4**	**3800**	**3300**	**4500**	**0.39**	**0.98 J**	**540**	**550 J**	**0.038 J**
Trichlorofluoromethane	µg/m^3	**5.9 J**	**1.5 J**	**5 J**	**5.5 J**	**1.4**	**1.2**	150 U	2100 U	2300 U	**1.1**	**1.3 J**	11 U	2500 U	**1.2**
Vinyl Chloride	µg/m^3	9.2 U	1.3 U	2.6 U	2 U	0.1 U	0.1 U	35 U	470 U	520 U	0.1 UJ	0.62 U	2.6 U	570 U	0.1 U

Notes and Abbreviations
µg/m^3 - micrograms per cubic meter
U - Compound not detected
J - Estimated value
N - Primary sample
FD - Field duplicate sample
Bold value indicates detected value

FIGURES



Legend

- Approximate Property Boundary
- Village of Hoosick Falls Boundary
- State Route 22

N

0 0.05 0.1 0.2 0.3
Miles

Figure 1: **Property Location**
Former Oak Materials Fluorglas Division
John Street Site
Village of Hoosick Falls, New York

ERM

Q:\Team\DMV\Clients_A_E\Arnold\and\Porter\Hoosick\Falls\MXD\Soil_IRM\Figure1_PropertyLocations_20170717.mxd - brett.shaver - 7/17/2017

Legend

- Approximate Site Boundary
- Village of Hoosick Falls Boundary
- Waterbody
- Hoosick Town Boundary
- Elevation Contours (10 foot)
- Elevation Contours (2 foot)

N

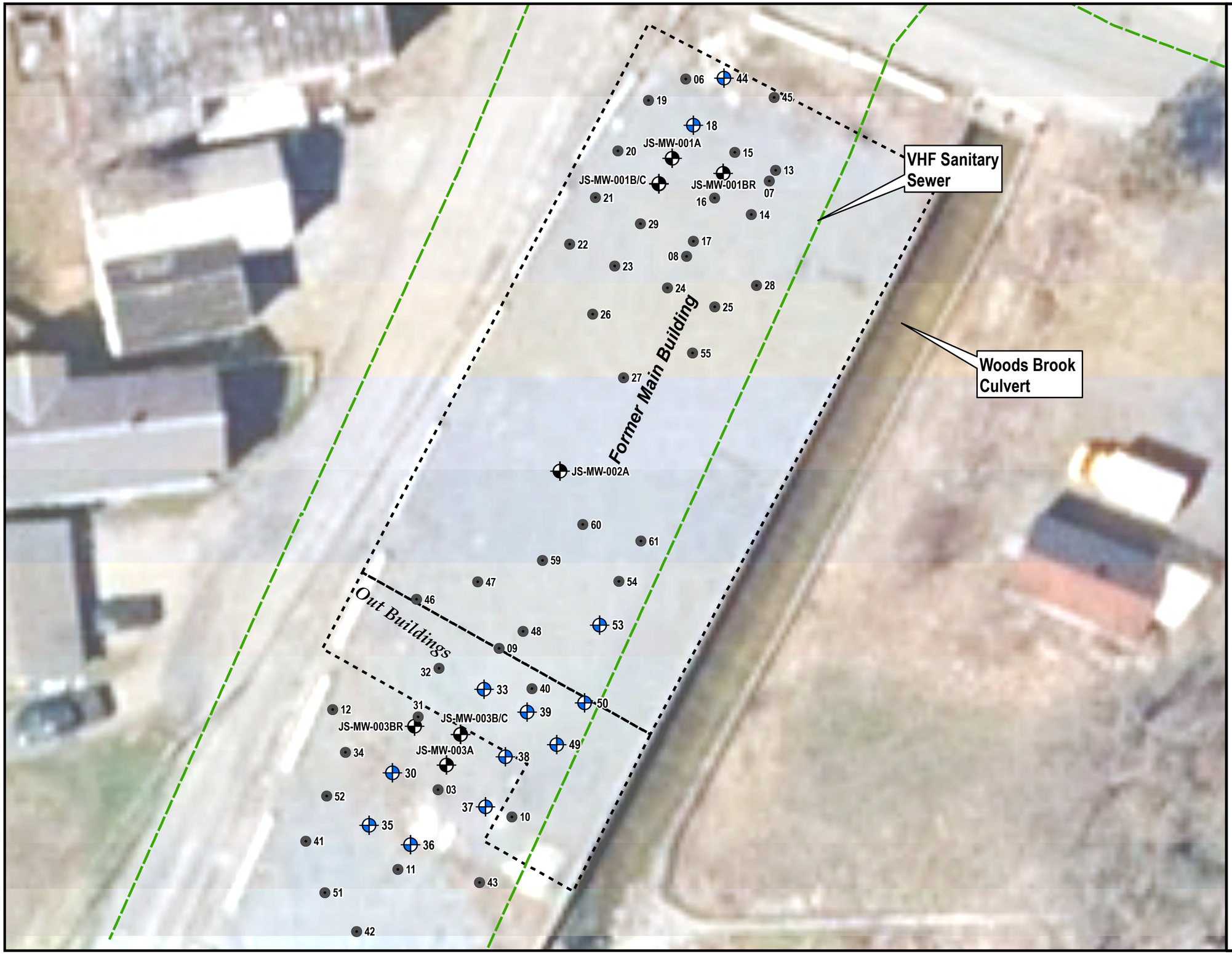
0 25 50 100 150 200

Feet

Figure 2: Site Layout

Former Oak Materials Fluorglas Division
John Street Site
Village of Hoosick Falls, New York

ERM



Legend

- Temporary Well/Soil Boring Location
- Soil Boring Location
- Monitoring Well Location
- Storm/Sanitary Utility Line (Approximate)
- Approx Historic Building Footprint

NOTES:

1. Numerical designations indicate soil boring numbers completed as part of the Groundwater IRM (i.e. JS-B-013)
2. Aerial Imagery from New York State (2014)

N

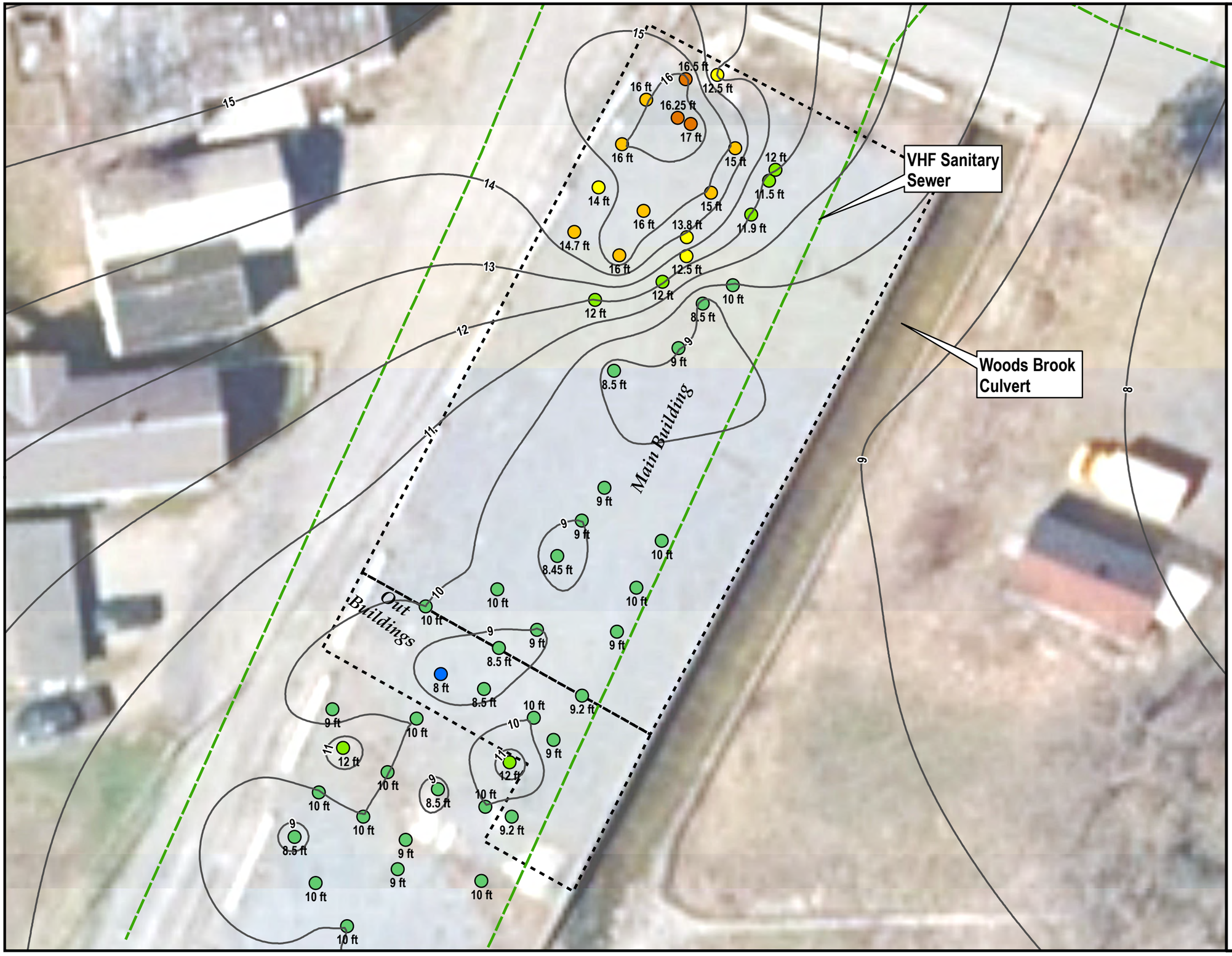
0 5 10 20 30 40 Feet

Figure 3: Soil Boring & Temporary Well Locations - Groundwater IRM PDI

Former Oak Materials Fluorglas Division
John Street Site
Village of Hoosick Falls, New York

ERM

Q:\Team\DMW\Clients_A_E\Arnold and Porter\Hoosick Falls\MXD\RI_Work Plan\John\5\2019_IRM\JS_IRM_SoilBoringLocations_20190513.mxd - brett.schaver - 5/13/2019



Legend

- Shallow Sand/Gravel Thickness Contours (ft)
- Storm/Sanitary Utility Line (Approximate)
- Approx Historic Building Footprint

Shallow Sand/Gravel Thickness (ft)

- <8
- 8 - 10
- 10 - 12
- 12 - 14
- 14 - 16
- 16 - 18
- 18 - 20.3

N

0 5 10 20 30 40 Feet

Figure 4: Shallow Sand/Gravel Thickness - Depth To Silt-Clay - Groundwater IRM PDI

Former Oak Materials Fluorglas Division
John Street Site
Village of Hoosick Falls, New York

ERM

JS-B-044 20.3
JS-B-019 0
JS-B-045 0
JS-B-018 17.3
JS-B-020 0.1
JS-B-015 27.3
JS-B-016 0.9
JS-B-013 0.2
JS-B-021 0
JS-B-029 0.5
JS-B-017 0.5
JS-B-014 0.2
JS-B-022 0.2
JS-B-023 0.3
JS-B-024 0
JS-B-028 0
JS-B-026 0.2
JS-B-025 0.3
JS-B-027 0.3
JS-B-055 0.5
JS-B-060 2.2
JS-B-061 1.5
JS-B-059 1
JS-B-046 5.6
JS-B-047 3.2
JS-B-054 1.7
JS-B-048 2.6
JS-B-053 123
JS-B-040 0.9
JS-B-050 211.6
JS-B-032 4.6
JS-B-033 440
JS-B-039 2000
JS-B-031 0.3
JS-B-049 101.5
JS-B-034 1.6
JS-B-038 1396
JS-B-030 382.7
JS-B-052 43.7
JS-B-037 74.1
JS-B-035 120.6
JS-B-041 0.1
JS-B-036 153.7
JS-B-051 0.3
JS-B-043 0.5
JS-B-042 0.9

Main Building

Out Buildings

VHF Sanitary Sewer

Woods Brook Culvert

Legend

- Storm/Sanitary Utility Line (Approximate)
- Approx Historic Building Footprint

Maximum PID Readings

- 0
- <5
- 5 - 10
- 10 - 50
- 50 - 100
- 100 - 200
- 200 - 500
- >500

Maximum PID Interpolation

High : 1950

Low : 0

N

0 5 10 20 30 40

Feet

Figure 5: Maximum PID Readings - Groundwater IRM PDI

Former Oak Materials Fluorglas Division
John Street Site
Village of Hoosick Falls, New York

ERM

Q:\Team\DMV\Clients_A_E\Arnold and Porter\Hoosick Falls\MXD\Ri_WorkPlan\JohnSt\2018_IRM\JS_IRM_MaxPID_Interpolation_20181101.mxd - brett.shaver - 11/2/2018

JS-B-006
145,900(18-19)
JS-B-019
145.71(16-16.5)
JS-B-044
76,430(18-19)
JS-B-001
52,340(18-19)
JS-B-018
2,102.15(19-20)
JS-SS-001
14(2-12)
JS-B-015
6,950(6-7)
JS-B-007
5,200(6-7)
JS-B-016
17.45(16-18)
JS-B-029
31.5(16-18)
JS-B-014
168.7(12-13)
JS-B-022
208.5(14.7-16.7)
JS-B-023
0.71(16-18)
JS-B-008
5,176(5-7)
JS-B-028
103.83(5-7)
JS-B-025
2,208.7(6-8)
JS-B-026
20.3(14-16)
JS-B-055
49.99(5-7)
JS-SS-002
125(12-24)
JS-B-027
10.6(4-6)
JS-B-056
13,400(10-11)
JS-B-002
407(9-10)
JS-B-060
7,297(10-12)
JS-B-061
3.1(12-14)
JS-B-047
268,400(4-6)
JS-B-059
840(4-6)
JS-B-046
1,220(12-14)
JS-B-054
69,400(11-12)
JS-B-048
73,053.7(10-11)
JS-B-009
18,630(11-12)
JS-B-053
380,000(13-14)
JS-B-033
420,000(15-16)
JS-B-032
44,980(9-11)
JS-B-039
1,300,000(13-14)
JS-B-050
980,000(13-14)
JS-B-012
4,010(12-14)
JS-B-031
121.7(15-17)
JS-B-038
956,400(14-15)
JS-B-049
959,800(15-16)
JS-B-034
26(14-16)
JS-B-003
420,000(15-17)
JS-B-030
590,000(16-18)
JS-B-037
686,000(15-16)
JS-B-052
11,027.8(10-12)
JS-B-035
450,000(16-18)
JS-B-036
370,000(18-19)
JS-B-010
0(15-17)
JS-B-041
0(16-18)
JS-B-011
0(15-17)
JS-B-057
1,000(11-12)
JS-B-043
35,950(10-12)

Main Building

Out Buildings

VHF Sanitary Sewer

Woods Brook Culvert

Legend

- Storm/Sanitary Utility Line (Approximate)
- Approx Historic Building Footprint

Max Total VOC (ug/kg)

labeled with depth interval (ft) and concentration

- <10
- 10-100
- 100 - 1,000
- 1,000 - 10,000
- 10,000 - 100,000
- 100,000 - 1,000,000
- >1,000,000

NOTES:

Total VOC: Sum of PCE, TCE, 1,2-DCE, VC, 1,1,1-TCA, 1,1-DCA, 1,1-DCE

N

0 5 10 20 30 40 Feet

Figure 6: Maximum Total VOCs - Groundwater IRM PDI

Former Oak Materials Fluorglas Division
John Street Site
Village of Hoosick Falls, New York

ERM

Q:\Team\DMMV\Clients_A_E\Arnold and Porter\Hoosick Falls\MXD\R_Work\Plan\JohnSt\2018_IRM\JS_IRM_TotalVOC_20181101.mxd - brett.shaver - 11/2/2018

B

B'

Out building

Main Building

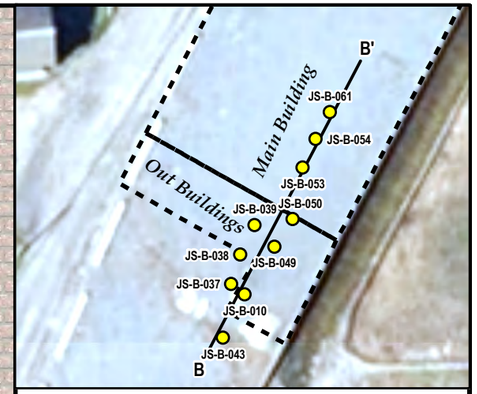
JS-B-043
JS-B-037
JS-B-010
JS-B-038
JS-B-049
JS-B-039 (DNAPL)
JS-B-050
JS-B-053
JS-B-054
JS-B-061

Approximate 12" Sewer Line

35,950
680,000
956,400
959,800
830,000
1,300,000
190,000
980,000
380,000
69,400
2.4
3.1

440
435
430
425
420
415
410
405
400
395
390

0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90



Legend

Ground Surface

Total VOC in Soil (ug/kg)

- <10
- 10-100
- 100 - 1,000
- 1,000 - 10,000
- 10,000 - 100,000
- 100,000 - 1,000,000
- >1,000,000

PID Value

- <1
- 1 - 10
- 10 - 25
- 25 - 50
- 50 - 100
- >100

Geology Type

- Clay
- Sand
- No Recovery

Figure 7: Section B-B' PID Readings/ Total VOC Results - Groundwater IRM PDI

Former Oak Materials Fluorglas Division
John Street Site
Village of Hoosick Falls, New York

ERM

Q:\Team D\MW\Clients_A_E\Arnold and Porter\Hoosick Falls\MXD\IRI_WorkPlan\John St\2018_IRM\JS_IRM_CrossSectionB_Data\VOC_20181101.mxd - brett.shaver - 11/2/2018

JS-B-044
2.4
JS-B-001
1.7
JS-B-019
23
JS-B-018
0.27
JS-SS-001
2.9
JS-B-015
4.5
JS-B-001BR
< 3.1
JS-B-016
1.7
JS-B-014
3.6
JS-B-029
1.2
JS-B-022
8.1
JS-B-023
0.87
JS-B-028
7
JS-B-025
10
JS-B-026
7.7
JS-B-055
13
JS-SS-002
3.3
JS-B-027
7.4
JS-B-002A
2.4
JS-B-002D
3.2
JS-B-056
7.5
JS-B-002B
19
JS-B-002C
14
JS-B-002
9.9
JS-B-060
3.1
JS-B-061
3.3
JS-B-059
5
JS-B-046
0.94
JS-B-047
10
JS-B-054
1.4
JS-B-048
1.2
JS-B-053
0.45
JS-B-032
0.75
JS-B-033
0.34
JS-B-039
1.7
JS-B-031
< 0.25
SAN-05-10
0.88
JS-B-003BR
< 3.3
JS-B-003D
21
JS-B-050
0.52
JS-B-003C
2.1
JS-B-034
0.71
JS-B-003A
5.6
JS-B-038
< 0.24
JS-B-049
0.31
JS-B-003B
17
JS-B-030
< 0.25
JS-B-052
1.7
JS-B-003
6.8
JS-B-037
< 0.27
JS-B-035
< 0.25
JS-B-041
< 0.25
JS-B-036
< 0.25
JS-B-057
< 0.25
JS-B-043
0.93

Main Building

Out Buildings

VHF Sanitary Sewer

Woods Brook Culvert

Legend

- Storm/Sanitary Utility Line (Approximate)
- Approx Historic Building Footprint

Maximum PFOA in Soil (ug/kg)

- <1
- 1 to <5
- 5 to <10
- 10 to <50
- 50 to <100
- >100
- Non-Detect

N

0 5 10 20 30 40 Feet

Figure 8: Maximum PFOA in Soil - Groundwater IRM PDI
Former Oak Materials Fluorglas Division
John Street Site
Village of Hoosick Falls, New York

ERM

Q:\Team\D:\MXD\Clients_A_E\Arnold and Porter\Hoosick Falls\MXD\Fig_Work Plan Update\2018_IRM\JS_IRM_MaxPFOA_20181101.mxd - brett.shaver - 11/2/2018

OS-MW-031A

OS-MW-026A

OS-MW-025A

JS-MW-001A

VHF Sanitary Sewer

Woods Brook Culvert

Main Building

JS-MW-002A

Out Buildings

JS-MW-003A

Legend

- Monitoring Well Location
- Storm/Sanitary Utility Line (Approximate)
- Approx Historic Building Footprint
- 12 ft x 12 ft grid

Proposed Locations

- Injection Locations (25)
- Performance Monitoring Wells

N

0 10 20 40 60 80 Feet

Figure 9: Injection Locations for Permeable Barrier

Former Oak Materials Fluorglas Division
John Street Property
Village of Hoosick Falls, New York

ERM

IRM-TW-006
JS-GWIRMVAP-01
IRM-TW-005
JS-MW-001A
JS-GWIRMVAP-02
IRM-TW-004
JS-MW-001B
IRM-TW-003
VHF Sanitary Sewer
IRM-TW-002
JS-GWIRMVAP-03
IRM-TW-001
Woods Brook Culvert
Main Building
JS-MW-002A
Out Buildings
JS-MW-003B
JS-MW-003A
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

Legend

- Monitoring Well Location (5)
- Soil Vapor Location (3)
- Injection Location (25)
- Performance Monitoring Well (6)
- Storm/Sanitary Utility Line (Approximate)
- Approx Historic Building Footprint

"IRM" and "A" designated wells are constructed with screens straddling or just below the water table in the shallow sand and gravel.

"B" designated wells are constructed with screens below the clay unit near the top of the underlying deep sand and gravel unit.

N

0 5 10 15 20
Feet

Figure 10: Injection Locations
Former Oak Materials Fluorglas Division
John Street Property
Village of Hoosick Falls, New York

ERM

IRM-TW-006
JS-GWIRMVAP-01
IRM-TW-005
JS-GWIRMVAP-02
35
26
34
27
28
29
33
32
31
30
JS-MW-001A
JS-MW-001B
IRM-TW-004
IRM-TW-003
VHF Sanitary Sewer
IRM-TW-002
JS-GWIRMVAP-03
IRM-TW-001
Main Building
Woods Brook Culvert
JS-MW-002A
Out Buildings
JS-MW-003B
JS-MW-003A

Legend

- Monitoring Well Location (6)
- Soil Vapor Location (3)
- CaCl Injection Point (10)
- Injection Location (25)
- Temporary Performance Monitoring Well (6)
- Storm/Sanitary Utility Line (Approximate)
- Approx Historic Building Footprint

"IRM" and "A" designated wells are constructed with screens straddling or just below the water table in the shallow sand and gravel.

"B" designated wells are constructed with screens below the clay unit near the top of the underlying deep sand and gravel unit.

N

0 5 10 15 20
Feet

Figure 11: CaCl Injection Locations
Former Oak Materials Fluorglas Division
John Street Property
Village of Hoosick Falls, New York

ERM

Q:\Boston\Team\DMM\Clients_A_E\Arnold and Porter\Hoosick Falls\MXD\RIJohn_Street\JS_IRM_CaClInjectionLocations_20210816.mxd - nathan.roberts - 9/24/2021

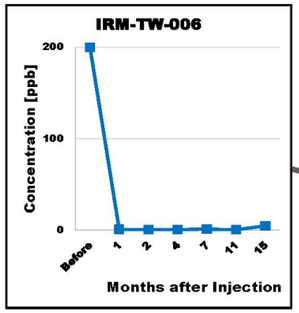
SHALLOW GROUNDWATER IRM RESULTS - TCE

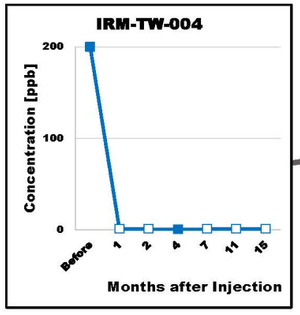
Downgradient

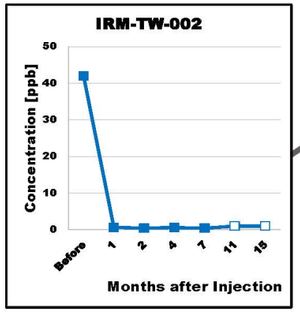
In Barrier

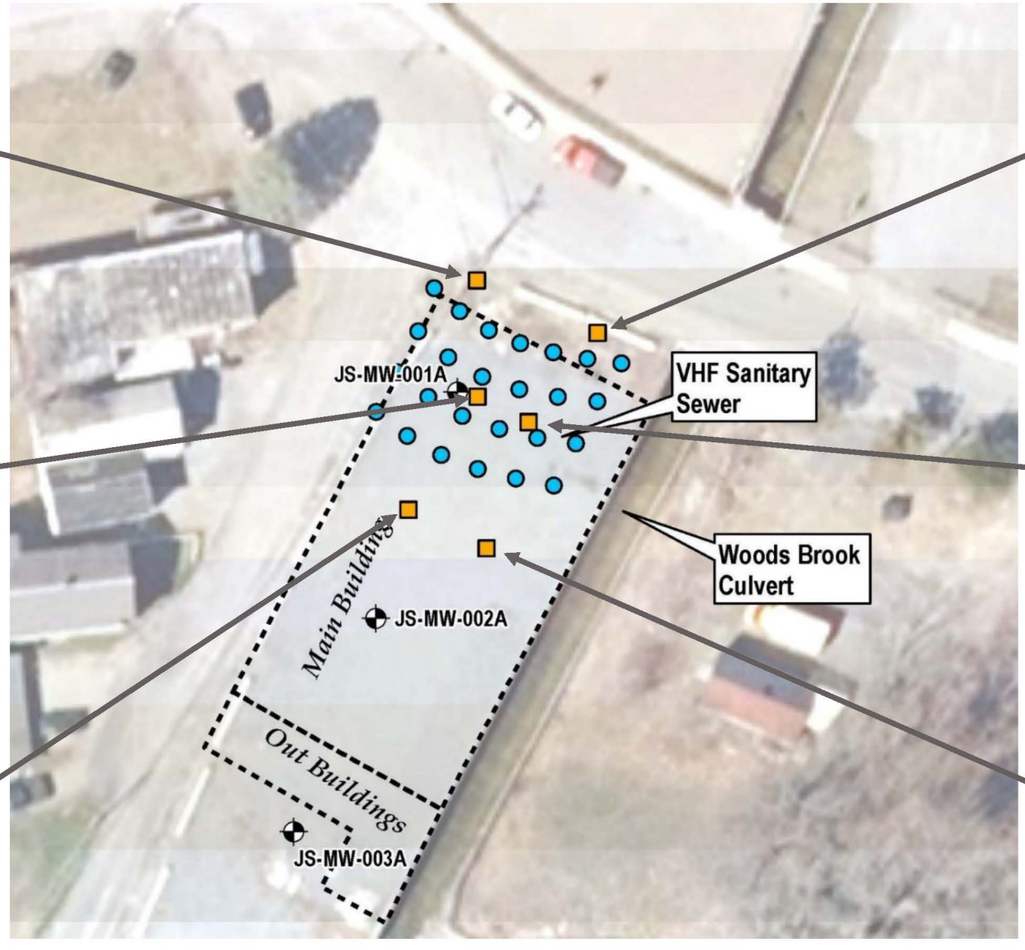
Upgradient

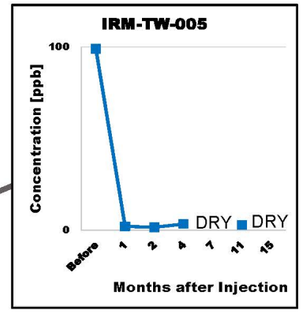
Similar results for all VOCs

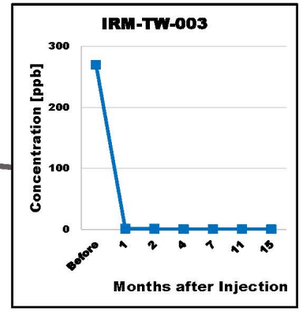


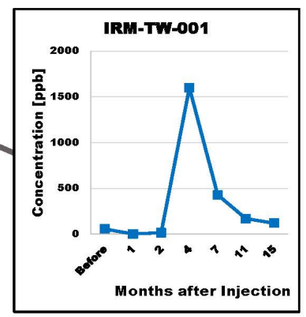












Legend

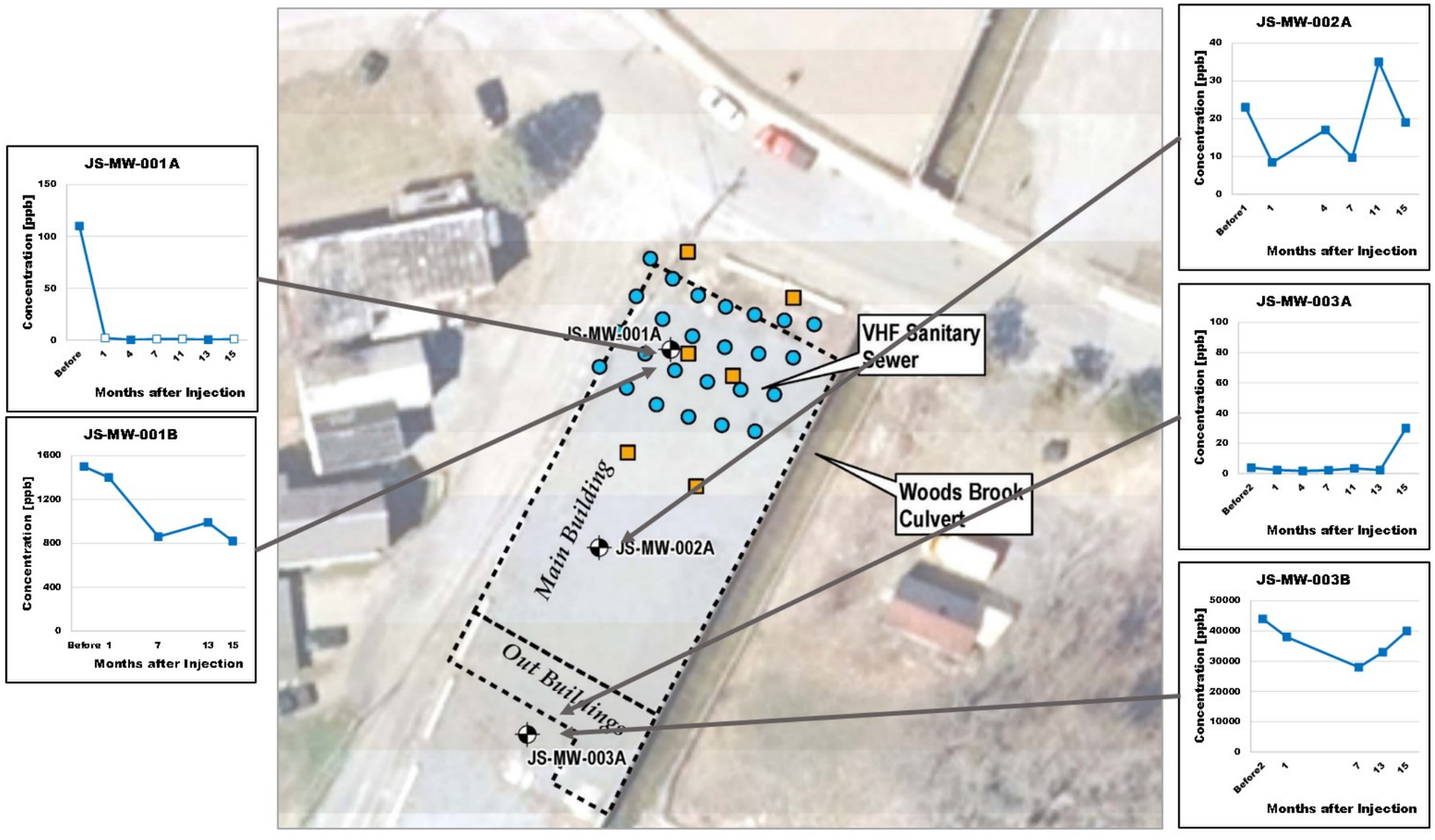
- Monitoring Well Location
- Injection Location
- Performance Monitoring Well
- Approximate Historic Building Footprint

"IRM-TW" and "A" designated wells are constructed with screens straddling or just below the water table in the shallow sand and gravel.

Figure 12
Shallow Groundwater IRM Results - TCE in IRM Wells
Former Oak Materials Fluorglas Division
John Street Property
Village of Hoosick Falls, New York

ERM

SHALLOW GROUNDWATER IRM RESULTS - TCE



Similar results for all VOCs

Legend

- Monitoring Well Location
- Injection Location
- Performance Monitoring Well
- Approximate Historic Building Footprint

"A" designated wells are constructed with screens straddling or just below the water table in the shallow sand and gravel.

"B" designated wells are constructed with screens below the clay unit near the top of the underlying deep sand and gravel unit.

Figure 13
Shallow Groundwater IRM Results - TCE in On-site Monitoring Wells
Former Oak Materials Fluorglas Division
John Street Property
Village of Hoosick Falls, New York

ERM

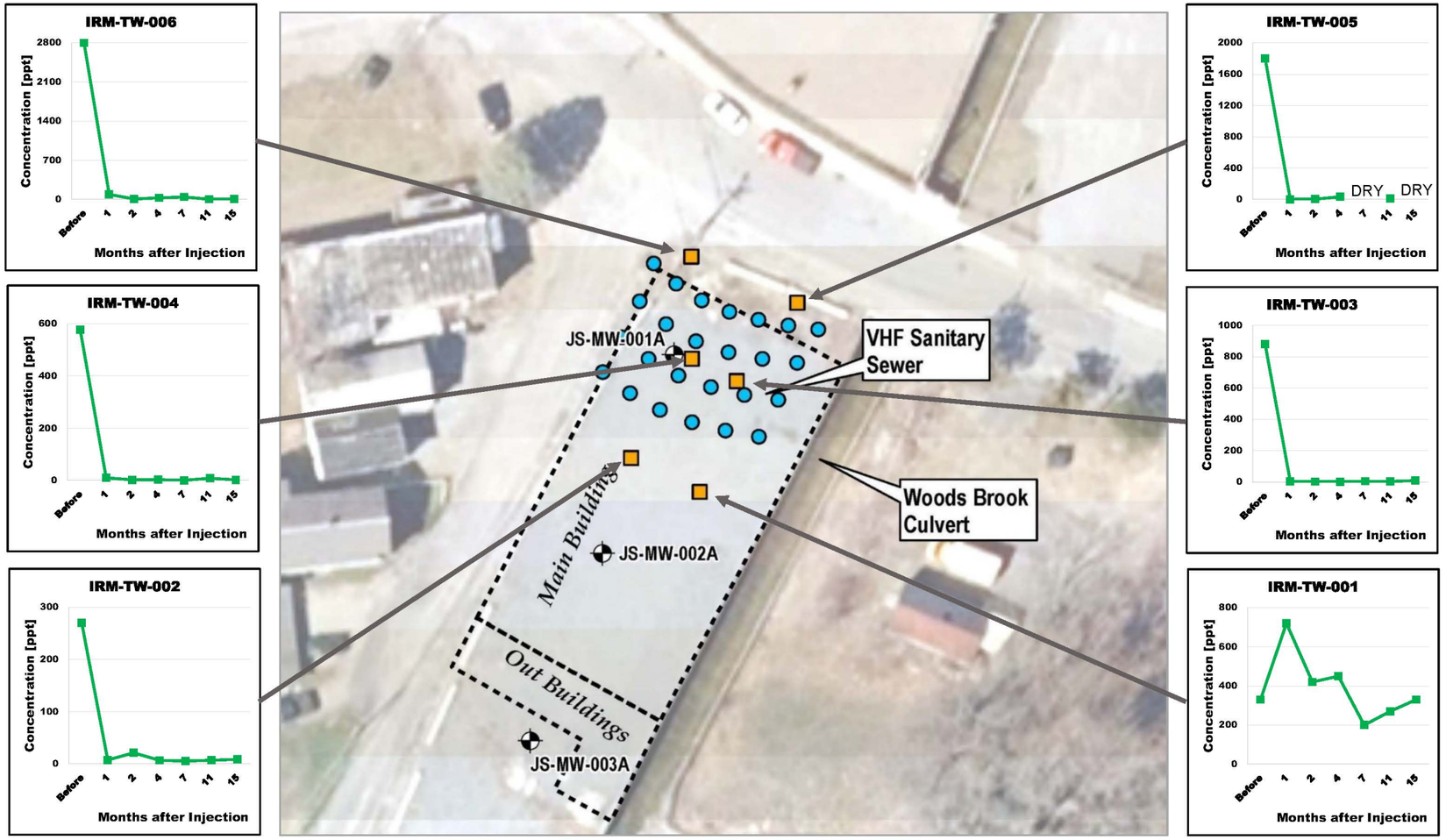
SHALLOW GROUNDWATER IRM RESULTS - PFOA

Downgradient

In Barrier

Upgradient

Similar results for all PFAS



Legend

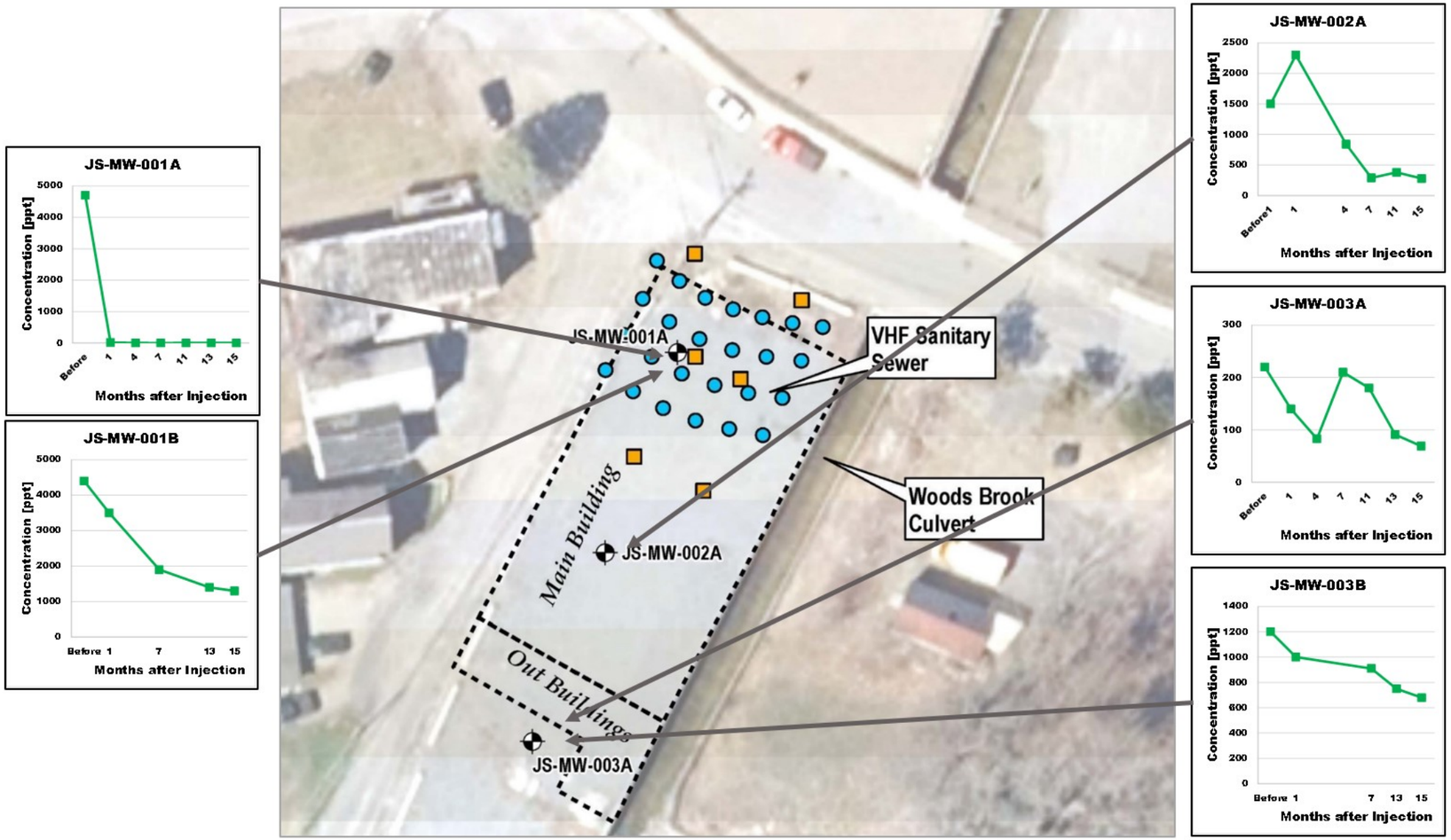
- Monitoring Well Location
- Injection Location
- Performance Monitoring Well
- Approximate Historic Building Footprint

"IRM-TW" and "A" designated wells are constructed with screens straddling or just below the water table in the shallow sand and gravel.

Figure 14
Shallow Groundwater IRM Results - PFOA in IRM Wells
Former Oak Materials Fluorglas Division
John Street Property
Village of Hoosick Falls, New York

ERM

SHALLOW GROUNDWATER IRM RESULTS - PFOA



Similar results for all PFAS

Legend

- Monitoring Well Location
- Injection Location
- Performance Monitoring Well
- Approximate Historic Building Footprint

"A" designated wells are constructed with screens straddling or just below the water table in the shallow sand and gravel.

"B" designated wells are constructed with screens below the clay unit near the top of the underlying deep sand and gravel unit.

Figure 15
Shallow Groundwater IRM Results - PFOA in On-site Monitoring Wells
Former Oak Materials Fluorglas Division
John Street Property
Village of Hoosick Falls, New York

ERM

APPENDICES

A Groundwater IRM Performance Well Soil Boring/Well Construction Logs

ERM
105 Maxess Road; Suite 316
Melville, New York 11747
Telephone: (631) 756-8900

JS-B-013

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 428.00 feet amsl
DATE BORING COMPLETED: 4/10/2018
NORTHING: 1484141.21
LOGGED BY: H. Usle
EASTING: 799447.02
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Clayey and Silty Sand; Poorly-graded Sand; Silty Sand; Silt; Silty Gravel

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA		24	100	GP		Gray, GRAVEL, angular (0.5-1" diameter), loose, dry. 0.5	0.1
						SC-SM		Gray To Olive Gray, FINE TO MEDIUM CLAYEY SAND, some angular gravel, (0.5-1" diameter), loose, moist, brown mottling. 1.5	0.1
						SP		Brown, MEDIUM TO COARSE SAND, some subangular gravel, loose to medium dense, moist. 2.0	
						SM		2.2 Dark Brown, SILTY SAND, some gravel, subangular (1" diameter), organic-rich, moist.	
2.5	425.5	DP		11	46			NO RECOVERY. 4.0	0.0 / 0.0
						SM		Dark Brown, SILTY SAND, trace rounded fine gravel, (<0.25" diameter), glass fragments, moist. 5.5	0.0 / 0.0
5.0	423.0	DP		22	46	GP		Gray, GRAVEL, subangular (0.5-1" diameter), medium dense, dry. 7.0	0.0
7.5	420.5					ML		Gray Brown to Olive Brown, SILT, some fine sand, soft, low plasticity, moist, orange mottling. 8.0	0.2
						SP		Grayish Brown, FINE TO MEDIUM SAND, some subangular gravel, laminar shale gravel fragments (0.5" diameter), loose to medium dense, dry to moist.	0.1 / 0.0
10.0	418.0							10.0	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
105 Maxess Road; Suite 316
Melville, New York 11747
Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		28	58	SP		Brownish Gray, FINE SAND, fining downward sequence, loose, saturated, orange-brown mottling. *(continued)*	0.0
						GP-GM		11.0 Brown, SILTY GRAVEL, trace clay, subangular gravel (1" diameter), loose to medium dense, saturated. 12.0	0.0
12.5	415.5					CL-ML		Light Brown, CLAY WITH SILT, soft to medium stiff, medium plasticity, wet. 12.5	0.0
		DP		36	75	CL-ML		Gray Brown, SILT AND CLAY, interbedded, soft to medium stiff, low plasticity, wet.	0.0
15.0	413.0								0.0
								16.0	0.0
17.5	410.5	DP		36	75	CL-ML		Gray, SILT AND CLAY, interbedded, soft to medium stiff, low plasticity, wet.	0.0
									0.0
20.0	408.0							20.0	0.0
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
105 Maxess Road; Suite 316
Melville, New York 11747
Telephone: (631) 756-8900

JS-B-014

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 428.00 feet amsl
DATE BORING COMPLETED: 4/5/2018
NORTHING: 1484132.95
LOGGED BY: H. Usle
EASTING: 799442.53
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Clayey and Silty Sand; Poorly-graded Sand; Poorly-graded Gravelly Sand; Low Plasticity Clay; Poorly-graded Sand with Silt

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA	JS-B-015 (5.5-7.5) for PFAS, TOC, pH	24	100	GP		Gray, GRAVEL, angular (0.5-1" diameter), loose, dry.	0.2
						SC-SM		Gray To Olive Gray, FINE TO MEDIUM CLAYEY SAND, some gravel, angular (0.5-1" diameter), loose, moist.	0.1
						SP		Brown, MEDIUM TO COARSE SAND, some subrounded gravel, loose, moist.	
2.5	425.5	DP		19	79	SP		Brown, FINE TO MEDIUM GRAVELLY SAND, subangular (0.25-0.5" diameter), dry.	0.0
						SP		Black, FINE TO MEDIUM SAND, trace subangular gravel, (0.25" diameter), wood fragments, dry.	0.0
5.0	423.0	DP		28	58	CL		Dark Brown, CLAY, trace fine sand, white flecks throughout, trace black flecks, low plasticity, moist.	0.0
						SP-SM		Dark Brown, SANDY SILT, interbedded gravel, laminar gray gravel layers, moist.	0.0
7.5	420.5					SP		Gray Brown, FINE TO MEDIUM SAND, trace silt and gravel, subangular (0.5" diameter), loose to medium dense, moist to wet, orange and brown mottling.	0.0
						SP		Light Brown, FINE TO MEDIUM GRAVELLY SAND, laminar and subangular gravel (1" diameter), medium dense, dry.	0.0
10.0	418.0					GP		Light Brown, GRAVEL, some coarse sand, subangular, trace clay, red-brown oxidized surface at 9.5 feet bgs, loose, saturated.	0.0

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
105 Maxess Road; Suite 316
Melville, New York 11747
Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		27	56	GP		Light Brown, GRAVEL, some coarse sand, subangular, trace clay, red-brown oxidized surface at 9.5 feet bgs, loose, saturated. *(continued)*	0.0
									0.0
								11.9	
12.5	415.5					ML		Light Brown, SILT, some clay, soft, semi plastic, saturated.	0.0
			JS-B-014 (12-13) for VOCs, PFAS, TOC, pH					12.8	
									0.0
		DP		36	75				0.0
15.0	413.0								
									0.0
						CL-ML		Gray, CLAY, some silt, soft, low plasticity, saturated.	0.0
17.5	410.5								0.0
		DP		24	50				0.0
									0.0
20.0	408.0							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
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JS-B-015

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 428.20 feet amsl
DATE BORING COMPLETED: 4/10/2018
NORTHING: 1484145.17
LOGGED BY: H. Usle
EASTING: 799438.97
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Clayey and Silty Sand; Poorly-graded Sand; Low Plasticity Clay; Poorly-graded Gravelly Sand; Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA		24	100	GP		Gray, GRAVEL, angular (0.5-1" diameter), loose, dry.	0.0
								0.5	
						SC-SM		Gray, FINE TO MEDIUM CLAYEY SAND, some subangular gravel, (0.25-0.5" diameter), loose to medium dense, moist.	
								1.2	
						SP		Light Yellow Brown, FINE TO MEDIUM SAND, some subangular quartz fragments (0.25" diameter).	0.0
								2.0	
2.5	425.7	DP		13	54	SP		Light Brown, FINE TO MEDIUM SAND, some subangular gravel, (0.5" diameter), loose, dry.	0.0
									0.0
								4.5	0.9*
5.0	423.2					CL		Dark Brown, CLAY, some silt, medium plasticity, wet, orange mottling.	
								5.5	1.0
		DP	JS-B-015 (6-7) for VOCs	27	56	SP		Brown, FINE TO MEDIUM GRAVELLY SAND, subangular (1-2" diameter), black "coal-like" layer at 7 feet bgs, loose to medium dense.	27.3
7.5	420.7								1.8
									1.0
10.0	418.2							10.0	1.1

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP	JS-B-015 (15-17) for VOCs, PFAS, TOC, pH	22	46	SP		Light Brown To Yellow, FINE TO MEDIUM GRAVELLY SAND, subangular (0.5-1" diameter), trace clay, loose to medium dense, wet. *(continued)*	0.5
									0.2
								12.0	
12.5	415.7								0.0
		DP		36	75	SP		Grayish Brown, FINE TO COARSE SAND, coarsening downward sequence, well rounded, well graded, saturated.	0.0
									0.0
15.0	413.2							15.0	
						CL-ML		Light Grayish Brown, SILTY CLAY, low plasticity, wet.	0.1
								16.0	
									0.0
17.5	410.7								0.0
		DP		38	79	CL-ML		Gray To Dark Gray, CLAY AND SILT, interbedded wet.	0.0
									0.0
20.0	408.2							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 427.90 feet amsl
DATE BORING COMPLETED: 4/5/2018
NORTHING: 1484136.14
LOGGED BY: H. Usle
EASTING: 799434.99
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Clayey and Silty Sand; Poorly-graded Sand; Brick; Poorly-graded Gravelly Sand; Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA		24	100	GP		Gray, GRAVEL, angular (0.5-1" diameter), loose, dry.	0.9
							0.5		
						SC-SM		Gray, FINE TO MEDIUM CLAYEY SAND, some subangular gravel, (0.5" diameter), brick fragment from 1.5-1.6 feet bgs, loose to medium dense, moist.	0.1
							1.5		
						SP		Brown, FINE TO MEDIUM SAND, subrounded gravel (0.5-1" diameter), moist.	
							2.0		
							2.2	BRICK.	
2.5	425.4					SP		Light Yellow Brown, FINE TO MEDIUM GRAVELLY SAND, (0.25-0.5" diameter), moist.	0.0
		DP		8	33		2.7		
								NO RECOVERY.	0.0
							4.0		
5.0	422.9					CL-ML		Brown, SILT AND CLAY, some organics, shell hash, green flecks, wet.	0.1
							5.0		
									0.0
		DP		28	58				0.1
						SP		Brown, FINE TO MEDIUM GRAVELLY SAND, subangular (0.5-1" diameter), poorly graded, medium dense, dry.	
7.5	420.4								0.0
									0.6
							9.0		
10.0	417.9					GP		Light Brown, GRAVEL, some fine sand and clay, (0.5-1" diameter), loose, saturated.	0.5

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		19	40	GP		Light Brown, GRAVEL, some fine sand and clay, (0.5-1" diameter), loose, saturated. *(continued)*	0.0
									0.0
								12.0	
12.5	415.4								0.0
						SP		Light Brown, COARSE SAND, some subrounded gravel, well rounded, trace clay, loose, saturated.	0.0
		DP		8	17				0.0
								14.5	
						SP-SC		Light Gray To Brown, FINE SAND, some clay, gray and orange mottling, soft, wet to saturated.	0.0
15.0	412.9							15.0	
								NO RECOVERY.	NM
								16.0	
									0.0
			JS-B-016 (16-18) for VOCs, PFAS, TOC, pH						0.0
17.5	410.4								
		DP		36	75	CL		Gray, CLAY, some silt, low plasticity, saturated.	0.0
									0.0
20.0	407.9							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
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JS-B-017

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 428.10 feet amsl
DATE BORING COMPLETED: 4/5/2018
NORTHING: 1484127.71
LOGGED BY: H. Usle
EASTING: 799430.78
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Clayey and Silty Sand; Poorly-graded Sand; Poorly-graded Gravelly Sand; Silt; Low Plasticity Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA		24	100	GP		0.3 Gray, GRAVEL, angular (0.5-1" diameter), loose, dry.	0.1
						SC-SM		1.0 Gray, FINE TO MEDIUM CLAYEY SAND, some angular gravel, (0.25" diameter), loose to medium dense, moist.	
						SP		2.0 Brown, MEDIUM TO COARSE SAND, some subangular and subrounded gravel, (0.25-1" diameter), loose, dry.	0.1
2.5	425.6	DP		19	79	SP		2.8 Brown, FINE TO MEDIUM GRAVELLY SAND, subangular (0.25-0.5" diameter), dry.	0.0
						SP		4.0 Black, FINE TO MEDIUM SAND, trace subangular gravel, wood fragments, (0.25" diameter), dry.	0.0
						ML		4.5 Dark brown, SILT, some fine sand, moist to wet, orange and brown mottling.	0.0
5.0	423.1					GP		5.0 Quartz GRAVEL, subangular (1" diameter).	
		DP		26	54	SP		Dark brown, FINE TO MEDIUM GRAVELLY SAND, subangular (0.5-1" diameter), slight black and orange oxidized surfaces, medium dense, dry.	0.5
									0.1
7.5	420.6								0.2
									0.0
								9.0	
10.0	418.1					GP		Light Brown, GRAVEL, some fine sand, subangular and subrounded (0.5-2" diameter), trace clay, saturated.	0.0

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		24	50	GP		Light Brown, GRAVEL, some fine sand, subangular and subrounded (0.5-2" diameter), trace clay, saturated. *(continued)*	0.0
									0.0
								11.7	
						SP		12.0 Grayish Brown, MEDIUM TO COARSE SAND, rounded loose, saturated.	
12.5	415.6								0.0
						SP		Grayish Brown, FINE TO COARSE SAND, well rounded coarsening downwards sequence, loose, saturated.	0.0
		DP		35	73			13.8	
						ML		Light Brown, SILT, some clay, soft to medium stiff, wet.	
15.0	413.1							14.5	0.0
									0.0
									0.0
						CL		Gray, CLAY, some silt, soft to medium stiff, low plasticity, saturated.	
17.5	410.6								0.0
		DP		48	100				0.0
									0.0
20.0	408.1							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-019

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 427.60 feet amsl
DATE BORING COMPLETED: 4/4/2018
NORTHING: 1484155.46
LOGGED BY: H. Usle
EASTING: 799421.99
CHECKED BY: J. Redden
TOTAL DEPTH: 24 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Clayey and Silty Sand; Poorly-graded Sand; Silt; Poorly-graded Gravelly Sand; Poorly-graded Sandy Gravel

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA		24	100	GP		Gray, GRAVEL, angular (0.5-1" diameter), loose, dry. (0.5)	0.0
						SC-SM		Gray, FINE TO MEDIUM CLAYEY SAND, some subrounded gravel, (0.5" diameter), loose, moist. (0.8)	
						SP		Brown, MEDIUM TO COARSE SAND, some subrounded gravel, (1" diameter), loose, dry to moist. (2.0)	0.0
2.5	425.1	DP		10	42	GP		Gray, GRAVEL, some medium sand, subangular gravel (1-2" diameter), trace clay, wet due to precipitation, sand is orange brown in color, wet. (3.5)	0.0
						ML		Brown, SILT, some clay, soft, wet. (4.0)	0.0
5.0	422.6	DP		21	44	SP		Brown, FINE TO MEDIUM SAND AND GRAVEL, little clay, subangular (1-2" diameter), gravel layer at 5.5 feet bgs, orange and oxidized coloration, laminar quartz and shale gravel, medium dense, dry to wet.	0.0
									0.0
									0.0
7.5	420.1								0.0
									0.0
10.0	417.6							(10.0)	0.0

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		29	60	SP		Grayish Brown, VERY FINE TO FINE SAND, trace silt, well graded, medium dense, wet, orange mottling. *(continued)*	0.0
						SP		10.5 Grayish Brown, MEDIUM TO COARSE SAND, fining upwards sequence, well graded, loose, wet.	0.0
12.5	415.1							12.0	
		DP		26	54	GP		Grayish Brown, GRAVEL, some coarse sand, subrounded (1-2" diameter), poorly graded, loose to medium dense, wet.	0.0 0.0 0.0
15.0	412.6							15.0	
						SP		Grayish Brown, COARSE SAND, some rounded gravel, (0.5-1" diameter), poorly graded, loose, wet.	0.0
								16.0	
			JS-B-019 (16-16.5) for VOCs and JS-B-019 (16-17) for PFAS, TOP Assay PFAS, TOC, pH			ML		Light Brown, SILT, some clay, soft, saturated.	0.0
17.5	410.1							16.5	
		DP		48	100	CL-ML		Gray, CLAY, some silt, very fine silty sand lenses from 20-21 feet bgs, soft, plastic, saturated.	0.0 0.0 0.0
20.0	407.6								0.0

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
22.5	405.1	DP		48	100	CL-ML		Gray, CLAY, some silt, very fine silty sand lenses from 20-21 feet bgs, soft, plastic, saturated. *(continued)*	0.0 0.0 0.0
24.0								*Bottom of Boring @ 24.00 feet bgs*	
25.0	402.6								
27.5	400.1								
30.0	397.6								
32.5	395.1								

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
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JS-B-020

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 427.80 feet amsl
DATE BORING COMPLETED: 4/4/2018
NORTHING: 1484145.44
LOGGED BY: H. Usle
EASTING: 799415.94
CHECKED BY: J. Redden
TOTAL DEPTH: 24 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Poorly-graded Sand; Poorly-graded Gravelly Sand; Silt; Low Plasticity Sandy Clay; Poorly-graded Sandy Gravel

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		Gray, GRAVEL, angular (0.5" diameter), loose, dry.	0.1
								0.5	
						SP		Gray, FINE TO MEDIUM SAND, trace clay and gravel, subangular (0.5-1" diameter), loose, moist.	
		HA		24	100			1.0	
						SP		Brown, MEDIUM TO COARSE SAND AND GRAVEL, subrounded, loose, moist.	0.1
								2.0	
2.5	425.3					SP		Dark Brown, MEDIUM TO COARSE GRAVELLY SAND, trace clay, subrounded (1" diameter), loose, moist.	0.0
		DP		15	63			3.2	
						ML		Brown, SILT, some clay, trace shell hash and black oxidized surfaces, soft, wet.	0.0
								4.0	
5.0	422.8								0.0
									0.0
		DP		23	48	SP		Brown, MEDIUM TO COARSE SAND, some silt, clay and gravel, subangular (1-2" diameter), slight mottled surface at 6.5 feet bgs, white shell fragments at 4.5 feet bgs, loose to medium dense, wet.	0.0
7.5	420.3								0.0
								8.0	
						CL		Brown, SANDY CLAY, trace gravel, (1" diameter), soft, wet.	0.0
								9.0	
						GP		Brown, GRAVEL AND COARSE SAND, trace silt and clay, angular gravel, shale laminations (1-2" diameter), trace orange coarse sand seam at 10 feet bgs, loose to medium dense, wet.	0.0
10.0	417.8								

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		23	48	GP		Brown, GRAVEL AND COARSE SAND, trace silt and clay, angular gravel, shale laminations (1-2" diameter), trace orange coarse sand seam at 10 feet bgs, loose to medium dense, wet. *(continued)*	0.0
									0.0
								12.0	
12.5	415.3					SP		Orange Brown, COARSE SAND, trace silt, rounded, loose, saturated. 12.5	0.0
		DP		20	42	SP		Light Yellow Brown, GRAVELLY SAND, subangular (1" diameter), loose to medium dense, saturated.	0.0
								14.0	
15.0	412.8					SP		Greenish Gray, MEDIUM TO COARSE SAND, some gravel, subangular (0.5" diameter), darker surfaces around gravels, medium dense. 15.0	0.0
						SP		Light Yellow Brown, GRAVELLY SAND, subangular (1" diameter), loose to medium dense, saturated.	0.0
								16.0	
									0.0
17.5	410.3								0.0
		DP		32	67	CL-ML		Gray, CLAY, some silt, soft, plastic, saturated.	0.0
									0.0
20.0	407.8							20.0	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
105 Maxess Road; Suite 316
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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
22.5	405.3	DP		0	0				NM
25.0	402.8							*Bottom of Boring @ 24.00 feet bgs*	
27.5	400.3								
30.0	397.8								
32.5	395.3								

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-021

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 427.90 feet amsl
DATE BORING COMPLETED: 4/4/2018
NORTHING: 1484136.24
LOGGED BY: H. Usle
EASTING: 799411.5
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Poorly-graded Sand with Clay; Poorly-graded Sand; Silt; Poorly-graded Gravelly Sand; Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA		24	100	GP		Gray, GRAVEL, angular (0.5-1" diameter), loose, dry.	0.0
						SP-SC		0.5 Gray, CLAYEY SAND, some angular gravel, (0.5" diameter), brick fragments throughout, loose, moist.	
						SP		1.0 Grayish Brown, MEDIUM TO COARSE SAND, mixed with subangular gravel, (0.5" diameter), brick fragments throughout, loose, dry.	0.0
2.5	425.4	DP		16	67	SP		2.0 Brown, FINE TO MEDIUM SAND, trace gravel, coal ash, coal fragments, brick, trace laminar gravel (1" diameter), loose, dry.	0.0
						ML		3.0 Light Olive Brown, SILT, some clay, shell hash present, rounded quartz gravel at 6 feet bgs (2" diameter), soft, wet to saturated.	0.0
5.0	422.9	DP		25	52				0.0
								6.0	
7.5	420.4					SP		Brown To Yellow, FINE TO MEDIUM GRAVELLY SAND, trace silt and clay, rounded chert and quartz gravels (1-2" diameter), laminar shale fragments (1" diameter), slight mottled surface at 7 feet bgs, water table at 6.5 feet bgs, loose to medium dense, wet to saturated.	0.0
									0.0
10.0	417.9								0.0

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		27	56	SP		Brown To Yellow, FINE TO MEDIUM GRAVELLY SAND, trace silt and clay, rounded chert and quartz gravels (1-2" diameter), laminar shale fragments (1" diameter), slight mottled surface at 7 feet bgs, water table at 6.5 feet bgs, loose to medium dense, wet to saturated. *(continued)*	0.0
									0.0
12.5	415.4								0.0
		DP		30	63				0.0
						CL-ML		Light Brown, CLAY, some silt, soft, wet to saturated.	0.0
15.0	412.9							15.5	0.0
									0.0
17.5	410.4	DP		48	100	CL		Light Gray, CLAY, trace silt, soft to medium stiff, wet to saturated.	0.0
									0.0
20.0	407.9							20.0	0.0
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-022

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 428.10 feet amsl
DATE BORING COMPLETED: 4/6/2018
NORTHING: 1484127.05
LOGGED BY: H. Usle
EASTING: 799406.43
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Clayey and Silty Sand; Poorly-graded Sand; Silt; Brick; Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA		24	100	GP		Gray, GRAVEL, angular (0.5-1" diameter), loose, dry.	0.0
							0.5		
						SC-SM		Gray, FINE TO MEDIUM CLAYEY SAND, some subangular gravel, (0.25-0.5" diameter), loose to medium dense, moist.	0.0
							1.5		
						SP		Brown To Reddish Brown, MEDIUM TO COARSE SAND, some gravel, (1" diameter), laminar, loose to medium dense, moist.	
							2.0		
2.5	425.6	DP		0	0			NO RECOVERY.	NM
							4.0		
						SP		Dark Yellow Brown, FINE TO MEDIUM SAND, some silt, trace subangular gravel, loose to medium dense, wet, trace yellow mottling.	0.0
5.0	423.1						5.0		
						ML		Dark Brown, SILT, trace rounded gravel, (0.25" diameter), soft, medium plasticity.	0.0
		DP		26	54		6.0		
							6.2	BRICK.	
						SP		Dark Brown, MEDIUM SAND, some silt and gravel, subrounded gravel (0.5" diameter), moist.	0.0
							6.5		
						GP		Quartz GRAVEL, subangular (0.5-1.5" diameter), dry.	
							7.0		
7.5	420.6								0.0
						SP		Dark Yellow Brown, FINE TO MEDIUM SAND, some silt and gravel, (0.5" diameter), medium dense, dry to moist.	
									0.0
							9.0		
						SP		Gray Brown, FINE TO MEDIUM SAND, some subrounded gravel, (0.5-1" diameter), well graded, loose, saturated.	0.2
10.0	418.1								

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		30	63	SP		Gray Brown, FINE TO MEDIUM SAND, some subrounded gravel, (0.5-1" diameter), well graded, loose, saturated. *(continued)*	0.0
						SP		11.0 Light Brown To Reddish Brown, FINE SAND, some clay and gravel, subrounded (0.5" diameter), medium dense, saturated. 11.5	0.0
12.5	415.6								0.0
		DP		29	60	SP		Gray Brown, MEDIUM TO COARSE SAND, some angular quartz gravel present from 13.5-14.7 feet bgs, loose to medium dense, wet to saturated.	0.1
								14.7	0.0
15.0	413.1					ML		15.0 Light Brown, SILT, some clay, low plasticity, wet.	
			JS-B-022 (14.7-16.7) for VOCs, PFAS, TOC, pH						0.0
									0.0
17.5	410.6					CL-ML		Gray, SILT AND CLAY, low plasticity, wet.	0.0
		DP		33	69				0.0
20.0	408.1							20.0	0.0
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-023

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 428.00 feet amsl
DATE BORING COMPLETED: 4/6/2018
NORTHING: 1484122.78
LOGGED BY: H. Usle
EASTING: 799415.29
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Clayey and Silty Sand; Poorly-graded Sand; Boulders and Cobbles; Poorly-graded Gravelly Sand; Low Plasticity Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		Gray, GRAVEL, angular (0.5-1" diameter), loose, dry.	0.3
						SC-SM		0.5 Gray, MEDIUM TO COARSE CLAYEY SAND, subangular gravel, (0.5" diameter), medium dense, moist.	
		HA		24	100			0.8	
						SP		Brown, MEDIUM TO COARSE SAND, some rounded to subangular gravel, (0.5-1" diameter), medium dense, moist.	0.0
								2.0	
						SP		2.3 Brown, FINE TO MEDIUM SAND, subangular gravel, (0.5" diameter), moist.	0.0
2.5	425.5	DP		3	13			Quartzite ROCK stuck in drilling shoe, (1-2" diameter).	NM
								4.0	
									0.0
5.0	423.0								0.1
		DP		14	29	SP		Dark Brown, FINE TO MEDIUM GRAVELLY SAND, trace clay, subangular (0.5-1" diameter), black fragments, shell hash near 4.5 feet bgs, orange and black oxidation, medium dense, moist.	0.1
7.5	420.5								0.0
								8.0	
						SP		Light Brown, FINE TO COARSE GRAVELLY SAND, trace clay, subangular to rounded (0.25-0.5" diameter), loose, saturated.	0.1
10.0	418.0								0.0

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP	JS-B-023 (16-18) for VOCs, PFAS, TOC, pH	22	46	SP		Light Brown, FINE TO COARSE GRAVELLY SAND, trace clay, subangular to rounded (0.25-0.5" diameter), loose, saturated. *(continued)*	0.1 0.2
12.5	415.5							12.0	
		DP		10	21	SP		Gray Brown, MEDIUM TO COARSE SAND, trace rounded gravel, (0.5" diameter), well sorted, loose, saturated.	0.0 0.0 0.0 0.0
15.0	413.0							16.0	
		DP		27	56	CL		Gray, CLAY, some silt, soft, saturated.	0.1 0.2 0.1 0.2
17.5	410.5								
20.0	408.0							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-024

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 428.20 feet amsl
DATE BORING COMPLETED: 4/5/2018
NORTHING: 1484118.46
LOGGED BY: H. Usle
EASTING: 799425.7
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Clayey Sand; Poorly-graded Sand; Poorly-graded Gravelly Sand; Boulders and Cobbles; Sandy Silt

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA		24	100	GP		Gray, GRAVEL, (0.5-1" diameter), loose, dry.	0.0
								0.5	
						SC		Gray, FINE TO MEDIUM CLAYEY SAND, some subrounded gravel, (0.5" diameter), dry.	
								1.0	
						SP		Brown, MEDIUM TO COARSE SAND, subangular gravel (1" diameter), dry.	0.0
								2.0	
2.5	425.7	DP		7	29	SP		Dark Brown, FINE TO MEDIUM GRAVELLY SAND, subangular shale gravel (0.5" diameter), dry.	0.0
									0.0
								4.0	
								4.1 Gray, pulverized ROCK (1" thick), dry.	
5.0	423.2					ML		Dark Brown, FINE SANDY SILT, with gravel, subangular (1" diameter), moist to wet.	0.0
								5.0	
		DP		27	56	SP		Dark Brown, FINE TO MEDIUM GRAVELLY SAND, white quartzite gravel (0.5-1" diameter) at 7 feet bgs, dry to moist.	0.0
									0.0
7.5	420.7								0.0
								8.0	
						SP-SC		Light Brown, FINE SAND, some clay, gravel (0.25-0.5" diameter), greenish gray fine-grained sand layer (2" thick) at 10.5 feet bgs, saturated.	0.0
									0.0
10.0	418.2								

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		29	60	SP-SC		Light Brown, FINE SAND, some clay, gravel (0.25-0.5" diameter), greenish gray fine-grained sand layer (2" thick) at 10.5 feet bgs, saturated. *(continued)*	0.0
									0.0
								12.0	
12.5	415.7					ML		Light Brown, SILT, soft, wet to saturated.	0.0
								13.0	
		DP		48	100				0.0
									0.0
15.0	413.2								
									0.0
						CL		Gray, CLAY, soft to medium stiff, low plasticity, saturated.	0.0
17.5	410.7								0.0
		DP		48	100				0.0
									0.0
20.0	408.2							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-025

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 428.20 feet amsl
DATE BORING COMPLETED: 4/6/2018
NORTHING: 1484114.7
LOGGED BY: H. Usle
EASTING: 799435.03
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Clayey Sand
Poorly-graded Gravelly Sand
Low Plasticity Sandy Clay
Poorly-graded Sand with Clay
Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA	JS-B-025 (6-8) for VOCs, PFAS, TOC, pH	24	100	GP		Gray, GRAVEL, angular (0.5-1" diameter), loose, dry.	0.1
						SC		Gray, FINE TO MEDIUM CLAYEY SAND, some angular gravel, (1" diameter), moist.	
						SP		Brown, MEDIUM TO COARSE SAND, some subrounded gravel, (1" diameter), loose, dry to moist.	0.1
2.5	425.7	DP		14	58	SP		Dark Brown, MEDIUM TO COARSE GRAVELLY SAND, subangular (0.5-1" diameter), slight reddish-brown, loose, dry.	0.0
						SP			0.0
5.0	423.2	DP		24	50	SP		Brown, FINE TO MEDIUM GRAVELLY SAND, subrounded quartz gravels (0.5-1.5" diameter), some wet silty clay, loose to medium dense, dry.	0.0
						SP			0.0
						CL		Gray Brown, SANDY CLAY, some subangular gravel, (0.5" diameter), non-plastic, wet.	0.2
7.5	420.7					SP-SC		Dark Brown, MEDIUM TO COARSE SAND, some clay and gravel, subangular (0.5" diameter), orange oxidized surfaces, loose, saturated.	0.3
						CL-ML		Light Brown, SILT AND CLAY, wet.	0.0
10.0	418.2					CL-ML		Gray, CLAY, some silt, low plasticity, wet.	0.0

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		30	63				0.1
									0.1
12.5	415.7					CL-ML		Gray, CLAY, some silt, low plasticity, wet. *(continued)*	0.0
		DP		48	100				0.0
									0.0
15.0	413.2								0.0
								16.0	
									0.0
17.5	410.7								0.0
		DP		46	96	CL-ML		Gray To Brown, SILTY CLAY, soft, saturated.	0.0
									0.0
20.0	408.2							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-026

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 428.10 feet amsl
DATE BORING COMPLETED: 4/6/2018
NORTHING: 1484113.27
LOGGED BY: H. Usle
EASTING: 799410.95
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravelly Sand
Poorly-graded Sand with Clay
Silty Sand
Poorly-graded Sand
Low Plasticity Gravelly Clay
Poorly-graded Sandy Gravel

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA		24	100			Soils not logged from 0-2 feet bgs.	
								2.0	
2.5	425.6	DP		5	21	SP		Dark Brown, FINE TO MEDIUM SAND, some subangular gravel, (1" diameter), trace clay, white flecks, loose, wet.	0.1
									0.1
								4.0	
						SP-SC		Dark Brown, MEDIUM TO COARSE SAND, some clay, angular gravel (1" diameter), moist.	0.1
								4.5	
5.0	423.1	DP		6	13			NO RECOVERY, quartzite rock stuck in drilling shoe.	NM
7.5	420.6								
								8.0	
						SM		Gray Brown, FINE SILTY SAND, medium dense, moist to wet, orange and gray mottling.	0.1
								9.5	
10.0	418.1					SP		Brown To Reddish Brown, FINE TO MEDIUM SAND, some angular gravel, (0.5-1" diameter), black and red oxidized surfaces, medium dense, moist.	0.1
								10.0	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
105 Maxess Road; Suite 316
Melville, New York 11747
Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP	JS-B-026 (14-16) for VOCs, PFAS, TOC, pH	31	65	SP		Grayish Brown, FINE SAND, some angular gravel, well sorted, loose, wet. *(continued)*	0.2
						CL		10.5 Light Brown, GRAVELLY CLAY, subangular gravel (0.5" diameter), well sorted, soft, saturated. 10.8	
						GP		Light Brown, GRAVEL, some medium sand, subangular (0.5-1" diameter), trace clay, well graded, loose, saturated. 11.7	0.1
						SP		12.0 Grayish Brown, MEDIUM TO COARSE SAND, well rounded, loose, saturated.	
12.5	415.6					SP		Grayish Brown, FINE TO MEDIUM SAND, coarsening upwards sequence, loose, saturated.	0.0
		DP		41	85			14.0	0.0
15.0	413.1					CL-ML		Light Brown, SILTY CLAY, soft, saturated. 15.0	0.2
						CL-ML		Dark Gray, SILT, some clay, soft, saturated. 15.4	0.2
									0.1
17.5	410.6								0.1
		DP		32	67	CL-ML		Gray, CLAY, some silt, soft, low plasticity, saturated.	0.1
									0.1
20.0	408.1							20.0	0.1
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 428.40 feet amsl
DATE BORING COMPLETED: 4/6/2018
NORTHING: 1484100.75
LOGGED BY: H. Usle
EASTING: 799417.07
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Sand
Poorly-graded Gravelly Sand
Poorly-graded Sandy Gravel
Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		0.3 Gray, GRAVEL, subangular (0.5" diameter), loose, dry.	
						SP		0.5 Gray Brown, FINE TO MEDIUM SAND, (0.5" diameter), loose, dry.	0.0
		HA		24	100				0.0
2.5	425.9					SP		Brown, FINE TO MEDIUM SAND, some subrounded gravel, (0.5" diameter), loose, dry to moist.	0.0
		DP		17	71				0.0
								4.0	
5.0	423.4		JS-B-027 (4-6) for VOCs, PFAS, TOC, pH			SP		Brown, FINE TO MEDIUM SAND, some gravel, subangular to angular (0.5-1" diameter), trace clay, gravel content increasing with depth, loose to medium dense, moist.	0.0
		DP		24	50				0.1
								6.0	
						GP		Brown, GRAVEL, some medium sand, subangular (1-2" diameter), medium dense, dry.	0.2
								7.0	
7.5	420.9					GP		Light Brown, SANDY GRAVEL, trace clay, subangular, medium to coarse-grained sands, higher silt and clay content (~35%) from 8-8.5 ft bgs, loose, saturated.	0.2
								8.5	
						CL-ML		Light Brown, SILT AND CLAY, soft, saturated.	0.1
								9.0	
						CL-ML		Gray, CLAY, some silt, soft, low plasticity, wet to saturated.	0.2
10.0	418.4								

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		31	65	CL-ML		Gray, CLAY, some silt, soft, low plasticity, wet to saturated. *(continued)*	0.3
									0.3
12.5	415.9								0.0
		DP		24	50				0.1
									0.1
15.0	413.4								0.1
									0.2
17.5	410.9								0.1
		DP		48	100				0.1
									0.1
20.0	408.4							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-028

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 428.00 feet amsl
DATE BORING COMPLETED: 4/10/2018
NORTHING: 1484118.98
LOGGED BY: H. Usle
EASTING: 799443.28
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Sand
Poorly-graded Gravelly Sand
Poorly-graded Sand with Silt
Low Plasticity Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		Gray, GRAVEL, angular (0.5" diameter), loose, dry.	0.0
						SP		0.5 Dark Gray, FINE TO MEDIUM SAND, subangular gravel (1-2" diameter), loose to medium dense, moist.	
						SP		1.0 Dark Brown, MEDIUM SAND, some subangular and subrounded gravel, (2" diameter), brick fragments, medium dense, dry to moist.	0.0
		HA		48	100			2.0	
2.5	425.5					SP-SM		Dark Brown, MEDIUM TO COARSE SAND, some silt and clay, trace subrounded gravel (1-2" diameter), trace white flecks, moist to wet.	0.0
								3.0	0.0
						SP-SM		Dark Gray, MEDIUM SAND, some silt, trace rounded gravel (0.5" diameter), wet, trace yellow mottling.	0.0
5.0	423.0							5.0	
						SP-SM		Brown To Gray, FINE SAND, some silt, moist to wet, orange and brown mottling.	0.0
		DP	JS-B-028 (5-7) for VOCs, PFAS, TOC, pH	20	42				0.0
								7.0	
7.5	420.5					SP-SM		Reddish Brown, FINE TO COARSE SAND, some silt, little subrounded gravel (0.5" diameter), moist to wet.	0.0
								8.0	
						GP		Brown, GRAVEL, some clay, subangular and subrounded (0.5-1" diameter), medium dense, saturated.	0.0
									0.0
10.0	418.0							10.0	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Melville, New York 11747
Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		7	15			NO RECOVERY. *(continued)*	NM
								12.0	
12.5	415.5								0.0
									0.0
		DP		38	79				0.0
15.0	413.0								0.0
						CL		Gray, CLAY, slight silt bedding present from 14-15 feet bgs, soft to medium stiff, low plasticity, wet.	0.0
									0.0
17.5	410.5								0.0
		DP		30	63				0.0
									0.0
20.0	408.0							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
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JS-B-029

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 427.90 feet amsl
DATE BORING COMPLETED: 4/10/2018
NORTHING: 1484131.09
LOGGED BY: H. Usle
EASTING: 799420.37
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Poorly-graded Sand; Poorly-graded Gravelly Sand; Silt; Poorly-graded Sand with Silt; Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA		24	100	GP		Gray, GRAVEL, angular (0.5" diameter), loose, dry.	0.0
						SP		Brown, MEDIUM TO COARSE SAND, trace gravel, gray subangular gravels (1-2" diameter), large shale fragments (5-6" diameter), dry to moist.	0.0
2.5	425.4	DP		6	25	SP		Dark Brown, FINE TO MEDIUM SAND, subangular gravel, (1" diameter), reddish gravel fragments, loose to medium dense, dry to moist.	0.0
								No Recovery; quartz gravel stuck in drilling shoe.	NM
5.0	422.9	DP		29	60	SP		Dark Brown, FINE TO MEDIUM SAND, subangular gravel, (1" diameter), reddish gravel fragments, loose to medium dense, dry to moist.	0.0
						ML		Dark Brown, SILT, trace fine sand, soft, medium plasticity, moist to wet.	0.2
7.5	420.4					SP		Yellowish Brown, FINE TO MEDIUM SAND, some gravel, subangular (1" diameter) of reddish, white and yellow coloration, medium dense, dry to moist.	0.5
									0.4
						SP-SM		Olive Brown, FINE SAND, some silt and gravel, subrounded (0.5" diameter), slight brown oxidized surface, medium dense, moist to wet.	0.0
10.0	417.9					SP		Brown, FINE TO MEDIUM SAND, trace silt, subangular, laminar shale gravel fragments (1" diameter), medium dense, wet.	0.0

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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105 Maxess Road; Suite 316
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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		32	67	SP		Brown, FINE TO MEDIUM SAND, trace silt, subangular, laminar shale gravel fragments (1" diameter), medium dense, wet. *(continued)*	0.0
								10.5	
						SP		Gray Brown, FINE TO MEDIUM SAND, loose, wet.	0.0
								12.0	
12.5	415.4								0.1
									0.0
		DP		14	29	SP		Gray Brown, MEDIUM TO COARSE SAND, well rounded, well sorted, loose, saturated.	
15.0	412.9								NM
								16.0	
									0.0
17.5	410.4		JS-B-029 (16-18) for VOCs, PFAS, TOC, pH						0.0
		DP		38	79	CL-ML		Gray, CLAY, some silt, soft, low plasticity, wet.	
									0.0
									0.0
20.0	407.9							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
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JS-B-031

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 430.30 feet amsl
DATE BORING COMPLETED: 4/11/2018
NORTHING: 1484033.87
LOGGED BY: H. Usle
EASTING: 799376.57
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Sand
Poorly-graded Gravelly Sand
Silt
Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		0.3 Gray, GRAVEL, subangular (0.5" diameter), loose, dry.	0.0
		HA		24	100	SP		Dark Brown, FINE TO MEDIUM SAND, trace subangular gravel, (1-2" diameter), trace brick fragments and some concrete fragments, loose, dry to moist.	0.2
2.5	427.8	DP		18	75	SP		2.0 Dark Brown To Black, MEDIUM TO COARSE SAND, with subangular gravel, (1-1.5" diameter), "ash-like" layer of alternating black and white deposits, trace brick fragments (more prevalent from 2-3 feet bgs), loose, dry to moist.	0.0
									0.3
5.0	425.3					SP		4.0 Brown, MEDIUM TO COARSE SAND, with subangular gravel, (1-1.5" diameter), medium dense, moist.	0.0
		DP		22	46	GP		5.0 Gray To White, GRAVEL, subangular (1-2" diameter), medium dense, dry.	0.2
									0.0
7.5	422.8					GP		7.5 Light Brown, GRAVEL, some silt and fine sand, angular and rounded (0.5" diameter), loose, saturated.	0.3
						GP		8.0 Light Brown, GRAVEL, some clay, subangular to subrounded (0.5" diameter), coarsening downward sequence, loose, saturated.	0.0
									0.0
10.0	420.3							10.0	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		48	100	ML		Light Brown, SILT, some clay, low plasticity, wet. *(continued)*	0.2
10.5									0.0
12.5	417.8								0.0
		DP		24	50				0.0
									0.0
15.0	415.3								0.0
			JS-B-031 (15-17) for VOCs, PFAS, TOC, pH			CL-ML		Gray, CLAY, some silt, low plasticity, wet.	0.0
									0.0
17.5	412.8								0.0
		DP		30	63				0.0
									0.0
20.0	410.3							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-032

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 429.90 feet amsl
DATE BORING COMPLETED: 4/11/2018
NORTHING: 1484043.41
LOGGED BY: H. Usle
EASTING: 799380.66
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Gravelly Sand
Boulders and Cobbles
Silt
Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		0.3 Gray, GRAVEL, subangular (0.5" diameter), loose, dry.	
		HA		24	100	SP		Gray Brown, FINE TO MEDIUM SAND, some subangular gravel, (0.5-1" diameter), brick fragments, loose, moist. 1.0	4.6
						SP		Gray, MEDIUM TO COARSE SAND, some subangular gravel, (0.5-1" diameter), loose, moist. 2.0	0.3
2.5	427.4	DP		16	67	SP		Dark Brown To Black, MEDIUM TO COARSE SAND, some gravel, (1" diameter), "ash-like" layers, coal fragments, reddish brown sands and brick fragments from 3-4 feet bgs, trace clay from 2-3 feet bgs, loose. 4.0	1.3 1.3
5.0	424.9	DP		23	48	SP		Dark Brown, MEDIUM TO COARSE SAND, some gravel, dark gray shale and quartz gravel (1" diameter), light brown sand seams, loose, dry to moist. 6.0	0.7 1.3
								Gray, ROCK FRAGMENTS, (1-2" diameter), dry. 7.0	1.0
7.5	422.4					GP		Light Brown, GRAVEL, trace subangular coarse sand, (1-2" diameter), loose, dry. 8.0	0.3
						ML		Light Brown, SILT, little gravel, soft, wet. 8.5	0.5
						CL-ML		Brown To Gray, SILT AND CLAY, soft, wet. 9.0	
10.0	419.9					CL-ML		Gray, SILT AND CLAY, low plasticity, wet.	2.8

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP	JS-B-032 (9-11) for VOCs, PFAS, TOC, pH	44	92	CL-ML		Gray, SILT AND CLAY, low plasticity, wet. *(continued)*	3.9
									2.8
12.5	417.4								0.0
		DP		35	73				0.0
									0.0
15.0	414.9								0.0
									0.0
17.5	412.4								0.0
		DP		28	58				0.1
									0.1
20.0	409.9							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-034

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 430.50 feet amsl
DATE BORING COMPLETED: 4/11/2018
NORTHING: 1484026.87
LOGGED BY: H. Usle
EASTING: 799362.18
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Sand
Brick
Silty Clay
Low Plasticity Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		0.3 Gray, GRAVEL, subangular (0.5" diameter), loose, dry.	
		HA		24	100	SP		Dark Brown, MEDIUM TO COARSE SAND, trace gravel, (0.5-1.5" diameter), loose, dry.	0.0 0.0
								2.0	
2.5	428.0	DP		19	79	SP		Dark Brown, FINE TO MEDIUM SAND, some gravel, quartz gravels (0.5" diameter), brick fragments at 7 feet bgs, trace black oxidation, loose, dry to moist.	0.2 0.2
5.0	425.5	DP		33	69				0.3 0.4
								6.5	0.3
								BRICK.	
7.5	423.0							7.0	1.6
						GP		Light Brown, GRAVEL, some coarse sand, (0.5" diameter), trace silt, loose, saturated.	0.2 0.1
10.0	420.5								

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP	JS-B-034 (14-16) for VOCs, PFAS, TOC, pH	18	38	GP		Light Brown, GRAVEL, some coarse sand, (0.5" diameter), trace silt, loose, saturated. *(continued)*	0.1
									0.3
								12.0	
12.5	418.0					CL-ML		Dark gray to gray, SILTY CLAY, low plasticity, soft to medium stiff, saturated.	0.1
								13.0	
		DP		34	71				0.2
									0.1
15.0	415.5								0.0
						CL		Gray, CLAY, low plasticity, soft to medium stiff, saturated.	0.1
17.5	413.0								0.1
		DP		38	79				0.1
									0.1
20.0	410.5							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-040

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 429.90 feet amsl
DATE BORING COMPLETED: 4/16/2018
NORTHING: 1484039.48
LOGGED BY: H. Usle
EASTING: 799398.97
CHECKED BY: J. Redden
TOTAL DEPTH: 7 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Gravelly Sand
Poorly-graded Sand

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		0.3 Gray, GRAVEL, subangular (0.5" diameter), moist from precipitation, loose, moist.	
		HA		24	100	SP		Grayish Brown, MEDIUM TO COARSE SAND, and gravel, (0.25-0.5" diameter), loose.	0.0 0.0
2.5	427.4	DP		14	58	SP		2.5 Brown To Red Brown, FINE TO MEDIUM SAND, trace gravel, trace coal fragments, loose, moist.	0.1 0.8
5.0	424.9	DP		21	58	SP SP		4.0 Gray, MEDIUM TO COARSE SAND AND GRAVEL, (0.5" diameter), loose, wet. 5.0 Gray Brown, FINE TO COARSE SAND, trace gravel, (0.5-1" diameter). Refusal at 7 feet bgs, medium dense, moist.	0.2 0.9 0.5
7.5	422.4							7.0 *Bottom of Boring @ 7.00 feet bgs*	
10.0	419.9								

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-041

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 430.30 feet amsl
DATE BORING COMPLETED: 4/16/2018
NORTHING: 1484009.42
LOGGED BY: H. Usle
EASTING: 799354.39
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Gravelly Sand
Poorly-graded Sand
Poorly-graded Sand with Silt
Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		0.3 Gray, GRAVEL, subangular (0.5" diameter), moist from precipitation, loose, moist.	
		HA		24	100	SP		Grayish Brown, MEDIUM TO COARSE SAND AND GRAVEL, litte clay, (0.25-0.5" diameter), loose, wet. 1.0	0.0
						SP		Brown, FINE TO COARSE SAND, little clay and gravel, (0.5-1" diameter), loose, wet. 2.0	0.1
2.5	427.8	DP		22	92	SP		Light Grayish Brown, FINE TO COARSE SAND, some gravel, (0.5" diameter), saturated due to precipitation, loose, saturated. 3.0	0.0
						SP		Dark Brown, FINE TO MEDIUM SAND, some gravel, (0.5-1" diameter), dark brown to black interval from 3-3.2 feet bgs with white plastic fragments, gray laminar gravel layer (2" thick) at 4.5 feet bgs, loose, dry to moist. 4.0	0.1
5.0	425.3					SP		Gray Brown, COARSE SAND, some fine sand, saturated due to precipitation, loose, saturated. 5.0	0.0
		DP		30	63	SP-SM		Olive Brown, SILT, some fine sand, soft, moist to wet. 6.0	0.0
7.5	422.8					SP		Brown, FINE TO MEDIUM SAND, some gravel, reddish brown gravel from 7.5-7.6 feet bgs, white quartz gravel from 7.6-7.8 feet bgs (1" diameter), medium dense, dry to moist.	0.0
								8.5	0.0
						CL-ML		Light Brown, CLAY AND SILT, low plasticity, soft, wet. 9.2	
10.0	420.3					CL-ML		Gray, CLAY AND SILT, non-plastic from 12-20 feet bgs, soft to medium stiff, low plasticity, wet.	0.0

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		27	56				0.0
									0.0
12.5	417.8								0.0
		DP		4	8				0.0
									0.0
15.0	415.3					CL-ML		Gray, CLAY AND SILT, non-plastic from 12-20 feet bgs, soft to medium stiff, low plasticity, wet. *(continued)*	0.0
									0.0
									0.0
17.5	412.8								0.0
		DP	JS-B-041 (16-18) for VOCs, PFAS, TOC, pH	22	46				0.0
									0.0
20.0	410.3							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-042

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 431.00 feet amsl
DATE BORING COMPLETED: 4/16/2018
NORTHING: 1483991.55
LOGGED BY: H. Usle
EASTING: 799364.4
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Poorly-graded Sand; Poorly-graded Sand with Silt; Poorly-graded Gravelly Sand; Poorly-graded Gravel with Silt; Silt

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		0.3 Gray, GRAVEL, subangular (0.5" diameter), moist from precipitation, loose, moist.	
		HA		24	100	SP		Brown, FINE TO COARSE SAND, little clay and gravel, (0.5-1" diameter), loose. 1.0	0.0
						SP		Gray Brown, FINE TO COARSE SAND, little clay and gravel, (0.25-0.5" diameter), loose to medium dense, wet.	0.3
2.5	428.5	DP		24	100			3.0	0.2
						SP		Brown To Dark Brown, FINE TO MEDIUM SAND, trace rock fragments, angular, glass and black flaky solids, medium dense, moist. 4.0	0.9
5.0	426.0					SP		Brown To Dark Brown, MEDIUM TO COARSE SAND, trace gravel, (0.25-0.5" diameter).	0.1
		DP		30	63			5.5	0.4
						SP-SM		Brown, FINE SAND AND SILT, medium dense, wet. 6.5	0.1
7.5	423.5					SP		Brown, FINE TO COARSE SAND, and gravel, (0.5-1" diameter), oxidized rock.	0.4
								8.0	
						SP		Dark Brown, MEDIUM TO COARSE SAND, trace gravel, (0.25-0.5" diameter), coarsening downwards, loose, wet.	0.2
								9.5	0.3
10.0	421.0					GP-GM		Brown, SAND, GRAVEL, AND SILT, (1-1.5" diameter), loose, wet. 10.0	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		36	75	ML		Brown, SILT, soft, wet. *(continued)*	0.2
								10.8	0.2
12.5	418.5								0.1
		DP		36	75				0.2
									0.2
15.0	416.0								0.0
						CL		Gray, CLAY, soft, wet.	0.1
									0.2
17.5	413.5								0.1
		DP		23	48				0.1
20.0	411.0							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-043

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 431.10 feet amsl
DATE BORING COMPLETED: 4/18/2018
NORTHING: 1484001.25
LOGGED BY: H. Usle
EASTING: 799388.63
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Sand; Brick; Sandy Silt; Poorly-graded Gravelly Sand; Silt; Poorly-graded Gravel

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA		24	100				0.1
									0.2
2.5	428.6					SP		Dark Brown, FINE TO MEDIUM SAND, little subangular gravel, (1-2" diameter), coarser with trace gravel from 3-4 feet bgs, dark brown soft organic layer at 4.5 feet bgs (1" thick), loose, dry.	0.2
		DP		24	100				0.1
									0.1
5.0	426.1							4.5	
								BRICK.	0.1
		DP		24	50			5.5	
						ML		Olive Brown, SILT, some fine sand and trace gravel, (0.25" diameter), soft, moist to wet.	0.2
7.5	423.6							7.0	
						SP		Dark Brown To Black, FINE TO MEDIUM GRAVELLY SAND, (0.5-1" diameter), glass fragments, trace brick fragments 8-9 feet bgs, loose to medium dense, moist to wet.	0.4
									0.3
								9.0	
						SP		9.2 Gray Brown, COARSE SAND, little gravel, (0.25" diameter), loose, saturated.	
						ML		Dark Gray, SILT, trace fine sand, medium plasticity, soft, wet.	0.3
								9.8	
10.0	421.1					GP		10.0 Yelllowish Brown, GRAVEL, (1-2" diameter), loose, saturated.	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP	JS-B-043 (10-12) for VOCs, PFAS, TOC, pH	45	94				0.4
									0.5
12.5	418.6					CL-ML		Gray, CLAY AND SILT, soft, low plasticity, wet. *(continued)*	0.1
									0.0
		DP		48	100				0.0
15.0	416.1								0.0
								16.0	
									0.0
17.5	413.6								0.0
		DP		14	29	CL		Gray, CLAY, soft, saturated.	0.0
									0.0
20.0	411.1							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-045

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 428.30 feet amsl
DATE BORING COMPLETED: 4/19/2018
NORTHING: 1484156.06
LOGGED BY: H. Usle
EASTING: 799446.77
CHECKED BY: J. Redden
TOTAL DEPTH: 2.5 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger

GRAPHIC LOG LEGEND
Organic Silt or Clay
Poorly-graded Sand
Poorly-graded Gravelly Sand

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						OL		0.3 Dark Brown, TOPSOIL.	
						SP		Black To Brown, FINE TO MEDIUM SAND, trace subrounded brick fragments (1" diameter), trace coal fragments (0.25" diameter), white laminar flecks, loose, dry.	0.0
		HA		18	60			1.0	
						SP		Olive Brown, MEDIUM SAND AND GRAVEL, trace silt, (0.5-1" diameter), black oxidized surfaces around gravels. Refusal at 2.5 feet bgs, loose, moist to wet.	0.0
2.5	425.8							2.5	0.0
5.0	423.3							*Bottom of Boring @ 2.50 feet bgs*	
7.5	420.8								
10.0	418.3								

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-046

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 429.10 feet amsl
DATE BORING COMPLETED: 4/19/2018
NORTHING: 1484057.02
LOGGED BY: H. Usle
EASTING: 799376.24
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Gravelly Sand
Boulders and Cobbles
Sandy Silt
Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		0.3 Gray, GRAVEL, subangular (0.5" diameter), loose, dry.	
						SP		Gray, MEDIUM TO COARSE SAND, some gravel, (0.5-1" diameter), loose, moist.	0.2
		HA		24	100			1.0	
						SP		Dark Brown To Black, MEDIUM TO COARSE SAND, some gravel, (1-3" diameter), loose, moist.	5.6
								2.0	
2.5	426.6	DP		13	54	SP		Dark Brown, FINE TO MEDIUM SAND AND GRAVEL, trace brick fragments (1" diameter), black oxidized surfaces, loose, dry to moist.	1.0
									0.5
5.0	424.1							4.8	1.1
								Gray, GRAVEL, crushed rock fragments, dense, dry.	1.5
		DP		30	63			6.0	
						ML		6.3 Brown To Olive Brown, SILT, some fine sand and gravel, medium stiff, moist to wet.	0.3
7.5	421.6					SP		Dark Brown, FINE TO MEDIUM SAND, and gravel, (0.5" diameter), medium dense, dry to moist.	0.6
								8.0	
						SP		Light Brown, GRAVELLY SAND, trace silt, (0.5-1" diameter), oxidized surfaces on gravel, loose, saturated.	0.2
									0.4
10.0	419.1							10.0	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		12	25			NO RECOVERY, CLAY and SILT fell out of core upon retraction. *(continued)*	NM
								12.0	
12.5	416.6								0.2
									0.1
		DP	JS-B-046 (12-14) for VOCs, PFAS, TOC, pH	37	77				0.0
15.0	414.1								0.0
						CL-ML		Gray, CLAY AND SILT, soft to medium stiff, low plasticity, saturated.	0.0
									0.0
17.5	411.6								0.0
		DP		30	63				0.0
									0.0
20.0	409.1							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-047

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 429.20 feet amsl
DATE BORING COMPLETED: 4/19/2018
NORTHING: 1484060.46
LOGGED BY: H. Usle
EASTING: 799388.25
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Gravelly Sand
Poorly-graded Sand
Poorly-graded Sandy Gravel
Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA	JS-B-047 (4-6) for VOCs, PFAS, TOP Assay PFAS, TOC, pH	24	100	GP		0.3 Gray, GRAVEL, subangular (0.5" diameter), loose, dry.	0.0
						SP		Gray, MEDIUM TO COARSE SAND, some gravel, (0.5-1" diameter), loose, moist.	0.1
2.5	426.7	DP		15	63	SP		2.0 Light Gray, FINE TO MEDIUM SAND, some gravel and silt, (0.25-0.5" diameter), medium dense, wet.	0.0
						SP		3.2 Yellowish Brown, FINE SAND, little gravel, (0.25" diameter), loose, moist.	0.2
5.0	424.2	DP		15	31	SP		4.0 Light Gray, FINE TO MEDIUM SAND, some gravel and silt, (0.25-0.5" diameter), medium dense, wet.	3.2
						SP		5.0 Dark Brown, FINE TO MEDIUM SAND, some gravel, (0.5-1" diameter), black oxidation, medium dense, dry to moist.	2.9
						GP		6.0 Gray, GRAVEL, (0.5-1" diameter), laminar, pulverized, dense, dry.	0.5
						SP		6.5 Dark Brown, FINE TO MEDIUM SAND, with gravel, (0.5-1" diameter), pink angular gravels, loose to medium dense, dry to moist.	
7.5	421.7					GP		7.0 Light Brown, GRAVEL, some coarse sand, (0.5-2" diameter), loose, saturated.	0.0
						SP		8.0 Light Brown, GRAVELLY SAND, trace silt, (0.5-1" diameter), loose, saturated.	0.3
10.0	419.2							10.0	0.4

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP	JS-B-047 (10-12) for VOCs, PFAS, TOC, pH	22	46	CL-ML		Light Brown, CLAY AND SILT, soft, low plasticity, saturated. *(continued)*	0.7
									0.6
12.5	416.7								0.1
		DP		42	88				0.0
									0.1
15.0	414.2					CL-ML		Gray, CLAY AND SILT, appreciable silts near 14 feet bgs, soft, low plasticity, saturated.	0.0
									0.0
									0.0
17.5	411.7								0.0
		DP		23	48				0.0
									0.0
20.0	409.2								
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
105 Maxess Road; Suite 316
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JS-B-048

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 429.60 feet amsl
DATE BORING COMPLETED: 4/19/2018
NORTHING: 1484050.77
LOGGED BY: H. Usle
EASTING: 799397.25
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Gravelly Sand
Poorly-graded Sand with Clay
Poorly-graded Sand
Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		0.3 Gray, GRAVEL, subangular (0.5" diameter), loose, dry.	
		HA		24	100	SP		Gray, MEDIUM TO COARSE SAND, some gravel, (0.5-1" diameter), loose, moist.	0.0
									0.0
								2.0	
2.5	427.1					SP-SC		3" Light Gray, CLAYEY SAND, medium-grained, subrounded gravels throughout (0.5" diameter), loose, wet. 2" Gray, GRAVEL, (1" diameter), laminar, medium dense, dry. 2.5 1" Gray Brown, MEDIUM SAND, loose, dry.	0.0
		DP		6	25			NO RECOVERY.	NM
								4.0	
5.0	424.6					SP		Brown, MEDIUM SAND, some gravel, (0.5" diameter), silty sand layer with trace brick from 4.8-5 feet bgs, loose, dry to wet.	0.4
						GP		Gray, GRAVEL, (0.5" diameter), pulverized rock, dense, dry.	0.4
		DP		24	50			6.0	
						GP		Gray, GRAVEL, (0.5-1" diameter), trace brown sand and brick fragments, dense, dry.	0.0
								7.0	
7.5	422.1					SP		Brown And Gray, MEDIUM SAND, subangular gravel fragments (0.25-0.5" diameter), shale fragments, dry to moist.	2.1
								8.0	
						GP		Dark Gray, GRAVEL, trace coarse sand, (0.25-1.5" diameter), with light brown silt and clay, poorly graded, loose, saturated.	0.5
								9.0	
10.0	419.6					CL-ML		Gray, CLAY, some silt, soft, low plasticity, saturated.	0.6

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP	JS-B-048 (10-11) for VOCs	45	94	CL-ML		Gray, CLAY, some silt, soft, low plasticity, saturated. *(continued)*	2.6
			JS-B-048 (10-12) for PFAS, TOC, pH						1.9
								12.0	
12.5	417.1								0.0
		DP		40	83				0.1
									0.1
15.0	414.6								0.2
						CL-ML		Gray, CLAY AND SILT, silt layers at 12.5 feet bgs and from 15-15.2 feet bgs, soft, saturated.	0.2
17.5	412.1								0.0
		DP		27	56				0.1
									0.0
20.0	409.6							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-051

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 430.80 feet amsl
DATE BORING COMPLETED: 4/24/2018
NORTHING: 1483999.21
LOGGED BY: H. Usle
EASTING: 799358.16
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Gravelly Sand
Poorly-graded Sand
Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA		24	100	GP		Gray, GRAVEL, subangular loose, dry. 0.5	0.0
						SP		Dark Brown, FINE TO MEDIUM SAND, some subangular gravel, (0.5-1" diameter), trace subrounded cobbles from 1-2 feet bgs (3" diameter), trace red flecks, loose, dry. 2.0	0.3
2.5	428.3	DP		24	100	SP		Light Brown, FINE TO MEDIUM SAND, some subrounded gravel, (0.5" diameter), trace clay, wet due to precipitation, loose, wet. 2.5	0.3
						SP		Dark Brown To Black, FINE SAND, little subrounded gravel, (1" diameter), trace clay, organic rich layers, white and black "ash-like" material, loose, dry. 3.6	0.2
						SP		Yellowish Brown, FINE TO MEDIUM SAND, trace silt and gravel, subrounded gravel (0.5" diameter), loose, dry to moist. 4.0	
5.0	425.8					SP		Light Grayish Brown, GRAVELLY SAND, trace subangular clay, (1" diameter), saturated due to precipitation, loose, saturated. 5.0	0.1
		DP		26	54	GP		Gray, GRAVEL, (1-2" diameter), loose, dry. 6.0	0.0
7.5	423.3					SP		Olive Brown, FINE TO MEDIUM SAND, coarsening downward sequence, subangular gravels present 7-8 feet bgs (0.5" diameter), orange mottling 6-7 feet bgs, saturated at 7 feet bgs, loose. 8.0	0.1 0.1
10.0	420.8					SP		Light Brown, GRAVELLY SAND, subrounded (0.5-1" diameter), sands well rounded, loose, saturated. 10.0	0.1

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		33	69	CL-ML		Light Brown, SILT AND CLAY, soft, low plasticity, saturated. *(continued)*	0.2
								10.6	
						CL-ML		Gray, SILTY CLAY, soft, low plasticity, saturated.	0.1
								12.0	
12.5	418.3								0.1
		DP		48	100				0.1
									0.0
15.0	415.8								0.1
						CL-ML		Gray Brown, SILTY CLAY, soft, plastic, saturated.	0.1
17.5	413.3								
		DP		15	31				0.1
20.0	410.8							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
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JS-B-052

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 430.40 feet amsl
DATE BORING COMPLETED: 4/24/2018
NORTHING: 1484018.21
LOGGED BY: H. Usle
EASTING: 799358.46
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Gravelly Sand
Poorly-graded Sand
Silty Sand
Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA		24	100	GP		Gray, GRAVEL, subangular loose, dry.	0.7
						SP		Brown, FINE TO MEDIUM SAND, some subrounded gravel, (1-1.5" diameter), loose, dry.	
						SP		Black To Brown, FINE TO MEDIUM SAND, little subangular gravel, (0.5-1" diameter), brick and glass fragments (3" diameter), trace white flecks, loose, dry.	0.1
2.5	427.9					SP		Light Brown, FINE TO MEDIUM SAND, some subangular gravel, (0.5" diameter), trace red flecks, wet due to precipitation, loose, wet.	0.2
		DP		4	17			NO RECOVERY, rock lodged in drilling shoe.	NM
5.0	425.4								0.3
		DP		15	31	SP		Olive Brown, FINE TO MEDIUM SAND, some subangular gravel, (0.5" diameter), trace clay, laminar shale fragments near 5.5 feet bgs, orange oxidation from 4-4.5 feet bgs, black oxidation from 6-6.5 feet bgs, trace white flecks from 7-8 feet bgs, loose, moist to wet.	0.3
7.5	422.9								0.4
			JS-B-052 (8-9) for VOCs						43.7
			JS-B-052 (8-10) for PFAS, TOC, pH			SM		Dark Brown To Dark Gray, SILTY SAND, little subrounded gravel, (0.5" diameter), oxidized surfaces, orange fragment near 8 feet bgs with "creosote-like" odor, saturated at 9 feet bgs, loose, wet to saturated.	2.3
10.0	420.4								

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP	JS-B-052 (10-12) for VOCs, PFAS, TOC, pH	26	54	CL-ML		Light Brown, SILT AND CLAY, soft, low plasticity, saturated. *(continued)*	0.7
10.5									
						CL-ML		Gray, SILTY CLAY, soft, low plasticity, saturated.	0.5
12.0									
12.5	417.9								0.2
		DP		27	56				0.2
									0.2
15.0	415.4								0.1
						CL-ML		Gray Brown, SILTY CLAY, soft, plastic, saturated.	0.0
17.5	412.9								0.0
		DP		29	60				0.0
									0.0
20.0	410.4								
20.0									
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-054

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 429.40 feet amsl
DATE BORING COMPLETED: 4/25/2018
NORTHING: 1484060.57
LOGGED BY: H. Usle
EASTING: 799416.15
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Gravelly Sand
Sandy Silt
Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		Gray, GRAVEL, subangular loose, dry. 0.5	0.0
		HA		36	100	SP		Gray, MEDIUM TO COARSE SAND, some gravel and clay, subangular gravel (0.5-1" diameter), less gravel from 1-2 feet bgs, wet from precipitation, wet. 2.0	0.0
2.5	426.9					SP		Dark Brown, FINE TO MEDIUM SAND, some subangular gravel, (0.5-1" diameter), trace brick fragments, loose, dry. 3.0	0.0
		DP		0	0			NO RECOVERY. 4.0	NM
5.0	424.4					SP		Light Brown, FINE TO COARSE SAND, some subangular and subrounded gravel, (0.5-2" diameter), trace clay, black surfaces at 5.5 feet bgs, loose to medium dense, wet. 6.5	0.0
		DP		31	65				0.0
						ML		Light Brown, SANDY SILT, fine-grained sand, gravel layer at 7 feet bgs (2" thick), soft, wet. 7.0	0.1
7.5	421.9					SP		Light Brown, MEDIUM TO COARSE SAND, some subrounded gravel, (0.5" diameter), well sorted, loose, wet. 8.0	0.3
						SP		Light Brown, GRAVELLY SAND, fine to medium sand, gravels (0.25-0.5" diameter), some silts near 9.8 feet bgs, fining downward sequence, loose, saturated. 10.0	0.1
10.0	419.4								0.1

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-054

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP	JS-B-054 (11-12) for VOCs	48	100	CL-ML		10.2 Light Brown, SILT AND CLAY, soft, low plasticity, saturated. *(continued)*	0.3
						CL-ML		Gray, CLAY AND SILT, soft, medium plasticity, saturated.	1.7
12.5	416.9							12.0	
		DP	JS-B-054 (10-12) for PFAS, TOC, pH	32	67	CL-ML		Gray To Dark Gray, CLAY, some silt, soft, medium plasticity, saturated.	0.0
									0.0
									0.0
15.0	414.4								0.0
17.5	411.9	DP		0	0			NO RECOVERY, CLAY fell out of liner during retraction.	NM
20.0	409.4							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
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JS-B-055

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 428.50 feet amsl
DATE BORING COMPLETED: 5/1/2018
NORTHING: 1484105.63
LOGGED BY: H. Usle
EASTING: 799430.66
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Gravelly Sand
Sandy Silt
Poorly-graded Sandy Gravel
Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		Gray, GRAVEL, subangular (0.5" diameter), loose, dry.	0.0
								0.5	
						SP		Light Gray, FINE SAND AND GRAVEL, trace subangular clay, (0.5" diameter), loose, moist.	
		HA		24	100			1.0	0.0
2.5	426.0								0.1
		DP		13	54	SP		Brown, FINE TO MEDIUM SAND, some subrounded gravel, (1-2" diameter), loose, dry to moist.	0.5
5.0	423.5							5.0	0.4
		DP	JS-B-055 (5-7) for VOCs, PFAS, TOP Assay PFAS,	18	38	ML		Brown To Olive Brown, SANDY SILT, some subangular gravel, (1-2" diameter), sands predominantly fine-grained, trace coarse-grained sands, black oxidation near gravels, soft, wet, orange mottling.	0.2
7.5	421.0							7.0	
						GP		Gray Brown, SANDY GRAVEL, little clay, subangular gravel (0.5-1" diameter), sands coarse-grained, trace white flecks, loose, saturated.	0.0
								8.0	
						SP		Light Brown, COARSE SAND, some subrounded gravel, (0.5" diameter), loose, saturated.	0.0
								9.0	
						CL-ML		9.3 Light Brown, CLAY AND SILT, soft, low plasticity, saturated.	0.1
10.0	418.5					CL-ML		Gray, CLAY, some silt, low to medium plasticity, soft, saturated.	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		34	71	CL-ML		Gray, CLAY, some silt, low to medium plasticity, soft, saturated. *(continued)*	0.2
									0.1
								12.0	
12.5	416.0								0.2
		DP		48	100	CL-ML		Gray, SILTY CLAY, low plasticity, soft, low plasticity, saturated.	0.1
									0.0
15.0	413.5								0.0
								16.0	
									0.0
17.5	411.0								0.0
		DP		23	48	CL-ML		Gray, CLAY, some silt, soft, plastic, saturated.	0.0
									0.0
20.0	408.5							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B-060

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 429.00 feet amsl
DATE BORING COMPLETED: 5/2/2018
NORTHING: 1484071.78
LOGGED BY: H. Usle
EASTING: 799409.03
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Poorly-graded Gravel with Clay; Poorly-graded Gravelly Sand; Sandy Silt; Poorly-graded Sand with Clay; Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		Gray, GRAVEL, subangular (0.5" diameter), loose, dry.	0.9
						GP-GC		0.5 Light Gray, CLAYEY GRAVEL, some fine to medium sand, subangular gravel (0.25-0.5" diameter), loose, moist.	
								1.0	
		DP		13	27	SP		Light Brown, FINE SAND, some subrounded gravel, (0.25" diameter), loose, dry.	0.9
2.5	426.5								0.4
								3.0	
						SP		Brown, FINE TO MEDIUM SAND, subangular gravel, (0.5-1" diameter), mauve-colored gravel, black oxidation, white quartz from 3.8-4 feet bgs, loose, moist to wet.	1.1
5.0	424.0							5.0	1.2
		DP		18	38	ML		Olive Brown, SANDY SILT, orange and black oxidized surfaces, trace white flecks, "ash-like" layers, soft, wet.	1.6
								6.0	
						SP		Brown To Dark Brown, FINE TO MEDIUM GRAVELLY SAND, subangular (0.5-1.5" diameter), black oxidized surfaces, orange oxidation, trace quartz fragments, wet to saturated at 7.8 feet bgs, loose.	0.8
7.5	421.5							7.8	1.6
						SP-SC		Light Brown, COARSE SAND AND GRAVEL, some clay, subangular (0.5" diameter), fining downwards sequence 7.8-8 feet bgs, fining upwards sequence 8-9 feet bgs, loose, saturated.	0.8
								9.0	
						CL-ML		9.3 Brown, SILT AND CLAY, soft to medium stiff, low plasticity, wet.	1.1
						CL-ML		Gray, SILTY CLAY, soft, medium plasticity, saturated.	
10.0	419.0								

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
105 Maxess Road; Suite 316
Melville, New York 11747
Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP	JS-B-060 (10-12) for VOCs, PFAS, TOC, pH	34	71	CL-ML		Gray, SILTY CLAY, soft, medium plasticity, saturated. *(continued)*	2.2
									1.2
								12.0	
12.5	416.5					CL-ML		Gray Brown, CLAY, some silt, soft, medium plasticity, saturated.	0.9
								13.0	
		DP		48	100				1.0
									0.4
15.0	414.0								0.9
						CL-ML		Gray, SILTY CLAY, soft, medium plasticity, saturated.	0.9
17.5	411.5								0.7
		DP		23	48				0.7
									0.7
20.0	409.0							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
105 Maxess Road; Suite 316
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Telephone: (631) 756-8900

JS-B-061

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
GROUND ELEVATION: 429.30 feet amsl
DATE BORING COMPLETED: 5/2/2018
NORTHING: 1484068.54
LOGGED BY: H. Usle
EASTING: 799420.44
CHECKED BY: J. Redden
TOTAL DEPTH: 20 feet bgs
DRILLING METHOD(S): Hand Auger/ Direct Push
DIAMETER: 2.25 inches
DATUM: NAD 1983 StatePlane New York East in US Survey Feet
NOTES: Soil samples collected as part of the Interim Remedial Measure.

SAMPLE TYPE:
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Poorly-graded Gravel with Clay; Poorly-graded Gravelly Sand; Sandy Silt; Silty Clay

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		Gray, GRAVEL, subangular (0.5" diameter), loose, dry.	0.8
						GP-GC		Light Gray, CLAYEY GRAVEL, some fine to medium sand, subangular gravel (0.25-0.5" diameter), loose, moist.	
						SP		Light Brown, FINE SAND, some subrounded gravel, (0.25" diameter), black oxidized surfaces, loose, dry.	1.0
		DP		33	69				
2.5	426.8								1.0
						SP		Brown, FINE TO MEDIUM SAND, subangular gravel, (0.5-1" diameter), brick fragments near 3.5 feet bgs, black oxidation, trace white flecks, loose, moist.	1.0
									1.5
5.0	424.3								
						ML		Olive Brown, SANDY SILT, orange and black oxidized surfaces, trace white flecks, "ash-like" layers, soft, wet.	0.8
		DP		27	56				
						SP		Brown To Dark Brown, FINE TO MEDIUM GRAVELLY SAND, trace brick fragments, (0.5-1.5" diameter), black oxidized surfaces, orange oxidation, wet to saturated at 7.5 feet bgs, loose.	1.2
7.5	421.8								1.0
						SP		Light Brown, COARSE SAND AND GRAVEL, some clay, subangular gravel (0.5" diameter), fining downwards sequence, loose, saturated.	1.2
10.0	419.3								1.0

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		DP		12	25			NO RECOVERY, CLAY too soft to allow penetration into liner. *(continued)*	NM
								12.0	
12.5	416.8					CL-ML		Gray Brown, CLAY, some silt, soft, medium plasticity, saturated.	0.6
								13.0	
			JS-B-061 (12-14) for VOCs, PFAS, TOC, pH						0.8
		DP		48	100				0.8
15.0	414.3								1.0
						CL-ML		Gray, SILTY CLAY, soft, medium plasticity, saturated.	0.4
17.5	411.8								0.8
		DP		30	63				0.9
									0.9
20.0	409.3							20.0	
								Bottom of Boring @ 20.00 feet bgs	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

4. ONSITE JOHN STREET TMWS (18, 30, 33, 35, 36, 37, 38, 39, 44, 49, 50, 53) (2018)

On Site Soil Borings with TMWs Installed as Part of 2018 IRM.

ERM
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Melville, New York 11747
Telephone: (631) 756-8900

JS-B/TMW-018

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
DATE BORING COMPLETED: 4/4/2018
DATE WELL INSTALLED: 4/4/2018
LOGGED BY: H. Usle
CHECKED BY: J. Redden
DIAMETER: 3.25 inches

GROUND ELEVATION: 427.90 feet amsl
TOC ELEVATION: 427.60 feet amsl
NORTHING: 1484150.5
EASTING: 799430.85
TOTAL DEPTH: 24 feet bgs
DRILLING METHODS: Hand Auger/ Direct Push

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Clayey and Silty Sand; Poorly-graded Sand; Low Plasticity Sandy Clay; Poorly-graded Sandy Gravel; Poorly-graded Gravelly Sand

NOTES: Soil samples collected as part of the Interim Remedial Measure. Datum is NAD 1983 StatePlane New York East in US Survey Feet.

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		0.3 Gray, GRAVEL, angular (0.5-1" diameter), loose, dry.	
						SC-SM		0.8 Gray, FINE TO MEDIUM CLAYEY SAND, some subrounded gravel, (0.25" diameter), some root mass, loose to medium dense, moist.	0.1
		HA		24	100	SP		Brown, MEDIUM TO COARSE SAND, some rounded gravel, (1-2" diameter), dry to moist.	0.1
2.5	425.4							2.0	
		DP		11	46	SP		Dark Brown, FINE TO MEDIUM SAND, some clay and gravel, subangular gravel (1-2" diameter), brick and coal fragments, loose, wet.	0.2
						CL		3.0 Brown, FINE SANDY CLAY, trace shell hash, soft, wet.	0.1
5.0	422.9							4.0	
						CL		Brown, FINE SANDY CLAY, trace coarse sand, soft, wet.	0.9
								5.5	0.6
		DP		20	42	GP		Dark Brown, COARSE SAND AND GRAVEL, subrounded quartz and shale gravels (2" diameter), loose to medium dense, dry to moist.	1.4
7.5	420.4								0.8
								8.0	
						GP		Brown, MEDIUM TO COARSE SAND AND GRAVEL, some clay, subangular gravel, orange oxidation, mottled gray and red layer at 10 feet bgs (1" thick).	0.5
									0.4
10.0	417.9								

WELL DIAGRAM: Concrete Pad and 8" Boltdown Manhole Cover; Bentonite Seal

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
105 Maxess Road; Suite 316
Melville, New York 11747
Telephone: (631) 756-8900

JS-B/TMW-018

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		26	54	GP		Brown, MEDIUM TO COARSE SAND AND GRAVEL, some clay, subangular gravel, orange oxidation, mottled gray and red layer at 10 feet bgs (1" thick). *(continued)*	0.3	
									0.5	
								12.0		
12.5	415.4								0.2	
		DP		27	56	SP		Brown To Gray, MEDIUM TO COARSE GRAVELLY SAND, subangular (0.5-1" diameter), poorly graded, loose, saturated.	0.1	
15.0	412.9								0.0	
									0.1	
								16.0		
						GP		Brown To Gray, FINE GRAVEL, some rounded coarse sand, (0.25-1" diameter), loose, saturated.	0.6	
								17.0		
17.5	410.4					ML		Light Brown, SILT, some clay, soft, wet to saturated.	10.4	
		DP	JS-B-018 (19-20) for VOCs, PFAS, TOC, pH	45	94			17.8		
						CL		Gray, CLAY, some silt, soft, wet.	5.1	
								19.0		
									17.3	
20.0	407.9					CL		Gray, CLAY, soft, plastic, wet to saturated.	3.7	

Filter Sand (#1)

Well Screen (17.2-21.2 feet bgs) (1" SCH 40 PVC/ 0.01" slot)

End Cap

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		48	100				0.7	
22.5	405.4					CL		Gray, CLAY, soft, plastic, wet to saturated. *(continued)*	0.3	
									0.1	
								24.0		
								Bottom of Boring @ 24.0 feet bgs		
25.0	402.9									
27.5	400.4									
30.0	397.9									
32.5	395.4									

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
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JS-B/TMW-030

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
DATE BORING COMPLETED: 4/11/2018
DATE WELL INSTALLED: 4/13/2018
LOGGED BY: H. Usle
CHECKED BY: J. Redden
DIAMETER: 3.25 inches

GROUND ELEVATION: 431.20 feet amsl
TOC ELEVATION: 431.03 feet amsl
NORTHING: 1484022.82
EASTING: 799371.49
TOTAL DEPTH: 32 feet bgs
DRILLING METHODS: Hand Auger/ Direct Push

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Sand
Silty Clay
Silt

NOTES: Soil samples collected as part of the Interim Remedial Measure. Datum is NAD 1983 StatePlane New York East in US Survey Feet.

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
						GP		0.3 Gray, GRAVEL, subangular (0.5" diameter), loose, dry.	0.6	Concrete Pad and 8" Boltdown Manhole Cover
		HA		24	100	SP		Dark Brown To Black, FINE TO MEDIUM SAND, some subangular gravel, (1-2" diameter), trace white flecks, some coal and brick fragments, loose, dry to moist.	1.0	
								2.0		
2.5	428.7	DP		16	67	SP		Dark Brown, FINE TO MEDIUM SAND, some subangular gravel, subangular slate fragments at 4 feet bgs (1-2" diameter), black and orange oxidized surfaces, medium dense, dry to moist.	0.1	
									0.5	
								4.0		
5.0	426.2	DP		26	54	SP		Dark Brown, FINE TO MEDIUM SAND, some subangular gravel, pulverized coal fragments at 6 and 7.5 feet bgs, loose, moist.	0.0	
									0.1	
									0.2	Bentonite Seal
7.5	423.7								0.1	
								8.0		
						GP		Brown To Red Brown, GRAVEL, some coarse sand and silt, subangular (0.5" diameter), red brown coloration from brick fragments at 9.8 to 10 feet bgs, loose, saturated.	0.0	
10.0	421.2							10.0	0.1	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Melville, New York 11747
Telephone: (631) 756-8900

JS-B/TMW-030

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		26	54	CL-ML		Brown, CLAY, some silt, soft, plastic, saturated. *(continued)*	0.2	
11.0									0.2	
12.5	418.7								0.0	← Filter Sand (#1)
		DP		38	79				1.7	
									20.5	
15.0	416.2								74.5	
						CL-ML		Gray, CLAY, interbedded with silt, "musty and sweet-like" odor noted at 17 and 25 feet bgs (based on olfactory), low plasticity, saturated.	382.7	
17.5	413.7								236.2	
		DP	JS-B-030 (16-18) for VOCs, PFAS, TOC, pH	46	96				193.6	
									166.3	
20.0	411.2									← Well Screen (13-27 feet bgs) (1" SCH 40 PVC/ 0.01" slot)
									13.2	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		38	79				3.4	
22.5	408.7								0.8	
									0.4	
									128.8	
25.0	406.2								22.2	
		DP		34	71	CL-ML		Gray, CLAY, interbedded with silt, "musty and sweet-like" odor noted at 17 and 25 feet bgs (based on olfactory), low plasticity, saturated. *(continued)*	5.0	End Cap
27.5	403.7								1.4	
									2.5	
									0.7	
30.0	401.2	DP		34	71				0.6	
								30.5		
						ML		Gray To Dark Gray, SILT, some clay, soft to medium stiff, saturated.	0.3	
								32.0		
32.5	398.7							*Bottom of Boring @ 32.0 feet bgs*		

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
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JS-B/TMW-033

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
DATE BORING COMPLETED: 4/11/2018
DATE WELL INSTALLED: 4/13/2018
LOGGED BY: H. Usle
CHECKED BY: J. Redden
DIAMETER: 3.25 inches

GROUND ELEVATION: 430.10 feet amsl
TOC ELEVATION: 429.87 feet amsl
NORTHING: 1484039.22
EASTING: 799389.29
TOTAL DEPTH: 32 feet bgs
DRILLING METHODS: Hand Auger/ Direct Push

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Poorly-graded Sand; Poorly-graded Gravelly Sand; Poorly-graded Gravel with Silt; Low Plasticity Clay

NOTES: Soil samples collected as part of the Interim Remedial Measure. Datum is NAD 1983 StatePlane New York East in US Survey Feet.

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
						GP		0.3 Gray, GRAVEL, subangular (0.5" diameter), loose, dry.	0.0	Concrete Pad and 8" Boltdown Manhole Cover
		HA		24	100				0.0	
						SP		Grayish Brown, FINE TO MEDIUM SAND, some subangular gravel, (0.5-1" diameter), wet at 3 feet bgs, trace clay and yellow mottling 3-4 feet bgs, loose to medium dense, moist.	0.0	
2.5	427.6	DP		10	42				0.0	
								4.0		
5.0	425.1					SP		Dark Brown To Gray Brown, FINE SAND AND GRAVEL, (0.5-1" diameter), trace black fragments, brick layer at 6.5 feet bgs (2" thick) followed by a gray angular gravel layer (2.5" thick), medium dense, dry to moist.	0.0	Bentonite Seal
		DP		28	58				0.0	
7.5	422.6							7.5	0.6	
						GP-GM		Light Brown, GRAVEL, some silt and fine sand, (0.5" diameter), loose, saturated.	0.1	
								8.5		
10.0	420.1					CL		Gray, CLAY, some fine sand, sands in upper 3 inches only, low plasticity, saturated.	0.8	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		25	52	CL		Gray, CLAY, some fine sand, sands in upper 3 inches only, low plasticity, saturated. *(continued)*	2.4	Filter Sand (#1)
									5.1	
12.0										
12.5	417.6								56.3	
		DP	JS-B-033 (14-16) for PFAS, TOC, pH	30	63				316.0	
									239.8	
15.0	415.1		JS-B-033 (15-16) for VOCs						440.0	Well Screen (11-20 feet bgs) (1" SCH 40 PVC/ 0.01" slot)
						CL		Gray, CLAY, possible fall through from 24-28 feet bgs (little recovery), low plasticity, saturated.	116.5	
17.5	412.6								61.3	
		DP		40	83				39.5	
									2.0	
20.0	410.1									End Cap

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
22.5	407.6	DP		10	21				7.1	
25.0	405.1	DP		6	13	CL		Gray, CLAY, possible fall through from 24-28 feet bgs (little recovery), low plasticity, saturated. *(continued)*	NM	
27.5	402.6									
30.0	400.1	DP		48	100				0.3	
									0.3	
									0.1	
									0.1	
								32.0		
32.5	397.6							*Bottom of Boring @ 32.0 feet bgs*		

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B/TMW-035

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
DATE BORING COMPLETED: 4/12/2018
DATE WELL INSTALLED: 4/26/2018
LOGGED BY: H. Usle
CHECKED BY: J. Redden
DIAMETER: 3.25 inches

GROUND ELEVATION: 431.20 feet amsl
TOC ELEVATION: 430.83 feet amsl
NORTHING: 1484012.53
EASTING: 799366.89
TOTAL DEPTH: 24 feet bgs
DRILLING METHODS: Hand Auger/ Direct Push

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Poorly-graded Sand; Poorly-graded Gravelly Sand; Poorly-graded Sandy Gravel; Low Plasticity Clay

NOTES: Soil samples collected as part of the Interim Remedial Measure. Datum is NAD 1983 StatePlane New York East in US Survey Feet.

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		0.3 Gray, GRAVEL, subangular (0.5" diameter), loose, dry.	
		HA		24	100	SP		Dark Brown, MEDIUM TO COARSE SAND, trace gravel, (0.5-1.5" diameter), trace brick fragments and white laminar flecks from 1-2 feet bgs, creosote soaked wood fragments from 0-1 feet bgs, loose, dry.	23.8
									0.2
								2.0	
2.5	428.7	DP		10	42	SP		Black to Brown, MEDIUM TO COARSE SAND, trace gravel, (1" diameter), white laminar flecks, loose, dry to moist.	0.4
									0.2
									0.0
5.0	426.2							5.0	
		DP		26	54	SP		Dark Brown, MEDIUM TO COARSE SAND, some gravel, (0.5-1" diameter), trace white specks, trace brick and coal fragments from 7-8 feet bgs, wet at 7.8 feet bgs, loose, moist.	0.1
									0.1
7.5	423.7								0.1
								8.0	
						SP		Brown, MEDIUM TO COARSE SAND, trace gravel, (1-2" diameter), loose, wet.	0.2
								9.0	
						GP		Light Brown, GRAVEL, some coarse sand, subangular (0.5-1.5" diameter), trace silt, loose, saturated.	0.2
10.0	421.2							10.0	

WELL DIAGRAM: Concrete Pad and 8" Boltdown Manhole Cover; Bentonite Seal

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
105 Maxess Road; Suite 316
Melville, New York 11747
Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		11	23			NO RECOVERY, rock lodged in drilling shoe. *(continued)*	NM	
12.0										
12.5	418.7								0.2	
		DP		38	79				0.0	Filter Sand (#1)
									1.2	
15.0	416.2								20.4	
						CL		Gray, CLAY, soft, low plasticity, saturated.	91.8	
17.5	413.7								120.6	Well Screen (14-21 feet bgs) (1" SCH 40 PVC/ 0.01" slot)
		DP	JS-B-035 (16-18) for VOCs, PFAS, TOC, pH	34	71				85.7	
									74.7	
20.0	411.2								4.2	
										End Cap

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		38	79				0.6	
22.5	408.7					CL		Gray, CLAY, soft, low plasticity, saturated. *(continued)*	0.3	
									0.2	
								24.0		
								Bottom of Boring @ 24.0 feet bgs		
25.0	406.2									
27.5	403.7									
30.0	401.2									
32.5	398.7									

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
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JS-B/TMW-036

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
DATE BORING COMPLETED: 4/12/2018
DATE WELL INSTALLED: 4/26/2018
LOGGED BY: H. Usle
CHECKED BY: J. Redden
DIAMETER: 3.25 inches

GROUND ELEVATION: 431.40 feet amsl
TOC ELEVATION: 431.11 feet amsl
NORTHING: 1484008.66
EASTING: 799375.07
TOTAL DEPTH: 24 feet bgs
DRILLING METHODS: Hand Auger/ Direct Push

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Poorly-graded Sand; Brick; Poorly-graded Gravelly Sand; Poorly-graded Sandy Gravel; Silty Clay

NOTES: Soil samples collected as part of the Interim Remedial Measure. Datum is NAD 1983 StatePlane New York East in US Survey Feet.

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		0.3 Gray, GRAVEL, subangular (0.5" diameter), loose, dry.	
		HA		24	100	SP		Dark Brown, MEDIUM TO COARSE SAND, trace gravel, (0.5-1.5" diameter), coarser from 1-2 feet bgs with trace gravels (2" diameter), loose, dry.	0.1 0.1
								2.0	
2.5	428.9	DP		12	50	SP		Dark Brown To Gray Brown, FINE TO MEDIUM SAND, trace gravel, (0.5" diameter), loose, moist.	0.3 0.2
								3.5	
								3.8 BRICK.	
						SP		4.0 Black To Brown, MEDIUM SAND, white flecks throughout, orange staining, coal fragments, loose, moist.	
5.0	426.4	DP		24	50	SP		Dark Brown, FINE TO MEDIUM SAND, some gravel, (0.5-1" diameter), coal and brick fragments near 5.5 feet bgs, gray laminar gravel at 5 feet bgs, brick fragments at 7.8 feet bgs, trace white flecks, loose, dry to moist.	0.1 0.2 0.0 0.2
7.5	423.9								
								8.0	
						GP		Light Brown, GRAVEL, some coarse sand, (0.5-1.5" diameter), loose, saturated.	0.0
								9.0	
						CL-ML		Light Brown, CLAY AND SILT, low plasticity, soft, saturated.	0.0
10.0	421.4							10.0	

WELL DIAGRAM: Concrete Pad and 8" Boltdown Manhole Cover; Bentonite Seal

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		32	67	CL-ML		Gray, CLAY AND SILT, low plasticity, soft, wet to saturated. *(continued)*	0.0	
									0.0	
12.0										
12.5	418.9								0.0	
		DP	JS-B-036 (14-15) for VOCs, PFAS,	34	71	CL-ML		Gray, CLAY, some silt, low plasticity, soft, wet to saturated.	0.0	Filter Sand (#1)
15.0	416.4								1.3	
									24.5	
16.0										
									67.6	
17.5	413.9		JS-B-036 (17-19) for PFAS						107.2	Well Screen (14-21 feet bgs) (1" SCH 40 PVC/ 0.01" slot)
		DP		40	83	CL-ML		Gray, CLAY, little silt, "musty-like odor" (based on olfactory), soft to medium stiff, low plasticity, wet.		
			JS-B-036 (18-19) for VOCs, TOC, pH						153.7	
			JS-B-036 (19-20) for VOCs and PFAS						46.9	
20.0	411.4									
						CL-ML		Gray, CLAY, interbedded silt, soft to medium stiff, wet.	0.2	End Cap

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
22.5	408.9	DP		32	67	CL-ML		Gray, CLAY, interbedded silt, soft to medium stiff, wet. *(continued)*	0.1 0.0 0.0	
								24.0		
								Bottom of Boring @ 24.0 feet bgs		
25.0	406.4									
27.5	403.9									
30.0	401.4									
32.5	398.9									

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
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JS-B/TMW-037

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
DATE BORING COMPLETED: 4/16/2018
DATE WELL INSTALLED: 4/26/2018
LOGGED BY: H. Usle
CHECKED BY: J. Redden
DIAMETER: 3.25 inches

GROUND ELEVATION: 431.30 feet amsl
TOC ELEVATION: 431.07 feet amsl
NORTHING: 1484017.31
EASTING: 799391.11
TOTAL DEPTH: 32 feet bgs
DRILLING METHODS: Hand Auger/ Direct Push

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Gravelly Sand
Poorly-graded Sand
Poorly-graded Sand with Silt
Low Plasticity Clay

NOTES: Soil samples collected as part of the Interim Remedial Measure. Datum is NAD 1983 StatePlane New York East in US Survey Feet.

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		Gray, GRAVEL, subangular (0.5" diameter), moist due to precipitation, loose, moist.	0.2
						SP		Grayish Brown, FINE TO MEDIUM SAND, some gravel, (0.5-1" diameter), loose.	
		HA		24	100				0.2
						SP		Dark Brown, FINE TO MEDIUM SAND, trace gravel, (1-2" diameter), loose, moist.	0.2
2.5	428.8								
		DP		18	75				0.2
						SP-SM		Brown, FINE TO MEDIUM SAND, and silt and clay, trace gravel (0.5" diameter), few coal fragments, medium dense, moist.	0.3
5.0	426.3								
						SP		Brown, FINE TO COARSE SAND, and angular gravel, (0.5-1.5" diameter), brick fragments, loose.	0.5
		DP		14	29				0.0
								NO RECOVERY, gravel in drilling shoe.	
7.5	423.8								0.0
						SP		Brown, FINE TO MEDIUM SAND, trace silt and gravel, (1" diameter), brick fragments, loose, moist.	0.5
						SP		Brown, MEDIUM TO COARSE SAND AND GRAVEL, trace clay, (0.25-1" diameter), loose to medium dense, wet.	0.2
10.0	421.3								

0.3
0.8
3.0
5.0
6.0
8.0
9.0
10.0

WELL DIAGRAM
Concrete Pad and 8" Boltdown Manhole Cover
Bentonite Seal

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		36	75				0.7	
									0.8	Filter Sand (#1)
12.5	418.8								1.6	
									7.8	
		DP		36	75				28.3	
15.0	416.3		JS-B-037 (15-16) for VOCs JS-B-037 (15-17) for PFAS, TOC, pH			CL		Gray, CLAY, low plasticity, soft, wet. *(continued)*	74.7	
									51.2	Well Screen (12-22 feet bgs) (1" SCH 40 PVC/ 0.01" slot)
17.5	413.8								72.4	
		DP		36	75				43.4	
									27.0	
20.0	411.3								11.7	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		30	63	CL		Gray, CLAY, low plasticity, soft, wet. *(continued)*	1.0 0.3 0.3	End Cap
22.5	408.8							24.0		
25.0	406.3	DP		0	0			NO RECOVERY, CLAY too soft to enable capture in liner.	NM	
27.5	403.8									
30.0	401.3	DP		0	0				NM	
								32.0		
32.5	398.8							*Bottom of Boring @ 32.0 feet bgs*		

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
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Telephone: (631) 756-8900

JS-B/TMW-038

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
DATE BORING COMPLETED: 4/16/2018
DATE WELL INSTALLED: 4/25/2018
LOGGED BY: H. Usle
CHECKED BY: J. Redden
DIAMETER: 3.25 inches

GROUND ELEVATION: 430.60 feet amsl
TOC ELEVATION: 430.29 feet amsl
NORTHING: 1484026.06
EASTING: 799393.79
TOTAL DEPTH: 28 feet bgs
DRILLING METHODS: Hand Auger/ Direct Push

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Sand with Clay
Low Plasticity Sandy Clay
Silty Clay

NOTES: Soil samples collected as part of the Interim Remedial Measure. Datum is NAD 1983 StatePlane New York East in US Survey Feet.

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		0.3 Gray, GRAVEL, sub-angular (0.5" diameter), moist due to precipitation, loose, moist.	0.1
		HA		24	100	SP-SC		Grayish Brown, FINE TO MEDIUM SAND, some clay and gravel, (0.5-1" diameter), loose, wet.	0.4
2.5	428.1							2.5	0.1
		DP		6	25			NO RECOVERY.	NM
								4.0	
						SP-SC		Brown To Gray, FINE TO MEDIUM SAND, some clay and gravel, (0.5-1" diameter), loose, moist.	0.3
5.0	425.6							4.7	
		DP		7	15			NO RECOVERY.	NM
7.5	423.1							8.0	
								NO RECOVERY.	
10.0	420.6								

WELL DIAGRAM: Concrete Pad and 8" Boltdown Manhole Cover; Bentonite Seal

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B/TMW-038

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		0	0			NO RECOVERY. *(continued)*	NM	Filter Sand (#1)
12.0										
12.5	418.1								113.6	
		DP	JS-B-038 (14-15) for VOCs	42	88	CL		Gray, CLAY, some sand, sand in upper 3 inches only, soft, low plasticity, wet.	161.4	
15.0	415.6								1396.0	
			JS-B-038 (14-16) for PFAS, TOC, pH						308.1	
16.0										Well Screen (11-21 feet bgs) (1" SCH 40 PVC/ 0.01" slot)
17.5	413.1								193.8	
		DP		27	56	CL-ML		Gray, CLAY, some silt from 19 to 20 feet bgs, soft, low plasticity, wet.	254.9	
									92.6	
20.0	410.6								74.2	
									67.8	End Cap

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
22.5	408.1	DP		30	63	CL-ML		Gray, CLAY, some silt from 19 to 20 feet bgs, soft, low plasticity, wet. *(continued)*	2.5 0.2 0.2	
25.0	405.6	DP		17	35				0.1 0.0 0.0	
27.5	403.1								0.0	
								28.0		
30.0	400.6							*Bottom of Boring @ 28.0 feet bgs*		
32.5	398.1									

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

JS-B/TMW-039

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
DATE BORING COMPLETED: 4/16/2018
DATE WELL INSTALLED: 4/20/2018
LOGGED BY: H. Usle
CHECKED BY: J. Redden
DIAMETER: 3.25 inches

GROUND ELEVATION: 430.20 feet amsl
TOC ELEVATION: 430.09 feet amsl
NORTHING: 1484034.86
EASTING: 799398.06
TOTAL DEPTH: 32 feet bgs
DRILLING METHODS: Hand Auger/ Direct Push

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Gravelly Sand
Concrete
Poorly-graded Gravel with Silt
Silty Clay

NOTES: Soil samples collected as part of the Interim Remedial Measure. Datum is NAD 1983 StatePlane New York East in US Survey Feet.

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
						GP		0.3 Gray, GRAVEL, subangular (0.5" diameter), moist from precipitation, loose, moist.	0.0	Concrete Pad and 8" Boltdown Manhole Cover
		HA		24	100	SP		Grayish Brown, MEDIUM TO COARSE SAND AND GRAVEL, little clay, (0.25-0.5" diameter), loose, wet.	0.0	
								2.0		
						SP		2.2 Brown, MEDIUM GRAVELLY SAND, (1" diameter), loose, dry.	0.5	
2.5	427.7	DP		21	88			Gray, pulverized CONCRETE fragments, black coarse-grained material at 3 ft bgs (2" thick), "organic-like" odor, dense, dry.	0.8	
								4.0		
									0.3	
5.0	425.2								0.0	Bentonite Seal
		DP		32	67	GP		Gray, GRAVEL, rock dust, (0.5-1" diameter), olive brown medium dense silty sand layers at 5.5 and 6.5 feet bgs, dense, dry to moist.	0.2	
7.5	422.7								0.6	
								7.8		
						GP-GM		Brown To Light Brown, GRAVEL, some coarse sand and silt, loose to medium dense, saturated.	0.3	
									0.2	
10.0	420.2							10.0		

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		19	40	CL-ML		Gray, CLAY AND SILT, silt parting with some resistance during cross-cut at 13.8 feet bgs, strong "musty-like" odor, slight visual of bedding planes 24-28 feet bgs, appreciable silts near 27 feet bgs, very soft drilling results in little recovery, soft, low plasticity, saturated. *(continued)*	16.9	Filter Sand (#1)
12.5	417.7		JS-B-039 (12-13) for VOCs, PFAS, TOC, pH						391.1	
			JS-B-039 (13-14) for VOCs						> 2,000	
		DP		44	92				455.7	
15.0	415.2		JS-B-039 (13-15) for PFAS, TOP Assay PFAS, TOC, pH , Flash Point, Metals, Mercury, and Cyanide						486.7	
									408.3	Well Screen (11-22 feet bgs) (1" SCH 40 PVC/ 0.01" slot)
17.5	412.7								343.1	
		DP		46	96				193.0	
			JS-B-039 (19-20) for VOCs, PFAS, TOC, pH						91.1	
20.0	410.2								64.8	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		42	88				7.9	End Cap
22.5	407.7								4.8	
									8.6	
						CL-ML		Gray, CLAY AND SILT, silt parting with some resistance during cross-cut at 13.8 feet bgs, strong "musty-like" odor, slight visual of bedding planes 24-28 feet bgs, appreciable silts near 27 feet bgs, very soft drilling results in little recovery, soft, low plasticity, saturated. *(continued)*	301.3	
25.0	405.2								54.5	
		DP		34	71				12.1	
27.5	402.7								1.7	
								28.0		
									0.5	
									0.2	
30.0	400.2	DP		36	75	CL-ML		Gray, CLAY AND SILT, soft to medium stiff, low plasticity, saturated.	0.0	
									0.7	
								32.0		
32.5	397.7							*Bottom of Boring @ 32.0 feet bgs*		

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
105 Maxess Road; Suite 316
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Telephone: (631) 756-8900

JS-B/TMW-044

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
DATE BORING COMPLETED: 4/19/2018
DATE WELL INSTALLED: 4/27/2018
LOGGED BY: H. Usle
CHECKED BY: J. Redden
DIAMETER: 3.25 inches

GROUND ELEVATION: 428.00 feet amsl
TOC ELEVATION: 427.73 feet amsl
NORTHING: 1484159.83
EASTING: 799436.89
TOTAL DEPTH: 24 feet bgs
DRILLING METHODS: Hand Auger/ Direct Push

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravelly Sand
Silt
Poorly-graded Gravel
Silty Clay

NOTES: Soil samples collected as part of the Interim Remedial Measure. Datum is NAD 1983 StatePlane New York East in US Survey Feet.

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		HA		24	100	SP		Brown, FINE TO MEDIUM SAND, some gravel, (1-2" diameter), brick fragments, white flecks, medium dense, dry to moist.	0.0	Concrete Pad and 8" Boltdown Manhole Cover
									0.0	
								2.0		
2.5	425.5	DP		16	67	SP		Gray Brown, FINE TO MEDIUM SAND AND GRAVEL, some silt, (1" diameter), medium dense, moist to wet.	0.2	
								3.3		
								NO RECOVERY.	NM	
								4.0		
5.0	423.0					ML		Brown To Olive Brown, SILT, some fine sand, laminar gray gravel layer (2" thick) at 4.9 feet bgs, trace subangular gravels (0.5" diameter), medium stiff, moist to wet.	0.3	
								5.3		
		DP		48	100	GP		Gray, GRAVEL, trace fine sand, (0.5-1" diameter), dense, dry.	1.0	
									0.8	
								7.0		
7.5	420.5					SP		Brown, FINE TO MEDIUM SAND, with gravel, quartz gravels (0.5-1" diameter), medium dense to dense, dry.	0.9	Bentonite Seal
								8.5		
						GP		Gray, GRAVEL, (0.25-0.5" diameter), pulverized rock, dense, dry.	1.1	
								9.5		
10.0	418.0					SP		Brown, MEDIUM SAND, some gravel, (0.5" diameter), trace brick and coal fragments (0.25" diameter), medium dense, moist.	1.4	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
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Telephone: (631) 756-8900

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		36	75	SP		Brown, MEDIUM SAND, some gravel, (0.5" diameter), trace brick and coal fragments (0.25" diameter), medium dense, moist. *(continued)*	0.3	
10.5										
						SP		Yellowish Light Brown, FINE TO MEDIUM SAND, some gravel and trace silt, (0.5-1" diameter), saturated at 11.8 feet bgs, medium dense, wet.	0.6	
12.0										
						SP		Light Brown, FINE SAND AND GRAVEL, sand (3" thick), subangular quartz gravel (1-1.5" diameter) (2" thick), followed by rock lodged in drilling shoe, loose, wet.	0.3	
12.5	415.5									
		DP		6	13			NO RECOVERY.	NM	Filter Sand (#1)
15.0	413.0									
16.0										
						ML		Light Brown, SILT, some coarse sand, soft, saturated.	12	
16.2										
						CL-ML		Brownish Gray, CLAY AND SILT, soft, low plasticity, saturated.	9.1	Well Screen (15-20 feet bgs) (1" SCH 40 PVC/ 0.01" slot)
17.5	410.5									
		DP	JS-B-044 (17-19) for PFAS, TOP Assay PFAS, TOC, pH JS-B-044 (18-19) for VOCs, Metals, Mercury, Cyanide, pH	42	88				20.3	
18.0										
						CL-ML		Gray, CLAY, some silt, soft to medium stiff, low plasticity, saturated.	5.0	End Cap
20.0	408.0									
									0.0	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
22.5	405.5	DP		45	94	CL-ML		Gray, CLAY, some silt, soft to medium stiff, low plasticity, saturated. *(continued)*	0.0 0.0 0.0	
								24.0		
25.0	403.0							*Bottom of Boring @ 24.0 feet bgs*		
27.5	400.5									
30.0	398.0									
32.5	395.5									

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
105 Maxess Road; Suite 316
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Telephone: (631) 756-8900

JS-B/TMW-049

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
DATE BORING COMPLETED: 4/23/2018
DATE WELL INSTALLED: 4/25/2018
LOGGED BY: H. Usle
CHECKED BY: J. Redden
DIAMETER: 3.25 inches

GROUND ELEVATION: 430.40 feet amsl
TOC ELEVATION: 430.14 feet amsl
NORTHING: 1484028.44
EASTING: 799403.89
TOTAL DEPTH: 32 feet bgs
DRILLING METHODS: Hand Auger/ Direct Push

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravelly Sand; Concrete; Poorly-graded Sand; Poorly-graded Sandy Gravel; Silty Clay

NOTES: Soil samples collected as part of the Interim Remedial Measure. Datum is NAD 1983 StatePlane New York East in US Survey Feet.

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA		24	100	SP		Gray Brown, FINE SAND, some gravel and trace silt, (0.5-1" diameter), loose, dry.	0.0
						SP		1.0 Gray, MEDIUM TO COARSE SAND, some gravel and clay, (0.5-1" diameter), loose, moist to wet.	0.0
2.5	427.9	DP		12	50			2.0 Gray, (1" diameter), pulverzied CONCRETE and GRAVEL, dense, dry.	1.0
						SP		3.0 Black, MEDIUM TO COARSE SAND, white flecks, loose, moist to wet. 3.2	1.1
5.0	425.4	DP		18	38	SP		Dark Brown, MEDIUM SAND, trace gravel, brick fragments (1-2" diameter), loose, dry to moist. 5.0	0.2
						SP		Brown, MEDIUM TO COARSE SAND, some silt from 5-6 feet bgs (wet), trace white flecks, brick and coal fragments from 6-8 feet bgs, wood fragment near 7.8 feet bgs with black oxidation, saturated at 7.7 feet bgs, very loose.	0.4
7.5	422.9								0.9
									1.4
						GP		8.0 Gray Brown, GRAVEL, some coarse sand, quartz gravels, loose, saturated.	0.9
						CL-ML		9.0 Gray, CLAY, some silt, low to medium plasticity, soft, saturated.	2.7
10.0	420.4								

WELL DIAGRAM: Concrete Pad and 8" Boltdown Manhole Cover; Bentonite Seal; Filter Sand (#1)

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B/TMW-049

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		26	54				12.9	
									40.4	
12.5	417.9								33.4	
		DP	JS-B-049 (14-16) for PFAS, TOC, pH	18	38	CL-ML		Gray, CLAY, some silt, low to medium plasticity, soft, saturated. *(continued)*	40.2	
									92.5	
15.0	415.4		JS-B-049 (15-16) for VOCs						101.5	Well Screen (10-20 feet bgs) (1" SCH 40 PVC/ 0.01" slot)
								16.0		
									71.1	
17.5	412.9								44.7	
		DP		46	96	CL-ML		Gray, CLAY AND SILT, low plasticity, slight angled bedding planes visible during material removal from 19-20 feet bgs, soft, saturated to wet.	32.5	
									4.0	
20.0	410.4							20.0		End Cap
								NO RECOVERY, formation is very soft and not allowing material to be captured in liner.		

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
22.5	407.9	DP		0	0				NM	
25.0	405.4	DP		0	0			NO RECOVERY, formation is very soft and not allowing material to be captured in liner. *(continued)*	NM	
27.5	402.9									
								28.0		
30.0	400.4	DP		39	81	CL-ML		Gray To Dark Gray, CLAY AND SILT, soft to medium stiff, low plasticity, saturated.	28.6 0.6 0.4 0.2	
								32.0		
32.5	397.9							*Bottom of Boring @ 32.0 feet bgs*		

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B/TMW-050

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
DATE BORING COMPLETED: 4/24/2018
DATE WELL INSTALLED: 4/25/2018
LOGGED BY: H. Usle
CHECKED BY: J. Redden
DIAMETER: 3.25 inches

GROUND ELEVATION: 430.10 feet amsl
TOC ELEVATION: 429.87 feet amsl
NORTHING: 1484036.63
EASTING: 799409.36
TOTAL DEPTH: 40 feet bgs
DRILLING METHODS: Hand Auger/ Direct Push

SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel; Poorly-graded Gravelly Sand; Concrete; Poorly-graded Sand; Brick; Poorly-graded Sandy Gravel

NOTES: Soil samples collected as part of the Interim Remedial Measure. Datum is NAD 1983 StatePlane New York East in US Survey Feet.

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		HA		24	100	GP		0.3 Gray, GRAVEL, loose, dry.	0.0
						SP		Gray, FINE TO MEDIUM SAND, some gravel and trace silt, (0.5-1" diameter), loose, dry.	0.0
								2.0	
2.5	427.6	DP		16	67			Gray, (0.5" diameter), pulverzied CONCRETE and GRAVEL, dry. 2.5	0.0
						SP		Black, MEDIUM SAND, loose, dry. 3.0	
								Red, BRICK. 3.7	0.6
						SP		Brown, MEDIUM SAND, white fibrous-like flecks, trace black fragments (<0.25" diameter), loose, dry. 4.0	
5.0	425.1	DP		18	38	GP		Gray, GRAVEL, trace medium sand, (1-2" diameter), brick fragments, loose, dry. 6.5	0.8
7.5	422.6					SP		Brown, FINE TO MEDIUM SAND, some gravel and trace silt, (0.5" diameter), loose, wet. 8.0	0.5
						GP		Brown, FINE GRAVEL, some coarse sand, little silt, loose, saturated. 9.2	0.5
10.0	420.1					CL-ML		Gray, CLAY, some silt, trace fine sand from 9.2-10.2 feet bgs, silt layer from 23.25-23.5 feet bgs, low to medium plasticity, soft, saturated.	8.6

WELL DIAGRAM: Concrete Pad and 8" Boltdown Manhole Cover; Bentonite Seal; Filter Sand (#1)

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		24	50				26.0	
									18.0	
12.5	417.6								97.0	
		DP	JS-B-050 (13-14) for VOCs, PFAS, TOC, pH	48	100				211.6	
									186.5	Well Screen (9.5-19.5 feet bgs) (1" SCH 40 PVC/ 0.01" slot)
15.0	415.1								111.6	
						CL-ML		Gray, CLAY, some silt, trace fine sand from 9.2-10.2 feet bgs, silt layer from 23.25-23.5 feet bgs, low to medium plasticity, soft, saturated. *(continued)*	18.1	
17.5	412.6								21.7	
		DP		44	92				7.9	
									0.1	End Cap
20.0	410.1								45.6	

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		38	79	CL-ML		Gray, CLAY, some silt, trace fine sand from 9.2-10.2 feet bgs, silt layer from 23.25-23.5 feet bgs, low to medium plasticity, soft, saturated. *(continued)*	35.7	
22.5	407.6								9.0	
									5.4	
									25.7	
25.0	405.1									
								25.3		
						CL-ML		Dark Gray, SILT, some clay, soft to medium stiff, saturated.	4.7	
		DP		45	94			26.0		
									0.6	
27.5	402.6								0.5	
						CL-ML		Gray To Dark Gray, CLAY AND SILT, soft to medium stiff, low plasticity, saturated.	45.1	
									26.2	
30.0	400.1	DP		48	100				1.1	
									2.0	
								32.0		
32.5	397.6					CL-ML		Gray To Dark Gray, CLAY AND SILT, interbedded soft, saturated.	3.6	

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Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		48	100	CL-ML			1.1	
									1.1	
35.0	395.1								1.6	
								Gray To Dark Gray, CLAY AND SILT, interbedded soft, saturated. *(continued)*	12.2	
								37.0		
37.5	392.6								2.9	
		DP		48	100	ML		Dark Gray, SANDY SILT, sands very fine-grained, medium stiff, saturated.	0.9	
									2.9	
40.0	390.1							40.0		
								Bottom of Boring @ 40.0 feet bgs		
42.5	387.6									

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
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JS-B/TMW-053

Client: Arnold & Porter
Project Name: Hoosick Falls
Project Number: 0378075
Project Location: Hoosick Falls, New York

DRILLING CONTRACTOR: Parratt Wolff, Inc.
DATE BORING COMPLETED: 4/24/2018
DATE WELL INSTALLED: 4/26/2018
LOGGED BY: H. Usle
CHECKED BY: J. Redden
DIAMETER: 3.25 inches

GROUND ELEVATION: 429.80 feet amsl
TOC ELEVATION: 429.52 feet amsl
NORTHING: 1484052.02
EASTING: 799412.36
TOTAL DEPTH: 20 feet bgs
DRILLING METHODS: Hand Auger/ Direct Push

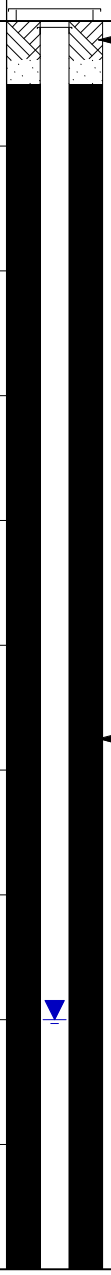
SAMPLE TYPE:
HA = Hand Auger
DP = Direct Push

GRAPHIC LOG LEGEND
Poorly-graded Gravel
Poorly-graded Gravelly Sand
Poorly-graded Sandy Gravel
Sandy Silt
Silty Clay

NOTES: Soil samples collected as part of the Interim Remedial Measure. Datum is NAD 1983 StatePlane New York East in US Survey Feet.

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
						GP		Gray, GRAVEL, subangular loose, dry.	0.0
0.5		HA		24	100	SP		Gray, MEDIUM TO COARSE SAND, some gravel and clay, subangular gravel (0.5-1" diameter), trace brick fragments from 1.5-1.75 feet bgs.	0.0
2.0									
2.5	427.3	DP		32	133	SP		Brown, FINE TO MEDIUM SAND, mixed with subangular gravel, quartz gravels (0.5-1" diameter), brick, coal, and glass fragments from 3-4 feet bgs, loose, dry.	0.0
4.0									0.1
5.0	424.8	DP		29	60	GP		Gray, GRAVEL, and subangular fine sand, (1" diameter) alternating layers of gray gravel and brown sand, medium dense, dry.	0.3
6.0									0.1
						ML		Light Brown, SANDY SILT, some subrounded gravel, (0.5" diameter), sands fine-grained, soft, wet.	0.1
7.0									
7.5	422.3					SP		Light Brown, MEDIUM TO COARSE SAND, some subrounded gravel, (0.5" diameter), coarsening downward, well sorted, loose, wet.	1.0
8.0									
						SP		Light Brown, GRAVELLY SAND, some silt, fine to medium-grained sand, gravels (0.25-0.5" diameter), loose, saturated.	0.3
9.0									
10.0	419.8							NO RECOVERY, possible gravel lodged in drilling shoe or top of soft clay.	

WELL DIAGRAM



ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

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JS-B/TMW-053

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SAMPLE NUMBER	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
		DP		7	15			NO RECOVERY, possible gravel lodged in drilling shoe or top of soft clay. *(continued)*	NM	Filter Sand (#1)
12.0										
12.5	417.3								65.7	
		DP	JS-B-053 (13-14) for VOCs, PFAS, TOC, pH	38	79	CL-ML		Gray, SILTY CLAY, soft, plastic, saturated.	123	Well Screen (11.5-16.5 feet bgs) (1" SCH 40 PVC/ 0.01" slot)
15.0	414.8								81.6	
									51.9	
16.0										
									1.0	End Cap
17.5	412.3								0.3	
		DP		48	100	CL-ML		Gray To Dark Gray, SILTY CLAY, higher silt content than remaining locations, soft to medium stiff, low plasticity, saturated.	0.0	
									0.0	
20.0	409.8									
								Bottom of Boring @ 20.0 feet bgs		

ACRONYM LEGEND: amsl = above mean sea level; bgs = below ground surface; NM = not measured; ppm = parts per million; PID = photoionization detector
PFAS = per- and polyfluoroalkyl substances; TOP = total oxidizable precursor; TOC = total organic carbon; VOCs = volatile organic compounds

ERM
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IRM-TW-001

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DATE BORING COMPLETED: 9/17/2019 **TOTAL DEPTH:** 15 feet bgs **GROUND ELEVATION:** 428.50 feet amsl

DATE WELL INSTALLED: 9/17/2019 **DIAMETER:** 6 inches **PVC ELEVATION:** 428.38 feet amsl

DRILLING CONTRACTOR: Cascade Drilling **LOGGED BY:** O. Botting/ J. Vause **NORTHING:** 1484100.389

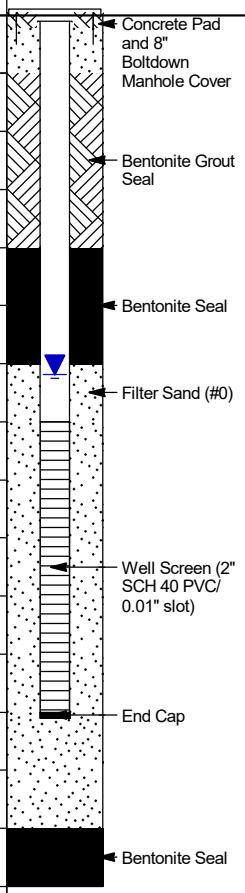
DRILLING METHODS: Pre-cleared/Sonic Coring **CHECKED BY:** E. Marcus/ H. Usle **EASTING:** 799433.55

DATUM/ SURVEY INFORMATION: North American Datum 1983 State Plane New York East in US Survey Feet.

NOTES:

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SOIL SAMPLE NUMBER(S)	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		PC	Soil Samples Not Collected for Laboratory Analysis			SP		Brown, MEDIUM TO COARSE SAND, some subrounded medium to coarse gravel, wood fragments, loose, dry.	0.0
		PC							0.0
		PC		60	100	SP		Brown, MEDIUM TO COARSE SAND, and subangular medium gravel, loose, dry.	0.0
		PC							0.0
		PC				SP		Brown, MEDIUM TO COARSE SAND, and subangular medium gravel, damp.	0.0
5	424							5.0	
						CL		Brown, CLAY, plastic.	0.6
								7.0	0.0
		SC		24	40	SP		Red Brown, FINE TO COARSE SAND, some subrounded coarse gravel, (0.5-1" diameter), some cobbles, loose, wet.	0.0
									0.7
10	419								0.5
									0.3
								12.0	0.8
		SC		54	90	CL		Brown, CLAY, plastic, wet.	0.1
									0.0
15	414							15.0	0.1
								Bottom of Boring @ 15.0 feet bgs	
20	409								

WELL DIAGRAM



SAMPLE TYPE:
- Pre Cleared
- Sonic Drilling

GRAPHIC LOG LEGEND:
- Poorly-graded Sand
- Poorly-graded Gravelly Sand
- Low Plasticity Clay

ACRONYM LEGEND:

amsl = above mean sea level; bgs = below ground surface;
NM = not measured; NR = no recovery;
ppm = parts per million; PID = photoionization detector;
PVC = polyvinyl chloride casing; 1,4-D = 1,4-dioxane;
PFAS = per- and polyfluoroalkyl substances;
TOC = total organic carbon; VOCs = volatile organic compounds;
USCS = Unified Soil Classification System.

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IRM-TW-002

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DATE BORING COMPLETED: 9/18/2019 **TOTAL DEPTH:** 15 feet bgs **GROUND ELEVATION:** 428.40 feet amsl

DATE WELL INSTALLED: 9/19/2019 **DIAMETER:** 6 inches **PVC ELEVATION:** 428.08 feet amsl

DRILLING CONTRACTOR: Cascade Drilling **LOGGED BY:** O. Botting/ H. Usle **NORTHING:** 1484107.5389

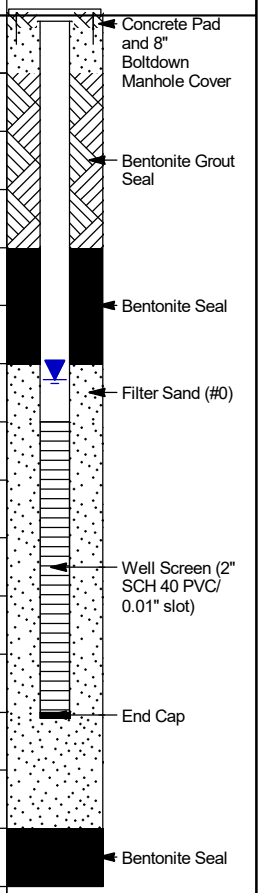
DRILLING METHODS: Pre-cleared/Sonic Coring **CHECKED BY:** E. Marcus/ H. Usle **EASTING:** 799414.903

DATUM/ SURVEY INFORMATION: North American Datum 1983 State Plane New York East in US Survey Feet.

NOTES:

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SOIL SAMPLE NUMBER(S)	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		PC	Soil Samples Not Collected for Laboratory Analysis			SP		Gray Brown, MEDIUM TO COARSE SAND, and subrounded medium to coarse gravel, some silt, loose, dry.	0.0
		PC							0.0
		PC		60	100	SP		Dark Brown, MEDIUM TO COARSE SAND, coal ash and fragments (1.5" diameter), loose, dry.	0.0
		PC							0.0
5	423	PC				SP		Dark Brown, MEDIUM TO COARSE SAND, some subangular gravel, (1-1.5" diameter), coal ash, loose, moist.	0.0
		SC		24	40	SP		Brown, FINE TO COARSE SAND, with subrounded medium to coarse gravel, (0.5-2" diameter), loose, moist.	4.6
									15.5
									9.8
									85.4
10	418								34.0
		SC		42	70	SP		Red Brown, COARSE SAND, some subrounded fine to coarse gravel, trace clay, few cobbles, medium dense, moist.	36.5
									44.1
									19.3
						CL		Light Gray, CLAY, very plastic, wet.	12.7
15	413								44.0
								Bottom of Boring @ 15.0 feet bgs	
20	408								

2.0 4.0 5.0 10.0 13.0 15.0



SAMPLE TYPE:
- PC Pre Cleared
- Sonic Drilling

GRAPHIC LOG LEGEND:
- Poorly-graded Gravelly Sand
- Poorly-graded Sand
- Low Plasticity Clay

ACRONYM LEGEND:
amsl = above mean sea level; bgs = below ground surface;
NM = not measured; NR = no recovery;
ppm = parts per million; PID = photoionization detector;
PVC = polyvinyl chloride casing; 1,4-D = 1,4-dioxane;
PFAS = per- and polyfluoroalkyl substances;
TOC = total organic carbon; VOCs = volatile organic compounds;
USCS = Unified Soil Classification System.

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IRM-TW-003

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DATE BORING COMPLETED: 9/18/2019 **TOTAL DEPTH:** 20 feet bgs **GROUND ELEVATION:** 428.19 feet amsl

DATE WELL INSTALLED: 9/18/2019 **DIAMETER:** 6 inches **PVC ELEVATION:** 427.22 feet amsl

DRILLING CONTRACTOR: Cascade Drilling **LOGGED BY:** O. Botting/ H. Usle **NORTHING:** 1484136.0804

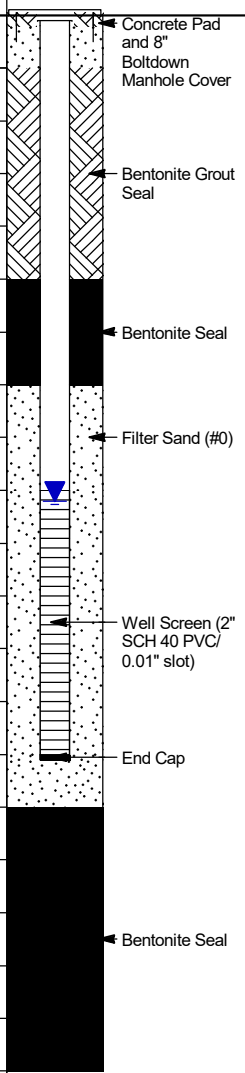
DRILLING METHODS: Pre-cleared/Sonic Coring **CHECKED BY:** E. Marcus/ H. Usle **EASTING:** 799450.7232

DATUM/ SURVEY INFORMATION: North American Datum 1983 State Plane New York East in US Survey Feet.

NOTES:

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SOIL SAMPLE NUMBER(S)	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		PC	Soil Samples Not Collected for Laboratory Analysis			SP		Gray, COARSE SAND, some gravel and silt, angular (1" diameter), loose, dry.	0.0
		PC							0.0
		PC		60	100	SP		2.0 Red Brown, MEDIUM TO COARSE SAND, some subangular gravel, trace silt, loose, damp.	0.0
		PC				SP		3.0 Red, MEDIUM TO COARSE SAND, some subrounded gravel, coal ash, coal fragments (1.5" diameter), brick fragments, loose, damp.	0.0
		PC				SP		4.0 Brown, SILTY FINE SAND, and subrounded fine gravel, coal ash and brick fragments, soft, moist.	0.0
5	423							5.0	
						GP		Gray, FINE TO COARSE GRAVEL, some fine sand, silt matrix, trace bricks, medium dense, wet.	4.0
									3.8
		SC		22	37			7.0	
						SP		Brown, FINE SAND, little medium gravel, silt lenses, dense, moist.	0.8
									2.6
10	418							10.0	1.2
		SC		38	63	SP		Red Brown, FINE SAND, trace fine gravel, mottled, medium dense, moist.	0.8
									19.1
									7.8
									4.5
15	413							15.0	3.7
						GP		15.5 FINE TO COARSE GRAVEL, some clay, subrounded, medium dense, wet.	2.6
		SC		60	100	CL		Gray, CLAY, high plasticity, saturated.	1.8
									1.4
									1.2
20	408							20.0	0.5
								Bottom of Boring @ 20.0 feet bgs	

WELL DIAGRAM



SAMPLE TYPE:
- PC: Pre Cleared
- Sonic Drilling

GRAPHIC LOG LEGEND:
- Poorly-graded Sand
- Poorly-graded Gravelly Sand
- Poorly-graded Gravel
- Low Plasticity Clay

ACRONYM LEGEND:
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IRM-TW-004

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DATE BORING COMPLETED: 9/18/2019 **TOTAL DEPTH:** 25 feet bgs **GROUND ELEVATION:** 427.87 feet amsl

DATE WELL INSTALLED: 9/18/2019 **DIAMETER:** 6 inches **PVC ELEVATION:** 427.16 feet amsl

DRILLING CONTRACTOR: Cascade Drilling **LOGGED BY:** O. Botting/ H. Usle **NORTHING:** 1484141.2233

DRILLING METHODS: Pre-cleared/Sonic Coring **CHECKED BY:** E. Marcus/ H. Usle **EASTING:** 799432.9821

DATUM/ SURVEY INFORMATION: North American Datum 1983 State Plane New York East in US Survey Feet.

NOTES:

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SOIL SAMPLE NUMBER(S)	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		PC	Soil Samples Not Collected for Laboratory Analysis			SP		Gray, MEDIUM TO COARSE SAND, some subangular silt and gravel, few organics, loose, dry.	0.0
		PC				SP		1.0 Brown, COARSE SAND, some subrounded medium gravel, brick and wood fragments, loose, damp.	0.0
		PC		60	100	SP		2.0 Light Brown, MEDIUM TO COARSE SAND, and subrounded fine to medium gravel, brick and wood fragments, loose, damp.	0.1
		PC				SP		3.0 Light Brown, MEDIUM TO COARSE SAND, and subrounded fine gravel, brick, wood, and glass fragments, loose, damp.	0.0
		PC				SP		4.0 Light Brown, MEDIUM TO COARSE SAND, and subrounded fine to medium gravel, loose, damp.	0.0
5	423							5.0	
		SC		18	30	GP		Dark Brown, COARSE GRAVEL, angular (0.5-1.5" diameter), trace silt, purple and black staining, loose, moist to wet.	0.0 / 3.1 / 1.9 / 2.3 / 3.9
10	418							10.0	
		SC		32	53	SP		Dark Gray, FINE TO MEDIUM SAND, some fine gravel, trace silt, medium dense, moist.	3.4 / 11.2
						SP		12.0 Gray Brown, COARSE SAND, some angular fine to coarse gravel, iron staining, dense, moist.	23.8 / 4.8 / 3.5
15	413							15.0	
		SC		30	50	SP		Brown, FINE TO COARSE SAND, some subangular and subrounded fine to coarse gravel, trace silt, trace cobbles, loose, moist.	2.9 / 3.0 / 1.8
						SP		18.0 Brown, COARSE SAND, and angular fine gravel, trace silt, loose, moist.	5.1 / 6.4
20	408							20.0	

WELL DIAGRAM: Concrete Pad and 8" Boltdown Manhole Cover; Bentonite Grout Seal; Bentonite Seal; Filter Sand (#0); Well Screen (2" SCH 40 PVC/ 0.01" slot); End Cap

SAMPLE TYPE:
- PC: Pre Cleared
- Sonic Drilling

GRAPHIC LOG LEGEND:
- Poorly-graded Sand
- Poorly-graded Gravelly Sand
- Poorly-graded Gravel
- Low Plasticity Clay

ACRONYM LEGEND:
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USCS = Unified Soil Classification System.

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IRM-TW-004

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SOIL SAMPLE NUMBER(S)	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)	WELL DIAGRAM
25	403	SC		48	80	CL		Brown To Gray, CLAY, silt seam at 24.8 feet bgs, very plastic, wet. *(continued)*	24.3 58.5 21.7 29.7 23.9	Bentonite Seal
								25.0 *Bottom of Boring @ 25.0 feet bgs*		
30	398									
35	393									
40	388									

SAMPLE TYPE:
- Pre Cleared
- Sonic Drilling

GRAPHIC LOG LEGEND:
- Poorly-graded Sand
- Poorly-graded Gravelly Sand
- Poorly-graded Gravel
- Low Plasticity Clay

ACRONYM LEGEND:
amsl = above mean sea level; bgs = below ground surface;
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IRM-TW-005

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DATE BORING COMPLETED: 9/23/2019 **TOTAL DEPTH:** 15 feet bgs **GROUND ELEVATION:** 429.00 feet amsl

DATE WELL INSTALLED: 9/23/2019 **DIAMETER:** 6 inches **PVC ELEVATION:** 428.40 feet amsl

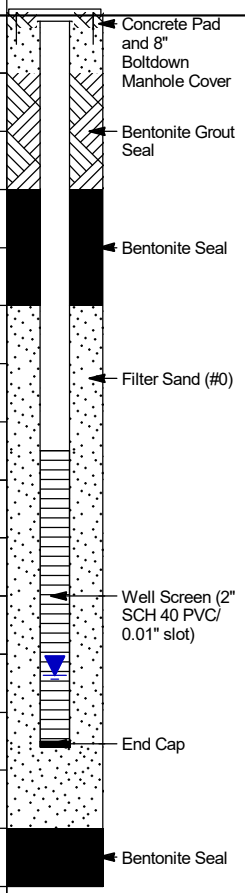
DRILLING CONTRACTOR: Cascade Drilling **LOGGED BY:** C. Payne **NORTHING:** 1484150.69

DRILLING METHODS: Pre-cleared/Sonic Coring **CHECKED BY:** E. Marcus/ H. Usle **EASTING:** 799461.224

DATUM/ SURVEY INFORMATION: North American Datum 1983 State Plane New York East in US Survey Feet.

NOTES:

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SOIL SAMPLE NUMBER(S)	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		PC	Soil Samples Not Collected for Laboratory Analysis			SP		Dark Brown, MEDIUM TO COARSE SAND, some subrounded medium gravel, trace silt, brick fragments, loose, dry. 1.0	0.0
		PC				SP		Dark Brown, MEDIUM TO COARSE SAND, some subrounded medium to coarse gravel, brick fragments, coal ash, and organics, loose, dry.	0.5
		PC				SP		3.0	0.2
		PC				SP		Medium Brown, COARSE SAND, some subrounded fine to coarse gravel, trace organics, loose, damp. 4.0	0.0
5	424	PC		96	100	SP		Medium Brown, COARSE SAND, some subrounded fine to coarse gravel, brick fragments and coal ash, loose, damp. 5.0	0.0
		PC				SP		Medium Brown, MEDIUM TO COARSE SAND, some subrounded medium gravel, and silt, coal ash, very soft, damp. 6.0	1.1
		PC				SP		Medium Brown, MEDIUM TO COARSE SAND, some silt, few fine subrounded gravel, trace coal ash, very soft, damp.	0.0
		PC				SP		8.0	0.0
10	419	SC		24	100	GP		Medium Brown, FINE TO MEDIUM GRAVEL, with fine to medium sand, subangular and subrounded, minor sand laminations, lithic sand and gravel, poorly sorted, loose, wet. 10.2	0.0
									0.0
						ML		Dark Bluish Gray, SANDY SILT, thin laminations, well sorted, cohesive, saturated, orange to gray mottling. 11.5	0.0
		SC		60	100	GP		Orange Brown To Light Brown, FINE TO MEDIUM GRAVEL, with silty sand, trace clay, trace oxide stringers, poorly sorted, soft, cohesive, saturated, orange to gray mottling. 12.5	0.0
						CL-ML		Light Brown, SILTY CLAY, redox mottling, laminated, well sorted, high plasticity & low stiffness, saturated. 13.5	0.0
15	414					CL-ML		Medium Gray, SILTY CLAY, well sorted, high plasticity & low stiffness, saturated. 15.0	0.0
								Bottom of Boring @ 15.0 feet bgs	
20	409								



SAMPLE TYPE:
- Pre Cleared
- Sonic Drilling

GRAPHIC LOG LEGEND:
- Poorly-graded Sand
- Poorly-graded Sandy Gravel
- Sandy Silt
- Silty Clay

ACRONYM LEGEND:
amsl = above mean sea level; bgs = below ground surface;
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PVC = polyvinyl chloride casing; 1,4-D = 1,4-dioxane;
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USCS = Unified Soil Classification System.

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IRM-TW-006

Client: Arnold & Porter **Project Name:** Hoosick Falls

Project Number: 0378075 **Project Location:** Hoosick Falls, New York

DATE BORING COMPLETED: 9/23/2019 **TOTAL DEPTH:** 20 feet bgs **GROUND ELEVATION:** 427.90 feet amsl

DATE WELL INSTALLED: 9/23/2019 **DIAMETER:** 6 inches **PVC ELEVATION:** 427.00 feet amsl

DRILLING CONTRACTOR: Cascade Drilling **LOGGED BY:** C. Payne **NORTHING:** 1484160.368

DRILLING METHODS: Pre-cleared/Sonic Coring **CHECKED BY:** E. Marcus/ H. Usle **EASTING:** 799429.02

DATUM/ SURVEY INFORMATION: North American Datum 1983 State Plane New York East in US Survey Feet.

NOTES:

DEPTH (feet)	ELEVATION (feet amsl)	SAMPLE TYPE	SOIL SAMPLE NUMBER(S)	RECOVERY (inches)	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
		PC	Soil Samples Not Collected for Laboratory Analysis			SP		Light Brown, MEDIUM SAND, some subrounded fine to coarse gravel, few brick fragments and organics, loose, dry.	0.0
		PC							0.9
		PC				SP		Light Brown, MEDIUM SAND, some subrounded fine to medium gravel, multiple concrete fragments (18" diameter), loose, dry.	2.1
		PC							0.0
		PC		96	100	SP		Dark Brown, MEDIUM TO COARSE SAND, some subrounded fine to medium gravel, few organics, loose, damp.	0.1
5	423	PC				SP		Dark Brown, MEDIUM SAND, some silt with gravel, subrounded, few organics, soft, damp.	0.0
		PC				SP		Medium Brown, COARSE SAND, and subrounded fine to medium gravel, wood fragments, soft, moist.	2.8
		PC							1.7
		SC		24	100	SP		Medium Brown, MEDIUM TO COARSE SAND, with fine gravel, lithic gravel in subangular sand, silty clay matrix, poorly sorted, weakly plastic, wet.	51.6
10	418								401
		SC		20	33				200
									90.5
								NO RECOVERY.	NR
15	413								
		SC		46	77	CL-ML		Brown To Gray, SILTY CLAY, mottling on upper clay surface, well sorted, medium plasticity, saturated, orange brown mottling.	38.9
						CL-ML		Gray, SILTY CLAY, laminated, well sorted, medium plasticity, saturated.	35.1
									6.8
						CL-ML		Gray, CLAYEY SILT, trace fine sand, thinly laminated silt and sand, moderately sorted, weakly plastic, saturated.	64.2
20	408								114.2
								Bottom of Boring @ 20.0 feet bgs	

WELL DIAGRAM: Concrete Pad and 8" Boltdown Manhole Cover; Bentonite Grout Seal; Bentonite Seal; Filter Sand (#0); Well Screen (2" SCH 40 PVC/ 0.01" slot); End Cap; Bentonite Seal

SAMPLE TYPE:
- Pre Cleared
- Sonic Drilling

GRAPHIC LOG LEGEND:
- Poorly-graded Sand
- Poorly-graded Gravelly Sand
- Silty Clay

ACRONYM LEGEND:
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