OFF-SITE REMEDIAL INVESTIGATION REPORT

FORMER TRW UNION SPRINGS FACILITY - OFF-SITE

(NYSDEC Site Number C706019A)

NYSDEC STANDBY ENGINEERING CONTRACT

Work Assignment #D007625-41

PREPARED FOR

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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February 2020

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ACRONYMS AND ABBREVIATIONS

AOC	Area of Concern
AST	Aboveground Storage Tank
BTEX	benzene, toluene, ethylbenzene, xylene
COC	Contaminants of concern
DCE	Dichloroethene
DUSR	Data Usability Summary Report
DVS	Data Validation Services, Inc.
FS	Feasibility Study
GES	Groundwater & Environmental Services
GWQS	Groundwater quality standards
HASP	Health and safety plan
HTRW	Hazardous, toxic and radioactive waste
IRM	Interim remedial measures
ISCO	In-situ chemical oxidation
MIP	Membrane interface probe
MNA	Monitored natural attenuation
MTBE	Methyl-tert butyl ether
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
OU	Operable Unit
PAH	Polycyclic aromatic hydrocarbons
PCB	Polychlorinated biphenyls
PCE	Tetrachloroethylene
PCN	Polychlorinated napthalenes

PFC	Perfluorinated compound
PID	Photoionization detector
PPB	Parts per billion
PPE	Personal protective equipment
PPM	Parts per million
RI	Remedial Investigation
SCG	Standard, Criteria, and Guidance
SCO	Soil Cleanup Objective
SPDES	Stormwater Pollutant Discharge Elimination System
SVOC	Semi-volatile organic compounds
TCE	Trichloroethylene
USACE	U.S. Army Corps of Engineers
USGS	United States Geological Survey
UST	Underground storage tank
VCP	Voluntary Cleanup Program
VOC	Volatile organic compounds

1.0 INTRODUCTION

This Off-Site Remedial Investigation (RI) Report for the Former TRW - Union Springs Facility Off-Site was prepared by Henningson, Durham & Richardson, Architecture and Engineering PC (HDR) as part of New York State Department of Environmental Conservation (NYSDEC) Contract D007625, Work Assignment #41. HDR submitted the draft report in February and March 2020. The NYSDEC subsequently completed corrections and revisions. The revisions by the NYSDEC are shown as blue text; additions as normal blue text, deletions as blue text with strikethrough.

A remedial program for the on-site area is being conducted by a Volunteer in the Brownfield Cleanup Program. Based on the findings of the on-site investigation, NYSDEC, in consultation with NYSDOH, determined that the site poses a significant threat to public health and/or the environment. The NYSDEC was unsuccessful in its attempts to compel potentially responsible parties to conduct the off-site remedial program. As such, the remedial program for the off-site areas was conducted by the NYSDEC, through its consultant and contractors.

This Off-Site RI Report has been developed to briefly summarize the historical environmental data that exists for the site and the potential for contaminants associated with the site to have migrated or been disposed of in areas adjacent to or formerly associated with the site (but not currently associated due to subsequent property transactions). The primary goal of the investigation then being the characterization and delineation of contamination in various media in several off-site parcels designated as separate Operable Units (OU1 through OU4, described in detail below).

1.1 Background

1.1.1 Site Description

The off-site areas of the Former TRW Union Springs facility consist of an assemblage of non-continuous parcels of various usage located directly adjacent to or in the vicinity of site C706019, an approximately 11.83 acre parcel located at 13 Salem Street in the Village of Union Springs, Town of Springport, Cayuga County (Figure 1). The site buildings remain intact and currently house businesses that utilize portions of the structure(s) as warehouses, distribution facilities, and for light assembly purposes.

Six areas of concern (AOCs) are included in the off-site investigation and are considered off-site from Brownfield Cleanup Program (BCP) site C706019, former TRW Union Springs Facility (the site). A separate RI has been conducted for site C706019 directly addressing the nature and extent of the contamination at the Former TRW Union Springs Facility. Brief summaries of notable environmental investigation and remediation efforts conducted to date at the site property are outlined in Section 2.0. To facilitate the off-site investigation, the off-site AOCs identified during previous investigations were used to define four Operable Units (OUs); three OUs correspond with single AOCs, while the remaining OU includes three separate parcels located in various areas adjacent to the site parcel. Figure 2 illustrates the geographic layout of the off-site OUs relative to the site property as well as the general geography of the Union Springs / Cayuga Lake area in the general vicinity of the site and off-site areas.

Using site C706019 as the central parcel relative to which the off-site OUs are referenced, the general geographic setting and features of note for the area consist of:

- Mill Pond Parcel (OU1) - a spring-fed pond, formed by a manmade earthen embankment along the west end of the pond (the embankment itself considered part of site C706019). The pond discharges to an unnamed stream (and associated ~~upstream~~ downstream beaver pond) via a culvert near the northwest corner of the pond. The beaver pond - unnamed stream complex in turn discharges to the former canal and ultimately to Cayuga Lake, approximately 500 feet west of site C706019. The unnamed stream and the former canal are Class C waterbodies and the adjacent portion of Cayuga Lake is a Class A water body. The parcel in which the mill pond is located was owned by past owners and operators of the site.

- Southeastern Parcel (OU 2) – This parcel is located east of the site, on the southeast corner of the intersection of Salem and Green Streets. It is a vacant parcel measuring approximately 0.37 acres. It was owned by past owners and operators of the site and is owned by the current owner of the site. ~~Frontenac Park (OU2) – a large town park located southwest of the site parcel; most relevant to the off-site investigation are the playground and surrounding lawn areas in closest proximity to the site, but the park also contains a seasonal swimming area with beach on Cayuga Lake, picnic pavilion and, more directly to the south of the site, a large parking area and lake access boat ramp.~~

- The village of Union Springs wastewater treatment plant (WWTP) Parcel (OU3), located on an adjacent parcel previously associated with the Former TRW facility property, occupies a large area west of the site (between the site and Cayuga Lake); the former canal and portions of Frontenac Park form the other primary borders of the WWTP parcel, a portion of a surface waterbody referred to as the former canal, with Cayuga Lake beyond, and a public park.

- Other Off-site Areas (OU 4) – This includes Frontenac Park which is a large town park located southwest of the site parcel; most relevant to the off-site investigation are the playground and surrounding lawn areas in closest proximity to the site, but the park also contains a seasonal swimming area with beach on Cayuga Lake, picnic pavilion and, more directly to the south of the site, a large parking area and lake access boat ramp. Various other residential and vacant parcels abut ~~about~~ the site parcel and in some cases are components of the off-site investigation areas, particularly to the north and east of the site property ~~(OU4)~~.

1.1.2 Primary Contaminants

Based on findings from the on-site investigations conducted at the site, the primary contaminants of concern for site C706019 – Former TRW Union Springs Facility, were identified as trichloroethene (TCE) and its degradation products, the relatively uncommon class of compounds known as polychlorinated naphthalenes (PCNs), 2-chloronaphthalene, naphthalene, pesticides, polycyclic aromatic hydrocarbons (PAHs), and metals (particularly lead and copper).

Initial documentation provided by NYSDEC to HDR list the following compounds as being disposed of at the site:

Materials Disposed at site	Quantity Disposed
cis-1,2-dichloroethene	UNKNOWN
trans-1,2-dichloroethene	UNKNOWN
trichloroethene (TCE)	UNKNOWN
vinyl chloride	UNKNOWN

In addition to the contaminants described above, two emerging contaminants, perfluorinated compounds (PFCs) and 1,4-dioxane, were included as part of the sampling programs for the off-site RI. These contaminants were not identifed as being specifically associated with historical site activities but were included as part of NYSDEC directive to assess the presence of emerging contaminants at sites with on-going investigations.

1.1.3 Previous Environmental Work

Since the 1980s, a series of environmental investigations and remedial actions have occurred at the site. These investigations primarily focused on the site structures and near field area in the vicinity of Mill Pond, the berm / dam area, and the open areas between and adjacent to the site structures and the old canal (both the remnant open section and the backfilled section that formerly linked the Mill Pond area and Cayuga Lake). Limited investigation also occurred at the periphery of the current site property since site-related records indicate some adjacent parcels were confirmed or suspected of historically being associated with site activities.

During the course of the off-site investigation field work and the preparation of this Off-Site RI Report, on-going remediation activities have been occurring for the on-site portion of the project. A groundwater ~~Groundwater~~ extraction and treatment system ~~for the on-site portion of the residual contamination associated with site activities~~ is ~~continuing~~ being operated to prevent surface discharge of contaminated groundwater in a limited area ~~for the areas~~ north of the current site structures, in the vicinity of the backfilled section of the old canal. Most recently, during 2019, implementation of ~~a~~ two pilot tests were initiated; one for phytoremediation in the far northern portion of the on-site parcel ~~was initiated~~, and one for enhanced in-situ bioremediation near the dam/berm area.

Despite the continuing remediation activities for the on-site portion of the project, contamination associated with former facility operations persists at the site and the potential for contamination beyond the boundaries of the facility remained a concern that required a separate off-site investigation to fully evaluate for various off-site areas of concern. Section 2.0 outlines a brief summary of site related investigation and remediation efforts that have contributed to the implementation of the separate off-site investigation described in this report.

1.2 Off-Site Remedial Investigation Objectives

The Off-Site RI was developed to focus on conditions within four operable units identified by NYSDEC. The general objective of the investigation was to further define the nature and extent of soil (surficial and deeper subsurface), sediment, groundwater, and surface water contamination in each of the off-site OUs, as applicable.

Specific components of the Off-Site RI objectives included:

- Conduct data and information reviews (including file reviews, site visits);
- Provide descriptions of on-site sampling events and interpretations of resulting data (including historic investigations and data) which may be used to further assess or delineate contamination;
- Identify needs for supplemental site investigation activities; and
- Assess potential interim remedial measures (IRMs) and full scale remedial activities that can be considered for specific areas of the site.

1.3 Report Organization

This Off-Site RI report provides a summary of historical site investigation findings as they pertain to potential off-site impacts and the Off-Site RI activities that have been conducted ~~at the site~~.

This Off-Site RI Report is organized as follows:

- Section 1 includes an introduction to the report, site background and previous environmental work, and Off-Site RI objectives
- Section 2 summarizes previous investigations at the site and remedial actions
- Section 3 discusses the Phase I RI field program implemented during 2018 and 2019
- Section 4 describes the physical characteristics (surface hydrology, geology, hydrogeology, and surrounding land use) of the off-site investigation area
- Section 5 summarizes the Fish and Wildlife Resource Assessment (FWRIA) for the off-site investigation area
- Section 6 includes a discussion of the Off-Site RI sampling results and applicable criteria for interpreting the data
- Section 7 presents conclusions and recommendations based on interpretation of the off-site investigation results

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

Historical site information was received from NYSDEC and reviewed by HDR for the Off-Site RI. The following information and documents were considered particularly representative to summarize previous environmental investigation and remediation work at the site:

- Historical facility maps
- *NYSDEC provided set of site maps showing designated OUs and proposed sample locations categorized by sample media – provided prior to 2018 field mobilization.*
- *TRW Inc. Environmental Investigation – Union Springs Facility – Union Springs, New York* (ERM-Northeast, Inc. – December 1997)
- *Comprehensive Report: Site Characterization and Remedial Investigation, Former TRW Union Springs Facility – Union Springs, New York* (Environmental Resources Management – July 2015)
- *Draft Remedial Investigation and Alternatives Analysis Report, Former TRW Union Springs Facility – Village of Union Springs, Cayuga County, New York NYSDEC BCP Site Number C706019* (Environmental Resources Management – April 2018)
- NYSDEC Division of Environmental Remediation, Bureau of Program Management. Work Assignment 41 – Off-Site RI Issuance / Notice to Proceed. December 2017.

2.1 Historical On-Site Investigation Activities

Various investigations conducted over the course of approximately 20 years have occurred on the site parcel and select areas immediately adjacent. The results of these investigations led to the designation of several on-site AOCs that could be considered potential source areas for off-site receptor areas or could provide some indication of potential contaminants of concern for consideration when conducting an off-site investigation.

The Berm AOC ~~(OU1)~~ was the earliest discovered area of environmental impact at the site. It is located on the northern portion of the eastern berm on the west side of Mill Pond.

The North Field AOC ~~(OU4)~~ is located within the open field to the North of Howland Street and to the south of the northern property line. In response to documentation of alleged historical dumping of solvents in this area, this AOC has been included in several phases of investigation of the site parcel and remedial activities (see chronology of site investigations outlined below).

The on-site South Field AOC is located in the field west of the Berm AOC and was initially designated to assist with delineation of CVOC impacts identified in the Berm AOC. The South Field AOC was of specific interest due to findings of higher relative permeability in shallow soils compared to the North Field and Berm AOCs. Due to this difference, this AOC had been identified as a route of preferential groundwater flow and contaminant migration. Given the site history, location, and associated hydrogeologic parameters, the South Field AOC has been considered a source area for CVOCs and a potential contributor to off-site migration of contaminants.

The Canal AOC was designated as the area located north of the former on-site mill building and adjacent to the South Field AOC. This AOC was identified as being hydrogeologically similar to the South Field AOC due to a similar prevalence of fill material used to backfill this section of the former canal. As is the case for the South Field AOC, this zone of enhanced relative permeability provides a preferential groundwater migration route that was identified as a mechanism to contribute to potential impacts to off-site areas. Despite the similarities between the Canal and South Field AOCs they were ultimately designated as separate AOCs due to significant differences in the overall amount of fill material detected in each (much larger fill volume in the Canal AOC vs. the South Field).

A review of documents provided by NYSDEC in support of the off-site investigation indicate that environmental investigation and remedial activities at the site parcel were originally initiated as early as the late-1980s. Several early investigations were focused on generally defining the nature and extent of contamination in various media at the site. As various on-site AOCs were identified, subsequent investigations became more focused on detailed assessments of particular media, AOCs, and contaminants of concern, with the goal of informing evaluations of specific remedial alternatives. An approximately chronologic compilation of these activities includes:

- In May 1988 a documented 15 gallon on-site TCE spill was reported as NYSDEC Spill Number 88-01317. A rapid spill response was initiated and NYSDEC considered the response adequate to confine the impacts to the immediate vicinity of the spill.

- The earliest investigations (late-1980s through mid-1990s) indicated that on-site soils had been contaminated by hydrocarbons (petroleum) and chlorinated solvents. The earliest documented significant activities were the 1989 excavation of on-site USTs and observations of associated soil contamination. According to an 11 January 1989 NYSDEC spill report (NYSDEC Spill Number ~~89~~ 88-08131), the Division of Solid and Hazardous Waste investigated alleged TCE disposal by ~~GPC~~ Wickes Manufacturing in the northern portion of the site that had occurred 20 years prior to the initial investigation. Following this initial investigation, a subsequent investigation was completed in 1992 by O'Brien & Gere on behalf of TRW which led to submittal of a RAP and subsequent remedial activities the following year.

- Subsequent to these initial activities, ~~remnant areas of~~ soil contamination (CVOCs) ~~were~~ was detected in the lower eastern berm area of Mill Pond by ERM during a 1997 follow-up investigation. Two additional phases of investigation for this area were also conducted by ERM during 2000 and 2002 to further delineate CVOCs in the soil and to expand the assessment to include evaluation of potential groundwater impacts in the area.

- ~~During 1998 a documented 15 gallon on-site TCE spill was reported as NYSDEC Spill Number 88-01317. A rapid spill response was initiated and NYSDEC considered the response adequate to confine the impacts to the immediate vicinity of the spill.~~

- During 2000 an additional investigation of the lower portion of the eastern berm (subsequently referred to as the Berm Shoulder Area) was conducted to further delineate the occurrence of VOCs detected in soils analyzed from this area.

- The bulk of additional on-site investigations were completed, during the recent past (2011-2015). These site characterization activities were conducted to further refine the delineation of site contaminants, better understand the geologic and hyrdrogeologic controls on observed contaminant distribution, and identify potential migration pathways relative to confirmed source areas. The earliest phases of these investigations focused on further areal delineation and more comprehensive vertical delineation of site contaminants via membrane interface probe (MIP) probing and collection of additional soil samples from the identified on-site AOCs. The next phases of the investigation (2012-2013) included the installation of additional monitoring wells within the site AOCs and employing various hydrogeologic characterization techniques to further refine the understanding of the hydrogeologic setting of the site. Soil sampling was conducted specifically to assess PCNs as a site related contaminant of concern was also initiated during this timeframe. This work was then followed by a more comprehensive soil boring program and excavation of test pits to further assess the presence of PCNs in the subsurface soils as wells as to conduct a geotechnical evaluation of the Mill Pond eastern berm. In addition to the intrusive soil and groundwater assessments, an initial survey of vapor intrusion was conducted at the site to evaluate potential impacts to the building located north of the main facility. Later characterization work (2014-2015) conducted during this phase of investigations included an expansion of investigated media to include surface water and sediment in adjacent water bodies, expansion of the groundwater investigation into the North Field AOC to evaluate potential for off-site impacts, and an overall characterization of hydrologic connections between the groundwater and surface water systems at the site.

- After the on-site area was entered into the Brownfield Cleanup Program (BCP), additional investigation activities were conducted (2016-present) to satisfy the requirements of the BCP, collect data to evaluate potential remedies, and fill data gaps. The BCP remedial investigation expanded on the recent investigations described above to cover all areas of the BCP site; collect surface and shallow soil samples; include additional potential contaminants of concern not previously investigated, including pesticides and per- and polyfluoroalkyl substances (PFAS); and collect additional rounds of sampling to evaluate the potential for soil vapor intrusion.

2.2 Site Remediation Activities

Various phases of on-site remediation have been conducted at the site with the objectives of removing / reducing the mass of ~~residual~~ contamination in the various on-site media and limiting the potential for off-site migration to parcels included as part of the off-site investigation. Based on the spills and environmental investigations described above, it was concluded that petroleum hydrocarbons, PCNs, pesticides, metals and CVOC contamination on-site had impacted the soil, groundwater, soil vapor, sediments and surface water at the site to such a degree as to warrant further action. These included soil excavation and disposal / treatment, groundwater extraction and treatment, a dual phase extraction pilot test and *in-situ* chemical oxidation programs., specific historical remediation activities and milestones of note include:

- The earliest documented remedial activity involved the excavation of two large underground storage tanks (USTs). Site records for this event do not contain many details, however one of the USTs leaked and an unknown volume of contaminated soil was ultimately removed from the site for off-site disposal.

- The ~ 15 gallon TCE spill (NYSDEC Spill No. 88-01317) reported in May 1988 was remediated by excavating a 100 square foot area to a depth of approximately 6-inches. Confirmatory samples were collected following soil removal and a total of six drums of contaminated soil were transported for off-site disposal. NYSDEC verified the spill response was adequate and that any additional required remediation activities would be coordinated by the Division of Remediation.

- During 1993, OB&G further identified areas of petroleum hydrocarbon and VOC impacted soils on the site and conducted a site-wide targeted soil excavation program based on a RAP submitted to NYSDEC. Ultimately, six remedial excavations were conducted in the area west of the Mill Pond berm. Approximately half of the total ~4,500 cubic yards excavated were disposed of off-site and the other half were treated on-site via mechanical volatilization and used to backfill the excavated areas.

- ~~The ~ 15 gallon TCE spill (NYSDEC Spill No. 88-01317) reported during 1998 was remediated by excavating a 100 square foot area to a depth of approximately 6-inches. Confirmatory samples were collected following soil removal and a total of six drums of contaminated soil were transported for off-site disposal. NYSDEC verified the spill response was adequate and that any additional required remediation activities would be coordinated by the Division of Remediation.~~

- During 2002 additional investigation of the Berm Shoulder Area was conducted by ERM and three additional recovery wells were installed to supplement the earlier groundwater extraction system in use in response to the series of early investigations at the site. Subsequently ERM conducted a dual-phase extraction pilot test to address the lower portion of the eastern berm. Although the system achieved VOC vapor and liquid mass removal, low soil permeability impeded the efficiency and iron fouling of treatment system components further limited progress, with several recovery wells exhibiting VOC concentrations rebounding to near pre-test levels. The testing provided valuable data for the next iteration of remediation and was decommissioned during 2003-2004.

- Additional remediation activities were conducted during 2004 with the installation of a new groundwater extraction and treatment system replacing the older dual-phase system.

After on-site treatment, the new system discharged treated water to the nearby village WWTP. In addition, issues with groundwater discharge into the site's storm water management system west of the eastern berm were addressed by installation of a 25 foot long interceptor trench and sub-surface collection system. The collection system also served to replace a portion of the groundwater recovery wells on the site. In association with this work, ERM conducted a dye-tracer test to estimate groundwater flow rates and paths in the eastern berm area. The test confirmed that flow rates in the area are slow due poorly permeable soils and that groundwater in the Berm Shoulder Area was flowing toward the interceptor trench as designed.

- The period 2005 – 2007 yielded the other primary phase of on-site remediation with the implementation of *in-situ* remediation methods at the site. A 2005 test yielded temporary reductions in site CVOC concentrations via injection of sodium permanganate in two shallow infiltration trenches and the test results were used to design a subsequent ISCO test in 2007. Results from both ISCO injection programs were similar, yielding significant but temporary reductions in on-site CVOC concentrations. Ultimately these remediation efforts indicated that investigation and delineation of subsurface contamination was required.

2.3 Prior Off-Site Investigation and Designation of Off-Site OUs

Based on the site history outlined above and the documented history of several parcels neighboring the site, a number of potentially contaminated off-site areas of concern (AOCs), some suspected of historically being associated with the site in some capacity, were identified as part of the overall investigation area designated for the Off-Site RI. Given the specifics of the various site history documentation, current parcel ownership, and individual or collective AOC characteristics, the various identified off-site AOCs were compiled into separate OUs (Figure 2) as follows:

- **OU1** – Mill Pond; spring-fed manmade pond (earthen berm / dam at west end) adjacent to the on-site Berm AOC (the area with the earliest discovered environmental impacts noted at the site). The mill pond parcel was formerly owned by past site owners and operators.

- **OU2** – Southeast Parcel; currently a small vacant sparsely wooded and grass covered field at the southeast corner of Salem Street & Green Street. Historical documentation exists indicating this property was at one time potentially associated with facility operations.

- **OU3** – Union Springs Wastewater Treatment Plant (WWTP); this property was acquired by Union Springs for the development of a WWTP from a prior site owner/operator. Given the inclusion of adjacent portions of the former canal and associated tributaries upstream of the confluence with Cayuga Lake and the location of this parcel between the site facility and the lake, it was identified as a potential AOC based on site research and ultimately designated as a separate OU due to the unique nature of the property / current owners.

- **OU4 –** Remaining AOCs distributed around the periphery of the site including the partially wooded and beaver pond inundated area north of the site designated the Northern Area AOC, residential parcels south of Mill Pond (OU1) designated as the Eastern Area AOC, and a narrow portion of Frontenac Park along the eastern edge of the park and extending south from the WWTP entrance, designated as the Park Area AOC.

3.0 OFF-SITE RI SITE INVESTIGATION

The 2018-2019 Off-Site RI was a comprehensive investigation of off-site OUs consisting of multiple sampling events conducted for a variety of media. The initial sampling program included collection of surface and shallow subsurface soils, sediments, and surface waters from various off-site parcels during May 2018 (Figure 3). This was followed by an August 2018 monitoring well installation program that included the collection of deeper subsurface soil samples during advancement of boreholes drilled for each new well (Figure 4). The final sampling activity consisted of a September – October 2018 groundwater sampling event conducted for all new, and a subset of existing, off-site monitoring wells. Approximately a year later, in November 2019, a follow-up confirmatory groundwater sampling event was conducted for a subset of the originally sampled wells.

The Off-Site RI field work was coordinated by HDR, as described below. Several subcontractors and subconsultants were utilized as follows:

- MJ Engineering & Land Surveying, P.C., Inc. (MJ) - New and existing well surveying and general off-site area surveying
- On the Mark Utility Clearance – Subsurface utility clearance for proposed areas of intrusive site activities (excavation / drilling etc.)
- Data Validation Services (DVS) - Data validation and Data Usability Summary Report (DUSR) preparation
- Parratt-Wolff, Inc. - Installation of new on-site monitoring wells
- Ensol, Inc. (Ensol) – IDW management associated with the monitoring well drilling, well development, and groundwater sampling programs.

In addition, HDR coordinated work performed by NYSDEC's selected Standby Laboratory Contractor TestAmerica Laboratories, Inc. of Buffalo, NY (TestAmerica). TestAmerica was also directly contracted to HDR midway through the course of the 2018 field activities during a period of time when ~~they~~ TestAmerica could not accept samples under the NYSDEC contract.. The 2019 groundwater sampling event was coordinated with Eurofins/TestAmerica following the merger of these two labs. All laboratory work associated with the off-site investigation was thus performed by TestAmerica or Eurofins/Test America and the lab furnished all necessary certified glassware and shipping containers for the various sampling events, including segregated PFAS-only bottles and dedicated shipping containers to prevent cross contamination by materials not compliant with PFAS sampling protocols. Collected samples were either picked up on-site by a Eurofins/TestAmerica courier for transport to the lab's Syracuse service center or dropped off directly at the service center by HDR field crew, as applicable. Each delivery (via courier or direct drop off) was conducted in accordance with standard sample delivery chain of custody protocols. The laboratory service center subsequently delivered the various samples to their appropriate analytical locations within the Eurofins/TestAmerica network of laboratories. Upon completion of the analyses and generation of associated analytical data reports, data validation was completed for each data set by Data Validation Services. Copies of all Off-Site RI related analytical data reports are included in Appendix D, and data validation reports are included in Appendix E. Electronic data deliverable files for each sampling event were also submitted to NYSDEC for inclusion in their Environmental Information Management System (EquIS database).

The full list of potential analytes & categories of compounds/ analytical methods for solid matrix samples (soils & sediment) included VOCs (8260C), SVOCs (8270D), inorganics / Hg (6020A / 7471B), OU4-specific metals of concern (cadmium, chromium, copper, and manganese by Method 6020A), pesticides (8081B_LL), PNCs (8270D_SIM), PFCs (PFC_IDA), and Total Organic Carbon (Modified Lloyd Kahn Method).

The full list of potential analytes & categories of compounds/ analytical methods for aqueous samples (surface water & groundwater) included VOCs (8260C), SVOCs (8270D), inorganics / Hg (6010C / 7470A), pesticides (8081B), PNCs (8270D_SIM), PFCs (PFC_IDA Modified 537), and 1,4-dioxane (8270D_SIM ID).

A summary of sample IDs, sample date, operable units from which the samples were collected, and the particular analyses conducted for each specific sample, grouped by sample media type is compiled as Table 1.

All site work was completed in accordance with HDR's NYSDEC Standby Engineering Contract program health and safety plan (HASP) with the required site specific details provided as a supplement to the program document. Intrusive and sampling related tasks included continuous work zone air monitoring using a four gas meter (CO concentration, % LEL, % O2, and H2S concentration) and photoionization detector (PID). Site work was conducted utilizing Level D personal protective equipment (PPE) with a standard provision to upgrade to Level C in the event that significant off-site contamination was encountered. An addendum to the program HASP was also included to address water safety and boat-based sampling since much of the sediment and surface water sampling for the investigation was conducted from a small rowboat.

3.1 Reconnaissance

Initial Site Recon & Locating / Evaluating Existing Wells

HDR conducted an initial site reconnaissance with NYSDEC on February 21, 2018 as an introduction to the operable units comprising the off-site investigation, to provide some historical context regarding the use and configuration of the site, and to discuss initial approaches to accessing and collecting samples from the various water bodies and upland areas outlined as part of the scope of work for the investigation. Appendix B includes relevant photographs from off-site areas showing important reference features and locations pertaining to the off-site investigation.

3.2 Shallow Soil / Sediment / Surface Water Sampling Event (May – June 2018)

Surficial & Shallow Subsurface Soil Sampling

The initial sampling event conducted for the off-site investigation occurred between 14 – 22 May 2018 and included the collection of surficial soil, shallow subsurface soil, sediment, and surface water samples. Surface soil samples were typically collected from three shallow intervals between the surface and a depth of approximately two feet. Based on the documented history of the site and in an attempt to constrain the total number of samples collected, the middle intervals (approx. 1.0-2.0 ft) for some locations were eliminated from the sampling plan. The surface soil samples were collected using a small spade shovel with an uncoated steel blade and dedicated stainless steel spoons and bowls for consolidating material exposed after turning over the topsoil / vegetation root layer. To avoid vertical cross contamination from material carried downward by the shovel, a clean dedicated spoon and bowl was used for each sampled interval to expose and collect fresh soil from the sidewall at each excavated sample location.

Depending on historical evidence of site usage and potential contaminants of concern, various compounds were sampled for at each sampling location / interval. Surficial and shallow subsurface soil samples were designated by sample IDs with the prefix SS- and each unique ID includes the depth interval (feet bgs) from which the sample was collected. The sample location identification, sampled intervals for each location, and the specific combination of analytes / methods for each interval are summarized in Table 1. Soil sampling locations are presented on Figure 3.

Surface Water & Sediment Sampling

Surface water and sediment samples were collected during the May 2018 sampling event from several off-site OU water bodies, including Mill Pond (ID prefix: MP-), the adjacent Beaver Pond (ID prefix: BP-), the remnant portion of the Former Canal channel still containing water connecting to Cayuga Lake (samples with ID prefix: FC), and an Unnamed Stream (sample ID prefix: UnSt-)

linking the beaver pond wetland complex with the former canal at a confluence near the footbridge over the canal just upstream from the canal's outlet into the lake. A single sampling location was also selected to evaluate conditions at the mouth of the former canal where it empties into Cayuga Lake (sample ID prefix: CL-)

At most sediment sampling locations, samples were obtained surficially in the upper 0.5-1.0 ft of material at the bottom of the water body (typically from mucky sediment just below a layer of dead & decaying aquatic vegetation / leaves etc.) and deeper into more consolidated sediment 1-2 feet further into the subsurface. The shallow samples were typically collected from field decontaminated clamshell style Ponar samplers which often required several attempts, particularly in Mill Pond, to penetrate through the dense bed of living and decomposing vegetation overlying actual surficial sediment. The deeper interval samples were obtained from a core barrel style 'ball-check' sampler, weighted to allow the corer to penetrate deep into the subsurface via gravity acceleration; the core tube assembly also featured a check valve that allowed water to be purged as the sediment sample was driven up into the core barrel and a series of stabilization fins integrated into the upper portion of the sampler. The fins provided additional weight to the sampler assembly and helped vertically stabilize the core tube to insure that the barrel impacted the bottom at an approximately vertical orientation. Given the distance of the available fall for the sampler through the water column, the resultant impact velocity, and the consistency of the sediment typically encountered during the sampling, the maximum penetration for each sample attempt was limited to approximately 3 ft into the sediment layer at the bottom of the water body.

To the extent possible, surface water samples were co-located with the sediment locations – although each particular sampling location was ultimately determined by the position of the anchored rowboat at the time of sampling.

Surface water sampling was typically conducted at depths of least mid-column for the selected sampling points, with a majority of the samples collected from approximately 1-2 ft above the bottom of the respective water bodies. Sampling was conducted using a 12V DC powered peristaltic pump and appropriate dedicated HDPE and silicon tubing. At each sampling location the intake of the sample tubing was held at a depth conservatively positioned to minimize the chances of drawing sediment from the bottom into the water samples being collected. During surface water sampling activities, weather permitting, a set of standard water quality parameters were collected at each sampling location to provide a record of the ambient water conditions at the time of sampling. Additionally, a hand-held GPS unit was used to record the location of each co-located sediment and surface water sampling point.

The full list of potential compounds & categories of chemicals/ analytical methods for the shallow soil samples included VOCs, SVOCs, metals, pesticides, PNCs, and PFCs. The sample location identification, sampled intervals for each location, and the specific combination of analytes / methods for each interval are summarized in Table 1. Sediment and surface water sampling locations (co-located in most cases) are presented Figure 3.

3.3 Soil Borings & Deep Subsurface Soil Sampling Event (July – August 2018)

A network of new monitoring wells was installed on several of the off-site OUs to evaluate the potential for contaminant migration from the site or associated off-site disposal. At most locations, the wells were installed as a series of shallow and deep pairs. Five well pairs were installed on the WWTP property (OU3), two pairs were installed on the adjacent Northern Parcel (OU4), and two single shallow wells (no deeper couplets due to a shallow bedrock terrace) were completed on the Southeast Parcel (OU2).

The test borings for the monitoring wells were drilled with a standard truck mounted rig utilizing hollow stem augers (4.25 inch ID) and during drilling split spoon samples were collected continuously to allow field screening of the subsurface sediments by an HDR geologist. The samples were collected in 2-foot runs using a standard 2-inch diameter split spoon sampler driven to the required depth by a hydraulic hammer mounted on the drill rig. The hollow stem augers used for drilling were advanced to the top of the sampling interval and the split spoon sampler was driven two feet ahead of the auger string into the undisturbed sediment below. Off-Site RI boring and well construction logs are included in Appendix B.

Since shallow and deep well couplets were drilled in close proximity to each other, split spoons were only collected from the deeper of the two boreholes drilled for each couplet. Deep borehole samples were considered to be representative of the stratigraphy at the nearby shallow location as well as the deeper boring. Field logging of the material contained in each recovered sampler was conducted by an HDR geologist and field determination of sampling intervals at each location was made based on the observed stratigraphy, the presence of prominent higher permeability zones or significant impermeable layers, and the depth of the water table. Two samples were typically collected from each boring for laboratory analysis. In the absence of any obvious indications of contamination (odor / PID response etc.), a shallower sample from a zone that could be indicative of preferential migrations pathways (sandier layers) or from a zone immediately overlying significantly lower permeability units (clay and silt forming a barrier to downward migration) was collected. In most cases a deeper sample ~~from the zone a couple feet above the observed water table was also collected~~ was also collected which targeted any zones of higher permeability present at depth and/or the interval just above the top of the till layer. The water table depth was verified in each boring by examination of the transition depth to fully saturated deposits in the recovered split spoons.

The sample location identification, sampled intervals for each location, and the specific combination of analytes / methods for each interval sampled as part of deep subsurface soil sampling / monitoring well installation activities are summarized in Table 1. Deep subsurface soil sample (well boring) and associated off-site RI monitoring well locations are shown on Figure 4.

3.4 Off-Site New Monitoring Well Construction & Development (August 2018)

Upon reaching the target depth of the test borings and obtaining the required samples as described above, a standard schedule 40 PVC (2-inch diameter) monitoring well was constructed in the completed borehole. Figure 4 displays the location of the new off-site RI monitoring wells, typically installed as shallow and deep well pairs. Each well was constructed using 10-foot sections of solid PVC riser joined to a length of 10-slot well screen at the bottom of the borehole. Due to the variable nature of the subsurface stratigraphy, the length of the well screen varied between 5 and 15 feet in order to intersect potential water bearing zones of interest or avoid particularly fine grained units that might adversely impact well performance. A filter pack of #0 Morie equivalent well sand was installed as filtration media surrounding the well screen and brought to a level approximately two feet above the top of the screen. Above the filter pack, a well seal consisting of an approximately 2-foot thick layer of hydrated bentonite chips was installed to prevent short circuiting of groundwater infiltrating directly downward through the borehole and into the screened zone.

Most of the wells were designated as being located in relatively high traffic areas or otherwise located where stick-up surface casings would be considered intrusive so they were completed with flush mount protective manholes set in concrete pads. Two wells located along the wood line of the Northern Parcel (OU4) were completed in areas where minimal traffic or interference with site activities was expected and were constructed with protective stick-up casings that were installed approximately 3 feet above grade.

After drilling each test boring, the drill rig, augers, and tooling that had been utilized for drilling at the previous location were decontaminated using a steam cleaner. The equipment was decontaminated in a pad / containment basin built from wood and poly sheeting that was set up within the fenced perimeter of the WWTP, an area which generally had been designated as the staging area for drilling and other field activities.

Approximately one week after completion of the drilling program, Parratt-Wolff and HDR re-mobilized to the site to develop the new off-site wells. Much of the well drilling program was impacted by very heavy rainfall in the Union Springs area and this weather pattern continued during the well development program, a later synoptic round of water levels was planned since the water levels collected during the development are believed to be influenced by the rainfall. The development program also included collection of initial groundwater quality and yield assessments for each well. Each well was developed using pump and surge methods employing a 12V DC submersible pump with well-specific dedicated lengths of HDPE tubing. As development progressed, periodic water quality measurements were collected to assess the transmission of representative formation water through the well sand filter pack and screen and the removal of fine grained sediments remnant from the drilling process.

In general the wells exhibited low yield and slow recharge rates with several wells having quite poor performance and requiring multiple sequences of surging, pumping, and recovery to remove an adequate volume of water and decrease turbidity in the produced water to levels significantly lower than initial readings. The development program continued over several days and typically proceeded by working on two or more well pairs at a time, alternating pumping and recovery periods for each pair or set of wells. Development logs from the well development program are included in the field logs compiled as part of Appendix B.

Once all well construction, development, and initial sampling activities were completed, HDR's subconsultant, MJ, conducted a site survey of the newly installed monitoring wells in October 2018. MJ's scope of work included surveying the locations and elevations of the new monitoring wells and select site-wide permanent landmarks for use as reference locations as needed to tie in with the existing site survey. The surveyed well reference point elevations and locations were utilized in preparing the groundwater flow figure discussed later in this report.

3.5 Off-Site Groundwater Sampling Events (September 2018 & November 2019) & Synoptic Groundwater Elevation Measurements

An initial round of groundwater sampling was conducted as part of the Off-Site RI during late September – early October 2018 and included sample collection from all newly installed off-site monitoring wells along with a small subset of existing wells. The list of compounds analyzed for as part of this round of sampling was comprehensive, with most wells sampled for VOCs, SVOCs, PCNs, metals, pesticides, PCNs, and emerging contaminants PFAS and 1,4-dioxane. Due to heavy rainfall during the well drilling program and the weeks that followed (including during periods of the sampling event itself) the local and regional groundwater system was considered to be in an anomalous condition relative to typical late summer and early fall patterns. Due to these conditions a planned synoptic water level measurement event was postponed (although water levels were obtained for each well during the course of the several day long sampling program).

A follow-up sampling program conducted for a subset of the new wells sampled during the initial round of sampling took place during November 2019. This re-sampling occurred in an effort to confirm the detection of CVOCs in a small number of wells located on the WWTP parcel (OU3). Only VOC samples were collected from each well during this later round of sampling. A synoptic round of water level measurements from all new wells and any accessible existing wells in the off-site areas was also collected during the 2019 sampling event. Measurements from each well were collected via electronic water level meter and referenced to surveyed points on the PVC well riser to allow calculation of groundwater elevation relative to sea level.

Most of the new series wells installed specifically for the Off-Site RI produced water at low yields due to the overall relatively fine grained nature of the unconsolidated aquifer underlying the off-site areas. Low flow purging and sampling required very low flow rates (0.1 – 0.2 L/min) to allow purging to progress without excessive drawdown. These low flow rates were best achieved by using an adjustable rate 12V DC peristaltic pump that allowed them to sustain pumping with an adjustable rate peristaltic pump. The lower pumping rate that could be achieved using a peristaltic pump was necessary for some of the wells that exhibited lower yields. Details of the purging method and well performance during purging and sampling are contained within HDR's daily field reports and purge logs compiled in Appendix B.

Sampling during both rounds was conducted using identical low-flow sampling methodology with a peristaltic pump and lengths of dedicated HDPE drop tubing and silicon pump head tubing were used to sample each well. Discharge was routed through an in-line flow cell to allow continuous monitoring of geochemical parameters such as groundwater temperature, specific conductivity, pH, and turbidity during the well purge to insure that sampling was not conducted until pumping was producing water representative of the groundwater in the aquifer rather than residual water from the wellbore. No decontamination was necessary between wells for the peristaltic pumps since the pumps were not exposed to the water. Rather, the pumps use a completely dedicated system of down well and pump head components such that only the HDPE tubing and silicone tubing used with the pump are exposed to the groundwater being purged and sampled.

Purge water from the sampled wells was temporarily contained in plastic buckets at the well head and transferred to labeled 55-gallon drums in the designated staging at the WWTP for later management and disposal by HDR's remedial contractor for the site. Typically approximately 10-15 gallons of purge water was generated per well to achieve low flow parameter stabilization.

3.6 Investigation-Derived Waste Handling

Solid investigation-derived waste (IDW) generated during the drilling program (drill cuttings) was contained in a lined roll-off container. Liquid IDW included decontamination water, produced water from drilling activities, and well development and sampling purged water and was contained in 55-gallon drums that were segregated according to the activities that produced their contents. The drums were clearly labeled with information regarding their contents and staged in the general drilling lay-down area within the gated WWTP property. The roll-off container for drill cuttings was staged toward the rear of the WWTP property so as to not interfere with plant operations. Waste characterization sampling and subsequent disposal of both solid and liquid IDW (roll-off container) was coordinated by HDR's IDW management subcontractor, Ensol. IDW disposal documentation is included in Appendix G.

4.0 PHYSICAL CHARACTERISTICS

HDR conducted an initial visit to the site on February 21, 2018 with the NYSDEC to review the existing site conditions and become familiarized with the physical characteristics and features of the site and off-site areas.

4.1 Surface Water

The off-site investigation area includes a wide variety of surface water bodies, either fully within or on the periphery of several of the operable units.

Mill Pond forms the entirety of OU1 as a Class C spring fed man-made pond formed by confining the spring flow in the parcel south of Howland Street and west of Main Street. Prior to confinement via the earthen dam at the west end of the pond, flow would have continued west towards Cayuga Lake ~~into easternmost portion of the former canal~~. Currently flow exits and the water level in the pond is controlled by a drain near the northwest corner of the pond. Water exiting the pond continues along an incised channel that empties into the large wetland / beaver pond complex north of the site. The pond is generally on the order of 12 – 20 ft deep and the bottom is characterized by thick deposits of decaying vegetation, particularly at the west end, and upwelling water and gas bubbles (likely naturally occurring methane) at the shallower east end.

The wastewater treatment plant parcel (and adjacent areas) forming OU3 include or border several surface water bodies. To the north and Immediately adjacent to the WWTP is the Former Canal and near the former railroad (now foot) bridge crossing the canal, the Unnamed Stream joins the canal as the drainage pathway downstream of the beaver dam further to the east. Both the canal and tributary unnamed stream are designated as Class C waters. At the furthest downstream point along the canal, the flow empties into Cayuga Lake itself. This confluence is designated as a transition from the blended Class C waters of the canal and unnamed stream to the Class A water of the lake. Just to the west of the WWTP property, separated by a narrow grassy area belonging to Frontenac Park, is the shoreline of Cayuga Lake. The lake level is seasonally controlled to prevent water & ice damage to the shoreline during winter months and this change in level propagates upstream into the canal and likely into the drainage area below the beaver dam under the highest lake levels. The field activities conducted during 2018 occurred prior to any changes in the water level being initiated for the 2018-2019 winter season. The groundwater re-sampling event conducted during November 2019 occurred after the water level had been significantly lowered in preparation for winter 2019-2020.

As one of the components of OU4, the Northern Area includes a portion of the large beaver pond complex to the north of the site. The southern end of the long beaver dam extends into the Northern Area just beyond the northern property line of the Former TRW site. The surface waters contained in beaver pond in this area, and investigated as part of the off-site activities during May 2018, are designated as Class C waters. A portion of Frontenac Park is also designated as a component of OU4 and although the park directly borders Cayuga Lake, the OU4 area of concern within the park is significantly inland from the lake and no other surface waters are present in the immediate vicinity.

Given its inland location from Cayuga Lake and its distance from Mill Pond and other drainage courses associated with OU3 and OU4 further to the north and west, no surface water bodies are present within or in the vicinity of the Southeast Parcel (OU2) aside from a small ephemeral drainage ditch along the western edge of the parcel.

4.2 Demography and Land Use

The site property is located northwest of the intersection of Salem Street and Chapel Street, one block west of the Cayuga Street central business corridor for the Village of Union Springs in the Town of Springport (Cayuga County, NY).

The on-site portion of the project is characterized by a complex of commercial and industrial structures while the focus of this investigation, the off-site portion, is a mix of residential and commercial structures / parcels, parkland, vacant land, and water bodies. Generally, the off-site investigation area is bounded by a large beaver dam / pond and wetland complex to the north, in the vicinity of the Mill Pond OU1 parcel - Cayuga Street (NYS Route 90) in Union Springs to the east, residential neighborhoods bordering the Southeast Parcel to the south, and Frontenac Park & Cayuga Lake to the west.

Areas adjacent to the various off-site investigation areas are designated for various classes of land use. Adjacent northern parcels are comprised of vacant residential and undeveloped properties. The parcels to the west of the site are located along the eastern shoreline of Cayuga Lake and are used for recreational and municipal purposes. The adjacent eastern parcels are residential and retail properties. Properties bordering the site to the south are residential parcels and parking lots for Frontenac Park and village offices.

According to previous investigation work, several subgrade utilities traverse the site and nearby properties. These include a sanitary sewer line running parallel to Howland Street and multiple storm water sewer lines. The sanitary sewer transports sewage to the Town of Union Springs Wastewater Treatment Facility, which abuts the site to the west.

Municipal water for Union Springs is supplied by two off-site public wells (Public Water System No. 0501725) approximately 0.25 miles northeast of the site along NYS Route 90. According to correspondence with village officials, the wells draw groundwater from the bedrock aquifer underlying glacial deposits in the area. The wells are upgradient from the Former TRW site and utilize a deeper aquifer than the relatively shallow unconsolidated aquifer impacted by CVOCs at the site. The municipal wells are impacted by upgradient VOC contamination from a different site located several miles further east toward Auburn, NY and treatment of the groundwater via air stripper occurs prior to distribution.

4.3 Geology

The site is located within the Finger Lakes District physiographic region of New York State and is characterized as a portion of the Appalachian Plateau.

The surficial and overburden geology of the area is characterized by a wedge of glacial and lacustrine (lake) deposits that thicken westward toward Cayuga Lake and thin eastward toward the walls of the adjacent lake valley. These deposits are underlain by carbonate bedrock of the Helderberg Group, which is recorded to have interbedded layers of sandstone and shale (NYS Museum, 1970). Regionally, the bedrock and overburden have been increasingly modified by post-glacial erosion, deposition, faulting and crustal rebound (NYS Museum, 1991).

Drilling activities conducted for the off-site investigation, particularly for the two well locations designated for the Southeastern parcel (OU2), provided further evidence that bedrock rapidly becomes shallower with distance from the lake in the subsurface in this area. The bedrock top surface depth variation reflects the deep valleys and steep valley walls characteristic of the Finger Lakes. Closer to the east and west shores of each lake, the remnant bedrock valley walls deepen significantly while bedrock is often observed in outcrop along the uplands only a short distance further from shore. This type of geomorphologic and stratigraphic environment was prominently exhibited in cross section running from the WWTP area near Cayuga Lake where bedrock was not present in wells even deeper than 30 ft below grade, but was encountered at approximately 15 ft below grade in OU2 on the east side of the site, and was observed to outcrop in the banks of a small stream just east of Main Street in Union Springs. This represents a significantly shallowing of the top surface of bedrock over a relatively shorter distance transect from the east side of the lake through the site and OU2 until ultimately outcropping in the stream near the Cayuga Street and Madison Avenue intersection. Within approximately 500 ft of the lake, the top surface of bedrock is at least 35 feet bgs in the vicinity of the WWTP given the maximum depth of wells drilled there without encountering bedrock. Progressing to the wells drilled to refusal on bedrock on OU2 the top surface of bedrock shallows to only 15 ft bgs at a distance of approximately 900 ft from the lake. Continuing eastward, bedrock is exposed near the middle of Union Springs, only approximately 1500 ft east of the lake. This shallowing of the bedrock corresponds with ground surface elevations increasing from approximately 380 ft MSL at the lake to 430 ft MSL in the vicinity of the exposed bedrock

4.4 Soils

In general, the surficial and shallow subsurface geology of the site observed during the off-site investigation was consistent with observations recorded during previous investigations associated with the site. The primary unconsolidated deposits from the surface to the maximum depth observed during the off-site investigation (approximately 30 – 35 ft bgs) consisted of an upper layer of fill of variable thickness. Although bedrock was not previously encountered during site related investigations, the off-site work included locations just far enough east toward the edge of the glacially scoured valley wall associated with Cayuga Lake that the top surface of bedrock shallowed significantly and was encountered in two separate drilling locations on the southeastern parcel (OU3), as described above and was also observed to be outcropping along a stream channel just east of NYS Route 90 (Cayuga Street in Union Springs). These observations of bedrock support the geologic conceptual model for the site vicinity in cross section as consisting of unconsolidated units forming a wedge of deposits, rapidly thickening from east to west until reaching the shore of the lake. The geology of the site was characterized by prior investigations, with four soil units identified. The top unit is fill. The fill is underlain by a silty sand layer ranging from three to 22 feet thick, which is underlain by a silt and clay layer which contains sand lenses. The silt and clay layer ranges from seven to 23 feet thick. A discontinuous sand and gravel layer up to five feet thick was encountered across much of the site, and is underlain by a sandy glacial till (NYSDEC, 2017).

4.5 Hydrogeology

Based on previous investigations related to the site, as anticipated, the overall sub-regional groundwater flow in the surficial deposits across the site occurs from east to west, in the direction of Cayuga Lake with localized components of flow dependent on the proximity of other water bodies (Mill Pond / Former Canal etc.). A similar flow pattern was anticipated for the specific areas included as part of the off-site investigation, although it was recognized that localized flow patterns may be significantly influenced by the proximity and complexity of the interactions between the multiple other surface water bodies in the vicinity. There is also the potential for variability in the groundwater flow system as a result of the significant vertical gradients associated with the nearby springs. These gradients are the result of significant groundwater elevation differences between the discharge area in the vicinity of the site and recharge areas in the higher elevation topography of the uplands east of Union Springs. The hydraulic gradient between the uplands and the lake valley are such that they drive groundwater migration pathways in the deeper subsurface bedrock and have resulted in detections of dissolved phase contaminants from another contaminated site located several miles east of the Former TRW Union Springs facility to reach the municipal supply wells for the Village of Union Springs. Localized shallow overburden groundwater flow varies on-site. Groundwater flow across the northernmost end of the site appears to be to the north, in the direction of the unnamed creek. In the vicinity of the former canal, groundwater flow is toward the canal. The shallow groundwater flow in the off-site areas is anticipated to be similarly divided.

Although relative differences in the conductivity of surficial deposits within the investigation area exist due primarily to differences in the nature of the materials (i.e. areas of native soils vs. fill /

re-worked areas), the deposits in general are of low permeability, particularly vertically, due to the prevalence of silt and clay layers throughout the unconsolidated materials. Sandier zones interbedded within those with higher silt and clay content have been regularly observed but aside from the consistent presence of the sandy zone directly above the transition to the basal till layer, the degree of areal continuity for other sandier zones encountered during intrusive site and off-site activities is unknown.

Groundwater in the deeper overburden on-site exhibits an upward component of groundwater flow, which was verified during the off-site investigation via consistent upward gradients noted in the several monitoring well pairs installed for the off-site work. The deeper wells from several of the flush mount well pairs exhibited water levels rising to near the top of the well riser and in some cases exhibiting artesian flow (particularly during the very rainy period following well installation in 2018). Maps of the groundwater elevations and resultant isopotential contours for the shallow and deep off-site wells are included as Figures 10a and 10b, respectively. These maps were generated using depth to water values collected during the November 2019 synoptic round of water level measurements.

Previous hydrogeologic characterization work at the site identified a groundwater flow divide that trends east-west, transecting the area north of Howland Street. Groundwater north of this divide flows generally to the north and discharges to the Beaver Pond and Unnamed Stream complex, before ultimately flowing as a tributary to the Former Canal and Cayuga Lake. Hydraulic conductivity values and horizontal hydraulic gradients in the northern portion of the site are quite low, resulting in low groundwater flow velocities. The on-site investigations also indicate that in the area between Mill Pond and this groundwater flow divide, groundwater generally migrates in a southerly to westerly direction toward the buried and open portions of the former canal. Within this area, a zone of relatively high hydraulic conductivity and faster groundwater flow velocities appears to act as a preferential groundwater migration pathway toward the buried and open portions of the former canal. On-site groundwater studies also determined that immediately south of the buried and open portions of the former canal, groundwater flows generally to the north toward those portions of the former canal and that groundwater within the buried portion of the former canal flows to the west and discharges to the former canal and ultimately to Cayuga Lake.

Surface water hydrology in the vicinity of the site is characterized by the presence of four primary features: Cayuga Lake (CL), Mill Pond, (MP) the unnamed stream north of the site (UNST), and the former canal (FC). Cayuga Lake is nearly adjacent to a portion of the WWTP parcel (OU3) and directly west of the site proper. Specifics regarding the history of Mill Pond are not well documented and there is little information regarding the construction of the pond and associated berms and dikes. The pond is not recharged by surface water due to an infrastructure system designed to divert run-off away from the pond via a series of ditches. This system isolates the pond such that its only source of recharge is from the discharge of groundwater via springs at the east end of the pond. Overflow of the spring fed water ~~is~~ occurs through a drainage culvert at the north side of the pond. The drainage from the pond continues into the beaver pond (BP) and unnamed stream that flows northwest before joining the former canal near Cayuga Lake. Prior investigations also identified three storm water outfalls and two unnamed streams located north of the canal that contribute water to the canal (ERM, 2015).

5.0 Ecological Resources Assessment

As part of an ecological resource assessment for the site, HDR initiated a FWRIA in accordance with the decision key and analytical steps outlined in NYSDEC DER-10. Based on the nature of the site and off-site OUs, the analysis included identifying and conducting a records search of fish and wildlife resources and describing the resources within a quarter mile radius of the site. The final step was a brief assessment of contaminant migration and exposure pathways for ecological resources based on the nature of the detected contamination and environmental setting / media for each off-site OU.

A more detailed discussion of resource characterization and migration and ecological exposure pathways for the off-site OUs, along with supporting documentation and maps are compiled in Appendix F.

5.1 Fish & Wildlife Resources Impact Analysis

Within 0.5 miles of the site and off-site OUs, land cover includes lots covered by buildings or man-made structures and asphalt, open fields (i.e. scrub/shrub, hay/pasture, manicured/mowed lawns, deciduous/mixed forested areas, wetlands, and open water.

The land cover types and general site characteristics of the off-site OUs are as described below and presented in the OU map contained in Appendix F:

- OU1 is primarily open water surrounded by a shoreline and berm comprised of open, grassy and scrub/shrub areas and outer edges of deciduous/mixed forest;
- OU2 consists primarily of open, grassy field with weed covered margins and a drainage ditch along the western boundary;
- OU3 is primarily asphalt near the Union Springs WWTP, while the northern portion of the site consists of open water in the former canal and riparian and wetland areas; and
- OU4 (Northern Area) consists of open water and wetland areas with an adjacent strip of wooded and open, grassy field; OU4 (Eastern Area) consists of residential buildings and associated maintained/mowed lawns; and OU4 (Park Area) is primarily open, grassy fields.

Appendix F identifies the aquatic and semi-aquatic fish and wildlife and terrestrial wildlife resources at or near the site and includes maps indicating the distribution of these resources. As the mapped areas display, aquatic and semi-aquatic fish and wildlife are expected to be associated with the following aquatic areas at and near the site:

- NYSDEC classified watercourses, which includes the open portion of the former canal
- Cayuga Lake
- Mill Pond
- NYS Freshwater Wetland US-1

Potential terrestrial wildlife habitats on or near the site include:

- Open, grassy field (OU2, OU4 Northern Area, and OU4 Park Area)
- Forest and riparian areas (northern portion of OU3 and OU4 Northern Area)
- Berm and shoreline area of Mill Pond (OU1)

5.2 Identified Fish and Wildlife Resource Description

The aquatic and terrestrial resource habitats identified above are described in more detail in Appendix F. In addition to the habitats listed in Section 5.1, a list of the typical aquatic and terrestrial species documented or potentially occurring within the site were prepared based on observations during field activities associated with the Off-Site RI and by utilizing various state and federal resources including New York State Environmental Resource Mapper; New York State Natural Heritage Program (NHP) Data; New York Nature Explorer (User Defined Study Area); and the US Fish and Wildlife (USFWS) Information for Planning and Consultation (IPaC) database. As described further in Appendix F, the IPaC identified the potential presence of the federally-threatened northern long-eared bat (*Myotis septentrionalis*) in the vicinity of the site. Also identified were seven species of migratory birds that could potentially be present. Among these migratory birds, suitable habitat exists at or within 0.5 mile from the site for Bald Eagle (*Haliaeetus leucocephalus*), Bobolink (*Dolichonyx oryzivorus*), Golden Eagle (*Aquila chrysaetos*), Semipalmated Sandpiper (*Calidris pusilla*), and Wood Thrush (*Hylocichla mustelina*); each of these species is designated as a Species of Greatest Conservation Need in New York (NYSDEC 2015).

The New York Environmental Mapper (NYSDEC 2020) was also reviewed to investigate the potential presence of NYSDEC-regulated resources; that review showed no recently confirmed significant natural communities or rare plants in the vicinity of the site; however, recently confirmed rare animals were identified, including the state-threatened lake sturgeon (*Acipenser fulvescens*) and a rare animal assemblage (Waterfowl Winter Concentration Area) in the Cayuga Lake watershed. More information is provided in Appendix F.

During field activities associated with the Off-Site RI, there were no areas of environmental stress observed, including leachate or other seeps, exposed waste, absence of biota, or dying vegetation. Species observed during the site visit are provided in Appendix F.

There are no fish kills, fish or wildlife consumption advisories, or other instances of wildlife mortality associated with the site.

Habitats associated with the northern portion of OU3 and with OU4 are considered of greater ecological significance because they provide foraging, cover, or nesting opportunities for fish and wildlife resources, including terrestrial invertebrates, terrestrial and aquatic plants communities, small mammals, resident and migratory bird populations, amphibians, and reptiles. The typical aquatic and terrestrial species identified in Appendix F would be expected in the OU3 and OU4 habitats because they are more remote, and less developed than the remaining OU sites, which are heavily developed and contain less natural land coverage and potential habitat to support diverse fish and wildlife resources.

Aside from fishing near the confluence of the unnamed tributary in the former canal with Cayuga Lake and general recreation in the open, grassy fields associated with OU4 Park Area, there is little current or potential use for hunting, fishing, wildlife observation, scientific research, and recreation within a 0.5 mile radius of the site and off-site OUs because much of the land is privately-owned thereby prohibiting public access. Additionally, natural habitat available to fish and wildlife resources in the area surrounding the site and off-site OUs is limited. The majority of the area is developed and characteristic of a commercial/residential setting that includes buildings, asphalt, and maintained/mowed lawns; absent a suitable habitat, this area is not expected to support the recreational activities mentioned above.

5.3 Contaminant Migration and Fish & Wildlife Exposure Pathways

A relatively small number of detected contaminants, including metals, PAHs, and cVOCs were present at levels exceeding their respective applicable standards in various media / OUs associated with the Off-Site RI. Various PFCs and PCNs were detected in some locations as well, however, many of these compounds have no established ecological protection standards for comparison. A detailed discussion on the nature and extent of the contamination is found in Section 6.0.

The primary contaminants of concern detected from the off-site investigation activities were present in various media, including shallow and deeper soils, sediment, and groundwater. Evaluation of migration and exposure pathways indicate that based on the relatively low concentrations, localized occurrence, and geochemical properties of the detected compounds and the media / setting in which they were detected, no significant pathways are present for contaminants present in the off-site OUs. Minimal potential for natural disturbance of sediments and soils exist (i.e. events that would induce significant erosion and run-off of soils or scouring of sediments to expose buried contaminants) although the potential does exist for exposure via human activities such as excavation or dredging. Significant scour could occur if the mill pond dam failed. The mill pond dam currently has a number of large trees growing on it and areas where cover vegetation (e.g. grass) is sparse, which is likely in part due to the presence of large, mature trees. These are not ideal conditions for a dam. Flow conditions could change substantially if one of the beaver dams in the area were to fail or be removed, which could result in short term scour or could result in increased flow rate, and therefore increased potential for scour. Further, beavers remove sediment for use in building and/or maintaining their dams and lodges, which is another potential means of natural scour. The only significant detection of a groundwater contaminant was confined to a single shallow well and subsequent follow-up sampling verified the concentration and extent of this contamination remained virtually unchanged over the course of a year between sampling events.

Details regarding the various detected contaminant classes and off-site OU sampled media are discussed in the supporting documentation for the exposure pathways analysis also included with the resource characterization information in Appendix F.

6.0 PHASE I REMEDIAL INVESTIGATION FINDINGS

6.1 Applicable Criteria

To determine the nature and extent of contamination at the site, standards and screening criteria were used during the RI to evaluate the analytical data for soil, groundwater, sediment, and surface water. The criteria values are included in the analytical data tables compiled in the section following the text of the off-site RI report. Additionally, since PCNs are relatively uncommon environmental contaminants, NYSDEC tasked HDR with developing applicable off-site soil cleanup objectives (SCOs) for this site to enable an assessment of their detected concentrations in the various off-site OUs. The methodology and results for this SCO development are summarized in a memo included as Appendix A to the Off-Site RI report.

6.1.1 Soil

Soil sample results were compared to 6NYCRR Part 375-6 Remedial Program Soil Cleanup Objectives (SCOs) Tables 375-6.8(a) Unrestricted Use and ~~Residential Use, and~~ Table 375-6.8(b) for Residential Use and Protection of Groundwater, ~~Commercial Use, and Industrial Use SCOs~~ for organic and inorganic constituents (NYSDEC 2006). For compounds without established SCOs, the most stringent Supplemental SCOs (SSCOs) from CP-51 – Soil Cleanup Guidance were used (NYSDEC 2010).

PCN analytical results from surficial, shallow subsurface, and deeper subsurface soil samples were evaluated in comparison to the off-site SCOs developed by HDR for this site..

6.1.2 Groundwater

Groundwater analytical results were compared to NYSDEC Class GA groundwater quality standards (GWQS) 6 NYCRR Part 703 (NYSDEC 1999). For compounds without established GWQS, the applicable groundwater values from the Division of Water Technical and Operational Guidance Series 1.1.1 (TOGS 1.1.1) were used as screening criteria.

6.1.3 Sediment

Sediment sample results were compared to ~~Sediment~~ Screening and Assessment of Contaminated Sediment, Freshwater Sediment Guidance Values (NYSDEC 2014). Ecological Screening Levels (ESL) established for freshwater sediments are dependent on site conditions and detected concentrations – resulting in the establishment of upper and lower screening levels that define sediment concentrations as Class C high risk concentrations for aquatic organisms (concentrations greater than the upper ESL for the contaminant), Class A low risk concentrations for aquatic organisms (concentrations less than the lower ESL for the contaminant), or Class B moderate risk concentration for aquatic organisms (concentrations above the lower ESL but below the upper ESL).

6.1.4 Surface Water

Surface water analytical results were compared to NYSDEC Water Quality Regulations for Surface Waters and Groundwater, 6NYCRR Part 703 (NYSDEC 1999), and TOGS 1.1.1. The outlet area (sample ID prefix CL-) at the confluence of the canal and Cayuga Lake is designated a Class A water body while all other surface waters associated with the off-site investigation (Mill Pond / Beaver Pond / Unnamed Stream / Former Canal) are designated Class C water bodies.

6.2 ~~Subsurface~~ Soil Sample Results

Surficial Soils

Surficial soil (0.0 – 0.2 or 0/0 – 1.0 feet bgs) sample results were compared to the NYSDEC unrestricted, ~~restricted~~ residential, and off site-specific PCN SCOs. Surficial soil sample results are summarized on Tables 2 & 3 and Figures 5a, 5b and 5c.

For the seven surficial soil samples collected and analyzed for VOCs, there were no VOCs detected above the stated criteria. Only ~~three~~ two compounds, ~~trichloroethylene (0.93 µg/kg),~~ 3-Octanol (10 µg/kg) and 3-Octanone (56 µg/kg) were detected, all from samples collected at sample point SS-11. 3-Octanol and 3-octanone were tentatively identified compounds (TICs).

Of all the SVOCs analyzed for in the shallow soils samples, only one compound, dichloromethane, was detected above one of the stated criteria (NYSDEC SCO Unrestricted Use) at concentrations of ~~290 µg/kg at location SS-10 and 370~~ 560 µg/kg at location SS-11 (in its field duplicate sample), ~~both~~ located on the Northern Area parcel of OU4~~, and at concentrations of 180 µg/kg at location SS-03 and 220 µg/kg at location SS-04 on the Southeast Parcel (OU2)~~. Dichloromethane is a common laboratory cross-contaminant and data validation review indicates these detections are likely due to laboratory contamination associated with sample processing. Further, it is included in the VOC Method 8260 analysis as a target compound, whereas it was a TIC in the SVOC Method 8270 analysis. It is assumed the 8260 results for dichloromethane are more reliable than the TIC results under 8270. A range of other SVOCs were detected at various concentrations below the stated criteria. Table 2 presents a summary of the SVOCs detected in surficial soil samples, range of concentrations, frequency of detection, number of exceedances, and comparison to the NYSDEC SO SCO ~~Restricted~~ Residential and Unrestricted ~~Residential~~ use for the 2018 sampling. SVOC detections and exceedances are presented for each OU in Figures 5a, 5b and 5c and complete SVOC analytical results are compiled in Table 3.

Various PCNs were detected at six of the 11 surficial soil sample locations. Only one homologue (pentachloronaphthalenes) exceeded its site-specific residential use SCO. ~~No PCNs were detected above the site-specific SCOs~~ developed as part of the Off-Site RI in one sample, however several PCN homologues were detected, including: 1-chloronaphthalene (69 µg/kg), dichloronaphthalene (240 µg/kg), trichloronaphthalene (at concentrations ranging between 22 –

2,100 µg/kg), tetrachloronaphthalene (28 – 4,300 µg/kg), pentachloronaphthalene (25 – 1,000 µg/kg), and hexachloronaphthalene (46 µg/kg). Tetrachloronaphthalene was present at all six locations. Trichloronaphthalene ~~and Tetrachloronaphthalene were~~ was present in five of the six locations. Tables 2 and 7 includes a summary of the PCNs detected in surficial soil samples, range of concentrations, frequency of detection, number of exceedances, and comparison to the site-specific SCOs for the 2018 sampling. The PCN analytical results detection and exceedance summary data summary are presented on Figure 9a.

From the target analyte list of inorganics/metals only three metals (copper, manganese, and nickel) were detected above any of the applicable comparison criteria in the surficial soil samples. Those detected above their respective NYSDEC SCO Unrestricted ~~Residential~~ Use criteria included: copper (55 mg/kg) at location SS-04, manganese (1,700 mg/kg) at location SS-03, and nickel from SS-10, in shallow sample intervals 0-1 ft ~~and 1-2 ft bgs~~ (34.8 mg/kg ~~and 36.6 mg/kg, respectively~~). With the exception of silver, which was not detected in any of the samples, all inorganic/metals list analytes had one or more detection in the shallow soil samples. Table 2 presents a summary of the inorganic/metals detected in surficial soil samples, range of concentrations, frequency of detection, and number of exceedances based on comparison to applicable SCOs for the 2018 sampling. TAL metals detections and exceedances for the shallow soil samples collected from each OU are summarized on Figures 5a, 5b and 5c and complete SVOC analytical summary data for soils are compiled in Table 3.

Two pesticides, 4,4'-DDT and alpha-BHC, were detected above their applicable comparison standards in off-site surficial soil samples. 4,4'-DDT was detected in three samples at concentrations ranging from 0.54 to 4.3 µg/kg and alpha-BHC was detected in four samples at concentrations ranging from 0.87 µg/kg to 27 µg/kg. The exceedances in surficial soil sample SS-09 included 4,4'-DDT (4.3 µg/kg) and alpha-BHC (27 µg/kg) at concentrations above their respective NYSDEC SCO Unrestricted ~~Residential~~ Use criteria of 3.3 µg/kg and 20 µg/kg. Table 2 presents a summary of the pesticides detected in surficial soil samples, range of concentrations, frequency of detection, number of exceedances based on comparison to their SCOs for the 2018 sampling. Pesticide detection status and exceedances for the surface and shallow shallow soil samples are presented in Figures 5a, 5b and 5c and complete analytical results for pesticides in soil samples are compiled in Table 3.

None of the surficial soil samples collected had specific PFCs detected above their stated guidance criteria concentrations. However, a number of PFC compounds were detected at varying concentrations in one or more samples. Perfluorobutyric acid (ranging from 0.058 – 0.42 µg/kg), perfluorodecanoic acid (0.031 – 0.11 µg/kg), perfluoroheptanoic acid (0.038 – 0.19 µg/kg), perfluorononanoic acid (0.045 – 0.19 µg/kg), perfluorooctanoic acid (0.16 – 0.85 µg/kg) and perfluoroundecanoic acid (0.048 – 0.14 µg/kg) were the most commonly detected PFCs. Some combination of these compounds were detected in five of the sampling locations tested for the presence of PFCs. Table 2 presents a summary of the PFCs detected in surficial soil samples, range of concentrations, and frequency of detection from the 2018 sampling. PFC detection information is summarized by OU on Figures 5a, 5b and 5c and full analytical results for PFC detections in soils are compiled in Table 3.

Shallow Subsurface Soils

Shallow ~~S~~subsurface soil (0.2 – 1.0 and 1.0 – 2.0 feet bgs) sample results were compared to the NYSDEC unrestricted, ~~restricted~~ residential, and site-specific PCN SCOs . Shallow ~~S~~subsurface soil sample results are summarized on Table 3 and Figures 5a, 5b and 5c.

Of the seven shallow subsurface soil samples collected and analyzed for VOCs, there were no VOCs detected above their applicable SCO criteria. Acetone (5 – 32 µg/kg), likely present due to laboratory cross contamination, was detected in two samples and trichloroethylene (0.9 µg/kg), detected in one sample, were the only VOC compounds detected.

From the shallow subsurface soil samples collected and analyzed for SVOCs, ~~nine~~ eight compounds were detected above one or more of the stated criteria. ~~Dichloromethane (560 µg/kg) was found at location SS-11, located on the northern portion of the site. Dichloromethane was also detected above the SCO at concentrations of 230 µg/kg at location SS-03 and 280 µg/kg at location SS-04, both located on the southern portion of the site. The remaining eight compounds,~~ 4-Methylphenol (740 µg/kg), benzo(a)Anthracene (26,000 µg/kg), benzo(a)Pyrene (25,000 µg/kg), benzo(b)Fluoranthene (33,000 µg/kg), benzo(k)Fluoranthene (14,000 µg/kg), chrysene (30,000 µg/kg), indeno(1,2,3-cd)Pyrene (15,000 µg/kg) and phenol (350 µg/kg) were detected above NYSDEC SO SCO unrestricted criteria and SO SCO ~~restricted~~ residential criteria, all at location SS-05, located on the southern portion of the site. Table 2 presents a summary of the SVOCs detected in surficial soil samples, range of concentrations, frequency of detection, number of exceedances, and comparison to the stated SCOs for the 2018 sampling. SVOC detections and exceedances for the subsurface soil sampling are summarized on Figures 5a, 5b and 5c and the full analytical results for SVOCs in soils are compiled in Table 3.

There were no PCNs detected in shallow subsurface soils at concentrations above the off-site SCOs developed for this investigation, however PCNs were detected at six of the 14 sampling locations. Detected PCN homologues included trichloronaphthalene (concentration range of 21 – 120 µg/kg), tetrachloronaphthalene (29 – 360 µg/kg), and pentachloronaphthalene (26 – 71 µg/kg). ~~Two detected compounds, trichloronaphthalene and t~~Tetrachloronaphthalene ~~were~~ was present at all six locations, while trichloronaphthalene was present at four locations. Table 7 and Figure 9a presents a summary of the PCNs detected in surficial soil samples, range of concentrations, frequency of detection, number of exceedances, and comparison to the stated SCO for the 2018 sampling.

Nickel was the only TAL inorganic/metal compound detected above the NYSDEC SO SCO unrestricted criteria in shallow subsurface soil samples, but it did not exceed its ~~and~~ SO SCO ~~restricted~~ residential criteria. Nickel was detected in three samples at concentrations ranging from 20.3 – 50 mg/kg. With the exception of silver and thallium, all the other inorganic/metal compounds were detected at one or more sample locations. These compounds were detected at high frequency at all sample locations as naturally occurring constituents related to the geologic setting of the area. Table 2 and Figures 5a, 5b and 5c present a summary of the inorganic/metals detected in subsurface soil samples, range of concentrations, frequency of detection, number of exceedances, and comparison to the stated SCO for the 2018 sampling. Full inorganics sampling analytical results are compiled in Table 3.

Two pesticides, 4,4-DDE and alpha-BHC, were the only pesticide compounds detected above the unrestricted use SCO in the shallow subsurface soil. They ~~were detected~~ exceeded the SCO only in the duplicate sample at one location (SS-09) at a depth of 1.0-2.0 feet, bgs. The parent sample of the duplicate exhibited these compounds as well, but at concentrations below the stated SCOs. 4,4-DDE was detected at a concentration of 7.5 µg/kg while alpha-BHC was detected at a concentration of 30 µg/kg. Alpha-BHC and delta-BHC were the pesticide compounds most frequently detected in the samples at concentrations below their applicable standards. Alpha-BHC was detected in five out of the nine samples while delta-BHC was detected in six out of the nine samples. Table 2 and Figures 5a, 5b and 5c present a summary of the pesticides detected in subsurface soil samples, range of concentrations, frequency of detection, number of exceedances, and comparison to applicable SCOs for the 2018 sampling. Full analytical results for the pesticide sampling are compiled in Table 3.

Several shallow subsurface soil samples were collected for PFC analysis as part of the 2018 soil sampling. Multiple low concentration detections were made from the sample collected at location SS-09 in OU4, however they were detected at such low levels that all results were qualified as estimated by the laboratory and data validator. A summary of PFC sample results for subsurface soils is presented in Figures 5a – 5c and full analytical results are compiled in Table 3.

Deep Subsurface (Test Boring) Soils

Deep subsurface soil samples (greater than 2.0 feet bgs) were collected during monitoring well drilling and the sample results were compared to the NYSDEC SCO unrestricted ~~residential~~ criteria, SCO ~~restricted~~ residential criteria, and site-specific SCOs developed for PCNs and attached as the PCN Development Memo. Deep subsurface soil sample results are summarized on Tables 2 & 3 and Figures 5a, 5b and 5c.

Sixteen deep subsurface soil samples were collected and analyzed for VOCs. No VOCs exceeded the unrestricted use SCOs.~~, with acetone being the only VOC compound detected above its applicable SCO. It was detected above the stated SCO in two samples at location MW-06D, 72 µg/kg at a depth of 6-10 feet and 60 µg/kg at a depth of 20-22 feet bgs. Acetone is a common laboratory contaminant, and it's presence at only two samples is likely attributed to sample processing.~~ Six ~~other~~ compounds, 2-Butanone (concentration range 3.1 – 11 µg/kg), carbon disulfide (14 µg/kg), cis-1,2-Dichloroethene (1.1 – 21 µg/kg), methyl acetate (98.3 µg/kg), trans-1,2-Dichloroethene (0.48 µg/kg) and TCE (1.6 – 63 µg/kg) were detected in one or more samples, but at concentrations below their applicable criteria. Table 2 & 3 and Figures 5a, 5b and 5c present a summary of the VOCs detected in deep subsurface soil samples, range of concentrations, frequency of detection, number of exceedances, and comparison to applicable SCOs for the 2018 sampling.

A total of ~~15~~ 9 deep subsurface soil samples were analyzed for SVOCs~~, and only one compound, dichloromethane, was detected above its applicable SCO. Dichloromethane was detected at exceedance concentrations ranging from 160 µg/kg from the 8-12' interval in drilling location MW-01 to 410 µg/kg from the 6-10' depth interval at drilling location MW-06D. It is likely that these detections were the result of the analytical process since dichloromethane is a common laboratory cross contaminant~~. Twelve ~~other~~ SVOC compounds were detected at varying concentrations and locations in one or more samples. Tables 2 & 3 and Figures 5a - 5c present a summary of the SVOCs detected in deep subsurface soil samples, range of concentrations, frequency of detection, number of exceedances, and comparison to the stated SCO for the 2018 sampling.

No PCN compounds were detected from any of the fifteen sample locations and various depth intervals included in the deep subsurface soil sampling program associated with the 2018 off-site monitoring well installations.

A total of nine deep subsurface soil samples were analyzed for TAL inorganics/metals, all of the results were found to be below applicable SCOs. No exceedances of applicable SCOs for site specific metals of concern were observed from any of the deeper subsurface soils. Given their prevalence as naturally occurring constituents in surficial deposits, all TAL inorganics with the exception of silver and thallium were detected in at least one of the deep subsurface soil samples. Tables 2 & 3 and Figures 5a – 5c present a summary of the inorganic/metals detected in deep subsurface soil samples, range of concentrations, frequency of detection, number of exceedances, and comparison to the stated SCO for the 2018 sampling.

Of the 17 deep subsurface soil samples collected and analyzed for pesticides, eleven pesticide compounds were detected at varying concentrations in one or more samples, however none were detected at levels exceeding their applicable SCOs. Delta BHC was the pesticide most frequently detected from the deep subsurface soil samples. Table 2 & 3 and Figures 5a – 5c present a summary of the pesticides detected in deep subsurface soil samples, range of concentrations, frequency of detection, number of exceedances, and comparison to the stated SCO for the 2018 sampling.

Ten deep subsurface soil samples were collected and analyzed for PFCs and none were detected in any sample ~~the single detection was of perfluorobutyric acid (PFBA) at a concentration of 0.034 µg/kg from the 8-12' sample depth interval at the MW-01 drilling location~~ (Table 3 & Figure 5b).

6.3 Sediment Sampling Results

Sediment samples were collected from 10 locations (Table 1) and results were compared to the NYS Sediment Freshwater Class A and Class C criteria, the NYS Sediment SGV PAHs, and the site-specific SCOs developed for PCNs.. Sediment sample results are summarized on Tables 2 & 4 and Figure 6.

Of the 11 sediment samples collected and analyzed for VOCs, none exhibited VOCs concentrations above the stated criteria. Three VOC compounds, acetone (concentration range 6.3 – 27 µg/kg), dichloromethane (8.8 µg/kg), and toluene (26 µg/kg) were detected in one or more samples. Table 4 and Figure 6 present a summary of the VOCs detected in sediment samples, range of concentrations, frequency of detection, number of exceedances, and comparison to the stated SCO for the 2018 sampling.

None of the sediment samples collected for the off-site investigation were analyzed for the full list of SVOCs (8270D); rather, each sediment sample was analyzed for the subset of SVOCs classified as PCNs and results indicated the presence of several PCN homologues in sediment collected from Mill Pond, the Former Canal, and the mouth of the canal at Cayuga Lake. None of the detections reached concentrations exceeding the site specific ~~SCOs~~ sediment criteria developed as part of the off-site investigation. Detected PCN homologues included dichloronaphthalene (52 µg/kg) and trichloronaphthalene (110 µg/kg) from location FC-SED-08, trichloronaphthalene at a concentration of 43 µg/kg from location MP-SED-17, and trichloronaphthalene at concentrations of 60 µg/kg at depth of 0.0-0.5 feet and 44 µg/kg at depth of 3.5-4.0 feet from location CL-SED-21. Tables 2 & 7 and Figure 9c summarize the PCN detections and concentration ranges from sediment samples collected as part of the 2018 off-site RI.

Of the 14 sediment samples collected and analyzed for TAL inorganics/metals, three analytes were detected above one of their applicable SCOs. Lead (concentration range 2.7 – 56.2 mg/kg), nickel (3.7 – 24.2 mg/kg) and zinc (21.8 – 125 mg/kg) were detected above the NYS Sediment Freshwater Class A criteria only. Given their occurrence as constituents in naturally deposited sediments and soil, all other analytes on the TAL inorganic/metals list were frequently detected in the sediment samples (reported from ten (10) or more of the collected samples). Tables 2 & 4 and Figure 6 present summaries of the inorganic/metals detected in sediment samples, range of concentrations, frequency of detection, number of exceedances, and comparison to the applicable ~~SCOs~~ sediment criteria for the inorganics analyzed for during the 2018 sampling event.

A total of sixteen (16) sediment samples were analyzed for pesticides and ~~nine~~ two specific pesticides were detected above one or more of the stated criteria. Those exceeding their applicable ~~SCOs~~ sediment criteria included 4,4'-DDE and~~,~~ alpha-BHC~~, chlorinated camphene, endrin, gamma-BHC (Lindane), heptachlor, heptachlor epoxide, and methoxychlor~~. Table 2 & 4 and Figure 6 present a summary of the pesticides detected in sediment samples, range of concentrations, frequency of detection, number of exceedances, and comparison to the SCOs for pesticides from the 2018 sampling program.

From the seventeen (17) sediment samples collected and analyzed for PFCs, a total of six different PFC compounds were detected. The individual compounds detected included perfluorobutyric acid (present in 13 samples with concentration range 0.045 – 2.1 µg/kg), perfluorodecane sulfonic acid (0.3 µg/kg), perfluorodecanoic acid (0.27 µg/kg), perfluorohexanesulfonic acid (0.13 µg/kg), perfluorohexanoic acid (0.75 µg/kg), and perfluoroundecanoic acid (present in 6 samples with concentration range 0.15 – 3.2 µg/kg). Tables 2 & 4 and Figure 6 present summaries of the PFCs detected in sediment samples, range of concentrations, frequency of detection, comparison to applicable guidance criteria, and the number of exceedances relative to these criteria for PFCs from the 2018 sampling.

6.4 Surface Water Sampling Results

Surface water samples were collected from 10 locations and results were compared to the NYS Surface Water Class A and Class C criteria, and the site-specific ~~SCOs~~ surface water criteria developed for PCNs.. Surface water sample results are summarized on Tables 2 & 5 and Figure 7.

A total of 10 surface water samples were collected and analyzed for VOCs ~~and none of the samples exhibited VOCs above either the NYS Surface Water Class A or Class C criteria~~. The only VOC compound detected in the surface water samples was cis-1,2-dichloroethene which was present in several sampling locations at concentrations ranging between 2.4 – 7.8 µg/l. Four samples exceeded its Class A surface water standard of 5 ug/L; however, those samples were collected from Class C waterbodies. Table 2 and Figure 7 present a summary of the VOCs detected in surface water samples, range of concentrations, frequency of detection, number of exceedances, and comparison to their respective NYS Surface Water Class A and C standards for the May 2018 sampling.

The only SVOCs analyzed for from the surface water samples were the subset of PCN homologues. From the ten (10) surface water samples collected and analyzed for PCNs, only one PCN compound was detected,the lone detection was dichloronaphthalene at a concentration of 0.31 µg/l from location FC-SW-10, which is actually located on-site and was sampled to characterize upstream conditions. This detection was well below the site specific criteria for the protection of ecological resources (1.6 µg/l). Tables 2 & 7 and Figure 9d summarize the PCN detections and concentration ranges from surface water samples collected as part of the 2018 off-site RI.

From the target list of inorganics/metals analyzed for, none of the analytes were detected at concentrations above either NYS Surface Water Class A or C standards, except iron, which was detected at a concentration greater than its Class A surface water standard in two samples. It exceeded the Class A standard at FC-SW-10 which is located on-site and was sampled to characterize upstream conditions. It also exceeded its Class A standard at MP-SW-17, which was collected from the mill pond, which is a Class C waterbody. The only potentially site specific inorganic/metal of interest detected from surface waters was nickel, which was present in five of the samples at reported concentrations ranging between 0.0015 – 0.0019 mg/l. Other detections, including barium, calcium, magnesium, potassium, and sodium (each detected in all surface water locations) are likely indicative of their natural occurrence within the hydrologic setting of the area. Table 2 and Figure 7 presents a summary of the individual metals detected in surface water samples, range of concentrations, frequency of detection, number of exceedances, and sample results comparison to the NYS Surface Water Class A and C for the May 2018 sampling.

Of the 10 surface water samples collected and analyzed for pesticides none of the results exhibited concentrations above the NYS Surface Water Class A and C criteria. Two pesticides, alpha-BHC and delta-BHC, were detected at two separate locations. Alpha-BHC was detected at ~~one sample location~~ the upstream, on-site location FC-SW-10 at a concentration of 0.018 µg/l, ~~below the~~ exceeding its NYS Surface Water Class A and C criteria of 0.002 µg/l. Delta-BHC was detected at location UNST_SW-06 at a concentration of 0.011 µg/l, ~~below the~~ exceeding its NYS Surface Water Class A and C criteria of 0.008 µg/l.

Nine individual PFCs were detected in various combinations from the 10 surface water samples collected for PFC analysis. Three of the compounds, perfluorobutanesulfonic acid (concentration range 0.22 – 0.51 ng/l), perfluorobutyric acid (0.85 – 1.5 ng/l), and perfluorohexanesulfonic acid (0.27 – 0.43 ng/l) were detected in all ten of the collected surface water samples. Tables 2 & 5 and Figure 7 presents a summary of all the individual PFCs detected in surface water samples, their range of concentrations, and frequency of detection, from the May 2018 sampling event.

6.5 Off-Site Groundwater Sampling Results

Groundwater samples were collected from seventeen (17) monitoring wells in 2018 and six ~~of the~~ wells ~~pairs~~ located on OU3 (WWTP) were re-sampled in 2019. The 2019 re-sampled monitoring wells were analyzed for VOCs only with the objective of assessing and confirming the results from the 2018 sampling. The groundwater results were compared to the NYS Ground Water Class GA criteria, and site-specific ~~SCOs~~ groundwater criteria developed for PCNs. Groundwater sample results are summarized on Tables 2 & 6 and Figure 8.

From the sixteen (16) groundwater samples HDR collected and analyzed for VOCs during the 2018 sampling, cis-1,2-dichloroethene was the only VOC detected above applicable Class GA standards. Cis-1,2-dichloroethene was detected at a concentration of 130 µg/l in newly installed monitoring well MW-10S, exceeding its NYS Ground Water Class GA criteria of ~~51~~ 5 µg/l. During the 2019 re-sampling, cis-1,2-dichloroethene was again detected in MW-10S, at a concentration of 98 µg/l. Several other VOC compounds were detected at low levels during both the 2018 and 2019 sampling events but none at concentrations exceeding their applicable Class GA standards. Notable VOC detections at concentrations below applicable standards from the 2018 and 2019 sampling included trans-1,2-dichloroethene and trichloroethylene, also detected from well MW-10S. Tables 2 & 6 and Figure 8 present a summary of the individual VOCs detected in groundwater samples, range of concentrations, frequency of detection, number of exceedances, and comparison to the NYS Class GA Groundwater standards.

A total of seventeen (17) groundwater samples were collected and analyzed for SVOCs during the 2018 sampling event. Only two SVOCs, 1,4-Dioxane (0.1 µg/l) and diethylphthalate (0.23 µg/l), were detected in the 2018 groundwater samples and both were present at concentrations below their respective Class GA standards. Tables 2 & 6 and Figure 8 present a summary of the individual SVOCs detected in the groundwater samples from 2018 and 2019, range of concentrations, frequency of detection, number of exceedances, and comparison to the NYS Class GA Groundwater standards.

Of the seventeen (17) groundwater samples collected and analyzed for PCNs during the 2018 sampling, none of the samples produced any detections for PCNs. Since PCNs were not detected in 2018 they were not analyzed for during the 2019 groundwater re-sampling event. 2019.

A total of thirteen (13) samples were collected and analyzed for TAL inorganics/metals during the 2018 sampling event, aluminum, iron, magnesium, manganese, and sodium were detected above the NYS Ground Water Class GA criteria but are all considered elevated likely due to natural variability related to the site specific geology and hydrologic setting. Several potential metals of concern including arsenic, cadmium, chromium, cobalt, copper, nickel, vanadium, and zinc were detected at varying concentration at three or more sample locations but none were present at levels exceeding their respective NYSDEC Class GA standards. Tables 2 & 6 and Figure 8 present a summary of the individual inorganic/metals detected in groundwater samples, range of concentrations, frequency of detection, number of exceedances, and comparison to NYSDEC Class GA maximum allowable groundwater concentrations.

Of the 17 groundwater samples collected and analyzed for pesticides, there were no pesticide detections at concentrations exceeding their respective Class GA groundwater standards. Two pesticide compounds, endosulfan I (0.055 µg/l) and gamma-BHC (Lindane) (0.0098 µg/l) were the only pesticides detected from any of the groundwater samples collected during 2018. Table 2 & 6 and Figure 8 present a summary of the pesticide detections from the groundwater samples, the range of concentrations, frequency of detection, number of exceedances, and comparison to NYSDEC Class GA maximum allowable groundwater concentrations.

Four PFCs were detected in the groundwater samples collected during the 2018 sampling event. Detections included perfluorobutyric acid, perfluorohexanesulfonic acid, perfluorononanoic acid, and perfluorooctane sulfonic acid. Of the four detected compounds, perfluorobutyric ~~perfluorohexanesulfonic~~ acid was the most frequently occurring, having been detected in ~~15~~ 6 out of 17 of the samples collected. Table 2 & 6 and Figure 8 display summaries of the PFC detections in groundwater based on the 2018 sampling event, the range of detected concentrations, frequency of detection, number of exceedances, and comparison to applicable NYSDEC guidance values.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Results Summary and Data Interpretation

The results of the RI field sampling and analysis program indicates the following:

- ***OU1 (Mill Pond Area)*** – Sampling in OU1 included a single surficial and shallow soil sample near the southwest corner edge of the pond and several co-located sediment and surface water samples. Detectable concentrations of inorganics, SVOCs, and pesticides were found in the soil samples but none exceeded their applicable comparison criteria. Various VOCs, SVOCs, inorganics, pesticides, and PFCs were detected in at least one of the Mill Pond sediment samples but no exceedances of site related contaminants of concern were observed. Similarly, there were detections of VOCs, various inorganics, and PFCs in each surface water sample but none of the detections were at levels exceeding applicable comparison criteria. Detections of cis-1,2-DCE appear to be attributable to an upgradient groundwater contamination plume, which discharges, in part, via the springs feeding the pond. The class of somewhat uncommon site-specific contaminants of concern, PCNs, were detected in a single shallow soil sample and a single sediment sample from Mill Pond. No concentrations of specific PCN homologs detected from OU1 exceeded their respective site specific Human Health or Ecological SCOs. Based on the results of the OU1 sampling events, no significant threat to public health or the environment exists due to site related contamination in the soils, sediment, or surface waters in the Mill Pond area.

- ***OU2 (Southeast Parcel)*** – Samples collected from OU2 included those from surficial soils, shallow and deep subsurface soils, and groundwater from two monitoring wells installed during 2018. Surficial soil samples yielded several inorganics (manganese, nickel, and copper) at concentrations that exceeded their ~~specific applicable~~ NYSDEC unrestricted use SCOs; however, none exceeded their residential use SCOs. Additional inorganics, SVOCs, pesticides, and PFCs were detected in these samples but at levels below their applicable comparison criteria. Deeper soils samples yielded detections of VOCs, SVOCs, pesticides, and PFCs but no exceedances of any site-related contaminants of concern. Groundwater samples collected from OU2 area monitoring wells indicated the only exceedances of Class GA standard were for certain inorganics that were likely present at elevated concentrations due to the collection of unfiltered samples. These particular analytes are not considered site-related contaminants of concern and more likely reflect variations in background levels related to the site geology. Additional detections in groundwater included various other inorganics, and VOCs, SVOCs, pesticides, and PFCs – none of which were detected at concentrations exceeding their respective maximum permissible levels. No PCN detections were found in any of the surficial or shallow and deep subsurface soil sampling locations from OU2. The overall results of the sampling programs conducted at OU2 indicates that extent of any site related contamination is limited and unlikely to pose a significant threat requiring further remedial action.

- ***OU3 (WWTP Parcel)*** – Sampling associated with OU3 included deep subsurface soils and groundwater from a series of new well pairs drilled on the parcel. The OU3 parcel is also the off-site area closest to several sediment and surface water sampling locations in the former canal and connected water bodies not actually located on the WWTP parcel but included as part of OU3 due to the proximity of these locations to OU3. Various detections of VOCs, SVOCs, inorganics, and pesticides were reported from the soil samples, however no exceedances of applicable standards ~~aside from typical lab contaminants~~ occurred. OU3 sediment samples yielded various combinations of detections of VOCs, SVOCs, inorganics, pesticides, and PFCs. Additionally, the only PCN detections from sampling conducted on OU3 were from sediment ~~and a single surface water sample~~ associated with the former canal and Cayuga Lake outlet near the WWTP. No concentrations of specific PCN homologs detected from OU3 exceeded their respective Human Health or Ecological ~~SCOs~~ sediment criteria developed for this site. The only reported exceedances of inorganic analytes were for lead concentrations in the deeper intervals of FC-SED-05 and FC-SED-08, both located in the former canal on or adjacent to the WWTP Parcel. Surface water results for the sampling locations in OU3 yielded detections of combinations of VOCs, inorganics, pesticides and PFCs for all of the sampled locations but none of the detected concentrations exceeded their respective standards, except delta-BHC at UNST-SW-06. Groundwater sampling results indicated that many wells exhibited typical groundwater inorganics (iron, manganese, sodium) that exceed Class GA standards but none that are regarded as particular site-related contaminants of concern. The only exceedance of note was the presence of cis-1,2-DCE at a concentration above its Class GA standard. The presence and concentration of cis-1,2-DCE was subsequently verified by re-sampling a subset of OU3 wells during November 2019. The re-sampling results were nearly identical to the original 2018 findings in both distribution (confined to the MW-10S ~~well pair~~) and concentration of cis-1,2-DCE. This exceedance represents a documented but localized impact to groundwater at OU3. Re-sampling of groundwater more than a year after the original sampling with very little change in results as well as the absence of any significant detections in nearby groundwater and surface waters supports the conclusion that this impact is isolated and stable and likely does not require further action beyond continued monitoring to determine if natural attenuation is occurring.

- ***OU4 (Northern Area Parcel, Eastern Area Parcel, Park Parcel)*** – The off-site parcels combined as OU4 were sampled for various combinations of surface and shallow subsurface soils, deeper subsurface soils, sediment, surface water, and groundwater. Surface and shallow subsurface soil samples yielded detections of VOCs, SVOCs, various inorganics, pesticides, and PFCs. Nickel exceeded its unrestricted use SCO at two locations and copper ~~levels~~ exceeded ~~their respective~~ its unrestricted use SCO~~s~~ at ~~two~~ one location~~s~~. Neither exceeded their residential use SCO. ~~and s~~Several pesticides also exceeded their ~~applicable~~ unrestricted use SCOs at one of these locations, but did not exceed their residential use SCOs. Deeper Northern Area parcel soil samples exhibited various detections of VOCs, SVOCs, inorganics, and pesticides but no exceedances of site-related contaminants of concern from any of the sampled locations. Sediment samples from the beaver pond area (Northern Area parcel) yielded detections of various VOCs, inorganics, pesticides, and PFCs but the only exceedance was a single detection of nickel. Co-located surface water samples near the sediment locations also yielded detections of VOCs, inorganics, and PFCs but none reached levels high enough to exceed their respective comparison criteria. Groundwater samples collected from the North Area parcel only yielded a very few minor detections of VOCs, inorganics, and PFCs with the only exceedances occurring among typical naturally occurring inorganic groundwater constituents such as iron and sodium. Sampling from the Eastern and Park areas of OU4 was confined to surficial and shallow subsurface soil samples only. Only one location was sampled on the Eastern Area parcel and although detections of inorganics, SVOCs, and pesticides were recorded none of the detected compounds were at levels above their respective SCOs. From the four soil sampling locations on the Park Area parcel, SVOCs were detected most frequently along with various inorganic analytes. Several PAHs (SVOCs) were detected in one of the samples at concentrations exceeding their respective SCOs but none of the other samples from this area exhibited similar exceedances. PCNs were detected in surficial or shallow subsurface soil samples from at least one sampling location on each of the three OU4 areas (Northern, Eastern, and Park Areas). The highest detected concentrations were associated with the surficial sample SS-09 in the Northern Area. No other sampled media from the OU4 parcels yielded detections of PCNs. No concentrations of specific PCN homologs detected from OU4 exceeded their respective site specific Human Health or Ecological ~~SCOs~~ criteria developed for this site.

Based on the Off-Site RI Report findings, a summary of localized impacts to the investigated OUs includes shallow soils from OU2 (metals), OU3 sediment (metals) and groundwater (cVOCs), OU4 – Northern Area soils (metals, pesticides, and PCNs) and sediment (metals), OU4 – Eastern Area (PCNs), and OU4 – Park Area soils (PAHs and PCNs). The proximity to the surface of contaminants detected in soils at concentrations exceeding their respective SCOs is the primary concern regarding the analytes detected in OU2 and OU4.

REFERENCES

ERM-Northeast, INC. *TRW INC. Environmental Investigation Union Springs Facility* Union Springs, *New York,* December 1997.

Environmental Resources Management. *TRW Inc. Berm Shoulder Investigation, Former TRW Facility Union Springs, New York.* February 2001.

Environmental Resources Management. *Summary Report for In-situ Chemical Oxidation Pilot Test, Former TRW Facility, 107 Salem Street Union Springs, New York.* November 9, 2005.

Environmental Resources Management. *Comprehensive Report: Site Characterization and Remedial Investigation, Former TRW Union Springs Facility Union Springs, New York.* July 2015.

ERM Consulting & Engineering, Inc. *Draft Remedial Investigation and Alternatives Analysis Report, Former TRW Union Springs Facility Village of Union Springs, Cayuga County, New York NYSDEC BCP Site Number C706019.* April 2018.

NYSDEC Division of Environmental Remediation, Bureau of Program Management. *WA Issuance/Notice to Proceed.* December 15, 2017.

NYSDEC. Division of Water Technical and Operational Guidance Series 1.1.1, Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (TOGS 1.1.1), June 1998.

NYSDEC Division of Fish, Wildlife and Marine Resources, Bureau of Habitat. *Screening and Assessment of Contaminated Sediments*. June 24, 2014.

NYSDEC, 6 NYCRR Part 375-6: Remedial Program Soil Cleanup Objectives, December 14, 2006.

NYSDEC, 6 NYCRR Part 703 – Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations, July 16, 1999.

NYSDEC, *DER-10 Technical Guidance for Site Investigation and Remediation*, May 2010.

NYSDEC Water Well Program Information Search Wizard, Revised September 2014, http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1203

Isachsen, Y.W., E. Landing, J.M. Lauber, L.V. Richard, and W.B. Rogers, 1991. Geology of New York- A simplified Account. New York State Museum/Geologic Survey, Educational Leaflet No.28

Rickard, L.V. and D.W. Fisher, 1970. Geologic Map of New York –Finger Lakes Sheet. New York State Museum and Science Service, Map and Chart Series #15.

USEPA, 2010. Low-flow (minimal drawdown) Purging and Sampling Procedure For The Collection of Groundwater Samples From Monitoring Wells. Quality Assurance Unit of United States Environmental Protection Agency Region 1. January.

New York State Department of Environmental Conservation. Species of Greatest Conservation Need. (https://www.dec.ny.gov/animals/9406.html)

Tables

TABLE 1

Sample	Sample Type	OU	Sample Date	Inorganics / Metals	VOCs	SVOCs	PCNs	Pesticides	PFCs
BP-SW-18									
BP-SW-18-20180517	N	4	5/17/2018	X	X	~~X~~ N/S	X	X	X
BP-SW-19									
BP-SW-19-20180517	N	4	5/17/2018	X	X	~~X~~ N/S	X	X	X
CL-SW-21									
CL-SW-21-20180521	N	3	5/21/2018	X	X	~~X~~ N/S	X	X	X
FC-SW-05									
FC-SW-05-20180521	N	3	5/21/2018	X	X	~~X~~ N/S	X	X	X
FC-SW-08									
FC-SW-08-20180521	N	3	5/21/2018	X	X	~~X~~ N/S	X	X	X
FC-SW-10									
FC-SW-10-20180522	N	3	5/22/2018	X	X	~~X~~ N/S	X	X	X
FC-SW-DUP-01-20180522	FD	3	5/22/2018	X	X	~~X~~ N/S	X	X	X
MP-SW-15									
MP-SW-15-20180515	N	1	5/15/2018	X	X	~~X~~ N/S	X	X	X
MP-SW-16									
MP-SW-16-20180515	N	1	5/15/2018	X	X	~~X~~ N/S	X	X	X
MP-SW-17									
MP-SW-17-20180515	N	1	5/15/2018	X	X	~~X~~ N/S	X	X	X
UNST-SW-06									
UNST-SW-06-20180521	N	3	5/21/2018	X	X	~~X~~ N/S	X	X	X

Notes:
X This analysis was conducted for this sample.
N/S This analysis was not conducted for this sample.
SVOCs do not include PCNs.

Sample Type:
N Normal Sample
FD Field Duplicate

TABLE 1

Union Springs TRW
Sediment Analysis Summary Table

Sample	Depth	Sample Type	OU	Sample Date	Inorganics / Metals	VOCs	SVOCs	PCNs	Pesticides	PFCs	TOC
BP-SED-18											
BP-SED-18-0-0.5-20180518	0 - 0.5 ft	N	4	5/18/2018	X	N/S	~~X~~ N/S	X	X	X	X
BP-SED-18-1.5-2.0-20180518	1.5 - 2 ft	N	4	5/18/2018	X	X	~~X~~ N/S	X	X	X	X
BP-SED-19											
BP-SED-19-0-0.5-20180518	0 - 0.5 ft	N	4	5/18/2018	X	X	N/S	X	X	X	X
BP-SED-19-1.0-2.0-20180518	1 - 2 ft	N	4	5/18/2018	X	X	~~X~~ N/S	X	X	X	X
CL-SED-21											
CL-SED-21-0-0.5-20180521	0 - 0.5 ft	N	3	5/21/2018	X	X	~~X~~ N/S	X	X	X	X
CL-SED-21-3.5-4.0-20180521	3.5 - 4 ft	N	3	5/21/2018	X	X	~~X~~ N/S	X	X	X	X
FC-SED-05											
FC-SED-05-1.0-2.0-20180522	1 - 2 ft	N	3	5/22/2018	N/S	N/S	N/S	N/S	X	X	X
FC-SED-05-2.0-4.0-20180522	2 - 4 ft	N	3	5/22/2018	X	X	~~X~~ N/S	X	X	X	X
FC-SED-08											
FC-SED-08-0.0-0.5-20180522	0 - 0.5 ft	N	3	5/22/2018	N/S	N/S	N/S	N/S	N/S	X	X
FC-SED-08-3.0-4.0-20180522	3 - 4 ft	N	3	5/22/2018	X	X	~~X~~ N/S	X	X	X	X
MP-SED-15											
MP-SED-15-0.5-1.0-20180516	0.5 - 1 ft	N	1	5/16/2018	X	X	~~X~~ N/S	X	X	X	N/S
MP-SED-16											
MP-SED-16-1.5-2.0-20180517	1.5 - 2 ft	N	1	5/17/2018	X	N/S	N/S	X	X	X	N/S
MP-SED-16-2.0-2.5-20180517	2 - 2.5 ft	N	1	5/17/2018	X	X	~~X~~ N/S	X	X	X	N/S
MP-SED-DUP-20180517	2 - 2.5 ft	FD	1	5/17/2018	X	X	N/S	X	X	X	N/S
MP-SED-17											
MP-SED17-0.0-0.5-20180515	0 - 0.5 ft	N	1	5/15/2018	X	N/S	~~X~~ N/S	X	X	X	X
MP-SED17-1.5-2.0-20180515	1.5 - 2 ft	N	1	5/15/2018	X	X	X	X	X	X	X
UNST-SED-06											
UNST-SED-06-0.0-0.5-20180521	0 - 0.5 ft	N	3	5/21/2018	N/S	N/S	N/S	N/S	X	X	X
UNST-SED-06-3.5-4.0-20180521	3.5 - 4 ft	N	3	5/21/2018	X	X	~~X~~ N/S	X	X	X	X

Notes:

X This analysis was conducted for this sample.
N/S This analysis was not conducted for this sample.
SVOCs do not include PCNs.

Sample Type:
N Normal Sample
FD Field Duplicate

TABLE 1

Sample	Depth	Sample Type	OU	Sample Date	Inorganics / Metals	VOCs	SVOCs	PCNs	Pesticides	PFCs
MW-01										
MW-01-8-12-20180803	8 - 12 ft	N	2	8/3/2018	X	X	X	X	X	X
MW-02										
MW-02-5-8-20180802	5 - 8 ft	N	2	8/2/2018	X	X	X	X	X	X
MW-03D										
MW-03D-22-24-20180807	22 - 24 ft	N	4	8/7/2018	N/S	X	N/S	N/S	X	N/S
MW-03D-6-10-20180807	6 - 10 ft	N	4	8/7/2018	N/S	N/S	N/S	N/S	X	X
MW-04S										
MW-04S-6-10-20180806	6 - 10 ft	N	4	8/6/2018	X	X	X	X	X	X
MW-05D										
MW-05-D1-20180801	24 - 28 ft	FD	4	8/1/2018	X	X	X	X	X	X
MW-05D-12-18-20180801	12 - 18 ft	N	4	8/1/2018	X	X	X	X	X	X
MW-05D-24-28-20180801	24 - 28 ft	N	4	8/1/2018	N/S	X	~~X~~ N/S	X	X	N/S
MW-06D										
MW-06D-20-22-20180731	20 - 22 ft	N	3	7/31/2018	N/S	X	~~X~~ N/S	X	X	N/S
MW-06D-6-10-20180731	6 - 10 ft	N	3	7/31/2018	X	X	X	X	X	X
MW-07D										
MW-07D-17-20-20180724	17 - 20 ft	N	3	7/24/2018	N/S	X	~~X~~ N/S	X	X	N/S
MW-07D-7-10-20180724	7 - 10 ft	N	3	7/24/2018	X	X	X	X	X	X
MW-08D										
MW-08D-20-24-20180725	20 - 24 ft	N	3	7/25/2018	N/S	X	~~X~~ N/S	X	X	N/S
MW-08D-7-10-20180725	7 - 10 ft	N	3	7/25/2018	X	X	X	X	X	X
MW-09D										
MW-9D-6-10-20180727	6 - 10 ft	N	3	7/27/2018	X	X	X	X	X	X
MW-09D-24-28-20180730	24 - 28 ft	N	3	7/30/2018	N/S	X	~~X~~ N/S	X	X	N/S
MW-10D										
MW-10D-20-26-20180726	20 - 26 ft	N	3	7/26/2018	N/S	X	~~X~~ N/S	X	X	N/S
MW-10D-6-12-20180726	6 - 12 ft	N	3	7/26/2018	X	X	X	X	X	X
SS-01										
SS-01-0-0.2-20180514	0 - 0.2 ft	N	1	5/14/2018	X	N/S	N/S	X	X	N/S
SS-01-0.2-1.0-20180514	0.2 - 1 ft	N	1	5/14/2018	X	N/S	~~X~~ N/S	X	X	N/S
SS-01-1.0-2.0-20180514	1 - 2 ft	N	1	5/14/2018	X	N/S	~~X~~ N/S	X	X	N/S
SS-02										
SS-02-0-0.2-20180514	0 - 0.2 ft	N	4	5/14/2018	X	N/S	~~X~~ N/S	X	X	N/S
SS-02-0.2-1.0-20180514	0.2 - 1 ft	N	4	5/14/2018	X	N/S	~~X~~ N/S	X	X	N/S
SS-02-1.0-2.0-20180514	1 - 2 ft	N	4	5/14/2018	X	N/S	~~X~~ N/S	X	X	N/S
SS-03										
SS-03-0.0-1.0-20180802	0 - 1 ft	N	2	8/2/2018	X	X	X	X	X	X
SS-03-1.0-2.0-20180802	1 - 2 ft	N	2	8/2/2018	X	X	X	X	X	X
SS-04										
SS-04-0.0-1.0-20180803	0 - 1 ft	N	2	8/3/2018	X	X	X	X	X	X
SS-04-1.0-2.0-20180803	1 - 2 ft	N	2	8/3/2018	X	X	X	X	X	X
SS-05										
SS-05-0-0.2-20180514	0 - 0.2 ft	N	4	5/14/2018	N/S	N/S	X	X	N/S	N/S
SS-05-1-1.3-20180514	1 - 1.3 ft	N	4	5/14/2018	N/S	N/S	X	X	N/S	N/S
SS-06										
SS-06-0.2-1.0-20180514	0.2 - 1 ft	N	4	5/14/2018	N/S	N/S	X	X	N/S	N/S
SS-06-0-0.2-20180514	0 - 0.2 ft	N	4	5/14/2018	N/S	N/S	X	X	N/S	N/S
SS-07										
SS-07-0.2-1.0-20180514	0.2 - 1 ft	N	4	5/14/2018	N/S	N/S	X	X	N/S	N/S
SS-07-0-0.2-20180514	0 - 0.2 ft	N	4	5/14/2018	N/S	N/S	X	X	N/S	N/S
SS-08										
SS-08-0.2-1.0-20180514	0.2 - 1 ft	N	4	5/14/2018	X	N/S	X	X	N/S	N/S
SS-08-0-0.2-20180514	0 - 0.2 ft	N	4	5/14/2018	X	N/S	X	X	N/S	N/S
SS-08-1.0-2.0-20180514	1 - 2 ft	N	4	5/14/2018	X	N/S	X	X	N/S	N/S
SS-09										
SS-09-0-0.2-20180515	0 - 0.2 ft	N	4	5/15/2018	X	X	X	X	X	X
SS-09-1.0-2.0-20180515	1 - 2 ft	N	4	5/15/2018	X	X	~~X~~ N/S	X	X	N/S
SS-DUPE-1-20180515	0 - 0.2 ft ~~1 - 2 ft~~	FD	4	5/15/2018	X	X	X	X	X	X
SS-10										
SS-10-0.0-1.0-20180807	0 - 1 ft	N	4	8/7/2018	X	X	X	X	X	X
SS-10-1.0-2.0-20180807	1 - 2 ft	N	4	8/7/2018	X	X	~~X~~ N/S	X	X	N/S
SS-11										
SS-11-0.0-1.0-20180807	0 - 1 ft	N	4	8/7/2018	X	X	X	X	X	X
SS-11-0.1-2.0-20180807	0.1 - 2 ft	N	4	8/7/2018	X	X	~~X~~ N/S	X	X	N/S
SS-12D-20180807	0 - 1 ft	FD	4	8/7/2018	X	X	X	X	X	X

Notes:
X This analysis was conducted for this sample.
N/S This analysis was not conducted for this sample.
SVOCs do not include PCNs.

Sample Type:
N Normal Sample
FD Field Duplicate

TABLE 1

Union Springs TRW
Groundwater Analysis Summary Table

Sample	Depth	Sample Type	OU	Sample Date	Inorganics / Metals	VOCs	SVOCs	PCNs	Pesticides	PFCs
MW-1S										
MW-1S-20180927	12 - 12 ft	N	2	9/27/2018	X	X	X	X	X	X
MW-2S										
MW-2S-20180927	12 - 12 ft	N	2	9/27/2018	X	X	X	X	X	X
MW-3D										
MW-3D-20180928	30 - 30 ft	N	4	9/28/2018	X	X	X	X	X	X
MW-D-20180928	30 - 30 ft	FD	4	9/28/2018	X	X	X	X	X	X
MW-4S										
MW-4S-20181002	20 - 20 ft	N	4	10/2/2018	N/S	X	~~X~~ N/S	X	X	X
MW-5D										
MW-5D-20181001	30 - 30 ft	N	4	10/1/2018	N/S	X	~~X~~ N/S	X	X	X
MW-5S										
MW-5S-20181001	19 - 19 ft	N	4	10/1/2018	N/S	X	~~X~~ N/S	X	X	X
MW-6D										
MW-6D-20180924	23 - 23 ft	N	3	9/24/2018	X	X	X	X	X	X
MW-6S										
MW-06S-20191125	15 - 15 ft	N	3	11/25/2019	N/S	X	N/S	N/S	N/S	N/S
MW-6S-20180927	15 - 15 ft	N	3	9/27/2018	X	X	X	X	X	X
MW-7D										
MW-7D-20180927	20 - 20 ft	N	3	9/27/2018	X	X	X	X	X	X
MW-7S										
MW-07S-20191125	13 - 13 ft	N	3	11/25/2019	N/S	X	N/S	N/S	N/S	N/S
MW-7S-20180927	13 - 13 ft	N	3	9/27/2018	X	X	X	X	X	X
MW-8D										
MW-8D-20180926	22 - 22 ft	N	3	9/26/2018	X	X	X	X	X	X
MW-8S										
MW-08S-20191125	13 - 13 ft	N	3	11/25/2019	N/S	X	N/S	N/S	N/S	N/S
MW-8S-20180926	13 - 13 ft	N	3	9/26/2018	X	X	X	X	X	X
MW-9D										
MW-9D-20180925	32 - 32 ft	N	3	9/25/2018	X	X	X	X	X	X
MW-9S										
MW-09S-20191126	19 - 19 ft	N	3	11/26/2019	N/S	X	N/S	N/S	N/S	N/S
MW-9S-20180925	19 - 19 ft	N	3	9/25/2018	X	X	X	X	X	X
MW-10D										
MW-10D-20180925	24 - 24 ft	N	3	9/25/2018	X	X	X	X	X	X
MW-10D-20191125	24 - 24 ft	N	3	11/25/2019	N/S	X	N/S	N/S	N/S	N/S
MW-10S										
MW-10S-20180925	16 - 16 ft	N	3	9/25/2018	X	X	X	X	X	X
MW-10S-20191126	16 - 16 ft	N	3	11/26/2019	N/S	X	N/S	N/S	N/S	N/S
MW-99-20191126	16 - 16 ft	FD	3	11/26/2019	N/S	X	N/S	N/S	N/S	N/S
MW-300										
MW-300-20180928	20 - 20 ft	N	3	9/28/2018	N/S	N/S	~~X~~ N/S	X	X	X

Notes:
X This analysis was conducted for this sample.
N/S This analysis was not conducted for this sample.
SVOCs do not include PCNs.

Sample Type:
N Normal Sample
FD Field Duplicate

TABLE 1

Union Springs TRW
Field QC Analysis Summary Table

Sample	Sample Type	Sample Date	Inorganics / Metals	VOCs	SVOCs	PCNs	Pesticides	PFCs
Equipment Blanks								
EB-080818-20180808	EB	8/8/2018	X	X	X	X	X	X
EB-20191126-20191126	EB	11/26/2019	N/S	X	N/S	N/S	N/S	N/S
EB-GW-20180928	EB	9/28/2018	X	X	X	X	X	X
EB-SED-01-20180522	EB	5/22/2018	X	X	~~X~~ N/S	X	X	X
EB-SS-01-20180517	EB	5/17/2018	X	X	X	X	X	X
EB-SW-01-20180517	EB	5/17/2018	X	X	~~X~~ N/S	X	X	X
EB-SW-02-20180522	EB	5/22/2018	X	X	~~X~~ N/S	X	X	X
EB-WLM-20180928	EB	9/28/2018	N/S	N/S	N/S	N/S	N/S	X
Field Blanks								
FB-080818-20180808	FB	8/8/2018	X	X	X	X	X	X
FB-GW-20181002	FB	10/2/2018	X	X	X	X	X	X
Rig Supply Blank								
RTB-080818-20180808	RB	8/8/2018	X	X	X	X	X	X
Trip Blanks								
TB-080818-20180808	TB	8/8/2018	N/S	X	N/S	N/S	N/S	N/S
TB-20180515-20180515	TB	5/15/2018	N/S	X	N/S	N/S	N/S	N/S
TB-20180517-20180517	TB	5/17/2018	N/S	X	N/S	N/S	N/S	N/S
TB-20180518-20180518	TB	5/18/2018	N/S	X	N/S	N/S	N/S	N/S
TB-20180521-20180521	TB	5/21/2018	N/S	X	N/S	N/S	N/S	N/S
TB-20180522-20180522	TB	5/22/2018	N/S	X	N/S	N/S	N/S	N/S
TB-20180925	TB	9/25/2018	N/S	X	N/S	N/S	N/S	N/S
TB-20180927	TB	9/27/2018	N/S	X	N/S	N/S	N/S	N/S
TB-20180928	TB	9/28/2018	N/S	X	N/S	N/S	N/S	N/S
TB-20181001	TB	10/1/2018	N/S	X	N/S	N/S	N/S	N/S
TB-20181002	TB	10/2/2018	N/S	X	N/S	N/S	N/S	N/S
TRIP BLANK-20191126	TB	11/26/2019	N/S	X	N/S	N/S	N/S	N/S

Notes:

X	This analysis was conducted for this sample.
N/S	This analysis was not conducted for this sample.
	SVOCs do not include PCNs.

Sample Type:

EB	Equipment Blank
FB	Field Blank
RB	Rinsate Blank
TB	Trip Blank

Table 2

Union Springs TRW
2018 Groundwater Sample Detection
and Exceedance Summary

Analyte	CAS	Units	Minimum Detected Concentration	Maximum Detected Concentration	Number of Detections	Number of Samples	Number of Exceedances of NYS Ground Water Class GA	NYS Ground Water Class GA
Inorganics								
Aluminum	7429-90-5	mg/l	0.062	4	11	13	~~2~~ 0	~~2~~
Arsenic	7440-38-2	mg/l	0.0056	0.011	5	13	0	0.025
Barium	7440-39-3	mg/l	0.014	0.18	13	13	0	1
Cadmium	7440-43-9	mg/l	0.00062	0.001	5	13	0	0.005
Calcium	7440-70-2	mg/l	100	530	13	13	0	
Chromium	7440-47-3	mg/l	0.0012	0.0046	3	13	0	0.05
Cobalt	7440-48-4	mg/l	0.00074	0.0023	8	13	0	
Copper	7440-50-8	mg/l	0.003	0.026	8	13	0	0.2
Iron	7439-89-6	mg/l	0.12	5.4	13	13	12	0.3
Magnesium	7439-95-4	mg/l	43	173	13	13	13	35
Manganese	7439-96-5	mg/l	0.038	0.66	13	13	2	0.3
Nickel	7440-02-0	mg/l	0.0015	0.0098	6	13	0	0.1
Potassium	7440-09-7	mg/l	2.5	12.9	13	13	0	
Sodium	7440-23-5	mg/l	17.1	513	13	13	12	20
Vanadium	7440-62-2	mg/l	0.0024	0.0084	3	13	0	
Zinc	7440-66-6	mg/l	0.0036	0.035	13	13	0	2
VOCs								
2-Butanone	78-93-3	ug/l	2.4	2.4	1	16	0	50
Acetone	67-64-1	ug/l	3.1	3.1	1	16	0	50
~~Chloroform~~	~~67-66-3~~	~~ug/l~~	~~0.38~~	~~0.38~~	~~1~~	~~16~~	~~0~~	~~7~~
Cis-1,2-Dichloroethene	156-59-2	ug/l	130	130	1	16	1	5
Dichloromethane	75-09-2	ug/l	1.1	1.1	1	16	0	5
Trichloroethylene	79-01-6	ug/l	2.7	2.7	1	16	0	5
SVOCs								
1,4-Dioxane	123-91-1	ug/l	0.1	0.1	1	17	0	
Diethylphthalate	84-66-2	ug/l	0.23	0.23	1	13	0	50
Pesticides								
Endosulfan I	959-98-8	ug/l	0.055	0.055	1	17	0	
Gamma-BHC (Lindane)	58-89-9	ug/l	0.0098	0.0098	1	17	0	0.05
PFCs								
Perfluorobutyric Acid (PFBA)	375-22-4	ng/l	0.39	3.5	6	17	0	
Perfluorohexanesulfonic Acid	355-46-4	ng/l	~~0.2~~ 0.27	~~0.41~~ 0.27	~~15~~ 1	17	0	
Perfluorononanoic Acid (PFNA)	375-95-1	ng/l	0.25	0.25	1	17	0	
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1	ng/l	1.0	1.0	1	17	0	10*

* - 10 ng/l is the current groundwater screening value for PFOS

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Table 2

Union Springs TRW
2019 Groundwater Sample Detection
and Exceedance Summary

Analyte	CAS	Units	Minimum Detected Concentration	Maximum Detected Concentration	Number of Detections	Number of Samples	Number of Exceedances of NYS Ground Water Class GA	NYS Ground Water Class GA
VOCs								
Acetone	67-64-1	ug/l	3.6	3.6	1	6	0	50
Cis-1,2-Dichloroethene	156-59-2	ug/l	98	98	1	6	1	5
Trans-1,2-Dichloroethene	156-60-5	ug/l	0.93	0.93	1	6	0	5
Trichloroethylene	79-01-6	ug/l	4.7	4.7	1	6	0	5

HDR

Table 2

Union Springs TRW
Sediment Sample Detection
and Exceedance Summary

Analyte	CAS	Units	Minimum Detected Concentration	Maximum Detected Concentration	Number of Detections	Number of Samples	Number of Exceedances of NYS Sediment SGV Human Health	NYS Sediment SGV Human Health	Number of Exceedances of NYS Sediment Freshwater Class A	NYS Sediment Freshwater Class A	Number of Exceedances of NYS Sediment Freshwater Class C	NYS Sediment Freshwater Class C	Number of Exceedances of NYS Sediment SGV PAHs	NYS Sediment SGV PAHs
Inorganics														
Aluminum	7429-90-5	mg/kg	689	19800	14	14	0		0		0		0	
Antimony	7440-36-0	mg/kg	0.073	0.45	10	14	0		0		0		0	
Arsenic	7440-38-2	mg/kg	0.33	6	14	14	0		0	10	0	33	0	
Barium	7440-39-3	mg/kg	50.5	351	14	14	0		0		0		0	
Beryllium	7440-41-7	mg/kg	0.045	1.1	14	14	0		0		0		0	
Cadmium	7440-43-9	mg/kg	0.1	0.94	14	14	0		0	1	0	5	0	
Calcium	7440-70-2	mg/kg	14000	244000	14	14	0		0		0		0	
Chromium	7440-47-3	mg/kg	1.5	20.4	14	14	0		0	43	0	110	0	
Cobalt	7440-48-4	mg/kg	0.24	9.5	14	14	0		0		0		0	
Copper	7440-50-8	mg/kg	4.6	22.6	14	14	0		0	32	0	150	0	
Iron	7439-89-6	mg/kg	649	21300	14	14	0		0		0		0	
Lead	7439-92-1	mg/kg	2.7	56.2	14	14	0		2	36	0	130	0	
Magnesium	7439-95-4	mg/kg	2180	24400	14	14	0		0		0		0	
Manganese	7439-96-5	mg/kg	13.1	460	14	14	0		0		0		0	
Mercury	7439-97-6	mg/kg	0.014	0.1	13	14	0		0	0.2	0	1	0	
Nickel	7440-02-0	mg/kg	3.7	24.2	14	14	0		1	23	0	49	0	
Potassium	7440-09-7	mg/kg	280	2690	14	14	0		0		0		0	
Selenium	7782-49-2	mg/kg	0.48	1.5	14	14	0		0		0		0	
Silver	7440-22-4	mg/kg	0.024	0.065	11	14	0		0	1	0	2.2	0	
Sodium	7440-23-5	mg/kg	94.6	418	14	14	0		0		0		0	
Thallium	7440-28-0	mg/kg	0.054	0.29	14	14	0		0		0		0	
Vanadium	7440-62-2	mg/kg	1.1	26.3	14	14	0		0		0		0	
Zinc	7440-66-6	mg/kg	21.8	125	14	14	0		1	120	0	460	0	
VOCs														
Acetone	67-64-1	ug/kg	6.3	27	4	11	0		0		0		0	
Dichloromethane	75-09-2	ug/kg	8.8	8.8	1	11	0	68	0		0		0	
Toluene	108-88-3	ug/kg	26	26	1	11	0	56000	0	930	0	4500	0	
SVOCs														
Dichloronaphthalene	28699-88-9	ug/kg	52	52	1	14	0		0		0		0	
Trichloronaphthalene	1321-65-9	ug/kg	43	110	4	14	0		0		0		0	
Pesticides														
4,4'-DDD	72-54-8	ug/kg	0.22	1.1	8	16	0	1.4	0		0		0	
4,4'-DDE	72-55-9	ug/kg	0.21	0.72	5	16	1	0.62	0		0		0	
4,4'-DDT	50-29-3	ug/kg	0.16	0.43	3	16	0	0.44	0		0		0	
Aldrin	309-00-2	ug/kg	0.18	1.4	3	16	0		0		0		0	
Alpha-BHC	319-84-6	ug/kg	0.41	0.41	1	16	1	0.21	0		0		0	
Beta-BHC	319-85-7	ug/kg	0.21	0.23	2	16	0	0.84	0		0		0	
Delta-Bhc	319-86-8	ug/kg	0.37	0.37	1	16	0	0.81	0		0		0	
Endosulfan Sulfate	1031-07-8	ug/kg	0.2	0.57	3	16	0		0		0		0	
Endrin	72-20-8	ug/kg	0.18	0.18	1	16	0	5.2	0	90	0	220	0	
Endrin Aldehyde	7421-93-4	ug/kg	0.29	0.42	2	16	0		0		0		0	
Gamma-BHC (Lindane)	58-89-9	ug/kg	0.18	0.43	2	16	0	0.65	0	47	0	78	0	
Gamma-Chlordane	5103-74-2	ug/kg	0.5	0.5	1	16	0		0		0		0	
PFCs														
Perfluorobutyric Acid (PFBA)	375-22-4	ug/kg	0.045	2.1	13	17	0		0		0		0	
Perfluorodecane Sulfonic Acid	335-77-3	ug/kg	0.3	0.3	1	17	0		0		0		0	
Perfluorodecanoic Acid (PFDA)	335-76-2	ug/kg	0.27	0.27	1	17	0		0		0		0	
Perfluorohexanesulfonic Acid	355-46-4	ug/kg	0.13	0.13	1	17	0		0		0		0	
Perfluorohexanoic Acid (PFHxA)	307-24-4	ug/kg	0.75	0.75	1	17	0		0		0		0	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	ug/kg	0.15	3.2	6	17	0		0		0		0	
Parameters														
Total Organic Carbon	TOC	mg/kg	17900	277000	14	14	0		0		0		0	

Table 2

Analyte	CAS	Units	Minimum Detected Concentration	Maximum Detected Concentration	Number of Detections	Number of Samples	Number of Exceedances of SCO Restricted Use	NYSDEC SO SCO ~~Restricted~~ Residential	Number of Exceedances of SCO Unrestricted Use	NYSDEC SO SCO Unrestricted ~~Residential~~
Inorganics										
Aluminum	7429-90-5	mg/kg	7460	25600	5	5	0		0	
Antimony	7440-36-0	mg/kg	0.46	1.5	3	5	0		0	
Arsenic	7440-38-2	mg/kg	3.9	5.7	5	5	0	16	0	13
Barium	7440-39-3	mg/kg	67.2	154	5	5	0	~~400~~ 350	0	350
Beryllium	7440-41-7	mg/kg	0.37	1.2	5	5	0	~~72~~ 14	0	7.2
Cadmium	7440-43-9	mg/kg	0.043	1	7	7	0	~~4.3~~ 2.5	0	2.5
Calcium	7440-70-2	mg/kg	3010	57700	5	5	0		0	
Chromium	7440-47-3	mg/kg	11.8	31.8	6	6	0		0	
Cobalt	7440-48-4	mg/kg	6.6	19.7	5	5	0		0	
Copper	7440-50-8	mg/kg	15.9	55	7	7	0	270	1	50
Iron	7439-89-6	mg/kg	13600	28800	5	5	0		0	
Lead	7439-92-1	mg/kg	9.1	26.5	5	5	0	400	0	63
Magnesium	7439-95-4	mg/kg	5000	23000	5	5	0		0	
Manganese	7439-96-5	mg/kg	319	1700	8	8	0	2000	1	1600
Mercury	7439-97-6	mg/kg	0.019	0.06	5	5	0	0.81	0	0.18
Nickel	7440-02-0	mg/kg	16.3	34.8	5	5	0	~~310~~ 140	1	30
Potassium	7440-09-7	mg/kg	1970	7380	5	5	0		0	
Selenium	7782-49-2	mg/kg	0.53	0.53	1	5	0	~~180~~ 36	0	3.9
Sodium	7440-23-5	mg/kg	74.7	244	5	5	0		0	
Thallium	7440-28-0	mg/kg	0.64	0.64	1	5	0		0	
Vanadium	7440-62-2	mg/kg	15.8	45.7	5	5	0		0	
Zinc	7440-66-6	mg/kg	32.9	72.8	5	5	0	~~10000~~ 2200	0	109
VOCs										
3-Octanol	589-98-0	ug/kg	10	10	1	1	0		0	
3-Octanone	106-68-3	ug/kg	56	56	1	1	0		0	
Acetone	67-64-1	ug/kg	12	12	1	5	0	100000	0	50
SVOCs										
(Z)-9-Octadecanimide	301-02-0	ug/kg	230	230	1	1	0		0	
1-Chloronaphthalene	90-13-1	ug/kg	69	69	1	11	0		0	
1-Docosene	1599-67-3	ug/kg	240	240	1	1	0		0	
3beta-Hydroxy-27-norcholest-5-en-25-one	7494-34-0	ug/kg	700	700	1	1	0		0	
Acenaphthylene	208-96-8	ug/kg	44	44	1	9	0	100000	0	100000
Benzo(A)Anthracene	56-55-3	ug/kg	21	290	6	9	0	1000	0	1000
Benzo(A)Pyrene	50-32-8	ug/kg	50	240	5	9	0	1000	0	1000
Benzo(B)Fluoranthene	205-99-2	ug/kg	45	420	6	9	0	1000	0	1000
Benzo(G,H,I)Perylene	191-24-2	ug/kg	41	180	5	9	0	100000	0	100000
Benzo(K)Fluoranthene	207-08-9	ug/kg	34	230	5	9	0	~~3900~~ 1000	0	800
Chrysene	218-01-9	ug/kg	52	300	5	9	0	~~3900~~ 1000	0	1000
Dibenzo(A,H)Anthracene	53-70-3	ug/kg	50	50	1	9	0	330	0	330
Dichloromethane	75-09-2	ug/kg	180	370	4	4	0	~~100000~~ 51,000	4	50
Dichloronaphthalene	28699-88-9	ug/kg	240	240	1	11	0		0	
Dioctadecyl Ester Phosphonic Acid	19047-85-9	ug/kg	310	310	1	1	0		0	
Fluoranthene	206-44-0	ug/kg	34	340	6	9	0	100000	0	100000
Hexachloronaphthalene	1335-87-1	ug/kg	46	46	1	11	0		0	
Indeno(1,2,3-Cd)Pyrene	193-39-5	ug/kg	38	190	5	9	0	500	0	500
N-Triacontane	638-68-6	ug/kg	220	220	1	1	0		0	
Oxirane, Hexadecyl-	7390-81-0	ug/kg	460	460	1	1	0		0	
Pentachloronaphthalene	1321-64-8	ug/kg	25	1000	3	11	0		0	
Phenanthrene	85-01-8	ug/kg	46	110	3	9	0	100000	0	100000
Pyrene	129-00-0	ug/kg	36	320	6	9	0	100000	0	100000
r-Sitosterol	83-47-6	ug/kg	670	970	2	2	0		0	
Tetrachloronaphthalene	1335-88-2	ug/kg	28	4300	6	11	0		0	
Tetratetracontane	7098-22-8	ug/kg	200	200	1	1	0		0	
Tetratriacontane	14167-59-0	ug/kg	200	200	1	1	0		0	
Trichloronaphthalene	1321-65-9	ug/kg	22	2100	4	11	0		0	
Trifluoroacetic Acid, N-Octadecyl Ester	79392-43-1	ug/kg	1100	1100	1	1	0		0	
Unknown Semivolatile With 1st Highest Conc.	UNKSV1	ug/kg	1400	2200	4	4	0		0	
Unknown Semivolatile With 2nd Highest Conc.	UNKSV2	ug/kg	1200	1500	4	4	0		0	
Unknown Semivolatile With 3rd Highest Conc.	UNKSV3	ug/kg	250	820	4	4	0		0	
Unknown Semivolatile With 4th Highest Conc.	UNKSV4	ug/kg	190	380	4	4	0		0	
Unknown Semivolatile With 5th Highest Conc.	UNKSV5	ug/kg	170	350	4	4	0		0	
Unknown Semivolatile With 6th Highest Conc.	UNKSV6	ug/kg	240	260	2	2	0		0	
Unknown Semivolatile With 7th Highest Conc.	UNKSV7	ug/kg	180	250	2	2	0		0	
Unknown Semivolatile With 8th Highest Conc.	UNKSV8	ug/kg	170	220	2	2	0		0	
Unknown Semivolatile With 9th Highest Conc.	UNKSV9	ug/kg	170	170	1	1	0		0	
Unknown Semivolatile With 10th Highest Conc.	UNKSV10	ug/kg	170	170	1	1	0		0	
Unknown Semivolatile With 11th Highest Conc.	UNKSV11	ug/kg	160	160	1	1	0		0	
Pesticides										
4,4'-DDD	72-54-8	ug/kg	1.3	1.3	1	7	0	~~13000~~ 2600	0	3.3
4,4'-DDE	72-55-9	ug/kg	7	7	1	7	0	~~8900~~ 1800	0	3.3
4,4'-DDT	50-29-3	ug/kg	0.54	4.3	3	7	0	~~7900~~ 1700	1	3.3
Aldrin	309-00-2	ug/kg	0.51	5.8	2	7	0	~~97~~ 19	0	5
Alpha-BHC	319-84-6	ug/kg	0.87	27	4	7	0	~~480~~ 97	1	20
Alpha-Chlordane	5103-71-9	ug/kg	28	28	1	7	0	~~4200~~ 910	0	94
Beta-BHC	319-85-7	ug/kg	3.3	3.3	2	7	0	~~360~~ 72	0	36
Delta-Bhc	319-86-8	ug/kg	3.8	3.8	1	7	0	100000	0	40
Dieldrin	60-57-1	ug/kg	3.3	3.3	1	7	0	~~200~~ 39	0	5
Endosulfan I	959-98-8	ug/kg	3.4	3.4	1	7	0	~~24000~~ 4800	0	2400
Endrin Aldehyde	7421-93-4	ug/kg	1.2	1.2	1	7	0		0	
Endrin Ketone	53494-70-5	ug/kg	0.7	1.4	4	7	0		0	
Gamma-BHC (Lindane)	58-89-9	ug/kg	0.66	5.8	3	7	0	~~1300~~ 280	0	100
Gamma-Chlordane	5103-74-2	ug/kg	30	35	2	7	0		0	
Heptachlor	76-44-8	ug/kg	2	2	1	7	0	~~2100~~ 420	0	42
Methoxychlor	72-43-5	ug/kg	0.7	2.6	2	7	0		0	
PFCs										
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	ug/kg	0.03	0.03	1	5	0		0	
Perfluorobutyric Acid (PFBA)	375-22-4	ug/kg	0.058	0.42	5	5	0		0	
Perfluorodecanoic Acid (PFDA)	335-76-2	ug/kg	0.031	0.11	5	5	0		0	
Perfluoroheptanoic Acid (PFHpA)	375-85-9	ug/kg	0.038	0.19	4	5	0		0	
Perfluorohexanoic Acid (PFHxA)	307-24-4	ug/kg	0.053	0.26	2	5	0		0	
Perfluorononanoic Acid (PFNA)	375-95-1	ug/kg	0.045	0.19	4	5	0		0	
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1	ug/kg	0.32	0.59	3	5	0		0	
Perfluorooctanoic acid (PFOA)	335-67-1	ug/kg	0.16	0.85	4	5	0		0	
Perfluoropentanoic Acid (PFPeA)	2706-90-3	ug/kg	0.13	0.13	1	5	0		0	
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	ug/kg	0.048	0.14	4	5	0		0	

Table 2

Analyte	CAS	Units	Minimum Detected Concentration	Maximum Detected Concentration	Number of Detections	Number of Samples	Number of Exceedances of SCO Restricted Use	NYSDEC SO SCO ~~Restricted~~ Residential	Number of Exceedances of SCO Unrestricted Use	NYSDEC SO SCO Unrestricted ~~Residential~~
Inorganics										
Aluminum	7429-90-5	mg/kg	9400	29600	5	5	0		0	
Antimony	7440-36-0	mg/kg	0.42	1	3	5	0		0	
Arsenic	7440-38-2	mg/kg	4.3	6.1	5	5	0	16	0	13
Barium	7440-39-3	mg/kg	88.9	175	5	5	0	~~400~~ 350	0	350
Beryllium	7440-41-7	mg/kg	0.4	1.3	5	5	0	~~72~~ 14	0	7.2
Cadmium	7440-43-9	mg/kg	0.056	0.47	5	9	0	~~4.3~~ 2.5	0	2.5
Calcium	7440-70-2	mg/kg	3970	79700	5	5	0		0	
Chromium	7440-47-3	mg/kg	13.6	37.5	7	7	0		0	
Cobalt	7440-48-4	mg/kg	8.3	18.2	5	5	0		0	
Copper	7440-50-8	mg/kg	16.5	29.4	9	9	0	270	0	50
Iron	7439-89-6	mg/kg	15400	31700	5	5	0		0	
Lead	7439-92-1	mg/kg	9.3	14.8	5	5	0	400	0	63
Magnesium	7439-95-4	mg/kg	8690	31900	5	5	0		0	
Manganese	7439-96-5	mg/kg	232	645	11	11	0	2000	0	1600
Mercury	7439-97-6	mg/kg	0.014	0.044	5	5	0	0.81	0	0.18
Nickel	7440-02-0	mg/kg	20.3	50	5	5	0	~~310~~ 140	3	30
Potassium	7440-09-7	mg/kg	1870	7290	5	5	0		0	
Selenium	7782-49-2	mg/kg	0.63	0.63	1	5	0	~~180~~ 36	0	3.9
Sodium	7440-23-5	mg/kg	103	266	5	5	0		0	
Vanadium	7440-62-2	mg/kg	19	50.1	5	5	0		0	
Zinc	7440-66-6	mg/kg	31.7	69.6	5	5	0	~~10000~~ 2200	0	109
VOCs										
Acetone	67-64-1	ug/kg	5	32	2	5	0	100000	0	50
Trichloroethylene	79-01-6	ug/kg	0.93	0.93	1	5	0	~~21000~~ 10,000	0	470
SVOCs										
(Z)-9-Octadecanimide	301-02-0	ug/kg	280	280	1	1	0		0	
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	170	170	1	1	0		0	
1,1-Biphenyl	92-52-4	ug/kg	730	730	1	7	0		0	
2-Methylnaphthalene	91-57-6	ug/kg	2300	2300	1	7	0		0	
4-Methylphenol	106-44-5	ug/kg	740	740	1	7	0	~~100000~~ 34,000	1	330
Acenaphthene	83-32-9	ug/kg	4000	4000	1	7	0	100000	0	20000
Acenaphthylene	208-96-8	ug/kg	28	690	3	7	0	100000	0	100000
Anthracene	120-12-7	ug/kg	6200	6200	1	7	0	100000	0	100000
Benzo(A)Anthracene	56-55-3	ug/kg	140	26000	4	7	1	1000	1	1000
Benzo(A)Pyrene	50-32-8	ug/kg	38	25000	5	7	1	1000	1	1000
Benzo(B)Fluoranthene	205-99-2	ug/kg	74	33000	5	7	1	1000	1	1000
Benzo(G,H,I)Perylene	191-24-2	ug/kg	34	17000	5	7	0	100000	0	100000
Benzo(K)Fluoranthene	207-08-9	ug/kg	110	14000	4	7	1	3900 1000	1	800
Carbazole	86-74-8	ug/kg	24	7400	2	7	0		0	
Chrysene	218-01-9	ug/kg	200	30000	4	7	1	~~3900~~ 1000	1	1000
Dibenzofuran	132-64-9	ug/kg	6000	6000	1	7	0	~~59000~~ 14,000	0	7000
Dichloromethane	75-09-2	ug/kg	230	280	2	2	0	~~100000~~ 51,000	2	50
Fluoranthene	206-44-0	ug/kg	84	80000	5	7	0	100000	0	100000
Fluorene	86-73-7	ug/kg	5500	5500	1	7	0	100000	0	30000
Indeno(1,2,3-Cd)Pyrene	193-39-5	ug/kg	29	15000	5	7	1	500	1	500
Naphthalene	91-20-3	ug/kg	6000	6000	1	7	0	100000	0	12000
Pentachloronaphthalene	1321-64-8	ug/kg	26	71	3	14	0		0	
Phenanthrene	85-01-8	ug/kg	170	75000	4	7	0	100000	0	100000
Phenol	108-95-2	ug/kg	350	350	1	7	0	100000	1	330
Pyrene	129-00-0	ug/kg	66	62000	5	7	0	100000	0	100000
Tetrachloronaphthalene	1335-88-2	ug/kg	29	360	6	14	0		0	
Trichloronaphthalene	1321-65-9	ug/kg	21	120	4	14	0		0	
Unknown Semivolatile With 1st Highest Conc.	UNKSV1	ug/kg	1900	2100	2	2	0		0	
Unknown Semivolatile With 2nd Highest Conc.	UNKSV2	ug/kg	1300	1500	2	2	0		0	
Unknown Semivolatile With 3rd Highest Conc.	UNKSV3	ug/kg	280	800	2	2	0		0	
Unknown Semivolatile With 4th Highest Conc.	UNKSV4	ug/kg	260	260	1	1	0		0	
Pesticides										
4,4'-DDE	72-55-9	ug/kg	1.7	1.7	1	9	0	~~8900~~ 1800	0	3.3
4,4'-DDT	50-29-3	ug/kg	0.77	0.95	2	9	0	~~7900~~ 1700	0	3.3
Aldrin	309-00-2	ug/kg	1.1	1.1	1	9	0	~~97~~ 19	0	5
Alpha-BHC	319-84-6	ug/kg	0.41	6.6	5	9	0	~~480~~ 97	0	20
Delta-Bhc	319-86-8	ug/kg	0.44	2	6	9	0	100000	0	40
Dieldrin	60-57-1	ug/kg	0.48	0.48	1	9	0	~~200~~ 39	0	5
Gamma-BHC (Lindane)	58-89-9	ug/kg	0.44	0.53	2	9	0	~~1300~~ 280	0	100
Heptachlor	76-44-8	ug/kg	0.63	0.88	2	9	0	~~2100~~ 420	0	42

Table 2

Union Springs TRW
Deep Subsurface Detections
and Exceedances Summary Table

Analyte	CAS	Units	Minimum Detected Concentration	Maximum Detected Concentration	Number of Detections	Number of Samples	Number of Exceedances of SCO Restricted Use	NYSDEC SO SCO ~~Restricted~~ Residential	Number of Exceedances of SCO Unrestricted Use	NYSDEC SO SCO Unrestricted ~~Residential~~
Inorganics										
Aluminum	7429-90-5	mg/kg	3330	22500	9	9	0		0	
Antimony	7440-36-0	mg/kg	0.82	0.82	1	9	0		0	
Arsenic	7440-38-2	mg/kg	1.7	11.7	9	9	0	16	0	13
Barium	7440-39-3	mg/kg	50.4	225	9	9	0	~~400~~ 350	0	350
Beryllium	7440-41-7	mg/kg	0.16	0.99	9	9	0	~~72~~ 14	0	7.2
Cadmium	7440-43-9	mg/kg	0.065	1.2	6	9	0	~~4.3~~ 2.5	0	2.5
Calcium	7440-70-2	mg/kg	7310	82500	9	9	0		0	
Chromium	7440-47-3	mg/kg	5.7	27.6	9	9	0		0	
Cobalt	7440-48-4	mg/kg	3.7	12.5	9	9	0		0	
Copper	7440-50-8	mg/kg	10.7	25.3	9	9	0	270	0	50
Iron	7439-89-6	mg/kg	5980	24700	9	9	0		0	
Lead	7439-92-1	mg/kg	4.3	13.2	9	9	0	400	0	63
Magnesium	7439-95-4	mg/kg	5130	28100	9	9	0		0	
Manganese	7439-96-5	mg/kg	88.9	575	9	9	0	2000	0	1600
Mercury	7439-97-6	mg/kg	0.011	0.057	9	9	0	0.81	0	0.18
Nickel	7440-02-0	mg/kg	6.4	29.3	9	9	0	~~310~~ 140	0	30
Potassium	7440-09-7	mg/kg	1220	7710	9	9	0		0	
Selenium	7782-49-2	mg/kg	1.1	1.1	1	9	0	~~180~~ 36	0	3.9
Sodium	7440-23-5	mg/kg	139	483	9	9	0		0	
Vanadium	7440-62-2	mg/kg	7.9	38.3	9	9	0		0	
Zinc	7440-66-6	mg/kg	16.4	90.1	9	9	0	~~10000~~ 2200	0	109
VOCs										
2-Butanone	78-93-3	ug/kg	3.1	11	3	16	0	100000	0	120
Acetone	67-64-1	ug/kg	~~5.8~~ 16	~~72~~ 16	~~15~~ 1	16	0	100000	~~2~~ 0	50
Carbon Disulfide	75-15-0	ug/kg	14	14	1	16	0		0	
Cis-1,2-Dichloroethene	156-59-2	ug/kg	1.1	21	3	16	0	~~100000~~ 59,000	0	250
Methyl acetate	79-20-9	ug/kg	8.3	8.3	1	16	0		0	
Trans-1,2-Dichloroethene	156-60-5	ug/kg	0.48	0.48	1	16	0	100000	0	190
Trichloroethylene	79-01-6	ug/kg	1.6	63	2	16	0	~~21000~~ 10,000	0	470
SVOCs										
(Z)-13-Docosenamide	112-84-5	ug/kg	970	970	1	1	0		0	
(Z)-9-Octadecanimide	301-02-0	ug/kg	480	500	2	2	0		0	
1,1,2,2-Tetrachloroethane	79-34-5	ug/kg	200	230	3	3	0		0	
5-EICOSENE, (E)-	C20N5	ug/kg	930	930	1	1	0		0	
Bis(2-Ethylhexyl) Phthalate	117-81-7	ug/kg	75	75	1	9	0		0	
Carboranylmethyl Propyl Sulfide	62906-36-9	ug/kg	760	760	1	1	0		0	
Cyclohexadecane	295-65-8	ug/kg	1300	1300	1	1	0		0	
D:C-Friedoolean-8-En-3-One	22611-26-3	ug/kg	2800	2800	1	1	0		0	
Dichloromethane	75-09-2	ug/kg	160	410	4	4	0	~~100000~~ 51,000	4	50
Di-N-Octyl Phthalate	117-84-0	ug/kg	72	81	2	9	0		0	
Friedelin	559-74-0	ug/kg	9100	9100	1	1	0		0	
Heptafluorobutyric Acid, N-Octadecyl Est	1000216-79-5	ug/kg	660	660	1	1	0		0	
r-Sitosterol	83-47-6	ug/kg	550	550	1	1	0		0	
Taraxasterol	1059-14-9	ug/kg	3200	3200	1	1	0		0	
Unknown Semivolatile With 10th Highest Conc.	UNKSV10	ug/kg	360	360	1	1	0		0	
Unknown Semivolatile With 1st Highest Conc.	UNKSV1	ug/kg	1200	12000	9	9	0		0	
Unknown Semivolatile With 2nd Highest Conc.	UNKSV2	ug/kg	310	4300	9	9	0		0	
Unknown Semivolatile With 3rd Highest Conc.	UNKSV3	ug/kg	280	3000	7	7	0		0	
Unknown Semivolatile With 4th Highest Conc.	UNKSV4	ug/kg	330	1600	3	3	0		0	
Unknown Semivolatile With 5th Highest Conc.	UNKSV5	ug/kg	230	1000	2	2	0		0	
Unknown Semivolatile With 6th Highest Conc.	UNKSV6	ug/kg	200	760	2	2	0		0	
Unknown Semivolatile With 7th Highest Conc.	UNKSV7	ug/kg	190	760	2	2	0		0	
Unknown Semivolatile With 8th Highest Conc.	UNKSV8	ug/kg	660	660	1	1	0		0	
Unknown Semivolatile With 9th Highest Conc.	UNKSV9	ug/kg	540	540	1	1	0		0	
Vitamin E	59-02-9	ug/kg	360	360	1	1	0		0	
Pesticides										
4,4'-DDD	72-54-8	ug/kg	0.51	0.51	1	17	0	~~13000~~ 2600	0	3.3
4,4'-DDT	50-29-3	ug/kg	0.55	0.78	2	17	0	~~7900~~ 1700	0	3.3
Alpha-BHC	319-84-6	ug/kg	0.43	0.57	3	17	0	~~480~~ 97	0	20
Delta-Bhc	319-86-8	ug/kg	0.38	0.95	8	17	0	100000	0	40
Endosulfan I	959-98-8	ug/kg	0.43	0.43	1	17	0	~~24000~~ 4800	0	2400
Endosulfan II	33213-65-9	ug/kg	0.49	0.59	2	17	0	~~24000~~ 4800	0	2400
Endosulfan Sulfate	1031-07-8	ug/kg	0.49	0.53	2	17	0	~~24000~~ 4800	0	2400
Endrin Aldehyde	7421-93-4	ug/kg	0.61	0.61	1	17	0		0	
Gamma-BHC (Lindane)	58-89-9	ug/kg	0.41	0.66	3	17	0	~~1300~~ 280	0	100
Gamma-Chlordane	5103-74-2	ug/kg	0.77	0.77	1	17	0		0	
Heptachlor	76-44-8	ug/kg	0.94	0.94	1	17	0	~~2100~~ 420	0	42
PFCs										
Perfluorobutyric Acid (PFBA)	375-22-4	ug/kg	0.034	0.034	1	10	0		0	

Table 2

Union Springs TRW
Surface Water Detections and
Exceedances Summary Table

Analyte	CAS	Units	Minimum Detected Concentration	Maximum Detected Concentration	Number of Detections	Number of Samples	Number of Exceedances of NYS Surface Water Class A	NYS Surface Water Class A	Number of Exceedances of NYS Surface Water Class C	NYS Surface Water Class C
Inorganics										
Aluminum	7429-90-5	mg/l	0.052	0.097	6	10	0	~~100~~ 0.1	0	~~100~~ 0.1
Barium	7440-39-3	mg/l	0.077	0.093	10	10	0	~~1000~~ 1.0	0	
Calcium	7440-70-2	mg/l	129	144	10	10	0		0	
Iron	7439-89-6	mg/l	0.043	0.36	8	10	~~0~~ 2	~~300~~ 0.3	0	
Magnesium	7439-95-4	mg/l	30.4	33.2	10	10	0	~~35000~~ 35	0	
Manganese	7439-96-5	mg/l	0.0045	0.11	7	10	0	~~300~~ 0.3	0	
Nickel	7440-02-0	mg/l	0.0015	0.0019	5	10	0	~~100~~ 0.1	0	
Potassium	7440-09-7	mg/l	2.6	3.7	10	10	0		0	
Selenium	7782-49-2	mg/l	0.0043	0.0043	1	10	0	~~4.6~~ 0.0046	0	~~4.6~~ 0.0046
Sodium	7440-23-5	mg/l	48.8	56.6	10	10	0		0	
Zinc	7440-66-6	mg/l	0.02	0.02	1	10	0	~~2000~~ 2.0	0	
VOCs										
1,2-Dichloroethene (Total)	540-59-0	ug/l	6.5	7.8	4	10	0		0	
Cis-1,2-Dichloroethene	156-59-2	ug/l	2	7.8	9	10	~~0~~ 4	~~5000~~ 5	0	
~~Dichloromethane~~	~~75-09-2~~	~~ug/l~~	~~2.7~~	~~2.7~~	~~1~~	~~10~~	~~0~~	~~5000~~	~~0~~	~~200000~~
SVOCs										
Dichloronaphthalene	28699-88-9	ug/l	0.31	0.31	1	10	0		0	
Pesticides										
Alpha-BHC	319-84-6	ug/l	0.018	0.018	1	10	~~0~~ 1	~~2~~ 0.002	~~0~~ 1	~~2~~ 0.002
Delta-Bhc	319-86-8	ug/l	0.011	0.011	1	10	~~0~~ 1	~~8~~ 0.008	~~0~~ 1	~~8~~ 0.008
PFCs										
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	ng/l	0.22	0.51	10	10	0		0	
Perfluorobutyric Acid (PFBA)	375-22-4	ng/l	0.85	1.5	10	10	0		0	
Perfluoroheptanoic Acid (PFHpA)	375-85-9	ng/l	0.21	0.37	2	10	0		0	
Perfluorohexanesulfonic Acid	355-46-4	ng/l	0.27	0.43	10	10	0		0	
Perfluorooctane Sulfonamide (FOSA)	754-91-6	ng/l	0.98	0.98	1	10	0		0	
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1	ng/l	0.77	0.98	2	10	0		0	
Perfluorooctanoic acid (PFOA)	335-67-1	ng/l	1.1	2.5	3	10	0		0	
Perfluoropentanoic Acid (PFPeA)	2706-90-3	ng/l	0.46	0.51	2	10	0		0	
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2	ng/l	2.7	17	4	10	0		0	

Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Sample: MW-01-8-12-20180803 Location: MW-01 Sample Date: 8/3/2018 Start Depth (ft): 8 End Depth (ft): 12 Result	Qual	Sample: MW-02-5-8-20180802 Location: MW-02 Sample Date: 8/2/2018 Start Depth (ft): 5 End Depth (ft): 8 Result	Qual	Sample: MW-03D-6-10-20180807 Location: MW-03D Sample Date: 8/7/2018 Start Depth (ft): 6 End Depth (ft): 10 Result	Qual	Sample: MW-03D-22-24-20180807 Location: MW-03D Sample Date: 8/7/2018 Start Depth (ft): 22 End Depth (ft): 24 Result	Qual	Sample: MW-04S-6-10-20180806 Location: MW-04S Sample Date: 8/6/2018 Start Depth (ft): 6 End Depth (ft): 10 Result	Qual
Inorganics														
Aluminum	7429-90-5			mg/kg	15500		13900						19800	
Antimony	7440-36-0			mg/kg	18	U	18.9	U					0.82	J
Arsenic	7440-38-2	16	13	mg/kg	4.4		3.3						3.5	
Barium	7440-39-3	~~400~~ 350	350	mg/kg	129		183						134	
Beryllium	7440-41-7	~~72~~ 14	7.2	mg/kg	0.66		0.59						0.87	
Cadmium	7440-43-9	~~4.3~~ 2.5	2.5	mg/kg	0.24	U	0.25	U					0.13	J
Calcium	7440-70-2			mg/kg	71200	B	44100	B					56100	B
Chromium, Total	7440-47-3			mg/kg	23.4		17.7						27.6	
Cobalt	7440-48-4			mg/kg	8.2		12.5						11.5	
Copper	7440-50-8	270	50	mg/kg	15.7		23.2						18.2	
Iron	7439-89-6			mg/kg	18400		18400						24100	
Lead	7439-92-1	400	63	mg/kg	10.5		9.1						13.2	
Magnesium	7439-95-4			mg/kg	26700	B	13800	B					20800	
Manganese	7439-96-5	2000	1600	mg/kg	384	B	540	B					440	B
Mercury	7439-97-6	0.81	0.18	mg/kg	0.022	J	0.016	J					0.013	J
Nickel	7440-02-0	~~310~~ 140	30	mg/kg	21.7		25.9						28.8	
Potassium	7440-09-7			mg/kg	4920		4050						6310	
Selenium	7782-49-2	~~180~~ 36	3.9	mg/kg	4.8	U	5	U					4.9	U
Silver	7440-22-4	~~180~~ 36	2	mg/kg	0.72	U	0.76	U					0.73	U
Sodium	7440-23-5			mg/kg	212		234						357	
Thallium	7440-28-0			mg/kg	7.2	U	7.6	U					7.3	U
Vanadium	7440-62-2			mg/kg	29.2		26.2						38.3	
Zinc	7440-66-6	~~10000~~ 2200	109	mg/kg	41.3	B	41.7	B					52.7	
VOCs														
1,1,1-Trichloroethane	71-55-6	100000	680	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
1,1,2,2-Tetrachloroethane	79-34-5			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
1,1,2-Trichloroethane	79-00-5			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
1,1-Dichloroethane	75-34-3	~~26000~~ 19,000	270	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
1,1-Dichloroethene	75-35-4	100000	330	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
1,2,4-Trichlorobenzene	120-82-1			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
1,2-Dibromoethane (Ethylene dibromide)	106-93-4			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
1,2-Dichlorobenzene	95-50-1	100000	1100	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
1,2-Dichloroethane	107-06-2	~~3100~~ 2300	20	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
1,2-Dichloroethene (Total)	540-59-0			ug/kg										
1,2-Dichloropropane	78-87-5			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
1,3-Dichlorobenzene	541-73-1	~~49000~~ 17,000	2400	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
1,4-Dichlorobenzene	106-46-7	~~13000~~ 9800	1800	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
2-Butanone	78-93-3	100000	120	ug/kg	18	UT	22	U			20	U	21	UJ
2-Hexanone	591-78-6			ug/kg	18	U	22	U			20	U	21	UJ
3-Octanol	589-98-0			ug/kg										
3-Octanone	106-68-3			ug/kg										
4-Methyl-2-Pentanone	108-10-1			ug/kg	18	U	22	U			20	U	21	UJ
Acetone	67-64-1	100000	50	ug/kg	18	U	22	U			20	U	37	UJ
Benzene	71-43-2	~~4800~~ 2900	60	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Bromodichloromethane	75-27-4			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Bromoform	75-25-2			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Bromomethane	74-83-9			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Carbon Disulfide	75-15-0			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Carbon Tetrachloride	56-23-5	~~2400~~ 1400	760	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Chlorobenzene	108-90-7	100000	1100	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Chlorodibromomethane	124-48-1			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Chloroethane	75-00-3			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Chloroform	67-66-3	~~49000~~ 10,000	370	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Chloromethane	74-87-3			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Cis-1,2-Dichloroethene	156-59-2	~~100000~~ 59,000	250	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Cis-1,3-Dichloropropene	10061-01-5			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Cyclohexane	110-82-7			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Cyclopentane	287-92-3			ug/kg										
Dichlorodifluoromethane	75-71-8			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Ethylbenzene	100-41-4	~~41000~~ 30,000	1000	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Freon 113	76-13-1			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Isopropyl benzene	98-82-8			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
m,p-Xylene	179601-23-1			ug/kg										

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

Table 3

				Sample:	MW-01-8-12-20180803		MW-02-5-8-20180802		MW-03D-6-10-20180807		MW-03D-22-24-20180807		MW-04S-6-10-20180806	
				Location:	MW-01		MW-02		MW-03D		MW-03D		MW-04S	
				Sample Date:	8/3/2018		8/2/2018		8/7/2018		8/7/2018		8/6/2018	
				Start Depth (ft):	8		5		6		22		6	
				End Depth (ft):	12		8		10		24		10	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Methyl acetate	79-20-9			ug/kg	18	U	22	U			20	U	21	UJ
Methyl T-Butyl Ether (MTBE)	1634-04-4	~~100000~~ 62,000	930	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Methylcyclohexane	108-87-2			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
O-Xylene	95-47-6			ug/kg										
Styrene	100-42-5			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Tetrachloroethene	127-18-4	~~19000~~ 5500	1300	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Toluene	108-88-3	100000	700	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Trans-1,2-Dichloroethene	156-60-5	100000	190	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Trans-1,3-Dichloropropene	10061-02-6			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Trichloroethylene	79-01-6	~~21000~~ 10,000	470	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Trichlorofluoromethane	75-69-4			ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Vinyl Chloride	75-01-4	~~900~~ 210	20	ug/kg	3.6	U	4.3	U			4	U	4.2	UJ
Xylenes, Total	XYLENES	100,000	260	ug/kg	7.2	U	8.7	U			8.1	U	8.4	UJ
SVOCs														
(Z)-13-Docosenamide	112-84-5			ug/kg									970	JN
(Z)-9-Octadecanimide	301-02-0			ug/kg			500	JN						
1,1-Biphenyl	92-52-4			ug/kg	200	U	220	U					210	U
1-Chloronaphthalene	90-13-1			ug/kg	95	U	110	U					97	UJ
1-Docosene	1599-67-3			ug/kg										
1-Octadecene	112-88-9			ug/kg										
2,4,5-Trichlorophenol	95-95-4			ug/kg	200	U	220	U					210	U
2,4,6-Trichlorophenol	88-06-2			ug/kg	200	U	220	U					210	U
2,4-Dichlorophenol	120-83-2			ug/kg	200	U	220	U					210	U
2,4-Dimethylphenol	105-67-9			ug/kg	200	U	220	U					210	U
2,4-Dinitrophenol	51-28-5			ug/kg	2000	U	2100	U					2000	U
2,4-Dinitrotoluene	121-14-2			ug/kg	200	U	220	U					210	U
2,6-Dinitrotoluene	606-20-2			ug/kg	200	U	220	U					210	U
2-Chloronaphthalene	91-58-7			ug/kg	200	U	220	U					210	U
2-Chlorophenol	95-57-8			ug/kg	200	U	220	U					210	U
2-Methylnaphthalene	91-57-6			ug/kg	200	U	220	U					210	U
2-Methylphenol	95-48-7	100000	330	ug/kg	200	U	220	U					210	U
2-Nitroaniline	88-74-4			ug/kg	390	U	420	U					400	U
2-Nitrophenol	88-75-5			ug/kg	200	U	220	U					210	U
3,3`-Dichlorobenzidine	91-94-1			ug/kg	390	U	420	U					400	U
3beta-Hydroxy-27-norcholest-5-en-25-one	7494-34-0			ug/kg										
3-Nitroaniline	99-09-2			ug/kg	390	U	420	U					400	U
4,6-Dinitro-2-Methylphenol	534-52-1			ug/kg	390	U	420	U					400	U
4-Bromophenyl Phenyl Ether	101-55-3			ug/kg	200	U	220	U					210	U
4-Chloro-3-Methylphenol	59-50-7			ug/kg	200	U	220	U					210	U
4-Chloroaniline	106-47-8			ug/kg	200	U	220	U					210	U
4-Chlorophenyl Phenylether	7005-72-3			ug/kg	200	U	220	U					210	U
4-Methylphenol	106-44-5	~~100000~~ 34,000	330	ug/kg	390	U	420	U					400	U
4-Nitroaniline	100-01-6			ug/kg	390	U	420	U					400	U
4-Nitrophenol	100-02-7			ug/kg	390	U	420	U					400	U
5-EICOSENE, (E)-	C20N5			ug/kg										
Acenaphthene	83-32-9	100000	20000	ug/kg	200	U	220	U					210	U
Acenaphthylene	208-96-8	100000	100000	ug/kg	200	U	220	U					210	U
Acetophenone	98-86-2			ug/kg	200	U	220	U					210	U
Anthracene	120-12-7	100000	100000	ug/kg	200	U	220	U					210	U
Atrazine	1912-24-9			ug/kg	200	U	220	U					210	UT
Benzaldehyde	100-52-7			ug/kg	200	U	220	U					210	U
Benzeneacetic Acid	103-82-2			ug/kg										
Benzo(A)Anthracene	56-55-3	1000	1000	ug/kg	200	U	220	U					210	U
Benzo(A)Pyrene	50-32-8	1000	1000	ug/kg	200	U	220	U					210	U
Benzo(B)Fluoranthene	205-99-2	1000	1000	ug/kg	200	U	220	U					210	U
Benzo(G,H,I)Perylene	191-24-2	100000	100000	ug/kg	200	U	220	U					210	U
Benzo(K)Fluoranthene	207-08-9	~~3900~~ 1000	800	ug/kg	200	U	220	U					210	UT
Bis(2-Chloroethoxy) Methane	111-91-1			ug/kg	200	U	220	U					210	U
Bis(2-Chloroethyl) Ether	111-44-4			ug/kg	200	U	220	U					210	U
Bis(2-Ethylhexyl) Phthalate	117-81-7			ug/kg	200	U	75	J					210	U
Bis-Chloroisopropyl Ether	108-60-1			ug/kg	200	U	220	U					210	U
Butyl Benzyl Phthalate	85-68-7			ug/kg	200	U	220	U					210	U
Butyl Citrate	77-94-1			ug/kg										
Caprolactam	105-60-2			ug/kg	200	U	220	U					210	U
Carbazole	86-74-8			ug/kg	200	U	220	U					210	U
Carboranylmethyl Propyl Sulfide	62906-36-9			ug/kg										

Notes:

VALUE is non-detect.
VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.
VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	MW-01-8-12-20180803		MW-02-5-8-20180802		MW-03D-6-10-20180807		MW-03D-22-24-20180807		MW-04S-6-10-20180806	
				Location:	MW-01		MW-02		MW-03D		MW-03D		MW-04S	
				Sample Date:	8/3/2018		8/2/2018		8/7/2018		8/7/2018		8/6/2018	
				Start Depth (ft):	8		5		6		22		6	
				End Depth (ft):	12		8		10		24		10	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Chrysene	218-01-9	~~3900~~ 1000	1000	ug/kg	200	U	220	U					210	U
Cyclohexadecane	295-65-8			ug/kg										
D:C-Friedoolean-8-En-3-One	22611-26-3			ug/kg										
Dibenzo(A,H)Anthracene	53-70-3	330	330	ug/kg	200	U	220	U					210	U
Dibenzofuran	132-64-9	~~59000~~ 14,000	7000	ug/kg	200	U	220	U					210	U
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg										
Dichloronaphthalene	28699-88-9			ug/kg	95	U	110	U					97	UJ
Diethylphthalate	84-66-2			ug/kg	200	U	220	U					210	UT
Dimethylphthalate	131-11-3			ug/kg	200	U	220	U					210	U
Di-N-Butylphthalate	84-74-2			ug/kg	200	U	220	U					210	U
Di-N-Octyl Phthalate	117-84-0			ug/kg	200	U	220	U					210	U
Dioctadecyl Ester Phosphonic Acid	19047-85-9			ug/kg										
Ergost-4,7,22-Trien-3.Alpha.-Ol	6538-05-2			ug/kg										
Fluoranthene	206-44-0	100000	100000	ug/kg	200	U	220	U					210	U
Fluorene	86-73-7	100000	30000	ug/kg	200	U	220	U					210	U
Heptachloronaphthalene	32241-08-0			ug/kg	95	U	110	U					97	UJ
Heptafluorobutyric Acid, N-Octadecyl Est	1000216-79-5			ug/kg										
Hexachlorobenzene	118-74-1	~~1200~~ 330	330	ug/kg	200	U	220	U					210	U
Hexachlorobutadiene	87-68-3			ug/kg	200	U	220	U					210	U
Hexachlorocyclopentadiene	77-47-4			ug/kg	200	U	220	U					210	U
Hexachloroethane	67-72-1			ug/kg	200	U	220	U					210	U
Hexachloronaphthalene	1335-87-1			ug/kg	95	U	110	U					97	UJ
Indeno(1,2,3-Cd)Pyrene	193-39-5	500	500	ug/kg	200	U	220	U					210	U
Isophorone	78-59-1			ug/kg	200	U	220	U					210	U
Naphthalene	91-20-3	100000	12000	ug/kg	200	U	220	U					210	U
Nitrobenzene	98-95-3			ug/kg	200	U	220	U					210	U
N-Nitroso-Di-N-Propylamine	621-64-7			ug/kg	200	U	220	U					210	U
N-Nitrosodiphenylamine	86-30-6			ug/kg	200	U	220	U					210	U
N-Triacontane	638-68-6			ug/kg										
Octachloronaphthalene	2234-13-1			ug/kg	95	U	110	U					97	UJ
Oxirane, Hexadecyl-	7390-81-0			ug/kg										
Pentachloronaphthalene	1321-64-8			ug/kg	95	U	110	U					97	UJ
Pentachlorophenol	87-86-5	~~6700~~ 2400	800	ug/kg	390	U	420	U					400	U
Phenanthrene	85-01-8	100000	100000	ug/kg	200	U	220	U					210	U
Phenol	108-95-2	100000	330	ug/kg	200	U	220	U					210	U
Pyrene	129-00-0	100000	100000	ug/kg	200	U	220	U					210	U
r-Sitosterol	83-47-6			ug/kg										
Taraxasterol	1059-14-9			ug/kg										
Tetrachloronaphthalene	1335-88-2			ug/kg	95	U	110	U					97	UJ
Tetratetracontane	7098-22-8			ug/kg										
Tetratriacontane	14167-59-0			ug/kg										
Trichloronaphthalene	1321-65-9			ug/kg	95	U	110	U					97	UJ
Trifluoroacetic Acid, N-Octadecyl Ester	79392-43-1			ug/kg										
Unknown Semivolatile With 10th Highest Conc.	UNKSV10			ug/kg										
Unknown Semivolatile With 11th Highest Conc.	UNKSV11			ug/kg										
Unknown Semivolatile With 1st Highest Conc.	UNKSV1			ug/kg										
Unknown Semivolatile With 2nd Highest Conc.	UNKSV2			ug/kg										
Unknown Semivolatile With 3rd Highest Conc.	UNKSV3			ug/kg	770	J								
Unknown Semivolatile With 4th Highest Conc.	UNKSV4			ug/kg	340	J								
Unknown Semivolatile With 5th Highest Conc.	UNKSV5			ug/kg										
Unknown Semivolatile With 6th Highest Conc.	UNKSV6			ug/kg										
Unknown Semivolatile With 7th Highest Conc.	UNKSV7			ug/kg										
Unknown Semivolatile With 8th Highest Conc.	UNKSV8			ug/kg										
Unknown Semivolatile With 9th Highest Conc.	UNKSV9			ug/kg										
Vitamin E	59-02-9			ug/kg										

Notes:

VALUE is non-detect.
VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.
VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	MW-01-8-12-20180803		MW-02-5-8-20180802		MW-03D-6-10-20180807		MW-03D-22-24-20180807		MW-04S-6-10-20180806	
				Location:	MW-01		MW-02		MW-03D		MW-03D		MW-04S	
				Sample Date:	8/3/2018		8/2/2018		8/7/2018		8/7/2018		8/6/2018	
				Start Depth (ft):	8		5		6		22		6	
				End Depth (ft):	12		8		10		24		10	
Analyte	**CAS Number**	**NYS Soil ~~Restricted~~ Residential**	**NYS Soil Unrestricted**	**Units**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Pesticides														
4,4'-DDD	72-54-8	~~13000~~ 2600	3.3	ug/kg	2	U	2.1	U	2	U	2	U	0.51	J
4,4'-DDE	72-55-9	~~8900~~ 1800	3.3	ug/kg	2	U	2.1	U	2	U	2	U	2	U
4,4'-DDT	50-29-3	~~7900~~ 1700	3.3	ug/kg	2	U	0.55	J	2	U	2	U	2	U
Aldrin	309-00-2	~~97~~ 19	5	ug/kg	2	U	2.1	U	2	U	2	U	2	U
Alpha-BHC	319-84-6	~~480~~ 97	20	ug/kg	0.54	J	2.1	U	2	U	2	U	2	U
Alpha-Chlordane	5103-71-9	~~4200~~ 910	94	ug/kg	2	U	2.1	U	2	U	2	U	2	U
Beta-BHC	319-85-7	~~360~~ 72	36	ug/kg	2	U	2.1	U	2	U	2	U	2	U
Chlorinated Camphene	8001-35-2			ug/kg	20	U	21	U	20	U	20	U	20	U
Delta-Bhc	319-86-8	100000	40	ug/kg	2	U	2.1	U	2	U	2	U	2	U
Dieldrin	60-57-1	~~200~~ 39	5	ug/kg	2	U	2.1	U	2	U	2	U	2	U
Endosulfan I	959-98-8	~~24000~~ 4800	2400	ug/kg	2	U	2.1	U	2	U	2	U	2	U
Endosulfan II	33213-65-9	~~24000~~ 4800	2400	ug/kg	0.59	J	0.49	J	2	U	2	U	2	U
Endosulfan Sulfate	1031-07-8	~~24000~~ 4800	2400	ug/kg	2	U	0.53	J	2	U	2	U	2	U
Endrin	72-20-8	~~11000~~ 2200	14	ug/kg	2	U	2.1	U	2	U	2	U	2	U
Endrin Aldehyde	7421-93-4			ug/kg	2	U	2.1	U	2	U	2	U	2	U
Endrin Ketone	53494-70-5			ug/kg	2	U	2.1	U	2	U	2	U	2	U
Gamma-BHC (Lindane)	58-89-9	~~1300~~ 280	100	ug/kg	2	U	2.1	U	2	U	2	U	2	U
Gamma-Chlordane	5103-74-2			ug/kg	2	U	2.1	U	2	U	2	U	2	U
Heptachlor	76-44-8	~~2100~~ 420	42	ug/kg	2	U	2.1	U	2	U	2	U	2	U
Heptachlor Epoxide	1024-57-3			ug/kg	2	U	2.1	U	2	U	2	U	2	U
Methoxychlor	72-43-5			ug/kg	2	U	2.1	U	2	U	2	U	2	U
PFCs														
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9			ug/kg	2.4	U	2.5	U	2.4	U			2.4	U
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6			ug/kg	2.4	U	2.5	U	2.4	U			2.4	U
Perfluorobutanesulfonic Acid (PFBS)	375-73-5			ug/kg	0.24	U	0.25	U	0.24	U			0.24	U
Perfluorobutyric Acid (PFBA)	375-22-4			ug/kg	0.24	U	0.25	U	0.24	U			0.24	U
Perfluorodecane Sulfonic Acid	335-77-3			ug/kg	0.24	U	0.25	U	0.24	U			0.24	U
Perfluorodecanoic Acid (PFDA)	335-76-2			ug/kg	0.24	U	0.25	U	0.24	U			0.24	U
Perfluorododecanoic Acid (PFDoA)	307-55-1			ug/kg	0.24	U	0.25	U	0.24	U			0.24	U
Perfluoroheptane Sulfonate (PFHpS)	375-92-8			ug/kg	0.24	U	0.25	U	0.24	U			0.24	U
Perfluoroheptanoic Acid (PFHpA)	375-85-9			ug/kg	0.24	U	0.25	U	0.24	U			0.24	U
Perfluorohexanesulfonic Acid	355-46-4			ug/kg	0.24	U	0.25	U	0.24	U			0.24	U
Perfluorohexanoic Acid (PFHxA)	307-24-4			ug/kg	0.24	U	0.25	U	0.24	U			0.24	U
Perfluorononanoic Acid (PFNA)	375-95-1			ug/kg	0.24	U	0.25	U	0.24	U			0.24	U
Perfluorooctane Sulfonamide (FOSA)	754-91-6			ug/kg	0.24	U	0.25	U	0.24	U			0.24	U
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1			ug/kg	0.6	U	0.64	U	0.59	U			0.6	U
Perfluorooctanoic acid (PFOA)	335-67-1			ug/kg	0.24	U	0.25	U	0.24	U			0.24	U
Perfluoropentanoic Acid (PFPeA)	2706-90-3			ug/kg	0.24	U	0.25	U	0.24	U			0.24	U
Perfluorotetradecanoic Acid (PFTeA)	376-06-7			ug/kg	0.24	U	0.25	U	0.24	U			0.24	U
Perfluorotridcanoic Acid (PFTriA)	72629-94-8			ug/kg	0.24	U	0.25	U	0.24	U			0.24	U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8			ug/kg	0.24	U	0.25	U	0.24	U			0.24	U
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4			ug/kg	2.4	U	2.5	U	2.4	U			2.4	U
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2			ug/kg	2.4	U	2.5	U	2.4	U			2.4	U

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	MW-05D-12-18-20180801		MW-05-D1-20180801		MW-05D-24-28-20180801		MW-06D-6-10-20180731		MW-06D-20-22-20180731	
				Location:	MW-05D		MW-05D		MW-05D		MW-06D		MW-06D	
				Sample Date:	8/1/2018		8/1/2018		8/1/2018		7/31/2018		7/31/2018	
				Start Depth (ft):	12		24		24		6		20	
				End Depth (ft):	18		28		28		10		22	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Inorganics														
Aluminum	7429-90-5			mg/kg	16100	J	5330	J			19800	T		
Antimony	7440-36-0			mg/kg	*19.4*	*U*	*17.4*	*U*			*25*	*UJ*		
Arsenic	7440-38-2	16	13	mg/kg	6.3		2.1	J			11.7	T		
Barium	7440-39-3	~~400~~ 350	350	mg/kg	108	J	44.5	J			225	J		
Beryllium	7440-41-7	~~72~~ 14	7.2	mg/kg	0.72		0.25				0.99			
Cadmium	7440-43-9	~~4.3~~ 2.5	2.5	mg/kg	*0.26*	*U*	*0.23*	*U*			1.2			
Calcium	7440-70-2			mg/kg	60800	B	48800	B			7310	J		
Chromium, Total	7440-47-3			mg/kg	22.4	J	8.5	J			24.9	J-		
Cobalt	7440-48-4			mg/kg	8.8	J	3.9	J			6.8			
Copper	7440-50-8	270	50	mg/kg	16.7	J	7.3	J			25.3	B		
Iron	7439-89-6			mg/kg	20100	J	9380	J			16000	J		
Lead	7439-92-1	400	63	mg/kg	8.5	J	4.6	J			13	B		
Magnesium	7439-95-4			mg/kg	23300	B	21300	B			5130	J		
Manganese	7439-96-5	2000	1600	mg/kg	398	B	320	B			88.9	J-		
Mercury	7439-97-6	0.81	0.18	mg/kg	0.011	J	0.015	J			0.057			
Nickel	7440-02-0	~~310~~ 140	30	mg/kg	22.2	J	8.8	J			25.7	T		
Potassium	7440-09-7			mg/kg	5480	J	1790	J			4470	J		
Selenium	7782-49-2	~~180~~ 36	3.9	mg/kg	*5.2*	*U*	*4.6*	*U*			1.1	J		
Silver	7440-22-4	~~180~~ 36	2	mg/kg	*0.78*	*U*	*0.7*	*U*			*1*	*U*		
Sodium	7440-23-5			mg/kg	270		168				483	B		
Thallium	7440-28-0			mg/kg	*7.8*	*U*	*7*	*U*			*10*	*U*		
Vanadium	7440-62-2			mg/kg	31.1	J	14.4	J			33.6	J-		
Zinc	7440-66-6	~~10000~~ 2200	109	mg/kg	45	J	21.3	J			90.1	J		
VOCs														
1,1,1-Trichloroethane	71-55-6	100000	680	ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UJ*	*6.9*	*U*
1,1,2,2-Tetrachloroethane	79-34-5			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
1,1,2-Trichloroethane	79-00-5			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
1,1-Dichloroethane	75-34-3	~~26000~~ 19,000	270	ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
1,1-Dichloroethene	75-35-4	100000	330	ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
1,2,4-Trichlorobenzene	120-82-1			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UJ*	*6.9*	*U*
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UJ*	*6.9*	*U*
1,2-Dibromoethane (Ethylene dibromide)	106-93-4			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
1,2-Dichlorobenzene	95-50-1	100000	1100	ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UJ*	*6.9*	*U*
1,2-Dichloroethane	107-06-2	~~3100~~ 2300	20	ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
1,2-Dichloroethene (Total)	540-59-0			ug/kg										
1,2-Dichloropropane	78-87-5			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
1,3-Dichlorobenzene	541-73-1	~~49000~~ 17,000	2400	ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UJ*	*6.9*	*U*
1,4-Dichlorobenzene	106-46-7	~~13000~~ 9800	1800	ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UJ*	*6.9*	*U*
2-Butanone	78-93-3	100000	120	ug/kg	*22*	*UJ*	*21*	*UJ*	*21*	*UJ*	11	JT	*35*	*U*
2-Hexanone	591-78-6			ug/kg	*22*	*UJ*	*21*	*UJ*	*21*	*UJ*	*36*	*UT*	*35*	*U*
3-Octanol	589-98-0			ug/kg										
3-Octanone	106-68-3			ug/kg										
4-Methyl-2-Pentanone	108-10-1			ug/kg	*22*	*UJ*	*21*	*UJ*	*21*	*UJ*	*36*	*UT*	*35*	*U*
Acetone	67-64-1	100000	50	ug/kg	*22*	*UJ*	*21*	*UJ*	*21*	*UJ*	*72*	*U*	*60*	*U*
Benzene	71-43-2	~~4800~~ 2900	60	ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
Bromodichloromethane	75-27-4			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*U*	*6.9*	*U*
Bromoform	75-25-2			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
Bromomethane	74-83-9			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UJ*	*6.9*	*UJ*
Carbon Disulfide	75-15-0			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	14	T	*6.9*	*U*
Carbon Tetrachloride	56-23-5	~~2400~~ 1400	760	ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UJ*	*6.9*	*U*
Chlorobenzene	108-90-7	100000	1100	ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
Chlorodibromomethane	124-48-1			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
Chloroethane	75-00-3			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
Chloroform	67-66-3	~~49000~~ 10,000	370	ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
Chloromethane	74-87-3			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UJ*	*6.9*	*UJ*
Cis-1,2-Dichloroethene	156-59-2	~~100000~~ 59,000	250	ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
Cis-1,3-Dichloropropene	10061-01-5			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
Cyclohexane	110-82-7			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*U*	*6.9*	*U*
Cyclopentane	287-92-3			ug/kg										
Dichlorodifluoromethane	75-71-8			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UJ*	*6.9*	*UJ*
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
Ethylbenzene	100-41-4	~~41000~~ 30,000	1000	ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
Freon 113	76-13-1			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
Isopropyl benzene	98-82-8			ug/kg	*4.4*	*UJ*	*4.2*	*UJ*	*4.2*	*UJ*	*7.3*	*UT*	*6.9*	*U*
m,p-Xylene	179601-23-1			ug/kg										

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

Table 3

				Sample:	MW-05D-12-18-20180801		MW-05-D1-20180801		MW-05D-24-28-20180801		MW-06D-6-10-20180731		MW-06D-20-22-20180731	
				Location:	MW-05D		MW-05D		MW-05D		MW-06D		MW-06D	
				Sample Date:	8/1/2018		8/1/2018		8/1/2018		7/31/2018		7/31/2018	
				Start Depth (ft):	12		24		24		6		20	
				End Depth (ft):	18		28		28		10		22	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Methyl acetate	79-20-9			ug/kg	22	UJ	21	UJ	21	UJ	36	UT	8.3	J
Methyl T-Butyl Ether (MTBE)	1634-04-4	~~100000~~ 62,000	930	ug/kg	4.4	UJ	4.2	UJ	4.2	UJ	7.3	UT	6.9	U
Methylcyclohexane	108-87-2			ug/kg	4.4	UJ	4.2	UJ	4.2	UJ	7.3	UT	6.9	U
O-Xylene	95-47-6			ug/kg										
Styrene	100-42-5			ug/kg	4.4	UJ	4.2	UJ	4.2	UJ	7.3	UJ	6.9	U
Tetrachloroethene	127-18-4	~~19000~~ 5500	1300	ug/kg	4.4	UJ	4.2	UJ	4.2	UJ	7.3	UT	6.9	U
Toluene	108-88-3	100000	700	ug/kg	4.4	UJ	4.2	UJ	4.2	UJ	7.3	UT	6.9	U
Trans-1,2-Dichloroethene	156-60-5	100000	190	ug/kg	4.4	UJ	4.2	UJ	4.2	UJ	7.3	UT	6.9	U
Trans-1,3-Dichloropropene	10061-02-6			ug/kg	4.4	UJ	4.2	UJ	4.2	UJ	7.3	UT	6.9	U
Trichloroethylene	79-01-6	~~21000~~ 10,000	470	ug/kg	4.4	UJ	4.2	UJ	4.2	UJ	7.3	UT	6.9	U
Trichlorofluoromethane	75-69-4			ug/kg	4.4	UJ	4.2	UJ	4.2	UJ	7.3	UT	6.9	U
Vinyl Chloride	75-01-4	~~900~~ 210	20	ug/kg	4.4	UJ	4.2	UJ	4.2	UJ	7.3	UJ	6.9	UJ
Xylenes, Total	XYLENES	100,000	260	ug/kg	8.9	UJ	8.4	UJ	8.5	UJ	15	UT	14	U
SVOCs														
(Z)-13-Docosenamide	112-84-5			ug/kg										
(Z)-9-Octadecanimide	301-02-0			ug/kg										
1,1-Biphenyl	92-52-4			ug/kg	210	U	200	U			280	U		
1-Chloronaphthalene	90-13-1			ug/kg	100	U	94	U	98	U	130	UT	100	U
1-Docosene	1599-67-3			ug/kg										
1-Octadecene	112-88-9			ug/kg										
2,4,5-Trichlorophenol	95-95-4			ug/kg	210	U	200	U			280	U		
2,4,6-Trichlorophenol	88-06-2			ug/kg	210	U	200	U			280	U		
2,4-Dichlorophenol	120-83-2			ug/kg	210	U	200	U			280	U		
2,4-Dimethylphenol	105-67-9			ug/kg	210	U	200	U			280	U		
2,4-Dinitrophenol	51-28-5			ug/kg	2100	U	1900	U			2700	U		
2,4-Dinitrotoluene	121-14-2			ug/kg	210	U	200	U			280	U		
2,6-Dinitrotoluene	606-20-2			ug/kg	210	U	200	U			280	U		
2-Chloronaphthalene	91-58-7			ug/kg	210	U	200	U			280	U		
2-Chlorophenol	95-57-8			ug/kg	210	U	200	U			280	U		
2-Methylnaphthalene	91-57-6			ug/kg	210	U	200	U			280	U		
2-Methylphenol	95-48-7	100000	330	ug/kg	210	U	200	U			280	U		
2-Nitroaniline	88-74-4			ug/kg	410	U	380	U			530	U		
2-Nitrophenol	88-75-5			ug/kg	210	U	200	U			280	U		
3,3`-Dichlorobenzidine	91-94-1			ug/kg	410	U	380	U			530	U		
3beta-Hydroxy-27-norcholest-5-en-25-one	7494-34-0			ug/kg										
3-Nitroaniline	99-09-2			ug/kg	410	U	380	U			530	U		
4,6-Dinitro-2-Methylphenol	534-52-1			ug/kg	410	U	380	U			530	U		
4-Bromophenyl Phenyl Ether	101-55-3			ug/kg	210	U	200	U			280	U		
4-Chloro-3-Methylphenol	59-50-7			ug/kg	210	U	200	U			280	U		
4-Chloroaniline	106-47-8			ug/kg	210	U	200	U			280	U		
4-Chlorophenyl Phenylether	7005-72-3			ug/kg	210	U	200	U			280	U		
4-Methylphenol	106-44-5	~~100000~~ 34,000	330	ug/kg	410	U	380	U			530	U		
4-Nitroaniline	100-01-6			ug/kg	410	U	380	U			530	U		
4-Nitrophenol	100-02-7			ug/kg	410	U	380	U			530	U		
5-EICOSENE, (E)-	C20N5			ug/kg							930	JN		
Acenaphthene	83-32-9	100000	20000	ug/kg	210	U	200	U			280	U		
Acenaphthylene	208-96-8	100000	100000	ug/kg	210	U	200	U			280	U		
Acetophenone	98-86-2			ug/kg	210	U	200	U			280	U		
Anthracene	120-12-7	100000	100000	ug/kg	210	U	200	U			280	U		
Atrazine	1912-24-9			ug/kg	210	U	200	U			280	U		
Benzaldehyde	100-52-7			ug/kg	210	U	200	U			280	U		
Benzeneacetic Acid	103-82-2			ug/kg										
Benzo(A)Anthracene	56-55-3	1000	1000	ug/kg	210	U	200	U			280	U		
Benzo(A)Pyrene	50-32-8	1000	1000	ug/kg	210	U	200	U			280	U		
Benzo(B)Fluoranthene	205-99-2	1000	1000	ug/kg	210	U	200	U			280	U		
Benzo(G,H,I)Perylene	191-24-2	100000	100000	ug/kg	210	U	200	U			280	U		
Benzo(K)Fluoranthene	207-08-9	~~3900~~ 1000	800	ug/kg	210	U	200	U			280	U		
Bis(2-Chloroethoxy) Methane	111-91-1			ug/kg	210	U	200	U			280	U		
Bis(2-Chloroethyl) Ether	111-44-4			ug/kg	210	U	200	U			280	U		
Bis(2-Ethylhexyl) Phthalate	117-81-7			ug/kg	210	U	200	U			280	U		
Bis-Chloroisopropyl Ether	108-60-1			ug/kg	210	U	200	U			280	U		
Butyl Benzyl Phthalate	85-68-7			ug/kg	210	U	200	U			280	UT		
Butyl Citrate	77-94-1			ug/kg			310							
Caprolactam	105-60-2			ug/kg	210	U	200	U			280	U		
Carbazole	86-74-8			ug/kg	210	U	200	U			280	U		
Carboranylmethyl Propyl Sulfide	62906-36-9			ug/kg							760	JN		

Notes:
VALUE is non-detect.
VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.
VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	MW-05D-12-18-20180801		MW-05-D1-20180801		MW-05D-24-28-20180801		MW-06D-6-10-20180731		MW-06D-20-22-20180731	
				Location:	MW-05D		MW-05D		MW-05D		MW-06D		MW-06D	
				Sample Date:	8/1/2018		8/1/2018		8/1/2018		7/31/2018		7/31/2018	
				Start Depth (ft):	12		24		24		6		20	
				End Depth (ft):	18		28		28		10		22	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Chrysene	218-01-9	~~3900~~ 1000	1000	ug/kg	210	U	200	U			280	U		
Cyclohexadecane	295-65-8			ug/kg							1300	JN		
D:C-Friedoolean-8-En-3-One	22611-26-3			ug/kg							2800	JN		
Dibenzo(A,H)Anthracene	53-70-3	330	330	ug/kg	210	U	200	U			280	U		
Dibenzofuran	132-64-9	~~59000~~ 14,000	7000	ug/kg	210	U	200	U			280	U		
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg										
Dichloronaphthalene	28699-88-9			ug/kg	100	U	94	U	98	U	130	UT	100	U
Diethylphthalate	84-66-2			ug/kg	210	U	200	U			280	U		
Dimethylphthalate	131-11-3			ug/kg	210	U	200	U			280	U		
Di-N-Butylphthalate	84-74-2			ug/kg	210	U	200	U			280	U		
Di-N-Octyl Phthalate	117-84-0			ug/kg	210	U	71	J			280	U		
Dioctadecyl Ester Phosphonic Acid	19047-85-9			ug/kg										
Ergost-4,7,22-Trien-3.Alpha.-Ol	6538-05-2			ug/kg										
Fluoranthene	206-44-0	100000	100000	ug/kg	210	U	200	U			280	U		
Fluorene	86-73-7	100000	30000	ug/kg	210	U	200	U			280	U		
Heptachloronaphthalene	32241-08-0			ug/kg	100	U	94	U	98	U	130	U	100	U
Heptafluorobutyric Acid, N-Octadecyl Est	1000216-79-5			ug/kg							660	JN		
Hexachlorobenzene	118-74-1	~~1200~~ 330	330	ug/kg	210	U	200	U			280	U		
Hexachlorobutadiene	87-68-3			ug/kg	210	U	200	U			280	U		
Hexachlorocyclopentadiene	77-47-4			ug/kg	210	U	200	U			280	U		
Hexachloroethane	67-72-1			ug/kg	210	U	200	U			280	U		
Hexachloronaphthalene	1335-87-1			ug/kg	100	U	94	U	98	U	130	U	100	U
Indeno(1,2,3-Cd)Pyrene	193-39-5	500	500	ug/kg	210	U	200	U			280	U		
Isophorone	78-59-1			ug/kg	210	U	200	U			280	U		
Naphthalene	91-20-3	100000	12000	ug/kg	210	U	200	U			280	U		
Nitrobenzene	98-95-3			ug/kg	210	U	200	U			280	U		
N-Nitroso-Di-N-Propylamine	621-64-7			ug/kg	210	U	200	U			280	U		
N-Nitrosodiphenylamine	86-30-6			ug/kg	210	U	200	U			280	U		
N-Triacontane	638-68-6			ug/kg										
Octachloronaphthalene	2234-13-1			ug/kg	100	U	94	U	98	U	130	UJ	100	U
Oxirane, Hexadecyl-	7390-81-0			ug/kg										
Pentachloronaphthalene	1321-64-8			ug/kg	100	U	94	U	98	U	130	U	100	U
Pentachlorophenol	87-86-5	~~6700~~ 2400	800	ug/kg	410	U	380	U			530	U		
Phenanthrene	85-01-8	100000	100000	ug/kg	210	U	200	U			280	U		
Phenol	108-95-2	100000	330	ug/kg	210	U	200	U			280	U		
Pyrene	129-00-0	100000	100000	ug/kg	210	U	200	U			280	U		
r-Sitosterol	83-47-6			ug/kg							550	JN		
Taraxasterol	1059-14-9			ug/kg							3200	JN		
Tetrachloronaphthalene	1335-88-2			ug/kg	100	U	94	U	98	U	130	UT	100	U
Tetratetracontane	7098-22-8			ug/kg										
Tetratriacontane	14167-59-0			ug/kg										
Trichloronaphthalene	1321-65-9			ug/kg	100	U	94	U	98	U	130	U	100	U
Trifluoroacetic Acid, N-Octadecyl Ester	79392-43-1			ug/kg										
Unknown Semivolatile With 10th Highest Conc.	UNKSV10			ug/kg							360	J		
Unknown Semivolatile With 11th Highest Conc.	UNKSV11			ug/kg										
Unknown Semivolatile With 1st Highest Conc.	UNKSV1			ug/kg							2900	J		
Unknown Semivolatile With 2nd Highest Conc.	UNKSV2			ug/kg										
Unknown Semivolatile With 3rd Highest Conc.	UNKSV3			ug/kg							1700	J		
Unknown Semivolatile With 4th Highest Conc.	UNKSV4			ug/kg	330	J								
Unknown Semivolatile With 5th Highest Conc.	UNKSV5			ug/kg							1000	J		
Unknown Semivolatile With 6th Highest Conc.	UNKSV6			ug/kg							760	J		
Unknown Semivolatile With 7th Highest Conc.	UNKSV7			ug/kg										
Unknown Semivolatile With 8th Highest Conc.	UNKSV8			ug/kg							660	J		
Unknown Semivolatile With 9th Highest Conc.	UNKSV9			ug/kg							540	J		
Vitamin E	59-02-9			ug/kg							360	JN		

Notes:

VALUE is non-detect.
VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.
VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	MW-05D-12-18-20180801		MW-05-D1-20180801		MW-05D-24-28-20180801		MW-06D-6-10-20180731		MW-06D-20-22-20180731	
				Location:	MW-05D		MW-05D		MW-05D		MW-06D		MW-06D	
				Sample Date:	8/1/2018		8/1/2018		8/1/2018		7/31/2018		7/31/2018	
				Start Depth (ft):	12		24		24		6		20	
				End Depth (ft):	18		28		28		10		22	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Pesticides														
4,4'-DDD	72-54-8	~~13000~~ 2600	3.3	ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	*2.7*	*U*	*2*	*U*
4,4'-DDE	72-55-9	~~8900~~ 1800	3.3	ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	*2.7*	*U*	*2*	*U*
4,4'-DDT	50-29-3	~~7900~~ 1700	3.3	ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	*2.7*	*U*	*2*	*U*
Aldrin	309-00-2	~~97~~ 19	5	ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	*2.7*	*U*	*2*	*U*
Alpha-BHC	319-84-6	~~480~~ 97	20	ug/kg	*2.1*	*U*	*1.9*	*U*	0.43	J	*2.7*	*U*	*2*	*U*
Alpha-Chlordane	5103-71-9	~~4200~~ 910	94	ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	*2.7*	*U*	*2*	*U*
Beta-BHC	319-85-7	~~360~~ 72	36	ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	*2.7*	*U*	*2*	*U*
Chlorinated Camphene	8001-35-2			ug/kg	*21*	*U*	*19*	*U*	*20*	*U*	*27*	*U*	*20*	*U*
Delta-Bhc	319-86-8	100000	40	ug/kg	0.49	J	0.72	J	0.59	J	*2.7*	*U*	*2*	*U*
Dieldrin	60-57-1	~~200~~ 39	5	ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	*2.7*	*U*	*2*	*U*
Endosulfan I	959-98-8	~~24000~~ 4800	2400	ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	*2.7*	*U*	*2*	*U*
Endosulfan II	33213-65-9	~~24000~~ 4800	2400	ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	*2.7*	*U*	*2*	*U*
Endosulfan Sulfate	1031-07-8	~~24000~~ 4800	2400	ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	*2.7*	*U*	*2*	*U*
Endrin	72-20-8	~~11000~~ 2200	14	ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	*2.7*	*U*	*2*	*U*
Endrin Aldehyde	7421-93-4			ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	*2.7*	*U*	*2*	*U*
Endrin Ketone	53494-70-5			ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	*2.7*	*U*	*2*	*U*
Gamma-BHC (Lindane)	58-89-9	~~1300~~ 280	100	ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	*2.7*	*U*	0.41	J
Gamma-Chlordane	5103-74-2			ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	*2.7*	*U*	*2*	*U*
Heptachlor	76-44-8	~~2100~~ 420	42	ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	0.94	J	*2*	*U*
Heptachlor Epoxide	1024-57-3			ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	*2.7*	*U*	*2*	*U*
Methoxychlor	72-43-5			ug/kg	*2.1*	*U*	*1.9*	*U*	*2*	*U*	*2.7*	*U*	*2*	*U*
PFCs														
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9			ug/kg	*2.5*	*U*	*2.3*	*U*			*3.2*	*U*		
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6			ug/kg	*2.5*	*U*	*2.3*	*U*			*3.2*	*U*		
Perfluorobutanesulfonic Acid (PFBS)	375-73-5			ug/kg	*0.25*	*U*	*0.23*	*U*			*0.32*	*U*		
Perfluorobutyric Acid (PFBA)	375-22-4			ug/kg	*0.25*	*U*	*0.23*	*U*			*0.32*	*U*		
Perfluorodecane Sulfonic Acid	335-77-3			ug/kg	*0.25*	*U*	*0.23*	*U*			*0.32*	*U*		
Perfluorodecanoic Acid (PFDA)	335-76-2			ug/kg	*0.25*	*U*	*0.23*	*U*			*0.32*	*U*		
Perfluorododecanoic Acid (PFDoA)	307-55-1			ug/kg	*0.25*	*U*	*0.23*	*U*			*0.32*	*U*		
Perfluoroheptane Sulfonate (PFHpS)	375-92-8			ug/kg	*0.25*	*U*	*0.23*	*U*			*0.32*	*U*		
Perfluoroheptanoic Acid (PFHpA)	375-85-9			ug/kg	*0.25*	*U*	*0.23*	*U*			*0.32*	*U*		
Perfluorohexanesulfonic Acid	355-46-4			ug/kg	*0.25*	*U*	*0.23*	*U*			*0.32*	*U*		
Perfluorohexanoic Acid (PFHxA)	307-24-4			ug/kg	*0.25*	*U*	*0.23*	*U*			*0.32*	*U*		
Perfluorononanoic Acid (PFNA)	375-95-1			ug/kg	*0.25*	*U*	*0.23*	*U*			*0.32*	*U*		
Perfluorooctane Sulfonamide (FOSA)	754-91-6			ug/kg	*0.25*	*U*	*0.23*	*U*			*0.32*	*U*		
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1			ug/kg	*0.62*	*U*	*0.58*	*U*			*0.81*	*U*		
Perfluorooctanoic acid (PFOA)	335-67-1			ug/kg	*0.25*	*U*	*0.23*	*U*			*0.32*	*U*		
Perfluoropentanoic Acid (PFPeA)	2706-90-3			ug/kg	*0.25*	*U*	*0.23*	*U*			*0.32*	*U*		
Perfluorotetradecanoic Acid (PFTeA)	376-06-7			ug/kg	*0.25*	*U*	*0.23*	*U*			*0.32*	*U*		
Perfluorotridcanoic Acid (PFTriA)	72629-94-8			ug/kg	*0.25*	*U*	*0.23*	*U*			*0.32*	*U*		
Perfluoroundecanoic Acid (PFUnA)	2058-94-8			ug/kg	*0.25*	*U*	*0.23*	*U*			*0.32*	*UT*		
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4			ug/kg	*2.5*	*U*	*2.3*	*U*			*3.2*	*U*		
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2			ug/kg	*2.5*	*U*	*2.3*	*U*			*3.2*	*U*		

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	MW-07D-7-10-20180724 Result	Qual	MW-07D-17-20-20180724 Result	Qual	MW-08D-7-10-20180725 Result	Qual	MW-08D-20-24-20180725 Result	Qual	MW-09D-24-28-20180730 Result	Qual
				Location:	MW-07D		MW-07D		MW-08D		MW-08D		MW-09D	
				Sample Date:	7/24/2018		7/24/2018		7/25/2018		7/25/2018		7/30/2018	
				Start Depth (ft):	7		17		7		20		24	
				End Depth (ft):	10		20		10		24		28	
Inorganics														
Aluminum	7429-90-5			mg/kg	18700	B			22500					
Antimony	7440-36-0			mg/kg	*20.4*	*U*			*19.8*	*U*				
Arsenic	7440-38-2	16	13	mg/kg	4.4				4.2					
Barium	7440-39-3	~~400~~ 350	350	mg/kg	112	B			91.3					
Beryllium	7440-41-7	~~72~~ 14	7.2	mg/kg	0.84				0.96					
Cadmium	7440-43-9	~~4.3~~ 2.5	2.5	mg/kg	0.16	J			0.14	J				
Calcium	7440-70-2			mg/kg	67300	B			57800	B				
Chromium, Total	7440-47-3			mg/kg	25.6				27.6					
Cobalt	7440-48-4			mg/kg	12				11					
Copper	7440-50-8	270	50	mg/kg	19.6				23.7					
Iron	7439-89-6			mg/kg	23400				24700					
Lead	7439-92-1	400	63	mg/kg	12.3				11.4					
Magnesium	7439-95-4			mg/kg	22000	B			25200	B				
Manganese	7439-96-5	2000	1600	mg/kg	575	B			455					
Mercury	7439-97-6	0.81	0.18	mg/kg	0.032				0.026					
Nickel	7440-02-0	~~310~~ 140	30	mg/kg	28.5				29.3					
Potassium	7440-09-7			mg/kg	5180				7710					
Selenium	7782-49-2	~~180~~ 36	3.9	mg/kg	*5.5*	*U*			*5.3*	*U*				
Silver	7440-22-4	~~180~~ 36	2	mg/kg	*0.82*	*U*			*0.79*	*U*				
Sodium	7440-23-5			mg/kg	460				394	B				
Thallium	7440-28-0			mg/kg	*8.2*	*U*			*7.9*	*U*				
Vanadium	7440-62-2			mg/kg	36.7				37.5					
Zinc	7440-66-6	~~10000~~ 2200	109	mg/kg	50.3	B			46.9					
VOCs														
1,1,1-Trichloroethane	71-55-6	100000	680	ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
1,1,2,2-Tetrachloroethane	79-34-5			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
1,1,2-Trichloroethane	79-00-5			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
1,1-Dichloroethane	75-34-3	~~26000~~ 19,000	270	ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
1,1-Dichloroethene	75-35-4	100000	330	ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
1,2,4-Trichlorobenzene	120-82-1			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
1,2-Dibromoethane (Ethylene dibromide)	106-93-4			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
1,2-Dichlorobenzene	95-50-1	100000	1100	ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
1,2-Dichloroethane	107-06-2	~~3100~~ 2300	20	ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
1,2-Dichloroethene (Total)	540-59-0			ug/kg										
1,2-Dichloropropane	78-87-5			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
1,3-Dichlorobenzene	541-73-1	~~49000~~ 17,000	2400	ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
1,4-Dichlorobenzene	106-46-7	~~13000~~ 9800	1800	ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
2-Butanone	78-93-3	100000	120	ug/kg	4	J	*24*	*U*	*26*	*U*	*22*	*U*	*20*	*U*
2-Hexanone	591-78-6			ug/kg	*26*	*U*	*24*	*U*	*26*	*U*	*22*	*U*	*20*	*U*
3-Octanol	589-98-0			ug/kg										
3-Octanone	106-68-3			ug/kg										
4-Methyl-2-Pentanone	108-10-1			ug/kg	*26*	*U*	*24*	*U*	*26*	*U*	*22*	*U*	*20*	*U*
Acetone	67-64-1	100000	50	ug/kg	*32*	*U*	*31*	*U*	*26*	*U*	*36*	*U*	16	J
Benzene	71-43-2	~~4800~~ 2900	60	ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
Bromodichloromethane	75-27-4			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
Bromoform	75-25-2			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
Bromomethane	74-83-9			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
Carbon Disulfide	75-15-0			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
Carbon Tetrachloride	56-23-5	~~2400~~ 1400	760	ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
Chlorobenzene	108-90-7	100000	1100	ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
Chlorodibromomethane	124-48-1			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
Chloroethane	75-00-3			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
Chloroform	67-66-3	~~49000~~ 10,000	370	ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
Chloromethane	74-87-3			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
Cis-1,2-Dichloroethene	156-59-2	~~100000~~ 59,000	250	ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	1.1	J
Cis-1,3-Dichloropropene	10061-01-5			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
Cyclohexane	110-82-7			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
Cyclopentane	287-92-3			ug/kg										
Dichlorodifluoromethane	75-71-8			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
Ethylbenzene	100-41-4	~~41000~~ 30,000	1000	ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
Freon 113	76-13-1			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
Isopropyl benzene	98-82-8			ug/kg	*5.2*	*U*	*4.8*	*U*	*5.1*	*U*	*4.5*	*U*	*4.1*	*U*
m,p-Xylene	179601-23-1			ug/kg										

Notes:
VALUE is non-detect.
VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.
VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	MW-07D-7-10-20180724		MW-07D-17-20-20180724		MW-08D-7-10-20180725		MW-08D-20-24-20180725		MW-09D-24-28-20180730	
				Location:	MW-07D		MW-07D		MW-08D		MW-08D		MW-09D	
				Sample Date:	7/24/2018		7/24/2018		7/25/2018		7/25/2018		7/30/2018	
				Start Depth (ft):	7		17		7		20		24	
				End Depth (ft):	10		20		10		24		28	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Methyl acetate	79-20-9			ug/kg	26	U	24	U	26	U	22	U	20	U
Methyl T-Butyl Ether (MTBE)	1634-04-4	~~100000~~ 62,000	930	ug/kg	5.2	U	4.8	U	5.1	U	4.5	U	4.1	U
Methylcyclohexane	108-87-2			ug/kg	5.2	U	4.8	U	5.1	U	4.5	U	4.1	U
O-Xylene	95-47-6			ug/kg										
Styrene	100-42-5			ug/kg	5.2	U	4.8	U	5.1	U	4.5	U	4.1	U
Tetrachloroethene	127-18-4	~~19000~~ 5500	1300	ug/kg	5.2	U	4.8	U	5.1	U	4.5	U	4.1	U
Toluene	108-88-3	100000	700	ug/kg	5.2	U	4.8	U	5.1	U	4.5	U	4.1	U
Trans-1,2-Dichloroethene	156-60-5	100000	190	ug/kg	5.2	U	4.8	U	5.1	U	4.5	U	4.1	U
Trans-1,3-Dichloropropene	10061-02-6			ug/kg	5.2	U	4.8	U	5.1	U	4.5	U	4.1	U
Trichloroethylene	79-01-6	~~21000~~ 10,000	470	ug/kg	5.2	U	4.8	U	5.1	U	4.5	U	1.6	J
Trichlorofluoromethane	75-69-4			ug/kg	5.2	U	4.8	U	5.1	U	4.5	U	4.1	U
Vinyl Chloride	75-01-4	~~900~~ 210	20	ug/kg	5.2	U	4.8	U	5.1	U	4.5	U	4.1	U
Xylenes, Total	XYLENES	100,000	260	ug/kg	10	U	9.7	U	10	U	8.9	U	8.1	U
SVOCs														
(Z)-13-Docosenamide	112-84-5			ug/kg										
(Z)-9-Octadecanimide	301-02-0			ug/kg										
1,1-Biphenyl	92-52-4			ug/kg	240	U			220	U				
1-Chloronaphthalene	90-13-1			ug/kg	110	U	110	U	100	U	110	U	86	U
1-Docosene	1599-67-3			ug/kg										
1-Octadecene	112-88-9			ug/kg										
2,4,5-Trichlorophenol	95-95-4			ug/kg	240	U			220	U				
2,4,6-Trichlorophenol	88-06-2			ug/kg	240	U			220	U				
2,4-Dichlorophenol	120-83-2			ug/kg	240	U			220	U				
2,4-Dimethylphenol	105-67-9			ug/kg	240	U			220	U				
2,4-Dinitrophenol	51-28-5			ug/kg	2300	U			2200	U				
2,4-Dinitrotoluene	121-14-2			ug/kg	240	U			220	U				
2,6-Dinitrotoluene	606-20-2			ug/kg	240	U			220	U				
2-Chloronaphthalene	91-58-7			ug/kg	240	U			220	U				
2-Chlorophenol	95-57-8			ug/kg	240	U			220	U				
2-Methylnaphthalene	91-57-6			ug/kg	240	U			220	U				
2-Methylphenol	95-48-7	100000	330	ug/kg	240	U			220	U				
2-Nitroaniline	88-74-4			ug/kg	470	U			430	U				
2-Nitrophenol	88-75-5			ug/kg	240	U			220	U				
3,3`-Dichlorobenzidine	91-94-1			ug/kg	470	U			430	U				
3beta-Hydroxy-27-norcholest-5-en-25-one	7494-34-0			ug/kg										
3-Nitroaniline	99-09-2			ug/kg	470	U			430	U				
4,6-Dinitro-2-Methylphenol	534-52-1			ug/kg	470	U			430	U				
4-Bromophenyl Phenyl Ether	101-55-3			ug/kg	240	U			220	U				
4-Chloro-3-Methylphenol	59-50-7			ug/kg	240	U			220	U				
4-Chloroaniline	106-47-8			ug/kg	240	U			220	U				
4-Chlorophenyl Phenylether	7005-72-3			ug/kg	240	U			220	U				
4-Methylphenol	106-44-5	~~100000~~ 34,000	330	ug/kg	470	U			430	U				
4-Nitroaniline	100-01-6			ug/kg	470	U			430	U				
4-Nitrophenol	100-02-7			ug/kg	470	U			430	U				
5-EICOSENE, (E)-	C20N5			ug/kg										
Acenaphthene	83-32-9	100000	20000	ug/kg	240	U			220	U				
Acenaphthylene	208-96-8	100000	100000	ug/kg	240	U			220	U				
Acetophenone	98-86-2			ug/kg	240	U			220	U				
Anthracene	120-12-7	100000	100000	ug/kg	240	U			220	U				
Atrazine	1912-24-9			ug/kg	240	U			220	U				
Benzaldehyde	100-52-7			ug/kg	240	U			220	U				
Benzeneacetic Acid	103-82-2			ug/kg										
Benzo(A)Anthracene	56-55-3	1000	1000	ug/kg	240	U			220	U				
Benzo(A)Pyrene	50-32-8	1000	1000	ug/kg	240	U			220	U				
Benzo(B)Fluoranthene	205-99-2	1000	1000	ug/kg	240	U			220	U				
Benzo(G,H,I)Perylene	191-24-2	100000	100000	ug/kg	240	U			220	U				
Benzo(K)Fluoranthene	207-08-9	~~3900~~ 1000	800	ug/kg	240	U			220	U				
Bis(2-Chloroethoxy) Methane	111-91-1			ug/kg	240	U			220	U				
Bis(2-Chloroethyl) Ether	111-44-4			ug/kg	240	U			220	U				
Bis(2-Ethylhexyl) Phthalate	117-81-7			ug/kg	240	U			220	U				
Bis-Chloroisopropyl Ether	108-60-1			ug/kg	240	U			220	U				
Butyl Benzyl Phthalate	85-68-7			ug/kg	240	U			220	U				
Butyl Citrate	77-94-1			ug/kg										
Caprolactam	105-60-2			ug/kg	240	U			220	U				
Carbazole	86-74-8			ug/kg	240	U			220	U				
Carboranylmethyl Propyl Sulfide	62906-36-9			ug/kg										

Notes:

VALUE is non-detect.
VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.
VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	MW-07D-7-10-20180724		MW-07D-17-20-20180724		MW-08D-7-10-20180725		MW-08D-20-24-20180725		MW-09D-24-28-20180730	
				Location:	MW-07D		MW-07D		MW-08D		MW-08D		MW-09D	
				Sample Date:	7/24/2018		7/24/2018		7/25/2018		7/25/2018		7/30/2018	
				Start Depth (ft):	7		17		7		20		24	
				End Depth (ft):	10		20		10		24		28	
Analyte	**CAS Number**	**NYS Soil ~~Restricted~~ Residential**	**NYS Soil Unrestricted**	**Units**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Chrysene	218-01-9	~~3900~~ 1000	1000	ug/kg	*240*	*U*			*220*	*U*				
Cyclohexadecane	295-65-8			ug/kg										
D:C-Friedoolean-8-En-3-One	22611-26-3			ug/kg										
Dibenzo(A,H)Anthracene	53-70-3	330	330	ug/kg	*240*	*U*			*220*	*U*				
Dibenzofuran	132-64-9	~~59000~~ 14,000	7000	ug/kg	*240*	*U*			*220*	*U*				
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg										
Dichloronaphthalene	28699-88-9			ug/kg	*110*	*U*	*110*	*U*	*100*	*U*	*110*	*U*	*86*	*U*
Diethylphthalate	84-66-2			ug/kg	*240*	*U*			*220*	*U*				
Dimethylphthalate	131-11-3			ug/kg	*240*	*U*			*220*	*U*				
Di-N-Butylphthalate	84-74-2			ug/kg	*240*	*U*			*220*	*U*				
Di-N-Octyl Phthalate	117-84-0			ug/kg	*240*	*U*			*220*	*U*				
Dioctadecyl Ester Phosphonic Acid	19047-85-9			ug/kg										
Ergost-4,7,22-Trien-3.Alpha.-Ol	6538-05-2			ug/kg										
Fluoranthene	206-44-0	100000	100000	ug/kg	*240*	*U*			*220*	*U*				
Fluorene	86-73-7	100000	30000	ug/kg	*240*	*U*			*220*	*U*				
Heptachloronaphthalene	32241-08-0			ug/kg	*110*	*U*	*110*	*U*	*100*	*U*	*110*	*U*	*86*	*U*
Heptafluorobutyric Acid, N-Octadecyl Est	1000216-79-5			ug/kg										
Hexachlorobenzene	118-74-1	~~1200~~ 330	330	ug/kg	*240*	*U*			*220*	*U*				
Hexachlorobutadiene	87-68-3			ug/kg	*240*	*U*			*220*	*U*				
Hexachlorocyclopentadiene	77-47-4			ug/kg	*240*	*U*			*220*	*U*				
Hexachloroethane	67-72-1			ug/kg	*240*	*U*			*220*	*U*				
Hexachloronaphthalene	1335-87-1			ug/kg	*110*	*U*	*110*	*U*	*100*	*U*	*110*	*U*	*86*	*U*
Indeno(1,2,3-Cd)Pyrene	193-39-5	500	500	ug/kg	*240*	*U*			*220*	*U*				
Isophorone	78-59-1			ug/kg	*240*	*U*			*220*	*U*				
Naphthalene	91-20-3	100000	12000	ug/kg	*240*	*U*			*220*	*U*				
Nitrobenzene	98-95-3			ug/kg	*240*	*U*			*220*	*U*				
N-Nitroso-Di-N-Propylamine	621-64-7			ug/kg	*240*	*U*			*220*	*U*				
N-Nitrosodiphenylamine	86-30-6			ug/kg	*240*	*U*			*220*	*U*				
N-Triacontane	638-68-6			ug/kg										
Octachloronaphthalene	2234-13-1			ug/kg	*110*	*U*	*110*	*U*	*100*	*U*	*110*	*U*	*86*	*U*
Oxirane, Hexadecyl-	7390-81-0			ug/kg										
Pentachloronaphthalene	1321-64-8			ug/kg	*110*	*U*	*110*	*U*	*100*	*U*	*110*	*U*	*86*	*U*
Pentachlorophenol	87-86-5	~~6700~~ 2400	800	ug/kg	*470*	*U*			*430*	*U*				
Phenanthrene	85-01-8	100000	100000	ug/kg	*240*	*U*			*220*	*U*				
Phenol	108-95-2	100000	330	ug/kg	*240*	*U*			*220*	*U*				
Pyrene	129-00-0	100000	100000	ug/kg	*240*	*U*			*220*	*U*				
r-Sitosterol	83-47-6			ug/kg										
Taraxasterol	1059-14-9			ug/kg										
Tetrachloronaphthalene	1335-88-2			ug/kg	*110*	*U*	*110*	*U*	*100*	*U*	*110*	*U*	*86*	*U*
Tetratetracontane	7098-22-8			ug/kg										
Tetratriacontane	14167-59-0			ug/kg										
Trichloronaphthalene	1321-65-9			ug/kg	*110*	*U*	*110*	*U*	*100*	*U*	*110*	*U*	*86*	*U*
Trifluoroacetic Acid, N-Octadecyl Ester	79392-43-1			ug/kg										
Unknown Semivolatile With 10th Highest Conc.	UNKSV10			ug/kg										
Unknown Semivolatile With 11th Highest Conc.	UNKSV11			ug/kg										
Unknown Semivolatile With 1st Highest Conc.	UNKSV1			ug/kg										
Unknown Semivolatile With 2nd Highest Conc.	UNKSV2			ug/kg					310	J				
Unknown Semivolatile With 3rd Highest Conc.	UNKSV3			ug/kg										
Unknown Semivolatile With 4th Highest Conc.	UNKSV4			ug/kg										
Unknown Semivolatile With 5th Highest Conc.	UNKSV5			ug/kg										
Unknown Semivolatile With 6th Highest Conc.	UNKSV6			ug/kg										
Unknown Semivolatile With 7th Highest Conc.	UNKSV7			ug/kg										
Unknown Semivolatile With 8th Highest Conc.	UNKSV8			ug/kg										
Unknown Semivolatile With 9th Highest Conc.	UNKSV9			ug/kg										
Vitamin E	59-02-9			ug/kg										

Notes:
VALUE is non-detect.
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VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	MW-07D-7-10-20180724		MW-07D-17-20-20180724		MW-08D-7-10-20180725		MW-08D-20-24-20180725		MW-09D-24-28-20180730	
				Location:	MW-07D		MW-07D		MW-08D		MW-08D		MW-09D	
				Sample Date:	7/24/2018		7/24/2018		7/25/2018		7/25/2018		7/30/2018	
				Start Depth (ft):	7		17		7		20		24	
				End Depth (ft):	10		20		10		24		28	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Pesticides														
4,4'-DDD	72-54-8	~~13000~~ 2600	3.3	ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	1.8	U
4,4'-DDE	72-55-9	~~8900~~ 1800	3.3	ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	1.8	U
4,4'-DDT	50-29-3	~~7900~~ 1700	3.3	ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	0.78	J
Aldrin	309-00-2	~~97~~ 19	5	ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	1.8	U
Alpha-BHC	319-84-6	~~480~~ 97	20	ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	1.8	U
Alpha-Chlordane	5103-71-9	~~4200~~ 910	94	ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	1.8	U
Beta-BHC	319-85-7	~~360~~ 72	36	ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	1.8	U
Chlorinated Camphene	8001-35-2			ug/kg	24	U	23	U	22	U	23	U	18	U
Delta-Bhc	319-86-8	100000	40	ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	1.8	U
Dieldrin	60-57-1	~~200~~ 39	5	ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	1.8	U
Endosulfan I	959-98-8	~~24000~~ 4800	2400	ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	0.43	J
Endosulfan II	33213-65-9	~~24000~~ 4800	2400	ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	1.8	U
Endosulfan Sulfate	1031-07-8	~~24000~~ 4800	2400	ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	0.49	J
Endrin	72-20-8	~~11000~~ 2200	14	ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	1.8	U
Endrin Aldehyde	7421-93-4			ug/kg	2.4	U	2.3	U	0.61	J	2.3	U	1.8	U
Endrin Ketone	53494-70-5			ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	1.8	U
Gamma-BHC (Lindane)	58-89-9	~~1300~~ 280	100	ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	1.8	U
Gamma-Chlordane	5103-74-2			ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	1.8	U
Heptachlor	76-44-8	~~2100~~ 420	42	ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	1.8	U
Heptachlor Epoxide	1024-57-3			ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	1.8	U
Methoxychlor	72-43-5			ug/kg	2.4	U	2.3	U	2.2	U	2.3	U	1.8	U
PFCs														
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9			ug/kg	2.8	U			2.6	U				
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6			ug/kg	2.8	U			2.6	U				
Perfluorobutanesulfonic Acid (PFBS)	375-73-5			ug/kg	0.28	U			0.26	U				
Perfluorobutyric Acid (PFBA)	375-22-4			ug/kg	0.28	U			0.26	U				
Perfluorodecane Sulfonic Acid	335-77-3			ug/kg	0.28	U			0.26	U				
Perfluorodecanoic Acid (PFDA)	335-76-2			ug/kg	0.28	U			0.26	U				
Perfluorododecanoic Acid (PFDoA)	307-55-1			ug/kg	0.28	U			0.26	U				
Perfluoroheptane Sulfonate (PFHpS)	375-92-8			ug/kg	0.28	U			0.26	U				
Perfluoroheptanoic Acid (PFHpA)	375-85-9			ug/kg	0.28	U			0.26	U				
Perfluorohexanesulfonic Acid	355-46-4			ug/kg	0.28	U			0.26	U				
Perfluorohexanoic Acid (PFHxA)	307-24-4			ug/kg	0.28	U			0.26	U				
Perfluorononanoic Acid (PFNA)	375-95-1			ug/kg	0.28	U			0.26	U				
Perfluorooctane Sulfonamide (FOSA)	754-91-6			ug/kg	0.28	U			0.26	U				
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1			ug/kg	0.7	U			0.66	U				
Perfluorooctanoic acid (PFOA)	335-67-1			ug/kg	0.28	U			0.26	U				
Perfluoropentanoic Acid (PFPeA)	2706-90-3			ug/kg	0.28	U			0.26	U				
Perfluorotetradecanoic Acid (PFTeA)	376-06-7			ug/kg	0.28	U			0.26	U				
Perfluorotridcanoic Acid (PFTriA)	72629-94-8			ug/kg	0.28	U			0.26	U				
Perfluoroundecanoic Acid (PFUnA)	2058-94-8			ug/kg	0.28	U			0.26	U				
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4			ug/kg	2.8	U			2.6	U				
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2			ug/kg	2.8	U			2.6	U				

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

Sample:					MW-10D-6-12-20180726		MW-10D-20-26-20180726		MW-9D-6-10-20180727		SS-01-0-0.2-20180514		SS-01-0.2-1.0-20180514	
Location:					MW-10D		MW-10D		MW-9D		SS-01		SS-01	
Sample Date:					7/26/2018		7/26/2018		7/27/2018		5/14/2018		5/14/2018	
Start Depth (ft):					6		20		6		0		0.2	
End Depth (ft):					12		26		10		0.2		1	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Inorganics														
Aluminum	7429-90-5			mg/kg	9590				3330					
Antimony	7440-36-0			mg/kg	17.4	U			16.6	U				
Arsenic	7440-38-2	16	13	mg/kg	3.4				1.7	J				
Barium	7440-39-3	~~400~~ 350	350	mg/kg	52.8				50.4					
Beryllium	7440-41-7	~~72~~ 14	7.2	mg/kg	0.45				0.16	J				
Cadmium	7440-43-9	~~4.3~~ 2.5	2.5	mg/kg	0.11	J			0.065	J	0.6	U	0.52	U
Calcium	7440-70-2			mg/kg	82500	B			45400	B				
Chromium, Total	7440-47-3			mg/kg	13.1				5.7					
Cobalt	7440-48-4			mg/kg	6.2				3.7					
Copper	7440-50-8	270	50	mg/kg	10.7				13.4		40.9		29.4	
Iron	7439-89-6			mg/kg	12200				5980					
Lead	7439-92-1	400	63	mg/kg	7.5				4.3					
Magnesium	7439-95-4			mg/kg	28100	B			14800	B				
Manganese	7439-96-5	2000	1600	mg/kg	235				234		412		232	
Mercury	7439-97-6	0.81	0.18	mg/kg	0.033				0.014	J				
Nickel	7440-02-0	~~310~~ 140	30	mg/kg	13.7				6.4					
Potassium	7440-09-7			mg/kg	2880				1220					
Selenium	7782-49-2	~~180~~ 36	3.9	mg/kg	4.6	U			4.4	U				
Silver	7440-22-4	~~180~~ 36	2	mg/kg	0.7	U			0.66	U				
Sodium	7440-23-5			mg/kg	241	B			139	BJ				
Thallium	7440-28-0			mg/kg	7	U			6.6	U				
Vanadium	7440-62-2			mg/kg	17.9				7.9					
Zinc	7440-66-6	~~10000~~ 2200	109	mg/kg	26.6				16.4					
VOCs														
1,1,1-Trichloroethane	71-55-6	100000	680	ug/kg	4.9	U	3.5	U	4.4	U				
1,1,2,2-Tetrachloroethane	79-34-5			ug/kg	4.9	U	3.5	U	4.4	U				
1,1,2-Trichloroethane	79-00-5			ug/kg	4.9	U	3.5	U	4.4	U				
1,1-Dichloroethane	75-34-3	~~26000~~ 19,000	270	ug/kg	4.9	U	3.5	U	4.4	U				
1,1-Dichloroethene	75-35-4	100000	330	ug/kg	4.9	U	3.5	U	4.4	U				
1,2,4-Trichlorobenzene	120-82-1			ug/kg	4.9	U	3.5	U	4.4	U				
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8			ug/kg	4.9	U	3.5	U	4.4	U				
1,2-Dibromoethane (Ethylene dibromide)	106-93-4			ug/kg	4.9	U	3.5	U	4.4	U				
1,2-Dichlorobenzene	95-50-1	100000	1100	ug/kg	4.9	U	3.5	U	4.4	U				
1,2-Dichloroethane	107-06-2	~~3100~~ 2300	20	ug/kg	4.9	U	3.5	U	4.4	U				
1,2-Dichloroethene (Total)	540-59-0			ug/kg										
1,2-Dichloropropane	78-87-5			ug/kg	4.9	U	3.5	U	4.4	U				
1,3-Dichlorobenzene	541-73-1	~~49000~~ 17,000	2400	ug/kg	4.9	U	3.5	U	4.4	U				
1,4-Dichlorobenzene	106-46-7	~~13000~~ 9800	1800	ug/kg	4.9	U	3.5	U	4.4	U				
2-Butanone	78-93-3	100000	120	ug/kg	3.1	J	18	U	22	U				
2-Hexanone	591-78-6			ug/kg	24	U	18	U	22	U				
3-Octanol	589-98-0			ug/kg										
3-Octanone	106-68-3			ug/kg										
4-Methyl-2-Pentanone	108-10-1			ug/kg	24	U	18	U	22	U				
Acetone	67-64-1	100000	50	ug/kg	50	U	18	U	32	U				
Benzene	71-43-2	~~4800~~ 2900	60	ug/kg	4.9	U	3.5	U	4.4	U				
Bromodichloromethane	75-27-4			ug/kg	4.9	U	3.5	U	4.4	U				
Bromoform	75-25-2			ug/kg	4.9	U	3.5	U	4.4	U				
Bromomethane	74-83-9			ug/kg	4.9	U	3.5	U	4.4	U				
Carbon Disulfide	75-15-0			ug/kg	4.9	U	3.5	U	4.4	U				
Carbon Tetrachloride	56-23-5	~~2400~~ 1400	760	ug/kg	4.9	U	3.5	U	4.4	U				
Chlorobenzene	108-90-7	100000	1100	ug/kg	4.9	U	3.5	U	4.4	U				
Chlorodibromomethane	124-48-1			ug/kg	4.9	U	3.5	U	4.4	U				
Chloroethane	75-00-3			ug/kg	4.9	U	3.5	U	4.4	U				
Chloroform	67-66-3	~~49000~~ 10,000	370	ug/kg	4.9	U	3.5	U	4.4	U				
Chloromethane	74-87-3			ug/kg	4.9	U	3.5	U	4.4	U				
Cis-1,2-Dichloroethene	156-59-2	~~100000~~ 59,000	250	ug/kg	2.6	J	3.5	U	21					
Cis-1,3-Dichloropropene	10061-01-5			ug/kg	4.9	U	3.5	U	4.4	U				
Cyclohexane	110-82-7			ug/kg	4.9	U	3.5	U	4.4	U				
Cyclopentane	287-92-3			ug/kg										
Dichlorodifluoromethane	75-71-8			ug/kg	4.9	U	3.5	U	4.4	U				
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg	4.9	U	3.5	U	4.4	U				
Ethylbenzene	100-41-4	~~41000~~ 30,000	1000	ug/kg	4.9	U	3.5	U	4.4	U				
Freon 113	76-13-1			ug/kg	4.9	U	3.5	U	4.4	U				
Isopropyl benzene	98-82-8			ug/kg	4.9	U	3.5	U	4.4	U				
m,p-Xylene	179601-23-1			ug/kg										

Notes:

VALUE is non-detect.
VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.
VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	MW-10D-6-12-20180726		MW-10D-20-26-20180726		MW-9D-6-10-20180727		SS-01-0-0.2-20180514		SS-01-0.2-1.0-20180514	
				Location:	MW-10D		MW-10D		MW-9D		SS-01		SS-01	
				Sample Date:	7/26/2018		7/26/2018		7/27/2018		5/14/2018		5/14/2018	
				Start Depth (ft):	6		20		6		0		0.2	
				End Depth (ft):	12		26		10		0.2		1	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Methyl acetate	79-20-9			ug/kg	24	U	18	U	22	U				
Methyl T-Butyl Ether (MTBE)	1634-04-4	~~100000~~ 62,000	930	ug/kg	4.9	U	3.5	U	4.4	U				
Methylcyclohexane	108-87-2			ug/kg	4.9	U	3.5	U	4.4	U				
O-Xylene	95-47-6			ug/kg										
Styrene	100-42-5			ug/kg	4.9	U	3.5	U	4.4	U				
Tetrachloroethene	127-18-4	~~19000~~ 5500	1300	ug/kg	4.9	U	3.5	U	4.4	U				
Toluene	108-88-3	100000	700	ug/kg	4.9	U	3.5	U	4.4	U				
Trans-1,2-Dichloroethene	156-60-5	100000	190	ug/kg	4.9	U	3.5	U	0.48	J				
Trans-1,3-Dichloropropene	10061-02-6			ug/kg	4.9	U	3.5	U	4.4	U				
Trichloroethylene	79-01-6	~~21000~~ 10,000	470	ug/kg	4.9	U	3.5	U	63					
Trichlorofluoromethane	75-69-4			ug/kg	4.9	U	3.5	U	4.4	U				
Vinyl Chloride	75-01-4	~~900~~ 210	20	ug/kg	4.9	U	3.5	U	4.4	U				
Xylenes, Total	XYLENES	100,000	260	ug/kg	9.8	U	7.1	U	8.7	U				
SVOCs														
(Z)-13-Docosenamide	112-84-5			ug/kg										
(Z)-9-Octadecanimide	301-02-0			ug/kg	480	JN								
1,1-Biphenyl	92-52-4			ug/kg	200	U			190	U				
1-Chloronaphthalene	90-13-1			ug/kg	96	U	96	U	95	U	87	U	87	U
1-Docosene	1599-67-3			ug/kg										
1-Octadecene	112-88-9			ug/kg										
2,4,5-Trichlorophenol	95-95-4			ug/kg	200	U			190	U				
2,4,6-Trichlorophenol	88-06-2			ug/kg	200	U			190	U				
2,4-Dichlorophenol	120-83-2			ug/kg	200	U			190	U				
2,4-Dimethylphenol	105-67-9			ug/kg	200	U			190	U				
2,4-Dinitrophenol	51-28-5			ug/kg	2000	U			1900	U				
2,4-Dinitrotoluene	121-14-2			ug/kg	200	U			190	U				
2,6-Dinitrotoluene	606-20-2			ug/kg	200	U			190	U				
2-Chloronaphthalene	91-58-7			ug/kg	200	U			190	U				
2-Chlorophenol	95-57-8			ug/kg	200	U			190	U				
2-Methylnaphthalene	91-57-6			ug/kg	200	U			190	U				
2-Methylphenol	95-48-7	100000	330	ug/kg	200	U			190	U				
2-Nitroaniline	88-74-4			ug/kg	390	U			370	U				
2-Nitrophenol	88-75-5			ug/kg	200	U			190	U				
3,3`-Dichlorobenzidine	91-94-1			ug/kg	390	U			370	U				
3beta-Hydroxy-27-norcholest-5-en-25-one	7494-34-0			ug/kg										
3-Nitroaniline	99-09-2			ug/kg	390	U			370	U				
4,6-Dinitro-2-Methylphenol	534-52-1			ug/kg	390	U			370	U				
4-Bromophenyl Phenyl Ether	101-55-3			ug/kg	200	U			190	U				
4-Chloro-3-Methylphenol	59-50-7			ug/kg	200	U			190	U				
4-Chloroaniline	106-47-8			ug/kg	200	U			190	U				
4-Chlorophenyl Phenylether	7005-72-3			ug/kg	200	U			190	U				
4-Methylphenol	106-44-5	~~100000~~ 34,000	330	ug/kg	390	U			370	U				
4-Nitroaniline	100-01-6			ug/kg	390	U			370	U				
4-Nitrophenol	100-02-7			ug/kg	390	U			370	U				
5-EICOSENE, (E)-	C20N5			ug/kg										
Acenaphthene	83-32-9	100000	20000	ug/kg	200	U			190	U				
Acenaphthylene	208-96-8	100000	100000	ug/kg	200	U			190	U				
Acetophenone	98-86-2			ug/kg	200	U			190	U				
Anthracene	120-12-7	100000	100000	ug/kg	200	U			190	U				
Atrazine	1912-24-9			ug/kg	200	U			190	U				
Benzaldehyde	100-52-7			ug/kg	200	U			190	U				
Benzeneacetic Acid	103-82-2			ug/kg										
Benzo(A)Anthracene	56-55-3	1000	1000	ug/kg	200	U			190	U				
Benzo(A)Pyrene	50-32-8	1000	1000	ug/kg	200	U			190	U				
Benzo(B)Fluoranthene	205-99-2	1000	1000	ug/kg	200	U			190	U				
Benzo(G,H,I)Perylene	191-24-2	100000	100000	ug/kg	200	U			190	U				
Benzo(K)Fluoranthene	207-08-9	~~3900~~ 1000	800	ug/kg	200	U			190	U				
Bis(2-Chloroethoxy) Methane	111-91-1			ug/kg	200	U			190	U				
Bis(2-Chloroethyl) Ether	111-44-4			ug/kg	200	U			190	U				
Bis(2-Ethylhexyl) Phthalate	117-81-7			ug/kg	200	U			190	U				
Bis-Chloroisopropyl Ether	108-60-1			ug/kg	200	U			190	U				
Butyl Benzyl Phthalate	85-68-7			ug/kg	200	U			190	U				
Butyl Citrate	77-94-1			ug/kg										
Caprolactam	105-60-2			ug/kg	200	U			190	U				
Carbazole	86-74-8			ug/kg	200	U			190	U				
Carboranylmethyl Propyl Sulfide	62906-36-9			ug/kg										

Notes:
VALUE is non-detect.
VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.
VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

Table 3

Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	MW-10D-6-12-20180726 Result	Qual	MW-10D-20-26-20180726 Result	Qual	MW-9D-6-10-20180727 Result	Qual	SS-01-0-0.2-20180514 Result	Qual	SS-01-0.2-1.0-20180514 Result	Qual
Location:					MW-10D		MW-10D		MW-9D		SS-01		SS-01	
Sample Date:					7/26/2018		7/26/2018		7/27/2018		5/14/2018		5/14/2018	
Start Depth (ft):					6		20		6		0		0.2	
End Depth (ft):					12		26		10		0.2		1	
Chrysene	218-01-9	~~3900~~ 1000	1000	ug/kg	200	U			190	U				
Cyclohexadecane	295-65-8			ug/kg										
D:C-Friedoolean-8-En-3-One	22611-26-3			ug/kg										
Dibenzo(A,H)Anthracene	53-70-3	330	330	ug/kg	200	U			190	U				
Dibenzofuran	132-64-9	~~59000~~ 14,000	7000	ug/kg	200	U			190	U				
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg										
Dichloronaphthalene	28699-88-9			ug/kg	96	U	96	U	95	U	87	U	87	U
Diethylphthalate	84-66-2			ug/kg	200	U			190	U				
Dimethylphthalate	131-11-3			ug/kg	200	U			190	U				
Di-N-Butylphthalate	84-74-2			ug/kg	200	U			190	U				
Di-N-Octyl Phthalate	117-84-0			ug/kg	81	J			72	J				
Dioctadecyl Ester Phosphonic Acid	19047-85-9			ug/kg										
Ergost-4,7,22-Trien-3.Alpha.-Ol	6538-05-2			ug/kg										
Fluoranthene	206-44-0	100000	100000	ug/kg	200	U			190	U				
Fluorene	86-73-7	100000	30000	ug/kg	200	U			190	U				
Heptachloronaphthalene	32241-08-0			ug/kg	96	U	96	U	95	U	87	UJ	87	U
Heptafluorobutyric Acid, N-Octadecyl Est	1000216-79-5			ug/kg										
Hexachlorobenzene	118-74-1	~~1200~~ 330	330	ug/kg	200	U			190	U				
Hexachlorobutadiene	87-68-3			ug/kg	200	U			190	U				
Hexachlorocyclopentadiene	77-47-4			ug/kg	200	U			190	U				
Hexachloroethane	67-72-1			ug/kg	200	U			190	U				
Hexachloronaphthalene	1335-87-1			ug/kg	96	U	96	U	95	U	87	UJ	87	U
Indeno(1,2,3-Cd)Pyrene	193-39-5	500	500	ug/kg	200	U			190	U				
Isophorone	78-59-1			ug/kg	200	U			190	U				
Naphthalene	91-20-3	100000	12000	ug/kg	200	U			190	U				
Nitrobenzene	98-95-3			ug/kg	200	U			190	U				
N-Nitroso-Di-N-Propylamine	621-64-7			ug/kg	200	U			190	U				
N-Nitrosodiphenylamine	86-30-6			ug/kg	200	U			190	U				
N-Triacontane	638-68-6			ug/kg										
Octachloronaphthalene	2234-13-1			ug/kg	96	U	96	U	95	U	87	UJ	87	UJ
Oxirane, Hexadecyl-	7390-81-0			ug/kg										
Pentachloronaphthalene	1321-64-8			ug/kg	96	U	96	U	95	U	170	J	26	J
Pentachlorophenol	87-86-5	~~6700~~ 2400	800	ug/kg	390	U			370	U				
Phenanthrene	85-01-8	100000	100000	ug/kg	200	U			190	U				
Phenol	108-95-2	100000	330	ug/kg	200	U			190	U				
Pyrene	129-00-0	100000	100000	ug/kg	200	U			190	U				
r-Sitosterol	83-47-6			ug/kg										
Taraxasterol	1059-14-9			ug/kg										
Tetrachloronaphthalene	1335-88-2			ug/kg	96	U	96	U	95	U	490		92	
Tetratetracontane	7098-22-8			ug/kg										
Tetratriacontane	14167-59-0			ug/kg										
Trichloronaphthalene	1321-65-9			ug/kg	96	U	96	U	95	U	300		51	J
Trifluoroacetic Acid, N-Octadecyl Ester	79392-43-1			ug/kg										
Unknown Semivolatile With 10th Highest Conc.	UNKSV10			ug/kg										
Unknown Semivolatile With 11th Highest Conc.	UNKSV11			ug/kg										
Unknown Semivolatile With 1st Highest Conc.	UNKSV1			ug/kg										
Unknown Semivolatile With 2nd Highest Conc.	UNKSV2			ug/kg										
Unknown Semivolatile With 3rd Highest Conc.	UNKSV3			ug/kg	280	J								
Unknown Semivolatile With 4th Highest Conc.	UNKSV4			ug/kg										
Unknown Semivolatile With 5th Highest Conc.	UNKSV5			ug/kg										
Unknown Semivolatile With 6th Highest Conc.	UNKSV6			ug/kg										
Unknown Semivolatile With 7th Highest Conc.	UNKSV7			ug/kg										
Unknown Semivolatile With 8th Highest Conc.	UNKSV8			ug/kg										
Unknown Semivolatile With 9th Highest Conc.	UNKSV9			ug/kg										
Vitamin E	59-02-9			ug/kg										

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	MW-10D-6-12-20180726		MW-10D-20-26-20180726		MW-9D-6-10-20180727		SS-01-0-0.2-20180514		SS-01-0.2-1.0-20180514	
				Location:	MW-10D		MW-10D		MW-9D		SS-01		SS-01	
				Sample Date:	7/26/2018		7/26/2018		7/27/2018		5/14/2018		5/14/2018	
				Start Depth (ft):	6		20		6		0		0.2	
				End Depth (ft):	12		26		10		0.2		1	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Pesticides														
4,4'-DDD	72-54-8	~~13000~~ 2600	3.3	ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
4,4'-DDE	72-55-9	~~8900~~ 1800	3.3	ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
4,4'-DDT	50-29-3	~~7900~~ 1700	3.3	ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
Aldrin	309-00-2	~~97~~ 19	5	ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
Alpha-BHC	319-84-6	~~480~~ 97	20	ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
Alpha-Chlordane	5103-71-9	~~4200~~ 910	94	ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
Beta-BHC	319-85-7	~~360~~ 72	36	ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
Chlorinated Camphene	8001-35-2			ug/kg	20	U	20	U	19	U	870	U	91	U
Delta-Bhc	319-86-8	100000	40	ug/kg	2	U	2	U	0.38	J	87	U	2	J
Dieldrin	60-57-1	~~200~~ 39	5	ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
Endosulfan I	959-98-8	~~24000~~ 4800	2400	ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
Endosulfan II	33213-65-9	~~24000~~ 4800	2400	ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
Endosulfan Sulfate	1031-07-8	~~24000~~ 4800	2400	ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
Endrin	72-20-8	~~11000~~ 2200	14	ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
Endrin Aldehyde	7421-93-4			ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
Endrin Ketone	53494-70-5			ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
Gamma-BHC (Lindane)	58-89-9	~~1300~~ 280	100	ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
Gamma-Chlordane	5103-74-2			ug/kg	2	U	2	U	1.9	U	30	J	9.1	U
Heptachlor	76-44-8	~~2100~~ 420	42	ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
Heptachlor Epoxide	1024-57-3			ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
Methoxychlor	72-43-5			ug/kg	2	U	2	U	1.9	U	87	U	9.1	U
PFCs														
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9			ug/kg	2.4	U			2.3	U				
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6			ug/kg	2.4	U			2.3	U				
Perfluorobutanesulfonic Acid (PFBS)	375-73-5			ug/kg	0.24	U			0.23	U				
Perfluorobutyric Acid (PFBA)	375-22-4			ug/kg	0.24	U			0.23	U				
Perfluorodecane Sulfonic Acid	335-77-3			ug/kg	0.24	U			0.23	U				
Perfluorodecanoic Acid (PFDA)	335-76-2			ug/kg	0.24	U			0.23	U				
Perfluorododecanoic Acid (PFDoA)	307-55-1			ug/kg	0.24	U			0.23	U				
Perfluoroheptane Sulfonate (PFHpS)	375-92-8			ug/kg	0.24	U			0.23	U				
Perfluoroheptanoic Acid (PFHpA)	375-85-9			ug/kg	0.24	U			0.23	U				
Perfluorohexanesulfonic Acid	355-46-4			ug/kg	0.24	U			0.23	U				
Perfluorohexanoic Acid (PFHxA)	307-24-4			ug/kg	0.24	U			0.23	U				
Perfluorononanoic Acid (PFNA)	375-95-1			ug/kg	0.24	U			0.23	U				
Perfluorooctane Sulfonamide (FOSA)	754-91-6			ug/kg	0.24	U			0.23	U				
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1			ug/kg	0.59	U			0.57	U				
Perfluorooctanoic acid (PFOA)	335-67-1			ug/kg	0.24	U			0.23	U				
Perfluoropentanoic Acid (PFPeA)	2706-90-3			ug/kg	0.24	U			0.23	U				
Perfluorotetradecanoic Acid (PFTeA)	376-06-7			ug/kg	0.24	U			0.23	U				
Perfluorotridcanoic Acid (PFTriA)	72629-94-8			ug/kg	0.24	U			0.23	U				
Perfluoroundecanoic Acid (PFUnA)	2058-94-8			ug/kg	0.24	U			0.23	U				
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4			ug/kg	2.4	U			2.3	U				
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2			ug/kg	2.4	U			2.3	U				

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	SS-01-1.0-2.0-20180514		SS-02-0-0.2-20180514		SS-02-0.2-1.0-20180514		SS-02-1.0-2.0-20180514		SS-03-0.0-1.0-20180802	
				Location:	SS-01		SS-02		SS-02		SS-02		SS-03	
				Sample Date:	5/14/2018		5/14/2018		5/14/2018		5/14/2018		8/2/2018	
				Start Depth (ft):	1		0		0.2		1		0	
				End Depth (ft):	2		0.2		1		2		1	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Inorganics														
Aluminum	7429-90-5			mg/kg									23200	
Antimony	7440-36-0			mg/kg									18.2	U
Arsenic	7440-38-2	16	13	mg/kg									5.7	
Barium	7440-39-3	~~400~~ 350	350	mg/kg									142	
Beryllium	7440-41-7	~~72~~ 14	7.2	mg/kg									1.2	
Cadmium	7440-43-9	~~4.3~~ 2.5	2.5	mg/kg	0.62	U	0.11	J	0.64	U	0.65	U	0.043	J
Calcium	7440-70-2			mg/kg									3150	B
Chromium, Total	7440-47-3			mg/kg									28.8	
Cobalt	7440-48-4			mg/kg									19.7	
Copper	7440-50-8	270	50	mg/kg	20.3		23.2		19.9		16.5		15.9	
Iron	7439-89-6			mg/kg									26300	
Lead	7439-92-1	400	63	mg/kg									26.5	
Magnesium	7439-95-4			mg/kg									5740	B
Manganese	7439-96-5	2000	1600	mg/kg	479		462		438		590		1700	B
Mercury	7439-97-6	0.81	0.18	mg/kg									0.049	
Nickel	7440-02-0	~~310~~ 140	30	mg/kg									28.1	
Potassium	7440-09-7			mg/kg									3810	
Selenium	7782-49-2	~~180~~ 36	3.9	mg/kg									4.9	U
Silver	7440-22-4	~~180~~ 36	2	mg/kg									0.73	U
Sodium	7440-23-5			mg/kg									82.3	J
Thallium	7440-28-0			mg/kg									0.64	J
Vanadium	7440-62-2			mg/kg									41.2	
Zinc	7440-66-6	~~10000~~ 2200	109	mg/kg									63.1	B
VOCs														
1,1,1-Trichloroethane	71-55-6	100000	680	ug/kg									4.9	U
1,1,2,2-Tetrachloroethane	79-34-5			ug/kg									4.9	U
1,1,2-Trichloroethane	79-00-5			ug/kg									4.9	U
1,1-Dichloroethane	75-34-3	~~26000~~ 19,000	270	ug/kg									4.9	U
1,1-Dichloroethene	75-35-4	100000	330	ug/kg									4.9	U
1,2,4-Trichlorobenzene	120-82-1			ug/kg									4.9	U
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8			ug/kg									4.9	U
1,2-Dibromoethane (Ethylene dibromide)	106-93-4			ug/kg									4.9	U
1,2-Dichlorobenzene	95-50-1	100000	1100	ug/kg									4.9	U
1,2-Dichloroethane	107-06-2	~~3100~~ 2300	20	ug/kg									4.9	U
1,2-Dichloroethene (Total)	540-59-0			ug/kg										
1,2-Dichloropropane	78-87-5			ug/kg									4.9	U
1,3-Dichlorobenzene	541-73-1	~~49000~~ 17,000	2400	ug/kg									4.9	U
1,4-Dichlorobenzene	106-46-7	~~13000~~ 9800	1800	ug/kg									4.9	U
2-Butanone	78-93-3	100000	120	ug/kg									25	UT
2-Hexanone	591-78-6			ug/kg									25	U
3-Octanol	589-98-0			ug/kg										
3-Octanone	106-68-3			ug/kg										
4-Methyl-2-Pentanone	108-10-1			ug/kg									25	U
Acetone	67-64-1	100000	50	ug/kg									25	U
Benzene	71-43-2	~~4800~~ 2900	60	ug/kg									4.9	U
Bromodichloromethane	75-27-4			ug/kg									4.9	U
Bromoform	75-25-2			ug/kg									4.9	U
Bromomethane	74-83-9			ug/kg									4.9	U
Carbon Disulfide	75-15-0			ug/kg									4.9	U
Carbon Tetrachloride	56-23-5	~~2400~~ 1400	760	ug/kg									4.9	U
Chlorobenzene	108-90-7	100000	1100	ug/kg									4.9	U
Chlorodibromomethane	124-48-1			ug/kg									4.9	U
Chloroethane	75-00-3			ug/kg									4.9	U
Chloroform	67-66-3	~~49000~~ 10,000	370	ug/kg									4.9	U
Chloromethane	74-87-3			ug/kg									4.9	U
Cis-1,2-Dichloroethene	156-59-2	~~100000~~ 59,000	250	ug/kg									4.9	U
Cis-1,3-Dichloropropene	10061-01-5			ug/kg									4.9	U
Cyclohexane	110-82-7			ug/kg									4.9	U
Cyclopentane	287-92-3			ug/kg										
Dichlorodifluoromethane	75-71-8			ug/kg									4.9	U
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg									4.9	U
Ethylbenzene	100-41-4	~~41000~~ 30,000	1000	ug/kg									4.9	U
Freon 113	76-13-1			ug/kg									4.9	U
Isopropyl benzene	98-82-8			ug/kg									4.9	U
m,p-Xylene	179601-23-1			ug/kg										

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

Table 3

				Sample:	SS-01-1.0-2.0-20180514		SS-02-0-0.2-20180514		SS-02-0.2-1.0-20180514		SS-02-1.0-2.0-20180514		SS-03-0.0-1.0-20180802	
				Location:	SS-01		SS-02		SS-02		SS-02		SS-03	
				Sample Date:	5/14/2018		5/14/2018		5/14/2018		5/14/2018		8/2/2018	
				Start Depth (ft):	1		0		0.2		1		0	
				End Depth (ft):	2		0.2		1		2		1	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Methyl acetate	79-20-9			ug/kg									25	U
Methyl T-Butyl Ether (MTBE)	1634-04-4	~~100000~~ 62,000	930	ug/kg									4.9	U
Methylcyclohexane	108-87-2			ug/kg									4.9	U
O-Xylene	95-47-6			ug/kg										
Styrene	100-42-5			ug/kg									4.9	U
Tetrachloroethene	127-18-4	~~19000~~ 5500	1300	ug/kg									4.9	U
Toluene	108-88-3	100000	700	ug/kg									4.9	U
Trans-1,2-Dichloroethene	156-60-5	100000	190	ug/kg									4.9	U
Trans-1,3-Dichloropropene	10061-02-6			ug/kg									4.9	U
Trichloroethylene	79-01-6	~~21000~~ 10,000	470	ug/kg									4.9	U
Trichlorofluoromethane	75-69-4			ug/kg									4.9	U
Vinyl Chloride	75-01-4	~~900~~ 210	20	ug/kg									4.9	U
Xylenes, Total	XYLENES	100,000	260	ug/kg									9.9	U
SVOCs														
(Z)-13-Docosenamide	112-84-5			ug/kg										
(Z)-9-Octadecanimide	301-02-0			ug/kg										
1,1-Biphenyl	92-52-4			ug/kg									210	U
1-Chloronaphthalene	90-13-1			ug/kg	95	U	110	U	100	U	100	U	100	U
1-Docosene	1599-67-3			ug/kg										
1-Octadecene	112-88-9			ug/kg										
2,4,5-Trichlorophenol	95-95-4			ug/kg									210	U
2,4,6-Trichlorophenol	88-06-2			ug/kg									210	U
2,4-Dichlorophenol	120-83-2			ug/kg									210	U
2,4-Dimethylphenol	105-67-9			ug/kg									210	U
2,4-Dinitrophenol	51-28-5			ug/kg									2100	U
2,4-Dinitrotoluene	121-14-2			ug/kg									210	U
2,6-Dinitrotoluene	606-20-2			ug/kg									210	U
2-Chloronaphthalene	91-58-7			ug/kg									210	U
2-Chlorophenol	95-57-8			ug/kg									210	U
2-Methylnaphthalene	91-57-6			ug/kg									210	U
2-Methylphenol	95-48-7	100000	330	ug/kg									210	U
2-Nitroaniline	88-74-4			ug/kg									410	U
2-Nitrophenol	88-75-5			ug/kg									210	U
3,3`-Dichlorobenzidine	91-94-1			ug/kg									410	U
3beta-Hydroxy-27-norcholest-5-en-25-one	7494-34-0			ug/kg										
3-Nitroaniline	99-09-2			ug/kg									410	U
4,6-Dinitro-2-Methylphenol	534-52-1			ug/kg									410	U
4-Bromophenyl Phenyl Ether	101-55-3			ug/kg									210	U
4-Chloro-3-Methylphenol	59-50-7			ug/kg									210	U
4-Chloroaniline	106-47-8			ug/kg									210	U
4-Chlorophenyl Phenylether	7005-72-3			ug/kg									210	U
4-Methylphenol	106-44-5	~~100000~~ 34,000	330	ug/kg									410	U
4-Nitroaniline	100-01-6			ug/kg									410	U
4-Nitrophenol	100-02-7			ug/kg									410	U
5-EICOSENE, (E)-	C20N5			ug/kg										
Acenaphthene	83-32-9	100000	20000	ug/kg									210	U
Acenaphthylene	208-96-8	100000	100000	ug/kg									210	U
Acetophenone	98-86-2			ug/kg									210	U
Anthracene	120-12-7	100000	100000	ug/kg									210	U
Atrazine	1912-24-9			ug/kg									210	U
Benzaldehyde	100-52-7			ug/kg									210	U
Benzeneacetic Acid	103-82-2			ug/kg										
Benzo(A)Anthracene	56-55-3	1000	1000	ug/kg									21	J
Benzo(A)Pyrene	50-32-8	1000	1000	ug/kg									210	U
Benzo(B)Fluoranthene	205-99-2	1000	1000	ug/kg									45	J
Benzo(G,H,I)Perylene	191-24-2	100000	100000	ug/kg									210	U
Benzo(K)Fluoranthene	207-08-9	~~3900~~ 1000	800	ug/kg									210	U
Bis(2-Chloroethoxy) Methane	111-91-1			ug/kg									210	U
Bis(2-Chloroethyl) Ether	111-44-4			ug/kg									210	U
Bis(2-Ethylhexyl) Phthalate	117-81-7			ug/kg									210	U
Bis-Chloroisopropyl Ether	108-60-1			ug/kg									210	U
Butyl Benzyl Phthalate	85-68-7			ug/kg									210	U
Butyl Citrate	77-94-1			ug/kg										
Caprolactam	105-60-2			ug/kg									210	U
Carbazole	86-74-8			ug/kg									210	U
Carboranylmethyl Propyl Sulfide	62906-36-9			ug/kg										

Notes:
VALUE is non-detect.
VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.
VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

Table 3

				Sample:	SS-01-1.0-2.0-20180514		SS-02-0-0.2-20180514		SS-02-0.2-1.0-20180514		SS-02-1.0-2.0-20180514		SS-03-0.0-1.0-20180802	
				Location:	SS-01		SS-02		SS-02		SS-02		SS-03	
				Sample Date:	5/14/2018		5/14/2018		5/14/2018		5/14/2018		8/2/2018	
				Start Depth (ft):	1		0		0.2		1		0	
				End Depth (ft):	2		0.2		1		2		1	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Chrysene	218-01-9	~~3900~~ 1000	1000	ug/kg									210	U
Cyclohexadecane	295-65-8			ug/kg										
D:C-Friedoolean-8-En-3-One	22611-26-3			ug/kg										
Dibenzo(A,H)Anthracene	53-70-3	330	330	ug/kg									210	U
Dibenzofuran	132-64-9	~~59000~~ 14,000	7000	ug/kg									210	U
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg										
Dichloronaphthalene	28699-88-9			ug/kg	95	U	110	U	100	U	100	U	100	U
Diethylphthalate	84-66-2			ug/kg									210	U
Dimethylphthalate	131-11-3			ug/kg									210	U
Di-N-Butylphthalate	84-74-2			ug/kg									210	U
Di-N-Octyl Phthalate	117-84-0			ug/kg									210	U
Dioctadecyl Ester Phosphonic Acid	19047-85-9			ug/kg										
Ergost-4,7,22-Trien-3.Alpha.-Ol	6538-05-2			ug/kg										
Fluoranthene	206-44-0	100000	100000	ug/kg									34	J
Fluorene	86-73-7	100000	30000	ug/kg									210	U
Heptachloronaphthalene	32241-08-0			ug/kg	95	U	110	U	100	U	100	U	100	U
Heptafluorobutyric Acid, N-Octadecyl Est	1000216-79-5			ug/kg										
Hexachlorobenzene	118-74-1	~~1200~~ 330	330	ug/kg									210	U
Hexachlorobutadiene	87-68-3			ug/kg									210	U
Hexachlorocyclopentadiene	77-47-4			ug/kg									210	U
Hexachloroethane	67-72-1			ug/kg									210	U
Hexachloronaphthalene	1335-87-1			ug/kg	95	U	110	U	100	U	100	U	100	U
Indeno(1,2,3-Cd)Pyrene	193-39-5	500	500	ug/kg									210	U
Isophorone	78-59-1			ug/kg									210	U
Naphthalene	91-20-3	100000	12000	ug/kg									210	U
Nitrobenzene	98-95-3			ug/kg									210	U
N-Nitroso-Di-N-Propylamine	621-64-7			ug/kg									210	U
N-Nitrosodiphenylamine	86-30-6			ug/kg									210	U
N-Triacontane	638-68-6			ug/kg										
Octachloronaphthalene	2234-13-1			ug/kg	95	UJ	110	UJ	100	UJ	100	U	100	U
Oxirane, Hexadecyl-	7390-81-0			ug/kg										
Pentachloronaphthalene	1321-64-8			ug/kg	95	U	25	J	100	U	100	U	100	U
Pentachlorophenol	87-86-5	~~6700~~ 2400	800	ug/kg									410	U
Phenanthrene	85-01-8	100000	100000	ug/kg									210	U
Phenol	108-95-2	100000	330	ug/kg									210	U
Pyrene	129-00-0	100000	100000	ug/kg									36	J
r-Sitosterol	83-47-6			ug/kg										
Taraxasterol	1059-14-9			ug/kg										
Tetrachloronaphthalene	1335-88-2			ug/kg	95	U	78	J	48	J	100	U	100	U
Tetratetracontane	7098-22-8			ug/kg										
Tetratriacontane	14167-59-0			ug/kg										
Trichloronaphthalene	1321-65-9			ug/kg	95	U	27	J	100	U	100	U	100	U
Trifluoroacetic Acid, N-Octadecyl Ester	79392-43-1			ug/kg										
Unknown Semivolatile With 10th Highest Conc.	UNKSV10			ug/kg										
Unknown Semivolatile With 11th Highest Conc.	UNKSV11			ug/kg										
Unknown Semivolatile With 1st Highest Conc.	UNKSV1			ug/kg										
Unknown Semivolatile With 2nd Highest Conc.	UNKSV2			ug/kg										
Unknown Semivolatile With 3rd Highest Conc.	UNKSV3			ug/kg									250	J
Unknown Semivolatile With 4th Highest Conc.	UNKSV4			ug/kg									220	J
Unknown Semivolatile With 5th Highest Conc.	UNKSV5			ug/kg										
Unknown Semivolatile With 6th Highest Conc.	UNKSV6			ug/kg										
Unknown Semivolatile With 7th Highest Conc.	UNKSV7			ug/kg										
Unknown Semivolatile With 8th Highest Conc.	UNKSV8			ug/kg										
Unknown Semivolatile With 9th Highest Conc.	UNKSV9			ug/kg										
Vitamin E	59-02-9			ug/kg										

Notes:

VALUE is non-detect.
VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.
VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	SS-01-1.0-2.0-20180514		SS-02-0-0.2-20180514		SS-02-0.2-1.0-20180514		SS-02-1.0-2.0-20180514		SS-03-0.0-1.0-20180802	
				Location:	SS-01		SS-02		SS-02		SS-02		SS-03	
				Sample Date:	5/14/2018		5/14/2018		5/14/2018		5/14/2018		8/2/2018	
				Start Depth (ft):	1		0		0.2		1		0	
				End Depth (ft):	2		0.2		1		2		1	
Analyte	**CAS Number**	**NYS Soil ~~Restricted~~ Residential**	**NYS Soil Unrestricted**	**Units**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Pesticides														
4,4'-DDD	72-54-8	~~13000~~ 2600	3.3	ug/kg	*1.9*	*U*	*2.2*	*U*	*2.2*	*U*	*2.1*	*U*	*4.1*	*U*
4,4'-DDE	72-55-9	~~8900~~ 1800	3.3	ug/kg	*1.9*	*U*	*2.2*	*U*	*2.2*	*U*	*2.1*	*U*	*4.1*	*U*
4,4'-DDT	50-29-3	~~7900~~ 1700	3.3	ug/kg	*1.9*	*U*	2.2		0.95	J	*2.1*	*U*	*4.1*	*U*
Aldrin	309-00-2	~~97~~ 19	5	ug/kg	*1.9*	*U*	*2.2*	*U*	*2.2*	*U*	*2.1*	*U*	*4.1*	*U*
Alpha-BHC	319-84-6	~~480~~ 97	20	ug/kg	*1.9*	*U*	1	J	0.75	J	*2.1*	*U*	3.2	J
Alpha-Chlordane	5103-71-9	~~4200~~ 910	94	ug/kg	*1.9*	*U*	*2.2*	*U*	*2.2*	*U*	*2.1*	*U*	*4.1*	*U*
Beta-BHC	319-85-7	~~360~~ 72	36	ug/kg	*1.9*	*U*	*3.3*	*U*	*2.2*	*U*	*2.1*	*U*	3.3	J
Chlorinated Camphene	8001-35-2			ug/kg	*19*	*U*	*22*	*U*	*22*	*U*	*21*	*U*	*41*	*U*
Delta-Bhc	319-86-8	100000	40	ug/kg	0.44	J	*2.2*	*U*	*2.2*	*U*	*2.1*	*U*	3.8	J
Dieldrin	60-57-1	~~200~~ 39	5	ug/kg	*1.9*	*U*	*2.2*	*U*	*2.2*	*U*	*2.1*	*U*	3.3	J
Endosulfan I	959-98-8	~~24000~~ 4800	2400	ug/kg	*1.9*	*U*	*2.2*	*U*	*2.2*	*U*	*2.1*	*U*	3.4	J
Endosulfan II	33213-65-9	~~24000~~ 4800	2400	ug/kg	*1.9*	*U*	*2.2*	*U*	*2.2*	*U*	*2.1*	*U*	*4.1*	*U*
Endosulfan Sulfate	1031-07-8	~~24000~~ 4800	2400	ug/kg	*1.9*	*U*	*2.2*	*U*	*2.2*	*U*	*2.1*	*U*	*4.1*	*U*
Endrin	72-20-8	~~11000~~ 2200	14	ug/kg	*1.9*	*U*	*2.2*	*U*	*2.2*	*U*	*2.1*	*U*	*4.1*	*U*
Endrin Aldehyde	7421-93-4			ug/kg	*1.9*	*U*	1.2	J	*2.2*	*U*	*2.1*	*U*	*4.1*	*U*
Endrin Ketone	53494-70-5			ug/kg	*1.9*	*U*	*2.2*	*U*	*2.2*	*U*	*2.1*	*U*	1.3	J
Gamma-BHC (Lindane)	58-89-9	~~1300~~ 280	100	ug/kg	*1.9*	*U*	*2.2*	*U*	*2.2*	*U*	*2.1*	*U*	*5.8*	*U*
Gamma-Chlordane	5103-74-2			ug/kg	*1.9*	*U*	*2.2*	*U*	*2.2*	*U*	*2.1*	*U*	*4.1*	*U*
Heptachlor	76-44-8	~~2100~~ 420	42	ug/kg	*1.9*	*U*	*2.2*	*U*	0.63	J	*2.1*	*U*	2	J
Heptachlor Epoxide	1024-57-3			ug/kg	*1.9*	*U*	*2.2*	*U*	*2.2*	*U*	*2.1*	*U*	*4.1*	*U*
Methoxychlor	72-43-5			ug/kg	*1.9*	*U*	*2.2*	*U*	*2.2*	*U*	*2.1*	*U*	*4.1*	*U*
PFCs														
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9			ug/kg									*2.5*	*U*
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6			ug/kg									*2.5*	*U*
Perfluorobutanesulfonic Acid (PFBS)	375-73-5			ug/kg									*0.25*	*U*
Perfluorobutyric Acid (PFBA)	375-22-4			ug/kg									*0.25*	*U*
Perfluorodecane Sulfonic Acid	335-77-3			ug/kg									*0.25*	*U*
Perfluorodecanoic Acid (PFDA)	335-76-2			ug/kg									0.031	J
Perfluorododecanoic Acid (PFDoA)	307-55-1			ug/kg									*0.25*	*U*
Perfluoroheptane Sulfonate (PFHpS)	375-92-8			ug/kg									*0.25*	*U*
Perfluoroheptanoic Acid (PFHpA)	375-85-9			ug/kg									0.038	J
Perfluorohexanesulfonic Acid	355-46-4			ug/kg									*0.25*	*U*
Perfluorohexanoic Acid (PFHxA)	307-24-4			ug/kg									*0.25*	*U*
Perfluorononanoic Acid (PFNA)	375-95-1			ug/kg									0.045	J
Perfluorooctane Sulfonamide (FOSA)	754-91-6			ug/kg									*0.25*	*U*
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1			ug/kg									*0.62*	*U*
Perfluorooctanoic acid (PFOA)	335-67-1			ug/kg									0.16	J
Perfluoropentanoic Acid (PFPeA)	2706-90-3			ug/kg									*0.25*	*U*
Perfluorotetradecanoic Acid (PFTeA)	376-06-7			ug/kg									*0.25*	*U*
Perfluorotridcanoic Acid (PFTriA)	72629-94-8			ug/kg									*0.25*	*U*
Perfluoroundecanoic Acid (PFUnA)	2058-94-8			ug/kg									0.048	J
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4			ug/kg									*2.5*	*U*
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2			ug/kg									*2.5*	*U*

Notes:
VALUE is non-detect.
VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.
VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	SS-03-1.0-2.0-20180802		SS-04-0.0-1.0-20180803		SS-04-1.0-2.0-20180803		SS-05-0-0.2-20180514		SS-05-1-1.3-20180514	
				Location:	SS-03		SS-04		SS-04		SS-05		SS-05	
				Sample Date:	8/2/2018		8/3/2018		8/3/2018		5/14/2018		5/14/2018	
				Start Depth (ft):	1		0		1		0		1	
				End Depth (ft):	2		1		2		0.2		1.3	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Inorganics														
Aluminum	7429-90-5			mg/kg	24900		19800		29600					
Antimony	7440-36-0			mg/kg	18	U	18.7	U	19.1	U				
Arsenic	7440-38-2	16	13	mg/kg	5.1		4.6		5.3					
Barium	7440-39-3	~~400~~ 350	350	mg/kg	143		89		175					
Beryllium	7440-41-7	~~72~~ 14	7.2	mg/kg	1.1		0.76		1.3					
Cadmium	7440-43-9	~~4.3~~ 2.5	2.5	mg/kg	0.24	U	0.062	J	0.25	U				
Calcium	7440-70-2			mg/kg	27900	B	3010	B	3970	B				
Chromium, Total	7440-47-3			mg/kg	32.3		25.6		37.5					
Cobalt	7440-48-4			mg/kg	13.8		11.7		18.2					
Copper	7440-50-8	270	50	mg/kg	22.3		55		20.2					
Iron	7439-89-6			mg/kg	28400		22500		31700					
Lead	7439-92-1	400	63	mg/kg	13.3		23.3		14.8					
Magnesium	7439-95-4			mg/kg	15700	B	5000	B	8690	B				
Manganese	7439-96-5	2000	1600	mg/kg	524	B	423	B	645	B				
Mercury	7439-97-6	0.81	0.18	mg/kg	0.021	J	0.06		0.014	J				
Nickel	7440-02-0	~~310~~ 140	30	mg/kg	36.2		21.5		50					
Potassium	7440-09-7			mg/kg	6100		3500		6140					
Selenium	7782-49-2	~~180~~ 36	3.9	mg/kg	4.8	U	0.53	J	5.1	U				
Silver	7440-22-4	~~180~~ 36	2	mg/kg	0.72	U	0.75	U	0.76	U				
Sodium	7440-23-5			mg/kg	187		74.7	J	135	J				
Thallium	7440-28-0			mg/kg	7.2	U	7.5	U	7.6	U				
Vanadium	7440-62-2			mg/kg	44		36.4		50.1					
Zinc	7440-66-6	~~10000~~ 2200	109	mg/kg	61.3	B	72.8	B	69.6	B				
VOCs														
1,1,1-Trichloroethane	71-55-6	100000	680	ug/kg	3.9	U	5.1	U	5.1	U				
1,1,2,2-Tetrachloroethane	79-34-5			ug/kg	3.9	U	5.1	U	5.1	U				
1,1,2-Trichloroethane	79-00-5			ug/kg	3.9	U	5.1	U	5.1	U				
1,1-Dichloroethane	75-34-3	~~26000~~ 19,000	270	ug/kg	3.9	U	5.1	U	5.1	U				
1,1-Dichloroethene	75-35-4	100000	330	ug/kg	3.9	U	5.1	U	5.1	U				
1,2,4-Trichlorobenzene	120-82-1			ug/kg	3.9	U	5.1	U	5.1	U				
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8			ug/kg	3.9	U	5.1	U	5.1	U				
1,2-Dibromoethane (Ethylene dibromide)	106-93-4			ug/kg	3.9	U	5.1	U	5.1	U				
1,2-Dichlorobenzene	95-50-1	100000	1100	ug/kg	3.9	U	5.1	U	5.1	U				
1,2-Dichloroethane	107-06-2	~~3100~~ 2300	20	ug/kg	3.9	U	5.1	U	5.1	U				
1,2-Dichloroethene (Total)	540-59-0			ug/kg										
1,2-Dichloropropane	78-87-5			ug/kg	3.9	U	5.1	U	5.1	U				
1,3-Dichlorobenzene	541-73-1	~~49000~~ 17,000	2400	ug/kg	3.9	U	5.1	U	5.1	U				
1,4-Dichlorobenzene	106-46-7	~~13000~~ 9800	1800	ug/kg	3.9	U	5.1	U	5.1	U				
2-Butanone	78-93-3	100000	120	ug/kg	20	UT	25	UT	25	UT				
2-Hexanone	591-78-6			ug/kg	20	U	25	U	25	U				
3-Octanol	589-98-0			ug/kg										
3-Octanone	106-68-3			ug/kg										
4-Methyl-2-Pentanone	108-10-1			ug/kg	20	U	25	U	25	U				
Acetone	67-64-1	100000	50	ug/kg	20	U	25	U	25	U				
Benzene	71-43-2	~~4800~~ 2900	60	ug/kg	3.9	U	5.1	U	5.1	U				
Bromodichloromethane	75-27-4			ug/kg	3.9	U	5.1	U	5.1	U				
Bromoform	75-25-2			ug/kg	3.9	U	5.1	U	5.1	U				
Bromomethane	74-83-9			ug/kg	3.9	U	5.1	U	5.1	U				
Carbon Disulfide	75-15-0			ug/kg	3.9	U	5.1	U	5.1	U				
Carbon Tetrachloride	56-23-5	~~2400~~ 1400	760	ug/kg	3.9	U	5.1	U	5.1	U				
Chlorobenzene	108-90-7	100000	1100	ug/kg	3.9	U	5.1	U	5.1	U				
Chlorodibromomethane	124-48-1			ug/kg	3.9	U	5.1	U	5.1	U				
Chloroethane	75-00-3			ug/kg	3.9	U	5.1	U	5.1	U				
Chloroform	67-66-3	~~49000~~ 10,000	370	ug/kg	3.9	U	5.1	U	5.1	U				
Chloromethane	74-87-3			ug/kg	3.9	U	5.1	U	5.1	U				
Cis-1,2-Dichloroethene	156-59-2	~~100000~~ 59,000	250	ug/kg	3.9	U	5.1	U	5.1	U				
Cis-1,3-Dichloropropene	10061-01-5			ug/kg	3.9	U	5.1	U	5.1	U				
Cyclohexane	110-82-7			ug/kg	3.9	U	5.1	U	5.1	U				
Cyclopentane	287-92-3			ug/kg										
Dichlorodifluoromethane	75-71-8			ug/kg	3.9	U	5.1	U	5.1	U				
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg	3.9	U	5.1	U	5.1	U				
Ethylbenzene	100-41-4	~~41000~~ 30,000	1000	ug/kg	3.9	U	5.1	U	5.1	U				
Freon 113	76-13-1			ug/kg	3.9	U	5.1	U	5.1	U				
Isopropyl benzene	98-82-8			ug/kg	3.9	U	5.1	U	5.1	U				
m,p-Xylene	179601-23-1			ug/kg										

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	SS-03-1.0-2.0-20180802		SS-04-0.0-1.0-20180803		SS-04-1.0-2.0-20180803		SS-05-0-0.2-20180514		SS-05-1-1.3-20180514	
				Location:	SS-03		SS-04		SS-04		SS-05		SS-05	
				Sample Date:	8/2/2018		8/3/2018		8/3/2018		5/14/2018		5/14/2018	
				Start Depth (ft):	1		0		1		0		1	
				End Depth (ft):	2		1		2		0.2		1.3	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Methyl acetate	79-20-9			ug/kg	20	U	25	U	25	U				
Methyl T-Butyl Ether (MTBE)	1634-04-4	~~100000~~ 62,000	930	ug/kg	3.9	U	5.1	U	5.1	U				
Methylcyclohexane	108-87-2			ug/kg	3.9	U	5.1	U	5.1	U				
O-Xylene	95-47-6			ug/kg										
Styrene	100-42-5			ug/kg	3.9	U	5.1	U	5.1	U				
Tetrachloroethene	127-18-4	~~19000~~ 5500	1300	ug/kg	3.9	U	5.1	U	5.1	U				
Toluene	108-88-3	100000	700	ug/kg	3.9	U	5.1	U	5.1	U				
Trans-1,2-Dichloroethene	156-60-5	100000	190	ug/kg	3.9	U	5.1	U	5.1	U				
Trans-1,3-Dichloropropene	10061-02-6			ug/kg	3.9	U	5.1	U	5.1	U				
Trichloroethylene	79-01-6	~~21000~~ 10,000	470	ug/kg	3.9	U	5.1	U	5.1	U				
Trichlorofluoromethane	75-69-4			ug/kg	3.9	U	5.1	U	5.1	U				
Vinyl Chloride	75-01-4	~~900~~ 210	20	ug/kg	3.9	U	5.1	U	5.1	U				
Xylenes, Total	XYLENES	100,000	260	ug/kg	7.8	U	10	U	10	U				
SVOCs														
(Z)-13-Docosenamide	112-84-5			ug/kg										
(Z)-9-Octadecanimide	301-02-0			ug/kg	280	JN	230	JN						
1,1-Biphenyl	92-52-4			ug/kg	200	U	210	U	210	U	200	U	730	J
1-Chloronaphthalene	90-13-1			ug/kg	99	U	100	U	100	U	95	U	95	U
1-Docosene	1599-67-3			ug/kg										
1-Octadecene	112-88-9			ug/kg										
2,4,5-Trichlorophenol	95-95-4			ug/kg	200	U	210	U	210	U	200	U	2000	U
2,4,6-Trichlorophenol	88-06-2			ug/kg	200	U	210	U	210	U	200	U	2000	U
2,4-Dichlorophenol	120-83-2			ug/kg	200	U	210	U	210	U	200	U	2000	U
2,4-Dimethylphenol	105-67-9			ug/kg	200	U	210	U	210	U	200	U	2000	U
2,4-Dinitrophenol	51-28-5			ug/kg	2000	U	2000	U	2000	U	2000	U	19000	U
2,4-Dinitrotoluene	121-14-2			ug/kg	200	U	210	U	210	U	200	U	2000	U
2,6-Dinitrotoluene	606-20-2			ug/kg	200	U	210	U	210	U	200	U	2000	U
2-Chloronaphthalene	91-58-7			ug/kg	200	U	210	U	210	U	200	U	2000	U
2-Chlorophenol	95-57-8			ug/kg	200	U	210	U	210	U	200	U	2000	U
2-Methylnaphthalene	91-57-6			ug/kg	200	U	210	U	210	U	200	U	2300	
2-Methylphenol	95-48-7	100000	330	ug/kg	200	U	210	U	210	U	200	U	2000	U
2-Nitroaniline	88-74-4			ug/kg	390	U	400	U	400	U	390	U	3800	U
2-Nitrophenol	88-75-5			ug/kg	200	U	210	U	210	U	200	U	2000	U
3,3`-Dichlorobenzidine	91-94-1			ug/kg	390	U	400	U	400	U	390	U	3800	U
3beta-Hydroxy-27-norcholest-5-en-25-one	7494-34-0			ug/kg										
3-Nitroaniline	99-09-2			ug/kg	390	U	400	U	400	U	390	U	3800	U
4,6-Dinitro-2-Methylphenol	534-52-1			ug/kg	390	U	400	U	400	U	390	U	3800	U
4-Bromophenyl Phenyl Ether	101-55-3			ug/kg	200	U	210	U	210	U	200	U	2000	U
4-Chloro-3-Methylphenol	59-50-7			ug/kg	200	U	210	U	210	U	200	U	2000	U
4-Chloroaniline	106-47-8			ug/kg	200	U	210	U	210	U	200	U	2000	U
4-Chlorophenyl Phenylether	7005-72-3			ug/kg	200	U	210	U	210	U	200	U	2000	U
4-Methylphenol	106-44-5	~~100000~~ 34,000	330	ug/kg	390	U	400	U	400	U	390	U	740	J
4-Nitroaniline	100-01-6			ug/kg	390	U	400	U	400	U	390	U	3800	U
4-Nitrophenol	100-02-7			ug/kg	390	U	400	U	400	U	390	U	3800	U
5-EICOSENE, (E)-	C20N5			ug/kg										
Acenaphthene	83-32-9	100000	20000	ug/kg	200	U	210	U	210	U	200	U	4000	
Acenaphthylene	208-96-8	100000	100000	ug/kg	200	U	210	U	210	U	44	J	690	J
Acetophenone	98-86-2			ug/kg	200	U	210	U	210	U	200	U	2000	U
Anthracene	120-12-7	100000	100000	ug/kg	200	U	210	U	210	U	200	U	6200	
Atrazine	1912-24-9			ug/kg	200	U	210	U	210	U	200	U	2000	U
Benzaldehyde	100-52-7			ug/kg	200	U	210	U	210	U	200	U	2000	U
Benzeneacetic Acid	103-82-2			ug/kg										
Benzo(A)Anthracene	56-55-3	1000	1000	ug/kg	200	U	62	J	210	U	130	J	**26000**	
Benzo(A)Pyrene	50-32-8	1000	1000	ug/kg	200	U	64	J	210	U	160	J	**25000**	
Benzo(B)Fluoranthene	205-99-2	1000	1000	ug/kg	200	U	100	J	210	U	200		**33000**	
Benzo(G,H,I)Perylene	191-24-2	100000	100000	ug/kg	200	U	41	J	210	U	130	J	17000	
Benzo(K)Fluoranthene	207-08-9	~~3900~~ 1000	800	ug/kg	200	U	37	J	210	U	120	J	**14000**	
Bis(2-Chloroethoxy) Methane	111-91-1			ug/kg	200	U	210	U	210	U	200	U	2000	U
Bis(2-Chloroethyl) Ether	111-44-4			ug/kg	200	U	210	U	210	U	200	U	2000	U
Bis(2-Ethylhexyl) Phthalate	117-81-7			ug/kg	200	U	210	U	210	U	200	U	2000	U
Bis-Chloroisopropyl Ether	108-60-1			ug/kg	200	U	210	U	210	U	200	U	2000	U
Butyl Benzyl Phthalate	85-68-7			ug/kg	200	U	210	U	210	U	200	U	2000	U
Butyl Citrate	77-94-1			ug/kg										
Caprolactam	105-60-2			ug/kg	200	U	210	U	210	U	200	U	2000	U
Carbazole	86-74-8			ug/kg	200	U	210	U	210	U	200	U	7400	
Carboranylmethyl Propyl Sulfide	62906-36-9			ug/kg										

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

Table 3

				Sample:	SS-03-1.0-2.0-20180802		SS-04-0.0-1.0-20180803		SS-04-1.0-2.0-20180803		SS-05-0-0.2-20180514		SS-05-1-1.3-20180514	
				Location:	SS-03		SS-04		SS-04		SS-05		SS-05	
				Sample Date:	8/2/2018		8/3/2018		8/3/2018		5/14/2018		5/14/2018	
				Start Depth (ft):	1		0		1		0		1	
				End Depth (ft):	2		1		2		0.2		1.3	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Chrysene	218-01-9	~~3900~~ 1000	1000	ug/kg	200	U	52	J	210	U	150	J	30000	
Cyclohexadecane	295-65-8			ug/kg										
D:C-Friedoolean-8-En-3-One	22611-26-3			ug/kg										
Dibenzo(A,H)Anthracene	53-70-3	330	330	ug/kg	200	U	210	U	210	U	50	J	2000	U
Dibenzofuran	132-64-9	~~59000~~ 14,000	7000	ug/kg	200	U	210	U	210	U	200	U	6000	
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg										
Dichloronaphthalene	28699-88-9			ug/kg	99	U	100	U	100	U	95	U	95	U
Diethylphthalate	84-66-2			ug/kg	200	U	210	U	210	U	200	U	2000	U
Dimethylphthalate	131-11-3			ug/kg	200	U	210	U	210	U	200	U	2000	U
Di-N-Butylphthalate	84-74-2			ug/kg	200	U	210	U	210	U	200	U	2000	U
Di-N-Octyl Phthalate	117-84-0			ug/kg	200	U	210	U	210	U	200	U	2000	U
Dioctadecyl Ester Phosphonic Acid	19047-85-9			ug/kg										
Ergost-4,7,22-Trien-3.Alpha.-Ol	6538-05-2			ug/kg										
Fluoranthene	206-44-0	100000	100000	ug/kg	200	U	110	J	210	U	180	J	80000	
Fluorene	86-73-7	100000	30000	ug/kg	200	U	210	U	210	U	200	U	5500	
Heptachloronaphthalene	32241-08-0			ug/kg	99	U	100	U	100	U	95	U	95	U
Heptafluorobutyric Acid, N-Octadecyl Est	1000216-79-5			ug/kg										
Hexachlorobenzene	118-74-1	~~1200~~ 330	330	ug/kg	200	U	210	U	210	U	200	U	2000	U
Hexachlorobutadiene	87-68-3			ug/kg	200	U	210	U	210	U	200	U	2000	U
Hexachlorocyclopentadiene	77-47-4			ug/kg	200	U	210	U	210	U	200	U	2000	U
Hexachloroethane	67-72-1			ug/kg	200	U	210	U	210	U	200	U	2000	U
Hexachloronaphthalene	1335-87-1			ug/kg	99	U	100	U	100	U	95	U	95	U
Indeno(1,2,3-Cd)Pyrene	193-39-5	500	500	ug/kg	200	U	38	J	210	U	100	J	15000	
Isophorone	78-59-1			ug/kg	200	U	210	U	210	U	200	U	2000	U
Naphthalene	91-20-3	100000	12000	ug/kg	200	U	210	U	210	U	200	U	6000	
Nitrobenzene	98-95-3			ug/kg	200	U	210	U	210	U	200	U	2000	U
N-Nitroso-Di-N-Propylamine	621-64-7			ug/kg	200	U	210	U	210	U	200	U	2000	U
N-Nitrosodiphenylamine	86-30-6			ug/kg	200	U	210	U	210	U	200	U	2000	U
N-Triacontane	638-68-6			ug/kg			220	JN						
Octachloronaphthalene	2234-13-1			ug/kg	99	U	100	U	100	U	95	UJ	95	UJ
Oxirane, Hexadecyl-	7390-81-0			ug/kg			460	JN						
Pentachloronaphthalene	1321-64-8			ug/kg	99	U	100	U	100	U	95	U	44	J
Pentachlorophenol	87-86-5	~~6700~~ 2400	800	ug/kg	390	U	400	U	400	U	390	U	3800	U
Phenanthrene	85-01-8	100000	100000	ug/kg	200	U	57	J	210	U	46	J	75000	
Phenol	108-95-2	100000	330	ug/kg	200	U	210	U	210	U	200	U	350	J
Pyrene	129-00-0	100000	100000	ug/kg	200	U	110	J	210	U	160	J	62000	
r-Sitosterol	83-47-6			ug/kg										
Taraxasterol	1059-14-9			ug/kg										
Tetrachloronaphthalene	1335-88-2			ug/kg	99	U	100	U	100	U	28	J	100	
Tetratetracontane	7098-22-8			ug/kg										
Tetratriacontane	14167-59-0			ug/kg										
Trichloronaphthalene	1321-65-9			ug/kg	99	U	100	U	100	U	95	U	21	J
Trifluoroacetic Acid, N-Octadecyl Ester	79392-43-1			ug/kg			1100	JN						
Unknown Semivolatile With 10th Highest Conc.	UNKSV10			ug/kg										
Unknown Semivolatile With 11th Highest Conc.	UNKSV11			ug/kg										
Unknown Semivolatile With 1st Highest Conc.	UNKSV1			ug/kg										
Unknown Semivolatile With 2nd Highest Conc.	UNKSV2			ug/kg										
Unknown Semivolatile With 3rd Highest Conc.	UNKSV3			ug/kg			310	J	280	J				
Unknown Semivolatile With 4th Highest Conc.	UNKSV4			ug/kg										
Unknown Semivolatile With 5th Highest Conc.	UNKSV5			ug/kg			170	J						
Unknown Semivolatile With 6th Highest Conc.	UNKSV6			ug/kg										
Unknown Semivolatile With 7th Highest Conc.	UNKSV7			ug/kg										
Unknown Semivolatile With 8th Highest Conc.	UNKSV8			ug/kg										
Unknown Semivolatile With 9th Highest Conc.	UNKSV9			ug/kg										
Vitamin E	59-02-9			ug/kg										

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

Sample:					**SS-03-1.0-2.0-20180802**		**SS-04-0.0-1.0-20180803**		**SS-04-1.0-2.0-20180803**		**SS-05-0-0.2-20180514**		**SS-05-1-1.3-20180514**	
Location:					**SS-03**		**SS-04**		**SS-04**		**SS-05**		**SS-05**	
Sample Date:					**8/2/2018**		**8/3/2018**		**8/3/2018**		**5/14/2018**		**5/14/2018**	
Start Depth (ft):					**1**		**0**		**1**		**0**		**1**	
End Depth (ft):					**2**		**1**		**2**		**0.2**		**1.3**	
Analyte	**CAS Number**	**NYS Soil ~~Restricted~~ Residential**	**NYS Soil Unrestricted**	**Units**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Pesticides														
4,4'-DDD	72-54-8	~~13000~~ 2600	3.3	ug/kg	*2*	*U*	*4.1*	*U*	*2.1*	*U*				
4,4'-DDE	72-55-9	~~8900~~ 1800	3.3	ug/kg	*2*	*U*	*4.1*	*U*	*2.1*	*U*				
4,4'-DDT	50-29-3	~~7900~~ 1700	3.3	ug/kg	*2*	*U*	*4.1*	*U*	*2.1*	*U*				
Aldrin	309-00-2	~~97~~ 19	5	ug/kg	*2*	*U*	*4.1*	*U*	*2.1*	*U*				
Alpha-BHC	319-84-6	~~480~~ 97	20	ug/kg	0.41	J	*4.1*	*U*	0.45	J				
Alpha-Chlordane	5103-71-9	~~4200~~ 910	94	ug/kg	*2*	*U*	*4.1*	*U*	*2.1*	*U*				
Beta-BHC	319-85-7	~~360~~ 72	36	ug/kg	*2*	*U*	*4.1*	*U*	*2.1*	*U*				
Chlorinated Camphene	8001-35-2			ug/kg	*20*	*U*	*41*	*U*	*21*	*U*				
Delta-Bhc	319-86-8	100000	40	ug/kg	0.62	J	*4.1*	*U*	0.52	J				
Dieldrin	60-57-1	~~200~~ 39	5	ug/kg	*2*	*U*	*4.1*	*U*	*2.1*	*U*				
Endosulfan I	959-98-8	~~24000~~ 4800	2400	ug/kg	*2*	*U*	*4.1*	*U*	*2.1*	*U*				
Endosulfan II	33213-65-9	~~24000~~ 4800	2400	ug/kg	*2*	*U*	*4.1*	*U*	*2.1*	*U*				
Endosulfan Sulfate	1031-07-8	~~24000~~ 4800	2400	ug/kg	*2*	*U*	*4.1*	*U*	*2.1*	*U*				
Endrin	72-20-8	~~11000~~ 2200	14	ug/kg	*2*	*U*	*4.1*	*U*	*2.1*	*U*				
Endrin Aldehyde	7421-93-4			ug/kg	*2*	*U*	*4.1*	*U*	*2.1*	*U*				
Endrin Ketone	53494-70-5			ug/kg	*2*	*U*	1.2	J	*2.1*	*U*				
Gamma-BHC (Lindane)	58-89-9	~~1300~~ 280	100	ug/kg	*2*	*U*	*4.1*	*U*	*2.1*	*U*				
Gamma-Chlordane	5103-74-2			ug/kg	*2*	*U*	*4.1*	*U*	*2.1*	*U*				
Heptachlor	76-44-8	~~2100~~ 420	42	ug/kg	*2*	*U*	*4.1*	*U*	*2.1*	*U*				
Heptachlor Epoxide	1024-57-3			ug/kg	*2*	*U*	*4.1*	*U*	*2.1*	*U*				
Methoxychlor	72-43-5			ug/kg	*2*	*U*	*4.1*	*U*	*2.1*	*U*				
PFCs														
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9			ug/kg	*2.4*	*U*	*2.4*	*U*	*2.5*	*U*				
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6			ug/kg	*2.4*	*U*	*2.4*	*U*	*2.5*	*U*				
Perfluorobutanesulfonic Acid (PFBS)	375-73-5			ug/kg	*0.24*	*U*	0.03	J	*0.25*	*U*				
Perfluorobutyric Acid (PFBA)	375-22-4			ug/kg	*0.24*	*U*	*0.24*	*U*	*0.25*	*U*				
Perfluorodecane Sulfonic Acid	335-77-3			ug/kg	*0.24*	*U*	*0.24*	*U*	*0.25*	*U*				
Perfluorodecanoic Acid (PFDA)	335-76-2			ug/kg	*0.24*	*U*	0.11	JN	*0.25*	*U*				
Perfluorododecanoic Acid (PFDoA)	307-55-1			ug/kg	*0.24*	*U*	*0.24*	*U*	*0.25*	*U*				
Perfluoroheptane Sulfonate (PFHpS)	375-92-8			ug/kg	*0.24*	*U*	*0.24*	*U*	*0.25*	*U*				
Perfluoroheptanoic Acid (PFHpA)	375-85-9			ug/kg	*0.24*	*U*	0.092	J	*0.25*	*U*				
Perfluorohexanesulfonic Acid	355-46-4			ug/kg	*0.24*	*U*	*0.24*	*U*	*0.25*	*U*				
Perfluorohexanoic Acid (PFHxA)	307-24-4			ug/kg	*0.24*	*U*	*0.24*	*U*	*0.25*	*U*				
Perfluorononanoic Acid (PFNA)	375-95-1			ug/kg	*0.24*	*U*	0.16	J	*0.25*	*U*				
Perfluorooctane Sulfonamide (FOSA)	754-91-6			ug/kg	*0.24*	*U*	*0.24*	*U*	*0.25*	*U*				
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1			ug/kg	*0.6*	*U*	0.5	J	*0.62*	*U*				
Perfluorooctanoic acid (PFOA)	335-67-1			ug/kg	*0.24*	*U*	0.37		*0.25*	*U*				
Perfluoropentanoic Acid (PFPeA)	2706-90-3			ug/kg	*0.24*	*U*	*0.24*	*U*	*0.25*	*U*				
Perfluorotetradecanoic Acid (PFTeA)	376-06-7			ug/kg	*0.24*	*U*	*0.24*	*U*	*0.25*	*U*				
Perfluorotridcanoic Acid (PFTriA)	72629-94-8			ug/kg	*0.24*	*U*	*0.24*	*U*	*0.25*	*U*				
Perfluoroundecanoic Acid (PFUnA)	2058-94-8			ug/kg	*0.24*	*U*	0.12	J	*0.25*	*U*				
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4			ug/kg	*2.4*	*U*	*2.4*	*U*	*2.5*	*U*				
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2			ug/kg	*2.4*	*U*	*2.4*	*U*	*2.5*	*U*				

Notes:
VALUE is non-detect.
VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.
VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

Table 3

				Sample:	SS-06-0-0.2-20180514		SS-06-0.2-1.0-20180514		SS-07-0-0.2-20180514		SS-07-0.2-1.0-20180514		SS-08-0-0.2-20180514	
				Location:	SS-06		SS-06		SS-07		SS-07		SS-08	
				Sample Date:	5/14/2018		5/14/2018		5/14/2018		5/14/2018		5/14/2018	
				Start Depth (ft):	0		0.2		0		0.2		0	
				End Depth (ft):	0.2		1		0.2		1		0.2	
Analyte	**CAS Number**	**NYS Soil ~~Restricted~~ Residential**	**NYS Soil Unrestricted**	**Units**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Inorganics														
Aluminum	7429-90-5			mg/kg										
Antimony	7440-36-0			mg/kg										
Arsenic	7440-38-2	16	13	mg/kg										
Barium	7440-39-3	~~400~~ 350	350	mg/kg										
Beryllium	7440-41-7	~~72~~ 14	7.2	mg/kg										
Cadmium	7440-43-9	~~4.3~~ 2.5	2.5	mg/kg										
Calcium	7440-70-2			mg/kg										
Chromium, Total	7440-47-3			mg/kg									18.7	
Cobalt	7440-48-4			mg/kg										
Copper	7440-50-8	270	50	mg/kg										
Iron	7439-89-6			mg/kg										
Lead	7439-92-1	400	63	mg/kg										
Magnesium	7439-95-4			mg/kg										
Manganese	7439-96-5	2000	1600	mg/kg									505	
Mercury	7439-97-6	0.81	0.18	mg/kg										
Nickel	7440-02-0	~~310~~ 140	30	mg/kg										
Potassium	7440-09-7			mg/kg										
Selenium	7782-49-2	~~180~~ 36	3.9	mg/kg										
Silver	7440-22-4	~~180~~ 36	2	mg/kg										
Sodium	7440-23-5			mg/kg										
Thallium	7440-28-0			mg/kg										
Vanadium	7440-62-2			mg/kg										
Zinc	7440-66-6	~~10000~~ 2200	109	mg/kg										
VOCs														
1,1,1-Trichloroethane	71-55-6	100000	680	ug/kg										
1,1,2,2-Tetrachloroethane	79-34-5			ug/kg										
1,1,2-Trichloroethane	79-00-5			ug/kg										
1,1-Dichloroethane	75-34-3	~~26000~~ 19,000	270	ug/kg										
1,1-Dichloroethene	75-35-4	100000	330	ug/kg										
1,2,4-Trichlorobenzene	120-82-1			ug/kg										
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8			ug/kg										
1,2-Dibromoethane (Ethylene dibromide)	106-93-4			ug/kg										
1,2-Dichlorobenzene	95-50-1	100000	1100	ug/kg										
1,2-Dichloroethane	107-06-2	~~3100~~ 2300	20	ug/kg										
1,2-Dichloroethene (Total)	540-59-0			ug/kg										
1,2-Dichloropropane	78-87-5			ug/kg										
1,3-Dichlorobenzene	541-73-1	~~49000~~ 17,000	2400	ug/kg										
1,4-Dichlorobenzene	106-46-7	~~13000~~ 9800	1800	ug/kg										
2-Butanone	78-93-3	100000	120	ug/kg										
2-Hexanone	591-78-6			ug/kg										
3-Octanol	589-98-0			ug/kg										
3-Octanone	106-68-3			ug/kg										
4-Methyl-2-Pentanone	108-10-1			ug/kg										
Acetone	67-64-1	100000	50	ug/kg										
Benzene	71-43-2	~~4800~~ 2900	60	ug/kg										
Bromodichloromethane	75-27-4			ug/kg										
Bromoform	75-25-2			ug/kg										
Bromomethane	74-83-9			ug/kg										
Carbon Disulfide	75-15-0			ug/kg										
Carbon Tetrachloride	56-23-5	~~2400~~ 1400	760	ug/kg										
Chlorobenzene	108-90-7	100000	1100	ug/kg										
Chlorodibromomethane	124-48-1			ug/kg										
Chloroethane	75-00-3			ug/kg										
Chloroform	67-66-3	~~49000~~ 10,000	370	ug/kg										
Chloromethane	74-87-3			ug/kg										
Cis-1,2-Dichloroethene	156-59-2	~~100000~~ 59,000	250	ug/kg										
Cis-1,3-Dichloropropene	10061-01-5			ug/kg										
Cyclohexane	110-82-7			ug/kg										
Cyclopentane	287-92-3			ug/kg										
Dichlorodifluoromethane	75-71-8			ug/kg										
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg										
Ethylbenzene	100-41-4	~~41000~~ 30,000	1000	ug/kg										
Freon 113	76-13-1			ug/kg										
Isopropyl benzene	98-82-8			ug/kg										
m,p-Xylene	179601-23-1			ug/kg										

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	SS-06-0-0.2-20180514		SS-06-0.2-1.0-20180514		SS-07-0-0.2-20180514		SS-07-0.2-1.0-20180514		SS-08-0-0.2-20180514	
				Location:	SS-06		SS-06		SS-07		SS-07		SS-08	
				Sample Date:	5/14/2018		5/14/2018		5/14/2018		5/14/2018		5/14/2018	
				Start Depth (ft):	0		0.2		0		0.2		0	
				End Depth (ft):	0.2		1		0.2		1		0.2	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Methyl acetate	79-20-9			ug/kg										
Methyl T-Butyl Ether (MTBE)	1634-04-4	~~100000~~ 62,000	930	ug/kg										
Methylcyclohexane	108-87-2			ug/kg										
O-Xylene	95-47-6			ug/kg										
Styrene	100-42-5			ug/kg										
Tetrachloroethene	127-18-4	~~19000~~ 5500	1300	ug/kg										
Toluene	108-88-3	100000	700	ug/kg										
Trans-1,2-Dichloroethene	156-60-5	100000	190	ug/kg										
Trans-1,3-Dichloropropene	10061-02-6			ug/kg										
Trichloroethylene	79-01-6	~~21000~~ 10,000	470	ug/kg										
Trichlorofluoromethane	75-69-4			ug/kg										
Vinyl Chloride	75-01-4	~~900~~ 210	20	ug/kg										
Xylenes, Total	XYLENES	100,000	260	ug/kg										
SVOCs														
(Z)-13-Docosenamide	112-84-5			ug/kg										
(Z)-9-Octadecanimide	301-02-0			ug/kg										
1,1-Biphenyl	92-52-4			ug/kg	1100	U	1000	U	180	U	190	U	760	U
1-Chloronaphthalene	90-13-1			ug/kg	110	U	93	U	91	U	95	U	94	U
1-Docosene	1599-67-3			ug/kg										
1-Octadecene	112-88-9			ug/kg										
2,4,5-Trichlorophenol	95-95-4			ug/kg	1100	U	1000	U	180	U	190	U	760	U
2,4,6-Trichlorophenol	88-06-2			ug/kg	1100	U	1000	U	180	U	190	U	760	U
2,4-Dichlorophenol	120-83-2			ug/kg	1100	U	1000	U	180	U	190	U	150	U
2,4-Dimethylphenol	105-67-9			ug/kg	1100	U	1000	U	180	U	190	U	760	U
2,4-Dinitrophenol	51-28-5			ug/kg	11000	U	9700	U	1800	U	1900	U	7600	U
2,4-Dinitrotoluene	121-14-2			ug/kg	1100	U	1000	U	180	U	190	U	760	U
2,6-Dinitrotoluene	606-20-2			ug/kg	1100	U	1000	U	180	U	190	U	760	U
2-Chloronaphthalene	91-58-7			ug/kg	1100	U	1000	U	180	U	190	U	150	U
2-Chlorophenol	95-57-8			ug/kg	1100	U	1000	U	180	U	190	U	760	U
2-Methylnaphthalene	91-57-6			ug/kg	1100	U	1000	U	180	U	190	U	150	U
2-Methylphenol	95-48-7	100000	330	ug/kg	1100	U	1000	U	180	U	190	U	760	U
2-Nitroaniline	88-74-4			ug/kg	2100	U	1900	U	360	U	380	U	3900	U
2-Nitrophenol	88-75-5			ug/kg	1100	U	1000	U	180	U	190	U	760	U
3,3`-Dichlorobenzidine	91-94-1			ug/kg	2100	U	1900	U	360	U	380	U	760	U
3beta-Hydroxy-27-norcholest-5-en-25-one	7494-34-0			ug/kg										
3-Nitroaniline	99-09-2			ug/kg	2100	U	1900	U	360	U	380	U	3900	U
4,6-Dinitro-2-Methylphenol	534-52-1			ug/kg	2100	U	1900	U	360	U	380	U	3900	U
4-Bromophenyl Phenyl Ether	101-55-3			ug/kg	1100	U	1000	U	180	U	190	U	760	U
4-Chloro-3-Methylphenol	59-50-7			ug/kg	1100	U	1000	U	180	U	190	U	760	U
4-Chloroaniline	106-47-8			ug/kg	1100	U	1000	U	180	U	190	U	760	U
4-Chlorophenyl Phenylether	7005-72-3			ug/kg	1100	U	1000	U	180	U	190	U	760	U
4-Methylphenol	106-44-5	~~100000~~ 34,000	330	ug/kg	2100	U	1900	U	360	U	380	U	760	U
4-Nitroaniline	100-01-6			ug/kg	2100	U	1900	U	360	U	380	U	3900	U
4-Nitrophenol	100-02-7			ug/kg	2100	U	1900	U	360	U	380	U	3900	U
5-EICOSENE, (E)-	C20N5			ug/kg										
Acenaphthene	83-32-9	100000	20000	ug/kg	1100	U	1000	U	180	U	190	U	150	U
Acenaphthylene	208-96-8	100000	100000	ug/kg	1100	U	160	J	180	U	28	J	150	U
Acetophenone	98-86-2			ug/kg	1100	U	1000	U	180	U	190	U	1500	U
Anthracene	120-12-7	100000	100000	ug/kg	1100	U	1000	U	180	U	190	U	150	U
Atrazine	1912-24-9			ug/kg	1100	U	1000	U	180	U	190	U	1500	U
Benzaldehyde	100-52-7			ug/kg	1100	U	1000	U	180	U	190	U	1500	R
Benzeneacetic Acid	103-82-2			ug/kg										
Benzo(A)Anthracene	56-55-3	1000	1000	ug/kg	290	J	480	J	39	J	170	J	110	J
Benzo(A)Pyrene	50-32-8	1000	1000	ug/kg	240	J	450	J	50	J	180	J	110	J
Benzo(B)Fluoranthene	205-99-2	1000	1000	ug/kg	420	J	660	J	81	J	250		160	
Benzo(G,H,I)Perylene	191-24-2	100000	100000	ug/kg	180	J	340	J	45	J	150	J	110	J
Benzo(K)Fluoranthene	207-08-9	~~3900~~ 1000	800	ug/kg	230	J	370	J	34	J	110	J	64	J
Bis(2-Chloroethoxy) Methane	111-91-1			ug/kg	1100	U	1000	U	180	U	190	U	760	U
Bis(2-Chloroethyl) Ether	111-44-4			ug/kg	1100	U	1000	U	180	U	190	U	150	U
Bis(2-Ethylhexyl) Phthalate	117-81-7			ug/kg	1100	U	1000	U	180	U	190	U	7600	U
Bis-Chloroisopropyl Ether	108-60-1			ug/kg	1100	U	1000	U	180	U	190	U	150	U
Butyl Benzyl Phthalate	85-68-7			ug/kg	1100	U	1000	U	180	U	190	U	760	U
Butyl Citrate	77-94-1			ug/kg										
Caprolactam	105-60-2			ug/kg	1100	U	1000	U	180	U	190	U	3900	U
Carbazole	86-74-8			ug/kg	1100	U	1000	U	180	U	24	J	150	U
Carboranylmethyl Propyl Sulfide	62906-36-9			ug/kg										

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	SS-06-0-0.2-20180514		SS-06-0.2-1.0-20180514		SS-07-0-0.2-20180514		SS-07-0.2-1.0-20180514		SS-08-0-0.2-20180514	
				Location:	SS-06		SS-06		SS-07		SS-07		SS-08	
				Sample Date:	5/14/2018		5/14/2018		5/14/2018		5/14/2018		5/14/2018	
				Start Depth (ft):	0		0.2		0		0.2		0	
				End Depth (ft):	0.2		1		0.2		1		0.2	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Chrysene	218-01-9	~~3900~~ 1000	1000	ug/kg	300	J	510	J	61	J	200		160	
Cyclohexadecane	295-65-8			ug/kg										
D:C-Friedoolean-8-En-3-One	22611-26-3			ug/kg										
Dibenzo(A,H)Anthracene	53-70-3	330	330	ug/kg	1100	U	1000	U	180	U	190	U	150	U
Dibenzofuran	132-64-9	~~59000~~ 14,000	7000	ug/kg	1100	U	1000	U	180	U	190	U	760	U
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg										
Dichloronaphthalene	28699-88-9			ug/kg	110	U	93	U	91	U	95	U	94	U
Diethylphthalate	84-66-2			ug/kg	1100	U	1000	U	180	U	190	U	760	U
Dimethylphthalate	131-11-3			ug/kg	1100	U	1000	U	180	U	190	U	760	U
Di-N-Butylphthalate	84-74-2			ug/kg	1100	U	1000	U	180	U	190	U	760	U
Di-N-Octyl Phthalate	117-84-0			ug/kg	1100	U	1000	U	180	U	190	U	760	U
Dioctadecyl Ester Phosphonic Acid	19047-85-9			ug/kg										
Ergost-4,7,22-Trien-3.Alpha.-Ol	6538-05-2			ug/kg										
Fluoranthene	206-44-0	100000	100000	ug/kg	340	J	770	J	78	J	330		250	
Fluorene	86-73-7	100000	30000	ug/kg	1100	U	1000	U	180	U	190	U	150	U
Heptachloronaphthalene	32241-08-0			ug/kg	110	U	93	U	91	U	95	U	94	U
Heptafluorobutyric Acid, N-Octadecyl Est	1000216-79-5			ug/kg										
Hexachlorobenzene	118-74-1	~~1200~~ 330	330	ug/kg	1100	U	1000	U	180	U	190	U	150	U
Hexachlorobutadiene	87-68-3			ug/kg	1100	U	1000	U	180	U	190	U	150	U
Hexachlorocyclopentadiene	77-47-4			ug/kg	1100	U	1000	U	180	U	190	U	760	U
Hexachloroethane	67-72-1			ug/kg	1100	U	1000	U	180	U	190	U	760	U
Hexachloronaphthalene	1335-87-1			ug/kg	110	U	93	U	91	U	95	U	94	U
Indeno(1,2,3-Cd)Pyrene	193-39-5	500	500	ug/kg	190	J	290	J	42	J	130	J	77	J
Isophorone	78-59-1			ug/kg	1100	U	1000	U	180	U	190	U	760	U
Naphthalene	91-20-3	100000	12000	ug/kg	1100	U	1000	U	180	U	190	U	150	U
Nitrobenzene	98-95-3			ug/kg	1100	U	1000	U	180	U	190	U	1500	U
N-Nitroso-Di-N-Propylamine	621-64-7			ug/kg	1100	U	1000	U	180	U	190	U	150	U
N-Nitrosodiphenylamine	86-30-6			ug/kg	1100	U	1000	U	180	U	190	U	760	U
N-Triacontane	638-68-6			ug/kg										
Octachloronaphthalene	2234-13-1			ug/kg	110	UJ	93	UJ	91	U	95	U	94	U
Oxirane, Hexadecyl-	7390-81-0			ug/kg										
Pentachloronaphthalene	1321-64-8			ug/kg	110	U	93	U	91	U	95	U	94	U
Pentachlorophenol	87-86-5	~~6700~~ 2400	800	ug/kg	2100	U	1900	U	360	U	380	U	3900	UJ
Phenanthrene	85-01-8	100000	100000	ug/kg	1100	U	190	J	180	U	180	J	110	J
Phenol	108-95-2	100000	330	ug/kg	1100	U	1000	U	180	U	190	U	760	U
Pyrene	129-00-0	100000	100000	ug/kg	320	J	670	J	66	J	280		220	
r-Sitosterol	83-47-6			ug/kg										
Taraxasterol	1059-14-9			ug/kg										
Tetrachloronaphthalene	1335-88-2			ug/kg	110	U	93	U	91	U	95	U	55	J
Tetratetracontane	7098-22-8			ug/kg										
Tetratriacontane	14167-59-0			ug/kg										
Trichloronaphthalene	1321-65-9			ug/kg	110	U	93	U	91	U	95	U	22	J
Trifluoroacetic Acid, N-Octadecyl Ester	79392-43-1			ug/kg										
Unknown Semivolatile With 10th Highest Conc.	UNKSV10			ug/kg										
Unknown Semivolatile With 11th Highest Conc.	UNKSV11			ug/kg										
Unknown Semivolatile With 1st Highest Conc.	UNKSV1			ug/kg										
Unknown Semivolatile With 2nd Highest Conc.	UNKSV2			ug/kg										
Unknown Semivolatile With 3rd Highest Conc.	UNKSV3			ug/kg										
Unknown Semivolatile With 4th Highest Conc.	UNKSV4			ug/kg										
Unknown Semivolatile With 5th Highest Conc.	UNKSV5			ug/kg										
Unknown Semivolatile With 6th Highest Conc.	UNKSV6			ug/kg										
Unknown Semivolatile With 7th Highest Conc.	UNKSV7			ug/kg										
Unknown Semivolatile With 8th Highest Conc.	UNKSV8			ug/kg										
Unknown Semivolatile With 9th Highest Conc.	UNKSV9			ug/kg										
Vitamin E	59-02-9			ug/kg										

Notes:

VALUE is non-detect.
VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.
VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

Sample:					SS-06-0-0.2-20180514		SS-06-0.2-1.0-20180514		SS-07-0-0.2-20180514		SS-07-0.2-1.0-20180514		SS-08-0-0.2-20180514	
Location:					SS-06		SS-06		SS-07		SS-07		SS-08	
Sample Date:					5/14/2018		5/14/2018		5/14/2018		5/14/2018		5/14/2018	
Start Depth (ft):					0		0.2		0		0.2		0	
End Depth (ft):					0.2		1		0.2		1		0.2	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Pesticides														
4,4'-DDD	72-54-8	~~13000~~ 2600	3.3	ug/kg										
4,4'-DDE	72-55-9	~~8900~~ 1800	3.3	ug/kg										
4,4'-DDT	50-29-3	~~7900~~ 1700	3.3	ug/kg										
Aldrin	309-00-2	~~97~~ 19	5	ug/kg										
Alpha-BHC	319-84-6	~~480~~ 97	20	ug/kg										
Alpha-Chlordane	5103-71-9	~~4200~~ 910	94	ug/kg										
Beta-BHC	319-85-7	~~360~~ 72	36	ug/kg										
Chlorinated Camphene	8001-35-2			ug/kg										
Delta-Bhc	319-86-8	100000	40	ug/kg										
Dieldrin	60-57-1	~~200~~ 39	5	ug/kg										
Endosulfan I	959-98-8	~~24000~~ 4800	2400	ug/kg										
Endosulfan II	33213-65-9	~~24000~~ 4800	2400	ug/kg										
Endosulfan Sulfate	1031-07-8	~~24000~~ 4800	2400	ug/kg										
Endrin	72-20-8	~~11000~~ 2200	14	ug/kg										
Endrin Aldehyde	7421-93-4			ug/kg										
Endrin Ketone	53494-70-5			ug/kg										
Gamma-BHC (Lindane)	58-89-9	~~1300~~ 280	100	ug/kg										
Gamma-Chlordane	5103-74-2			ug/kg										
Heptachlor	76-44-8	~~2100~~ 420	42	ug/kg										
Heptachlor Epoxide	1024-57-3			ug/kg										
Methoxychlor	72-43-5			ug/kg										
PFCs														
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9			ug/kg										
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6			ug/kg										
Perfluorobutanesulfonic Acid (PFBS)	375-73-5			ug/kg										
Perfluorobutyric Acid (PFBA)	375-22-4			ug/kg										
Perfluorodecane Sulfonic Acid	335-77-3			ug/kg										
Perfluorodecanoic Acid (PFDA)	335-76-2			ug/kg										
Perfluorododecanoic Acid (PFDoA)	307-55-1			ug/kg										
Perfluoroheptane Sulfonate (PFHpS)	375-92-8			ug/kg										
Perfluoroheptanoic Acid (PFHpA)	375-85-9			ug/kg										
Perfluorohexanesulfonic Acid	355-46-4			ug/kg										
Perfluorohexanoic Acid (PFHxA)	307-24-4			ug/kg										
Perfluorononanoic Acid (PFNA)	375-95-1			ug/kg										
Perfluorooctane Sulfonamide (FOSA)	754-91-6			ug/kg										
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1			ug/kg										
Perfluorooctanoic acid (PFOA)	335-67-1			ug/kg										
Perfluoropentanoic Acid (PFPeA)	2706-90-3			ug/kg										
Perfluorotetradecanoic Acid (PFTeA)	376-06-7			ug/kg										
Perfluorotridcanoic Acid (PFTriA)	72629-94-8			ug/kg										
Perfluoroundecanoic Acid (PFUnA)	2058-94-8			ug/kg										
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4			ug/kg										
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2			ug/kg										

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	SS-08-0.2-1.0-20180514		SS-08-1.0-2.0-20180514		SS-09-0-0.2-20180515		SS-09-1.0-2.0-20180515		SS-DUPE-1-20180515	
				Location:	SS-08		SS-08		SS-09		SS-09		SS-09	
				Sample Date:	5/14/2018		5/14/2018		5/15/2018		5/15/2018		5/15/2018	
				Start Depth (ft):	0.2		1		0		1		~~1~~ 0	
				End Depth (ft):	1		2		0.2		2		~~2~~ 0.2	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Inorganics														
Aluminum	7429-90-5			mg/kg					7460		9400		7640	
Antimony	7440-36-0			mg/kg					1.5		0.42	J	2	
Arsenic	7440-38-2	16	13	mg/kg					3.9		4.3		4.4	
Barium	7440-39-3	~~400~~ 350	350	mg/kg					67.2		88.9		68.5	
Beryllium	7440-41-7	~~72~~ 14	7.2	mg/kg					0.52	U	0.4	J	0.39	J
Cadmium	7440-43-9	~~4.3~~ 2.5	2.5	mg/kg					1		0.21	J	1.7	
Calcium	7440-70-2			mg/kg					57700		42700		56800	
Chromium, Total	7440-47-3			mg/kg	19		18.7		11.8		13.6		12.5	
Cobalt	7440-48-4			mg/kg					6.6		9.7		7.1	
Copper	7440-50-8	270	50	mg/kg					39.1		19.7	J	61.7	J
Iron	7439-89-6			mg/kg					13600		15400		14100	
Lead	7439-92-1	400	63	mg/kg					24.4		11.8	J	43.1	J
Magnesium	7439-95-4			mg/kg					23000		17200		23300	
Manganese	7439-96-5	2000	1600	mg/kg	359		404		319		376		320	
Mercury	7439-97-6	0.81	0.18	mg/kg					0.04	J+	0.044		0.046	
Nickel	7440-02-0	~~310~~ 140	30	mg/kg					16.3		22.2		17.6	
Potassium	7440-09-7			mg/kg					1970		1870		1900	
Selenium	7782-49-2	~~180~~ 36	3.9	mg/kg					1.3	U	0.63	J	0.71	J
Silver	7440-22-4	~~180~~ 36	2	mg/kg					0.65	U	0.57	U	0.61	U
Sodium	7440-23-5			mg/kg					124	J	103	J	121	J
Thallium	7440-28-0			mg/kg					2.6	U	2.3	U	2.5	U
Vanadium	7440-62-2			mg/kg					15.8		19		16.4	
Zinc	7440-66-6	~~10000~~ 2200	109	mg/kg					59		37.5	J	94.2	J
VOCs														
1,1,1-Trichloroethane	71-55-6	100000	680	ug/kg					6.1	U	5.9	U	6	U
1,1,2,2-Tetrachloroethane	79-34-5			ug/kg					6.1	U	5.9	U	6	U
1,1,2-Trichloroethane	79-00-5			ug/kg					6.1	U	5.9	U	6	U
1,1-Dichloroethane	75-34-3	~~26000~~ 19,000	270	ug/kg					6.1	U	5.9	U	6	U
1,1-Dichloroethene	75-35-4	100000	330	ug/kg					6.1	U	5.9	U	6	U
1,2,4-Trichlorobenzene	120-82-1			ug/kg										
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8			ug/kg										
1,2-Dibromoethane (Ethylene dibromide)	106-93-4			ug/kg										
1,2-Dichlorobenzene	95-50-1	100000	1100	ug/kg										
1,2-Dichloroethane	107-06-2	~~3100~~ 2300	20	ug/kg					6.1	U	5.9	U	6	U
1,2-Dichloroethene (Total)	540-59-0			ug/kg					12	U	12	U	12	U
1,2-Dichloropropane	78-87-5			ug/kg					6.1	U	5.9	U	6	U
1,3-Dichlorobenzene	541-73-1	~~49000~~ 17,000	2400	ug/kg										
1,4-Dichlorobenzene	106-46-7	~~13000~~ 9800	1800	ug/kg										
2-Butanone	78-93-3	100000	120	ug/kg					6.1	U	5.9	U	6	U
2-Hexanone	591-78-6			ug/kg					6.1	U	5.9	U	6	U
3-Octanol	589-98-0			ug/kg										
3-Octanone	106-68-3			ug/kg										
4-Methyl-2-Pentanone	108-10-1			ug/kg					6.1	U	5.9	U	6	U
Acetone	67-64-1	100000	50	ug/kg					25	U	24	U	24	U
Benzene	71-43-2	~~4800~~ 2900	60	ug/kg					6.1	U	5.9	U	6	U
Bromodichloromethane	75-27-4			ug/kg					6.1	U	5.9	U	6	U
Bromoform	75-25-2			ug/kg					6.1	U	5.9	U	6	U
Bromomethane	74-83-9			ug/kg					6.1	U	5.9	U	6	U
Carbon Disulfide	75-15-0			ug/kg					6.1	U	5.9	U	6	U
Carbon Tetrachloride	56-23-5	~~2400~~ 1400	760	ug/kg					6.1	U	5.9	U	6	U
Chlorobenzene	108-90-7	100000	1100	ug/kg					6.1	U	5.9	U	6	U
Chlorodibromomethane	124-48-1			ug/kg					6.1	U	5.9	U	6	U
Chloroethane	75-00-3			ug/kg					6.1	U	5.9	U	6	U
Chloroform	67-66-3	~~49000~~ 10,000	370	ug/kg					6.1	U	5.9	U	6	U
Chloromethane	74-87-3			ug/kg					6.1	U	5.9	U	6	U
Cis-1,2-Dichloroethene	156-59-2	~~100000~~ 59,000	250	ug/kg					6.1	U	5.9	U	6	U
Cis-1,3-Dichloropropene	10061-01-5			ug/kg					6.1	U	5.9	U	6	U
Cyclohexane	110-82-7			ug/kg										
Cyclopentane	287-92-3			ug/kg										
Dichlorodifluoromethane	75-71-8			ug/kg										
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg					6.1	U	5.9	U	6	U
Ethylbenzene	100-41-4	~~41000~~ 30,000	1000	ug/kg					6.1	U	5.9	U	6	U
Freon 113	76-13-1			ug/kg										
Isopropyl benzene	98-82-8			ug/kg										
m,p-Xylene	179601-23-1			ug/kg					6.1	U	5.9	U	6	U

Notes:
VALUE is non-detect.
VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.
VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

HDR

Table 3

				Sample:	SS-08-0.2-1.0-20180514		SS-08-1.0-2.0-20180514		SS-09-0-0.2-20180515		SS-09-1.0-2.0-20180515		SS-DUPE-1-20180515	
				Location:	SS-08		SS-08		SS-09		SS-09		SS-09	
				Sample Date:	5/14/2018		5/14/2018		5/15/2018		5/15/2018		5/15/2018	
				Start Depth (ft):	0.2		1		0		1		~~1~~ 0	
				End Depth (ft):	1		2		0.2		2		~~2~~ 0.2	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Methyl acetate	79-20-9			ug/kg										
Methyl T-Butyl Ether (MTBE)	1634-04-4	~~100000~~ 62,000	930	ug/kg										
Methylcyclohexane	108-87-2			ug/kg										
O-Xylene	95-47-6			ug/kg					6.1	U	5.9	U	6	U
Styrene	100-42-5			ug/kg					6.1	U	5.9	U	6	U
Tetrachloroethene	127-18-4	~~19000~~ 5500	1300	ug/kg					6.1	U	5.9	U	6	U
Toluene	108-88-3	100000	700	ug/kg					6.1	U	5.9	U	6	U
Trans-1,2-Dichloroethene	156-60-5	100000	190	ug/kg					6.1	U	5.9	U	6	U
Trans-1,3-Dichloropropene	10061-02-6			ug/kg					6.1	U	5.9	U	6	U
Trichloroethylene	79-01-6	~~21000~~ 10,000	470	ug/kg					6.1	U	5.9	U	6	U
Trichlorofluoromethane	75-69-4			ug/kg										
Vinyl Chloride	75-01-4	~~900~~ 210	20	ug/kg					6.1	U	5.9	U	6	U
Xylenes, Total	XYLENES	100,000	260	ug/kg					12	U	12	U	12	U
SVOCs														
(Z)-13-Docosenamide	112-84-5			ug/kg										
(Z)-9-Octadecanimide	301-02-0			ug/kg										
1,1-Biphenyl	92-52-4			ug/kg	200	U	210	U	210	U			1000	U
1-Chloronaphthalene	90-13-1			ug/kg	96	U	98	U	69	J	94	U	40	J
1-Docosene	1599-67-3			ug/kg										
1-Octadecene	112-88-9			ug/kg										
2,4,5-Trichlorophenol	95-95-4			ug/kg	200	U	210	U	210	U			1000	U
2,4,6-Trichlorophenol	88-06-2			ug/kg	200	U	210	U	210	U			1000	U
2,4-Dichlorophenol	120-83-2			ug/kg	200	U	210	U	210	U			1000	U
2,4-Dimethylphenol	105-67-9			ug/kg	200	U	210	U	210	U			1000	U
2,4-Dinitrophenol	51-28-5			ug/kg	2000	U	2000	U	2100	U			10000	U
2,4-Dinitrotoluene	121-14-2			ug/kg	200	U	210	U	210	U			1000	U
2,6-Dinitrotoluene	606-20-2			ug/kg	200	U	210	U	210	U			1000	U
2-Chloronaphthalene	91-58-7			ug/kg	200	U	210	U	210	U			1000	U
2-Chlorophenol	95-57-8			ug/kg	200	U	210	U	210	U			1000	U
2-Methylnaphthalene	91-57-6			ug/kg	200	U	210	U	210	U			1000	U
2-Methylphenol	95-48-7	100000	330	ug/kg	200	U	210	U	210	U			1000	U
2-Nitroaniline	88-74-4			ug/kg	400	U	400	U	410	U			2000	U
2-Nitrophenol	88-75-5			ug/kg	200	U	210	U	210	U			1000	U
3,3`-Dichlorobenzidine	91-94-1			ug/kg	400	U	400	U	410	U			2000	U
3beta-Hydroxy-27-norcholest-5-en-25-one	7494-34-0			ug/kg										
3-Nitroaniline	99-09-2			ug/kg	400	U	400	U	410	U			2000	U
4,6-Dinitro-2-Methylphenol	534-52-1			ug/kg	400	U	400	U	410	U			2000	U
4-Bromophenyl Phenyl Ether	101-55-3			ug/kg	200	U	210	U	210	U			1000	U
4-Chloro-3-Methylphenol	59-50-7			ug/kg	200	U	210	U	210	U			1000	U
4-Chloroaniline	106-47-8			ug/kg	200	U	210	U	210	U			1000	U
4-Chlorophenyl Phenylether	7005-72-3			ug/kg	200	U	210	U	210	U			1000	U
4-Methylphenol	106-44-5	~~100000~~ 34,000	330	ug/kg	400	U	400	U	410	U			2000	U
4-Nitroaniline	100-01-6			ug/kg	400	U	400	U	410	U			2000	U
4-Nitrophenol	100-02-7			ug/kg	400	U	400	U	410	U			2000	U
5-EICOSENE, (E)-	C20N5			ug/kg										
Acenaphthene	83-32-9	100000	20000	ug/kg	200	U	210	U	210	U			1000	U
Acenaphthylene	208-96-8	100000	100000	ug/kg	200	U	210	U	210	U			1000	U
Acetophenone	98-86-2			ug/kg	200	U	210	U	210	U			1000	U
Anthracene	120-12-7	100000	100000	ug/kg	200	U	210	U	210	U			1000	U
Atrazine	1912-24-9			ug/kg	200	U	210	U	210	U			1000	U
Benzaldehyde	100-52-7			ug/kg	200	U	210	U	210	U			1000	U
Benzeneacetic Acid	103-82-2			ug/kg										
Benzo(A)Anthracene	56-55-3	1000	1000	ug/kg	140	J	210	U	210	U			1000	U
Benzo(A)Pyrene	50-32-8	1000	1000	ug/kg	180	J	38	J	210	U			1000	U
Benzo(B)Fluoranthene	205-99-2	1000	1000	ug/kg	240		74	J	210	U			1000	U
Benzo(G,H,I)Perylene	191-24-2	100000	100000	ug/kg	170	J	34	J	210	U			1000	U
Benzo(K)Fluoranthene	207-08-9	~~3900~~ 1000	800	ug/kg	130	J	210	U	210	U			1000	U
Bis(2-Chloroethoxy) Methane	111-91-1			ug/kg	200	U	210	U	210	U			1000	U
Bis(2-Chloroethyl) Ether	111-44-4			ug/kg	200	U	210	U	210	U			1000	U
Bis(2-Ethylhexyl) Phthalate	117-81-7			ug/kg	200	U	210	U	210	U			1000	U
Bis-Chloroisopropyl Ether	108-60-1			ug/kg	200	U	210	U	210	U			1000	U
Butyl Benzyl Phthalate	85-68-7			ug/kg	200	U	210	U	210	U			1000	U
Butyl Citrate	77-94-1			ug/kg										
Caprolactam	105-60-2			ug/kg	200	U	210	U	210	U			1000	U
Carbazole	86-74-8			ug/kg	200	U	210	U	210	U			1000	U
Carboranylmethyl Propyl Sulfide	62906-36-9			ug/kg										

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

Table 3

				Sample:	SS-08-0.2-1.0-20180514		SS-08-1.0-2.0-20180514		SS-09-0-0.2-20180515		SS-09-1.0-2.0-20180515		SS-DUPE-1-20180515	
				Location:	SS-08		SS-08		SS-09		SS-09		SS-09	
				Sample Date:	5/14/2018		5/14/2018		5/15/2018		5/15/2018		5/15/2018	
				Start Depth (ft):	0.2		1		0		1		~~1~~ 0	
				End Depth (ft):	1		2		0.2		2		~~2~~ 0.2	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Chrysene	218-01-9	~~3900~~ 1000	1000	ug/kg	210		210	U	210	U			1000	U
Cyclohexadecane	295-65-8			ug/kg										
D:C-Friedoolean-8-En-3-One	22611-26-3			ug/kg										
Dibenzo(A,H)Anthracene	53-70-3	330	330	ug/kg	200	U	210	U	210	U			1000	U
Dibenzofuran	132-64-9	~~59000~~ 14,000	7000	ug/kg	200	U	210	U	210	U			1000	U
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg										
Dichloronaphthalene	28699-88-9			ug/kg	96	U	98	U	240		94	U	180	
Diethylphthalate	84-66-2			ug/kg	200	U	210	U	210	U			1000	U
Dimethylphthalate	131-11-3			ug/kg	200	U	210	U	210	U			1000	U
Di-N-Butylphthalate	84-74-2			ug/kg	200	U	210	U	210	U			1000	U
Di-N-Octyl Phthalate	117-84-0			ug/kg	200	U	210	U	210	U			1000	U
Dioctadecyl Ester Phosphonic Acid	19047-85-9			ug/kg										
Ergost-4,7,22-Trien-3.Alpha.-Ol	6538-05-2			ug/kg										
Fluoranthene	206-44-0	100000	100000	ug/kg	350		84	J	210	U			1000	U
Fluorene	86-73-7	100000	30000	ug/kg	200	U	210	U	210	U			1000	U
Heptachloronaphthalene	32241-08-0			ug/kg	96	U	98	U	100	U	94	U	97	U
Heptafluorobutyric Acid, N-Octadecyl Est	1000216-79-5			ug/kg										
Hexachlorobenzene	118-74-1	~~1200~~ 330	330	ug/kg	200	U	210	U	210	U			1000	U
Hexachlorobutadiene	87-68-3			ug/kg	200	U	210	U	210	U			1000	U
Hexachlorocyclopentadiene	77-47-4			ug/kg	200	U	210	U	210	U			1000	U
Hexachloroethane	67-72-1			ug/kg	200	U	210	U	210	U			1000	U
Hexachloronaphthalene	1335-87-1			ug/kg	96	U	98	U	46	J	94	U	41	J
Indeno(1,2,3-Cd)Pyrene	193-39-5	500	500	ug/kg	140	J	29	J	210	U			1000	U
Isophorone	78-59-1			ug/kg	200	U	210	U	210	U			1000	U
Naphthalene	91-20-3	100000	12000	ug/kg	200	U	210	U	210	U			1000	U
Nitrobenzene	98-95-3			ug/kg	200	U	210	U	210	U			1000	U
N-Nitroso-Di-N-Propylamine	621-64-7			ug/kg	200	U	210	U	210	U			1000	U
N-Nitrosodiphenylamine	86-30-6			ug/kg	200	U	210	U	210	U			1000	UT
N-Triacontane	638-68-6			ug/kg										
Octachloronaphthalene	2234-13-1			ug/kg	96	U	98	U	100	U	94	U	97	U
Oxirane, Hexadecyl-	7390-81-0			ug/kg										
Pentachloronaphthalene	1321-64-8			ug/kg	96	U	98	U	1000		71	J	810	
Pentachlorophenol	87-86-5	~~6700~~ 2400	800	ug/kg	400	U	400	U	410	U			2000	U
Phenanthrene	85-01-8	100000	100000	ug/kg	170	J	210	U	210	U			1000	U
Phenol	108-95-2	100000	330	ug/kg	200	U	210	U	210	U			1000	U
Pyrene	129-00-0	100000	100000	ug/kg	300		66	J	210	U			1000	U
r-Sitosterol	83-47-6			ug/kg										
Taraxasterol	1059-14-9			ug/kg										
Tetrachloronaphthalene	1335-88-2			ug/kg	29	J	98	U	4300		360	J	3700	
Tetratetracontane	7098-22-8			ug/kg										
Tetratriacontane	14167-59-0			ug/kg										
Trichloronaphthalene	1321-65-9			ug/kg	96	U	98	U	2100		120		1600	
Trifluoroacetic Acid, N-Octadecyl Ester	79392-43-1			ug/kg										
Unknown Semivolatile With 10th Highest Conc.	UNKSV10			ug/kg										
Unknown Semivolatile With 11th Highest Conc.	UNKSV11			ug/kg										
Unknown Semivolatile With 1st Highest Conc.	UNKSV1			ug/kg										
Unknown Semivolatile With 2nd Highest Conc.	UNKSV2			ug/kg										
Unknown Semivolatile With 3rd Highest Conc.	UNKSV3			ug/kg										
Unknown Semivolatile With 4th Highest Conc.	UNKSV4			ug/kg										
Unknown Semivolatile With 5th Highest Conc.	UNKSV5			ug/kg										
Unknown Semivolatile With 6th Highest Conc.	UNKSV6			ug/kg										
Unknown Semivolatile With 7th Highest Conc.	UNKSV7			ug/kg										
Unknown Semivolatile With 8th Highest Conc.	UNKSV8			ug/kg										
Unknown Semivolatile With 9th Highest Conc.	UNKSV9			ug/kg										
Vitamin E	59-02-9			ug/kg										

Notes:
VALUE is non-detect.
VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.
VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

Table 3

				Sample:	SS-08-0.2-1.0-20180514		SS-08-1.0-2.0-20180514		SS-09-0-0.2-20180515		SS-09-1.0-2.0-20180515		SS-DUPE-1-20180515	
				Location:	SS-08		SS-08		SS-09		SS-09		SS-09	
				Sample Date:	5/14/2018		5/14/2018		5/15/2018		5/15/2018		5/15/2018	
				Start Depth (ft):	0.2		1		0		1		~~1~~ 0	
				End Depth (ft):	1		2		0.2		2		~~2~~ 0.2	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Pesticides														
4,4'-DDD	72-54-8	~~13000~~ 2600	3.3	ug/kg					*4.2*	*U*	*2*	*U*	*4*	*U*
4,4'-DDE	72-55-9	~~8900~~ 1800	3.3	ug/kg					*7*	*U*	*2*	*U*	7.5	
4,4'-DDT	50-29-3	~~7900~~ 1700	3.3	ug/kg					4.3	J	0.77	NJ	*4*	*U*
Aldrin	309-00-2	~~97~~ 19	5	ug/kg					*5.8*	*U*	*2*	*U*	*5.8*	*U*
Alpha-BHC	319-84-6	~~480~~ 97	20	ug/kg					27	J	6.6	J	30	J
Alpha-Chlordane	5103-71-9	~~4200~~ 910	94	ug/kg					*28*	*UJ*	*2*	*U*	*26*	*U*
Beta-BHC	319-85-7	~~360~~ 72	36	ug/kg					*4.2*	*UT*	*2*	*U*	*4*	*U*
Chlorinated Camphene	8001-35-2			ug/kg					*42*	*U*	*20*	*U*	*40*	*U*
Delta-Bhc	319-86-8	100000	40	ug/kg					*4.2*	*UT*	*2*	*U*	*4*	*U*
Dieldrin	60-57-1	~~200~~ 39	5	ug/kg					*4.2*	*UT*	*2*	*U*	*4*	*U*
Endosulfan I	959-98-8	~~24000~~ 4800	2400	ug/kg					*4.2*	*U*	*2*	*U*	*4*	*U*
Endosulfan II	33213-65-9	~~24000~~ 4800	2400	ug/kg					*4.2*	*U*	*2*	*U*	*4*	*U*
Endosulfan Sulfate	1031-07-8	~~24000~~ 4800	2400	ug/kg					*4.2*	*U*	*2*	*U*	*4*	*U*
Endrin	72-20-8	~~11000~~ 2200	14	ug/kg					*4.2*	*UT*	*2*	*U*	*4*	*U*
Endrin Aldehyde	7421-93-4			ug/kg					*4.2*	*U*	*2*	*U*	*4*	*U*
Endrin Ketone	53494-70-5			ug/kg					*4.2*	*U*	*2*	*U*	*4*	*U*
Gamma-BHC (Lindane)	58-89-9	~~1300~~ 280	100	ug/kg					*4.2*	*U*	*2*	*U*	*4*	*U*
Gamma-Chlordane	5103-74-2			ug/kg					*35*	*UJ*	*2*	*U*	*35*	*U*
Heptachlor	76-44-8	~~2100~~ 420	42	ug/kg					*4.2*	*UT*	*2*	*U*	*4*	*U*
Heptachlor Epoxide	1024-57-3			ug/kg					*4.2*	*UT*	*2*	*U*	*4*	*U*
Methoxychlor	72-43-5			ug/kg					*4.2*	*U*	*2*	*U*	*4*	*U*
PFCs														
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9			ug/kg					*2.5*	*U*			*2.4*	*U*
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6			ug/kg					*2.5*	*U*			*2.4*	*U*
Perfluorobutanesulfonic Acid (PFBS)	375-73-5			ug/kg					*0.25*	*U*			0.041	J
Perfluorobutyric Acid (PFBA)	375-22-4			ug/kg					*0.25*	*U*			*0.24*	*U*
Perfluorodecane Sulfonic Acid	335-77-3			ug/kg					*0.25*	*U*			*0.24*	*U*
Perfluorodecanoic Acid (PFDA)	335-76-2			ug/kg					0.066	J			0.054	J
Perfluorododecanoic Acid (PFDoA)	307-55-1			ug/kg					*0.25*	*U*			*0.24*	*U*
Perfluoroheptane Sulfonate (PFHpS)	375-92-8			ug/kg					*0.25*	*U*			*0.24*	*U*
Perfluoroheptanoic Acid (PFHpA)	375-85-9			ug/kg					0.1	J			0.079	J
Perfluorohexanesulfonic Acid	355-46-4			ug/kg					*0.25*	*U*			*0.24*	*U*
Perfluorohexanoic Acid (PFHxA)	307-24-4			ug/kg					*0.25*	*U*			0.13	J
Perfluorononanoic Acid (PFNA)	375-95-1			ug/kg					0.15	J			0.12	J
Perfluorooctane Sulfonamide (FOSA)	754-91-6			ug/kg					*0.25*	*U*			*0.24*	*U*
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1			ug/kg					0.32	J			*0.61*	*U*
Perfluorooctanoic acid (PFOA)	335-67-1			ug/kg					0.25				0.21	J
Perfluoropentanoic Acid (PFPeA)	2706-90-3			ug/kg					*0.25*	*U*			*0.24*	*U*
Perfluorotetradecanoic Acid (PFTeA)	376-06-7			ug/kg					*0.25*	*U*			*0.24*	*U*
Perfluorotridcanoic Acid (PFTriA)	72629-94-8			ug/kg					*0.25*	*U*			*0.24*	*U*
Perfluoroundecanoic Acid (PFUnA)	2058-94-8			ug/kg					0.1	J			0.091	J
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4			ug/kg					*2.5*	*U*			*2.4*	*U*
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2			ug/kg					*2.5*	*U*			*2.4*	*U*

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	SS-10-0.0-1.0-20180807		SS-10-1.0-2.0-20180807		SS-11-0.0-1.0-20180807		SS-12D-20180807		SS-11-0.1-2.0-20180807	
				Location:	SS-10		SS-10		SS-11		SS-11		SS-11	
				Sample Date:	8/7/2018		8/7/2018		8/7/2018		8/7/2018		8/7/2018	
				Start Depth (ft):	0		1		0		0		0.1	
				End Depth (ft):	1		2		1		1		2	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Inorganics														
Aluminum	7429-90-5			mg/kg	25600		23200		11900	J	8350		12900	
Antimony	7440-36-0			mg/kg	1.2	J	1	J	0.46	J	*16.6*	*U*	0.5	J
Arsenic	7440-38-2	16	13	mg/kg	4.6		6.1		4.6		3.1		4.8	
Barium	7440-39-3	~~400~~ 350	350	mg/kg	154		148		74.7	J	54.8		112	
Beryllium	7440-41-7	~~72~~ 14	7.2	mg/kg	1.1		1		0.51		0.35		0.55	
Cadmium	7440-43-9	~~4.3~~ 2.5	2.5	mg/kg	0.11	J	0.056	J	0.095	J	0.1	J	0.07	J
Calcium	7440-70-2			mg/kg	41800	B	48700	B	55600	J	50800	B	79700	B
Chromium, Total	7440-47-3			mg/kg	31.8		29.5		15.8		11.5		17.6	
Cobalt	7440-48-4			mg/kg	14.9		16.4		7.4		5.4		8.3	
Copper	7440-50-8	270	50	mg/kg	21.6		23.8		17.7		13.9		18.6	
Iron	7439-89-6			mg/kg	28800		27800		15200	T	11700		16100	
Lead	7439-92-1	400	63	mg/kg	12.7		12.9		9.1		8.4		9.3	
Magnesium	7439-95-4			mg/kg	13000		18400		22500	J	20900		31900	
Manganese	7439-96-5	2000	1600	mg/kg	456	B	487	B	337	B	295	B	372	B
Mercury	7439-97-6	0.81	0.18	mg/kg	0.038		0.019	J	0.019	J	0.026		0.022	J
Nickel	7440-02-0	~~310~~ 140	30	mg/kg	34.8		36.6		17		12.5		20.3	
Potassium	7440-09-7			mg/kg	7380		7290		4070	J	2750		4640	
Selenium	7782-49-2	~~180~~ 36	3.9	mg/kg	*4.9*	*U*	*4.7*	*U*	*4.6*	*U*	*4.4*	*U*	*4.7*	*U*
Silver	7440-22-4	~~180~~ 36	2	mg/kg	*0.73*	*U*	*0.71*	*U*	*0.69*	*U*	*0.67*	*U*	*0.71*	*U*
Sodium	7440-23-5			mg/kg	244		266		159	J	129	J	202	
Thallium	7440-28-0			mg/kg	*7.3*	*U*	*7.1*	*U*	*6.9*	*U*	*6.7*	*U*	*7.1*	*U*
Vanadium	7440-62-2			mg/kg	45.7		42.2		22.1		16.6		24	
Zinc	7440-66-6	~~10000~~ 2200	109	mg/kg	60.7		59.6		32.9	T	27.7		31.7	
VOCs														
1,1,1-Trichloroethane	71-55-6	100000	680	ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
1,1,2,2-Tetrachloroethane	79-34-5			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*UJ*	*4.6*	*U*	*4*	*U*
1,1,2-Trichloroethane	79-00-5			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
1,1-Dichloroethane	75-34-3	~~26000~~ 19,000	270	ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
1,1-Dichloroethene	75-35-4	100000	330	ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
1,2,4-Trichlorobenzene	120-82-1			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*UJ*	*4.6*	*U*	*4*	*U*
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*UT*	*4.6*	*U*	*4*	*U*
1,2-Dibromoethane (Ethylene dibromide)	106-93-4			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*UT*	*4.6*	*U*	*4*	*U*
1,2-Dichlorobenzene	95-50-1	100000	1100	ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*UJ*	*4.6*	*U*	*4*	*U*
1,2-Dichloroethane	107-06-2	~~3100~~ 2300	20	ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
1,2-Dichloroethene (Total)	540-59-0			ug/kg										
1,2-Dichloropropane	78-87-5			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
1,3-Dichlorobenzene	541-73-1	~~49000~~ 17,000	2400	ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*UJ*	*4.6*	*U*	*4*	*U*
1,4-Dichlorobenzene	106-46-7	~~13000~~ 9800	1800	ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*UJ*	*4.6*	*U*	*4*	*U*
2-Butanone	78-93-3	100000	120	ug/kg	*26*	*UJ*	*25*	*UJ*	*30*	*UT*	*23*	*U*	*20*	*U*
2-Hexanone	591-78-6			ug/kg	*26*	*UJ*	*25*	*UJ*	*30*	*U*	*23*	*U*	*20*	*U*
3-Octanol	589-98-0			ug/kg					10	JN				
3-Octanone	106-68-3			ug/kg					56	JN	20	JN		
4-Methyl-2-Pentanone	108-10-1			ug/kg	*26*	*UJ*	*25*	*UJ*	*30*	*U*	*23*	*U*	*20*	*U*
Acetone	67-64-1	100000	50	ug/kg	*26*	*UJ*	*32*	*UJ*	*30*	*U*	*23*	*U*	*20*	*U*
Benzene	71-43-2	~~4800~~ 2900	60	ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
Bromodichloromethane	75-27-4			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
Bromoform	75-25-2			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*UT*	*4.6*	*U*	*4*	*U*
Bromomethane	74-83-9			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
Carbon Disulfide	75-15-0			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
Carbon Tetrachloride	56-23-5	~~2400~~ 1400	760	ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
Chlorobenzene	108-90-7	100000	1100	ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*UT*	*4.6*	*U*	*4*	*U*
Chlorodibromomethane	124-48-1			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
Chloroethane	75-00-3			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
Chloroform	67-66-3	~~49000~~ 10,000	370	ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
Chloromethane	74-87-3			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
Cis-1,2-Dichloroethene	156-59-2	~~100000~~ 59,000	250	ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
Cis-1,3-Dichloropropene	10061-01-5			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*UT*	*4.6*	*U*	*4*	*U*
Cyclohexane	110-82-7			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
Cyclopentane	287-92-3			ug/kg							16	JN		
Dichlorodifluoromethane	75-71-8			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
Ethylbenzene	100-41-4	~~41000~~ 30,000	1000	ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*UJ*	*4.6*	*U*	*4*	*U*
Freon 113	76-13-1			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*U*	*4.6*	*U*	*4*	*U*
Isopropyl benzene	98-82-8			ug/kg	*5.1*	*UJ*	*5.1*	*UJ*	*6*	*UT*	*4.6*	*U*	*4*	*U*
m,p-Xylene	179601-23-1			ug/kg										

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	SS-10-0.0-1.0-20180807		SS-10-1.0-2.0-20180807		SS-11-0.0-1.0-20180807		SS-12D-20180807		SS-11-0.1-2.0-20180807	
				Location:	SS-10		SS-10		SS-11		SS-11		SS-11	
				Sample Date:	8/7/2018		8/7/2018		8/7/2018		8/7/2018		8/7/2018	
				Start Depth (ft):	0		1		0		0		0.1	
				End Depth (ft):	1		2		1		1		2	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Methyl acetate	79-20-9			ug/kg	26	UJ	25	UJ	30	U	23	U	20	U
Methyl T-Butyl Ether (MTBE)	1634-04-4	~~100000~~ 62,000	930	ug/kg	5.1	UJ	5.1	UJ	6	U	4.6	U	4	U
Methylcyclohexane	108-87-2			ug/kg	5.1	UJ	5.1	UJ	6	U	4.6	U	4	U
O-Xylene	95-47-6			ug/kg										
Styrene	100-42-5			ug/kg	5.1	UJ	5.1	UJ	6	UT	4.6	U	4	U
Tetrachloroethene	127-18-4	~~19000~~ 5500	1300	ug/kg	5.1	UJ	5.1	UJ	6	UT	4.6	U	4	U
Toluene	108-88-3	100000	700	ug/kg	5.1	UJ	5.1	UJ	6	U	4.6	U	4	U
Trans-1,2-Dichloroethene	156-60-5	100000	190	ug/kg	5.1	UJ	5.1	UJ	6	U	4.6	U	4	U
Trans-1,3-Dichloropropene	10061-02-6			ug/kg	5.1	UJ	5.1	UJ	6	U	4.6	U	4	U
Trichloroethylene	79-01-6	~~21000~~ 10,000	470	ug/kg	5.1	UJ	5.1	UJ	6	U	4.6	U	0.93	J
Trichlorofluoromethane	75-69-4			ug/kg	5.1	UJ	5.1	UJ	6	U	4.6	U	4	U
Vinyl Chloride	75-01-4	~~900~~ 210	20	ug/kg	5.1	UJ	5.1	UJ	6	U	4.6	U	4	U
Xylenes, Total	XYLENES	100,000	260	ug/kg	10	UJ	10	UJ	12	UT	9.1	U	8	U
SVOCs														
(Z)-13-Docosenamide	112-84-5			ug/kg										
(Z)-9-Octadecanimide	301-02-0			ug/kg										
1,1-Biphenyl	92-52-4			ug/kg	210	U			190	U	190	U		
1-Chloronaphthalene	90-13-1			ug/kg	98	UJ	95	UJ	91	UJ	92	U	98	UJ
1-Docosene	1599-67-3			ug/kg	240	JN								
1-Octadecene	112-88-9			ug/kg							200	JN		
2,4,5-Trichlorophenol	95-95-4			ug/kg	210	U			190	U	190	U		
2,4,6-Trichlorophenol	88-06-2			ug/kg	210	U			190	U	190	U		
2,4-Dichlorophenol	120-83-2			ug/kg	210	U			190	U	190	U		
2,4-Dimethylphenol	105-67-9			ug/kg	210	U			190	U	190	U		
2,4-Dinitrophenol	51-28-5			ug/kg	2000	U			1900	U	1900	U		
2,4-Dinitrotoluene	121-14-2			ug/kg	210	U			190	U	190	U		
2,6-Dinitrotoluene	606-20-2			ug/kg	210	U			190	U	190	U		
2-Chloronaphthalene	91-58-7			ug/kg	210	U			190	U	190	U		
2-Chlorophenol	95-57-8			ug/kg	210	U			190	U	190	U		
2-Methylnaphthalene	91-57-6			ug/kg	210	U			190	U	190	U		
2-Methylphenol	95-48-7	100000	330	ug/kg	210	U			190	U	190	U		
2-Nitroaniline	88-74-4			ug/kg	400	U			370	U	370	U		
2-Nitrophenol	88-75-5			ug/kg	210	U			190	U	190	U		
3,3`-Dichlorobenzidine	91-94-1			ug/kg	400	U			370	U	370	U		
3beta-Hydroxy-27-norcholest-5-en-25-one	7494-34-0			ug/kg	700	JN								
3-Nitroaniline	99-09-2			ug/kg	400	U			370	U	370	U		
4,6-Dinitro-2-Methylphenol	534-52-1			ug/kg	400	U			370	U	370	U		
4-Bromophenyl Phenyl Ether	101-55-3			ug/kg	210	U			190	U	190	U		
4-Chloro-3-Methylphenol	59-50-7			ug/kg	210	U			190	U	190	U		
4-Chloroaniline	106-47-8			ug/kg	210	U			190	U	190	U		
4-Chlorophenyl Phenylether	7005-72-3			ug/kg	210	U			190	U	190	U		
4-Methylphenol	106-44-5	~~100000~~ 34,000	330	ug/kg	400	U			370	U	370	U		
4-Nitroaniline	100-01-6			ug/kg	400	U			370	U	370	U		
4-Nitrophenol	100-02-7			ug/kg	400	U			370	U	370	U		
5-EICOSENE, (E)-	C20N5			ug/kg										
Acenaphthene	83-32-9	100000	20000	ug/kg	210	U			190	U	190	U		
Acenaphthylene	208-96-8	100000	100000	ug/kg	210	U			190	U	190	U		
Acetophenone	98-86-2			ug/kg	210	U			190	U	190	U		
Anthracene	120-12-7	100000	100000	ug/kg	210	U			190	U	190	U		
Atrazine	1912-24-9			ug/kg	210	UT			190	UT	190	UT		
Benzaldehyde	100-52-7			ug/kg	210	U			190	U	190	U		
Benzeneacetic Acid	103-82-2			ug/kg							190	JN		
Benzo(A)Anthracene	56-55-3	1000	1000	ug/kg	210	U			190	U	190	U		
Benzo(A)Pyrene	50-32-8	1000	1000	ug/kg	210	U			190	U	190	U		
Benzo(B)Fluoranthene	205-99-2	1000	1000	ug/kg	210	U			190	U	190	U		
Benzo(G,H,I)Perylene	191-24-2	100000	100000	ug/kg	210	U			190	U	190	U		
Benzo(K)Fluoranthene	207-08-9	~~3900~~ 1000	800	ug/kg	210	UT			190	UT	190	UT		
Bis(2-Chloroethoxy) Methane	111-91-1			ug/kg	210	U			190	U	190	U		
Bis(2-Chloroethyl) Ether	111-44-4			ug/kg	210	U			190	U	190	U		
Bis(2-Ethylhexyl) Phthalate	117-81-7			ug/kg	210	U			190	U	190	U		
Bis-Chloroisopropyl Ether	108-60-1			ug/kg	210	U			190	U	190	U		
Butyl Benzyl Phthalate	85-68-7			ug/kg	210	U			190	U	190	U		
Butyl Citrate	77-94-1			ug/kg										
Caprolactam	105-60-2			ug/kg	210	U			190	U	190	U		
Carbazole	86-74-8			ug/kg	210	U			190	U	190	U		
Carboranylmethyl Propyl Sulfide	62906-36-9			ug/kg										

Notes:

VALUE is non-detect.

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VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	SS-10-0.0-1.0-20180807		SS-10-1.0-2.0-20180807		SS-11-0.0-1.0-20180807		SS-12D-20180807		SS-11-0.1-2.0-20180807	
				Location:	SS-10		SS-10		SS-11		SS-11		SS-11	
				Sample Date:	8/7/2018		8/7/2018		8/7/2018		8/7/2018		8/7/2018	
				Start Depth (ft):	0		1		0		0		0.1	
				End Depth (ft):	1		2		1		1		2	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Chrysene	218-01-9	~~3900~~ 1000	1000	ug/kg	210	U			190	U	190	U		
Cyclohexadecane	295-65-8			ug/kg										
D:C-Friedoolean-8-En-3-One	22611-26-3			ug/kg										
Dibenzo(A,H)Anthracene	53-70-3	330	330	ug/kg	210	U			190	U	190	U		
Dibenzofuran	132-64-9	~~59000~~ 14,000	7000	ug/kg	210	U			190	U	190	U		
Dichloromethane	75-09-2	~~100000~~ 51,000	50	ug/kg							560	JN		
Dichloronaphthalene	28699-88-9			ug/kg	98	UJ	95	UJ	91	UJ	92	U	98	UJ
Diethylphthalate	84-66-2			ug/kg	210	UT			190	UT	190	UT		
Dimethylphthalate	131-11-3			ug/kg	210	U			190	U	190	U		
Di-N-Butylphthalate	84-74-2			ug/kg	210	U			190	U	190	U		
Di-N-Octyl Phthalate	117-84-0			ug/kg	210	U			190	U	190	U		
Dioctadecyl Ester Phosphonic Acid	19047-85-9			ug/kg					310	JN				
Ergost-4,7,22-Trien-3.Alpha.-Ol	6538-05-2			ug/kg							320	JN		
Fluoranthene	206-44-0	100000	100000	ug/kg	210	U			190	U	190	U		
Fluorene	86-73-7	100000	30000	ug/kg	210	U			190	U	190	U		
Heptachloronaphthalene	32241-08-0			ug/kg	98	UJ	95	UJ	91	UJ	92	U	98	UJ
Heptafluorobutyric Acid, N-Octadecyl Est	1000216-79-5			ug/kg										
Hexachlorobenzene	118-74-1	~~1200~~ 330	330	ug/kg	210	U			190	U	190	U		
Hexachlorobutadiene	87-68-3			ug/kg	210	U			190	U	190	U		
Hexachlorocyclopentadiene	77-47-4			ug/kg	210	U			190	U	190	U		
Hexachloroethane	67-72-1			ug/kg	210	U			190	U	190	U		
Hexachloronaphthalene	1335-87-1			ug/kg	98	UJ	95	UJ	91	UJ	92	U	98	UJ
Indeno(1,2,3-Cd)Pyrene	193-39-5	500	500	ug/kg	210	U			190	U	190	U		
Isophorone	78-59-1			ug/kg	210	U			190	U	190	U		
Naphthalene	91-20-3	100000	12000	ug/kg	210	U			190	U	190	U		
Nitrobenzene	98-95-3			ug/kg	210	U			190	U	190	U		
N-Nitroso-Di-N-Propylamine	621-64-7			ug/kg	210	U			190	U	190	U		
N-Nitrosodiphenylamine	86-30-6			ug/kg	210	U			190	U	190	U		
N-Triacontane	638-68-6			ug/kg										
Octachloronaphthalene	2234-13-1			ug/kg	98	UJ	95	UJ	91	UJ	92	U	98	UJ
Oxirane, Hexadecyl-	7390-81-0			ug/kg										
Pentachloronaphthalene	1321-64-8			ug/kg	98	UJ	95	UJ	91	UJ	92	U	98	UJ
Pentachlorophenol	87-86-5	~~6700~~ 2400	800	ug/kg	400	U			370	U	370	U		
Phenanthrene	85-01-8	100000	100000	ug/kg	210	U			190	U	190	U		
Phenol	108-95-2	100000	330	ug/kg	210	U			190	U	190	U		
Pyrene	129-00-0	100000	100000	ug/kg	210	U			190	U	190	U		
r-Sitosterol	83-47-6			ug/kg	970	JN			670	JN				
Taraxasterol	1059-14-9			ug/kg										
Tetrachloronaphthalene	1335-88-2			ug/kg	29	J-	95	UJ	91	UJ	92	U	59	J-
Tetratetracontane	7098-22-8			ug/kg	200	JN								
Tetratriacontane	14167-59-0			ug/kg					200	JN				
Trichloronaphthalene	1321-65-9			ug/kg	98	UJ	95	UJ	91	UJ	92	U	27	J-
Trifluoroacetic Acid, N-Octadecyl Ester	79392-43-1			ug/kg										
Unknown Semivolatile With 10th Highest Conc.	UNKSV10			ug/kg					170	J				
Unknown Semivolatile With 11th Highest Conc.	UNKSV11			ug/kg					160	J				
Unknown Semivolatile With 1st Highest Conc.	UNKSV1			ug/kg							1800	J		
Unknown Semivolatile With 2nd Highest Conc.	UNKSV2			ug/kg					1200		1600	J		
Unknown Semivolatile With 3rd Highest Conc.	UNKSV3			ug/kg							700	J		
Unknown Semivolatile With 4th Highest Conc.	UNKSV4			ug/kg	380	J			360	J	660	J		
Unknown Semivolatile With 5th Highest Conc.	UNKSV5			ug/kg	260	J			350	J	250	J		
Unknown Semivolatile With 6th Highest Conc.	UNKSV6			ug/kg	240	J			260	J	210	J		
Unknown Semivolatile With 7th Highest Conc.	UNKSV7			ug/kg	180	J			250	J	200	J		
Unknown Semivolatile With 8th Highest Conc.	UNKSV8			ug/kg	170	J			220	J	180	J		
Unknown Semivolatile With 9th Highest Conc.	UNKSV9			ug/kg					170	J				
Vitamin E	59-02-9			ug/kg										

Notes:

VALUE is non-detect.

VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.

VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.

VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample:	SS-10-0.0-1.0-20180807		SS-10-1.0-2.0-20180807		SS-11-0.0-1.0-20180807		SS-12D-20180807		SS-11-0.1-2.0-20180807	
				Location:	SS-10		SS-10		SS-11		SS-11		SS-11	
				Sample Date:	8/7/2018		8/7/2018		8/7/2018		8/7/2018		8/7/2018	
				Start Depth (ft):	0		1		0		0		0.1	
				End Depth (ft):	1		2		1		1		2	
Analyte	CAS Number	NYS Soil ~~Restricted~~ Residential	NYS Soil Unrestricted	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Pesticides														
4,4'-DDD	72-54-8	~~13000~~ 2600	3.3	ug/kg	1.3	J	1.9	U	1.9	U	1.9	U	2	U
4,4'-DDE	72-55-9	~~8900~~ 1800	3.3	ug/kg	2	U	1.9	U	1.9	U	1.9	U	2	U
4,4'-DDT	50-29-3	~~7900~~ 1700	3.3	ug/kg	2	U	1.9	U	0.54	J	1.9	U	2	U
Aldrin	309-00-2	~~97~~ 19	5	ug/kg	2	U	1.9	U	0.51	J	1.9	U	2	U
Alpha-BHC	319-84-6	~~480~~ 97	20	ug/kg	2	U	1.9	U	0.87	J	~~0.91~~	~~BJ~~ U	2	U
Alpha-Chlordane	5103-71-9	~~4200~~ 910	94	ug/kg	2	U	1.9	U	1.9	U	1.9	U	2	U
Beta-BHC	319-85-7	~~360~~ 72	36	ug/kg	2	U	1.9	U	1.9	U	1.9	U	2	U
Chlorinated Camphene	8001-35-2			ug/kg	20	U	19	U	19	U	19	U	20	U
Delta-Bhc	319-86-8	100000	40	ug/kg	2	U	1.9	U	1.9	U	~~0.43~~	~~BJ~~ U	2	U
Dieldrin	60-57-1	~~200~~ 39	5	ug/kg	2	U	1.9	U	1.9	U	0.52	J	0.48	J
Endosulfan I	959-98-8	~~24000~~ 4800	2400	ug/kg	2	U	1.9	U	1.9	U	1.9	U	2	U
Endosulfan II	33213-65-9	~~24000~~ 4800	2400	ug/kg	2	U	1.9	U	1.9	U	1.9	U	2	U
Endosulfan Sulfate	1031-07-8	~~24000~~ 4800	2400	ug/kg	2	U	1.9	U	1.9	U	1.9	U	2	U
Endrin	72-20-8	~~11000~~ 2200	14	ug/kg	2	U	1.9	U	1.9	U	1.9	U	2	U
Endrin Aldehyde	7421-93-4			ug/kg	2	U	1.9	U	1.9	U	1.9	U	2	U
Endrin Ketone	53494-70-5			ug/kg	1.4	J	1.9	U	0.7	J	1.9	U	2	U
Gamma-BHC (Lindane)	58-89-9	~~1300~~ 280	100	ug/kg	0.69	J	1.9	U	0.66	J	0.45	J	2	U
Gamma-Chlordane	5103-74-2			ug/kg	2	U	1.9	U	1.9	U	1.9	U	2	U
Heptachlor	76-44-8	~~2100~~ 420	42	ug/kg	2	U	1.9	U	1.9	U	0.87	J	0.88	J
Heptachlor Epoxide	1024-57-3			ug/kg	2	U	1.9	U	1.9	U	1.9	U	2	U
Methoxychlor	72-43-5			ug/kg	2.6		1.9	U	1.9	U	1.9	U	2	U
PFCs														
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9			ug/kg	2.4	U			2.3	U	2.2	U		
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6			ug/kg	2.4	U			2.3	U	2.2	U		
Perfluorobutanesulfonic Acid (PFBS)	375-73-5			ug/kg	0.24	U			0.23	U	0.22	U		
Perfluorobutyric Acid (PFBA)	375-22-4			ug/kg	0.24	U			0.23	U	~~0.052~~	~~J~~ U		
Perfluorodecane Sulfonic Acid	335-77-3			ug/kg	0.24	U			0.23	U	0.22	U		
Perfluorodecanoic Acid (PFDA)	335-76-2			ug/kg	0.075	J			0.038	J	0.22	U		
Perfluorododecanoic Acid (PFDoA)	307-55-1			ug/kg	0.24	U			0.23	U	0.22	U		
Perfluoroheptane Sulfonate (PFHpS)	375-92-8			ug/kg	0.24	U			0.23	U	0.22	U		
Perfluoroheptanoic Acid (PFHpA)	375-85-9			ug/kg	0.19	J			0.23	U	0.22	U		
Perfluorohexanesulfonic Acid	355-46-4			ug/kg	0.24	U			0.23	U	0.22	U		
Perfluorohexanoic Acid (PFHxA)	307-24-4			ug/kg	0.26	U			0.23	U	~~0.18~~	~~BJ~~ U		
Perfluorononanoic Acid (PFNA)	375-95-1			ug/kg	0.19	J			0.23	U	0.22	U		
Perfluorooctane Sulfonamide (FOSA)	754-91-6			ug/kg	0.24	U			0.23	U	0.22	U		
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1			ug/kg	0.59	J			0.57	U	0.56	U		
Perfluorooctanoic acid (PFOA)	335-67-1			ug/kg	0.85				0.23	U	0.1	J		
Perfluoropentanoic Acid (PFPeA)	2706-90-3			ug/kg	0.13	J			0.23	U	0.22	U		
Perfluorotetradecanoic Acid (PFTeA)	376-06-7			ug/kg	0.24	U			0.23	U	0.22	U		
Perfluorotridcanoic Acid (PFTriA)	72629-94-8			ug/kg	0.24	U			0.23	U	0.22	U		
Perfluoroundecanoic Acid (PFUnA)	2058-94-8			ug/kg	0.14	J			0.23	U	0.22	U		
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4			ug/kg	2.4	U			2.3	U	2.2	U		
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2			ug/kg	2.4	U			2.3	U	2.2	U		

Notes:
VALUE is non-detect.
VALUE exceeds NYS Restricted Residential Soil Cleanup Objectives.
VALUE exceeds NYS Unrestricted Soil Cleanup Objectives.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

						Sample:	BP-SED-18-0-0.5-20180518		BP-SED-18-1.5-2.0-20180518		BP-SED-19-0-0.5-20180518		BP-SED-19-1.0-2.0-20180518		CL-SED-21-0-0.5-20180521	
						Location:	BP-SED-18		BP-SED-18		BP-SED-19		BP-SED-19		CL-SED-21	
						Sample Date:	5/18/2018		5/18/2018		5/18/2018		5/18/2018		5/21/2018	
						Start Depth (ft):	0		1.5		0		1		0	
						End Depth (ft):	0.5		2		0.5		2		0.5	
Analyte	CAS Number	Sediment SGV Human Health	NYS Sediment Freshwater Class A	NYS Sediment Freshwater Class C	NYS Sediment SGV PAHs	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Inorganics																
Aluminum	7429-90-5					mg/kg	6410		14600		6380		7780		769	
Antimony	7440-36-0					mg/kg	0.45		0.14	J	0.14	J	0.34		*0.31*	*U*
Arsenic	7440-38-2		10	33		mg/kg	2.4		3.8		1.1		1.7		1.1	
Barium	7440-39-3					mg/kg	84.8		154		69.3		55.5		59.9	
Beryllium	7440-41-7					mg/kg	0.33		0.84		0.34		0.42		*0.15*	*U*
Cadmium	7440-43-9		1	5		mg/kg	0.43		0.25		0.35		0.29		0.12	J
Calcium	7440-70-2					mg/kg	83600		52200		86700		26100		130000	
Chromium, Total	7440-47-3		43	110		mg/kg	10		20.4		6.9		8.3		1.5	
Cobalt	7440-48-4					mg/kg	4.8		9.5		3		4.3		0.95	
Copper	7440-50-8		32	150		mg/kg	16	J-	22.6		8.4		11.5		4.6	
Iron	7439-89-6					mg/kg	12000		21300		6440		7420		2490	
Lead	7439-92-1		36	130		mg/kg	18.8		14.3		16		31.3		3.1	
Magnesium	7439-95-4					mg/kg	9930		17300		8530		9680		2810	
Manganese	7439-96-5					mg/kg	211		460		159		166		80.2	
Mercury	7439-97-6		0.2	1		mg/kg	0.034	J	0.048		0.057		0.066		0.015	JHT
Nickel	7440-02-0		23	49		mg/kg	14.9		**24.2**		9.1		10.9		3.7	
Potassium	7440-09-7					mg/kg	1390		2170		1400		1250		499	
Selenium	7782-49-2					mg/kg	1.1		0.88		0.59	J	0.48		0.5	J
Silver	7440-22-4		1	2.2		mg/kg	0.047	J	0.065	J	0.04	J	0.062	J	*0.15*	*U*
Sodium	7440-23-5					mg/kg	253		174		182		94.6		350	
Thallium	7440-28-0					mg/kg	0.22		0.22		0.17		0.16		0.054	J
Vanadium	7440-62-2					mg/kg	11.9		26.3		8.1		10.8		1.9	
Zinc	7440-66-6		120	460		mg/kg	92.8	T	66.4		54		55.8		21.8	
VOCs																
1,1,1-Trichloroethane	71-55-6		1900	3500		ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
1,1,2,2-Tetrachloroethane	79-34-5		2800	5400		ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
1,1,2-Trichloroethane	79-00-5		1900	3500		ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
1,1-Dichloroethane	75-34-3					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
1,1-Dichloroethene	75-35-4		520	4700		ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
1,2,4-Trichlorobenzene	120-82-1		35000	55000		ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
1,2-Dibromoethane (Ethylene dibromide)	106-93-4					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
1,2-Dichlorobenzene	95-50-1		280	2500		ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
1,2-Dichloroethane	107-06-2					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
1,2-Dichloropropane	78-87-5					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
1,3-Dichlorobenzene	541-73-1		1800	7100		ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
1,4-Dichlorobenzene	106-46-7		720	3300		ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
2-Butanone	78-93-3					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
2-Hexanone	591-78-6					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
4-Methyl-2-Pentanone	108-10-1					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Acetone	67-64-1					ug/kg			6.3	J	12	J	14	J	*62*	*U*
Benzene	71-43-2	25	530	1900		ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Bromodichloromethane	75-27-4					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Bromoform	75-25-2					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Bromomethane	74-83-9					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Carbon Disulfide	75-15-0					ug/kg			*9.3*	*UT*	*12*	*U*	*6.9*	*U*	*16*	*U*
Carbon Tetrachloride	56-23-5		1070	9600		ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Chlorobenzene	108-90-7	5200	200	1700		ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Chlorodibromomethane	124-48-1					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Chloroethane	75-00-3					ug/kg			*9.3*	*UT*	*12*	*U*	*6.9*	*U*	*16*	*U*
Chloroform	67-66-3					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Chloromethane	74-87-3					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Cis-1,2-Dichloroethene	156-59-2					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Cis-1,3-Dichloropropene	10061-01-5					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Cyclohexane	110-82-7					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Dichlorodifluoromethane	75-71-8					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Dichloromethane	75-09-2	68				ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	8.8	J
Ethylbenzene	100-41-4		430	3700		ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Freon 113	76-13-1					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Isopropyl benzene	98-82-8		210	1800		ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Methyl acetate	79-20-9					ug/kg			*46*	*U*	*59*	*U*	*34*	*U*	*78*	*U*
Methyl T-Butyl Ether (MTBE)	1634-04-4					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Methylcyclohexane	108-87-2					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*
Styrene	100-42-5					ug/kg			*9.3*	*U*	*12*	*U*	*6.9*	*U*	*16*	*U*

Notes:
VALUE is non-detect.
VALUE exceeds at least one relevant criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

							Sample:	BP-SED-18-0-0.5-20180518		BP-SED-18-1.5-2.0-20180518		BP-SED-19-0-0.5-20180518		BP-SED-19-1.0-2.0-20180518		CL-SED-21-0-0.5-20180521	
							Location:	BP-SED-18		BP-SED-18		BP-SED-19		BP-SED-19		CL-SED-21	
							Sample Date:	5/18/2018		5/18/2018		5/18/2018		5/18/2018		5/21/2018	
							Start Depth (ft):	0		1.5		0		1		0	
							End Depth (ft):	0.5		2		0.5		2		0.5	
Analyte	CAS Number	Sediment SGV Human Health	NYS Sediment Freshwater Class A	NYS Sediment Freshwater Class C	NYS Sediment SGV PAHs	Units		Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Tetrachloroethene	127-18-4	44	16000	57000		ug/kg				9.3	U	12	U	6.9	U	16	U
Toluene	108-88-3	56000	930	4500		ug/kg				9.3	U	12	U	6.9	U	26	
Trans-1,2-Dichloroethene	156-60-5		1200	11000		ug/kg				9.3	U	12	U	6.9	U	16	U
Trans-1,3-Dichloropropene	10061-02-6					ug/kg				9.3	U	12	U	6.9	U	16	U
Trichloroethylene	79-01-6	250	1800	8600		ug/kg				9.3	U	12	U	6.9	U	16	U
Trichlorofluoromethane	75-69-4					ug/kg				9.3	U	12	U	6.9	U	16	U
Vinyl Chloride	75-01-4					ug/kg				9.3	U	12	U	6.9	U	16	U
Xylenes, Total	XYLENES					ug/kg				19	U	24	U	14	U	31	U
SVOCs																	
1,1-Biphenyl	92-52-4					ug/kg											
1-Chloronaphthalene	90-13-1					ug/kg		270	U	180	U	200	U	110	U	240	U
2,4,5-Trichlorophenol	95-95-4					ug/kg											
2,4,6-Trichlorophenol	88-06-2					ug/kg											
2,4-Dichlorophenol	120-83-2	3600				ug/kg											
2,4-Dimethylphenol	105-67-9					ug/kg											
2,4-Dinitrophenol	51-28-5	280				ug/kg											
2,4-Dinitrotoluene	121-14-2					ug/kg											
2,6-Dinitrotoluene	606-20-2					ug/kg											
2-Chloronaphthalene	91-58-7					ug/kg											
2-Chlorophenol	95-57-8					ug/kg											
2-Methylnaphthalene	91-57-6					ug/kg											
2-Methylphenol	95-48-7					ug/kg											
2-Nitroaniline	88-74-4					ug/kg											
2-Nitrophenol	88-75-5					ug/kg											
3,3`-Dichlorobenzidine	91-94-1					ug/kg											
3-Nitroaniline	99-09-2					ug/kg											
4,6-Dinitro-2-Methylphenol	534-52-1					ug/kg											
4-Bromophenyl Phenyl Ether	101-55-3					ug/kg											
4-Chloro-3-Methylphenol	59-50-7					ug/kg											
4-Chloroaniline	106-47-8					ug/kg											
4-Chlorophenyl Phenylether	7005-72-3					ug/kg											
4-Methylphenol	106-44-5					ug/kg											
4-Nitroaniline	100-01-6					ug/kg											
4-Nitrophenol	100-02-7					ug/kg											
Acenaphthene	83-32-9				9820	ug/kg											
Acenaphthylene	208-96-8				9040	ug/kg											
Acetophenone	98-86-2					ug/kg											
Anthracene	120-12-7				11880	ug/kg											
Atrazine	1912-24-9					ug/kg											
Benzo(A)Anthracene	56-55-3				16820	ug/kg											
Benzo(A)Pyrene	50-32-8	4.4			19280	ug/kg											
Benzo(B)Fluoranthene	205-99-2				19580	ug/kg											
Benzo(G,H,I)Perylene	191-24-2				21900	ug/kg											
Benzo(K)Fluoranthene	207-08-9				19600	ug/kg											
Bis(2-Chloroethoxy) Methane	111-91-1					ug/kg											
Bis(2-Chloroethyl) Ether	111-44-4					ug/kg											
Bis(2-Ethylhexyl) Phthalate	117-81-7		360000			ug/kg											
Bis-Chloroisopropyl Ether	108-60-1					ug/kg											
Butyl Benzyl Phthalate	85-68-7					ug/kg											
Caprolactam	105-60-2					ug/kg											
Carbazole	86-74-8					ug/kg											
Chrysene	218-01-9				16860	ug/kg											
Dibenzo(A,H)Anthracene	53-70-3	9.8			22440	ug/kg											
Dibenzofuran	132-64-9					ug/kg											
Dichloronaphthalene	28699-88-9					ug/kg		270	U	180	U	200	U	110	U	240	U
Diethylphthalate	84-66-2					ug/kg											
Dimethylphthalate	131-11-3					ug/kg											
Di-N-Butylphthalate	84-74-2					ug/kg											
Di-N-Octyl Phthalate	117-84-0					ug/kg											
Fluoranthene	206-44-0				14160	ug/kg											
Fluorene	86-73-7				10780	ug/kg											
Heptachloronaphthalene	32241-08-0					ug/kg		270	U	180	U	200	U	110	U	240	U
Hexachlorobenzene	118-74-1	0.19				ug/kg											
Hexachlorobutadiene	87-68-3	12	1200	12000		ug/kg											
Hexachlorocyclopentadiene	77-47-4		810	8100		ug/kg											

Notes:
VALUE is non-detect.
VALUE exceeds at least one relevant criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

Table 4

						Sample:	BP-SED-18-0-0.5-20180518		BP-SED-18-1.5-2.0-20180518		BP-SED-19-0-0.5-20180518		BP-SED-19-1.0-2.0-20180518		CL-SED-21-0-0.5-20180521	
						Location:	BP-SED-18		BP-SED-18		BP-SED-19		BP-SED-19		CL-SED-21	
						Sample Date:	5/18/2018		5/18/2018		5/18/2018		5/18/2018		5/21/2018	
						Start Depth (ft):	0		1.5		0		1		0	
						End Depth (ft):	0.5		2		0.5		2		0.5	
Analyte	CAS Number	Sediment SGV Human Health	NYS Sediment Freshwater Class A	NYS Sediment Freshwater Class C	NYS Sediment SGV PAHs	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Hexachloroethane	67-72-1	110				ug/kg										
Hexachloronaphthalene	1335-87-1					ug/kg	270	U	180	U	200	U	110	U	240	U
Indeno(1,2,3-Cd)Pyrene	193-39-5				22300	ug/kg										
Isophorone	78-59-1					ug/kg										
Naphthalene	91-20-3				7700	ug/kg										
Nitrobenzene	98-95-3					ug/kg										
N-Nitroso-Di-N-Propylamine	621-64-7					ug/kg										
N-Nitrosodiphenylamine	86-30-6					ug/kg										
Octachloronaphthalene	2234-13-1					ug/kg	270	UJ	180	U	200	UJ	110	U	240	UJ
Pentachloronaphthalene	1321-64-8					ug/kg	270	U	180	U	200	U	110	U	240	U
Pentachlorophenol	87-86-5		14000	19000		ug/kg										
Phenanthrene	85-01-8				11940	ug/kg										
Phenol	108-95-2					ug/kg										
Pyrene	129-00-0				13960	ug/kg										
Tetrachloronaphthalene	1335-88-2					ug/kg	270	U	180	U	200	U	110	U	240	U
Trichloronaphthalene	1321-65-9					ug/kg	270	U	180	U	200	U	110	U	60	J
Pesticides																
4,4'-DDD	72-54-8	1.4				ug/kg	0.62	J	0.45	U	1.1		0.29	U	0.42	J
4,4'-DDE	72-55-9	0.62				ug/kg	0.67	U	0.45	U	0.51	U	0.29	U	0.64	U
4,4'-DDT	50-29-3	0.44				ug/kg	0.67	U	0.45	U	0.35	J	0.29	U	0.64	U
Aldrin	309-00-2					ug/kg	0.67	U	0.45	U	0.33	J	0.18	J	0.64	U
Alpha-BHC	319-84-6	0.21				ug/kg	0.67	U	0.45	U	0.51	U	0.29	U	0.64	U
Alpha-Chlordane	5103-71-9					ug/kg	0.67	U	0.45	U	0.51	U	0.29	U	0.64	U
Beta-BHC	319-85-7	0.84				ug/kg	0.67	U	0.45	U	0.51	U	0.29	U	0.64	U
Chlorinated Camphene	8001-35-2	0.002	6	250		ug/kg	27	U	18	U	20	U	11	U	26	U
Delta-Bhc	319-86-8	0.81				ug/kg	0.67	UJ	0.45	U	0.51	U	0.29	U	0.64	U
Dieldrin	60-57-1	0.002	180	780		ug/kg	0.67	U	0.45	U	0.51	U	0.29	U	0.64	U
Endosulfan I	959-98-8					ug/kg	0.67	U	0.45	U	0.51	U	0.29	U	0.64	U
Endosulfan II	33213-65-9					ug/kg	0.67	U	0.45	U	0.51	U	0.29	U	0.64	U
Endosulfan Sulfate	1031-07-8					ug/kg	0.67	U	0.45	U	0.51	U	0.29	U	0.64	U
Endrin	72-20-8	5.2	90	220		ug/kg	0.67	U	0.45	U	0.51	U	0.29	U	0.64	U
Endrin Aldehyde	7421-93-4					ug/kg	0.67	U	0.45	U	0.51	U	0.29	U	0.64	U
Endrin Ketone	53494-70-5					ug/kg	0.67	U	0.45	U	0.51	U	0.29	U	0.64	U
Gamma-BHC (Lindane)	58-89-9	0.65	47	78		ug/kg	0.67	U	0.45	U	0.51	U	0.29	U	0.64	U
Gamma-Chlordane	5103-74-2					ug/kg	0.67	U	0.45	U	0.51	U	0.29	U	0.64	U
Heptachlor	76-44-8	4	75	10000		ug/kg	0.67	UJ	0.45	U	0.51	U	0.29	U	0.64	U
Heptachlor Epoxide	1024-57-3	1.2	15	2100		ug/kg	0.67	U	0.45	U	0.51	U	0.29	U	0.64	U
Methoxychlor	72-43-5		59			ug/kg	0.67	UT	0.45	U	0.51	U	0.29	U	0.64	U
PFCs																
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9					ug/kg	6.4	U	4.4	U	4.8	U	2.8	U	6.1	U
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6					ug/kg	6.4	U	4.4	U	4.8	U	2.8	U	6.1	U
Perfluorobutanesulfonic Acid (PFBS)	375-73-5					ug/kg	0.64	U	0.44	U	0.48	U	0.28	U	0.61	U
Perfluorobutyric Acid (PFBA)	375-22-4					ug/kg	0.64	U	0.44	U	0.48	U	0.28	U	0.61	U
Perfluorodecane Sulfonic Acid	335-77-3					ug/kg	0.64	U	0.44	U	0.48	U	0.28	U	0.61	U
Perfluorodecanoic Acid (PFDA)	335-76-2					ug/kg	0.64	U	0.44	U	0.48	U	0.28	U	0.27	J
Perfluorododecanoic Acid (PFDoA)	307-55-1					ug/kg	0.64	U	0.44	U	0.48	U	0.28	U	0.61	U
Perfluoroheptane Sulfonate (PFHpS)	375-92-8					ug/kg	0.64	U	0.44	U	0.48	U	0.28	U	0.61	U
Perfluoroheptanoic Acid (PFHpA)	375-85-9					ug/kg	0.64	U	0.44	U	0.48	U	0.28	U	0.61	U
Perfluorohexanesulfonic Acid	355-46-4					ug/kg	0.64	U	0.44	U	0.48	U	0.28	U	0.61	U
Perfluorohexanoic Acid (PFHxA)	307-24-4					ug/kg	0.64	U	0.44	U	0.75		0.28	U	0.61	U
Perfluorononanoic Acid (PFNA)	375-95-1					ug/kg	0.64	U	0.44	U	0.48	U	0.28	U	0.61	U
Perfluorooctane Sulfonamide (FOSA)	754-91-6					ug/kg	0.64	U	0.44	U	0.48	U	0.28	U	0.61	U
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1					ug/kg	1.6	U	1.1	U	1.2	U	0.69	U	1.5	U
Perfluorooctanoic acid (PFOA)	335-67-1					ug/kg	0.64	U	0.44	U	0.48	U	0.28	U	0.61	U
Perfluoropentanoic Acid (PFPeA)	2706-90-3					ug/kg	0.64	U	0.44	U	0.48	U	0.28	U	0.61	U
Perfluorotetradecanoic Acid (PFTeA)	376-06-7					ug/kg	0.64	U	0.44	U	0.48	U	0.28	U	0.61	U
Perfluorotridcanoic Acid (PFTriA)	72629-94-8					ug/kg	0.64	U	0.44	U	0.48	U	0.28	U	0.61	U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8					ug/kg	2.1		0.44	U	1.4		0.28	U	3.2	
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4					ug/kg	6.4	U	44	U	48	U	28	U	61	U
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2					ug/kg	6.4	U	44	U	48	U	28	U	61	U
Parameters																
Total Organic Carbon	TOC					mg/kg	120000	J+	126000	J+	43800		27000	T	100000	

Notes:
VALUE is non-detect.
VALUE exceeds at least one relevant criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

Analyte	CAS Number	Sediment SGV Human Health	NYS Sediment Freshwater Class A	NYS Sediment Freshwater Class C	NYS Sediment SGV PAHs	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
						Sample:	CL-SED-21-3.5-4.0-20180521		FC-SED-05-1.0-2.0-20180522		FC-SED-05-2.0-4.0-20180522		FC-SED-08-0.0-0.5-20180522		FC-SED-08-3.0-4.0-20180522	
						Location:	CL-SED-21		FC-SED-05		FC-SED-05		FC-SED-08		FC-SED-08	
						Sample Date:	5/21/2018		5/22/2018		5/22/2018		5/22/2018		5/22/2018	
						Start Depth (ft):	3.5		1		2		0		3	
						End Depth (ft):	4		2		4		0.5		4	
Inorganics																
Aluminum	7429-90-5					mg/kg	5960				9710				6200	
Antimony	7440-36-0					mg/kg	0.073	J			0.099	J			0.19	J
Arsenic	7440-38-2		10	33		mg/kg	6				2.6				1.8	
Barium	7440-39-3					mg/kg	50.5				118				95.6	
Beryllium	7440-41-7					mg/kg	*0.32*	*U*			0.5				0.33	
Cadmium	7440-43-9		1	5		mg/kg	0.1				0.32				0.42	
Calcium	7440-70-2					mg/kg	89000				81500				103000	
Chromium, Total	7440-47-3		43	110		mg/kg	9.2				14.2				8.3	
Cobalt	7440-48-4					mg/kg	5.1				6.3				3.8	
Copper	7440-50-8		32	150		mg/kg	19.3				14.9				9.8	
Iron	7439-89-6					mg/kg	11600				13600				9190	
Lead	7439-92-1		36	130		mg/kg	10.1				**56.2**				**37**	
Magnesium	7439-95-4					mg/kg	24400				12200				7680	
Manganese	7439-96-5					mg/kg	251				219				152	
Mercury	7439-97-6		0.2	1		mg/kg	0.022	JHT			0.063				0.072	
Nickel	7440-02-0		23	49		mg/kg	12.4				17.1				11	
Potassium	7440-09-7					mg/kg	1110				1880				1040	
Selenium	7782-49-2					mg/kg	0.9				1.5				1.3	
Silver	7440-22-4		1	2.2		mg/kg	0.028	J			0.04	J			0.036	J
Sodium	7440-23-5					mg/kg	142				185				357	
Thallium	7440-28-0					mg/kg	0.12				0.23				0.19	
Vanadium	7440-62-2					mg/kg	11.2				15.8				9.8	
Zinc	7440-66-6		120	460		mg/kg	35.2				77.3				72.3	
VOCs																
1,1,1-Trichloroethane	71-55-6		1900	3500		ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
1,1,2,2-Tetrachloroethane	79-34-5		2800	5400		ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
1,1,2-Trichloroethane	79-00-5		1900	3500		ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
1,1-Dichloroethane	75-34-3					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
1,1-Dichloroethene	75-35-4		520	4700		ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
1,2,4-Trichlorobenzene	120-82-1		35000	55000		ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
1,2-Dibromoethane (Ethylene dibromide)	106-93-4					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
1,2-Dichlorobenzene	95-50-1		280	2500		ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
1,2-Dichloroethane	107-06-2					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
1,2-Dichloropropane	78-87-5					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
1,3-Dichlorobenzene	541-73-1		1800	7100		ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
1,4-Dichlorobenzene	106-46-7		720	3300		ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
2-Butanone	78-93-3					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
2-Hexanone	591-78-6					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
4-Methyl-2-Pentanone	108-10-1					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Acetone	67-64-1					ug/kg	*28*	*U*			*40*	*U*			*40*	*U*
Benzene	71-43-2	25	530	1900		ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Bromodichloromethane	75-27-4					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Bromoform	75-25-2					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Bromomethane	74-83-9					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Carbon Disulfide	75-15-0					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Carbon Tetrachloride	56-23-5		1070	9600		ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Chlorobenzene	108-90-7	5200	200	1700		ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Chlorodibromomethane	124-48-1					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Chloroethane	75-00-3					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Chloroform	67-66-3					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Chloromethane	74-87-3					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Cis-1,2-Dichloroethene	156-59-2					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Cis-1,3-Dichloropropene	10061-01-5					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Cyclohexane	110-82-7					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Dichlorodifluoromethane	75-71-8					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Dichloromethane	75-09-2	68				ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Ethylbenzene	100-41-4		430	3700		ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Freon 113	76-13-1					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Isopropyl benzene	98-82-8		210	1800		ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Methyl acetate	79-20-9					ug/kg	*35*	*U*			*50*	*U*			*49*	*U*
Methyl T-Butyl Ether (MTBE)	1634-04-4					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Methylcyclohexane	108-87-2					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*
Styrene	100-42-5					ug/kg	*7.1*	*U*			*10*	*U*			*9.9*	*U*

Notes:
VALUE is non-detect.
VALUE exceeds at least one relevant criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

Table 4

						Sample:	CL-SED-21-3.5-4.0-20180521		FC-SED-05-1.0-2.0-20180522		FC-SED-05-2.0-4.0-20180522		FC-SED-08-0.0-0.5-20180522		FC-SED-08-3.0-4.0-20180522	
						Location:	CL-SED-21		FC-SED-05		FC-SED-05		FC-SED-08		FC-SED-08	
						Sample Date:	5/21/2018		5/22/2018		5/22/2018		5/22/2018		5/22/2018	
						Start Depth (ft):	3.5		1		2		0		3	
						End Depth (ft):	4		2		4		0.5		4	
Analyte	CAS Number	Sediment SGV Human Health	NYS Sediment Freshwater Class A	NYS Sediment Freshwater Class C	NYS Sediment SGV PAHs	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Tetrachloroethene	127-18-4	44	16000	57000		ug/kg	7.1	U			10	U			9.9	U
Toluene	108-88-3	56000	930	4500		ug/kg	7.1	U			10	U			9.9	U
Trans-1,2-Dichloroethene	156-60-5		1200	11000		ug/kg	7.1	U			10	U			9.9	U
Trans-1,3-Dichloropropene	10061-02-6					ug/kg	7.1	U			10	U			9.9	U
Trichloroethylene	79-01-6	250	1800	8600		ug/kg	7.1	U			10	U			9.9	U
Trichlorofluoromethane	75-69-4					ug/kg	7.1	U			10	U			9.9	U
Vinyl Chloride	75-01-4					ug/kg	7.1	U			10	U			9.9	U
Xylenes, Total	XYLENES					ug/kg	14	U			20	U			20	U
SVOCs																
1,1-Biphenyl	92-52-4					ug/kg										
1-Chloronaphthalene	90-13-1					ug/kg	120	U			150	U			170	U
2,4,5-Trichlorophenol	95-95-4					ug/kg										
2,4,6-Trichlorophenol	88-06-2					ug/kg										
2,4-Dichlorophenol	120-83-2	3600				ug/kg										
2,4-Dimethylphenol	105-67-9					ug/kg										
2,4-Dinitrophenol	51-28-5	280				ug/kg										
2,4-Dinitrotoluene	121-14-2					ug/kg										
2,6-Dinitrotoluene	606-20-2					ug/kg										
2-Chloronaphthalene	91-58-7					ug/kg										
2-Chlorophenol	95-57-8					ug/kg										
2-Methylnaphthalene	91-57-6					ug/kg										
2-Methylphenol	95-48-7					ug/kg										
2-Nitroaniline	88-74-4					ug/kg										
2-Nitrophenol	88-75-5					ug/kg										
3,3`-Dichlorobenzidine	91-94-1					ug/kg										
3-Nitroaniline	99-09-2					ug/kg										
4,6-Dinitro-2-Methylphenol	534-52-1					ug/kg										
4-Bromophenyl Phenyl Ether	101-55-3					ug/kg										
4-Chloro-3-Methylphenol	59-50-7					ug/kg										
4-Chloroaniline	106-47-8					ug/kg										
4-Chlorophenyl Phenylether	7005-72-3					ug/kg										
4-Methylphenol	106-44-5					ug/kg										
4-Nitroaniline	100-01-6					ug/kg										
4-Nitrophenol	100-02-7					ug/kg										
Acenaphthene	83-32-9				9820	ug/kg										
Acenaphthylene	208-96-8				9040	ug/kg										
Acetophenone	98-86-2					ug/kg										
Anthracene	120-12-7				11880	ug/kg										
Atrazine	1912-24-9					ug/kg										
Benzo(A)Anthracene	56-55-3				16820	ug/kg										
Benzo(A)Pyrene	50-32-8	4.4			19280	ug/kg										
Benzo(B)Fluoranthene	205-99-2				19580	ug/kg										
Benzo(G,H,I)Perylene	191-24-2				21900	ug/kg										
Benzo(K)Fluoranthene	207-08-9				19600	ug/kg										
Bis(2-Chloroethoxy) Methane	111-91-1					ug/kg										
Bis(2-Chloroethyl) Ether	111-44-4					ug/kg										
Bis(2-Ethylhexyl) Phthalate	117-81-7		360000			ug/kg										
Bis-Chloroisopropyl Ether	108-60-1					ug/kg										
Butyl Benzyl Phthalate	85-68-7					ug/kg										
Caprolactam	105-60-2					ug/kg										
Carbazole	86-74-8					ug/kg										
Chrysene	218-01-9				16860	ug/kg										
Dibenzo(A,H)Anthracene	53-70-3	9.8			22440	ug/kg										
Dibenzofuran	132-64-9					ug/kg										
Dichloronaphthalene	28699-88-9					ug/kg	120	U			150	U			52	J
Diethylphthalate	84-66-2					ug/kg										
Dimethylphthalate	131-11-3					ug/kg										
Di-N-Butylphthalate	84-74-2					ug/kg										
Di-N-Octyl Phthalate	117-84-0					ug/kg										
Fluoranthene	206-44-0				14160	ug/kg										
Fluorene	86-73-7				10780	ug/kg										
Heptachloronaphthalene	32241-08-0					ug/kg	120	U			150	U			170	U
Hexachlorobenzene	118-74-1	0.19				ug/kg										
Hexachlorobutadiene	87-68-3	12	1200	12000		ug/kg										
Hexachlorocyclopentadiene	77-47-4		810	8100		ug/kg										

Notes:
VALUE is non-detect.
VALUE exceeds at least one relevant criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

Table 4

Analyte	CAS Number	Sediment SGV Human Health	NYS Sediment Freshwater Class A	NYS Sediment Freshwater Class C	NYS Sediment SGV PAHs	Units	CL-SED-21-3.5-4.0-20180521 Result	Qual	FC-SED-05-1.0-2.0-20180522 Result	Qual	FC-SED-05-2.0-4.0-20180522 Result	Qual	FC-SED-08-0.0-0.5-20180522 Result	Qual	FC-SED-08-3.0-4.0-20180522 Result	Qual
						Location:	CL-SED-21		FC-SED-05		FC-SED-05		FC-SED-08		FC-SED-08	
						Sample Date:	5/21/2018		5/22/2018		5/22/2018		5/22/2018		5/22/2018	
						Start Depth (ft):	3.5		1		2		0		3	
						End Depth (ft):	4		2		4		0.5		4	
Hexachloroethane	67-72-1	110				ug/kg										
Hexachloronaphthalene	1335-87-1					ug/kg	120	U			150	U			170	U
Indeno(1,2,3-Cd)Pyrene	193-39-5				22300	ug/kg										
Isophorone	78-59-1					ug/kg										
Naphthalene	91-20-3				7700	ug/kg										
Nitrobenzene	98-95-3					ug/kg										
N-Nitroso-Di-N-Propylamine	621-64-7					ug/kg										
N-Nitrosodiphenylamine	86-30-6					ug/kg										
Octachloronaphthalene	2234-13-1					ug/kg	120	UJ			150	UJ			170	UJ
Pentachloronaphthalene	1321-64-8					ug/kg	120	U			150	U			170	U
Pentachlorophenol	87-86-5		14000	19000		ug/kg										
Phenanthrene	85-01-8				11940	ug/kg										
Phenol	108-95-2					ug/kg										
Pyrene	129-00-0				13960	ug/kg										
Tetrachloronaphthalene	1335-88-2					ug/kg	120	U			150	U			170	U
Trichloronaphthalene	1321-65-9					ug/kg	44	J			150	U			110	J
Pesticides																
4,4'-DDD	72-54-8	1.4				ug/kg	0.3	U	0.72		0.31	J			0.77	
4,4'-DDE	72-55-9	0.62				ug/kg	0.3	U	0.72	J	0.35	J			0.38	J
4,4'-DDT	50-29-3	0.44				ug/kg	0.3	U	0.62	U	0.38	U			0.43	
Aldrin	309-00-2					ug/kg	0.3	U	0.62	U	0.38	U			0.41	U
Alpha-BHC	319-84-6	0.21				ug/kg	0.3	U	0.62	U	0.38	U			0.41	U
Alpha-Chlordane	5103-71-9					ug/kg	0.3	U	0.62	U	0.38	U			0.41	U
Beta-BHC	319-85-7	0.84				ug/kg	0.3	U	0.62	U	0.38	U			0.41	U
Chlorinated Camphene	8001-35-2	0.002	6	250		ug/kg	12	U	25	U	15	U			17	U
Delta-Bhc	319-86-8	0.81				ug/kg	0.3	U	0.62	U	0.38	U			0.41	U
Dieldrin	60-57-1	0.002	180	780		ug/kg	0.3	U	0.62	U	0.38	U			0.41	U
Endosulfan I	959-98-8					ug/kg	0.3	U	0.62	U	0.38	U			0.41	U
Endosulfan II	33213-65-9					ug/kg	0.3	U	0.62	U	0.38	U			0.41	U
Endosulfan Sulfate	1031-07-8					ug/kg	0.3	U	0.62	U	0.38	U			0.41	U
Endrin	72-20-8	5.2	90	220		ug/kg	0.3	U	0.62	U	0.38	U			0.18	NJ
Endrin Aldehyde	7421-93-4					ug/kg	0.3	U	0.62	U	0.38	U			0.42	
Endrin Ketone	53494-70-5					ug/kg	0.3	U	0.62	U	0.38	U			0.41	U
Gamma-BHC (Lindane)	58-89-9	0.65	47	78		ug/kg	0.18	J	0.62	U	0.38	U			0.41	U
Gamma-Chlordane	5103-74-2					ug/kg	0.3	U	0.5	NJ	0.38	U			0.41	U
Heptachlor	76-44-8	4	75	10000		ug/kg	0.3	U	0.62	U	0.38	U			0.41	U
Heptachlor Epoxide	1024-57-3	1.2	15	2100		ug/kg	0.3	U	0.62	U	0.38	U			0.41	U
Methoxychlor	72-43-5		59			ug/kg	0.3	U	0.62	U	0.38	U			0.41	U
PFCs																
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9					ug/kg	2.8	U	6	U	3.8	U	3.5	U	4.1	U
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6					ug/kg	2.8	U	6	U	3.8	U	3.5	U	4.1	U
Perfluorobutanesulfonic Acid (PFBS)	375-73-5					ug/kg	0.28	U	0.6	U	0.38	U	0.35	U	0.41	U
Perfluorobutyric Acid (PFBA)	375-22-4					ug/kg	0.28	U	0.6	U	0.38	U	0.35	U	0.41	U
Perfluorodecane Sulfonic Acid	335-77-3					ug/kg	0.28	U	0.3	J	0.38	U	0.35	U	0.41	U
Perfluorodecanoic Acid (PFDA)	335-76-2					ug/kg	0.28	U	0.6	U	0.38	U	0.35	U	0.41	U
Perfluorododecanoic Acid (PFDoA)	307-55-1					ug/kg	0.28	U	0.6	U	0.38	U	0.35	U	0.41	U
Perfluoroheptane Sulfonate (PFHpS)	375-92-8					ug/kg	0.28	U	0.6	U	0.38	U	0.35	U	0.41	U
Perfluoroheptanoic Acid (PFHpA)	375-85-9					ug/kg	0.28	U	0.6	U	0.38	U	0.35	U	0.41	U
Perfluorohexanesulfonic Acid	355-46-4					ug/kg	0.28	U	0.6	U	0.38	U	0.35	U	0.41	U
Perfluorohexanoic Acid (PFHxA)	307-24-4					ug/kg	0.28	U	0.6	U	0.38	U	0.35	U	0.41	U
Perfluorononanoic Acid (PFNA)	375-95-1					ug/kg	0.28	U	0.6	U	0.38	U	0.35	U	0.41	U
Perfluorooctane Sulfonamide (FOSA)	754-91-6					ug/kg	0.28	U	0.6	U	0.38	U	0.35	U	0.41	U
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1					ug/kg	0.7	U	1.5	U	0.94	U	0.89	U	1	U
Perfluorooctanoic acid (PFOA)	335-67-1					ug/kg	0.28	U	0.6	U	0.38	U	0.35	U	0.41	U
Perfluoropentanoic Acid (PFPeA)	2706-90-3					ug/kg	0.28	U	0.6	U	0.38	U	0.35	U	0.41	U
Perfluorotetradecanoic Acid (PFTeA)	376-06-7					ug/kg	0.28	U	0.6	U	0.38	U	0.35	U	0.41	U
Perfluorotridcanoic Acid (PFTriA)	72629-94-8					ug/kg	0.28	U	0.6	U	0.38	U	0.35	U	0.41	U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8					ug/kg	0.15	J	0.36	J	0.38	U	0.35	U	0.41	U
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4					ug/kg	28	U	6	U	3.8	U	35	U	4.1	U
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2					ug/kg	28	U	6	U	3.8	U	35	U	4.1	U
Parameters																
Total Organic Carbon	TOC					mg/kg	18600		89200		45700		44200		60900	

Notes:
VALUE is non-detect.
VALUE exceeds at least one relevant criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

Table 4

Analyte	CAS Number	Sediment SGV Human Health	NYS Sediment Freshwater Class A	NYS Sediment Freshwater Class C	NYS Sediment SGV PAHs	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
						Sample:	MP-SED-15-0.5-1.0-20180516		MP-SED-16-1.5-2.0-20180517		MP-SED-16-2.0-2.5-20180517		MP-SED-DUP-20180517		MP-SED17-0.0-0.5-20180515	
						Location:	MP-SED-15		MP-SED-16		MP-SED-16		MP-SED-16		MP-SED-17	
						Sample Date:	5/16/2018		5/17/2018		5/17/2018		5/17/2018		5/15/2018	
						Start Depth (ft):	0.5		1.5		2		2		0	
						End Depth (ft):	1		2		2.5		2.5		0.5	
Inorganics																
Aluminum	7429-90-5					mg/kg	6330		5330	J	8510		8860		689	J
Antimony	7440-36-0					mg/kg	0.082	J	0.4	UJ	0.28	U	0.077	J	0.22	J
Arsenic	7440-38-2		10	33		mg/kg	0.92		0.59	J	1.1		1.3		0.33	J
Barium	7440-39-3					mg/kg	351		154	J	133		111		94.8	J
Beryllium	7440-41-7					mg/kg	0.35		0.3	J	0.4		0.4		0.045	J
Cadmium	7440-43-9		1	5		mg/kg	0.85		0.52	J	0.38		0.25		0.79	J
Calcium	7440-70-2					mg/kg	67600		244000	J	164000		117000		213000	J
Chromium, Total	7440-47-3		43	110		mg/kg	6.1		5.7	J	8.3		8.3		1.6	J
Cobalt	7440-48-4					mg/kg	2.4		1.9	J	3.3		3.5		0.24	J
Copper	7440-50-8		32	150		mg/kg	6.8		7.4	J	7.9		7.7		5.7	J
Iron	7439-89-6					mg/kg	5480		4900	J	7650		7810		649	J
Lead	7439-92-1		36	130		mg/kg	10.3		9.5	J	6.8		6.6		2.7	J
Magnesium	7439-95-4					mg/kg	3200		4380	J	5220		6590		2180	J
Manganese	7439-96-5					mg/kg	62.5		78.1	J	151		143		13.1	J
Mercury	7439-97-6		0.2	1		mg/kg	0.1		0.014	J	0.03	J	0.028	J	0.11	UJ
Nickel	7440-02-0		23	49		mg/kg	11.1		8.5	J	10.2		10.2		6.2	J
Potassium	7440-09-7					mg/kg	990		1080	J	1560		1710		280	J
Selenium	7782-49-2					mg/kg	0.79		1.5	J	0.73		0.55	J	1.5	J
Silver	7440-22-4		1	2.2		mg/kg	0.037	J	0.2	UJ	0.03	J	0.027	J	0.34	UJ
Sodium	7440-23-5					mg/kg	157		229	J	183		157		418	J
Thallium	7440-28-0					mg/kg	0.29		0.26	J	0.21		0.17		0.25	J
Vanadium	7440-62-2					mg/kg	6.4		6.4	J	9.3		9.9		1.1	J
Zinc	7440-66-6		120	460		mg/kg	82.6		99.4	J	71.2		50.5		**125**	J
VOCs																
1,1,1-Trichloroethane	71-55-6		1900	3500		ug/kg	12	U			14	U	12	U		
1,1,2,2-Tetrachloroethane	79-34-5		2800	5400		ug/kg	12	U			14	U	12	U		
1,1,2-Trichloroethane	79-00-5		1900	3500		ug/kg	12	U			14	U	12	U		
1,1-Dichloroethane	75-34-3					ug/kg	12	U			14	U	12	U		
1,1-Dichloroethene	75-35-4		520	4700		ug/kg	12	U			14	U	12	U		
1,2,4-Trichlorobenzene	120-82-1		35000	55000		ug/kg	12	U			14	U	12	U		
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8					ug/kg	12	U			14	U	12	U		
1,2-Dibromoethane (Ethylene dibromide)	106-93-4					ug/kg	12	U			14	U	12	U		
1,2-Dichlorobenzene	95-50-1		280	2500		ug/kg	12	U			14	U	12	U		
1,2-Dichloroethane	107-06-2					ug/kg	12	U			14	U	12	U		
1,2-Dichloropropane	78-87-5					ug/kg	12	U			14	U	12	U		
1,3-Dichlorobenzene	541-73-1		1800	7100		ug/kg	12	U			14	U	12	U		
1,4-Dichlorobenzene	106-46-7		720	3300		ug/kg	12	U			14	U	12	U		
2-Butanone	78-93-3					ug/kg	12	U			14	U	12	U		
2-Hexanone	591-78-6					ug/kg	12	U			14	U	12	U		
4-Methyl-2-Pentanone	108-10-1					ug/kg	12	U			14	U	12	U		
Acetone	67-64-1					ug/kg	48	U			27	J	30	J		
Benzene	71-43-2	25	530	1900		ug/kg	12	U			14	U	12	U		
Bromodichloromethane	75-27-4					ug/kg	12	U			14	U	12	U		
Bromoform	75-25-2					ug/kg	12	U			14	U	12	U		
Bromomethane	74-83-9					ug/kg	12	U			14	U	12	U		
Carbon Disulfide	75-15-0					ug/kg	12	U			14	U	12	U		
Carbon Tetrachloride	56-23-5		1070	9600		ug/kg	12	U			14	U	12	U		
Chlorobenzene	108-90-7	5200	200	1700		ug/kg	12	U			14	U	12	U		
Chlorodibromomethane	124-48-1					ug/kg	12	U			14	U	12	U		
Chloroethane	75-00-3					ug/kg	12	U			14	U	12	U		
Chloroform	67-66-3					ug/kg	12	U			14	U	12	U		
Chloromethane	74-87-3					ug/kg	12	U			14	U	12	U		
Cis-1,2-Dichloroethene	156-59-2					ug/kg	12	U			14	U	12	U		
Cis-1,3-Dichloropropene	10061-01-5					ug/kg	12	U			14	U	12	U		
Cyclohexane	110-82-7					ug/kg	12	U			14	U	12	U		
Dichlorodifluoromethane	75-71-8					ug/kg	12	U			14	U	12	U		
Dichloromethane	75-09-2	68				ug/kg	12	U			14	U	12	U		
Ethylbenzene	100-41-4		430	3700		ug/kg	12	U			14	U	12	U		
Freon 113	76-13-1					ug/kg	12	U			14	U	12	U		
Isopropyl benzene	98-82-8		210	1800		ug/kg	12	U			14	U	12	U		
Methyl acetate	79-20-9					ug/kg	60	U			70	U	61	U		
Methyl T-Butyl Ether (MTBE)	1634-04-4					ug/kg	12	U			14	U	12	U		
Methylcyclohexane	108-87-2					ug/kg	12	U			14	U	12	U		
Styrene	100-42-5					ug/kg	12	U			14	U	12	U		

Notes:
VALUE is non-detect.
VALUE exceeds at least one relevant criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

						Sample:	MP-SED-15-0.5-1.0-20180516		MP-SED-16-1.5-2.0-20180517		MP-SED-16-2.0-2.5-20180517		MP-SED-DUP-20180517		MP-SED17-0.0-0.5-20180515	
						Location:	MP-SED-15		MP-SED-16		MP-SED-16		MP-SED-16		MP-SED-17	
						Sample Date:	5/16/2018		5/17/2018		5/17/2018		5/17/2018		5/15/2018	
						Start Depth (ft):	0.5		1.5		2		2		0	
						End Depth (ft):	1		2		2.5		2.5		0.5	
Analyte	CAS Number	Sediment SGV Human Health	NYS Sediment Freshwater Class A	NYS Sediment Freshwater Class C	NYS Sediment SGV PAHs	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Tetrachloroethene	127-18-4	44	16000	57000		ug/kg	12	U			14	U	12	U		
Toluene	108-88-3	56000	930	4500		ug/kg	12	U			14	U	12	U		
Trans-1,2-Dichloroethene	156-60-5		1200	11000		ug/kg	12	U			14	U	12	U		
Trans-1,3-Dichloropropene	10061-02-6					ug/kg	12	U			14	U	12	U		
Trichloroethylene	79-01-6	250	1800	8600		ug/kg	12	U			14	U	12	U		
Trichlorofluoromethane	75-69-4					ug/kg	12	U			14	U	12	U		
Vinyl Chloride	75-01-4					ug/kg	12	U			14	U	12	U		
Xylenes, Total	XYLENES					ug/kg	24	U			28	U	24	U		
SVOCs																
1,1-Biphenyl	92-52-4					ug/kg										
1-Chloronaphthalene	90-13-1					ug/kg	190	U	340	UJ	230	U	210	U	620	UJ
2,4,5-Trichlorophenol	95-95-4					ug/kg										
2,4,6-Trichlorophenol	88-06-2					ug/kg										
2,4-Dichlorophenol	120-83-2	3600				ug/kg										
2,4-Dimethylphenol	105-67-9					ug/kg										
2,4-Dinitrophenol	51-28-5	280				ug/kg										
2,4-Dinitrotoluene	121-14-2					ug/kg										
2,6-Dinitrotoluene	606-20-2					ug/kg										
2-Chloronaphthalene	91-58-7					ug/kg										
2-Chlorophenol	95-57-8					ug/kg										
2-Methylnaphthalene	91-57-6					ug/kg										
2-Methylphenol	95-48-7					ug/kg										
2-Nitroaniline	88-74-4					ug/kg										
2-Nitrophenol	88-75-5					ug/kg										
3,3`-Dichlorobenzidine	91-94-1					ug/kg										
3-Nitroaniline	99-09-2					ug/kg										
4,6-Dinitro-2-Methylphenol	534-52-1					ug/kg										
4-Bromophenyl Phenyl Ether	101-55-3					ug/kg										
4-Chloro-3-Methylphenol	59-50-7					ug/kg										
4-Chloroaniline	106-47-8					ug/kg										
4-Chlorophenyl Phenylether	7005-72-3					ug/kg										
4-Methylphenol	106-44-5					ug/kg										
4-Nitroaniline	100-01-6					ug/kg										
4-Nitrophenol	100-02-7					ug/kg										
Acenaphthene	83-32-9				9820	ug/kg										
Acenaphthylene	208-96-8				9040	ug/kg										
Acetophenone	98-86-2					ug/kg										
Anthracene	120-12-7				11880	ug/kg										
Atrazine	1912-24-9					ug/kg										
Benzo(A)Anthracene	56-55-3				16820	ug/kg										
Benzo(A)Pyrene	50-32-8	4.4			19280	ug/kg										
Benzo(B)Fluoranthene	205-99-2				19580	ug/kg										
Benzo(G,H,I)Perylene	191-24-2				21900	ug/kg										
Benzo(K)Fluoranthene	207-08-9				19600	ug/kg										
Bis(2-Chloroethoxy) Methane	111-91-1					ug/kg										
Bis(2-Chloroethyl) Ether	111-44-4					ug/kg										
Bis(2-Ethylhexyl) Phthalate	117-81-7		360000			ug/kg										
Bis-Chloroisopropyl Ether	108-60-1					ug/kg										
Butyl Benzyl Phthalate	85-68-7					ug/kg										
Caprolactam	105-60-2					ug/kg										
Carbazole	86-74-8					ug/kg										
Chrysene	218-01-9				16860	ug/kg										
Dibenzo(A,H)Anthracene	53-70-3	9.8			22440	ug/kg										
Dibenzofuran	132-64-9					ug/kg										
Dichloronaphthalene	28699-88-9					ug/kg	190	U	340	UJ	230	U	210	U	620	UJ
Diethylphthalate	84-66-2					ug/kg										
Dimethylphthalate	131-11-3					ug/kg										
Di-N-Butylphthalate	84-74-2					ug/kg										
Di-N-Octyl Phthalate	117-84-0					ug/kg										
Fluoranthene	206-44-0				14160	ug/kg										
Fluorene	86-73-7				10780	ug/kg										
Heptachloronaphthalene	32241-08-0					ug/kg	190	U	340	UJ	230	UJ	210	U	620	UJ
Hexachlorobenzene	118-74-1	0.19				ug/kg										
Hexachlorobutadiene	87-68-3	12	1200	12000		ug/kg										
Hexachlorocyclopentadiene	77-47-4		810	8100		ug/kg										

Notes:
VALUE is non-detect.
VALUE exceeds at least one relevant criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

Analyte	CAS Number	Sediment SGV Human Health	NYS Sediment Freshwater Class A	NYS Sediment Freshwater Class C	NYS Sediment SGV PAHs	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
						Sample:	MP-SED-15-0.5-1.0-20180516		MP-SED-16-1.5-2.0-20180517		MP-SED-16-2.0-2.5-20180517		MP-SED-DUP-20180517		MP-SED17-0.0-0.5-20180515	
						Location:	MP-SED-15		MP-SED-16		MP-SED-16		MP-SED-16		MP-SED-17	
						Sample Date:	5/16/2018		5/17/2018		5/17/2018		5/17/2018		5/15/2018	
						Start Depth (ft):	0.5		1.5		2		2		0	
						End Depth (ft):	1		2		2.5		2.5		0.5	
Hexachloroethane	67-72-1	110				ug/kg										
Hexachloronaphthalene	1335-87-1					ug/kg	190	U	340	UJ	230	UJ	210	U	620	UJ
Indeno(1,2,3-Cd)Pyrene	193-39-5				22300	ug/kg										
Isophorone	78-59-1					ug/kg										
Naphthalene	91-20-3				7700	ug/kg										
Nitrobenzene	98-95-3					ug/kg										
N-Nitroso-Di-N-Propylamine	621-64-7					ug/kg										
N-Nitrosodiphenylamine	86-30-6					ug/kg										
Octachloronaphthalene	2234-13-1					ug/kg	190	UJ	340	UJ	230	UJ	210	UJ	620	UJ
Pentachloronaphthalene	1321-64-8					ug/kg	190	U	340	UJ	230	UJ	210	U	620	UJ
Pentachlorophenol	87-86-5		14000	19000		ug/kg										
Phenanthrene	85-01-8				11940	ug/kg										
Phenol	108-95-2					ug/kg										
Pyrene	129-00-0				13960	ug/kg										
Tetrachloronaphthalene	1335-88-2					ug/kg	190	U	340	UJ	230	U	210	U	620	UJ
Trichloronaphthalene	1321-65-9					ug/kg	190	U	340	UJ	230	U	210	U	620	UJ
Pesticides																
4,4'-DDD	72-54-8	1.4				ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	1.4	UJ
4,4'-DDE	72-55-9	0.62				ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	0.4	J
4,4'-DDT	50-29-3	0.44				ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	1.4	UJ
Aldrin	309-00-2					ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	1.4	J
Alpha-BHC	319-84-6	0.21				ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	1.4	UJ
Alpha-Chlordane	5103-71-9					ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	1.4	UJ
Beta-BHC	319-85-7	0.84				ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	1.4	UJ
Chlorinated Camphene	8001-35-2	0.002	6	250		ug/kg	19	U	34	UJ	24	U	21	U	56	UJ
Delta-Bhc	319-86-8	0.81				ug/kg	0.49	UT	0.84	UJ	0.6	U	0.52	U	1.4	UJ
Dieldrin	60-57-1	0.002	180	780		ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	1.4	UJ
Endosulfan I	959-98-8					ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	1.4	UJ
Endosulfan II	33213-65-9					ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	1.4	UJ
Endosulfan Sulfate	1031-07-8					ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	0.57	NJ
Endrin	72-20-8	5.2	90	220		ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	1.4	UJ
Endrin Aldehyde	7421-93-4					ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	1.4	UJ
Endrin Ketone	53494-70-5					ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	1.4	UJ
Gamma-BHC (Lindane)	58-89-9	0.65	47	78		ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	1.4	UJ
Gamma-Chlordane	5103-74-2					ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	1.4	UJ
Heptachlor	76-44-8	4	75	10000		ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	1.4	UJ
Heptachlor Epoxide	1024-57-3	1.2	15	2100		ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	1.4	UJ
Methoxychlor	72-43-5		59			ug/kg	0.49	U	0.84	UJ	0.6	U	0.52	U	1.4	UJ
PFCs																
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9					ug/kg	4.8	U	8.1	UJ	5.8	U	4.9	U	16	UJ
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6					ug/kg	4.8	U	8.1	UJ	5.8	U	4.9	U	16	UJ
Perfluorobutanesulfonic Acid (PFBS)	375-73-5					ug/kg	0.48	U	0.81	UJ	0.58	U	0.49	U	1.6	UJ
Perfluorobutyric Acid (PFBA)	375-22-4					ug/kg	0.48	U	0.81	UJ	0.58	U	0.49	U	2.1	UJ
Perfluorodecane Sulfonic Acid	335-77-3					ug/kg	0.48	U	0.81	UJ	0.58	U	0.49	U	1.6	UJ
Perfluorodecanoic Acid (PFDA)	335-76-2					ug/kg	0.48	U	0.81	UJ	0.58	U	0.49	U	1.6	UJ
Perfluorododecanoic Acid (PFDoA)	307-55-1					ug/kg	0.48	U	0.81	UJ	0.58	U	0.49	U	1.6	UJ
Perfluoroheptane Sulfonate (PFHpS)	375-92-8					ug/kg	0.48	U	0.81	UJ	0.58	U	0.49	U	1.6	UJ
Perfluoroheptanoic Acid (PFHpA)	375-85-9					ug/kg	0.48	U	0.81	UJ	0.58	U	0.49	U	1.6	UJ
Perfluorohexanesulfonic Acid	355-46-4					ug/kg	0.48	U	0.81	UJ	0.58	U	0.49	U	1.6	UJ
Perfluorohexanoic Acid (PFHxA)	307-24-4					ug/kg	0.48	U	0.81	UJ	0.58	U	0.49	U	1.6	UJ
Perfluorononanoic Acid (PFNA)	375-95-1					ug/kg	0.48	U	0.81	UJ	0.58	U	0.49	U	1.6	UJ
Perfluorooctane Sulfonamide (FOSA)	754-91-6					ug/kg	0.48	U	0.81	UJ	0.58	U	0.49	U	1.6	UJ
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1					ug/kg	1.2	U	2	UJ	1.5	U	1.2	U	3.9	UJ
Perfluorooctanoic acid (PFOA)	335-67-1					ug/kg	0.48	U	0.81	UJ	0.58	U	0.49	U	1.6	UJ
Perfluoropentanoic Acid (PFPeA)	2706-90-3					ug/kg	0.48	U	0.81	UJ	0.58	U	0.49	U	1.6	UJ
Perfluorotetradecanoic Acid (PFTeA)	376-06-7					ug/kg	0.48	U	0.81	UJ	0.58	U	0.49	U	1.6	UJ
Perfluorotridcanoic Acid (PFTriA)	72629-94-8					ug/kg	0.48	U	0.81	UJ	0.58	U	0.49	U	1.6	UJ
Perfluoroundecanoic Acid (PFUnA)	2058-94-8					ug/kg	0.48	U	1.8	J	0.58	U	0.81		1.6	UJ
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4					ug/kg	48	U	81	UJ	58	U	49	U	160	UJ
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2					ug/kg	48	U	81	UJ	58	U	49	U	160	UJ
Parameters																
Total Organic Carbon	TOC					mg/kg									110000	J

Notes:
VALUE is non-detect.
VALUE exceeds at least one relevant criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

						Sample: Location: Sample Date: Start Depth (ft): End Depth (ft):	MP-SED17-1.5-2.0-20180515 MP-SED-17 5/15/2018 1.5 2		UNST-SED-06-0.0-0.5-20180521 UNST-SED-06 5/21/2018 0 0.5		UNST-SED-06-3.5-4.0-20180521 UNST-SED-06 5/21/2018 3.5 4	
Analyte	**CAS Number**	**Sediment SGV Human Health**	**NYS Sediment Freshwater Class A**	**NYS Sediment Freshwater Class C**	**NYS Sediment SGV PAHs**	**Units**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Inorganics												
Aluminum	7429-90-5					mg/kg	19800				4080	
Antimony	7440-36-0					mg/kg	0.13	J			0.28	U
Arsenic	7440-38-2		10	33		mg/kg	4.5				1.1	
Barium	7440-39-3					mg/kg	133				89.6	
Beryllium	7440-41-7					mg/kg	1.1				0.47	
Cadmium	7440-43-9		1	5		mg/kg	0.13				0.94	
Calcium	7440-70-2					mg/kg	14000				171000	
Chromium, Total	7440-47-3		43	110		mg/kg	20.3				5.7	
Cobalt	7440-48-4					mg/kg	7.7				2.5	
Copper	7440-50-8		32	150		mg/kg	8.5				9.8	
Iron	7439-89-6					mg/kg	20500				6520	
Lead	7439-92-1		36	130		mg/kg	13.2				5.9	
Magnesium	7439-95-4					mg/kg	5230				4640	
Manganese	7439-96-5					mg/kg	117				121	
Mercury	7439-97-6		0.2	1		mg/kg	0.055				0.024	JHT
Nickel	7440-02-0		23	49		mg/kg	22.3				15.1	
Potassium	7440-09-7					mg/kg	2690				648	
Selenium	7782-49-2					mg/kg	1.1				1.5	
Silver	7440-22-4		1	2.2		mg/kg	0.065	J			0.024	J
Sodium	7440-23-5					mg/kg	122				155	
Thallium	7440-28-0					mg/kg	0.23				0.18	
Vanadium	7440-62-2					mg/kg	23.8				6.3	
Zinc	7440-66-6		120	460		mg/kg	57.5				99.4	
VOCs												
1,1,1-Trichloroethane	71-55-6		1900	3500		ug/kg	7.6	U			14	U
1,1,2,2-Tetrachloroethane	79-34-5		2800	5400		ug/kg	7.6	U			14	U
1,1,2-Trichloroethane	79-00-5		1900	3500		ug/kg	7.6	U			14	U
1,1-Dichloroethane	75-34-3					ug/kg	7.6	U			14	U
1,1-Dichloroethene	75-35-4		520	4700		ug/kg	7.6	U			14	U
1,2,4-Trichlorobenzene	120-82-1		35000	55000		ug/kg	7.6	U			14	U
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8					ug/kg	7.6	U			14	U
1,2-Dibromoethane (Ethylene dibromide)	106-93-4					ug/kg	7.6	U			14	U
1,2-Dichlorobenzene	95-50-1		280	2500		ug/kg	7.6	U			14	U
1,2-Dichloroethane	107-06-2					ug/kg	7.6	U			14	U
1,2-Dichloropropane	78-87-5					ug/kg	7.6	U			14	U
1,3-Dichlorobenzene	541-73-1		1800	7100		ug/kg	7.6	U			14	U
1,4-Dichlorobenzene	106-46-7		720	3300		ug/kg	7.6	U			14	U
2-Butanone	78-93-3					ug/kg	7.6	U			14	U
2-Hexanone	591-78-6					ug/kg	7.6	U			14	U
4-Methyl-2-Pentanone	108-10-1					ug/kg	7.6	U			14	U
Acetone	67-64-1					ug/kg	30	U			56	U
Benzene	71-43-2	25	530	1900		ug/kg	7.6	U			14	U
Bromodichloromethane	75-27-4					ug/kg	7.6	U			14	U
Bromoform	75-25-2					ug/kg	7.6	U			14	U
Bromomethane	74-83-9					ug/kg	7.6	U			14	U
Carbon Disulfide	75-15-0					ug/kg	7.6	U			14	U
Carbon Tetrachloride	56-23-5		1070	9600		ug/kg	7.6	U			14	U
Chlorobenzene	108-90-7	5200	200	1700		ug/kg	7.6	U			14	U
Chlorodibromomethane	124-48-1					ug/kg	7.6	U			14	U
Chloroethane	75-00-3					ug/kg	7.6	U			14	U
Chloroform	67-66-3					ug/kg	7.6	U			14	U
Chloromethane	74-87-3					ug/kg	7.6	U			14	U
Cis-1,2-Dichloroethene	156-59-2					ug/kg	7.6	U			14	U
Cis-1,3-Dichloropropene	10061-01-5					ug/kg	7.6	U			14	U
Cyclohexane	110-82-7					ug/kg	7.6	U			14	U
Dichlorodifluoromethane	75-71-8					ug/kg	7.6	U			14	U
Dichloromethane	75-09-2	68				ug/kg	7.6	U			14	U
Ethylbenzene	100-41-4		430	3700		ug/kg	7.6	U			14	U
Freon 113	76-13-1					ug/kg	7.6	U			14	U
Isopropyl benzene	98-82-8		210	1800		ug/kg	7.6	U			14	U
Methyl acetate	79-20-9					ug/kg	38	U			70	U
Methyl T-Butyl Ether (MTBE)	1634-04-4					ug/kg	7.6	U			14	U
Methylcyclohexane	108-87-2					ug/kg	7.6	U			14	U
Styrene	100-42-5					ug/kg	7.6	U			14	U

Notes:
VALUE is non-detect.
VALUE exceeds at least one relevant criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

						Sample:	MP-SED17-1.5-2.0-20180515		UNST-SED-06-0.0-0.5-20180521		UNST-SED-06-3.5-4.0-20180521	
						Location:	MP-SED-17		UNST-SED-06		UNST-SED-06	
						Sample Date:	5/15/2018		5/21/2018		5/21/2018	
						Start Depth (ft):	1.5		0		3.5	
						End Depth (ft):	2		0.5		4	
Analyte	CAS Number	Sediment SGV Human Health	NYS Sediment Freshwater Class A	NYS Sediment Freshwater Class C	NYS Sediment SGV PAHs	Units	Result	Qual	Result	Qual	Result	Qual
Tetrachloroethene	127-18-4	44	16000	57000		ug/kg	7.6	U			14	U
Toluene	108-88-3	56000	930	4500		ug/kg	7.6	U			14	U
Trans-1,2-Dichloroethene	156-60-5		1200	11000		ug/kg	7.6	U			14	U
Trans-1,3-Dichloropropene	10061-02-6					ug/kg	7.6	U			14	U
Trichloroethylene	79-01-6	250	1800	8600		ug/kg	7.6	U			14	U
Trichlorofluoromethane	75-69-4					ug/kg	7.6	U			14	U
Vinyl Chloride	75-01-4					ug/kg	7.6	U			14	U
Xylenes, Total	XYLENES					ug/kg	15	U			28	U
SVOCs												
1,1-Biphenyl	92-52-4					ug/kg	530	U				
1-Chloronaphthalene	90-13-1					ug/kg	200	U			220	U
2,4,5-Trichlorophenol	95-95-4					ug/kg	530	U				
2,4,6-Trichlorophenol	88-06-2					ug/kg	530	U				
2,4-Dichlorophenol	120-83-2	3600				ug/kg	110	U				
2,4-Dimethylphenol	105-67-9					ug/kg	530	U				
2,4-Dinitrophenol	51-28-5	280				ug/kg	5300	U				
2,4-Dinitrotoluene	121-14-2					ug/kg	530	U				
2,6-Dinitrotoluene	606-20-2					ug/kg	530	U				
2-Chloronaphthalene	91-58-7					ug/kg	110	U				
2-Chlorophenol	95-57-8					ug/kg	530	U				
2-Methylnaphthalene	91-57-6					ug/kg	110	U				
2-Methylphenol	95-48-7					ug/kg	530	U				
2-Nitroaniline	88-74-4					ug/kg	2700	U				
2-Nitrophenol	88-75-5					ug/kg	530	U				
3,3`-Dichlorobenzidine	91-94-1					ug/kg	530	U				
3-Nitroaniline	99-09-2					ug/kg	2700	U				
4,6-Dinitro-2-Methylphenol	534-52-1					ug/kg	2700	U				
4-Bromophenyl Phenyl Ether	101-55-3					ug/kg	530	U				
4-Chloro-3-Methylphenol	59-50-7					ug/kg	530	U				
4-Chloroaniline	106-47-8					ug/kg	530	U				
4-Chlorophenyl Phenylether	7005-72-3					ug/kg	530	U				
4-Methylphenol	106-44-5					ug/kg	530	U				
4-Nitroaniline	100-01-6					ug/kg	2700	U				
4-Nitrophenol	100-02-7					ug/kg	2700	U				
Acenaphthene	83-32-9				9820	ug/kg	110	U				
Acenaphthylene	208-96-8				9040	ug/kg	110	U				
Acetophenone	98-86-2					ug/kg	1100	U				
Anthracene	120-12-7				11880	ug/kg	110	U				
Atrazine	1912-24-9					ug/kg	1100	U				
Benzo(A)Anthracene	56-55-3				16820	ug/kg	110	U				
Benzo(A)Pyrene	50-32-8	4.4			19280	ug/kg	110	U				
Benzo(B)Fluoranthene	205-99-2				19580	ug/kg	110	U				
Benzo(G,H,I)Perylene	191-24-2				21900	ug/kg	110	U				
Benzo(K)Fluoranthene	207-08-9				19600	ug/kg	110	U				
Bis(2-Chloroethoxy) Methane	111-91-1					ug/kg	530	U				
Bis(2-Chloroethyl) Ether	111-44-4					ug/kg	110	U				
Bis(2-Ethylhexyl) Phthalate	117-81-7		360000			ug/kg	5300	U				
Bis-Chloroisopropyl Ether	108-60-1					ug/kg	110	U				
Butyl Benzyl Phthalate	85-68-7					ug/kg	530	U				
Caprolactam	105-60-2					ug/kg	2700	U				
Carbazole	86-74-8					ug/kg	110	U				
Chrysene	218-01-9				16860	ug/kg	110	U				
Dibenzo(A,H)Anthracene	53-70-3	9.8			22440	ug/kg	110	U				
Dibenzofuran	132-64-9					ug/kg	530	U				
Dichloronaphthalene	28699-88-9					ug/kg	200	U			220	U
Diethylphthalate	84-66-2					ug/kg	530	U				
Dimethylphthalate	131-11-3					ug/kg	530	U				
Di-N-Butylphthalate	84-74-2					ug/kg	530	U				
Di-N-Octyl Phthalate	117-84-0					ug/kg	530	U				
Fluoranthene	206-44-0				14160	ug/kg	110	U				
Fluorene	86-73-7				10780	ug/kg	110	U				
Heptachloronaphthalene	32241-08-0					ug/kg	200	U			220	U
Hexachlorobenzene	118-74-1	0.19				ug/kg	110	U				
Hexachlorobutadiene	87-68-3	12	1200	12000		ug/kg	110	U				
Hexachlorocyclopentadiene	77-47-4		810	8100		ug/kg	530	U				

Notes:
VALUE is non-detect.
VALUE exceeds at least one relevant criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

Table 4

						Sample:	MP-SED17-1.5-2.0-20180515		UNST-SED-06-0.0-0.5-20180521		UNST-SED-06-3.5-4.0-20180521	
						Location:	MP-SED-17		UNST-SED-06		UNST-SED-06	
						Sample Date:	5/15/2018		5/21/2018		5/21/2018	
						Start Depth (ft):	1.5		0		3.5	
						End Depth (ft):	2		0.5		4	
Analyte	CAS Number	Sediment SGV Human Health	NYS Sediment Freshwater Class A	NYS Sediment Freshwater Class C	NYS Sediment SGV PAHs	Units	Result	Qual	Result	Qual	Result	Qual
Hexachloroethane	67-72-1	110				ug/kg	530	U				
Hexachloronaphthalene	1335-87-1					ug/kg	200	U			220	U
Indeno(1,2,3-Cd)Pyrene	193-39-5				22300	ug/kg	110	U				
Isophorone	78-59-1					ug/kg	530	U				
Naphthalene	91-20-3				7700	ug/kg	110	U				
Nitrobenzene	98-95-3					ug/kg	1100	U				
N-Nitroso-Di-N-Propylamine	621-64-7					ug/kg	110	U				
N-Nitrosodiphenylamine	86-30-6					ug/kg	530	U				
Octachloronaphthalene	2234-13-1					ug/kg	200	U			220	UJ
Pentachloronaphthalene	1321-64-8					ug/kg	200	U			220	U
Pentachlorophenol	87-86-5		14000	19000		ug/kg	2700	UJ				
Phenanthrene	85-01-8				11940	ug/kg	110	U				
Phenol	108-95-2					ug/kg	530	U				
Pyrene	129-00-0				13960	ug/kg	110	U				
Tetrachloronaphthalene	1335-88-2					ug/kg	200	U			220	U
Trichloronaphthalene	1321-65-9					ug/kg	43	J			220	U
Pesticides												
4,4'-DDD	72-54-8	1.4				ug/kg	0.33	U	1	U	0.47	J
4,4'-DDE	72-55-9	0.62				ug/kg	0.21	J	1	U	0.56	U
4,4'-DDT	50-29-3	0.44				ug/kg	0.33	U	1	U	0.56	U
Aldrin	309-00-2					ug/kg	0.33	U	1	U	0.56	U
Alpha-BHC	319-84-6	0.21				ug/kg	0.33	U	0.41	J	0.56	U
Alpha-Chlordane	5103-71-9					ug/kg	0.33	U	1	U	0.56	U
Beta-BHC	319-85-7	0.84				ug/kg	0.33	U	1	U	0.56	U
Chlorinated Camphene	8001-35-2	0.002	6	250		ug/kg	13	U	42	U	23	U
Delta-Bhc	319-86-8	0.81				ug/kg	0.33	U	0.37	J	0.56	U
Dieldrin	60-57-1	0.002	180	780		ug/kg	0.33	U	1	U	0.56	U
Endosulfan I	959-98-8					ug/kg	0.33	U	1	U	0.56	U
Endosulfan II	33213-65-9					ug/kg	0.33	U	1	U	0.56	U
Endosulfan Sulfate	1031-07-8					ug/kg	0.33	U	1	U	0.56	U
Endrin	72-20-8	5.2	90	220		ug/kg	0.33	U	1	U	0.56	U
Endrin Aldehyde	7421-93-4					ug/kg	0.33	U	1	U	0.29	J
Endrin Ketone	53494-70-5					ug/kg	0.33	U	1	U	0.56	U
Gamma-BHC (Lindane)	58-89-9	0.65	47	78		ug/kg	0.33	U	0.43	J	0.56	U
Gamma-Chlordane	5103-74-2					ug/kg	0.33	U	1	U	0.56	U
Heptachlor	76-44-8	4	75	10000		ug/kg	0.33	U	1	U	0.56	U
Heptachlor Epoxide	1024-57-3	1.2	15	2100		ug/kg	0.33	U	1	U	0.56	U
Methoxychlor	72-43-5		59			ug/kg	0.33	U	1	U	0.56	U
PFCs												
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9					ug/kg	4.9	U	10	U	5.6	U
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6					ug/kg	4.9	U	10	U	5.6	U
Perfluorobutanesulfonic Acid (PFBS)	375-73-5					ug/kg	0.49	U	1	U	0.56	U
Perfluorobutyric Acid (PFBA)	375-22-4					ug/kg	0.49	U	1	U	0.56	U
Perfluorodecane Sulfonic Acid	335-77-3					ug/kg	0.49	U	1	U	0.56	U
Perfluorodecanoic Acid (PFDA)	335-76-2					ug/kg	0.49	U	1	U	0.56	U
Perfluorododecanoic Acid (PFDoA)	307-55-1					ug/kg	0.49	U	1	U	0.56	U
Perfluoroheptane Sulfonate (PFHpS)	375-92-8					ug/kg	0.49	U	1	U	0.56	U
Perfluoroheptanoic Acid (PFHpA)	375-85-9					ug/kg	0.49	U	1	U	0.56	U
Perfluorohexanesulfonic Acid	355-46-4					ug/kg	0.49	U	1	U	0.56	U
Perfluorohexanoic Acid (PFHxA)	307-24-4					ug/kg	0.49	U	1	U	0.56	U
Perfluorononanoic Acid (PFNA)	375-95-1					ug/kg	0.49	U	1	U	0.56	U
Perfluorooctane Sulfonamide (FOSA)	754-91-6					ug/kg	0.49	U	1	U	0.56	U
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1					ug/kg	1.2	U	2.5	U	1.4	U
Perfluorooctanoic acid (PFOA)	335-67-1					ug/kg	0.49	U	1	U	0.56	U
Perfluoropentanoic Acid (PFPeA)	2706-90-3					ug/kg	0.49	U	1	U	0.56	U
Perfluorotetradecanoic Acid (PFTeA)	376-06-7					ug/kg	0.49	U	1	U	0.56	U
Perfluorotridcanoic Acid (PFTriA)	72629-94-8					ug/kg	0.49	U	1	U	0.56	U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8					ug/kg	0.49	U	1	U	0.56	UT
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4					ug/kg	49	U	10	U	5.6	U
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2					ug/kg	49	U	10	U	5.6	U
Parameters												
Total Organic Carbon	TOC					mg/kg	17900		277000		104000	

Notes:
VALUE is non-detect.
VALUE exceeds at least one relevant criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

Table 5

Union Springs
Comprehensive Surface Water Sampling Results

Analyte	CAS Number	NYS Surface Water Class A	NYS Surface Water Class C	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
				Sample: / Location: / Sample Date:	BP-SW-18-20180517 / BP-SW-18 / 5/17/2018		BP-SW-19-20180517 / BP-SW-19 / 5/17/2018		CL-SW-21-20180521 / CL-SW-21 / 5/21/2018		FC-SW-05-20180521 / FC-SW-05 / 5/21/2018		FC-SW-08-20180521 / FC-SW-08 / 5/21/2018		FC-SW-10-20180522 / FC-SW-10 / 5/22/2018	
Inorganics																
Aluminum	7429-90-5	~~100~~ 0.1	~~100~~ 0.1	mg/l	0.2	U	0.2	U	0.065	J	0.057	J	0.059	J	0.097	J
Antimony	7440-36-0	~~3~~ 0.003		mg/l	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Arsenic	7440-38-2	~~50~~ 0.05	~~150~~ 0.15	mg/l	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Barium	7440-39-3	~~1000~~ 1		mg/l	0.079	J	0.082	J	0.077	J	0.077	J	0.084	J	0.093	J
Beryllium	7440-41-7	~~3~~ 0.003	~~11~~ 0.011	mg/l	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U	0.004	U
Cadmium	7440-43-9	~~5~~ 0.005		mg/l	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Calcium	7440-70-2			mg/l	136		141		131		131		140		129	
Chromium, Total	7440-47-3	~~50~~ 0.05		mg/l	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Cobalt	7440-48-4	~~5~~ 0.005	~~5~~ 0.005	mg/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Copper	7440-50-8	~~200~~ 0.2		mg/l	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U	0.025	U
Iron	7439-89-6	~~300~~ 0.3		mg/l	0.099	J	0.043	J	0.1		0.097	J	0.11		0.36	
Lead	7439-92-1	~~50~~ 0.05		mg/l	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Magnesium	7439-95-4	~~35000~~ 35		mg/l	32.5		33.2		30.4		30.5		32.2		31.2	
Manganese	7439-96-5	~~300~~ 0.3		mg/l	0.011	J	0.0045	J	0.016		0.014	J	0.019		0.11	
Mercury	7439-97-6	~~0.0007~~ 7E-7	~~0.0007~~ 7E-7	mg/l	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U	0.0002	U
Nickel	7440-02-0	~~100~~ 0.1		mg/l	0.0017	J	0.0018	J	0.04	U	0.04	U	0.04	U	0.04	U
Potassium	7440-09-7			mg/l	2.7	J	3.7	J	2.7	J	2.6	J	2.7	J	2.6	J
Selenium	7782-49-2	~~4.6~~ 0.0046	~~4.6~~ 0.0046	mg/l	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Silver	7440-22-4	~~0.1~~ 0.0001	~~0.1~~ 0.0001	mg/l	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U
Sodium	7440-23-5			mg/l	50.4		52.3		51.1		49.3		53		56.6	
Thallium	7440-28-0	~~0.5~~ 0.0005	~~8~~ 0.008	mg/l	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Vanadium	7440-62-2	~~14~~ 0.014	~~14~~ 0.014	mg/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Zinc	7440-66-6	~~2000~~ 2		mg/l	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
VOCs																
1,1,1-Trichloroethane	71-55-6	~~5000~~ 5		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane	79-34-5	~~200~~ 0.2		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane	79-00-5	~~1000~~ 1		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethane	75-34-3	~~5000~~ 5		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene	75-35-4	~~70~~ 0.07		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane	107-06-2	~~600~~ 0.6		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (Total)	540-59-0			ug/l	10	U	10	U	10	U	10	U	10	U	7.8	J
1,2-Dichloropropane	78-87-5	~~1000~~ 1		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone	78-93-3	~~50000~~ 50		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
2-Hexanone	591-78-6	~~50000~~ 50		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-Pentanone	108-10-1			ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Acetone	67-64-1	~~50000~~ 50		ug/l	20	U	20	U	20	U	20	U	20	U	20	U
Benzene	71-43-2	~~1000~~ 1	~~10000~~ 10	ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Bromodichloromethane	75-27-4	~~50000~~ 50		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Bromoform	75-25-2	~~50000~~ 50		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Bromomethane	74-83-9	~~5000~~ 5		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Carbon Disulfide	75-15-0	~~60000~~ 60		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride	56-23-5	~~400~~ 0.4		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Chlorobenzene	108-90-7	~~5000~~ 5	~~5000~~ 5	ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Chlorodibromomethane	124-48-1	~~50000~~ 50		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Chloroethane	75-00-3	~~5000~~ 5		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Chloroform	67-66-3	~~7000~~ 7		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Chloromethane	74-87-3	~~5000~~ 5		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Cis-1,2-Dichloroethene	156-59-2	~~5000~~ 5		ug/l	2.5	J	3.6	J	2	J	2.4	J	2.6	J	7.8	
Cis-1,3-Dichloropropene	10061-01-5			ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Dichloromethane	75-09-2	~~5000~~ 5	~~200000~~ 200	ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Ethylbenzene	100-41-4	~~17000~~ 5	~~17000~~ 17	ug/l	5	U	5	U	5	U	5	U	5	U	5	U
m,p-Xylene	179601-23-1	5		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
O-Xylene	95-47-6	~~5000~~ 5	~~65000~~	ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	100-42-5	~~5000~~ 5		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Tetrachloroethene	127-18-4	~~700~~ 0.7	~~1000~~ 1	ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Toluene	108-88-3	~~5000~~ 5	~~100000~~ 100	ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Trans-1,2-Dichloroethene	156-60-5	~~5000~~ 5		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Trans-1,3-Dichloropropene	10061-02-6			ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethylene	79-01-6	~~5000~~ 5	~~40000~~ 40	ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Chloride	75-01-4	~~300~~ 0.3		ug/l	5	U	5	U	5	U	5	U	5	U	5	U
Xylenes, Total	XYLENES		65	ug/l	10	U	10	U	10	U	10	U	10	U	10	U

Notes:
VALUE is non-detect.
VALUE exceeds NYS Surface Water Class A Criteria.
VALUE exceeds NYS Surface Water Class C Criteria.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

Table 5

Analyte	CAS Number	NYS Surface Water Class A	NYS Surface Water Class C	Units	BP-SW-18-20180517 / BP-SW-18 / 5/17/2018 Result	Qual	BP-SW-19-20180517 / BP-SW-19 / 5/17/2018 Result	Qual	CL-SW-21-20180521 / CL-SW-21 / 5/21/2018 Result	Qual	FC-SW-05-20180521 / FC-SW-05 / 5/21/2018 Result	Qual	FC-SW-08-20180521 / FC-SW-08 / 5/21/2018 Result	Qual	FC-SW-10-20180522 / FC-SW-10 / 5/22/2018 Result	Qual
SVOCs																
1-Chloronaphthalene	90-13-1			ug/l	2.5	U	2.4	U	2.4	U	2.4	U	2.4	U	2.4	U
Dichloronaphthalene	28699-88-9			ug/l	2.5	U	2.4	U	2.4	U	2.4	U	2.4	U	0.31	J
Heptachloronaphthalene	32241-08-0			ug/l	2.5	U	2.4	U	2.4	U	2.4	U	2.4	U	2.4	U
Hexachloronaphthalene	1335-87-1			ug/l	2.5	U	2.4	U	2.4	U	2.4	U	2.4	U	2.4	U
Octachloronaphthalene	2234-13-1			ug/l	2.5	U	2.4	U	2.4	U	2.4	U	2.4	U	2.4	U
Pentachloronaphthalene	1321-64-8			ug/l	2.5	U	2.4	U	2.4	U	2.4	U	2.4	U	2.4	U
Tetrachloronaphthalene	1335-88-2			ug/l	2.5	U	2.4	U	2.4	U	2.4	U	2.4	U	2.4	U
Trichloronaphthalene	1321-65-9			ug/l	2.5	U	2.4	U	2.4	U	2.4	U	2.4	U	2.4	U
Pesticides																
4,4'-DDD	72-54-8	~~0.011~~ 1.1E-5	~~0.011~~ 1.1E-5	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDE	72-55-9	~~0.007~~ 7E-6	~~0.007~~ 7E-6	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
4,4'-DDT	50-29-3	~~0.01~~ 1E-6	~~0.01~~ 1E-6	ug/l	0.05	U	0.05	UT	0.05	U	0.05	U	0.05	U	0.05	U
Aldrin	309-00-2	~~1~~ 0.001	~~1~~ 0.001	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Alpha-BHC	319-84-6	~~2~~ 0.002	~~2~~ 0.002	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.018	J
Alpha-Chlordane	5103-71-9			ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Beta-BHC	319-85-7	~~7~~ 0.007	~~7~~ 0.007	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Chlorinated Camphene	8001-35-2	~~0.006~~ 6E-6	~~0.006~~ 6E-6	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
Delta-Bhc	319-86-8	~~8~~ 0.008	~~8~~ 0.008	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Dieldrin	60-57-1	~~0.0006~~ 6E-7	~~0.0006~~ 6E-7	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Endosulfan I	959-98-8			ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Endosulfan II	33213-65-9			ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Endosulfan Sulfate	1031-07-8			ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Endrin	72-20-8	~~2~~ 0.002	~~2~~ 0.002	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Endrin Aldehyde	7421-93-4	~~5000~~ 5		ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Endrin Ketone	53494-70-5	~~5000~~ 5		ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Gamma-BHC (Lindane)	58-89-9	~~8~~ 0.008	~~8~~ 0.008	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Gamma-Chlordane	5103-74-2			ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor	76-44-8	~~0.2~~ 2E-4	~~0.2~~ 2E-4	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Heptachlor Epoxide	1024-57-3	~~0.3~~ 3E-4	~~0.3~~ 3E-4	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
Methoxychlor	72-43-5	~~30~~ 0.03	~~30~~ 0.03	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U
PFCs																
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9			ng/l	21	U	21	U	16	U	17	U	16	U	18	U
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6			ng/l	21	U	21	U	16	U	17	U	16	U	18	U
Perfluorobutanesulfonic Acid (PFBS)	375-73-5			ng/l	0.51	J	0.3	J	0.46	J	0.32	J	0.31	J	0.38	J
Perfluorobutyric Acid (PFBA)	375-22-4			ng/l	2.1	U	2.1	U	1.6	U	1.7	U	1.6	U	1.8	U
Perfluorodecane Sulfonic Acid	335-77-3			ng/l	2.1	U	2.1	U	1.6	U	1.7	U	1.6	U	1.8	U
Perfluorodecanoic Acid (PFDA)	335-76-2			ng/l	2.1	U	2.1	U	1.6	U	1.7	U	1.6	U	1.8	U
Perfluorododecanoic Acid (PFDoA)	307-55-1			ng/l	2.1	U	2.1	U	1.6	U	1.7	U	1.6	U	1.8	U
Perfluoroheptane Sulfonate (PFHpS)	375-92-8			ng/l	2.1	U	2.1	U	1.6	U	1.7	U	1.6	U	1.8	U
Perfluoroheptanoic Acid (PFHpA)	375-85-9			ng/l	2.1	U	2.1	U	0.21	J	1.7	U	1.6	U	0.37	J
Perfluorohexanesulfonic Acid	355-46-4			ng/l	2.1	U	2.1	U	1.6	U	1.7	U	1.6	U	1.8	U
Perfluorohexanoic Acid (PFHxA)	307-24-4			ng/l	2.1	U	2.1	U	1.6	U	1.7	U	1.6	U	1.8	U
Perfluorononanoic Acid (PFNA)	375-95-1			ng/l	2.1	U	2.1	U	1.6	U	1.7	U	1.6	U	1.8	U
Perfluorooctane Sulfonamide (FOSA)	754-91-6			ng/l	2.1	U	2.1	U	1.6	U	1.7	U	1.6	U	1.8	U
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1			ng/l	2.1	U	0.77	J	1.6	U	1.7	U	1.6	U	0.98	J
Perfluorooctanoic acid (PFOA)	335-67-1			ng/l	2.1	U	2.1	U	1.1	J	1.3	J	1.6	U	2.5	
Perfluoropentanoic Acid (PFPeA)	2706-90-3			ng/l	2.1	U	2.1	U	0.46	J	1.7	U	1.6	U	0.51	J
Perfluorotetradecanoic Acid (PFTeA)	376-06-7			ng/l	2.1	U	2.1	U	1.6	U	1.7	U	1.6	U	1.8	U
Perfluorotridcanoic Acid (PFTriA)	72629-94-8			ng/l	2.1	U	2.1	U	1.6	U	1.7	U	1.6	U	1.8	U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8			ng/l	2.1	U	2.1	U	1.6	U	1.7	U	1.6	U	1.8	U
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4			ng/l	21	U	21	U	16	U	17	U	16	U	18	U
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2			ng/l	21	U	21	U	16	U	17	U	16	U	18	U

Notes:
VALUE is non-detect.
VALUE exceeds NYS Surface Water Class A Criteria.
VALUE exceeds NYS Surface Water Class C Criteria.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

				Sample: Location: Sample Date:	FC-SW-DUP-01-20180522 FC-SW-10 5/22/2018		MP-SW-15-20180515 MP-SW-15 5/15/2018		MP-SW-16-20180515 MP-SW-16 5/15/2018		MP-SW-17-20180515 MP-SW-17 5/15/2018		UNST-SW-06-20180521 UNST-SW-06 5/21/2018	
Analyte	**CAS Number**	**NYS Surface Water Class A**	**NYS Surface Water Class C**	**Units**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Inorganics														
Aluminum	7429-90-5	~~100~~ 0.1	~~100~~ 0.1	mg/l	0.096	J	*0.2*	*U*	*0.2*	*U*	*0.2*	*U*	0.052	J
Antimony	7440-36-0	~~3~~ 0.003		mg/l	*0.01*	*U*	*0.01*	*U*	*0.01*	*U*	*0.01*	*U*	*0.01*	*U*
Arsenic	7440-38-2	~~50~~ 0.05	~~150~~ 0.15	mg/l	*0.01*	*U*	*0.01*	*U*	*0.01*	*U*	*0.01*	*U*	*0.01*	*U*
Barium	7440-39-3	~~1000~~ 1		mg/l	0.092	J	0.081	J	0.083	J	0.084	J	0.082	J
Beryllium	7440-41-7	~~3~~ 0.003	~~11~~ 0.011	mg/l	*0.004*	*U*	*0.004*	*U*	*0.004*	*U*	*0.004*	*U*	*0.004*	*U*
Cadmium	7440-43-9	~~5~~		mg/l	*0.005*	*U*	*0.005*	*U*	*0.005*	*U*	*0.005*	*U*	*0.005*	*U*
Calcium	7440-70-2			mg/l	127		140		143		144		140	
Chromium, Total	7440-47-3	~~50~~ 0.05		mg/l	*0.005*	*U*	*0.005*	*U*	*0.005*	*U*	*0.005*	*U*	*0.005*	*U*
Cobalt	7440-48-4	~~5~~ 0.005	~~5~~ 0.005	mg/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Copper	7440-50-8	~~200~~ 0.2		mg/l	*0.025*	*U*	*0.025*	*U*	*0.025*	*U*	*0.025*	*U*	*0.025*	*U*
Iron	7439-89-6	~~300~~ 0.3		mg/l	0.37		*0.1*	*U*	*0.1*	*U*	0.32		0.098	J
Lead	7439-92-1	~~50~~ 0.05		mg/l	*0.01*	*U*	*0.01*	*U*	*0.01*	*U*	*0.01*	*U*	*0.01*	*U*
Magnesium	7439-95-4	~~35000~~ 35		mg/l	31.1		31.8		32.5		32.5		32	
Manganese	7439-96-5	~~300~~ 0.3		mg/l	0.11		*0.015*	*U*	*0.015*	*U*	*0.015*	*U*	0.016	
Mercury	7439-97-6	~~0.0007~~ 7E-7	~~0.0007~~ 7E-7	mg/l	*0.0002*	*U*	*0.0002*	*U*	*0.0002*	*U*	*0.0002*	*U*	*0.0002*	*U*
Nickel	7440-02-0	~~100~~ 0.1		mg/l	*0.04*	*U*	0.0019	J	0.0015	J	0.0015	J	*0.04*	*U*
Potassium	7440-09-7			mg/l	2.6	J	2.7	J	2.8	J	2.8	J	2.7	J
Selenium	7782-49-2	~~4.6~~ 0.0046	~~4.6~~ 0.0046	mg/l	*0.01*	*U*	*0.01*	*U*	*0.01*	*U*	0.0043	J	*0.01*	*U*
Silver	7440-22-4	~~0.1~~ 0.0001	~~0.1~~ 0.0001	mg/l	*0.005*	*U*	*0.005*	*U*	*0.005*	*U*	*0.005*	*U*	*0.005*	*U*
Sodium	7440-23-5			mg/l	56		48.8		49.6		49.9		51.4	
Thallium	7440-28-0	~~0.5~~ 0.0005	~~8~~ 0.008	mg/l	*0.02*	*U*	*0.02*	*U*	*0.02*	*U*	*0.02*	*U*	*0.02*	*U*
Vanadium	7440-62-2	~~14~~ 0.014	~~14~~ 0.014	mg/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Zinc	7440-66-6	~~2000~~ 2		mg/l	*0.02*	*U*	*0.02*	*U*	*0.02*	*U*	0.02		*0.02*	*U*
VOCs														
1,1,1-Trichloroethane	71-55-6	~~5000~~ 5		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
1,1,2,2-Tetrachloroethane	79-34-5	~~200~~ 0.2		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
1,1,2-Trichloroethane	79-00-5	~~1000~~ 1		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
1,1-Dichloroethane	75-34-3	~~5000~~ 5		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
1,1-Dichloroethene	75-35-4	~~70~~ 0.07		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
1,2-Dichloroethane	107-06-2	~~600~~ 0.6		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
1,2-Dichloroethene (Total)	540-59-0			ug/l	7.5	J	7.4	J	7.3	J	6.5	J	*10*	*U*
1,2-Dichloropropane	78-87-5	~~1000~~ 1		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
2-Butanone	78-93-3	~~50000~~ 50		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
2-Hexanone	591-78-6	~~50000~~ 50		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
4-Methyl-2-Pentanone	108-10-1			ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Acetone	67-64-1	~~50000~~ 50		ug/l	*20*	*U*	*20*	*U*	*20*	*U*	*20*	*U*	*20*	*U*
Benzene	71-43-2	~~1000~~ 1	~~10000~~ 10	ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Bromodichloromethane	75-27-4	~~50000~~ 50		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Bromoform	75-25-2	~~50000~~ 50		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Bromomethane	74-83-9	~~5000~~ 5		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Carbon Disulfide	75-15-0	~~60000~~ 60		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Carbon Tetrachloride	56-23-5	~~400~~ 0.4		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Chlorobenzene	108-90-7	~~5000~~ 5	~~5000~~ 5	ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Chlorodibromomethane	124-48-1	~~50000~~ 50		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Chloroethane	75-00-3	~~5000~~ 5		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Chloroform	67-66-3	~~7000~~ 7		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Chloromethane	74-87-3	~~5000~~ 5		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Cis-1,2-Dichloroethene	156-59-2	~~5000~~ 5		ug/l	7.5		7.4		7.3		6.5		*5*	*U*
Cis-1,3-Dichloropropene	10061-01-5			ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Dichloromethane	75-09-2	~~5000~~ 5	~~200000~~ 200	ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Ethylbenzene	100-41-4	~~17000~~ 5	~~17000~~ 17	ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
m,p-Xylene	179601-23-1	5		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
O-Xylene	95-47-6	~~5000~~ 5	~~65000~~	ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Styrene	100-42-5	~~5000~~ 5		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Tetrachloroethene	127-18-4	~~700~~ 0.7	~~1000~~ 1	ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Toluene	108-88-3	~~5000~~ 5	~~100000~~ 100	ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Trans-1,2-Dichloroethene	156-60-5	~~5000~~ 5		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Trans-1,3-Dichloropropene	10061-02-6			ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Trichloroethylene	79-01-6	~~5000~~ 5	~~40000~~ 40	ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Vinyl Chloride	75-01-4	~~300~~ 0.3		ug/l	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
Xylenes, Total	XYLENES		65	ug/l	*10*	*U*	*10*	*U*	*10*	*U*	*10*	*U*	*10*	*U*

Notes:

VALUE is non-detect.
VALUE exceeds NYS Surface Water Class A Criteria.
VALUE exceeds NYS Surface Water Class C Criteria.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

Analyte	CAS Number	NYS Surface Water Class A	NYS Surface Water Class C	Units	Sample: FC-SW-DUP-01-20180522 Location: FC-SW-10 Sample Date: 5/22/2018 Result	Qual	Sample: MP-SW-15-20180515 Location: MP-SW-15 Sample Date: 5/15/2018 Result	Qual	Sample: MP-SW-16-20180515 Location: MP-SW-16 Sample Date: 5/15/2018 Result	Qual	Sample: MP-SW-17-20180515 Location: MP-SW-17 Sample Date: 5/15/2018 Result	Qual	Sample: UNST-SW-06-20180521 Location: UNST-SW-06 Sample Date: 5/21/2018 Result	Qual
SVOCs														
1-Chloronaphthalene	90-13-1			ug/l	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*
Dichloronaphthalene	28699-88-9			ug/l	0.32	J	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*
Heptachloronaphthalene	32241-08-0			ug/l	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*
Hexachloronaphthalene	1335-87-1			ug/l	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*
Octachloronaphthalene	2234-13-1			ug/l	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*
Pentachloronaphthalene	1321-64-8			ug/l	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*
Tetrachloronaphthalene	1335-88-2			ug/l	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*
Trichloronaphthalene	1321-65-9			ug/l	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*
Pesticides														
4,4'-DDD	72-54-8	~~0.011~~ 1.1E-5	~~0.011~~ 1.1E-5	ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
4,4'-DDE	72-55-9	~~0.007~~ 7E-6	~~0.007~~ 7E-6	ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
4,4'-DDT	50-29-3	~~0.01~~ 1E-6	~~0.01~~ 1E-6	ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Aldrin	309-00-2	~~1~~ 0.001	~~1~~ 0.001	ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Alpha-BHC	319-84-6	~~2~~ 0.002	~~2~~ 0.002	ug/l	0.02	J	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Alpha-Chlordane	5103-71-9			ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Beta-BHC	319-85-7	~~7~~ 0.007	~~7~~ 0.007	ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Chlorinated Camphene	8001-35-2	~~0.006~~ 6E-6	~~0.006~~ 6E-6	ug/l	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*	*0.5*	*U*
Delta-Bhc	319-86-8	~~8~~ 0.008	~~8~~ 0.008	ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	0.011	BJ
Dieldrin	60-57-1	~~0.0006~~ 6E-7	~~0.0006~~ 6E-7	ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Endosulfan I	959-98-8			ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Endosulfan II	33213-65-9			ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Endosulfan Sulfate	1031-07-8			ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Endrin	72-20-8	~~2~~ 0.002	~~2~~ 0.002	ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Endrin Aldehyde	7421-93-4	~~5000~~ 5		ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Endrin Ketone	53494-70-5	~~5000~~ 5		ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Gamma-BHC (Lindane)	58-89-9	~~8~~ 0.008	~~8~~ 0.008	ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Gamma-Chlordane	5103-74-2			ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Heptachlor	76-44-8	~~0.2~~ 2E-4	~~0.2~~ 2E-4	ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Heptachlor Epoxide	1024-57-3	~~0.3~~ 3E-4	~~0.3~~ 3E-4	ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
Methoxychlor	72-43-5	~~30~~ 0.03	~~30~~ 0.03	ug/l	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*	*0.05*	*U*
PFCs														
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9			ng/l	*18*	*U*	*21*	*U*	*20*	*U*	*20*	*U*	*17*	*U*
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6			ng/l	*18*	*U*	*21*	*U*	*20*	*U*	*20*	*U*	*17*	*U*
Perfluorobutanesulfonic Acid (PFBS)	375-73-5			ng/l	0.34	J	0.22	J	0.23	J	0.23	J	0.34	J
Perfluorobutyric Acid (PFBA)	375-22-4			ng/l	*1.8*	*U*	*2.1*	*U*	*2*	*U*	*2*	*U*	*1.7*	*U*
Perfluorodecane Sulfonic Acid	335-77-3			ng/l	*1.8*	*U*	*2.1*	*U*	*2*	*U*	*2*	*U*	*1.7*	*U*
Perfluorodecanoic Acid (PFDA)	335-76-2			ng/l	*1.8*	*U*	*2.1*	*U*	*2*	*U*	*2*	*U*	*1.7*	*U*
Perfluorododecanoic Acid (PFDoA)	307-55-1			ng/l	*1.8*	*U*	*2.1*	*U*	*2*	*U*	*2*	*U*	*1.7*	*U*
Perfluoroheptane Sulfonate (PFHpS)	375-92-8			ng/l	*1.8*	*U*	*2.1*	*U*	*2*	*U*	*2*	*U*	*1.7*	*U*
Perfluoroheptanoic Acid (PFHpA)	375-85-9			ng/l	0.25	J	*2.1*	*U*	*2*	*U*	*2*	*U*	*1.7*	*U*
Perfluorohexanesulfonic Acid	355-46-4			ng/l	*1.8*	*U*	*2.1*	*U*	*2*	*U*	*2*	*U*	*1.7*	*U*
Perfluorohexanoic Acid (PFHxA)	307-24-4			ng/l	*1.8*	*U*	*2.1*	*U*	*2*	*U*	*2*	*U*	*1.7*	*U*
Perfluorononanoic Acid (PFNA)	375-95-1			ng/l	0.25	J	*2.1*	*U*	*2*	*U*	*2*	*U*	*1.7*	*U*
Perfluorooctane Sulfonamide (FOSA)	754-91-6			ng/l	*1.8*	*U*	*2.1*	*U*	*2*	*U*	0.98	J	*1.7*	*U*
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1			ng/l	0.97	J	*2.1*	*U*	*2*	*U*	*2*	*U*	*1.7*	*U*
Perfluorooctanoic acid (PFOA)	335-67-1			ng/l	2.5		*2.1*	*U*	*2*	*U*	*2*	*U*	*1.7*	*U*
Perfluoropentanoic Acid (PFPeA)	2706-90-3			ng/l	0.54	J	*2.1*	*U*	*2*	*U*	*2*	*U*	*1.7*	*U*
Perfluorotetradecanoic Acid (PFTeA)	376-06-7			ng/l	*1.8*	*U*	*2.1*	*U*	*2*	*U*	*2*	*U*	*1.7*	*U*
Perfluorotridcanoic Acid (PFTriA)	72629-94-8			ng/l	*1.8*	*U*	*2.1*	*U*	*2*	*U*	*2*	*U*	*1.7*	*U*
Perfluoroundecanoic Acid (PFUnA)	2058-94-8			ng/l	*1.8*	*U*	*2.1*	*U*	*2*	*U*	*2*	*U*	*1.7*	*U*
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4			ng/l	*18*	*U*	*21*	*U*	*20*	*U*	*20*	*U*	*17*	*U*
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2			ng/l	*18*	*U*	*21*	*U*	*20*	*U*	*20*	*U*	*17*	*U*

Notes:
VALUE is non-detect.
VALUE exceeds NYS Surface Water Class A Criteria.
VALUE exceeds NYS Surface Water Class C Criteria.
VALUE is non-detect but the reporting limit exceeds one or more of the criteria.

Sample:				MW-10D-20180925		MW-10D-20191125		MW-10S-20180925		MW-10S-20191126		MW-99-20191126		MW-1S-20180927		MW-2S-20180927		MW-300-20180928		MW-3D-20180928	
Location:				MW-10D		MW-10D		MW-10S		MW-10S		MW-10S		MW-1S		MW-2S		MW-300		MW-3D	
Sample Date:				9/25/2018		11/25/2019		9/25/2018		11/26/2019		11/26/2019		9/27/2018		9/27/2018		9/28/2018		9/28/2018	
Start Depth (ft):				24		24		16		16		16		12		12		20		30	
End Depth (ft):				24		24		16		16		16		12		12		20		30	
Analyte	CAS Number	NYS Ground Water Class GA	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Inorganics																					
Aluminum	7429-90-5		mg/l	0.2	U			0.062	J					0.33		0.21				0.15	J
Antimony	7440-36-0	0.003	mg/l	0.02	U			0.02	U					0.02	U	0.02	U			0.02	U
Arsenic	7440-38-2	0.025	mg/l	0.0062	J			0.011	J					0.015	U	0.015	U			0.0056	J
Barium	7440-39-3	1	mg/l	0.017				0.031						0.16		0.18				0.015	
Beryllium	7440-41-7	0.003	mg/l	0.002	U			0.002	U					0.002	U	0.002	U			0.002	U
Cadmium	7440-43-9	0.005	mg/l	0.002	U			0.002	U					0.002	U	0.002	U			0.002	U
Calcium	7440-70-2		mg/l	517				328						100		143				324	
Chromium, Total	7440-47-3	0.05	mg/l	0.004	U			0.004	U					0.004	U	0.004	U			0.004	U
Cobalt	7440-48-4		mg/l	0.00074	J			0.0016	J					0.0014	J	0.004	U			0.004	U
Copper	7440-50-8	0.2	mg/l	0.01	U			0.005	J					0.0049	J	0.0068	J			0.01	U
Iron	7439-89-6	0.3	mg/l	**2.3**				**5.4**						**0.48**		**0.83**				**2.2**	
Lead	7439-92-1	0.025	mg/l	0.01	U			0.01	U					0.01	U	0.01	U			0.01	U
Magnesium	7439-95-4	35	mg/l	**107**				**74.5**						**70.1**		**43**				**77.8**	
Manganese	7439-96-5	0.3	mg/l	0.098				0.27						0.19		0.038				0.087	B
Mercury	7439-97-6	0.0007	mg/l	0.0002	U			0.0002	U					0.0002	U	0.0002	U			0.0002	U
Nickel	7440-02-0	0.1	mg/l	0.01	U			0.0023	J					0.0015	J	0.01	U			0.01	U
Potassium	7440-09-7		mg/l	6.3				7.1						5.5		2.5				3.9	
Selenium	7782-49-2	0.01	mg/l	0.025	U			0.025	U					0.025	U	0.025	U			0.025	U
Silver	7440-22-4	0.05	mg/l	0.006	U			0.006	U					0.006	U	0.006	U			0.006	U
Sodium	7440-23-5	20	mg/l	**247**				**335**						17.1		**52.4**				**165**	
Thallium	7440-28-0	0.0005	mg/l	0.02	U			0.02	U					0.02	U	0.02	U			0.02	U
Vanadium	7440-62-2		mg/l	0.005	U			0.005	U					0.005	U	0.005	U			0.005	U
Zinc	7440-66-6	2	mg/l	0.0063	BJ			0.0072	BJ					0.0067	BJ	0.019	B			0.0052	BJ
VOCs																					
1,1,1-Trichloroethane	71-55-6	5	ug/l	1	UT	1	U	2	U	1	U	1	U	1	U	1	U			1	U
1,1,2,2-Tetrachloroethane	79-34-5	5	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
1,1,2-Trichloroethane	79-00-5	1	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
1,1-Dichloroethane	75-34-3	5	ug/l	1	UT	1	U	2	U	1	U	1	U	1	U	1	U			1	U
1,1-Dichloroethene	75-35-4	5	ug/l	1	UT	1	U	2	U	1	U	0.48	J	1	U	1	U			1	U
1,2,4-Trichlorobenzene	120-82-1	5	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	0.04	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
1,2-Dibromoethane (Ethylene dibromide)	106-93-4	0.0006	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
1,2-Dichlorobenzene	95-50-1	3	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
1,2-Dichloroethane	107-06-2	0.6	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
1,2-Dichloropropane	78-87-5	1	ug/l	1	UT	1	U	2	U	1	U	1	U	1	U	1	U			1	U
1,3-Dichlorobenzene	541-73-1	3	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
1,4-Dichlorobenzene	106-46-7	3	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
2-Butanone	78-93-3	50	ug/l	10	U	10	U	20	U	10	U	10	U	10	U	10	U			10	U
2-Hexanone	591-78-6	50	ug/l	5	U	5	U	10	U	5	U	5	U	5	U	5	U			5	U
4-Methyl-2-Pentanone	108-10-1		ug/l	5	U	5	U	10	U	5	U	5	U	5	U	5	U			5	U
Acetone	67-64-1	50	ug/l	10	U	10	U	20	U	10	U	10	U	10	U	10	U			10	U
Benzene	71-43-2	1	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Bromodichloromethane	75-27-4	50	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Bromoform	75-25-2	50	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Bromomethane	74-83-9	5	ug/l	1	UT	1	UJ	2	U	1	U	1	U	1	U	1	U			1	U
Carbon Disulfide	75-15-0	60	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Carbon Tetrachloride	56-23-5	5	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Chlorobenzene	108-90-7	5	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Chlorodibromomethane	124-48-1	50	ug/l	1	UT	1	U	2	U	1	U	1	U	1	UT	1	UT			1	U
Chloroethane	75-00-3	5	ug/l	1	U	1	U	2	U	1	UT	1	UT	1	U	1	U			1	U
Chloroform	67-66-3	7	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Chloromethane	74-87-3	5	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Cis-1,2-Dichloroethene	156-59-2	5	ug/l	1	UT	1	U	**130**		**98**		**97**		1	U	1	U			1	U
Cis-1,3-Dichloropropene	10061-01-5		ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Cyclohexane	110-82-7		ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Dichlorodifluoromethane	75-71-8	5	ug/l	1	U	1	UJ	2	U	1	U	1	U	1	U	1	U			1	U
Dichloromethane	75-09-2	5	ug/l	1	UT	1	U	1.1	J	1	U	1	U	1	U	1	U			1	U
Ethylbenzene	100-41-4	5	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Freon 113	76-13-1	5	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Isopropyl benzene	98-82-8	5	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Methyl acetate	79-20-9		ug/l	2.5	U	2.5	U	5	U	2.5	U	2.5	U	2.5	U	2.5	U			2.5	U
Methyl T-Butyl Ether (MTBE)	1634-04-4	10	ug/l	1	UT	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Methylcyclohexane	108-87-2		ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Styrene	100-42-5	5	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Tetrachloroethene	127-18-4	5	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Toluene	108-88-3	5	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Total Xylenes	1330-20-7	5	ug/l			2	U			2	U	2	U								
Trans-1,2-Dichloroethene	156-60-5	5	ug/l	1	U	1	U	2	U	0.93	J	1	U	1	U	1	U			1	U
Trans-1,3-Dichloropropene	10061-02-6		ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Trichloroethylene	79-01-6	5	ug/l	1	U	1	U	2.7		4.7		4.7		1	U	1	U			1	U
Trichlorofluoromethane	75-69-4	5	ug/l	1	U	1	U	2	U	1	U	1	U	1	U	1	U			1	U
Vinyl Chloride	75-01-4	2	ug/l	1	U	1	UJ	2	U	1	U	1	U	1	U	1	U			1	U
Xylenes, Total	XYLENES		ug/l	2	U			4	U					2	U	2	U			2	U

Notes:
VALUE is non-detect.
VALUE exceeds NYS 703.5 TOGS Class GA Criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

			Sample:	MW-10D-20180925		MW-10D-20191125		MW-10S-20180925		MW-10S-20191126		MW-99-20191126		MW-1S-20180927		MW-2S-20180927		MW-300-20180928		MW-3D-20180928	
			Location:	MW-10D		MW-10D		MW-10S		MW-10S		MW-10S		MW-1S		MW-2S		MW-300		MW-3D	
			Sample Date:	9/25/2018		11/25/2019		9/25/2018		11/26/2019		11/26/2019		9/27/2018		9/27/2018		9/28/2018		9/28/2018	
			Start Depth (ft):	24		24		16		16		16		12		12		20		30	
			End Depth (ft):	24		24		16		16		16		12		12		20		30	
Analyte	CAS Number	NYS Ground Water Class GA	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
SVOCs																					
1,1-Biphenyl	92-52-4	5	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
1,4-Dioxane	123-91-1	1	ug/l	*0.19*	*U*			*0.2*	*U*					*0.2*	*U*	*0.2*	*U*	*0.19*	*U*	*0.19*	*U*
1-Chloronaphthalene	90-13-1		ug/l	*2.4*	*UT*			*2.4*	*U*					*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*
2,4,5-Trichlorophenol	95-95-4		ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
2,4,6-Trichlorophenol	88-06-2		ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
2,4-Dichlorophenol	120-83-2	1	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
2,4-Dimethylphenol	105-67-9	50	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
2,4-Dinitrophenol	51-28-5	10	ug/l	*10*	*U*			*10*	*U*					*10*	*U*	*10*	*U*			*10*	*U*
2,4-Dinitrotoluene	121-14-2	5	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
2,6-Dinitrotoluene	606-20-2	5	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
2-Chloronaphthalene	91-58-7	10	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
2-Chlorophenol	95-57-8		ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
2-Methylnaphthalene	91-57-6		ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
2-Methylphenol	95-48-7		ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
2-Nitroaniline	88-74-4	5	ug/l	*10*	*U*			*10*	*U*					*10*	*U*	*10*	*U*			*10*	*U*
2-Nitrophenol	88-75-5		ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
3,3`-Dichlorobenzidine	91-94-1	5	ug/l	*5*	*UT*			*5*	*UT*					*5*	*UT*	*5*	*UT*			*5*	*UT*
3-Nitroaniline	99-09-2	5	ug/l	*10*	*U*			*10*	*U*					*10*	*U*	*10*	*U*			*10*	*U*
4,6-Dinitro-2-Methylphenol	534-52-1		ug/l	*10*	*U*			*10*	*U*					*10*	*U*	*10*	*U*			*10*	*U*
4-Bromophenyl Phenyl Ether	101-55-3		ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
4-Chloro-3-Methylphenol	59-50-7		ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
4-Chloroaniline	106-47-8	5	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
4-Chlorophenyl Phenylether	7005-72-3		ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
4-Methylphenol	106-44-5		ug/l	*10*	*U*			*10*	*U*					*10*	*U*	*10*	*U*			*10*	*U*
4-Nitroaniline	100-01-6	5	ug/l	*10*	*U*			*10*	*U*					*10*	*UT*	*10*	*UT*			*10*	*UT*
4-Nitrophenol	100-02-7		ug/l	*10*	*U*			*10*	*U*					*10*	*U*	*10*	*U*			*10*	*U*
Acenaphthene	83-32-9	20	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Acenaphthylene	208-96-8		ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Acetophenone	98-86-2		ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Anthracene	120-12-7	50	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Atrazine	1912-24-9	7.5	ug/l	*5*	*U*			*5*	*U*					*5*	*UT*	*5*	*UT*			*5*	*UT*
Benzaldehyde	100-52-7		ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Benzo(A)Anthracene	56-55-3	0.002	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Benzo(A)Pyrene	50-32-8	0	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Benzo(B)Fluoranthene	205-99-2	0.002	ug/l	*5*	*UT*			*5*	*U*					*5*	*UT*	*5*	*UT*			*5*	*UT*
Benzo(G,H,I)Perylene	191-24-2		ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Benzo(K)Fluoranthene	207-08-9	0.002	ug/l	*5*	*U*			*5*	*U*					*5*	*UT*	*5*	*UT*			*5*	*UT*
Bis(2-Chloroethoxy) Methane	111-91-1	5	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Bis(2-Chloroethyl) Ether	111-44-4	1	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Bis(2-Ethylhexyl) Phthalate	117-81-7	5	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Bis-Chloroisopropyl Ether	108-60-1	5	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Butyl Benzyl Phthalate	85-68-7	50	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Caprolactam	105-60-2		ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Carbazole	86-74-8		ug/l	*5*	*UT*			*5*	*UT*					*5*	*UT*	*5*	*UT*			*5*	*UT*
Chrysene	218-01-9	0.002	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Dibenzo(A,H)Anthracene	53-70-3		ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Dibenzofuran	132-64-9		ug/l	*10*	*U*			*10*	*U*					*10*	*U*	*10*	*U*			*10*	*U*
Dichloronaphthalene	28699-88-9		ug/l	*2.4*	*UT*			*2.4*	*U*					*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*
Diethylphthalate	84-66-2	50	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Dimethylphthalate	131-11-3	50	ug/l	*5*	*U*			*5*	*U*					*5*	*UT*	*5*	*UT*			*5*	*UT*
Di-N-Butylphthalate	84-74-2	50	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Di-N-Octyl Phthalate	117-84-0		ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Fluoranthene	206-44-0	50	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Fluorene	86-73-7	50	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Heptachloronaphthalene	32241-08-0		ug/l	*2.4*	*U*			*2.4*	*U*					*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*
Hexachlorobenzene	118-74-1	0.04	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Hexachlorobutadiene	87-68-3	0.5	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Hexachlorocyclopentadiene	77-47-4	5	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Hexachloroethane	67-72-1	5	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Hexachloronaphthalene	1335-87-1		ug/l	*2.4*	*U*			*2.4*	*U*					*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*
Indeno(1,2,3-Cd)Pyrene	193-39-5	0.002	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Isophorone	78-59-1	50	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Naphthalene	91-20-3	10	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Nitrobenzene	98-95-3	0.4	ug/l	*5*	*UT*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
N-Nitroso-Di-N-Propylamine	621-64-7		ug/l	*5*	*UT*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
N-Nitrosodiphenylamine	86-30-6	50	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Octachloronaphthalene	2234-13-1		ug/l	*2.4*	*UT*			*2.4*	*U*					*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*
Pentachloronaphthalene	1321-64-8		ug/l	*2.4*	*U*			*2.4*	*U*					*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*
Pentachlorophenol	87-86-5	1	ug/l	*10*	*U*			*10*	*U*					*10*	*U*	*10*	*U*			*10*	*U*
Phenanthrene	85-01-8	50	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Phenol	108-95-2	1	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Pyrene	129-00-0	50	ug/l	*5*	*U*			*5*	*U*					*5*	*U*	*5*	*U*			*5*	*U*
Tetrachloronaphthalene	1335-88-2		ug/l	*2.4*	*U*			*2.4*	*U*					*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*
Trichloronaphthalene	1321-65-9		ug/l	*2.4*	*U*			*2.4*	*U*					*2.4*	*U*	*2.4*	*U*	*2.4*	*U*	*2.4*	*U*

Notes:
VALUE is non-detect.
VALUE exceeds NYS 703.5 TOGS Class GA Criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

			Sample:	MW-10D-20180925		MW-10D-20191125		MW-10S-20180925		MW-10S-20191126		MW-99-20191126		MW-1S-20180927		MW-2S-20180927		MW-300-20180928		MW-3D-20180928	
			Location:	MW-10D		MW-10D		MW-10S		MW-10S		MW-10S		MW-1S		MW-2S		MW-300		MW-3D	
			Sample Date:	9/25/2018		11/25/2019		9/25/2018		11/26/2019		11/26/2019		9/27/2018		9/27/2018		9/28/2018		9/28/2018	
			Start Depth (ft):	24		24		16		16		16		12		12		20		30	
			End Depth (ft):	24		24		16		16		16		12		12		20		30	
Analyte	CAS Number	NYS Ground Water Class GA	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Pesticides																					
4,4'-DDD	72-54-8	0.3	ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
4,4'-DDE	72-55-9	0.2	ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
4,4'-DDT	50-29-3	0.2	ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
Aldrin	309-00-2	0	ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
Alpha-BHC	319-84-6	0.01	ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
Alpha-Chlordane	5103-71-9		ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
Beta-BHC	319-85-7	0.04	ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
Chlorinated Camphene	8001-35-2	0.06	ug/l	0.5	U			0.5	U					0.5	U	0.5	U	0.54	U	0.5	U
Delta-Bhc	319-86-8	0.04	ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
Dieldrin	60-57-1	0.004	ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
Endosulfan I	959-98-8		ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
Endosulfan II	33213-65-9		ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
Endosulfan Sulfate	1031-07-8		ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
Endrin	72-20-8	0	ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
Endrin Aldehyde	7421-93-4	5	ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
Endrin Ketone	53494-70-5	5	ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
Gamma-BHC (Lindane)	58-89-9	0.05	ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
Gamma-Chlordane	5103-74-2		ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
Heptachlor	76-44-8	0.04	ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
Heptachlor Epoxide	1024-57-3	0.03	ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
Methoxychlor	72-43-5	35	ug/l	0.05	U			0.05	U					0.05	U	0.05	U	0.054	U	0.05	U
PFCs																					
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9		ng/l	17	U			16	U					18	U	17	U	17	U	17	U
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6		ng/l	17	U			16	U					18	U	17	U	17	U	17	U
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	100	ng/l	1.7	U			1.6	U					1.8	U	1.7	U	1.7	U	1.7	U
Perfluorobutyric Acid (PFBA)	375-22-4	100	ng/l	1.7	U			3.5						1.8	U	0.45	J	1.7	U	0.6	J
Perfluorodecane Sulfonic Acid	335-77-3	100	ng/l	1.7	U			1.6	U					1.8	U	1.7	U	1.7	U	1.7	U
Perfluorodecanoic Acid (PFDA)	335-76-2	100	ng/l	1.7	U			1.6	U					1.8	U	1.7	U	1.7	U	1.7	U
Perfluorododecanoic Acid (PFDoA)	307-55-1	100	ng/l	1.7	U			1.6	U					1.8	U	1.7	U	1.7	U	1.7	U
Perfluoroheptane Sulfonate (PFHpS)	375-92-8	100	ng/l	1.7	U			1.6	U					1.8	U	1.7	U	1.7	U	1.7	U
Perfluoroheptanoic Acid (PFHpA)	375-85-9	100	ng/l	1.7	U			1.6	U					1.8	U	1.7	U	1.7	U	1.7	U
Perfluorohexanesulfonic Acid	355-46-4	100	ng/l	1.7	U			1.6	U					1.8	U	1.7	U	1.7	U	1.7	U
Perfluorohexanoic Acid (PFHxA)	307-24-4	100	ng/l	1.7	U			1.6	U					1.8	U	1.7	U	1.7	U	1.7	U
Perfluorononanoic Acid (PFNA)	375-95-1	100	ng/l	1.7	U			1.6	U					1.8	U	1.7	U	1.7	U	1.7	U
Perfluorooctane Sulfonamide (FOSA)	754-91-6		ng/l	1.7	U			1.6	U					1.8	U	1.7	U	1.7	U	1.7	U
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1	10	ng/l	1.7	U			1.6	U					1.8	U	1.7	U	1.7	U	1.7	U
Perfluorooctanoic acid (PFOA)	335-67-1	10	ng/l	1.7	U			1.6	U					1.8	U	1.7	U	1.7	U	1.7	U
Perfluoropentanoic Acid (PFPeA)	2706-90-3	100	ng/l	1.7	U			1.6	U					1.8	U	1.7	U	1.7	U	1.7	U
Perfluorotetradecanoic Acid (PFTeA)	376-06-7	100	ng/l	1.7	U			1.6	U					1.8	U	1.7	U	1.7	U	1.7	U
Perfluorotridcanoic Acid (PFTriA)	72629-94-8	100	ng/l	1.7	U			1.6	U					1.8	U	1.7	U	1.7	U	1.7	U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	100	ng/l	1.7	U			1.6	U					1.8	U	1.7	U	1.7	U	1.7	U
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4		ng/l	17	U			16	U					18	U	17	U	17	U	17	U
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2		ng/l	17	U			16	U					18	U	17	U	17	U	17	U

Notes:
VALUE is non-detect.
VALUE exceeds NYS 703.5 TOGS Class GA Criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

			Sample:	MW-D-20180928		MW-4S-20181002		MW-5D-20181001		MW-5S-20181001		MW-6D-20180924		MW-06S-20191125		MW-6S-20180927		MW-7D-20180927		MW-07S-20191125	
			Location:	MW-3D		MW-4S		MW-5D		MW-5S		MW-6D		MW-6S		MW-6S		MW-7D		MW-7S	
			Sample Date:	9/28/2018		10/2/2018		10/1/2018		10/1/2018		9/24/2018		11/25/2019		9/27/2018		9/27/2018		11/25/2019	
			Start Depth (ft):	30		20		30		19		23		15		15		20		13	
			End Depth (ft):	30		20		30		19		23		15		15		20		13	
Analyte	**CAS Number**	**NYS Ground Water Class GA**	**Units**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Inorganics																					
Aluminum	7429-90-5		mg/l	0.17	J							2.1				0.2	U	0.063	J		
Antimony	7440-36-0	0.003	mg/l	0.02	U							0.02	U			0.02	U	0.02	U		
Arsenic	7440-38-2	0.025	mg/l	0.015	U							0.015	U			0.015	U	0.006	J		
Barium	7440-39-3	1	mg/l	0.016								0.027				0.038		0.016			
Beryllium	7440-41-7	0.003	mg/l	0.002	U							0.002	U			0.002	U	0.002	U		
Cadmium	7440-43-9	0.005	mg/l	0.002	U							0.002	U			0.00065	J	0.00062	J		
Calcium	7440-70-2		mg/l	344								495				530		518			
Chromium, Total	7440-47-3	0.05	mg/l	0.004	U							0.0034	J			0.004	U	0.004	U		
Cobalt	7440-48-4		mg/l	0.004	U							0.002	J			0.0012	J	0.004	U		
Copper	7440-50-8	0.2	mg/l	0.01	U							0.01	U			0.01	U	0.01	U		
Iron	7439-89-6	0.3	mg/l	**2.4**								**3.6**				0.12		**1.9**			
Lead	7439-92-1	0.025	mg/l	0.01	U							0.01	U			0.1	U	0.1	U		
Magnesium	7439-95-4	35	mg/l	**81.9**								**111**				**116**		**130**			
Manganese	7439-96-5	0.3	mg/l	0.091	B							0.14				**0.46**		0.08			
Mercury	7439-97-6	0.0007	mg/l	0.0002	U							0.0002	U			0.0002	U	0.0002	U		
Nickel	7440-02-0	0.1	mg/l	0.01	U							0.004	J			0.0016	J	0.01	U		
Potassium	7440-09-7		mg/l	4.1								6.4				6.9		5.6			
Selenium	7782-49-2	0.01	mg/l	0.025	U							0.025	U			0.025	U	0.025	U		
Silver	7440-22-4	0.05	mg/l	0.006	U							0.006	U			0.006	U	0.006	U		
Sodium	7440-23-5	20	mg/l	**173**								**192**				**399**		**254**			
Thallium	7440-28-0	0.0005	mg/l	0.02	U							0.02	U			0.02	U	0.02	U		
Vanadium	7440-62-2		mg/l	0.005	U							0.0032	J			0.005	U	0.005	U		
Zinc	7440-66-6	2	mg/l	0.0066	BJ							0.016	B			0.0057	BJ	0.0036	BJ		
VOCs																					
1,1,1-Trichloroethane	71-55-6	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	79-34-5	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	1	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
1,1-Dichloroethene	75-35-4	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	0.04	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
1,2-Dibromoethane (Ethylene dibromide)	106-93-4	0.0006	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
1,2-Dichlorobenzene	95-50-1	3	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	0.6	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
1,2-Dichloropropane	78-87-5	1	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	3	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	3	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
2-Butanone	78-93-3	50	ug/l	10	U	2.4	J	10	U	10	U	10	U	10	UT	10	U	10	U	10	U
2-Hexanone	591-78-6	50	ug/l	5	U	5	U	5	U	5	U	5	U	5	UT	5	U	5	U	5	U
4-Methyl-2-Pentanone	108-10-1		ug/l	5	U	5	U	5	U	5	U	5	U	5	UT	5	U	5	U	5	U
Acetone	67-64-1	50	ug/l	3	J	10	U	10	U	3.1	J	10	U	10	UT	10	U	10	U	3.6	J
Benzene	71-43-2	1	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Bromodichloromethane	75-27-4	50	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Bromoform	75-25-2	50	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Bromomethane	74-83-9	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Carbon Disulfide	75-15-0	60	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Carbon Tetrachloride	56-23-5	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Chlorobenzene	108-90-7	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Chlorodibromomethane	124-48-1	50	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	UT	1	UT	1	U
Chloroethane	75-00-3	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Chloroform	67-66-3	7	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Chloromethane	74-87-3	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Cis-1,2-Dichloroethene	156-59-2	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Cis-1,3-Dichloropropene	10061-01-5		ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Cyclohexane	110-82-7		ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Dichloromethane	75-09-2	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Ethylbenzene	100-41-4	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Freon 113	76-13-1	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Isopropyl benzene	98-82-8	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Methyl acetate	79-20-9		ug/l	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	UT	2.5	U	2.5	U	2.5	U
Methyl T-Butyl Ether (MTBE)	1634-04-4	10	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Methylcyclohexane	108-87-2		ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Styrene	100-42-5	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Tetrachloroethene	127-18-4	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Toluene	108-88-3	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Total Xylenes	1330-20-7	5	ug/l											2	UT					2	U
Trans-1,2-Dichloroethene	156-60-5	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Trans-1,3-Dichloropropene	10061-02-6		ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Trichloroethylene	79-01-6	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Trichlorofluoromethane	75-69-4	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Vinyl Chloride	75-01-4	2	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U	1	U	1	U
Xylenes, Total	XYLENES		ug/l	2	U	2	U	2	U	2	U	2	U			2	U	2	U		

Notes:
VALUE is non-detect.
VALUE exceeds NYS 703.5 TOGS Class GA Criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

			Sample:	MW-D-20180928		MW-4S-20181002		MW-5D-20181001		MW-5S-20181001		MW-6D-20180924		MW-06S-20191125		MW-6S-20180927		MW-7D-20180927		MW-07S-20191125	
			Location:	MW-3D		MW-4S		MW-5D		MW-5S		MW-6D		MW-6S		MW-6S		MW-7D		MW-7S	
			Sample Date:	9/28/2018		10/2/2018		10/1/2018		10/1/2018		9/24/2018		11/25/2019		9/27/2018		9/27/2018		11/25/2019	
			Start Depth (ft):	30		20		30		19		23		15		15		20		13	
			End Depth (ft):	30		20		30		19		23		15		15		20		13	
Analyte	CAS Number	NYS Ground Water Class GA	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
SVOCs																					
1,1-Biphenyl	92-52-4	5	ug/l	5	U							5	U			5	U	5	U		
1,4-Dioxane	123-91-1	1	ug/l	0.19	U	0.19	U	0.2	U	0.2	U	0.2	U			0.1	J	0.2	U		
1-Chloronaphthalene	90-13-1		ug/l	2.4	U	2.4	U	2.4	U	2.4	U	2.5	U			2.5	U	2.5	U		
2,4,5-Trichlorophenol	95-95-4		ug/l	5	U							5	U			5	U	5	U		
2,4,6-Trichlorophenol	88-06-2		ug/l	5	U							5	U			5	U	5	U		
2,4-Dichlorophenol	120-83-2	1	ug/l	5	U							5	U			5	U	5	U		
2,4-Dimethylphenol	105-67-9	50	ug/l	5	U							5	U			5	U	5	U		
2,4-Dinitrophenol	51-28-5	10	ug/l	10	U							10	U			10	U	10	U		
2,4-Dinitrotoluene	121-14-2	5	ug/l	5	U							5	U			5	U	5	U		
2,6-Dinitrotoluene	606-20-2	5	ug/l	5	U							5	U			5	U	5	U		
2-Chloronaphthalene	91-58-7	10	ug/l	5	U							5	U			5	U	5	U		
2-Chlorophenol	95-57-8		ug/l	5	U							5	U			5	U	5	U		
2-Methylnaphthalene	91-57-6		ug/l	5	U							5	U			5	U	5	U		
2-Methylphenol	95-48-7		ug/l	5	U							5	U			5	U	5	U		
2-Nitroaniline	88-74-4	5	ug/l	10	U							10	U			10	U	10	U		
2-Nitrophenol	88-75-5		ug/l	5	U							5	U			5	U	5	U		
3,3`-Dichlorobenzidine	91-94-1	5	ug/l	5	UT							5	UT			5	UT	5	UT		
3-Nitroaniline	99-09-2	5	ug/l	10	U							10	U			10	U	10	U		
4,6-Dinitro-2-Methylphenol	534-52-1		ug/l	10	U							10	U			10	U	10	U		
4-Bromophenyl Phenyl Ether	101-55-3		ug/l	5	U							5	U			5	U	5	U		
4-Chloro-3-Methylphenol	59-50-7		ug/l	5	U							5	U			5	U	5	U		
4-Chloroaniline	106-47-8	5	ug/l	5	U							5	U			5	U	5	U		
4-Chlorophenyl Phenylether	7005-72-3		ug/l	5	U							5	U			5	U	5	U		
4-Methylphenol	106-44-5		ug/l	10	U							10	U			10	U	10	U		
4-Nitroaniline	100-01-6	5	ug/l	10	UT							10	U			10	UT	10	UT		
4-Nitrophenol	100-02-7		ug/l	10	U							10	U			10	U	10	U		
Acenaphthene	83-32-9	20	ug/l	5	U							5	U			5	U	5	U		
Acenaphthylene	208-96-8		ug/l	5	U							5	U			5	U	5	U		
Acetophenone	98-86-2		ug/l	5	U							5	U			5	U	5	U		
Anthracene	120-12-7	50	ug/l	5	U							5	U			5	U	5	U		
Atrazine	1912-24-9	7.5	ug/l	5	UT							5	U			5	UT	5	UT		
Benzaldehyde	100-52-7		ug/l	5	U							5	U			5	U	5	U		
Benzo(A)Anthracene	56-55-3	0.002	ug/l	5	U							5	U			5	U	5	U		
Benzo(A)Pyrene	50-32-8	0	ug/l	5	U							5	U			5	U	5	U		
Benzo(B)Fluoranthene	205-99-2	0.002	ug/l	5	UT							5	U			5	UT	5	UT		
Benzo(G,H,I)Perylene	191-24-2		ug/l	5	U							5	U			5	U	5	U		
Benzo(K)Fluoranthene	207-08-9	0.002	ug/l	5	UT							5	U			5	UT	5	UT		
Bis(2-Chloroethoxy) Methane	111-91-1	5	ug/l	5	U							5	U			5	U	5	U		
Bis(2-Chloroethyl) Ether	111-44-4	1	ug/l	5	U							5	U			5	U	5	U		
Bis(2-Ethylhexyl) Phthalate	117-81-7	5	ug/l	5	U							5	U			5	U	5	U		
Bis-Chloroisopropyl Ether	108-60-1	5	ug/l	5	U							5	U			5	U	5	U		
Butyl Benzyl Phthalate	85-68-7	50	ug/l	5	U							5	U			5	U	5	U		
Caprolactam	105-60-2		ug/l	5	U							5	U			5	U	5	U		
Carbazole	86-74-8		ug/l	5	UT							5	UT			5	UT	5	UT		
Chrysene	218-01-9	0.002	ug/l	5	U							5	U			5	U	5	U		
Dibenzo(A,H)Anthracene	53-70-3		ug/l	5	U							5	U			5	U	5	U		
Dibenzofuran	132-64-9		ug/l	10	U							10	U			10	U	10	U		
Dichloronaphthalene	28699-88-9		ug/l	2.4	U	2.4	U	2.4	U	2.4	U	2.5	U			2.5	U	2.5	U		
Diethylphthalate	84-66-2	50	ug/l	5	U							5	U			0.23	J	5	U		
Dimethylphthalate	131-11-3	50	ug/l	5	UT							5	U			5	UT	5	UT		
Di-N-Butylphthalate	84-74-2	50	ug/l	5	U							5	U			5	U	5	U		
Di-N-Octyl Phthalate	117-84-0		ug/l	5	U							5	U			5	U	5	U		
Fluoranthene	206-44-0	50	ug/l	5	U							5	U			5	U	5	U		
Fluorene	86-73-7	50	ug/l	5	U							5	U			5	U	5	U		
Heptachloronaphthalene	32241-08-0		ug/l	2.4	U	2.4	U	2.4	U	2.4	U	2.5	U			2.5	U	2.5	U		
Hexachlorobenzene	118-74-1	0.04	ug/l	5	U							5	U			5	U	5	U		
Hexachlorobutadiene	87-68-3	0.5	ug/l	5	U							5	U			5	U	5	U		
Hexachlorocyclopentadiene	77-47-4	5	ug/l	5	U							5	U			5	U	5	U		
Hexachloroethane	67-72-1	5	ug/l	5	U							5	U			5	U	5	U		
Hexachloronaphthalene	1335-87-1		ug/l	2.4	U	2.4	U	2.4	U	2.4	U	2.5	U			2.5	U	2.5	U		
Indeno(1,2,3-Cd)Pyrene	193-39-5	0.002	ug/l	5	U							5	U			5	U	5	U		
Isophorone	78-59-1	50	ug/l	5	U							5	U			5	U	5	U		
Naphthalene	91-20-3	10	ug/l	5	U							5	U			5	U	5	U		
Nitrobenzene	98-95-3	0.4	ug/l	5	U							5	U			5	U	5	U		
N-Nitroso-Di-N-Propylamine	621-64-7		ug/l	5	U							5	U			5	U	5	U		
N-Nitrosodiphenylamine	86-30-6	50	ug/l	5	U							5	U			5	U	5	U		
Octachloronaphthalene	2234-13-1		ug/l	2.4	U	2.4	U	2.4	U	2.4	U	2.5	U			2.5	U	2.5	U		
Pentachloronaphthalene	1321-64-8		ug/l	2.4	U	2.4	U	2.4	U	2.4	U	2.5	U			2.5	U	2.5	U		
Pentachlorophenol	87-86-5	1	ug/l	10	U							10	U			10	U	10	U		
Phenanthrene	85-01-8	50	ug/l	5	U							5	U			5	U	5	U		
Phenol	108-95-2	1	ug/l	5	U							5	U			5	U	5	U		
Pyrene	129-00-0	50	ug/l	5	U							5	U			5	U	5	U		
Tetrachloronaphthalene	1335-88-2		ug/l	2.4	U	2.4	U	2.4	U	2.4	U	2.5	U			2.5	U	2.5	U		
Trichloronaphthalene	1321-65-9		ug/l	2.4	U	2.4	U	2.4	U	2.4	U	2.5	U			2.5	U	2.5	U		

Notes:
VALUE is non-detect.
VALUE exceeds NYS 703.5 TOGS Class GA Criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

			Sample:	MW-D-20180928		MW-4S-20181002		MW-5D-20181001		MW-5S-20181001		MW-6D-20180924		MW-06S-20191125		MW-6S-20180927		MW-7D-20180927		MW-07S-20191125	
			Location:	MW-3D		MW-4S		MW-5D		MW-5S		MW-6D		MW-6S		MW-6S		MW-7D		MW-7S	
			Sample Date:	9/28/2018		10/2/2018		10/1/2018		10/1/2018		9/24/2018		11/25/2019		9/27/2018		9/27/2018		11/25/2019	
			Start Depth (ft):	30		20		30		19		23		15		15		20		13	
			End Depth (ft):	30		20		30		19		23		15		15		20		13	
Analyte	CAS Number	NYS Ground Water Class GA	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
Pesticides																					
4,4'-DDD	72-54-8	0.3	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
4,4'-DDE	72-55-9	0.2	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
4,4'-DDT	50-29-3	0.2	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
Aldrin	309-00-2	0	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
Alpha-BHC	319-84-6	0.01	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
Alpha-Chlordane	5103-71-9		ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
Beta-BHC	319-85-7	0.04	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
Chlorinated Camphene	8001-35-2	0.06	ug/l	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U			0.5	U	0.5	U		
Delta-Bhc	319-86-8	0.04	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
Dieldrin	60-57-1	0.004	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
Endosulfan I	959-98-8		ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
Endosulfan II	33213-65-9		ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
Endosulfan Sulfate	1031-07-8		ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
Endrin	72-20-8	0	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
Endrin Aldehyde	7421-93-4	5	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
Endrin Ketone	53494-70-5	5	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
Gamma-BHC (Lindane)	58-89-9	0.05	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
Gamma-Chlordane	5103-74-2		ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
Heptachlor	76-44-8	0.04	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
Heptachlor Epoxide	1024-57-3	0.03	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
Methoxychlor	72-43-5	35	ug/l	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U			0.05	U	0.05	U		
PFCs																					
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9		ng/l	17	U	19	U	19	U	18	U	17	U			18	U	17	U		
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6		ng/l	17	U	19	U	19	U	18	U	17	U			18	U	17	U		
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	100	ng/l	1.7	U	1.9	U	1.9	U	1.8	U	1.7	U			1.8	U	1.7	U		
Perfluorobutyric Acid (PFBA)	375-22-4	100	ng/l	0.53	J	1.9	U	1.9	U	2.7		1.7	U			1.8	U	0.39	J		
Perfluorodecane Sulfonic Acid	335-77-3	100	ng/l	1.7	U	1.9	U	1.9	U	1.8	U	1.7	U			1.8	U	1.7	U		
Perfluorodecanoic Acid (PFDA)	335-76-2	100	ng/l	1.7	U	1.9	U	1.9	U	1.8	U	1.7	U			1.8	U	1.7	U		
Perfluorododecanoic Acid (PFDoA)	307-55-1	100	ng/l	1.7	U	1.9	U	1.9	U	1.8	U	1.7	U			1.8	U	1.7	U		
Perfluoroheptane Sulfonate (PFHpS)	375-92-8	100	ng/l	1.7	U	1.9	U	1.9	U	1.8	U	1.7	U			1.8	U	1.7	U		
Perfluoroheptanoic Acid (PFHpA)	375-85-9	100	ng/l	1.7	U	1.9	U	1.9	U	1.8	U	1.7	U			1.8	U	1.7	U		
Perfluorohexanesulfonic Acid	355-46-4	100	ng/l	~~0.27~~	~~BJ~~ U	1.9	U	1.9	U	1.8	U	1.7	U			1.8	U	1.7	U		
Perfluorohexanoic Acid (PFHxA)	307-24-4	100	ng/l	1.7	U	1.9	U	1.9	U	1.8	U	1.7	U			1.8	U	1.7	U		
Perfluorononanoic Acid (PFNA)	375-95-1	100	ng/l	1.7	U	0.25	J	1.9	U	1.8	U	1.7	U			1.8	U	1.7	U		
Perfluorooctane Sulfonamide (FOSA)	754-91-6		ng/l	1.7	U	1.9	U	1.9	U	1.8	U	1.7	U			1.8	U	1.7	U		
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1	10	ng/l	1.7	U	1.9	U	1.9	U	1.8	U	1.7	U			1.8	U	1.7	U		
Perfluorooctanoic acid (PFOA)	335-67-1	10	ng/l	1.7	U	1.9	U	1.9	U	1.8	U	1.7	U			1.8	U	1.7	U		
Perfluoropentanoic Acid (PFPeA)	2706-90-3	100	ng/l	1.7	U	1.9	U	1.9	U	1.8	U	1.7	U			1.8	U	1.7	U		
Perfluorotetradecanoic Acid (PFTeA)	376-06-7	100	ng/l	1.7	U	1.9	U	1.9	U	1.8	U	1.7	U			1.8	U	1.7	U		
Perfluorotridcanoic Acid (PFTriA)	72629-94-8	100	ng/l	1.7	U	1.9	U	1.9	U	1.8	U	1.7	U			1.8	U	1.7	U		
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	100	ng/l	1.7	U	1.9	U	1.9	U	1.8	U	1.7	U			1.8	U	1.7	U		
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4		ng/l	17	U	19	U	19	U	18	U	17	U			18	U	17	U		
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2		ng/l	17	U	19	U	17	UHT	18	UHT	17	U			18	U	17	U		

Notes:
VALUE is non-detect.
VALUE exceeds NYS 703.5 TOGS Class GA Criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

			Sample:	MW-7S-20180927		MW-8D-20180926		MW-08S-20191125		MW-8S-20180926		MW-9D-20180925		MW-09S-20191126		MW-9S-20180925	
			Location:	MW-7S		MW-8D		MW-8S		MW-8S		MW-9D		MW-9S		MW-9S	
			Sample Date:	9/27/2018		9/26/2018		11/25/2019		9/26/2018		9/25/2018		11/26/2019		9/25/2018	
			Start Depth (ft):	13		22		13		13		32		19		19	
			End Depth (ft):	13		22		13		13		32		19		19	
Analyte	**CAS Number**	**NYS Ground Water Class GA**	**Units**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Inorganics																	
Aluminum	7429-90-5		mg/l	0.079	J	1.2				4		0.064	J			0.19	J
Antimony	7440-36-0	0.003	mg/l	0.02	U	0.02	U			0.02	U	0.02	U			0.02	U
Arsenic	7440-38-2	0.025	mg/l	0.0069	J	0.015	U			0.015	U	0.015	U			0.015	U
Barium	7440-39-3	1	mg/l	0.028		0.03				0.076		0.016				0.014	
Beryllium	7440-41-7	0.003	mg/l	0.002	U	0.002	U			0.002	U	0.002	U			0.002	U
Cadmium	7440-43-9	0.005	mg/l	0.00073	J	0.00088	J			0.001	J	0.002	U			0.002	U
Calcium	7440-70-2		mg/l	463		518				530		497				437	
Chromium, Total	7440-47-3	0.05	mg/l	0.004	U	0.0012	J			0.0046		0.004	U			0.004	U
Cobalt	7440-48-4		mg/l	0.004	U	0.0023	J			0.0019	J	0.004	U			0.0012	J
Copper	7440-50-8	0.2	mg/l	0.026		0.026				0.0059	J	0.003	J			0.022	
Iron	7439-89-6	0.3	mg/l	**1.4**		**1.8**				**3.8**		**2.2**				**0.83**	
Lead	7439-92-1	0.025	mg/l	0.1	U	0.1	U			0.05	U	0.01	U			0.01	U
Magnesium	7439-95-4	35	mg/l	**118**		**141**				**173**		**134**				**82.5**	
Manganese	7439-96-5	0.3	mg/l	0.094		0.17				**0.66**		0.12				0.076	
Mercury	7439-97-6	0.0007	mg/l	0.0002	U	0.0002	UT			0.0002	U	0.0002	U			0.0002	U
Nickel	7440-02-0	0.1	mg/l	0.01	U	0.0043	J			0.0098	J	0.01	U			0.01	U
Potassium	7440-09-7		mg/l	5.5		12.9				8.5		7.7				3	
Selenium	7782-49-2	0.01	mg/l	0.025	U	0.025	U			0.025	U	0.025	U			0.025	U
Silver	7440-22-4	0.05	mg/l	0.006	U	0.006	U			0.006	U	0.006	U			0.006	U
Sodium	7440-23-5	20	mg/l	**321**		**298**				**513**		**284**				**111**	
Thallium	7440-28-0	0.0005	mg/l	0.02	U	0.02	U			0.02	U	0.02	U			0.02	U
Vanadium	7440-62-2		mg/l	0.005	U	0.0024	J			0.0084		0.005	U			0.005	U
Zinc	7440-66-6	2	mg/l	0.035	B	0.026	B			0.019	B	0.0046	BJ			0.016	B
VOCs																	
1,1,1-Trichloroethane	71-55-6	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2,2-Tetrachloroethane	79-34-5	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	1	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethene	75-35-4	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	0.04	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromoethane (Ethylene dibromide)	106-93-4	0.0006	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	95-50-1	3	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	0.6	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloropropane	78-87-5	1	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	3	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	3	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone	78-93-3	50	ug/l	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone	591-78-6	50	ug/l	5	U	5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-Pentanone	108-10-1		ug/l	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Acetone	67-64-1	50	ug/l	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzene	71-43-2	1	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4	50	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	50	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane	74-83-9	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon Disulfide	75-15-0	60	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride	56-23-5	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorodibromomethane	124-48-1	50	ug/l	1	UT	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	UT	1	U
Chloroform	67-66-3	7	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Cis-1,2-Dichloroethene	156-59-2	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Cis-1,3-Dichloropropene	10061-01-5		ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Cyclohexane	110-82-7		ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichloromethane	75-09-2	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Freon 113	76-13-1	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropyl benzene	98-82-8	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl acetate	79-20-9		ug/l	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U
Methyl T-Butyl Ether (MTBE)	1634-04-4	10	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methylcyclohexane	108-87-2		ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Styrene	100-42-5	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	108-88-3	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Xylenes	1330-20-7	5	ug/l					2	U					2	U		
Trans-1,2-Dichloroethene	156-60-5	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trans-1,3-Dichloropropene	10061-02-6		ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethylene	79-01-6	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichlorofluoromethane	75-69-4	5	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	75-01-4	2	ug/l	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Xylenes, Total	XYLENES		ug/l	2	U	2	U			2	U	2	U			2	U

Notes:
VALUE is non-detect.
VALUE exceeds NYS 703.5 TOGS Class GA Criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

Table 6

			Sample:	MW-7S-20180927		MW-8D-20180926		MW-08S-20191125		MW-8S-20180926		MW-9D-20180925		MW-09S-20191126		MW-9S-20180925	
			Location:	MW-7S		MW-8D		MW-8S		MW-8S		MW-9D		MW-9S		MW-9S	
			Sample Date:	9/27/2018		9/26/2018		11/25/2019		9/26/2018		9/25/2018		11/26/2019		9/25/2018	
			Start Depth (ft):	13		22		13		13		32		19		19	
			End Depth (ft):	13		22		13		13		32		19		19	
Analyte	CAS Number	NYS Ground Water Class GA	Units	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual	Result	Qual
SVOCs																	
1,1-Biphenyl	92-52-4	5	ug/l	5	U	5	U			5	U	5	U			5	U
1,4-Dioxane	123-91-1	1	ug/l	0.2	U	0.2	U			0.2	U	0.19	U			0.19	U
1-Chloronaphthalene	90-13-1		ug/l	2.4	U	2.4	U			2.4	U	2.4	U			2.4	U
2,4,5-Trichlorophenol	95-95-4		ug/l	5	U	5	U			5	U	5	U			5	U
2,4,6-Trichlorophenol	88-06-2		ug/l	5	U	5	U			5	U	5	U			5	U
2,4-Dichlorophenol	120-83-2	1	ug/l	5	U	5	U			5	U	5	U			5	U
2,4-Dimethylphenol	105-67-9	50	ug/l	5	U	5	U			5	U	5	U			5	U
2,4-Dinitrophenol	51-28-5	10	ug/l	10	U	10	U			10	U	10	U			10	U
2,4-Dinitrotoluene	121-14-2	5	ug/l	5	U	5	U			5	U	5	U			5	U
2,6-Dinitrotoluene	606-20-2	5	ug/l	5	U	5	U			5	U	5	U			5	U
2-Chloronaphthalene	91-58-7	10	ug/l	5	U	5	U			5	U	5	U			5	U
2-Chlorophenol	95-57-8		ug/l	5	U	5	U			5	U	5	U			5	U
2-Methylnaphthalene	91-57-6		ug/l	5	U	5	U			5	U	5	U			5	U
2-Methylphenol	95-48-7		ug/l	5	U	5	U			5	U	5	U			5	U
2-Nitroaniline	88-74-4	5	ug/l	10	U	10	U			10	U	10	U			10	U
2-Nitrophenol	88-75-5		ug/l	5	U	5	U			5	U	5	U			5	U
3,3`-Dichlorobenzidine	91-94-1	5	ug/l	5	UT	5	UT			5	UT	5	UT			5	UT
3-Nitroaniline	99-09-2	5	ug/l	10	U	10	U			10	U	10	U			10	U
4,6-Dinitro-2-Methylphenol	534-52-1		ug/l	10	U	10	U			10	U	10	U			10	U
4-Bromophenyl Phenyl Ether	101-55-3		ug/l	5	U	5	U			5	U	5	U			5	U
4-Chloro-3-Methylphenol	59-50-7		ug/l	5	U	5	U			5	U	5	U			5	U
4-Chloroaniline	106-47-8	5	ug/l	5	U	5	U			5	U	5	U			5	U
4-Chlorophenyl Phenylether	7005-72-3		ug/l	5	U	5	U			5	U	5	U			5	U
4-Methylphenol	106-44-5		ug/l	10	U	10	U			10	U	10	U			10	U
4-Nitroaniline	100-01-6	5	ug/l	10	UT	10	UT			10	UT	10	U			10	U
4-Nitrophenol	100-02-7		ug/l	10	U	10	U			10	U	10	U			10	U
Acenaphthene	83-32-9	20	ug/l	5	U	5	U			5	U	5	U			5	U
Acenaphthylene	208-96-8		ug/l	5	U	5	U			5	U	5	U			5	U
Acetophenone	98-86-2		ug/l	5	U	5	U			5	U	5	U			5	U
Anthracene	120-12-7	50	ug/l	5	U	5	U			5	U	5	U			5	U
Atrazine	1912-24-9	7.5	ug/l	5	UT	5	UT			5	UT	5	U			5	U
Benzaldehyde	100-52-7		ug/l	5	U	5	U			5	U	5	U			5	U
Benzo(A)Anthracene	56-55-3	0.002	ug/l	5	U	5	U			5	U	5	U			5	U
Benzo(A)Pyrene	50-32-8	0	ug/l	5	U	5	U			5	U	5	U			5	U
Benzo(B)Fluoranthene	205-99-2	0.002	ug/l	5	UT	5	UT			5	UT	5	U			5	U
Benzo(G,H,I)Perylene	191-24-2		ug/l	5	U	5	U			5	U	5	U			5	U
Benzo(K)Fluoranthene	207-08-9	0.002	ug/l	5	UT	5	UT			5	UT	5	U			5	U
Bis(2-Chloroethoxy) Methane	111-91-1	5	ug/l	5	U	5	U			5	U	5	U			5	U
Bis(2-Chloroethyl) Ether	111-44-4	1	ug/l	5	U	5	U			5	U	5	U			5	U
Bis(2-Ethylhexyl) Phthalate	117-81-7	5	ug/l	5	U	5	U			5	U	5	U			5	U
Bis-Chloroisopropyl Ether	108-60-1	5	ug/l	5	U	5	U			5	U	5	U			5	U
Butyl Benzyl Phthalate	85-68-7	50	ug/l	5	U	5	U			5	U	5	U			5	U
Caprolactam	105-60-2		ug/l	5	U	5	U			5	U	5	U			5	U
Carbazole	86-74-8		ug/l	5	UT	5	UT			5	UT	5	UT			5	UT
Chrysene	218-01-9	0.002	ug/l	5	U	5	U			5	U	5	U			5	U
Dibenzo(A,H)Anthracene	53-70-3		ug/l	5	U	5	U			5	U	5	U			5	U
Dibenzofuran	132-64-9		ug/l	10	U	10	U			10	U	10	U			10	U
Dichloronaphthalene	28699-88-9		ug/l	2.4	U	2.4	U			2.4	U	2.4	U			2.4	U
Diethylphthalate	84-66-2	50	ug/l	5	U	5	U			5	U	5	U			5	U
Dimethylphthalate	131-11-3	50	ug/l	5	UT	5	UT			5	UT	5	U			5	U
Di-N-Butylphthalate	84-74-2	50	ug/l	5	U	5	U			5	U	5	U			5	U
Di-N-Octyl Phthalate	117-84-0		ug/l	5	U	5	U			5	U	5	U			5	U
Fluoranthene	206-44-0	50	ug/l	5	U	5	U			5	U	5	U			5	U
Fluorene	86-73-7	50	ug/l	5	U	5	U			5	U	5	U			5	U
Heptachloronaphthalene	32241-08-0		ug/l	2.4	U	2.4	U			2.4	U	2.4	U			2.4	U
Hexachlorobenzene	118-74-1	0.04	ug/l	5	U	5	U			5	U	5	U			5	U
Hexachlorobutadiene	87-68-3	0.5	ug/l	5	U	5	U			5	U	5	U			5	U
Hexachlorocyclopentadiene	77-47-4	5	ug/l	5	U	5	U			5	U	5	U			5	U
Hexachloroethane	67-72-1	5	ug/l	5	U	5	U			5	U	5	U			5	U
Hexachloronaphthalene	1335-87-1		ug/l	2.4	U	2.4	U			2.4	U	2.4	U			2.4	U
Indeno(1,2,3-Cd)Pyrene	193-39-5	0.002	ug/l	5	U	5	U			5	U	5	U			5	U
Isophorone	78-59-1	50	ug/l	5	U	5	U			5	U	5	U			5	U
Naphthalene	91-20-3	10	ug/l	5	U	5	U			5	U	5	U			5	U
Nitrobenzene	98-95-3	0.4	ug/l	5	U	5	U			5	U	5	U			5	U
N-Nitroso-Di-N-Propylamine	621-64-7		ug/l	5	U	5	U			5	U	5	U			5	U
N-Nitrosodiphenylamine	86-30-6	50	ug/l	5	U	5	U			5	U	5	U			5	U
Octachloronaphthalene	2234-13-1		ug/l	2.4	U	2.4	U			2.4	U	2.4	U			2.4	U
Pentachloronaphthalene	1321-64-8		ug/l	2.4	U	2.4	U			2.4	U	2.4	U			2.4	U
Pentachlorophenol	87-86-5	1	ug/l	10	U	10	U			10	U	10	U			10	U
Phenanthrene	85-01-8	50	ug/l	5	U	5	U			5	U	5	U			5	U
Phenol	108-95-2	1	ug/l	5	U	5	U			5	U	5	U			5	U
Pyrene	129-00-0	50	ug/l	5	U	5	U			5	U	5	U			5	U
Tetrachloronaphthalene	1335-88-2		ug/l	2.4	U	2.4	U			2.4	U	2.4	U			2.4	U
Trichloronaphthalene	1321-65-9		ug/l	2.4	U	2.4	U			2.4	U	2.4	U			2.4	U

Notes:
VALUE is non-detect.
VALUE exceeds NYS 703.5 TOGS Class GA Criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

			Sample:	MW-7S-20180927		MW-8D-20180926		MW-08S-20191125		MW-8S-20180926		MW-9D-20180925		MW-09S-20191126		MW-9S-20180925	
			Location:	MW-7S		MW-8D		MW-8S		MW-8S		MW-9D		MW-9S		MW-9S	
			Sample Date:	9/27/2018		9/26/2018		11/25/2019		9/26/2018		9/25/2018		11/26/2019		9/25/2018	
			Start Depth (ft):	13		22		13		13		32		19		19	
			End Depth (ft):	13		22		13		13		32		19		19	
Analyte	**CAS Number**	**NYS Ground Water Class GA**	**Units**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**	**Result**	**Qual**
Pesticides																	
4,4'-DDD	72-54-8	0.3	ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
4,4'-DDE	72-55-9	0.2	ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
4,4'-DDT	50-29-3	0.2	ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
Aldrin	309-00-2	0	ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
Alpha-BHC	319-84-6	0.01	ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
Alpha-Chlordane	5103-71-9		ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
Beta-BHC	319-85-7	0.04	ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
Chlorinated Camphene	8001-35-2	0.06	ug/l	0.5	U	0.54	U			0.5	U	0.5	U			0.5	U
Delta-Bhc	319-86-8	0.04	ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
Dieldrin	60-57-1	0.004	ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
Endosulfan I	959-98-8		ug/l	0.05	U	0.054	U			0.05	U	0.055				0.05	U
Endosulfan II	33213-65-9		ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
Endosulfan Sulfate	1031-07-8		ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
Endrin	72-20-8	0	ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
Endrin Aldehyde	7421-93-4	5	ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
Endrin Ketone	53494-70-5	5	ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
Gamma-BHC (Lindane)	58-89-9	0.05	ug/l	0.05	U	0.054	U			0.0098	J	0.05	U			0.05	U
Gamma-Chlordane	5103-74-2		ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
Heptachlor	76-44-8	0.04	ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
Heptachlor Epoxide	1024-57-3	0.03	ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
Methoxychlor	72-43-5	35	ug/l	0.05	U	0.054	U			0.05	U	0.05	U			0.05	U
PFCs																	
2-(N-methyl perfluorooctanesulfonamido) acetic acid	2355-31-9		ng/l	17	U	17	U			16	U	16	U			18	U
N-Ethyl-N-((heptadecafluorooctyl)sulphonyl) glycine	2991-50-6		ng/l	17	U	17	U			16	U	16	U			18	U
Perfluorobutanesulfonic Acid (PFBS)	375-73-5	100	ng/l	1.7	U	1.7	U			1.6	U	1.6	U			1.8	U
Perfluorobutyric Acid (PFBA)	375-22-4	100	ng/l	1.7	U	1.7	U			1.6	U	1.6	U			1.8	U
Perfluorodecane Sulfonic Acid	335-77-3	100	ng/l	1.7	U	1.7	U			1.6	U	1.6	U			1.8	U
Perfluorodecanoic Acid (PFDA)	335-76-2	100	ng/l	1.7	U	1.7	U			1.6	U	1.6	U			1.8	U
Perfluorododecanoic Acid (PFDoA)	307-55-1	100	ng/l	1.7	U	1.7	U			1.6	U	1.6	U			1.8	U
Perfluoroheptane Sulfonate (PFHpS)	375-92-8	100	ng/l	1.7	U	1.7	U			1.6	U	1.6	U			1.8	U
Perfluoroheptanoic Acid (PFHpA)	375-85-9	100	ng/l	1.7	U	1.7	U			1.6	U	1.6	U			1.8	U
Perfluorohexanesulfonic Acid	355-46-4	100	ng/l	1.7	U	1.7	U			1.6	U	1.6	U			1.8	U
Perfluorohexanoic Acid (PFHxA)	307-24-4	100	ng/l	1.7	U	1.7	U			1.6	U	1.6	U			1.8	U
Perfluorononanoic Acid (PFNA)	375-95-1	100	ng/l	1.7	U	1.7	U			1.6	U	1.6	U			1.8	U
Perfluorooctane Sulfonamide (FOSA)	754-91-6		ng/l	1.7	U	1.7	U			1.6	U	1.6	U			1.8	U
Perfluorooctane Sulfonic Acid (PFOS)	1763-23-1	10	ng/l	1.7	U	1	J			1.6	U	1.6	U			1.8	U
Perfluorooctanoic acid (PFOA)	335-67-1	10	ng/l	1.7	U	1.7	U			1.6	U	1.6	U			1.8	U
Perfluoropentanoic Acid (PFPeA)	2706-90-3	100	ng/l	1.7	U	1.7	U			1.6	U	1.6	U			1.8	U
Perfluorotetradecanoic Acid (PFTeA)	376-06-7	100	ng/l	1.7	U	1.7	U			1.6	U	1.6	U			1.8	U
Perfluorotridcanoic Acid (PFTriA)	72629-94-8	100	ng/l	1.7	U	1.7	U			1.6	U	1.6	U			1.8	U
Perfluoroundecanoic Acid (PFUnA)	2058-94-8	100	ng/l	1.7	U	1.7	U			1.6	U	1.6	U			1.8	U
SODIUM 1H,1H,2H,2H-PERFLUORODECANE SULFONATE (8:2)	39108-34-4		ng/l	17	U	17	U			16	U	16	U			18	U
SODIUM 1H,1H,2H,2H-PERFLUOROOCTANE SULFONATE (6:2)	27619-97-2		ng/l	17	U	17	U			16	U	16	U			18	U

Notes:
VALUE is non-detect.
VALUE exceeds NYS 703.5 TOGS Class GA Criteria.
VALUE is non-detect but the reporting limit exceeds the criteria.

Table 7
2018 Off-Site Surface Water Data for PCNs
Former TRW Facility
Union Springs, NY

		Analyte:	**1-Chloronaphthalene**	**2-Chloronaphthalene**	**Dichloronaphthalene**	**Heptachloronaphthalene**	**Hexachloronaphthalene**	**Octachloronaphthalene**	**Pentachloronaphthalene**	**Tetrachloronaphthalene**	**Trichloronaphthalene**
		CAS:	**90-13-1**	**91-58-7**	**28699-88-9**	**32241-08-0**	**1335-87-1**	**2234-13-1**	**1321-64-8**	**1335-88-2**	**1321-65-9**
		DRAFT Human Health Criteria:	**--**	**100**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
		DRAFT Ecological Criteria:	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**	**1.6**
		Units:	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**	**ug/l**
Sample	**Location**	**Sample Date**									
BP-SW-18-20180517	BP-SW-18	5/17/2018	2.5 U		U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
BP-SW-19-20180517	BP-SW-19	5/17/2018	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
CL-SW-21-20180521	CL-SW-21	5/21/2018	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
FC-SW-05-20180521	FC-SW-05	5/21/2018	2.4 U		U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
FC-SW-08-20180521	FC-SW-08	5/21/2018	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
FC-SW-10-20180522	FC-SW-10	5/22/2018	2.4 U		0.31 J	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
FC-SW-DUP-01-20180522	FC-SW-10	5/22/2018	2.4 U		0.32 J	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MP-SW-15-20180515	MP-SW-15	5/15/2018	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MP-SW-16-20180515	MP-SW-16	5/15/2018	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MP-SW-17-20180515	MP-SW-17	5/15/2018	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
UNST-SW-06-20180521	UNST-SW-06	5/21/2018	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U

BP = Beaver Pond
CL = Cayuga Lake
FC = Former Canal
MP = Mill Pond
UNST = Unnamed Stream

Criteria units: ug/L

Qualifiers
J - Result is estimated.
U - Result is non-detect.

Table 7
2018 Off-Site Sediment Data for PCNs
Former TRW Facility
Union Springs, NY

Sample	Location	Sample Date	Start Depth	End Depth	1-Chloronaphthalene	2-Chloronaphthalene	Dichloronaphthalene	Heptachloronaphthalene	Hexachloronaphthalene	Octachloronaphthalene	Pentachloronaphthalene	Tetrachloronaphthalene	Trichloronaphthalene	Total Organic Carbon
				CAS:	90-13-1	91-58-7	28699-88-9	32241-08-0	1335-87-1	2234-13-1	1321-64-8	1335-88-2	1321-65-9	TOC
				DRAFT Human Health Criteria:	6000000	6000000	6000000	6000	60000	6000	60000	600000	600000	
				DRAFT Ecological Criteria:	1182	1182	3584	14358021	3692280	NA	757152	115692	22933	
				Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
BP-SED-18-0-0.5-20180518	BP-SED-18	5/18/2018	0	0.5	270 U		270 U	270 U	270 U	270 UJ	270 U	270 U	270 U	120000 J
BP-SED-18-1.5-2.0-20180518	BP-SED-18	5/18/2018	1.5	2	180 U		180 U	180 U	180 U	180 U	180 U	180 U	180 U	126000 J
BP-SED-19-0-0.5-20180518	BP-SED-19	5/18/2018	0	0.5	200 U		200 U	200 U	200 U	200 UJ	200 U	200 U	200 U	43800
BP-SED-19-1.0-2.0-20180518	BP-SED-19	5/18/2018	1	2	110 U		110 U	110 U	110 U	110 U	110 U	110 U	110 U	27000 T
CL-SED-21-0-0.5-20180521	CL-SED-21	5/21/2018	0	0.5	240 U		240 U	240 U	240 U	240 UJ	240 U	240 U	60 J	100000
CL-SED-21-3.5-4.0-20180521	CL-SED-21	5/21/2018	3.5	4	120 U		120 U	120 U	120 U	120 UJ	120 U	120 U	44 J	18600
FC-SED-05-1.0-2.0-20180522	FC-SED-05	5/22/2018	1	2										89200
FC-SED-05-2.0-4.0-20180522	FC-SED-05	5/22/2018	2	4	150 U		150 U	150 U	150 U	150 UJ	150 U	150 U	150 U	45700
FC-SED-08-0.0-0.5-20180522	FC-SED-08	5/22/2018	0	0.5										44200
FC-SED-08-3.0-4.0-20180522	FC-SED-08	5/22/2018	3	4	170 U		52 J	170 U	170 U	170 UJ	170 U	170 U	110 J	60900
MP-SED-15-0.5-1.0-20180516	MP-SED-15	5/16/2018	0.5	1	190 U		190 U	190 U	190 U	190 UJ	190 U	190 U	190 U	
MP-SED-16-1.5-2.0-20180517	MP-SED-16	5/17/2018	1.5	2	340 UJ		340 UJ	340 UJ	340 UJ	340 UJ	340 UJ	340 UJ	340 UJ	
MP-SED-16-2.0-2.5-20180517	MP-SED-16	5/17/2018	2	2.5	230 U		230 U	230 UJ	230 UJ	230 UJ	230 UJ	230 U	230 U	
MP-SED17-0.0-0.5-20180515	MP-SED-17	5/15/2018	0	0.5	620 UJ		620 UJ	620 UJ	620 UJ	620 UJ	620 UJ	620 UJ	620 UJ	110000 J
MP-SED17-1.5-2.0-20180515	MP-SED-17	5/15/2018	1.5	2	200 U	110 U	200 U	200 U	200 U	200 U	200 U	200 U	43 J	17900
MP-SED-DUP-20180517	MP-SED-16	5/17/2018	2	2.5	210 U		210 U	210 U	210 U	210 UJ	210 U	210 U	210 U	
UNST-SED-06-0.0-0.5-20180521	UNST-SED-06	5/21/2018	0	0.5										277000
UNST-SED-06-3.5-4.0-20180521	UNST-SED-06	5/21/2018	3.5	4	220 U		220 U	220 U	220 U	220 UJ	220 U	220 U	220 U	104000

BP = Beaver Pond
CL = Cayuga Lake
FC = Former Canal
MP = Mill Pond
UNST = Unnamed Stream

Qualifiers
J - Result is estimated.
T - A quality control parameter has exceeded laboratory limits.
U - Result is non-detect.

Table 7
2018 Off-Site Groundwater Data for PCNs
Former TRW Facility
Union Springs, NY

				Analyte:	1-Chloronaphthalene	2-Chloronaphthalene	Dichloronaphthalene	Heptachloronaphthalene	Hexachloronaphthalene	Octachloronaphthalene	Pentachloronaphthalene	Tetrachloronaphthalene	Trichloronaphthalene
				CAS:	90-13-1	91-58-7	28699-88-9	32241-08-0	1335-87-1	2234-13-1	1321-64-8	1335-88-2	1321-65-9
				DRAFT Human Health Criteria:	NS	NS^	NS	NS	NS	NS	NS	NS	NS
				DRAFT Ecological Criteria:	NS	NS	NS	NS	NS	NS	NS	NS	NS
				Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Sample	**Location**	**Sample Date**	**Start Depth**	**End Depth**									
MW-10D-20180925	MW-10D	9/25/2018	24	24	2.4 UT	U	2.4 UT	2.4 U	2.4 U	2.4 UT	2.4 U	2.4 U	2.4 U
MW-10S-20180925	MW-10S	9/25/2018	16	16	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-1S-20180927	MW-1S	9/27/2018	12	12	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-2S-20180927	MW-2S	9/27/2018	12	12	2.4 U	U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-300-20180928	MW-300	9/28/2018	20	20	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-3D-20180928	MW-3D	9/28/2018	30	30	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-4S-20181002	MW-4S	10/2/2018	20	20	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-5D-20181001	MW-5D	10/1/2018	30	30	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-5S-20181001	MW-5S	10/1/2018	19	19	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-6D-20180924	MW-6D	9/24/2018	23	23	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
MW-6S-20180927	MW-6S	9/27/2018	15	15	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
MW-7D-20180927	MW-7D	9/27/2018	20	20	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
MW-7S-20180927	MW-7S	9/27/2018	13	13	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-8D-20180926	MW-8D	9/26/2018	22	22	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-8S-20180926	MW-8S	9/26/2018	13	13	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-9D-20180925	MW-09D	9/25/2018	32	32	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-9S-20180925	MW-9S	9/25/2018	19	19	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-D-20180928	MW-3D	9/28/2018	30	30	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U

No Standards developed for eco risk - due to no GW pathways / no agency screening level available for GW

^For Human Health SCO - USEPA tap water screening level for 2-CN is 75 ug/l
No complete exposure pathways for GW since area water system is via municipal supply

No Standards developed for ecological risk due to no GW pathways / no agency screening levels available for GW

Qualifiers
T - A quality control parameter has exceeded laboratory limits.
U - Result is non-detect.

Table 7
2018 Off-Site Soil Data for PCNs
Former TRW Facility
Union Springs, NY

Analyte:					1-Chloronaphthalene	2-Chloronaphthalene	Dichloronaphthalene	Heptachloronaphthalene	Hexachloronaphthalene	Octachloronaphthalene	Pentachloronaphthalene	Tetrachloronaphthalene	Trichloronaphthalene
CAS:					90-13-1	91-58-7	28699-88-9	32241-08-0	1335-87-1	2234-13-1	1321-64-8	1335-88-2	1321-65-9
DRAFT Human Health - Direct Contact SCO:					480000	480000	480000	480	4800	480	4800	48000	48000
DRAFT Human Health - Food Uptake SCO:					1.586E+06 (child) / 3.147E+06 (adult)**	1.586E+06 (child) / 3.147E+06 (adult)**	NS	NS	NS	NS	NS	NS	NS
DRAFT Ecological SCO:					18000	18000	20400	NS	44400	NS	37200	30100	25100
Units:					ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Sample	**Location**	**Sample Date**	**Start Depth**	**End Depth**									
MW-01-8-12-20180803	MW-01	8/3/2018	8	12	95 U	U	95 U	95 U	95 U	95 U	95 U	95 U	95 U
MW-02-5-8-20180802	MW-02	8/2/2018	5	8	110 U	220 U	110 U	110 U	110 U	110 U	110 U	110 U	110 U
MW-04S-6-10-20180806	MW-04S	8/6/2018	6	10	97 UJ	210 U	97 UJ	97 UJ	97 UJ	97 UJ	97 UJ	97 UJ	97 UJ
MW-05-D1-20180801	MW-05D	8/1/2018	24	28	94 U	U	94 U	94 U	94 U	94 U	94 U	94 U	94 U
MW-05D-12-18-20180801	MW-05D	8/1/2018	12	18	100 U	210 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
MW-05D-24-28-20180801	MW-05D	8/1/2018	24	28	98 U		98 U	98 U	98 U	98 U	98 U	98 U	98 U
MW-06D-20-22-20180731	MW-06D	7/31/2018	20	22	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U
MW-06D-6-10-20180731	MW-06D	7/31/2018	6	10	130 UT	280 U	130 UT	130 U	130 U	130 UJ	130 U	130 UT	130 U
MW-07D-17-20-20180724	MW-07D	7/24/2018	17	20	110 U		110 U	110 U	110 U	110 U	110 U	110 U	110 U
MW-07D-7-10-20180724	MW-07D	7/24/2018	7	10	110 U	240 U	110 U	110 U	110 U	110 U	110 U	110 U	110 U
MW-08D-20-24-20180725	MW-08D	7/25/2018	20	24	110 U		110 U	110 U	110 U	110 U	110 U	110 U	110 U
MW-08D-7-10-20180725	MW-08D	7/25/2018	7	10	100 U	220 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
MW-09D-24-28-20180730	MW-09D	7/30/2018	24	28	86 U		86 U	86 U	86 U	86 U	86 U	86 U	86 U
MW-10D-20-26-20180726	MW-10D	7/26/2018	20	26	96 U		96 U	96 U	96 U	96 U	96 U	96 U	96 U
MW-10D-6-12-20180726	MW-10D	7/26/2018	6	12	96 U	200 U	96 U	96 U	96 U	96 U	96 U	96 U	96 U
MW-9D-6-10-20180727	MW-09D	7/27/2018	6	10	95 U	190 U	95 U	95 U	95 U	95 U	95 U	95 U	95 U
SS-01-0.2-1.0-20180514	SS-01	5/14/2018	0.2	1	87 U		87 U	87 U	87 U	87 UJ	26 J	92	51 J
SS-01-0-0.2-20180514	SS-01	5/14/2018	0	0.2	87 U		87 U	87 UJ	87 UJ	87 UJ	170 J	490	300
SS-01-1.0-2.0-20180514	SS-01	5/14/2018	1	2	95 U		95 U	95 U	95 U	95 UJ	95 U	95 U	95 U
SS-02-0.2-1.0-20180514	SS-02	5/14/2018	0.2	1	100 U		100 U	100 U	100 U	100 UJ	100 U	48 J	100 U
SS-02-0-0.2-20180514	SS-02	5/14/2018	0	0.2	110 U		110 U	110 U	110 U	110 UJ	25 J	78 J	27 J
SS-02-1.0-2.0-20180514	SS-02	5/14/2018	1	2	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U
SS-03-0.0-1.0-20180802	SS-03	8/2/2018	0	1	100 U	210 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
SS-03-1.0-2.0-20180802	SS-03	8/2/2018	1	2	99 U	200 U	99 U	99 U	99 U	99 U	99 U	99 U	99 U
SS-04-0.0-1.0-20180803	SS-04	8/3/2018	0	1	100 U	210 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
SS-04-1.0-2.0-20180803	SS-04	8/3/2018	1	2	100 U	210 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
SS-05-0-0.2-20180514	SS-05	5/14/2018	0	0.2	95 U	200 U	95 U	95 U	95 U	95 UJ	95 U	28 J	95 U
SS-05-1-1.3-20180514	SS-05	5/14/2018	1	1.3	95 U	2000 U	95 U	95 U	95 U	95 UJ	44 J	100	21 J
SS-06-0.2-1.0-20180514	SS-06	5/14/2018	0.2	1	93 U	1000 U	93 U	93 U	93 U	93 UJ	93 U	93 U	93 U
SS-06-0-0.2-20180514	SS-06	5/14/2018	0	0.2	110 U	1100 U	110 U	110 U	110 U	110 UJ	110 U	110 U	110 U
SS-07-0.2-1.0-20180514	SS-07	5/14/2018	0.2	1	95 U	190 U	95 U	95 U	95 U	95 U	95 U	95 U	95 U
SS-07-0-0.2-20180514	SS-07	5/14/2018	0	0.2	91 U	180 U	91 U	91 U	91 U	91 U	91 U	91 U	91 U
SS-08-0.2-1.0-20180514	SS-08	5/14/2018	0.2	1	96 U	200 U	96 U	96 U	96 U	96 U	96 U	29 J	96 U
SS-08-0-0.2-20180514	SS-08	5/14/2018	0	0.2	94 U	150 U	94 U	94 U	94 U	94 U	94 U	55 J	22 J
SS-08-1.0-2.0-20180514	SS-08	5/14/2018	1	2	98 U	210 U	98 U	98 U	98 U	98 U	98 U	98 U	98 U
SS-09-0-0.2-20180515	SS-09	5/15/2018	0	0.2	69 J	210 U	240	100 U	46 J	100 U	1000	4300	2100
SS-09-1.0-2.0-20180515	SS-09	5/15/2018	1	2	94 U		94 U	94 U	94 U	94 U	71 J	360 J	120
SS-10-0.0-1.0-20180807	SS-10	8/7/2018	0	1	98 UJ	210 U	98 UJ	98 UJ	98 UJ	98 UJ	98 UJ	29 J-	98 UJ
SS-10-1.0-2.0-20180807	SS-10	8/7/2018	1	2	95 UJ		95 UJ	95 UJ	95 UJ	95 UJ	95 UJ	95 UJ	95 UJ
SS-11-0.0-1.0-20180807	SS-11	8/7/2018	0	1	91 UJ	190 U	91 UJ	91 UJ	91 UJ	91 UJ	91 UJ	91 UJ	91 UJ
SS-11-0.1-2.0-20180807	SS-11	8/7/2018	0.1	2	98 UJ		98 UJ	98 UJ	98 UJ	98 UJ	98 UJ	59 J-	27 J-
SS-12D-20180807	SS-11	8/7/2018	0	1	92 U	190 U	92 U	92 U	92 U	92 U	92 U	92 U	92 U
SS-DUPE-1-20180515	SS-09	5/15/2018	~~1~~ 0	~~2~~ 0.2	40 J	1000 U	180	97 U	41 J	97 U	810	3700	1600

Qualifiers

J - Result is estimated. +/- indicates direction of bias.

T - A quality control parameter has exceeded laboratory limits.

U - Result is non-detect.

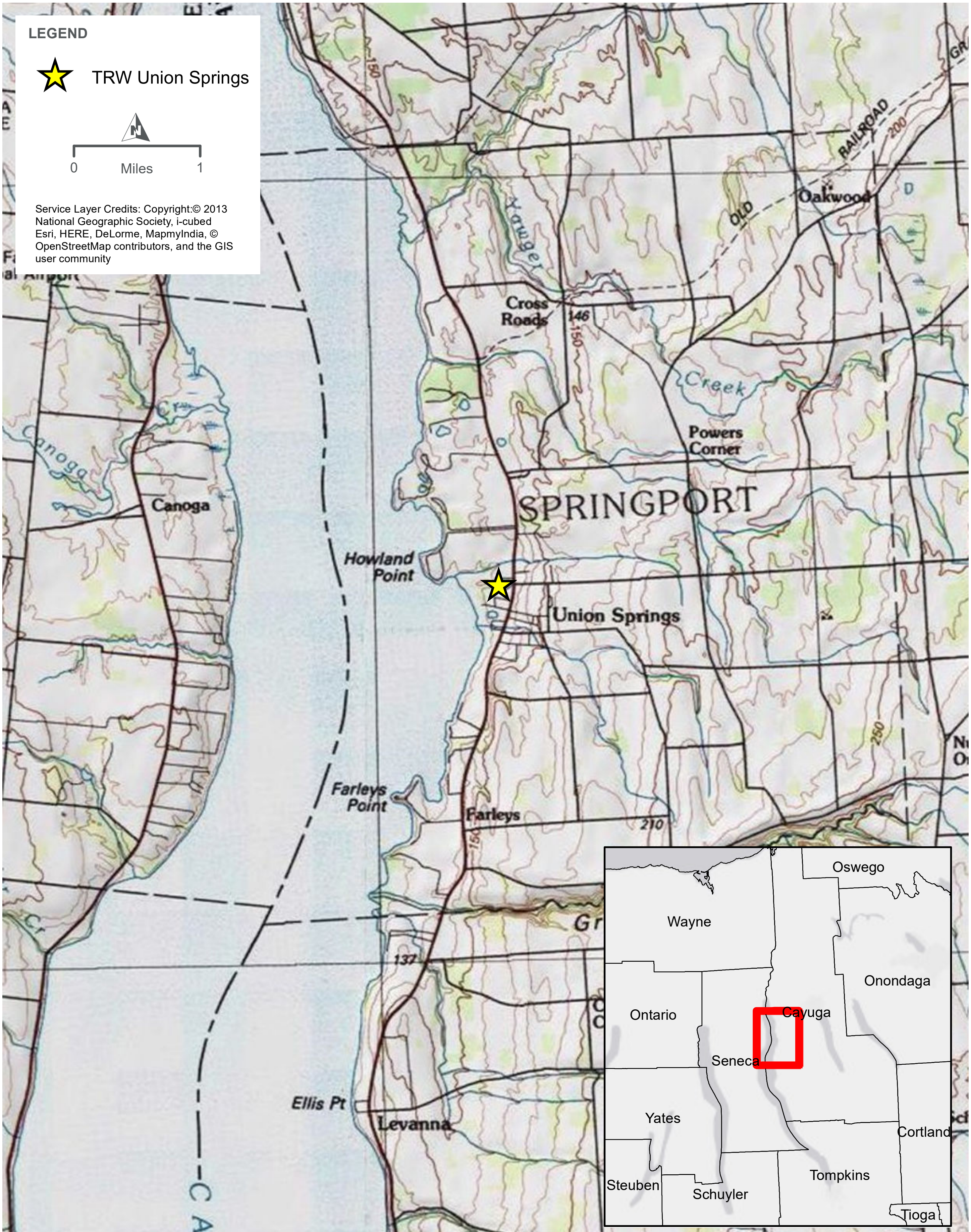
Food Uptake = Homegrown Garden Vegetable Consumption
Draft Ecological SCO - based on studies with short tailed shrew

** toxicity values used to calculate food uptake SCO only available for 2-CN but screening value applied to 1-CN since it is also a mono-CN

Prior on-site screening values have been review by NYSDEC / NYSDOH

Criteria units: ug/kg
NS - No Standard (due to lack of toxicity data for these homologs)

Figures



SITE MAP

TRW UNION SPRINGS

FIGURE 1

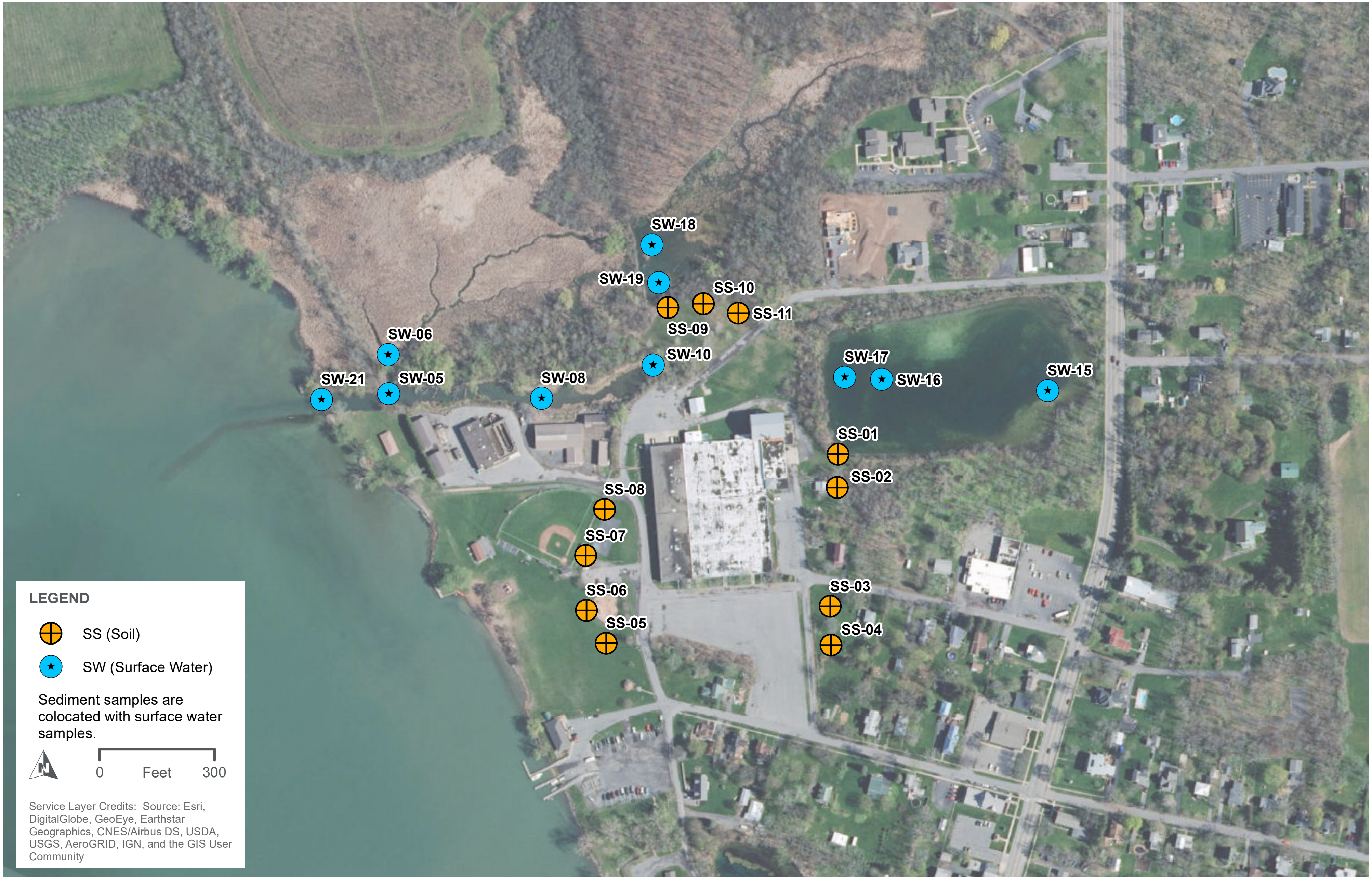
UNION SPRINGS OPERABLE UNITS MAP

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE 2

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\CHEMBOXES\US_CHEMBOXES\US_CHEMBOXES.APRX - USER: HROSADO - DATE: 2/10/2020

UNION SPRINGS, NEW YORK



OFF-SITE SOIL, SURFACE WATER, AND SEDIMENT SAMPLE LOCATIONS MAP

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE 3

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\UNIONSPRINGS_SAMPLELOCATIONS.MXD - USER: HROSADO - DATE: 2/10/2020

UNION SPRINGS, NEW YORK

HDR

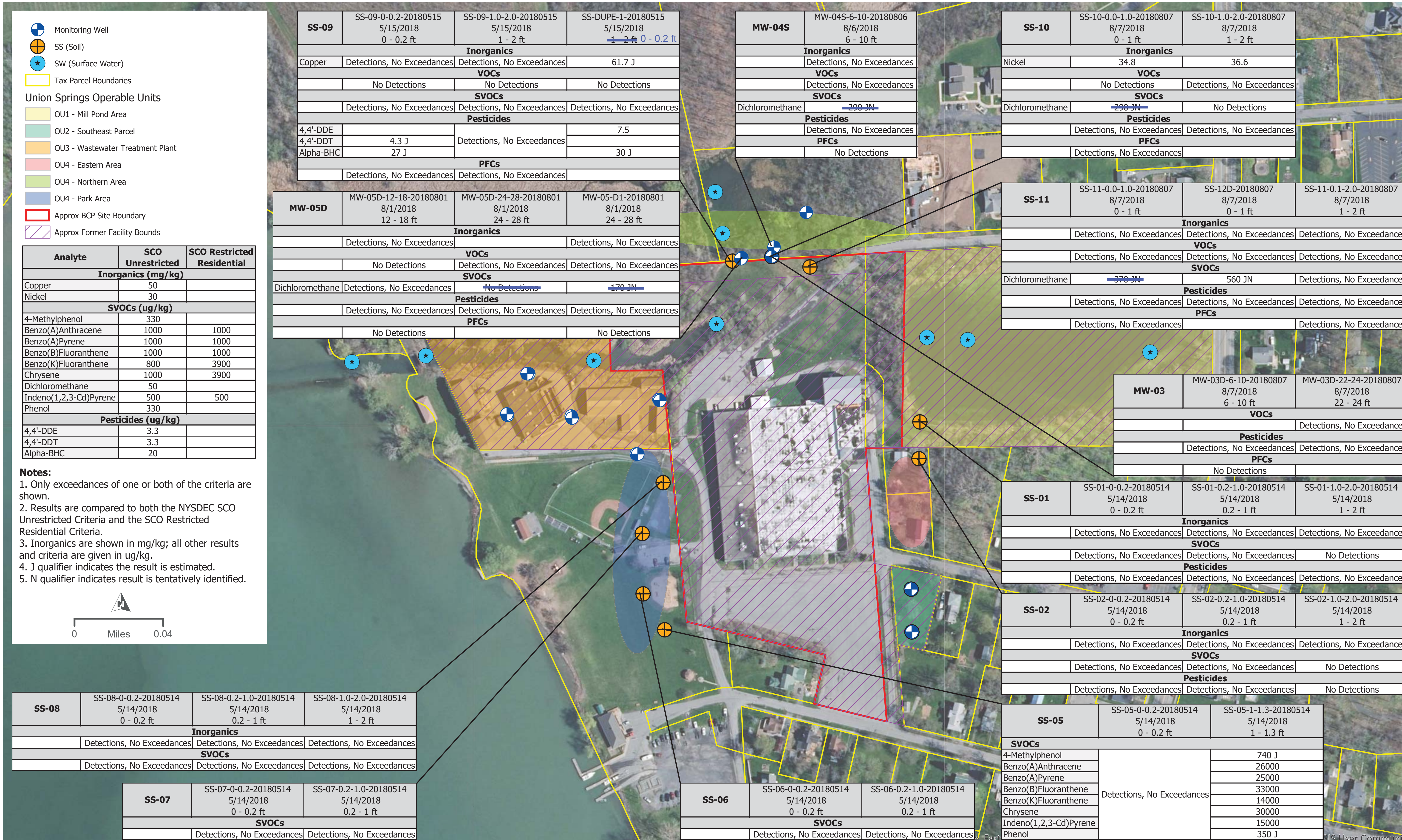
OFF-SITE MONITORING WELL SOIL & GROUNDWATER SAMPLE LOCATIONS MAP

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE 4

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\CHEMBOXES\US_CHEMBOXES\US_CHEMBOXES.APRX - USER: HROSADO - DATE: 2/10/2020

UNION SPRINGS, NEW YORK



Analyte	SCO Unrestricted	SCO Restricted Residential
Inorganics (mg/kg)		
Copper	50	
Nickel	30	
SVOCs (ug/kg)		
4-Methylphenol	330	
Benzo(A)Anthracene	1000	1000
Benzo(A)Pyrene	1000	1000
Benzo(B)Fluoranthene	1000	1000
Benzo(K)Fluoranthene	800	3900
Chrysene	1000	3900
Dichloromethane	50	
Indeno(1,2,3-Cd)Pyrene	500	500
Phenol	330	
Pesticides (ug/kg)		
4,4'-DDE	3.3	
4,4'-DDT	3.3	
Alpha-BHC	20	

Notes:
1. Only exceedances of one or both of the criteria are shown.
2. Results are compared to both the NYSDEC SCO Unrestricted Criteria and the SCO Restricted Residential Criteria.
3. Inorganics are shown in mg/kg; all other results and criteria are given in ug/kg.
4. J qualifier indicates the result is estimated.
5. N qualifier indicates result is tentatively identified.

SS-09	SS-09-0-0.2-20180515 5/15/2018 0 - 0.2 ft	SS-09-1.0-2.0-20180515 5/15/2018 1 - 2 ft	SS-DUPE-1-20180515 5/15/2018 ~~1 - 2 ft~~ 0 - 0.2 ft
Inorganics			
Copper	Detections, No Exceedances	Detections, No Exceedances	61.7 J
VOCs			
	No Detections	No Detections	No Detections
SVOCs			
	Detections, No Exceedances	Detections, No Exceedances	Detections, No Exceedances
Pesticides			
4,4'-DDE		Detections, No Exceedances	7.5
4,4'-DDT	4.3 J		
Alpha-BHC	27 J		30 J
PFCs			
	Detections, No Exceedances	Detections, No Exceedances	

MW-04S	MW-04S-6-10-20180806 8/6/2018 6 - 10 ft
Inorganics	
	Detections, No Exceedances
VOCs	
	Detections, No Exceedances
SVOCs	
Dichloromethane	~~290 JN~~
Pesticides	
	Detections, No Exceedances
PFCs	
	No Detections

SS-10	SS-10-0.0-1.0-20180807 8/7/2018 0 - 1 ft	SS-10-1.0-2.0-20180807 8/7/2018 1 - 2 ft
Inorganics		
Nickel	34.8	36.6
VOCs		
	No Detections	Detections, No Exceedances
SVOCs		
Dichloromethane	~~290 JN~~	No Detections
Pesticides		
	Detections, No Exceedances	Detections, No Exceedances
PFCs		
	Detections, No Exceedances	

MW-05D	MW-05D-12-18-20180801 8/1/2018 12 - 18 ft	MW-05D-24-28-20180801 8/1/2018 24 - 28 ft	MW-05-D1-20180801 8/1/2018 24 - 28 ft
Inorganics			
	Detections, No Exceedances		Detections, No Exceedances
VOCs			
	No Detections	Detections, No Exceedances	Detections, No Exceedances
SVOCs			
Dichloromethane	Detections, No Exceedances	~~No Detections~~	~~170 JN~~
Pesticides			
	Detections, No Exceedances	Detections, No Exceedances	Detections, No Exceedances
PFCs			
	No Detections		No Detections

SS-11	SS-11-0.0-1.0-20180807 8/7/2018 0 - 1 ft	SS-12D-20180807 8/7/2018 0 - 1 ft	SS-11-0.1-2.0-20180807 8/7/2018 1 - 2 ft
Inorganics			
	Detections, No Exceedances	Detections, No Exceedances	Detections, No Exceedances
VOCs			
	Detections, No Exceedances	Detections, No Exceedances	Detections, No Exceedances
SVOCs			
Dichloromethane	~~370 JN~~	560 JN	Detections, No Exceedances
Pesticides			
	Detections, No Exceedances	Detections, No Exceedances	Detections, No Exceedances
PFCs			
	Detections, No Exceedances		Detections, No Exceedances

MW-03	MW-03D-6-10-20180807 8/7/2018 6 - 10 ft	MW-03D-22-24-20180807 8/7/2018 22 - 24 ft
VOCs		
		Detections, No Exceedances
Pesticides		
	Detections, No Exceedances	Detections, No Exceedances
PFCs		
	No Detections	

SS-01	SS-01-0-0.2-20180514 5/14/2018 0 - 0.2 ft	SS-01-0.2-1.0-20180514 5/14/2018 0.2 - 1 ft	SS-01-1.0-2.0-20180514 5/14/2018 1 - 2 ft
Inorganics			
	Detections, No Exceedances	Detections, No Exceedances	Detections, No Exceedances
SVOCs			
	Detections, No Exceedances	Detections, No Exceedances	No Detections
Pesticides			
	Detections, No Exceedances	Detections, No Exceedances	Detections, No Exceedances

SS-02	SS-02-0-0.2-20180514 5/14/2018 0 - 0.2 ft	SS-02-0.2-1.0-20180514 5/14/2018 0.2 - 1 ft	SS-02-1.0-2.0-20180514 5/14/2018 1 - 2 ft
Inorganics			
	Detections, No Exceedances	Detections, No Exceedances	Detections, No Exceedances
SVOCs			
	Detections, No Exceedances	Detections, No Exceedances	No Detections
Pesticides			
	Detections, No Exceedances	Detections, No Exceedances	No Detections

SS-05	SS-05-0-0.2-20180514 5/14/2018 0 - 0.2 ft	SS-05-1-1.3-20180514 5/14/2018 1 - 1.3 ft
SVOCs		
4-Methylphenol	Detections, No Exceedances	740 J
Benzo(A)Anthracene		26000
Benzo(A)Pyrene		25000
Benzo(B)Fluoranthene		33000
Benzo(K)Fluoranthene		14000
Chrysene		30000
Indeno(1,2,3-Cd)Pyrene		15000
Phenol		350 J

SS-08	SS-08-0-0.2-20180514 5/14/2018 0 - 0.2 ft	SS-08-0.2-1.0-20180514 5/14/2018 0.2 - 1 ft	SS-08-1.0-2.0-20180514 5/14/2018 1 - 2 ft
Inorganics			
	Detections, No Exceedances	Detections, No Exceedances	Detections, No Exceedances
SVOCs			
	Detections, No Exceedances	Detections, No Exceedances	Detections, No Exceedances

SS-07	SS-07-0-0.2-20180514 5/14/2018 0 - 0.2 ft	SS-07-0.2-1.0-20180514 5/14/2018 0.2 - 1 ft
SVOCs		
	Detections, No Exceedances	Detections, No Exceedances

SS-06	SS-06-0-0.2-20180514 5/14/2018 0 - 0.2 ft	SS-06-0.2-1.0-20180514 5/14/2018 0.2 - 1 ft
SVOCs		
	Detections, No Exceedances	Detections, No Exceedances

HDR

OU1 & OU4 SOIL SAMPLE DETECTIONS & EXCEEDANCES SUMMARY

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE 5A

UNION SPRINGS, NEW YORK

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\CHEMBOXES\US_CHEMBOXES.APRX - USER: HROSADO - DATE: 2/10/2020

Analyte	SCO Unrestricted	SCO Restricted Residential
Inorganics (mg/kg)		
Copper	50	
Manganese	1600	
Nickel	30	
SVOCs (ug/kg)		
Dichloromethane	50	

Notes:
1. Only exceedances of one or both of the criteria are shown.
2. Results are compared to both the NYSDEC SCO Unrestricted Criteria and the SCO Restricted Residential Criteria.
3. Inorganics are shown in mg/kg; all other results and criteria are given in ug/kg.
4. B qualifier indicates contamination was found in the associated quality control blank.
5. J qualifier indicates the result is estimated.
6. N qualifier indicates result is tentatively identified.

SS-03	SS-03-0.0-1.0-20180802 8/2/2018 0 - 1 ft	SS-03-1.0-2.0-20180802 8/2/2018 1 - 2 ft
Inorganics		
Manganese	1700 B	
Nickel		36.2
VOCs		
	No Detections	No Detections
SVOCs		
Dichloromethane	~~180 JN~~	~~230 JN~~
Pesticides		
	Detections, No Exceedances	Detections, No Exceedances
PFCs		
	Detections, No Exceedances	No Detections

SS-04	SS-04-0.0-1.0-20180803 8/3/2018 0 - 1 ft	SS-04-1.0-2.0-20180803 8/3/2018 1 - 2 ft
Inorganics		
Copper	55	
Nickel		50
VOCs		
	No Detections	No Detections
SVOCs		
Dichloromethane	~~220 JN~~	~~280 JN~~
Pesticides		
	Detections, No Exceedances	Detections, No Exceedances
PFCs		
	Detections, No Exceedances	No Detections

MW-02	MW-02-5-8-20180802 8/2/2018 5 - 8 ft
Inorganics	
	Detections, No Exceedances
VOCs	
	Detections, No Exceedances
SVOCs	
Dichloromethane	~~230 JN~~
Pesticides	
	Detections, No Exceedances
PFCs	
	No Detections

MW-01	MW-01-8-12-20180803 8/3/2018 8 - 12 ft
Inorganics	
	Detections, No Exceedances
VOCs	
	Detections, No Exceedances
SVOCs	
Dichloromethane	~~160 JN~~
Pesticides	
	Detections, No Exceedances
PFCs	
	Detections, No Exceedances

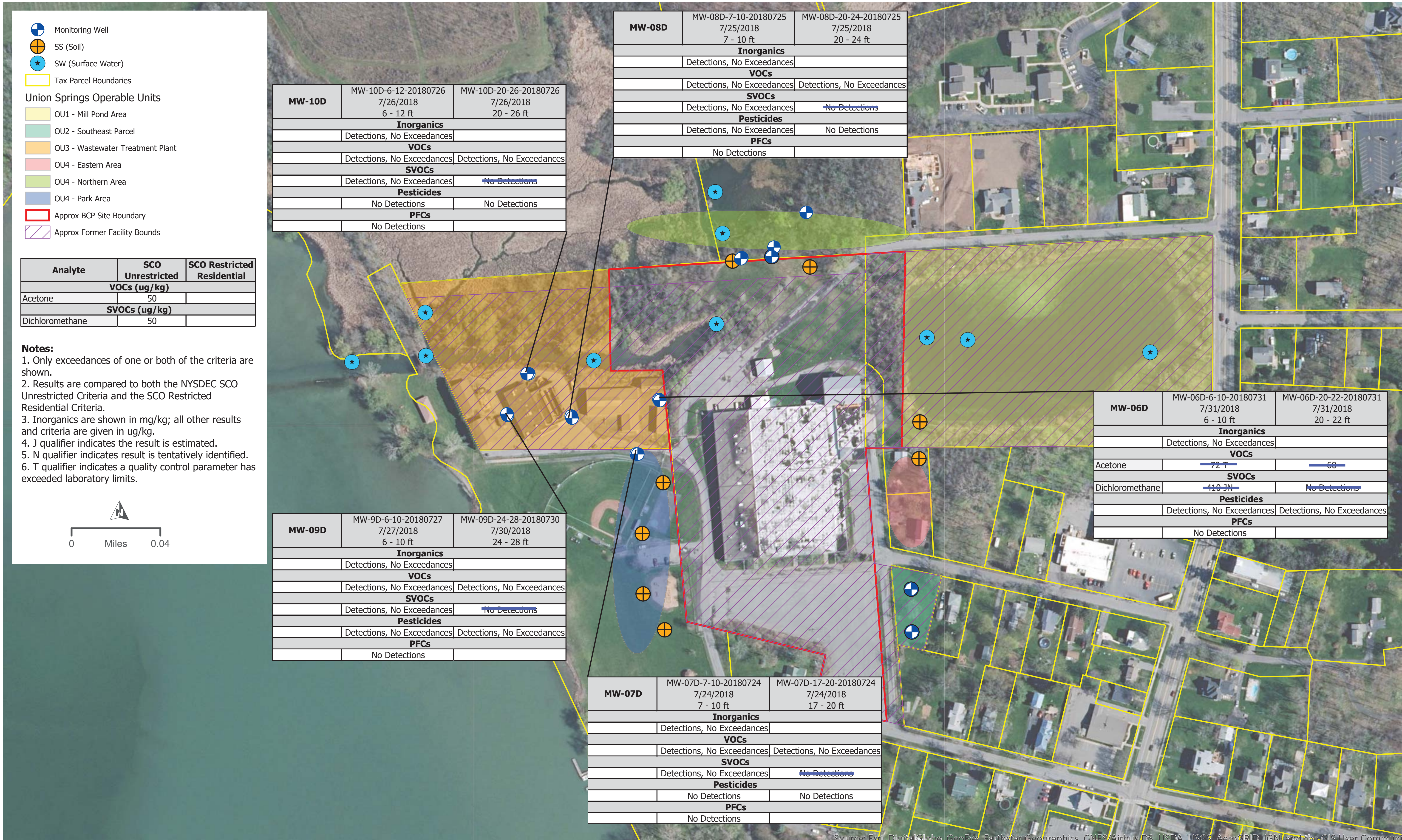
OU2 SOIL SAMPLE DETECTIONS & EXCEEDANCES SUMMARY

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE 5B

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\CHEMBOXES\US_CHEMBOXES.APRX - USER: HROSADO - DATE: 2/10/2020

UNION SPRINGS, NEW YORK



Analyte	SCO Unrestricted	SCO Restricted Residential
VOCs (ug/kg)		
Acetone	50	
SVOCs (ug/kg)		
Dichloromethane	50	

Notes:
1. Only exceedances of one or both of the criteria are shown.
2. Results are compared to both the NYSDEC SCO Unrestricted Criteria and the SCO Restricted Residential Criteria.
3. Inorganics are shown in mg/kg; all other results and criteria are given in ug/kg.
4. J qualifier indicates the result is estimated.
5. N qualifier indicates result is tentatively identified.
6. T qualifier indicates a quality control parameter has exceeded laboratory limits.

MW-08D	MW-08D-7-10-20180725 7/25/2018 7 - 10 ft	MW-08D-20-24-20180725 7/25/2018 20 - 24 ft
Inorganics		
	Detections, No Exceedances	
VOCs		
	Detections, No Exceedances	Detections, No Exceedances
SVOCs		
	Detections, No Exceedances	~~No Detections~~
Pesticides		
	Detections, No Exceedances	No Detections
PFCs		
	No Detections	

MW-10D	MW-10D-6-12-20180726 7/26/2018 6 - 12 ft	MW-10D-20-26-20180726 7/26/2018 20 - 26 ft
Inorganics		
	Detections, No Exceedances	
VOCs		
	Detections, No Exceedances	Detections, No Exceedances
SVOCs		
	Detections, No Exceedances	~~No Detections~~
Pesticides		
	No Detections	No Detections
PFCs		
	No Detections	

MW-06D	MW-06D-6-10-20180731 7/31/2018 6 - 10 ft	MW-06D-20-22-20180731 7/31/2018 20 - 22 ft
Inorganics		
	Detections, No Exceedances	
VOCs		
Acetone	~~72 T~~	~~60~~
SVOCs		
Dichloromethane	~~410 JN~~	~~No Detections~~
Pesticides		
	Detections, No Exceedances	Detections, No Exceedances
PFCs		
	No Detections	

MW-09D	MW-9D-6-10-20180727 7/27/2018 6 - 10 ft	MW-09D-24-28-20180730 7/30/2018 24 - 28 ft
Inorganics		
	Detections, No Exceedances	
VOCs		
	Detections, No Exceedances	Detections, No Exceedances
SVOCs		
	Detections, No Exceedances	~~No Detections~~
Pesticides		
	Detections, No Exceedances	Detections, No Exceedances
PFCs		
	No Detections	

MW-07D	MW-07D-7-10-20180724 7/24/2018 7 - 10 ft	MW-07D-17-20-20180724 7/24/2018 17 - 20 ft
Inorganics		
	Detections, No Exceedances	
VOCs		
	Detections, No Exceedances	Detections, No Exceedances
SVOCs		
	Detections, No Exceedances	~~No Detections~~
Pesticides		
	No Detections	No Detections
PFCs		
	No Detections	

HDR

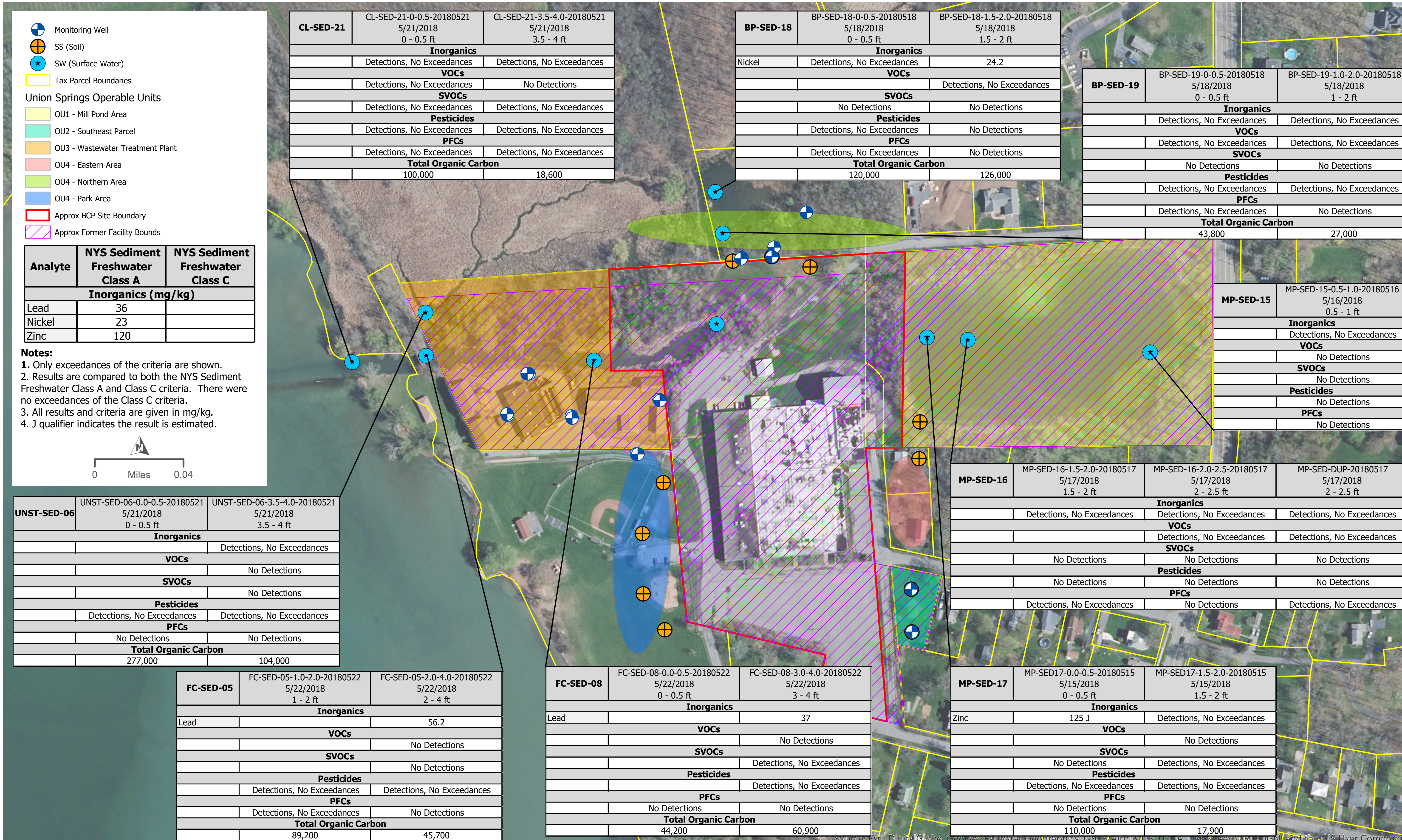
OU3 SOIL SAMPLE DETECTIONS & EXCEEDANCES SUMMARY

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE 5C

UNION SPRINGS, NEW YORK

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\CHEMBOXES\US_CHEMBOXES.APRX - USER: HROSADO - DATE: 2/10/2020



Analyte	NYS Sediment Freshwater Class A	NYS Sediment Freshwater Class C
Inorganics (mg/kg)		
Lead	36	
Nickel	23	
Zinc	120	

Notes:
1. Only exceedances of the criteria are shown.
2. Results are compared to both the NYS Sediment Freshwater Class A and Class C criteria. There were no exceedances of the Class C criteria.
3. All results and criteria are given in mg/kg.
4. J qualifier indicates the result is estimated.

CL-SED-21	CL-SED-21-0-0.5-20180521 5/21/2018 0 - 0.5 ft	CL-SED-21-3.5-4.0-20180521 5/21/2018 3.5 - 4 ft
Inorganics		
	Detections, No Exceedances	Detections, No Exceedances
VOCs		
	Detections, No Exceedances	No Detections
SVOCs		
	Detections, No Exceedances	Detections, No Exceedances
Pesticides		
	Detections, No Exceedances	Detections, No Exceedances
PFCs		
	Detections, No Exceedances	Detections, No Exceedances
Total Organic Carbon		
	100,000	18,600

BP-SED-18	BP-SED-18-0-0.5-20180518 5/18/2018 0 - 0.5 ft	BP-SED-18-1.5-2.0-20180518 5/18/2018 1.5 - 2 ft
Inorganics		
Nickel	Detections, No Exceedances	24.2
VOCs		
		Detections, No Exceedances
SVOCs		
	No Detections	No Detections
Pesticides		
	Detections, No Exceedances	No Detections
PFCs		
	Detections, No Exceedances	No Detections
Total Organic Carbon		
	120,000	126,000

BP-SED-19	BP-SED-19-0-0.5-20180518 5/18/2018 0 - 0.5 ft	BP-SED-19-1.0-2.0-20180518 5/18/2018 1 - 2 ft
Inorganics		
	Detections, No Exceedances	Detections, No Exceedances
VOCs		
	Detections, No Exceedances	Detections, No Exceedances
SVOCs		
	No Detections	No Detections
Pesticides		
	Detections, No Exceedances	Detections, No Exceedances
PFCs		
	Detections, No Exceedances	No Detections
Total Organic Carbon		
	43,800	27,000

MP-SED-15	MP-SED-15-0.5-1.0-20180516 5/16/2018 0.5 - 1 ft
Inorganics	
	Detections, No Exceedances
VOCs	
	No Detections
SVOCs	
	No Detections
Pesticides	
	No Detections
PFCs	
	No Detections

MP-SED-16	MP-SED-16-1.5-2.0-20180517 5/17/2018 1.5 - 2 ft	MP-SED-16-2.0-2.5-20180517 5/17/2018 2 - 2.5 ft	MP-SED-DUP-20180517 5/17/2018 2 - 2.5 ft
Inorganics			
	Detections, No Exceedances	Detections, No Exceedances	Detections, No Exceedances
VOCs			
		Detections, No Exceedances	Detections, No Exceedances
SVOCs			
	No Detections	No Detections	No Detections
Pesticides			
	No Detections	No Detections	No Detections
PFCs			
	Detections, No Exceedances	No Detections	Detections, No Exceedances

UNST-SED-06	UNST-SED-06-0.0-0.5-20180521 5/21/2018 0 - 0.5 ft	UNST-SED-06-3.5-4.0-20180521 5/21/2018 3.5 - 4 ft
Inorganics		
		Detections, No Exceedances
VOCs		
		No Detections
SVOCs		
		No Detections
Pesticides		
	Detections, No Exceedances	Detections, No Exceedances
PFCs		
	No Detections	No Detections
Total Organic Carbon		
	277,000	104,000

FC-SED-05	FC-SED-05-1.0-2.0-20180522 5/22/2018 1 - 2 ft	FC-SED-05-2.0-4.0-20180522 5/22/2018 2 - 4 ft
Inorganics		
Lead		56.2
VOCs		
		No Detections
SVOCs		
		No Detections
Pesticides		
	Detections, No Exceedances	Detections, No Exceedances
PFCs		
	Detections, No Exceedances	No Detections
Total Organic Carbon		
	89,200	45,700

FC-SED-08	FC-SED-08-0.0-0.5-20180522 5/22/2018 0 - 0.5 ft	FC-SED-08-3.0-4.0-20180522 5/22/2018 3 - 4 ft
Inorganics		
Lead		37
VOCs		
		No Detections
SVOCs		
		Detections, No Exceedances
Pesticides		
		Detections, No Exceedances
PFCs		
	No Detections	No Detections
Total Organic Carbon		
	44,200	60,900

MP-SED-17	MP-SED17-0.0-0.5-20180515 5/15/2018 0 - 0.5 ft	MP-SED17-1.5-2.0-20180515 5/15/2018 1.5 - 2 ft
Inorganics		
Zinc	125 J	Detections, No Exceedances
VOCs		
		No Detections
SVOCs		
	No Detections	Detections, No Exceedances
Pesticides		
	Detections, No Exceedances	Detections, No Exceedances
PFCs		
	No Detections	No Detections
Total Organic Carbon		
	110,000	17,900

FDR

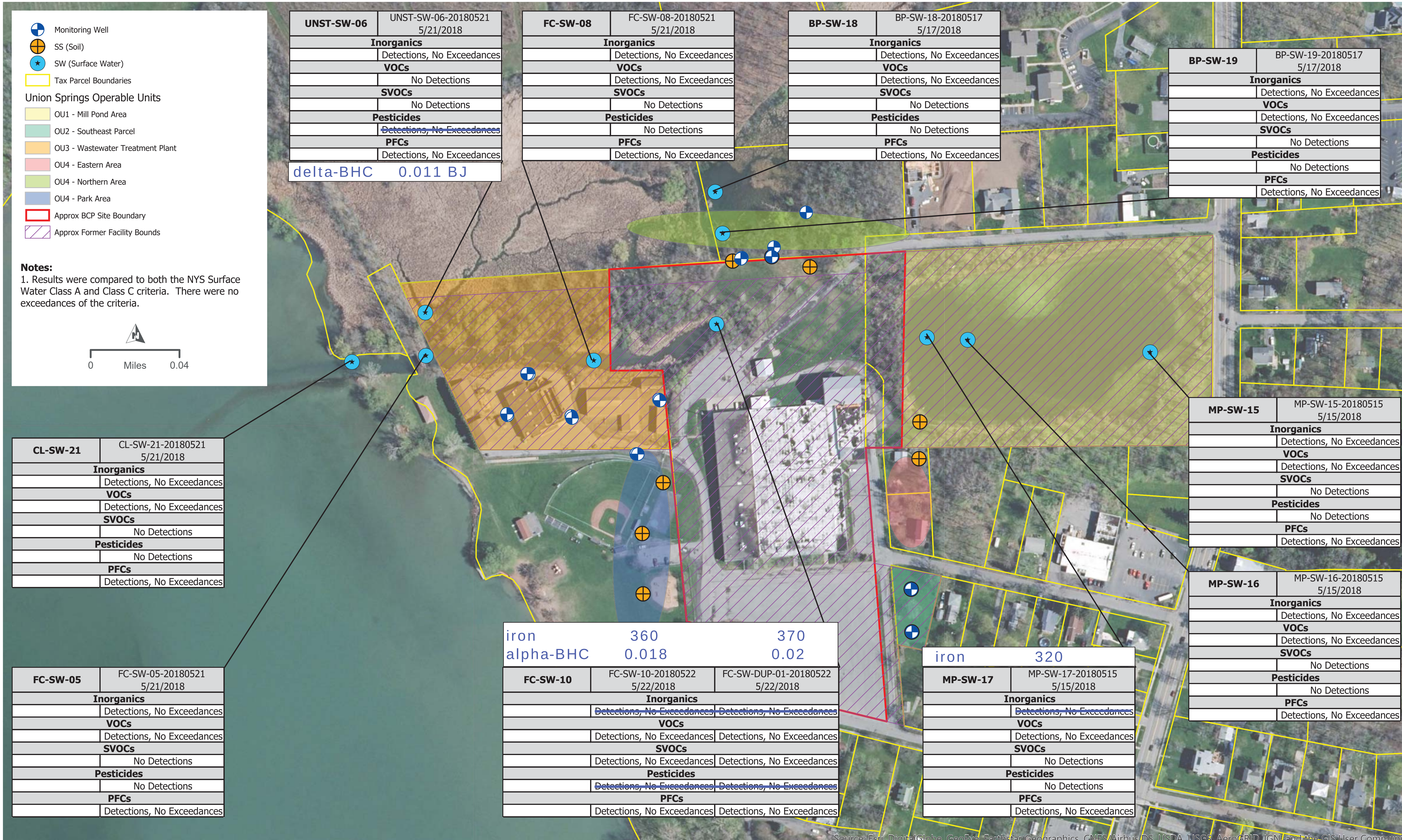
OFF-SITE SEDIMENT SAMPLE DETECTIONS & EXCEEDANCES SUMMARY

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE 6

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\CHEMBOXES\US_CHEMBOXES.APRX - USER: HROSADO - DATE: 2/10/2020

UNION SPRINGS, NEW YORK



UNST-SW-06	UNST-SW-06-20180521 5/21/2018
Inorganics	
	Detections, No Exceedances
VOCs	
	No Detections
SVOCs	
	No Detections
Pesticides	
	~~Detections, No Exceedances~~
PFCs	
	Detections, No Exceedances
delta-BHC	0.011 BJ

FC-SW-08	FC-SW-08-20180521 5/21/2018
Inorganics	
	Detections, No Exceedances
VOCs	
	Detections, No Exceedances
SVOCs	
	No Detections
Pesticides	
	No Detections
PFCs	
	Detections, No Exceedances

BP-SW-18	BP-SW-18-20180517 5/17/2018
Inorganics	
	Detections, No Exceedances
VOCs	
	Detections, No Exceedances
SVOCs	
	No Detections
Pesticides	
	No Detections
PFCs	
	Detections, No Exceedances

BP-SW-19	BP-SW-19-20180517 5/17/2018
Inorganics	
	Detections, No Exceedances
VOCs	
	Detections, No Exceedances
SVOCs	
	No Detections
Pesticides	
	No Detections
PFCs	
	Detections, No Exceedances

MP-SW-15	MP-SW-15-20180515 5/15/2018
Inorganics	
	Detections, No Exceedances
VOCs	
	Detections, No Exceedances
SVOCs	
	No Detections
Pesticides	
	No Detections
PFCs	
	Detections, No Exceedances

CL-SW-21	CL-SW-21-20180521 5/21/2018
Inorganics	
	Detections, No Exceedances
VOCs	
	Detections, No Exceedances
SVOCs	
	No Detections
Pesticides	
	No Detections
PFCs	
	Detections, No Exceedances

MP-SW-16	MP-SW-16-20180515 5/15/2018
Inorganics	
	Detections, No Exceedances
VOCs	
	Detections, No Exceedances
SVOCs	
	No Detections
Pesticides	
	No Detections
PFCs	
	Detections, No Exceedances

iron	360	370
alpha-BHC	0.018	0.02
FC-SW-10	FC-SW-10-20180522 5/22/2018	FC-SW-DUP-01-20180522 5/22/2018
Inorganics		
	~~Detections, No Exceedances~~	~~Detections, No Exceedances~~
VOCs		
	Detections, No Exceedances	Detections, No Exceedances
SVOCs		
	Detections, No Exceedances	Detections, No Exceedances
Pesticides		
	~~Detections, No Exceedances~~	~~Detections, No Exceedances~~
PFCs		
	Detections, No Exceedances	Detections, No Exceedances

iron	320
MP-SW-17	MP-SW-17-20180515 5/15/2018
Inorganics	
	~~Detections, No Exceedances~~
VOCs	
	Detections, No Exceedances
SVOCs	
	No Detections
Pesticides	
	No Detections
PFCs	
	Detections, No Exceedances

FC-SW-05	FC-SW-05-20180521 5/21/2018
Inorganics	
	Detections, No Exceedances
VOCs	
	Detections, No Exceedances
SVOCs	
	No Detections
Pesticides	
	No Detections
PFCs	
	Detections, No Exceedances

HDR

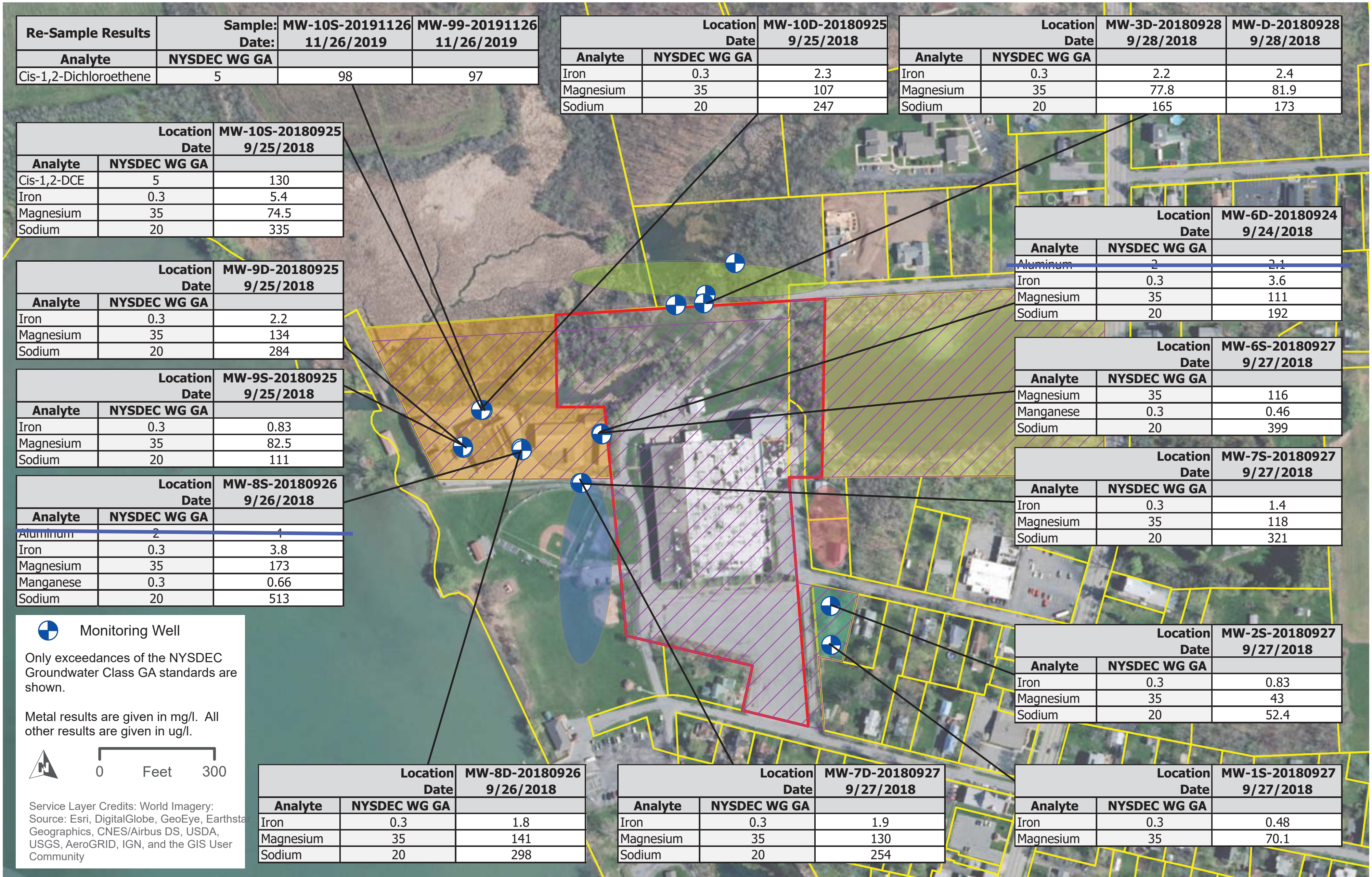
OFF-SITE SURFACE WATER SAMPLE DETECTIONS & EXCEEDANCES SUMMARY

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE 7

UNION SPRINGS, NEW YORK

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\CHEMBOXES\US_CHEMBOXES.APRX - USER: HROSADO - DATE: 2/10/2020



Re-Sample Results	Sample: Date:	MW-10S-20191126 11/26/2019	MW-99-20191126 11/26/2019
Analyte	NYSDEC WG GA		
Cis-1,2-Dichloroethene	5	98	97

	Location Date	MW-10D-20180925 9/25/2018
Analyte	NYSDEC WG GA	
Iron	0.3	2.3
Magnesium	35	107
Sodium	20	247

	Location Date	MW-3D-20180928 9/28/2018	MW-D-20180928 9/28/2018
Analyte	NYSDEC WG GA		
Iron	0.3	2.2	2.4
Magnesium	35	77.8	81.9
Sodium	20	165	173

	Location Date	MW-10S-20180925 9/25/2018
Analyte	NYSDEC WG GA	
Cis-1,2-DCE	5	130
Iron	0.3	5.4
Magnesium	35	74.5
Sodium	20	335

	Location Date	MW-6D-20180924 9/24/2018
Analyte	NYSDEC WG GA	
~~Aluminum~~	~~2~~	~~2.1~~
Iron	0.3	3.6
Magnesium	35	111
Sodium	20	192

	Location Date	MW-9D-20180925 9/25/2018
Analyte	NYSDEC WG GA	
Iron	0.3	2.2
Magnesium	35	134
Sodium	20	284

	Location Date	MW-6S-20180927 9/27/2018
Analyte	NYSDEC WG GA	
Magnesium	35	116
Manganese	0.3	0.46
Sodium	20	399

	Location Date	MW-9S-20180925 9/25/2018
Analyte	NYSDEC WG GA	
Iron	0.3	0.83
Magnesium	35	82.5
Sodium	20	111

	Location Date	MW-7S-20180927 9/27/2018
Analyte	NYSDEC WG GA	
Iron	0.3	1.4
Magnesium	35	118
Sodium	20	321

	Location Date	MW-8S-20180926 9/26/2018
Analyte	NYSDEC WG GA	
~~Aluminum~~	~~2~~	~~4~~
Iron	0.3	3.8
Magnesium	35	173
Manganese	0.3	0.66
Sodium	20	513

	Location Date	MW-2S-20180927 9/27/2018
Analyte	NYSDEC WG GA	
Iron	0.3	0.83
Magnesium	35	43
Sodium	20	52.4

	Location Date	MW-8D-20180926 9/26/2018
Analyte	NYSDEC WG GA	
Iron	0.3	1.8
Magnesium	35	141
Sodium	20	298

	Location Date	MW-7D-20180927 9/27/2018
Analyte	NYSDEC WG GA	
Iron	0.3	1.9
Magnesium	35	130
Sodium	20	254

	Location Date	MW-1S-20180927 9/27/2018
Analyte	NYSDEC WG GA	
Iron	0.3	0.48
Magnesium	35	70.1

HDR

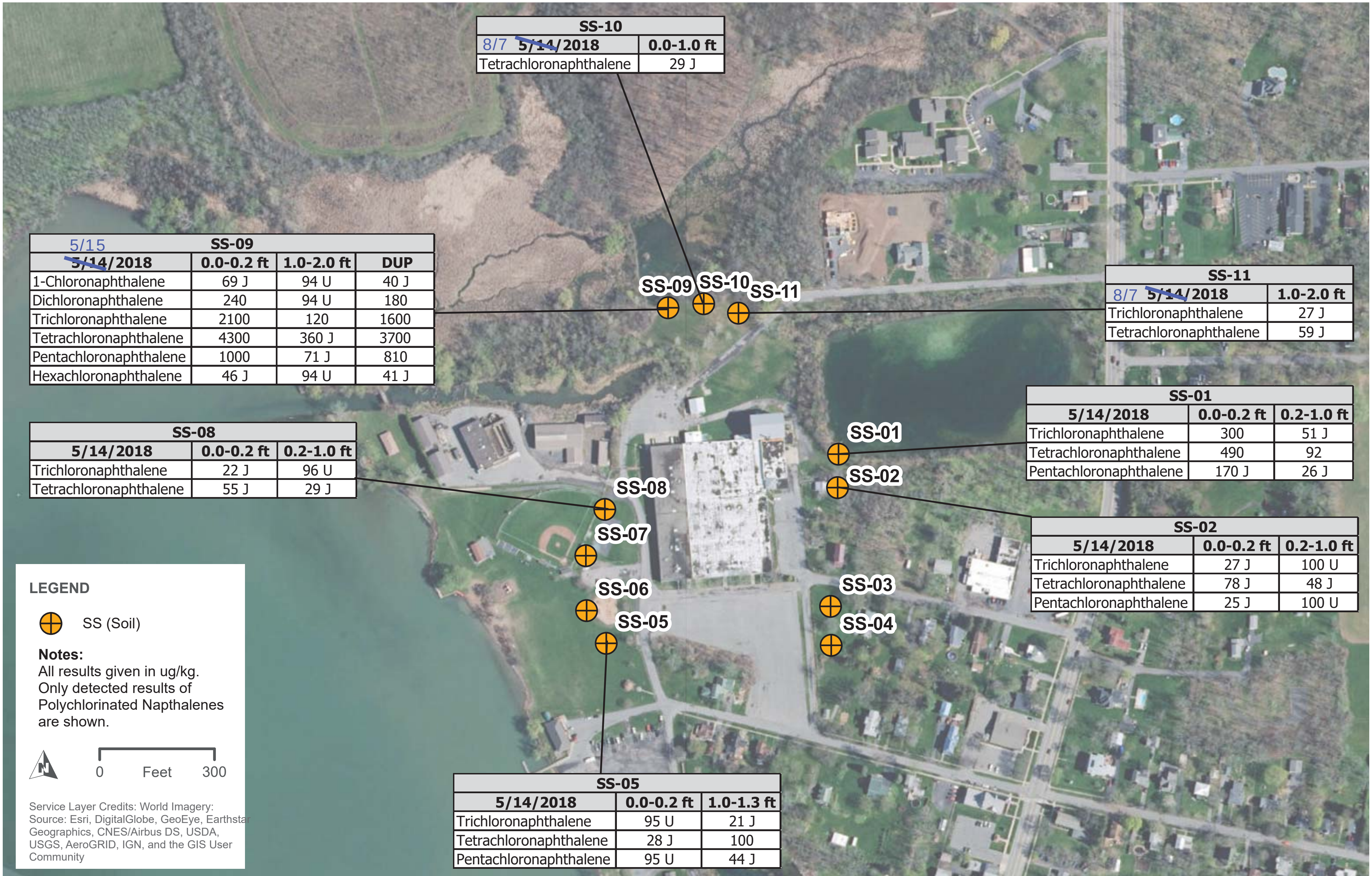
OFF-SITE GROUNDWATER SAMPLE DETECTIONS & EXCEEDANCES SUMMARY

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE 8

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\CHEMBOXES\US_CHEMBOXES\US_CHEMBOXES.APRX - USER: HROSADO - DATE: 2/10/2020

UNION SPRINGS, NEW YORK



SS-10	
8/7 ~~5/14~~/2018	0.0-1.0 ft
Tetrachloronaphthalene	29 J

SS-09			
5/15 ~~5/14~~/2018	0.0-0.2 ft	1.0-2.0 ft	DUP
1-Chloronaphthalene	69 J	94 U	40 J
Dichloronaphthalene	240	94 U	180
Trichloronaphthalene	2100	120	1600
Tetrachloronaphthalene	4300	360 J	3700
Pentachloronaphthalene	1000	71 J	810
Hexachloronaphthalene	46 J	94 U	41 J

SS-11	
8/7 ~~5/14~~/2018	1.0-2.0 ft
Trichloronaphthalene	27 J
Tetrachloronaphthalene	59 J

SS-01		
5/14/2018	0.0-0.2 ft	0.2-1.0 ft
Trichloronaphthalene	300	51 J
Tetrachloronaphthalene	490	92
Pentachloronaphthalene	170 J	26 J

SS-08		
5/14/2018	0.0-0.2 ft	0.2-1.0 ft
Trichloronaphthalene	22 J	96 U
Tetrachloronaphthalene	55 J	29 J

SS-02		
5/14/2018	0.0-0.2 ft	0.2-1.0 ft
Trichloronaphthalene	27 J	100 U
Tetrachloronaphthalene	78 J	48 J
Pentachloronaphthalene	25 J	100 U

SS-05		
5/14/2018	0.0-0.2 ft	1.0-1.3 ft
Trichloronaphthalene	95 U	21 J
Tetrachloronaphthalene	28 J	100
Pentachloronaphthalene	95 U	44 J

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OFF-SITE SOIL – PCN ANALYTICAL SUMMARY

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE 9A

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\PCN_CHEMBOXES\UNIONSPRINGS_CHEMBOXES\UNIONSPRINGS_CHEMBOXES.APRX - USER: HROSADO - DATE: 2/10/2020

UNION SPRINGS, NEW YORK

5/22 FC-SED-08	
~~5/21~~/2018	3.0-4.0 ft
Dichloronaphthalene	52 J
Trichloronaphthalene	110 J

5/16 MP-SED-17	1.5-2.0 ft
~~5/21~~/2018	~~3.0-4.0 ft~~
Trichloronaphthalene	43 J

CL-SED-21		
5/21/2018	0.0-0.5 ft	3.5-4.0 ft
Trichloronaphthalene	60 J	44 J

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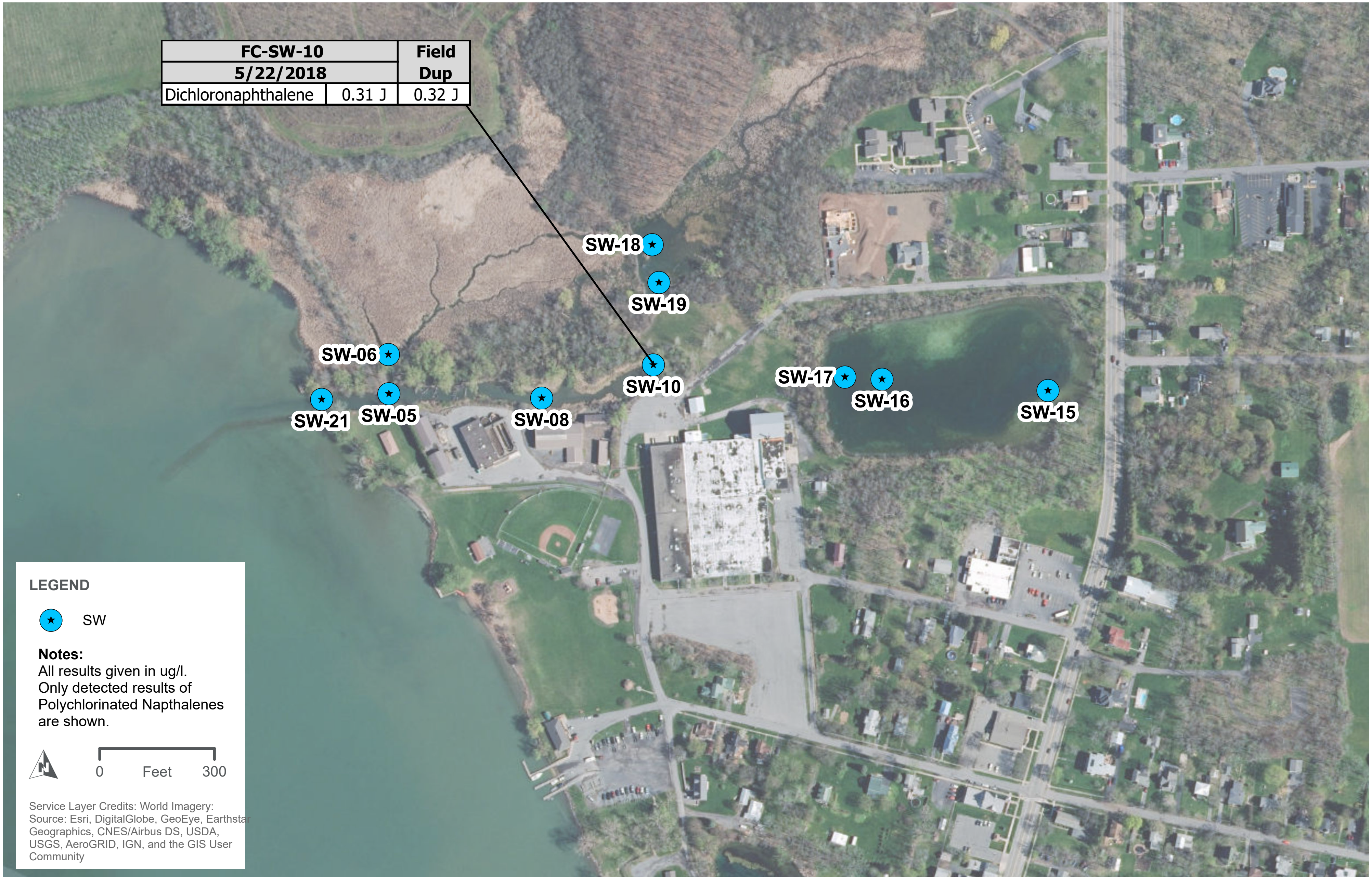
OFF-SITE SEDIMENT – PCN ANALYTICAL SUMMARY

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE 9B

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\PCN_CHEMBOXES\UNIONSPRINGS_CHEMBOXES\UNIONSPRINGS_CHEMBOXES.APRX - USER: HROSADO - DATE: 2/10/2020

UNION SPRINGS, NEW YORK



OFF-SITE SURFACE WATER – PCN ANALYTICAL SUMMARY

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE 9C

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\PCN_CHEMBOXES\UNIONSPRINGS_CHEMBOXES\UNIONSPRINGS_CHEMBOXES.APRX - USER: HROSADO - DATE: 2/10/2020

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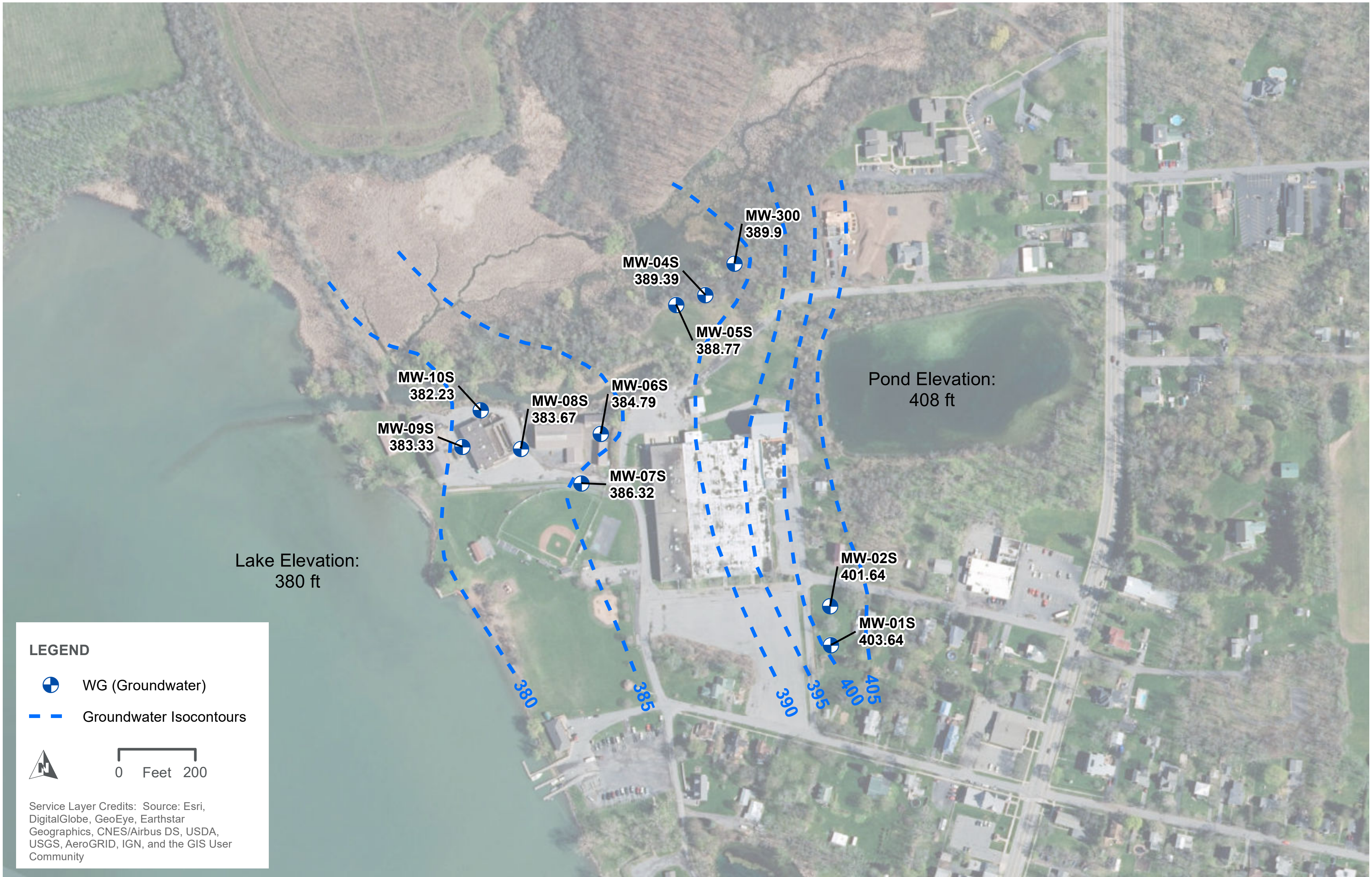
OFF-SITE GROUNDWATER – PCN ANALYTICAL SUMMARY

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE 9D

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\PCN_CHEMBOXES\UNIONSPRINGS_CHEMBOXES\UNIONSPRINGS_CHEMBOXES.APRX - USER: HROSADO - DATE: 2/10/2020

UNION SPRINGS, NEW YORK



NOVEMBER 2019 SHALLOW OFF-SITE GROUNDWATER ISOCONTOURS

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE 10A

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\FIGURE10A SHALLOW ISOS.MXD - USER: HROSADO - DATE: 2/10/2020

UNION SPRINGS, NEW YORK

NOVEMBER 2019 DEEP OFF-SITE GROUNDWATER ISOCONTOURS

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE 10B

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\FIGURE10B DEEP ISOS.MXD - USER: HROSADO - DATE: 2/10/2020

UNION SPRINGS, NEW YORK

Appendix A

PCN SCO Development Memo & Supporting Documentation

OFF-SITE RI
PCN SCO Development Memo

TABLE OF CONTENT

FIGURES

Appendices

List of Acronyms

AT	averaging time
AWQC	ambient water quality criterion
BCR	bioconcentration ratio
BW	body weight
CN	chlorinated naphthalene
C_s	contaminant concentration in soil
C_w	groundwater or drinking water standard
DAF	dilution attenuation factor
DL	detection limit
Dw	dry weight
EcoSSL	ecological soil screening level
ED	exposure duration
EF	exposure frequency
ESL	ecological screening level
FI	fraction ingested
f_{oc}	fraction of organic carbon
ft	feet
HQ	hazard quotient
IR	ingestion rate
IRIS	integrated risk information system
K_{oc}	organic carbon partitioning coefficient
K_{ow}	octanol/water partitioning coefficient
MCL	maximum contaminant level
NOAA	National Oceanic and Atmospheric Administration
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OC	organic carbon
PCN	polychlorinated naphthalene
PNEC	predicted no-effect concentration
RfD_o	oral reference dose
RSL	regional screening level
SCO	soil cleanup objective
SGV	sediment guidance value
SQuiRTs	screening quick reference tables
SSL	soil screening level
SVOC	semi-volatile organic compound
TOC	total organic carbon
TRV	toxicity reference value
UF	uncertainty factor
µg/kg	microgram per kilogram
µg/L	microgram per liter
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound
ww	wet weight

1.0 General Introduction

The Former TRW Facility at 13 Salem Street in Union Springs, Cayuga County, NY is undergoing site investigation work under the New York State Department of Environmental Conservation's (NYSDEC) Brownfield Cleanup Program (NYSDEC Site #C706019 ~~A~~). The Draft Remedial Investigation and Alternative Analysis Report (ERM, 2018) identified high levels of several classes of contaminants of concern, including polychlorinated naphthalenes (PCNs) at and in the immediate vicinity of the site. PCNs are legacy contaminants which are no longer commercially produced but were used in the past at the facility for various purposes, including as dielectric fluids in electrical capacitors.

In 2018, HDR (on behalf of NYSDEC) collected surface water, sediment, groundwater, and soil samples from terrestrial and aquatic areas located around the former TRW facility as part of the off-site remedial investigation (NYSDEC Site #C706019A). Soil is present on developed parcels (e.g., residential properties, Frontenac Park, a wastewater treatment plant) and undeveloped parcels. Surface water and sediment are present in several water bodies located just to the north, east, and west of the former TRW facility. Spring-fed Mill Pond covers 5.8 acres and discharges its surface water to an unnamed stream which flows through several vacant parcels. This unnamed stream, which is also associated with a wetland area and a small beaver pond, flows into a former canal which discharges to Cayuga Lake located about 500 ft west of the former TRW facility. Finally, groundwater is present underneath the off-site areas.

The off-site samples collected in 2018 were analyzed for metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs; including the two mono-CNs [1-chloro-CN and 2-chloro-CN] and the di- to octa-CN homologs), pesticides, and perfluorocarbons. No NY soil cleanup objectives (SCOs) have been published for PCNs. The NYSDEC has identified the need to develop one or more unrestricted SCOs for PCNs, so that the off-site data can be interpreted and potential investigation and remedial decisions made to protect human health, ecological receptors, and local groundwater resources potentially exposed to PCNs.

This memorandum briefly describes the major physical and chemical properties of PCNs, reviews and summarizes the off-site PCN analytical data collected in 2018, reviews the PCN risk evaluations and SCO development performed by ERM (2018) for the on-site portions of the Former TRW Facility, discusses whether PCNs might represent human health or ecological concerns in the off-site aquatic and terrestrial habitats, and develops SCOs for PCN homologs protective of groundwater for consideration in establishing an unrestricted SCO.

The interpretation of the off-site analytical data for surface water, sediment, groundwater, and soil relies in part on the PCN risk-based screening levels presented in Appendix C of ERM (2018). These values, and the approaches used for deriving them, were generally endorsed by the NYSDEC and NYS Department of Health (DOH) for use at the on-site areas of the former TRW facility (i.e., as soil criteria for commercial/industrial use).

Finally, this memorandum includes uncertainty considerations to provide a broader context to help understand some of the limitations associated with the risk-based screening levels for PCNs presented in Appendix C of ERM (2018).

2.0 General physical and chemical properties of PCNs

The information summarized below was obtained from Jakobsson and Asplund (2000), WHO (2001), van de Plassche and Schwegler (2002), and Environment Canada (2011).

PCNs are a group of organic compounds consisting of 75 individual congeners of chlorinated naphthalenes organized into 8 homolog groups depending on their extent of chlorination. These 8 groups consist of 2 mono-CNs, 10 di-CNs, 14 tri-CNs, 22 tetra-CNs, 14 penta-CNs, 10 hexa-CNs, 2 hepta-CNs, and 1 octa-CN. The USEPA has published human health toxicity data for the mono-CN 2-chloronaphthalene (reference dose [RfD] of 0.08 mg/kg-day).

It is easier and more convenient to summarize the physical, chemical, and biological properties of these 75 congeners in terms of their homolog groups because these properties are closely associated with the degree of chlorination.

Water solubility

Water solubility measures the ability of a compound to dissolve in water (e.g., surface water, groundwater, pore water). The water solubilities of PCNs drop rapidly with increasing chlorination. For example, the solubilities of selected CN homologs are reported as follows: mono-CNs: between 924 µg/L and 2,870 µg/L; tri-CNs: between 16.7 µg/L and 65 µg/L; penta-CNs: 7.3 µg/L; and octa-CN = 0.08 µg/L.

Vapor pressure

The vapor pressure estimates the ability of a compound to escape into the air (i.e., evaporate) when in liquid or solid form under equilibrium conditions at a constant temperature. The higher the vapor pressure, the higher the tendency of the compound to enter the vapor phase.

Vapor pressures of PCNs also drop with increasing chlorination. For example, the vapor pressures of selected CN homologs are reported as follows: mono-CNs: $3.9\text{X}10^{-3}$ kPa; tri-CN: $1.3\text{X}10^{-4}$; penta-CN: $4.2\text{X}10^{-6}$ kPa; and hepta-CN: $3.7\text{X}10^{-7}$ kPa.

Log octanol/water partition coefficient (log K_{ow})

Log K_{ow} is defined as the ratio of the concentration of a compound in n-octanol and water at equilibrium and a specified temperature. This parameter can be used to estimate the tendency of a compound to partition into water or lipids and other organic phases in biotic and abiotic matrices.

Log K_{ow} increases rapidly with increasing chlorination. For example, the log K_{ow}'s of selected CN homologs are reported as follows: mono-CNs: 3.9 to 4.19; tri-CN: 5.12 to 7.5; penta-CN: 6.67 to 9.18; and hepta-CN: 7.69 to 8.3.

Biodegradation

Published data on measured biodegradation of PCNs is sparse, particularly for the higher chlorinated homologs. The available information shows that the mono- and di-CNS are biodegradable under aerobic conditions in water, sediment, and soil. Environment Canada (2011) used a QSAR-based biodegradation model to show that tetra- to octa-CNs are expected to be persistent in soil and sediments, with estimated half-lives at or above 182 days. Several field studies have suggested that tri- to hepta-CNs have degradation half-lives that extend far beyond half a year, and may equal up to several decades.

Bioaccumulation/biomagnification

Published laboratory and field studies strongly indicate that PCNs (particularly the tri- to hexa-CNs, but less the hepta-CNs, and not the octa-CNs) can bioaccumulate in individual organisms and biomagnify up the food chain. Reported bioconcentration factors in different fish species exposed to tri- to penta-CNs in the laboratory range from 4,677 up to 33,884. The more chlorinated PCNs also have the ability to biomagnify up the food web where they can accumulate to high levels.

In summary, PCNs behave in predictable ways when released to the environment as a result of these general characteristics. Environment Canada (2011) used fugacity modeling to estimate where (i.e., water, soil, or sediment) PCNs would ultimately partition when released to one of these three environmental compartments. Their analysis showed that the more highly-chlorinated PCNs (starting with tri-CNs) have a pronounced tendency to partition into soil and/or sediment, regardless of what compartment they were originally released in. This behavior is not unexpected given how increasing chlorination is associated with higher log K_{ow}'s, but lower water solubilities and lower vapor pressures. Only the mono-CNs and di-CNs retain any tendency to be associated with water when released to water.

3.0 Off-site PCN analytical data

3.1 General introduction

In 2018, as part of the off-site remedial investigation, HDR collected samples of surface water (May 2018), sediment (May 2018), groundwater (September and October 2018), and soil (May-August 2018) at multiple off-site locations for extensive chemical analyses, including the two mono-CNs (i.e., 1-chloronaphthalene and 2-chloronaphthalene) and the seven remaining PCN homologs (from di-CN to octa-CN). **Figures A1-1 to A1-4** provide the 2018 PCN sampling locations and results for surface water, sediment, groundwater, and soil, respectively. Appendices 1 to 4 provide the 2018 PCN analytical data for surface water, sediment, groundwater, and soil, respectively.

The focus of the discussion below is on determining the need to develop cleanup objectives for PCNs in surface water, sediment, groundwater, and soil. In addition, based on the analyses discussed in the following sections, Appendix 4 includes SCOs for the protection of children and adults exposed to PCNs via consumption of home-grown vegetables.

3.2 Review and interpretation of off-site PCN analytical data for surface water

3.2.1 Surface water sampling and analysis

Ten (unfiltered) surface water samples were collected from the off-site aquatic habitats in May of 2018, as follows:

- Mill Pond: three samples (MP-SW-15, MP-SW-16, and MP-SW-17).

- The beaver pond: two samples (BP-SW-18 and BP-SW-19).
- The former canal: three samples (FC-SW-05, FC-SW-08, and FC-SW-10).
- The unnamed stream: one sample (UNST-SW-06).
- Cayuga Lake: one sample (CL-SW-21).

The surface water detection limits (DLs) equaled 2.4 µg/L or 2.5 µg/L, depending on the sample. Trace amounts of PCNs were detected in one of the ten off-site surface water samples. This sample (FC-SW-10) was collected from the former canal, and showed the presence of the di-CN homolog at an estimated concentration of 0.31 µg/L (J).

Off-site investigation surface water detections of PCNs are summarized on Figure A1-1 and the full listing of PCN analytical results and applicable comparison criteria are tabulated in Appendix 1.

3.2.2 Surface water risk potential

Human health concerns:

NYSDEC (1998) published an ambient water quality standard (AWQS) for 2-chloronaphthalene equal to 10 µg/L for "potable water, aesthetics". No AWQS protective of human health are available for any other individual PCN congeners or PCN homologs.

USEPA has not developed maximum contaminant levels (MCLs) for any of the PCNs in drinking water. However, USEPA (2019) published a risk-based screening criterion for 2-chloronaphthalene in tapwater equal to 75 ug/L (hazard quotient [HQ] = 0.1), which considers ingestion and dermal pathways of exposure to *drinking water* in a long-term residential scenario.

ERM (2018) multiplied the NYSDEC AWQC of 10 µg/L by an uncertainty factor (UF) of 10 in order to generate an adjusted surface water value protective of human health equal to 100 µg/L. The rationale was that this adjusted value accounted for the difference between occasional/incidental surface water ingestion in the off-site aquatic habitats versus daily ingestion of drinking water.

All the surface water DLs and the one estimated concentration value for PCNs fell well below the USEPA risk-based tapwater screening level, the NYSDEC AWQS, and the adjusted value derived by ERM (2018). These results suggest that incidental human exposures to PCNs in surface water at the off-site aquatic habitats would be unlikely to result in deleterious health effects.

Ecological concerns:

NYSDEC has not published AWQS protective of aquatic receptors or wildlife for any of the PCN congeners or homologs (NYSDEC, 1998).

USEPA (1980) derived a freshwater acute criterion for PCNs equal to 1,600 µg/L based on short-term aquatic toxicity data for 1-chloronaphthalene to aquatic receptors. The Agency did not have enough toxicity data to derive a freshwater chronic criterion applicable to 1-chloronaphthalene or to any of the other PCN congeners or homologs.

The USEPA Region 5 RCRA program (USEPA, 2003) published an ecological screening level (ESL) for 2-chloronaphthalene in surface water equal to 0.396 µg/L. This value was derived based on exposure to mink via surface water ingestion. No further information was available on how this ESL was calculated.

Environment Canada (2011) derived a predicted no-effect concentration (PNEC) representative of all PCNs equal to 10 µg/L for the protection of pelagic aquatic organisms. This value was based on dividing a “critical toxicity value” of 100 µg/L for growth in a marine algal species chronically exposed to a commercial PCN product (i.e., Halowax 1000, containing from 6.7% to 69% mono-CNs) by an application factor of 10. This application factor accounted for extrapolation from laboratory to field conditions and inter- and intra-species variability. Given the limited amount of available toxicity data for PCNs, Environment Canada used the marine algae toxicity data to derive the PNEC protective of all Canadian freshwater and marine pelagic species.

ERM (2018) derived a final screening level for direct toxicity of PCNs to aquatic organisms equal to 1.6 µg/L based on the USEPA freshwater acute aquatic criterion of 1,600 µg/L. The USEPA value was divided by a composite UF of 1,000 (10 x 10 x 10) to account for (a) inter-species variation, (b) extrapolation from acute toxicity to chronic toxicity; and (c) extrapolation of a laboratory study to field conditions. ERM (2018) stated that applying a UF of 1,000 to the USEPA’s acute criterion resulted in a highly-conservative final surface water screening value but was consistent with literature and standard practice for such adjustments.

The single detected surface water concentration for PCN homologs in the ten surface water samples collected from the off-site aquatic habitats fell below the threshold value derived by Environment Canada (2011), USEPA Region 5 (2003), and ERM (2018). These results suggest that potential exposures by aquatic receptors to PCNs in surface water from the off-site aquatic habitats would be unlikely to result in deleterious ecological effects.

3.2.3 Uncertainty considerations

The data interpretation for surface water presented above contains the following uncertainty that should be considered as part of the decision-making process.

Human health

- The lack of published AWQC protective of human health, other than for 2-chloronaphthalene, represents a major uncertainty.

- It is conservative to use a potable water criterion to assess health effects of incidental ingestion of/dermal contact with surface water associated with incidental exposure to the off-site aquatic habitats.

- It is reasonable to assume that the amount of water ingested incidentally or the dose resulting from dermal exposures by people during the occasional use of off-site aquatic habitats would be substantially less than the amounts assumed by USEPA to develop the tapwater human health screening level (i.e., assumption of drinking water ingested from tap on a daily basis). Even though it was subjective to multiply the available AWQC of 10 µg/L by a UF of 10 to reflect this reality, the approach generated a conservative value which seems unlikely to be under-protective of human health.

Ecological

- The lack of published surface water benchmarks (except for 1-chloronaphthalene) for PCNs protective of aquatic receptors for use in regulatory decision making represents a major uncertainty.

- The available surface water toxicity data for deriving surface water benchmarks pertain only to the two mono-CNs, which are expected to be the least toxic of all the PCNs to aquatic receptors.

- The surface water screening benchmark developed by Environment Canada (2011) and ERM (2018) to cover all the PCNs used multiple UFs and therefore appear to be quite conservative. However, due to the paucity of reliable laboratory aquatic toxicity data, it is a challenge to determine how much more toxic the more chlorinated CNs would be to aquatic receptors compared to the mono-CNs, and therefore whether or not the proposed thresholds of 10 µg/L and 1.6 µg/L are truly protective of all aquatic receptors. That consideration remains as an uncertainty due to the lack of published toxicity data for the vast majority of the PCNs.

- Two additional issues need to be considered: (a) the aqueous solubilities of the hexa-, hepta-, and octa-CNs fall below 1.6 µg/L (Environment Canada, 2011), and (b) the DLs for the 2018 surface water samples was equal to about 2.5 µg/L. Hence, the concentrations of the three highest-chlorinated classes of PCNs may not have been quantified if they had been present in the off-site surface water samples. On the other hand, the detection of di-CNs in only one of ten surface water samples at an estimated concentration of 0.31 µg/L (J) shows that the analytical method was quite sensitive and suggests that it appears unlikely to have systematically overlooked low levels of PCNs.

3.2.4 Conclusions

A trace amount of PCN was identified in one of the 10 off-site surface water samples. The measured concentration of 0.31 µg/L (J) (for the Di-CN homolog) fell below the available conservative threshold values for PCNs. Based on the limited available toxicity data, no effects are expected to humans or aquatic organisms that may be exposed to PCNs in off-site surface water down gradient from the former TRW facility.

3.3 Review and interpretation of off-site PCN analytical data for sediment

3.3.1 Sediment sampling and analysis

~~17~~ 14 sediment samples were collected for analysis from nine locations in the five off-site aquatic habitats during May 2018, as follows:

- Mill Pond: MP-SED-15 at one sampling depth (i.e., 0.5-1 ft), MP-SED-16 at two sampling depths (i.e., 1.5-2 ft and 2-2.5 ft), and MP-SED-17 at two sampling depths (i.e., 0-0.5 ft and 1.5-2 ft).

- The beaver pond: BP-SED-18 at two sampling depths (i.e., 0-0.5 ft and 1.5-2 ft), and BP-SED-19 at two sampling depths (i.e., 0-0.5 ft and 1-2 ft).

- The former canal: FC-SED-05 at ~~two~~ one sampling depths (i.e., ~~1-2 ft and~~ 2-4 ft) and FC-SED-08 at ~~two~~ one sampling depths (i.e., ~~0-0.5 ft and~~ 3-4 ft).

- The unnamed stream: UNST-SED-06 at ~~two~~ one sampling depths (i.e., ~~0-0.5 ft and~~ 3.5-4 ft).

- Cayuga Lake: CL-SED-21 at two sampling depths (0-0.5 ft and 3.5-4 ft).

These sediment sampling locations were co-located with the surface water samples discussed in the previous section.

At least one sediment sample was collected from the "biologically-active zone" (i.e., the top 6") in each of the five aquatic habitats to identify the presence of PCNs in recently-deposited sediment to which benthic invertebrates could be reasonably exposed under current conditions. (Shallow sediment samples had been collected and analyzed for PCNs by ERM at FC-SED-05 and UNST-SED-06 in January 2015 and at FC-SED-08 in April 2016. The results of ERM's sampling is not discussed in this report.) This surficial layer is also assumed to be available for exposure to people potentially wading or swimming in these aquatic habitats. One or more additional samples were collected from below the top 0.5 ft to identify the presence of PCNs in historically-deposited sediment layers at depth.

The DL for the sediment samples ranged from 110 µg/kg to 620 µg/kg, depending on the sample. Total organic carbon (TOC) for the 2018 sediment samples ranged from 1.9% to 27.7%, with an average TOC content of 8.5%.

Table 1 below summarizes the results of all the detected PCNs (regardless of sampling depth) measured in the ~~17~~ 14 off-site sediment samples. No other PCNs were present above their DLs in the other sample locations at any of the other depths.

Habitat type	sample location	sample depth	TOC	analyte	concentration	
Cayuga Lake	CL-SED-21	0-0.5 ft	10.0%	tri-CN	60 µg/kg	J
Cayuga Lake	CL-SED-21	3.5-4 ft	1.9%	tri-CN	44 µg/kg	J
former canal	FC-SED-08	3-4 ft	6.1%	di-CN	52 µg/kg	J
former canal	FC-SED-08	3-4 ft	6.1%	tri-CN	110 µg/kg	J
Mill Pond	MP-SED-17	1.5-2 ft	1.8%	tri-CN	43 µg/kg	J

These data show the following general patterns:

- Three of the ~~17~~ 14 off-site sediment samples (duplicate not included) analyzed for PCNs contained one PCN homolog above its DL.

- PCN homologs were identified in sediments from the most "upstream" location (i.e., Mill Pond), the most "downstream" location (i.e., Cayuga Lake), and an "in-between" location (the former canal).

- Tri-CN was the most-commonly identified PCN homolog at those three locations.

- A PCN homolog was measured above its DLs in only one of the five surface sediment samples (0-0.5 ft) collected from the off-site aquatic habitats. This location (i.e., CL-SED-21) is in Cayuga Lake and is therefore the most "downstream" of the sediment sampling locations.

- The other four PCN homolog detections came from sediment samples collected below the "biologically-active zone" (> 0.5 ft) and may therefore represent historic depositions.

- The difference between the lowest and highest PCN homolog concentrations across depths was less than a factor of three (i.e., 43 µg/kg vs. 110 µg/kg). This pattern does not suggest an obvious increased concentration of PCN homologs with depth, although this observation is based on a small number of samples with detected concentrations.

Off-site investigation sediment detections of PCNs are summarized on Figure A1-2 and the full listing of PCN analytical results and applicable comparison criteria are tabulated in Appendix 2.

3.3.2 Sediment risk potential

Human health concerns:

Neither USEPA nor NYSDEC have published human health-based sediment screening levels for PCNs.

ERM (2018) recommended using industrial SCOs (soil, not sediment criteria) to conservatively assess the potential effects of human exposure to PCN-contaminated sediments in the off-site aquatic habitats. NYSDEC does not typically apply SCOs to sediment. Other factors that could be pertinent in determining sediment criteria for the protection of public health could include protection of surface water, etc. NYSDEC (2006) and NYSDEC and NYSDOH (2006) have published numerous human health-based industrial SCOs, but not for any of the PCNs. USEPA (2019), in its regional screening level (RSL) summary tables, provided an industrial soil risk-based level for 2-chloronaphthalene equal to 6,000,000 µg/kg (HQ = 0.1)(note: the residential soil value for 2-chloronaphthalene equals 480,000 ug/kg for HQ = 0.1) . The RSL tables do not provide soil benchmarks for any of the other PCNs.

Due to the paucity of published industrial SCOs for PCNs for use as sediment screening levels, ERM (2018) made several broad assumption to develop values based on the one available industrial SCO for 2-chloronaphthalene. The approach consisted of aggregating the PCNs into their individual homolog groups and assuming that toxicity increased with higher levels of chlorination in a stepwise fashion, as is qualitatively shown by the available mammalian toxicity data.

ERM (2018) derived homolog-specific industrial SCOs by multiplying 6,000,000 µg/kg with UFs, as follows:

- the SCO for the mono- and di-CN homologs equaled 6,000,000 µg/kg (i.e., 6,000,000 µg/kg X 1),

- the SCO for the tri- and tetra-CN homologs equaled 600,000 µg/kg (i.e., 6,000,000 µg/kg X 0.1),
- the SCO for the penta- and hexa-CN homologs equaled ~~60,000~~ 6,000 µg/kg (i.e., 6,000,000 µg/kg X ~~0.01~~ 0.001);
- the SCO for the hepta- and octa-PCN homologs equaled ~~6,000~~ 60,000 µg/kg (i.e., 6,000,000 µg/kg X ~~0.001~~ 0.01).

As recommended by ERM (2018), these homolog-specific SCOs for human health were retained in this memorandum to assess the PCN concentrations measured in the off-site sediment samples collected from the aquatic habitats around the former TRW facility.

The five detected di- and tri-PCN homolog concentrations in sediment provided in Table 1 fall well below the homolog-specific industrial SCOs for the di-CNs (6,000,000 µg/kg) and the tri-CNs (600,000 µg/kg). These results suggest that potential human exposures to PCNs in sediment at the off-site aquatic habitats would be unlikely to result in deleterious health effects. HDR notes that if the same approach was used on the USEPA Residential soil risk-based level (480,000 ug/kg), the five detected di- and tri-PCN homolog concentrations in sediment provided in Table 1 would still fall well below the homolog-specific residential SCOs for the di-CNs (480,000 µg/kg) and the tri-CNs (48,000 µg/kg)

Ecological concerns:

NYSDEC has not published sediment guidance values (SGVs) protective of benthic invertebrates or wildlife for any of the PCNs (NYSDEC, 2014).

The EPA Region 5 RCRA program (EPA, 2003) published a sediment ESL for 2-chloronaphthalene. This value equaled 417 µg/kg. Based on EPA's guidance document, this value was derived using equilibrium partitioning theory, assuming a total organic carbon (TOC) content of the sediment of 1%. The NYSDEC's guidance document CP-60 – Screening and Assessment of Contaminated Sediments prefers the use of the actual TOC, or assumes 2% TOC. The actual TOC for the sample was greater than 2%, which would result in a higher screening value.

Buchman (2008) summarized the National Oceanic and Atmospheric Administration (NOAA) Screening Quick Reference Tables (SQuiRTs). These tables provide Dutch sediment "target" values of 57 µg/kg and 250 µg/kg for 1-chloronaphthalene and 2-chloronaphthalene, respectively. The Dutch sediment "intervention" values for the same two compounds equal <10,000 µg/kg. It is not known how these two sets of values were derived or would be applied in a regulatory setting. The SQuiRTs do not provide sediment values for any of the other PCNs.

Due to the paucity of PCN sediment benchmarks, ERM (2018) derived SGVs based on the method presented in NYSDEC (2014) for nonpolar organic compounds. This method is based on the equilibrium partitioning theory, which assumes that the toxicity of nonpolar organic compounds to benthic invertebrates in sediment is proportional to the concentration of the compound freely dissolved in sediment pore water. The concentration of a compound in the sediment organic phase (assumed to be non-bioavailable) versus the sediment pore water phase (assumed to be bioavailable) is governed by the OC partitioning coefficient (K_{oc}), which is estimated using Log K_{ow} values which ERM (2018) developed for the eight PCN homologs. The calculation method also used the surface water toxicity screening value of 1.6 µg/L discussed in the previous section as the measure of pore water toxicity for all PCN homologs.

Table 2 below shows the SGVs derived by ERM (2018) for seven of the eight PCN homologs. These SGVs were based on an assumed average sediment TOC level of 7.8%, which is marginally lower than the average TOC level of 8.5% measured in the May 2018 sediment samples. This small difference has no impact on the data interpretation.

CN homolog	SGV (µg/kg @ 7.8% TOC)
mono-CN	1,182
di-CN	3,584
tri-CN	22,933
tetra-CN	115,692
penta-CN	757,172
hexa-CN	3,692,280
hepta-CN	14,358,021
octa-CN	not calculated

source: ERM (2018)

The five detected di- and tri-CH homolog concentrations presented in Table 1 above fell well below the homolog-specific SGVs derived for the di-CNs (3,584 µg/kg @ 7.8% TOC) and the tri-CNs (22,933 µg/kg @ 7.8% TOC). These results suggest that potential exposures by benthic invertebrates to PCNs in sediment at the off-site aquatic habitats would be unlikely to result in deleterious effects.

3.3.3 Uncertainty considerations

Human health

- The lack of published sediment benchmarks for PCNs protective of human health for use in regulatory decision making represents a major uncertainty.

- Aggregating individual PCNs into their homolog groups to derive homolog-specific SCOs generates a relatively small amount of uncertainty. The reason is that the difference in physical and chemical characteristics for congeners belonging to the same homolog group are substantially smaller than the differences across homolog groups.

- The industrial exposure assumptions used by ERM (2018) to derive the SCO for 2-chloronaphthalene do not "match up" with the exposure assumptions associated with occasional recreational contact with PCNs present in sediment in the off-site aquatic habitats. Nonetheless, it appears unlikely that such assumptions would systematically underestimate recreational exposures, which makes it unlikely that the human-health based SCOs developed by ERM (2018) for the off-site sediments would underprotect.

- ERM (2018) used the original industrial SCO for 2-chloronaphthalene as a surrogate for all mono- and di-CNs, and then divided this number by increasing UFs to account for higher toxicity in the ~~more~~ other chlorinated CNs. This approach, which qualitatively recognized the link between higher chlorination and higher toxicity, nonetheless generated much uncertainty since the exact cut-off points of where one UF should be applied versus another UF is unknown.

Ecological

- The lack of published sediment benchmarks for PCNs protective of benthic invertebrates for use in regulatory decision making represents a major uncertainty.

- The homolog-specific SGVs were all derived based on the same conservative surface water toxicity screening value of 1.6 µg/L derived by ERM (2018). It is anticipated that the SGVs for the lower-chlorinated homologs (which are expected to be substantially less toxic than 1.6 µg/L) would be overprotective of benthic invertebrates. This is particularly the case since only di- and tri-CN homologs were identified in the sediment samples.

- Only one surface sediment sample (0-0.5 ft) was collected from each of the five off-site aquatic habitats during this sampling round. ERM had collected sample from 0-0.5 feet in prior sampling rounds from several of the sampling locations. This sampling density is sparse and could have increased the probability of having missed PCN contamination in surface sediment. However, the minor PCN detections at depth did not suggest large or sustained historic releases of PCNs into the off-site aquatic habitats when the former TRW facility was operational. Therefore, it seems unlikely that PCN levels in surface sediment, which reflect post-closure conditions, would be worse than in the historic layers. The available analytical data supports this view and makes it less likely that high PCN contamination in surface sediment was systematically missed.

3.3.4 Conclusions

Only low concentrations of di- and tri-PCN homologs were identified in a few of the sediment samples collected at nine off-site aquatic locations. The five measured concentrations at depths down to 4 ft fell well below conservative toxicity-based threshold values for PCNs protective of human health and benthic invertebrates. In addition, PCNs were detected in only one of the five surface sediment samples (0-0.5 ft) which is where current exposures are most likely to occur. Based on these observations, no deleterious effects are expected to humans or benthic invertebrates exposed to PCNs in off-site sediments at the former TRW facility.

3.4 Review and interpretation of off-site PCN analytical data for groundwater

3.4.1 Groundwater sampling and analysis

Seventeen groundwater samples were collected from 17 off-site monitoring wells during September and October of 2018. The sampling depths ranged from 12 ft to 32 ft below ground surface. The chemical analyses of these samples did not identify any PCN homologs above the DLs (i.e., 2.4 µg/L, 2.5 µg/L, or 5.0 µg/L, depending on the sample).

Off-site investigation groundwater sampling locations for PCNs are summarized on Figure A1-3 and the full listing of PCN analytical results and applicable comparison criteria for groundwater are tabulated in Appendix 3.

3.4.2 Groundwater risk potential

Human health concerns:

Use of groundwater by residents living in the local neighborhoods east and south of the former TRW facility does not represent a complete exposure pathway. The reason is that the whole area is served by a public water supply which is not affected by the facility. Hence, ingestion of groundwater by residents, or use of domestic water for other uses (e.g., showering, watering a vegetable garden), does not represent a concern. However, site-related contaminants present in off-site unsaturated soils should not degrade the quality of the underlying groundwater. The next section of this memorandum provides SCOs for PCNs protective of groundwater quality based on soil leaching considerations.

Ecological concerns:

A possible ecological concern pertains to PCN-contaminated groundwater recharging the local off-site aquatic habitats by emerging as surface water through sediment. This potential ecological exposure pathway is deemed unlikely for the following reasons:

- PCNs were not present above DLs in any of the off-site groundwater samples. This information suggests that off-site migration of PCNs is minimal and/or occurring at such low concentrations that it cannot be detected using current analytical methods.

- The physical and chemical characteristics of PCNs summarized in Section 2 of this memorandum indicate that these compounds (particularly the higher-chlorinated homologs) have a very strong affinity to partition in soil and sediment, instead of water. Hence, their transport via groundwater movement appears unlikely and was not shown to occur in the off-site monitoring wells sampled in 2018.

- Di- and tri-CN homologs were the only PCNs detected in off-site surface water and sediment samples. These detections were sporadic and at low concentrations. It appears reasonable to assume that past or on-going recharging of the off-site aquatic habitats with PCN-contaminated groundwater would have resulted in more detections at higher concentrations, particularly in sediment. This pattern was not present in the 2018 datasets.

3.4.3 Uncertainty considerations

Human health

- No uncertainties are associated with human health exposure to groundwater since off-site groundwater is not used as a source of drinking water or domestic use in the residential areas surrounding the former TRW facility. Incidental ingestion or direct contact exposures with groundwater at off-site areas which could hypothetically occur (e.g., trenching, irrigation) are not expected to be associated with adverse health effects as no PCNs have been detected, and the DLs are all well below a conservative USEPA-based tapwater screening level of 75 ug/L (HQ = 0.1).

Ecological

- Site-derived groundwater recharging into local waterways represents a potential aquatic exposure pathway, particularly for Mill Pond which is maintained by springs. However, the uncertainty associated with this pathway appears to be small because (a) no PCNs were present above their DLs in any of the off-site groundwater samples or in the three surface water samples collected from Mill Pond, and (b) the higher-chlorinated PCNs strongly associate with soil instead of the aqueous phase. Based on these considerations, it appears unlikely that groundwater represents a major source of PCNs to the off-site aquatic habitats.

3.4.4 Conclusions

The available data do not suggest that PCNs from the former TRW facility are migrating off-site via groundwater movement.

The local residents are not exposed to PCNs that might be present in groundwater because the whole area is served by a public water supply which is not affected by the facility.

The off-site groundwater, surface water, and sediment analytical data do not suggest that PCNs systematically reach(ed) the local aquatic habitats via groundwater recharge now or in the past.

Finally, the physical and chemical characteristics of PCNs make it more likely that these compounds will interact strongly with soil which greatly limits their propensity to efficiently migrate via groundwater movement.

Based on these considerations, groundwater is not viewed as a significant source of PCNs to human or ecological receptors exposed at off-site locations around the former TRW facility.

3.5 Review and interpretation of off-site PCN analytical data for soil

3.5.1 Soil sampling and analysis

Two separate sets of off-site soil samples were collected in 2018 for chemical analyses, as follows:

- 16 deep soil samples (ranging in depth from 6 ft to 28 ft below surface) were collected from nine boreholes drilled to install new off-site groundwater monitoring wells.
- 25 shallow soil samples (ranging in depth from 0 ft to 2 ft below surface) were collected from 11 locations east, west, and north of the former TRW facility.

No PCNs were present above their DLs in any of the 16 deep soil samples. The DLs for those samples ranged from 86 µg/kg to 2,000 µg/kg, with the vast majority of the DLs not exceeding 200 µg/kg. The absence of PCNs in deep soils is not surprising given the tendency of this group of compounds not to partition to water, plus the lack of PCN detections in the groundwater samples collected at depth in 2018. The deeper soils are not discussed further in this memorandum since human and ecological exposures are expected to occur only in surficial soils. However, the deep-soil analytical data support the concept that impact to groundwater is not taking place under current conditions.

Off-site investigation surface and shallow subsurface soil detections of PCNs are summarized on Figure A1-4 and the full listing of PCN analytical results and applicable comparison criteria for these soils are tabulated in Appendix 4.

Table 3 summarizes the PCN analytical data associated with the shallow off-site soil samples collected in 2018.

Location	Sampling Depth (ft)	Mono-CN	Di-CN	Tri-CN	Tetra-CN	Penta-CN	Hexa-CN	Hepta-CN	Octa-CN
East Side of Former TRW Facility									
SS-01	0-0.2			300	490	170 J			
	0.2-1			51 J	92	26 J			
	1-2								
SS-02	0-0.2			27 J	78 J	25 J			
	0.2-1				48 J				
	1-2								
SS-03	0-1								
	1-2								
SS-04	0-1								
	1-2								
West Side of Former TRW Facility									
SS-05	0-0.2				28 J				
	1-1.3			21 J	100	44 J			
SS-06	0-0.2								
	0.2-1								
SS-07	0-0.2								
	0.2-1								
SS-08	0-0.2			22 J	55 J				
	0.2-1				29 J				
	1-2								
North Side of Former TRW Facility									
SS-09	0-0.2	69 J	240	2,100	4,300	1,000	46 J		
	0-0.2 (dup)	40 J	180	1,600	3,700	810	41 J		
	1-2			120	360 J	71 J			
SS-10	0-1			~~29 J~~	29 J				
	1-2								
SS-11	0-1								
	0-1 (dup)								
	1-2			27 J	59 J				

Note: all units are in µg/kg.

These data can be broadly interpreted as follows:

- Most of the detected PCNs are associated with the tri-CN, tetra-CN, and penta-CN homologs. This pattern suggests that the former TRW facility may have used PCN-containing products that were primarily enriched with tri-, tetra-, and penta-CN homologs. This might also be a result of, or partially a result of, the fact that the mono- and di-CN are more mobile and more biodegradable.

- Except for one sample location (SS-09 on the north side of the former TRW facility), all the detected PCN homolog levels in shallow soil fell below 500 µg/kg, with most of the detected PCN levels at or below 100 µg/kg.

- Nine pairs of soil samples with one or more detected PCN homologs were collected from the same location but at two different depths. In eight of those nine samples, the PCN concentrations were higher in the shallower of the two samples, suggesting that the higher-chlorinated PCN homologs strongly bind to soil particles and resist downward migration. This pattern is particularly striking at SS-09, where the tri-, tetra-, and penta-CN homolog levels in the 1-2 ft deep soil samples are over one order of magnitude lower than those measured in the 0-0.2 ft deep soil layer. The sole exception to this pattern was associated with the two samples collected from SS-05 at 0-0.2 ft and 1-1.3 ft.

- The analytical results for SS-09 show a potential off-site PCN “hot spot”. The concentrations of the tri-, tetra-, and penta-CN homologs were roughly from one to two orders of magnitude higher than elsewhere off-site. This location was also the only one where mono-, di-, and hexa-CN homologs were detected in soil. These results were confirmed by the duplicate sample collected at the same location and depth which showed very similar PCN concentrations.

3.5.2 Soil risk potential

Human health concerns:

NYSDEC has not published human health-based SCOs for PCNs (NYSDEC and NYSDOH, 2006; NYSDEC, 2006; NYSDEC, 2010).

USEPA (2019), in its RSL summary tables, provided a residential soil cleanup level for 2-chloronaphthalene equal to 480,000 µg/kg (HQ = 0.1). USEPA (2019) has not developed RSLs for any of the other PCNs.

Due to the paucity of published residential SCOs for PCNs, ERM (2018) made several broad assumption to develop values based on the one available residential SCO for 2-chloronaphthalene. The approach consisted of aggregating the PCNs into their individual homolog groups and assuming that toxicity increased with higher levels of chlorination in a stepwise fashion, with the penta- and hexa-CN homologs reportedly being the most toxic, as is qualitatively shown by the available mammalian toxicity data.

ERM (2018) derived homolog-specific residential SCOs by multiplying 480,000 µg/kg with UFs, as follows:

- the SCO for the mono- and di-CN homologs equaled 480,000 µg/kg (i.e., 480,000 µg/kg X 1),
- the SCO for the tri- and tetra-CN homologs equaled 48,000 µg/kg (i.e., 480,000 µg/kg X 0.1),
- the SCO for the penta- and hexa-CN homologs equaled ~~4,800~~ 480 µg/kg (i.e., 480,000 µg/kg X ~~0.01~~ 0.001);

- the SCO for the hepta- and octa-PCN homologs equaled ~~480~~ 4,800 µg/kg (i.e., 480,000 µg/kg X ~~0.001~~ 0.01).

As recommended by ERM (2018), these homolog-specific residential SCOs for human health were retained in this memorandum to assess the PCN concentrations measured in the off-site surface soil samples collected from the terrestrial areas east, west, and north of the former TRW facility.

The NYSDEC capped soil cleanup objectives for organic compounds for residential use and restricted residential use at 100,000 ug/kg. As such, for those homologs whose calculated SCO exceeds 100,000 ug/kg (i.e., mono- and di-CN), the site-specific SCO will be 100,000 ug/kg.

None of the detected PCN homologs presented in Table 3 exceeded their homolog-specific residential SCOs presented in ERM (2018), except for pentachloronaphthalenes at SS-09 at the 0-0.2 foot interval. These results suggest that potential human exposures to PCNs in off-site soils would be unlikely to result in deleterious health effects at other locations.

Ecological concerns:

NYSDEC has not published SCOs protective of terrestrial ecological resources for any of the PCNs (NYSDEC, 2010).

The EPA Region 5 RCRA program (EPA, 2003) published a soil ESL for 2-chloronaphthalene equal to 12.2 µg/kg. This value, which appears extremely low, was derived to protect the masked shrew. No further details are available on how it was calculated.

The NOAA SQuiRTs provide a soil benchmark for monochloronaphthalenes of 120 µg/kg, but without specifying what kind of terrestrial receptors are protected by this value.

Due to the paucity of reliable PCN SCOs for terrestrial receptors, ERM (2018) derived ecological soil screening levels (EcoSSLs) for the PCN homologs protective of a mammalian herbivore (meadow vole) and a mammalian ground insectivore (the short-tailed shrew) using available EPA guidance. The PCN exposure pathways for these two species consisted of food ingestion (100% plants for the vole and 100% invertebrates/ earthworms for the shrew), plus incidental soil ingestion. ERM (2018) describes the various assumptions, species-specific exposure factors, and toxicity reference values (TRVs) used in the SCO calculations.

Table 4 below shows the ecological SCOs for the PCN homologs protective of small mammals as derived by ERM (2018).

CN homolog	Meadow Vole (µg/kg)	Short-tailed shrew(µg/kg)
mono-CN	67,000	18,000
di-CN	104,800	20,400
tri-CN	216,600	25,100
tetra-CN	395,000	30,100
penta-CN	741,800	37,200
hexa-CN	1,158,900	44,400
hepta-CN	not calculated	not calculated
octa-CN	not calculated	not calculated

source: ERM (2018)

None of the soil PCN concentrations presented in Table 3 exceeded the homolog-specific EcoSSLs for the short-tailed shrew provided in Table 4. These results suggest that potential exposures by small mammals to PCNs in surface soil at the off-site terrestrial habitats would be unlikely to result in deleterious effects.

3.5.3 Uncertainty considerations

Human health

- The lack of published soil benchmarks for PCNs protective of human health for use in regulatory decision making represents a major uncertainty.

- ERM (2018) used the original residential SCO for 2-chloronaphthalene as a surrogate for all mono- and di-CNs, and then divided this number by increasing UFs to account for higher toxicity in the more chlorinated CNs. This approach, which qualitatively recognized the link between higher chlorination and higher toxicity, nonetheless generated much uncertainty since the exact cut-off points of where one UF should be applied versus another UF is unknown.

Ecological

- The lack of published soil benchmarks for PCNs protective of terrestrial ecological receptors for use in regulatory decision making represents a major uncertainty.

- The EcoSSL derived by ERM (2018) and used in the current assessment are protective only of small mammals. The other three major terrestrial receptor groups of concern are plants, invertebrates, and birds. It is understood that a lack of published PCN dose-response toxicity data applicable to these three other receptor groups makes it a challenge to derive additional EcoSSLs. In addition, this situation cannot be corrected based on current scientific knowledge. However, it does represents an important uncertainty since three of the four major terrestrial receptor groups cannot be properly evaluated.

- ERM (2018) used the results, modified by UFs, of a toxicity study of 2-chloronaphthalene to white mice in order to derive the mammalian TRV needed for calculating the EcoSSLs. However, unlike for the human health-based SCOs discussed earlier which were adjusted downward to account for increased toxicity with higher chlorination levels, the TRV remained unchanged for all eight homologs. This suggests that the ecological SCOs for the more chlorinated PCNs might be under-protective to small mammals.

- The short-tailed shrew is considered a sensitive surrogate mammal species because: (a) its small body weight (around 15 g) results in a high food intake (up to 100% of body weight each day), its diet is assumed to consists of 100% earthworms exposed full time to PCNs in surface soil, and (c) its home range is small (< 1 acre) and therefore contained entirely within the off-site terrestrial areas.

- Higher-chlorinated PCNs have the ability to biomagnify in food webs (Environment Canada, 2011). The current EcoSSLs only measure direct toxic effects of PCNs to small mammals, but do not address the potential uptake of PCNs by predators feeding on those small mammals. Accounting for the biomagnification potential of PCNs would have lowered the EcoSSLs. However, this adjustment generates its own set of uncertainties associated with the large home ranges of top predators, the ability of predators to feed on different kinds of prey (i.e., not just shrews or voles), and the lack of accepted avian PCN TRVs for raptors.

3.5.4 Conclusions

One or more PCN homologs were detected in 12 of the 25 surface soil samples collected from 11 locations at off-site terrestrial areas east, west, and north of the former TRW facility. This contamination, when present, was mostly confined to the top 1 ft of soil and did not show a tendency to migrate downward. In addition, no PCN homologs were present above their detection limits in any of the 16 deep soil samples collected in 2018 during the drilling of the groundwater monitoring wells. Except for sample location SS-09, the concentrations of the PCN homologs in the off-site surface soil all fell below 500 μg/kg, with most of the concentrations falling below 100 μg/kg.

The one exception consisted of off-site sampling location SS-09 on the north side of the former TRW facility where the concentrations of the tri-CN, tetra-CN, and penta-CN homologs ranged between 1,000 and 4,300 μg/kg. These values represent concentrations that are roughly from one to two orders of magnitude higher than at the other off-site soil sampling locations.

4. PCN SCOs protective of groundwater

4.1 Introduction

An important step in the current off-site evaluation at the former TRW facility is to develop SCOs for PCNs protective of groundwater quality via soil leaching, regardless of the current status of groundwater use for human consumption at the off-site locations around the facility.

4.2 Developing the PCN SCOs protective of groundwater

NYSDEC and NYSDOH (2006) provide the approach to develop these SCOs.

The equation is as follows:

$$C_s = DAF * f_{oc} * K_{oc} * C_w * 1\ L/kg \qquad \text{(Equation 1)}$$

Where:

C_s = contaminant concentration in soil protective of groundwater (μg/kg)
DAF = dilution attenuation factor (unitless)
f_{oc} = fraction of organic carbon in soil (unitless)
K_{oc} = partition coefficient between water and soil media (unitless)
C_w = groundwater or drinking water standard (μg/L)
1 L/kg = units conversion factor

C_s represents the maximum concentration of a contaminant in the unsaturated portion of the soil column that will not violate human health-based drinking water standards upon leaching and dispersing into the underlying groundwater. This value is calculated using Equation 1 above.

DAF is a generic correction factor which accounts for the various mechanisms which prevent contaminants that leach out of the soil column from reaching or impacting the underlying groundwater. These mechanisms include volatilization, sorption, desorption, leaching, diffusion, transformation, degradation, and changes in contaminant concentrations after mixing with the groundwater. NYSDEC and NYSDOH (2006) have set the DAF at a default value of 100, regardless of the contaminant.

f_{oc} should ideally represent a site-specific average soil OC content. None of the 2018 off-site soil samples were analyzed for this parameter. Hence a generic f_{oc} of 1% (0.01) was used to proceed with the C_s calculations.

K_{oc} measures the tendency of an organic contaminant to partition between water and soil. This parameter was calculated using the following equation provided in NYSDEC and NYSDOH (2006)

$$K_{oc} = 100.544 * \log K_{ow} + 1.377 \qquad \text{(Equation 2)}$$

K_{ow}'s were preferentially obtained from the US National Library of Medicine Hazardous Substances Data Base (HSDB; available at https://www.toxnet.nlm.nih.gov/newtoxnet/hsdb.htm). The focus was to obtain K_{ow}'s for the eight PCN homologs because the off-site soil samples were analyzed mainly for homologs. HSDB provided K_{ow}'s for the mono-, tri-, tetra-, hexa-, and octa-CN homologs, but not for the three remaining ones. To fill these data gaps, the congener-specific K_{ow}'s for di-, penta-, and hepta-CNs as presented in Table 1 of WHO (2001) were used to calculate homolog-specific median K_{ow}'s and derive the K_{oc}'s.

Finally, C_w represents the threshold of toxicity for protecting the underlying groundwater for human consumption. NYSDEC (1998) published an ambient water quality standard (AWQS) for 2-chloronaphthalene equal to 10 μg/L for “potable water, aesthetics”. This value was retained for use in the calculations. No AWQS protective of human health are available for any other individual PCN congeners or for the PCN homologs. Hence, the AWQS for 2-chloronaphthalene was used in the calculations to represent all the PCN homologs.

Table 5 below summarizes the homolog-specific SCOs for PCNs protective of groundwater based on the NYSDEC and NYSDOH (2006) approach.

compound	DAF	f_{oc}	log K_{ow}	K_{oc}	C_w	C_s
units	unitless	unitless	unitless	unitless	(µg/L)	(µg/kg)
mono-CN	100	0.01	3.95	398.5	10	3985
di-CN	100	0.01	4.62	465.9	10	4659
tri-CN	100	0.01	5.25	529.2	10	5292
tetra-CN	100	0.01	5.86	590.6	10	5906
penta-CN	100	0.01	8.89	895.2	10	8952
hecta-CN	100	0.01	7.00	705.2	10	7052
hepta-CN	100	0.01	8.09	814.8	10	8148
octa-CN	100	0.01	8.5	856.0	10	8560

For reference, USEPA (2019) published two sets of risk-based groundwater-protection soil screening levels (SSLs) for 2-chloronaphthalene. These values are 3,900 µg/kg (based on an HQ = 1.0) and 390 µg/kg (based on a HQ = 0.1). The first value is very similar to the mono-CN SCO (3,985 µg/kg) presented in Table 5 above, even though the EPA and NYSDEC methods use different sets of assumptions.

The EPA SSLs (HQ = 1.0) and the SCOs presented in Table 5 would be appropriate if dealing with single contaminants in soil. EPA's other more conservative SSL for 2-chloronaphthalene (HQ = 0.1) applies when dealing with a *mixture* of soil contaminants that have the potential to co-mingle in groundwater.

As noted elsewhere in this memorandum, groundwater does not serve as a drinking water/domestic source in the area around the former TRW facility, and PCNs were not detected in any of the off-site groundwater samples collected in 2018. However, use of this more conservative value is recommended because it better reflects the mixed PCN soil contamination observed at some of the off-site soil sampling locations. It was also the assumption used by ERM (2018) and is therefore retained here for consistency. Of note, unlike the information presented in Table 5 above, USEPA did not calculate risk-based groundwater-protection SSLs for any of the other PCN homologs or congeners.

ERM (2018) did not include the USEPA Protection-to-Groundwater SSLs to assess the potential impact to groundwater via leaching of PCNs in soil. Comparing the groundwater-protection SSL for 2-chloronaphthalene (390 µg/kg; HQ = 0.1) against the measured PCN homolog data for surface soil presented in Table 3 suggests that one or more of the measured PCN homolog concentrations in soil collected at SS-01 and SS-09 have the potential to affect the quality of the local groundwater, even though no PCNs were detected in 2018 either in deep off-site subsurface soil or in the underlying groundwater itself.

4.3 Uncertainty considerations

- The only available AWQC to calculate the homolog-specific PCN SCOs protective of groundwater shown in Table 5 was for 2-chloronaphthalene. This value, which pertains specifically to a mono-CN, was used unchanged to calculate the C_s for all eight PCN homologs, even though the higher-chlorinated PCNs can be expected to be more toxic than 2-chloronaphthalene. The C_s's would have been lower (more conservative) if lower C_w's had been used for the higher homologs in the calculations.

- Comparing the off-site soil analytical data presented in Table 3 against the USEPA's groundwater-protection SSL for 2-chloronaphthalene (390 µg/kg; HQ = 0.1) contains uncertainty for the same reason outlined in the previous bullet, i.e., the higher-chlorinated PCN homologs are expected to be more toxic than 2-chloronaphthalene. However, this higher toxicity is counterbalanced by the fact that higher-chlorinated PCN homologs are also less likely to leach due to their greater affinity for soil particles. Using the more conservative 390 μg/kg SSL for 2-chloronaphthalene, adjusted for mixtures (i.e., HQ = 0.1), to assess the potential for groundwater impact from all PCN homologs in soils, provides some level of protection against this uncertainty.

- The f_{oc} for the off-site surface soils is not known. The calculations summarized in Table 5 conservatively assumed an average soil f_{oc} equal to 0.01 (i.e., 1% OC). The actual average f_{oc} may be higher, which would result in higher (less conservative) C_s's. For example, an average f_{oc} equal to 0.05 (5% OC) would yield C_s's which are five times higher than those currently shown in Table 5.

5.0 PCN SCOs protective of ingesting home-grown vegetables

5.1 Introduction

Another important step in the off-site evaluation of PCNs at the former TRW facility is to develop SCOs protective of children and adults consuming vegetables grown in local home gardens in the surrounding area that may contain PCNs in their surface soil. The following subsections describe the approach used to derive PCN SCOs protective of consuming home-grown vegetables.

Note that an additional human exposure pathway for PCNs based on consumption of animal products (e.g., meat, milk, eggs) was not deemed applicable for the residential areas that currently exist in the vicinity of the former TRW facility. Hence, that exposure pathway was not evaluated in this memorandum.

5.2 Developing PCN SCOs protective of consuming home-grown vegetables

The two human receptor groups evaluated for deriving the PCN SCOs protective of consuming home-grown vegetables consisted of young children (3 to <6 years old) and adults (>21 years old) who live in homes located around the TRW site.

These PCN SCOs were calculated using the following general equation:

$$HQ = 0.1 = ([soil]_{contam} * BCR * IR * FI * EF * ED * 1/AT)/RfD_o \qquad \text{(Equation 3)}$$

Where:

HQ	= hazard quotient (Equation 3 is solved specifically for HQ = 0.1 to account for potential exposure to a *mixture* of PCNs [EPA. 2019])
$[soil]_{contam}$	= concentration of PCN in soil resulting in a HQ of 0.1; that value becomes the SCO
BCR	= soil-to-plant bioconcentration ratio for the target contaminant in aboveground plant parts
IR	= ingestion rate standardized to body weight (BW)

FI = fraction ingested (i.e., fraction of daily vegetable consumption represented by home-grown vegetables)
EF = exposure frequency (i.e., the number of days per year that home-grown vegetables are consumed)
ED = exposure duration (i.e., the number of years of exposure to home-grown vegetables)
AT = averaging time
RfD_o = the chronic oral reference dose for PCNs (i.e., the toxicity value for PCNs)

All the parameters on the right-hand side of Equation 3 are "fixed" (see Table 6 below), except for $[soil]_{contam}$. Equation 3 is solved by iteratively entering different soil concentrations for PCNs in an Excel spreadsheet until the HQ equals 0.1, at which point that soil concentration becomes the SCO.

Table 6 below provides the values of the exposure parameters for children and adults used to derive the PCN SCOs protective of consuming home-grown vegetables.

exposure parameters	units	child		adult	
		value	reference	value	reference
$[soil]_{contam}$	mg/kg dw	calculated		calculated	--
BCR	mg dw/mg dw	0.01518	Travis & Arms (1988)	0.01518	Travis & Arms (1988)
IR	mg dw/kg BW-day	1,330	Modified from Table 9.1, USEPA (2018)	670	Modified from Table 9.1, USEPA (2018)
FI	unitless	0.25	MADEP (2006)	0.25	MADEP (2006)
EF	days/year	365	MADEP, 2006	365	MADEP, 2006
ED	years	6	USEPA (1988)	20	USEPA (1988)
AT	days	2190	EF * ED	7300	EF * ED
RfD_o	mg/kg BW-day	0.08	EPA Integrated Risk Information System (IRIS)	0.08	EPA Integrated Risk Information System (IRIS)

The notes below pertain to the information presented in **Table 6**:

- **BCR (bioconcentration ratio)**

The following general equation developed by Travis and Arms (1988) was used to estimate the soil-to-plant BCR for PCNs:

$$\log BCR = 1.58 - (0.58 * \log K_{ow}) \qquad \text{(Equation 4)}$$

Where:

log BCR = the logarithm of the bioconcentration ratio between soil and plants (on a dry-weight [dw] basis)
$\log K_{ow}$ = the logarithm of the octanol-water partitioning coefficient for the target contaminant

Equation 4 shows that the amount of organic contaminant translocated from soil to plant is related to that compound's K_{ow}. As shown in Table 5 above, each of the nine PCN groups can be represented by a specific K_{ow}. Hence, the estimated concentration of PCNs in home-grown vegetables depends on which group of PCNs is retained to derive the SCOs.

Table 3 above shows that the tetraPCNs were the most-common PCNs detected in surface soil samples collected off-site in the vicinity of the former TRW facility. In addition, of all the PCN groups detected in those surface soil samples, the tetraPCNs yielded the highest soil concentrations. Hence, it was considered appropriate to derive the SCOs for consumption of garden vegetables based on the presence of the tetraPCNs in the off-site surface soil samples.

Table 5 above shows an average log K_{ow} of 5.86 for the tetraPCNs. Inserting this value in Equation 4 yields a log BCR of -1.8188, which results in a BCR equal to 0.01518. This value shows that about 1.5% of the tetraPCNs in soil can be expected to translocate into the aboveground parts of plants (on a dw basis) growing in that soil.

- **IR (ingestion rate)**

The daily ingestion rate of vegetables varies by age and therefore differs between young children and adults.

Table 9.1 in USEPA (2018) provides age-specific recommended ingestion rates for vegetables. These values, which represent 95th percentiles (i.e., conservative, high-end values) are as follows:

- Child (age 3 to <6 years old): 13.3 g of vegetables (wet weight, [ww]) per kg BW per day (g ww/kg BW-day).
- Adult (> 21 years old): 6.7 g ww/kg BW-day (this value is the highest of all the adult age groups shown in Table 9.1 in USEPA, 2018).

These two ingestion rates lack the required units for use in Equation 3. Therefore, the original units were changed from g ww/kg BW-day to mg dw/kg BW-day in order to be compatible with the other units used in Equation 3. This units transformation was achieved as follows:

IR_{child} = 13.3 g ww/kg BW-day
= 1.33 g dw/kg BW-day (assumes 90% moisture in fresh produce [MADEP, 2006])
= 1,330 mg dw/kg BW-day (X1000 to change the numerator units from g to mg)

IR_{adult} = 6.7 g ww/kg BW-day
= 0.67 g dw/kg BW-day (assumes 90% moisture in fresh produce [MADEP, 2006])
= 670 mg dw/kg BW-day (X1000 to change the numerator units from g to mg)

- **FI (fraction ingested)**

The FI reflects the fraction of total vegetables consumed on a daily basis that originate from a local home garden. This evaluation assumes that FI equals 0.25, i.e., 25% of the vegetables consumed by the two target populations (i.e., young children and adults) are home grown (MADEP, 2006).

- **EF (exposure frequency)**

The EF reflects the number of days in a year that home-grown vegetables are consumed by children and adults. This value was set at 365 days per year (MADEP, 2006).

- **ED (exposure duration)**

The ED reflects the number of years that a child and adult are expected to be exposed to contamination associated with consuming home-grown vegetables. These standardized values, which equal six years and 20 years respectively, are provided in EPA (1988).

- **AT (averaging time)**

When evaluating longer-term exposure to non-carcinogenic toxicants, intakes are calculated by averaging over the period of exposure (i.e., subchronic or chronic daily intakes). For non-cancer hazards, the averaging time equals the exposure duration times 365 days per year.

- **RfD_o (chronic oral reference dose)**

Numerous chronic RfD_os for use in human health risk assessment have been published in EPA's Integrated Risk Information System (IRIS). As explained earlier in this memorandum, the only available RfD_o for PCNs pertains to 2-chloronaphthalene, a monoPCN. By default, this toxicity value (0.08 mg/kg BW-day) was used in the SCO calculations.

5.2.2 Derive age-specific PCN SCOs for consuming home-grown vegetables

The SCOs presented as comparison criteria for the results summarized in Appendix 4 shows the outcome of the SCO calculations based on Equation 3 and the input parameters listed in Table 6.

This analysis resulted in the following PCN SCOs protective of consuming home-grown vegetables.

- PCN SCO protective of young children: 1,586 mg/kg

- PCN SCO protective of adults: 3,147 mg/kg

Of note, these two values are between two and three orders of magnitude higher than the highest concentration of PCN (4.3 mg/kg tetraPCN) measured in surface soil at the off-site locations. This information suggests that current conditions are unlikely to pose an unacceptable risk to humans consuming vegetables grown in their home gardens.

The method for determining SCOs based on consuming home-grown vegetables described above differs from the method utilized in the document "Development of Soil Cleanup Objectives – Technical Support Document" (NYSDEC and NYDOH, 2006) (TSD). If the method utilized in the TSD were utilized, the calculated value for 2-chloronaphthalene for children would be approximately 2,880 mg/kg, which is greater than the value calculated above. The value for adults calculated using the method in the TSD would be approximately 65,900 mg/kg.

5.3 Uncertainty considerations

The following major uncertainties and assumptions should be considered when evaluating the PCN SCOs protective of consuming home-grown vegetables.

- It was necessary to focus the intake calculation on one specific PCN group in order to identify the K_{ow} required to derive the BCR based on the Travis and Arm (1988) equation. We selected the tetraPCNs as the target compounds because (a) they were the PCN group most often detected in the off-site surface soil samples, and (b) the tetraPCNs yielded the highest mean and maximum soil PCN concentrations. Hence, retaining the tetraPCNs was considered conservative and appropriate.

- The only-available RfD_o for any of the PCNs was for 2-chloronaphthalene. This value, which pertains specifically to a mono-CN, was used unchanged to calculate the SCO for the PCNs in home-grown vegetables, even though higher-chlorinated PCNs can be expected to be more toxic than 2-chloronaphthalene. Hence, the SCO presented in this section would have been lower (more conservative) if a RfD_o specific to higher chlorinated PCNs had been available for use in the calculations.

- The HQ for deriving the SCOs was set at 0.1 to account for the fact that the PCNs in off-site surface soils are present as mixtures (see Table 3). Lowering the HQ from 1.0 to 0.1 to calculate SCOs accounts for the inherent uncertainty associated with exposure to a mixture of contaminants with varying toxicological effects.

- The BCR was derived from a published but generic equation to estimate organic contaminant levels in above-ground plant parts. The accuracy of the calculated PCN levels in these plant parts is unknown. The equation also did not estimate PCN levels in edible plant roots (e.g., onions, carrots, beets). However, it appeared reasonable to assume that most home-grown vegetables would be represented by above-ground plants parts, such as lettuce, tomatoes, cucumbers, green beans, peppers, etc.

- The exposure term FI (fraction of vegetables representing home-grown plants) was set at 0.25, i.e., one quarter of the daily ingestion of vegetables is represented by home-grown vegetables. This assumption follows published guidance and appears reasonable.

- The exposure term EF (exposure frequency to home-grown vegetables) was set at 365 days per year and follows published guidance. It assumes that home-grown vegetables are consumed year-round. This level of consumption not only includes fresh vegetables during the growing season, but also canned vegetables during the rest of the year. Such an assumption is expected to generate a conservative (i.e., high-end) exposure estimate.

- The soil PCN analytical data represent surface soil samples obtained at off-site locations in the immediate vicinity around the TRW facility. These samples were not collected from actual backyards of homes present further away from the site. It is therefore unknown if the current off-site analytical data properly represent PCN levels that could reasonably be expected to be present in surrounding home gardens. This uncertainty cannot be further evaluated based on the available soil analytical dataset; however, it is likely that home gardening entails tilling of soils, importation of topsoil, and addition of soil amendments that would decrease soil garden concentrations from those detected in the off-site soil dataset.

- Using the original residential SCO for 2-chloronaphthalene as a surrogate for all mono- and di-CNs, and then dividing this number by increasing UFs to account for higher toxicity in the more chlorinated CNs. ERM (2018) This approach, which qualitatively recognized the link between higher chlorination and higher toxicity, nonetheless generated much uncertainty since the exact cut-off points of where one UF should be applied versus another UF is unknown.

6.0 Summary and conclusions

This memorandum reviewed the PCN analytical data for samples of surface water, sediment, groundwater, and soil collected in 2018 at off-site locations around the former TRW facility in Union Springs, NY.

The goal of the review was to present the analytical data, compare these concentrations against toxicity-based threshold values, identify major uncertainties, and determine if the existing off-site PCN levels might cause unacceptable effects to human health and ecological receptors. An additional goal was to derive SCOs protective of groundwater and the consumption of home-grown vegetables.

PCNs were detected most often in surface soil. They were absent from groundwater and deeper (> 6 ft) soils, and detected in only one of ten surface water samples, one surface (0-0.5 ft) sediment sample and four deeper (> 0.5 ft) sediment samples. Except for one potential soil “hot spot”, the detected PCN levels appeared to be relatively low in all of the off-site matrices.

Few PCN screening values have been published for use in regulatory decision making. In addition, those values pertain exclusively to 1- and 2-chloro-CN, and not the more chlorinated PCNs. ERM (2018) developed various cleanup objectives as part of their remedial investigation report for the on-site portion of the former TRW facility. Large uncertainties were associated with these values, mainly because of a lack of reliable toxicity values required to derive the cleanup objectives. As a result, ERM (2018) made several assumptions to proceed with the calculations, which then resulted in cleanup objectives that may have been over or under protective of human health and ecological receptors. The same fundamental issue pertains to the SCOs protective of groundwater and home-grown vegetables presented in Section 4 and 5, respectively, of this memorandum.

With one exception, the available screening values, all of which reflect large and important uncertainties, do not suggest that the off-site PCNs measured in surface water, sediment, groundwater, or soil are present at levels that would systematically cause unacceptable harm to human health, ecological receptors, or groundwater under current exposure conditions.

However, soil sampling location SS-09 to the north of the former TRW facility (see **Figure A1-4**) appears to represent a local “hot spot” with concentrations of three PCN homologs in surface soil (0-0.2 ft) exceeding the groundwater protection SSL of 390 µg/kg by factors ranging from 2.5 to 11. An interim remedial measure (IRM) consisting of excavation and off-site disposal could address this hot-spot area to eliminate any concerns with exposure or future groundwater contamination associated with leaching PCNs.

The situation at sampling location SS-01 immediately to the east of the former TRW facility (see **Figure A1-4**) appears to be of lesser concern. One PCN homolog (i.e., tetra-CN) in surface soil (0-0.2 ft) exceeded the groundwater protection SSL of 390 µg/kg by a factor of 1.3. If the NYSDEC conducts an IRM at this site this area should be excavated at the same time. We note that none of the PCNs at any of the other off-site soil sampling locations exceeded the groundwater-protection SSL for PCNs.

7.0 References

Buchman, M.F. 2008. NOAA Screening Quick Reference Tables, NOAA OR&R 08-1, Seattle WA, Office of Response and Restoration Division, National Oceanic and Atmospheric Administration, 34 pages.

Environment Canada. 2011. Ecological Screening Assessment: Chlorinated Naphthalenes. Available at http://ec.gc.ca/ese-ees/default.asp?lang=En&n=835522FE-1

ERM. 2018. Appendix C in *Draft Remedial Investigation and Alternative Analysis Report, Former TRW Union Springs facility, Village of Union Springs, Cayuga County, NY.* Prepared by ERM Consulting and Engineers, April 2018.

Jakobsson. E., and L. Asplund. 2000. Chapter 5: Polychlorinated Naphthalenes. p. 97 to 126 *In: The Handbook of Environmental Chemistry, Volume 3, Part K, New Types of Persistent Halogenated Compounds* (ed. By J. Paasivirta). Springer-Verlag. Available at https://www.researchgate.net/publication/226930887_Polychlorinated_Naphthalenes_PCNs

MADEP. 2006. Homegrown Produce Consumption Pathway: Exposure Assessment for Method 1 Standards. Available at https://www.mass.gov/files/documents/2016/08/ss/prodcons.pdf.

NYSDEC. 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluents Limitations. . Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. Available at http://www.dec.ny.gov/docs/water_pdf/togs111.pdf

NYSDEC. 2006. 6 NYCRR Part 375, Environmental Remediation Programs. Subparts 375-1 to 375-4 and 375-6. Effective December 14, 2006. Available at http://www.dec.ny.gov/docs/remediation_hudson_pdf/part375.pdf.

NYSDEC and NYSDOH. 2006. New York State Brownfields Cleanup Program. Development of soil cleanup objectives. Technical Support Document. Available at http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf.

NYSDEC. 2010. CP-51/Soil Cleanup Guidance. Available at http://www.dec.ny.gov/docs/remediation_hudson_pdf/cpsoil.pdf.

NYSDEC. 2014. Screening and assessment of contaminated sediments. Available at http://www.dec.ny.gov/docs/fish_marine_pdf/screenasssedfin.pdf.

Travis, C.C. and A.D. Arms. 1988. Bioconcentration of organics in beef, milk, and vegetation. Environ. Sci. Technol. 22:271-274.

USEPA. 1980. Ambient Water Quality Criteria for Chlorinated Naphthalene. EPA 440/5-80-031. Available on-line at the National Service Center for Environmental Publications.

USEPA. 1989. Risk Assessment Guidance for Superfund (RAGS), Volume I, Human Health Evaluation Manual (Part A). EPA/540/1-89/002. Available at https://www.epa.gov/sites/production/files/2015-09/documents/rags_a.pdf.

USEPA. 2003. US EPA Region 5 RCRA Ecological Screening Levels. Available at https://archive.epa.gov/region5/waste/cars/web/pdf/ecological-screening-levels-200308.pdf.

USEPA. 2011. Exposure Factors Handbook. Chapter 8 – body weight studies. Available at https://www.epa.gov/expobox/exposure-factors-handbook-chapter-8.

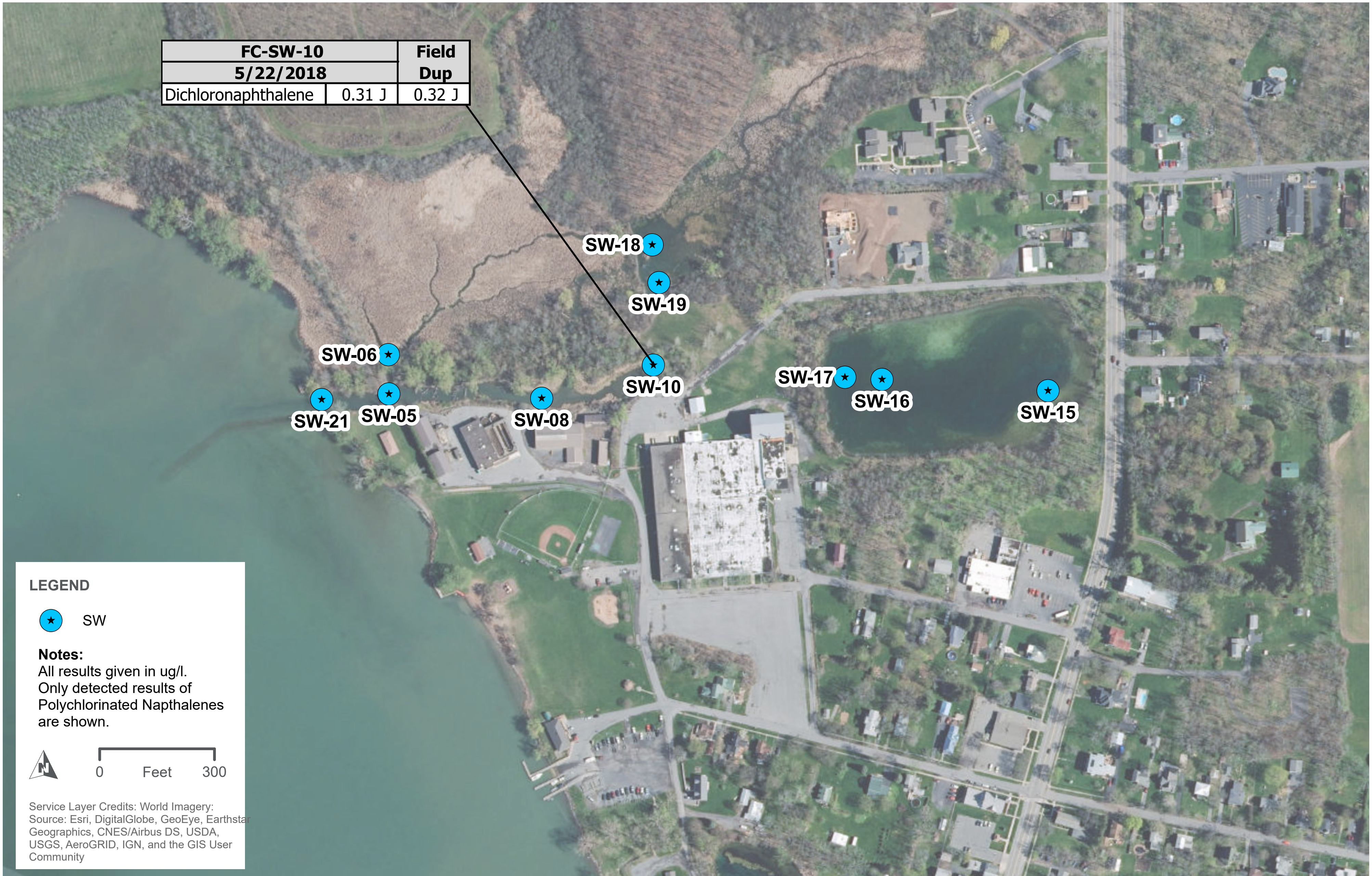
USEPA. 2018. Exposure Factors Handbook. Chapter 9 – Intake of fruits and vegetables. Available at https://www.epa.gov/expobox/exposure-factors-handbook-chapter-9.

USEPA. 2019. Regional Screening Levels (RSLs) – Generic Tables (May 2019). Available at https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables.

van de Plassche, E. and A. Schwegler. 2002. Polychlorinated Naphthalenes. United Nations Economic Commission for Europe (UNECE). Available at http://www.unece.org/fileadmin/DAM/env/lrtap/TaskForce/popsxg/2005/EU%20polychlorinated%20napthalenes.pdf

World Health Organization (WHO). 2001. Chlorinated Naphthalenes. Concise International Chemical Assessment Document 34. Available at https://www.who.int/ipcs/publications/cicad/en/cicad34.pdf

FIGURES



FC-SW-10 5/22/2018		Field Dup
Dichloronaphthalene	0.31 J	0.32 J

LEGEND

SW

Notes:
All results given in ug/l.
Only detected results of Polychlorinated Napthalenes are shown.

0 Feet 300

Service Layer Credits: World Imagery: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

HDR

OFF-SITE SURFACE WATER – PCN ANALYTICAL SUMMARY

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE A1-1

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\PCN_CHEMBOXES\UNIONSPRINGS_CHEMBOXES\UNIONSPRINGS_CHEMBOXES.APRX - USER: HROSADO - DATE: 2/10/2020

UNION SPRINGS, NEW YORK

HDR

OFF-SITE SEDIMENT – PCN ANALYTICAL SUMMARY

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE A1-2

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\PCN_CHEMBOXES\UNIONSPRINGS_CHEMBOXES\UNIONSPRINGS_CHEMBOXES.APRX - USER: HROSADO - DATE: 2/10/2020

UNION SPRINGS, NEW YORK

HDR

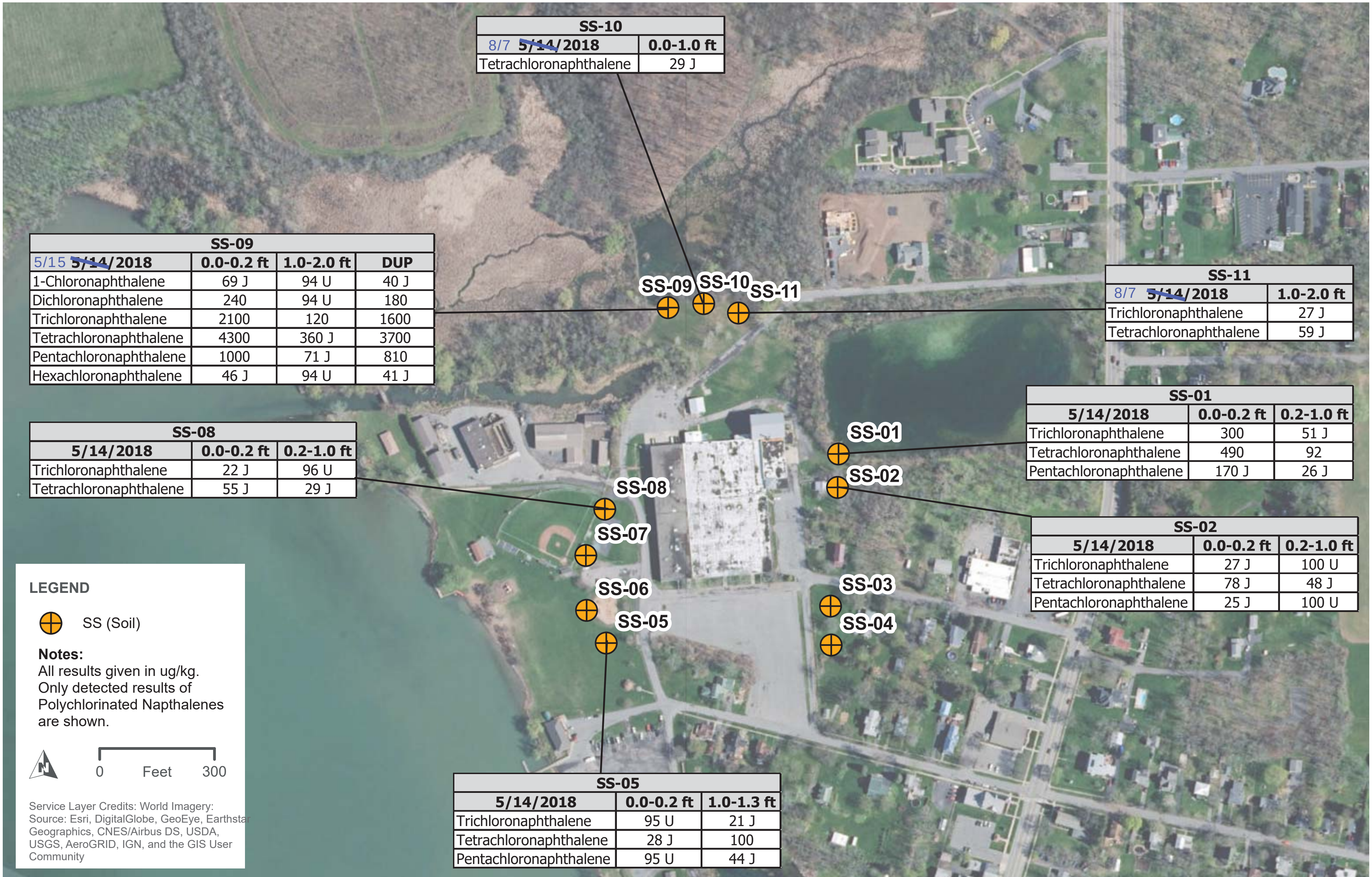
OFF-SITE SUB-SURFACE SOIL AND **OFF-SITE GROUNDWATER – PCN ANALYTICAL SUMMARY**

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE A1-3

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\PCN_CHEMBOXES\UNIONSPRINGS_CHEMBOXES\UNIONSPRINGS_CHEMBOXES.APRX - USER: HROSADO - DATE: 2/10/2020

UNION SPRINGS, NEW YORK



SS-10	
8/7 ~~5/14~~/2018	0.0-1.0 ft
Tetrachloronaphthalene	29 J

SS-09			
5/15 ~~5/14~~/2018	0.0-0.2 ft	1.0-2.0 ft	DUP
1-Chloronaphthalene	69 J	94 U	40 J
Dichloronaphthalene	240	94 U	180
Trichloronaphthalene	2100	120	1600
Tetrachloronaphthalene	4300	360 J	3700
Pentachloronaphthalene	1000	71 J	810
Hexachloronaphthalene	46 J	94 U	41 J

SS-11	
8/7 ~~5/14~~/2018	1.0-2.0 ft
Trichloronaphthalene	27 J
Tetrachloronaphthalene	59 J

SS-01		
5/14/2018	0.0-0.2 ft	0.2-1.0 ft
Trichloronaphthalene	300	51 J
Tetrachloronaphthalene	490	92
Pentachloronaphthalene	170 J	26 J

SS-08		
5/14/2018	0.0-0.2 ft	0.2-1.0 ft
Trichloronaphthalene	22 J	96 U
Tetrachloronaphthalene	55 J	29 J

SS-02		
5/14/2018	0.0-0.2 ft	0.2-1.0 ft
Trichloronaphthalene	27 J	100 U
Tetrachloronaphthalene	78 J	48 J
Pentachloronaphthalene	25 J	100 U

SS-05		
5/14/2018	0.0-0.2 ft	1.0-1.3 ft
Trichloronaphthalene	95 U	21 J
Tetrachloronaphthalene	28 J	100
Pentachloronaphthalene	95 U	44 J

HDR

OFF-SITE SOIL – PCN ANALYTICAL SUMMARY

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

FIGURE A1-4

PATH: \\MAHPI-FILE01\OFFICESHARE\SECTIONFOLDERS\WASTE MGMT & INDUSTRIAL\EDMT\EDMT_PROJECTS\UNION_SPRINGS\GIS\MAP_DOCS\PCN_CHEMBOXES\UNIONSPRINGS_CHEMBOXES\UNIONSPRINGS_CHEMBOXES.APRX - USER: HROSADO - DATE: 2/10/2020

UNION SPRINGS, NEW YORK

APPENDICES

Appendix 1:

2018 Off-Site Surface Water Data for PCNs

Former TRW Facility
Union Springs, NY

2018 Off-Site Surface Water Data for PCNs
Former TRW Facility
Union Springs, NY

		Analyte:	1-Chloronaphthalene	2-Chloronaphthalene	Dichloronaphthalene	Heptachloronaphthalene	Hexachloronaphthalene	Octachloronaphthalene	Pentachloronaphthalene	Tetrachloronaphthalene	Trichloronaphthalene
		CAS:	90-13-1	91-58-7	28699-88-9	32241-08-0	1335-87-1	2234-13-1	1321-64-8	1335-88-2	1321-65-9
		DRAFT Human Health Criteria:	--	100	--	--	--	--	--	--	--
		DRAFT Ecological Criteria:	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
		Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Sample	Location	Sample Date									
BP-SW-18-20180517	BP-SW-18	5/17/2018	2.5 U		U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
BP-SW-19-20180517	BP-SW-19	5/17/2018	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
CL-SW-21-20180521	CL-SW-21	5/21/2018	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
FC-SW-05-20180521	FC-SW-05	5/21/2018	2.4 U		U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
FC-SW-08-20180521	FC-SW-08	5/21/2018	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
FC-SW-10-20180522	FC-SW-10	5/22/2018	2.4 U		0.31 J	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
FC-SW-DUP-01-20180522	FC-SW-10	5/22/2018	2.4 U		0.32 J	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MP-SW-15-20180515	MP-SW-15	5/15/2018	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MP-SW-16-20180515	MP-SW-16	5/15/2018	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MP-SW-17-20180515	MP-SW-17	5/15/2018	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
UNST-SW-06-20180521	UNST-SW-06	5/21/2018	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U

BP = Beaver Pond
CL = Cayuga Lake
FC = Former Canal
MP = Mill Pond
UNST = Unnamed Stream

Criteria units: ug/L

Qualifiers
J - Result is estimated.
U - Result is non-detect.

Appendix 2:

2018 Off-Site Sediment Data for PCNs

Former TRW Facility
Union Springs, NY

2018 Off-Site Sediment Data for PCNs
Former TRW Facility
Union Springs, NY

				Analyte:	1-Chloronaphthalene	2-Chloronaphthalene	Dichloronaphthalene	Heptachloronaphthalene	Hexachloronaphthalene	Octachloronaphthalene	Pentachloronaphthalene	Tetrachloronaphthalene	Trichloronaphthalene	Total Organic Carbon
				CAS:	90-13-1	91-58-7	28699-88-9	32241-08-0	1335-87-1	2234-13-1	1321-64-8	1335-88-2	1321-65-9	TOC
				DRAFT Human Health Criteria:	6000000	6000000	6000000	6000	60000	6000	60000	600000	600000	
				DRAFT Ecological Criteria:	1182	1182	3584	14358021	3692280	NA	757152	115692	22933	
				Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Sample	**Location**	**Sample Date**	**Start Depth**	**End Depth**										
BP-SED-18-0-0.5-20180518	BP-SED-18	5/18/2018	0	0.5	270 U		270 U	270 U	270 U	270 UJ	270 U	270 U	270 U	120000 J
BP-SED-18-1.5-2.0-20180518	BP-SED-18	5/18/2018	1.5	2	180 U		180 U	180 U	180 U	180 U	180 U	180 U	180 U	126000 J
BP-SED-19-0-0.5-20180518	BP-SED-19	5/18/2018	0	0.5	200 U		200 U	200 U	200 U	200 UJ	200 U	200 U	200 U	43800
BP-SED-19-1.0-2.0-20180518	BP-SED-19	5/18/2018	1	2	110 U		110 U	110 U	110 U	110 U	110 U	110 U	110 U	27000 T
CL-SED-21-0-0.5-20180521	CL-SED-21	5/21/2018	0	0.5	240 U		240 U	240 U	240 U	240 UJ	240 U	240 U	60 J	100000
CL-SED-21-3.5-4.0-20180521	CL-SED-21	5/21/2018	3.5	4	120 U		120 U	120 U	120 U	120 UJ	120 U	120 U	44 J	18600
FC-SED-05-1.0-2.0-20180522	FC-SED-05	5/22/2018	1	2										89200
FC-SED-05-2.0-4.0-20180522	FC-SED-05	5/22/2018	2	4	150 U		150 U	150 U	150 U	150 UJ	150 U	150 U	150 U	45700
FC-SED-08-0.0-0.5-20180522	FC-SED-08	5/22/2018	0	0.5										44200
FC-SED-08-3.0-4.0-20180522	FC-SED-08	5/22/2018	3	4	170 U		52 J	170 U	170 U	170 UJ	170 U	170 U	110 J	60900
MP-SED-15-0.5-1.0-20180516	MP-SED-15	5/16/2018	0.5	1	190 U		190 U	190 U	190 U	190 UJ	190 U	190 U	190 U	
MP-SED-16-1.5-2.0-20180517	MP-SED-16	5/17/2018	1.5	2	340 UJ		340 UJ	340 UJ	340 UJ	340 UJ	340 UJ	340 UJ	340 UJ	
MP-SED-16-2.0-2.5-20180517	MP-SED-16	5/17/2018	2	2.5	230 U		230 U	230 UJ	230 UJ	230 UJ	230 UJ	230 U	230 U	
MP-SED17-0.0-0.5-20180515	MP-SED-17	5/15/2018	0	0.5	620 UJ		620 UJ	620 UJ	620 UJ	620 UJ	620 UJ	620 UJ	620 UJ	110000 J
MP-SED17-1.5-2.0-20180515	MP-SED-17	5/15/2018	1.5	2	200 U	110 U	200 U	200 U	200 U	200 U	200 U	200 U	43 J	17900
MP-SED-DUP-20180517	MP-SED-16	5/17/2018	2	2.5	210 U		210 U	210 U	210 U	210 UJ	210 U	210 U	210 U	
UNST-SED-06-0.0-0.5-20180521	UNST-SED-06	5/21/2018	0	0.5										277000
UNST-SED-06-3.5-4.0-20180521	UNST-SED-06	5/21/2018	3.5	4	220 U		220 U	220 U	220 U	220 UJ	220 U	220 U	220 U	104000

BP = Beaver Pond
CL = Cayuga Lake
FC = Former Canal
MP = Mill Pond
UNST = Unnamed Stream

Qualifiers
J - Result is estimated.
T - A quality control parameter has exceeded laboratory limits.
U - Result is non-detect.

Appendix 3:

2018 Off-Site Groundwater Data for PCNs

Former TRW Facility
Union Springs, NY

2018 Off-Site Groundwater Data for PCNs
Former TRW Facility
Union Springs, NY

				Analyte:	1-Chloronaphthalene	2-Chloronaphthalene	Dichloronaphthalene	Heptachloronaphthalene	Hexachloronaphthalene	Octachloronaphthalene	Pentachloronaphthalene	Tetrachloronaphthalene	Trichloronaphthalene
				CAS:	90-13-1	91-58-7	28699-88-9	32241-08-0	1335-87-1	2234-13-1	1321-64-8	1335-88-2	1321-65-9
		DRAFT Human Health Criteria:			NS	NS^	NS	NS	NS	NS	NS	NS	NS
		DRAFT Ecological Criteria:			NS	NS	NS	NS	NS	NS	NS	NS	NS
				Units:	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Sample	**Location**	**Sample Date**	**Start Depth**	**End Depth**									
MW-10D-20180925	MW-10D	9/25/2018	24	24	2.4 UT	U	2.4 UT	2.4 U	2.4 U	2.4 UT	2.4 U	2.4 U	2.4 U
MW-10S-20180925	MW-10S	9/25/2018	16	16	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-1S-20180927	MW-1S	9/27/2018	12	12	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-2S-20180927	MW-2S	9/27/2018	12	12	2.4 U	U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-300-20180928	MW-300	9/28/2018	20	20	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-3D-20180928	MW-3D	9/28/2018	30	30	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-4S-20181002	MW-4S	10/2/2018	20	20	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-5D-20181001	MW-5D	10/1/2018	30	30	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-5S-20181001	MW-5S	10/1/2018	19	19	2.4 U		2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-6D-20180924	MW-6D	9/24/2018	23	23	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
MW-6S-20180927	MW-6S	9/27/2018	15	15	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
MW-7D-20180927	MW-7D	9/27/2018	20	20	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
MW-7S-20180927	MW-7S	9/27/2018	13	13	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-8D-20180926	MW-8D	9/26/2018	22	22	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-8S-20180926	MW-8S	9/26/2018	13	13	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-9D-20180925	MW-09D	9/25/2018	32	32	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-9S-20180925	MW-9S	9/25/2018	19	19	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
MW-D-20180928	MW-3D	9/28/2018	30	30	2.4 U	5 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U

No Standards developed for eco risk - due to no GW pathways / no agency screening level available for GW

^For Human Health SCO - USEPA tap water screening level for 2-CN is 75 ug/l
No complete exposure pathways for GW since area water system is via municipal supply

No Standards developed for ecological risk due to no GW pathways / no agency screening levels available for GW

Qualifiers

T - A quality control parameter has exceeded laboratory limits.

U - Result is non-detect.

Appendix 4:

2018 Off-Site Soil Data for PCNs

Former TRW Facility
Union Springs, NY

2018 Off-Site Soil Data for PCNs
Former TRW Facility
Union Springs, NY

				Analyte:	1-Chloronaphthalene	2-Chloronaphthalene	Dichloronaphthalene	Heptachloronaphthalene	Hexachloronaphthalene	Octachloronaphthalene	Pentachloronaphthalene	Tetrachloronaphthalene	Trichloronaphthalene
				CAS:	90-13-1	91-58-7	28699-88-9	32241-08-0	1335-87-1	2234-13-1	1321-64-8	1335-88-2	1321-65-9
				DRAFT Human Health - Direct Contact SCO:	480000	480000	480000	480	4800	480	4800	48000	48000
				DRAFT Human Health - Food Uptake SCO:	1.586E+06 (child) / 3.147E+06 (adult)**	1.586E+06 (child) / 3.147E+06 (adult)**	NS	NS	NS	NS	NS	NS	NS
				DRAFT Ecological SCO:	18000	18000	20400	NS	44400	NS	37200	30100	25100
				Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Sample	**Location**	**Sample Date**	**Start Depth**	**End Depth**									
MW-01-8-12-20180803	MW-01	8/3/2018	8	12	95 U	U	95 U	95 U	95 U	95 U	95 U	95 U	95 U
MW-02-5-8-20180802	MW-02	8/2/2018	5	8	110 U	220 U	110 U	110 U	110 U	110 U	110 U	110 U	110 U
MW-04S-6-10-20180806	MW-04S	8/6/2018	6	10	97 UJ	210 U	97 UJ	97 UJ	97 UJ	97 UJ	97 UJ	97 UJ	97 UJ
MW-05-D1-20180801	MW-05D	8/1/2018	24	28	94 U	U	94 U	94 U	94 U	94 U	94 U	94 U	94 U
MW-05D-12-18-20180801	MW-05D	8/1/2018	12	18	100 U	210 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
MW-05D-24-28-20180801	MW-05D	8/1/2018	24	28	98 U		98 U	98 U	98 U	98 U	98 U	98 U	98 U
MW-06D-20-22-20180731	MW-06D	7/31/2018	20	22	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U
MW-06D-6-10-20180731	MW-06D	7/31/2018	6	10	130 UT	280 U	130 UT	130 U	130 U	130 UJ	130 U	130 UT	130 U
MW-07D-17-20-20180724	MW-07D	7/24/2018	17	20	110 U		110 U	110 U	110 U	110 U	110 U	110 U	110 U
MW-07D-7-10-20180724	MW-07D	7/24/2018	7	10	110 U	240 U	110 U	110 U	110 U	110 U	110 U	110 U	110 U
MW-08D-20-24-20180725	MW-08D	7/25/2018	20	24	110 U		110 U	110 U	110 U	110 U	110 U	110 U	110 U
MW-08D-7-10-20180725	MW-08D	7/25/2018	7	10	100 U	220 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
MW-09D-24-28-20180730	MW-09D	7/30/2018	24	28	86 U		86 U	86 U	86 U	86 U	86 U	86 U	86 U
MW-10D-20-26-20180726	MW-10D	7/26/2018	20	26	96 U		96 U	96 U	96 U	96 U	96 U	96 U	96 U
MW-10D-6-12-20180726	MW-10D	7/26/2018	6	12	96 U	200 U	96 U	96 U	96 U	96 U	96 U	96 U	96 U
MW-9D-6-10-20180727	MW-09D	7/27/2018	6	10	95 U	190 U	95 U	95 U	95 U	95 U	95 U	95 U	95 U
SS-01-0.2-1.0-20180514	SS-01	5/14/2018	0.2	1	87 U		87 U	87 U	87 U	87 UJ	26 J	92	51 J
SS-01-0-0.2-20180514	SS-01	5/14/2018	0	0.2	87 U		87 U	87 UJ	87 UJ	87 UJ	170 J	490	300
SS-01-1.0-2.0-20180514	SS-01	5/14/2018	1	2	95 U		95 U	95 U	95 U	95 UJ	95 U	95 U	95 U
SS-02-0.2-1.0-20180514	SS-02	5/14/2018	0.2	1	100 U		100 U	100 U	100 U	100 UJ	100 U	48 J	100 U
SS-02-0-0.2-20180514	SS-02	5/14/2018	0	0.2	110 U		110 U	110 U	110 U	110 UJ	25 J	78 J	27 J
SS-02-1.0-2.0-20180514	SS-02	5/14/2018	1	2	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U
SS-03-0.0-1.0-20180802	SS-03	8/2/2018	0	1	100 U	210 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
SS-03-1.0-2.0-20180802	SS-03	8/2/2018	1	2	99 U	200 U	99 U	99 U	99 U	99 U	99 U	99 U	99 U
SS-04-0.0-1.0-20180803	SS-04	8/3/2018	0	1	100 U	210 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
SS-04-1.0-2.0-20180803	SS-04	8/3/2018	1	2	100 U	210 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
SS-05-0-0.2-20180514	SS-05	5/14/2018	0	0.2	95 U	200 U	95 U	95 U	95 U	95 UJ	95 U	28 J	95 U
SS-05-1-1.3-20180514	SS-05	5/14/2018	1	1.3	95 U	2000 U	95 U	95 U	95 U	95 UJ	44 J	100	21 J
SS-06-0.2-1.0-20180514	SS-06	5/14/2018	0.2	1	93 U	1000 U	93 U	93 U	93 U	93 UJ	93 U	93 U	93 U
SS-06-0-0.2-20180514	SS-06	5/14/2018	0	0.2	110 U	1100 U	110 U	110 U	110 U	110 UJ	110 U	110 U	110 U
SS-07-0.2-1.0-20180514	SS-07	5/14/2018	0.2	1	95 U	190 U	95 U	95 U	95 U	95 U	95 U	95 U	95 U
SS-07-0-0.2-20180514	SS-07	5/14/2018	0	0.2	91 U	180 U	91 U	91 U	91 U	91 U	91 U	91 U	91 U
SS-08-0.2-1.0-20180514	SS-08	5/14/2018	0.2	1	96 U	200 U	96 U	96 U	96 U	96 U	96 U	29 J	96 U
SS-08-0-0.2-20180514	SS-08	5/14/2018	0	0.2	94 U	150 U	94 U	94 U	94 U	94 U	94 U	55 J	22 J
SS-08-1.0-2.0-20180514	SS-08	5/14/2018	1	2	98 U	210 U	98 U	98 U	98 U	98 U	98 U	98 U	98 U
SS-09-0-0.2-20180515	SS-09	5/15/2018	0	0.2	69 J	210 U	240	100 U	46 J	100 U	1000	4300	2100
SS-09-1.0-2.0-20180515	SS-09	5/15/2018	1	2	94 U		94 U	94 U	94 U	94 U	71 J	360 J	120
SS-10-0.0-1.0-20180807	SS-10	8/7/2018	0	1	98 UJ	210 U	98 UJ	98 UJ	98 UJ	98 UJ	98 UJ	29 J-	98 UJ
SS-10-1.0-2.0-20180807	SS-10	8/7/2018	1	2	95 UJ		95 UJ	95 UJ	95 UJ	95 UJ	95 UJ	95 UJ	95 UJ
SS-11-0.0-1.0-20180807	SS-11	8/7/2018	0	1	91 UJ	190 U	91 UJ	91 UJ	91 UJ	91 UJ	91 UJ	91 UJ	91 UJ
SS-11-0.1-2.0-20180807	SS-11	8/7/2018	0.1	2	98 UJ		98 UJ	98 UJ	98 UJ	98 UJ	98 UJ	59 J-	27 J-
SS-12D-20180807	SS-11	8/7/2018	0	1	92 U	190 U	92 U	92 U	92 U	92 U	92 U	92 U	92 U
SS-DUPE-1-20180515	SS-09	5/15/2018	~~1~~ 0	~~2~~ 0.2	40 J	1000 U	180	97 U	41 J	97 U	810	3700	1600

Food Uptake = Homegrown Garden Vegetable Consumption
Draft Ecological SCO - based on studies with short tailed shrew

** toxicity values used to calculate food uptake SCO only available for 2-CN but screening value applied to 1-CN since it is also a mono-CN

Prior on-site screening values have been review by NYSDEC / NYSDOH

Criteria units: ug/kg
NS - No Standard (due to lack of toxicity data for these homologs)

Qualifiers

J - Result is estimated. +/- indicates direction of bias.
T - A quality control parameter has exceeded laboratory limits.
U - Result is non-detect.

Appendix B

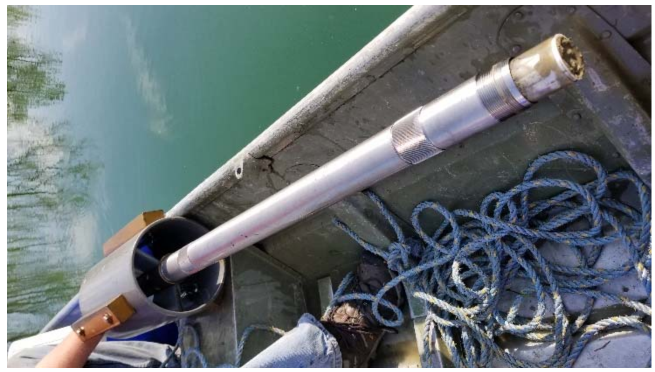
Field Documentation & Logs

Client Name/Contract	Site Location:	Site No.
NYSDEC – D007625 – WA41	Former TRW Off-Site RI – OU1 Union Springs, NY	C706019A

	
OU1 – Mill Pond / SW Berm Area	OU1 – Mill Pond

	
OU1 – Mill Pond Spring Water Upwelling	OU1 – Mill Pond Typical Sediment Appearance

Client Name/Contract	Site Location:	Project No.
NYSDEC - D007625 – WA41	Former TRW Off-Site RI – OU1 Union Springs, NY	C706019A

	
OU1 – Mill Pond Sediment Sample Core Recovery	OU1 – Mill Pond Sediment Core Device

Client Name/Contract	Site Location:	Project No.
NYSDEC - D007625 – WA41	Former TRW Off-Site RI – OU1 Union Springs, NY	C706019A

OU2 – Southeast Parcel Overview During Drilling

OU2 – Typical Overburden Glacial Till Recovery

OU2 – Overburden to Weathered Bedrock Transition Sample

OU2 – Overburden Basal Till to Weathered Bedrock Transition Sample

Client Name/Contract	Site Location:	Project No.
NYSDEC - D007625 – WA41	Former TRW Off-Site RI – OU1 Union Springs, NY	C706019A

	
OU3 – Former Canal During Lowered Lake Water Level Conditions	OU3 – Former Canal Outlet at Cayuga Lake During Lowered Lake Water Level Conditions

	
OU3 – Former Canal Outlet at Cayuga Lake Sampling Location	OU3 – Former Canal Mid-Stream Sampling Location

Client Name/Contract	**Site Location:**	**Project No.**
NYSDEC - D007625 – WA41	Former TRW Off-Site RI – OU1 Union Springs, NY	C706019A

OU3 – Former Canal Representative Sediment Sampling

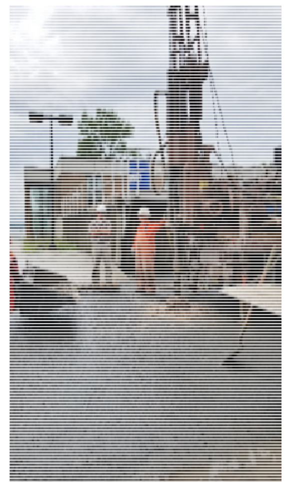
OU3 – Former Canal Typical Sediment Core Recovery

OU3 – Former Canal Typical Sediment Core Sample Recovery Detail

OU3 – North Edge of WWTP Drilling Location for Well Pair MW-10S/10D

Client Name/Contract	Site Location:	Project No.
NYSDEC - D007625 – WA41	Former TRW Off-Site RI – OU1 Union Springs, NY	C706019A

OU3 – WWTP Drilling Location MW-9S/9D



OU3 – WWTP Drilling Location MW-8S/8D

OU3 – WWTP Heavy Rainfall During MW Drilling

OU3 – WWTP Staging Area During Drilling Event

		PHOTOGRAPHIC LOG **Page 7 of 8**
Client Name/Contract NYSDEC - D007625 – WA41	**Site Location:** Former TRW Off-Site RI – OU1 Union Springs, NY	**Project No.** C706019A

OU4 – Eastern Area Frontage East of Former TRW Site

OU4 – Typical Surficial & Shallow Subsurface Soil Sample Collection

OU4 – Typical Surficial & Shallow Subsurface Soil Sampling Cross Section

OU4 – Frontenac Park View North Along Surficial and Shallow Subsurface Sampling Locations

Client Name/Contract	Site Location:	Project No.
NYSDEC - D007625 – WA41	Former TRW Off-Site RI – OU1 Union Springs, NY	C706019A

	
OU4 – Northern Area Beaver Pond - Surface Water & Sediment Sampling	OU4 – Northern Area Beaver Pond - Typical Sample Collection Location

	
OU4 – Northern Area Beaver Pond – Surface Water Sample Collection	OU4 – Northern Area Beaver Pond – Typical Shallow Interval Sediment Collection

HDR	GEOLOGIC BORING LOG	DATE / TIME STARTED: 8/3/18 8:15	BORING ID: MW-01
PROJECT NAME: Former TRW Union Springs Facility Off-Site RI/FS	DRILLING CONTRACTOR: Parratt-Wolff	DATE / TIME COMPLETED	TOTAL DEPTH
LOCATION: Union Springs, NY			
CLIENT: NYSDEC	DRILLER: Glenn	GROUNDWATER:	BORING LOCATION:
ASSIGNMENT: WA #41	EQUIPMENT:	DEPTH: ft bgs	X:
SITE: C706019A	METHOD: HSA	DATE / TIME:	Y:
HDR PROJECT #:	BORE DIAM.:	METHOD:	COORDINATE SYSTEM:
HDR INSPECTOR: Scott Englert			

DEPTH (FT BGS)	BLOW COUNTS	RECOVERY (INCH)	PID (PPM)	ELEVATION (msl)	SAMPLE (Y/N)	SPLIT-SPOON INTERVAL	DESCRIPTION AND CLASSIFICATION	REMARKS
0						0-2' bgs		
2								
						2-4' bgs	Brown, dry clayey SILT, mottled silty clay	
4								
						4-6' bgs	SAA, thin zone (0.3') of saturated SILT below the dry clay	
6								
						6-8' bgs	SAA, no water, dense mottled/varved clay, brown-reddish brown silty very fine partings (varves)	
8								
						8-10' bgs	SAA, dense dry clay, brown till in shoe	Sample collected (8-10')
10								
						10-12' bgs	Silty gravelly mix with a zone of silty CLAY (upper portion of sample), gravel/shattered rock (middle), loosely consolidated mix of silt, sand, gravel, dry	Sample collected (10-12')
12								
						12-~~14~~ 15' bgs	Clayey SILT, silty brown matrix with embedded gravel till to erosional bedrock surface	
14								
16								
18								
20								
22								
24								
26								
28								
30								

GEOLOGIC BORING LOG		**DATE / TIME STARTED** 8/2/18 14:30	**BORING ID:** MW-02D
PROJECT NAME: Former TRW Union Springs Facility Off-Site RI/FS	**DRILLING CONTRACTOR:** Parratt-Wolff	**DATE / TIME COMPLETED**	
LOCATION: Union Springs, NY			**TOTAL DEPTH**
CLIENT: NYSDEC	**DRILLER:** Glenn	**GROUNDWATER:**	**BORING LOCATION:**
ASSIGNMENT: WA #41	**EQUIPMENT:**	**DEPTH:** ft bgs	**X:**
SITE: C706019A	**METHOD:** HSA	**DATE / TIME:**	**Y:**
HDR PROJECT #:	**BORE DIAM.:**	**METHOD:**	**COORDINATE SYSTEM:**
HDR INSPECTOR: Scott Englert			

DEPTH (FT BGS)	BLOW COUNTS	RECOVERY (INCH)	PID (PPM)	ELEVATION (msl)	SAMPLE (Y/N)	SPLIT-SPOON INTERVAL	DESCRIPTION AND CLASSIFICATION	REMARKS
0								3" Split Spoon sample (0-1')
2								
								3" Split Spoon sample (1-2')
4								
						5-6' bgs	Brown, dense clayey SILT, and silty clay, dry, few moist seams	
6								
						6-8' bgs	Brown, stiff, dense, dry CLAY, varred, prominant, few coarser silt/sand seams	
8								
						8-10' bgs	Stiff, dry, brown, silty CLAY, silty very fine sand seams, some embedded coarse sand and small gravel, compact, till-like at bottom of sample	
10								
						10-12' bgs	Very dry gravelly SILT, embedded sandy and small gravel, till-like but brown rather than dark grey till seen in deeper intervals at other locations	No sign of water yet
12								
						12-14' bgs	Grey-dark grey TILL, silty matrix with embedded gravel, very similar to other till zones	Refusal at 12.9'
14								
						14-16' bgs	Dense dark grey, silty matrix with embedded rounded black small gravel, typical of till in area, unknown if same layer as at other locations	Refusal at 14.2' Refusal at 14.5-15'
16								
18								
20								
22								
24								
26								
28								
30								

HDR	GEOLOGIC BORING LOG	DATE / TIME STARTED: 8/7/18 9:00	BORING ID: MW-03D
PROJECT NAME: Former TRW Union Springs Facility Off-Site RI/FS	DRILLING CONTRACTOR: Parratt-Wolff	DATE / TIME COMPLETED	TOTAL DEPTH
LOCATION: Union Springs, NY			
CLIENT: NYSDEC	DRILLER: Glenn	GROUNDWATER:	BORING LOCATION:
ASSIGNMENT: WA #41	EQUIPMENT:	DEPTH: ft bgs	X:
SITE: C706019A	METHOD: HSA	DATE / TIME:	Y:
HDR PROJECT #:	BORE DIAM.:	METHOD:	COORDINATE SYSTEM:
HDR INSPECTOR: Scott Englert			

DEPTH (FT BGS)	BLOW COUNTS	RECOVERY (INCH)	PID (PPM)	ELEVATION (msl)	SAMPLE (Y/N)	SPLIT-SPOON INTERVAL	DESCRIPTION AND CLASSIFICATION	REMARKS
0								
2								
4								
6								
8								
10								
12								
14								
16								
18								
20								
22			0.2			20-22' bgs	Dense silty CLAY, dry to moist	Poor Recovery
24			0.2			22-24' bgs	Dense plastic, dark reddish brown wet CLAY with few silty and very fine thin zones, partings, some darker grey coarser zones	High Humidity
26			0.3			24-26' bgs	Dense plastic, uniform dark (reddish tint), grey CLAY	High Humidity
28			0.3			26-28' bgs	SAA, few embedded coarser grains, overall still very uniform plastic, modeling clay	High Humidity
30			0.2			28-30' bgs	SAA, bottom 0.2' transitioned from plastic CLAY to silt	High Humidity

HDR		**GEOLOGIC BORING LOG**	**DATE / TIME STARTED**	8/7/18 9:00	**BORING ID:**	MW-03D
PROJECT NAME:	Former TRW Union Springs Facility Off-Site RI/FS	**DRILLING CONTRACTOR:**	**DATE / TIME COMPLETED**			
LOCATION:	Union Springs, NY	Parratt-Wolff			**TOTAL DEPTH**	
CLIENT:	NYSDEC	**DRILLER:** Glenn	**GROUNDWATER:**		**BORING LOCATION:**	
ASSIGNMENT:	WA #41	**EQUIPMENT:**	**DEPTH:**	ft bgs	**X:**	
SITE:	C706019A	**METHOD:** HSA	**DATE / TIME:**		**Y:**	
HDR PROJECT #:		**BORE DIAM.:**	**METHOD:**		**COORDINATE SYSTEM:**	
HDR INSPECTOR:	**Scott Englert**					

DEPTH (FT BGS)	BLOW COUNTS	RECOVERY (INCH)	PID (PPM)	ELEVATION (msl)	SAMPLE (Y/N)	SPLIT-SPOON INTERVAL	DESCRIPTION AND CLASSIFICATION	REMARKS
32			0.2			30-32' bgs	Interbedded SILT and plastic clay with some coarser sand, becomes more uniform silt and silty sand, saturated, good water bearing zone throughout, good zone between clay above and till below	
34			0.1			32-34' bgs	Fairly well sorted fine-medium SAND with trace/few coarser sands, small sorted silty gravel, trace clayey seams, saturated	Good Water Bearing Zone (WBZ)
36			0.2			34-36' bgs	Alternating zones of compacted typical TILL for the site and medium-coarse sand, compacted dense till (dark grey silty matrix with embedded small gravel in bottom of sample/shoe, sandy zones, saturated, moist till zones	Set well at 35' bgs
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								

HDR		GEOLOGIC BORING LOG	DATE / TIME STARTED: 8/6/18 0:00	BORING ID: MW-04S
PROJECT NAME:	Former TRW Union Springs Facility Off-Site RI/FS	DRILLING CONTRACTOR:	DATE / TIME COMPLETED	
LOCATION:	Union Springs, NY	Parratt-Wolff		TOTAL DEPTH
CLIENT:	NYSDEC	DRILLER: Glenn	GROUNDWATER:	BORING LOCATION:
ASSIGNMENT:	WA #41	EQUIPMENT:	DEPTH: ft bgs	X:
SITE:	C706019A	METHOD: HSA	DATE / TIME:	Y:
HDR PROJECT #:		BORE DIAM.:	METHOD:	COORDINATE SYSTEM:
HDR INSPECTOR:	Scott Englert			

DEPTH (FT BGS)	BLOW COUNTS	RECOVERY (INCH)	PID (PPM)	ELEVATION (msl)	SAMPLE (Y/N)	SPLIT-SPOON INTERVAL	DESCRIPTION AND CLASSIFICATION	REMARKS
0 2			0.1			0-2' bgs	Dark brown silty CLAY and clayey silt, trace coarser material, roots from grass, thin topsoil layer	
4			0.1			2-4' bgs	Brown, dark-reddish brown SILT, silty clay fill (re-worked native material), mottled very dense and dry, tight	
6			0			4-6' bgs	SAA, not as dense, dry, slightly softer	
8			0.4			6-8' bgs	SAA, dark brown-reddish dark brown clayey SILT and silt with very thin grey very fine-fine sand and silt partings, dry	Sample collected (6-8')
10			0			8-10' bgs	Dark brown SILT and silty clay, very thinly bedded varved mottled dense, tight, dry	Sample collected (8-10')
12			0.1			10-12' bgs	SAA, more uniformly SILT	
14			0.2			12-14' bgs	Dark brown CLAY and silt, clayey silt, thinly bedded, thin very fine sandy partings (varved), little sandier zones and clay zones, stiff plastic	
16			0			14-16' bgs	Brown, thinly bedded SILT with interbedded clay context zones and very fine sandy partings , slightly coarser zone, very fine sand at bottom half of sample	
18			0.1			16-18' bgs	Brown dense, semi-plastic varved CLAYS, moist but no saturation, relatively impermeable appearance	
20			0.1			18-20' bgs	Darker brown-grey-reddish brown moist, wet interbedded mix of SILTS and sand/clayey seams	
22						20-22' bgs	Interbedded zones of CLAY and silty clay, coarser wet gravelly silty sediments, most saturated zone observed in boring	Went additional 2' to confirm water avail. For setting well in Set well at 22' bgs
24								
26								
28								
30								

HDR		GEOLOGIC BORING LOG		DATE / TIME STARTED	BORING ID:
				8/1/18 13:00	MW-05
PROJECT NAME:	Former TRW Union Springs Facility Off-Site RI/FS	DRILLING CONTRACTOR:		DATE / TIME COMPLETED	
LOCATION:	Union Springs, NY	Parratt-Wolff			TOTAL DEPTH
CLIENT:	NYSDEC	DRILLER:	Glenn	GROUNDWATER:	BORING LOCATION:
ASSIGNMENT:	WA #41	EQUIPMENT:		DEPTH: ft bgs	X:
SITE:	C706019A	METHOD:	HSA	DATE / TIME:	Y:
HDR PROJECT #:		BORE DIAM.:		METHOD:	COORDINATE SYSTEM:
HDR INSPECTOR:	Scott Englert				

DEPTH (FT BGS)	BLOW COUNTS	RECOVERY (INCH)	PID (PPM)	ELEVATION (msl)	SAMPLE (Y/N)	SPLIT-SPOON INTERVAL	DESCRIPTION AND CLASSIFICATION	REMARKS
0 2							Dense, brown, dry silty, gravely topsoil fill	Did not hand-clear
4							SAA, dense and dry light brown fill	
6						4-6' bgs	SAA, becoming moist with more CLAY, and embedded small gravel, mostly brown mottled silt	
8						6-8' bgs	Brown, dry SILT, with few very fine sand partings and clayey seams	
10						8-10' bgs	SAA, mottling still present, some very thin sandy partings	
12						10-12' bgs	SAA, CLAY content increased toward bottom of sample	
14						12-14' bgs	SAA, clayey SILT increased, moist sediments, some very fine sandy partings	Wetter sedimen ts in shoe of spoon. Sample collected (12-18')
16						14-16' bgs	SAA, clayey SILT and silty clay, dry and brown, some very thin very fine sand partings	
18						16-18' bgs	SAA, more variation, distinct bedding of sandier, siltier and gravely zones, some zones clearly saturated, moist throughout	Most coarse materials in spoons
20						18-20' bgs	Dark grey uniform wet plastic CLAY, one thin gravelly seam near top of sample, perfect modeling clay	First wet sample recovered
22						20-22' bgs	SAA, plastic grey CLAY, wet silty very fine sandier zone in mid-sample	
24						22-24' bgs	SAA, dark grey, wet plastic, nearly uniform CLAY, few thin partitionings of gravelly material	
26						24-26' bgs	Very fine sandy silt zone, sandwiched between zones of uniform plastic clay, dark grey throughout	Sample collected (24-28')
28						26-28' bgs	Mix of silty fine SAND, silt and fine sand with some clayey seams	Coarser than any sample in past 15'
30						28-30' bgs	Interbedded SILT, clay, saturated sands, some confined, some gravelly zones	

HDR		GEOLOGIC BORING LOG		DATE / TIME STARTED		BORING ID:
				8/1/18 13:00		MW-05
PROJECT NAME:	Former TRW Union Springs Facility Off-Site RI/FS	DRILLING CONTRACTOR:		DATE / TIME COMPLETED		
LOCATION:	Union Springs, NY	Parratt-Wolff				TOTAL DEPTH
CLIENT:	NYSDEC	DRILLER:	Glenn	GROUNDWATER:		BORING LOCATION:
ASSIGNMENT:	WA #41	EQUIPMENT:		DEPTH:	ft bgs	X:
SITE:	C706019A	METHOD:	HSA	DATE / TIME:		Y:
HDR PROJECT #:		BORE DIAM.:		METHOD:		COORDINATE SYSTEM:
HDR INSPECTOR:	Scott Englert					

DEPTH (FT BGS)	BLOW COUNTS	RECOVERY (INCH)	PID (PPM)	ELEVATION (msl)	SAMPLE (Y/N)	SPLIT-SPOON INTERVAL	DESCRIPTION AND CLASSIFICATION	REMARKS
32						30-32' bgs	Very fine-fine SAND and silt, some clayey seams and seams of gravelly sand, dark grey saturated, some embedded gravel, rounded exotic pebbles	
34						32-34' bgs	SAA, dark grey compacted TILL with embedded rounded exotic pebbles and gravel	EOB
36								
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								

HDR		GEOLOGIC BORING LOG	DATE / TIME STARTED: 7/31/18 12:45	BORING ID: MW-06D
PROJECT NAME:	Former TRW Union Springs Facility Off-Site RI/FS	DRILLING CONTRACTOR:	DATE / TIME COMPLETED	
LOCATION:	Union Springs, NY	Parratt-Wolff		TOTAL DEPTH
CLIENT:	NYSDEC	DRILLER: Glenn	GROUNDWATER:	BORING LOCATION:
ASSIGNMENT:	WA #41	EQUIPMENT:	DEPTH: ft bgs	X:
SITE:	C706019A	METHOD: HSA	DATE / TIME:	Y:
HDR PROJECT #:		BORE DIAM.:	METHOD:	COORDINATE SYSTEM:
HDR INSPECTOR:	Scott Englert			

DEPTH (FT BGS)	BLOW COUNTS	RECOVERY (INCH)	PID (PPM)	ELEVATION (msl)	SAMPLE (Y/N)	SPLIT-SPOON INTERVAL	DESCRIPTION AND CLASSIFICATION	REMARKS
0								
2								
4								
6						5-6' bgs		
8		20"	0.3			6-8' bgs	Organic rich marle bed in bottom 0.3', stiff dry, brown, red-brown CLAY above, gravely fill in upper 0.2'	
10		20"	>10			8-10' bgs	Organic rich CLAY, peaty silt, sand, plastic brown clay, becomes grey in bottom 0.7'	H2S odor
12		20"	<0.5			10-12' bgs	Reddish-brown-grey plastic CLAY, trace bedding, uniform throughout sample	
14		21"	<0.5			12-14' bgs	Reddish-purplish-brown CLAY, similar to above	
16			<0.5			14-16' bgs	Similar to above, more prominant gravely zones, dark brown	
18		23"	0.4			16-18' bgs	Wet plastic CLAY, very uniform purplish-red-brown, trace sand, similar to above	
20			0.1			18-20' bgs	Brown, plastic CLAY, little coarser seams, similar to above	
22			0.2			20-22' bgs	CLAY and silty clay in upper 0.4', abrupt change to SILT and very fine-fine sand, trace coarse sand	
24			0.1			22-24' bgs	Silty CLAY, clayey silt, dark brown matrix with embedded coarse sands and small gravel, mostly brown silt and very fine sand in bottom 0.3' , embedded shattered rock fragments	Transitioning to till
26						24-26' bgs	Brown-dark brown-dark grey mix of SAND, silt, clay, shattered rock, driven pieces of rock/gravel in shoe	
28						26-28' bgs	Dark grey TILL, silty matrix with embedded rounded black gravel	Blow counts increased - EOB
30								

	GEOLOGIC BORING LOG		**DATE / TIME STARTED** 7/24/18 10:10	**BORING ID:** MW-07D
PROJECT NAME:	Former TRW Union Springs Facility Off-Site RI/FS	**DRILLING CONTRACTOR:**	**DATE / TIME COMPLETED**	
LOCATION:	Union Springs, NY	Parratt-Wolff		**TOTAL DEPTH**
CLIENT:	NYSDEC	**DRILLER:** Glenn	**GROUNDWATER:**	**BORING LOCATION:**
ASSIGNMENT:	WA #41	**EQUIPMENT:**	**DEPTH:** ft bgs	**X:**
SITE:	C706019A	**METHOD:** HSA	**DATE / TIME:**	**Y:**
HDR PROJECT #:		**BORE DIAM.:**	**METHOD:**	**COORDINATE SYSTEM:**
HDR INSPECTOR:	**Scott Englert**			

DEPTH (FT BGS)	BLOW COUNTS	RECOVERY (INCH)	PID (PPM)	ELEVATION (msl)	SAMPLE (Y/N)	SPLIT-SPOON INTERVAL	DESCRIPTION AND CLASSIFICATION	REMARKS
0								
2								
5								
	WH, 1					5-7' bgs	Stiff moist CLAY, some dark black organic matter embedded	Shallow sample collected (7-10' bgs)
7	1							
	1,2					7-9' bgs	Stiff moist CLAY, some embedded fragments of rock	Brick?
9	3,5							
	1,2					9-10' bgs		Took only a foot spoon to get to even interval
10								
						10-12' bgs		No Recovery
12								
						12-14' bgs	Wet, grey, plastic CLAY	
14								
						14-16' bgs	SAA	
16								
						16-18' bgs	'Wet, grey, plastic CLAY 17.5-18' very fine sand	Deeper interval sample collected (17-20' bgs) for VOCs, PCNs, Pesticides
18								
						18-20' bgs	Grey-dark grey SILT, sand, clay, few thin interbedded dense clay and gravel zones	
20								
						20-22' bgs	Grey-dark grey silty SAND with some embedded gravel, clay content has steadily decreased since ~17' bgs	
22								
						22-24' bgs	Grey-dark grey silty SAND with embedded gravel/rock fragments, trace clay, possibly till layer	
24								
						24-26' bgs	Dark grey compacted Till, silty matrix with embedded gravel, little sand, little clay	
26								
						26-28' bgs	Dark grey Till, abundant rock fragments and gravel embedded in a dense silt matrix (little sand/little clay)	
28								
30								

HDR	**GEOLOGIC BORING LOG**	**DATE / TIME STARTED** 7/25/18 15:00	**BORING ID:** MW-08D	
PROJECT NAME:	Former TRW Union Springs Facility Off-Site RI/FS	**DRILLING CONTRACTOR:**	**DATE / TIME COMPLETED**	
LOCATION:	Union Springs, NY	Parratt-Wolff		**TOTAL DEPTH**
CLIENT:	NYSDEC	**DRILLER:** Glenn	**GROUNDWATER:**	**BORING LOCATION:**
ASSIGNMENT:	WA #41	**EQUIPMENT:**	**DEPTH:** ft bgs	**X:**
SITE:	C706019A	**METHOD:** HSA	**DATE / TIME:**	**Y:**
HDR PROJECT #:		**BORE DIAM.:**	**METHOD:**	**COORDINATE SYSTEM:**
HDR INSPECTOR:	**Scott Englert**			

DEPTH (FT BGS)	BLOW COUNTS	RECOVERY (INCH)	PID (PPM)	ELEVATION (msl)	SAMPLE (Y/N)	SPLIT-SPOON INTERVAL	DESCRIPTION AND CLASSIFICATION	REMARKS
0								
2								
5								
6						5-6' bgs	Stiff, brown, moist CLAY, with grey/orange mottling	Minimal Recovery
8						6-8' bgs	Stiff-plastic, mottled, brown-orange-grey, dry CLAY in upper 0.75' Wet mottled, light brown-orange-green-grey CLAY and silt - silty clay	
10						8-10' bgs	Reddish-brown CLAY with very fine sand, silty stringers and trace embedded gravel, slightly sandier at bottom of sample	Full Recovery
12						10-12' bgs	Brown mottled red-orange CLAY, plastic modeling clay, less sand/silt stringers than above	
14						12-14' bgs	Wet, brown-grey, plastic CLAY, trace sand/silt, nearly pure modeling clay	
16						14-16' bgs	Grey - dark grey wet, plastic CLAY, modeling clay	
18						16-18' bgs	SAA	
20						18-20' bgs	Grey CLAY, transitions to grey silt, sand, clay with embedded gravel	> 1' of recovery
22						20-22' bgs	Dark grey, uniform, silty very fine-fine SAND	Coarsest zone so far
24						22-24' bgs	Dark grey, SAND silt gravel mix, transitioning to till but not very compacted yet, grey, very thin laminated silt and very fine sand at bottom of sample	
26						24-26' bgs	Wash out of shoe has rock fragments, shaley limestone	Minimal Recovery
28						26-28' bgs	Dark grey - very dark bluish grey Till, not extremely hard but compacted enough for spoon refusal	Refusal at 26.4' bgs
30								

HDR	**GEOLOGIC BORING LOG**	**DATE / TIME STARTED:** 7/27/18 13:10	**BORING ID:** MW-09D
PROJECT NAME: Former TRW Union Springs Facility Off-Site RI/FS	**DRILLING CONTRACTOR:** Parratt-Wolff	**DATE / TIME COMPLETED:** 7/30/18 16:00	**TOTAL DEPTH**
LOCATION: Union Springs, NY			
CLIENT: NYSDEC	**DRILLER:** Glenn	**GROUNDWATER:**	**BORING LOCATION:**
ASSIGNMENT: WA #41	**EQUIPMENT:**	**DEPTH:** ft bgs	**X:**
SITE: C706019A	**METHOD:** HSA	**DATE / TIME:**	**Y:**
HDR PROJECT #:	**BORE DIAM.:**	**METHOD:**	**COORDINATE SYSTEM:**
HDR INSPECTOR: Scott Englert			

DEPTH (FT BGS)	BLOW COUNTS	RECOVERY (INCH)	PID (PPM)	ELEVATION (msl)	SAMPLE (Y/N)	SPLIT-SPOON INTERVAL	DESCRIPTION AND CLASSIFICATION	REMARKS
0								
2								
4								
6						5-6' bgs	Wash	Bentonite hole plug
8		12"				6-8' bgs	Wash and brown plastic CLAY (upper foot), brown, fine-medium sand, saturated	Recover 1' No PID, staining, odor
10						8-10' bgs	Brown, interbedded fine SAND, silt, clay	No PID, staining, odor
12						10-12' bgs	Brown, dark brown SILT and silty clay, grading to mostly silt with clay and sandy seams, saturated, trace coarser sand, gravel, embedded in silt matrix	
14						12-14' bgs	Mostly SILT, silty very fine sand with interbedded thin clay and coarse sand, small gravelzones, becomes more uniform silt, very fine sand in bottom 0.3'	
16		12"				14-16' bgs	Dark brown CLAY and silt in upper 0.7' then darker brown, black medium-very coarse sand zone to bottom, some embedded gravel	
18		12"				16-18' bgs	Thin zone brown plastic CLAY at top of sample, then poorly sorted sands and small-medium gravel to bottom of sample,	Large piece of gravel stuck in shoe, most consistently coarse material so far
20		14"				18-20' bgs	Upper 0.2' interbedded CLAY and silt/sand grades to silt and coarse sand, saturated sands with small gravel, silty zones very fluid	
22		14"				20-22' bgs	Brown, dark brown coarsely interbedded silty SAND, silt and little clay seams, coarser sand slightly with depth	
24		12"				22-24' bgs	Coarse gravelly SAND and silt, some embedded medium - large gravel, poorly sorted sands	
26						24-26' bgs	Poorly sorted SANDS and small gravel, trace-little silt and clay, subangular sand, rounded quartzand other minerals	
28		18"				26-28' bgs	Very uniform dark brown SILT and very fine sand, trace embedded gravel, virtually no coarse sand or clay	
30		18"				28-30' bgs	Dark brown interbedded SILT, very fine sand, clay stringers, thin beds, trace coarser grained sediments	

HDR		GEOLOGIC BORING LOG		DATE / TIME STARTED		BORING ID:
				7/27/18 13:10		MW-09D
PROJECT NAME:	Former TRW Union Springs Facility Off-Site RI/FS	DRILLING CONTRACTOR:		DATE / TIME COMPLETED		
LOCATION:	Union Springs, NY	Parratt-Wolff		7/30/18 16:00		TOTAL DEPTH
CLIENT:	NYSDEC	DRILLER:	Glenn	GROUNDWATER:		BORING LOCATION:
ASSIGNMENT:	WA #41	EQUIPMENT:		DEPTH:	ft bgs	X:
SITE:	C706019A	METHOD:	HSA	DATE / TIME:		Y:
HDR PROJECT #:		BORE DIAM.:		METHOD:		COORDINATE SYSTEM:
HDR INSPECTOR:	Scott Englert					

DEPTH (FT BGS)	BLOW COUNTS	RECOVERY (INCH)	PID (PPM)	ELEVATION (msl)	SAMPLE (Y/N)	SPLIT-SPOON INTERVAL	DESCRIPTION AND CLASSIFICATION	REMARKS
32		15"				30-32' bgs	Dark brown-grey, interbedded SILT, very fine sand, clay seems similar to above, very uniform, trace embedded coarser grains, very saturated	No sign of till
34		13"				32-34' bgs	Very similar to above but becomes clayey in bottom 0.2' , shows transition to top of till, darker silt matrix, embedded gravel	
36						34-36' bgs	Dark grey-black TILL, silty matrix with embedded gravel and rock fragments, shattered limestone, shaley limestone, not very hard, compacted till	Different appearance when compared to overlaying sediments
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								

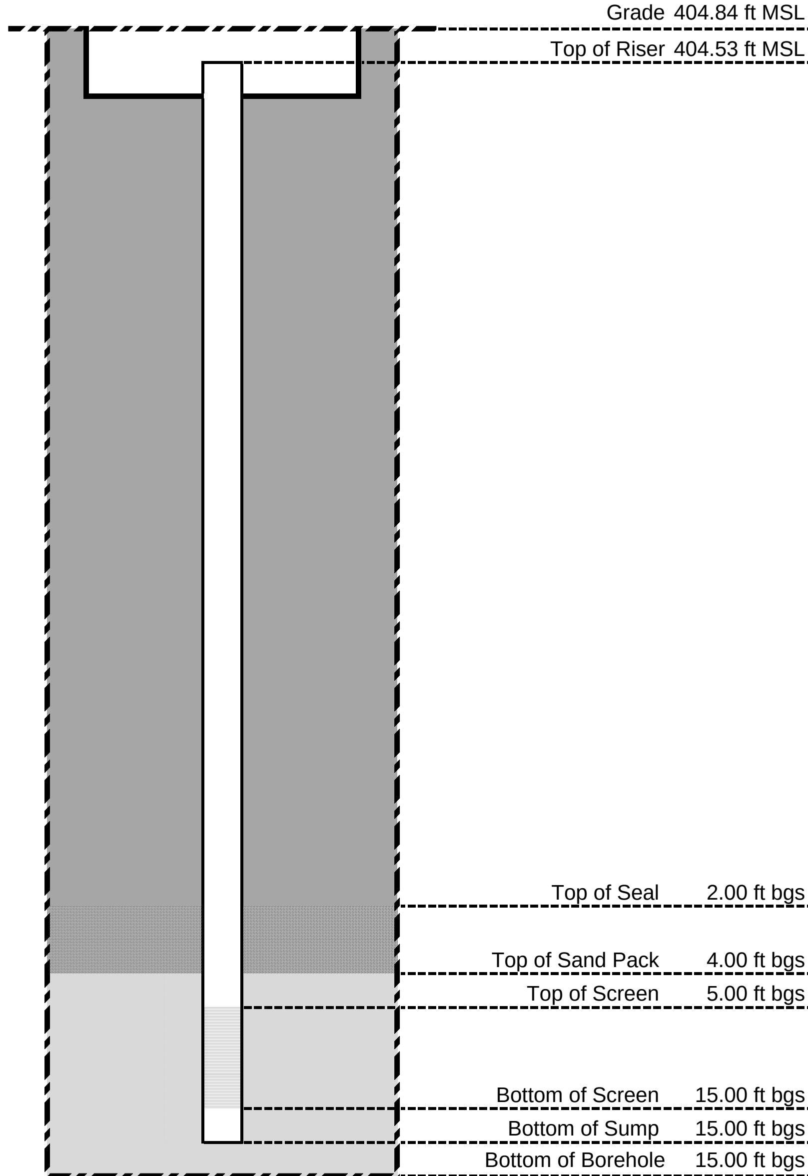
HDR	**GEOLOGIC BORING LOG**	**DATE / TIME STARTED** 7/26/18 13:30	**BORING ID:** MW-10
PROJECT NAME: Former TRW Union Springs Facility Off-Site RI/FS	**DRILLING CONTRACTOR:**	**DATE / TIME COMPLETED**	
LOCATION: Union Springs, NY	Parratt-Wolff		**TOTAL DEPTH**
CLIENT: NYSDEC	**DRILLER:** Glenn	**GROUNDWATER:**	**BORING LOCATION:**
ASSIGNMENT: WA #41	**EQUIPMENT:**	**DEPTH:** ft bgs	**X:**
SITE: C706019A	**METHOD:** HSA	**DATE / TIME:**	**Y:**
HDR PROJECT #:	**BORE DIAM.:**	**METHOD:**	**COORDINATE SYSTEM:**
HDR INSPECTOR: Scott Englert			

DEPTH (FT BGS)	BLOW COUNTS	RECOVERY (INCH)	PID (PPM)	ELEVATION (msl)	SAMPLE (Y/N)	SPLIT-SPOON INTERVAL	DESCRIPTION AND CLASSIFICATION	REMARKS
0								
2								
4								
						5-6' bgs	Appears to be wash from above / backfill	Little Recovery
6								
						6-8' bgs	Fill, loosely consolidated mix of sand/silt/clay/gravel, wet clayey (plastic)	No PID, Odor, staining
8								
	2,3					8-10' bgs	Grey-dark grey silty CLAY and clayey silt, trace organic matter, wet	No PID. Odor, staining
10	3,3							
						10-12' bgs	Grey - dark grey - olive green, silty CLAY, silt, clayey silt, little embedded gravel/coarse sand	
12								
						12-14' bgs	Grey - dark grey uniform silty very fine SAND, olivy trace clay/gravel - coarse sands, saturated	No PID, Odor, staining
14								
						14-16' bgs	Apprears to be all wash from above, gravely and clayey	Poor-no recovery
16								
						16-18' bgs	Dark grey SAND, silt, clay, coarser dark sandy zone ~16.5', fines downward to dark grey silt with embedded dark grey - black gravel and thin sandy seams, transitioning to till	
18								
						18-20' bgs	SILT, clayey silt and silt with plastic clay lenses/seams, much less sand, some embedded dark grey - black gravel	
20								
						20-22' bgs	Continues to fine becoming plastic CLAY with less silt by bottom 1' of sample predominantely clay with only stringers of silt	Most impermeable zone so far
22								
						22-24' bgs		Poor Recovery
24								
						24-26' bgs	Clayey SILT and silt, dark grey, some embedded gravel, appears to be continuing to transition to till	
26								
						26-28' bgs	More till like dark grey SILT, compacted, embedded gravel, increasing till appearance at 27'	Very high blow counts
28								
30								

Well ID:	MW-01S	Project:	TRW - Union Springs
Location:	Union Springs, NY	Client:	NYSDEC
Drilling Contractor:	Parratt-Wolff	Project Number:	10090860
Date Drilled:	8/3/2018	Drilling Rig:	CME Truck Mounted
Date Completed:	8/3/2018	Drilling Method:	Hollow Stem Auger Drilling
Cover Type:	Flush Mount	Development Method:	Submersible Pump & Surge
Grade Elevation:	404.84 ft MSL	Key ID or Socket Size:	
Borehole Depth:	15 ft bgs	Coordinate System:	
Borehole Dia.:	8-inch	X: 790541.2131	Y: 1035983.85

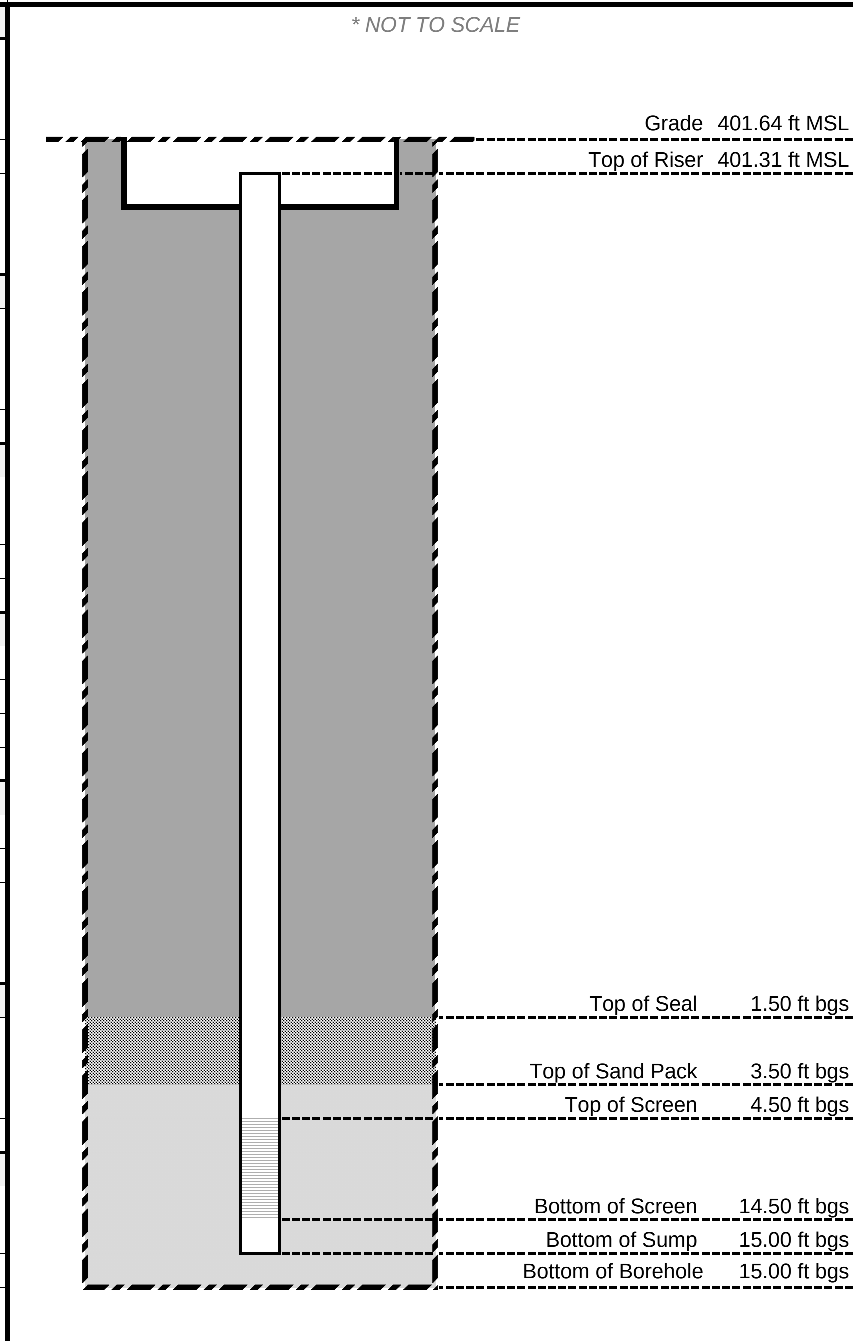
General Well Construction Information	
Well ID:	MW-01S
Start Date:	8/3/2018
End Date:	8/3/2018
Static Water Level:	1.2 ft bgs
SWL Date:	11/26/2019
Measuring Point:	TOC
Well Depth:	15 ft bgs
Riser Pipe(s)	
Interval (ft):	5 ft
Material:	Sch. 40 PVC
Diameter (in):	2-inch
Joint Type:	Flush Threaded
Outer Casing(s)	
Interval (ft):	--
Material:	--
Diameter (in):	--
Joint Type:	--
Screen(s)	
Interval (ft):	5-15 ft bgs
Diameter (in):	2-inch
Material:	Sch. 40 PVC
Slot Size:	10-slot
Filter Pack(s)	
Interval (ft):	4-15 ft bgs
Sand:	x
Gravel:	--
Natural:	--
Amount:	8 bags
Sump(s)	
Interval (ft):	None
Material:	--
Diameter (in):	--
Joint Type:	--
Seal(s) / QTY(s)	
Grout:	3 bags
Concrete Mix:	--
Bentonite Slurry:	--
Bentonite Pellets:	1.5 bags
Other:	--

NOT TO SCALE



Well ID:	MW-02S	**Project:**	TRW - Union Springs
Location:	Union Springs, NY	**Client:**	NYSDEC
Drilling Contractor:	Parratt-Wolff	**Project Number:**	10090860
Date Drilled:	8/2/2018	**Drilling Rig:**	CME Truck Mounted
Date Completed:	8/2/2018	**Drilling Method:**	Hollow Stem Auger Drilling
Cover Type:	Flush Mount	**Development Method:**	Submersible Pump & Surge
Grade Elevation:	401.64 ft MSL	**Key ID or Socket Size:**	
Borehole Depth:	15 ft bgs	**Coordinate System:**	
Borehole Dia.:	8-inch	**X:** 790539.5741	**Y:** 1036085.676

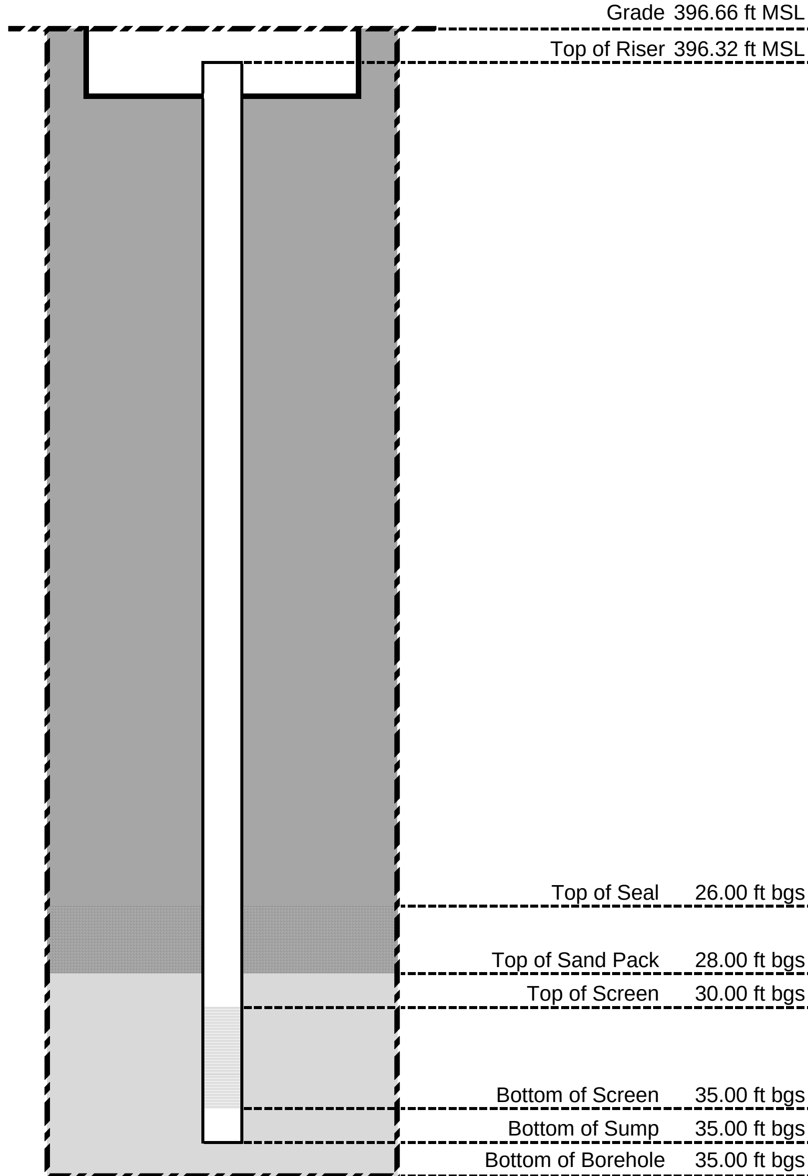
General Well Construction Information	
Well ID:	MW-02S
Start Date:	8/2/2018
End Date:	8/2/2018
Static Water Level:	Surface
SWL Date:	11/26/2019
Measuring Point:	TOC
Well Depth:	14.5 ft bgs
Riser Pipe(s)	
Interval (ft):	4.5 ft
Material:	Sch. 40 PVC
Diameter (in):	2-inch
Joint Type:	Flush Threaded
Outer Casing(s)	
Interval (ft):	--
Material:	--
Diameter (in):	--
Joint Type:	--
Screen(s)	
Interval (ft):	4.5-14.5 ft bgs
Diameter (in):	2-inch
Material:	Sch. 40 PVC
Slot Size:	10-slot
Filter Pack(s)	
Interval (ft):	3.5-14.5 ft bgs
Sand:	x
Gravel:	--
Natural:	--
Amount:	8 bags
Sump(s)	
Interval (ft):	None
Material:	--
Diameter (in):	--
Joint Type:	--
Seal(s) / QTY(s)	
Grout:	3 bags
Concrete Mix:	--
Bentonite Slurry:	--
Bentonite Pellets:	1.5 bags
Other:	--



Well ID:	MW-03D	**Project:**	TRW - Union Springs
Location:	Union Springs, NY	**Client:**	NYSDEC
Drilling Contractor:	Parratt-Wolff	**Project Number:**	10090860
Date Drilled:	8/7/2018	**Drilling Rig:**	CME Truck Mounted
Date Completed:	8/7/2018	**Drilling Method:**	Hollow Stem Auger Drilling
Cover Type:	Flush Mount	**Development Method:**	Submersible Pump & Surge
Grade Elevation:	396.66 ft MSL	**Key ID or Socket Size:**	
Borehole Depth:	35 ft bgs	**Coordinate System:**	
Borehole Dia.:	8-inch	**X:** 790207.9123	**Y:** 1036877.221

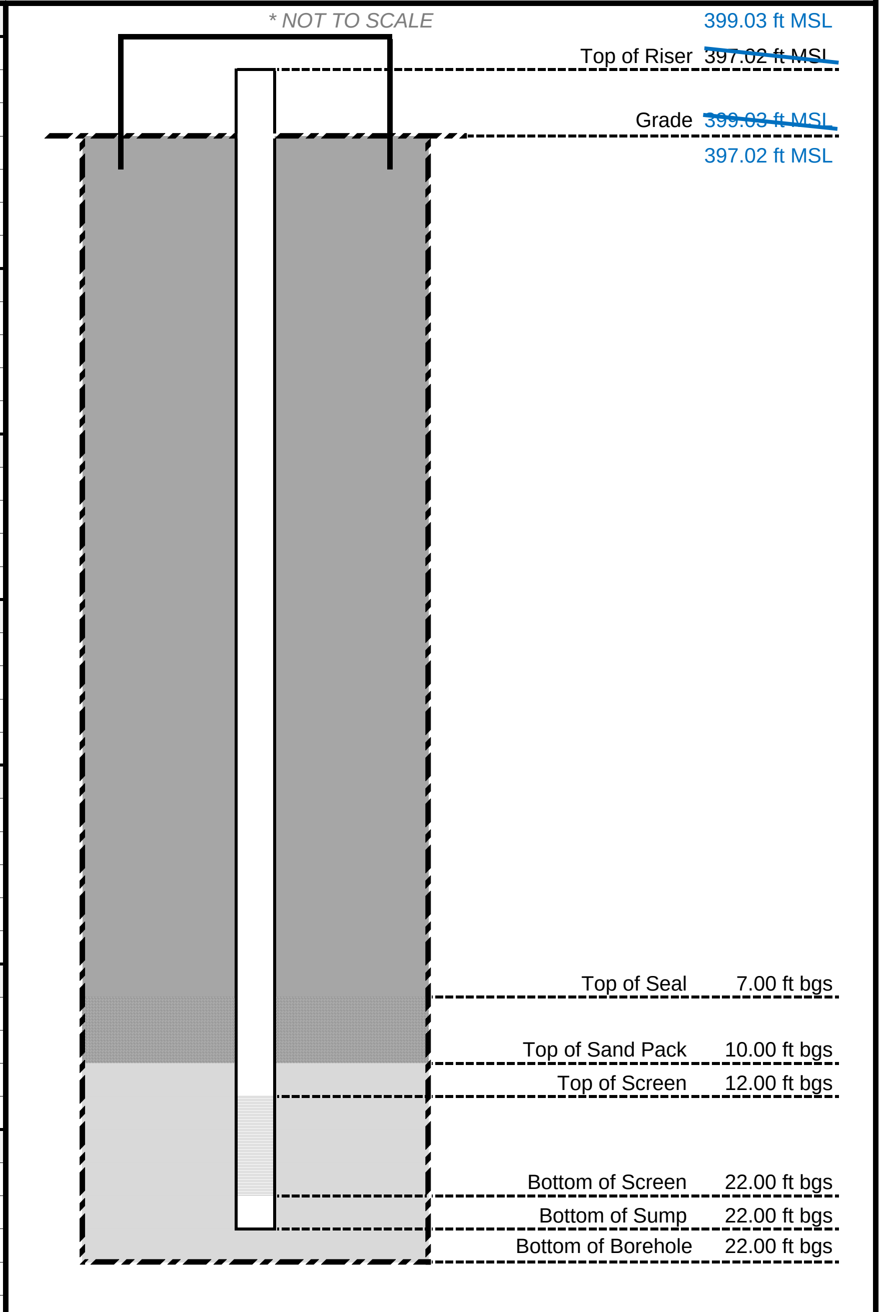
General Well Construction Information	
Well ID:	MW-03D
Start Date:	8/7/2018
End Date:	8/7/2018
Static Water Level:	5.13 ft bgs
SWL Date:	11/26/2019
Measuring Point:	TOC
Well Depth:	35 ft bgs
Riser Pipe(s)	
Interval (ft):	30 ft
Material:	Sch. 40 PVC
Diameter (in):	2-inch
Joint Type:	Flush Threaded
Outer Casing(s)	
Interval (ft):	--
Material:	--
Diameter (in):	--
Joint Type:	--
Screen(s)	
Interval (ft):	30-35 ft bgs
Diameter (in):	2-inch
Material:	Sch. 40 PVC
Slot Size:	10-slot
Filter Pack(s)	
Interval (ft):	28-35 ft bgs
Sand:	x
Gravel:	--
Natural:	--
Amount:	8 bags
Sump(s)	
Interval (ft):	None
Material:	--
Diameter (in):	--
Joint Type:	--
Seal(s) / QTY(s)	
Grout:	3 bags
Concrete Mix:	--
Bentonite Slurry:	--
Bentonite Pellets:	1.5 bags
Other:	--

** NOT TO SCALE*



Well ID:	MW-04S	**Project:**	TRW - Union Springs
Location:	Union Springs, NY	**Client:**	NYSDEC
Drilling Contractor	Parratt-Wolff	**Project Number:**	10090860
Date Drilled:	8/6/2018	**Drilling Rig:**	CME Truck Mounted
Date Completed:	8/7/2018	**Drilling Method:**	Hollow Stem Auger Drilling
Cover Type:	Stick-Up	**Development Method:**	Submersible Pump & Surge
Grade Elevation:	397.02 ft MSL	**Key ID or Socket Size:**	
Borehole Depth:	22 ft bgs	**Coordinate System:**	
Borehole Dia.:	8-inch	**X:** 790213.0563	**Y:** 1036899.76

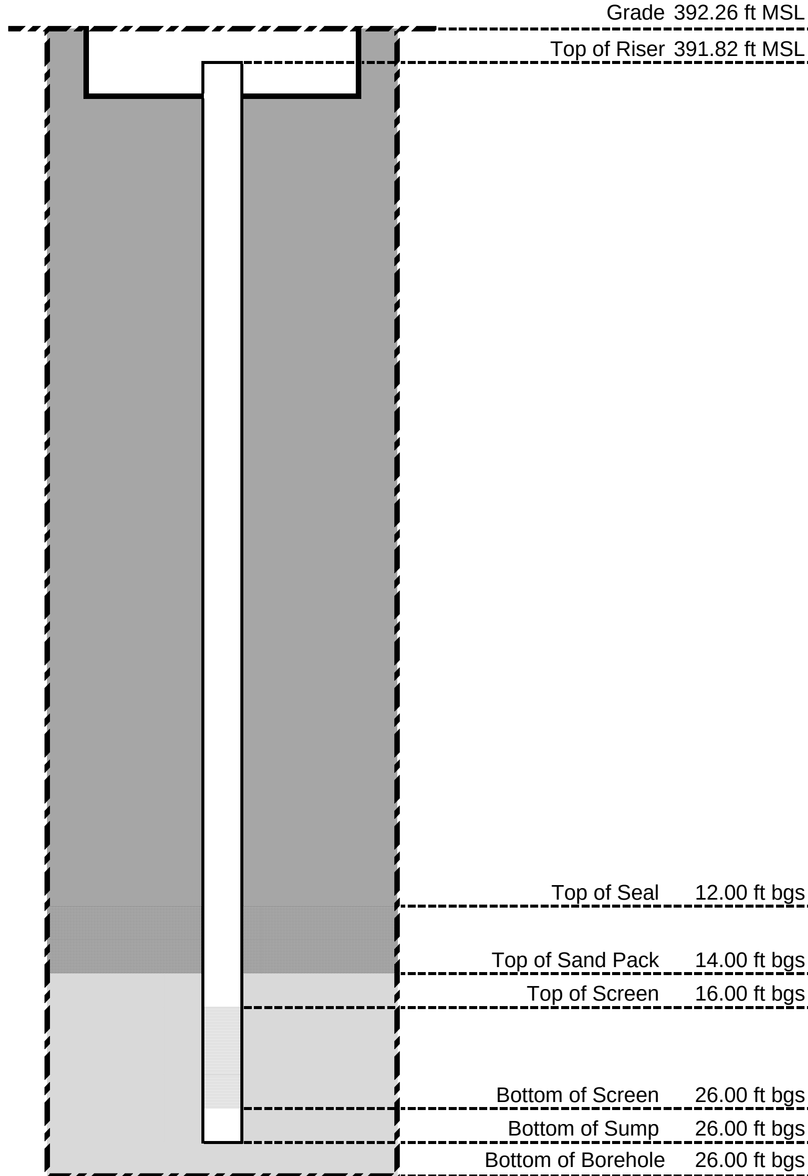
General Well Construction Information	
Well ID:	MW-04S
Start Date:	8/6/2018
End Date:	8/7/2018
Static Water Level:	10.07 ft bgs
SWL Date:	11/26/2019
Measuring Point:	TOC
Well Depth:	22 ft bgs
Riser Pipe(s)	
Interval (ft):	2.5 (ags)-12 (bgs) ft
Material:	Sch. 40 PVC
Diameter (in):	2-inch
Joint Type:	Flush Threaded
Outer Casing(s)	
Interval (ft):	--
Material:	--
Diameter (in):	--
Joint Type:	--
Screen(s)	
Interval (ft):	12-22 ft bgs
Diameter (in):	2-inch
Material:	Sch. 40 PVC
Slot Size:	10-slot
Filter Pack(s)	
Interval (ft):	10-22 ft bgs
Sand:	x
Gravel:	--
Natural:	--
Amount:	8 bags
Sump(s)	
Interval (ft):	None
Material:	--
Diameter (in):	--
Joint Type:	--
Seal(s) / QTY(s)	
Grout:	3 bags
Concrete Mix:	--
Bentonite Slurry:	--
Bentonite Pellets:	1.5 bags
Other:	--



Well ID:	MW-05S	**Project:**	TRW - Union Springs
Location:	Union Springs, NY	**Client:**	NYSDEC
Drilling Contractor:	Parratt-Wolff	**Project Number:**	10090860
Date Drilled:	8/1/2018	**Drilling Rig:**	CME Truck Mounted
Date Completed:	8/1/2018	**Drilling Method:**	Hollow Stem Auger Drilling
Cover Type:	Flush Mount	**Development Method:**	Submersible Pump & Surge
Grade Elevation:	392.26 ft MSL	**Key ID or Socket Size:**	
Borehole Depth:	26 ft bgs	**Coordinate System:**	
Borehole Dia.:	8-inch	**X:** 790136.5548	**Y:** 1036874.599

General Well Construction Information	
Well ID:	MW-05S
Start Date:	8/1/2018
End Date:	8/1/2018
Static Water Level:	3.53 ft bgs
SWL Date:	11/26/2019
Measuring Point:	TOC
Well Depth:	26 ft bgs
Riser Pipe(s)	
Interval (ft):	16 ft
Material:	Sch. 40 PVC
Diameter (in):	2-inch
Joint Type:	Flush Threaded
Outer Casing(s)	
Interval (ft):	--
Material:	--
Diameter (in):	--
Joint Type:	--
Screen(s)	
Interval (ft):	16-26 ft bgs
Diameter (in):	2-inch
Material:	Sch. 40 PVC
Slot Size:	10-slot
Filter Pack(s)	
Interval (ft):	14-26 ft bgs
Sand:	x
Gravel:	--
Natural:	--
Amount:	8 bags
Sump(s)	
Interval (ft):	None
Material:	--
Diameter (in):	--
Joint Type:	--
Seal(s) / QTY(s)	
Grout:	3 bags
Concrete Mix:	--
Bentonite Slurry:	--
Bentonite Pellets:	1.5 bags
Other:	--

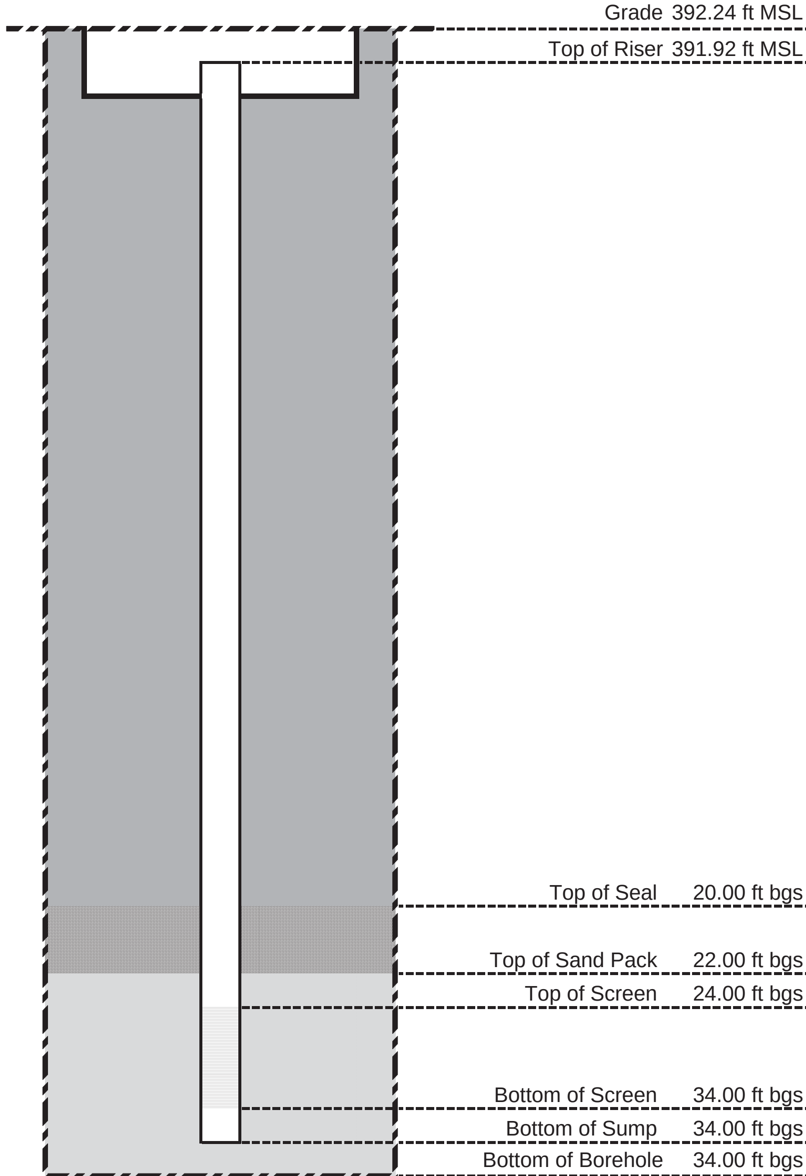
** NOT TO SCALE*



Well ID:	MW-05D	Project:	TRW - Union Springs
Location:	Union Springs, NY	Client:	NYSDEC
Drilling Contractor:	Parratt-Wolff	Project Number:	10090860
Date Drilled:	8/1/2018	Drilling Rig:	CME Truck Mounted
Date Completed:	8/2/2018	Drilling Method:	Hollow Stem Auger Drilling
Cover Type:	Flush Mount	Development Method:	Submersible Pump & Surge
Grade Elevation:	392.24 ft MSL	Key ID or Socket Size:	
Borehole Depth:	34 ft bgs	Coordinate System:	
Borehole Dia.:	8-inch	X: 790134.1575	Y: 1036872.185

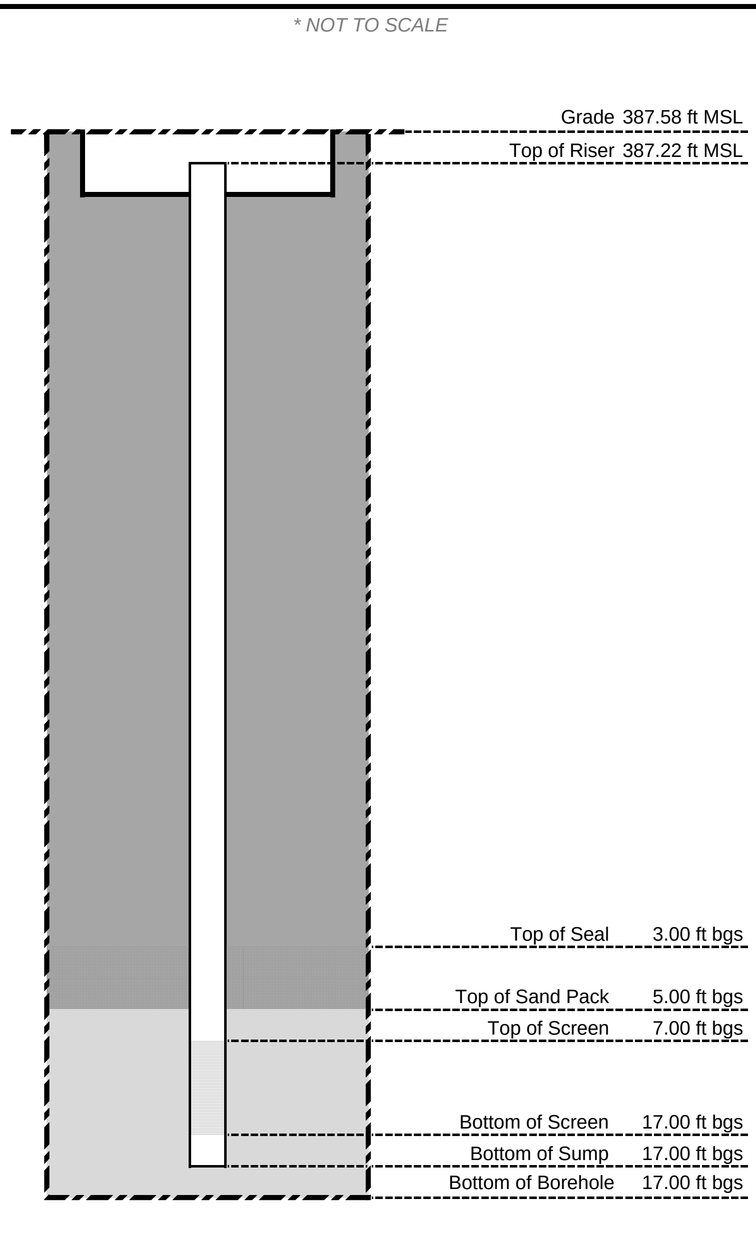
General Well Construction Information	
Well ID:	MW-05D
Start Date:	8/1/2018
End Date:	8/2/2018
Static Water Level:	0.95 ft bgs
SWL Date:	11/26/2019
Measuring Point:	TOC
Well Depth:	34 ft bgs
Riser Pipe(s)	
Interval (ft):	24 ft
Material:	Sch. 40 PVC
Diameter (in):	2-inch
Joint Type:	Flush Threaded
Outer Casing(s)	
Interval (ft):	--
Material:	--
Diameter (in):	--
Joint Type:	--
Screen(s)	
Interval (ft):	24-34 ft bgs
Diameter (in):	2-inch
Material:	Sch. 40 PVC
Slot Size:	10-slot
Filter Pack(s)	
Interval (ft):	~~22-24~~ 22-34 ft bgs
Sand:	x
Gravel:	--
Natural:	--
Amount:	8 bags
Sump(s)	
Interval (ft):	None
Material:	--
Diameter (in):	--
Joint Type:	--
Seal(s) / QTY(s)	
Grout:	3 bags
Concrete Mix:	--
Bentonite Slurry:	--
Bentonite Pellets:	1.5 bags
Other:	--

** NOT TO SCALE*



Well ID:	MW-06S	**Project:**	TRW - Union Springs
Location:	Union Springs, NY	**Client:**	NYSDEC
Drilling Contracto	Parratt-Wolff	**Project Number:**	10090860
Date Drilled:	8/1/2018	**Drilling Rig:**	CME Truck Mounted
Date Completed:	8/1/2018	**Drilling Method:**	Hollow Stem Auger Drilling
Cover Type:	Flush Mount	**Development Method:**	Submersible Pump & Surge
Grade Elevation:	387.58 ft MSL	**Key ID or Socket Size:**	
Borehole Depth:	17 ft bgs	**Coordinate System:**	
Borehole Dia.:	8-inch	**X:** 789939.4359	**Y:** 1036537.104

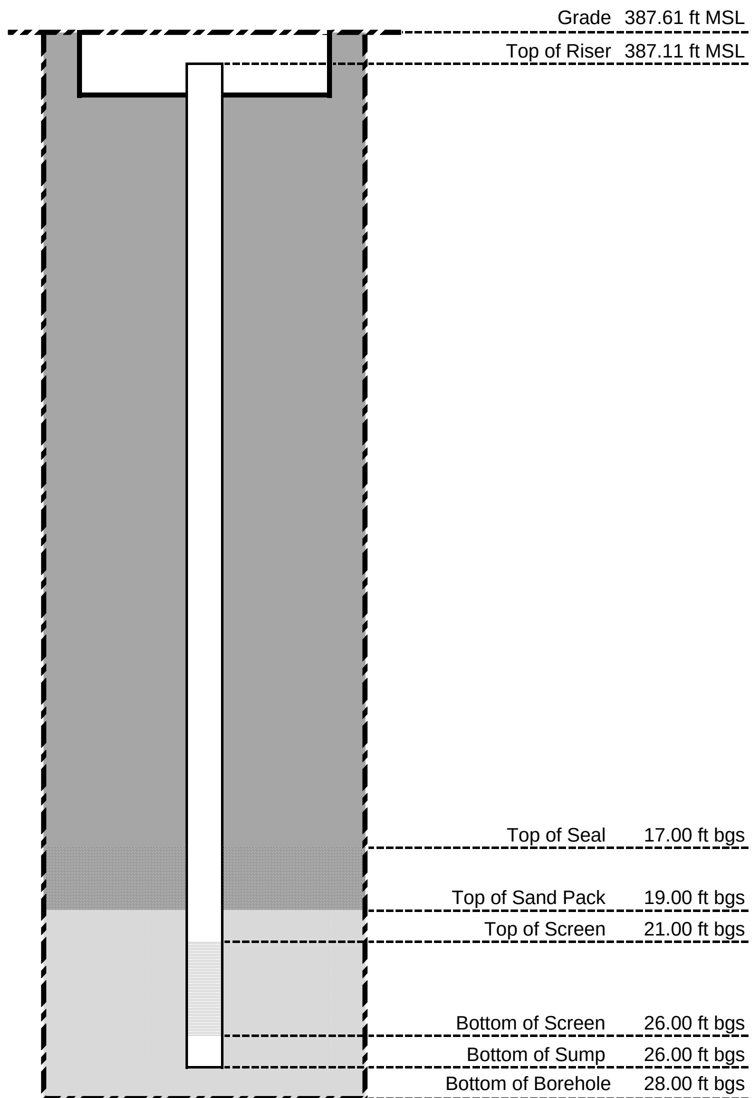
General Well Construction Information	
Well ID:	MW-06S
Start Date:	8/1/2018
End Date:	8/1/2018
Static Water Level:	2.83 ft bgs
SWL Date:	11/26/2019
Measuring Point:	TOC
Well Depth:	17 ft bgs
Riser Pipe(s)	
Interval (ft):	7 ft
Material:	Sch. 40 PVC
Diameter (in):	2-inch
Joint Type:	Flush Threaded
Outer Casing(s)	
Interval (ft):	--
Material:	--
Diameter (in):	--
Joint Type:	--
Screen(s)	
Interval (ft):	7-17 ft bgs
Diameter (in):	2-inch
Material:	Sch. 40 PVC
Slot Size:	10-slot
Filter Pack(s)	
Interval (ft):	5-17 ft bgs
Sand:	x
Gravel:	--
Natural:	--
Amount:	8 bags
Sump(s)	
Interval (ft):	None
Material:	--
Diameter (in):	--
Joint Type:	--
Seal(s) / QTY(s)	
Grout:	3 bags to surface
Concrete Mix:	--
Bentonite Slurry:	--
Bentonite Chips:	1.5 bags
Other:	--



Well ID:	MW-06D	**Project:**	TRW - Union Springs
Location:	Union Springs, NY	**Client:**	NYSDEC
Drilling Contractor:	Parratt-Wolff	**Project Number:**	10090860
Date Drilled:	7/31/2018	**Drilling Rig:**	CME Truck Mounted
Date Completed:	8/1/2018	**Drilling Method:**	Hollow Stem Auger Drilling
Cover Type:	Flush Mount	**Development Method:**	Submersible Pump & Surge
Grade Elevation:	387.61 ft MSL	**Key ID or Socket Size:**	
Borehole Depth:	28 ft bgs	**Coordinate System:**	
Borehole Dia.:	8-inch	**X:** 789941.434	**Y:** 1036534.584

General Well Construction Information	
Well ID:	MW-06D
Start Date:	7/31/2018
End Date:	8/1/2018
Static Water Level:	0.02 ft bgs
SWL Date:	11/26/2019
Measuring Point:	TOC
Well Depth:	26 ft bgs
Riser Pipe(s)	
Interval (ft):	21 ft
Material:	Sch. 40 PVC
Diameter (in):	2-inch
Joint Type:	Flush Threaded
Outer Casing(s)	
Interval (ft):	--
Material:	--
Diameter (in):	--
Joint Type:	--
Screen(s)	
Interval (ft):	21-26 ft bgs
Diameter (in):	2-inch
Material:	Sch. 40 PVC
Slot Size:	10-slot
Filter Pack(s)	
Interval (ft):	~~19-21~~ 19-26 ft bgs
Sand:	x
Gravel:	--
Natural:	--
Amount:	8 bags
Sump(s)	
Interval (ft):	None
Material:	--
Diameter (in):	--
Joint Type:	--
Seal(s) / QTY(s)	
Grout:	3 bags
Concrete Mix:	--
Bentonite Slurry:	--
Bentonite Chips:	1.5 bags
Other:	--

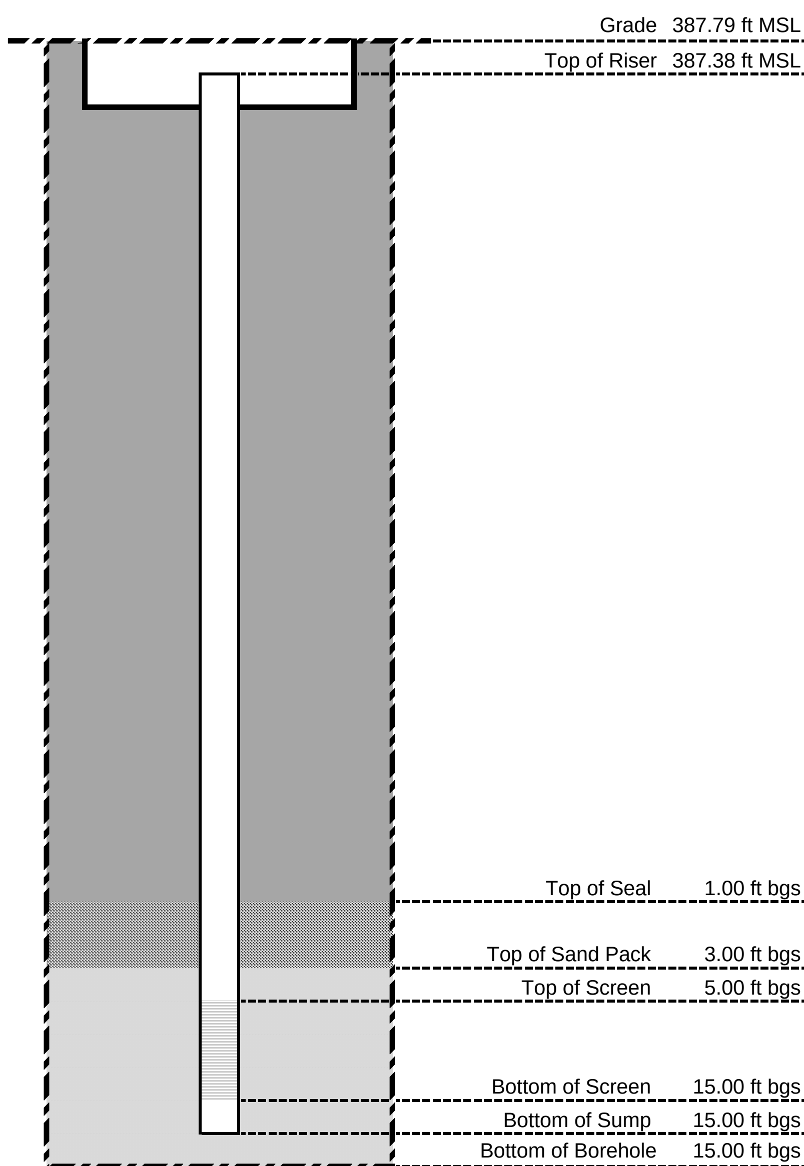
** NOT TO SCALE*



Well ID:	MW-07S	**Project:**	TRW - Union Springs
Location:	Union Springs, NY	**Client:**	NYSDEC
Drilling Contractor:	Parratt-Wolff	**Project Number:**	10090860
Date Drilled:	7/25/2018	**Drilling Rig:**	CME Truck Mounted
Date Completed:	7/25/2018	**Drilling Method:**	Hollow Stem Auger Drilling
Cover Type:	Flush Mount	**Development Method:**	Submersible Pump & Surge
Grade Elevation:	387.79 ft MSL	**Key ID or Socket Size:**	
Borehole Depth:	15 ft	**Coordinate System:**	
Borehole Dia.:	8-inch	**X:** 789889.0041	**Y:** 1036407.247

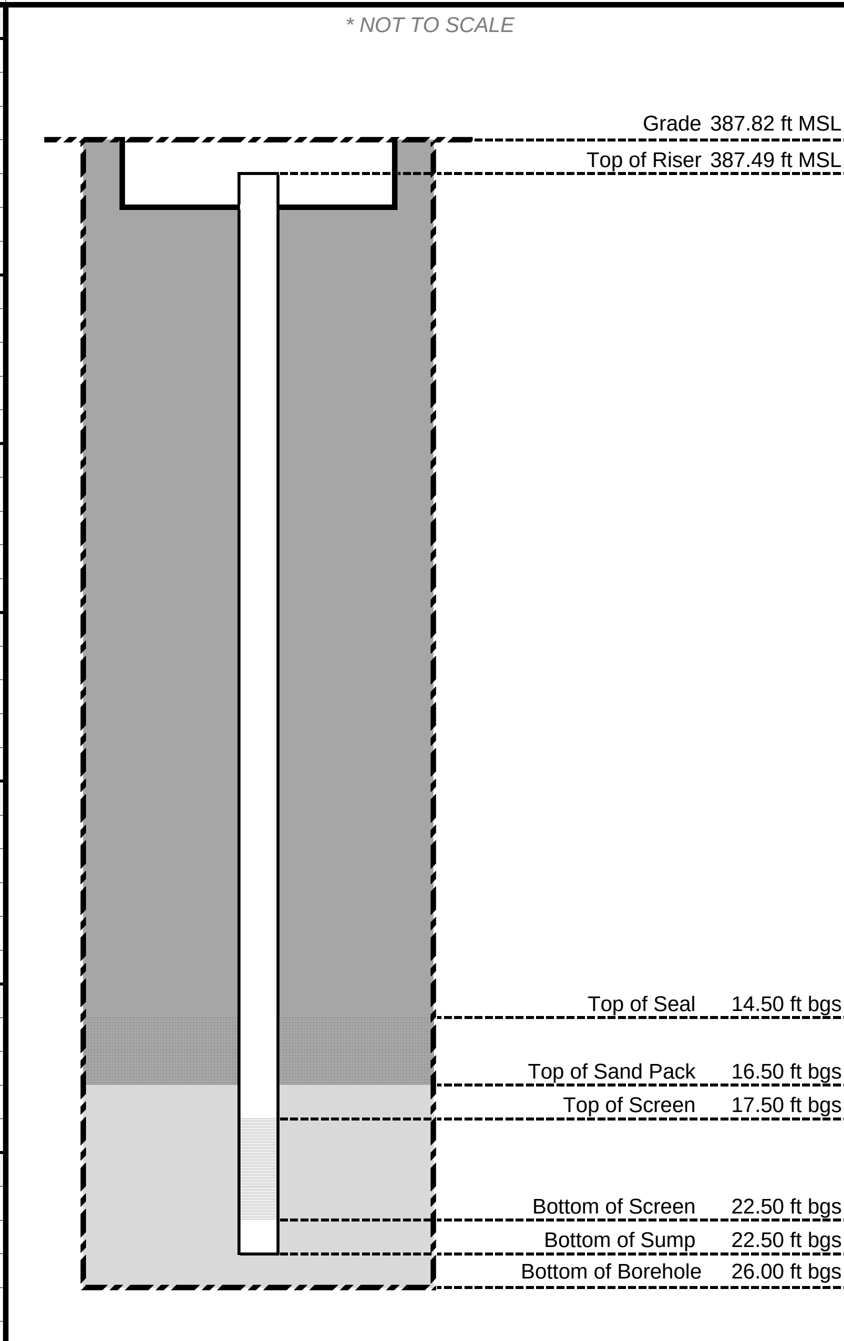
General Well Construction Information	
Well ID:	MW-07S
Start Date:	7/25/2018
End Date:	7/25/2018
Static Water Level:	1.5 ft bgs
SWL Date:	11/26/2019
Measuring Point:	TOC
Well Depth:	15 ft bgs
Riser Pipe(s)	
Interval (ft):	5 ft
Material:	Sch. 40 PVC
Diameter (in):	2-inch
Joint Type:	Flush Threaded
Outer Casing(s)	
Interval (ft):	--
Material:	--
Diameter (in):	--
Joint Type:	--
Screen(s)	
Interval (ft):	5-15 ft bgs
Diameter (in):	2-inch
Material:	Sch. 40 PVC
Slot Size:	10-slot
Filter Pack(s)	
Interval (ft):	3-15 ft bgs
Sand:	x
Gravel:	--
Natural:	--
Amount:	8 bags
Sump(s)	
Interval (ft):	None
Material:	--
Diameter (in):	--
Joint Type:	--
Seal(s) / QTY(s)	
Grout:	3 bags
Concrete Mix:	--
Bentonite Slurry:	--
Bentonite Pellets:	1.5 bags
Other:	--

** NOT TO SCALE*



Well ID:	MW-07D	**Project:**	TRW - Union Springs
Location:	Union Springs, NY	**Client:**	NYSDEC
Drilling Contractor	Parratt-Wolff	**Project Number:**	10090860
Date Drilled:	7/24/2018	**Drilling Rig:**	CME Truck Mounted
Date Completed:	7/25/2018	**Drilling Method:**	Hollow Stem Auger Drilling
Cover Type:	Flush Mount	**Development Method:**	Submersible Pump & Surge
Grade Elevation:	387.82 ft MSL	**Key ID or Socket Size:**	
Borehole Depth:	26 ft	**Coordinate System:**	
Borehole Dia.:	8-inch	**X:** 789885.4019	**Y:** 1036407.547

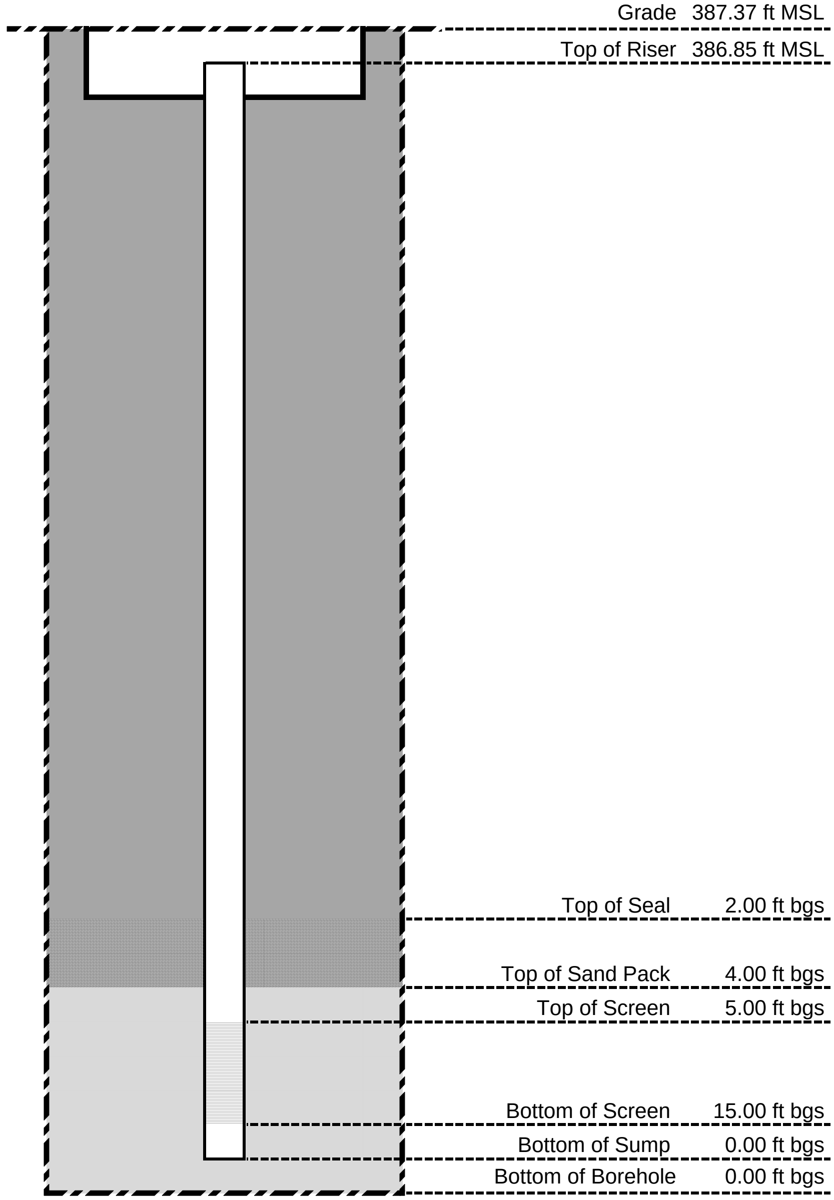
General Well Construction Information	
Well ID:	MW-07D
Start Date:	7/24/2018
End Date:	7/25/2018
Static Water Level:	0.13 ft bgs
SWL Date:	11/26/2019
Measuring Point:	TOC
Well Depth:	22.5 ft
Riser Pipe(s)	
Interval (ft):	17.5 ft
Material:	Sch. 40 PVC
Diameter (in):	2-inch
Joint Type:	Flush Threaded
Outer Casing(s)	
Interval (ft):	--
Material:	--
Diameter (in):	--
Joint Type:	--
Screen(s)	
Interval (ft):	17.5-22.5 ft bgs
Diameter (in):	2-inch
Material:	Sch. 40 PVC
Slot Size:	10-slot
Filter Pack(s)	
Interval (ft):	16.5-22.5 ft bgs
Sand:	x
Gravel:	--
Natural:	--
Amount:	8 bags
Sump(s)	
Interval (ft):	None
Material:	--
Diameter (in):	--
Joint Type:	--
Seal(s) / QTY(s)	
Grout:	3 bags
Concrete Mix:	--
Bentonite Slurry:	--
Bentonite Pellets:	1.5 bags
Other:	--



Well ID:	MW-08S	**Project:**	TRW - Union Springs
Location:	Union Springs, NY	**Client:**	NYSDEC
Drilling Contractor	Parratt-Wolff	**Project Number:**	10090860
Date Drilled:	7/26/2018	**Drilling Rig:**	CME Truck Mounted
Date Completed:	7/26/2018	**Drilling Method:**	Hollow Stem Auger Drilling
Cover Type:	Flush Mount	**Development Method:**	Submersible Pump & Surge
Grade Elevation:	387.37 ft MSL	**Key ID or Socket Size:**	
Borehole Depth:	15 ft bgs	**Coordinate System:**	
Borehole Dia.:	8-inch	**X:** 789730.6086	**Y:** 1036497.754

General Well Construction Information	
Well ID:	MW-08S
Start Date:	7/26/2018
End Date:	7/26/2018
Static Water Level:	3.72 ft bgs
SWL Date:	11/26/2019
Measuring Point:	TOC
Well Depth:	15 ft bgs
Riser Pipe(s)	
Interval (ft):	5 ft
Material:	Sch. 40 PVC
Diameter (in):	2-inch
Joint Type:	Flush Threaded
Outer Casing(s)	
Interval (ft):	--
Material:	--
Diameter (in):	--
Joint Type:	--
Screen(s)	
Interval (ft):	5-15 ft bgs
Diameter (in):	2-inch
Material:	Sch. 40 PVC
Slot Size:	10 slot
Filter Pack(s)	
Interval (ft):	4-15 ft bgs
Sand:	x
Gravel:	--
Natural:	--
Amount:	8 bags
Sump(s)	
Interval (ft):	None
Material:	--
Diameter (in):	--
Joint Type:	--
Seal(s) / QTY(s)	
Grout:	3 bags
Concrete Mix:	--
Bentonite Slurry:	--
Bentonite Pellets:	1.5 bags
Other:	--

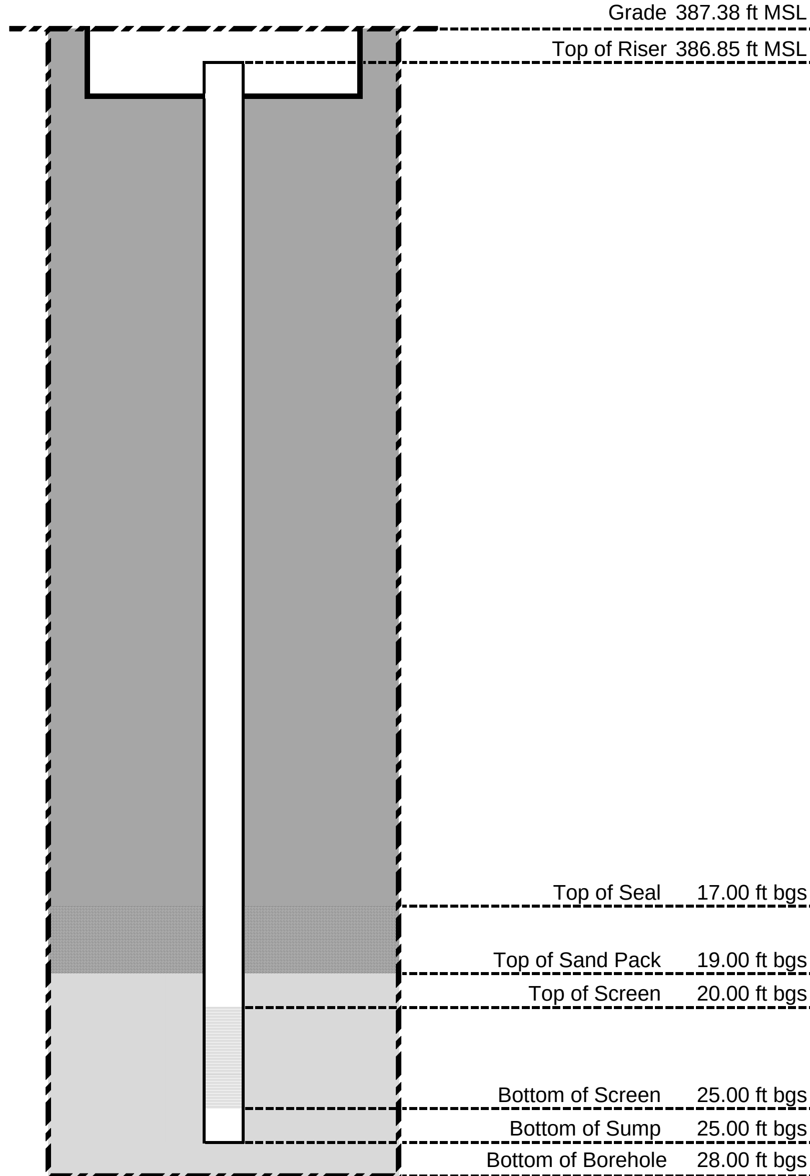
** NOT TO SCALE*



Well ID:	MW-08D	**Project:**	TRW - Union Springs
Location:	Union Springs, NY	**Client:**	NYSDEC
Drilling Contractor:	Parratt-Wolff	**Project Number:**	10090860
Date Drilled:	7/25/2018	**Drilling Rig:**	CME Truck Mounted
Date Completed:	7/26/2018	**Drilling Method:**	Hollow Stem Auger Drilling
Cover Type:	Flush Mount	**Development Method:**	Submersible Pump & Surge
Grade Elevation:	387.38 ft MSL	**Key ID or Socket Size:**	
Borehole Depth:	28 ft bgs	**Coordinate System:**	
Borehole Dia.:	8-inch	**X:** 789732.3519	**Y:** 1036492.93

General Well Construction Information	
Well ID:	MW-08D
Start Date:	7/25/2018
End Date:	7/26/2018
Static Water Level:	3.42 ft bgs
SWL Date:	11/26/2019
Measuring Point:	TOC
Well Depth:	25 ft bgs
Riser Pipe(s)	
Interval (ft):	20 ft
Material:	Sch. 40 PVC
Diameter (in):	2-inch
Joint Type:	Flush Threaded
Outer Casing(s)	
Interval (ft):	--
Material:	--
Diameter (in):	--
Joint Type:	--
Screen(s)	
Interval (ft):	20-25 ft bgs
Diameter (in):	2-inch
Material:	Sch. 40 PVC
Slot Size:	10-slot
Filter Pack(s)	
Interval (ft):	19-25 ft bgs
Sand:	x
Gravel:	--
Natural:	--
Amount:	8 bags
Sump(s)	
Interval (ft):	None
Material:	--
Diameter (in):	--
Joint Type:	--
Seal(s) / QTY(s)	
Grout:	3 bags
Concrete Mix:	--
Bentonite Slurry:	--
Bentonite Pellets:	1.5 bags
Other:	--

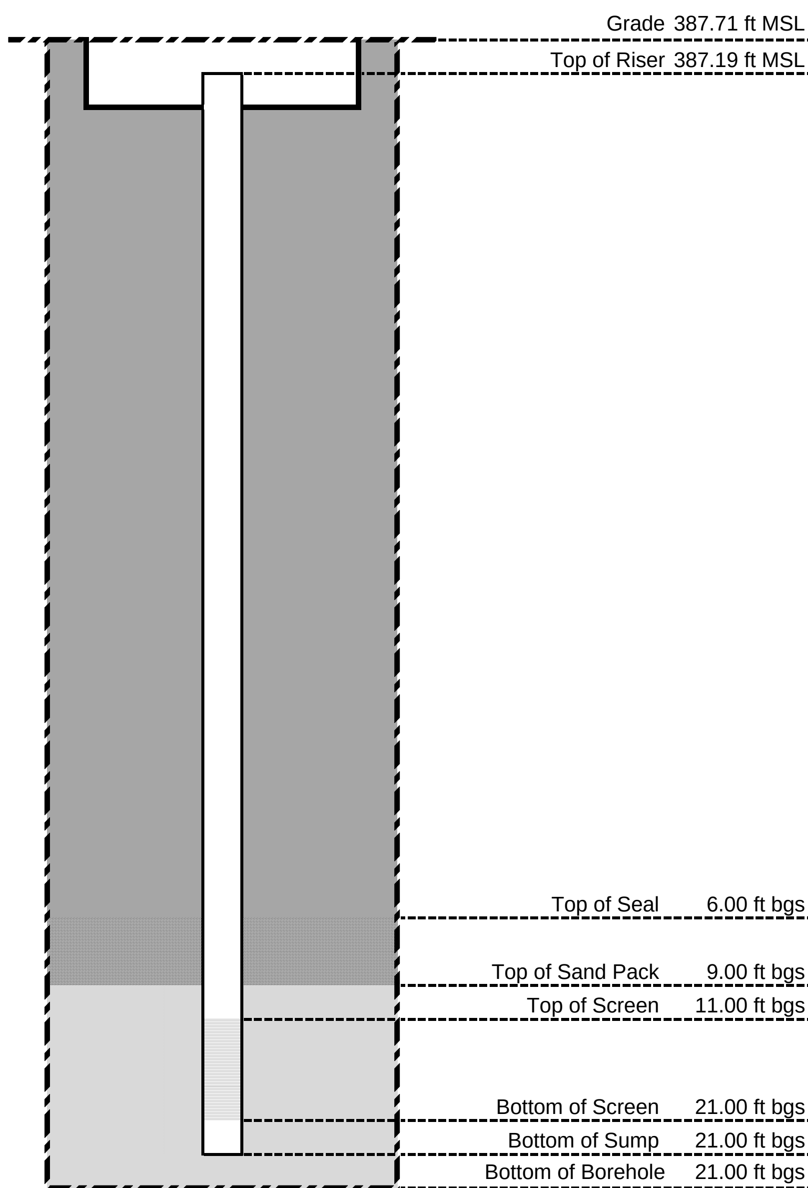
** NOT TO SCALE*



Well ID:	MW-09S	Project:	TRW - Union Springs
Location:	Union Springs, NY	Client:	NYSDEC
Drilling Contractor:	Parratt-Wolff	Project Number:	10090860
Date Drilled:	7/31/2018	Drilling Rig:	CME Truck Mounted
Date Completed:	7/31/2018	Drilling Method:	Hollow Stem Auger Drilling
Cover Type:	Flush Mount	Development Method:	Submersible Pump & Surge
Grade Elevation:	387.71 ft MSL	Key ID or Socket Size:	
Borehole Depth:	21 ft bgs	Coordinate System:	
Borehole Dia.:	8-inch	X: 789577.52	Y: 1036502.709

General Well Construction Information	
Well ID:	MW-09S
Start Date:	7/31/2018
End Date:	7/31/2018
Static Water Level:	4.37 ft bgs
SWL Date:	11/26/2019
Measuring Point:	TOC
Well Depth:	21 ft bgs
Riser Pipe(s)	
Interval (ft):	11 ft
Material:	Sch. 40 PVC
Diameter (in):	2-inch
Joint Type:	Flush Threaded
Outer Casing(s)	
Interval (ft):	--
Material:	--
Diameter (in):	--
Joint Type:	--
Screen(s)	
Interval (ft):	11-21 ft bgs
Diameter (in):	2-inch
Material:	Sch. 40 PVC
Slot Size:	10-slot
Filter Pack(s)	
Interval (ft):	9-21 ft bgs
Sand:	x
Gravel:	--
Natural:	--
Amount:	8 bags
Sump(s)	
Interval (ft):	None
Material:	--
Diameter (in):	--
Joint Type:	--
Seal(s) / QTY(s)	
Grout:	3 bags
Concrete Mix:	--
Bentonite Slurry:	--
Bentonite Pellets:	1.5 bags
Other:	--

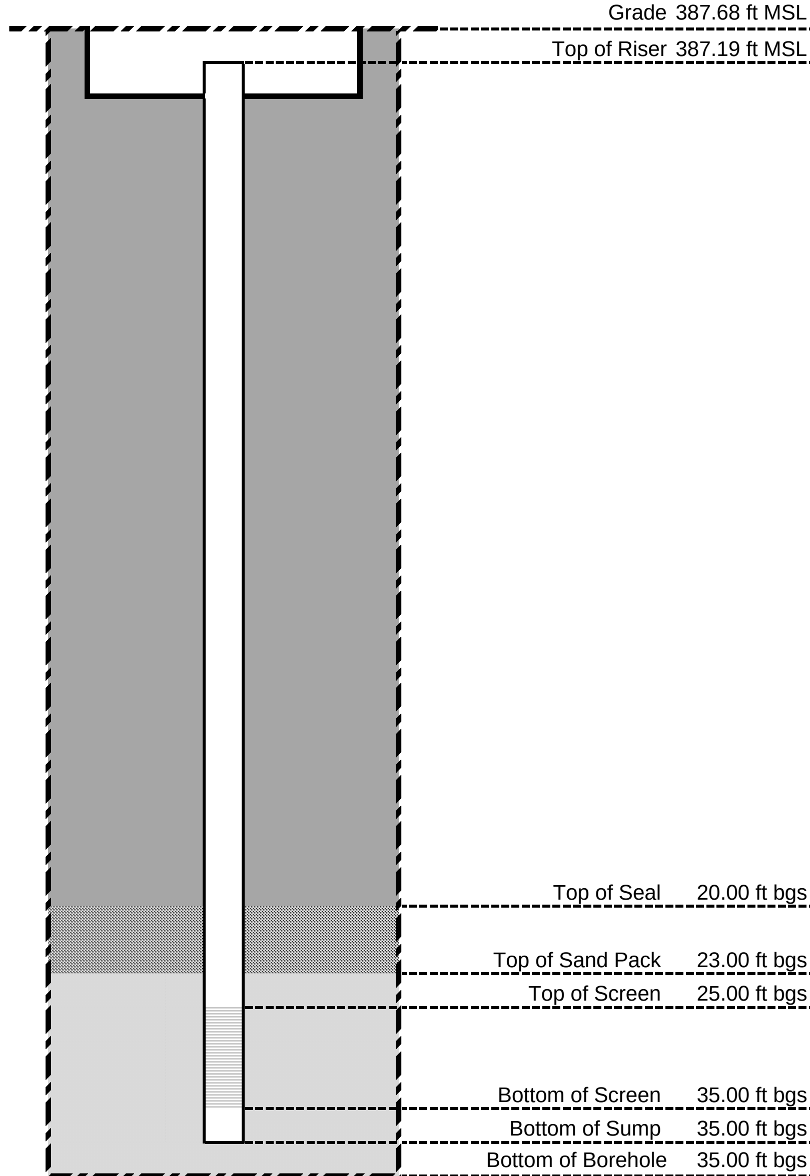
** NOT TO SCALE*



Well ID:	MW-09D	**Project:**	TRW - Union Springs
Location:	Union Springs, NY	**Client:**	NYSDEC
Drilling Contractor:	Parratt-Wolff	**Project Number:**	10090860
Date Drilled:	7/27/208	**Drilling Rig:**	CME Truck Mounted
Date Completed:	7/30/2018	**Drilling Method:**	Hollow Stem Auger Drilling
Cover Type:	Flush Mount	**Development Method:**	Submersible Pump & Surge
Grade Elevation:	387.68 ft MSL	**Key ID or Socket Size:**	
Borehole Depth:	35 ft bgs	**Coordinate System:**	
Borehole Dia.:	8-inch	**X:** 789578.9451	**Y:** 1036499.58

General Well Construction Information	
Well ID:	MW-09D
Start Date:	7/27/2018
End Date:	7/30/2018
Static Water Level:	4.39 ft bgs
SWL Date:	11/26/2019
Measuring Point:	TOC
Well Depth:	35 ft bgs
Riser Pipe(s)	
Interval (ft):	25 ft
Material:	Sch. 40 PVC
Diameter (in):	2-inch
Joint Type:	Flush Threaded
Outer Casing(s)	
Interval (ft):	--
Material:	--
Diameter (in):	--
Joint Type:	--
Screen(s)	
Interval (ft):	25-35 ft bgs
Diameter (in):	2-inch
Material:	Sch. 40 PVC
Slot Size:	10-slot
Filter Pack(s)	
Interval (ft):	23-35 ft bgs
Sand:	x
Gravel:	--
Natural:	--
Amount:	8 bags
Sump(s)	
Interval (ft):	None
Material:	--
Diameter (in):	--
Joint Type:	--
Seal(s) / QTY(s)	
Grout:	3 bags
Concrete Mix:	--
Bentonite Slurry:	--
Bentonite Pellets:	1.5 bags
Other:	--

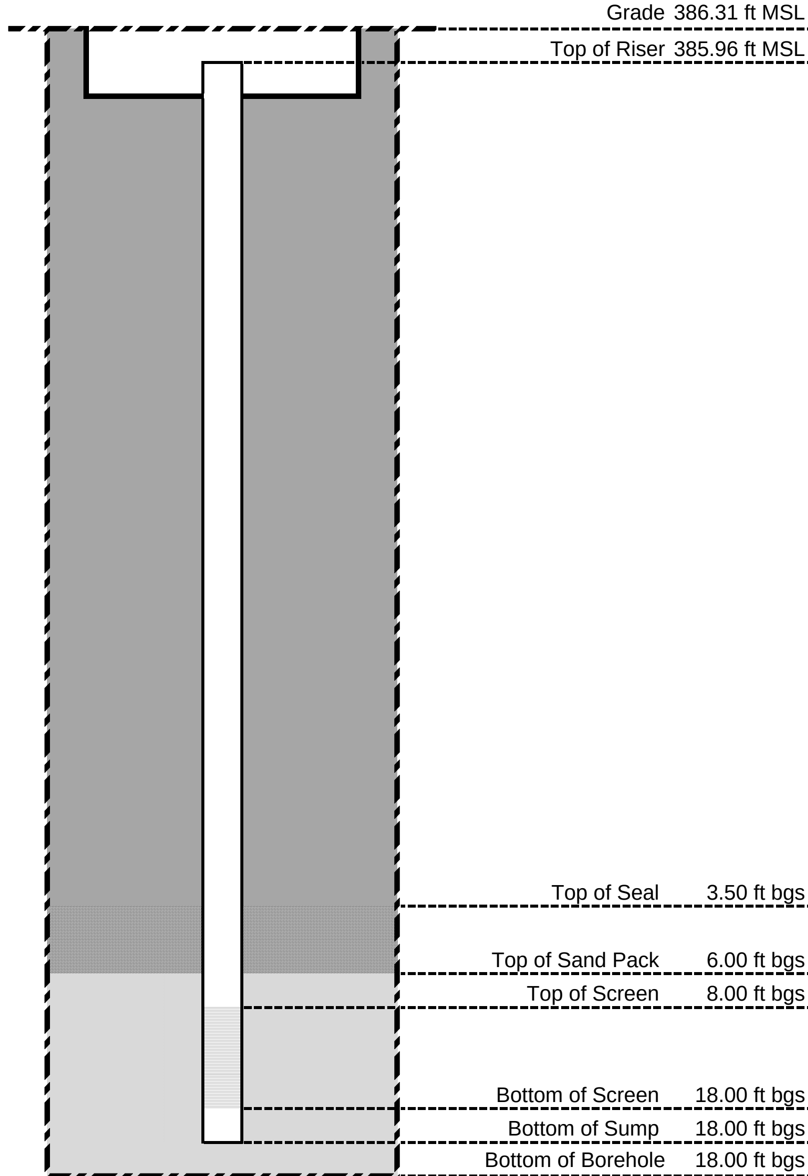
** NOT TO SCALE*



Well ID:	MW-10S	**Project:**	TRW - Union Springs
Location:	Union Springs, NY	**Client:**	NYSDEC
Drilling Contractor:	Parratt-Wolff	**Project Number:**	10090860
Date Drilled:	7/27/2018	**Drilling Rig:**	CME Truck Mounted
Date Completed:	7/27/2018	**Drilling Method:**	Hollow Stem Auger Drilling
Cover Type:	Flush Mount	**Development Method:**	Submersible Pump & Surge
Grade Elevation:	386.31 ft MSL	**Key ID or Socket Size:**	
Borehole Depth:	18 ft bgs	**Coordinate System:**	
Borehole Dia.:	8-inch	**X:** 789625.486	**Y:** 1036598.449

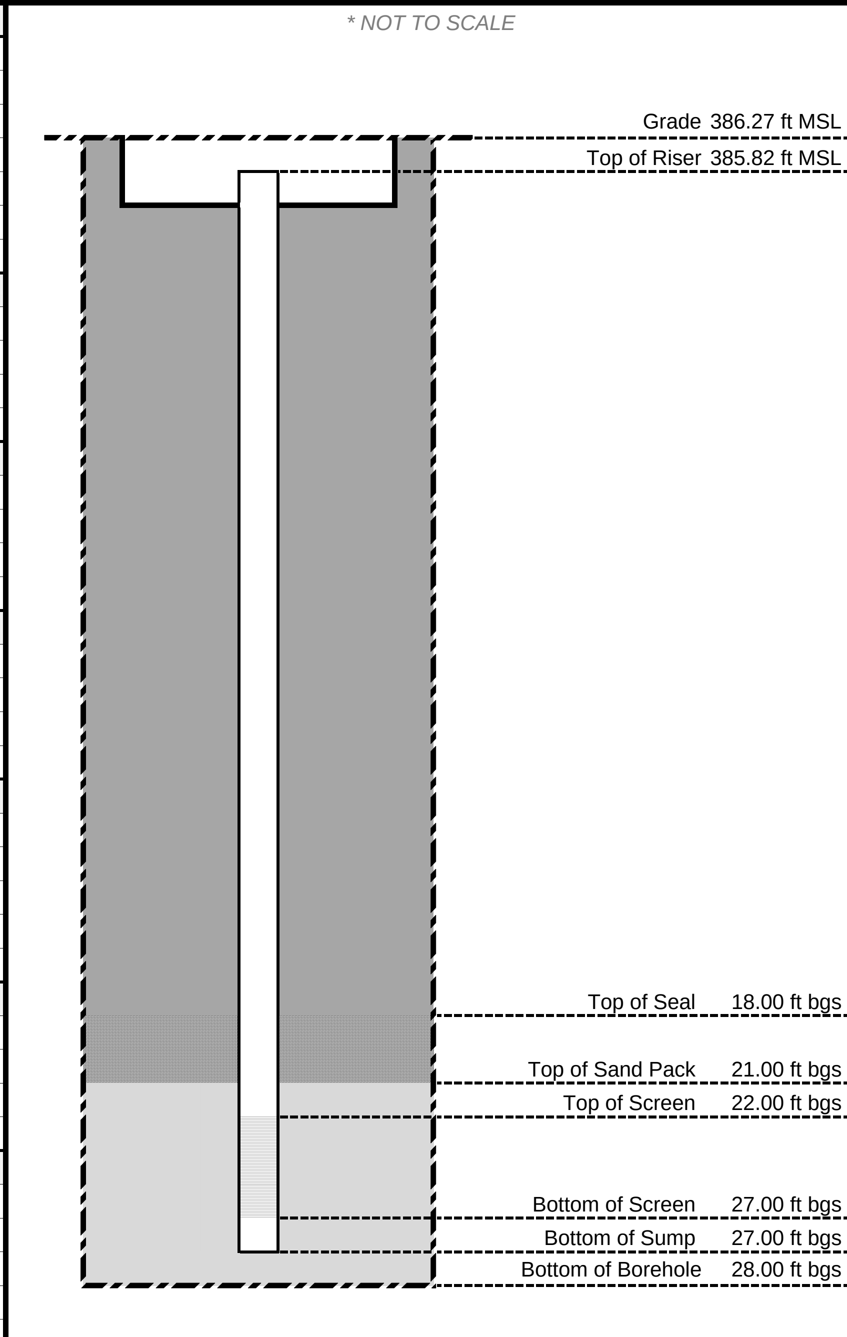
General Well Construction Information	
Well ID:	MW-10S
Start Date:	7/27/2018
End Date:	7/27/2018
Static Water Level:	4.12 ft bgs
SWL Date:	11/26/2019
Measuring Point:	TOC
Well Depth:	18 ft bgs
Riser Pipe(s)	
Interval (ft):	8 ft
Material:	Sch. 40 PVC
Diameter (in):	2-inch
Joint Type:	Flush Threaded
Outer Casing(s)	
Interval (ft):	--
Material:	--
Diameter (in):	--
Joint Type:	--
Screen(s)	
Interval (ft):	8-18 ft bgs
Diameter (in):	2-inch
Material:	Sch. 40 PVC
Slot Size:	10-slot
Filter Pack(s)	
Interval (ft):	6-18ft bgs
Sand:	x
Gravel:	--
Natural:	--
Amount:	8 bags
Sump(s)	
Interval (ft):	None
Material:	--
Diameter (in):	--
Joint Type:	--
Seal(s) / QTY(s)	
Grout:	3 bags
Concrete Mix:	--
Bentonite Slurry:	--
Bentonite Pellets:	1.5 bags
Other:	--

** NOT TO SCALE*



Well ID:	MW-10D	**Project:**	TRW - Union Springs
Location:	Union Springs, NY	**Client:**	NYSDEC
Drilling Contractor:	Parratt-Wolff	**Project Number:**	10090860
Date Drilled:	7/26/2018	**Drilling Rig:**	CME Truck Mounted
Date Completed:	7/27/2018	**Drilling Method:**	Hollow Stem Auger Drilling
Cover Type:	Flush Mount	**Development Method:**	Submersible Pump & Surge
Grade Elevation:	386.27 ft MSL	**Key ID or Socket Size:**	
Borehole Depth:	28 ft bgs	**Coordinate System:**	
Borehole Dia.:	8-inch	**X:** 789629.5597	**Y:** 1036598.364

General Well Construction Information	
Well ID:	MW-10D
Start Date:	7/26/2018
End Date:	7/27/2018
Static Water Level:	1.8 ft bgs
SWL Date:	11/26/2019
Measuring Point:	TOC
Well Depth:	27 ft bgs
Riser Pipe(s)	
Interval (ft):	22 ft
Material:	Sch. 40 PVC
Diameter (in):	2-inch
Joint Type:	Flush Threaded
Outer Casing(s)	
Interval (ft):	--
Material:	--
Diameter (in):	--
Joint Type:	--
Screen(s)	
Interval (ft):	22-27 ft bgs
Diameter (in):	2-inch
Material:	Sch. 40 PVC
Slot Size:	10-slot
Filter Pack(s)	
Interval (ft):	21-27 ft bgs
Sand:	x
Gravel:	--
Natural:	--
Amount:	8 bags
Sump(s)	
Interval (ft):	None
Material:	--
Diameter (in):	--
Joint Type:	--
Seal(s) / QTY(s)	
Grout:	3 bags
Concrete Mix:	--
Bentonite Slurry:	--
Bentonite Pellets:	1.5 bags
Other:	--



Well Development Log

Sheet 1 of 16

Site: Former TRW Union Springs (NYSDEC Site No. C706019A)
Date: 8/13/18
Weather: Very Humid / cloudy

Company: HDR
Field Personnel: Scott Englert

Monitor Well #: MW-06D
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval:

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: Ft Below TOC
Depth to Water Before Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C)		pH (pH Units)		Redox Potential (mv)		Specific Conductivity (mS/cm)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Pumping Rate (mL/min)	Depth To Water (ft below TOC)
			Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*		
1119			17.50		6.30		-2		1.45				1000+			
1130-1145			Surge well		w/ Surge		Block									
1157			17.63		6.84		38		2.93				1000+			
1325			17.25		7.13		26		2.74				388			
1445			17.25		7.39		37		3.06				1000+			1.09 ft btoc
8/15/18																
1210			Start Pumping													
1310			19.27		7.55		24		3.10				1000+			

Comments:
TD = 25.5 ft btoc
~ 26 ft btoc

* Went back to pump a few additional gallons 8/15/18 TD = 26 ft bgs

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

HDR

Well Development Log

Sheet 2 of 16

Site: Former TRW Union Springs (NYSDEC Site No. C706019A)
Date: 8/13/18
Weather: Very Humid / cloudy

Company: HDR
Field Personnel: Scott Englert

Monitor Well #: MW-06S
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval:

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: Ft Below TOC
Depth to Water Before Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C) Reading	Temperature Change*	pH (pH Units) Reading	pH Change*	Redox Potential (mv) Reading	Redox Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
1120			16.05		6.33		-5		2.80				311			
			Surge For		15 min											
1200			17.24		6.84		42		3.57				1000+			
1325			17.89		7.19		28		3.82				1000+			
1440			18.82		7.22		40		3.51				906			3.88
8/15/18																
1210			Start Pumping													
1305			19.22		7.56		50		3.26				1000+			

Comments: TD = 16.65 ft btoc
~ 17 ft btoc

★ Went back to pump a few additional gallons
8/15/18 TD = 17 ft bgs

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

HDR

Well Development Log

Sheet 3 of 16

Site: Former TRW Union Springs (NYSDEC Site No. C706019A)
Date: 8/13/18
Weather: Very Humid/cloudy

Company: HDR
Field Personnel: Scott Englert

Monitor Well #: MW-07S
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval:

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: Ft Below TOC
Depth to Water Before Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C)		pH (pH Units)		Redox Potential (mv)		Specific Conductivity (mS/cm)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Pumping Rate (mL/min)	Depth To Water (ft below TOC)
			Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*		
1245			Surge Prior to Sampling													2.29
1310			19.33		7.12		-24		3.11				1000+			
			18.00		7.35		26		3.41				983			
8/15/18																
1340			21.68		7.70		103		3.45				1000+			
1415			couldn't pump enough to get another Sample													

Comments: TD = ~15 ft btoc   * Returned 8/15/18 to pump more water

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

HDR

Well Development Log

Site: Former TRW Union Springs (NYSDEC Site No. C706019A)
Date: 8/13/18
Weather: Very Humid / cloudy

Company: HDR
Field Personnel: Scott Englert

Monitor Well #: MW-07D
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval:

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: Ft Below TOC
Depth to Water Before Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C) Reading	Temperature Change*	pH (pH Units) Reading	pH Change*	Redox Potential (mv) Reading	Redox Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
1235			Surge Prior to Sampling													0.52 ft btoc
1250			19.58		6.79		-84		2.80				487			
			16.58		7.33		2		3.29				1000+			
8/15/18																
1345			24.53		7.50		46		3.73				1000+			
1410			20.03		7.61		-14		3.39				1000+			

Comments:
TD = 21.65 ft btoc
~ 22 ft btoc

* Not yielding very much water
* Returned 8/15/18 to pump more water

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Well Development Log

Sheet 5 of 16

Site: Former TRW Union Springs (NYSDEC Site No. C706019A)
Date: 8/13/18
Weather: Very Humid / Cloudy

Company: HDR
Field Personnel: Scott Englert

Monitor Well #: MW-08D
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval:

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: Ft Below TOC
Depth to Water Before Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C)		pH (pH Units)		Redox Potential (mv)		Specific Conductivity (mS/cm)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Pumping Rate (mL/min)	Depth To Water (ft below TOC)
			Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*		
1600			16.78		7.75		27		2.39				1000+			
1630			19.33		7.30		40		2.34				570			
1700			19.50		7.39		33		2.18				1000+			0.50 ft btoc

Comments:
TD = 25 ft btoc

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

HDR

Well Development Log

Sheet 6 of 16

Site: Former TRW Union Springs (NYSDEC Site No. C706019A)
Date: 8/13/18
Weather: Very Humid / Cloudy

Company: HDR
Field Personnel: Scott Englert

Monitor Well #: MW-08S
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval:

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: Ft Below TOC
Depth to Water Before Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C)		pH (pH Units)		Redox Potential (mv)		Specific Conductivity (mS/cm)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Pumping Rate (mL/min)	Depth To Water (ft below TOC)
			Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*		
1610			18.46		7.03		49		4.33				715			
1705			19.51		7.71		45		4.11				1000+			3.55 ft btoc

Comments:
TD = 15ft btoc

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

HDR

Well Development Log

Sheet 7 of 16

Site: Former TRW Union Springs (NYSDEC Site No. C706019A)
Date: 8/14/18
Weather: Heavy Rain

Company: HDR
Field Personnel: Scott Englert

Monitor Well #: MW-09S
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval:

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: Ft Below TOC
Depth to Water Before Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C)		pH (pH Units)		Redox Potential (mv)		Specific Conductivity (mS/cm)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Pumping Rate (mL/min)	Depth To Water (ft below TOC)
			Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*		
0800			Surge	For 15	min.											
0820			19.41		7.59		-67		2.08				1000+			
0840			18.96		7.50		-32		2.48				1000+			
0910			18.95		7.77		-13		2.43				985			
0945			17.60		7.63		-60		2.49				1000+			
1005			17.99		7.44		-71		2.45				1000+			4.61 Ft btoc

Comments:

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

HDR

Well Development Log

Sheet 8 of 16

Site: Former TRW Union Springs (NYSDEC Site No. C706019A)
Date: 8/14/18
Weather: Heavy Rain

Company: HDR
Field Personnel: Scott Englert

Monitor Well #: MW-09D
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval:

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: Ft Below TOC
Depth to Water Before Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C) Reading	Temperature Change*	pH (pH Units) Reading	pH Change*	Redox Potential (mv) Reading	Redox Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
			Surge For		15 min.											
0830			16.68		7.12		-144		2.77				414			
0850			17.95		7.38		-80		2.68				1000+			
0940			17.96		7.60		-10		2.79				912			
1000			17.12		7.06		16		3.05				804			4.04 ft btoc

Comments:

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Well Development Log

Sheet 9 of 16

Site: Former TRW Union Springs (NYSDEC Site No. C706019A)
Date: 8/14/18
Weather: Heavy Rain

Company: HDR
Field Personnel: Scott Englert

Monitor Well #: MW-10S
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval:

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: Ft Below TOC
Depth to Water Before Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C)		pH (pH Units)		Redox Potential (mv)		Specific Conductivity (mS/cm)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Pumping Rate (mL/min)	Depth To Water (ft below TOC)
			Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*		
			Surge	15 min												
1040			18.71		7.31		-58		2.56				1000+			
1145			18.14		7.30		-53		2.60				1000+			
1225			16.38		7.03		-20		3.17				412			~~3.3 ft btoc~~
																2.94 ft btoc

Comments: ~~TD = 27.2 ft bgs~~ TD = 18 ft bgs

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Well Development Log

Sheet 10 of 16

Site: Former TRW Union Springs (NYSDEC Site No. C706019A)
Date: 8/14/18
Weather: Heavy Rain

Company: HDR
Field Personnel: Scott Englert

Monitor Well #: MW-10D
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval:

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: Ft Below TOC
Depth to Water Before Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C)		pH (pH Units)		Redox Potential (mv)		Specific Conductivity (mS/cm)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Pumping Rate (mL/min)	Depth To Water (ft below TOC)
			Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*		
			Surge 15 min													
1100			17.22		7.85		-2		1.90				1000+			
1148			17.87		7.16		-84		2.65				1000+			
1220			16.33		7.04		65		2.92				1000+			~~33~~
																3.3 ft btoc

Comments: TD = 27.2 ft bgs

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

HDR

Well Development Log

Sheet 11 of 16

Site: Former TRW Union Springs (NYSDEC Site No. C706019A)
Date: 8/14/18
Weather: Heavy Rain

Company: HDR
Field Personnel: Scott Englert

Monitor Well #: MW-01S
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval:

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: Ft Below TOC
Depth to Water Before Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C) Reading	Change*	pH (pH Units) Reading	Change*	Redox Potential (mv) Reading	Change*	Specific Conductivity (mS/cm) Reading	Change*	Dissolved Oxygen (mg/L) Reading	Change*	Turbidity (NTU) Reading	Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
1340			Surge	For	15min											
1400			17.53		8.46		6		1.03				871			
1415			15.39		7.62		27		0.925				1000+			
1435			15.79		7.18		57		0.949				806			2.14 ft bgs

Comments:
TD = 14.5 ft bgs

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

HDR

Well Development Log

Sheet 12 of 16

Site: Former TRW Union Springs (NYSDEC Site No. C706019A)
Date: 8/14/18
Weather: Heavy Rain

Company: HDR
Field Personnel: Scott Englert

Monitor Well #: MW-02S
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval:

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: Ft Below TOC
Depth to Water Before Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C)		pH (pH Units)		Redox Potential (mv)		Specific Conductivity (mS/cm)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Pumping Rate (mL/min)	Depth To Water (ft below TOC)
			Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*		
1500			Surge for		15 min											
1520			17.73		7.04		23		1.15				1000+			
1535			18.63		7.07		53		1.15				236			
1550			18.19		7.06		30		1.14				1000+			
1610			16.25		7.00		-36		1.17				519			
1630			16.48		7.07		-49		1.20				281			
1650			16.61		7.21		-51		1.14				169			2.43 ft btoc

Comments: * Very Turbid brown/silty   TD = 14.5 ft bgs
- Purge ≈ 30 gal Total

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Well Development Log

Sheet 13 of 16

Site: Former TRW Union Springs (NYSDEC Site No. C706019A)
Date: 8/15/18
Weather:

Company: HDR
Field Personnel: Scott Englert

Monitor Well #: MW-05D
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval:

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: Ft Below TOC
Depth to Water Before Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C) Reading	Temperature Change*	pH (pH Units) Reading	pH Change*	Redox Potential (mv) Reading	Redox Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
0755			Start	Surging												
0810			14.53		7.51		-166		2.31							
1000			Stop	pumping												
			~~7.46~~		~~2~~											1.7 ft btoc
					~~7.46~~		~~322~~		~~2.09~~							
					7.46		54		2.09				332			

Comments: * Meter quit Working, attempt battery swap/call tech support, no help, retain water from end of pumping for turbidity measurement
TD = 34.5 ft bgs

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

HDR

Well Development Log

Sheet 14 of 16

Site: Former TRW Union Springs (NYSDEC Site No. C706019A)
Date: 8/15/18
Weather:

Company: HDR
Field Personnel: Scott Englert

Monitor Well #: MW-05S
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval:

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: Ft Below TOC
Depth to Water Before Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C)		pH (pH Units)		Redox Potential (mv)		Specific Conductivity (mS/cm)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Pumping Rate (mL/min)	Depth To Water (ft below TOC)
			Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*		
			Start Surging													
			N/A		7.59		152		1.40				1000+			
1000			Finish Purge													4.25 ft btoc

Comments:
TD = 20.9 ft bgs
* Meter not Working

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Well Development Log

Sheet 15 of 16

Site: Former TRW Union Springs (NYSDEC Site No. C706019A)
Date: 8/15/18
Weather:

Company: HDR
Field Personnel: Scott Englert

Monitor Well #: MW-04S
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval:

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: Ft Below TOC
Depth to Water Before Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C) Reading	Temperature Change*	pH (pH Units) Reading	pH Change*	Redox Potential (mv) Reading	Redox Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
			Surge	15 min												
1040			Pump	start												
1255			18.47		7.57		—		2.09				582			
1355			19.49		7.70		84		2.32				1000+			11.52' btoc

Comments: TD = 22.4 ft bgs

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

HDR

Well Development Log

Sheet 16 of 16

Site: Former TRW Union Springs (NYSDEC Site No. C706019A)
Date: 8/15/18
Weather:

Company: HDR
Field Personnel: Scott Englert

Monitor Well #: MW-03D
Wel Permit #:
Well Depth:
Well Diameter: Inches
Screened/Open Interval:

PID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: Ft Below TOC
Depth to Water Before Pump Installation: Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	Temperature (degrees C)		pH (pH Units)		Redox Potential (mv)		Specific Conductivity (mS/cm)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Pumping Rate (mL/min)	Depth To Water (ft below TOC)
			Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*	Reading	Change*		
			Surge	15 min												
1035			pump start													
1250			19.31		7.63		-45		1.99				530			
1400			17.97		7.67		21		2.18				933			

Comments: * Only get 6-8 gal pumped, then dry

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Low Flow Sampling
Data Sheet

Site: NYSDEC Former TWR Union Springs, DEC Site # C706019/A
Date: 9/27/2018
Weather: Cloudy 63°F

Consulting Firm: HDR, Inc.
Field Personnel: DA, KLS

Monitor Well #: MW-~~02D~~ 01S
Well Depth: 14.15 ft.
Well Diameter: 2.0 Inches
Screened/Open Interval:

PID/FID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: ______ Ft Below TOC
Depth to Water Before Pump Installation: 1.70 Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Redox Potential (mv) Reading	Redox Potential Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Temperature (degrees C) Reading	Temperature Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
1445	X		6.97		0.953		148		2.42		275		15.06		250	1.48
1450	X		6.72		0.961		25		1.51		165		14.96		250	1.50
1455	X		6.67		0.958		-16		1.25		67.2		14.82		250	1.52
1500	X		6.60		0.958		-24		1.16		53.2		14.87		250	1.54
1505	X		6.65		0.957		-31		1.06		45.6		14.41		250	1.56
1510	X		6.64		0.958		-33		1.01		37.7		14.83		250	1.60
1515	X		6.64		0.959		-37		1.00		19.4		14.87		250	1.61
1520	X		6.64		0.959		-41		0.91		19.1		14.79		250	1.63
1525	X		6.64		0.959		-44		0.87		7.1		14.91		250	1.67
1530	X		6.63		0.955		-44		0.85		9.0		14.73		250	1.69
1535	X	X	6.63		0.955		-46		0.84		5.1		14.58		250	1.72

Comments:

* **INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.**

Low Flow Sampling
Data Sheet

Sheet ______ of ______

Site: NYSDEC Former TWR Union Springs, DEC Site # C706019/A
Date: 08/27/2018
Weather: Cloudy 63°F

Consulting Firm: HDR, Inc.
Field Personnel: DIA, KLS

Monitor Well #: MW-02S **Well Depth:** 14.2
Well Diameter: ____________ Inches
Screened/Open Interval: ____________

PID/FID Readings (ppm):
Background: ____________
Beneath Outer Cap: ____________
Beneath Inner Cap:

Pump Intake Depth: ____________ Ft Below TOC
Depth to Water Before Pump Installation: 0.00 Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Redox Potential (mv) Reading	Redox Potential Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Temperature (degrees C) Reading	Temperature Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
14:21	✓		7.64		0.95		-60		3.18		0		15.57		300	1.41
14:25	✓		6.85		0.968		-101		1.03		1.4		15.22			1.72
14:30	✓		6.74		0.972		-106		0.69		7.9		15.07			1.98
14:35	✓		6.69		0.974		-107		0.57		4.5		15.03			2.05
14:40	✓		6.67		0.976		-109		0.49		0		15.00			2.19
14:45	✓		6.65		0.978		-108		0.43		6.5		14.95			2.31
14:50	✓		6.63		0.975		-108		0.40		0		14.92			2.18
14:54	✓		6.62		0.981		-108		0.39		13.5		14.66			2.86
15:00	✓		6.61		0.983		-108		0.39		17.0		14.59			
15:05	✓		6.60		0.984		-107		0.38		10.9		14.58			3.92
15:10	✓		6.60		0.982		-109		0.38		8.2		14.60			4.18
15:15	✓		6.59		0.983		-107		0.39		2.7		14.55			4.49
15:20	✓		6.59		0.983		-107		0.39		0		14.59			

Comments:
Horiba warm Pine ID# 19474
Solinst Perri Pump Pine # 12659

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Low Flow Sampling
Data Sheet

Sheet ______ of ______

Site: NYSDEC Former TWR Union Springs, DEC Site # C706019/A
Date: 09/28/2018
Weather: Sunny 58°F

Consulting Firm: HDR, Inc.
Field Personnel: DA, KLS

Monitor Well #: MW-03D
Well Depth: 35
Well Diameter: ________ Inches
Screened/Open Interval: ________

PID/FID Readings (ppm):
Background: ________
Beneath Outer Cap: ________
Beneath Inner Cap:

Pump Intake Depth: ________ Ft Below TOC
Depth to Water Before Pump Installation: 5.95 Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Redox Potential (mv) Reading	Redox Potential Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Temperature (degrees C) Reading	Temperature Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
10:53	✓		5.36		2.51		97		2.34		0		15.22		~~[illegible]~~	7.68
11:00	✓		6.20		2.35		-68		1.22		0		15.05		~~300~~	—
11:05	✓		6.42		2.32		-112		1.12		0		14.95		200	8.34
11:10	✓		6.49		2.30		-123		0.96		0		15.08			8.55
11:15	✓		6.56		2.28		-135		0.78		0		15.28			8.70
11:20	✓		6.62		2.27		-141		0.80		0		15.41			—
11:25	✓		6.64		2.27		-146		0.55		0		15.54			10.05
11:30	✓		6.87		2.23		-151		0.47		0		15.99			10.15
11:35	✓		6.69		2.22		-153		0.44		0		15.93			10.15
11:40	✓		6.71		2.23		-152		0.43		0		16.21			10.15
11:50	✓		6.80		2.20		-160		0.43		0		16.30			10.15
11:5[illegible]	✓		6.78		2.21		-162		0.40		0		16.60			10.15
11:55		✓														

Comments:
Collect blind duplicate from this well MW-D-20180928 @ 1000
(full set of parameters/analytes)

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Low Flow Sampling
Data Sheet

Sheet ______ of ______

Site: NYSDEC Former TWR Union Springs, DEC Site # C706019/A	Consulting Firm: HDR, Inc.
Date: 10/02/2018	Field Personnel:
Weather: Rainy 60°F	

Monitor Well #: MW-04S Well Depth: 24.55 Screened/Open Interval: ______
Well Diameter: ______ Inches

PID/FID Readings (ppm):
Background: ______
Beneath Outer Cap: ______
Beneath Inner Cap: ______

Pump Intake Depth: ______ Ft Below TOC
Depth to Water Before Pump Installation: 10.80 Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Change*	Redox Potential (mv) Reading	Change*	Dissolved Oxygen (mg/L) Reading	Change*	Turbidity (NTU) Reading	Change*	Temperature (degrees C) Reading	Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
9:12	X		5.69		2.82		135		3.31		0		14.91		250	12.60
9:20	X		6.59		2.74		60		2.42		0		13.28		250	14.73
9:25	X		6.70		2.68		-6		2.58		0		13.82		250	15.60
9:35	X		6.77		2.57		-26		1.06		0		13.87		250	[illegible]
9:40	X		6.55		2.60		-57		2.22		0		[illegible]		250	[illegible]
9:50	X		6.53		2.45		-83		2.09		0		14.01		250	[illegible]
9:55	X		6.82		2.44		[illegible]		[illegible]		0		[illegible]		250	[illegible]
[illegible]	X		[illegible]		2.42		[illegible]		[illegible]		0		[illegible]		250	[illegible]
[illegible]	X		[illegible]		[illegible]		-101		[illegible]		0		[illegible]		250	[illegible]
[illegible]	X		[illegible]		[illegible]		[illegible]		[illegible]		0		[illegible]		250	
[illegible]		[illegible]														

Comments: Horizon well pine ID# 14474 pre cal: 10.64 DO 14.10°C 10.4 NTU 7.22 pH 0 mS/cm
Post cal: 0 NTU; 3.84 pH; 4.63 mS/cm; 9.37 DO

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Low Flow Sampling
Data Sheet

Sheet ______ of ______

Site: NYSDEC Former TWR Union Springs, DEC Site # C706019/A
Date: 10/01/2018
Weather: cloudy/sprinkles 56°F

Consulting Firm: HDR, Inc.
Field Personnel: DA, KCS

Monitor Well #: MW-55
Well Depth: 20.60
Well Diameter: ________ Inches
Screened/Open Interval: ________

PID/FID Readings (ppm):
Background: ________
Beneath Outer Cap: ________
Beneath Inner Cap: ________

Pump Intake Depth: ________ Ft Below TOC
Depth to Water Before Pump Installation: 4.35 Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Redox Potential (mv) Reading	Redox Potential Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Temperature (degrees C) Reading	Temperature Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
12:28	x		6.30		1.29		78		0.54		0		14.56		300	5.95
12:35	x		6.45		1.24		46		0.54		2.4		14.57		300	6.80
12:40	x		6.57		1.22		30		0.63		1.7		14.37		300	8.90
12:45	x		6.56		1.21		23		0.94		0.4		14.18		300	9.80
12:50	x		6.60		1.21		19		1.19		0.0		14.08		300	10.20
12:55	x		6.61		1.20		17		1.31		0		13.93		300	10.88
13:00	x		6.61		1.20		16		1.31		0		13.80		300	10.98
13:05	x		6.62		1.20		14		1.28		0		13.71		300	11.05
13:10	x		6.62		1.20		13		1.24		0		13.66		300	—
13:10		x														

Comments:
#19474 pine ID Horiba WQM post cal results: 3.84 pH: 4.58 mS/cm 0 NTU; 0.24 DO

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Low Flow Sampling
Data Sheet

Sheet ______ of ______

Site: NYSDEC Former TWR Union Springs, DEC Site # C706019/A
Date: 10/01/2018
Weather: Cloudy/rainy 56°F

Consulting Firm: HDR, Inc.
Field Personnel: DA, KLS

Monitor Well #: MW-05D
Well Depth: 33.40
Well Diameter: ________ Inches
Screened/Open Interval: ________

PID/FID Readings (ppm):
Background: ________
Beneath Outer Cap: ________
Beneath Inner Cap: ________

Pump Intake Depth: ________ Ft Below TOC
Depth to Water Before Pump Installation: 1.52 Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Redox Potential (mv) Reading	Redox Change*	Dissolved Oxygen (mg/L) Reading	DO Change*	Turbidity (NTU) Reading	Turbidity Change*	Temperature (degrees C) Reading	Temperature Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
12:20	x		5.96		2.60		104		1.53		124		14.40		300	2.38
12:25	x		6.27		2.57		-14		1.35		115		13.45		300	2.53
12:30	x		6.39		2.57		-47		1.29		112		13.17		300	3.38
12:35	x		6.45		2.57		-69		1.21		85		12.89		300	3.60
12:40	x		6.48		2.58		-77		1.18		88.2		12.75		300	3.60
12:45	x		6.49		2.57		-86		1.47		62.1		12.58		300	3.65
12:50	x		6.50		2.57		-90		1.10		73.1		12.46		200	3.68
12:55	x		6.50		2.57		-93		1.05		39.5		12.34		300	3.70
13:00	x		6.50		2.57		-94		1.02		38.5		12.23		300	3.70
13:05	x		6.50		2.57		-97		1.00		19.9		12.11		300	3.75
13:05		x														

Comments:
Horiba WQ ID 24226 post cal: 3.78 pH 4.54 mS/cm 0 NTU 9.51 DO
Precal: 6.40 pH 150 NTU 7.86 DO 0.005 mS/cm

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Low Flow Sampling
Data Sheet

Sheet ______ of ______

Site: NYSDEC Former TWR Union Springs, DEC Site # C706019/A
Date: 04/27/2018
Weather: Sunny 54°F
Consulting Firm: HDR, Inc.
Field Personnel: DA, KLS

Monitor Well #: MW-06S
Well Depth: ______
Well Diameter: ______ Inches
Screened/Open Interval: ______

PID/FID Readings (ppm):
Background: ______
Beneath Outer Cap: ______
Beneath Inner Cap:
Pump Intake Depth: ______ Ft Below TOC
Depth to Water Before Pump Installation: 2.63 Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Redox Potential (mv) Reading	Redox Potential Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Temperature (degrees C) Reading	Temperature Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
10:55	X		6.51		3.51		149		5.70		0.0		18.81		250	4.25
11:00	X		6.43		3.56		142		2.88		0		20.66		250	5.57
11:05	X		6.64		3.70		139		5.62		0		20.30			5.80
11:10	X		6.88		3.64		135		7.11		0		20.77			5.80
11:15	X		7.19		3.64		131		7.46		0		20.79			5.82
11:20	X		7.37		3.65		128		7.60		0		20.75			5.81
11:25	X		7.48		3.65		129		7.57		0		20.75			5.80
11:30	X		7.58		3.65		130		7.58		0		20.78			5.82
11:35	X		7.64		3.64		132		7.55		0		20.91			5.80
11:40	X		7.67		3.65		133		7.53		0		21.00			5.80
11:45	X		7.70		3.65		134		7.53		0		21.08			5.81
11:50	X		7.70		3.64		135		7.55		0		21.10			5.82
11:55	X		7.70		3.65		139		7.57		0		21.16			5.78
12:00	~~X~~	X														

Comments:
Solinst pump Pine ID# 042340 Flow was slow dry
Horiba WQ?? Pine ID# 24226

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Low Flow Sampling
Data Sheet

Sheet 1 of 1

Site:	NYSDEC Former TWR Union Springs, DEC Site # C706019/A	**Consulting Firm:**	HDR, Inc.
Date:	09/24/2018	**Field Personnel:**	KLS, Scott Englert, David AVUDZEGA, Rob Sents
Weather:	69°F - Sunny		

Monitor Well #: MW-06D **Well Depth:** ______ **Well Diameter:** 2 Inches **Screened/Open Interval:** ______

PID/FID Readings (ppm):
- **Background:** ______
- **Beneath Outer Cap:** ______
- **Beneath Inner Cap:** ______

Pump Intake Depth: ______ Ft Below TOC
Depth to Water Before Pump Installation: ______ Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Redox Potential (mv) Reading	Redox Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Temperature (degrees C) Reading	Temperature Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
3:14			6.98		3.35		-54		7.54		OOR		17.60		100	12.95
3:20			6.97		3.38		-58		7.54		503		16.92			—
3:26			6.97		3.38		-58		7.54		593		16.92			16.02
3:31			6.97		3.38		-58		7.54		503		16.92			17.86
3:36			6.97		3.38		-58		7.54		583		16.92			18.32
3:41			6.97		3.78		-58		7.54		597		16.92			19.03
3:46			6.97		3.38		-58		7.54		593		16.92			19.66
~~3:54~~											[illegible]					
3:57											52					
4:00		X														
5:00																17.15

Comments:
Collected for VOCs, SVOCs, PCBs, Pest, metals, PFAS
OOR = out of Range / 52 NTU turbidity from other meter, appears stable
Began Sampling at 4pm

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

3.5 gallons purged

Low Flow Sampling
Data Sheet

Sheet ______ of ______

Site: NYSDEC Former TWR Union Springs, DEC Site # C706019/A
Date: 09/26/2018
Weather: Cloudy/Windy

Consulting Firm: HDR, Inc.
Field Personnel: [illegible] KLS, DA

Monitor Well #: MW-07S
Well Depth: 14.6
Well Diameter: ____________ Inches
Screened/Open Interval: ____________

PID/FID Readings (ppm):
Background: ____________
Beneath Outer Cap: ____________
Beneath Inner Cap: ____________

Pump Intake Depth: ____________ Ft Below TOC
Depth to Water Before Pump Installation: 0.55 Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Redox Potential (mv) Reading	Redox Potential Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Temperature (degrees C) Reading	Temperature Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
13:38	X		6.66		2.9		54		2.84		3.6		21.06		400	2.69
13:46	X		6.59		2.56		44		2.79		0.1		20.90		400	—
13:50	X		6.57		2.53		44		2.62		12.6		20.89		400	5.80
13:55	X		6.67		2.76		48		1.74		12.3		20.85		350	—
14:00	X		6.54		2.90		40		1.42		11.2		20.85		350	6.78
14:10	X		6.50		3.05		5		1.29		9.3		20.31		350	7.27
14:17	X		6.52		3.20		7.9		1.52		7.9		20.06		350	7.89
14:25	X		6.56		3.24		-41		1.52		7.0		19.87		350	8.42
14:35	X		6.60		2.030		-51		1.43		5.4		18.85		350	—
14:40	X		6.62		3.30		-58		1.44		100		18.33		350	

Comments:
Horiba went Pine ID# 19474
Pen Fell in well   042340 Pine ID# - Pump

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Low Flow Sampling
Data Sheet

Sheet ______ of ______

Site: NYSDEC Former TWR Union Springs, DEC Site # C706019/A
Date: 09/26/2018
Weather: Cloudy/Rainy
Consulting Firm: HDR, Inc.
Field Personnel: KLS, DA

Monitor Well #: MW-07D
Well Depth: 21.65
Well Diameter: ______ Inches
Screened/Open Interval: ______

PID/FID Readings (ppm):
Background: ______
Beneath Outer Cap: ______
Beneath Inner Cap: ______

Pump Intake Depth: ______ Ft Below TOC
Depth to Water Before Pump Installation: 0.10 Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Redox Potential (mv) Reading	Redox Potential Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Temperature (degrees C) Reading	Temperature Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
14:10	X		7.09		3.30		47		3.44		0		14.14		350	3.08
14:17	X		7.07		3.35		-27		1.59		0		~~[illegible]~~ 10	14	350	7.40
14:25	X		7.07		3.37		-57		1.26		0		10.51		350	10.06
14:35	X		7.15		3.37		-51		4.19		35.8		10.50		350	—
14:40	X		7.36		3.39		-71		8.58		0		10.31		350	—
14:45	X		7.49		3.39		-85		7.35		0		10.00		350	11.78
14:50	X		7.50		3.39		-92		7.69		0		18.96		350	11.79
14:55	X		7.52		3.38		-94		7.75		0		18.80		350	11.74
14:55		X														

Comments: Rain pour / Used Horiba 242226 pine ID 12659 - Pump ID

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Low Flow Sampling
Data Sheet

Sheet ______ of ______

Site: NYSDEC Former TWR Union Springs, DEC Site # C706019/A
Date: 08/27/2018
Weather: Cloudy 40°F

Consulting Firm: HDR, Inc.
Field Personnel: DA, KC LS

Monitor Well #: MW-07D
Well Depth: 21.65
Well Diameter: ____________ Inches
Screened/Open Interval: ____________

PID/FID Readings (ppm):
Background: ____________
Beneath Outer Cap: ____________
Beneath Inner Cap: ____________

Pump Intake Depth: ____________ Ft Below TOC
Depth to Water Before Pump Installation: 0.62 Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Redox Potential (mv) Reading	Redox Potential Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Temperature (degrees C) Reading	Temperature Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
8:55	X		6.70		3.69		-28		1.99		0		15.90		300	4.85
9:00	X		6.66		3.56		-109		1.46		0		17.14		300	6.39
9:05	X		6.74		3.50		-122		1.27		0		17.78		300	7.37
9:10	X		6.82		3.43		-131		1.27		0		18.42		300	10.00
9:15	X		6.86		3.35		-131		1.35		0		18.68		300	11.93
9:25	X		7.05		3.34		-135		5.00		0		18.83		300	11.94
9:30	X		7.21		3.27		-149		7.04		0		18.76		300	11.92
9:35	X		7.30		3.15		-162		8.37		0		18.62		300	11.93
9:40	X		7.31		3.28		-166		7.77		0		18.52		300	11.84
9:45	X		7.35		3.17		-169		7.75		0		18.49		300	11.93
9:50	X		7.36		3.14		-171		7.81		0		18.55		300	11.92
9:55	X		7.38		3.33		-174		7.78		0		18.62		300	11.90
10:00	X		7.38		3.33		-174		7.79		0		18.62		300	11.82
10:05	X		7.37		3.22		-175		7.70		0		18.67		300	11.95
10:10	X		7.39		3.20		-176		7.68		0		18.71		300	11.93
10:15	X		7.40		3.22		-176		7.64		0		18.44		300	11.95
10:15		X														

Comments:
Horiba was Pine ID# 19474 Pre cal results: 112 NTU 6.61 pH 4.0 mS/cm 12.94 DO
Pump: Solinst Pine # 042340 Post: 3.93 pH 4.62 mS/cm 0.6 NTU 10.8 DO

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Low Flow Sampling
Data Sheet

Sheet 1 of 1

Site:	NYSDEC Former TWR Union Springs, DEC Site # C706019/A	Consulting Firm:	HDR, Inc.
Date:	9/26/2018	Field Personnel:	DA, KLS, SE
Weather:	Cloudy 68°F		

Monitor Well #: MW-~~[illegible]~~ Well Depth: 14.60
Well Diameter: ____ Inches
Screened/Open Interval: ____

PID/FID Readings (ppm):
Background: ____
Beneath Outer Cap: ____
Beneath Inner Cap: ____

Pump Intake Depth: ~~[illegible]~~ Ft Below TOC
Depth to Water Before Pump Installation: 3.57 Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Redox Potential (mv) Reading	Redox Potential Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Temperature (degrees C) Reading	Temperature Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
													KLS			
10:38	X		6.29		4.87		185		1.55		38.8		21.77		300	4.09
10:45	X		6.32		4.86		170		1.34		28.1		21.60		300	—
10:50	X		6.71		4.92		158		1.12		25.6		21.82		200	4.48
10:55	X		6.31		4.97		149		1.04		21.5		21.03		700	—
11:00	X		6.31		4.97		143		0.99		0.0		22.01		300	4.85
11:05	X		6.30		4.97		132		0.94		0.0		22.18		300	5.17
11:10	X		6.30		4.95		125		0.89		0.0		22.36		300	—
11:15	X		6.29		4.93		119		0.88		0		22.51		300	5.52
11:20	X		6.30		4.92		117		0.87		0		22.55		200	5.73
11:25		X														

Comments:
Horiba WQM Pine # 24226 Pre-cal: results: DO 12.34 pH 5.76 232 NTU
Post cal: 3.96 pH 4.50 mS/cm 0.0 NTU 8.68 DO

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Low Flow Sampling
Data Sheet

Sheet 1 of 1

Site: NYSDEC Former TWR Union Springs, DEC Site # C706019/A
Date: 09/26/2018
Weather: cloudy 60°F

Consulting Firm: HDR, Inc.
Field Personnel: DA, KLS, SE

Monitor Well #: MW-08D
Well Depth: 24.60
Well Diameter: ________ Inches
Screened/Open Interval: ________

PID/FID Readings (ppm):
Background: ________
Beneath Outer Cap: ________
Beneath Inner Cap: ________

Pump Intake Depth: [illegible] Ft Below TOC
Depth to Water Before Pump Installation: 14.59 Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Redox Potential (mv) Reading	Redox Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Temperature (degrees C) Reading	Temperature Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
10:40	x		6.45		3.41		57		3.47		817		20.24		100	18.85
10:49	x		6.81		3.32		41		2.57		478		19.44		100	19.18
10:56	x		6.83		3.33		31		2.49		260		18.82		150	—
11:00	x		6.82		3.34		-3		2.32		183		18.80		175	19.55
11:05	x		6.82		3.36		-35		2.28		112		19.03		175	19.85
																Changed/cleaned out
11:10	x		6.83		3.23		-8		4.22		51.0		18.98		175	—
11:15	x		6.85		3.29		-33		~~4.22~~	3.05	49.6		19.60		175	20.10
11:20	x		6.85		3.34		-58		1.56		45.6		19.44		175	20.20
11:25	x		6.85		3.37		-63		1.39		41.9		19.36		175	20.22
11:30	x		6.85		3.32		-65		1.21		35.90		19.23		175	20.25
11:35	x		6.85		3.32		-65		1.21		35.5		18.23		175	20.29
11:40	x		6.85		3.35		-64		1.22		24.6		18.48		175	20.31
11:45	x		6.85		3.35		-64		1.21		19.0		19.72		175	20.32
11:50	x		6.85		3.14		-64		1.34		28.4		19.54		175	20.40
11:55	x		6.85		3.36		-64		1.45		21.4		19.69		175	20.45
12:00	x		6.85		3.36		-66		1.36		15.10		20.00		175	20.40
12:05	x		6.84		3.35		-68		1.26		14.50		19.99		175	20.42
12:10	x		6.84		3.35		-71		1.22		17.60		18.78		175	20.43
12:10		x														

Comments:
Horiba warm Pre cal results: 12.33 DO; 6.46 pH; 0.00 ms/cm 130 NTU
Post cal results: 4 pH 4.53 ms/cm 0 NTU 10.06 DO Pine ID# 18474

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Low Flow Sampling
Data Sheet

Sheet 1 of 1

Site: NYSDEC Former TWR Union Springs, DEC Site # C706019/A
Date: 09/25/2018
Weather: 67° Sunny

Consulting Firm: HDR, Inc.
Field Personnel: DA, KCS, SE

Monitor Well #: MW-9S
Well Depth: 18.95
Well Diameter: 2.0 Inches

Screened/Open Interval:

PID/FID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: ~~3.97~~ Ft Below TOC
Depth to Water Before Pump Installation: 3.93 Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Redox Potential (mv) Reading	Redox Potential Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Temperature (degrees C) Reading	Temperature Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
2:35	X		6.60		2.52		-118		0.78		21.1		20.90		300	4.88
2:40	X		6.50		2.47		-108		0.49		111		20.05		300	—
2:45	X		6.47		2.46		-108		0.52		125		19.74		300	—
2:50	X		6.87		2.49		-108		[illegible]	0.44	98.5		18.87		300	4.75
2:55	X		6.42		2.40		-100		0.47		74.8		19.87		300	—
3:00	X		6.40		2.39		-99		0.35		20.8		18.65		300	5.01
3:05	X		6.39		2.39		-99		0.31		17.8		18.22		300	4.80
3:10	X		6.39		2.39		-102		0.31		11.8		18.77		300	
3:15	X		6.39		2.39		-98		0.32		8.1		18.75		300	4.81
3:20	O		6.39		2.39		-97		0.34		8.1		18.75		300	4.78

Comments: Sampled for PFAS, VOCs, SVOCs, SVOCs via SIM, 1,4-Dioxane, Pesticides, Metals
Post Cal #: 3.99 pH, 4.51 Cond., 10 turbidity, 9.8 DO

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Low Flow Sampling
Data Sheet

Sheet 1 of 1

Site: NYSDEC Former TWR Union Springs, DEC Site # C706019/A
Date: 9/25/2018
Weather: 67° - Sunny

Consulting Firm: HDR, Inc.
Field Personnel: KS, DA, SE

Monitor Well #: MW-9D
Well Depth: 34.20
Well Diameter: 2.0 Inches
Screened/Open Interval:

PID/FID Readings (ppm):
Background: 3
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: ______ Ft Below TOC
Depth to Water Before Pump Installation: 3.85 Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Redox Potential (mv) Reading	Redox Potential Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Temperature (degrees C) Reading	Temperature Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
2:30	X		6.19		4.04		-66		3.52		9.7		17.90		300	6.24
2:40	X		6.78		3.75		-65		1.52		0		16.26		300	—
2:45	X		6.84		3.88		-96		1.23		0		15.48		300	—
2:50	X		6.87		2.49		-105		1.12		0		~~5.09~~ 15.41		300	6.12
2:55	X		6.91		3.91		-119		1.20		0		15.32		300	5.99
3:00	X		6.91		3.90		-122		1.15		0		15.26		300	5.98
3:05	X		6.91		3.88		-123		1.10		0		15.27		300	5.50
3:10	X		6.90		3.82		-122		1.05		0		15.18		300	5.92
3:13		X														

Comments: Horiba meter Pine ID# 24226

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Low Flow Sampling
Data Sheet

Sheet 1 of 1

Site: NYSDEC Former TWR Union Springs, DEC Site # C706019/A
Date: 09/25/18
Weather: 55°F, cloudy

Consulting Firm: HDR, Inc.
Field Personnel: DA, SE, KS

Monitor Well #: MW-10S
Well Depth: 17.35
Well Diameter: 2.0 Inches
Screened/Open Interval:

PID/FID Readings (ppm):
Background:
Beneath Outer Cap:
Beneath Inner Cap:

Pump Intake Depth: Ft Below TOC
Depth to Water Before Pump Installation: 3.36 Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Redox Potential (mv) Reading	Redox Potential Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Temperature (degrees C) Reading	Temperature Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
12:02	X		6.64		2.78		-62		7.13		31.8		17.66		300	4.49
12:10	X		6.35		2.93		-113		1.08		17.5		17.76		300	5.39
12:15	X		6.31		2.88		-110		0.83		9.1		17.77		300	—
12:20	X		6.27		2.87		-110		0.62		4		17.77		300	6.35
12:25	X		6.27		2.89		-112		0.49		1.7		17.83		300	6.30
12:30	X		6.28		2.92		-115		0.45		0		17.98		300	6.19
12:35	X		6.29		3.00		-118		0.42		0		18.00		300	6.21
12:40	X		6.31		3.00		-122		0.40		0		17.93		300	6.1
12:45	X		6.31		3.06		-124		0.38		0		18.00		300	6.01
12:50	X		6.32		3.07		-126		0.37		0		17.97		300	5.93
12:55	X		6.33		3.12		-128		0.35		0		17.90		300	5.91
1:00	X		6.34		3.14		-128		0.31		0		17.75		300	5.96
1:00		X														

Comments: Used Horiba U-52 meter; Pump: Solinst peri pump w/HDPE tubing
~~Post cal #: 3.90 pH: 4.5[illegible] conductivity, 0 turbidity~~
~~3.80 [illegible]~~:

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Sampled for PFAS, VOCs, SVOCs, SVOC via SIM, 1,4-Dioxane, Pesticides, Metals

Low Flow Sampling
Data Sheet

Sheet 1 of 1

Site: NYSDEC Former TWR Union Springs, DEC Site # C706019/A
Date: 09/25/18
Weather: 55°F, cloudy + drizzle

Consulting Firm: HDR, Inc.
Field Personnel: DA, SE, KS

Monitor Well #: MW-10D
Well Depth: ______
Well Diameter: 2.0 Inches
Screened/Open Interval: ______

PID/FID Readings (ppm):
Background: ______
Beneath Outer Cap: ______
Beneath Inner Cap: ______

Pump Intake Depth: ______ Ft Below TOC
Depth to Water Before Pump Installation: ______ Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	Change*	Specific Conductivity (mS/cm) Reading	Change*	Redox Potential (mv) Reading	Change*	Dissolved Oxygen (mg/L) Reading	Change*	Turbidity (NTU) Reading	Change*	Temperature (degrees C) Reading	Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)

Comments: Sampled for PFAS, VOCs, SVOCs, SVOC via SIM, 1,4-Dioxane, Pesticides, Metals. Collected extra volume for MS/MSD. Lost purge form after sampling to the wind. All water quality parameters stabilized after 45 minutes of purging. Final turbidity reading was 8.1 NTU.

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Low Flow Sampling
Data Sheet

Sheet ______ of ______

Site: NYSDEC Former TWR Union Springs, DEC Site # C706019/A
Date: 09/27/2018
Weather: Partly cloudy 40s°F

Consulting Firm: HDR, Inc.
Field Personnel: PW, KLS

Monitor Well #: MW-07S
Well Depth: 14.6
Well Diameter: ____________ Inches
Screened/Open Interval: ______________

PID/FID Readings (ppm):
Background: ______________
Beneath Outer Cap: ______________
Beneath Inner Cap: ______________

Pump Intake Depth: ____________ Ft Below TOC
Depth to Water Before Pump Installation: 0.99 Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Redox Potential (mv) Reading	Redox Potential Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Temperature (degrees C) Reading	Temperature Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
8:55	x		6.21		3.63		12		1.77		0		17.91		300	3.71
9:00	x		6.35		3.64		-19		1.80		0		18.23		300	4.98
9:05	x		6.44		3.63		-33		1.79		0		18.25		300	5.33
9:10	x		6.47		3.61		-36		1.67		0		18.29		300	5.65
9:15	x		6.50		3.59		-34		1.69		0		18.30		300	6.25
9:25	x		6.54		3.56		-16		1.99		0		18.20		300	6.78
9:30	x		6.54		3.56		-12		2.07		0		~~18.23~~	18.07	300	7.10
9:35	x		6.54		3.56		-14		2.07		0		17.94		300	
9:35		x														

Comments: Solinst Pump Pine ID# 042340 Pre cal: 7.03 pH 206 NTU 12 DO 12.10°C
Horiba WQM Pine ID# 24226 Post cal: 3.86 pH 4.65 mS/cm 0.4 NTU 10.92 DO

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Low Flow Sampling
Data Sheet

Sheet ______ of ______

Site: NYSDEC Former TWR Union Springs, DEC Site # C706019/A
Date: 9/28/18
Weather: 64°F, partly cloudy

Consulting Firm: HDR, Inc.
Field Personnel: DA.

Monitor Well #: MW-300
Well Depth: 22.4
Well Diameter: ____________ Inches
Screened/Open Interval: ____________

PID/FID Readings (ppm):
Background: ____________
Beneath Outer Cap: ____________
Beneath Inner Cap: ____________

Pump Intake Depth: ____________ Ft Below TOC
Depth to Water Before Pump Installation: 9.32 Ft below TOC
Make/Model of Pump:

TIME	Purging	Sampling	pH (pH Units) Reading	pH Change*	Specific Conductivity (mS/cm) Reading	Specific Conductivity Change*	Redox Potential (mv) Reading	Redox Potential Change*	Dissolved Oxygen (mg/L) Reading	Dissolved Oxygen Change*	Turbidity (NTU) Reading	Turbidity Change*	Temperature (degrees C) Reading	Temperature Change*	Pumping Rate (mL/min)	Depth To Water (ft below TOC)
1200	X		7.02		3.74		-65		3.83		102		15.04		250	10.74
1205	X		6.81		3.78		-73		2.29		88.5		13.55		250	12.92
1210	X		6.73		3.62		-37		2.34		46.0		13.70		250	13.52
1215	X		6.71		3.61		-38		2.14		0.0		13.75		250	14.13
1220	X		6.68		3.65		-56		1.69		0.0		13.60		250	
1225	X		6.66		3.70		-67		1.40		0.0		13.45		250	
1230	X		6.66		3.71		-68		1.27		0.0		13.36		250	15.45
1235	X		6.64		3.75		-72		1.14		0.0		13.25		250	
1240	X		6.63		3.76		-74		1.07		0.0		13.26		250	16.37
1245	X		6.62		3.78		-77		1.06		0.0		13.17		250	
1250	X		6.64		3.79		-77		1.05		0.6		12.86		250	17.36
1255	X	X														

Comments:

* INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN: ±0.1 FOR Ph; ±3% for Specific Conductivity and Temperature; ±10 mv for Redox Potential; and ±10% for Dissolved Oxygen and Turbidity.

Well Sampling Log

Well ID No.: MW-06s

Well Casing Type:	PVC	**Start SWL:**	7.10'	**Project:**	NYSDEC Union Springs - TRW
Well Depth:**	17' btoc	**Water Column Ht.:**		**Date:**	11/25/2019
Screened Interval:		**Well Volume (gallons):**		**Crew:**	SE. CB
Well Elevation:**		**SWL During Sampling:**		**Pump Intake (ft)**	
Well Diameter (in.)	2	**Sample Time:**	1245	**Meters Used:**	Horiba U-52, geotechnical peristaltic pump
Well Condition:	Good	**Sample Method:**	Low Flow	**PID Head Space (ppm):**	'—
Weather Conditions:	40F, sunny	**Sample Analyses:**	VOA	**Sample ID:**	MW-6s-20191125

Time	Est. Liters Purged	Purge Rate (Lpm)	Temp. (C°)	Cond. (mS/cm)	ORP (mV)	D.O. (mg/L)	pH	TDS	Salinity (ppth)	Turbidity (NTU)	Depth to Water*	Comments
1045		0.3										
1120	1.5	0.24									7.1	Started Purging
1130	2.7	0.24	12.36	2.362	26.3	3.02	7.25			59.2	7.1	
1140	3.9	0.24	12.32	2.4	24.3	2.67	7.13			33.9	**7.1**	
1150	5.1	0.24	**12.86**	**2.545**	13.3	1.89	7.01			21.1	**7.23**	
1200	6.3	0.24	**12.82**	2.653	7.1	1.68	6.96			11.3	7.84	
1210	7.5	0.24	**12.31**	**2.693**	-3.7	0.97	**6.94**			10.47	8.25	
1215	8.7	0.24	**12.28**	**2.67**	-5.5	0.95	**6.93**			**10.38**	**8.55**	
1220	9.9	0.24	**12.43**	**2.651**	-17.3	**0.95**	**6.91**			6.42	**8.94**	
1230	11.1	0.24	**12.33**	**2.637**	-20.4	**0.98**	**6.91**			5.33	**9.02**	
1235	12.3	0.24	**12.41**	**2.63**	**-23.5**	**0.97**	**6.91**			4.3	**9.15**	
1245	13.5											Collected Sample

Comments:

GeoPump peri pump, HDPE and silicone tubing

Notes: * - Measurement taken from top of well casing

Well Sampling Log

Well ID No.: MW-07s

Well Casing Type: PVC
Well Depth:** 15' btoc
Screened Interval:
Well Elevation:**
Well Diameter (in.) 2
Well Condition: Good
Weather Conditions: 40F, sunny

Start SWL: 1.91'
Water Column Ht.:
Well Volume (gallons):
SWL During Sampling:
Sample Time: 1420
Sample Method: Low Flow
Sample Analyses: VOA

Project: NYSDEC Union Springs - TRW
Date: 11/25/2019
Crew: SE. CB
Pump Intake (ft)
Meters Used: Horiba U-52, geotechnical peristaltic pump
PID Head Space (ppm): '—
Sample ID: MW-7s-20191125

Time	Est. Liters Purged	Purge Rate (Lpm)	Temp. (C°)	Cond. (mS/cm)	ORP (mV)	D.O. (mg/L)	pH	TDS	Salinity (ppth)	Turbidity (NTU)	Depth to Water*	Comments
1140											1.91	
1220			13.3	3.501	46.5	0.57	6.73			92.7	2.92	
1225	0	0.25	13.3	3.491	22.9	0.25	6.74			70.2	4.16	
1235	1.25	0.2	13.4	3.489	13	0.2	6.75			70.5	4.86	
1242	2.25	0.2	13.3	3.487	6.5	0.15	6.76			78.5	5.3	
1247	3.25	0.2	13.4	3.48	1.6	0.14	6.77			85.2	5.48	
1255	4.25	0.2	13.3	3.475	0.1	0.11	6.76			97.9	5.76	
1305	5.25	0.2	13.4	3.462	-3	0.1	6.76			91.4	5.99	
1317	6.25	0.2	13.5	3.47	-7.2	0.09	6.78			75	6.48	
1328	7.25	0.2	13.6	3.477	-11.5	0.06	6.79			72.1	6.8	
1348	8.25	0.2	13.9	3.506	-20.2	0.03	6.83			70.9	7.38	
1400	9.25	0.2	14	3.521	-21.7	0.03	6.85			0.4		
1405	10.25	0.2	14.1	3.521	-25.9	0.02	6.87			0.2	7.81	
1410	11.25	0.2	14.2	3.525	-26.3	0.02	6.87			0.6	7.92	
1415	12.25	0.2	14.3	3.517	-29.8	0.02	6.89			0.3	8.12	
1420	13.25											Sampled (VOCs Only)

Comments:
GeoPump peri pump, HDPE and silicone tubing

Notes: * - Measurement taken from top of well casing

HDR Well Sampling Log

Well ID No.: MW-08s

Well Casing Type: PVC
Well Depth:** 15' btoc
Screened Interval:
Well Elevation:**
Well Diameter (in.) 2
Well Condition: Good
Weather Conditions: 40F, sunny

Start SWL: 3.72'
Water Column Ht.:
Well Volume (gallons):
SWL During Sampling:
Sample Time: 1450
Sample Method: Low Flow
Sample Analyses: VOA

Project: NYSDEC Union Springs - TRW
Date: 11/25/2019
Crew: SE. CB
Pump Intake (ft)
Meters Used: Horiba U-52, geotechnical peristaltic pump
PID Head Space (ppm): '—
Sample ID: MW-8s-20191125

Time	Est. Liters Purged	Purge Rate (Lpm)	Temp. (C°)	Cond. (mS/cm)	ORP (mV)	D.O. (mg/L)	pH	TDS	Salinity (ppth)	Turbidity (NTU)	Depth to Water*	Comments
1355											3.72	Started Purging
1400			14.49	3.887	40	2.24	6.66				4.37	
1405	0	0.24	13.3	3.808	39.9	1.38	6.6				4.39	
1410	1.2	0.24	13.68	3.849	39.8	1.22	6.58				4.23	
1420	2.4	0.24	14.01	3.922	38.7	1.33	6.56				4.84	
1430	3.6	0.24	14.3	3.963	38.2	1.16	6.55				4.99	
1440	4.8	0.24	14.45	3.991	38.7	1.07	6.54				4.98	
1445	6	0.24	14.39	3.985	38.8	1.01	6.54				4.99	
1450	7.2	0.24	14.38	3.977	38.9	0.99	6.55				5.02	Sample Collected
	8.4											

Comments:
GeoPump peri pump, HDPE and silicone tubing

Notes: * - Measurement taken from top of well casing

Well Sampling Log

Well ID No.: MW-09s

Well Casing Type: PVC
Well Depth:**
Screened Interval:
Well Elevation:**
Well Diameter (in.) 2
Well Condition: Good
Weather Conditions: 40F, sunny

Start SWL: 4.37'
Water Column Ht.:
Well Volume (gallons):
SWL During Sampling:
Sample Time: 0950
Sample Method: Low Flow
Sample Analyses: VOA

Project: NYSDEC Union Springs - TRW
Date: 11/26/2019
Crew: SE. CB
Pump Intake (ft)
Meters Used: Horiba U-52, geotechnical peristaltic pump
PID Head Space (ppm): '—
Sample ID: MW-9s-20191126

Time	Est. Liters Purged	Purge Rate (Lpm)	Temp. (C^o)	Cond. (mS/cm)	ORP (mV)	D.O. (mg/L)	pH	TDS	Salinity (ppth)	Turbidity (NTU)	Depth to Water*	Comments
0850	0											Started Purging
0855	0	0.24	12.5	2.255	83	5.4	7.4			15.2	4.37	
0900	1.2	0.24	13.18	2.193	7.2	0.72	7.23			15.4	5.61	
0905	2.4	0.24	13.04	2.111	-1.5	0.73	7.19			17.1	5.58	
0910	3.6	0.24	12.72	2.061	-6.7	0.58	7.15			16.5	5.58	
0915	4.8	0.24	12.64	2.01	-5.5	0.52	7.13			17.7	5.58	
0920	6	0.24	12.58	1.947	-1.1	0.46	7.1			16.5	5.6	
0925	7.2	0.24	12.6	2.105	2.5	0.43	7.07			15.6	5.61	
0930	8.4	0.24	12.65	2.101	6.2	0.47	7.07			13.1	5.63	
0935	9.6	0.24	13.2	2.11	8.7	0.37	7.03			12.2	5.69	
0940	10.8	0.24	13.37	2.109	9.4	0.31	7.02			12	5.72	
0945	12	0.24	13.5	2.112	9.5	0.29	7.01			12.1	5.73	
0950	13.2	0.24	13.65	2.119	8.5	0.27	7			11.5	5.76	Collected Sample
	14.4											

Comments:
GeoPump peri pump, HDPE and silicone tubing

Notes: * - Measurement taken from top of well casing

Well Sampling Log

Well ID No.: MW-10s

Well Casing Type:	PVC	**Start SWL:**	4.12'	**Project:**	NYSDEC Union Springs - TRW
Well Depth:**	18' btoc	**Water Column Ht.:**		**Date:**	11/26/2019
Screened Interval:		**Well Volume (gallons):**		**Crew:**	SE. CB
Well Elevation:**		**SWL During Sampling:**		**Pump Intake (ft)**	
Well Diameter (in.)	2	**Sample Time:**	1115	**Meters Used:**	Horiba U-52, geotechnical peristaltic pump
Well Condition:	Good	**Sample Method:**	Low Flow	**PID Head Space (ppm):**	'—
Weather Conditions:	40F, sunny	**Sample Analyses:**	VOA	**Sample ID:**	MW-10S-20191126

Time	Est. Liters Purged	Purge Rate (Lpm)	Temp. (C°)	Cond. (mS/cm)	ORP (mV)	D.O. (mg/L)	pH	TDS	Salinity (ppth)	Turbidity (NTU)	Depth to Water*	Comments
0855											4.12	
0910			12.8	3.065	-35.1	1.8	6.82			241.1	4.82	Started Purging
0920			12.8	2.977	-38.7	0.62	6.72			83	5.19	
0930			13	2.969	-34.7	0.36	6.71			36.8	5.51	
0940			13.2	3.007	-37.4	0.25	6.72			24.7	5.68	
0950			13.4	3.057	-42.7	0.17	6.73			17.4	5.87	
1000			13.5	3.083	-45.7	0.12	6.75			19.2	5.93	
1010			13.7	3.11	-48.3	0.1	6.75			27.1	6.01	
1020			14	3.134	-50.2	0.07	6.75			17.8		
1030			14.3	3.165	-54.1	0.04	6.76			23.5		
1055			14.5	3.18	-57.4	0.01	6.76			10.7		
1115												Collected Sample

Comments:
GeoPump peri pump, HDPE and silicone tubing

Notes: * - Measurement taken from top of well casing

Well Sampling Log

Well ID No.: MW-10D

Well Casing Type: PVC
Well Depth:** 27.2' btoc
Screened Interval:
Well Elevation:**
Well Diameter (in.) 2
Well Condition: Good
Weather Conditions: 40F, sunny

Start SWL: 3.01'
Water Column Ht.:
Well Volume (gallons):
SWL During Sampling:
Sample Time: 1635
Sample Method: Low Flow
Sample Analyses: VOA

Project: NYSDEC Union Springs - TRW
Date: 11/25/2019
Crew: SE. CB
Pump Intake (ft)
Meters Used: Horiba U-52, geotechnical peristaltic pump
PID Head Space (ppm): '—
Sample ID: MW-10D-20191125

Time	Est. Liters Purged	Purge Rate (Lpm)	Temp. (C°)	Cond. (mS/cm)	ORP (mV)	D.O. (mg/L)	pH	TDS	Salinity (ppth)	Turbidity (NTU)	Depth to Water*	Comments
1525		0.25	12.93	2.994	119.1	2.55	5.7			7.42	3.01	Started Purging
1530	1.25	0.25	12.89	2.868	91.5	0.85	5.82			7	4.02	
1540	2.5	0.25	12.86	2.788	62.5	0.44	6.15			5.96	5.09	
1545	3.75	0.25	12.95	2.765	54.3	0.47	6.18			3.44	5.66	
1550	5	0.25	12.91	2.749	61.6	0.34	6.06			5.6	6.29	
1555	6.25	0.25	12.66	2.721	54	0.28	6.23			2.9	6.99	
1600	7.5	0.25	12.56	2.707	40.1	0.17	6.41			2.67	7.31	
1605	8.75	0.25	12.48	2.695	33	0.21	6.53			2.3	7.73	
1610	10	0.25	12.4	2.678	45	0.29	6.31			2.29	7.95	
1615	11.25	0.25	12.31	2.669	31.5	0.32	6.61			2.31	8.26	
1620	12.5	0.25	12.28	2.652	30.9	0.36	6.58			2.08	8.78	
1625	13.75	0.25	12.26	2.646	28.5	0.42	6.55			2.21	9	
1630	15	0.25	12.21	2.639	30.1	0.46	6.64			2.16	9.23	
1635	16.25	0.25	12.2	2.633	24.1	0.5	6.68			2.18		Sample Collected
	17.5											

Comments:
GeoPump peri pump, HDPE and silicone tubing

Notes: * - Measurement taken from top of well casing

Appendix C

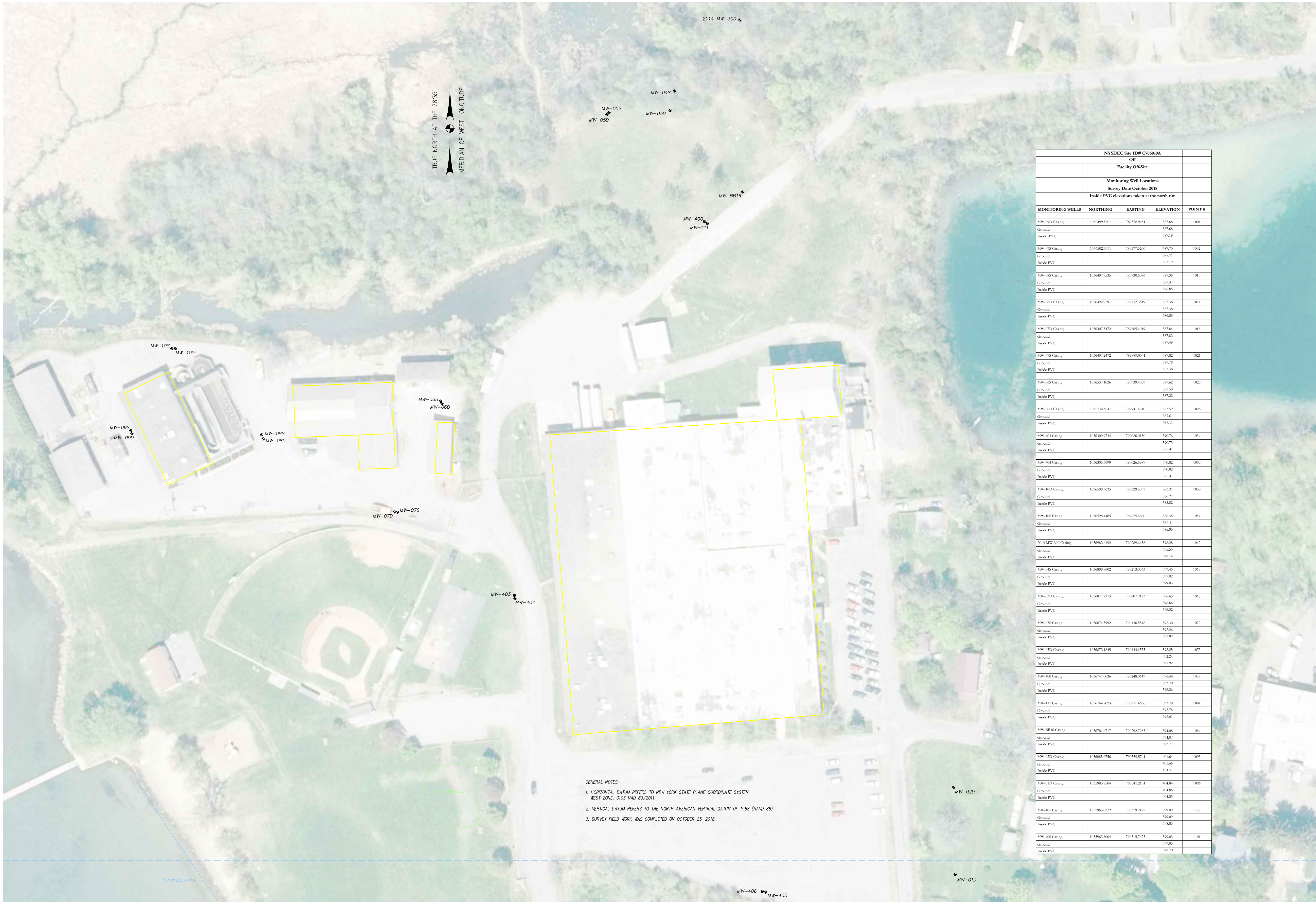
Off-Site Monitoring Well Installation Survey Data

NYSDEC Site ID# C706019A
Former TRW - Union Spring, NY Facility
Off-Site RI

Monitoring Well Locations
Survey Date October 2018
Inside PVC elevations taken at the north rim

MONITORING WELLS	NORTHING	EASTING	ELEVATION	POINT #
MW-09D Casing	1036499.58	789578.9451	387.68	1001
Ground			387.68	
Inside PVC			387.19	
MW-09S Casing	1036502.709	789577.52	387.7	1002
Ground			387.71	
Inside PVC			387.19	
MW-08S Casing	1036497.754	789730.6086	387.39	1010
Ground			387.37	
Inside PVC			386.85	
MW-08D Casing	1036492.93	789732.3519	387.38	1011
Ground			387.38	
Inside PVC			386.85	
MW-07D Casing	1036407.547	789885.4019	387.84	1018
Ground			387.82	
Inside PVC			387.49	
MW-07S Casing	1036407.247	789889.0041	387.82	1021
Ground			387.79	
Inside PVC			387.38	
MW-06S Casing	1036537.104	789939.4359	387.62	1025
Ground			387.58	
Inside PVC			387.22	
MW-06D Casing	1036534.584	789941.434	387.59	1026
Ground			387.61	
Inside PVC			387.11	
MW-403 Casing	1036309.973	790026.013	390.76	1034
Ground			390.73	
Inside PVC			390.41	
MW-404 Casing	1036306.369	790026.6987	390.82	1035
Ground			390.82	
Inside PVC			390.41	

MONITORING WELLS	NORTHING	EASTING	ELEVATION	POINT #
MW-10D Casing	1036598.364	789629.5597	386.31	1053
Ground			386.27	
Inside PVC			385.82	
MW-10S Casing	1036598.449	789625.486	386.35	1054
Ground			386.31	
Inside PVC			385.96	
2014 **MW-300** Casing	1036982.619	790289.6658	398.28	1062
Ground			395.53	
Inside PVC			398.14	
MW-04S Casing	1036899.76	790213.0563	399.46	1067
Ground			397.02	
Inside PVC			399.03	
MW-03D Casing	1036877.221	790207.9123	396.65	1068
Ground			396.66	
Inside PVC			396.32	
MW-05S Casing	1036874.599	790136.5548	392.3	1072
Ground			392.26	
Inside PVC			391.82	
MW-05D Casing	1036872.185	790134.1575	392.25	1073
Ground			392.24	
Inside PVC			391.92	
MW-412 Casing	1036747.004	790248.0649	396.48	1078
Ground			393.7	
Inside PVC			396.26	
MW-101 Casing	1036744.702	790251.4636	393.78	1081
Ground			393.78	
Inside PVC			393.61	
MW-BB16 Casing	1036781.672	790292.7983	394.08	1084
Ground			394.07	
Inside PVC			393.77	
MW-02S Casing	1036085.676	790539.5741	401.64	1093
Ground			401.66	
Inside PVC			401.31	
MW-01S Casing	1035983.85	790541.2131	404.84	1096
Ground			404.86	
Inside PVC			404.53	
MW-405 Casing	1035963.027	790319.2422	399.09	1100
Ground			399.09	
Inside PVC			398.85	
MW-406 Casing	1035963.8	790315.7623	399.03	1101
Ground			399.05	
Inside PVC			398.7	



	NYSDEC Site ID# C706019A			
	Off			
	Facility Off-Site			
	Monitoring Well Locations			
	Survey Date October 2018			
	Inside PVC elevations taken at the north rim			
MONITORING WELLS	**NORTHING**	**EASTING**	**ELEVATION**	**POINT #**
MW-09D Casing	1036499.5801	789578.9451	387.68	1001
Ground			387.68	
Inside PVC			387.19	
MW-09S Casing	1036502.7091	789577.5200	387.70	1002
Ground			387.71	
Inside PVC			387.19	
MW-08S Casing	1036497.7535	789730.6086	387.39	1010
Ground			387.37	
Inside PVC			386.85	
MW-08D Casing	1036492.9297	789732.3519	387.38	1011
Ground			387.38	
Inside PVC			386.85	
MW-07D Casing	1036407.5472	789885.4019	387.84	1018
Ground			387.82	
Inside PVC			387.49	
MW-07S Casing	1036407.2472	789889.0041	387.82	1021
Ground			387.79	
Inside PVC			387.38	
MW-06S Casing	1036537.1036	789939.4359	387.62	1025
Ground			387.58	
Inside PVC			387.22	
MW-06D Casing	1036534.5841	789941.4340	387.59	1026
Ground			387.61	
Inside PVC			387.11	
MW-403 Casing	1036309.9734	790026.0130	390.76	1034
Ground			390.73	
Inside PVC			390.41	
MW-404 Casing	1036306.3690	790026.6987	390.82	1035
Ground			390.82	
Inside PVC			390.41	
MW-10D Casing	1036598.3635	789629.5597	386.31	1053
Ground			386.27	
Inside PVC			385.82	
MW-10S Casing	1036598.4485	789625.4860	386.35	1054
Ground			386.31	
Inside PVC			385.96	
2014 MW-300 Casing	1036982.6192	790289.6658	398.28	1062
Ground			395.53	
Inside PVC			398.14	
MW-04S Casing	1036899.7602	790213.0563	399.46	1067
Ground			397.02	
Inside PVC			399.03	
MW-03D Casing	1036877.2213	790207.9123	396.65	1068
Ground			396.66	
Inside PVC			396.32	
MW-05S Casing	1036874.5992	790136.5548	392.30	1072
Ground			392.26	
Inside PVC			391.82	
MW-05D Casing	1036872.1845	790134.1575	392.25	1073
Ground			392.24	
Inside PVC			391.92	
MW-400 Casing	1036747.0036	790248.0649	396.48	1078
Ground			393.70	
Inside PVC			396.26	
MW-411 Casing	1036744.7023	790251.4636	393.78	1081
Ground			393.78	
Inside PVC			393.61	
MW-BB16 Casing	1036781.6717	790292.7983	394.08	1084
Ground			394.07	
Inside PVC			393.77	
MW-02D Casing	1036085.6756	790539.5741	401.64	1093
Ground			401.66	
Inside PVC			401.31	
MW-01D Casing	1035983.8504	790541.2131	404.84	1096
Ground			404.86	
Inside PVC			404.53	
MW-405 Casing	1035963.0272	790319.2422	399.09	1100
Ground			399.09	
Inside PVC			398.85	
MW-406 Casing	1035963.8004	790315.7623	399.03	1101
Ground			399.05	
Inside PVC			398.70	

GENERAL NOTES:

1. HORIZONTAL DATUM REFERS TO NEW YORK STATE PLANE COORDINATE SYSTEM WEST ZONE, 3103 NAD 83/2011.
2. VERTICAL DATUM REFERS TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
3. SURVEY FIELD WORK WAS COMPLETED ON OCTOBER 25, 2018.

Appendix D

Data Validation Reports

Data Validation Services

120 Cobble Creek Road P. O. Box 208
North Creek, N. Y. 12853
Phone 518-251-4429
Facsimile 518-251-4428

December 31, 2018

Scott Englert
HDR
1 International Blvd Floor 1
Albany, NY 12211

RE: Validation of the NYSDEC TRW Union Springs Laboratory Analytical Data Packages
Data Usability Summary Report (DUSR)
TestAmerica SDG Nos. 480-135871, 480-135925, 480-135926, 480-136014, 480-136135, 480-136136, 480-136188, 480-136189, 480-136247, and 480-136343

Dear Mr. Englert:

Review has been completed for the data packages generated by TestAmerica Laboratories that pertain to samples collected between 05/14/18 and 05/22/18 at the TRW Union Springs site. Eleven soil samples, ten aqueous samples, and field duplicates of each matrix were processed for TCL volatiles, polychlorinated naphthalenes (PCNs), TCL Pesticides, per- and polyfluorinated biphenyls (PFAS), and TAL metals; the soils were also processed for Total Organic Carbon (TOC). Three soil samples were processed for PCNs, TCL pesticides, PFAS, and TAL metals; one of these was also processed for TOC. One soil sample and a field duplicate was processed for TCL volatiles, PCNs, TCL semivolatiles, TCL pesticides, and TAL metals, and one soil sample was processed for TCL volatiles, TCL pesticides, PFAS, TAL metals, and TOC. Nine soil samples were processed for TCL semivolatiles; three of those were also processed for total chromium and total manganese. Six soil samples were processed for PNs, TCL pesticides, total cadmium, total chromium, and total manganese. One soil sample was processed for PFAS and TOC. The analytical methodologies are those of the USEPA SW846, a modified USEPA method 537, and Lloyd Kahn.

The data packages submitted by the laboratory contain full deliverables for validation, but this usability report is generated from review of the QC summary form information, with full review of sample raw data and limited review of associated QC raw data. The reported QC summary forms and sample raw data have been reviewed for application of validation qualifiers, with guidance from the USEPA national and regional validation documents, and in consideration for the specific requirements of the analytical methodology. The following items were reviewed:

* Data Completeness
* Case Narrative
* Custody Documentation
* Holding Times
* Surrogate, Isotopic Dilution, and Internal Standard Recoveries
* Method and Preparation Blanks
* Matrix Spike Recoveries/Duplicate Correlations
* Blind Field Duplicate Correlations
* Laboratory Control Sample (LCS)

* Instrumental Tunes
* Initial and Continuing Calibration Standards
* Serial Dilution Evaluation
* Method Compliance
* Sample Result Verification

Those items listed above which show deficiencies are discussed within the text of this narrative. All of the other items were determined to be acceptable for the DUSR level review, as discussed in NYS DER-10 Appendix B Section 2.0 (c). Documentation of the outlying parameters cited in this report can be found in the laboratory data package.

In summary, results for the samples are usable either as reported or with minor qualification, with the exception that benzaldehyde results in two samples are rejected due to laboratory processing

Data completeness, representativeness, accuracy, reproducibility, sensitivity, and comparability are acceptable.

The laboratory modifications to the USEPA method 537 are significant, including acceptance ranges, consistent in many respects to the advances in the available monitoring compounds. Validation actions are based on the laboratory procedures, in consideration that the laboratory undergoes NYS DOH certifications and NYS SOP review.

Copies of the client sample identifications are attached to this text. Also included in this report are TestAmerica EQuIS EDDs with recommended qualifiers/edits applied in red.

Blind Field Duplicate

The blind field duplicate evaluations of SS-09-0-0.2, MP-SED-16-2.0-2.5, and FC-SW-10 show correlations within validation guidelines, with the following exceptions, results for which are qualified as estimated in the indicated parent sample: copper, lead, and zinc in SS-09-0-0.2

General

The results for SED17 0.0-0.5 and MP-SED-16-1.5-2.0 are qualified as estimated due to high moisture content (87% and 75%, respectively).

TCL Volatile Analyses by EPA 8260C

The detected results for methylene chloride in the samples reported in SDG 480-135925 are considered external contamination and are edited to reflect non-detection due to presence in the associated trip blank.

The matrix spike/duplicate evaluations performed on BP-SED-18-1.5-2.0, BP-SW-18, BP-SW-19, and CL-SED-21-0-0.5 show acceptable recoveries and correlations.

Calibration standards showed acceptable responses. Holding times were met, and surrogate and internal standard recoveries are compliant.

PCNs, TCL Semivolatile Analyses and 1,4-Dioxane by EPA8270D (Full Scan and SIM)

Due to lack of recovery in the associated LCSs, the result for benzaldehyde in SS-08-0-0.2 and MP-SED17-1.5-2.0 are rejected and not usable.

The following results are qualified as estimated due to low recoveries in the associated internal standards:

- octachloronaphthalene in SS-02-0-0.2, SS-02-0.2-1.0, SS-05-0-0.2, SS-05-1-1.3, SS-06-0-0, SS-06-0.2-1.0, SS-01-0.2-1.0, SS-01-1.0-2.0, MP-SED-15-0.5-1.0, MP-SED-16-1.5-2.0, MP-SED-DUP, BP-SED-18-0-0.5, BP-SED-19-0-0.5 , CL-SED-21-3.5-4.0, CL-SED-21-0-0.5, UNST-SED-6-3.5-4.0, FC-SED-05-2.0-4.0, and FC-SED-08-3.0-4.0
- pentachloronaphthalene, hexachloronaphthalene, heptachloronaphthlene, and octachloronaphthalene in SS-01-0-0.2 and MP-SED-16-2.0-2.5

Results initially reported with the "E" laboratory flag have been derived from the dilution analyses of the samples.

The matrix spike evaluations of TCL semivolatiles were performed on SS-05-0-0.2, and matrix spikes of PCNs were performed on SS-09-1.0-2.0, BP-SW-18, and BP-SED-18-1.5-2.0. Recoveries and duplicate correlations are within validation guidelines, with the exception that tetrachloronaphthalene produced low recoveries in SS-09-1.0-2.0 and octachloronaphthalene produced low recoveries in BP-SED-18-0-0.5; the results for those compound in the respective parent samples have been qualified as estimated.

Calibration standards show responses within validation action levels, with the exception of those for pentachlorophenol (21%D) in the calibrations associated with samples SS-08-0-0.2 and MP-SED17-1.5-2.0. The results for that compound in those samples are qualified as estimated, with a low bias.

Holding times were met. Surrogate standard responses are compliant. Instrument tunes meet fragmentation requirements.

Some of the samples were diluted due to sample matrix and /or to color and appearance, and therefore are reported with elevated reporting limits. SS-01-0-0.2 was processed at a fiftyfold dilution, but exhibited no responses or interferences in the raw data.

TCL Pesticide, TCL Herbicides, and Aroclor PCBs by EPA 8081B, 8151A and 8082A

Many of the detected pesticide results exhibit elevated dual column quantitative correlations, and are qualified to reflect the uncertainty in identification and/or quantitation. The values have either been qualified as estimated ("J"), qualified as tentative in identification and estimated in value ("NJ"), or edited to non-detection ("U"), depending on the degree of variance.

The pesticide matrix spikes of SS-09-0-0.2, BP-SW-18, and BP-SED-18-0-0.5 show recoveries and duplicate correlations that are within validation guidelines, with the following exceptions, results for which have been qualified as estimated in the indicate parent sample:

Parent Sample	Analyte	Outlying % Recoveries	Outlying %RPD
SS-09-0-0.2	alpha-BHC	156,135	
	4,4'-DDT	135	
	cis-chlordane	281,171	31
	trans-chlordane	254,163	25
BP-SED-18-0-0.5	heptachlor	0,0	
	d-BHC	13,11	

Holding times were met, and blanks show no contamination. Calibration standards are compliant.

Some of the samples were diluted due to "nature of the matrix," and therefore are reported with elevated reporting limits.

TAL Metals Analyses by EPA 6010C, 7470, and 7471B

The detected results of cadmium in samples reported in SDG 480-135926 and of beryllium in CL-SED-21-3.5-4.0 and the samples reported in SDG 480-136014 are considered external contamination and edited to reflect non-detection due to presence in the associated calibration blanks.

Matrix spikes/duplicates were performed for TAL elements on MP-SW-15 SS-09-0-0.2, BP-SW-18, BP-SED-18-0-0.5, and CL-SW-21. They show recoveries and correlations within validation guidelines, with the exception of the recoveries for mercury (125% and 121%) in SS-09-0-0.2, the result for which is qualified as estimated in the that parent sample.

The ICP serial dilution evaluations of MP-SW-15, BP-SW-18, BP-SED-18-0-0.5, and CL-SW-21 show acceptable correlations, with the exception of that for copper (24%D) in BP-SED-18-0-0.5. The result for that element in that parent sample has been qualified as estimated, with a possible low bias, due to matrix interferences.

PFAS by Modified EPA Method 537

PFAS compounds are identified by their common acronyms in this report. The EDDs reference both the technical names and the acronyms.

Numerous low level detections were observed in equipment and, to a lesser degree, method blanks. The following detected results for are considered external contamination and edited to reflect non-detection due to presence in the associated blanks:

- PFBA in the samples reported in SDGs 480-136014, 480-136189, and 480-136247
- PFBA, PFTeA, PFHxS, and 6:FTS in the SS samples
- PFBA, PFHxS, and 6:FTS in the SW samples reported in SDGs 480-136136 and SDG 480-136188
- PFHxS in the SW samples reported in SDG J136247
- PFBA and PFHxS in the SW samples reported in SDGs 480-135925 and 480-136343
- PFHxS and PFOS in the SED samples
- PFBA in the sediment samples reported in SDGs 480-136135 and 480-136343

The matrix spikes of BP-SW-18, BP-SED-18-0-0.5, and UNST-SED-06-3.5-4.0 show acceptable recoveries and duplicate correlations.

6:2FTS and 8:2FTS analyses were performed at dilution in some samples due to sample matrix, and therefore are reported with elevated reporting limits.

Wet Chemistry TOC Analyses by Lloyd Kahn

Review was conducted for method compliance, holding times, transcription, calculations, standard and blank acceptability, accuracy and precision, etc., as applicable to each procedure. All were found acceptable for the validated samples, unless noted specifically within this text.

The detected results for TOC in BP-SED-18-0-0.5 and BP-SED-18-1.5-2.0 are qualified as estimated, with elevated biases, due to an outlying associated calibration standard recovery. The reprocessing was performed beyond allowable holding time.

Matrix spike recovery/duplicate correlation evaluations (MS/MSD) were performed on BP-SED-18-0-0.5 and BP-SED-19-1.0-2.0, and recovery values and duplicate correlations are within validation guidelines. UNST-SED-06-3.5-4.0 was submitted for TOC matrix spikes, but the spikes were not processed.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,

Judy Harry

Attachments: Validation Qualifier Definitions
Sample Identifications
Qualified Laboratory EQuIS EDDs

VALIDATION DATA QUALIFIER DEFINITIONS

U	The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J-	The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased low.
J+	The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased high.
UJ	The analyte was analyzed for, but was not detected. The associated reported quantitation limit is approximate and may be inaccurate or imprecise.
NJ	The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated quantitative value.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control limits. The analyte may or may not be present.
EMPC	The results do not meet all criteria for a confirmed identification. The quantitative value represents the Estimated Maximum Possible Concentration of the analyte in the sample.

Client and Laboratory Sample Identifications

Sample Summary

Client: New York State D.E.C.
Project/Site: Former TRW Union Springs #C706019A

TestAmerica Job ID: 480-135871-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-135871-1	SS-05-0-0.2	Solid	05/14/18 09:47	05/15/18 01:30
480-135871-2	SS-06-0-0.2	Solid	05/14/18 10:40	05/15/18 01:30
480-135871-3	SS-05-1-1.3	Solid	05/14/18 10:12	05/15/18 01:30
480-135871-4	SS-08-1.0-2.0	Solid	05/14/18 13:10	05/15/18 01:30
480-135871-5	SS-06-0.2-1.0	Solid	05/14/18 10:55	05/15/18 01:30
480-135871-6	SS-07-0-0.2	Solid	05/14/18 11:30	05/15/18 01:30
480-135871-7	SS-08-0-0.2	Solid	05/14/18 12:30	05/15/18 01:30
480-135871-8	SS-07-0.2-1.0	Solid	05/14/18 11:40	05/15/18 01:30
480-135871-9	SS-08-0.2-1.0	Solid	05/14/18 12:40	05/15/18 01:30
480-135871-10	SS-02-0-0.2	Solid	05/14/18 14:40	05/15/18 01:30
480-135871-11	SS-02-0.2-1.0	Solid	05/14/18 14:52	05/15/18 01:30
480-135871-12	SS-02-1.0-2.0	Solid	05/14/18 15:15	05/15/18 01:30

Sample Summary

Client: New York State D.E.C.
Project/Site: Former TRW Union Springs #C706019A

TestAmerica Job ID: 480-135925-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-135925-1	MP-SW-17	Water	05/15/18 12:20	05/16/18 01:30
480-135925-2	MP-SW-16	Water	05/15/18 13:20	05/16/18 01:30
480-135925-3	MP-SW-15	Water	05/15/18 14:00	05/16/18 01:30
480-135925-4	TB-20180515	Water	05/15/18 00:00	05/16/18 01:30

Sample Summary

Client: New York State D.E.C.
Project/Site: Former TRW Union Springs #C706019A

TestAmerica Job ID: 480-135926-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-135926-1	SS-01-0-0.2	Solid	05/14/18 16:45	05/16/18 01:30
480-135926-2	SS-01-0.2-1.0	Solid	05/14/18 17:00	05/16/18 01:30
480-135926-3	SS-01-1.0-2.0	Solid	05/14/18 17:10	05/16/18 01:30

Sample Summary

Client: New York State D.E.C.
Project/Site: Former TRW Union Springs #C706019A

TestAmerica Job ID: 480-136014-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-136014-1	SS-09-0-0.2	Solid	05/15/18 16:45	05/17/18 01:00
480-136014-2	SS-09-1.0-2.0	Solid	05/15/18 17:30	05/17/18 01:00
480-136014-3	SS-DUPE-1	Solid	05/15/18 17:15	05/17/18 01:00
480-136014-4	MP-SED17-1.5-2.0	Sediment	05/15/18 10:30	05/17/18 01:00
480-136014-5	MP-SED17-0.0-0.5	Sediment	05/15/18 10:20	05/17/18 01:00
480-136014-6	MP-SED17-1.5-2.0	Solid	05/15/18 10:30	05/17/18 01:00
480-136014-7	MP-SED17-0.0-0.5	Solid	05/15/18 10:20	05/17/18 01:00

Sample Summary

Client: New York State D.E.C.
Project/Site: Former TRW Union Springs #C706019A

TestAmerica Job ID: 480-136135-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-136135-1	MP-SED-16-1.5-2.0	Sediment	05/17/18 09:00	05/18/18 01:30
480-136135-2	MP-SED-16-1.5-2.0	Solid	05/17/18 09:00	05/18/18 01:30
480-136135-3	MP-SED-16-2.0-2.5	Sediment	05/17/18 09:20	05/18/18 01:30
480-136135-4	MP-SED-16-2.0-2.5	Solid	05/17/18 09:20	05/18/18 01:30
480-136135-5	MP-SED-DUP	Sediment	05/17/18 00:00	05/18/18 01:30
480-136135-6	MP-SED-DUP	Solid	05/17/18 00:00	05/18/18 01:30
480-136135-7	MP-SED-15-0.5-1.0	Sediment	05/16/18 16:45	05/18/18 01:30
480-136135-8	MP-SED-15-0.5-1.0	Solid	05/16/18 16:45	05/18/18 01:30

Sample Summary

Client: New York State D.E.C.
Project/Site: Former TRW Union Springs #C706019A

TestAmerica Job ID: 480-136136-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-136136-1	EB-SS-01	Water	05/17/18 12:22	05/18/18 01:30
480-136136-2	TB-20180517	Water	05/17/18 12:00	05/18/18 01:30
480-136136-3	BP-SW-18	Water	05/17/18 14:30	05/18/18 01:30

Sample Summary

Client: New York State D.E.C.
Project/Site: Former TRW Union Springs #C706019A

TestAmerica Job ID: 480-136188-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-136188-1	BP-SW-19	Water	05/17/18 17:20	05/19/18 02:00
480-136188-2	EB-SW-01	Water	05/17/18 18:15	05/19/18 02:00
480-136188-3	TB-20180518	Water	05/18/18 00:00	05/19/18 02:00

Sample Summary

Client: New York State D.E.C.
Project/Site: Former TRW Union Springs #C706019A

TestAmerica Job ID: 480-136189-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-136189-1	BP-SED-18-0-0.5	Sediment	05/18/18 10:15	05/19/18 02:00
480-136189-2	BP-SED-18-0-0.5	Solid	05/18/18 10:15	05/19/18 02:00
480-136189-3	BP-SED-18-1.5-2.0	Sediment	05/18/18 11:45	05/19/18 02:00
480-136189-4	BP-SED-18-1.5-2.0	Sediment	05/18/18 11:45	05/19/18 02:00
480-136189-5	BP-SED-18-1.5-2.0	Solid	05/18/18 11:45	05/19/18 02:00
480-136189-6	BP-SED-19-0-0.5	Sediment	05/18/18 13:20	05/19/18 02:00
480-136189-7	BP-SED-19-0-0.5	Solid	05/18/18 13:20	05/19/18 02:00
480-136189-8	BP-SED-19-1.0-2.0	Sediment	05/18/18 15:00	05/19/18 02:00
480-136189-9	BP-SED-19-1.0-2.0	Solid	05/18/18 15:00	05/19/18 02:00

Sample Summary

Client: New York State D.E.C.
Project/Site: Former TRW Union Springs #C706019A

TestAmerica Job ID: 480-136247-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-136247-1	FC-SW-08	Water	05/21/18 08:40	05/22/18 01:30
480-136247-2	UNST-SW-06	Water	05/21/18 10:20	05/22/18 01:30
480-136247-3	FC-SW-05	Water	05/21/18 10:50	05/22/18 01:30
480-136247-4	CL-SW-21	Water	05/21/18 11:35	05/22/18 01:30
480-136247-5	TB-20180521	Water	05/21/18 00:00	05/22/18 01:30
480-136247-6	CL-SED-21-0-0.5	Sediment	05/21/18 14:15	05/22/18 01:30
480-136247-7	CL-SED-21-0-0.5	Solid	05/21/18 14:15	05/22/18 01:30
480-136247-8	CL-SED-21-3.5-4.0	Sediment	05/21/18 15:00	05/22/18 01:30
480-136247-9	CL-SED-21-3.5-4.0	Solid	05/21/18 15:00	05/22/18 01:30

Sample Summary

Client: New York State D.E.C.
Project/Site: Former TRW Union Springs #C706019A

TestAmerica Job ID: 480-136343-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-136343-1	FC-SW-10	Water	05/22/18 07:45	05/23/18 01:15
480-136343-2	FC-SW-DUP-01	Water	05/22/18 08:00	05/23/18 01:15
480-136343-3	TB-20180522	Water	05/22/18 00:00	05/23/18 01:15
480-136343-4	UNST-SED-06-3.5-4.0	Sediment	05/21/18 17:30	05/23/18 01:15
480-136343-5	UNST-SED-06-3.5-4.0	Solid	05/21/18 17:30	05/23/18 01:15
480-136343-6	FC-SED-08-0.0-0.5	Sediment	05/22/18 10:20	05/23/18 01:15
480-136343-7	FC-SED-08-0.0-0.5	Solid	05/22/18 10:20	05/23/18 01:15
480-136343-8	UNST-SED-06-0.0-0.5	Sediment	05/21/18 16:45	05/23/18 01:15
480-136343-9	UNST-SED-06-0.0-0.5	Solid	05/21/18 16:45	05/23/18 01:15
480-136343-10	FC-SED-08-3.0-4.0	Sediment	05/22/18 10:45	05/23/18 01:15
480-136343-11	FC-SED-08-3.0-4.0	Solid	05/22/18 10:45	05/23/18 01:15
480-136343-12	FC-SED-05-1.0-2.0	Sediment	05/22/18 12:50	05/23/18 01:15
480-136343-13	FC-SED-05-1.0-2.0	Solid	05/22/18 12:50	05/23/18 01:15
480-136343-14	FC-SED-05-2.0-4.0	Sediment	05/22/18 13:00	05/23/18 01:15
480-136343-15	FC-SED-05-2.0-4.0	Solid	05/22/18 13:00	05/23/18 01:15
480-136343-16	EB-SW-02	Water	05/22/18 15:15	05/23/18 01:15
480-136343-17	EB-SED-01	Water	05/22/18 15:50	05/23/18 01:15

Data Validation Services

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June 13, 2019

Scott Englert
HDR
1 International Blvd Floor 1
Albany, NY 12211

RE: Validation of the NYSDEC TRW Union Springs Laboratory Analytical Data Packages
Data Usability Summary Report (DUSR)
TestAmerica SDG Nos. 480-139506, 480-139605, 480-139689, 480-139708, 480-139811, 480-139951, 480-140037, 480-140100, 480-140197, 480-142361, and 480-142762

Dear Mr. Englert:

Review has been completed for the data packages generated by TestAmerica Laboratories that pertain to samples collected between 07/24/18 and 10/02/18 at the TRW Union Springs site. Sixteen soil samples, fifteen aqueous samples, two soil field duplicates, and an aqueous field duplicate were processed for TCL volatiles, TCL semivolatiles, polychlorinated naphthalenes (PCNs), TCL Pesticides, per- and polyfluorinated biphenyls (PFAS), and TAL metals. The aqueous samples were also processed for 1,4-dioxane. Eight field samples were processed for TCL volatiles, PCNs, and TCL Pesticides; two of these were also processed for TAL metals. Two soil samples and two aqueous samples were processed for various combinations of the above-mentioned analytical fractions. Equipment blanks, field blanks, rinse blanks, and trip blanks were also processed. The analytical methodologies are those of the USEPA SW846 and a modified USEPA method 537.

The data packages submitted by the laboratory contain full deliverables for validation, but this usability report is generated from review of the QC summary form information, with full review of sample raw data and limited review of associated QC raw data. The reported QC summary forms and sample raw data have been reviewed for application of validation qualifiers, with guidance from the USEPA national and regional validation documents, and in consideration for the specific requirements of the analytical methodology. The following items were reviewed:

* Data Completeness
* Case Narrative
* Custody Documentation
* Holding Times
* Surrogate, Isotopic Dilution, and Internal Standard Recoveries
* Equipment, Rinse, Trip, and Preparation Blanks
* Matrix Spike Recoveries/Duplicate Correlations
* Blind Field Duplicate Correlations
* Laboratory Control Sample (LCS)

* Instrumental Tunes
* Initial and Continuing Calibration Standards
* Serial Dilution Evaluation
* Method Compliance
* Sample Result Verification

Those items listed above which show deficiencies are discussed within the text of this narrative. All of the other items were determined to be acceptable for the DUSR level review, as discussed in NYS DER-10 Appendix B Section 2.0 (c). Documentation of the outlying parameters cited in this report can be found in the laboratory data package.

In summary, results for the samples are usable either as reported or with minor qualification.

Data completeness, representativeness, accuracy, reproducibility, sensitivity, and comparability are acceptable.

The laboratory modifications to the USEPA method 537 are significant, including acceptance ranges, consistent in many respects to the advances in the available monitoring compounds. Validation actions are based on the laboratory procedures, in consideration that the laboratory undergoes NYS DOH certifications and NYS SOP review.

Copies of the client sample identifications are attached to this text. Also included in this report are TestAmerica EQuIS EDDs with recommended qualifiers/edits applied in red.

Chain -of-Custody/Sample Receipt

Due to elevated temperature at subcontract laboratory sample receipt, the results for the chlorinated naphthalenes in the samples reported in SDGs 480-140037, 480-140100, and 480-140197 are qualified as estimated, with a low bias.

SS-10-1.0-2.0 was received by the laboratory, but not entered onto the custody form. The requested analyses were determined by the containers submitted for processing.

The custody form associated with samples reported in SDG 480-139708 does not include the final relinquish entry. The custody form for the subcontract of the PCN data does not include relinquish letters.

General

The rinse blank associated with the soil samples does not appear to be purified water, and for that reason is not used to determined the potential for external contamination in the associated samples. That blank contained low level chlorinated and brominated compounds associated with water treatment plants, and high concentrations of metals typical of groundwater samples. There were also low level concentrations of pesticides and PFAS.. Many of the detected compounds in the rinse blank were not detected in associated samples, and could therefore not have been representative of contamination from those samples.

Blind Field Duplicate

The blind field duplicate evaluations of MW-05D-12-18, SS-11-0.0-1.0, and MW-3D show correlations within validation guidelines, with the following exceptions, results for which are qualified as estimated in the indicated parent sample and its duplicate: aluminum, barium, chromium, cobalt, copper, iron, lead, nickel, potassium, vanadium, and zinc in MW-05D-12-18. These correlations are atypically poor.

TCL Volatile Analyses by EPA 8260C

The following detected results are considered external contamination and are edited to reflect non-detection due to presence in the associated blanks:

- Acetone in all samples
- Methylene chloride in the samples reported in SDG 480-140037
- Chloroform in MW-5S

The holding time for preparation of the following samples was exceeded due to delay in submission of the samples to the laboratory. The results of these samples have been qualified as estimated, with a possible low bias: MW-05-D1, MW-05D-24-28, MW-05D-12-18, MW-04S-6-10, SS-10-0.0-1.0, and SS-10-1.0-2.0.

The matrix spike/duplicate evaluations performed on MW-06D-6-10, SS-11-0.0-1.0, and MW-10D show recoveries and correlations within validation guidelines, with the following exceptions, results for which are qualified as estimated in the indicated parent sample:

- 1,1,1-trichloroethane, 1,2,4-trichlorobenzene, 1,2-dibromo-3-chloropropane, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, carbon tetrachloride, and styrene in MW-06D-6-10
- 1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, and ethylbenzene in SS-11-0.0-1.0

Calibration standards showed acceptable responses, with the following exceptions, results for which are qualified as estimated in the indicated samples: dichlorodifluoromethane, chloromethane, vinyl chloride, and bromomethane in the samples reported in 480-139811.

Surrogate and internal standard recoveries are compliant.

PCNs, TCL Semivolatile, and 1,4-Dioxane Analyses by EPA8270D (Full Scan and SIM)

Due to low recovery of the associated internal standard, the results for octachloronaphthalene in MW-06D-6-10, SS-10-0.0-1.0, SS-11-0.0-1.0, SS-11-0.1-2.0 are qualified as estimated.

The matrix spike/duplicate evaluations performed for PCN and TCL SVOAs on MW-06D-6-10, SS-11-0.0-1.0, and MW-10D, and for 1,4-dioxane in MW-10D, show recoveries and correlations within validation guidelines

Calibration standards show responses within validation action levels, with the exception of those for pentachlorophenol (48%D) in the calibrations associated with equipment, rinse, and field blanks associated with the soil samples. The results for that compound in those blanks are qualified as estimated, with a low bias.

Holding times were met. Surrogate standard responses are compliant. Instrument tunes meet fragmentation requirements. Blanks show no contamination also affecting sample reported results.

The soil blanks contained numerous Tentatively Identified Compounds (TICs), most of which were also detected in the associated samples, in articular because they are generally extraction artifacts (including the extraction solvent methylene chloride, as well as other breakdown chlorinated volatile solvents, none of which should have been reported as TICs). Those TICs are often the highest concentration TICs reported in the samples. Unfortunately, this laboratory does not flag the sample TICs that are also detected in associated method blank as "B", they are not uniquely identified on the EDDs, and the retention times are not noted on the EDDs. This makes correlation during validation difficult. Nonetheless, during the validation review process most of the reported TICs in the samples that can be considered external contamination (due to presence in the associated blank) have been removed from consideration as sample components. There may be other TICs that are contamination, but not readily obvious due to the limitations of the laboratory reporting, still remaining in the sample reported results.

TCL Pesticides by EPA 8081B

Many of the detected pesticide results exhibit elevated dual column quantitative correlations, and are qualified to reflect the uncertainty in identification and/or quantitation. The values have either been qualified as estimated ("J"), qualified as tentative in identification and estimated in value ("NJ"), or edited to non-detection ("U"), depending on the degree of variance.

The following detected results are considered external contamination and are edited to reflect non-detection due to presence in the associated blanks:

- a-BHC and d-BHC in M-6D-6-10 and the samples reported in 480-140037 and 480-140100
- d-BHC in MW-06D-20-22
- t-Chlordane in the samples reported in 480-140037

The pesticide matrix spikes of MW-06D-6-10, SS-03-1.0-2.0, SS-11-0.0-1.0, and MW-10D show recoveries and duplicate correlations that are within validation guidelines.

Holding times were met, and calibration standards are compliant.

TAL Metals Analyses by EPA 6010C, 7470, and 7471B

Matrix spikes/duplicates were performed for TAL elements on MW-06D-6-10, SS-11-0.0-1.0, MW-8D, and MW-10D. They show recoveries and correlations within validation guidelines, with the following exceptions, the results for which are qualified as estimated in the indicated parent samples:

- Antimony, barium, potassium, zinc, calcium, magnesium, and iron in MW-06D-6-10
- Antimony, barium, aluminum, calcium, magnesium, and potassium in SS-11-0.0-1.0

The ICP serial dilution evaluations of MW-06D-6-10, MW-8D, and MW-10D show acceptable correlations, with the exception of those for chromium, iron, manganese, vanadium, and zinc. The results for those elements in that parent sample has been qualified as estimated, with a possible low bias, due to matrix interferences.

Blanks show no contamination affecting sample reported results. Instrument performance is compliant.

PFAS by Modified EPA Method 537

PFAS compounds are identified by their common acronyms in this report. The EDDs reference both the technical names and the acronyms.

The following detected results are considered external contamination and are edited to reflect non-detection due to presence in the associated blanks:

- PFHxA in samples reported in 480-140037 and 480-140100
- PFHxS in aqueous field samples
- Any detections of PFBA, PFHxS, and PFTeA in soil samples

The detection of PFDA in SS-04-0.0-1.0 is qualified as tentative identification and estimated in value due to responses outside the ion ratio range.

The matrix spikes of MW-06D-6-10, SS-11-0.0-1.0, and MW-10D show recoveries and duplicate correlations within validation guidelines.

Although samples reported in 480-142762 were reextracted beyond holding time due to failure of 6:2-FTS in the initial LCS, the initial results for that analyte were not affected and can be used without qualification.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,

Judy Harry

Attachments: Validation Qualifier Definitions
Sample Identifications
Qualified Laboratory EQuIS EDDs

VALIDATION DATA QUALIFIER DEFINITIONS

U	The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J-	The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased low.
J+	The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased high.
UJ	The analyte was analyzed for, but was not detected. The associated reported quantitation limit is approximate and may be inaccurate or imprecise.
NJ	The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated quantitative value.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control limits. The analyte may or may not be present.
EMPC	The results do not meet all criteria for a confirmed identification. The quantitative value represents the Estimated Maximum Possible Concentration of the analyte in the sample.

Client and Laboratory Sample IDs

Sample Summary

Client: HDR Inc
Project/Site: NYSDEC - WA#41 TRW Union Springs, NY

TestAmerica Job ID: 480-139506-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-139506-1	MW-07D-7-10	Solid	07/24/18 11:00	07/26/18 01:00
480-139506-2	MW-07D-17-20	Solid	07/24/18 12:00	07/26/18 01:00

Sample Summary

Client: HDR Inc
Project/Site: NYSDEC - WA#41 TRW Union Springs, NY

TestAmerica Job ID: 480-139605-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-139605-1	MW-08D-7-10	Solid	07/25/18 16:00	07/27/18 01:30
480-139605-2	MW-08D-20-24	Solid	07/25/18 17:00	07/27/18 01:30

Sample Summary

Client: HDR Inc
Project/Site: NYSDEC - WA#41 TRW Union Springs, NY

TestAmerica Job ID: 480-139689-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-139689-1	MW-10D-6-12	Solid	07/26/18 15:00	07/28/18 09:50
480-139689-2	MW-10D-20-26	Solid	07/26/18 16:00	07/28/18 09:50
480-139689-3	MW-9D-6-10	Solid	07/27/18 14:00	07/28/18 09:50

Sample Summary

Client: HDR Inc
Project/Site: NYSDEC - WA#41 TRW Union Springs, NY

TestAmerica Job ID: 480-139708-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-139708-1	MW-09D-24-28	Solid	07/30/18 11:00	07/31/18 02:15

Sample Summary

Client: HDR Inc
Project/Site: NYSDEC - WA#41 TRW Union Springs, NY

TestAmerica Job ID: 480-139811-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-139811-1	MW-06D-6-10	Solid	07/31/18 14:30	08/02/18 01:00
480-139811-2	MW-06D-20-22	Solid	07/31/18 15:30	08/02/18 01:00

Sample Summary

Client: HDR Inc
Project/Site: NYSDEC - WA#41 TRW Union Springs, NY

TestAmerica Job ID: 480-139951-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-139951-1	MW-01-8-12	Solid	08/03/18 10:00	08/04/18 01:00
480-139951-2	MW-05D-24-28	Solid	08/01/18 15:30	08/04/18 01:00
480-139951-3	MW-05-D1	Solid	08/01/18 16:00	08/04/18 01:00
480-139951-4	MW-05D-12-18	Solid	08/01/18 14:00	08/04/18 01:00
480-139951-5	SS-03-1.0-2.0	Solid	08/02/18 15:40	08/04/18 01:00
480-139951-6	SS-03-0.0-1.0	Solid	08/02/18 15:30	08/04/18 01:00
480-139951-7	SS-04-0.0-1.0	Solid	08/03/18 08:00	08/04/18 01:00
480-139951-8	SS-04-1.0-2.0	Solid	08/03/18 08:10	08/04/18 01:00
480-139951-9	MW-02-5-8	Solid	08/02/18 15:00	08/04/18 01:00

Sample Summary

Client: HDR Inc
Project/Site: NYSDEC - WA#41 TRW Union Springs, NY

TestAmerica Job ID: 480-140037-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-140037-1	MW-04S-6-10	Solid	08/06/18 13:00	08/08/18 01:00
480-140037-2	SS-10-0.0-1.0	Solid	08/07/18 09:30	08/08/18 01:00
480-140037-3	SS-10-1.0-2.0	Solid	08/07/18 09:40	08/08/18 01:00
480-140037-4	MW-03D-6-10	Solid	08/07/18 10:00	08/08/18 01:00
480-140037-5	MW-03D-22-24	Solid	08/07/18 11:00	08/08/18 01:00

Sample Summary

Client: HDR Inc
Project/Site: NYSDEC - WA#41 TRW Union Springs, NY

TestAmerica Job ID: 480-140100-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-140100-1	SS-11-0.0-1.0	Solid	08/07/18 16:00	08/09/18 01:00
480-140100-2	SS-11-0.1-2.0	Solid	08/07/18 16:30	08/09/18 01:00
480-140100-3	SS-12D	Solid	08/07/18 17:00	08/09/18 01:00

Sample Summary

Client: HDR Inc
Project/Site: NYSDEC - WA#41 TRW Union Springs, NY

TestAmerica Job ID: 480-140197-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-140197-1	FB-080818	Water	08/08/18 11:00	08/10/18 01:00
480-140197-2	RTB-080818	Water	08/08/18 14:00	08/10/18 01:00
480-140197-3	EB-080818	Water	08/08/18 14:30	08/10/18 01:00
480-140197-4	TB-080818	Water	08/08/18 00:00	08/10/18 01:00

Sample Summary

Client: New York State D.E.C.
Project/Site: Former TRW Union Springs #C706019A

TestAmerica Job ID: 480-142361-1
SDG: 142361

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-142361-1	TB-20180925	Water	09/25/18 00:00	09/26/18 01:00
480-142361-2	MW-6D-20180924	Water	09/24/18 16:00	09/26/18 01:00
480-142361-3	MW-10S-20180925	Water	09/25/18 13:00	09/26/18 01:00
480-142361-4	MW-10D-20180925	Water	09/25/18 09:55	09/26/18 01:00
480-142361-5	MW-9S-20180925	Water	09/25/18 15:20	09/26/18 01:00
480-142361-6	MW-9D-20180925	Water	09/25/18 15:10	09/26/18 01:00
480-142541-1	TB-20180927	Water	09/27/18 00:00	09/28/18 01:30
480-142541-2	MW-8S-20180926	Water	09/26/18 11:25	09/28/18 01:30
480-142541-3	MW-8D-20180926	Water	09/26/18 12:10	09/28/18 01:30
480-142541-4	MW-7S-20180927	Water	09/27/18 09:35	09/28/18 01:30
480-142541-5	MW-7D-20180927	Water	09/27/18 10:15	09/28/18 01:30
480-142541-6	MW-6S-20180927	Water	09/27/18 12:00	09/28/18 01:30
480-142541-7	MW-2S-20180927	Water	09/27/18 15:20	09/28/18 01:30
480-142541-8	MW-1S-20180927	Water	09/27/18 15:35	09/28/18 01:30
480-142587-1	TB-20180928	Water	09/28/18 00:00	09/29/18 01:15
480-142587-2	EB-GW-20180928	Water	09/28/18 09:00	09/29/18 01:15
480-142587-3	EB-WLM-20180928	Water	09/28/18 09:00	09/29/18 01:15
480-142587-4	MW-D-20180928	Water	09/28/18 10:00	09/29/18 01:15
480-142587-5	MW-3D-20180928	Water	09/28/18 11:55	09/29/18 01:15
480-142587-6	MW-300-20180928	Water	09/28/18 12:55	09/29/18 01:15
480-142670-1	TB-20181001	Water	10/01/18 00:00	10/02/18 01:00
480-142670-2	MW-5D-20181001	Water	10/01/18 13:05	10/02/18 01:00
480-142670-3	MW-5S-20181001	Water	10/01/18 13:10	10/02/18 01:00

Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
480-142762-1	TB-20181002	Water	10/02/18 00:00	10/03/18 01:20
480-142762-2	FB-GW-20181002	Water	10/02/18 08:00	10/03/18 01:20
480-142762-3	MW-4S-20181002	Water	10/02/18 10:10	10/03/18 01:20

Data Validation Services
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North Creek, NY 12853
Phone (518) 251-4429
harry@frontiernet.net

January 27, 2020

Scott Englert
HDR
16 Corporate Woods Blvd
Latham, NY 12211

RE: Validation of the Former Union Springs TRW Off-Site RI Analytical Data
Eurofins TAL-Buffalo SDG No. 480-163362-1

Dear Mr. Englert:

Review has been completed for the data package generated by Eurofins TestAmerica Laboratories that pertains to aqueous samples collected 11/25/19 and 11/26/19 at Former Union Springs TRW Off-Site RI site. Seven samples, an equipment blank, and a trip blank were analyzed for volatiles by USEPA SW846 method 8260C.

The data packages submitted by the laboratory contain full deliverables for validation, and this usability report is generated from review of the QC summary form information, with full review of sample raw data and limited review of associated QC raw data. The reported QC summary forms and sample raw data have been reviewed for application of validation qualifiers, with guidance from the USEPA national and regional validation documents, and in consideration for the specific requirements of the analytical methodology. The following items were reviewed:

* Data Completeness
* Case Narrative
* Custody Documentation
* Holding Times
* Surrogate Standard Recoveries
* Matrix Spike Evaluations
* Blank Contamination
* Laboratory Control Samples (LCSs)
* Calibration Standard Responses
* Internal Standard Responses
* Method Compliance
* Sample Results Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, and as applicable for the methodology. Unless noted specifically in the following text, reported results of validated sample analytes are substantiated by the raw data, and generated in compliance with project requirements.

In summary, samples were processed in compliance with stated protocols. Sample results are usable either as reported or with minor qualification as estimated.

The sample identifications are attached to this text. Also included is the laboratory EDD, edited with the validation qualifiers applied in red.

Chain-of-Custody/Sample Receipt

The custody form does not include the notations that denote the required analyses.

VOA Analyses by EPA 8260C

Results for analytes initially reported with the "E" flag are derived from the dilution analyses of the samples, thus reflecting responses within the linear range of the instrument.

Matrix spikes (MSs) of MW-06S-20191125 show recoveries and correlations that are within validation guidelines. The report form for that sample in the data package erroneously shows laboratory flags that denote outliers.

Surrogate and internal standard responses are within required range, and holding times were met. Blanks show no contamination.

LCS recoveries show compliant recoveries, with the exception of that for dichlorodifluoromethane (82%) in the LCS associated with MW-10D-20191125. The result for that compound in that sample is therefore qualified as estimated in value.

Calibration standards show acceptable responses, with the following exceptions, the result for which are qualified as estimated in associated sample MW-10D-20191125: vinyl chloride and bromomethane (22%D and 21%D).

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,

Judy Harry

Judy Harry

Att: Sample Identifications
Qualified Laboratory EDD

VALIDATION DATA QUALIFIER DEFINITIONS

U	The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J-	The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased low.
J+	The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased high.
UJ	The analyte was analyzed for, but was not detected. The associated reported quantitation limit is approximate and may be inaccurate or imprecise.
NJ	The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated quantitative value.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control limits. The analyte may or may not be present.
EMPC	The results do not meet all criteria for a confirmed identification. The quantitative value represents the Estimated Maximum Possible Concentration of the analyte in the sample.

Sample Summaries

Sample Summary

Client: New York State D.E.C. Job ID: 480-163362-1
Project/Site: Former TRW Union Springs #C706019A

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-163362-1	MW-06S-20191125	Water	11/25/19 12:45	11/27/19 06:45	
480-163362-2	MW-07S-20191125	Water	11/25/19 14:20	11/27/19 06:45	
480-163362-3	MW-08S-20191125	Water	11/25/19 14:50	11/27/19 06:45	
480-163362-4	MW-10D-20191125	Water	11/25/19 16:35	11/27/19 06:45	
480-163362-5	MW-99-20191126	Water	11/26/19 10:45	11/27/19 06:45	
480-163362-6	MW-09S-20191126	Water	11/26/19 09:50	11/27/19 06:45	
480-163362-7	MW-10S-20191126	Water	11/26/19 11:15	11/27/19 06:45	
480-163362-8	EB-20191126	Water	11/26/19 10:10	11/27/19 06:45	
480-163362-9	TRIP BLANK	Water	11/26/19 00:00	11/27/19 06:45	

Appendix E

Off-Site RI Data Packages (Provided on CD)

Appendix F

FWRIA & Supporting Documentation

Appendix F

Resource Identification

A topographic map showing habitats supporting rare, threatened, and endangered species, New York State regulated wetlands, National Wetland Inventory wetlands, and waterways, including New York State Department of Environmental Conservation (NYSDEC) classified waters, at or near the site and off-site Operable Units (OUs) is provided in **Figure 1.**

A general cover type map showing 2016 National Land Cover Database land cover types (i.e. open water, deciduous/mixed forest, wetlands, scrub/shrub; hay/pasture) and New York Natural Heritage Program (NHP) rare species and ecological communities at or near the site and off-site OUs is provided in **Figure 2**.

Aquatic and semi-aquatic fish and wildlife are expected to be associated with these aquatic areas in the vicinity of the site:

- NYSDEC classified watercourses, including the former canal
- Cayuga Lake, located west of the off-site OUs
- Mill Pond, located within OU1
- NYS Freshwater Wetland US-1 (NYSDEC Wetland Classification II), located north of the site and found in portions of OU1 and OU3

Potential terrestrial wildlife habitats in the vicinity of the site include:

- Open grassy field (OU4 Northern Area and OU4 Park Area)
- Forest and riparian areas (northern portion of OU3 and OU4 Northern Area)
- Berm and shoreline area of Mill Pond (OU1)

Resource Description

Cover Types

Land cover types within a quarter mile of the site include impermeable surface created by asphalt in parking lots and roadways, and buildings or man-made structures (**Figure 2**). Open fields (i.e. scrub/shrub and hay/pasture), deciduous/mixed forest, wetlands, and open water are also present in the vicinity of the site and off-site OUs (**Figure 2**).

The land cover types and general site characteristics of the off-site OUs are as described below (**Figure 2**):

i. OU1 is primarily open water surrounded by a shoreline and berm comprised of open, grassy and scrub/shrub areas and outer edges of deciduous/mixed forest;

ii. OU2 consists primarily of open, grassy field with weed covered margins and a drainage ditch along the western boundary;

iii. OU3 is primarily asphalt near the Union Springs WWTP, while the northern portion of the site consists of open water in the former canal and riparian and wetland areas; and

iv. OU4 (Northern Area) consists of open water and wetland areas with an adjacent strip of wooded and open, grassy field; OU4 (Eastern Area) consists of residential buildings and associated maintained/mowed lawns; and OU4 (Park Area) is primarily open, grassy fields.

Watercourses and Wetlands

Within a quarter mile of the site, there are two watercourses with a NYSDEC classification of C and one watercourse (i.e. the confluence of the former canal with Cayuga Lake) with a NYSDEC classification of A(T)[1] (**Figure 1**). Cayuga Lake is an adjacent waterbody that is primarily classified as being suitable for use as a drinking water supply (Class AA(T), A(T), or A); however, a small portion of the lake at the northern/outlet end is Class B(T) (NYSDEC 2020).

Commented [MK1]: Source: https://www.dec.ny.gov/lands/88250.html Accessed Feb 28, 2020

NYSDEC Freshwater wetland US-1 (NYSDEC Wetland Classification II) is located within a quarter mile of the site (**Figure 1**). NWI-mapped wetlands are also present within a quarter mile of the site, including two freshwater emergent wetlands (**Figure 1)**.

Typical Fish and Wildlife Resources Expected

Aquatic and terrestrial habitats within a quarter mile of the site and off-site OUs have the potential to provide habitat for fish and wildlife resources, including aquatic and terrestrial invertebrates, terrestrial and aquatic plants communities, small and large mammals (i.e. deer), resident and migratory bird populations, fish. amphibians, and reptiles. Based on observations made during a field visit associated with the Off-Site Remedial Investigation (RI) and conducted on August 1, 2018, a list of documented or potentially occurring aquatic and semi-aquatic fish and wildlife resources and terrestrial wildlife resources is provided in **Table 1**.

[1] According to the NYSDEC, waterbodies with a "T" classification support trout populations.

Table 1. Species Observed in the Vicinity of the Off-Site OUs on August 1, 2018 during Off-Site RI Field Activities

Common Name	Scientific Name	NYSDEC Freshwater Wetland US-1	Mowed Lawn Area Near NYSDEC Freshwater Wetland US-1	Mill Pond	Mill Pond Dam	Mill Pond Outlet Channel	Cayuga Lake/Shoreline	Former Canal
Birds								
American Robin	*Turdus migratorius*		X					
Common Blackbird	*Turdus merula*		X					
Common Starling	*Sturnus vulgaris*		X					
Duck spp.	Anatidae						X	
Great Blue Heron	*Ardea herodias*			X				
Osprey	*Pandion haliaetus*			X				
Pigeon	*Columba livia domestica*		X					
Ring-billed Gull	*Larus delawarensis*	X						
Mammals								
North American beaver	*Caston canadensis*	X						
North American river otter	*Lontra canadensis*	X						
Plants								
apple spp.	*Malus* spp.					X		
basswood	*Tilia americana*	X						
Black locust	*Robinia pseudoacacia*				X			
black walnut	*Juglans nigra*	X				X		
black willow	*Salix nigra*	X					X	X

Common Name	Scientific Name	NYSDEC Freshwater Wetland US-1	Mowed Lawn Area Near NYSDEC Freshwater Wetland US-1	Mill Pond	Mill Pond Dam	Mill Pond Outlet Channel	Cayuga Lake/Shoreline	Former Canal
box elder	*Acer negundo*					X	X	X
cattail spp.	*Typha* spp.	X						
cottonwood	*Populus* spp.		X		X		X	X
fringed loosestrife	*Lysimachia ciliata*	X						
green ash	*Fraxinus pennsylvanica*	X						
hedge bindweed	*Calystegia sepium*							X
jewelweed	*Impatiens capensis*	X						
northern catalpa	*Catalpa speciosa*				X	X		
pale swallow-wort	*Vincetoxicum rossicum*					X		
purple loosestrife	*Lythrum salicaria*	X						
red maple	*Acer rubrum*						X	X
red oak	*Quercus rubra*					X		
reed canary grass	*Phalaris arundinacea*	X						
silver maple	*Acer saccharinum*	X					X	X
spotted joe pye weed	*Eutrochium maculatum*	X						
sugar maple	*Acer saccharum*					X		
sumac spp.	*Rhus* spp.				X			
swamp milkweed	*Asclepias incarnata*	X						
virginia creeper	*Parthenocissus quinquefolia*				X			X

Common Name	Scientific Name	NYSDEC Freshwater Wetland US-1	Mowed Lawn Area Near NYSDEC Freshwater Wetland US-1	Mill Pond	Mill Pond Dam	Mill Pond Outlet Channel	Cayuga Lake/Shoreline	Former Canal
white ash	*Fraxinus americana*				X			
agrimony spp.	*Agromonia* spp.	X						

Aquatic Areas

The NYSDEC classified watercourses and the shallow, open water found in the former canal provide habitat for resident and migratory birds, aquatic invertebrates, amphibians, reptiles, and potentially wading water birds and populations of small fish species (Draft ERM 2018). Submerged aquatic vegetation (SAV) was observed along the former canal during field activities conducted on August 1, 2018.

Cayuga Lake, located west of the site and off-site OUs, provides habitat for resident and migratory wading birds, waterfowl, fish, aquatic invertebrates, reptiles, and amphibians (Draft ERM 2018). Various duck species (Anatidae) and SAV was observed along the shoreline and/or in Cayuga Lake during field activities conducted on August 1, 2018 (**Table 1**).

Mill Pond, which is a spring-fed, man-made pond located east of the Site and within OU1, provides similar habitat as the NYSDEC classified watercourses and is expected to support similar fish and wildlife resources (i.e. resident and migratory wading water birds and waterfowl, fish, invertebrates, reptiles, and amphibians) (Draft ERM 2018). Species observed on Mill Pond during field activities conducted on August 1, 2018 included Great Blue Heron (*Ardea herodias*) and Osprey (*Pandion haliaetus*) (**Table 1**).

NYSDEC Freshwater Wetland US-1 (NYSDEC Wetland Classification II) occurs northwest of the site and is found in portions of OU3 and OU4 (Northern Area). Based on previous inventory associated with on-site and limited off-site investigations, the wetland generally consists of an emergent scrub/shrub wetland dominated by green ash (*Fraxinus pennsylvanica*), silky dogwood (*Cornus amomum*), arrowwood (*Viburnum dentatum*), and jewelweed (*Impatiens capensis*); portions of the wetland occur as fringe and floodplain wetlands associated with the adjacent watercourse (Draft ERM 2018). Observations made at the NYSDEC Freshwater Wetland US-1 during field activities conducted on August 1, 2018 included one bird species (Ring-billed Gull [*Larus delawarensis*]), two mammalian species (North American river otter [*Lontra canadensis*] and North American beaver [*Caston canadensis*]), eleven plant species (black willow [*Salix nigra*], silver maple [*Acer saccharinum*], black walnut [*Juglans nigra*], basswood [*Tilia americana*], jewelweed, reed canary grass [*Phalaris arundinacea*], green ash, purple loosestrife [*Lythrum salicaria*], spotted joe pye weed [*Eutrochium maculatum*], swamp milkweed [*Asclepias incarnata*], and fringed loosestrife [*Lysimachia ciliata*]), and two genus of plants (cattail [*Typha* spp.] and yellow agrimony [*Agromonia* spp.]) (**Table 1**).

Terrestrial Areas

Open, grassy fields are located within a quarter mile of the site and off-site OUs. These areas consist of maintained/mowed grass often associated with residential properties and contain isolated trees, but are absent of any understory or brush (Draft ERM 2018). These habitats have the potential to be used by terrestrial invertebrates, plants, and transient, small and large mammals or birds; however, they do not contain suitable habitat for foraging, breeding, or cover (Draft ERM 2018). Observations made in the mowed lawn area located near NYSDEC Freshwater Wetland US-1 on August 1, 2018 included four bird species (Domestic Pigeon [*Columba livia domestica*], American Robin [*Turdus migratorius*], Common Starling [*Sturnus* *vulgaris*], and Common Blackbird [*Turdus merula*]) and one plant genus (cottonwood [*Populus* spp.]) (**Table 1**).

Deciduous/mixed forested areas and riparian areas located along the former canal, the northern area of OU4, and the outer edges of OU1, provide habitat for terrestrial invertebrates, plants, small and large mammals, resident and migratory songbirds, amphibians, reptiles, and possible marshbirds (in the riparian areas) (Draft ERM 2018). Eight plant species were observed along the former canal during field activities conducted on August 1, 2018, including cottonwood, red maple (*Acer rubrum*), box elder (*Acer negundo*), black willow, silver maple, hedge bindweed (*Calystegia sepium*), Virginia creeper (*Parthenocissus quinquefolia*), and SAV (**Table 1**).

The berm and shoreline area of Mill Pond represents a transition zone between aquatic and terrestrial habitats, providing habitat for terrestrial invertebrates, plants, small and large mammals, resident and migratory songbirds, amphibians and reptiles, and possible marshbirds (Draft ERM 2018). Species observed at the Mill Pond dam and along the Mill Pond outlet channel during field activities conducted on August 1, 2018 included cottonwood, sumac (*Rhus* spp.), black locust (*Robinia pseudoacacia*), white ash (*Fraxinus americana*), Virginia creeper, northern catalpa (*Catalpa speciosa*), box elder, black walnut, red oak (*Quercus rubra*), apple (*Malus* spp.), pale swallow-wort (*Vincetoxicum rossicum*), and sugar maple (*Acer saccharum*) (**Table 1**).

Rare Species and Communities

Threatened, endangered, and species of special concern and significant habitats were identified by utilizing various state and federal resources including New York State Environmental Resource Mapper; New York State Natural Heritage Program (NHP) Data; New York Nature Explorer (User Defined Study Area); and the US Fish and Wildlife (USFWS) Information for Planning and Consultation (IPaC) database.

The IPaC identified the potential presence of the federally-threatened northern long-eared bat (*Myotis septentrionalis*) in the vicinity of the site. Also identified were seven species of migratory birds that could potentially be present. Among these migratory birds, suitable habitat exists at or within 0.5 mile from the site for Bald Eagle (*Haliaeetus leucocephalus*), Bobolink (*Dolichonyx oryzivorus*), Golden Eagle (*Aquila chrysaetos*), Semipalmated Sandpiper (*Calidris pusilla*), and Wood Thrush (*Hylocichla mustelina*); each of these species is designated as a Species of Greatest Conservation Need (SGCN) in New York (NYSDEC 2015).

Commented [MK2]: Source: https://www.dec.ny.gov/animals/9406.html

The New York Environmental Mapper was also reviewed to investigate the potential presence of NYSDEC-regulated resources; that review showed no recently confirmed significant natural communities or rare plants in the vicinity of the site; however, recently confirmed rare animals were identified, including the state-threatened lake sturgeon (*Acipenser fulvescens*) and a rare animal assemblage in Cayuga Lake (Waterfowl Winter Concentration Area) (NYSDEC 2020). Historically confirmed species include blackchin shiner (Notropis heterodon) in the Cayuga Lake watershed in 1929, which is currently listed as a SGCN in New York, and handsome sedge (*Carex formosa*) in 1868 (NYSDEC 2020; NYSDEC 2015).

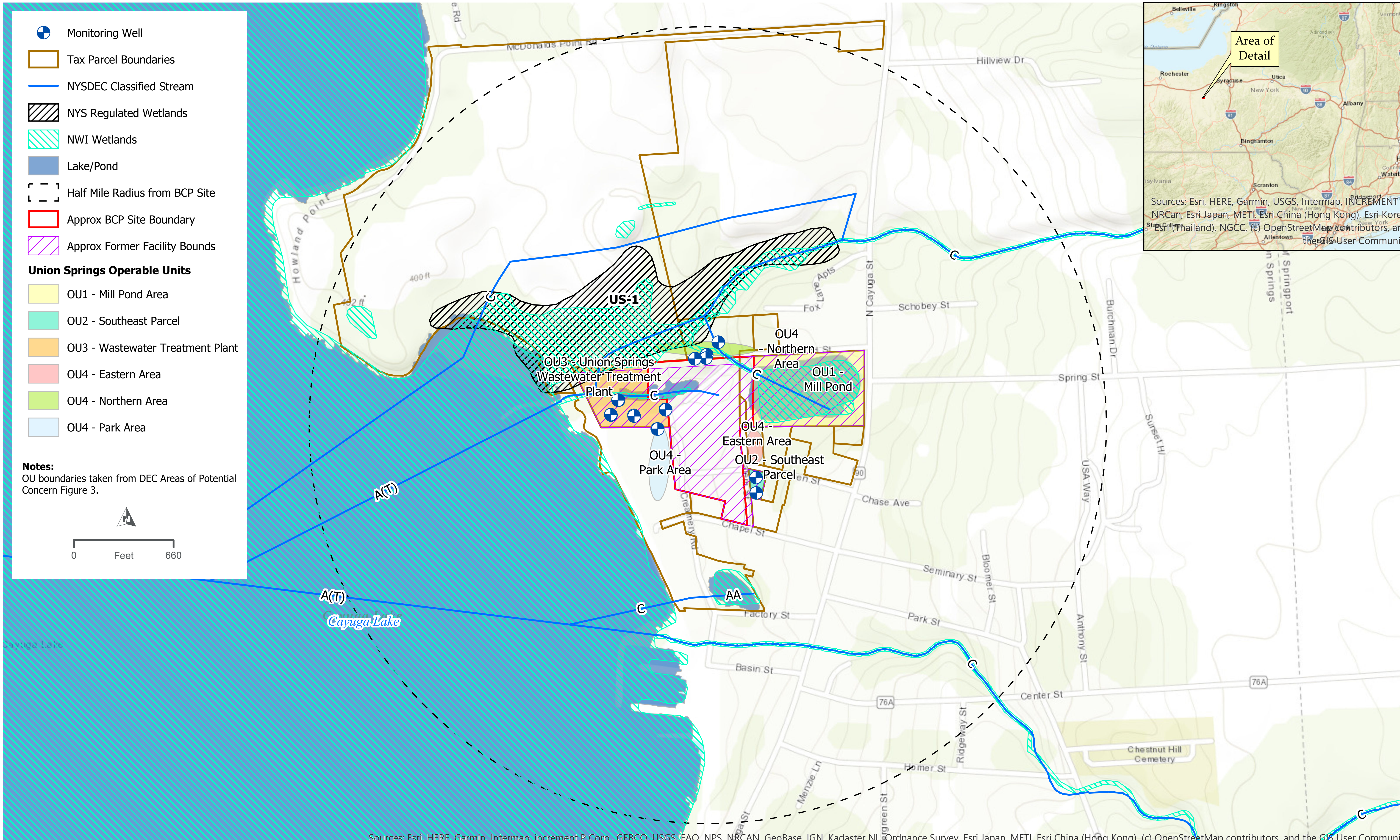
Qualitative Assessment

During field activities associated with the Off-Site RI, there were no areas of environmental stress observed, including leachate, stained soil, or other seeps, exposed waste, absence of biota, or dying vegetation.

No consumption advisories for fish are in effect within a quarter mile of the site, including Cayuga Lake in the vicinity of the site and off-site OUs.

Habitats associated with the northern portion of OU3 and with OU4 are considered of greater ecological significance because they provide foraging, cover, or nesting opportunities for fish and wildlife resources, including terrestrial invertebrates, terrestrial and aquatic plants communities, small and large mammals, resident and migratory bird populations, amphibians, and reptiles. The typical aquatic and semi-aquatic fish and wildlife resources and terrestrial wildlife species identified above would be expected in the OU3 and OU4 habitats because they are more remote and less developed than the remaining OU sites, which contain less natural land coverage and potential habitat to support diverse fish and wildlife resources.

Aside from fishing near the confluence of the unnamed tributary in the former canal with Cayuga Lake and general recreation in the open, grassy fields associated with OU4 Park Area, there is little current or potential use for hunting, fishing, wildlife observation, scientific research, and recreation within a 0.5 mile radius of the site and off-site OUs because much of the land is privately-owned thereby prohibiting public access. Additionally, natural habitat available to fish and wildlife resources in the area surrounding the site and off-site OUs is limited. The majority of the area is developed and characteristic of a commercial/residential setting that includes buildings, asphalt, and maintained/mowed lawns; absent a suitable habitat, this area is not expected to support the recreational activities mentioned above.



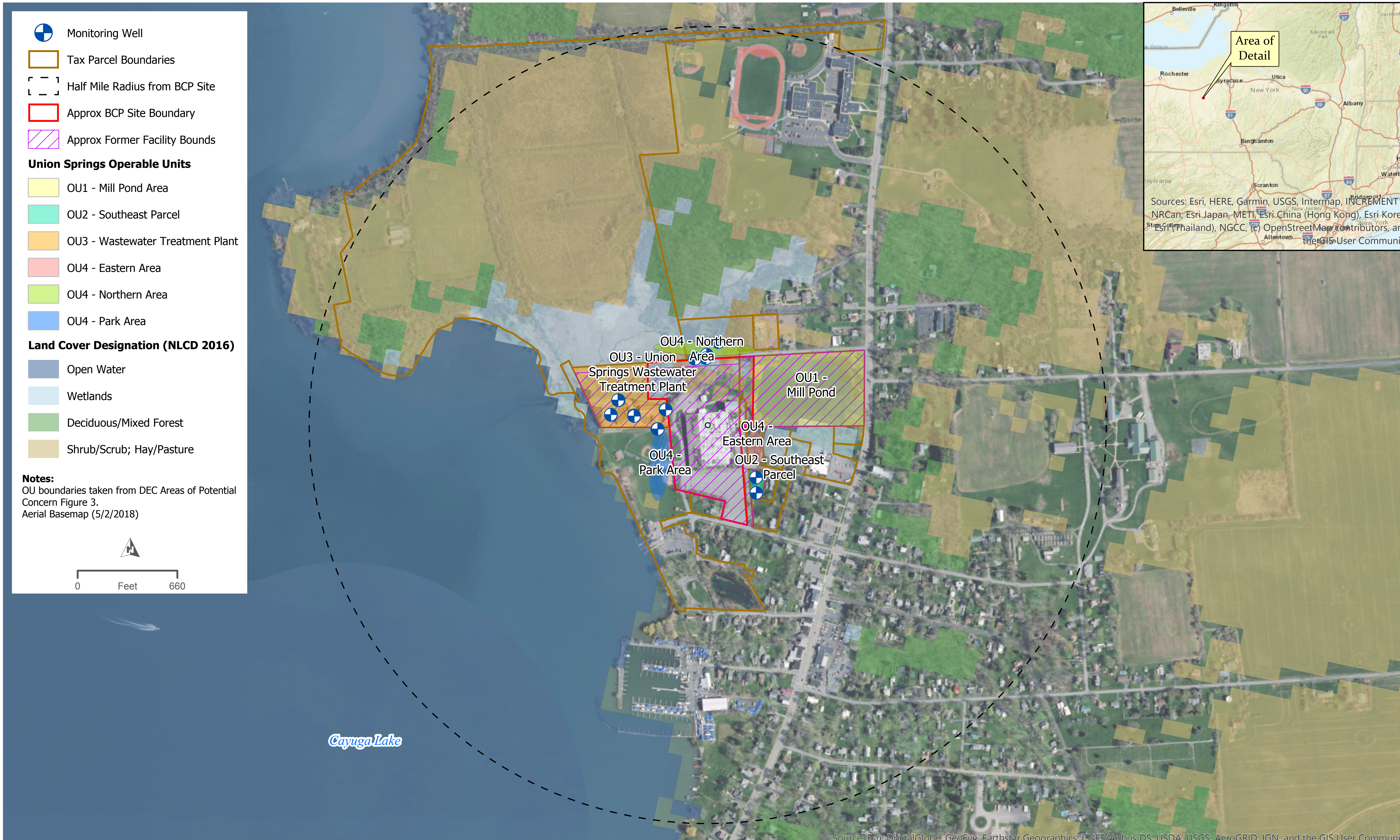
HDR

UNION SPRINGS OPERABLE UNITS MAP (TOPOGRAPHIC)

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

PATH: \\NJ-MAHWAH\GIS_PROJECTS\MISCMAPPING\10090860_NYSDEC_WA_41_FORMER_TRW_UNION\7.2_WORKING\MAP_DOCS\FISH_WILDLIFERESIMPACTMAPS\MAPPING\MAPPING.APRX - USER: KLEE - DATE: 2/28/2020

UNION SPRINGS, NEW YORK



HDR

UNION SPRINGS OPERABLE UNITS MAP (GENERAL COVER TYPE)

FORMER TRW UNION SPRINGS FACILITY (NYSDEC SITE # C706019/A)

PATH: \\NJ-MAHWAH\GIS_PROJECTS\MISCMAPPING\10090860_NYSDEC_WA_41_FORMER_TRW_UNION\7.2_WORKING\MAP_DOCS\FISH_WILDLIFERESIMPACTMAPS\MAPPING\MAPPING.APRX - USER: KLEE - DATE: 2/28/2020

UNION SPRINGS, NEW YORK

Appendix G

IDW Management Documentation

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of 1	3. Emergency Response Phone 800-535-5053	4. Waste Tracking Number 28854

5. Generator's Name and Mailing Address
NYSDEC
615 Erie Blvd West
Syracuse, NY 13204
Generator's Phone: (315) 426-7411

Generator's Site Address (if different than mailing address)
NYSDEC
13 Salem Street
Union Springs, NY 13160

6. Transporter 1 Company Name
Environmental Service Group, Inc 716.695.6720
U.S. EPA ID Number NYD986903904

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
American Recyclers Company
177 Wales Avenue
Tonawanda, NY 14150
Facility's Phone: 716.695.6720
U.S. EPA ID Number NYR000030809

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.
1.	Non RCRA Non DOT Regulated , (Water)	024	DM	01320	G
2.					
3.					
4.					

13. Special Handling Instructions and Additional Information

ERG:
1.
2.
3.
4.

Approval #:
1. N-14294IN
2.
3.
4.

Handling Codes:
1. None
2.
3.
4.

24 Hour Emergency Contact: INFOTRAC (Caller Must ID ESG)

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Kelsey Scott
Signature: Kelsey Scott
Month 10 Day 24 Year 18

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Sean P. Winter
Signature: Sean P. Winter
Month 10 Day 24 Year 18
Transporter 2 Printed/Typed Name
Signature
Month Day Year

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: Justin Rainville
Signature: Justin Rainville
Month 10 Day 24 Year 18

TRANSPORTER #1

GENERATOR / INT'L / TRANSPORTER / DESIGNATED FACILITY (for use on elite (12-pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
	1	800-535-5053	28350

5. Generator's Name and Mailing Address
NYSDEC
615 Erie Blvd West
Syracuse, NY 13204
Generator's Phone: (315) 426-7411

Generator's Site Address (if different than mailing address)
NYSDEC
13 Salem Street
Union Springs, NY 13160

6. Transporter 1 Company Name: Guard Contracting Corp. — U.S. EPA ID Number:

7. Transporter 2 Company Name: — U.S. EPA ID Number:

8. Designated Facility Name and Site Address
American Recyclers Company
177 Wales Avenue
Tonawanda, NY 14150
Facility's Phone: 716.695.6720
U.S. EPA ID Number: NYR000030809

9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1. Non RCRA Non DOT Regulated Soil Cuttings.	001	DT	12000	P	est.
2.					
3.					
4.					

13. Special Handling Instructions and Additional Information
Also Fits: 1 - 2 - 3 -
Approval #: 1 - L-14063L 2 - 3 - 4 -
Handling Codes: 1 - None 2 - 3 - 4 -
24 Hour Emergency Contact: INFOTRAC (Caller Must ID ESG) Consult ERG#:

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Scott G. Furlant (HDR agent for NYSDEC) — Signature: Scott D. Furlant — Month 9 Day 7 Year 18

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Rob Smallwood — Signature: R Smallwood — Month 9 Day 7 Year 18
Transporter 2 Printed/Typed Name: — Signature: — Month Day Year

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name — Signature — Month Day Year

GENERATOR / INT'L / TRANSPORTER / DESIGNATED FACILITY

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of 1	3. Emergency Response Phone 800-535-5053	4. Waste Tracking Number 33903

5. Generator's Name and Mailing Address
NYSDEC
615 Erie Blvd West
Syracuse, NY 13204
Generator's Phone: (315) 426-7411

Generator's Site Address (if different than mailing address)
NYSDEC
13 Salem Street
Union Springs, NY 13160

6. Transporter 1 Company Name
Environmental Service Group, Inc 716.695.6720
U.S. EPA ID Number NYD986903904

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
American Recyclers Company
177 Wales Avenue
Tonawanda, NY 14150
Facility's Phone: 716.695.6720
U.S. EPA ID Number NYR000030809

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
	1. Non RCRA Non DOT Regulated Water,	001	Dm	040	G	[illegible]
	2.					
	3.					
	4.					

13. Special Handling Instructions and Additional Information

Also Fits:
1 -
2 -
3 -

Approval #:
1 - H-14294IN
2 -
3 -
4 -

Handling Codes:
1 - None
2 -
3 -
4 -

24 Hour Emergency Contact:
INFOTRAC (Caller Must ID ESG)
Consult ERG#:

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Julian Mastropoll "As Agent for HDR / NYSDEC"
Signature:
Month 02 Day 27 Year 202

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Michael W Peterson
Signature:
Month 02 Day 27 Year 202
Transporter 2 Printed/Typed Name
Signature
Month Day Year

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator)
Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: Julian Mastropoll
Signature:
Month 02 Day 22 Year 20

GENERATOR — INT'L — TRANSPORTER — DESIGNATED FACILITY

DESIGNATED FACILITY'S COPY