PERIODIC REVIEW REPORT

FOR

REMEDIAL ACTION

AT

THE DEFENSE NATIONAL STOCKPILE CENTER SCOTIA DEPOT

GLENVILLE, NEW YORK

Prepared for:

U.S. Army Corps of Engineers

Prepared by:

AECOM Technical Services

May 2021

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1.0 EXECUTIVE SUMMARY

AECOM Technical Services, Inc. (AECOM), on behalf of the United States Army Corps of Engineers (USACE) through the General Services Administration (GSA) is submitting this Periodic Review Report (PRR) along with a completed Institutional Controls and Engineering Controls (IC/EC) Certification Form (Appendix A) for the Defense National Stockpile Center Scotia Depot (Site). This report is being submitted as requested by the New York State Department of Environmental Conservation (NYSDEC) in its letter dated February 22, 2021 to Mr. David Baker of the GSA (NYSDEC, 2021). The letter provides guidance for preparing the PRR and IC/EC form and requires that they be submitted to NYSDEC no later than May 12, 2021.

1.1 Summary of Site

The Site, located in Glenville NY, overlies a United States Environmental Protection Agency (USEPA) designated Sole Source Aquifer referred to as the Schenectady or Great Flats Aquifer system, which is adjacent to and extends beneath the Mohawk River over a distance of approximately 12 miles in Schenectady County. Portions of the original Scotia Naval Depot have been subdivided and sold since 1972 by the United States Government. The Site now consists of several large privately held parcels in addition to a portion of land still administered by the United States GSA.

In the late 1980s, trichloroethene (TCE) was detected at low level concentrations of less than 1 microgram per liter (µg/L) (the NYSDEC Drinking Water Standard is 5 µg/L) in the Town of Rotterdam and City of Schenectady well fields. Six subsurface investigations were completed to identify the possible source(s) of TCE in the municipal wells and nearby residential wells, and to delineate the extent of the TCE groundwater plume. Based on these investigations, a record of decision (ROD) specifying a groundwater remedy was approved by the NYSDEC in March 2010 (NYSDEC, 2010), which included the installation of an in-situ permeable reactive barrier wall (PRB) by direct injection of zero-valent iron (ZVI) to reduce the mass of on-site contamination via abiotic degradation and to reduce the migration of contaminated groundwater off-site. Additionally, the need to complete soil vapor intrusion (SVI) evaluations for the on-site buildings was included in the ROD and the subsequent installation of SVI mitigation systems was completed to reduce exposure to vapors emanating from groundwater contaminants entering the indoor air through existing building slabs.

1.2 Effectiveness of Remedial Program

Since the installation of the remedial systems in 2016, conclusions can be drawn based on the data collected in this reporting period as to whether both the PRB and the SVI mitigation systems are functioning. Based on the groundwater data collected to date and observed TCE concentrations in the downgradient monitoring wells there appears to be a reduction of contaminant concentrations downgradient of the PRB wall. Based on the indoor air samples collected to date the SVI mitigation systems are reducing indoor air contaminant concentrations such that samples are similar to outdoor air. Therefore, the groundwater remediation system and indoor air mitigation system are meeting the remedial action objectives described in Section 2.3. Effectiveness of the remedial program will continue to be evaluated with each new data set.

1.3 Compliance

In reference to the Site Management Plan (SMP) (AECOM, 2017b), there have been no areas of non-compliance throughout the reporting period of this PRR.

1.4 Recommendations

No changes to the activities at the Site are recommended at this time with respect to the groundwater remedy. Based upon an evaluation of the SVI remedy conducted in December 2020, there are proposed changes to the operation and monitoring as discussed in Sections 4.1.2.2 and 5.5 of this PRR.

The periodic review process should be maintained at a one-year frequency as specified in the SMP. The next PRR will be due in May 2022.

2.0 SITE OVERVIEW

AECOM Technical Services, Inc. (AECOM) monitors the Defense National Stockpile Center Scotia Depot, located in Glenville, New York (hereinafter referred to as the "Site") on behalf of the United States Army Corps of Engineers (USACE). The periodic review process is used for determining if a remedy is properly managed, as set forth in Site documents, and if the remedy is protective of human health and the environment. This PRR has been prepared to evaluate the overall effectiveness of the remedies that have been implemented at the Site. The Site is currently in the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program, Site No. 447023, which is administered by the New York State Department of Environmental Conservation (NYSDEC).

2.1 Site History

Originally built in 1942 and 1943, the Site served as a storage, supply and distribution, depot for naval forces. On January 1, 1960, the Navy turned the facility over to the General Services Administration (GSA). During the period between early 1966 and approximately 1973, the USACE/Army Material Command (AMC) leased buildings from the Navy for the fabrication and storage of vehicles as well as other military equipment. Portions of the original Scotia Naval Depot have been subdivided and sold since 1972 by the United States Government.

The Site is adjacent to the north side of NYS Route 5 (Amsterdam Road) in the Town of Glenville, Schenectady County, New York (**Figure 2-1**). The Site and surrounding adjacent properties are zoned for industrial and commercial use. Residential properties are located to the south between Amsterdam Road and the Mohawk River. The Mohawk River is located approximately 1,500 feet west-southwest of the Site and represents the major drainage feature in Schenectady County.

The Site overlies a United States Environmental Protection Agency (USEPA) designated Sole Source Aquifer referred to as the Schenectady or Great Flats Aquifer system, which is adjacent to and extends beneath the Mohawk River over a distance of approximately 12 miles in Schenectady County. The unconsolidated deposits within the aquifer include ice-proximal end moraine and esker gravel units that vary in thickness from less than a foot to more than 50 feet, and overlie basal till, which appears to act as an aquitard. Beneath the Site, in the vicinity of the remedy, the unconsolidated layer thickness is typically more that 50ft deep. There are several sub-facies with lateral and vertical variation in grain size present. The water table beneath the Site is approximately 65 feet below ground surface (bgs), and groundwater beneath the Site flows from northeast to southwest toward the Mohawk River.

Figure 2-2 shows a map of the Site overlaid with the property owners for each parcel associated with the remedial systems. The Site now consists of several large privately held parcels in addition to a portion of land still administered by the GSA. The property owners for each of the parcels identified on **Figure 2-2,** and the component of the Site remedies associated with each parcel are identified in **Table 2-1**.

Table 2-1: Parcel Identification and Property Owners

Parcel ID	Tax Map Parcel No.	Property Owner	Remedy Component(s)
Parcel 1	29.00-3-16.15	Galesi Group (Scotia Industrial Park)	soil vapor intrusion (SVI) mitigation systems and monitoring well network
Parcel 2	29.00-3-16.15	Galesi Group (Scotia Industrial Park)	permeable reactive barrier (PRB) wall and monitoring well network)
Parcel C-1	29.00-3-16.71	GSA (Remedial Party)	monitoring well network
Parcel C-3	29.00-3-24	Belgioioso Cheese Inc.	monitoring well network

The private parcels owned by Scotia Industrial Park, Inc. (Galesi Group) contain a variety of industrial tenants; while the GSA leases its remaining portion to the Defense Logistics Agency/Defense National Stockpile Center. Ownership of parcel C-3 has been transferred from the GSA to Belgioioso Cheese Inc. since the issuance of the SMP. In May 2019 a small portion of the northern end of Parcel 2 was sold from Galesi to Belgioioso, and this change has been reflected in the updated property owner map, **Figure 2-2**. Recent construction by BelGioioso in this area has resulted in the permanent damage of monitoring well PMW-2. This well is not part of the site monitoring program. Attempts to locate the damaged well in order to properly abandon it were not successful.

In the Summer of 2019 AECOM and the USACE received notification from the NYSDEC that Galesi Group was planning to begin construction of a new commercial industrial building on Parcel 2 directly adjacent to the PRB wall. Discussions between Galesi Group, AECOM, USACE and the NYSDEC took place to ensure that construction of the building complies with the SMP and that access to the engineering controls as outlined in the SMP would not be compromised during building construction or when the new building was finished. The new building is not expected to impact performance of the remedy or site monitoring. Construction of the new building commenced in the Spring of 2020 and was completed in late 2020.

A figure with the approximate location of the new buildings is included in **Appendix B**. The Site layout map can be updated after as-built drawings are obtained from Galesi.

2.2 Remedial History

In the late 1980s, trichloroethene (TCE) was detected at low level concentrations of less than 1 microgram per liter (µg/L) (the NYSDEC Drinking Water Standard is 5 µg/L) in the Town of Rotterdam and City of Schenectady well fields. In an effort to determine the potential source(s) of the TCE, the New York State Department of Health (NYSDOH) performed sampling of private water supply wells downgradient of the Site during 1991. Volatile organic compounds (VOCs), including TCE; 1,1,1-trichloroethane (1,1,1-TCA); and tetrachloroethene (PCE), were detected in groundwater collected in some of these residential wells. The sampling results were consistent with the known groundwater contamination concentrations at the Defense National Stockpile Center Scotia Depot Site and the homes on NYS Route 5 were subsequently connected to public water provided by the Town of Glenville.

Subsequent to the NYSDOH residential groundwater sampling, six subsurface investigations were completed to identify the possible source of TCE in the residential wells to delineate the extent of the TCE groundwater plume. The investigations were completed between 1995 and 2007 and focused on the assemblage of properties comprising the former 337-acre Defense National Stockpile Center Scotia Depot. The NYSDEC 2007 Expanded Site Investigation (ESI) (NYSDEC, 2007) provides details on each of these investigations. During the investigations, two areas thought to represent possible TCE source areas, a former burn pit and the Sacandaga Road Landfill, were evaluated. Data suggested that although these areas may be contributing minor amounts of groundwater contamination, they do not represent TCE source areas. Instead, investigation data indicated that TCE disposal may have also occurred in the northeastern corner of the 401 sub-block and the area near the northern corner of the 403 sub-block; however, a formal source area was never fully identified. In addition to these groundwater investigations, soil vapor intrusion (SVI) evaluations were conducted during the ESI (NYSDEC, 2007) that indicated off-site groundwater containing TCE was not influencing the quality of indoor air at homes that directly overlie or that are along the margins of the TCE groundwater plume and that mitigation was not needed.

Based on these investigations, a Record of Decision (ROD) specifying a groundwater remedy was approved by the NYSDEC in March 2010 (NYSDEC, 2010). The ROD specified a remedial action for the groundwater plume that included treatment through the installation of a zero-valent iron (ZVI) permeable reactive barrier (PRB) wall. During this time, investigations were also conducted in relation to a carbon tetrachloride plume that was identified as a source for potential soil vapor intrusion. In addition to the groundwater remedy, the ROD also identified a data gap to be evaluated for soil vapor intrusion at the Building 201 sub-block, and mitigation would be required if needed. Indoor air and sub-slab sampling were conducted as part of the Pre Design Investigation (PDI) (Stone, 2013) and the areas requiring mitigation were identified.

In 2013 five off-site residential properties were identified as potentially impacted by the carbon tetrachloride plume. Offers for additional sampling were made by GSA to four of the potentially impacted off-site residential properties by certified mail on February 14, 2013, during the PDI; however, two property owners refused sampling and two did not respond to the offers. A summary of these efforts to offer additional sampling at the off-site residences was provided to the NYSDEC in 2013. Another resident already had a sub-slab depressurization (SSD) system installed at their property in response to radon, a naturally occurring gas unrelated to the Site, which is prevalent in the sub-surface in some areas. These systems are commonly installed in homes to mitigate indoor air contamination in areas where naturally occurring radon is found. The resident was given information on the contamination.

2.3 Remedial Action Objectives and Implementation of the Selected Remedy

The remediation goals for the Site as listed in the ROD dated March 2010 (NYSDEC, 2010) are to eliminate or reduce to the extent practicable:

- Exposures of persons at or around the Site to VOCs in groundwater; and
- The release of contaminants from groundwater beneath structures into indoor air through soil vapor intrusion.

Furthermore, the remediation goals for the Site include attaining to the extent practicable:

- The NYSDEC Ambient Water Quality Standard (AWQS) and/or Guidance Value (GV) (NYSDEC, 1998); and
- Air guidelines provided in the Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006; updated August 2015).

The Standards, Criteria and Guidance (SCGs) applicable to the groundwater at the Site are the AWQS and GV found in the Technical and Operational Guidance Series (TOGS) 1.1.1 (NYSDEC, 1998) and as presented in the ROD. Contaminants of Concern (COCs) at the Site and their respective AWQS are presented in **Table 2-2**.

Table 2-2: Groundwater SCGs

Contaminants of Concern	Ambient Water Quality Standard
1,1,1-Trichloroethane	5 µg/L
Trichloroethene	5 µg/L
Tetrachloroethene	5 µg/L
Carbon Tetrachloride	5 µg/L
Toluene	5 µg/L

Table 2-3 reports the contaminants of concern as determined by the ROD for Site sub-slab soil vapor and indoor air along with their respective air guidelines.

Table 2-3: Sub-Slab Vapor and Indoor Air Contaminants of Concern and NYSDOH Air Guidelines

Contaminants of Concern	NYSDOH Air Guidelines ($\mu g/m^3$)[1]	NYSDOH Decision Matrix
1,1,1-Trichloroethane	Not available	Matrix 2
Trichloroethene	2[2]	Matrix 1
Tetrachloroethene	30[3]	Matrix 2

Carbon Tetrachloride	Not available	Matrix 1

[1] NYSDOH (2006)

[2] Revised as of August 2015

[3] Revised as of September 2013

The primary guidance document governing soil vapor work in New York is the *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (October 2006; with updates). Three decision matrices have been developed as part of this guidance by the NYSDOH as risk management tools that provide specified actions based on the concentrations of individual compounds in the indoor air and sub-slab soil vapor. The Site soil vapor contaminants are found on two of the three decision matrices: Matrix 1 (**Table 2-4**) and Matrix 2 (**Table 2-5**), based on the guidance. Four actions are possible from these matrices: no further action (NFA), identify and reduce (IR) sources within the structure, monitor (MO) indoor air and sub-slab soil vapor, and mitigate (MI).

Table 2-4: NYSDOH Decision Matrix 1

Sub-Slab Vapor (µg/m^3)	**Indoor Air (µg/m^3)**			
	<0.25	**0.25 to <1**	**1 to <5**	**5 and above**
<5	NFA	IR	IR	IR
5 to <50	NFA	MO	MO	MI
50 to <250	MO	MO/MI	MI	MI
250 and above	MI	MI	MI	MI

NFA – No Further Action

IR – Identify and Reduce

MO – Monitor Only

MI – Mitigate

Table 2-5: NYSDOH Decision Matrix 2

Sub-Slab Vapor (µg/m^3)	**Indoor Air (µg/m^3)**			
	<3	**3 to <30**	**30 to <100**	**100 and above**
<100	NFA	IR	IR	IR
100 to <1,000	MO	MO/MI	MI	MI

1,000 and above	MI	MI	MI	MI

See Table 2-3 for explanation of acronym/abbreviation

The remedy selected by the NYSDEC in the March 2010 ROD to address groundwater contamination was a ZVI PRB wall. The PRB wall, installed in 2016, consists of two continuous segments extending approximately 900 feet on a northwest-southeast alignment and is adjacent to a right-of-way easement between National Grid and the Glenville Business & Technology Park. It is positioned in the vicinity between 3rd and 5th Streets to the north and south and Avenues B and C to the west and east, located within the current Glenville Business & Industrial Park. The PRB was installed using vertical inclusion propagation (VIP) technology, which includes a series of conventionally drilled boreholes along the PRB alignment, with specialized expansion casings grouted into the boreholes. The PRB was constructed by injection of iron filings into these expansion casings with quality assurance monitoring of the injections to quantify the PRB geometry and iron loading densities. The final 900-foot wall is comprised of a 250-foot shallow PRB that is 15 feet high (65 to 80 feet bgs), and a 650-foot deep PRB, which is 45 feet high (65 to 110 feet bgs).

To address the potential SVI issues described in the March 2010 ROD and confirmed in the PDI, SVI mitigation systems were installed in four of the on-site buildings (Buildings 201 through 204) during early 2016. As a conservative measure, the SVI mitigation systems were installed to cover the entire building footprint, to the extent practicable, even where the NYSDOH decision matrices did not require mitigation. A core drill was used to core through the concrete slab for the installation of the suction points, which were constructed of PVC pipe, installed flush with the bottom of the slab and sealed with urethane caulk within the annulus and at the surface. A total of 12 SVI mitigation systems were installed in each building, each consisting of two suction points connected to a single RadonAway® GP501 Pro Series radon fan to generate suction and evacuate the vapor beneath the slab. As required by the NYSDOH, a visual pressure gauge was installed for each of the fans to allow for monitoring of system performance. Each SVI mitigation system was fitted with a flexible U-tube manometer for this purpose.

A total of 32 soil vapor monitoring points were installed in the four buildings (eight in each building). These locations were distributed throughout the building, allowing monitoring of vacuum distribution beneath the slab and sub-slab vapor concentrations. Permanent sampling points were installed at each of the locations utilizing the VaporPin™ system. This system includes a stainless steel barbed fitting with a silicone sleeve which is permanently installed in the slab and capped when not in use. A secured stainless-steel cover is installed over the barb fitting.

3.0 EVALUATE REMEDY PERFORMANCE, EFFECTIVENESS AND PROTECTIVENESS

3.1 Summary of Groundwater Remedy Performance

In 2015 a baseline groundwater sampling event was conducted to document the Site conditions prior to the PRB installation. The installment of the PRB was completed in November 2016. Since the installation of the ZVI PRB in 2016, thirteen groundwater monitoring events have been conducted in accordance with the NYSDEC approved SMP (eight quarterly and five semi-annual). The first quarterly sampling event was conducted in December 2016, one month following the installation, and on a quarterly basis through September 2018. The first semi-annual sampling event was conducted in December 2018 with subsequent events occurring in June and December of each year through December 2020.

The groundwater monitoring well locations are shown on the Site layout plan (**Figure 3-1)**. The groundwater samples were analyzed by ALS Laboratories (Middletown, PA). Site-wide groundwater elevation data is collected during each groundwater monitoring event. Groundwater elevation data to date indicate seasonal variability in groundwater levels at the Site, likely influenced by the seasonal variation in the level of the Mohawk River located downgradient of the Site, which is controlled by locks and flood gates. Analysis of the groundwater level data indicates that even though seasonal variability exists, the direction of groundwater flow through the ZVI PRB wall from the northeast to the southwest remains consistent. Groundwater elevation data is provided in **Table 3-**1. A summary of the quarterly VOC, groundwater MNA and field parameter results is included in **Table 3-2**, and a summary of the annual Site-wide groundwater results is included in **Table 3-3**.

3.1.1 Volatile Organic Compounds

As stated in the SMP, effectiveness of the remedy is to be demonstrated by a decrease in the groundwater VOC concentrations between the upgradient and downgradient compliance wells. In order to determine if VOC concentrations are decreasing, a nonparametric trend analysis for TCE was performed on performance monitoring wells MW-28, MW-29, MW-30, MW-31, MW-32, MW-33, MW-34 and MW-35 using the GSI Mann-Kendall Toolkit (Connor et al., 2012). The GSI Mann-Kendall Toolkit is a spreadsheet-based tool that analyzes time-series groundwater monitoring data to determine trends using the Mann-Kendall statistical analysis method. The Toolkit yields a qualitative determination of groundwater concentration trends (i.e., increasing, decreasing, stable, etc.).

The GSI Mann-Kendall Toolkit was utilized to evaluate TCE in each well using monitoring data collected from the December 2015 baseline sampling event and the thirteen subsequent post-construction monitoring events conducted through December 2019 (14 total monitoring events). The minimum number of data points required to perform the Mann-Kendall test is four; therefore, analysis to determine trends are first presented starting with the first four data points from the baseline event to the data from the June 2017 groundwater monitoring event. With each subsequent set of groundwater monitoring data, the tests are repeated, showing changes in trends over time. The results of these Mann-Kendall tests using TCE and Total CVOC data are summarized in **Tables 3-4A and 3-4B**, respectively.

Groundwater CVOC concentrations observed in upgradient wells are not expected to be influenced by the PRB. Any CVOC trends in upgradient wells are most likely due to variation in groundwater concentration due to the heterogeneous nature of the contaminant plume. Two of the four upgradient wells (MW-33 and MW-35) are showing TCE concentrations that are stable or with no trend, as expected. Groundwater COVC concentrations at MW-29 and MW-31 are showing a decreasing and "probably decreasing" trend, respectively.

Groundwater TCE concentrations observed in downgradient wells are expected to be influenced by the PRB. Immediately after wall construction, groundwater concentrations in all four downgradient wells (MW-28, MW-30, MW-32 and MW-34) were stable or showed no trend. Decreasing trends in MW-30 and MW-32 are first observed in March 2018 and in MW-34 starting in December 2018. These decreasing trends in MW-30, MW-32 and MW-34 continue through the most recent round of groundwater monitoring (December 2020). Mann-Kendall analysis for MW-28 shows that the TCE concentration is stable or has no trend.

This analysis demonstrates that three of the four downgradient monitoring wells (MW-30, MW-32 and MW-34) have decreasing trends for TCE. No TCE trend was observed in downgradient monitoring well MW-28. These results suggest that the permeable reactive barrier is creating reductions in downgradient TCE concentrations. For downgradient well MW-34 the TCE concentration for three out of four of the last sampling events has been below the MCL for the Site. Effectiveness of the remedial program and trend analysis will continue to be evaluated with each data obtained from future groundwater monitoring events.

The input/output spreadsheets, including the results of the Mann-Kendall analysis, are included in **Appendix C**.

Additional details regarding the observed groundwater conditions at the Site since the installation of the PRB are presented in the most recent groundwater monitoring report (AECOM, 2020).

Across the Site, in general, detected concentrations of TCE (and other VOCs) in wells outside of the compliance well network have not fluctuated significantly between quarterly events indicating that the contaminant plume is in a state of equilibrium. As described in the ZVI PRB Remedial Action Work Plan (RAWP) (AECOM, 2016), expectations are that ZVI PRBs will function for at least 30 years with the possibility of a greater lifetime depending on Site conditions.

3.1.2 Monitored Natural Attenuation Parameters

Groundwater samples were also analyzed for monitored natural attenuation (MNA) parameters for the 12 wells sampled during quarterly and semi-annual sampling events. The MNA parameters that were evaluated in accordance with the SMP include: total alkalinity, chloride, nitrate, sulfate, methane, ethane, ethene and total organic carbon. These parameters are used to help determine subsurface conditions and gather information about the types of reactions that are occurring. A summary of the quarterly and semi-annual results of the MNA parameters can be found in **Tables 3-2.** Other parameters that have been analyzed for at the site include dissolved hydrogen, acetylene, total iron and dissolved iron.

Overall, the MNA data does not show consistency in the well pairs throughout the expanse of the PRB. MNA parameters have indicated that both biotic and abiotic reactions, at different times, are responsible for the observed decreases in VOC concentrations across the ZVI PRB. Initially methane, ethane and ethene concentrations increased from the breakdown of the ZVI carrier fluids (guar) and served as an indicator of biological reductive dechlorination activity in the subsurface. The December 2018 methane data for well pair MW-32/MW-33 and the June 2019 data for well pair MW-30/MW-31 indicated that the groundwater conditions at the Site may have been shifting away from the anaerobic biotic conditions that were created in the wake of the PRB wall installation, to conditions that are more indicative of abiotic reductive dechlorination that is expected of the redox reactions that take place as groundwater flows through a ZVI PRB wall. However, the sampling events in 2019, and 2020 showed continued presence of elevated methane and biological activity. MNA parameters will continue to be monitored during subsequent sampling events.

3.1.3 Field Parameters

The field parameters monitored for each sampling event includes dissolved oxygen, ORP, pH, turbidity, conductivity, and groundwater elevation. A summary of the quarterly and annual results of the field parameters can be found in **Tables 3-2 and 3-3**, respectively**.**

During quarterly sampling events conducted to date DO measurements were variable with some well pairs showing an increase and some pairs showing a decrease from upgradient to downgradient of the PRB. It should be noted that there were some increases in DO concentrations during the past few sampling events suggesting that anaerobic conditions observed shortly after PRB installation may not be sustained. While ORP values are still not showing values that are typically expected downgradient of a ZVI PRB wall, the ORP levels decreased significantly from upgradient to downgradient at well pairs MW-31/MW-30, MW-33/MW-32 and MW-35/MW-34 during recent monitoring events. Lower ORP values are expected downgradient of the PRB indicating reducing conditions as the groundwater passes through the PRB, however we expect to see ORP levels in the -300 to -400 range, with little to no DO for the Beta elimination VOC reduction to occur. To date these expected values have not been observed on a consistent basis and no definitive trends on DO and ORP measurements have been defined. However, the most recent sampling event, December 2020, showed two of the downgradient DO readings to be very low (i.e. < 1.0 mg/L) which is within the range of what we expect to see downgradient of a ZVI PR wall. More explanation on field parameters collected to date and observations based on this data is provided in the most recent groundwater monitoring report (AECOM, 2021).

3.1.4 Additional Groundwater Flow Investigation Work

In order to further evaluate the PRB performance AECOM has initiated additional field activities to better understand the groundwater hydrology at the Site, specifically groundwater flow patterns and seasonal variability of groundwater elevations at the Site. During the past groundwater sampling events a distinct seasonal groundwater level variation has been observed with the wintertime months exhibiting a lower groundwater level than the summer months. AECOM suspected that the seasonal variation in the groundwater level was related to the winter lowering of the water level in the nearby Mohawk River. During 2020 and early 2021the project team has conducted a supplemental evaluation to verify the current groundwater flow conditions at the Site. Field activities included routine groundwater gauging at all wells onsite, long term groundwater level data collection using a datalogger at 6 locations around the PRB wall, groundwater flow evaluation using a Borescope, as well as the deployment of 6 passive flux meters (PFM) which were analyzed for groundwater and contaminant velocity. A memorandum detailing each phase of the groundwater flow investigation including the data collected during these events is included in **Appendix D.** These field activities led to the following conclusions about site hydrogeology:

- Groundwater level (and corresponding gradient and velocity) at the Site is directly influenced by the water level in the Mohawk River. Groundwater level downgradient of the ZVI PRB reacts quickly to changes in the water level within the River, while water level upgradient of the ZVI PRB is less reactive to changes in river level. Changes in precipitation level seems to impact water level more noticeably upgradient of the ZVI PRB. It is also possible that upgradient water withdrawal from the aquifer has an impact on groundwater level upgradient of the ZVI PRB. Adirondack Beverage and The Village of Scotia withdraw water from the Great Flats Aquifer from wells located upgradient of the site. According to USGS, water level in the Mohawk River in the vicinity of the site is considerably regulated by the Locks on the Erie (Barge) Canal, in particular Locks 7 (downstream from the site), 8 (adjacent to the site) and 9 (upstream from the site). Maximum gage height at Lock 8 is typically associated with winter ice jams in the river.
- Groundwater velocity and contaminant concentration measured from the PFMs are similar upgradient and downgradient of the wall confirming that the wall does not impede groundwater flow. Darcy velocity measured with the PFMs is within the same range of Darcy velocities calculated using measured groundwater gradients and accepted range in hydraulic conductivity for the site.
- Average contaminant concentration results for the PFMs are similar (within the same order of magnitude) to the concentrations reported from the grab sampling presented in the groundwater monitoring reports. Overall, sample results from the PFM corresponded well with data obtained during the routine groundwater sampling.
- The borescope data shows that there is likely nondirectional and swirling flow on a microscale within the aquifer. Swirling flow could be indicative of a low groundwater velocity. Direction and velocity measurements obtained with the borescope were variable and did not exhibit a clear trend. No definitive conclusions regarding groundwater flow direction could be drawn from the boroscope data.

3.2 Summary of Indoor Air Remedy Performance

Indoor air has been assessed during each of the five winter heating seasons since the SVI mitigation system was installed in 2016 (December 2016 through December 2020). Results obtained from these sampling events have been compared to the data obtained prior to the SVI mitigation system installation by Stone Environmental (Stone, 2014a). Results from these indoor air assessments are presented in **Table 3-5**. The post SVI remedy installation sampling event data results show that the current indoor air VOC concentrations are similar to those measured in the concurrent outdoor air samples indicating that the SVI mitigation systems are functioning as designed by preventing sub-slab vapor from migrating into indoor air.

During sampling and monitoring events most accessible sub-slab vacuum system pressure measurements were significantly less than -0.004 inches of water (the design vacuum), showing very good suction. Three monitoring points in building 203 and two monitoring points in building 204 did not show negative suction. This could be due to building construction or changed airflow patterns throughout the workday as tenants are opening and closing doors. The indoor air data measured in each building confirms that the SVI mitigation system is functioning as designed and the combined suction strength for the systems in each building is enough to provide mitigation to the entire building. Furthermore, U-tube manometer measurements indicate that the SVI mitigation systems were producing vacuum beneath the building slab. All sub-slab vacuum readings and U-tube manometer monitoring results are presented in **Table 3-6**. The off-site residential system was inspected in December 2021 and was found to be generating a vacuum of 1.5 inches of water.

In December 2020, an evaluation of SVI mitigation system was performed in accordance with the SMP. In June 2020, following the semi-annual inspection, the on-site SVI mitigation systems in Buildings 201 through 204 were turned off in preparation for the December 2020 evaluation. In December 2020 samples of indoor air and sub-slab vapor were collected and analyzed to determine if continued mitigation is necessary. Results of this evaluation and a summary of recommendations is provided in Sections 4.1.2.2 and 5.5 of this PRR.

4.0 INSTITUTIONAL AND ENGINEERING CONTROLS PLAN COMPLIANCE REPORT

The final site remedy included implementation of both Institutional Controls (IC) and Engineering Controls (EC). The SMP was developed to support those controls. A summary of the controls and required site activities are summarized below.

4.1 Institutional Controls / Engineering Controls Requirements and Compliance

4.1.1 Institutional Controls

An IC, required by the ROD in the form of an Environmental Easement (EE), was implemented to: (1) ensure compliance with the SMP; (2) restrict the use of groundwater as a source of potable or process water, without the necessary water quality treatment as determined by NYSDOH; (3) require any new structures in the area of the groundwater contamination to include sub-slab construction that allows for the installation and operation of mitigation systems, and, (4) require the property owner or designated representative to complete and submit to NYSDEC a periodic certification of institutional and engineering controls. Adherence to these ICs will be required by the EE and will be implemented under the SMP. ICs identified in the EE may not be discontinued without an amendment to or extinguishment of the EE. These ICs are:

- All ECs must be operated and maintained as specified in the SMP;
- All ECs must be inspected at a frequency and in a manner defined in the SMP;
- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from NYSDEC;
- Any new structures in the area of the groundwater contamination shall include sub-slab construction that allows for the installation and operation of mitigation systems, or be constructed with vapor barriers incorporated into the slab;
- Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in the SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with the SMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;
- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in the SMP; and,
- Access to the Site must be provided to agents, employees, or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the EE.

4.1.2 Engineering Controls Requirements and Compliance

4.1.2.1 Permeable Reactive Barrier

In accordance with the ROD for the remedial action at the Site, a ZVI PRB was installed in order to mitigate the impacted groundwater plume. Results from the groundwater monitoring program will be used to evaluate the effectiveness of the remedy. In accordance with the SMP, the groundwater remedy is considered effective if VOC concentrations are decreasing in the compliance monitoring well pairs (MW-28/MW-29, MW-30/MW-31, MW-32/MW-33, and MW-34/MW-35) and if contaminated groundwater is not migrating off-site. Because the PRB is installed fully below ground, the disturbed area has been restored to pre-existing conditions. No maintenance of the PRB is required. The injection casings have been left in place with flush mount completions in case additional injections are warranted in the future. There are no recommendations for changes to the ZVI PRB ECs at this time.

4.1.2.2 Soil Vapor Intrusion Remediation Systems

SVI mitigation at the Site is being performed to mitigate the potential for vapor intrusion to occur in the buildings. The potential for vapor intrusion is indicated by (1) the presence of groundwater related VOCs in both sub-slab vapor and indoor air; and (2) the magnitude of the difference of the concentrations of these VOCs detected in soil vapor compared to indoor air. Since there has been carbon tetrachloride detected in the buildings, and the only potential source that has been identified is dissolved in groundwater below the buildings, it has been concluded that the likely source is the groundwater. Since the sub-slab vapor concentrations are much higher than the indoor air concentrations, it appears that the pathway is from sub-slab vapor through the slab into the building.

The SVI mitigation system will mitigate SVI by redirecting the vapor transport from the sub-slab to the suction points and then into the air above the building, rather than through the slab into the building. The SVI mitigation systems may or may not reduce the carbon tetrachloride concentrations below the slab. Reduction of sub-slab concentrations is not required to achieve mitigation. Similarly, the SVI mitigation system may or may not substantially affect the mass of carbon tetrachloride in the subsurface. The SVI mitigation system is not a soil vapor extraction (SVE) system that will remove contaminants from the subsurface and eventually end the need to mitigating vapor intrusion. Mitigation is just a process that prevents contaminant exposure to the occupants of the buildings.

Since groundwater is the presumed source of the carbon tetrachloride vapors that are now migrating to beneath the buildings, it is likely that mitigation will be necessary until groundwater concentrations decline sufficiently so that sub-slab concentrations satisfy the NYSDOH Decision Matrix 1. No active remediation is planned to reduce groundwater carbon tetrachloride concentrations, but the dissolved concentrations are quite low and appear to be attenuating naturally. Therefore, natural attenuation should eventually reduce the concentrations sufficiently to allow the SVI mitigation systems to be turned off.

The active SVI mitigation systems within Buildings 201, 202, 203, and 204 were operated through the heating season of 2019/2020 and were then turned off in June 2020 after the semi-annual inspection. During the heating season of 2020/2021, after the SVI mitigation systems were off for six months, a full round of indoor air and sub-slab vapor samples were collected and an SVI evaluation was performed in accordance with the SMP. This SVI evaluation and recommendations are presented in 2020 Soil Vapor Intrusion Mitigation System Annual Report and Proposed System Modifications (AECOM, 2021a). Indoor air concentrations of carbon tetrachloride and trichloroethene (the constituents of concern that prompted the need for mitigation) in all four buildings were found to be comparable to concentrations in the outdoor ambient air sample. Sub-slab vapor concentrations of carbon tetrachloride and trichloroethene have also declined since 2014; at most sampling locations to levels where no further action is required based on the values presented in **Tables 2-3 and 2-4**. Based on sampling results from this evaluation, some locations do require continued mitigation and in two buildings (in locations where heavy machinery is present and operational) indoor air concentrations of tetrachloroethene require further investigation to determine and eliminate the source (recommended to be conducted by the building owner since these concentrations appear to be related to the operations currently being conducted within the buildings and not to sub-slab vapor or the underlying groundwater plume). The recommendations presented in the above referenced report, which are currently under review at NYSDEC and NYSDOH, are summarized below:

- Building 201: reduce the number of mitigation systems from 12 to four (201-5, 201-6, 201-11 and 201-12) to address carbon tetrachloride in the sub-slab.
- Building 202: reduce the number of mitigation systems from 12 to four (202-5, 202-6, 202-11 and 202-12) to address carbon tetrachloride in the sub-slab.
- Building 203: reduce the number of mitigation systems from 12 to seven (203-2, 203-3, 203-4, 203-5, 203-6, 203-11 and 203-12) to address carbon tetrachloride and trichloroethene in the sub-slab.
- Building 204: no further action is required in Building 204. Terminate operation of all 12 mitigation systems.

In each building requiring further mitigation, changes to the monitoring program are also proposed. These proposed changes are presented in the 2020 Soil Vapor Intrusion Mitigation System Annual Report and Proposed System Modifications (AECOM, 2021a) and currently pending approval from NYSDEC and NYSDOH.

4.2 Institutional Controls / Engineering Controls Certification

The completed IC/EC Certification form is included in **Appendix A.**

5.0 MONITORING PLAN COMPLIANCE REPORT

5.1 Components of the Monitoring Plan

The requirements of the monitoring plan by media are presented below in **Tables 5-1 and 5-2**.

Table 5-1: Inspection and Sampling Schedule

Activity	Frequency	Date	Locations Inspected/Sampled
Site Wide IC/EC Inspection	Semi- Annually	December and June	All SVI mitigation systems All Monitoring Wells
Off Site SVI Mitigation System Inspection	Annually	June	Off-Site Residence
Site-Wide Groundwater Monitoring	Annually	June	GEP-3, MW-B-3, MW-5, MW-6, MW-7, MW-8, MW-9, MW-11R, MW-12R, MW-14, MW-17, MW-18, MW-19, MW-20, MW-22R, MW-23, MW-24, MW-25, MW-26, MW-27, MW-36, GEP-2, GEP-1, GEP-4
Groundwater Monitoring for PRB Effectiveness	Quarterly for first two years; semi-annually thereafter	March, June, September, December	MW-15, MW-16, MW-24, MW-26, MW-28, MW-29, MW-30, MW-31, MW-32, MW-33, MW-34, MW-35,
SVI mitigation system Monitoring	Semi-annually for sub-slab pressure differential monitoring (through December 2019); annually during heating season for indoor air sampling and sub-slab sampling (through winter of 2020/2021).	December and June	All SVI mitigation systems

Table 5-2: Sampling Requirements and Schedule

Monitoring Event[1]	**Analytical Parameters**			**Schedule**
	VOCs (EPA Method 8260C)	MNA Parameters	VOCs (TO-15 SIM)	
Site-wide groundwater monitoring	X			Annually
Groundwater monitoring for PRB effectiveness	X	X		Quarterly for first 8 quarters; semi-annually thereafter
SVI Mitigation System Monitoring			X	Semi-annually for sub-slab pressure differential monitoring; annual for indoor air analyses.

5.2 Summary of Monitoring Completed During Reporting Period

5.2.1 Site-Wide Inspection

Site-wide inspections have been performed semi-annually to check for system operation. The SVI mitigation system at the off-site residence (1695 Amsterdam Road, Scotia, NY 12302) has been inspected annually. The Site-wide inspection forms, completed annually, are included in **Appendix E**. More information on the site-wide inspections can be found in the SMP.

5.2.2 Groundwater Monitoring

Volatile Organic Compounds (VOCs) at the Site have been monitored since 2015, in accordance with the schedule designated in the SMP. In 2015, a baseline groundwater investigation for all site-wide wells was completed and included sampling from 36 wells. The sampling schedule includes 12 monitoring wells sampled on a quarterly basis for the first two years, then semi-annually thereafter, and one annual site-wide sampling event consisting of 36 monitoring well sample locations. The installation of the PRB was completed in November 2016. Directly following the installation of the PRB, the first quarterly sampling event was conducted in December 2016. The next quarterly sampling event occurred in March 2017 and continued throughout September 2018 for a total of 8 quarters. The compliance monitoring well pairs (MW-28 through MW-35), in addition to MW-24 (downgradient), MW-26 (downgradient), MW-15 (upgradient) and MW-16 (outside of plume), have been sampled quarterly since December 2016 and have entered the semi-annual monitoring schedule as specified in the SMP. The first semi-annual sampling event occurred in December 2018 with subsequent semi-annual events in June and December of each year through December 2020. Samples have been analyzed for the parameters reported in **Table 3-2** to assess the performance of the remedy. Four annual sampling events were conducted (June 2017, June 2018, June 2019, and June 2020) which included a site-wide sampling of monitoring wells (**Table 3-3**). The PRB location as well as monitoring well locations are shown on **Figure 5-1**. All samples were collected following the sampling techniques listed in 4.3.1.1 of the SMP.

5.2.3 Soil Vapor Intrusion Mitigation Systems Monitoring

Since the installation of the SVI mitigation systems in June 2016 there have been semi-annual inspections of all systems on-site. There have also been annual inspections of the off-site system. Indoor air sampling had occurred annually during the heating season (November 15 through March 15) and sub-slab differential pressure readings have been collected semi-annually. The purpose of this was to continue monitoring concentrations of the targeted VOCs in order to assess the performance of the recently installed SVI mitigation systems with the intention to mitigate the potential for impacted soil vapor intrusion into the building. The annual on-site sampling event includes an inspection and documentation of any tenant and building changes along with updating chemical/product inventories for each tenant. Sampling has been performed in accordance with the NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (October 2006 with updates). All samples were collected in individually certified clean Summa canisters provided by the laboratories.

Each heating season, 12 indoor air samples have been collected from the four buildings along with one outdoor air sample and analyzed for VOCs by Method TO-15 SIM. Indoor air sampling locations are shown on **Figure 3-1**; SVI monitoring locations are shown on **Figures 5-2 through 5-5**. Laboratory results from all previous sampling events are summarized in **Table 3-5**. The SVI Decision Matrix results from all previous sampling events are included in **Table 5-3**.

The residential off-site SVI mitigation system is inspected annually in June to ensure the system is operating. The inspection consists of a visual observation of the gauge located on the outside of the home which indicates if the system is on or off. The system has been on and operating during each annual inspection event during this reporting period. The SMP does not include sampling at the off-site residences therefore no indoor air or sub slab vapor samples are collected at the residence.

5.3 Comparisons with Remedial Objectives

5.3.1 Permeable Reactive Barrier Remedy Effectiveness

The remediation goal for the PRB at the Site as listed in the ROD dated March 2010 is to eliminate or reduce to the extent practicable exposures of persons at or around the Site to VOCs in groundwater. As stated in the SMP, effectiveness of the remedy will be demonstrated by a decrease in the groundwater VOC concentrations between the upgradient and downgradient compliance wells (MW-28/MW-29, MW-30/MW-31, MW-32/MW-33, and MW-34/MW-35). As discussed in Section 3.1.1, groundwater monitoring indicates that the PRB is reducing groundwater VOC concentrations as groundwater data shows decreasing trends in the downgradient compliance wells while the upgradient wells generally show no trend of a stable trend. The performance of the PRB will be continuously evaluated after each monitoring event.

5.3.2 Soil Vapor Intrusion Mitigation Systems Effectiveness

The remediation goal for the SVI mitigation systems at the Site as listed in the ROD is to eliminate or reduce to the extent practicable the release of contaminants from groundwater beneath structures into indoor air through soil vapor intrusion. The 2020 sampling event data results show that the current indoor air VOC concentrations are similar to those measured in the concurrent outdoor air samples indicating that the SVI mitigation systems are functioning as designed.

5.4 Monitoring Deficiencies

Since the initiation of post-remedy installation sampling and monitoring in 2016 the only deficiencies in required monitoring were due to damaged monitoring wells, damaged SVI mitigation systems, damaged sub-slab vapor monitoring points, or in some cases inaccessible SVI remediation monitoring locations due to building operations. Building owners and tenants were notified upon findings of any deficiencies in monitoring system components, however, the response from the property owner was at times, delayed. Discussions with the building owner and tenants on how to prevent future damages are ongoing.

During this PRR reporting period, several monitoring wells were damaged due to construction of a warehouse building by the property owner. Upon completion of the building construction, USACE coordinated with the property owner on completing repairs to the damaged monitoring wells. All well repairs were completed by August 2020.

The respective annual SVI monitoring reports and quarterly groundwater monitoring reports (AECOM, 2017c, 2017d, 2017e, 2017f, 2018, 2018a, 2018b, 2018c, 2018d, 2019, 2019a, 2019b 2020, 2020a, 2020b, 2021, 2021a) submitted to NYSDEC provide further details on specific activities performed, analytical testing results, and observations made during the sampling events.

5.5 Conclusions and Recommendations for Changes

Currently there are no recommendations for changes to the on-site PRB or the off-site residential system sampling and monitoring program. There are proposed changes to the on-site SVI system sampling and monitoring program currently pending approval from NYSDEC and NYSDOH (as discussed in Section 4.1.2.2 of this report.

6.0 OPERATION & MAINTENANCE PLAN COMPLIANCE REPORT

6.1 Components of the Operation & Maintenance Plan

6.1.1 Permeable Reactive Barrier

Since the PRB is installed fully below ground, the disturbed area has been restored to pre-existing conditions. No maintenance of the PRB is required. The monitoring well network that is used to evaluate the effectiveness of the PRB wall must be maintained and monitoring wells must be in good condition allowing for sample collection.

6.1.2 Soil Vapor Intrusion Remediation Systems

As stated in the SMP (AECOM, 2017b), routine inspection of the off-site residential system, and on-site individual suction points, overall systems and building conditions are an essential part of maintaining the systems and ensuring they are operating as designed. Inspections, as described in Section 5.2.1, have been conducted on a semi-annual basis from the time the systems were completed. The list provided in Appendix F of the SMP (AECOM, 2017b) includes general elements of the system inspections and system operation.

6.2 Summary of Operation & Maintenance Completed During Reporting Period

6.2.1 Permeable Reactive Barrier

As discussed in Section 5.4, due to recent construction activity in Parcels 2 and C-3, damage to some of the existing groundwater monitoring wells has been observed. Since these construction activities are ongoing, USACE will continue to monitor and present recommendations for repair after construction activities are complete.

6.2.2 Soil Vapor Intrusion Remediation Systems

Throughout this PRR reporting period there have been necessary repairs due to building tenant induced damages to the SVI mitigation systems. The observed damage to the SVI mitigation systems was minor and does not have a major impact on the overall functionality of the systems, however repairs were made to ensure that the systems were operating as intended. During the semi-annual inspections during this reporting period damages to the SVI mitigation systems were noticed in all four buildings. Damages were reported and repairs were completed as needed. A summary of the damaged and repaired items within each building is provided below.

In December of 2016, one SSDS suction point in building 202 was noticed to have a fluctuating manometer. When this manometer was monitored during the June 2017 and June 2018 Site inspections, the fluctuation had stopped. This fluctuation was again observed during the December 2017, December 2018 inspections. This fan was replaced by PES in April of 2019 however during the January 2020 sampling events the fluctuations were observed once again. It appears these fluctuations occur on a seasonal basis in the winter. Vacuum readings were taken at the nearby vacuum monitoring points to confirm that the suction point was still producing a sufficient sub-slab vacuum.

Some system damages were noted during the June 2020 inspection event. Prior to turning systems back on after the shut down and sampling period another inspection will be performed to take note of any new damages, and if needed, any damages will be repaired in coordination with the property owner and tenants.

6.3 Evaluation of Remedial Systems

The following sections present an evaluation of the functionality of the remedial systems with respect to the operation and maintenance activities performed on their respective components.

6.3.1 Permeable Reactive Barrier

Overall, the functionality of the PRB has not been affected by the operation and maintenance activities performed on the monitoring well network.

6.3.2 Soil Vapor Intrusion Remediation System

Overall, the SVI mitigation systems have operated without shutdown and no general maintenance to the systems was required during this reporting period other than repair of the observed system damages described above. Sufficient vacuum was still recorded at most monitoring points even when system damages were noted. Subsequently the overall functionality of the SVI mitigation systems was not affected by damages, and repairs to systems that will remain on will be completed as soon as possible to ensure optimal system performance.

6.4 Operation and Maintenance Deficiencies

Overall, there have been no deficiencies to the operation and maintenance plans for the groundwater and soil vapor intrusion remedies at the Site. All noticed damages were documented and repaired.

6.5 Conclusions and Recommendations for Improvements

Overall, based on the data collected to date, the groundwater remedy (i.e., the PRB) and soil vapor intrusion mitigation system at the Site are in place and appear to be achieving remedial objectives. At this time there are no recommendations for modifications or improvements to the PRB or SVI operation and maintenance schedules.

7.0 OVERALL PERIODIC REVIEW REPORT CONCLUSIONS AND RECOMMENDATIONS

7.1 Compliance with Site Management Plan

The SMP includes a monitoring schedule that provided an outline for the sampling, monitoring and inspection events conducted at the Site. For the period that this PRR covers, April 12, 2020 through April 12, 2021, all requirements for such events laid out in the SMP were met.

7.2 Performance and Effectiveness of the Remedy

The following sections present an evaluation of the overall performance and effectiveness of the reactive barrier and soil vapor intrusion systems.

7.2.1 Permeable Reactive Barrier Conclusions

As stated in the SMP, effectiveness of the remedy is to be demonstrated by a decrease in the groundwater VOC concentrations between the upgradient and downgradient compliance wells (MW-28/MW-29, MW-30/MW-31, MW-32/MW-33, and MW-34/MW-35). Groundwater monitoring data collected to date is showing a decreasing trend in three of the four downgradient compliance wells while two of the four upgradient wells show a stable trend or no trend (as discussed in Section 3.1) using the GSI Mann-Kendall Toolkit. These trends, and the stable concentrations in other site-wide groundwater monitoring wells indicate that the TCE plume overall is stable and the PRB appears to be effectively degrading TCE.

As described in the PRB RAWP, expectations are that ZVI PRBs will function for at least 30 years with the possibility of a greater lifetime depending on Site conditions. Approximately 4.5 years have elapsed since the completion of PRB construction.

7.2.2 Soil Vapor Intrusion Systems Conclusions

Since installation of the SVI mitigation systems all indoor air sampling results show that the systems are effectively preventing sub-slab vapor migration into indoor air. Annual air sampling results show that the current indoor air VOC concentrations are similar to those measured in the concurrent outdoor air samples indicating that the SVI mitigation systems are functioning as designed. The off-site residential system was inspected in December 2020 and was found to be operating with an approximate vacuum of 1.5 inches of water.

7.3 Future Periodic Review Report Submittals

No changes to the activities at the Site are recommended at this time and monitoring programs will continue to follow the schedules outline in Section 5.0. The PRR should continue to be completed annually as stated in the SMP. The next PRR will be due in May 2022.

8.0 REFERENCES

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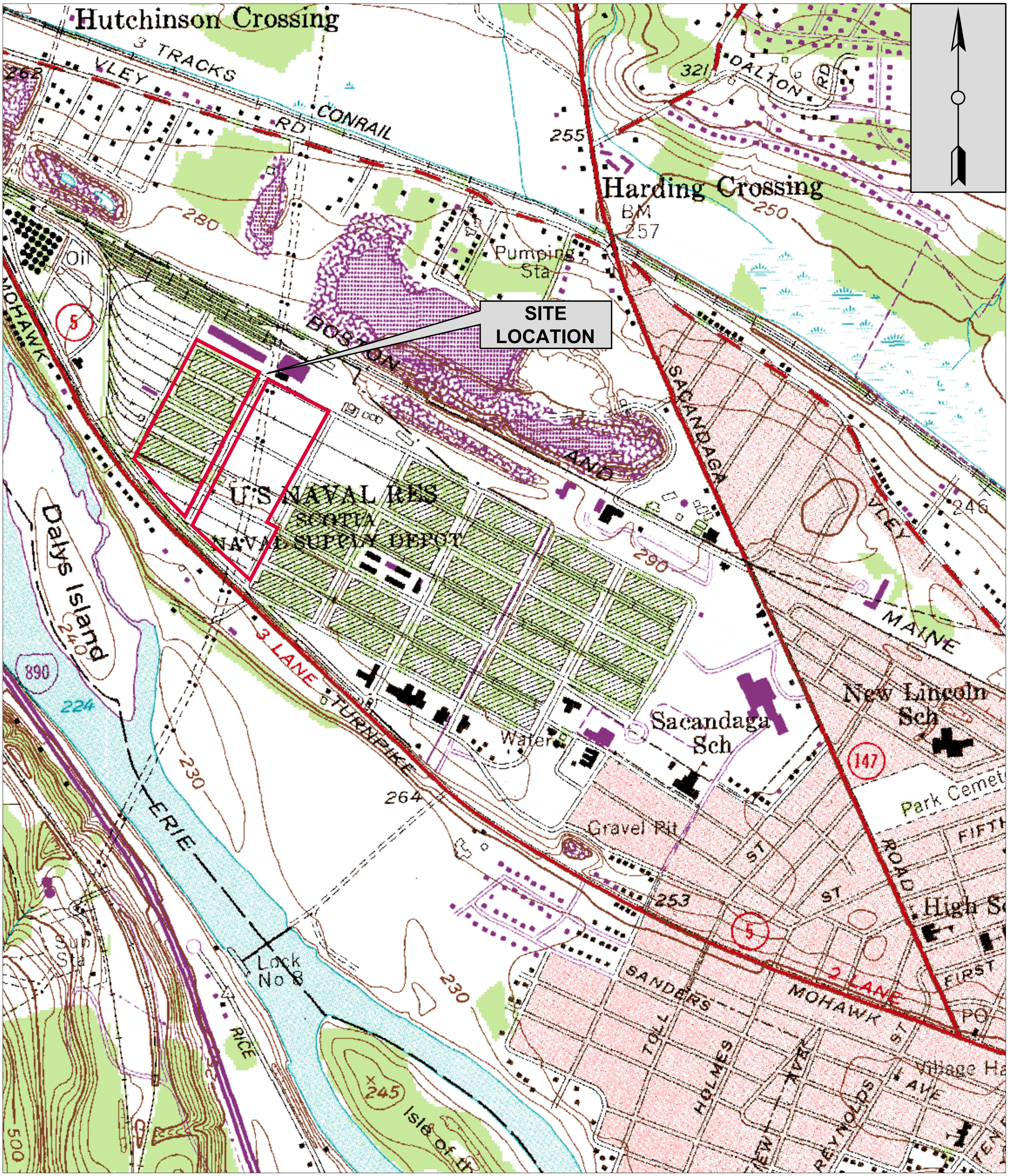
FIGURES



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PERIODIC REVIEW REPORT
DEFENSE NATIONAL STOCKPILE
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641

US ARMY Corps
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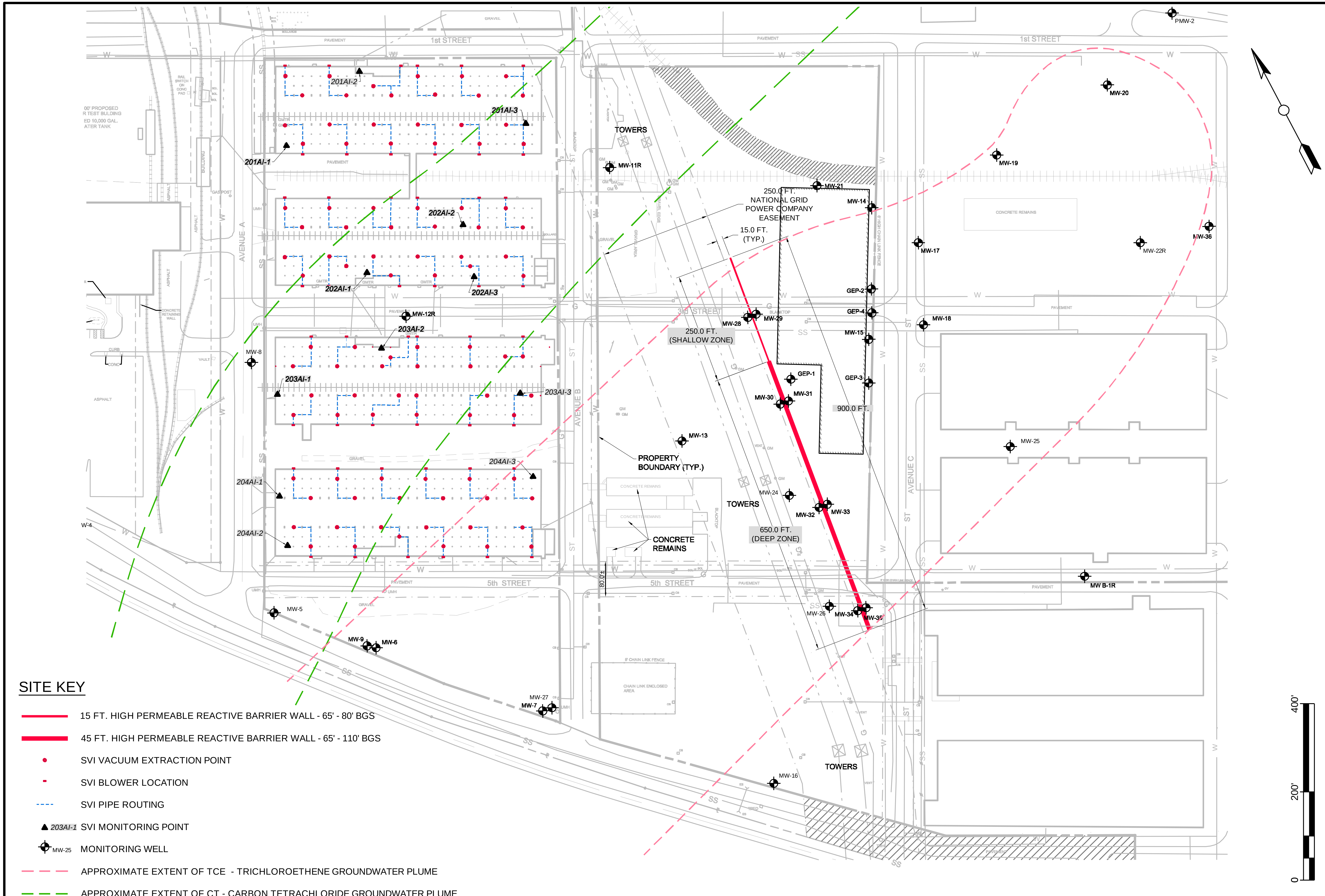
SITE LOCATION MAP

AECOM

Figure: 2-1



AECOM

Figure: 3-1

SITE LAYOUT PLAN

US ARMY Corps of Engineers

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DEFENSE NATIONAL STOCKPILE CENTER
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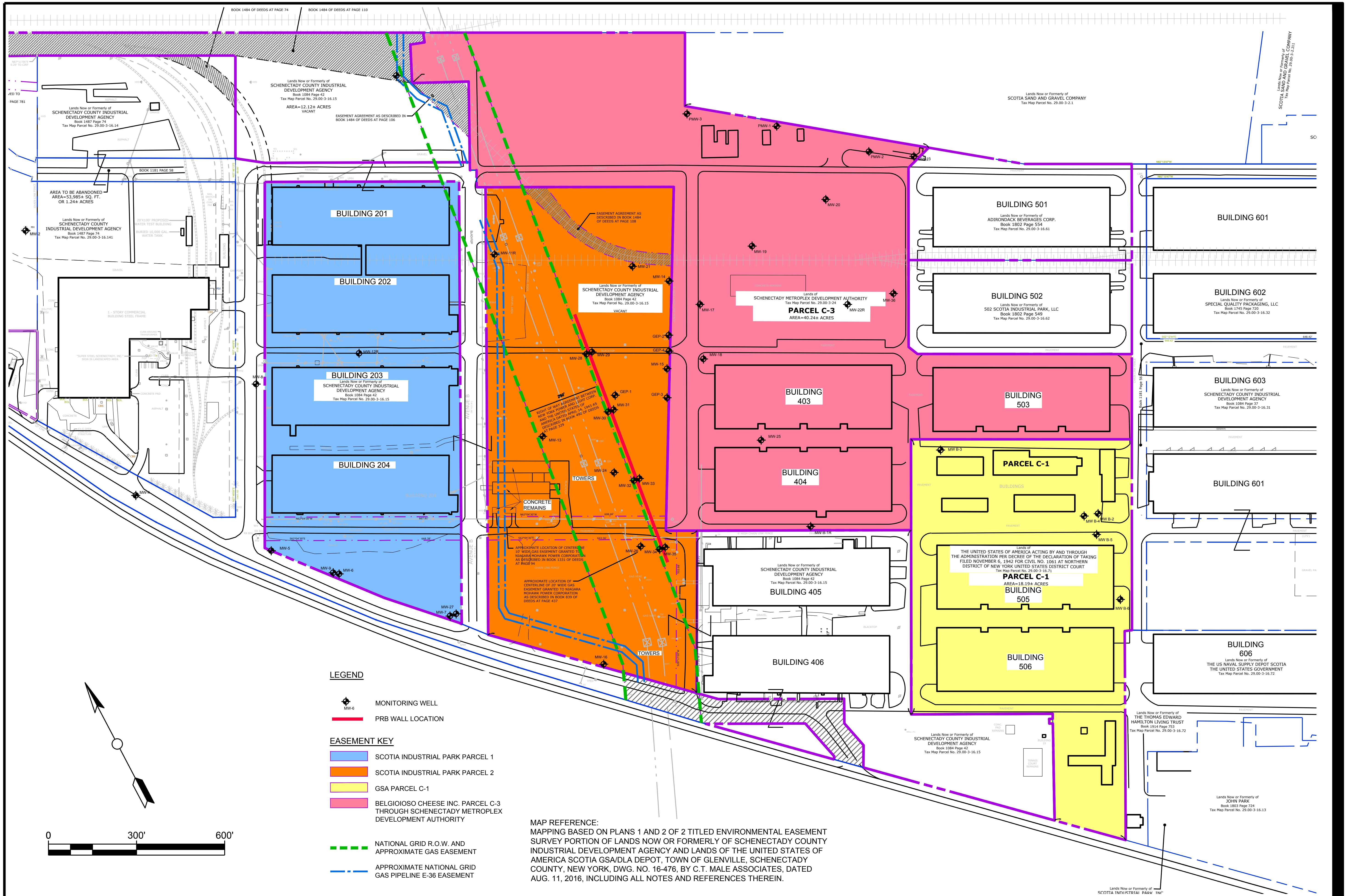

Figure 2-2

PROPERTY OWNER MAP

US ARMY Corps of Engineers

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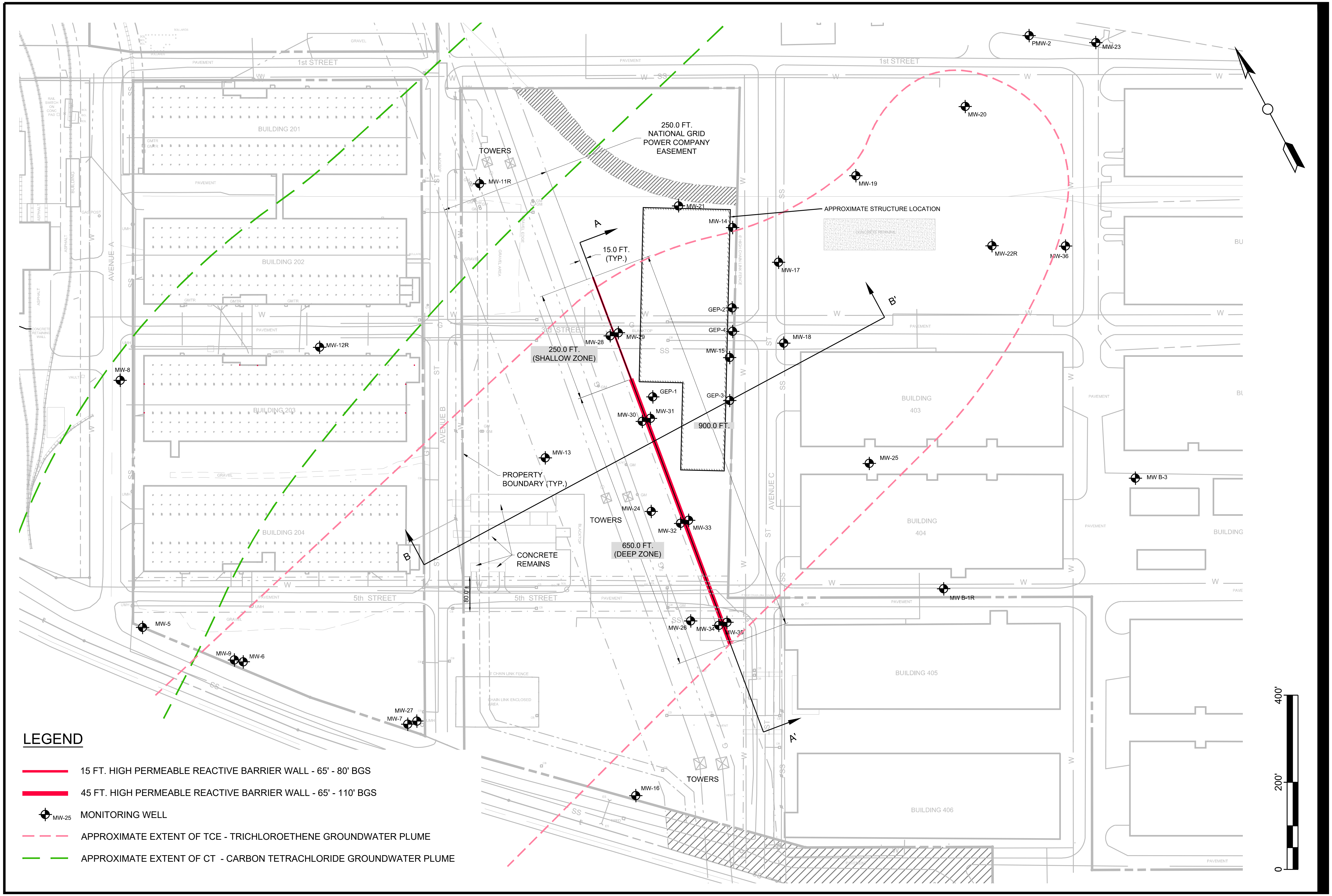

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Figure: 5-1

PRB LOCATION MAP AND MONITORING LOCATIONS

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SCOTIA DEPOT SITE - SCOTIA, NY
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Date: May, 2021

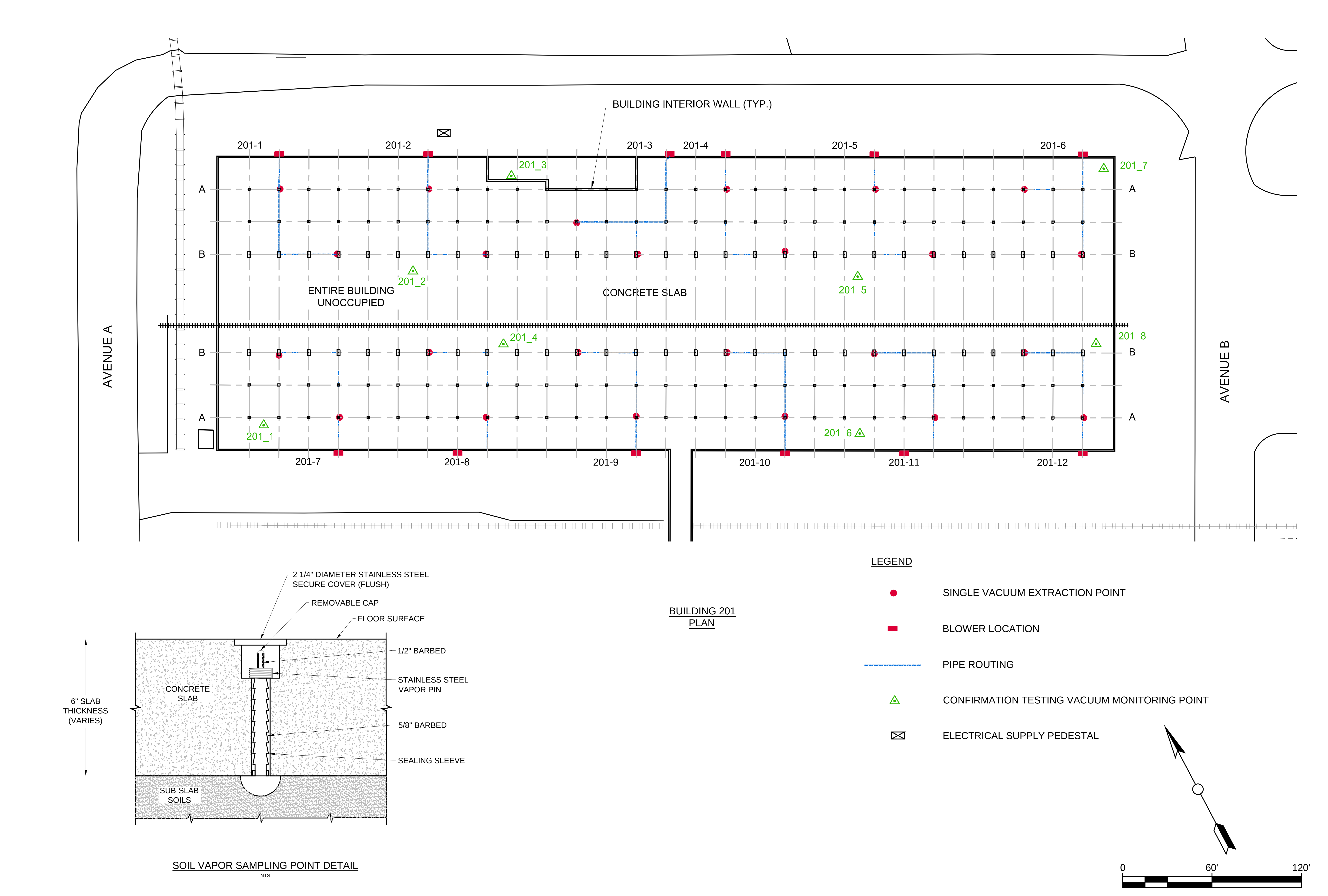

Figure: 5-2

BUILDING 201
SVI MONITORING LOCATIONS

US ARMY Corps of Engineers

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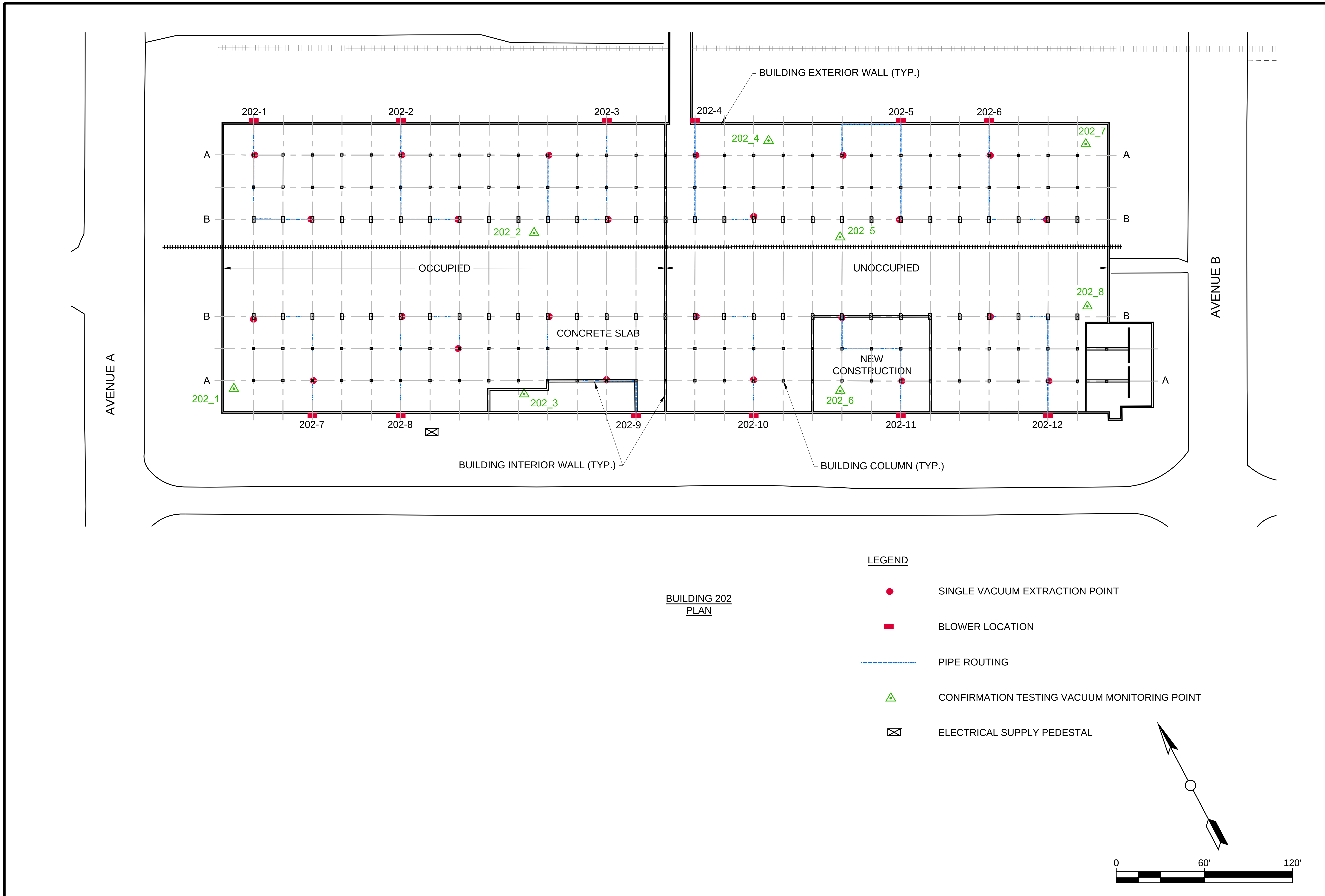

Figure: 5-3

AECOM

BUILDING 202
SVI MONITORING LOCATIONS

US ARMY Corps of Engineers

PERIODIC REVIEW REPORT
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SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: May, 2021

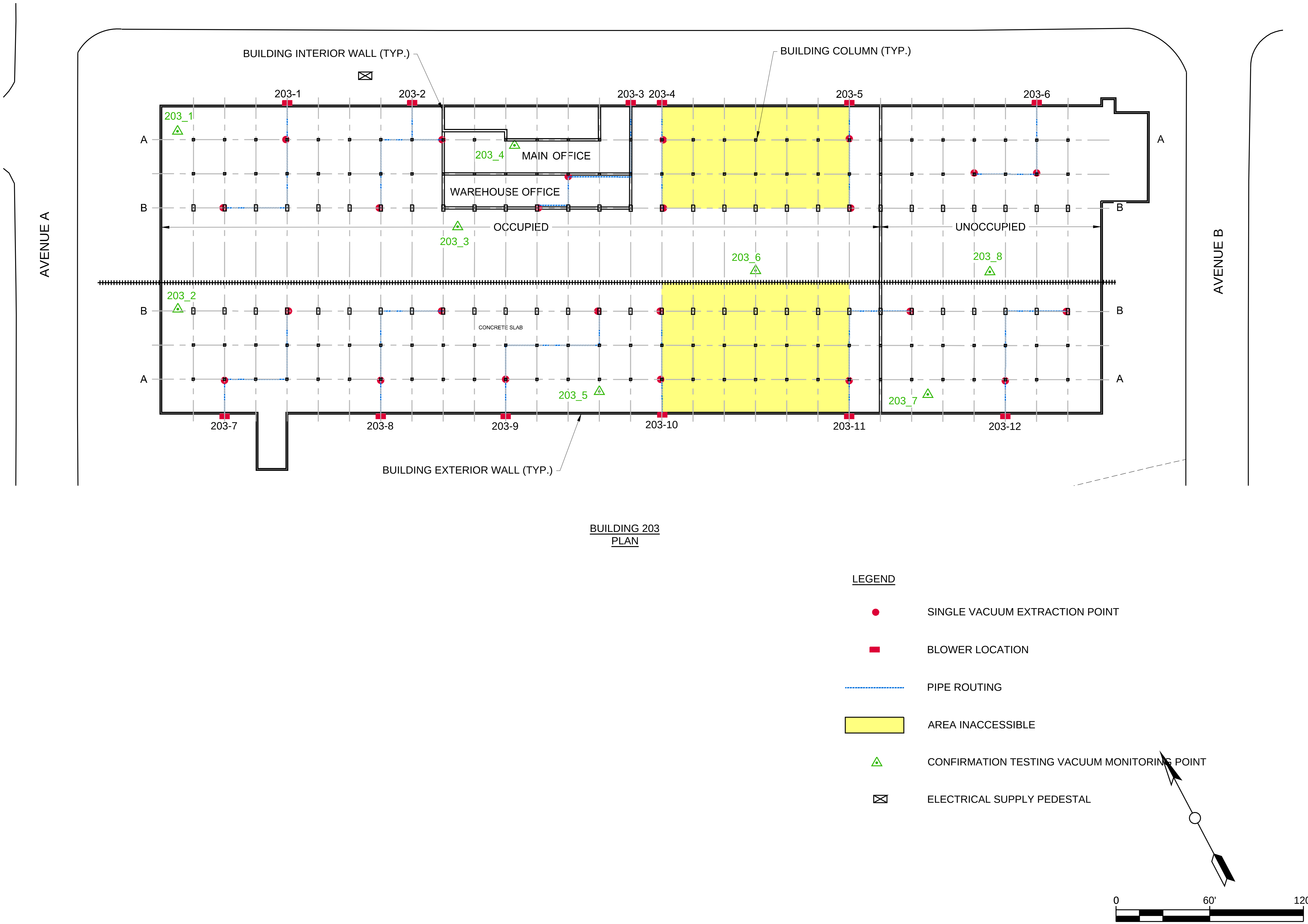

Figure: 5-4

BUILDING 203
SVI MONITORING LOCATIONS

US ARMY Corps of Engineers

PERIODIC REVIEW REPORT
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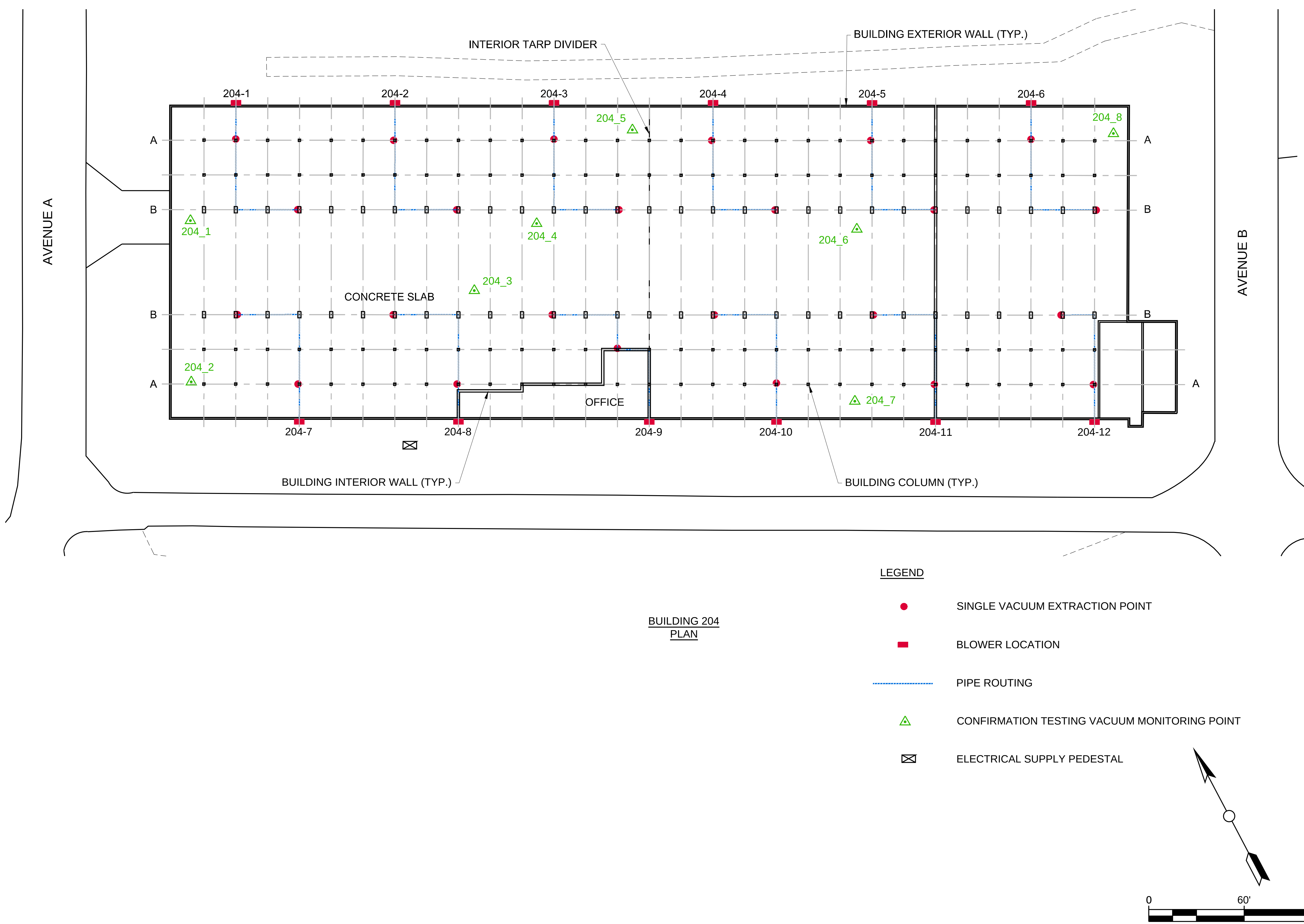

BUILDING 204
PLAN

LEGEND

- SINGLE VACUUM EXTRACTION POINT
- BLOWER LOCATION
- PIPE ROUTING
- CONFIRMATION TESTING VACUUM MONITORING POINT
- ELECTRICAL SUPPLY PEDESTAL

AECOM

Figure: 5-5

BUILDING 204
SVI MONITORING LOCATIONS

US ARMY Corps
of Engineers

PERIODIC REVIEW REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: May, 2021

TABLES

Table 3-1
Groundwater Elevations Data
The Defense National Stockpile Center Scotia Depot

Well IDs	Screened Interval (ft bgs)	Ground Surface Elevation (ft)	Reference Point Elevation (ft)	Adjusted Reference Point Elevation (ft) June 2019	Adjusted Reference Point Elevation (ft) August 2020	Depth To Water (ft bgs) 2015	Depth to Water (ft bgs) 2016	Depth To Water (ft bgs) Q1 2017	Depth to Water (ft bgs) Q2 2017	Depth To Water (ft bgs) Q3 2017	Depth To Water (ft bgs) Q4 2017	Depth To Water (ft bgs) Q1 2018	Depth To Water (ft bgs) Q2 2018	Depth To Water (ft bgs) Q3 2018	Depth To Water (ft bgs) Q4 2018	Depth To Water (ft bgs) Q2 2019	Depth to Water (ft bags) Q4 2019	Depth To Water (ft bgs) Q2 2020	Depth To Water (ft bgs) Q4 2020
B-1	48-68	-	287.14			59.4	-	-	57.34	-	-	-	dry	dry	dry	-	-	-	-
B-1R	48-68			287.42		-	-	-	-	-	-	-	-	-	-	57.05	61.99	59.55	61.95
B-3	47.5-67.5	-	287.05			59.1	-	-	-	-	-	-	58.61	58.74	59.74	dry	-	58.25	60.21
MW-4	63.8-73.8	289.58	291.74			66	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-5	62.5-72.5	287.95	290.11			64.36	70.82	70.50	63.82	64.00	72.12	71.83	64.30	63.72	71.27	64.02	71.80	72.33	72.58
MW-6	58.5-68.5	286.28	288.58			62.72	68.78	68.78	62.03	62.27	70.19	69.96	62.57	62.11	69.32	62.28	69.96	70.40	71.30
MW-7	61-71	286.8	289.26			62.98	66.1	68.47	61.96	61.95	67.84	68.22	62.80	62.32	66.72	62.31	67.82	68.32	69.23
MW-8				293.03		62.5	68.58	-	-	-	-	-	-	-	-	65.78	72.71	72.82	74.38
MW-9	110-120	285.98	288.33			64.91	-	68.55	61.85	62.04	69.70	69.74	62.40	61.89	69.06	62.07	69.71	70.92	71.11
MW-11	65-80	295.73	295.12			67.42	69.21	70.12	64.36	65.36	69.55	70.15	66.12	66.80	67.43	-	-	-	-
MW-11R	65-80			295.56		-	-	-	-	-	-	-	-	-	-	64.81	-	68.43	71.77
MW-12R	60-80			292.34		-	-	-	-	-	-	-	-	-	-	64.16	69.64	69.47	71.41
MW-13	65-80	292.62	293.85			66.53	68.42	69.90	64.25	64.40	68.86	69.72	65.75	65.99	67.51	64.20	69.73	68.11	70.51
MW-14	65-80	-	296.2		294.21	68.12	69.64	70.13	64.88	65.60	69.13	70.17	66.81	67.52	67.18	64.58	68.35	67.99	69.03
MW-15	65-80	-	293.67		292.72	65.87	67.4	68.35	63.07	63.49	67.00	68.20	64.88	65.32	65.42	62.76	66.35	65.87	67.91
MW-16	55-70	-	288.33			61.94	62.95	66.38	60.7	60.28	63.72	65.13	62.14	61.36	63.17	60.63	63.85	64.88	65.84
MW-17	60-75	-	295.24	292.05		67.16	68.69	69.25	64.09	64.66	67.99	69.20	65.98	66.60	66.26	60.49	62.25	63.36	66.76
MW-18	60-75	-	295.24	291.97		67.3	68.78	69.56	64.49	64.86	68.15	69.48	66.34	66.76	66.62	60.77	63.17	63.70	66.78
MW-19	62-77	-	297.67	295.33		69.24	70.82	70.54	65.74	66.42	69.63	70.80	67.80	68.66	67.50	62.86	63.36	65.37	68.27
MW-20	63-78	-	301.55	298.55		72.84	74.54	73.72	69.22	69.90	72.93	74.10	71.35	72.34	70.82	65.55	68.80	67.82	71.98
MW-21	57-72	-	296.52		294.01	68.46	70.02	70.55	65.19	65.40	69.70	-	-	67.85	67.61	64.93	68.80	68.06	69.01
MW-22	63-78	-	298.91			70.62	72.18	72.08	67.64	67.80	70.61	72.20	69.65	70.14	-	-	-	-	-
MW-22R	63-78			296.35		-	-	-	-	-	-	-	-	-	-	64.38	67.02	66.71	70.09
MW-23	63-78	-	300.54			71.64	73.48	72.14	67.98	68.55	-	-	70.70	71.23	70.76	67.34	-	69.41	73.64
MW-24	90-100	290.24	292.45			65.66	67.15	68.85	63.4	63.62	67.33	68.46	65.02	65.13	66.06	63.22	66.42	66.72	69.18
MW-25	65-75	288.16	290.26	288.11		63.1	64.44	65.44	60.61	60.57	63.56	65.13	62.48	62.59	62.42	57.28	63.42	59.95	62.61
MW-26	100-110	287.23	286.45			60.39	61.7	63.85	58.44	58.35	61.80	63.19	60.02	59.86	60.88	58.23	61.65	61.70	63.78
MW-27	100-110	286.08	288.32			62.82	64.88	68.67	61.89	62.00	67.35	67.93	63.11	62.52	67.11	63.71	69.00	69.85	69.52
MW-28	67-72	292.55	292.25		293.65	65.18	66.84	67.94	62.46	63.06	66.72	67.81	64.18	64.63	65.24	62.28	66.41	65.69	69.48
MW-29	67-72	292.50	292.13		293.05	65.08	66.75	67.80	62.31	62.94	66.90	67.70	64.04	64.49	65.06	62.13	66.07	65.55	68.78
MW-30	82-92	291.76	291.63		292.84	64.65	66.28	67.65	62.19	62.59	66.35	67.35	63.83	64.11	64.93	62.01	65.89	65.44	68.19
MW-31	82-92	291.80	291.54		292.27	64.59	66.14	67.42	62.02	62.43	66.14	67.20	63.70	63.99	64.69	61.84	65.65	65.21	66.99
MW-32	82-92	290.12	289.75			62.89	64.3	66.05	60.7	60.82	64.33	65.57	62.30	62.36	63.15	60.45	64.00	63.82	66.21
MW-33	82-92	290.27	289.91			63.02	64.4	66.11	60.8	60.86	64.37	65.65	62.40	62.49	63.23	60.54	64.05	63.84	66.28
MW-34	82-92	287.30	287.05			60.32	61.57	63.70	58.39	58.28	61.54	63.16	60.02	59.84	60.68	58.44	61.61	61.60	63.56
MW-35	82-92	287.25	286.96			60.27	61.5	63.56	58.28	58.15	61.40	62.88	59.92	59.70	60.49	58.01	61.73	61.30	63.35
MW-36	70-80	292.61	292.36			64.56	66.24	66.10	61.87	60.98	64.42	66.40	63.23	64.27	63.36	61.21	-	63.39	66.68
GEP-1	59.6-74.6	-	294.98	295.2	291.21	67.62	-	70.55	65.06	-	69.30	70.33	-	-	67.72	65.07	66.30	68.40	68.91
GEP-2	60.6-75.6	-	296.02		293.93	68.12	69.64	70.43	65.18	65.69	69.19	70.35	67.00	67.52	67.51	64.86	68.50	67.93	68.86
GEP-3	59.6-74.6	-	292.97		291.9	65.16	66.66	67.71	62.47	62.85	66.30	67.54	64.25	64.62	64.86	62.21	64.16	65.29	67.16
GEP-4	60.15-75.15	-	295.62	292.88	292.9	67.89	69.4	70.23	65.01	65.50	68.98	-	-	-	-	61.94	65.17	65.02	67.40

Notes:
"-" data is not available due to inaccessibility or damage to monitoring well location, or well did not exist

Table 3-1
Groundwater Elevations Data
The Defense National Stockpile Center Scotia Depot

Well IDs	Screened Interval (ft bgs)	Ground Surface Elevation (ft)	Reference Point Elevation (ft)	Adjusted Reference Point Elevation (ft) June 2019	Adjusted Reference Point Elevation (ft) August 2020	Groundwater Elevation 2015	Groundwater Elevation 2016	Groundwater Elevation Q1 2017	Groundwater Elevation Q2 2017	Groundwater Elevation Q3 2017	Groundwater Elevation Q4 2017	Groundwater Elevation Q1 2018	Groundwater Elevation Q2 2018	Groundwater Elevation Q3 2018	Groundwater Elevation Q4 2018	Groundwater Elevation Q2 2019	Groundwater Elevation Q4 2019	Groundwater Elevation Q2 2020	Groundwater Elevation Q4 2020
B-1	48-68	-	287.14			**227.74**	**-**	**-**	**229.80**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
B-1R	48-68			287.42		-	-	-	-	-	-			**-**	**-**	**230.37**	**225.43**	**227.87**	**225.47**
B-3	47.5-67.5	-	287.05			**227.95**	**-**	**-**	**-**	**-**	**-**	**-**	**228.44**	**228.31**	**dry**	**dry**	**-**	**228.80**	**226.84**
MW-4	63.8-73.8	289.58	291.74			-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-5	62.5-72.5	287.95	290.11			**225.75**	**219.29**	**219.61**	**226.29**	**226.11**	**217.99**	**218.28**	**225.81**	**226.39**	**218.84**	**226.09**	**218.31**	**217.78**	**217.53**
MW-6	58.5-68.5	286.28	288.58			**225.86**	**219.80**	**219.80**	**226.55**	**226.31**	**218.39**	**218.62**	**226.01**	**226.47**	**219.26**	**226.30**	**218.62**	**218.18**	**217.28**
MW-7	61-71	286.8	289.26			**226.28**	**223.16**	**220.79**	**227.30**	**227.31**	**221.42**	**221.04**	**226.46**	**226.94**	**222.54**	**226.95**	**221.44**	**220.94**	**220.03**
MW-8				293.03		-	-	-	-	-	-	-	-	**-**	**-**	**227.25**	**220.32**	**220.21**	**218.65**
MW-9	110-120	285.98	288.33			**225.83**	**219.75**	**219.78**	**226.48**	**226.29**	**218.63**	**218.59**	**225.93**	**226.44**	**219.27**	**226.26**	**218.62**	**217.41**	**217.22**
MW-11	65-80	295.73	295.12			-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-11R	65-80			295.56		-	-	-	-	-	-	-	-	-	-	**230.75**	**-**	**227.13**	**223.79**
MW-12R	60-80			292.34		-	-	-	-	-	-	-	-	-	-	**228.18**	**222.70**	**222.87**	**220.93**
MW-13	65-80	292.62	293.85			**227.32**	**225.43**	**223.95**	**229.60**	**229.45**	**224.99**	**224.13**	**228.10**	**227.86**	**226.34**	**229.65**	**224.12**	**225.74**	**223.34**
MW-14	65-80	-	296.2		294.21	**228.08**	**226.56**	**226.07**	**231.32**	**230.60**	**227.07**	**226.03**	**229.39**	**228.68**	**229.02**	**231.62**	**227.85**	**228.21**	**225.18**
MW-15	65-80	-	293.67		292.72	**227.8**	**226.27**	**225.32**	**230.60**	**230.18**	**226.67**	**225.47**	**228.79**	**228.35**	**228.25**	**230.91**	**227.32**	**227.80**	**224.81**
MW-16	55-70	-	288.33			**226.39**	**225.38**	**221.95**	**227.63**	**228.05**	**224.61**	**223.20**	**226.19**	**226.97**	**225.16**	**227.70**	**224.48**	**223.45**	**222.49**
MW-17	60-75	-	295.24	292.05		**228.08**	**226.55**	**225.99**	**231.15**	**230.58**	**227.25**	**226.04**	**229.26**	**228.64**	**228.98**	**231.56**	**229.80**	**228.69**	**225.29**
MW-18	60-75	-	295.24	291.97		**227.94**	**226.46**	**225.68**	**230.75**	**230.38**	**227.09**	**225.76**	**228.90**	**228.48**	**228.62**	**231.20**	**228.80**	**228.27**	**225.19**
MW-19	62-77	-	297.67	295.33		**228.43**	**226.85**	**227.13**	**231.93**	**231.25**	**228.04**	**226.87**	**229.87**	**229.01**	**230.17**	**232.47**	**231.97**	**229.96**	**227.06**
MW-20	63-78	-	301.55	298.55		**228.71**	**227.01**	**227.83**	**232.33**	**231.65**	**228.62**	**227.45**	**230.20**	**229.21**	**230.73**	**233.00**	**229.75**	**230.73**	**226.57**
MW-21	57-72	-	296.52		294.01	-	-	-	-	-	-	-	-	**228.67**	**228.91**	**231.59**	**227.72**	**228.46**	**225.00**
MW-22	63-78	-	298.91			-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-22R	63-78			296.35		-	-	-	-	-	-	-	-	-	-	**231.97**	**229.33**	**229.64**	**226.26**
MW-23	63-78	-	300.54			**228.9**	**227.06**	**228.40**	**232.56**	**231.99**	**-**	**-**	**229.84**	**229.31**	**229.78**	**233.20**	**-**	**231.13**	**226.90**
MW-24	90-100	290.24	292.45			**226.79**	**225.30**	**223.60**	**229.05**	**228.83**	**225.12**	**223.99**	**227.43**	**227.32**	**226.39**	**229.23**	**226.03**	**225.73**	**223.27**
MW-25	65-75	288.16	290.26	288.11		**227.16**	**225.82**	**224.82**	**229.65**	**229.69**	**226.70**	**225.13**	**227.78**	**227.67**	**227.84**	**230.83**	**224.69**	**228.16**	**225.50**
MW-26	100-110	287.23	286.45			**226.06**	**224.75**	**222.60**	**228.01**	**228.10**	**224.65**	**223.26**	**226.43**	**226.59**	**225.57**	**228.22**	**224.80**	**224.75**	**222.67**
MW-27	100-110	286.08	288.32			**225.5**	**223.44**	**219.65**	**226.43**	**226.32**	**220.97**	**220.39**	**225.21**	**225.80**	**221.21**	**224.61**	**219.32**	**218.47**	**218.80**
MW-28	67-72	292.55	292.25		293.65	**227.07**	**225.41**	**224.31**	**229.79**	**229.19**	**225.53**	**224.44**	**228.07**	**227.62**	**227.01**	**229.97**	**225.84**	**226.56**	**224.17**
MW-29	67-72	292.50	292.13		293.05	**227.05**	**225.38**	**224.33**	**229.82**	**229.19**	**225.23**	**224.43**	**228.09**	**227.64**	**227.07**	**230.00**	**226.06**	**226.58**	**224.27**
MW-30	82-92	291.76	291.63		292.84	**226.98**	**225.35**	**223.98**	**229.44**	**229.04**	**225.28**	**224.28**	**227.80**	**227.52**	**226.70**	**229.62**	**225.74**	**226.19**	**224.65**
MW-31	82-92	291.80	291.54		292.27	**226.95**	**225.40**	**224.12**	**229.52**	**229.11**	**225.40**	**224.34**	**227.84**	**227.55**	**226.85**	**229.70**	**225.89**	**226.33**	**225.28**
MW-32	82-92	290.12	289.75			**226.86**	**225.45**	**223.70**	**229.05**	**228.93**	**225.42**	**224.18**	**227.45**	**227.39**	**226.60**	**229.30**	**225.75**	**225.93**	**223.54**
MW-33	82-92	290.27	289.91			**226.89**	**225.51**	**223.80**	**229.11**	**229.05**	**225.54**	**224.26**	**227.51**	**227.42**	**226.68**	**229.37**	**225.86**	**226.07**	**223.63**
MW-34	82-92	287.30	287.05			**226.73**	**225.48**	**223.35**	**228.66**	**228.77**	**225.51**	**223.89**	**227.03**	**227.21**	**226.37**	**228.61**	**225.44**	**225.45**	**223.49**
MW-35	82-92	287.25	286.96			**226.69**	**225.46**	**223.40**	**228.68**	**228.81**	**225.56**	**224.08**	**227.04**	**227.26**	**226.47**	**228.95**	**225.23**	**225.66**	**223.61**
MW-36	70-80	292.61	292.36			**227.8**	**226.12**	**226.26**	**230.49**	**231.38**	**227.94**	**225.96**	**229.13**	**228.09**	**229.00**	**231.15**	**-**	**228.97**	**225.68**
GEP-1	59.6-74.6	-	294.98	295.2	291.21	**227.36**	**-**	**224.43**	**229.92**	**-**	**225.68**	**224.65**	**-**	**-**	**227.26**	**230.13**	**228.90**	**226.80**	**222.30**
GEP-2	60.6-75.6	-	296.02		293.93	**227.9**	**226.38**	**225.59**	**230.84**	**230.33**	**226.83**	**225.67**	**229.02**	**228.50**	**228.51**	**231.16**	**227.52**	**228.09**	**225.07**
GEP-3	59.6-74.6	-	292.97		291.9	**227.81**	**226.31**	**225.26**	**230.50**	**230.12**	**226.67**	**225.43**	**228.72**	**228.35**	**228.11**	**230.76**	**228.81**	**227.68**	**224.74**
GEP-4	60.15-75.15	-	295.62	292.88	292.9	**227.73**	**226.22**	**225.39**	**230.61**	**230.12**	**226.64**	**-**	**-**	**-**	**-**	**230.94**	**227.71**	**227.86**	**225.50**

Notes:

"-" data is not available due to inaccessibility or damage to monitoring well location, or well did not exi:

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-15													
		11/9/2015	12/14/2016	3/22/2017	6/21/2017	9/28/2017	12/14/2017	3/14/2018	6/20/2018	9/18/2018	12/20/2018	6/20/2019	12/9/2019	6/16/2020	12/8/2020
		Upgradient													
VOCs (µg/L)															
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**1.9**	**4.4**	**1.9**	**3.8**	**7.4**	**4.3**	**3.2**	**2.9**	**5.2**	**6.9**	**5.6**	**4.4**	**5.4**	**2.8**
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	**0.44 J**	0.75 U	0.75 U	**0.69 J**	0.75 U	0.75 U	0.75 U	**0.35 J**	**0.51 J**	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	**0.45 J**	0.75 U	0.75 U	0.75 U	0.75 U	**0.48 J**	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	**0.6 J**	**1.7**	**0.84 J**	**0.66 J**	**1.4**	**1.3**	**0.88 J**	**0.62 J**	**0.98 J**	**1.4**	**1.0 J**	**0.92 J**	**1.0**	**0.57 J**
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**77.3**	**183**	**80.5**	**122**	**185**	**143**	**87.8**	**72.1**	**130**	**193**	**128**	**105**	**139**	**59.8**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters															
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.4**	**1.5**	NA	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	NA	NA	NA
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.10**	**0.26**	**0.06 J**	NA	NA	NA
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.044 U	0.04 U	0.04 U	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**182**	**212**	**201**	**217**	**229**	**216**	**223**	**209**	**236**	**224**	**169**	**200**	**220**	**212**
Chloride (mg/L)	NS	**28.9**	**14.3**	**28.3**	**40.1**	**30.6**	**39.7**	**24.0**	**46.4**	**42.5**	**37.1**	**43.4**	**34.4**	**35.7**	**25.6**
Nitrate (mg/L)	NS	**0.58**	**0.56**	**0.90**	**0.52**	**0.58**	**0.60**	**0.70**	**0.48**	**0.54**	**0.70**	**0.56**	**0.50**	**0.50**	**0.64**
Sulfate (mg/L)	NS	**12.3**	**12.4**	**21.3**	**20.5**	**14.3**	**20.5**	**12.4**	**15.2**	**13.2**	**11.3**	**12.0**	**12.1**	**10.7**	**10.6**
Methane (µg/L)	NS	**0.19 J**	**0.21 J**	**0.21 J**	**0.25 J**	**0.21 J**	0.50 U	**0.18 J**	**1.3 J+**	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.6 U
Ethane (µg/L)	NS	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	2.6 U
Ethene (µg/L)	NS	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	3.6 U
Total Organic Carbon (mg/L)	NS	**0.55 J**	**0.57 J**	**0.47 J**	**0.21 J**	**0.59 J**	**0.33 J**	**0.26 J**	**0.41 J**	**0.46 J**	**1.0 J+**	1.0 U	**0.83 J**	1.0 U	**0.81 J**
Field Parameters															
pH (pH Unit)	NS	7.73	7.31	7.53	7.42	7.16	7.38	7.94	7.62	7.49	7.43	7.48	7.46	7.51	7.65
Turbidity (NTU)	NS	11.1	7.00	15.7	2.10	52.1	6.30	9.22	153.0	8.7	17.9	4.49	2.71	1.58	1.87
ORP (MeV)	NS	91.4	54.6	-0.6	114.6	92.8	16.6	-1.1	67.2	135.2	320.4	102.0	133.7	160.1	173.1
Conductivity (mS/cm)	NS	0.358	0.250	0.387	0.487	0.709	0.416	0.295	0.369	0.458	0.585	0.445	0.399	0.047	0.321
Dissolved Oxygen YSI (mg/L)	NS	31.45	8.04	6.37	4.90	9.22	8.38	7.64	6.72	9.44	9.4	7.98	9.75	8.74	7.39
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.9	10.4	NA	NA	NA
Groundwater Elevation (ft)	NS	227.80	226.27	225.32	230.60	230.18	226.67	225.47	228.79	228.35	228.25	230.91	228.25	227.80	225.76

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
R - Non-detect result rejected due to holding time being exceeded.
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-16													
		11/11/2015	12/12/2016	3/20/2017	6/20/2017	9/25/2017	12/11/2017	3/13/2018	6/19/2018	9/18/2018	12/18/2018	6/24/2019	12/12/2019	6/16/2020	12/7/2020
		Outside Plume													
VOCs (µg/L)															
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**0.49 J**	0.75 U	**0.53 J**	**0.50 J**	**0.44 J**	0.75 U	0.75 U	0.75 U	**0.34 J**	0.75 U	**0.39 J**	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**0.55 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters															
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	NA	NA	NA	NA
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.15**	NA	**0.07**	NA	NA	NA
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.044 U	NA	0.04 U	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**248**	**312**	**317**	**322**	**480**	**322**	**295**	**317**	**339**	**321**	**303**	**296**	**258**	**280**
Chloride (mg/L)	NS	**13.6**	**9.0**	**5.6**	**20.2**	**4.3**	**4.0**	**2.9**	**3.9**	**2.3**	**2.8**	**5.5**	**1.7 J**	**2.5**	**4.4**
Nitrate (mg/L)	NS	**1.6**	**1.6**	**2.1**	**3.7**	**1.4**	**1.1**	**1.6**	**2.0**	**1.9**	**0.88 J**	**1.3**	**0.84**	**0.98**	**1.0**
Sulfate (mg/L)	NS	**35.2**	**44.8**	**65.3**	**75.5**	**64.8**	**119**	**123**	**27.3**	**28.7**	**46.0**	**41.9**	**71.1**	**97.5**	**46.4**
Methane (µg/L)	NS	0.25 U	**0.14 J**	0.50 U	**0.19 J**	**0.23 J**	0.50 U	0.25 U	1.1 U	1.2 U	1.5 U	1.5 U	1.5 U	1.5 U	1.6 U
Ethane (µg/L)	NS	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	2.6 U
Ethene (µg/L)	NS	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	3.6 U
Total Organic Carbon (mg/L)	NS	**3.6**	**1.0 J**	**1.1**	**0.67 J**	**0.64 J**	**0.9 J**	**0.86 J**	**1.2**	**0.62 J**	**1.5 J+**	**1.6 J+**	**0.88 J**	**1.1 J+**	1.0 U
Field Parameters															
pH (pH Unit)	NS	7.64	7.27	10.8	6.57	7.12	7.1	6.76	7.89	7.08	7.25	7.19	7.27	7.32	7.36
Turbidity (NTU)	NS	8.01	14.8	7.71	4.40	199	30.9	8.14	10.77	20.50	1.53	7.58	3.07	2.83	34.50
ORP (MeV)	NS	137.6	139.9	115.9	298.7	82.2	94.5	118.7	16.2	215.7	138.2	299.9	64.3	167.1	128.3
Conductivity (mS/cm)	NS	0.361	0.388	0.436	0.486	0.928	0.596	0.462	0.441	0.511	0.874	0.218	0.310	0.260	0.438
Dissolved Oxygen YSI (mg/L)	NS	22.27	9.50	10.40	10.82	9.81	10.30	10.09	11.71	10.04	10.93	9.28	10.98	11.06	10.37
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.2	10.17	NA	NA	NA
Groundwater Elevation (ft)	NS	226.39	225.38	221.95	227.63	228.05	224.61	223.20	226.19	226.97	225.16	227.70	225.16	223.45	222.49

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
R - Non-detect result rejected due to holding time being exceeded.
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

AECOM

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-24													
		11/10/2015	12/13/2016	3/21/2017	6/26/2017	9/26/2017	12/12/2017	3/14/2018	6/21/2018	9/18/2018	12/20/2018	6/20/2019	12/12/2019	6/17/2020	12/8/2020
		Downgradient													
VOCs (µg/L)															
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.37 J**	0.75 U	0.75 U	**0.55 J**	**26.5**	**37.2**	**58.1**	**69.3**
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.40 J**	**3.0**	**6.1**	**9.3**	**10.5**	**4.4**	**4.9**
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**0.93 J**	**1.4**	**1.7**	**1.2**	**1.0**	**0.94 J**	**2.0**	**0.66 J**	**0.97 J**	**1.3**	**1.0**	**1.4**	**9.4**	**3.7**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters															
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.4**	**1.9**	NA	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	NA	NA	NA
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**1.4**	**1.4**	**1.1**	NA	NA	NA
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.044 U	0.04 U	0.04 U	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**168**	**198**	**205**	**195**	**282**	**352**	**313**	**159**	**200**	**185**	**134**	**146**	**185**	**192**
Chloride (mg/L)	NS	**36.3**	**38.5**	**59.0**	**41.0**	**110**	**155**	**60.8**	**37.1**	**36.7**	**32.6**	**29.1 J-**	**29.2**	**27.3**	**31.6**
Nitrate (mg/L)	NS	**0.9**	0.06 U	0.06 U	**0.04 J**	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.14 U
Sulfate (mg/L)	NS	**15.5**	**21.4**	**24.1**	**22.1**	0.5 U	**0.48 J**	**0.22 J**	**21.5**	**14.2**	**2.7**	**3.0**	**2.3**	**20.4**	**13.9**
Methane (µg/L)	NS	**0.82**	**1.6**	**1.7**	**2.2**	**7.8**	**431**	**927**	**1.3 J+**	**13.9**	**102**	**179**	**103**	**8.6**	**103**
Ethane (µg/L)	NS	**0.34 J**	0.50 U	0.50 U	0.50 U	**0.29 J**	0.50 U	0.50 U	0.50 U	**1.5 J**	**11.2**	**14.7**	**5.2**	**2.0 J**	**0.67 J**
Ethene (µg/L)	NS	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**1.0 J**	**0.20 J**	**9.5**	**9.7**	**1.7 J**	**2.9**	**2.4 U**	3.6 U
Total Organic Carbon (mg/L)	NS	**3.5**	**1.9**	**1.0 J**	**0.79 J**	**94.6**	**96.2**	**44.1**	**4.5**	**3.1**	**4.0**	**2.0 J+**	**1.4**	**1.2 J+**	**1.2**
Field Parameters															
pH (pH Unit)	NS	7.75	7.22	7.83	7.78	7.40	7.29	7.97	7.95	7.70	7.92	7.53	7.64	7.63	7.83
Turbidity (NTU)	NS	9.33	13.9	16.3	35.2	88.37	2.8	16.0	19.5	7.94	2.77	1.74	0.0	1.97	0.02
ORP (MeV)	NS	-80.2	-93.2	-111.3	-108.6	-169.9	-83.1	-127.6	-147.3	-162.2	-185.0	-149	-189.1	-144.0	-102.2
Conductivity (mS/cm)	NS	0.327	0.570	0.438	0.365	1.396	8.411	0.409	0.204	0.403	0.436	0.333	0.161	0.375	0.278
Dissolved Oxygen YSI (mg/L)	NS	0.94	0.44	0.55	1.20	0.30	0.15	0.55	11.71	7.23	0.5	0.29	0.18	0.55	0.45
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1	-0.25	NA	NA	NA
Groundwater Elevation (ft)	NS	226.79	225.30	223.60	229.05	228.83	225.12	223.99	227.43	227.32	226.39	229.23	226.39	225.73	223.27

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
R - Non-detect result rejected due to holding time being exceeded.
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

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Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-26													
		11/17/2015	12/13/2016	3/21/2017	6/26/2017	9/25/2017	12/12/2017	3/14/2018	6/20/2018	9/18/2018	12/18/2018	6/20/2019	12/12/2019	6/16/2020	12/8/2020
		Downgradient													
VOCs (µg/L)															
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	**0.57 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters															
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	NA	NA	NA	NA
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.61**	**0.23**	**1.1**	NA	NA	NA
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.43**	**0.029 J**	**0.15**	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**204**	**197**	**196**	**223**	**317**	**204**	**196**	**225**	**178**	**179**	**174**	**171**	**205**	**168**
Chloride (mg/L)	NS	**45.2**	**44.9**	**53.4**	**133**	**86.2**	**56.7**	**32.3**	**49.1**	**21**	**48.3**	**32.2**	**23**	**37**	**22.4**
Nitrate (mg/L)	NS	0.06 U	**0.04 J**	0.06 U	**0.02 J**	0.06 U	0.06 U	0.06 U	0.06 U	**0.04 J**	**0.06 J**	0.06 U	**0.06 J**	**0.1 J**	0.14 U
Sulfate (mg/L)	NS	**25.1**	**24.6**	**29.4**	**20.9**	**5.9**	**25.7**	**10.6**	**16.3**	**4.8**	**22.4**	**9.5**	**9.6**	**14.5**	**11.2**
Methane (µg/L)	NS	**34.8**	**2.7**	**1.4 J**	**2.1**	**444**	**20.7**	**26.6**	**80**	**12.9**	**19.7 J+**	**112**	**8.1**	**58.1**	**5.7**
Ethane (µg/L)	NS	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	2.6 U
Ethene (µg/L)	NS	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	3.6 U
Total Organic Carbon (mg/L)	NS	**9.3**	**2.6**	**1.3 J**	**30.7**	**52.1**	**1.1**	**5.8 J**	**0.50 J**	**12.9**	**2.2**	**6.4**	**5.4**	**4.0**	**5.0**
Field Parameters															
pH (pH Unit)	NS	7.52	7.22	7.80	7.23	7.39	7.65	7.56	7.57	7.29	7.43	7.6	7.37	7.66	7.60
Turbidity (NTU)	NS	68.3	21.8	31.9	0.4	60.96	57.38	18.6	36.2	9.12	7.65	9.3	1.79	3.17	0.02
ORP (MeV)	NS	-103.6	-28.9	-46.4	-26.9	-138.7	-173.0	-89.4	-75.3	82.0	-44.9	-108.6	-119.0	-25.3	198.7
Conductivity (mS/cm)	NS	0.324	0.590	0.469	0.630	1.347	0.426	0.260	0.415	0.270	0.715	0.423	0.161	0.25	0.233
Dissolved Oxygen YSI (mg/L)	NS	0.00	0.33	0.27	0.62	0.33	0.66	0.27	1.38	8.9	0.55	0.3	0.36	4.81	1.53
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.3	-0.19	NA	NA	NA
Groundwater Elevation (ft)	NS	226.06	224.75	222.60	228.01	228.10	224.65	223.26	226.43	226.59	225.57	228.22	225.57	224.75	222.67

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
R - Non-detect result rejected due to holding time being exceeded.
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

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Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well MW-28 Downgradient													
		12/1/2015	12/14/2016	3/22/2017	6/27/2017	9/27/2017	12/14/2017	3/15/2018	6/22/2018	9/21/2018	12/20/2018	6/19/2019	12/10/2019	6/17/2020	12/9/2020
VOCs (µg/L)															
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**11.2**	**10.4**	**9.9**	**8.9 J**	**10.5**	**9.5**	**5.6**	**10.5**	**9.0**	**9.8**	**8.0**	**9.5**	**6.6**	**9.5**
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	**0.46 J**	0.75 U	0.75 U	0.75 U	0.75 U	**0.33 J**	0.75 U	**0.44 J**	**0.42 J**	**0.34 J**	0.75 U	**0.38 J**	0.75 U	**0.34 J**
1,1-Dichloroethane (1,1-DCA)	5	**1.0**	**0.77 J**	**0.88 J**	**1.0 J**	**1.3**	**0.84 J**	**0.69 J**	**0.86 J**	**1.2**	**1.2**	**1.2**	**0.98 J**	**0.92 J**	**0.56 J**
1,1-Dichloroethene (1,1-DCE)	5	**0.53 J**	**0.43 J**	**0.53 J**	**0.38 J**	**0.76 J**	**0.45 J**	0.75 U	**0.39 J**	**0.34 J**	**0.42 J**	0.75 U	**0.45 J**	0.75 U	**0.42 J**
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	**0.61 J**	0.75 U	**0.62 J**	0.75 U	**0.53 J**	**0.57 J**	0.75 U	0.75 U	0.75 U	**0.42 J**	**0.36 J**	**0.51 J**	**0.44 J**	**0.57 J**
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	**4.7**	**4.3**	**4.4**	**4.7 J**	**5.5**	**5.0**	**4.4**	**4.9**	**4.5**	**4.7**	**5.8**	**5.9**	**3.8**	**4.6**
Tetrachloroethene (PCE; PERC)	5	**33**	**44.6**	**42.4**	**36.3 J**	**37.1**	**45.2**	**23.2**	**38.7**	**43.7**	**34.7**	**31.9**	**33.6**	**25.5**	**19.2**
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	**0.47 J**	**0.42 J**	**0.37 J**	**0.35 J**	**0.49 J**	0.75 U	**0.36 J**	**0.33 J**	0.75 U	0.75 U	**0.37 J**	0.75 U	**0.36 J**
Trichloroethene (TCE)	5	**182**	**196**	**181**	**195**	**170**	**201**	**153**	**214**	**232 J**	**195**	**172**	**219**	**140**	**143**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters															
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**3.9**	**3.7**	**2.7**	**1.8**	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	NA	NA	NA
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.045 U	**0.024 J**	0.045 U	0.045 U	**0.026 J**	**0.032 J**
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.044 U	0.04 U	0.04 U	0.04 U	0.04 U	0.040 U
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**352**	**316**	**295**	**352**	**380**	**383**	**360**	**422**	**345**	**342**	**325**	**307**	**367**	**243**
Chloride (mg/L)	NS	**22.1**	**32.4**	**25.7**	**29.0**	**25.7**	**20.4**	**20.9**	**33.1**	**42.7**	**25.4**	**41.6**	**38.0**	**31.1**	**39.6**
Nitrate (mg/L)	NS	0.06 U	**0.06 J**	**0.44**	**1.5**	**0.18 J**	**1.2**	**1.5**	**0.58**	**0.58**	**0.16 J**	0.20 U	**0.74**	**0.36**	**0.38**
Sulfate (mg/L)	NS	**22.4**	**20.9**	**21.6**	**13.0**	**10.3**	**22.4**	**20.2**	**23.1**	**13.2**	**13.1**	**13.6**	**22.0**	**20.5**	**21.2**
Methane (µg/L)	NS	**3.4**	**3.0**	**0.94**	**1.0**	**0.37 J**	0.50 U	0.25 U	**1800**	**60.8**	1.5 U	1.5 U	1.5 U	**471**	**28**
Ethane (µg/L)	NS	0.50 U	**3.6**	**1.0**	0.50 U	**0.45 J**	0.50 U	0.50 U	0.50 U	**1.3 J**	3.3 U	3.3 U	3.3 U	3.3 U	2.6 U
Ethene (µg/L)	NS	0.75 U	**1.3 J**	**1.9**	0.75 U	**0.72 J**	0.75 U	0.75 U	0.75 U	**1.4 J**	2.4 U	2.4 U	2.4 U	2.4 U	3.6 U
Total Organic Carbon (mg/L)	NS	**1.9**	**2.3**	**0.81 J**	**0.76 J**	**1.9**	**0.94 J**	**0.36 J**	**4.1**	**0.85 J**	**2.1 J+**	**1.6 J+**	**1.0**	**2.1**	**1.1**
Field Parameters															
pH (pH Unit)	NS	6.83	7.03	7.12	7.05	6.87	7.15	8.17	7.33	7.08	7.21	6.84	7.08	7.19	7.54
Turbidity (NTU)	NS	209	1.5	2.07	-3	61.1	229.80	8.52	1.32	0.02	0.59	0.02	0.78	2.11	0.97
ORP (MeV)	NS	273	71.2	77.1	97.4	32.1	19.0	-16.3	11.1	120.9	81.7	176.4	190.5	23.1	86.5
Conductivity (mS/cm)	NS	0.324	0.366	0.520	0.554	1.045	0.564	0.406	0.733	0.797	0.759	0.613	0.510	0.085	0.441
Dissolved Oxygen YSI (mg/L)	NS	6.75	3.94	5.2	7.59	4.3	8.45	11.96	0.63	8.83	4.13	0.89	5.79	0.35	9.26
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.7	10.41	NA	NA	NA
Groundwater Elevation (ft)	NS	227.07	225.41	224.31	229.79	229.19	225.53	224.44	228.07	227.62	227.01	229.97	227.01	226.56	222.67

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
R - Non-detect result rejected due to holding time being exceeded.
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

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Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well													
		MW-29													
		12/1/2015	12/14/2016	3/22/2017	6/27/2017	9/27/2017	12/14/2017	3/15/2018	6/22/2018	9/20/2018	12/20/2018	6/19/2019	12/9/2019	6/17/2020	12/10/2020
		Upgradient													
VOCs (µg/L)															
1,1,1,2-Tetrachloroethane	5	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**12.4**	**14.0 J**	**10.4**	**11.8 J**	**13.6**	**14.6**	**13.2**	**11.8**	**10.4**	**9.3**	**8.7**	**9.4**	**5.8**	**9.8**
1,1,2,2-Tetrachloroethane	5	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.45 J**	**0.34 J**	**0.36 J**	0.75 U	**0.42 J**	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	**0.97 J**	3.8 U	**0.45 J**	**1.0 J**	**1.2**	**0.88 J**	**0.91 J**	**0.84 J**	**0.87 J**	**1.0 J**	**1.1**	**0.93 J**	**0.59 J**	**0.53 J**
1,1-Dichloroethene (1,1-DCE)	5	**0.68 J**	3.8 U	**0.55 J**	**0.63 J**	**0.99 J**	**0.96 J**	**0.77 J**	**0.48 J**	**0.41 J**	**0.46 J**	**0.35 J**	**0.43 J**	0.75 U	**0.57 J**
1,2-Dichloroethane (EDC)	0.6	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	3.8 U	**0.63 J**	0.75 U	**0.85 J**	**0.71 J**	**0.72 J**	**0.82 J**	0.75 U	**0.67 J**	**0.49 J**	**0.60 J**	**0.49 J**	**0.64 J**
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	**4.9**	**6.1 J**	**3.1**	**5.8 J**	**5.6**	**5.7**	**5.4**	**5.1**	**3.7**	**4.1**	**5.4**	**4.6**	**2.9**	**4.0**
Tetrachloroethene (PCE; PERC)	5	**33.2**	**30.8 J**	**37.2**	**38.1 J**	**42.2**	**41.7**	**38.9**	**35.4**	**31.9**	**30.8**	**29.7**	**27.9**	**24.3**	**24.0**
Toluene	5	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	3.8 U	**0.61 J**	**0.70 J**	**0.67 J**	**0.62 J**	**0.44 J**	**0.59 J**	**0.35 J**	**0.40 J**	0.75 U	0.75 U	0.75 U	**0.47 J**
Trichloroethene (TCE)	5	**224**	**209 J**	**197**	**264**	**226**	**233**	**207**	**248**	**218**	**218**	**161**	**149**	**102**	**151**
Vinyl Chloride (VC)	2	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters															
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**2.8**	**2**	**1.5**	NA	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	NA	NA	NA
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.062 J**	**0.14**	**0.13**	**0.23**	**2.8**	0.045 U
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.044 U	0.040 U	0.04 U	0.04 U	0.04 U	0.040 U
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**327**	**301**	**258**	**361**	**374**	**348**	**360**	**370**	**374**	**380**	**342**	**303**	**282**	**244**
Chloride (mg/L)	NS	**28.2**	**28.4**	**21.3**	**49.4**	**24.2**	**21.3**	**23.4**	**28**	**29.9**	**28.8**	**38.9**	**33.8**	**34.7**	**42.9**
Nitrate (mg/L)	NS	**0.1 J**	**0.26**	**0.52**	**1.3**	**0.12 J**	**0.86**	**1.3**	**0.38**	**0.48 J**	**0.50**	**0.26**	**0.90**	**0.64**	**0.46**
Sulfate (mg/L)	NS	**29.2**	**24.9**	**20.1**	**13.8**	**16.1**	**22.7**	**15**	**21**	**11.8**	**21.0**	**12.9**	**22.7**	**16.0**	**21.3**
Methane (µg/L)	NS	**13.9**	**0.62**	**1.1**	**0.20 J**	**0.21 J**	0.50 U	0.25 U	**210**	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.6 U
Ethane (µg/L)	NS	**0.81 J**	0.50 U	0.5 U	0.50	0.50 U	0.50 U	0.50 U	0.50 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	2.6 U
Ethene (µg/L)	NS	**0.59 J**	0.75 U	0.75 U	0.75	0.75 U	0.75 U	0.75 U	0.75 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	3.6 U
Total Organic Carbon (mg/L)	NS	**2.3**	**1.4**	**0.91 J**	**0.92 J**	**2.1**	**1.2**	**0.38 J**	**3.2**	**1.3**	**1.7 J+**	**5.3**	**1.4**	**1.4 J+**	**0.99 J**
Field Parameters															
pH (pH Unit)	NS	7.06	7.02	7.43	7.02	6.91	7.01	7.79	7.33	7.14	7.2	6.96	6.88	7.33	7.44
Turbidity (NTU)	NS	82.4	0.62	2.73	2.80	65.1	1.50	8.11	15.2	0.02	4.55	3.43	11.9	997.3	0.24
ORP (MeV)	NS	-25.1	60.9	46.1	120	41.7	33.7	2.8	52.3	90.9	98.6	169.6	251.2	110.7	165.9
Conductivity (mS/cm)	NS	0.325	0.354	0.424	0.619	1.058	0.559	0.420	0.61	0.683	0.796	0.63	0.471	0.488	0.365
Dissolved Oxygen YSI (mg/L)	NS	4.29	6.17	9.26	7.12	6.46	8.65	7.42	2.98	9.66	5.02	2.23	6.62	5.25	9.31
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.6	9.12	NA	NA	NA
Groundwater Elevation (ft)	NS	227.05	225.38	224.33	229.79	229.19	225.23	224.43	228.09	227.64	227.07	230.00	227.07	226.58	218.80

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
R - Non-detect result rejected due to holding time being exceeded.
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well													
		MW-30													
		12/1/2015	12/13/2016	3/21/2017	6/26/2017	9/27/2017	12/13/2017	3/15/2018	6/21/2018	9/20/2018	12/19/2018	6/19/2019	12/10/2019	6/17/3030	12/8/2020
		Downgradient													
VOCs (µg/L)															
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	**0.74 J**	**0.61 J**	**0.39 J**	**0.41 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**25.2**	**42.3**	**66.3**	**24.3**	**18.4**	**19.6**	**9.8**	**8.1**	**8.2**	**7.3**	**5.0**	**6.5**	**5.7**	**7.9**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters															
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**12**	**36**	**8.5**	**10**	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 UJ	NA	NA	**<0.50**	NA	NA	NA
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.16**	**0.087**	**0.93**	**0.42**	**0.076**	**0.10**
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.04 U	0.040 U	**0.33**	**0.11**	**0.033 J**	**0.043 J**
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**143**	**319**	**210**	**154**	**104**	**347**	**141**	**58**	**59**	**51**	**65**	**74**	**48**	**70**
Chloride (mg/L)	NS	**38.4**	**182**	**136**	**49.6**	**35.3**	**87.3**	**43.6**	**38.8**	**40.7**	**39.2**	**37.6**	**38.3**	**47.6**	**44.0**
Nitrate (mg/L)	NS	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.14 U
Sulfate (mg/L)	NS	**35.9**	**2.9**	0.5 U	**0.32 J**	0.5 U	**0.22 J**	0.5 U	**0.34 J**	0.5 U	**0.76 J**	2.0 U	0.5 U	**1.1 J**	**2.0 J**
Methane (µg/L)	NS	**47.4**	**146**	**870**	**3210**	**3560**	**12900**	**5860**	**3700**	**4410**	**3790**	**91.6**	**5670**	**5630**	**6270**
Ethane (µg/L)	NS	**4.7**	**5.4**	**23.5**	**36.7**	**39.7**	**40.5**	**31.1**	**52**	**42.2**	**46.4**	3.3 U	**23.4**	**29.7**	**25.9**
Ethene (µg/L)	NS	**2.2**	**3.3**	**9.1**	**12.7**	**8.5**	**4.2**	**2.2**	**6.3**	**4.3**	**2.8**	2.4 U	**2.0 J**	**2.5**	**1.7 J**
Total Organic Carbon (mg/L)	NS	**2.2**	**225**	**139**	**75.2**	**27.0**	**366**	**50.9**	**9.7 J**	**10.2**	**12.1**	**7.7**	**8.8**	**5.4**	**5.1**
Field Parameters															
pH (pH Unit)	NS	8.91	6.83	7.60	8.01	8.01	7.41	8.54	8.28	8.48	8.84	7.8	7.66	8.68	8.38
Turbidity (NTU)	NS	58.2	3.55	3.82	3	69.1	16.1	3.12	950.5	0.02	1.36	0.81	1.33	1.45	1.12
ORP (MeV)	NS	-278.4	-166.3	-166.9	-173.3	-212.2	-170.1	-122.8	12.1	-217.6	-208.4	-164	-152.9	-202	-170.5
Conductivity (mS/cm)	NS	0.210	1.410	0.740	0.320	0.412	0.758	0.212	0.238	0.235	0.216	0.23	0.158	0.06	0.210
Dissolved Oxygen YSI (mg/L)	NS	3.70	0.29	0.17	0.48	0.06	0.80	0.19	0.98	8.41	0.44	0.28	0.22	0.05	0.38
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2	-0.41	NA	NA	NA
Groundwater Elevation (ft)	NS	226.98	225.35	223.98	229.44	229.04	225.28	224.28	227.80	227.52	226.70	229.62	226.70	226.19	222.77

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
R - Non-detect result rejected due to holding time being exceeded.
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

AECOM

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well MW-31													
		12/1/2015	12/14/2016	3/22/2017	6/26/2017	9/27/2017	12/13/2017	3/15/2018	6/21/2018	9/20/2018	12/19/2018	6/19/2019	12/10/2019	6/17/2020	12/9/2020
		Upgradient													
VOCs (µg/L)															
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	**0.41 J**	**0.50 J**	**0.42 J**	**0.40 J**	**0.37 J**	0.75 U	**0.34 J**	**0.37 J**	0.75 U	**0.34 J**	0.75 U	**0.55 J**
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.44 J**	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**42.7**	**38.2**	**35.0**	**29.0**	**25.6**	**19.6**	**19.1**	**20.6**	**19.7 J+**	**19.1**	**26.2**	**29.2**	**33.5**	**25.2**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters															
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**4.1**	**1.9**	**2**	**2.2**	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	NA	NA	NA
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.76**	**0.87**	**0.72**	**0.98**	**0.78**	**0.76**
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.04 U	0.04 U	0.04 U	**0.023 J**	0.040 U	0.040 U
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**178**	**222**	**381**	**150**	**132**	**119**	**143**	**169**	**169**	**172**	**142**	**146**	**160**	**142**
Chloride (mg/L)	NS	**41.9**	**56.6**	**98.5**	**31.0**	**31.7**	**36.3**	**50.6**	**39.9**	**32**	**34.6**	**45.9**	**44.3**	**41.4**	**48.2**
Nitrate (mg/L)	NS	0.06 U	0.06 U	**0.04 J**	**0.02 J**	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.14 U
Sulfate (mg/L)	NS	**26.3**	**10.9**	**2.6**	**5.6**	**5.6**	**7.8**	**6.7**	**7.8**	**4.6**	**7.1**	**10.2**	**8.8**	**9.6**	**9.1**
Methane (µg/L)	NS	**20.7**	**3.5**	**106**	**56.5**	**29.1**	**59.4**	**34.4**	**120**	**90.6**	**126**	**99.3**	**512**	**354**	**737**
Ethane (µg/L)	NS	**2.2**	**1.5**	**10.1**	**2.7**	**2.6**	**3.3**	**2.6**	**5.7**	**4.2**	**4.3**	**3.0 J**	**3.9**	**3.2**	**4.3 J**
Ethene (µg/L)	NS	**0.91 J**	**0.84 J**	**4.7**	**3.2**	**2.3**	**1.9**	**1.6**	**104**	**1.4 J**	**1.3 J**	2.4 U	2.4 U	2.4 U	3.6 U
Total Organic Carbon (mg/L)	NS	**2.1**	**43.9**	**257**	**2.8**	**1.5**	**1.3**	**1.1**	**2.1**	**0.69 J**	**1.1 J+**	1.0 U	**0.79 J**	1.0 U	**0.72 J**
Field Parameters															
pH (pH Unit)	NS	7.80	7.20	7.61	9.79	7.63	7.68	8.31	7.83	7.85	8.00	7.80	7.77	7.81	8.03
Turbidity (NTU)	NS	51.7	8.03	11.4	4.60	8.60	8.62	2.95	2.6	0.02	4.36	0.69	0.0	14.42	0.83
ORP (MeV)	NS	-319.7	-163.1	-201.5	-283.2	-174.4	-208.0	-161.7	-155.1	-180.6	-172.9	-165.3	-202.2	-148.0	-138.0
Conductivity (mS/cm)	NS	0.243	0.348	0.850	0.280	0.526	0.294	0.261	0.324	0.378	0.362	0.402	0.308	0.325	0.316
Dissolved Oxygen YSI (mg/L)	NS	1.29	0.28	0.22	0.70	0.13	0.19	0.17	0.22	7.99	0.48	0.15	0.31	0.91	0.51
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1	-0.24	NA	NA	NA
Groundwater Elevation (ft)	NS	226.95	225.40	224.12	229.52	229.11	225.40	224.34	227.84	227.55	226.85	229.70	226.85	226.33	224.55

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
R - Non-detect result rejected due to holding time being exceeded.
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well													
		MW-32													
		11/30/2015	12/13/2016	3/21/2017	6/26/2017	9/26/2017	12/13/2017	3/14/2018	6/21/2018	9/20/2018	12/19/2018	6/20/2019	12/11/2019	6/17/2020	12/10/2020
		Downgradient													
VOCs (µg/L)															
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	**0.40 J**	**0.48 J**	**0.60 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.34 J**	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	**1.2**	**1.3**	**1.2**	**0.68 J**	**0.61 J**	**0.62 J**	**1.3**	**0.85 J**	**0.83 J**	**2.0**	**0.89 J**	**1.3**
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**150**	**132**	**191**	**130**	**135**	**120**	**104**	**64.1**	**95.4**	**87.1**	**118**	**101**	**149**	**122**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters															
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**7.4**	**2.2**	**3.7**	**5.0**	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	NA	NA	NA
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.51**	**1.0**	**0.47**	**1.1**	**1.6**	**1.7**
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.044 U	0.04 U	**0.024 J**	0.04 U	0.04 U	0.040 U
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**196**	**277**	**214**	**129**	**129**	**141**	**162**	**128**	**129**	**158**	**134**	**157**	**169**	**168**
Chloride (mg/L)	NS	**35.6**	**138**	**84.6**	**38.0**	**30.7**	**28.2**	**25.4**	**29.5**	**27.8**	**24.5**	**24.1 J-**	**30.6**	**32.1**	**27.7**
Nitrate (mg/L)	NS	0.06 U	0.06 U	**0.02 J**	**0.02 J**	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.14 U
Sulfate (mg/L)	NS	**21.1**	**2.8**	**0.68 J**	**0.50 J**	**0.4 J**	**6.0**	**7.1**	**2.3**	**1.4 J**	**6.0**	**8.6**	**8.1**	**11.5**	**9.8**
Methane (µg/L)	NS	**6.8**	**16.5**	**309**	**817**	**835**	**233 J**	**583**	**130**	**2650**	**407**	**2190**	**1180**	**232**	**950**
Ethane (µg/L)	NS	**0.5 J**	**1.5**	**19.3**	**35.9**	**29.4**	**5.6 J**	**10.7**	**2**	**21.1**	**12.0**	**12.1**	**9.3**	**4.5**	**6.5**
Ethene (µg/L)	NS	0.75 U	**1.8**	**10.3**	**15.6**	**5.4**	**2.3 J**	**3.3**	**0.25 J**	**4.7**	**1.5 J**	**1.7 J**	**0.96 J**	2.40 U	3.6 U
Total Organic Carbon (mg/L)	NS	**2.6**	**133**	**98.0**	**22.0**	**5.0**	**5.4 J**	**2.7**	**6.4**	**3.9**	**2.4**	**1.4 J+**	**0.80 J**	1.0 U	**0.94 J**
Field Parameters															
pH (pH Unit)	NS	8.00	6.69	7.54	9.28	7.65	7.43	7.97	8.03	7.94	7.94	7.77	7.80	7.75	8.08
Turbidity (NTU)	NS	180	5.92	4.01	5.10	3.91	5.11	1.36	0.02	0.02	1.60	0.02	1.98	0.7	1.11
ORP (MeV)	NS	-234.2	-107.7	-140.7	-238.7	-149.4	-181.9	-106.4	-149.4	-201	-180.0	-165.3	-185.0	-151.9	-190.2
Conductivity (mS/cm)	NS	0.239	1.180	0.640	0.261	0.478	0.257	0.239	0.206	0.291	0.338	0.320	0.264	0.124	0.243
Dissolved Oxygen YSI (mg/L)	NS	0.64	1.81	1.77	2.50	1.80	1.50	0.25	8.26	8.44	0.47	0.30	0.78	1.4	0.27
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.4	-0.39	NA	NA	NA
Groundwater Elevation (ft)	NS	226.86	225.45	223.70	229.05	228.93	225.42	224.18	227.45	227.39	226.60	229.30	226.68	225.93	223.54

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
R - Non-detect result rejected due to holding time being exceeded.
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

AECOM

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well													
		MW-33													
		11/24/2015	12/14/2016	3/22/2017	6/26/2017	9/26/2017	12/13/2017	3/14/2018	6/21/2018	9/19/2018	12/19/2018	6/19/2019	12/11/2019	6/17/2020	12/10/2020
		Upgradient													
VOCs (µg/L)															
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.45 J**
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**133**	**93.5**	**151**	**152**	**170**	**142**	**155**	**178**	**137**	**159**	**97.4**	**164**	**165**	**148**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters															
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**3.9**	**2.1**	**3.3**	NA	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	NA	NA	NA
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	**0.071**	**0.32**	**0.041 J**	**0.053 J**	**0.370**
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.045 J**	0.04 U	0.04 U	0.04 U	0.04 U	0.040 U
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**172**	**218**	**194**	**205**	**202**	**212**	**215**	**215**	**213**	**211**	**172**	**197**	**201**	**194**
Chloride (mg/L)	NS	**41.8**	**43.2**	**29.2**	**22.8**	**24.6**	**28.1**	**23.0**	**22.5**	**24.8 J-**	**23.9**	**21.2**	**31.6**	**25.8**	**32.8**
Nitrate (mg/L)	NS	0.06 U	0.06 U	**0.32**	**0.32**	**0.30**	**0.32**	**0.34**	**0.42**	**0.4 J**	**0.44**	**0.42**	**0.40**	**0.46**	**0.50**
Sulfate (mg/L)	NS	**25.1**	**8.2**	**15.0**	**11.8**	**12.6**	**14.8**	**11.6**	**14.3**	**14.6**	**12.1**	**10.9**	**12.1**	**13.6**	**13.1**
Methane (µg/L)	NS	**64**	**3.4**	**9.2**	**16.0**	**17.8**	**7.2**	**6.1**	**17**	1.5 U	**10.3 J+**	**4.7**	1.5 U	**4.8**	1.6 U
Ethane (µg/L)	NS	**7**	**0.25 J**	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	3.3 U	3.3 U	3.3 U	3.3 U	3.3 U	2.6 U
Ethene (µg/L)	NS	**3.6**	**0.48 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	2.4 U	2.4 U	**1.2 J**	2.4 U	2.4 U	3.6 U
Total Organic Carbon (mg/L)	NS	**8.1**	**30.9**	**2.1**	**0.54 J**	**0.44 J**	**0.44 J**	**0.83 J**	**1.6**	**0.58 J**	**1.1 J+**	**1.8 J+**	**0.86 J**	1.0 U	**1.1**
Field Parameters															
pH (pH Unit)	NS	8.39	7.18	7.58	8.8	7.51	7.53	7.99	7.66	7.69	7.69	7.21	7.65	7.3	7.81
Turbidity (NTU)	NS	23.1	9.31	11.7	3.40	51.2	6.38	9.18	2.78	0.02	2.96	7.84	0.00	3.99	5.51
ORP (MeV)	NS	-471.2	-126.8	-64.3	44.9	-3.2	-20.4	-49.9	17.6	98.7	81.9	2.8	17.1	196	151.4
Conductivity (mS/cm)	NS	0.247	0.303	0.386	0.350	0.648	0.370	0.285	0.385	0.456	0.390	0.374	0.325	0.322	0.286
Dissolved Oxygen YSI (mg/L)	NS	0.92	0.41	2.50	2.99	2.87	6.80	1.89	3.41	9.21	3.96	0.65	3.73	7.05	5.68
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.3	3.82	NA	NA	NA
Groundwater Elevation (ft)	NS	226.89	225.51	223.80	229.11	229.05	225.54	224.26	227.51	227.42	226.68	229.37	226.68	226.07	223.63

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
R - Non-detect result rejected due to holding time being exceeded.
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well													
		MW-34													
		11/24/2015	12/13/2016	3/21/2017	6/26/2017	9/26/2017	12/12/2017	3/13/2018	6/20/2018	9/19/2018	12/20/2018	6/20/2019	12/11/2019	6/16/2020	12/9/2020
		Downgradient													
VOCs (µg/L)															
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.63 J**	**5.0**	0.75 U
Tetrachloroethene (PCE; PERC)	5	**0.42 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**17.7**	**41.3**	**48.3**	**34.0**	**29.6**	**28.0**	**17.6**	**31.3**	**6.9**	**10.6**	**1.1**	**2.9**	**18.9**	**3.6**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters															
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**3.1**	**3.1**	**2.2**	**3.0**	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	NA	NA	NA
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.05 U	**0.07**	**0.33 J**	**0.35**	**0.66**	**0.062 J**
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.04 U	0.04 U	**0.18**	**0.081**	**0.27**	0.040 U
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**99**	**191**	**597**	**201**	**197**	**203**	**174**	**226**	**183**	**162**	**194**	**140**	**146**	**99**
Chloride (mg/L)	NS	**48.5**	**62.3**	**461**	**15.7**	**11.7**	**12.9**	**15.4**	**16.3**	2.0 U	**12.6**	**6.6 J-**	**2.5**	**13.8**	**3.8**
Nitrate (mg/L)	NS	**0.56**	**0.06 J**	0.06 U	**0.04 J**	0.06 U	**0.02 J**	**0.02 J**	0.06 U	**0.56 J**	0.06 U	0.06 U	**0.22**	0.06 U	0.14 U
Sulfate (mg/L)	NS	**64.3**	**23.8**	**0.56 J**	**13.4**	**9.0**	**7.3**	**8.5**	**11.2**	**3.9**	**3.3**	2.0 U	**2.5**	**3.5**	**5.5**
Methane (µg/L)	NS	**14.5**	**1.2**	**1780**	**12.4**	**88.1**	**531**	**1260**	**35**	1.5 U	**737**	**419**	**144**	**1740**	**8.5**
Ethane (µg/L)	NS	**2.2**	0.50 U	**17.3**	0.50 U	**0.45 J**	**1.1**	**1.3**	0.50 U	3.31 U	**4.0**	**0.77 J**	3.3 U	**3.6**	2.6 U
Ethene (µg/L)	NS	**1.8**	0.75 U	**4.4**	0.75 U	**0.58 J**	0.75 U	0.75 U	0.75 U	2.41 U	2.4 U	**1.1 J**	2.4 U	2.4 U	3.6 U
Total Organic Carbon (mg/L)	NS	**5.9**	**12.0**	**631**	**3.3**	**3.8**	**4.1**	**3.4**	**0.93 J**	**6.8**	**3.2 J+**	**8.3**	**4.3**	**3.8**	**3.8**
Field Parameters															
pH (pH Unit)	NS	12.68	7.14	7.45	7.26	7.26	7.40	7.37	7.30	7.12	7.67	8.91	7.80	8.59	7.79
Turbidity (NTU)	NS	44.7	3.23	4.59	-4	4.40	4.20	5.63	1.4	0.02	4.26	5.55	2.96	3.16	1.20
ORP (MeV)	NS	-185.4	-8.4	-144.0	-139.4	-63.1	-133.4	25.0	-76.3	118.1	-29.2	-140.1	269.7	-87.4	112.0
Conductivity (mS/cm)	NS	0.361	0.630	2.280	0.332	0.578	0.310	0.234	0.332	0.312	0.341	0.368	0.178	0.17	0.142
Dissolved Oxygen YSI (mg/L)	NS	6.9	1.12	0.12	0.46	0.62	2.70	0.34	1.31	8.69	0.47	0.35	5.05	0.17	1.14
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.2	-0.15	NA	NA	NA
Groundwater Elevation (ft)	NS	226.73	225.48	223.35	228.66	228.77	225.51	223.89	227.03	227.21	226.37	228.61	226.37	225.45	223.49

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
R - Non-detect result rejected due to holding time being exceeded.
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

AECOM

Table 3-2
Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well MW-35 Upgradient 11/24/2015	12/15/2016	3/22/2017	6/26/2017	9/26/2017	12/12/2017	3/13/2018	6/20/2018	9/19/20118	12/20/2018	6/20/2019	12/11/2019	6/16/2020	12/9/2020
VOCs (µg/L)															
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**31.9**	**31.8**	**12.5**	**43.8 J**	**47.8**	**43.5**	**21.2**	**39.4**	**15.2**	**38.1**	**34.8**	**35.4**	**42.9**	**37.3**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters															
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**2.6**	**2.1**	**1.4**	NA	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	NA	NA	NA
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.45**	**0.12**	**0.61**	**0.30**	**0.087**	**0.036** J
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.044 U	**0.09**	0.04 U	0.04 U	0.04 U	0.040 U
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**181**	**223**	**51**	**202**	**192**	**210**	**171**	**197**	**115**	**195**	**174**	**168**	**177**	**184**
Chloride (mg/L)	NS	**42.2**	**53.9**	**2.0**	**17.1**	**14.4**	**22.2 J+**	**14.5**	**15.7**	**2.1**	**24.4**	**21.2 J-**	**23.1**	**26.1**	**26.2**
Nitrate (mg/L)	NS	0.06 U	**0.04 J**	**0.14 J**	**0.66**	**0.6**	**0.44**	**0.44**	**0.64**	**0.68 J**	**0.58**	**0.38**	**0.44**	**0.54**	**0.50**
Sulfate (mg/L)	NS	**48.1**	**7.2**	**3.5**	**13.6**	**10.8**	**10.2**	**8.5**	**10.7**	**2.5**	**9.7**	**9.8**	**9.1**	**10.3**	**10.6**
Methane (µg/L)	NS	**13.8**	**0.90**	**5.8**	**7.2**	**7.5**	**7.9**	**32.7**	**23**	**50.5**	**12.3 J+**	**38.3**	**166**	**59**	1.6 U
Ethane (µg/L)	NS	**2.9**	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	3.31 U	3.3 U	3.3 U	3.3 U	3.3 U	2.6 U
Ethene (µg/L)	NS	**1.6**	0.75 U	**0.32 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	2.41 U	2.4 U	2.4 U	2.4 U	2.4 U	3.6 U
Total Organic Carbon (mg/L)	NS	**7.7**	**18.3**	**1.4**	**0.75 J**	**0.68 J**	**0.56 J**	**1.2**	**0.6 J**	**3.5**	**1.1 J**	**1.2 J+**	**1.6**	1.0 U	**0.59 J**
Field Parameters															
pH (pH Unit)	NS	9.68	7.09	8.79	7.66	7.46	7.44	7.46	7.55	7.49	7.77	7.42	7.59	7.56	7.87
Turbidity (NTU)	NS	381	5.99	16.3	38.2	31.91	13.81	11.00	25.8	33.8	4.49	12.1	9.0	3.9	0.67
ORP (MeV)	NS	-404	-167.9	-68.4	-10.6	30	0.40	57.10	69.5	65.6	45.4	-37.1	173.8	101.2	141.8
Conductivity (mS/cm)	NS	0.287	0.329	0.078	0.324	0.600	0.338	0.218	0.335	0.204	0.453	0.361	0.134	0.394	0.328
Dissolved Oxygen YSI (mg/L)	NS	0.79	0.41	6.63	3.67	4.58	4.84	1.32	3.54	9.57	5.38	1.82	5.55	6.44	7.32
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.5	1.35	NA	NA	NA
Groundwater Elevation (ft)	NS	226.69	225.46	223.40	228.68	228.81	225.56	224.08	227.04	227.26	226.47	228.95	226.47	225.66	223.61

Notes:
MNA - Monitored Natural Attenuation
NS - No Standard
NA - Not Analyzed
Acetylene analysis was added in June 2018.
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
U - Indicates that the analyte was not detected (ND).
R - Non-detect result rejected due to holding time being exceeded.
1 - TheTotal Alkalinity is titrated to a pH of 4.5 and reported as mg $CaCO_3$/L.
2 - Analyte was analyzed past the 48 hour holding time.
3 - The QC sample type DUP for method RSK 175 was outside the control limits for the analyte Methane. The RPD was reported as 23.8 and the upper contol limit is 20.

Table 3-3
Annual Site Wide Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	GEP-1					GEP-2				
		11/10/2015	6/23/2017	1/23/2019	6/18/2019	6/18/2020	11/10/2015	6/21/2017	6/20/2018	6/18/2019	6/16/2020
		Upgradient					Upgradient				
VOCs (µg/L)											
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.8 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	4.6	3.3 J+	5.8	5.1	5.9	19.7	16.3	3.7	19.6	18.1
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.8 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.8 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.56 J	0.68 J	0.75 U	0.9 J	0.72 J
1,1-Dichloroethene (1,1-DCE)	5	0.43 J	0.75 U	0.39 J	0.41 J	0.36 J	1.1	1.1	0.75 U	0.7 J	0.55 J
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.8 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.8 U	0.40 J
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.35 J	0.75 U	1.2	1.8	1.1	3.3	1.9
Tetrachloroethene (PCE; PERC)	5	1.0	0.45 J	0.75 U	0.51 J	1.1	3.5	3.2	0.80 J	4.6	4.0
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.8 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.8 U	0.75 U
Trichloroethene (TCE)	5	180	152 J+	157	150	183	210	167	51.3	171	148
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.8 U	0.75 U
MNA Parameters											
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	223	NA	NA	NA	NA	335	NA	NA	NA	NA
Chloride (mg/L)	NS	13.2	NA	NA	NA	NA	5.6	NA	NA	NA	NA
Nitrate (mg/L)	NS	1.0	NA	NA	NA	NA	0.38 J	NA	NA	NA	NA
Sulfate (mg/L)	NS	10.2	NA	NA	NA	NA	9.9	NA	NA	NA	NA
Methane (µg/L)	NS	0.32 J	NA	NA	NA	NA	0.33 J	NA	NA	NA	NA
Ethane (µg/L)	NS	0.5 U	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA
Ethene (µg/L)	NS	0.75 U	NA	NA	NA	NA	0.75 U	NA	NA	NA	NA
Total Organic Carbon (mg/L)	NS	3.4	NA	NA	NA	NA	2.9	NA	NA	NA	NA
Field Parameters											
pH (pH Unit)	NS	7.52	8.31	7.34	7.21	8.23	7.18	6.6	7.57	7.16	7.18
Turbidity (NTU)	NS	33.1	45.6	5.82	15	393	28.2	0	107	23	32.7
ORP (MeV)	NS	141.8	203.5	124.1	251.6	173.8	180.3	336.1	61.1	185.1	186.0
Conductivity (mS/cm)	NS	0.308	0.396	0.536	0.435	0.525	0.371	0.476	0.417	0.543	0.540
Dissolved Oxygen YSI (mg/L)	NS	19.53	9.9	-22 *	8.27	8.06	30.01	8.63	11.49	8.26	9.22
Groundwater Elevation (ft)	NS	224.81	NA	NA	230.13	226.80	227.90	230.84	229.02	231.16	228.09

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	GEP-3					GEP-4				
		11/9/2015	6/23/2017	6/20/2018	6/18/2019	6/18/2020	11/9/2015	6/21/2017	1/23/2019	6/18/2019	6/17/2020
		Upgradient					Upgradient				
VOCs (µg/L)											
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.93 J	1.2	0.58 J	2.1	2.9	5.1	4.7	18.9	13.9	14.3
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.42 J	0.75 U	0.75 U	1.2	0.73 J	3.8 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.48 J	0.75 U	0.75 U	0.65 J	0.39 J	3.8 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.47 J	0.41 J	3.8 U
Tetrachloroethene (PCE; PERC)	5	1.1	0.57 J	0.36 J	0.55 J	0.48 J	0.68 J	0.80 J	3.6	3.2	3.2 J
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U
Trichloroethene (TCE)	5	143	131	74.9	137	217	85.9	72.4	441	312	274
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U
MNA Parameters											
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	217	NA	NA	NA	NA	227	NA	NA	NA	NA
Chloride (mg/L)	NS	15.4	NA	NA	NA	NA	22.5	NA	NA	NA	NA
Nitrate (mg/L)	NS	0.79	NA	NA	NA	NA	0.71	NA	NA	NA	NA
Sulfate (mg/L)	NS	10.8	NA	NA	NA	NA	13.2	NA	NA	NA	NA
Methane (µg/L)	NS	0.16 J	NA	NA	NA	NA	0.4 J	NA	NA	NA	NA
Ethane (µg/L)	NS	0.5 U	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA
Ethene (µg/L)	NS	0.75 U	NA	NA	NA	NA	0.75 U	NA	NA	NA	NA
Total Organic Carbon (mg/L)	NS	0.47 J	NA	NA	NA	NA	2.7	NA	NA	NA	NA
Field Parameters											
pH (pH Unit)	NS	7.69	7.40	7.40	7.46	7.49	7.67	7.39	7.22	7.27	7.56
Turbidity (NTU)	NS	13.9	113.1	78.7	54	3.01	41.8	9.4	3.24	7.14	3.35
ORP (MeV)	NS	131.4	171.5	31.2	152.1	209.3	110.7	109.9	106.8	262.5	134.9
Conductivity (mS/cm)	NS	0.329	0.363	0.364	0.385	0.420	0.363	0.51	0.72	0.575	0.089
Dissolved Oxygen YSI (mg/L)	NS	114.75	9.44	8.91	8.19	9.37	14.93	5.05	-22.74 *	7.86	9.34
Groundwater Elevation (ft)	NS	227.81	292.97	228.72	228.35	227.68	227.73	230.61	NA	230.94	227.86

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-B-3				MW-5				
		11/13/2015	6/22/2017	7/18/2018	6/18/2020	11/12/2015	6/20/2017	6/19/2018	6/17/2019	6/18/2020
		Outside Plume				Downgradient				
VOCs (µg/L)										
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.51 J	0.41 J	0.75 U	0.48 J	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	2.0	2.0	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	1.8	3.9	5.0	6.3	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.46 J	0.58 J	0.75 U	0.75 U	0.75 U
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters										
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	110	NA	NA	NA	221	NA	NA	NA	NA
Chloride (mg/L)	NS	155	NA	NA	NA	197	NA	NA	NA	NA
Nitrate (mg/L)	NS	0.66 J+	NA	NA	NA	6.7	NA	NA	NA	NA
Sulfate (mg/L)	NS	25.3	NA	NA	NA	36.7 J	NA	NA	NA	NA
Methane (µg/L)	NS	0.39 J	NA	NA	NA	0.19 J	NA	NA	NA	NA
Ethane (µg/L)	NS	0.5 U	NA	NA	NA	0.5 U	NA	NA	NA	NA
Ethene (µg/L)	NS	0.75 U	NA	NA	NA	0.75 U	NA	NA	NA	NA
Total Organic Carbon (mg/L)	NS	5.2	NA	NA	NA	7.3	NA	NA	NA	NA
Field Parameters										
pH (pH Unit)	NS	7.86	8.31	7.4	7.59	7.37	6.19	7.10	7.50	7.59
Turbidity (NTU)	NS	4.95	8	217.9	38.1	23.9	4.7	0.02	0.02	0.02
ORP (MeV)	NS	157.4	180.2	218.0	151.2	74.3	26.3	85.9	290.8	189.9
Conductivity (mS/cm)	NS	0.461	0.385	0.124	0.315	0.654	0.701	1.59	10.73	0.591
Dissolved Oxygen YSI (mg/L)	NS	19.91	10.1	9.06	9.65	17.86	12.4	9.60	4.34	11.10
Groundwater Elevation (ft)	NS	227.95	NA	228.44	228.80	225.75	226.29	225.81	226.39	217.78

Notes:
MNA - Monitored Natural Attenuation
NS - no standard
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
J- - The result is an estimated quantity, likely to be biased low.
U - Indicates that the analyte was not detected (ND).
* - negative DO measurements are the result of low temperatures affecting the DO probe during the sampling event

Table 3-3
Annual Site Wide Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-6					MW-7					MW-8			MW-9				
		11/12/2015	6/20/2017	6/18/2018	6/17/2019	6/15/2020	11/11/2015	6/20/2017	6/18/2018	6/17/2019	6/15/2020	1/23/2019	6/17/2019	6/16/2020	11/12/2015	6/20/2017	6/19/2018	6/24/2019	6/18/2020
		Downgradient					Downgradient					Outside Plume			Downgradient				
VOCs (µg/L)																			
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**2.1**	**0.77 J**	0.75 J	**0.55 J**	**2.6 J+**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**2.1 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.50 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	**0.45 J**	**0.39 J**	0.75 U	0.75 U	**1.0 J+**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	**0.65 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**59.8**	**26**	**24.4**	**19.9**	**88.4 J+**	**1.3**	0.75 U	0.75 U	0.75 U	0.75 U	**3.4 J**	0.75 U	0.75 U	**0.68 J**	0.75 U	0.75 U	0.75 U	**0.60 J**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters																			
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**281**	NA	NA	NA	NA	**353**	NA	NA	NA	NA	NA	NA	NA	**186**	NA	NA	NA	NA
Chloride (mg/L)	NS	**28.4**	NA	NA	NA	NA	**26.7**	NA	NA	NA	NA	NA	NA	NA	**12**	NA	NA	NA	NA
Nitrate (mg/L)	NS	**1.7**	NA	NA	NA	NA	**1.1**	NA	NA	NA	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA
Sulfate (mg/L)	NS	**23.2 J**	NA	NA	NA	NA	**15**	NA	NA	NA	NA	NA	NA	NA	**56.7 J**	NA	NA	NA	NA
Methane (µg/L)	NS	0.25 U	NA	NA	NA	NA	**1.7**	NA	NA	NA	NA	NA	NA	NA	**2.7**	NA	NA	NA	NA
Ethane (µg/L)	NS	0.5 U	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA
Ethene (µg/L)	NS	0.75 U	NA	NA	NA	NA	0.75 U	NA	NA	NA	NA	NA	NA	NA	0.75 U	NA	NA	NA	NA
Total Organic Carbon (mg/L)	NS	**5.5**	NA	NA	NA	NA	**5.5**	NA	NA	NA	NA	NA	NA	NA	**3.3**	NA	NA	NA	NA
Field Parameters																			
pH (pH Unit)	NS	7.3	7.30	7.31	7.33	7.52	7.76	7.04	7.29	6.58	7.16	7.55	7.5	0.248	7.82	6.64	6.96	7.54	7.73
Turbidity (NTU)	NS	2.76	3.9	0.02	1.39	0.17	4.64	7.4	33.8	19.5	40.0	0.02	0.02	0.02	3.75	0.1	8.11	4.00	36.6
ORP (MeV)	NS	151.8	121.4	111.2	295	119	165.8	126.4	-46.0	27.1	149.9	93.60	295.9	149.3	-121.4	-1.0	-22.0	-34.7	34.7
Conductivity (mS/cm)	NS	0.317	0.419	0.358	9.23	0.297	0.32	0.732	0.85	1.573	0.530	0.465	8.25	0.248	0.237	0.386	0.39	0.183	0.392
Dissolved Oxygen YSI (mg/L)	NS	24.39	8.9	9.98	5.48	9.37	11.81	7.38	9.00	8.07	9.80	-16.2 *	4.22	8.07	0	0.59	0.44	0.45	8.80
Groundwater Elevation (ft)	NS	225.86	226.55	226.01	226.47	218.18	226.28	227.30	222.54	226.94	220.94	NA	0.00	220.21	225.83	226.48	225.93	226.44	217.41

Notes:
MNA - Monitored Natural Attenuation
NS - no standard
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
J- - The result is an estimated quantity, likely to be biased low.
U - Indicates that the analyte was not detected (ND).
* - negative DO measurements are the result of low temperatures affecting the DO probe during the sampling event

Table 3-3
Annual Site Wide Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-11 R		MW-12 R			MW-13	MW-14				
		6/24/2019	6/16/2020	1/23/2019	6/17/2019	6/16/2020	6/20/2018	11/12/2015	6/21/2017	6/20/2018	6/18/2019	6/18/2020
				Outside Plume			Downgradient	Upgradient				
VOCs (µg/L)												
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**0.53 J**	**0.61 J**	0.75 U	**2.1**	**1.3**	**4.0**	**3.9**	**1.2**	**2.5**	**1.1**	**4.1**
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.43 J**	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	**5.3**	**6.5**	0.75 U	**4.8**	**8.0**	0.75 U	0.75 U	0.75 U	**0.49 J**	**0.54 J**	**0.74 J**
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**2.4**	**0.85 J**	**1.9**	**0.63 J**	**2.7**
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	**0.79 J**	**0.63 J**	0.75 U	**10.8**	**10.5**	**13.8**	**10.9**	**18.5**
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	0.75 U	0.75 U	0.75 U	**5.0**	**5.4**	**117**	**3.7**	**2.4**	**3.7**	**2.0**	**3.6**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters												
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	NA	NA	NA	NA	NA	NA	**242**	NA	NA	NA	NA
Chloride (mg/L)	NS	NA	NA	NA	NA	NA	NA	**26.4**	NA	NA	NA	NA
Nitrate (mg/L)	NS	NA	NA	NA	NA	NA	NA	**0.96**	NA	NA	NA	NA
Sulfate (mg/L)	NS	NA	NA	NA	NA	NA	NA	**21 J**	NA	NA	NA	NA
Methane (µg/L)	NS	NA	NA	NA	NA	NA	NA	**0.86**	NA	NA	NA	NA
Ethane (µg/L)	NS	NA	NA	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA
Ethene (µg/L)	NS	NA	NA	NA	NA	NA	NA	0.75 U	NA	NA	NA	NA
Total Organic Carbon (mg/L)	NS	NA	NA	NA	NA	NA	NA	**6**	NA	NA	NA	NA
Field Parameters												
pH (pH Unit)	NS	7.46	7.62	7.50	7.36	7.49	7.27	7.39	7.28	7.01	7.49	8.55
Turbidity (NTU)	NS	8.46	31.0	0.02	13.8	3.80	14.4	136	5	3.80	294	9.28
ORP (MeV)	NS	273.5	181.6	87.0	58.8	166.7	28.5	119.4	122.6	52.1	154	158.2
Conductivity (mS/cm)	NS	189.6	0.510	0.476	0.991	0.50	0.401	0.302	0.479	0.426	0.438	0.640
Dissolved Oxygen YSI (mg/L)	NS	8.27	7.56	-20.24 *	7.77	8.36	8.62	14.94	-13.54	6.7	7.26	8.02
Groundwater Elevation (ft)	NS	0.00	227.13	NA	0.00	222.87	228.10	228.08	231.32	229.39	228.68	228.21

Analytes	MW-15						MW-16						MW-17				
	11/9/2015	12/14/2016	6/21/2017	6/20/2018	6/20/2019	6/16/2020	11/11/2015	12/12/2016	6/20/2017	6/19/2018	6/24/2019	6/16/2020	11/16/2015	6/23/2017	6/20/2018	6/18/2019	6/16/2020
	Upgradient						Outside Plume						Upgradient				
VOCs (µg/L)																	
1,1,1,2-Tetrachloroethane	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	**1.9**	**4.4**	**3.8**	**2.9**	**5.6**	**5.4**	**0.49 J**	0.75 U	**0.50 J**	0.75 U	**0.39 J**	0.75 U	**17**	**22**	**19.8**	**22.1**	**13.3**
1,1,2,2-Tetrachloroethane	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.63 J**	**1.1**	**0.84 J**	**0.95 J**	**0.54 J**
1,1-Dichloroethene (1,1-DCE)	0.75 U	**0.44 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.45 J**	**0.42 J**	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**1.0**	**2.1**	**1.8**	**2.3**	**1.5**
Tetrachloroethene (PCE; PERC)	**0.60 J**	**1.7**	**0.66 J**	**0.62 J**	**1.0 J**	**1.0**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.49 J**	0.75 U
Toluene	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	**77.3**	**183**	**122**	**72.1**	**128**	**139**	**0.55 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**15.2**	**35.2**	**20.5**	**31.9**	**10**
Vinyl Chloride (VC)	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters																	
Dissolved Hydrogen (nmol/L)	NA	NA	NA	NA	**1.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene	NA	NA	NA	1.0 U	**<0.50**	NA	NA	NA	NA	1.0 U	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	**182**	**212**	**217**	**209**	**169**	**220**	**248**	**312**	**322**	**317**	**303**	**258**	**310**	NA	NA	NA	NA
Chloride (mg/L)	**28.9**	**14.3**	**40.1**	**46.4**	**43.4**	**35.7**	**13.6**	**9.0**	**20.2**	**3.9**	**5.5**	**2.5**	**4.9**	NA	NA	NA	NA
Nitrate (mg/L)	**0.58**	**0.56**	**0.52**	**0.48**	**0.56**	**0.5**	**1.6**	**1.6**	**3.7**	**2**	**1.3**	**0.98**	**0.96**	NA	NA	NA	NA
Sulfate (mg/L)	**12.3**	**12.4**	**20.5**	**15.2**	**12**	**10.7**	**35.2**	**44.8**	**75.5**	**27.3**	**41.9**	**97.5**	**14.3**	NA	NA	NA	NA
Methane (µg/L)	**0.19 J**	0.5 U	0.5 U	**1.3 J+**	1.5 U	1.5 U	0.25 U	0.5 U	0.5 U	1.1 U	**1.5 U**	1.5 U	**0.13 J**	NA	NA	NA	NA
Ethane (µg/L)	0.5 U	0.5 U	0.5 U	0.5 U	3.3 U	3.3 U	0.5 U	0.5 U	0.5 U	0.5 U	3.3 U	3.3 U	0.5 U	NA	NA	NA	NA
Ethene (µg/L)	0.75 U	0.75 U	0.75 U	0.75 U	2.4 U	2.4 U	0.75 U	0.75 U	0.75 U	0.75 U	2.4 U	2.4 U	0.75 U	NA	NA	NA	NA
Total Organic Carbon (mg/L)	**0.55 J**	**0.57 J**	**0.21 J**	**0.41 J**	**1.0 U**	1.0 U	**3.6**	**0.96 J**	**0.67 J**	**1.2**	**1.6 J+**	**1.1 J+**	**2.7**	NA	NA	NA	NA
Field Parameters																	
pH (pH Unit)	7.73	7.31	7.42	7.62	7.48	7.51	7.64	7.27	6.57	7.89	7.19	7.32	7.38	7.13	7.15	7.22	7.31
Turbidity (NTU)	11.1	7	2.1	153.0	4.49	1.58	8.01	14.8	4.4	10.77	7.58	2.83	9.02	3.1	30.7	11.8	2.98
ORP (MeV)	91.4	54.6	114.6	67.2	102	160.1	137.6	139.9	298.7	16.2	299.9	167.1	118.6	159.7	134.1	143.4	170.9
Conductivity (mS/cm)	0.358	0.25	0.5	0.369	0.445	0.047	0.361	0.388	0.486	0.441	0.218	0.260	0.257	0.462	0.423	0.565	0.579
Dissolved Oxygen YSI (mg/L)	31.45	8.04	4.9	6.72	7.98	8.74	22.27	9.5	10.82	11.71	9.28	11.06	16.42	9.99	8.7	8.49	8.65
Groundwater Elevation (ft)	227.80	226.27	230.60	228.79	228.35	227.80	226.39	225.38	227.63	226.19	226.97	223.45	228.08	231.15	229.26	228.64	228.69

Notes:
MNA - Monitored Natural Attenuation
NS - no standard
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
J- - The result is an estimated quantity, likely to be biased low.
U - Indicates that the analyte was not detected (ND).
* - negative DO measurements are the result of low temperatures affecting the DO probe during the sampling event

Table 3-3
Annual Site Wide Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-18					MW-19				
		1/4/1900	6/21/2017	6/19/2018	6/18/2019	6/16/2020	11/16/2015	6/21/2017	6/19/2018	6/18/2019	6/18/2020
		Upgradient					Upgradient				
VOCs (µg/L)											
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**2.7**	**2.4**	0.75 U	**2.5**	**0.92 J**	**2.1**	**2.9**	**1.7**	**2.5**	**3.0**
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	**0.39 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	**1.6**	**1.8**	0.75 U	**1.2**	**1.5**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**153**	**117**	**26.8**	**110**	**72**	**30**	**14.3**	**11.4**	**9.0**	**8.9**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters											
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**197**	NA	NA	NA	NA	**267**	NA	NA	NA	NA
Chloride (mg/L)	NS	**16.9**	NA	NA	NA	NA	**3.9**	NA	NA	NA	NA
Nitrate (mg/L)	NS	0.50 U	NA	NA	NA	NA	**0.48**	NA	NA	NA	NA
Sulfate (mg/L)	NS	**13.2**	NA	NA	NA	NA	**9.8**	NA	NA	NA	NA
Methane (µg/L)	NS	**1.1**	NA	NA	NA	NA	**0.65**	NA	NA	NA	NA
Ethane (µg/L)	NS	0.5 U	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA
Ethene (µg/L)	NS	0.75 U	NA	NA	NA	NA	0.75 U	NA	NA	NA	NA
Total Organic Carbon (mg/L)	NS	**9.5**	NA	NA	NA	NA	**5**	NA	NA	NA	NA
Field Parameters											
pH (pH Unit)	NS	7.72	7.03	7.82	7.5	7.53	7.62	7.82	6.87	7.29	7.21
Turbidity (NTU)	NS	40.1	3.8	2.33	2.08	2.72	35.4	19.4	30.8	13.6	3.16
ORP (MeV)	NS	88.7	298.7	38.5	271.3	100	93.0	297.8	141.6	285.1	216.6
Conductivity (mS/cm)	NS	0.301	0.394	0.402	0.438	0.022	0.244	0.428	0.382	0.523	0.536
Dissolved Oxygen YSI (mg/L)	NS	18.46	6.33	12.25	7.58	6.39	14.23	8.82	8.80	7.87	10.12
Groundwater Elevation (ft)	NS	227.94	230.75	228.90	228.48	228.27	228.43	231.93	229.87	229.01	229.96

Analytes	MW-20					MW-22			MW-22 R		MW-23				
	11/17/2015	6/22/2017	6/19/2018	6/21/2019	6/18/2020	11/16/2015	6/22/2017	6/21/2018	6/21/2019	6/18/2020	11/17/2015	6/22/2017	7/18/2018	6/21/2019	6/18/2020
	Upgradient					Upgradient					Outside Plume				
VOCs (µg/L)															
1,1,1,2-Tetrachloroethane	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
1,1,2-Trichloroethane	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
Carbon Tetrachloride	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	**1.5**	**3.7**	**3.0**	**0.47 J**	**3.4**	**5.6**	**3.8 J**	**6.3**	**5.2**	**4.0**	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
Toluene	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
Trichloroethene (TCE)	**52.3**	**86.8**	**69.9**	**7.0 J**	**67.3**	**282**	**238**	**331**	**148**	**130**	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
Vinyl Chloride (VC)	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
MNA Parameters															
Dissolved Hydrogen (nmol/L)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	**260**	NA	NA	NA	NA	**246**	NA	NA	NA	NA	**211**	NA	NA	NA	NA
Chloride (mg/L)	**2.3**	NA	NA	NA	NA	2 U	NA	NA	NA	NA	**27.6**	NA	NA	NA	NA
Nitrate (mg/L)	**0.74**	NA	NA	NA	NA	**4.5**	NA	NA	NA	NA	**0.66**	NA	NA	NA	NA
Sulfate (mg/L)	**7.7 J**	NA	NA	NA	NA	**7.2**	NA	NA	NA	NA	**30.4 J**	NA	NA	NA	NA
Methane (µg/L)	**1.4 J**	NA	NA	NA	NA	0.25 U	NA	NA	NA	NA	**0.17 J**	NA	NA	NA	NA
Ethane (µg/L)	0.5 U	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA
Ethene (µg/L)	0.75 U	NA	NA	NA	NA	0.75 U	NA	NA	NA	NA	0.75 U	NA	NA	NA	NA
Total Organic Carbon (mg/L)	**3.9**	NA	NA	NA	NA	**2.2**	NA	NA	NA	NA	**2.5**	NA	NA	NA	NA
Field Parameters															
pH (pH Unit)	7.40	7.83	7.08	7.42	7.10	7.63	7.18	7.57	7.72	7.55	7.53	6.60	7.43	7.38	7.40
Turbidity (NTU)	85.7	26.3	30.8	4.25	4.67	3.79	40.1	120	57.9	384	13	15.1	Over Range	10.2	235
ORP (MeV)	184.8	136.1	103.5	95.5	224.5	115.6	178.4	88.6	81.7	166.5	134.3	169.4	189.4	269.4	156
Conductivity (mS/cm)	0.264	0.36	0.331	0.447	0.714	0.224	0.36	0.342	0.392	0.361	0.273	0.405	0.463	0.173	0.362
Dissolved Oxygen YSI (mg/L)	17.61	9.46	9.55	9.12	10.04	16.55	11.11	9.92	8.06	10.18	12.71	9.07	9.07	10.42	12.94
Groundwater Elevation (ft)	228.71	232.33	230.20	229.21	230.73	228.29	231.27	229.26	0.00	229.64	228.90	232.56	229.84	229.31	231.13

Notes:
MNA - Monitored Natural Attenuation
NS - no standard
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
J- - The result is an estimated quantity, likely to be biased low.
U - Indicates that the analyte was not detected (ND).
* - negative DO measurements are the result of low temperatures affecting the DO probe during the sampling event

AECOM

Table 3-3
Annual Site Wide Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-24						MW-25				
		11/10/2015	12/13/2016	6/26/2017	6/21/2018	6/20/2019	6/17/2020	11/16/2015	6/21/2017	6/21/2018	6/21/2019	6/18/2020
		Downgradient						Upgradient				
VOCs (µg/L)												
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	**26.5**	**58.1**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	**0.40 J**	**9.3**	**4.4**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**0.93 J**	**1.4**	**1.2**	**0.66 J**	**1.0**	**9.4**	**96.7**	**76.7**	**80.3**	**87.1**	**88.7**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters												
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	**1.9**	NA	NA	NA	NA	NA	NA
Acetylene	NS	NA	NA	NA	1 U	**<0.50**	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**168**	**198**	**195**	**159**	**134**	**185**	**198**	NA	NA	NA	NA
Chloride (mg/L)	NS	**36.3**	**38.5**	**41.0**	**37.1**	**29.1 J-**	**27.3**	**16.3**	NA	NA	NA	NA
Nitrate (mg/L)	NS	**0.90**	0.06 U	0.2 U	0.06 U	0.06 U	0.06 U	**0.52**	NA	NA	NA	NA
Sulfate (mg/L)	NS	**15.5**	**21.4**	**22.1**	**21.5**	**3**	**20.4**	**9**	NA	NA	NA	NA
Methane (µg/L)	NS	**0.82**	**1.6**	**2.2**	**1.3 J+**	**179**	**8.6**	**0.45 J**	NA	NA	NA	NA
Ethane (µg/L)	NS	**0.34 J**	0.5 U	0.5 U	0.5 U	**14.7**	**2.0 J**	0.5 U	NA	NA	NA	NA
Ethene (µg/L)	NS	0.75 U	0.75 U	0.8 U	**0.2 J**	**1.7 J**	2.4 U	0.75 U	NA	NA	NA	NA
Total Organic Carbon (mg/L)	NS	**3.5**	**1.9**	**0.79 J**	**4.5**	**2 J+**	**1.2 J+**	**5.6**	NA	NA	NA	NA
Field Parameters												
pH (pH Unit)	NS	7.75	7.22	7.78	7.95	7.53	7.63	7.85	7.51	7.80	7.47	7.26
Turbidity (NTU)	NS	9.33	13.9	35.2	19.5	1.74	1.97	30.9	1.5	128	8.98	1.75
ORP (MeV)	NS	-80.2	-93.2	-108.6	-147.3	-149	-144	85.4	97.5	101.1	200.3	226.7
Conductivity (mS/cm)	NS	0.327	0.57	0.365	0.204	0.333	0.375	0.201	0.446	0.349	0.2	0.407
Dissolved Oxygen YSI (mg/L)	NS	0.94	0.44	1.2	11.71	0.29	0.55	11.25	4.6	7.6	8.22	9.14
Groundwater Elevation (ft)	NS	226.79	225.30	229.05	227.43	227.32	225.73	227.16	229.65	227.78	227.67	228.16

Analytes	MW-26						MW-27					MW-36				
	11/17/2015	12/13/2016	6/26/2017	6/20/2018	6/20/2019	6/16/2020	11/11/2015	6/23/2017	6/19/2018	6/17/2019	6/15/2020	12/2/2015	6/22/2017	6/21/2018	6/21/2019	6/18/2020
	Downgradient						Downgradient					Upgradient				
VOCs (µg/L)																
1,1,1,2-Tetrachloroethane	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.81 J**	**0.73 J**	**0.34 J**	**0.49 J**	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.51 J**	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	**0.57 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**189**	**211**	**32.6**	**136**	**179**	**1.0**	**0.81 J**	**1.7**	**2.0**	**1.7**
Vinyl Chloride (VC)	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters																
Dissolved Hydrogen (nmol/L)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	**204**	**197**	**223**	**225**	**174**	**205**	**282**	NA	NA	NA	NA	**197**	NA	NA	NA	NA
Chloride (mg/L)	**45.2**	**44.9**	**133**	**49.1**	**32.2**	**37**	**13.8**	NA	NA	NA	NA	**46.6**	NA	NA	NA	NA
Nitrate (mg/L)	0.06 U	**0.04 J**	0.02 U	0.06 U	0.06 U	**0.10 J**	**1.2**	NA	NA	NA	NA	0.06 U	NA	NA	NA	NA
Sulfate (mg/L)	**25.1**	**24.6**	**20.9**	**16.3**	**9.5**	**14.5**	**22**	NA	NA	NA	NA	**21.2 J-**	NA	NA	NA	NA
Methane (µg/L)	**34.8**	**2.7**	**2.1**	**80**	**112**	**58.1**	**0.24 J**	NA	NA	NA	NA	**25.6**	NA	NA	NA	NA
Ethane (µg/L)	0.50 U	0.5 U	0.5 U	0.5 U	3.3 U	3.3 U	0.5 U	NA	NA	NA	NA	**2.7**	NA	NA	NA	NA
Ethene (µg/L)	0.75 U	0.75 U	0.75 U	0.75 U	2.4 U	2.4 U	0.75 U	NA	NA	NA	NA	**1.2 J**	NA	NA	NA	NA
Total Organic Carbon (mg/L)	**9.3**	**2.6**	**30.7**	**0.5 J**	**6.4**	**4.0**	**2.9**	NA	NA	NA	NA	**1.7**	NA	NA	NA	NA
Field Parameters																
pH (pH Unit)	7.52	7.22	7.23	7.57	7.6	7.66	7.50	7.87	7.31	7.1	7.46	7.76	8.05	7.86	7.61	7.58
Turbidity (NTU)	68.3	21.8	0.4	36.2	9.3	3.17	86.8	1.9	2.60	4.48	7.90	66.7	6.3	17.2	0.26	2.94
ORP (MeV)	-103.6	-28.9	-26.9	-75.3	-108.6	-25.3	169.9	310.7	3.10	4.48	111	-224.3	-71.7	85.5	160.4	139
Conductivity (mS/cm)	0.324	0.59	0.63	0.415	0.423	0.250	0.411	0.429	0.58	114.17	0.340	0.282	0.422	7.86	0.215	0.420
Dissolved Oxygen YSI (mg/L)	0	0.33	0.62	1.38	0.3	4.81	21.89	5.3	1.31	1.07	3.86	5.29	1.08	3.27	2.33	4.13
Groundwater Elevation (ft)	226.06	224.75	228.01	226.43	226.59	224.75	225.50	226.43	221.21	225.80	218.47	227.80	230.49	229.13	228.09	228.97

Notes:
MNA - Monitored Natural Attenuation
NS - no standard
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
J- - The result is an estimated quantity, likely to be biased low.
U - Indicates that the analyte was not detected (ND).
* - negative DO measurements are the result of low temperatures affecting the DO probe during the sampling event

Table 3-3
Annual Site Wide Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well Pair: MW-28 (Downgradient) 12/1/2015	12/14/2016	6/27/2017	6/22/2018	6/19/2019	6/19/2020	MW-29 (Upgradient) 12/1/2015	12/14/2016	6/27/2017	6/22/2018	6/19/2019	6/17/2020
VOCs (µg/L)													
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	1.0 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	11.2	10.4	8.9 J+	10.5	8.0	6.6	12.4	14.0 J+	11.8 J+	11.8	8.7	5.8
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	1.0 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.46 J	0.75 U	1.0 U	0.44 J	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.45 J	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	1.0	0.77 J	1.0 J+	0.86 J	1.2	0.92 J	0.97 J	3.8 U	1.0 J+	0.84 J	1.1	0.59 J
1,1-Dichloroethene (1,1-DCE)	5	0.53 J	0.43 J	0.38 J	0.39 J	0.75 U	0.75 U	0.68 J	3.8 U	0.63 J	0.48 J	0.35 J	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.61 J	0.75 U	0.75 U	0.75 J	0.36 J	0.44 J	0.75 U	3.8 U	0.75 U	0.82 J	0.49 J	0.49 J
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	4.7	4.3	4.7 J+	4.9	5.8	3.8	4.9	6.1 J+	5.8 J+	5.1	5.4	2.9
Tetrachloroethene (PCE; PERC)	5	33	44.6	36.3 J+	38.7	31.9	25.5	33.2	30.8 J+	38.1 J+	35.4	29.7	24.3
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.47 J	0.37 J	0.36 J	0.75 U	0.75 U	0.75 U	3.8 U	0.70 J	0.59 J	0.75 U	0.75 U
Trichloroethene (TCE)	5	182	196	195	214	172	140	224	209 J+	264	248	161	102
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters													
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	2.7	NA	NA	NA	NA	NA	1.5	NA
Acetylene	NS	NA	NA	NA	1 U	<0.50	NA	NA	NA	NA	1.0 U	<0.50	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	352	316	352	422	325	367	327	301	361	370	342	282
Chloride (mg/L)	NS	22.1	32.4	29.0	33.1	41.6	31.1	28.2	28.4	49.4	28	38.9	34.7
Nitrate (mg/L)	NS	0.06 U	0.06 J	1.5	0.58	0.20 U	0.36	0.1 J	0.26	1.3 J	0.38	0.26	0.64
Sulfate (mg/L)	NS	22.4	20.9	13.0	23.1	13.6	20.5	29.2	24.9	13.8	21	12.9	16
Methane (µg/L)	NS	3.4	3.0	1.0	1800	1.5 U	471	13.9	0.62	0.05 U	210	1.5 U	1.5 U
Ethane (µg/L)	NS	0.5 U	3.6	0.5 U	0.5 U	3.3 U	3.3 U	0.81 J	0.5 U	0.5 U	0.5 U	3.3 U	3.3 U
Ethene (µg/L)	NS	0.75 U	1.3 J	0.75 U	0.75 U	2.4 U	2.4 U	0.59 J	0.75 U	0.75 U	0.75 U	2.4 U	2.4 U
Total Organic Carbon (mg/L)	NS	1.9	2.3	0.76 J	4.1	1.6 J+	2.1	2.3	1.4	0.92 J	3.2	5.3	1.4 J+
Field Parameters													
pH (pH Unit)	NS	6.83	7.03	7.05	7.33	6.84	7.19	7.06	7.02	7.02	7.33	6.96	7.33
Turbidity (NTU)	NS	209	1.5	-3	1.32	0.02	2.11	82.4	0.62	2.8	15.2	3.43	997.3
ORP (MeV)	NS	273.2	71.2	97.4	11.1	176.4	23.1	-25.1	60.9	120.2	52.3	169.6	110.7
Conductivity (mS/cm)	NS	0.324	0.366	0.554	7.33	0.613	0.085	0.325	0.354	0.619	0.61	0.63	0.488
Dissolved Oxygen YSI (mg/L)	NS	6.75	3.94	7.59	0.63	0.89	0.35	4.29	6.17	7.12	2.98	2.23	5.25
Groundwater Elevation (ft)	NS	227.07	225.41	229.79	228.07	227.62	226.56	227.05	225.38	229.82	228.09	227.64	226.58

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well Pair: MW-30 (Downgradient) 12/1/2015	12/13/2016	6/26/2017	7/18/2018	6/19/2019	6/17/2020	MW-31 (Upgradient) 12/1/2015	12/14/2016	6/26/2017	6/21/2018	6/19/2019	6/17/2020
VOCs (µg/L)													
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.61 J	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.50 J	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	25.2	42.3	24.3	8.1	5.0	5.7	42.7	38.2	29.0	20.6	26.2	33.5
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters													
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	8.5	NA	NA	NA	NA	NA	2	NA
Acetylene	NS	NA	NA	NA	1.0 UJ	<0.50	NA	NA	NA	NA	1 U	<0.50	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	143	319	154	58	65	48	178	222	150	169	142	160
Chloride (mg/L)	NS	38.4	182	49.6	38.8	37.6	47.6	41.9	56.6	31	39.9	45.9	41.4
Nitrate (mg/L)	NS	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.2 U	0.06 U	0.06 U	0.06 U
Sulfate (mg/L)	NS	35.9	2.9	2.0 U	0.34 J	2.0 U	1.1 J	26.3	10.9	5.6	7.8	10.2	9.6
Methane (µg/L)	NS	47.4	146	3210	3700	91.6	5630	20.7	3.5	56.5	120	99.3	354
Ethane (µg/L)	NS	4.7	5.4	36.7	52	3.3 U	29.7	2.2	1.5	2.7	5.7	3.0 J	3.2 J
Ethene (µg/L)	NS	2.2	3.3	12.7	6.3	2.4 U	2.5	0.91 J	0.84 J	3.2	2.4	2.4 U	2.4 U
Total Organic Carbon (mg/L)	NS	2.2	225	75.2	9.7 J	7.7	5.4	2.1	43.9	2.8	2.1	1.0 U	1.0 U
Field Parameters													
pH (pH Unit)	NS	8.91	6.83	7.77	8.28	7.8	8.68	7.80	7.20	9.79	7.83	7.8	7.81
Turbidity (NTU)	NS	58.2	3.55	3	950.5	0.81	1.45	51.7	8.03	4.6	2.6	0.69	14.42
ORP (MeV)	NS	-278.4	-166.3	-173.3	12.1	-164	-202	-319.7	-163.1	-283.2	-155.1	-165.3	-148.0
Conductivity (mS/cm)	NS	0.21	1.41	0.32	0.238	0.23	0.06	0.243	0.348	0.28	0.324	0.402	0.325
Dissolved Oxygen YSI (mg/L)	NS	3.7	0.29	0.48	0.98	0.28	0.05	1.29	0.28	0.7	0.22	0.15	0.91
Groundwater Elevation (ft)	NS	226.98	225.35	229.44	227.80	227.52	226.19	226.95	225.40	229.52	227.84	227.55	226.33

Notes:
MNA - Monitored Natural Attenuation
NS - no standard
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
J- - The result is an estimated quantity, likely to be biased low.
U - Indicates that the analyte was not detected (ND).
* - negative DO measurements are the result of low temperatures affecting the DO probe during the sampling event

Table 3-3
Annual Site Wide Groundwater Sample Results
The Defense National Stockpile Center Scotia Depot

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well Pair												Confirmation Well Pair											
		MW-32						MW-33						MW-34						MW-35					
		11/30/2015	3/21/2017	6/26/2017	6/21/2018	6/20/2019	6/17/2020	11/24/2015	12/14/2016	6/26/2017	6/21/2018	6/19/2019	6/17/2020	11/24/2015	12/13/2016	6/26/2017	6/20/2018	6/20/2019	6/16/2020	11/24/2015	12/15/2016	6/26/2017	6/20/2018	6/20/2019	6/16/2020
		Downgradient						Upgradient						Downgradient						Upgradient					
VOCs (µg/L)																									
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	**0.40 J**	**0.48 J**	0.75 U	**0.34 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	**1.2**	**1.3**	**0.62 J**	**0.83 J**	**0.89 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**5.0**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.42 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**150**	**191**	**130**	**64.1**	**118**	**149**	**133**	**93.5**	**152**	**178**	**97.4**	**165**	**17.7**	**41.3**	**34.0**	**31.3**	**1.1**	**18.9**	**31.9**	**31.8**	**43.8 J+**	**39.4**	**34.8**	**42.9**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters																									
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	**3.70**	NA	NA	NA	NA	NA	**3.3**	NA	NA	NA	NA	NA	**2.2**	NA	NA	NA	NA	NA	**1.4**	NA
Acetylene	NS	NA	NA	NA	1 U	**<0.50**	NA	NA	NA	NA	1 U	**<0.50**	NA	NA	NA	NA	1 U	**<0.50**	NA	NA	NA	NA	1 U	**<0.50**	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**196**	**214**	**129**	**128**	**134**	**169**	**172**	**218**	**205**	**215**	**172**	**201**	**99**	**191**	**201**	**226**	**194**	**146**	**181**	**223**	**202**	**197**	**174**	**177**
Chloride (mg/L)	NS	**35.6**	**84.6**	**38.0**	**29.5**	**24.1 J-**	**32.1**	**41.8**	**43.2**	**22.8**	**22.5**	**21.2**	**25.8**	**48.5**	**62.3**	**15.7**	**16.3**	**6.6 J-**	**13.8**	**42.2**	**53.9**	**17.1**	**15.7**	**21.2 J-**	**26.1**
Nitrate (mg/L)	NS	0.06 U	**0.02 J**	0.2 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	**0.32**	**0.42**	**0.42**	**0.46**	**0.56**	**0.06 J**	0.2 U	0.06 U	0.06 U	0.06 U	0.06 U	**0.040 J**	**0.66**	**0.64**	**0.38**	**0.54**
Sulfate (mg/L)	NS	**21.1**	**0.68 J**	2 U	**2.3**	**8.6**	**11.5**	**25.1**	**8.2**	**11.8**	**14.3**	**10.9**	**13.6**	**64.3**	**23.8**	**13.4**	**11.2**	2.0 U	**3.5**	**48.1**	**7.2**	**13.6**	**10.7**	**9.8**	**10.3**
Methane (µg/L)	NS	**6.8**	**309**	**817**	**130**	**2190**	**232**	**64**	**3.4**	**16**	**17**	**4.7**	**4.8**	**14.5**	**1.2**	**12.4**	**35**	**419**	**1740**	**13.8**	**0.90**	**7.2**	**23**	**38.3**	**59**
Ethane (µg/L)	NS	**0.5 J**	**19.3**	**35.9**	**2**	**12.1**	**4.5**	**7**	**0.25 J**	0.5 U	0.5 U	3.3 U	3.3 U	**2.2**	0.5 U	0.5 U	0.5 U	**0.77 J**	**3.6**	**2.9**	0.5 U	0.5 U	0.5 U	3.3 U	3.3 U
Ethene (µg/L)	NS	0.75 U	**10.3**	**15.6**	**0.25 J**	**1.7 J**	2.4 U	**3.6**	**0.48 J**	0.75 U	0.75 U	**1.2 J**	2.4 U	**1.8**	0.75 U	0.75 U	0.75 U	**1.1 J**	2.4 U	**1.6**	0.75 U	0.75 U	0.75 U	2.4 U	2.4 U
Total Organic Carbon (mg/L)	NS	**2.6**	**98**	**22**	**6.4**	**1.4 J+**	1.0 U	**8.1**	**30.9**	**0.54 J**	**1.6**	**1.8 J+**	1.0 U	**5.9**	**12**	**3.3**	**0.93 J**	**8.3**	**3.8**	**7.7**	**18.3**	**0.75** J	**0.6 J**	**1.2 J+**	1.0 U
Field Parameters																									
pH (pH Unit)	NS	8.00	7.54	9.28	8.03	7.77	7.75	8.39	7.18	8.8	7.66	7.21	7.3	12.68	7.14	7.26	7.30	8.91	8.59	9.68	7.09	7.66	7.55	7.42	7.56
Turbidity (NTU)	NS	180	4.01	5.1	0.02	0.02	0.66	23.1	9.31	3.4	2.78	7.84	3.99	44.7	3.23	-4	1.4	5.55	3.16	381	5.99	38.2	25.8	12.1	3.9
ORP (MeV)	NS	-234.2	-140.7	-238.7	-149.4	-165.3	-151.9	-471.2	-126.8	44.9	17.6	2.8	196	-185.4	-8.4	-139.4	-76.3	-140.1	-87.4	-404	-167.9	-10.6	69.5	-37.1	101.2
Conductivity (mS/cm)	NS	0.239	0.64	0.261	0.206	0.32	0.124	0.247	0.303	0.35	0.382	0.374	0.322	0.361	0.63	0.332	0.332	0.368	0.17	0.287	0.329	0.324	0.335	0.361	0.394
Dissolved Oxygen YSI (mg/L)	NS	0.64	1.77	2.5	8.26	0.3	1.39	0.92	0.41	2.99	3.41	0.65	7.05	6.9	1.12	0.46	1.31	0.35	0.17	0.79	0.41	3.67	3.54	1.82	6.44
Groundwater Elevation (ft)	NS	226.86	223.70	229.05	227.45	227.39	225.93	226.89	225.51	229.11	227.51	227.42	226.07	226.73	225.48	228.66	227.03	227.21	225.45	226.69	225.46	228.68	227.04	227.26	225.66

Notes:
MNA - Monitored Natural Attenuation
NS - no standard
Detected concentrations are in bold font.
Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray.
J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
J+ - The result is an estimated quantity, likely to be biased high.
J- - The result is an estimated quantity, likely to be biased low.
U - Indicates that the analyte was not detected (ND).
* - negative DO measurements are the result of low temperatures affecting the DO probe during the sampling event

Table 3-4A
Mann-Kendall TCE Concentration Trends
The Defense National Stockpile Center Scotia Depot

Sampling Date	Upgradient				Downgradient			
	MW-29	MW-31	MW-33	MW-35	MW-28	MW-30	MW-32	MW-34
6/27/2017	Stable	Decreasing	No Trend	Stable	Stable	Stable	Stable	No Trend
9/27/2017	No Trend	Decreasing	Increasing	No Trend	Stable	Stable	Stable	Stable
12/14/2017	No Trend	Decreasing	No Trend	No Trend	No Trend	Stable	Stable	Stable
3/15/2018	No Trend	Decreasing	Prob. Increasing	No Trend	Stable	Decreasing	Decreasing	Stable
6/22/2018	No Trend	Decreasing	Increasing	No Trend	No Trend	Decreasing	Decreasing	Stable
9/21/2018	No Trend	Decreasing	Prob. Increasing	Stable	No Trend	Decreasing	Decreasing	Prob. Decreasing
12/20/2018	No Trend	Decreasing	Prob. Increasing	Stable	No Trend	Decreasing	Decreasing	Decreasing
6/20/2019	Stable	Decreasing	No Trend	Stable	No Trend	Decreasing	Decreasing	Decreasing
12/10/2019	Stable	Decreasing	No Trend	Stable	No Trend	Decreasing	Decreasing	Decreasing
6/19/2020	Decreasing	Prob. Decreasing	Prob. Increasing	No Trend	No Trend	Decreasing	Decreasing	Decreasing
12/10/2020	Decreasing	Prob. Decreasing	No Trend	No Trend	Stable	Decreasing	Prob. Decreasing	Decreasing

Table 3-4B
Mann-Kendall CVOCs Concentration Trends
The Defense National Stockpile Center Scotia Depot

Sampling Date	Upgradient				Downgradient			
	MW-29	MW-31	MW-33	MW-35	MW-28	MW-30	MW-32	MW-34
6/27/2017	Stable	Decreasing	No Trend	Stable	No Trend	Stable	Stable	No Trend
9/27/2017	No Trend	Decreasing	Increasing	No Trend	Stable	Stable	Stable	Stable
12/14/2017	No Trend	Decreasing	No Trend	No Trend	No Trend	Stable	Stable	Stable
3/15/2018	No Trend	Decreasing	Prob. Increasing	No Trend	Stable	Decreasing	Decreasing	Stable
6/22/2018	No Trend	Decreasing	Increasing	No Trend	No Trend	Decreasing	Decreasing	Stable
9/21/2018	No Trend	Decreasing	Prob. Increasing	Stable	No Trend	Decreasing	Decreasing	Prob. Decreasing
12/20/2018	No Trend	Decreasing	Prob. Increasing	Stable	No Trend	Decreasing	Decreasing	Decreasing
6/20/2019	Stable	Decreasing	No Trend	Stable	No Trend	Decreasing	Decreasing	Decreasing
12/10/2019	Stable	Decreasing	No Trend	Stable	No Trend	Decreasing	Decreasing	Decreasing
6/19/2020	Decreasing	Prob. Decreasing	Prob. Increasing	No Trend	Stable	Decreasing	Decreasing	Decreasing
12/10/2020	Decreasing	Prob. Decreasing	No Trend	No Trend	Stable	Decreasing	Prob. Decreasing	Decreasing

Table 3-5
Air Sample Analytical Results
Former Scotia Naval Depot
Glenville, NY

Stone 3/2014	AECOM	Carbon Tetrachloride (µg/m^3)						1,1,1-Trichloroethane (µg/m^3)					
Sample ID	Sample ID	Stone 2014	AECOM 2016	AECOM 2017	AECOM 2018	AECOM Jan 2020	AECOM Dec 2020	Stone 2014	AECOM 2016	AECOM 2017	AECOM 2018	AECOM Jan 2020	AECOM Dec 2020
IA06-1-B	**201IA-1**	0.692	0.49 J	0.40	0.32 J	0.39	0.62	0.038 J	0.015 J	0.0096 J	0.0078 J	0.042 U	0.099 U
IA05-1-B	**201IA-2**	0.673	0.51	0.39	0.34 J	2.1	0.57	0.109 U	0.014 J	0.011 J	0.0086 J	0.025 J	0.12 U
IA07-1-B	**201IA-3**	2.64	0.59	0.43	0.34 J	0.43 J	0.40	0.109 U	0.015 J	0.010 J	0.0079 J	0.011 J	0.10 U
IA11-1-B	**202IA-1**	1.95	0.45 J	0.39	0.32 J	0.41 J	0.55	0.469	0.018 J	0.012 J	0.010 J	0.012 J	0.097 U
IA12-1-B	**202IA-2**	1.01	0.45 J	0.40	0.34	0.43 J	0.46	0.147	0.017 J	0.011 J	0.012 J	0.010 J	0.11 U
NS	**202IA-3**	-	0.39	0.40	0.33	0.43 J	0.43	-	0.017 J	0.011 J	0.014 J	0.091 UJ	0.15 U
IA09-1-B	**203IA-1**	0.692	0.42 J	0.37	0.33	0.40 J	0.46	0.196	0.380 U	0.011 J	0.075 U	0.012 J	0.051 J
IA08-1-B	**203IA-2**	2.65	0.54	0.41	0.34	0.45	0.61	0.737	0.023 J	0.012 J	0.016 J	0.059 U	0.096 J
IA10-1-B	**203IA-3**	0.654	0.48	0.40	0.35 J	0.42 J	0.46	0.180	0.019 J	0.012 J	0.015 J	0.014 J	0.072 J
NS	**204IA-1**	-	0.50	0.40	0.37	0.43 J	0.43	-	0.029 J	0.0091 J	0.098 U	0.054 UJ	0.22 U
IA15-1-B	**204IA-2**	0.572	0.47	0.46	0.36 J	0.56 J	0.45	0.044 J	0.016 J	0.017 J	0.062 UJ	0.094 UJ	0.14 U
IA14-1-B	**204IA-3**	0.516	0.50	0.40	0.31	0.40 J	0.37	0.038 J	0.018 J	0.012 J	0.012 J	0.0099 J	0.084 U
IABG-1-B	**NS**	0.447	-	-	-	-	-	0.109 U	-	-	-	-	-
IABG-2-B	**OA-1**	0.434	0.490 J	0.41	0.34 J	0.41 J	0.37	0.109 U	0.014 J	0.010 J	0.012 J	0.054 UJ	0.019 J
	2017 OA-1 Resample	-	-	0.48	-	-	-	-	-	0.014 J	-	-	-
	3/26/20 IA201-2 Resample	-	-	-	-	0.38 J	-	-	-	-	-	0.009 J	-
	3/26/20 OA-1 Resample	-	-	-	-	0.39	-	-	-	-	-	0.028 U	-

Notes:
NS - No equivalent sample at this location
"-" - Not Sampled
IA - Indoor Air
IABG - Stone 2014 Outdoor Air Sample
OA - Outdoor Air
U - Qualifier denotes non-detect.
J - Qualifier denotes estimated value.
UJ - Qualifier denotes the analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be imprecise.

Table 3-5
Air Sample Analytical Results
Former Scotia Naval Depot
Glenville, NY

Stone 3/2014	AECOM	Tetrachloroethene (µg/m^3)						Trichloroethene (µg/m^3)					
		Stone 2014	AECOM 2016	AECOM 2017	AECOM 2018	AECOM Jan 2020	AECOM Dec 2020	Stone 2014	AECOM 2016	AECOM 2017	AECOM 2018	AECOM Jan 2020	AECOM Dec 2020
Sample ID	**Sample ID**												
IA06-1-B	**201IA-1**	0.068 J	0.054 J	0.044	0.053 J	0.30 J	0.11 J	0.107 U	0.037 J	0.031 U	0.025 UJ	0.025 J	0.099 U
IA05-1-B	**201IA-2**	0.136	0.050	0.16	0.088 J	0.10	0.13 J	0.107 U	0.023 J	0.023 J	0.022 J	0.020 J	0.12 U
IA07-1-B	**201IA-3**	0.258	0.094	0.11	0.14 J	0.11 J	0.15	0.107 U	0.046	0.082	0.019 J	0.026 J	0.10 U
IA11-1-B	**202IA-1**	0.142	0.054 J	0.15	0.11 J	0.078 J	0.46	0.107 U	0.030 J	0.025 J	0.028 J	0.028 J	0.097 U
IA12-1-B	**202IA-2**	0.061 J	0.060 J	0.075	0.11	0.11 J	76	0.107 U	0.034 J	0.014 J	0.030 J	0.021 J	0.11 U
NS	**202IA-3**	-	0.110	0.086	0.12	0.082 J	23	-	0.036	0.019	0.052	0.073 J	0.15 U
IA09-1-B	**203IA-1**	0.170	0.380 U	0.073	0.15	0.074 J	11	0.683	0.380 U	0.019 J	0.099	0.045 J	0.073 J
IA08-1-B	**203IA-2**	0.292	0.140	0.18	0.19	0.14	13	0.752	0.091	0.042	0.12	0.060 J	0.15 U
IA10-1-B	**203IA-3**	0.156	0.075	0.068	0.087 J	0.092 J	1.7	0.623	0.076	0.027 J	0.085 J	0.083 J	0.23
NS	**204IA-1**	-	0.072	0.99	0.087 J	0.075 J	0.22 U	-	0.089	0.038	0.069 J	0.045 J	0.13 J
IA15-1-B	**204IA-2**	0.149	0.057	0.29	0.063 J	0.083 J	0.063 J	3.92	0.061	0.20	0.096 J	0.079 J	0.14 U
IA14-1-B	**204IA-3**	0.142	0.043	0.059	0.057	0.084 J	0.075 J	0.210	0.059	0.035	0.067	0.057 J	0.084 U
IABG-1-B	**NS**	0.054 J	-	-	-	-	-	0.107 U	-	-	-	-	-
IABG-2-B	**OA-1**	0.075 J	0.054 J	0.041	0.087 J	0.069 J	0.38	0.107 U	0.011 J	0.029 U	0.078 J	0.025 J	0.051 J
	2017 OA-1 Resample	-	-	0.079	-	-	-	-	-	0.11	-	-	-
	3/26/20 IA201-2 Resample	-	-	-	-	0.098 J	-	-	-	-	-	0.021 J	-
	3/26/20 OA-1 Resample	-	-	-	-	0.074	-	-	-	-	-	0.028 U	-

Notes:
NS - No equivalent sample at this location
"-" - Not Sampled
IA - Indoor Air
IABG - Stone 2014 Outdoor Air Sample
OA - Outdoor Air
U - Qualifier denotes non-detect.
J - Qualifier denotes estimated value.
UJ - Qualifier denotes the analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be imprecise.

Table 3-5
Air Sample Analytical Results
Former Scotia Naval Depot
Glenville, NY

Stone 3/2014	AECOM	Vinyl Chloride (µg/m³)						1,1-Dichloroethene (µg/m³)					
		Stone 2014	AECOM 2016	AECOM2017	AECOM 2018	AECOM Jan 2020	AECOM Dec 2020	Stone	Stone 2014	AECOM2017	AECOM 2018	AECOM Jan 2020	AECOM Dec 2020
Sample ID	**Sample ID**												
IA06-1-B	**201IA-1**	0.051 U	0.025 UJ	0.031 U	0.025 UJ	0.040 U	0.10 U	0.079 U	0.012 J	0.031 U	0.025 UJ	0.040 U	0.10 U
IA05-1-B	**201IA-2**	0.051 U	0.027 U	0.029 U	0.027 UJ	0.032 U	0.12 U	0.079 U	0.029 U	0.029 U	0.027 UJ	0.032 U	0.12 U
IA07-1-B	**201IA-3**	0.051 U	0.030 U	0.031 U	0.026 UJ	0.025 UJ	0.11 U	0.079 U	0.031 U	0.031 U	0.026 UJ	0.025 UJ	0.11 U
IA11-1-B	**202IA-1**	0.051 U	0.025 UJ	0.031 U	0.025 UJ	0.026 UJ	0.10 U	0.079 U	0.026 UJ	0.031 U	0.025 UJ	0.026 UJ	0.10 U
IA12-1-B	**202IA-2**	0.051 U	0.024 UJ	0.032 U	0.035 U	0.026 UJ	0.11 U	0.079 U	0.026 UJ	0.032 U	0.035 U	0.026 UJ	0.11 U
NS	**202IA-3**	-	0.022 U	0.034 U	0.034 U	0.087 UJ	0.15 U	-	0.023 U	0.034 U	0.034 U	0.087 UJ	0.15 U
IA09-1-B	**203IA-1**	0.051 U	0.360 U	0.032 U	0.071 U	0.027 UJ	0.15 U	0.079 U	0.380 U	0.032 U	0.071 U	0.027 UJ	0.15 U
IA08-1-B	**203IA-2**	0.051 U	0.030 U	0.032 U	0.034 U	0.057 U	0.16 U	0.079 U	0.031 U	0.032 U	0.034 U	0.057 U	0.16 U
IA10-1-B	**203IA-3**	0.051 U	0.027 U	0.033 U	0.050 UJ	0.026 UJ	0.16 U	0.079 U	0.029 U	0.033 U	0.050 UJ	0.026 UJ	0.16 U
NS	**204IA-1**	-	0.028 U	0.032 U	0.093 U	0.052 UJ	0.23 U	-	0.020 J	0.032 J	0.093 U	0.052 UJ	0.23 U
IA15-1-B	**204IA-2**	0.051 U	0.028 U	0.032 U	0.059 UJ	0.090 UJ	0.14 U	0.079 U	0.029 U	0.032 U	0.059 UJ	0.090 UJ	0.14 U
IA14-1-B	**204IA-3**	0.051 U	0.027 U	0.028 U	0.033 U	0.0250 UJ	0.088 U	0.079 U	0.028 U	0.028 U	0.033 U	0.025 UJ	0.088 U
IABG-1-B	**NS**	0.051 U	-	-	-	-	-	0.079 U	-	-	-	-	-
IABG-2-B	**OA-1**	0.051 U	0.023 UJ	0.029 U	0.026 UJ	0.052 UJ	0.058 U	0.079 U	0.024 UJ	0.029 U	0.026 UJ	0.052 UJ	0.058 U
	2017 OA-1 Resample	-	-	0.032 U	-	-	-	-	-	0.032 U	-	-	-
	3/26/20 IA201-2 Resample	-	-	-	-	0.028 UJ	-	-	-	-	-	0.028 UJ	-
	3/26/20 OA-1 Resample	-	-	-	-	0.03 U	-	-	-	-	-	0.030 U	-

Notes:
NS - No equivalent sample at this location
"-" - Not Sampled
IA - Indoor Air
IABG - Stone 2014 Outdoor Air Sample
OA - Outdoor Air
U - Qualifier denotes non-detect.
J - Qualifier denotes estimated value.
UJ - Qualifier denotes the analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be imprecise.

Table 3-5
Air Sample Analytical Results
Former Scotia Naval Depot
Glenville, NY

Stone 3/2014	AECOM	cis-1,2-Dichloroethene (µg/m³)											
		Stone 2014		AECOM 2016		AECOM2017		AECOM 2018		AECOM Jan 2020		AECOM Dec 2020	
Sample ID	Sample ID												
IA06-1-B	201IA-1	0.079	U	0.043	J	0.031	U	0.025	UJ	0.040	U	0.099	U
IA05-1-B	201IA-2	0.079	U	0.029	U	0.029	U	0.027	UJ	0.032	U	0.12	U
IA07-1-B	201IA-3	0.079	U	0.031	U	0.031	U	0.026	UJ	0.025	UJ	0.10	U
IA11-1-B	202IA-1	0.079	U	0.026	UJ	0.031	U	0.025	UJ	0.026	UJ	0.097	U
IA12-1-B	202IA-2	0.079	U	0.026	UJ	0.032	U	0.035	U	0.026	UJ	0.11	U
NS	202IA-3	-		0.023	U	0.034	U	0.034	U	0.087	UJ	0.15	U
IA09-1-B	203IA-1	0.079	U	0.380	U	0.032	U	0.071	U	0.027	UJ	0.14	U
IA08-1-B	203IA-2	0.079	U	0.031	U	0.032	U	0.034	U	0.057	U	0.15	U
IA10-1-B	203IA-3	0.079	U	0.029	U	0.033	U	0.050	UJ	0.026	UJ	0.16	U
NS	204IA-1	-		0.039		0.032		0.093	U	0.052	UJ	0.22	U
IA15-1-B	204IA-2	0.079	U	0.029	U	0.032	U	0.059	UJ	0.090	UJ	0.14	U
IA14-1-B	204IA-3	0.079	U	0.028	U	0.028	U	0.033	U	0.025	UJ	0.084	U
IABG-1-B	NS	0.079	U	-		-		-		-		-	
IABG-2-B	OA-1	0.079	U	0.024	UJ	0.029	U	0.026	UJ	0.052	UJ	0.030	J
	2017 OA-1 Resample	-		-		0.032	U	-		-		-	
	3/26/20 IA201-2 Resample	-		-		-		-		0.022	J	-	
	3/26/20 OA-1 Resample	-		-		-		-		0.028	U	-	

Notes:
NS - No equivalent sample at this location
"-" - Not Sampled
IA - Indoor Air
IABG - Stone 2014 Outdoor Air Sample
OA - Outdoor Air
U - Qualifier denotes non-detect.
J - Qualifier denotes estimated value.
UJ - Qualifier denotes the analyte was analyzed for, but was not detected. The reported quantitation limit is approximated and may be imprecise.

Table 3-6
SVI Monitoring Vacuum and Monometer Readings
June 2020 Monitoring Event Former Scotia Naval Depot

VACUUM READINGS							
BUILDING 201		BUILDING 202		BUILDING 203		BUILDING 204	
MP	Reading	MP	Reading	MP	Reading	MP	Reading
1	-0.046	1	-0.045	1	0.000	1	0.023
2	-0.048	2	-	2	0.001	2	0.001
3	-0.016	3	-0.043	3	-0.031	3	-
4	-0.09	4	-0.079	4	0.006	4	-
5	-	5	-0.119	5	-0.005	5	-0.005
6	-0.043	6	-0.088	6	-0.024	6	-0.042
7	-	7	-0.015	7	-0.038	7	-0.006
8	-0.036	8	-0.032	8	-0.038	8	-0.037

MONOMETER READINGS							
BUILDING 201		BUILDING 202		BUILDING 203		BUILDING 204	
Point	Reading	Point	Reading	Point	Reading	Point	Reading
1A	3.2	1A	3.0	1A	2.3	1A	3.0
1B	2.9	1B	3.2	1B	2.3	1B	3.2
2A	3.0	2A	2.3	2A	2.2	2A	3.4
2B	3.1	2B	3.5	2B	3.5	2B	3.7
3A	3.5	3A	3.4	3A	2.9	3A	3.5
3B	3.5	3B	3.5	3B	2.9	3B	3.6
4A	3.4	4A	3.5	4A	3.5	4A	-
4B	3.0	4B	3.4	4B	3.0	4B	3.7
5A	-	5A	3.5	5A	3.5	5A	3.4
5B	1.4	5B	3.5	5B	2.5	5B	3.5
6A	-	6A	3.3	6A	2.5	6A	3
6B	1.0	6B	3.3	6B	2.5	6B	2.8
7A	3.2	7A	3.4	7A	0.0	7A	3.5
7B	3.0	7B	3.4	7B	0.0	7B	3.8
8A	3.5	8A	3.6	8A	2.0	8A	3.7
8B	3.5	8B	3.9	8B	0.0	8B	4
9A	3.6	9A	3.2	9A	3.5	9A	4.0
9B	3.4	9B	3.1	9B	3.4	9B	4
10A	3.4	10A	3.6	10A	0.5	10A	-
10B	3.6	10B	3.5	10B	0.5	10B	0.5
11A	3.5	11A	3.3	11A	3.0	11A	3.7
11B	5.5	11B	3.5	11B	2.2	11B	3.7
12A	2.8	12A	3.0	12A	2.7	12A	3.3
12B	-	12B	3.1	12B	3.5	12B	3.5

Notes:
* Point removed, unable to take reading
** Reading decreasing overtime steadily, started higher than when recorded
1 to 3 : System readings were bouncing between that range

Table 5-3
NYSDOH Health Guidance Decision Matrix Outcomes
January 2020
Former Scotia Naval Depot
Glenville NY

Location ID Stone/AECOM	Analyte	Soil Vapor Concentration 2014 (μg/m^3)	Soil Vapor Concentration Jan 2020 (μg/m^3)	Indoor Air Concentration 2014 (μg/m^3)	Indoor Air Concentration 2016 (μg/m^3)	Indoor Air Concentration 2017 (μg/m^3)	Indoor Air Concentration 2018 (μg/m^3)	Indoor Air Concentration Jan 2020 (μg/m^3)	Indoor Air Concentration Dec 2020 (μg/m^3)	New York State Department of Health Guidance/Decision Matrix Outcome[1]
IA05 - SV05 / 201IA-2	1,1,1-Trichloroethane	0.737	0.026 J	0.109 U	0.014 J	0.011 J	0.0086 J	0.025 J / 0.009 J	0.12 U	No Further Action
	Carbon Tetrachloride	122	1.2	0.673	0.51	0.39	0.34 J	2.1 / 0.38 J	0.57	No Further Action
	Tetrachloroethene	0.542 J	0.17	0.136	0.05	0.16	0.088 J	0.1 / 0.098	0.13 J	No Further Action
	Trichloroethene	1.05	0.078 U	0.107 U	0.023 J	0.023 J	0.022 J	0.020 J / 0.021 J	0.12 U	No Further Action
IA06 - SV06 / 201IA-1	1,1,1-Trichloroethane	27.3	0.38 J	0.038 J	0.015 J	0.0096 J	0.0078 J	0.011 U	0.099 U	No Further Action
	Carbon Tetrachloride	10.1	0.54 J	0.692	0.49 J	0.4	0.32 J	0.39	0.62	No Further Action
	Tetrachloroethene	3.44	0.13 J	0.068 J	0.054 J	0.044	0.053 J	0.30	0.11 J	No Further Action
	Trichloroethene	2.82	0.053 UJ	0.107 U	0.037 J	0.031 U	0.025 UJ	0.025 J	0.099 U	No Further Action
IA07 - SV07 / 201IA-3	1,1,1-Trichloroethane	1.39	0.046 J	0.109 U	0.015 J	0.01 J	0.0079 J	0.011 J	0.10 U	No Further Action
	Carbon Tetrachloride	1,120	60	2.64	0.59	0.43	0.34 J	0.43	0.40	Mitigate
	Tetrachloroethene	0.868	0.12	0.258	0.094	0.11	0.14 J	0.11	0.15	No Further Action
	Trichloroethene	0.349	0.045 J	0.107 U	0.046	0.082	0.019 J	0.026 J	0.10 U	No Further Action
IA11 - SV11 / 202IA-1	1,1,1-Trichloroethane	96	1.1 J	0.469	0.018 J	0.012 J	0.010 J	0.012 J	0.097 U	No Further Action
	Carbon Tetrachloride	223	21 J	1.95	0.45 J	0.39	0.32 J	0.41	0.55	Monitor
	Tetrachloroethene	5.85 U	0.28 J	0.142	0.054	0.15	0.11 J	0.078	0.46	No Further Action
	Trichloroethene	2.32 J	0.041 J	0.107 U	0.030 J	0.025 J	0.028 J	0.028 J	0.097 U	No Further Action
IA12 - SV12 / 202IA-2	1,1,1-Trichloroethane	103	47	0.147	0.017 J	0.011 J	0.012 J	0.010 J	0.11 U	No Further Action
	Carbon Tetrachloride	918	440	1.01	0.45 J	0.4	0.34	0.43	0.46	Mitigate
	Tetrachloroethene	0.271 U	0.59	0.061 J	0.060 J	0.075	0.11	0.11	76	Identify Source(s) and Resample Or Mitigate
	Trichloroethene	0.172 J	0.13 J	0.107 U	0.034 J	0.014 J	0.030 J	0.021 J	0.11 U	No Further Action
NS / 202IA-3	1,1,1-Trichloroethane	-	0.23 J	-	0.017 J	.011 J	0.014 J	0.024 U	0.15 U	No Further Action
	Carbon Tetrachloride	-	22	-	0.39	0.4	0.33	0.43	0.43	Monitor
	Tetrachloroethene	-	0.33	-	0.11	0.086	0.12	0.082 J	23	Identify Source(s) and Resample Or Mitigate
	Trichloroethene	-	0.21 U	-	0.036	.019 J	0.052	0.073 J	0.15 U	No Further Action
IA08 - SV08 / 203IA-2	1,1,1-Trichloroethane	862	23	0.737	0.023 J	0.011 J	0.016 J	0.016 U	0.096 J	No Further Action
	Carbon Tetrachloride	3,270	80	2.65	0.54	0.37	0.34	0.45	0.61	Mitigate
	Tetrachloroethene	0.678	7.8	0.292	0.14	0.073	0.19	0.14	13	Identify Source(s) and Resample Or Mitigate
	Trichloroethene	0.699	0.31	0.752	0.091	0.019 J	0.12	0.060 J	0.15 U	No Further Action
IA09 - SV09 / 203IA-1	1,1,1-Trichloroethane	72.6	4.2	0.196	0.380 U	0.013 J	0.075 U	0.012 J	0.051 J	No Further Action
	Carbon Tetrachloride	68.9	0.64	0.692	0.42 J	0.41	0.33	0.40	0.46	No Further Action
	Tetrachloroethene	0.339	5.3	0.17	0.380 U	0.18	0.15	0.074	11	Identify Source(s) and Resample Or Mitigate
	Trichloroethene	0.333	0.14U	0.683	0.380 U	0.042	0.099	0.045	0.073 J	No Further Action
IA10 - SV10 / 203IA-3	1,1,1-Trichloroethane	45.7	39	0.18	0.019 J	0.012 J	0.015 J	0.014 J	0.072 J	No Further Action
	Carbon Tetrachloride	22.3	13	0.654	0.48	0.4	0.35 J	0.42	0.46	Monitor
	Tetrachloroethene	0.231	1.3	0.156	0.075	0.068	0.087 J	0.092	1.7	No Further Action
	Trichloroethene	132	140	0.623	0.076	0.027J	0.085 J	0.083	0.23	Mitigate
SV13 / 204IA-1	1,1,1-Trichloroethane	8.07	0.070 J	Not Available	0.029 J	0.0091 J	0.098 U	0.015 U	0.22 U	No Further Action
	Carbon Tetrachloride	937	0.81	Not Available	0.5	0.4	0.37	0.43	0.43	No Further Action
	Tetrachloroethene	3.76	0.51	Not Available	0.072	0.99	0.087 J	0.075	0.22 U	No Further Action
	Trichloroethene	1,630	1.8	Not Available	0.089	0.038	0.069 J	0.045 J	0.13 J	No Further Action
IA14 - SV14 / 204IA-3	1,1,1-Trichloroethane	2.35	0.20	0.038 J	0.018 J	0.012 J	0.012 J	0.0099 J	0.084 U	No Further Action
	Carbon Tetrachloride	1.99	0.34	0.516	0.5	0.4	0.31	0.40	0.37	No Further Action
	Tetrachloroethene	63.4	0.50	0.142	0.043	0.059	0.057	0.084	0.075 J	No Further Action
	Trichloroethene	3.12	0.090 U	0.21	0.059	0.035	0.067	0.057	0.084 U	No Further Action
IA15 - SV15 / 204IA-2	1,1,1-Trichloroethane	0.109 U	0.12 U	0.044 J	0.016 J	0.017 J	0.062 UJ	0.094 U	0.14 U	No Further Action
	Carbon Tetrachloride	0.774	0.19	0.572	0.47	0.46	0.36 J	0.56	0.45	No Further Action
	Tetrachloroethene	0.075 J	0.070 J	0.149	0.057	0.29	0.063 J	0.083 J	0.063 J	No Further Action
	Trichloroethene	0.065 J	0.12 U	3.92	0.061	0.20	0.096 J	0.079 J	0.14 U	No Further Action

Note:
[1] - Matrix outcome determined by 2014 sub-slab vapor concentrations and 2020 indoor air concentrations.

APPENDICES

APPENDIX A: IC/EC Certification Form

Enclosure 2
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form

Site Details **Box 1**

Site No. 447023

Site Name Defense National Stockpile Center Scotia Depot

Site Address: NYS Route 5 Zip Code: 12302-
City/Town: Glenville
County: Schenectady
Site Acreage: 59.700

Reporting Period: April 12, 2020 to April 12, 2021

	YES	NO
1. Is the information above correct?	X	☐
If NO, include handwritten above or on a separate sheet.		
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	☐	X
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	☐	X
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	☐	X
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.		
5. Is the site currently undergoing development?	☐	X

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Commercial and Industrial	X	☐
7. Are all ICs in place and functioning as designed?	X	☐

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

_______________________________________ ____________________
Signature of Owner, Remedial Party or Designated Representative Date

SITE NO. 447023 **Box 3**

Description of Institutional Controls

Parcel	Owner	Institutional Control
29.00-3-16.71	U.S. General Services Administration	
		Ground Water Use Restriction
		Soil Management Plan
		Landuse Restriction Monitoring Plan Site Management Plan O&M Plan IC/EC Plan

Property may be used for Commercial and Industrial use as described in 6 NYCRR Part 375-1.8(g)(2) and as its current use for Research, Development and Technology uses as described in Glenville Town Code 270-20

Parcel	Owner	Institutional Control
29.00-3-24	BelGioioso Cheese, Inc.	
		IC/EC Plan O&M Plan Monitoring Plan Site Management Plan Landuse Restriction
		Soil Management Plan Ground Water Use Restriction

Property may be used for Commercial and Industrial use as described in 6 NYCRR Part 375-1.8(g)(2) and as its current use for Research, Development and Technology uses as described in Glenville Town Code 270-20.

Box 4

Description of Engineering Controls

Parcel	Engineering Control
29.00-3-16.71	
	Vapor Mitigation Subsurface Barriers Monitoring Wells

- 4 SSDSs and a Permeable Reactive Barrier (zero-valent-iron wall) installed off-site on Parcel 29.00-3-16.15 to mitigate exposures in Buildings 201, 202, 203, 204, and to treat the TCE groundwater plume.
- All Engineering Controls (SSDSs and PRB) must be inspected, operated, monitored and maintained as specified in the SMP.
- Annual groundwater monitoring after the first eight quarters.
- Compliance with Soil Management Plan.
- Groundwater use prohibition without treatment.

Note: See section 2.1 of the PRR for more information regarding the location of the various components of these engineering controls.

Parcel	Engineering Control
29.00-3-24	
	Vapor Mitigation Subsurface Barriers Monitoring Wells

- 4 SSDSs and a Permeable Reactive Barrier (zero-valent-iron wall) installed off-site on Parcel 29.00-3-16.15 to mitigate exposures in Buildings 201, 202, 203, 204, and to treat the TCE groundwater plume.
- All Engineering Controls (SSDSs and PRB) must be inspected, operated, monitored and maintained as specified in the SMP.
- Annual groundwater monitoring after the first eight quarters.
- Compliance with Soil Management Plan.
- Groundwater use prohibition without treatment.

Box 5

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

   a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the Engineering Control certification;

   b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and compete.

	YES	NO
	X	☐

2. For each Engineering control listed in Box 4, I certify by checking "YES" below that all of the following statements are true:

   (a) The Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

   (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

   (c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

   (d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

   (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

	YES	NO
	X	☐

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

____ ________________

Signature of Owner, Remedial Party or Designated Representative Date

IC CERTIFICATIONS
SITE NO. 447023

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1,2, and 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I David C. Baker at 1 WTC, NY, NY 10007,
print name print business address

am certifying as United States General Services Administration (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

DocuSigned by:
David Baker
EE025FB23D7142C...

5/7/2021

Signature of Owner, Remedial Party, or Designated Representative Rendering Certification

Date

EC CERTIFICATIONS

Box 7

Professional Engineer Signature

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Gerlinde Wolf at AECOM 40 British American Blvd, Latham, NY,

print name — print business address

am certifying as a Professional Engineer for the United States General Services Administration
(Owner or Remedial Party)

[Signature]

STATE OF NEW YORK GERLINDE M WOLF 097793 LICENSED PROFESSIONAL ENGINEER

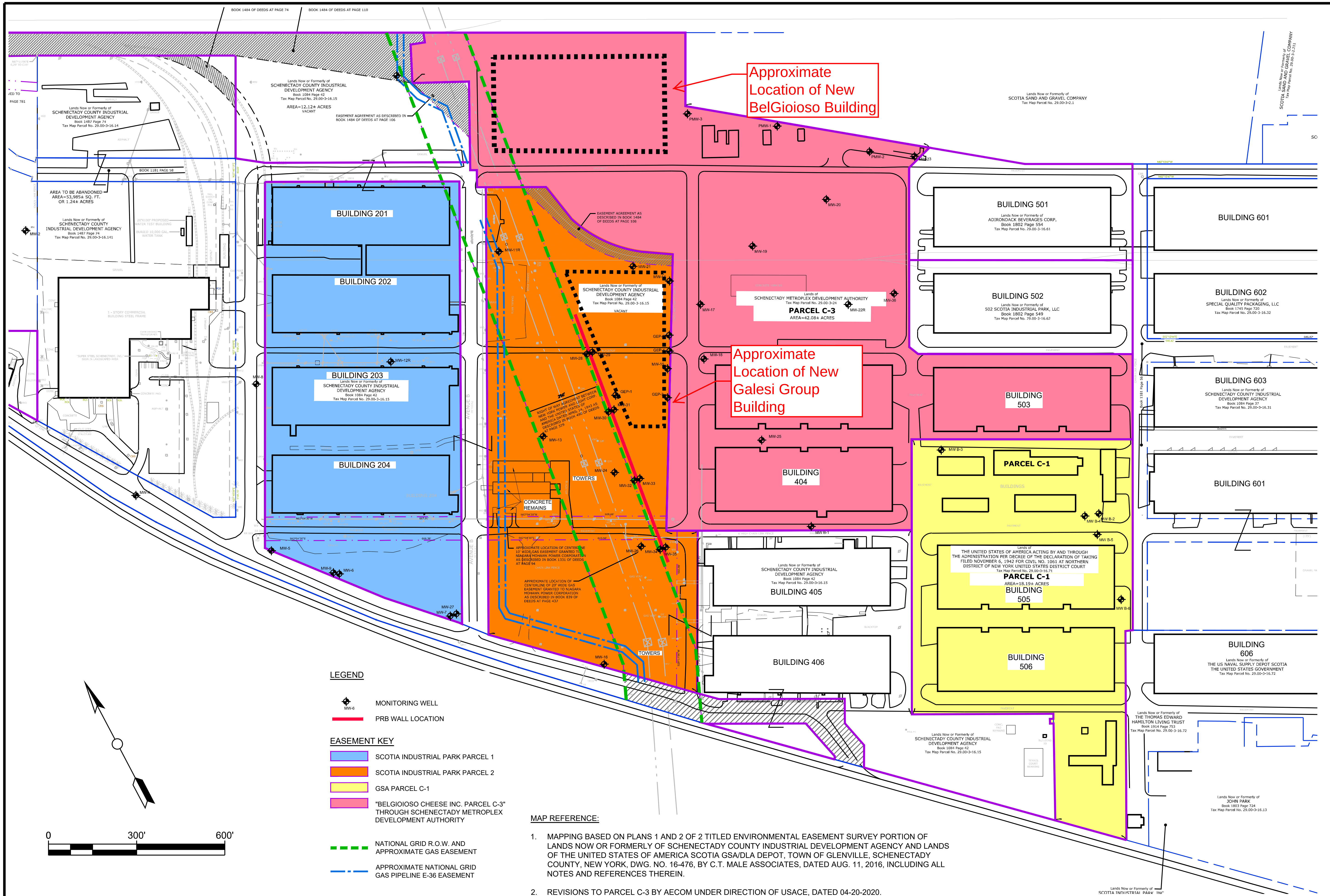
5-7-21

Signature of Professional Engineer, for the Owner or Remedial Party, Rendering Certification

Stamp (Required for PE)

Date

APPENDIX B: Approximate Location of New Buildings



AECOM

Figure: 2-2

SITE EASEMENT PLAN

US ARMY Corps of Engineers

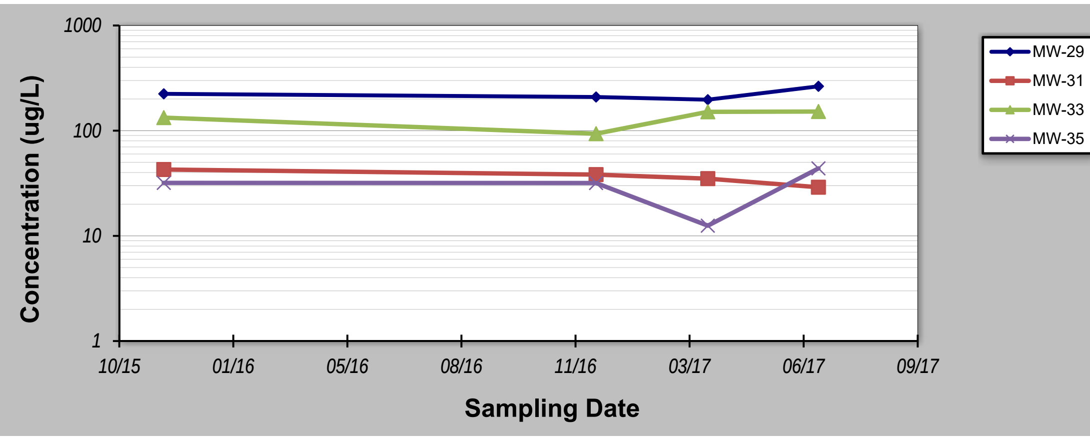
PERIODIC REVIEW REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: May, 2020

APPENDIX C: GSI Mann-Kendall Toolkit Results

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **June 27, 2017**
Facility Name: **Former Scotia Navy Depot**
Conducted By: **R. Spinosa**
Job ID: **60440641**
Constituent: **TCE**
Concentration Units: **ug/L**

Sampling Event	Sampling Date	MW-29	MW-31	MW-33	MW-35			
		TCE CONCENTRATION (ug/L)						
1	1-Dec-15	224	42.7	133	31.9			
2	14-Dec-16	209	38.2	93.5	31.8			
3	22-Mar-17	197	35	151	12.5			
4	27-Jun-17	264	29	152	43.8			
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.13	0.16	0.21	0.43			
Mann-Kendall Statistic (S):		0	-6	4	0			
Confidence Factor:		37.5%	95.8%	83.3%	37.5%			
Concentration Trend:		Stable	Decreasing	No Trend	Stable			



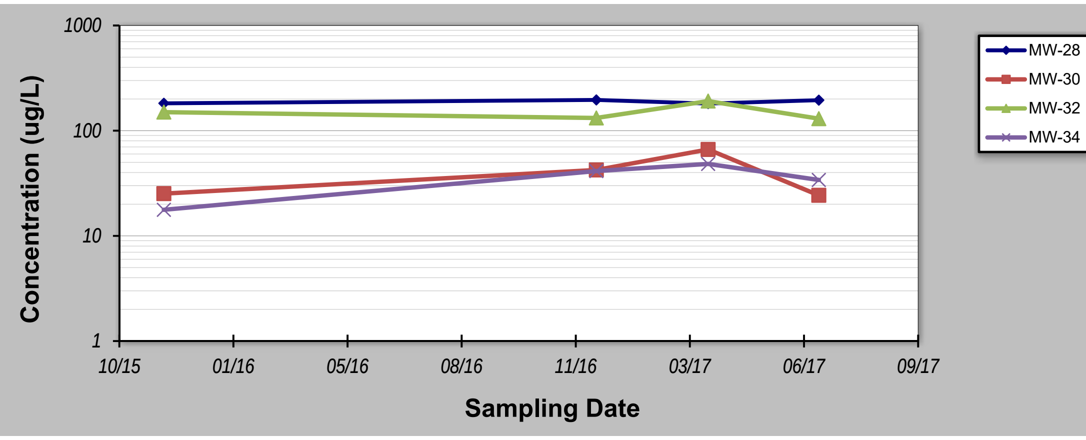
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	June 27, 2017	Job ID:	60440641
Facility Name:	Former Scotia Navy Depot	Constituent:	TCE
Conducted By:	R. Spinosa	Concentration Units:	ug/L

Sampling Event	Sampling Date	MW-28	MW-30	MW-32	MW-34			
		TCE CONCENTRATION (ug/L)						
1	1-Dec-15	182	25.2	150	17.7			
2	14-Dec-16	196	42.3	132	41.3			
3	22-Mar-17	181	66.3	191	48.3			
4	27-Jun-17	195	24.3	130	34			
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.04	0.50	0.19	0.37			
Mann-Kendall Statistic (S):		0	0	-2	2			
Confidence Factor:		37.5%	37.5%	62.5%	62.5%			
Concentration Trend:		Stable	Stable	Stable	No Trend			



Notes:

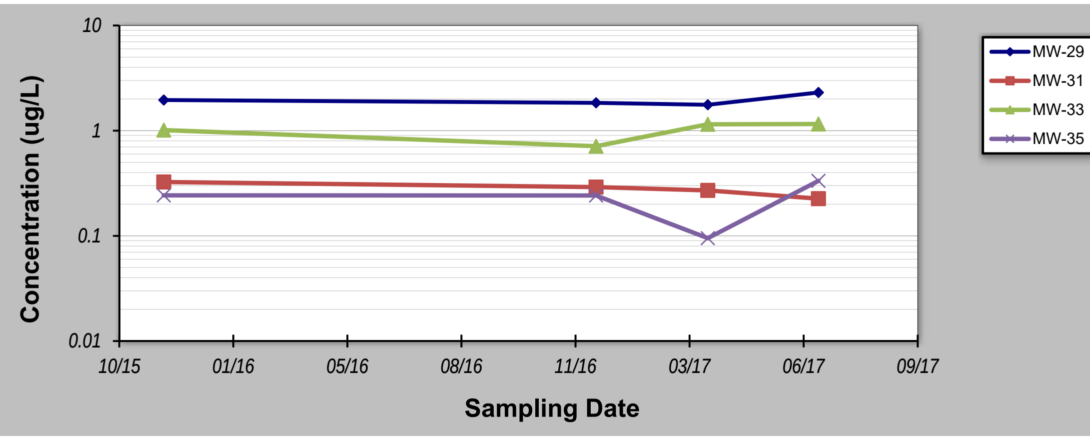
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **June 27, 2017**
Facility Name: **Former Scotia Navy Depot**
Conducted By: **R. Spinosa**

Job ID: **60440641**
Constituent: **Total CVOC Molar**
Concentration Units: **ug/L**

Sampling Point ID:		MW-29	MW-31	MW-33	MW-35			
Sampling Event	Sampling Date	TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.955465	0.324962	1.012177	0.24277			
2	14-Dec-16	1.839215	0.290715	0.711568	0.242009			
3	22-Mar-17	1.761832	0.270591	1.149163	0.095129			
4	27-Jun-17	2.305931	0.225857	1.156773	0.333333			
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.12	0.15	0.21	0.43			
Mann-Kendall Statistic (S):		0	-6	4	0			
Confidence Factor:		37.5%	95.8%	83.3%	37.5%			
Concentration Trend:		Stable	Decreasing	No Trend	Stable			



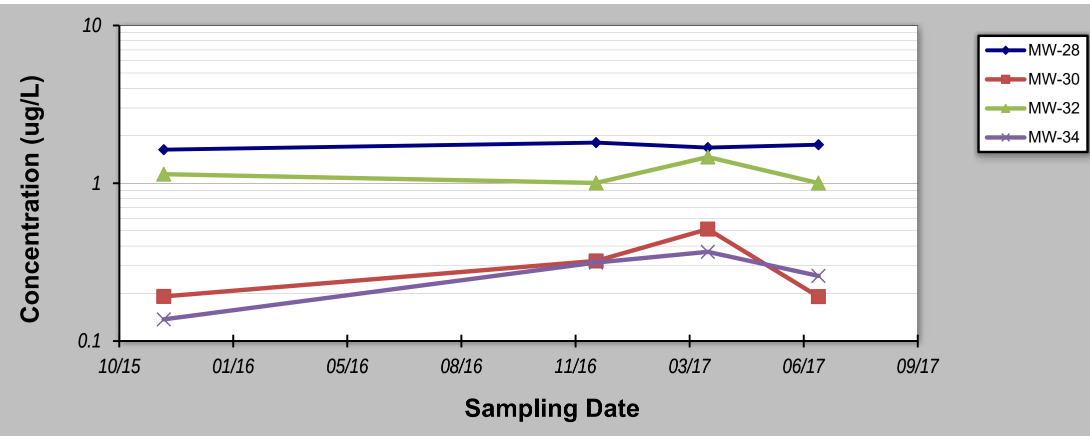
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	June 27, 2017	Job ID:	60440641
Facility Name:	Former Scotia Navy Depot	Constituent:	Total CVOC Molar
Conducted By:	R. Spinosa	Concentration Units:	ug/L

Sampling Point ID:		MW-28	MW-30	MW-32	MW-34			
Sampling Event	Sampling Date	TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.632561	0.191781	1.141553	0.137236			
2	14-Dec-16	1.809779	0.321918	1.004566	0.314307			
3	22-Mar-17	1.682873	0.512199	1.465954	0.36758			
4	27-Jun-17	1.755212	0.191223	1.002754	0.258752			
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.05	0.50	0.19	0.37			
Mann-Kendall Statistic (S):		2	0	-2	2			
Confidence Factor:		62.5%	37.5%	62.5%	62.5%			
Concentration Trend:		No Trend	Stable	Stable	No Trend			



Notes:

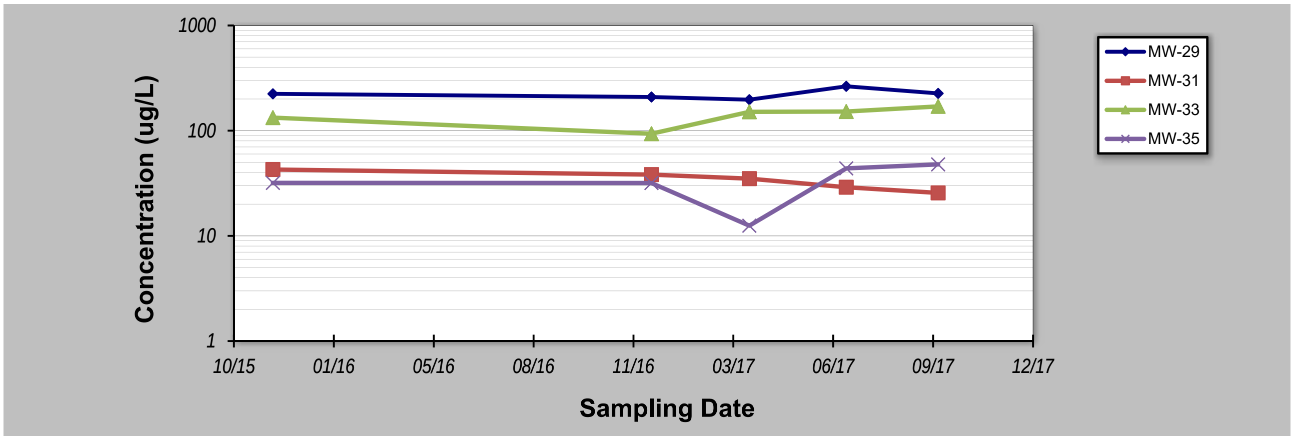
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **September 27, 2017**
Facility Name: **Former Scotia Navy Depot**
Conducted By: **R. Spinosa**

Job ID: **60440641**
Constituent: **TCE**
Concentration Units: **ug/L**

Sampling Event	Sampling Date	MW-29	MW-31	MW-33	MW-35			
		TCE CONCENTRATION (ug/L)						
1	1-Dec-15	224	42.7	133	31.9			
2	14-Dec-16	209	38.2	93.5	31.8			
3	22-Mar-17	197	35	151	12.5			
4	27-Jun-17	264	29	152	43.8			
5	27-Sep-17	226	25.6	170	47.8			
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.11	0.20	0.21	0.41			
Mann-Kendall Statistic (S):		2	-10	8	4			
Confidence Factor:		59.2%	99.2%	95.8%	75.8%			
Concentration Trend:		No Trend	Decreasing	Increasing	No Trend			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **September 27, 2017**
Facility Name: **Former Scotia Navy Depot**
Conducted By: **R. Spinosa**

Job ID: **60440641**
Constituent: **TCE**
Concentration Units: **ug/L**

Sampling Point ID:		MW-28	MW-30	MW-32	MW-34			
Sampling Event	Sampling Date	TCE CONCENTRATION (ug/L)						
1	1-Dec-15	182	25.2	150	17.7			
2	14-Dec-16	196	42.3	132	41.3			
3	22-Mar-17	181	66.3	191	48.3			
4	27-Jun-17	195	24.3	130	34			
5	27-Sep-17	170	18.4	135	29.6			
6								
7								
8								
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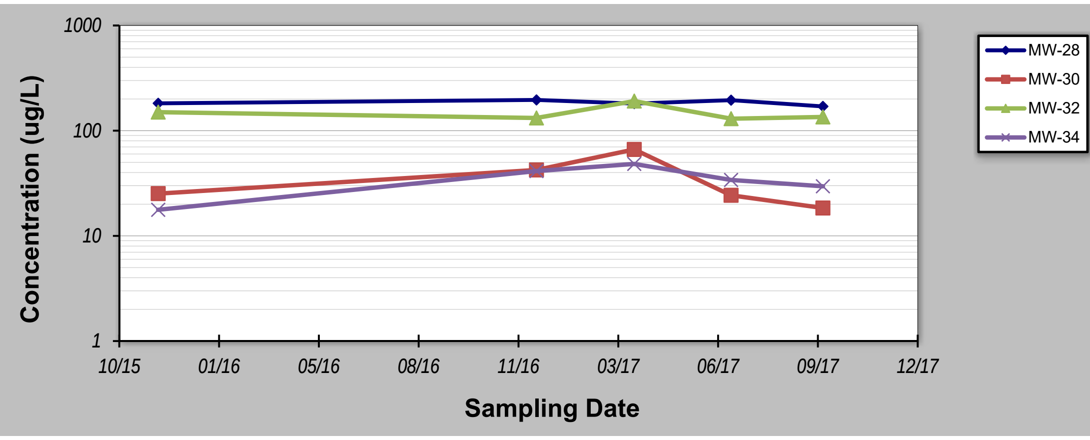
17								
18								
19								
20								
Coefficient of Variation:		0.06	0.55	0.17	0.34			
Mann-Kendall Statistic (S):		-4	-4	-2	0			
Confidence Factor:		75.8%	75.8%	59.2%	40.8%			
Concentration Trend:		Stable	Stable	Stable	Stable			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **September 27, 2017** Job ID: **60440641**
Facility Name: **Former Scotia Navy Depot** Constituent: **Total CVOC Molar**
Conducted By: **R. Spinosa** Concentration Units: **ug/L**

Sampling Event	Sampling Date	MW-29	MW-31	MW-33	MW-35			
		TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.955465	0.324962	1.012177	0.24277			
2	14-Dec-16	1.839215	0.290715	0.711568	0.242009			
3	22-Mar-17	1.761832	0.270591	1.149163	0.095129			
4	27-Jun-17	2.305931	0.225857	1.156773	0.333333			
5	27-Sep-17	2.039089	0.199157	1.29376	0.363775			
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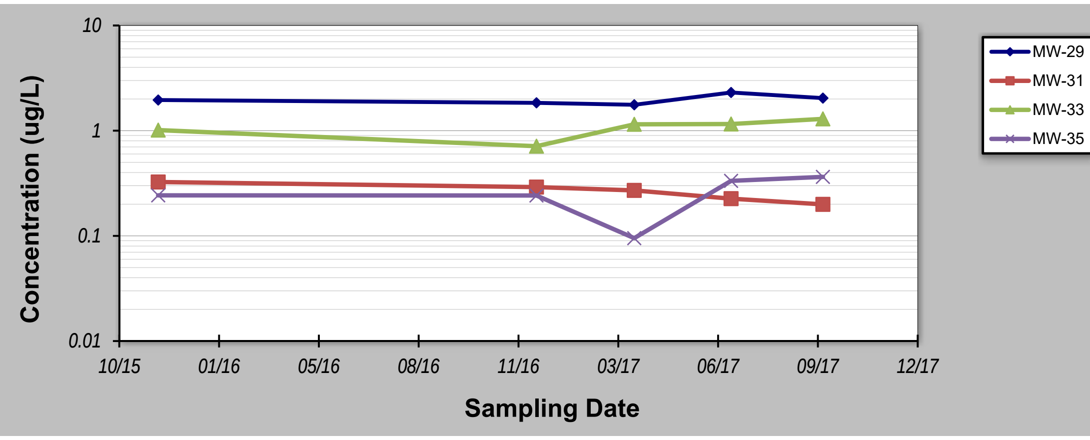
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.11	0.19	0.21	0.41			
Mann-Kendall Statistic (S):		2	-10	8	4			
Confidence Factor:		59.2%	99.2%	95.8%	75.8%			
Concentration Trend:		No Trend	Decreasing	Increasing	No Trend			



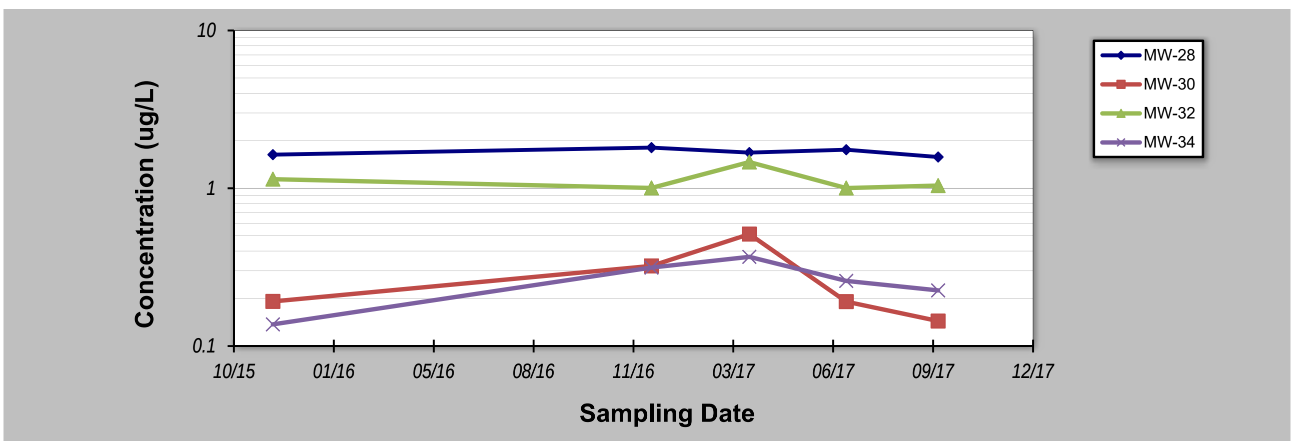
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**September 27, 2017**	Job ID:	**60440641**
Facility Name:	**Former Scotia Navy Depot**	Constituent:	**Total CVOC Molar**
Conducted By:	**R. Spinosa**	Concentration Units:	**ug/L**

Sampling Event	Sampling Date	MW-28	MW-30	MW-32	MW-34			
		TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.632561	0.191781	1.141553	0.137236			
2	14-Dec-16	1.809779	0.321918	1.004566	0.314307			
3	22-Mar-17	1.682873	0.512199	1.465954	0.36758			
4	27-Jun-17	1.755212	0.191223	1.002754	0.258752			
5	27-Sep-17	1.577823	0.144053	1.039775	0.225266			
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.05	0.55	0.17	0.34			
Mann-Kendall Statistic (S):		-2	-4	-2	0			
Confidence Factor:		59.2%	75.8%	59.2%	40.8%			
Concentration Trend:		Stable	Stable	Stable	Stable			



Notes:

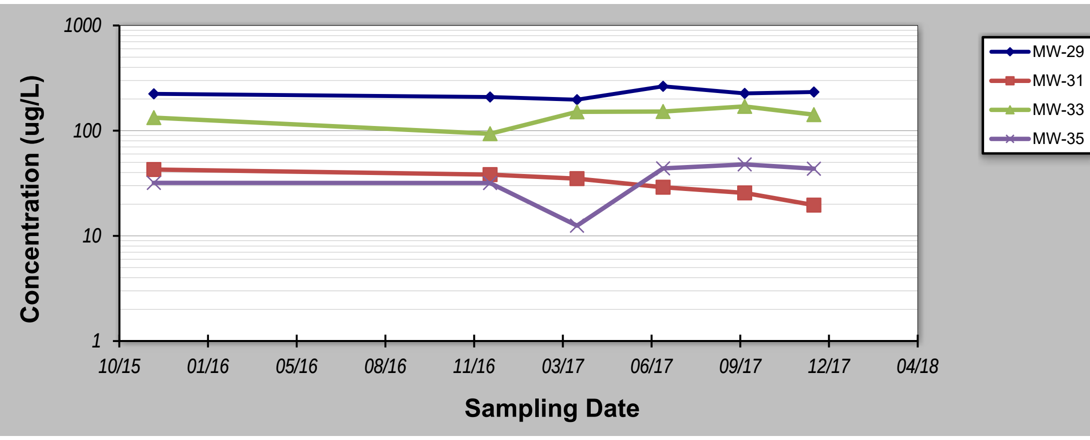
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **December 14, 2017**
Facility Name: **Former Scotia Navy Depot**
Conducted By: **R. Spinosa**

Job ID: **60440641**
Constituent: **TCE**
Concentration Units: **ug/L**

Sampling Event	Sampling Date	MW-29	MW-31	MW-33	MW-35			
		TCE CONCENTRATION (ug/L)						
1	1-Dec-15	224	42.7	133	31.9			
2	14-Dec-16	209	38.2	93.5	31.8			
3	22-Mar-17	197	35	151	12.5			
4	27-Jun-17	264	29	152	43.8			
5	27-Sep-17	226	25.6	170	47.8			
6	14-Dec-17	233	19.6	142	43.5			
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.10	0.27	0.19	0.37			
Mann-Kendall Statistic (S):		5	-15	7	5			
Confidence Factor:		76.5%	99.9%	86.4%	76.5%			
Concentration Trend:		No Trend	Decreasing	No Trend	No Trend			



Notes:

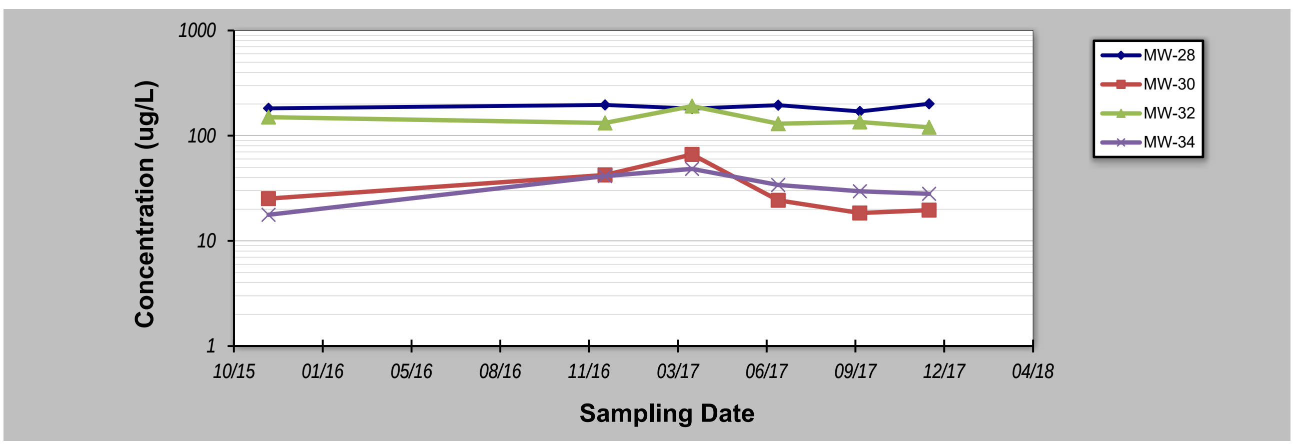
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **December 14, 2017**
Facility Name: **Former Scotia Navy Depot**
Conducted By: **R. Spinosa**

Job ID: **60440641**
Constituent: **TCE**
Concentration Units: **ug/L**

Sampling Point ID:		MW-28	MW-30	MW-32	MW-34			
Sampling Event	Sampling Date	TCE CONCENTRATION (ug/L)						
1	1-Dec-15	182	25.2	150	17.7			
2	14-Dec-16	196	42.3	132	41.3			
3	22-Mar-17	181	66.3	191	48.3			
4	27-Jun-17	195	24.3	130	34			
5	27-Sep-17	170	18.4	135	29.6			
6	14-Dec-17	201	19.6	120	28			
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.06	0.57	0.18	0.32			
Mann-Kendall Statistic (S):		1	-7	-7	-3			
Confidence Factor:		50.0%	86.4%	86.4%	64.0%			
Concentration Trend:		No Trend	Stable	Stable	Stable			



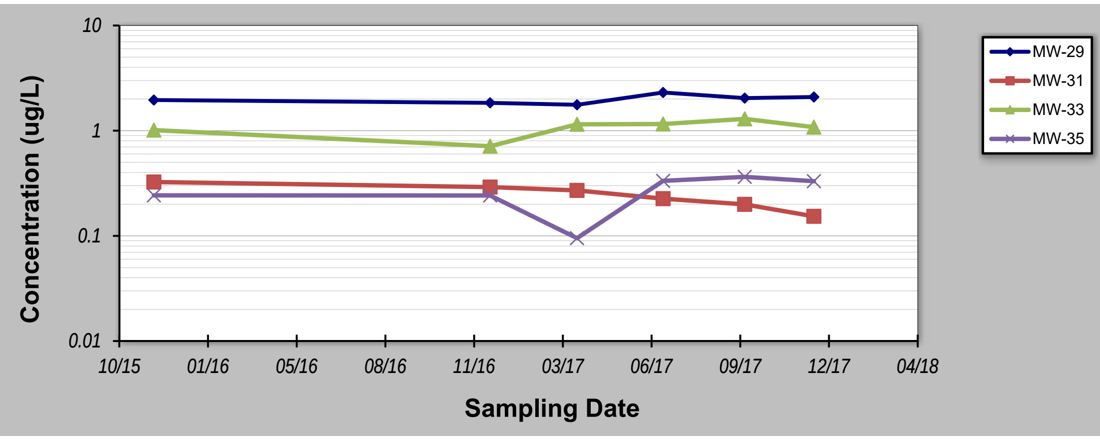
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	December 14, 2017	Job ID:	60440641
Facility Name:	Former Scotia Navy Depot	Constituent:	Total CVOC Molar
Conducted By:	R. Spinosa	Concentration Units:	ug/L

Sampling Event	Sampling Date	MW-29	MW-31	MW-33	MW-35			
		TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.955465	0.324962	1.012177	0.24277			
2	14-Dec-16	1.839215	0.290715	0.711568	0.242009			
3	22-Mar-17	1.761832	0.270591	1.149163	0.095129			
4	27-Jun-17	2.305931	0.225857	1.156773	0.333333			
5	27-Sep-17	2.039089	0.199157	1.29376	0.363775			
6	14-Dec-17	2.089862	0.153289	1.08067	0.33105			
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.10	0.26	0.19	0.37			
Mann-Kendall Statistic (S):		5	-15	7	5			
Confidence Factor:		76.5%	99.9%	86.4%	76.5%			
Concentration Trend:		No Trend	Decreasing	No Trend	No Trend			



Notes:

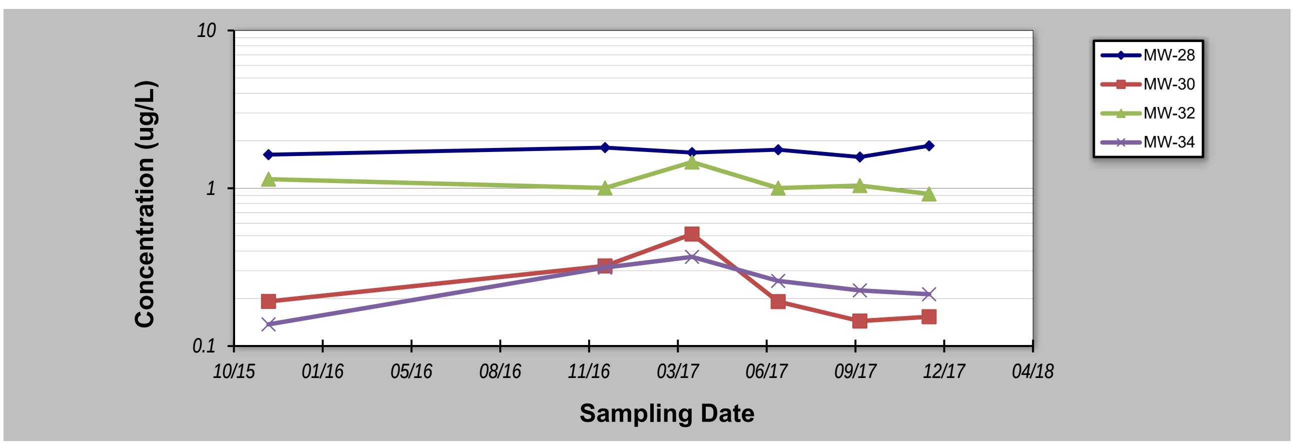
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **December 14, 2017**
Facility Name: **Former Scotia Navy Depot**
Conducted By: **R. Spinosa**

Job ID: **60440641**
Constituent: **Total CVOC Molar**
Concentration Units: **ug/L**

Sampling Event	Sampling Date	MW-28	MW-30	MW-32	MW-34			
		TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.632561	0.191781	1.141553	0.137236			
2	14-Dec-16	1.809779	0.321918	1.004566	0.314307			
3	22-Mar-17	1.682873	0.512199	1.465954	0.36758			
4	27-Jun-17	1.755212	0.191223	1.002754	0.258752			
5	27-Sep-17	1.577823	0.144053	1.039775	0.225266			
6	14-Dec-17	1.858876	0.153392	0.920256	0.21309			
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.06	0.56	0.18	0.32			
Mann-Kendall Statistic (S):		3	-7	-7	-3			
Confidence Factor:		64.0%	86.4%	86.4%	64.0%			
Concentration Trend:		No Trend	Stable	Stable	Stable			



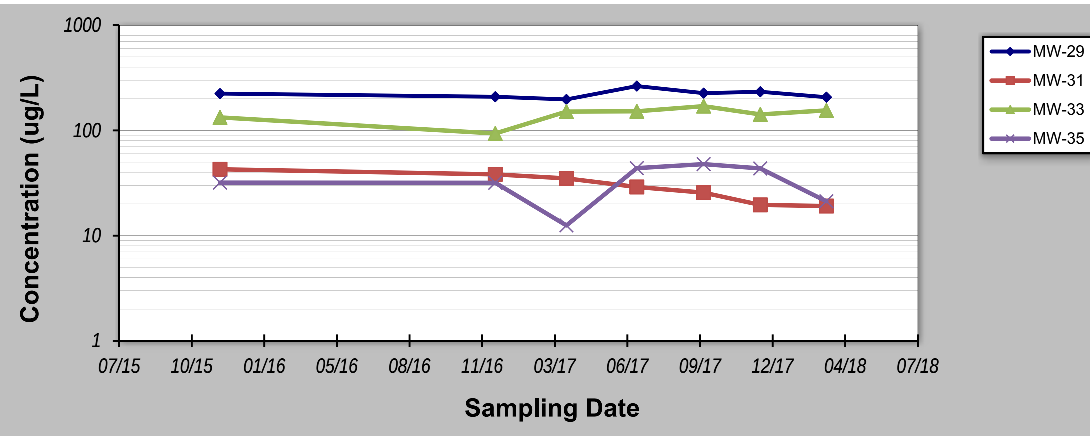
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	March 15, 2018	Job ID:	60440641
Facility Name:	Former Scotia Navy Depot	Constituent:	TCE
Conducted By:	R. Spinosa	Concentration Units:	ug/L

Sampling Event	Sampling Date	MW-29	MW-31	MW-33	MW-35			
		TCE CONCENTRATION (ug/L)						
1	1-Dec-15	224	42.7	133	31.9			
2	14-Dec-16	209	38.2	93.5	31.8			
3	22-Mar-17	197	35	151	12.5			
4	27-Jun-17	264	29	152	43.8			
5	27-Sep-17	226	25.6	170	47.8			
6	14-Dec-17	233	19.6	142	43.5			
7	15-Mar-18	207	19.1	155	21.2			
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.10	0.31	0.17	0.39			
Mann-Kendall Statistic (S):		1	-21	11	1			
Confidence Factor:		50.0%	100.0%	93.2%	50.0%			
Concentration Trend:		No Trend	Decreasing	Prob. Increasing	No Trend			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**March 15, 2018**	Job ID:	**60440641**
Facility Name:	**Former Scotia Navy Depot**	Constituent:	**TCE**
Conducted By:	**R. Spinosa**	Concentration Units:	**ug/L**

Sampling Event	Sampling Date	TCE CONCENTRATION (ug/L)						
Sampling Point ID:		**MW-28**	**MW-30**	**MW-32**	**MW-34**			
1	1-Dec-15	182	25.2	150	17.7			
2	14-Dec-16	196	42.3	132	41.3			
3	22-Mar-17	181	66.3	191	48.3			
4	27-Jun-17	195	24.3	130	34			
5	27-Sep-17	170	18.4	135	29.6			
6	14-Dec-17	201	19.6	120	28			
7	15-Mar-18	153	9.8	104	17.6			
8								
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11								
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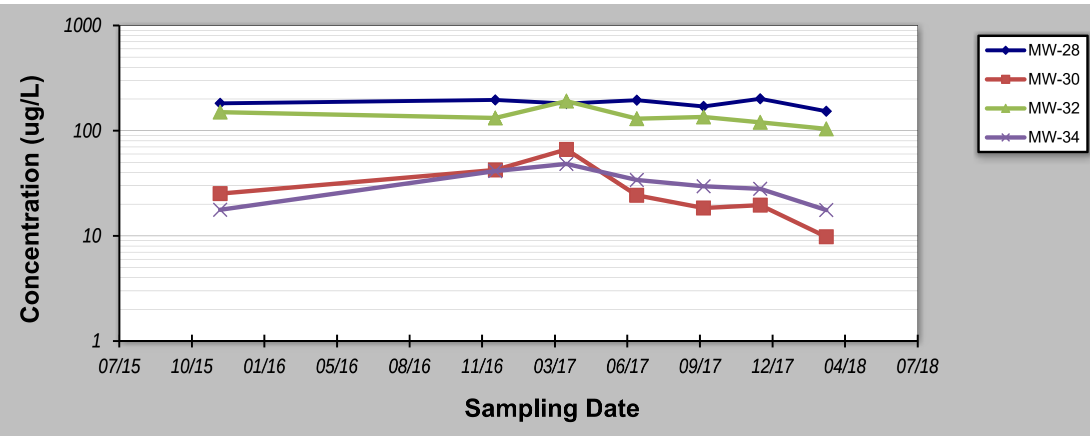
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		**0.09**	**0.65**	**0.20**	**0.37**			
Mann-Kendall Statistic (S):		**-5**	**-13**	**-13**	**-9**			
Confidence Factor:		**71.9%**	**96.5%**	**96.5%**	**88.1%**			
Concentration Trend:		Stable	Decreasing	Decreasing	Stable			



Notes:

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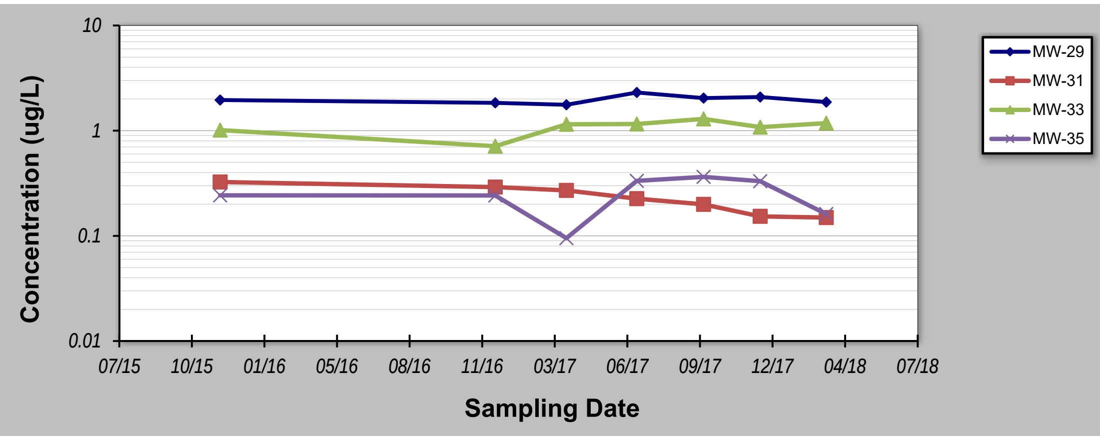
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **March 15, 2018**
Facility Name: **Former Scotia Navy Depot**
Conducted By: **R. Spinosa**

Job ID: **60440641**
Constituent: **Total CVOC Molar**
Concentration Units: **ug/L**

Sampling Event	Sampling Date	MW-29	MW-31	MW-33	MW-35			
		TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.955465	0.324962	1.012177	0.24277			
2	14-Dec-16	1.839215	0.290715	0.711568	0.242009			
3	22-Mar-17	1.761832	0.270591	1.149163	0.095129			
4	27-Jun-17	2.305931	0.225857	1.156773	0.333333			
5	27-Sep-17	2.039089	0.199157	1.29376	0.363775			
6	14-Dec-17	2.089862	0.153289	1.08067	0.33105			
7	15-Mar-18	1.870157	0.149174	1.179604	0.161339			
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.09	0.29	0.17	0.39			
Mann-Kendall Statistic (S):		3	-21	11	1			
Confidence Factor:		61.4%	100.0%	93.2%	50.0%			
Concentration Trend:		No Trend	Decreasing	Prob. Increasing	No Trend			



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **March 15, 2018**
Facility Name: **Former Scotia Navy Depot**
Conducted By: **R. Spinosa**
Job ID: **60440641**
Constituent: **Total CVOC Molar**
Concentration Units: **ug/L**

Sampling Event	Sampling Date	MW-28	MW-30	MW-32	MW-34			
		TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.632561	0.191781	1.141553	0.137236			
2	14-Dec-16	1.809779	0.321918	1.004566	0.314307			
3	22-Mar-17	1.682873	0.512199	1.465954	0.36758			
4	27-Jun-17	1.755212	0.191223	1.002754	0.258752			
5	27-Sep-17	1.577823	0.144053	1.039775	0.225266			
6	14-Dec-17	1.858876	0.153392	0.920256	0.21309			
7	15-Mar-18	1.34967	0.074581	0.797768	0.133942			
8								
9								
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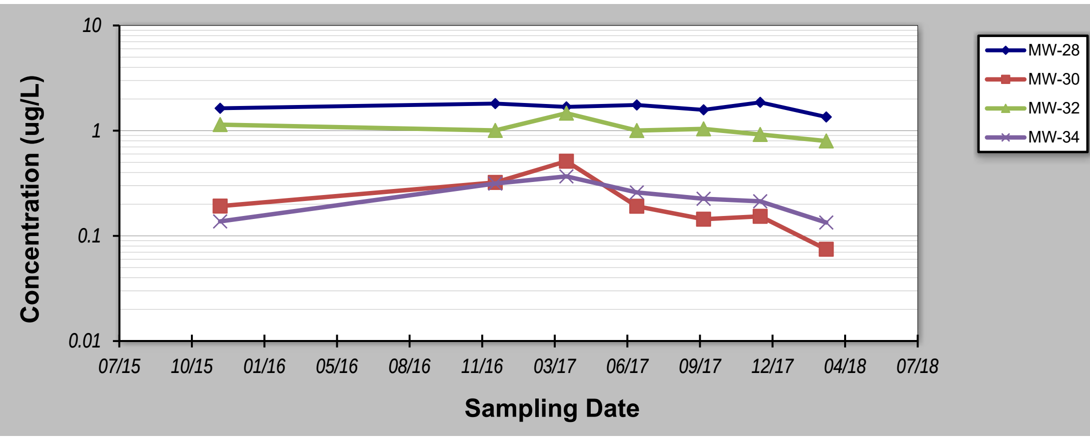
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.10	0.64	0.20	0.37			
Mann-Kendall Statistic (S):		-3	-13	-13	-9			
Confidence Factor:		61.4%	96.5%	96.5%	88.1%			
Concentration Trend:		Stable	Decreasing	Decreasing	Stable			



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: June 22, 2018
Facility Name: Former Scotia Navy Depot
Conducted By: R. Spinosa
Job ID: 60440641
Constituent: TCE
Concentration Units: ug/L

Sampling Event	Sampling Date	MW-29	MW-31	MW-33	MW-35			
		TCE CONCENTRATION (ug/L)						
1	1-Dec-15	224	42.7	133	31.9			
2	14-Dec-16	209	38.2	93.5	31.8			
3	22-Mar-17	197	35	151	12.5			
4	27-Jun-17	264	29	152	43.8			
5	27-Sep-17	226	25.6	170	47.8			
6	14-Dec-17	233	19.6	142	43.5			
7	15-Mar-18	207	19.1	155	21.2			
8	22-Jun-18	248	20.6	178	39.4			
9								
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14								
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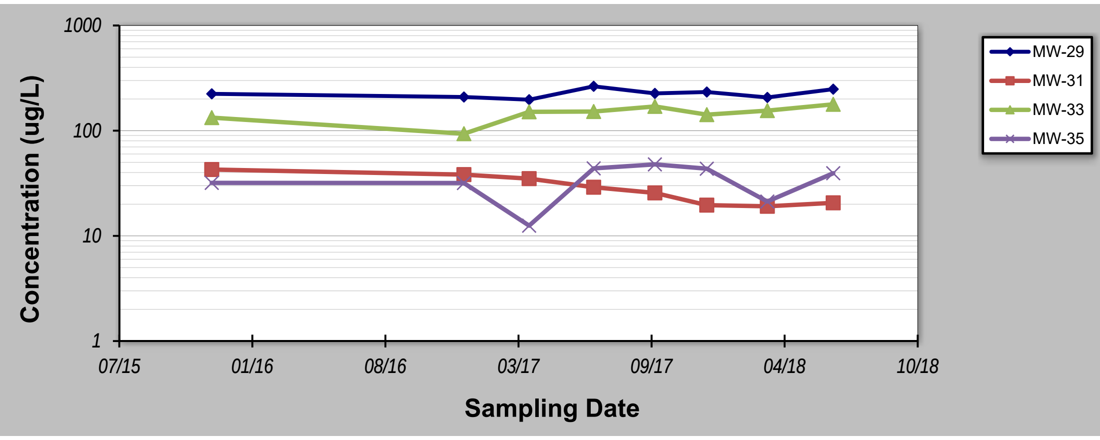
17								
18								
19								
20								
Coefficient of Variation:		0.10	0.32	0.18	0.36			
Mann-Kendall Statistic (S):		6	-24	18	2			
Confidence Factor:		72.6%	99.9%	98.4%	54.8%			
Concentration Trend:		No Trend	Decreasing	Increasing	No Trend			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	June 22, 2018	Job ID:	60440641
Facility Name:	Former Scotia Navy Depot	Constituent:	TCE
Conducted By:	R. Spinosa	Concentration Units:	ug/L

Sampling Event	Sampling Date	MW-28	MW-30	MW-32	MW-34			
		TCE CONCENTRATION (ug/L)						
1	1-Dec-15	182	25.2	150	17.7			
2	14-Dec-16	196	42.3	132	41.3			
3	22-Mar-17	181	66.3	191	48.3			
4	27-Jun-17	195	24.3	130	34			
5	27-Sep-17	170	18.4	135	29.6			
6	14-Dec-17	201	19.6	120	28			
7	15-Mar-18	153	9.8	104	17.6			
8	22-Jun-18	214	8.1	64.1	31.3			
9								
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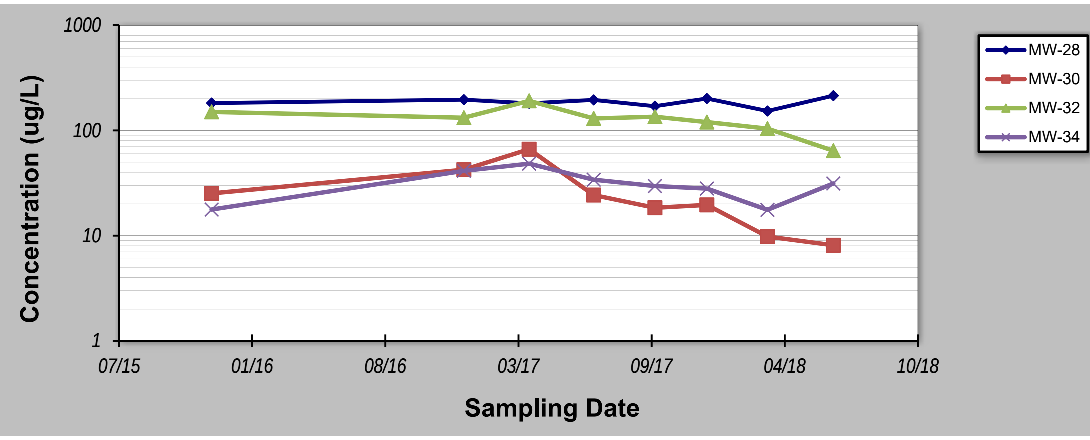
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.10	0.72	0.28	0.34			
Mann-Kendall Statistic (S):		2	-20	-20	-8			
Confidence Factor:		54.8%	99.3%	99.3%	80.1%			
Concentration Trend:		No Trend	Decreasing	Decreasing	Stable			



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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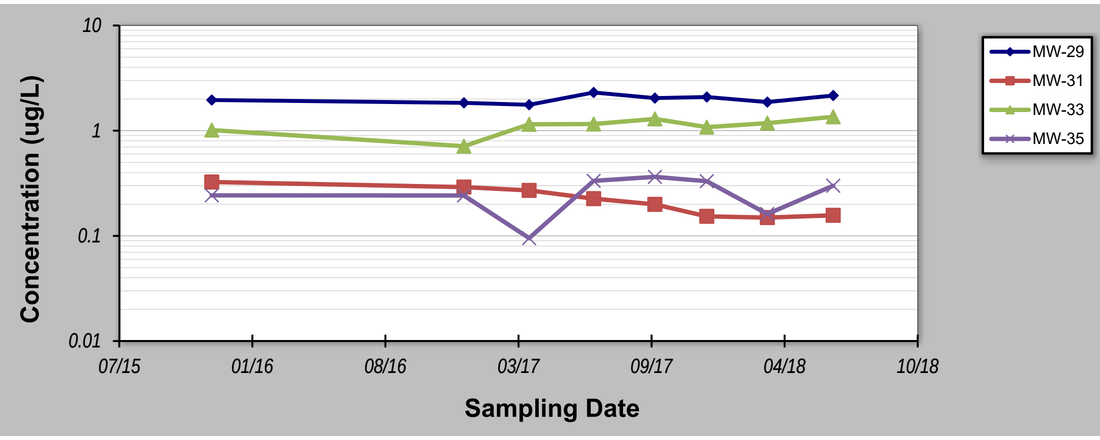
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	June 22, 2018	Job ID:	60440641
Facility Name:	Former Scotia Navy Depot	Constituent:	Total CVOC Molar
Conducted By:	R. Spinosa	Concentration Units:	ug/L

Sampling Event	Sampling Date	MW-29	MW-31	MW-33	MW-35			
		TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.955465	0.324962	1.012177	0.24277			
2	14-Dec-16	1.839215	0.290715	0.711568	0.242009			
3	22-Mar-17	1.761832	0.270591	1.149163	0.095129			
4	27-Jun-17	2.305931	0.225857	1.156773	0.333333			
5	27-Sep-17	2.039089	0.199157	1.29376	0.363775			
6	14-Dec-17	2.089862	0.153289	1.08067	0.33105			
7	15-Mar-18	1.870157	0.149174	1.179604	0.161339			
8	22-Jun-18	2.159528	0.156773	1.354642	0.299848			
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.09	0.31	0.18	0.36			
Mann-Kendall Statistic (S):		8	-24	18	2			
Confidence Factor:		80.1%	99.9%	98.4%	54.8%			
Concentration Trend:		No Trend	Decreasing	Increasing	No Trend			



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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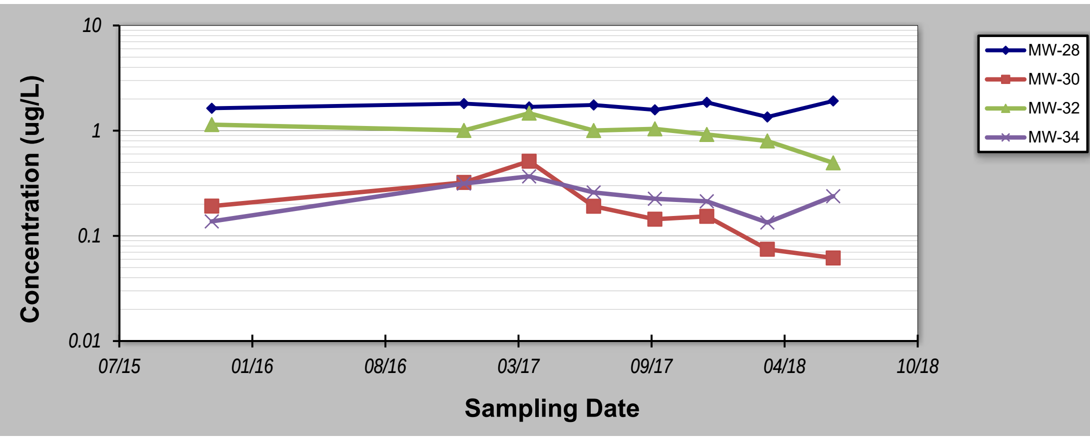
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	June 22, 2018	Job ID:	60440641
Facility Name:	Former Scotia Navy Depot	Constituent:	Total CVOC Molar
Conducted By:	R. Spinosa	Concentration Units:	ug/L

	Sampling Point ID:	MW-28	MW-30	MW-32	MW-34			
Sampling Event	Sampling Date	TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.632561	0.191781	1.141553	0.137236			
2	14-Dec-16	1.809779	0.321918	1.004566	0.314307			
3	22-Mar-17	1.682873	0.512199	1.465954	0.36758			
4	27-Jun-17	1.755212	0.191223	1.002754	0.258752			
5	27-Sep-17	1.577823	0.144053	1.039775	0.225266			
6	14-Dec-17	1.858876	0.153392	0.920256	0.21309			
7	15-Mar-18	1.34967	0.074581	0.797768	0.133942			
8	22-Jun-18	1.916241	0.061644	0.494218	0.238204			
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
	Coefficient of Variation:	0.11	0.71	0.28	0.34			
	Mann-Kendall Statistic (S):	4	-20	-20	-8			
	Confidence Factor:	64.0%	99.3%	99.3%	80.1%			
	Concentration Trend:	No Trend	Decreasing	Decreasing	Stable			



Notes:

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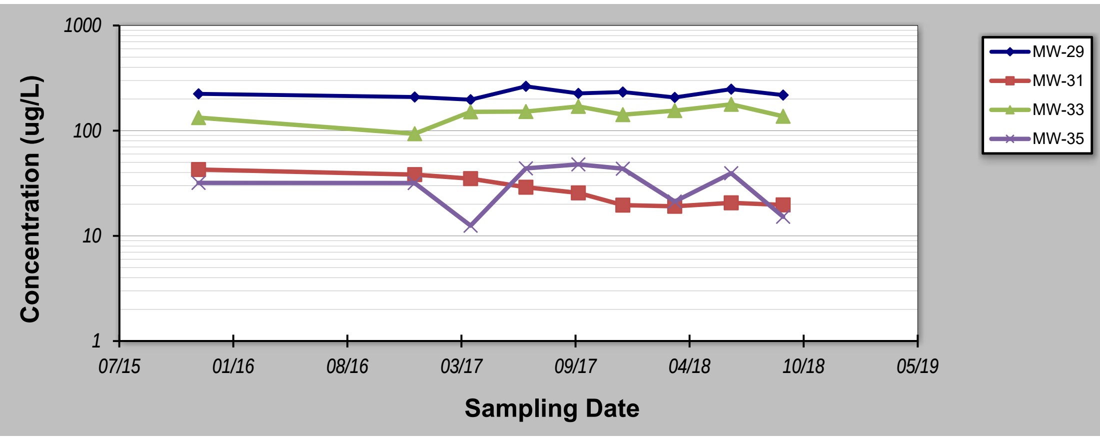
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	September 21, 2018	Job ID:	60440641
Facility Name:	Former Scotia Navy Depot	Constituent:	TCE
Conducted By:	R. Spinosa	Concentration Units:	ug/L

Sampling Event	Sampling Date	MW-29	MW-31	MW-33	MW-35			
		TCE CONCENTRATION (ug/L)						
1	1-Dec-15	224	42.7	133	31.9			
2	14-Dec-16	209	38.2	93.5	31.8			
3	22-Mar-17	197	35	151	12.5			
4	27-Jun-17	264	29	152	43.8			
5	27-Sep-17	226	25.6	170	47.8			
6	14-Dec-17	233	19.6	142	43.5			
7	15-Mar-18	207	19.1	155	21.2			
8	22-Jun-18	248	20.6	178	39.4			
9	21-Sep-18	218	19.7	137	15.2			
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.09	0.32	0.17	0.41			
Mann-Kendall Statistic (S):		4	-28	14	-4			
Confidence Factor:		61.9%	99.9%	91.0%	61.9%			
Concentration Trend:		No Trend	Decreasing	Prob. Increasing	Stable			



Notes:

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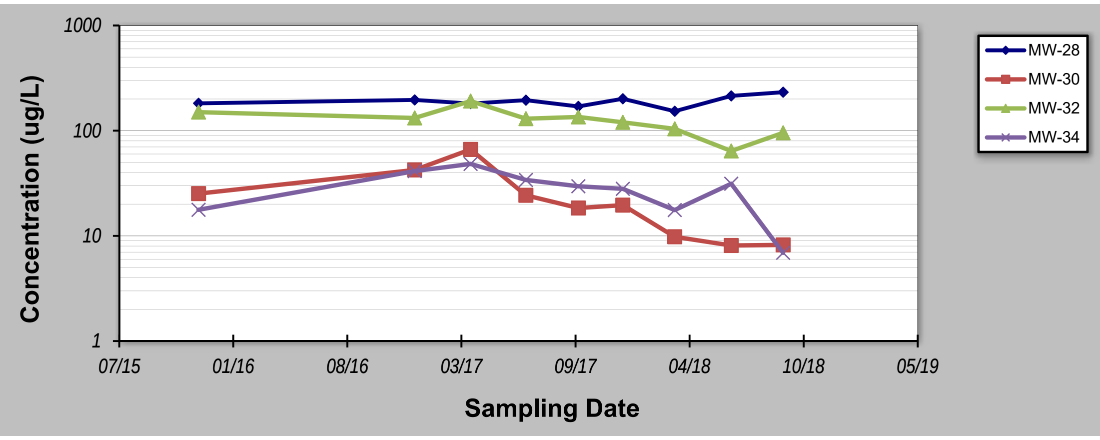
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **September 21, 2018**
Facility Name: **Former Scotia Navy Depot**
Conducted By: **R. Spinosa**

Job ID: **60440641**
Constituent: **TCE**
Concentration Units: **ug/L**

Sampling Event	Sampling Date	MW-28	MW-30	MW-32	MW-34			
		TCE CONCENTRATION (ug/L)						
1	1-Dec-15	182	25.2	150	17.7			
2	14-Dec-16	196	42.3	132	41.3			
3	22-Mar-17	181	66.3	191	48.3			
4	27-Jun-17	195	24.3	130	34			
5	27-Sep-17	170	18.4	135	29.6			
6	14-Dec-17	201	19.6	120	28			
7	15-Mar-18	153	9.8	104	17.6			
8	22-Jun-18	214	8.1	64.1	31.3			
9	21-Sep-18	232	8.2	95.4	6.9			
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.12	0.77	0.29	0.45			
Mann-Kendall Statistic (S):		10	-26	-26	-16			
Confidence Factor:		82.1%	99.7%	99.7%	94.0%			
Concentration Trend:		No Trend	Decreasing	Decreasing	Prob. Decreasing			



Notes:

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3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **September 21, 2018** Job ID: **60440641**
Facility Name: **Former Scotia Navy Depot** Constituent: **Total CVOC Molar**
Conducted By: **R. Spinosa** Concentration Units: **ug/L**

Sampling Event	Sampling Date	MW-29	MW-31	MW-33	MW-35			
		TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.955465	0.324962	1.012177	0.24277			
2	14-Dec-16	1.839215	0.290715	0.711568	0.242009			
3	22-Mar-17	1.761832	0.270591	1.149163	0.095129			
4	27-Jun-17	2.305931	0.225857	1.156773	0.333333			
5	27-Sep-17	2.039089	0.199157	1.29376	0.363775			
6	14-Dec-17	2.089862	0.153289	1.08067	0.33105			
7	15-Mar-18	1.870157	0.149174	1.179604	0.161339			
8	22-Jun-18	2.159528	0.156773	1.354642	0.299848			
9	21-Sep-18	1.893196	0.153431	1.042618	0.115677			
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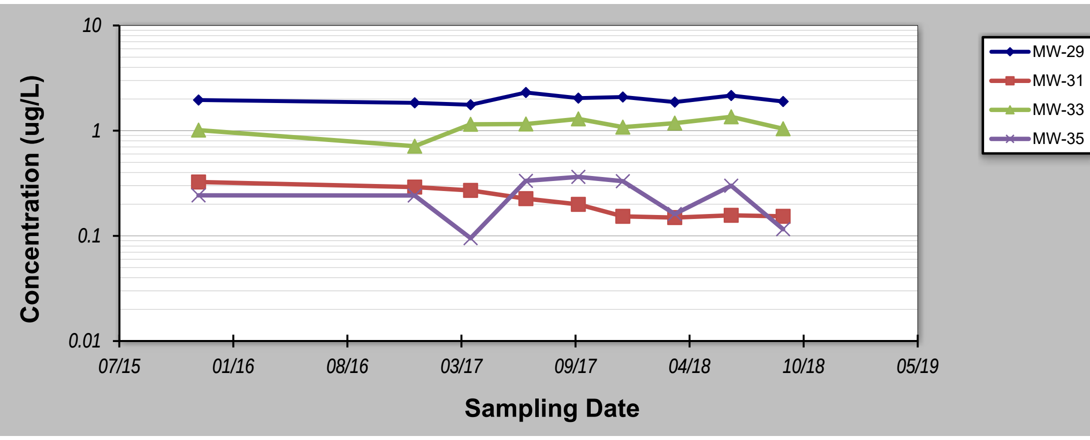
20								
Coefficient of Variation:		0.09	0.32	0.17	0.41			
Mann-Kendall Statistic (S):		6	-28	14	-4			
Confidence Factor:		69.4%	99.9%	91.0%	61.9%			
Concentration Trend:		No Trend	Decreasing	Prob. Increasing	Stable			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**September 21, 2018**	Job ID:	**60440641**
Facility Name:	**Former Scotia Navy Depot**	Constituent:	**Total CVOC Molar**
Conducted By:	**R. Spinosa**	Concentration Units:	**ug/L**

Sampling Point ID:		MW-28	MW-30	MW-32	MW-34			
Sampling Event	Sampling Date	TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.632561	0.191781	1.141553	0.137236			
2	14-Dec-16	1.809779	0.321918	1.004566	0.314307			
3	22-Mar-17	1.682873	0.512199	1.465954	0.36758			
4	27-Jun-17	1.755212	0.191223	1.002754	0.258752			
5	27-Sep-17	1.577823	0.144053	1.039775	0.225266			
6	14-Dec-17	1.858876	0.153392	0.920256	0.21309			
7	15-Mar-18	1.34967	0.074581	0.797768	0.133942			
8	22-Jun-18	1.916241	0.061644	0.494218	0.238204			
9	21-Sep-18	2.078944	0.062405	0.739436	0.052511			
10								
11								
12								
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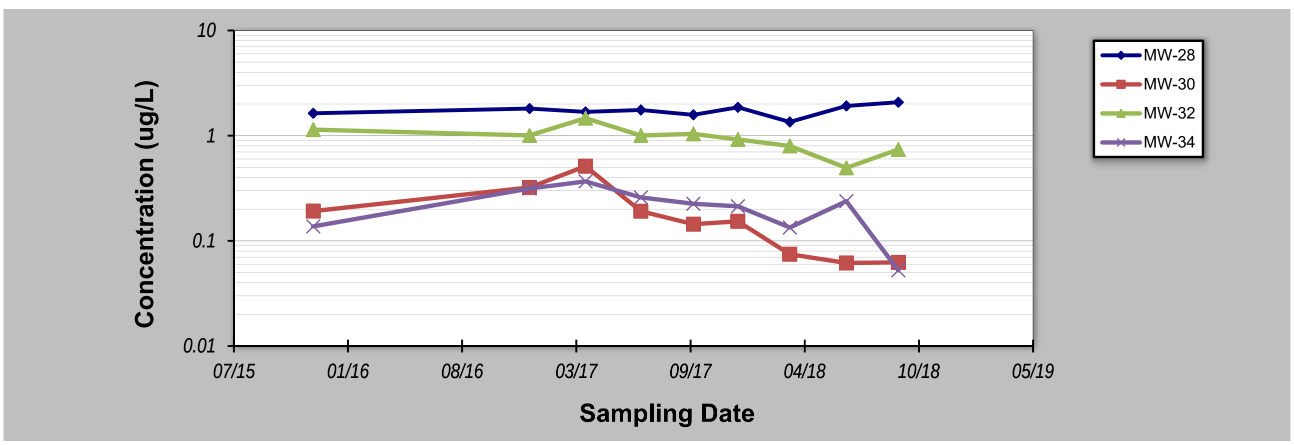
18								
19								
20								
Coefficient of Variation:		0.12	0.77	0.28	0.45			
Mann-Kendall Statistic (S):		12	-26	-26	-16			
Confidence Factor:		87.0%	99.7%	99.7%	94.0%			
Concentration Trend:		No Trend	Decreasing	Decreasing	Prob. Decreasing			



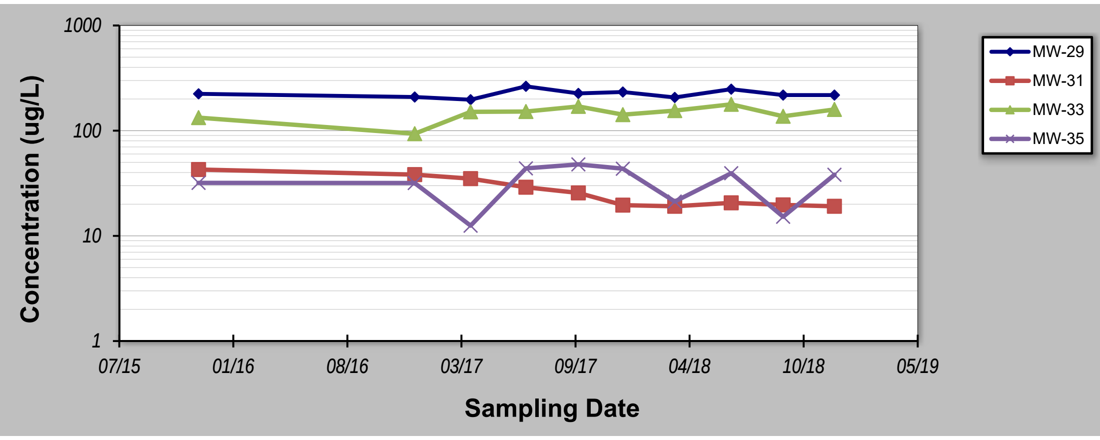
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	December 20, 2018	Job ID:	60440641
Facility Name:	Former Scotia Navy Depot	Constituent:	TCE
Conducted By:	R. Spinosa	Concentration Units:	ug/L

Sampling Point ID:		MW-29	MW-31	MW-33	MW-35			
Sampling Event	Sampling Date	TCE CONCENTRATION (ug/L)						
1	1-Dec-15	224	42.7	133	31.9			
2	14-Dec-16	209	38.2	93.5	31.8			
3	22-Mar-17	197	35	151	12.5			
4	27-Jun-17	264	29	152	43.8			
5	27-Sep-17	226	25.6	170	47.8			
6	14-Dec-17	233	19.6	142	43.5			
7	15-Mar-18	207	19.1	155	21.2			
8	22-Jun-18	248	20.6	178	39.4			
9	21-Sep-18	218	19.7	137	15.2			
10	20-Dec-18	218	19.1	159	38.1			
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.09	0.33	0.16	0.38			
Mann-Kendall Statistic (S):		2	-36	19	-3			
Confidence Factor:		53.5%	>99.9%	94.6%	56.9%			
Concentration Trend:		No Trend	Decreasing	Prob. Increasing	Stable			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **December 20, 2018** | Job ID: **60440641**
Facility Name: **Former Scotia Navy Depot** | Constituent: **TCE**
Conducted By: **R. Spinosa** | Concentration Units: **ug/L**

Sampling Point ID:		MW-28	MW-30	MW-32	MW-34			
Sampling Event	Sampling Date	TCE CONCENTRATION (ug/L)						
1	1-Dec-15	182	25.2	150	17.7			
2	14-Dec-16	196	42.3	132	41.3			
3	22-Mar-17	181	66.3	191	48.3			
4	27-Jun-17	195	24.3	130	34			
5	27-Sep-17	170	18.4	135	29.6			
6	14-Dec-17	201	19.6	120	28			
7	15-Mar-18	153	9.8	104	17.6			
8	22-Jun-18	214	8.1	64.1	31.3			
9	21-Sep-18	232	8.2	95.4	6.9			
10	20-Dec-18	195	7.3	87.1	10.6			
11								
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13								
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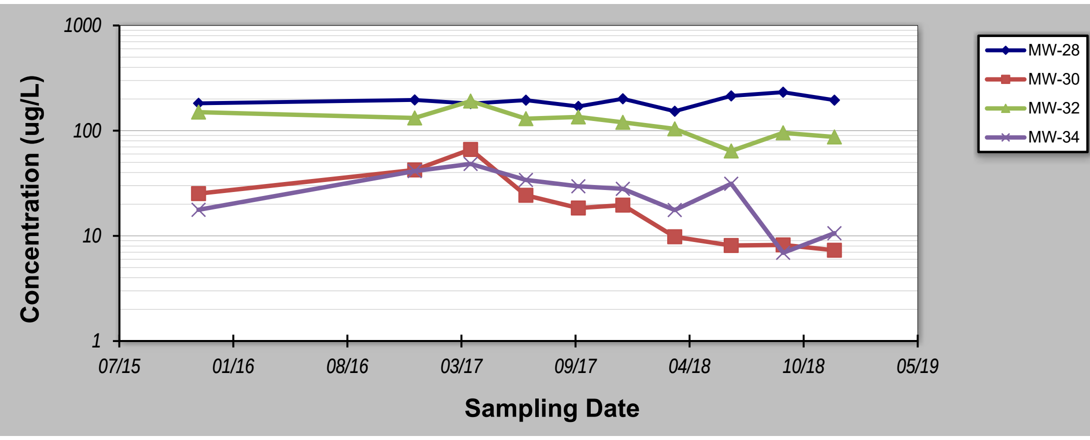
16								
17								
18								
19								
20								
Coefficient of Variation:		0.12	0.81	0.30	0.50			
Mann-Kendall Statistic (S):		10	-35	-33	-23			
Confidence Factor:		78.4%	100.0%	99.9%	97.7%			
Concentration Trend:		No Trend	Decreasing	Decreasing	Decreasing			



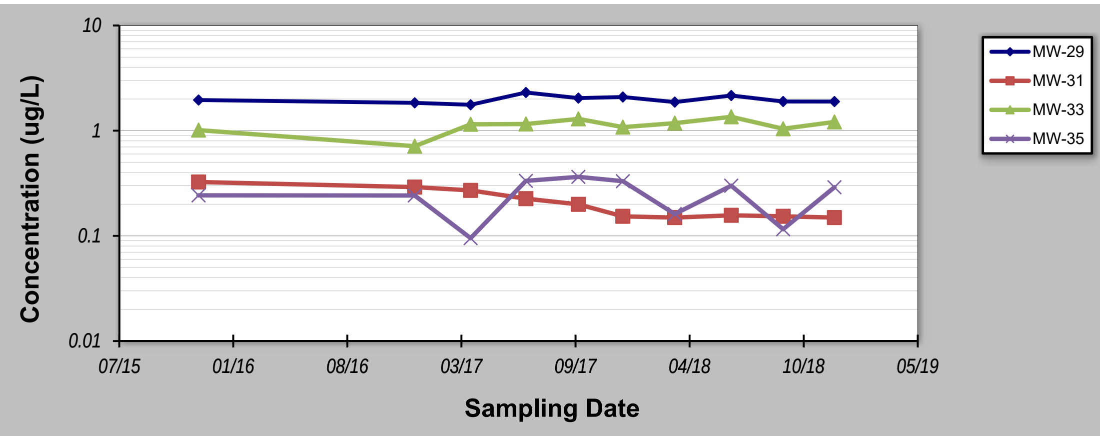
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**December 20, 2018**	Job ID:	**60440641**
Facility Name:	**Former Scotia Navy Depot**	Constituent:	**Total CVOC Molar**
Conducted By:	**R. Spinosa**	Concentration Units:	**ug/L**

Sampling Event	Sampling Date	MW-29	MW-31	MW-33	MW-35			
		TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.955465	0.324962	1.012177	0.24277			
2	14-Dec-16	1.839215	0.290715	0.711568	0.242009			
3	22-Mar-17	1.761832	0.270591	1.149163	0.095129			
4	27-Jun-17	2.305931	0.225857	1.156773	0.333333			
5	27-Sep-17	2.039089	0.199157	1.29376	0.363775			
6	14-Dec-17	2.089862	0.153289	1.08067	0.33105			
7	15-Mar-18	1.870157	0.149174	1.179604	0.161339			
8	22-Jun-18	2.159528	0.156773	1.354642	0.299848			
9	21-Sep-18	1.893196	0.153431	1.042618	0.115677			
10	20-Dec-18	1.891204	0.149174	1.210046	0.289954			
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.08	0.32	0.16	0.38			
Mann-Kendall Statistic (S):		3	-36	19	-3			
Confidence Factor:		56.9%	>99.9%	94.6%	56.9%			
Concentration Trend:		No Trend	Decreasing	Prob. Increasing	Stable			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	December 20, 2018	Job ID:	60440641
Facility Name:	Former Scotia Navy Depot	Constituent:	Total CVOC Molar
Conducted By:	R. Spinosa	Concentration Units:	ug/L

Sampling Event	Sampling Date	MW-28	MW-30	MW-32	MW-34			
		TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.632561	0.191781	1.141553	0.137236			
2	14-Dec-16	1.809779	0.321918	1.004566	0.314307			
3	22-Mar-17	1.682873	0.512199	1.465954	0.36758			
4	27-Jun-17	1.755212	0.191223	1.002754	0.258752			
5	27-Sep-17	1.577823	0.144053	1.039775	0.225266			
6	14-Dec-17	1.858876	0.153392	0.920256	0.21309			
7	15-Mar-18	1.34967	0.074581	0.797768	0.133942			
8	22-Jun-18	1.916241	0.061644	0.494218	0.238204			
9	21-Sep-18	2.078944	0.062405	0.739436	0.052511			
10	20-Dec-18	1.741747	0.055556	0.671629	0.08067			
11								
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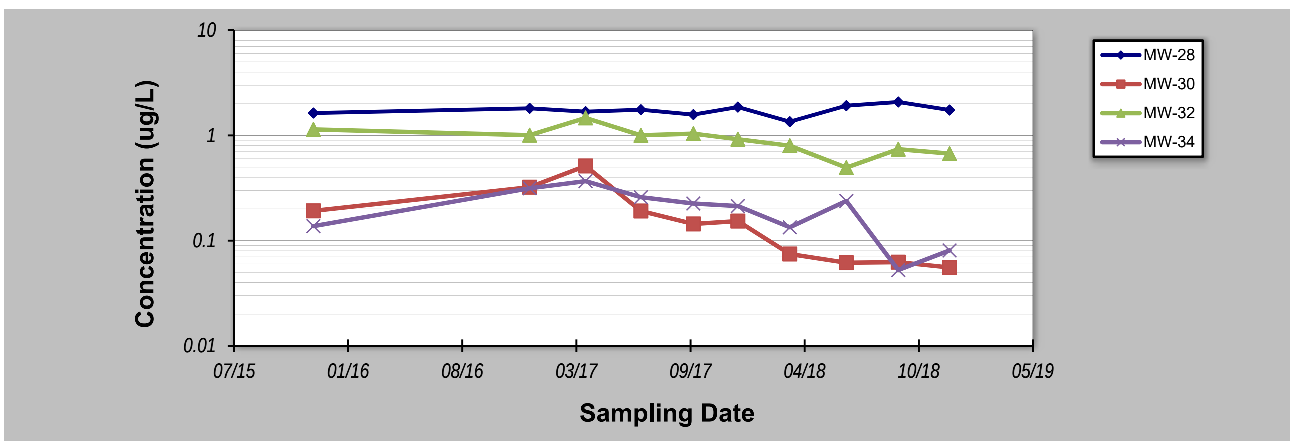
16								
17								
18								
19								
20								
Coefficient of Variation:		0.11	0.82	0.29	0.50			
Mann-Kendall Statistic (S):		11	-35	-33	-23			
Confidence Factor:		81.0%	100.0%	99.9%	97.7%			
Concentration Trend:		No Trend	Decreasing	Decreasing	Decreasing			



Notes:

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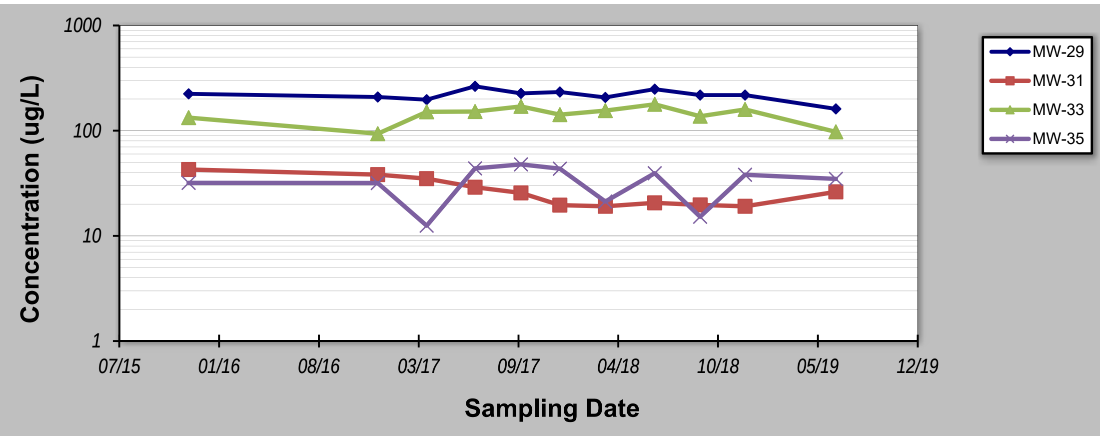
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **June 20, 2019**
Facility Name: **Former Scotia Navy Depot**
Conducted By: **R. Spinosa**

Job ID: **60440641**
Constituent: **TCE**
Concentration Units: **ug/L**

Sampling Event	Sampling Date	MW-29	MW-31	MW-33	MW-35			
		TCE CONCENTRATION (ug/L)						
1	1-Dec-15	224	42.7	133	31.9			
2	14-Dec-16	209	38.2	93.5	31.8			
3	22-Mar-17	197	35	151	12.5			
4	27-Jun-17	264	29	152	43.8			
5	27-Sep-17	226	25.6	170	47.8			
6	14-Dec-17	233	19.6	142	43.5			
7	15-Mar-18	207	19.1	155	21.2			
8	22-Jun-18	248	20.6	178	39.4			
9	21-Sep-18	218	19.7	137	15.2			
10	20-Dec-18	218	19.1	159	38.1			
11	20-Jun-19	161	26.2	97.4	34.8			
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.12	0.32	0.19	0.36			
Mann-Kendall Statistic (S):		-8	-34	11	-3			
Confidence Factor:		70.3%	99.6%	77.7%	56.0%			
Concentration Trend:		Stable	Decreasing	No Trend	Stable			



Notes:

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2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
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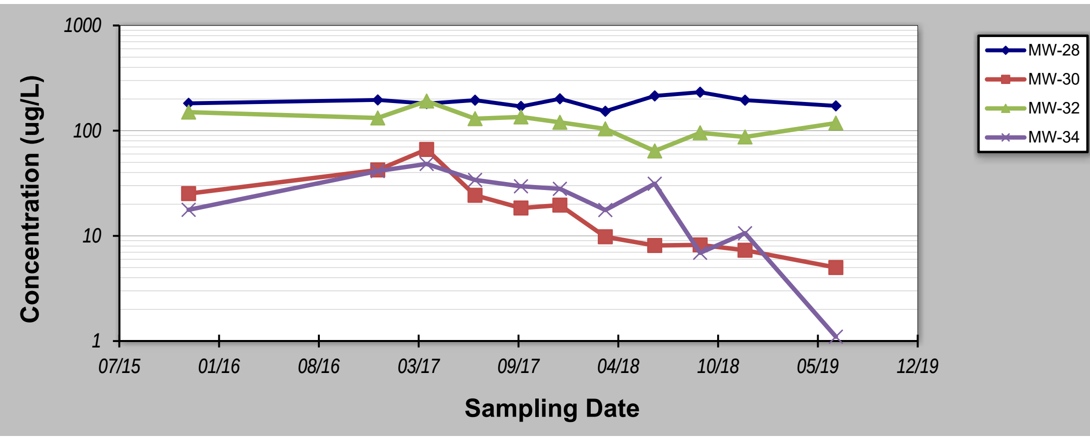
GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **June 20, 2019**
Facility Name: **Former Scotia Navy Depot**
Conducted By: **R. Spinosa**

Job ID: **60440641**
Constituent: **TCE**
Concentration Units: **ug/L**

Sampling Point ID:		MW-28	MW-30	MW-32	MW-34			
Sampling Event	Sampling Date	TCE CONCENTRATION (ug/L)						
1	1-Dec-15	182	25.2	150	17.7			
2	14-Dec-16	196	42.3	132	41.3			
3	22-Mar-17	181	66.3	191	48.3			
4	27-Jun-17	195	24.3	130	34			
5	27-Sep-17	170	18.4	135	29.6			
6	14-Dec-17	201	19.6	120	28			
7	15-Mar-18	153	9.8	104	17.6			
8	22-Jun-18	214	8.1	64.1	31.3			
9	21-Sep-18	232	8.2	95.4	6.9			
10	20-Dec-18	195	7.3	87.1	10.6			
11	20-Jun-19	172	5	118	1.1			
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.12	0.87	0.28	0.61			
Mann-Kendall Statistic (S):		4	-45	-35	-33			
Confidence Factor:		59.0%	>99.9%	99.7%	99.5%			
Concentration Trend:		No Trend	Decreasing	Decreasing	Decreasing			



Notes:

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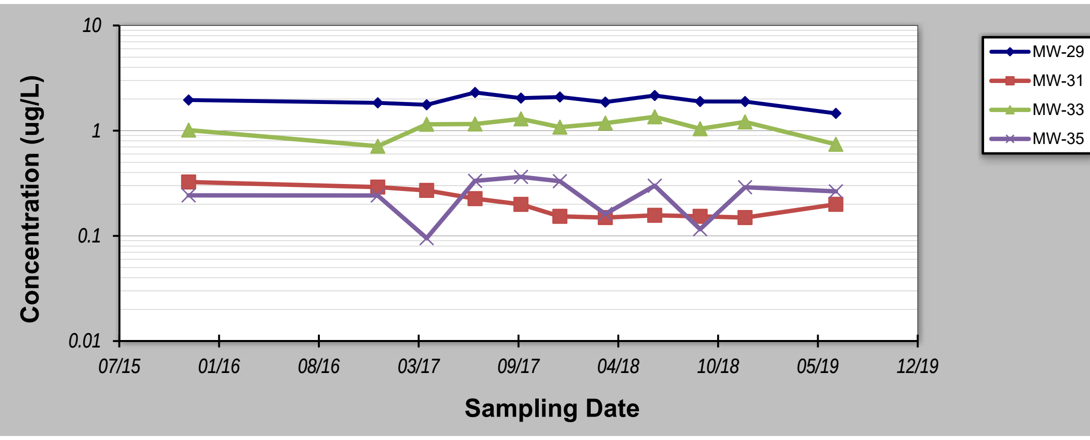
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **June 20, 2019**
Facility Name: **Former Scotia Navy Depot**
Conducted By: **R. Spinosa**

Job ID: **60440641**
Constituent: **Total CVOC Molar**
Concentration Units: **ug/L**

Sampling Event	Sampling Date	MW-29	MW-31	MW-33	MW-35			
		TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.955465	0.324962	1.012177	0.24277			
2	14-Dec-16	1.839215	0.290715	0.711568	0.242009			
3	22-Mar-17	1.761832	0.270591	1.149163	0.095129			
4	27-Jun-17	2.305931	0.225857	1.156773	0.333333			
5	27-Sep-17	2.039089	0.199157	1.29376	0.363775			
6	14-Dec-17	2.089862	0.153289	1.08067	0.33105			
7	15-Mar-18	1.870157	0.149174	1.179604	0.161339			
8	22-Jun-18	2.159528	0.156773	1.354642	0.299848			
9	21-Sep-18	1.893196	0.153431	1.042618	0.115677			
10	20-Dec-18	1.891204	0.149174	1.210046	0.289954			
11	20-Jun-19	1.460064	0.199391	0.741248	0.26484			
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.12	0.31	0.19	0.36			
Mann-Kendall Statistic (S):		-7	-34	11	-3			
Confidence Factor:		67.6%	99.6%	77.7%	56.0%			
Concentration Trend:		Stable	Decreasing	No Trend	Stable			



Notes:

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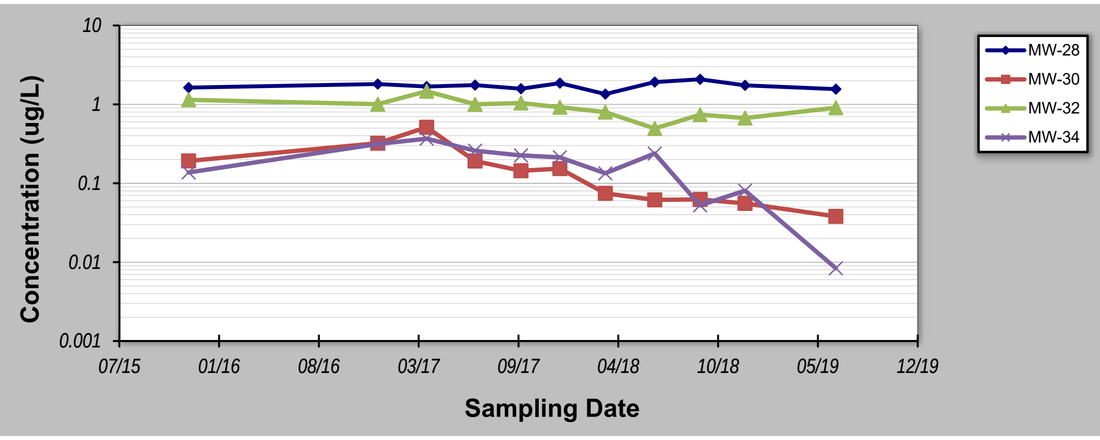
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	June 20, 2019	Job ID:	60440641
Facility Name:	Former Scotia Navy Depot	Constituent:	Total CVOC Molar
Conducted By:	R. Spinosa	Concentration Units:	ug/L

	Sampling Point ID:	MW-28	MW-30	MW-32	MW-34			
Sampling Event	Sampling Date	TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.632561	0.191781	1.141553	0.137236			
2	14-Dec-16	1.809779	0.321918	1.004566	0.314307			
3	22-Mar-17	1.682873	0.512199	1.465954	0.36758			
4	27-Jun-17	1.755212	0.191223	1.002754	0.258752			
5	27-Sep-17	1.577823	0.144053	1.039775	0.225266			
6	14-Dec-17	1.858876	0.153392	0.920256	0.21309			
7	15-Mar-18	1.34967	0.074581	0.797768	0.133942			
8	22-Jun-18	1.916241	0.061644	0.494218	0.238204			
9	21-Sep-18	2.078944	0.062405	0.739436	0.052511			
10	20-Dec-18	1.741747	0.055556	0.671629	0.08067			
11	20-Jun-19	1.561171	0.038052	0.906582	0.00837			
12								
13								
14								
15								
16								
17								
18								
19								
20								
	Coefficient of Variation:	0.11	0.87	0.28	0.61			
	Mann-Kendall Statistic (S):	3	-45	-35	-33			
	Confidence Factor:	56.0%	>99.9%	99.7%	99.5%			
	Concentration Trend:	No Trend	Decreasing	Decreasing	Decreasing			



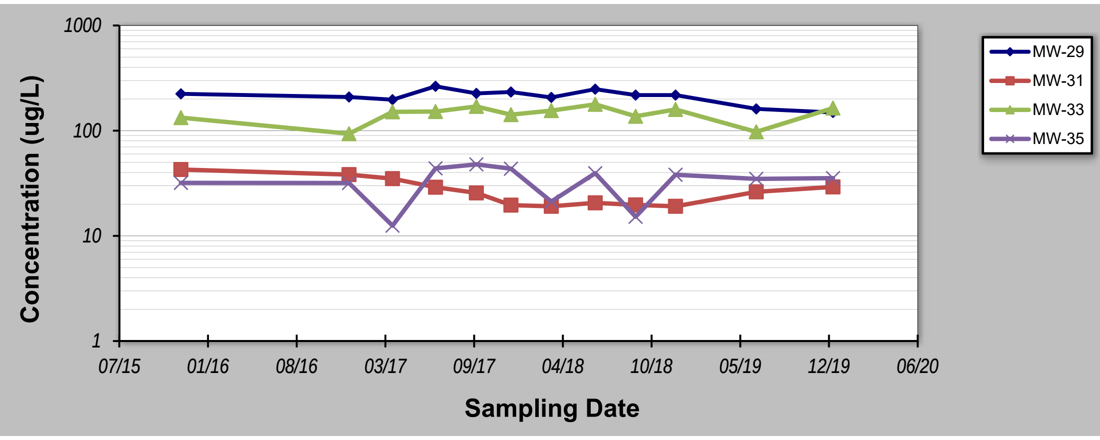
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	December 10, 2019	Job ID:	60440641
Facility Name:	Former Scotia Navy Depot	Constituent:	TCE
Conducted By:	R. Spinosa	Concentration Units:	ug/L

Sampling Event	Sampling Date	MW-29	MW-31	MW-33	MW-35			
		TCE CONCENTRATION (ug/L)						
1	1-Dec-15	224	42.7	133	31.9			
2	14-Dec-16	209	38.2	93.5	31.8			
3	22-Mar-17	197	35	151	12.5			
4	27-Jun-17	264	29	152	43.8			
5	27-Sep-17	226	25.6	170	47.8			
6	14-Dec-17	233	19.6	142	43.5			
7	15-Mar-18	207	19.1	155	21.2			
8	22-Jun-18	248	20.6	178	39.4			
9	21-Sep-18	218	19.7	137	15.2			
10	20-Dec-18	218	19.1	159	38.1			
11	20-Jun-19	161	26.2	97.4	34.8			
12	10-Dec-19	149	29.2	164	35.4			
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.15	0.30	0.18	0.34			
Mann-Kendall Statistic (S):		-19	-29	18	-2			
Confidence Factor:		88.9%	97.4%	87.5%	52.7%			
Concentration Trend:		Stable	Decreasing	No Trend	Stable			



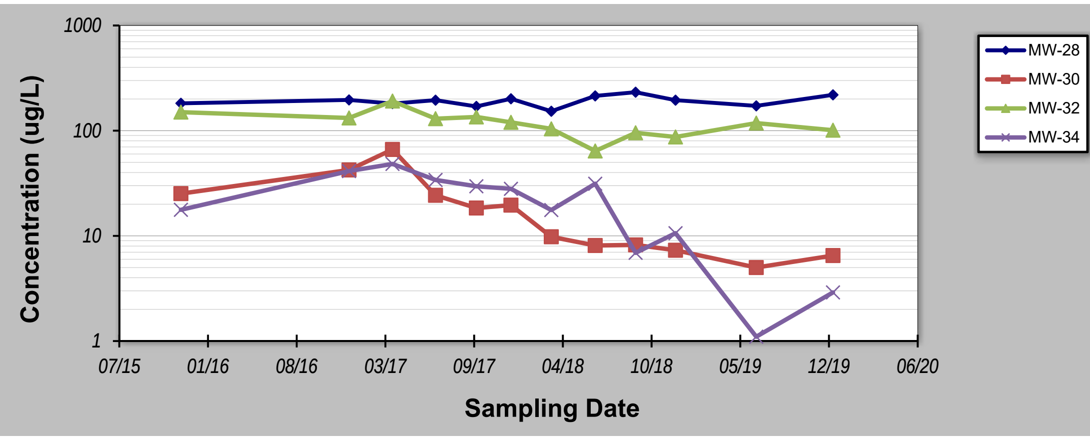
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	**December 10, 2019**	Job ID:	**60440641**
Facility Name:	**Former Scotia Navy Depot**	Constituent:	**TCE**
Conducted By:	**R. Spinosa**	Concentration Units:	**ug/L**

Sampling Point ID:		**MW-28**	**MW-30**	**MW-32**	**MW-34**			
Sampling Event	Sampling Date	TCE CONCENTRATION (ug/L)						
1	1-Dec-15	182	25.2	150	17.7			
2	14-Dec-16	196	42.3	132	41.3			
3	22-Mar-17	181	66.3	191	48.3			
4	27-Jun-17	195	24.3	130	34			
5	27-Sep-17	170	18.4	135	29.6			
6	14-Dec-17	201	19.6	120	28			
7	15-Mar-18	153	9.8	104	17.6			
8	22-Jun-18	214	8.1	64.1	31.3			
9	21-Sep-18	232	8.2	95.4	6.9			
10	20-Dec-18	195	7.3	87.1	10.6			
11	20-Jun-19	172	5	118	1.1			
12	10-Dec-19	219	6.5	101	2.9			
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		**0.12**	**0.91**	**0.28**	**0.68**			
Mann-Kendall Statistic (S):		**13**	**-54**	**-40**	**-42**			
Confidence Factor:		**79.0%**	**>99.9%**	**99.7%**	**99.8%**			
Concentration Trend:		No Trend	Decreasing	Decreasing	Decreasing			



Notes:

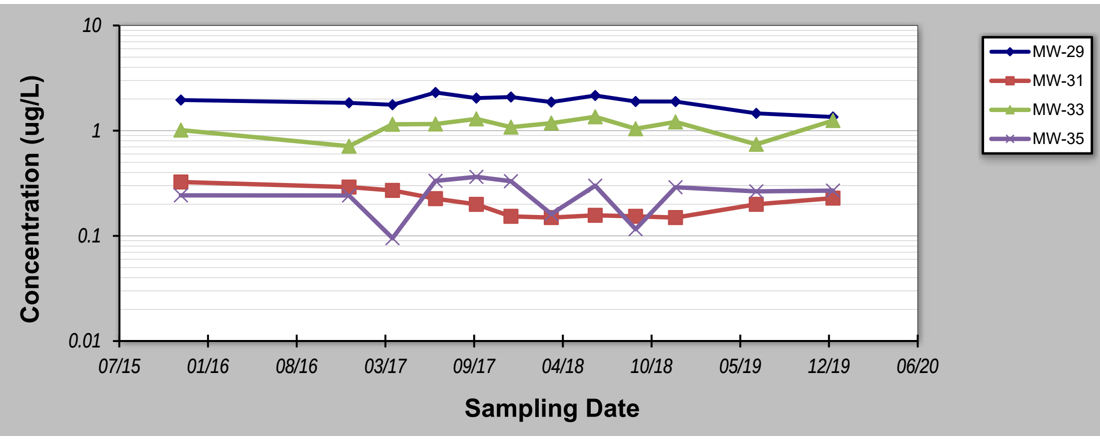
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **December 10, 2019**
Facility Name: **Former Scotia Navy Depot**
Conducted By: **R. Spinosa**

Job ID: **60440641**
Constituent: **Total CVOC Molar**
Concentration Units: **ug/L**

Sampling Event	Sampling Date	MW-29	MW-31	MW-33	MW-35			
		TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.955465	0.324962	1.012177	0.24277			
2	14-Dec-16	1.839215	0.290715	0.711568	0.242009			
3	22-Mar-17	1.761832	0.270591	1.149163	0.095129			
4	27-Jun-17	2.305931	0.225857	1.156773	0.333333			
5	27-Sep-17	2.039089	0.199157	1.29376	0.363775			
6	14-Dec-17	2.089862	0.153289	1.08067	0.33105			
7	15-Mar-18	1.870157	0.149174	1.179604	0.161339			
8	22-Jun-18	2.159528	0.156773	1.354642	0.299848			
9	21-Sep-18	1.893196	0.153431	1.042618	0.115677			
10	20-Dec-18	1.891204	0.149174	1.210046	0.289954			
11	20-Jun-19	1.460064	0.199391	0.741248	0.26484			
12	10-Dec-19	1.349634	0.228383	1.248097	0.269406			
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.14	0.29	0.18	0.34			
Mann-Kendall Statistic (S):		-18	-29	18	-2			
Confidence Factor:		87.5%	97.4%	87.5%	52.7%			
Concentration Trend:		Stable	Decreasing	No Trend	Stable			



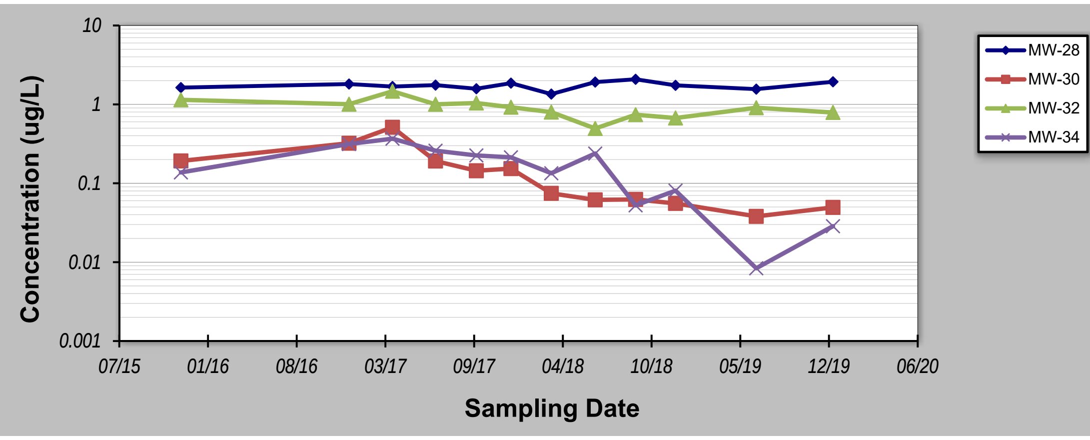
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **December 10, 2019**
Facility Name: **Former Scotia Navy Depot**
Conducted By: **R. Spinosa**
Job ID: **60440641**
Constituent: **Total CVOC Molar**
Concentration Units: **ug/L**

Sampling Event	Sampling Date	MW-28	MW-30	MW-32	MW-34			
		TOTAL CVOC MOLAR CONCENTRATION (ug/L)						
1	1-Dec-15	1.632561	0.191781	1.141553	0.137236			
2	14-Dec-16	1.809779	0.321918	1.004566	0.314307			
3	22-Mar-17	1.682873	0.512199	1.465954	0.36758			
4	27-Jun-17	1.755212	0.191223	1.002754	0.258752			
5	27-Sep-17	1.577823	0.144053	1.039775	0.225266			
6	14-Dec-17	1.858876	0.153392	0.920256	0.21309			
7	15-Mar-18	1.34967	0.074581	0.797768	0.133942			
8	22-Jun-18	1.916241	0.061644	0.494218	0.238204			
9	21-Sep-18	2.078944	0.062405	0.739436	0.052511			
10	20-Dec-18	1.741747	0.055556	0.671629	0.08067			
11	20-Jun-19	1.561171	0.038052	0.906582	0.00837			
12	10-Dec-19	1.933956	0.049467	0.789275	0.02856			
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.11	0.91	0.27	0.68			
Mann-Kendall Statistic (S):		12	-54	-40	-42			
Confidence Factor:		77.0%	>99.9%	99.7%	99.8%			
Concentration Trend:		No Trend	Decreasing	Decreasing	Decreasing			



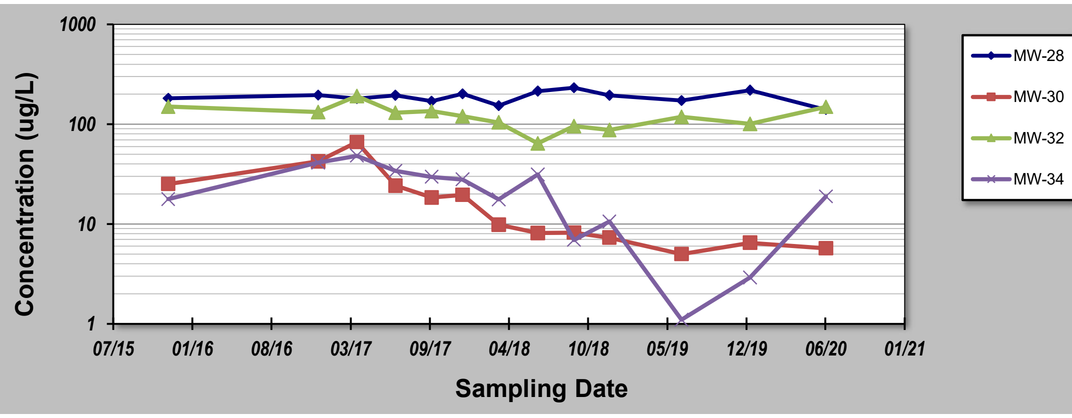
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	6/19/2020	Job ID:	60440641
Facility Name:	Former Scotia Navy Depot	Constituent:	TCE - Downgradient
Conducted By:	P. McHugh	Concentration Units:	ug/L

Sampling Event	Sampling Date	MW-28	MW-30	MW-32	MW-34			
		TCE - DOWNGRADIENT CONCENTRATION (ug/L)						
1	1-Dec-15	182	25.2	150	17.7			
2	14-Dec-16	196	42.3	132	41.3			
3	22-Mar-17	181	66.3	191	48.3			
4	27-Jun-17	195	24.3	130	34			
5	27-Sep-17	170	18.4	135	29.6			
6	14-Dec-17	201	19.6	120	28			
7	15-Mar-18	153	9.8	104	17.6			
8	22-Jun-18	214	8.1	64.1	31.3			
9	21-Sep-18	232	8.2	95.4	6.9			
10	20-Dec-18	195	7.3	87.1	10.6			
11	20-Jun-19	172	5	118	1.1			
12	10-Dec-19	219	6.5	101	2.9			
13	19-Jun-20	140	5.7	149	18.9			
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.14	0.94	0.27	0.66			
Mann-Kendall Statistic (S):		1	-64	-32	-42			
Confidence Factor:		50.0%	>99.9%	97.1%	99.5%			
Concentration Trend:		No Trend	Decreasing	Decreasing	Decreasing			



Notes:

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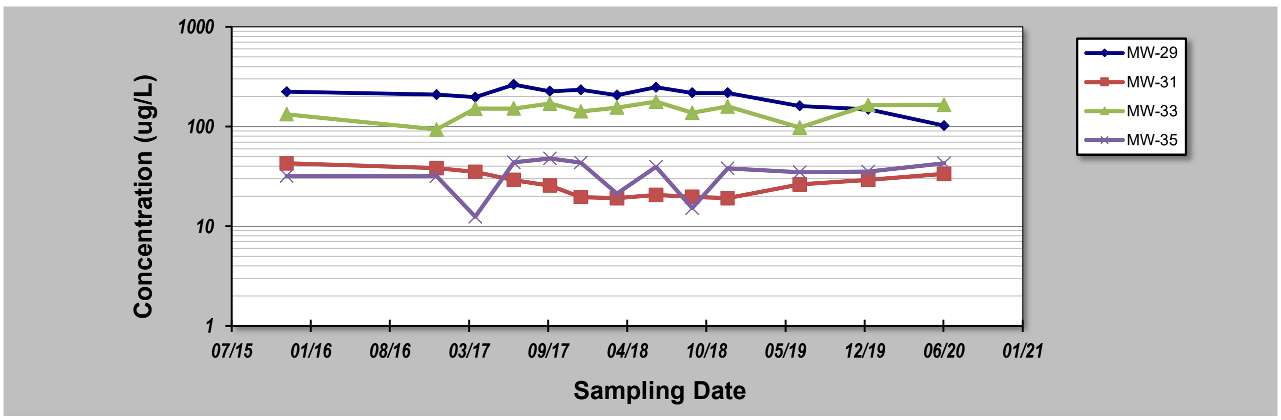
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 6/19/2020 | **Job ID:** 60440641
Facility Name: Former Scotia Navy Depot | **Constituent:** TCE - Upgradient
Conducted By: P.McHugh | **Concentration Units:** ug/L

Sampling Point ID:		MW-29	MW-31	MW-33	MW-35			
Sampling Event	Sampling Date	TCE - UPGRADIENT CONCENTRATION (ug/L)						
1	1-Dec-15	224	42.7	133	31.9			
2	14-Dec-16	209	38.2	93.5	31.8			
3	22-Mar-17	197	35	151	12.5			
4	27-Jun-17	264	29	152	43.8			
5	27-Sep-17	226	25.6	170	47.8			
6	14-Dec-17	233	19.6	142	43.5			
7	15-Mar-18	207	19.1	155	21.2			
8	22-Jun-18	248	20.6	178	39.4			
9	21-Sep-18	218	19.7	137	15.2			
10	20-Dec-18	218	19.1	159	38.1			
11	20-Jun-19	161	26.2	97.4	34.8			
12	10-Dec-19	149	29.2	164	35.4			
13	19-Jun-20	102	33.5	165	42.9			
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.21	0.29	0.18	0.33			
Mann-Kendall Statistic (S):		-31	-23	26	4			
Confidence Factor:		96.7%	90.8%	93.6%	57.1%			
Concentration Trend:		Decreasing	Prob. Decreasing	Prob. Increasing	No Trend			



Notes:

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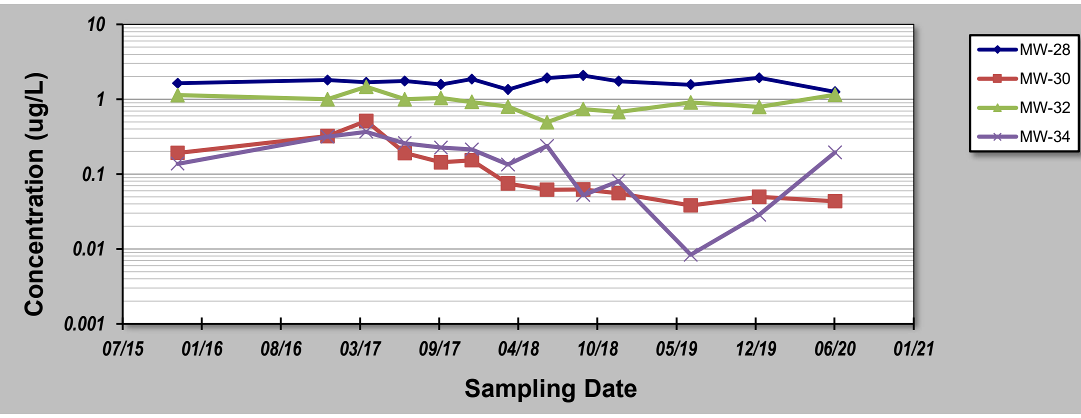
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	19-Jun-20	Job ID:	60440641
Facility Name:	Former Scotia Navy Depot	Constituent:	Total CVOC Molar - Downgradient
Conducted By:	P.McHugh	Concentration Units:	ug/L

Sampling Point ID:		MW-28	MW-30	MW-32	MW-34			
Sampling Event	Sampling Date	TOTAL CVOC MOLAR - DOWNGRADIENT CONCENTRATION (ug/L)						
1	1-Dec-15	1.632561	0.191781	1.141553	0.137236			
2	14-Dec-16	1.809779	0.321918	1.004566	0.314307			
3	22-Mar-17	1.682873	0.512199	1.465954	0.36758			
4	27-Jun-17	1.755212	0.191223	1.002754	0.258752			
5	27-Sep-17	1.577823	0.144053	1.039775	0.225266			
6	14-Dec-17	1.858876	0.153392	0.920256	0.21309			
7	15-Mar-18	1.34967	0.074581	0.797768	0.133942			
8	22-Jun-18	1.916241	0.061644	0.494218	0.238204			
9	21-Sep-18	2.078944	0.062405	0.739436	0.052511			
10	20-Dec-18	1.741747	0.055556	0.671629	0.08067			
11	20-Jun-19	1.561171	0.038052	0.906582	0.008371			
12	10-Dec-19	1.933956	0.049467	0.789275	0.028568			
13	19-Jun-20	1.258416	0.043379	1.143122	0.195409			
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.14	0.94	0.26	0.64			
Mann-Kendall Statistic (S):		0	-64	-30	-42			
Confidence Factor:		47.6%	>99.9%	96.2%	99.5%			
Concentration Trend:		Stable	Decreasing	Decreasing	Decreasing			



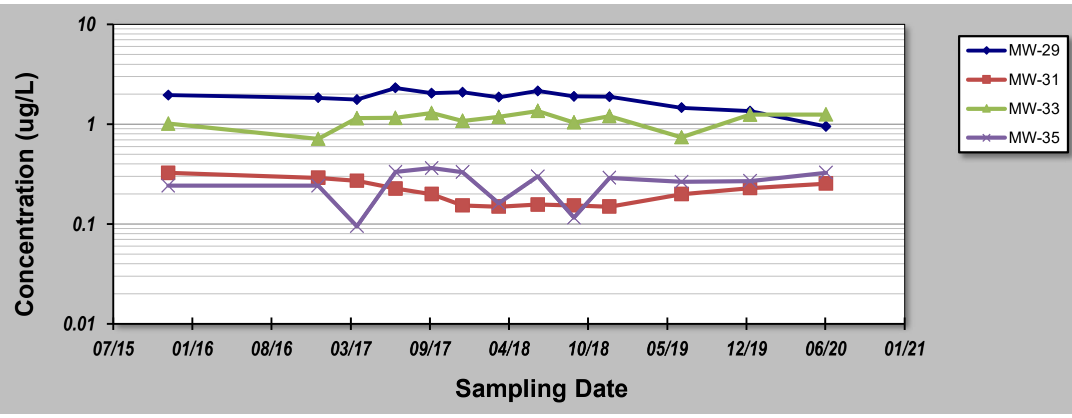
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	19-Jun-20	Job ID:	60440641
Facility Name:	Scotia	Constituent:	total CVOC Molar - Upgradient
Conducted By:	P.McHugh	Concentration Units:	ug/L

Sampling Point ID:		MW-29	MW-31	MW-33	MW-35			
Sampling Event	Sampling Date	TOTAL CVOC MOLAR - UPGRADIENT CONCENTRATION (ug/L)						
1	1-Dec-15	1.955465	0.324962	1.012177	0.24277			
2	14-Dec-16	1.839215	0.290715	0.711568	0.242009			
3	22-Mar-17	1.761832	0.270591	1.149163	0.095129			
4	27-Jun-17	2.305931	0.225857	1.156773	0.333333			
5	27-Sep-17	2.039089	0.199157	1.29376	0.363775			
6	14-Dec-17	2.089862	0.153289	1.08067	0.33105			
7	15-Mar-18	1.870157	0.149174	1.179604	0.161339			
8	22-Jun-18	2.159528	0.156773	1.354642	0.299848			
9	21-Sep-18	1.893196	0.153431	1.042618	0.115677			
10	20-Dec-18	1.891204	0.149174	1.210046	0.289954			
11	20-Jun-19	1.460064	0.199391	0.741248097	0.264840183			
12	10-Dec-19	1.349634	0.228383	1.248097412	0.269406393			
13	19-Jun-20	0.952704	0.254947	1.255707763	0.326484018			
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.20	0.28	0.18	0.33			
Mann-Kendall Statistic (S):		-30	-23	26	4			
Confidence Factor:		96.2%	90.8%	93.6%	57.1%			
Concentration Trend:		Decreasing	Prob. Decreasing	Prob. Increasing	No Trend			



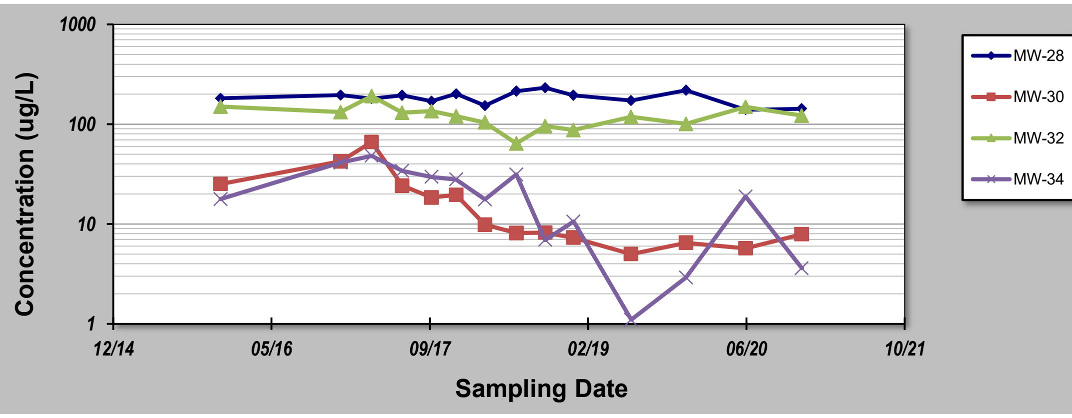
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	December 2020	Job ID:	60440641
Facility Name:	Former Scotia Navy Depot	Constituent:	TCE - Downgradient
Conducted By:	P. McHugh	Concentration Units:	ug/L

	Sampling Point ID:	MW-28	MW-30	MW-32	MW-34			
Sampling Event	Sampling Date	TCE - DOWNGRADIENT CONCENTRATION (ug/L)						
1	1-Dec-15	182	25.2	150	17.7			
2	14-Dec-16	196	42.3	132	41.3			
3	22-Mar-17	181	66.3	191	48.3			
4	27-Jun-17	195	24.3	130	34			
5	27-Sep-17	170	18.4	135	29.6			
6	14-Dec-17	201	19.6	120	28			
7	15-Mar-18	153	9.8	104	17.6			
8	22-Jun-18	214	8.1	64.1	31.3			
9	21-Sep-18	232	8.2	95.4	6.9			
10	20-Dec-18	195	7.3	87.1	10.6			
11	20-Jun-19	172	5	118	1.1			
12	10-Dec-19	219	6.5	101	2.9			
13	16-Jun-20	140	5.7	149	18.9			
14	10-Dec-20	143	7.9	122	3.6			
15								
16								
17								
18								
19								
20								
	Coefficient of Variation:	0.15	0.96	0.26	0.72			
	Mann-Kendall Statistic (S):	-10	-69	-31	-51			
	Confidence Factor:	68.6%	>99.9%	95.0%	99.8%			
	Concentration Trend:	Stable	Decreasing	Prob. Decreasing	Decreasing			



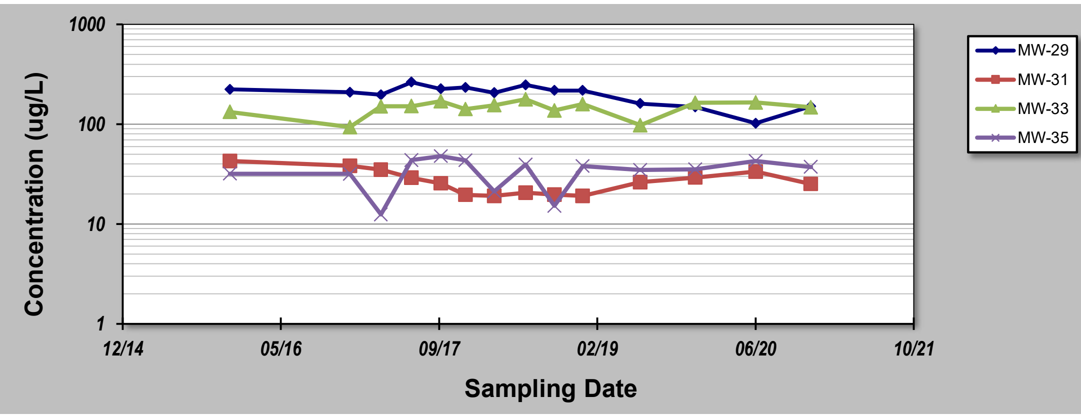
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	December 2020	Job ID:	60440641
Facility Name:	Former Scotia Navy Depot	Constituent:	TCE - Upgradient
Conducted By:	P.McHugh	Concentration Units:	ug/L

Sampling Point ID:		MW-29	MW-31	MW-33	MW-35			
Sampling Event	Sampling Date	TCE - UPGRADIENT CONCENTRATION (ug/L)						
1	1-Dec-15	224	42.7	133	31.9			
2	14-Dec-16	209	38.2	93.5	31.8			
3	22-Mar-17	197	35	151	12.5			
4	27-Jun-17	264	29	152	43.8			
5	27-Sep-17	226	25.6	170	47.8			
6	14-Dec-17	233	19.6	142	43.5			
7	15-Mar-18	207	19.1	155	21.2			
8	22-Jun-18	248	20.6	178	39.4			
9	21-Sep-18	218	19.7	137	15.2			
10	20-Dec-18	218	19.1	159	38.1			
11	20-Jun-19	161	26.2	97.4	34.8			
12	10-Dec-19	149	29.2	164	35.4			
13	19-Jun-20	102	33.5	165	42.9			
14	10-Dec-20	151	25.2	148	37.3			
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.22	0.28	0.17	0.32			
Mann-Kendall Statistic (S):		-40	-26	23	5			
Confidence Factor:		98.5%	91.3%	88.3%	58.5%			
Concentration Trend:		Decreasing	Prob. Decreasing	No Trend	No Trend			

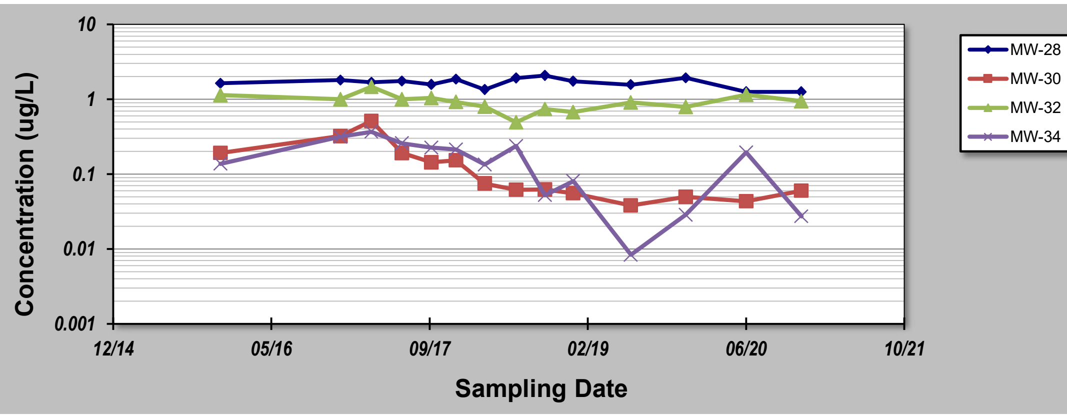


Notes:
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	10-Dec-20	Job ID:	60440641
Facility Name:	Former Scotia Navy Depot	Constituent:	Total CVOC Molar - Downgradient
Conducted By:	P.McHugh	Concentration Units:	ug/L

Sampling Event	Sampling Date	MW-28	MW-30	MW-32	MW-34			
		TOTAL CVOC MOLAR - DOWNGRADIENT CONCENTRATION (ug/L)						
1	1-Dec-15	1.632561	0.191781	1.141553	0.137236			
2	14-Dec-16	1.809779	0.321918	1.004566	0.314307			
3	22-Mar-17	1.682873	0.512199	1.465954	0.36758			
4	27-Jun-17	1.755212	0.191223	1.002754	0.258752			
5	27-Sep-17	1.577823	0.144053	1.039775	0.225266			
6	14-Dec-17	1.858876	0.153392	0.920256	0.21309			
7	15-Mar-18	1.34967	0.074581	0.797768	0.133942			
8	22-Jun-18	1.916241	0.061644	0.494218	0.238204			
9	21-Sep-18	2.078944	0.062405	0.739436	0.052511			
10	20-Dec-18	1.741747	0.055556	0.671629	0.08067			
11	20-Jun-19	1.561171	0.038052	0.906582	0.008371			
12	10-Dec-19	1.933956	0.049467	0.789275	0.028568			
13	19-Jun-20	1.258416	0.043379	1.143122	0.195409			
14	10-Dec-20	1.255222	0.060122	0.941872	0.027397			
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.15	0.96	0.25	0.70			
Mann-Kendall Statistic (S):		-13	-69	-29	-53			
Confidence Factor:		74.1%	>99.9%	93.7%	99.8%			
Concentration Trend:		Stable	Decreasing	Prob. Decreasing	Decreasing			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*

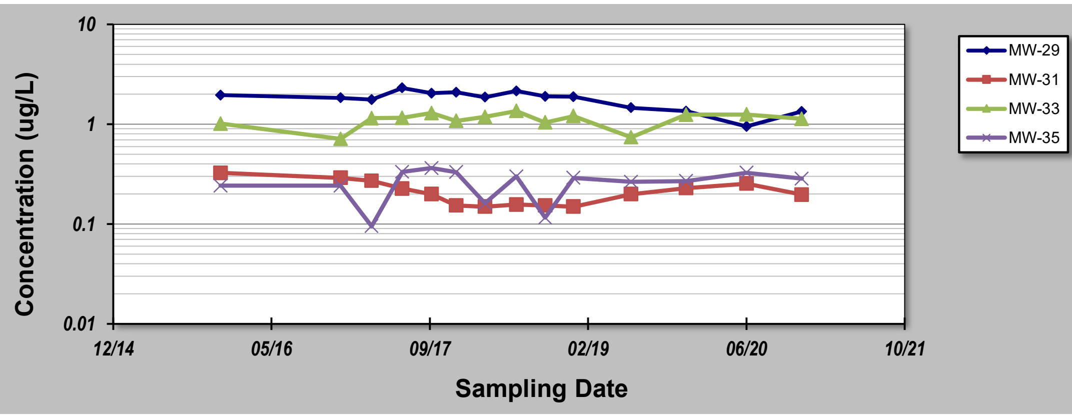
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.

3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	10-Dec-20	Job ID:	60440641
Facility Name:	Scotia	Constituent:	total CVOC Molar - Upgradient
Conducted By:	P.McHugh	Concentration Units:	ug/L

Sampling Point ID:		MW-29	MW-31	MW-33	MW-35			
Sampling Event	Sampling Date	TOTAL CVOC MOLAR - UPGRADIENT CONCENTRATION (ug/L)						
1	1-Dec-15	1.955465	0.324962	1.012177	0.24277			
2	14-Dec-16	1.839215	0.290715	0.711568	0.242009			
3	22-Mar-17	1.761832	0.270591	1.149163	0.095129			
4	27-Jun-17	2.305931	0.225857	1.156773	0.333333			
5	27-Sep-17	2.039089	0.199157	1.29376	0.363775			
6	14-Dec-17	2.089862	0.153289	1.08067	0.33105			
7	15-Mar-18	1.870157	0.149174	1.179604	0.161339			
8	22-Jun-18	2.159528	0.156773	1.354642	0.299848			
9	21-Sep-18	1.893196	0.153431	1.042618	0.115677			
10	20-Dec-18	1.891204	0.149174	1.210046	0.289954			
11	20-Jun-19	1.460064	0.199391	0.741248097	0.264840183			
12	10-Dec-19	1.349634	0.228383	1.248097412	0.269406393			
13	19-Jun-20	0.952704	0.254947	1.255707763	0.326484018			
14	10-Dec-20	1.339996	0.197454	1.130973379	0.283866058			
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.21	0.27	0.17	0.32			
Mann-Kendall Statistic (S):		-41	-26	23	5			
Confidence Factor:		98.7%	91.3%	88.3%	58.5%			
Concentration Trend:		Decreasing	Prob. Decreasing	No Trend	No Trend			



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
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3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

APPENDIX D: Groundwater Flow Investigation Results Memo

AECOM
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May 7, 2021

Lucia M. Gamba
Project Manager
US Army Corps of Engineers - New York District
26 Federal Plaza, Room 17-401
New York, NY 10278-0090

Subject: Memorandum Report, Engineering Change Proposal #2, Former Scotia Navy Depot Site, Scotia New York

Dear Ms. Gamba,

In the Spring of 2020, the United States Army Corps of Engineers (USACE) approved AECOM's Engineering Change Proposal (ECP) request for the Scotia Depot Site (Site) to conduct supplemental investigations in relation to groundwater hydrology at the Site. The following tasks were included in this ECP:

- Task 1: Collection of long-term groundwater level data
  - Task 1a: Transducer study
  - Task 1b: Groundwater level gauging by hand
- Task 2: Evaluation of groundwater and contaminant flux using a Borescope and Passive Flux Meters (PFMs)

This memorandum provides a summary of the tasks completed to date and provides an interpretation of the data and findings

<u>Tasks Completed</u>

Task 1a: For the long-term transducer study, AECOM deployed six Level TROLL 400 pressure transducers on October 14, 2020 in the following monitoring wells: MW-7, MW-11R, MW-29, MW-32, MW-33, and MW-22R. In addition, a Baro TROLL 500 was deployed in MW-7 to collect barometric pressure data for subsequent pressure correction of the data collected by the Level TROLL 400 units. Data was collected monthly for a period of 6 months from deployment with the last data collection event occurring on April 24, 2021.

Task 1b: AECOM initiated Site-wide biweekly groundwater gauging of 37 monitoring wells on April 7, 2020 to gather water level data from across the Site and monitor for changes in groundwater level due to seasonal changes in weather patterns and water levels in the adjacent Mohawk River. Biweekly groundwater gauging was conducted for 6 months. The last gauging event took place on September 28, 2020.

Task 2: From April 27, 2020 to May 1, 2020, AECOM conducted groundwater flow studies using a Geotech Colloidal Borescope to evaluate groundwater flow direction and velocity. The Borescope study was conducted in 14 locations. The borescope was left in place in each location for a minimum of 120 mins and monitored in real time until a consistent data set was observed and recorded.

On June 30, 2020 AECOM deployed six PFMs in the following groundwater monitoring wells: MW-18, MW-24, MW-28, MW-29, MW-32 and MW-33. Following the two-week deployment time recommended by the subcontract laboratory (Enviroflux) the PFMs were retrieved, sampled according to Enviroflux's PFM sampling protocol, and shipped to Enivroflux for laboratory analysis. Each of the six PFMs was subdivided into three sampling intervals, for a total of 18 samples.

Preliminary Data Interpretation

Task 1a Transducer Study:
Six Level TROLL 400 pressure transducers were deployed at the site on October 14, 2020 into the following monitoring wells: MW-7, MW-11R, MW-29, MW-32, MW-33, and MW-22R. One Baro TROLL 500 was deployed in MW-7 to collect barometric pressure data for subsequent pressure correction of the data collected by the Level TROLL 400 units. Transducer units were suspended from well expansion plugs via non-stretch string and initial depth to water was measured with a water level meter. Length of the string was back calculated using hand gauging measurements and transducer data. Data collection events were conducted on a monthly basis. AECOM personnel removed the transducer from monitoring wells, gauged the well with a water level probe, and downloaded the new pressure data from the transducer prior to redeployment. All collected pressure data was post-corrected via barometric adjustments and compiled for analysis.

Groundwater elevations of the monitoring wells where transducers were deployed are presented in **Figure 1**. This figure illustrates how monitoring wells further from the river tend to have higher elevations and less seasonal fluctuations overall than those located closer to the river. This trend is especially noticed when the local Mohawk River Lock (Lock 8) is opened on November 8th, decreasing river and close monitoring well water elevations. Therefore, the Mohawk River may influence groundwater levels more if the monitoring wells are closer to the river. Since the Mohawk River level changes seasonally a corresponding seasonal groundwater elevation trend is observed.

Task 1b Groundwater Level Gauging: Tabulated groundwater level data and groundwater elevations from the bi-weekly gauging is presented in **Table 1**. In total 11 rounds of Site-wide gauging data were collected. AECOM observed two distinct periods in groundwater elevations at the Site during this recording period. AECOM initiated this project when the water level in the adjacent Mohawk River was low and equivalent to winter, non-navigation season, levels due to the delay in the opening of the 2020 Erie Canal navigation season. The Mohawk River is located downgradient of the Site to the west. The Mohawk River is part of the Erie Canal system and its water level is controlled by the New York State Canal Corporation. The river is drained and kept low during the winter months and then typically in the spring dams are closed, and the water level comes back up. This past year however, due to delays in reopening the canal due to COVID-19 restrictions[1], the water level was kept low for several weeks longer than usual and the Canal Corporation did not start to raise the water levels until June 24th. Furthermore, dry weather conditions in June in the region this year coincided with observed low groundwater elevations at the Site.

[1] https://www.timesunion.com/news/article/Capital-Region-water-restrictions-driven-by-dry-15361293.php

Groundwater elevation levels from throughout this gauging period (including levels from June 2019 and December 2019, for reference) are provided in **Figures 2 through 5**. These figures show water levels in four groups of monitoring wells (Group A, B, C and D) as shown on the site layout map provided in **Attachment A**. The Group A wells are located closest to the Mohawk River and at the downgradient end of the Site, Group B wells are generally located immediately downgradient of the ZVI PRB, Group C wells are generally located immediately upgradient of the ZVI PRB, and Group D wells are located the furthest from the Mohawk River and at the upgradient end of the Site. These figures illustrate how groundwater elevation downgradient of the ZVI PRB is largely controlled by water elevation in the Mohawk River. Groundwater elevation upgradient of the ZVI PRB is less controlled by the Mohawk River.

These observations reinforce the previously accepted concept that gradient and groundwater velocity at the Site is largely controlled by the water level in the Mohawk River (when river water levels are low, gradient and velocity are high; when river water levels are high, gradient and velocity are low). Another factor that controls gradient and velocity appears to be precipitation. After the Mohawk River levels were restored to navigation levels in late June/early July, drought-like conditions were observed New York's capital region and at the Site. Low precipitation resulted in lower than expected groundwater elevations at the upgradient end of the Site. The resulting gradient across the entire Site was lower than what has been observed previously. **Figure 6** illustrates the groundwater gradient across the entire Site. Using data from monitoring wells MW-9, MW-13, MW-30, MW-15, MW-18, MW-22R and MW-36, a set of groundwater elevation profiles are shown using data from June 2019, December 2019 and September 2020. The June 2019 profile shows the typical gradient at a time when the water level in the Mohawk River is high and precipitation is normal. The December 2019 profile shows conditions when the water level in the Mohawk is low. The September 2020 profiles shows a profile when river water levels are high, and precipitation is low. The September 2020 profile illustrates how the downgradient end of the Site is controlled by the river, while the upgradient end is influenced by precipitation. Under these conditions (high river water level, low precipitation) the lowest gradient and velocities are observed.

Task 2:

Passive Flux Meters

Six PFMs were deployed at the Site resulting in 18 total sample intervals. Laboratory data provided by Envrioflux is included in **Attachment B** and includes results for groundwater flow velocity, mass discharge per unit width, mass flux, and contaminant concentration flux.

PFM results for Darcy Velocity were similar in upgradient and downgradient measured locations, indicating that the wall is permeable and not acting as a barrier to flow. Results ranged from 0.05 ft/day to 0.18 ft/day. The most recent June 2020 groundwater monitoring report indicated that the range of Darcy velocity at the Site is 0.08 ft/day to 1.04 ft/day. The Darcy Velocity estimates used for the conceptual Site model and PRB design were 0.05 ft/day-1.13 ft/day. The Darcy Velocity measured by the PFMs is on the lower end of the Darcy Velocity range that is typically estimated from Site wide gauging data and range of hydraulic conductivity estimates for the quarterly groundwater monitoring reports. This indicates that groundwater may be flowing slower than expected in some areas of the Site.

Average mass flux results from the PFMs also indicate that the mass flux is similar in the measured locations directly upgradient of the wall (MW-28 and MW-32) and directly downgradient of the wall

(MW-29 and MW-33). This indicates that the wall is permeable and is not acting as a flow barrier. Lower mass flux results were expected downgradient of the wall since this would indicate that contaminant mass was being treated within the wall

Average contaminant concentration results for the PFMs are similar (within the same order of magnitude) to the concentrations reported from the grab sampling presented in the groundwater monitoring reports. Overall, sample results from the PFM corresponded well with data obtained during the routine groundwater sampling.

Borescope

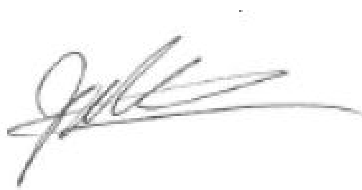
During the week of April 27, 2020 AECOM conducted flow measurements using the Geotech Colloidal Borescope at 13 locations across the Site. Data was analyzed for the presence of trends indicating directional flow, non-directional/swirling flow, and stagnant/decaying flow. Data interpretation and results for each measured location is provided in **Attachment C**. Based on AECOM's data interpretation of the Borescope data all four downgradient compliance wells are exhibiting swirling type flow. Only one of the upgradient compliance monitoring wells was shown to have swirling flow. This could indicate that the PRB wall is acting as a groundwater flow disruptor or it could be because groundwater levels at the Site were low and flow may be influenced by irregularities within the aquifer unit (larger stone/cobbles) or the steady state flow of colloidal particles within the aquifer is disrupted due to changing water levels within the aquifer. Data interpretation at locations further downgradient and upgradient indicate directional flow in these areas away from the wall. One location, MW-36 which is upgradient near the east side of the Site exhibited stagnant flow, perhaps an indication of influence from pumping activity further upgradient in the aquifer. Groundwater flow direction and velocity results obtained with the boroscope were variable throughout the Site and did not exhibit a clear trend.

Key Findings and Conclusion

The work completed under this ECP led to the following key findings for the groundwater hydrology at the Site:

- Based on the results of the Site-wide biweekly gauging efforts and the transducer study, groundwater level (and corresponding gradient and velocity) at the Site is directly influenced by the water level in the Mohawk River. Groundwater level downgradient of the ZVI PRB reacts quickly to changes in the water level within the River, while water level upgradient of the ZVI PRB is less reactive to changes in river level. Changes in precipitation level seems to impact water level more noticeably in upgradient of the ZVI PRB.
- Groundwater velocity and contaminant concentration measured from the PFMs are similar upgradient and downgradient of the wall and are like the results obtained during reoccurring groundwater monitoring.
- The borescope data shows that there is likely nondirectional and swirling flow on a microscale within the aquifer. Direction and velocity measurements obtained with the borescope are variable. Use of the boroscope to determine groundwater velocity and flow direction was inconclusive.

Yours sincerely,



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cc:

Amanda Regan, USACE
Dean Brammer, USACE
David Baker, GSA
Gerlinde Wolf, AECOM

Attachments:

Table 1: Groundwater Elevation Data

Figure 1: Groundwater Elevations from Pressure Transducers
Figure 2: Group A Wells
Figure 3: Group B Wells
Figure 4: Group C Wells
Figure 5: Group D Wells
Figure 6: Water Table Profile

Attachment A: Site Layout Figure with Grouped Wells
Attachment B: Passive Flux Meter Data
Attachment C: Colloidal Borescope Data and Interpretation

Table 1
Groundwater Elevation Data
The Defense National Stockpile Center Scotia Depot

Group	Well IDs	Screened Interval (ft bgs)	Ground Surface Elevation (ft)	Reference Point Elevation (ft) Through Q4 2018	Reference Point Elevation (ft) Revised For Q2 2019	Reference Point Elevation (ft) Revised April 2020	Reference Point Elevation (ft) Revised August 18, 2020
Group A	MW-5	62.5-72.5	287.95	290.11	-	-	-
	MW-6	58.5-68.5	286.28	288.58	-	-	-
	MW-7	61-71	286.8	289.26	-	-	-
	MW-8	-	-	-	293.03	-	-
	MW-9	110-120	285.98	288.33	-	-	-
	MW-16	55-70	-	288.33	-	-	-
	MW-27	100-110	286.08	288.32	-	-	-
Group B	MW-12R	60-80	-	-	292.34	-	-
	MW-13	65-80	292.62	293.85	-	-	-
	MW-24	90-100	290.24	292.45	-	-	-
	MW-26	100-110	287.23	286.45	-	-	-
	MW-30	82-92	291.76	291.63	-	-	292.84
	MW-31	82-92	291.80	291.54	-	-	292.27
	MW-32	82-92	290.12	289.75	-	-	-
	MW-33	82-92	290.27	289.91	-	-	-
	MW-34	82-92	287.30	287.05	-	-	-
	MW-35	82-92	287.25	286.96	-	-	-
Group C	MW-11R	65-80	-	-	295.56	-	-
	MW-15	65-80	-	293.67	-	-	292.72
	MW-25	65-75	288.16	290.26	288.11	-	-
	MW-28	67-72	292.55	292.25	-	-	293.65
	MW-29	67-72	292.50	292.13	-	-	293.05
	GEP-1	59.6-74.6	-	294.98	295.2	-	291.21
	GEP-3	59.6-74.6	-	292.97	-	-	291.9
	GEP-4	60.15-75.15	-	295.62	292.88	-	292.9
	MWB-1R	48-68		-	287.42	-	-
Group D	MW-14	65-80	-	296.2	-	296.62	294.21
	MW-17	60-75	-	295.24	292.05	-	-
	MW-18	60-75	-	295.24	291.97	-	-
	MW-21	57-72	-	296.52	-	296.61	294.01
	GEP-2	60.6-75.6	-	296.02	-	-	293.93
	MWB-3	47.5-67.5	-	287.05	-	-	-
	MW-19	62-77	-	297.62	295.33	-	-
	MW-20	63-78	-	301.55	298.55	-	-
	MW-22R	63-78		-	296.35	-	-
	MW-23	63-78	-	300.54	-	-	-
	MW-36	70-80	292.61	292.36	-	-	-

Group A - < 228 fbg Q2 2019 sampling event
Group B - 228-230 fbg Q2 2019 sampling event
Group C - 230-231 fbg Q2 2019 sampling event
Group D - > 231 fbg Q2 2019 sampling event
- indicates no data

Table 1
Groundwater Elevation Data
The Defense National Stockpile Center Scotia Depot

Group	Well IDs	Screened Interval (ft bgs)	Depth To Water (ft bgs) Q2 2019	Depth to Water (ft bags) Q4 2019	Depth to Water (ft bags) 4/7/2020	Depth to Water (ft bags) 4/20/2020	Depth to Water (ft bags) 5/4/2020	Depth to Water (ft bags) 6/15/2020	Depth to Water (ft bags) 6/29/2020	Depth to Water (ft bags) 7/13/2020	Depth to Water (ft bags) 7/31/2020	Depth to Water (ft bags) 8/10/2020	Depth to Water (ft bags) 8/26/2020	Depth to Water (ft bags) 9/14/2020	Depth to Water (ft bags) 9/28/2020
Group A	MW-5	62.5-72.5	64.02	71.80	71.46	71.46	71.19	72.33	69.62	65.28	63.96	63.90	64.18	64.22	64.31
	MW-6	58.5-68.5	62.28	69.96	69.61	69.60	69.27	70.40	67.98	63.84	62.37	62.29	62.63	62.68	62.79
	MW-7	61-71	62.31	67.82	67.93	67.91	67.72	68.32	67.82	65.37	63.69	63.07	62.82	62.83	62.94
	MW-8	-	65.78	72.71	72.14	72.00	72.00	72.82	71.34	67.91	66.40	66.25	66.62	66.65	66.80
	MW-9	110-120	62.07	69.71	69.40	69.41	69.09	70.92	67.74	63.61	62.14	62.13	62.41	62.45	63.27
	MW-16	55-70	60.63	63.85	64.56	64.67	64.50	64.88	64.93	63.79	62.68	62.05	61.60	61.51	61.67
	MW-27	100-110	63.71	69.00	69.47	69.35	69.23	69.85	68.90	66.10	63.13	62.77	62.69	62.68	62.80
Group B	MW-12R	60-80	64.16	69.64	69.05	68.91	68.78	69.47	68.91	66.65	65.31	65.10	65.33	65.42	65.61
	MW-13	65-80	64.20	69.73	67.91	67.78	67.65	68.11	68.23	67.08	66.25	65.91	65.99	66.12	66.34
	MW-24	90-100	63.22	66.42	66.64	66.47	66.37	66.72	66.94	66.07	65.53	65.11	65.07	65.21	65.41
	MW-26	100-110	58.23	61.65	61.74	61.82	61.53	61.70	61.95	61.22	60.47	60.05	59.85	59.94	60.15
	MW-30	82-92	62.01	65.89	65.39	65.22	65.12	65.44	65.74	64.93	64.37	-	64.06	64.19	64.45
	MW-31	82-92	61.84	65.65	65.15	65.01	64.86	65.21	65.47	64.75	63.19	-	62.94	63.10	63.34
	MW-32	82-92	60.45	64.00	63.79	63.61	63.50	63.82	64.04	63.30	62.75	62.37	62.31	62.46	62.65
	MW-33	82-92	60.54	64.05	63.83	63.66	63.55	63.84	64.11	63.38	62.84	62.44	62.41	62.55	62.74
	MW-34	82-92	58.44	61.61	61.80	61.67	61.43	61.60	61.72	61.03	60.42	60.00	59.79	59.88	60.05
	MW-35	82-92	58.01	61.73	61.30	61.32	61.04	61.30	61.59	60.91	60.30	59.86	59.73	59.75	59.95
Group C	MW-11R	65-80	64.81	-	68.13	67.91	67.81	68.43	68.79	67.94	67.40	67.06	67.27	67.50	67.80
	MW-15	65-80	62.76	66.35	65.82	65.62	65.50	65.87	66.22	65.72	65.38	65.04	64.15	64.35	64.61
	MW-25	65-75	57.28	63.42	59.98	59.84	59.71	59.95	60.28	60.06	59.81	59.50	59.52	59.67	59.91
	MW-28	67-72	62.28	66.41	65.59	65.41	65.28	65.69	66.00	65.17	-	-	65.32	65.45	65.71
	MW-29	67-72	62.13	66.07	65.43	65.25	65.10	65.55	65.85	65.08	-	-	64.65	64.81	65.09
	GEP-1	59.6-74.6	65.07	66.30	68.34	68.15	68.04	68.40	68.73	68.02	-	-	-	65.03	65.30
	GEP-3	59.6-74.6	62.21	64.16	65.24	65.08	64.94	65.29	65.65	65.13	64.72	64.37	63.44	63.61	63.85
	GEP-4	60.15-75.15	61.94	65.17	64.99	64.76	64.64	65.02	65.38	64.90	64.59	64.26	64.38	65.57	64.84
	MWB-1R	48-68	57.05	61.99	59.63	59.45	59.34	59.55	59.82	59.71	59.42	59.11	59.00	59.14	59.37
Group D	MW-14	65-80	64.58	68.35	67.79	67.58	67.46	67.99	68.44	68.09	67.84	67.57	65.27	65.51	65.81
	MW-17	60-75	60.49	62.25	63.30	63.12	62.99	63.36	63.81	63.50	63.28	63.00	63.15	63.40	63.65
	MW-18	60-75	60.77	63.17	63.65	63.45	63.35	63.70	64.06	63.40	63.47	63.14	63.24	63.42	63.71
	MW-21	57-72	64.93	68.80	67.86	67.66	67.52	68.06	68.50	68.07	67.81	67.54	65.13	65.36	65.68
	GEP-2	60.6-75.6	64.86	68.50	67.54	67.65	67.55	67.93	68.31	67.86	67.55	67.24	65.18	65.38	65.65
	MWB-3	47.5-67.5	-	-	58.20	58.11	58.00	58.25	58.46	58.61	58.56	58.41	-	58.66	58.88
	MW-19	62-77	62.86	63.36	65.27	65.02	64.96	65.37	65.86	65.89	65.93	65.77	65.96	66.24	66.56
	MW-20	63-78	65.55	68.80	67.69	67.48	67.39	67.82	68.35	68.57	68.75	68.72	68.88	69.21	69.55
	MW-22R	63-78	64.38	67.02	66.70	66.50	66.40	66.71	67.09	67.20	67.25	67.12	67.23	68.48	67.75
	MW-23	63-78	67.34	-	69.24	69.04	68.95	69.41	-	-	-	-	-	71.17	71.56
	MW-36	70-80	61.21	-	63.41	63.19	63.16	63.39	63.82	64.00	64.02	63.92	63.99	64.24	64.49

Group A - < 228 fbg Q2 2019 sampling event
Group B - 228-230 fbg Q2 2019 sampling event
Group C - 230-231 fbg Q2 2019 sampling event
Group D - > 231 fbg Q2 2019 sampling event
- indicates no data

Table 1
Groundwater Elevation Data
The Defense National Stockpile Center Scotia Depot

Group	Well IDs	Screened Interval (ft bgs)	Groundwater Elevation Q2 2019	Groundwater Elevation Q4 2019	Groundwater Elevation 4/7/2020	Groundwater Elevation 4/20/2020	Groundwater Elevation 5/04/2020	Groundwater Elevation 6/15/2020	Groundwater Elevation 6/29/2020	Groundwater Elevation 7/13/2020	Groundwater Elevation 7/31/2020	Groundwater Elevation 8/10/2020	Groundwater Elevation 8/26/2020	Groundwater Elevation 9/14/2020	Groundwater Elevation 9/28/2020
Group A	MW-5	62.5-72.5	226.09	218.31	218.65	218.65	218.92	217.78	220.49	224.83	226.15	226.21	225.93	225.89	225.80
	MW-6	58.5-68.5	226.30	218.62	218.97	218.98	219.31	218.18	220.60	224.74	226.21	226.29	225.95	225.90	225.79
	MW-7	61-71	226.95	221.44	221.33	221.35	221.54	220.94	221.44	223.89	225.57	226.19	226.44	226.43	226.32
	MW-8	-	227.25	220.32	220.89	221.03	221.03	220.21	221.69	225.12	226.63	226.78	226.41	226.38	226.23
	MW-9	110-120	226.26	218.62	218.93	218.92	219.24	217.41	220.59	224.72	226.19	226.20	225.92	225.88	225.06
	MW-16	55-70	227.70	224.48	223.77	223.66	223.83	223.45	223.40	224.54	225.65	226.28	226.73	226.82	226.66
	MW-27	100-110	224.61	219.32	218.85	218.97	219.09	218.47	219.42	222.22	225.19	225.55	225.63	225.64	225.52
Group B	MW-12R	60-80	228.18	222.70	223.29	223.43	223.56	222.87	223.43	225.69	227.03	227.24	227.01	226.92	226.73
	MW-13	65-80	229.65	224.12	225.94	226.07	226.20	225.74	225.62	226.77	227.60	227.94	227.86	227.73	227.51
	MW-24	90-100	229.23	226.03	225.81	225.98	226.08	225.73	225.51	226.38	226.92	227.34	227.38	227.24	227.04
	MW-26	100-110	228.22	224.80	224.71	224.63	224.92	224.75	224.50	225.23	225.98	226.40	226.60	226.51	226.30
	MW-30	82-92	229.62	225.74	226.24	226.41	226.51	226.19	225.89	226.70	227.26	-	228.78	228.65	228.39
	MW-31	82-92	229.70	225.89	226.39	226.53	226.68	226.33	226.07	226.79	228.35	-	229.33	229.17	228.93
	MW-32	82-92	229.30	225.75	225.96	226.14	226.25	225.93	225.71	226.45	227.00	227.38	227.44	227.29	227.10
	MW-33	82-92	229.37	225.86	226.08	226.25	226.36	226.07	225.80	226.53	227.07	227.47	227.50	227.36	227.17
	MW-34	82-92	228.61	225.44	225.25	225.38	225.62	225.45	225.33	226.02	226.63	227.05	227.26	227.17	227.00
	MW-35	82-92	228.95	225.23	225.66	225.64	225.92	225.66	225.37	226.05	226.66	227.10	227.23	227.21	227.01
Group C	MW-11R	65-80	230.75	-	227.43	227.65	227.75	227.13	226.77	227.62	228.16	228.50	228.29	228.06	227.76
	MW-15	65-80	230.91	227.32	227.85	228.05	228.17	227.80	227.45	227.95	228.29	228.63	228.57	228.37	228.11
	MW-25	65-75	230.83	224.69	228.13	228.27	228.40	228.16	227.83	228.05	228.30	228.61	228.59	228.44	228.20
	MW-28	67-72	229.97	225.84	226.66	226.84	226.97	226.56	226.25	227.08	-	-	228.33	228.20	227.94
	MW-29	67-72	230.00	226.06	226.70	226.88	227.03	226.58	226.28	227.05	-	-	228.40	228.24	227.96
	GEP-1	59.6-74.6	230.13	228.90	226.86	227.05	227.16	226.80	226.47	227.18	-	-	-	226.18	225.91
	GEP-3	59.6-74.6	230.76	228.81	227.73	227.89	228.03	227.68	227.32	227.84	228.25	228.60	228.46	228.29	228.05
	GEP-4	60.15-75.15	230.94	227.71	227.89	228.12	228.24	227.86	227.50	227.98	228.29	228.62	228.52	227.33	228.06
	MWB-1R	48-68	230.37	225.43	227.79	227.97	228.08	227.87	227.60	227.71	228.00	228.31	228.42	228.28	228.05
Group D	MW-14	65-80	231.62	227.85	228.83	229.04	229.16	228.63	228.18	228.53	228.78	229.05	228.94	228.70	228.40
	MW-17	60-75	231.56	229.80	228.75	228.93	229.06	228.69	228.24	228.55	228.77	229.05	228.90	228.65	228.40
	MW-18	60-75	231.20	228.80	228.32	228.52	228.62	228.27	227.91	228.57	228.50	228.83	228.73	228.55	228.26
	MW-21	57-72	231.59	227.72	228.75	228.95	229.09	228.55	228.11	228.54	228.80	229.07	228.88	228.65	228.33
	GEP-2	60.6-75.6	231.16	227.52	228.48	228.37	228.47	228.09	227.71	228.16	228.47	228.78	228.75	228.55	228.28
	MWB-3	47.5-67.5	-	-	228.85	228.94	229.05	228.80	228.59	228.44	228.49	228.64	-	228.39	228.17
	MW-19	62-77	232.47	231.97	230.06	230.31	230.37	229.96	229.47	229.44	229.40	229.56	229.37	229.09	228.77
	MW-20	63-78	233.00	229.75	230.86	231.07	231.16	230.73	230.20	229.98	229.80	229.83	229.67	229.34	229.00
	MW-22R	63-78	231.97	229.33	229.65	229.85	229.95	229.64	229.26	229.15	229.10	229.23	229.12	227.87	228.60
	MW-23	63-78	233.20	-	231.30	231.50	231.59	231.13	-	-	-	-	-	229.37	228.98
	MW-36	70-80	231.15	-	228.95	229.17	229.20	228.97	228.54	228.36	228.34	228.44	228.37	228.12	227.87

Group A - < 228 fbg Q2 2019 sampling event
Group B - 228-230 fbg Q2 2019 sampling event
Group C - 230-231 fbg Q2 2019 sampling event
Group D - > 231 fbg Q2 2019 sampling event
- indicates no data

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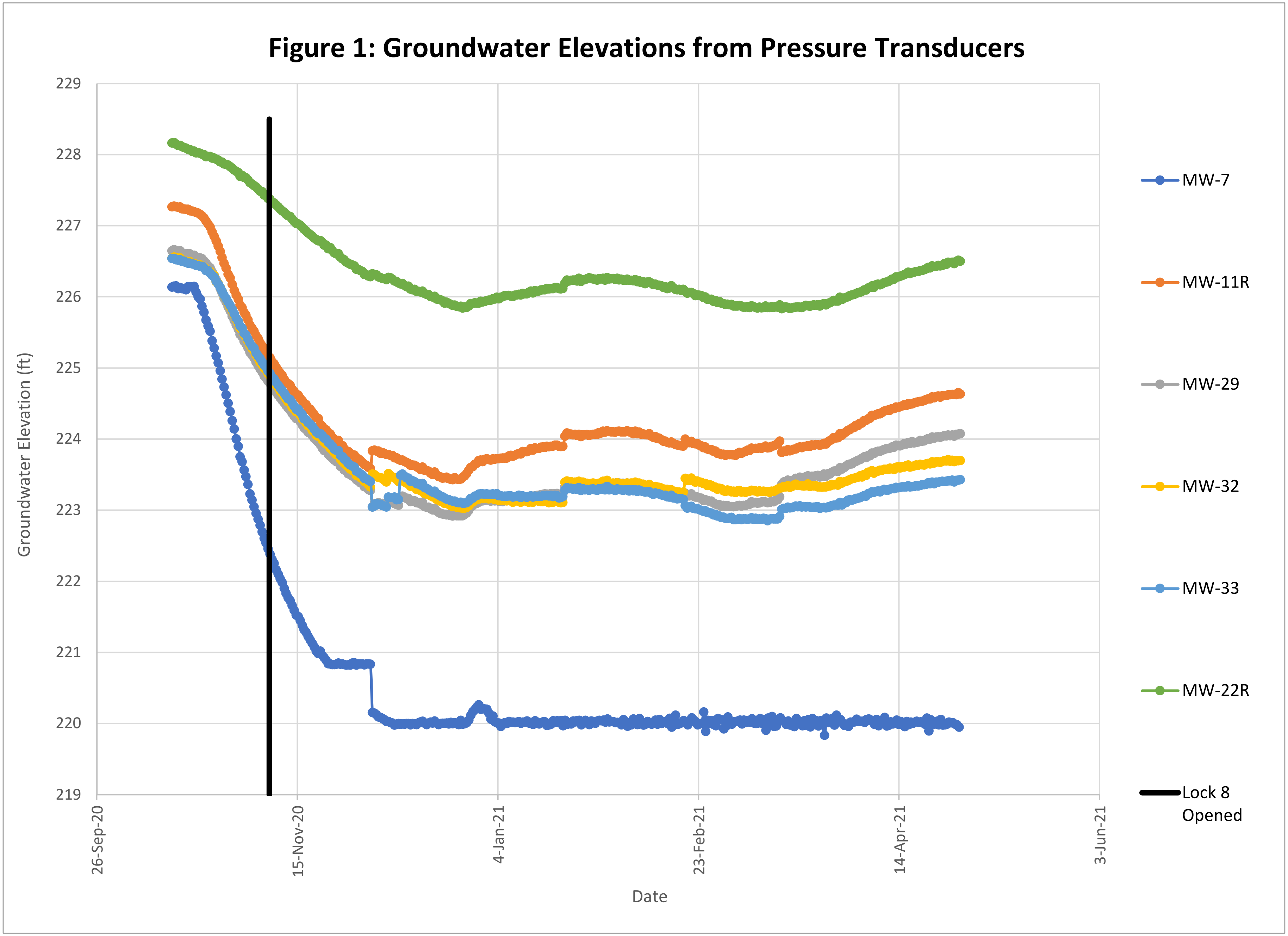


Figure 1: Groundwater Elevations from Pressure Transducers
Groundwater Elevation (ft)
229
228
227
226
225
224
223
222
221
220
219
26-Sep-20
15-Nov-20
4-Jan-21
23-Feb-21
14-Apr-21
3-Jun-21
Date
MW-7
MW-11R
MW-29
MW-32
MW-33
MW-22R
Lock 8 Opened

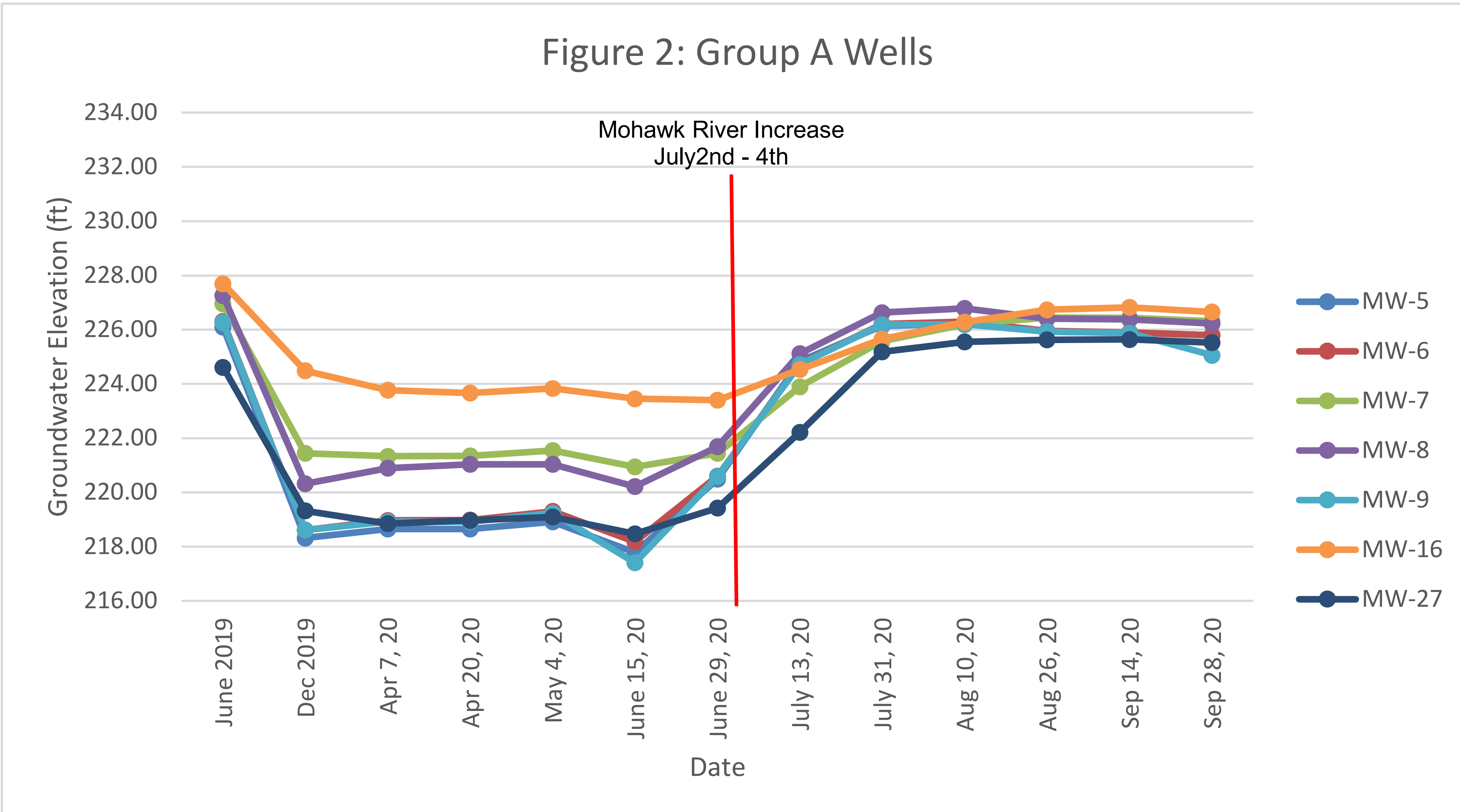


Figure 2: Group A Wells
Mohawk River Increase
July2nd - 4th
234.00
232.00
230.00
228.00
226.00
224.00
222.00
220.00
218.00
216.00
Groundwater Elevation (ft)
June 2019
Dec 2019
Apr 7, 20
Apr 20, 20
May 4, 20
June 15, 20
June 29, 20
July 13, 20
July 31, 20
Aug 10, 20
Aug 26, 20
Sep 14, 20
Sep 28, 20
Date
MW-5
MW-6
MW-7
MW-8
MW-9
MW-16
MW-27

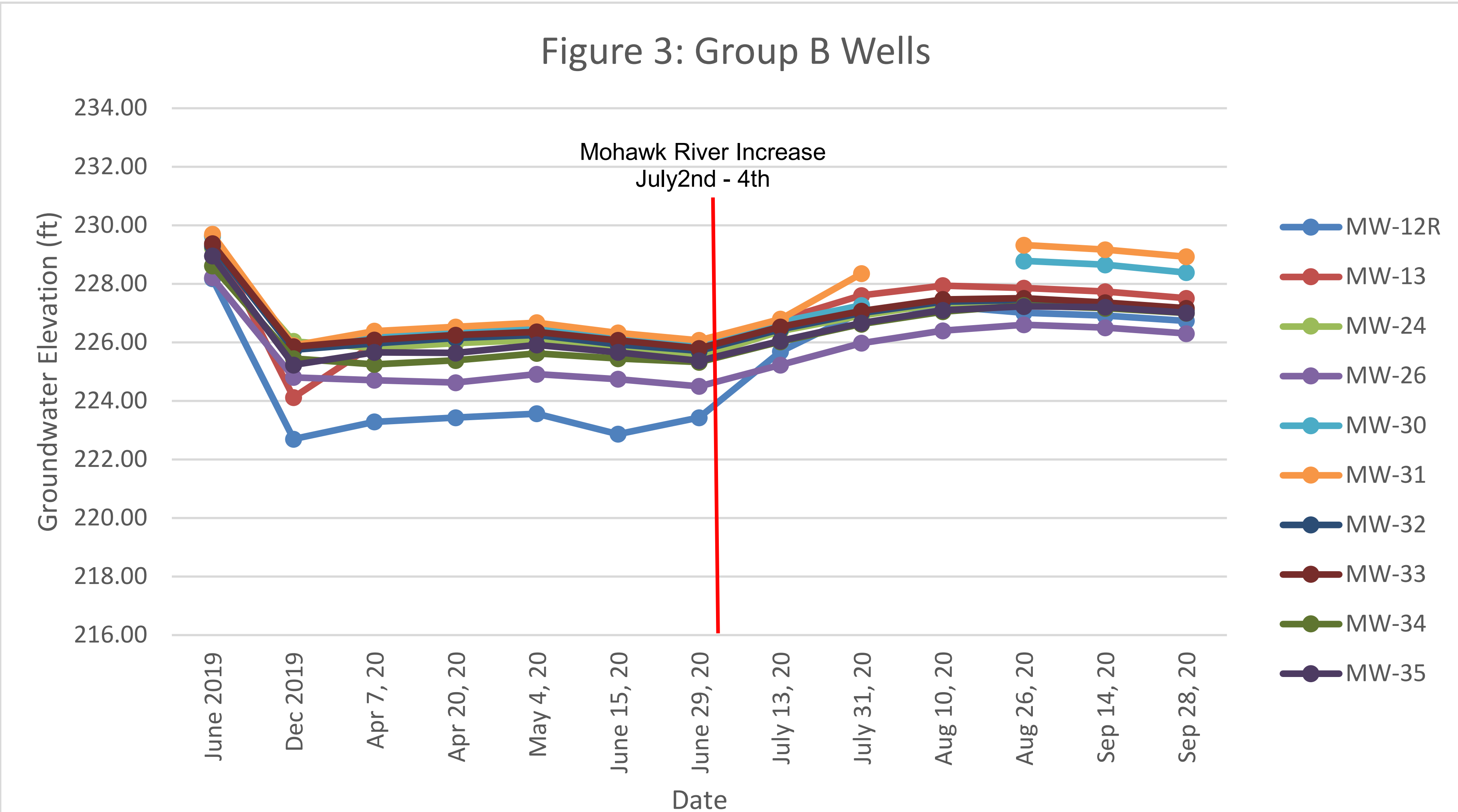


Figure 3: Group B Wells
Groundwater Elevation (ft)
234.00
232.00
230.00
228.00
226.00
224.00
222.00
220.00
218.00
216.00
Mohawk River Increase
July2nd - 4th
June 2019
Dec 2019
Apr 7, 20
Apr 20, 20
May 4, 20
June 15, 20
June 29, 20
July 13, 20
July 31, 20
Aug 10, 20
Aug 26, 20
Sep 14, 20
Sep 28, 20
Date
MW-12R
MW-13
MW-24
MW-26
MW-30
MW-31
MW-32
MW-33
MW-34
MW-35

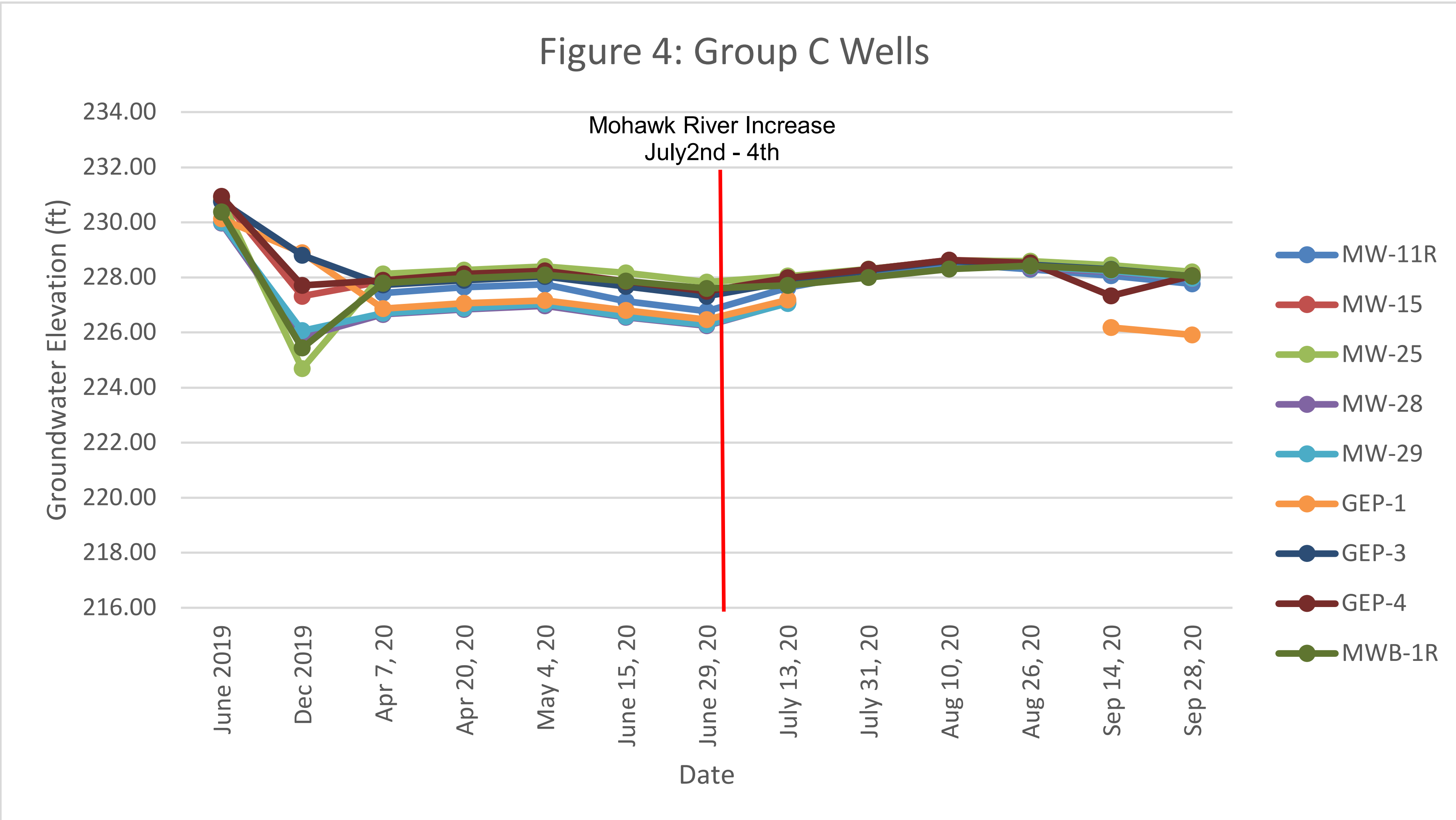


Figure 4: Group C Wells
Mohawk River Increase
July2nd - 4th
Groundwater Elevation (ft)
234.00
232.00
230.00
228.00
226.00
224.00
222.00
220.00
218.00
216.00
June 2019
Dec 2019
Apr 7, 20
Apr 20, 20
May 4, 20
June 15, 20
June 29, 20
July 13, 20
July 31, 20
Aug 10, 20
Aug 26, 20
Sep 14, 20
Sep 28, 20
Date
MW-11R
MW-15
MW-25
MW-28
MW-29
GEP-1
GEP-3
GEP-4
MWB-1R

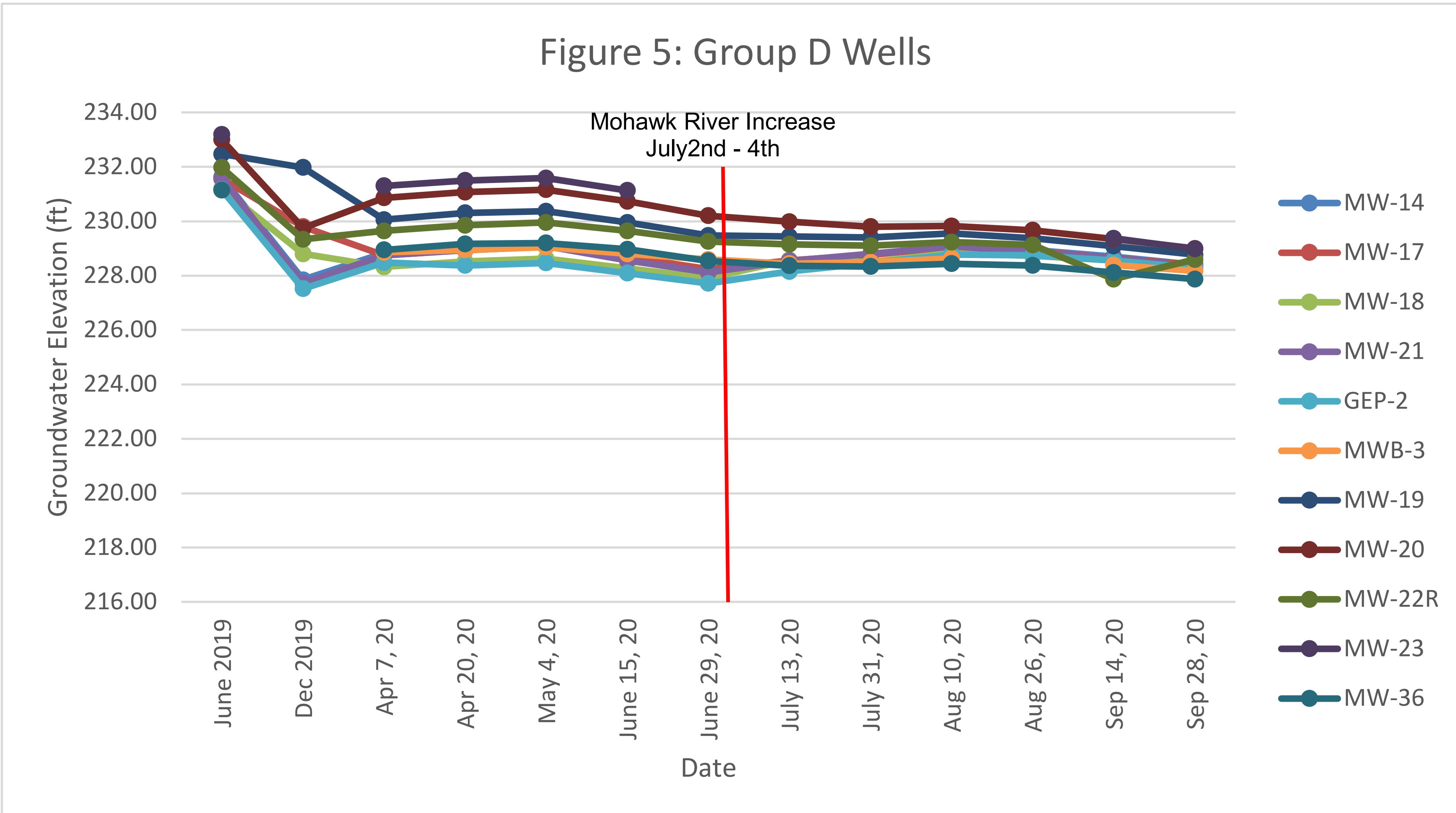


Figure 5: Group D Wells
Mohawk River Increase
July2nd - 4th
Groundwater Elevation (ft)
234.00
232.00
230.00
228.00
226.00
224.00
222.00
220.00
218.00
216.00
June 2019
Dec 2019
Apr 7, 20
Apr 20, 20
May 4, 20
June 15, 20
June 29, 20
July 13, 20
July 31, 20
Aug 10, 20
Aug 26, 20
Sep 14, 20
Sep 28, 20
Date
MW-14
MW-17
MW-18
MW-21
GEP-2
MWB-3
MW-19
MW-20
MW-22R
MW-23
MW-36

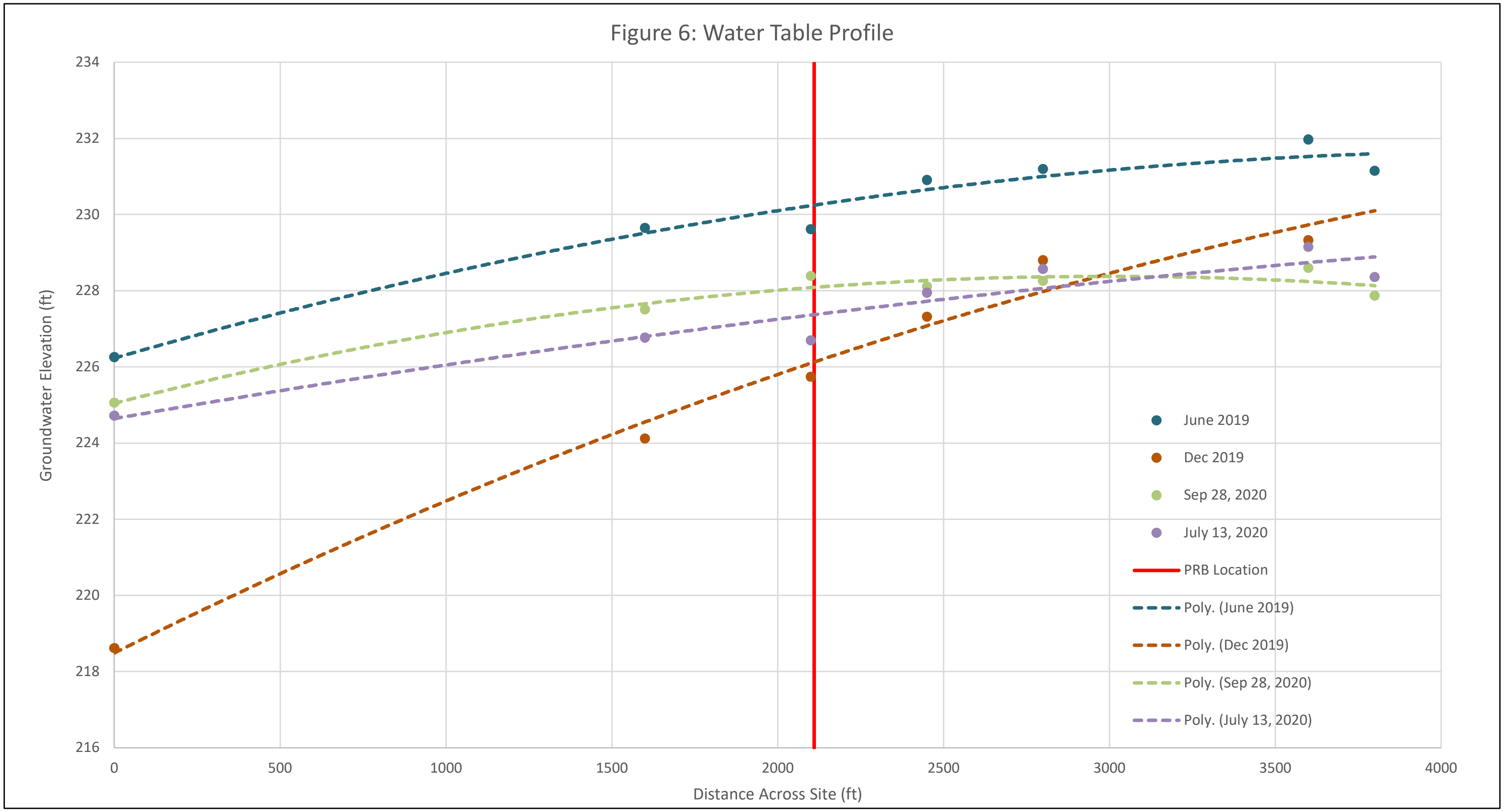
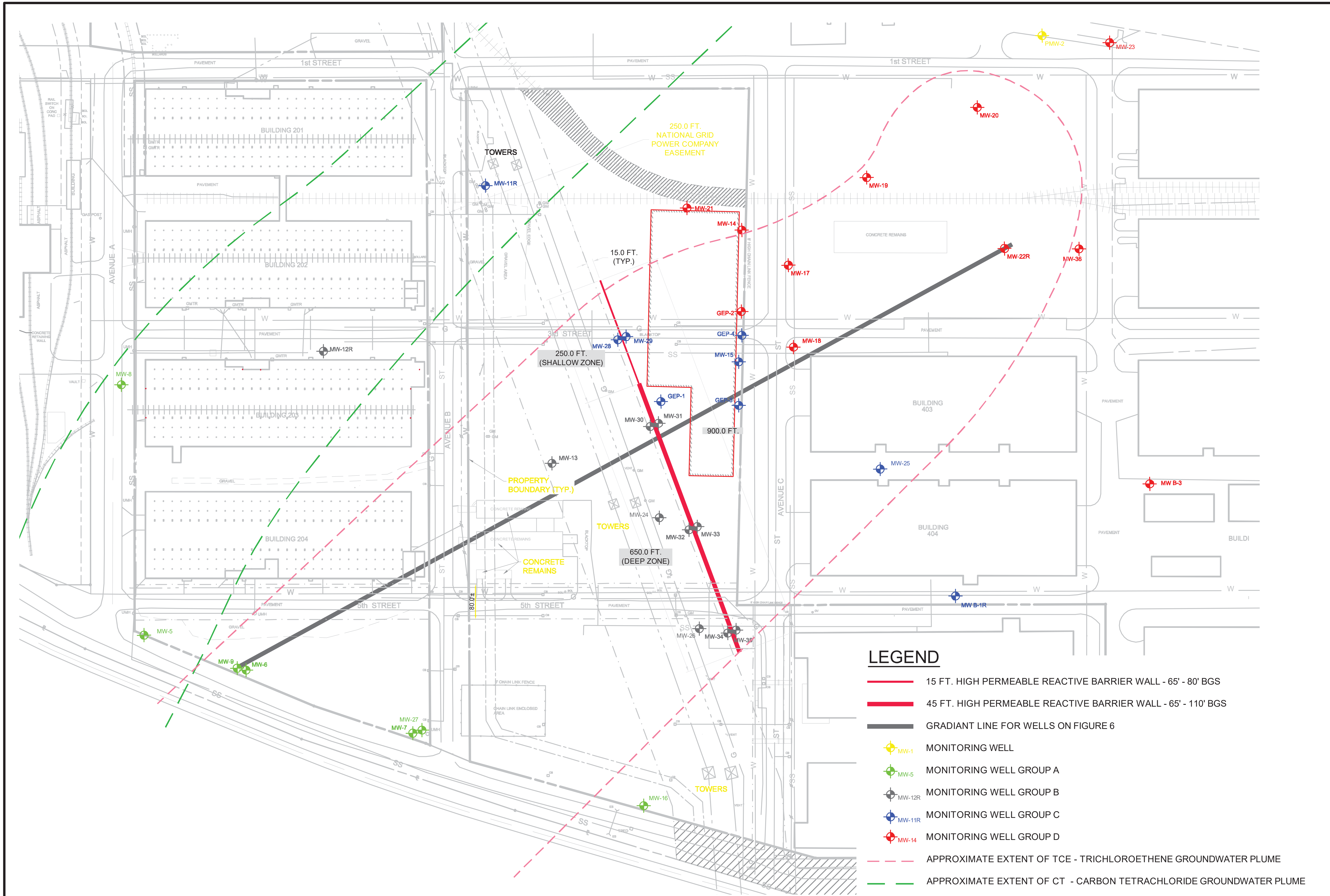


Figure 6: Water Table Profile
Groundwater Elevation (ft)
234
232
230
228
226
224
222
220
218
216
0
500
1000
1500
2000
2500
3000
3500
4000
Distance Across Site (ft)
June 2019
Dec 2019
Sep 28, 2020
July 13, 2020
PRB Location
Poly. (June 2019)
Poly. (Dec 2019)
Poly. (Sep 28, 2020)
Poly. (July 13, 2020)



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SITE LAYOUT MAP

US ARMY Corps of Engineers

DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: April 2021

Former Scotia Navy Depot Site, Scotia NY
PFM Installation 6/30/2020
PFM Sampling 7/14/2020
Data reporting date 8/2/2020

Table 1. Summary of flux values for each well

Well_ID	Sample_ID	Depth below top of well casing (ft)	Darcy Velocity (cm/day)	Darcy Velocity (ft/day)	1,2DCE (mg/m^2/day)	TCE flux (mg/m^2/day)	PCE flux (mg/m^2/day)
MW-24	MW-24-3	91.8	1.3	0.0427	0.00	0.23	0.00
	MW-24-2	93.4	1.6	0.0534	0.00	0.14	0.00
	MW-24-1	95.1	1.6	0.0527	0.00	0.20	0.00
MW-32	MW-32-3	83.8	2.8	0.0929	0.00	2.80	0.00
	MW-32-2	85.4	3.1	0.1032	0.00	7.46	0.00
	MW-32-1	87.1	5.7	0.1871	0.00	13.94	0.00
MW-18	MW-18-3	66.8	5.9	0.1922	0.00	8.87	0.24
	MW-18-2	68.4	4.0	0.1297	0.00	7.02	0.18
	MW-18-1	70.1	6.2	0.2048	0.00	7.06	0.24
MW-33	MW-33-3	83.8	3.5	0.1164	0.00	8.91	0.00
	MW-33-2	85.4	2.9	0.0944	0.00	5.81	0.00
	MW-33-1	87.1	3.1	0.1018	0.00	5.64	0.00
MW-29	MW-29-3	66.8	2.3	0.0758	0.14	8.31	1.03
	MW-29-2	68.4	4.4	0.1453	0.29	9.29	2.59
	MW-29-1	70.1	5.1	0.1689	0.23	7.51	2.24
MW-28	MW-28-3	67.8	2.8	0.0932	0.22	5.85	1.02
	MW-28-2	69.4	3.1	0.1001	0.57	11.84	2.17
	MW-28-1	71.6	3.0	0.0970	0.31	9.84	2.35

Table 2. Summary of flux average contaminant concentration

Well_ID	Sample_ID	Depth below top of well casing (ft)	Darcy Velocity (cm/day)	Darcy Velocity (ft/day)	1,2DCE (ug/L)	TCE (ug/L)	PCE (ug/L)
MW-24	MW-24-3	91.8	1.3	0.0427	0	17	0
	MW-24-2	93.4	1.6	0.0534	0	8	0
	MW-24-1	95.1	1.6	0.0527	0	12	0
MW-32	MW-32-3	83.8	2.8	0.0929	0	99	0
	MW-32-2	85.4	3.1	0.1032	0	237	0
	MW-32-1	87.1	5.7	0.1871	0	244	0
MW-18	MW-18-3	66.8	5.9	0.1922	0	151	4
	MW-18-2	68.4	4.0	0.1297	0	178	5
	MW-18-1	70.1	6.2	0.2048	0	113	4
MW-33	MW-33-3	83.8	3.5	0.1164	0	251	0
	MW-33-2	85.4	2.9	0.0944	0	202	0
	MW-33-1	87.1	3.1	0.1018	0	182	0
MW-29	MW-29-3	66.8	2.3	0.0758	6	360	44
	MW-29-2	68.4	4.4	0.1453	6	210	59
	MW-29-1	70.1	5.1	0.1689	5	146	43
MW-28	MW-28-3	67.8	2.8	0.0932	8	206	36
	MW-28-2	69.4	3.1	0.1001	19	388	71
	MW-28-1	71.6	3.0	0.0970	10	333	79

Table 3. Mass discharge per unit width for aquifer of each well

Well	Darcy Velocity (cm/day)	Darcy Velocity (ft/day)	1,2DCE Discharge (mg/m/day)	TCE Discharge (mg/m/day)	PCE Discharge (mg/m/day)
MW-24	1.5	0.0496	0.00	0.28	0.00
MW-32	3.9	0.1277	0.00	12.29	0.00
MW-18	5.4	0.1756	0.00	11.66	0.34
MW-33	3.2	0.1042	0.00	10.35	0.00
MW-29	4.0	0.1300	0.33	12.75	2.98
MW-28	2.9	0.0968	0.56	13.98	2.81

Table 4. Well average values of mass flux based on PFMs

Well	Darcy Velocity (cm/day)	Darcy Velocity (ft/day)	1,2DCE (mg/m^2/day)	TCE flux (mg/m^2/day)	PCE flux (mg/m^2/day)
MW-24	1.5	0.0496	0.00	0.19	0.00
MW-32	3.9	0.1277	0.00	8.07	0.00
MW-18	5.4	0.1756	0.00	7.65	0.22
MW-33	3.2	0.1042	0.00	6.79	0.00
MW-29	4.0	0.1300	0.22	8.37	1.95
MW-28	2.9	0.0968	0.36	9.18	1.84

Table 5. Flux average contaminant concentration on PFMs

Well	Darcy Velocity (cm/day)	Darcy Velocity (ft/day)	1,2DCE (ug/L)	TCE (ug/L)	PCE (ug/L)
MW-24	1.5	0.0496	0	13	0
MW-32	3.9	0.1277	0	194	0
MW-18	5.4	0.1756	0	147	4
MW-33	3.2	0.1042	0	212	0
MW-29	4.0	0.1300	6	238	49
MW-28	2.9	0.0968	12	309	62

Summary Data and Figures

Table 3. Mass discharge per unit width for aquifer of each well

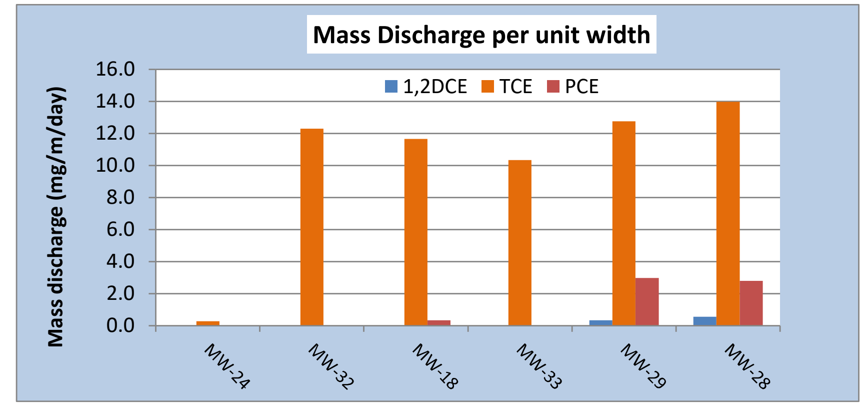
Well	Darcy Velocity (cm/day)	Darcy Velocity (ft/day)	1,2DCE Discharge (mg/m/day)	TCE Discharge (mg/m/day)	PCE Discharge (mg/m/day)
MW-24	1.5	0.0496	0.00	0.28	0.00
MW-32	3.9	0.1277	0.00	12.29	0.00
MW-18	5.4	0.1756	0.00	11.66	0.34
MW-33	3.2	0.1042	0.00	10.35	0.00
MW-29	4.0	0.1300	0.33	12.75	2.98
MW-28	2.9	0.0968	0.56	13.98	2.81

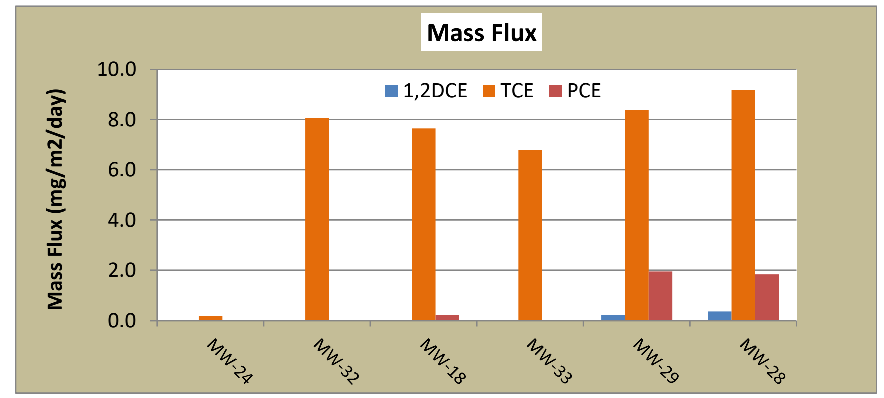
Table 4. Well average values of mass flux based on PFMs

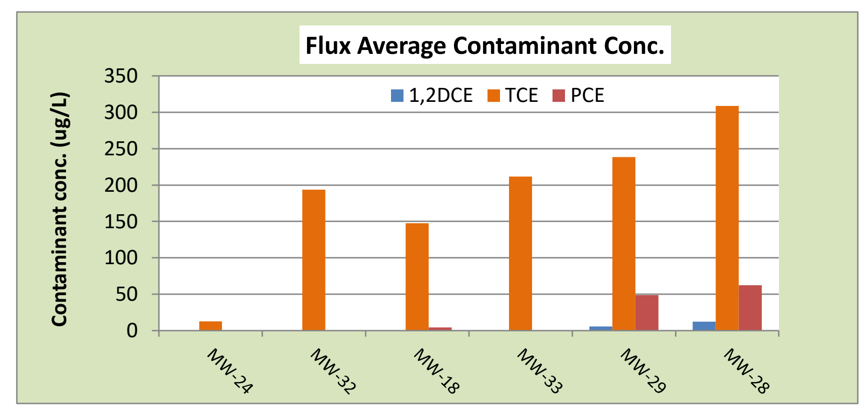
Well	Darcy Velocity (cm/day)	Darcy Velocity (ft/day)	1,2DCE (mg/m^2/day)	TCE flux (mg/m^2/day)	PCE flux (mg/m^2/day)
MW-24	1.5	0.0496	0.00	0.19	0.00
MW-32	3.9	0.1277	0.00	8.07	0.00
MW-18	5.4	0.1756	0.00	7.65	0.22
MW-33	3.2	0.1042	0.00	6.79	0.00
MW-29	4.0	0.1300	0.22	8.37	1.95
MW-28	2.9	0.0968	0.36	9.18	1.84

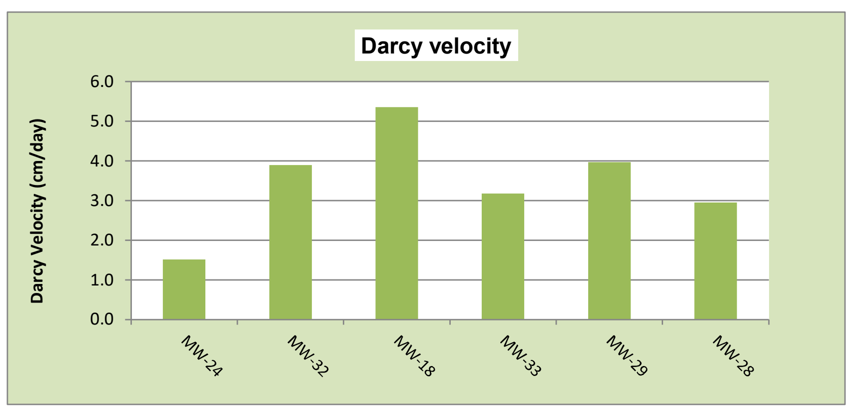
Table 5. Flux average contaminant concentration on PFMs

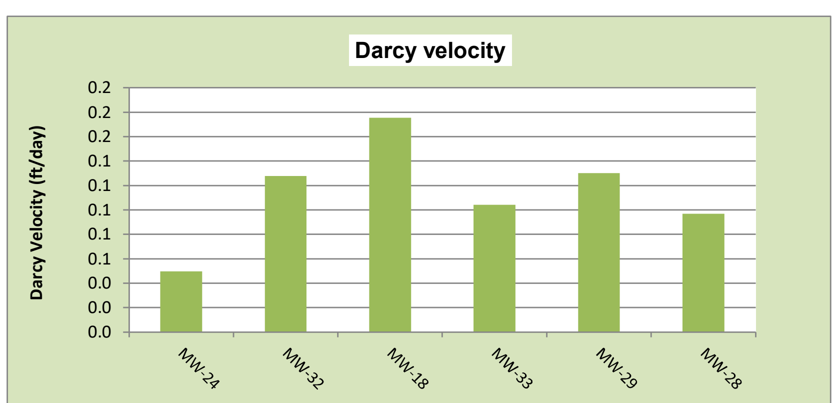
Well	Darcy Velocity (cm/day)	Darcy Velocity (ft/day)	1,2DCE (ug/L)	TCE (ug/L)	PCE (ug/L)
MW-24	1.5	0.0496	0	13	0
MW-32	3.9	0.1277	0	194	0
MW-18	5.4	0.1756	0	147	4
MW-33	3.2	0.1042	0	212	0
MW-29	4.0	0.1300	6	238	49
MW-28	2.9	0.0968	12	309	62

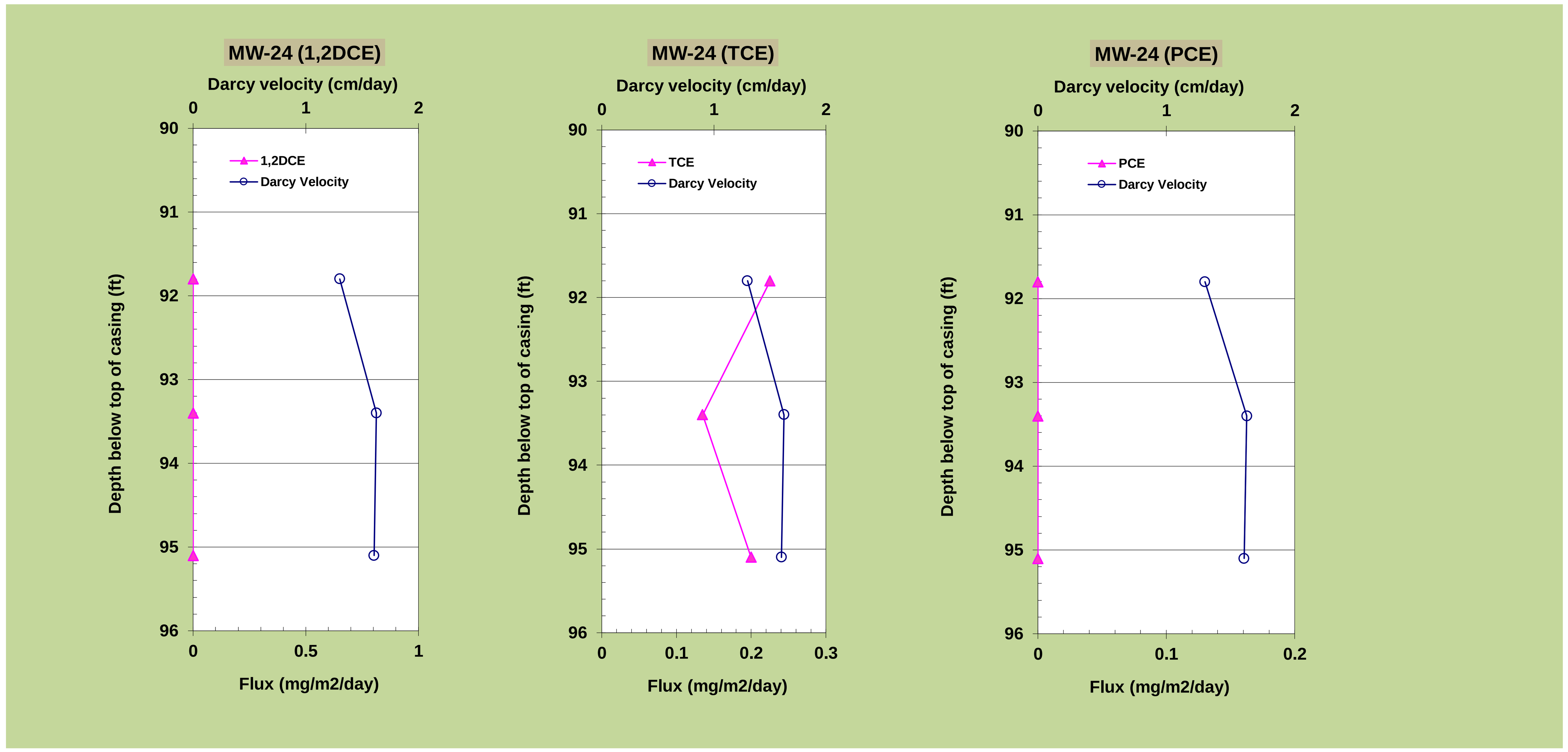


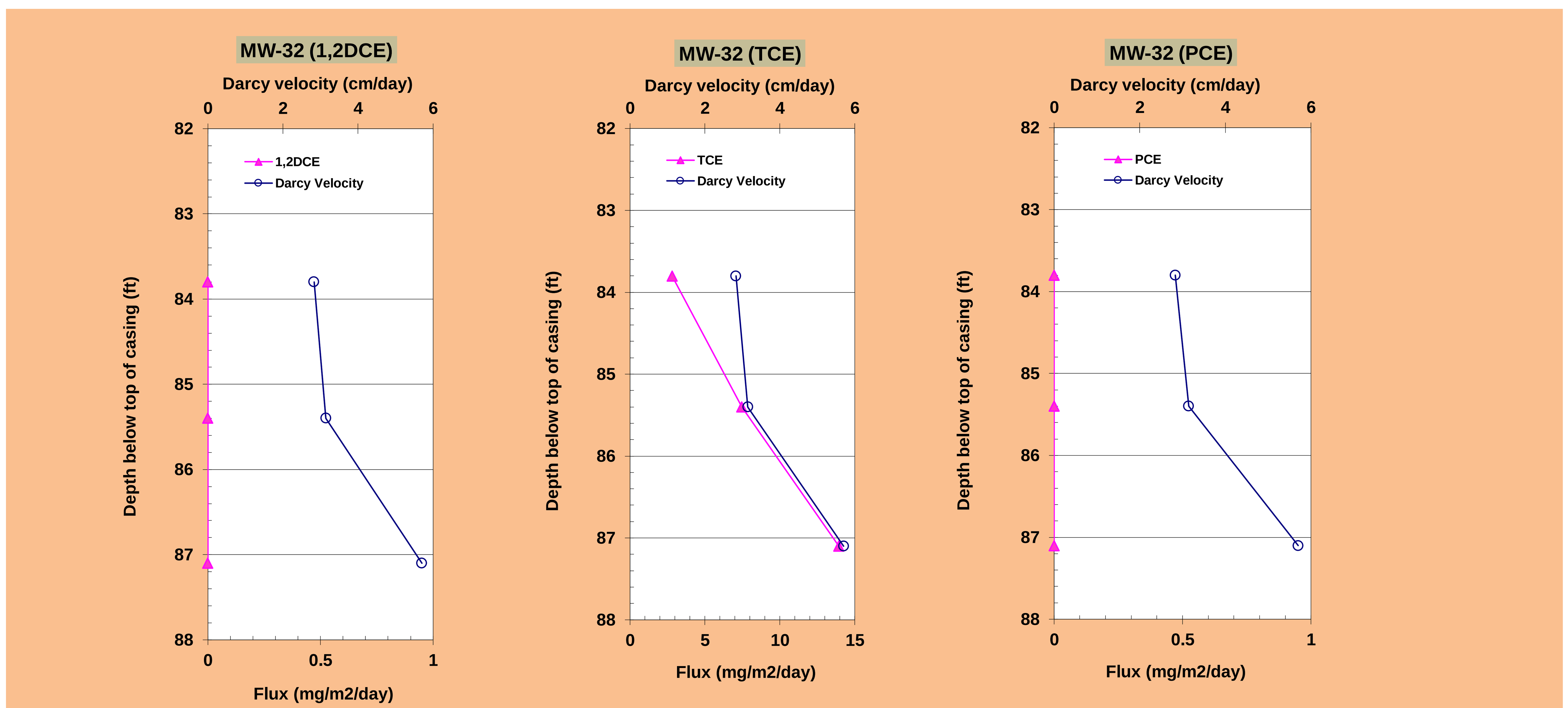


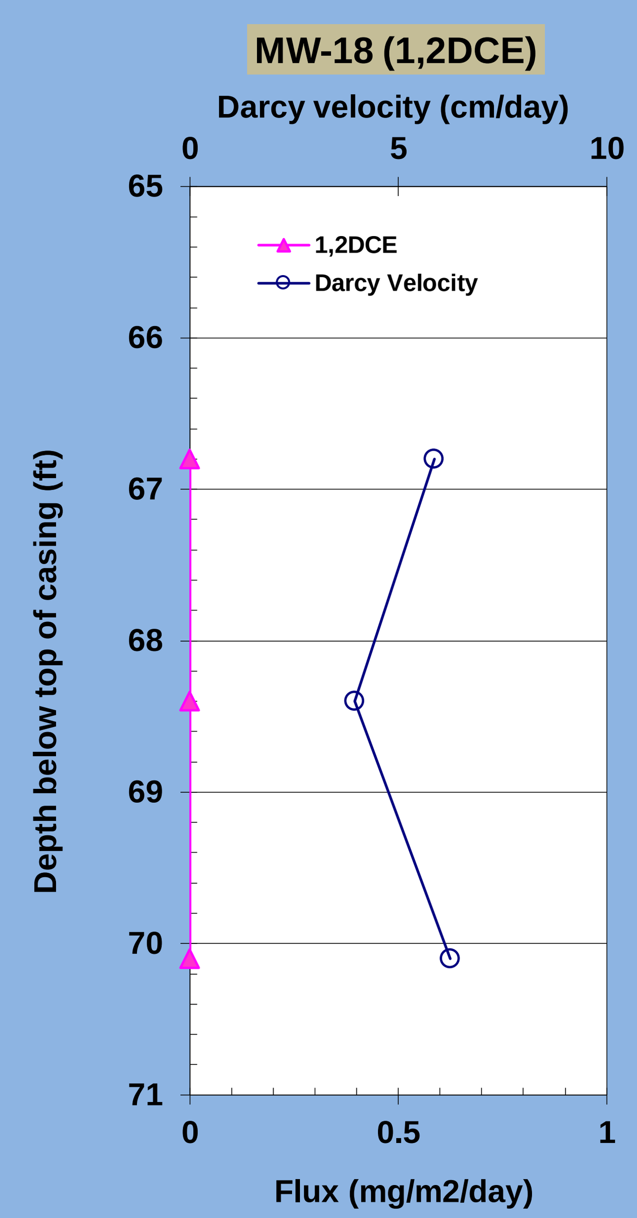


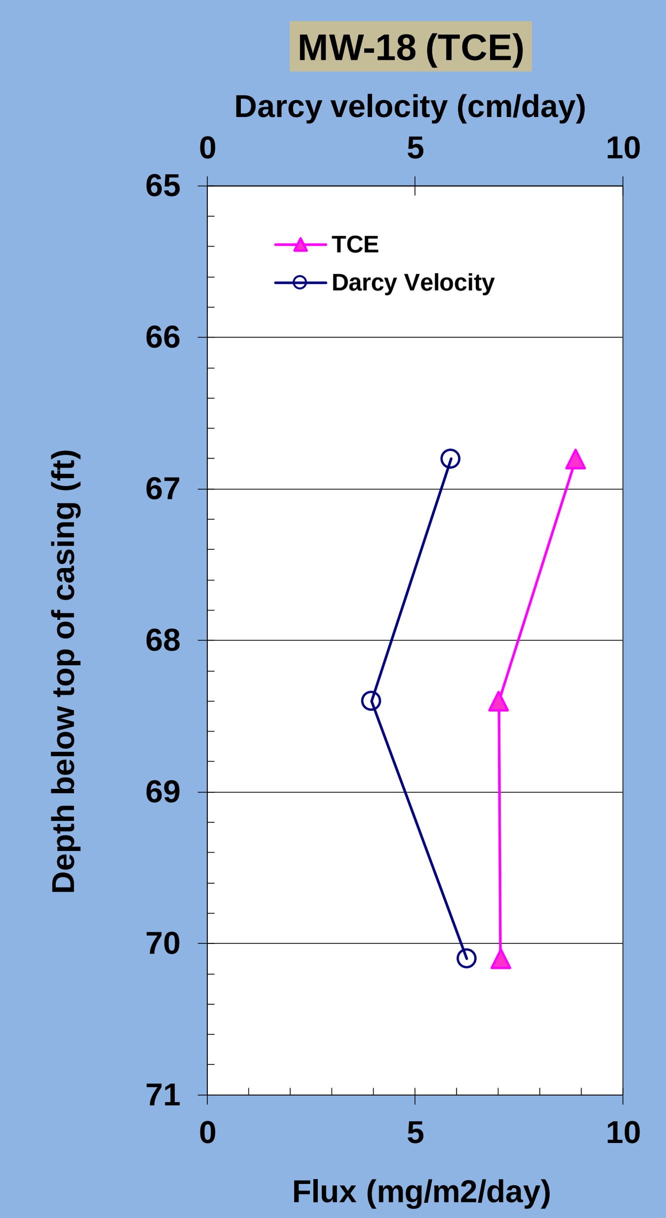


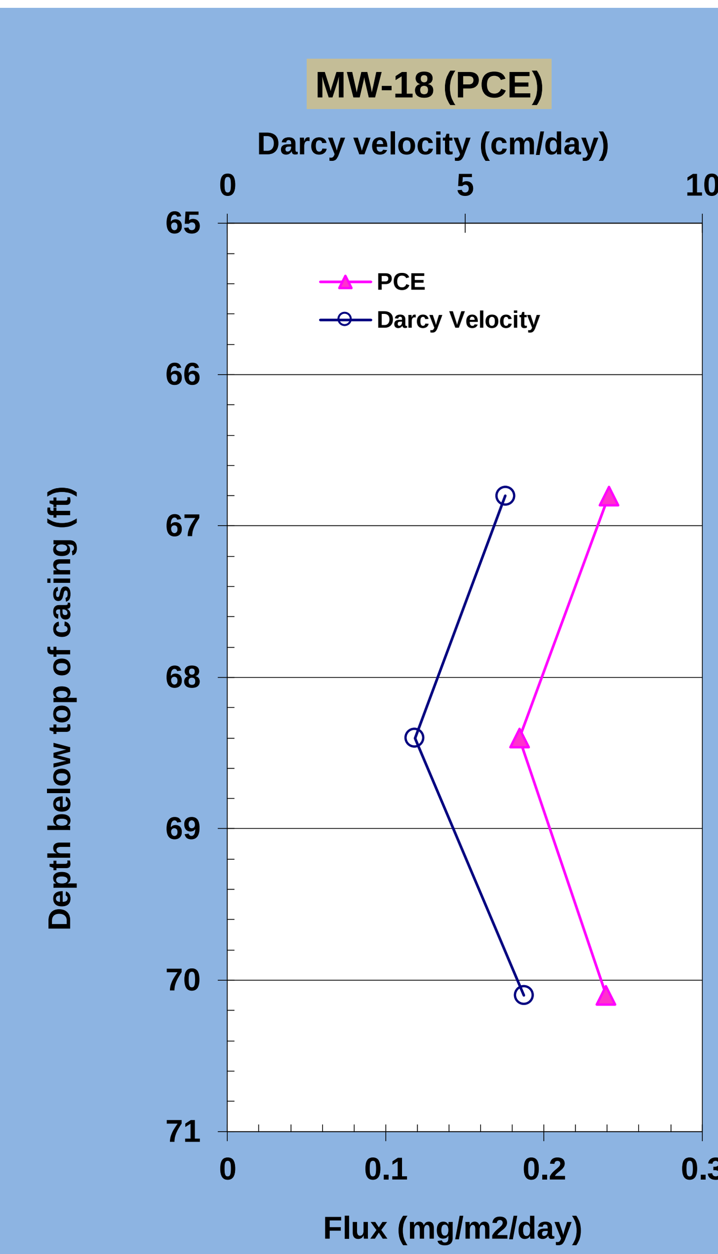


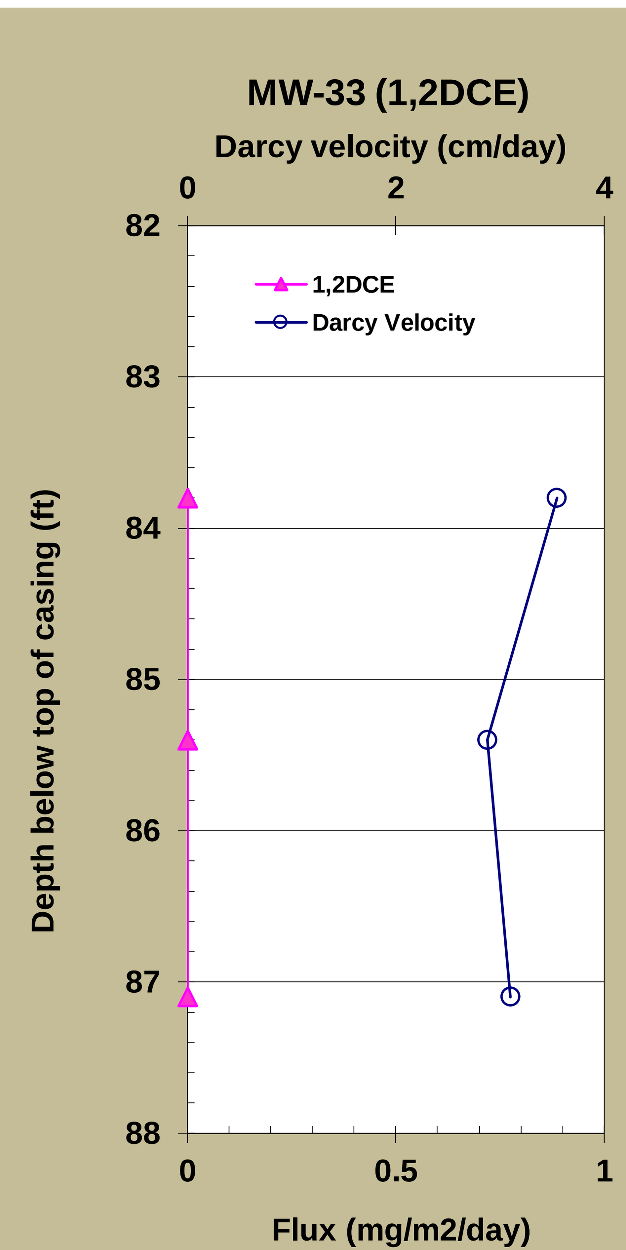

MW-24 (1,2DCE)
Darcy velocity (cm/day)
0 1 2
90 91 92 93 94 95 96
1,2DCE
Darcy Velocity
Depth below top of casing (ft)
0 0.5 1
Flux (mg/m2/day)
MW-24 (TCE)
Darcy velocity (cm/day)
0 1 2
90 91 92 93 94 95 96
TCE
Darcy Velocity
Depth below top of casing (ft)
0 0.1 0.2 0.3
Flux (mg/m2/day)
MW-24 (PCE)
Darcy velocity (cm/day)
0 1 2
90 91 92 93 94 95 96
PCE
Darcy Velocity
Depth below top of casing (ft)
0 0.1 0.2
Flux (mg/m2/day)

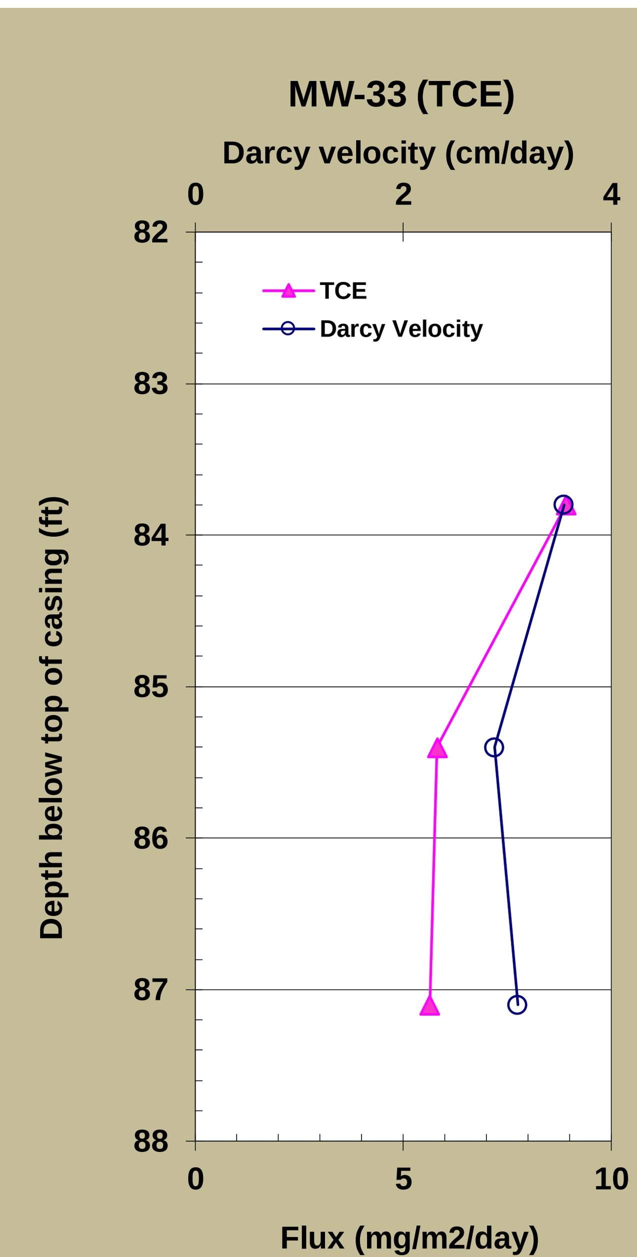

MW-32 (1,2DCE)
Darcy velocity (cm/day)
0 2 4 6
82 83 84 85 86 87 88
1,2DCE
Darcy Velocity
Depth below top of casing (ft)
0 0.5 1
Flux (mg/m2/day)
MW-32 (TCE)
Darcy velocity (cm/day)
0 2 4 6
82 83 84 85 86 87 88
TCE
Darcy Velocity
Depth below top of casing (ft)
0 5 10 15
Flux (mg/m2/day)
MW-32 (PCE)
Darcy velocity (cm/day)
0 2 4 6
82 83 84 85 86 87 88
PCE
Darcy Velocity
Depth below top of casing (ft)
0 0.5 1
Flux (mg/m2/day)

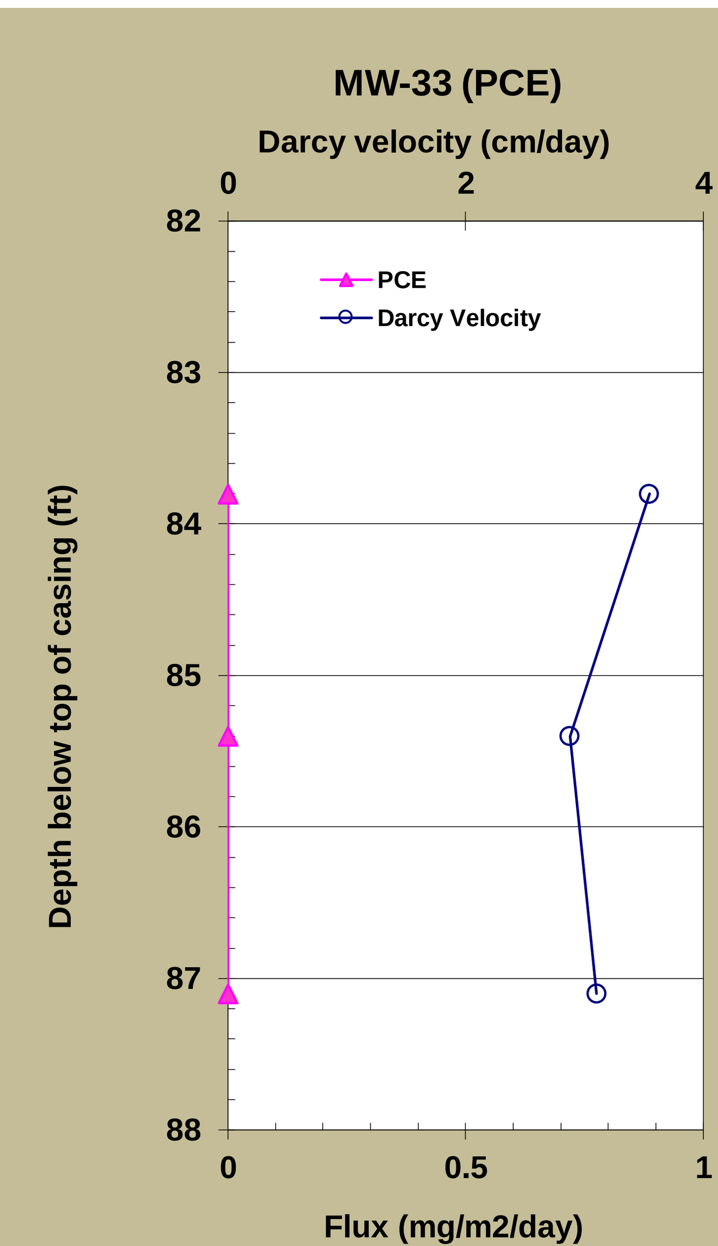

MW-18 (1,2DCE)
Darcy velocity (cm/day)
1,2DCE
Darcy Velocity
Depth below top of casing (ft)
Flux (mg/m2/day)


MW-18 (TCE)
Darcy velocity (cm/day)
TCE
Darcy Velocity
Depth below top of casing (ft)
Flux (mg/m2/day)

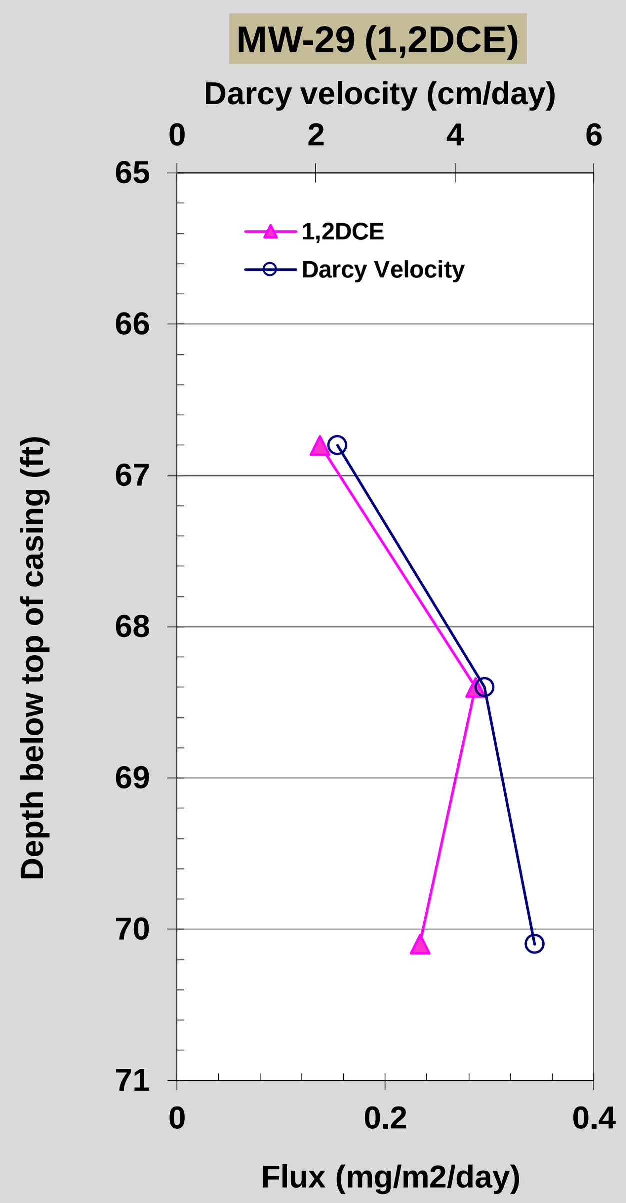

MW-18 (PCE)
Darcy velocity (cm/day)
PCE
Darcy Velocity
Depth below top of casing (ft)
Flux (mg/m2/day)

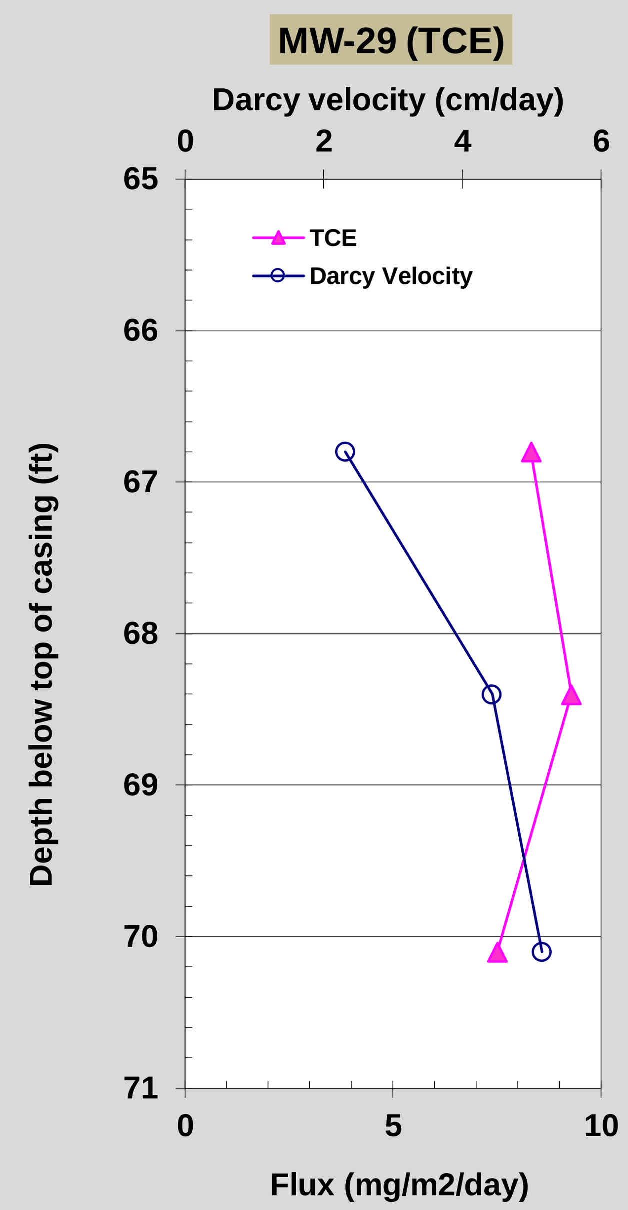

MW-33 (1,2DCE)
Darcy velocity (cm/day)
1,2DCE
Darcy Velocity
Depth below top of casing (ft)
Flux (mg/m2/day)

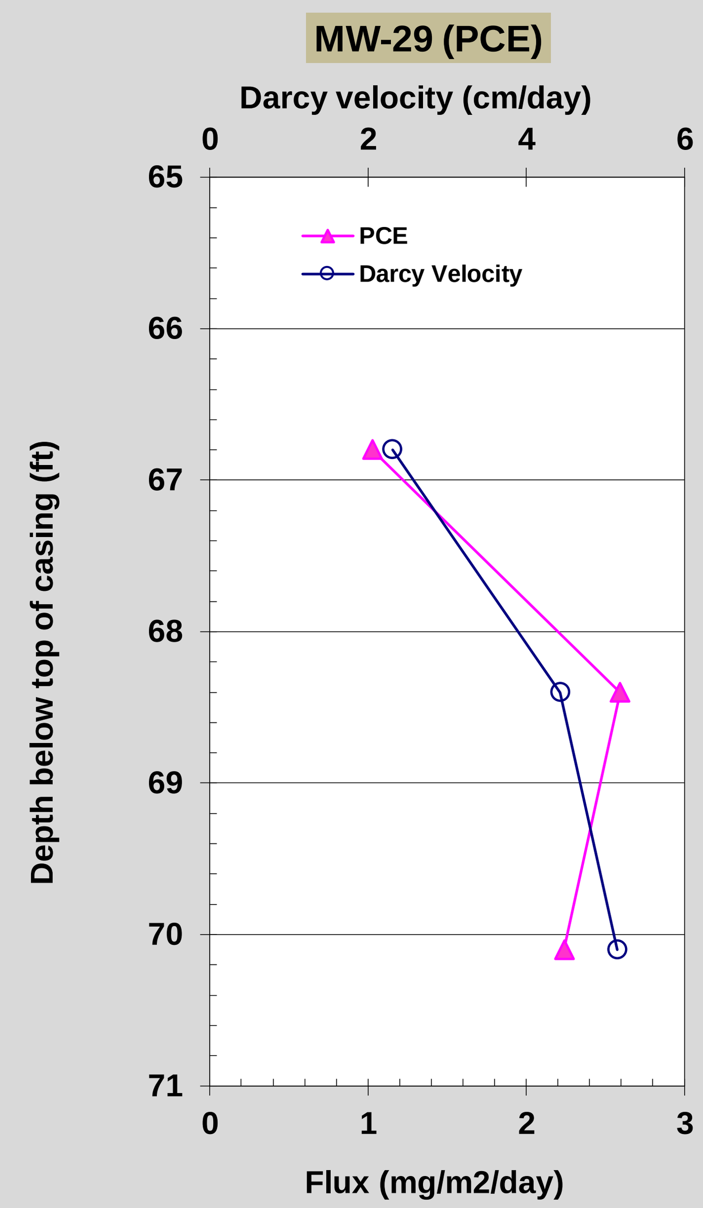

MW-33 (TCE)
Darcy velocity (cm/day)
TCE
Darcy Velocity
Depth below top of casing (ft)
Flux (mg/m2/day)

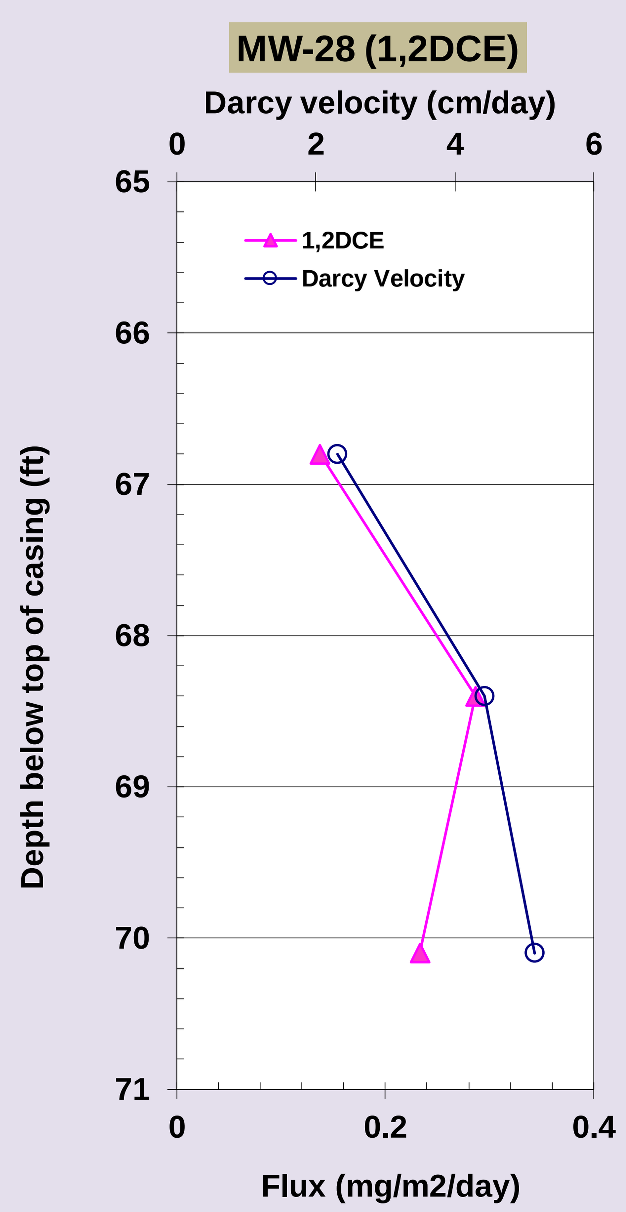

MW-33 (PCE)
Darcy velocity (cm/day)
PCE
Darcy Velocity
Depth below top of casing (ft)
Flux (mg/m2/day)

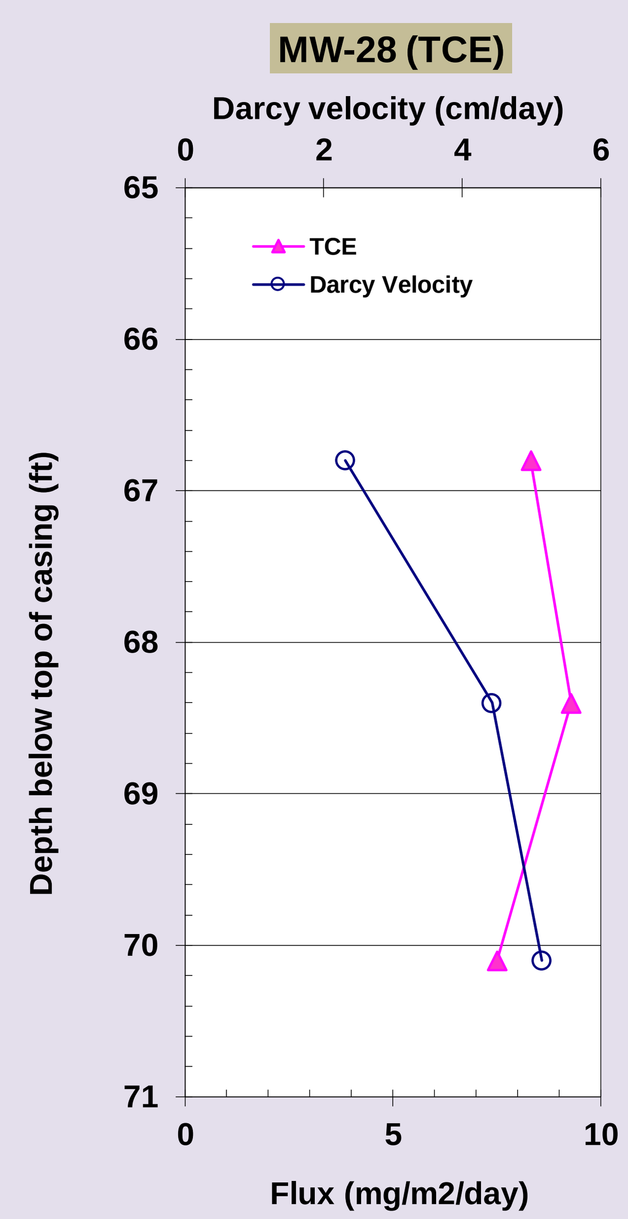
PP

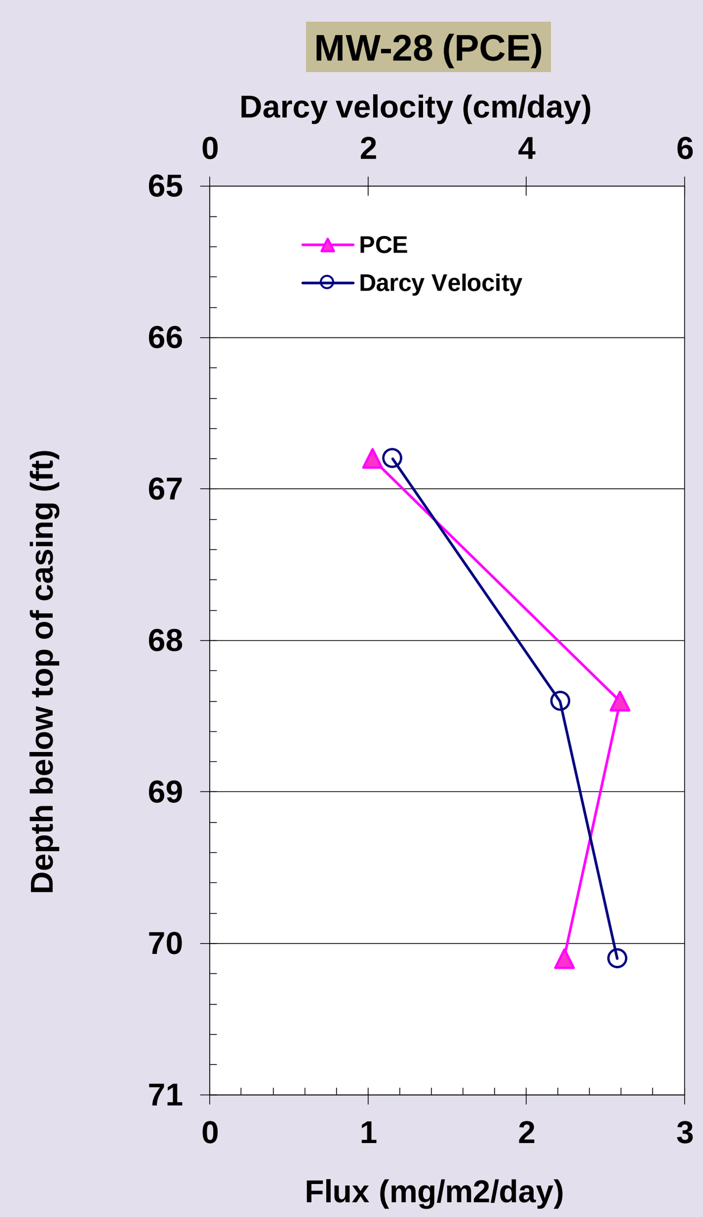

MW-29 (1,2DCE)
Darcy velocity (cm/day)
0
2
4
6
Depth below top of casing (ft)
65
66
67
68
69
70
71
1,2DCE
Darcy Velocity
0
0.2
0.4
Flux (mg/m2/day)

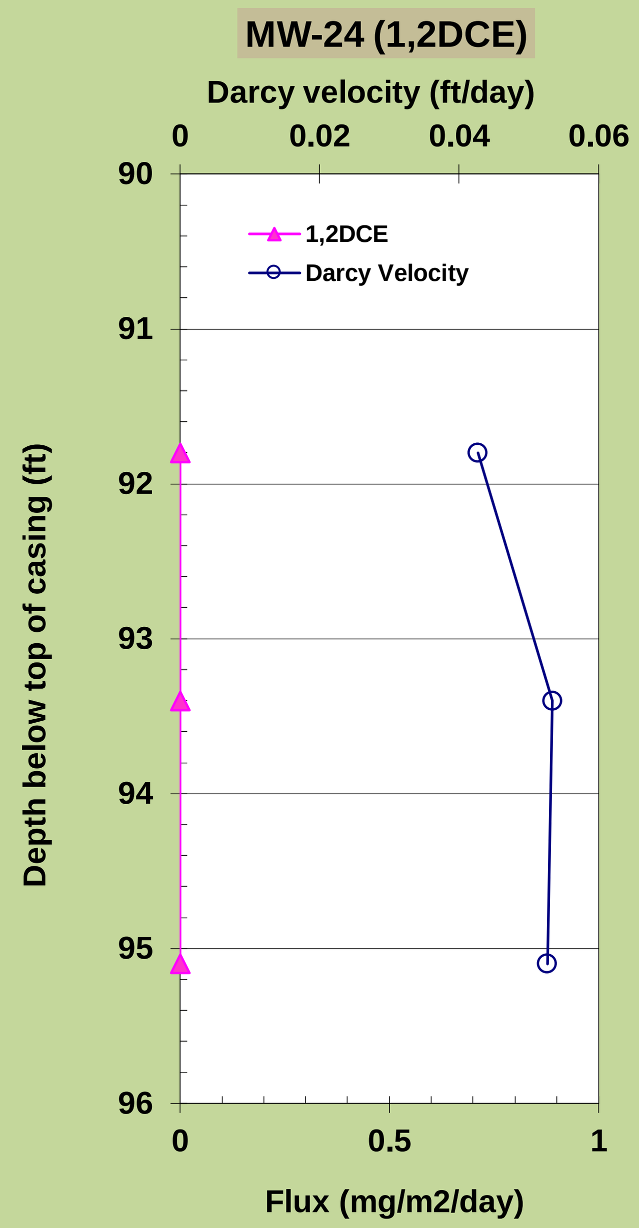

MW-29 (TCE)
Darcy velocity (cm/day)
0
2
4
6
Depth below top of casing (ft)
65
66
67
68
69
70
71
TCE
Darcy Velocity
0
5
10
Flux (mg/m2/day)

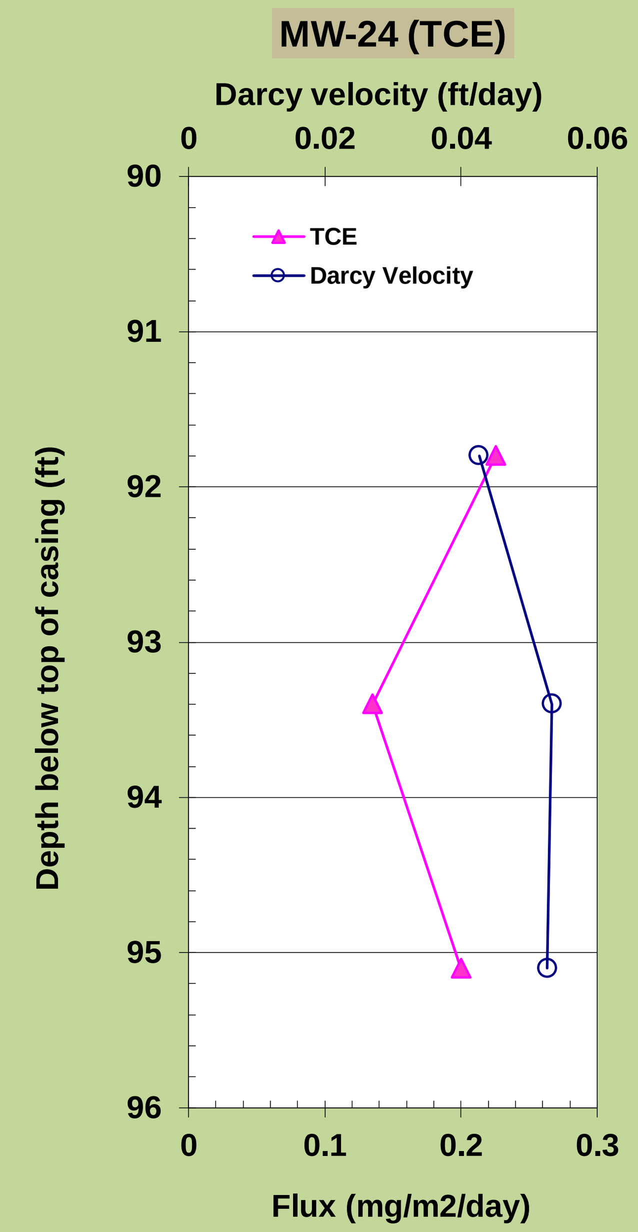

MW-29 (PCE)
Darcy velocity (cm/day)
0
2
4
6
Depth below top of casing (ft)
65
66
67
68
69
70
71
PCE
Darcy Velocity
0
1
2
3
Flux (mg/m2/day)

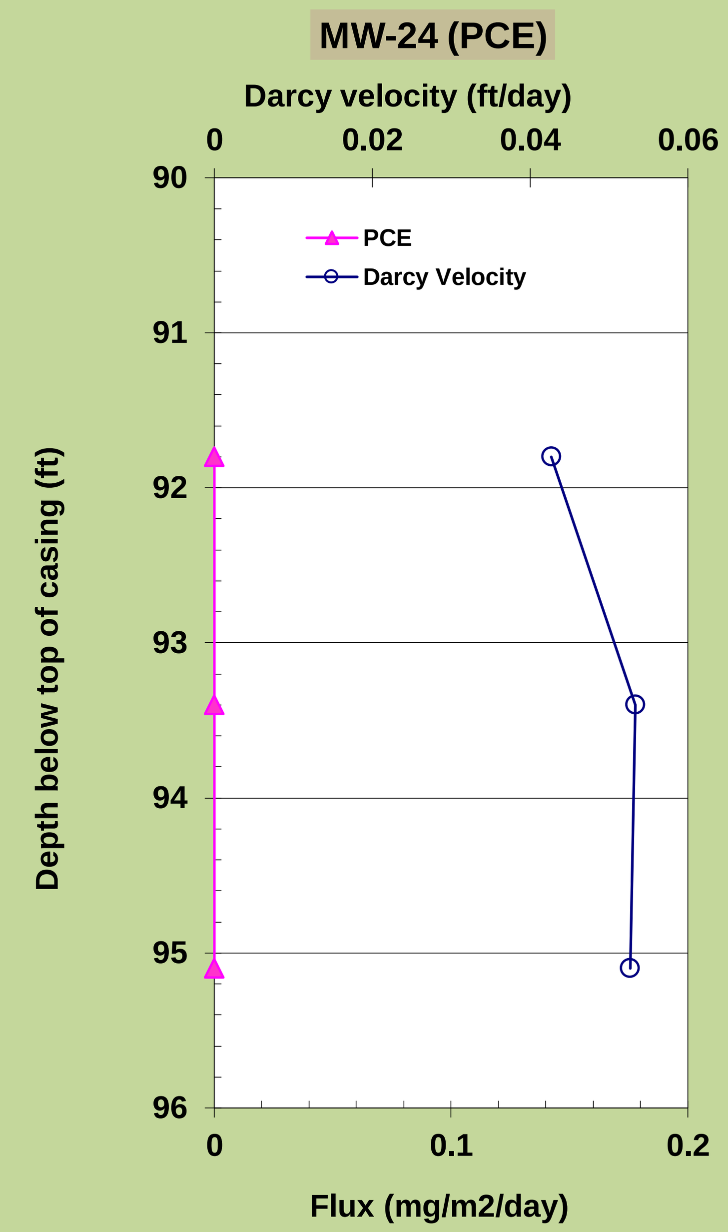

MW-28 (1,2DCE)
Darcy velocity (cm/day)
0
2
4
6
Depth below top of casing (ft)
65
66
67
68
69
70
71
1,2DCE
Darcy Velocity
0
0.2
0.4
Flux (mg/m2/day)

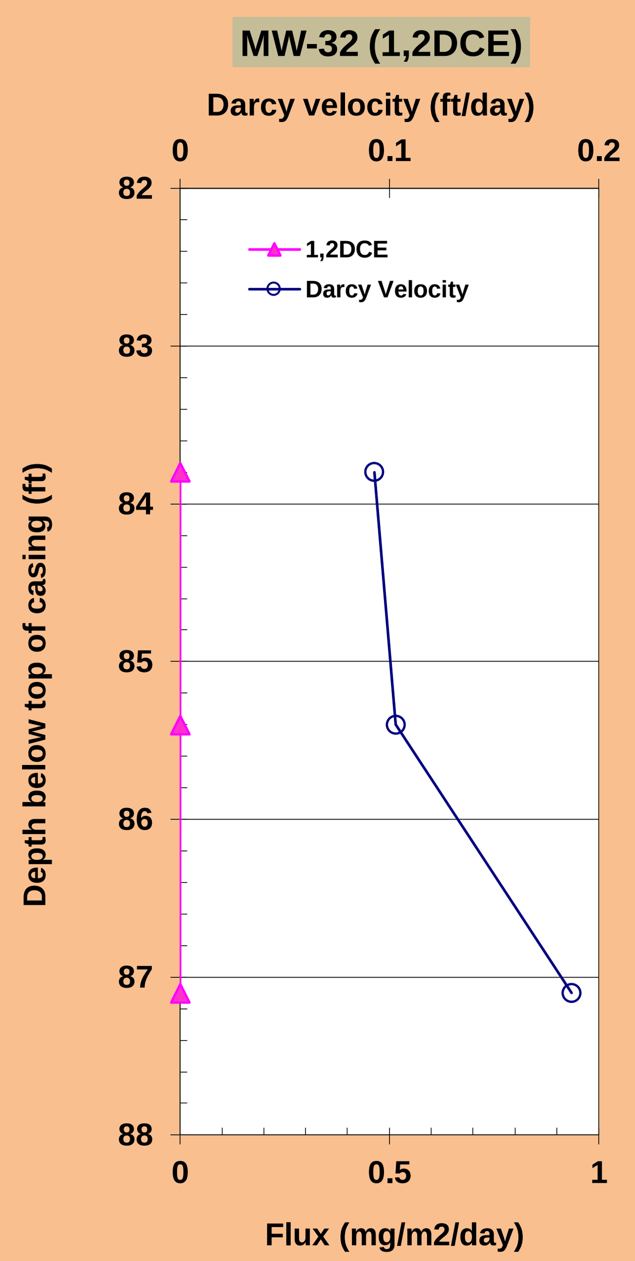

MW-28 (TCE)
Darcy velocity (cm/day)
0
2
4
6
Depth below top of casing (ft)
65
66
67
68
69
70
71
TCE
Darcy Velocity
0
5
10
Flux (mg/m2/day)

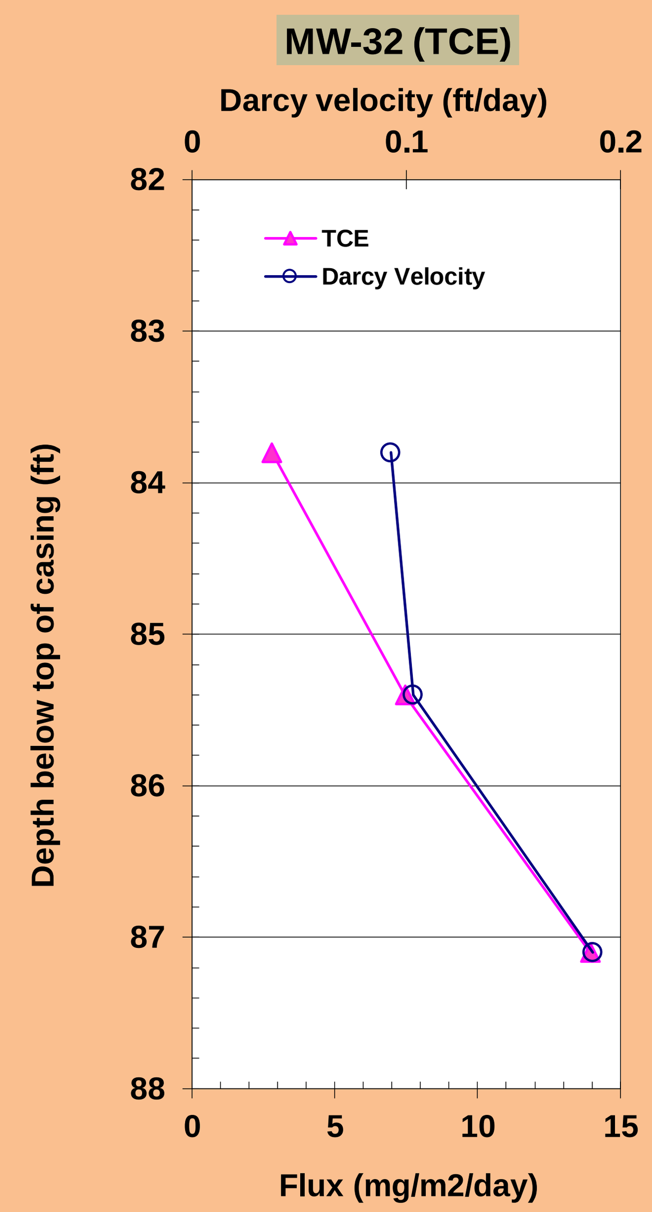

MW-28 (PCE)
Darcy velocity (cm/day)
0
2
4
6
Depth below top of casing (ft)
65
66
67
68
69
70
71
PCE
Darcy Velocity
0
1
2
3
Flux (mg/m2/day)

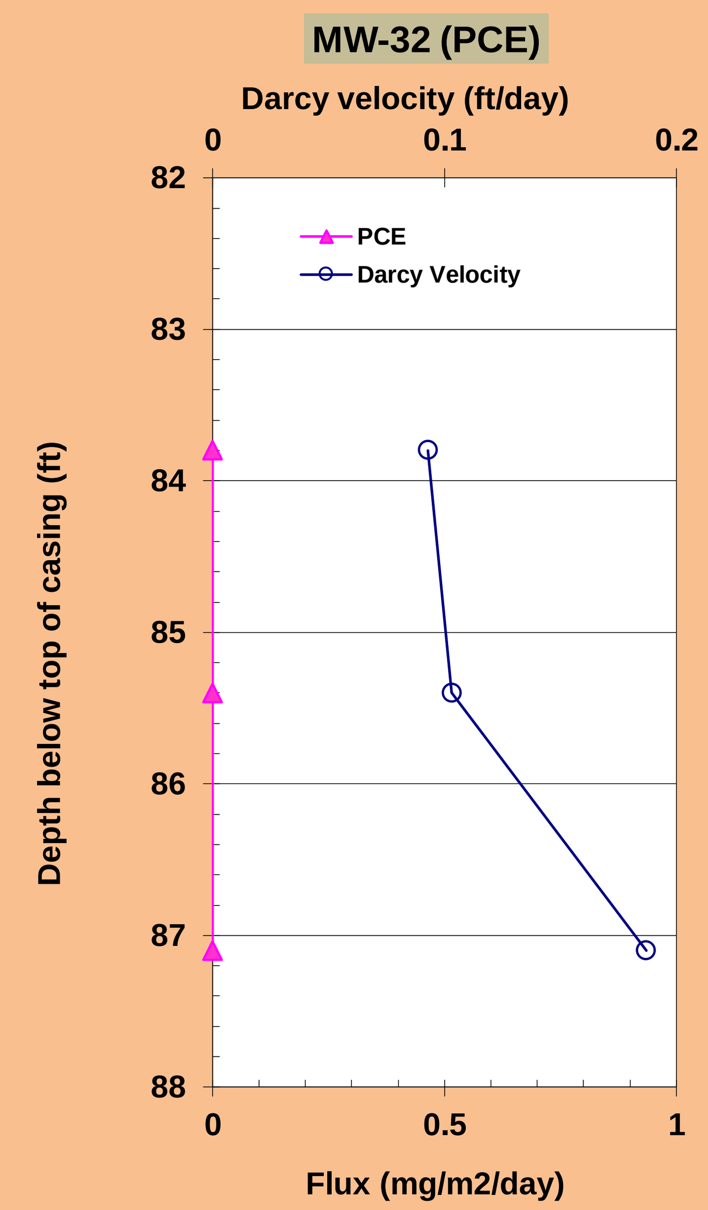

MW-24 (1,2DCE)
Darcy velocity (ft/day)
0 0.02 0.04 0.06
90 91 92 93 94 95 96
1,2DCE
Darcy Velocity
Depth below top of casing (ft)
0 0.5 1
Flux (mg/m2/day)

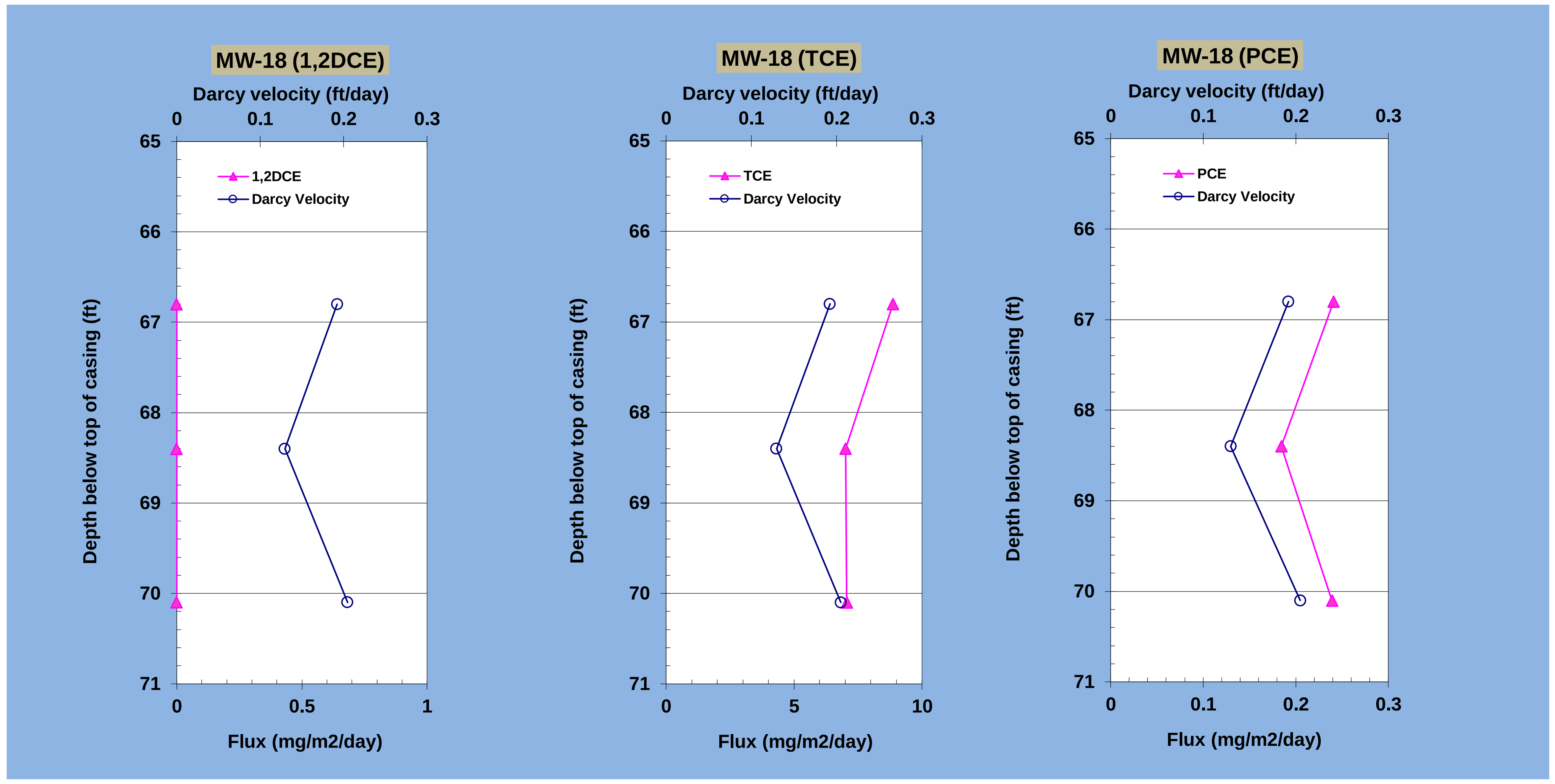

MW-24 (TCE)
Darcy velocity (ft/day)
0 0.02 0.04 0.06
90 91 92 93 94 95 96
TCE
Darcy Velocity
Depth below top of casing (ft)
0 0.1 0.2 0.3
Flux (mg/m2/day)

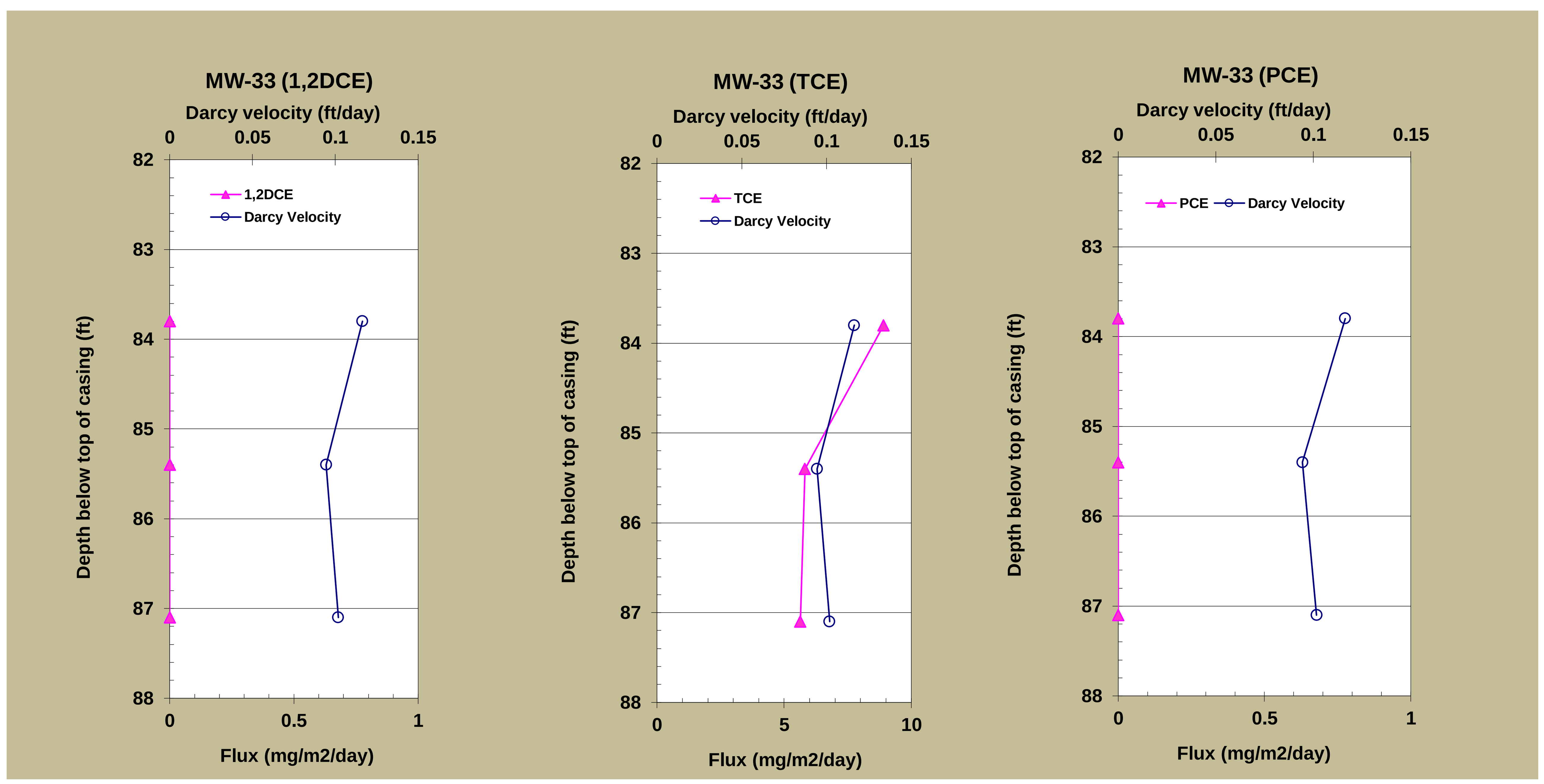

MW-24 (PCE)
Darcy velocity (ft/day)
0 0.02 0.04 0.06
90 91 92 93 94 95 96
PCE
Darcy Velocity
Depth below top of casing (ft)
0 0.1 0.2
Flux (mg/m2/day)

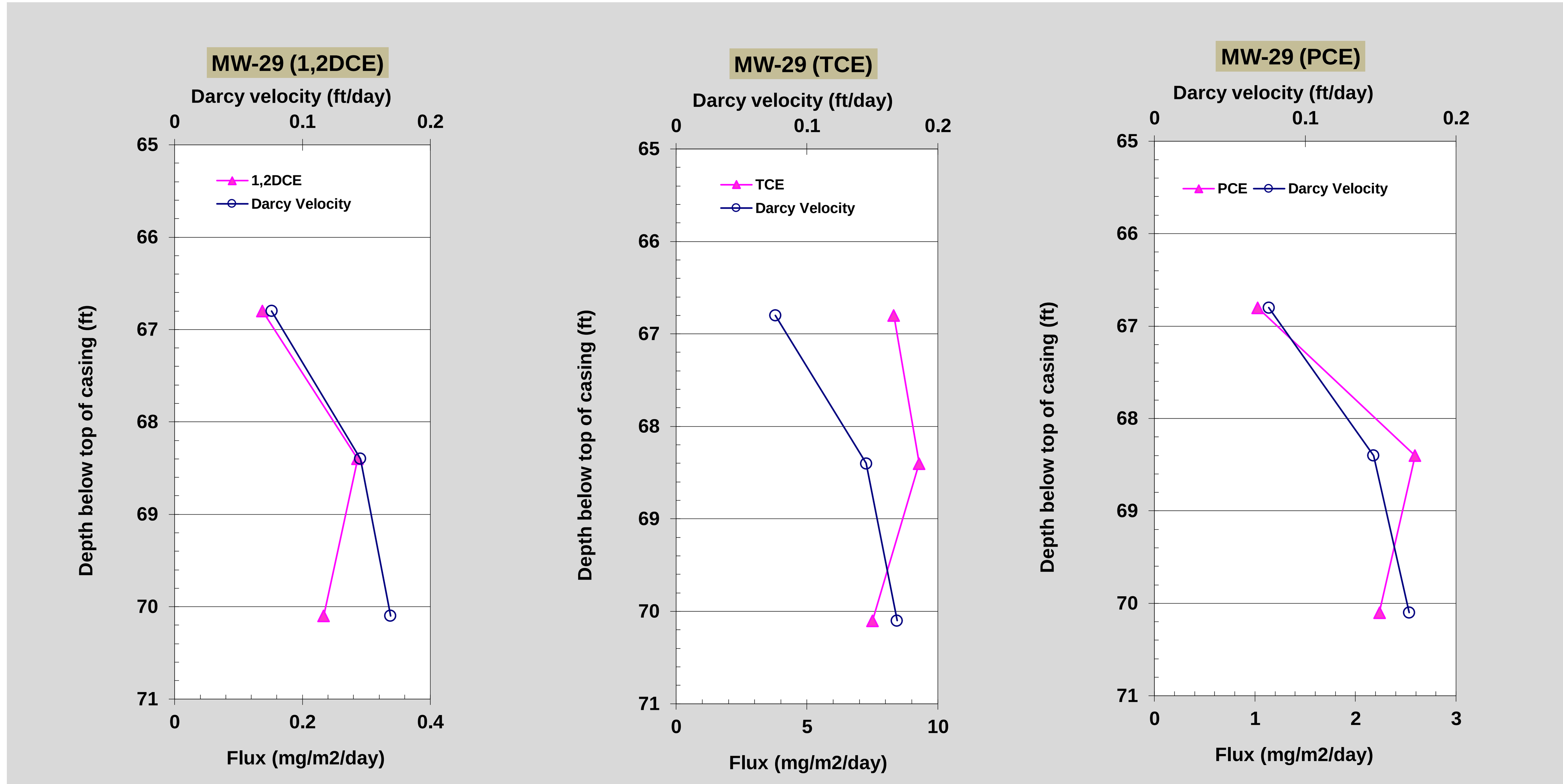

MW-32 (1,2DCE)
Darcy velocity (ft/day)
0 0.1 0.2
82 83 84 85 86 87 88
1,2DCE
Darcy Velocity
Depth below top of casing (ft)
0 0.5 1
Flux (mg/m2/day)

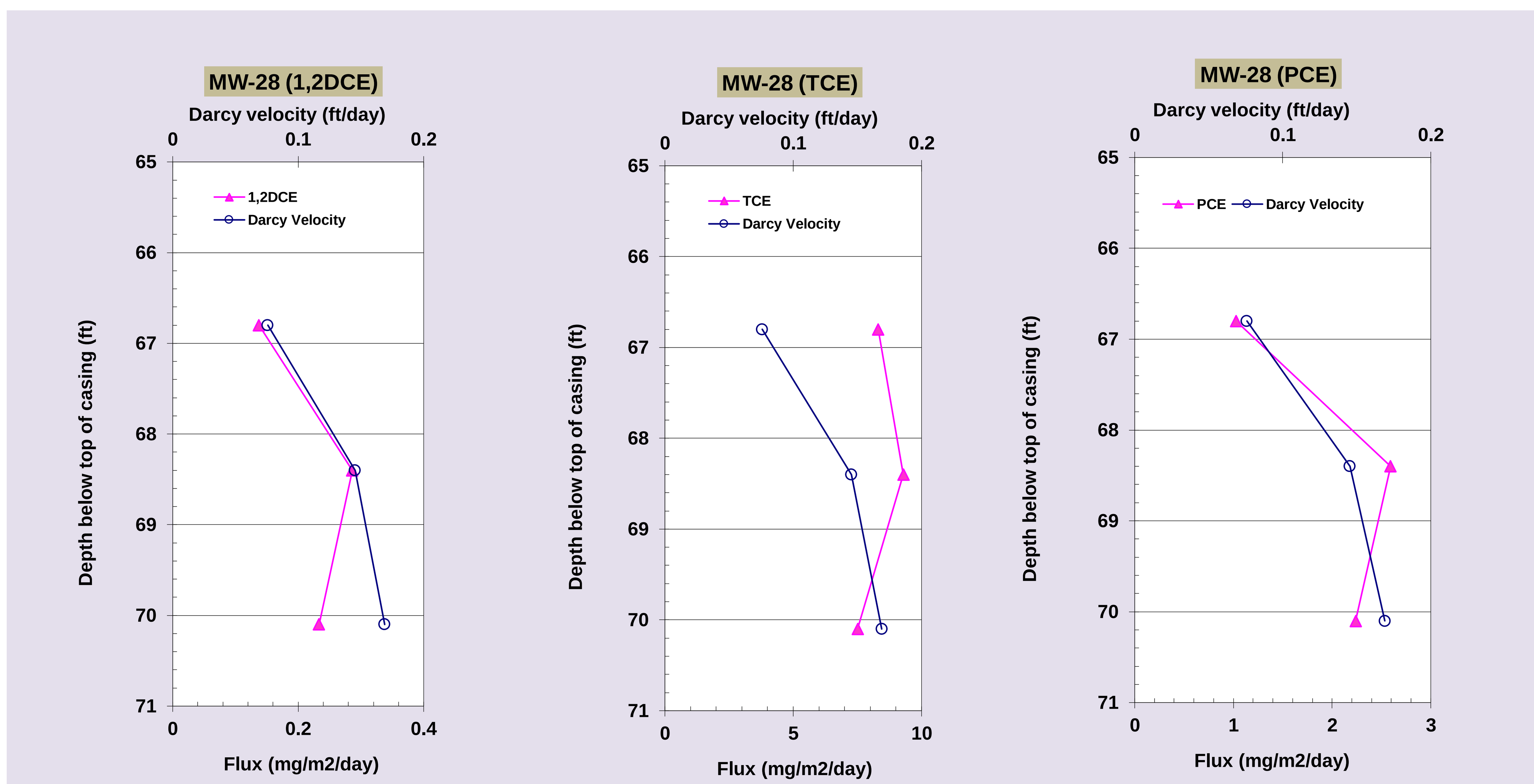

MW-32 (TCE)
Darcy velocity (ft/day)
0 0.1 0.2
82 83 84 85 86 87 88
TCE
Darcy Velocity
Depth below top of casing (ft)
0 5 10 15
Flux (mg/m2/day)


MW-32 (PCE)
Darcy velocity (ft/day)
0 0.1 0.2
82 83 84 85 86 87 88
PCE
Darcy Velocity
Depth below top of casing (ft)
0 0.5 1
Flux (mg/m2/day)

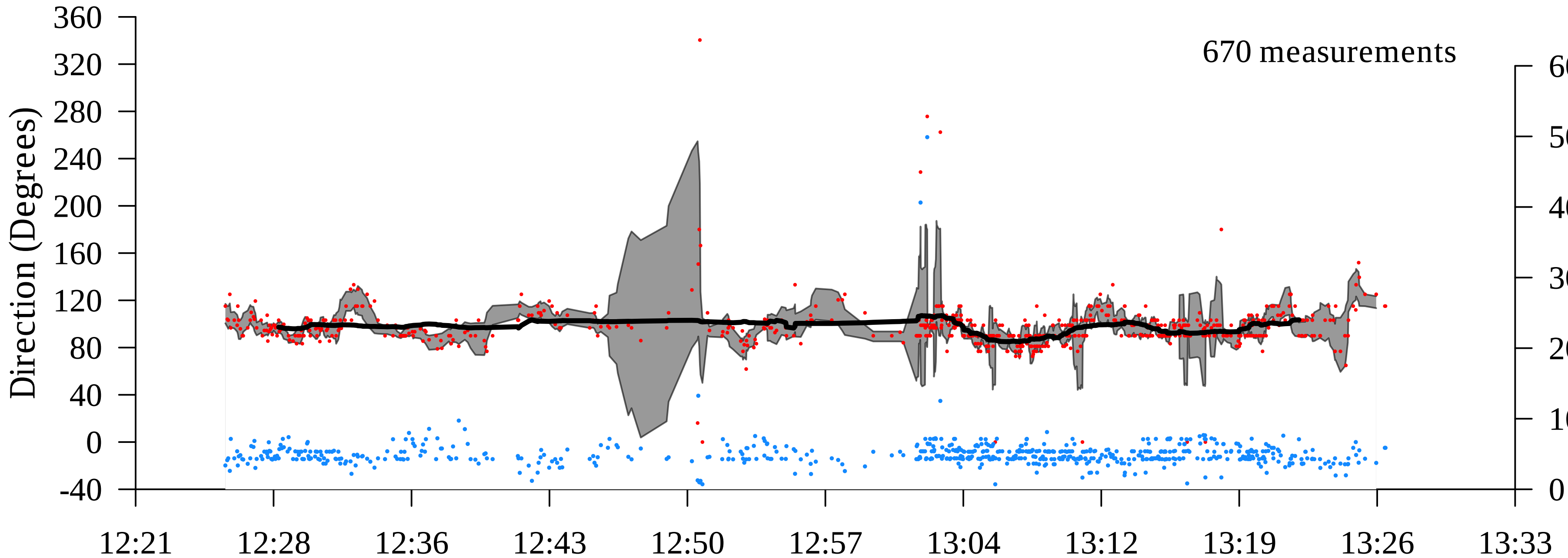

MW-18 (1,2DCE)
Darcy velocity (ft/day)
1,2DCE
Darcy Velocity
Depth below top of casing (ft)
Flux (mg/m2/day)
MW-18 (TCE)
Darcy velocity (ft/day)
TCE
Darcy Velocity
Depth below top of casing (ft)
Flux (mg/m2/day)
MW-18 (PCE)
Darcy velocity (ft/day)
PCE
Darcy Velocity
Depth below top of casing (ft)
Flux (mg/m2/day)


MW-33 (1,2DCE)
Darcy velocity (ft/day)
1,2DCE
Darcy Velocity
Depth below top of casing (ft)
Flux (mg/m2/day)
MW-33 (TCE)
Darcy velocity (ft/day)
TCE
Darcy Velocity
Depth below top of casing (ft)
Flux (mg/m2/day)
MW-33 (PCE)
Darcy velocity (ft/day)
PCE
Darcy Velocity
Depth below top of casing (ft)
Flux (mg/m2/day)

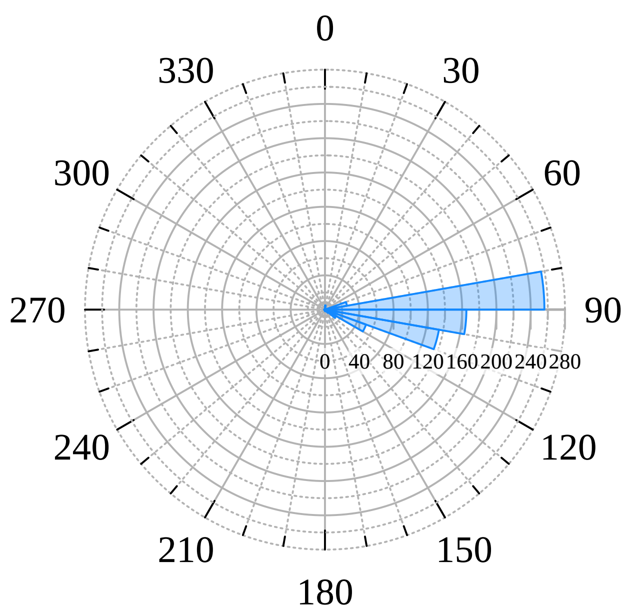

MW-29 (1,2DCE)
MW-29 (TCE)
MW-29 (PCE)
Darcy velocity (ft/day)
Depth below top of casing (ft)
Flux (mg/m2/day)
1,2DCE
TCE
PCE
Darcy Velocity


MW-28 (1,2DCE)
MW-28 (TCE)
MW-28 (PCE)
Darcy velocity (ft/day)
Depth below top of casing (ft)
Flux (mg/m2/day)
1,2DCE
TCE
PCE
Darcy Velocity

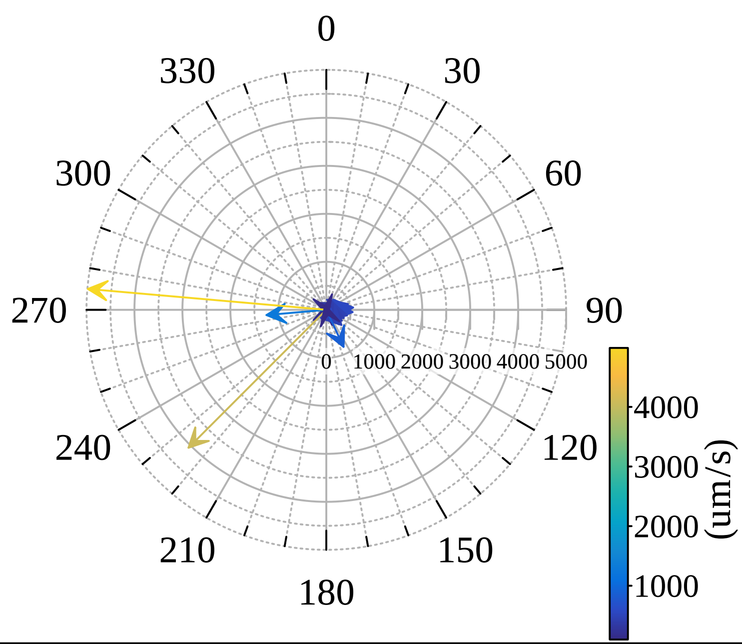
PLOT A - Particle Direction and Speed Through Time



PLOT B - Rose Diagram Direction



PLOT C - Arithmetic Mean Particle Speed 10° Bins



Plot A Legend

- Particle Speed
- Particle Direction
- Standard Deviation
- Running average Fit - Particle Direction

Notes:

- Data Collected on May 1, 2020
- 24-Hour Clock Time, EST
- Rose diagram and vector plot show results for all data shown in plot A

AECOM

Figure

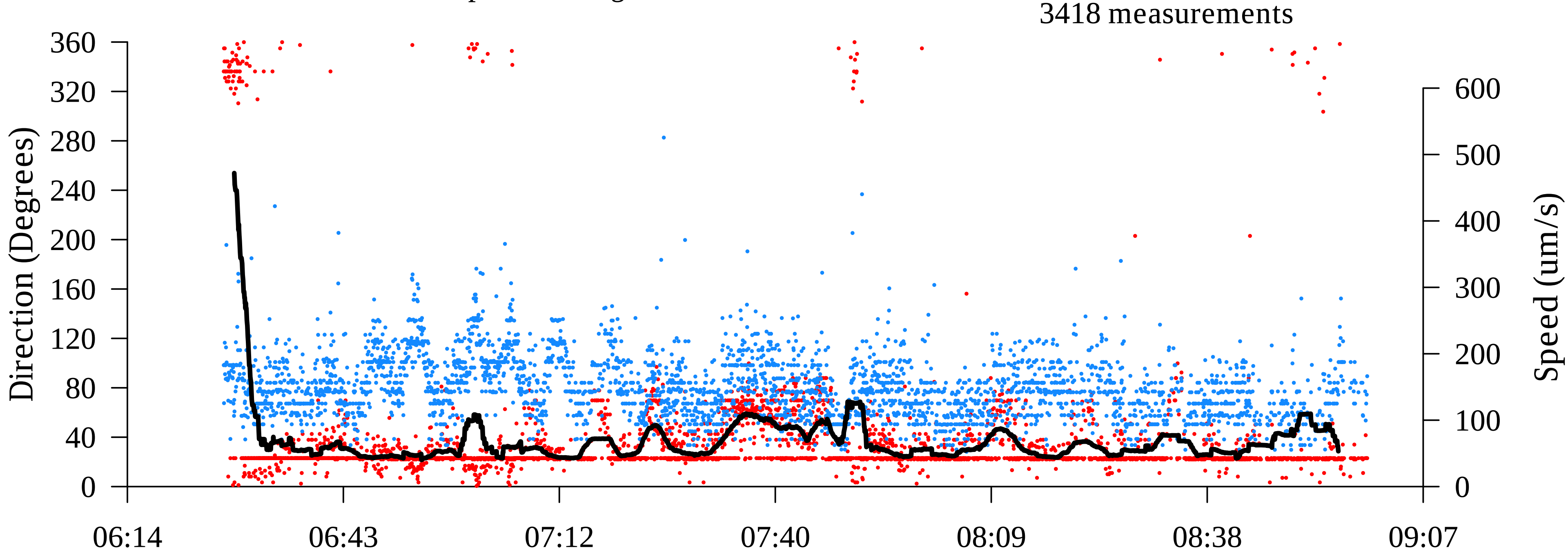
BORESCOPE RESULTS
MW-17

DRAWN BY:	REVIEWED BY:	APPROVED BY:	REVISION NUMBER:

SCOTIA

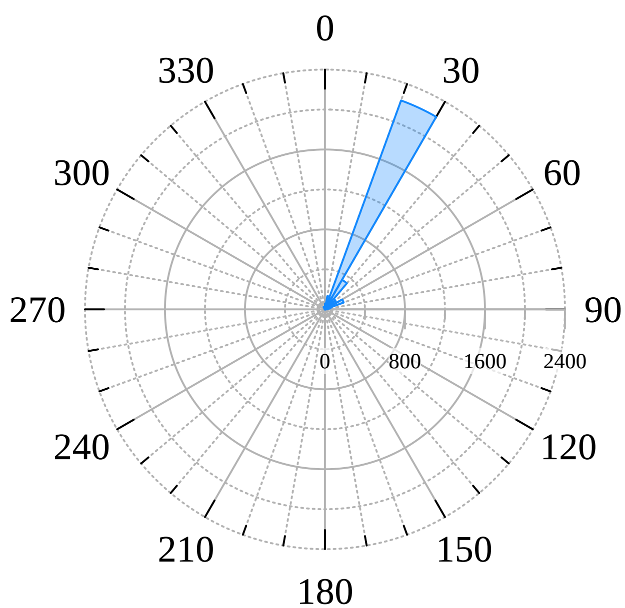
DATE:	DEPT:

PLOT A - Particle Direction and Speed Through Time

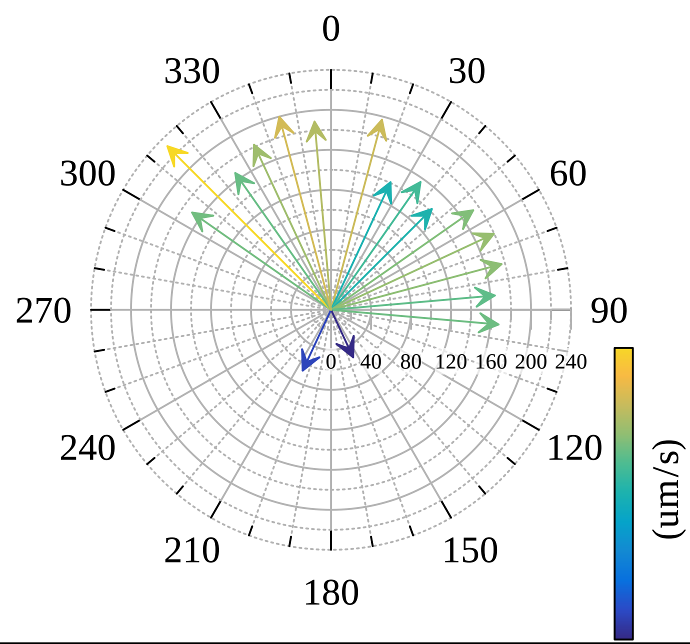


Plot A Legend
- Particle Speed
- Particle Direction
- Standard Deviation NOT SHOWN
- Running average Fit - Particle Direction

PLOT B - Rose Diagram Direction



PLOT C - Arithmetic Mean Particle Speed 10º Bins

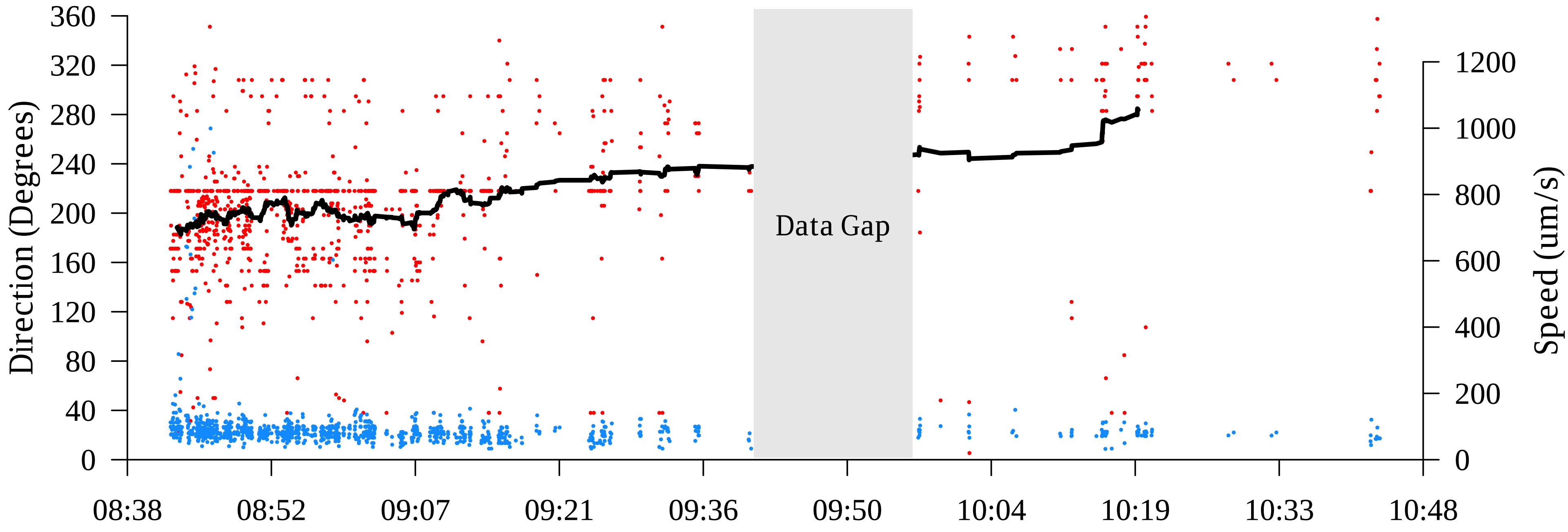


Notes:
- Data Collected on April 30, 2020
- 24-Hour Clock Time, EST
- Rose diagram and vector plot show results for all data shown in plot A

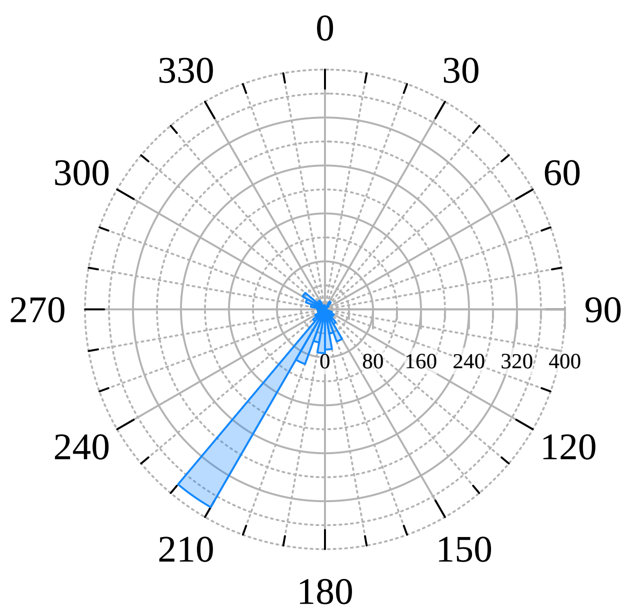
AECOM	Figure
BORESCOPE RESULTS MW-18	

DRAWN BY:	REVIEWED BY:	APPROVED BY:	REVISION NUMBER:
SCOTIA			
DATE:	DEPT:		

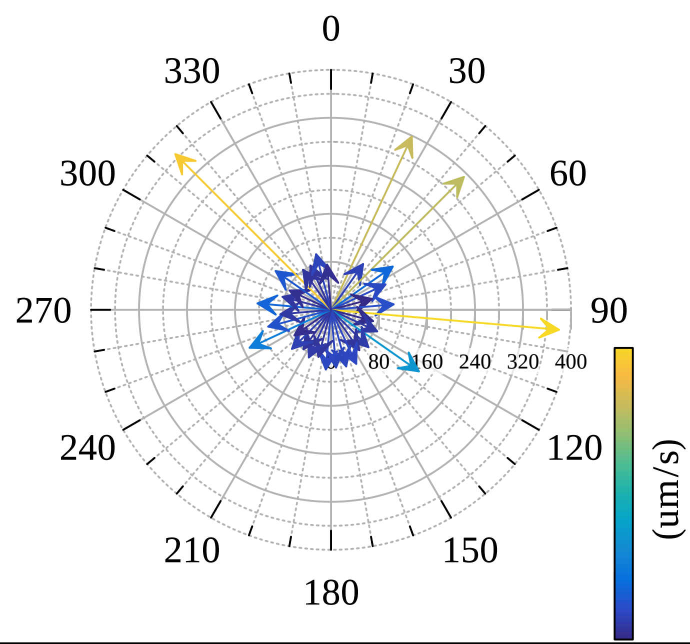
PLOT A - Particle Direction and Speed Through Time



PLOT B - Rose Diagram Direction



PLOT C - Arithmetic Mean Particle Speed 10° Bins



Plot A Legend

- Particle Speed
- Particle Direction
- Standard Deviation NOT SHOWN
- Running average Fit - Particle Direction

Notes:

- Data Collected on April 29, 2020
- 24-Hour Clock Time, EST
- Rose diagram and vector plot show results for all data shown in plot A

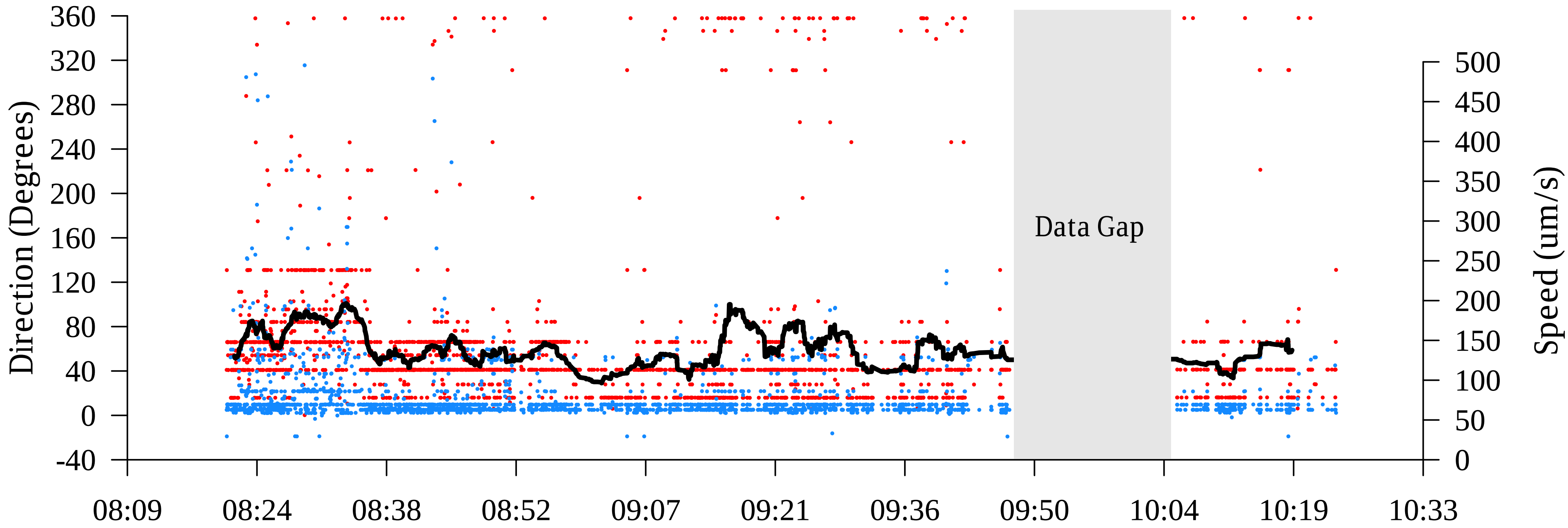
AECOM	Figure
BORESCOPE RESULTS MW-24	

DRAWN BY:	REVIEWED BY:	APPROVED BY:	REVISION NUMBER:

SCOTIA

DATE:	DEPT:

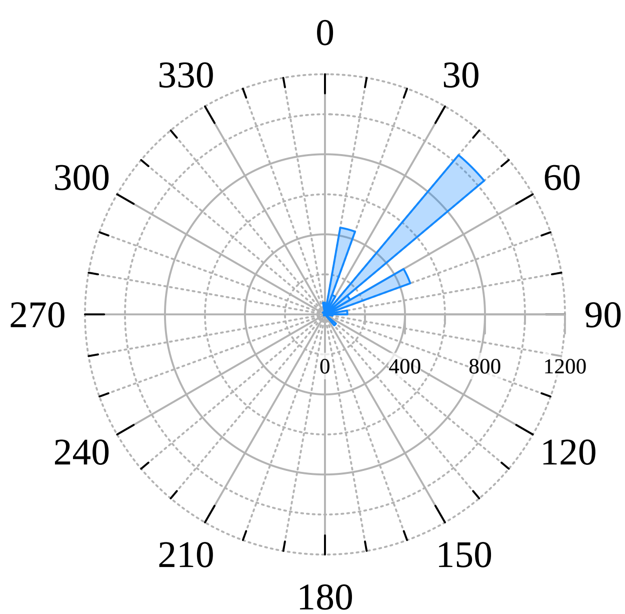
PLOT A - Particle Direction and Speed Through Time



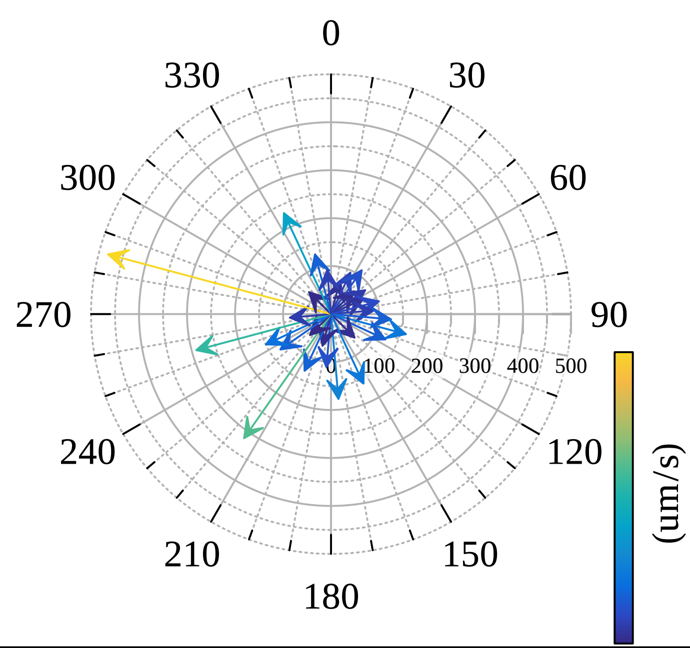
Plot A Legend

- Particle Speed
- Particle Direction
- Standard Deviation NOT SHOWN
- Running average Fit - Particle Direction

PLOT B - Rose Diagram Direction



PLOT C - Arithmetic Mean Particle Speed 10° Bins



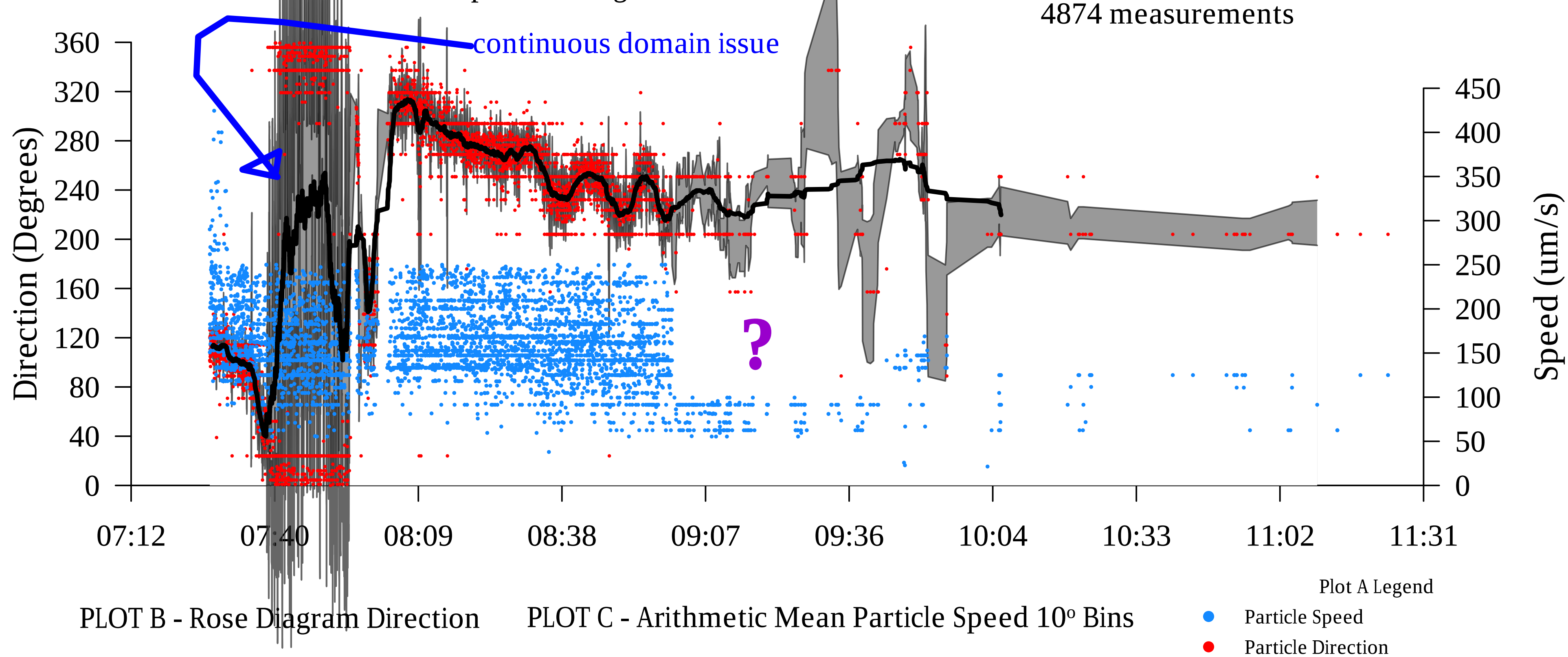
Notes:

- Data Collected on April 30, 2020
- 24-Hour Clock Time, EST
- Rose diagram and vector plot show results for all data shown in plot A

AECOM	Figure
BORESCOPE RESULTS MW-27	

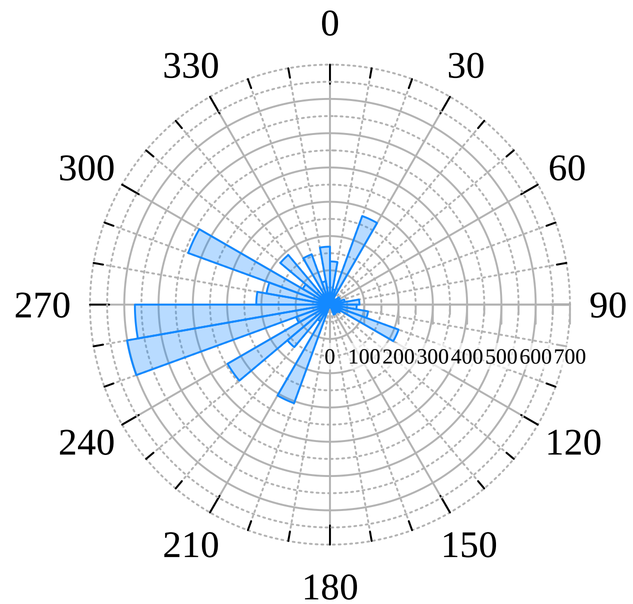
DRAWN BY:	REVIEWED BY:	APPROVED BY:	REVISION NUMBER:
SCOTIA			
DATE:	DEPT:		

PLOT A - Particle Direction and Speed Through Time

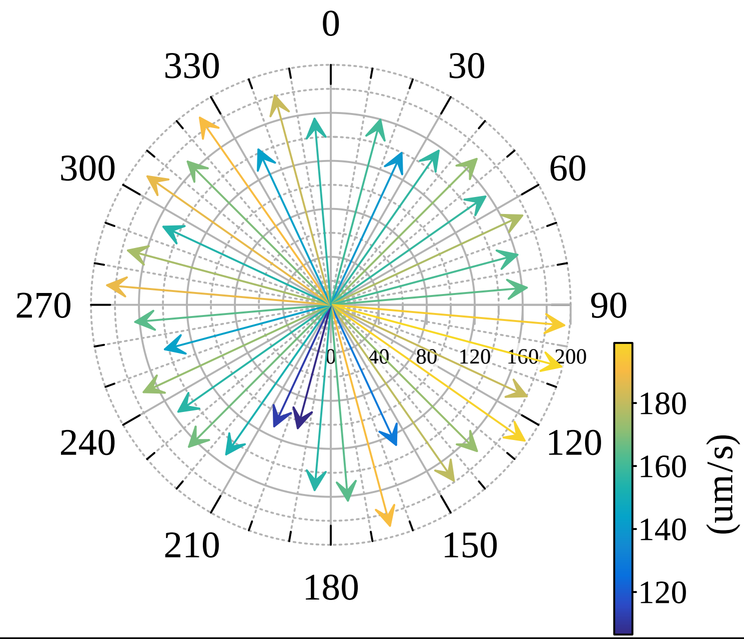


Plot A Legend
- Particle Speed
- Particle Direction
- Standard Deviation NOT SHOWN
- Running average Fit - Particle Direction

PLOT B - Rose Diagram Direction



PLOT C - Arithmetic Mean Particle Speed 10º Bins



Notes:
- Data Collected on April 28, 2020
- 24-Hour Clock Time, EST
- Rose diagram and vector plot show results for all data shown in plot A

AECOM	Figure

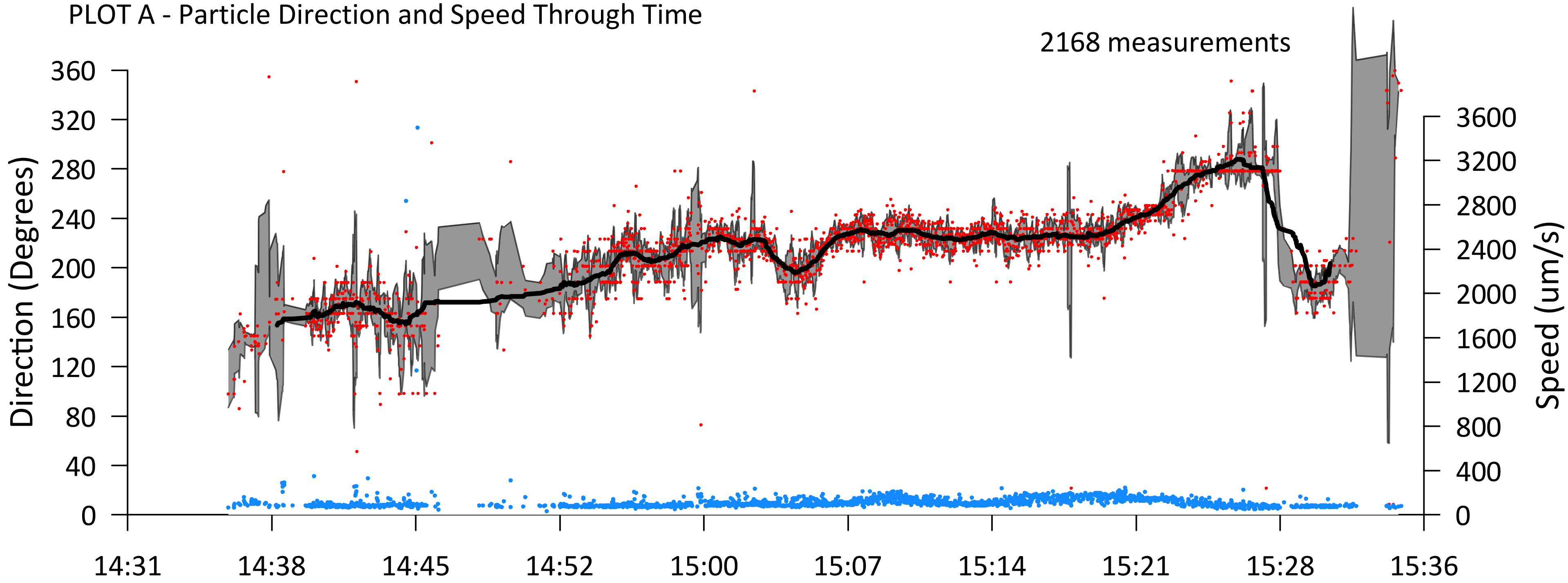
BORESCOPE RESULTS
MW-28

DRAWN BY:	REVIEWED BY:	APPROVED BY:	REVISION NUMBER:

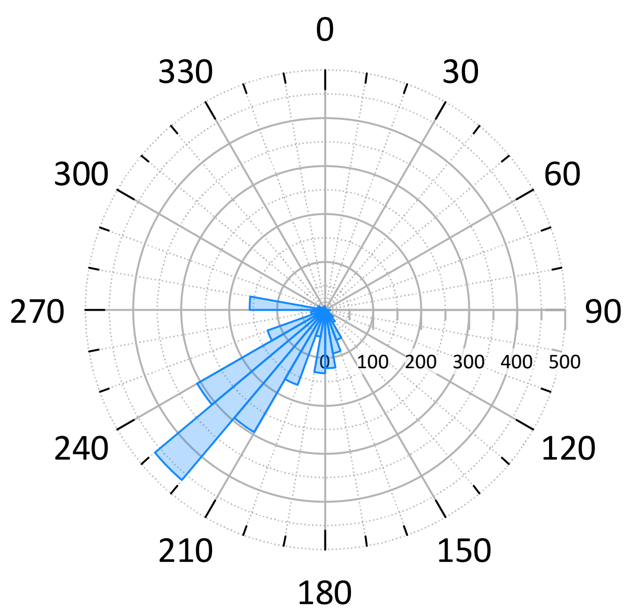
SCOTIA

DATE:	DEPT:

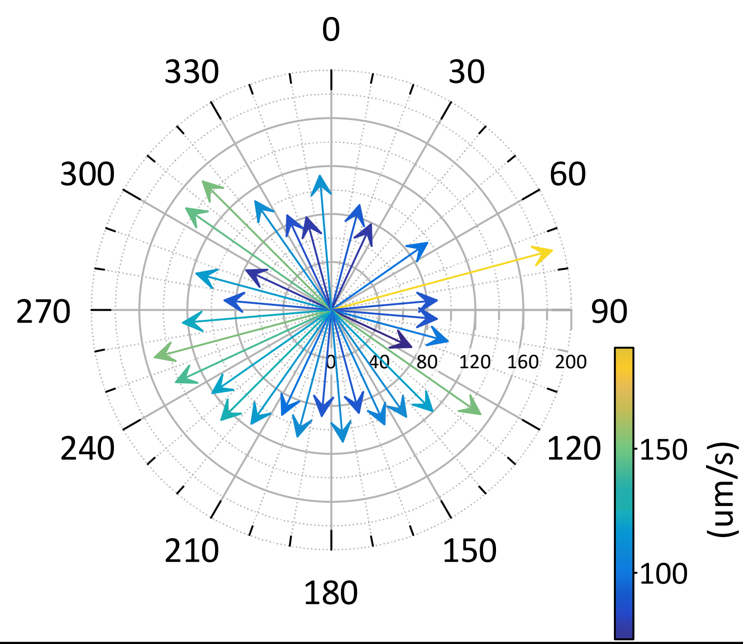
PLOT A - Particle Direction and Speed Through Time



PLOT B - Rose Diagram Direction



PLOT C - Arithmetic Mean Particle Speed 10 ^{o} Bins



Plot A Legend

- Particle Speed
- Particle Direction
- Standard Deviation
- Running average Fit - Particle Direction

Notes:

- Data Collected on April 30, 2020
- 24-Hour Clock Time, EST
- Rose diagram and vector plot show results for all data shown in plot A

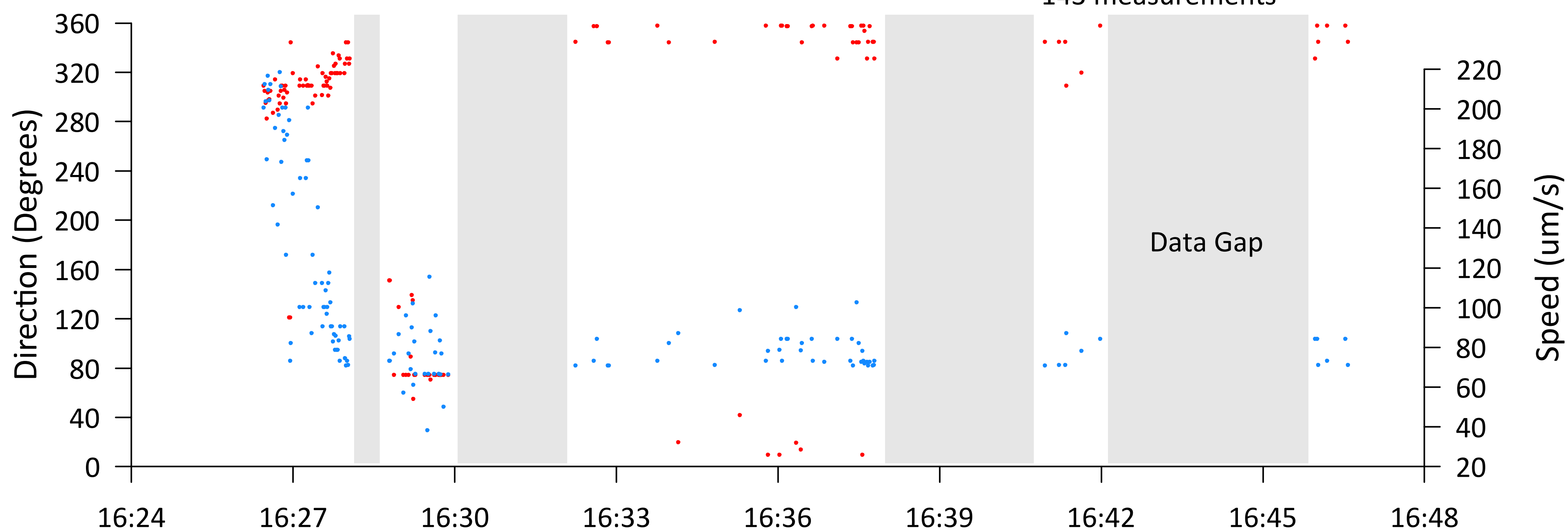
AECOM	Figure
BORESCOPE RESULTS MW-30	

DRAWN BY:	REVIEWED BY:	APPROVED BY:	REVISION NUMBER:

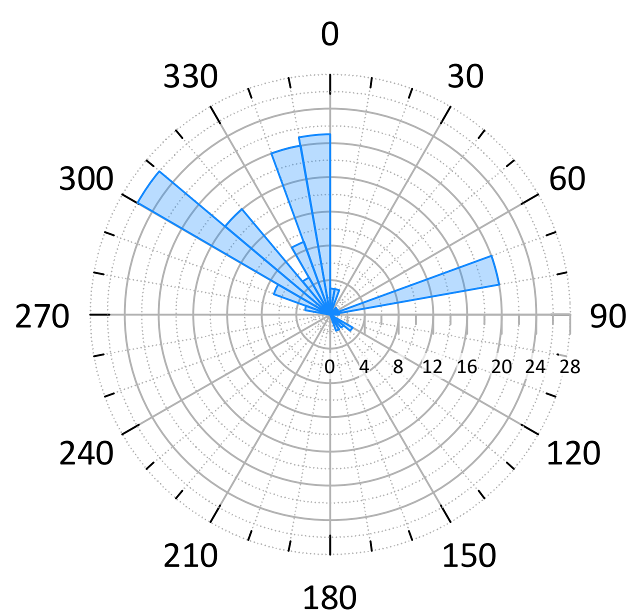
SCOTIA

DATE:	DEPT:

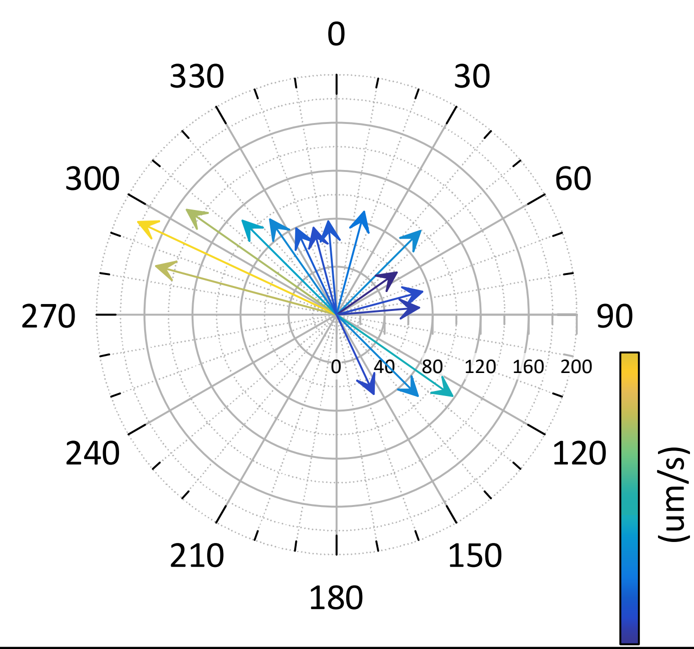
PLOT A - Particle Direction and Speed Through Time



PLOT B - Rose Diagram Direction



PLOT C - Arithmetic Mean Particle Speed 10 ° Bins



Plot A Legend

- Particle Speed
- Particle Direction
- Standard Deviation NOT SHOWN
- Running average Fit - Particle Direction NOT SHOWN

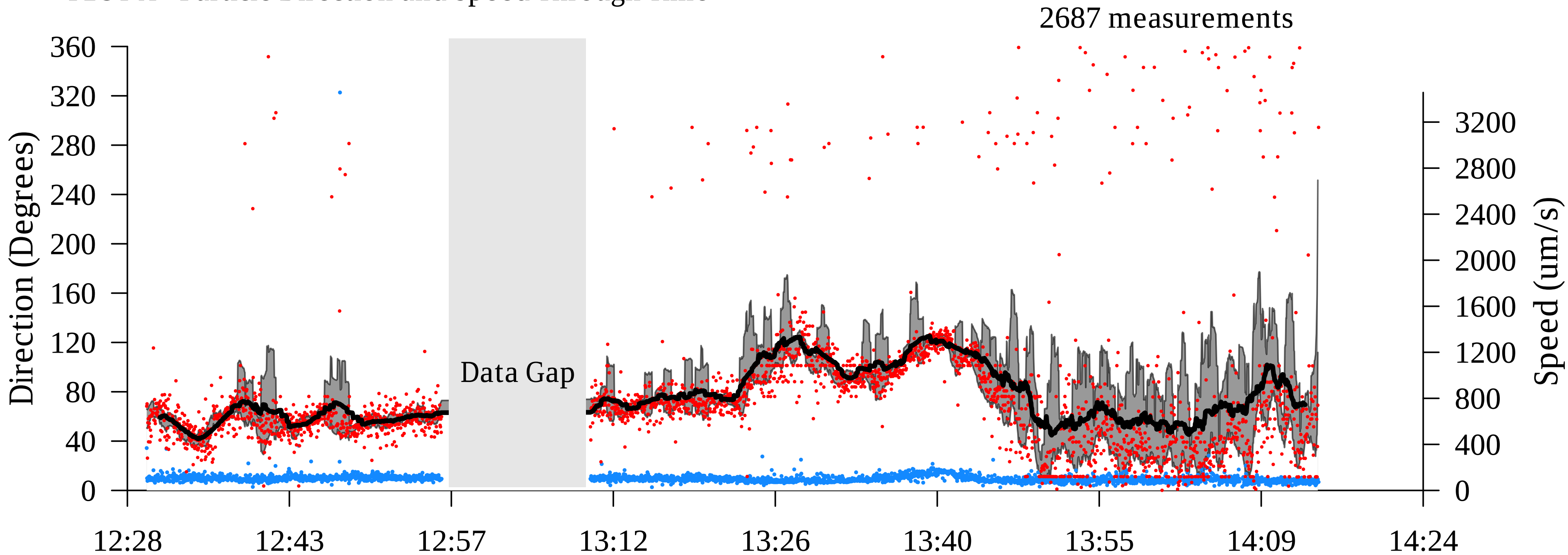
Notes:

- Data Collected on April 30, 2020
- 24-Hour Clock Time, EST
- Rose diagram and vector plot show results for all data shown in plot A

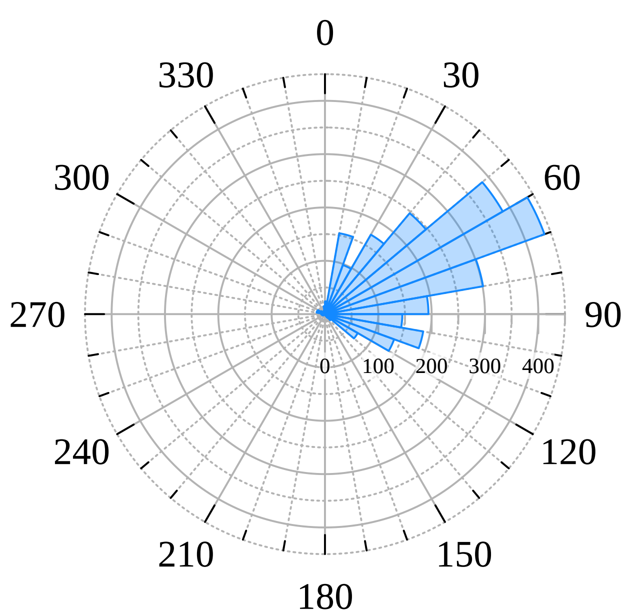
AECOM	Figure
BORESCOPE RESULTS MW-31	

DRAWN BY:	REVIEWED BY:	APPROVED BY:	REVISION NUMBER:
SCOTIA			
DATE:	DEPT:		

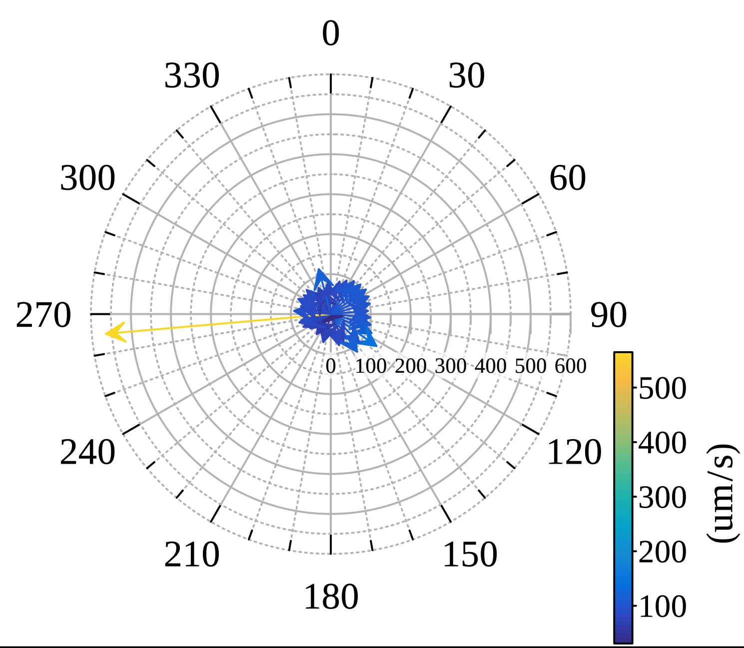
PLOT A - Particle Direction and Speed Through Time



PLOT B - Rose Diagram Direction
10º Bins



PLOT C - Arithmetic Mean Particle Speed
10º Bins



Plot A Legend

- Particle Speed
- Particle Direction
- Standard Deviation
- Running average Fit - Particle Direction

Notes:

- Data Collected on April 29, 2020
- 24-Hour Clock Time, EST
- Rose diagram and vector plot show results for all data shown in plot A

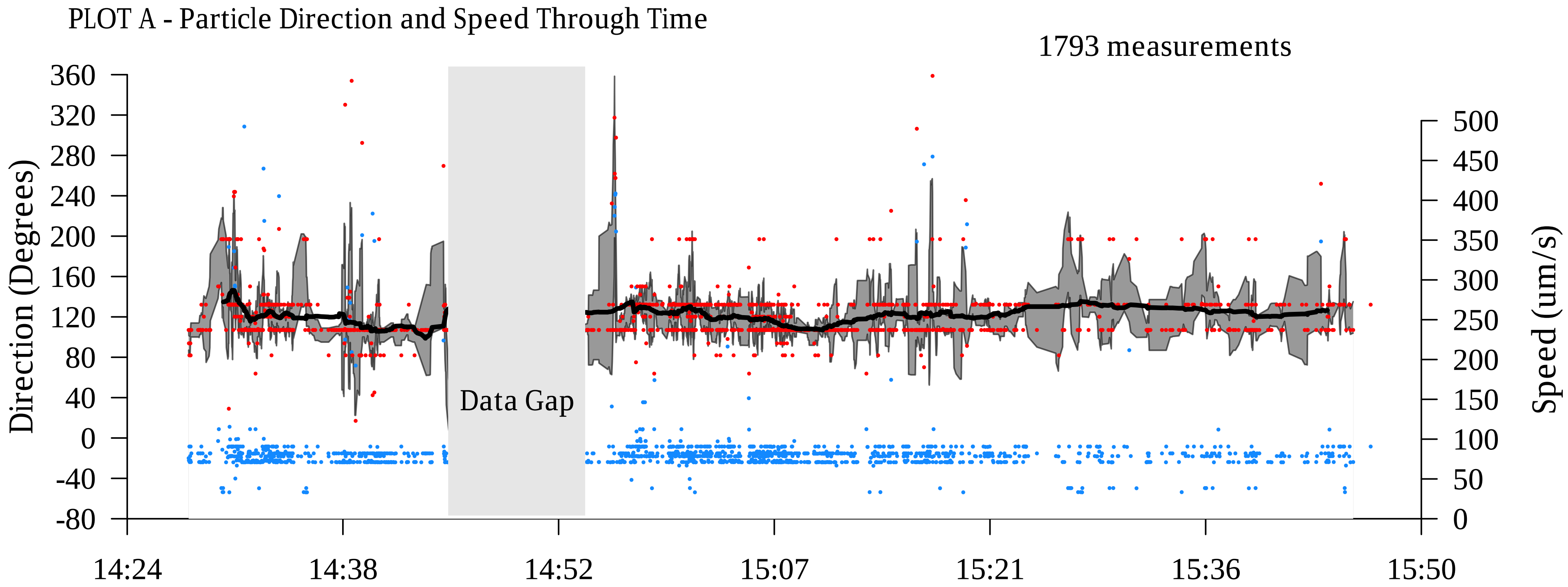
AECOM | **Figure**

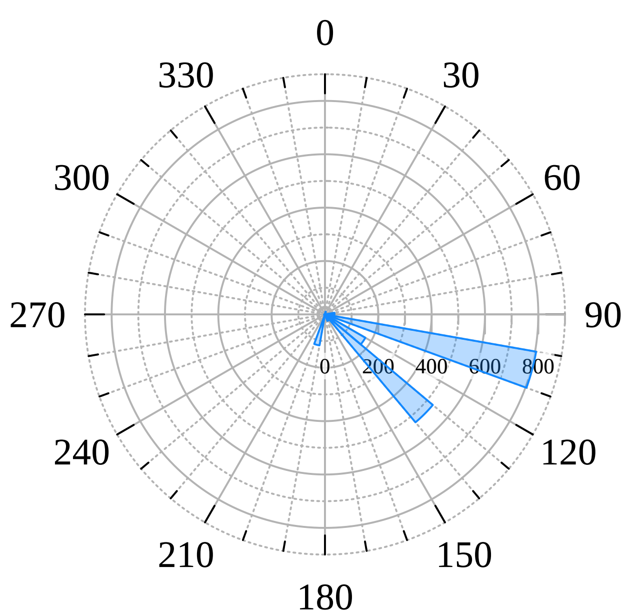
BORESCOPE RESULTS
MW-32

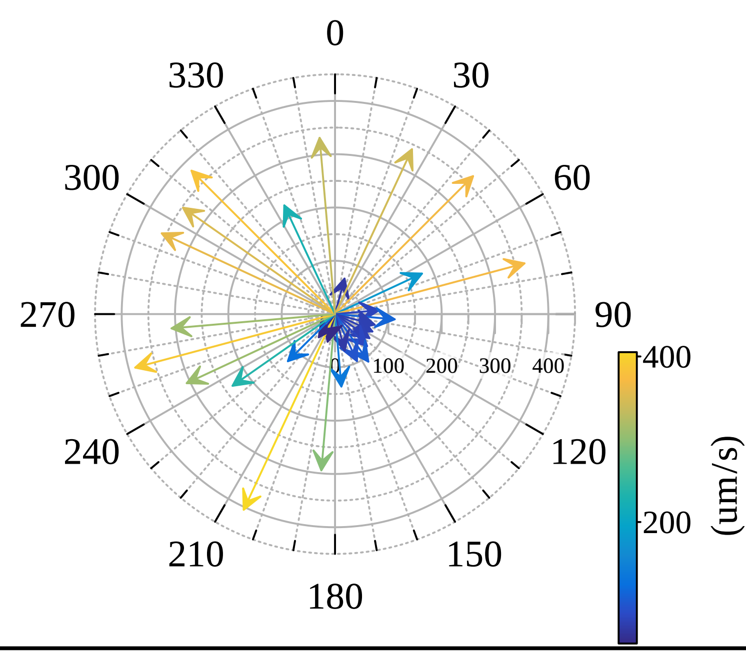
DRAWN BY:	REVIEWED BY:	APPROVED BY:	REVISION NUMBER:

SCOTIA

DATE:	DEPT:







Plot A Legend

- Particle Speed
- Particle Direction
- Standard Deviation NOT SHOWN
- Running average Fit - Particle Direction

Notes:

- Data Collected on April 29, 2020
- 24-Hour Clock Time, EST
- Rose diagram and vector plot show results for all data shown in plot A

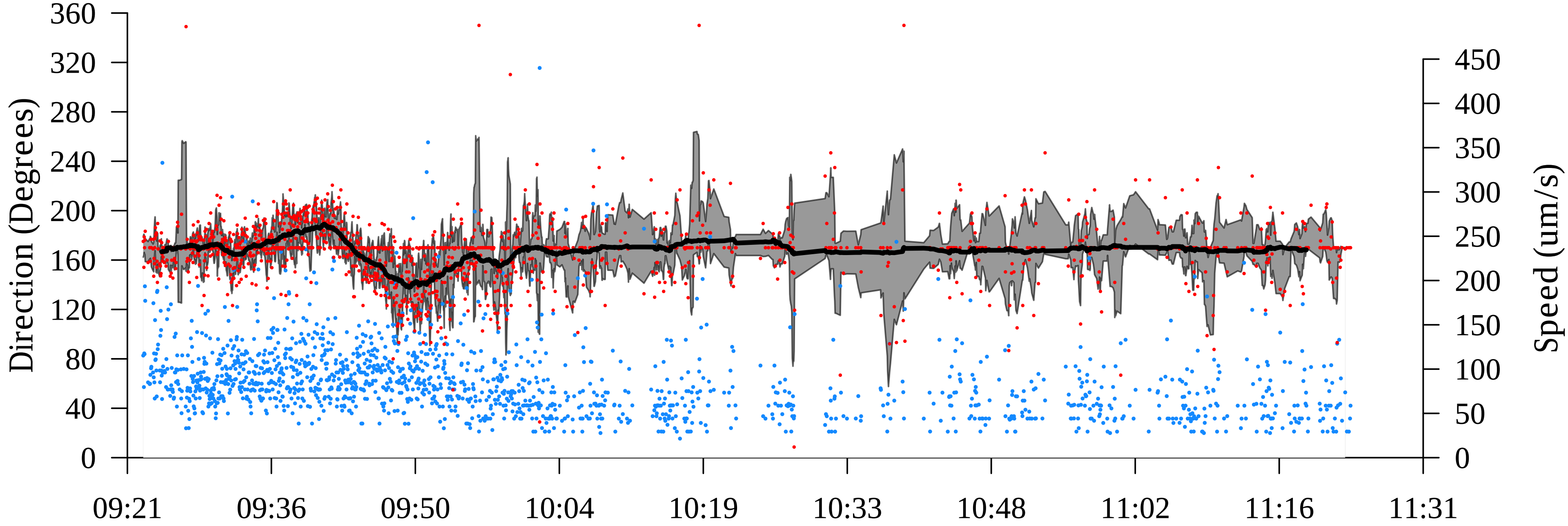
AECOM	Figure
BORESCOPE RESULTS MW-33	

DRAWN BY:	REVIEWED BY:	APPROVED BY:	REVISION NUMBER:

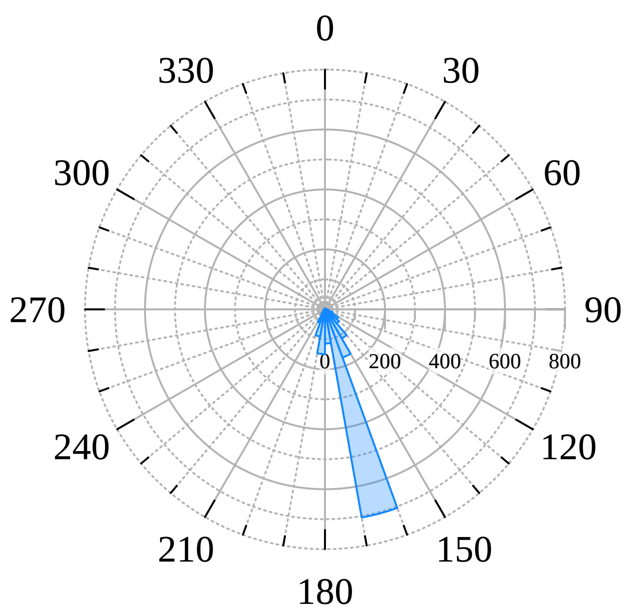
SCOTIA

DATE:	DEPT:

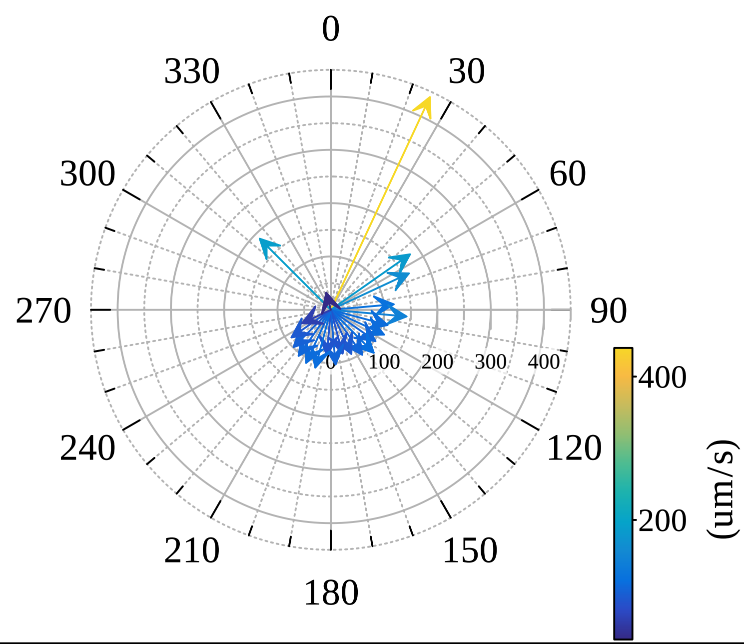
PLOT A - Particle Direction and Speed Through Time



PLOT B - Rose Diagram Direction



PLOT C - Arithmetic Mean Particle Speed 10° Bins



Plot A Legend

- Particle Speed
- Particle Direction
- Standard Deviation NOT SHOWN
- Running average Fit - Particle Direction

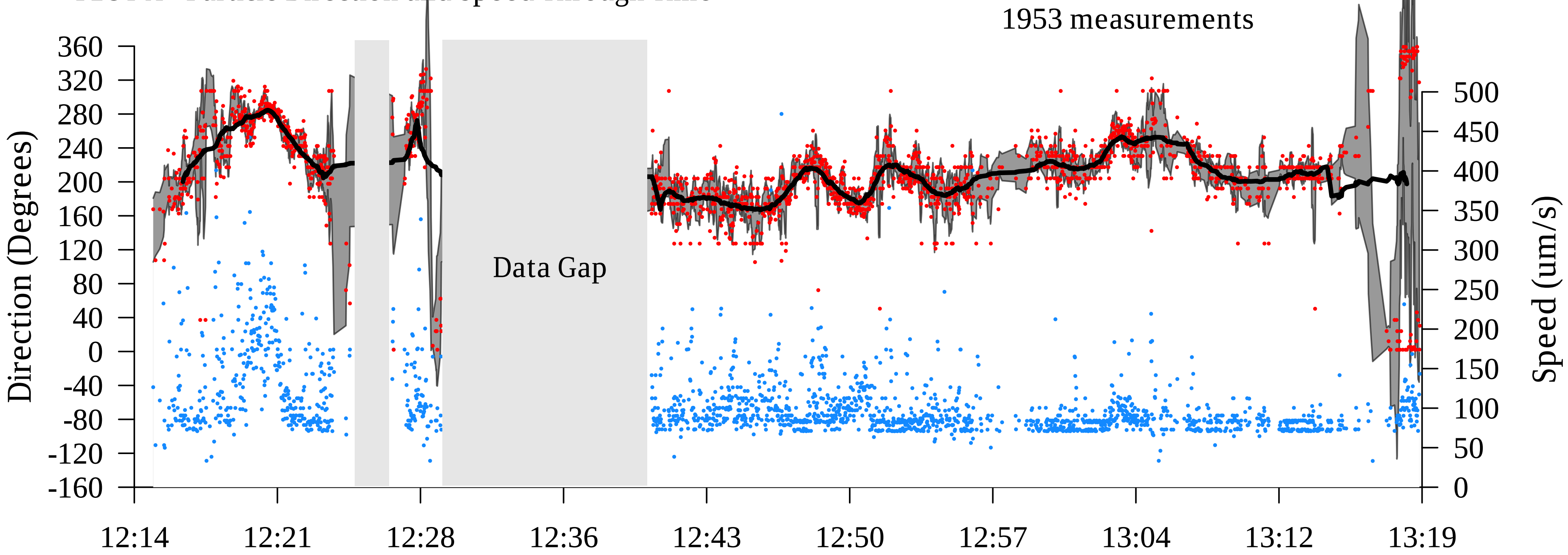
Notes:

- Data Collected on May 1, 2020
- 24-Hour Clock Time, EST
- Rose diagram and vector plot show results for all data shown in plot A

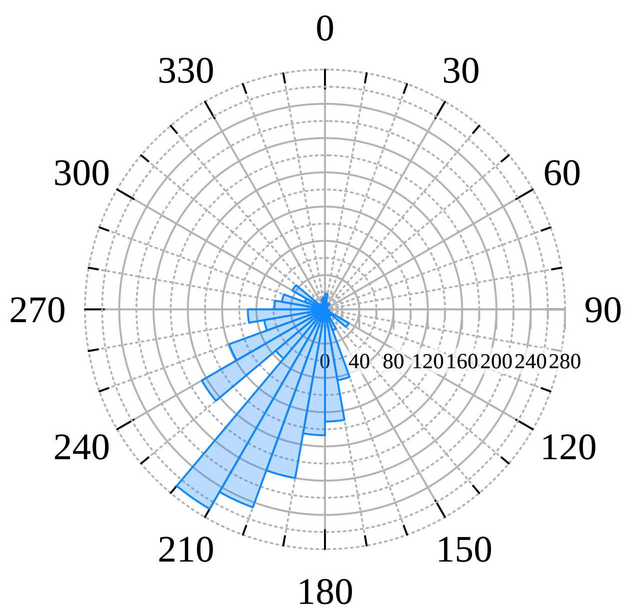
AECOM	Figure
BORESCOPE RESULTS MW-34	

DRAWN BY:	REVIEWED BY:	APPROVED BY:	REVISION NUMBER:
SCOTIA			
DATE:	DEPT:		

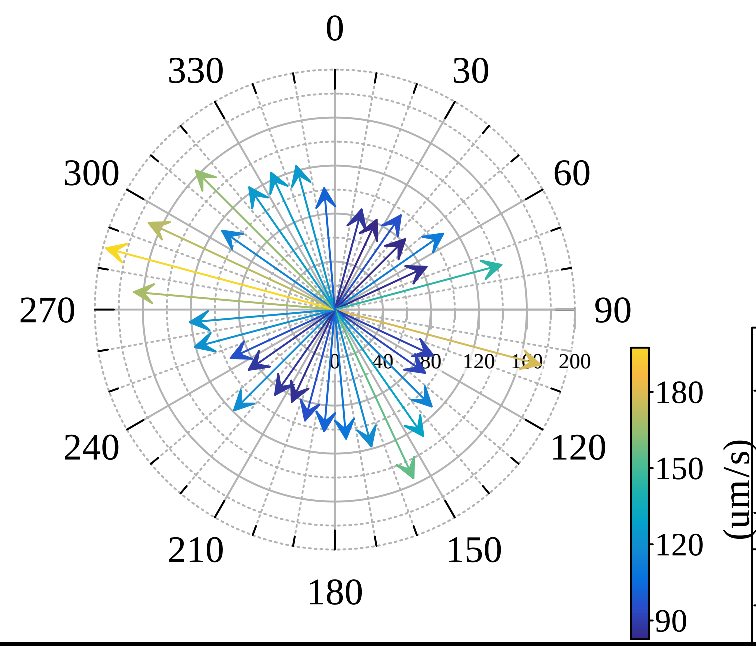
PLOT A - Particle Direction and Speed Through Time



PLOT B - Rose Diagram Direction



PLOT C - Arithmetic Mean Particle Speed 10° Bins



Plot A Legend

- Particle Speed
- Particle Direction
- Standard Deviation
- Running average Fit - Particle Direction

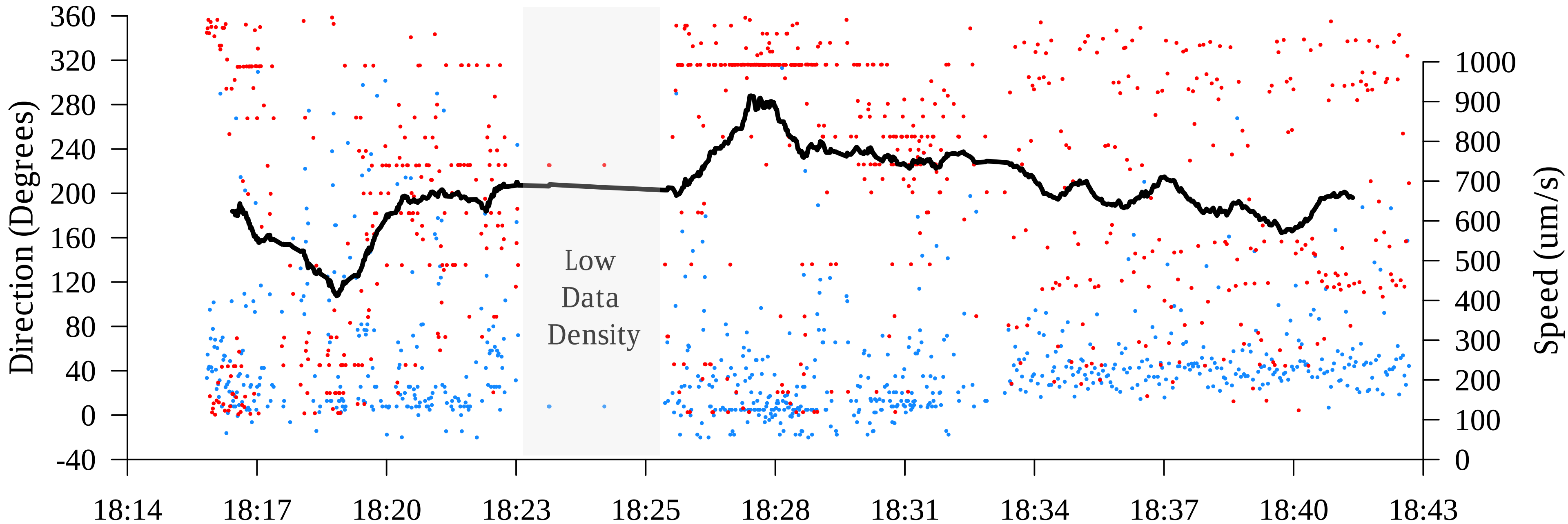
Notes:

- Data Collected on May 1, 2020
- 24-Hour Clock Time, EST
- Rose diagram and vector plot show results for all data shown in plot A

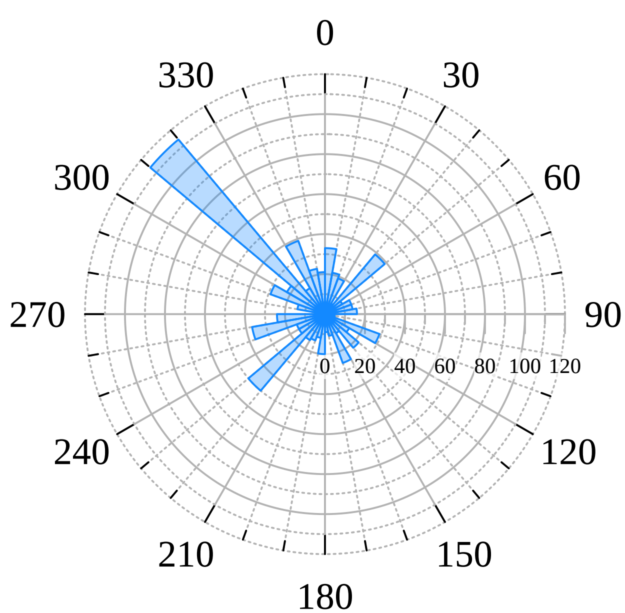
AECOM	Figure
BORESCOPE RESULTS MW-35	

DRAWN BY:	REVIEWED BY:	APPROVED BY:	REVISION NUMBER:
SCOTIA			
DATE:	DEPT:		

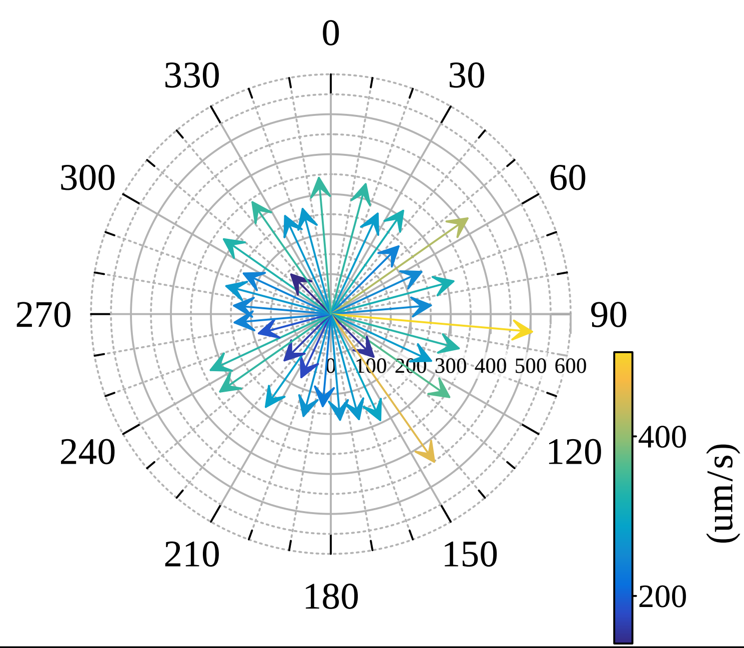
PLOT A - Particle Direction and Speed Through Time



PLOT B - Rose Diagram Direction



PLOT C - Arithmetic Mean Particle Speed 10° Bins



Plot A Legend

- Particle Speed
- Particle Direction
- Standard Deviation NOT SHOWN
- Running average Fit - Particle Direction

Notes:

- Data Collected on May 1, 2020
- 24-Hour Clock Time, EST
- Rose diagram and vector plot show results for all data shown in plot A

AECOM	Figure		
BORESCOPE RESULTS MW-36			
DRAWN BY:	REVIEWED BY:	APPROVED BY:	REVISION NUMBER:
SCOTIA			
DATE:	DEPT:		

APPENDIX E: Site-Wide Inspection Forms

Site-Wide Semi-Annual Inspection Form

The Defense National Stockpile Center Scotia Depot
Glenville, New York

Engineering Control (s): SSDS   Inspection Date: 12/7/2020

Item	Yes	No	N/A	Comments
Does the Engineering Control continue to perform as designed?	X			Note: system was shut off in June 2020 to prepare for 5 year review sampling event.
Does the Engineering Control continue to protect human health and the environment?	X			
Does the Engineering Control comply with requirements established in the SMP?	X			
Has remedial performance criteria been achieved or maintained?	X			
Has sampling and analysis of appropriate media been performed during the monitoring event?	X			5 year system review, sampling of indoor air and sub slab vapor
Have there been any modifications made to the remedial or monitoring system?		X		
Does the remedial or monitoring system need to be changed or altered at this time?		X		
Has there been any intrusive activity, excavation, or construction occurred at the site?	X			
Were the activities mentioned above, performed in accordance with the SMP?	X			
Was there a change in the use of the site or were there new structures constructed on the site?	X			New tennants have moved into some buildings, but they are still commercial/industrial tennants.
In case a new occupied structure is constructed or the use of the current building changed, was a vapor intrusion evaluation done?			X	
Were new mitigation systems installed based on monitoring results?			X	
Were the groundwater wells in the monitoring network inspected during this site inspection? If so, were the Monitoring Well Field Inspection Logs Completed?			X	

Note: Upon completion of the form any non-conforming items warranting corrective action should be identified here within.

Name of Inspector: Gerlinde Wolf   Signature of Inspector: Gerlinde Wolf
Inspector's Company: AECOM   Date: 12/7/2020

IMMEDIATELY REPORT ANY FAILURE OR DEFECT TO THE PROJECT MANAGER SO A COUNTERMEASURE PLAN CAN BE IMPLEMENTED.

Site-Wide Semi-Annual Inspection Form

The Defense National Stockpile Center Scotia Depot
Glenville, New York

Engineering Control (s):_PRB Wall____________________ Inspection Date:___06/15/2020____________________

Item	Yes	No	N/A	Comments
Does the Engineering Control continue to perform as designed?	X			
Does the Engineering Control continue to protect human health and the environment?	X			
Does the Engineering Control comply with requirements established in the SMP?	X			
Has remedial performance criteria been achieved or maintained?				
Has sampling and analysis of appropriate media been performed during the monitoring event?	X			
Have there been any modifications made to the remedial or monitoring system?		X		
Does the remedial or monitoring system need to be changed or altered at this time?		X		
Has there been any intrusive activity, excavation, or construction occurred at the site?		X		BelGioioso and Galesi construction activities are completed.
Were the activities mentioned above, performed in accordance with the SMP?	X			
Was there a change in the use of the site or were there new structures constructed on the site?		X		
In case a new occupied structure is constructed or the use of the current building changed, was a vapor intrusion evaluation done?			X	
Were new mitigation systems installed based on monitoring results?		X		
Were the groundwater wells in the monitoring network inspected during this site inspection? If so, were the Monitoring Well Field Inspection Logs Completed?	X			Yes, Monitoring Well conditions are documented in the groundwater sampling field book.

Note: Upon completion of the form any non-conforming items warranting corrective action should be identified here within.

Name of Inspector: Alexandra Golden

Inspector's Company: AECOM

Signature of Inspector: Alexandra Golden

Date: 06/15/2020

IMMEDIATELY REPORT ANY FAILURE OR DEFECT TO THE PROJECT MANAGER SO A COUNTERMEASURE PLAN CAN BE IMPLEMENTED.