GROUNDWATER MONITORING PROGRAM
2020 SEMI-ANNUAL (DECEMBER) STATUS 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

March 2021

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2020 QUARTER TWO STATUS REPORT

FOR

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Table of Contents

List of Figures

List of Tables

List of Appendices

1 INTRODUCTION

This report has been prepared by AECOM on behalf of the United States Army Corps of Engineers (USACE) and the United States General Services Administration (GSA) to document the groundwater monitoring activities performed at the Former Scotia Navy Depot (FSND) (Site) for the semi-annual period between June 15, 2020 and December 10, 2020. This report presents the results of the thirteenth groundwater sampling event after the completion of the construction of the zero valent iron (ZVI) permeable reactive barrier (PRB) which was installed across the volatile organic compound (VOC) plume to remediate groundwater at the Site. The first eight sampling events were conducted on a quarterly basis. Starting with the ninth event, the schedule has changed to a semi-annual basis (December and June) in accordance with the Site Management Plan (SMP) (AECOM, 2017b). This groundwater sampling event included collection of groundwater samples from 12 monitoring wells.

Installation of the PRB was completed from February 2016 to December 2016. The Site is adjacent to the north side of New York State (NYS) Route 5 (Amsterdam Road) in the Town of Glenville, Schenectady County, New York. A Site location map is provided in Figure 1-1.

1.1 Site Description

The Site and adjacent properties are zoned for 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 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.

The Site overlies a United States Environmental Protection Agency (US EPA) 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. Relative to a series of four aquifer protection zones established to protect five municipal water supplies relying on the aquifer system, the Site lies in Zone III or the General Aquifer Recharge Area. The Site is located approximately 1,500 feet southwest of the Village of Scotia well field and approximately 1.25 miles north of the Town of Rotterdam and City of Schenectady well fields.

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 GSA. The private parcels contain a variety of industrial tenants; while the GSA leases its remaining portion to the Defense Logistics Agency/Defense National Stockpile Center and the Navy.

1.2 Site History

The Scotia Depot was built in 1942 and 1943 and was commissioned as a United States Navy facility on March 30, 1943. It served as a storage and supply depot for naval forces along the Atlantic coast and Europe, and as a storage and distribution point for National Stockpile materials.

On January 1, 1960, the Navy turned the facility over to the 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. Additionally, between 1967 and 1969, the GSA and the Navy leased to the United States Army/Defense Supply Agency, Buildings 202 and 203. The agreement indicates these buildings were used for the preservation and rail loading of trucks; and storage of trucks and vehicles.

1.2.1 Summary of Previous Investigations

In the late 1980s, trichloroethene (TCE) was detected at low-level concentrations of less than 1 microgram per liter (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 in the area during 1991. The private water supply sampling included residences located on NYS Route 5 in the Town of Glenville hydraulically downgradient of the Defense National Stockpile Center Scotia Depot Site. 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, including TCE which was detected in the NYS Route 5 residential well water samples at concentrations up to 320 µg/L. Following a recommendation by the NYSDOH to connect to public water, the homes on NYS Route 5 were subsequently connected to public water provided by the Town of Glenville. Although the drinking water standard was never exceeded in the City of Schenectady and the Town of Rotterdam municipal water supply wells, increased groundwater quality monitoring was initiated following the identification of the contamination.

Subsequent to the NYSDOH residential groundwater sampling, six subsurface investigations were completed to identify the possible source of TCE in the residential wells and 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 New York State Department of Environmental Conservation (NYSDEC) 2007 Expanded Site Investigation (ESI) (NYSDEC, 2007) provides details on each of these investigations. Investigation data indicated that TCE disposal may have also occurred in the northeast corner of the 401 sub-block and the area near the north corner of the 403 sub-block.

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 which included treatment of the plume through the installation of a zero valent iron (ZVI) PRB. 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 the need for soil vapor intrusion mitigation at the building 201 sub-block. Details on the installation and monitoring of the Soil Vapor Intrusion (SVI) portion of the remedy are provided in the Final Engineering Report (FER) (AECOM, 2017a). A Site Layout Map is provided in Figure 1-2.

1.2.2 Pre-Design Groundwater Investigation – 2013

A pre-design investigation (PDI) was completed by Stone Environmental in 2013 to verify the location and dimensions of the TCE plume to better estimate the appropriate location and depth of the PRB. The PDI was completed as a component of the ROD selected remedy to aid in the PRB design. The pre-design investigation included:

- Baseline groundwater sampling of 24 existing onsite monitoring wells
- Synoptic measurement of groundwater elevations in 35 on-site and off-site monitoring wells
- Vertical groundwater profile of VOC plume at 16 locations (WP-01 to WP-16)
- Installation and development of four on-site monitoring wells (MW-24 through MW-27)
- Hydraulic conductivity measurements
- Geotechnical soil sampling (laboratory sieve, bulk density, and effective porosity analyses)
- ZVI treatability study (bench-scale column test) using Site soil and groundwater

The results of the PDI indicated that the plume location had shifted to the south/southeast from the estimated plume delineation shown in the 2010 ROD (see Figure 3 from the ROD and Figures 6 and 10 from Final PDI Report) (Stone, 2013). The PDI also delineated the vertical and horizontal limits of the plume across a transect of groundwater profile locations, which had not been well defined in previous investigations. The results of the ZVI treatability study indicated that ZVI would be effective in remediating the TCE plume at the detected maximum concentrations and Site-specific geochemical conditions. The PDI evaluated a preliminary PRB design approximately 850-feet long centered on the highest concentration axis of the TCE plume and extending to estimated lateral limits of the plume based on the results of the vertical groundwater profile locations. Subsequent evaluation of the data to maximize effectiveness and efficiency of the remedial design suggested a 700-feet long deep section centered on the TCE plume with a shallower 250-feet long section to treat lower TCE concentrations would be effective at mitigating the groundwater contamination.

1.2.3 Baseline Groundwater Investigation

As part of the remedial design investigation work plan (RDIWP) (AECOM, 2015) various field activities were conducted during the fall of 2015 in order to gather data and information needed to complete the final PRB design. The main components of the remedial design investigation (RDI) field activities that related to the PRB design included:

- Installation and development of four compliance well pairs (MW-28 to MW-35) and one additional monitoring well (MW-36) to confirm upgradient edge of groundwater plume

- Collection of 33 baseline groundwater samples
- Performance of a confirmatory ZVI bench scale test
- Performance of aquifer tests including slug testing and hydraulic pulse interference testing (HPIT)

Detailed methods and results of these field activities were presented in the Remedial Action Work Plan (PRB-RAWP) (AECOM, 2016) and the 2015 RDI Work Summary Memo presented in Appendix A of the PRB-RAWP.

1.3 PRB Design Summary

The remedial investigation activities at the Site indicated that variable hydraulic conductivity and hydraulic gradient conditions may exist at the Site, resulting in varied groundwater velocity. Therefore, various design cases were analyzed within the range of the measured values to determine the optimum design for the PRB. Three design cases in particular were outlined in the (PRB-RAWP) (AECOM, 2016). These design cases were based on average values from the slug test data and HPIT data from the 2015 RDI activities and historic data from the Stone PDI (Stone, 2013). The three design cases used an average value of 0.004 ft/ft for the hydraulic gradient and varied the hydraulic conductivity from 15.66 ft/day to 193.8 ft/day. Using an assumed porosity of 0.4 this variability of hydraulic conductivity results in an expected range of groundwater velocity at the Site from 0.128 ft/day to 2.83 ft/day. GeoSierra Environmental, Inc. (GeoSierra), the PRB installation subcontractor, performed a sensitivity analysis based on these design cases and the design of the PRB was chosen based on design scenarios that reflected a conservative approach. A full description of the PRB design including details of each design case is presented in the PRB-RAWP (AECOM, 2016).

1.4 Remedial Action Implementation

In accordance with the ROD for the remedial action at the FSND, a ZVI PRB was installed in order to mitigate the impacted groundwater plume at the Site. AECOM, and its subcontractor GeoSierra, performed the installation of the PRB over the course of 10 months in 2016. The design and installation procedures of the PRB are outlined in the PRB-RAWP (AECOM, 2016). The main components of PRB installation were as follows:

- Installation of 77 injection wells
- Installation of 31 Resistivity strings
- Placement of ZVI into the formation via injection wells
- Post PRB installation HPIT testing

The installation of the ZVI PRB was successfully completed in November of 2016. Details of the PRB construction activities of the PRB are provided in the FER (AECOM, 2017a) for the Site.

2 GROUNDWATER MONITORING PROGRAM

Monitoring well locations are shown on Figure 1-2 and are described in Table 2-1. Table 2-1 also provides the monitoring well sampling schedule and analytical information for the groundwater monitoring program. The December 2020 event included groundwater monitoring from 12 locations. The groundwater monitoring program will be carried out in accordance with the schedule and sampling protocol outlined in the SMP.

The eight compliance monitoring wells (MW-28 through MW-35) were installed in pairs so that groundwater quality could be monitored directly upgradient and directly downgradient of the PRB. The four monitoring well pairs are installed 20 feet apart on opposite sides of the wall, one being upgradient and one being downgradient, with corresponding screen depths. Figure 2-1 provides a profile of the compliance monitoring wells showing the screened interval in relation to the PRB. Results from the groundwater monitoring program will be used to evaluate the effectiveness of the remedy at decreasing chlorinated VOC concentrations in groundwater and preventing the migration of contaminated groundwater off-site. The compliance well pairs, in addition to MW-24 (downgradient), MW-26 (downgradient), MW-15 (upgradient) and MW-16 (outside of plume), were to be sampled quarterly for the first two years (eight quarters) then semi-annually thereafter. The first quarterly sampling event was conducted in December 2016. The first semi-annual sampling event was conducted in December 2018. Monitoring well locations are shown on Figure 1-2 and are described in Table 2-1.

2.1 Sample Collection Methods

Prior to sample collection, depth to water measurements were collected with an electronic water level meter from all accessible wells on Site. Depth to water measurements were taken to the hundredth of a foot from a designated measuring point on the well casing.

The groundwater sampling event was performed in accordance with EPA's low stress, often referred to as low-flow, sampling technique (Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures, EPA/540/S-95/504) (EPA, 2010) and is discussed below.

A bladder pump was used to purge the monitoring wells with the pump intake set at the midpoint of the saturated screened interval. During purging, the pump was operated at a flow rate of approximately 100 to 500 milliliters per minute (mL/min) and water levels were monitored to ensure that the pumping rate caused minimal/no drawdown. Dedicated tubing for each monitoring well was used for groundwater sample collection. Field parameters were recorded on the Well Sampling Forms every five minutes during purging, including:

- Purge rate (mL/min)
- Depth to water (0.01 ft)
- Temperature (degrees Celsius)
- pH

- Specific conductance (millisiemens per centimeter [ms/cm])
- Dissolved Oxygen (DO) (milligrams per liter [mg/L])
- Oxidation-Reduction Potential (ORP) (millivolts [mV])
- Turbidity (NTU)

A flow-through cell was used to obtain temperature, pH, specific conductance, DO, and ORP. Turbidity will be measured using a separate instrument. Purging was considered complete when the indicator parameters have stabilized over three consecutive readings, indicating that formation water was being drawn. Stabilization parameters include the following:

- Drawdown: less than 0.3 ft drawdown during purging
- pH: ± 0.1 standard unit
- Specific Conductivity: ± 3%
- DO: ± 10 % (mg/L) for values greater than 0.5 mg/L or 3 readings < 0.5 mg/L
- ORP: ±10 mV
- Turbidity: < 5 NTU or ± 10% for readings >5 NTU

Groundwater sample collection forms with the field parameter readings for each monitoring well are included as Appendix A. Sampling instruments were calibrated daily prior to starting sampling activities, or as needed throughout the day. A log of the field equipment calibration records is provided in Appendix B.

During past groundwater sampling events observed DO readings have been variable between sampling events and monitoring well locations, and sometimes readings were higher than expected. To get a better understanding of DO measurements in the field during the December 2018 and June 2019 events DO readings were collected with the flow through cell using a YSI Pro DSS, as well as a YSI 550A DO meter placed directly in the monitoring well to compare differences in measurements. The YSI Pro DSS has an optical DO meter, and the YSI 550A DO meter is a membrane based DO meter. Periodic in field verification of the DO readings was performed by inserting the probes into a 0 mg/L DO solution. The use of the YSI 550A DO meter was discontinued after the June 2019 sampling event since it was determined that the use of the second probe was not providing data that clarified the groundwater redox state.

Prior to sample collection, the flow-through cell was disconnected from the dedicated sample tubing and the sample was collected directly from the tubing into the laboratory supplied sample containers. The target flow rate during sample collection was approximately 100 mL/min and sample collection was completed within a single bladder pulse for VOC analysis. Once sampling was complete, the purge water was placed in a 55-gallon drum at the conclusion of the sampling

event. More detailed procedures for sample collection and handling and waste handling, are included in Appendix H of the SMP (AECOM, 2017b). Appendix G of the SMP includes the analytical QAPP for the site management activities. Appendix I of the SMP includes the HASP for the site management activities.

Groundwater samples were packaged on ice and delivered to ALS Laboratory daily via FedEX shipping during the sample collection timeframe. Standard chain of custody procedures were used for sample transport. In total, 12 groundwater samples were collected and analyzed for targeted VOCs (EPA method 8260C) and 12 samples were analyzed for monitored natural attenuation (MNA) parameters including TOC (SM 5310B), alkalinity (SM 2320B), chloride, nitrate, sulfate (EPA Method 300.0), and dissolved gases (methane, ethane, and ethene; Method RSK 175). In addition, eight groundwater samples were analyzed for total and dissolved iron (EPA SW-846 Method 6010C).

Drums containing purge water from the December 2020 sampling event were removed from the Site on 1/28/2021 and their contents were properly disposed of by the environmental waste services contractor.

3 RESULTS

3.1 Hydrogeologic Results

The groundwater elevations for the Site were determined based on the initial depth to groundwater measurements that were taken prior to sample collection. Table 3-1 shows the groundwater elevation data for the December 2020 sampling event and compares it to the November/December 2015 baseline sampling event and past sampling event levels. A potentiometric Site map indicating the overburden, groundwater elevation and direction of groundwater flow during the December 2020 sampling event is included as Figure 3-1. Observed general groundwater flow direction in December 2020 was from northeast to southwest, which is similar to past sampling events. The December 2020 groundwater levels were found to be several feet lower than recent sampling events.

Based on observed trends during the past sampling events groundwater elevation at the Site is subject to seasonal variability. The December and March sampling events exhibit lower groundwater elevations than the June and September sampling events. The similarities between the winter events and summer events indicate a seasonal groundwater level trend. Groundwater elevation data for the December 2020 sampling event indicate that groundwater levels are currently slightly above the top of the PRB wall at the southern end of the wall. Similar groundwater levels have been observed during other sampling events both in the summer and the winter, suggesting that the recent average groundwater level at the site may be different from when the wall was designed. The current potentiometric surface in relation to the PRB is shown in profile on Figure 2-1A and in relation to along the axis of the estimate plume in Figure 2-1B. AECOM has reviewed the vertical COC groundwater concentration data from the 2013 PDI and found that there were no detected COCs at elevations above the wall in this area. AECOM does not believe that groundwater being slightly above the top of the wall in this area is cause for concern because the concentrations of COCs in the elevations around the top of the wall were low or non-detect. The majority of the higher COC concentrations were detected at locations in the lower section of the wall.

The hydraulic gradient is the change in hydraulic head, or water level, per unit distance. The average hydraulic gradient at the Site in the vicinity of the PRB, estimated based on December 2020 hydrogeologic conditions, was determined to be 0.0038 ft/ft. The hydraulic gradient for the past three sampling events was 0.0054 ft/ft in June 2020, 0.0069 ft/ft in December 2019, and 0.0038 ft/ft in June 2019. The groundwater seepage velocity is the rate of groundwater transport through the open pore space in the soil. Based on the December 2020 hydraulic gradient of 0.0038 ft/ft and the range of hydraulic conductivities evaluated for the PRB design (15.66 ft/day to 193.8 ft/day), and assuming a porosity of 0.4, groundwater seepage velocity at the Site could vary between approximately 0.15 ft/day and 1.83 ft/day, which is within the range of estimated groundwater velocities used for the PRB design (0.128 ft/day-2.83 ft/day). Calculations for hydraulic gradient and velocity estimates are included in Appendix C.

3.2 Groundwater MNA and Field Parameter Results

Results of groundwater MNA parameters obtained from the baseline sampling event through the December 2020 semi-annual sampling event for the PRB monitoring compliance wells are

presented in Table 3-2. MNA parameters were compared between compliance well pairs to observe changes in groundwater quality from upgradient to downgradient of the wall. Field parameter readings are primarily collected to demonstrate stabilization criteria as discussed in Section 2.1; however, they can also give insight as to subsurface conditions and served as indicators for reactions taking place. Together, the field parameters and the MNA parameters provide insight into the groundwater geochemistry in the vicinity of the PRB. These data have, thus far, not provided a conclusive picture of the performance of the PRB, and the data from this quarter are similarly inconclusive.

During previous sampling events DO measurements were variable with some well pairs showing an increase and some pairs showing a decrease from upgradient to downgradient. ORP values downgradient of the wall are expected to be within the -300 to -400 range, and we should expect to see little to no DO in these monitoring locations. 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.

DO measurements during the December 2020 event were collected with an optical DO meter (YSI Pro DSS) located in a flow through cell. For most compliance well pairs, the downgradient DO readings were very low (i.e. <1.0 mg/L), which is within the range of what we expect to see in downgradient compliance wells. All downgradient compliance wells DO readings were lower than their upgradient compliance well pairing. Well pairs MW-32/33 and MW-34/35 had an especially noticeable decrease in DO from upgradient to downgradient. Periodically during the sampling event, field verification of the DO reading was performed by inserting the probe into a 0 mg/L DO solution, and these checks showed that the instruments were reading 0 mg/L or very close to 0 mg/L during the checks. The DO data is presented in Table 3-2.

During the December 2020 sampling event ORP levels were again variable but measurements showed decreases between all four compliance well pairs. However, ORP values were still not showing values that are typically expected downgradient of a ZVI PRB wall. ORP levels decreased significantly from upgradient to downgradient at well pair MW-32/33. 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 range of the -300 to -400 range for the Beta elimination CVOC reduction to occur.

The December 2020 groundwater results showed an increase in methane in all 4 downgradient wells when compared to their upgradient counterparts. There was a particularly large increase between upgradient and downgradient in monitoring well pairs MW-30/31 and MW-32/33. The largest increase in methane, was seen in compliance monitoring well pairs in the middle of the PRB. Increased downgradient methane concentrations began to be observed by mid-2017 and since then the methane levels have been relatively sustained in the mid-section of the wall. Initially methane, ethane and ethene concentrations increased from the breakdown of the ZVI carrier fluids (guar) and served as an indicator for biological reductive dechlorination activity in the subsurface. Elevated levels of methane continue to be observed, shifting from the southern end to the middle of the wall's downgradient compliance wells, suggesting the continued occurrence of anaerobic biological activity in the subsurface in some portions of the wall.

To date, nitrate and sulfate levels have been variable since the 2015 baseline sampling event including for the December 2020 event. During this event most downgradient wells showed a decrease in nitrate and sulfate from their upgradient counterparts. Decreases in nitrate and sulfate concentrations from upgradient to downgradient of the wall would be consistent with anaerobic bacterial activity that is indicated by the generation of methane.

Ethene and Ethane concentrations have been variable to date, but generally exhibit higher concentrations on the downgradient side of the PRB. The continued presence of ethane and ethene in downgradient well pairs is indicative of either the β-elimination abiotic reaction of CVOCs with the PRB, or complete biological reductive dechlorination of the CVOCs. These compounds, along with acetylene, are final products from the interaction of the ZVI and CVOCs. During some past groundwater sampling events samples were analyzed for acetylene, however the detection of acetylene is very rare since it is extremely volatile. Acetylene could be produced as a byproduct of abiotic TCE reduction. Its presence would be an indicator of an abiotic TCE reduction, but it absence does not necessarily provide any insight into the reactions that may be occurring within the ZVI PRB. For the 10 locations where acetylene was analyzed for in June 2019, there were no detections. Therefore, acetylene analysis was discontinued after the June 2019 event.

The December 2019 event included sampling for dissolved hydrogen at five of the compliance wells to monitor for the expected geochemical conditions present from the CVOC reactions with the ZVI wall. Dissolved hydrogen is a byproduct of the CVOCs degradation reactions taking place in the wall and may serve as an indicator of ZVI reactivity. Results showed very low concentrations of dissolved hydrogen in the vicinity of the wall at both upgradient and downgradient locations; however, the lack of detections of dissolved hydrogen is not unusual since dissolved hydrogen is quickly consumed in the subsurface. The background locations sampled in June 2019 (MW-15 and MW-24) also showed very low dissolved hydrogen concentrations, similar to those within the compliance monitoring well locations. Due to the lack of detection of expected concentrations of dissolved hydrogen to date, this analysis was discontinued after the December 2019 event.

Dissolved iron and total iron were sampled for at the eight compliance wells during this quarter to monitor for reaction byproducts in the vicinity of the wall. Dissolved iron is another byproduct of ZVI redox reactions with CVOCs and it is expected to see increased concentrations in the subsurface at monitoring wells downgradient of the wall. Neither dissolved nor total iron was detected in concentrations at wells downgradient of the PRB that are indicative of presence of ZVI redox reaction byproducts.

Overall, the MNA data does not show consistency in the well pairs throughout the expanse of the PRB. The December 2020 monitoring data may indicate that the groundwater conditions at the site are shifting away from the anaerobic conditions that were created in the wake of the PRB wall installation, to conditions that indicate that abiotic reductive dechlorination reactions are occurring in the middle of the wall. However, MNA parameters to date have not yet shown signs indicative of the redox reactions that would be expected to take place as the COCs flow through the ZVI PRB wall. ZVI reactions typically show a significant increase in pH to about 9-10 in downgradient monitoring locations depending on the buffer capacity of the soil. However, pH measurements

observed to date downgradient of the wall have been mostly the same, typically between 7-9, since the installation of the PRB with only some minor increases throughout time.

3.3 Groundwater VOC Results

The VOC results from the December 2020 sampling event are presented in Table 3-2. This groundwater sampling event included collection of groundwater samples for VOCs. Figure 3-2 provides a summary of the groundwater VOC results for the 12 monitoring well compliance pairs, and semi-annual wells compared to the NYSDEC Ambient Water Quality Standards (AWQS) and Guidance Values (GV) found in the Technical and Operational Guidance Series (TOGS) 1.1.1 (NYSDEC, 1998) and compares the December 2020 sampling event results to the historic sampling event results. Full analytical reports are included in Appendix D.

The laboratory data was validated by an AECOM chemist and a full data usability summary report (DUSR) was prepared. The DUSR, included in Appendix E, indicated that all data points were usable with some qualifications and no data points were rejected. Further details on other data that required qualifications are provided in the DUSR.

A narrative summary of the results is presented below:

- TCE, the primary constituent of concern, was detected in all eight of the compliance wells, seven of which were above or equal to the AWQS of 5 µg/L. MW-34 (downgradient) had been below the AWQS for the June 2019 and December 2019 sampling events with an increase to 18.9 µg/L for the June 2020 event. However, TCE was detected below the AWQS during the December 2020 event.

- For the December 2020 event four out of the four downgradient wells of the compliance well monitoring pairs showed lower levels of TCE concentrations than their upgradient counterparts. The downgradient TCE concentrations ranged from 3.6 µg/L (MW-34) to 143 µg/L (MW-28).

- MW-24 has previously exhibited non-detect or low CVOC concentrations below the AWQS. However, recently in the past four sampling events TCE daughter products have begun to appear, some above the AQQS. In the June 2020 event a TCE concentration of 9.4 µg/L was detected. The December 2020 event recorded a return of TCE concentration to below the AWQS.

- In general detected concentrations of TCE in the 12 monitoring wells, as well as other CVOCs, for the December 2020 sampling event were consistent with previous groundwater sample results. However, as previously noted, there appears to be a decreasing trend in TCE concentrations at some downgradient compliance well pair locations.

- PCE, and CVOC degradation products were detected sporadically throughout the Site, at some times higher than the respective AWQS. In general, detected levels of these compounds were in line with the results of previous sampling events.

Graphs showing concentrations of CVOCS were created for the monitoring well compliance pairs to monitor groundwater concentration trends. Data shown includes the baseline sampling event in December 2015 through the most recent sampling event in December 2020. These trend plots are included in Appendix F as Figures F-1 through F-4. Mann-Kendall trend analysis of the laboratory results for TCE suggests that there is a decreasing trend in TCE concentrations at the downgradient compliance wells located in the deeper portion of the PRB. MW-28, screened in the shallow portion of the wall, does not exhibit a trend. Trend analysis results are included in Appendix G.

4 SUMMARY AND CONCLUSIONS

The December 2020 groundwater monitoring event was the fifth semi-annual sampling event and the 13th overall sampling event completed since the installation of the PRB wall. Sampling is now conducted on a semiannual basis for a 3 year period as described in the SMP (AECOM 2017b).

Analysis of concentration trends so far indicates a decreasing trend in concentration of CVOCs in all downgradient compliance monitoring wells except MW-28. Over the last several monitoring events in particular a decrease in total CVOCs from upgradient to downgradient compliance well pair locations has been observed. CVOC concentrations at downgradient well pair locations have in general been lower than their upgradient counterparts for the last several monitoring events. Continued observations of elevated methane and ethane concentrations at some downgradient monitoring wells, particularly in the center of the wall, indicate the presence of anaerobic biological activity within the subsurface in the vicinity of the PRB. While there had been increased TOC concentrations at the monitoring well compliance pairs noted in the previous sampling events it appears TOC has moved toward baseline conditions. Results from the December 2020 event indicate this trend is continuing. Since the installation of the wall downgradient parameters including the presence of ethane, ethene, and methane suggest that the biotic degradation of TCE may be taking place as impacted groundwater flows through the PRB. However, more recent dissolved gasses data indicates that a shift from biotic reductive dechlorination to abiotic reductive dechlorination conditions and reactions may be occurring in the subsurface.

The laboratory and field data from the MW-28/29 well pair at the northern end of the wall is noticeably different from the other three well pairs along the wall and has not yet shown the decreasing trend of CVOCs at the downgradient monitoring location that has been observed in the other three well pairs. This well pair has consistently shown the presence of TCE degradation daughter products which are not very prevalent at any of the other well pairs. Furthermore, field parameters in this well pair are different from other locations along the wall. These differences in data could be due to MW-28/29 well pair being screened in the upper portion of the PRB which is in a different geologic layer of the aquifer that is more transmissive than the lower layer. Groundwater hydrology is also different in this area of the Site and the hydraulic gradient appears to be flat in this area, especially during the summer. AECOM and the USACE are considering how to better evaluate the remedy for the area around the MW-28/29 well pair and will continue to closely review data to look for trends for this well pair during subsequent sampling events.

Current Site groundwater flow conditions indicate that on average the hydraulic gradient is consistent with the PRB design, with the December 2020 event showing lower groundwater elevations as compared with the other sampling events, possibly due to low rainfall this fall, or lower than average water levels in the adjacent Mohawk River. The PRB was designed based on a hydraulic gradient of 0.004 ft/ft which is lower than the estimated hydraulic gradient of 0.0058 ft/ft measured in December 2020. Seasonal variability in groundwater elevations and overall hydraulic gradient has been observed throughout the past sampling events. During the winter months when the Mohawk River is lowered, there appears to be an effect on the groundwater elevation at the site, and groundwater elevations are lower than in the summer. In turn, this could contribute to the slightly higher hydraulic gradients observed during these times. The gradient at

the Site is slight and at times there appears to be a reverse gradient in the MW-28/29 well pair at the northern edge of the wall. In actuality this is likely an area with a flat gradient and the minor variability in groundwater levels between the well pair is due to margin of error in the survey of the well casing or with the field measurments. Historic data indicates a range of gradients from 0.001 to 0.006 ft/ft measured at the Site (Stone 2013).

At this time monitoring results have not yet shown the expected decrease in COC concentrations; however, they have shown evidence of groundwater flow through the wall in that increased concentrations of methane have been observed at downgradient locations. 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 three years have elapsed since the completion of PRB construction, so the wall is well within the expected operational lifetime. Although concentrations of COCs at downgradient compliance wells are lower than their upgradient counterparts, the observed concentrations are not as low as they were expected to be at this point in the project. Preliminary modeling conducted during the project proposal using the existing conceptual site model data indicated that COC concentrations were originally estimated to be at or below MCL cleanup standards at 10 feet downgradient of the wall approximately 6 months after the PRB wall installation effort was completed. Subsequently, the slower than expected decline in COC concentrations have prompted some field investigations to collect data on groundwater levels, contaminant flow rates, and groundwater velocity and direction at the Site. These field investigations have been underway since late spring of 2020 and an interim report to discussing the findings to date is in progress.

The next groundwater sampling event is scheduled for June 2021 and will include sampling from 34 locations.

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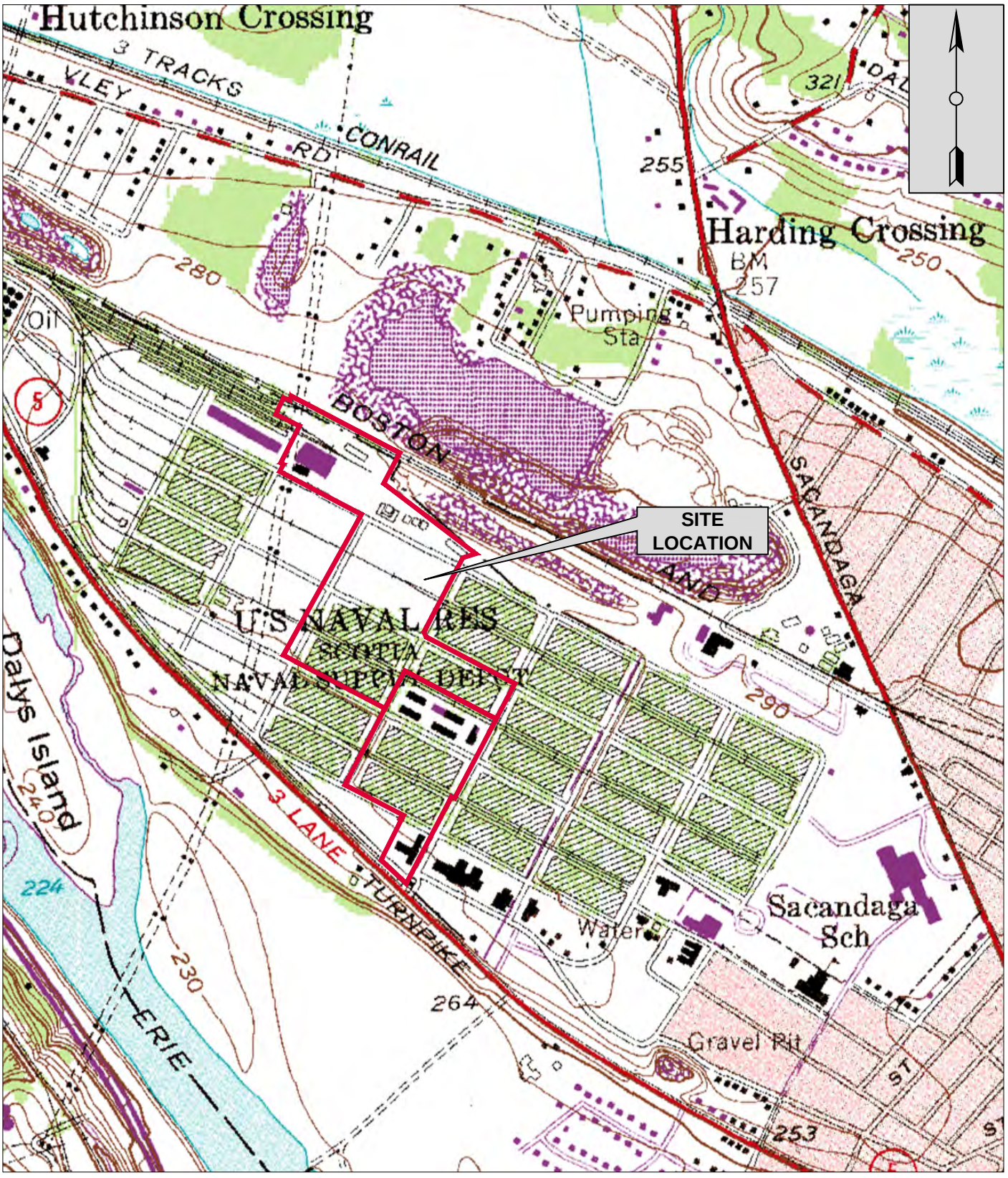
FIGURES



MAP REFERENCE:
IMAGE SHOWN FROM U.S.G.S.7.5 MINUTE
QUADRANGLE, SCHENECTADY SERIES

0 1000' 2000'

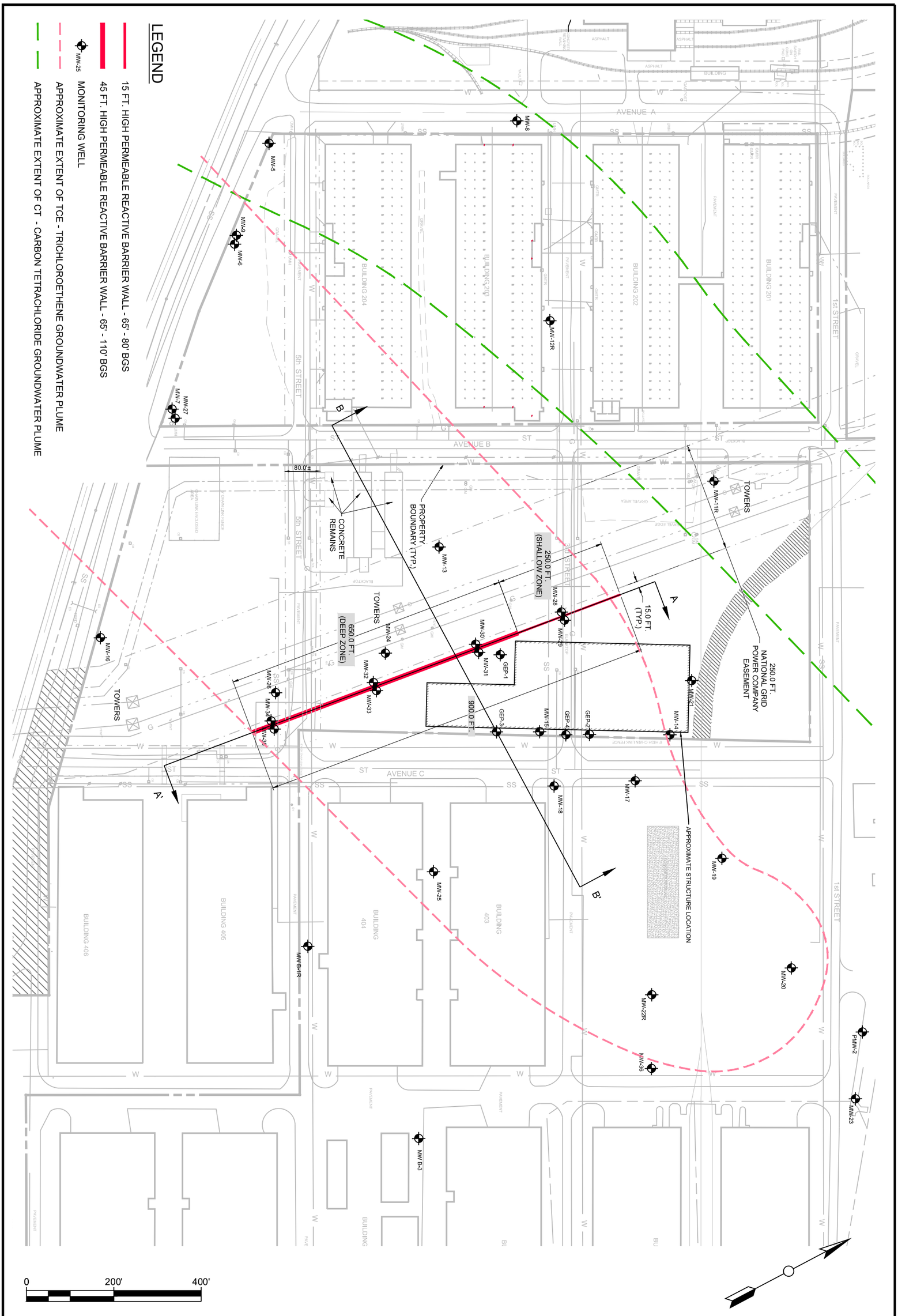
2020 4TH QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: January 2021

US ARMY Corps
of Engineers

SITE LOCATION MAP

AECOM

Figure: 1-1



2020 4TH QUARTER GROUNDWATER REPORT

DEFENSE NATIONAL STOCKPILE CENTER

SCOTIA DEPOT SITE - SCOTIA, NY

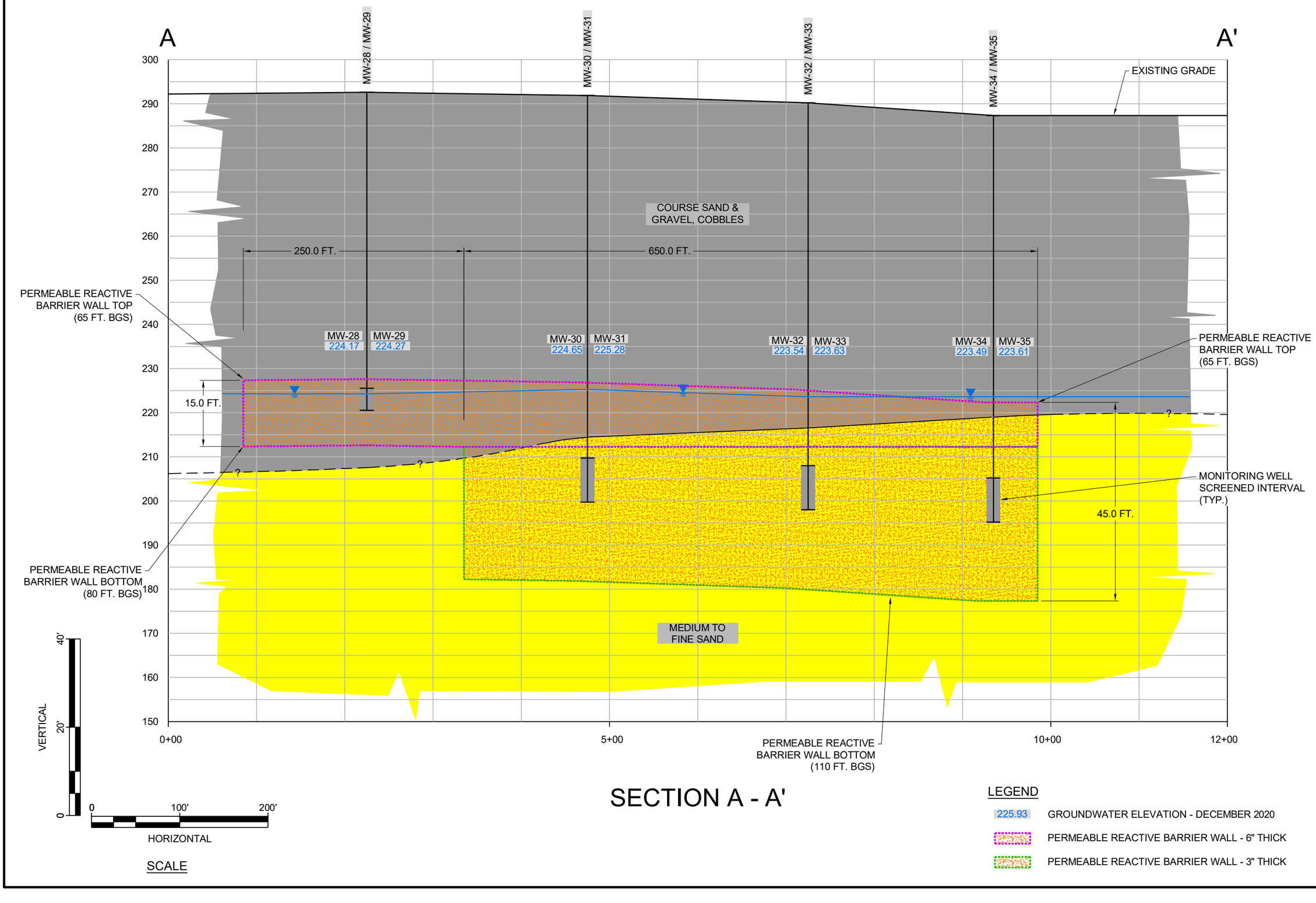
Project No.: 60440641 Date: January 2021

US ARMY Corps of Engineers

SITE LAYOUT MAP

AECOM

Figure: 1-2



SECTION A - A'

AECOM

Figure: 2-1A

COMPLIANCE MONITORING WELLS AND PRB WALL PROFILE GROUNDWATER SECTION A - A' DECEMBER 2020

US ARMY Corps of Engineers

2020 4TH QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date:February 2021

B

B'

AVENUE B

MW-13 (PROJ)

MW-24 (PROJ)

MW-30 (PROJ)

MW-31 (PROJ)

GEP-3

MW-18 (PROJ)

EXISTING GRADE

COURSE SAND & GRAVEL, COBBLES

PERMEABLE REACTIVE BARRIER WALL TOP (65 FT. BGS)

TO MW-9
217.22

471'

MW-13 (PROJ)
223.34

MW-24 (PROJ)
223.27

MW-30 (PROJ)
224.65

MW-31 (PROJ)
225.28

GEP-3
224.74

MW-18 (PROJ)
225.19

TO MW-22R (PROJ)
226.26

288'

PRB 6" THICK

15.0 FT.

45.0 FT.

PRB 3" THICK

MONITORING WELL SCREENED INTERVAL (TYP.)

PERMEABLE REACTIVE BARRIER WALL BOTTOM (110 FT. BGS)

MEDIUM TO FINE SAND

?

300
290
280
270
260
250
240
230
220
210
200
190
180
170
160
150

0+00
5+00
10+00
12+00

VERTICAL
0
20'
40'

HORIZONTAL
0
100'
200'

SCALE

SECTION B - B'

LEGEND

226.33 GROUNDWATER ELEVATION - DECEMBER 2020

PERMEABLE REACTIVE BARRIER WALL - 6" THICK

PERMEABLE REACTIVE BARRIER WALL - 3" THICK

GENERAL GROUNDWATER DIRECTION

AECOM

Figure: 2-1B

GROUNDWATER
SECTION B - B'
DECEMBER 2020

US ARMY Corps of Engineers

2020 4TH QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: February 2021

LEGEND

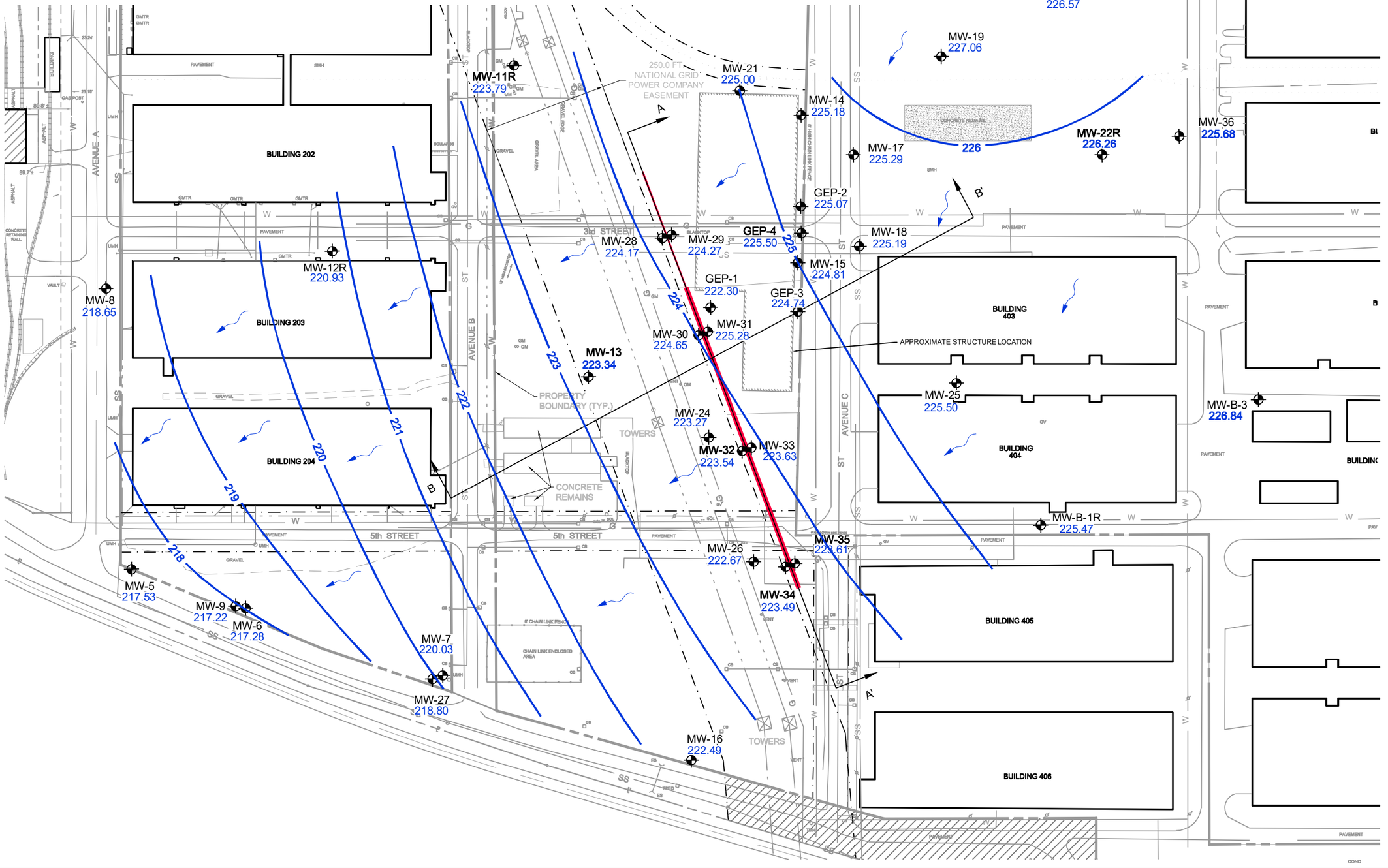
15 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 80' BGS

45 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 110' BGS

MW-6 218.18 — MONITORING WELL WITH REPORTED GROUNDWATER ELEVATION (DECEMBER 2020)

GROUNDWATER CONTOUR - 1 FT. (DECEMBER 2020) (DASHED WHERE INFERRED)

GENERAL GROUNDWATER DIRECTION



AECOM

Figure: 3-1

POTENTIOMETRIC SITE MAP
DECEMBER 2020

US ARMY Corps of Engineers

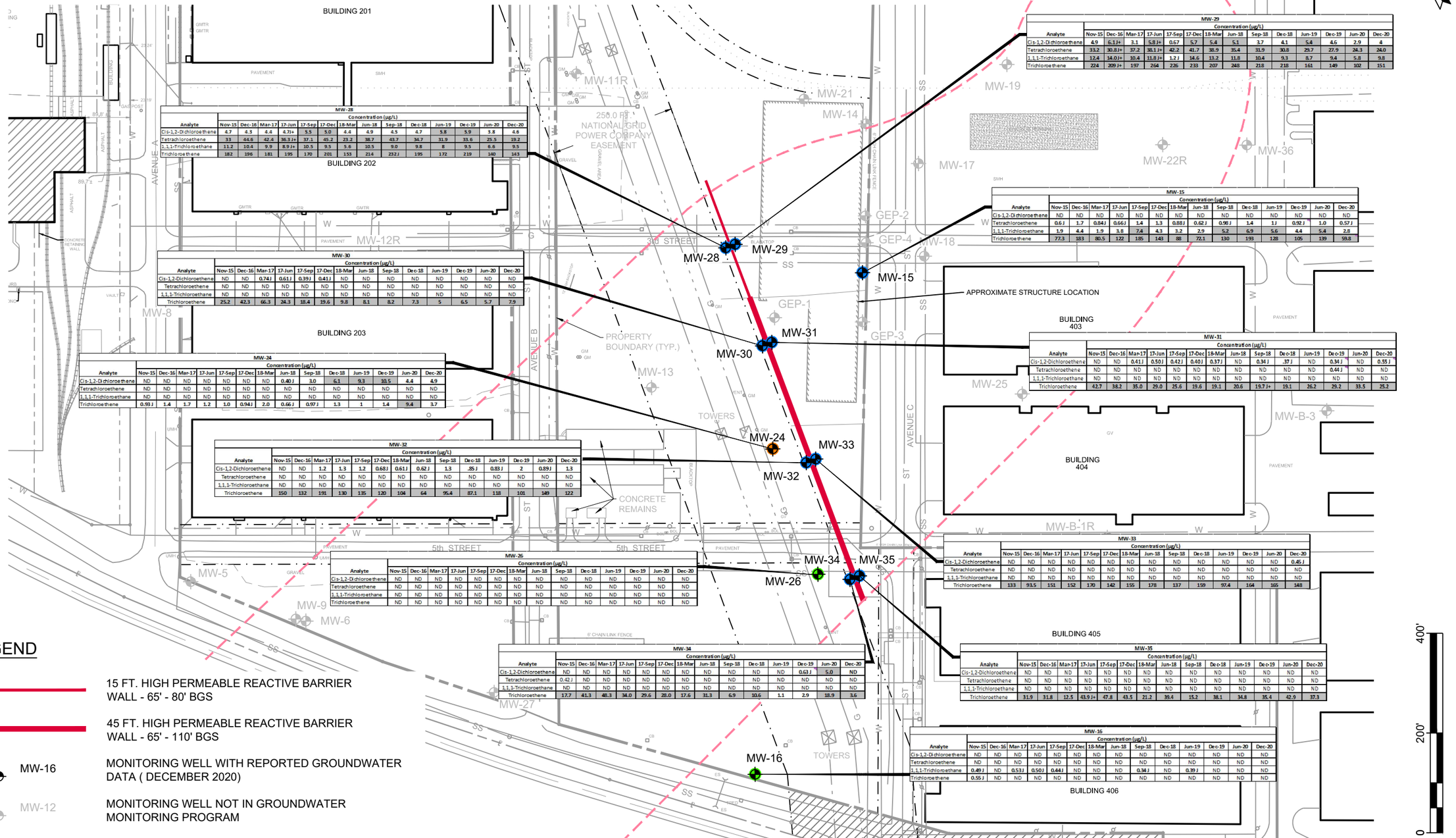
2020 4TH QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: February 2021

SAMPLE KEY

- VOC's NOT DETECTED
- VOC's DETECTED OF CONCENTRATIONS BELOW NYSDEC AWQSGV
- VOC's DETECTED OF CONCENTRATIONS AT OR ABOVE NYSDEC AWQSGV

SAMPLE NOTES

1. Detected concentrations are in bold font.
2. Detections exceeding the NYSDEC Ambient Water Quality Standards (AWQS) are highlighted in gray. For listed compounds the NYSDEC AWQS is 5 mg/L.
3. J - Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte.
4. J+ - The result is an estimated quantity, likely to be biased high.
5. ND - Indicates that the analyte was not detected above the method detection limit



MW-28

Analyte	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19	Dec-19	Jun-20	Dec-20
	Concentration (µg/L)													
Cis-1,2-Dichloroethene	4.7	4.3	4.4	4.7J+	5.5	5.0	4.4	4.9	4.5	4.7	5.8	5.9	3.8	4.6
Tetrachloroethene	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
1,1,1-Trichloroethane	11.2	10.4	9.9	8.9 J+	10.5	9.5	5.6	10.5	9.0	9.8	8	9.5	6.6	9.5
Trichloroethene	182	196	181	195	170	201	153	214	232 J	195	172	219	140	143

MW-30

Analyte	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19	Dec-19	Jun-20	Dec-20
	Concentration (µg/L)													
Cis-1,2-Dichloroethene	ND	ND	0.74 J	0.61 J	0.39 J	0.41 J	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	25.2	42.3	66.3	24.3	18.4	19.6	9.8	8.1	8.2	7.3	5	6.5	5.7	7.9

MW-24

Analyte	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19	Dec-19	Jun-20	Dec-20
	Concentration (µg/L)													
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	0.40 J	3.0	6.1	9.3	10.5	4.4	4.9
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	0.39 J	1.4	1.7	1.2	1.0	0.94 J	2.0	0.66 J	0.97 J	1.3	1	1.4	9.4	3.7

MW-32

Analyte	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19	Dec-19	Jun-20	Dec-20
	Concentration (µg/L)													
Cis-1,2-Dichloroethene	ND	ND	1.2	1.3	1.2	0.68 J	0.61 J	0.62 J	1.3	.85 J	0.83 J	2	0.89 J	1.3
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	150	132	191	130	135	120	104	64	95.4	87.1	118	101	149	122

MW-26

Analyte	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19	Dec-19	Jun-20	Dec-20
	Concentration (µg/L)													
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MW-34

Analyte	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19	Dec-19	Jun-20	Dec-20
	Concentration (µg/L)													
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.63 J	5.0	ND
Tetrachloroethene	0.42 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	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

MW-29

Analyte	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19	Dec-19	Jun-20	Dec-20
	Concentration (µg/L)													
Cis-1,2-Dichloroethene	4.9	6.1 J+	3.1	5.8 J+	0.67	5.7	5.4	5.1	3.7	4.1	5.4	4.6	2.9	4
Tetrachloroethene	33.2	30.8 J+	37.2	36.1 J+	42.2	41.7	36.9	35.4	31.9	30.8	29.7	27.9	24.3	24.0
1,1,1-Trichloroethane	12.4	14.0 J+	10.4	11.8 J+	1.2 J	14.6	13.2	11.8	10.4	9.3	8.7	9.4	5.8	9.8
Trichloroethene	224	209 J+	197	264	226	233	207	248	218	218	161	149	102	151

MW-15

Analyte	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19	Dec-19	Jun-20	Dec-20
	Concentration (µg/L)													
Cis-1,2-Dichloroethene	0.6 J	1.7	0.84 J	0.66 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	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
1,1,1-Trichloroethane	77.3	183	80.5	122	185	143	88	72.1	130	193	128	105	139	59.8
Trichloroethene	0.6 J	1.7	0.84 J	0.66 J	1.4	1.3	0.88 J	0.62 J	0.96 J	1.4	1	0.92 J	1.0	0.57 J

MW-31

Analyte	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19	Dec-19	Jun-20	Dec-20
	Concentration (µg/L)													
Cis-1,2-Dichloroethene	ND	ND	0.41 J	0.50 J	0.42 J	0.40 J	0.37 J	ND	0.34 J	.37 J	ND	0.34 J	ND	0.55 J
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.44 J	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	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

MW-33

Analyte	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19	Dec-19	Jun-20	Dec-20
	Concentration (µg/L)													
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.45 J
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	133	93.5	151	152	170	142	155	178	137	159	97.4	164	165	148

MW-35

Analyte	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19	Dec-19	Jun-20	Dec-20
	Concentration (µg/L)													
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	31.9	31.8	12.5	43.9 J+	47.8	43.5	21.2	39.4	15.2	38.1	34.8	35.4	42.9	37.3

MW-16

Analyte	Nov-15	Dec-16	Mar-17	17-Jun	17-Sep	17-Dec	18-Mar	Jun-18	Sep-18	Dec-18	Jun-19	Dec-19	Jun-20	Dec-20
	Concentration (µg/L)													
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	0.49 J	ND	0.53 J	0.50 J	0.44 J	ND	ND	ND	0.34 J	ND	0.39 J	ND	ND	ND
Trichloroethene	0.55 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

LEGEND

- 15 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 80' BGS
- 45 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 110' BGS
- MW-16 — MONITORING WELL WITH REPORTED GROUNDWATER DATA (DECEMBER 2020)
- MW-12 — MONITORING WELL NOT IN GROUNDWATER MONITORING PROGRAM
- APPROXIMATE EXTENT OF TCE GROUNDWATER PLUME

0 200' 400'

AECOM

Figure: 3-2

GROUNDWATER RESULTS
QUARTERLY MONITORING LOCATIONS
DECEMBER 2020

US ARMY Corps of Engineers

2020 4TH QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: February 2021

TABLES

Table 2-1

AECOM Project 60440641 Monitoring Well Sampling Schedule and Guidelines

The Defense National Stockpile Center Scotia Depot

Monitoring Well ID[1]	Rationale[2]	Sampling Frequency	Analytes[3]	Screen Interval (ft bgs)
MW-15	Upgradient	Quarterly for 2 years then semi-anually	VOCs/MNA	65-80
MW-16	Outside Plume	Quarterly for 2 years then semi-anually	VOCs/MNA	55-70
MW-24	Downgradient	Quarterly for 2 years then semi-anually	VOCs/MNA	100-110
MW-26	Downgradient	Quarterly for 2 years then semi-anually	VOCs/MNA	100-110
MW-28	Downgradient	Quarterly for 2 years then semi-anually	VOCs/MNA	67-72
MW-29	Upgradient	Quarterly for 2 years then semi-anually	VOCs/MNA	67-72
MW-30	Downgradient	Quarterly for 2 years then semi-anually	VOCs/MNA	82-92
MW-31	Upgradient	Quarterly for 2 years then semi-anually	VOCs/MNA	82-92
MW-32	Downgradient	Quarterly for 2 years then semi-anually	VOCs/MNA	82-92
MW-33	Upgradient	Quarterly for 2 years then semi-anually	VOCs/MNA	82-92
MW-34	Downgradient	Quarterly for 2 years then semi-anually	VOCs/MNA	82-92
MW-35	Upgradient	Quarterly for 2 years then semi-anually	VOCs/MNA	82-92
GEP-3	Upgradient	Annually	VOCs	59.6-74.6
MW-B-3	Outside Plume	Annually	VOCs	47.5-67.5
MW-5	Downgradient	Annually	VOCs	62.5-72.5
MW-6	Downgradient	Annually	VOCs	58.5-68.5
MW-7	Outside Plume	Annually	VOCs	61-71
MW-8	CT Plume	Annually	VOCs	66-76
MW-9	Downgradient	Annually	VOCs	110-120

Table 2-1

AECOM Project 60440641 Monitoring Well Sampling Schedule and Guidelines

The Defense National Stockpile Center Scotia Depot

Monitoring Well ID[1]	Rationale[2]	Sampling Frequency	Analytes[3]	Screen Interval (ft bgs)
MW-11	CT Plume	Annually	VOCs	65-80
MW-12	CT Plume	Annually	VOCs	65-80
MW-14	Upgradient	Annually	VOCs	65-80
MW-17	Upgradient	Annually	VOCs	60-75
MW-18	Upgradient	Annually	VOCs	60-75
MW-19	Upgradient	Annually	VOCs	62-77
MW-20	Upgradient	Annually	VOCs	63-78
MW-22	Upgradient	Annually	VOCs	63-78
MW-23	Outside Plume	Annually	VOCs	63-78
MW-25	Upgradient	Annually	VOCs	65-75
MW-27	Downgradient	Annually	VOCs	100-110
MW-36	Upgradient	Annually	VOCs	70-80
GEP-2	Upgradient	Annually	VOCs	60.6-75.6
GEP-1	Upgradient	Annually	VOCs	59.6-74.6
GEP-4	Upgradient	Annually	VOCs	60.15-75.15

Notes:

[1] *2015 Compliance monitoring well

[2] Rationale: Upgradient of PRB wall; Downgradient of PRB wall; Outside of any plume; Within Carbon Tetrachloride (CT) plume

[3] Monitored natural attenuation (MNA) parameters include TOC (EPA SM 5310B), alkalinity (EPA SM 2320B), Chloride, nitrate, sulfate (EPA Method 300.0), and Dissolved Gases (Methane, ethane, and ethene; Method RSK 175).

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) 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 bgs) Q4 2019	Depth To Water (ft bgs) Q2 2020	Depth To Water (ft bgs) Q4 2020
B-1	48-68	-	287.14			-	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			-	-	-	-	-	58.61	58.74	59.74	dry	-	58.25	60.21
MW-4	63.8-73.8	289.58	291.74			-	-	-	-	-	-	-	-	-	-	-	-
MW-5	62.5-72.5	287.95	290.11			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			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			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		-	-	-	-	-	-	-	-	65.78	72.71	72.82	74.38
MW-9	110-120	285.98	288.33			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			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			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	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	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			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		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		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		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		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	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			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			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			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		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			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			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	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	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	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	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			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			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			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			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			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	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	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	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	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 n

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) 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			-	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			-	-		-	-	58.61	58.74	59.74	dry		58.25	60.21
MW-4	63.8-73.8	289.58	291.74			-	-		-	-	-	-	-	-	-	-	-
MW-5	62.5-72.5	287.95	290.11			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			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			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										65.78	72.71	72.82	74.38
MW-9	110-120	285.98	288.33			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			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			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	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	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			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		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		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		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		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	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			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			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			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		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			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			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	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	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	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	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			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			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			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			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			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	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	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	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	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

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

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.

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.

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.

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:
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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-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.

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 Downgradient													
		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
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.

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.

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													
		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
		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 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.

APPENDICES

APPENDIX A: Groundwater Sample Collection Field Forms

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Rockland PC~~ Scotia Navy Depot

Monitoring Well Number: MW-29 Date: ~~August 13, 2020~~ 12/10/20

Samplers: Pat McHugh ~~Alexandra Golden~~ and Jillian Kosinski

Sample Number: MW-29 121020 QA/QC Collected? DUP-1

Purging / Sampling Method: Bladderpump low flow ~~peripump~~ with LDPE tubing Screen: 67-72

1. L = Well Depth:	71.7	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	68.78	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	~~0.17~~
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI and NTU

Parameter	Units	Readings						
Time	24 hr	0757	0802	0807	0812	0817	0822	0827
Water Level (0.33)	feet	68.78	–	–	–	–	–	–
Volume Purged	gal	–	0.10	0.20	0.30	0.40	0.50	0.60
Flow Rate	mL/min	150	150	150	150	150	150	150
Turbidity (+/- 10%)	NTU	3.68	0.98	0.36	0.41	0.60	0.85	0.31
Dissolved Oxygen (+/- 10%)	%	86.7	85.0	84.6	83.5	83.6	83.1	83.3
Dissolved Oxygen (+/- 10%)	mg/L	9.83	9.61	9.50	9.40	9.36	9.33	9.31
Eh / ORP (+/- 10)	MeV	100.6	117.8	133.4	144.3	152.6	158.8	162.3
Specific Conductivity (+/- 3%)	mS/cm^c	0.511	0.504	0.500	0.500	0.498	0.500	0.505
Conductivity (+/- 3%)	mS/cm	0.362	0.357	0.357	0.357	0.359	0.358	0.361
pH (+/- 0.1)	pH unit	7.47	7.43	7.43	7.43	7.43	7.43	7.44
Temp (+/- 0.5)	C°	9.7	9.9	10.1	10.0	10.2	10.2	10.3
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	–	–	–	–	–	–	–

Comments:

* water level below top of pump *

Sample @ 0845

IRON SAMPLED Here

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Rockland PC~~ Scotia Navy Depot

Monitoring Well Number: MW-29 Date: ~~August 13, 2020~~ 12/10/25

Samplers: Pat McHugh ~~Alexandra Golden~~ and Jillian Kosinski

Sample Number: MW-29 121020 QA/QC Collected? Dup-1

Purging / Sampling Method: Bladder pump low flow ~~peristaltic~~ with LDPE tubing

1. L = Well Depth:	71.78	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	68.78	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
~~2-inch~~	~~0.17~~
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	~~2-inch~~	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI and NTU

Parameter	Units	Readings						
Time	24 hr	0832						
Water Level (0.33)	feet	—						
Volume Purged	gal	0.90						
Flow Rate	mL/min	150						
Turbidity (+/- 10%)	NTU	0.24						
Dissolved Oxygen (+/- 10%)	%	83.1						
Dissolved Oxygen (+/- 10%)	mg/L	9.31						
Eh / ORP (+/- 10)	MeV	165.9						
Specific Conductivity (+/- 3%)	mS/cm[c]	0.510						
Conductivity (+/- 3%)	mS/cm	0.365						
pH (+/- 0.1)	pH unit	7.44						
Temp (+/- 0.5)	C°	10.2						
Color	Visual	Clear						
Odor	Olfactory	—						

Comments:

Sample @ 0845

IRON SAMPLED Here

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Rockland PC~~ Scotia Naval Depot

Monitoring Well Number: MW-32 Date: August 13, 2020

Samplers: Patrick Mettaugh ~~Alexandra Golden~~ and Jillian Kosinski

Sample Number: MW-32 121020 QA/QC Collected? Dup-2

Purging / Sampling Method: Bladder Pump low flow ~~peripump~~ with LDPE tubing

1. L = Well Depth:	92.0	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	66.37	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
~~1-inch~~	~~0.08~~
~~2-inch~~	~~0.17~~
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	~~2-inch~~	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI and NTU

Parameter	Units	Readings						
Time	24 hr	0950	0955	1000	1005	1010	1015	1020
Water Level (0.33)	feet	66.32	66.32	66.38	66.33	66.38	66.34	66.34
Volume Purged	gal	0	0.1	0.2	0.3	0.4	0.5	0.6
Flow Rate	mL/min	100	100	100	100	100	100	100
Turbidity (+/- 10%)	NTU				1.87	2.12	0.45	0.89
Dissolved Oxygen (+/- 10%)	%	11.4	6.0	2.7	2.6	2.5	2.2	2.0
Dissolved Oxygen (+/- 10%)	mg/L	1.29	0.68	0.31	0.31	0.29	0.25	0.23
Eh / ORP (+/- 10)	MeV	-159.8	-178.7	-190.2	-193.3	-189.4	-192.5	-194.0
Specific Conductivity (+/- 3%)	mS/cm[c]	0.367	0.367	0.371	0.352	0.345	0.348	0.345
Conductivity (+/- 3%)	mS/cm	0.257	0.258	0.261	0.242	0.241	0.241	0.240
pH (+/- 0.1)	pH unit	7.99	8.00	8.05	8.04	8.04	8.06	8.08
Temp (+/- 0.5)	C°	9.4	9.3	9.5	8.7	9.2	9.0	9.1
Color	Visual	Clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments: Sampled @ 1100

- NTU not available until 1005

Iron Sampled Here

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Rockland PC~~ Sutra Navy Depot

Monitoring Well Number: MW-32 Date: ~~August 13, 2020~~ 12/10/20

Samplers: ~~Alexandra Golden and~~ Jillian Kosinski and Patrick Meltzl

Sample Number: MW-32 121020 QA/QC Collected? Dup-2

Purging / Sampling Method: Bladderpump
low flow ~~peripump~~ with LDPE tubing

1. L = Well Depth:	520	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	66.32	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	~~0.163~~	0.37	0.65	1.5

Water Quality Readings Collected Using YSI and NTU

Parameter	Units	Readings						
Time	24 hr	1025	1030	1035				
Water Level (0.33)	feet	66.34	66.34	66.35				
Volume Purged	gal	0.7	0.8	0.9				
Flow Rate	mL/min	100	100	100				
Turbidity (+/- 10%)	NTU	0.95	0.87	1.11				
Dissolved Oxygen (+/- 10%)	%	2.5	2.5	2.3				
Dissolved Oxygen (+/- 10%)	mg/L	0.29	0.29	0.27				
Eh / ORP (+/- 10)	MeV	-189.2	-189.6	-190.2				
Specific Conductivity (+/- 3%)	mS/cm[c]	0.339	0.339	0.347				
Conductivity (+/- 3%)	mS/cm	0.229	0.229	0.243				
pH (+/- 0.1)	pH unit	8.08	8.07	8.08				
Temp (+/- 0.5)	C°	9.2	9.4	9.3				
Color	Visual	Clear	Clear	Clear				
Odor	Olfactory	-	-	-				

Comments:

Sampled @ 1100

Iron Sampled Here

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Rockland PC~~ Scotia Navy Depot

Monitoring Well Number: MW-33 Date: ~~August 13, 2020~~ 12/10/20

Samplers: ~~Alexander Golden and~~ Jillian Kosinski and Patrick McHugh

Sample Number: MW-33 121020 QA/QC Collected? —

Bladder Pump

Purging / Sampling Method: low flow ~~peripump~~ with LDPE tubing

1. L = Well Depth:	92.00	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	66.37	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
~~2-inch~~	~~0.17~~
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI and NTU

Parameter	Units	Readings					✓	✓
Time	24 hr	1251	1256	1301	1306	1311	1316	1321
Water Level (0.33)	feet	66.37	66.38	66.38	66.39	66.39	66.43	66.43
Volume Purged	gal	—	0.1	0.2	0.3	0.4	0.5	0.6
Flow Rate	mL/min	100	100	100	100	100	100	100
Turbidity (+/- 10%)	NTU	13.2	11.2	8.80	7.36	5.05	6.45	5.80
Dissolved Oxygen (+/- 10%)	%	66.1	53.1	51.2	50.4	51.0	51.4	50.3
Dissolved Oxygen (+/- 10%)	mg/L	7.60	6.01	5.81	5.76	5.75	5.74	5.68
Eh / ORP (+/- 10)	MeV	138.2	138.2	139.3	142.2	143.0	144.9	148.4
Specific Conductivity (+/- 3%)	mS/cm[c]	0.398	0.400	0.400	0.401	0.400	0.403	0.402
Conductivity (+/- 3%)	mS/cm	0.279	0.284	0.282	0.281	0.287	0.290	0.287
pH (+/- 0.1)	pH unit	7.90	7.84	7.83	7.83	7.82	7.82	7.81
Temp (+/- 0.5)	C°	9.3	9.8	9.6	9.5	10.1	10.2	10.0
Color	Visual	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments: Sampled @ 1345

* Iron Sampled Here

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Rockland PC~~ Scotia Navy Depot

Monitoring Well Number: MW-33 Date: ~~August 13, 2020~~ 12/10/20

Samplers: ~~Alexandra Golden and~~ Jillian Kosinski and Patrick Melloy

Sample Number: MW-33 121020 QA/QC Collected? ✓

Purging / Sampling Method: Bladder Pump
low flow ~~peripump~~ with LDPE tubing

1. L = Well Depth:	92.00	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	66.37	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
~~2-inch~~	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	~~2-inch~~	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI and NTU

Parameter	Units	✓ Readings						
Time	24 hr	1326						
Water Level (0.33)	feet	66.45						
Volume Purged	gal	0.7						
Flow Rate	mL/min	100						
Turbidity (+/- 10%)	NTU	5.51						
Dissolved Oxygen (+/- 10%)	%	50.2						
Dissolved Oxygen (+/- 10%)	mg/L	5.68						
Eh / ORP (+/- 10)	MeV	151.4						
Specific Conductivity (+/- 3%)	mS/cm[c]	0.462						
Conductivity (+/- 3%)	mS/cm	0.284						
pH (+/- 0.1)	pH unit	7.21						
Temp (+/- 0.5)	C°	9.9						
Color	Visual	Clear						
Odor	Olfactory	—						

Comments:

Sample@1345

Dup Sampled Here

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Midtown Shopping Plaza~~ Scotia Navy Depot

Monitoring Well Number: MW-16 Date: 12/7/20

Samplers: JK and ~~RS~~ PM

Sample Number: MW-16 QA/QC Collected? MS. MSD

Purging / Sampling Method: Bladder pump & dedicated tubing

1. L = Well Depth:	69.40	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	65.84	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
~~2-inch~~	~~0.17~~
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	~~2-inch~~	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using NTU + YSI

Parameter	Units	Readings						
Time	24 hr	1335	1340	1345	1350	1355	1400	1405
Water Level (0.33)	feet	65.84	65.84	65.85	65.85	65.85	65.84	65.88
Volume Purged	gal	—	0.15	0.30	0.45	0.60	0.75	0.90
Flow Rate	mL/min	200	200	200	200	200	200	200
Turbidity (+/- 10%)	NTU	120	85.2	66.2	55.8	42.3	38.5	35.2
Dissolved Oxygen (+/- 10%)	%	~~10.43~~	~~10.32~~	~~10.30~~	~~10.29~~	88.5	87.8	88.2
Dissolved Oxygen (+/- 10%)	mg/L	10.43	10.32	10.30	10.29	10.34	10.30	10.30
Eh / ORP (+/- 10)	MeV	133.7	129.8	133.2	129.7	147.3	128.6	128.3
Specific Conductivity (+/- 3%)	mS/cm	0.640	0.647	0645	0.644	0.641	0.636	0.638
Conductivity (+/- 3%)	mS/cm	0.439	0.436	0.439	0.441	0.441	0.436	0.437
pH (+/- 0.1)	pH unit	7.41	7.39	7.38	7.37	7.37	7.36	7.36
Temp (+/- 0.5)	C°	8.4	8.0	8.3	8.6	8.6	8.5	8.8
Color	Visual	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy
Odor	Olfactory	—	—	—	—	—	—	—

Comments: Sampled at 1425, No iron Sample

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Midtown Shopping Plaza~~ Scotia Navy Depot

Monitoring Well Number: MW-16 Date: 12/7/20

Samplers: JK and ~~RS~~ PM

Sample Number: MW-16 QA/QC Collected? MS - MSD

Purging / Sampling Method: Bladder pump & dedicated tubing.

1. L = Well Depth:		feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:		feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using NTU + YSI

Parameter	Units	Readings						
Time	24 hr	1410						
Water Level (0.33)	feet	65.88						
Volume Purged	gal	1.05						
Flow Rate	mL/min	260						
Turbidity (+/- 10%)	NTU	34.5						
Dissolved Oxygen (+/- 10%)	%	88.9						
Dissolved Oxygen (+/- 10%)	mg/L	10.37						
Eh / ORP (+/- 10)	MeV	128.3						
Specific Conductivity (+/- 3%)	mS/cm^c	0.640						
Conductivity (+/- 3%)	mS/cm	0.438						
pH (+/- 0.1)	pH unit	7.34						
Temp (+/- 0.5)	C°	8.7						
Color	Visual	Cloudy						
Odor	Olfactory	—						

Comments:

Sample @ 1425

NO IRON SAMPLE

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Midtown Shopping Plaza~~ Scotia Navy Depot

Monitoring Well Number: MW-24 Date: 12/08/20

Samplers: JK and RS

Sample Number: MW-24 120820 QA/QC Collected? -

Purging / Sampling Method: Bladder Pump & Dedicated Tubing *Screen: 90-100*

1. L = Well Depth:		feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	69.18	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	~~2-inch~~	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using NTU + YSI

Parameter	Units	Readings						
Time	24 hr	09:42	09:47	09:52	09:57	1002	1007	1012
Water Level (0.33)	feet	69.18	69.18	69.18	69.18	69.19	69.19	69.19
Volume Purged	gal	—	0.15	0.30	0.45	0.60	0.75	0.90
Flow Rate	mL/min	200	200	200	200	200	200	200
Turbidity (+/- 10%)	NTU	1.27	1.98	1.74	2.47	~~3.69~~ 0.78	0.02	0.02
Dissolved Oxygen (+/- 10%)	%	9.3	6.7	5.2	4.7	3.9	3.8	3.7
Dissolved Oxygen (+/- 10%)	mg/L	1.13	0.83	0.63	0.58	0.48	0.47	0.45
Eh / ORP (+/- 10)	MeV	-57.9	-73.5	-83.0	-86.9	-94.4	-98.0	-102
Specific Conductivity (+/- 3%)	mS/cm[c]	0.400	0.396	0.399	0.396	0.404	0.428	0.434
Conductivity (+/- 3%)	mS/cm	0.257	0.255	0.252	0.252	0.258	0.275	0.278
pH (+/- 0.1)	pH unit	7.83	7.82	7.82	7.83	7.83	7.83	7.83
Temp (+/- 0.5)	C°	6.3	5.9	5.7	6.1	6.2	6.1	6.1
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments:

* bottom of tubing is black *

Sample @ 1020

NO IRON SAMPLE

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Midtown Shopping Plaza~~ Scotia Navy Depot

Monitoring Well Number: MW-26 Date: 12/08/20

Samplers: JK and ~~RS~~ PM

Sample Number: MW-26 QA/QC Collected? -

Purging / Sampling Method: Bladder Pump + Dedicated tubing * screen: 100-110'

1. L = Well Depth:		feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	63.78	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
~~2-inch~~	~~0.17~~
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using NTU + YSI

Parameter	Units	Readings						
Time	24 hr	0758	0803	0808	0813	08:18	08:23	0828
Water Level (0.33)	feet	63.78	63.78	63.79	63.79	63.79	63.79	63.80
Volume Purged	gal	0.20	0.30	0.40	0.60	0.75	0.90	1.05
Flow Rate	mL/min	200	200	200	200	200	200	200
Turbidity (+/- 10%)	NTU	6.92	5.83	7.46	4.56	4.12	0.02	0.02
Dissolved Oxygen (+/- 10%)	%	58.5	54.4	49.1	31.8	23.8	21.3	~~24.8~~ *
Dissolved Oxygen (+/- 10%)	mg/L	7.34	6.75	6.04	4.14	2.91	2.61	2.15
Eh / ORP (+/- 10)	MeV	227	235.1	237.6	237.0	235.6	233.5	229.7
Specific Conductivity (+/- 3%)	mS/cm[c]	0.210	0.209	0.213	0.248	0.265	0.280	0.313
Conductivity (+/- 3%)	mS/cm	0.134	0.134	0.138	0.162	0.172	0.181	0.204
pH (+/- 0.1)	pH unit	7.65	7.56	7.55	7.55	7.56	7.57	7.58
Temp (+/- 0.5)	C°	6.0	6.3	6.4	6.8	6.6	6.4	6.7
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—

*17.4

Comments: * let pump run for 10 mins prior to recording readings *

. Sample @ 0850

NO IRON SAMPLE

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Midtown Shopping Plaza~~ Scotia Navy Depot

Monitoring Well Number: MW-26 (cont) Date: 12/08/20

Samplers: JK and ~~BS~~ PM

Sample Number: MW-26 120820 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump & Dedicated Tubing

1. L = Well Depth:		feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	63.78	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
~~2-inch~~	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	~~2-inch~~	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using NTU + YSI

Parameter	Units	Readings						
Time	24 hr	0833	0838	0843	0848			
Water Level (0.33)	feet	63.80	63.80	63.80	63.80			
Volume Purged	gal	1.20	1.35	1.50	1.65			
Flow Rate	mL/min	200	200	200	200			
Turbidity (+/- 10%)	NTU	0.02	0.02	0.02	0.02			
Dissolved Oxygen (+/- 10%)	%	15.5	13.1	12.8	12.1			
Dissolved Oxygen (+/- 10%)	mg/L	1.90	1.60	1.57	1.53			
Eh / ORP (+/- 10)	MeV	226.8	217.2	204.4	198.7			
Specific Conductivity (+/- 3%)	mS/cm^c	0.329	0.344	0.351	0.360			
Conductivity (+/- 3%)	mS/cm	0.213	0.225	0.229	0.233			
pH (+/- 0.1)	pH unit	7.59	7.60	7.60	7.60			
Temp (+/- 0.5)	C°	6.6	6.6	6.6	6.7			
Color	Visual	clear	clear	clear	clear			
Odor	Olfactory	—	—	—	—			

Comments:

Sample @ 0850

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Midtown Shopping Plaza~~ Scotia Navy Depot

Monitoring Well Number: MW-15 Date: 12/08/20

Samplers: JK and [redacted] PM

Sample Number: MW-15 120820 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump & Dedicated Tubing & screen: 65-80'

1. L = Well Depth:	80.27	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	67.91	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using NTU + YSI

Parameter	Units	Readings						
Time	24 hr	1125	1130	1135	1140	1145	1150	1155
Water Level (0.33)	feet	67.91	67.92	67.94	67.95	67.95	67.96	67.97
Volume Purged	gal	0.15	0.30	0.45	0.60	0.75	0.90	1.05
Flow Rate	mL/min	200	200	200	200	200	200	200
Turbidity (+/- 10%)	NTU	7.93	4.42	2.89	0.02	2.81	1.26	1.87
Dissolved Oxygen (+/- 10%)	%	74.2	73.4	73.6	72.5	71.4	72.6	7.31
Dissolved Oxygen (+/- 10%)	mg/L	8.85	8.69	8.70	8.73	8.73	8.78	8.89
Eh / ORP (+/- 10)	MeV	142.5	149.0	154.3	159.6	165.4	169.1	172.1
Specific Conductivity (+/- 3%)	mS/cm[c]	0.498	0.488	0.489	0.489	0.492	0.484	0.483
Conductivity (+/- 3%)	mS/cm	0.326	0.328	0.330	0.327	0.319	0.319	0.321
pH (+/- 0.1)	pH unit	7.64	7.63	7.63	7.64	7.65	7.65	7.65
Temp (+/- 0.5)	C°	7.2	7.8	7.8	7.8	[redacted]21	7.2	7.3
Color	Visual	Clear	clear	clear	Clear	clear	clear	Clear
Odor	Olfactory	-	-	-	-	-	-	-

Comments: * purged well for 5 mins prior to recording parameters *

Sample @ 1205

NO IRON

Monitoring Well Purging / Sampling Form

Project Name and Number: Midtown Shopping Plaza

Monitoring Well Number: MW-30 Date: 12/08/20

Samplers: JK and [redacted] PM

Sample Number: MW-30 120820 QA/QC Collected? –

Purging / Sampling Method: Bladder Pump & Dedicated Tubing Screen: 82-92 ft

1. L = Well Depth:		feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	68.19	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using NTU + YSI

Parameter	Units	Readings						
Time	24 hr	1318	1323	1328	1333	1338	1343	1348
Water Level (0.33)	feet	68.19	68.19	68.19	68.19	68.19	68.19	68.20
Volume Purged	gal	–	0.15	0.30	0.45	0.60	0.75	0.90
Flow Rate	mL/min	200	200	200	200	200	200	200
Turbidity (+/- 10%)	NTU	5.63	2.56	1.49	1.56	0.35	0.99	0.89
Dissolved Oxygen (+/- 10%)	%	18.8	9.7	8.0	5.3	5.0	4.0	3.5
Dissolved Oxygen (+/- 10%)	mg/L	2.19	0.87	0.98	0.61	0.61	0.46	0.41
Eh / ORP (+/- 10)	MeV	-44.8	-98.3	-126.2	-134.8	-143.5	-151.7	-156.3
Specific Conductivity (+/- 3%)	mS/cm[c]	0.321	0.324	0.330	0.327	0.324	0.317	0.316
Conductivity (+/- 3%)	mS/cm	0.218	0.223	0.224	0.224	0.225	0.218	0.216
pH (+/- 0.1)	pH unit	8.24	8.27	8.28	8.30	8.31	8.34	8.35
Temp (+/- 0.5)	C°	8.3	8.6	8.8	8.7	8.8	8.6	8.6
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	–	–	–	–	–	–	–

Comments:

Sample@ 1410

IRON SAMPLED HERE

Monitoring Well Purging / Sampling Form

Project Name and Number: Midtown Shopping Plaza

Monitoring Well Number: MW-30 Date: 12/08/20

Samplers: JK and ~~BS~~ PM

Sample Number: MW-30120820 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump & Dedicated Tubing screen: 82-92

1. L = Well Depth:		feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	68.19	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	~~0.17~~
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using NTU + YSI

Parameter	Units	✓	✓	✓	Readings			
Time	24 hr	1353	1358	1403				
Water Level (0.33)	feet	68.19	68.19	68.19				
Volume Purged	gal	1.05	1.20	1.35				
Flow Rate	mL/min	200	200	200				
Turbidity (+/- 10%)	NTU	1.19	0.88	1.12				
Dissolved Oxygen (+/- 10%)	%	3.6	3.5	3.3				
Dissolved Oxygen (+/- 10%)	mg/L	0.42	0.41	0.38				
Eh / ORP (+/- 10)	MeV	-162.6	-166.9	-170.5				
Specific Conductivity (+/- 3%)	mS/cm[c]	0.310	0.309	0.311				
Conductivity (+/- 3%)	mS/cm	0.213	0.212	0.210				
pH (+/- 0.1)	pH unit	8.36	8.37	8.38				
Temp (+/- 0.5)	C°	8.0	8.1	8.1				
Color	Visual	clear	clear	clear				
Odor	Olfactory	—	—	—				

Comments:

Sample @ 1410

IRON SAMPLED HERE

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Midtown Shopping Plaza~~ Scotia Navy Depot

Monitoring Well Number: MW-31 Date: 12/9/20

Samplers: JK and ~~BS~~ PM

Sample Number: MW-31 120920 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump & Dedicated Tubing screen: 82-92

1. L = Well Depth:		feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	67.19	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using NTU + YSI

Parameter	Units	Readings				✓	✓	✓
Time	24 hr	0753	0758	0803	0808	0813	0818	0823
Water Level (0.33)	feet	67.19	67.19	67.19	67.19	67.19	67.19	67.19
Volume Purged	gal	0.30	0.40	0.50	0.60	0.70	0.80	0.90
Flow Rate	mL/min	100	100	100	100	100	100	100
Turbidity (+/- 10%)	NTU	2.77	2.44	1.89	1.32	1.07	0.96	0.83
Dissolved Oxygen (+/- 10%)	%	8.6	6.1	5.4	5.0	4.6	4.4	4.3
Dissolved Oxygen (+/- 10%)	mg/L	1.05	0.73	0.64	0.59	0.54	0.52	0.51
Eh / ORP (+/- 10)	MeV	-67.9	-113.5	-125.2	-128.9	-135.5	-137.5	-138.0
Specific Conductivity (+/- 3%)	mS/cm[c]	0.451	0.456	0.459	0.463	0.466	0.467	0.468
Conductivity (+/- 3%)	mS/cm	0.291	0.303	0.308	0.312	0.314	0.316	0.316
pH (+/- 0.1)	pH unit	7.99	7.99	7.99	8.00	8.02	8.03	8.03
Temp (+/- 0.5)	C°	6.7	7.4	7.7	8.0	8.0	8.0	8.0
Color	Visual	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments:

SAMPLE @ 0830

IRON COLLECTED ✓

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Midtown Shopping Plaza~~ Scotia Navy Depot

Monitoring Well Number: MW-34 Date: 12/9/20

Samplers: JK and RS

Sample Number: MW-34 120920 QA/QC Collected? —

Purging / Sampling Method: Bladder pump & dedicated tubing Screen: 82-92

1. L = Well Depth:		feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	63.56	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using NTU + YSI

Parameter	Units	Readings						
Time	24 hr	0945	0950	0955	1000	1005	1010	1015
Water Level (0.33)	feet	63.86	63.66	63.65	63.67	63.75	63.70	63.70
Volume Purged	gal	—	0.10	0.20	0.30	0.40	0.50	0.60
Flow Rate	mL/min	66	66	66	66	66	66	66
Turbidity (+/- 10%)	NTU	5.64	7.22	6.48	4.61	1.53	1.16	1.80
Dissolved Oxygen (+/- 10%)	%	64.3	63.1	58.1	43.5	30.5	24.3	21.7
Dissolved Oxygen (+/- 10%)	mg/L	7.30	7.13	6.48	4.90	3.26	2.72	2.54
Eh / ORP (+/- 10)	MeV	76.6	96.0	+101.9	106.7	111.0	111.7	112.0
Specific Conductivity (+/- 3%)	mS/cm[c]	0.170	0.163	0.165	0.167	0.172	0.177	0.181
Conductivity (+/- 3%)	mS/cm	0.120	0.116	0.117	0.119	0.124	0.127	0.130
pH (+/- 0.1)	pH unit	7.83	7.76	7.76	7.74	7.72	7.73	7.73
Temp (+/- 0.5)	C°	9.9	10.1	10.0	10.1	10.3	10.3	10.
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments:

$\frac{75\ mL}{68\ sec} \cdot \frac{60\ sec}{1\ min} = 66.1\ mL/min$

Sample @ 1050

IRON SAMPLED HERE

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Midtown Shopping Plaza~~ Scotia Navy Depot

Monitoring Well Number: MW-34 Date: 12/9/20

Samplers: JK and RS

Sample Number: MW-34 120920 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump & dedicated tubing screen: 82-92

1. L = Well Depth:		feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	63.56	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using NTU + YSI

Parameter	Units	Readings		✓		✓		
Time	24 hr	1020	1025	1030	1035	1040	~~1045~~	
Water Level (0.33)	feet	63.67	63.67	63.67	63.68	63.		
Volume Purged	gal	0.70	0.80	0.90	1.00	1.10		
Flow Rate	mL/min	66	66	66	66	66		
Turbidity (+/- 10%)	NTU	1.85	1.89	0.73	0.99	1.20		
Dissolved Oxygen (+/- 10%)	%	17.1	14.2	11.0	10.4	10.0		
Dissolved Oxygen (+/- 10%)	mg/L	1.91	1.59	1.33	1.23	1.14		
Eh / ORP (+/- 10)	MeV	112.4	112.6	112.5	112.2	112.0		
Specific Conductivity (+/- 3%)	mS/cm[c]	0.184	0.188	0.191	0.195	0.198		
Conductivity (+/- 3%)	mS/cm	0.132	0.135	0.138	0.140	0.142		
pH (+/- 0.1)	pH unit	7.73	7.75	7.76	7.78	7.79		
Temp (+/- 0.5)	C°	10.2	10.4	10.3	10.3	10.3		
Color	Visual	clear	clear	clear	Clear	clear		
Odor	Olfactory	—	—	—	—	—		

Comments:

Sample @ 1050

IRON SAMPLED HERE

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Rockland PC~~ Scotia Navy Depot

Monitoring Well Number: MW-35 Date: ~~August 13, 2020~~ 12/09/20

Samplers: Pat McHugh
~~Alexandra Golden~~ and Jillian Kosinski

Sample Number: MW-35 120920 QA/QC Collected? —

Purging / Sampling Method: low flow ~~peripump~~ bladder pump with LDPE tubing Screen: 82-92

1. L = Well Depth:		feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	63.47 (63.35)	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = C(3.14159)(0.5D)^2(7.48)		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI and NTU

Parameter	Units	Readings						
Time	24 hr	1123	1128	1133	1138	1143	1148	1153
Water Level (0.33)	feet	63.47	63.47	63.48	63.49	63.50	63.49	63.48
Volume Purged	gal	—	0.10	0.20	0.30	0.40	0.50	0.60
Flow Rate	mL/min	93	93	93	93	93	93	93
Turbidity (+/- 10%)	NTU	5.68	1.10	1.74	1.83	1.52	1.03	0.67
Dissolved Oxygen (+/- 10%)	%	38.5	48.9	56.9	61.1	62.9	64.2	64.4
Dissolved Oxygen (+/- 10%)	mg/L	4.42	5.60	6.65	6.97	7.17	7.30	7.32
Eh / ORP (+/- 10)	MeV	93.7	109.2	119.0	126.4	132.9	139.5	141.8
Specific Conductivity (+/- 3%)	mS/cm^c	0.387	0.426	0.446	0.455	0.460	0.463	0.463
Conductivity (+/- 3%)	mS/cm	0.271	0.301	0.314	0.320	0.325	0.326	0.328
pH (+/- 0.1)	pH unit	7.76	7.79	7.82	7.84	7.86	7.86	7.87
Temp (+/- 0.5)	C°	9.4	9.7	9.5	9.4	9.7	9.5	9.7
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments:

$\frac{105\ mL}{68\ sec} \cdot \frac{60\ sec}{1\ min} = 92.6\ mL/min \approx 93\ mL/min$

Sample @ 1200

IRON SAMPLED HERE

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Rockland PC~~ Scotia Navy Depot

Monitoring Well Number: MW-28 Date: ~~August 13, 2020~~ 12/09/20

Samplers: Pat McHugh ~~Alexandra Cutten~~ and Jillian Kosinski

Sample Number: MW-28 120920 QA/QC Collected? —

Purging / Sampling Method: Bladder pump ~~low flow peripump~~ with LDPE tubing Screen: 67-72

1. L = Well Depth:	72.70	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	69.48	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	~~0.08~~
~~2-inch~~	~~0.17~~
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	~~2-inch~~	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using YSI and NTU

Parameter	Units	Readings						
Time	24 hr	1325	1330	1335	1340	1345	1350	1355
Water Level (0.33)	feet	69.48	* —	~	~	~	~	~
Volume Purged	gal	—	0.10	0.20	0.30	0.40	0.50	0.60
Flow Rate	mL/min	60	60	60	60	60	60	60
Turbidity (+/- 10%)	NTU	10.1	8.02	6.08	4.83	3.05	1.73	
Dissolved Oxygen (+/- 10%)	%	82.6	79.6	79.9	80.0	79.9	79.0	79.8
Dissolved Oxygen (+/- 10%)	mg/L	9.83	9.40	9.38	9.44	9.27	9.28	9.25
Eh / ORP (+/- 10)	MeV	37.7	41.4	55.7	60.6	70.0	78.3	81.2
Specific Conductivity (+/- 3%)	mS/cm[c]	0.654	0.658	0.652	0.653	0.643	0.640	0.638
Conductivity (+/- 3%)	mS/cm	0.441	0.446	0.445	0.442	0.442	0.437	0.440
pH (+/- 0.1)	pH unit	7.60	7.57	7.56	7.55	7.55	7.55	7.54
Temp (+/- 0.5)	C°	8.2	8.1	8.4	8.2	8.4	8.5	8.5
Color	Visual	Clear	clear	clear	clear	clear	clear	Clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments: *pump at water level

$\frac{110 \text{ mL}}{110 \text{ sec}} \cdot \frac{60 \text{ sec}}{\text{min}} = 60 \text{ mL/min}$

Sample @ 1410

IRON SAMPLED HERE

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~Midtown Shopping Plaza~~ Scotia Navy Depot

Monitoring Well Number: MW-28 Date: 12/09/20

Samplers: JK and PM

Sample Number: MW-28120920 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump & dedicated tubing screen: 67-72

1. L = Well Depth:	72.70	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	69.48	feet
4. C = Column of Water in Well:		feet
5. V = Volume of Water in Well = $C(3.14159)(0.5D)^2(7.48)$		gal
6. 3(V) = Target Purge Volume		gal

D (inches)	D (feet)
1-inch	0.08
2-inch	0.17
3-inch	0.25
4-inch	0.33
6-inch	0.50

Conversion factors to determine V given C

D (inches)	1-inch	2-inch	3-inch	4-inch	6-inch
V (gal / ft)	0.041	0.163	0.37	0.65	1.5

Water Quality Readings Collected Using NTU + YSI

Parameter	Units	Readings						
Time	24 hr	1400	1405					
Water Level (0.33)	feet	~	~					
Volume Purged	gal	0.70	0.80					
Flow Rate	mL/min	60	60					
Turbidity (+/- 10%)	NTU	1.87	0.97					
Dissolved Oxygen (+/- 10%)	%	90.3	80.0					
Dissolved Oxygen (+/- 10%)	mg/L	9.27	9.26					
Eh / ORP (+/- 10)	MeV	84.5	86.5					
Specific Conductivity (+/- 3%)	mS/cm^c	0.636	0.644					
Conductivity (+/- 3%)	mS/cm	0.441	0.441					
pH (+/- 0.1)	pH unit	-23.9	-23.8					
Temp (+/- 0.5)	C°	8.7	8.8					
Color	Visual	Clear	Clear					
Odor	Olfactory	—	—					

Comments:

Sample @ 1410

IRON SAMPLED HERE

APPENDIX B: Field Calibration Forms

Calibration Record

Project Name: Scotia Navy Depot

Personnel: JK + DM

Instrument: YSI + NTU

Parameter	Units	Calibration Readings				
		Morning Calibration	Evening Calibration		Morning Calibration	Evening Calibration
Date	-	12/7/20			12/8/20	
Time	24 hr	1050	1500		0720	1500
Temperature	~~°F~~ °C	~~14~~ 11.0	11.0		-0.4	7.9
pH1	pH unit	7.00	7.00		7.00	7.00
pH2	pH unit	10.00	10.00		10.00	10.00
pH3	pH unit	4.00	4.00		4.00	4.00
ORP	MeV	220	220		220	220
Conductivity	mS/cm	1413	1413		1413	1413
Turbidity	NTU	0.0	0.0		0.0	0.0
D.O.	mg/L	0.0	0.0		0.0	0.0

Parameter	Units	Calibration Readings				
		Morning Calibration	Evening Calibration		Morning Calibration	Evening Calibration
Date	-	12/9/20			12/10/20	
Time	24 hr	0700	1430		0710	Returned
Temperature	~~°F~~ °C	-1.7	8.9		3.6	
pH1	pH unit	7.00	7.00		7.00	
pH2	pH unit	4.00	4.00		4.00	
pH3	pH unit	10.00	10.00		10.00	
ORP	MeV	220	220		220	
Conductivity	mS/cm	1413	1413		1413	
Turbidity	NTU	0.0	0.0		0.0	
D.O.	mg/L	0.0	0.0		0.0	

APPENDIX C: Hydraulic Gradient and Velocity Calculations

Dec 2020 Annual Monitoring Report
The Defense National Stockpile Center Scotia Depot
Appendix C Hydraulic Gradient and Velocity Calculations

Hydraulic Gradient Calculation

$$hydraulic\ gradient = \frac{change\ in\ groundwater\ elevation}{change\ in\ distance} = \frac{\Delta h}{\Delta L}$$

December 2020 Data		GW Elevation (ft)	Delta Elevation (ft)	Delta Distance (ft)	Gradient	**Average Gradient (ft/ft)**
Pair 1	MW-25	225.50	2.83	540	0.005240741	**0.003769**
	MW-26	222.67				
Pair 2	GEP-3	224.74	1.40	420	0.003333333	
	MW-13	223.34				
Pair 3	MW-17	225.29	1.12	410	0.002731707	
	MW-28	224.17				

Groundwater Darcy Velocity

$$Darcy\ Velocty = K \times hydraulic\ gradient = K \times \frac{\Delta h}{\Delta L}$$

Low Hydraulic Conductivity (K) (ft/day)	15.66
High Hydraulic Conductivity (K) (ft/day)	193.8

Darcy Velocity Low (ft/day)	0.06
Darcy Velocity High (ft/day)	0.73

Seepage Velocity

$$\text{Seepage } Velocty = \frac{K \times hydraulic\ gradient}{n} = \frac{Darcy\ Velocity}{n}$$

Porosity (n)	0.4

Seepage Velocity Low (ft/day)	**0.15**
Seepage Velocity High (ft/day)	**1.83**

APPENDIX D: Laboratory Reports

ALS Environmental

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State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

December 15, 2020

Ms. Gerlinde Wolfe
AECOM - Latham NY
40 British American Blvd
Albany, NY 12210

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**3145292**
Purchase Order:	**66432**	Workorder ID:	**ASN060|2015-SCOTIA NAVY-PO6044**

Dear Ms. Wolfe:

Enclosed are the analytical results for samples received by the laboratory on Tuesday, December 8, 2020.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact ELIZABETH M PARKER (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

CC: Mr. Greg Malzone , Mr. Daniel Servetas

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Elizabeth M. Parker

ELIZABETH M PARKER
Project Coordinator

ALS Environmental

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December 15, 2020

Ms. Gerlinde Wolfe
AECOM - Latham NY
40 British American Blvd
Albany, NY 12210

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**3145292**
Purchase Order:	**66432**	Workorder ID:	**ASN060|2015-SCOTIA NAVY-PO6044**

Dear Ms. Wolfe:

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Mr. Greg Malzone , Mr. Daniel Servetas

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Elizabeth M. Parker

ELIZABETH M PARKER
Project Coordinator

ALS Environmental

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SAMPLE SUMMARY

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3145292001	MW-16 120720	Ground Water	12/7/2020 14:25	12/8/2020 10:14	Collected by Client
3145292002	Trip Blank 120720	Ground Water	12/7/2020 14:25	12/8/2020 10:14	Collected by Client

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SAMPLE SUMMARY

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
-- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

ANALYTICAL RESULTS

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

Lab ID: **3145292001** Date Collected: 12/7/2020 14:25 Matrix: Ground Water

Sample ID: **MW-16 120720** Date Received: 12/8/2020 10:14

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 00:58	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 00:58	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 00:58	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 00:58	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 00:58	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 00:58	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 00:58	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 00:58	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 00:58	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 00:58	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 00:58	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 00:58	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 00:58	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 00:58	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95.9		%	81 - 118			SW846 8260C			12/15/20 00:58	PDK	A
4-Bromofluorobenzene (S)	95.3		%	85 - 114			SW846 8260C			12/15/20 00:58	PDK	A
Dibromofluoromethane (S)	89.3		%	80 - 119			SW846 8260C			12/15/20 00:58	PDK	A
Toluene-d8 (S)	96.2		%	89 - 112			SW846 8260C			12/15/20 00:58	PDK	A
LIGHT HYDROCARBON GASES												
n-Butane	0.0		ug/L			1.1	RSK 175			12/15/20 07:04	CHS	T
Ethane	2.6U	U	ug/L	5.2	2.6	0.56	RSK 175			12/15/20 07:04	CHS	T
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175			12/15/20 07:04	CHS	T
Isobutane	0.0		ug/L			0.90	RSK 175			12/15/20 07:04	CHS	T
Methane	1.6U	U	ug/L	2.6	1.6	0.53	RSK 175			12/15/20 07:04	CHS	T
Propane	0.0		ug/L			0.84	RSK 175			12/15/20 07:04	CHS	T
WET CHEMISTRY												
Alkalinity, Total	280	2	mg/L	5	5	0.8	SM2320B-2011			12/9/20 19:46	R2B	Q
Chloride	4.4		mg/L	2.0	1.8	0.88	EPA 300.0			12/9/20 05:25	MBW	N
Nitrate-N	1.0		mg/L	0.20	0.14	0.050	EPA 300.0			12/9/20 05:25	MBW	N
Sulfate	46.4		mg/L	2.0	1.8	0.50	EPA 300.0			12/9/20 05:25	MBW	N
Total Organic Carbon (TOC)	0.90J	J,1	mg/L	1.0	0.50	0.27	SW846 9060A			12/11/20 06:50	PAG	H
Total Organic Carbon, 2nd	0.83J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/11/20 06:50	PAG	H
Total Organic Carbon, 3rd	0.78J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/11/20 06:50	PAG	H
Total Organic Carbon, 4th	0.76J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/11/20 06:50	PAG	H

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ANALYTICAL RESULTS

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

Lab ID:	**3145292001**	Date Collected:	12/7/2020 14:25	Matrix:	Ground Water
Sample ID:	**MW-16 120720**	Date Received:	12/8/2020 10:14		

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	*Cntr*

Elizabeth M. Parker

ELIZABETH M PARKER
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ANALYTICAL RESULTS

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

Lab ID: **3145292002** Date Collected: 12/7/2020 14:25 Matrix: Ground Water

Sample ID: **Trip Blank 120720** Date Received: 12/8/2020 10:14

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95.8		%	81 - 118	SW846 8260C			12/14/20 23:27	PDK	A
4-Bromofluorobenzene (S)	95		%	85 - 114	SW846 8260C			12/14/20 23:27	PDK	A
Dibromofluoromethane (S)	89.1		%	80 - 119	SW846 8260C			12/14/20 23:27	PDK	A
Toluene-d8 (S)	97.5		%	89 - 112	SW846 8260C			12/14/20 23:27	PDK	A

Elizabeth M. Parker

ELIZABETH M PARKER
Project Coordinator

ANALYTICAL RESULTS

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3145292001	1	MW-16 120720	SW846 9060A	Total Organic Carbon (TOC)
The QC sample type MS for method 415.1/9060/5310B was outside the control limits for the analyte Total Organic Carbon (TOC). The % Recovery was reported as 120 and the control limits were 85 to 115.				
3145292001	2	MW-16 120720	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

Lab ID	Sample ID	Analysis Method	Prep Method	Leachate Method
3145292001	MW-16 120720	EPA 300.0		
3145292001	MW-16 120720	RSK 175		
3145292001	MW-16 120720	SM2320B-2011		
3145292001	MW-16 120720	SW846 8260C		
3145292001	MW-16 120720	SW846 9060A		
3145292002	Trip Blank 120720	SW846 8260C		

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QUALITY CONTROL DATA

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

QC Batch: SVGC/59170 **Analysis Method:** RSK 175

QC Batch Method: RSK 175

Associated Lab Samples: 3145292001

METHOD BLANK: 3249296

Parameter	Blank Result	Units	Reporting Limit
n-Butane	0.0	ug/L	
Ethane	2.6U	ug/L	5.2
Ethene	3.6U	ug/L	7.1
Isobutane	0.0	ug/L	
Methane	1.6U	ug/L	2.6
Propane	0.0	ug/L	
Methyl-t-Butyl ether-d3 (S)			

SAMPLE DUPLICATE: 3249297 ORIGINAL: 3145292001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
n-Butane	0	ug/L	0	NC	20
Ethane	0	ug/L	0	NC	20
Ethene	0	ug/L	0	NC	20
Isobutane	0	ug/L	0	NC	20
Methane	0	ug/L	0	NC	20
Propane	0	ug/L	0	NC	20

ALS Environmental

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QUALITY CONTROL DATA

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

QC Batch: VOMS/57582 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3145292001, 3145292002

METHOD BLANK: 3249164

Parameter	Blank Result	Units	Reporting Limit
Carbon Tetrachloride	0.75U	ug/L	1.0
1,1-Dichloroethane	0.75U	ug/L	1.0
1,2-Dichloroethane	0.75U	ug/L	1.0
1,1-Dichloroethene	0.75U	ug/L	1.0
cis-1,2-Dichloroethene	0.75U	ug/L	1.0
trans-1,2-Dichloroethene	0.75U	ug/L	1.0
1,1,1,2-Tetrachloroethane	0.75U	ug/L	1.0
1,1,2,2-Tetrachloroethane	0.75U	ug/L	1.0
Tetrachloroethene	0.75U	ug/L	1.0
Toluene	0.75U	ug/L	1.0
1,1,1-Trichloroethane	0.75U	ug/L	1.0
1,1,2-Trichloroethane	0.75U	ug/L	1.0
Trichloroethene	0.75U	ug/L	1.0
Vinyl Chloride	0.75U	ug/L	1.0
1,2-Dichloroethane-d4 (S)	93.7	%	81 - 118
4-Bromofluorobenzene (S)	91.3	%	85 - 114
Dibromofluoromethane (S)	85.5	%	80 - 119
Toluene-d8 (S)	94.9	%	89 - 112

LABORATORY CONTROL SAMPLE: 3249165

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	102	ug/L	20	20.5	72 - 136
1,1-Dichloroethane	100	ug/L	20	20.0	77 - 125
1,2-Dichloroethane	95.5	ug/L	20	19.1	73 - 128
1,1-Dichloroethene	120	ug/L	20	24.0	71 - 131
cis-1,2-Dichloroethene	103	ug/L	20	20.6	78 - 123
trans-1,2-Dichloroethene	106	ug/L	20	21.3	75 - 124
1,1,1,2-Tetrachloroethane	100	ug/L	20	20.1	78 - 124
1,1,2,2-Tetrachloroethane	100	ug/L	20	20.0	71 - 121
Tetrachloroethene	104	ug/L	20	20.9	74 - 129
Toluene	99	ug/L	20	19.8	80 - 121
1,1,1-Trichloroethane	98.5	ug/L	20	19.7	74 - 131
1,1,2-Trichloroethane	98.3	ug/L	20	19.7	80 - 119
Trichloroethene	97.6	ug/L	20	19.5	79 - 123

QUALITY CONTROL DATA

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

Vinyl Chloride	112	ug/L	20	22.4	58 - 137
1,2-Dichloroethane-d4 (S)	92.5	%			81 - 118
4-Bromofluorobenzene (S)	94	%			85 - 114
Dibromofluoromethane (S)	89.7	%			80 - 119
Toluene-d8 (S)	94.1	%			89 - 112

MATRIX SPIKE: 3249218 DUPLICATE: 3249219 ORIGINAL: 3145292001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Carbon Tetrachloride	0	ug/L	20	20.5203	20.6287	103	103	72 - 136	.53	30
1,1-Dichloroethane	0	ug/L	20	21.1166	20.4266	106	102	77 - 125	3.32	30
1,2-Dichloroethane	0	ug/L	20	19.7944	19.6673	99	98.3	73 - 128	.64	30
1,1-Dichloroethene	0	ug/L	20	24.7204	23.4983	124	117	71 - 131	5.07	30
cis-1,2-Dichloroethene	0	ug/L	20	21.6624	20.8713	108	104	78 - 123	3.72	30
trans-1,2-Dichloroethene	0	ug/L	20	22.6098	22.2111	113	111	75 - 124	1.78	30
1,1,1,2-Tetrachloroethane	0	ug/L	20	19.9766	19.638	99.9	98.2	78 - 124	1.71	30
1,1,2,2-Tetrachloroethane	0	ug/L	20	19.1513	19.2754	95.8	96.4	71 - 121	.65	30
Tetrachloroethene	0	ug/L	20	20.8775	19.755	104	98.8	74 - 129	5.53	30
Toluene	0	ug/L	20	20.0149	19.3761	100	96.9	80 - 121	3.24	30
1,1,1-Trichloroethane	0	ug/L	20	20.9055	19.8886	105	99.4	74 - 131	4.99	30
1,1,2-Trichloroethane	0	ug/L	20	19.3261	19.4532	96.6	97.3	80 - 119	.66	30
Trichloroethene	0	ug/L	20	20.1025	19.827	101	99.1	79 - 123	1.38	30
Vinyl Chloride	0	ug/L	20	24.4509	23.2708	122	116	58 - 137	4.95	30
1,2-Dichloroethane-d4 (S)	97.3	%				97.3	95	81 - 118		
4-Bromofluorobenzene (S)	91.9	%				91.9	92.4	85 - 114		
Dibromofluoromethane (S)	91.7	%				91.7	90.9	80 - 119		
Toluene-d8 (S)	92.5	%				92.5	92.8	89 - 112		

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QUALITY CONTROL DATA

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

QC Batch: WETC/248002 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 3145292001

METHOD BLANK: 3246065

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.90U	mg/L	1.0
Nitrate-N	0.070U	mg/L	0.10
Sulfate	0.90U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 3246067

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	99.4	mg/L	20	19.9	87 - 111
Nitrate-N	95.2	mg/L	2.5	2.4	88 - 111
Sulfate	101	mg/L	20	20.1	87 - 112

MATRIX SPIKE: 3246069 DUPLICATE: 3246070 ORIGINAL: 3145292001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Chloride	4.42	mg/L	40	42.46	41.96	95.1	93.9	87 - 111	1.18	15
Nitrate-N	1.04	mg/L	5	5.58	5.56	90.8	90.4	88 - 111	.36	15
Sulfate	46.44	mg/L	40	81.76	81.36	88.3	87.3	87 - 112	.49	15

METHOD BLANK: 3246072

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.90U	mg/L	1.0
Nitrate-N	0.070U	mg/L	0.10
Sulfate	0.90U	mg/L	1.0

QUALITY CONTROL DATA

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

QC Batch: WETC/248045 **Analysis Method:** SM2320B-2011

QC Batch Method: SM2320B-2011

Associated Lab Samples: 3145292001

METHOD BLANK: 3246403

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

SAMPLE DUPLICATE: 3246407 ORIGINAL: 3145272003

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	79.88	mg/L	79.84	.05	20

METHOD BLANK: 3246409

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

METHOD BLANK: 3246413

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

SAMPLE DUPLICATE: 3246428 ORIGINAL: 3145292001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	280.24	mg/L	282.84	.92	20

METHOD BLANK: 3246417

Parameter	Blank Result	Units	Reporting Limit

QUALITY CONTROL DATA

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

Alkalinity, Total	5U	mg/L	5

METHOD BLANK: 3246431

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

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QUALITY CONTROL DATA

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

QC Batch: WETC/248125 **Analysis Method:** SW846 9060A

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 3145292001

METHOD BLANK: 3247384

Parameter	Blank Result	Units	Reporting Limit
Total Organic Carbon (TOC)	0.50U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 3247385

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	99.4	mg/L	1	0.99J	85 - 115

MATRIX SPIKE: 3247386 DUPLICATE: 3247387 ORIGINAL: 3145292001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Total Organic Carbon (TOC)	.897	mg/L	6	8.103	7.567	120*	111	85 - 115	6.84	20

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3145292001	MW-16 120720			EPA 300.0	WETC/248002
3145292001	MW-16 120720			SM2320B-2011	WETC/248045
3145292001	MW-16 120720			SW846 9060A	WETC/248125
3145292001	MW-16 120720			SW846 8260C	VOMS/57582
3145292002	Trip Blank 120720			SW846 8260C	VOMS/57582
3145292001	MW-16 120720			RSK 175	SVGC/59170

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

CO
ALS

* 3 1 4 5 2 9 2 *

of

(completed by Receiving Lab)

W.O. Temp: ____ Therm ID: ____

Courier/Tracking #:

Purchase Order #:

Project Comments:

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment

Other: FedEx

Client Name: AECOM

Address: 40 British American Blvd.
Latham, NY 12110

Contact: Gerlinde Wolf

Phone#: 518-951-2370 / 585-490-0987

Project Name/#: Scotia - 60440641

Bill To:

TAT ☒ Normal-Standard TAT is 10-12 business days.
☐ Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? ☒ -Y gerlinde.wolf@aecom.com

Fax? ☐ -Y No.:

	Container Type	CG	CG	AG	PL	PL					
	Container Size	40ml	40ml	40ml	8oz	8oz					
	Preservative	HCL	HCL	HCL	unp	unp	NaO	2/6/20			
	ANALYSES/METHOD REQUESTED										

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	8260C	RSK 175	TOC	Alkalinity	Cl, NO3, SO4					Sample/COC Comments
				Enter Number of Containers Per Sample or Field Results Below.											
1	MW-16 120720	12/07/20	1425	G	GW	2	2	2	1	1					* MS/MSD collected here
2	MS	↓	1425	↓	↓	2	2	2	1	1					
3	MSD	↓	1425	↓	↓	2	2	2	1	1					
4	Trip Blank 120720	~	~	~	~	2	X	X	X	X					
5															
6															
7															
8															
9															
10															

SAMPLED BY (Please Print): Jillian Kosinski / Pat McHugh

Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	Jillian Kosinski AECOM	12/7/20	1645	2	FedEx		
3	FedEx			4	ARB/ALS DEC 08 2020 10 14		
5				6			
7				8			
9				10			

Data Deliverables: ☐ Standard ☐ CLP-like ☐ USACE/DOD ☐

Special Processing: USACE ☐ Navy ☐ ☐

State Samples Collected In: ☒ NY ☐ NJ ☐ PA ☐ NC ☐ other

Reportable to PADEP? Yes ☐ No ☐

PWSID #

Sample Disposal: Lab ☐ Special ☐

EDDS: Format Type-

* G=Grab; C=Composite

**Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Middletown, PA 17057

Rev 11/18

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Middletown, PA 17057
P: (717) 944-5541
F: (717) 944-1430

Condition of Sample Receipt Form

Client: AECOM | Work Order #: 345292 | Initials: KMM | Date: 12/8/2020

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 7810 3220 0530			
2. Are Custody Seals on shipping containers intact?	(NONE)	YES	NO
3. Are Custody Seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present?		(YES)	NO
5. Are the COC and bottle labels complete, legible and in agreement? See below		YES	(NO)
5a. Does the COC contain sample locations?		(YES)	NO
5b. Does the COC contain date and time of sample collection for all samples?		(YES)	NO
5c. Does the COC contain sample collectors name?		(YES)	NO
5d. Does the COC note the type(s) of preservation for all bottles? added UNP.		YES	(NO)
5e. Does the COC note the number of bottles submitted for each sample?		(YES)	NO
5f. Does the COC note the type of sample, composite or grab?		(YES)	NO
5g. Does the COC note the matrix of the sample(s)?		(YES)	NO
6. Are all aqueous samples requiring preservation preserved correctly?[1]	N/A	(YES)	NO
7. Were all samples placed in the proper containers for the requested analyses, with sufficient volume?		(YES)	NO
8. Are all samples within holding times for the requested analyses?		(YES)	NO
9. Were all sample containers received intact and headspace free when required? (not broken, leaking, frozen, etc.)		(YES)	NO
10. Did we receive trip blanks (applies only for methods EPA 504, EPA 524.2 and 1631E (LL Hg)?	N/A	(YES)	NO
11. Were the samples received on ice?		(YES)	NO
12. Were sample temperatures measured at 0.0-6.0°C		(YES)	NO
13. Are the samples DW matrix ? If YES, fill out Reportable Drinking Water questions below		YES	(NO)
13a. Are the samples required for SDWA compliance reporting?	(N/A)	YES	NO
13b. Did the client provide a SDWA PWS ID#?	(N/A)	YES	NO
13c. Are all aqueous unpreserved SDWA samples pH 5-9?	(N/A)	YES	NO
13d. Did the client provide the SDWA sample location ID/Description?	(N/A)	YES	NO
13e. Did the client provide the SDWA sample type (D, E, R, C, P, S)?	(N/A)	YES	NO

Cooler #:								
Temperature (°C):	2							
Thermometer ID:	309							
Radiological (µCi):								

COMMENTS (Required for all NO responses above and any sample non-conformance):

[1]Final determination of correct preservation for analysis such as volatiles, microbiology, and oil and grease is made in the analytical department at the time of or following the analysis

Rev 1/20/2020

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December 18, 2020

Ms. Gerlinde Wolfe
AECOM - Latham NY
40 British American Blvd
Albany, NY 12210

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**3145584**
Purchase Order:	**66432**	Workorder ID:	**ASN061|Scotia Navy Dpt60440641**

Dear Ms. Wolfe:

Enclosed are the analytical results for samples received by the laboratory on Wednesday, December 9, 2020.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact ELIZABETH M PARKER (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Mr. Greg Malzone , Mr. Daniel Servetas

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Elizabeth M. Parker

ELIZABETH M PARKER
Project Coordinator

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SAMPLE SUMMARY

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3145584001	MW-26 120820	Ground Water	12/8/2020 08:50	12/9/2020 10:10	Collected by Client
3145584002	MW-24 120820	Ground Water	12/8/2020 10:20	12/9/2020 10:10	Collected by Client
3145584003	MW-15 120820	Ground Water	12/8/2020 12:05	12/9/2020 10:10	Collected by Client
3145584004	MW-30 120820	Ground Water	12/8/2020 14:10	12/9/2020 10:10	Collected by Client
3145584005	Trip Blank 120820	Ground Water	12/8/2020 14:10	12/9/2020 10:10	Collected by Client

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SAMPLE SUMMARY

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
-- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

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PROJECT SUMMARY

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Sample Comments

Lab ID: 3145584004 **Sample ID:** MW-30 120820 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

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ANALYTICAL RESULTS

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID: **3145584001** Date Collected: 12/8/2020 08:50 Matrix: Ground Water

Sample ID: **MW-26 120820** Date Received: 12/9/2020 10:10

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 03:59	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 03:59	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 03:59	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 03:59	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 03:59	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 03:59	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 03:59	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 03:59	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 03:59	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 03:59	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 03:59	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 03:59	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 03:59	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 03:59	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.4		%	81 - 118			SW846 8260C		12/15/20 03:59	PDK	A
4-Bromofluorobenzene (S)	93		%	85 - 114			SW846 8260C		12/15/20 03:59	PDK	A
Dibromofluoromethane (S)	89.8		%	80 - 119			SW846 8260C		12/15/20 03:59	PDK	A
Toluene-d8 (S)	96.1		%	89 - 112			SW846 8260C		12/15/20 03:59	PDK	A
LIGHT HYDROCARBON GASES											
n-Butane	0.0		ug/L			1.1	RSK 175		12/15/20 07:39	CHS	D
Ethane	2.6U	U	ug/L	5.2	2.6	0.56	RSK 175		12/15/20 07:39	CHS	D
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175		12/15/20 07:39	CHS	D
Isobutane	0.0		ug/L			0.90	RSK 175		12/15/20 07:39	CHS	D
Methane	5.7		ug/L	2.6	1.6	0.53	RSK 175		12/15/20 07:39	CHS	D
Propane	0.0		ug/L			0.84	RSK 175		12/15/20 07:39	CHS	D
WET CHEMISTRY											
Alkalinity, Total	168	1	mg/L	5	5	0.8	SM2320B-2011		12/11/20 03:25	R2B	I
Chloride	22.4		mg/L	2.0	1.8	0.88	EPA 300.0		12/10/20 05:18	MBW	H
Nitrate-N	0.14U	U	mg/L	0.20	0.14	0.050	EPA 300.0		12/10/20 05:18	MBW	H
Sulfate	11.2		mg/L	2.0	1.8	0.50	EPA 300.0		12/10/20 05:18	MBW	H
Total Organic Carbon (TOC)	5.0		mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 2nd	4.9		mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 3rd	4.8		mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 4th	4.8		mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F

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ANALYTICAL RESULTS

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID: **3145584001** Date Collected: 12/8/2020 08:50 Matrix: Ground Water

Sample ID: **MW-26 120820** Date Received: 12/9/2020 10:10

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	*Cntr*

Elizabeth M. Parker

ELIZABETH M PARKER
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID: **3145584002** Date Collected: 12/8/2020 10:20 Matrix: Ground Water

Sample ID: **MW-24 120820** Date Received: 12/9/2020 10:10

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
1,1-Dichloroethene	69.3		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
cis-1,2-Dichloroethene	4.9		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
Trichloroethene	3.7		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.1		%	81 - 118			SW846 8260C		12/15/20 04:21	PDK	A
4-Bromofluorobenzene (S)	92.2		%	85 - 114			SW846 8260C		12/15/20 04:21	PDK	A
Dibromofluoromethane (S)	90.6		%	80 - 119			SW846 8260C		12/15/20 04:21	PDK	A
Toluene-d8 (S)	94.8		%	89 - 112			SW846 8260C		12/15/20 04:21	PDK	A
LIGHT HYDROCARBON GASES											
n-Butane	0.0		ug/L			1.1	RSK 175		12/15/20 08:00	CHS	D
Ethane	0.67J	J	ug/L	5.2	2.6	0.56	RSK 175		12/15/20 08:00	CHS	D
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175		12/15/20 08:00	CHS	D
Isobutane	0.0		ug/L			0.90	RSK 175		12/15/20 08:00	CHS	D
Methane	103		ug/L	2.6	1.6	0.53	RSK 175		12/15/20 08:00	CHS	D
Propane	0.0		ug/L			0.84	RSK 175		12/15/20 08:00	CHS	D
WET CHEMISTRY											
Alkalinity, Total	192	1	mg/L	5	5	0.8	SM2320B-2011		12/11/20 03:25	R2B	I
Chloride	31.6		mg/L	2.0	1.8	0.88	EPA 300.0		12/10/20 05:33	MBW	H
Nitrate-N	0.14U	U	mg/L	0.20	0.14	0.050	EPA 300.0		12/10/20 05:33	MBW	H
Sulfate	13.9		mg/L	2.0	1.8	0.50	EPA 300.0		12/10/20 05:33	MBW	H
Total Organic Carbon (TOC)	1.2		mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 2nd	1.1		mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 3rd	1.1		mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 4th	1.1		mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F

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ANALYTICAL RESULTS

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID: **3145584002** Date Collected: 12/8/2020 10:20 Matrix: Ground Water

Sample ID: **MW-24 120820** Date Received: 12/9/2020 10:10

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	*Cntr*

Elizabeth M. Parker

ELIZABETH M PARKER
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ANALYTICAL RESULTS

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID: **3145584003** Date Collected: 12/8/2020 12:05 Matrix: Ground Water

Sample ID: **MW-15 120820** Date Received: 12/9/2020 10:10

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
Tetrachloroethene	0.57J	J	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
1,1,1-Trichloroethane	2.8		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
Trichloroethene	59.8		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	99.8		%	81 - 118			SW846 8260C		12/15/20 04:44	PDK	A
4-Bromofluorobenzene (S)	91.3		%	85 - 114			SW846 8260C		12/15/20 04:44	PDK	A
Dibromofluoromethane (S)	90.6		%	80 - 119			SW846 8260C		12/15/20 04:44	PDK	A
Toluene-d8 (S)	93.8		%	89 - 112			SW846 8260C		12/15/20 04:44	PDK	A
LIGHT HYDROCARBON GASES											
n-Butane	0.0		ug/L			1.1	RSK 175		12/15/20 08:16	CHS	D
Ethane	2.6U	U	ug/L	5.2	2.6	0.56	RSK 175		12/15/20 08:16	CHS	D
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175		12/15/20 08:16	CHS	D
Isobutane	0.0		ug/L			0.90	RSK 175		12/15/20 08:16	CHS	D
Methane	1.6U	U	ug/L	2.6	1.6	0.53	RSK 175		12/15/20 08:16	CHS	D
Propane	0.0		ug/L			0.84	RSK 175		12/15/20 08:16	CHS	D
WET CHEMISTRY											
Alkalinity, Total	212	1	mg/L	5	5	0.8	SM2320B-2011		12/11/20 03:25	R2B	I
Chloride	25.6		mg/L	2.0	1.8	0.88	EPA 300.0		12/10/20 05:48	MBW	H
Nitrate-N	0.64		mg/L	0.20	0.14	0.050	EPA 300.0		12/10/20 05:48	MBW	H
Sulfate	10.6		mg/L	2.0	1.8	0.50	EPA 300.0		12/10/20 05:48	MBW	H
Total Organic Carbon (TOC)	0.81J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 2nd	0.77J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 3rd	0.72J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 4th	0.68J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F

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ANALYTICAL RESULTS

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID: **3145584003** Date Collected: 12/8/2020 12:05 Matrix: Ground Water

Sample ID: **MW-15 120820** Date Received: 12/9/2020 10:10

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	*Cntr*

Elizabeth M. Parker

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ANALYTICAL RESULTS

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID: **3145584004** Date Collected: 12/8/2020 14:10 Matrix: Ground Water

Sample ID: **MW-30 120820** Date Received: 12/9/2020 10:10

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 05:07	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 05:07	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 05:07	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 05:07	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 05:07	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 05:07	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 05:07	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 05:07	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 05:07	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 05:07	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 05:07	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 05:07	PDK	A
Trichloroethene	7.9		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 05:07	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 05:07	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	100		%	81 - 118			SW846 8260C		12/15/20 05:07	PDK	A
4-Bromofluorobenzene (S)	93		%	85 - 114			SW846 8260C		12/15/20 05:07	PDK	A
Dibromofluoromethane (S)	89.3		%	80 - 119			SW846 8260C		12/15/20 05:07	PDK	A
Toluene-d8 (S)	94.6		%	89 - 112			SW846 8260C		12/15/20 05:07	PDK	A
LIGHT HYDROCARBON GASES											
n-Butane	8.1		ug/L			1.1	RSK 175		12/15/20 08:33	CHS	D
Ethane	25.9		ug/L	5.2	2.6	0.56	RSK 175		12/15/20 08:33	CHS	D
Ethene	1.7J	J	ug/L	7.1	3.6	0.81	RSK 175		12/15/20 08:33	CHS	D
Isobutane	0.0		ug/L			0.90	RSK 175		12/15/20 08:33	CHS	D
Methane	6270		ug/L	2.6	1.6	0.53	RSK 175		12/15/20 08:33	CHS	D
Propane	0.0		ug/L			0.84	RSK 175		12/15/20 08:33	CHS	D
WET CHEMISTRY											
Alkalinity, Total	70	1	mg/L	5	5	0.8	SM2320B-2011		12/11/20 03:25	R2B	I
Chloride	44.0		mg/L	2.0	1.8	0.88	EPA 300.0		12/10/20 06:03	MBW	H
Nitrate-N	0.14U	U	mg/L	0.20	0.14	0.050	EPA 300.0		12/10/20 06:03	MBW	H
Sulfate	2.0J	J	mg/L	2.0	1.8	0.50	EPA 300.0		12/10/20 06:03	MBW	H
Total Organic Carbon (TOC)	5.1		mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 2nd	5.0		mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 3rd	4.9		mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 4th	4.9		mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F

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ANALYTICAL RESULTS

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID: **3145584004** Date Collected: 12/8/2020 14:10 Matrix: Ground Water

Sample ID: **MW-30 120820** Date Received: 12/9/2020 10:10

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	*Cntr*
METALS												
Iron, Total	0.10		mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 16:38	SRT	J1
Iron, Dissolved	0.043J	J	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:12	SRT	K

Elizabeth M. Parker

ELIZABETH M PARKER
Project Coordinator

ALS Environmental

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State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

ANALYTICAL RESULTS

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID: **3145584005** Date Collected: 12/8/2020 14:10 Matrix: Ground Water

Sample ID: **Trip Blank 120820** Date Received: 12/9/2020 10:10

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.5		%	81 - 118	SW846 8260C			12/14/20 23:50	PDK	A
4-Bromofluorobenzene (S)	95.9		%	85 - 114	SW846 8260C			12/14/20 23:50	PDK	A
Dibromofluoromethane (S)	89.5		%	80 - 119	SW846 8260C			12/14/20 23:50	PDK	A
Toluene-d8 (S)	96.7		%	89 - 112	SW846 8260C			12/14/20 23:50	PDK	A

Elizabeth M. Parker

ELIZABETH M PARKER
Project Coordinator

ANALYTICAL RESULTS

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3145584001	1	MW-26 120820	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3145584002	1	MW-24 120820	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3145584003	1	MW-15 120820	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3145584004	1	MW-30 120820	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID	Sample ID	Analysis Method	Prep Method	Leachate Method
3145584001	MW-26 120820	EPA 300.0		
3145584001	MW-26 120820	RSK 175		
3145584001	MW-26 120820	SM2320B-2011		
3145584001	MW-26 120820	SW846 8260C		
3145584001	MW-26 120820	SW846 9060A		
3145584002	MW-24 120820	EPA 300.0		
3145584002	MW-24 120820	RSK 175		
3145584002	MW-24 120820	SM2320B-2011		
3145584002	MW-24 120820	SW846 8260C		
3145584002	MW-24 120820	SW846 9060A		
3145584003	MW-15 120820	EPA 300.0		
3145584003	MW-15 120820	RSK 175		
3145584003	MW-15 120820	SM2320B-2011		
3145584003	MW-15 120820	SW846 8260C		
3145584003	MW-15 120820	SW846 9060A		
3145584004	MW-30 120820	EPA 300.0		
3145584004	MW-30 120820	RSK 175		
3145584004	MW-30 120820	SM2320B-2011		
3145584004	MW-30 120820	SW846 6010C	SW846 3015	
3145584004	MW-30 120820	SW846 6010C	SW846 6010C	
3145584004	MW-30 120820	SW846 8260C		
3145584004	MW-30 120820	SW846 9060A		
3145584005	Trip Blank 120820	SW846 8260C		

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QUALITY CONTROL DATA

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

QC Batch: MDIG/87304 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 3015

Associated Lab Samples: 3145584004

METHOD BLANK: 3248340

Parameter	Blank Result	Units	Reporting Limit
Iron, Total	0.045U	mg/L	0.067

LABORATORY CONTROL SAMPLE: 3248341

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Iron, Total	99.1	mg/L	1.1	1.1	87 - 115

MATRIX SPIKE SAMPLE: 3248342 ORIGINAL: 3145952001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit
Iron, Total	.76266	mg/L	1.1	1.91887	104	87 - 115

SAMPLE DUPLICATE: 3248343 ORIGINAL: 3145952002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Iron, Total	.06222	mg/L	.07655	20.7	

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QUALITY CONTROL DATA

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

QC Batch: MDIG/87349 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 6010C

Associated Lab Samples: 3145584004

METHOD BLANK: 3249531

Parameter	Blank Result	Units	Reporting Limit
Iron, Dissolved	0.040U	mg/L	0.060

LABORATORY CONTROL SAMPLE: 3249532

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Iron, Dissolved	97.1	mg/L	1	0.97	87 - 115

MATRIX SPIKE: 3249533 DUPLICATE: 3249534 ORIGINAL: 3145584004

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Iron, Dissolved	.0432	mg/L	1	1.011	1.013	96.8	97	87 - 115	.2	20

QUALITY CONTROL DATA

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

QC Batch: SVGC/59170 **Analysis Method:** RSK 175

QC Batch Method: RSK 175

Associated Lab Samples: 3145584001, 3145584002, 3145584003, 3145584004

METHOD BLANK: 3249296

Parameter	Blank Result	Units	Reporting Limit
n-Butane	0.0	ug/L	
Ethane	2.6U	ug/L	5.2
Ethene	3.6U	ug/L	7.1
Isobutane	0.0	ug/L	
Methane	1.6U	ug/L	2.6
Propane	0.0	ug/L	
Methyl-t-Butyl ether-d3 (S)			

SAMPLE DUPLICATE: 3249297 ORIGINAL: 3145292001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
n-Butane	0	ug/L	0	NC	20
Ethane	0	ug/L	0	NC	20
Ethene	0	ug/L	0	NC	20
Isobutane	0	ug/L	0	NC	20
Methane	0	ug/L	0	NC	20
Propane	0	ug/L	0	NC	20

QUALITY CONTROL DATA

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

QC Batch: VOMS/57582 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3145584001, 3145584002, 3145584003, 3145584004, 3145584005

METHOD BLANK: 3249164

Parameter	Blank Result	Units	Reporting Limit
Carbon Tetrachloride	0.75U	ug/L	1.0
1,1-Dichloroethane	0.75U	ug/L	1.0
1,2-Dichloroethane	0.75U	ug/L	1.0
1,1-Dichloroethene	0.75U	ug/L	1.0
cis-1,2-Dichloroethene	0.75U	ug/L	1.0
trans-1,2-Dichloroethene	0.75U	ug/L	1.0
1,1,1,2-Tetrachloroethane	0.75U	ug/L	1.0
1,1,2,2-Tetrachloroethane	0.75U	ug/L	1.0
Tetrachloroethene	0.75U	ug/L	1.0
Toluene	0.75U	ug/L	1.0
1,1,1-Trichloroethane	0.75U	ug/L	1.0
1,1,2-Trichloroethane	0.75U	ug/L	1.0
Trichloroethene	0.75U	ug/L	1.0
Vinyl Chloride	0.75U	ug/L	1.0
1,2-Dichloroethane-d4 (S)	93.7	%	81 - 118
4-Bromofluorobenzene (S)	91.3	%	85 - 114
Dibromofluoromethane (S)	85.5	%	80 - 119
Toluene-d8 (S)	94.9	%	89 - 112

LABORATORY CONTROL SAMPLE: 3249165

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	102	ug/L	20	20.5	72 - 136
1,1-Dichloroethane	100	ug/L	20	20.0	77 - 125
1,2-Dichloroethane	95.5	ug/L	20	19.1	73 - 128
1,1-Dichloroethene	120	ug/L	20	24.0	71 - 131
cis-1,2-Dichloroethene	103	ug/L	20	20.6	78 - 123
trans-1,2-Dichloroethene	106	ug/L	20	21.3	75 - 124
1,1,1,2-Tetrachloroethane	100	ug/L	20	20.1	78 - 124
1,1,2,2-Tetrachloroethane	100	ug/L	20	20.0	71 - 121
Tetrachloroethene	104	ug/L	20	20.9	74 - 129
Toluene	99	ug/L	20	19.8	80 - 121
1,1,1-Trichloroethane	98.5	ug/L	20	19.7	74 - 131
1,1,2-Trichloroethane	98.3	ug/L	20	19.7	80 - 119
Trichloroethene	97.6	ug/L	20	19.5	79 - 123

QUALITY CONTROL DATA

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Vinyl Chloride	112	ug/L	20	22.4	58 - 137
1,2-Dichloroethane-d4 (S)	92.5	%			81 - 118
4-Bromofluorobenzene (S)	94	%			85 - 114
Dibromofluoromethane (S)	89.7	%			80 - 119
Toluene-d8 (S)	94.1	%			89 - 112

MATRIX SPIKE: 3249218 DUPLICATE: 3249219 ORIGINAL: 3145292001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Carbon Tetrachloride	0	ug/L	20	20.5203	20.6287	103	103	72 - 136	.53	30
1,1-Dichloroethane	0	ug/L	20	21.1166	20.4266	106	102	77 - 125	3.32	30
1,2-Dichloroethane	0	ug/L	20	19.7944	19.6673	99	98.3	73 - 128	.64	30
1,1-Dichloroethene	0	ug/L	20	24.7204	23.4983	124	117	71 - 131	5.07	30
cis-1,2-Dichloroethene	0	ug/L	20	21.6624	20.8713	108	104	78 - 123	3.72	30
trans-1,2-Dichloroethene	0	ug/L	20	22.6098	22.2111	113	111	75 - 124	1.78	30
1,1,1,2-Tetrachloroethane	0	ug/L	20	19.9766	19.638	99.9	98.2	78 - 124	1.71	30
1,1,2,2-Tetrachloroethane	0	ug/L	20	19.1513	19.2754	95.8	96.4	71 - 121	.65	30
Tetrachloroethene	0	ug/L	20	20.8775	19.755	104	98.8	74 - 129	5.53	30
Toluene	0	ug/L	20	20.0149	19.3761	100	96.9	80 - 121	3.24	30
1,1,1-Trichloroethane	0	ug/L	20	20.9055	19.8886	105	99.4	74 - 131	4.99	30
1,1,2-Trichloroethane	0	ug/L	20	19.3261	19.4532	96.6	97.3	80 - 119	.66	30
Trichloroethene	0	ug/L	20	20.1025	19.827	101	99.1	79 - 123	1.38	30
Vinyl Chloride	0	ug/L	20	24.4509	23.2708	122	116	58 - 137	4.95	30
1,2-Dichloroethane-d4 (S)	97.3	%				97.3	95	81 - 118		
4-Bromofluorobenzene (S)	91.9	%				91.9	92.4	85 - 114		
Dibromofluoromethane (S)	91.7	%				91.7	90.9	80 - 119		
Toluene-d8 (S)	92.5	%				92.5	92.8	89 - 112		

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QUALITY CONTROL DATA

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

QC Batch: WETC/248079 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 3145584001, 3145584002, 3145584003, 3145584004

METHOD BLANK: 3246855

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.90U	mg/L	1.0
Nitrate-N	0.070U	mg/L	0.10
Sulfate	0.90U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 3246857

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	98.1	mg/L	20	19.6	87 - 111
Nitrate-N	94.4	mg/L	2.5	2.4	88 - 111
Sulfate	99.3	mg/L	20	19.9	87 - 112

METHOD BLANK: 3246860

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.90U	mg/L	1.0
Nitrate-N	0.070U	mg/L	0.10
Sulfate	0.90U	mg/L	1.0

QUALITY CONTROL DATA

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

QC Batch: WETC/248103 **Analysis Method:** SM2320B-2011

QC Batch Method: SM2320B-2011

Associated Lab Samples: 3145584001, 3145584002, 3145584003, 3145584004

METHOD BLANK: 3247077

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

SAMPLE DUPLICATE: 3247081 ORIGINAL: 3145488004

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	51.6	mg/L	51.24	.7	20

METHOD BLANK: 3247083

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	2J	mg/L	5

METHOD BLANK: 3247087

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 3247089 ORIGINAL: 3145594001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	34.16	mg/L	34.16	0	20

METHOD BLANK: 3247091

Parameter	Blank Result	Units	Reporting Limit

QUALITY CONTROL DATA

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Alkalinity, Total	3J	mg/L	5

METHOD BLANK: 3247095

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 3247097 ORIGINAL: 3145755005

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	109.8	mg/L	110.52	.65	20

METHOD BLANK: 3247099

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	2J	mg/L	5

SAMPLE DUPLICATE: 3247101 ORIGINAL: 3145795001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	255.84	mg/L	255.4	.17	20

METHOD BLANK: 3247103

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	3J	mg/L	5

SAMPLE DUPLICATE: 3247105 ORIGINAL: 3145797001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	371	mg/L	372.6	.43	20

QUALITY CONTROL DATA

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

METHOD BLANK: 3247107

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	4J	mg/L	5

METHOD BLANK: 3247111

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	2J	mg/L	5

QUALITY CONTROL DATA

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

QC Batch: WETC/248314 **Analysis Method:** SW846 9060A

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 3145584001, 3145584002, 3145584003, 3145584004

METHOD BLANK: 3249692

Parameter	Blank Result	Units	Reporting Limit
Total Organic Carbon (TOC)	0.50U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 3249693

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	98.4	mg/L	1	0.98J	85 - 115

MATRIX SPIKE: 3249694 DUPLICATE: 3249695 ORIGINAL: 3145755006

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Total Organic Carbon (TOC)	1.709	mg/L	6	7.997	8.022	105	105	85 - 115	.31	20

MATRIX SPIKE: 3249696 DUPLICATE: 3249697 ORIGINAL: 3145589001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Total Organic Carbon (TOC)	3.046	mg/L	6	9.221	9.268	103	104	85 - 115	.51	20

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3145584001	MW-26 120820			EPA 300.0	WETC/248079
3145584002	MW-24 120820			EPA 300.0	WETC/248079
3145584003	MW-15 120820			EPA 300.0	WETC/248079
3145584004	MW-30 120820			EPA 300.0	WETC/248079
3145584001	MW-26 120820			SM2320B-2011	WETC/248103
3145584002	MW-24 120820			SM2320B-2011	WETC/248103
3145584003	MW-15 120820			SM2320B-2011	WETC/248103
3145584004	MW-30 120820			SM2320B-2011	WETC/248103
3145584004	MW-30 120820	SW846 3015	MDIG/87304	SW846 6010C	META/77994
3145584001	MW-26 120820			SW846 8260C	VOMS/57582
3145584002	MW-24 120820			SW846 8260C	VOMS/57582
3145584003	MW-15 120820			SW846 8260C	VOMS/57582
3145584004	MW-30 120820			SW846 8260C	VOMS/57582
3145584005	Trip Blank 120820			SW846 8260C	VOMS/57582
3145584001	MW-26 120820			RSK 175	SVGC/59170
3145584002	MW-24 120820			RSK 175	SVGC/59170
3145584003	MW-15 120820			RSK 175	SVGC/59170
3145584004	MW-30 120820			RSK 175	SVGC/59170
3145584004	MW-30 120820	SW846 6010C	MDIG/87349	SW846 6010C	META/78025
3145584001	MW-26 120820			SW846 9060A	WETC/248314
3145584002	MW-24 120820			SW846 9060A	WETC/248314
3145584003	MW-15 120820			SW846 9060A	WETC/248314
3145584004	MW-30 120820			SW846 9060A	WETC/248314

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COC #:

ALS Qi

* 3 1 4 5 5 8 4 *

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Client Name: AECOM

Address: 40 British American Blvd. Latham, NY 12110

Contact: Gerlinde Wolf

Phone#: 518-951-2370

Project Name/#: Scotia Navy Depot / 60440641

Bill To:

TAT: [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [X] -Y gerlinde.wolf@aecom.com

Fax? [ ] -Y No.:

W.O. Temp: 0° Therm ID: 525

Courier/Tracking #:

Purchase Order #:

Project Comments:

ALS Field Services: [X] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment

Other:

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	Container Type	CG	CG	PL	PL	AG	PL	PL				Sample/COC Comments
						Container Size	40mL	40mL	8oz	8oz	40mL	8oz	8oz				
						Preservative	HCl	HCl	–	–	HCl	HNO_3	–				
						ANALYSES/METHOD REQUESTED	8260C	RSK175	Alkalinity	Cl, NO_3, SO_4	TOC	Total Fe	Diss Fe				
						Enter Number of Containers Per Sample or Field Results Below.											
1	MW-26 120820	12/08/20	08:50	G	GW		2	2	1	1	2	X	X				
2	MW-24 120820		10:20				2	2	1	1	2	X	X				
3	MW-15 120820		1205				2	2	1	1	2	X	X				
4	MW-30 120820		1410				2	2	1	1	2	1	1				
5	TRIP BLANK 120820		–	–	–		2	X	X	X	X	X	X				
6																	
7																	
8																	
9																	
10																	

SAMPLED BY (Please Print): Jillian Kosinski / Pat McH

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Jillian Kosinski / AECOM	12/08/20	1500	2 Daniel Hogan / ALS	12/8/2020	1500
3 Daniel Hogan / ALS	12/8/2020	1730	4 Fed Ex		
5 Fed Ex			6 GO	12/9	10:40
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE/DOD [ ]

Special Processing: USACE [ ] Navy [ ] [ ]

State Samples Collected In: [X] NY [ ] NJ [ ] PA [ ] NC [ ] other

Reportable to PADEP? Yes [ ] No [ ]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

* G=Grab; C=Composite

**Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Oil=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Middletown, PA 17057

Rev 11/18

4888 8630 4787

301 Fulling Mill Road
Middletown, PA 17057
P: (717) 944-5541
F: (717) 944-1430

Condition of Sample Receipt Form

Client:	Work Order #:	Initials:	Date:
AECom	3145584	Com	12/9/2020

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 4886 8630 4787			
2. Are Custody Seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody Seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present?		(YES)	NO
5. Are the COC and bottle labels complete, legible and in agreement?		(YES)	NO
5a. Does the COC contain sample locations?		(YES)	NO
5b. Does the COC contain date and time of sample collection for all samples?		(YES)	NO
5c. Does the COC contain sample collectors name?		(YES)	NO
5d. Does the COC note the type(s) of preservation for all bottles?		(YES)	NO
5e. Does the COC note the number of bottles submitted for each sample?		(YES)	NO
5f. Does the COC note the type of sample, composite or grab?		(YES)	NO
5g. Does the COC note the matrix of the sample(s)?		(YES)	NO
6. Are all aqueous samples requiring preservation preserved correctly?[1]	N/A	(YES)	NO
7. Were all samples placed in the proper containers for the requested analyses, with sufficient volume?		(YES)	NO
8. Are all samples within holding times for the requested analyses?		(YES)	NO
9. Were all sample containers received intact and headspace free when required? (not broken, leaking, frozen, etc.)		(YES)	NO
10. Did we receive trip blanks (applies only for methods EPA 504, EPA 524.2 and 1631E (LL Hg)?	(N/A)	YES	NO
11. Were the samples received on ice?		(YES)	NO
12. Were sample temperatures measured at 0.0-6.0°C		(YES)	NO
13. Are the samples DW matrix ? If YES, fill out Reportable Drinking Water questions below		YES	(NO)
13a. Are the samples required for SDWA compliance reporting?	(N/A)	YES	NO
13b. Did the client provide a SDWA PWS ID#?	(N/A)	YES	NO
13c. Are all aqueous unpreserved SDWA samples pH 5-9?	(N/A)	YES	NO
13d. Did the client provide the SDWA sample location ID/Description?	(N/A)	YES	NO
13e. Did the client provide the SDWA sample type (D, E, R, C, P, S)?	(N/A)	YES	NO

Cooler #:								
Temperature (°C):	0°C							
Thermometer ID:	525							
Radiological (µCi):								

COMMENTS (Required for all NO responses above and any sample non-conformance):

[1]Final determination of correct preservation for analysis such as volatiles, microbiology, and oil and grease is made in the analytical department at the time of or following the analysis

Rev 1/20/2020

ALS Environmental

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State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

December 19, 2020

Ms. Gerlinde Wolfe
AECOM - Latham NY
40 British American Blvd
Albany, NY 12210

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**3145952**
Purchase Order:	**66432**	Workorder ID:	**ASN062|Scotia Navy/60440641**

Dear Ms. Wolfe:

Enclosed are the analytical results for samples received by the laboratory on Thursday, December 10, 2020.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact ELIZABETH M PARKER (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Mr. Greg Malzone , Mr. Daniel Servetas

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Elizabeth M. Parker

ELIZABETH M PARKER
Project Coordinator

ALS Environmental

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SAMPLE SUMMARY

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3145952001	MW-31 120920	Ground Water	12/9/2020 08:30	12/10/2020 09:40	Collected by Client
3145952002	MW-34 120920	Ground Water	12/9/2020 10:50	12/10/2020 09:40	Collected by Client
3145952003	MW-35 120920	Ground Water	12/9/2020 12:00	12/10/2020 09:40	Collected by Client
3145952004	MW-28 120920	Ground Water	12/9/2020 14:10	12/10/2020 09:40	Collected by Client
3145952005	Trip Blank 120920	Ground Water	12/9/2020 00:00	12/10/2020 09:40	Collected by Client

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SAMPLE SUMMARY

Workorder: 3145952 ASN062|Scotia Navy/60440641

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
-- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

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PROJECT SUMMARY

Workorder: 3145952 ASN062|Scotia Navy/60440641

Sample Comments

Lab ID: 3145952001 **Sample ID:** MW-31 120920 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

Lab ID: 3145952002 **Sample ID:** MW-34 120920 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

Lab ID: 3145952003 **Sample ID:** MW-35 120920 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

Lab ID: 3145952004 **Sample ID:** MW-28 120920 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

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ANALYTICAL RESULTS

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID: **3145952001** Date Collected: 12/9/2020 08:30 Matrix: Ground Water

Sample ID: **MW-31 120920** Date Received: 12/10/2020 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 11:58	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 11:58	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 11:58	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 11:58	DPC	A
cis-1,2-Dichloroethene	0.55J	J	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 11:58	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 11:58	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 11:58	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 11:58	DPC	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 11:58	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 11:58	DPC	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 11:58	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 11:58	DPC	A
Trichloroethene	25.2		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 11:58	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 11:58	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	99.2		%	81 - 118			SW846 8260C		12/15/20 11:58	DPC	A
4-Bromofluorobenzene (S)	92		%	85 - 114			SW846 8260C		12/15/20 11:58	DPC	A
Dibromofluoromethane (S)	90.2		%	80 - 119			SW846 8260C		12/15/20 11:58	DPC	A
Toluene-d8 (S)	93.9		%	89 - 112			SW846 8260C		12/15/20 11:58	DPC	A
LIGHT HYDROCARBON GASES											
n-Butane	0.0		ug/L			1.1	RSK 175		12/16/20 05:47	CHS	H
Ethane	4.3J	J	ug/L	5.2	2.6	0.56	RSK 175		12/16/20 05:47	CHS	H
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175		12/16/20 05:47	CHS	H
Isobutane	0.0		ug/L			0.90	RSK 175		12/16/20 05:47	CHS	H
Methane	737		ug/L	2.6	1.6	0.53	RSK 175		12/16/20 05:47	CHS	H
Propane	0.0		ug/L			0.84	RSK 175		12/16/20 05:47	CHS	H
WET CHEMISTRY											
Alkalinity, Total	142	1	mg/L	5	5	0.8	SM2320B-2011		12/16/20 04:42	R2B	G
Chloride	48.2		mg/L	2.0	1.8	0.88	EPA 300.0		12/11/20 05:31	MBW	F
Nitrate-N	0.14U	U	mg/L	0.20	0.14	0.050	EPA 300.0		12/11/20 05:31	MBW	F
Sulfate	9.1		mg/L	2.0	1.8	0.50	EPA 300.0		12/11/20 05:31	MBW	F
Total Organic Carbon (TOC)	0.72J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/18/20 01:09	PAG	D
Total Organic Carbon, 2nd	0.63J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/18/20 01:09	PAG	D
Total Organic Carbon, 3rd	0.58J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/18/20 01:09	PAG	D
Total Organic Carbon, 4th	0.54J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/18/20 01:09	PAG	D

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State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

ANALYTICAL RESULTS

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID: **3145952001** Date Collected: 12/9/2020 08:30 Matrix: Ground Water

Sample ID: **MW-31 120920** Date Received: 12/10/2020 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	*Cntr*
METALS												
Iron, Total	0.76		mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 16:41	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:23	SRT	G

Elizabeth M. Parker

ELIZABETH M PARKER
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID: **3145952002** Date Collected: 12/9/2020 10:50 Matrix: Ground Water

Sample ID: **MW-34 120920** Date Received: 12/10/2020 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:20	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:20	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:20	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:20	DPC	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:20	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:20	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:20	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:20	DPC	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:20	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:20	DPC	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:20	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:20	DPC	A
Trichloroethene	3.6		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:20	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:20	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.2		%	81 - 118			SW846 8260C		12/15/20 12:20	DPC	A
4-Bromofluorobenzene (S)	93.5		%	85 - 114			SW846 8260C		12/15/20 12:20	DPC	A
Dibromofluoromethane (S)	87.5		%	80 - 119			SW846 8260C		12/15/20 12:20	DPC	A
Toluene-d8 (S)	94.9		%	89 - 112			SW846 8260C		12/15/20 12:20	DPC	A
LIGHT HYDROCARBON GASES											
n-Butane	0.0		ug/L			1.1	RSK 175		12/16/20 06:22	CHS	H
Ethane	2.6U	U	ug/L	5.2	2.6	0.56	RSK 175		12/16/20 06:22	CHS	H
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175		12/16/20 06:22	CHS	H
Isobutane	0.0		ug/L			0.90	RSK 175		12/16/20 06:22	CHS	H
Methane	8.5		ug/L	2.6	1.6	0.53	RSK 175		12/16/20 06:22	CHS	H
Propane	0.0		ug/L			0.84	RSK 175		12/16/20 06:22	CHS	H
WET CHEMISTRY											
Alkalinity, Total	99	1	mg/L	5	5	0.8	SM2320B-2011		12/16/20 04:42	R2B	G
Chloride	3.8		mg/L	2.0	1.8	0.88	EPA 300.0		12/11/20 05:46	MBW	F
Nitrate-N	0.14U	U	mg/L	0.20	0.14	0.050	EPA 300.0		12/11/20 05:46	MBW	F
Sulfate	5.5		mg/L	2.0	1.8	0.50	EPA 300.0		12/11/20 05:46	MBW	F
Total Organic Carbon (TOC)	3.8		mg/L	1.0	0.50	0.27	SW846 9060A		12/18/20 01:09	PAG	D
Total Organic Carbon, 2nd	3.8		mg/L	1.0	0.50	0.27	SW846 9060A		12/18/20 01:09	PAG	D
Total Organic Carbon, 3rd	3.8		mg/L	1.0	0.50	0.27	SW846 9060A		12/18/20 01:09	PAG	D
Total Organic Carbon, 4th	3.7		mg/L	1.0	0.50	0.27	SW846 9060A		12/18/20 01:09	PAG	D

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ANALYTICAL RESULTS

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID: **3145952002** Date Collected: 12/9/2020 10:50 Matrix: Ground Water

Sample ID: **MW-34 120920** Date Received: 12/10/2020 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	0.062J	J	mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 16:52	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:27	SRT	F

Elizabeth M. Parker

ELIZABETH M PARKER
Project Coordinator

ANALYTICAL RESULTS

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID: **3145952003** Date Collected: 12/9/2020 12:00 Matrix: Ground Water

Sample ID: **MW-35 120920** Date Received: 12/10/2020 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:43	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:43	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:43	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:43	DPC	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:43	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:43	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:43	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:43	DPC	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:43	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:43	DPC	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:43	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:43	DPC	A
Trichloroethene	37.3		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:43	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 12:43	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98		%	81 - 118			SW846 8260C		12/15/20 12:43	DPC	A
4-Bromofluorobenzene (S)	93.1		%	85 - 114			SW846 8260C		12/15/20 12:43	DPC	A
Dibromofluoromethane (S)	89.7		%	80 - 119			SW846 8260C		12/15/20 12:43	DPC	A
Toluene-d8 (S)	95.5		%	89 - 112			SW846 8260C		12/15/20 12:43	DPC	A
LIGHT HYDROCARBON GASES											
n-Butane	0.0		ug/L			1.1	RSK 175		12/16/20 06:38	CHS	H
Ethane	2.6U	U	ug/L	5.2	2.6	0.56	RSK 175		12/16/20 06:38	CHS	H
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175		12/16/20 06:38	CHS	H
Isobutane	0.0		ug/L			0.90	RSK 175		12/16/20 06:38	CHS	H
Methane	1.6U	U	ug/L	2.6	1.6	0.53	RSK 175		12/16/20 06:38	CHS	H
Propane	0.0		ug/L			0.84	RSK 175		12/16/20 06:38	CHS	H
WET CHEMISTRY											
Alkalinity, Total	184	1	mg/L	5	5	0.8	SM2320B-2011		12/16/20 04:42	R2B	G
Chloride	26.2		mg/L	2.0	1.8	0.88	EPA 300.0		12/11/20 06:01	MBW	F
Nitrate-N	0.50		mg/L	0.20	0.14	0.050	EPA 300.0		12/11/20 06:01	MBW	F
Sulfate	10.6		mg/L	2.0	1.8	0.50	EPA 300.0		12/11/20 06:01	MBW	F
Total Organic Carbon (TOC)	0.59J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/18/20 01:09	PAG	D
Total Organic Carbon, 2nd	0.50J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/18/20 01:09	PAG	D
Total Organic Carbon, 3rd	0.48J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/18/20 01:09	PAG	D
Total Organic Carbon, 4th	0.49J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/18/20 01:09	PAG	D

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ANALYTICAL RESULTS

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID: **3145952003** Date Collected: 12/9/2020 12:00 Matrix: Ground Water

Sample ID: **MW-35 120920** Date Received: 12/10/2020 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	*Cntr*
METALS												
Iron, Total	0.036J	J	mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 17:00	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:30	SRT	F

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ANALYTICAL RESULTS

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID: **3145952004** Date Collected: 12/9/2020 14:10 Matrix: Ground Water

Sample ID: **MW-28 120920** Date Received: 12/10/2020 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.57J	J	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 13:06	DPC	A
1,1-Dichloroethane	0.56J	J	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 13:06	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 13:06	DPC	A
1,1-Dichloroethene	0.42J	J	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 13:06	DPC	A
cis-1,2-Dichloroethene	4.6		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 13:06	DPC	A
trans-1,2-Dichloroethene	0.36J	J	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 13:06	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 13:06	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 13:06	DPC	A
Tetrachloroethene	19.2		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 13:06	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 13:06	DPC	A
1,1,1-Trichloroethane	9.5		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 13:06	DPC	A
1,1,2-Trichloroethane	0.34J	J	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 13:06	DPC	A
Trichloroethene	143		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 13:06	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 13:06	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95.1		%	81 - 118			SW846 8260C		12/15/20 13:06	DPC	A
4-Bromofluorobenzene (S)	93.9		%	85 - 114			SW846 8260C		12/15/20 13:06	DPC	A
Dibromofluoromethane (S)	87.1		%	80 - 119			SW846 8260C		12/15/20 13:06	DPC	A
Toluene-d8 (S)	95.5		%	89 - 112			SW846 8260C		12/15/20 13:06	DPC	A
LIGHT HYDROCARBON GASES											
n-Butane	0.0		ug/L			1.1	RSK 175		12/16/20 06:54	CHS	H
Ethane	2.6U	U	ug/L	5.2	2.6	0.56	RSK 175		12/16/20 06:54	CHS	H
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175		12/16/20 06:54	CHS	H
Isobutane	0.0		ug/L			0.90	RSK 175		12/16/20 06:54	CHS	H
Methane	28.0		ug/L	2.6	1.6	0.53	RSK 175		12/16/20 06:54	CHS	H
Propane	0.0		ug/L			0.84	RSK 175		12/16/20 06:54	CHS	H
WET CHEMISTRY											
Alkalinity, Total	243	1	mg/L	5	5	0.8	SM2320B-2011		12/16/20 04:42	R2B	G
Chloride	39.6		mg/L	2.0	1.8	0.88	EPA 300.0		12/11/20 06:16	MBW	F
Nitrate-N	0.38		mg/L	0.20	0.14	0.050	EPA 300.0		12/11/20 06:16	MBW	F
Sulfate	21.2		mg/L	2.0	1.8	0.50	EPA 300.0		12/11/20 06:16	MBW	F
Total Organic Carbon (TOC)	1.1		mg/L	1.0	0.50	0.27	SW846 9060A		12/18/20 01:09	PAG	D
Total Organic Carbon, 2nd	1.1		mg/L	1.0	0.50	0.27	SW846 9060A		12/18/20 01:09	PAG	D
Total Organic Carbon, 3rd	0.98J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/18/20 01:09	PAG	D
Total Organic Carbon, 4th	0.97J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/18/20 01:09	PAG	D

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ANALYTICAL RESULTS

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID: **3145952004** Date Collected: 12/9/2020 14:10 Matrix: Ground Water

Sample ID: **MW-28 120920** Date Received: 12/10/2020 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	*Cntr*
METALS												
Iron, Total	0.032J	J	mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 17:03	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:34	SRT	F

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ANALYTICAL RESULTS

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID: **3145952005** Date Collected: 12/9/2020 00:00 Matrix: Ground Water

Sample ID: **Trip Blank 120920** Date Received: 12/10/2020 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	94.4		%	81 - 118	SW846 8260C			12/15/20 11:31	DPC	A
4-Bromofluorobenzene (S)	95.6		%	85 - 114	SW846 8260C			12/15/20 11:31	DPC	A
Dibromofluoromethane (S)	89.8		%	80 - 119	SW846 8260C			12/15/20 11:31	DPC	A
Toluene-d8 (S)	96.7		%	89 - 112	SW846 8260C			12/15/20 11:31	DPC	A

Elizabeth M. Parker

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ANALYTICAL RESULTS

Workorder: 3145952 ASN062|Scotia Navy/60440641

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3145952001	1	MW-31 120920	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3145952002	1	MW-34 120920	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3145952003	1	MW-35 120920	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3145952004	1	MW-28 120920	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID	Sample ID	Analysis Method	Prep Method	Leachate Method
3145952001	MW-31 120920	EPA 300.0		
3145952001	MW-31 120920	RSK 175		
3145952001	MW-31 120920	SM2320B-2011		
3145952001	MW-31 120920	SW846 6010C	SW846 3015	
3145952001	MW-31 120920	SW846 6010C	SW846 6010C	
3145952001	MW-31 120920	SW846 8260C		
3145952001	MW-31 120920	SW846 9060A		
3145952002	MW-34 120920	EPA 300.0		
3145952002	MW-34 120920	RSK 175		
3145952002	MW-34 120920	SM2320B-2011		
3145952002	MW-34 120920	SW846 6010C	SW846 3015	
3145952002	MW-34 120920	SW846 6010C	SW846 6010C	
3145952002	MW-34 120920	SW846 8260C		
3145952002	MW-34 120920	SW846 9060A		
3145952003	MW-35 120920	EPA 300.0		
3145952003	MW-35 120920	RSK 175		
3145952003	MW-35 120920	SM2320B-2011		
3145952003	MW-35 120920	SW846 6010C	SW846 3015	
3145952003	MW-35 120920	SW846 6010C	SW846 6010C	
3145952003	MW-35 120920	SW846 8260C		
3145952003	MW-35 120920	SW846 9060A		
3145952004	MW-28 120920	EPA 300.0		
3145952004	MW-28 120920	RSK 175		
3145952004	MW-28 120920	SM2320B-2011		
3145952004	MW-28 120920	SW846 6010C	SW846 3015	
3145952004	MW-28 120920	SW846 6010C	SW846 6010C	
3145952004	MW-28 120920	SW846 8260C		
3145952004	MW-28 120920	SW846 9060A		
3145952005	Trip Blank 120920	SW846 8260C		

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QUALITY CONTROL DATA

Workorder: 3145952 ASN062|Scotia Navy/60440641

QC Batch: MDIG/87304 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 3015

Associated Lab Samples: 3145952001, 3145952002, 3145952003, 3145952004

METHOD BLANK: 3248340

Parameter	Blank Result	Units	Reporting Limit
Iron, Total	0.045U	mg/L	0.067

LABORATORY CONTROL SAMPLE: 3248341

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Iron, Total	99.1	mg/L	1.1	1.1	87 - 115

MATRIX SPIKE SAMPLE: 3248342 ORIGINAL: 3145952001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit
Iron, Total	.76266	mg/L	1.1	1.91887	104	87 - 115

SAMPLE DUPLICATE: 3248343 ORIGINAL: 3145952002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Iron, Total	.06222	mg/L	.07655	20.7	

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QUALITY CONTROL DATA

Workorder: 3145952 ASN062|Scotia Navy/60440641

QC Batch: MDIG/87349 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 6010C

Associated Lab Samples: 3145952001, 3145952002, 3145952003, 3145952004

METHOD BLANK: 3249531

Parameter	Blank Result	Units	Reporting Limit
Iron, Dissolved	0.040U	mg/L	0.060

LABORATORY CONTROL SAMPLE: 3249532

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Iron, Dissolved	97.1	mg/L	1	0.97	87 - 115

MATRIX SPIKE: 3249533 DUPLICATE: 3249534 ORIGINAL: 3145584004

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Iron, Dissolved	.0432	mg/L	1	1.011	1.013	96.8	97	87 - 115	.2	20

QUALITY CONTROL DATA

Workorder: 3145952 ASN062|Scotia Navy/60440641

QC Batch: SVGC/59182 **Analysis Method:** RSK 175

QC Batch Method: RSK 175

Associated Lab Samples: 3145952001, 3145952002, 3145952003, 3145952004

METHOD BLANK: 3250131

Parameter	Blank Result	Units	Reporting Limit
n-Butane	0.0	ug/L	
Ethane	2.6U	ug/L	5.2
Ethene	3.6U	ug/L	7.1
Isobutane	0.0	ug/L	
Methane	1.6U	ug/L	2.6
Propane	0.0	ug/L	
Methyl-t-Butyl ether-d3 (S)			

SAMPLE DUPLICATE: 3250132 ORIGINAL: 3145952001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
n-Butane	0	ug/L	0	NC	20
Ethane	4.34	ug/L	4.64	6.68	20
Ethene	0	ug/L	0	NC	20
Isobutane	0	ug/L	0	NC	20
Propane	0	ug/L	0	NC	20
Methane	737.41	ug/L	795.86	7.62	20

QUALITY CONTROL DATA

Workorder: 3145952 ASN062|Scotia Navy/60440641

QC Batch: VOMS/57592 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3145952001, 3145952002, 3145952003, 3145952004, 3145952005

METHOD BLANK: 3249430

Parameter	Blank Result	Units	Reporting Limit
Carbon Tetrachloride	0.75U	ug/L	1.0
1,1-Dichloroethane	0.75U	ug/L	1.0
1,2-Dichloroethane	0.75U	ug/L	1.0
1,1-Dichloroethene	0.75U	ug/L	1.0
cis-1,2-Dichloroethene	0.75U	ug/L	1.0
trans-1,2-Dichloroethene	0.75U	ug/L	1.0
1,1,1,2-Tetrachloroethane	0.75U	ug/L	1.0
1,1,2,2-Tetrachloroethane	0.75U	ug/L	1.0
Tetrachloroethene	0.75U	ug/L	1.0
Toluene	0.75U	ug/L	1.0
1,1,1-Trichloroethane	0.75U	ug/L	1.0
1,1,2-Trichloroethane	0.75U	ug/L	1.0
Trichloroethene	0.75U	ug/L	1.0
Vinyl Chloride	0.75U	ug/L	1.0
1,2-Dichloroethane-d4 (S)	95.8	%	81 - 118
4-Bromofluorobenzene (S)	91.5	%	85 - 114
Dibromofluoromethane (S)	86.9	%	80 - 119
Toluene-d8 (S)	94.4	%	89 - 112

LABORATORY CONTROL SAMPLE: 3249431

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	99.7	ug/L	20	19.9	72 - 136
1,1-Dichloroethane	101	ug/L	20	20.3	77 - 125
1,2-Dichloroethane	96.5	ug/L	20	19.3	73 - 128
1,1-Dichloroethene	116	ug/L	20	23.1	71 - 131
cis-1,2-Dichloroethene	104	ug/L	20	20.8	78 - 123
trans-1,2-Dichloroethene	108	ug/L	20	21.5	75 - 124
1,1,1,2-Tetrachloroethane	99.9	ug/L	20	20.0	78 - 124
1,1,2,2-Tetrachloroethane	101	ug/L	20	20.2	71 - 121
Tetrachloroethene	99.6	ug/L	20	19.9	74 - 129
Toluene	97.9	ug/L	20	19.6	80 - 121
1,1,1-Trichloroethane	98.7	ug/L	20	19.7	74 - 131
1,1,2-Trichloroethane	95.3	ug/L	20	19.1	80 - 119
Trichloroethene	99.2	ug/L	20	19.8	79 - 123

QUALITY CONTROL DATA

Workorder: 3145952 ASN062|Scotia Navy/60440641

Vinyl Chloride	107	ug/L	20	21.4	58 - 137
1,2-Dichloroethane-d4 (S)	94.3	%			81 - 118
4-Bromofluorobenzene (S)	92.2	%			85 - 114
Dibromofluoromethane (S)	89.4	%			80 - 119
Toluene-d8 (S)	92.3	%			89 - 112

QUALITY CONTROL DATA

Workorder: 3145952 ASN062|Scotia Navy/60440641

QC Batch: WETC/248143 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 3145952001, 3145952002, 3145952003, 3145952004

METHOD BLANK: 3247735

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.90U	mg/L	1.0
Nitrate-N	0.070U	mg/L	0.10
Sulfate	0.90U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 3247737

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	99.7	mg/L	20	19.9	87 - 111
Nitrate-N	95.2	mg/L	2.5	2.4	88 - 111
Sulfate	100	mg/L	20	20.1	87 - 112

METHOD BLANK: 3247740

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.90U	mg/L	1.0
Nitrate-N	0.070U	mg/L	0.10
Sulfate	0.90U	mg/L	1.0

QUALITY CONTROL DATA

Workorder: 3145952 ASN062|Scotia Navy/60440641

QC Batch: WETC/248269 **Analysis Method:** SM2320B-2011

QC Batch Method: SM2320B-2011

Associated Lab Samples: 3145952001, 3145952002, 3145952003, 3145952004

METHOD BLANK: 3249311

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	0.9J	mg/L	5

METHOD BLANK: 3249317

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

METHOD BLANK: 3249321

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

METHOD BLANK: 3249325

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

METHOD BLANK: 3249329

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

SAMPLE DUPLICATE: 3249331 ORIGINAL: 3145836004

Parameter	Original Result	Units	DUP Result	RPD	Max RPD

QUALITY CONTROL DATA

Workorder: 3145952 ASN062|Scotia Navy/60440641

Alkalinity, Total	71.6	mg/L	72.72	1.55	20

METHOD BLANK: 3249333

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	0.9J	mg/L	5

METHOD BLANK: 3249337

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

METHOD BLANK: 3249341

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

SAMPLE DUPLICATE: 3249343 ORIGINAL: 3146132014

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	100.84	mg/L	102.04	1.18	20

METHOD BLANK: 3249345

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

METHOD BLANK: 3249349

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

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QUALITY CONTROL DATA

Workorder: 3145952 ASN062|Scotia Navy/60440641

SAMPLE DUPLICATE: 3249351 ORIGINAL: 3146195001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	60.12	mg/L	59.4	1.2	20

METHOD BLANK: 3249353

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

SAMPLE DUPLICATE: 3249355 ORIGINAL: 3146246005

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	253.6	mg/L	253.88	.11	20

METHOD BLANK: 3249357

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

QUALITY CONTROL DATA

Workorder: 3145952 ASN062|Scotia Navy/60440641

QC Batch: WETC/248444 **Analysis Method:** SW846 9060A

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 3145952001, 3145952002, 3145952003, 3145952004

METHOD BLANK: 3251081

Parameter	Blank Result	Units	Reporting Limit
Total Organic Carbon (TOC)	0.50U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 3251082

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	98.4	mg/L	1	0.98J	85 - 115

MATRIX SPIKE: 3251083 DUPLICATE: 3251084 ORIGINAL: 3145952001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Total Organic Carbon (TOC)	.715	mg/L	6	6.868	6.95	103	104	85 - 115	1.19	20

MATRIX SPIKE: 3251085 DUPLICATE: 3251086 ORIGINAL: 3145184001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Total Organic Carbon (TOC)	1.752	mg/L	6	8.093	8.094	106	106	85 - 115	.01	20

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3145952001	MW-31 120920			EPA 300.0	WETC/248143
3145952002	MW-34 120920			EPA 300.0	WETC/248143
3145952003	MW-35 120920			EPA 300.0	WETC/248143
3145952004	MW-28 120920			EPA 300.0	WETC/248143
3145952001	MW-31 120920	SW846 3015	MDIG/87304	SW846 6010C	META/77994
3145952002	MW-34 120920	SW846 3015	MDIG/87304	SW846 6010C	META/77994
3145952003	MW-35 120920	SW846 3015	MDIG/87304	SW846 6010C	META/77994
3145952004	MW-28 120920	SW846 3015	MDIG/87304	SW846 6010C	META/77994
3145952001	MW-31 120920			SM2320B-2011	WETC/248269
3145952002	MW-34 120920			SM2320B-2011	WETC/248269
3145952003	MW-35 120920			SM2320B-2011	WETC/248269
3145952004	MW-28 120920			SM2320B-2011	WETC/248269
3145952001	MW-31 120920			SW846 8260C	VOMS/57592
3145952002	MW-34 120920			SW846 8260C	VOMS/57592
3145952003	MW-35 120920			SW846 8260C	VOMS/57592
3145952004	MW-28 120920			SW846 8260C	VOMS/57592
3145952005	Trip Blank 120920			SW846 8260C	VOMS/57592
3145952001	MW-31 120920	SW846 6010C	MDIG/87349	SW846 6010C	META/78025
3145952002	MW-34 120920	SW846 6010C	MDIG/87349	SW846 6010C	META/78025
3145952003	MW-35 120920	SW846 6010C	MDIG/87349	SW846 6010C	META/78025
3145952004	MW-28 120920	SW846 6010C	MDIG/87349	SW846 6010C	META/78025
3145952001	MW-31 120920			RSK 175	SVGC/59182
3145952002	MW-34 120920			RSK 175	SVGC/59182
3145952003	MW-35 120920			RSK 175	SVGC/59182
3145952004	MW-28 120920			RSK 175	SVGC/59182

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3145952001	MW-31 120920			SW846 9060A	WETC/248444
3145952002	MW-34 120920			SW846 9060A	WETC/248444
3145952003	MW-35 120920			SW846 9060A	WETC/248444
3145952004	MW-28 120920			SW846 9060A	WETC/248444

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

* 3 1 4 5 9 5 2 *

__ of __

Client Name: AECOM
Address: 40 British American Blvd. Latham, NY 12110
Contact: Gerlinde Wolf
Phone#: 518-951-2370
Project Name/#: Scotia Navy Depot / 60440641
Bill To:
TAT: [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required: Approved?
Email? [X] -Y gerlinde.wolf@aecom.com
Fax? [ ] -Y No.:

	Container Type	CG	CG	PL	PL	AG	PL	PL				
	Container Size	40	40	250	250	40	250	250				
	Preservative	HCl	HCl	-	-	HCl	HNO_3	-				
	ANALYSES/METHOD REQUESTED											
	*G or C	**Matrix	8260C	RSK175	Alkalinity	Cl, NO3, SO4	TOC	Total Fe	Diss Fe				
	Enter Number of Containers Per Sample or Field Results Below.											
Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm										
1 MW-31 120920	12/09/20	0830	G	GW	2	2	1	1	2	1	1				
2 MW-34 120920		1050			2	2	1	1	2	1	1				
3 MW-35 120920		1200			2	2	1	1	2	1	1				
4 MW-28 120920		1410			2	2	1	1	2	1	1				
5 TRIP BLANK 120920	-	-	-	-	2	x	X	x	x	x	X				
6															
7															
8															
9															
10															

Sample/COC Comments

(completed by Receiving Lab)
W.O. Temp: 0 Therm ID: 309
Courier/Tracking #:
Purchase Order #:
Project Comments:

ALS Field Services: [X] Pickup [ ] Labor
[ ] Composite Sampling [ ] Rental Equipment
Other:

SAMPLED BY (Please Print): Jillian Kosmisti / Pat McHugh

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Jillian Kosmisti / AECOM	12/9/20	1500	2 Daniel Hogan / ALS	12/9/20	1500
3 Daniel Hogan / ALS	12/9/2020	1730	4 FedEx		
5 FedEx			6 UPS ALS	12/10/20	0440
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE/DOD [ ]
Special Processing: USACE [ ] Navy [ ]
State Samples Collected In: [X] NY [ ] NJ [ ] PA [ ] NC [ ] other
Reportable to PADEP? Yes [ ] No [ ] PWSID #
Sample Disposal: Lab [X] Special [ ]
EDDS: Format Type-

* G=Grab; C=Composite
**Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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Rev 11/18

301 Fulling Mill Road
Middletown, PA 17057
P: (717) 944-5541
F: (717) 944-1430

Condition of Sample Receipt Form

Client: AECOM | Work Order #: 31459152 | Initials: | Date: 12/10/20

1. Were airbills / tracking numbers present and recorded?	NONE	YES	NO
Tracking number: 4888 8036 4802			
2. Are Custody Seals on shipping containers intact?	NONE	YES	NO
3. Are Custody Seals on sample containers intact?	NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present?		YES	NO
5. Are the COC and bottle labels complete, legible and in agreement?		YES	NO
5a. Does the COC contain sample locations?		YES	NO
5b. Does the COC contain date and time of sample collection for all samples?		YES	NO
5c. Does the COC contain sample collectors name?		YES	NO
5d. Does the COC note the type(s) of preservation for all bottles?		YES	NO
5e. Does the COC note the number of bottles submitted for each sample?		YES	NO
5f. Does the COC note the type of sample, composite or grab?		YES	NO
5g. Does the COC note the matrix of the sample(s)?		YES	NO
6. Are all aqueous samples requiring preservation preserved correctly?[1]	N/A	YES	NO
7. Were all samples placed in the proper containers for the requested analyses, with sufficient volume?		YES	NO
8. Are all samples within holding times for the requested analyses?		YES	NO
9. Were all sample containers received intact and headspace free when required? (not broken, leaking, frozen, etc.)		YES	NO
10. Did we receive trip blanks (applies only for methods EPA 504, EPA 524.2 and 1631E (LL Hg)?	N/A	YES	NO
11. Were the samples received on ice?		YES	NO
12. Were sample temperatures measured at 0.0-6.0°C		YES	NO
13. Are the samples DW matrix ? If YES, fill out Reportable Drinking Water questions below		YES	NO
13a. Are the samples required for SDWA compliance reporting?	N/A	YES	NO
13b. Did the client provide a SDWA PWS ID#?	N/A	YES	NO
13c. Are all aqueous unpreserved SDWA samples pH 5-9?	N/A	YES	NO
13d. Did the client provide the SDWA sample location ID/Description?	N/A	YES	NO
13e. Did the client provide the SDWA sample type (D, E, R, C, P, S)?	N/A	YES	NO

Cooler #: _____

Temperature (°C): 6

Thermometer ID: 309

Radiological (µCi): _____

COMMENTS (Required for all NO responses above and any sample non-conformance):

[1]Final determination of correct preservation for analysis such as volatiles, microbiology, and oil and grease is made in the analytical department at the time of or following the analysis

Rev 1/20/2020

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December 22, 2020

Ms. Gerlinde Wolfe
AECOM - Latham NY
40 British American Blvd
Albany, NY 12210

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**3146340**
Purchase Order:	**66432**	Workorder ID:	**ASN063|Scotia Navy Depot 60440**

Dear Ms. Wolfe:

Enclosed are the analytical results for samples received by the laboratory on Friday, December 11, 2020.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact ELIZABETH M PARKER (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Mr. Greg Malzone , Mr. Daniel Servetas

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Elizabeth M. Parker

ELIZABETH M PARKER
Project Coordinator

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SAMPLE SUMMARY

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3146340001	MW-29	Ground Water	12/10/2020 07:45	12/11/2020 09:41	Collected by Client
3146340002	MW-32 121020	Ground Water	12/10/2020 11:00	12/11/2020 09:41	Collected by Client
3146340003	MW-33 121020	Ground Water	12/10/2020 13:45	12/11/2020 09:41	Collected by Client
3146340004	DUP-1	Ground Water	12/10/2020 07:45	12/11/2020 09:41	Collected by Client
3146340005	DUP-2	Ground Water	12/10/2020 07:45	12/11/2020 09:41	Collected by Client
3146340006	Trip Blank	Ground Water	12/10/2020 07:45	12/11/2020 09:41	Collected by Client
3146340007	Field Blank	Ground Water	12/10/2020 16:40	12/11/2020 09:41	Collected by Client

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SAMPLE SUMMARY

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
-- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

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PROJECT SUMMARY

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Sample Comments

Lab ID: 3146340001 **Sample ID:** MW-29 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

Lab ID: 3146340002 **Sample ID:** MW-32 121020 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

Lab ID: 3146340003 **Sample ID:** MW-33 121020 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

Lab ID: 3146340004 **Sample ID:** DUP-1 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

Lab ID: 3146340005 **Sample ID:** DUP-2 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340001** Date Collected: 12/10/2020 07:45 Matrix: Ground Water

Sample ID: **MW-29** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.64J	J	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:37	DPC	A
1,1-Dichloroethane	0.53J	J	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:37	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:37	DPC	A
1,1-Dichloroethene	0.57J	J	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:37	DPC	A
cis-1,2-Dichloroethene	4.0		ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:37	DPC	A
trans-1,2-Dichloroethene	0.47J	J	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:37	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:37	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:37	DPC	A
Tetrachloroethene	24.0		ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:37	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:37	DPC	A
1,1,1-Trichloroethane	9.8		ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:37	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:37	DPC	A
Trichloroethene	151		ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:37	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:37	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.1		%	81 - 118			SW846 8260C		12/16/20 13:37	DPC	A
4-Bromofluorobenzene (S)	90.9		%	85 - 114			SW846 8260C		12/16/20 13:37	DPC	A
Dibromofluoromethane (S)	88.4		%	80 - 119			SW846 8260C		12/16/20 13:37	DPC	A
Toluene-d8 (S)	93.8		%	89 - 112			SW846 8260C		12/16/20 13:37	DPC	A
LIGHT HYDROCARBON GASES											
n-Butane	0.0		ug/L			1.1	RSK 175		12/16/20 07:12	CHS	N
Ethane	2.6U	U	ug/L	5.2	2.6	0.56	RSK 175		12/16/20 07:12	CHS	N
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175		12/16/20 07:12	CHS	N
Isobutane	0.0		ug/L			0.90	RSK 175		12/16/20 07:12	CHS	N
Methane	1.6U	U	ug/L	2.6	1.6	0.53	RSK 175		12/16/20 07:12	CHS	N
Propane	0.0		ug/L			0.84	RSK 175		12/16/20 07:12	CHS	N
WET CHEMISTRY											
Alkalinity, Total	244	1	mg/L	5	5	0.8	SM2320B-2011		12/18/20 00:52	R2B	M
Chloride	42.9		mg/L	2.0	1.8	0.88	EPA 300.0		12/12/20 06:03	MBW	L
Nitrate-N	0.46		mg/L	0.20	0.14	0.050	EPA 300.0		12/12/20 06:03	MBW	L
Sulfate	21.3		mg/L	2.0	1.8	0.50	EPA 300.0		12/12/20 06:03	MBW	L
Total Organic Carbon (TOC)	0.99J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/19/20 03:39	PAG	D
Total Organic Carbon, 2nd	0.88J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/19/20 03:39	PAG	D
Total Organic Carbon, 3rd	0.83J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/19/20 03:39	PAG	D
Total Organic Carbon, 4th	0.85J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/19/20 03:39	PAG	D

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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340001** Date Collected: 12/10/2020 07:45 Matrix: Ground Water
Sample ID: **MW-29** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	*Cntr*
METALS												
Iron, Total	0.045U	U	mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 17:07	SRT	P1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:38	SRT	P

Elizabeth M. Parker

ELIZABETH M PARKER
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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340002** Date Collected: 12/10/2020 11:00 Matrix: Ground Water

Sample ID: **MW-32 121020** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:59	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:59	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:59	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:59	DPC	A
cis-1,2-Dichloroethene	1.3		ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:59	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:59	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:59	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:59	DPC	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:59	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:59	DPC	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:59	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:59	DPC	A
Trichloroethene	122		ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:59	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:59	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.7		%	81 - 118			SW846 8260C		12/16/20 13:59	DPC	A
4-Bromofluorobenzene (S)	93.1		%	85 - 114			SW846 8260C		12/16/20 13:59	DPC	A
Dibromofluoromethane (S)	89.2		%	80 - 119			SW846 8260C		12/16/20 13:59	DPC	A
Toluene-d8 (S)	95		%	89 - 112			SW846 8260C		12/16/20 13:59	DPC	A
LIGHT HYDROCARBON GASES											
n-Butane	0.0		ug/L			1.1	RSK 175		12/16/20 07:28	CHS	N
Ethane	6.5		ug/L	5.2	2.6	0.56	RSK 175		12/16/20 07:28	CHS	N
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175		12/16/20 07:28	CHS	N
Isobutane	0.0		ug/L			0.90	RSK 175		12/16/20 07:28	CHS	N
Methane	950		ug/L	2.6	1.6	0.53	RSK 175		12/16/20 07:28	CHS	N
Propane	0.0		ug/L			0.84	RSK 175		12/16/20 07:28	CHS	N
WET CHEMISTRY											
Alkalinity, Total	168	1	mg/L	5	5	0.8	SM2320B-2011		12/18/20 00:52	R2B	M
Chloride	27.7		mg/L	2.0	1.8	0.88	EPA 300.0		12/12/20 06:18	MBW	L
Nitrate-N	0.14U	U	mg/L	0.20	0.14	0.050	EPA 300.0		12/12/20 06:18	MBW	L
Sulfate	9.8		mg/L	2.0	1.8	0.50	EPA 300.0		12/12/20 06:18	MBW	L
Total Organic Carbon (TOC)	0.94J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/19/20 03:39	PAG	D
Total Organic Carbon, 2nd	0.88J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/19/20 03:39	PAG	D
Total Organic Carbon, 3rd	0.82J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/19/20 03:39	PAG	D
Total Organic Carbon, 4th	0.90J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/19/20 03:39	PAG	D

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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340002** Date Collected: 12/10/2020 11:00 Matrix: Ground Water

Sample ID: **MW-32 121020** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	*Cntr*
METALS												
Iron, Total	1.7		mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 17:11	SRT	O1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:48	SRT	O

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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340003** Date Collected: 12/10/2020 13:45 Matrix: Ground Water

Sample ID: **MW-33 121020** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
cis-1,2-Dichloroethene	0.45J	J	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
Trichloroethene	148		ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	100		%	81 - 118			SW846 8260C			12/16/20 14:22	DPC	A
4-Bromofluorobenzene (S)	93.5		%	85 - 114			SW846 8260C			12/16/20 14:22	DPC	A
Dibromofluoromethane (S)	92.8		%	80 - 119			SW846 8260C			12/16/20 14:22	DPC	A
Toluene-d8 (S)	94.2		%	89 - 112			SW846 8260C			12/16/20 14:22	DPC	A
LIGHT HYDROCARBON GASES												
n-Butane	0.0		ug/L			1.1	RSK 175			12/16/20 07:44	CHS	N
Ethane	2.6U	U	ug/L	5.2	2.6	0.56	RSK 175			12/16/20 07:44	CHS	N
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175			12/16/20 07:44	CHS	N
Isobutane	0.0		ug/L			0.90	RSK 175			12/16/20 07:44	CHS	N
Methane	1.6U	U	ug/L	2.6	1.6	0.53	RSK 175			12/16/20 07:44	CHS	N
Propane	0.0		ug/L			0.84	RSK 175			12/16/20 07:44	CHS	N
WET CHEMISTRY												
Alkalinity, Total	194	1	mg/L	5	5	0.8	SM2320B-2011			12/18/20 00:52	R2B	M
Chloride	32.8		mg/L	2.0	1.8	0.88	EPA 300.0			12/12/20 06:33	MBW	L
Nitrate-N	0.50		mg/L	0.20	0.14	0.050	EPA 300.0			12/12/20 06:33	MBW	L
Sulfate	13.1		mg/L	2.0	1.8	0.50	EPA 300.0			12/12/20 06:33	MBW	L
Total Organic Carbon (TOC)	1.1		mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 2nd	1.1		mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 3rd	0.97J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 4th	0.96J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D

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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340003** Date Collected: 12/10/2020 13:45 Matrix: Ground Water

Sample ID: **MW-33 121020** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	*Cntr*
METALS												
Iron, Total	0.37		mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 17:22	SRT	P1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:52	SRT	P

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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340004** Date Collected: 12/10/2020 07:45 Matrix: Ground Water

Sample ID: **DUP-1** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.65J	J	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
1,1-Dichloroethane	0.53J	J	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
1,1-Dichloroethene	0.57J	J	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
cis-1,2-Dichloroethene	3.9		ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
trans-1,2-Dichloroethene	0.49J	J	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
Tetrachloroethene	25.8		ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
1,1,1-Trichloroethane	10		ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
Trichloroethene	156		ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	99		%	81 - 118			SW846 8260C			12/16/20 14:45	DPC	A
4-Bromofluorobenzene (S)	94.2		%	85 - 114			SW846 8260C			12/16/20 14:45	DPC	A
Dibromofluoromethane (S)	91.5		%	80 - 119			SW846 8260C			12/16/20 14:45	DPC	A
Toluene-d8 (S)	95.3		%	89 - 112			SW846 8260C			12/16/20 14:45	DPC	A
LIGHT HYDROCARBON GASES												
n-Butane	0.0		ug/L			1.1	RSK 175			12/16/20 08:01	CHS	N
Ethane	2.6U	U	ug/L	5.2	2.6	0.56	RSK 175			12/16/20 08:01	CHS	N
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175			12/16/20 08:01	CHS	N
Isobutane	0.0		ug/L			0.90	RSK 175			12/16/20 08:01	CHS	N
Methane	1.6U	U	ug/L	2.6	1.6	0.53	RSK 175			12/16/20 08:01	CHS	N
Propane	0.0		ug/L			0.84	RSK 175			12/16/20 08:01	CHS	N
WET CHEMISTRY												
Alkalinity, Total	246	1	mg/L	5	5	0.8	SM2320B-2011			12/18/20 00:52	R2B	M
Chloride	39.7		mg/L	2.0	1.8	0.88	EPA 300.0			12/12/20 06:48	MBW	L
Nitrate-N	0.46		mg/L	0.20	0.14	0.050	EPA 300.0			12/12/20 06:48	MBW	L
Sulfate	21.5		mg/L	2.0	1.8	0.50	EPA 300.0			12/12/20 06:48	MBW	L
Total Organic Carbon (TOC)	0.88J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 2nd	0.76J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 3rd	0.72J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 4th	0.66J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D

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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340004** Date Collected: 12/10/2020 07:45 Matrix: Ground Water
Sample ID: **DUP-1** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	0.045U	U	mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 17:25	SRT	P1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:56	SRT	P

Elizabeth M. Parker

ELIZABETH M PARKER
Project Coordinator

ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340005** Date Collected: 12/10/2020 07:45 Matrix: Ground Water

Sample ID: **DUP-2** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 15:07	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 15:07	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 15:07	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 15:07	DPC	A
cis-1,2-Dichloroethene	1.2		ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 15:07	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 15:07	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 15:07	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 15:07	DPC	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 15:07	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 15:07	DPC	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 15:07	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 15:07	DPC	A
Trichloroethene	124		ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 15:07	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 15:07	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.2		%	81 - 118			SW846 8260C		12/16/20 15:07	DPC	A
4-Bromofluorobenzene (S)	91.9		%	85 - 114			SW846 8260C		12/16/20 15:07	DPC	A
Dibromofluoromethane (S)	91.4		%	80 - 119			SW846 8260C		12/16/20 15:07	DPC	A
Toluene-d8 (S)	95		%	89 - 112			SW846 8260C		12/16/20 15:07	DPC	A
LIGHT HYDROCARBON GASES											
n-Butane	0.0		ug/L			1.1	RSK 175		12/16/20 08:17	CHS	N
Ethane	6.7		ug/L	5.2	2.6	0.56	RSK 175		12/16/20 08:17	CHS	N
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175		12/16/20 08:17	CHS	N
Isobutane	0.0		ug/L			0.90	RSK 175		12/16/20 08:17	CHS	N
Methane	971		ug/L	2.6	1.6	0.53	RSK 175		12/16/20 08:17	CHS	N
Propane	0.0		ug/L			0.84	RSK 175		12/16/20 08:17	CHS	N
WET CHEMISTRY											
Alkalinity, Total	169	1	mg/L	5	5	0.8	SM2320B-2011		12/18/20 00:52	R2B	M
Chloride	27.8		mg/L	2.0	1.8	0.88	EPA 300.0		12/12/20 07:03	MBW	L
Nitrate-N	0.14U	U	mg/L	0.20	0.14	0.050	EPA 300.0		12/12/20 07:03	MBW	L
Sulfate	9.8		mg/L	2.0	1.8	0.50	EPA 300.0		12/12/20 07:03	MBW	L
Total Organic Carbon (TOC)	0.91J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/19/20 03:39	PAG	D
Total Organic Carbon, 2nd	0.81J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/19/20 03:39	PAG	D
Total Organic Carbon, 3rd	0.74J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/19/20 03:39	PAG	D
Total Organic Carbon, 4th	0.72J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/19/20 03:39	PAG	D

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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340005** Date Collected: 12/10/2020 07:45 Matrix: Ground Water
Sample ID: **DUP-2** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	*Cntr*
METALS												
Iron, Total	1.7		mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 17:29	SRT	P1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 17:00	SRT	P

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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340006** Date Collected: 12/10/2020 07:45 Matrix: Ground Water

Sample ID: **Trip Blank** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 12:51	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 12:51	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 12:51	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 12:51	DPC	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 12:51	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 12:51	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 12:51	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 12:51	DPC	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 12:51	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 12:51	DPC	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 12:51	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 12:51	DPC	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 12:51	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 12:51	DPC	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.5		%	81 - 118	SW846 8260C		12/16/20 12:51	DPC	A
4-Bromofluorobenzene (S)	92.9		%	85 - 114	SW846 8260C		12/16/20 12:51	DPC	A
Dibromofluoromethane (S)	90.3		%	80 - 119	SW846 8260C		12/16/20 12:51	DPC	A
Toluene-d8 (S)	94.8		%	89 - 112	SW846 8260C		12/16/20 12:51	DPC	A

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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340007** Date Collected: 12/10/2020 16:40 Matrix: Ground Water

Sample ID: **Field Blank** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:14	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:14	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:14	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:14	DPC	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:14	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:14	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:14	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:14	DPC	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:14	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:14	DPC	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:14	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:14	DPC	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:14	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/16/20 13:14	DPC	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95.9		%	81 - 118	SW846 8260C		12/16/20 13:14	DPC	A
4-Bromofluorobenzene (S)	91.4		%	85 - 114	SW846 8260C		12/16/20 13:14	DPC	A
Dibromofluoromethane (S)	87.8		%	80 - 119	SW846 8260C		12/16/20 13:14	DPC	A
Toluene-d8 (S)	95.2		%	89 - 112	SW846 8260C		12/16/20 13:14	DPC	A

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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3146340001	1	MW-29	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3146340002	1	MW-32 121020	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3146340003	1	MW-33 121020	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3146340004	1	DUP-1	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3146340005	1	DUP-2	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID	Sample ID	Analysis Method	Prep Method	Leachate Method
3146340001	MW-29	EPA 300.0		
3146340001	MW-29	RSK 175		
3146340001	MW-29	SM2320B-2011		
3146340001	MW-29	SW846 6010C	SW846 3015	
3146340001	MW-29	SW846 6010C	SW846 6010C	
3146340001	MW-29	SW846 8260C		
3146340001	MW-29	SW846 9060A		
3146340002	MW-32 121020	EPA 300.0		
3146340002	MW-32 121020	RSK 175		
3146340002	MW-32 121020	SM2320B-2011		
3146340002	MW-32 121020	SW846 6010C	SW846 3015	
3146340002	MW-32 121020	SW846 6010C	SW846 6010C	
3146340002	MW-32 121020	SW846 8260C		
3146340002	MW-32 121020	SW846 9060A		
3146340003	MW-33 121020	EPA 300.0		
3146340003	MW-33 121020	RSK 175		
3146340003	MW-33 121020	SM2320B-2011		
3146340003	MW-33 121020	SW846 6010C	SW846 3015	
3146340003	MW-33 121020	SW846 6010C	SW846 6010C	
3146340003	MW-33 121020	SW846 8260C		
3146340003	MW-33 121020	SW846 9060A		
3146340004	DUP-1	EPA 300.0		
3146340004	DUP-1	RSK 175		
3146340004	DUP-1	SM2320B-2011		
3146340004	DUP-1	SW846 6010C	SW846 3015	
3146340004	DUP-1	SW846 6010C	SW846 6010C	
3146340004	DUP-1	SW846 8260C		
3146340004	DUP-1	SW846 9060A		
3146340005	DUP-2	EPA 300.0		
3146340005	DUP-2	RSK 175		
3146340005	DUP-2	SM2320B-2011		
3146340005	DUP-2	SW846 6010C	SW846 3015	
3146340005	DUP-2	SW846 6010C	SW846 6010C	
3146340005	DUP-2	SW846 8260C		
3146340005	DUP-2	SW846 9060A		
3146340006	Trip Blank	SW846 8260C		
3146340007	Field Blank	SW846 8260C		

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QUALITY CONTROL DATA

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

QC Batch: MDIG/87304 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 3015

Associated Lab Samples: 3146340001, 3146340002, 3146340003, 3146340004, 3146340005

METHOD BLANK: 3248340

Parameter	Blank Result	Units	Reporting Limit
Iron, Total	0.045U	mg/L	0.067

LABORATORY CONTROL SAMPLE: 3248341

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Iron, Total	99.1	mg/L	1.1	1.1	87 - 115

MATRIX SPIKE SAMPLE: 3248342 ORIGINAL: 3145952001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit
Iron, Total	.76266	mg/L	1.1	1.91887	104	87 - 115

SAMPLE DUPLICATE: 3248343 ORIGINAL: 3145952002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Iron, Total	.06222	mg/L	.07655	20.7	

QUALITY CONTROL DATA

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

QC Batch: MDIG/87349 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 6010C

Associated Lab Samples: 3146340001, 3146340002, 3146340003, 3146340004, 3146340005

METHOD BLANK: 3249531

Parameter	Blank Result	Units	Reporting Limit
Iron, Dissolved	0.040U	mg/L	0.060

LABORATORY CONTROL SAMPLE: 3249532

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Iron, Dissolved	97.1	mg/L	1	0.97	87 - 115

MATRIX SPIKE: 3249533 DUPLICATE: 3249534 ORIGINAL: 3145584004

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Iron, Dissolved	.0432	mg/L	1	1.011	1.013	96.8	97	87 - 115	.2	20

QUALITY CONTROL DATA

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

QC Batch: SVGC/59182 **Analysis Method:** RSK 175

QC Batch Method: RSK 175

Associated Lab Samples: 3146340001, 3146340002, 3146340003, 3146340004, 3146340005

METHOD BLANK: 3250131

Parameter	Blank Result	Units	Reporting Limit
n-Butane	0.0	ug/L	
Ethane	2.6U	ug/L	5.2
Ethene	3.6U	ug/L	7.1
Isobutane	0.0	ug/L	
Methane	1.6U	ug/L	2.6
Propane	0.0	ug/L	
Methyl-t-Butyl ether-d3 (S)			

SAMPLE DUPLICATE: 3250132 ORIGINAL: 3145952001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
n-Butane	0	ug/L	0	NC	20
Ethane	4.34	ug/L	4.64	6.68	20
Ethene	0	ug/L	0	NC	20
Isobutane	0	ug/L	0	NC	20
Propane	0	ug/L	0	NC	20
Methane	737.41	ug/L	795.86	7.62	20

QUALITY CONTROL DATA

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

QC Batch: VOMS/57614 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3146340001, 3146340002, 3146340003, 3146340004, 3146340005, 3146340006, 3146340007

METHOD BLANK: 3250344

Parameter	Blank Result	Units	Reporting Limit
Carbon Tetrachloride	0.75U	ug/L	1.0
1,1-Dichloroethane	0.75U	ug/L	1.0
1,2-Dichloroethane	0.75U	ug/L	1.0
1,1-Dichloroethene	0.75U	ug/L	1.0
cis-1,2-Dichloroethene	0.75U	ug/L	1.0
trans-1,2-Dichloroethene	0.75U	ug/L	1.0
1,1,1,2-Tetrachloroethane	0.75U	ug/L	1.0
1,1,2,2-Tetrachloroethane	0.75U	ug/L	1.0
Tetrachloroethene	0.75U	ug/L	1.0
Toluene	0.75U	ug/L	1.0
1,1,1-Trichloroethane	0.75U	ug/L	1.0
1,1,2-Trichloroethane	0.75U	ug/L	1.0
Trichloroethene	0.75U	ug/L	1.0
Vinyl Chloride	0.75U	ug/L	1.0
1,2-Dichloroethane-d4 (S)	96.8	%	81 - 118
4-Bromofluorobenzene (S)	92.8	%	85 - 114
Dibromofluoromethane (S)	87.8	%	80 - 119
Toluene-d8 (S)	93.8	%	89 - 112

LABORATORY CONTROL SAMPLE: 3250345

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	101	ug/L	20	20.2	72 - 136
1,1-Dichloroethane	104	ug/L	20	20.8	77 - 125
1,2-Dichloroethane	97.7	ug/L	20	19.5	73 - 128
1,1-Dichloroethene	118	ug/L	20	23.6	71 - 131
cis-1,2-Dichloroethene	106	ug/L	20	21.1	78 - 123
trans-1,2-Dichloroethene	112	ug/L	20	22.4	75 - 124
1,1,1,2-Tetrachloroethane	96.7	ug/L	20	19.3	78 - 124
1,1,2,2-Tetrachloroethane	95	ug/L	20	19.0	71 - 121
Tetrachloroethene	99.7	ug/L	20	19.9	74 - 129
Toluene	96.4	ug/L	20	19.3	80 - 121
1,1,1-Trichloroethane	101	ug/L	20	20.2	74 - 131
1,1,2-Trichloroethane	94.6	ug/L	20	18.9	80 - 119
Trichloroethene	99.3	ug/L	20	19.9	79 - 123

QUALITY CONTROL DATA

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Vinyl Chloride	108	ug/L	20	21.5	58 - 137
1,2-Dichloroethane-d4 (S)	94.3	%			81 - 118
4-Bromofluorobenzene (S)	91.3	%			85 - 114
Dibromofluoromethane (S)	90.2	%			80 - 119
Toluene-d8 (S)	91	%			89 - 112

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

QUALITY CONTROL DATA

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

QC Batch: WETC/248200 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 3146340001, 3146340002, 3146340003, 3146340004, 3146340005

METHOD BLANK: 3248280

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.90U	mg/L	1.0
Nitrate-N	0.070U	mg/L	0.10
Sulfate	0.90U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 3248282

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	99.3	mg/L	20	19.9	87 - 111
Nitrate-N	94.8	mg/L	2.5	2.4	88 - 111
Sulfate	100	mg/L	20	20.0	87 - 112

METHOD BLANK: 3249240

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.90U	mg/L	1.0
Nitrate-N	0.070U	mg/L	0.10
Sulfate	0.90U	mg/L	1.0

MATRIX SPIKE SAMPLE: 3249241 ORIGINAL: 3146532005

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit
Chloride	1.74	mg/L	40	42	101	87 - 111
Nitrate-N	2.48	mg/L	5	7.38	98	88 - 111
Sulfate	21.1	mg/L	40	56.64	88.8	87 - 112

QUALITY CONTROL DATA

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

LABORATORY CONTROL SAMPLE: 3249243

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	101	mg/L	20	20.2	87 - 111
Nitrate-N	97.2	mg/L	2.5	2.4	88 - 111
Sulfate	102	mg/L	20	20.3	87 - 112

QUALITY CONTROL DATA

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

QC Batch: WETC/248352 **Analysis Method:** SM2320B-2011

QC Batch Method: SM2320B-2011

Associated Lab Samples: 3146340001, 3146340002, 3146340003, 3146340004, 3146340005

METHOD BLANK: 3250144

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

SAMPLE DUPLICATE: 3250148 ORIGINAL: 3146340003

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	193.76	mg/L	191	1.43	20

METHOD BLANK: 3250150

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

SAMPLE DUPLICATE: 3250152 ORIGINAL: 3146350006

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	29.2	mg/L	29.28	.27	20

METHOD BLANK: 3250154

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

SAMPLE DUPLICATE: 3250156 ORIGINAL: 3146444002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD

QUALITY CONTROL DATA

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Parameter		Units			
Alkalinity, Total	234.96	mg/L	232.32	1.13	20

METHOD BLANK: 3250158

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

METHOD BLANK: 3250162

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	1J	mg/L	5

METHOD BLANK: 3250166

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

SAMPLE DUPLICATE: 3250168 ORIGINAL: 3146524001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	34.2	mg/L	34.48	.82	20

METHOD BLANK: 3250170

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

SAMPLE DUPLICATE: 3250172 ORIGINAL: 3146532009

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	9.2	mg/L	8.96	2.64	20

QUALITY CONTROL DATA

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

METHOD BLANK: 3250174

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

SAMPLE DUPLICATE: 3250176 ORIGINAL: 3146579002

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	92.36	mg/L	92	.39	20

METHOD BLANK: 3250178

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	0.8J	mg/L	5

METHOD BLANK: 3250182

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	2J	mg/L	5

METHOD BLANK: 3250186

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	0.9J	mg/L	5

METHOD BLANK: 3250190

Parameter	Blank Result	Units	Reporting Limit
Alkalinity, Total	5U	mg/L	5

QUALITY CONTROL DATA

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

QC Batch: WETC/248484 **Analysis Method:** SW846 9060A

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 3146340001, 3146340002, 3146340003, 3146340004, 3146340005

METHOD BLANK: 3251665

Parameter	Blank Result	Units	Reporting Limit
Total Organic Carbon (TOC)	0.50U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 3251666

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	98.4	mg/L	1	0.98J	85 - 115

MATRIX SPIKE: 3251667 DUPLICATE: 3251668 ORIGINAL: 3146132009

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Total Organic Carbon (TOC)	1.833	mg/L	6	8.016	8.042	103	103	85 - 115	.32	20

MATRIX SPIKE: 3251669 DUPLICATE: 3251670 ORIGINAL: 3146340001

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Total Organic Carbon (TOC)	.988	mg/L	6	7.078	7.098	102	102	85 - 115	.28	20

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3146340001	MW-29			EPA 300.0	WETC/248200
3146340002	MW-32 121020			EPA 300.0	WETC/248200
3146340003	MW-33 121020			EPA 300.0	WETC/248200
3146340004	DUP-1			EPA 300.0	WETC/248200
3146340005	DUP-2			EPA 300.0	WETC/248200
3146340001	MW-29	SW846 3015	MDIG/87304	SW846 6010C	META/77994
3146340002	MW-32 121020	SW846 3015	MDIG/87304	SW846 6010C	META/77994
3146340003	MW-33 121020	SW846 3015	MDIG/87304	SW846 6010C	META/77994
3146340004	DUP-1	SW846 3015	MDIG/87304	SW846 6010C	META/77994
3146340005	DUP-2	SW846 3015	MDIG/87304	SW846 6010C	META/77994
3146340001	MW-29	SW846 6010C	MDIG/87349	SW846 6010C	META/78025
3146340002	MW-32 121020	SW846 6010C	MDIG/87349	SW846 6010C	META/78025
3146340003	MW-33 121020	SW846 6010C	MDIG/87349	SW846 6010C	META/78025
3146340004	DUP-1	SW846 6010C	MDIG/87349	SW846 6010C	META/78025
3146340005	DUP-2	SW846 6010C	MDIG/87349	SW846 6010C	META/78025
3146340001	MW-29			RSK 175	SVGC/59182
3146340002	MW-32 121020			RSK 175	SVGC/59182
3146340003	MW-33 121020			RSK 175	SVGC/59182
3146340004	DUP-1			RSK 175	SVGC/59182
3146340005	DUP-2			RSK 175	SVGC/59182
3146340001	MW-29			SM2320B-2011	WETC/248352
3146340002	MW-32 121020			SM2320B-2011	WETC/248352
3146340003	MW-33 121020			SM2320B-2011	WETC/248352
3146340004	DUP-1			SM2320B-2011	WETC/248352
3146340005	DUP-2			SM2320B-2011	WETC/248352
3146340001	MW-29			SW846 8260C	VOMS/57614

ALS Environmental

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State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3146340002	MW-32 121020			SW846 8260C	VOMS/57614
3146340003	MW-33 121020			SW846 8260C	VOMS/57614
3146340004	DUP-1			SW846 8260C	VOMS/57614
3146340005	DUP-2			SW846 8260C	VOMS/57614
3146340006	Trip Blank			SW846 8260C	VOMS/57614
3146340007	Field Blank			SW846 8260C	VOMS/57614
3146340001	MW-29			SW846 9060A	WETC/248484
3146340002	MW-32 121020			SW846 9060A	WETC/248484
3146340003	MW-33 121020			SW846 9060A	WETC/248484
3146340004	DUP-1			SW846 9060A	WETC/248484
3146340005	DUP-2			SW846 9060A	WETC/248484

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Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:

ALS Qu

* 3 1 4 6 3 4 0 *

(completed by Receiving Lab)

W.O. Temp: 2 Therm ID: 304

Courier/Tracking #:

Purchase Order #:

Project Comments:

Category B ("Tier III") Required

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment

Other:

Client Name:

Address:

Contact: Garlinde Wolf

Phone#:

Project Name/#: 60440641

Bill To:

TAT ☒ Normal-Standard TAT is 10-12 business days. ☐ Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? ☒ -Y Garlinde.Wolf@Aecom.com

Fax? ☐ -Y No.:

	Container Type	CG	CG	PL	PL	AG	PL	PL			
	Container Size	40	40	8oz	8oz	40	125	250			
	Preservative	HCL	HCL	-	-	HCL	HNO_3				

ANALYSES/METHOD REQUESTED

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	8260c	RSK 175	Alkalinity	Cl, NO_3, SO_4	TOC	Total Fe	Diss. Fe				Sample/COC Comments
				Enter Number of Containers Per Sample or Field Results Below.												
1	MW-29 121020	12/10/20	0745	G	GW	2	2	1	1	2	1	1				
2	MW-32 121020		1100			2	12	1	1	2	1	1				* MW12-1120
3	MW-33 121020		1345			2	2	1	1	2	1	1				
4	Dup-1		-			2	2	1	1	2	1	1				
5	Dup-2		-			2	2	1	1	2	1	1				
6	Trip Blank		-			3	-	-	-	-	-	-				
7	Field Blank		1640			3	-	-	-	-	-	-				
8						MW12MW										
9																
10																

SAMPLED BY (Please Print): Patrick Mettaugh

Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	Patrick Mettaugh / AECOM	12/10/20	1630	2	FedEx	12/10/20	1630
3	FedEx	12/10/20	1700	4			
5				6	MW AD	12/11/20	0941
7				8			
9				10			

Data Deliverables: ☐ Standard ☐ CLP-like ☐ USACE/DOD

Special Processing: USACE ☐ Navy ☐

State Samples Collected In: ☒ NY ☐ NJ ☐ PA ☐ NC ☐ other

Reportable to PADEP? Yes ☐ No ☐

PWSID #

Sample Disposal: Lab ☒ Special ☐

EDDS: Format Type-

* G=Grab; C=Composite

**Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Middletown, PA 17057

Rev 11/18

301 Fulling Mill Road
Middletown, PA 17057
P: (717) 944-5541
F: (717) 944-1430

Condition of Sample Receipt Form

Client:	Work Order #:	Initials:	Date:
AECOM	3146340		12/17/20

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 4888 8636 4824			
2. Are Custody Seals on shipping containers intact?	NONE	~~YES~~	NO
3. Are Custody Seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present?		(YES)	NO
5. Are the COC and bottle labels complete, legible and in agreement?		YES	~~NO~~
5a. Does the COC contain sample locations?		(YES)	NO
5b. Does the COC contain date and time of sample collection for all samples?		(YES)	NO
5c. Does the COC contain sample collectors name?		(YES)	NO
5d. Does the COC note the type(s) of preservation for all bottles?		(YES)	NO
5e. Does the COC note the number of bottles submitted for each sample?		(YES)	NO
5f. Does the COC note the type of sample, composite or grab?		(YES)	NO
5g. Does the COC note the matrix of the sample(s)?		(YES)	NO
6. Are all aqueous samples requiring preservation preserved correctly?[1]	N/A	(YES)	NO
7. Were all samples placed in the proper containers for the requested analyses, with sufficient volume?		(YES)	NO
8. Are all samples within holding times for the requested analyses?		(YES)	NO
9. Were all sample containers received intact and headspace free when required? (not broken, leaking, frozen, etc.)		(YES)	NO
10. Did we receive trip blanks (applies only for methods EPA 504, EPA 524.2 and 1631E (LL Hg)?	N/A	(YES)	NO
11. Were the samples received on ice?		(YES)	NO
12. Were sample temperatures measured at 0.0-6.0°C		(YES)	NO
13. Are the samples DW matrix ? If YES, fill out Reportable Drinking Water questions below		YES	(NO)
13a. Are the samples required for SDWA compliance reporting?	N/A	YES	NO
13b. Did the client provide a SDWA PWS ID#?	N/A	YES	NO
13c. Are all aqueous unpreserved SDWA samples pH 5-9?	N/A	YES	NO
13d. Did the client provide the SDWA sample location ID/Description?	N/A	YES	NO
13e. Did the client provide the SDWA sample type (D, E, R, C, P, S)?	N/A	YES	NO

Cooler #: _____

Temperature (°C): 2

Thermometer ID: 309

Radiological (µCi): _____

COMMENTS (Required for all NO responses above and any sample non-conformance):
MW-32 x1 RSK vial not filled.

[1]Final determination of correct preservation for analysis such as volatiles, microbiology, and oil and grease is made in the analytical department at the time of or following the analysis

Rev 1/20/2020

APPENDIX E: AECOM Data Usability Summary Report (DUSR)

Prepared for:
U.S. Army Corps of Engineers
Huntsville and New York Districts

Prepared by:
AECOM
Pittsburgh, PA
60440641-18
December 2020

December 21, 2020

Data Usability Summary Report
Defense National Stockpile Center
Scotia Depot
Glenville, New York
Groundwater Sampling Event
December 2020
Final

Prepared for:
U.S. Army Corps of Engineers
Huntsville and New York Districts

Prepared by:
AECOM
Pittsburgh, PA
60440641-18
December 2020

December 21, 2020

Data Usability Summary Report
Defense National Stockpile Center
Scotia Depot
Glenville, New York
Groundwater Sampling Event
December 2020
Final

Prepared By
Gregory Malzone, Project Chemist
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Reviewed By
Robert Davis, Data Validator/Database Technician
AECOM
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Atlanta, GA 30309

Contents

List of Appendices

Executive Summary

Overview

Data validation was performed by Gregory A. Malzone of AECOM-Pittsburgh on the fixed-laboratory analytical data for groundwater samples collected from the Defense National Stockpile Center Scotia Depot, Glenville, New York, on December 7-10, 2020. Samples were collected as part of the baseline groundwater sampling round as described in Final Quality Assurance Project Plan for the Defense National Stockpile Center Scotia Depot Glenville, New York (the project specific QAPP; AECOM, September 2016). Samples were submitted for analysis to ALS Environmental (ALS), 34 Dogwood Lane, Middletown, Pennsylvania 17057.

The list of field and quality control samples submitted, the date sampled, and the laboratory work order numbers are presented in Table 1. Data were reported by ALS in four deliverables. Each laboratory deliverable is identified by a sample delivery group (SDG) number.

The following analytical methods were requested on the chain-of-custody (CoC) records.

- Volatile Organic Compounds (VOCs) by USEPA SW-846 Method 8260C

Monitored Natural Attenuation (MNA) Parameters:

- Methane, Ethane, Ethene, n-Butane, Isobutane and Propane by RSK -175
- Total and Dissolved Iron by USEPA SW-846 Method 6010C
- Chloride, Nitrate as N and Sulfate by Method EPA Method 300.0
- Alkalinity by Standard Methods 2320B-2011
- Total Organic Carbon by Standard Methods 5310B-2011

Samples MW-16-120720 was designated in the field to be processed as the quality control samples, that is, as the matrix spike/matrix spike duplicate (MS/MSD). The samples for dissolved iron were filtered and preserved at ALS. Unless otherwise noted, analyses were performed in accordance with the project specific QAPP which is based on the DoD QSM v5.0.

Table 1 - Sample Submittals

Field ID	ALS ID	Matrix	Field QC	Date Sampled	Analytes	SDG Number
MW-16 120720	3145292001	Groundwater	MS/MSD	12/7/2020	VOCs/MNA	ASN060
Trip Blank 120720	3145292002	Aqueous (QC)	trip blank	12/7/2020	VOCs	ASN060
MW-26 120820	3145584001	Groundwater		12/8/2020	VOCs/MNA	ASN061
MW-24 120820	3145584002	Groundwater		12/8/2020	VOCs/MNA	ASN061
MW-15 120820	3145584003	Groundwater		12/8/2020	VOCs/MNA	ASN061
MW-30 120820	3145584004	Groundwater		12/8/2020	VOCs/MNA	ASN061
Trip Blank 120820	3145584005	Aqueous (QC)	trip blank	12/8/2020	VOCs	ASN061
MW-31 120920	3145952001	Groundwater		12/9/2020	VOCs/MNA	ASN062
MW-34 120920	3145952002	Groundwater		12/9/2020	VOCs/MNA	ASN062
MW-35 120920	3145952003	Groundwater		12/9/2020	VOCs/MNA	ASN062
MW-28 120920	3145952004	Groundwater		12/9/2020	VOCs/MNA	ASN062
Trip Blank 120920	3145952005	Aqueous (QC)	trip blank	12/9/2020	VOCs	ASN062
MW-29 121020	3146340001	Groundwater		12/10/2020	VOCs/MNA	ASN063
MW-32 121020	3146340002	Groundwater		12/10/2020	VOCs/MNA	ASN063
MW-33 121020	3146340003	Groundwater		12/10/2020	VOCs/MNA	ASN063

Field ID	ALS ID	Matrix	Field QC	Date Sampled	Analytes	SDG Number
DUP-1 121020	3146340004	Groundwater (QC)	MW-29 121020	12/10/2020	VOCs/MNA	ASN063
DUP-2 121020	3146340005	Groundwater (QC)	MW-32 121020	12/10/2020	VOCs/MNA	ASN063
Trip Blank 121020	3146340006	Aqueous (QC)	trip blank	12/10/2020	VOCs	ASN063
Field Blank 121020	3146340007	Aqueous (QC)	field blank	12/10/2020	VOCs/MNA	ASN063

The data were evaluated for conformance to method specifications and qualifiers were applied using the USEPA Region II SOPs and the validation criteria set forth in the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Superfund Methods Data Review*, EPA-540-R-2017-002, January 2017 and *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Methods Data Review*, EPA-540-R-2017-001, January 2017, as they apply to the analytical methods employed.

Field duplicate relative percent difference (RPD) review and applicable control limits were taken from the *USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses*, December 1996 and *USEPA Region I Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses*, June 1988.

Summary

All data have been determined to be useable for the purpose of assessing the presence/absence and quantitative concentrations of the compounds and analytes in the media tested (i.e. groundwater) with the qualifications described below. Completeness of 100% was achieved for this data set. This is within the goal of 90-100% and is acceptable.

A glossary of data qualifier definitions is included in Appendix A of this report. The qualified data summaries are attached as Appendix B of this report.

Each nonconformance with specific data usability criteria is discussed below. Page references for the supporting documentation in the laboratory reports are provided in each item header. Support documentation for data qualifications was included in Appendix C of this report.

1.0 Volatile Organic Compounds

Measurement performance indicators which did not meet criteria for Volatile Organic Compounds (VOCs) analysis is presented below for each of the four laboratory reports. Analytical results for VOCs were reviewed for the following measurement performance indicators:

- Data Completeness
- Chain of Custody
- Sample Preservation
- Holding Time
- GC/MS Tunes
- Initial Calibration
- Initial Calibration Verification
- Continuing Calibration Verification
- Method Blanks
- Trip Blanks
- Surrogates
- Matrix Spike/Matrix Spike Duplicate
- Internal Standards
- Quantitation Limits
- Laboratory Control Samples
- Data package / EDD consistency

Work Order 3145292 (SDG ASN060)

No data quality issues were noted. No data qualification was required.

Work Order 3145584 (SDG ASN061)

No data quality issues were noted. No data qualification was required.

Work Order 3145952 (SDG ASN062)

No data quality issues were noted. No data qualification was required.

Work Order 3146340 (SDG ASN063)

No data quality issues were noted. No data qualification was required.

2.0 Hydrocarbon Gases

Measurement performance indicators which did not meet criteria for methane, ethane, ethene, n-butane, isobutane and propane analysis are presented below for each of the four laboratory reports. Analytical results for light hydrocarbon gases were reviewed for the following measurement performance indicators:

- Data Completeness
- Chain of Custody
- Sample Preservation
- Holding Time
- Initial Calibration
- Initial Calibration Verification
- Continuing Calibration Verification
- Method Blanks
- Matrix Spike/Matrix Spike Duplicate
- Laboratory Duplicate
- Quantitation Limits
- Laboratory Control Samples
- Data package / EDD consistency

Work Order 3145292 (SDG ASN060)

No data quality issues were noted. No data qualification was required.

Work Order 3145584 (SDG ASN061)

Method Blank (p. 1700): The 12/15/20 high level method blank 3249295 had a methane result of 2.9 µg/L. Samples MW-24-120820 and MW-30-120820 were affected. The methane results for associated samples MW-24-120820 and MW-30-120820 were greater than five times the blank concentration and did not require qualification.

Work Order 3145952 (SDG ASN062)

Method Blank (p. 1607, 1687): The 12/16/20 low level method blank 3250131 had a methane result of 1.3 J µg/L. Samples MW-28-120920, MW-34-120920 and MW-35-120920 were affected. The methane results for associated samples MW-28-120920, MW-34-120920 and MW-35-120920 were non-detect or greater than five times the blank concentration and did not require qualification.

The 12/16/20 high level method blank 3250131 had a methane result of 4.5 µg/L. Sample MW-31-120920 was affected. The methane result for associated sample MW-31-120920 was greater than five times the blank concentration and did not require qualification.

Work Order 3146340 (SDG ASN063)

Method Blank (p. 1668, 1755): The 12/16/20 low level method blank 3250131 had a methane result of 1.3 J µg/L. Samples MW-29-121020, MW-33-121020 and DUP-1-121020 were affected. The

methane results for associated samples MW-29-121020, MW-33-121020 and DUP-1-121020 were non-detect and did not require qualification.

The 12/16/20 high level method blank 3250131 had a methane result of 4.5 µg/L. Samples MW-32-121020 and DUP-2-121020 were affected. The methane results for associated samples MW-32-121020 and DUP-2-121020 was greater than five times the blank concentration and did not require qualification.

3.0 Total and Dissolved Iron

Measurement performance indicators which did not meet criteria for total and dissolved iron analysis are presented below for each of the three laboratory reports. Analytical results for total and dissolved iron were reviewed for the following measurement performance indicators:

- Chain of Custody
- Sample Preservation
- Holding Time
- Quantitation Limits
- Initial Calibration
- Continuing Calibration Verification
- Method Blanks
- Matrix Spike/Matrix Spike Duplicate
- Laboratory Duplicate
- Laboratory Control Samples
- Data package / EDD consistency

Work Order 3145584 (SDG ASN061)

No data quality issues were noted. No data qualification was required.

Work Order 3145952 (SDG ASN062)

No data quality issues were noted. No data qualification was required.

Work Order 3146340 (SDG ASN063)

No data quality issues were noted. No data qualification was required.

4.0 Chloride, Sulfate, Nitrate as N

Measurement performance indicators which did not meet criteria for chloride, sulfate and nitrate as N analysis are presented below for each of the four laboratory reports. Analytical results for these anions were reviewed for the following measurement performance indicators:

- Chain of Custody
- Sample Preservation
- Holding Time
- Quantitation Limits
- Initial Calibration
- Continuing Calibration Verification
- Method Blanks
- Matrix Spike/Matrix Spike Duplicate
- Laboratory Duplicate
- Laboratory Control Samples
- Data package / EDD consistency

Work Order 3145292 (SDG ASN060)

No data quality issues were noted. No data qualification was required.

Work Order 3145584 (SDG ASN061)

No data quality issues were noted. No data qualification was required.

Work Order 3145952 (SDG ASN062)

No data quality issues were noted. No data qualification was required.

Work Order 3146340 (SDG ASN063)

No data quality issues were noted. No data qualification was required.

5.0 Alkalinity

Measurement performance indicators which did not meet criteria for alkalinity analysis are presented below for each of the four laboratory reports. Analytical results for alkalinity were reviewed for the following measurement performance indicators:

- Chain of Custody
- Sample Preservation
- Holding Time
- Quantitation Limits
- Initial Calibration
- Continuing Calibration Verification
- Method Blanks
- Matrix Spike/Matrix Spike Duplicate
- Laboratory Duplicate
- Laboratory Control Samples
- Data package / EDD consistency

Work Order 3145292 (SDG ASN060)

No data quality issues were noted. No data qualification was required.

Work Order 3145584 (SDG ASN061)

No data quality issues were noted. No data qualification was required.

Work Order 3145952 (SDG ASN062)

No data quality issues were noted. No data qualification was required.

Work Order 3146340 (SDG ASN063)

No data quality issues were noted. No data qualification was required.

6.0 Total Organic Carbon

Measurement performance indicators which did not meet criteria for total organic carbon (TOC) analysis are presented below for each of the four laboratory reports. Analytical results for TOC were reviewed for the following measurement performance indicators:

- Chain of Custody
- Sample Preservation
- Holding Time
- Quantitation Limits
- Initial Calibration
- Initial Calibration Verification
- Continuing Calibration Verification
- Method Blanks
- Matrix Spike/Matrix Spike Duplicate
- Laboratory Duplicate
- Laboratory Control Samples
- Data package / EDD consistency

Work Order 3145292 (SDG ASN060)

Continuing Calibration Blanks (p. 1836): TOC was detected in the continuing calibration blank (CCB6) on 12/11/20 at a concentration estimated to be less than the LOQ. Sample MW-16-120720 in this SDG was affected. The TOC results for sample MW-16-120720 were estimated to be less than the LOQ and were qualified "U," as undetected, because of ambient contamination.

Matrix Spike Recoveries (p. 1835): The MW-16-120720 MS/MSD recoveries were 111% and 120%. The TOC MSD recovery was greater than the upper advisory limit of 115% indicating a possible high bias due to matrix effects. The TOC results for sample MW-16-120720 were qualified "U," in response to ambient contamination. No further data qualification was required.

Work Order 3145584 (SDG ASN061)

No data quality issues were noted. No data qualification was required.

Work Order 3145952 (SDG ASN062)

No data quality issues were noted. No data qualification was required.

Work Order 3146340 (SDG ASN063)

No data quality issues were noted. No data qualification was required.

7.0 Field Duplicate Comparison

Field duplicate samples were collected at groundwater wells MW-29-121020 and MW-32-121020. See Tables 2A and 2B below for the calculated RPDs and absolute differences for all analytes/compounds for which there were detections. Field duplicate results were evaluated using the following criteria.

Organics: The RPD must be ≤ 30% for groundwaters, for results greater than or equal to two times the LOQ. If one of the results is non-detect or less than two times the LOQ, and the duplicate is greater than two times the LOQ, the difference between the parent and field duplicate results must be less than or equal to two times the LOQ.

Inorganics: The RPD must be ≤ 30% for groundwaters, for results greater than or equal to five times the LOQ. For results less than five times the reporting limit, the difference between the parent and field duplicate results must be less than or equal to two times the LOQ.

Action applies only to the affected analyte in the duplicate sample pair.

The following notations are used in the field precision tables.

RPD: Relative percent difference
Abs. diff.: Absolute difference
µg/L: micrograms per liter (ppb) and mg/L: milligrams per liter (ppm)

Table 2A – Field Duplicate Precision

Analyte	Units	MW-29-121020	DUP-01-121020	Abs. diff.	RPD (%)	Within Limits?	Qualification
1,1-Dichloroethane	µg/L	0.53 J	0.53 J	0	—	YES	None
1,1-Dichloroethene	µg/L	0.57 J	0.57 J	0	—	YES	None
1,1,1-Trichloroethene	µg/L	9.8	10	—	2.0	YES	None
cis-1,2-Dichloroethene	µg/L	4.0	3.9	—	2.5	YES	None
trans-1,2-Dichloroethene	µg/L	0.47 J	0.49 J	0.02	—	YES	None
Tetrachloroethene	µg/L	24.0	25.8	—	7.2	YES	None
Trichloroethene	µg/L	151	156	—	3.3	YES	None
Carbon tetrachloride	µg/L	0.64 J	0.65 J	0.01	—	YES	None
Alkalinity, total	mg/L	244	246	—	0.82	YES	None
Chloride	mg/L	42.9	39.7	—	7.7	YES	None
Nitrate	mg/L	0.46	0.46	0	—	YES	None
Sulfate	mg/L	21.3	21.5	—	0.93	YES	None
TOC (average)	mg/L	0.89 J	0.75 J	0.14	—	YES	None

Table 2B – Field Duplicate Precision

Analyte	Units	MW-32-121020	DUP-02-121020	Abs. diff.	RPD (%)	Within Limits?	Qualification
cis-1,2-Dichloroethene	µg/L	1.3	1.2	0.1	—	YES	None
Trichloroethene	µg/L	122	124	—	1.6	YES	None
Methane	µg/L	950	971	—	2.2	YES	None
Ethane	µg/L	6.5	6.7	0.2	—	YES	None
Alkalinity, total	mg/L	168	169	—	0.59	YES	None
Chloride	mg/L	27.7	27.8	—	0.36	YES	None
Sulfate	mg/L	9.8	9.8	—	0	YES	None
TOC (average)	mg/L	0.80 J	0.89 J	0.09	—	YES	None
Iron, total	mg/L	1.7	1.7	0	—	YES	None

Field sampling/laboratory precision and sample homogeneity were acceptable. No data qualification was required.

8.0 Notes

Positive organic and inorganic results between the MDL and LOQ, were qualified “J,” as estimated concentrations, due to increased uncertainty near the MDL. The “J” qualifiers were maintained in the data validation. Sample results reported between the MDL and LOQ are usable as estimated values with an unknown directional bias.

Matrix spike and matrix spike duplicates and laboratory duplicates that were performed on non-project samples were not evaluated because matrix similarity to project samples could not be assumed.

Samples for dissolved iron analysis were filtered at the laboratory.

Appendix A

Glossary of Data Qualifier Codes

Glossary of Data Qualifier Codes

U	The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximated and may be inaccurate or imprecise.
J	The analyte was positively identified. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, likely to be biased high. The associated numerical value is the approximate concentration of the analyte in the sample.
J-	The result is an estimated quantity, likely to be biased low. The associated numerical value is the approximate concentration of the analyte in the sample.
R	The data are unusable. The sample results are rejected due to serious deficiencies in the ability to meet quality control criteria. The presence or absence of the analyte cannot be verified.
N	(Organics) The analysis indicates the presence of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	(Organics) The analysis indicates the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration.

Appendix B

Data Qualification Summaries

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State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

ANALYTICAL RESULTS

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

Lab ID: **3145292001** Date Collected: 12/7/2020 14:25 Matrix: Ground Water
Sample ID: **MW-16 120720** Date Received: 12/8/2020 10:14

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 00:58	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 00:58	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 00:58	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 00:58	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 00:58	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 00:58	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 00:58	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 00:58	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 00:58	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 00:58	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 00:58	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 00:58	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 00:58	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 00:58	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95.9		%	81 - 118			SW846 8260C		12/15/20 00:58	PDK	A
4-Bromofluorobenzene (S)	95.3		%	85 - 114			SW846 8260C		12/15/20 00:58	PDK	A
Dibromofluoromethane (S)	89.3		%	80 - 119			SW846 8260C		12/15/20 00:58	PDK	A
Toluene-d8 (S)	96.2		%	89 - 112			SW846 8260C		12/15/20 00:58	PDK	A
LIGHT HYDROCARBON GASES											
Ethane	2.6U	U	ug/L	5.2	2.6	0.56	RSK 175		12/15/20 07:04	CHS	T
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175		12/15/20 07:04	CHS	T
Methane	1.6U	U	ug/L	2.6	1.6	0.53	RSK 175		12/15/20 07:04	CHS	T
WET CHEMISTRY											
Alkalinity, Total	280	~~2~~	mg/L	5	5	0.8	SM2320B-2011		12/9/20 19:46	R2B	Q
Chloride	4.4		mg/L	2.0	1.8	0.88	EPA 300.0		12/9/20 05:25	MBW	N
Nitrate-N	1.0		mg/L	0.20	0.14	0.050	EPA 300.0		12/9/20 05:25	MBW	N
Sulfate	46.4		mg/L	2.0	1.8	0.50	EPA 300.0		12/9/20 05:25	MBW	N
Total Organic Carbon (TOC)	~~0.90J~~	~~J,1~~	1.0U mg/L	1.0	0.50	0.27	SW846 9060A		12/11/20 06:50	PAG	H
Total Organic Carbon, 2nd	~~0.83J~~	~~J~~	1.0U mg/L	1.0	0.50	0.27	SW846 9060A		12/11/20 06:50	PAG	H
Total Organic Carbon, 3rd	~~0.78J~~	~~J~~	1.0U mg/L	1.0	0.50	0.27	SW846 9060A		12/11/20 06:50	PAG	H
Total Organic Carbon, 4th	~~0.76J~~	~~J~~	1.0U mg/L	1.0	0.50	0.27	SW846 9060A		12/11/20 06:50	PAG	H

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State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

ANALYTICAL RESULTS

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

Lab ID: **3145292002** Date Collected: 12/7/2020 ~~14:25~~ 00:00 Matrix: Ground Water
Sample ID: **Trip Blank 120720** Date Received: 12/8/2020 10:14

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:27	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95.8		%	81 - 118	SW846 8260C			12/14/20 23:27	PDK	A
4-Bromofluorobenzene (S)	95		%	85 - 114	SW846 8260C			12/14/20 23:27	PDK	A
Dibromofluoromethane (S)	89.1		%	80 - 119	SW846 8260C			12/14/20 23:27	PDK	A
Toluene-d8 (S)	97.5		%	89 - 112	SW846 8260C			12/14/20 23:27	PDK	A

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ALS Environmental

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ANALYTICAL RESULTS

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID: **3145584001** Date Collected: 12/8/2020 08:50 Matrix: Ground Water
Sample ID: **MW-26 120820** Date Received: 12/9/2020 10:10

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 03:59	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 03:59	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 03:59	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 03:59	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 03:59	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 03:59	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 03:59	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 03:59	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 03:59	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 03:59	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 03:59	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 03:59	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 03:59	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 03:59	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.4		%	81 - 118			SW846 8260C			12/15/20 03:59	PDK	A
4-Bromofluorobenzene (S)	93		%	85 - 114			SW846 8260C			12/15/20 03:59	PDK	A
Dibromofluoromethane (S)	89.8		%	80 - 119			SW846 8260C			12/15/20 03:59	PDK	A
Toluene-d8 (S)	96.1		%	89 - 112			SW846 8260C			12/15/20 03:59	PDK	A
LIGHT HYDROCARBON GASES												
Ethane	2.6U	U	ug/L	5.2	2.6	0.56	RSK 175			12/15/20 07:39	CHS	D
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175			12/15/20 07:39	CHS	D
Methane	5.7		ug/L	2.6	1.6	0.53	RSK 175			12/15/20 07:39	CHS	D
WET CHEMISTRY												
Alkalinity, Total	168	~~1~~	mg/L	5	5	0.8	SM2320B-2011			12/11/20 03:25	R2B	I
Chloride	22.4		mg/L	2.0	1.8	0.88	EPA 300.0			12/10/20 05:18	MBW	H
Nitrate-N	0.14U	U	mg/L	0.20	0.14	0.050	EPA 300.0			12/10/20 05:18	MBW	H
Sulfate	11.2		mg/L	2.0	1.8	0.50	EPA 300.0			12/10/20 05:18	MBW	H
Total Organic Carbon (TOC)	5.0		mg/L	1.0	0.50	0.27	SW846 9060A			12/16/20 16:48	PAG	F
Total Organic Carbon, 2nd	4.9		mg/L	1.0	0.50	0.27	SW846 9060A			12/16/20 16:48	PAG	F
Total Organic Carbon, 3rd	4.8		mg/L	1.0	0.50	0.27	SW846 9060A			12/16/20 16:48	PAG	F
Total Organic Carbon, 4th	4.8		mg/L	1.0	0.50	0.27	SW846 9060A			12/16/20 16:48	PAG	F

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ANALYTICAL RESULTS

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID: **3145584002** Date Collected: 12/8/2020 10:20 Matrix: Ground Water
Sample ID: **MW-24 120820** Date Received: 12/9/2020 10:10

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
1,1-Dichloroethene	69.3		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
cis-1,2-Dichloroethene	4.9		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
Trichloroethene	3.7		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:21	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.1		%	81 - 118			SW846 8260C		12/15/20 04:21	PDK	A
4-Bromofluorobenzene (S)	92.2		%	85 - 114			SW846 8260C		12/15/20 04:21	PDK	A
Dibromofluoromethane (S)	90.6		%	80 - 119			SW846 8260C		12/15/20 04:21	PDK	A
Toluene-d8 (S)	94.8		%	89 - 112			SW846 8260C		12/15/20 04:21	PDK	A
LIGHT HYDROCARBON GASES											
Ethane	0.67J	J	ug/L	5.2	2.6	0.56	RSK 175		12/15/20 08:00	CHS	D
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175		12/15/20 08:00	CHS	D
Methane	103		ug/L	2.6	1.6	0.53	RSK 175		12/15/20 08:00	CHS	D
WET CHEMISTRY											
Alkalinity, Total	192	~~1~~	mg/L	5	5	0.8	SM2320B-2011		12/11/20 03:25	R2B	I
Chloride	31.6		mg/L	2.0	1.8	0.88	EPA 300.0		12/10/20 05:33	MBW	H
Nitrate-N	0.14U	U	mg/L	0.20	0.14	0.050	EPA 300.0		12/10/20 05:33	MBW	H
Sulfate	13.9		mg/L	2.0	1.8	0.50	EPA 300.0		12/10/20 05:33	MBW	H
Total Organic Carbon (TOC)	1.2		mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 2nd	1.1		mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 3rd	1.1		mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 4th	1.1		mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F

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ANALYTICAL RESULTS

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID: **3145584003** Date Collected: 12/8/2020 12:05 Matrix: Ground Water
Sample ID: **MW-15 120820** Date Received: 12/9/2020 10:10

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
Tetrachloroethene	0.57J	J	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
1,1,1-Trichloroethane	2.8		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
Trichloroethene	59.8		ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		12/15/20 04:44	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	99.8		%	81 - 118			SW846 8260C		12/15/20 04:44	PDK	A
4-Bromofluorobenzene (S)	91.3		%	85 - 114			SW846 8260C		12/15/20 04:44	PDK	A
Dibromofluoromethane (S)	90.6		%	80 - 119			SW846 8260C		12/15/20 04:44	PDK	A
Toluene-d8 (S)	93.8		%	89 - 112			SW846 8260C		12/15/20 04:44	PDK	A
LIGHT HYDROCARBON GASES											
Ethane	2.6U	U	ug/L	5.2	2.6	0.56	RSK 175		12/15/20 08:16	CHS	D
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175		12/15/20 08:16	CHS	D
Methane	1.6U	U	ug/L	2.6	1.6	0.53	RSK 175		12/15/20 08:16	CHS	D
WET CHEMISTRY											
Alkalinity, Total	212	~~1~~	mg/L	5	5	0.8	SM2320B-2011		12/11/20 03:25	R2B	I
Chloride	25.6		mg/L	2.0	1.8	0.88	EPA 300.0		12/10/20 05:48	MBW	H
Nitrate-N	0.64		mg/L	0.20	0.14	0.050	EPA 300.0		12/10/20 05:48	MBW	H
Sulfate	10.6		mg/L	2.0	1.8	0.50	EPA 300.0		12/10/20 05:48	MBW	H
Total Organic Carbon (TOC)	0.81J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 2nd	0.77J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 3rd	0.72J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F
Total Organic Carbon, 4th	0.68J	J	mg/L	1.0	0.50	0.27	SW846 9060A		12/16/20 16:48	PAG	F

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ANALYTICAL RESULTS

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID: **3145584004** Date Collected: 12/8/2020 14:10 Matrix: Ground Water
Sample ID: **MW-30 120820** Date Received: 12/9/2020 10:10

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 05:07	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 05:07	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 05:07	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 05:07	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 05:07	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 05:07	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 05:07	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 05:07	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 05:07	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 05:07	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 05:07	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 05:07	PDK	A
Trichloroethene	7.9		ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 05:07	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 05:07	PDK	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	100		%	81 - 118			SW846 8260C			12/15/20 05:07	PDK	A
4-Bromofluorobenzene (S)	93		%	85 - 114			SW846 8260C			12/15/20 05:07	PDK	A
Dibromofluoromethane (S)	89.3		%	80 - 119			SW846 8260C			12/15/20 05:07	PDK	A
Toluene-d8 (S)	94.6		%	89 - 112			SW846 8260C			12/15/20 05:07	PDK	A
LIGHT HYDROCARBON GASES												
Ethane	25.9		ug/L	5.2	2.6	0.56	RSK 175			12/15/20 08:33	CHS	D
Ethene	1.7J	J	ug/L	7.1	3.6	0.81	RSK 175			12/15/20 08:33	CHS	D
Methane	6270		ug/L	2.6	1.6	0.53	RSK 175			12/15/20 08:33	CHS	D
WET CHEMISTRY												
Alkalinity, Total	70	~~1~~	mg/L	5	5	0.8	SM2320B-2011			12/11/20 03:25	R2B	I
Chloride	44.0		mg/L	2.0	1.8	0.88	EPA 300.0			12/10/20 06:03	MBW	H
Nitrate-N	0.14U	U	mg/L	0.20	0.14	0.050	EPA 300.0			12/10/20 06:03	MBW	H
Sulfate	2.0J	J	mg/L	2.0	1.8	0.50	EPA 300.0			12/10/20 06:03	MBW	H
Total Organic Carbon (TOC)	5.1		mg/L	1.0	0.50	0.27	SW846 9060A			12/16/20 16:48	PAG	F
Total Organic Carbon, 2nd	5.0		mg/L	1.0	0.50	0.27	SW846 9060A			12/16/20 16:48	PAG	F
Total Organic Carbon, 3rd	4.9		mg/L	1.0	0.50	0.27	SW846 9060A			12/16/20 16:48	PAG	F
Total Organic Carbon, 4th	4.9		mg/L	1.0	0.50	0.27	SW846 9060A			12/16/20 16:48	PAG	F
METALS												
Iron, Total	0.10		mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 16:38	SRT	J1
Iron, Dissolved	0.043J	J	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:12	SRT	K

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ANALYTICAL RESULTS

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID: **3145584005** Date Collected: 12/8/2020 ~~14:10~~ 00:00 Matrix: Ground Water
Sample ID: **Trip Blank 120820** Date Received: 12/9/2020 10:10

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/14/20 23:50	PDK	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.5		%	81 - 118	SW846 8260C			12/14/20 23:50	PDK	A
4-Bromofluorobenzene (S)	95.9		%	85 - 114	SW846 8260C			12/14/20 23:50	PDK	A
Dibromofluoromethane (S)	89.5		%	80 - 119	SW846 8260C			12/14/20 23:50	PDK	A
Toluene-d8 (S)	96.7		%	89 - 112	SW846 8260C			12/14/20 23:50	PDK	A

Elizabeth M. Parker

ELIZABETH M PARKER
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID: **3145952001** Date Collected: 12/9/2020 08:30 Matrix: Ground Water
Sample ID: **MW-31 120920** Date Received: 12/10/2020 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:58	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:58	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:58	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:58	DPC	A
cis-1,2-Dichloroethene	0.55J	J	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:58	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:58	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:58	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:58	DPC	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:58	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:58	DPC	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:58	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:58	DPC	A
Trichloroethene	25.2		ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:58	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:58	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	99.2		%	81 - 118			SW846 8260C			12/15/20 11:58	DPC	A
4-Bromofluorobenzene (S)	92		%	85 - 114			SW846 8260C			12/15/20 11:58	DPC	A
Dibromofluoromethane (S)	90.2		%	80 - 119			SW846 8260C			12/15/20 11:58	DPC	A
Toluene-d8 (S)	93.9		%	89 - 112			SW846 8260C			12/15/20 11:58	DPC	A
LIGHT HYDROCARBON GASES												
Ethane	4.3J	J	ug/L	5.2	2.6	0.56	RSK 175			12/16/20 05:47	CHS	H
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175			12/16/20 05:47	CHS	H
Methane	737		ug/L	2.6	1.6	0.53	RSK 175			12/16/20 05:47	CHS	H
WET CHEMISTRY												
Alkalinity, Total	142	~~1~~	mg/L	5	5	0.8	SM2320B-2011			12/16/20 04:42	R2B	G
Chloride	48.2		mg/L	2.0	1.8	0.88	EPA 300.0			12/11/20 05:31	MBW	F
Nitrate-N	0.14U	U	mg/L	0.20	0.14	0.050	EPA 300.0			12/11/20 05:31	MBW	F
Sulfate	9.1		mg/L	2.0	1.8	0.50	EPA 300.0			12/11/20 05:31	MBW	F
Total Organic Carbon (TOC)	0.72J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/18/20 01:09	PAG	D
Total Organic Carbon, 2nd	0.63J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/18/20 01:09	PAG	D
Total Organic Carbon, 3rd	0.58J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/18/20 01:09	PAG	D
Total Organic Carbon, 4th	0.54J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/18/20 01:09	PAG	D
METALS												
Iron, Total	0.76		mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 16:41	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:23	SRT	G

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ANALYTICAL RESULTS

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID: **3145952002** Date Collected: 12/9/2020 10:50 Matrix: Ground Water
Sample ID: **MW-34 120920** Date Received: 12/10/2020 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:20	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:20	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:20	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:20	DPC	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:20	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:20	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:20	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:20	DPC	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:20	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:20	DPC	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:20	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:20	DPC	A
Trichloroethene	3.6		ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:20	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:20	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.2		%	81 - 118			SW846 8260C			12/15/20 12:20	DPC	A
4-Bromofluorobenzene (S)	93.5		%	85 - 114			SW846 8260C			12/15/20 12:20	DPC	A
Dibromofluoromethane (S)	87.5		%	80 - 119			SW846 8260C			12/15/20 12:20	DPC	A
Toluene-d8 (S)	94.9		%	89 - 112			SW846 8260C			12/15/20 12:20	DPC	A
LIGHT HYDROCARBON GASES												
Ethane	2.6U	U	ug/L	5.2	2.6	0.56	RSK 175			12/16/20 06:22	CHS	H
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175			12/16/20 06:22	CHS	H
Methane	8.5		ug/L	2.6	1.6	0.53	RSK 175			12/16/20 06:22	CHS	H
WET CHEMISTRY												
Alkalinity, Total	99	~~1~~	mg/L	5	5	0.8	SM2320B-2011			12/16/20 04:42	R2B	G
Chloride	3.8		mg/L	2.0	1.8	0.88	EPA 300.0			12/11/20 05:46	MBW	F
Nitrate-N	0.14U	U	mg/L	0.20	0.14	0.050	EPA 300.0			12/11/20 05:46	MBW	F
Sulfate	5.5		mg/L	2.0	1.8	0.50	EPA 300.0			12/11/20 05:46	MBW	F
Total Organic Carbon (TOC)	3.8		mg/L	1.0	0.50	0.27	SW846 9060A			12/18/20 01:09	PAG	D
Total Organic Carbon, 2nd	3.8		mg/L	1.0	0.50	0.27	SW846 9060A			12/18/20 01:09	PAG	D
Total Organic Carbon, 3rd	3.8		mg/L	1.0	0.50	0.27	SW846 9060A			12/18/20 01:09	PAG	D
Total Organic Carbon, 4th	3.7		mg/L	1.0	0.50	0.27	SW846 9060A			12/18/20 01:09	PAG	D
METALS												
Iron, Total	0.062J	J	mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 16:52	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:27	SRT	F

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ANALYTICAL RESULTS

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID: **3145952003** Date Collected: 12/9/2020 12:00 Matrix: Ground Water
Sample ID: **MW-35 120920** Date Received: 12/10/2020 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:43	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:43	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:43	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:43	DPC	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:43	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:43	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:43	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:43	DPC	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:43	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:43	DPC	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:43	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:43	DPC	A
Trichloroethene	37.3		ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:43	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 12:43	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98		%	81 - 118			SW846 8260C			12/15/20 12:43	DPC	A
4-Bromofluorobenzene (S)	93.1		%	85 - 114			SW846 8260C			12/15/20 12:43	DPC	A
Dibromofluoromethane (S)	89.7		%	80 - 119			SW846 8260C			12/15/20 12:43	DPC	A
Toluene-d8 (S)	95.5		%	89 - 112			SW846 8260C			12/15/20 12:43	DPC	A
LIGHT HYDROCARBON GASES												
Ethane	2.6U	U	ug/L	5.2	2.6	0.56	RSK 175			12/16/20 06:38	CHS	H
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175			12/16/20 06:38	CHS	H
Methane	1.6U	U	ug/L	2.6	1.6	0.53	RSK 175			12/16/20 06:38	CHS	H
WET CHEMISTRY												
Alkalinity, Total	184	~~1~~	mg/L	5	5	0.8	SM2320B-2011			12/16/20 04:42	R2B	G
Chloride	26.2		mg/L	2.0	1.8	0.88	EPA 300.0			12/11/20 06:01	MBW	F
Nitrate-N	0.50		mg/L	0.20	0.14	0.050	EPA 300.0			12/11/20 06:01	MBW	F
Sulfate	10.6		mg/L	2.0	1.8	0.50	EPA 300.0			12/11/20 06:01	MBW	F
Total Organic Carbon (TOC)	0.59J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/18/20 01:09	PAG	D
Total Organic Carbon, 2nd	0.50J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/18/20 01:09	PAG	D
Total Organic Carbon, 3rd	0.48J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/18/20 01:09	PAG	D
Total Organic Carbon, 4th	0.49J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/18/20 01:09	PAG	D
METALS												
Iron, Total	0.036J	J	mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 17:00	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:30	SRT	F

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ANALYTICAL RESULTS

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID: **3145952004** Date Collected: 12/9/2020 14:10 Matrix: Ground Water
Sample ID: **MW-28 120920** Date Received: 12/10/2020 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.57J	J	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 13:06	DPC	A
1,1-Dichloroethane	0.56J	J	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 13:06	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 13:06	DPC	A
1,1-Dichloroethene	0.42J	J	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 13:06	DPC	A
cis-1,2-Dichloroethene	4.6		ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 13:06	DPC	A
trans-1,2-Dichloroethene	0.36J	J	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 13:06	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 13:06	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 13:06	DPC	A
Tetrachloroethene	19.2		ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 13:06	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 13:06	DPC	A
1,1,1-Trichloroethane	9.5		ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 13:06	DPC	A
1,1,2-Trichloroethane	0.34J	J	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 13:06	DPC	A
Trichloroethene	143		ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 13:06	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 13:06	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95.1		%	81 - 118			SW846 8260C			12/15/20 13:06	DPC	A
4-Bromofluorobenzene (S)	93.9		%	85 - 114			SW846 8260C			12/15/20 13:06	DPC	A
Dibromofluoromethane (S)	87.1		%	80 - 119			SW846 8260C			12/15/20 13:06	DPC	A
Toluene-d8 (S)	95.5		%	89 - 112			SW846 8260C			12/15/20 13:06	DPC	A
LIGHT HYDROCARBON GASES												
Ethane	2.6U	U	ug/L	5.2	2.6	0.56	RSK 175			12/16/20 06:54	CHS	H
Ethene	3.6U	U	ug/L	7.1	3.6	0.81	RSK 175			12/16/20 06:54	CHS	H
Methane	28.0		ug/L	2.6	1.6	0.53	RSK 175			12/16/20 06:54	CHS	H
WET CHEMISTRY												
Alkalinity, Total	243	~~1~~	mg/L	5	5	0.8	SM2320B-2011			12/16/20 04:42	R2B	G
Chloride	39.6		mg/L	2.0	1.8	0.88	EPA 300.0			12/11/20 06:16	MBW	F
Nitrate-N	0.38		mg/L	0.20	0.14	0.050	EPA 300.0			12/11/20 06:16	MBW	F
Sulfate	21.2		mg/L	2.0	1.8	0.50	EPA 300.0			12/11/20 06:16	MBW	F
Total Organic Carbon (TOC)	1.1		mg/L	1.0	0.50	0.27	SW846 9060A			12/18/20 01:09	PAG	D
Total Organic Carbon, 2nd	1.1		mg/L	1.0	0.50	0.27	SW846 9060A			12/18/20 01:09	PAG	D
Total Organic Carbon, 3rd	0.98J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/18/20 01:09	PAG	D
Total Organic Carbon, 4th	0.97J	J	mg/L	1.0	0.50	0.27	SW846 9060A			12/18/20 01:09	PAG	D
METALS												
Iron, Total	0.032J	J	mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 17:03	SRT	J1
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:34	SRT	F

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ANALYTICAL RESULTS

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID: **3145952005** Date Collected: 12/9/2020 00:00 Matrix: Ground Water

Sample ID: **Trip Blank 120920** Date Received: 12/10/2020 09:40

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			12/15/20 11:31	DPC	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	94.4		%	81 - 118	SW846 8260C			12/15/20 11:31	DPC	A
4-Bromofluorobenzene (S)	95.6		%	85 - 114	SW846 8260C			12/15/20 11:31	DPC	A
Dibromofluoromethane (S)	89.8		%	80 - 119	SW846 8260C			12/15/20 11:31	DPC	A
Toluene-d8 (S)	96.7		%	89 - 112	SW846 8260C			12/15/20 11:31	DPC	A

Elizabeth M. Parker

ELIZABETH M PARKER
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340001** Date Collected: 12/10/2020 07:45 Matrix: Ground Water
Sample ID: **MW-29 121020** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.64J	C,J	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:37	DPC	A
1,1-Dichloroethane	0.53J	C,J	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:37	DPC	A
1,2-Dichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:37	DPC	A
1,1-Dichloroethene	0.57J	C,J	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:37	DPC	A
cis-1,2-Dichloroethene	4.0	C	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:37	DPC	A
trans-1,2-Dichloroethene	0.47J	C,J	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:37	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:37	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:37	DPC	A
Tetrachloroethene	24.0	C	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:37	DPC	A
Toluene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:37	DPC	A
1,1,1-Trichloroethane	9.8	C	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:37	DPC	A
1,1,2-Trichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:37	DPC	A
Trichloroethene	151	C	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:37	DPC	A
Vinyl Chloride	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:37	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.1	C	%	81 - 118			SW846 8260C			12/16/20 13:37	DPC	A
4-Bromofluorobenzene (S)	90.9	C	%	85 - 114			SW846 8260C			12/16/20 13:37	DPC	A
Dibromofluoromethane (S)	88.4	C	%	80 - 119			SW846 8260C			12/16/20 13:37	DPC	A
Toluene-d8 (S)	93.8	C	%	89 - 112			SW846 8260C			12/16/20 13:37	DPC	A
LIGHT HYDROCARBON GASES												
Ethane	2.6U	C,U	ug/L	5.2	2.6	0.56	RSK 175			12/16/20 07:12	CHS	N
Ethene	3.6U	C,U	ug/L	7.1	3.6	0.81	RSK 175			12/16/20 07:12	CHS	N
Methane	1.6U	C,U	ug/L	2.6	1.6	0.53	RSK 175			12/16/20 07:12	CHS	N
WET CHEMISTRY												
Alkalinity, Total	244	C,1	mg/L	5	5	0.8	SM2320B-2011			12/18/20 00:52	R2B	M
Chloride	42.9	C	mg/L	2.0	1.8	0.88	EPA 300.0			12/12/20 06:03	MBW	L
Nitrate-N	0.46	C	mg/L	0.20	0.14	0.050	EPA 300.0			12/12/20 06:03	MBW	L
Sulfate	21.3	C	mg/L	2.0	1.8	0.50	EPA 300.0			12/12/20 06:03	MBW	L
Total Organic Carbon (TOC)	0.99J	C,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 2nd	0.88J	C,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 3rd	0.83J	C,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 4th	0.85J	C,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
METALS												
Iron, Total	0.045U	C,U	mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 17:07	SRT	P1
Iron, Dissolved	0.040U	C,U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:38	SRT	P

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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340002** Date Collected: 12/10/2020 11:00 Matrix: Ground Water
Sample ID: **MW-32 121020** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:59	DPC	A
1,1-Dichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:59	DPC	A
1,2-Dichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:59	DPC	A
1,1-Dichloroethene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:59	DPC	A
cis-1,2-Dichloroethene	1.3	C	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:59	DPC	A
trans-1,2-Dichloroethene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:59	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:59	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:59	DPC	A
Tetrachloroethene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:59	DPC	A
Toluene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:59	DPC	A
1,1,1-Trichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:59	DPC	A
1,1,2-Trichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:59	DPC	A
Trichloroethene	122	C	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:59	DPC	A
Vinyl Chloride	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:59	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.7	C	%	81 - 118			SW846 8260C			12/16/20 13:59	DPC	A
4-Bromofluorobenzene (S)	93.1	C	%	85 - 114			SW846 8260C			12/16/20 13:59	DPC	A
Dibromofluoromethane (S)	89.2	C	%	80 - 119			SW846 8260C			12/16/20 13:59	DPC	A
Toluene-d8 (S)	95	C	%	89 - 112			SW846 8260C			12/16/20 13:59	DPC	A
LIGHT HYDROCARBON GASES												
Ethane	6.5	C	ug/L	5.2	2.6	0.56	RSK 175			12/16/20 07:28	CHS	N
Ethene	3.6U	C,U	ug/L	7.1	3.6	0.81	RSK 175			12/16/20 07:28	CHS	N
Methane	950	C	ug/L	2.6	1.6	0.53	RSK 175			12/16/20 07:28	CHS	N
WET CHEMISTRY												
Alkalinity, Total	168	C,1	mg/L	5	5	0.8	SM2320B-2011			12/18/20 00:52	R2B	M
Chloride	27.7	C	mg/L	2.0	1.8	0.88	EPA 300.0			12/12/20 06:18	MBW	L
Nitrate-N	0.14U	C,U	mg/L	0.20	0.14	0.050	EPA 300.0			12/12/20 06:18	MBW	L
Sulfate	9.8	C	mg/L	2.0	1.8	0.50	EPA 300.0			12/12/20 06:18	MBW	L
Total Organic Carbon (TOC)	0.94J	C,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 2nd	0.88J	C,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 3rd	0.82J	C,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 4th	0.90J	C,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
METALS												
Iron, Total	1.7	C	mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 17:11	SRT	O1
Iron, Dissolved	0.040U	C,U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:48	SRT	O

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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340003** Date Collected: 12/10/2020 13:45 Matrix: Ground Water
Sample ID: **MW-33 121020** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
1,1-Dichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
1,2-Dichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
1,1-Dichloroethene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
cis-1,2-Dichloroethene	0.45J	C,J	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
trans-1,2-Dichloroethene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
Tetrachloroethene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
Toluene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
1,1,1-Trichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
1,1,2-Trichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
Trichloroethene	148	C	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
Vinyl Chloride	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:22	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	100	C	%	81 - 118			SW846 8260C			12/16/20 14:22	DPC	A
4-Bromofluorobenzene (S)	93.5	C	%	85 - 114			SW846 8260C			12/16/20 14:22	DPC	A
Dibromofluoromethane (S)	92.8	C	%	80 - 119			SW846 8260C			12/16/20 14:22	DPC	A
Toluene-d8 (S)	94.2	C	%	89 - 112			SW846 8260C			12/16/20 14:22	DPC	A
LIGHT HYDROCARBON GASES												
Ethane	2.6U	C,U	ug/L	5.2	2.6	0.56	RSK 175			12/16/20 07:44	CHS	N
Ethene	3.6U	C,U	ug/L	7.1	3.6	0.81	RSK 175			12/16/20 07:44	CHS	N
Methane	1.6U	C,U	ug/L	2.6	1.6	0.53	RSK 175			12/16/20 07:44	CHS	N
WET CHEMISTRY												
Alkalinity, Total	194	C,1	mg/L	5	5	0.8	SM2320B-2011			12/18/20 00:52	R2B	M
Chloride	32.8	C	mg/L	2.0	1.8	0.88	EPA 300.0			12/12/20 06:33	MBW	L
Nitrate-N	0.50	C	mg/L	0.20	0.14	0.050	EPA 300.0			12/12/20 06:33	MBW	L
Sulfate	13.1	C	mg/L	2.0	1.8	0.50	EPA 300.0			12/12/20 06:33	MBW	L
Total Organic Carbon (TOC)	1.1	C	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 2nd	1.1	C	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 3rd	0.97J	C,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 4th	0.96J	C,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
METALS												
Iron, Total	0.37	C	mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 17:22	SRT	P1
Iron, Dissolved	0.040U	C,U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:52	SRT	P

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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340004** Date Collected: 12/10/2020 ~~07:45~~ 00:00 Matrix: Ground Water
Sample ID: **DUP-1 121020** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.65J	~~C~~,J	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
1,1-Dichloroethane	0.53J	~~C~~,J	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
1,2-Dichloroethane	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
1,1-Dichloroethene	0.57J	~~C~~,J	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
cis-1,2-Dichloroethene	3.9	~~C~~	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
trans-1,2-Dichloroethene	0.49J	~~C~~,J	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
Tetrachloroethene	25.8	~~C~~	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
Toluene	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
1,1,1-Trichloroethane	10	~~C~~	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
1,1,2-Trichloroethane	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
Trichloroethene	156	~~C~~	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
Vinyl Chloride	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 14:45	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	99	C	%	81 - 118			SW846 8260C			12/16/20 14:45	DPC	A
4-Bromofluorobenzene (S)	94.2	C	%	85 - 114			SW846 8260C			12/16/20 14:45	DPC	A
Dibromofluoromethane (S)	91.5	C	%	80 - 119			SW846 8260C			12/16/20 14:45	DPC	A
Toluene-d8 (S)	95.3	C	%	89 - 112			SW846 8260C			12/16/20 14:45	DPC	A
LIGHT HYDROCARBON GASES												
Ethane	2.6U	~~C~~,U	ug/L	5.2	2.6	0.56	RSK 175			12/16/20 08:01	CHS	N
Ethene	3.6U	~~C~~,U	ug/L	7.1	3.6	0.81	RSK 175			12/16/20 08:01	CHS	N
Methane	1.6U	~~C~~,U	ug/L	2.6	1.6	0.53	RSK 175			12/16/20 08:01	CHS	N
WET CHEMISTRY												
Alkalinity, Total	246	~~C,1~~	mg/L	5	5	0.8	SM2320B-2011			12/18/20 00:52	R2B	M
Chloride	39.7	~~C~~	mg/L	2.0	1.8	0.88	EPA 300.0			12/12/20 06:48	MBW	L
Nitrate-N	0.46	~~C~~	mg/L	0.20	0.14	0.050	EPA 300.0			12/12/20 06:48	MBW	L
Sulfate	21.5	~~C~~	mg/L	2.0	1.8	0.50	EPA 300.0			12/12/20 06:48	MBW	L
Total Organic Carbon (TOC)	0.88J	~~C~~,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 2nd	0.76J	~~C~~,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 3rd	0.72J	~~C~~,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 4th	0.66J	~~C~~,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
METALS												
Iron, Total	0.045U	~~C~~,U	mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 17:25	SRT	P1
Iron, Dissolved	0.040U	~~C~~,U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 16:56	SRT	P

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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340005** Date Collected: 12/10/2020 ~~07:45~~ 00:00 Matrix: Ground Water
Sample ID: **DUP-2 121020** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 15:07	DPC	A
1,1-Dichloroethane	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 15:07	DPC	A
1,2-Dichloroethane	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 15:07	DPC	A
1,1-Dichloroethene	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 15:07	DPC	A
cis-1,2-Dichloroethene	1.2	~~C~~	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 15:07	DPC	A
trans-1,2-Dichloroethene	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 15:07	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 15:07	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 15:07	DPC	A
Tetrachloroethene	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 15:07	DPC	A
Toluene	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 15:07	DPC	A
1,1,1-Trichloroethane	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 15:07	DPC	A
1,1,2-Trichloroethane	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 15:07	DPC	A
Trichloroethene	124	~~C~~	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 15:07	DPC	A
Vinyl Chloride	0.75U	~~C~~,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 15:07	DPC	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.2	C	%	81 - 118			SW846 8260C			12/16/20 15:07	DPC	A
4-Bromofluorobenzene (S)	91.9	C	%	85 - 114			SW846 8260C			12/16/20 15:07	DPC	A
Dibromofluoromethane (S)	91.4	C	%	80 - 119			SW846 8260C			12/16/20 15:07	DPC	A
Toluene-d8 (S)	95	C	%	89 - 112			SW846 8260C			12/16/20 15:07	DPC	A
LIGHT HYDROCARBON GASES												
Ethane	6.7	~~C~~	ug/L	5.2	2.6	0.56	RSK 175			12/16/20 08:17	CHS	N
Ethene	3.6U	~~C~~,U	ug/L	7.1	3.6	0.81	RSK 175			12/16/20 08:17	CHS	N
Methane	971	~~C~~	ug/L	2.6	1.6	0.53	RSK 175			12/16/20 08:17	CHS	N
WET CHEMISTRY												
Alkalinity, Total	169	~~C,1~~	mg/L	5	5	0.8	SM2320B-2011			12/18/20 00:52	R2B	M
Chloride	27.8	~~C~~	mg/L	2.0	1.8	0.88	EPA 300.0			12/12/20 07:03	MBW	L
Nitrate-N	0.14U	~~C~~,U	mg/L	0.20	0.14	0.050	EPA 300.0			12/12/20 07:03	MBW	L
Sulfate	9.8	~~C~~	mg/L	2.0	1.8	0.50	EPA 300.0			12/12/20 07:03	MBW	L
Total Organic Carbon (TOC)	0.91J	~~C~~,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 2nd	0.81J	~~C~~,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 3rd	0.74J	~~C~~,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
Total Organic Carbon, 4th	0.72J	~~C~~,J	mg/L	1.0	0.50	0.27	SW846 9060A			12/19/20 03:39	PAG	D
METALS												
Iron, Total	1.7	~~C~~	mg/L	0.067	0.045	0.022	SW846 6010C	12/12/20	AHI	12/14/20 17:29	SRT	P1
Iron, Dissolved	0.040U	~~C~~,U	mg/L	0.060	0.040	0.020	SW846 6010C	12/15/20	SRT	12/15/20 17:00	SRT	P

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State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340006** Date Collected: 12/10/2020 ~~07:45~~ 00:00 Matrix: Ground Water
Sample ID: **Trip Blank 121020** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 12:51	DPC	A
1,1-Dichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 12:51	DPC	A
1,2-Dichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 12:51	DPC	A
1,1-Dichloroethene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 12:51	DPC	A
cis-1,2-Dichloroethene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 12:51	DPC	A
trans-1,2-Dichloroethene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 12:51	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 12:51	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 12:51	DPC	A
Tetrachloroethene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 12:51	DPC	A
Toluene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 12:51	DPC	A
1,1,1-Trichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 12:51	DPC	A
1,1,2-Trichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 12:51	DPC	A
Trichloroethene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 12:51	DPC	A
Vinyl Chloride	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 12:51	DPC	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.5	C	%	81 - 118	SW846 8260C			12/16/20 12:51	DPC	A
4-Bromofluorobenzene (S)	92.9	C	%	85 - 114	SW846 8260C			12/16/20 12:51	DPC	A
Dibromofluoromethane (S)	90.3	C	%	80 - 119	SW846 8260C			12/16/20 12:51	DPC	A
Toluene-d8 (S)	94.8	C	%	89 - 112	SW846 8260C			12/16/20 12:51	DPC	A

Elizabeth M. Parker

ELIZABETH M PARKER
Project Coordinator

ALS Environmental

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ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID: **3146340007** Date Collected: 12/10/2020 16:40 Matrix: Ground Water
Sample ID: **Field Blank 121020** Date Received: 12/11/2020 09:41

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:14	DPC	A
1,1-Dichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:14	DPC	A
1,2-Dichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:14	DPC	A
1,1-Dichloroethene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:14	DPC	A
cis-1,2-Dichloroethene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:14	DPC	A
trans-1,2-Dichloroethene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:14	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:14	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:14	DPC	A
Tetrachloroethene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:14	DPC	A
Toluene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:14	DPC	A
1,1,1-Trichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:14	DPC	A
1,1,2-Trichloroethane	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:14	DPC	A
Trichloroethene	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:14	DPC	A
Vinyl Chloride	0.75U	C,U	ug/L	1.0	0.75	0.33	SW846 8260C			12/16/20 13:14	DPC	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95.9	C	%	81 - 118	SW846 8260C			12/16/20 13:14	DPC	A
4-Bromofluorobenzene (S)	91.4	C	%	85 - 114	SW846 8260C			12/16/20 13:14	DPC	A
Dibromofluoromethane (S)	87.8	C	%	80 - 119	SW846 8260C			12/16/20 13:14	DPC	A
Toluene-d8 (S)	95.2	C	%	89 - 112	SW846 8260C			12/16/20 13:14	DPC	A

Elizabeth M. Parker

ELIZABETH M PARKER
Project Coordinator

Appendix C

Support Documentation

ALS Environmental

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State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

SAMPLE SUMMARY

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3145292001	MW-16 120720	Ground Water	12/7/2020 14:25	12/8/2020 10:14	Collected by Client
3145292002	Trip Blank 120720	Ground Water	12/7/2020 ~~14:25~~ 00:00	12/8/2020 10:14	Collected by Client

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

CO
ALS

* 3 1 4 5 2 9 2 *

1 of

(completed by Receiving Lab)

Client Name: AECOM
Address: 40 British American Blvd. Latham, NY 12110
Contact: Gerlinde Wolf
Phone#: 518-951-2370 / 585-490-0987
Project Name/#: Scotia - 60440641
Bill To:

TAT: [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required: Approved?
Email? [X] -Y gerlinde.wolf@aecom.com
Fax? [ ] -Y No.:

W.O. Temp: ____ Therm ID: ____
Courier/Tracking #:
Purchase Order #:
Project Comments:

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment
Other: FedEx

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	Container Type	Container Size	Preservative	8260C	RSK 175	TOC	Alkalinity	Cl, NO3, SO4					Sample/COC Comments
						CG	CG	AG	PL	PL								
						40ml	40ml	40ml	8oz	8oz								
						HCL	HCL	HCL	unp	unp	H2SO4	12/8/20						
						ANALYSES/METHOD REQUESTED												
1	MW-16 120720	12/07/20	1425	G	GW	2	2	2	1	1								# MS/MSD collected here
2	MS	↓	1425	↓	↓	2	2	2	1	1								
3	MSD	↓	1425	↓	↓	2	2	2	1	1								
4	Trip Blank 120720	12/07/20	00:00	-	-	2	X	2	X	X								
5																		
6																		
7																		
8																		
9																		
10																		

SAMPLED BY (Please Print): Jillian Kosinski / Pat McHugh

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Jillian Kosinski AECOM	12/7/20	1645	2 FedEx		
3 FedEx			4 ALS	DEC 08 2020	1014
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE/DOD [ ]
Special Processing: USACE [ ] Navy [ ]
State Samples Collected In: [X] NY [ ] NJ [ ] PA [ ] NC [ ] other
Reportable to PADEP? Yes [ ] No [ ]
PWSID #
Sample Disposal: Lab [ ] Special [ ]
EDDS: Format Type-

* G=Grab; C=Composite
**Matrix - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Middletown, PA 17057

Rev 11/18

301 Fulling Mill Road
Middletown, PA 17057
P: (717) 944-5541
F: (717) 944-1430

Condition of Sample Receipt Form

Client: AECOM | Work Order #: 345292 | Initials: KMM | Date: 12/8/2020

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 7810 3220 0530			
2. Are Custody Seals on shipping containers intact?	(NONE)	YES	NO
3. Are Custody Seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present?		(YES)	NO
5. Are the COC and bottle labels complete, legible and in agreement? See below		YES	(NO)
5a. Does the COC contain sample locations?		(YES)	NO
5b. Does the COC contain date and time of sample collection for all samples?		(YES)	NO
5c. Does the COC contain sample collectors name?		(YES)	NO
5d. Does the COC note the type(s) of preservation for all bottles? added UNP.		YES	(NO)
5e. Does the COC note the number of bottles submitted for each sample?		(YES)	NO
5f. Does the COC note the type of sample, composite or grab?		(YES)	NO
5g. Does the COC note the matrix of the sample(s)?		(YES)	NO
6. Are all aqueous samples requiring preservation preserved correctly?[1]	N/A	(YES)	NO
7. Were all samples placed in the proper containers for the requested analyses, with sufficient volume?		(YES)	NO
8. Are all samples within holding times for the requested analyses?		(YES)	NO
9. Were all sample containers received intact and headspace free when required? (not broken, leaking, frozen, etc.)		(YES)	NO
10. Did we receive trip blanks (applies only for methods EPA 504, EPA 524.2 and 1631E (LL Hg)?	N/A	(YES)	NO
11. Were the samples received on ice?		(YES)	NO
12. Were sample temperatures measured at 0.0-6.0°C		(YES)	NO
13. Are the samples DW matrix ? If YES, fill out Reportable Drinking Water questions below		YES	(NO)
13a. Are the samples required for SDWA compliance reporting?	(N/A)	YES	NO
13b. Did the client provide a SDWA PWS ID#?	(N/A)	YES	NO
13c. Are all aqueous unpreserved SDWA samples pH 5-9?	(N/A)	YES	NO
13d. Did the client provide the SDWA sample location ID/Description?	(N/A)	YES	NO
13e. Did the client provide the SDWA sample type (D, E, R, C, P, S)?	(N/A)	YES	NO

Cooler #: _____

Temperature (°C): 2

Thermometer ID: 309

Radiological (µCi): _____

COMMENTS (Required for all NO responses above and any sample non-conformance):

[1]Final determination of correct preservation for analysis such as volatiles, microbiology, and oil and grease is made in the analytical department at the time of or following the analysis

Rev 1/20/2020

AECOM – Latham, NY
ALS-Middletown
Case Narrative
ASN-060 (3145292)

Sample Management

This report contains the results of the analysis of two (2) ground water samples collected on December 7, 2020. Analytical results and quality control information are summarized in this data package.

Qualifier Symbol Definitions:

U = Qualifier indicates that the analyte was not detected above the LOD.
J = Qualifier indicates that the analyte value is between the DL and the LOQ.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds the calibration range.
P = Qualifier indicates that the RPD between the two analytical columns is > 40%.
NSC = Qualifier indicates that spike recoveries were not calculated based on the spiking concentration.

Result Symbol Definitions:

DL = The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence.
LOD = The smallest analyte concentration that must be present in a sample in order to be detected at a high level of confidence.
LOQ = The lowest concentration that produces a quantitative result within specified limits of precision or bias.

Manual Integration Symbol Definitions

I = Peak was not integrated properly by chromatographic software. This may be due to baseline irregularities resulting from sample matrix, elevated baseline, or incorrect integration by software on a sample. Integration was adjusted by operator to ensure proper quantitation.
H = The incorrect peak was identified or the chromatographic software did not identify an analyte peak. Operator manually identified the correct peak as the appropriate target analyte. This flag is automatically assigned by the Target software.
SP = Peak was erroneously split. The operator manually integrated the peak to include all the area of the analyte peak to ensure proper quantitation.
MP = Two peaks were erroneously merged. This may include two discrete peaks separated by a distinguishable valley or a larger peak with a clearly identifiable shoulder. Operator manually split peaks.
AB = Integration of group of adjacent peaks did not follow baseline. Operator manually assigned integration to follow baseline.
NP = Negative spike in the baseline resulted in overstating area of analyte peaks. Analyte peaks were re-assigned.
AC = Integration of aggregate or multi-component analyte to include area off all components of the analyte (i.e., toxaphene).

Sample Receipt

Samples arrived at ALS via courier on December 8, 2020. Upon receipt, the samples were inspected and compared to the Chain of Custody. Sample temperature was documented on the enclosed Chain of Custody. Samples were received intact and properly preserved, unless noted on the enclosed Certificate of Analysis and/or Chain of Custody.

Manual Integrations

If manual integrations were performed they are indicated on the raw data quantification files for each method.

Volatile Organics by SW-846 Method 8260

Sample Handling. Two (2) water samples were analyzed by SW-846 Method 8260 for volatile organic compounds. All analyses were performed within the holding time.

Initial Calibrations. Initial calibrations were properly analyzed and met method criteria for all target analytes. **Note**: The batch LCS also serves as a second source (ICV).

Initial Calibration Verifications. Initial calibration verification samples were properly analyzed and met method criteria.

Continuing Calibration Verification. Samples were run immediately following ICAL.

Blanks. Target analytes were not detected in the method blank.

Surrogates. Recoveries were within control limits.

Laboratory control samples. Target analytes were recovered within control limits in the laboratory control samples.

Matrix and Matrix Spike samples. Target analytes were recovered within control limits in the spiked samples.

Internal Standards. Internal standard results met method criteria

Light Hydrocarbon Gases by RSK-175

Sample Handling. One (1) water sample was submitted for the analysis of light hydrocarbon gases by Method RSK-175. The samples were analyzed within the method specified holding time of fourteen days.

Calibrations. The initial calibrations met method criteria for all target analytes.

Calibration Verification. Prior to the analysis of samples in this group, the initial calibrations were successfully verified by the analysis of calibration verification standards. The samples were then successfully bracketed with alternating calibration verification standards (CCV) throughout the analysis.

Continuing Calibration. A continuing calibration standard were properly analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank.

Anions by EPA 300.0

Sample handling. One (1) water sample was analyzed for anions by EPA Method 300.0. The sample was analyzed within the method recommended holding time for each analyte.

Calibration. Initial calibrations identified as Method A (high range) and Method L (low range) were properly established for instrument IC7 on 11/18/2020. Initial and continuing calibration verification standards were recovered within the QC limits.

Blanks. Initial and continuing blanks were analyzed with the samples. Anions were not detected above the reporting limits in the blanks.

Laboratory Control Samples. Recoveries were within the QC limits.

Spikes. A matrix spike and spike duplicate analysis was performed on sample 3145292001 (MW-16 120720). All recoveries were within QC limits.

Total Organic Carbon by SM 5310B

Sample handling. One (1) water sample was analyzed for total organic carbon by Standard Method 5310B. The preserved sample was analyzed within the 28-day holding time established for the method.

Calibration. Initial calibrations were properly established on the days of analysis. Initial and continuing calibration standards were analyzed for verification, and recoveries were all within the QC limits.

Laboratory Control Spike. A laboratory control spike of 1.0 mg/L was analyzed with the samples. The recovery was within the QC limit of 85-115%.

Blanks. Method blanks were analyzed with the samples. Total organic carbon was not detected above the reporting limit of 0.5 mg/L in the blanks.

Spikes. Matrix spike and matrix spike duplicate analysis was performed on sample 3145292001 (MW-16 120720). One of the two spike recoveries was above acceptable QC criteria. All other recoveries were within acceptable QC criteria.

Total Alkalinity by SM 2320B

Sample handling. One (1) water sample was analyzed for total alkalinity by Standard Method 2320B. The sample was analyzed within the 14-day holding time established for the method.

Blanks. Method blanks were analyzed with the samples. Total alkalinity was not detected above the reporting limit of 5 mg/L in the blanks.

Calibration. Continuing calibration standards were analyzed throughout the run. Recoveries were within acceptable QC criteria.

Duplicate. A duplicate analysis was performed on sample 3145292001 (MW-16 120720). The relative percent difference between the results was within the QC limit of 20%.

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State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

ANALYTICAL RESULTS

Workorder: 3145292 ASN060|2015-SCOTIA NAVY-PO6044

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3145292001	1	MW-16 120720	SW846 9060A	Total Organic Carbon (TOC)
The QC sample type MS for method 415.1/9060/5310B was outside the control limits for the analyte Total Organic Carbon (TOC). The % Recovery was reported as 120 and the control limits were 85 to 115.				
3145292001	2	MW-16 120720	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

Form 4B
Inorganic Blank Summary

Analysis Method: SW846 9060A
Instrument: TOC

SDG No.: ASN060

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
ICB	Total Organic Carbon	ICB	QC-Water	12/11/2020 06:50	0.5	U	mg/L
CCB5	Total Organic Carbon	CCB	QC-Water	12/11/2020 06:50	0.5	U	mg/L
CCB6	Total Organic Carbon	CCB	QC-Water	12/11/2020 06:50	0.34	J	mg/L

(1) The following qualifiers are used:

U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Sample Description

MW-16 120720

Form 3A
Matrix Spike and Matrix Spike Duplicate Recovery Summary

Analysis Method: SW846 9060A
Matrix (soil/water): Ground Water

SDG No.: ASN060
Units: mg/L
Lab Sample ID: 3145292001
Lab MS Sample ID: 3247386
Lab MSD Sample ID: 3247387

Analyte	Spike Added	Sample Concentration	MS Concentration	MS Recovery (%)	(1)	Acceptable Limits (%)
Total Organic Carbon (TOC)	6	0.90	8.1	120	*	85 - 115

Analyte	Spike Added	MSD Concentration	MSD Recovery (%)	(1)	Acceptable Limits (%)	RPD (%)	(1)	Acc. Lim. (%)
Total Organic Carbon (TOC)	6	7.6	111		85 - 115	6.84		15

(1) The following qualifiers are used:

* : Values outside of acceptable limits
D : Spikes diluted out

Comments:

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

SAMPLE SUMMARY

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3145584001	MW-26 120820	Ground Water	12/8/2020 08:50	12/9/2020 10:10	Collected by Client
3145584002	MW-24 120820	Ground Water	12/8/2020 10:20	12/9/2020 10:10	Collected by Client
3145584003	MW-15 120820	Ground Water	12/8/2020 12:05	12/9/2020 10:10	Collected by Client
3145584004	MW-30 120820	Ground Water	12/8/2020 14:10	12/9/2020 10:10	Collected by Client
3145584005	Trip Blank 120820	Ground Water	12/8/2020 ~~14:10~~ 00:00	12/9/2020 10:10	Collected by Client

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F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:

ALS Q

* 3 1 4 5 5 8 4 *

Client Name: AECOM

Address: 40 British American Blvd. Latham, NY 12110

Contact: Gerlinde Wolf

Phone#: 518-951-2370

Project Name/#: Scotia Navy Depot / 60440641

Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [X]-Y gerlinde.wolf@aecom.com

Fax? [ ]-Y No.:

W.O. Temp: 0° Therm ID: 525

Courier/Tracking #:

Purchase Order #:

Project Comments:

ALS Field Services: [X] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment Other:

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	8260C	RSK175	Alkalinity	Cl, NO3, SO4	TOC	Total Fe	Diss Fe				Sample/COC Comments
				Container Type		CG	CG	PL	PL	AG	PL	PL				
				Container Size		40mL	40mL	8oz	8oz	40mL	8oz	8oz				
				Preservative		HCl	HCl	-	-	HCl	HNO_3	-				
						Enter Number of Containers Per Sample or Field Results Below.										
1	MW-26 120820	12/08/20	08:50	G	GW	2	2	1	1	2	X	X				
2	MW-24 120820		10:20			2	2	1	1	2	X	X				
3	MW-15 120820		1205			2	2	1	1	2	X	X				
4	MW-30 120820		1410			2	2	1	1	2	1	1				
5	TRIP BLANK 120820		00:00	-	-	2	X	X	X	X	X	X				
6																
7																
8																
9																
10																

SAMPLED BY (Please Print): Jillian Kosinski / Pat McH

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Jillian Kosinski / AECOM	12/08/20	1500	2 Daniel Hayes / ALS	12/8/2020	1500
3 Daniel Hayes / ALS	12/8/2020	1730	4 Fed Ex		
5 Fed Ex			6 GO	12/9	10:40
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE/DOD [ ]

Special Processing: USACE [ ] Navy [ ] [ ]

State Samples Collected In: [X] NY [ ] NJ [ ] PA [ ] NC [ ] [ ] other

Reportable to PADEP? Yes [ ] No [ ]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type

* G=Grab; C=Composite

**Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Oil=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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Rev 11/18

4888 8630 4787

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Middletown, PA 17057
P: (717) 944-5541
F: (717) 944-1430

Condition of Sample Receipt Form

Client:	Work Order #:	Initials:	Date:
AECom	31455984	Com	12/19/2020

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 4886 8630 4787			
2. Are Custody Seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody Seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present?		(YES)	NO
5. Are the COC and bottle labels complete, legible and in agreement?		(YES)	NO
5a. Does the COC contain sample locations?		(YES)	NO
5b. Does the COC contain date and time of sample collection for all samples?		(YES)	NO
5c. Does the COC contain sample collectors name?		(YES)	NO
5d. Does the COC note the type(s) of preservation for all bottles?		(YES)	NO
5e. Does the COC note the number of bottles submitted for each sample?		(YES)	NO
5f. Does the COC note the type of sample, composite or grab?		(YES)	NO
5g. Does the COC note the matrix of the sample(s)?		(YES)	NO
6. Are all aqueous samples requiring preservation preserved correctly?[1]	N/A	(YES)	NO
7. Were all samples placed in the proper containers for the requested analyses, with sufficient volume?		(YES)	NO
8. Are all samples within holding times for the requested analyses?		(YES)	NO
9. Were all sample containers received intact and headspace free when required? (not broken, leaking, frozen, etc.)		(YES)	NO
10. Did we receive trip blanks (applies only for methods EPA 504, EPA 524.2 and 1631E (LL Hg)?	(N/A)	YES	NO
11. Were the samples received on ice?		(YES)	NO
12. Were sample temperatures measured at 0.0-6.0°C		(YES)	NO
13. Are the samples DW matrix ? If YES, fill out Reportable Drinking Water questions below		YES	(NO)
13a. Are the samples required for SDWA compliance reporting?	(N/A)	YES	NO
13b. Did the client provide a SDWA PWS ID#?	(N/A)	YES	NO
13c. Are all aqueous unpreserved SDWA samples pH 5-9?	(N/A)	YES	NO
13d. Did the client provide the SDWA sample location ID/Description?	(N/A)	YES	NO
13e. Did the client provide the SDWA sample type (D, E, R, C, P, S)?	(N/A)	YES	NO

Cooler #:								
Temperature (°C):	0.7							
Thermometer ID:	525							
Radiological (µCi):								

COMMENTS (Required for all NO responses above and any sample non-conformance):

[1]Final determination of correct preservation for analysis such as volatiles, microbiology, and oil and grease is made in the analytical department at the time of or following the analysis

Rev 1/20/2020

AECOM – Latham, NY
ALS-Middletown
Case Narrative
ASN-061 (3145584)

Sample Management

This report contains the results of the analysis of five (5) ground water samples collected on December 8, 2020. Analytical results and quality control information are summarized in this data package.

Qualifier Symbol Definitions:

U = Qualifier indicates that the analyte was not detected above the LOD.
J = Qualifier indicates that the analyte value is between the DL and the LOQ.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds the calibration range.
P = Qualifier indicates that the RPD between the two analytical columns is > 40%.
NSC = Qualifier indicates that spike recoveries were not calculated based on the spiking concentration.

Result Symbol Definitions:

DL = The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence.
LOD = The smallest analyte concentration that must be present in a sample in order to be detected at a high level of confidence.
LOQ = The lowest concentration that produces a quantitative result within specified limits of precision or bias.

Manual Integration Symbol Definitions

I = Peak was not integrated properly by chromatographic software. This may be due to baseline irregularities resulting from sample matrix, elevated baseline, or incorrect integration by software on a sample. Integration was adjusted by operator to ensure proper quantitation.
H = The incorrect peak was identified or the chromatographic software did not identify an analyte peak. Operator manually identified the correct peak as the appropriate target analyte. This flag is automatically assigned by the Target software.
SP = Peak was erroneously split. The operator manually integrated the peak to include all the area of the analyte peak to ensure proper quantitation.
MP = Two peaks were erroneously merged. This may include two discrete peaks separated by a distinguishable valley or a larger peak with a clearly identifiable shoulder. Operator manually split peaks.
AB = Integration of group of adjacent peaks did not follow baseline. Operator manually assigned integration to follow baseline.
NP = Negative spike in the baseline resulted in overstating area of analyte peaks. Analyte peaks were re-assigned.
AC = Integration of aggregate or multi-component analyte to include area off all components of the analyte (i.e., toxaphene).

Sample Receipt

Samples arrived at ALS via courier on December 9, 2020. Upon receipt, the samples were inspected and compared to the Chain of Custody. Sample temperature was documented on the enclosed Chain of Custody. Samples were received intact and properly preserved, unless noted on the enclosed Certificate of Analysis and/or Chain of Custody.

Manual Integrations

If manual integrations were performed they are indicated on the raw data quantification files for each method.

Volatile Organics by SW-846 Method 8260

Sample Handling. Five (5) water samples were analyzed by SW-846 Method 8260 for volatile organic compounds. All analyses were performed within the holding time.

Initial Calibrations. Initial calibrations were properly analyzed and met method criteria for all target analytes. **Note**: The batch LCS also serves as a second source (ICV).

Initial Calibration Verifications. Initial calibration verification samples were properly analyzed and met method criteria.

Continuing Calibration Verification. Samples were run immediately following ICAL.

Blanks. Target analytes were not detected in the method blank.

Surrogates. Recoveries were within control limits.

Laboratory control samples. Target analytes were recovered within control limits in the laboratory control samples.

Internal Standards. Internal standard results met method criteria

Light Hydrocarbon Gases by RSK-175

Sample Handling. Four (4) water samples were submitted for the analysis of light hydrocarbon gases by Method RSK-175. The samples were analyzed within the method specified holding time of fourteen days.

Calibrations. The initial calibrations met method criteria for all target analytes.

Calibration Verification. Prior to the analysis of samples in this group, the initial calibrations were successfully verified by the analysis of calibration verification standards. The samples were then successfully bracketed with alternating calibration verification standards (CCV) throughout the analysis.

Continuing Calibration. A continuing calibration standard were properly analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank.

Light Hydrocarbon Gases by RSK-175-HIGH

Sample Handling. Two (2) water samples were submitted for the analysis of light hydrocarbon gases by Method RSK-175-HIGH. The samples were analyzed within the method specified holding time of fourteen days.

Calibrations. The initial calibrations met method criteria for all target analytes.

Calibration Verification. Prior to the analysis of samples in this group, the initial calibrations were successfully verified by the analysis of calibration verification standards. The samples were then successfully bracketed with alternating calibration verification standards (CCV) throughout the analysis.

Continuing Calibration. A continuing calibration standard were properly analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank, except as follows:

- In 3249295 MB, Methane was detected at 2.9 µg/L.

Surrogates: Surrogate recoveries were in control limits.

Total Metals by SW-846 Method 6010C

Sample handling. One (1) water sample was digested by SW-846 method 3015, and the digestate was analyzed for total metals on the ThermoFisher ICP6500_2, using SW-846 method 6010C. The sample was digested and analyzed within the six-month holding time established for the method.

Calibration. All criteria associated with the calibration and calibration verification standards were within control limits.

Blanks. Metals were not detected above the reporting limit in the blanks.

Laboratory Control Samples. Recoveries were within the control limits.

Dissolved Metals by EPA Method 6010C

Sample handling. One (1) water sample was filtered and analyzed for dissolved metals on the ThermoFisher ICP6500_2 using EPA Method 6010C. The sample was analyzed within the six-month holding time established for the method.

Calibration. All criteria associated with the calibration and check standards were within the control limits for this method.

Blanks. Metals were not detected above the reporting limit in the blanks.

Laboratory Control Sample. The LCS recoveries were within the method control limits.

Spike. MS/MSD analysis was performed on sample 3145584004 (MW-30 120820). Recoveries were within acceptable QC criteria.

Duplicate. Duplicate analysis was performed on sample 3145584004 (MW-30 120820). The relative percent difference between the results was within acceptable QC criteria.

Anions by EPA 300.0

Sample handling. Four (4) water samples were analyzed for anions by EPA Method 300.0. The samples were analyzed within the method recommended holding time for each analyte.

Calibration. Initial calibrations identified as Method A (high range) and Method L (low range) were properly established for instrument IC7 on 11/18/2020. Initial and continuing calibration verification standards were recovered within the QC limits.

Blanks. Initial and continuing blanks were analyzed with the samples. Anions were not detected above the reporting limits in the blanks.

Laboratory Control Samples. Recoveries were within the QC limits.

Spikes. A matrix spike and spike duplicate analysis was not performed on any samples from this data deliverable.

Total Organic Carbon by SM 5310B

Sample handling. Four (4) water samples were analyzed for total organic carbon by Standard Method 5310B. The preserved samples were analyzed within the 28-day holding time established for the method.

Calibration. Initial calibrations were properly established on the days of analysis. Initial and continuing calibration standards were analyzed for verification, and recoveries were all within the QC limits.

Laboratory Control Spike. A laboratory control spike of 1.0 mg/L was analyzed with the samples. The recovery was within the QC limit of 85-115%.

Blanks. Method blanks were analyzed with the samples. Total organic carbon was not detected above the reporting limit of 0.5 mg/L in the blanks.

Spikes. Matrix spike and matrix spike duplicate analysis was not performed on any samples from this data deliverable.

Total Alkalinity by SM 2320B

Sample handling. Four (4) water samples were analyzed for total alkalinity by Standard Method 2320B. The samples were analyzed within the 14-day holding time established for the method.

Blanks. Method blanks were analyzed with the samples. Total alkalinity was not detected above the reporting limit of 5 mg/L in the blanks.

Calibration. Continuing calibration standards were analyzed throughout the run. Recoveries were within acceptable QC criteria.

Duplicate. A duplicate analysis was not performed on any samples from this data deliverable.

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

ANALYTICAL RESULTS

Workorder: 3145584 ASN061|Scotia Navy Dpt60440641

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3145584001	1	MW-26 120820	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3145584002	1	MW-24 120820	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3145584003	1	MW-15 120820	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3145584004	1	MW-30 120820	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3249295(MB)

Lab Name: ALS Global Contract: SVGC

Lab Code: VOA Case No.: SAS No.: SDG No.: ASN-061

Matrix (soil/water): WATER Lab Sample ID: 3249295

Sample wt/vol: 37.80 (g/mL) ML Lab File ID: MLFA004.D

Level (low/med): Low Date Received: 12/15/20

% Moisture: not dec. 100.0 Date Analyzed: 12/15/20

GC Column: PORPAK Q ID: 2.0 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	METHANE	2.9	
74-85-1	ETHENE	2.4	U
74-84-0	ETHANE	3.3	U

SAMPLE SUMMARY

Workorder: 3145952 ASN062|Scotia Navy/60440641

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3145952001	MW-31 120920	Ground Water	12/9/2020 08:30	12/10/2020 09:40	Collected by Client
3145952002	MW-34 120920	Ground Water	12/9/2020 10:50	12/10/2020 09:40	Collected by Client
3145952003	MW-35 120920	Ground Water	12/9/2020 12:00	12/10/2020 09:40	Collected by Client
3145952004	MW-28 120920	Ground Water	12/9/2020 14:10	12/10/2020 09:40	Collected by Client
3145952005	Trip Blank 120920	Ground Water	12/9/2020 00:00	12/10/2020 09:40	Collected by Client

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P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

* 3 1 4 5 9 5 2 *

__ of __

Client Name: AECOM

Address: 40 British American Blvd. Latham, NY 12110

Contact: Gerlinde Wolf

Phone#: 518-951-2370

Project Name/#: Scotia Navy Depot / 60440641

Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [X] -Y gerlinde.wolf@aecom.com

Fax? [ ] -Y No.:

	Container Type	CG	CG	PL	PL	AG	PL	PL				
	Container Size	40	40	250	250	40	250	250				
	Preservative	HCl	HCl	-	-	HCl	HNO_3	-				

ANALYSES/METHOD REQUESTED

Purchase Order #:

Project Comments:

ALS Field Services: [X] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment

Other:

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	8260C	RSK175	Alkalinity	Cl, NO3, SO4	TOC	Total Fe	Diss Fe				Sample/COC Comments
				Enter Number of Containers Per Sample or Field Results Below.												
1	MW-31 120920	12/09/20	0830	G	GW	2	2	1	1	2	1	1				
2	MW-34 120920	"	1050	"	"	2	2	1	1	2	1	1				
3	MW-35 120920	"	1200	"	"	2	2	1	1	2	1	1				
4	MW-28 120920	↓	1410	↓	↓	2	2	1	1	2	1	1				
5	TRIP Blank 120920	12/09/20	00:00	-	-	2	x	x	x	x	x	x				
6																
7																
8																
9																
10																

SAMPLED BY (Please Print): Jillian Kosnski / Pat McHugh

Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	Jillian Kosnski / AECOM	12/9/20	1500	2	Daniel Hogan / ALS	12/9/20	1500
3	Daniel Hogan / ALS	12/9/2020	1730	4	FedEx		
5	FedEx			6	ALS	12/10/20	0900
7				8			
9				10			

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE/DOD [ ]

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [X] NY [ ] NJ [ ] PA [ ] NC [ ] other

Reportable to PADEP? Yes [ ] No [ ] PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

* G=Grab; C=Composite

**Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Oil=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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Rev 11/18

301 Fulling Mill Road
Middletown, PA 17057
P: (717) 944-5541
F: (717) 944-1430

Condition of Sample Receipt Form

Client: AECOM | Work Order #: 31459152 | Initials: | Date: 12/10/20

1. Were airbills / tracking numbers present and recorded?	NONE	YES	NO
Tracking number: 4888 8036 4802			
2. Are Custody Seals on shipping containers intact?	NONE	YES	NO
3. Are Custody Seals on sample containers intact?	NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present?		YES	NO
5. Are the COC and bottle labels complete, legible and in agreement?		YES	NO
5a. Does the COC contain sample locations?		YES	NO
5b. Does the COC contain date and time of sample collection for all samples?		YES	NO
5c. Does the COC contain sample collectors name?		YES	NO
5d. Does the COC note the type(s) of preservation for all bottles?		YES	NO
5e. Does the COC note the number of bottles submitted for each sample?		YES	NO
5f. Does the COC note the type of sample, composite or grab?		YES	NO
5g. Does the COC note the matrix of the sample(s)?		YES	NO
6. Are all aqueous samples requiring preservation preserved correctly?[1]	N/A	YES	NO
7. Were all samples placed in the proper containers for the requested analyses, with sufficient volume?		YES	NO
8. Are all samples within holding times for the requested analyses?		YES	NO
9. Were all sample containers received intact and headspace free when required? (not broken, leaking, frozen, etc.)		YES	NO
10. Did we receive trip blanks (applies only for methods EPA 504, EPA 524.2 and 1631E (LL Hg)?	N/A	YES	NO
11. Were the samples received on ice?		YES	NO
12. Were sample temperatures measured at 0.0-6.0°C		YES	NO
13. Are the samples DW matrix ? If YES, fill out Reportable Drinking Water questions below		YES	NO
13a. Are the samples required for SDWA compliance reporting?	N/A	YES	NO
13b. Did the client provide a SDWA PWS ID#?	N/A	YES	NO
13c. Are all aqueous unpreserved SDWA samples pH 5-9?	N/A	YES	NO
13d. Did the client provide the SDWA sample location ID/Description?	N/A	YES	NO
13e. Did the client provide the SDWA sample type (D, E, R, C, P, S)?	N/A	YES	NO

Cooler #: | | | | | | | | |

Temperature (°C): 6 | | | | | | | | |

Thermometer ID: 309 | | | | | | | | |

Radiological (µCi): | | | | | | | | |

COMMENTS (Required for all NO responses above and any sample non-conformance):

[1]Final determination of correct preservation for analysis such as volatiles, microbiology, and oil and grease is made in the analytical department at the time of or following the analysis

Rev 1/20/2020

AECOM – Latham, NY
ALS-Middletown
Case Narrative
ASN-062 (3145952)

Sample Management

This report contains the results of the analysis of five (5) ground water samples collected on December 9, 2020. Analytical results and quality control information are summarized in this data package.

Qualifier Symbol Definitions:

U = Qualifier indicates that the analyte was not detected above the LOD.
J = Qualifier indicates that the analyte value is between the DL and the LOQ.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds the calibration range.
P = Qualifier indicates that the RPD between the two analytical columns is > 40%.
NSC = Qualifier indicates that spike recoveries were not calculated based on the spiking concentration.

Result Symbol Definitions:

DL = The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence.
LOD = The smallest analyte concentration that must be present in a sample in order to be detected at a high level of confidence.
LOQ = The lowest concentration that produces a quantitative result within specified limits of precision or bias.

Manual Integration Symbol Definitions

I = Peak was not integrated properly by chromatographic software. This may be due to baseline irregularities resulting from sample matrix, elevated baseline, or incorrect integration by software on a sample. Integration was adjusted by operator to ensure proper quantitation.
H = The incorrect peak was identified or the chromatographic software did not identify an analyte peak. Operator manually identified the correct peak as the appropriate target analyte. This flag is automatically assigned by the Target software.
SP = Peak was erroneously split. The operator manually integrated the peak to include all the area of the analyte peak to ensure proper quantitation.
MP = Two peaks were erroneously merged. This may include two discrete peaks separated by a distinguishable valley or a larger peak with a clearly identifiable shoulder. Operator manually split peaks.
AB = Integration of group of adjacent peaks did not follow baseline. Operator manually assigned integration to follow baseline.
NP = Negative spike in the baseline resulted in overstating area of analyte peaks. Analyte peaks were re-assigned.
AC = Integration of aggregate or multi-component analyte to include area off all components of the analyte (i.e., toxaphene).

Sample Receipt

Samples arrived at ALS via courier on December 10, 2020. Upon receipt, the samples were inspected and compared to the Chain of Custody. Sample temperature was documented on the enclosed Chain of Custody. Samples were received intact and properly preserved, unless noted on the enclosed Certificate of Analysis and/or Chain of Custody.

Manual Integrations

If manual integrations were performed they are indicated on the raw data quantification files for each method.

Volatile Organics by SW-846 Method 8260

Sample Handling. Five (5) water samples were analyzed by SW-846 Method 8260 for volatile organic compounds. All analyses were performed within the holding time.

Initial Calibrations. Initial calibrations were properly analyzed and met method criteria for all target analytes. **Note**: The batch LCS also serves as a second source (ICV).

Initial Calibration Verifications. Initial calibration verification samples were properly analyzed and met method criteria.

Continuing Calibration Verification. Samples were run immediately following ICAL.

Blanks. Target analytes were not detected in the method blank.

Surrogates. Recoveries were within control limits.

Laboratory control samples. Target analytes were recovered within control limits in the laboratory control samples.

Internal Standards. Internal standard results met method criteria

Light Hydrocarbon Gases by RSK-175 – Low Level

Sample Handling. Four (4) water samples were submitted for the analysis of light hydrocarbon gases by Method RSK-175. The samples were analyzed within the method specified holding time of fourteen days.

Calibrations. The initial calibrations met method criteria for all target analytes.

Calibration Verification. Prior to the analysis of samples in this group, the initial calibrations were successfully verified by the analysis of calibration verification standards. The samples were then successfully bracketed with alternating calibration verification standards (CCV) throughout the analysis.

Continuing Calibration. A continuing calibration standard were properly analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank, except as follows:

- In 3250131 MB, Methane was detected at 1.3J µg/L.

Light Hydrocarbon Gases by RSK-175-High Level

Sample Handling. One (1) water sample was submitted for the analysis of light hydrocarbon gases by Method RSK-175-HIGH. The samples were analyzed within the method specified holding time of fourteen days.

Calibrations. The initial calibrations met method criteria for all target analytes.

Calibration Verification. Prior to the analysis of samples in this group, the initial calibrations were successfully verified by the analysis of calibration verification standards. The samples were then successfully bracketed with alternating calibration verification standards (CCV) throughout the analysis.

Continuing Calibration. A continuing calibration standard were properly analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank, except as follows:

- In 3250131 MB, Methane was detected at 4.5 µg/L.

Surrogates: Surrogate recoveries were in control limits.

Total Metals by EPA Method 6010C

Sample handling. Four (4) water samples were analyzed for total metals on the ThermoFisher ICP6500_2 using EPA Method 6010C. The samples were analyzed within the six-month holding time established for the method.

Calibration. All criteria associated with the calibration and check standards were within the control limits for this method.

Blanks. Metals were not detected above the reporting limit in the blanks.

Laboratory Control Sample. The LCS recoveries were within the method control limits.

Spikes. MS analysis was performed on sample 3145952001 (MW-31 120920). Recoveries were within acceptable QC criteria.

Duplicate. Duplicate analysis was performed on sample 3145952002 (MW-34 120920). The relative percent difference between the results was above acceptable QC criteria.

Dissolved Metals by EPA Method 6010C

Sample handling. Four (4) water samples were filtered and analyzed for dissolved metals on the ThermoFisher ICP6500_2 using EPA Method 6010C. The samples were analyzed within the six-month holding time established for the method.

Calibration. All criteria associated with the calibration and check standards were within the control limits for this method.

Blanks. Metals were not detected above the reporting limit in the blanks.

Laboratory Control Sample. The LCS recoveries were within the method control limits.

Spikes. MS analysis was not performed on any samples from this data deliverable.

Duplicate. Duplicate analysis was not performed on any samples from this data deliverable.

Anions by EPA 300.0

Sample handling. Four (4) water samples were analyzed for anions by EPA Method 300.0. The samples were analyzed within the method recommended holding time for each analyte.

Calibration. Initial calibrations identified as Method A (high range) and Method L (low range) were properly established for instrument IC7 on 11/18/2020. Initial and continuing calibration verification standards were recovered within the QC limits.

Blanks. Initial and continuing blanks were analyzed with the samples. Anions were not detected above the reporting limits in the blanks.

Laboratory Control Samples. Recoveries were within the QC limits.

Spikes. A matrix spike and spike duplicate analysis was not performed on any samples from this data deliverable.

Total Organic Carbon by SM 5310B

Sample handling. Four (4) water samples were analyzed for total organic carbon by Standard Method 5310B. The preserved samples were analyzed within the 28-day holding time established for the method.

Calibration. Initial calibrations were properly established on the days of analysis. Initial and continuing calibration standards were analyzed for verification, and recoveries were all within the QC limits.

Laboratory Control Spike. A laboratory control spike of 1.0 mg/L was analyzed with the samples. The recovery was within the QC limit of 85-115%.

Blanks. Method blanks were analyzed with the samples. Total organic carbon was not detected above the reporting limit of 0.5 mg/L in the blanks.

Spikes. Matrix spike and matrix spike duplicate analysis was performed on sample 3145952001 (MW-31 120920). Recoveries were within acceptable QC criteria.

Total Alkalinity by SM 2320B

Sample handling. Four (4) water samples were analyzed for total alkalinity by Standard Method 2320B. The samples were analyzed within the 14-day holding time established for the method.

Blanks. Method blanks were analyzed with the samples. Total alkalinity was not detected above the reporting limit of 5 mg/L in the blanks.

Calibration. Continuing calibration standards were analyzed throughout the run. Recoveries were within acceptable QC criteria.

Duplicate. A duplicate analysis was not performed on any samples from this data deliverable.

ALS Environmental

301 Fulling Mill Road - Middletown, PA 17057 - Phone: 717-944-5541 - Fax: 717-944-1430 - www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

ANALYTICAL RESULTS

Workorder: 3145952 ASN062|Scotia Navy/60440641

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3145952001	1	MW-31 120920	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3145952002	1	MW-34 120920	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3145952003	1	MW-35 120920	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3145952004	1	MW-28 120920	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3250131(MB)

Lab Name: ALS Global Contract: SVGC

Lab Code: VOA Case No.: SAS No.: SDG No.: ASN-062

Matrix (soil/water): WATER Lab Sample ID: 3250131

Sample wt/vol: 37.80 (g/mL) ML Lab File ID: MLGA004.D

Level (low/med): Low Date Received: 12/16/20

% Moisture: not dec. 100.0 Date Analyzed: 12/16/20

GC Column: PORPAK Q ID: 2.0 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	METHANE	4.5	
74-85-1	ETHENE	3.6	U
74-84-0	ETHANE	2.6	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3250131(MB)

Lab Name: ALS Global Contract: SVGC

Lab Code: VOA Case No.: SAS No.: SDG No.: ASN-062

Matrix (soil/water): WATER Lab Sample ID: 3250131

Sample wt/vol: 37.80 (g/mL) ML Lab File ID: MLGA004.D

Level (low/med): Low Date Received: 12/16/20

% Moisture: not dec. 100.0 Date Analyzed: 12/16/20

GC Column: PORPAK Q ID: 2.0 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	METHANE	1.3	J
74-85-1	ETHENE	3.6	U
74-84-0	ETHANE	2.6	U

ALS Environmental

301 Fulling Mill Road - Middletown, PA 17057 - Phone: 717-944-5541 - Fax: 717-944-1430 - www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

SAMPLE SUMMARY

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3146340001	MW-29 120120	Ground Water	12/10/2020 07:45	12/11/2020 09:41	Collected by Client
3146340002	MW-32 121020	Ground Water	12/10/2020 11:00	12/11/2020 09:41	Collected by Client
3146340003	MW-33 121020	Ground Water	12/10/2020 13:45	12/11/2020 09:41	Collected by Client
3146340004	DUP-1 121020	Ground Water	12/10/2020 ~~07:45~~ 00:00	12/11/2020 09:41	Collected by Client
3146340005	DUP-2 121020	Ground Water	12/10/2020 ~~07:45~~ 00:00	12/11/2020 09:41	Collected by Client
3146340006	Trip Blank 121020	Ground Water	12/10/2020 ~~07:45~~ 00:00	12/11/2020 09:41	Collected by Client
3146340007	Field Blank 121020	Ground Water	12/10/2020 16:40	12/11/2020 09:41	Collected by Client

301 Fulling Mill Road
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:

ALS Qu

* 3 1 4 6 3 4 0 *

(completed by Receiving Lab)

Client Name:

Address:

Contact: Garlinde Wolf

Phone#:

Project Name/#: 60440641

Bill To:

TAT [X] Normal-Standard TAT is 10-12 business days.
[ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [X] -Y Garlinde.Wolf@Ascom.com

Fax? [ ] -Y No.:

W.O. Temp: 2 Therm ID: 304

Courier/Tracking #:

Purchase Order #:

Project Comments:

Category B ("Tier III") Required

ALS Field Services: ☐ Pickup ☐ Labor ☐ Composite Sampling ☐ Rental Equipment

Other:

	Container Type	CG	CG	PL	PL	AG	PL	PL				
	Container Size	40	40	8oz	8oz	40	125	250				
	Preservative	HCL	HCL	-	-	HCL	HNO_3					

ANALYSES/METHOD REQUESTED

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	8260c	RSK 175	Alkalinity	Cl, NO_3, SO_4	TOC	Total Fe	Diss. Fe				Sample/COC Comments
				Enter Number of Containers Per Sample or Field Results Below.												
1	MW-29 121020	12/10/20	0745	G	GW	2	2	1	1	2	1	1				
2	MW-32 121020		1100			2	12	1	1	2	1	1				* MW12-11R
3	MW-33 121020		1345			2	2	1	1	2	1	1				
4	Dup-1 121020		00:00			2	2	1	1	2	1	1				
5	Dup-2 121020		00:00			2	2	1	1	2	1	1				
6	Trip Blank 121020		00:00			3	-	-	-	-	-	-				
7	Field Blank 121020		1640			3	-	-	-	-	-	-				
8						MW12/11R										
9																
10																

SAMPLED BY (Please Print): Patrick McHugh

Sampler Comments:

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	Patrick McHugh / ASCOM	12/10/20	1630	2	FedEx	12/10/20	1630
3	FedEx	12/10/20	1700	4			
5				6	CW ALS	12/11/20	0941
7				8			
9				10			

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE/DOD [ ]

Special Processing: USACE [ ] Navy [ ] [ ]

State Samples Collected In: [X] NY [ ] NJ [ ] PA [ ] NC [ ] [ ] other

Reportable to PADEP? Yes [ ] No [ ]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type-

* G=Grab; C=Composite

**Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Middletown, PA 17057

Rev 11/18

301 Fulling Mill Road
Middletown, PA 17057
P: (717) 944-5541
F: (717) 944-1430

Condition of Sample Receipt Form

Client:	Work Order #:	Initials:	Date:
AECOM	3141634D		12-17-20

1. Were airbills / tracking numbers present and recorded?	NONE	YES	NO
Tracking number: 4888 8603 4824			
2. Are Custody Seals on shipping containers intact?	NONE	YES	NO
3. Are Custody Seals on sample containers intact?	NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present?		YES	NO
5. Are the COC and bottle labels complete, legible and in agreement?		YES	NO
5a. Does the COC contain sample locations?		YES	NO
5b. Does the COC contain date and time of sample collection for all samples?		YES	NO
5c. Does the COC contain sample collectors name?		YES	NO
5d. Does the COC note the type(s) of preservation for all bottles?		YES	NO
5e. Does the COC note the number of bottles submitted for each sample?		YES	NO
5f. Does the COC note the type of sample, composite or grab?		YES	NO
5g. Does the COC note the matrix of the sample(s)?		YES	NO
6. Are all aqueous samples requiring preservation preserved correctly?[1]	N/A	YES	NO
7. Were all samples placed in the proper containers for the requested analyses, with sufficient volume?		YES	NO
8. Are all samples within holding times for the requested analyses?		YES	NO
9. Were all sample containers received intact and headspace free when required? (not broken, leaking, frozen, etc.)		YES	NO
10. Did we receive trip blanks (applies only for methods EPA 504, EPA 524.2 and 1631E (LL Hg)?	N/A	YES	NO
11. Were the samples received on ice?		YES	NO
12. Were sample temperatures measured at 0.0-6.0°C		YES	NO
13. Are the samples DW matrix ? If YES, fill out Reportable Drinking Water questions below		YES	NO
13a. Are the samples required for SDWA compliance reporting?	N/A	YES	NO
13b. Did the client provide a SDWA PWS ID#?	N/A	YES	NO
13c. Are all aqueous unpreserved SDWA samples pH 5-9?	N/A	YES	NO
13d. Did the client provide the SDWA sample location ID/Description?	N/A	YES	NO
13e. Did the client provide the SDWA sample type (D, E, R, C, P, S)?	N/A	YES	NO

Cooler #: _____

Temperature (°C): 2

Thermometer ID: 309

Radiological (µCi): _____

COMMENTS (Required for all NO responses above and any sample non-conformance):

MW-32 x1 RSK vial not filled.

[1]Final determination of correct preservation for analysis such as volatiles, microbiology, and oil and grease is made in the analytical department at the time of or following the analysis

Rev 1/20/2020

AECOM – Latham, NY
ALS-Middletown
Case Narrative
ASN-063 (3146340)

Sample Management

This report contains the results of the analysis of seven (7) ground water samples collected on December 10, 2020. Analytical results and quality control information are summarized in this data package.

Qualifier Symbol Definitions:

U = Qualifier indicates that the analyte was not detected above the LOD.
J = Qualifier indicates that the analyte value is between the DL and the LOQ.
B = Qualifier indicates that the analyte was detected in the blank.
E = Qualifier indicates that the analyte result exceeds the calibration range.
P = Qualifier indicates that the RPD between the two analytical columns is > 40%.
NSC = Qualifier indicates that spike recoveries were not calculated based on the spiking concentration.

Result Symbol Definitions:

DL = The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration at the 99% level of confidence.
LOD = The smallest analyte concentration that must be present in a sample in order to be detected at a high level of confidence.
LOQ = The lowest concentration that produces a quantitative result within specified limits of precision or bias.

Manual Integration Symbol Definitions

I = Peak was not integrated properly by chromatographic software. This may be due to baseline irregularities resulting from sample matrix, elevated baseline, or incorrect integration by software on a sample. Integration was adjusted by operator to ensure proper quantitation.
H = The incorrect peak was identified or the chromatographic software did not identify an analyte peak. Operator manually identified the correct peak as the appropriate target analyte. This flag is automatically assigned by the Target software.
SP = Peak was erroneously split. The operator manually integrated the peak to include all the area of the analyte peak to ensure proper quantitation.
MP = Two peaks were erroneously merged. This may include two discrete peaks separated by a distinguishable valley or a larger peak with a clearly identifiable shoulder. Operator manually split peaks.
AB = Integration of group of adjacent peaks did not follow baseline. Operator manually assigned integration to follow baseline.
NP = Negative spike in the baseline resulted in overstating area of analyte peaks. Analyte peaks were re-assigned.
AC = Integration of aggregate or multi-component analyte to include area off all components of the analyte (i.e., toxaphene).

Sample Receipt

Samples arrived at ALS via courier on December 11, 2020. Upon receipt, the samples were inspected and compared to the Chain of Custody. Sample temperature was documented on the enclosed Chain of Custody. Samples were received intact and properly preserved, unless noted on the enclosed Certificate of Analysis and/or Chain of Custody.

Manual Integrations

If manual integrations were performed they are indicated on the raw data quantification files for each method.

Volatile Organics by SW-846 Method 8260

Sample Handling. Five (5) water samples were analyzed by SW-846 Method 8260 for volatile organic compounds. All analyses were performed within the holding time.

Initial Calibrations. Initial calibrations were properly analyzed and met method criteria for all target analytes. **Note**: The batch LCS also serves as a second source (ICV).

Initial Calibration Verifications. Initial calibration verification samples were properly analyzed and met method criteria.

Continuing Calibration Verification. Samples were run immediately following ICAL.

Blanks. Target analytes were not detected in the method blank.

Surrogates. Recoveries were within control limits.

Laboratory control samples. Target analytes were recovered within control limits in the laboratory control samples.

Internal Standards. Internal standard results met method criteria

Light Hydrocarbon Gases by RSK-175

Sample Handling. Five (5) water samples were submitted for the analysis of light hydrocarbon gases by Method RSK-175. The samples were analyzed within the method specified holding time of fourteen days.

Calibrations. The initial calibrations met method criteria for all target analytes.

Calibration Verification. Prior to the analysis of samples in this group, the initial calibrations were successfully verified by the analysis of calibration verification standards. The samples were then successfully bracketed with alternating calibration verification standards (CCV) throughout the analysis.

Continuing Calibration. A continuing calibration standard were properly analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank, except as follows:

- In 3250131 MB, Methane was detected at 1.3J µg/L.

Light Hydrocarbon Gases by RSK-175-HIGH

Sample Handling. Two (2) water samples were submitted for the analysis of light hydrocarbon gases by Method RSK-175-HIGH. The samples were analyzed within the method specified holding time of fourteen days.

Calibrations. The initial calibrations met method criteria for all target analytes.

Calibration Verification. Prior to the analysis of samples in this group, the initial calibrations were successfully verified by the analysis of calibration verification standards. The samples were then successfully bracketed with alternating calibration verification standards (CCV) throughout the analysis.

Continuing Calibration. A continuing calibration standard were properly analyzed and met method criteria for all target analytes.

Blanks. Target analytes were not detected in the method blank, except as follows:

- In 3250131 MB, Methane was detected at 4.5 µg/L.

Surrogates: Surrogate recoveries were in control limits.

Total Metals by EPA Method 6010C

Sample handling. Five (5) water samples were analyzed for total metals on the ThermoFisher ICP6500_2 using EPA Method 6010C. The samples were analyzed within the six-month holding time established for the method.

Calibration. All criteria associated with the calibration and check standards were within the control limits for this method.

Blanks. Metals were not detected above the reporting limit in the blanks.

Laboratory Control Sample. The LCS recoveries were within the method control limits.

Serial Dilution. A serial dilution analysis was performed on sample 3146340005 (DUP-2 121020). The relative percent difference between the results was within acceptable QC criteria.

Dissolved Metals by EPA Method 6010C

Sample handling. Five (5) water samples were filtered and analyzed for dissolved metals on the ThermoFisher ICP6500_2 using EPA Method 6010C. The samples were analyzed within the six-month holding time established for the method.

Calibration. All criteria associated with the calibration and check standards were within the control limits for this method.

Blanks. Metals were not detected above the reporting limit in the blanks.

Laboratory Control Sample. The LCS recoveries were within the method control limits.

Spikes. MS analysis was not performed on any samples from this data deliverable.

Duplicate. Duplicate analysis was not performed on any samples from this data deliverable.

Anions by EPA 300.0

Sample handling. Five (5) water samples were analyzed for anions by EPA Method 300.0. The samples were analyzed within the method recommended holding time for each analyte.

Calibration. Initial calibrations identified as Method A (high range) and Method L (low range) were properly established for instrument IC7 on 11/18/2020. Initial and continuing calibration verification standards were recovered within the QC limits.

Blanks. Initial and continuing blanks were analyzed with the samples. Anions were not detected above the reporting limits in the blanks.

Laboratory Control Samples. Recoveries were within the QC limits.

Spikes. A matrix spike and spike duplicate analysis was not performed on any samples from this data deliverable.

Total Organic Carbon by SM 5310B

Sample handling. Five (5) water samples were analyzed for total organic carbon by Standard Method 5310B. The preserved samples were analyzed within the 28-day holding time established for the method.

Calibration. Initial calibrations were properly established on the days of analysis. Initial and continuing calibration standards were analyzed for verification, and recoveries were all within the QC limits.

Laboratory Control Spike. A laboratory control spike of 1.0 mg/L was analyzed with the samples. The recovery was within the QC limit of 85-115%.

Blanks. Method blanks were analyzed with the samples. Total organic carbon was not detected above the reporting limit of 0.5 mg/L in the blanks.

Spikes. Matrix spike and matrix spike duplicate analysis was performed on sample 3146340001 (MW-29 121020). Recoveries were within acceptable QC criteria.

Total Alkalinity by SM 2320B

Sample handling. Five (5) water samples were analyzed for total alkalinity by Standard Method 2320B. The samples were analyzed within the 14-day holding time established for the method.

Blanks. Method blanks were analyzed with the samples. Total alkalinity was not detected above the reporting limit of 5 mg/L in the blanks.

Calibration. Continuing calibration standards were analyzed throughout the run. Recoveries were within acceptable QC criteria.

Duplicate. A duplicate analysis was performed on sample 3146340003 (MW-33 121020). The relative percent difference between the results was within acceptable QC criteria.

ANALYTICAL RESULTS

Workorder: 3146340 ASN063|Scotia Navy Depot 60440

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3146340001	1	MW-29 121020	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3146340002	1	MW-32 121020	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3146340003	1	MW-33 121020	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3146340004	1	DUP-1 121020	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3146340005	1	DUP-2 121020	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3250131(MB)

Lab Name: ALS Global Contract: SVGC

Lab Code: VOA Case No.: SAS No.: SDG No.: ASN-063

Matrix (soil/water): WATER Lab Sample ID: 3250131

Sample wt/vol: 37.80 (g/mL) ML Lab File ID: MLGA004.D

Level (low/med): Low Date Received: 12/16/20

% Moisture: not dec. 100.0 Date Analyzed: 12/16/20

GC Column: PORPAK Q ID: 2.0 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	METHANE	4.5	
74-85-1	ETHENE	3.6	U
74-84-0	ETHANE	2.6	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3250131(MB)

Lab Name: ALS Global Contract: SVGC

Lab Code: VOA Case No.: SAS No.: SDG No.: ASN-063

Matrix (soil/water): WATER Lab Sample ID: 3250131

Sample wt/vol: 37.80 (g/mL) ML Lab File ID: MLGA004.D

Level (low/med): Low Date Received: 12/16/20

% Moisture: not dec. 100.0 Date Analyzed: 12/16/20

GC Column: PORPAK Q ID: 2.0 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-82-8	METHANE	1.3	J
74-85-1	ETHENE	3.6	U
74-84-0	ETHANE	2.6	U

APPENDIX F: Groundwater Concentration Trend Plots

Figure F-1 MW Pair 28/29

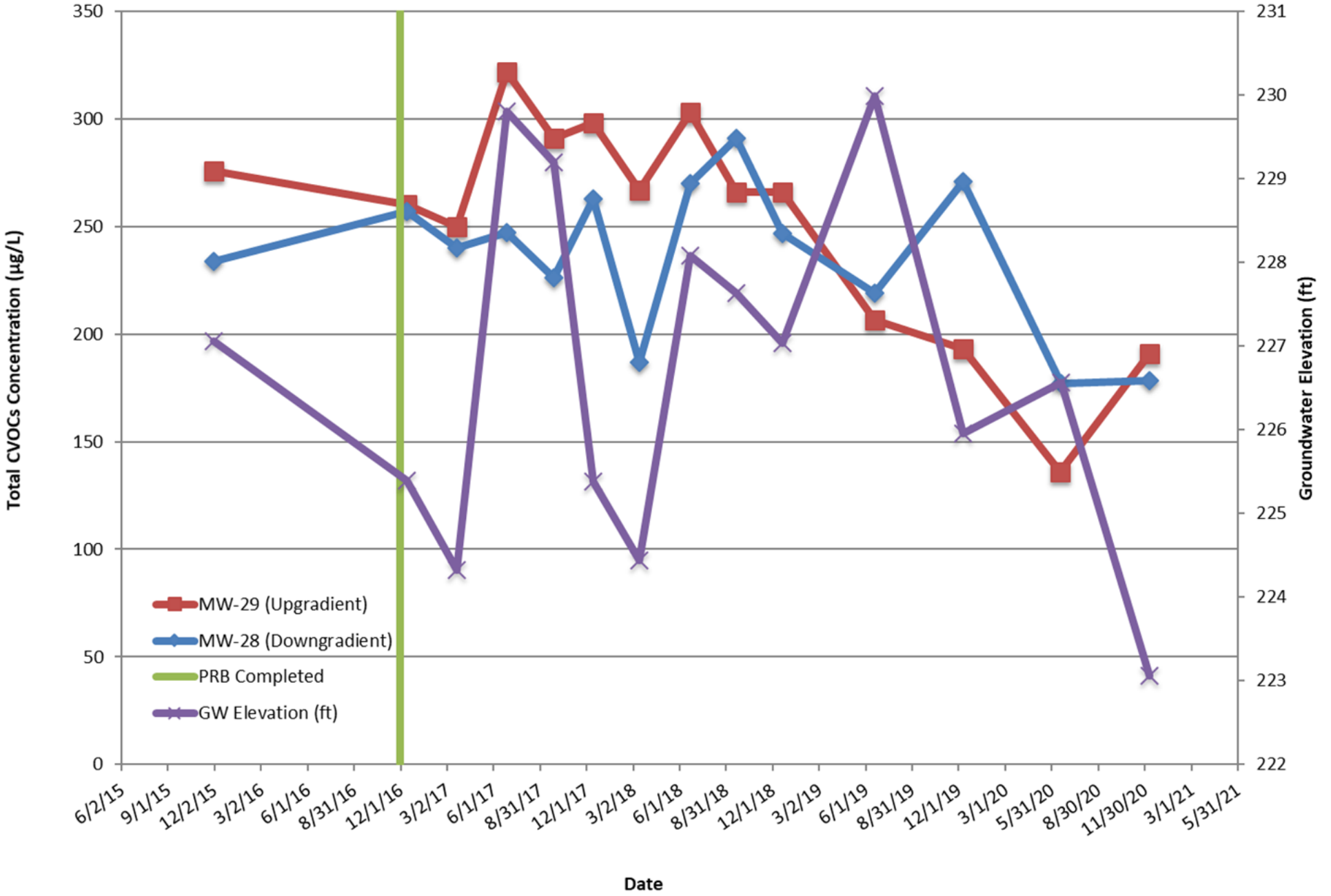


Figure F-2 MW Pair 30/31

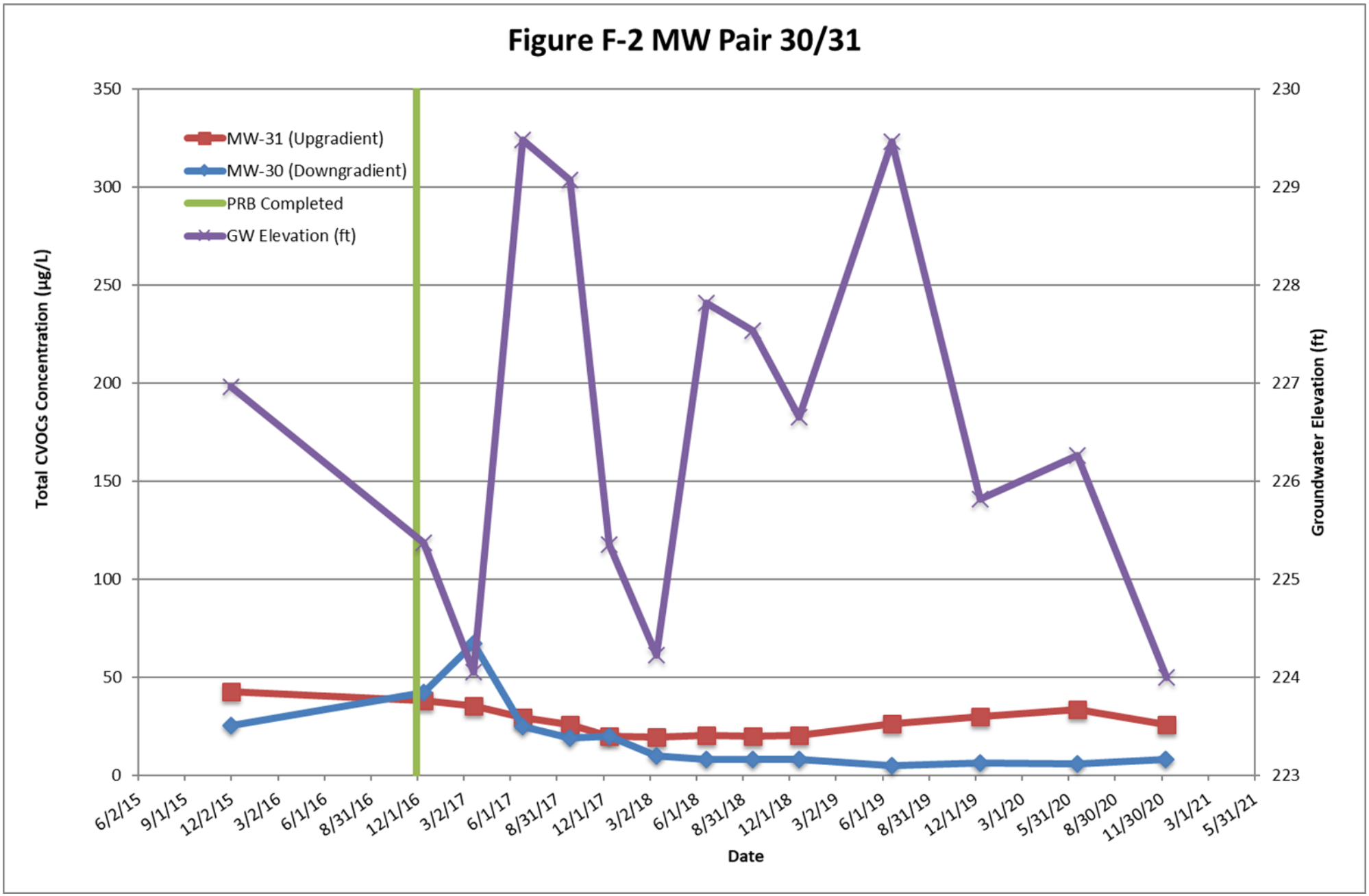


Figure F-3 MW Pair 32/33

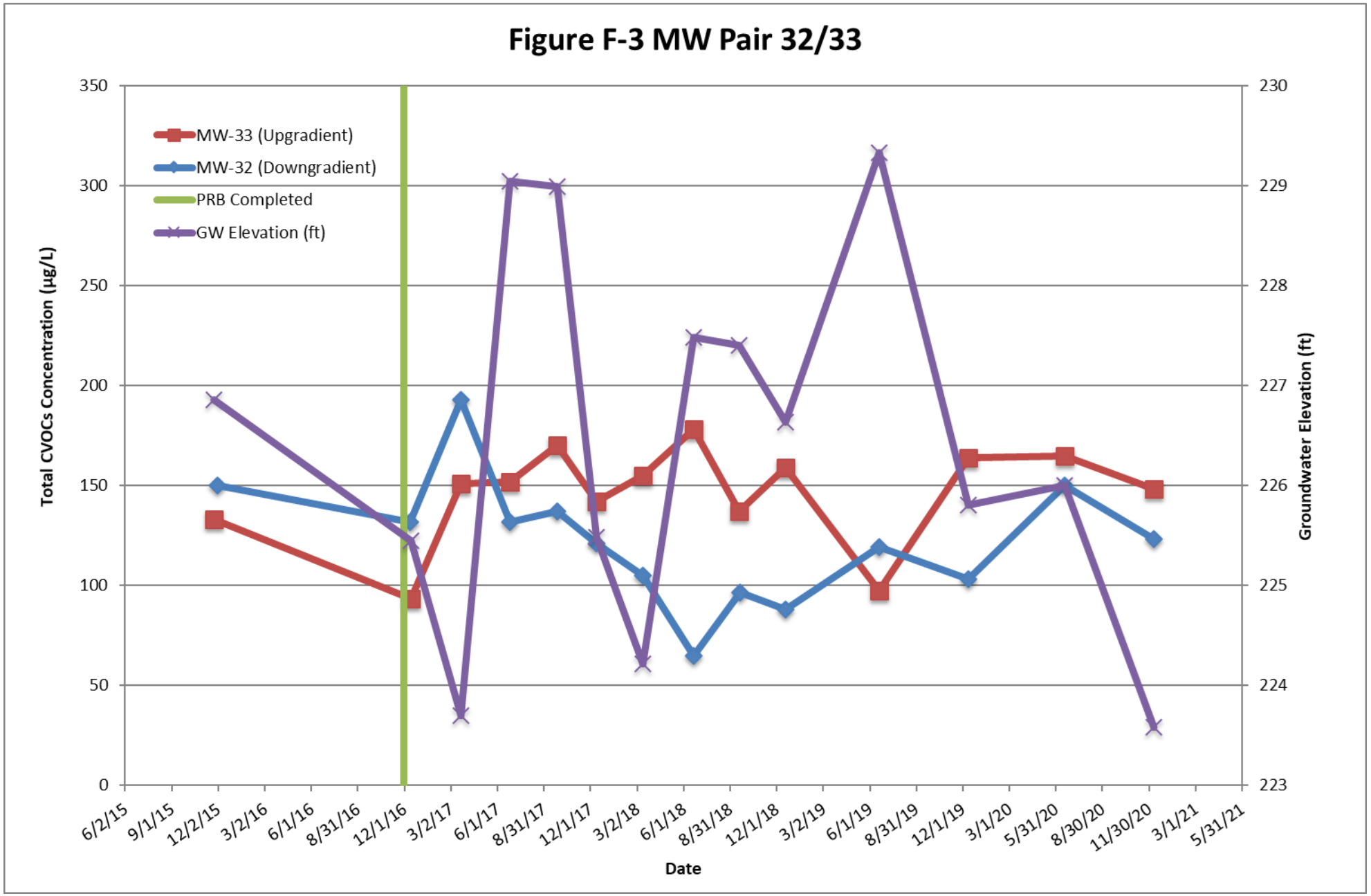
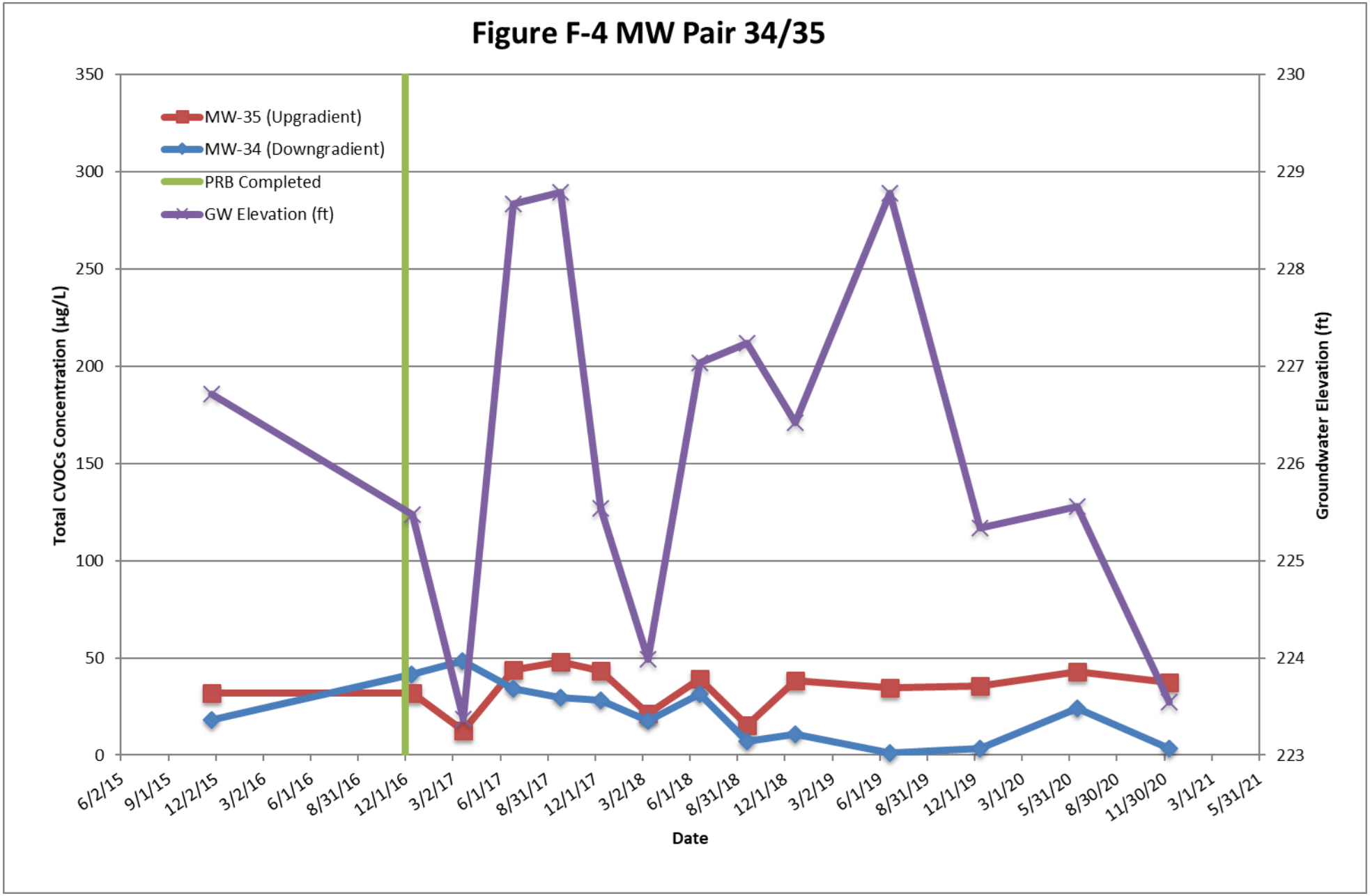


Figure F-4 MW Pair 34/35

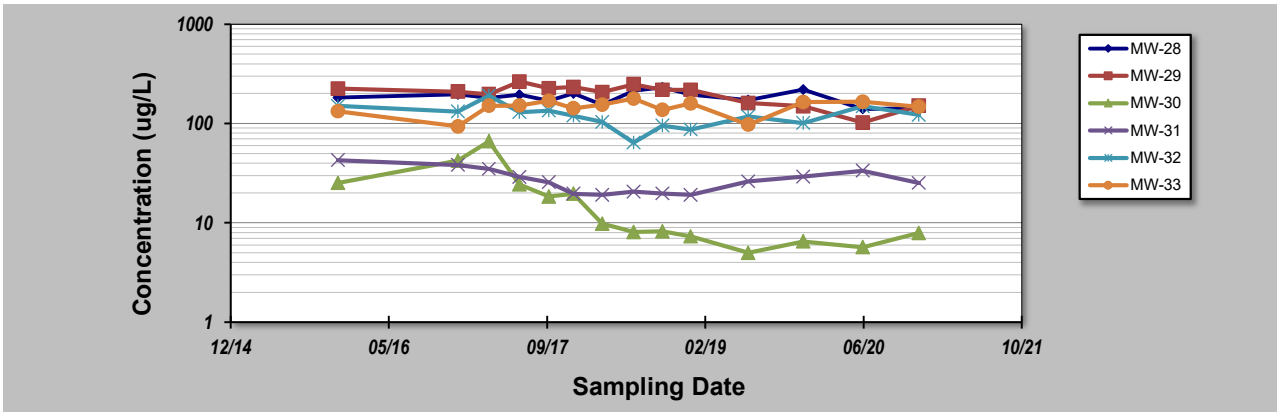


APPENDIX G: Mann-Kendall Trend Analysis Results

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	December 2020	Job ID:	
Facility Name:	Former Scotia Navy Depot	Constituent:	TCE
Conducted By:	M. Zenker	Concentration Units:	ug/L

Sampling Point ID:	MW-28	MW-29	MW-30	MW-31	MW-32	MW-33
Sampling Event	Sampling Date	TCE CONCENTRATION (ug/L)					
1	1-Dec-15	182	224	25.2	42.7	150	133
2	14-Dec-16	196	209	42.3	38.2	132	93.5
3	22-Mar-17	181	197	66.3	35	191	151
4	27-Jun-17	195	264	24.3	29	130	152
5	27-Sep-17	170	226	18.4	25.6	135	170
6	14-Dec-17	201	233	19.6	19.6	120	142
7	15-Mar-18	153	207	9.8	19.1	104	155
8	22-Jun-18	214	248	8.1	20.6	64.1	178
9	21-Sep-18	232	218	8.2	19.7	95.4	137
10	20-Dec-18	195	218	7.3	19.1	87.1	159
11	20-Jun-19	172	161	5	26.2	118	97.4
12	10-Dec-19	219	149	6.5	29.2	101	164
13	16-Jun-20	140	102	5.7	33.5	149	165
14	10-Dec-20	143	151	7.9	25.2	122	148
15							
16							
17							
18							
19							
20							
Coefficient of Variation:		0.15	0.22	0.96	0.28	0.26	0.17
Mann-Kendall Statistic (S):		-10	-40	-69	-26	-31	23
Confidence Factor:		68.6%	98.5%	>99.9%	91.3%	95.0%	88.3%
Concentration Trend:		Stable	Decreasing	Decreasing	Prob. Decreasing	Prob. Decreasing	No Trend



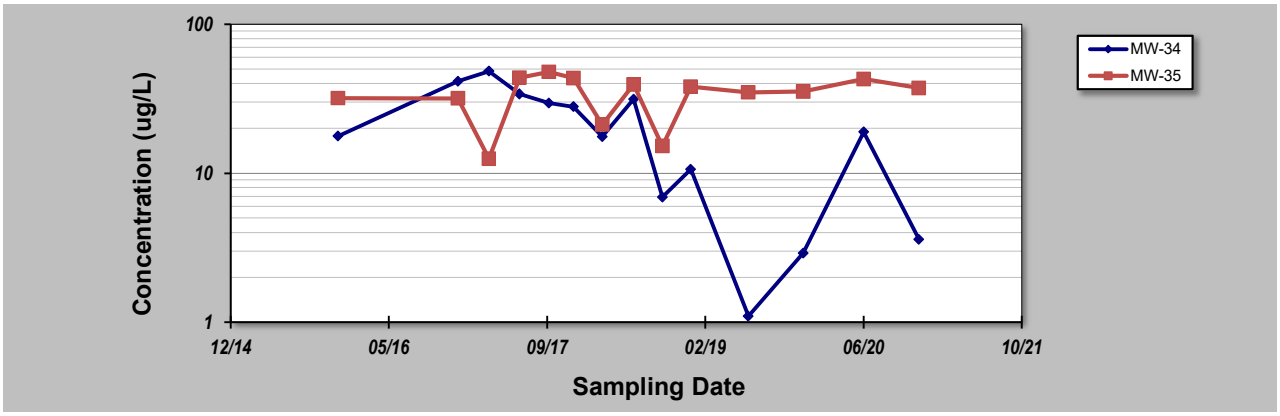
Notes:

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:	
Facility Name:	Former Scotia Navy Depot	Constituent:	TCE
Conducted By:	M. Zenker	Concentration Units:	ug/L

Sampling Point ID:	MW-34	MW-35					
Sampling Event	Sampling Date	TCE CONCENTRATION (ug/L)						
1	1-Dec-15	17.7	31.9					
2	14-Dec-16	41.3	31.8					
3	22-Mar-17	48.3	12.5					
4	27-Jun-17	34	43.8					
5	27-Sep-17	29.6	47.8					
6	14-Dec-17	28	43.5					
7	15-Mar-18	17.6	21.2					
8	22-Jun-18	31.3	39.4					
9	21-Sep-18	6.9	15.2					
10	20-Dec-18	10.6	38.1					
11	20-Jun-19	1.1	34.8					
12	10-Dec-19	2.9	35.4					
13	19-Jun-20	18.9	42.9					
14	10-Dec-20	3.6	37.3					
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.72	0.32					
Mann-Kendall Statistic (S):		-51	5					
Confidence Factor:		99.8%	58.5%					
Concentration Trend:		Decreasing	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.