DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, N.Y. 10278-0090

October 28, 2020

REPLY TO
ATTENTION OF

Programs and Project Management Division

New York State Department of Environmental Conservation
Division of Environmental Remediation, Remedial Bureau B
c/o Mr. Kyle Forster
625 Broadway, 11th Floor
Albany, New York 12233-7016

RE: GROUNDWATER MONITORING PROGRAM REPORT - 2020 SEMI-ANNUAL (JUNE 2020) STATUS REPORT FOR REMEDIAL ACTION AT THE DEFENSE NATIONAL STOCKPILE CENTER, SCOTIA, GLENVILLE, NEW YORK
[NYSDEC Site ID No. 447023]

Dear Mr. Forster:

Enclosed for the record is the Groundwater Monitoring Program, 2020 Semi-Annual (June) Status Report for the Defense National Stockpile Center, Scotia Depot, Glenville, New York, dated August 2020.

The next groundwater sampling event will be scheduled in December 2020; groundwater sampling will be performed at twelve (12) locations at that time.

Please contact me at (917) 790-6218, for anything further regarding this matter.

Sincerely,

Lucia M. Gamba
Project Manager

Encl.

cc:

Scotia Industrial Park, Inc. / Mr. David Ahl, w/encl.

BelGioioso Cheese Inc. / Mr. Tim Cronin, w/encl.

Adirondack Beverages / Mr. Doug Martin, w/encl.

New York State Department of Health / Mr. Anthony Parretta, w/encl.

General Services Administration, Public Building Service / Mr. David Baker, w/encl.

U.S. Army Corps of Engineers, Huntsville Center / Ms. Amy Doss, w/encl.

U.S. Army Corps of Engineers, New England District / Mr. Dean Brammer, w/encl.

GROUNDWATER MONITORING PROGRAM
2020 SEMI-ANNUAL (JUNE) 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

August 2020

GROUNDWATER MONITORING PROGRAM
2020 QUARTER TWO STATUS REPORT

FOR

REMEDIAL ACTION AT
THE DEFENSE NATIONAL STOCKPILE CENTER SCOTIA DEPOT
GLENVILLE, NEW YORK

Prepared For:

U.S. Army Corp of Engineers

Prepared By:

AECOM

Contract No. W912DY-09-D-0059

Task Order No. 0010

August 2020

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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 December 12, 2019 and June 15, 2020. The June 2020 groundwater sampling event was completed while there was construction work in the area relating to the construction of a new warehouse building on Galesi property. The construction activities did not have any impact on the groundwater monitoring event. This report presents the results of the twelfth 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 34 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 June 2020 event included groundwater monitoring from 33 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 for the December 2019 sampling event.

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, 33 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).

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 June 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 June 2020sampling event is included as Figure 3-1. Observed general groundwater flow direction in June 2020was from northeast to southwest, which is similar to past sampling events. The June 2020 groundwater levels were found to be several feet lower than past sampling events, due to the water levels in the adjacent Mohawk River being unusually low at this time of the year. Following Governor Andrew Cuomo's economic pause order, all off-season maintenance and repair work on the NYS Canal system was halted and as a result, water levels in the Mohawk River remained low until after the locks were reopened in later June.

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 June 2020 sampling event indicate that groundwater levels are currently 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 June 2020hydrogeologic conditions, was determined to be0.0054. The hydraulic gradient for the past three sampling events was0.0069 in December 2019, 0.0038 ft/ft in June 2019, and 0.0044 ft/ft in December 2018. The groundwater seepage velocity is the rate of solute transport through the open pore space in the soil. Based on the June 2020 hydraulic gradient of 0.0054 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 0.21 ft/day and 2.60 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.

Drums containing purge water from the June 2020 sampling event were removed from the Site on July 31st and their contents were properly disposed of by the environmental waste services contractor.

3.2 Groundwater MNA and Field Parameter Results

Results of groundwater MNA parameters obtained from the baseline sampling event through the June 2020semi-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.

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 June 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 June 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 pairs MW-32/33 and MW-34/35. 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 June 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 MW34/35. The largest increase in methane, was seen in compliance monitoring well pairs in the southern end 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 June 2020 event. During this event most downgradient wells showed a decrease in nitrate and sulfate from their upgradient counterparts. Nitrate and sulfate concentrations are expected to decrease from upgradient to downgradient wells as this would further indicate that bioactivity is occurring.

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 the β-elimination abiotic reaction of CVOCs with the PRB. 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 June 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 June 2020 sampling event are presented in Table 3-2 and Table 3-3. This groundwater sampling event included collection of 33 groundwater samples for VOCs. Figure 3-2 provides a summary of the groundwater VOC results for the 12monitoring 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 June 2020 sampling event results to the historic sampling event results. Figure 3-3 shows the Site-wide monitoring locations total CVOC 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, all of which were above or equal to the AWQS of 5 µg/L. MW-34 (downgradient) had been below the AWQS for the past two sampling events, however for the June 2020 event the concentration was found to be 18.9 µg/L, which is similar to historic levels.

- For the June 2020 event three 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 5.7 µg/L (MW-30) to 165 µg/L (MW-33).

- MW-24 has previously exhibited non-detect or low CVOC concentrations below the AWQS, however recently in the past 3 sampling events TCE daughter products have begun to appear and most recently in the June 2020 event a TCE concentration of 9.4 µg/L was detected.

- TCE was also detected at varying levels in many of the other wells that were sampled, including elevated levels of TCE in the GEP wells upgradient of the wall. While there may be some seasonal variability in TCE concentrations, at this time there does not seem to be a clear pattern in the results.

- In general detected concentrations of TCE in the Site-wide, as well as other CVOCs, for the June 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 June 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 June 2020 groundwater monitoring event was the fourth semi-annual sampling event and the twelfth 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. The past few monitoring events have detected low levels of TCE degradation products in some wells where they were not present before, particularly MW-24 and MW-34. Typically, we would not expect to see degradation byproducts downgradient of the wall since they should be treated by the ZVI. However, the observation of daughter products does indicate the breakdown of TCE, which is a positive sign. 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 June 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 in most well pairs. 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 as 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 June 2020 event showing lower groundwater elevations as compared with the other sampling events, possibly due to low rainfall this spring, 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 0.0054 ft/ft measured

in June 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 progress.

The next groundwater sampling event is scheduled for December and will include sampling from 12 locations.

5 REFERENCES

AECOM, 2015. Remedial Design Investigation Work Plan for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. November.

AECOM, 2016. Permeable Reactive Barrier Remedial Action Work Plan for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. April.

AECOM, 2017a. Final Engineering Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY.

AECOM, 2017b. Site Management Plan for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. Revised, November 5, 2018.

AECOM, 2017c. Groundwater Monitoring Program 2016 Fourth Quarter Status Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. April.

AECOM, 2017d. Groundwater Monitoring Program 2017 First Quarter Status Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. May.

AECOM, 2017e. Groundwater Monitoring Program 2016 Second Quarter Status Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. November.

AECOM, 2018. Groundwater Monitoring Program 2017 Third Quarter Status Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. February.

AECOM, 2018a. Groundwater Monitoring Program 2017 Fourth Quarter Status Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. May.

AECOM, 2018b. Groundwater Monitoring Program 2018 First Quarter Status Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. June.

AECOM, 2018c. Groundwater Monitoring Program 2018 Second Quarter Status Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. October.

AECOM, 2019. Groundwater Monitoring Program 2018 Third Quarter Status Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. January.

AECOM, 2019. Groundwater Monitoring Program 2018 Fourth Quarter Status Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. April.

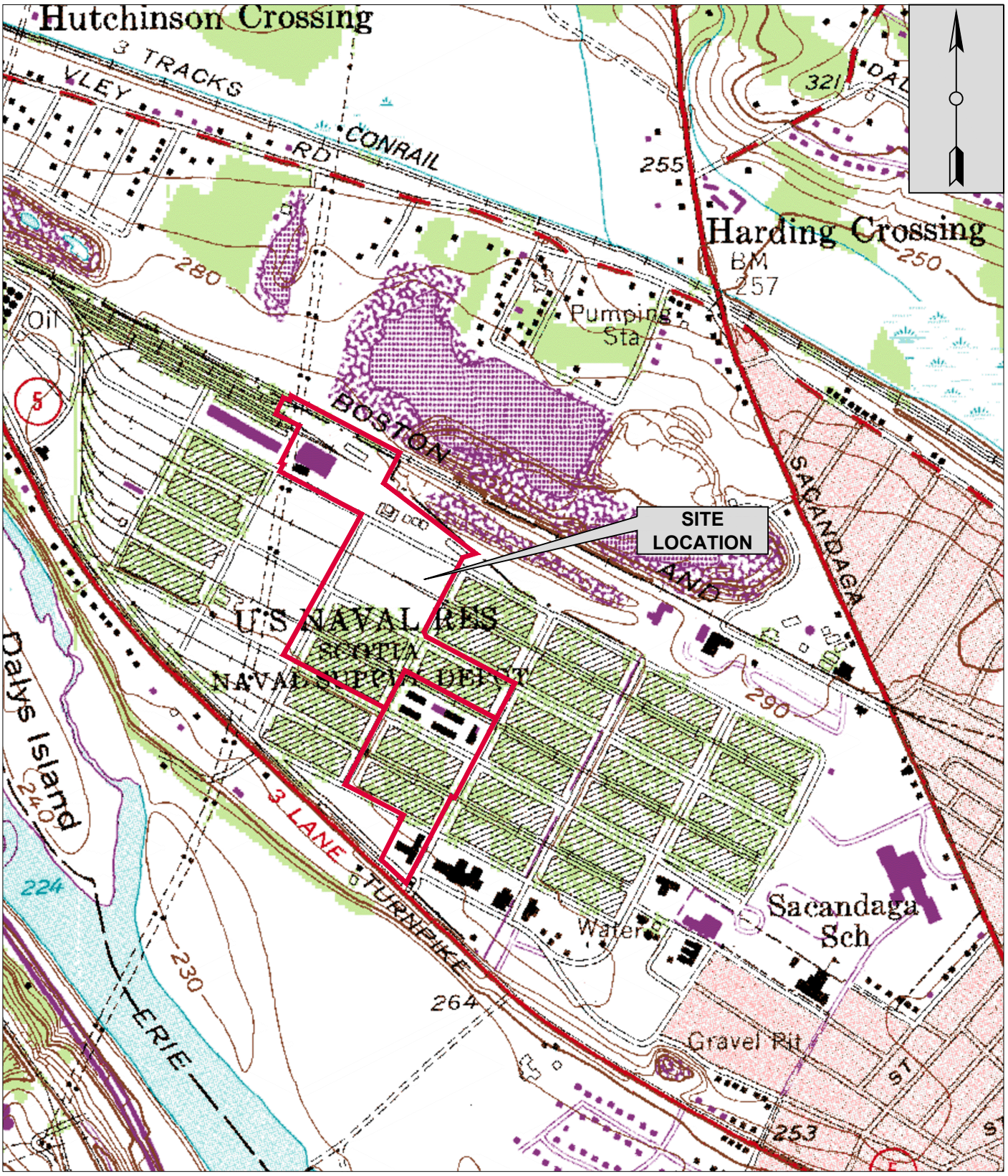
AECOM, 2019. Groundwater Monitoring Program 2019 Second Quarter Status Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. April.

AECOM, 2020. Groundwater Monitoring Program 2019 Fourth Quarter Status Report for the Defense National Stockpile Center Scotia Depot, Town of Glenville, NY. August.

NYSDEC, 2010. Record of Decision for Defense National Stockpile Center Scotia Depot Site State Superfund Project, Site Number 447023, Town of Glenville, NY, March.

Stone Environmental, 2013. Final Pre-Design Investigation Report, Defense Nation Stockpile Center Scotia Depot Site, Town of Glenville, NY, December.

FIGURES



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

0 1000' 2000'

2020 2ND QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: August 2020

US ARMY Corps
of Engineers

SITE LOCATION MAP

AECOM

Figure: 1-1

AECOM

Figure: 1-2

SITE LAYOUT MAP

US ARMY Corps of Engineers

2020 2ND QUARTER GROUNDWATER REPORT

DEFENSE NATIONAL STOCKPILE CENTER

SCOTIA DEPOT SITE - SCOTIA, NY

Project No.: 60440641 Date: August 2020

250.0 FT. NATIONAL GRID POWER COMPANY EASEMENT

APPROXIMATE STRUCTURE LOCATION

15.0 FT. (TYP.)

250.0 FT. (SHALLOW ZONE)

900.0 FT.

650.0 FT. (DEEP ZONE)

PROPERTY BOUNDARY (TYP.)

CONCRETE REMAINS

TOWERS

1st STREET

5th STREET

AVENUE A

AVENUE B

AVENUE C

BUILDING 201

BUILDING 202

BUILDING 203

BUILDING 204

BUILDING 403

BUILDING 404

BUILDING 405

BUILDING 406

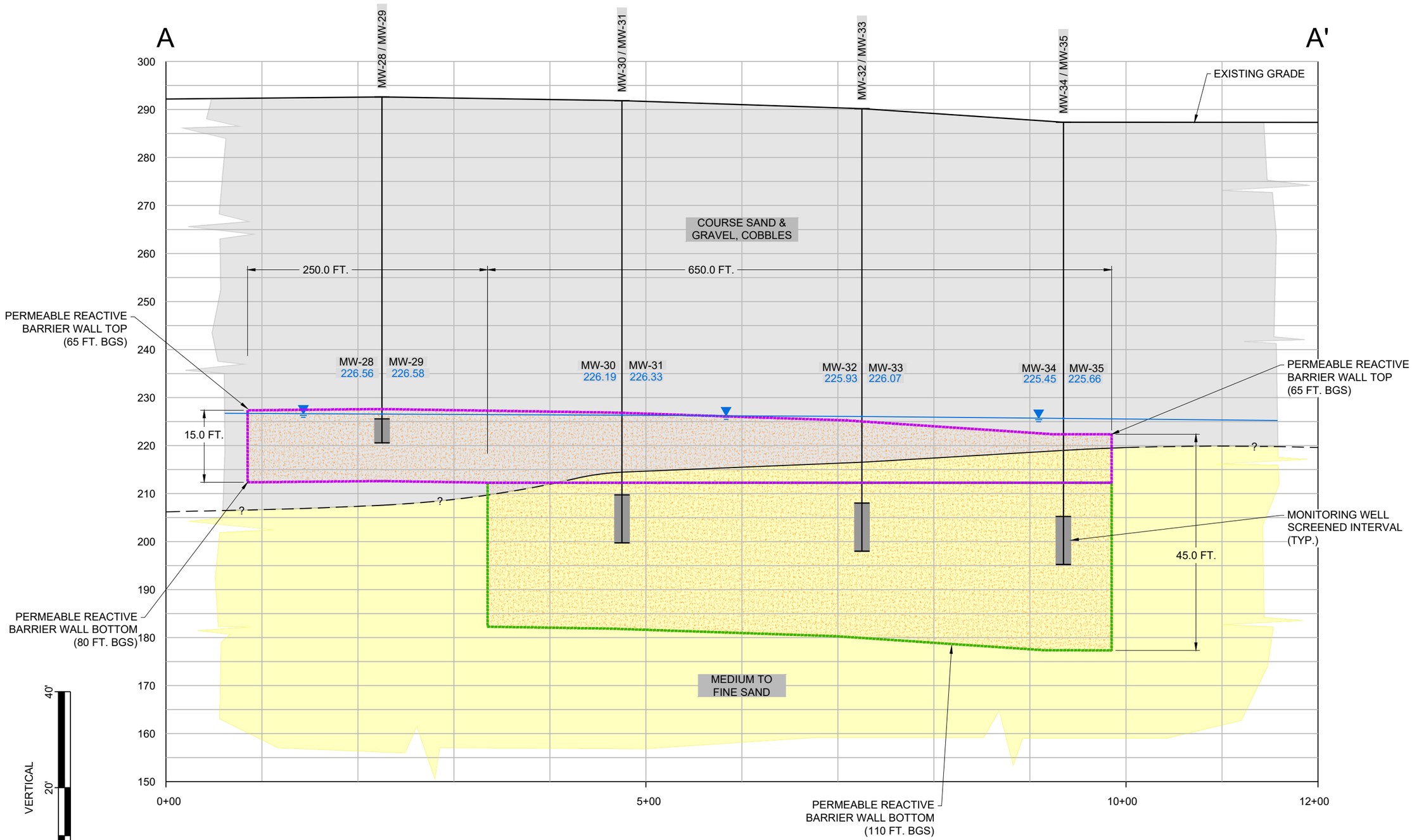
MW-2, MW-23, MW-20, MW-19, MW-21, MW-14, MW-22R, MW-36, MW-17, MW-18, MW-15, MW-12R, MW-8, MW-29, MW-28, GEP-2, GEP-4, GEP-1, GEP-3, MW-30, MW-31, MW-13, MW-25, MW B-3, MW-24, MW-32, MW-33, MW B-1R, MW-11R, MW-26, MW-34, MW-35, MW-5, MW-9, MW-6, MW-27, MW-7, MW-16

A, A', B, B'

LEGEND

- 15 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 80' BGS
- 45 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 110' BGS
- MW-25 MONITORING WELL
- APPROXIMATE EXTENT OF TCE - TRICHLOROETHENE GROUNDWATER PLUME
- APPROXIMATE EXTENT OF CT - CARBON TETRACHLORIDE GROUNDWATER PLUME

0 200' 400'



SCALE

SECTION A - A'

LEGEND

- 225.93 GROUNDWATER ELEVATION - JUNE 2020
- PERMEABLE REACTIVE BARRIER WALL - 6" THICK
- PERMEABLE REACTIVE BARRIER WALL - 3" THICK

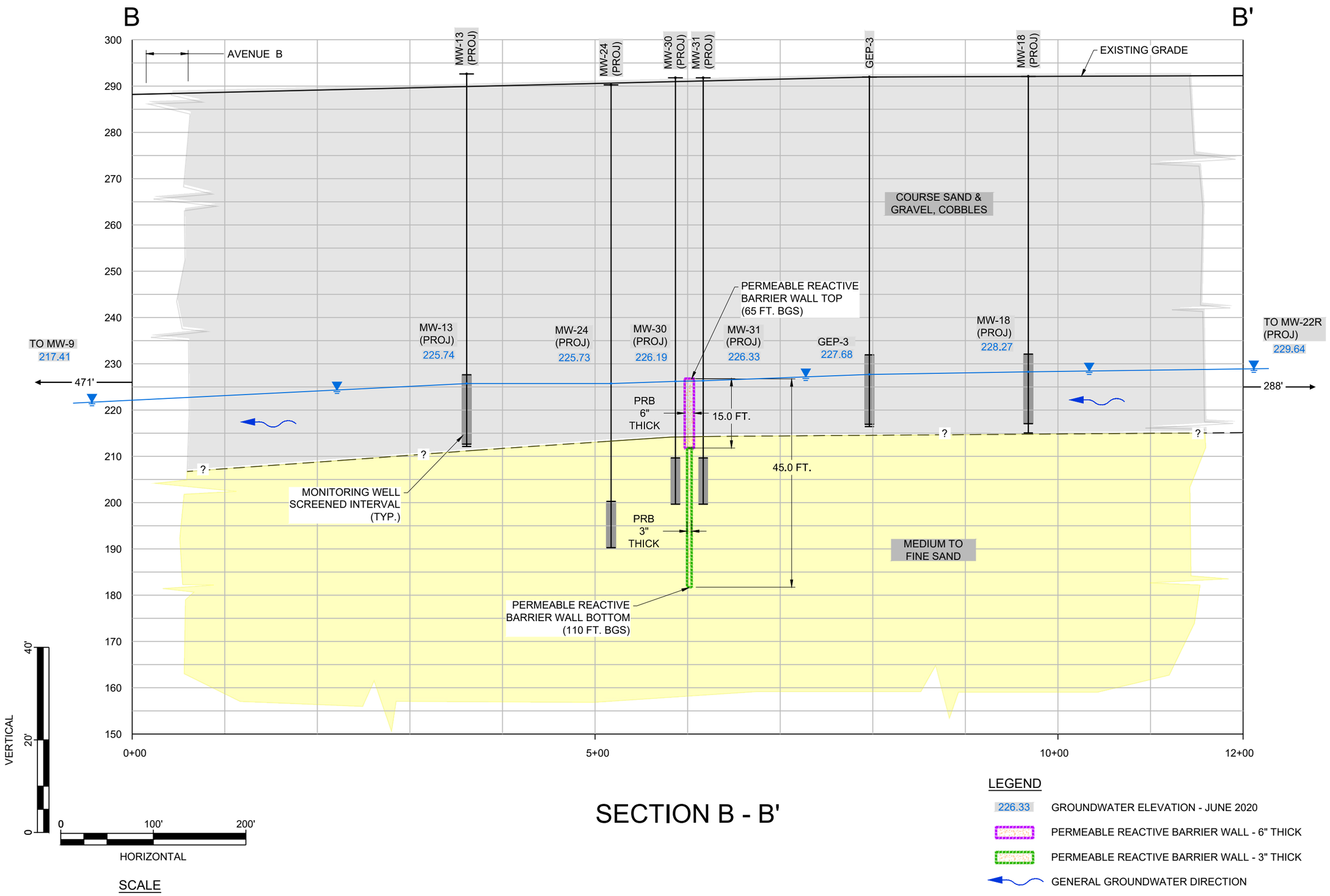
COMPLIANCE MONITORING WELLS
AND PRB WALL PROFILE
GROUNDWATER SECTION A - A'
JUNE 2020

AECOM

Figure: 2-1A

US ARMY Corps of Engineers

2020 2ND QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: August 2020



AECOM

Figure: 2-1B

GROUNDWATER
SECTION B - B'
JUNE 2020

US ARMY Corps of Engineers

2020 2ND QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: August 2020

LEGEND

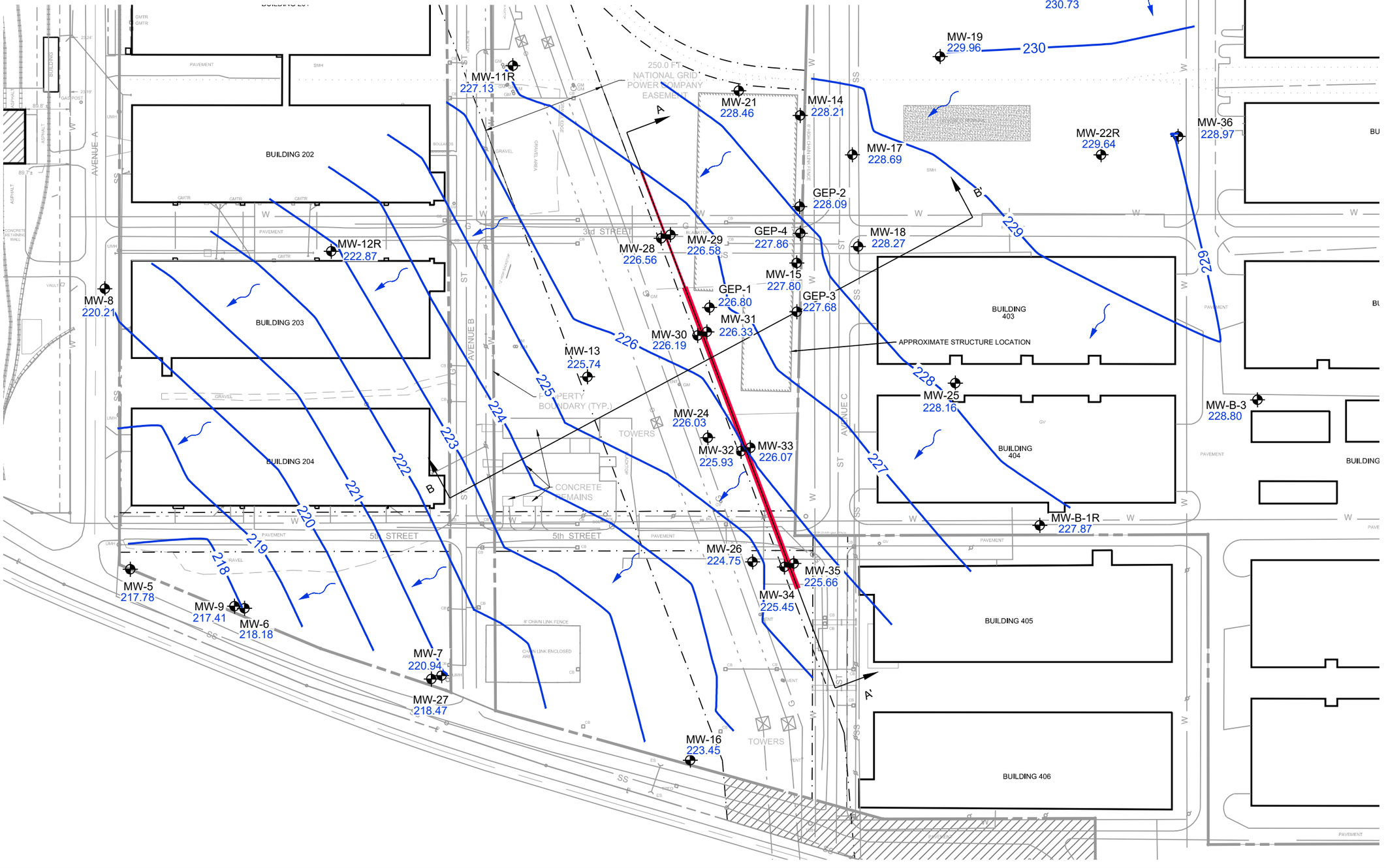
15 FT. HIGH PERMEABLE REACTIVE BARRIER WALL - 65' - 80' BGS

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

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

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

GENERAL GROUNDWATER DIRECTION



400' 200' 0

POTENTIOMETRIC SITE MAP
JUNE 2020

AECOM

US ARMY Corps of Engineers

Figure: 3-1

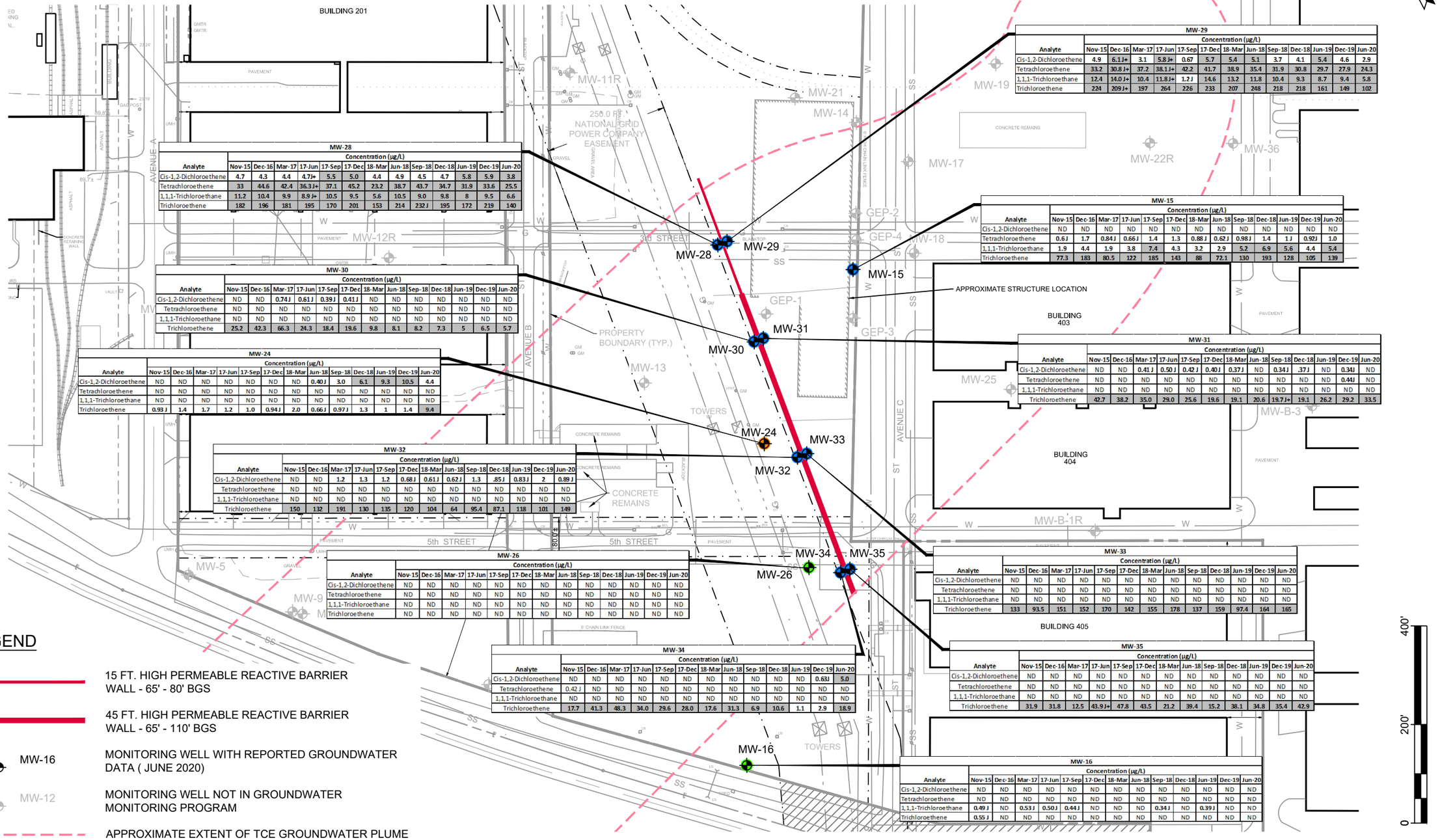
2019 2ND QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: August 2020

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
	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
Tetrachloroethene	33	44.6	42.4	36.3J+	37.1	45.2	23.2	38.7	43.7	34.7	31.9	33.6	25.5
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
Trichloroethene	182	196	181	195	170	201	153	214	232 J	195	172	219	140

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
	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
Tetrachloroethene	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
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
Trichloroethene	224	209 J+	197	264	226	233	207	248	218	218	161	149	102

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
	Concentration (µg/L)												
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	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 J	0.92 J	1.0
1,1,1-Trichloroethane	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
Trichloroethene	77.3	183	80.5	122	185	143	88	72.1	130	193	128	105	139

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
	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
Tetrachloroethene	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
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

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
	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	0.34J	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.44J	ND
1,1,1-Trichloroethane	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

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
	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
Tetrachloroethene	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
Trichloroethene	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	1.4	9.4

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
	Concentration (µg/L)												
Cis-1,2-Dichloroethene	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
1,1,1-Trichloroethane	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

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
	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
Tetrachloroethene	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
Trichloroethene	150	132	191	130	135	120	104	64	95.4	87.1	118	101	149

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
	Concentration (µg/L)												
Cis-1,2-Dichloroethene	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
1,1,1-Trichloroethane	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

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
	Concentration (µg/L)												
Cis-1,2-Dichloroethene	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
1,1,1-Trichloroethane	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

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
	Concentration (µg/L)												
Cis-1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.63J	5.0
Tetrachloroethene	0.42 J	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
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

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
	Concentration (µg/L)												
Cis-1,2-Dichloroethene	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
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
Trichloroethene	0.55 J	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 (JUNE 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
JUNE 2020

US ARMY Corps of Engineers

2020 2ND QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: August 2020

GEP-4				
Analytes	Concentration (µg/L)			
	Nov. 2015	Jun. 2017	Jun. 2019	Jun. 2020
1,1,1-Trichloroethane (1,1,1-TCA)	5.1	NE	13.9	14.3
Trichloroethene (TCE)	85.9	72.4	312	274
Total CVOCs	91.7	77.9	330.6	292

GEP-2					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
1,1,1-Trichloroethane (1,1,1-TCA)	19.7	16.3	NE	19.6	18.1
Trichloroethene (TCE)	210	167	51.3	171	148
Total CVOCs	236	190	56.9	200	174

MW-14					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Tetrachloroethene (PCE)	10.8	10.5	13.8	10.9	18.5
Total CVOCs	21.2	15.0	22.4	15.2	29.7

MW-17					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
1,1,1-Trichloroethane (1,1,1-TCA)	17	22	19.8	22.1	13.3
Trichloroethene (TCE)	15.2	35.2	20.5	31.9	10.0
Total CVOCs	34	60	43.4	58.2	25.3

MW-11 R		
Analytes	Concentration (µg/L)	
	Jun. 2019	Jun. 2020
Carbon Tetrachloride	5.3	6.5
Total CVOCs	5.8	7.1

MW-19					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Trichloroethene (TCE)	30	14.3	11.4	9	8.9
Total CVOCs	32	17.2	13.1	11.5	11.9

MW-23					
Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020	
NE	NE	NE	NE	NE	

MW-29					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
cis-1,2-Dichloroethene (cis-1,2-DCE)	NE	5.8 J+	5.1	5.4	NE
Tetrachloroethene (PCE)	33.2	38.1 J+	35.4	29.7	24.3
1,1,1-Trichloroethane (1,1,1-TCA)	12.4	11.8 J+	11.8	8.7	5.8
Trichloroethene (TCE)	224	264	248	161	102
Total CVOCs	276	322	303	206.7	136

MW-20					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Trichloroethene (TCE)	52.3	86.8	69.9	7J	67.3
Total CVOCs	53.8	90.5	72.9	7.5	70.7

MW-28					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Tetrachloroethene (PCE)	33	36.3 J+	38.7	31.9	25.5
1,1,1-Trichloroethane (1,1,1-TCA)	11.2	8.9 J+	10.5	8	6.6
Trichloroethene (TCE)	182	195	214	172	140
cis-1,2-Dichloroethene (cis-1,2-DCE)	NE	NE	NE	5.8	NE
Total CVOCs	234	247	271	219.3	177

MW-22					MW-22R
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Trichloroethene (TCE)	282	238	331	148	130
Tetrachloroethene (PCE)	5.6	NE	6.3	5.2	4
Total CVOCs	288	242	337	153.2	134

GEP-1					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
1,1,1-Trichloroethane (1,1,1-TCA)	NE	NE	NE	5.1	5.9
Trichloroethene (TCE)	180	152 J+	NE	150	183
Total CVOCs	186	155	NE	156.4	190

MW-36					
Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020	
NE	NE	NE	NE	NE	

MW-18					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Trichloroethene (TCE)	153	117	26.8	110	72
Total CVOCs	158	121	26.8	113.7	74.4

MW-12 R		
Analytes	Concentration (µg/L)	
	Jun. 2019	Jun. 2020
Trichloroethene (TCE)	5	5.4
Total CVOCs	12.7	15.3

MW-8	
Jun. 2019	Jun. 2020
NE	NE

MW-15					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
1,1,1-Trichloroethane (1,1,1-TCA)	NE	NE	NE	5.6	5.4
Trichloroethene (TCE)	77.3	122	72.1	128	139
Total CVOCs	79.8	126	75.6	134.6	145.4

MW-30					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Trichloroethene (TCE)	25.2	24.3	8.1	5	5.7
Total CVOCs	25.2	24.9	8.1	5	5.7

GEP-3					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Trichloroethene (TCE)	143	131	74.9	137	217
Total CVOCs	145	133	75.8	139.7	221

MW-13	
Analytes	Concentration
	Jun. 2018
1,1,1-Trichloroethane (1,1,1-TCA)	NE
Trichloroethene (TCE)	117
Total CVOCs	121

MW-B-3				
Analytes	Concentration (µg/L)			
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2020
Tetrachloroethene (PCE; PERC)	NE	NE	5	6.3
Total CVOCs	NE	NE	5	6.3

MW-24					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
1,1-Dichloroethene (1,1-DCE)	NE	NE	NE	26.5	58.1
cis-1,2-Dichloroethene (cis-1,2-DCE)	NE	NE	NE	9.3	4.4
Total CVOCs	NE	NE	NE	36.8	72

MW-25					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Trichloroethene (TCE)	96.7	76.7	80.3	87.1	88.7
Total CVOCs	96.7	76.7	80.3	87.1	88.7

MW-5					
Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020	
NE	NE	NE	NE	NE	

MW-31					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Trichloroethene (TCE)	42.7	29.0	20.6	26.2	33.5
Total CVOCs	42.7	29.5	20.6	26.2	33.5

MW-9					
Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020	
NE	NE	NE	NE	NE	

MW-33					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Trichloroethene (TCE)	133	152	178	97.4	165
Total CVOCs	133	152	178	97.4	165

MW-6					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Trichloroethene (TCE)	59.8	26.0	24.4	19.9	88.4J+
Total CVOCs	62.4	27.2	25.2	20.5	92.7

MW-35					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Trichloroethene (TCE)	31.9	43.8 J+	39.4	34.8	42.9
Total CVOCs	31.9	43.8	39.4	34.8	43

MW-27					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Trichloroethene (TCE)	189	211	32.6	136	179
Total CVOCs	190	212	32.9	137	179

MW-34					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Trichloroethene (TCE)	17.7	34.0	31.3	NE	18.9
Total CVOCs	18.1	34.0	31.3	1.1	24

MW-7					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Trichloroethene (TCE)	NE	NE	NE	NE	NE
Total CVOCs	NE	NE	NE	NE	NE

MW-26					
Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020	
NE	NE	NE	NE	NE	

MW-16					
Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020	
NE	NE	NE	NE	NE	

MW-32					
Analytes	Concentration (µg/L)				
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Trichloroethene (TCE)	150	130	64.1	118	149
Total CVOCs	150	132	64.7	119.2	150

NOTES:

1) TOTAL CVOCS WERE CALCULATED USING DETECTED CONCENTRATIONS FOR CHLORINATED VOLATILE ORGANIC COMPOUNDS.

2) NE = COMPOUNDS NOT DETECTED ABOVE NYSDEC AWQS. FOR ALL LISTED COMPOUNDS THE NYSDEC AWQS EXCEEDANCE LEVEL IS 5 mg/L

3) NS = NOT SAMPLED

4) J = INDICATES AN ESTIMATED VALUE BETWEEN THE METHOD DETECTION LIMIT (MDL) AND THE PRACTICAL QUANTITATION LIMIT (PQL) FOR THE ANALYTE.

5) J+ = THE RESULT IS AN ESTIMATE QUANTITY, LIKELY TO BE BIASED HIGH.

SAMPLE KEY

	SAMPLE NAME		DATE	
MW-34				
Analytes	Concentration (µg/L)			
	Nov. 2015	Jun. 2017	Jun. 2018	Jun. 2019	Jun. 2020
Trichloroethene (TCE)	17.7	34.0	31.3	NE	18.9
Total CVOCs	18.1	34.0	31.3	1.1	24
ANALYTE					CONCENTRATION

LEGEND

- MW-13 — MONITORING WELL (ANNUALLY SAMPLED)
- MW-30 — MONITORING WELL WITH GROUNDWATER EXCEEDANCE DURING CURRENT SAMPLING EVENT
- GENERAL GROUNDWATER DIRECTION
- APPROXIMATE EXTENT OF TCE GROUNDWATER PLUME

NOTE:
FOR TYPICAL LEGEND SEE FIGURE 1-2.

APPROXIMATE STRUCTURE LOCATION

400'
200'
0

AECOM

Figure: 3-3

SITEWIDE GROUNDWATER TOTAL VOC RESULTS
ANNUAL MONITORING LOCATIONS
JUNE 2020

US ARMY Corps of Engineers

2020 2ND QUARTER GROUNDWATER REPORT
DEFENSE NATIONAL STOCKPILE CENTER
SCOTIA DEPOT SITE - SCOTIA, NY
Project No.: 60440641 Date: August 2020

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)	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	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
B-1	48-68	-	287.14		-	57.34		-		dry	dry	dry				**227.74**	-	-	**229.80**	-	-	-	-	-				
B-1R	48-68			287.42									57.05	61.99	59.55											**230.37**	**225.43**	**227.87**
B-3	47.5-67.5	-	287.05		-	-		-	-	58.61	58.74	59.74	dry	-	58.25	**227.95**	-	-	-	-	-	-	**228.44**	**228.31**	**dry**	**dry**	-	**228.80**
MW-4	63.8-73.8	289.58	291.74		-	-		-	-	-	-	-				**225.74**	-	-	-	-	-	-	-	-	-			
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	**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**
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	**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**
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	**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**
MW-8				293.03									65.78	72.71	72.82											**227.25**	**220.32**	**220.21**
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	**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**
MW-11	65-80	295.73	295.12		70.12	64.36	65.36	69.55	70.15	66.12	66.80	67.43	-	-	-	**227.7**	**225.91**	**225.00**	**230.76**	**229.76**	**225.57**	**224.97**	**229.00**	**228.32**	-			
MW-11R	65-80			295.56									64.81		68.43											**230.75**	-	**227.13**
MW-12R	60-80			292.34									64.16	69.64	69.47											**228.18**	**222.70**	**222.87**
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	**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**
MW-14	65-80	-	296.2		70.13	64.88	65.60	69.13	70.17	66.81	67.52	67.18	64.58	68.35	67.99	**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**
MW-15	65-80	-	293.67		68.35	63.07	63.49	67.00	68.20	64.88	65.32	65.42	62.76	66.35	65.87	**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**
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	**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**
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	**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**
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	**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**
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	**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**
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	**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**
MW-21	57-72	-	296.52		70.55	65.19	65.40	69.70	-	-	67.85	67.61	64.93	68.80	68.06	-	-	-	-	-	-	-	-	**228.67**	**228.91**	**231.59**	**227.72**	**228.46**
MW-22	63-78	-	298.91		72.08	67.64	67.80	70.61	72.20	69.65	70.14	-	-		-	**228.29**	**226.73**	**226.83**	**231.27**	**231.11**	**228.30**	**226.71**	**229.26**	**228.77**	-			
MW-22R	63-78			296.35									64.38	67.02	66.71											**231.97**	**229.33**	**229.64**
MW-23	63-78	-	300.54		72.14	67.98	68.55	-	-	70.70	71.23	70.76	67.34		69.41	**228.9**	**227.06**	**228.40**	**232.56**	**231.99**	-	-	**229.84**	**229.31**	**229.78**	**233.20**	-	**231.13**
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	**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**
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	**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**
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	**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**
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	**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**
MW-28	67-72	292.55	292.25		67.94	62.46	63.06	66.72	67.81	64.18	64.63	65.24	62.28	66.41	65.69	**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**
MW-29	67-72	292.50	292.13		67.80	62.31	62.94	66.90	67.70	64.04	64.49	65.06	62.13	66.07	65.55	**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**
MW-30	82-92	291.76	291.63		67.65	62.19	62.59	66.35	67.35	63.83	64.11	64.93	62.01	65.89	65.44	**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**
MW-31	82-92	291.80	291.54		67.42	62.02	62.43	66.14	67.20	63.70	63.99	64.69	61.84	65.65	65.21	**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**
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	**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**
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	**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**
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	**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**
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	**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**
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	**227.8**	**226.12**	**226.26**	**230.49**	**231.38**	**227.94**	**225.96**	**229.13**	**228.09**	**229.00**	**231.15**	-	**228.97**
GEP-1	59.6-74.6	-	294.98	295.2	70.55	65.06	-	69.30	70.33	-	-	67.72	65.07	66.30	68.40	**227.36**	-	**224.43**	**229.92**	-	**225.68**	**224.65**	-	-	**227.26**	**230.13**	**228.90**	**226.80**
GEP-2	60.6-75.6	-	296.02		70.43	65.18	65.69	69.19	70.35	67.00	67.52	67.51	64.86	68.50	67.93	**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**
GEP-3	59.6-74.6	-	292.97		67.71	62.47	62.85	66.30	67.54	64.25	64.62	64.86	62.21	64.16	65.29	**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**
GEP-4	60.15-75.15	-	295.62	292.88	70.23	65.01	65.50	68.98	-	-	-	-	61.94	65.17	65.02	**227.73**	**226.22**	**225.39**	**230.61**	**230.12**	**226.64**	-	-	-	-	**230.94**	**227.71**	**227.86**

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
		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
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**
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
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
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
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
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
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
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
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**
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
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
Trichloroethene (TCE)	5	**77.3**	**183**	**80.5**	**122**	**185**	**143**	**87.8**	**72.1**	**130**	**193**	**128**	**105**	**139**
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
MNA Parameters														
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	**2.4**	**1.5**	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	NA	NA
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.10**	**0.26**	**0.06 J**	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
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**182**	**212**	**201**	**217**	**229**	**216**	**223**	**209**	**236**	**224**	**169**	**200**	**220**
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**
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**
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**
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
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
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
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
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
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
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
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.9	10.4	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

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
		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
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
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
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
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
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
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
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
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
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
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
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
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
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
MNA Parameters														
Dissolved Hydrogen (nmol/L)	NS	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
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.15**	NA	**0.07**	NA	NA
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	0.044 U	NA	0.04 U	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**248**	**312**	**317**	**322**	**480**	**322**	**295**	**317**	**339**	**321**	**303**	**296**	**258**
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**
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**
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**
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
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
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
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+**
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
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
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
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.2	10.17	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

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
		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
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
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
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
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
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**
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
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
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**
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
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
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
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**
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
MNA Parameters														
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	**3.4**	**1.9**	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	NA	NA
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**1.4**	**1.4**	**1.1**	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
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**168**	**198**	**205**	**195**	**282**	**352**	**313**	**159**	**200**	**185**	**134**	**146**	**185**
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**
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
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**
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**
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**
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**
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+**
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
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
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
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1	-0.25	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

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
		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
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
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
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
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
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
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
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
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
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
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
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
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
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
MNA Parameters														
Dissolved Hydrogen (nmol/L)	NS	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
Total Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.61**	**0.23**	**1.1**	NA	NA
Dissolved Iron (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**0.43**	**0.029 J**	**0.15**	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**204**	**197**	**196**	**223**	**317**	**204**	**196**	**225**	**178**	**179**	**174**	**171**	**205**
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**
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**	**0.10 J**
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**
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**
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
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
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**
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
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
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
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.3	-0.19	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

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												
		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
		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
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**
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
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
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**
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
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
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**
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**
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**
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
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
Trichloroethene (TCE)	5	**182**	**196**	**181**	**195**	**170**	**201**	**153**	**214**	**232 J**	**195**	**172**	**219**	**140**
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
MNA Parameters														
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**3.9**	**3.7**	**2.7**	**1.8**	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	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**
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
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**352**	**316**	**295**	**352**	**380**	**383**	**360**	**422**	**345**	**342**	**325**	**307**	**367**
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**
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**
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**
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**
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
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
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**
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
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
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
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.7	10.41	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

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.
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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
		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
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**
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
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
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**
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
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
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**
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**
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**
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
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
Trichloroethene (TCE)	5	**224**	**209 J**	**197**	**264**	**226**	**233**	**207**	**248**	**218**	**218**	**161**	**149**	**102**
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
MNA Parameters														
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**2.8**	**2**	**1.5**	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	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**
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
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**327**	**301**	**258**	**361**	**374**	**348**	**360**	**370**	**374**	**380**	**342**	**303**	**282**
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**
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**
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**
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
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
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
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+**
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
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
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
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.6	9.12	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

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 Downgradient												
		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
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
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
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
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
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
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
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
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
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
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
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
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
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**
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
MNA Parameters														
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**12**	**36**	**8.5**	**10**	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 UJ	NA	NA	**<0.50**	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**
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**
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**143**	**319**	**210**	**154**	**104**	**347**	**141**	**58**	**59**	**51**	**65**	**74**	**48**
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**
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
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**
Methane (µg/L)	NS	**47.4**	**146**	**870**	**3210**	**3560**	**12900**	**5860**	**3700**	**4410**	**3790**	**91.6**	**5670**	**5630**
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**
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**
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**
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
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
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
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.2	-0.41	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

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
		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
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
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
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
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
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
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
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
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
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
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
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
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**
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
MNA Parameters														
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**4.1**	**1.9**	**2**	**2.2**	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	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**
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
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**178**	**222**	**381**	**150**	**132**	**119**	**143**	**169**	**169**	**172**	**142**	**146**	**160**
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**
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
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**
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**
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 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
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
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
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
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
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1	-0.24	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

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
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
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
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
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
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
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
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
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
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**
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
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
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
Trichloroethene (TCE)	5	**150**	**132**	**191**	**130**	**135**	**120**	**104**	**64.1**	**95.4**	**87.1**	**118**	**101**	**149**
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
MNA Parameters														
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**7.4**	**2.2**	**3.7**	**5.0**	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	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**
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
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**196**	**277**	**214**	**129**	**129**	**141**	**162**	**128**	**129**	**158**	**134**	**157**	**169**
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**
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
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**
Methane (µg/L)	NS	**6.8**	**16.5**	**309**	**817**	**835**	**233 J**	**583**	**130**	**2650**	**407**	**2190**	**1180**	**232**
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**
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
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
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
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	0.66
ORP (MeV)	NS	-234.2	-107.7	-140.7	-238.7	-149.4	-181.9	-106.4	-149.4	-201	-180.0	-165.3	#####	-151.9
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
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	1.39
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.4	-0.39	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

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
		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
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
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
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
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
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
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
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
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
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
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
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
Trichloroethene (TCE)	5	**133**	**93.5**	**151**	**152**	**170**	**142**	**155**	**178**	**137**	**159**	**97.4**	**164**	**165**
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
MNA Parameters														
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**3.9**	**2.1**	**3.3**	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	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**
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
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**172**	**218**	**194**	**205**	**202**	**212**	**215**	**215**	**213**	**211**	**172**	**197**	**201**
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**
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**
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**
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**
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
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
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
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
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
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
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.3	3.82	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

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
		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
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
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
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
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
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
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
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
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**
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
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
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
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**
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
MNA Parameters														
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**3.1**	**3.1**	**2.2**	**3.0**	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	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**
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**
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**99**	**191**	**597**	**201**	**197**	**203**	**174**	**226**	**183**	**162**	**194**	**140**	**146**
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**
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
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**
Methane (µg/L)	NS	**14.5**	**1.2**	**1780**	**12.4**	**88.1**	**531**	**1260**	**35**	1.5 U	**737**	**419**	**144**	**1740**
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**
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
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**
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
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
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
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.2	-0.15	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

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
		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
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
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
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
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
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
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
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
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
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
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
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
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**
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
MNA Parameters														
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	**2.6**	**2.1**	**1.4**	NA	NA
Acetylene (ug/L)	NS	NA	NA	NA	NA	NA	NA	NA	1.0 U	NA	NA	**<0.50**	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**
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
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**181**	**223**	**51**	**202**	**192**	**210**	**171**	**197**	**115**	**195**	**174**	**168**	**177**
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**
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**
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**
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**
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
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
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
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
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
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
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
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
Dissolved Oxygen- Downhole (mg/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.5	1.35	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

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

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

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	GEP-1					GEP-2					GEP-3					GEP-4					MW-B-3				MW-5				
		11/10/2015	6/23/2017	1/23/2019	6/18/2019	6/18/2020	11/10/2015	6/21/2017	6/20/2018	6/18/2019	6/16/2020	11/9/2015	6/23/2017	6/20/2018	6/18/2019	6/18/2020	11/9/2015	6/21/2017	1/23/2019	6/18/2019	6/17/2020	11/13/2015	6/22/2017	7/18/2018	6/18/2020	11/12/2015	6/20/2017	6/19/2018	6/17/2019	6/18/2020
		Upgradient					Upgradient					Upgradient					Upgradient					Outside Plume				Downgradient				
VOCs (µg/L)																														
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.8 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	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
1,1,1-Trichloroethane (1,1,1-TCA)	5	**4.6**	**3.3 J+**	**5.8**	**5.1**	**5.9**	**19.7**	**16.3**	**3.7**	**19.6**	**18.1**	**0.93 J**	**1.2**	**0.58 J**	**2.1**	**2.9**	**5.1**	**4.7**	**18.9**	**13.9**	**14.3**	0.75 U	0.75 U	0.75 U	0.75 U	**0.51 J**	**0.41 J**	0.75 U	**0.48 J**	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.8 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	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
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	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	**0.56 J**	**0.68 J**	0.75 U	0.9 J	**0.72 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	**0.43 J**	0.75 U	**0.39 J**	**0.41 J**	**0.36 J**	**1.1**	**1.1**	0.75 U	0.7 J	**0.55 J**	0.75 U	0.75 U	0.75 U	0.75 U	**0.42 J**	0.75 U	0.75 U	**1.2**	0.73 J	3.8 U	0.75 U	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	0.8 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	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
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.8 U	**0.40 J**	0.75 U	0.75 U	0.75 U	0.75 U	**0.48 J**	0.75 U	0.75 U	**0.65 J**	**0.39 J**	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**2.0**	**2.0**	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	**0.35 J**	0.75 U	**1.2**	**1.8**	**1.1**	**3.3**	**1.9**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.47 J**	**0.41 J**	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	**1.0**	**0.45 J**	0.75 U	**0.51 J**	**1.1**	**3.5**	**3.2**	**0.80 J**	**4.6**	**4.0**	**1.1**	**0.57 J**	**0.36 J**	**0.55 J**	**0.48 J**	**0.68 J**	**0.80 J**	**3.6**	**3.2**	**3.2 J**	**1.8**	**3.9**	**5.0**	**6.3**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.8 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	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
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**180**	**152 J+**	**157**	**150**	**183**	**210**	**167**	**51.3**	**171**	**148**	**143**	**131**	**74.9**	**137**	**217**	**85.9**	**72.4**	**441**	**312**	**274**	0.75 U	0.75 U	0.75 U	0.75 U	**0.46 J**	**0.58 J**	0.75 U	0.75 U	0.75 U
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.8 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	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
MNA Parameters																														
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	223	NA	NA	NA	NA	**335**	NA	NA	NA	NA	**217**	NA	NA	NA	NA	**227**	NA	NA	NA	NA	**110**	NA	NA	NA	**221**	NA	NA	NA	NA
Chloride (mg/L)	NS	13.2	NA	NA	NA	NA	**5.6**	NA	NA	NA	NA	**15.4**	NA	NA	NA	NA	**22.5**	NA	NA	NA	NA	**155**	NA	NA	NA	**197**	NA	NA	NA	NA
Nitrate (mg/L)	NS	1.0	NA	NA	NA	NA	**0.38 J**	NA	NA	NA	NA	**0.79**	NA	NA	NA	NA	**0.71**	NA	NA	NA	NA	**0.66 J+**	NA	NA	NA	**6.7**	NA	NA	NA	NA
Sulfate (mg/L)	NS	10.2	NA	NA	NA	NA	**9.9**	NA	NA	NA	NA	**10.8**	NA	NA	NA	NA	**13.2**	NA	NA	NA	NA	**25.3**	NA	NA	NA	**36.7 J**	NA	NA	NA	NA
Methane (µg/L)	NS	0.32 J	NA	NA	NA	NA	**0.33 J**	NA	NA	NA	NA	**0.16 J**	NA	NA	NA	NA	**0.4 J**	NA	NA	NA	NA	**0.39 J**	NA	NA	NA	**0.19 J**	NA	NA	NA	NA
Ethane (µg/L)	NS	0.5 U	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA	0.5 U	NA	NA	NA	0.5 U	NA	NA	NA	NA
Ethene (µg/L)	NS	0.75 U	NA	NA	NA	NA	0.75 U	NA	NA	NA	NA	0.75 U	NA	NA	NA	NA	0.75 U	NA	NA	NA	NA	0.75 U	NA	NA	NA	0.75 U	NA	NA	NA	NA
Total Organic Carbon (mg/L)	NS	3.4	NA	NA	NA	NA	**2.9**	NA	NA	NA	NA	**0.47 J**	NA	NA	NA	NA	**2.7**	NA	NA	NA	NA	**5.2**	NA	NA	NA	**7.3**	NA	NA	NA	NA
Field Parameters																														
pH (pH Unit)	NS	7.52	8.31	7.34	7.21	8.23	7.18	6.6	7.57	7.16	7.18	7.69	7.40	7.40	7.46	7.49	7.67	7.39	7.22	7.27	7.56	7.86	8.31	7.4	7.59	7.37	6.19	7.10	7.50	7.59
Turbidity (NTU)	NS	33.1	45.6	5.82	15	393	28.2	0	107	23	32.7	13.9	113.1	78.7	54	3.01	41.8	9.4	3.24	7.14	3.35	4.95	8	217.9	38.1	23.9	4.7	0.02	0.02	0.02
ORP (MeV)	NS	141.8	203.5	124.1	251.6	173.8	180.3	336.1	61.1	185.1	186.0	131.4	171.5	31.2	152.1	209.3	110.7	109.9	106.8	262.5	134.9	157.4	180.2	218.0	151.2	74.3	26.3	85.9	290.8	189.9
Conductivity (mS/cm)	NS	0.308	0.396	0.536	0.435	0.525	0.371	0.476	0.417	0.543	0.540	0.329	0.363	0.364	0.385	0.420	0.363	0.51	0.72	0.575	0.089	0.461	0.385	0.124	0.315	0.654	0.701	1.59	10.73	0.591
Dissolved Oxygen YSI (mg/L)	NS	19.53	9.9	-22 *	8.27	8.06	30.01	8.63	11.49	8.26	9.22	114.75	9.44	8.91	8.19	9.37	14.93	5.05	-22.74 *	7.86	9.34	19.91	10.1	9.06	9.65	17.86	12.4	9.60	4.34	11.10
Groundwater Elevation (ft)	NS	224.81	NA	NA	230.13	226.80	227.90	230.84	229.02	231.16	228.09	227.81	292.97	228.72	228.35	227.68	227.73	230.61	NA	230.94	227.86	227.95	NA	228.44	228.80	225.75	226.29	225.81	226.39	217.78

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

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

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

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

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

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-11 R		MW-12 R			MW-13	MW-14					MW-15						MW-16						MW-17				
		6/24/2019	6/16/2020	1/23/2019	6/17/2019	6/16/2020	6/20/2018	11/12/2015	6/21/2017	6/20/2018	6/18/2019	6/18/2020	11/9/2015	12/14/2016	6/21/2017	6/20/2018	6/20/2019	6/16/2020	11/11/2015	12/12/2016	6/20/2017	6/19/2018	6/24/2019	6/16/2020	11/16/2015	6/23/2017	6/20/2018	6/18/2019	6/16/2020
				Outside Plume			Downgradient	Upgradient					Upgradient						Outside Plume						Upgradient				
VOCs (µg/L)																													
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**0.53 J**	**0.61 J**	0.75 U	**2.1**	**1.3**	**4.0**	**3.9**	**1.2**	**2.5**	**1.1**	**4.1**	**1.9**	**4.4**	**3.8**	**2.9**	**5.6**	**5.4**	**0.49 J**	0.75 U	**0.50 J**	0.75 U	**0.39 J**	0.75 U	**17**	**22**	**19.8**	**22.1**	**13.3**
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.43 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.63 J**	**1.1**	**0.84 J**	**0.95 J**	**0.54 J**
1,1-Dichloroethene (1,1-DCE)	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	**0.44 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	**5.3**	**6.5**	0.75 U	**4.8**	**5.0**	0.75 U	0.75 U	0.75 U	**0.49 J**	**0.54 J**	**0.74 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.45 J**	**0.42 J**	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	**2.4**	**0.85 J**	**1.9**	**0.63 J**	**2.7**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**1.0**	**2.1**	**1.8**	**2.3**	**1.5**
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	**0.79 J**	**0.63 J**	0.75 U	**10.8**	**10.5**	**13.8**	**10.9**	**18.5**	**0.60 J**	**1.7**	**0.66 J**	**0.62 J**	**1.0 J**	**1.0**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.49 J**	0.75 U
Toluene	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	0.75 U	0.75 U	0.75 U	**5.0**	**5.4**	**117**	**3.7**	**2.4**	**3.7**	**2.0**	**3.6**	**77.3**	**183**	**122**	**72.1**	**128**	**139**	**0.55 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**15.2**	**35.2**	**20.5**	**31.9**	**10**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters																													
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**1.5**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0 U	**<0.50**	NA	NA	NA	NA	1.0 U	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	NA	NA	NA	NA	NA	NA	**242**	NA	NA	NA	NA	**182**	**212**	**217**	**209**	**169**	**220**	**248**	**312**	**322**	**317**	**303**	**258**	**310**	NA	NA	NA	NA
Chloride (mg/L)	NS	NA	NA	NA	NA	NA	NA	**26.4**	NA	NA	NA	NA	**28.9**	**14.3**	**40.1**	**46.4**	**43.4**	**35.7**	**13.6**	**9.0**	**20.2**	**3.9**	**5.5**	**2.5**	**4.9**	NA	NA	NA	NA
Nitrate (mg/L)	NS	NA	NA	NA	NA	NA	NA	**0.96**	NA	NA	NA	NA	**0.58**	**0.56**	**0.52**	**0.48**	**0.56**	**0.5**	**1.6**	**1.6**	**3.7**	**2**	**1.3**	**0.98**	**0.96**	NA	NA	NA	NA
Sulfate (mg/L)	NS	NA	NA	NA	NA	NA	NA	**21 J**	NA	NA	NA	NA	**12.3**	**12.4**	**20.5**	**15.2**	**12**	**10.7**	**35.2**	**44.8**	**75.5**	**27.3**	**41.9**	**97.5**	**14.3**	NA	NA	NA	NA
Methane (µg/L)	NS	NA	NA	NA	NA	NA	NA	**0.86**	NA	NA	NA	NA	**0.19 J**	0.5 U	0.5 U	**1.3 J+**	1.5 U	1.5 U	0.25 U	0.5 U	0.5 U	1.1 U	**1.5 U**	1.5 U	**0.13 J**	NA	NA	NA	NA
Ethane (µg/L)	NS	NA	NA	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA	0.5 U	0.5 U	0.5 U	0.5 U	3.3 U	3.3 U	0.5 U	0.5 U	0.5 U	0.5 U	3.3 U	3.3 U	0.5 U	NA	NA	NA	NA
Ethene (µg/L)	NS	NA	NA	NA	NA	NA	NA	0.75 U	NA	NA	NA	NA	0.75 U	0.75 U	0.75 U	0.75 U	2.4 U	2.4 U	0.75 U	0.75 U	0.75 U	0.75 U	2.4 U	2.4 U	0.75 U	NA	NA	NA	NA
Total Organic Carbon (mg/L)	NS	NA	NA	NA	NA	NA	NA	**6**	NA	NA	NA	NA	**0.55 J**	**0.57 J**	**0.21 J**	**0.41 J**	**1.0 U**	1.0 U	**3.6**	**0.96 J**	**0.67 J**	**1.2**	**1.6 J+**	**1.1 J+**	**2.7**	NA	NA	NA	NA
Field Parameters																													
pH (pH Unit)	NS	7.46	7.62	7.50	7.36	7.49	7.27	7.39	7.28	7.01	7.49	8.55	7.73	7.31	7.42	7.62	7.48	7.51	7.64	7.27	6.57	7.89	7.19	7.32	7.38	7.13	7.15	7.22	7.31
Turbidity (NTU)	NS	8.46	31.0	0.02	13.8	3.80	14.4	136	5	3.80	294	9.28	11.1	7	2.1	153.0	4.49	1.58	8.01	14.8	4.4	10.77	7.58	2.83	9.02	3.1	30.7	11.8	2.98
ORP (MeV)	NS	273.5	181.6	87.0	58.8	166.7	28.5	119.4	122.6	52.1	154	158.2	91.4	54.6	114.6	67.2	102	160.1	137.6	139.9	298.7	16.2	299.9	167.1	118.6	159.7	134.1	143.4	170.9
Conductivity (mS/cm)	NS	189.6	0.510	0.476	0.991	0.50	0.401	0.302	0.479	0.426	0.438	0.640	0.358	0.25	0.5	0.369	0.445	0.047	0.361	0.388	0.486	0.441	0.218	0.260	0.257	0.462	0.423	0.565	0.579
Dissolved Oxygen YSI (mg/L)	NS	8.27	7.56	-20.24 *	7.77	8.36	8.62	14.94	-13.54	6.7	7.26	8.02	31.45	8.04	4.9	6.72	7.98	8.74	22.27	9.5	10.82	11.71	9.28	11.06	16.42	9.99	8.7	8.49	8.65
Groundwater Elevation (ft)	NS	0.00	227.13	NA	0.00	222.87	228.10	228.08	231.32	229.39	228.68	228.21	227.80	226.27	230.60	228.79	228.35	227.80	226.39	225.38	227.63	226.19	226.97	223.45	228.08	231.15	229.26	228.64	228.69

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

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

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-18					MW-19					MW-20					MW-22			MW-22 R		MW-23				
		1/4/1900	6/21/2017	6/19/2018	6/18/2019	6/16/2020	11/16/2015	6/21/2017	6/19/2018	6/18/2019	6/18/2020	11/17/2015	6/22/2017	6/19/2018	6/21/2019	6/18/2020	11/16/2015	6/22/2017	6/21/2018	6/21/2019	6/18/2020	11/17/2015	6/22/2017	7/18/2018	6/21/2019	6/18/2020
		Upgradient					Upgradient					Upgradient					Upgradient					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 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	**2.7**	**2.4**	0.75 U	**2.5**	**0.92 J**	**2.1**	**2.9**	**1.7**	**2.5**	**3.0**	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	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 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
1,1,2-Trichloroethane	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 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	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 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	**0.39 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
1,2-Dichloroethane (EDC)	0.6	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 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
Carbon Tetrachloride	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 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	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 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	**1.6**	**1.8**	0.75 U	**1.2**	**1.5**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**1.5**	**3.7**	**3.0**	**0.47 J**	**3.4**	**5.6**	**3.8 J**	**6.3**	**5.2**	**4.0**	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
Toluene	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 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	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 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
Trichloroethene (TCE)	5	**153**	**117**	**26.8**	**110**	**72**	**30**	**14.3**	**11.4**	**9.0**	**8.9**	**52.3**	**86.8**	**69.9**	**7.0 J**	**67.3**	**282**	**238**	**331**	**148**	**130**	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
Vinyl Chloride (VC)	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 UJ	0.75 U	0.75 U	3.8 U	3.8 U	3.8 U	0.75 U	0.75 U	0.75 U	1 UJ	0.75 U	0.75 U
MNA Parameters																										
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene	NS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**197**	NA	NA	NA	NA	**267**	NA	NA	NA	NA	**260**	NA	NA	NA	NA	**246**	NA	NA	NA	NA	**211**	NA	NA	NA	NA
Chloride (mg/L)	NS	**16.9**	NA	NA	NA	NA	**3.9**	NA	NA	NA	NA	**2.3**	NA	NA	NA	NA	2 U	NA	NA	NA	NA	**27.6**	NA	NA	NA	NA
Nitrate (mg/L)	NS	0.50 U	NA	NA	NA	NA	**0.48**	NA	NA	NA	NA	**0.74**	NA	NA	NA	NA	**4.5**	NA	NA	NA	NA	**0.66**	NA	NA	NA	NA
Sulfate (mg/L)	NS	**13.2**	NA	NA	NA	NA	**9.8**	NA	NA	NA	NA	**7.7 J**	NA	NA	NA	NA	**7.2**	NA	NA	NA	NA	**30.4 J**	NA	NA	NA	NA
Methane (µg/L)	NS	**1.1**	NA	NA	NA	NA	**0.65**	NA	NA	NA	NA	**1.4 J**	NA	NA	NA	NA	0.25 U	NA	NA	NA	NA	**0.17 J**	NA	NA	NA	NA
Ethane (µg/L)	NS	0.5 U	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA	0.5 U	NA	NA	NA	NA
Ethene (µg/L)	NS	0.75 U	NA	NA	NA	NA	0.75 U	NA	NA	NA	NA	0.75 U	NA	NA	NA	NA	0.75 U	NA	NA	NA	NA	0.75 U	NA	NA	NA	NA
Total Organic Carbon (mg/L)	NS	**9.5**	NA	NA	NA	NA	**5**	NA	NA	NA	NA	**3.9**	NA	NA	NA	NA	**2.2**	NA	NA	NA	NA	**2.5**	NA	NA	NA	NA
Field Parameters																										
pH (pH Unit)	NS	7.72	7.03	7.82	7.5	7.53	7.62	7.82	6.87	7.29	7.21	7.40	7.83	7.08	7.42	7.10	7.63	7.18	7.57	7.72	7.55	7.53	6.60	7.43	7.38	7.40
Turbidity (NTU)	NS	40.1	3.8	2.33	2.08	2.72	35.4	19.4	30.8	13.6	3.16	85.7	26.3	30.8	4.25	4.67	3.79	40.1	120	57.9	384	13	15.1	Over Range	10.2	235
ORP (MeV)	NS	88.7	298.7	38.5	271.3	100	93.0	297.8	141.6	285.1	216.6	184.8	136.1	103.5	95.5	224.5	115.6	178.4	88.6	81.7	166.5	134.3	169.4	189.4	269.4	156
Conductivity (mS/cm)	NS	0.301	0.394	0.402	0.438	0.022	0.244	0.428	0.382	0.523	0.536	0.264	0.36	0.331	0.447	0.714	0.224	0.36	0.342	0.392	0.361	0.273	0.405	0.463	0.173	0.362
Dissolved Oxygen YSI (mg/L)	NS	18.46	6.33	12.25	7.58	6.39	14.23	8.82	8.80	7.87	10.12	17.61	9.46	9.55	9.12	10.04	16.55	11.11	9.92	8.06	10.18	12.71	9.07	9.07	10.42	12.94
Groundwater Elevation (ft)	NS	227.94	230.75	228.90	228.48	228.27	228.43	231.93	229.87	229.01	229.96	228.71	232.33	230.20	229.21	230.73	228.29	231.27	229.26	0.00	229.64	228.90	232.56	229.84	229.31	231.13

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

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

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	MW-24						MW-25					MW-26						MW-27					MW-36				
		11/10/2015	12/13/2016	6/26/2017	6/21/2018	6/20/2019	6/17/2020	11/16/2015	6/21/2017	6/21/2018	6/21/2019	6/18/2020	11/17/2015	12/13/2016	6/26/2017	6/20/2018	6/20/2019	6/16/2020	11/11/2015	6/23/2017	6/19/2018	6/17/2019	6/15/2020	12/2/2015	6/22/2017	6/21/2018	6/21/2019	6/18/2020
		Downgradient						Upgradient					Downgradient						Downgradient					Upgradient				
VOCs (µg/L)																												
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,1-Trichloroethane (1,1,1-TCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2,2-Tetrachloroethane	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1,2-Trichloroethane	1	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.81 J**	**0.73 J**	**0.34 J**	**0.49 J**	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethane (1,1-DCA)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,1-Dichloroethene (1,1-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	**26.5**	**58.1**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.51 J**	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
1,2-Dichloroethene (EDC)	0.6	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
cis-1,2-Dichloroethene (cis-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	**0.40 J**	**9.3**	**4.4**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 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	**0.57 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
Trichloroethene (TCE)	5	**0.93 J**	**1.4**	**1.2**	**0.66 J**	**1.0**	**9.4**	**96.7**	**76.7**	**80.3**	**87.1**	**88.7**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**189**	**211**	**32.6**	**136**	**179**	**1.0**	**0.81 J**	**1.7**	**2.0**	**1.7**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters																												
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	**1.9**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetylene	NS	NA	NA	NA	1 U	**<0.50**	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**168**	**198**	**195**	**159**	**134**	**185**	**198**	NA	NA	NA	NA	**204**	**197**	**223**	**225**	**174**	**205**	**282**	NA	NA	NA	NA	**197**	NA	NA	NA	NA
Chloride (mg/L)	NS	**36.3**	**38.5**	**41.0**	**37.1**	**29.1 J-**	**27.3**	**16.3**	NA	NA	NA	NA	**45.2**	**44.9**	**133**	**49.1**	**32.2**	**37**	**13.8**	NA	NA	NA	NA	**46.6**	NA	NA	NA	NA
Nitrate (mg/L)	NS	**0.90**	0.06 U	0.2 U	0.06 U	0.06 U	0.06 U	**0.52**	NA	NA	NA	NA	0.06 U	**0.04 J**	0.02 U	0.06 U	0.06 U	**0.10 J**	**1.2**	NA	NA	NA	NA	0.06 U	NA	NA	NA	NA
Sulfate (mg/L)	NS	**15.5**	**21.4**	**22.1**	**21.5**	**3**	**20.4**	**9**	NA	NA	NA	NA	**25.1**	**24.6**	**20.9**	**16.3**	**9.5**	**14.5**	**22**	NA	NA	NA	NA	**21.2 J-**	NA	NA	NA	NA
Methane (µg/L)	NS	**0.82**	**1.6**	**2.2**	**1.3 J+**	**179**	**8.6**	**0.45 J**	NA	NA	NA	NA	**34.8**	**2.7**	**2.1**	**80**	**112**	**58.1**	**0.24 J**	NA	NA	NA	NA	**25.6**	NA	NA	NA	NA
Ethane (µg/L)	NS	**0.34 J**	0.5 U	0.5 U	0.5 U	**14.7**	**2.0 J**	0.5 U	NA	NA	NA	NA	0.50 U	0.5 U	0.5 U	0.5 U	3.3 U	3.3 U	0.5 U	NA	NA	NA	NA	**2.7**	NA	NA	NA	NA
Ethene (µg/L)	NS	0.75 U	0.75 U	0.8 U	**0.2 J**	**1.7 J**	2.4 U	0.75 U	NA	NA	NA	NA	0.75 U	0.75 U	0.75 U	0.75 U	2.4 U	2.4 U	0.75 U	NA	NA	NA	NA	**1.2 J**	NA	NA	NA	NA
Total Organic Carbon (mg/L)	NS	**3.5**	**1.9**	**0.79 J**	**4.5**	**2 J+**	**1.2 J+**	**5.6**	NA	NA	NA	NA	**9.3**	**2.6**	**30.7**	**0.5 J**	**6.4**	**4.0**	**2.9**	NA	NA	NA	NA	**1.7**	NA	NA	NA	NA
Field Parameters																												
pH (pH Unit)	NS	7.75	7.22	7.78	7.95	7.53	7.63	7.85	7.51	7.80	7.47	7.26	7.52	7.22	7.23	7.57	7.6	7.66	7.50	7.87	7.31	7.1	7.46	7.76	8.05	7.86	7.61	7.58
Turbidity (NTU)	NS	9.33	13.9	35.2	19.5	1.74	1.97	30.9	1.5	128	8.98	1.75	68.3	21.8	0.4	36.2	9.3	3.17	86.8	1.9	2.60	4.48	7.90	66.7	6.3	17.2	0.26	2.94
ORP (MeV)	NS	-80.2	-93.2	-108.6	-147.3	-149	-144	85.4	97.5	101.1	200.3	226.7	-103.6	-28.9	-26.9	-75.3	-108.6	-25.3	169.9	310.7	3.10	4.48	111	-224.3	-71.7	85.5	160.4	139
Conductivity (mS/cm)	NS	0.327	0.57	0.365	0.204	0.333	0.375	0.201	0.446	0.349	0.2	0.407	0.324	0.59	0.63	0.415	0.423	0.250	0.411	0.429	0.58	114.17	0.340	0.282	0.422	7.86	0.215	0.420
Dissolved Oxygen YSI (mg/L)	NS	0.94	0.44	1.2	11.71	0.29	0.55	11.25	4.6	7.6	8.22	9.14	0	0.33	0.62	1.38	0.3	4.81	21.89	5.3	1.31	1.07	3.86	5.29	1.08	3.27	2.33	4.13
Groundwater Elevation (ft)	NS	226.79	225.30	229.05	227.43	227.32	225.73	227.16	229.65	227.78	227.67	228.16	226.06	224.75	228.01	226.43	226.59	224.75	225.50	226.43	221.21	225.80	218.47	227.80	230.49	229.13	228.09	228.97

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

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

Analytes	NYSDEC Ambient Water Quality Standards and Guidance Value	Confirmation Well Pair												Confirmation Well Pair											
		MW-28						MW-29						MW-30						MW-31					
		12/1/2015	12/14/2016	6/27/2017	6/22/2018	6/19/2019	6/19/2020	12/1/2015	12/14/2016	6/27/2017	6/22/2018	6/19/2019	6/17/2020	12/1/2015	12/13/2016	6/26/2017	7/18/2018	6/19/2019	6/17/2020	12/1/2015	12/14/2016	6/26/2017	6/21/2018	6/19/2019	6/17/2020
		Downgradient						Upgradient						Downgradient						Upgradient					
VOCs (µg/L)																									
1,1,1,2-Tetrachloroethane	5	0.75 U	0.75 U	1.0 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	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**	**8.9 J+**	**10.5**	**8.0**	**6.6**	**12.4**	**14.0 J+**	**11.8 J+**	**11.8**	**8.7**	**5.8**	0.75 U	0.75 U	0.75 U	0.75 U	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	1.0 U	0.75 U	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	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	1.0 U	**0.44 J**	0.75 U	0.75 U	0.75 U	3.8 U	0.75 U	**0.45 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	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	**1.0**	**0.77 J**	**1.0 J+**	**0.86 J**	**1.2**	**0.92 J**	**0.97 J**	3.8 U	**1.0 J+**	**0.84 J**	**1.1**	**0.59 J**	0.75 U	0.75 U	0.75 U	0.75 U	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	**0.53 J**	**0.43 J**	**0.38 J**	**0.39 J**	0.75 U	0.75 U	**0.68 J**	3.8 U	**0.63 J**	**0.48 J**	**0.35 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	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	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	0.75 U	0.75 U	0.75 U	0.75 U
Carbon Tetrachloride	5	**0.61 J**	0.75 U	0.75 U	**0.75 J**	**0.36 J**	**0.44 J**	0.75 U	3.8 U	0.75 U	**0.82 J**	**0.49 J**	**0.49 J**	0.75 U	0.75 U	0.75 U	0.75 U	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	**4.7**	**4.3**	**4.7 J+**	**4.9**	**5.8**	**3.8**	**4.9**	**6.1 J+**	**5.8 J+**	**5.1**	**5.4**	**2.9**	0.75 U	0.75 U	**0.61 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	**0.50 J**	0.75 U	0.75 U	0.75 U
Tetrachloroethene (PCE; PERC)	5	**33**	**44.6**	**36.3 J+**	**38.7**	**31.9**	**25.5**	**33.2**	**30.8 J+**	**38.1 J+**	**35.4**	**29.7**	**24.3**	0.75 U	0.75 U	0.75 U	0.75 U	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	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	0.75 U	0.75 U	0.75 U	0.75 U
trans-1,2-Dichloroethene (trans-1,2-DCE)	5	0.75 U	**0.47 J**	**0.37 J**	**0.36 J**	0.75 U	0.75 U	0.75 U	3.8 U	**0.70 J**	**0.59 J**	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	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	**182**	**196**	**195**	**214**	**172**	**140**	**224**	**209 J+**	**264**	**248**	**161**	**102**	**25.2**	**42.3**	**24.3**	**8.1**	**5.0**	**5.7**	**42.7**	**38.2**	**29.0**	**20.6**	**26.2**	**33.5**
Vinyl Chloride (VC)	2	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	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	0.75 U	0.75 U	0.75 U	0.75 U
MNA Parameters																									
Dissolved Hydrogen (nmol/L)	NS	NA	NA	NA	NA	**2.7**	NA	NA	NA	NA	NA	**1.5**	NA	NA	NA	NA	NA	**8.5**	NA	NA	NA	NA	NA	**2**	NA
Acetylene	NS	NA	NA	NA	1 U	**<0.50**	NA	NA	NA	NA	1.0 U	**<0.50**	NA	NA	NA	NA	1.0 UJ	**<0.50**	NA	NA	NA	NA	1 U	**<0.50**	NA
Alkalinity, Total (as $CaCO_3$) (mg/L)[1]	NS	**352**	**316**	**352**	**422**	**325**	**367**	**327**	**301**	**361**	**370**	**342**	**282**	**143**	**319**	**154**	**58**	**65**	**48**	**178**	**222**	**150**	**169**	**142**	**160**
Chloride (mg/L)	NS	**22.1**	**32.4**	**29.0**	**33.1**	**41.6**	**31.1**	**28.2**	**28.4**	**49.4**	**28**	**38.9**	**34.7**	**38.4**	**182**	**49.6**	**38.8**	**37.6**	**47.6**	**41.9**	**56.6**	**31**	**39.9**	**45.9**	**41.4**
Nitrate (mg/L)	NS	0.06 U	**0.06 J**	**1.5**	**0.58**	0.20 U	**0.36**	**0.1 J**	**0.26**	**1.3 J**	**0.38**	**0.26**	**0.64**	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.2 U	0.06 U	0.06 U	0.06 U
Sulfate (mg/L)	NS	**22.4**	**20.9**	**13.0**	**23.1**	**13.6**	**20.5**	**29.2**	**24.9**	**13.8**	**21**	**12.9**	**16**	**35.9**	**2.9**	2.0 U	**0.34 J**	2.0 U	**1.1 J**	**26.3**	**10.9**	**5.6**	**7.8**	**10.2**	**9.6**
Methane (µg/L)	NS	**3.4**	**3.0**	**1.0**	**1800**	1.5 U	**471**	**13.9**	**0.62**	0.05 U	**210**	1.5 U	1.5 U	**47.4**	**146**	**3210**	**3700**	**91.6**	**5630**	**20.7**	**3.5**	**56.5**	**120**	**99.3**	**354**
Ethane (µg/L)	NS	0.5 U	**3.6**	0.5 U	0.5 U	3.3 U	3.3 U	**0.81 J**	0.5 U	0.5 U	0.5 U	3.3 U	3.3 U	**4.7**	**5.4**	**36.7**	**52**	3.3 U	**29.7**	**2.2**	**1.5**	**2.7**	**5.7**	**3.0 J**	**3.2 J**
Ethene (µg/L)	NS	0.75 U	**1.3 J**	0.75 U	0.75 U	2.4 U	2.4 U	**0.59 J**	0.75 U	0.75 U	0.75 U	2.4 U	2.4 U	**2.2**	**3.3**	**12.7**	**6.3**	2.4 U	**2.5**	**0.91 J**	**0.84 J**	**3.2**	**2.4**	2.4 U	2.4 U
Total Organic Carbon (mg/L)	NS	**1.9**	**2.3**	**0.76 J**	**4.1**	**1.6 J+**	**2.1**	**2.3**	**1.4**	**0.92 J**	**3.2**	**5.3**	**1.4 J+**	**2.2**	**225**	**75.2**	**9.7 J**	**7.7**	**5.4**	**2.1**	**43.9**	**2.8**	**2.1**	1.0 U	1.0 U
Field Parameters																									
pH (pH Unit)	NS	6.83	7.03	7.05	7.33	6.84	7.19	7.06	7.02	7.02	7.33	6.96	7.33	8.91	6.83	7.77	8.28	7.8	8.68	7.80	7.20	9.79	7.83	7.8	7.81
Turbidity (NTU)	NS	209	1.5	-3	1.32	0.02	2.11	82.4	0.62	2.8	15.2	3.43	997.3	58.2	3.55	3	950.5	0.81	1.45	51.7	8.03	4.6	2.6	0.69	14.42
ORP (MeV)	NS	273.2	71.2	97.4	11.1	176.4	23.1	-25.1	60.9	120.2	52.3	169.6	110.7	-278.4	-166.3	-173.3	12.1	-164	-202	-319.7	-163.1	-283.2	-155.1	-165.3	-148.0
Conductivity (mS/cm)	NS	0.324	0.366	0.554	7.33	0.613	0.085	0.325	0.354	0.619	0.61	0.63	0.488	0.21	1.41	0.32	0.238	0.23	0.06	0.243	0.348	0.28	0.324	0.402	0.325
Dissolved Oxygen YSI (mg/L)	NS	6.75	3.94	7.59	0.63	0.89	0.35	4.29	6.17	7.12	2.98	2.23	5.25	3.7	0.29	0.48	0.98	0.28	0.05	1.29	0.28	0.7	0.22	0.15	0.91
Groundwater Elevation (ft)	NS	227.07	225.41	229.79	228.07	227.62	226.56	227.05	225.38	229.82	228.09	227.64	226.58	226.98	225.35	229.44	227.80	227.52	226.19	226.95	225.40	229.52	227.84	227.55	226.33

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

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

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

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

APPENDICES

APPENDIX A: Groundwater Sample Collection Field Forms

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia 60440041

Monitoring Well Number: MW-27 Date: 6/15/20

Samplers: Alex Golden + Jillian Kosinski

Sample Number: MW-27 061520 QA/QC Collected? —

Purging / Sampling Method: Low flow bladder pump

1. L = Well Depth:	112.98	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	69.85	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 + NTU

Parameter	Units	Readings							
						6,81 ✓	✓	✓	
Time	24 hr	1305	1310	1315	1320	1325	1330	1335	1345
Water Level (0.33)	feet	69.85	69.82	69.82	70.15	72.11	72.40	72.42	72.4
Volume Purged	gal	—	.15	.20	.25	.32	.45	.55	.65
Flow Rate	mL/min	150	150	150	150	150	150	150	150
Turbidity (+/- 10%)	NTU	4.99	5.40	5.44	7.29	~~7.45~~	7.45	8.13	7.9
Dissolved Oxygen (+/- 10%)	%	34.5	32.4	32.6	32.7	33.4	34.1	37.1	39.0
Dissolved Oxygen (+/- 10%)	mg/L	3.38	3.13	3.14	3.22	3.36	3.46	3.77	3.80
Eh / ORP (+/- 10)	MeV	98.3	103.5	104.2	106.8	110.4	111.2	112.3	111.0
Specific Conductivity (+/- 3%)	mS/cm[c]	.419	.418	.419	.425	.420	.420	.421	.422
Conductivity (+/- 3%)	mS/cm	.352	.353	.355	.352	.340	.338	.338	.340
pH (+/- 0.1)	pH unit	7.45	7.44	7.44	7.44	7.45	7.45	7.47	7.41
Temp (+/- 0.5)	C°	16.7	16.8	17.0	16.0	15.0	14.8	14.6	15.3
Color	Visual	Clear	clear	Clear	clear	Clear	clear	clear	Clea
Odor	Olfactory	None	None	None	None	None	None	None	Non

Comments:

discharge/fill time @ 30 secs

sample @ 1345

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-7 Date: 6/15/2020

Samplers: JK / AGT

Sample Number: MW-7 061520 QA/QC Collected? –

Purging / Sampling Method: Bladder pump

1. L = Well Depth:	69.30	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	68.32	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 + NTU

Parameter	Units	Readings						
Time	24 hr	013:20	13:25	13:30	13:35	13:40	13:45	13:50
Water Level (0.33)	feet	68.32	*	*	*	*	*	*
Volume Purged	gal	–	0.10	0.20	0.30	0.40	0.50	0.60
Flow Rate	mL/min	100	100	100	100	100	100	100
Turbidity (+/- 10%)	NTU	171	118	94.4	82.5	60.6	55.3	52.1
Dissolved Oxygen (+/- 10%)	%	123.1	109.1	104.0	102.2	101.8	101.8	101.7
Dissolved Oxygen (+/- 10%)	mg/L	10.96	10.50	10.02	9.95	9.85	9.74	9.75
Eh / ORP (+/- 10)	MeV	127.6	141.2	146.1	148.2	149.3	149.8	150.0
Specific Conductivity (+/- 3%)	mS/cm[c]	0626	0.615	0.616	0.613	0.612	0.615	0.615
Conductivity (+/- 3%)	mS/cm	0.561	0.527	0.519	0.515	0.517	0.523	0.525
pH (+/- 0.1)	pH unit	7.18	7.15	7.14	7.14	7.14	7.14	7.15
Temp (+/- 0.5)	C°	19.6	17.9	16.7	16.6	16.9	17.2	17.4
Color	Visual	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy
Odor	Olfactory	–	–	–	–	–	–	–

Comments:

* can not read water level with pump in well → not enough water above the pump

Sampled @ 1415

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-7-pg2 Date: 6/15/2020

Samplers: JK / AG

Sample Number: MW-7 061520 QA/QC Collected? —

Purging / Sampling Method: Bladder pump

1. L = Well Depth:	69.30	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	68.32	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 + NTU

Parameter	Units	Readings						
Time	24 hr	13:55	1400	14:05	1410			
Water Level (0.33)	feet	*	*	*	*			
Volume Purged	gal	0.70	0.80	0.90	1.00			
Flow Rate	mL/min	100	100	100	100			
Turbidity (+/- 10%)	NTU	45.1	42.0	40.9	40.0			
Dissolved Oxygen (+/- 10%)	%	102.3	102.6	103.0	102.6			
Dissolved Oxygen (+/- 10%)	mg/L	9.74	9.76	9.80	9.80			
Eh / ORP (+/- 10)	MeV	149.7	149.7	150.0	149.9			
Specific Conductivity (+/- 3%)	mS/cm	0.615	0.614	0.615	0.617			
Conductivity (+/- 3%)	mS/cm	0.525	0.528	0.527	0.530			
pH (+/- 0.1)	pH unit	7.16	7.16	7.16	7.16			
Temp (+/- 0.5)	C°	17.6	17.3	17.7	17.6			
Color	Visual	Cloudy	Cloudy	Cloudy	Cloudy			
Odor	Olfactory	—	—	—	—			

Comments: * water level too low to read - no water above pump

Sampled @ 1415

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia 60440641

Monitoring Well Number: MW-6 Date: 6/15/

Samplers: AG + JK

Sample Number: MW-6 061520 QA/QC Collected? —

Purging / Sampling Method: low flow bladder pump

1. L = Well Depth:	71.50	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	70.40	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 + NTU

Parameter	Units	Readings				✓	✓	✓
Time	24 hr	1430	1435	1440	1445	1450	1455	1500
Water Level (0.33)	feet	70.40	—	—	—	—	—	—
Volume Purged	gal	—	.10	.20	.30	.35	.40	.45
Flow Rate	mL/min	100	100	100	100	100	100	100
Turbidity (+/- 10%)	NTU	22.1	19.9	8.93	3.14	1.20	0.17	
Dissolved Oxygen (+/- 10%)	%	96.9	96.6	96.5	96.6	96.1	96.0	95.3
Dissolved Oxygen (+/- 10%)	mg/L	9.52	9.51	9.53	9.45	9.41	9.42	9.37
Eh / ORP (+/- 10)	MeV	114.2	115.7	117.6	118.4	118.9	118.6	119.0
Specific Conductivity (+/- 3%)	mS/cm[c]	.367	.363	.360	.357	.357	.359	.358
Conductivity (+/- 3%)	mS/cm	.305	.301	.299	.297	.299	.299	.297
pH (+/- 0.1)	pH unit	7.52	7.52	7.52	7.52	7.52	7.51	7.52
Temp (+/- 0.5)	C°	16.6	16.3	16.1	16.1	16.4	16.1	16.0
Color	Visual	murky	murky	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments: ~~*~~ Very little water, cannot measure while sampling

100 mL per 1 cycle

Sample @ 1505

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-8 Date: 6/16/20

Samplers: Alexandra Holden & Jillian Kosinski

Sample Number: MW-8 061620 QA/QC Collected? —

Purging / Sampling Method: low flow bladder pump

1. L = Well Depth:	75.86	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	72.82	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 + NTU

Parameter	Units	Readings						✓ ✓ ✓
Time	24 hr	0850	0855	0900	0910	0915	0920	0925
Water Level (0.33)	feet	72.82	—	—	—	—	—	—
Volume Purged	gal	—	.10	.15	.20	.30	.35	.45
Flow Rate	mL/min	172	172	172	172	172	172	172
Turbidity (+/- 10%)	NTU	0.02	0.93	0.02	0.02	0.02	0.02	0.02
Dissolved Oxygen (+/- 10%)	%	82.1	80.9	80.5	80.2	80.3	80.4	80.3
Dissolved Oxygen (+/- 10%)	mg/L	8.26	8.18	8.14	8.11	8.12	8.10	8.07
Eh / ORP (+/- 10)	MeV	145.5	147.5	150.2	151.7	153.1	154.6	149.3
Specific Conductivity (+/- 3%)	mS/cm[c]	.318	.318	.315	.313	.312	.309	.306
Conductivity (+/- 3%)	mS/cm	.258	.256	.254	.252	.251	.250	.248
pH (+/- 0.1)	pH unit	7.52	7.54	7.54	7.55	7.56	7.58	7.58
Temp (+/- 0.5)	C°	15.1	14.8	14.8	14.8	14.8	15.0	15.1
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	None	None	None	None	None	None	None

Comments: Cannot measure WL's, water too shallow

Sample time @ 0930

Probe appx 73.5 fbg

Flow - 86 mL per 1 discharge

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-16 Date: 6/16/20

Samplers: Alexandra Holden + Jillian Kosinski

Sample Number: MW-16 061620 QA/QC Collected? MS/MSD

Purging / Sampling Method: Low flow bladder pump

1. L = Well Depth:	69.52	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	64.84	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 YSI + NTU

Parameter	Units	Readings						
							✓	✓ ✓
Time	24 hr	1015	1020	1025	1030	1035	1040	1045
Water Level (0.33)	feet	64.84	64.89	64.89	64.94	64.95	64.94	64.95
Volume Purged	gal	—	.15	.30	.45	.60	.75	.90
Flow Rate	mL/min	260	260	260	260	260	260	260
Turbidity (+/- 10%)	NTU	4.91	8.85	8.86	6.23	4.02	3.05	2.83
Dissolved Oxygen (+/- 10%)	%	106.1	104.2	103.6	104.3	104.5	104.3	104.4
Dissolved Oxygen (+/- 10%)	mg/L	10.82	10.93	10.95	11.05	11.00	11.00	11.06
Eh / ORP (+/- 10)	MeV	118.9	174.5	176.9	171.0	169.5	165.6	167.1
Specific Conductivity (+/- 3%)	mS/cm^c	.352	.342	.342	.341	.339	.339	.338
Conductivity (+/- 3%)	mS/cm	.285	.266	.262	.261	.261	.260	.260
pH (+/- 0.1)	pH unit	7.26	7.25	7.28	7.30	7.30	7.29	7.32
Temp (+/- 0.5)	C°	14.9	13.3	13.0	12.6	12.8	12.9	12.8
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	None	None	None	None	None	None	None

Comments:

130 mL/min per 30 sec discharge

Sample time @ 1050

* barely enough tubing

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-12R Date: 6/16/20

Samplers: JK IAG

Sample Number: MW-12R 061620 QA/QC Collected? _____

Purging / Sampling Method: Bladder Pump

1. L = Well Depth:	79.35	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	69.47	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 + NTU

Parameter	Units	Readings						
Time	24 hr	10:15	10:20	10:25	10:30	10:35	10:40	10:45
Water Level (0.33)	feet	69.47	69.47	69.48	69.48	69.47	69.47	69.47
Volume Purged	gal	—	0.20	0.40	0.60	0.80	1.00	1.20
Flow Rate	mL/min	100	100	100	100	100	100	100
Turbidity (+/- 10%)	NTU	31.2	18.7	16.1	14.2	8.0	5.4	3.8
Dissolved Oxygen (+/- 10%)	%	85.5	85.4	85.4	85.7	85.5	85.4	85.2
Dissolved Oxygen (+/- 10%)	mg/L	8.32	8.37	8.34	8.38	8.37	8.38	8.36
Eh / ORP (+/- 10)	MeV	148.1	151.4	159.6	161.3	163.2	165.1	166.7
Specific Conductivity (+/- 3%)	mS/cm^c	0.601	0.602	0.599	0.597	0.601	0.600	0.601
Conductivity (+/- 3%)	mS/cm	0.504	0.502	0.501	0.500	0.500	0.500	0.500
pH (+/- 0.1)	pH unit	7.46	7.44	7.46	7.49	7.49	7.49	7.49
Temp (+/- 0.5)	C°	16.6	16.4	16.4	16.4	16.2	16.2	16.2
Color	Visual	cloudy	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments:

Sampled @ 10:50

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-11R Date: 6/16/2020

Samplers: JK / AG

Sample Number: MW-11R061620 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump

1. L = Well Depth:	79.97	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	68.43	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 + NTU

Parameter	Units	Readings						
Time	24 hr	11:40	11:45	11:50	11:55	12:00	12:05	12:10
Water Level (0.33)	feet	68.43	68.43	68.43	68.44	68.44	68.43	68.43
Volume Purged	gal	—	0.20	0.40	0.60	0.80	1.00	1.20
Flow Rate	mL/min	100	100	100	100	100	100	100
Turbidity (+/- 10%)	NTU	136	167	122	88.1	72.4	78.3	29.6
Dissolved Oxygen (+/- 10%)	%	86.6	82.7	81.3	81.7	81.5	81.4	82.0
Dissolved Oxygen (+/- 10%)	mg/L	7.88	7.75	7.53	7.36	7.58	7.58	7.60
Eh / ORP (+/- 10)	MeV	159.3	167.6	172.9	175.2	177.8	179.6	180.8
Specific Conductivity (+/- 3%)	mS/cm[c]	0.583	0.572	0.573	0.575	0.573	0.572	0.572
Conductivity (+/- 3%)	mS/cm	0.524	0.501	0.507	0.524	0.505	0.503	0.506
pH (+/- 0.1)	pH unit	8.15	7.96	7.72	7.64	7.62	7.61	7.61
Temp (+/- 0.5)	C°	19.7	18.2	18.8	20.4	18.9	18.6	18.9
Color	Visual	cloudy	cloudy	cloudy	cloudy	cloudy	clearish	clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments:

Sample @ 12:25

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-11R (cont) Date: 6/16/20

Samplers: JK/AG

Sample Number: MW-11R 061620 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump

1. L = Well Depth:	79.97	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	68.43	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 + NTU

Parameter	Units	Readings						
Time	24 hr	12:15	12:20					
Water Level (0.33)	feet	68.43	68.43					
Volume Purged	gal	1.40	1.60					
Flow Rate	mL/min	100	100					
Turbidity (+/- 10%)	NTU	29.4	31.0					
Dissolved Oxygen (+/- 10%)	%	82.1	82.3					
Dissolved Oxygen (+/- 10%)	mg/L	7.59	7.56					
Eh / ORP (+/- 10)	MeV	181.3	181.6					
Specific Conductivity (+/- 3%)	mS/cm[c]	0.572	0.571					
Conductivity (+/- 3%)	mS/cm	0.507	0.510					
pH (+/- 0.1)	pH unit	7.65	7.62					
Temp (+/- 0.5)	C°	19.1	19.3					
Color	Visual	clear	clear					
Odor	Olfactory							

Comments:

Sample @ 12:25

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot - 60440641

Monitoring Well Number: MW-26 Date: 6/16/20

Samplers: Alexandra Holden

Sample Number: MW-26 061620 QA/QC Collected? —

Purging / Sampling Method: low flow - bladder pump

1. L = Well Depth:	108.57	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	61.70	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 + NTU

Parameter	Units	Readings ✓				✓	✓	✓
Time	24 hr	1155	1200	1205	1210	1215	1220	1225
Water Level (0.33)	feet	61.70	61.72	61.74	61.74	61.74	61.75	61.74
Volume Purged	gal	—	.15	.30	.45	.60	.75	.90
Flow Rate	mL/min	292	292	292	292	292	292	292
Turbidity (+/- 10%)	NTU	4.27	4.56	4.11	3.25	4.52	3.60	3.17
Dissolved Oxygen (+/- 10%)	%	33.9	37.8	48.3	50.6	50.5	50.3	49.5
Dissolved Oxygen (+/- 10%)	mg/L	3.24	3.64	4.68	4.92	4.95	4.87	4.81
Eh / ORP (+/- 10)	MeV	-66.8	-39.2	-21.3	-18.0	-18.4	-20.2	-25.3
Specific Conductivity (+/- 3%)	mS/cm[c]	.303	.295	.292	.293	.294	.295	.298
Conductivity (+/- 3%)	mS/cm	.263	.251	.247	.247	.245	.249	.250
pH (+/- 0.1)	pH unit	7.92	7.87	7.77	7.69	7.65	7.63	7.66
Temp (+/- 0.5)	C°	17.9	17.0	16.9	17.2	16.4	16.8	16.6
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	None	None	None	None	None	None	None

Comments: per 30 sec discharge : 146 mL

Sample @ 1230

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot (60440641

Monitoring Well Number: MW-34 Date: 06/16/20

Samplers: Alexandra Golden + Jillian Kosinski

Sample Number: MW-34 061620 QA/QC Collected? —

Purging / Sampling Method: low flow bladder pump

1. L = Well Depth:	88.30	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	61.60	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 + NTU

Parameter	Units	Readings						
Time	24 hr	1325	1330	1335	1340	1345 ✓	1350 ✓	1355 ✓
Water Level (0.33)	feet	61.60	61.62	61.62	61.63	61.62	61.62	61.63
Volume Purged	gal	—	.15	.30	.45	.60	.75	.90
Flow Rate	mL/min	280	280	280	280	280	280	280
Turbidity (+/- 10%)	NTU	5.85	4.06	4.00	3.85	3.94	3.01	3.16
Dissolved Oxygen (+/- 10%)	%	47.6	8.5	6.3	4.2	3.1	2.9	1.7
Dissolved Oxygen (+/- 10%)	mg/L	4.63	.85	.62	.42	.31	.29	.17
Eh / ORP (+/- 10)	MeV	88.9	78.7	73.4	-57.0	-96.6	-91.2	-87.4
Specific Conductivity (+/- 3%)	mS/cm^c	.220	.211	.211	.211	.210	.210	.210
Conductivity (+/- 3%)	mS/cm	.190	.173	.173	.170	.170	.171	.170
pH (+/- 0.1)	pH unit	9.15	9.18	9.14	9.01	8.71	8.61	8.59
Temp (+/- 0.5)	C°	17.8	15.4	15.6	15.2	14.7	15.1	15.4
Color	Visual	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Odor	Olfactory	None	None	None	None	None	None	None

Comments: probe @ ~~1325~~ 83.5 fpg

140 mL / 30 sec discharge

Sample @ 1400

Monitoring Well Purging / Sampling Form

Project Name and Number: ~~AAFB~~ Scotia Navy Depot

Monitoring Well Number: MW-35 Date: 6/16/2020

Samplers: JF / AG

Sample Number: MW-35 061620 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump

1. L = Well Depth:	92.20	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	61.30	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 + NTU

Parameter	Units	Readings						
Time	24 hr	13:30	1335	1340	1345	1350	1355	1400
Water Level (0.33)	feet	61.30	61.31	61.32	61.33	61.33	61.32	61.32
Volume Purged	gal	—	0.20	0.40	0.60	0.80	1.00	1.20
Flow Rate	mL/min	100	100	100	100	100	100	100
Turbidity (+/- 10%)	NTU	42.5	40.6	34.7	21.0	16.2	9.08	5.40
Dissolved Oxygen (+/- 10%)	%	64.0	57.3	64.8	66.2	66.2	66.2	65.9
Dissolved Oxygen (+/- 10%)	mg/L	6.15	5.53	6.27	6.48	6.41	6.47	6.47
Eh / ORP (+/- 10)	MeV	153.4	158.8	162.0	152.1	128.2	111.0	97.3
Specific Conductivity (+/- 3%)	mS/cm^c	0.396	0.429	0.453	0.469	0.471	0.471	0.472
Conductivity (+/- 3%)	mS/cm	0.336	0.364	0.382	0.392	0.397	0.392	0.393
pH (+/- 0.1)	pH unit	8.79	7.90	7.71	7.72	7.61	7.61	7.59
Temp (+/- 0.5)	C°	17.0	16.9	16.8	16.4	16.7	16.2	16.3
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments:

Sample @ 1415

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-35 Date: 6/16/2020

Samplers: JK / AG

Sample Number: MW-35 061620 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump

1. L = Well Depth:	92.20	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	61.30	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 + NTU

Parameter	Units	Readings						
Time	24 hr	1405	1410					
Water Level (0.33)	feet	61.32	61.32					
Volume Purged	gal	1.40	1.60					
Flow Rate	mL/min	100	100					
Turbidity (+/- 10%)	NTU	4.10	3.90					
Dissolved Oxygen (+/- 10%)	%	65.6	66.0					
Dissolved Oxygen (+/- 10%)	mg/L	6.46	6.44					
Eh / ORP (+/- 10)	MeV	99.3	101.2					
Specific Conductivity (+/- 3%)	mS/cm^c	0.474	0.470					
Conductivity (+/- 3%)	mS/cm	0.393	0.394					
pH (+/- 0.1)	pH unit	7.57	7.56					
Temp (+/- 0.5)	C°	16.1	16.2					
Color	Visual	Clear	Clear					
Odor	Olfactory	—	—					

Comments:

Sample @ 1415

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot - 60441064l

Monitoring Well Number: MW-15 Date: 06/16/20

Samplers: Alexandra Golden + Jillian Kosinski

Sample Number: MW-15 061620 QA/QC Collected? DUP

Purging / Sampling Method: low flow bladder pump

1. L = Well Depth:	81.73	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	65.87	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 + NTU

Parameter	Units	Readings				✓	✓	✓
Time	24 hr	1705	1710	1715	1720	1725	1730	1735
Water Level (0.33)	feet	65.87	65.88	65.90	65.90	65.91	65.90	65.91
Volume Purged	gal	—	.20	.40	.65	.80	1.10	1.20
Flow Rate	mL/min	280	280	280	280	280	280	280
Turbidity (+/- 10%)	NTU	26.0	24.5	12.0	10.93	5.05	2.52	1.58
Dissolved Oxygen (+/- 10%)	%	88.5	86.5	86.5	85.5	85.2	84.6	84.8
Dissolved Oxygen (+/- 10%)	mg/L	8.96	8.79	8.84	8.75	8.72	8.68	8.74
Eh / ORP (+/- 10)	MeV	160.8	162.1	162.5	162.1	160.7	159.2	160.1
Specific Conductivity (+/- 3%)	mS/cm[c]	.057	.056	.052	.054	.059	.055	.060
Conductivity (+/- 3%)	mS/cm	.046	.044	.042	.045	.047	.043	.047
pH (+/- 0.1)	pH unit	7.51	7.52	7.52	7.51	7.51	7.51	7.51
Temp (+/- 0.5)	C°	15.3	14.8	14.7	14.5	14.3	14.2	14.1
Color	Visual	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Odor	Olfactory	None	None	None	None	None	None	None

Comments:

140 mL discharged / 130sec cycle

Sampled @ 1540

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-17 Date: 6/16/2020

Samplers: JK/AG

Sample Number: MW-17 061620 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump

1. L = Well Depth:	71.31	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	63.36	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 + NTU

Parameter	Units	Readings						
Time	24 hr	1535	1540	1545	1550	1555	1600	1605
Water Level (0.33)	feet	63.36	63.37	63.37	63.37	63.38	63.38	63.38
Volume Purged	gal	—	0.10	0.20	0.30	0.40	0.50	0.60
Flow Rate	mL/min	100	100	100	100	100	100	100
Turbidity (+/- 10%)	NTU	194	15.3	6.70	4.45	3.72	3.16	2.98
Dissolved Oxygen (+/- 10%)	%	102.2	95.9	94.2	91.7	93.2	92.8	92.1
Dissolved Oxygen (+/- 10%)	mg/L	9.16	8.83	8.73	8.60	8.63	8.66	8.65
Eh / ORP (+/- 10)	MeV	139.2	155.9	163.7	166.4	168.5	170.0	170.9
Specific Conductivity (+/- 3%)	mS/cm[c]	0.689	0.673	0.581	0.662	0.667	0.662	0.661
Conductivity (+/- 3%)	mS/cm	0.627	0.601	0.665	0.580	0.581	0.580	0.579
pH (+/- 0.1)	pH unit	8.76	7.50	7.37	7.32	7.31	7.31	7.31
Temp (+/- 0.5)	C°	19.4	19.3	18.5	18.6	18.3	18.4	18.3
Color	Visual	clear	clear	clear	clear	Clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments:

Sample @ 1610

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot : 60440641

Monitoring Well Number: MW-18 Date: 06/16/20

Samplers: Alexandra Golden + Jillian Kosinski

Sample Number: MW-18 061620 QA/QC Collected? —

Purging / Sampling Method: low flow bladder pump

1. L = Well Depth:	73.41	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	63.70	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 + NTU

Parameter	Units	Readings				✓	✓	✓
Time	24 hr	1545	1550	1555	1600	1605	1610	1615
Water Level (0.33)	feet	63.70	63.75	63.71	63.70	63.70	63.70	63.70
Volume Purged	gal	—	.15	.30	.45	.60	.75	1.00
Flow Rate	mL/min	292	292	292	292	292	292	292
Turbidity (+/- 10%)	NTU	5.21	1.26	0.69	1.56	2.89	2.49	2.72
Dissolved Oxygen (+/- 10%)	%	65.2	64.8	64.9	65.6	66.0	66.2	65.8
Dissolved Oxygen (+/- 10%)	mg/L	6.25	6.27	6.18	6.29	6.40	6.38	6.39
Eh / ORP (+/- 10)	MeV	93.9	96.6	97.5	99.0	90.2	99.9	100.0
Specific Conductivity (+/- 3%)	mS/cm^c	.024	.024	.024	.025	.025	.026	.026
Conductivity (+/- 3%)	mS/cm	.020	.020	.021	.021	.021	.022	.022
pH (+/- 0.1)	pH unit	7.55	7.55	7.54	7.53	7.55	7.53	7.53
Temp (+/- 0.5)	C°	17.6	16.8	17.7	17.4	16.8	17.1	17.0
Color	Visual	clear	clear	clear	clear	clear	clear	Clear
Odor	Olfactory	None	None	None	None	None	None	None

Comments:

146 mL per 130s discharge

Sample @ 1620

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: GEP-2 Date: 6/16/2020

Samplers: JK/AG

Sample Number: GEP-2 061620 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump

1. L = Well Depth:	77.17	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	67.93	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 + NTU

Parameter	Units	Readings							
Time	24 hr	1700	1705	1710	1715	1720	1725	1730	173
Water Level (0.33)	feet	—	67.93	67.94	67.94	67.94	67.94	67.94	67.9
Volume Purged	gal	[illegible]	0.20	0.40	0.60	0.80	1.00	1.20	1.40
Flow Rate	mL/min	100	100	100	100	100	100	100	100
Turbidity (+/- 10%)	NTU	80.4	50.2	48.7	40.0	38.6	35.4	33.9	32.
Dissolved Oxygen (+/- 10%)	%	95.1	94.0	93.8	92.8	92.2	92.4	91.8	91.9
Dissolved Oxygen (+/- 10%)	mg/L	9.53	9.40	9.34	9.30	9.36	9.26	9.23	9.2
Eh / ORP (+/- 10)	MeV	141.5	156.4	165.7	174.9	177.9	182.0	183.9	186
Specific Conductivity (+/- 3%)	mS/cm	0.676	0.663	0.667	0.668	0.668	0.666	0.670	0.6
Conductivity (+/- 3%)	mS/cm	0.549	0.540	0.546	0.543	0.536	0.541	0.543	0.5
pH (+/- 0.1)	pH unit	7.70	7.33	7.25	7.20	7.21	7.18	7.18	7.18
Temp (+/- 0.5)	C°	15.2	15.2	15.6	15.1	14.7	15.3	15.1	15.0
Color	Visual	Cloudy	Cloudy	Cloudy	Cloudy	Clearish	Clear	Clear	Clear
Odor	Olfactory	—	—	—	—	—	—	—	—

Comments:

Sample @ [illegible] 1740

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-33 Date: 6/17/2020

Samplers: JK/AG

Sample Number: MW-33061720 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump

1. L = Well Depth:	92.15	feet
2. D = Riser Diameter (I.D.):	2	feet
3. W = Depth to Water:	63.84	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 YSI + NTU

Parameter	Units	Readings							
Time	24 hr	08:18	08:23	08:28	08:33	08:38	0843	0848	085
Water Level (0.33)	feet	63.84	63.84	63.84	63.85	63.85	63 85	63.85	63.
Volume Purged	gal	—	0.20	0.40	0.60	0.80	1.00	1.20	1.4
Flow Rate	mL/min	120	120	120	120	120	120	120	12
Turbidity (+/- 10%)	NTU	8.85	7.20	7.04	5.82	4.33	4.83	4.24	3.9
Dissolved Oxygen (+/- 10%)	%	82.4	71.4	70.2	70.1	70.0	68.7	68.2	68.
Dissolved Oxygen (+/- 10%)	mg/L	8.54	7.41	7.28	7.26	7.23	7.10	7.06	7.0
Eh / ORP (+/- 10)	MeV	145.5	175.4	186.6	189.0	190.3	192.7	194.3	196
Specific Conductivity (+/- 3%)	mS/cm[c]	0.426	0.411	0.410	0.410	0.416	0.410	0.410	0 4
Conductivity (+/- 3%)	mS/cm	0.335	0.321	0.321	0.321	0.322	0.322	0.322	0 3
pH (+/- 0.1)	pH unit	7.60	7.41	7.40	7.38	7.21	7.28	7.29	7.3
Temp (+/- 0.5)	C°	13.8	13.6	13.6	13.6	13.7	13 7	13.8	13.
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clea
Odor	Olfactory	—	—	—	—	—	—	—	—

Comments:

Sample @ 0855

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-32 Date: 6/17/20

Samplers: Alexandra Holden + Jillian Kosinski

Sample Number: MW-32 061720 QA/QC Collected? —

Purging / Sampling Method: low flow bladder pump

1. L = Well Depth:	91.54	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	63.82	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 + NTU

Parameter	Units	Readings							
							✓	✓	✓
Time	24 hr	0820	0825	0830	0835	0840	0845	0850	0855
Water Level (0.33)	feet	63.82	63.86	63.87	63.86	63.86	63.86	63.86	63.8
Volume Purged	gal	—	.20	.45	.75	1.15	1.60	1.90	2.1
Flow Rate	mL/min	284	284	284	284	284	284	284	284
Turbidity (+/- 10%)	NTU	0.89	0.41	.25	0.02	0.59	.69	.87	.66
Dissolved Oxygen (+/- 10%)	%	5.1	3.0	3.9	6.8	9.9	11.1	12.3	13.8
Dissolved Oxygen (+/- 10%)	mg/L	.54	.31	.40	.70	1.01	1.14	1.23	1.39
Eh / ORP (+/- 10)	MeV	-157	-166.6	-161.4	-156.9	-154.0	-152.1	-152.9	-151.
Specific Conductivity (+/- 3%)	mS/cm[c]	.172	.168	.168	.166	.162	.160	.154	.157
Conductivity (+/- 3%)	mS/cm	.135	.133	.133	.131	.130	.128	.124	.124
pH (+/- 0.1)	pH unit	7.62	7.71	7.72	7.72	7.72	7.73	7.73	7.7
Temp (+/- 0.5)	C°	13.9	14.0	14.0	14.1	14.1	13.9	14.0	13.9
Color	Visual	clear	clear	clear	clear	clear	clear	clear	clea
Odor	Olfactory	None	None	None	None	None	None	None	No

Comments:

discharge 142 mL per 30 sec discharge

sample @ 0900

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-24 Date: 6/17/2020

Samplers: JK/AG

Sample Number: MW-24061720 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump *screen 90-100ft

1. L = Well Depth:	103.35	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	66.72	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 + NTU

Parameter	Units	Readings						
Time	24 hr	1018	10:23	10:28	10:33	10:38	10:43	10:48
Water Level (0.33)	feet	66.73	66.73	66.74	66.74	66.74	66.74	66.74
Volume Purged	gal	—	0.20	0.40	0.60	0.80	1.00	1.20
Flow Rate	mL/min	120	120	120	120	120	120	120
Turbidity (+/- 10%)	NTU	0.42	1.09	1.62	0.88	1.04	1.25	1.97
Dissolved Oxygen (+/- 10%)	%	14.0	9.8	7.8	6.6	6.2	6.0	5.7
Dissolved Oxygen (+/- 10%)	mg/L	1.36	0.95	0.73	0.63	0.60	0.57	0.55
Eh / ORP (+/- 10)	MeV	-119.5	-126.5	-130.4	-138.5	-139.6	-140.9	-144.0
Specific Conductivity (+/- 3%)	mS/cm^c	0.417	0.422	0.430	0.434	0.435	0.434	0.437
Conductivity (+/- 3%)	mS/cm	0.356	0.357	0.370	0.371	0.369	0.372	0.375
pH (+/- 0.1)	pH unit	7.70	7.61	7.59	7.60	7.61	7.62	7.63
Temp (+/- 0.5)	C°	17.2	17.2	17.7	17.5	17.2	17.4	17.6
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments:

Sample VOCs + MNA (NO IRON SAMPLES) *tubing black at bottom

Sample @ 10:55

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Depot

Monitoring Well Number: MW-30 Date: 6/17/2020

Samplers: JK / AG

Sample Number: MW-30 061720 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump

1. L = Well Depth:	91.23	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	65.44	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 + NTU

Parameter	Units	Readings							
Time	24 hr	1148	1153	1158	1203	1208	1213	1218	1223
Water Level (0.33)	feet	65.44	65.45	65.45	65.45	65.45	65.45	65.45	65.4
Volume Purged	gal	—	0.10	0.20	0.30	0.40	0.50	0.60	0.80
Flow Rate	mL/min	120	120	120	120	120	120	120	120
Turbidity (+/- 10%)	NTU	1.50	1.87	1.42	1.06	1.12	1.37	1.09	1.45
Dissolved Oxygen (+/- 10%)	%	*	*	*	*	0.5	0.5	0.5	0.5
Dissolved Oxygen (+/- 10%)	mg/L	0.22	0.18	0.08	0.05	0.05	0.05	0.05	0.05
Eh / ORP (+/- 10)	MeV	-199.5	-201.3	-184.2	-189.5	-194.9	-200.4	-202.8	-20
Specific Conductivity (+/- 3%)	mS/cm[c]	0.107	0.100	0.102	0.094	0.077	0.077	0.077	0.07
Conductivity (+/- 3%)	mS/cm	0.088	0.088	0.081	0.072	0.061	0.060	0.060	0.06
pH (+/- 0.1)	pH unit	8.73	8.70	8.68	8.67	8.66	8.67	8.68	8.6
Temp (+/- 0.5)	C°	15.2	14.7	14.2	13.5	13.5	13.6	13.6	13.6
Color	Visual	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Odor	Olfactory	—	—	—	—	—	—	—	—

* 2.4 1.8 1.0 0.6

Comments:

Sample @ 1230

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-31 Date: 6/17/20

Samplers: Alexandra Golden + Jillian Kosinski

Sample Number: MW-31 061720 QA/QC Collected? —

Purging / Sampling Method: low flow bladder pump

1. L = Well Depth:	91.64	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	65.21	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 + NTU

Parameter	Units	Readings				1300	1305 ✓	1310 ✓	1315 ✓
Time	24 hr	1240	1245	1250	1255	~~1230~~	~~1235~~	~~1240~~	
Water Level (0.33)	feet	65.21	65.23	65.24	65.23	65.23	65.23	65.23	65.2
Volume Purged	gal	—	.15	.30	.50	.75	1.10	1.35	1.61
Flow Rate	mL/min	290	290	290	290	290	290	290	290
Turbidity (+/- 10%)	NTU	12.48	12.44	12.19	12.44	13.17	13.16	14.48	14.42
Dissolved Oxygen (+/- 10%)	%	35.5	17.3	14.0	11.8	11.2	11.0	9.7	9.2
Dissolved Oxygen (+/- 10%)	mg/L	3.26	1.74	1.40	1.20	1.13	1.10	.96	.91
Eh / ORP (+/- 10)	MeV	-191.6	-129.2	-136.5	-142.1	-142.9	-144.1	-146.9	-148.0
Specific Conductivity (+/- 3%)	mS/cm^c	.392	.392	.389	.393	.400	.399	.400	.399
Conductivity (+/- 3%)	mS/cm	.337	.324	.317	.320	.324	.325	.328	.325
pH (+/- 0.1)	pH unit	9.48	8.23	7.98	7.89	7.84	7.81	7.80	7.81
Temp (+/- 0.5)	C°	17.7	16.0	15.4	15.4	15.2	15.3	15.6	15.3
Color	Visual	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Odor	Olfactory	None	None	None	None	None	None	None	Non

Comments:

Flow rate per 130sec discharge = 145mL

Sample time @1320

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-28 Date: 6/17/2020

Samplers: JK IAG

Sample Number: MW-28 061720 QA/QC Collected? Dup & IRON MS/MSD

Purging / Sampling Method: Bladder Pump

1. L = Well Depth:	72.81	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	65.69	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 + NTU

Parameter	Units	Readings						
Time	24 hr	1335	1340	1345	1350	1355	1400	1405
Water Level (0.33)	feet	65.69	65.69	65.69	65.70	65.70	65.71	65.71
Volume Purged	gal	—	0.20	0.40	0.60	0.80	1.00	1.20
Flow Rate	mL/min	120	120	120	120	120	120	120
Turbidity (+/- 10%)	NTU	12.3	8.21	6.65	5.01	4.82	3.58	2.11
Dissolved Oxygen (+/- 10%)	%	12.6	8.4	5.6	5.1	4.2	3.9	3.8
Dissolved Oxygen (+/- 10%)	mg/L	1.11	0.75	0.51	0.46	0.39	0.36	0.35
Eh / ORP (+/- 10)	MeV	34.0	13.8	10.4	5.3	17.9	20.8	23.1
Specific Conductivity (+/- 3%)	mS/cm[c]	0.158	0.155	0.154	0.154	0.101	0.097	0.096
Conductivity (+/- 3%)	mS/cm	0.146	0.142	0.139	0.139	0.090	0.086	0.085
pH (+/- 0.1)	pH unit	7.18	7.18	7.19	7.19	7.18	7.19	7.19
Temp (+/- 0.5)	C°	21.2	20.8	19.9	19.9	19.5	19.3	19.1
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments:

Sample @ 1410

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-29 Date: 06/17/20

Samplers:

Sample Number: MW-29 061720 QA/QC Collected? —

Purging / Sampling Method: low flow bladder

1. L = Well Depth:	71.19	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	65.55	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 + NTU

Parameter	Units	Readings					✓	✓	✓
Time	24 hr	1415	1420	1425	1430	1445	1450	1455	
Water Level (0.33)	feet	65.55	65.58	65.59	65.58	65.58	65.58	65.8	
Volume Purged	gal	—	.10	.25	.50	.75	1.00	1.25	
Flow Rate	mL/min	286	286	286	286	286	286	286	
Turbidity (+/- 10%)	NTU	OR	1383	1308	1159	1091	1006	997.3	
Dissolved Oxygen (+/- 10%)	%	69.4	49.4	42.3	46.6	48.3	49.7	53.0	
Dissolved Oxygen (+/- 10%)	mg/L	6.47	4.65	4.08	4.65	4.87	5.11	5.25	
Eh / ORP (+/- 10)	MeV	144.2	115.0	97.5	99.6	102.8	108.6	110.7	
Specific Conductivity (+/- 3%)	mS/cm[c]	.609	.603	.602	.602	.601	.600	.602	
Conductivity (+/- 3%)	mS/cm	.538	.521	.509	.491	.490	.487	.488	
pH (+/- 0.1)	pH unit	7.74	7.60	7.61	7.42	7.39	7.35	7.33	
Temp (+/- 0.5)	C°	18.6	17.9	16.9	15.4	15.3	15.1	15.1	
Color	Visual	murky	"	"	"	"	"	"	
Odor	Olfactory	—	—	—	—	—	—	—	

Comments:

Sample time @ 1500

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: GEP-4 Date: 6/17/2020

Samplers: JK IAG

Sample Number: GEP-4 061720 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump

1. L = Well Depth:	67.34	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	65.02	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 + NTU

Parameter	Units	Readings						
Time	24 hr	1620	1625	1630	1635	1640	1645	1650
Water Level (0.33)	feet	65.02	#Unable	to Read	* —	—	—	—
Volume Purged	gal	—	0.10	0.20	0.30	0.40	0.50	0.60
Flow Rate	mL/min	100	100	100	100	100	100	100
Turbidity (+/- 10%)	NTU	7.77	6.22	4.63	3.86	4.26	3.98	3.35
Dissolved Oxygen (+/- 10%)	%	98.3	96.7	96.4	95.8	95.0	94.0	93.9
Dissolved Oxygen (+/- 10%)	mg/L	9.38	9.45	9.50	9.44	9.34	9.37	9.34
Eh / ORP (+/- 10)	MeV	72.8	102.8	113.7	122.2	127.9	132.1	134.9
Specific Conductivity (+/- 3%)	mS/cm[c]	0.116	0.108	0.108	0.108	0.109	0.109	0.109
Conductivity (+/- 3%)	mS/cm	0.102	0.090	0.090	0.089	0.091	0.089	0.089
pH (+/- 0.1)	pH unit	7.62	7.57	7.57	7.57	7.56	7.57	7.56
Temp (+/- 0.5)	C°	18.8	16.4	16.1	16.1	15.9	15.6	15.6
Color	Visual	clear	clear	clear	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments: * unable to read, water level below pump *

Sample @ 1655

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot 60440641

Monitoring Well Number: MW-25 Date: 6/18/20

Samplers: AG + JK

Sample Number: MW-25 061820 QA/QC Collected? —

Purging / Sampling Method: low flow bladder pump

1. L = Well Depth:	74.59	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	59.95	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 + NTU

Parameter	Units	Readings						
Time	24 hr	0835	0840	0845	0850	0855	0900	0905
Water Level (0.33)	feet	59.95	59.99	59.98	59.98	59.97	59.98	59.98
Volume Purged	gal	—	.20	.41	.65	.90	1.15	1.50
Flow Rate	mL/min	262	262	262	262	262	262	262
Turbidity (+/- 10%)	NTU	10.47	19.47	19.88	5.50	2.50	1.98	1.75
Dissolved Oxygen (+/- 10%)	%	92.8	91.8	91.4	91.0	91.6	92.4	91.6
Dissolved Oxygen (+/- 10%)	mg/L	9.34	9.29	9.24	9.15	9.17	9.23	9.14
Eh / ORP (+/- 10)	MeV	198.6	207.2	213.9	218.2	222.5	223.8	226.7
Specific Conductivity (+/- 3%)	mS/cm^c	.499	.498	.498	.497	.497	.498	.499
Conductivity (+/- 3%)	mS/cm	.404	.402	.402	.403	.404	.406	.407
pH (+/- 0.1)	pH unit	7.40	7.30	7.26	7.25	7.26	7.26	7.26
Temp (+/- 0.5)	C°	15.0	14.9	14.9	15.1	15.2	15.3	15.3
Color	Visual	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments:

plenty of tubing

Sample time @ ~~0910~~ 0910

131 ml discharged per 130 sec discharge

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-23 Date: 6/18/2020

Samplers: JK/AG * screen: 63-78

Sample Number: MW-23 061820 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump

1. L = Well Depth:	81.04	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	69.41	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 + NTU

Parameter	Units	Readings							
Time	24 hr	0830	0835	0840	0845	0850	0855	0900	0905
Water Level (0.33)	feet	69.41	69.43	69.44	69.44	69.44	6.44	6.44	6.4
Volume Purged	gal	—	0.10	0.20	0.30	0.40	0.50	0.60	0.7
Flow Rate	mL/min	100	100	100	100	100	100	100	100
Turbidity (+/- 10%)	NTU	221	317	206	247	239	250	229	235
Dissolved Oxygen (+/- 10%)	%	117.7	124.0	127.0	120.3	123.1	119.8	125.1	125
Dissolved Oxygen (+/- 10%)	mg/L	12.03	12.99	12.98	12.70	12.91	12.70	12.83	12.9
Eh / ORP (+/- 10)	MeV	122.4	135.2	140.2	144.6	147.8	151.1	154.4	156.
Specific Conductivity (+/- 3%)	mS/cm[c]	0.504	0.461	0.358	0.356	0.360	0.364	0.362	0.36
Conductivity (+/- 3%)	mS/cm	0.400	0.360	0.275	0.271	0.275	0.276	0.274	0.27
pH (+/- 0.1)	pH unit	7.39	7.38	7.44	7.41	7.41	7.41	7.40	7.40
Temp (+/- 0.5)	C°	14.3	14.9	12.9	12.7	12.6	12.3	12.3	12.
Color	Visual	clearish	clearish	clearish	cloudy	cloudy	cloudy	cloudy	Cloud
Odor	Olfactory	—	—	—	—	—	—	—	—

Comments: * deepest in well

sample @ 0910

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot - 60440641

Monitoring Well Number: MW-19 Date: 6/18/20

Samplers: AG/JK

Sample Number: MW-19 061820 QA/QC Collected? —

Purging / Sampling Method: low flow bladder pump

1. L = Well Depth:	74.39	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	65.33	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 + NTU

Parameter	Units	Readings						
Time	24 hr	0950	0955	1000	1005	1010	1015	1020
Water Level (0.33)	feet	65.33	65.37	65.37	65.36	65.37	65.36	65.36
Volume Purged	gal	—	.15	.37	.57	.75	1.10	1.61
Flow Rate	mL/min	302	302	302	302	302	302	302
Turbidity (+/- 10%)	NTU	9.61	6.53	5.57	4.91	4.56	3.35	3.16
Dissolved Oxygen (+/- 10%)	%	99.7	100.4	100.4	99.6	99.8	100.5	101.3
Dissolved Oxygen (+/- 10%)	mg/L	10.00	10.04	10.04	9.98	10.05	10.01	10.12
Eh / ORP (+/- 10)	MeV	194.6	201.7	208.9	210.8	213.6	215.3	216.6
Specific Conductivity (+/- 3%)	mS/cm[c]	.676	.674	.670	.668	.663	.660	.660
Conductivity (+/- 3%)	mS/cm	.549	.548	.547	.543	.536	.539	.536
pH (+/- 0.1)	pH unit	7.41	7.33	7.28	7.26	7.24	7.22	7.21
Temp (+/- 0.5)	C°	15.5	15.3	15.5	15.2	15.0	15.4	15.2
Color	Visual	clear	Clear	Clear	Clear	Clear	Clear	Clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments:

sample time @ 1025

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-36 Date: 6/18/2020

Samplers: JK/AG

Sample Number: MW-36061820 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump *screen: 70-80

1. L = Well Depth:	79.45	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	63.39	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 + NTU

Parameter	Units	Readings						
Time	24 hr	1000	1005	1010	1015	1020	1025	1030
Water Level (0.33)	feet	63.39	63.40	63.40	63.41	63.40	63.40	63.40
Volume Purged	gal	—	0.15	0.30	0.45	0.60	0.75	0.90
Flow Rate	mL/min	120	120	120	120	120	120	120
Turbidity (+/- 10%)	NTU	8.77	6.42	4.75	3.59	3.81	3.11	2.94
Dissolved Oxygen (+/- 10%)	%	69.3	51.7	47.5	45.8	44.0	42.8	42.9
Dissolved Oxygen (+/- 10%)	mg/L	6.48	5.03	4.60	4.44	4.25	4.11	4.13
Eh / ORP (+/- 10)	MeV	144.4	147.4	147.0	146.7	145.7	143.1	139.0
Specific Conductivity (+/- 3%)	mS/cm[c]	0.474	0.486	0.490	0.494	0.492	0.492	0.494
Conductivity (+/- 3%)	mS/cm	0.407	0.411	0.414	0.417	0.416	0.418	0.420
pH (+/- 0.1)	pH unit	7.67	7.59	7.59	7.58	7.58	7.58	7.58
Temp (+/- 0.5)	C°	17.6	16.8	16.7	16.8	16.9	17.2	17.1
Color	Visual	clear	clear	Clear	clear	clear	Clear	Clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments:

Sample @ 1035

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot - 60440641

Monitoring Well Number: MW-20 Date: 6/18/20

Samplers: AG + JK

Sample Number: MW-20 061820 QA/QC Collected? —

Purging / Sampling Method: low flow bladder pump

1. L = Well Depth:	75.99	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	67.90	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 + NTU

Parameter	Units	Readings				✓	✓	✓
Time	24 hr	1105	1110	1115	1120	1125	1130	1135
Water Level (0.33)	feet	67.9	68.01	68.01	68.01	68.01	68.00	68.00
Volume Purged	gal	—	.20	.40	.65	.90	1.15	1.36
Flow Rate	mL/min	262	262	262	262	262	262	262
Turbidity (+/- 10%)	NTU	15.63	10.12	9.60	6.16	4.67		
Dissolved Oxygen (+/- 10%)	%	100.5	99.4	100.1	100.9	100.8	101.0	101.8
Dissolved Oxygen (+/- 10%)	mg/L	9.80	9.68	9.83	9.82	9.83	9.92	10.04
Eh / ORP (+/- 10)	MeV	216.6	219.4	222.2	224.1	224.2	224.3	224.5
Specific Conductivity (+/- 3%)	mS/cm^c	.875	.864	.856	.863	.866	.866	.864
Conductivity (+/- 3%)	mS/cm	.737	.722	.714	.722	.725	.718	.714
pH (+/- 0.1)	pH unit	7.17	7.17	7.16	7.09	7.06	7.10	7.10
Temp (+/- 0.5)	C°	16.7	16.4	16.5	16.4	16.4	16.0	16.0
Color	Visual	Clear	clear	clear	clear	clear	clear	Clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments:

Sample time @ 1145

Monitoring Well Purging / Sampling Form

Project Name and Number: Scota Navy Depot

Monitoring Well Number: MW-22R Date: 6/18/2020

Samplers: AG/JK *SCREEN: 63-78

Sample Number: MW-22R 061820 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump

1. L = Well Depth:	77.82	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	66.71	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 + NTU

Parameter	Units	Readings						
Time	24 hr	1120	1125	1130	1135	1140	1145	1150
Water Level (0.33)	feet	66.71	66.71	66.71	66.71	66.72	66.72	66.73
Volume Purged	gal	—	0.15	0.30	0.45	0.60	0.75	0.90
Flow Rate	mL/min	120	120	120	120	120	120	120
Turbidity (+/- 10%)	NTU	693	566	518	481	408	421	384
Dissolved Oxygen (+/- 10%)	%	122.7	115.0	113.8	113.8	115.1	114.0	114.6
Dissolved Oxygen (+/- 10%)	mg/L	10.51	10.16	10.07	10.07	10.03	10.12	10.18
Eh / ORP (+/- 10)	MeV	128.5	141.5	152.7	158.3	160.9	164.3	166.5
Specific Conductivity (+/- 3%)	mS/cm^c	0.423	0.405	0.396	0.393	0.392	0.389	0.390
Conductivity (+/- 3%)	mS/cm	0.406	0.379	0.368	0.365	0.364	0.361	0.361
pH (+/- 0.1)	pH unit	7.47	7.44	7.48	7.50	7.51	7.53	7.55
Temp (+/- 0.5)	C°	22.7	21.8	21.4	21.3	21.3	21.4	21.4
Color	Visual	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy	Cloudy
Odor	Olfactory	Slight gas	Slight gas	Slight gas	Slight gas	Slight gas	Slight gas	Slight gas

Comments:

Sample @ 1155

* white paste/crumbles came up with pump

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot - 60440641

Monitoring Well Number: GEP-3 Date: 6/18/20

Samplers: AH + JK

Sample Number: GEP-3 061820 QA/QC Collected? —

Purging / Sampling Method: low flow bladder pump

1. L = Well Depth:	74.47	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	65.35	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 + NTU

Parameter	Units	Readings						
Time	24 hr	1215	1220	1225	1230	1235 ✓	1240 ✓	1245 ✓
Water Level (0.33)	feet	65.35	65.38	65.37	65.37	65.37	65.37	65.37
Volume Purged	gal	—	.12	.30	.45	.65	.85	1.15
Flow Rate	mL/min	270	270	270	270	270	270	270
Turbidity (+/- 10%)	NTU	12.6	10.80	9.19	6.93	4.99	4.10	3.01
Dissolved Oxygen (+/- 10%)	%	103.3	100.3	98.7	100.0	99.9	99.8	100.3
Dissolved Oxygen (+/- 10%)	mg/L	9.55	9.34	9.27	9.31	9.38	9.37	9.37
Eh / ORP (+/- 10)	MeV	173.7	155.80	195.0	199.7	205.5	207.3	209.3
Specific Conductivity (+/- 3%)	mS/cm^c	.457	.462	.465	.468	.477	.476	.477
Conductivity (+/- 3%)	mS/cm	.407	.406	.408	.412	.415	.416	.420
pH (+/- 0.1)	pH unit	8.00	7.67	7.52	7.53	7.51	7.50	7.49
Temp (+/- 0.5)	C°	19.9	18.6	18.5	18.7	18.3	18.4	18.8
Color	Visual	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments:

Sample time @ 1250

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-9 Date: 6/18/2020

Samplers: JK/AG

Sample Number: MW-9061820 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump *screen: 110-120

1. L = Well Depth:	121.85	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	70.92	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 + NTU

Parameter	Units	Readings							
Time	24 hr	1320	1325	1330	1335	1340	1345	1350	1355
Water Level (0.33)	feet	70.92	70.92	70.93	70.93	70.94	70.95	70.95	70
Volume Purged	gal	—	0.20	0.40	0.60	0.80	1.00	1.20	1.40
Flow Rate	mL/min	150	150	150	150	150	150	150	15
Turbidity (+/- 10%)	NTU	140	93.8	64.1	41.5	37.4	38.5	41.1	36.6
Dissolved Oxygen (+/- 10%)	%	127.7	126.0	124.6	120.4	115.9	112.7	109.6	107
Dissolved Oxygen (+/- 10%)	mg/L	9.87	9.94	10.09	9.83	9.54	9.24	8.97	8.8
Eh / ORP (+/- 10)	MeV	33.4	26.7	26.5	23.4	24.6	34.4	34.7	34
Specific Conductivity (+/- 3%)	mS/cm[c]	0.352	0.398	0.393	0.389	0.389	0.396	0.388	0.3
Conductivity (+/- 3%)	mS/cm	0.377	~~0.398~~*	0.398	0.391	0.391	0.391	0.392	0.3
pH (+/- 0.1)	pH unit	7.69	7.71	7.71	7.72	7.73	7.72	7.73	7.7
Temp (+/- 0.5)	C°	28.7	28.8	25.5	25.3	25.2	25.2	25.5	25.5
Color	Visual	cloudy	cloudy	cloudy	cloudy	clear	clear	clear	clear
Odor	Olfactory	—	—	—	—	—	—	—	—

* 0.416

Comments:

Sample @ 1400

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot - 60440641

Monitoring Well Number: MW-5 Date: 6/18/20

Samplers: AG + JK

Sample Number: MW-5 061820 QA/QC Collected? —

Purging / Sampling Method: low flow bladder pump

1. L = Well Depth:	74.81	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	72.41	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 + NTU

Parameter	Units	Readings				✓	✓	✓
Time	24 hr	1400	1405	1410	1415	1420	1425	1430
Water Level (0.33)	feet	72.41	—	—	—	—	—	—
Volume Purged	gal	—	.09	.10	.30	.51	.62	.69
Flow Rate	mL/min	130	130	130	130	130	130	130
Turbidity (+/- 10%)	NTU	2.46	0.36	0.71	.58	0.57	0.02	0.02
Dissolved Oxygen (+/- 10%)	%	117.3	113.7	114.0	113.5	113.7	113.7	113.4
Dissolved Oxygen (+/- 10%)	mg/L	10.79	10.87	10.93	11.01	11.02	11.05	11.10
Eh / ORP (+/- 10)	MeV	139.7	158.6	169.5	177.3	181.9	186.2	189.9
Specific Conductivity (+/- 3%)	mS/cm[c]	.726	.715	.711	.712	.710	.708	.707
Conductivity (+/- 3%)	mS/cm	.646	.612	.602	.599	.597	.594	.591
pH (+/- 0.1)	pH unit	8.29	7.81	7.65	7.62	7.60	7.60	7.59
Temp (+/- 0.5)	C°	19.2	17.9	16.9	16.7	16.6	16.5	16.4
Color	Visual	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments:

* barely enough tubing Strongly recommend new tubing

* discharge/fill times set to 55 sec ea.

• 130mL per 1 55 sec cycle
• cannot get WLM because water column is too shallow

Sample @ 1435

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-B-3 Date: 6/18/2020

Samplers: AG/JK

Sample Number: MW-B-3 061820 QA/QC Collected? —

Purging / Sampling Method: Bladder Pump *screen: 47.5-67.5

1. L = Well Depth:	62.74	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	58.25	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 + NTU

Parameter	Units	Readings						
Time	24 hr	1455	1500	1505	1510	1515	1520	1525
Water Level (0.33)	feet	58.25	58.25	58.25	58.25	58.25	58.25	58.25
Volume Purged	gal	—	0.10	0.20	0.30	0.40	0.50	0.60
Flow Rate	mL/min	100	100	100	100	100	100	100
Turbidity (+/- 10%)	NTU	108	104	44.3	37.0	37.3	35.4	38.1
Dissolved Oxygen (+/- 10%)	%	114.3	111.4	109.2	108.7	109.2	108.5	109.6
Dissolved Oxygen (+/- 10%)	mg/L	9.79	9.73	9.52	9.51	9.62	9.55	9.65
Eh / ORP (+/- 10)	MeV	116.8	128.9	139.8	144.3	146.9	149.2	151.2
Specific Conductivity (+/- 3%)	mS/cm[c]	0.357	0.344	0.338	0.342	0.341	0.341	0.340
Conductivity (+/- 3%)	mS/cm	0.344	0.323	0.320	0.321	0.319	0.318	0.315
pH (+/- 0.1)	pH unit	7.60	7.59	7.59	7.59	7.59	7.59	7.59
Temp (+/- 0.5)	C°	22.9	21.5	22.1	21.6	21.7	21.5	21.4
Color	Visual	Cloudy	tinted	clear	Clear	clear	Clear	clear
Odor	Olfactory	—	—	—	—	—	—	—

Comments:

Sample @ 1530

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: MW-14 Date: 6/18/2020

Samplers: AG/JK

Sample Number: MW-14 061820 QA/QC Collected? —

Purging / Sampling Method: 1" BAILER (QC bent)

1. L = Well Depth:	78.85	feet
2. D = Riser Diameter (I.D.):		feet
3. W = Depth to Water:	67.99	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 + NTU

Parameter	Units	Readings						
Time	24 hr	1545						
Water Level (0.33)	feet	67.99						
Volume Purged	gal	—						
Flow Rate	mL/min	—						
Turbidity (+/- 10%)	NTU	9.28						
Dissolved Oxygen (+/- 10%)	%	83.7						
Dissolved Oxygen (+/- 10%)	mg/L	8.02						
Eh / ORP (+/- 10)	MeV	158.2						
Specific Conductivity (+/- 3%)	mS/cm[c]	.750						
Conductivity (+/- 3%)	mS/cm	.640						
pH (+/- 0.1)	pH unit	8.55						
Temp (+/- 0.5)	C°	17.3						
Color	Visual	clear						
Odor	Olfactory	—						

Comments:

Sample @ 1545

Monitoring Well Purging / Sampling Form

Project Name and Number: Scotia Navy Depot

Monitoring Well Number: ~~MW~~ GEP-1 Date: 06/18/20

Samplers: AG + JK

Sample Number: GEP-1 061820 QA/QC Collected? —

Purging / Sampling Method: low flow bladder pump

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 YSI + NTU

Parameter	Units	Readings						
Time	24 hr	1605						
Water Level (0.33)	feet	.						
Volume Purged	gal	—						
Flow Rate	mL/min	—						
Turbidity (+/- 10%)	NTU	393						
Dissolved Oxygen (+/- 10%)	%	83.1						
Dissolved Oxygen (+/- 10%)	mg/L	8.06						
Eh / ORP (+/- 10)	MeV	173.8						
Specific Conductivity (+/- 3%)	mS/cm[c]	.632						
Conductivity (+/- 3%)	mS/cm	.525						
pH (+/- 0.1)	pH unit	8.23						
Temp (+/- 0.5)	C°	16.1						
Color	Visual	murky						
Odor	Olfactory	—						

Comments:

sample. 1605

APPENDIX B: Field Calibration Forms

Calibration Record

Project Name: Scotia Navy Depot

Personnel: Jillian Kosinski & Alexandra Golden

Instrument: YSI + NTU

Parameter	Units	Calibration Readings			
		Morning Calibration	Evening Calibration	Morning Calibration	Evening Calibration
Date	-	6/15/2020		6/16/2020	
Time	24 hr		14:45	0700	1815
Temperature	°F		80°F	60°F	80°F
pH1	pH unit		7.00	7.00	4.01
pH2	pH unit		4.00	4.00	7.00
pH3	pH unit		10.00	10.00	10.00
ORP	MeV		220.0	220.0	220.0
Conductivity	mS/cm	1.413		1.413	1.413
Turbidity	NTU		0.0	0.0	0.0
D.O.	mg/L		0.16	0.12	0.08

Parameter	Units	Calibration Readings			
		Morning Calibration	Evening Calibration	Morning Calibration	Evening Calibration
Date	-	6/18/2020			
Time	24 hr	07:10	16:20		
Temperature	°F	70	90		
pH1	pH unit	4.00	4.00		
pH2	pH unit	7.01	7.00		
pH3	pH unit	10.02	10.00		
ORP	MeV	220.0	220.0		
Conductivity	mS/cm	1.413	1.413		
Turbidity	NTU	0.0	0.0		
D.O.	mg/L	0.0	0.0		

Calibration Record

Project Name: 604406 41 - Scotia

Personnel: AH + JK

Instrument: YSI

Parameter	Units	Calibration Readings				
		Morning Calibration	Evening Calibration		Morning Calibration	Evening Calibration
Date	-		6/15/2020		6/16/2020	
Time	24 hr		1540		0715	1820
Temperature	°F		75°		20.8°C	27.9°C
pH1	pH unit		6.99		7.02	6.99
pH2	pH unit		4.01		4.00	4.01
pH3	pH unit		9.98	*	10.06	9.97
ORP	MeV		229.0		235.5	230.0
Conductivity	mS/cm		1.416		1.261	1.468
Turbidity	NTU		0.0		0.0	0.0
D.O.	mg/L		0.00 ✓		0.00 ✓	0.00

Acct for temp

Parameter	Units	Calibration Readings				
		Morning Calibration	Evening Calibration		Morning Calibration	Evening Calibration
Date	-	6/17/20 YSI #1			6/11/20 YSI #2	
Time	24 hr	0710	1700		0710	1630
Temperature	°F	18.5 °C	32.9		18.5°C	31.6°C
pH1	pH unit	7.02	6.99		7.02	6.99
pH2	pH unit	4.00	4.01		4.00	4.01
pH3	pH unit	10.05	9.94		10.07	9.94
ORP	MeV	239.3	218.9		239.6	223.0
Conductivity	mS/cm	1.260	1.555		1.260	1.555
Turbidity	NTU	0.0	0.0		0.0	0.0
D.O.	mg/L	0.27	0.27		0.00 ✓	0.00

Calibration Record

Project Name: Scotia Navy Depot

Personnel: AG + JK

Instrument: YSI + NTU

Parameter	Units	Calibration Readings			
		Morning Calibration	Evening Calibration	Morning Calibration	Evening Calibration
Date	-	06/18/20			
Time	24 hr	0730	1620		
Temperature	°F	23.1	28.9		
pH1	pH unit	7.02	7.00		
pH2	pH unit	4.00	4.00		
pH3	pH unit	10.04	10.01		
ORP	MeV	234.8	220.0		
Conductivity	mS/cm	1.706	1.413		
Turbidity	NTU	0.0	0.0		
D.O.	mg/L	0.27	0.25		

Parameter	Units	Calibration Readings			
		Morning Calibration	Evening Calibration	Morning Calibration	Evening Calibration
Date	-				
Time	24 hr				
Temperature	°F				
pH1	pH unit				
pH2	pH unit				
pH3	pH unit				
ORP	MeV				
Conductivity	mS/cm				
Turbidity	NTU				
D.O.	mg/L				

APPENDIX C: Hydraulic Gradient and Velocity Calculations

June 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 2019 Data		GW Elevation (ft)	Delta Elevation (ft)	Delta Distance (ft)	Gradient	Average Gradient (ft/ft)
Pair 1	MW-25	228.16	3.41	540	0.006314815	**0.005376**
	MW-26	224.75				
Pair 2	GEP-3	227.68	1.94	420	0.004619048	
	MW-13	225.74				
Pair 3	MW-17	228.69	2.13	410	0.005195122	
	MW-28	226.56				

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)	0.08
Darcy Velocity High (ft/day)	1.04

Seepage Velocity

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

Porosity (n)	0.4

Seepage Velocity Low (ft/day)	**0.21**
Seepage Velocity High (ft/day)	**2.60**

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

June 25, 2020

Mr. Greg Malzone
AECOM Pittsburgh
Gulf Tower
707 Grant Street, 5th Floor
Pittsburgh, PA 15219

Certificate of Analysis

Project Name:	**2015-SCOTIA NAVY DEPOT-PO 60440641**	Workorder:	**3108528**
Purchase Order:	**66432**	Workorder ID:	**ASN056|Scotia Navy Depot**

Dear Mr. Malzone:

Enclosed are the analytical results for samples received by the laboratory on Tuesday, June 16, 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 Mrs. Vanessa N Badman (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.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

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

CC: Ms. Gerlinde Wolfe , Mr. Daniel Servetas

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

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

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SAMPLE SUMMARY

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3108528001	MW-27-061520	Ground Water	6/15/2020 13:45	6/16/2020 09:18	Collected by Client
3108528002	MW-7-061520	Ground Water	6/15/2020 14:15	6/16/2020 09:18	Collected by Client
3108528003	MW-6-061520	Ground Water	6/15/2020 15:05	6/16/2020 09:18	Collected by Client

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SAMPLE SUMMARY

Workorder: 3108528 ASN056|Scotia Navy Depot

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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ANALYTICAL RESULTS

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID: **3108528001** Date Collected: 6/15/2020 13:45 Matrix: Ground Water

Sample ID: **MW-27-061520** Date Received: 6/16/2020 09:18

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	3.8U	U,2	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,2-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
cis-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
trans-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1,1,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1,2,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Tetrachloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Toluene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1,1-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1,2-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Trichloroethene	179		ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Vinyl Chloride	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.8		%	81 - 118			SW846 8260C			6/24/20 12:06	TMP	B
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/24/20 12:06	TMP	B
Dibromofluoromethane (S)	95.5		%	80 - 119			SW846 8260C			6/24/20 12:06	TMP	B
Toluene-d8 (S)	96		%	89 - 112			SW846 8260C			6/24/20 12:06	TMP	B

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID: **3108528002** Date Collected: 6/15/2020 14:15 Matrix: Ground Water

Sample ID: **MW-7-061520** Date Received: 6/16/2020 09:18

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U,1	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	101		%	81 - 118	SW846 8260C			6/19/20 15:16	DPC	A
4-Bromofluorobenzene (S)	97.6		%	85 - 114	SW846 8260C			6/19/20 15:16	DPC	A
Dibromofluoromethane (S)	89.2		%	80 - 119	SW846 8260C			6/19/20 15:16	DPC	A
Toluene-d8 (S)	105		%	89 - 112	SW846 8260C			6/19/20 15:16	DPC	A

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ANALYTICAL RESULTS

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID: **3108528003** Date Collected: 6/15/2020 15:05 Matrix: Ground Water

Sample ID: **MW-6-061520** Date Received: 6/16/2020 09:18

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U,1	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
cis-1,2-Dichloroethene	1.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
Tetrachloroethene	0.65J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1,1-Trichloroethane	2.6		ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
Trichloroethene	88.4		ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118	SW846 8260C		6/19/20 15:39	DPC	A
4-Bromofluorobenzene (S)	96.3		%	85 - 114	SW846 8260C		6/19/20 15:39	DPC	A
Dibromofluoromethane (S)	90.2		%	80 - 119	SW846 8260C		6/19/20 15:39	DPC	A
Toluene-d8 (S)	90.2		%	89 - 112	SW846 8260C		6/19/20 15:39	DPC	A

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ANALYTICAL RESULTS

Workorder: 3108528 ASN056|Scotia Navy Depot

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3108528001	2	MW-27-061520	SW846 8260C	Carbon Tetrachloride
The GCMS volatiles analysis was performed at a dilution due to the level of target compounds.				
3108528002	1	MW-7-061520	SW846 8260C	Carbon Tetrachloride
One or more of the method 8260 internal standards were recovered outside of the control limits. The sample was re-analyzed, but more quality control problems. There was no third vial to reanalyze.				
3108528003	1	MW-6-061520	SW846 8260C	Carbon Tetrachloride
One or more of the method 8260 internal standards were recovered outside of the control limits. The sample was re-analyzed, but more quality control problems. There was no third vial to reanalyze.				

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID	Sample ID	Analysis Method	Prep Method	Leachate Method
3108528001	MW-27-061520	SW846 8260C		
3108528002	MW-7-061520	SW846 8260C		
3108528003	MW-6-061520	SW846 8260C		

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

QUALITY CONTROL DATA

Workorder: 3108528 ASN056|Scotia Navy Depot

QC Batch: VOMS/55423 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3108528001, 3108528002, 3108528003

METHOD BLANK: 3153123

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)	94.5	%	81 - 118
4-Bromofluorobenzene (S)	102	%	85 - 114
Dibromofluoromethane (S)	93	%	80 - 119
Toluene-d8 (S)	96	%	89 - 112

LABORATORY CONTROL SAMPLE: 3153124

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	107	ug/L	20	21.3	72 - 136
1,1-Dichloroethane	97.3	ug/L	20	19.5	77 - 125
1,2-Dichloroethane	101	ug/L	20	20.2	73 - 128
1,1-Dichloroethene	106	ug/L	20	21.2	71 - 131
cis-1,2-Dichloroethene	92.1	ug/L	20	18.4	78 - 123
trans-1,2-Dichloroethene	97.1	ug/L	20	19.4	75 - 124
1,1,1,2-Tetrachloroethane	100	ug/L	20	20.1	78 - 124
1,1,2,2-Tetrachloroethane	99.9	ug/L	20	20.0	71 - 121
Tetrachloroethene	103	ug/L	20	20.6	74 - 129
Toluene	103	ug/L	20	20.5	80 - 121
1,1,1-Trichloroethane	102	ug/L	20	20.4	74 - 131
1,1,2-Trichloroethane	103	ug/L	20	20.6	80 - 119
Trichloroethene	106	ug/L	20	21.3	79 - 123

QUALITY CONTROL DATA

Workorder: 3108528 ASN056|Scotia Navy Depot

Vinyl Chloride	121	ug/L	20	24.2	58 - 137
1,2-Dichloroethane-d4 (S)	89.9	%			81 - 118
4-Bromofluorobenzene (S)	99.5	%			85 - 114
Dibromofluoromethane (S)	91.8	%			80 - 119
Toluene-d8 (S)	93.7	%			89 - 112

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QUALITY CONTROL DATA

Workorder: 3108528 ASN056|Scotia Navy Depot

QC Batch: VOMS/55461 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3108528001

METHOD BLANK: 3155267

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)	97.1	%	81 - 118
4-Bromofluorobenzene (S)	104	%	85 - 114
Dibromofluoromethane (S)	95.9	%	80 - 119
Toluene-d8 (S)	96.5	%	89 - 112

LABORATORY CONTROL SAMPLE: 3155268

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	106	ug/L	20	21.3	72 - 136
1,1-Dichloroethane	104	ug/L	20	20.8	77 - 125
1,2-Dichloroethane	98	ug/L	20	19.6	73 - 128
1,1-Dichloroethene	108	ug/L	20	21.7	71 - 131
cis-1,2-Dichloroethene	100	ug/L	20	20.1	78 - 123
trans-1,2-Dichloroethene	108	ug/L	20	21.6	75 - 124
1,1,1,2-Tetrachloroethane	103	ug/L	20	20.6	78 - 124
1,1,2,2-Tetrachloroethane	102	ug/L	20	20.3	71 - 121
Tetrachloroethene	101	ug/L	20	20.3	74 - 129
Toluene	106	ug/L	20	21.2	80 - 121
1,1,1-Trichloroethane	100	ug/L	20	20.1	74 - 131
1,1,2-Trichloroethane	102	ug/L	20	20.4	80 - 119
Trichloroethene	98	ug/L	20	19.6	79 - 123

QUALITY CONTROL DATA

Workorder: 3108528 ASN056|Scotia Navy Depot

Vinyl Chloride	93.2	ug/L	20	18.6	58 - 137
1,2-Dichloroethane-d4 (S)	101	%			81 - 118
4-Bromofluorobenzene (S)	104	%			85 - 114
Dibromofluoromethane (S)	96.4	%			80 - 119
Toluene-d8 (S)	96.3	%			89 - 112

MATRIX SPIKE: 3155579 DUPLICATE: 3155580 ORIGINAL: 3109217008

****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	400	466.988	463.286	117	116	72 - 136	.8	30
1,2-Dichloroethane	0	ug/L	400	410.399	410.194	103	103	73 - 128	.05	30
1,1-Dichloroethene	0	ug/L	400	468.899	473.456	117	118	71 - 131	.97	30
Tetrachloroethene	0	ug/L	400	456.316	449.32	114	112	74 - 129	1.54	30
Trichloroethene	0	ug/L	400	438.674	430.339	110	108	79 - 123	1.92	30
Vinyl Chloride	0	ug/L	400	435.916	427.887	109	107	58 - 137	1.86	30
1,2-Dichloroethane-d4 (S)	99.4	%				99.4	94.1	81 - 118		
4-Bromofluorobenzene (S)	105	%				105	106	85 - 114		
Dibromofluoromethane (S)	95.2	%				95.2	95.5	80 - 119		
Toluene-d8 (S)	94.8	%				94.8	95.7	89 - 112		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3108528002	MW-7-061520			SW846 8260C	VOMS/55423
3108528003	MW-6-061520			SW846 8260C	VOMS/55423
3108528001	MW-27-061520			SW846 8260C	VOMS/55461

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Middletown, PA 17057
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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.

* 3108528 *

of

Client Name: AECOM
Address: 40 British-American Blvd Latham NY 12110
Contact: Gerlinde Wolf
Phone#: 518-957-2370
Project Name/#: Scotia Navy Depot
Bill To: 60444041

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.:

(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:

	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								Sample/COC Comments
	ANALYSES/METHOD REQUESTED					VOA	40ml	HCl									
	Enter Number of Containers Per Sample or Field Results Below.																
1	MW-27 061520	06/15/20	1345	G	GW				2								
2	MW-7 061520	↓	1415	↓	↓				2								
3	MW-16 061520	↓	1505	↓	↓				2								
4																	
5																	
6																	
7																	
8																	
9																	
10																	

SAMPLED BY (Please Print): Alexandra Golden + Jillian Kosinski

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] / AECOM	6/15/20	1459	2 Daniel Hagen / ALS	6/15/20	1459
3 Daniel Hagen / ALS	6/15/2020	1800	4 Fedex		
5 Fedex			6 [signature]	6/16/20	0945
7			8		
9			10		

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

* G=Grab; C=Composite
**Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Ol=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	8528	DN	6/16

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 4666 8630 2935			
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): 4/

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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June 25, 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:	**3108528**
Purchase Order:	**66432**	Workorder ID:	**ASN056|Scotia Navy Depot**

Dear Ms. Wolfe:

Enclosed are the analytical results for samples received by the laboratory on Tuesday, June 16, 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 Mrs. Vanessa N Badman (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.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

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.

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

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SAMPLE SUMMARY

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3108528001	MW-27-061520	Ground Water	6/15/2020 13:45	6/16/2020 09:18	Collected by Client
3108528002	MW-7-061520	Ground Water	6/15/2020 14:15	6/16/2020 09:18	Collected by Client
3108528003	MW-6-061520	Ground Water	6/15/2020 15:05	6/16/2020 09:18	Collected by Client

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SAMPLE SUMMARY

Workorder: 3108528 ASN056|Scotia Navy Depot

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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ANALYTICAL RESULTS

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID: **3108528001** Date Collected: 6/15/2020 13:45 Matrix: Ground Water

Sample ID: **MW-27-061520** Date Received: 6/16/2020 09:18

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	3.8U	U,2	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,2-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
cis-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
trans-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1,1,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1,2,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Tetrachloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Toluene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1,1-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1,2-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Trichloroethene	179		ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Vinyl Chloride	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.8		%	81 - 118			SW846 8260C			6/24/20 12:06	TMP	B
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/24/20 12:06	TMP	B
Dibromofluoromethane (S)	95.5		%	80 - 119			SW846 8260C			6/24/20 12:06	TMP	B
Toluene-d8 (S)	96		%	89 - 112			SW846 8260C			6/24/20 12:06	TMP	B

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

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ANALYTICAL RESULTS

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID: **3108528002** Date Collected: 6/15/2020 14:15 Matrix: Ground Water

Sample ID: **MW-7-061520** Date Received: 6/16/2020 09:18

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U,1	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	101		%	81 - 118	SW846 8260C			6/19/20 15:16	DPC	A
4-Bromofluorobenzene (S)	97.6		%	85 - 114	SW846 8260C			6/19/20 15:16	DPC	A
Dibromofluoromethane (S)	89.2		%	80 - 119	SW846 8260C			6/19/20 15:16	DPC	A
Toluene-d8 (S)	105		%	89 - 112	SW846 8260C			6/19/20 15:16	DPC	A

Vanessa N. Badman

Mrs. Vanessa N Badman
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: 3108528 ASN056|Scotia Navy Depot

Lab ID: **3108528003** Date Collected: 6/15/2020 15:05 Matrix: Ground Water

Sample ID: **MW-6-061520** Date Received: 6/16/2020 09:18

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U,1	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
cis-1,2-Dichloroethene	1.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
Tetrachloroethene	0.65J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1,1-Trichloroethane	2.6		ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
Trichloroethene	88.4		ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118	SW846 8260C		6/19/20 15:39	DPC	A
4-Bromofluorobenzene (S)	96.3		%	85 - 114	SW846 8260C		6/19/20 15:39	DPC	A
Dibromofluoromethane (S)	90.2		%	80 - 119	SW846 8260C		6/19/20 15:39	DPC	A
Toluene-d8 (S)	90.2		%	89 - 112	SW846 8260C		6/19/20 15:39	DPC	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 3108528 ASN056|Scotia Navy Depot

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3108528001	2	MW-27-061520	SW846 8260C	Carbon Tetrachloride
The GCMS volatiles analysis was performed at a dilution due to the level of target compounds.				
3108528002	1	MW-7-061520	SW846 8260C	Carbon Tetrachloride
One or more of the method 8260 internal standards were recovered outside of the control limits. The sample was re-analyzed, but more quality control problems. There was no third vial to reanalyze.				
3108528003	1	MW-6-061520	SW846 8260C	Carbon Tetrachloride
One or more of the method 8260 internal standards were recovered outside of the control limits. The sample was re-analyzed, but more quality control problems. There was no third vial to reanalyze.				

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID	Sample ID	Analysis Method	Prep Method	Leachate Method
3108528001	MW-27-061520	SW846 8260C		
3108528002	MW-7-061520	SW846 8260C		
3108528003	MW-6-061520	SW846 8260C		

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QUALITY CONTROL DATA

Workorder: 3108528 ASN056|Scotia Navy Depot

QC Batch: VOMS/55423 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3108528001, 3108528002, 3108528003

METHOD BLANK: 3153123

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)	94.5	%	81 - 118
4-Bromofluorobenzene (S)	102	%	85 - 114
Dibromofluoromethane (S)	93	%	80 - 119
Toluene-d8 (S)	96	%	89 - 112

LABORATORY CONTROL SAMPLE: 3153124

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	107	ug/L	20	21.3	72 - 136
1,1-Dichloroethane	97.3	ug/L	20	19.5	77 - 125
1,2-Dichloroethane	101	ug/L	20	20.2	73 - 128
1,1-Dichloroethene	106	ug/L	20	21.2	71 - 131
cis-1,2-Dichloroethene	92.1	ug/L	20	18.4	78 - 123
trans-1,2-Dichloroethene	97.1	ug/L	20	19.4	75 - 124
1,1,1,2-Tetrachloroethane	100	ug/L	20	20.1	78 - 124
1,1,2,2-Tetrachloroethane	99.9	ug/L	20	20.0	71 - 121
Tetrachloroethene	103	ug/L	20	20.6	74 - 129
Toluene	103	ug/L	20	20.5	80 - 121
1,1,1-Trichloroethane	102	ug/L	20	20.4	74 - 131
1,1,2-Trichloroethane	103	ug/L	20	20.6	80 - 119
Trichloroethene	106	ug/L	20	21.3	79 - 123

QUALITY CONTROL DATA

Workorder: 3108528 ASN056|Scotia Navy Depot

Vinyl Chloride	121	ug/L	20	24.2	58 - 137
1,2-Dichloroethane-d4 (S)	89.9	%			81 - 118
4-Bromofluorobenzene (S)	99.5	%			85 - 114
Dibromofluoromethane (S)	91.8	%			80 - 119
Toluene-d8 (S)	93.7	%			89 - 112

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QUALITY CONTROL DATA

Workorder: 3108528 ASN056|Scotia Navy Depot

QC Batch: VOMS/55461 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3108528001

METHOD BLANK: 3155267

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)	97.1	%	81 - 118
4-Bromofluorobenzene (S)	104	%	85 - 114
Dibromofluoromethane (S)	95.9	%	80 - 119
Toluene-d8 (S)	96.5	%	89 - 112

LABORATORY CONTROL SAMPLE: 3155268

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	106	ug/L	20	21.3	72 - 136
1,1-Dichloroethane	104	ug/L	20	20.8	77 - 125
1,2-Dichloroethane	98	ug/L	20	19.6	73 - 128
1,1-Dichloroethene	108	ug/L	20	21.7	71 - 131
cis-1,2-Dichloroethene	100	ug/L	20	20.1	78 - 123
trans-1,2-Dichloroethene	108	ug/L	20	21.6	75 - 124
1,1,1,2-Tetrachloroethane	103	ug/L	20	20.6	78 - 124
1,1,2,2-Tetrachloroethane	102	ug/L	20	20.3	71 - 121
Tetrachloroethene	101	ug/L	20	20.3	74 - 129
Toluene	106	ug/L	20	21.2	80 - 121
1,1,1-Trichloroethane	100	ug/L	20	20.1	74 - 131
1,1,2-Trichloroethane	102	ug/L	20	20.4	80 - 119
Trichloroethene	98	ug/L	20	19.6	79 - 123

QUALITY CONTROL DATA

Workorder: 3108528 ASN056|Scotia Navy Depot

Vinyl Chloride	93.2	ug/L	20	18.6	58 - 137
1,2-Dichloroethane-d4 (S)	101	%			81 - 118
4-Bromofluorobenzene (S)	104	%			85 - 114
Dibromofluoromethane (S)	96.4	%			80 - 119
Toluene-d8 (S)	96.3	%			89 - 112

MATRIX SPIKE: 3155579 DUPLICATE: 3155580 ORIGINAL: 3109217008

****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	400	466.988	463.286	117	116	72 - 136	.8	30
1,2-Dichloroethane	0	ug/L	400	410.399	410.194	103	103	73 - 128	.05	30
1,1-Dichloroethene	0	ug/L	400	468.899	473.456	117	118	71 - 131	.97	30
Tetrachloroethene	0	ug/L	400	456.316	449.32	114	112	74 - 129	1.54	30
Trichloroethene	0	ug/L	400	438.674	430.339	110	108	79 - 123	1.92	30
Vinyl Chloride	0	ug/L	400	435.916	427.887	109	107	58 - 137	1.86	30
1,2-Dichloroethane-d4 (S)	99.4	%				99.4	94.1	81 - 118		
4-Bromofluorobenzene (S)	105	%				105	106	85 - 114		
Dibromofluoromethane (S)	95.2	%				95.2	95.5	80 - 119		
Toluene-d8 (S)	94.8	%				94.8	95.7	89 - 112		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3108528002	MW-7-061520			SW846 8260C	VOMS/55423
3108528003	MW-6-061520			SW846 8260C	VOMS/55423
3108528001	MW-27-061520			SW846 8260C	VOMS/55461

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.

* 3108528 *

of

(completed by receiving Lab)

Client Name: AECOM
Address: 40 British-American Blvd Latham NY 12110
Contact: Gerlinde Wolf
Phone#: 518-957-2370
Project Name/#: Scotia Navy Depot
Bill To: 60244041

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:

	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								Sample/COC Comments
	ANALYSES/METHOD REQUESTED					VOA	40ml	HCl									
	Enter Number of Containers Per Sample or Field Results Below.																
1	MW-27 061520	06/15/20	1345	G	GW				2								
2	MW-7 061520	↓	1415	↓	↓				2								
3	MW-16 061520	↓	1505	↓	↓				2								
4																	
5																	
6																	
7																	
8																	
9																	
10																	

SAMPLED BY (Please Print): Alexandra Holden + Jillian Kosinski

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] / AECOM	6/15/20	1459	2 Daniel Hagen / ALS	6/15/20	1459
3 Daniel Hagen / ALS	6/15/2020	1800	4 Fedex		
5 Fedex			6 [signature]	6/16/20	0945
7			8		
9			10		

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

Special Processing: USACE [X] 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: see EDD

* 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

ALS

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	8528	DN	6/16

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 4666 8630 2935			
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): 4/

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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June 29, 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:	**3108844**
Purchase Order:	**66432**	Workorder ID:	**ASN057|2015-SCOTIA NAVY DEPOT-**

Dear Ms. Wolfe:

Enclosed are the analytical results for samples received by the laboratory on Wednesday, June 17, 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 Mrs. Vanessa N Badman (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.

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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.

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

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June 29, 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:	**3108844**
Purchase Order:	**66432**	Workorder ID:	**ASN057|2015-SCOTIA NAVY DEPOT-**

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.

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3108844001	MW-8	Ground Water	6/16/2020 09:30	6/17/2020 09:21	Collected by Client
3108844002	MW-12R	Ground Water	6/16/2020 10:50	6/17/2020 09:21	Collected by Client
3108844003	MW-16	Ground Water	6/16/2020 10:50	6/17/2020 09:21	Collected by Client
3108844004	MW-11R	Ground Water	6/16/2020 12:25	6/17/2020 09:21	Collected by Client
3108844005	MW-26	Ground Water	6/16/2020 12:30	6/17/2020 09:21	Collected by Client
3108844006	MW-34	Ground Water	6/16/2020 14:00	6/17/2020 09:21	Collected by Client
3108844007	MW-35	Ground Water	6/16/2020 14:15	6/17/2020 09:21	Collected by Client

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SAMPLE SUMMARY

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

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: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Workorder Comments

ALS Middletown does not hold DOD Cert for TOC. VNB 6/19/20

Sample Comments

Lab ID: 3108844006 **Sample ID:** MW-34 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

Lab ID: 3108844007 **Sample ID:** MW-35 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844001** Date Collected: 6/16/2020 09:30 Matrix: Ground Water

Sample ID: **MW-8** Date Received: 6/17/2020 09:21

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.50J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 15:52	TMP	B
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 15:52	TMP	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 15:52	TMP	B
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 15:52	TMP	B
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 15:52	TMP	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 15:52	TMP	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 15:52	TMP	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 15:52	TMP	B
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 15:52	TMP	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 15:52	TMP	B
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 15:52	TMP	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 15:52	TMP	B
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 15:52	TMP	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 15:52	TMP	B

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.1		%	81 - 118	SW846 8260C			6/24/20 15:52	TMP	B
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C			6/24/20 15:52	TMP	B
Dibromofluoromethane (S)	95.5		%	80 - 119	SW846 8260C			6/24/20 15:52	TMP	B
Toluene-d8 (S)	95.9		%	89 - 112	SW846 8260C			6/24/20 15:52	TMP	B

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844002** Date Collected: 6/16/2020 10:50 Matrix: Ground Water

Sample ID: **MW-12R** Date Received: 6/17/2020 09:21

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	8.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:06	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:06	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:06	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:06	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:06	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:06	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:06	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:06	VLM	A
Tetrachloroethene	0.63J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:06	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:06	VLM	A
1,1,1-Trichloroethane	1.3		ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:06	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:06	VLM	A
Trichloroethene	5.4		ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:06	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:06	VLM	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.5		%	81 - 118	SW846 8260C		6/24/20 23:06	VLM	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C		6/24/20 23:06	VLM	A
Dibromofluoromethane (S)	95.9		%	80 - 119	SW846 8260C		6/24/20 23:06	VLM	A
Toluene-d8 (S)	97		%	89 - 112	SW846 8260C		6/24/20 23:06	VLM	A

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844003** Date Collected: 6/16/2020 10:50 Matrix: Ground Water

Sample ID: **MW-16** Date Received: 6/17/2020 09:21

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			6/24/20 23:29	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:29	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:29	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:29	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:29	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:29	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:29	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:29	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:29	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:29	VLM	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:29	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:29	VLM	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:29	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:29	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.1		%	81 - 118			SW846 8260C			6/24/20 23:29	VLM	A
4-Bromofluorobenzene (S)	108		%	85 - 114			SW846 8260C			6/24/20 23:29	VLM	A
Dibromofluoromethane (S)	95.4		%	80 - 119			SW846 8260C			6/24/20 23:29	VLM	A
Toluene-d8 (S)	97.2		%	89 - 112			SW846 8260C			6/24/20 23:29	VLM	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/25/20 05:29	CHS	T
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/25/20 05:29	CHS	T
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/25/20 05:29	CHS	T
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/25/20 05:29	CHS	T
Methane	1.5U	U	ug/L	1.5	1.5	0.53	RSK 175			6/25/20 05:29	CHS	T
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/25/20 05:29	CHS	T
WET CHEMISTRY												
Alkalinity, Total	258	1	mg/L	5	5	0.8	SM2320B-2011			6/19/20 09:05	R2B	Q
Chloride	2.5		mg/L	2.0	0.50	0.16	EPA 300.0			6/18/20 05:52	MBW	N
Nitrate-N	0.98		mg/L	0.20	0.060	0.020	EPA 300.0			6/18/20 05:52	MBW	N
Sulfate	97.5		mg/L	2.0	0.50	0.20	EPA 300.0			6/18/20 05:52	MBW	N
Total Organic Carbon (TOC)	1.1		mg/L	1.0	0.50	0.27	SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 2nd	1.1		mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 3rd	1.1		mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 4th	1.2		mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844003** Date Collected: 6/16/2020 10:50 Matrix: Ground Water

Sample ID: **MW-16** Date Received: 6/17/2020 09:21

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

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844004** Date Collected: 6/16/2020 12:25 Matrix: Ground Water

Sample ID: **MW-11R** Date Received: 6/17/2020 09:21

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	6.5		ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
1,1,1-Trichloroethane	0.61J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.2		%	81 - 118	SW846 8260C		6/24/20 23:52	VLM	A
4-Bromofluorobenzene (S)	108		%	85 - 114	SW846 8260C		6/24/20 23:52	VLM	A
Dibromofluoromethane (S)	95.8		%	80 - 119	SW846 8260C		6/24/20 23:52	VLM	A
Toluene-d8 (S)	96.6		%	89 - 112	SW846 8260C		6/24/20 23:52	VLM	A

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844005** Date Collected: 6/16/2020 12:30 Matrix: Ground Water

Sample ID: **MW-26** Date Received: 6/17/2020 09:21

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			6/25/20 11:59	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.7		%	81 - 118			SW846 8260C			6/25/20 11:59	TMP	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/25/20 11:59	TMP	A
Dibromofluoromethane (S)	94.3		%	80 - 119			SW846 8260C			6/25/20 11:59	TMP	A
Toluene-d8 (S)	95.8		%	89 - 112			SW846 8260C			6/25/20 11:59	TMP	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/25/20 06:01	CHS	L
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/25/20 06:01	CHS	L
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/25/20 06:01	CHS	L
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/25/20 06:01	CHS	L
Methane	58.1		ug/L	1.5	1.5	0.53	RSK 175			6/25/20 06:01	CHS	L
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/25/20 06:01	CHS	L
WET CHEMISTRY												
Alkalinity, Total	205	1	mg/L	5	5	0.8	SM2320B-2011			6/19/20 09:05	R2B	K
Chloride	37.0		mg/L	2.0	0.50	0.16	EPA 300.0			6/18/20 06:41	MBW	J
Nitrate-N	0.10J	J	mg/L	0.20	0.060	0.020	EPA 300.0			6/18/20 06:41	MBW	J
Sulfate	14.5		mg/L	2.0	0.50	0.20	EPA 300.0			6/18/20 06:41	MBW	J
Total Organic Carbon (TOC)	4.0		mg/L	1.0	0.50	0.27	SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 2nd	3.9		mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 3rd	3.9		mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 4th	4.1		mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844005** Date Collected: 6/16/2020 12:30 Matrix: Ground Water

Sample ID: **MW-26** Date Received: 6/17/2020 09:21

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

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844006** Date Collected: 6/16/2020 14:00 Matrix: Ground Water

Sample ID: **MW-34** Date Received: 6/17/2020 09:21

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			6/25/20 00:37	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
cis-1,2-Dichloroethene	5.0		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
Trichloroethene	18.9		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.3		%	81 - 118			SW846 8260C			6/25/20 00:37	VLM	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/25/20 00:37	VLM	A
Dibromofluoromethane (S)	95.2		%	80 - 119			SW846 8260C			6/25/20 00:37	VLM	A
Toluene-d8 (S)	95		%	89 - 112			SW846 8260C			6/25/20 00:37	VLM	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/25/20 06:17	CHS	H
Ethane	3.6		ug/L	3.3	3.3	0.55	RSK 175			6/25/20 06:17	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/25/20 06:17	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/25/20 06:17	CHS	H
Methane	1740		ug/L	1.5	1.5	0.53	RSK 175			6/25/20 06:17	CHS	H
Propane	2.3J	J	ug/L	3.2	3.2	0.84	RSK 175			6/25/20 06:17	CHS	H
WET CHEMISTRY												
Alkalinity, Total	146	1	mg/L	5	5	0.8	SM2320B-2011			6/19/20 09:05	R2B	G
Chloride	13.8		mg/L	2.0	0.50	0.16	EPA 300.0			6/18/20 06:57	MBW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/18/20 06:57	MBW	F
Sulfate	3.5		mg/L	2.0	0.50	0.20	EPA 300.0			6/18/20 06:57	MBW	F
Total Organic Carbon (TOC)	3.8		mg/L	1.0	0.50	0.27	SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 2nd	3.8		mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 3rd	3.8		mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 4th	3.8		mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844006** Date Collected: 6/16/2020 14:00 Matrix: Ground Water

Sample ID: **MW-34** Date Received: 6/17/2020 09:21

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	0.66		mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:20	SRT	J
Iron, Dissolved	0.27		mg/L	0.060	0.040	0.020	SW846 6010C	6/23/20	SRT	6/24/20 14:06	SRT	K

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844007** Date Collected: 6/16/2020 14:15 Matrix: Ground Water
Sample ID: **MW-35** Date Received: 6/17/2020 09:21

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			6/25/20 01:00	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
Trichloroethene	42.9		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.3		%	81 - 118			SW846 8260C			6/25/20 01:00	VLM	A
4-Bromofluorobenzene (S)	107		%	85 - 114			SW846 8260C			6/25/20 01:00	VLM	A
Dibromofluoromethane (S)	95.2		%	80 - 119			SW846 8260C			6/25/20 01:00	VLM	A
Toluene-d8 (S)	96.5		%	89 - 112			SW846 8260C			6/25/20 01:00	VLM	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/25/20 06:33	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/25/20 06:33	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/25/20 06:33	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/25/20 06:33	CHS	H
Methane	59.0		ug/L	1.5	1.5	0.53	RSK 175			6/25/20 06:33	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/25/20 06:33	CHS	H
WET CHEMISTRY												
Alkalinity, Total	177	1	mg/L	5	5	0.8	SM2320B-2011			6/19/20 09:05	R2B	G
Chloride	26.1		mg/L	2.0	0.50	0.16	EPA 300.0			6/18/20 07:13	MBW	F
Nitrate-N	0.54		mg/L	0.20	0.060	0.020	EPA 300.0			6/18/20 07:13	MBW	F
Sulfate	10.3		mg/L	2.0	0.50	0.20	EPA 300.0			6/18/20 07:13	MBW	F
Total Organic Carbon (TOC)	0.77J	J	mg/L	1.0	0.50	0.27	SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 2nd	0.76J	J	mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 3rd	0.75J	J	mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 4th	0.79J	J	mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844007** Date Collected: 6/16/2020 14:15 Matrix: Ground Water
Sample ID: **MW-35** Date Received: 6/17/2020 09:21

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	0.087		mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:24	SRT	J
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/23/20	SRT	6/24/20 14:17	SRT	K

Vanessa N. Badman

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Project Coordinator

ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3108844003	1	MW-16	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3108844005	1	MW-26	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3108844006	1	MW-34	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3108844007	1	MW-35	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: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Analysis Method	Prep Method	Leachate Method
3108844001	MW-8	SW846 8260C		
3108844002	MW-12R	SW846 8260C		
3108844003	MW-16	EPA 300.0		
3108844003	MW-16	RSK 175		
3108844003	MW-16	SM2320B-2011		
3108844003	MW-16	SW846 8260C		
3108844003	MW-16	SW846 9060A		
3108844004	MW-11R	SW846 8260C		
3108844005	MW-26	EPA 300.0		
3108844005	MW-26	RSK 175		
3108844005	MW-26	SM2320B-2011		
3108844005	MW-26	SW846 8260C		
3108844005	MW-26	SW846 9060A		
3108844006	MW-34	EPA 300.0		
3108844006	MW-34	RSK 175		
3108844006	MW-34	SM2320B-2011		
3108844006	MW-34	SW846 6010C	SW846 3015	
3108844006	MW-34	SW846 6010C	SW846 6010C	
3108844006	MW-34	SW846 8260C		
3108844006	MW-34	SW846 9060A		
3108844007	MW-35	EPA 300.0		
3108844007	MW-35	RSK 175		
3108844007	MW-35	SM2320B-2011		
3108844007	MW-35	SW846 6010C	SW846 3015	
3108844007	MW-35	SW846 6010C	SW846 6010C	
3108844007	MW-35	SW846 8260C		
3108844007	MW-35	SW846 9060A		

QUALITY CONTROL DATA

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

QC Batch: MDIG/84268 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 6010C

Associated Lab Samples: 3108844006, 3108844007

METHOD BLANK: 3154733

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

LABORATORY CONTROL SAMPLE: 3154734

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Iron, Dissolved	106	mg/L	1	1.1	87 - 115

MATRIX SPIKE: 3154735 DUPLICATE: 3154736 ORIGINAL: 3108844006

****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	.266	mg/L	1	1.274	1.235	101	96.9	87 - 115	3.11	20

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QUALITY CONTROL DATA

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

QC Batch: MDIG/84303 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 3015

Associated Lab Samples: 3108844006, 3108844007

METHOD BLANK: 3155664

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

LABORATORY CONTROL SAMPLE: 3155665

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Iron, Total	98.9	mg/L	1.1	1.1	87 - 115

MATRIX SPIKE: 3155668 DUPLICATE: 3155669 ORIGINAL: 3109196011

****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, Total	.026	mg/L	1.1	1.10932	1.11443	97.5	98	87 - 115	.46	20

QUALITY CONTROL DATA

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

QC Batch: SVGC/57342 **Analysis Method:** RSK 175

QC Batch Method: RSK 175

Associated Lab Samples: 3108844003, 3108844005, 3108844006, 3108844007

METHOD BLANK: 3155974

Parameter	Blank Result	Units	Reporting Limit
n-Butane	4.3U	ug/L	4.3
Ethane	3.3U	ug/L	3.3
Ethene	2.4U	ug/L	2.4
Isobutane	4.6U	ug/L	4.6
Methane	1.5U	ug/L	1.5
Propane	3.2U	ug/L	3.2
Methyl-t-Butyl ether-d3 (S)			

SAMPLE DUPLICATE: 3155975 ORIGINAL: 3108844003

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

SAMPLE DUPLICATE: 3155976 ORIGINAL: 3109196011

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
Propane	0	ug/L	0	NC	20
Methane	471.08	ug/L	464.8	1.34	20

QUALITY CONTROL DATA

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

QC Batch: VOMS/55458 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3108844002, 3108844003, 3108844004, 3108844005, 3108844006, 3108844007

METHOD BLANK: 3155087

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)	96.9	%	81 - 118
4-Bromofluorobenzene (S)	106	%	85 - 114
Dibromofluoromethane (S)	94.5	%	80 - 119
Toluene-d8 (S)	95.4	%	89 - 112

LABORATORY CONTROL SAMPLE: 3155088

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	122	ug/L	20	24.4	72 - 136
1,1-Dichloroethane	116	ug/L	20	23.3	77 - 125
1,2-Dichloroethane	105	ug/L	20	21.1	73 - 128
1,1-Dichloroethene	125	ug/L	20	25.1	71 - 131
cis-1,2-Dichloroethene	112	ug/L	20	22.4	78 - 123
trans-1,2-Dichloroethene	121	ug/L	20	24.3	75 - 124
1,1,1,2-Tetrachloroethane	112	ug/L	20	22.5	78 - 124
1,1,2,2-Tetrachloroethane	109	ug/L	20	21.9	71 - 121
Tetrachloroethene	116	ug/L	20	23.1	74 - 129
Toluene	118	ug/L	20	23.5	80 - 121
1,1,1-Trichloroethane	117	ug/L	20	23.5	74 - 131
1,1,2-Trichloroethane	107	ug/L	20	21.5	80 - 119
Trichloroethene	113	ug/L	20	22.6	79 - 123

QUALITY CONTROL DATA

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Vinyl Chloride	104	ug/L	20	20.9	58 - 137
1,2-Dichloroethane-d4 (S)	94.9	%			81 - 118
4-Bromofluorobenzene (S)	108	%			85 - 114
Dibromofluoromethane (S)	95.2	%			80 - 119
Toluene-d8 (S)	96.9	%			89 - 112

MATRIX SPIKE: 3155569 DUPLICATE: 3155570 ORIGINAL: 3108844003

****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	22.7189	23.2634	114	116	72 - 136	2.37	30
1,1-Dichloroethane	0	ug/L	20	22.6159	22.6736	113	113	77 - 125	.25	30
1,2-Dichloroethane	0	ug/L	20	20.7123	20.8467	104	104	73 - 128	.65	30
1,1-Dichloroethene	0	ug/L	20	22.3709	22.0226	112	110	71 - 131	1.57	30
cis-1,2-Dichloroethene	0	ug/L	20	21.6755	21.7926	108	109	78 - 123	.54	30
trans-1,2-Dichloroethene	0	ug/L	20	22.7101	22.6355	114	113	75 - 124	.33	30
1,1,1,2-Tetrachloroethane	0	ug/L	20	22.0705	22.0537	110	110	78 - 124	.08	30
1,1,2,2-Tetrachloroethane	0	ug/L	20	21.7424	22.1334	109	111	71 - 121	1.78	30
Tetrachloroethene	0	ug/L	20	22.3526	22.3128	112	112	74 - 129	.18	30
Toluene	0	ug/L	20	22.7724	22.5933	114	113	80 - 121	.79	30
1,1,1-Trichloroethane	0	ug/L	20	22.3971	22.4004	112	112	74 - 131	.01	30
1,1,2-Trichloroethane	0	ug/L	20	21.5421	21.4558	108	107	80 - 119	.4	30
Trichloroethene	0	ug/L	20	21.982	21.9801	110	110	79 - 123	.009	30
Vinyl Chloride	0	ug/L	20	20.5139	20.31	103	102	58 - 137	1	30
1,2-Dichloroethane-d4 (S)	99.4	%				99.4	95.2	81 - 118		
4-Bromofluorobenzene (S)	105	%				105	107	85 - 114		
Dibromofluoromethane (S)	95.4	%				95.4	95.1	80 - 119		
Toluene-d8 (S)	96.3	%				96.3	95.9	89 - 112		

QUALITY CONTROL DATA

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

QC Batch: VOMS/55461 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3108844001

METHOD BLANK: 3155267

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)	97.1	%	81 - 118
4-Bromofluorobenzene (S)	104	%	85 - 114
Dibromofluoromethane (S)	95.9	%	80 - 119
Toluene-d8 (S)	96.5	%	89 - 112

LABORATORY CONTROL SAMPLE: 3155268

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	106	ug/L	20	21.3	72 - 136
1,1-Dichloroethane	104	ug/L	20	20.8	77 - 125
1,2-Dichloroethane	98	ug/L	20	19.6	73 - 128
1,1-Dichloroethene	108	ug/L	20	21.7	71 - 131
cis-1,2-Dichloroethene	100	ug/L	20	20.1	78 - 123
trans-1,2-Dichloroethene	108	ug/L	20	21.6	75 - 124
1,1,1,2-Tetrachloroethane	103	ug/L	20	20.6	78 - 124
1,1,2,2-Tetrachloroethane	102	ug/L	20	20.3	71 - 121
Tetrachloroethene	101	ug/L	20	20.3	74 - 129
Toluene	106	ug/L	20	21.2	80 - 121
1,1,1-Trichloroethane	100	ug/L	20	20.1	74 - 131
1,1,2-Trichloroethane	102	ug/L	20	20.4	80 - 119
Trichloroethene	98	ug/L	20	19.6	79 - 123

QUALITY CONTROL DATA

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Vinyl Chloride	93.2	ug/L	20	18.6	58 - 137
1,2-Dichloroethane-d4 (S)	101	%			81 - 118
4-Bromofluorobenzene (S)	104	%			85 - 114
Dibromofluoromethane (S)	96.4	%			80 - 119
Toluene-d8 (S)	96.3	%			89 - 112

MATRIX SPIKE: 3155579 DUPLICATE: 3155580 ORIGINAL: 3109217008

****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	400	466.988	463.286	117	116	72 - 136	.8	30
1,2-Dichloroethane	0	ug/L	400	410.399	410.194	103	103	73 - 128	.05	30
1,1-Dichloroethene	0	ug/L	400	468.899	473.456	117	118	71 - 131	.97	30
Tetrachloroethene	0	ug/L	400	456.316	449.32	114	112	74 - 129	1.54	30
Trichloroethene	0	ug/L	400	438.674	430.339	110	108	79 - 123	1.92	30
Vinyl Chloride	0	ug/L	400	435.916	427.887	109	107	58 - 137	1.86	30
1,2-Dichloroethane-d4 (S)	99.4	%				99.4	94.1	81 - 118		
4-Bromofluorobenzene (S)	105	%				105	106	85 - 114		
Dibromofluoromethane (S)	95.2	%				95.2	95.5	80 - 119		
Toluene-d8 (S)	94.8	%				94.8	95.7	89 - 112		

QUALITY CONTROL DATA

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

QC Batch: VOMS/55463 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3108844005

METHOD BLANK: 3155283

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)	96.9	%	81 - 118
4-Bromofluorobenzene (S)	105	%	85 - 114
Dibromofluoromethane (S)	94.1	%	80 - 119
Toluene-d8 (S)	95	%	89 - 112

LABORATORY CONTROL SAMPLE: 3155284

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	110	ug/L	20	22.0	72 - 136
1,1-Dichloroethane	102	ug/L	20	20.4	77 - 125
1,2-Dichloroethane	97.6	ug/L	20	19.5	73 - 128
1,1-Dichloroethene	108	ug/L	20	21.6	71 - 131
cis-1,2-Dichloroethene	101	ug/L	20	20.2	78 - 123
trans-1,2-Dichloroethene	110	ug/L	20	21.9	75 - 124
1,1,1,2-Tetrachloroethane	101	ug/L	20	20.3	78 - 124
1,1,2,2-Tetrachloroethane	99.8	ug/L	20	20.0	71 - 121
Tetrachloroethene	101	ug/L	20	20.1	74 - 129
Toluene	104	ug/L	20	20.7	80 - 121
1,1,1-Trichloroethane	102	ug/L	20	20.4	74 - 131
1,1,2-Trichloroethane	97.2	ug/L	20	19.4	80 - 119
Trichloroethene	99	ug/L	20	19.8	79 - 123

QUALITY CONTROL DATA

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Vinyl Chloride	89.5	ug/L	20	17.9	58 - 137
1,2-Dichloroethane-d4 (S)	94.7	%			81 - 118
4-Bromofluorobenzene (S)	108	%			85 - 114
Dibromofluoromethane (S)	95.5	%			80 - 119
Toluene-d8 (S)	95.8	%			89 - 112

MATRIX SPIKE: 3156961 DUPLICATE: 3156962 ORIGINAL: 3108844005

****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	25.3582	24.966	127	125	72 - 136	1.56	30
1,1-Dichloroethane	0	ug/L	20	23.9201	23.0673	120	115	77 - 125	3.63	30
1,2-Dichloroethane	0	ug/L	20	21.6118	20.8719	108	104	73 - 128	3.48	30
1,1-Dichloroethene	0	ug/L	20	25.2366	24.2556	126	121	71 - 131	3.96	30
cis-1,2-Dichloroethene	0	ug/L	20	22.8095	21.83	114	109	78 - 123	4.39	30
trans-1,2-Dichloroethene	0	ug/L	20	24.4301	24.0728	122	120	75 - 124	1.47	30
1,1,1,2-Tetrachloroethane	0	ug/L	20	22.7124	22.5558	114	113	78 - 124	.69	30
1,1,2,2-Tetrachloroethane	0	ug/L	20	22.4062	22.6499	112	113	71 - 121	1.08	30
Tetrachloroethene	0	ug/L	20	23.4876	23.1269	117	116	74 - 129	1.55	30
Toluene	0	ug/L	20	23.7363	23.4329	119	117	80 - 121	1.29	30
1,1,1-Trichloroethane	0	ug/L	20	23.6784	22.5936	118	113	74 - 131	4.69	30
1,1,2-Trichloroethane	0	ug/L	20	21.9729	21.5393	110	108	80 - 119	1.99	30
Trichloroethene	0	ug/L	20	23.0759	22.5638	115	113	79 - 123	2.24	30
Vinyl Chloride	0	ug/L	20	20.6396	20.0671	103	100	58 - 137	2.81	30
1,2-Dichloroethane-d4 (S)	93.3	%				93.3	91.6	81 - 118		
4-Bromofluorobenzene (S)	105	%				105	107	85 - 114		
Dibromofluoromethane (S)	94.4	%				94.4	95.7	80 - 119		
Toluene-d8 (S)	94.9	%				94.9	94.9	89 - 112		

QUALITY CONTROL DATA

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/240053 **Analysis Method:** SM2320B-2011

QC Batch Method: SM2320B-2011

Associated Lab Samples: 3108844003, 3108844005, 3108844006, 3108844007

METHOD BLANK: 3151874

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

SAMPLE DUPLICATE: 3151878 ORIGINAL: 3108623003

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	64.83	mg/L	60.03	7.69	20

METHOD BLANK: 3151880

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

METHOD BLANK: 3151884

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

METHOD BLANK: 3151888

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

SAMPLE DUPLICATE: 3151890 ORIGINAL: 3108755005

Parameter	Original Result	Units	DUP Result	RPD	Max RPD

QUALITY CONTROL DATA

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Alkalinity, Total	330.58	mg/L	340.52	2.96	20

METHOD BLANK: 3151892

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

METHOD BLANK: 3151896

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

SAMPLE DUPLICATE: 3151898 ORIGINAL: 3108817010

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	26.1	mg/L	27.52	5.3	20

METHOD BLANK: 3151900

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

SAMPLE DUPLICATE: 3151902 ORIGINAL: 3108817020

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	25.62	mg/L	28.59	11	20

METHOD BLANK: 3151904

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

QUALITY CONTROL DATA

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

SAMPLE DUPLICATE: 3151906 ORIGINAL: 3108817030

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	73.3	mg/L	86.41	16.4	20

METHOD BLANK: 3151908

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

SAMPLE DUPLICATE: 3151910 ORIGINAL: 3108869001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	46.09	mg/L	276.76	143*	20

METHOD BLANK: 3151912

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

METHOD BLANK: 3151916

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

QUALITY CONTROL DATA

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/240065 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 3108844003, 3108844005, 3108844006, 3108844007

METHOD BLANK: 3151963

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.25U	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.25U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 3151965

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	102	mg/L	20	20.4	87 - 111
Nitrate-N	101	mg/L	2.5	2.5	88 - 111
Sulfate	105	mg/L	20	20.9	87 - 112

MATRIX SPIKE: 3151967 DUPLICATE: 3151968 ORIGINAL: 3108844003

****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	2.46	mg/L	40	44.84	41.98	106	98.8	87 - 111	6.59	15
Nitrate-N	.98	mg/L	5	6.34	5.96	107	99.6	88 - 111	6.18	15
Sulfate	97.46	mg/L	40	144.74	140.86	118*	109	87 - 112	2.72	15

METHOD BLANK: 3151970

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.25U	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.25U	mg/L	1.0

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3108844003	MW-16			SM2320B-2011	WETC/240053
3108844005	MW-26			SM2320B-2011	WETC/240053
3108844006	MW-34			SM2320B-2011	WETC/240053
3108844007	MW-35			SM2320B-2011	WETC/240053
3108844003	MW-16			EPA 300.0	WETC/240065
3108844005	MW-26			EPA 300.0	WETC/240065
3108844006	MW-34			EPA 300.0	WETC/240065
3108844007	MW-35			EPA 300.0	WETC/240065
3108844006	MW-34	SW846 6010C	MDIG/84268	SW846 6010C	META/74655
3108844007	MW-35	SW846 6010C	MDIG/84268	SW846 6010C	META/74655
3108844002	MW-12R			SW846 8260C	VOMS/55458
3108844003	MW-16			SW846 8260C	VOMS/55458
3108844004	MW-11R			SW846 8260C	VOMS/55458
3108844006	MW-34			SW846 8260C	VOMS/55458
3108844007	MW-35			SW846 8260C	VOMS/55458
3108844001	MW-8			SW846 8260C	VOMS/55461
3108844005	MW-26			SW846 8260C	VOMS/55463
3108844006	MW-34	SW846 3015	MDIG/84303	SW846 6010C	META/74675
3108844007	MW-35	SW846 3015	MDIG/84303	SW846 6010C	META/74675
3108844003	MW-16			RSK 175	SVGC/57342
3108844005	MW-26			RSK 175	SVGC/57342
3108844006	MW-34			RSK 175	SVGC/57342
3108844007	MW-35			RSK 175	SVGC/57342

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3108844003	MW-16			SW846 9060A	WETC/240445
3108844005	MW-26			SW846 9060A	WETC/240445
3108844006	MW-34			SW846 9060A	WETC/240445
3108844007	MW-35			SW846 9060A	WETC/240445

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ALS

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 C

* 3108844 *

Client Name: AECOM
Address: 40 British American Blvd Latham, NY 12110
Contact: Gerlinde Wolf
Phone#:
Project Name/#: Scotia Navy Depot
Bill To: 60444061

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:
Courier/Tracking #:
Purchase Order #:
Project Comments:

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

	Container Type	C	AV	P	P	C	P	P			
	Container Size	40mL	40mL	250	250	40	500	125			
	Preservative	HCl	HCl	–	–	HCl	–	HNO_3			
	ANALYSES/METHOD REQUESTED	8260C	TOC	Alkalinity	Cl, NO_3, SO_4	RSK-175	Diss. Fe (Lab filter)	Total Fe			

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	Enter Number of Containers Per Sample or Field Results Below.									Sample/COC Comments
1	MW-8 061620	06/16/20	0930			2									
2	MW-12R 061620	"	1050			2									
3	MW-16 061620	"	1050			8 6	8 6	13	13	8 6					* MS/MSD taken here
4	MW-11R 061620	"	1225			2									
5	MW-26 061620	"	1230			8 6	2	1	1	2					* MS/MSD-2 here
6	MS/MSD * See Sample #3 DN	6/17/20	–			2	2	+	+	2					
7	MS-2/MSD-2	"	–			2	→ See MW 26. ONLY on 8260. DN 6/17/20								
8	MW-34 061620	"	1400			2	2	1	1	2	1	1			
9	MW-35 061620	↓	1415			2	2	1	1	2	1	1			
10	~														

SAMPLED BY (Please Print): Alexandra Golden + Jillian Kosinski

Sampler Comments:

	Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	AECOM	6/16/20	1505	2 Daniel Hagen / ALS	6/16/2020	1505
3	Daniel Hagen / ALS Fedex	6/16/2020	1800	4 Fedex		
5				6	6/17/20	921
7				8		
9				10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE/DOD [ ]
Special Processing: USACE [X] 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- See equis

* G=Grab; C=Composite
**Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Ol=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 #: 3108844 Initials: DN Date: 6/17

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 4888 8630 7968			
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							
Thermometer ID:	523							

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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June 30, 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:	**3109196**
Purchase Order:	**66432**	Workorder ID:	**ASN058|2015-SCOTIA NAVY DEPOT-**

Dear Ms. Wolfe:

Enclosed are the analytical results for samples received by the laboratory on Thursday, June 18, 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 Mrs. Vanessa N Badman (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.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

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.

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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June 30, 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:	**3109196**
Purchase Order:	**66432**	Workorder ID:	**ASN058|2015-SCOTIA NAVY DEPOT-**

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.

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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SAMPLE SUMMARY

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3109196001	MW-16	Ground Water	6/16/2020 17:40	6/18/2020 09:28	Collected by Client
3109196002	GEP-2	Ground Water	6/16/2020 17:40	6/18/2020 09:28	Collected by Client
3109196003	MW-18	Ground Water	6/16/2020 16:20	6/18/2020 09:28	Collected by Client
3109196004	MW-17	Ground Water	6/16/2020 16:10	6/18/2020 09:28	Collected by Client
3109196005	MW-32	Ground Water	6/17/2020 09:00	6/18/2020 09:28	Collected by Client
3109196006	MW-33	Ground Water	6/17/2020 08:55	6/18/2020 09:28	Collected by Client
3109196007	MW-24	Ground Water	6/17/2020 10:55	6/18/2020 09:28	Collected by Client
3109196008	MW-31	Ground Water	6/17/2020 13:20	6/18/2020 09:28	Collected by Client
3109196009	MW-30	Ground Water	6/17/2020 12:30	6/18/2020 09:28	Collected by Client
3109196010	Dup	Ground Water	6/17/2020 00:00	6/18/2020 09:28	Collected by Client
3109196011	MW-28	Ground Water	6/17/2020 14:10	6/18/2020 09:28	Collected by Client
3109196012	MW-29	Ground Water	6/17/2020 15:00	6/18/2020 09:28	Collected by Client
3109196013	Dup	Ground Water	6/17/2020 00:00	6/18/2020 09:28	Collected by Client

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SAMPLE SUMMARY

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

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: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Workorder Comments

ALS Middletown does not hold DOD Cert for TOC. VNB 6/19/20

Sample Comments

Lab ID: 3109196005 **Sample ID:** MW-32 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

Lab ID: 3109196006 **Sample ID:** MW-33 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

Lab ID: 3109196008 **Sample ID:** MW-31 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

Lab ID: 3109196009 **Sample ID:** MW-30 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

Lab ID: 3109196011 **Sample ID:** MW-28 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

Lab ID: 3109196012 **Sample ID:** MW-29 **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

Lab ID: 3109196013 **Sample ID:** Dup **Sample Type:** SAMPLE

This sample was filtered in the laboratory.

ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196001** Date Collected: 6/16/2020 17:40 Matrix: Ground Water

Sample ID: **MW-16** Date Received: 6/18/2020 09:28

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		6/25/20 01:23	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
Tetrachloroethene	1.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
1,1,1-Trichloroethane	5.4		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
Trichloroethene	139		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.5		%	81 - 118			SW846 8260C		6/25/20 01:23	VLM	A
4-Bromofluorobenzene (S)	108		%	85 - 114			SW846 8260C		6/25/20 01:23	VLM	A
Dibromofluoromethane (S)	95.9		%	80 - 119			SW846 8260C		6/25/20 01:23	VLM	A
Toluene-d8 (S)	95.5		%	89 - 112			SW846 8260C		6/25/20 01:23	VLM	A
LIGHT HYDROCARBON GASES											
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175		6/25/20 06:49	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175		6/25/20 06:49	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175		6/25/20 06:49	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175		6/25/20 06:49	CHS	H
Methane	1.5U	U	ug/L	1.5	1.5	0.53	RSK 175		6/25/20 06:49	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175		6/25/20 06:49	CHS	H
WET CHEMISTRY											
Alkalinity, Total	220	1	mg/L	5	5	0.8	SM2320B-2011		6/20/20 05:40	R2B	G
Chloride	35.7		mg/L	2.0	0.50	0.16	EPA 300.0		6/19/20 06:02	MBW	F
Nitrate-N	0.50		mg/L	0.20	0.060	0.020	EPA 300.0		6/19/20 06:02	MBW	F
Sulfate	10.7		mg/L	2.0	0.50	0.20	EPA 300.0		6/19/20 06:02	MBW	F
Total Organic Carbon (TOC)	0.71J	J	mg/L	1.0	0.50	0.27	SW846 9060A		6/27/20 13:37	PAG	
Total Organic Carbon, 2nd	0.67J	J	mg/L	1.0	0.50		SW846 9060A		6/27/20 13:37	PAG	
Total Organic Carbon, 3rd	0.68J	J	mg/L	1.0	0.50		SW846 9060A		6/27/20 13:37	PAG	
Total Organic Carbon, 4th	0.74J	J	mg/L	1.0	0.50		SW846 9060A		6/27/20 13:37	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196001** Date Collected: 6/16/2020 17:40 Matrix: Ground Water

Sample ID: **MW-16** Date Received: 6/18/2020 09:28

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

Vanessa N. Badman

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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196002** Date Collected: 6/16/2020 17:40 Matrix: Ground Water

Sample ID: **GEP-2** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.40J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
1,1-Dichloroethane	0.72J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
1,1-Dichloroethene	0.55J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
cis-1,2-Dichloroethene	1.9		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
Tetrachloroethene	4.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
1,1,1-Trichloroethane	18.1		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
Trichloroethene	148		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.3		%	81 - 118			SW846 8260C		6/25/20 01:45	VLM	A
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C		6/25/20 01:45	VLM	A
Dibromofluoromethane (S)	96.1		%	80 - 119			SW846 8260C		6/25/20 01:45	VLM	A
Toluene-d8 (S)	95.9		%	89 - 112			SW846 8260C		6/25/20 01:45	VLM	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196003** Date Collected: 6/16/2020 16:20 Matrix: Ground Water

Sample ID: **MW-18** Date Received: 6/18/2020 09:28

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		6/25/20 02:08	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:08	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:08	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:08	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:08	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:08	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:08	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:08	VLM	A
Tetrachloroethene	1.5		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:08	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:08	VLM	A
1,1,1-Trichloroethane	0.92J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:08	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:08	VLM	A
Trichloroethene	72.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:08	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:08	VLM	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.8		%	81 - 118	SW846 8260C		6/25/20 02:08	VLM	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C		6/25/20 02:08	VLM	A
Dibromofluoromethane (S)	94.7		%	80 - 119	SW846 8260C		6/25/20 02:08	VLM	A
Toluene-d8 (S)	97.3		%	89 - 112	SW846 8260C		6/25/20 02:08	VLM	A

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196004** Date Collected: 6/16/2020 16:10 Matrix: Ground Water

Sample ID: **MW-17** Date Received: 6/18/2020 09:28

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		6/25/20 02:30	VLM	A
1,1-Dichloroethane	0.54J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
cis-1,2-Dichloroethene	1.5		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
1,1,1-Trichloroethane	13.3		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
Trichloroethene	10		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.3		%	81 - 118	SW846 8260C		6/25/20 02:30	VLM	A
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C		6/25/20 02:30	VLM	A
Dibromofluoromethane (S)	95.4		%	80 - 119	SW846 8260C		6/25/20 02:30	VLM	A
Toluene-d8 (S)	94.7		%	89 - 112	SW846 8260C		6/25/20 02:30	VLM	A

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196005** Date Collected: 6/17/2020 09:00 Matrix: Ground Water

Sample ID: **MW-32** Date Received: 6/18/2020 09:28

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			6/25/20 02:53	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
cis-1,2-Dichloroethene	0.89J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
Trichloroethene	149		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.2		%	81 - 118			SW846 8260C			6/25/20 02:53	VLM	A
4-Bromofluorobenzene (S)	107		%	85 - 114			SW846 8260C			6/25/20 02:53	VLM	A
Dibromofluoromethane (S)	96.8		%	80 - 119			SW846 8260C			6/25/20 02:53	VLM	A
Toluene-d8 (S)	94.5		%	89 - 112			SW846 8260C			6/25/20 02:53	VLM	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/25/20 07:05	CHS	H
Ethane	4.5		ug/L	3.3	3.3	0.55	RSK 175			6/25/20 07:05	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/25/20 07:05	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/25/20 07:05	CHS	H
Methane	232		ug/L	1.5	1.5	0.53	RSK 175			6/25/20 07:05	CHS	H
Propane	3.8		ug/L	3.2	3.2	0.84	RSK 175			6/25/20 07:05	CHS	H
WET CHEMISTRY												
Alkalinity, Total	169	1	mg/L	5	5	0.8	SM2320B-2011			6/20/20 05:40	R2B	G
Chloride	32.1		mg/L	2.0	0.50	0.16	EPA 300.0			6/19/20 06:18	MBW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/19/20 06:18	MBW	F
Sulfate	11.5		mg/L	2.0	0.50	0.20	EPA 300.0			6/19/20 06:18	MBW	F
Total Organic Carbon (TOC)	1.0		mg/L	1.0	0.50	0.27	SW846 9060A			6/27/20 13:37	PAG	
Total Organic Carbon, 2nd	0.89J	J	mg/L	1.0	0.50		SW846 9060A			6/27/20 13:37	PAG	
Total Organic Carbon, 3rd	0.90J	J	mg/L	1.0	0.50		SW846 9060A			6/27/20 13:37	PAG	
Total Organic Carbon, 4th	0.98J	J	mg/L	1.0	0.50		SW846 9060A			6/27/20 13:37	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196005** Date Collected: 6/17/2020 09:00 Matrix: Ground Water
Sample ID: **MW-32** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	1.6		mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:28	SRT	J
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/23/20	SRT	6/24/20 14:21	SRT	K

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196006** Date Collected: 6/17/2020 08:55 Matrix: Ground Water

Sample ID: **MW-33** Date Received: 6/18/2020 09:28

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			6/25/20 03:16	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 03:16	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 03:16	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 03:16	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 03:16	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 03:16	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 03:16	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 03:16	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 03:16	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 03:16	VLM	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 03:16	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 03:16	VLM	A
Trichloroethene	165		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 03:16	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 03:16	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.5		%	81 - 118			SW846 8260C			6/25/20 03:16	VLM	A
4-Bromofluorobenzene (S)	108		%	85 - 114			SW846 8260C			6/25/20 03:16	VLM	A
Dibromofluoromethane (S)	96.6		%	80 - 119			SW846 8260C			6/25/20 03:16	VLM	A
Toluene-d8 (S)	97.3		%	89 - 112			SW846 8260C			6/25/20 03:16	VLM	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/25/20 07:21	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/25/20 07:21	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/25/20 07:21	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/25/20 07:21	CHS	H
Methane	4.8		ug/L	1.5	1.5	0.53	RSK 175			6/25/20 07:21	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/25/20 07:21	CHS	H
WET CHEMISTRY												
Alkalinity, Total	201	1	mg/L	5	5	0.8	SM2320B-2011			6/20/20 05:40	R2B	G
Chloride	25.8		mg/L	2.0	0.50	0.16	EPA 300.0			6/19/20 06:34	MBW	F
Nitrate-N	0.46		mg/L	0.20	0.060	0.020	EPA 300.0			6/19/20 06:34	MBW	F
Sulfate	13.6		mg/L	2.0	0.50	0.20	EPA 300.0			6/19/20 06:34	MBW	F
Total Organic Carbon (TOC)	0.98J	J	mg/L	1.0	0.50	0.27	SW846 9060A			6/27/20 13:37	PAG	
Total Organic Carbon, 2nd	0.97J	J	mg/L	1.0	0.50		SW846 9060A			6/27/20 13:37	PAG	
Total Organic Carbon, 3rd	0.95J	J	mg/L	1.0	0.50		SW846 9060A			6/27/20 13:37	PAG	
Total Organic Carbon, 4th	1.0		mg/L	1.0	0.50		SW846 9060A			6/27/20 13:37	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196006** Date Collected: 6/17/2020 08:55 Matrix: Ground Water
Sample ID: **MW-33** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	0.053J	J	mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:32	SRT	J
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/23/20	SRT	6/24/20 14:24	SRT	J

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196007** Date Collected: 6/17/2020 10:55 Matrix: Ground Water

Sample ID: **MW-24** Date Received: 6/18/2020 09:28

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		6/25/20 03:38	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
1,1-Dichloroethene	58.1		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
cis-1,2-Dichloroethene	4.4		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
Trichloroethene	9.4		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.5		%	81 - 118			SW846 8260C		6/25/20 03:38	VLM	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C		6/25/20 03:38	VLM	A
Dibromofluoromethane (S)	95.3		%	80 - 119			SW846 8260C		6/25/20 03:38	VLM	A
Toluene-d8 (S)	96.1		%	89 - 112			SW846 8260C		6/25/20 03:38	VLM	A
LIGHT HYDROCARBON GASES											
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175		6/25/20 07:37	CHS	H
Ethane	2.0J	J	ug/L	3.3	3.3	0.55	RSK 175		6/25/20 07:37	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175		6/25/20 07:37	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175		6/25/20 07:37	CHS	H
Methane	8.6		ug/L	1.5	1.5	0.53	RSK 175		6/25/20 07:37	CHS	H
Propane	1.7J	J	ug/L	3.2	3.2	0.84	RSK 175		6/25/20 07:37	CHS	H
WET CHEMISTRY											
Alkalinity, Total	185	1	mg/L	5	5	0.8	SM2320B-2011		6/20/20 05:40	R2B	G
Chloride	27.3		mg/L	2.0	0.50	0.16	EPA 300.0		6/19/20 06:51	MBW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		6/19/20 06:51	MBW	F
Sulfate	20.4		mg/L	2.0	0.50	0.20	EPA 300.0		6/19/20 06:51	MBW	F
Total Organic Carbon (TOC)	1.2		mg/L	1.0	0.50	0.27	SW846 9060A		6/27/20 13:37	PAG	
Total Organic Carbon, 2nd	1.2		mg/L	1.0	0.50		SW846 9060A		6/27/20 13:37	PAG	
Total Organic Carbon, 3rd	1.2		mg/L	1.0	0.50		SW846 9060A		6/27/20 13:37	PAG	
Total Organic Carbon, 4th	1.2		mg/L	1.0	0.50		SW846 9060A		6/27/20 13:37	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196007** Date Collected: 6/17/2020 10:55 Matrix: Ground Water

Sample ID: **MW-24** Date Received: 6/18/2020 09:28

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

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196008** Date Collected: 6/17/2020 13:20 Matrix: Ground Water

Sample ID: **MW-31** Date Received: 6/18/2020 09:28

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		6/25/20 04:01	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
Trichloroethene	33.5		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.5		%	81 - 118			SW846 8260C		6/25/20 04:01	VLM	A
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C		6/25/20 04:01	VLM	A
Dibromofluoromethane (S)	95.9		%	80 - 119			SW846 8260C		6/25/20 04:01	VLM	A
Toluene-d8 (S)	97.5		%	89 - 112			SW846 8260C		6/25/20 04:01	VLM	A
LIGHT HYDROCARBON GASES											
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175		6/25/20 07:53	CHS	H
Ethane	3.2J	J	ug/L	3.3	3.3	0.55	RSK 175		6/25/20 07:53	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175		6/25/20 07:53	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175		6/25/20 07:53	CHS	H
Methane	354		ug/L	1.5	1.5	0.53	RSK 175		6/25/20 07:53	CHS	H
Propane	2.0J	J	ug/L	3.2	3.2	0.84	RSK 175		6/25/20 07:53	CHS	H
WET CHEMISTRY											
Alkalinity, Total	160	1	mg/L	5	5	0.8	SM2320B-2011		6/20/20 05:40	R2B	G
Chloride	41.4		mg/L	2.0	0.50	0.16	EPA 300.0		6/19/20 07:07	MBW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		6/19/20 07:07	MBW	F
Sulfate	9.6		mg/L	2.0	0.50	0.20	EPA 300.0		6/19/20 07:07	MBW	F
Total Organic Carbon (TOC)	0.80J	J	mg/L	1.0	0.50	0.27	SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 2nd	0.77J	J	mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 3rd	0.74J	J	mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 4th	0.82J	J	mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196008** Date Collected: 6/17/2020 13:20 Matrix: Ground Water
Sample ID: **MW-31** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	0.78		mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:35	SRT	J
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/23/20	SRT	6/24/20 14:28	SRT	K

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196009** Date Collected: 6/17/2020 12:30 Matrix: Ground Water

Sample ID: **MW-30** Date Received: 6/18/2020 09:28

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		6/25/20 04:24	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
Trichloroethene	5.7		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.9		%	81 - 118			SW846 8260C		6/25/20 04:24	VLM	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C		6/25/20 04:24	VLM	A
Dibromofluoromethane (S)	94.7		%	80 - 119			SW846 8260C		6/25/20 04:24	VLM	A
Toluene-d8 (S)	96.9		%	89 - 112			SW846 8260C		6/25/20 04:24	VLM	A
LIGHT HYDROCARBON GASES											
n-Butane	14.6		ug/L	4.3	4.3	1.1	RSK 175		6/25/20 08:09	CHS	H
Ethane	29.7		ug/L	3.3	3.3	0.55	RSK 175		6/25/20 08:09	CHS	H
Ethene	2.5		ug/L	2.4	2.4	0.81	RSK 175		6/25/20 08:09	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175		6/25/20 08:09	CHS	H
Methane	5630		ug/L	1.5	1.5	0.53	RSK 175		6/25/20 08:09	CHS	H
Propane	25.4		ug/L	3.2	3.2	0.84	RSK 175		6/25/20 08:09	CHS	H
WET CHEMISTRY											
Alkalinity, Total	48	1	mg/L	5	5	0.8	SM2320B-2011		6/20/20 05:40	R2B	G
Chloride	47.6		mg/L	2.0	0.50	0.16	EPA 300.0		6/19/20 07:23	MBW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		6/19/20 07:23	MBW	F
Sulfate	1.1J	J	mg/L	2.0	0.50	0.20	EPA 300.0		6/19/20 07:23	MBW	F
Total Organic Carbon (TOC)	5.4		mg/L	1.0	0.50	0.27	SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 2nd	5.3		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 3rd	5.3		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 4th	5.5		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196009** Date Collected: 6/17/2020 12:30 Matrix: Ground Water
Sample ID: **MW-30** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	0.076		mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:39	SRT	J
Iron, Dissolved	0.033J	J	mg/L	0.060	0.040	0.020	SW846 6010C	6/23/20	SRT	6/24/20 14:32	SRT	K

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196010** Date Collected: 6/17/2020 00:00 Matrix: Ground Water

Sample ID: **Dup** Date Received: 6/18/2020 09:28

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		6/25/20 04:46	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
Tetrachloroethene	1.1		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
1,1,1-Trichloroethane	5.5		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
Trichloroethene	140		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98		%	81 - 118	SW846 8260C		6/25/20 04:46	VLM	A
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C		6/25/20 04:46	VLM	A
Dibromofluoromethane (S)	95.8		%	80 - 119	SW846 8260C		6/25/20 04:46	VLM	A
Toluene-d8 (S)	98.9		%	89 - 112	SW846 8260C		6/25/20 04:46	VLM	A

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196011** Date Collected: 6/17/2020 14:10 Matrix: Ground Water

Sample ID: **MW-28** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.44J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:09	VLM	A
1,1-Dichloroethane	0.92J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:09	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:09	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:09	VLM	A
cis-1,2-Dichloroethene	3.8		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:09	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:09	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:09	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:09	VLM	A
Tetrachloroethene	25.5		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:09	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:09	VLM	A
1,1,1-Trichloroethane	6.6		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:09	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:09	VLM	A
Trichloroethene	140		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:09	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:09	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.5		%	81 - 118			SW846 8260C		6/25/20 05:09	VLM	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C		6/25/20 05:09	VLM	A
Dibromofluoromethane (S)	96		%	80 - 119			SW846 8260C		6/25/20 05:09	VLM	A
Toluene-d8 (S)	95.9		%	89 - 112			SW846 8260C		6/25/20 05:09	VLM	A
LIGHT HYDROCARBON GASES											
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175		6/25/20 08:42	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175		6/25/20 08:42	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175		6/25/20 08:42	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175		6/25/20 08:42	CHS	H
Methane	471		ug/L	1.5	1.5	0.53	RSK 175		6/25/20 08:42	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175		6/25/20 08:42	CHS	H
WET CHEMISTRY											
Alkalinity, Total	367	1	mg/L	5	5	0.8	SM2320B-2011		6/20/20 05:40	R2B	G
Chloride	31.1		mg/L	2.0	0.50	0.16	EPA 300.0		6/19/20 07:39	MBW	F
Nitrate-N	0.36		mg/L	0.20	0.060	0.020	EPA 300.0		6/19/20 07:39	MBW	F
Sulfate	20.5		mg/L	2.0	0.50	0.20	EPA 300.0		6/19/20 07:39	MBW	F
Total Organic Carbon (TOC)	2.1		mg/L	1.0	0.50	0.27	SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 2nd	2.1		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 3rd	2.0		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 4th	2.5		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196011** Date Collected: 6/17/2020 14:10 Matrix: Ground Water
Sample ID: **MW-28** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	0.026J	J	mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:58	SRT	J
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/23/20	SRT	6/24/20 14:43	SRT	K

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196012** Date Collected: 6/17/2020 15:00 Matrix: Ground Water

Sample ID: **MW-29** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.49J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:32	VLM	A
1,1-Dichloroethane	0.59J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:32	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:32	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:32	VLM	A
cis-1,2-Dichloroethene	2.9		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:32	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:32	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:32	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:32	VLM	A
Tetrachloroethene	24.3		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:32	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:32	VLM	A
1,1,1-Trichloroethane	5.8		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:32	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:32	VLM	A
Trichloroethene	102		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:32	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:32	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98		%	81 - 118			SW846 8260C		6/25/20 05:32	VLM	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C		6/25/20 05:32	VLM	A
Dibromofluoromethane (S)	96.1		%	80 - 119			SW846 8260C		6/25/20 05:32	VLM	A
Toluene-d8 (S)	95.1		%	89 - 112			SW846 8260C		6/25/20 05:32	VLM	A
LIGHT HYDROCARBON GASES											
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175		6/25/20 09:19	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175		6/25/20 09:19	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175		6/25/20 09:19	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175		6/25/20 09:19	CHS	H
Methane	1.5U	U	ug/L	1.5	1.5	0.53	RSK 175		6/25/20 09:19	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175		6/25/20 09:19	CHS	H
WET CHEMISTRY											
Alkalinity, Total	282	1	mg/L	5	5	0.8	SM2320B-2011		6/20/20 05:40	R2B	G
Chloride	34.7		mg/L	2.0	0.50	0.16	EPA 300.0		6/19/20 07:55	MBW	F
Nitrate-N	0.64		mg/L	0.20	0.060	0.020	EPA 300.0		6/19/20 07:55	MBW	F
Sulfate	16.0		mg/L	2.0	0.50	0.20	EPA 300.0		6/19/20 07:55	MBW	F
Total Organic Carbon (TOC)	1.4		mg/L	1.0	0.50	0.27	SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 2nd	1.4		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 3rd	1.4		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 4th	1.4		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196012** Date Collected: 6/17/2020 15:00 Matrix: Ground Water

Sample ID: **MW-29** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	2.8		mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:43	SRT	J
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/23/20	SRT	6/24/20 14:47	SRT	K

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196013** Date Collected: 6/17/2020 00:00 Matrix: Ground Water

Sample ID: **Dup** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.47J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
1,1-Dichloroethane	0.91J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
cis-1,2-Dichloroethene	4.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
Tetrachloroethene	23.4		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
1,1,1-Trichloroethane	6.6		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
Trichloroethene	130		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	99.4		%	81 - 118			SW846 8260C		6/25/20 05:54	VLM	A
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C		6/25/20 05:54	VLM	A
Dibromofluoromethane (S)	96.4		%	80 - 119			SW846 8260C		6/25/20 05:54	VLM	A
Toluene-d8 (S)	95.9		%	89 - 112			SW846 8260C		6/25/20 05:54	VLM	A
LIGHT HYDROCARBON GASES											
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175		6/25/20 09:35	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175		6/25/20 09:35	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175		6/25/20 09:35	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175		6/25/20 09:35	CHS	H
Methane	456		ug/L	1.5	1.5	0.53	RSK 175		6/25/20 09:35	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175		6/25/20 09:35	CHS	H
WET CHEMISTRY											
Alkalinity, Total	348	1	mg/L	5	5	0.8	SM2320B-2011		6/20/20 05:40	R2B	G
Chloride	31.3		mg/L	2.0	0.50	0.16	EPA 300.0		6/19/20 09:32	MBW	F
Nitrate-N	0.34		mg/L	0.20	0.060	0.020	EPA 300.0		6/19/20 09:32	MBW	F
Sulfate	20.4		mg/L	2.0	0.50	0.20	EPA 300.0		6/19/20 09:32	MBW	F
Total Organic Carbon (TOC)	2.3		mg/L	1.0	0.50	0.27	SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 2nd	2.3		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 3rd	2.3		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 4th	2.4		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196013** Date Collected: 6/17/2020 00:00 Matrix: Ground Water

Sample ID: **Dup** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	0.049J	J	mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:47	SRT	J
Iron, Dissolved	0.057J	J	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/20	SRT	6/26/20 10:31	SRT	K

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3109196001	1	MW-16	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3109196005	1	MW-32	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3109196006	1	MW-33	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3109196007	1	MW-24	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3109196008	1	MW-31	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3109196009	1	MW-30	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3109196011	1	MW-28	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3109196012	1	MW-29	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3109196013	1	Dup	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: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Analysis Method	Prep Method	Leachate Method
3109196001	MW-16	EPA 300.0		
3109196001	MW-16	RSK 175		
3109196001	MW-16	SM2320B-2011		
3109196001	MW-16	SW846 8260C		
3109196001	MW-16	SW846 9060A		
3109196002	GEP-2	SW846 8260C		
3109196003	MW-18	SW846 8260C		
3109196004	MW-17	SW846 8260C		
3109196005	MW-32	EPA 300.0		
3109196005	MW-32	RSK 175		
3109196005	MW-32	SM2320B-2011		
3109196005	MW-32	SW846 6010C	SW846 3015	
3109196005	MW-32	SW846 6010C	SW846 6010C	
3109196005	MW-32	SW846 8260C		
3109196005	MW-32	SW846 9060A		
3109196006	MW-33	EPA 300.0		
3109196006	MW-33	RSK 175		
3109196006	MW-33	SM2320B-2011		
3109196006	MW-33	SW846 6010C	SW846 3015	
3109196006	MW-33	SW846 6010C	SW846 6010C	
3109196006	MW-33	SW846 8260C		
3109196006	MW-33	SW846 9060A		
3109196007	MW-24	EPA 300.0		
3109196007	MW-24	RSK 175		
3109196007	MW-24	SM2320B-2011		
3109196007	MW-24	SW846 8260C		
3109196007	MW-24	SW846 9060A		
3109196008	MW-31	EPA 300.0		
3109196008	MW-31	RSK 175		
3109196008	MW-31	SM2320B-2011		
3109196008	MW-31	SW846 6010C	SW846 3015	
3109196008	MW-31	SW846 6010C	SW846 6010C	
3109196008	MW-31	SW846 8260C		
3109196008	MW-31	SW846 9060A		
3109196009	MW-30	EPA 300.0		
3109196009	MW-30	RSK 175		
3109196009	MW-30	SM2320B-2011		
3109196009	MW-30	SW846 6010C	SW846 3015	
3109196009	MW-30	SW846 6010C	SW846 6010C	
3109196009	MW-30	SW846 8260C		
3109196009	MW-30	SW846 9060A		
3109196010	Dup	SW846 8260C		
3109196011	MW-28	EPA 300.0		
3109196011	MW-28	RSK 175		
3109196011	MW-28	SM2320B-2011		
3109196011	MW-28	SW846 6010C	SW846 3015	

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Analysis Method	Prep Method	Leachate Method
3109196011	MW-28	SW846 6010C	SW846 6010C	
3109196011	MW-28	SW846 8260C		
3109196011	MW-28	SW846 9060A		
3109196012	MW-29	EPA 300.0		
3109196012	MW-29	RSK 175		
3109196012	MW-29	SM2320B-2011		
3109196012	MW-29	SW846 6010C	SW846 3015	
3109196012	MW-29	SW846 6010C	SW846 6010C	
3109196012	MW-29	SW846 8260C		
3109196012	MW-29	SW846 9060A		
3109196013	Dup	EPA 300.0		
3109196013	Dup	RSK 175		
3109196013	Dup	SM2320B-2011		
3109196013	Dup	SW846 6010C	SW846 3015	
3109196013	Dup	SW846 6010C	SW846 6010C	
3109196013	Dup	SW846 8260C		
3109196013	Dup	SW846 9060A		

QUALITY CONTROL DATA

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

QC Batch: MDIG/84268 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 6010C

Associated Lab Samples: 3109196005, 3109196006, 3109196008, 3109196009, 3109196011, 3109196012, 3109196013

METHOD BLANK: 3154733

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

LABORATORY CONTROL SAMPLE: 3154734

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Iron, Dissolved	106	mg/L	1	1.1	87 - 115

MATRIX SPIKE: 3154735 DUPLICATE: 3154736 ORIGINAL: 3108844006

****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	.266	mg/L	1	1.274	1.235	101	96.9	87 - 115	3.11	20

QUALITY CONTROL DATA

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

QC Batch: MDIG/84303 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 3015

Associated Lab Samples: 3109196005, 3109196006, 3109196008, 3109196009, 3109196011, 3109196012, 3109196013

METHOD BLANK: 3155664

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

LABORATORY CONTROL SAMPLE: 3155665

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Iron, Total	98.9	mg/L	1.1	1.1	87 - 115

MATRIX SPIKE: 3155668 DUPLICATE: 3155669 ORIGINAL: 3109196011

****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, Total	.026	mg/L	1.1	1.10932	1.11443	97.5	98	87 - 115	.46	20

QUALITY CONTROL DATA

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

QC Batch: SVGC/57342 **Analysis Method:** RSK 175

QC Batch Method: RSK 175

Associated Lab Samples: 3109196001, 3109196005, 3109196006, 3109196007, 3109196008, 3109196009, 3109196011, 3109196012, 3109196013

METHOD BLANK: 3155974

Parameter	Blank Result	Units	Reporting Limit
n-Butane	4.3U	ug/L	4.3
Ethane	3.3U	ug/L	3.3
Ethene	2.4U	ug/L	2.4
Isobutane	4.6U	ug/L	4.6
Methane	1.5U	ug/L	1.5
Propane	3.2U	ug/L	3.2
Methyl-t-Butyl ether-d3 (S)			

SAMPLE DUPLICATE: 3155975 ORIGINAL: 3108844003

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

SAMPLE DUPLICATE: 3155976 ORIGINAL: 3109196011

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
Propane	0	ug/L	0	NC	20
Methane	471.08	ug/L	464.8	1.34	20

QUALITY CONTROL DATA

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

QC Batch: VOMS/55458 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3109196001, 3109196002, 3109196003, 3109196004, 3109196005, 3109196006, 3109196007, 3109196008, 3109196009, 3109196010, 3109196011, 3109196012, 3109196013

METHOD BLANK: 3155087

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)	96.9	%	81 - 118
4-Bromofluorobenzene (S)	106	%	85 - 114
Dibromofluoromethane (S)	94.5	%	80 - 119
Toluene-d8 (S)	95.4	%	89 - 112

LABORATORY CONTROL SAMPLE: 3155088

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	122	ug/L	20	24.4	72 - 136
1,1-Dichloroethane	116	ug/L	20	23.3	77 - 125
1,2-Dichloroethane	105	ug/L	20	21.1	73 - 128
1,1-Dichloroethene	125	ug/L	20	25.1	71 - 131
cis-1,2-Dichloroethene	112	ug/L	20	22.4	78 - 123
trans-1,2-Dichloroethene	121	ug/L	20	24.3	75 - 124
1,1,1,2-Tetrachloroethane	112	ug/L	20	22.5	78 - 124
1,1,2,2-Tetrachloroethane	109	ug/L	20	21.9	71 - 121
Tetrachloroethene	116	ug/L	20	23.1	74 - 129
Toluene	118	ug/L	20	23.5	80 - 121
1,1,1-Trichloroethane	117	ug/L	20	23.5	74 - 131
1,1,2-Trichloroethane	107	ug/L	20	21.5	80 - 119
Trichloroethene	113	ug/L	20	22.6	79 - 123

QUALITY CONTROL DATA

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Vinyl Chloride	104	ug/L	20	20.9	58 - 137
1,2-Dichloroethane-d4 (S)	94.9	%			81 - 118
4-Bromofluorobenzene (S)	108	%			85 - 114
Dibromofluoromethane (S)	95.2	%			80 - 119
Toluene-d8 (S)	96.9	%			89 - 112

MATRIX SPIKE: 3155569 DUPLICATE: 3155570 ORIGINAL: 3108844003

****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	22.7189	23.2634	114	116	72 - 136	2.37	30
1,1-Dichloroethane	0	ug/L	20	22.6159	22.6736	113	113	77 - 125	.25	30
1,2-Dichloroethane	0	ug/L	20	20.7123	20.8467	104	104	73 - 128	.65	30
1,1-Dichloroethene	0	ug/L	20	22.3709	22.0226	112	110	71 - 131	1.57	30
cis-1,2-Dichloroethene	0	ug/L	20	21.6755	21.7926	108	109	78 - 123	.54	30
trans-1,2-Dichloroethene	0	ug/L	20	22.7101	22.6355	114	113	75 - 124	.33	30
1,1,1,2-Tetrachloroethane	0	ug/L	20	22.0705	22.0537	110	110	78 - 124	.08	30
1,1,2,2-Tetrachloroethane	0	ug/L	20	21.7424	22.1334	109	111	71 - 121	1.78	30
Tetrachloroethene	0	ug/L	20	22.3526	22.3128	112	112	74 - 129	.18	30
Toluene	0	ug/L	20	22.7724	22.5933	114	113	80 - 121	.79	30
1,1,1-Trichloroethane	0	ug/L	20	22.3971	22.4004	112	112	74 - 131	.01	30
1,1,2-Trichloroethane	0	ug/L	20	21.5421	21.4558	108	107	80 - 119	.4	30
Trichloroethene	0	ug/L	20	21.982	21.9801	110	110	79 - 123	.009	30
Vinyl Chloride	0	ug/L	20	20.5139	20.31	103	102	58 - 137	1	30
1,2-Dichloroethane-d4 (S)	99.4	%				99.4	95.2	81 - 118		
4-Bromofluorobenzene (S)	105	%				105	107	85 - 114		
Dibromofluoromethane (S)	95.4	%				95.4	95.1	80 - 119		
Toluene-d8 (S)	96.3	%				96.3	95.9	89 - 112		

QUALITY CONTROL DATA

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/240126 **Analysis Method:** SM2320B-2011

QC Batch Method: SM2320B-2011

Associated Lab Samples: 3109196001, 3109196005, 3109196006, 3109196007, 3109196008, 3109196009, 3109196011, 3109196012, 3109196013

METHOD BLANK: 3152676

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

METHOD BLANK: 3152682

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

SAMPLE DUPLICATE: 3152684 ORIGINAL: 3108992001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	290.35	mg/L	287.93	.84	20

METHOD BLANK: 3152686

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

METHOD BLANK: 3152690

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

SAMPLE DUPLICATE: 3152692 ORIGINAL: 3109070006

Parameter	Original Result	Units	DUP Result	RPD	Max RPD

QUALITY CONTROL DATA

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Alkalinity, Total	264.17	mg/L	269.48	1.99	20

METHOD BLANK: 3152694

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

METHOD BLANK: 3152698

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

SAMPLE DUPLICATE: 3152700 ORIGINAL: 3109191001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	57.82	mg/L	56.43	2.43	20

METHOD BLANK: 3152702

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

SAMPLE DUPLICATE: 3152704 ORIGINAL: 3109194001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	59.32	mg/L	54.85	7.83	20

METHOD BLANK: 3152706

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

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QUALITY CONTROL DATA

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

SAMPLE DUPLICATE: 3152708 ORIGINAL: 3109196008

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	160.18	mg/L	148.14	7.81	20

METHOD BLANK: 3152710

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

SAMPLE DUPLICATE: 3152712 ORIGINAL: 3109243001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Alkalinity, Total	39.6	mg/L	34.49	13.8	20

METHOD BLANK: 3152714

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

METHOD BLANK: 3152718

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

QUALITY CONTROL DATA

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/240142 **Analysis Method:** EPA 300.0

QC Batch Method: EPA 300.0

Associated Lab Samples: 3109196001, 3109196005, 3109196006, 3109196007, 3109196008, 3109196009, 3109196011, 3109196012, 3109196013

METHOD BLANK: 3152806

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.25U	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.25U	mg/L	1.0

LABORATORY CONTROL SAMPLE: 3152808

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Chloride	103	mg/L	20	20.6	87 - 111
Nitrate-N	103	mg/L	2.5	2.6	88 - 111
Sulfate	106	mg/L	20	21.2	87 - 112

MATRIX SPIKE: 3153249 DUPLICATE: 3153250 ORIGINAL: 3109196012

****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	34.68	mg/L	40	74.3	73.32	99	96.6	87 - 111	1.33	15
Nitrate-N	.64	mg/L	5	5.96	5.8	106	103	88 - 111	2.72	15
Sulfate	16	mg/L	40	57.76	56.56	104	101	87 - 112	2.1	15

METHOD BLANK: 3153252

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.25U	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.25U	mg/L	1.0

QUALITY CONTROL DATA

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

METHOD BLANK: 3153254

Parameter	Blank Result	Units	Reporting Limit
Chloride	0.25U	mg/L	1.0
Nitrate-N	0.030U	mg/L	0.10
Sulfate	0.25U	mg/L	1.0

QUALITY CONTROL DATA

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

QC Batch: WETC/240501 **Analysis Method:** SW846 9060A

QC Batch Method: 415.1/9060/5310B

Associated Lab Samples: 3109196001, 3109196005, 3109196006, 3109196007, 3109196008, 3109196009, 3109196011, 3109196012, 3109196013

METHOD BLANK: 3157153

Parameter	Blank Result	Units	Reporting Limit
Total Organic Carbon (TOC)	0.36J	mg/L	1.0

LABORATORY CONTROL SAMPLE: 3157154

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Total Organic Carbon (TOC)	98.7	mg/L	1	0.99J	85 - 115

MATRIX SPIKE: 3157155 DUPLICATE: 3157156 ORIGINAL: 3108393004

****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)	7.09	mg/L	30	36.665	37.35	98.6	101	85 - 115	1.85	20

MATRIX SPIKE: 3157157 DUPLICATE: 3157158 ORIGINAL: 3109667002

****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)	1.958	mg/L	6	7.663	7.147	95.1	86.5	85 - 115	6.97	20

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3109196001	MW-16			SM2320B-2011	WETC/240126
3109196005	MW-32			SM2320B-2011	WETC/240126
3109196006	MW-33			SM2320B-2011	WETC/240126
3109196007	MW-24			SM2320B-2011	WETC/240126
3109196008	MW-31			SM2320B-2011	WETC/240126
3109196009	MW-30			SM2320B-2011	WETC/240126
3109196011	MW-28			SM2320B-2011	WETC/240126
3109196012	MW-29			SM2320B-2011	WETC/240126
3109196013	Dup			SM2320B-2011	WETC/240126
3109196001	MW-16			EPA 300.0	WETC/240142
3109196005	MW-32			EPA 300.0	WETC/240142
3109196006	MW-33			EPA 300.0	WETC/240142
3109196007	MW-24			EPA 300.0	WETC/240142
3109196008	MW-31			EPA 300.0	WETC/240142
3109196009	MW-30			EPA 300.0	WETC/240142
3109196011	MW-28			EPA 300.0	WETC/240142
3109196012	MW-29			EPA 300.0	WETC/240142
3109196013	Dup			EPA 300.0	WETC/240142
3109196005	MW-32	SW846 6010C	MDIG/84268	SW846 6010C	META/74655
3109196006	MW-33	SW846 6010C	MDIG/84268	SW846 6010C	META/74655
3109196008	MW-31	SW846 6010C	MDIG/84268	SW846 6010C	META/74655
3109196009	MW-30	SW846 6010C	MDIG/84268	SW846 6010C	META/74655
3109196011	MW-28	SW846 6010C	MDIG/84268	SW846 6010C	META/74655
3109196012	MW-29	SW846 6010C	MDIG/84268	SW846 6010C	META/74655
3109196013	Dup	SW846 6010C	MDIG/84268	SW846 6010C	META/74705
3109196001	MW-16			SW846 8260C	VOMS/55458
3109196002	GEP-2			SW846 8260C	VOMS/55458
3109196003	MW-18			SW846 8260C	VOMS/55458
3109196004	MW-17			SW846 8260C	VOMS/55458

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3109196005	MW-32			SW846 8260C	VOMS/55458
3109196006	MW-33			SW846 8260C	VOMS/55458
3109196007	MW-24			SW846 8260C	VOMS/55458
3109196008	MW-31			SW846 8260C	VOMS/55458
3109196009	MW-30			SW846 8260C	VOMS/55458
3109196010	Dup			SW846 8260C	VOMS/55458
3109196011	MW-28			SW846 8260C	VOMS/55458
3109196012	MW-29			SW846 8260C	VOMS/55458
3109196013	Dup			SW846 8260C	VOMS/55458
3109196005	MW-32	SW846 3015	MDIG/84303	SW846 6010C	META/74675
3109196006	MW-33	SW846 3015	MDIG/84303	SW846 6010C	META/74675
3109196008	MW-31	SW846 3015	MDIG/84303	SW846 6010C	META/74675
3109196009	MW-30	SW846 3015	MDIG/84303	SW846 6010C	META/74675
3109196011	MW-28	SW846 3015	MDIG/84303	SW846 6010C	META/74675
3109196012	MW-29	SW846 3015	MDIG/84303	SW846 6010C	META/74675
3109196013	Dup	SW846 3015	MDIG/84303	SW846 6010C	META/74675
3109196001	MW-16			RSK 175	SVGC/57342
3109196005	MW-32			RSK 175	SVGC/57342
3109196006	MW-33			RSK 175	SVGC/57342
3109196007	MW-24			RSK 175	SVGC/57342
3109196008	MW-31			RSK 175	SVGC/57342
3109196009	MW-30			RSK 175	SVGC/57342
3109196011	MW-28			RSK 175	SVGC/57342
3109196012	MW-29			RSK 175	SVGC/57342
3109196013	Dup			RSK 175	SVGC/57342
3109196001	MW-16			SW846 9060A	WETC/240501
3109196005	MW-32			SW846 9060A	WETC/240501
3109196006	MW-33			SW846 9060A	WETC/240501
3109196007	MW-24			SW846 9060A	WETC/240501

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3109196008	MW-31			SW846 9060A	WETC/240501
3109196009	MW-30			SW846 9060A	WETC/240501
3109196011	MW-28			SW846 9060A	WETC/240501
3109196012	MW-29			SW846 9060A	WETC/240501
3109196013	Dup			SW846 9060A	WETC/240501

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

COC ALS * 3109196 *

Client Name: AECOM
Address: 40 British American Blvd Latham NY 12110
Contact: Gerlinde Wolf
Phone#:
Project Name/#: Scotia Navy Depot
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.:

(completed by Receiving Lab)
W.O. Temp: 1 Therm ID: 523
Courier/Tracking #:
Purchase Order #:
Project Comments:

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

	Container Type	C	AV	P	P	C	P	P				
	Container Size	40	40	250	250	40	500	125				
	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	TOC	Alkalinity	Cl, NO_3, SO_4	RSK-175	Dissolved Fe	Total Fe				Sample/COC Comments
				Enter Number of Containers Per Sample or Field Results Below.												
1	MW-15 0616620	06/14/20	1740	G	GW	2	2	1	1	2	X0	X0				
2	GEP-2 0616620		1740			2										
3	MW-18 0616620		1620			2										
4	MW-17 0616620		1640			2										
5	MW-32 061720	06/17/20	0900			2	2	1	1	2	1	1				
6	MW-33 061720		0855			2	2	1	1	2	(1)	1				
7	MW-24 061720		1055			2	2	1	1	2						Sample received empty -ES 6/18
8	MW-31 061720		1320			2	2	1	1	2	1	1				
9	MW-30 061720		1230			2	2	1	1	2	1	1				
10	Dup	—	—			2										

SAMPLED BY (Please Print): Alexandra Golden + Jillian Kosinski

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Alexandra Golden / AECOM	6/17	1510	2 Daniel Hearn / ALS	6/17/20	1570
3 Fed Ex			4 Fed Ex		
5			6	6/18/20	0930
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE/DOD [ ]
Special Processing: USACE [X] 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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COC #: 3109196 2 of 2
ALS Quote #:

Client Name: AECOM
Address: 40 British American Blvd Latham, NY 12110
Contact:
Phone#: See pg 1
Project Name/#:
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 see pg 1
Fax? [ ]-Y No.:

	Container Type	C	AV	P	P	C	P	P			
	Container Size	40	40	250	~~250~~ 500	~~500~~ 40	500	125			
	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	TOC	Alkalinity	Cl, NO_3, SO_4	RSK 175	Diss. Fe	Total Fe				Sample/COC Comments
	Enter Number of Containers Per Sample or Field Results Below.													→	+	
1	MW-28 06 1720	06/17/20	1410	G	GW	2	2	1	1	2	1	1				MS/MSD FOR IRON collected [4]
2	MW-29 06 1720	↓	1500	|	|	2	2	1	1	2	1	1				-GW 6/18/2020
3	DUP 06 1720	-	-	↓	↓	2	2	1	1	2	1	1				
4																
5	AG1															
6																
7																
8																
9																
10																

Receipt Information (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:

SAMPLED BY (Please Print):
Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/17/20	1510	2 Daniel Hogan / ALS	6/17/2020	1510
3			4 Fed Ex		
5 Fed Ex			6	6/18/20	0932
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE/DOD [ ]
Special Processing: USACE [X] 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 - 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 #: 3109196 Initials: CD Date: 6/18/2020

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 4886 8630 7990			
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):	1.6							
Thermometer ID:	527							
Radiological (µCi):								

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

MW-35 Dissolved Fe opened in cooler

—CD 6/18/2020

[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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June 29, 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:	**3109707**
Purchase Order:	**66432**	Workorder ID:	**ASN059|Scotia Navy Depot**

Dear Ms. Wolfe:

Enclosed are the analytical results for samples received by the laboratory on Saturday, June 20, 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 Mrs. Vanessa N Badman (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.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

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.

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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SAMPLE SUMMARY

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3109707001	GEP-4 061720	Ground Water	6/17/2020 16:55	6/20/2020 09:16	Collected by Client
3109707002	MW-25 06182020.	Ground Water	6/18/2020 09:10	6/20/2020 09:16	Collected by Client
3109707003	MW-23 06182020.	Ground Water	6/18/2020 09:10	6/20/2020 09:16	Collected by Client
3109707004	MW-36 06182020.	Ground Water	6/18/2020 10:35	6/20/2020 09:16	Collected by Client
3109707005	MW-19 06182020.	Ground Water	6/18/2020 10:25	6/20/2020 09:16	Collected by Client
3109707006	MW-20 06182020.	Ground Water	6/18/2020 11:45	6/20/2020 09:16	Collected by Client
3109707007	MW-22R 06182020.	Ground Water	6/18/2020 11:55	6/20/2020 09:16	Collected by Client
3109707008	GEP-3 06182020	Ground Water	6/18/2020 12:50	6/20/2020 09:16	Collected by Client
3109707009	MW-9 06182020.	Ground Water	6/18/2020 14:00	6/20/2020 09:16	Collected by Client
3109707010	MW-5 06182020.	Ground Water	6/18/2020 14:35	6/20/2020 09:16	Collected by Client
3109707011	MW-B-3 06182020.	Ground Water	6/18/2020 15:30	6/20/2020 09:16	Collected by Client
3109707012	MW-14 06182020.	Ground Water	6/18/2020 15:45	6/20/2020 09:16	Collected by Client
3109707013	GEP-1 06182020	Ground Water	6/18/2020 16:05	6/20/2020 09:16	Collected by Client

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SAMPLE SUMMARY

Workorder: 3109707 ASN059|Scotia Navy Depot

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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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707001** Date Collected: 6/17/2020 16:55 Matrix: Ground Water

Sample ID: **GEP-4 061720** Date Received: 6/20/2020 09:16

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	3.8U	U,1	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
1,1-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
1,2-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
1,1-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
cis-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
trans-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
1,1,1,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
1,1,2,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
Tetrachloroethene	3.2J	J	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
Toluene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
1,1,1-Trichloroethane	14.3		ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
1,1,2-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
Trichloroethene	274		ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
Vinyl Chloride	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	99.2		%	81 - 118			SW846 8260C			6/25/20 16:54	TMP	A
4-Bromofluorobenzene (S)	107		%	85 - 114			SW846 8260C			6/25/20 16:54	TMP	A
Dibromofluoromethane (S)	95.9		%	80 - 119			SW846 8260C			6/25/20 16:54	TMP	A
Toluene-d8 (S)	95.9		%	89 - 112			SW846 8260C			6/25/20 16:54	TMP	A

Vanessa N. Badman

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707002** Date Collected: 6/18/2020 09:10 Matrix: Ground Water

Sample ID: **MW-25 06182020.** Date Received: 6/20/2020 09:16

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			6/25/20 12:22	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
Trichloroethene	88.7		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.5		%	81 - 118	SW846 8260C			6/25/20 12:22	TMP	A
4-Bromofluorobenzene (S)	108		%	85 - 114	SW846 8260C			6/25/20 12:22	TMP	A
Dibromofluoromethane (S)	95.1		%	80 - 119	SW846 8260C			6/25/20 12:22	TMP	A
Toluene-d8 (S)	97.2		%	89 - 112	SW846 8260C			6/25/20 12:22	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707003** Date Collected: 6/18/2020 09:10 Matrix: Ground Water

Sample ID: **MW-23 06182020.** Date Received: 6/20/2020 09:16

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			6/25/20 12:44	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:44	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:44	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:44	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:44	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:44	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:44	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:44	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:44	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:44	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:44	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:44	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:44	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:44	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.7		%	81 - 118	SW846 8260C			6/25/20 12:44	TMP	A
4-Bromofluorobenzene (S)	108		%	85 - 114	SW846 8260C			6/25/20 12:44	TMP	A
Dibromofluoromethane (S)	94.8		%	80 - 119	SW846 8260C			6/25/20 12:44	TMP	A
Toluene-d8 (S)	96.4		%	89 - 112	SW846 8260C			6/25/20 12:44	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707004** Date Collected: 6/18/2020 10:35 Matrix: Ground Water

Sample ID: **MW-36 06182020.** Date Received: 6/20/2020 09:16

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			6/25/20 13:07	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 13:07	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 13:07	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 13:07	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 13:07	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 13:07	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 13:07	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 13:07	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 13:07	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 13:07	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 13:07	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 13:07	TMP	A
Trichloroethene	1.7		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 13:07	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 13:07	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.3		%	81 - 118			SW846 8260C			6/25/20 13:07	TMP	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/25/20 13:07	TMP	A
Dibromofluoromethane (S)	96.4		%	80 - 119			SW846 8260C			6/25/20 13:07	TMP	A
Toluene-d8 (S)	95.4		%	89 - 112			SW846 8260C			6/25/20 13:07	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707005** Date Collected: 6/18/2020 10:25 Matrix: Ground Water

Sample ID: **MW-19 06182020.** Date Received: 6/20/2020 09:16

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		6/25/20 13:30	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
1,1,1-Trichloroethane	3.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
Trichloroethene	8.9		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.9		%	81 - 118	SW846 8260C		6/25/20 13:30	TMP	A
4-Bromofluorobenzene (S)	108		%	85 - 114	SW846 8260C		6/25/20 13:30	TMP	A
Dibromofluoromethane (S)	95.6		%	80 - 119	SW846 8260C		6/25/20 13:30	TMP	A
Toluene-d8 (S)	95.7		%	89 - 112	SW846 8260C		6/25/20 13:30	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707006** Date Collected: 6/18/2020 11:45 Matrix: Ground Water

Sample ID: **MW-20 06182020.** Date Received: 6/20/2020 09:16

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		6/25/20 13:52	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
Tetrachloroethene	3.4		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
Trichloroethene	67.3		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	99.3		%	81 - 118			SW846 8260C		6/25/20 13:52	TMP	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C		6/25/20 13:52	TMP	A
Dibromofluoromethane (S)	95.9		%	80 - 119			SW846 8260C		6/25/20 13:52	TMP	A
Toluene-d8 (S)	96		%	89 - 112			SW846 8260C		6/25/20 13:52	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707007** Date Collected: 6/18/2020 11:55 Matrix: Ground Water

Sample ID: **MW-22R 06182020.** Date Received: 6/20/2020 09:16

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		6/25/20 14:15	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
Tetrachloroethene	4.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
Trichloroethene	130		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.6		%	81 - 118	SW846 8260C		6/25/20 14:15	TMP	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C		6/25/20 14:15	TMP	A
Dibromofluoromethane (S)	93.9		%	80 - 119	SW846 8260C		6/25/20 14:15	TMP	A
Toluene-d8 (S)	95.6		%	89 - 112	SW846 8260C		6/25/20 14:15	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707008** Date Collected: 6/18/2020 12:50 Matrix: Ground Water

Sample ID: **GEP-3 06182020** Date Received: 6/20/2020 09:16

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.48J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 14:38	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 14:38	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 14:38	TMP	A
1,1-Dichloroethene	0.42J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 14:38	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 14:38	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 14:38	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 14:38	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 14:38	TMP	A
Tetrachloroethene	0.48J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 14:38	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 14:38	TMP	A
1,1,1-Trichloroethane	2.9		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 14:38	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 14:38	TMP	A
Trichloroethene	217		ug/L	5.0	3.8	1.7	SW846 8260C			6/26/20 23:39	VLM	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 14:38	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.2		%	81 - 118			SW846 8260C			6/26/20 23:39	VLM	B
1,2-Dichloroethane-d4 (S)	97.2		%	81 - 118			SW846 8260C			6/25/20 14:38	TMP	A
4-Bromofluorobenzene (S)	107		%	85 - 114			SW846 8260C			6/25/20 14:38	TMP	A
4-Bromofluorobenzene (S)	107		%	85 - 114			SW846 8260C			6/26/20 23:39	VLM	B
Dibromofluoromethane (S)	94.8		%	80 - 119			SW846 8260C			6/25/20 14:38	TMP	A
Dibromofluoromethane (S)	94.3		%	80 - 119			SW846 8260C			6/26/20 23:39	VLM	B
Toluene-d8 (S)	95.7		%	89 - 112			SW846 8260C			6/26/20 23:39	VLM	B
Toluene-d8 (S)	95.4		%	89 - 112			SW846 8260C			6/25/20 14:38	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707009** Date Collected: 6/18/2020 14:00 Matrix: Ground Water

Sample ID: **MW-9 06182020.** Date Received: 6/20/2020 09:16

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			6/25/20 15:00	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:00	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:00	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:00	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:00	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:00	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:00	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:00	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:00	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:00	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:00	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:00	TMP	A
Trichloroethene	0.60J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:00	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:00	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.3		%	81 - 118	SW846 8260C			6/25/20 15:00	TMP	A
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C			6/25/20 15:00	TMP	A
Dibromofluoromethane (S)	95.4		%	80 - 119	SW846 8260C			6/25/20 15:00	TMP	A
Toluene-d8 (S)	94.6		%	89 - 112	SW846 8260C			6/25/20 15:00	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707010** Date Collected: 6/18/2020 14:35 Matrix: Ground Water

Sample ID: **MW-5 06182020.** Date Received: 6/20/2020 09:16

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		6/25/20 15:23	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.9		%	81 - 118	SW846 8260C		6/25/20 15:23	TMP	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C		6/25/20 15:23	TMP	A
Dibromofluoromethane (S)	95.8		%	80 - 119	SW846 8260C		6/25/20 15:23	TMP	A
Toluene-d8 (S)	95.2		%	89 - 112	SW846 8260C		6/25/20 15:23	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707011** Date Collected: 6/18/2020 15:30 Matrix: Ground Water

Sample ID: **MW-B-3 06182020.** Date Received: 6/20/2020 09:16

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		6/25/20 15:46	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:46	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:46	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:46	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:46	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:46	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:46	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:46	TMP	A
Tetrachloroethene	6.3		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:46	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:46	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:46	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:46	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:46	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:46	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.2		%	81 - 118	SW846 8260C		6/25/20 15:46	TMP	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C		6/25/20 15:46	TMP	A
Dibromofluoromethane (S)	95.4		%	80 - 119	SW846 8260C		6/25/20 15:46	TMP	A
Toluene-d8 (S)	95.3		%	89 - 112	SW846 8260C		6/25/20 15:46	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707012** Date Collected: 6/18/2020 15:45 Matrix: Ground Water

Sample ID: **MW-14 06182020.** Date Received: 6/20/2020 09:16

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.74J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
cis-1,2-Dichloroethene	2.7		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
Tetrachloroethene	18.5		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
1,1,1-Trichloroethane	4.1		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
Trichloroethene	3.6		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95.4		%	81 - 118			SW846 8260C		6/25/20 16:08	TMP	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C		6/25/20 16:08	TMP	A
Dibromofluoromethane (S)	94.2		%	80 - 119			SW846 8260C		6/25/20 16:08	TMP	A
Toluene-d8 (S)	95.8		%	89 - 112			SW846 8260C		6/25/20 16:08	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707013** Date Collected: 6/18/2020 16:05 Matrix: Ground Water

Sample ID: **GEP-1 06182020** Date Received: 6/20/2020 09:16

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		6/25/20 16:31	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:31	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:31	TMP	A
1,1-Dichloroethene	0.36J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:31	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:31	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:31	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:31	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:31	TMP	A
Tetrachloroethene	1.1		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:31	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:31	TMP	A
1,1,1-Trichloroethane	5.9		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:31	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:31	TMP	A
Trichloroethene	183		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:31	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:31	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.5		%	81 - 118	SW846 8260C		6/25/20 16:31	TMP	A
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C		6/25/20 16:31	TMP	A
Dibromofluoromethane (S)	95.3		%	80 - 119	SW846 8260C		6/25/20 16:31	TMP	A
Toluene-d8 (S)	95.8		%	89 - 112	SW846 8260C		6/25/20 16:31	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3109707001	1	GEP-4 061720	SW846 8260C	Carbon Tetrachloride

The GCMS volatiles analysis was performed at a dilution due to the level of target compounds.

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID	Sample ID	Analysis Method	Prep Method	Leachate Method
3109707001	GEP-4 061720	SW846 8260C		
3109707002	MW-25 06182020.	SW846 8260C		
3109707003	MW-23 06182020.	SW846 8260C		
3109707004	MW-36 06182020.	SW846 8260C		
3109707005	MW-19 06182020.	SW846 8260C		
3109707006	MW-20 06182020.	SW846 8260C		
3109707007	MW-22R 06182020.	SW846 8260C		
3109707008	GEP-3 06182020	SW846 8260C		
3109707009	MW-9 06182020.	SW846 8260C		
3109707010	MW-5 06182020.	SW846 8260C		
3109707011	MW-B-3 06182020.	SW846 8260C		
3109707012	MW-14 06182020.	SW846 8260C		
3109707013	GEP-1 06182020	SW846 8260C		

QUALITY CONTROL DATA

Workorder: 3109707 ASN059|Scotia Navy Depot

QC Batch: VOMS/55463 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3109707001, 3109707002, 3109707003, 3109707004, 3109707005, 3109707006, 3109707007, 3109707008, 3109707009, 3109707010, 3109707011, 3109707012, 3109707013

METHOD BLANK: 3155283

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)	96.9	%	81 - 118
4-Bromofluorobenzene (S)	105	%	85 - 114
Dibromofluoromethane (S)	94.1	%	80 - 119
Toluene-d8 (S)	95	%	89 - 112

LABORATORY CONTROL SAMPLE: 3155284

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Carbon Tetrachloride	110	ug/L	20	22.0	72 - 136
1,1-Dichloroethane	102	ug/L	20	20.4	77 - 125
1,2-Dichloroethane	97.6	ug/L	20	19.5	73 - 128
1,1-Dichloroethene	108	ug/L	20	21.6	71 - 131
cis-1,2-Dichloroethene	101	ug/L	20	20.2	78 - 123
trans-1,2-Dichloroethene	110	ug/L	20	21.9	75 - 124
1,1,1,2-Tetrachloroethane	101	ug/L	20	20.3	78 - 124
1,1,2,2-Tetrachloroethane	99.8	ug/L	20	20.0	71 - 121
Tetrachloroethene	101	ug/L	20	20.1	74 - 129
Toluene	104	ug/L	20	20.7	80 - 121
1,1,1-Trichloroethane	102	ug/L	20	20.4	74 - 131
1,1,2-Trichloroethane	97.2	ug/L	20	19.4	80 - 119
Trichloroethene	99	ug/L	20	19.8	79 - 123

QUALITY CONTROL DATA

Workorder: 3109707 ASN059|Scotia Navy Depot

Vinyl Chloride	89.5	ug/L	20	17.9	58 - 137
1,2-Dichloroethane-d4 (S)	94.7	%			81 - 118
4-Bromofluorobenzene (S)	108	%			85 - 114
Dibromofluoromethane (S)	95.5	%			80 - 119
Toluene-d8 (S)	95.8	%			89 - 112

MATRIX SPIKE: 3156961 DUPLICATE: 3156962 ORIGINAL: 3108844005

****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	25.3582	24.966	127	125	72 - 136	1.56	30
1,1-Dichloroethane	0	ug/L	20	23.9201	23.0673	120	115	77 - 125	3.63	30
1,2-Dichloroethane	0	ug/L	20	21.6118	20.8719	108	104	73 - 128	3.48	30
1,1-Dichloroethene	0	ug/L	20	25.2366	24.2556	126	121	71 - 131	3.96	30
cis-1,2-Dichloroethene	0	ug/L	20	22.8095	21.83	114	109	78 - 123	4.39	30
trans-1,2-Dichloroethene	0	ug/L	20	24.4301	24.0728	122	120	75 - 124	1.47	30
1,1,1,2-Tetrachloroethane	0	ug/L	20	22.7124	22.5558	114	113	78 - 124	.69	30
1,1,2,2-Tetrachloroethane	0	ug/L	20	22.4062	22.6499	112	113	71 - 121	1.08	30
Tetrachloroethene	0	ug/L	20	23.4876	23.1269	117	116	74 - 129	1.55	30
Toluene	0	ug/L	20	23.7363	23.4329	119	117	80 - 121	1.29	30
1,1,1-Trichloroethane	0	ug/L	20	23.6784	22.5936	118	113	74 - 131	4.69	30
1,1,2-Trichloroethane	0	ug/L	20	21.9729	21.5393	110	108	80 - 119	1.99	30
Trichloroethene	0	ug/L	20	23.0759	22.5638	115	113	79 - 123	2.24	30
Vinyl Chloride	0	ug/L	20	20.6396	20.0671	103	100	58 - 137	2.81	30
1,2-Dichloroethane-d4 (S)	93.3	%				93.3	91.6	81 - 118		
4-Bromofluorobenzene (S)	105	%				105	107	85 - 114		
Dibromofluoromethane (S)	94.4	%				94.4	95.7	80 - 119		
Toluene-d8 (S)	94.9	%				94.9	94.9	89 - 112		

QUALITY CONTROL DATA

Workorder: 3109707 ASN059|Scotia Navy Depot

QC Batch: VOMS/55508 **Analysis Method:** SW846 8260C

QC Batch Method: SW846 8260C

Associated Lab Samples: 3109707008

METHOD BLANK: 3157181

Parameter	Blank Result	Units	Reporting Limit
Trichloroethene	0.75U	ug/L	1.0
1,1,1,2-Tetrachloroethane	0.75U	ug/L	1.0
1,1,1-Trichloroethane	0.75U	ug/L	1.0
1,1,2,2-Tetrachloroethane	0.75U	ug/L	1.0
1,1,2-Trichloroethane	0.75U	ug/L	1.0
1,1-Dichloroethane	0.75U	ug/L	1.0
1,1-Dichloroethene	0.75U	ug/L	1.0
1,2-Dichloroethane	0.75U	ug/L	1.0
Carbon Tetrachloride	0.75U	ug/L	1.0
Tetrachloroethene	0.75U	ug/L	1.0
Toluene	0.75U	ug/L	1.0
Vinyl Chloride	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
1,2-Dichloroethane-d4 (S)	94.9	%	81 - 118
4-Bromofluorobenzene (S)	105	%	85 - 114
Dibromofluoromethane (S)	93.6	%	80 - 119
Toluene-d8 (S)	95.4	%	89 - 112

LABORATORY CONTROL SAMPLE: 3157182

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Trichloroethene	107	ug/L	20	21.5	79 - 123
1,1,1,2-Tetrachloroethane	108	ug/L	20	21.7	78 - 124
1,1,1-Trichloroethane	110	ug/L	20	21.9	74 - 131
1,1,2,2-Tetrachloroethane	106	ug/L	20	21.2	71 - 121
1,1,2-Trichloroethane	105	ug/L	20	21.1	80 - 119
1,1-Dichloroethane	111	ug/L	20	22.1	77 - 125
1,1-Dichloroethene	117	ug/L	20	23.5	71 - 131
1,2-Dichloroethane	101	ug/L	20	20.3	73 - 128
Carbon Tetrachloride	116	ug/L	20	23.1	72 - 136
Tetrachloroethene	111	ug/L	20	22.1	74 - 129
Toluene	112	ug/L	20	22.4	80 - 121
Vinyl Chloride	93.2	ug/L	20	18.6	58 - 137
cis-1,2-Dichloroethene	105	ug/L	20	21.1	78 - 123

QUALITY CONTROL DATA

Workorder: 3109707 ASN059|Scotia Navy Depot

trans-1,2-Dichloroethene	115	ug/L	20	23.1	75 - 124
1,2-Dichloroethane-d4 (S)	90.9	%			81 - 118
4-Bromofluorobenzene (S)	108	%			85 - 114
Dibromofluoromethane (S)	94.2	%			80 - 119
Toluene-d8 (S)	94.9	%			89 - 112

MATRIX SPIKE: 3157199 DUPLICATE: 3157200 ORIGINAL: 3110647003

****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
Trichloroethene	12.8943	ug/L	20	36.3293	35.9977	117	116	79 - 123	.92	30
1,1-Dichloroethane	2.35571	ug/L	20	25.5915	25.914	116	118	77 - 125	1.25	30
1,1-Dichloroethene	0	ug/L	20	22.5454	23.1778	113	116	71 - 131	2.77	30
Vinyl Chloride	0	ug/L	20	20.7878	21.2656	104	106	58 - 137	2.27	30
cis-1,2-Dichloroethene	8.06465	ug/L	20	30.3925	30.991	112	115	78 - 123	1.95	30
1,2-Dichloroethane-d4 (S)	93.1	%				93.1	93.4	81 - 118		
4-Bromofluorobenzene (S)	108	%				108	113	85 - 114		
Dibromofluoromethane (S)	94.4	%				94.4	94.1	80 - 119		
Toluene-d8 (S)	95.8	%				95.8	94.5	89 - 112		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
3109707001	GEP-4 061720			SW846 8260C	VOMS/55463
3109707002	MW-25 06182020.			SW846 8260C	VOMS/55463
3109707003	MW-23 06182020.			SW846 8260C	VOMS/55463
3109707004	MW-36 06182020.			SW846 8260C	VOMS/55463
3109707005	MW-19 06182020.			SW846 8260C	VOMS/55463
3109707006	MW-20 06182020.			SW846 8260C	VOMS/55463
3109707007	MW-22R 06182020.			SW846 8260C	VOMS/55463
3109707008	GEP-3 06182020			SW846 8260C	VOMS/55463
3109707009	MW-9 06182020.			SW846 8260C	VOMS/55463
3109707010	MW-5 06182020.			SW846 8260C	VOMS/55463
3109707011	MW-B-3 06182020.			SW846 8260C	VOMS/55463
3109707012	MW-14 06182020.			SW846 8260C	VOMS/55463
3109707013	GEP-1 06182020			SW846 8260C	VOMS/55463
3109707008	GEP-3 06182020			SW846 8260C	VOMS/55508

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.

Client Name: AECOM
Address: 40 British American Blvd Latham, NY
Contact: Gerlinde Wolf
Phone#:
Project Name/#: Scotia Navy Depot
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: 1 Therm ID: 523
Courier/Tracking #:
Purchase Order #:
Project Comments:

ALS Field Services: ☐ 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									Sample/COC Comments
	Container Type					C									
	Container Size					40ml									
	Preservative					HCl									
	ANALYSES/METHOD REQUESTED														
	Enter Number of Containers Per Sample or Field Results Below.														
1	GEP-4 061720	06/17/20	1655	G	GW	2									
2	MW-25 061820	06/18/20	0910			2									
3	MW-23 061820	"	0910			2									
4	MW-36 061820	"	1035			2									
5	MW-19 061820	"	1025			2									
6	MW-20 061820	"	1145			2									
7	MW-22R 061820	"	1155			2									
8	GEP-3 061820	"	1250			2									
9	MW-9 061820	"	1400			2									
10	MW-5 061820	↓	1435	↓	↓	2									

SAMPLED BY (Please Print): Alexandra Golden + Jillian Kosinski

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] / AECOM	6/18/20		2 [signature]		
3 FedEx			4 [signature]	6/19/20	0916
5			6		
7			8		
9			10		

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

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

COC #: 9707 2 of 2

ALS Quote #:

Client Name: AECOM

Address: 40 British American Blvd Latham, NY

Contact: Gerlinde Wolf

Phone#:

Project Name/#: Scotia Navy Depot

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.:

Receipt Information (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:

	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								Sample/COC Comments
	ANALYSES/METHOD REQUESTED																
	Enter Number of Containers Per Sample or Field Results Below.																
1	MW-B3 061820	6/18/20	1530	G	GW	C	40ml	HCl	2								
2	MW-14 061820	↓	1545	↓	↓				2								
3	GEP-1 061820	↓	1605	↓	↓				2								
4			DM 6/20/20														
5																	
6																	
7																	
8																	
9																	
10																	

SAMPLED BY (Please Print): See pg 1

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Alex Sokol - AECOM	6/19/20		2		
3			4		
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

Monday, June 29, 2020 7:00:50 PM

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

Condition of Sample Receipt Form

Client: AECOM Work Order #: 9707 Initials: CD Date: 6/20/2020

1. Were airbills / tracking numbers present and recorded?	NONE	YES	NO
Tracking number: 394021695728			
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): 1

Thermometer ID: 573

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

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
60440641-17
July 2020

July 21, 2020

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

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

Prepared by:
AECOM
Pittsburgh, PA
60440641-17
July 2020

July 21, 2020

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

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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 June 15-18, 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

No trip blanks were submitted for this round of samples. Samples MW-26-061620, MW-28-061720 and MW-16-061620 were designated in the field to be processed as the quality control samples, that is, as the matrix spike/matrix spike duplicates (MS/MSDs). 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-27-061520	3108528001	Groundwater		6/15/2020	VOCs	ASN056
MW-7-061520	3108528002	Groundwater		6/15/2020	VOCs	ASN056
MW-6-061520	3108528003	Groundwater		6/15/2020	VOCs	ASN056
MW-8-061620	3108844001	Groundwater		6/16/2020	VOCs	ASN057
MW-12R-061620	3108844002	Groundwater		6/16/2020	VOCs	ASN057
MW-16-061620	3108844003	Groundwater	MS/MSD	6/16/2020	VOCs/MNA	ASN057
MW-11R-061620	3108844004	Groundwater		6/16/2020	VOCs	ASN057
MW-26-061620	3108844005	Groundwater	MS/MSD	6/16/2020	VOCs/MNA	ASN057
MW-34-061620	3108844006	Groundwater		6/16/2020	VOCs/MNA	ASN057
MW-35-061620	3108844007	Groundwater		6/16/2020	VOCs/MNA	ASN057
MW-15-061620	3109196001	Groundwater		6/16/2020	VOCs/MNA	ASN058
GEP-2-061620	3109196002	Groundwater		6/16/2020	VOCs	ASN058
MW-18-061620	3109196003	Groundwater		6/16/2020	VOCs	ASN058
MW-17-061620	3109196004	Groundwater		6/16/2020	VOCs	ASN058

Field ID	ALS ID	Matrix	Field QC	Date Sampled	Analytes	SDG Number
MW-32-061720	3109196005	Groundwater		6/17/2020	VOCs/MNA	ASN058
MW-33-061720	3109196006	Groundwater		6/17/2020	VOCs/MNA	ASN058
MW-24-061720	3109196007	Groundwater		6/17/2020	VOCs/MNA	ASN058
MW-31-061720	3109196008	Groundwater		6/17/2020	VOCs/MNA	ASN058
MW-30-061720	3109196009	Groundwater		6/17/2020	VOCs/MNA	ASN058
DUP-061620	3109196010	Groundwater (QC)	MW-15-061620	6/16/2020	VOCs	ASN058
MW-28-061720	3109196011	Groundwater		6/17/2020	VOCs/MNA	ASN058
MW-29-061720	3109196012	Groundwater		6/17/2020	VOCs/MNA	ASN058
DUP-0617120	3109196013	Groundwater (QC)	MW-28-061720	6/17/2020	VOCs/MNA	ASN058
MW-24-061720	3109707001	Groundwater		6/17/2020	VOCs/MNA	ASN059
MW-25-061820	3109707002	Groundwater		6/18/2020	VOCs	ASN059
MW-23-061820	3109707003	Groundwater		6/18/2020	VOCs	ASN059
MW-36-061820	3109707004	Groundwater		6/18/2020	VOCs	ASN059
MW-19-061820	3109707005	Groundwater		6/18/2020	VOCs	ASN059
MW-20-061820	3109707006	Groundwater		6/18/2020	VOCs	ASN059
MW-22R-061820	3109707007	Groundwater		6/18/2020	VOCs	ASN059
GEP-3-061820	3109707008	Groundwater		6/18/2020	VOCs	ASN059
MW-9-061820	3109707009	Groundwater		6/18/2020	VOCs	ASN059
MW-5-061820	3109707010	Groundwater		6/18/2020	VOCs	ASN059
MW-B-3-061820	3109707011	Groundwater		6/18/2020	VOCs	ASN059
MW-14-061820	3109707012	Groundwater		6/18/2020	VOCs	ASN059
GEP-1-061820	3109707013	Groundwater		6/18/2020	VOCs	ASN059

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 3108528 (SDG ASN056)

Internal Standard Recoveries (p. 36): The fluorobenzene and 1,4-dichlorobenzene-d4 internal standard recoveries for sample MW-6-061520 were less than the lower method specification limit of 50%, at 49.6% and 41.6%, respectively. The positive and non-detect MW-6-061520 results for associated target compounds vinyl chloride, carbon tetrachloride, trichloroethene, 1,1-dichloroethane, 1,1-dichloroethene, 1,2-dichloroethane, cis-1,2-dichloroethene, trans-1,2-dichloroethene 1,1,1-trichloroethane and 1,1,2,2-tetrachloroethene were qualified “J+,” and “UJ,” because of the loss of method sensitivity due to matrix interference.

The 1,4-dichlorobenzene-d4 internal standard recovery for sample MW-7-061520 was less than the lower method specification limit of 50%, at 43.1%. The MW-7-061520 result for associated target 1,1,2,2-tetrachloroethene was non-detect and was qualified “UJ,” because of the loss of method sensitivity due to matrix interference.

Laboratory Control Sample Recovery and RPDs (p. 25): The LCS 3150857 recovery for 1,1-dichloroethene was greater than the upper quality control limit. The 1,1-dichloroethene results for associated samples MW-6-061520 and MW-7-061520 were non-detect and did not require qualification in response to the high method bias.

Dilution (Form I): Sample MW-27-061520 required analysis at an initial five-fold dilution to bring the trichloroethene concentration into the calibration range and to minimize matrix interference. The

method detection limits (MDLs) and limits of quantitation (LOQs) were elevated as required. The surrogate recoveries were within the quality control limits. No data qualification was required.

Work Order 3108844 (SDG ASN057)

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

Work Order 3109196 (SDG ASN058)

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

Work Order 3109707 (SDG ASN059)

Dilution (Form I): Sample GEP-4-061720 required analysis at an initial five-fold dilution to bring the trichloroethene concentration into the calibration range and to minimize matrix interference. The MDLs and LOQs were elevated as required. The surrogate recoveries were within the quality control limits. 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 three 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 3108844 (SDG ASN057)

Method Blanks (pp. 2911, 2990): The 06/25/20 low level method blank 3155974 had a methane result 0.86 J µg/L. Samples MW-16-061620, MW-26-061620 and MW-35-061620 were affected. The methane results for associated samples MW-16-061620, MW-26-061620 and MW-35-061620 were non-detect, or greater than five times the blank concentration, and did not require qualification.

The 06/25/20 high level method blank 3155974 had a methane result 4.1 µg/L. Sample MW-34-061620 was affected. The methane result for associated sample MW-34-061620 was greater than five times the blank concentration and did not require qualification.

Work Order 3109196 (SDG ASN058)

Calibrations (pp. 1682, 1797): The continuing calibration percent differences (%Ds) for isobutane and n-butane were less than the lower method specification limit of -15% on 06/25/20 at 09:51 on instrument MFPA022. The isobutane and n-butane results for associated samples MW-28-061720, MW-29-061720 and DUP-061720 were non-detect and were qualified “UJ,” because of low instrument bias.

Method Blanks (pp. 2911, 2990): The 06/25/20 low level method blank 3155974 had a methane result 0.86 J µg/L. Samples MW-15-061620, MW-24-061720, MW-28-061720 and MW-29-061720, MW-33-061720 and DUP-061720 were affected. The methane results for associated samples MW-15-061620, MW-24-061720, MW-28-061720 and MW-29-061720, MW-33-061720 and DUP-061720 were non-detect, or greater than five times the blank concentration, and did not require qualification.

The 06/25/20 high level method blank 3155974 had a methane result 4.1 µg/L. Sample MW-34-061620 was affected. The methane results for associated samples MW-30-061720, MW-31-061720 and MW-32-061720 were 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 two 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 3108844 (SDG ASN057)

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

Work Order 3109196 (SDG ASN058)

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 two 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 3108844 (SDG ASN057)

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

Work Order 3109196 (SDG ASN058)

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 two 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 3108844 (SDG ASN057)

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

Work Order 3109196 (SDG ASN058)

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 two 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 3108844 (SDG ASN057)

Continuing Calibration Blanks (p. 3214): TOC was detected in the initial calibration blank (ICB) on 06/26/20 at a concentration estimated to be less than the LOQ. All samples in this SDG were affected. The TOC results for sample MW-16-061620 were greater than the LOQ but less than ten times the blank concentration and were qualified "J+," as estimated concentrations, biased high because of ambient contamination. The TOC results for sample MW-35-061620 were less than the LOQ and were qualified "U," as undetected at the LOQ because of lab contamination. All other associated TOC results were greater than ten times the blank concentration and did not require qualification.

Work Order 3109196 (SDG ASN058)

Continuing Calibration and Method Blanks (p. 2210): TOC was detected in the continuing calibration blank (CCB6) on 06/27/20 at a concentration estimated to be less than the LOQ. All samples in this SDG were affected. The TOC results for samples MW-24-061720 and MW-29-061720 were greater than the LOQ but less than ten times the blank concentration and were qualified "J+," as estimated concentrations, biased high because of ambient contamination. The TOC results for samples MW-15-061620, MW-31-061720, MW-32-061620 and MW-33-061720 were less than the LOQ and were qualified "U," as undetected at the LOQ because of lab contamination. All other associated TOC results were greater than ten times the blank concentration and did not require qualification.

7.0 Field Duplicate Comparison

Field duplicate samples were collected at groundwater wells MW-15-061620 and MW-28-061720. See Table 2 below for the calculated RPDs 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 2 – Field Duplicate Precision

Analyte	Units	MW-15	DUP-0616120	Abs. diff.	RPD (%)	Within Limits?	Qualification
1,1,1-Trichloroethane	µg/L	5.4	5.5	—	1.8	YES	None
Tetrachloroethene	µg/L	1.0	1.1	0.1	—	YES	None
Trichloroethene	µg/L	139	140	—	0.72	YES	None
Analyte	**Units**	**MW-28**	**DUP-0617120**	**Abs. diff.**	**RPD (%)**	**Within Limits?**	**Qualification**
1,1-Dichloroethane	µg/L	0.92 J	0.91 J	0.01	—	YES	None
1,1,1-Trichloroethene	µg/L	6.6	6.6	—	0.0	YES	None
cis-1,2-Dichloroethene	µg/L	3.8	4.0	0.2	—	YES	None
Tetrachloroethene	µg/L	25.5	23.4	—	8.60	YES	None
Trichloroethene	µg/L	140	130	—	7.40	YES	None
Carbon tetrachloride	µg/L	0.44 J	0.47 J	0.03		YES	None
Methane	µg/L	471	456	—	3.20	YES	None
Alkalinity, total	mg/L	367	348	—	5.30	YES	None
Chloride	mg/L	31.1	31.3	—	0.64	YES	None
Nitrate	mg/L	0.36	0.34	0.02	—	YES	None
Sulfate	mg/L	20.5	20.4	—	0.49	YES	None
TOC (average)	mg/L	2.175	2.325	0.15	—	YES	None
Iron, total	mg/L	0.026 J	0.049 J	0.023	—	YES	None
Iron, dissolved	mg/L	ND	0.057 J	0.057	—	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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ANALYTICAL RESULTS

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID: **3108528001** Date Collected: 6/15/2020 13:45 Matrix: Ground Water

Sample ID: **MW-27-061520** Date Received: 6/16/2020 09:18

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	3.8U	U,2	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,2-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
cis-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
trans-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1,1,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1,2,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Tetrachloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Toluene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1,1-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1,2-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Trichloroethene	179		ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Vinyl Chloride	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.8		%	81 - 118	SW846 8260C			6/24/20 12:06	TMP	B
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C			6/24/20 12:06	TMP	B
Dibromofluoromethane (S)	95.5		%	80 - 119	SW846 8260C			6/24/20 12:06	TMP	B
Toluene-d8 (S)	96		%	89 - 112	SW846 8260C			6/24/20 12:06	TMP	B

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ANALYTICAL RESULTS

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID: **3108528002** Date Collected: 6/15/2020 14:15 Matrix: Ground Water
Sample ID: **MW-7-061520** Date Received: 6/16/2020 09:18

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U,~~1~~	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:16	DPC	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	101		%	81 - 118	SW846 8260C			6/19/20 15:16	DPC	A
4-Bromofluorobenzene (S)	97.6		%	85 - 114	SW846 8260C			6/19/20 15:16	DPC	A
Dibromofluoromethane (S)	89.2		%	80 - 119	SW846 8260C			6/19/20 15:16	DPC	A
Toluene-d8 (S)	105		%	89 - 112	SW846 8260C			6/19/20 15:16	DPC	A

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ANALYTICAL RESULTS

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID: **3108528003** Date Collected: 6/15/2020 15:05 Matrix: Ground Water
Sample ID: **MW-6-061520** Date Received: 6/16/2020 09:18

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.75U	U~~,1~~ J	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:39	DPC	A
1,1-Dichloroethane	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:39	DPC	A
1,2-Dichloroethane	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:39	DPC	A
1,1-Dichloroethene	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:39	DPC	A
cis-1,2-Dichloroethene	1.0	J+	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:39	DPC	A
trans-1,2-Dichloroethene	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:39	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:39	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:39	DPC	A
Tetrachloroethene	0.65J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:39	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:39	DPC	A
1,1,1-Trichloroethane	2.6	J+	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:39	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:39	DPC	A
Trichloroethene	88.4	J+	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:39	DPC	A
Vinyl Chloride	0.75U	UJ	ug/L	1.0	0.75	0.33	SW846 8260C			6/19/20 15:39	DPC	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118	SW846 8260C			6/19/20 15:39	DPC	A
4-Bromofluorobenzene (S)	96.3		%	85 - 114	SW846 8260C			6/19/20 15:39	DPC	A
Dibromofluoromethane (S)	90.2		%	80 - 119	SW846 8260C			6/19/20 15:39	DPC	A
Toluene-d8 (S)	90.2		%	89 - 112	SW846 8260C			6/19/20 15:39	DPC	A

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844001** Date Collected: 6/16/2020 09:30 Matrix: Ground Water

Sample ID: **MW-8** Date Received: 6/17/2020 09:21

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.50J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 15:52	TMP	B
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 15:52	TMP	B
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 15:52	TMP	B
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 15:52	TMP	B
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 15:52	TMP	B
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 15:52	TMP	B
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 15:52	TMP	B
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 15:52	TMP	B
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 15:52	TMP	B
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 15:52	TMP	B
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 15:52	TMP	B
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 15:52	TMP	B
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 15:52	TMP	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 15:52	TMP	B

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.1		%	81 - 118	SW846 8260C		6/24/20 15:52	TMP	B
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C		6/24/20 15:52	TMP	B
Dibromofluoromethane (S)	95.5		%	80 - 119	SW846 8260C		6/24/20 15:52	TMP	B
Toluene-d8 (S)	95.9		%	89 - 112	SW846 8260C		6/24/20 15:52	TMP	B

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844002** Date Collected: 6/16/2020 10:50 Matrix: Ground Water

Sample ID: **MW-12R** Date Received: 6/17/2020 09:21

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	8.0		ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:06	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:06	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:06	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:06	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:06	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:06	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:06	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:06	VLM	A
Tetrachloroethene	0.63J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:06	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:06	VLM	A
1,1,1-Trichloroethane	1.3		ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:06	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:06	VLM	A
Trichloroethene	5.4		ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:06	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/24/20 23:06	VLM	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.5		%	81 - 118	SW846 8260C			6/24/20 23:06	VLM	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C			6/24/20 23:06	VLM	A
Dibromofluoromethane (S)	95.9		%	80 - 119	SW846 8260C			6/24/20 23:06	VLM	A
Toluene-d8 (S)	97		%	89 - 112	SW846 8260C			6/24/20 23:06	VLM	A

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844003** Date Collected: 6/16/2020 10:50 Matrix: Ground Water
Sample ID: **MW-16** Date Received: 6/17/2020 09:21

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		6/24/20 23:29	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:29	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:29	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:29	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:29	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:29	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:29	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:29	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:29	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:29	VLM	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:29	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:29	VLM	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:29	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:29	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.1		%	81 - 118			SW846 8260C		6/24/20 23:29	VLM	A
4-Bromofluorobenzene (S)	108		%	85 - 114			SW846 8260C		6/24/20 23:29	VLM	A
Dibromofluoromethane (S)	95.4		%	80 - 119			SW846 8260C		6/24/20 23:29	VLM	A
Toluene-d8 (S)	97.2		%	89 - 112			SW846 8260C		6/24/20 23:29	VLM	A
LIGHT HYDROCARBON GASES											
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175		6/25/20 05:29	CHS	T
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175		6/25/20 05:29	CHS	T
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175		6/25/20 05:29	CHS	T
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175		6/25/20 05:29	CHS	T
Methane	1.5U	U	ug/L	1.5	1.5	0.53	RSK 175		6/25/20 05:29	CHS	T
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175		6/25/20 05:29	CHS	T
WET CHEMISTRY											
Alkalinity, Total	258	~~1~~	mg/L	5	5	0.8	SM2320B-2011		6/19/20 09:05	R2B	Q
Chloride	2.5		mg/L	2.0	0.50	0.16	EPA 300.0		6/18/20 05:52	MBW	N
Nitrate-N	0.98		mg/L	0.20	0.060	0.020	EPA 300.0		6/18/20 05:52	MBW	N
Sulfate	97.5		mg/L	2.0	0.50	0.20	EPA 300.0		6/18/20 05:52	MBW	N
Total Organic Carbon (TOC)	1.1	J+	mg/L	1.0	0.50	0.27	SW846 9060A		6/26/20 10:57	PAG	
Total Organic Carbon, 2nd	1.1	J+	mg/L	1.0	0.50		SW846 9060A		6/26/20 10:57	PAG	
Total Organic Carbon, 3rd	1.1	J+	mg/L	1.0	0.50		SW846 9060A		6/26/20 10:57	PAG	
Total Organic Carbon, 4th	1.2	J+	mg/L	1.0	0.50		SW846 9060A		6/26/20 10:57	PAG	

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844003** Date Collected: 6/16/2020 10:50 Matrix: Ground Water
Sample ID: **MW-16** Date Received: 6/17/2020 09:21

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

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844004** Date Collected: 6/16/2020 12:25 Matrix: Ground Water

Sample ID: **MW-11R** Date Received: 6/17/2020 09:21

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	6.5		ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
1,1,1-Trichloroethane	0.61J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/24/20 23:52	VLM	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.2		%	81 - 118	SW846 8260C		6/24/20 23:52	VLM	A
4-Bromofluorobenzene (S)	108		%	85 - 114	SW846 8260C		6/24/20 23:52	VLM	A
Dibromofluoromethane (S)	95.8		%	80 - 119	SW846 8260C		6/24/20 23:52	VLM	A
Toluene-d8 (S)	96.6		%	89 - 112	SW846 8260C		6/24/20 23:52	VLM	A

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844005** Date Collected: 6/16/2020 12:30 Matrix: Ground Water

Sample ID: **MW-26** Date Received: 6/17/2020 09:21

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			6/25/20 11:59	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 11:59	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.7		%	81 - 118			SW846 8260C			6/25/20 11:59	TMP	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/25/20 11:59	TMP	A
Dibromofluoromethane (S)	94.3		%	80 - 119			SW846 8260C			6/25/20 11:59	TMP	A
Toluene-d8 (S)	95.8		%	89 - 112			SW846 8260C			6/25/20 11:59	TMP	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/25/20 06:01	CHS	L
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/25/20 06:01	CHS	L
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/25/20 06:01	CHS	L
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/25/20 06:01	CHS	L
Methane	58.1		ug/L	1.5	1.5	0.53	RSK 175			6/25/20 06:01	CHS	L
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/25/20 06:01	CHS	L
WET CHEMISTRY												
Alkalinity, Total	205	~~1~~	mg/L	5	5	0.8	SM2320B-2011			6/19/20 09:05	R2B	K
Chloride	37.0		mg/L	2.0	0.50	0.16	EPA 300.0			6/18/20 06:41	MBW	J
Nitrate-N	0.10J	J	mg/L	0.20	0.060	0.020	EPA 300.0			6/18/20 06:41	MBW	J
Sulfate	14.5		mg/L	2.0	0.50	0.20	EPA 300.0			6/18/20 06:41	MBW	J
Total Organic Carbon (TOC)	4.0		mg/L	1.0	0.50	0.27	SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 2nd	3.9		mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 3rd	3.9		mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 4th	4.1		mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844005** Date Collected: 6/16/2020 12:30 Matrix: Ground Water
Sample ID: **MW-26** Date Received: 6/17/2020 09:21

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

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844006** Date Collected: 6/16/2020 14:00 Matrix: Ground Water

Sample ID: **MW-34** Date Received: 6/17/2020 09:21

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			6/25/20 00:37	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
cis-1,2-Dichloroethene	5.0		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
Trichloroethene	18.9		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 00:37	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.3		%	81 - 118			SW846 8260C			6/25/20 00:37	VLM	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/25/20 00:37	VLM	A
Dibromofluoromethane (S)	95.2		%	80 - 119			SW846 8260C			6/25/20 00:37	VLM	A
Toluene-d8 (S)	95		%	89 - 112			SW846 8260C			6/25/20 00:37	VLM	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/25/20 06:17	CHS	H
Ethane	3.6		ug/L	3.3	3.3	0.55	RSK 175			6/25/20 06:17	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/25/20 06:17	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/25/20 06:17	CHS	H
Methane	1740		ug/L	1.5	1.5	0.53	RSK 175			6/25/20 06:17	CHS	H
Propane	2.3J	J	ug/L	3.2	3.2	0.84	RSK 175			6/25/20 06:17	CHS	H
WET CHEMISTRY												
Alkalinity, Total	146	~~1~~	mg/L	5	5	0.8	SM2320B-2011			6/19/20 09:05	R2B	G
Chloride	13.8		mg/L	2.0	0.50	0.16	EPA 300.0			6/18/20 06:57	MBW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/18/20 06:57	MBW	F
Sulfate	3.5		mg/L	2.0	0.50	0.20	EPA 300.0			6/18/20 06:57	MBW	F
Total Organic Carbon (TOC)	3.8		mg/L	1.0	0.50	0.27	SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 2nd	3.8		mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 3rd	3.8		mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 4th	3.8		mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844006** Date Collected: 6/16/2020 14:00 Matrix: Ground Water

Sample ID: **MW-34** Date Received: 6/17/2020 09:21

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	0.66		mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:20	SRT	J
Iron, Dissolved	0.27		mg/L	0.060	0.040	0.020	SW846 6010C	6/23/20	SRT	6/24/20 14:06	SRT	K

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844007** Date Collected: 6/16/2020 14:15 Matrix: Ground Water

Sample ID: **MW-35** Date Received: 6/17/2020 09:21

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			6/25/20 01:00	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
Trichloroethene	42.9		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 01:00	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.3		%	81 - 118			SW846 8260C			6/25/20 01:00	VLM	A
4-Bromofluorobenzene (S)	107		%	85 - 114			SW846 8260C			6/25/20 01:00	VLM	A
Dibromofluoromethane (S)	95.2		%	80 - 119			SW846 8260C			6/25/20 01:00	VLM	A
Toluene-d8 (S)	96.5		%	89 - 112			SW846 8260C			6/25/20 01:00	VLM	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/25/20 06:33	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/25/20 06:33	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/25/20 06:33	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/25/20 06:33	CHS	H
Methane	59.0		ug/L	1.5	1.5	0.53	RSK 175			6/25/20 06:33	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/25/20 06:33	CHS	H
WET CHEMISTRY												
Alkalinity, Total	177	~~1~~	mg/L	5	5	0.8	SM2320B-2011			6/19/20 09:05	R2B	G
Chloride	26.1		mg/L	2.0	0.50	0.16	EPA 300.0			6/18/20 07:13	MBW	F
Nitrate-N	0.54		mg/L	0.20	0.060	0.020	EPA 300.0			6/18/20 07:13	MBW	F
Sulfate	10.3		mg/L	2.0	0.50	0.20	EPA 300.0			6/18/20 07:13	MBW	F
Total Organic Carbon (TOC)	~~0.77J~~	~~J~~ 1.0 U	mg/L	1.0	0.50	0.27	SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 2nd	~~0.76J~~	~~J~~ 1.0 U	mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 3rd	~~0.75J~~	~~J~~ 1.0 U	mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	
Total Organic Carbon, 4th	~~0.79J~~	~~J~~ 1.0 U	mg/L	1.0	0.50		SW846 9060A			6/26/20 10:57	PAG	

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ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID: **3108844007** Date Collected: 6/16/2020 14:15 Matrix: Ground Water
Sample ID: **MW-35** Date Received: 6/17/2020 09:21

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	0.087		mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:24	SRT	J
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/23/20	SRT	6/24/20 14:17	SRT	K

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196001** Date Collected: 6/16/2020 17:40 Matrix: Ground Water
Sample ID: **MW-15** Date Received: 6/18/2020 09:28

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		6/25/20 01:23	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
Tetrachloroethene	1.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
1,1,1-Trichloroethane	5.4		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
Trichloroethene	139		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:23	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.5		%	81 - 118			SW846 8260C		6/25/20 01:23	VLM	A
4-Bromofluorobenzene (S)	108		%	85 - 114			SW846 8260C		6/25/20 01:23	VLM	A
Dibromofluoromethane (S)	95.9		%	80 - 119			SW846 8260C		6/25/20 01:23	VLM	A
Toluene-d8 (S)	95.5		%	89 - 112			SW846 8260C		6/25/20 01:23	VLM	A
LIGHT HYDROCARBON GASES											
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175		6/25/20 06:49	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175		6/25/20 06:49	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175		6/25/20 06:49	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175		6/25/20 06:49	CHS	H
Methane	1.5U	U	ug/L	1.5	1.5	0.53	RSK 175		6/25/20 06:49	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175		6/25/20 06:49	CHS	H
WET CHEMISTRY											
Alkalinity, Total	220	~~1~~	mg/L	5	5	0.8	SM2320B-2011		6/20/20 05:40	R2B	G
Chloride	35.7		mg/L	2.0	0.50	0.16	EPA 300.0		6/19/20 06:02	MBW	F
Nitrate-N	0.50		mg/L	0.20	0.060	0.020	EPA 300.0		6/19/20 06:02	MBW	F
Sulfate	10.7		mg/L	2.0	0.50	0.20	EPA 300.0		6/19/20 06:02	MBW	F
Total Organic Carbon (TOC)	~~0.71J~~	~~J~~ 1.0 U	mg/L	1.0	0.50	0.27	SW846 9060A		6/27/20 13:37	PAG	
Total Organic Carbon, 2nd	~~0.67J~~	~~J~~ 1.0 U	mg/L	1.0	0.50		SW846 9060A		6/27/20 13:37	PAG	
Total Organic Carbon, 3rd	~~0.68J~~	~~J~~ 1.0 U	mg/L	1.0	0.50		SW846 9060A		6/27/20 13:37	PAG	
Total Organic Carbon, 4th	~~0.74J~~	~~J~~ 1.0 U	mg/L	1.0	0.50		SW846 9060A		6/27/20 13:37	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196001** Date Collected: 6/16/2020 17:40 Matrix: Ground Water

Sample ID: **MW-15** Date Received: 6/18/2020 09:28

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

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196002** Date Collected: 6/16/2020 17:40 Matrix: Ground Water

Sample ID: **GEP-2** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.40J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
1,1-Dichloroethane	0.72J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
1,1-Dichloroethene	0.55J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
cis-1,2-Dichloroethene	1.9		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
Tetrachloroethene	4.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
1,1,1-Trichloroethane	18.1		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
Trichloroethene	148		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 01:45	VLM	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.3		%	81 - 118	SW846 8260C		6/25/20 01:45	VLM	A
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C		6/25/20 01:45	VLM	A
Dibromofluoromethane (S)	96.1		%	80 - 119	SW846 8260C		6/25/20 01:45	VLM	A
Toluene-d8 (S)	95.9		%	89 - 112	SW846 8260C		6/25/20 01:45	VLM	A

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196003** Date Collected: 6/16/2020 16:20 Matrix: Ground Water

Sample ID: **MW-18** Date Received: 6/18/2020 09:28

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			6/25/20 02:08	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:08	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:08	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:08	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:08	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:08	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:08	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:08	VLM	A
Tetrachloroethene	1.5		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:08	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:08	VLM	A
1,1,1-Trichloroethane	0.92J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:08	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:08	VLM	A
Trichloroethene	72.0		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:08	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:08	VLM	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.8		%	81 - 118	SW846 8260C			6/25/20 02:08	VLM	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C			6/25/20 02:08	VLM	A
Dibromofluoromethane (S)	94.7		%	80 - 119	SW846 8260C			6/25/20 02:08	VLM	A
Toluene-d8 (S)	97.3		%	89 - 112	SW846 8260C			6/25/20 02:08	VLM	A

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196004** Date Collected: 6/16/2020 16:10 Matrix: Ground Water
Sample ID: **MW-17** Date Received: 6/18/2020 09:28

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		6/25/20 02:30	VLM	A
1,1-Dichloroethane	0.54J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
cis-1,2-Dichloroethene	1.5		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
1,1,1-Trichloroethane	13.3		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
Trichloroethene	10		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 02:30	VLM	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.3		%	81 - 118	SW846 8260C		6/25/20 02:30	VLM	A
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C		6/25/20 02:30	VLM	A
Dibromofluoromethane (S)	95.4		%	80 - 119	SW846 8260C		6/25/20 02:30	VLM	A
Toluene-d8 (S)	94.7		%	89 - 112	SW846 8260C		6/25/20 02:30	VLM	A

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196005** Date Collected: 6/17/2020 09:00 Matrix: Ground Water

Sample ID: **MW-32** Date Received: 6/18/2020 09:28

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			6/25/20 02:53	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
cis-1,2-Dichloroethene	0.89J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
Trichloroethene	149		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 02:53	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.2		%	81 - 118			SW846 8260C			6/25/20 02:53	VLM	A
4-Bromofluorobenzene (S)	107		%	85 - 114			SW846 8260C			6/25/20 02:53	VLM	A
Dibromofluoromethane (S)	96.8		%	80 - 119			SW846 8260C			6/25/20 02:53	VLM	A
Toluene-d8 (S)	94.5		%	89 - 112			SW846 8260C			6/25/20 02:53	VLM	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175			6/25/20 07:05	CHS	H
Ethane	4.5		ug/L	3.3	3.3	0.55	RSK 175			6/25/20 07:05	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/25/20 07:05	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175			6/25/20 07:05	CHS	H
Methane	232		ug/L	1.5	1.5	0.53	RSK 175			6/25/20 07:05	CHS	H
Propane	3.8		ug/L	3.2	3.2	0.84	RSK 175			6/25/20 07:05	CHS	H
WET CHEMISTRY												
Alkalinity, Total	169	~~1~~	mg/L	5	5	0.8	SM2320B-2011			6/20/20 05:40	R2B	G
Chloride	32.1		mg/L	2.0	0.50	0.16	EPA 300.0			6/19/20 06:18	MBW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0			6/19/20 06:18	MBW	F
Sulfate	11.5		mg/L	2.0	0.50	0.20	EPA 300.0			6/19/20 06:18	MBW	F
Total Organic Carbon (TOC)	~~1.0~~	1.0 U	mg/L	1.0	0.50	0.27	SW846 9060A			6/27/20 13:37	PAG	
Total Organic Carbon, 2nd	~~0.89J~~	~~J~~ 1.0 U	mg/L	1.0	0.50		SW846 9060A			6/27/20 13:37	PAG	
Total Organic Carbon, 3rd	~~0.90J~~	~~J~~ 1.0 U	mg/L	1.0	0.50		SW846 9060A			6/27/20 13:37	PAG	
Total Organic Carbon, 4th	~~0.98J~~	~~J~~ 1.0 U	mg/L	1.0	0.50		SW846 9060A			6/27/20 13:37	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196005** Date Collected: 6/17/2020 09:00 Matrix: Ground Water
Sample ID: **MW-32** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	1.6		mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:28	SRT	J
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/23/20	SRT	6/24/20 14:21	SRT	K

Vanessa N. Badman

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196006** Date Collected: 6/17/2020 08:55 Matrix: Ground Water

Sample ID: **MW-33** Date Received: 6/18/2020 09:28

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		6/25/20 03:16	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:16	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:16	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:16	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:16	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:16	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:16	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:16	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:16	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:16	VLM	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:16	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:16	VLM	A
Trichloroethene	165		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:16	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:16	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.5		%	81 - 118			SW846 8260C		6/25/20 03:16	VLM	A
4-Bromofluorobenzene (S)	108		%	85 - 114			SW846 8260C		6/25/20 03:16	VLM	A
Dibromofluoromethane (S)	96.6		%	80 - 119			SW846 8260C		6/25/20 03:16	VLM	A
Toluene-d8 (S)	97.3		%	89 - 112			SW846 8260C		6/25/20 03:16	VLM	A
LIGHT HYDROCARBON GASES											
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175		6/25/20 07:21	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175		6/25/20 07:21	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175		6/25/20 07:21	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175		6/25/20 07:21	CHS	H
Methane	4.8		ug/L	1.5	1.5	0.53	RSK 175		6/25/20 07:21	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175		6/25/20 07:21	CHS	H
WET CHEMISTRY											
Alkalinity, Total	201	~~1~~	mg/L	5	5	0.8	SM2320B-2011		6/20/20 05:40	R2B	G
Chloride	25.8		mg/L	2.0	0.50	0.16	EPA 300.0		6/19/20 06:34	MBW	F
Nitrate-N	0.46		mg/L	0.20	0.060	0.020	EPA 300.0		6/19/20 06:34	MBW	F
Sulfate	13.6		mg/L	2.0	0.50	0.20	EPA 300.0		6/19/20 06:34	MBW	F
Total Organic Carbon (TOC)	~~0.98J~~	~~J~~ 1.0 U	mg/L	1.0	0.50	0.27	SW846 9060A		6/27/20 13:37	PAG	
Total Organic Carbon, 2nd	~~0.97J~~	~~J~~ 1.0 U	mg/L	1.0	0.50		SW846 9060A		6/27/20 13:37	PAG	
Total Organic Carbon, 3rd	~~0.95J~~	~~J~~ 1.0 U	mg/L	1.0	0.50		SW846 9060A		6/27/20 13:37	PAG	
Total Organic Carbon, 4th	~~1.0~~	1.0 U	mg/L	1.0	0.50		SW846 9060A		6/27/20 13:37	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196006** Date Collected: 6/17/2020 08:55 Matrix: Ground Water

Sample ID: **MW-33** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	0.053J	J	mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:32	SRT	J
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/23/20	SRT	6/24/20 14:24	SRT	J

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196007** Date Collected: 6/17/2020 10:55 Matrix: Ground Water

Sample ID: **MW-24** Date Received: 6/18/2020 09:28

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		6/25/20 03:38	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
1,1-Dichloroethene	58.1		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
cis-1,2-Dichloroethene	4.4		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
Trichloroethene	9.4		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 03:38	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.5		%	81 - 118			SW846 8260C		6/25/20 03:38	VLM	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C		6/25/20 03:38	VLM	A
Dibromofluoromethane (S)	95.3		%	80 - 119			SW846 8260C		6/25/20 03:38	VLM	A
Toluene-d8 (S)	96.1		%	89 - 112			SW846 8260C		6/25/20 03:38	VLM	A
LIGHT HYDROCARBON GASES											
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175		6/25/20 07:37	CHS	H
Ethane	2.0J	J	ug/L	3.3	3.3	0.55	RSK 175		6/25/20 07:37	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175		6/25/20 07:37	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175		6/25/20 07:37	CHS	H
Methane	8.6		ug/L	1.5	1.5	0.53	RSK 175		6/25/20 07:37	CHS	H
Propane	1.7J	J	ug/L	3.2	3.2	0.84	RSK 175		6/25/20 07:37	CHS	H
WET CHEMISTRY											
Alkalinity, Total	185	~~1~~	mg/L	5	5	0.8	SM2320B-2011		6/20/20 05:40	R2B	G
Chloride	27.3		mg/L	2.0	0.50	0.16	EPA 300.0		6/19/20 06:51	MBW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		6/19/20 06:51	MBW	F
Sulfate	20.4		mg/L	2.0	0.50	0.20	EPA 300.0		6/19/20 06:51	MBW	F
Total Organic Carbon (TOC)	1.2	J+	mg/L	1.0	0.50	0.27	SW846 9060A		6/27/20 13:37	PAG	
Total Organic Carbon, 2nd	1.2	J+	mg/L	1.0	0.50		SW846 9060A		6/27/20 13:37	PAG	
Total Organic Carbon, 3rd	1.2	J+	mg/L	1.0	0.50		SW846 9060A		6/27/20 13:37	PAG	
Total Organic Carbon, 4th	1.2	J+	mg/L	1.0	0.50		SW846 9060A		6/27/20 13:37	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196007** Date Collected: 6/17/2020 10:55 Matrix: Ground Water
Sample ID: **MW-24** Date Received: 6/18/2020 09:28

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

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196008** Date Collected: 6/17/2020 13:20 Matrix: Ground Water

Sample ID: **MW-31** Date Received: 6/18/2020 09:28

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		6/25/20 04:01	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
Trichloroethene	33.5		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:01	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.5		%	81 - 118			SW846 8260C		6/25/20 04:01	VLM	A
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C		6/25/20 04:01	VLM	A
Dibromofluoromethane (S)	95.9		%	80 - 119			SW846 8260C		6/25/20 04:01	VLM	A
Toluene-d8 (S)	97.5		%	89 - 112			SW846 8260C		6/25/20 04:01	VLM	A
LIGHT HYDROCARBON GASES											
n-Butane	4.3U	U	ug/L	4.3	4.3	1.1	RSK 175		6/25/20 07:53	CHS	H
Ethane	3.2J	J	ug/L	3.3	3.3	0.55	RSK 175		6/25/20 07:53	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175		6/25/20 07:53	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175		6/25/20 07:53	CHS	H
Methane	354		ug/L	1.5	1.5	0.53	RSK 175		6/25/20 07:53	CHS	H
Propane	2.0J	J	ug/L	3.2	3.2	0.84	RSK 175		6/25/20 07:53	CHS	H
WET CHEMISTRY											
Alkalinity, Total	160	~~1~~	mg/L	5	5	0.8	SM2320B-2011		6/20/20 05:40	R2B	G
Chloride	41.4		mg/L	2.0	0.50	0.16	EPA 300.0		6/19/20 07:07	MBW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		6/19/20 07:07	MBW	F
Sulfate	9.6		mg/L	2.0	0.50	0.20	EPA 300.0		6/19/20 07:07	MBW	F
Total Organic Carbon (TOC)	~~0.80J~~	~~J~~ 1.0 U	mg/L	1.0	0.50	0.27	SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 2nd	~~0.77J~~	~~J~~ 1.0 U	mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 3rd	~~0.74J~~	~~J~~ 1.0 U	mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 4th	~~0.82J~~	~~J~~ 1.0 U	mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196008** Date Collected: 6/17/2020 13:20 Matrix: Ground Water

Sample ID: **MW-31** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	0.78		mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:35	SRT	J
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/23/20	SRT	6/24/20 14:28	SRT	K

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196009** Date Collected: 6/17/2020 12:30 Matrix: Ground Water

Sample ID: **MW-30** Date Received: 6/18/2020 09:28

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		6/25/20 04:24	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
Trichloroethene	5.7		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:24	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.9		%	81 - 118			SW846 8260C		6/25/20 04:24	VLM	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C		6/25/20 04:24	VLM	A
Dibromofluoromethane (S)	94.7		%	80 - 119			SW846 8260C		6/25/20 04:24	VLM	A
Toluene-d8 (S)	96.9		%	89 - 112			SW846 8260C		6/25/20 04:24	VLM	A
LIGHT HYDROCARBON GASES											
n-Butane	14.6		ug/L	4.3	4.3	1.1	RSK 175		6/25/20 08:09	CHS	H
Ethane	29.7		ug/L	3.3	3.3	0.55	RSK 175		6/25/20 08:09	CHS	H
Ethene	2.5		ug/L	2.4	2.4	0.81	RSK 175		6/25/20 08:09	CHS	H
Isobutane	4.6U	U	ug/L	4.6	4.6	0.90	RSK 175		6/25/20 08:09	CHS	H
Methane	5630		ug/L	1.5	1.5	0.53	RSK 175		6/25/20 08:09	CHS	H
Propane	25.4		ug/L	3.2	3.2	0.84	RSK 175		6/25/20 08:09	CHS	H
WET CHEMISTRY											
Alkalinity, Total	48	~~1~~	mg/L	5	5	0.8	SM2320B-2011		6/20/20 05:40	R2B	G
Chloride	47.6		mg/L	2.0	0.50	0.16	EPA 300.0		6/19/20 07:23	MBW	F
Nitrate-N	0.060U	U	mg/L	0.20	0.060	0.020	EPA 300.0		6/19/20 07:23	MBW	F
Sulfate	1.1J	J	mg/L	2.0	0.50	0.20	EPA 300.0		6/19/20 07:23	MBW	F
Total Organic Carbon (TOC)	5.4		mg/L	1.0	0.50	0.27	SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 2nd	5.3		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 3rd	5.3		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 4th	5.5		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196009** Date Collected: 6/17/2020 12:30 Matrix: Ground Water

Sample ID: **MW-30** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	0.076		mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:39	SRT	J
Iron, Dissolved	0.033J	J	mg/L	0.060	0.040	0.020	SW846 6010C	6/23/20	SRT	6/24/20 14:32	SRT	K

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196010** Date Collected: 6/17/2020 00:00 Matrix: Ground Water

Sample ID: **Dup** Date Received: 6/18/2020 09:28

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		6/25/20 04:46	VLM	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
Tetrachloroethene	1.1		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
1,1,1-Trichloroethane	5.5		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
Trichloroethene	140		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 04:46	VLM	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98		%	81 - 118	SW846 8260C		6/25/20 04:46	VLM	A
4-Bromofluorobenzene (S)	105		%	85 - 114	SW846 8260C		6/25/20 04:46	VLM	A
Dibromofluoromethane (S)	95.8		%	80 - 119	SW846 8260C		6/25/20 04:46	VLM	A
Toluene-d8 (S)	98.9		%	89 - 112	SW846 8260C		6/25/20 04:46	VLM	A

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196011** Date Collected: 6/17/2020 14:10 Matrix: Ground Water

Sample ID: **MW-28** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.44J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:09	VLM	A
1,1-Dichloroethane	0.92J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:09	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:09	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:09	VLM	A
cis-1,2-Dichloroethene	3.8		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:09	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:09	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:09	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:09	VLM	A
Tetrachloroethene	25.5		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:09	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:09	VLM	A
1,1,1-Trichloroethane	6.6		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:09	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:09	VLM	A
Trichloroethene	140		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:09	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:09	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.5		%	81 - 118			SW846 8260C			6/25/20 05:09	VLM	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/25/20 05:09	VLM	A
Dibromofluoromethane (S)	96		%	80 - 119			SW846 8260C			6/25/20 05:09	VLM	A
Toluene-d8 (S)	95.9		%	89 - 112			SW846 8260C			6/25/20 05:09	VLM	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	UJ	ug/L	4.3	4.3	1.1	RSK 175			6/25/20 08:42	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/25/20 08:42	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/25/20 08:42	CHS	H
Isobutane	4.6U	UJ	ug/L	4.6	4.6	0.90	RSK 175			6/25/20 08:42	CHS	H
Methane	471		ug/L	1.5	1.5	0.53	RSK 175			6/25/20 08:42	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/25/20 08:42	CHS	H
WET CHEMISTRY												
Alkalinity, Total	367	~~1~~	mg/L	5	5	0.8	SM2320B-2011			6/20/20 05:40	R2B	G
Chloride	31.1		mg/L	2.0	0.50	0.16	EPA 300.0			6/19/20 07:39	MBW	F
Nitrate-N	0.36		mg/L	0.20	0.060	0.020	EPA 300.0			6/19/20 07:39	MBW	F
Sulfate	20.5		mg/L	2.0	0.50	0.20	EPA 300.0			6/19/20 07:39	MBW	F
Total Organic Carbon (TOC)	2.1		mg/L	1.0	0.50	0.27	SW846 9060A			6/27/20 20:07	PAG	
Total Organic Carbon, 2nd	2.1		mg/L	1.0	0.50		SW846 9060A			6/27/20 20:07	PAG	
Total Organic Carbon, 3rd	2.0		mg/L	1.0	0.50		SW846 9060A			6/27/20 20:07	PAG	
Total Organic Carbon, 4th	2.5		mg/L	1.0	0.50		SW846 9060A			6/27/20 20:07	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196011** Date Collected: 6/17/2020 14:10 Matrix: Ground Water

Sample ID: **MW-28** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	0.026J	J	mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:58	SRT	J
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/23/20	SRT	6/24/20 14:43	SRT	K

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196012** Date Collected: 6/17/2020 15:00 Matrix: Ground Water

Sample ID: **MW-29** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	0.49J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:32	VLM	A
1,1-Dichloroethane	0.59J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:32	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:32	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:32	VLM	A
cis-1,2-Dichloroethene	2.9		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:32	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:32	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:32	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:32	VLM	A
Tetrachloroethene	24.3		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:32	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:32	VLM	A
1,1,1-Trichloroethane	5.8		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:32	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:32	VLM	A
Trichloroethene	102		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:32	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 05:32	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98		%	81 - 118			SW846 8260C			6/25/20 05:32	VLM	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/25/20 05:32	VLM	A
Dibromofluoromethane (S)	96.1		%	80 - 119			SW846 8260C			6/25/20 05:32	VLM	A
Toluene-d8 (S)	95.1		%	89 - 112			SW846 8260C			6/25/20 05:32	VLM	A
LIGHT HYDROCARBON GASES												
n-Butane	4.3U	UJ	ug/L	4.3	4.3	1.1	RSK 175			6/25/20 09:19	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175			6/25/20 09:19	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175			6/25/20 09:19	CHS	H
Isobutane	4.6U	UJ	ug/L	4.6	4.6	0.90	RSK 175			6/25/20 09:19	CHS	H
Methane	1.5U	U	ug/L	1.5	1.5	0.53	RSK 175			6/25/20 09:19	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175			6/25/20 09:19	CHS	H
WET CHEMISTRY												
Alkalinity, Total	282	~~1~~	mg/L	5	5	0.8	SM2320B-2011			6/20/20 05:40	R2B	G
Chloride	34.7		mg/L	2.0	0.50	0.16	EPA 300.0			6/19/20 07:55	MBW	F
Nitrate-N	0.64		mg/L	0.20	0.060	0.020	EPA 300.0			6/19/20 07:55	MBW	F
Sulfate	16.0		mg/L	2.0	0.50	0.20	EPA 300.0			6/19/20 07:55	MBW	F
Total Organic Carbon (TOC)	1.4	J+	mg/L	1.0	0.50	0.27	SW846 9060A			6/27/20 20:07	PAG	
Total Organic Carbon, 2nd	1.4	J+	mg/L	1.0	0.50		SW846 9060A			6/27/20 20:07	PAG	
Total Organic Carbon, 3rd	1.4	J+	mg/L	1.0	0.50		SW846 9060A			6/27/20 20:07	PAG	
Total Organic Carbon, 4th	1.4	J+	mg/L	1.0	0.50		SW846 9060A			6/27/20 20:07	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196012** Date Collected: 6/17/2020 15:00 Matrix: Ground Water

Sample ID: **MW-29** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	2.8		mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:43	SRT	J
Iron, Dissolved	0.040U	U	mg/L	0.060	0.040	0.020	SW846 6010C	6/23/20	SRT	6/24/20 14:47	SRT	K

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196013** Date Collected: 6/17/2020 00:00 Matrix: Ground Water

Sample ID: **Dup** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.47J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
1,1-Dichloroethane	0.91J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
cis-1,2-Dichloroethene	4.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
Tetrachloroethene	23.4		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
1,1,1-Trichloroethane	6.6		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
Trichloroethene	130		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 05:54	VLM	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	99.4		%	81 - 118			SW846 8260C		6/25/20 05:54	VLM	A
4-Bromofluorobenzene (S)	105		%	85 - 114			SW846 8260C		6/25/20 05:54	VLM	A
Dibromofluoromethane (S)	96.4		%	80 - 119			SW846 8260C		6/25/20 05:54	VLM	A
Toluene-d8 (S)	95.9		%	89 - 112			SW846 8260C		6/25/20 05:54	VLM	A
LIGHT HYDROCARBON GASES											
n-Butane	4.3U	UJ	ug/L	4.3	4.3	1.1	RSK 175		6/25/20 09:35	CHS	H
Ethane	3.3U	U	ug/L	3.3	3.3	0.55	RSK 175		6/25/20 09:35	CHS	H
Ethene	2.4U	U	ug/L	2.4	2.4	0.81	RSK 175		6/25/20 09:35	CHS	H
Isobutane	4.6U	UJ	ug/L	4.6	4.6	0.90	RSK 175		6/25/20 09:35	CHS	H
Methane	456		ug/L	1.5	1.5	0.53	RSK 175		6/25/20 09:35	CHS	H
Propane	3.2U	U	ug/L	3.2	3.2	0.84	RSK 175		6/25/20 09:35	CHS	H
WET CHEMISTRY											
Alkalinity, Total	348	~~1~~	mg/L	5	5	0.8	SM2320B-2011		6/20/20 05:40	R2B	G
Chloride	31.3		mg/L	2.0	0.50	0.16	EPA 300.0		6/19/20 09:32	MBW	F
Nitrate-N	0.34		mg/L	0.20	0.060	0.020	EPA 300.0		6/19/20 09:32	MBW	F
Sulfate	20.4		mg/L	2.0	0.50	0.20	EPA 300.0		6/19/20 09:32	MBW	F
Total Organic Carbon (TOC)	2.3		mg/L	1.0	0.50	0.27	SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 2nd	2.3		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 3rd	2.3		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	
Total Organic Carbon, 4th	2.4		mg/L	1.0	0.50		SW846 9060A		6/27/20 20:07	PAG	

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ANALYTICAL RESULTS

Workorder: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID: **3109196013** Date Collected: 6/17/2020 00:00 Matrix: Ground Water

Sample ID: **Dup** Date Received: 6/18/2020 09:28

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
METALS												
Iron, Total	0.049J	J	mg/L	0.067	0.045	0.022	SW846 6010C	6/24/20	AHI	6/25/20 18:47	SRT	J
Iron, Dissolved	0.057J	J	mg/L	0.060	0.040	0.020	SW846 6010C	6/26/20	SRT	6/26/20 10:31	SRT	K

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707001** Date Collected: 6/17/2020 16:55 Matrix: Ground Water

Sample ID: **GEP-4 061720** Date Received: 6/20/2020 09:16

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	3.8U	U,~~1~~	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
1,1-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
1,2-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
1,1-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
cis-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
trans-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
1,1,1,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
1,1,2,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
Tetrachloroethene	3.2J	J	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
Toluene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
1,1,1-Trichloroethane	14.3		ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
1,1,2-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
Trichloroethene	274		ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A
Vinyl Chloride	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/25/20 16:54	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	99.2		%	81 - 118	SW846 8260C			6/25/20 16:54	TMP	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C			6/25/20 16:54	TMP	A
Dibromofluoromethane (S)	95.9		%	80 - 119	SW846 8260C			6/25/20 16:54	TMP	A
Toluene-d8 (S)	95.9		%	89 - 112	SW846 8260C			6/25/20 16:54	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707002** Date Collected: 6/18/2020 09:10 Matrix: Ground Water

Sample ID: **MW-25 06182020.** Date Received: 6/20/2020 09:16

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			6/25/20 12:22	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
Trichloroethene	88.7		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 12:22	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.5		%	81 - 118	SW846 8260C			6/25/20 12:22	TMP	A
4-Bromofluorobenzene (S)	108		%	85 - 114	SW846 8260C			6/25/20 12:22	TMP	A
Dibromofluoromethane (S)	95.1		%	80 - 119	SW846 8260C			6/25/20 12:22	TMP	A
Toluene-d8 (S)	97.2		%	89 - 112	SW846 8260C			6/25/20 12:22	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707003** Date Collected: 6/18/2020 09:10 Matrix: Ground Water

Sample ID: **MW-23 06182020.** Date Received: 6/20/2020 09:16

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		6/25/20 12:44	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 12:44	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 12:44	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 12:44	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 12:44	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 12:44	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 12:44	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 12:44	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 12:44	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 12:44	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 12:44	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 12:44	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 12:44	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 12:44	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.7		%	81 - 118			SW846 8260C		6/25/20 12:44	TMP	A
4-Bromofluorobenzene (S)	108		%	85 - 114			SW846 8260C		6/25/20 12:44	TMP	A
Dibromofluoromethane (S)	94.8		%	80 - 119			SW846 8260C		6/25/20 12:44	TMP	A
Toluene-d8 (S)	96.4		%	89 - 112			SW846 8260C		6/25/20 12:44	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707004** Date Collected: 6/18/2020 10:35 Matrix: Ground Water

Sample ID: **MW-36 06182020.** Date Received: 6/20/2020 09:16

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		6/25/20 13:07	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:07	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:07	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:07	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:07	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:07	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:07	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:07	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:07	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:07	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:07	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:07	TMP	A
Trichloroethene	1.7		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:07	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:07	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.3		%	81 - 118			SW846 8260C		6/25/20 13:07	TMP	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C		6/25/20 13:07	TMP	A
Dibromofluoromethane (S)	96.4		%	80 - 119			SW846 8260C		6/25/20 13:07	TMP	A
Toluene-d8 (S)	95.4		%	89 - 112			SW846 8260C		6/25/20 13:07	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707005** Date Collected: 6/18/2020 10:25 Matrix: Ground Water

Sample ID: **MW-19 06182020.** Date Received: 6/20/2020 09:16

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		6/25/20 13:30	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
1,1,1-Trichloroethane	3.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
Trichloroethene	8.9		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:30	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.9		%	81 - 118	SW846 8260C		6/25/20 13:30	TMP	A
4-Bromofluorobenzene (S)	108		%	85 - 114	SW846 8260C		6/25/20 13:30	TMP	A
Dibromofluoromethane (S)	95.6		%	80 - 119	SW846 8260C		6/25/20 13:30	TMP	A
Toluene-d8 (S)	95.7		%	89 - 112	SW846 8260C		6/25/20 13:30	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707006** Date Collected: 6/18/2020 11:45 Matrix: Ground Water

Sample ID: **MW-20 06182020.** Date Received: 6/20/2020 09:16

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		6/25/20 13:52	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
Tetrachloroethene	3.4		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
Trichloroethene	67.3		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 13:52	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	99.3		%	81 - 118			SW846 8260C		6/25/20 13:52	TMP	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C		6/25/20 13:52	TMP	A
Dibromofluoromethane (S)	95.9		%	80 - 119			SW846 8260C		6/25/20 13:52	TMP	A
Toluene-d8 (S)	96		%	89 - 112			SW846 8260C		6/25/20 13:52	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707007** Date Collected: 6/18/2020 11:55 Matrix: Ground Water

Sample ID: **MW-22R 06182020.** Date Received: 6/20/2020 09:16

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		6/25/20 14:15	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
Tetrachloroethene	4.0		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
Trichloroethene	130		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:15	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.6		%	81 - 118	SW846 8260C		6/25/20 14:15	TMP	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C		6/25/20 14:15	TMP	A
Dibromofluoromethane (S)	93.9		%	80 - 119	SW846 8260C		6/25/20 14:15	TMP	A
Toluene-d8 (S)	95.6		%	89 - 112	SW846 8260C		6/25/20 14:15	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707008** Date Collected: 6/18/2020 12:50 Matrix: Ground Water

Sample ID: **GEP-3 06182020** Date Received: 6/20/2020 09:16

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.48J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:38	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:38	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:38	TMP	A
1,1-Dichloroethene	0.42J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:38	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:38	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:38	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:38	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:38	TMP	A
Tetrachloroethene	0.48J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:38	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:38	TMP	A
1,1,1-Trichloroethane	2.9		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:38	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:38	TMP	A
Trichloroethene	217		ug/L	5.0	3.8	1.7	SW846 8260C		6/26/20 23:39	VLM	B
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 14:38	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.2		%	81 - 118			SW846 8260C		6/26/20 23:39	VLM	B
1,2-Dichloroethane-d4 (S)	97.2		%	81 - 118			SW846 8260C		6/25/20 14:38	TMP	A
4-Bromofluorobenzene (S)	107		%	85 - 114			SW846 8260C		6/25/20 14:38	TMP	A
4-Bromofluorobenzene (S)	107		%	85 - 114			SW846 8260C		6/26/20 23:39	VLM	B
Dibromofluoromethane (S)	94.8		%	80 - 119			SW846 8260C		6/25/20 14:38	TMP	A
Dibromofluoromethane (S)	94.3		%	80 - 119			SW846 8260C		6/26/20 23:39	VLM	B
Toluene-d8 (S)	95.7		%	89 - 112			SW846 8260C		6/26/20 23:39	VLM	B
Toluene-d8 (S)	95.4		%	89 - 112			SW846 8260C		6/25/20 14:38	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707009** Date Collected: 6/18/2020 14:00 Matrix: Ground Water

Sample ID: **MW-9 06182020.** Date Received: 6/20/2020 09:16

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		6/25/20 15:00	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:00	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:00	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:00	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:00	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:00	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:00	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:00	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:00	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:00	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:00	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:00	TMP	A
Trichloroethene	0.60J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:00	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:00	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	98.3		%	81 - 118	SW846 8260C		6/25/20 15:00	TMP	A
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C		6/25/20 15:00	TMP	A
Dibromofluoromethane (S)	95.4		%	80 - 119	SW846 8260C		6/25/20 15:00	TMP	A
Toluene-d8 (S)	94.6		%	89 - 112	SW846 8260C		6/25/20 15:00	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707010** Date Collected: 6/18/2020 14:35 Matrix: Ground Water

Sample ID: **MW-5 06182020.** Date Received: 6/20/2020 09:16

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		6/25/20 15:23	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 15:23	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.9		%	81 - 118			SW846 8260C		6/25/20 15:23	TMP	A
4-Bromofluorobenzene (S)	107		%	85 - 114			SW846 8260C		6/25/20 15:23	TMP	A
Dibromofluoromethane (S)	95.8		%	80 - 119			SW846 8260C		6/25/20 15:23	TMP	A
Toluene-d8 (S)	95.2		%	89 - 112			SW846 8260C		6/25/20 15:23	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707011** Date Collected: 6/18/2020 15:30 Matrix: Ground Water

Sample ID: **MW-B-3 06182020.** Date Received: 6/20/2020 09:16

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			6/25/20 15:46	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:46	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:46	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:46	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:46	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:46	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:46	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:46	TMP	A
Tetrachloroethene	6.3		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:46	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:46	TMP	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:46	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:46	TMP	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:46	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 15:46	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.2		%	81 - 118	SW846 8260C			6/25/20 15:46	TMP	A
4-Bromofluorobenzene (S)	107		%	85 - 114	SW846 8260C			6/25/20 15:46	TMP	A
Dibromofluoromethane (S)	95.4		%	80 - 119	SW846 8260C			6/25/20 15:46	TMP	A
Toluene-d8 (S)	95.3		%	89 - 112	SW846 8260C			6/25/20 15:46	TMP	A

Vanessa N. Badman

Mrs. Vanessa N Badman
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: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707012** Date Collected: 6/18/2020 15:45 Matrix: Ground Water

Sample ID: **MW-14 06182020.** Date Received: 6/20/2020 09:16

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.74J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
cis-1,2-Dichloroethene	2.7		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
Tetrachloroethene	18.5		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
1,1,1-Trichloroethane	4.1		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
Trichloroethene	3.6		ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/25/20 16:08	TMP	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	95.4		%	81 - 118	SW846 8260C		6/25/20 16:08	TMP	A
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C		6/25/20 16:08	TMP	A
Dibromofluoromethane (S)	94.2		%	80 - 119	SW846 8260C		6/25/20 16:08	TMP	A
Toluene-d8 (S)	95.8		%	89 - 112	SW846 8260C		6/25/20 16:08	TMP	A

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ANALYTICAL RESULTS

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID: **3109707013** Date Collected: 6/18/2020 16:05 Matrix: Ground Water

Sample ID: **GEP-1 06182020** Date Received: 6/20/2020 09:16

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			6/25/20 16:31	TMP	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 16:31	TMP	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 16:31	TMP	A
1,1-Dichloroethene	0.36J	J	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 16:31	TMP	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 16:31	TMP	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 16:31	TMP	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 16:31	TMP	A
1,1,2,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 16:31	TMP	A
Tetrachloroethene	1.1		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 16:31	TMP	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 16:31	TMP	A
1,1,1-Trichloroethane	5.9		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 16:31	TMP	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 16:31	TMP	A
Trichloroethene	183		ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 16:31	TMP	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C			6/25/20 16:31	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*			*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	97.5		%	81 - 118			SW846 8260C			6/25/20 16:31	TMP	A
4-Bromofluorobenzene (S)	106		%	85 - 114			SW846 8260C			6/25/20 16:31	TMP	A
Dibromofluoromethane (S)	95.3		%	80 - 119			SW846 8260C			6/25/20 16:31	TMP	A
Toluene-d8 (S)	95.8		%	89 - 112			SW846 8260C			6/25/20 16:31	TMP	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

Appendix C

Support Documentation

ALS Environmental

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SAMPLE SUMMARY

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3108528001	MW-27-061520	Ground Water	6/15/2020 13:45	6/16/2020 09:18	Collected by Client
3108528002	MW-7-061520	Ground Water	6/15/2020 14:15	6/16/2020 09:18	Collected by Client
3108528003	MW-6-061520	Ground Water	6/15/2020 15:05	6/16/2020 09:18	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.

* 3108528 *

COC of

(completed by receiving Lab)

Client Name: AECOM
Address: 40 British-American Blvd Latham NY 12110
Contact: Gerlinde Wolf
Phone#: 518-957-2370
Project Name/#: Scotia Navy Depot
Bill To: 60440641
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:

	Container Type		VOA									
	Container Size		40ml									
	Preservative		HCl									
	ANALYSES/METHOD REQUESTED		8260C									
Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	Enter Number of Containers Per Sample or Field Results Below.								Sample/COC Comments
1 MW-27 061520	06/15/20	1345	G	GW	2								
2 MW-7 061520	↓	1415	↓	↓	2								
3 MW-16 061520	↓	1505	↓	↓	2								
4													
5													
6													
7													
8													
9													
10													

SAMPLED BY (Please Print): Alexandra Golden + Jillian Kosinski

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] / AECOM	6/15/20	1459	2 Daniel Hagen / ALS	6/15/20	1459
3 Daniel Hagen / ALS	6/15/2020	1800	4 FedEx		
5 FedEx			6 [signature]	6/16/20	0915
7			8		
9			10		

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

Special Processing: USACE [X] 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: see EDD

* 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	8528	DN	6/16

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 4666 8630 2935			
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): 4.1

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-056 (3108528) Modified

Sample Management

This report contains the results of the analysis of three (3) ground water samples collected on June 15, 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 June 16, 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.

Modification

This data package was modified to add a comment on the laboratory report/certification of analysis.

Volatile Organics by SW-846 Method 8260

Sample Handling. Three (3) 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, except as follows:

- In 3150857 LCS, 1,1-Dichloroethene was recovered above control limits.

Internal Standards. Internal standard results met method criteria, except as follows:

- In 3108528002, 1,4-Dichlorobenzene-d4 was recovered below control limits.
- In 3108528003, 1,4-Dichlorobenzene-d4 and Fluorobenzene were recovered below control limits.

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ANALYTICAL RESULTS

Workorder: 3108528 ASN056|Scotia Navy Depot

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3108528001	2	MW-27-061520	SW846 8260C	Carbon Tetrachloride
The GCMS volatiles analysis was performed at a dilution due to the level of target compounds.				
3108528002	1	MW-7-061520	SW846 8260C	Carbon Tetrachloride
One or more of the method 8260 internal standards were recovered outside of the control limits. The sample was re-analyzed, but more quality control problems. There was no third vial to reanalyze.				
3108528003	1	MW-6-061520	SW846 8260C	Carbon Tetrachloride
One or more of the method 8260 internal standards were recovered outside of the control limits. The sample was re-analyzed, but more quality control problems. There was no third vial to reanalyze.				

Report ASN056 required revision to correct IS area non-conformance statements.

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PROJECT SUMMARY

Workorder: 3108528 ASN056|Scotia Navy Depot

Workorder Comments

This report was modified to include data qualifiers to the 8260C results of samples 3108528001 and 3108528002. AJL 7/30/2020

ALS Environmental

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ANALYTICAL RESULTS

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID: **3108528001** Date Collected: 6/15/2020 13:45 Matrix: Ground Water

Sample ID: **MW-27-061520** Date Received: 6/16/2020 09:18

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS												
Carbon Tetrachloride	3.8U	U,2	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,2-Dichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
cis-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
trans-1,2-Dichloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1,1,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1,2,2-Tetrachloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Tetrachloroethene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Toluene	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1,1-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
1,1,2-Trichloroethane	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Trichloroethene	179		ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B
Vinyl Chloride	3.8U	U	ug/L	5.0	3.8	1.7	SW846 8260C			6/24/20 12:06	TMP	B

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	96.8		%	81 - 118	SW846 8260C			6/24/20 12:06	TMP	B
4-Bromofluorobenzene (S)	106		%	85 - 114	SW846 8260C			6/24/20 12:06	TMP	B
Dibromofluoromethane (S)	95.5		%	80 - 119	SW846 8260C			6/24/20 12:06	TMP	B
Toluene-d8 (S)	96		%	89 - 112	SW846 8260C			6/24/20 12:06	TMP	B

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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

ANALYTICAL RESULTS

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID: **3108528002** Date Collected: 6/15/2020 14:15 Matrix: Ground Water

Sample ID: **MW-7-061520** Date Received: 6/16/2020 09:18

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		6/19/20 15:16	DPC	A
1,1-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:16	DPC	A
1,2-Dichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:16	DPC	A
1,1-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:16	DPC	A
cis-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:16	DPC	A
trans-1,2-Dichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:16	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:16	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U,1	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:16	DPC	A
Tetrachloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:16	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:16	DPC	A
1,1,1-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:16	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:16	DPC	A
Trichloroethene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:16	DPC	A
Vinyl Chloride	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:16	DPC	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	101		%	81 - 118	SW846 8260C		6/19/20 15:16	DPC	A
4-Bromofluorobenzene (S)	97.6		%	85 - 114	SW846 8260C		6/19/20 15:16	DPC	A
Dibromofluoromethane (S)	89.2		%	80 - 119	SW846 8260C		6/19/20 15:16	DPC	A
Toluene-d8 (S)	105		%	89 - 112	SW846 8260C		6/19/20 15:16	DPC	A

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ANALYTICAL RESULTS

Workorder: 3108528 ASN056|Scotia Navy Depot

Lab ID: **3108528003** Date Collected: 6/15/2020 15:05 Matrix: Ground Water

Sample ID: **MW-6-061520** Date Received: 6/16/2020 09:18

Parameters	Results	Flag	Units	LOQ	LOD	DL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS											
Carbon Tetrachloride	0.75U	U,8	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1-Dichloroethane	0.75U	U,4	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,2-Dichloroethane	0.75U	U,6	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1-Dichloroethene	0.75U	U,2	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
cis-1,2-Dichloroethene	1.0	5	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
trans-1,2-Dichloroethene	0.75U	U,3	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1,1,2-Tetrachloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1,2,2-Tetrachloroethane	0.75U	U,10	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
Tetrachloroethene	0.65J	J	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
Toluene	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1,1-Trichloroethane	2.6	7	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
1,1,2-Trichloroethane	0.75U	U	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
Trichloroethene	88.4	9	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A
Vinyl Chloride	0.75U	U,1	ug/L	1.0	0.75	0.33	SW846 8260C		6/19/20 15:39	DPC	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	107		%	81 - 118	SW846 8260C		6/19/20 15:39	DPC	A
4-Bromofluorobenzene (S)	96.3		%	85 - 114	SW846 8260C		6/19/20 15:39	DPC	A
Dibromofluoromethane (S)	90.2		%	80 - 119	SW846 8260C		6/19/20 15:39	DPC	A
Toluene-d8 (S)	90.2		%	89 - 112	SW846 8260C		6/19/20 15:39	DPC	A

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ANALYTICAL RESULTS

Workorder: 3108528 ASN056|Scotia Navy Depot

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3108528001	2	MW-27-061520	SW846 8260C	Carbon Tetrachloride
The GCMS volatiles analysis was performed at a dilution due to the level of target compounds.				
3108528002	1	MW-7-061520	SW846 8260C	1,1,2,2-Tetrachloroethane
The internal standard associated with this analyte was recovered outside control limits (43.1%). Control limits are 50 to 200%				
3108528003	1	MW-6-061520	SW846 8260C	Vinyl Chloride
The internal standard associated with this analyte was recovered outside control limits (49.6%). Control limits are 50 to 200%				
3108528003	2	MW-6-061520	SW846 8260C	1,1-Dichloroethene
The internal standard associated with this analyte was recovered outside control limits (49.6%). Control limits are 50 to 200%				
3108528003	3	MW-6-061520	SW846 8260C	trans-1,2-Dichloroethene
The internal standard associated with this analyte was recovered outside control limits (49.6%). Control limits are 50 to 200%				
3108528003	4	MW-6-061520	SW846 8260C	1,1-Dichloroethane
The internal standard associated with this analyte was recovered outside control limits (49.6%). Control limits are 50 to 200%				
3108528003	5	MW-6-061520	SW846 8260C	cis-1,2-Dichloroethene
The internal standard associated with this analyte was recovered outside control limits (49.6%). Control limits are 50 to 200%				
3108528003	6	MW-6-061520	SW846 8260C	1,2-Dichloroethane
The internal standard associated with this analyte was recovered outside control limits (49.6%). Control limits are 50 to 200%				
3108528003	7	MW-6-061520	SW846 8260C	1,1,1-Trichloroethane
The internal standard associated with this analyte was recovered outside control limits (49.6%). Control limits are 50 to 200%				
3108528003	8	MW-6-061520	SW846 8260C	Carbon Tetrachloride
The internal standard associated with this analyte was recovered outside control limits (49.6%). Control limits are 50 to 200%				
3108528003	9	MW-6-061520	SW846 8260C	Trichloroethene
The internal standard associated with this analyte was recovered outside control limits (49.6%). Control limits are 50 to 200%				
3108528003	10	MW-6-061520	SW846 8260C	1,1,2,2-Tetrachloroethane
The internal standard associated with this analyte was recovered outside control limits (41.6%). Control limits are 50 to 200%				

8Az

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ALS Global Contract: VOMS

Lab Code: VOA Case No.: SAS No.: SDG No.: ASN-056

Lab File ID: 1720061901Q.D Date Analyzed: 6/19/2020

Instrument ID: ms17.i Time Analyzed: 09:02

GC Column: RTXVMS ID: 0.1 (mm) Heated Purge: (Y/N) N

	IS1 AREA #	RT#	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	423875	5.900	305877	7.662	899603	3.919
UPPER LIMIT	847750	6.070	611754	7.832	1799206	4.089
LOWER LIMIT	211938	5.730	152939	7.492	449802	3.749
SAMPLE NO.						
1800	321270	5.900	233861	7.662	663978	3.919
3153124(LCS)	307208	5.900	226349	7.662	640935	3.919
3153123(MB)	272754	5.900	191073	7.668	587960	3.919
MW-7-061520	232927	5.900	43.1% 131958 *	7.668	469123	3.919
MW-6-061520	225152	5.900	41.6% 127189 *	7.668	49.6% 446348 *	3.919
1801	286595	5.900	211670	7.668	561024	3.919

IS1 = Chlorobenzene-d5
IS2 = 1,4-Dichlorobenzene-d4
IS3 = Fluorobenzene

AREA UPPER LIMIT = +2% of internal standard area
AREA LOWER LIMIT = -1% of internal standard area
RT UPPER LIMIT = +0.17 minutes of internal standard RT
RT LOWER LIMIT = -0.17 minutes of internal standard RT

Column used to flag values outside QC limits with an asterisk.
* Values outside of QC limits.

3A

WATER VOLATILE LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: ALS Global Contract: VOMS

Lab Code: VOA Case No.: SAS No.: SDG No.: ASN-056

Laboratory Control Spike - Sample No: 3150857

COMPOUND	SPIKE ADDED (ug/L)		LCS CONCENTRATION (ug/L)	LCS % REC#	QC LIMIT REC
Carbon Tetrachloride	20		22.3	111	(80-120)
1,1-Dichloroethane	20		23.0	115	(80-120)
1,2-Dichloroethane	20		21.1	106	(80-120)
1,1-Dichloroethene	20		24.9	124*	(80-120)
cis-1,2-Dichloroethene	20		22.3	112	(80-120)
trans-1,2-Dichloroethen	20		24.0	120	(80-120)
1,1,1,2-Tetrachloroetha	20		21.9	109	(80-120)
1,1,2,2-Tetrachloroetha	20		23.1	115	(80-120)
Tetrachloroethene	20		22.1	111	(80-120)
Toluene	20		23.0	115	(80-120)
1,1,1-Trichloroethane	20		21.6	108	(80-120)
1,1,2-Trichloroethane	20		21.7	108	(80-120)
Trichloroethene	20		23.0	115	(80-120)
Vinyl Chloride	20		17.2	86.2	(80-120)

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits

Spike Recovery: 1 out of 14 outside limits

Comments:

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SAMPLE SUMMARY

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3108844001	MW-8	Ground Water	6/16/2020 09:30	6/17/2020 09:21	Collected by Client
3108844002	MW-12R	Ground Water	6/16/2020 10:50	6/17/2020 09:21	Collected by Client
3108844003	MW-16	Ground Water	6/16/2020 10:50	6/17/2020 09:21	Collected by Client
3108844004	MW-11R	Ground Water	6/16/2020 12:25	6/17/2020 09:21	Collected by Client
3108844005	MW-26	Ground Water	6/16/2020 12:30	6/17/2020 09:21	Collected by Client
3108844006	MW-34	Ground Water	6/16/2020 14:00	6/17/2020 09:21	Collected by Client
3108844007	MW-35	Ground Water	6/16/2020 14:15	6/17/2020 09:21	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 C

* 3108844 *

Client Name: AECOM
Address: 40 British American Blvd Latham, NY 12110
Contact: Gerlinde Wolf
Phone#:
Project Name/#: Scotia Navy Depot
Bill To: 60444061

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:
Courier/Tracking #:
Purchase Order #:
Project Comments:

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

	Container Type	C	AV	P	P	C	P	P			
	Container Size	40mL	40mL	250	250	40	500	125			
	Preservative	HCl	HCl	–	–	HCl	–	HNO_3			
	ANALYSES/METHOD REQUESTED	8260C	TOC	Alkalinity	Cl, NO_3, SO_4	RSK-175	Diss. Fe (Lab filter)	Total Fe			

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	Enter Number of Containers Per Sample or Field Results Below.									Sample/COC Comments
1	MW-8 061620	06/16/20	0930			2									
2	MW-12R 061620	"	1050			2									
3	MW-16 061620	"	1050			86	86	13	13	86					* MS/MSD taken here
4	MW-11R 061620	"	1225			2									
5	MW-26 061620	"	1230			86	2	1	1	2					* MS/MSD-2 here
6	MS/MSD * See Sample #3 DN	6/17/20	–			2	2	+	+	2					
7	MS-2/MSD-2	"	–			2	→ See MW-26. Only on 8260. DN 6/17/20								
8	MW-34 061620	"	1400			2	2	1	1	2	1	1			
9	MW-35 061620	↓	1415			2	2	1	1	2	1	1			
10	~														

SAMPLED BY (Please Print): Alexandra Golden + Jillian Kosinski

Sampler Comments:

	Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	AECOM	6/16/20	1505	2 Daniel Hagen / ALS	6/16/2020	1505
3	Daniel Hagen / ALS Fedex	6/16/2020	1800	4 Fedex		
5				6	6/17/20	921
7				8		
9				10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE/DOD [ ]
Special Processing: USACE [X] 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- See equis

* G=Grab; C=Composite
**Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Ol=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 #: 3108844 | Initials: DN | Date: 6/17

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 4188 8630 7968			
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

Thermometer ID: 523

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-057 (3108844)

Sample Management

This report contains the results of the analysis of seven (7) ground water samples collected on June 16, 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 June 17, 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. Seven (7) 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 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 3155974 MB, Methane was detected at 0.86J 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 3155974 MB, Methane was detected at 4.1 µg/L.

Surrogates: Surrogate recoveries were in control limits.

Total Metals by SW-846 Method 6010C

Sample handling. Two (2) water samples were digested by SW-846 method 3015, and the digestates were analyzed for total metals on the ThermoFisher ICP6500_2, using SW-846 method 6010C. The samples were 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. Two (2) 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. Matrix spike/spike duplicate analysis was performed on sample 3108844006 (MW-34). Recoveries were within 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 IC5 on 6/17/2020. 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. Laboratory control samples identified as SSL and 3060316 were analyzed initially and every 20 samples. Recoveries were within the QC limits.

Spikes. A matrix spike and spike duplicate analysis was performed on sample 3108844003 (MW-16). All recoveries were within QC limits, with the following exceptions:

- Sulfate recovered outside of acceptable QC criteria in one of the twos spikes.

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 analyses were performed on sample 3108844003 (MW-16). Recoveries were within the QC limits.

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. The autotitrator was pH calibrated on the day of analysis and a continuing pH 7 buffer standard was analyzed throughout the run. All standards were found to be within QC limits of ±0.05 pH units.

Total alkalinity standards were analyzed initially and throughout the analysis. The standards recovered within the alkalinity QC limits of 90-110%.

Duplicate. A duplicate analysis was not performed on any samples from this data deliverable.

ANALYTICAL RESULTS

Workorder: 3108844 ASN057|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3108844003	1	MW-16	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3108844005	1	MW-26	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3108844006	1	MW-34	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3108844007	1	MW-35	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.

3155974(MB)

Lab Name: ALS Global Contract: SVGC

Lab Code: VOA Case No.: SAS No.: SDG No.: ASN-057

Matrix (soil/water): WATER Lab Sample ID: 3155974

Sample wt/vol: 37.80 (g/mL) ML Lab File ID: MFPA005.D

Level (low/med): Low Date Received: 6/25/20

% Moisture: not dec. 100.0 Date Analyzed: 6/25/20

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	4.1	
74-85-1	ETHENE	2.4	U
74-84-0	ETHANE	3.3	U
74-98-6	PROPANE	3.2	U
75-28-5	ISO-BUTANE	4.6	U
106-97-8	N-BUTANE	4.3	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3155974(MB)

Lab Name: ALS Global Contract: SVGC

Lab Code: VOA Case No.: SAS No.: SDG No.: ASN-057

Matrix (soil/water): WATER Lab Sample ID: 3155974

Sample wt/vol: 37.80 (g/mL) ML Lab File ID: MFPA005.D

Level (low/med): Low Date Received: 6/25/20

% Moisture: not dec. 100.0 Date Analyzed: 6/25/20

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	0.86	J
74-85-1	ETHENE	2.4	U
74-84-0	ETHANE	3.3	U
74-98-6	PROPANE	3.2	U
75-28-5	ISO-BUTANE	4.6	U
106-97-8	N-BUTANE	4.3	U

Sample Description

MW-16

Form 3A
Matrix Spike and Matrix Spike Duplicate Recovery Summary

Analysis Method: EPA 300.0
Matrix (soil/water): Ground Water

SDG No.: ASN057
Units: mg/L
Lab Sample ID: 3108844003
Lab MS Sample ID: 3151967
Lab MSD Sample ID: 3151968

Analyte	Spike Added	Sample Concentration	MS Concentration	MS Recovery (%)	(1)	Acceptable Limits (%)
Chloride	40	2.5	44.8	106		87 - 111
Nitrate-N	5	0.98	6.3	107		88 - 111
Sulfate	40	97.5	145	118	*	87 - 112

Analyte	Spike Added	MSD Concentration	MSD Recovery (%)	(1)	Acceptable Limits (%)	RPD (%)	(1)	Acc. Lim. (%)
Chloride	40	42.0	98.8		87 - 111	6.59		15
Nitrate-N	5	6.0	99.6		88 - 111	6.18		15
Sulfate	40	141	109		87 - 112	2.72		15

(1) The following qualifiers are used:

* : Values outside of acceptable limits
D : Spikes diluted out

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: SW846 9060A
Instrument: TOC

SDG No.: ASN057

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
ICB	Total Organic Carbon	ICB	QC-Water	6/26/2020 10:57	0.3	J	mg/L
CCB9	Total Organic Carbon	CCB	QC-Water	6/26/2020 10:57	0.5	U	mg/L
CCB10	Total Organic Carbon	CCB	QC-Water	6/26/2020 10:57	0.5	U	mg/L

Form 4B
Inorganic Blank Summary

Analysis Method: SM2320B-2011
Instrument:

SDG No.: ASN057

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
3151912	Alkalinity, Total	MB	QC-Water	06/19/2020 09:05	2	J	mg/L
3151908	Alkalinity, Total	MB	QC-Water	06/19/2020 09:05	5	U	mg/L
3151874	Alkalinity, Total	MB	QC-Water	06/19/2020 09:05	4	J	mg/L

Associated alkalinity results were greater than ten times the blank concentrations. No data qualification was required. GAM 08/04/20

(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:

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: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3109196001	MW-15	Ground Water	6/16/2020 17:40	6/18/2020 09:28	Collected by Client
3109196002	GEP-2	Ground Water	6/16/2020 17:40	6/18/2020 09:28	Collected by Client
3109196003	MW-18	Ground Water	6/16/2020 16:20	6/18/2020 09:28	Collected by Client
3109196004	MW-17	Ground Water	6/16/2020 16:10	6/18/2020 09:28	Collected by Client
3109196005	MW-32	Ground Water	6/17/2020 09:00	6/18/2020 09:28	Collected by Client
3109196006	MW-33	Ground Water	6/17/2020 08:55	6/18/2020 09:28	Collected by Client
3109196007	MW-24	Ground Water	6/17/2020 10:55	6/18/2020 09:28	Collected by Client
3109196008	MW-31	Ground Water	6/17/2020 13:20	6/18/2020 09:28	Collected by Client
3109196009	MW-30	Ground Water	6/17/2020 12:30	6/18/2020 09:28	Collected by Client
3109196010	Dup	Ground Water	6/17/2020 00:00	6/18/2020 09:28	Collected by Client
3109196011	MW-28	Ground Water	6/17/2020 14:10	6/18/2020 09:28	Collected by Client
3109196012	MW-29	Ground Water	6/17/2020 15:00	6/18/2020 09:28	Collected by Client
3109196013	Dup	Ground Water	6/17/2020 00:00	6/18/2020 09:28	Collected by Client

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Middletown, PA 17057
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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 * 3109196 * 1 of 2

Client Name: AECOM
Address: 40 British American Blvd Latham NY 12110
Contact: Gerlinde Wolf
Phone#:
Project Name/#: Scotia Navy Depot
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	C	AV	P	P	C	P	P			
	Container Size	40	40	250	250	40	500	125			
	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	TOC	Alkalinity	Cl, NO_3, SO_4	RSK-175	Dissolved Fe	Total Fe				Sample/COC Comments
				Enter Number of Containers Per Sample or Field Results Below.												
1	MW-15 0616620	06/16/20	1740	G	GW	2	2	1	1	2	X0	X0				
2	GEP-2 0616620		1740			2										
3	MW-18 0616620		1620			2										
4	MW-17 0616620		1640			2										
5	MW-32 061720	06/17/20	0900			2	2	1	1	2	1	1				
6	MW-33 061720		0855			2	2	1	1	2	(1)	1				
7	MW-24 061720		1055			2	2	1	1	2						Sample received empty -ES 6/18
8	MW-31 061720		1320			2	2	1	1	2	1	1				
9	MW-30 061720		1230			2	2	1	1	2	1	1				
10	Dup	—	—			2										

SAMPLED BY (Please Print): Alexandra Golden + Jillian Kosinski

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Alexandra Golden / AECOM Fed Ex	6/17	1510	2 David Hearn / ALS	6/17/20	1570
3			4 Fed Ex		
5			6	6/18/2020	0930
7			8		
9			10		

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

(completed by Receiving Lab)
W.O. Temp: 1 Therm ID: 523
Courier/Tracking #:
Purchase Order #:
Project Comments:

ALS Field Services: □ Pickup □ Labor □ Composite Sampling □ Rental Equipment
Other:

* 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

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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 #: 3109196 — 2 of 2
ALS Quote #:

Client Name: AECOM
Address: 40 British American Blvd Latham, NY 12110
Contact:
Phone#:
Project Name/#: See pg 1
Bill To:

TAT: [X] Normal-Standard TAT is 10-12 business days. [X] Rush-Subject to ALS approval and surcharges.
Date Required: Approved?
Email? [X]-Y see pg 1
Fax? [ ]-Y No.:

	Container Type	C	AV	P	P	C	P	P			
	Container Size	40	40	250	~~250~~ 500	~~500~~ 1000	500	125			
	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	TOC	Alkalinity	Cl, NO_3, SO_4	RSK 175	Diss. Fe	Total Fe				Sample/COC Comments
	Enter Number of Containers Per Sample or Field Results Below.													→	+	
1	MW-28 06 1720	06/17/20	1410	G	GW	2	2	1	1	2	1	1				MS/MSD FOR IRON collected [4]
2	MW-29 06 1720	↓	1500	|	|	2	2	1	1	2	1	1				-GW 6/18/2020
3	DUP 06 1720	-	-	↓	↓	2	2	1	1	2	1	1				
4																
5	AG1															
6																
7																
8																
9																
10																

Receipt Information (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:

SAMPLED BY (Please Print):
Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1	6/17/20	1510	2 Daniel Hogan / ALS	6/17/2020	1510
3			4 Fed Ex		
5 Fed Ex			6	6/18/20	0932
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: AECOM Work Order #: 3109196 Initials: CD Date: 6/18/2020

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 4886 8630 7990			
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): 1.6

Thermometer ID: 522

Radiological (µCi): _____

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

MW-33 Dissolved Fe opened in cooler

—CD 6/18/2020

[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-058 (3109196)

Sample Management

This report contains the results of the analysis of thirteen (13) ground water samples collected on June 16-17, 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 June 18, 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. Thirteen (13) 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. Eight (8) 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 3155974 MB, Methane was detected at 0.86J µg/L.

Surrogates: Surrogate recoveries were in control limits.

Light Hydrocarbon Gases by RSK-175-HIGH

Sample Handling. Three (3) 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 3155974 MB, Methane was detected at 4.1 µg/L.

Surrogates: Surrogate recoveries were in control limits.

Total Metals by SW-846 Method 6010C

Sample handling. Seven (7) water samples were digested by SW-846 method 3015, and the digestates were analyzed for total metals on the ThermoFisher ICP6500_2, using SW-846 method 6010C. The samples were 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.

Serial Dilutions. Serial dilution analysis was performed on sample 3109196011 (MW-28). Calculated RPDs were within QC criteria.

Dissolved Metals by EPA Method 6010C

Sample handling. Seven (7) 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.

Anions by EPA 300.0

Sample handling. Nine (9) 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 IC5 on 6/17/2020. 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. Laboratory control samples identified as SSL and 3060316 were analyzed initially and every 20 samples. Recoveries were within the QC limits.

Spikes. A matrix spike and spike duplicate analysis was performed on sample 3109196012 (MW-29). All recoveries were within QC limits.

Total Organic Carbon by SM 5310B

Sample handling. Nine (9) 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. Nine (9) 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. The autotitrator was pH calibrated on the day of analysis and a continuing pH 7 buffer standard was analyzed throughout the run. All standards were found to be within QC limits of ±0.05 pH units.

Total alkalinity standards were analyzed initially and throughout the analysis. The standards recovered within the alkalinity QC limits of 90-110%.

Duplicate. A duplicate analysis identified as 3152708 was performed on sample 3109196008 (MW-31). 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: 3109196 ASN058|2015-SCOTIA NAVY DEPOT-

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3109196001	1	MW-15	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3109196005	1	MW-32	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3109196006	1	MW-33	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3109196007	1	MW-24	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3109196008	1	MW-31	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3109196009	1	MW-30	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3109196011	1	MW-28	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3109196012	1	MW-29	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
3109196013	1	Dup	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ALS Global SDG No.: ASN-058

Instrument ID: gc03.i Calibration Date/Time: 6/25/2020 09:51

Lab File ID: MFPA022.D Init. Calib. Date(s): 10/4/2019 10/23/2019

Heated Purge: (Y/N) N Init. Calib. Time(s): 05:12 06:57

GC Column: PORPAK Q ID: 2.0 (mm)

COMPOUND	RRF	RRF050	Conc. CC std	MIN RRF	%D	MAX%D	CT
METHANE	1040		1059		1.8	15.0	O
ETHENE	627	604			-3.7	15.0	A
ETHANE	614	589			-4.1	15.0	A
PROPANE	866	772			-10.9	15.0	A
ISO-BUTANE	1122	951			-15.2 *	15.0	A
N-BUTANE	1090	874			-19.8 *	15.0	A

Calibration Type: A=Average Response Factor, L=Linear Regression, Q=Quadratic Regression
Compounds with "Calibration Type" other than "A" are calculated as % Drift due to alternate calibration type.

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3155974(MB)

Lab Name: ALS Global Contract: SVGC

Lab Code: VOA Case No.: SAS No.: SDG No.: ASN-058

Matrix (soil/water): WATER Lab Sample ID: 3155974

Sample wt/vol: 37.80 (g/mL) ML Lab File ID: MFPA005.D

Level (low/med): Low Date Received: 6/25/20

% Moisture: not dec. 100.0 Date Analyzed: 6/25/20

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	4.1	
74-85-1	ETHENE	2.4	U
74-84-0	ETHANE	3.3	U
74-98-6	PROPANE	3.2	U
75-28-5	ISO-BUTANE	4.6	U
106-97-8	N-BUTANE	4.3	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

3155974(MB)

Lab Name: ALS Global Contract: SVGC

Lab Code: VOA Case No.: SAS No.: SDG No.: ASN-058

Matrix (soil/water): WATER Lab Sample ID: 3155974

Sample wt/vol: 37.80 (g/mL) ML Lab File ID: MFPA005.D

Level (low/med): Low Date Received: 6/25/20

% Moisture: not dec. 100.0 Date Analyzed: 6/25/20

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	0.86	J
74-85-1	ETHENE	2.4	U
74-84-0	ETHANE	3.3	U
74-98-6	PROPANE	3.2	U
75-28-5	ISO-BUTANE	4.6	U
106-97-8	N-BUTANE	4.3	U

Form 4B
Inorganic Blank Summary

Analysis Method: SW846 9060A
Instrument: TOC

SDG No.: ASN058

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
ICB	Total Organic Carbon	ICB	QC-Water	06/27/2020 13:37	0.5	U	mg/L
CCB15	Total Organic Carbon	CCB	QC-Water	06/27/2020 13:37	0.5	U	mg/L
CCB16	Total Organic Carbon	CCB	QC-Water	06/27/2020 13:37	0.2	J	mg/L
CCB17	Total Organic Carbon	CCB	QC-Water	06/27/2020 13:37	0.5	U	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:

Form 4B
Inorganic Blank Summary

Analysis Method: SM2320B-2011
Instrument:

SDG No.: ASN058

Sample ID	Analyte	Type	Matrix	Analyzed	Result	Q (1)	Units
3152710	Alkalinity, Total	MB	QC-Water	06/20/2020 05:40	3	J	mg/L
3152714	Alkalinity, Total	MB	QC-Water	06/20/2020 05:40	5	U	mg/L
3152706	Alkalinity, Total	MB	QC-Water	06/20/2020 05:40	1	J	mg/L
3152676	Alkalinity, Total	MB	QC-Water	06/20/2020 05:40	3	J	mg/L

Associated alkalinity results were greater than ten times the blank concentrations. No data qualification was required. GAM 08/04/20

(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:

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

SAMPLE SUMMARY

Workorder: 3109707 ASN059|Scotia Navy Depot

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
3109707001	GEP-4 061720	Ground Water	6/17/2020 16:55	6/20/2020 09:16	Collected by Client
3109707002	MW-25 06182020.	Ground Water	6/18/2020 09:10	6/20/2020 09:16	Collected by Client
3109707003	MW-23 06182020.	Ground Water	6/18/2020 09:10	6/20/2020 09:16	Collected by Client
3109707004	MW-36 06182020.	Ground Water	6/18/2020 10:35	6/20/2020 09:16	Collected by Client
3109707005	MW-19 06182020.	Ground Water	6/18/2020 10:25	6/20/2020 09:16	Collected by Client
3109707006	MW-20 06182020.	Ground Water	6/18/2020 11:45	6/20/2020 09:16	Collected by Client
3109707007	MW-22R 06182020.	Ground Water	6/18/2020 11:55	6/20/2020 09:16	Collected by Client
3109707008	GEP-3 06182020	Ground Water	6/18/2020 12:50	6/20/2020 09:16	Collected by Client
3109707009	MW-9 06182020.	Ground Water	6/18/2020 14:00	6/20/2020 09:16	Collected by Client
3109707010	MW-5 06182020.	Ground Water	6/18/2020 14:35	6/20/2020 09:16	Collected by Client
3109707011	MW-B-3 06182020.	Ground Water	6/18/2020 15:30	6/20/2020 09:16	Collected by Client
3109707012	MW-14 06182020.	Ground Water	6/18/2020 15:45	6/20/2020 09:16	Collected by Client
3109707013	GEP-1 06182020	Ground Water	6/18/2020 16:05	6/20/2020 09:16	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.

Client Name: AECOM
Address: 40 British American Blvd Latham, NY
Contact: Gerlinde Wolf
Phone#:
Project Name/#: Scotia Navy Depot
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	C									
	Container Size	40ml									
	Preservative	HCl									

ANALYSES/METHOD REQUESTED

W.O. Temp: 1 Therm ID: 523
Courier/Tracking #:
Purchase Order #:
Project Comments:

ALS Field Services: [ ] 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								Sample/COC Comments
						Enter Number of Containers Per Sample or Field Results Below.								
1	GEP-4 061720	06/17/20	1655	G	GW	2								
2	MW-25 061820	06/18/20	0910			2								
3	MW-23 061820		0910			2								
4	MW-36 061820		1035			2								
5	MW-19 061820		1025			2								
6	MW-20 061820		1145			2								
7	MW-22R 061820		1155			2								
8	GEP-3 061820		1250			2								
9	MW-9 061820		1400			2								
10	MW-5 061820	↓	1435	↓	↓	2								

SAMPLED BY (Please Print): Alexandra Golden + Jillian Kosinski

Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 AECOM	6/18/20		2		
3 FedEx			4	6/24/20	0916
5			6		
7			8		
9			10		

Data Deliverables: [ ] Standard [ ] CLP-like [ ] USACE/DOD [ ]
Special Processing: USACE [X] 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 - 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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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

COC #: 970 2 of 2
ALS Quote #:

Client Name: AECOM
Address: 40 British American Blvd Latham, NY
Contact: Gerlinde Wolf
Phone#:
Project Name/#: Scotia Navy Depot
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: C
Container Size: 40ml
Preservative: HCl

ANALYSES/METHOD REQUESTED: 8260C

Receipt Information (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:

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	*G or C	**Matrix	Enter Number of Containers Per Sample or Field Results Below.	Sample/COC Comments
1	MW-B3 061820	6/18/20	1530	G	GW	2	
2	MW-14 061820	↓	1545	↓	↓	2	
3	GEP-1 061820	↓	1605	↓	↓	2	
4			DM 6/20/20				
5							
6							
7							
8							
9							
10							

ATG

SAMPLED BY (Please Print): See pg 1
Sampler Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 Alex Sokol - AECOM	6/19/20		2		
3			4		
5			6		
7			8		
9			10		

Data Deliverables: ☐ Standard ☐ CLP-like ☐ USACE/DOD
Special Processing: USACE [X] 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 - AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

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F: (717) 944-1430

Condition of Sample Receipt Form

Client:	Work Order #:	Initials:	Date:
AECOM	9707	CD	4/20/2020

1. Were airbills / tracking numbers present and recorded?	NONE	(YES)	NO
Tracking number: 394021695728			
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):	1							
Thermometer ID:	573							
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-059 (3109707)

Sample Management

This report contains the results of the analysis of thirteen (13) ground water samples collected on June 17-18, 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 June 20, 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. Thirteen (13) 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

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: 3109707 ASN059|Scotia Navy Depot

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
3109707001	1	GEP-4 061720	SW846 8260C	Carbon Tetrachloride

The GCMS volatiles analysis was performed at a dilution due to the level of target compounds.

APPENDIX F: Groundwater Concentration Trend Plots

Figure F-1 MW Pair 28/29

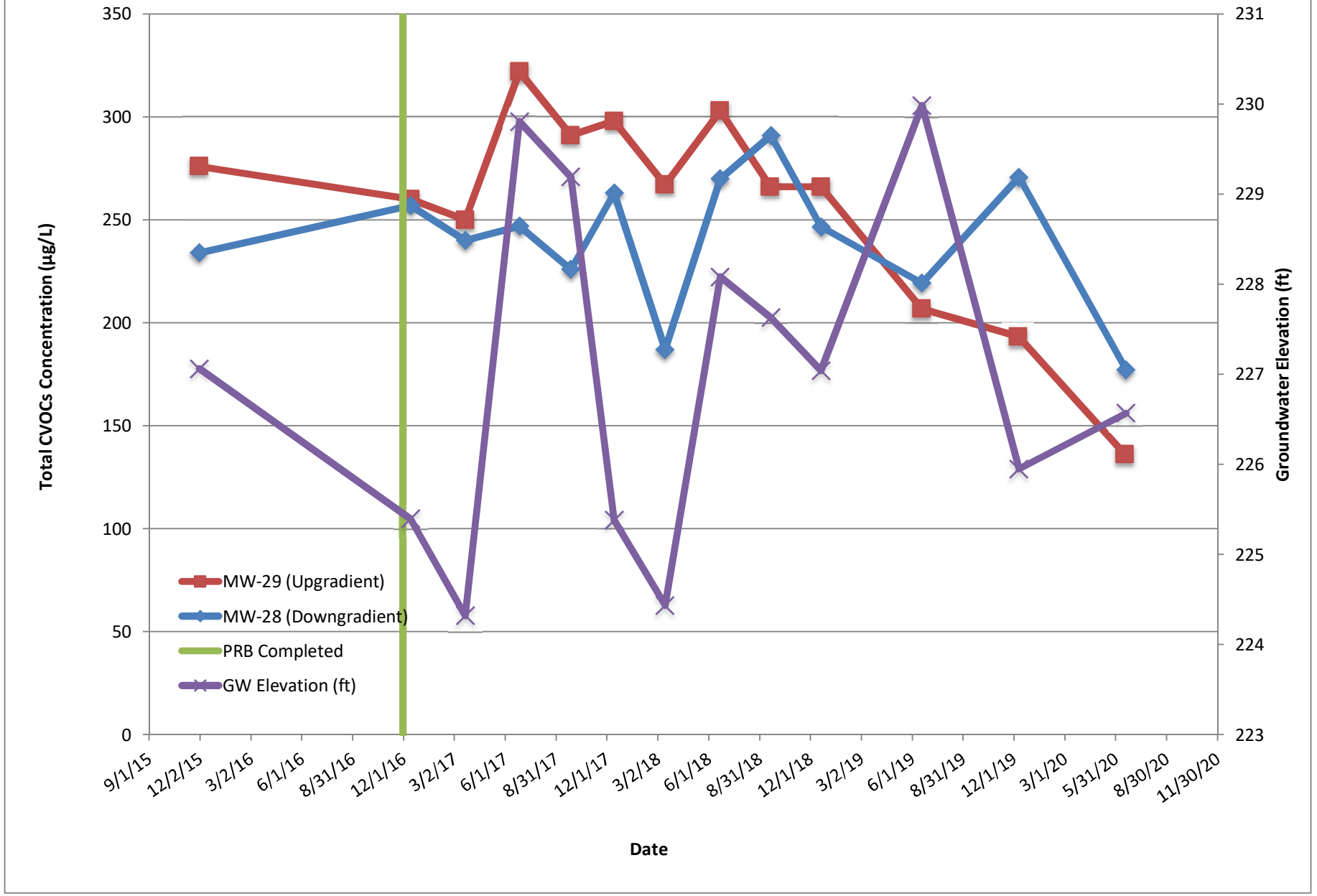


Figure F-2 MW Pair 30/31

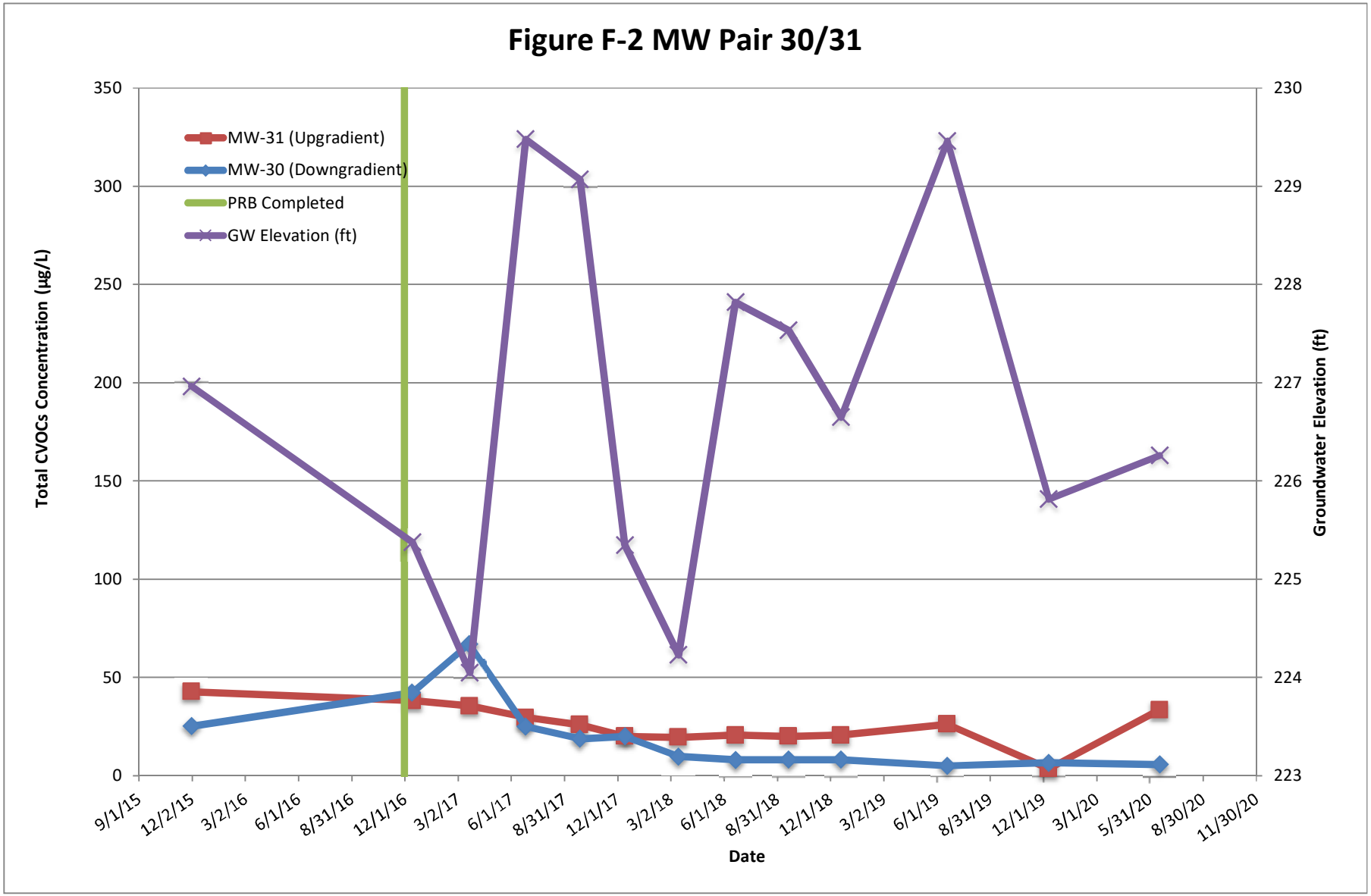


Figure F-3 MW Pair 32/33

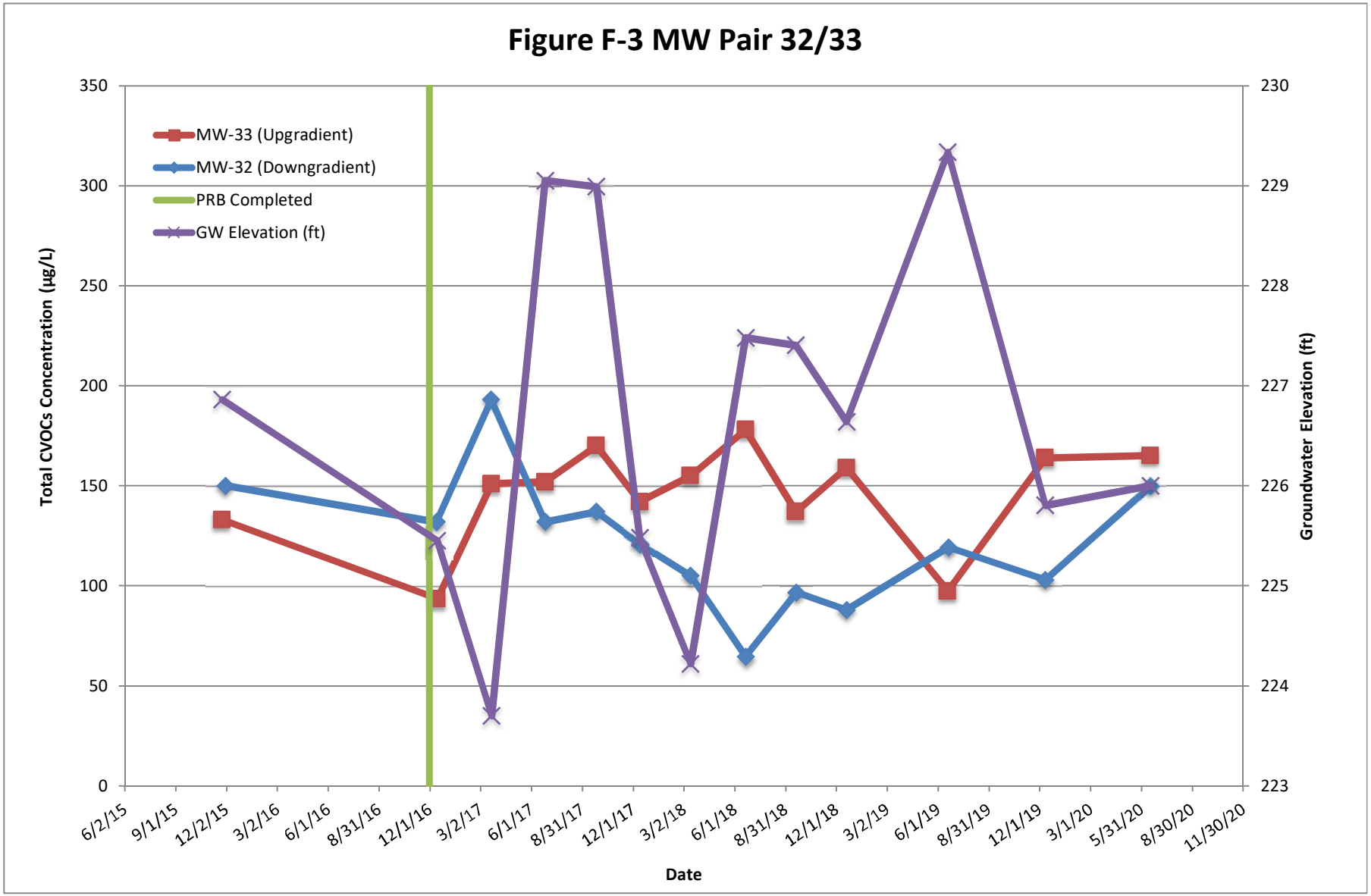
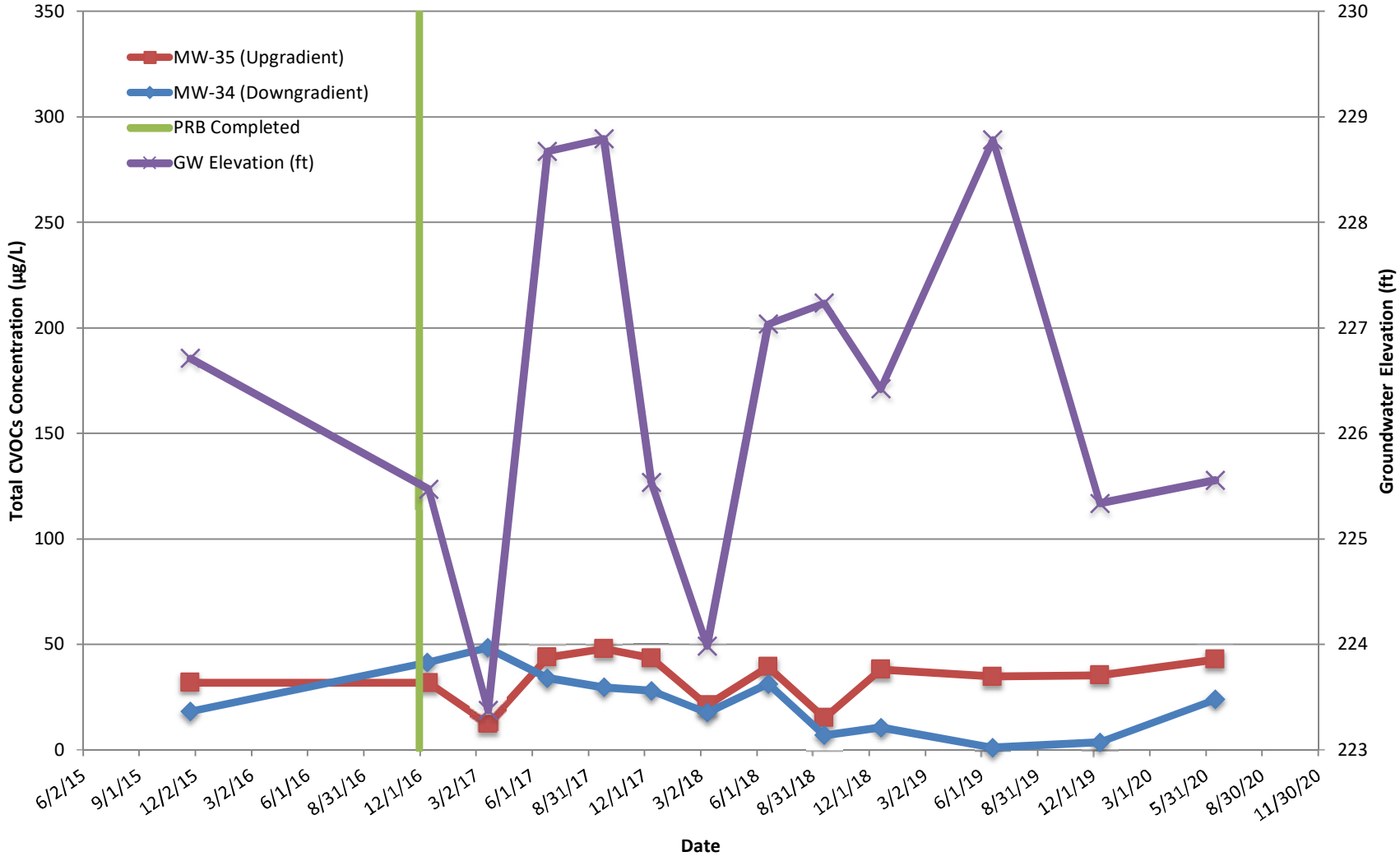


Figure F-4 MW Pair 34/35

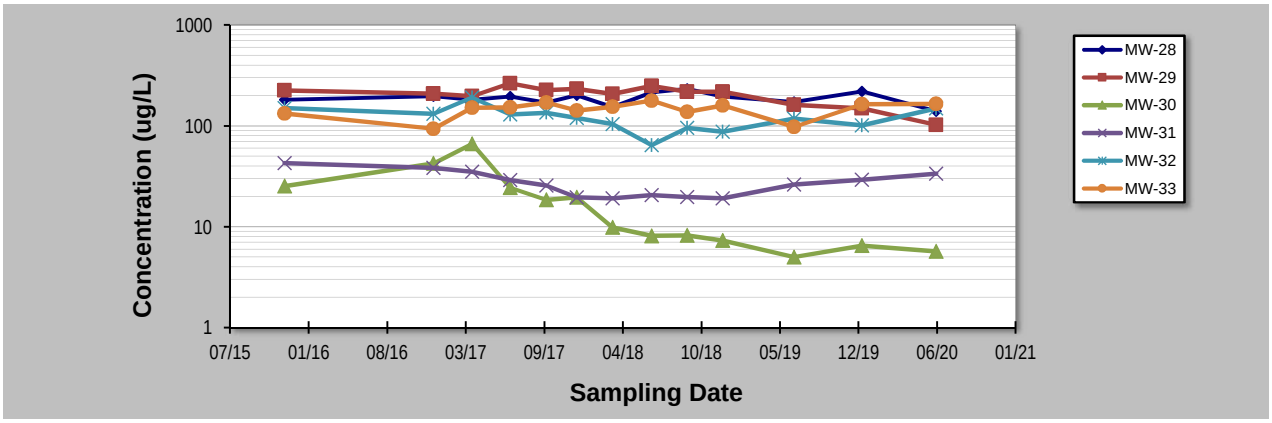


APPENDIX G: Mann-Kendall Trend Analysis Results

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **June 2020**
Facility Name: **Former Scotia Navy Depot**
Conducted By: **M. Zenker**
Job ID:
Constituent: **TCE**
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								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.14	0.21	0.94	0.29	0.27	0.18	
Mann-Kendall Statistic (S):		1	-31	-64	-23	-32	26	
Confidence Factor:		50.0%	96.7%	>99.9%	90.8%	97.1%	93.6%	
Concentration Trend:		No Trend	Decreasing	Decreasing	Prob. Decreasing	Decreasing	Prob. Increasing	



Notes:

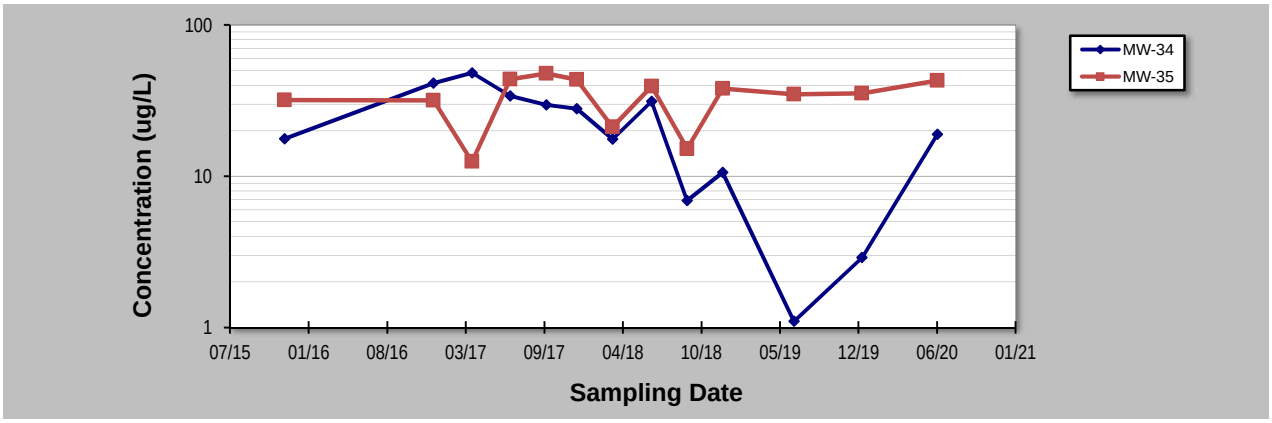
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably 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.

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GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	June 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								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.66	0.33					
Mann-Kendall Statistic (S):		-42	4					
Confidence Factor:		99.5%	57.1%					
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.
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